



- Pulse Counters and Preset Counters
- Hour Meters and Timers
- Frequency Meters and Tachometers
- Combination Time and Energy Meters
- Position Displays
- Process Displays and Controllers for Temperature, Analog Signals and Strain-Gauge
- Setpoint Adjuster

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The company

Kübler Service

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# Our Pulses for Innovations



The Kübler Group belongs today to the leading specialists worldwide in the fields of position and motion sensors, functional safety, counting and process technology and transmission technology.

Founded in the year 1960 by Fritz Kübler, the family business is now led by the next generation of Gebhard and Lothar Kübler.

Ten international group members and distributors in more than 50 countries offer local product know-how, service and advice throughout the world.

Innovative product and sector solutions, as well as solutions for functional safety and a high level of service, are the reasons behind our global success.

The strict focus on quality ensures the highest levels of reliability and a long service life for our products in the field.

Over 480 dedicated people worldwide make this success possible and ensure that customers can continue to place their trust in our company.



# Kübler Service for worldwide Planning Reliability



## 24one 24one delivery promise

Manufacturing in 24 hours. For orders placed on working days before 9 AM, the product will be ready for dispatch on that same day. 24one is limited to 20 pieces per delivery.

## 10 by 10

We will manufacture and deliver 10 encoders within 10 working days (365 days a year - with the exception of 24th Dec. until 2nd Jan.)

## 48 h 48 h Express-Service

We can process your order within 48 hours; we can ship stock items the same day.

## Technical Support

Kübler' applications team is present on site all over the world for advice, analysis and support.

Kübler Germany / Austria ..... +49 7720 3903 952  
 Kübler France ..... +33 3 89 53 45 45  
 Kübler Italy ..... +39 026 423 345  
 Kübler Poland ..... +48 61 84 99 902



## Sample Service

We manufacture samples of special designs or according to customer specification within shortest time.



## Safety Services

- Adapted service packages
- Individual customer solutions



## Tailor-made Solutions – Kübler Design System (KDS) OEM Products and Systems (OPS)

We develop jointly with our customers product and engineering solutions for customer-specific products, integrated drive solutions, up to complete systems.

Kübler Turkey ..... +90 216 999 9791  
 Kübler China ..... +86 10 8471 0818  
 Kübler India ..... +91 2135 618200  
 Kübler USA ..... +1 855 583 2537

# Our Product Portfolio



## Position and Motion Sensors

- Incremental and absolute encoders
- Motor Feedback Systems
- Bearingless encoders
- Shaft copying systems
- Linear magnetic measuring systems
- Draw-wire encoders
- Inclinometers
- Connection technology

## Transmission Technology

- Slip rings, modular system
- Slip rings, bearingless modular system
- Slip rings, contactless transmission
- Slip rings, compact and low-maintenance
- Slip rings, Ethernet transmission
- Slip rings, High Current
- Optical fiber signal transmission modules
- Cables, connectors and pre-assembled cordsets

## Functional Safety

- Certified incremental and absolute encoders
- Certified explosion-protected encoders ATEX / IECEx
- Modules for safe drive monitoring
- Safe fieldbus gateways
- Safe speed monitors
- Adapted service packages
- Connection technology

## Counters and Process Devices

- Pulse counters and preset counters
- Hour meters and timers
- Frequency meters and tachometers
- Combination time and energy meters
- Position displays
- Process displays and controllers for temperature, analog signals and strain-gauge
- Setpoint adjuster

## We offer Solutions for the following Industries:



The high performance level and reliability of the Kübler products are based on our long experience in these demanding application sectors. Learn more about our application-specific solutions under:

[www.kuebler.com/industries](http://www.kuebler.com/industries)

## Counters and Process Devices

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## Product overview / Basics

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# Product overview

## Pulse counters electronic

		Pulse	Time	Frequency	Tachometer	Position	Serial interface (SI) Fieldbus (FB)	Presets: o = optocoupler; r = relay	Reset manual	Reset electrical	Programmable	Display	Number of digits	Dimensions front in mm [inch]	Panel cut-out in mm [inch]	Depth in mm [inch]	Temperature range in °C [°F]	Protection max.	Power supply	RoHS compliant	Approvals	Page
<b>LCD pulse counters</b>																						
	<b>Codix 130</b> adding or subtracting, AC/DC	•	-	-	-	-	-	-	•	•	-	LCD	8	48 x 24 [1.89 x 0.94]	45 x 22.2 [1.77 x 0.87]	47.7 [1.88]	-10...+60 [+14...+140]	IP65	Batt.	•	cULus	48
	<b>Codix 131</b> count direction or difference counter, AC/DC	•	-	-	-	-	-	-	•	•	-	LCD	8	48 x 24 [1.89 x 0.94]	45 x 22.2 [1.77 x 0.87]	47.7 [1.88]	-10...+60 [+14...+140]	IP65	Batt.	•	cULus	51
	<b>Codix 132</b> count direction, AC	•	-	-	-	-	-	-	•	•	-	LCD	8	48 x 24 [1.89 x 0.94]	45 x 22.2 [1.77 x 0.87]	47.7 [1.88]	-10...+60 [+14...+140]	IP65	Batt.	•	cULus	54
	<b>Codix 140</b> adding 0...9999999	•	-	-	-	-	-	-	•	•	-	LCD	7	48 x 24 [1.89 x 0.94]	45 x 22.2 [1.77 x 0.87]	47.7 [1.88]	-20...+65 [-4...+149]	IP65	DC	•	-	57
<b>LCD service counters</b>																						
	<b>Codix 142</b> service counter 0...9999999	•	-	-	-	-	1o	-	•	•	•	LCD	7	48 x 24 [1.89 x 0.94]	45 x 22.2 [1.77 x 0.87]	47.7 [1.88]	-20...+65 [-4...+149]	IP65	DC	•	-	57
<b>LED pulse counters</b>																						
	<b>Codix 520</b> adding	•	-	-	-	-	-	-	•	•	•	LED	6	48 x 24 [1.89 x 0.94]	45 x 22.2 [1.77 x 0.87]	59 [2.32]	-20...+65 [-4...+149]	IP65	DC	•	cULus	60
	<b>Codix 521</b> 6 count modes	•	-	-	-	-	1o	-	•	•	•	LED	6	48 x 24 [1.89 x 0.94]	45 x 22.2 [1.77 x 0.87]	59 [2.32]	-20...+65 [-4...+149]	IP65	DC	•	cULus	63
	<b>Codix 524</b> multifunctional	•	•	•	•	-	1o	-	•	•	•	LED	6	48 x 24 [1.89 x 0.94]	45 x 22.2 [1.77 x 0.87]	59 [2.32]	-20...+65 [-4...+149]	IP65	DC	•	cULus	240
	<b>Codix 52U</b> with dual functions in 4 combinations	•	•	•	•	-	-	-	•	•	•	LED	6	48 x 24 [1.89 x 0.94]	45 x 22.2 [1.77 x 0.87]	59 [2.32]	-20...+65 [-4...+149]	IP65	DC	•	cULus	250
	<b>Codix 52P + Frequency</b> 6 count modes	•	-	•	•	-	-	-	•	•	•	LED	6	48 x 24 [1.89 x 0.94]	45 x 22.2 [1.77 x 0.87]	59 [2.32]	-20...+65 [-4...+149]	IP65	DC	•	cULus	254
	<b>Codix 52T / 52C</b> 2 totalizers with separate scaling; 52C with separate inputs	•	-	-	-	-	-	-	•	•	•	LED	6	48 x 24 [1.89 x 0.94]	45 x 22.2 [1.77 x 0.87]	59 [2.32]	-20...+65 [-4...+149]	IP65	DC	•	cULus	66 / 69
	<b>Codix 540</b> adding	•	-	-	-	-	-	-	•	•	•	LED	6	96 x 48 [3.78 x 1.89]	92 x 45 [3.62 x 1.77]	83 [3.27]	-20...+65 [-4...+149]	IP65	AC/DC	•	cULus	72
	<b>Codix 541</b> 6 count modes	•	-	-	-	-	1o	-	•	•	•	LED	6	96 x 48 [3.78 x 1.89]	92 x 45 [3.62 x 1.77]	83 [3.27]	-20...+65 [-4...+149]	IP65	AC/DC	•	cULus	75
	<b>Codix 544</b> multifunctional	•	•	•	•	-	1o	-	•	•	•	LED	6	96 x 48 [3.78 x 1.89]	92 x 45 [3.62 x 1.77]	83 [3.27]	-20...+65 [-4...+149]	IP65	AC/DC	•	cULus	244
	<b>Codix 54U</b> with dual functions in 4 combinations	•	•	•	•	-	-	-	•	•	•	LED	6	96 x 48 [3.78 x 1.89]	92 x 45 [3.62 x 1.77]	83 [3.27]	-20...+65 [-4...+149]	IP65	AC/DC	•	cULus	258
	<b>Codix 54P + Frequency</b> 6 count modes	•	-	•	•	-	-	-	•	•	•	LED	6	96 x 48 [3.78 x 1.89]	92 x 45 [3.62 x 1.77]	83 [3.27]	-20...+65 [-4...+149]	IP65	AC/DC	•	cULus	261
<b>LCD touch counter</b>																						
	<b>571T</b> multifunctional (also reciprocal) analog output, serial interface	•	•	•	•	•	SI FB	4 o 2 r	•	•	•	LCD Touch	8	96 x 48 [3.78 x 1.89]	92 x 45 [3.62 x 1.77]	120 [4.72]	-20...+60 [-4...+140]	IP65	AC/DC	•	-	247
<b>LCD modules</b>																						
	<b>190</b> PCB mounting	•	-	-	-	-	-	-	•	-	-	LCD	7	32 x 18 [1.26 x 0.71]	-	5 [0.2]	-40...+80 [-40...+176]	-	DC	•	-	78
	<b>192</b> PCB mounting	•	-	-	-	-	-	-	•	-	-	LCD	6	32 x 18 [1.26 x 0.71]	-	5 [0.2]	-40...+85 [-40...+185]	-	DC	•	-	80

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# Product overview

## Pulse counters electromechanical

		Pulse	Time	kWh	Panel mounting	PCB mounting	Base mounting	DIN rail mounting	Reset	Number of digits	Dimensions in mm [inch]	Panel cut-out in mm [inch] (for front panel version)	Temperature range in °C [°F]	Protection max.	Supply type	RoHS compliant	Approvals	Page	
<b>Micro counters</b>																			
	<b>K 46 / K 47</b> high shock resistance	•	-	-	•	•	-	-	-	6 / 7	30x20 [1.18 x 0.79] panel mount	27x14 [1.06 x 0.55]	-10...+60 [+14...+140]	IP65	DC	•	-	82	
	<b>K 66 / K 67</b> high shock resistance, magnetic field resistant	•	-	-	•	•	-	-	-	6 / 7	30x20 [1.18 x 0.79] panel mount	27x14 [1.06 x 0.55]	-10...+60 [+14...+140]	IP65	DC	•	-	85	
	<b>K 04 / K 05</b> high shock resistance	•	-	-	•	•	-	-	-	4 / 5	26x15 [1.02 x 0.59] panel mount	24x13 [0.94 x 0.51]	-10...+60 [+14...+140]	IP65	AC/DC	•	cULus	88	
	<b>K 06 / K 07 / AK 07</b> high shock resistance	•	-	-	•	•	•	-	-	6 / 7	32x15 [1.26 x 0.59] panel mount	30x13 [1.18 x 0.51]	-10...+60 [+14...+140]	IP65	AC/DC	•	cULus	88	
	<b>SK 07</b> high shock resistance, for DIN rail	•	-	-	-	-	•	•	-	7	30x65 [1.18 x 2.56]	-	-10...+60 [+14...+140]	IP50	AC/DC	•	cULus	94	
<b>Mini counters</b>																			
	<b>W 15</b> also in DIN format 48x24 mm [1.89 x 0.94"]	•	-	-	•	-	-	-	manual	5	from 34x23 [1.34 x 0.91]	from 31x20 [1.22 x 0.79]	-10...+50 [+14...+122]	IP40	AC/DC	•	-	96	
	<b>W 16 / W 17</b> also in DIN format 48x24 mm [1.89 x 0.94"]	•	-	-	•	•	-	-	-	6 / 7	from 34x23 [1.34 x 0.91]	from 31x20 [1.22 x 0.79]	-10...+50 [+14...+122]	IP41	AC/DC	•	-	99	
<b>Standard counters</b>																			
	<b>Bk 14</b> Very long service life	•	-	-	•	-	-	-	manual	4	from 37x28 [1.46 x 1.10]	from 33.3x25 [1.31 x 0.98]	-10...+60 [+14...+140]	IP40 IP41	AC/DC	•	-	102	
	<b>B 16 / B 18</b> Very long service life	•	-	-	•	-	-	• <sup>1)</sup>	manual (only B16)	6 / 8	from 50x25 [1.97 x 0.98]	50x25 [1.97 x 0.98]	-10...+60 [+14...+140]	IP40 IP41	AC/DC	•	-	104	
	<b>Mk 14 / Mk 16</b> Very long service life	•	-	-	•	-	-	-	manual electrical	4 / 6	from 37x26 [1.46 x 1.02]	from 33.3x22 [1.31 x 0.87]	-10...+45 [+14...+113]	IP40 IP41	AC/DC	•	-	110	
<b>Dual function counters</b>																			
	<b>HC 77</b> combination hour meter and totalizer	•	•	-	•	-	-	-	-	2x7	from 48x48 [1.89 x 1.89]	45x45 [1.77 x 2.78] ø50.5 [1.99]	-15...+50 [+5...+122]	IP65	AC/DC	•	cULus	208	
	<b>SHC 77</b> combination hour meter and totalizer	•	•	-	-	-	-	•	-	2x7	48.5x61.5 [1.91 x 2.42]	-	-15...+50 [+5...+122]	IP52	AC/DC	•	cULus	211	
	<b>HW 66 / HW 66 M</b> combination hour meter and energy meter	-	•	•	•	-	-	• <sup>1)</sup>	-	2x6	from 48x48 [1.89 x 1.89]	45x45 [1.77 x 2.78] ø50 [1.97]	-20...+55 [-4...+131]	IP65	AC	•	-	266	


1) With mounting frame

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# Product overview




## Pulse counters pneumatic

### Pneumatic counters


	Panel mounting	PCB mounting	Base mounting	DIN rail mounting	Reset	Number of digits	Panel cut-out in mm [inch] (for front panel version)	Signal	Protection max.	Count frequency max. in Hz	RoHS compliant	Page
	•	-	-	-	manual (PMk 14, PMk 16)	4/6/8	33.3x22 [1.31 x 0.87] 48x24 [1.89 x 0.94]	L signal = 1.5...8 bar O signal ≤ 0.15 bar	IP41	17 / 50	•	114

## Preset counters electronic




### LCD preset counters

	Pulse Time	Frequency	Tachometer	Position	Serial interface (SI) Fieldbus (FB)	Presets: o = optocoupler; r = relay	Reset manual	Reset electrical	Programmable	Display	Number of digits	Dimensions front in mm [inch]	Panel cut-out in mm [inch]	Depth in mm [inch]	Temperature range in °C [°F]	Protection max.	Power supply	RoHS compliant	Approvals	Page
	•	•	-	-	-	1r	•	•	•	LCD	2x6	48x48 [1.89 x 1.89]	45x45 [1.77 x 1.77]	63.2 [2.49]	-20...+65 [-4...+149]	IP65	batt.	•	CE RoHS US	120
	•	•	-	-	•	1r 2r	•	•	•	LCD/ LED Look	2x6	48x48 [1.89 x 1.89]	45x45 [1.77 x 1.77]	91 [3.58]	-10...+50 [+14...+122]	IP65	AC/DC	•	-	124
	•	•	•	•	-	up to 4r 6o	•	•	•	LCD/ LED Look	2x6	48x48 [1.89 x 1.89]	45x45 [1.77 x 1.77]	91 [3.58]	-20...+65 [-4...+149]	IP65	AC/DC	•	CE RoHS US	127

### LCD touch preset counter

	•	•	•	•	SI FB	4o 2r	•	•	•	LCD Touch	8	96x48 [3.78 x 1.89]	92x45 [3.62 x 1.77]	120 [4.72]	-20...+60 [-4...+140]	IP65	AC/DC	•	-	247
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### LED preset counters

	•	•	•	•	SI FB	2r	•	•	•	LED	6	96x48 [3.78 x 1.89]	92x45 [3.62 x 1.77]	91 [3.58]	-20...+65 [-4...+149]	IP65	AC/DC	•	CE RoHS US	134	
	•	-	-	-	•	SI	4o	•	•	•	LED	6/8	96x48 [3.78 x 1.89]	92x45 [3.62 x 1.77]	141 [5.55]	0...+45 [+32...+113]	IP65	AC/DC	•	-	139
	•	-	-	-	•	SI	4o	•	•	•	LED	6/8	96x48 [3.78 x 1.89]	92x45 [3.62 x 1.77]	141 [5.55]	0...+45 [+32...+113]	IP65	AC/DC	•	-	142

# Product overview

## Preset counters electromechanical

### Standard counters

	Pulse	Time	Panel mounting	PCB mounting	Base mounting	DIN rail mounting	Presets	Reset	Number of digits	Dimensions in mm [inch]	Panel cut-out in mm [inch] (for front panel version)	Temperature range in °C [°F]	Protection max.	Supply type	RoHS compliant	Page
 <b>BVa 15</b> adding with preset constantly visible	•	–	•	–	–	• <sup>1)2)</sup>	1	manual	2 x 5	from 50 x 50 [1.97 x 1.97]	50 x 50 [1.97 x 1.97]	-10...+60 [+14...+140]	IP40	AC/DC	•	145
 <b>MVs 13</b> subtracting	•	–	•	–	–	–	1	manual electrical	2 / 3	from 39 x 55 [1.54 x 2.17]	33.3 x 50 [1.31 x 1.97]	-10...+45 [+14...+113]	IP40	AC/DC	•	150
 <b>MVs 16</b> subtracting	•	–	•	–	–	• <sup>1)</sup>	1	manual electrical	6	from 50 x 50 [1.97 x 1.97]	50 x 50 [1.97 x 1.97]	-10...+45 [+14...+113]	IP40	AC/DC	•	154

1) With mounting frame G300003.

2) With DIN rail mount G300002.

# Product overview

## Hour meter Timer electronic

		Pulse	Time	Frequency	Tachometer	Position	Serial interface (SI) Fieldbus (FB)	Presets: o = optocoupler; r = relay	Reset manual	Reset electrical	Programmable	Display	Number of digits	Dimensions front in mm [inch]	Panel cut-out in mm [inch]	Depth in mm [inch]	Temperature range in °C [°F]	Protection max.	Power supply	RoHS compliant	Approvals	Page
<b>LCD hour meters</b>																						
	<b>Codix 134</b> 99999h59m or 99999.99h	-	•	-	-	-	-	-	•	•	-	LCD	7	48x24 [1.89 x 0.94]	45x22.2 [1.77 x 0.87]	47.7 [1.88]	-10...+60 [+14...+140]	IP65	Batt.	•	CE, UL, US	158
	<b>Codix 135</b> 9999h59m59s or 9999999.9s	-	•	-	-	-	-	-	•	•	-	LCD	8	48x24 [1.89 x 0.94]	45x22.2 [1.77 x 0.87]	47.7 [1.88]	-10...+60 [+14...+140]	IP65	Batt.	•	CE, UL, US	161
	<b>Codix 141</b> 99999.99h	-	•	-	-	-	-	-	•	•	-	LCD	7	48x24 [1.89 x 0.94]	45x22.2 [1.77 x 0.87]	47.7 [1.88]	-20...+65 [-4...+149]	IP65	DC	•	-	164
<b>LCD service timer</b>																						
	<b>Codix 143</b> service timer 99999.99h	-	•	-	-	-	1o	•	•	•	LCD	7	48x24 [1.89 x 0.94]	45x22.2 [1.77 x 0.87]	47.7 [1.88]	-20...+65 [-4...+149]	IP65	DC	•	-	164	
<b>LED timers</b>																						
	<b>Codix 523</b> h, min, sec or hh.mm.ss	-	•	-	-	-	1o	•	•	•	LED	6	48x24 [1.89 x 0.94]	45x22.2 [1.77 x 0.87]	59 [2.32]	-20...+65 [-4...+149]	IP65	DC	•	CE, UL, US	167	
	<b>Codix 524</b> multifunctional	•	•	•	•	•	1o	•	•	•	LED	6	48x24 [1.89 x 0.94]	45x22.2 [1.77 x 0.87]	59 [2.32]	-20...+65 [-4...+149]	IP65	DC	•	CE, UL, US	240	
	<b>Codix 52U</b> with dual functions in 4 combinations	•	•	•	•	-	-	-	•	•	•	LED	6	48x24 [1.89 x 0.94]	45x22.2 [1.77 x 0.87]	59 [2.32]	-20...+65 [-4...+149]	IP65	DC	•	CE, UL, US	250
	<b>Codix 543</b> h, min, sec or hh.mm.ss	-	•	-	-	-	1o	•	•	•	LED	6	96x48 [3.78 x 1.89]	92x45 [3.62 x 1.77]	83 [3.27]	-20...+65 [-4...+149]	IP65	AC/DC	•	CE, UL, US	170	
	<b>Codix 544</b> multifunctional	•	•	•	•	•	1o	•	•	•	LED	6	96x48 [3.78 x 1.89]	92x45 [3.62 x 1.77]	83 [3.27]	-20...+65 [-4...+149]	IP65	AC/DC	•	CE, UL, US	244	
	<b>Codix 54U</b> with dual functions in 4 combinations	•	•	•	•	-	-	-	•	•	•	LED	6	96x48 [3.78 x 1.89]	92x45 [3.62 x 1.77]	83 [3.27]	-20...+65 [-4...+149]	IP65	AC/DC	•	CE, UL, US	258
<b>LCD time modules</b>																						
	<b>194</b> PCB mounting	-	•	-	-	-	-	-	•	-	LCD	6	32x18 [1.26 x 0.71]	-	5 [0.20]	-40...+80 [-40...+176]	-	DC	•	-	173	
	<b>198</b> PCB mounting	-	•	-	-	-	-	-	•	-	LCD	6	32x18 [1.26 x 0.71]	-	5 [0.20]	-40...+85 [-40...+185]	-	DC	•	-	175	

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# Product overview

## Hour meter Timer electromechanical

		Pulse	Time	kWh	Panel mounting	PCB mounting	Base mounting	DIN rail mounting	Reset	Number of digits	Dimensions in mm [inch]	Panel cut-out in mm [inch] (for front panel version)	Temperature range in °C [°F]	Protection max.	Supply type	RoHS compliant	Approvals	Page	
<b>Micro timers</b>																			
	<b>HK 47</b> high shock resistance	-	•	-	•	•	-	-	-	7	30x20 [1.18 x 0.79] panel mount	27x14 [1.06 x 0.55]	-10...+60 [+14...+140]	IP66	DC	•	-	177	
	<b>HK 07 / AHK 07</b> high shock and impact resistance	-	•	-	•	•	•	-	-	7	32x15 [1.26 x 0.59] panel mount	30x13 [1.18 x 0.51]	-10...+60 [+14...+140]	IP65	DC	•	-	179	
<b>Timers with DIN dimensions</b>																			
	<b>HK 17</b> small dimensions	-	•	-	•	-	-	-	-	7 / 8	from 37x26 [1.46 x 1.02]	33x22 [1.30 x 0.87]	-15...+50 [+5...+122]	IP65	AC/DC	•	UL US	182	
	<b>H 37</b> also in DIN format 48x24 mm [1.89 x 0.94"]	-	•	-	•	-	-	• <sup>1)</sup>	-	7 / 8	from 48x24 [1.89 x 0.94]	from 45x22 [1.77 x 0.87]	-15...+50 [+5...+122]	IP65	AC/DC	•	UL US	185	
	<b>H 57</b> DIN format 48x48 mm [1.89 x 1.89"]	-	•	-	•	-	-	-	-	7 / 8	from 48x24 [1.89 x 0.94]	45x45 [1.77 x 1.77] ø 60 [2.36]	-15...+50 [+5...+122]	IP65	AC/DC	•	UL US	189	
<b>Timers for DIN rail mounting</b>																			
	<b>AH 57</b> DIN format 48x48 mm [1.89 x 1.89"]	-	•	-	-	-	-	•	-	7 / 8	48.5x61.5 [1.91 x 2.40]	-	-15...+50 [+5...+122]	IP65	AC/DC	•	UL US	189	
	<b>SHK 07.1</b> high shock resistance	-	•	-	-	-	-	•	-	7	30x65 [1.18 x 2.56]	-	-10...+60 [+14...+140]	IP52	AC/DC	•	-	192	
	<b>SH 17</b> 36 mm wide	-	•	-	-	-	-	•	-	7	36x90 [1.42 x 3.54]	-	-10...+70 [+14...+158]	IP65	AC/DC	•	-	194	
<b>Timers, round design</b>																			
	<b>HR 47</b> opt. run indicator	-	•	-	•	-	-	-	-	7	ø 58 [2.28]	ø 50 [1.97]	-25...+80 [-13...+176]	IP65	AC/DC	•	-	196	
	<b>HR 76</b> high shock resistance	-	•	-	•	-	-	-	-	6	from ø 58.7 [2.31]	ø 50.8 [2.00]	-30...+65 [-22...+149]	IP65	AC/DC	•	UL US	198	
<b>Standard timers</b>																			
	<b>HB 26</b> plug-in version, long service life	-	•	-	•	-	-	• <sup>1)</sup>	manual	6	from 50x25 [1.97 x 0.98]	50x25 [1.97 x 0.98]	-15...+50 [+5...+122]	IP41	AC/DC	•	-	200	
	<b>HB 27</b> long service life	-	•	-	•	-	-	• <sup>1)</sup>	-	7	from 50x25 [1.97 x 0.98]	50x25 [1.97 x 0.98]	-15...+50 [+5...+122]	IP51	AC/DC	•	-	204	
<b>Dual function counters</b>																			
	<b>HC 77</b> combination hour meter and totalizer	•	•	-	•	-	-	-	-	2x7	from 48x48 [1.89 x 1.89]	45x45 [1.77 x 2.78] ø 50.5 [1.99]	-15...+50 [+5...+122]	IP65	AC/DC	•	UL US	208	
	<b>SHC 77</b> combination hour meter and totalizer	•	•	-	-	-	-	•	-	2x7	48.5x61.5 [1.91 x 2.40]	-	-15...+50 [+5...+122]	IP52	AC/DC	•	UL US	211	
	<b>HW 66 / HW 66 M</b> combination hour meter and energy meter	-	•	•	•	-	-	• <sup>1)</sup>	-	2x6	from 48x48 [1.89 x 1.89]	45x45 [1.77 x 2.78] ø 50 [1.97]	-20...+55 [-4...+131]	IP65	AC	•	-	266	









1) With mounting frame

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## Product overview


### Time preset counters electronic

#### LCD time preset counters

	Pulse	Time	Frequency	Tachometer	Position	Serial interface (SI) Fieldbus (FB)	Presets: o = optocoupler; r = relay	Reset manual	Reset electrical	Programmable	Display	Number of digits	Dimensions front in mm [inch]	Panel cut-out in mm [inch]	Depth in mm [inch]	Temperature range in °C [°F]	Protection max.	Power supply	RoHS compliant	Approvals	Page
	•	•	–	–	–	–	1r	•	•	•	LCD	2x6	48x48 [1.89 x 1.89]	45x45 [1.77 x 1.77]	63.2 [2.49]	-20...+65 [-4...+149]	IP65	Batt.	•	c  us	120
	•	•	–	–	•	–	1r 2r	•	•	•	LCD/ LED Look	2x6	48x48 [1.89 x 1.89]	45x45 [1.77 x 1.77]	91 [3.58]	-10...+50 [+14...+122]	IP65	AC/DC	•	–	124
	•	•	•	•	•	–	up to 4r 6o	•	•	•	LCD/ LED Look	2x6	48x48 [1.89 x 1.89]	45x45 [1.77 x 1.77]	91 [3.58]	-20...+65 [-4...+149]	IP65	AC/DC	•	c  us	127
<b>LED time preset counter</b>																					
	•	•	•	•	•	SI FB	2r	•	•	•	LED	6	96x48 [3.78 x 1.89]	92x45 [3.62 x 1.77]	91 [3.58]	-20...+65 [-4...+149]	IP65	AC/DC	•	c  us	134
<b>LCD touch time preset counter</b>																					
	•	•	•	•	•	SI FB	4o 2r	•	•	•	LCD touch	8	96x48 [3.78 x 1.89]	92x45 [3.62 x 1.77]	120 [4.72]	-20...+60 [-4...+140]	IP65	AC/DC	•	–	247

### Time preset counters electromechanical

#### Standard time preset counter

	Pulse	Time	Panel mounting	PCB mounting	Base mounting	DIN rail mounting	Presets	Reset	Number of digits	Dimensions in mm [inch]	Panel cut-out in mm [inch] (for front panel version)	Temperature range in °C [°F]	Protection max.	Supply type	RoHS compliant	Page
	–	•	•	–	–	• <sup>1)</sup>	1	manual	2 x 5	from 50 x 50 [1.97 x 1.97]	50 x 50 [1.97 x 1.97]	-15...+50 [+5...+122]	IP42	AC/DC	•	213

1) With mounting frame G300003 or DIN rail mount G300002.

# Product overview

## Frequency display Tachometer

		Pulse	Time	Frequency	Tachometer	Position	Serial interface (SI) Fieldbus (FB)	Presets: o = optocoupler; r = relay	Reset manual	Reset electrical	Programmable	Display	Number of digits	Dimensions front in mm [inch]	Panel cut-out in mm [inch]	Depth in mm [inch]	Temperature range in °C [°F]	Protection max.	Power supply	RoHS compliant	Approvals	Page
<b>LCD frequency display</b>																						
	<b>Codix 136</b> in Hz	-	-	•	•	-	-	-	-	-	-	LCD	8	48x24 [1.89 x 0.94]	45x22.2 [1.77 x 0.87]	47.7 [1.88]	-10...+60 [-4...+140]	IP65	Batt.	•	c RU US	218
<b>LED frequency displays</b>																						
	<b>Codix 522</b> 1/sec or 1/min	-	-	•	•	-	-	1o	•	•	•	LED	6	48x24 [1.89 x 0.94]	45x22.2 [1.77 x 0.87]	59 [2.32]	-20...+65 [-4...+149]	IP65	DC	•	c RU US	221
	<b>Codix 524</b> multifunctional	•	•	•	•	-	-	1o	•	•	•	LED	6	48x24 [1.89 x 0.94]	45x22.2 [1.77 x 0.87]	59 [2.32]	-20...+65 [-4...+149]	IP65	DC	•	c RU US	240
	<b>Codix 52U</b> with dual functions in 4 combinations	•	•	•	•	-	-	-	•	•	•	LED	6	48x24 [1.89 x 0.94]	45x22.2 [1.77 x 0.87]	59 [2.32]	-20...+65 [-4...+149]	IP65	DC	•	c RU US	250
	<b>Codix 52P + Frequency</b> 6 count modes	•	-	•	•	-	-	-	•	•	•	LED	6	48x24 [1.89 x 0.94]	45x22.2 [1.77 x 0.87]	59 [2.32]	-20...+65 [-4...+149]	IP65	DC	•	c RU US	254
	<b>Codix 542</b> 1/sec or 1/min	-	-	•	•	-	-	1o	•	•	•	LED	6	96x48 [3.78 x 1.89]	92x45 [3.62 x 1.77]	83 [3.27]	-20...+65 [-4...+149]	IP65	AC/DC	•	c RU US	224
	<b>Codix 544</b> multifunctional	•	•	•	•	-	-	1o	•	•	•	LED	6	96x48 [3.78 x 1.89]	92x45 [3.62 x 1.77]	83 [3.27]	-20...+65 [-4...+149]	IP65	AC/DC	•	c RU US	244
	<b>Codix 54U</b> with dual functions in 4 combinations	•	•	•	•	-	-	-	•	•	•	LED	6	96x48 [3.78 x 1.89]	92x45 [3.62 x 1.77]	83 [3.27]	-20...+65 [-4...+149]	IP65	AC/DC	•	c RU US	258
	<b>Codix 54P + Frequency</b> 6 count modes	•	-	•	•	-	-	-	•	•	•	LED	6	96x48 [3.78 x 1.89]	92x45 [3.62 x 1.77]	83 [3.27]	-20...+65 [-4...+149]	IP65	AC/DC	•	c RU US	261

## Frequency displays Tachometers with limits

		Pulse	Time	Frequency	Tachometer	Position	Serial interface (SI) Fieldbus (FB)	Presets: o = optocoupler; r = relay	Reset manual	Reset electrical	Programmable	Display	Number of digits	Dimensions front in mm [inch]	Panel cut-out in mm [inch]	Depth in mm [inch]	Temperature range in °C [°F]	Protection max.	Power supply	RoHS compliant	Approvals	Page
<b>LCD tachometer (with multicolor, LED look)</b>																						
	<b>Codix 923 / 924</b> multicolor display, decade keyboard, count frequency 65 kHz	•	•	•	•	-	-	up to 4 r 6 o	•	•	•	LCD/ LED Look	2x6	48x48 [1.89 x 1.89]	45x45 [1.77 x 1.77]	91 [3.58]	-20...+65 [-4...+149]	IP65	AC/DC	•	c RU US	127
<b>LED tachometers with limits</b>																						
	<b>Codix 560</b> LED multifunction preset counters, 14 segment LED, automatic help texts, opt. serial interface	•	•	•	•	•	SI FB	2 r	•	•	•	LED	6	96x48 [3.78 x 1.89]	92x45 [3.62 x 1.77]	91 [3.58]	-20...+65 [-4...+149]	IP65	AC/DC	•	c RU US	134
	<b>574</b> dual frequency display 4 outputs, analog output, serial interface	-	-	•	•	-	SI	4 o	•	•	•	LED	6	96x48 [3.78 x 1.89]	92x45 [3.62 x 1.77]	141 [5.55]	0...+45 [+32...+113]	IP65	AC/DC	•	-	227
<b>LCD touch tachometers with limits</b>																						
	<b>571T</b> multifunctional (also reciprocal) analog output, serial interface	•	•	•	•	•	SI FB	4 o 2 r	•	•	•	LCD touch	8	96x48 [3.78 x 1.89]	92x45 [3.62 x 1.77]	120 [4.72]	-20...+60 [-4...+140]	IP65	AC/DC	•	-	247



# Product overview

## Position displays

### LCD position display

	Pulse	Time	Frequency	Tachometer	Position (incremental = i; SSI = s)	Serial interface (SI)	Fieldbus (FB)	Presets: o = optocoupler; r = relay	Reset manual	Reset electrical	Programmable	Display	Number of digits	Dimensions front in mm [inch]	Panel cut-out in mm [inch]	Depth in mm [inch]	Temperature range in °C [°F]	Protection max.	Power supply	RoHS compliant	Approvals	Page
 <b>Codix 133</b> phase discriminator (quadrature) x1 and x2 evaluation	-	-	-	-	i	-	-	-	•	•	-	LCD	8	48 x 24 [1.89 x 0.94]	45 x 22.2 [1.77 x 0.87]	47.7 [1.88]	-10...+60 [+14...+140]	IP65	Batt.	•	CE, RoHS, UL	232

### LED position displays

 <b>Codix 521</b> 6 count modes	•	-	-	-	i	-	1o	•	•	•	-	LED	6	48 x 24 [1.89 x 0.94]	45 x 22.2 [1.77 x 0.87]	59 [2.32]	-20...+65 [-4...+149]	IP65	DC	•	CE, RoHS, UL	63
<b>Codix 524</b> multifunctional	•	•	•	•	i	-	1o	•	•	•	-	LED	6	48 x 24 [1.89 x 0.94]	45 x 22.2 [1.77 x 0.87]	59 [2.32]	-20...+65 [-4...+149]	IP65	DC	•	CE, RoHS, UL	240
<b>Codix 52P + Frequency</b> 6 count modes	•	-	•	•	i	-	-	•	•	•	-	LED	6	48 x 24 [1.89 x 0.94]	45 x 22.2 [1.77 x 0.87]	59 [2.32]	-20...+65 [-4...+149]	IP65	DC	•	CE, RoHS, UL	254
 <b>Codix 541</b> 6 count modes	•	-	-	-	i	-	1o	•	•	•	-	LED	6	96 x 48 [3.78 x 1.89]	92 x 45 [3.62 x 1.77]	83 [3.27]	-20...+65 [-4...+149]	IP65	AC/DC	•	CE, RoHS, UL	75
<b>Codix 544</b> multifunctional	•	•	•	•	i	-	1o	•	•	•	-	LED	6	96 x 48 [3.78 x 1.89]	92 x 45 [3.62 x 1.77]	83 [3.27]	-20...+65 [-4...+149]	IP65	AC/DC	•	CE, RoHS, UL	244
<b>Codix 54P + Frequency</b> 6 count modes	•	-	•	•	i	-	-	•	•	•	-	LED	6	96 x 48 [3.78 x 1.89]	92 x 45 [3.62 x 1.77]	83 [3.27]	-20...+65 [-4...+149]	IP65	AC/DC	•	CE, RoHS, UL	261

### LCD touch SSI position display

 <b>570T</b> SSI absolute encoder display, analog output, serial interface	-	-	-	-	s	SI FB	4 o 2 r	•	•	•	-	LCD touch	8	96 x 48 [3.78 x 1.89]	92 x 45 [3.62 x 1.77]	120 [4.72]	-20...+60 [-4...+140]	IP65	AC/DC	•	-	235
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## Position displays with limits

	Pulse	Time	Frequency	Tachometer	Position (incremental = i, SSI = s)	Serial interface (SI) Fieldbus (FB)	Presets: o = optocoupler; r = relay	Reset manual	Reset electrical	Programmable	Display	Number of digits	Dimensions front in mm [inch]	Panel cut-out in mm [inch]	Depth in mm [inch]	Temperature range in °C [°F]	Protection max.	Power supply	RoHS compliant	Approvals	Page
<b>LCD position preset counters (optional with multicolor, LED look)</b>																					
	•	•	-	-	i	-	1r 2r	•	•	•	LCD/ LED Look	2x6	48x48 [1.89 x 1.89]	45x45 [1.77 x 1.77]	91 [3.58]	-10...+50 [+14...+122]	IP65	AC/DC	•	-	124
	•	•	•	•	i	-	up to 4r 6o	•	•	•	LCD/ LED Look	2x6	48x48 [1.89 x 1.89]	45x45 [1.77 x 1.77]	91 [3.58]	-20...+65 [-4...+149]	IP65	AC/DC	•	UL US	127
<b>LCD touch position preset counters</b>																					
	-	-	-	-	s	SI FB	4o 2r	•	•	•	LCD touch	8	96x48 [3.78 x 1.89]	92x45 [3.62 x 1.77]	120 [4.72]	-20...+60 [-4...+140]	IP65	AC/DC	•	-	235
	•	•	•	•	i	SI FB	4o 2r	•	•	•	LCD touch	8	96x48 [3.78 x 1.89]	92x45 [3.62 x 1.77]	120 [4.72]	-20...+60 [-4...+140]	IP65	AC/DC	•	-	247
<b>LED position preset counters</b>																					
	•	•	•	•	i	SI FB	2r	•	•	•	LED	6	96x48 [3.78 x 1.89]	92x45 [3.62 x 1.77]	91 [3.58]	-20...+65 [-4...+149]	IP65	AC/DC	•	UL US	134
	•	-	-	-	i	SI	4o	•	•	•	LED	6/8	96x48 [3.78 x 1.89]	92x45 [3.62 x 1.77]	141 [5.55]	0...+45 [+32...+113]	IP65	AC/DC	•	-	139
	•	-	-	-	s	SI	4o	•	•	•	LED	6/8	96x48 [3.78 x 1.89]	92x45 [3.62 x 1.77]	141 [5.55]	0...+45 [+32...+113]	IP65	AC/DC	•	-	142

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## Multifunction devices electronic

### LED multifunction displays

	Pulse	Time	Frequency	Tachometer	Position	Serial interface (SI) Fieldbus (FB)	Presets: o = optocoupler; r = relay	Reset manual	Reset electrical	Programmable	Display	Number of digits	Dimensions front in mm [inch]	Panel cut-out in mm [inch]	Depth in mm [inch]	Temperature range in °C [°F]	Protection max.	Power supply	RoHS compliant	Approvals	Page
 <b>Codix 524</b> multifunctional	•	•	•	•	•	–	1o	•	•	•	LED	6	48x24 [1.89 x 0.94]	45x22.2 [1.77 x 0.87]	59 [2.32]	-20...+65 [-4...+149]	IP65	DC	•	CE, RoHS, UL	240
 <b>Codix 544</b> multifunctional	•	•	•	•	•	–	1o	•	•	•	LED	6	96x48 [3.78 x 1.89]	92x45 [3.62 x 1.77]	83 [3.27]	-20...+65 [-4...+149]	IP65	AC/DC	•	CE, RoHS, UL	244


### LCD multifunction preset counters

 <b>901</b> 1 preset – pulse, time (battery)	•	•	–	–	–	–	1r	•	•	•	LCD	2x6	48x48 [1.89 x 1.89]	45x45 [1.77 x 1.77]	63.2 [2.49]	-20...+65 [-4...+149]	IP65	Batt.	•	CE, RoHS, UL	120
 <b>Codix 907 / 908</b> multicolor display (optional), decade keyboard, count frequency 5 kHz	•	•	–	–	•	–	1r 2r	•	•	•	LCD/ LED Look	2x6	48x48 [1.89 x 1.89]	45x45 [1.77 x 1.77]	91 [3.58]	-10...+50 [+14...+122]	IP65	AC/DC	•	–	124
 <b>Codix 923 / 924</b> multicolor display (optional), decade keyboard, count frequency 65 kHz	•	•	•	•	•	–	up to 4r 6o	•	•	•	LCD/ LED Look	2x6	48x48 [1.89 x 1.89]	45x45 [1.77 x 1.77]	91 [3.58]	-20...+65 [-4...+149]	IP65	AC/DC	•	CE, RoHS, UL	127



### LED multifunction preset counters

 <b>Codix 560</b> LED multifunction preset counters, 14 segment LED, automatic help texts, opt. serial interface	•	•	•	•	•	SI FB	2r	•	•	•	LED	6	96x48 [3.78 x 1.89]	92x45 [3.62 x 1.77]	91 [3.58]	-20...+65 [-4...+149]	IP65	AC/DC	•	CE, RoHS, UL	134
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### LCD touch multifunction preset counter

 <b>571T</b> multifunctional (also reciprocal) analog output, serial interface	•	•	•	•	•	SI FB	4o 2r	•	•	•	LCD touch	8	96x48 [3.78 x 1.89]	92x45 [3.62 x 1.77]	120 [4.72]	-20...+60 [-4...+140]	IP65	AC/DC	•	–	247
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### LED dual function displays

 <b>Codix 52U</b> with dual functions in 4 combinations	•	•	•	•	–	–	–	•	•	•	LED	6	48x24 [1.89 x 0.94]	45x22.2 [1.77 x 0.87]	59 [2.32]	-20...+65 [-4...+149]	IP65	DC	•	CE, RoHS, UL	250
<b>Codix 52P + Frequency</b> 6 count modes	•	–	•	•	•	–	–	•	•	•	LED	6	48x24 [1.89 x 0.94]	45x22.2 [1.77 x 0.87]	59 [2.32]	-20...+65 [-4...+149]	IP65	DC	•	CE, RoHS, UL	254
<b>Codix 52T</b> 2 counters with separate scaling	•	–	–	–	–	–	–	•	•	•	LED	6	48x24 [1.89 x 0.94]	45x22.2 [1.77 x 0.87]	59 [2.32]	-20...+65 [-4...+149]	IP65	DC	•	CE, RoHS, UL	66
<b>Codix 52C</b> 2 counters with separate inputs and separate scaling	•	–	–	–	–	–	–	•	•	•	LED	6	48x24 [1.89 x 0.94]	45x22.2 [1.77 x 0.87]	59 [2.32]	-20...+65 [-4...+149]	IP65	DC	•	CE, RoHS, UL	69
 <b>Codix 54U</b> with dual functions in 4 combinations	•	•	•	•	–	–	–	•	•	•	LED	6	96x48 [3.78 x 1.89]	92x45 [3.62 x 1.77]	83 [3.27]	-20...+65 [-4...+149]	IP65	AC/DC	•	CE, RoHS, UL	258
<b>Codix 54P + Frequency</b> 6 count modes	•	–	•	•	•	–	–	•	•	•	LED	6	96x48 [3.78 x 1.89]	92x45 [3.62 x 1.77]	83 [3.27]	-20...+65 [-4...+149]	IP65	AC/DC	•	CE, RoHS, UL	261

# Product overview

## Multifunction devices electromechanical

### Dual function counters


	Pulse	Time	kWh	Panel mounting	PCB mounting	Base mounting	DIN rail mounting	Reset	Number of digits	Dimensions in mm [inch]	Panel cut-out in mm [inch] (for front panel version)	Temperature range in °C [°F]	Protection max.	Supply type	RoHS compliant	Approvals	Page
	•	•	–	•	–	–	–	–	2x7	from 48x48 [1.89 x 1.89]	45x45 [1.77 x 1.77] ø 50.5 [1.99]	- 15 ... + 50 [+5 ... +122]	IP65	AC/DC	•		208
	•	•	–	–	–	–	•	–	2x7	48.5x61.5 [1.91 x 2.42]	–	- 15 ... + 50 [+5 ... +122]	IP52	AC/DC	•		211
	–	•	•	•	–	–	• 1)	–	2x6	from 48x48 [1.89 x 1.89]	45x45 [1.77 x 1.77] ø 50 [1.97]	- 20 ... + 55 [-4 ... +131]	IP65	AC	•	–	266

1) With mounting frame

# Product overview



## Energy meters

### Dual function counter

	Pulse	Time	kWh	Panel mounting	PCB mounting	Base mounting	DIN rail mounting	Reset	Number of digits	Dimensions in mm [inch]	Panel cut-out in mm [inch] (for front panel version)	Temperature range in °C [°F]	Protection max.	Supply type	RoHS compliant	Approvals	Page
	-	•	•	•	-	-	• <sup>2)</sup>	-	2x6	from 48x48 [1.89 x 1.89]	45x45 [1.77 x 1.77] ø 50 [1.97]	-20...+55 [-4...+131]	IP65	AC	•	-	266

## Process displays Process controllers Setpoint adjusters


### LED process displays

	Standard signal 0...20; 4...20 mA	Standard signal 0...10; 2...10V	Standard signal ± 10V	Serial interface (SI) Fieldbus (FB)	Input characteristic curve	S = control points	Presets/Limit values o = optocoupler; r = relay	Analog output	Display	Number of digits	Dimensions front in mm [inch]	Depth in mm [inch]	Temperature range in °C [°F]	Protection max.	Power supply	RoHS compliant	Approvals	Page
<b>new</b> 	•	•	-	-	linear	-	-	LED	5	48x24 [1.89 x 0.94]	59 [2.32]	-10...+50 [+14...+122]	IP65	DC	•	UL US	270	
	•	•	•	-	12 S	2r	•	LED	6	96x48 [3.78 x 1.89]	90.5 [3.56]	-20...+65 [-4...+149]	IP65	AC/DC	•	UL US	273	


### LED process controller

	•	•	•	-	12 S	2r	•	LED	6	96x48 [3.78 x 1.89]	90.5 [3.56]	-20...+65 [-4...+149]	IP65	AC/DC	•	UL US	273
---	---	---	---	---	------	----	---	-----	---	------------------------	----------------	--------------------------	------	-------	---	-------	-----

### LCD touch process controller









<b>new</b> 	•	•	•	SS FB	24 S	4 o 2 r	•	LCD touch	8	96x48 [3.78 x 1.89]	120 [4.72]	-20...+60 [-4...+140]	IP65	AC/DC	•	-	277
--	---	---	---	----------	------	------------	---	--------------	---	------------------------	---------------	--------------------------	------	-------	---	---	-----

### LED setpoint adjuster



	-	-	-	-	-	-	•	LED	4	48x24 [1.89 x 0.94]	59 [2.32]	-20...+65 [-4...+149]	IP65	DC	•	UL US	281
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# Product overview

## Temperature displays Temperature controllers






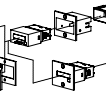



		Temperature Thermocouples	Temperature Resistance thermometers (RTDs)	mV/V sensors / strain gauge input	Input characteristic curve S = control points	Presets/Limit values o = optocoupler; r = relay	Analog output	Display	Number of digits	Dimensions front in mm [inch]	Depth in mm [inch]	Temperature range in °C [°F]	Protection max.	Power supply	RoHS compliant	Approvals	Page
<b>LED temperature displays</b>																	
	<b>Codix 531</b> Min / Max value detection	-	Pt100 Ni100	-	-	-	-	LED	5	48x24 [1.89 ... 0.94]	59 [2.32]	-20 ... +65 [-4 ... +149]	IP65	DC	•	c  US	288
	<b>Codix 532</b> Min / Max value detection	J; K; N	-	-	-	-	-	LED	5	48x24 [1.89 ... 0.94]	59 [2.32]	-20 ... +65 [-4 ... +149]	IP65	DC	•	c  US	291
	<b>Codix 564</b> Min / Max value detection, 2 limit values, analog output	B; E; J; K; N; R; S; T	Pt100 0...500 Ω	±100 mV	12 S	2r	•	LED	6	96x48 [3.78 ... 1.89]	90.5 [3.56]	-20 ... +65 [-4 ... +149]	IP65	AC/DC	•	c  US	294
<b>LED temperature controller</b>																	
	<b>Codix 564</b> Min / Max value detection, 2 limit values, analog output	B; E; J; K; N; R; S; T	Pt100 0...500 Ω	±100 mV	12 S	2r	•	LED	6	96x48 [3.78 ... 1.89]	90.5 [3.56]	-20 ... +65 [-4 ... +149]	IP65	AC/DC	•	c  US	294

## Strain-gauge controllers

		mV/V sensors / strain gauge input	Input characteristic curve S = control points	Presets/Limit values o = optocoupler; r = relay	Analog output	Display	Number of digits	Dimensions front in mm [inch]	Depth in mm [inch]	Temperature range in °C [°F]	Protection max.	Power supply	RoHS compliant	Approvals	Page
<b>LED strain-gauge controller</b>															
	<b>Codix 566</b> Min / Max value detection, 2 limit values with totalizer, tare, analog output	1.0 1.5 2.0 3.0 3.3 mV/V	12 S	2r	•	LED	6	96x48 [3.78 ... 1.89]	90.5 [3.56]	-20 ... +65 [-4 ... +149]	IP65	AC/DC	•	c  US	300

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Hour meters Timers
Frequency displays Tachometers
Position displays
Multifunction devices
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## Product overview

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## Counters / Process devices Introduction

### Counters / Process devices

#### Counting technology

Electromechanical counters in many versions, as well as miniature counters for PCB-mounting (our special area of competence), are ideal time and pulse counters for pumps, lifts, dryers, UV lamps, KWh meters and much more.

The Codix series offers functional, low-cost electronic display counters, position displays, timers and tachometers. Our electronic multifunction preset counters enable decentralised control and so reduce cycle times.

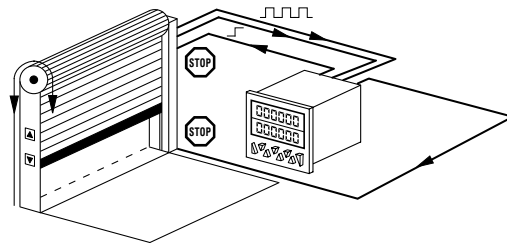
#### Process technology

The user-friendly, compact and functionally well thought through Codix process displays and controllers are ideal for all linear and non-linear analog signals.

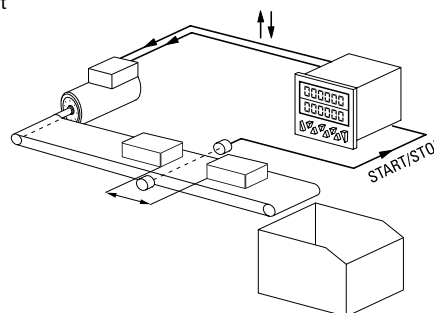
Together with our temperature displays and controllers, as well as our strain-gauge controllers and setpoint adjuster, they are used in a wide variety of applications.

### Application examples

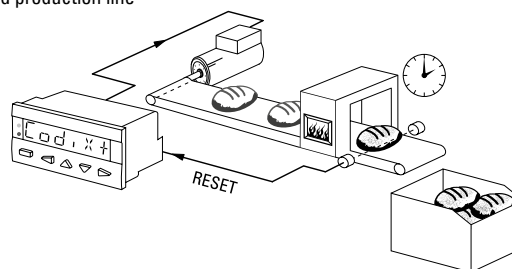
Roller shutter door with automatic shut-off



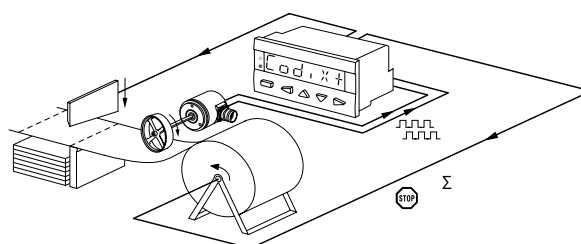
Interval measurement



Time-controlled production line



Cut-to-length with overall total count and control of the machine



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## Counters / Process devices Selection criteria

**Conformity** All counters and process devices carry the CE mark and are tested for electromagnetic compatibility and immunity to interference. The counters and process devices meet the requirements according to EN 61000-6-2, EN 61000-6-4, EN 61000-6-3 and EN 55011 (For details see the data sheets).

**Safety** Designed to EN 61010 part 1  
Protection class 2  
Application area pollution level 2

**Approvals** Many of our products are UL (Underwriters Laboratories Inc.) approved.  

Products in Ex proof version acc. to explosion-proof class EEX D IIC T6 or zone 2/22 on request. 

Kübler is active worldwide and has made a company commitment to protecting the environment. Our product range is RoHS compliant. 

**Special versions / Options** These are modifications of standard versions. The most common versions available are listed under the various type series (further options on request).

**Temperature** *Working temperature:* Temperature range of the environment, in which the device complies with the specifications shown in the data sheet. *Operating temperature:* Temperature range of the environment, in which the device can be operated, without suffering damage.

**Soiling and humidity** The IP classification according to EN 60529 describes how the encoder is protected against particles and water. It is described as an abbreviation "IP" followed by two numbers. The tables show an overview of the common types of IP protection.

**Protection against particles** (first digit)  
The higher the number, the smaller the particles.

<b>0</b>	Not protected
<b>1</b>	Protected against particles $\varnothing$ 50 mm and larger
<b>2</b>	Protected against particles $\varnothing$ 12.5 mm and larger
<b>3</b>	Protected against particles $\varnothing$ 2.5 mm and larger
<b>4</b>	Protected against particles $\varnothing$ 1.0 mm and larger
<b>5</b>	Protected against dust
<b>6</b>	Dust proof

**Protection against water** (second digit)  
The higher the number, the higher the water pressure can be.

<b>0</b>	Not protected
<b>1</b>	Protected against vertically falling drops of water
<b>2</b>	Protected against vertically falling drops of water when enclosure is tilted up to 15°
<b>3</b>	Protected against spraying water
<b>4</b>	Protected against splashing water
<b>5</b>	Protected against water jets
<b>6</b>	Protected against powerful water jets
<b>7</b>	Protected against the effects of temporary immersion in water
<b>8</b>	Protected against the effects of continuous immersion in water

**Kübler devices are available with a protection level up to IP66.**

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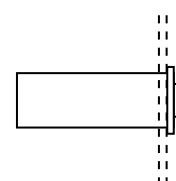

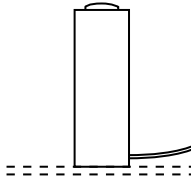

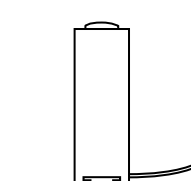

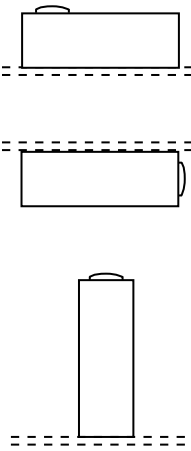
Process devices

Temperature  
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Counters / Process devices	Mounting options	
<p><b>Panel mount</b></p> <ul style="list-style-type: none"> <li>• Mounting in front panel cut-outs, control cabinet doors, housings etc.</li> <li>• Display on the front side</li> <li>• Various mounting options by means of a variety of front bezel adapters</li> <li>• Gaskets for increased protection levels available as accessories</li> <li>• Panel mounting offers protection of the connections</li> </ul> 		<p>Product overview Basics</p> <p>Pulse counters</p> <p>Preset counters</p>
<p><b>Base mount</b></p> <ul style="list-style-type: none"> <li>• Fixing onto the mounting plate</li> <li>• Display on the front side</li> <li>• High mechanical strength</li> <li>• Connections above the mounting plate</li> </ul> 		<p>Hour meters Timers</p> <p>Frequency displays Tachometers</p>
<p><b>DIN-rail mounting</b></p> <ul style="list-style-type: none"> <li>• Snap-on mounting on DIN-rail for counters with integrated DIN-rail fixing</li> <li>• Panel mount counters can be mounted via DIN-rail adapter, plug-in counters via DIN-rail socket</li> <li>• Display on the front side</li> </ul> 		<p>Position displays</p> <p>Multifunction devices</p>
<p><b>PCB mounting</b></p> <ul style="list-style-type: none"> <li>• Fixing via solder pins direct onto the PCB board, upright or lying</li> <li>• Flexible location of the display</li> <li>• Washable versions with high protection level</li> <li>• High temperature ranges – also suitable for machine soldering</li> </ul> 		<p>Energy meters</p> <p>Process devices</p> <p>Temperature devices</p> <p>Strain-gauge controllers</p> <p>Accessories Index</p>

## Electromechanical counters Versions

### Overview

Electromechanical counters are divided into:

- **Pulse counters**
- **Preset counters**
- **Hour meters / Timers**
- **Time preset counters**

The counter construction consists of an electromagnetic drive and a mechanical number wheel system. Electrical impulses cause a step-by-step advance of the number wheels.

Totalizing counters add the incoming pulses. They are manufactured without reset, with reset key (button) or with electrical reset. Smaller design counters are also available for battery operation with a low power consumption of 30 or 50 mW, and offer high shock and vibration resistance.

Product overview  
Basics

Pulse counters

Preset counters

### Pulse counters

These counters have no outputs activated at a specific count value. They are used purely to monitor the count value.

The function of the counters lies primarily in simple totalizing of the incoming pulses.

Example:



K 47



W 15

Hour meters  
Timers

### Preset counters

The purpose of preset counters is to trigger a signal at a particular count value. In the simplest instance this can mean just shutting down a machine, however it could also be the initialisation of control functions (e.g. cutting material to length, transporting parts etc.).

The outputs are suitable for switching large loads. The actual switching capacity depends on the model (counter) and can be seen in the data sheet. With most contacts a changeover function is available.

Example:



BVa 15

Frequency displays  
Tachometers

Position displays

#### Adding

The counter starts from zero and counts up to the programmed preset value, at which an output signal is triggered. The counter is then reset to zero - this can be programmed to happen automatically. The current count value is always displayed.

#### Subtracting

The counter starts from the preset value or from a separate setpoint and counts down to zero, at which an output signal is triggered. The counter is then reset to the preset value. The value displayed corresponds to the difference between the preset value and the count value.

Multifunction  
devices

Energy meters

### Hour meters / Timers

Timers measure the time in the unit of time, for which the device is laid out. With the electromechanical counters this time is displayed in hours with one or two decimal places.

Timing starts when the supply voltage is applied to the timer.

The time base is hours with either 1/10 or 1/100 h resolution (1/100 hours = 36 seconds)

Example:



H 57



H 37

Process devices

Temperature  
devices

### Time preset counters

Preset timers measure the time in the unit of time, for which the device is laid out. With the electromechanical counters this time is displayed in hours with one or two decimal places.

Timing starts when the supply voltage is applied to the timer.

The respective output is activated, as soon as the preset value is reached.

Example:



HVa 15

Strain-gauge  
controllers

Accessories  
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Electromechanical counters		Basic technical information		Product overview Basics
<b>Current type</b>	Our counters are all constructed for DC voltage. On AC voltages a rectifier is always required.	The maximum permissible voltage fluctuation for DC and AC is generally $\pm 10\%$ of the nominal voltage at maximum count frequencies.		Pulse counters
<b>Residual ripple</b>	Is the AC voltage superposed on the DC voltage in % $\frac{U_w}{U_g} \times 100\%$	$U_w$ = Effective value of superposed AC voltage $U_g$ = Arithmetical mean value of DC voltage		Preset counters
<b>Power consumption</b>	Is the power in W or VA that a pulse counter consumes at continuous pulse and rated voltage with unheated coil (20°C).			Hour meters Timers
<b>Maximum pulse frequency</b>	Is the maximum possible count frequency which the counter in question can consume in permanent operation.	It differs according to counter type and power consumption and is limited by the required pickup- and release times of the counting solenoid.		Frequency displays Tachometers
<b>Minimum pulse on time</b>	Is the period of time which is sufficient for accurate counting, even at permissible $\pm$ variation of operating voltage; the pulse interval can be optionally as long as required.			Position displays
<b>Minimum pulse interval</b>	Is the period of time which is sufficient for accurate counting.	Optimal spark quenching is imperative if high count frequency is required.		Multifunction devices
<b>Pulse ratio</b>	Is the ratio of $\frac{\text{pulse on time}}{\text{pulse interval}}$ at maximum count frequency			Energy meters
<b>On time ED</b>	States how long a coil may be energized without overheating. For the on time the following formula applies: $\text{ED \%} = \frac{\text{pulse on time}}{\text{pulse on time} + \text{pulse interval}} \times 100$ From this can be derived: $\text{pulse on time} = \frac{\text{ED \%}}{100 - \text{ED \%}} \times \text{pulse interval}$ $\text{pulse interval} = \frac{100 - \text{ED \%}}{\text{ED \%}} \times \text{pulse on time}$  <i>Example:</i> A count coil has the listed value ED = 15 %, max. 55 sec. This coil may therefore remain under constant current for max. 55 sec. After this a cooling interval of $\text{pulse interval} = \frac{100 - 15}{15} \times 55 \text{ sec} = 283 \text{ sec}$  <i>Result:</i> Since the on time does not exceed 15 % these pulse-on times are permissible.	In addition to the ED % figure the listed values include an addition concerning the maximum permanent on time. Therefore a coil may only be energized by a constant current during this period and then has to be cooled off again. At ED = 100% a limitation is not necessary as the coil will never become inadmissibly hot, even if continuously energized.  The same coil is constantly receiving pulses of 40 sec. duration with a count interval of 6 min. Is this still permissible? $\text{ED \%} = \frac{40}{40 + 360} \times 100 = 10\%$	Process devices Temperature devices	
<b>Operating temperature</b>	Is the permissible temperature within the direct vicinity of the pulse counter.	When using the counters in groups, the reciprocal heating must be taken into consideration as this results in an operating temperature rise. The upper or lower value is only applicable to the rated voltage.		Strain-gauge controllers Accessories Index

## Electromechanical counters

## Basic technical information

### Instructions for electromechanical pulse counters

DC voltage pulses without or with very small residual ripple are, for example, taken from a battery, DC generator, electronically stabilised power supply, according to the circuit above. These pulses are most suitable for the maximum possible frequencies due to their ideal square wave shape. If only AC voltage is available it must be rectified. Therefore, according to count speed, a more or less greater degree of residual ripple has to be put up with. A simple bridge-rectifier will give a residual ripple of approx. 48%, and the following relationship is applicable:

#### Pulse voltage

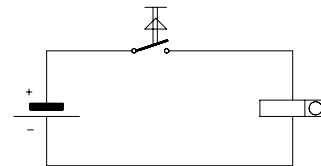
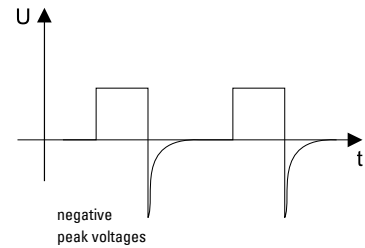
AC voltage (effective value)

12 24 48 60 110 220 V

DC voltage (arithm. mean value)

8.5 19.5 40 49 91 185 V

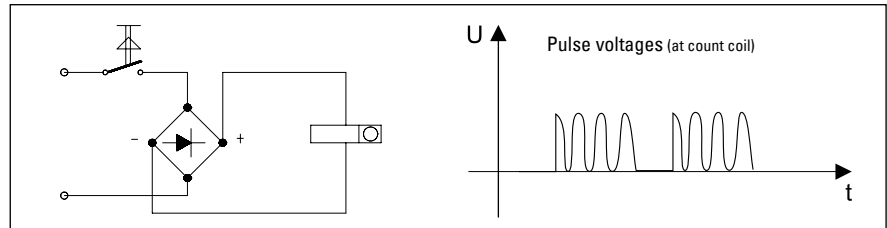
Pulse voltages (at count coil)



### Two types of switching circuits can be used to drive the counters

#### a) Pulse contact in AC circuit model a0 or a

This circuit is mostly used when the count speed is  $\leq 18$  Hz



#### Advantage:

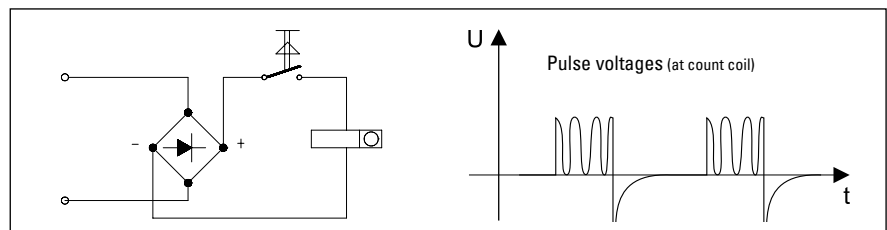
No spark required; contact bounces have no negative effect because the rectifier acts as spark quenching and provides inductive drop-out time lag.

#### Disadvantages:

Count speed only possible up to max. 18 Hz

#### b) Pulse contact in DC circuit model 05, 0, 1

With high pulse speeds smoothed DC must be used. The residual ripple (smoothing degree) is determined by the count speed and is stated in the technical specification.



#### Advantages:

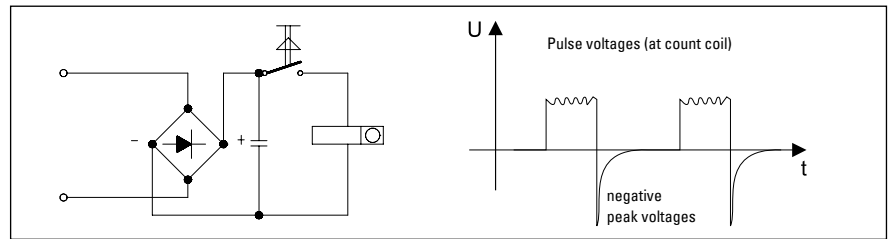
High count speed up to max. 25 Hz.  
Only one rectifier is necessary when driving several counters.

#### Disadvantages:

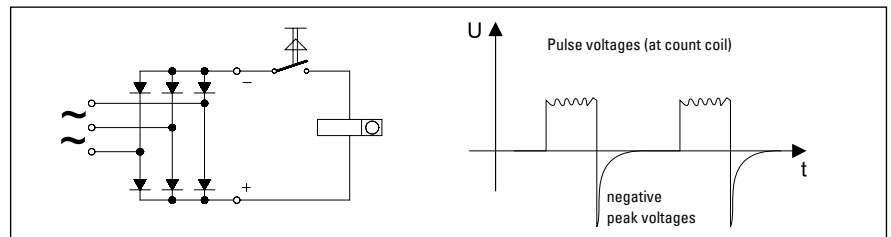
More sensitive to contact bounce, spark quenching is required. 4 connection points required if rectifier is built into counter.

## Electromechanical counters Basic technical information

Simple bridge circuit smoothing by capacitor:



3 phase AC bridge circuit, capacitor not required, residual ripple 4.2 %:



If the rectifiers are connected directly to AC mains, they can often become damaged due to 'contamination' from voltage spikes. These peak voltages are caused by the switching of transformers, spot welding machines, switching motors on and off etc; they often exceed the mains voltage by many times. Therefore it is essential to use a heavy duty rectifier or one with suppressor circuit, so that these peak voltages will not have any destructive effects in the long run.

This is particularly important in the case of silicon rectifiers which are very sensitive to short period excess voltages. It is advisable to use controlled avalanche silicon rectifiers for this purpose.

Rectifiers which we build in or attach to our pulse counters have to a large extent, a high dielectric strength, and an over voltage protection is provided, if required.

### Pulse generators

Appropriate pulse generators are required in order to achieve accurate count results. In this connection, it should be ensured that these operate as far as possible without bounce; this is particularly important for counters with high pulse rate. Cam operated spring contacts, limit switches and micro switches are suitable for count speeds up to

10 or 25 Hz, small relay contacts up to approx. 40 Hz, higher count speed up to 60 Hz can be achieved with reed switches, exact matching of spark quenching being necessary to avoid premature sticking of contact reeds. Even higher speeds can be obtained by using photoelectric or inductive sensors.

### Electrical reset

Counters with electrical reset have an electro-magnet which is operated by a reset pulse, and resets the number wheels back to the starting number. With remote reset via a pulse, the pulse duration must be long enough for the reset operation to be completed and for the minimum pulse duration to be maintained in accordance with the technical data of the counters. It is essential that during resetting no pulses may pass into the count mechanism, as otherwise intermediate positions of the number wheel or slippage of the drive mechanism can occur.

There is no danger of mechanical damage of the counter, however.

In order to avoid mistakes, the count pulses should only be allowed to enter, when the number wheels have been accurately adjusted and the drive mechanism is fully engaged. With remote reset a count interval of at least 50 msec after pulse end is required and thus the total count interval = reset pulse time + 50 msec.

### Spark quenching

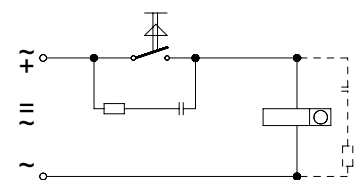
If the pulse contact is within the DC circuit of the counter, spark quenching is necessary in order to avoid any contact disturbance from the inductive breaking voltage.

Unfortunately, however, a more or less strong dropout delay is produced by the spark quenching and it should be checked in any case whether this will cause disturbance.

### Spark quenching with RC element

This spark quenching produces practically no disturbing dropout delay and is, therefore most suitable for all count speeds. It should preferably be used at very high count speeds.

In general the RC element is located in parallel with the contact in order to produce high frequency interference suppression at the same time. However, it can also be connected in parallel with the coil.

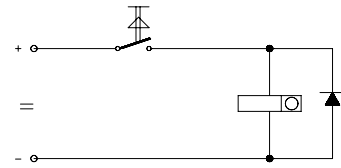


- Product overview Basics
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- Preset counters
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- Frequency displays Tachometers
- Position displays
- Multifunction devices
- Energy meters
- Process devices
- Temperature devices
- Strain-gauge controllers
- Accessories Index

## Electromechanical counters Basic technical information

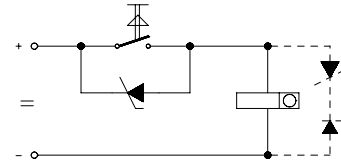
### Spark quenching with diodes

Considerable dropout delay, therefore only suitable for low count speeds up to 10 Hz. Particular attention should be paid to the correct polarity on connecting.  
The small fitting size is an advantage: e.g. this type of spark quenching can be used for resetting coils.



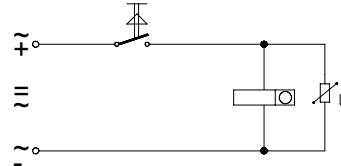
### Spark quenching with zener diodes

Low dropout delay, therefore suitable for higher count speeds because the diode only passes the inductive breaking current when the zener voltage is achieved. It is also suitable for the protection of transistor circuits, where correct polarity must be observed.



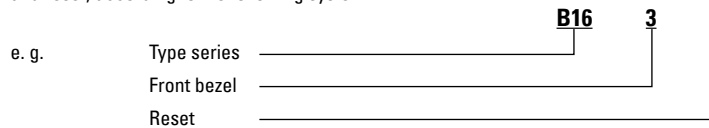
### Spark quenching with varistors

Varistors are voltage dependent resistors whose resistance decreases inertialessly and exponentially with rising voltage. They are therefore, suitable for spark quenching, the varistor ideally being connected in parallel with the coil. It is rated for the current to be approx. 1/10 of the coil current at nominal voltage.



### Identification of counter models

The design of the pulse counters is identified according to type series, version of front panel, and reset, according to the following system:



### Electromechanical standard ranges

Please refer to the technical data for the various counters

#### Front bezel

- 0** = no front bezel
- 1** = front bezel for panel with 2 mounting holes
- 2** = front bezel with mounting clip
- 3** = large front bezel for panel with 2 mounting holes

#### Reset

- 0** = without reset
- 1** = manual
- 2** = electrical
- 3** = manual and electrical

For further codes, please refer to the respective counters.

### Versions with coil

Max. possible frequency depends on the type of coil used:

Coil type	max. frequency
05	8 Hz at DC
0	10 Hz at DC
1	25 Hz at DC
a0	10 Hz at AC
a	18 Hz at AC

### General instructions

Selecting the right count frequency is important in order to achieve optimal service life.

If a counter is only required to operate at a maximum of 10 Hz, then one for 25 Hz should not be used. This is primarily because of the higher service life of the 10 Hz version compared to the 25 Hz model. In addition the 10 Hz counter has a higher duty cycle and a lower power consumption than the one for 25 Hz.

The choice of spark quenching is also very important, particularly at high count speeds (refer to section on spark quenching). RC element, silicon diodes and some varistors can be obtained from us.

Certain counter types are supplied with a built in spark quenching. The explanations given in the above paragraphs and the technical specifications of each counter should be noted carefully.

Electronic counters	Versions		Product overview Basics
<b>Overview</b>	Electronic counters can be divided into:		Pulse counters
	<ul style="list-style-type: none"> <li>• <b>Pulse counters</b></li> <li>• <b>Preset counters</b></li> <li>• <b>Hour meters / Timers</b></li> <li>• <b>Time preset counters</b></li> <li>• <b>Tachometers</b></li> <li>• <b>Position displays</b></li> </ul>		
<b>Pulse counters</b>	These counters have no outputs activated at a specific count value. They are used purely to monitor the count value.	Example:	Preset counters
	<p>The functions range from simple totalizing up to position display (with phase discriminator/quadrature). Depending on the speed of the events being counted, the count speed can go up to 100 kHz. More recent counters have a scale factor, which for example could be used to convert a length measured in inches into meters.</p>		Hour meters Timers
		Codix 130	
		Codix 520	
<b>Preset counters</b>	<p>The purpose of preset counters is to trigger a signal at a particular count value. In the simplest instance this can mean just shutting down a machine, however it could also be the initialisation of control functions (e.g. cutting material to length, transporting parts etc.).</p> <p>Relays, transistors or optocouplers are used as outputs. Relays are suitable for switching heavy loads (up to 2000 VA).</p> <p>The actual switching capacity depends on the model (counter) and can be seen in the data sheet. Most relays are available with a changeover function.</p>	Example:	Frequency displays Tachometers
			Position displays
		Codix 560	
		572	
			Multifunction devices
		901	
		Codix 923 / 924	
	<b>Adding</b>	<b>Subtracting</b>	Energy meters
	<p>The counter starts from zero and counts up to the programmed preset value, at which an output signal is triggered. The counter is then reset to zero - this can be programmed to happen automatically. The current count value is always displayed.</p>	<p>The counter starts from the preset value or from a separate setpoint and counts down to zero, at which an output signal is triggered. The counter is then reset to the preset value. The value displayed corresponds to the difference between the preset value and the count value.</p>	Process devices
<b>Hour meters / Timers</b>	<p>Timers measure the time in the unit of time, for which the device is laid out. With the electronic meters, the time base is programmable in hours, minutes or seconds or is displayed with two decimal places.</p>	Example:	Temperature devices
	<p>The resolution is determined by the decimal point. Here the smallest possible resolution is milliseconds when operating in the short time meter mode (stop watch function). A time base of hours, minutes and seconds can also be programmed. The time counting starts when the supply voltage is applied to the meter, or is controlled by means of pulses using either the time-interval measuring principle or the pulse width (gate time) principle, with one or two separate inputs.</p>		Strain-gauge controllers
		Codix 13x	
		571T Touch	
			Accessories Index
		Codix 52U	

## Electronic counters Versions

### Time preset counters

Preset timers measure the time in the unit of time, for which the device is laid out (see also timers).

With preset timers one, two, four or six outputs, as relay or optocoupler outputs, are additionally available.

A particular output is activated, as soon as a pre-selected value is reached. This can occur both in adding or subtracting mode. The signal duration is programmable either as a momentary (timed) pulse or as a maintained (latched) pulse.

Example:



Codix 923 / 924

### Tachometers

Tachometers measure pulses per unit of time, typically pulses per second with frequency measurements or pulses per minute with rotary speed measurement or production quantities and volumes.

Two different measurement principles are used:

- time-interval measurement, where the time between 2 pulses is measured
- gate time (time base), where the number of pulses within a certain time window is measured

The latest models use a mix of both principles, which offers a fast reaction time coupled with the greatest possible accuracy (HRA – High Rate Accuracy System).

Devices with limit values can be used for monitoring rotary speed or rate of production.

Example:



Codix 560



Codix 923 / 924



574

### Position displays

Position displays are devices, which measure pulses from rotary encoders or linear measurement systems, with incremental pulses or absolute position data.

These displayed position values can be scaled using pulse weighting, which means that the display can be converted to any desired magnitude.

Quadrature x1, x2 or x4 input pulse evaluation is available on displays that have incremental inputs.

Type 572 has 2 separate incremental inputs for HTL or TTL signals up to max. 1 MHz. The two values can be mathematically calculated with respect to each other.

Absolute systems are evaluated using the SSI protocol; singleturn as well as multiturn systems can be displayed and evaluated.

The Kübler SSI display has a fast clock frequency up to 1 MHz, suitable for our absolute encoders.

It has numerous programmable measurement functions, a freely scalable display, a scalable analog output, a serial interface and a up to 4 limit values.

Example:



571T Touch



572



Codix 52x



Codix 54x



Codix 92x



Codix 560

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## Electronic counters Basic technical information

### Display types

Electronic counters are differentiated according to their display type. The most common types of displays used today are liquid-crystal displays (LCD) and light-emitting diodes (LEDs).



#### LCD displays

LCD displays have the advantage of being very economical. They are available in both standard versions and in customised versions.

The advantage of the customised version is that as well as the count value, it is possible to display the preset value and also additional symbols such as, for example, the status of the outputs. With customised models, the height of the digits and the size of the display can be optimally laid out for the corresponding counter.

LCD displays also have the advantage that they are not affected by ambient light and for poorly lit environments they are available with built-in backlighting. Note however that backlit displays do have higher power consumption.



#### LCD touch displays

LCD displays have the advantage of being very economical. They are available in both standard versions and in customised versions.

The individually addressable pixels allow displaying graphics as well as fixed or scrolling text. The resistive touch technology used by Kübler allows operation also when wearing gloves. The flat front side is easy to clean; the device can therefore be used also in the food industry.

The touch display offers comprehensive plain text menu programming, allowing operation without operating instructions.

Backlighting allows displaying various colors that can be switched when reaching a limit value. This function allows better event visualization.



#### LED displays

LED displays are always employed, if units are to be used in environments with diffuse lighting.

Due to their self-luminous display, these models are also easy to read even from a long distance. For each segment, LED displays require a current of between 2 and 10 mA. For a 6-digit counter that could mean from 90 to 450 mA.

As a rule 7-segment displays are the norm, although 14-segment displays or alphanumeric displays can be used to display message texts – as with the Codix 56x multifunction counters and process devices.

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## Electronic counters

## Basic technical information

### Outputs

We offer our preset counters with various output options:

#### Relays, transistors and optocouplers

Relays should not be used when switching very small loads. Transistor or optocoupler outputs are better suited to operate the input of a controller. The design of both outputs is basically almost the same. However with the optocoupler, galvanic isolation is achieved between the unit (counter) and the peripheral (controller) because of an LED and a phototransistor (in one housing).

As a rule, with the optocoupler output the emitter and the collector are brought out and may have to be switched externally. Using the appropriate circuit it is possible to achieve either negative polarity (normally closed function) or positive polarity (normally open function).

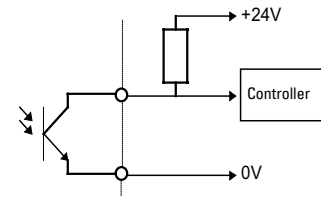
#### Analog outputs

An analog output is available with the 57x multifunction devices, dual preset counters as well as with SSI displays.

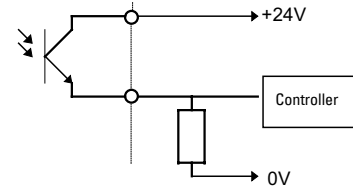
Your benefits:

- Signal transducer and display with scaling and linearisation in one device
- Additional control of the measured value via 2 relay outputs
- Simple programming
- Transmission of the selected measured value, also over long distances with 4 ... 20 mA signal, to a higher-level controller, PC or a curve tracer
- Output of the current value, totalizer value, MIN or MAX value, programmable as 0 ... 20 mA, 4 ... 20 mA, 0 ... 10 V, 2 ... 10 V analog signal value

#### Optocoupler output with negative polarity



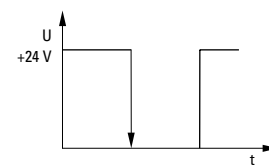
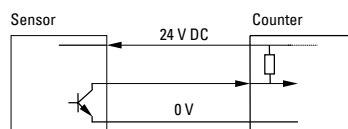
#### Optocoupler output with positive polarity



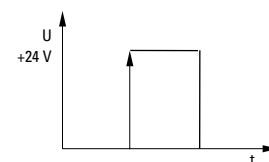
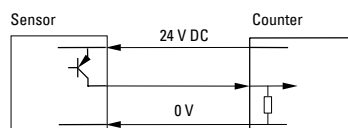
### Inputs

The inputs of our counters are designed as transistor inputs. Either NPN or PNP type.

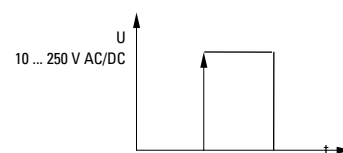
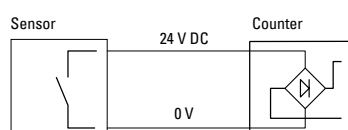
#### Negative input polarity (NPN)



#### Positive input polarity (PNP)



#### High voltage version 10 ... 250 V AC/DC



## Electronic counters Input and output modes

### Input modes: pulse counting

Function	Diagram	Note: P: No counting when GATE input is active Preset	PNP: Count on rising edge NPN: Count on falling edge
<b>CNT.DIR</b> Count Direction Mode			Inp A: Count input Inp B: Count direction Add: Display 0 → preset Sub: Display preset → 0
<b>UP.DN</b> Difference Mode			Inp A: Count input add Inp B: Count input sub Add: Display 0 → preset Sub: Display preset → 0
<b>UP.UP</b> Totalizer Mode			Inp A: Count input 1 add Inp B: Count input 2 add Add: Display 0 → preset
<b>QUAD</b> Phase Discriminator / with Quadrature			A 90° B Inp A: Count input – count on rising edge Inp B: Reverse direction Add: Display 0 → preset Sub: Display preset → 0
<b>QUAD2</b> Phase Discriminator with Quadrature and pulse doubling			A 90° B Inp A: Count input – count on rising and on falling edges Inp B: Reverse direction Add: Display 0 → preset Sub: Display preset → 0
<b>QUAD4</b> Phase Discriminator with Quadrature and pulse quadrupling			A 90° B Inp A: Count input – count on rising and on falling edges Inp B: Count input – count on rising and on falling edges, reverse direction Add: Display 0 → preset Sub: Display preset → 0
<b>A / B</b> Ratio			Inp A: Count input 1 Inp B: Count input 2 Formula: A / B
<b>A % B</b> Ratio in percentage			Inp A: Count input 1 Inp B: Count input 2 Formula: (A – B)/A x100

## Electronic counters Input and output modes

### Input modes: timing

Function	Diagram	Note: P: Preset	No counting when GATE input is active	PNP: Count on rising edge NPN: Count on falling edge
<b>INA.INB</b> Start – Input A Stop – Input B				Inp A: Start Inp B: Stop Add: Display 0 → preset Sub: Display preset → 0
<b>INB.INB</b> Start – Input B Stop – Input B				Inp A: No function Inp B: Start/Stop Add: Display 0 → preset Sub: Display preset → 0
<b>FREE.RN</b> Free Run				Inp A: No function Inp B: No function Control of the timing only via the GATE input Add: Display 0 → preset Sub: Display preset → 0
<b>AUTO</b> Automatic reset mode				Inp A: No function Inp B: No function Control of the timing only via reset (manual or electrical) Add: Display 0 → preset Sub: Display preset → 0
<b>Speed</b> From the operating time measurement	Special mode for 571T calculating the frequency (speed) from the measured time.			Inp A: Start Inp B: Stop

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## Electronic counters Input and output modes

### Input modes: frequency meters

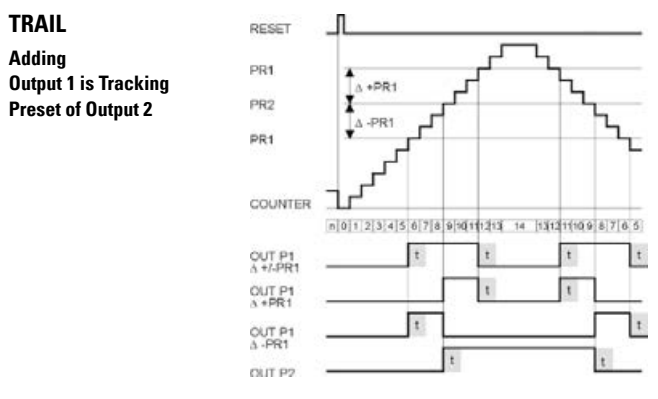
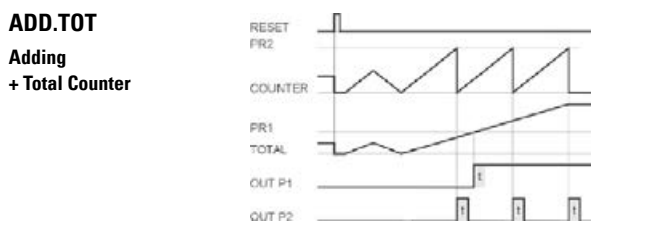
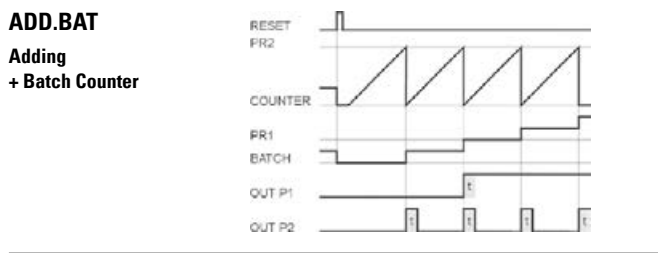
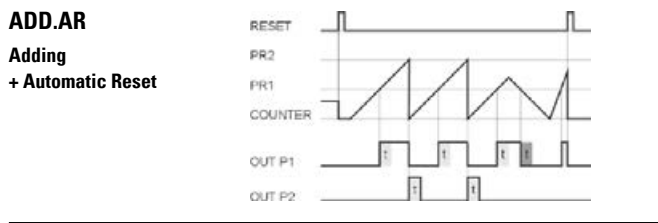
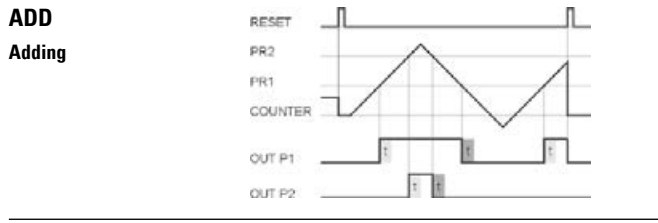
Function	Diagram	Note: P: No counting when GATE input is active Preset	PNP: Count on rising edge NPN: Count on falling edge
<b>A</b> Single Mode			Inp A: Frequency input Inp B: No function
<b>A - B</b> Difference Mode			Inp A: Frequency input 1 Inp B: Frequency input 2 Formula: A - B
<b>A + B</b> Totalizing			Inp A: Frequency input 1 Inp B: Frequency input 2 Formula: A + B
<b>QUAD</b> Frequency with direction			A 90° B Inp A: Frequency input 1 Inp B: Reverse direction
<b>A / B</b> Ratio			Inp A: Frequency input 1 Inp B: Frequency input 2 Formula: A / B
<b>A % B</b> Ratio in percentage			Inp A: Frequency input 1 Inp B: Frequency input 2 Formula: (A - B)/A x100
<b>Operating time from the frequency (reciprocal rotary speed)</b>	Special mode for 571T calculating the operating time from the frequency		Inp A: frequency input

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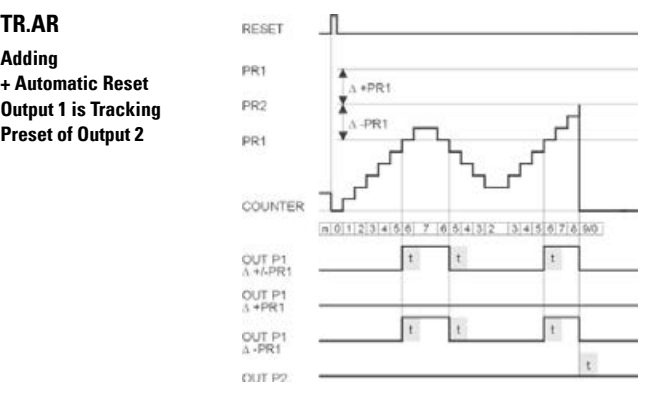
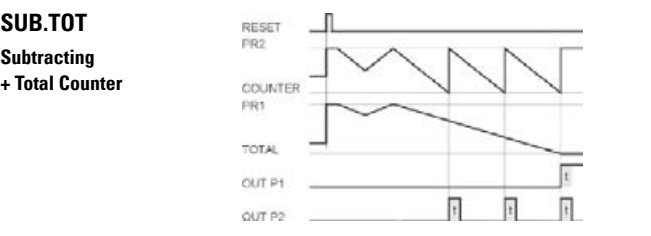
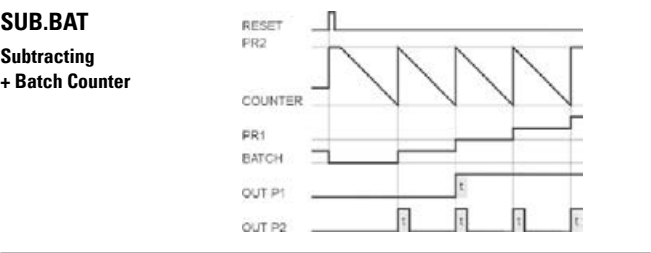
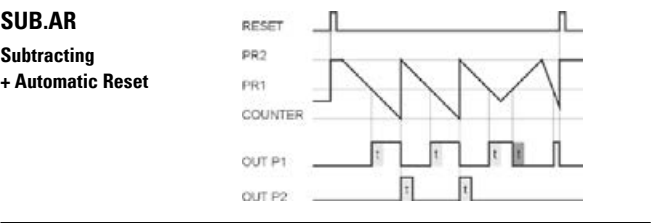
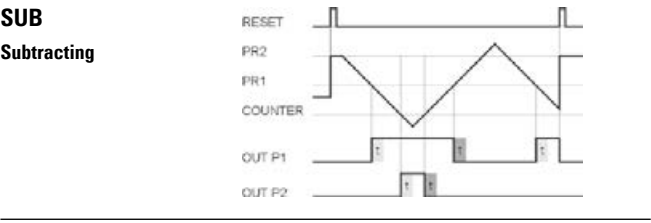
## Electronic counters Input and output modes

### Output modes

**Function** **Diagram** Only in mode and



**Function** **Diagram** Additionally in mode and



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<b>Process devices</b>	<b>Versions</b>
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**Overview**

Process devices are used for

- **Temperature**
- **Standard signals**
- **Strain-gauge**
- **Setpoint adjuster**

**Temperature display, Temperature controller**

The temperature displays measure temperatures very accurately (by means of inputs from a variety of temperature sensors) and display these in °C or °F using permanently stored characteristic curves.

Furthermore, some devices have an additional freely scalable mV or resistance input, in order to store custom curves and to compensate for sensor inaccuracies. With a resettable MIN/MAX value function, peak values can be precisely measured and retransmitted if required. A variety of thermocouples as well as resistance thermometers (RTDs) in 2, 3 or 4-wire technology can be connected. With running help texts and a quick-start guide, programming is very simple and user-friendly, despite the wide functionality.

The temperature controllers additionally boast 2 limit value alarms, which operate when the measured value exceeds or drops below the limit setpoint, or alternatively within a fixed band.

Thanks to features such as start delay, hysteresis function and averaging, they can be employed in the most diverse applications. They can also be used as simple ON/OFF controllers. The optional analog output or serial interface enable the retransmission of the measured values to higher-level systems or monitoring devices.

Example:



Codix 531



Codix 564

**Standard signal displays, standard signal controllers**

The standard signal displays measure values very accurately (by means of inputs from a variety of sensors that can be connected) and display these values, freely scalable, in the 5 or 6 digit display.

Furthermore, some devices offer the option to store custom characteristic curves, in order to compensate for sensor inaccuracies. With a resettable MIN/MAX value function, peak values can be precisely measured and retransmitted if required. Sensors with a 0/2 ... 10 V, ±10 V or 0/4 ... 20 mA output can be connected to give precise measuring results. With running help texts and a quick-start guide, programming is very simple and user-friendly, despite the wide functionality.

The standard signal controllers additionally boast 2 limit value alarms, which operate when the measured value exceeds or drops below the limit setpoint, or alternatively within a fixed band.

Thanks to features such as start delay, hysteresis function and averaging, they can be employed in the most diverse applications. They can also be used as simple ON/OFF controllers. The optional analog output or serial interface enable the retransmission of the measured values to higher-level systems or monitoring devices. A totalizer function sums the measured value with respect to time, in order to measure quantities or volume over a fixed time period.

Example:



Codix 534



Codix 565



573T Touch

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## Strain-gauge controller

The strain-gauge controllers measure values very accurately (by means of inputs from a selection of sensors that can be connected) and display these values, freely scalable, in the 6-digit 14-segment display.

These devices offer the option to store custom characteristic curves, in order to compensate for sensor inaccuracies. With a resettable MIN/MAX value function, peak values can be precisely measured and retransmitted if required. A variety of suitable sensors can be connected to the measuring bridge input to give precise measuring results.

With running help texts and a quick-start guide, programming is very simple and user-friendly, despite the wide functionality.

The strain-gauge controllers additionally boast 2 limit value alarms, which operate when the measured value exceeds or drops below the limit setpoint, or alternatively within a fixed band. Thanks to features such as start delay, hysteresis function and averaging, they can be employed in the most diverse applications. They can also be used as simple ON/OFF controllers. The optional analog output enables the retransmission of the measured values to higher-level systems or monitoring devices. A totalizer function sums the measured value with respect to time, in order to measure quantities or volume over a fixed time period.

Example:



Codix 566

## Setpoint adjuster

The setpoint adjuster is a digital output device for 0 ... 12 V or 0 ... 24 mA standard signals suitable for plant commissioning or the simulation of sensors.

The current or voltage can be output in 3 modes, either directly, stepped or in a stored time curve (characteristic curve) and is thus ideal also for automatic sequences or approach operations in processes.

Furthermore the display is freely scalable, so that this can be shown in the desired engineering units. Thanks to its small design size and its flexibility, this device will prove indispensable in every workshop.

Example:



Codix 533

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# Basics

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**Versatile and easy-to-read**

The Codix range of devices from Kübler is the right solution whenever you wish to display and control process values (e.g. standard signals, temperature, pressure) or other analog measured values, or wish to convert and adapt measured variables.

Product overview  
Basics

**Small and compact**

When mounting space is tight, then the Codix 531 to 534 models in their DIN 48 x 24 housing are the ideal solution.

When used to display standard or temperature input signals, the display can be scaled as desired. Furthermore Min/Max values or an overall total value can also be measured.



Pulse counters

Preset counters

**Versatile and simple**

If the device is to be operated with gloves, or if it must be legible from a great distance, then the Codix-Series 56X in its DIN 96 x 48 housing is the right choice.

These powerful and very fast displays set new standards when it comes to user friendliness.

Thanks to their easy-to-read 14-segment LED display, easy-to-understand running help texts and a practical quick-start guide, the need to wade through time-consuming full instruction manuals can be eliminated. The guide can be affixed directly to the front of the unit and can be removed and re-applied as required.

With 2 relay outputs and optional analog output, standard signals as well as temperature, pressure or weight can be optimally controlled and monitored.



Hour meters  
Timers

Frequency displays  
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Position displays

**Multifunctional**

Multifunction process controller type 573T with LCD touch display, analog output, 4 limit values and serial interface.

The process controller with 2 analog inputs can be used in both single channel mode as well as in dual channel. In dual channel mode, all arithmetic operations are available for displaying the sum total, difference, ratio or the product. Inputs and outputs can be scaled separately.



Multifunction devices

Energy meters

**Setpoint adjuster**

Setpoint adjuster / time dependent process generator Codix 533.

The setpoint adjuster triggers a standard signal or a freely programmable signal sequence from 0 ... 12 V or from 0 ... 24 mA. The setpoint adjuster is a real innovation, opening up new application possibilities in process technology and automation.



Process devices

Temperature devices

Strain-gauge controllers

Accessories  
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## Process devices Characteristics

### Application areas for process devices

- Level measurement
- Flow measurement
- Silos
- Speed display for processing machines
- Control cabinet cooling
- Woodworking machines
- Bakery plants
- Drying plants / ovens
- Packaging machines
- Machine tools and plastic processing machines

- Chemical and pharmaceutical plants
- Food and drink machines
- Semiconductor industry
- Energy supply and climate
- Paper machines
- Glass production machines
- Speed monitoring
- Stretch- and compression process monitoring
- Monitoring of synchronous operations
- Weighing and pressure technology

### Application areas for setpoint adjusters

- Food, chemical and pharmaceutical plants
- Irrigation plants, pump control
- Mechanical engineering: for simulating sensors and speed control of motors and pumps, as well as for automatic lubricating of equipment

- Medical technology: for dosing, mixing or simulation
- Petrochemicals: for filling, mixing, simulation and for pump control
- Laboratory equipment, laboratory working places

### Advantages of all process devices

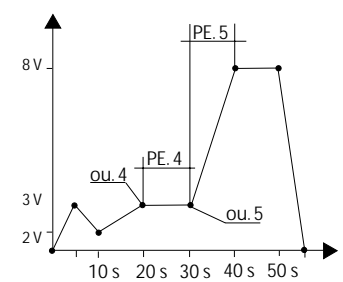
- Galvanic isolation
- Linearisation function with up to 16 control points
- The Codix family concept means simple, unified operation

- Modern industrial design
- Short delivery times from stock
- Cost-effective price/performance ratio

### Advantages of the Codix 533 setpoint adjuster / time-dependent process generator

- The setpoint adjuster offers three different operating modes:
  - Manual operation
  - Manual ramping operation
  - Automatic ramping operation
- With the automatic ramping operation, the times and setpoint values are programmed and then output automatically.
- With the manual operating modes, the value can either be preset directly or in stepped increments.

Example for automatic ramping operation:



### Analog output

Analog output with Codix 564 temperature controller, Codix 565 process controller for standard signals, Codix 566 process controller for strain-gauge inputs and type 573T process controller with 2 standard signal inputs.

Your benefits:

- Signal converter and display with scaling and linearisation in one device
- Additional ON/OFF control of the measured value via 2 relay outputs
- Simple programming via running help texts
- Transmission of the temperature values, pressure values, mV values or resistance values even over long distances, with a 4 ... 20 mA signal to a higher-level controller, PC or curve tracer.
- Output of the current value, totalizer value, MIN or MAX value, programmable as 0 ... 20 mA, 4 ... 20 mA, 0 ... 10 V, 2 ... 10 V value

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## Process devices Characteristics

### Why process devices with an analog input?

For many measuring operations a digital signal acquisition is too inaccurate or involves too much time and effort. This is why analog signal acquisition is often used in industrial environments. This includes for example temperature, weight (mass), pressure, filling level, volume (flow), speed, acceleration, position and many others. The sensor signals are mostly very small (in the mV or  $\mu$ V range). The KÜBLER process controllers amplify these signals, correcting possible errors, and send them to the display.

The signal conditioners Codix 564, 565, 566 convert these signals into standard signals (e.g. 0 ... 10 V or 4 ... 20 mA). These signals can then be further processed and/or displayed.

The option also exists to transmit the analog output signals over large distances. Many sensors do not provide a linear output signal. The KÜBLER process displays linearise these signals with up to 16 control points, depending on the model.

### Input signals and output signals

For the input signals, depending on the model, KÜBLER offers the following ranges:

- 0 ... 20 mA
- 4 ... 20 mA
- $\pm 100$  mV,  $\pm 10$  V
- 0 ... 10 V DC
- 2 ... 10 V DC
- 0 ... 500  $\Omega$
- Pt100, Ni100 for 2, 3 and 4-wire technology
- Thermocouples B, E, J, K, N, R, S, T

The 2 ... 10 V and 4 ... 20 mA signals have the advantage that they also offer sensor monitoring at the same time. A 0 V or 0 mA signal may for instance mean that the sensor line is broken.

#### Example:

A digital display with analog input, e.g. Codix 565, can be used to replace or complement a pressure gauge on a compressor. The current signal of the pressure sensor is displayed as pressure on the display.

Programming of the characteristic curve:

Point 1: 4 mA, 2.5 Pa

Point 2: 20 mA, 30 Pa

Minimum and maximum values are saved and can be called up at any time. The display value can easily be scaled, to show for example atmospheres or bar instead of Pa, by modifying the points of the characteristic curve.

With the Codix 564, 565, 566 and with type 573T KÜBLER offers the following output signal ranges for further processing:

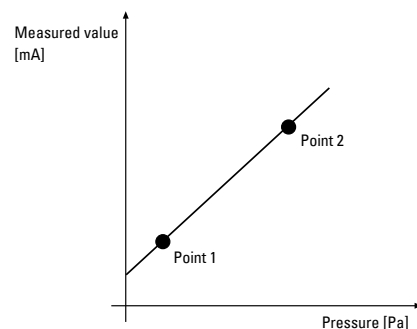
- 0 ... 20 mA, 4 ... 20 mA, 20 ... 4 mA, 20 ... 0 mA
- 0 ... 10 V, 2 ... 10 V, 10 ... 0 V, 10 ... 2 V,  $\pm 10$  V

Optocoupler or relay outputs in conjunction with adjustable limit values.

The 2 ... 10 V, 4 ... 20 mA and und 10 ... 2 V, 20 ... 4 mA signals have the advantage that they also offer sensor monitoring at the same time.

A 0 V or 0 mA signal may for instance mean that the sensor line is broken.

This value can be programmed separately for cases where a fault occurs.



### The function of the totalizer

The devices equipped with the totalizer function (Codix 534, 565, 566) can calculate the integral, that is to say "totalize" the analog signal, using any period of time (with the Codix 566 this is done by manual totalizing).

A typical field of application is flow measurement.

In this case, an analog sensor measures the flow quantity per time unit in a pipe and displays the momentary flow value (e.g. litres per minute).

From this constantly fluctuating quantity the totalizer calculates a "total", that is to say it defines the absolute quantity that has flowed through the pipe (e.g. in litres).

## Process devices

## Characteristics

### Which temperature display / controller is the right one for you?

The device must be chosen according to the temperature sensor used.

#### Pt and Ni resistance sensors:

Temperature measurement with resistance sensors uses the temperature sensitivity of metal resistances. A constant current is applied to the measuring resistance. The voltage drop at the resistance is measured. This drop represents the temperature measurement.

KÜBLER offers the following devices for resistance sensors:

**Codix 531, Codix 564**

#### Thermocouple sensors:

Temperature measurement with thermocouple sensors uses the thermoelectric effect. Thermocouples consist of two wires, soldered together.

The wires are made of different metals. The thermoelectric voltage appearing at the soldering point is measured, amplified and displayed by the KÜBLER display.

KÜBLER offers the following devices for thermocouple sensors:

**Codix 532, Codix 564**

The Codix 564 display is suitable for resistance sensors as well as for thermocouples.

### Information about 2, 3 or 4 wire circuits

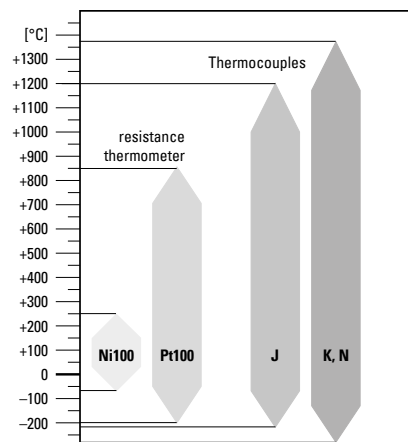
Unlike thermocouples, which deliver a voltage, a resistance does not deliver any signal by itself. This means that it requires external energy from an electrical measuring circuit. This power source is generally a constant current source.

With the 2 wire circuit, the measuring resistance is connected to the measuring device by means of two wires. The conductors are connected serially with the measuring resistance and lead to a higher total resistance, and thus to a measuring error.

With the 3 wire circuit, an additional wire is connected to the resistance, resulting in two measuring circuits. The resistance of the conductors is compensated for by means of internal circuits, provided all three conductors are identical.

With the 4 wire circuit, the resistance of all conductors is compensated for, even if they have different lengths.

### Overview of the temperature measuring range



The diagram opposite shows an overview of the temperature range of the various sensors.

Advice:

- for Pt100 resistance sensors adhere to DIN IEC 751
- for Ni100 resistance sensors adhere to DIN 43760
- for thermocouple sensors adhere to DIN IEC 584.
- J: (Fe-CuNi)
- K: (Ni-CrNi)
- N: (NiCrSi-NiSi)

#### J: (Fe-CuNi)

These thermocouples are very common, economic and deliver a high thermoelectric voltage. Disadvantage: danger of corrosion. Iron becomes brittle with sulphurous gases.

#### K: (Ni-CrNi)

These thermocouples are very common, demonstrate excellent long-term stability but only have a low thermoelectric voltage.

#### N: (NiCrSi-NiSi)

These thermocouples are not common, since they appeared only recently on the market. They can be used for very high temperatures and can replace elements out of noble metal.

Process devices	Applications	
<b>Temperature monitoring in a tubular furnace</b>	<p>When the process temperature is higher or lower than the set value, the heating of the oven is directly controlled by means of the relay outputs of the Codix 564 temperature controller.</p> <p>In case of very high power, the process controller can also drive a power contactor.</p>	<p>SPS ← Codix 564</p>
<b>Linearisation of the characteristic curve of a container</b>	<p>Our process controllers linearise the relationship between the fill-up level <math>h</math> and the volume <math>V</math> of the container. This can be set exactly thanks to 12 or 16 control points.</p> <p>The devices of the Codix 565 or type 573T can output the linearised values as current or as voltage values (e.g. 4 ... 20 mA) and thus offer in addition the function of a voltage transformer.</p>	<p>Codix 565</p>
<b>Control of the heating of a furnace</b>	<p>The furnace temperature is monitored thanks to a temperature sensor. When the temperature becomes higher or lower than a defined temperature, the Codix 564 sends an output signal to the PLC, which controls, among others, the heating of the furnace. The operator can read the temperature on the large LED display.</p>	<p>Oven, Temperature sensor, Codix 564, PLC, Heating</p>
<b>Measurement of the total throughput [m³] and of the flow [l/min]</b>	<p>Thanks to its double function, the Codix 534 or 565 measures the total throughput in [m³] and the momentary flow in [l/min]. The sensor delivers a current signal proportional to the flow:</p> <p>0 mA =&gt; 0 l/min 20 mA =&gt; 1000 l/min.</p> <p>The total volume is calculated by the integration function (totalizer). Switching of the display is carried out by the front key.</p> <p>The Codix 565 has two additional limits and an optional analog output.</p>	<p>Codix 534</p>
<b>Weight determination</b>	<p>A strain gauge tape or a strain gauge bridge measures the pressure of the item to be weighed. The differential signal voltage lies in the mV range and this is converted to the desired weight and displayed by a Codix 566.</p> <p>Strain gauges with 3.3 – 3.0 – 2.0 – 1.5 and 1.0 mV/N sensitivity can be connected directly to the input of the Codix 566.</p>	<p>Codix 566</p>

## Interfaces

Kübler counters use the following serial interfaces:

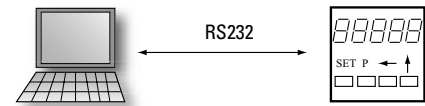
- RS232
- RS422
- RS485

### Serial interface RS232

The serial interface RS232 is a full-duplex point-to-point connection.

Full-duplex means that data can be both transmitted and received simultaneously via the interface and that only two devices can be connected with each other. If two devices are to be connected to a computer, then a second interface port is required on the computer. The two connections are totally independent from each other.

This method has a disadvantage, because interface cards for PLCs are expensive and with PCs a maximum of 4 ports are available for use. For this reason, more recent Kübler counters are equipped with either the RS422 or the RS485 interface.



At least a 3-wire cable is needed when connecting RS232. The connection then works without handshaking. For connections with handshaking a 5-wire cable is needed.

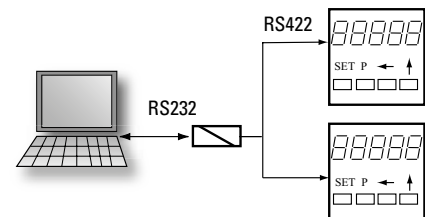
### Serial interface RS422

This interface is a full-duplex multi-point connection.

This means that several receivers can be connected to one transmitter cable. In counting technology the PC or the PLC are used as the master station, which then controls all activity on the serial line.

All devices 'listen' to what the master is transmitting, but only that device, which is being addressed, answers. A message can only be sent from one device to another via the master.

Connecting the PC standard RS232 port to the RS422 counter interface is done by means of a simple interface converter. By using this solution, up to 10 devices can be connected to the serial port of a PLC or PC.



The wiring is done using a 4-wire cable with all the devices being connected in parallel. Each device has to be assigned a unique address, so that it can distinguish between messages being sent to its own address and those for another address.

### Serial interface RS485

This interface is a half-duplex multi-point connection.

Half-duplex means that the data exchange works in both directions, but only in one direction at a time. It also means that one can transmit and receive over the same line. Converting the common RS232 interface to RS485 is not so easily done. However several devices can act as masters as well as also being receivers (slaves).

In total up to 32 devices can be connected to one interface. When connecting the stations together, only a two-wire cable is necessary. Most fieldbuses operate on this interface basis. The hardware is thus always the same, it is only the protocol that differs - this says which device is being addressed, which information is for that device and what control information is required to check that the transmission has been done correctly.

### Interface comparison

Interface	RS232	RS422	RS485
Mode of transmission	asymmetrical with respect to GND	symmetrical without earth connection	
No. of senders	1	1	32
No. of receivers	1	10	32
Transmission distance	15 m [49.2']	1200 m [3937']	1200 m [3937']
Transfer rate	20 kBit/s	10 Mbit/s	10 Mbit/s
Sender output signal without load	+/-15 Volt	+5 Volt	+5 Volt
Driver load	3.7 kOhm	120 Ohm	60 Ohm

## Software

### Software OS6.0

- User-friendly programming software for displays 570T, 571T, 572, 573T, 574 and 575 with serial interface
- Upload and download functions
- Monitor and terminal program for simple diagnostics
- Online display of measured values in the monitor program
- Free download from our website



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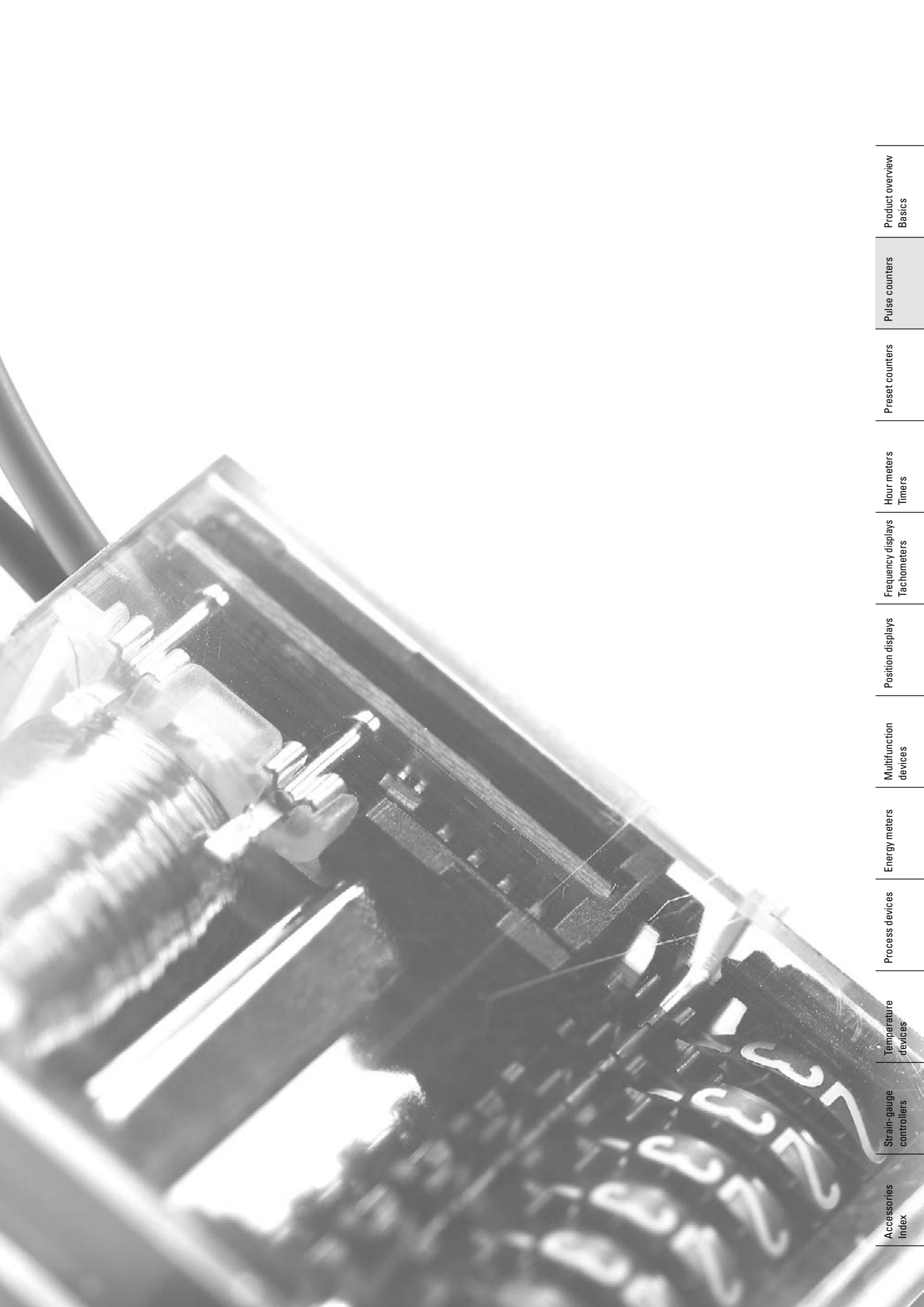
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# Pulse counters

Pulse counters, electronic		Type	Page
<b>LCD pulse counters</b>	Adding or subtracting (battery)	Codix 130	<b>48</b>
	With count direction DC or difference counter AC+DC (battery)	Codix 131	<b>51</b>
	With count direction AC (battery)	Codix 132	<b>54</b>
	Adding counter (DC)	Codix 140	<b>57</b>
<b>LCD service counters</b>	Adding service counter (DC)	Codix 142	<b>57</b>
<b>LED pulse counters</b>	Adding (DC)	Codix 520	<b>60</b>
	6 count modes (DC)	Codix 521	<b>63</b>
	Multifunctional – pulse, frequency, time (DC)	Codix 524	<b>240</b>
	Universal with dual functions 4 combinations (DC)	Codix 52U	<b>250</b>
	6 count modes with tachometer (DC)	Codix 52P	<b>254</b>
	2 counters with separate scaling (DC)	Codix 52T	<b>66</b>
	2 counters with separate inputs and separate scaling (DC)	Codix 52C	<b>69</b>
	Adding (AC+DC)	Codix 540	<b>72</b>
	6 count modes (AC+DC)	Codix 541	<b>75</b>
	Multifunctional – pulse, frequency, time (AC+DC)	Codix 544	<b>244</b>
	Universal with dual functions 4 combinations (AC+DC)	Codix 54U	<b>258</b>
	6 count modes with tachometer (AC+DC)	Codix 54P	<b>261</b>
<b>LCD touch counter</b>	 Pulse, frequency, time (also reciprocal) – (AC+DC)	571T	<b>247</b>
<b>LCD modules</b>	Adding, 7 digits (DC)	190	<b>78</b>
	Adding, 6 digits (DC)	192	<b>80</b>
Pulse counters, electromechanical		Type	Page
<b>Micro counters</b>	High shock resistance (DC)	K 46 / K 47	<b>82</b>
	Magnetic field resistant and high shock resistance (DC)	K 66 / K 67	<b>85</b>
	High shock resistance (AC+DC)	K 04 ... K07 / AK 07	<b>88</b>
	High shock resistance, for DIN-rail (AC+DC)	SK 07	<b>94</b>
<b>Mini counters</b>	5 digits with reset (AC+DC)	W 15	<b>96</b>
	6 or 7 digits without reset (AC+DC)	W 16 / W 17	<b>99</b>
<b>Standard counters</b>	4 digits with reset (AC+DC)	Bk 14	<b>102</b>
	6 or 8 digits with/without reset (AC+DC)	B 16 / B 18	<b>104</b>
	4 or 6 digits with/without reset, electrical reset (AC+DC)	Mk 14 / Mk 16	<b>110</b>
<b>Dual function counters</b>	Pulse + time (AC+DC)	HC 77	<b>208</b>
	Pulse + time for DIN rail (AC+DC)	SHC 77	<b>211</b>
	Energy and time (AC)	HW 66 / HW 66 M	<b>266</b>
Pulse counters, pneumatic		Type	Page
<b>Pneumatic counters</b>	4 digits with, 6 digits with/without, 8 digits without reset	PMk 14 / PMk 16 / PMk 18	<b>114</b>

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The Codix 130 is a simple battery powered pulse counter for fast and slow count pulses with 8-digit LCD display, optional backlighting, for NPN, PNP and high voltage applications.



Battery powered	Input type	Pulse voltage	Pulse voltage	Max. count frequency	Temperature range	High protection level	DIN front bezel	LCD display	Lockable reset

### Powerful

- High quality LCD display with 8 mm high figures.
- Count direction adding and subtracting via control input.
- Battery life approx. 8 years.
- Optional display backlighting.
- Filter function for bounce-free counting with mechanical contacts.
- Count frequency max. 12 kHz.
- High protection level IP65.

### Simple

- Screw terminals, RM 5 mm.
- Reset key can be enabled via "Reset Enable" input.
- For positive and negative counting edges, depending on version.
- High voltage version for 10 ... 260 V AC/DC voltage pulses.
- Large 8-digit LCD display with 8 mm high figures.

### Order code

6.130 . 012 . 8XX  
a b

#### **a** Backlighting

- 5 = without<sup>1)</sup>
- 6 = with<sup>1)</sup>

#### **b** Input type: add/sub<sup>2)</sup> – single-channel, adding or subtracting counting

Input type	INP A			INP B				
0 <sup>1)</sup> = add/sub <sup>2)</sup>	0 ... 0.7 V DC	count	NPN	7 kHz	0 ... 0.7 V DC	count	NPN	30 Hz
2 <sup>1)</sup> = add/sub <sup>2)</sup>	4 ... 30 V DC	count	PNP	12 kHz	0 ... 0.7 V DC	count	NPN	30 Hz
3 <sup>1)</sup> = add/sub <sup>2)</sup>	10 ... 260 V AC/DC	count	AC/DC	30 Hz	10 ... 260 V AC/DC	reset	AC/DC	–

#### Delivery specification

- Pulse counter
- Mounting clip
- Front bezel for screw mounting (T008181) 56 x 40 mm [2.20 x 1.57"], panel cut-out 50 x 25 mm [1.97 x 0.98"]
- Front bezel for clip mounting (T008180) 53 x 28 mm [2.09 x 1.10"], panel cut-out 50 x 25 mm [1.97 x 0.98"]
- Gasket
- Instruction manual, multilingual

1) Stock types.

2) Single-channel, adding or subtracting counting.

# Pulse counters, electronic

LCD pulse counters	Adding or subtracting (battery)	Codix 130
Accessories	Dimensions in mm [inch]	Order no.
<b>Adapter front bezel, 72 x 36 [2.83 x 1.42]</b>	for cut-out 68 x 33 [2.68 x 1.30] to cut-out 45 x 22.2 [1.77 x 0.87], for counters 48 x 24 [1.89 x 0.94], as set	black and silver anodised <b>162704 Set</b>
<b>Adapter front bezel, 48 x 48 [1.89 x 1.89]</b>	for cut-out 45 x 45 [1.77 x 1.77] to cut-out 45 x 22.2 [1.77 x 0.87], with clip mounting for counters 48 x 24 [1.89 x 0.94]	black <b>T008883</b>
<b>Adapter front bezel, 60 x 50 [2.36 x 1.97]</b>	for cut-out 54 x 29 [2.13 x 1.14] to cut-out 45 x 22.2 [1.77 x 0.87], with screw mounting and gasket for counters 48 x 24 [1.89 x 0.94]	black <b>N003001</b>
<b>Transparent cover, lockable, IP65</b>	for cut-out 54 x 29 [2.13 x 1.14], for screw mounting to front bezel F1B or adapter front bezel N003001, for counters with cut-out 50 x 25 [1.97 x 0.98] or 45 x 22.2 [1.77 x 0.87]	<b>N003002</b>
<b>Sealing cover type K1, IP65</b>	suitable for front bezel 60 x 50 [2.36 x 1.97], for screw mounting of electromech. counters and via adapter front bezel N003001 for counters 48 x 24 [1.89 x 0.94]	<b>G008301</b>
<b>Mounting frame</b> with cut-out 50 x 25 [2.36 x 1.97] via separate adapter also for 45 x 22.2 [1.77 x 0.87]	for snap-on mounting on 35 [1.38] top-hat DIN rail, for counters 53 x 28 [2.09 x 1.10] and via separate adapter (T008180) for counters 48 x 24 [1.89 x 0.94]	chromated <b>G300004</b>

Suitable gaskets, other accessories and installation examples for optional accessories can be found in chapter accessories or in the accessories section under: [www.kuebler.com/accessories](http://www.kuebler.com/accessories).

## Technical data

General technical data	
<b>Display</b>	LCD, 8 digits, 8 mm [0.32"] high
<b>Backlighting</b>	external electrical source 24 V DC $\pm 20\%$ , 50 mA
<b>Modes</b>	adding or subtracting (selectable)
<b>Display range</b>	-9999999 ... 99999999, with overflow display
<b>Reset</b>	manual and electrical
<b>Working temperature</b>	-10°C ... +55°C [+14°F ... +131°F] (non-condensing)
<b>Operating temperature</b>	-10°C ... +60°C [+14°F ... +140°F] (non-condensing)
<b>Storage temperature</b>	-20°C ... +70°C [-4°F ... +158°F]
<b>Altitude</b>	up to 2000 m [6562']

Electrical characteristics	
<b>Power supply</b>	internal lithium battery approx. 8 years at 20°C [68°F]
<b>EMC standards</b>	EN 55011 class B, EN 61000-6-2, EN 61000-6-3
<b>Device safety</b>	designed to protection class application area EN 61010 part 1 2 pollution level 2
<b>UL approval</b>	file E128604

Mechanical characteristics	
<b>Housing</b>	dark grey RAL 7021
<b>Protection</b>	IP65 (front side)
<b>Weight</b>	approx. 50 g [1.76 oz]

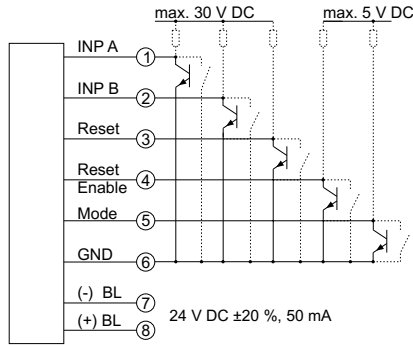
Counting inputs	
<b>Counting input of the DC-versions</b> (max. 30 V DC)	
slow counting input	max. 30 Hz NPN
fast counting input	max. 12 kHz (PNP), 7 kHz (NPN)
switching level NPN	LOW 0 ... 0.7 V DC HIGH 3 ... 30 V DC
switching level PNP	LOW 0 ... 0.7 V DC HIGH 4 ... 30 V DC
<b>Counting input of the high voltage versions</b> (10 ... 260 V DC/V AC)	
optocoupler input,	max. 30 Hz
min. pulse time	16 ms
switching level	LOW 0 ... 2 V AC/DC HIGH 10 ... 260 V AC/DC
<b>Counting direction switching</b> (only DC-version)	
mode	adding / subtracting
contact input	open collector NPN (switching at 0 V)
switching level NPN	LOW 0 ... 0.7 V DC HIGH 3 ... 5 V DC
<b>Reset input</b> (only DC and high voltage)	
minimum pulse time	DC 50 ms high voltage 16 ms
contact input DC – NPN	LOW 0 ... 0.7 V DC HIGH 3 ... 30 V DC
high voltage input	10 ... 260 V AC/DC
<b>Electrical reset key locking</b> (for DC and high voltage)	
contact input	open collector NPN (switching at 0 V)
switching level NPN	LOW 0 ... 0.7 V DC HIGH 3 ... 5 V DC

# Pulse counters, electronic

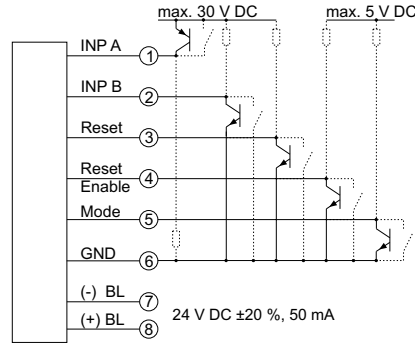
## LCD pulse counters Adding or subtracting (battery) Codix 130

### Terminal assignment

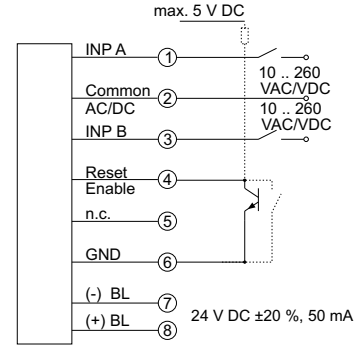
DC type: 6.130.012.8x0



DC type: 6.130.012.8x2



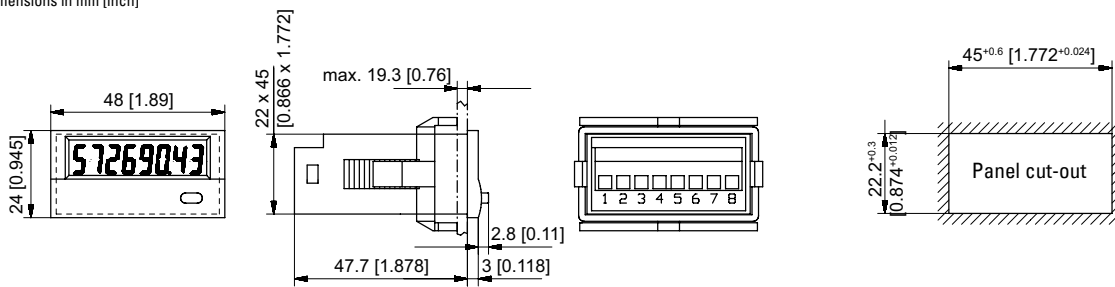
AC type: 6.130.012.8x3



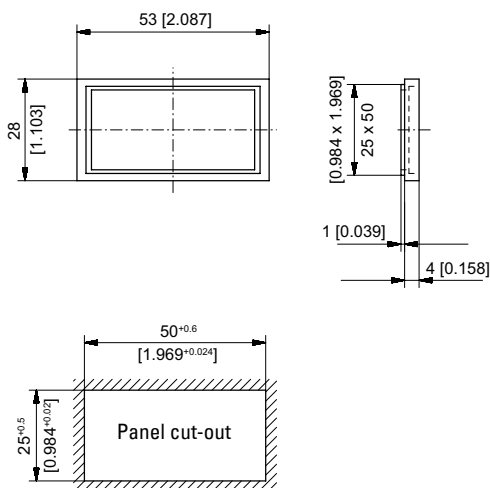
BL = backlighting

### Dimensions

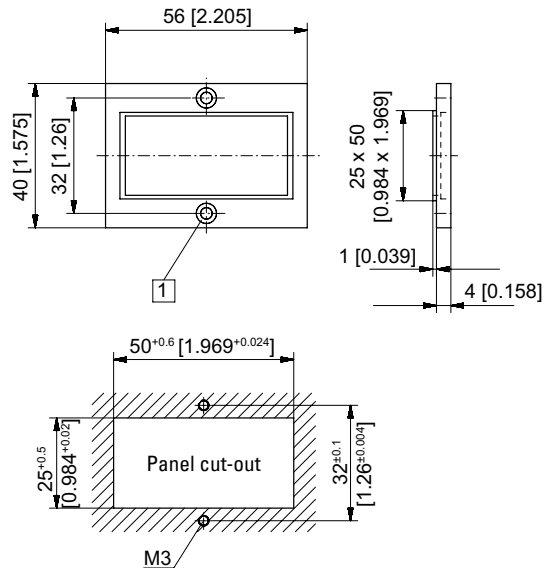
Dimensions in mm [inch]



### Front bezel for clip mounting (included in delivery)



### Front bezel for screw mounting (included in delivery)



1 Countersinking Af3, DIN 74

**LCD pulse counters**      **With count direction DC or difference counter AC+DC (battery)**      **Codix 131**



The Codix 131 is a simple battery powered pulse counter with difference or count direction input, 8-digit LCD display, optional backlighting, for NPN, PNP and high voltage applications.



Battery powered	Input type	Pulse voltage	Pulse voltage	Count with direction (DIR)	Differential count (up, dn)	Max. count frequency	Temperature range	High protection level	LCD display

### Powerful

- High quality LCD display with 8 mm high figures.
- Count direction, adding and subtracting via count direction or difference input.
- Battery life approx. 8 years.
- Optional display backlighting.
- Count frequency max. 12 kHz.
- High protection level IP65.

### Simple

- Screw terminals, RM 5 mm.
- Reset key can be enabled via "Reset Enable" input.
- For positive and negative counting edges, depending on version.
- High voltage version for 10 ... 260 V AC/DC voltage pulses.
- Large 8-digit LCD display with 8 mm high figures.

**Order code**      **6.131 . 012 . 8XX**

**a** Backlighting  
5 = without <sup>1)</sup>  
6 = with

**b** Input type: Cnt.Dir<sup>2)</sup> / UP.DN<sup>3)</sup> – count direction or differential counting

Input type	INP A			INP B		
0 <sup>1)</sup> = Cnt.Dir <sup>2)</sup> / UP.DN <sup>3)</sup>	0 ... 0.7 V DC	count	NPN	7 kHz	0 ... 0.7 V DC	count / direction
1 <sup>1)</sup> = Cnt.Dir <sup>2)</sup> / UP.DN <sup>3)</sup>	4 ... 30 V DC	count	PNP	12 kHz	4 ... 30 V DC	count / direction
3 = UP.DN <sup>3)</sup>	10 ... 260 V AC/DC	count	AC/DC	30 Hz	10 ... 260 V AC/DC	count

#### Delivery specification

- Pulse counter
- Mounting clip
- Front bezel for screw mounting (T008181) 56 x 40 mm [2.20 x 1.57"], panel cut-out 50 x 25 mm [1.97 x 0.98"]
- Front bezel for clip mounting (T008180) 53 x 28 mm [2.09 x 1.10"], panel cut-out 50 x 25 mm [1.97 x 0.98"]
- Gasket
- Instruction manual, multilingual

1) Stock types.  
2) Counting input with counting direction input.  
3) One adding and one subtracting counting input (differential mode).

# Pulse counters, electronic

## LCD pulse counters With count direction DC or difference counter AC+DC (battery) Codix 131

Accessories	Dimensions in mm [inch]	Order no.
<b>Adapter front bezel, 72 x 36 [2.83 x 1.42]</b>	for cut-out 68 x 33 [2.68 x 1.30] to cut-out 45 x 22.2 [1.77 x 0.87], for counters 48 x 24 [1.89 x 0.94], as set black and silver anodised	<b>162704 Set</b>
<b>Adapter front bezel, 48 x 48 [1.89 x 1.89]</b>	for cut-out 45 x 45 [1.77 x 1.77] to cut-out 45 x 22.2 [1.77 x 0.87], with clip mounting for counters 48 x 24 [1.89 x 0.94] black	<b>T008883</b>
<b>Adapter front bezel, 60 x 50 [2.36 x 1.97]</b>	for cut-out 54 x 29 [2.13 x 1.14] to cut-out 45 x 22.2 [1.77 x 0.87], for screw mounting and gasket for counters 48 x 24 [1.89 x 0.94] black	<b>N003001</b>
<b>Transparent cover, lockable, IP65</b>	for cut-out 54 x 29 [2.13 x 1.14], for screw mounting to front bezel F1B or adapter front bezel N003001, for counters with cut-out 50 x 25 [1.97 x 0.98] or 45 x 22.2 [1.77 x 0.87]	<b>N003002</b>
<b>Sealing cover type K1, IP65</b>	suitable for front bezel 60 x 50 [2.36 x 1.97], for screw mounting of electromech. counters and via adapter front bezel N003001 for counters 48 x 24 [1.89 x 0.94]	<b>G008301</b>
<b>Mounting frame</b> with cut-out 50 x 25 [2.36 x 1.97] via separate adapter also for 45 x 22.2 [1.77 x 0.87]	for snap-on mounting on 35 [1.38] top-hat DIN rail, for counters 53 x 28 [2.09 x 1.10] and via separate adapter (T008180) for counters 48 x 24 [1.89 x 0.94] chromated	<b>G300004</b>

Suitable gaskets, other accessories and installation examples for optional accessories can be found in chapter accessories or in the accessories section under: [www.kuebler.com/accessories](http://www.kuebler.com/accessories).

### Technical data

General technical data	
<b>Display</b>	LCD, 8 digits, 8 mm [0.32"] high
<b>Backlighting</b>	external electrical source 24 V DC $\pm 20\%$ , 50 mA
<b>Modes</b>	counting direction (count and direction input) or differential counting
<b>Display range</b>	-9999999 ... 99999999, with overflow display
<b>Reset</b>	manual and electrical
<b>Working temperature</b>	-10°C ... +55°C [+14°F ... +131°F] (non-condensing)
<b>Operating temperature</b>	-10°C ... +60°C [+14°F ... +140°F] (non-condensing)
<b>Storage temperature</b>	-20°C ... +70°C [-4°F ... +158°F]
<b>Altitude</b>	up to 2000 m [6562']

Electrical characteristics	
<b>Power supply</b>	internal lithium battery approx. 8 years at 20°C [68°F]
<b>EMC standards</b>	EN 55011 class B, EN 61000-6-2, EN 61000-6-3
<b>Device safety</b>	designed to EN 61010 part 1 protection class 2 application area pollution level 2
<b>UL approval</b>	file E128604

Mechanical characteristics	
<b>Housing</b>	dark grey RAL 7021
<b>Protection</b>	IP65 (front side)
<b>Weight</b>	approx. 50 g [1.76 oz]

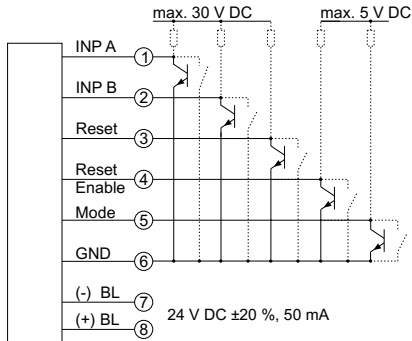
Counting inputs	
<b>Counting input of the DC-versions</b> (max. 30 V DC)	
fast counting input	max. 12 kHz (PNP), 7 kHz (NPN)
switching level NPN	LOW 0 ... 0.7 V DC HIGH 3 ... 30 V DC
switching level PNP	LOW 0 ... 0.7 V DC HIGH 4 ... 30 V DC
<b>Counting input of the high voltage versions</b> (10 ... 260 V DC/AC)	
A subtracting optocoupler input	max. 30 Hz
B adding min. pulse time	16 ms
switching level	LOW 0 ... 2 V AC/DC HIGH 10 ... 260 V AC/DC
<b>Counting direction switching</b> (only DC-version)	
mode	count direction / difference
contact input	open collector NPN (switching at 0 V DC)
switching level – NPN	LOW 0 ... 0.7 V DC HIGH 3 ... 5 V DC
<b>Reset input</b> (only DC and high voltage)	
minimum pulse time	DC 50 ms high voltage 16 ms
contact input DC – NPN	LOW 0 ... 0.7 V DC HIGH 3 ... 30 V DC
<b>Electrical reset key locking</b> (only DC and high voltage)	
contact input	open collector NPN (switching at 0 V DC)
switching level – NPN	LOW 0 ... 0.7 V DC HIGH 3 ... 5 V DC

# Pulse counters, electronic

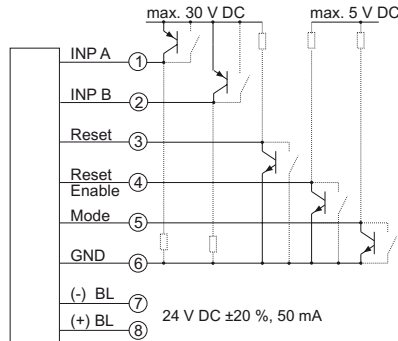
## LCD pulse counters With count direction DC or difference counter AC+DC (battery) Codix 131

### Terminal assignment

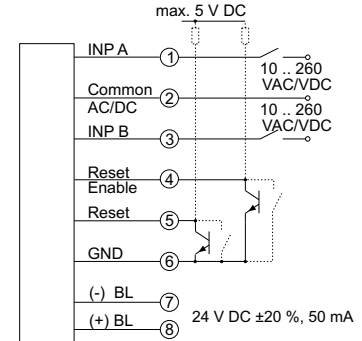
DC type: 6.131.012.8x0



DC type: 6.131.012.8x1



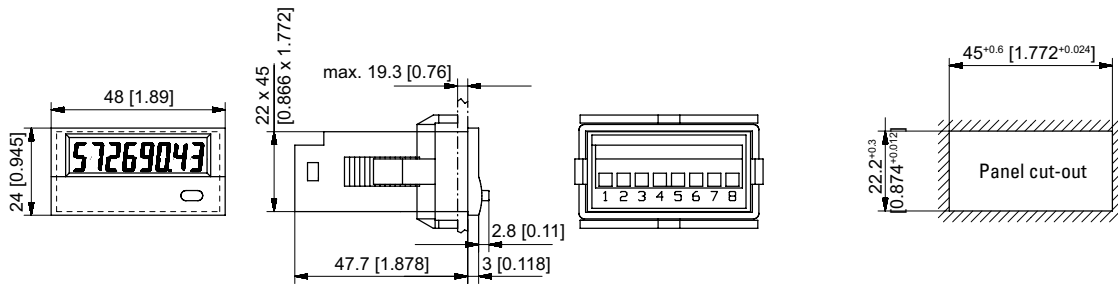
AC type: 6.131.012.8x3



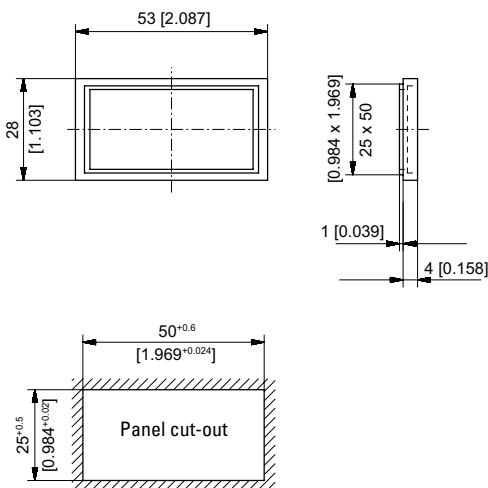
BL = backlighting

### Dimensions

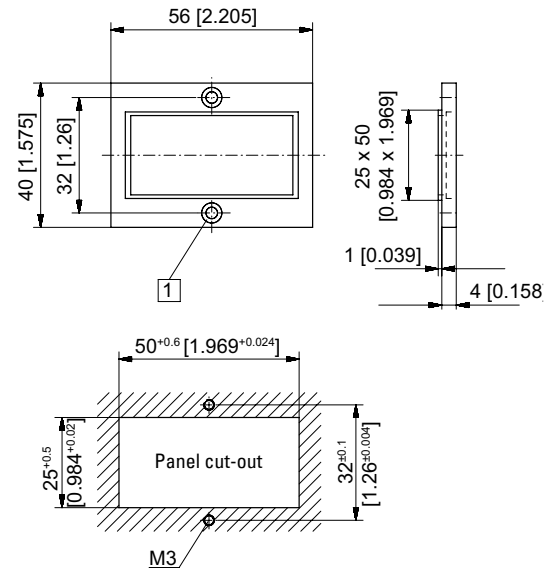
Dimensions in mm [inch]



### Front bezel for clip mounting (included in delivery)



### Front bezel for screw mounting (included in delivery)



1 Countersinking A13, DIN 74

**LCD pulse counters**      **With count direction AC (battery)**      **Codix 132**



The Codix 132 is a simple battery powered pulse counter with count and count direction input, 8-digit LCD display, optional backlighting, for high voltage applications 10 ... 260 V AC/DC.



Battery powered	Input type	Pulse voltage	Count with direction (DIR)	Max. count frequency	Temperature range	High protection level	DIN front bezel	LCD display	Lockable reset

### Powerful

- High quality LCD display with 8 mm high figures.
- Count direction adding and subtracting via direction input.
- Battery life approx. 8 years.
- Optional display backlighting.
- Filter function for bounce-free counting with mechanical contacts.
- Count frequency max. 30 Hz.
- High protection level IP65.

### Simple

- Screw terminals, RM 5 mm.
- Reset key can be enabled via "Reset Enable" input.
- High voltage version for 10 ... 260 V AC/DC voltage pulses.
- Large 8-digit LCD display with 8 mm high figures.

**Order code**      6.132 . 012 . 8 X 3

**a** Backlighting  
5 = without <sup>1)</sup>  
6 = with <sup>1)</sup>

**b** Input type: Cnt.Dir <sup>2)</sup> – count direction with count and static direction input

Input type	INP A				INP B			
3 <sup>1)</sup> = Cnt.Dir <sup>2)</sup>	10 ... 260 V AC/DC	direction	AC/DC	30 Hz	10 ... 260 V AC/DC	count	AC/DC	30 Hz

#### Delivery specification

- Pulse counter
- Mounting clip
- Front bezel for screw mounting (T008181) 56 x 40 mm [2.20 x 1.57"], panel cut-out 50 x 25 mm [1.97 x 0.98"]
- Front bezel for clip mounting (T008180) 53 x 28 mm [2.09 x 1.10"], panel cut-out 50 x 25 mm [1.97 x 0.98"]
- Gasket
- Instruction manual, multilingual

1) Stock types.  
2) Counting input with counting direction input.



# Pulse counters, electronic

LCD pulse counters	With count direction AC (battery)	Codix 132
Accessories	Dimensions in mm [inch]	Order no.
<b>Adapter front bezel, 72 x 36 [2.83 x 1.42]</b>	for cut-out 68 x 33 [2.68 x 1.30] to cut-out 45 x 22.2 [1.77 x 0.87], for counters 48 x 24 [1.89 x 0.94], as set	black and silver anodised <b>162704 Set</b>
<b>Adapter front bezel, 48 x 48 [1.89 x 1.89]</b>	for cut-out 45 x 45 [1.77 x 1.77] to cut-out 45 x 22.2 [1.77 x 0.87], with clip mounting for counters 48 x 24 [1.89 x 0.94]	black <b>T008883</b>
<b>Adapter front bezel, 60 x 50 [2.36 x 1.97]</b>	for cut-out 54 x 29 [2.13 x 1.14] to cut-out 45 x 22.2 [1.77 x 0.87], with screw mounting and gasket for counters 48 x 24 [1.89 x 0.94]	black <b>N003001</b>
<b>Transparent cover, lockable, IP65</b>	for cut-out 54 x 29 [2.13 x 1.14], for screw mounting to front bezel F1B or adapter front bezel N003001, for counters with cut-out 50 x 25 [1.97 x 0.98] or 45 x 22.2 [1.77 x 0.87]	<b>N003002</b>
<b>Sealing cover type K1, IP65</b>	suitable for front bezel 60 x 50 [2.36 x 1.97], for screw mounting of electromech. counters and via adapter front bezel N003001 for counters 48 x 24 [1.89 x 0.94]	<b>G008301</b>
<b>Mounting frame</b> with cut-out 50 x 25 [2.36 x 1.97] via separate adapter also for 45 x 22.2 [1.77 x 0.87]	for snap-on mounting on 35 [1.38] top-hat DIN rail, for counters 53 x 28 [2.09 x 1.10] and via separate adapter (T008180) for counters 48 x 24 [1.89 x 0.94]	chromated <b>G300004</b>

Suitable gaskets, other accessories and installation examples for optional accessories can be found in chapter accessories or in the accessories section under: [www.kuebler.com/accessories](http://www.kuebler.com/accessories).

## Technical data

General technical data	
<b>Display</b>	LCD, 8 digits, 8 mm [0.32"] high
<b>Backlighting</b>	external electrical source 24 V DC $\pm 20\%$ , 50 mA
<b>Modes</b>	counting direction (count and direction input) or differential counting
<b>Display range</b>	-9999999 ... 99999999, with overflow display
<b>Reset</b>	manual and electrical
<b>Working temperature</b>	-10°C ... +55°C [+14°F ... +131°F] (non-condensing)
<b>Operating temperature</b>	-10°C ... +60°C [+14°F ... +140°F] (non-condensing)
<b>Storage temperature</b>	-20°C ... +70°C [-4°F ... +158°F]
<b>Altitude</b>	up to 2000 m [6562']

Electrical characteristics	
<b>Power supply</b>	internal lithium battery approx. 8 years at 20°C [68°F]
<b>EMC standards</b>	EN 55011 class B, EN 61000-6-2, EN 61000-6-3
<b>Device safety</b>	designed to protection class application area EN 61010 part 1 2 pollution level 2
<b>UL approval</b>	file E128604

Mechanical characteristics	
<b>Housing</b>	dark grey RAL 7021
<b>Protection</b>	IP65 (front side)
<b>Weight</b>	approx. 50 g [1.76 oz]

## Counting inputs

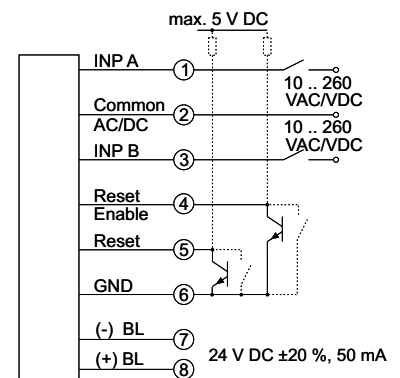
Counting input of the high voltage versions (10 ... 260 V DC/AC)	
counting and direction input	
optocoupler input	max. 30 Hz
minimum pulse time	16 ms
switching level	LOW 0 ... 2 V AC/DC HIGH 10 ... 260 V AC/DC

Reset input	
minimum pulse time	DC 50 ms high voltage 16 ms
contact input DC – NPN	LOW 0 ... 0.7 VDC HIGH 3 ... 30 V DC

Electrical reset key locking	
contact input	open collector NPN (switching at 0 V)
switching level – NPN	LOW 0 ... 0.7 V DC HIGH 3 ... 5 V DC

## Terminal assignment

AC type: 6.132.012.8x3



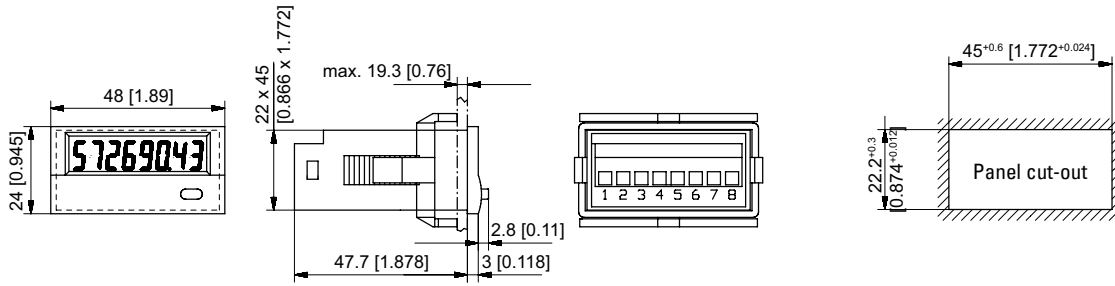
BL = backlighting

# Pulse counters, electronic

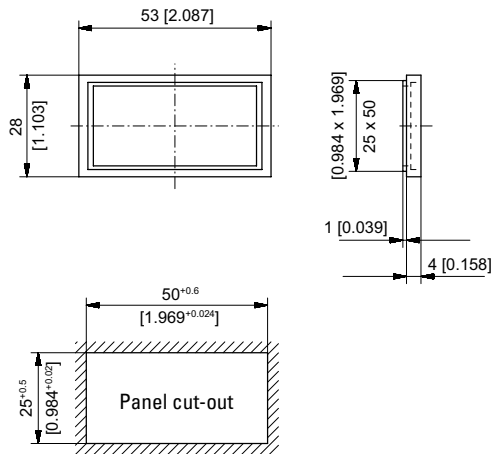
## LCD pulse counters With count direction AC (battery) Codix 132

### Dimensions

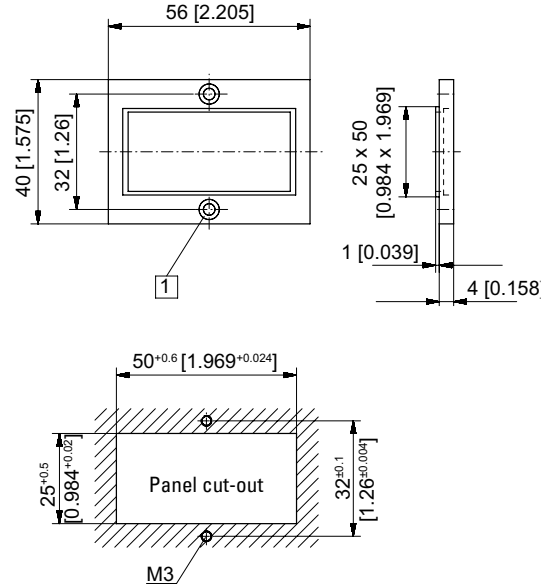
Dimensions in mm [inch]



### Front bezel for clip mounting (included in delivery)



### Front bezel for screw mounting (included in delivery)



1 Countersinking Af3, DIN 74

Product overview  
Basics

Pulse counters

Preset counters

Hour meters  
Timers

Frequency displays  
Tachometers

Position displays

Multifunction  
devices

Energy meters

Process devices

Temperature  
devices

Strain-gauge  
controllers

Accessories  
Index

# Pulse counters, electronic

## LCD pulse counters    Adding counter / service counter (DC)    Codix 140 / 142



The Codix 140 / 142 is a simple voltage powered pulse counter for fast and slow count pulses, with 7-digit LCD display for NPN / PNP input signals.  
Optional: can be factory pre-programmed.

**Codix 140: Standard counter**  
**Codix 142: Service counter**



<b>DC</b> 10 ... 30V Power supply	<b>PNP/NPN</b> Input type	<b>max.</b> 8 kHz Max. count frequency	<b>-20°...+65°C</b> Temperature range	<b>IP65</b> High protection level	<b>000000</b> DIN front bezel	<b>123...</b> 7 LCDs LCD display	<b>12345</b> 00000 Lockable reset	<b>1</b> Transistor output (142)
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### Functional

- Direct display of the total number of pulses.
- Key press displays preset service value and its pre-signal.
- Preset value output as display text and transistor output.
- Pre-signal for the service intervals as display text.
- Manual or electrical reset of the display or of the service intervals.
- Fast PNP or damped NPN control via separate inputs.

### User friendly

- Power supply 10 ... 30 V DC.
- Values stored in EEPROM.
- Fixed pre-programmed service intervals e.g. Service at 5000 imp (service)  
Pre-signal at 4900 imp (pre-service)  
Blinking text message on the display (service or pre-service).
- Multifunction reset key can be enabled via "Reset Enable" input.
- Reset to delivery condition possible.
- Can be factory pre-programmed.

**Order code**  
**Standard counter**    6.140 . 012 . 300 . XXXX <sup>a</sup>

<sup>a</sup> Option 1<sup>1)</sup>, divisor  
(If divisor is 1 then omit last 4 digits from code)  
**0002 ... 4095**

Stock types  
6.140.012.300

Delivery specification

- Counter
- Mounting clip
- Gaskets
- Instruction manual, multilingual

**Order code**  
**Service counter**    6.142 . 011 . 300 . XXXX <sup>a</sup> . XX <sup>b</sup> . XXXX <sup>c</sup>

<sup>a</sup> Option 3<sup>1)</sup>, service preset  
**005K = 5000**

<sup>b</sup> Option 2<sup>1)</sup>, pre-warning  
**00 =** Pre-warning at 100 before the preset service value, PRESErV and SErVICE

<sup>c</sup> Option 1<sup>1)</sup>, divisor  
(If divisor is 1 then omit last 4 digits from code)  
**0002 ... 4095**

Delivery specification

- Counter
- Mounting clip
- Gaskets
- Instruction manual, multilingual

1) The option 1 - 3 can be programmed according to customer needs.  
Please note: The min. order quantity for custom versions is 10 pcs with an extra charge, or 200+ pcs with no extra charge.

# Pulse counters, electronic

LCD pulse counters	Adding counter / service counter (DC)		Codix 140 / 142
Accessories	Dimensions in mm [inch]		Order no.
<b>Adapter front bezel, 53 x 28 [2.09 x 1.10]</b>	for cut-out 50 x 25 [1.97 x 0.98] to cut-out 45 x 22.2 [1.77 x 0.87], with clip mounting for counters 48 x 24 [1.89 x 0.94]	anthracite	<b>T008180</b>
<b>Adapter front bezel, 56 x 40 [2.20 x 1.57]</b>	for cut-out 50 x 25 [1.97 x 0.98] to cut-out 45 x 22.2 [1.77 x 0.87], with screw mounting for counters 48 x 24 [1.89 x 0.94]	anthracite	<b>T008181</b>
<b>Adapter front bezel, 72 x 36 [2.83 x 1.42]</b>	for cut-out 68 x 33 [2.68 x 1.30] to cut-out 45 x 22.2 [1.77 x 0.87], for counters 48 x 24 [1.89 x 0.94], as set	black and silver anodised	<b>162704 Set</b>
<b>Adapter front bezel, 48 x 48 [1.89 x 1.89]</b>	for cut-out 45 x 45 [1.77 x 1.77] to cut-out 45 x 22.2 [1.77 x 0.87], with clip mounting for counters 48 x 24 [1.89 x 0.94]	black	<b>T008883</b>
<b>Adapter front bezel, 60 x 50 [2.36 x 1.97]</b>	for cut-out 54 x 29 [2.13 x 1.14] to cut-out 45 x 22.2 [1.77 x 0.87], with screw mounting and gasket for counters 48 x 24 [1.89 x 0.94]	black	<b>N003001</b>
<b>Transparent cover, lockable, IP65</b>	for cut-out 54 x 29 [2.13 x 1.14], for screw mounting to front bezel F1B or adapter front bezel N003001, for counters with cut-out 50 x 25 [1.97 x 0.98] or 45 x 22.2 [1.77 x 0.87]		<b>N003002</b>
<b>Sealing cover type K1, IP65</b>	suitable for front bezel 60 x 50 [2.36 x 1.97], for screw mounting of electromech. counters and via adapter front bezel N003001 for counters 48 x 24 [1.89 x 0.94]		<b>G008301</b>
<b>Mounting frame</b> with cut-out 50 x 25 [2.36 x 1.97] via separate adapter also for 45 x 22.2 [1.77 x 0.87]	for snap-on mounting on 35 [1.38] top-hat DIN rail, for counters 53 x 28 [2.09 x 1.10] and via separate adapter (T008180) for counters 48 x 24 [1.89 x 0.94]	chromated	<b>G300004</b>

Suitable gaskets, other accessories and installation examples for optional accessories can be found in chapter accessories or in the accessories section under: [www.kuebler.com/accessories](http://www.kuebler.com/accessories).

## Technical data

General technical data	
<b>Display</b>	LCD, 7 digits, 8 mm [0.32"] high
<b>Counting range</b>	0 ... 9999999, no decimal point
<b>Data backup</b>	EEPROM
<b>Operating temperature</b>	-20°C ... +65°C [-4°F ... +149°F] (non-condensing)
<b>Storage temperature</b>	-25°C ... +75°C [-13°F ... +167°F]

Electrical characteristics	
<b>Power supply</b>	10 ... 30 V DC, max. 25 mA
<b>Start delay</b>	500 ms
<b>EMC standards</b>	EN 55011 class B, EN 61000-6-2, EN 61000-6-3, EN 61326-1

Mechanical characteristics	
<b>Housing</b>	front panel mount DIN 43700, 48 x 24 mm [1.89 x 0.94"] dark grey Ral 7021
<b>Weight</b>	40 g [1.41 oz]
<b>Protection</b>	IP65 (front side) IP20 (rear side)
<b>Connections</b>	8-pole screw terminals, pitch 5.08 mm [2.00"]
<b>Vibration resistance</b> acc. to EN 60068-2-6	10 ... 55 Hz / 1 mm [0.04"] / 30 min
<b>Shock resistance</b> acc. to EN 60068-2-27	100 G: 2 ms 10 G: 6 ms

Inputs	
<b>Counting input A</b>	fast input, PNP switching (max. 8 kHz)
<b>Counting input B</b>	slow input, NPN switching (mechanical contact, max. 48 Hz)
<b>Reset key enable input</b>	static NPN input
<b>Reset</b>	edge-triggered NPN input (min. 20 ms)
<b>Input resistance</b>	10 kOhm
<b>Switching level</b>	LOW 0 ... 2 V DC HIGH 3.5 ... 30 V DC
<b>Switching threshold</b>	approx. 2.7 V DC
<b>Scaling</b>	1 ... 4095 (factory-set)

Additional data for Codix 142 (service counter)	
<b>Output</b>	NPN transistor output, open collector
<b>Output voltage</b>	max. 30 V DC
<b>Output current</b>	max. 50 mA

**LCD pulse counters**      **Adding counter / service counter (DC)**      **Codix 140 / 142**

### Display and inquiry mode - service counter

If the reset key is not released by means of the activation input of pin 6, pressing the key makes the following functions available to the user.

Press 1 x: The text "SERVICE" is displayed

Press 2 x: The following Service value is displayed

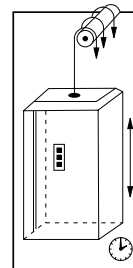
Press 3 x: The text "PrESErV" is displayed

Press 4 x: The following pre-service value is displayed

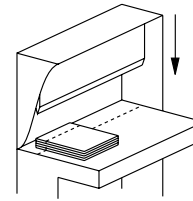
Press 5 x: The current value is displayed

For the service counters, the values counted remain stored, the service values are incremented by the stored preset value when resetting. E.g. service value 5000 pulses, counter count when resetting 5100 pulses, new service value 10100.

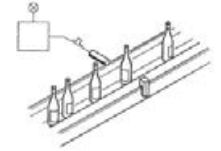
### Applications



Ride counting and service intervals



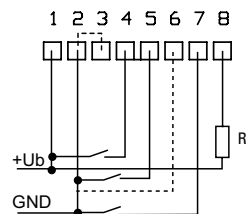
Number of cuts and knife replacement



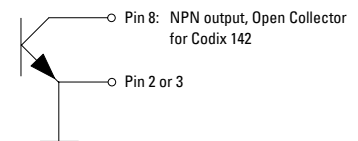
Total quantity and service interval

### Terminal assignment

PIN	Description	Standard counter	Service counter
<b>Power supply</b>			
1	+U <sub>B</sub>	10 ... 30 V DC	10 ... 30 V DC
2	0 V DC, GND	GND	GND
<b>Inputs</b>			
3	0 V DC, GND	GND	GND
4	Fast counting input	INP PNP	INP PNP
5	Slow counting input	INP NPN	INP NPN
6	Reset enable input	RESET MANUAL ENABLE	RESET MANUAL ENABLE
7	Reset input	RESET	RESET
<b>Output</b>			
8	NPN output	n.c.	OUT

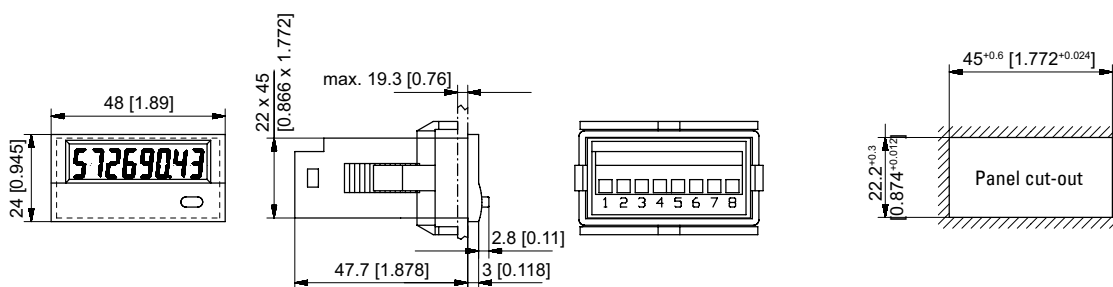


Output 8 is used only with Codix 142 as a NPN output



### Dimensions

Dimensions in mm [inch]



Product overview  
Basics  
Pulse counters  
Pre-set counters  
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**LED pulse counters**      **Adding (DC)**      **Codix 520**



The Codix 520 is a simple voltage powered pulse counter for fast and slow count pulses, with 6-digit LED display, for NPN / PNP input signals.



<b>DC</b> 10 ... 30V Power supply	<b>000000</b> DIN 48 x 24 DIN front bezel	<b>-20° + 65°</b> Temperature range	<b>IP65</b> High protection level	<b>PROG</b> Menu-driven programming	<b>GLOVE</b> Operation with gloves	<b>PNP/NPN</b> Input type	<b>max. 60 kHz</b> Pulse counter/ Totalizer
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### Powerful

- Fast count input – input frequency max. 60 kHz.
- Robust housing – IP65 protected.
- Very bright LED display, 8 mm high.
- Simple totalizing and quantity counter
  - single channel count input and reset input.
  - programmable for positive (PNP) or OV (NPN) switching input pulses.
  - fast count input with an input frequency of max. 60 kHz, can be damped to 30 Hz for mechanical contacts.
- Short start-up time – detects input pulses just 16 msec after being switched on => no pulses are lost with a simultaneous motor start-up.

### User-friendly

- Large keys – can also be operated when wearing gloves.
- Simple uniform menu-driven programming and operation – possible to enter the programming also during operation with a confirmation prompt.
- Programmable decimal point, can be set from 0.0 to 0.000.
- Manual or electrical reset – tamper-proof due to lockable reset function.
- As an alternative to the HTL inputs, devices are available with a 4 ... 30 V DC input level, for use as parallel displays to PLCs.

### Order code

6.520 . 012 . 3X0

**a** Input switching level  
0 = Standard (HTL)<sup>1)</sup>  
A = 4 ... 30 V DC

#### Delivery specification

- Counter
- Mounting clip
- Front bezel for screw mounting (T008181) 56 x 40 mm [2.20 x 1.57"], panel cut-out 50 x 25 mm [1.97 x 0.98"]
- Front bezel for clip mounting (T008180) 53 x 28 mm [2.09 x 1.10"], panel cut-out 50 x 25 mm [1.97 x 0.98"]
- Gasket
- Instruction manual, multilingual

1) Stock types.

# Pulse counters, electronic

LED pulse counters	Adding (DC)	Codix 520
<b>Accessories</b>	Dimensions in mm [inch]	Order no.
<b>Adapter front bezel, 72 x 36 [2.83 x 1.42]</b>	for cut-out 68 x 33 [2.68 x 1.30] to cut-out 45 x 22.2 [1.77 x 0.87], for counters 48 x 24 [1.89 x 0.94], as set	black and silver anodised <b>162704 Set</b>
<b>Adapter front bezel, 48 x 48 [1.89 x 1.89]</b>	for cut-out 45 x 45 [1.77 x 1.77] to cut-out 45 x 22.2 [1.77 x 0.87], with clip mounting for counters 48 x 24 [1.89 x 0.94]	black <b>T008883</b>
<b>Adapter front bezel, 60 x 50 [2.36 x 1.97]</b>	for cut-out 54 x 29 [2.13 x 1.14] to cut-out 45 x 22.2 [1.77 x 0.87], with screw mounting and gasket for counters 48 x 24 [1.89 x 0.94]	black <b>N003001</b>
<b>Transparent cover, lockable, IP65</b>	for cut-out 54 x 29 [2.13 x 1.14], for screw mounting to front bezel F1B or adapter front bezel N003001, for counters with cut-out 50 x 25 [1.97 x 0.98] or 45 x 22.2 [1.77 x 0.87]	<b>N003002</b>
<b>Sealing cover type K1, IP65</b>	suitable for front bezel 60 x 50 [2.36 x 1.97], for screw mounting of electromech. counters and via adapter front bezel N003001 for counters 48 x 24 [1.89 x 0.94]	<b>G008301</b>
<b>Mounting frame</b> with cut-out 50 x 25 [2.36 x 1.97] via separate adapter also for 45 x 22.2 [1.77 x 0.87]	for snap-on mounting on 35 [1.38] top-hat DIN rail, for counters 53 x 28 [2.09 x 1.10] and via separate adapter (T008180) for counters 48 x 24 [1.89 x 0.94]	chromated <b>G300004</b>

Suitable gaskets, other accessories and installation examples for optional accessories can be found in chapter accessories or in the accessories section under: [www.kuebler.com/accessories](http://www.kuebler.com/accessories).

## Technical data

General technical data	
<b>Display</b>	6 digits, red 7 segment LED display; 8 mm [0.32"] high
<b>Data backup</b>	EEPROM
<b>Operating temperature</b>	10 ... 26 V DC -20°C ... +65°C [-4°F ... +149°F] > 26 ... 30 V DC -20°C ... +55°C [-4°F ... +131°F] (non-condensing)
<b>Storage temperature</b>	-25°C ... +70°C [-13°F ... +158°F]

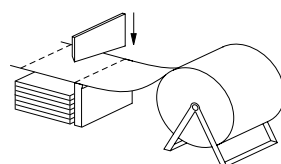
Inputs	
<b>Polarity of inputs</b>	programmable, NPN or PNP for all inputs
<b>Input resistance</b>	approx. 5 kΩ
<b>Counting frequency</b>	max. 60 kHz, can be damped to 30 Hz
<b>Minimum pulse duration of the reset input</b>	5 ms
<b>Input switching level (HTL)</b>	LOW 0 ... 0.2 x U <sub>B</sub> (V DC) HIGH 0.6 x U <sub>B</sub> ... 30 V DC
<b>Input switching level at 4 ... 30 V DC</b>	LOW 0 ... 2 V DC HIGH 4 ... 30 V DC

Electrical characteristics	
<b>Power supply</b>	10 ... 30 V DC, with integrated reverse polarity protection
<b>Current consumption</b>	max. 45 mA
<b>EMC standards</b>	EN 55011 class B, EN 61000-6-2, EN 61000-6-3, EN 61326-1
<b>UL approval</b>	file E128604

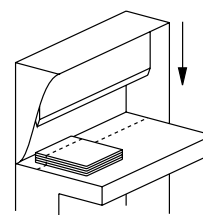
Mechanical characteristics	
<b>Housing</b>	front panel mount 48x24 mm [1.89 x 0.94"] acc. to DIN 43700; RAL 7021, dark grey
<b>Protection</b>	IP65 (front side)
<b>Weight</b>	approx. 50 g [1.76 oz]
<b>Vibration resistance acc. to EN 60068-2-6</b>	10 ... 55 Hz / 1 mm [0.04"] / 30 min
<b>Shock resistance acc. to EN 60068-2-27</b>	100 G: 2 ms 10 G: 6 ms

## Applications for pulse counters / totalizers

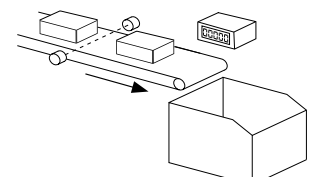
- Simple count tasks such as quantity and piece counting
- Accessories, OEM equipment or retrofitting to production machines
- Piece counting on die cutters, presses, extruders, woodworking machines, drilling machines, pick-and-place machines, guillotines, special-purpose vehicles etc.



Piece-counting



Number of cuts



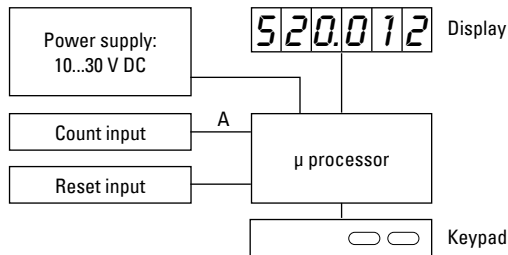
Piece-counting on conveyor

## LED pulse counters

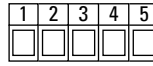
## Adding (DC)

## Codix 520

### Block diagram



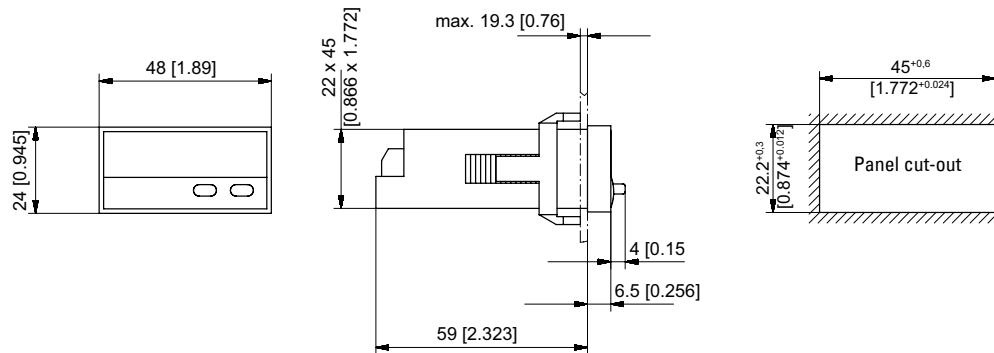
### Terminal assignment



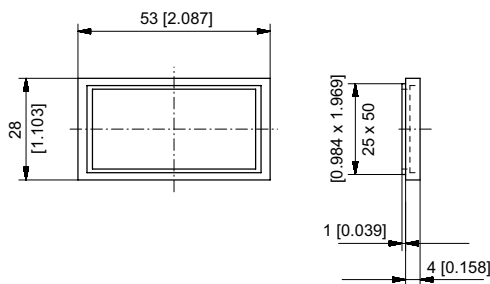
PIN	without optocoupler
1	10 ... 30 V DC
2	0 V GND
3	INP
4	-
5	Reset

### Dimensions

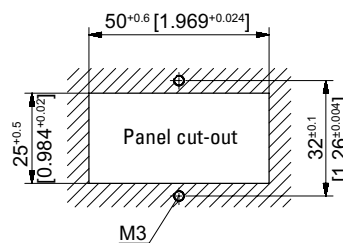
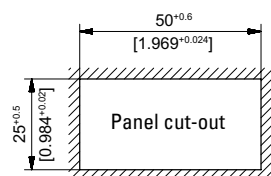
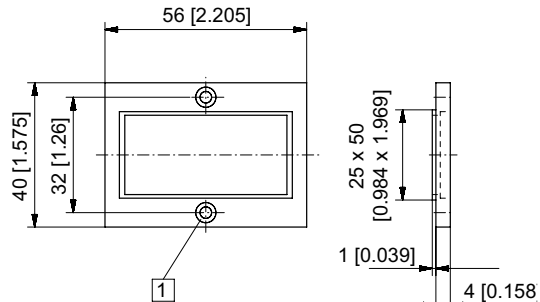
Dimensions in mm [inch]



### Front bezel for clip mounting (included in delivery)



### Front bezel for screw mounting (included in delivery)



1 Countersinking Af3, DIN 74



**LED pulse counters**      **6 count modes (DC)**      **Codix 521**



The Codix 521 is a voltage powered pulse counter / position display for fast and slow count pulses, with 6-digit LED display for NPN, PNP input signals.

Equipped with 4 count input modes: count direction, difference, addition, quadrature (phase discriminator) x1, x2 and x4.



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<b>DC</b> 10 ... 30V Power supply	 DIN 48 x 24 DIN front bezel	 - 20° + 65° Temperature range	 IP65 High protection level	 Menu-driven programming	 max. 60 kHz Pulse counter/Totalizer	 POSITION Position display	 1 2 1 Count with direction (DIR)	 1 2 1 Differential count (up.dn)	 1 3 4 Add/Add count (up.up)	 1 1 2 3 4 Phase discriminator
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### Powerful

- Fast count input – input frequency max. 60 kHz.
- Robust housing – IP65 protected.
- Very bright LED display, 8 mm high.
- Position, difference, adding or count direction detection
  - programmable for positive (PNP) or OV (NPN) switching input pulses.
  - fast count input with an input frequency of max. 60 kHz, can be damped to 30 Hz for mechanical contacts.
- Short start-up time – detects input pulses just 16 msec after being switched on => no pulses are lost with a simultaneous motor start-up.

### User-friendly

- Large keys – can also be operated when wearing gloves.
- Simple uniform menu-driven programming and operation – possible to enter the programming also during operation with a confirmation prompt.
- Individually programmable scaling: Multiplication and division factor (0.0001...99.9999), to display corresponding engineering units, e.g. position in 1/10 mm or packing units.
- 4 different count input modes: 2-channel count input for detecting count direction, difference or adding mode, quadrature with x1, x2 or x4 evaluation.
- Freely programmable setpoint.
- As an alternative to the HTL inputs, devices are available with a 4 ... 30 V DC input level, for use as parallel displays to PLCs.
- Optional output - as zero signal.

### Order code

6.521 . 01 X . 3 X 0

- a** Output  
1 = optocoupler output  
2 = no output <sup>1)</sup>
- b** Input switching level  
0 = Standard (HTL) <sup>1)</sup>  
A = 4 ... 30 V DC

#### Delivery specification

- Counter
- Mounting clip
- Front bezel for screw mounting (T008181) 56 x 40 mm [2.20 x 1.57"], panel cut-out 50 x 25 mm [1.97 x 0.98"]
- Front bezel for clip mounting (T008180) 53 x 28 mm [2.09 x 1.10"], panel cut-out 50 x 25 mm [1.97 x 0.98"]
- Gasket
- Instruction manual, multilingual

1) Stock types.

# Pulse counters, electronic

## LED pulse counters 6 count modes (DC) Codix 521

Accessories	Dimensions in mm [inch]	Order no.
<b>Adapter front bezel, 72 x 36 [2.83 x 1.42]</b>	for cut-out 68 x 33 [2.68 x 1.30] to cut-out 45 x 22.2 [1.77 x 0.87], for counters 48 x 24 [1.89 x 0.94], as set black and silver anodised	<b>162704 Set</b>
<b>Adapter front bezel, 48 x 48 [1.89 x 1.89]</b>	for cut-out 45 x 45 [1.77 x 1.77] to cut-out 45 x 22.2 [1.77 x 0.87], with clip mounting for counters 48 x 24 [1.89 x 0.94]	black <b>T008883</b>
<b>Adapter front bezel, 60 x 50 [2.36 x 1.97]</b>	for cut-out 54 x 29 [2.13 x 1.14] to cut-out 45 x 22.2 [1.77 x 0.87], with screw mounting and gasket for counters 48 x 24 [1.89 x 0.94]	black <b>N003001</b>
<b>Transparent cover, lockable, IP65</b>	for cut-out 54 x 29 [2.13 x 1.14], for screw mounting to front bezel F1B or adapter front bezel N003001, for counters with cut-out 50 x 25 [1.97 x 0.98] or 45 x 22.2 [1.77 x 0.87]	<b>N003002</b>
<b>Sealing cover type K1, IP65</b>	suitable for front bezel 60 x 50 [2.36 x 1.97], for screw mounting of electromech. counters and via adapter front bezel N003001 for counters 48 x 24 [1.89 x 0.94]	<b>G008301</b>
<b>Mounting frame</b> with cut-out 50 x 25 [2.36 x 1.97] via separate adapter also for 45 x 22.2 [1.77 x 0.87]	for snap-on mounting on 35 [1.38] top-hat DIN rail, for counters 53 x 28 [2.09 x 1.10] and via separate adapter (T008180) for counters 48 x 24 [1.89 x 0.94]	chromated <b>G300004</b>

Suitable gaskets, other accessories and installation examples for optional accessories can be found in chapter accessories or in the accessories section under: [www.kuebler.com/accessories](http://www.kuebler.com/accessories).

### Technical data

General technical data	
<b>Display</b>	6 digits, red 7 segment LED display; 8 mm [0.32"] high
<b>Data backup</b>	EEPROM
<b>Operating temperature</b>	10 ... 26 V DC -20°C ... +65°C [-4°F ... +149°F] > 26 ... 30 V DC -20°C ... +55°C [-4°F ... +131°F] (non-condensing)
<b>Storage temperature</b>	-25°C ... +70°C [-13°F ... +158°F]
Inputs	
<b>Polarity of inputs</b>	programmable, NPN or PNP for all inputs
<b>Input resistance</b>	approx. 5 kΩ
<b>Counting frequency</b>	max. 60 kHz, can be damped to 30 Hz; for position display max. 25 kHz
<b>Minimum pulse duration of the reset input</b>	5 ms
<b>Input switching level (HTL)</b>	LOW 0 ... 0.2 x U <sub>B</sub> (V DC) HIGH 0.6 x U <sub>B</sub> ... 30 V DC
<b>Input switching level at 4 ... 30 V DC</b>	LOW 0 ... 2 V DC HIGH 4 ... 30 V DC

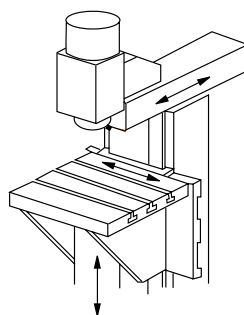
Electrical characteristics	
<b>Power supply</b>	10 ... 30 V DC, with reverse polarity protection
<b>Current consumption</b>	max. 55 mA
<b>EMC standards</b>	EN 55011 class B, EN 61000-6-2, EN 61000-6-3, EN 61326-1
<b>UL approval</b>	file E128604

Mechanical characteristics	
<b>Housing</b>	front panel mount 48x24 mm [1.89 x 0.94"] acc. to DIN 43700; RAL 7021, dark grey
<b>Protection</b>	IP65 (front side)
<b>Weight</b>	approx. 50 g [1.76 oz]
<b>Vibration resistance</b> acc. to EN 60068-2-6	10 ... 55 Hz / 1 mm [0.04"] / 30 min
<b>Shock resistance</b> acc. to EN 60068-2-27	100 G: 2 ms 10 G: 6 ms

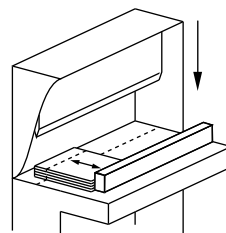
Outputs (optional)	
<b>Optocoupler output</b>	max. 30 V DC, 10 mA

### Applications for position displays / totalizers

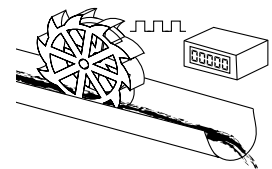
- Positioning tasks on processing machines, such as sawing machines, milling machines, bending and folding machines, etc.
- Production data acquisition by means of piece counting (using difference or adding)
- Totalizing flow, quantity and other scalable media
- Counting tasks such as quantity and piece counting
- Accessories, OEM equipment or retrofitting to production machines
- Piece counting on die cutters, presses, extruders, woodworking machines, drilling machines, pick-and-place machines, guillotines, special-purpose vehicles etc.



Position on milling machine



Position or quantity

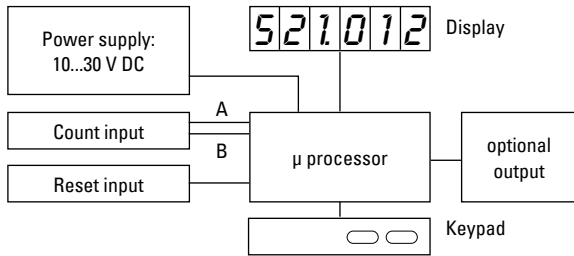


Flow rate

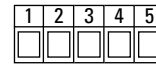
# Pulse counters, electronic

## LED pulse counters 6 count modes (DC) Codix 521

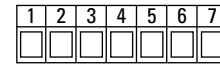
### Block diagram



### Terminal assignment



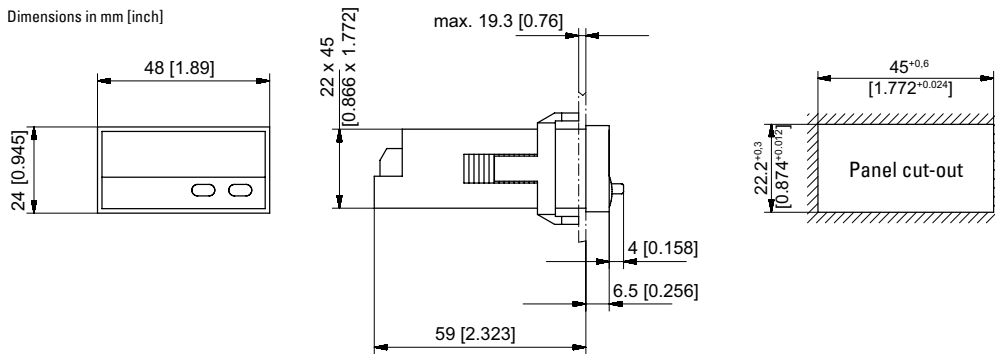
PIN	without optocoupler
1	10 ... 30 V DC
2	0 V GND
3	INP A
4	INP B
5	Reset



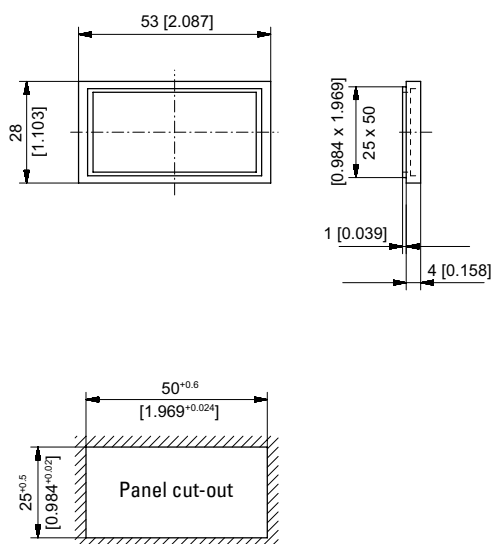
PIN	with optocoupler (NPN)
1	10 ... 30 V DC
2	0 V GND
3	INP A
4	INP B
5	Reset
6	Emitter
7	Collector

### Dimensions

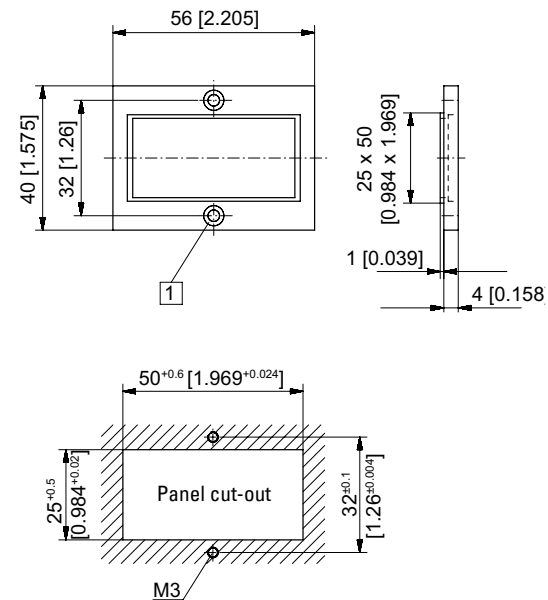
Dimensions in mm [inch]



### Front bezel for clip mounting (included in delivery)



### Front bezel for screw mounting (included in delivery)



1 Countersinking Af3, DIN 74

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Accessories Index

## LED pulse counters

## 2 counters with separate scaling (DC)

## Codix 52T



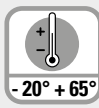
The Codix 52T is a voltage powered dual pulse counter with a common input and separate scaling, for fast and slow count pulses, with 6-digit LED display for NPN, PNP input signals and display switching between A and B.



Power supply



DIN front bezel



Temperature range



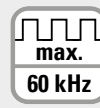
High protection level



Menu-driven programming



Operation with gloves



Pulse counter/Totalizer



Input type

### Powerful

- Fast count input – input frequency max. 60 kHz.
- Robust housing – IP65 protected.
- Very bright LED display, 8 mm high.
- Single channel dual totalizer
  - programmable for positive (PNP) or OV (NPN) switching input pulses.
  - fast count inputs with an input frequency of max. 60 kHz, can be damped to 30 Hz for mechanical contacts.
- Short start-up time – detects input pulses just 16 msec after being switched on => no pulses are lost with a simultaneous motor start-up.

### User-friendly and universal

- Large keys – can also be operated when wearing gloves.
- Simple uniform menu-driven programming and operation – possible to enter the programming also during operation with a confirmation prompt.
- Individually programmable scaling for both counters multiplication and division factor (0.0001...99.9999), to display corresponding units in, for example, litres, length or packaging size.
- Simple display switching between counters 1 and 2.
- DC power supply.
- As an alternative to the HTL units, models are also available with a fixed signal level threshold >4 V DC for use with TTL signals.
- Reset manual or electrical, programmable separately for both counters (the reset can also be locked out).

### Order code

6.52T . 012 . 3X0<sup>a</sup>

#### <sup>a</sup> Input switching level

- 0 = Standard (HTL)
- A = Fixed level
  - LOW 0 ... 2 V DC
  - HIGH 4 ... 30 V DC

#### Delivery specification

- Counter
- Mounting clip
- Front bezel for screw mounting (T008181) 56 x 40 mm [2.20 x 1.57"], panel cut-out 50 x 25 mm [1.97 x 0.98"]
- Front bezel for clip mounting (T008180) 53 x 28 mm [2.09 x 1.10"], panel cut-out 50 x 25 mm [1.97 x 0.98"]
- Gasket
- Instruction manual, multilingual

Product overview  
Basics

Pulse counters

Preset counters

Hour meters  
Timers

Frequency displays  
Tachometers

Position displays

Multifunction  
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Energy meters

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devices

Strain-gauge  
controllers

Accessories  
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# Pulse counters, electronic

## LED pulse counters      2 counters with separate scaling (DC)      Codix 52T

Accessories	Dimensions in mm [inch]	Order no.
<b>Adapter front bezel, 72 x 36 [2.83 x 1.42]</b>	for cut-out 68 x 33 [2.68 x 1.30] to cut-out 45 x 22.2 [1.77 x 0.87], for counters 48 x 24 [1.89 x 0.94], as set      black and silver anodised	<b>162704 Set</b>
<b>Adapter front bezel, 48 x 48 [1.89 x 1.89]</b>	for cut-out 45 x 45 [1.77 x 1.77] to cut-out 45 x 22.2 [1.77 x 0.87], with clip mounting for counters 48 x 24 [1.89 x 0.94]      black	<b>T008883</b>
<b>Adapter front bezel, 60 x 50 [2.36 x 1.97]</b>	for cut-out 54 x 29 [2.13 x 1.14] to cut-out 45 x 22.2 [1.77 x 0.87], with screw mounting and gasket for counters 48 x 24 [1.89 x 0.94]      black	<b>N003001</b>
<b>Transparent cover, lockable, IP65</b>	for cut-out 54 x 29 [2.13 x 1.14], for screw mounting to front bezel F1B or adapter front bezel N003001, for counters with cut-out 50 x 25 [1.97 x 0.98] or 45 x 22.2 [1.77 x 0.87]	<b>N003002</b>
<b>Sealing cover type K1, IP65</b>	suitable for front bezel 60 x 50 [2.36 x 1.97], for screw mounting of electromech. counters and via adapter front bezel N003001 for counters 48 x 24 [1.89 x 0.94]	<b>G008301</b>
<b>Mounting frame</b> with cut-out 50 x 25 [2.36 x 1.97] via separate adapter also for 45 x 22.2 [1.77 x 0.87]	for snap-on mounting on 35 [1.38] top-hat DIN rail, for counters 53 x 28 [2.09 x 1.10] and via separate adapter (T008180) for counters 48 x 24 [1.89 x 0.94]      chromated	<b>G300004</b>

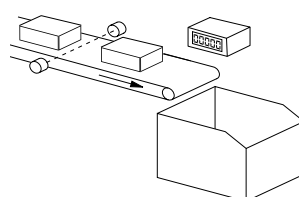
Suitable gaskets, other accessories and installation examples for optional accessories can be found in chapter accessories or in the accessories section under: [www.kuebler.com/accessories](http://www.kuebler.com/accessories).

### Technical data

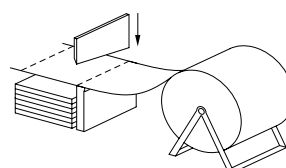
General technical data		Electrical characteristics	
<b>Display</b>	6 digits, red 7 segment LED display; 8 mm [0.32"] high	<b>Power supply</b>	10 ... 30 V DC, with integrated reverse polarity protection
<b>Data backup</b>	EEPROM	<b>Current consumption</b>	max. 40 mA
<b>Operating temperature</b>	10 ... 26 V DC    -20°C ... +65°C [-4°F ... +149°F] > 26 ... 30 V DC    -20°C ... +55°C [-4°F ... +131°F] (non-condensing)	<b>EMC standards</b>	EN 55011 class B, EN 61000-6-2, EN 61000-6-3, EN 61326-1
<b>Storage temperature</b>	-25°C ... +70°C [-13°F ... +158°F]	<b>UL approval</b>	file E128604
Inputs		Mechanical characteristics	
<b>Polarity of inputs</b>	programmable, NPN or PNP for all inputs	<b>Housing</b>	front panel mount 48x24mm [1.89 x 0.94"] acc. to DIN 43700; RAL 7021, dark grey
<b>Input resistance</b>	approx. 5 kΩ	<b>Protection</b>	IP65 (front side)
<b>Counting frequency</b>	max. 60 kHz, can be damped to 30 Hz	<b>Weight</b>	approx. 50 g [1.76 oz]
<b>Minimum pulse duration of the reset input</b>	5 ms	<b>Vibration resistance</b> acc. to EN 60068-2-6	10 ... 55 Hz / 1 mm [0.04"] / 30 min
<b>Input switching level (HTL)</b>	LOW    0 ... 0.2 x U <sub>B</sub> (V DC) HIGH    0.6 x U <sub>B</sub> ... 30 V DC	<b>Shock resistance</b> acc. to EN 60068-2-27	100 G: 2 ms 10 G: 6 ms
<b>Input switching level at 4 ... 30 V DC</b>	LOW    0 ... 2 V DC HIGH    4 ... 30 V DC		

### Application examples for the dual totalizer

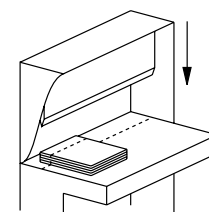
- Logging of piece count and overall total
- Totalizing of flow volumes, quantities and other scalable media
- Counting tasks, such as quantities and piece counting
- Accessories, OEM or retrofit equipment for production machinery
- Piece counting on die-cutters, presses, extruders, wood-processing machines, drilling machines, pick-and-place machines, guillotines, special vehicles
- Measurement of two different values in just one device: e.g. with 2 inputs both the piece count and the number of packages can be counted
- Recording of the total results from 2 work-shifts



Total piece count as well as packing units



Individual and total quantities



Individual and total quantity from 2 work-shifts

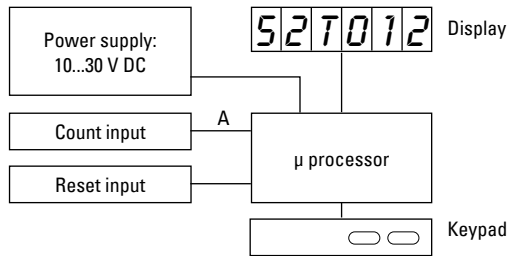
# Pulse counters, electronic

## LED pulse counters

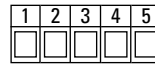
## 2 counters with separate scaling (DC)

## Codix 52T

### Block diagram



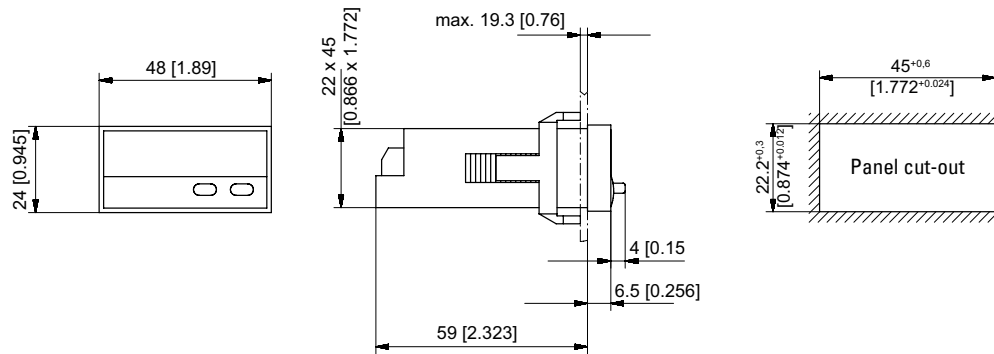
### Terminal assignment



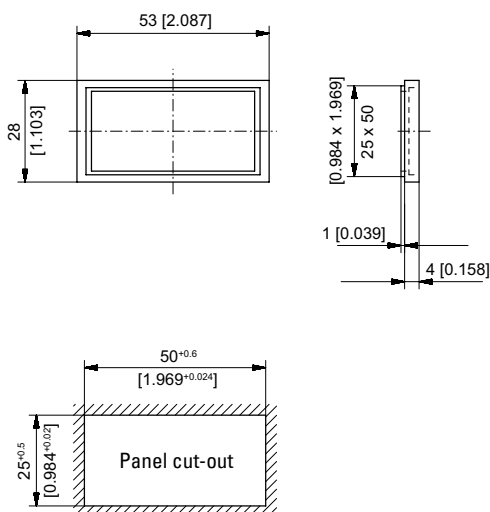
PIN	
1	10 ... 30 V DC
2	0 V GND
3	INP A
4	-
5	Reset

### Dimensions

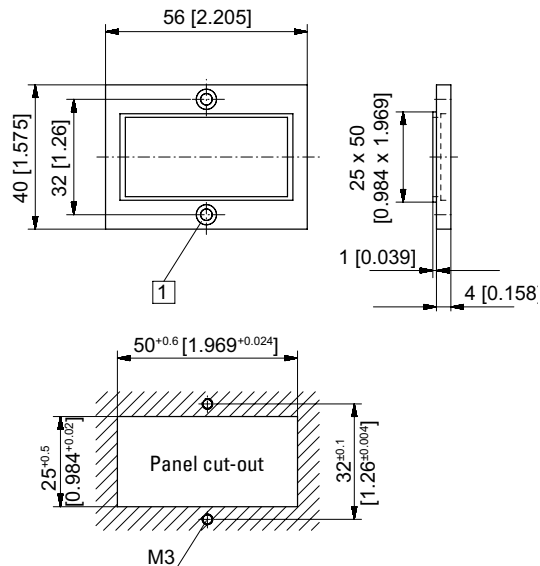
Dimensions in mm [inch]



### Front bezel for clip mounting (included in delivery)



### Front bezel for screw mounting (included in delivery)



1 Countersinking Af3, DIN 74

**LED pulse counters**      **2 counters with separate inputs and separate scaling (DC)**      **Codix 52C**



The Codix 52C is a voltage powered dual pulse counter with separate inputs and separate scaling, for fast and slow count pulses, with 6-digit LED display for NPN, PNP input signals and display switching between A, B, A-B, A+B, A/B, (A-B)/A [%].



<b>DC</b> 10 ... 30V Power supply	<b>000000</b> DIN 48 x 24 DIN front bezel	<b>-20... +65°C</b> Temperature range	<b>IP65</b> High protection level	<b>PROG</b> Menu-driven programming	<b>max.</b> 25 kHz Pulse counter/ Totalizer	<b>PNP/NPN</b> Input type
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### Powerful

- Single channel dual totalizer with 2 separate inputs
  - programmable for positive (PNP) or 0V (NPN) switching input pulses
  - fast count inputs with an input frequency of max. 25 kHz. Can be damped to 30 Hz for mechanical contacts.
- Robust housing – IP65 protected.
- Very bright LED display, 8 mm high.
- Short start-up time – detects input pulses just 16 msec after being switched on => no pulses are lost with a simultaneous motor start-up.

### User-friendly and universal

- Large keys – can also be operated when wearing gloves.
- Simple uniform menu-driven programming and operation – possible to enter the programming also during operation with a confirmation prompt.
- Individually programmable scaling for inputs A and B multiplication and division factor (0.0001...99.9999), to display corresponding units in, for example, litres, length or packaging size.
- Simple display switching from A to B or A+B, A-B, A/B, (A-B)/A [%].
- DC power supply.
- As an alternative to the HTL units, models are also available with a fixed signal level threshold >4 ... 30 V DC for use with TTL signals.
- Reset manual or electrical, programmable separately for both counters (the reset can also be locked out).

### Order code

6.52C . 012 . 3X0<sup>a</sup>

- a** Input switching level  
 0 = Standard (HTL)  
 A = 4 ... 30 V DC  
     LOW 0 ... 2 V DC  
     HIGH 4 ... 30 V DC

#### Delivery specification

- Counter
- Mounting clip
- Front bezel for screw mounting (T008181) 56 x 40 mm [2.20 x 1.57"], panel cut-out 50 x 25 mm [1.97 x 0.98"]
- Front bezel for clip mounting (T008180) 53 x 28 mm [2.09 x 1.10"], panel cut-out 50 x 25 mm [1.97 x 0.98"]
- Gasket
- Instruction manual, multilingual

Product overview  
Basics

Pulse counters

Preset counters

Hour meters  
Timers

Frequency displays  
Tachometers

Position displays

Multifunction devices

Energy meters

Process devices

Temperature devices

Strain-gauge controllers

Accessories  
Index

# Pulse counters, electronic

## LED pulse counters      2 counters with separate inputs and separate scaling (DC)      Codix 52C

Accessories	Dimensions in mm [inch]	Order no.
<b>Adapter front bezel, 72 x 36 [2.83 x 1.42]</b>	for cut-out 68 x 33 [2.68 x 1.30] to cut-out 45 x 22.2 [1.77 x 0.87], for counters 48 x 24 [1.89 x 0.94], as set      black and silver anodised	<b>162704 Set</b>
<b>Adapter front bezel, 48 x 48 [1.89 x 1.89]</b>	for cut-out 45 x 45 [1.77 x 1.77] to cut-out 45 x 22.2 [1.77 x 0.87], with clip mounting for counters 48 x 24 [1.89 x 0.94]      black	<b>T008883</b>
<b>Adapter front bezel, 60 x 50 [2.36 x 1.97]</b>	for cut-out 54 x 29 [2.13 x 1.14] to cut-out 45 x 22.2 [1.77 x 0.87], with screw mounting and gasket for counters 48 x 24 [1.89 x 0.94]      black	<b>N003001</b>
<b>Transparent cover, lockable, IP65</b>	for cut-out 54 x 29 [2.13 x 1.14], for screw mounting to front bezel F1B or adapter front bezel N003001, for counters with cut-out 50 x 25 [1.97 x 0.98] or 45 x 22.2 [1.77 x 0.87]	<b>N003002</b>
<b>Sealing cover type K1, IP65</b>	suitable for front bezel 60 x 50 [2.36 x 1.97], for screw mounting of electromech. counters and via adapter front bezel N003001 for counters 48 x 24 [1.89 x 0.94]	<b>G008301</b>
<b>Mounting frame</b> with cut-out 50 x 25 [2.36 x 1.97] via separate adapter also for 45 x 22.2 [1.77 x 0.87]	for snap-on mounting on 35 [1.38] top-hat DIN rail, for counters 53 x 28 [2.09 x 1.10] and via separate adapter (T008180) for counters 48 x 24 [1.89 x 0.94]      chromated	<b>G300004</b>

Suitable gaskets, other accessories and installation examples for optional accessories can be found in chapter accessories or in the accessories section under: [www.kuebler.com/accessories](http://www.kuebler.com/accessories).

### Technical data

General technical data	
<b>Display</b>	6 digits, red 7 segment LED display; 8 mm [0.32"] high
<b>Data backup</b>	EEPROM
<b>Operating temperature</b>	10 ... 26 V DC    -20°C ... +65°C [-4°F ... +149°F] > 26 ... 30 V DC    -20°C ... +55°C [-4°F ... +131°F] (non-condensing)
<b>Storage temperature</b>	-25°C ... +70°C [-13°F ... +158°F]

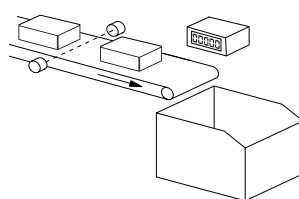
Inputs	
<b>Polarity of inputs</b>	programmable, NPN or PNP for all inputs
<b>Input resistance</b>	approx. 5 kΩ
<b>Counting frequency</b>	max. 25 kHz, can be damped to 30 Hz
<b>Minimum pulse duration of the reset input</b>	5 ms
<b>Input switching level standard version (HTL)</b>	LOW    0 ... 0.2 x U <sub>B</sub> (V DC) HIGH    0.6 x U <sub>B</sub> ... 30 V DC
<b>Input switching level at 4 ... 30 V DC</b>	LOW    0 ... 2 V DC HIGH    4 ... 30 V DC

Electrical characteristics	
<b>Power supply</b>	10 ... 30 V DC, with reverse polarity protection
<b>Current consumption</b>	max. 40 mA
<b>EMC standards</b>	EN 55011 class B, EN 61000-6-2, EN 61000-6-3, EN 61326-1
<b>UL approval</b>	file E128604

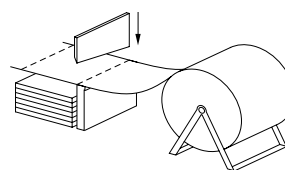
Mechanical characteristics	
<b>Housing</b>	front panel mount 48 x 24 mm [1.89 x 0.94"] acc. to DIN 43700; RAL 7021, dark grey
<b>Protection</b>	IP65 (front side)
<b>Weight</b>	approx. 50 g [1.76 oz]
<b>Vibration resistance acc. to EN 60068-2-6</b>	10 ... 55 Hz / 1 mm [0.04"] / 30 min
<b>Shock resistance acc. to EN 60068-2-27</b>	100 G: 2 ms 10 G: 6 ms

### Application examples for the dual totalizer with separate inputs

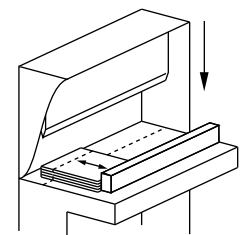
- Logging of piece count and overall total
- Totalizing of flow volumes, quantities and other scalable
- Counting tasks, such as quantities and piece counting
- Accessories, OEM or retrofit equipment for production machinery
- Piece counting on die-cutters, presses, extruders, wood-processing machines, drilling machines, pick-and-place machines, guillotines, special vehicles
- Measurement of two different values in just one device: e.g. with 2 inputs both the piece count and the number of packages can be counted
- Recording of the total results from 2 work-shifts



Total piece count as well as packing units



Individual and total quantities



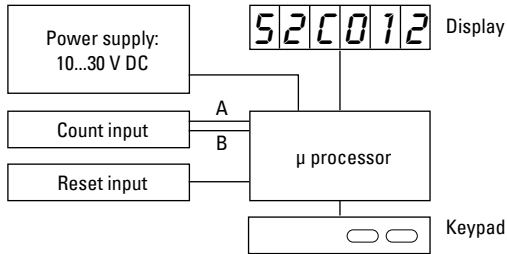
Individual and total quantity from 2 work-shifts



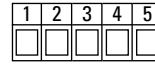
# Pulse counters, electronic

## LED pulse counters      2 counters with separate inputs and separate scaling (DC)      Codix 52C

### Block diagram



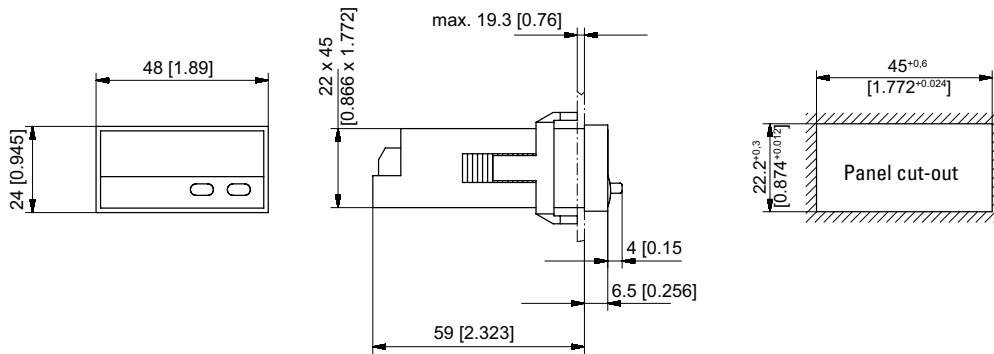
### Terminal assignment



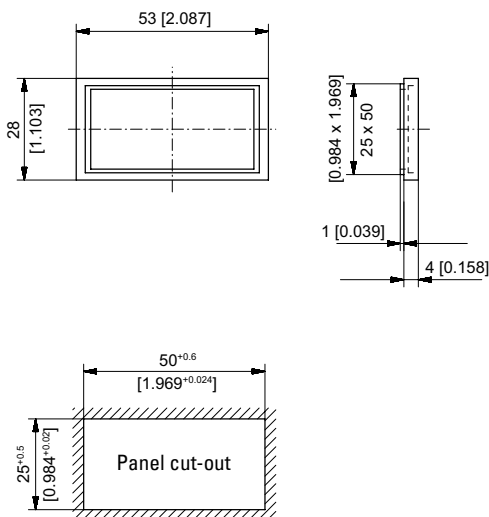
PIN	
1	10 ... 30 V DC
2	0 V GND
3	INP A
4	INP B
5	Reset

### Dimensions

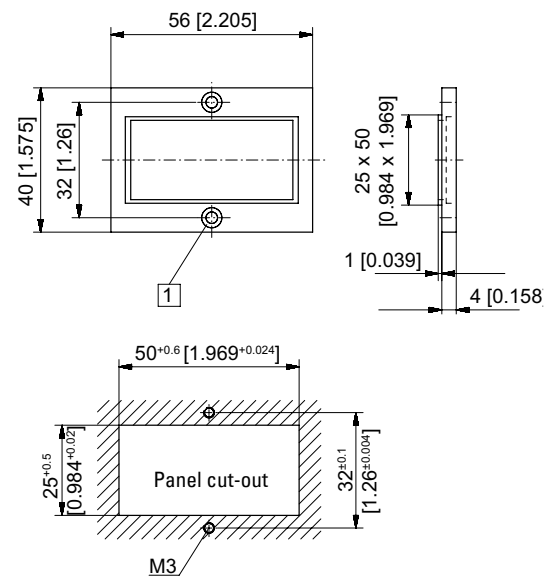
Dimensions in mm [inch]



### Front bezel for clip mounting (included in delivery)



### Front bezel for screw mounting (included in delivery)



1 Countersinking Af3, DIN 74

**LED pulse counters**      **Adding (AC+DC)**      **Codix 540**



The Codix 540 is a simple voltage powered pulse counter for fast and slow count pulses, with 6-digit LED display for NPN, PNP input signals.



<b>DC</b> 10 ... 30 V Power supply	<b>AC</b> 100 ... 240 V Power supply	<b>000000</b> DIN 96 x 48 DIN front bezel	<b>-20° + 65°</b> Temperature range	<b>IP65</b> High protection level	<b>Plug-in screw terminal</b>	<b>Menu-driven programming</b>	<b>Operation with gloves</b>	<b>max. 60 kHz</b> Pulse counter/ Totalizer	<b>PNP/NPN</b> Input type
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### Powerful

- Fast count input – input frequency max. 60 kHz
- Robust housing – IP65 protected
- Very bright LED display, 14 mm high
- Simple totalizing and quantity counter
  - single channel count input and reset input
  - programmable for positive (PNP) or OV (NPN) switching input pulses
  - fast count input with an input frequency of max. 60 kHz, can be damped to 30 Hz for mechanical contacts
- Short start-up time – detects input pulses just 16 msec after being switched on => no pulses are lost with a simultaneous motor start-up

### User-friendly and universal

- Large keys – can also be operated when wearing gloves
- Simple uniform menu-driven programming and operation – possible to enter the programming also during operation with a confirmation prompt
- Programmable decimal point, can be set from 0.0 to 0.00
- Manual or electrical reset – tamper-proof due to lockable reset function
- AC or DC power supply with sensor power supply
- As an alternative to the HTL inputs, devices are available with a 4 ... 30 V DC input level, for use as parallel displays to PLCs

### Order code

**6.540 . 012 . XX0**  
a b

<b>a</b> Power supply 0 = 100 ... 240 V AC, ±10% <sup>1)</sup> 3 = 10 ... 30 V DC <sup>1)</sup>	<b>b</b> Input switching level 0 = Standard (HTL) <sup>1)</sup> A = 4 ... 30 V DC	<b>Delivery specification</b> • Digital display • Mounting clip • Gasket • Instruction manual, multilingual • 2 screw terminals	<b>Replacement parts</b> 7 pin screw terminal RM 3.81 1 ... 7: N100387 2 pin screw terminal RM 5.08 1 ... 2: N100133
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Accessories	Dimensions in mm [inch]	Order no.
<b>Mounting frame</b> with cut-out 92 x 45 [3.62 x 1.77]	for snap-on mounting on 35 [1.38] top-hat DIN rail, for counters 96 x 48 [3.74 x 1.89]	grey <b>G300005</b>

Suitable gaskets as well as further accessories can be found in the accessories section or in the accessories area of our website at: [www.kuebler.com/accessories](http://www.kuebler.com/accessories).

1) Stock types.

# Pulse counters, electronic

## LED pulse counters Adding (AC+DC) Codix 540

### Technical data

General technical data	
Display	6 digit, red 7 segment LED display; 14 mm [0.55"] high
Data backup	EEPROM
Operating temperature	-20°C ... +65°C [-4°F ... +149°F] (non-condensing)
Storage temperature	-25°C ... +70°C [-13°F ... +158°F]
Altitude	up to 2000 m [6562']

Electrical characteristics	
Power supply	10 ... 30 VDC, with reverse polarity protection 100 ... 240 V AC, ±10 %
Current consumption	max. 50 mA, 6 VA
EMC standards	EN 55011 class B, EN 61000-6-2, EN 61000-6-3
Device safety	designed to protection class 2 application area EN 61010 part 1 pollution level 2
UL approval	file E128604

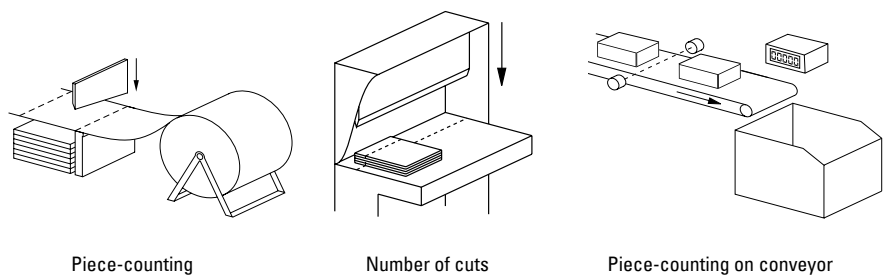
Mechanical characteristics	
Housing	front panel mount 96 x 48 mm [3.74 x 1.89"] acc. to DIN 43700; RAL 7021, dark grey
Protection	IP65 (front side)
Weight	approx. 150 g [5.29 oz]

Inputs	
Polarity of inputs	programmable, NPN or PNP for all inputs
Input resistance	approx. 5 kΩ
Counting frequency <sup>1)</sup>	max. 60 kHz, can be damped to 30 Hz
Minimum pulse duration of the reset input	5 ms
Input switching level standard version (HTL)	
DC power supply	LOW 0 ... 0.2 x U <sub>B</sub> (V DC)
	HIGH 0.6 x U <sub>B</sub> ... 30 V DC
AC power supply	LOW 0 ... 4 V DC
	HIGH 12 ... 30 V DC
Input switching level at 4 ... 30 V DC	
	LOW 0 ... 2 V DC
	HIGH 4 ... 30 V DC

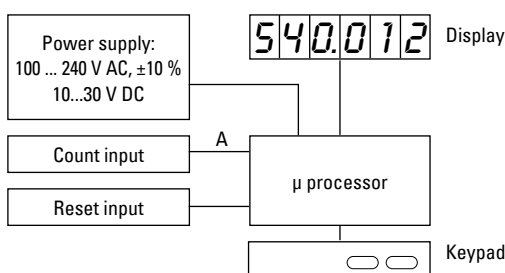
Outputs	
Voltage output for sensors (AC version)	24 V DC ±15 %/100 mA

### Applications for pulse counters / totalizers

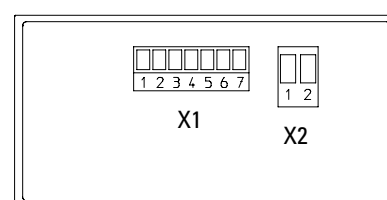
- Simple count tasks such as quantity and piece counting
- Accessories, OEM equipment or retrofitting to production machines
- Piece counting on die cutters, presses, extruders, woodworking machines, drilling machines, pick-and-place machines, guillotines, special-purpose vehicles etc.



### Block diagram



### Terminal assignment



### Connection X1

PIN	AC version	DC version
1	n.c.	
2	n.c.	
3	Reset	
4	n.c.	
5	INP	
6	GND out	n.c.
7	+24 V DC out	n.c.

### Connection X2

PIN	AC version	DC version
1	100 ... 240 V AC, ±10 %	0VDC (GND)
2	100 ... 240 V AC, ±10 %	10 ... 30 V DC

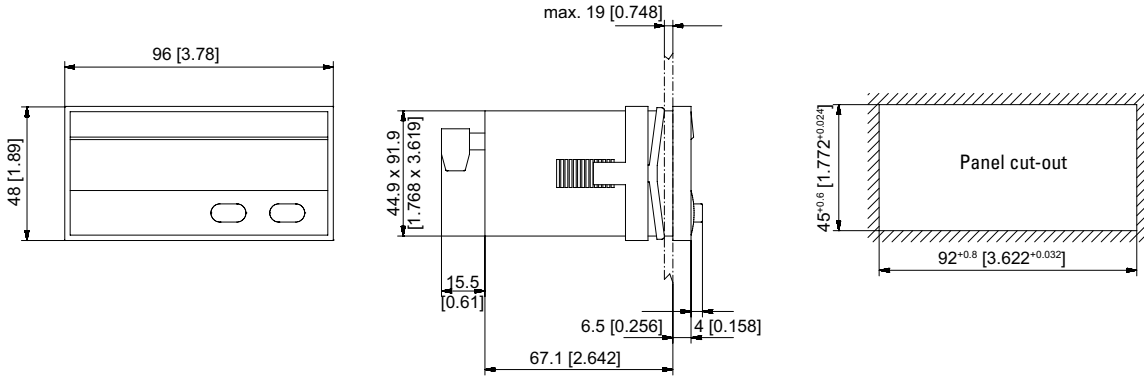
1) For further specifications please refer to the manual.

# Pulse counters, electronic

<b>LED pulse counters</b>	<b>Adding (AC+DC)</b>	<b>Codix 540</b>
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## Dimensions

Dimensions in mm [inch]



Product overview  
Basics

Pulse counters

Preset counters

Hour meters  
Timers

Frequency displays  
Tachometers

Position displays

Multifunction  
devices

Energy meters

Process devices

Temperature  
devices

Strain-gauge  
controllers

Accessories  
Index

# Pulse counters, electronic

<b>LED pulse counters</b>	<b>6 count modes (AC+DC)</b>	<b>Codix 541</b>
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The Codix 541 is a voltage powered pulse counter / position display with 4 count input modes: count direction, difference, addition, quadrature (phase discriminator) x1, x2 and x4, for fast and slow count pulses, with 6-digit LED display for NPN, PNP input signals.



Product overview Basics  
Pulse counters  
Preset counters  
Hour meters Timers  
Frequency displays Tachometers  
Position displays  
Multifunction devices  
Energy meters  
Process devices  
Temperature devices  
Strain-gauge controllers  
Accessories Index

<b>DC</b> 10 ... 30 V Power supply	<b>AC</b> 100 ... 240 V Temperature range	<b>-20° +65°</b> Temperature range	<b>IP65</b> High protection level	<b>max. 60 kHz</b> Pulse counter/ Totalizer	<b>POSITION</b> Position display	<b>1 2 1</b> Count with direction (DIR)	<b>1 2 1</b> Differential count (up,dn)	<b>1 3 4</b> Add/Add count (up,up)	<b>1 2 3 4</b> Phase discriminator	<b>Plug-in screw terminal</b>
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### Powerful

- Fast count input – input frequency max. 60 kHz.
- Robust housing – IP65 protected.
- Very bright LED display, 14 mm high.
- Position, difference, adding or count direction detection:
  - programmable for positive (PNP) or OV (NPN) switching input pulses.
  - fast count input with an input frequency of max. 60 kHz, can be damped to 30 Hz for mechanical contacts.
- Short start-up time – detects input pulses just 16 msec after being switched on => no pulses are lost with a simultaneous motor start-up.

### User-friendly and universal

- Large keys – can also be operated when wearing gloves.
- Simple uniform menu-driven programming and operation – possible to enter the programming also during operation with a confirmation prompt.
- Individually programmable scaling: Multiplication and division factor (0.0001...99.9999), to display corresponding engineering units, e.g. position in 1/10 mm or packaging units.
- 4 different count input modes: 2-channel count input for detecting count direction, difference or adding mode, quadrature with x1, x2 or x4 evaluation.
- Freely programmable setpoint.
- AC or DC power supply with sensor power supply.
- As an alternative to the HTL inputs, devices are available with a 4 ... 30 V DC input level, for use as parallel displays to PLCs.
- Optional output - as zero signal.

**Order code**      **6.541 . 01 X . XX 0**

a
b
c

<p><b>a</b> Output</p> <p>1 = Optocoupler output 2 = No output<sup>1)</sup></p> <p><b>b</b> Power supply</p> <p>0 = 100 ... 240 V AC, ±10 %<sup>1)</sup> 3 = 10 ... 30 V DC<sup>1)</sup></p>	<p><b>c</b> Input switching level</p> <p>0 = Standard level (HTL)<sup>1)</sup> A = 4 ... 30 V DC</p>	<p><b>Delivery specification</b></p> <ul style="list-style-type: none"> <li>• Digital display</li> <li>• Mounting clip</li> <li>• Gasket</li> <li>• 2 screw terminals</li> <li>• Instruction manual, multilingual</li> </ul>	<p><b>Replacement parts</b></p> <p>7 pin screw terminal RM 3.81 1 ... 7: N100387 2 pin screw terminal RM 5.08 1 ... 2: N100133</p>
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Accessories	Dimensions in mm [inch]	Order no.
<b>Mounting frame</b> with cut-out 92 x 45 [3.62 x 1.77]	for snap-on mounting on 35 [1.38] top-hat DIN rail, for counters 96 x 48 [3.74 x 1.89]	grey <b>G300005</b>

Suitable gaskets as well as further accessories can be found in the accessories section or in the accessories area of our website at: [www.kuebler.com/accessories](http://www.kuebler.com/accessories).

1) Stock types.

# Pulse counters, electronic

## LED pulse counters      6 count modes (AC+DC)      Codix 541

### Technical data

General technical data	
Display	6 digits; red 7 segment LED display; 14 mm [0.55"] high
Data backup	EEPROM
Operating temperature	-20°C ... +65°C [-4°F ... +149°F] (non-condensing)
Storage temperature	-25°C ... +70°C [-13°F ... +158°F]
Altitude	up to 2000 m [6562']

Electrical characteristics	
Power supply	10 ... 30 VDC, with reverse polarity protection 100 ... 240 V AC, ±10 %
Current consumption	max. 50 mA, 6 VA
EMC standards	EN 55011 class B EN 61000-6-2, EN 61000-6-3
Device safety	designed to protection class 2 application area EN 61010 part 1 pollution level 2
UL approval	file E128604

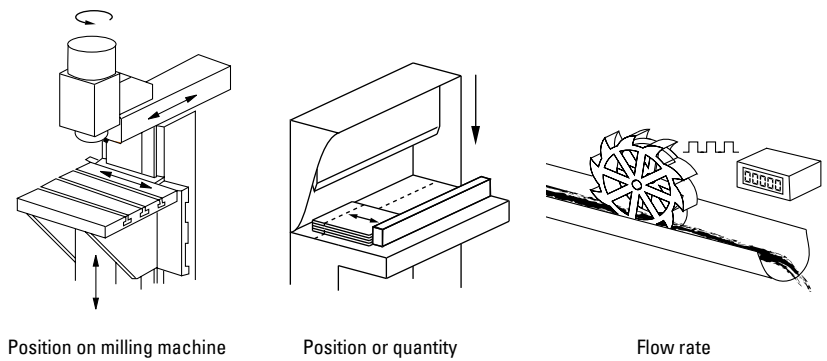
Mechanical characteristics	
Housing	front panel mount 96 x 48 mm [3.74 x 1.89"] acc. to DIN 43700; RAL 7021, dark grey
Protection	IP65 (front side)
Weight	approx. 150 g [5.29 oz]

Inputs	
Polarity of inputs	programmable, NPN or PNP for all inputs
Input resistance	approx. 5 kΩ
Counting frequency <sup>1)</sup>	max. 60 kHz, can be damped to 30 Hz at position display max. 25 kHz
Minimum pulse duration of the reset input	5 ms
Input switching level standard version (HTL)	
DC power supply	LOW 0 ... 0.2 x U <sub>B</sub> (V DC)
	HIGH 0.6 x U <sub>B</sub> ... 30 V DC
AC power supply	LOW 0 ... 4 V DC
	HIGH 12 ... 30 V DC
Input switching level at 4 ... 30 V DC	
	LOW 0 ... 2 V DC
	HIGH 4 ... 30 V DC

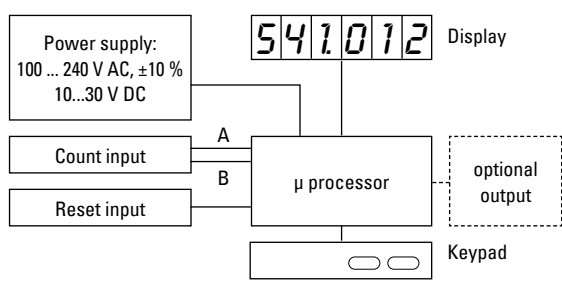
Outputs	
Power supply for sensors (AC version)	24 V DC ±15 %/100 mA
Output power optocouplers	max. 30 V DC, 10 mA

### Applications for position displays and totalizers

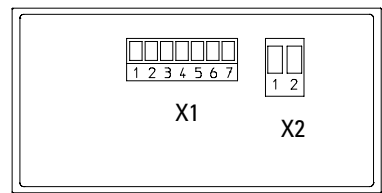
- Positioning tasks on processing machines, such as sawing machines, milling machines, bending and folding machines, etc.
- Production data acquisition by means of piece counting (using difference or adding)
- Totalizing flow, quantity and other scalable media
- Counting tasks such as quantity and piece counting
- Accessories, OEM equipment or retrofitting to production machines
- Piece counting on die cutters, presses, extruders, wood-working machines, drilling machines, pick-and-place machines, guillotines, special-purpose vehicles etc.



### Block diagram



### Terminal assignment



### Connection X1

PIN	AC version	DC version
1	Optocoupler-output Emitter	
2	Optocoupler-output Collector	
3	Set	
4	INP B	
5	INP A	
6	GND out	n.c.
7	+24 V DC out	n.c.

### Connection X2

PIN	AC version	DC version
1	100 ... 240 V AC, ±10 %	0 V DC (GND)
2	100 ... 240 V AC, ±10 %	10 ... 30 V DC

1) Please refer to the manual.

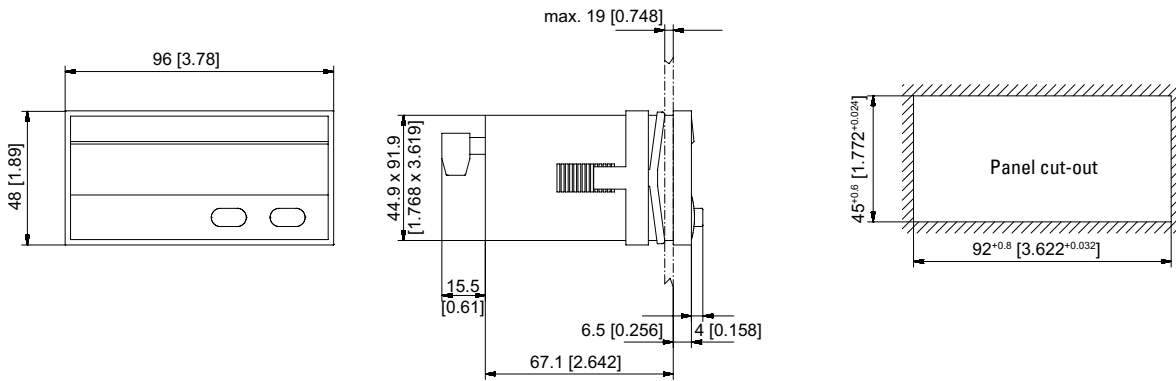
Product overview  
Basics  
Pulse counters  
Preset counters  
Hour meters  
Timers  
Frequency displays  
Tachometers  
Position displays  
Multifunction devices  
Energy meters  
Process devices  
Temperature devices  
Strain-gauge controllers  
Accessories  
Index

# Pulse counters, electronic

<b>LED pulse counters</b>	<b>6 count modes (AC+DC)</b>	<b>Codix 541</b>
---------------------------	------------------------------	------------------

## Dimensions

Dimensions in mm [inch]



Product overview
Basics
Pulse counters
Preset counters
Hour meters
Timers
Frequency displays
Tachometers
Position displays
Multifunction devices
Energy meters
Process devices
Temperature devices
Strain-gauge controllers
Accessories
Index

**LCD modules**      **Adding, 7 digits (DC)**      **190**



The single-channel count module type 190 for PCB mounting, with 2 voltage ranges (4.75 ... 15 and 9 ... 60 V DC) and large 7-digit LCD display, boasts a very wide temperature range.

This ensures the device is extremely robust and suitable for many application areas, even under the harshest operating conditions.



 <b>DC</b> 4.75...60 V Power supply	 <b>max.</b> 10 kHz Max. count frequency	 <b>PNP</b> Input type	 High shock resistance	 -40°...+80°C Temperature range	 PCB mount	 7 LCDs LCD display	 Electrical reset
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### Powerful

- Count frequency up to 10 kHz.
- 7-digit LCD display, 6 mm high.
- Low operating current.
- Wide operating voltage and temperature range.
- Very high shock and vibration resistance.

### Simple

- Non-volatile memory (no battery).
- Single channel count input.
- Electrical reset.
- Very high reliability.
- Small size and very competitive price.

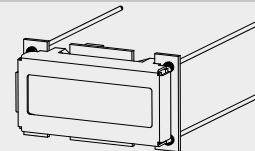
### Order no.

*Power supply*  
4.75 ... 15 V DC  
9 ... 60 V DC

*Order no.*  
**6.190.012.F00** <sup>1)</sup>  
**6.190.012.G00**

*Art. no.*  
162 135  
162 136

*Delivery specification*  
· LCD counter module type 190  
· Operating instructions



1) Stock types



# Pulse counters, electronic

<b>LCD modules</b>	<b>Adding, 7 digits (DC)</b>	<b>190</b>
--------------------	------------------------------	------------

## Technical data

General technical data	
<b>Display</b>	7 digits, LCD display, figure height 6 mm [0.24"]
<b>Data backup</b>	EEPROM
<b>Memory</b>	CMOS EEPROM non-volatile memory data backup up to 10 years
<b>Operating temperature</b>	-40°C ... +80°C [-40°F ... +176°F] (non-condensing)
<b>Working temperature</b>	-20°C ... +80°C [-4°F ... +176°F] (non-condensing)
<b>Storage temperature</b>	-50°C ... +90°C [-58°F ... +194°F]

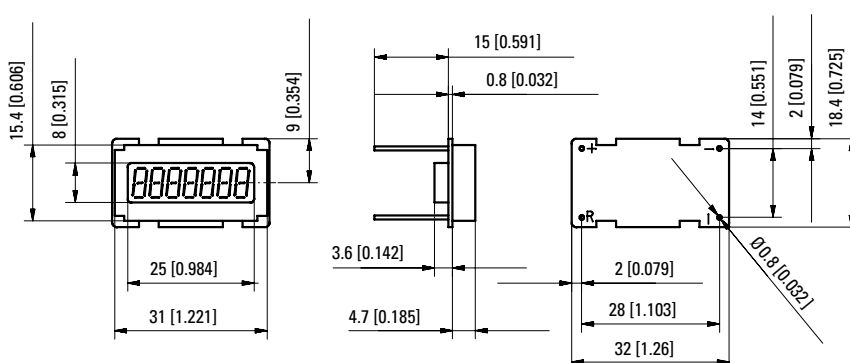
Electrical characteristics	
<b>Power supply</b>	4.75 ... 15 V DC with reverse polarity protection 9 ... 60 V DC
<b>Current consumption</b>	8 mA at 4.75 ... 15 V DC 6 mA at 9 ... 60 V DC
<b>EMC standards</b>	EN 55011 class B EN 61000-6-2, EN 61000-6-3, EN 61326-1
The module must be protected against inductive voltage spikes and high energy noise interference.	

Mechanical characteristics		
<b>Housing</b>	dimensions color	18.4 x 32.4 mm [0.72 x 1.28"] black
<b>Weight</b>		approx. 8 g [0.28 oz]
<b>Shock resistance</b>	acc. to EN 60068-2-27	550 m/s <sup>2</sup> , 11 ms
<b>Vibration resistance</b>	acc. to EN 60068-2-6	50 ... 200 m/s <sup>2</sup> , 10 ... 80 Hz

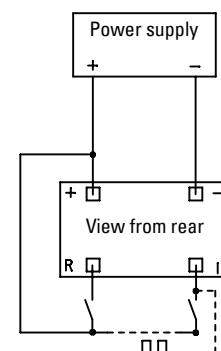
Inputs	
<b>Count input</b>	HIGH 4 ... 60 V DC LOW 0 ... 0.7 V DC
max. counting frequency	10 kHz, edge triggered (negative edge)
<b>Reset input</b>	HIGH 4 ... 60 V DC LOW 0 ... 0.7 V DC
pulse length	1 ms edge triggered (positive edge)

## Dimensions

Dimensions in mm [inch]



## Terminal assignment



**LCD modules**      **Adding, 6 digits (DC)**      **192**



Type 192 is a single channel counter module for PCB mounting, with a large voltage range of 8 up to 28 V DC and a 6-digit LCD display.

Extremely robust as a result of its wide temperature range, the module is ideally suited for use in many application areas.



<b>DC</b> 8 ... 28 V Power supply	<b>max.</b> 100 Hz Max. count frequency	<b>PNP</b> Input type	<b>High shock resistance</b>	<b>-40°...+80°C</b> Temperature range	<b>PCB mount</b>	<b>7 LCDs</b> LCD display	<b>Electrical reset</b>
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### Powerful

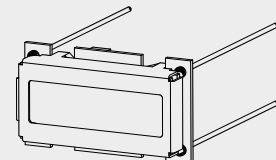
- Count frequency up to 100 Hz.
- 6-digits LCD display, 5 mm high.
- Low operating current.
- Wide operating voltage and temperature range.
- High shock and vibration resistance.

### Simple

- Non-volatile memory (no battery).
- Single channel count input.
- Electrical reset.
- Very high reliability.
- Small size and very competitive price.

### Order no.

<b>Power supply</b> 8 ... 28 V DC	<b>Order no.</b> <b>6.192.012.H00</b> <sup>1)</sup>	<b>Art. no.</b> 162 135	<b>Delivery specification</b> · LCD counter module type 192 · Operating instructions
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1) Stock types.

# Pulse counters, electronic

<b>LCD modules</b>	<b>Adding, 6 digits (DC)</b>	<b>192</b>
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## Technical data

General technical data	
<b>Display</b>	6 digits, LCD display, figure height 5 mm [0.20"]
<b>Data backup</b>	EEPROM
<b>Memory</b>	CMOS EEPROM. non-volatile memory data backup up to 10 years (without battery)
<b>Operating / working / storage temperature</b>	-40°C ... +85°C [-40°F ... +185°F] (non-condensing)
<b>Humidity</b>	95 % rel +32°C [+90°F] for 2 hours

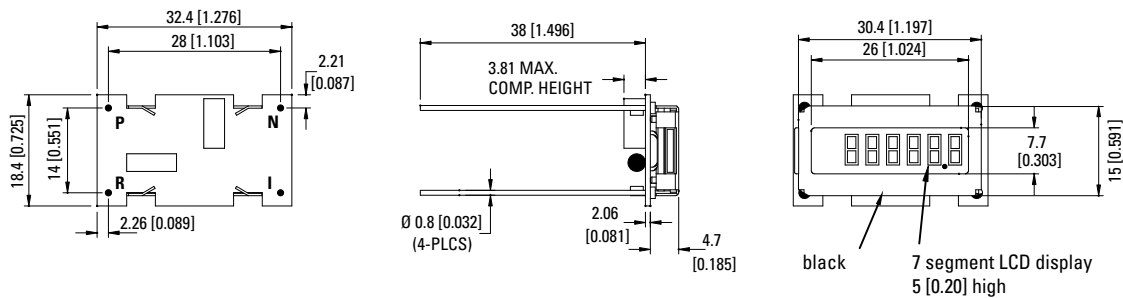
Inputs	
<b>Count input</b> max. counting frequency	8 ... 28 V DC 100 Hz
<b>Reset input</b> pulse length	8 ... 28 V DC min. 500 msec

Electrical characteristics	
<b>Power supply</b>	8 ... 28 V DC
<b>Current consumption</b>	max. 3 mA at 4.5 V DC 10 mA at 28 V DC
<b>EMC standards</b>	EN 55011 class B EN 61000-6-2, EN 61000-6-3, EN 61326-1, EN 61326-3-1
The module must be protected against inductive voltage spikes and high energy noise interference.	

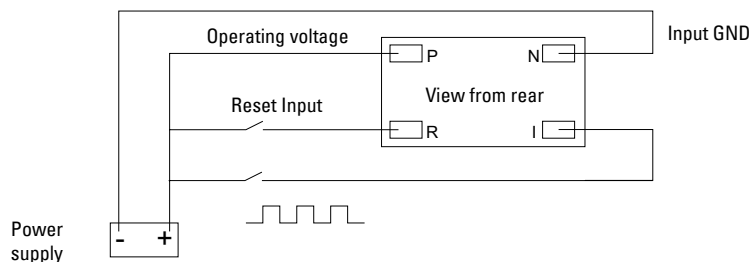
Mechanical characteristics	
<b>Housing</b>	dimensions 18.4 x 32.4 mm [0.72 x 1.28"] color black
<b>Weight</b>	approx. 8 g [0.28 oz]
<b>Vibration resistance</b> acc. to EN 60068-2-6	10 ... 80 m/s <sup>2</sup> , 10 ... 75 Hz

### Dimensions

Dimensions in mm [inch]



### Terminal assignment

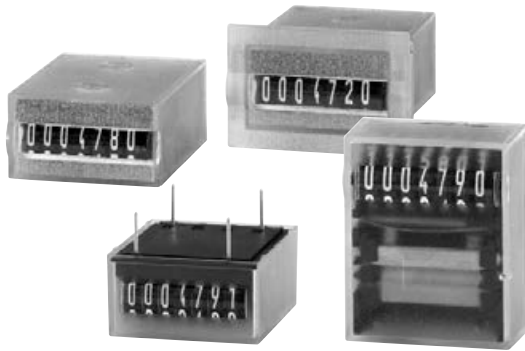


Product overview Basics  
Pulse counters  
Preset counters  
Hour meters Timers  
Frequency displays Tachometers  
Position displays  
Multifunction devices  
Energy meters  
Process devices  
Temperature devices  
Strain-gauge controllers  
Accessories Index

## Micro counters

## High shock resistance (DC)

## K 46 / K 47



The micro adding counters K 46 and K 47 boast a very high level of shock resistance. As panel mount and PCB mount counters they can be used in a wide variety of applications.

The counters are non-resettable and are highly tamper-proof thanks to their sealed (potted) housings.

### Characteristics

- 6-digit (K 46) or 7-digit (K 47) micro adding counters.
- Economical.
- Low power consumption; suitable for battery operation.
- Small dimensions, large optical figures.
- Different viewing possibilities.
- Panel mount with spring clips or PCB mount versions.

### Benefits

- Machine solderable and washable.
- High shock resistance.
- Long service life.
- IP65 protection.
- Stores values if power fails.

### Applications

General quantity counting, alarm systems, coin-operated machines, electricity meters, vending and slot machines, photocopiers, medical equipment, car washes

### Type series

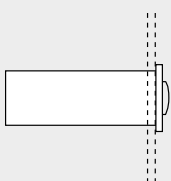
Fig.	Mounting options	Display	el. connection	IP protection	6 digits	7 digits
1)	Panel mount with latch	front side	flying leads	front side	<b>K 46.20</b>	<b>K 47.20</b>
2)	PCB mount, upright	front side	solder pins	front side/on rear	<b>K 46.80</b>	<b>K 47.80</b>
3)	PCB mount, lying	on the top	solder pins	front side/on rear	–	<b>K 47.90</b>
4)	PCB mount, hanging	front side	solder pins	front side/on rear	–	<b>K 47.91</b>
5)	PCB mount, lying	front side	solder pins	front side/on rear	<b>K 46.95</b>	–

#### Order information

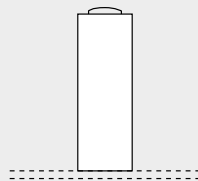
- Art. no. 1.7X0.XX0.0XX
- For options please give exact counter type, voltage and options e.g.:  
K 46.20 – 12 V DC/0 – temperature range -20°C ... +70°C [-4°F ... +158°F]

### Mounting options and position of the display

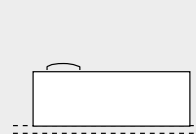
1) Panel mount  
display front side



2) PCB mount, upright  
display front side



3) PCB mount, lying  
display on the top



4) PCB mount, hanging  
display front side



5) PCB mount, lying  
display front side



Optional: PCB mount, lying  
display at the bottom



# Pulse counters, electromechanical

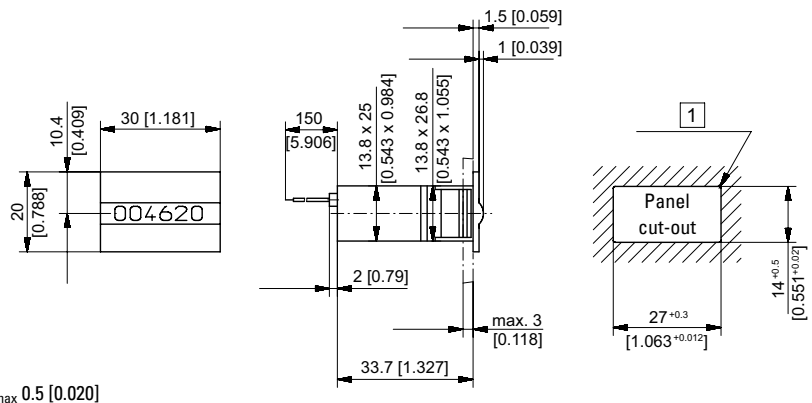
<b>Micro counters</b>	<b>High shock resistance (DC)</b>	<b>K 46 / K 47</b>
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Technical data		
<b>Electrical connection</b>	panel mount	flying leads, AWG 22 approx. 150 mm [5.91"], 6 mm [0.24"] stripped wire ends, tinned
	PCB mount	solder pins $\varnothing$ 0.64 mm [0.025"]
<b>Power consumption</b>	up to 12 V DC at 24 V DC	approx. 70 mW approx. 150 mW
<b>Rated voltage</b>		1.5 / 3 / 4.5 / 5 / 6 / 12 / 24 V DC, -10 % / +20 %
<b>Counting frequency</b>		max. 10 Hz (type 0)
<b>Pulse duration / pulse interval</b>		min. 50 ms / min. 50 ms
<b>Cycle duration factor</b>		100 %
<b>Number of digits</b>		6 (K 46), 7 (K 47)
<b>Counting system</b>		adding
<b>Height of figures (optical)</b>	K 46	4 x 1.7 mm [0.16 x 0.067"]
	K 47	4 x 1.25 mm [0.16 x 0.049"]
<b>Color of figures</b>		white on black
<b>Reset</b>		no reset
<b>Operating temperature</b>		-10°C ... +60°C [+14°F ... +140°F] (non-condensing)
<b>Mounting position</b>		horizontal, other on request

<b>Operating life</b>	> 50 x 10 <sup>6</sup> pulses
<b>Soldering temperature</b>	max. 265°C [+509°F], 3 s
<b>Protection</b>	IP65 (K 46.20, K 47.20: only front side)
<b>Housing</b>	PC (Polycarbonate)
<b>Weight</b>	12 ... 14 g [0.42 ... 0.49 oz]
<b>EMC standards</b>	EN 55011 class B EN 61000-6-2, EN 61000-6-3

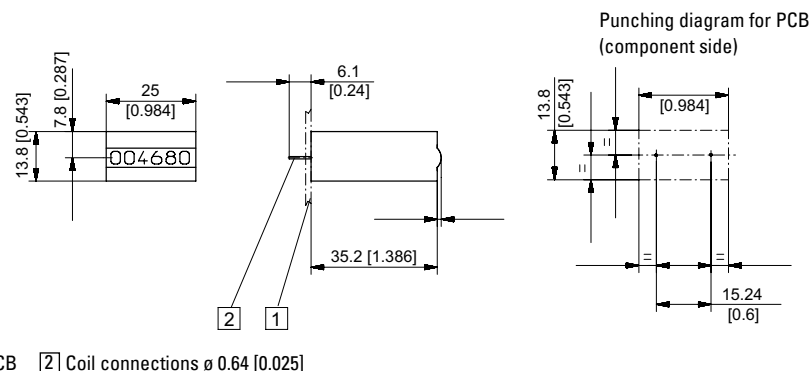
Options	
<b>K 46.20, K 46.80, K 47.20, K 47.80</b>	flat pin 0.8 x 2.8 mm [0.032 x 0.11"] and push on connectors
<b>K 46.20, K 47.20</b>	solder pins $\varnothing$ 0.64 mm [0.025"]
<b>Further options</b>	<ul style="list-style-type: none"> <li>- different voltages</li> <li>- counting frequency &gt; 10 Hz</li> <li>- different color of figures</li> <li>- extended temperature range: -30°C ... +85°C [-22°F ... +185°F] or -20°C ... +70°C [-4°F ... +158°F]</li> </ul>

## Panel mount display front side Type K 46.20 / K 47.20



Type	Voltage	Display	Art. no.						24 V
			3 V	4.5 V	5 V	6 V	12 V		
K 46.20	DC (10 Hz) / 0	6 digits	on request	on request	on request	on request	1.700.200.012 <sup>1)</sup>	1.700.200.013 <sup>1)</sup>	
K 47.20	DC (10 Hz) / 0	7 digits	1.710.200.006	1.710.200.008	1.710.200.009	1.710.200.010	1.710.200.012 <sup>1)</sup>	1.710.200.013 <sup>1)</sup>	

## PCB mount, upright display front side Type K 46.80 / K 47.80



Type	Voltage	Display	Art. no.					
			3 V	4.5 V	5 V	6 V	12 V	24 V
K 46.80	DC (10 Hz) / 0	6 digits	on request	on request	on request	on request	1.700.800.012	1.700.800.013 <sup>1)</sup>
K 47.80	DC (10 Hz) / 0	7 digits	1.710.800.006	1.710.800.008	1.710.800.009	1.710.800.010	1.710.800.012	1.710.800.013

Dimensions in mm [inch]

1) Stock types.

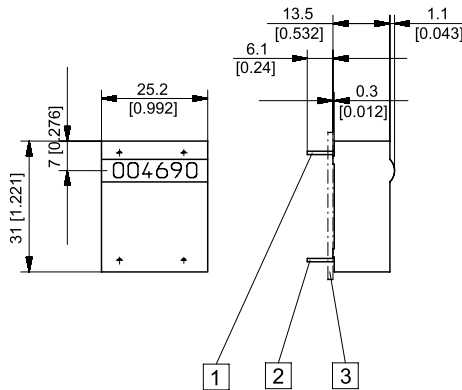
# Pulse counters, electromechanical

## Micro counters

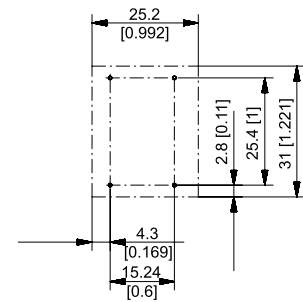
## High shock resistance (DC)

## K 46 / K 47

PCB mount, lying  
display front side  
Type K 47.90



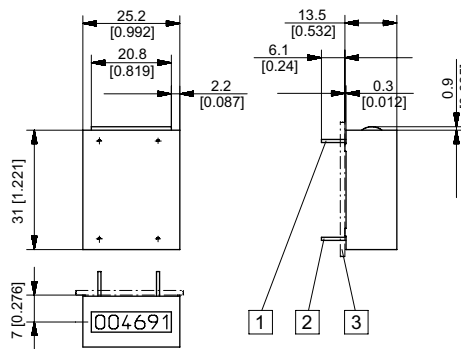
Punching diagram for PCB  
(component side)



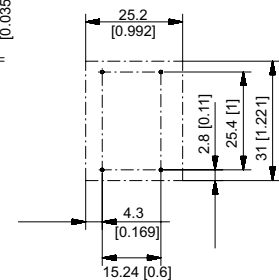
1 Mounting pin without el. function  $\varnothing$  0.64 [0.025] 2 Coil connections  $\varnothing$  0.64 [0.025] 3 PCB

Type	Voltage	Display	Art. no.						
			3 V	4.5 V	5 V	6 V	12 V	24 V	
K 47.90	DC (10 Hz) / 0	7 digits	1.710.900.006	1.710.900.008	1.710.900.009	1.710.900.010	1.710.900.012	1.710.900.013	

PCB mount, hanging  
display front side  
Type K 47.91



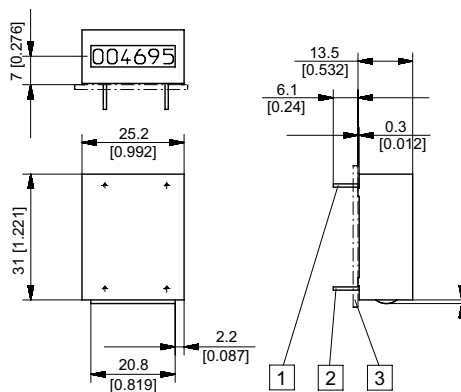
Punching diagram for PCB  
(component side)



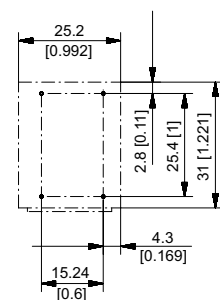
1 Mounting pin without el. function  $\varnothing$  0.64 [0.025] 2 Coil connections  $\varnothing$  0.64 [0.025] 3 PCB

Type	Voltage	Display	Art. no.						
			3 V	4.5 V	5 V	6 V	12 V	24 V	
K 47.91	DC (10 Hz) / 0	7 digits	1.710.910.006	1.710.910.008	1.710.910.009	1.710.910.010	1.710.910.012	1.710.910.013	

PCB mount, lying  
display front side  
Type K 46.95



Punching diagram for PCB  
(component side)



1 Mounting pin without el. function  $\varnothing$  0.64 [0.025] 2 Coil connections  $\varnothing$  0.64 [0.025] 3 PCB

Type	Voltage	Display	Art. no.						
			3 V	4.5 V	5 V	6 V	12 V	24 V	
K 46.95	DC (10 Hz) / 0	6 digits	on request	on request	1.700.950.009	on request	1.700.950.012	1.700.950.013	

Dimensions in mm [inch]

# Pulse counters, electromechanical

<b>Micro counters</b>	<b>Magnetic field resistant and high shock resistance (DC)</b>	<b>K 66 / K 67</b>
-----------------------	--	--------------------



The micro adding counters K 66 (6-digit) and K 67 (7-digit) boast a very high level of shock resistance and, as a result of the patented ACR counting system, are not affected by magnetic fields.

They can be used as either panel mount or as PCB mount devices in a wide variety of application areas, where a high level of resistance against tampering is required.

Product overview  
Basics  
Pulse counters  
Preset counters  
Hour meters  
Timers  
Frequency displays  
Tachometers  
Position displays  
Multifunction devices  
Energy meters  
Process devices  
Temperature devices  
Strain-gauge controllers  
Accessories  
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## Characteristics

- Not affected by magnetic fields, as moving parts are made of plastic or non-ferrous metal (patented system)
- Maximum shock resistance, as a counter-rotating movement is required for counting, ACR system (Air Coil Reverse, patented)
- Low power consumption; suitable for battery operation
- Very compact size, large figures
- Different viewing possibilities

## Benefits

- Machine solderable and washable
- IP65 protection
- Long service life
- Stores values if power fails

## Applications

General quantity counting, photocopiers, electricity meters, vending and slot machines, coin-operated machines, car washes, alarm systems, medical equipment, heat quantity measurement

## Type series

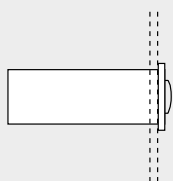
Fig.	Mounting options	Display	el. connection	IP protection	6 digits	7 digits
1)	Panel mount with latch	front side	flying leads	front side	–	<b>K 67.20</b>
2)	PCB mount, upright	front side	solder pins	front side/on rear	–	<b>K 67.80</b>
3)	PCB mount, lying	on the top	solder pins	front side/on rear	–	<b>K 67.90</b>
4)	PCB mount, hanging	front side	solder pins	front side/on rear	<b>K 66.91</b>	<b>K 67.91</b>
5)	PCB mount, lying	front side	solder pins	front side/on rear	<b>K 66.95</b>	<b>K 67.95</b>

### Order information

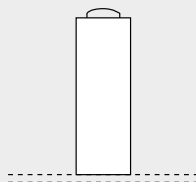
- Art. no. 1.680.9X0.0XX
- For options please give exact counter type, voltage and options e.g.:  
K 67.20 – 9 V DC/0 – temperature range -20°C ... +70°C [-4°F ... +158°F]

## Mounting options and position of the display

1) Panel mount  
display front side



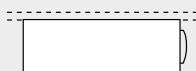
2) PCB mount, upright  
display front side



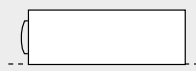
3) PCB mount, lying  
display on the top



4) PCB mount, hanging  
display front side



5) PCB mount, lying  
display front side



Optional: PCB mount, lying  
display at the bottom



# Pulse counters, electromechanical

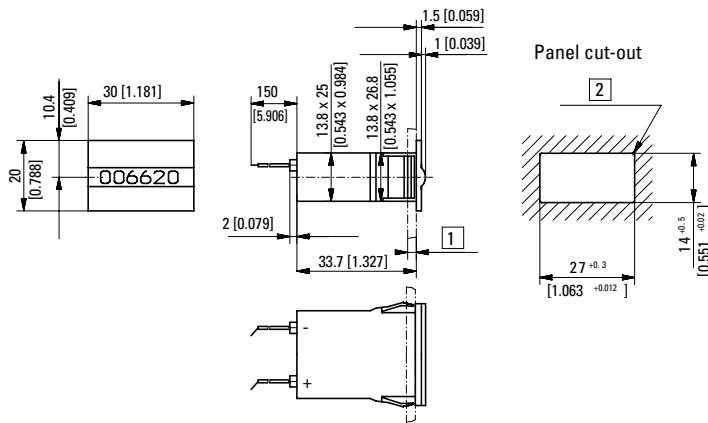
<b>Micro counters</b>	<b>Magnetic field resistant and high shock resistance (DC)</b>	<b>K 66 / K 67</b>
-----------------------	--	--------------------

Technical data		
<b>Electrical connection</b>	panel mount	flying leads, AWG 22 approx. 150 mm [5.91"], 6 mm [0.24"] stripped wire ends, tinned
	PCB mount	solder pins $\varnothing$ 0.64 mm [0.025"]
<b>Power consumption:</b> at 20°C [68°F]	up to 6 V DC	approx. 70 mW
	up to 12 V DC at 24 V DC	approx. 120 mW approx. 500 mW
<b>Rated voltage</b>	1.5 / 3 / 4.5 / 5 / 6 / 12 / 24 V DC, -10 % / +20 %	
<b>Counting frequency</b>	max. 10 Hz (type 0)	
<b>Pulse duration / pulse interval</b>	min. 50 ms / min. 50 ms	
<b>Cycle duration factor</b>	100 %	
<b>Counting system</b>	adding	
<b>Height of figures (optical)</b>	K 66	4 x 1.7 mm [0.16 x 0.067"]
	K 67	4 x 1.25 mm [0.16 x 0.049"]
<b>Color of figures</b>	white on black	
<b>Reset</b>	no reset	
<b>Operating temperature</b>	-10°C ... +60°C [+14°F ... +140°F] (non-condensing)	
<b>Mounting position</b>	horizontal, other on request	
<b>Operating life</b>	> 50 x 10 <sup>6</sup> pulses	
<b>Soldering temperature</b>	max. 265°C [+509°F], 3 s	

<b>Protection</b>	IP65 (K 66.20, K 67.20: only front side)
<b>Housing</b>	PC (Polycarbonate), transparent types with protection IP65 are sealed
<b>Weight</b>	9 ... 11 g [0.32 ... 0.39 oz]
<b>EMC standards</b>	EN 55011 class B EN 61000-6-2, EN 61000-6-3

Options	
<b>K 66.20, K 66.80, K 67.20, K 67.80</b>	flat pin 0.8 x 2.8 mm [0.032 x 0.11"] and push on connectors X.XX7.XXX.XXX
<b>K 66.20, K 67.20</b>	solder pins $\varnothing$ 0.64 mm [0.025"] X.XX1.XXX.XXX
<b>K 66.80, K 67.80</b>	flying leads, AWG 22 approx. 150 mm [5.91"]
<b>Further options</b>	<ul style="list-style-type: none"> <li>- different voltages</li> <li>- counting frequency &gt; 10 Hz</li> <li>- different color of figures</li> <li>- extended temperature range -30°C ... +85°C [-22°F ... +185°F] or -20°C ... +70°C [-4°F ... +158°F]</li> <li>- solderable and washable version</li> </ul>

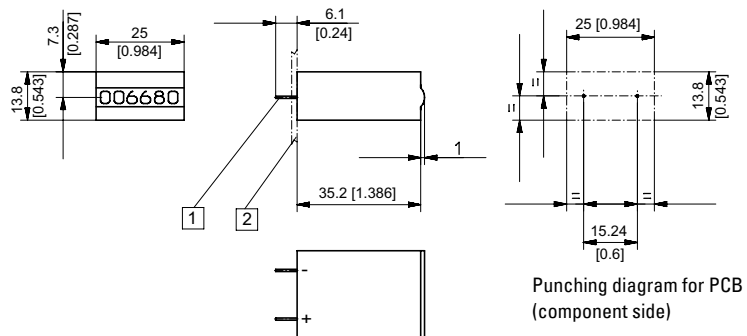
**Panel mount with latch display front side**  
**Type K 67.20**



1) 1.2 ... 3 mm [0.047 x 0.12] 2) R<sub>max</sub> 0.5 [0.020]

Type	Voltage	Display	Art. no.					
			3 V	4.5 V	5 V	6 V	12 V	24 V
K 67.20	DC (10 Hz) / 0	7 digits	1.660.200.006	1.660.200.008	1.660.200.009 <sup>1)</sup>	1.660.200.010	1.660.200.012 <sup>1)</sup>	1.660.200.013 <sup>1)</sup>

**PCB mount upright display front side**  
**Type K 67.80**



1) Coil connections  $\varnothing$  0.64 [0.025] 2) PCB

Type	Voltage	Display	Art. no.					
			3 V	4.5 V	5 V	6 V	12 V	24 V
K 67.80	DC (10 Hz) / 0	7 digits	1.660.800.006	1.660.800.008	1.660.800.009	1.660.800.010	1.660.800.012	1.660.800.013

Dimensions in mm [inch]

1) Stock types.

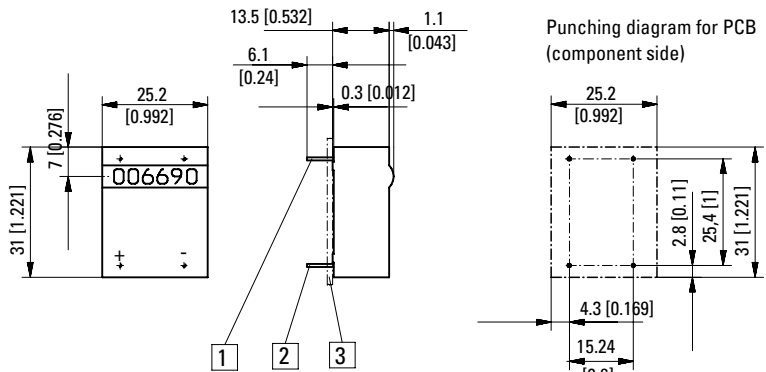
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# Pulse counters, electromechanical

**Micro counters**      **Magnetic field resistant and high shock resistance (DC)**      **K 66 / K 67**

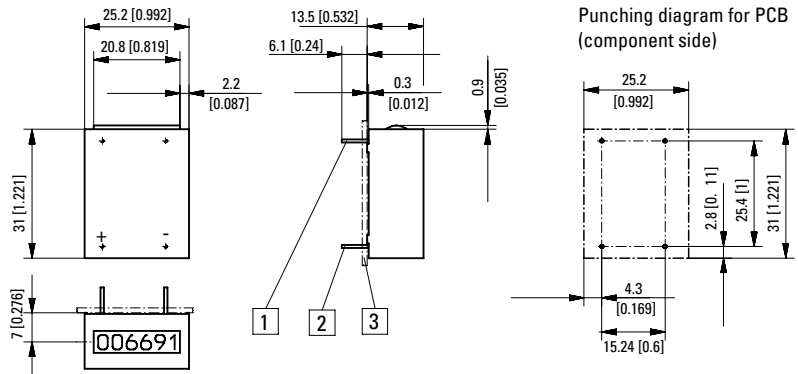
**PCB mount, lying display on the top**  
Type K 67.90



1 Mounting pin without el. function  $\varnothing$  0.64 [0.025]    2 Coil connections  $\varnothing$  0.64 [0.025]    3 PCB

Type	Voltage	Display	Art. no.							
			3 V	4.5 V	5 V	6 V	12 V	24 V		
K 67.90	DC (10 Hz) / 0	7 digits	1.660.900.006	1.660.900.008	1.660.900.009	1.660.900.010	1.660.900.012	1.660.900.013		

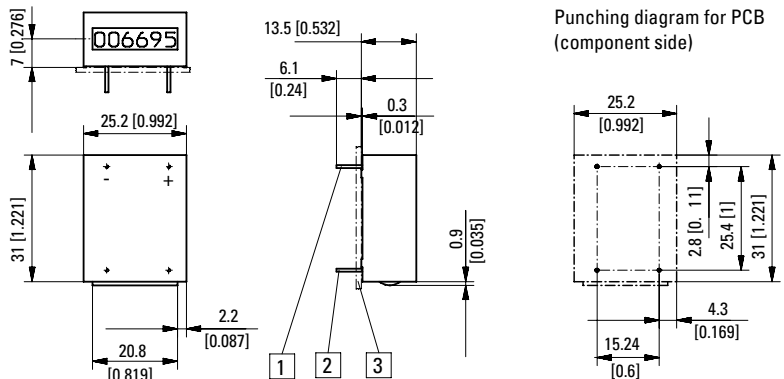
**PCB mount, hanging display front side**  
Type K 66.91 / K 67.91



1 Mounting pin without el. function  $\varnothing$  0.64 [0.025]    2 Coil connections  $\varnothing$  0.64 [0.025]    3 PCB

Type	Voltage	Display	Art. no.							
			3 V	4.5 V	5 V	6 V	12 V	24 V		
K 66.91	DC (10 Hz) / 0	6 digits	on request	on request	1.650.910.009	on request	1.650.910.012	1.650.910.013		
K 67.91	DC (10 Hz) / 0	7 digits	1.660.910.006	1.660.910.008	1.660.910.009	1.660.910.010	1.660.910.012	1.660.910.013		

**PCB mount lying display front side**  
Type K 66.95 / K 67.95



1 Mounting pin without el. function  $\varnothing$  0.64 [0.025]    2 Coil connections  $\varnothing$  0.64 [0.025]    3 PCB

Type	Voltage	Display	Art. no.							
			3 V	4.5 V	5 V	6 V	12 V	24 V		
K 66.95	DC (10 Hz) / 0	6 digits	on request	on request	1.650.950.009	on request	1.650.950.012	1.650.950.013		
K 67.95	DC (10 Hz) / 0	7 digits	1.660.950.006	1.660.950.008	1.660.950.009	1.660.950.010	1.660.950.012	1.660.950.013		

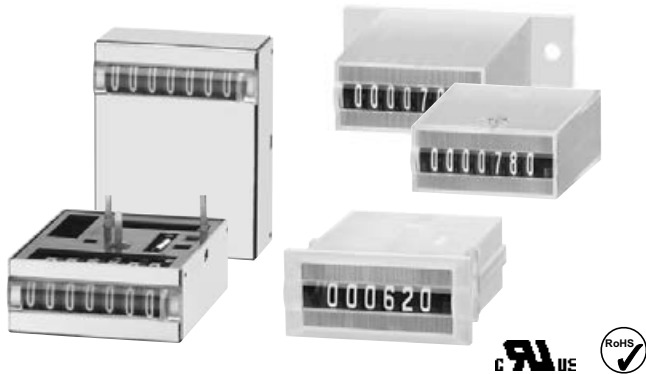
Dimensions in mm [inch]

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## Micro counters

## High shock resistance (AC+DC)

## K 04 ... K 07 / AK 07



The micro adding counter families K 04 to K 07 and AK 07 are available in a very wide variety of models and can be used in both DC as well as in AC applications.

As panel mount, base mount and PCB mount counters with a very high level of shock resistance they can be used for numerous diverse application areas.



### Characteristics

- Low power consumption; suitable for battery operation.
- Very compact size, large optical figures.
- Different viewing possibilities.
- Panel mount counter with moulded spring clips, base mount counter with screw fixing or PCB mount versions.
- Version with additional magnetic shielding thanks to sheet-steel enclosure (K 0X.40 and K 0X.50).

### Benefits

- Machine solderable and washable.
- Stores values if power fails.
- High shock resistance, long service life, IP65 protection.

### Applications

General quantity counting, alarm systems, coin-operated machines, electricity meters, vending and slot machines, photocopiers, medical equipment, car washes.

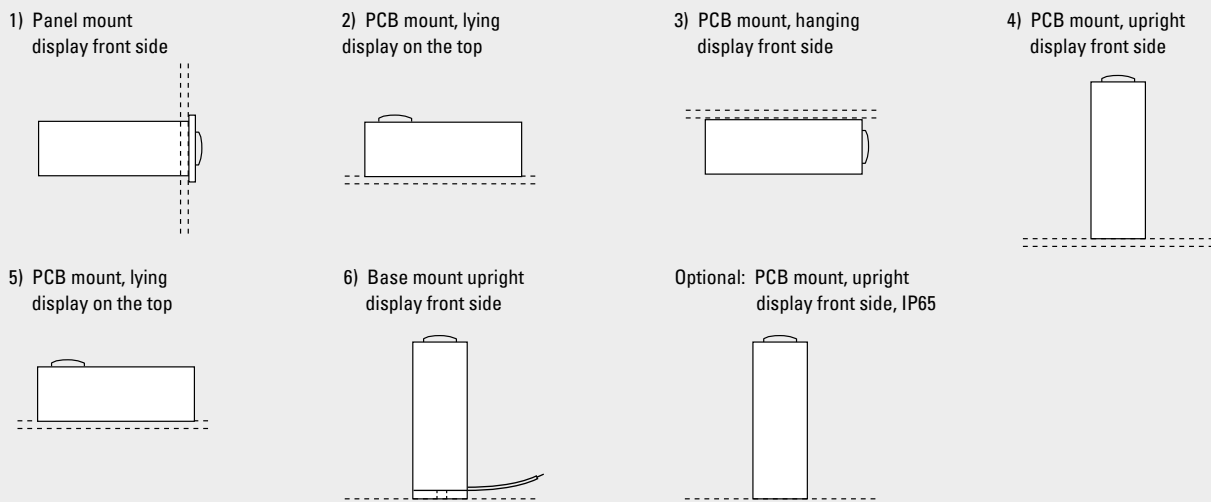
### Type series

Fig.	Mounting options	Display	Housing	IP protection	4 digits	5 digits	6 digits	7 digits
1)	Panel mount with latch	front side	plastic	front side	<b>K 04.20</b>	<b>K 05.20</b>	<b>K 06.20</b>	<b>K 07.20</b>
2)	PCB mount, lying	on the top	sheet steel	–	<b>K 04.40</b>	–	–	<b>K 07.40</b>
3)	PCB mount, hanging	front side	sheet steel	–	–	–	–	<b>K 07.50</b>
4)	PCB mount, upright	front side	plastic	front side	–	–	<b>K 06.80</b>	<b>K 07.80</b>
5)	PCB mount, lying	on the top	plastic	front side/on rear	–	–	–	<b>K 07.90</b>
6)	Base mount, upright	front side	plastic	front side	–	–	–	<b>AK 07.00</b>

#### Order information

- Art. no.
- For options please give exact counter type, voltage and options e.g.: K 06.20 – 9 V DC/0 – temperature range -20°C ... +70°C [-4°F ... +158°F]

### Mounting options and position of the display



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# Pulse counters, electromechanical

<b>Micro counters</b>	<b>High shock resistance (AC+DC)</b>	<b>K 04 ... K 07 / AK 07</b>
-----------------------	--------------------------------------	------------------------------

Accessories	Dimensions in mm [inch]	Order no.
<b>Gasket 32 x 15 [1.26 x 0.59]</b>	for cut-out 27 x 13 [1.06 x 0.51], suitable for K 06.20 and K 07.20	<b>N511058</b>

Technical data	
<b>Electrical connection</b>	panel mount, base mount flying leads, AWG 22 approx. 150 mm [5.91"], 6 mm [0.24"] stripped wire ends, tinned solder pins $\varnothing$ 0.4 x 1.2 mm [0.016 x 0.047"] PCB mount
<b>Power consumption</b> (at 20°C [68°F] and normal voltage)	at 10 Hz (type 0) approx. 50 mW at 25 Hz (type 1) approx. 250 mW at 10 Hz (type a0) approx. 800 mVA
<b>Rated voltage</b>	type 0 1.5/3/4.5/5/6/12/24 V DC, -10 %, +20 % type 1 3/4.5/5/6/12/24 V DC, $\pm$ 10 % type a0 12/24/115/230 V AC, $\pm$ 10 %
<b>Counting frequency</b>	max. 10 and 25 Hz
<b>Pulse duration</b>	at 10 Hz (type 0 and a0) min. 50 ms at 25 Hz (type 1) min. 20 ms
<b>Pulse interval</b>	at 10 Hz (type 0 a0) min. 50 ms at 25 Hz (type 1) min. 20 ms
<b>Cycle duration factor</b>	100 %
<b>Number of digits</b>	4, 5, 6 and 7
<b>Counting system</b>	adding
<b>Height of figures</b>	K 04, K 06, AK 06 4 x 1.7 mm [0.16 x 0.067"] optical K 05, K 07, AK 07 4 x 1.2 mm [0.16 x 0.047"] optical
<b>Color of figures</b>	white on black
<b>Reset</b>	no reset
<b>Operating temperature</b>	-10°C ... +60°C [+14°F ... +140°F] (non-condensing)
<b>Mounting position</b>	horizontal, other on request

<b>Soldering temperature</b>	265°C [+509°F], 3 s
<b>Operating life</b>	> 50 x 10 <sup>6</sup> pulses
<b>Solderable and wash proof types</b>	K 0X.92, K 06.90, K 07.90
<b>Protection</b>	K 0X.92, K 0X.90 IP65 AK 0X.00, K 0X.80, K 0X.20 IP65 (only front side) other types depending on kind of mounting
<b>UL approval</b>	file E128604
<b>Housing</b>	PC (Polycarbonate), transparent or sheet steel types (see table) with IP65 protection, fully sealed (potted)
<b>Weight</b>	15 ... 18 g [0.53 ... 0.63 oz]
<b>EMC standards</b>	EN 55011 class B EN 61000-6-2, EN 61000-6-3
<b>Device safety</b>	designed to EN 61010 part 1 protection class 2 application area pollution level 2
<b>UL approval</b>	file E128604

Options	
<b>K 0x.20</b>	flat pin 0.5 x 2.8 mm [0.020 x 0.11"] Art. no.: 1.1X7.XX0.XXX flat pin 0.4 x 1.2 mm [0.016 x 0.047"] Art. no.: 1.1X9.XX0.XXX • different voltages • version not potted • different figure colors • different lengths of flying leads • different connections • different temperature range, depends on version -30°C ... +85°C [-22°F ... +185°F] or -20°C ... +70°C [-4°F ... +158°F]

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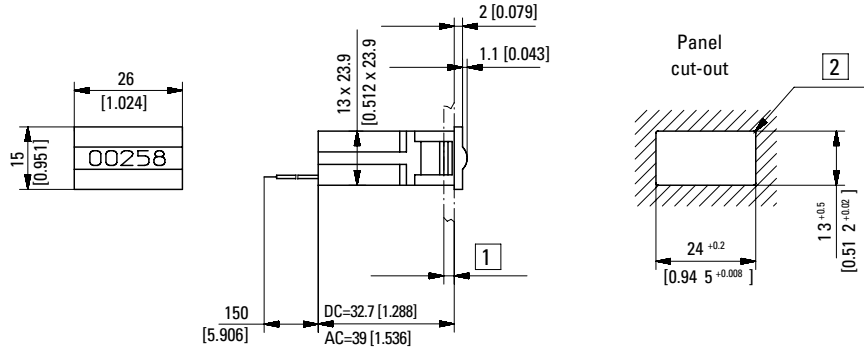
# Pulse counters, electromechanical

**Micro counters**

**High shock resistance (AC+DC)**

**K 04 ... K 07 / AK 07**

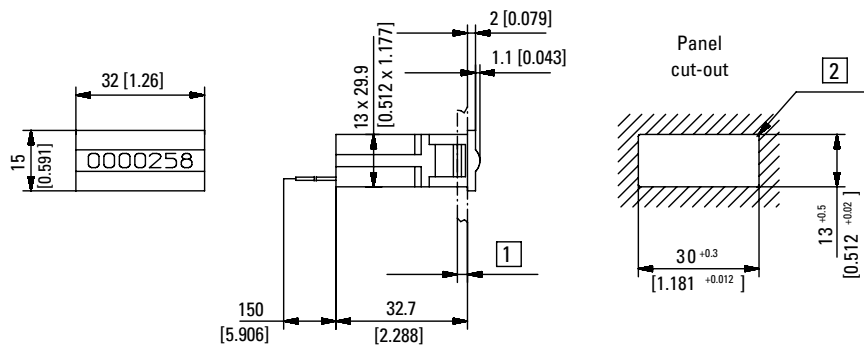
**Panel mount counter  
4- and 5-digit display front side  
Type K 04.20 / K 05.20**



1) 1.2 ... 3 [0.047 x 0.12] 2) R<sub>max</sub> 0.5 [0.020]

Type	Voltage	Display	Art. no.							
			3 V	4.5 V	12 V	24 V	115 V	230 V		
K 04.20	DC (10 Hz) / 0	4 digits	1.100.200.006	1.100.200.008	on request	on request	1.100.200.054	1.100.200.056		
	DC (25 Hz) / 1				1.100.200.032	1.100.200.033				
	AC (10 Hz) / a0				1.100.200.051					
K 05.20	DC (10 Hz) / 0	5 digits	1.110.200.006	1.110.200.008	on request	1.110.200.013 <sup>1)</sup>	1.110.200.054	1.110.200.056 <sup>1)</sup>		
	DC (25 Hz) / 1				1.110.200.032	1.110.200.033				
	AC (10 Hz) / a0				1.110.200.051					

**Panel mount counter  
6- and 7-digit display front side  
Type K 06.20 / K 07.20**



1) 1.2 ... 3 [0.047 x 0.12] 2) R<sub>max</sub> 0.5 [0.020]

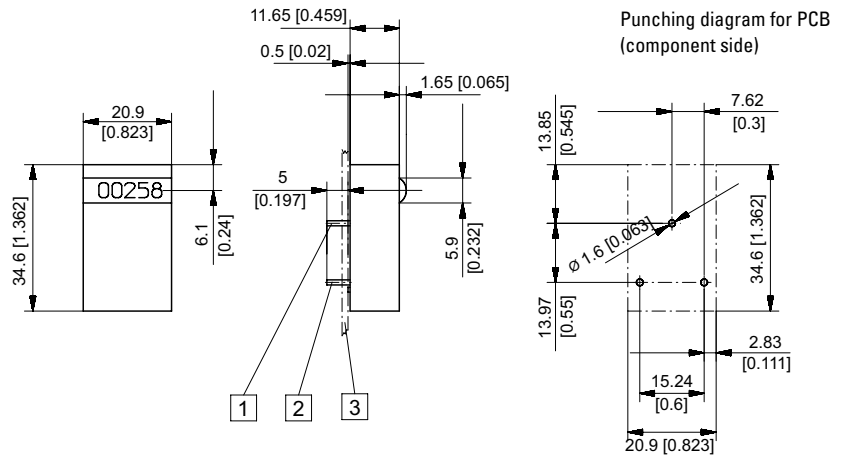
Type	Voltage	Display	Art. no.							
			3 V	4.5 V	12 V	24 V	115 V	230 V		
K 06.20	DC (10 Hz) / 0	6 digits	1.120.200.006	1.120.200.008	on request	1.120.200.013	1.120.200.054	1.120.200.056		
	DC (25 Hz) / 1				1.120.200.032	1.120.200.033				
	AC (10 Hz) / a0				1.120.200.051					
K 07.20	DC (10 Hz) / 0	7 digits	1.130.200.006	1.130.200.008	1.130.200.012 <sup>1)</sup>	1.130.200.013	1.130.200.054 <sup>1)</sup>	1.130.200.056		
	DC (25 Hz) / 1				1.130.200.032 <sup>1)</sup>	1.130.200.033 <sup>1)</sup>				
	AC (10 Hz) / a0				1.130.200.051					

# Pulse counters, electromechanical

**Micro counters**      **High shock resistance (AC+DC)**      **K 04 ... K 07 / AK 07**

**PCB mount, lying**  
**4- digit display on the top**  
**Type K 04.40**

Color of housing blue (zinc-plated)

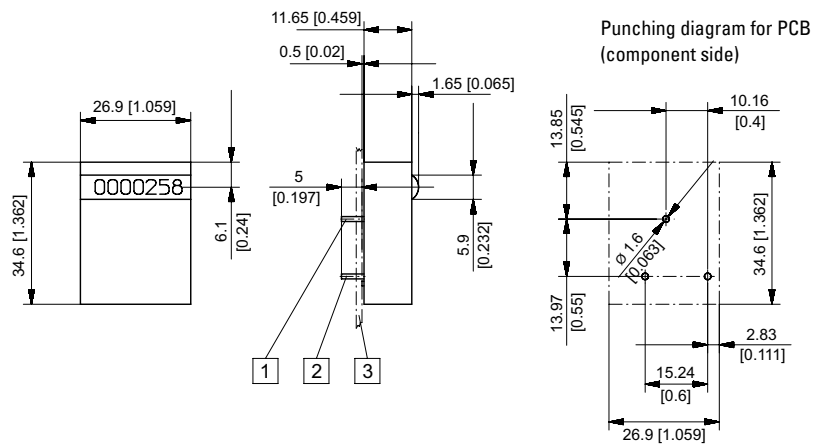


- 1] Mounting pin without el. function 0.4 x 1.2 [0.016 x 0.047]  
 2] Coil connections 0.4 x 1.2 [0.016 x 0.047]    3] PCB

Type	Voltage	Display	Art. no.			
			3 V	4.5 V	12 V	24 V
K 04.40	DC (10 Hz) / 0	4 digits	1.100.401.006	1.100.401.008	on request	on request
	DC (25 Hz) / 1				1.100.401.032	1.100.401.033

**PCB mount, lying**  
**7-digit display on the top**  
**Type K 07.40**

Color of housing blue (zinc-plated)



- 1] Mounting pin without el. function 0.4 x 1.2 [0.016 x 0.047]  
 2] Coil connections 0.4 x 1.2 [0.016 x 0.047]    3] PCB

Type	Voltage	Display	Art. no.			
			3 V	4.5 V	12 V	24 V
K 07.40	DC (10 Hz) / 0	7 digits	1.130.401.006	1.130.401.008 <sup>1)</sup>	on request	on request
	DC (25 Hz) / 1				1.130.401.032	1.130.401.033

# Pulse counters, electromechanical

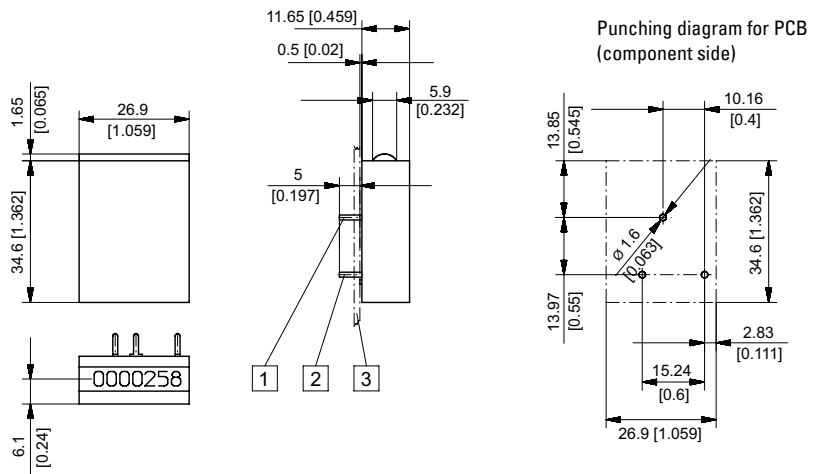
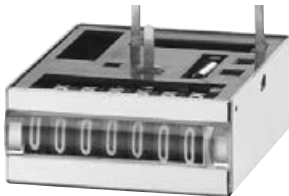
**Micro counters**

**High shock resistance (AC+DC)**

**K 04 ... K 07 / AK 07**

**PCB mount, hanging**  
**7-digit display front side**  
**Type K 07.50**

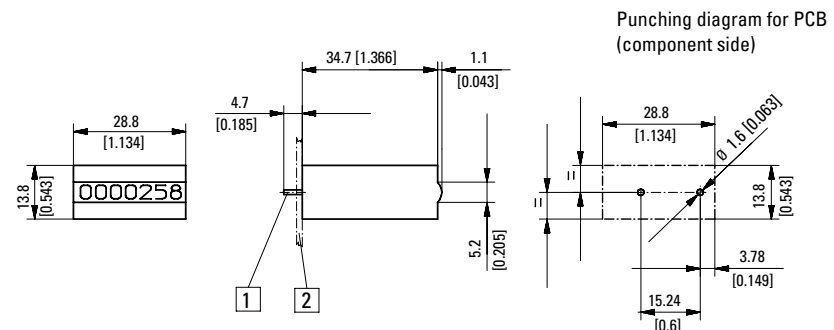
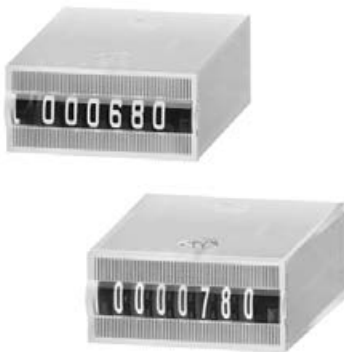
Color of housing blue (zinc-plated)



- 1) Mounting pin without el. function 0.4 x 1.2 [0.016 x 0.047]  
 2) Coil connections 0.4 x 1.2 [0.016 x 0.047] 3) PCB

Type	Voltage	Display	Art. no.			
			3 V	4.5 V	12 V	24 V
K 07.50	DC (10 Hz) / 0	7 digits	1.130.501.006	1.130.501.008	on request	on request
	DC (25 Hz) / 1				1.130.501.032	1.130.501.033

**PCB mount, upright**  
**6- and 7-digit display front side**  
**Type K 06.80 / K 07.80**



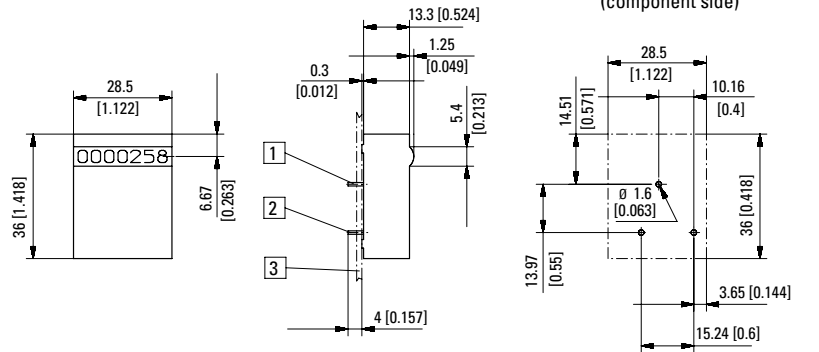
- 1) Coil connections 0.4 x 1.2 [0.016 x 0.047] 2) PCB

Type	Voltage	Display	Art. no.							
			3 V	4.5 V	12 V	24 V	115 V	230 V		
K 06.80	DC (10 Hz) / 0	6 digits	1.120.800.006	1.120.800.008	on request	on request				
	DC (25 Hz) / 1				1.120.800.032	1.120.800.033				
	AC (10 Hz) / a0				1.120.800.051	1.120.800.054	1.120.800.056			
K 07.80	DC (10 Hz) / 0	7 digits	1.130.800.006	1.130.800.008	on request	on request				
	DC (25 Hz) / 1				1.130.800.032 1)	1.130.800.033				
	AC (10 Hz) / a0				1.130.800.051	1.130.800.054	1.130.800.056			

# Pulse counters, electromechanical

**Micro counters**      **High shock resistance (AC+DC)**      **K 04 ... K 07 / AK 07**

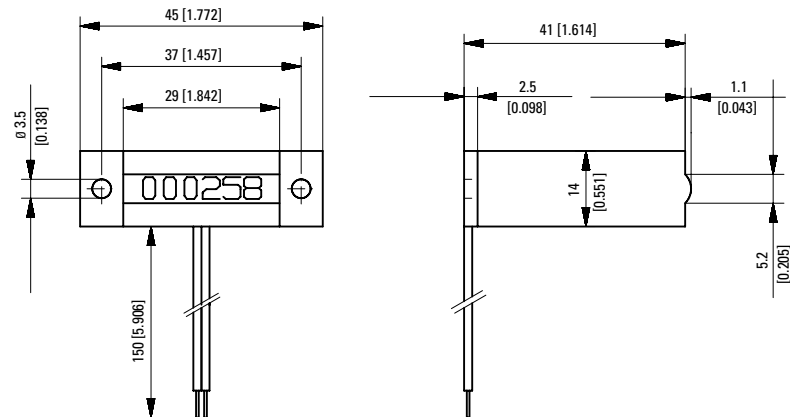
**PCB mount, lying**  
**7-digit display on the top**  
**Type K 07.90**



- 1) Mounting pin without el. function 0.4 x 1.2 [0.016 x 0.047]  
 2) Coil connections 0.4 x 1.2 [0.016 x 0.047]    3) PCB

Type	Voltage	Display	Art. no.					
			3 V	4.5 V	12 V	24 V	115 V	230 V
<b>K 07.90</b>	DC (10 Hz) / 0	7 digits	<b>1.130.900.006</b>	<b>1.130.900.008</b>	<b>1.130.900.012</b> <sup>1)</sup>	<b>on request</b>	<b>1.130.900.054</b>	<b>1.130.900.056</b>
	DC (25 Hz) / 1					<b>1.130.900.033</b>		
	AC (10 Hz) / a0					<b>1.130.900.051</b>		

**Base mount, upright**  
**7-digit display front side**  
**Type AK 07.00**

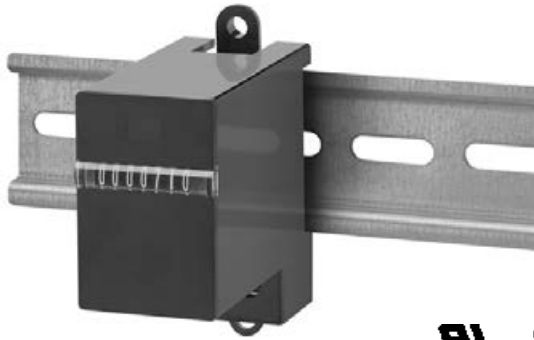


Type	Voltage	Display	Art. no.					
			3 V	4.5 V	12 V	24 V	115 V	230 V
<b>AK 07.00</b>	DC (10 Hz) / 0	7 digits	<b>1.130.000.006</b>	<b>1.130.000.008</b>	<b>1.130.000.012</b>	<b>1.130.000.013</b>	<b>1.130.000.054</b>	<b>1.130.000.056</b> <sup>1)</sup>
	DC (25 Hz) / 1					<b>1.130.000.033</b>		
	AC (10 Hz) / a0					<b>1.130.000.051</b>		

## Micro counters

## High shock resistance, for DIN-rail (AC+DC)

## SK 07



The micro-totalizers SK 07 boast a very high level of shock resistance.

Their DIN-rail mounting allows them to be installed quickly and easily in a wide range of application areas.

### Characteristics

- 7-digit micro-totalizers.
- Rail mounting to EN 50022.
- Base mount counters.
- Large optical figures.
- Low power consumption.
- Small dimensions.

### Benefits

- High shock resistance.
- Stores values if power fails.
- Long service life.

### Applications

General quantity counting, installation in control cabinets and distribution boxes.

### Type series

Description	Type	Order information
Base mounting and rail mounting	<b>SK 07.1</b>	<ul style="list-style-type: none"> <li>• Art. no.</li> <li>• For options please give exact counter type, voltage and options e.g.: SK 07.1 – 9 V DC/0 – temperature range -20°C ... +70°C [-4°F ... +158°F]</li> </ul>

### Technical data

<b>Electrical connection</b>	clamp terminal for cable diameter up to 2.5 mm <sup>2</sup> , tightening torque max. 0.8 Nm
<b>Power consumption</b> – at 20°C [68°F]	
at 10 Hz (type 0)	approx. 50 mW
at 25 Hz (type 1)	approx. 250 mW
at 10 Hz (type a0)	approx. 800 mVA
<b>Rated voltage</b>	
type 0	1.5/3/4.5/5/6/12 V DC, -10 %, +20 %
type 1	3/4.5/5/6/12/24 V DC, ±10 %
type a0	12/24/115/230 V AC, ±10 %
<b>Counting frequency</b>	max. 10 and 25 Hz
<b>Pulse duration</b>	
bei 10 Hz	min. 50 ms (type 0 and a0)
bei 25 Hz	min. 20 ms (type 1)
<b>Cycle duration factor</b>	100 %
<b>Number of digits</b>	7
<b>Counting system</b>	adding
<b>Height of figures</b> (optical)	4 x 1.2 mm [0.16 x 0.047"]
<b>Color of figures</b>	white on black
<b>Reset</b>	no reset
<b>Operating temperature</b>	-10°C ... +60°C [+14°F ... +140°F] (non-condensing)

<b>Mounting position</b>	horizontal, other on request
<b>Operating life</b>	> 50 x 10 <sup>6</sup> pulses
<b>Protection</b>	IP50 (front side)
<b>Housing</b>	plastic black PC (Polycarbonate)
<b>Weight</b>	55 g [1.94 oz]
<b>EMC standards</b>	EN 55011 class B EN 61000-6-2, EN 61000-6-3
<b>Device safety</b>	designed to EN 61010 part 1 protection class 2 application area pollution level 2
<b>UL approval</b>	file E128604

### Options

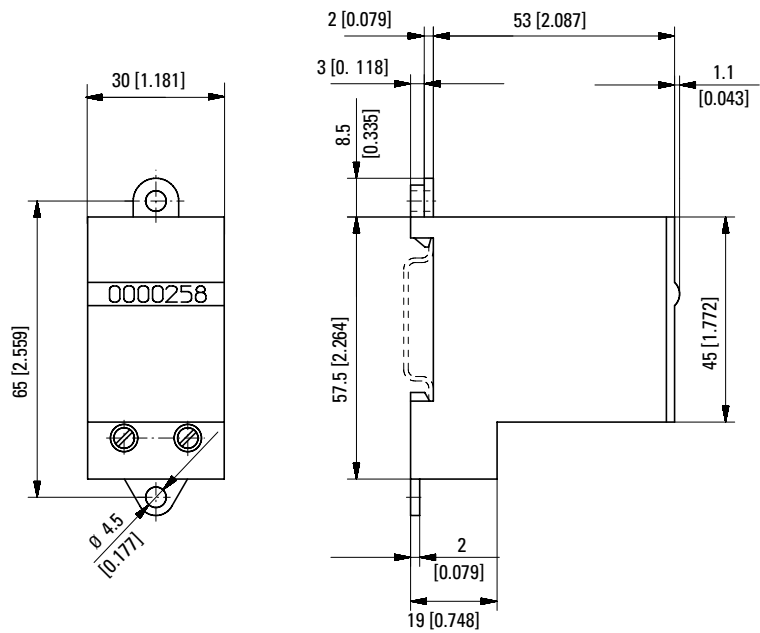
- electrical connection: flat pin 0.8 x 6.3 mm [0.032 x 0.25"], Art. no.: 1.1X2.X01.XXX.011
- different voltages
- different digit colors
- different temperature range depends on type  
-30°C ... +85°C [-22°F ... +185°F] or  
-20°C ... +70°C [-4°F ... +158°F]



# Pulse counters, electromechanical

<b>Micro counters</b>	<b>High shock resistance, for DIN-rail (AC+DC)</b>	<b>SK 07</b>
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**Base- and rail mounting**  
**Type SK 07.1**



Type	Voltage	Display	Art. no.			
			12 V	24 V	115 V	230 V
<b>SK 07.1</b>	DC (10 Hz) / 0	7 digits	<b>1.132.101.012</b>	<b>1.132.101.013</b> <sup>1)</sup>		
	DC (25 Hz) / 1		<b>1.132.101.032</b>	<b>1.132.101.033</b> <sup>1)</sup>		
	AC (10 Hz) / a0		<b>1.132.101.051</b> <sup>1)</sup>	<b>1.132.101.054</b> <sup>1)</sup>	<b>1.132.101.056</b> <sup>1)</sup>	

Dimensions in mm [inch]

1) Stock types.

- Product overview
- Basics
- Pulse counters
- Preset counters
- Hour meters
- Timers
- Frequency displays
- Tachometers
- Position displays
- Multifunction devices
- Energy meters
- Process devices
- Temperature devices
- Strain-gauge controllers
- Accessories
- Index

# Pulse counters, electromechanical

<b>Mini counters</b>	<b>5 digits with reset (AC+DC)</b>	<b>W 15</b>
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The mini totalizers W 15 are manually resettable and have been designed for various front panel sizes in a wide variety of applications. They offer an excellent price / performance ratio and are easy to operate.

## Characteristics

- 5-digit miniature pulse counter, adding with manual reset.
- Low power consumption.
- Available for all common DC and AC voltages.
- DIN housing 48 x 24 mm available.

## Benefits

- Long service life (50 million pulses).
- Ideal for battery operation and electronic switching operations.

## Applications

Machines and appliances, battery-powered devices, heat and water consumption measurement, establishing tolls and charges, general quantity counting.

## Type series

Description	Panel mount dimensions	Housing	Display	Type	Order information
Panel mount with mounting clip, 34 x 23 mm [1.34 x 0.91"]	31 x 20 mm [1.22 x 0.79"]	plastic	front side	<b>W 15.21</b>	• Art. no. • For special voltages, please give type, voltage, kind of voltage and series e.g.: W 15.21, 4.5 V DC/0 black
Panel mount with mounting clip, 48 x 24 mm [1.89 x 0.94"]	45 x 22 mm [1.77 x 0.87"]	plastic	front side	<b>W 15.51</b>	

Accessories	Dimensions in mm [inch]	Order no.
<b>Adapter front bezel, 53 x 28</b> [2.09 x 1.10]	for cut-out 50 x 25 [1.97 x 0.98] to cut-out 45 x 22.2 [1.77 x 0.87], with clip mounting for counters 48 x 24 [1.89 x 0.94]	anthracite <b>T008180</b>
<b>Adapter front bezel, 56 x 40</b> [2.20 x 1.57]	for cut-out 50 x 25 [1.97 x 0.98] to cut-out 45 x 22.2 [1.77 x 0.87], with screw mounting for counters 48 x 24 [1.89 x 0.94]	anthracite <b>T008181</b>
<b>Adapter front bezel, 72 x 36</b> [2.83 x 1.42]	for cut-out 68 x 33 [2.68 x 1.30] to cut-out 45 x 22.2 [1.77 x 0.87], for counters 48 x 24 [1.89 x 0.94], as set	black and silver anodised <b>162704 Set</b>
<b>Adapter front bezel, 48 x 48</b> [1.89 x 1.89]	for cut-out 45 x 45 [1.77 x 1.77] to cut-out 45 x 22.2 [1.77 x 0.87], with clip mounting for counters 48 x 24 [1.89 x 0.94]	black <b>T008883</b>
<b>Adapter front bezel, 60 x 50</b> [2.36 x 1.97]	for cut-out 54 x 29 [2.13 x 1.14] to cut-out 45 x 22.2 [1.77 x 0.87], with screw mounting and gasket for counters 48 x 24 [1.89 x 0.94]	black <b>N003001</b>
<b>Transparent cover, lockable, IP65</b>	for cut-out 54 x 29 [2.13 x 1.14], for screw mounting to front bezel F1B or adapter front bezel N003001, for counters with cut-out 50 x 25 [1.97 x 0.98] or 45 x 22.2 [1.77 x 0.87]	<b>N003002</b>
<b>Sealing cover type K1, IP65</b>	suitable for front bezel 60 x 50 [2.36 x 1.97] for screw mounting of electromech. counters and via adapter front bezel N003001, for counters 48 x 24 [1.89 x 0.94]	<b>G008301</b>
<b>Mounting frame</b> with cut-out 50 x 25 [2.36 x 1.97] via separate adapter also for 45 x 22.2 [1.77 x 0.87]	for snap-on mounting on 35 [1.38] top-hat DIN rail, for counters 53 x 28 [2.09 x 1.10] and via separate adapter (T008180) for counters 48 x 24 [1.89 x 0.94]	chromated <b>G300004</b>

Suitable gaskets, other accessories and installation examples for optional accessories can be found in chapter accessories or in the accessories section under: [www.kuebler.com/accessories](http://www.kuebler.com/accessories).

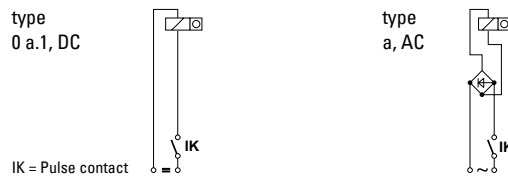
# Pulse counters, electromechanical

## Mini counters **5 digits with reset (AC+DC)** **W 15**

Technical data		
<b>Electrical connection</b>	standard	flying leads, AWG 22 approx. 150 mm [5.91"] $\varnothing$ 0.34 mm <sup>2</sup> , 6 mm [0.24"] stripped wire ends, tinned
<b>Rated voltage</b>	type 05 (8 Hz) type 0 (10 Hz) type a0 (10 Hz)	1.5 / 3 / 4.5 / 5 / 6 / 12 V DC (+15 %, -5 %) 12 / 24 / 48 / 115 / 230 V DC $\pm$ 10 % 12 / 24 / 48 / 115 / 230 V AC, $\pm$ 10 %
<b>Cycle duration factor</b>		100 %
<b>Height of figures</b>		approx. 4 x 1.7 mm [0.16 x 0.067"]
<b>Color of figures</b>		white on black
<b>Counting mechanism shaft</b>		stainless steel
<b>Operating temperature</b>		-10°C ... +50°C [+14°F ... +122°F] (non-condensing)
<b>Mounting position</b>		any
<b>Operating life</b>		> 50 x 10 <sup>6</sup> pulses
<b>Protection</b>		IP40 (front side)
<b>Weight</b>		approx. 52 g [1.83 oz]
<b>EMC standards</b>		EN 55011 class B EN 61000-6-2, EN 61000-6-3
<b>Device safety</b>	designed to protection class 2 application area	EN 61010 part 1 pollution level 2

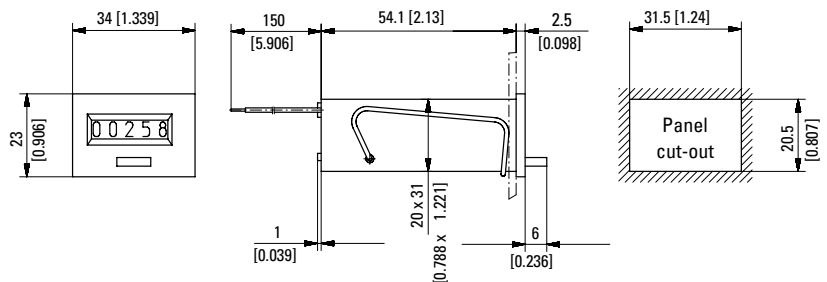
Options	
<b>Electrical connection</b>	<ul style="list-style-type: none"> <li>pin <math>\varnothing</math> 1.5 mm with push on connectors (Art. no.: 1.151.X1X.XXX)</li> <li>with flat pin 0.8 x 2.8 mm [0.032 x 0.11"] and flat push on connectors (Art. no.: 1.159.X1X.XXX)</li> <li>with flat pin 0.8 x 6.3 mm [0.032 x 0.25"] and flat push on connectors (Art. no.: 1.155.XXX.XXX)</li> <li>with screw terminal (Art. no.: 1.154.XXX.XXX.023)</li> </ul>
<b>Color of housing</b> (availability see table)	grey Art. no.: X.XXX.XX0.XXX black Art. no.: X.XXX.XX1.XXX
<b>Extended temperature range</b>	on request

### Connection diagram



Type / Counting mechanism						
Voltage	Type	Pulse frequency max.	Pulse on time min.	Pulse interval min.	Power consumption approx.	Permi. residual ripple max.
<b>V DC</b>	05	8 Hz	50 ms	75 ms	130 mW	5 %
<b>V DC</b>	0	10 Hz	50 ms	50 ms	0.5 W ( $\leq$ 115 V) 1 W (185 V)	48 %
<b>V AC</b>	a0	10 Hz	50 ms	50 ms	0.75 VA ( $\leq$ 115 V) 1.5 VA (230 V)	—

### Panel mount with mounting clip Panel mount dimensions 31 x 20 [1.22 x 0.79] Type W 15.21



Color of housing black: Art. no. 1.150.211.XXX

Type	Voltage	Display	Art. no.				Further stock types: 1.150.211.012 12 V DC/0 sw 1.150.211.013 24 V DC/0 sw 1.150.211.056 230 V AC/a0 sw
			12 V	24 V	115 V	230 V	
<b>W 15.21</b>	DC (8 Hz) / 05	5 digits	<b>1.150.210.049</b>	<b>1.150.210.050</b>			
	DC (10 Hz) / 0		<b>1.150.210.012</b>	<b>1.150.210.013</b> <sup>1)</sup>			
	AC (10 Hz) / a0			<b>1.150.210.051</b>	<b>1.150.210.054</b>	<b>1.150.210.056</b> <sup>1)</sup>	

# Pulse counters, electromechanical

**Mini counters**

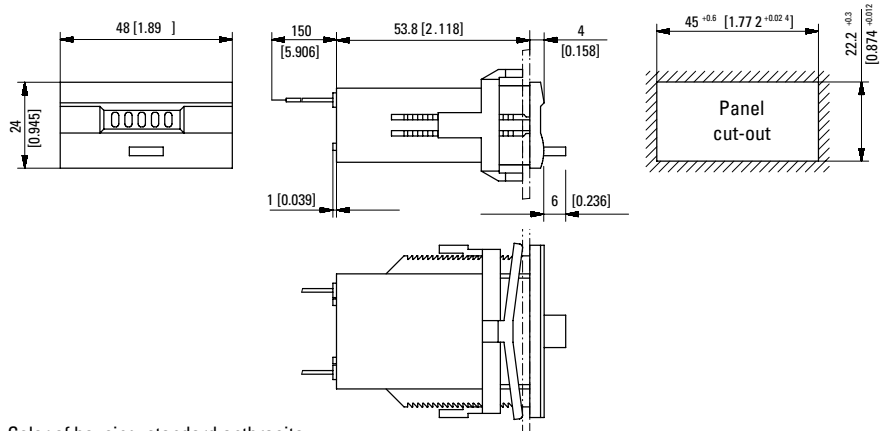
**5 digits with reset (AC+DC)**

**W 15**

**Panel mount with mounting clip**

Panel mount dimensions 45 x 22 [1.77 x 0.87]

**Type W 15.51**



Color of housing: standard anthracite

Type	Voltage	Display	Art. no.			
			12 V	24 V	115 V	230 V
<b>W 15.51</b>	DC (8 Hz) / 05	5 digits	<b>1.150.510.049.550</b>	<b>1.150.510.050.550</b>		
	DC (10 Hz) / 0		<b>1.150.510.012.550</b> <sup>1)</sup>	<b>1.150.510.013.550</b> <sup>1)</sup>		
	AC (10 Hz) / a0			<b>1.150.510.051.550</b>	<b>1.150.510.054.550</b> <sup>1)</sup>	<b>1.150.510.056.550</b> <sup>1)</sup>

# Pulse counters, electromechanical

<b>Mini counters</b>	<b>6 or 7 digits without reset (AC+DC)</b>	<b>W 16 / W 17</b>
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The mini totalizers W 16 and W 17 are not resettable, and have been designed for various front panel sizes in a wide variety of applications.

They offer an excellent price / performance ratio and are easy to operate.

Product overview  
Basics

Pulse counters

Preset counters

Hour meters  
Timers

Frequency displays  
Tachometers

Position displays

Multifunction devices

Energy meters

Process devices

Temperature devices

Strain-gauge controllers

Accessories Index

<h3>Characteristics</h3> <ul style="list-style-type: none"> <li>6- or 7-digit miniature pulse counters, adding without reset.</li> <li>Low power consumption.</li> <li>Available for all common DC and AC voltages.</li> <li>Versions available for DIN 48 x 24 mm and many other panel mount dimensions as well as for other types, e.g. PCB mount.</li> </ul>	<h3>Benefits</h3> <ul style="list-style-type: none"> <li>Long service life / Protection IP41 (front side).</li> </ul>
	<h3>Applications</h3> <p>Battery-powered devices, heat and water consumption measurement, establishing tolls and charges, general quantity counting.</p>

Type series					
Description / mounting	Panel mount dim.	Housing	Display	6 digits	7 digits
Panel mount + mounting clip, 34 x 23 mm [1.34 x 0.91"]	31 x 20 mm [0.79 x 0.25"]	plastic	front side	<b>W 16.20</b>	-
Panel mount + mounting clip, 48 x 24 mm [1.89 x 0.94"]	45 x 22.2 mm [1.77 x 0.87"]	plastic	front side	-	<b>W 17.50</b>
PCB mount, lying		sheet steel	on the top	<b>W 16.60</b>	-
Panel mount + mounting clip, 42 x 28 mm [1.65 x 1.10"]	37.5 x 23.5 mm [1.48 x 0.93"]	plastic	front side	-	<b>W 17.90</b>
<b>Order information</b>					
· Art. no.					
· For special voltages, please give type, voltage, kind of voltage and series e.g.: W 16.20, 9 V DC, 05, black					

Accessories	Dimensions in mm [inch]	Order no.
<b>Adapter front bezel, 53 x 28 [2.09 x 1.10]</b>	for cut-out 50 x 25 [1.97 x 0.98] to cut-out 45 x 22.2 [1.77 x 0.87], with clip mounting for counters 48 x 24 [1.89 x 0.94]	anthracite <b>T008180</b>
<b>Adapter front bezel, 56 x 40 [2.20 x 1.57]</b>	for cut-out 50 x 25 [1.97 x 0.98] to cut-out 45 x 22.2 [1.77 x 0.87], with screw mounting for counters 48 x 24 [1.89 x 0.94]	anthracite <b>T008181</b>
<b>Adapter front bezel, 72 x 36 [2.83 x 1.42]</b>	for cut-out 68 x 33 [2.68 x 1.30] to cut-out 45 x 22.2 [1.77 x 0.87], for counters 48 x 24 [1.89 x 0.94], as set	black and silver anodised <b>162704 Set</b>
<b>Adapter front bezel, 48 x 48 [1.89 x 1.89]</b>	for cut-out 45 x 45 [1.77 x 1.77] to cut-out 45 x 22.2 [1.77 x 0.87], with clip mounting for counters 48 x 24 [1.89 x 0.94]	black <b>T008883</b>
<b>Adapter front bezel, 60 x 50 [2.36 x 1.97]</b>	for cut-out 54 x 29 [2.13 x 1.14] to cut-out 45 x 22.2 [1.77 x 0.87], with screw mounting and gasket for counters 48 x 24 [1.89 x 0.94]	black <b>N003001</b>
<b>Transparent cover, lockable, IP65</b>	for cut-out 54 x 29 [2.13 x 1.14], for screw mounting to front bezel F1B or adapter front bezel N003001, for counters with cut-out 50 x 25 [1.97 x 0.98] or 45 x 22.2 [1.77 x 0.87]	<b>N003002</b>
<b>Sealing cover type K1, IP65</b>	suitable for front bezel 60 x 50 [2.36 x 1.97], for screw mounting of electromech. counters and via adapter front bezel N003001 for counters 48 x 24 [1.89 x 0.94]	<b>G008301</b>
<b>Mounting frame</b> with cut-out 50 x 25 [2.36 x 1.97] via separate adapter also for 45 x 22.2 [1.77 x 0.87]	for snap-on mounting on 35 [1.38] top-hat DIN rail, for counters 53 x 28 [2.09 x 1.10] and via separate adapter (T008180) for counters 48 x 24 [1.89 x 0.94]	chromated <b>G300004</b>

Suitable gaskets, other accessories and installation examples for optional accessories can be found in chapter accessories or in the accessories section under: [www.kuebler.com/accessories](http://www.kuebler.com/accessories).

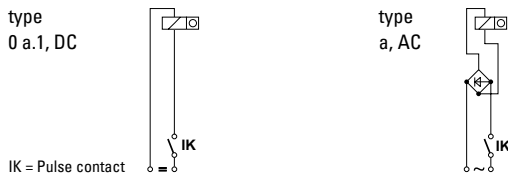
# Pulse counters, electromechanical

## Mini counters 6 or 7 digits without reset (AC+DC) W 16 / W 17

Technical data		
<b>Electrical connection</b>	panel mount, base mount	flying leads, AWG 22 approx. 150 mm [5.91"] $\varnothing$ 0.34 mm <sup>2</sup> , 6 mm [0.24"] stripped wire ends, tinned round pin $\varnothing$ 1.6 mm [0.063"]
	PCB mount	
<b>Rated voltage</b>	type 05 (8 Hz)	1.5 / 3 / 4.5 / 5 / 6 / 12 V DC (+15 %, -5 %)
	type 0 (10 Hz)	12 / 24 / 48 / 115 / 230 V DC $\pm$ 10 %
	type a0 (10 Hz)	24 / 48 / 115 / 230 V AC, $\pm$ 10 %
<b>Cycle duration factor</b>		100 %
<b>Height of figures</b>		4 x 1.7 mm [0.16 x 0.067"]
<b>Color of figures</b>		white on black
<b>Counting mechanism shaft</b>		stainless steel
<b>Operating temperature</b>		-10°C ... +50°C [+14°F ... +122°F] (non-condensing)
<b>Mounting position</b>		any
<b>Operating life</b>		> 50 x 10 <sup>6</sup> pulses
<b>Protection</b>		IP41 (front side)
<b>Weight</b>		approx. 50 g [1.76 oz]
<b>EMC standards</b>		EN 55011 class B EN 61000-6-2, EN 61000-6-3
<b>Device safety</b>	designed to protection class application area	EN 61010 part 1 2 pollution level 2

Options		
<b>Electrical connection</b>	round pins $\varnothing$ 1.6 mm [0.063"] and push on connectors	(Art. no.: 1.161.XXX.XXX)
	with flat pin 0.8 x 2.8 mm [0.032 x 0.11"]	(Art. no.: 1.169.XXX.XXX)
	with flat pin 0.8 x 6.3 mm [0.032 x 0.25"] and push on connectors	(Art. no.: 1.165.XXX.XXX)
	with open screw terminals	(Art. no.: 1.164.XXX.XXX.023)
<b>Color of housing</b> (availability see table)	grey	Art. no.: X.XXX.XX0.XXX
	black	Art. no.: X.XXX.XX1.XXX
<b>Extended temperature range</b>		on request
<b>With lens for digit height 5 or 6.3 mm</b>		on request

### Connection diagram

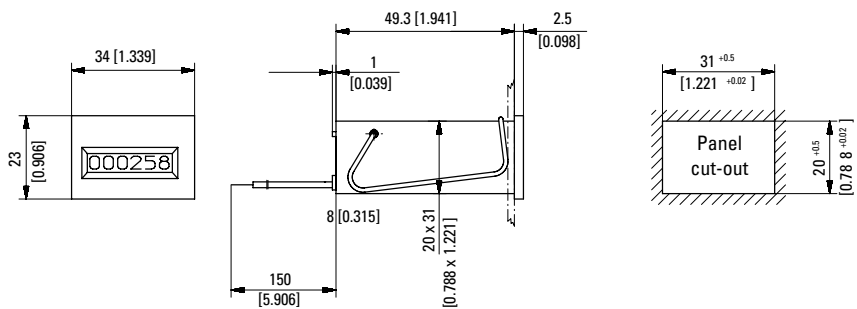


Type / Counting mechanism						
Voltage	Type	Pulse frequency max.	Pulse on time min.	Pulse interval min.	Power consumption approx.	Permi. residual ripple max.
<b>V DC</b>	05	8 Hz	50 ms	75 ms	50 mW	5 %
<b>V DC</b>	0	10 Hz	50 ms	50 ms	0.5 W ( $\leq$ 115 V) 1 W (185 V)	48 %
<b>V AC</b>	a0	10 Hz	50 ms	50 ms	0.75 VA ( $\leq$ 115 V) 1.5 VA (230 V)	—

### Panel mount with mounting clip

Panel mount dimensions 31 x 20 [1.22 x 0.79]

#### Type W 16.20



Color of housing black: Art. no. 1.160.201.XXX

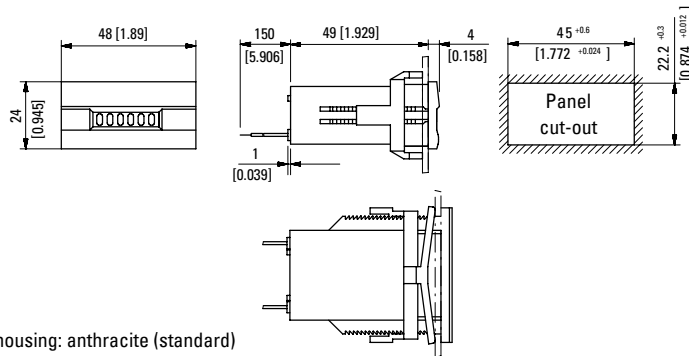
Type	Voltage	Display	Art. no.			Further stock types: 1.160.201.013 24 V DC/0sw 1.160.201.056 230 V AC/a0sw
			12 V	24 V	115 V	
<b>W 16.20</b>	DC (8 Hz) / 05	6 digits	<b>1.160.200.049</b>	<b>1.160.200.050</b>		
	DC (10 Hz) / 0		<b>1.160.200.012</b>	<b>1.160.200.013</b> <sup>1)</sup>		
	AC (10 Hz) / a0			<b>1.160.200.051</b>	<b>1.160.200.054</b>	<b>1.160.200.056</b> <sup>1)</sup>

# Pulse counters, electromechanical

**Mini counters**      **6 or 7 digits without reset (AC+DC)**      **W 16 / W 17**

**Panel mount with mounting clip 48 x 24 [1.89 x 0.94]**  
 Panel mount dimensions 45 x 22.2 [1.77 x 0.87]

**Type W 17.50**



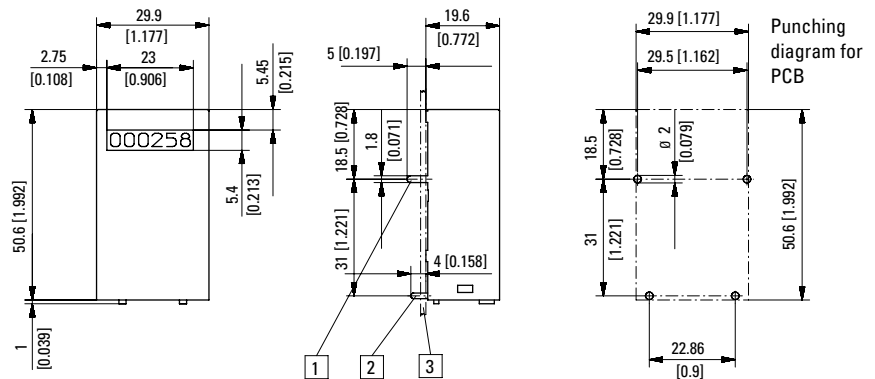
Color of housing: anthracite (standard)

Type	Voltage	Display	Art. no.			
			12 V	24 V	115 V	230 V
<b>W 17.50</b>	DC (8 Hz) / 05	7 digits	<b>1.740.500.049.550</b>	<b>1.740.500.050.550</b>		
	DC (10 Hz) / 0		<b>1.740.500.012.550<sup>1)</sup></b>	<b>1.740.500.013.550<sup>1)</sup></b>		
	AC (10 Hz) / a0			<b>1.740.500.051.550</b>	<b>1.740.500.054.550</b>	<b>1.740.500.056.550<sup>1)</sup></b>

**PCB mount, sheet steel**

Display wide side

**Type W 16.60**



1) Mounting pins 1.8 x 0.4 [0.071 x 0.016]    2) Coil connections  $\varnothing$  0.16 [0.006]    3) PCB

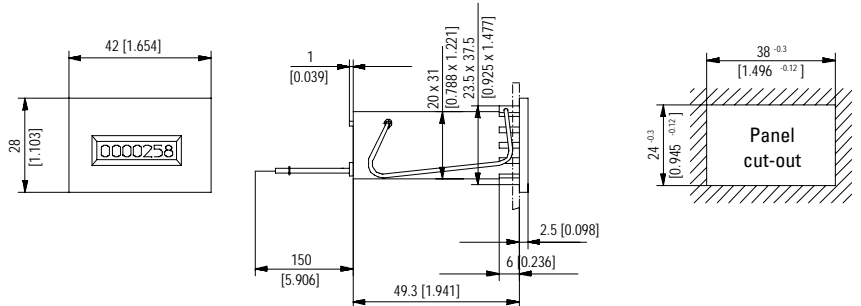
Color of housing blue (zinc-plated)

Type	Voltage	Display	Art. no.			
			12 V	24 V	115 V	230 V
<b>W 16.60</b>	DC (10 Hz) / 0	6 digits	<b>1.160.601.012</b>	<b>1.160.601.013</b>		

**Panel mount with mounting clip**

Panel mount dimensions 37.5 x 23.5 [1.48 x 0.93]

**Type W 17.90**



Color of housing black: Art. no. 1.XXX.901.XXX

Type	Voltage	Display	Art. no.			
			12 V	24 V	115 V	230 V
<b>W 17.90</b>	DC (8 Hz) / 05	7 digits	<b>1.740.900.049</b>	<b>1.740.900.050</b>		
	DC (10 Hz) / 0		<b>1.740.900.012</b>	<b>1.740.900.013</b>		
	AC (10 Hz) / a0				<b>1.740.900.054</b>	<b>1.740.900.056</b>

Dimensions in mm [inch]

1) Stock types

# Pulse counters, electromechanical

Standard counters

4 digits with reset (AC+DC)

Bk 14



The standard totalizers Bk 14 (with manual reset) boast a robust construction despite their small size.

They are ideal for use in harsh industrial environments.

## Characteristics

- 4-digit totalizer with manual reset.

## Benefits

- Very long service life (200 million pulses).

## Applications

General quantity counting, time, charge and performance metering.

## Type series

Description	Type	Order information
Panel mount with 2 mounting holes	<b>Bk 14.11</b>	· Art. no. · At different voltages, please give type, voltage, kind of voltage and series e.g.: Bk 14.21, 12 V AC, type a
Panel mount for clip mounting	<b>Bk 14.21</b>	

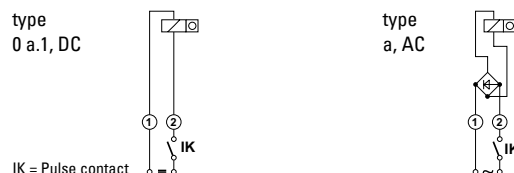
Technical data	
<b>Electrical connection</b>	tinned round pins $\varnothing$ 1.6 mm [0.063"] with push on connectors
<b>Rated voltage</b>	type 0/l/a 12 / 24 / 48 / 115 / 230 V DC $\pm$ 10 % 24 / 48 / 115 / 230 V AC $\pm$ 10 %
<b>Color of counter</b>	grey
<b>Height of figures</b>	approx. 2 x 4 mm [0.079 x 0.16"]
<b>Color of figures</b>	white on black
<b>Counting mechanism shaft</b>	stainless steel
<b>Mounting position</b>	any
<b>Operating life</b>	approx. 200 x 10 <sup>6</sup> pulses
<b>Protection</b>	IP40 (front side)
<b>Weight</b>	70 g [2.47 oz]
<b>Test voltage</b>	2000 V ~ effective, acc. to VDE 0435
<b>Vibration resistance</b>	3 g up to 10 Hz 6 g up to 15 Hz independent of position 10 g 20 - 300 Hz

<b>EMC standards</b>	EN 55011 class B EN 61000-6-2, EN 61000-6-3
<b>Device safety</b>	designed to protection class 2 application area EN 61010 part 1 pollution level 2

## Options

- key locking reset special key (order code "vs", e.g. Bk 14.11 vs)
- housing color black
- higher counting speed
- also with flying leads

## Connection diagram



Type / Counting mechanism									
Voltage	Type	Pulse frequency max.	Pulse on time min.	Pulse interval min.	Pulse ratio	On-time	Power consump. approx.	Permi. residual ripple max.	Operating temp. (non-condensing)
<b>V DC</b>	0	10 Hz	60 ms	40 ms	3 : 2	100 %	1 W	48 %	-10°C ... +60°C [+14°F ... +140°F]
<b>V DC</b>	1	25 Hz	24 ms	16 ms	3 : 2	100 %	2 W	48 %	-10°C ... +60°C [+14°F ... +140°F]
<b>V AC</b>	a	18 Hz	22.2 ms	33.3 ms	2 : 3	100 %	2.9 VA	-	-10°C ... +55°C [+14°F ... +131°F]

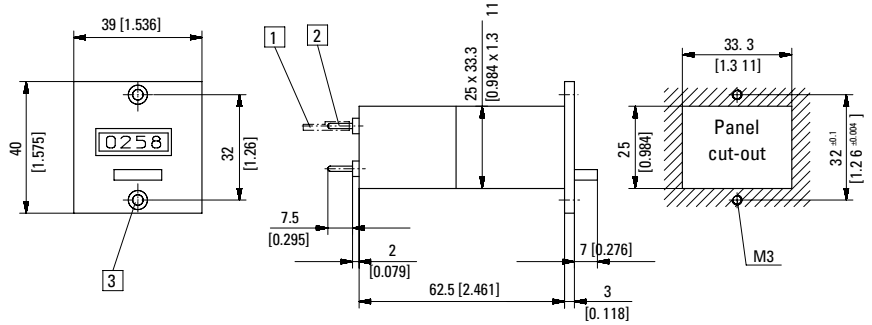


# Pulse counters, electromechanical

**Standard counters**      **4 digits with reset (AC+DC)**      **Bk 14**

**Panel mount with 2 mounting holes**  
4 digits, with reset

**Type Bk 14.11**

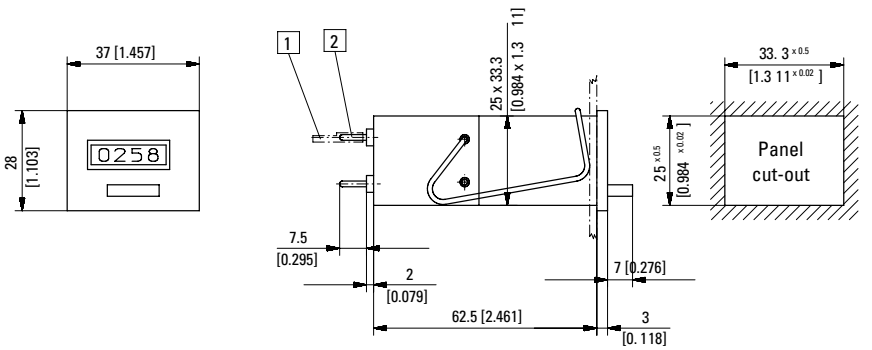


1 Push on connector  $\varnothing$  1.5 [0.059], tinned    2 Round pin  $\varnothing$  1.6 [0.063], tinned    3 Countersinking Af3 DIN 94

Type	Voltage	Display	Art. no.			
			12 V	24 V	115 V	230 V
Bk 14.11	DC (10 Hz) / 0	4 digits	1.180.110.012	1.180.110.013 <sup>1)</sup>		
	DC (25 Hz) / 1		1.180.110.032	1.180.110.033		
	AC (18 Hz) / a		1.180.110.061	1.180.110.064	1.180.110.066	

**Panel mount for clip mounting**  
4 digits, with reset

**Type Bk 14.21**



1 Push on connector  $\varnothing$  1.5 [0.059], tinned    2 Round pin  $\varnothing$  1.6 [0.063], tinned

Type	Voltage	Display	Art. no.			
			12 V	24 V	115 V	230 V
Bk 14.21	DC (10 Hz) / 0	4 digits	1.180.210.012	1.180.210.013		
	DC (25 Hz) / 1		1.180.210.032	1.180.210.033		
	AC (18 Hz) / a		1.180.210.061	1.180.210.064	1.180.210.066	

## Standard counters

6 or 8 digits with/without reset (AC+DC)

B 16 / B 18



The standard totalizers B 16 (with manual reset) and B 16, B 18 (without reset) offer a robust construction.

They are ideal for use in harsh industrial environments as individual counters or as plug-in types in combination with additional B, BVa, HB or HVa counters.

### Characteristics

- B 16.x1: 6-digit totalizer with manual reset.
- B 16.x0 and B 18.x0: 6- and 8-digit totalizers without reset.
- Counters without front bezel fit into bezels F1B and F2B and can be combined in RM 50 x 25 mm with socket 945.2.
- Very long service life (200 million pulses).

### Benefits

- Can be combined with preset counters BVa and HVa, as well as with timer HB.
- Can be upgraded using various front covers to protect against dust, dirt and humidity – reset can be locked out.

### Applications

General quantity counting, piece counting, event counting, timing.

### Type series

Description	6 digits without reset	8 digits without reset	6 digits with reset	Order information
Counter without front bezel, rear mounting, plugs into socket box 945.2 and frontbezel F1	–	<b>B 18.00</b>	<b>B 16.01</b>	- Art. no. - For special voltages, please give type, voltage, kind of voltage and series e.g.: B 16.31, 4.5 V DC, 0 or B 18.00, 48 V AC, a
Panel mount, front bezel size no. 1 with 2 mounting holes	<b>B 16.10</b>	<b>B 18.10</b>	<b>B 16.11</b>	
Panel mount, for clip mounting	<b>B 16.20</b>	<b>B 18.20</b>	<b>B 16.21</b>	
Panel mount, front bezel size no. 3 with 2 mounting holes	<b>B 16.30</b>	<b>B 18.30</b>	<b>B 16.31</b>	

### Accessories

Accessories	Dimensions in mm [inch]	Order no.
<b>Front bezel, type F1B</b> plastic	for cut-out 54 x 49 [2.13 x 1.93], for screw mounting, for plug-in counters B1x.0x and HB2x.0x in socket box type 945.2	beige <b>G007501</b> black <b>G007502</b>
<b>Socket box, type 945.2</b>	for counters B1x.0x and HB2x.0x, can be used for plug-in connections in front bezel F1B	black <b>G008434</b>
<b>Sealing cover, type K1, IP65</b>	for front bezel 60 x 50 [2.36 x 1.97], with screw mounting, for electromechanical counters and via adapter front bezel N003001 for counters 48 x 24 [1.89 x 0.94]	transparent / grey <b>G008300</b> transparent / black <b>G008301</b>
<b>Transparent cover, lockable, IP65</b>	for cut-out 54 x 29 [2.13 x 1.14], for screw mounting to front bezel F1B or adapter front bezel N003001, for counters with cut-out 50 x 25 [1.97 x 0.98] or 45 x 22.2 [1.77 x 0.87]	<b>N003002</b>
<b>Blind enclosure, 53 x 28 [2.07 x 1.10]</b>	for cut-out 50 x 25 [1.97 x 0.98], for counters 53 x 28 [2.09 x 1.10]	black <b>T005753</b>
<b>Mounting frame</b> with cut-out 50 x 25 [2.36 x 1.97] via separate adapter also for 45 x 22.2 [1.77 x 0.87]	for snap-on mounting on 35 [1.38] top-hat DIN rail, for counters 53 x 28 [2.09 x 1.10] and via separate adapter (T008180) for counters 48 x 24 [1.89 x 0.94]	chromated <b>G300004</b>
<b>Mounting rail frame SR</b>	for B and HB counters for snap-on mounting on 35 [1.38] top-hat DIN rail	SR 1 for 1x3 B counters <b>G300000</b> SR 2 for 2x3 B counters <b>G300001</b>
<b>Transparent cover, replacement part, IP65</b>	screw-on, IP65 with gaskets and screws suitable for Dv(s)B1x and Dv(s)HB2x	type Dv, lockable <b>G008121</b> type Dvs, key lockable <b>G008131</b>

Suitable gaskets, other accessories and installation examples for optional accessories can be found in chapter accessories or in the accessories section under: [www.kuebler.com/accessories](http://www.kuebler.com/accessories).

# Pulse counters, electromechanical

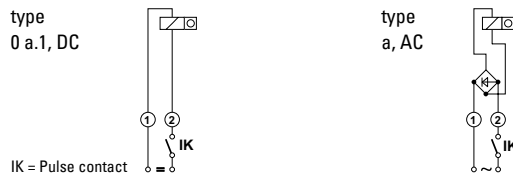
## Standard counters 6 or 8 digits with/without reset (AC+DC) B 16 / B 18

Technical data		
<b>Electrical connection</b>	count mechanism	pin $\varnothing$ 1.6 mm [0.063] with push on connector for flying leads 0.5 ... 1.0 mm <sup>2</sup>
	socket box	flat pin 0.8 x 2.8 mm [0.032 x 0.11"]
<b>Rated voltage</b>	type 0 / 1 / a	12 / 24 / 48 / 115 / 230 V DC $\pm$ 10 % 24 / 48 / 115 / 230 V AC $\pm$ 10 %
<b>Color of counter</b>		grey
<b>Height of figures</b>	B 16	2 x 4.5 mm [0.079 x 0.18]
	B 18	2 x 4 mm [0.079 x 0.16]
<b>Color of figures</b>		white on black
<b>Count mechanism shaft</b>		stainless steel
<b>Mounting position</b>		any
<b>Operating life</b>		approx. 200 x 10 <sup>6</sup> pulses
<b>Protection</b>	with reset	IP40 (front side)
	without reset	IP41 (front side)
<b>Weight</b>	without reset	81 g [2.86 oz]
	with reset	83 g [2.93oz]
	socket box	14 g [0.49 oz]
<b>Test voltage</b>		2000 V ~ effective, acc. to VDE 0435
<b>EMC standards</b>		EN 55011 class B EN 61000-6-2, EN 61000-6-3
<b>Device safety</b>	designed to protection class	EN 61010 part 1 2
	application area	pollution level 2

Options	
<b>Color of housing black</b>	Art. no. ref. to type 1.XXX.XX1.XXX
<b>Electr. connection at counter</b>	flat pins 0.8 x 2.8 mm [0.032 x 0.11"] with push on connectors Art. no. 1.XX7.XXX.XXX
<b>Counter with flat pin 6.3 x 0.8 mm [0.25 x 0.032"]</b>	on request 1.XXX.XXX.XXX.011
<b>Screw terminal</b>	Art. no. 1.XXX.XXX.XXX.023
<b>Connection with flying leads</b>	on request 1.XX3.XXX.XXX
<b>Extended temperature range</b>	on request
<b>Key locking reset</b>	grey 1.XXX.XX6.XXX
	black 1.XXX.XX7.XXX
	key for reset G050265 (replacement part)

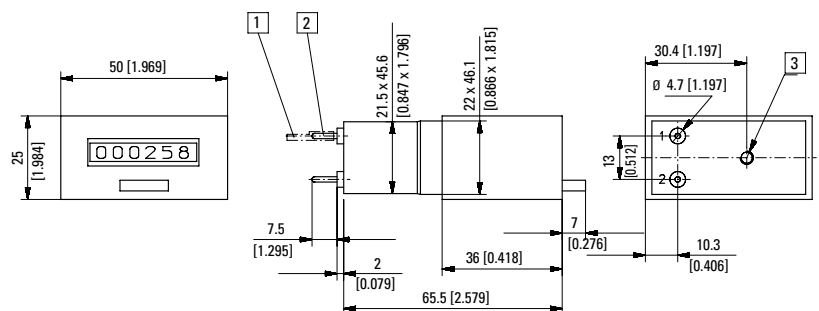


### Connection diagram



Type / Counting mechanism									
Voltage	Type	Pulse frequency max.	Pulse on time min.	Pulse interval min.	Pulse ratio	On-time	Power consump. approx.	Permi. residual ripple max.	Operating temp. (non-condensing)
V DC	0	10 Hz	60 ms	40 ms	3 : 2	100 %	1 W	48 %	-10°C ... +60°C [+14°F ... +140°F]
V DC	1	25 Hz	24 ms	16 ms	3 : 2	100 %	2 W	48 %	-10°C ... +60°C [+14°F ... +140°F]
V AC	a	18 Hz	22.2 ms	33.3 ms	2 : 3	100 %	2.9 VA	-	-10°C ... +55°C [+14°F ... +131°F]

### Without front bezel, rear mounting 6 digits, with reset Type B 16.01



- 1 Push on connector  $\varnothing$  1.5 [0.059], tinned    2 Round pin  $\varnothing$  1.6 [0.063], tinned    3 M4, 5 [0.20] deep  
Color of housing: beige (standard) – black, Art. no. 1.230.XX1.XXX

Type	Voltage	Display	Art. no.			
			12 V	24 V	115 V	230 V
B 16.01	DC (10 Hz) / 0	6 digits,	1.230.012.012	1.230.012.013		
	DC (25 Hz) / 1	with reset	1.230.012.032	1.230.012.033		
	AC (18 Hz) / a			1.230.012.061	1.230.012.064	1.230.012.066

Dimensions in mm [inch]

Product overview  
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Pulse counters  
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Position displays  
Multifunction devices  
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Index

# Pulse counters, electromechanical

## Standard counters

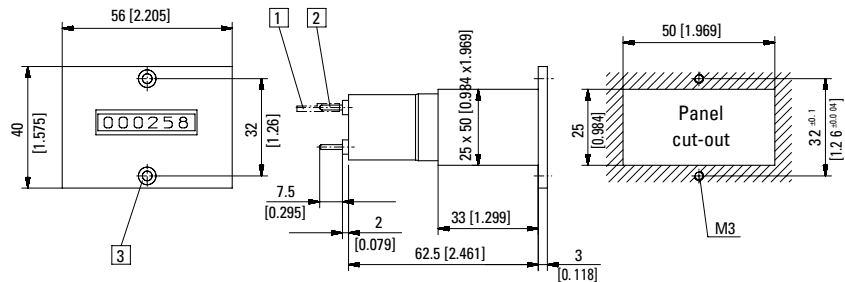
## 6 or 8 digits with/without reset (AC+DC)

## B 16 / B 18

### Panel mount with front bezel size no. 1 and 2 mounting holes

6 digits, without reset

#### Type B 16.10



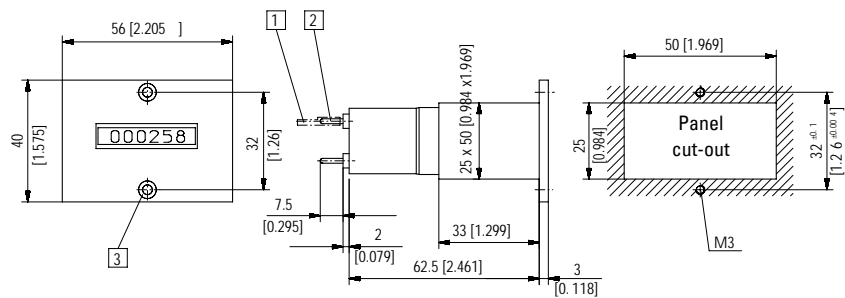
1 Push on connector  $\varnothing$  1.5 [0.059], tinned 2 Round pin  $\varnothing$  1.6 [0.063], tinned 3 Countersinking Af3 DIN 74  
Color of housing: grey (standard) – black, Art. no. 1.230.101.XXX

Type	Voltage	Display	Art. no.			
			12 V	24 V	115 V	230 V
B 16.10	DC (10 Hz) / 0	6 digits, without reset	1.230.100.012	1.230.100.013		
	DC (25 Hz) / 1		1.230.100.032	1.230.100.033		
	AC (18 Hz) / a			1.230.100.061	1.230.100.064	1.230.100.066

### Panel mount front bezel size no. 1 with 2 mounting holes

6 digits, with reset

#### Type B 16.11



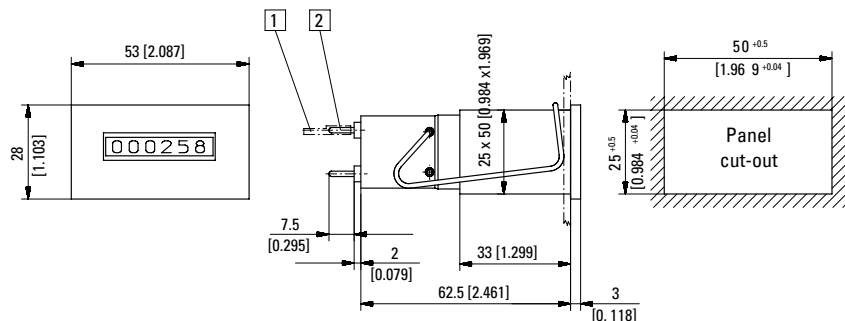
1 Push on connector  $\varnothing$  1.5 [0.059], tinned 2 Round pin  $\varnothing$  1.6 [0.063], tinned 3 Countersinking Af3 DIN 74  
Color of housing: grey (standard) – black, Art. no. 1.230.111.XXX

Type	Voltage	Display	Art. no.			
			12 V	24 V	115 V	230 V
B 16.11	DC (10 Hz) / 0	6 digits, with reset	1.230.110.012	1.230.110.013		
	DC (25 Hz) / 1		1.230.110.032	1.230.110.033 <sup>1)</sup>		
	AC (18 Hz) / a			1.230.110.061 <sup>1)</sup>	1.230.110.064	1.230.110.066 <sup>1)</sup>

### Panel mount for clip mounting

6 digits, without reset

#### Type B 16.20



1 Push on connector  $\varnothing$  1.5 [0.059], tinned 2 Round pin  $\varnothing$  1.6 [0.063], tinned  
Color of housing: grey (standard) – black, Art. no. 1.230.201.XXX

Type	Voltage	Display	Art. no.				Further stock types:
			12 V	24 V	115 V	230 V	
B 16.20	DC (10 Hz) / 0	6 digits, without reset	1.230.200.012	1.230.200.013			1.237.201.066 230 V AC/a with flat pins
	DC (25 Hz) / 1		1.230.200.032	1.230.200.033 <sup>1)</sup>			
	AC (18 Hz) / a			1.230.200.061	1.230.200.064	1.230.200.066	

Dimensions in mm [inch]

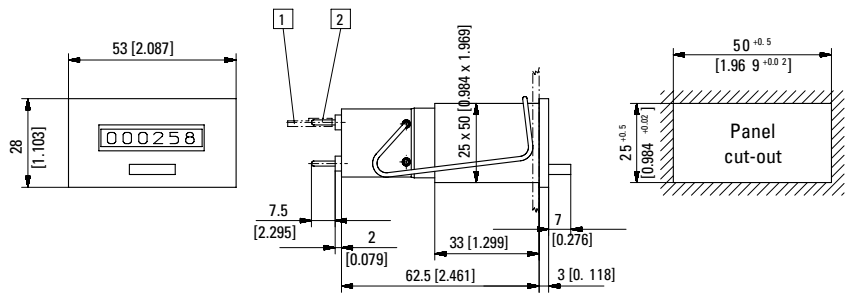
1) Stock types.

Product overview Basics  
Pulse counters  
Preset counters  
Hour meters Timers  
Frequency displays Tachometers  
Position displays  
Multifunction devices  
Energy meters  
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Accessories Index

# Pulse counters, electromechanical

**Standard counters**      **6 or 8 digits with/without reset (AC+DC)**      **B 16 / B 18**

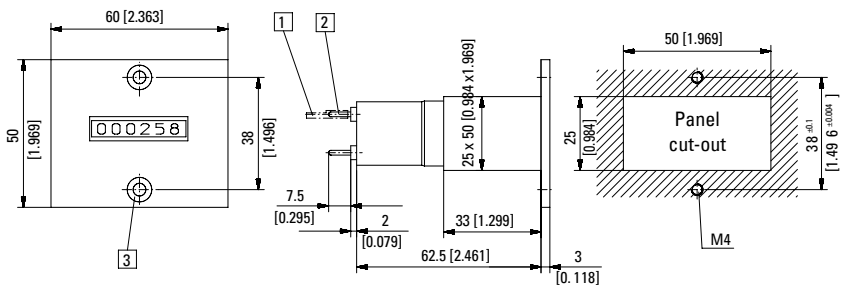
**Panel mount for clip mounting**  
6 digits, with reset  
**Type B 16.21**



1) Push on connector  $\varnothing 1.5$  [0.059], tinned    2) Round pin  $\varnothing 1.6$  [0.063], tinned  
Color of housing: grey (standard) – black, Art. no. 1.230.211.XXX

Type	Voltage	Display	Art. no.				Further stock types: (flat pins)
			12 V	24 V	115 V	230 V	
<b>B 16.21</b>	DC (10 Hz) / 0	6 digits, with reset	<b>1.230.210.012</b>	<b>1.230.210.013</b> <sup>1)</sup>	<b>1.230.210.064</b>	<b>1.230.210.066</b> <sup>1)</sup>	1.230.211.033 24 V DC/1 sw 1.230.217.013 24 V DC/0 sw vs 1.237.211.066 230 V AC/a sw
	DC (25 Hz) / 1		<b>1.230.210.032</b>	<b>1.230.210.033</b> <sup>1)</sup>			
	AC (18 Hz) / a						

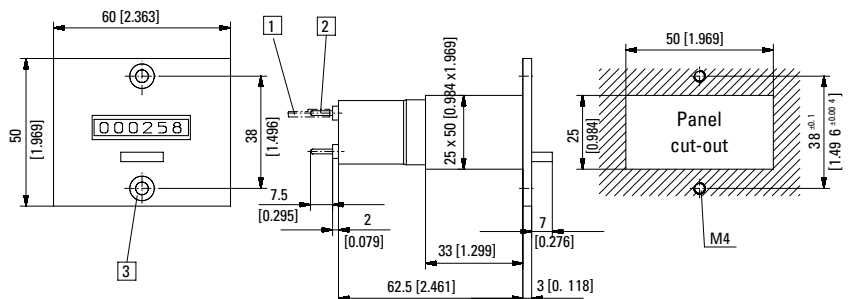
**Panel mount with front bezel size no. 3 and 2 mounting holes**  
6 digits, without reset  
**Type B 16.30**



1) Push on connector  $\varnothing 1.5$  [0.059], tinned    2) Round pin  $\varnothing 1.6$  [0.063], tinned    3) Countersinking Am 4 DIN 74  
Color of housing: grey (standard) – black, Art. no. 1.230.301.XXX

Type	Voltage	Display	Art. no.			
			12 V	24 V	115 V	230 V
<b>B 16.30</b>	DC (10 Hz) / 0	6 digits, without reset	<b>1.230.300.012</b>	<b>1.230.300.013</b>	<b>1.230.300.064</b>	<b>1.230.300.066</b>
	DC (25 Hz) / 1		<b>1.230.300.032</b>	<b>1.230.300.033</b>		
	AC (18 Hz) / a					

**Panel mount with front bezel size no. 3 and 2 mounting holes**  
6 digits, with reset  
**Type B 16.31**



1) Push on connector  $\varnothing 1.5$  [0.059], tinned    2) Round pin  $\varnothing 1.6$  [0.063], tinned    3) Countersinking Bf 4 DIN 74  
Color of housing: grey (standard) – black, Art. no. 1.230.111.XXX

Type	Voltage	Display	Art. no.			
			12 V	24 V	115 V	230 V
<b>B 16.31</b>	DC (10 Hz) / 0	6 digits, with reset	<b>1.230.310.012</b>	<b>1.230.310.013</b>	<b>1.230.310.064</b>	<b>1.230.310.066</b>
	DC (25 Hz) / 1		<b>1.230.310.032</b>	<b>1.230.310.033</b>		
	AC (18 Hz) / a					

Dimensions in mm [inch]

1) Stock types.

# Pulse counters, electromechanical

## Standard counters

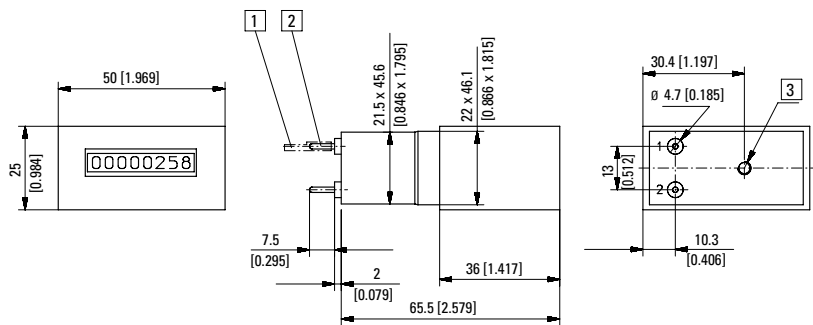
## 6 or 8 digits with/without reset (AC+DC)

## B 16 / B 18

### Without front bezel, rear mounting

8 digits, without reset

#### Type B 18.00



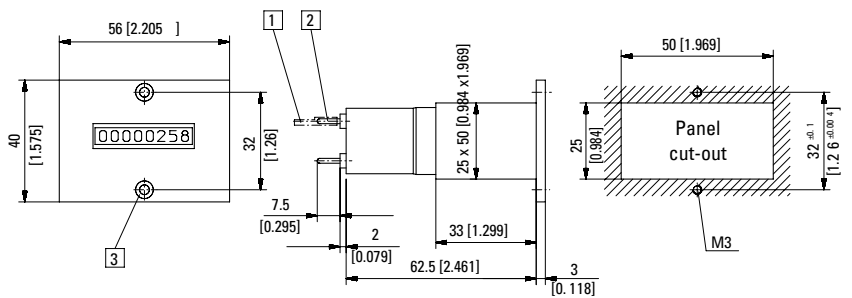
1 Push on connector  $\varnothing 1.5$  [0.059], tinned    2 Round pin  $\varnothing 1.6$  [0.063], tinned    3 M4, 5 [0.20] deep  
Color of housing: beige (standard) – black, Art. no. 1.260.XX1.XXX

Type	Voltage	Display	Art. no.			
			12 V	24 V	115 V	230 V
B 18.00	DC (10 Hz) / 0	8 digits, without reset	1.260.002.012	1.260.002.013		
	DC (25 Hz) / 1		1.260.002.032	1.260.002.033 <sup>1)</sup>		
	AC (18 Hz) / a			1.260.002.061	1.260.002.064	1.260.002.066

### Panel mount with front bezel size no. 1 and 2 mounting holes

8 digits, without reset

#### Type B 18.10



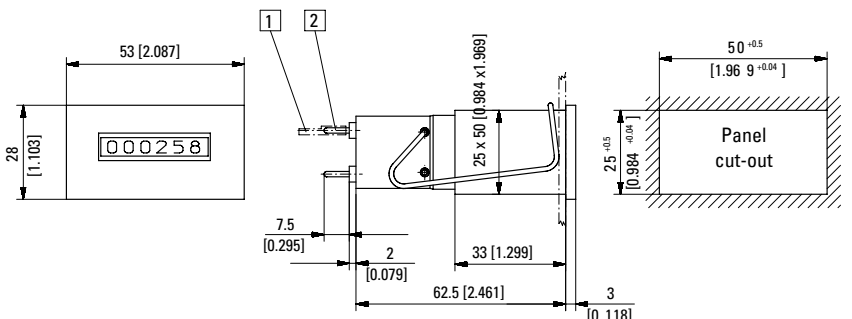
1 Push on connector  $\varnothing 1.5$  [0.059], tinned    2 Round pin  $\varnothing 1.6$  [0.063], tinned    3 Countersinking Af3 DIN 74  
Color of housing: grey (standard) – black, Art. no. 1.260.101.XXX

Type	Voltage	Display	Art. no.			
			12 V	24 V	115 V	230 V
B 18.10	DC (10 Hz) / 0	8 digits, without reset	1.260.100.012	1.260.100.013 <sup>1)</sup>		
	DC (25 Hz) / 1		1.260.100.032	1.260.100.033		
	AC (18 Hz) / a			1.260.100.061	1.260.100.064	1.260.100.066

### Panel mount for clip mounting

8 digits, without reset

#### Type B 18.20



1 Push on connector  $\varnothing 1.5$  [0.059], tinned    2 Round pin  $\varnothing 1.6$  [0.063], tinned  
Color of housing: grey (standard) – black, Art. no. 1.260.201.XXX

Type	Voltage	Display	Art. no.				Further stock types:
			12 V	24 V	115 V	230 V	
B 18.20	DC (10 Hz) / 0	8 digits, without reset	1.260.200.012	1.260.200.013 <sup>1)</sup>			1.260.201.013
	DC (25 Hz) / 1		1.260.200.032	1.260.200.033 <sup>1)</sup>			
	AC (18 Hz) / a			1.260.200.061	1.260.200.064	1.260.200.066 <sup>1)</sup>	

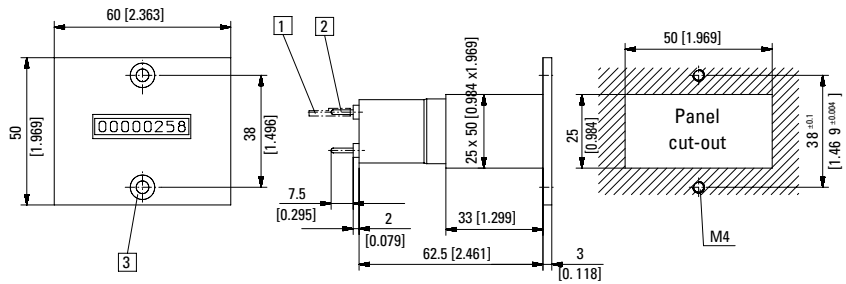
Dimensions in mm [inch]

1) Stock types.

# Pulse counters, electromechanical

**Standard counters**      **6 or 8 digits with/without reset (AC+DC)**      **B 16 / B 18**

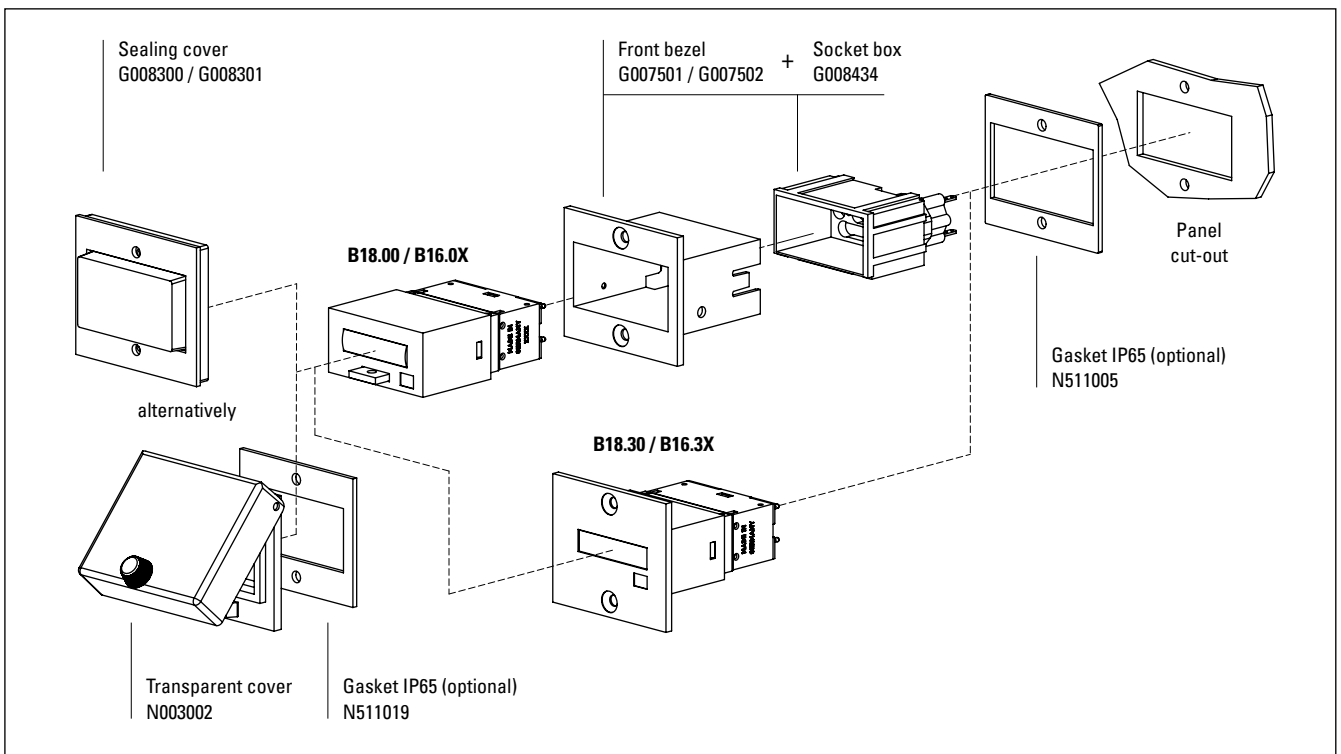
**Panel mount with front bezel size no. 3  
and 2 mounting holes**  
8 digits, without reset  
**Type B 18.30**



1 Push on connector  $\varnothing$  1.5 [0.059], tinned    2 Round pin  $\varnothing$  1.6 [0.063], tinned    3 Countersinking Am 4 DIN 74  
Color of housing: grey (standard) – black, Art. no. 1.260.301.XXX

Type	Voltage	Display	Art. no.			
			12 V	24 V	115 V	230 V
<b>B 18.30</b>	DC (10 Hz) / 0	8 digits, without reset	<b>1.260.300.012</b>	<b>1.260.300.013</b>		
	DC (25 Hz) / 1		<b>1.260.300.032</b>	<b>1.260.300.033</b>		
	AC (18 Hz) / a			<b>1.260.300.061</b>	<b>1.260.300.064</b>	<b>1.260.300.066</b>

## Mounting examples for optional accessories



Dimensions in mm [inch]

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# Pulse counters, electromechanical

**Standard counters**

**4 or 6 digits with/without reset, electrical reset (AC+DC)**

**Mk 14 / Mk 16**



The standard totalizers Mk 14 (with manual reset) and Mk 16 (with manual or manual and electrical reset) boast a robust construction.

They are ideal for use in harsh industrial environments.



## Characteristics

- 6-digit totalizer without reset.
- 4- or 6-digit totalizer with manual, manual and electrical reset.
- Mk 16 has integrated electrical reset.

## Benefits

- Very long service life (200 million pulses).

## Applications

Piece counting, event counting, time and charge metering.

## Type series

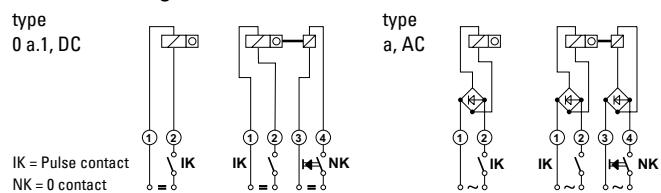
Description	reset	4 digits	6 digits	Order information
Panel mount with front bezel and 2 mounting holes	manual	<b>Mk 14.11</b>	<b>Mk 16.11</b>	<ul style="list-style-type: none"> <li>• Art. no.</li> <li>• For special voltages, please give type, voltage and series e.g.: Mk 16.21, 48 V AC, type a</li> </ul>
Panel mount for clip mounting	without	–	<b>Mk 16.20</b>	
	manual	<b>Mk 14.21</b>	<b>Mk 16.21</b>	
	manual and electrical	–	<b>Mk 16.23</b>	

Technical data	
<b>Electrical connection</b>	flat pin 0.8 x 2.8 mm [0.032 x 0.11"] with flat push on connector
<b>Rated voltage</b>	type 0 / 1 / a 12 / 24 / 48 / 60 / 115 / 230 V DC ±10 % 24 / 48 / 60 / 115 / 230 V AC ±10 %
<b>Housing</b>	Makrolon, similar to RAL 7001
<b>Height of figures</b>	4 mm [0.16"]
<b>Color of figures</b>	white on black
<b>Counting mechanism shaft</b>	stainless steel
<b>Mounting position</b>	any
<b>Operating life</b>	approx. 200 x 10 <sup>6</sup> pulses
<b>Protection</b>	with reset IP40 (front side) without reset IP41 (front side)
<b>Weight</b>	reset manual Mk 14 – 85 g [3.00 oz] Mk 16 – 100 g [3.53 oz] reset electrical Mk 14 – 145 g [5.12 oz] Mk 16 – 140 g [4.94 oz]
<b>Test voltage</b>	2000 V ~ effective
<b>Vibration resistance</b>	3 g up to 10 Hz 6 g up to 15 Hz independent of position 10 g 20 - 300 Hz
<b>EMC standards</b>	EN 55011 class B EN 61000-6-2, EN 61000-6-3
<b>Device safety</b>	designed to protection class 2 application area EN 61010 part 1 pollution level 2

Options
Extended temperature range

Reset magnet	
<b>Power consumption</b>	DC approx. 9 W AC approx. 12 VA
<b>Rated voltage</b>	12 / 24 / 48 / 60 / 115 / 230 V DC ±10 % 24 / 48 / 60 / 115 / 230 V AC ±10 %
<b>Permissible residual ripple</b>	max. 48 %
<b>Minimum pulse time</b>	0.25 sec, during 0.3 sec no count pulse is allowed
<b>Cycle duration factor</b>	Mk 16 15 %, max. 1.0 min Mk 14 10 %, max. 40 sec

## Connection diagram



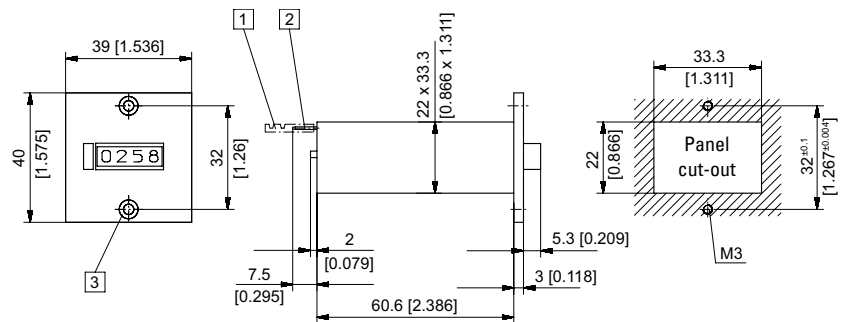


# Pulse counters, electromechanical

<b>Standard counters</b>	<b>4 or 6 digits with/without reset, electrical reset (AC+DC)</b>	<b>Mk 14 / Mk 18</b>
--------------------------	---	----------------------

Type / Counting mechanism									
Voltage	Type	Pulse frequency max.	Pulse on time min.	Pulse interval min.	Pulse ratio	On-time	Power consump. approx.	Permi. residual ripple max.	Operating temp. (non-condensing)
V DC	0	10 Hz	64 ms	40 ms	3 : 2	100 %	1 W	48 %	-10°C ... +45°C [+14°F ... +113°F]
V DC	1	25 Hz	24 ms	16 ms	3 : 2	100 %	2 W	48 %	-10°C ... +45°C [+14°F ... +113°F]
V AC	a	18 Hz	22.2 ms	33.3 ms	2 : 3	100 %	2.9 VA	–	-10°C ... +45°C [+14°F ... +113°F]

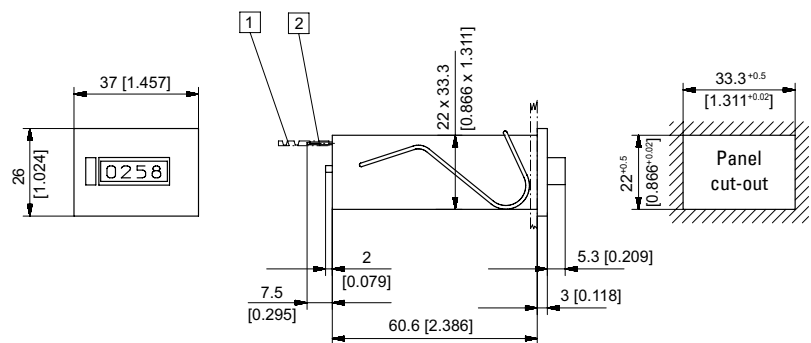
**Panel mount, front bezel with 2 mounting holes**  
4 digits, manual reset  
**Type Mk 14.11**



- 1 Flat push on connector 0.8 x 2.8 [0.032 x 0.11], tinned
- 2 Flat pin 0.8 x 2.8 [0.032 x 0.11], tinned
- 3 Countersinking Af3 DIN 74 Color of housing black, Art. no. 1.310.111.XXX

Type	Voltage	Display	Art. no.			
			12 V	24 V	115 V	230 V
Mk 14.11	DC (10 Hz) / 0	4 digits, manual reset	1.310.110.012	1.310.110.013		
	DC (25 Hz) / 1		1.310.110.032	1.310.110.033		
	AC (18 Hz) / a		1.310.110.061	1.310.110.064	1.310.110.066	

**Panel mount, for clip mounting**  
4 digits, manual reset  
**Type Mk 14.21**



- 1 Flat push on connector 0.8 x 2.8 [0.032 x 0.11], tinned
  - 2 Flat pin 0.8 x 2.8 [0.032 x 0.11], tinned
- Color of housing black, Art. no. 1.310.211.XXX

Type	Voltage	Display	Art. no.			
			12 V	24 V	115 V	230 V
Mk 14.21	DC (10 Hz) / 0	4 digits, manual reset	1.310.210.012	1.310.210.013		
	DC (25 Hz) / 1		1.310.210.032	1.310.210.033		
	AC (18 Hz) / a		1.310.210.061	1.310.210.064	1.310.210.066	

# Pulse counters, electromechanical

**Standard counters**

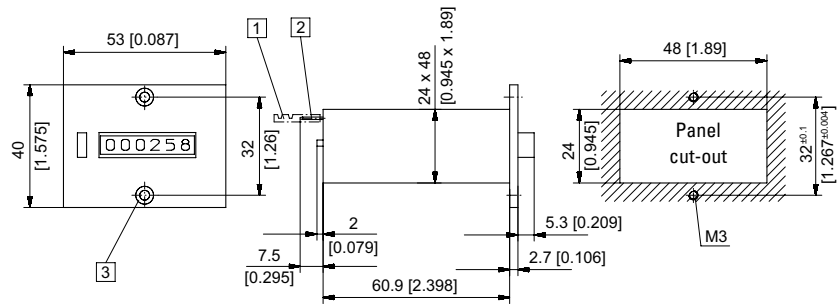
**4 or 6 digits with/without reset, electrical reset (AC+DC)**

**Mk 14 / Mk 16**

**Panel mount, front bezel with 2 mounting holes**

6 digits, manual reset

**Type Mk 16.11**



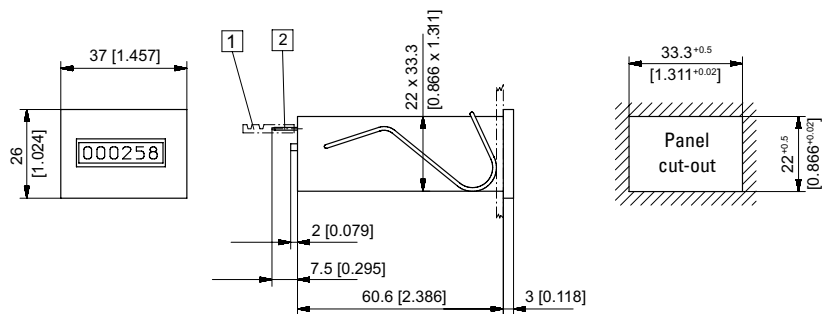
- 1 Flat push on connector 0.8 x 2.8 [0.032 x 0.11], tinned    2 Flat pin 0.8 x 2.8 [0.032 x 0.11], tinned  
 3 Countersinking Af3 DIN 74    Color of housing black, Art. no. 1.340.111.XXX

Type	Voltage	Display	Art. no.			
			12 V	24 V	115 V	230 V
<b>Mk 16.11</b>	DC (10 Hz) / 0	6 digits,	<b>1.340.110.012</b>	<b>1.340.110.013</b>		
	DC (25 Hz) / 1	manual reset	<b>1.340.110.032</b>	<b>1.340.110.033</b>		
	AC (18 Hz) / a			<b>1.340.110.061</b>	<b>1.340.110.064</b>	<b>1.340.110.066</b>

**Panel mount for clip mounting**

6 digits, without reset

**Type Mk 16.20**



- 1 Flat push on connector 0.8 x 2.8 [0.032 x 0.11], tinned    2 Flat pin 0.8 x 2.8 [0.032 x 0.11], tinned  
 Color of housing black, Art. no. 1.330.201.XXX

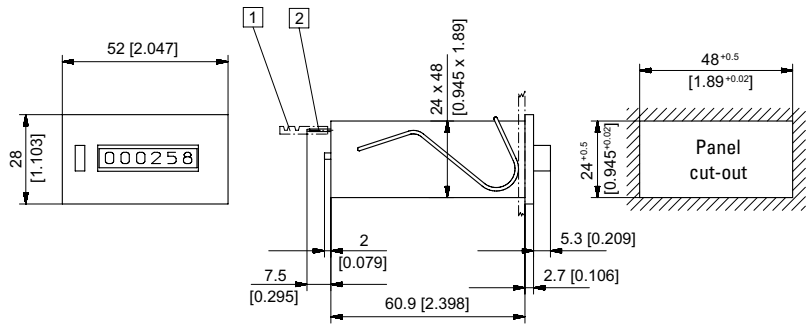
Type	Voltage	Display	Art. no.			
			12 V	24 V	115 V	230 V
<b>Mk 16.20</b>	DC (10 Hz) / 0	6 digits,	<b>1.330.200.012</b>	<b>1.330.200.013</b>		
	DC (25 Hz) / 1	without reset	<b>1.330.200.032</b>	<b>1.330.200.033</b>		
	AC (18 Hz) / a			<b>1.330.200.061</b>	<b>1.330.200.064</b>	<b>1.330.200.066</b>

# Pulse counters, electromechanical

**Standard counters**      **4 or 6 digits with/without reset, electrical reset (AC+DC)**      **Mk 14 / Mk 16**

**Panel mount for clip mounting**  
6 digits, manual reset

**Type Mk 16.21**

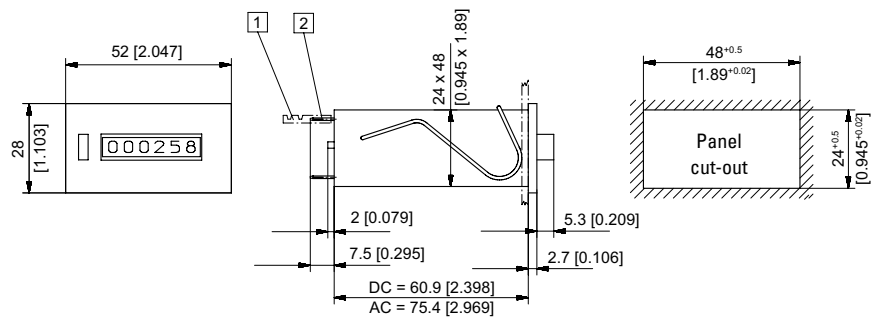


1 Flat push on connector 0.8 x 2.8 [0.032 x 0.11], tinned      2 Flat pin 0.8 x 2.8 [0.032 x 0.11], tinned  
Color of housing black, Art. no. 1.340.21 1.XXX

Type	Voltage	Display	Art. no.			
			12 V	24 V	115 V	230 V
<b>Mk 16.21</b>	DC (10 Hz) / 0	6 digits,	<b>1.340.210.012</b>	<b>1.340.210.013</b>		
	DC (25 Hz) / 1	manual reset	<b>1.340.210.032</b>	<b>1.340.210.033</b>		
	AC (18 Hz) / a			<b>1.340.210.061</b>	<b>1.340.210.064</b>	<b>1.340.210.066</b>

**Panel mount, for clip mounting**  
6 digits, manual and electrical reset

**Type Mk 16.23**



1 Flat push on connector 0.8 x 2.8 [0.032 x 0.11], tinned      2 Flat pin 0.8 x 2.8 [0.032 x 0.11], tinned  
Color of housing black, Art. no. 1.340.23 1.XXX

Type	Voltage	Display	Art. no.			
			12 V	24 V	115 V	230 V
<b>Mk 16.23</b>	DC (10 Hz) / 0	6 digits, manual	<b>1.340.230.012</b>	<b>1.340.230.013</b>		
	DC (25 Hz) / 1	and electr. reset	<b>1.340.230.032</b>	<b>1.340.230.033</b>		
	AC (18 Hz) / a			<b>1.340.230.061</b>	<b>1.340.230.064</b>	<b>1.340.230.066</b>

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# Pulse counters, pneumatic

**Pneumatic counters**

**4 digits with, 6 digits with/without, 8 digits without reset**

**PMk 14 / PMk 16 / PMk 18**



The pneumatic totalizers PMk 14, PMk 16 (with manual reset) and PMk 18 (without reset) boast a robust construction.

They are ideal for use in harsh industrial environments, where the counters are directly driven by compressed air.

## Characteristics

- Economical pneumatical totalizers.
- PMk 14 and PMk 16 with manual reset.
- PMk 18 without reset.
- Counting via armature system with membrane.

## Benefits

- No leakage.
- Also available with quick connection system.

## Applications

Pneumatically operated devices and equipment.

## Type series

Description	reset	4 digits	6 digits	8 digits
Panel mount with front bezel and 2 mounting holes	without	–	–	<b>PMk 18.10</b>
	manual	<b>PMk 14.11</b>	<b>PMk 16.11</b>	–
Panel mount for clip mounting	without	–	–	<b>PMk 18.20</b>
	manual	<b>PMk 14.21</b>	<b>PMk 16.21</b>	–

Technical data	
<b>Pneumatic connections</b>	M5 inner thread, 4 mm [0.16"] deep
<b>Air purity</b>	oil free or oil containing, the filter required must eliminate impurities > 40 µm
<b>Mounting position</b>	any
<b>L-signal</b>	1.5 ... 8 bar ±15 %
<b>O-signal</b>	≤ 0.15 bar
<b>Max. safe pressure</b>	9 bar (static)
<b>Max. pulse frequency</b>	at 1.5 bar 50 Hz at 2.5 bar 25 Hz at 6 bar 10 Hz at 8 bar 5 Hz depends on hose length
<b>Pulse ratio</b>	1:1 at max. pulse frequency, depending on the control
<b>Max. Hose length</b> (transmitter - counter, 1.5 bar)	at 50 Hz 0.3 m [11.81"] at 25 Hz 0.4 m [15.75"] at 10 Hz 0.5 m [19.67"]
<b>Height of figures</b>	4 mm [0.16"]
<b>Color of figures</b>	white on black
<b>Connection volume</b>	0.19 m³
<b>Operating temperature</b>	-10°C ... +60°C [+14°F ... +140°F] (non-condensing)
<b>Protection</b>	with reset IP40 (front side) without reset IP41 (front side)

Options	
<b>Connector for polyamide hose</b>	ø 4 x ø 6 mm [0.16 x 0.24"] Art. no.: 3.XXX.XXX.063
<b>Quick connection for tube outside diameter 4 mm</b>	QSM-M5-4 N140620 Art. no.: 3.XXX.XXX.064

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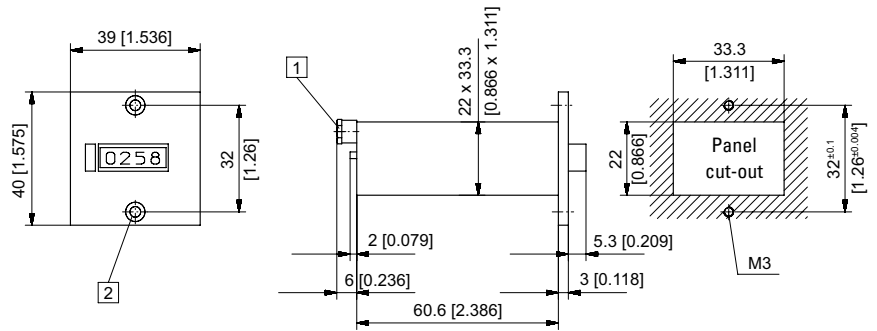
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# Pulse counters, pneumatic

**Pneumatic counters**      **4 digits with, 6 digits with/without, 8 digits without reset**      **PMk 14 / PMk 16 / PMk 18**

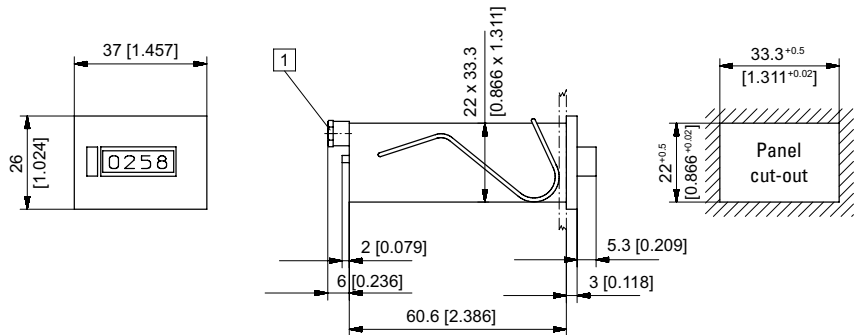
**Panel mount with front bezel and 2 mounting holes**  
4 digits, manual reset  
**Type PMk 14.11**



1) Inner thread M5, 4 [0.16] deep    2) Countersinking Af3 DIN 74

Type	Display	Color of housing / Art. no.	
		grey	black
PMk 14.11	4 digits, manual reset	3.802.110	3.802.111

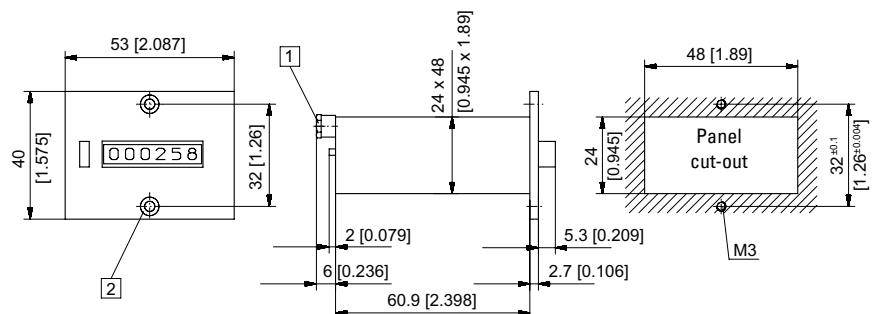
**Panel mount for clip mounting**  
4 digits, manual reset  
**Type PMk 14.21**



1) Inner thread M5, 4 [0.16] deep

Type	Display	Color of housing / Art. no.	
		grey	black
PMk 14.21	4 digits, manual reset	3.802.210	3.802.211

**Panel mount with front bezel and 2 mounting holes**  
6 digits, manual reset  
**Type PMk 16.11**



1) Inner thread M5, 4 [0.16] deep    2) Countersinking Af3 DIN 74

Type	Display	Color of housing / Art. no.	
		grey	black
PMk 16.11	6 digits, manual reset	3.804.110 <sup>1)</sup>	3.804.111

Dimensions in mm [inch]

1) Stock types.

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# Pulse counters, pneumatic

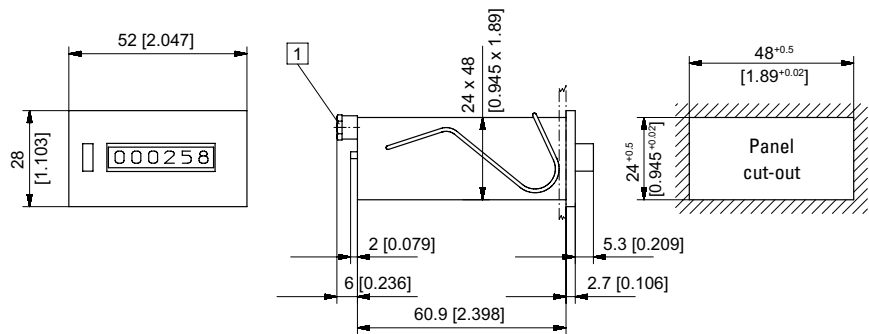
## Pneumatic counters

4 digits with, 6 digits with/without, 8 digits without reset

PMk 14 / PMk 16 / PMk 18

**Panel mount for clip mounting**  
6 digits, manual reset

**Type PMk 16.21**

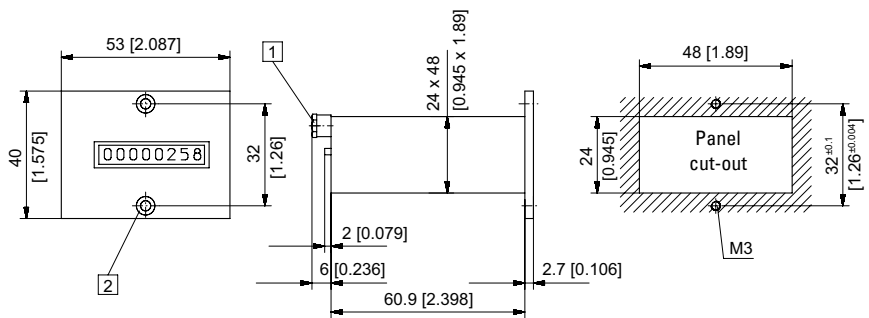


1) Inner thread M5, 4 [0.16] deep

Type	Display	Color of housing / Art. no.	
		grey	black
PMk 16.21	6 digits, manual reset	3.804.210	3.804.211

**Panel mount with front bezel and 2 mounting holes**  
8 digits, without reset

**Type PMk 18.10**

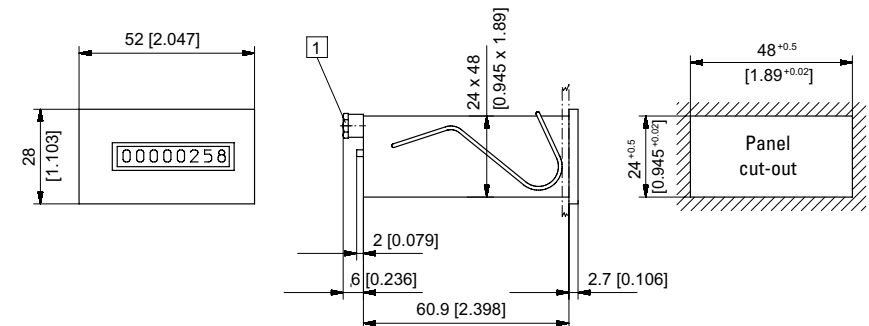


1) Inner thread M5, 4 [0.16] deep    2) Countersinking Af3 DIN 74

Type	Display	Color of housing / Art. no.	
		grey	black
PMk 18.10	8 digits, without reset	3.805.100	3.805.101

**Panel mount for clip mounting**  
8 digits, without reset

**Type PMk 18.20**



1) Inner thread M5, 4 [0.16] deep

Type	Display	Color of housing / Art. no.	
		grey	black
PMk 18.20	8 digits, without reset	3.805.200	3.805.201

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## Preset counters

Preset counters, electronic		Type	Page
<b>LCD preset counters</b>	1 preset – pulse, time (battery)	901	<b>120</b>
	1 or 2 presets – pulse, time – 5 kHz (AC+DC)	Codix 907 / 908	<b>124</b>
	Multifunctional – pulse, frequency, time – 1 ... 6 presets (AC+DC)	Codix 923 / 924	<b>127</b>
<b>Time preset counters with multicolor or LED look</b>	Multifunctional – pulse, frequency, time – 1 ... 6 presets (AC+DC)	Codix 923 / 924	<b>127</b>
<b>LCD touch preset counter</b> 	Pulse, frequency, time (also reciprocal) – (AC+DC)	571T	<b>247</b>
<b>LED preset counters</b>	Multifunctional – pulse, frequency, time – 65 kHz, 2 presets (AC+DC)	Codix 560	<b>134</b>
	Dual preset counters with 4 switch outputs and analog output	572	<b>139</b>
<b>LED position preset counter</b>	SSI o. incremental input / 4 switch outputs + analog output	575	<b>142</b>
Preset counters, electromechanical		Type	Page
<b>Standard counters</b>	Adding, 5 digits (AC+DC)	BVa 15	<b>145</b>
	Subtracting, 2 or 3 digits (AC+DC)	MVs 13	<b>150</b>
	Subtracting, 6 digits (AC+DC)	MVs 16	<b>154</b>

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**LCD preset counters**      **1 preset – pulse, time (battery)**      **901**



Type 901 is a simple battery-powered preset pulse counter/timer with 12 ... 250 V AC/DC count and reset inputs or with NPN input. The 6-digit, 2-line LCD display shows the current count value, the preset value, the relay state and the active time measurement.



Battery powered	Sensor power supply 12...250 V	Max. count frequency 30 Hz	Temperature range -20°...+65°C	High protection level IP65	DIN front bezel DIN 48 x 48	Multifunctional	Plug-in screw terminal	Menu-driven programming	Decade key entry	Relay output

### Powerful

- Count and reset input electrically separated from the counter: input switching levels 12 ... 250 V AC/DC or NPN input signal.
- 2-line LCD display for count and preset. Displays the switching status of the output and the active time measurement.
- Data retention thanks to exchangeable lithium batteries, battery life approx. 8 years.
- Output: relay, programmable as normally open or normally closed.

### Simple

- Easy to programme.
- Simple preset entry; one key per decade.
- Plug-in screw terminals.
- Replacement for electromechanical preset counters.
- No external power supply necessary.
- Clock function.

### Order no.

Type of input	Order no.	Delivery specification
12 ... 250 V AC/DC	<b>6.901.010.820</b> <sup>1)</sup>	- Counter 901 - 2 lithium batteries - 1 screw terminal - 1 spring clip - 1 operating instructions
NPN input	<b>6.901.010.850</b> <sup>1)</sup>	- 1 front bezel for screw mounting, panel cut-out 50 x 50 mm [1.97 x 1.97"], T008860 - 1 front bezel for spring clip mount, panel cut-out 50 x 50 mm [1.97 x 1.97"], T008853 - 1 template for panel cut-out

1) Stock types.

# Preset counters, electronic

LCD preset counters		1 preset – pulse, time (battery)	901
Accessories	Dimensions in mm [inch]		Order no.
<b>Adapter front bezel, 72 x 72 [2.83 x 2.83]</b>	for cut-out 68 x 68 [2.68 x 2.68] to cut-out 45 x 45 [1.77 x 1.77] (mating clip T009420 must be ordered separately)		black mating clip <b>T008177</b> <b>T009420</b>
<b>Adapter front bezel, ø 72 [2.83]</b>	for cut-out ø 60 [2.36] to cut-out 45 x 45 [1.77 x 1.77] with clip mounting for counters 48 x 48 [1.89 x 1.89]		black <b>N510226</b>
<b>Transparent cover, IP65</b>	for cut-out 50 x 50 [1.97 x 1.97], with screw mounting for counters with cut-out 45 x 45 [1.77 x 1.77] and front bezel 48 x 48 [1.89 x 1.89]		lockable key lockable <b>G008143</b> <b>G008153</b>
<b>Sealing cover type K2, IP65</b>	suitable for front bezel 75 x 60 [2.95 x 2.36] with screw mounting		transparent/black <b>G008303</b>
<b>Mounting frame</b> with cut-out 50 x 50 [2.36 x 2.36] via separate adapter also for 45 x 45 [1.77 x 1.77]	for snap-on mounting on 35 [1.38] top-hat DIN rail, for counters 48 x 48 [1.89 x 1.89], 53 x 53 [2.09 x 2.09] and 55 x 55 [2.17 x 2.17]		chromated <b>G300003</b>
<b>Gaskets</b>	60 x 75 [2.36 x 2.95] for cut-out 50 x 50 [1.97 x 1.97] 58 x 58 [2.28 x 2.28] for cut-out 50 x 50 [1.97 x 1.97]		<b>N511020</b> <b>N511004</b>
Replacement parts			Order no.
<b>7-pin connector</b>	1 ... 7, pitch 5.08		<b>N100548</b>

Suitable gaskets, other accessories and installation examples for optional accessories can be found in chapter Accessories or in the Accessories section under: [www.kuebler.com/accessories](http://www.kuebler.com/accessories).

## Technical data

General technical data	
<b>Display</b>	2 line LCD display, 6 digits 999999; 7 or 4.5 mm [0.28 or 0.18"] high
<b>Operating temperature</b>	-20°C ... +65°C [-4°F ... +149°F] (non-condensing)
<b>Storage temperature</b>	-25°C ... +70°C [-13°F ... +158°F]
<b>Altitude</b>	up to 2000 m [6562']
Electrical characteristics	
<b>Power supply</b>	2 pcs user exchangeable lithium-batteries type 1/2 AA lithium 3.6 V
<b>Data retention</b>	min. 8 years at 5 x 10 <sup>6</sup> power operations of the output relay and an operating temperature of 25°C [+104°F]
<b>EMC standards</b>	EN 55011 class B EN 61000-6-2, EN 61000-6-3, EN 61326-1
<b>Device safety</b>	designed to protection class application area EN 61010-1, EN 61010-2-201 2 (front side) pollution level 2
<b>UL approval</b>	file E128604
Mechanical characteristics	
<b>Protection</b>	IP65 (front side)
<b>Weight</b>	approx. 80 g
Inputs	
<b>Inputs</b>	reset, count and key lock inputs
<b>Polarity of the inputs</b> (for reset and count/start input)	12 ... 250 V AC/DC bidirectional optocoupler input NPN NPN input activated by transistor or contact
<b>Keyboard lock input</b>	connected to +3 V DC (terminal 1)
<b>Min. pulse duration of the inputs</b>	reset input 50 ms keyboard lock input 15 ms
<b>Switching levels of the inputs</b>	12 ... 250 V AC/DC LOW: < 1 V AC/DC HIGH: 12 ... 250 V AC/DC NPN LOW: 0 ... 0.8 V DC HIGH: 2.5 ... 5 V DC
<b>Input frequency</b>	max. 30 Hz
<b>Input resistance</b>	110 kΩ
Outputs	
<b>Output</b>	bistable relay with potential free contact (programmable as normally closed or normally opened contact)
<b>Max. switching voltage</b>	250 V AC / 30 V DC
<b>Max. switching current</b>	2 A
<b>Max. switching capacity</b>	60 VA / 30 W
<b>Output response time</b>	< 20 ms, max. 4 Hz
<b>Insulation coordination</b>	basic insulation

# Preset counters, electronic

## LCD preset counters

## 1 preset – pulse, time (battery)

901

### Programming

The counter is programmed using the keys on the front. The user is guided by plain text on the display.

The following modes are programmable:

1. Function: pulse preset counter or preset timer
2. Count mode (adding or subtracting)
3. Output: permanent signal or timed signal in case of automatic repetition (loop)
4. Output (normally open or normally closed)
5. Timed signal duration (Delay) in case of automatic repetition  
0.1 ... 99.9 seconds
6. Decimal point up to max. 5 decimal places (pulse counter) or up to max. 2 decimal places (preset timer)
7. Time range for the preset timer: seconds minutes, hours

### Function of the output

- Adding:  
Relay is active, when actual value  $\geq$  preset
- Subtracting:  
Relay is active, when actual value  $\leq$  0

In case of automatic repetition, the output signal is a timed signal programmable in 100 ms steps from 0.1 to 99.9 seconds.

A colon is displayed on the lower display line when the relay is activated.

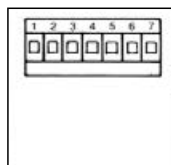
An indicator flashes at one-second intervals when timing is active.

### Operating the counter

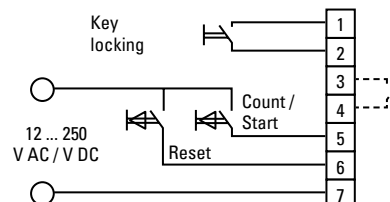
- Setting or resetting:  
Press the red SET button or apply a pulse to the reset input to set the counter to zero in the adding mode or to the preset in the subtracting mode.
- Presetting:  
The preset value is indicated on the lower row of digits. To set it, use the 6 presetting buttons assigned to each decade. The set value will be accepted with the next set or reset operation.
- Overflow and underflow:  
In the adding mode the overflow is 999 999 to 0; in the subtracting mode it is 0 to 999 999. The output signal remains unaffected.
- Lo-bat-indicator:  
When the battery charge is too low, Lo-bat appears in the lower display. This flashes on a two second cycle. When lo-bat is indicated, the battery should be changed as soon as possible. If the charge goes on decreasing, the device switches to (noFunc) "no function" mode and must be reprogrammed.
- Changing the battery:  
The unit retains the programmed values if the batteries are replaced within 2 minutes. Otherwise, the device must be re-parameterized.
- Counting:  
By means of positive pulses (12 ... 250 VAC) or by a NPN input pulse. Time counting remains active as long as the counter input is active (preset timer).

### Terminal assignment 12 ... 250 V AC/DC

Pin	Inputs / outputs
1	+3 V DC for terminal 2
2	Keyboard lock-input
3	Relay contact
4	Relay contact
5	AC/DC optocoupler count input
6	AC/DC optocoupler reset input
7	Common AC/DC input for terminal 6 and 5

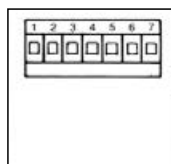


### Example of connection 12 ... 250 V AC/DC

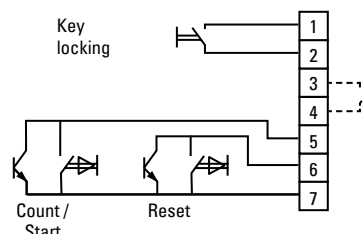


### Terminal assignment NPN

Pin	Inputs / outputs
1	+3 V DC for terminal 2
2	Keyboard lock-input
3	Relay contact
4	Relay contact
5	NPN count/start input
6	NPN reset input
7	Common AC/DC input for terminal 6 and 5



### Example of connection NPN



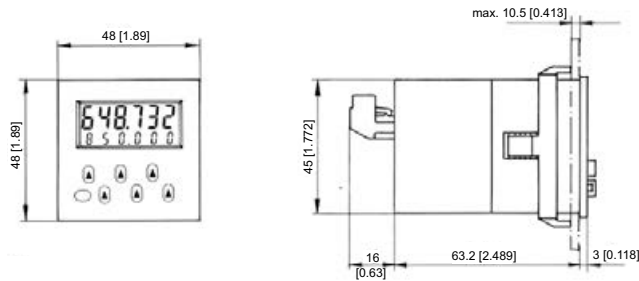
# Preset counters, electronic

<b>LCD preset counters</b>	<b>1 preset – pulse, time (battery)</b>	<b>901</b>
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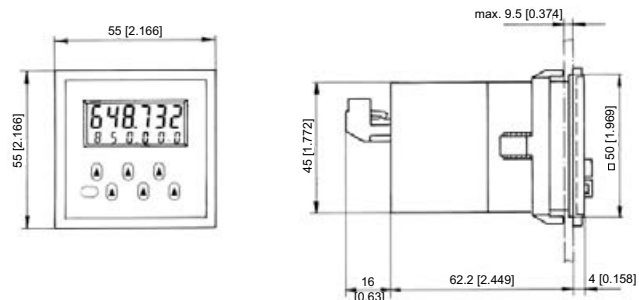
## Dimensions

Dimensions in mm [inch]

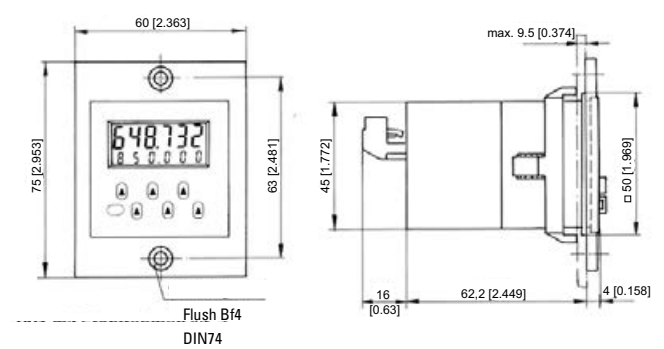
### Panel cut-out 45 x 45 [1.77 x 1.77]



### With front bezel 55 x 55 [2.17 x 2.17], panel cut-out 50 x 50 [1.97 x 1.97]



### With front bezel 60 x 75 [2.36 x 2.95], panel cut-out 50 x 50 [1.97 x 1.97]



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Multifunction  
devices

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# Preset counters, electronic

**LCD preset counters**

**1 or 2 presets – pulse, time – 5 kHz (AC+DC)**

**Codix 907 / 908**



The pulse and time preset counters Codix 907 and 908 offer all important counter functions with an unbeatable price/performance ratio.

The counters offer easy, user-friendly installation thanks to their minimal installation depth and plug-in screw terminals; the 2-line LCD display is available with optional backlighting, making it even easier to read with just a quick glance.



 11 ... 30 V Power supply	 115/230 V	 -10° + 50° Temperature range	 DIN 48 x 48	 Menu-driven programming	 IP65 High protection level	 max. 5 kHz Count frequency	 Plug-in screw terminal	 1 or 2 Presets 907: 1 / 908: 2	 Multifunctional
 2x6 LCD LCD display	 Multicolor display								

## Powerful

- For pulse, time and position.
- Adding or subtracting.
- Automatic reset when preset is reached, or by key-press or electrically.
- Codix 907: 1 preset / Codix 908: 2 presets.
- 2 x 6-digit display and preset annunciators from -999999 to +999999.
- Display with or without backlighting, 2-color.

## Simple

- Plug-in screw terminal.
- Simple menu-driven programming.
- Decade keypad, for each digit one key.
- DC or AC powered.
- Minimum installation depth.
- High protection level (IP65) with integrated front bezel gasket.
- With preset annunciators.

## Order code

6.90 <sup>a</sup>X . 01 <sup>b c</sup>0X . <sup>d e</sup>X A 0

### <sup>a</sup> Number of presets

- 7 = 1 preset
- 8 = 2 presets

### <sup>b</sup> Outputs

- 0 = relays

### <sup>c</sup> LCD version

- 0 = no backlighting
- 1 = green backlighting
- 4 = 2-color, negative red / green backlighting

### <sup>d</sup> Power supply

- 0 = 230 V AC
- 1 = 115 V AC
- 3 = 11 ... 30 V DC

### <sup>e</sup> Input trigger level

- A = 4 ... 30 V DC level

### Delivery specification

- Preset counter
- Mounting clip
- 8 pin screw terminal
- 7 pin screw terminal
- Operating instructions

### Stock types

- 6.907.0100.3A0
- 6.908.0100.3A0
- 6.907.0100.0A0
- 6.908.0100.0A0
- 6.908.0101.0A0

# Preset counters, electronic

LCD preset counters		1 or 2 presets – pulse, time – 5 kHz (AC+DC)		Codix 907 / 908
Accessories		Dimensions in mm [inch]		Order no.
<b>Adapter front bezel, 55 x 55 [2.17 x 2.17]</b>	for cut-out 50 x 50 [1.97 x 1.97] to cut-out 45 x 45 [1.77 x 1.77] with clip mounting for counters 48 x 48 [1.89 x 1.89]	black		<b>T008853</b>
	Gasket 58 x 58 [2.28 x 2.28], for cut-out 50.2 x 50.2 [1.98 x 1.98]			<b>N511004</b>
<b>Adapter front bezel, 60 x 75 [2.36 x 2.95]</b>	for cut-out 50 x 50 [1.97 x 1.97] to cut-out 45 x 45 [1.77 x 1.77] with screw mounting for counters 48 x 48 [1.89 x 1.89]	black		<b>T008860</b>
	Gasket 60 x 75 [2.36 x 2.95] for cut-out 50 x 50 [1.97 x 1.97]			<b>N511020</b>
<b>Adapter front bezel, 72 x 72 [2.83 x 2.83]</b>	for cut-out 68 x 68 [2.68 x 2.68] to cut-out 45 x 45 [1.77 x 1.77] (Mating clip T009420 must be ordered separately)	black mating clip		<b>T008177</b>
				<b>T009420</b>
<b>Sealing cover type K2, IP65</b>	suitable for front bezel 75 x 60 [2.95 x 2.36] with screw mounting	transparent/black		<b>G008303</b>
<b>Transparent cover, IP65</b>	for cut-out 50 x 50 [1.97 x 1.97], with screw mounting for counters with cut-out 45 x 45 [1.77 x 1.77] and front bezel 48 x 48 [1.89 x 1.89]	lockable key lockable		<b>G008143</b>
				<b>G008153</b>
<b>Mounting frame</b> with cut-out 50 x 50 [2.36 x 2.36] via separate adapter also for 45 x 45 [1.77 x 1.77]	for snap-on mounting on 35 [1.38] top-hat DIN rail, for counters 48 x 48 [1.89 x 1.89], 53 x 53 [2.09 x 2.09] and 55 x 55 [2.17 x 2.17]	chromated		<b>G300003</b>
Replacement parts				Order no.
<b>8-pin connector</b>	1 ... 8, pitch 3.81			<b>N100498</b>
<b>7-pin connector</b>	9 ... 15 (for 923 / 924), pitch 5.08			<b>N100548u002</b>

Suitable gaskets, other accessories and installation examples for optional accessories can be found in chapter Accessories or in the Accessories section under: [www.kuebler.com/accessories](http://www.kuebler.com/accessories).

## Technical data

General technical data		Electrical characteristics	
<b>Display</b>	2 line 2 x 6 digits LCD display upper line 9 mm [0.35"], lower line 7 mm [0.28"], special sign 2 mm high [0.079"] standard positive green with optional backlighting 2-color upper line: negative, red backlighting lower line: negative, green backlighting	<b>Sensor power supply</b>	AC 115/230 V, ±10 %, 50/60 Hz, max. 6.5 VA DC 11 ... 30 V, max. 4 W
<b>Operating temperature</b>	-10°C ... +50°C [+14°F ... +122°F] (non-condensing)	<b>External fuse protection</b>	230 V AC T 0.1 A 115 V AC T 0.125 A 11 ... 30 V DC T 0.2 A
<b>Storage temperature</b>	-25°C ... +75°C [-13°F ... +167°F]	<b>Data retention</b>	> 10 years, EEPROM
<b>Humidity</b> at +40°C [+104°F]	RH 93 % (non-condensing)	<b>Input modes</b>	pulse counter cnt.dir, up.dn, quad timer FrErun, InpA.InpB., InpB.InpB.
<b>Altitude</b>	up to 2000 m [6562']	<b>Sensor power supply</b>	AC supply 24 V DC -40/+15 %, 50 mA at 230 V AC, 40 mA at 115 V AC DC supply max. 50 mA external power supply is connected through
Mechanical characteristics		<b>EMC standards</b>	EN 55011 class B, EN 61000-6-2, EN 61000-6-3, EN 61326-1
<b>Protection</b>	IP65 (front side)	<b>Device safety</b>	designed to protection class 2 application area EN 61010 part 1 pollution level 2
<b>Weight</b>	AC version approx. 250 g [8.82 oz] DC version approx. 150 g [5.29 oz]		

# Preset counters, electronic

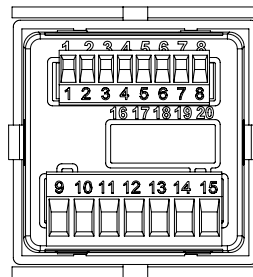
<b>LCD preset counters</b>	<b>1 or 2 presets – pulse, time – 5 kHz (AC+DC)</b>	<b>Codix 907 / 908</b>
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Inputs	
<b>Count inputs</b>	A and B (timer: A = Gate)
<b>Polarity of the inputs</b>	programmable for all inputs in common, NPN/PNP
<b>Input resistance</b>	10 kΩ
<b>Count frequency</b>	max. 5 kHz (details see manual) can be damped to 30 Hz (mechanical contacts)
<b>Control / Reset input</b>	Lock, Reset
<b>Min pulse duration of signal and control inputs</b>	statical / 1 ms
<b>Switching levels with AC/DC supply</b>	4 ... 30 V DC: low 0 ... 2 V DC high 3.5 ... 30 V DC
<b>Pulse shape</b>	variable, Schmitt-Trigger characteristics

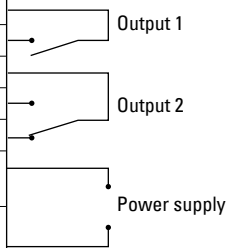
Outputs	
<b>Switching voltage</b>	max. 250 V AC / 110 V DC
<b>Switching current</b>	max. 3 A AC/DC min. 30 mA DC
<b>Switching capacity</b>	max. 750 VA / 90 W
<b>Output 1</b>	Mech. service life (switching cycles) 2 x 10 <sup>7</sup> N° of switching cycles at 3 A / 250 V AC 1 x 10 <sup>5</sup> N° of switching cycles at 3 A / 30 V DC 1 x 10 <sup>5</sup> Relay with closing contact, progr. normal closed or normal open.
<b>Output 2</b>	Mech. service life (switching cycles) 20 x 10 <sup>6</sup> N° of switching cycles at 3 A / 250 V AC 5 x 10 <sup>4</sup> N° of switching cycles at 3 A / 30 V DC 5 x 10 <sup>4</sup> Relay with changeover contact
<b>Reaction time of the outputs</b>	pulse counter < 15 ms timer < 10 ms

## Terminal assignment

Pin	Signal and control inputs
1	Sennsor power supply
2	GND (0 V DC)
3	INP A (Signal input A)
4	INP B (Signal input B)
5	RESET (Reset input)
6	LOCK (Key locking input)
7	n. c.
8	n. c.

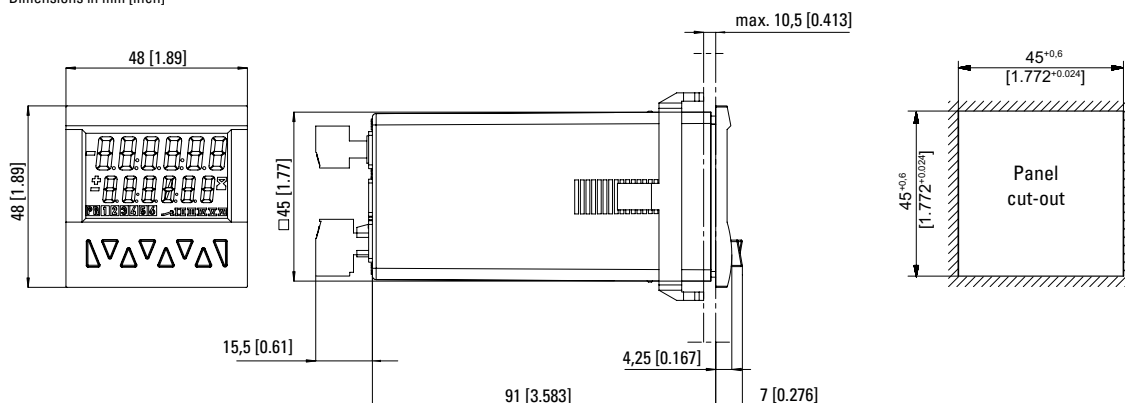


Pin	Version with relays
9	Relay contact C.
10	Relay contact N.O.
11	Relay contact C.
12	Relay contact N.O.
13	Relay contact N.C.
14	AC: 115/230 V AC N~ DC: 11 ... 30 V DC
15	AC: 115/230 V AC L~ DC: GND (0 V DC)



## Dimensions

Dimensions in mm [inch]





# Preset counters, electronic

**LCD preset counters**      **Multifunctional – pulse, frequency, time – 1...6 presets (AC+DC)**      **Codix 923 / 924**



The multifunction preset counters Codix 923 / 924 can be used universally. These preset pulse counters, tachometers or preset timers with up to 6 presets can solve a wide variety of control and monitoring tasks in every application.

With their two-line display in 4 different versions the counters are very easy to read and simple to programme using the clearly laid-out decade keys. Complex control tasks can be carried out using a batch count or total count function.



Product overview  
Basics  
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Temperature devices  
Strain-gauge controllers  
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<b>DC</b> 10 ... 30 V Power supply	<b>AC</b> 100 ... 240 V Temperature range	<b>-20° + 65°</b> Temperature range	<b>000000</b> DIN 48 x 48 DIN front bezel	<b>t/Hz</b> HRA Frequency meter HRA	<b>Prog</b> Menu-driven programming	<b>IP65</b> High protection level	<b>max.</b> 65 kHz Count frequency	<b>Plug-in screw terminal</b> Plug-in screw terminal	<b>1 ... 6</b> Presets	<b>Multifunctional</b> Multifunctional
<b>2x6 LCD</b> LCD display	<b>Multicolor display</b> Multicolor display	<b>POSITION</b> Position display	<b>Batch</b> Batch counter	<b>Σ</b> Totalizer						

## Multifunctional

- Counter, tachometer and timer in one device.
- Can be used a preset counter, batch counter, totalizer or position display with tracking preset.
- Presets: 923: 1, 924: 2, 924-4: 4, 924-6: 6.
- Relay or optocoupler outputs.
- Many different count modes for pulse inputs, time and frequency.
- Scalable input using multiplication and division factor
- Set value.
- Averaging, start delay (tachometer).
- Step or tracking presets (eliminate the need for reprogramming of the pre-signal).
- Multi-range power supply.

## Fast and user-friendly

- Direct input of the presets via the front keys or via the Teach-In input.
- Fast installation thanks to plug-in screw terminals.
- Max. count frequency 65 kHz.
- Simultaneous display of the actual and of the preset value, or of the actual value and of the batch / totalizing counter.
- Annunciators for the displayed preset and for the output status.
- 3 predefined parameter settings.
- Direct entry into the programming.
- Minimal installation depth.
- 4-stage RESET modes.
- 3-stage key lockout.
- Multicolor display for improved differentiation.

**Order code**      6.92 X . 0 1 X X . X X X  
a b c d e f

### a Number of presets

- 3 = 1 preset
- 4 = 2, 4 or 6 presets

### b Output

- 0 = relays
- 1 = optocouplers (only a = 4)<sup>2)</sup>

### c LCD options

- 0 = no backlighting
- 1 = green backlighting<sup>1)</sup>
- 2 = LED look, negative, red backlighting<sup>1)</sup>
- 3 = multicolor, negative red/green backlighting

### d Power supply

- 0 = 100 ... 240 V AC, ±10 %
- 2 = 24 V AC, ±10 %
- 3 = 10 ... 30 V DC

### e Input trigger level

- 0 = standard level (HTL)
- A = 4 ... 30 V DC level<sup>1)</sup>

### f Version

- 0 = standard 923/924
- B = 6 optocoupler outputs<sup>2)</sup>
- 924-6 (only b = 1)
- C = 4 relay outputs<sup>2)</sup>
- 924-4 (only b = 0)

### Delivery specification

- Preset counter
- Mounting clip
- 8 pin screw terminal
- 7 pin screw terminal
- Operating instructions

### Stock types

6.923.0100.000	6.924.0100.000
6.923.0100.300	6.924.0100.300
6.923.0101.000	6.924.0101.000
6.923.0101.300	6.924.0101.300
6.923.0102.000	6.924.0102.000
6.923.0102.300	6.924.0102.300
6.923.0103.000	6.924.0103.000
6.923.0103.300	6.924.0103.300
	6.924.0100.00C
	6.924.0100.30C
	6.924.0113.00B
	6.924.0113.30B

Additional inputs, outputs or interface types on request

1) 24 V AC on request

2) Not possible in 24 V AC.

# Preset counters, electronic

LCD preset counters		Multifunctional – pulse, frequency, time – 1...6 presets (AC+DC)		Codix 923 / 924
Accessories	Dimensions in mm [inch]		Order no.	
<b>Adapter front bezel, 55 x 55 [2.17 x 2.17]</b>	for cut-out 50 x 50 [1.97 x 1.97] to cut-out 45 x 45 [1.77 x 1.77] with clip mounting for counters 48 x 48 [1.89 x 1.89]	black	<b>T008853</b>	<b>N511004</b>
	Gasket 58 x 58 [2.28 x 2.28], for cut-out 50.2 x 50.2 [1.98 x 1.98]			
<b>Adapter front bezel, 60 x 75 [2.36 x 2.95]</b>	for cut-out 50 x 50 [1.97 x 1.97] to cut-out 45 x 45 [1.77 x 1.77] with screw mounting for counters 48 x 48 [1.89 x 1.89]	black	<b>T008860</b>	<b>N511020</b>
	gasket 60 x 75 [2.36 x 2.95] for cut-out 50 x 50 [1.97 x 1.97]			
<b>Adapter front bezel, 72 x 72 mm [2.83 x 2.83]</b>	for cut-out 68 x 68 [2.68 x 2.68] to cut-out 45 x 45 [1.77 x 1.77] (mating clip T009420 must be ordered separately)	black	<b>T008177</b>	<b>T009420</b>
<b>Sealing cover type K2, IP65</b>	suitable for front bezel 75 x 60 [2.95 x 2.36] with screw mounting	transparent/black	<b>G008303</b>	
<b>Transparent cover, IP65</b>	for cut-out 50 x 50 [1.97 x 1.97], with screw mounting for counters with cut-out 45 x 45 [1.77 x 1.77] and front bezel 48 x 48 [1.89 x 1.89]	lockable key lockable	<b>G008143</b> <b>G008153</b>	
<b>Mounting frame</b> with cut-out 50 x 50 [2.36 x 2.36] via separate adapter also for 45 x 45 [1.77 x 1.77]	for snap-on mounting on 35 [1.38] top-hat DIN rail, for counters 48 x 48 m [1.89 x 1.89], 53 x 53 [2.09 x 2.09] and 55 x 55 [2.17 x 2.17]	chromated	<b>G300003</b>	
Replacement parts		Order no.		
<b>8-pin connector</b>	1 ... 8, pitch 3.81	<b>N100498</b>		
<b>7-pin connector</b>	9 ... 15 (for 923 / 924), pitch 5.08	<b>N100548u002</b>		
	9 ... 15 (for 924-4 / 924-6), pitch 5.08	<b>N100400u002</b>		
<b>5-pin connector</b>	16 ... 20, pitch 3.81	<b>N100399u002</b>		

Suitable gaskets, other accessories and installation examples for optional accessories can be found in chapter Accessories or in the Accessories section under: [www.kuebler.com/accessories](http://www.kuebler.com/accessories).

Technical data	
<b>General technical data</b>	
<b>Display</b>	2 line 2 x 6 digits LCD display standard positive green with optional backlighting LED look negative red backlighting multicolor upper line negative, red backlighting lower line negative, red or green backlighting (programmable)
<b>Operating temperature</b>	-20°C ... +65°C [-4°F ... +149°F] (non-condensing)
<b>Storage temperature</b>	-25°C ... +75°C [-13°F ... +167°F]
<b>Humidity</b> at +40°C [+104°F]	RH 93 % (non-condensing)
<b>Altitude</b>	up to 2000 m [6562']
<b>Mechanical characteristics</b>	
<b>Protection</b>	IP65 (front side)
<b>Weight</b>	approx. 125 g [4.41 oz]
<b>Electrical characteristics</b>	
<b>Sensor power supply</b>	AC (50/60 Hz) 100 ... 240 V AC, ±10 %, max. 9.5 VA 24 V AC ±10 %, max. 6 VA DC 10 ... 30 V, max. 5.5 W
<b>External fuse protection</b>	100 ... 240 V AC T 0.1 A 24 V AC T 0.315 A 10 ... 30 V DC T 0.2 A
<b>Data retention</b>	> 10 years, EEPROM
<b>Input modes</b>	pulse counters: Count direction (cnt.dir), Difference (up.dn), Addition A+B (up.up), phase discriminator x1, x2, x4 (quad, quad x2, quad x4), Ratio (A/B), Ratio in % ((A-B)/A x 100%) frequency meter: A, A-B, A+B quad, A/B, (A-B)/A x 100 % timer: 4 Start modes: FrErun, Auto, InpA.InpB., InpB.InpB.
<b>Sensor power supply</b>	AC supply 24 V DC ±15 %, 80 mA DC supply max. 80 mA, external power supply is connected through
<b>EMC standards</b>	EN55011 class B, EN 61000-6-2, EN 61000-6-3
<b>Device safety</b>	designed to EN61010 part 1 protection class 2 application area pollution level 2
<b>UL approval</b>	file E128604

# Preset counters, electronic

## LCD preset counters      Multifunctional – pulse, frequency, time – 1...6 presets (AC+DC)      Codix 923 / 924

Inputs	
<b>Count inputs</b>	A and B
<b>Polarity of the inputs</b>	programmable for all inputs in common NPN/PNP
<b>Input resistance</b>	5 kΩ
<b>Count frequency</b>	pulse counters max. 55 kHz tachometers max. 65 kHz (details see manual) can be damped to 30 Hz (mechanical contacts)
<b>Control / Reset input</b>	MPI, Lock, Gate, Reset
<b>Min pulse duration of signal and control inputs</b>	10 ms / 1 ms
<b>Switching levels with AC supply</b>	HTL level:    LOW    0 ... 4 V DC HIGH    12 ... 30 V DC 4 ... 30 V DC: LOW    0 ... 2 V DC HIGH    3.5 ... 30 V DC
<b>Switching levels with DC supply</b>	HTL level:    LOW    0 ... 0.2 x U <sub>B</sub> HIGH    0.6 x U <sub>B</sub> ... 30 V DC 4 ... 30 V DC: LOW    0 ... 2 V DC HIGH    3.5 ... 30 V DC
<b>Pulse shape</b>	variable, Schmitt-Trigger characteristics

Outputs	
<b>Outputs relay version (1 changeover contact with 923)</b>	
<b>Switching voltage</b>	max. 250 V AC / 110 V DC
<b>Switching current</b>	max. 3 A AC/DC min. 30 mA DC
<b>Switching capacity</b>	max. 750 VA / 90 W
<b>Output 1</b> (Relay closing contact, programmable as normally open (NO) or normally closed (NC))	
Mech. service life (switching cycles)	2 x 10 <sup>7</sup>
N° of switching cycles at 3 A / 250 V AC	1 x 10 <sup>5</sup>
N° of switching cycles at 3 A / 30 V DC	1 x 10 <sup>5</sup>
<b>Output 2</b> (Relay with changeover contact)	
Mech. service life (switching cycles)	2 x 10 <sup>7</sup>
N° of switching cycles at 3 A / 250 V AC	5 x 10 <sup>4</sup>
N° of switching cycles at 3 A / 30 V DC	5 x 10 <sup>4</sup>
<b>Outputs optocoupler version</b>	
<b>Output 1 and 2</b> (npn optocoupler) switching power	
U <sub>CESAT</sub> at IC = 10 mA	30 V DC / 10 mA
U <sub>CESAT</sub> at IC = 5 mA	max. 2.0 V max. 0.4 V
<b>Reaction time of the outputs</b> (pulse / time)	relay approx. 13 ms optocoupler approx. 1 ms Details see instruction manual
<b>Response time of the frequency meter</b>	100/600 ms details see instruction manual

### Codix 924-4 and 924-6

The preset counters 924-4 and 924-6 vary from the standard counters 923 and 924 as follows:

- Relay version: 924-4, 4 presets, 2 additional relays
- Optocoupler version: 924-6: 6 presets, 4 additional optocoupler outputs
- No tracking presets
- Presets 1 and 4 affect the batch or total counter
- Presets 2, 3, 5 and 6 (Type: 924-6) or presets 2 and 3 (Type 924-4) affect the main counter
- Preset 2 is the main preset; it triggers the automatic reset
- Preset 2 is likewise the main preset for all further counting modes (the other presets are pre-signals)

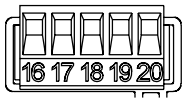
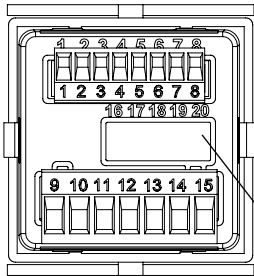
Additional technical data Codix 924-4	
<b>Output 3</b>	
<b>Relay with closing contact</b> (programmable as normally closed NC or normally open NO)	
Switching voltage	max. 125 V AC / 110 V DC
Switching current	max. 1 A AC / 1 A DC min. 1 mA AC/DC
Switching capacity	max. 62.5 VA / 30 W
Mech. service life (switching cycles)	5 x 10 <sup>7</sup>
N° of switching cycles at 0.5 A / 125 V AC	1 x 10 <sup>5</sup>
N° of switching cycles at 1 A / 30 V DC	1 x 10 <sup>5</sup>
<b>Output 4</b>	
<b>Relay with changeover contact</b>	
Switching voltage	max. 125 V AC / 110 V DC
Switching current	max. 1 A AC / 1 A DC min. 1 mA AC/DC
Switching capacity	max. 62.5 VA / 30 W
Mech. service life (switching cycles)	5 x 10 <sup>7</sup>
N° of switching cycles at 1 A / 110 V AC	1x10 <sup>5</sup>
N° of switching cycles at 1 A / 30 V DC	1x10 <sup>5</sup>
<b>Reaction time of the outputs, Relay</b>	< 7 ms (only impulse and time counter)
<b>Max. count frequency</b>	50 kHz
<b>Operating temperature</b>	-20°C ... +55°C [-4°F ... +131°F]

Additional technical data Codix 924-6	
<b>Output 1 ... 6</b>	
<b>NPN optocouplers</b>	
Switching capacity	30 V DC / 10 mA
U <sub>CESAT</sub> at IC = 10 mA	max. 2.0 V
U <sub>CESAT</sub> at IC = 5 mA	max. 0.4 V
output 3, 4, 5 and 6 with common emitter	
<b>Reaction time of the outputs, optocouplers</b> (only impulse and time counter)	
Add/Sub/	< 1 ms
with auto repeat	< 1 ms
A/B; (A-B)/A	< 23 ms
<b>Max. count frequency</b>	50 kHz

# Preset counters, electronic

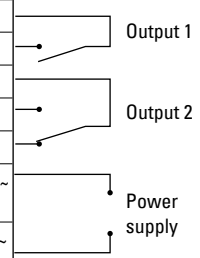
## LCD preset counters Multifunctional – pulse, frequency, time – 1...6 presets (AC+DC) Codix 923 / 924

### Terminal assignment



Pin	Signal and control inputs
1	Sensor power supply AC: 24 V DC / 80 mA DC: $U_B$ interconnected
2	GND (0 V DC)
3	INP A (Signal input A)
4	INP B (Signal input B)
5	RESET (Reset input)
6	LOCK (Key locking input)
7	GATE (Gate input)
8	MPI (User input)

Pin	Version with relays/optocouplers
9	Relay contact C. / Kollektor
10	Relay contact N.O. / Emitter
11	Relay contact C. / Emitter
12	Relay contact N.O. / not assigned
13	Relay contact N.C. / Collector
14	AC: 24 V AC, 100 ... 240 VAC, $\pm 10\%$ N~ DC: 10 ... 30 V DC
15	AC: 24 V AC, 100 ... 240 VAC, $\pm 10\%$ L~ DC: GND (0 VDC)

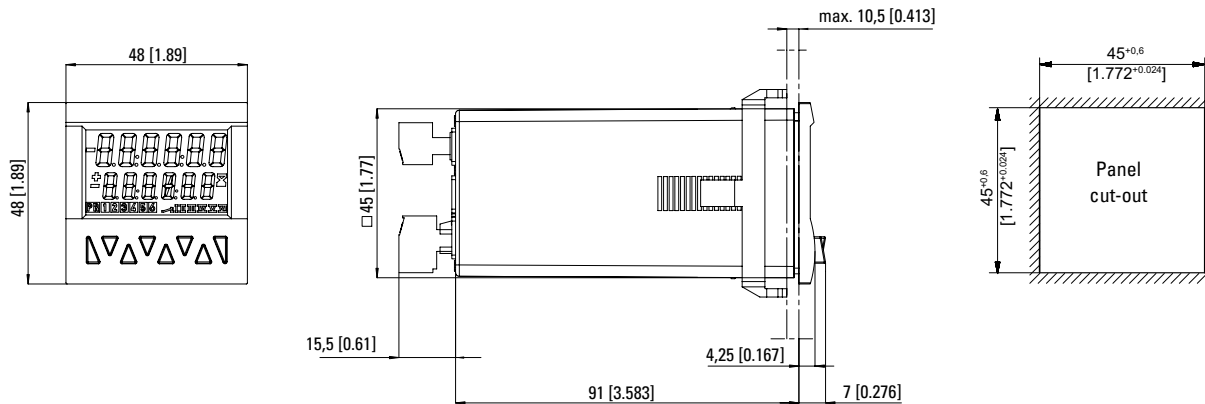


Pin	Additional connections 924-4
16	Relay contact N.C.4 output 4
17	Relay contact C.4 output 4
18	Relay contact N.O.4 output 4
19	Relay contact N.O.3 output 3
20	Relay contact C.3 output 3

Pin	Additional connections 924-6
16	Common-Emitter output 3 to 6
17	Collector 6 output 6
18	Collector 5 output 5
19	Collector 4 output 4
20	Collector 3 output 3

### Dimensions

Dimensions in mm [inch]



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Hour meters Timers  
Frequency displays Tachometers  
Position displays  
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# Preset counters, electronic

**LCD preset counters**      **Multifunctional – pulse, frequency, time – 1...6 presets (AC+DC)**      **Codix 923 / 924**

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## Pulse counter

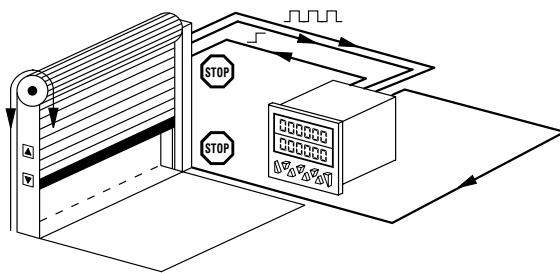
### Functions / count modes:

- Count with direction mode
- Difference mode
- Quadrature mode quad/quad2/quad4
- Add, Sub, automatic reset
- 2-input adding mode A+B
- Ratio measurement A/B
- Percentage difference measurement  $(A-B)/A \times 100 \%$
- Batch counting
- Totalizer (overall total)
- Multiplication and division factor (up to 99.9999)
- Set value
- Step or tracking preset

## Application examples

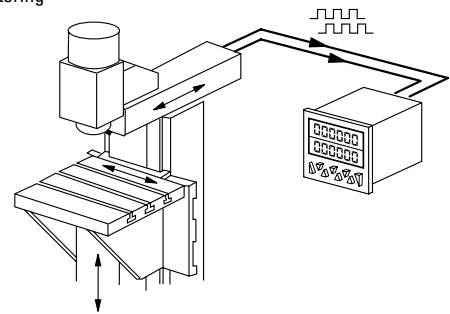
### CountDir + Add

Roller shutter door with automatic shut-off



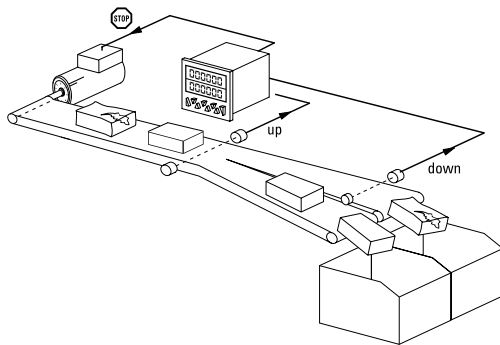
### Quad + Add

Running direction and position on milling machines, Limit switch monitoring



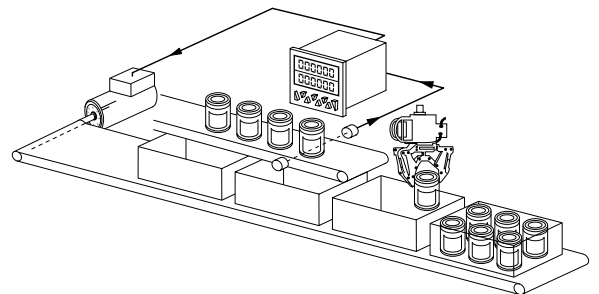
### UpDown + Add

Automatic subtraction of faulty or reject parts from the total piece count



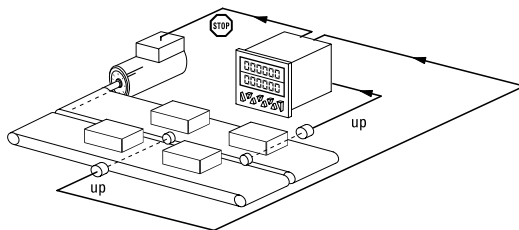
### CountDir + Batch

Logging of piece numbers and packing units plus control of replenishment of packing cartons



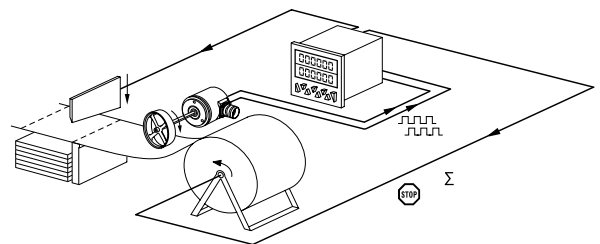
### UpUp + Add

Adding up of two parallel or staggered production lines



### Quad + Add tot

Cut-to-length with overall total count and control of the machine



### Frequency meter (tachometer)

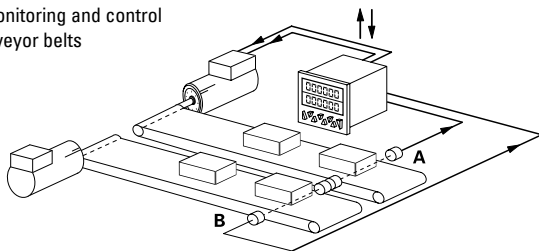
#### Functions / count modes:

- A
- A – B
- A + B
- A / B
- $(A - B) / A \times 100\%$  (percentage display)
- Quad (phase discriminator with recognition of direction)
- Averaging
- Start delay
- 2nd tacho input
- Gate input
- Multiplication and division factor (up to 99.9999)

### Application examples

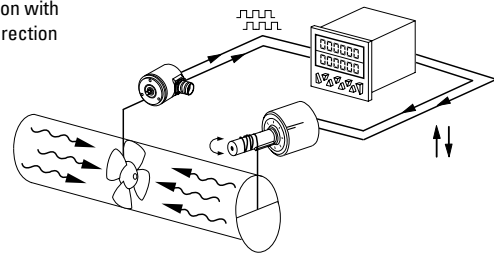
#### A – B

Synchro monitoring and control of two conveyor belts



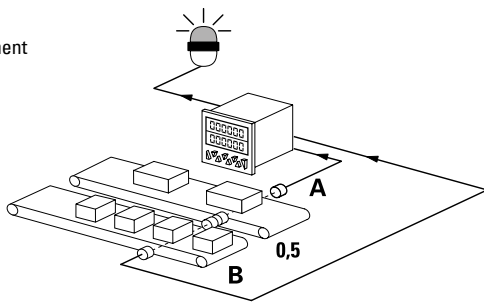
#### Quad

Speed regulation with indication of direction



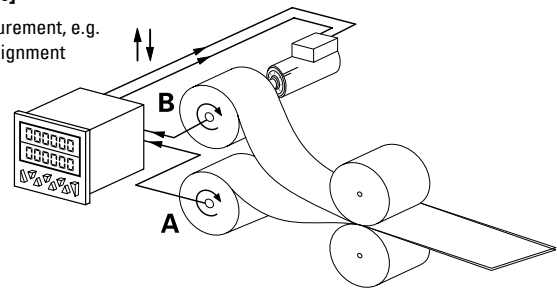
#### A/B

Ratio measurement



#### (A-B)/A [%]

Ratio measurement, e.g. for speed alignment



### Time and Hours-run meter (timer)

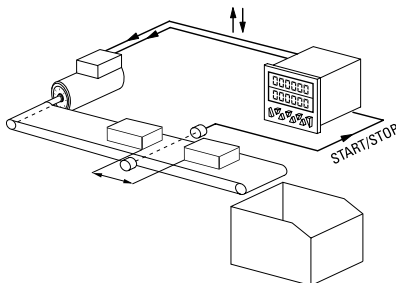
#### Functions / count modes:

- FrErUn (control via gate input)
- Auto (start via reset, stop at preset)
- InpB.InpB (start with first edge at InpB., stop with second edge InpB.)
- InpA. InpB (start with InpA., stop with InpB.)
- Totalizer (overall total)
- Batch counting
- Set value
- Step or tracking preset

### Application examples

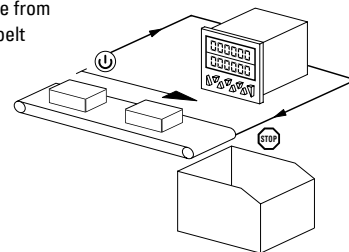
#### InpB. InpB

Interval measurement



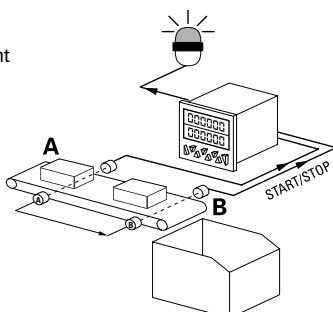
#### FrErUn

Measurement of overall time from switching on the conveyor belt till switching off



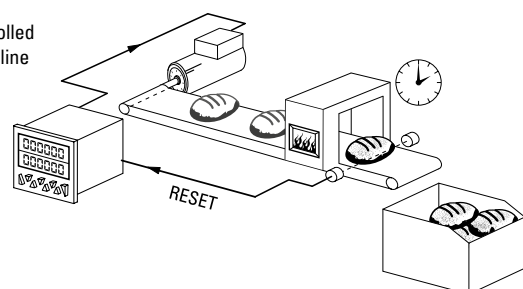
#### InpA. InpB

Run-time measurement



#### Auto

Time-controlled production line



# Preset counters, electronic

<b>LCD preset counters</b>	<b>Multifunction – pulse, frequency, time – 1...6 presets (AC+DC)</b>	<b>Codix 923 / 924</b>
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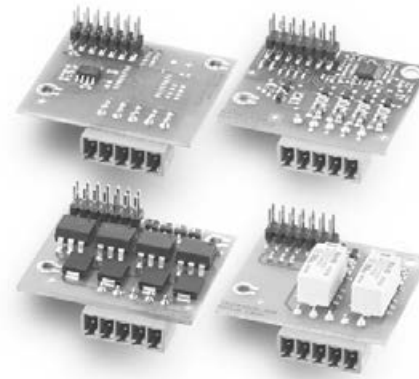
## Expandable hardware

Expandable on request via modules:

- 4 additional inputs
- Or 4 additional optocoupler outputs
- Or 2 additional relay outputs
- Or RS232/485 communications interfaces

Application examples

- Limit switch monitoring
- Special functions/PLC function
- Initiation of fixed program sequences
- Control of several processes
- Special protocols
- Print commands for logging



## Customizable software

Individual customization of software to your application.

For example:

- Separate inputs for total counter and preset counter
- Separate scaling of input A and B
- Programmable measuring period for the tachometer
- Measurement of rotary speeds based on time
- Processing time, measurement of time based on frequency
- With the Multicolor version, the display color changes when reaching the preset, or blinking display with all versions



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## LED preset counters

Multifunctional – pulse, frequency, time – 65 kHz, 2 presets (AC+DC)

Codix 560



With its automatic help texts, clearly and legibly displayed on 14 LED segments, the Codix 560 preset counter takes the user effortlessly through the programming. The large user-friendly front keys can be operated even when wearing gloves.

The 14 mm high LED display ensures easy reading even from a long distance and in poor lighting conditions.

Now available also with RS232/RS485 interface and MODBUS and CR/LF protocol



<b>DC</b> 10 ... 30V Power supply	<b>AC</b> 100 ... 240V Power supply	<b>-20° + 65°</b> Temperature range	<b>000000</b> DIN 96 x 48	<b>PROG</b> Menu-driven programming	<b>IP65</b> High protection level	<b>max.</b> 65 kHz High count frequency	<b>Hz</b> Multifunctional	<b>t/Hz</b> HRA Frequency display with HRA	<b>POSITION</b> Position display	<b>A..Z*</b> LEDs 14 segment LED	
<b>Batch</b> Batch counter	<b>Σ</b> Total counter	<b>RS</b> 232 485 Optional interface									

### Multifunctional

- Counter, tachometer, timer and position display in one device.
- Can be used as preset counter, batch counter or total counter.
- 2 relays (change-over).
- Many different count modes.
- Scalable display.
- Set value, step or tracking preset.
- Multi-range power supply for AC or DC.
- Readable or configurable via RS232/485 interface via MODBUS or CR/LF protocol.
- Allows direct connection of a large display or printer.

### User-friendly

- Automatic help texts, displayed in German and English.
- 14-segment LED for improved text representation.
- Status display of the presets.
- 3 predefined parameters.
- Tracking presets eliminate the need for reprogramming of the pre-signal.
- Minimum installation depth.
- 4-stage RESET modes.
- 3-stage keypad locking.
- Suitable for installation in mosaic systems.

### Order code

6.560 . 010 . XXX  
a b c

#### a Power supply

0 = 100 ... 240 V AC, ±10 %<sup>1)</sup>  
3 = 10 ... 30 V DC<sup>1)</sup>

#### b Input trigger levels

0 = Standard level (HTL)<sup>1)</sup>  
A = 4...30 V DC level

#### c Interface (optional)

0 = None<sup>1)</sup>  
5 = RS232 (MODBUS or CR/LF)  
7 = RS485 (MODBUS or CR/LF)

#### Delivery specification

- Preset counter
- Mounting clip
- Instruction manual

### Accessories

Dimensions in mm [inch]

Order no.

#### Mounting frame

with cut-out 92 x 45 [3.62 x 1.77]

for snap-on mounting on 35 [1.38] top-hat DIN rail,  
for counters 96 x 48 [3.78 x 1.89]

grey

**G300005**

Suitable gaskets as well as further accessories can be found in the accessories section or in the accessories area of our website at: [www.kuebler.com/accessories](http://www.kuebler.com/accessories).

1) Stock types



# Preset counters, electronic

## LED preset counters    Multifunctional – pulse, frequency, time – 65 kHz, 2 presets (AC+DC)    Codix 560

### Technical data

General technical data	
<b>Display</b>	6-digit red 14 segment LED display, 14 mm [0.55] high
<b>Operating temperature</b>	-20°C ... +65°C [-4°F ... +149°F] (non-condensing)
<b>Storage temperature</b>	-25°C ... +75°C [-13°F ... +167°F]
<b>Relative humidity</b> at +40°C [+104°F]	RH 93 % (non-condensing)
<b>Altitude</b>	up to 2000 m [6562']

Electrical characteristics	
<b>Power supply</b>	AC 100 ... 240 V AC, ±10 % max. 11 VA, 50/60 Hz DC 10 ... 30 V, max. 5.5 W
<b>External fuse protection</b>	230 V AC T 0.1 A 10 ... 30 V DC T 0.25 A
<b>Data retention</b>	> 10 years, EEPROM
<b>Response time of the frequency meter</b>	100 / 600 ms (details s. instruction manual)
<b>Input modes</b>	<p>pulse counters count direction (cnt.dir), difference (up.dn), addition A+B (up.up), phase discriminator x1, x2, x4 (quad, quad x2, quad x4), ratio (A/B), ratio in % ((A-B)/A x 100 %)</p> <p>frequency meter A, A-B, A+B quad, A/B, (A-B)/A x 100 %</p> <p>timer 4 start modes: FrErun, Auto, InpA.InpB., InpB.InpB.</p>
<b>Sensor power supply</b>	AC supply 24 V DC ±15 %, 80 mA DC supply max. 80 mA, external power supply is connected through
<b>EMC standards</b>	EN 55011 class B, EN 61000-6-2, EN 61000-6-3
<b>Device safety</b>	designed to protection class application area EN 61010 part 1 2 pollution level 2
<b>UL approval</b>	file E128604

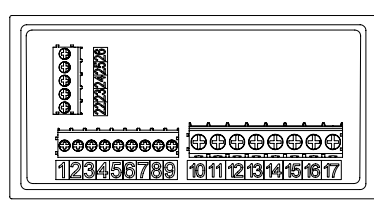
Mechanical characteristics	
<b>Protection</b>	IP65 (from the front)
<b>Weight</b>	approx. 180 g [6.35 oz]

Inputs	
<b>Count inputs</b>	A and B
<b>Polarity of the inputs</b>	programmable for all inputs in common, NPN/PNP
<b>Input resistance</b>	5 kΩ
<b>Count frequency</b>	<p>pulse counters max. 55 kHz</p> <p>tachometers max. 65 kHz</p> <p>can be damped to 30 Hz (mechanical contacts) (details s. instruction manual)</p>
<b>Control / Reset input</b>	MPI 1 and MPI 2, Lock, Gate, Reset
<b>Min pulse duration of the inputs</b>	10 ms / 1 ms
<b>Switching levels with AC supply</b>	<p>HTL-level: LOW: 0 ... 4 V DC HIGH: 12 ... 30 V DC</p> <p>4 ... 30 V DC: LOW: 0 ... 2 V DC HIGH: 3.5 ... 30 V DC</p>
<b>Switching levels with DC supply</b>	<p>HTL-level: LOW: 0 ... 0.2 x U<sub>B</sub> HIGH: 0.6 x U<sub>B</sub> ... 30 V DC</p> <p>4 ... 30 V DC: LOW: 0 ... 2 V DC HIGH: 3.5 ... 30 V DC</p>
<b>Pulse shape</b>	variable, Schmitt-Trigger characteristics

Outputs	
<b>Switching voltage</b>	max. 250 V AC / 150 V DC
<b>Switching current</b>	max. 3 A AC / DC min. 30 mA DC
<b>Switching capacity</b>	max. 750 VA / 90 W
<b>Output 1 + 2</b>	<p>mech. service life (switching cycles) 2 x 10<sup>7</sup></p> <p>N° of switching cycles at 3 A / 250 V AC 5 x 10<sup>4</sup></p> <p>N° of switching cycles at 3 A / 30 V DC 5 x 10<sup>4</sup></p> <p>relay with changeover contact</p>
<b>Reaction time of the outputs</b> (pulse / time)	13 ms (details s. instruction manual)

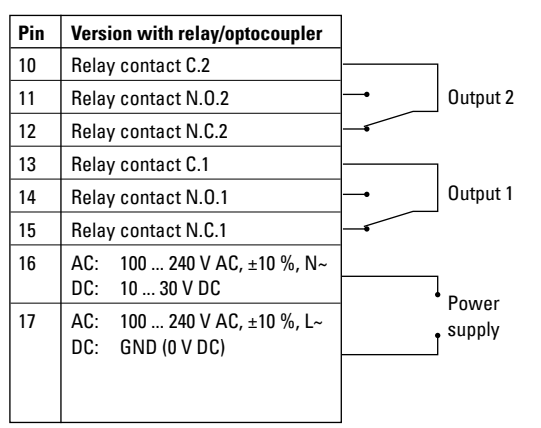
Optional interface MODBUS and CR/LF	
<b>Count frequency</b>	max. 45 kHz (details s. instruction manual)
<b>Interface</b>	RS232, RS485
<b>Baud rate</b>	9600
<b>Device address</b>	1 ... 99, programmable

### Terminal assignment



Pin	RS232 (optional)	Pin	RS485 (optional)
22	GND	22	-
23	RXD	23	DO
24	TXD	24	DI
25	-	25	-
26	-	26	-

Pin	Signal and control inputs
1	INP A (Signal input A)
2	INP B (Signal input B)
3	RESET (Reset input)
4	LOCK (Keypad lock)
5	GATE (Gate input)
6	MPI 1 (User input 1)
7	MPI 2 (User input 2)
8	Sensor power supply AC: 24 V DC/80 mA DC: U <sub>B</sub> connected through
9	Shared connection for signal and control inputs GND (0 VDC)



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# Preset counters, electronic

## LED preset counters

Multifunctional – pulse, frequency, time – 65 kHz, 2 presets (AC+DC)

Codix 560

### Pulse counter

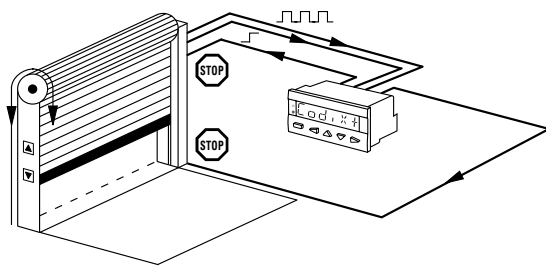
#### Functions / count modes

- Count with direction mode
- Difference mode
- Quadrature mode quad / quad2 / quad4
- Add, Sub, automatic reset
- 2-input adding mode A+B
- Ratio measurement A/B
- Multi-range power supply for AC or DC
- Percentage difference measurement  $(A-B)/A \times 100\%$
- Batch counting
- Totalizer (Overall total)
- Multiplication and division factor (up to 99.9999)
- Set value
- Step or tracking preset

### Application examples

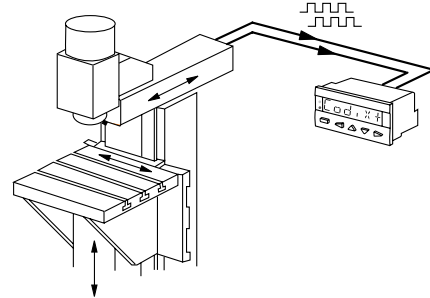
#### CountDir + Add

Roller shutter door with automatic shut-off



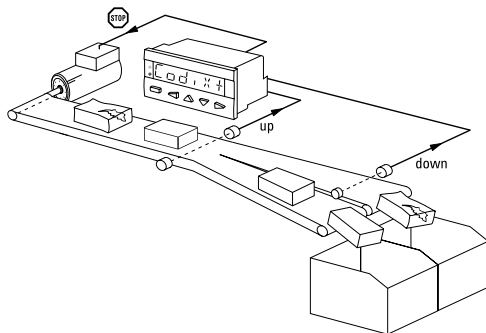
#### Quad + Add

Running direction and position on milling machines, Limit switch monitoring



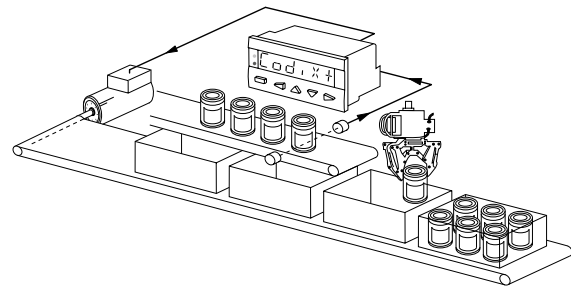
#### UpDown + Add

Automatic subtraction of faulty or reject parts from the total piece count



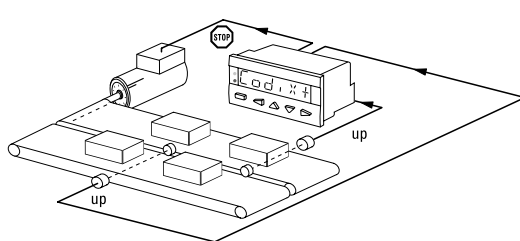
#### CountDir + Batch

Logging of piece numbers and packing units plus control of replenishment of packing cartons



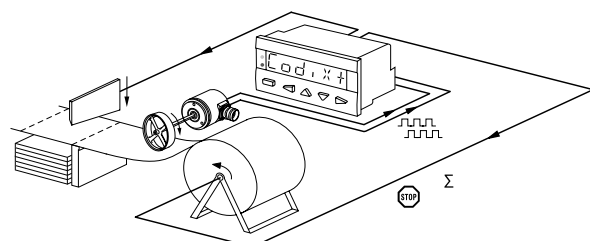
#### UpUp + Add

Adding up of two parallel or staggered production lines



#### Quad + Add tot

Cut-to-length with overall total count and control of the machine



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# Preset counters, electronic

**LED preset counters**      **Multifunctional – pulse, frequency, time – 65 kHz, 2 presets (AC+DC)**      **Codix 560**

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## Frequency meter (tachometer)

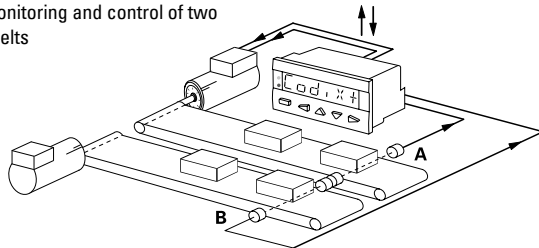
### Functions / count modes

- A
- A – B
- A + B
- A / B
- $(A - B) / A \times 100\%$  (percentage display)
- Quad (phase discriminator with recognition of direction)
- Averaging
- Start delay
- 2nd tachometer input
- Gate input
- Multiplication and division factor (up to 99.9999)

## Application examples

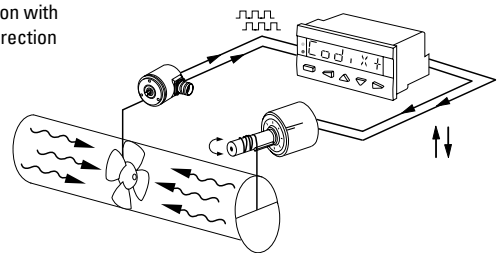
### A – B

Synchro monitoring and control of two conveyor belts



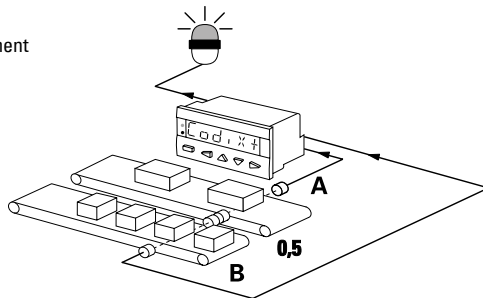
### Quad

Speed regulation with indication of direction



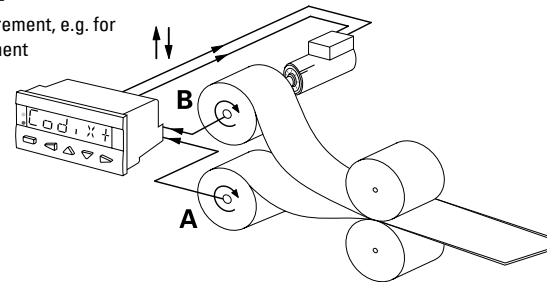
### A/B

Ratio measurement



### $(A-B)/A$ [%]

Ratio measurement, e.g. for speed alignment



## Time and hours-run meter (timer)

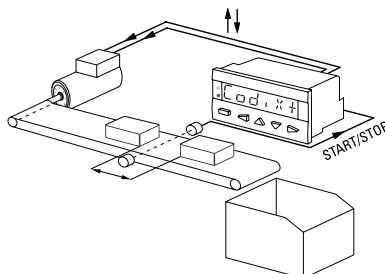
### Functions / count modes

- FrErun (control via gate input)
- Auto (start via reset, stop at preset)
- InpB.InpB (start with first edge at InpB., stop with second edge InpB.)
- InpA. InpB (start with InpA., stop with InpB.)
- Totalizer (overall total)
- Batch counting
- Set value
- Step or tracking preset

## Application examples

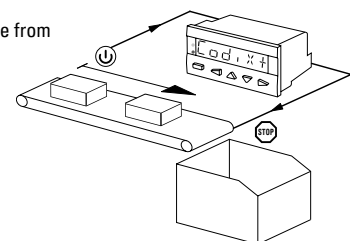
### InpB. InpB

Interval measurement



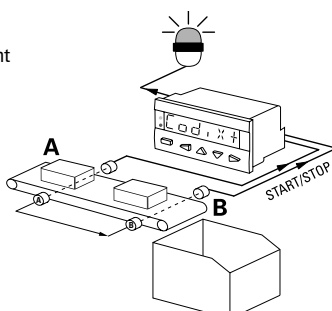
### FrErun

Measurement of overall time from switching on the conveyor belt till switching off



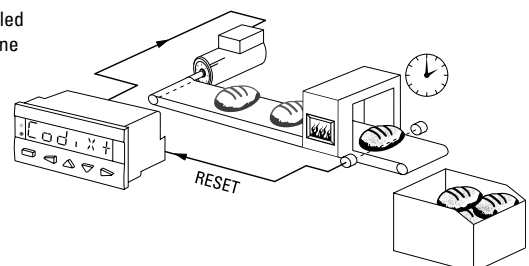
### InpA. InpB

Run-time measurement



### Auto

Time-controlled production line



# Preset counters, electronic

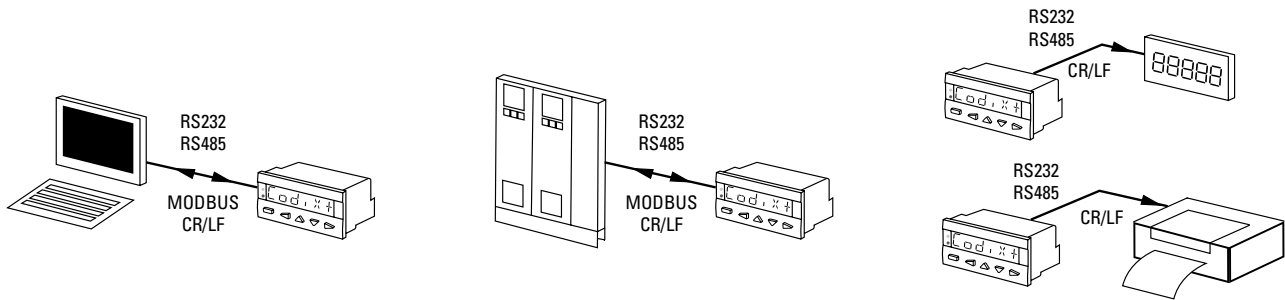
## LED preset counters

Multifunction – pulse, frequency, time – 65 kHz, 2 presets (AC+DC)

Codix 560

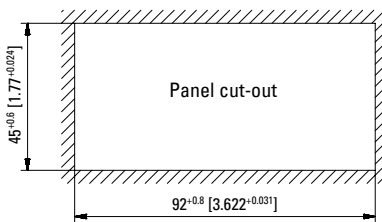
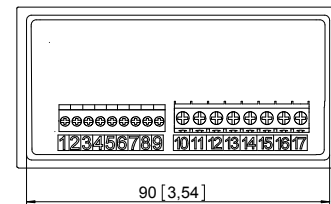
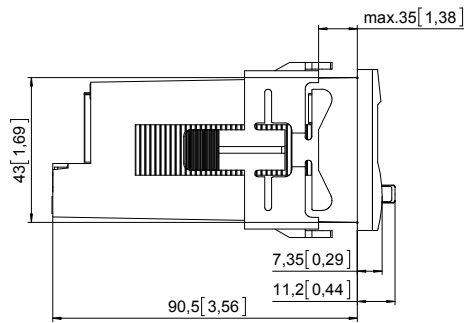
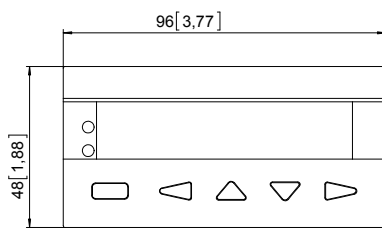
### RS232 / RS485 interface (optional)

For connecting the counter to a PC, a PLC, a large display or a printer – for reading-out data or configuring the device.



### Dimensions

Dimensions in mm [inch]



Product overview  
Basics

Pulse counters

Preset counters

Hour meters  
Timers

Frequency displays  
Tachometers

Position displays

Multifunction  
devices

Energy meters

Process devices

Temperature  
devices

Strain-gauge  
controllers

Accessories  
Index

**LED preset counters**      **Dual preset counters with 4 switch outputs and analog output**      **572**



Counter series for demanding applications with two individually scalable encoder inputs, each A, /A, B, /B, for count frequencies up to 1 MHz per channel.

Programmable operating modes include position or event counter, totalizer, difference counter, cut-to-length display, diameter calculation and many more.

<b>AC/DC</b> 24/17...30V Power supply	<b>000000</b> DIN 96 x 48 DIN front bezel	<b>IP65</b> High protection level	<b>max.</b> 1 MHz 2 inputs	 Operation with gloves	 TTL, HTL and RS422 input	<b>123...</b> 6/8 LED LED display	<b>DC OUT</b> 5 / 24 V 2 x sensor power supply	 Analog output optional	<b>4</b> Transistor output	<b>RS 232 485</b> Interface
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### Innovative

- 3 display values: counter 1, 2 as well as calculation-based display.
- 2 separate freely scalable count inputs: HTL or TTL (also with inverted inputs) max. input frequency 1 MHz/channel.
- Very bright LED display, 15 mm (6-digit) and 10 mm (8-digit) high.
- 4 freely programmable fast solid-state outputs, each with 350 mA output current.
- Step or tracking presets.
- Simple programming – with function codes, dependent on the operating mode selected.
- With 8 different fixed count functions, such as simple count, difference count and total count of both inputs, batch counter etc.

### Compact and multifunctional

- One device caters for AC and DC power supplies.
- Simple programming with 4 keys and programmable dual functions.
- Can be used as counter or position display with limit values, where 2 values are monitored or calculated with respect to each other.
- 4 fast, programmable inputs with various functions, such as reset, gate, display memory (store), reference input or switching between the display values.
- Scalable analog output 0/4 ... 20 mA, ±10 V or 0 ... 10 V.
- RS232 interface as standard (RS485 optional), for parameter setting, readout of values or for modifications during operation.
- 2 auxiliary power supplies for sensors: 5.2 V DC and 24 V DC.

### Order specifications

**4 fast switch outputs and serial interface (RS232)**

	Order no.
6 digits	<b>6.572.0116.D05</b> <sup>1)</sup>
6 digits, RS485	<b>6.572.0116.D75</b>
6 digits, scalable analog outputs	<b>6.572.0116.D95</b> <sup>1)</sup>
8 digits	<b>6.572.0118.D05</b> <sup>1)</sup>
8 digits, RS485	<b>6.572.0118.D75</b>
8 digits, scalable analog outputs	<b>6.572.0118.D95</b> <sup>1)</sup>


*Delivery specification*

- Controller 572
- Gasket
- Fastening set
- Instruction manual German/English

1) Stock types

# Preset counters, electronic

## LED preset counters Dual preset counters with 4 switch outputs and analog output 572

Accessories	Dimensions in mm [inch]	Order no.
<b>Mounting frame</b> with cut-out 92 x 45 [3.62 x 1.77] 	for snap-on mounting on 35 [1.38] top-hat DIN rail, for counters 96 x 48 [3.78 x 1.89] <span style="float: right;">grey</span>	<b>G300005</b>
<b>OS6.0 software for parameter setting</b> can be downloaded at <a href="http://www.kuebler.com">www.kuebler.com</a>		

Suitable gaskets as well as further accessories can be found in the accessories section or in the accessories area of our website at: [www.kuebler.com/accessories](http://www.kuebler.com/accessories).

### Technical data

General technical data		
<b>Display</b>	6 digits	LED display, 15 mm mm [0.59"]high
	8 digits	LED display, 10 mm mm [0.39"]high
<b>Operating temperature</b>	0°C ... +45°C [+32°F ... +113°F] (non-condensing)	
<b>Storage temperature</b>	-25°C ... +70°C [-13°F ... +158°F]	

Electrical characteristics		
<b>Power supply</b>	24 V AC, + 10 % 24 (17 ... 30) V DC	
<b>Current consumption DC</b>	100 mA + current consumption encoder	
<b>Connected load AC</b>	15 VA	
<b>Auxiliary power supply output for sensors</b>	2 x 5.2 V DC, each 150 mA 2 x 24 V DC, each 120 mA	
<b>EMC standards</b>	EN 55011 class B, EN 61000-6-2, EN 61000-6-3, EN 61326-3-2	
<b>Device safety</b>	designed to protection class 2 application area	EN 61010 part 1 pollution level 2

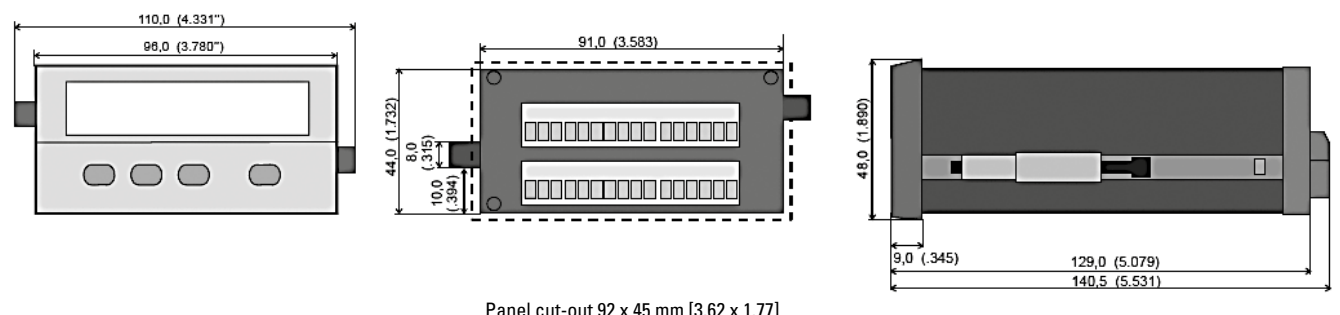
Mechanical characteristics		
<b>Housing</b>	Noryl UL94-V-0	
<b>Screw terminal</b>	cable cross-section	max. 1.5 mm <sup>2</sup> [AWG 25]
<b>Protection</b>	IP65 (front side)	
<b>Weight</b>	approx. 250 g [8.82 oz]	

Inputs		
<b>Universal incremental encoder inputs</b>		
Count frequency (per encoder)	RS422 and TTL with Inv. HTL asymmetric TTL asymmetric	2 1 MHz 200 kHz 200 kHz
<b>Control inputs HTL</b>		
Input resistor		4 3.3 kOhm
Switching level	LOW HIGH	< 2.5 V > 10 V
Min. pulse duration		50 µs

Outputs		
<b>Switch outputs</b>		
4 fast power transistors		5 ... 30 V DC, 350 mA
Reaction time		< 1ms <sup>1)</sup>
Inductive loads require a freewheeling diode		
<b>Serial interface</b>		
2400 ... 38400 Baud	RS232 RS485 (6.572.011X.D75)	
<b>Analog outputs</b>		
Current		0 / 4 ... 20 mA
Load		max. 270 Ohm
Voltage		0 ... +10 V (max. 2 mA)
Resolution		14 bit
Precision		0.1 %
Reaction time		< 1 m

### Dimensions

Dimensions in mm [inch]



1) Intensive serial communication can temporarily prolong the reaction time

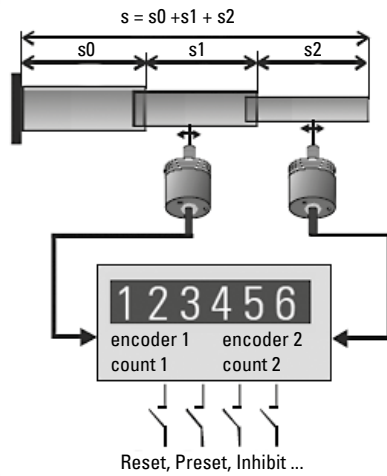
Product overview  
 Basics  
 Pulse counters  
 Preset counters  
 Hour meters  
 Timers  
 Frequency displays  
 Tachometers  
 Position displays  
 Multifunction devices  
 Energy meters  
 Process devices  
 Temperature devices  
 Strain-gauge controllers  
 Accessories Index

# Preset counters, electronic

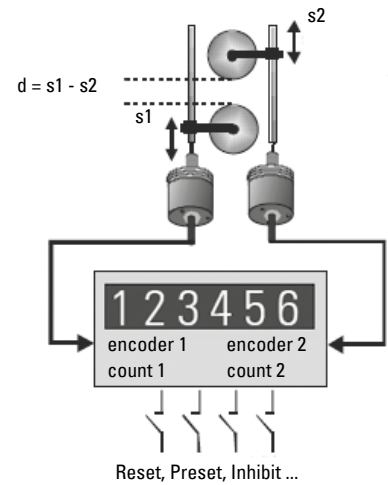
## LED preset counters **Dual preset counters with 4 switch outputs and analog output** **572**

### Application examples

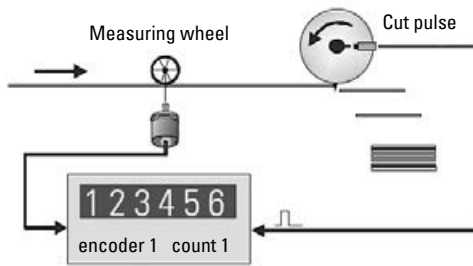
#### Total position display



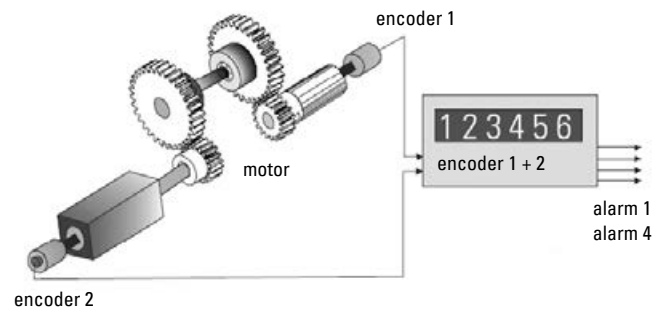
#### Difference position display



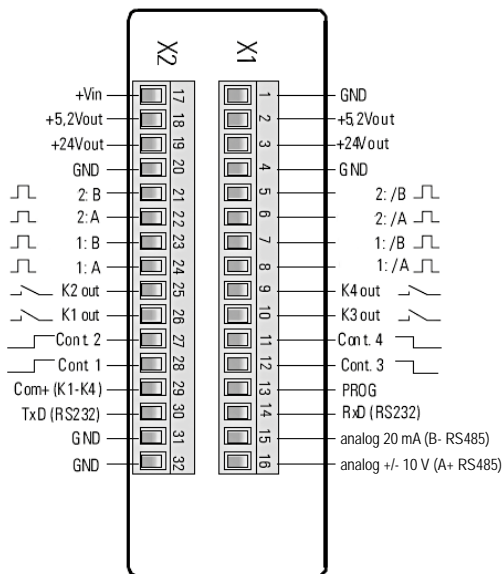
#### Measurement of the effective cut amount



#### Monitoring of torsion, shafts or gear breakage

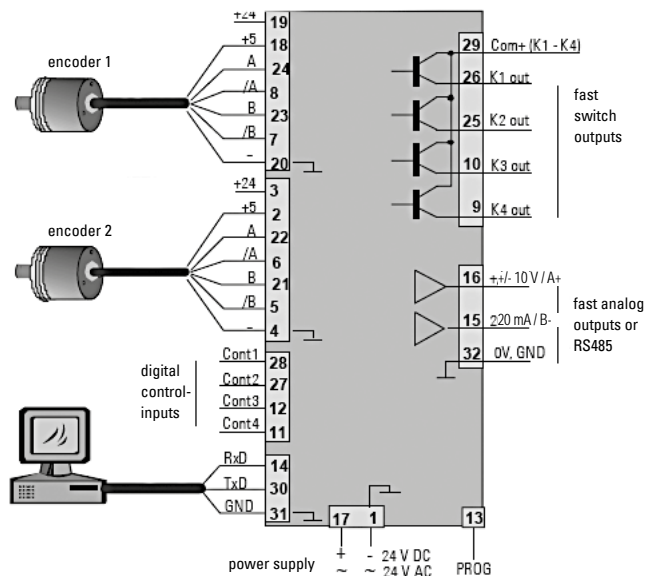


### Terminal assignment



### Connection examples

Example shows encoder with 5 V-supply and TTL / RS422-output



Product overview  
Basics  
Pulse counters  
Preset counters  
Hour meters  
Timers  
Frequency displays  
Tachometers  
Position displays  
Multifunction devices  
Energy meters  
Process devices  
Temperature devices  
Strain-gauge controllers  
Accessories  
Index

# Preset counters, electronic

**LED position preset counters**

**SSI o. incremental inputs / 4 switch outputs + analog output**

**575**



Counter series for demanding applications with two individually scalable encoder inputs, each SSI master / SSI slave or A, /A, B, /B, for count frequencies up to 1 MHz per channel.

Programmable operating modes include position or event counter, totalizer, difference counter.



**AC/DC**  
24/17...30V  
Power supply

**000000**  
DIN 96 x 48  
DIN front bezel

**IP65**  
High protection level

**max.**  
1 MHz  
2 inputs

**SSI**  
SSI input

TTL, HTL and RS422 input

**6/8 LED**  
LED display

**DC OUT**  
5 / 24 V  
2 x sensor power supply

**mA, V**  
Analog output optional

**4**  
Transistor output

**RS232**  
Interface

## Innovative

- 3 display values: counter 1, 2 as well as calculation-based display.
- 2 separate freely scalable count inputs: SSI master, SSI slave or TTL incremental (also with inverted inputs) max. input frequency 1 MHz/channel.
- Very bright LED display, 15 mm (6-digit) and 10 mm (8-digit) high.
- 4 freely programmable fast solid-state outputs, each with 350 mA output current.
- Step or tracking presets.
- Simple programming – with function codes, dependent on the operating mode selected.
- With 8 different fixed count functions, such as simple count, difference count and total count of both inputs, separate display of the inputs.

## Compact and multifunctional

- One device caters for AC and DC power supplies.
- Simple programming with 4 keys and programmable dual functions.
- Can be used as counter or position display with limit values, where 2 values are monitored or calculated with respect to each other.
- 4 fast, programmable inputs with various functions, such as reset, gate, display memory (store), reference input or switching between the display values.
- Scalable analog output 0/4 ... 20 mA, ±10 V or 0 ... 10 V.
- RS232 interface as standard, for parameter setting, readout of values or for modifications during operation.
- 2 auxiliary power supplies for sensors: 5.2 V DC and 24 V DC.

## Order specifications

### 4 fast switch outputs and serial interface (RS232)

- 6 digits
- 6 digits, scalable analog outputs
- 8 digits
- 8 digits, scalable analog outputs

### Order no.

- 6.575.0116.D05**
- 6.575.0116.D95**
- 6.575.0118.D05**
- 6.575.0118.D95**

### Delivery specification

- Controller 575
- Gasket
- Fastening set
- Instruction manual German/English

## Accessories

### Mounting frame

with cut-out 92 x 45 [3.62 x 1.77]

### Dimensions in mm [inch]

for snap-on mounting on 35 [1.38] top-hat DIN rail,  
for counters 96 x 48 [3.78 x 1.89]

grey

### Order No.

**G300005**



## OS6.0 software for parameter setting

can be downloaded at [www.kuebler.com](http://www.kuebler.com)

Suitable gaskets as well as further accessories can be found in the accessories section or in the accessories area of our website at: [www.kuebler.com/accessories](http://www.kuebler.com/accessories).



# Preset counters, electronic

## LED position preset counters SSI o. incremental inputs / 4 switch outputs + analog output 575

### Technical data

General technical data		
Display	6 digits	LED display, 15 mm [0.59"] high
	8 digits	LED display, 10 mm [0.39"] high
Operating temperature	0°C ... +45°C [+32°F ... +113°F] (non-condensing)	
Storage temperature	-25°C ... +70°C [-13°F ... +158°F]	

Electrical characteristics		
Power supply	24 V AC, + 10 % 24 (17 ... 30) V DC	
Current consumption DC	100 mA + current consumption encoder	
Connected load AC	15 VA	
Auxiliary power supply output for sensors	2 x 5.2 V DC, each 150 mA 2 x 24 V DC, each 120 mA	
EMC standards	EN 55011 class B, EN 61000-6-2, EN 61000-6-3, EN 61326-3-2	
Device safety	designed to protection class 2 application area	EN 61010 part 1 pollution level 2

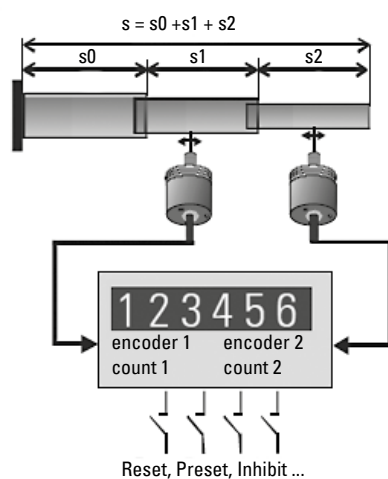
Mechanical characteristics		
Housing	Noryl UL94-V-0	
Screw terminal	cable cross-section	max. 1.5 mm <sup>2</sup> [AWG 25]
Protection	IP65 (front side)	
Weight	approx. 250 g [8.82 oz]	

Inputs		
<b>Universal SSI incremental encoder inputs</b>		
Number	2 SSI or 1 SSI + 1 incremental	
Count frequency (per encoder)	RS422 and TTL with Inv. 1 MHz	
	SSI master	1 MHz (max. 32 bit)
	SSI slave	1 MHz (max. 32 bit)
<b>Control inputs HTL</b>		
Number	4	
Input resistor	3.3 kOhm	
Switching level	LOW	< 2.5 V
	HIGH	> 10 V
Min. pulse duration	50 µs	

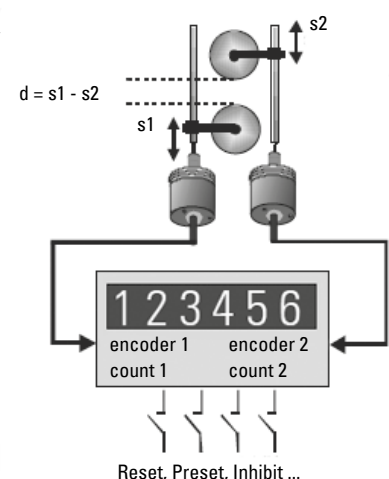
Outputs		
<b>Switch outputs</b>		
4 fast power transistors	5 ... 30 V DC, 350 mA	
Reaction time	< 1ms <sup>1)</sup>	
Inductive loads require a freewheeling diode		
<b>Serial interface</b>	RS232, 2400 ... 38400 Baud	
<b>Analog outputs</b>		
Current	0 / 4 ... 20 mA	
Load	max. 270 Ohm	
Voltage	0 ... +10 V (max. 3 mA)	
Resolution	14 bit	
Precision	0.1 %	
Reaction time	< 1 m	

### Application examples

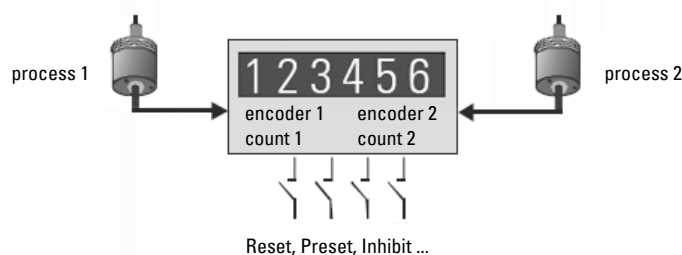
#### Total position display



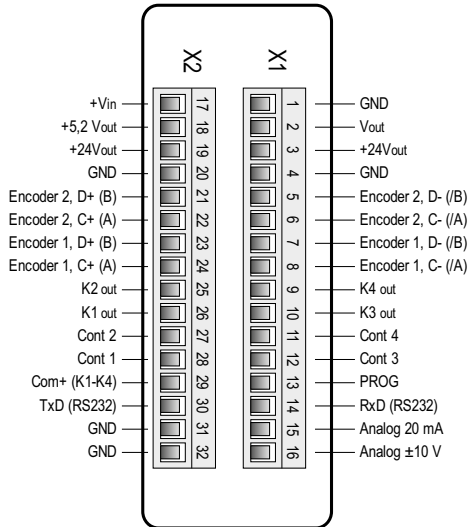
#### Difference position display



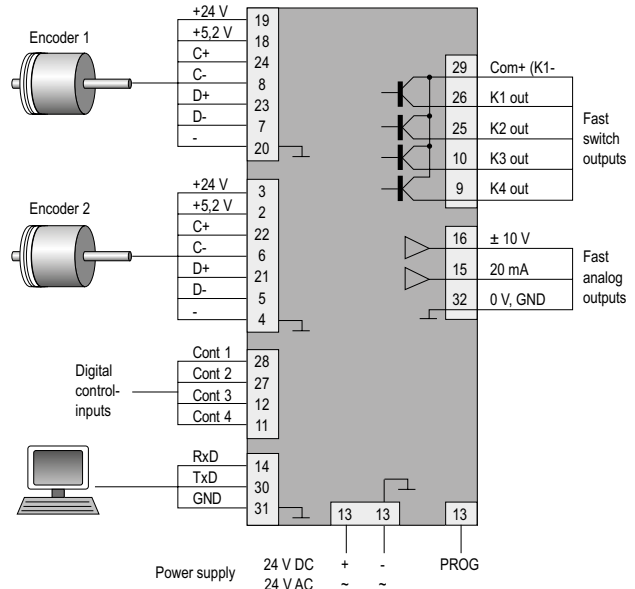
#### Independent individual operation



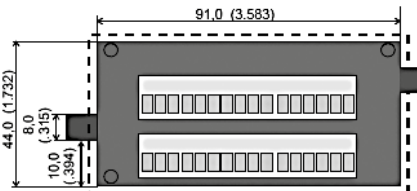
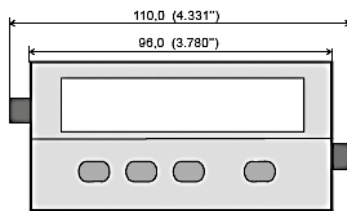
1) Intensive serial communication can temporarily prolong the reaction time

**Terminal assignment**

**Connection examples**

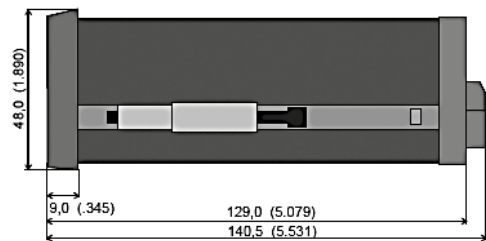
Example shows encoder with 5 V-supply and TTL / RS422-output


**Dimensions**

Dimensions in mm [inch]



Panel cut-out 92 x 45 mm [3.62 x 1.77]



# Preset counters, electromechanical

<b>Standard counters</b>	<b>Adding, 5 digits (AC+DC)</b>	<b>BVa 15</b>
--------------------------	---------------------------------	---------------



The electromechanical preset counters BVa 15 (with manual reset) boast a robust construction. They are ideal for use in harsh industrial environments as stand-alone counters or as plug-in variants in combination with additional B, BVa, HB or HVa counters.

Display shows actual count and preset value.

Product overview  
Basics

Pulse counters

Preset counters

Hour meters  
Timers

Frequency displays  
Tachometers

Position displays

Multifunction  
devices

Energy meters

Process devices

Temperature  
devices

Strain-gauge  
controllers

Accessories  
Index

## Characteristics

- 5-digit adding preset counter with stationary preset value.
- Manual reset to zero.
- Potential free changeover contact (microswitch) on reaching the preset.
- Contact switches when preset value is reached and remains switched until reset to zero.
- Counters without front bezel fit into bezel F2B and can be combined in RM 50 x 50 mm.

## Benefits

- Can be combined with counters of the B, BVa, HB and HVa series using the socket boxes of the pluggable versions.
- Count value and preset constantly visible.
- Versions with transparent cover, sealing cover, zero reset key-lock.

## Applications

Piece counting, automation.

## Type series

### Description

(Reset manual)

Without front bezel, plugs into socket box

Front bezel 1, mounting holes

Mounting clip

Front bezel 3, mounting holes

### Type

**BVa 15.01**

**BVa 15.11**

**BVa 15.21**

**BVa 15.31**

### Delivery specification

Counter complete with socket box

### Order information

- Art. no.
- For special voltages, please give type, voltage and series e.g.: BVa 15.31, 12 V DC ...

### Further versions, fully assembled (on request)

Counter with lockable reset

**BVa 15.21 vs**



Counter with transparent cover

**Dv BVa 15.31**  
lockable



**Dvs BVa 15.31**  
key lockable



## Type / Counting mechanism

Voltage	Type max.	Pulse frequency min.	Pulse on time min.	Pulse interval	Pulse ratio	On-time approx.	Power consump. ripple max.	Permi. residual (non-condensing)	Operating temp.
<b>V DC</b>	1	25 Hz	24 ms	16 ms	3 : 2	100 %	3 W	48 %	-10°C ... +60°C [+14°F ... +140°F]
<b>V AC</b>	a	18 Hz	27.7 ms	27.7 ms	1 : 1	100 %	3 VA	-	-10°C ... +55°C [+14°F ... +131°F]

# Preset counters, electromechanical

Standard counters	Adding, 5 digits (AC+DC)	BVa 15	
<b>Accessories</b>		Dimensions in mm [inch]	Order no.
<b>Front bezel type F2B</b>	for cut-out 54 x 54 [2.13 x 2.13], with screw mounting for plug-in counters BVa 15.0x in socket box type 946.1	beige black	<b>G007503</b> <b>G007504</b>
<b>Socket box type 946.1</b>	for counters BVa 15.01, can be used for plug-in connections, in front bezel F2B	black	<b>G008439</b>
<b>Sealing cover type K2, IP65</b>	for front bezel 75 x 60 [2.95 x 2.36] with screw mounting, for elektrom. counters and via adapter front bezel T008860 for counters 48 x 48 [1.89 x 1.89]	grey black	<b>G008302</b> <b>G008303</b>
<b>Mounting frame</b> with cut-out 50 x 50 [2.36 x 2.36] via separate adapter also for 45 x 45 [1.77 x 1.77]	for snap-on mounting on 35 [1.38] top-hat DIN rail, for counters 48 x 48 [1.89 x 1.89], 53 x 53 [2.09 x 2.09] and 55 x 55 [2.17 x 2.17]	chromated	<b>G300003</b>
<b>DIN rail mount SR 3</b>	for snap-on mounting on 35 [1.38] top-hat DIN rail		<b>G300002</b>
<b>Replacement parts</b>			Order no.
<b>Transparent cover, IP65</b>	type 2 Dv, suitable for Dv BVa 15 and Dv HVa 15 type 2 Dvs, suitable for Dvs BVa 15 and Dvs HVa 15	lockable key lockable	<b>G008141</b> <b>G008151</b>
<b>Key for key-locking zero reset</b>			<b>G050265</b>

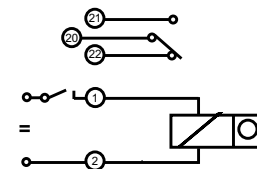
Suitable gaskets, other accessories and installation examples for optional accessories can be found in chapter Accessories or in the Accessories section under: [www.kuebler.com/accessories](http://www.kuebler.com/accessories).

Technical data	
<b>Electrical connection</b>	counter: tinned tabs $\varnothing$ 1.6 mm [0.063"] with push-on connectors socket box: tinned plated tabs 0.8 x 2.8 mm [0.032 x 0.11"]
<b>Rated voltages</b>	counting mechanism: 12 / 24 / 48 / 115 V DC $\pm$ 10 % 24 / 48 / 115 / 230 V AC $\pm$ 10 %
<b>Height of figures</b>	counter: 4.5 mm [0.18"] preset: 4 mm [0.16"]
<b>Color of housing</b>	grey: Art. no. x.xxx.xx0.xxx black: Art. no. x.xxx.xx1.xxx
<b>Color of figures</b>	counter: white on black preset: yellow on black
<b>Counting mechanism shaft</b>	stainless steel
<b>Mounting position</b>	any
<b>Service life</b>	approx. $100 \times 10^6$ pulses
<b>Protection</b>	IP40 (front side)
<b>Weight</b>	approx. 130 g [4.59 oz]
<b>EMC standards</b>	EN 55011 class B, EN 61000-6-2, EN 61000-6-3,
<b>Device safety</b>	designed to protection class 2 application area: pollution level 2
<b>Test voltage</b>	2000 V, effective
<b>Switching contact</b>	1 change over contact (micro switch), release in 2nd half-step on the preset number
<b>Loading (max)</b> (with resistive Load.)	<b>AC</b> : 250 V AC 2.0 A <b>DC</b> : 24 V DC 2.0 A 60 V DC 0.7 A 115 V DC 0.4 A 230 V DC 0.2 A
Suitable spark quenching is required with inductive load, reducing the max. current to 60 %	

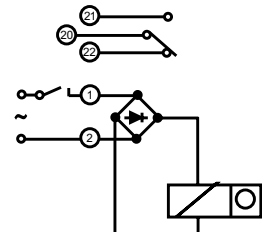
Options	
<b>Key-locking zero reset</b>	housing grey: Art. no.: 2.1X0.XX6.XXX housing black: Art. no.: 2.1X0.XX7.XXX
<b>Lockable transparent cover (IP65)</b>	Dv BVa counter with front bezel 3 Art. no.: 2.1X0.7XX.XXX
<b>Key lockable transparent cover (IP65)</b>	Dvs BVa counter with front bezel 3 Art. no.: 2.1X0.8XX.XXX
<b>Flexible sealing cover K2 (IP54)</b>	K2 BVa counter with front bezel 3 Art. no.: 2.1X0.6XX.XXX
<b>Screw terminal connection</b>	Art. no.: 2.XXX.XXX.XXX.023
<b>Flat pin connection 2.8 x 0.8 mm (on request)</b>	Art. no.: 2.XX7.XXX.XXX

## Connection diagrams

DC



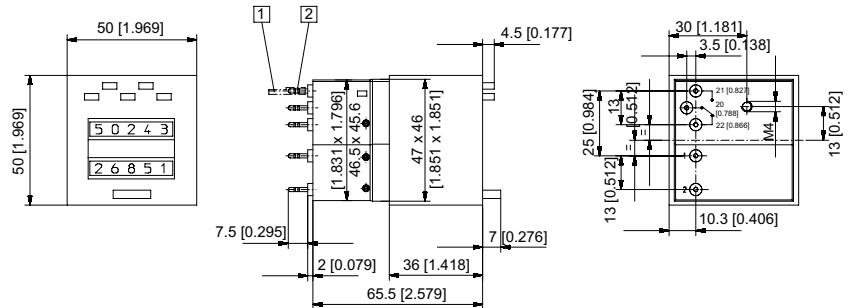
AC



# Preset counters, electromechanical

## Standard counters Adding, 5 digits (AC+DC) BVa 15

Without front bezel,  
plugs into socket box type 946.1  
Type BVa 15.01

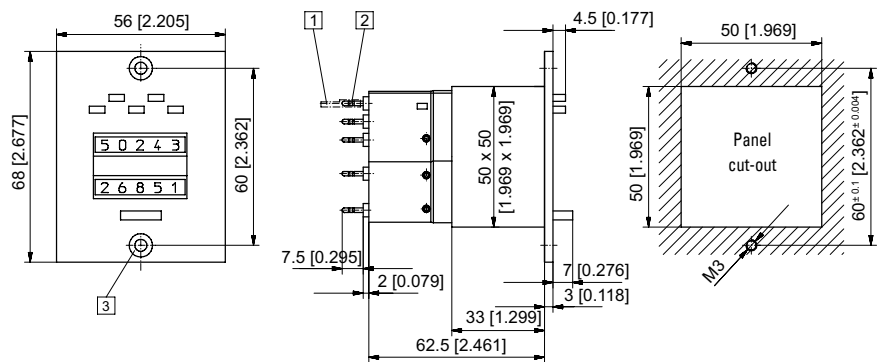


1 Push-on connector  $\varnothing$  1.5 [0.059] tinned 2 Round pin  $\varnothing$  1.6 [0.063] tinned  
Color of housing grey (standard)

Type	Voltage	Display	Art. no.		
			24 V	115 V	230 V
BVa 15.01	DC (25 Hz)	5 digits	2.100.010.033	-	-
	AC (18 Hz)		2.100.010.061	2.100.010.064	2.100.010.066

Color of housing black: Art. no. 2.1X0.011.XXX

Front bezel 1,  
with mounting holes  
Type BVa 15.11



1 Push-on connector  $\varnothing$  1.5 [0.059] tinned 2 Round pin  $\varnothing$  1.6 [0.063] tinned 3 Countersinking Af3 DIN 74  
Color of housing grey (standard)

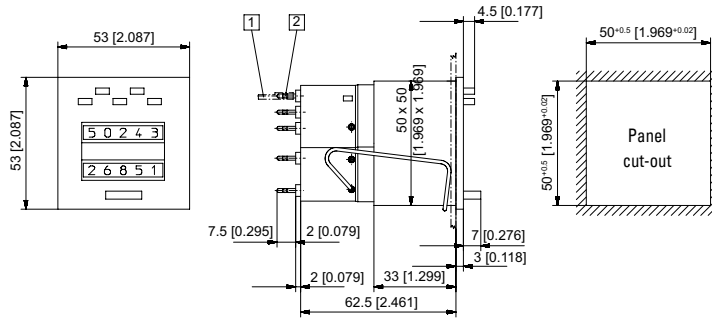
Type	Voltage	Display	Art. no.		
			24 V	115 V	230 V
BVa 15.11	DC (25 Hz)	5 digits	2.100.110.033	-	-
	AC (18 Hz)		2.100.110.061	2.100.110.064	2.100.110.066

Color of housing black: Art. no. 2.1X0.111.XXX

# Preset counters, electromechanical

## Standard counters Adding, 5 digits (AC+DC) BVa 15

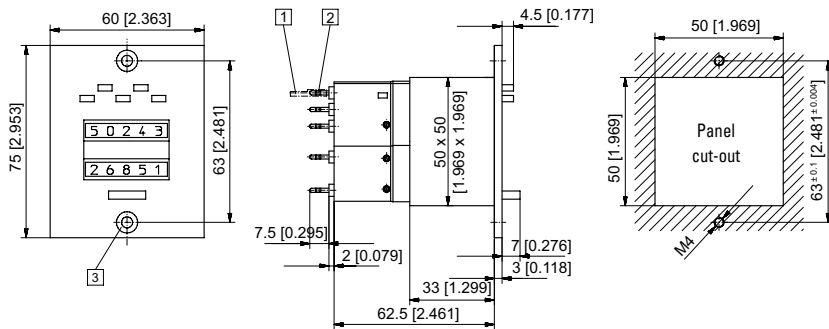
With mounting clips  
Type BVa 15.21



1 Push-on connector  $\varnothing$  1.5 [0.059] tinned 2 Round pin  $\varnothing$  1.6 [0.063] tinned  
Color of housing grey (standard)

Type	Voltage	Display	Art. no.		
			24 V	115 V	230 V
BVa 15.21	DC (25 Hz)	5 digits	2.100.210.033 <sup>1)</sup>	-	-
	AC (18 Hz)		2.100.210.061	2.100.210.064	2.100.210.066 <sup>1)</sup>
Color of housing black: Art. no. 2.1X0.211.XXX			Further stock types: Art. no. 2.100.211.033		

Front bezel 3,  
with mounting holes  
Type BVa 15.31

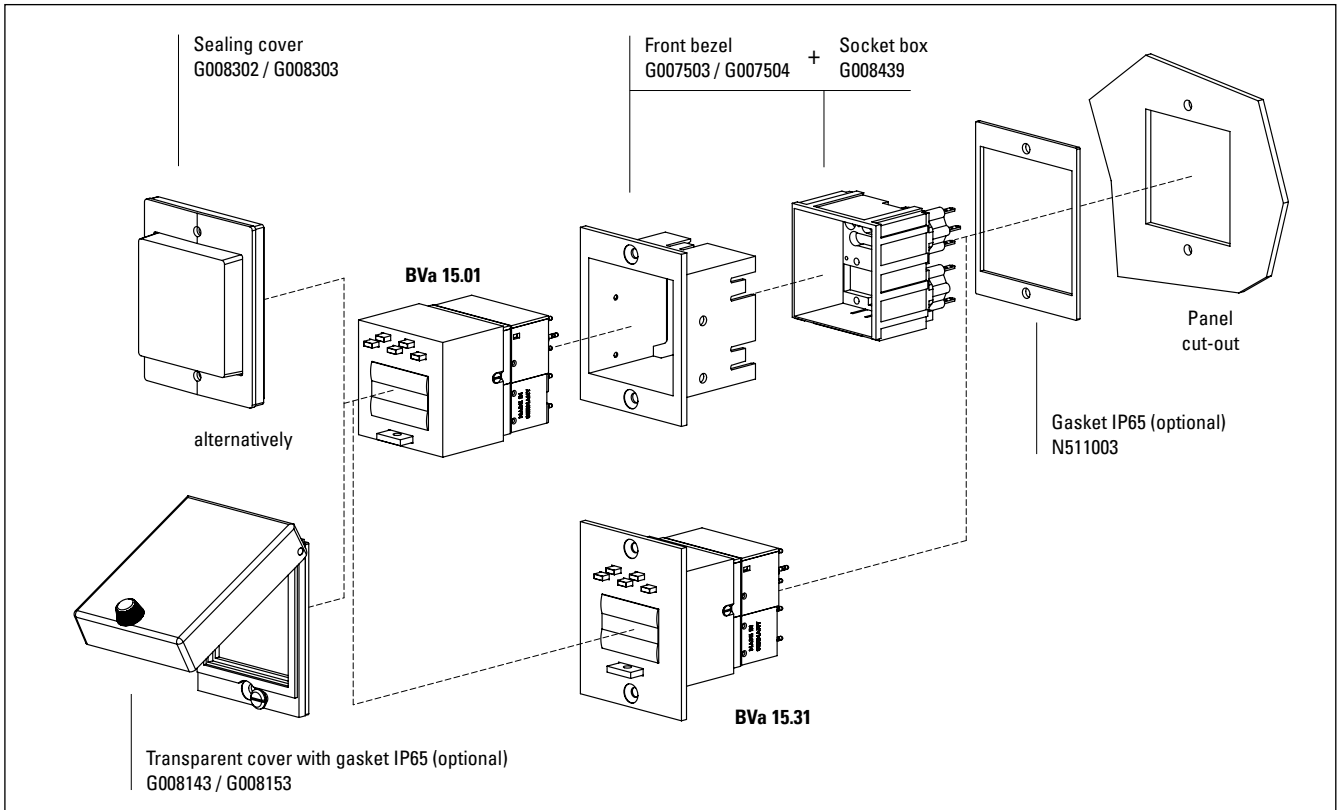


1 Push-on connector  $\varnothing$  1.5 [0.059] tinned 2 Round pin  $\varnothing$  1.6 [0.063] tinned 3 Countersinking Af3 DIN 74  
Color of housing grey (standard)

Type	Voltage	Display	Art. no.		
			24 V	115 V	230 V
BVa 15.31	DC (25 Hz)	5 digits	2.100.310.033	-	-
	AC (18 Hz)		2.100.310.061	2.100.310.064	2.100.310.066
Color of housing black: Art. no. 2.1X0.311.XXX			Further stock types: BVa 15.31.4sw 24 V DC / Art. no. 2.107.311.013		

**Standard counters**      **Adding, 5 digits (AC+DC)**      **BVa 15**

**Mounting examples for optional accessories**



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# Preset counters, electromechanical

## Standard counters

## Subtracting, 2 or 3 digits (AC+DC)

## MVs 13



The electromechanical preset counters MVs 13 (with manual and manual/electrical reset) boast a robust construction with very small dimensions.

They are ideal for use in harsh industrial environments. The subtracting counters are set to a value via the front keys, the signal occurs when the count value reaches 0.

### Characteristics

- 2- or 3-digit subtracting preset counter.
- Manual or manual and electrical reset.
- Potential free changeover contact (microswitch) on reaching zero.
- Contact switches for "0" count position and remains unswitched until reset to zero.

### Benefits

- Delivery complete with push-on connectors.
- Very small dimensions.
- Versions with sealing cover on request.

### Applications

Piece counting, batch quantities and automation.

### Type series

	3 digits manual reset	3 digits manual and electr. reset	2 digits manual reset	2 digits manual and electr. reset
Front bezel with mounting holes	<b>MVs 13.11</b>	<b>MVs 13.13</b>	<b>MVs 13.11/2</b>	<b>MVs 13.13/2</b>
Front bezel with mounting clip	<b>MVs 13.21</b>	<b>MVs 13.23</b>	<b>MVs 13.21/2</b>	<b>MVs 13.23/2</b>

Accessories	Dimensions in mm [inch]	Order no.
<b>Sealing cover type KV3, IP65</b>	for front bezel 39 x 68 [1.54 x 2.68] , with screw mounting	transparent, grey transparent, black
		<b>G008310</b> <b>G008311</b>

Suitable gaskets as well as further accessories can be found in the accessories section or in the accessories area of our website at: [www.kuebler.com/accessories](http://www.kuebler.com/accessories).

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# Preset counters, electromechanical

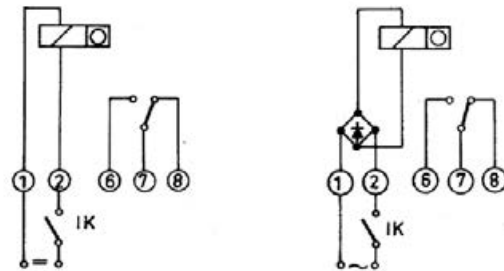
<b>Standard counters</b>	<b>Subtracting, 2 or 3 digits (AC+DC)</b>	<b>MVs 13</b>
--------------------------	---	---------------

Technical data	
<b>Electrical connection</b>	tinned flat pins 0.8 x 2.8 mm [0.032 x 0.11"] (with push on connectors)
<b>Rated voltages</b>	count mechanism 12 / 24 / 48 / 115 / 230 V DC ±10 % 24 / 48 / 115 / 230 V AC ±10 % reset magnet 24 / 48 / 115 / 230 V DC ±10 % 24 / 48 / 115 / 230 V AC ±10 %
<b>Height of figures</b>	4 mm [0.16"]
<b>Color of housing</b>	similar to RAL 7001
<b>Color of figures</b>	white on black
<b>Counting mechanism shaft</b>	stainless steel
<b>Mounting position</b>	any
<b>Service life</b>	approx. 100 x 10 <sup>6</sup> pulses
<b>Protection</b>	IP40 (front side)
<b>Weight</b>	approx. 150 g [5.29 oz], with electrical reset approx. 190 g [6.70 oz]
<b>EMC standards</b>	EN 55011 class B, EN 61000-6-2, EN 61000-6-3
<b>Device safety</b>	designed to EN 61010 part 1 protection class 2 application area pollution level 2
<b>Test voltage</b>	2000 V, effective
<b>Switching contact</b>	1 change over contact (micro switch), release in 2nd half-step exactly at zero
<b>Load (max.)</b>	AC 250 V AC 2.0 A (with resistive load) DC 24 V DC 2.0 A 60 V DC 0.7 A 115 V DC 0.4 A 230 V DC 0.2 A
With inductive: suitable spark quenching is required on inductive load, reducing the max. current to approx. 60 %	
<b>Electrical reset</b>	on time 10 % max. 40 seconds minimum pulse time 0.25 sec. power consumption 12 W at DC, 14 VA at AC

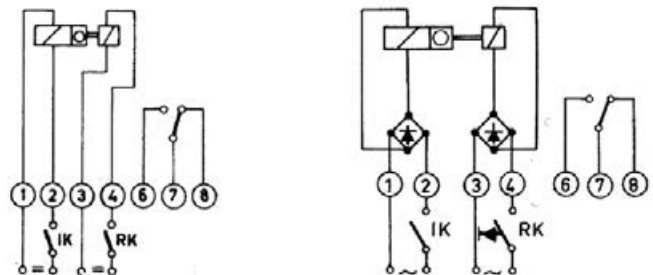
Options
Electrical reset only

## Connection diagrams

### Manual reset



### Manual and electrical reset



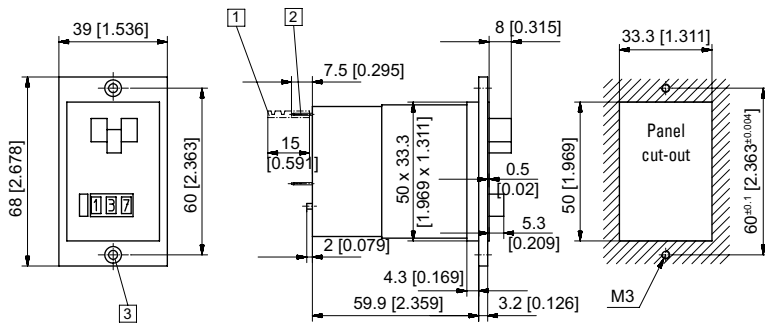
Type / Counting mechanism									
Voltage	Type	Pulse frequency max.	Pulse on time min.	Pulse interval min.	Pulse ratio	On-time	Power consump. approx.	Permi. residual ripple max.	Operating temp. (non-condensing)
<b>V DC</b>	1	25 Hz	24 ms	16 ms	3 : 2	100 %	4 W	48 %	-10°C ... +45°C [+14°F ... +113°F]
<b>V AC</b>	a	18 Hz	22.2 ms	33.3 ms	2 : 3	100 %	4.5 VA	—	-10°C ... +45°C [+14°F ... +113°F]

# Preset counters, electromechanical

**Standard counters**      **Subtracting, 2 or 3 digits (AC+DC)**      **MVs 13**

Front bezel with mounting holes,  
manual reset

Type MVs 13.11, MVs 13.11/2

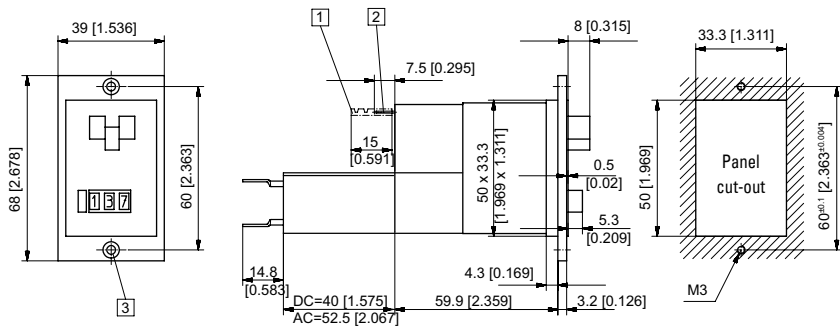


- 1 Push-on connector 0.8 x 2.8 [0.032 x 0.11] tinned
  - 2 Flat pin 0.8 x 2.8 [0.032 x 0.11] tinned
  - 3 Countersinking Af3 DIN 74
- Color of housing grey (standard)

Voltage	Type / Art. no.	MVs 13.11 (display 3 digits)			MVs 13.11/2 (display 2 digits)		
		24 V	115 V	230 V	24 V	115 V	230 V
DC (25 Hz)		<b>2.300.110.033</b>	–	–	<b>2.310.110.033</b>	–	–
AC (18 Hz)		<b>2.300.110.061</b>	<b>2.300.110.064</b>	<b>2.300.110.066</b>	<b>2.310.110.061</b>	<b>2.310.110.064</b>	<b>2.310.110.066</b>

Front bezel with mounting holes,  
manual and electrical reset

Type MVs 13.13, MVs 13.13/2



- 1 Push-on connector 0.8 x 2.8 [0.032 x 0.11] tinned
  - 2 Flat pin 0.8 x 2.8 [0.032 x 0.11] tinned
  - 3 Countersinking Af3 DIN 74
- Color of housing grey (standard)

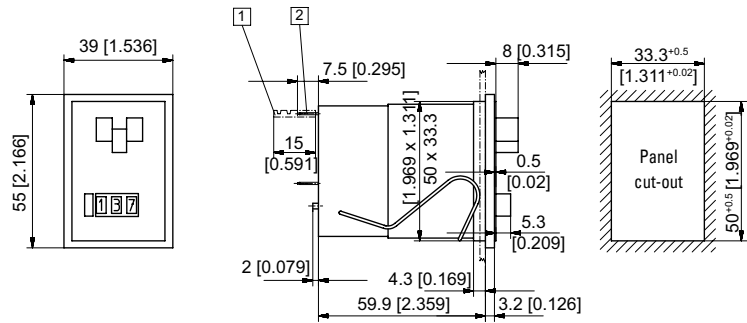
Voltage	Type / Art. no.	MVs 13.13 (display 3 digits)			MVs 13.13/2 (display 2 digits)		
		24 V	115 V	230 V	24 V	115 V	230 V
DC (25 Hz)		<b>2.300.130.033</b>	–	–	<b>2.310.130.033</b>	–	–
AC (18 Hz)		<b>2.300.130.061</b>	<b>2.300.130.064</b>	<b>2.300.130.066</b>	<b>2.310.130.061</b>	<b>2.310.130.064</b>	<b>2.310.130.066</b>

# Preset counters, electromechanical

**Standard counters**      **Subtracting, 2 or 3 digits (AC+DC)**      **MVs 13**

Front bezel with clip mounting, manual reset

Type MVs 13.21, MVs 13.21/2

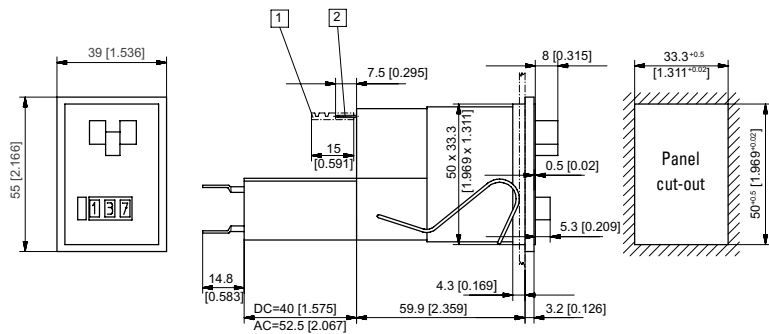


1 Push-on connector 0.8 x 2.8 [0.032 x 0.11] tinned    2 Flat pin 0.8 x 2.8 [0.032 x 0.11] tinned  
Color of housing grey (standard)

Voltage	Type / Art. no.	MVs 13.21 (display 3 digits)			MVs 13.21/2 (display 2 digits)		
		24 V	115 V	230 V	24 V	115 V	230 V
DC (25 Hz)		<b>2.300.210.033</b>	–	–	<b>2.310.210.033</b>	–	–
AC (18 Hz)		<b>2.300.210.061</b>	<b>2.300.210.064</b>	<b>2.300.210.066</b>	<b>2.310.210.061</b>	<b>2.310.210.064</b>	<b>2.310.210.066</b>
Color of housing black: Art. no. 2.3X0.211.XXX							

Front bezel with clip mounting, manual and electrical reset

Type MVs 13.23, MVs 13.23/2



1 Push-on connector 0.8 x 2.8 [0.032 x 0.11] tinned    2 Flat pin 0.8 x 2.8 [0.032 x 0.11] tinned  
Color of housing grey (standard)

Voltage	Type / Art. no.	MVs 13.23 (display 3 digits)			MVs 13.23/2 (display 2 digits)		
		24 V	115 V	230 V	24 V	115 V	230 V
DC (25 Hz)		<b>2.300.230.033</b>	–	–	<b>2.310.230.033</b>	–	–
AC (18 Hz)		<b>2.300.230.061</b>	<b>2.300.230.064</b>	<b>2.300.230.066</b>	<b>2.310.230.061</b>	<b>2.310.230.064</b>	<b>2.310.230.066</b>
Color of housing black: Art. no. 2.3X0.231.XXX							

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# Preset counters, electromechanical

Standard counters

Subtracting, 6 digits (AC+DC)

MVs 16



The electromechanical preset counters MVs 16 (with manual and electrical reset) boast a robust construction. They are ideal for use in harsh industrial environments. The subtracting counters are set to a value via the keys on the front, the signal occurs when the count value reaches 0.

## Characteristics

- 6-digit subtracting preset counter.
- Manual and electrical reset.
- Potential free changeover (microswitch) on reaching zero.
- Contact switches for "0" count position and remains unswitched until reset to zero.

## Benefits

- Delivery complete with push-on connectors.
- Versions with transparent cover or sealing cover on request.

## Applications

Piece counting, batch quantities and automation.

## Type series

Description	Type
Front bezel 2 with mounting clip	<b>MVs 16.23</b>

## Accessories

### Socket box, type 926.1

Dimensions in mm [inch]	Order no.
for counters MVs 16 for plug-in connections	<b>G008433</b>

### Mounting frame

Dimensions in mm [inch]	Order no.
for snap-on mounting on 35 [1.38] top-hat DIN rail, for counters 48 x 48 [1.89 x 1.89], 53 x 53 [2.09 x 2.09] and 55 x 55 [2.17 x 2.17]	<b>G300003</b>

Suitable gaskets as well as further accessories can be found in the accessories section or in the accessories area of our website at: [www.kuebler.com/accessories](http://www.kuebler.com/accessories).

## Type / Counting mechanism

Voltage	Type max.	Pulse frequency min.	Pulse on time min.	Pulse interval	Pulse ratio	On-time approx.	Power consump. ripple max.	Permi. residual (non-condensing)	Operating temp.
<b>V DC</b>	1	25 Hz	24 ms	16 ms	3 : 2	100 %	4 W	48 %	-10°C ... +45°C [+14°F ... +113°F]
<b>V AC</b>	a	18 Hz	22.2 ms	33.3 ms	2 : 3	100 %	4.5 VA	–	-10°C ... +45°C [+14°F ... +113°F]

# Preset counters, electromechanical

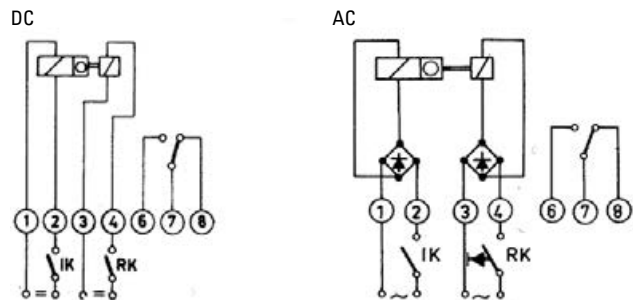
## Standard counters Subtracting, 6 digits (AC+DC) MVs 16

Technical data	
<b>Electrical connection</b>	tinned flat pins 0.8 x 2.8 mm [0.032 x 0.11"] (with push-on connectors) socket box 0.3 x 2.8 mm [0.012 x 0.11"]
<b>Rated voltages</b>	counting mechanism 12 / 24 / 48 / 115 V DC ±10 % 24 / 48 / 115 / 230 V AC ±10 % reset magnet 24 / 48 / 115 V DC ±10 % 24 / 48 / 115 / 230 V AC ±10 %
<b>High of figures</b>	4 mm
<b>Color of housing</b>	similar to RAL 7001
<b>Color of figures</b>	white on black
<b>Counting mechanism shaft</b>	stainless steel
<b>Mounting position</b>	any
<b>Service life</b>	approx. 100 x 10 <sup>6</sup> pulses
<b>Protection</b>	IP40 (front side)
<b>Weight</b>	approx. 170 g [6.00 oz], with electrical reset approx. 210 g [7.41 oz]
<b>EMC standards</b>	EN 55011 class B, EN 61000-6-2, EN 61000-6-3
<b>Device safety</b>	designed to protection class 2 application area pollution level 2
<b>Test voltage</b>	2000 V AC, effective
<b>Switching contact</b>	1 change over contact (micro switch), contact making in 2nd half step at zero
<b>Load (max.)</b> (at resistive load)	AC 250 V AC 2.0 A DC 24 V DC 2.0 A 60 V DC 0.7 A 115 V DC 0.4 A 230 V DC 0.2 A
At inductive load: suitable spark quenching is required on inductive load, reducing the max. current to approx. 60%	

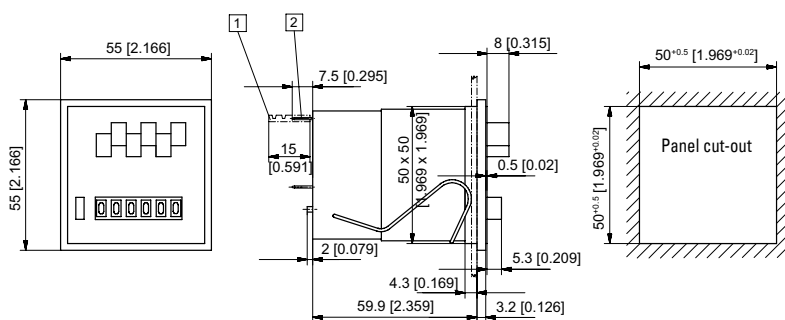
Options	
<b>Electrical reset</b>	on time 20 % max. 1 minute minimum pulse time 0.25 sec. power consumption 10 W at DC, 14 VA at AC

### Connection diagrams

#### Manual and electrical reset



### Front bezel 2 with mounting clips, manual and electrical reset Type MVs 16.23



1 Push-on connector 0.8 x 2.8 tinned [0.032 x 0.11] 2 Flat pin 0.8 x 2.8 [0.032 x 0.11] tinned  
Color of housing grey (standard)


Type	Voltage	Display	Art. no.		
			24 V	115 V	230 V
MVs 16.23	DC (25 Hz)	6-digits	2.320.230.033	—	—
	AC (18 Hz)	6-digits	2.320.230.061	2.320.230.064	2.320.230.066



Multiplier

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# Hour meters / Timers

Hour meters / timers, electronic		Type	Page
<b>LCD hour meters</b>	Max. time range 99999 h 59 min or 99999.99 h (battery)	Codix 134	<b>158</b>
	Max. time range 9999 h 59 min 59 sec or 9999999.9 sec (battery)	Codix 135	<b>161</b>
	Adding counter, 99999.99 h (DC)	Codix 141	<b>164</b>
<b>LCD service timer</b>	Service timer, 99999.99 h (DC)	Codix 143	<b>164</b>
<b>LED timers</b>	h, min, sec or hh.mm.ss (DC)	Codix 523	<b>167</b>
	Multifunctional – pulse, frequency, time (DC)	Codix 524	<b>240</b>
	Universal with dual functions 4 combinations (DC)	Codix 52U	<b>250</b>
	h, min, sec or hh.mm.ss (AC+DC)	Codix 543	<b>170</b>
	Multifunctional – pulse, frequency, time (AC+DC)	Codix 544	<b>244</b>
	Universal with dual functions 4 combinations (AC+DC)	Codix 54U	<b>258</b>
<b>LCD time modules</b>	Max. time range 9999.99 h (DC)	194	<b>173</b>
	Max. time range 99999.9 h (DC)	198	<b>175</b>
Hour meters / timers, electromechanical		Type	Page
<b>Micro timers</b>	High shock resistance (DC)	HK 47	<b>177</b>
	Many different installation options (DC)	HK 07 / AHK 07	<b>179</b>
<b>Timers with DIN dimensions</b>	Small format (AC+DC)	HK 17	<b>182</b>
	DIN counter for panel mount, 48 x 24 mm (AC+DC)	H 37	<b>185</b>
	DIN counter for panel mount, 48 x 48 mm (AC+DC)	H 57	<b>189</b>
<b>Timers for DIN rail mounting</b>	DIN rail housing, 48 x 48 mm (AC+DC)	AH 57	<b>189</b>
	Micro DIN rail housing (AC+DC)	SHK 07.1	<b>192</b>
	DIN rail housing, 2 modules wide (AC+DC)	SH 17	<b>194</b>
<b>Timers, round design</b>	With LED run indicator (AC+DC)	HR 47	<b>196</b>
	High protection rating (AC+DC)	HR 76	<b>198</b>
<b>Standard timers</b>	9999.99 h / 99999.9 h with reset (AC+DC)	HB 26	<b>200</b>
	999999.9 h / 99999.99 h without reset (AC+DC)	HB 27	<b>204</b>
<b>Dual function counters</b>	Pulse + time / 2 x time (AC+DC)	HC 77	<b>208</b>
	Pulse + time for DIN rail (AC+DC)	SHC 77	<b>211</b>
	Energy + time (AC)	HW 66 / HW 66 M	<b>266</b>
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	1 or 2 presets – pulse, time – 5 kHz (AC+DC)	Codix 907 / 908	<b>124</b>
	Multifunctional – pulse, frequency, time – 1 ... 6 presets (AC+DC)	Codix 923 / 924	<b>127</b>
<b>Time preset counters with multicolor or LED look</b>	Multifunctional – pulse, frequency, time – 1 ... 6 presets (AC+DC)	Codix 923 / 924	<b>127</b>
<b>LED time preset counter</b>	Multifunctional – pulse, frequency, time – 65 kHz, 2 presets (AC+DC)	Codix 560	<b>134</b>
<b>LCD touch time preset counter</b>	 Pulse, frequency, time (also reciprocal) – (AC+DC)	571T	<b>247</b>
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# Hour meters / timers, electronic

<b>LCD hour meters</b>	<b>Max. time range 99999 h 59 min or 99999.99 h</b>	<b>Codix 134</b>
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The Codix 134 is a simple battery-powered hour meter for PNP, NPN and high voltage applications. Its 7-digit LCD display with optional backlighting can display various time ranges.



Battery powered	Timer	Input type	Pulse voltage	Pulse voltage	Temperature range	High protection level	DIN front bezel	LCD display	Lockable reset

## Powerful

- High quality LCD display with 8 mm high figures – optional display backlighting.
- Time range hours with minutes or industry minutes  
1 pulse = 36 sec programmable via control input.
- Battery lifetime 8 years.
- High voltage versions for 10 ... 260 V AC/DC voltage pulses, thus to be connected directly via contactors, relays and motors.
- Very high accuracy: 100 ppm.

## Simple

- Screw terminals, RM 5 mm.
- Reset key lockable via the input 'Reset Enable'.
- According to version for PNP, NPN switching level or high voltage version for 10 ... 260 V AC/DC switching voltage.
- Accumulated time is always readable thanks to battery powering.
- High protection level IP65.

## Order code

6.134 . 012 . 8XX  
a b

### a Backlighting

- 5 = without <sup>1)</sup>
- 6 = with

### b Input type: operating hours counting

Input type	INP A		INP B	
0 = adding <sup>1)</sup>	–		0 ... 0.7 V DC	NPN
1 = adding <sup>1)</sup>	–		4 ... 30 V DC	PNP
3 = adding <sup>1)</sup>	10 ... 260 V AC/DC	AC/DC	10 ... 260 V AC/DC	AC/DC

### Delivery specification

- Timer
- Mounting clip
- Front bezel for screw mounting (T008181) 56 x 40 mm [2.20 x 1.57"], panel cut-out 50 x 25 mm [1.97 x 0.98"]
- Front bezel for clip mounting (T008180) 53 x 28 mm [2.09 x 1.10"], panel cut-out 50 x 25 mm [1.97 x 0.98"]
- Gasket
- Instruction manual, multilingual

<sup>1)</sup> Stock types



# Hour meters / timers, electronic

<b>LCD hour meters</b>	<b>Max. time range 99999 h 59 min or 99999.99 h</b>	<b>Codix 134</b>
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Accessories	Dimensions in mm [inch]	Order no.
<b>Adapter front bezel, 72 x 36 [2.83 x 1.42]</b>	for cut-out 68 x 33 [2.68 x 1.30] to cut-out 45 x 22.2 [1.77 x 0.87], for counters 48 x 24 [1.89 x 0.94], as set	black and silver anodised <b>162704 Set</b>
<b>Adapter front bezel, 48 x 48 [1.89 x 1.89]</b>	for cut-out 45 x 45 [1.77 x 1.77] to cut-out 45 x 22.2 [1.77 x 0.87], with clip mounting for counters 48 x 24 [1.89 x 0.94]	black <b>T008883</b>
<b>Adapter front bezel, 60 x 50 [2.36 x 1.97]</b>	for cut-out 54 x 29 [2.13 x 1.14] to cut-out 45 x 22.2 [1.77 x 0.87], with screw mounting and gasket for counters 48 x 24 [1.89 x 0.94]	black <b>N003001</b>
<b>Transparent cover, lockable, IP65</b>	for cut-out 54 x 29 [2.13 x 1.14], for screw mounting to front bezel F1B or adapter front bezel N003001, for counters with cut-out 50 x 25 [1.97 x 0.98] or 45 x 22.2 [1.77 x 0.87]	<b>N003002</b>
<b>Sealing cover type K1, IP65</b>	suitable for front bezel 60 x 50 [2.36 x 1.97], for screw mounting of electromech. counters and via adapter front bezel N003001 for counters 48 x 24 [1.89 x 0.94]	<b>G008301</b>
<b>Mounting frame</b> with cut-out 50 x 25 [2.36 x 1.97] via separate adapter also for 45 x 22.2 [1.77 x 0.87]	for snap-on mounting on 35 [1.38] top-hat DIN rail, for counters 53 x 28 [2.09 x 1.10] and via separate adapter (T008180) for counters 48 x 24 [1.89 x 0.94]	chromated <b>G300004</b>

Suitable gaskets, other accessories and installation examples for optional accessories can be found in chapter accessories or in the accessories section under: [www.kuebler.com/accessories](http://www.kuebler.com/accessories).

## Technical data

General technical data	
<b>Display</b>	LCD, 7 digits, 8 mm [0.31"] high
<b>Backlighting</b>	external electrical source 24 V DC $\pm 20\%$ , 50 mA
<b>Modes</b>	adding
<b>Display range</b>	see next page
<b>Reset</b>	manual and electrical
<b>Working temperature</b>	-10°C ... +55°C [+14°F ... +131°F] (non-condensing)
<b>Operating temperature</b>	-10°C ... +60°C [+14°F ... +140°F] (non-condensing)
<b>Storage temperature</b>	-20°C ... +70°C [-4°F ... +158°F]
<b>Altitude</b>	up to 2000 m [6562']

Electrical characteristics	
<b>Power supply</b>	internal lithium battery approx. 8 years at 20°C [68°F]
<b>EMC standards</b>	EN 55011 class B EN 61000-6-2, EN 61000-6-3
<b>Device safety</b>	designed to protection class application area EN 61010 part 1 2 pollution level 2
<b>UL approval</b>	file E128604
<b>Measuring error</b>	per Start/Stop cycle a maximum error in the order of the smallest measuring time selected can occur

Mechanical characteristics	
<b>Housing</b>	dark grey RAL 7021
<b>Protection</b>	IP65 (front side)
<b>Weight</b>	approx. 50 g [1.76 oz]

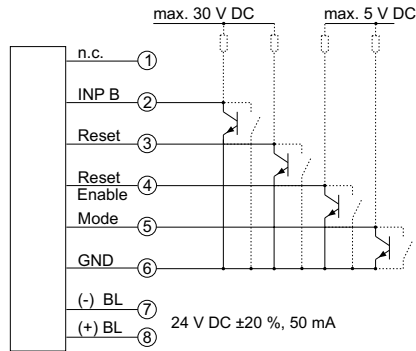
Count input	
<b>A. Timer inputs DC versions (max. 30 V DC) INP B</b>	
Timer input	NPN or PNP depending on the type (see table)
Switching level	NPN LOW: 0 ... 0.7 V DC HIGH: 3 ... 30 V DC PNP LOW: 0 ... 0.7 V DC HIGH: 4 ... 30 V DC
Counting start	NPN for LOW signal at the timer input PNP for HIGH signal at the timer input
<b>B. Timer inputs high voltage versions (10 ... 260 V DC/V AC) INP A</b>	
Timer input	optocoupler input
Min. pulse time	16 ms
Switching level	LOW: 0 ... 2 V DC/V AC HIGH: 10 ... 260 V DC/V AC
Counting start	for HIGH signal at the timer input
<b>C. Time range change (Mode)</b>	
Contact input	open collector (switching at 0 V) NPN LOW 0 ... 0.7 V DC HIGH 3 ... 5 V DC
Time range	depending on the circuit (s. order inform.)
<b>D. Reset input for DC (reset) and High voltage (INPB)</b>	
Min. pulse time	DC 50 ms High voltage 16 ms
Contact input DC	NPN LOW 0 ... 0.7 V DC HIGH 3 ... 30 V DC
High voltage input	10 ... 260 V AC/DC
<b>E. Reset locking input (for DC and AC)</b>	
Electrical reset key locking	
Input not active	reset key locked
Contact input	open collector NPN (switching at 0 V)
Switching level	NPN LOW 0 ... 0.7 V DC HIGH 3 ... 5 V DC

# Hour meters / timers, electronic

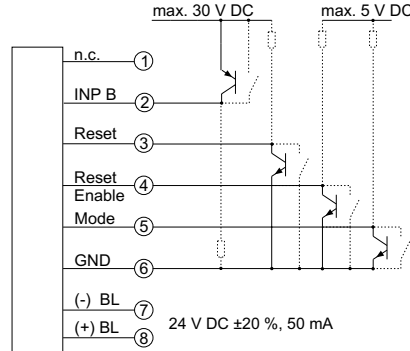
<b>LCD hour meters</b>	<b>Max. time range 99999 h 59 min or 99999.99 h</b>	<b>Codix 134</b>
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## Terminal assignment

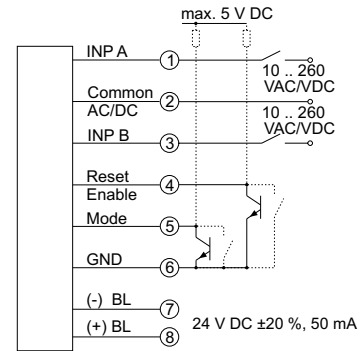
DC type: 6.134.012.8x0



DC type: 6.134.012.8x1



AC type: 6.134.012.8x3



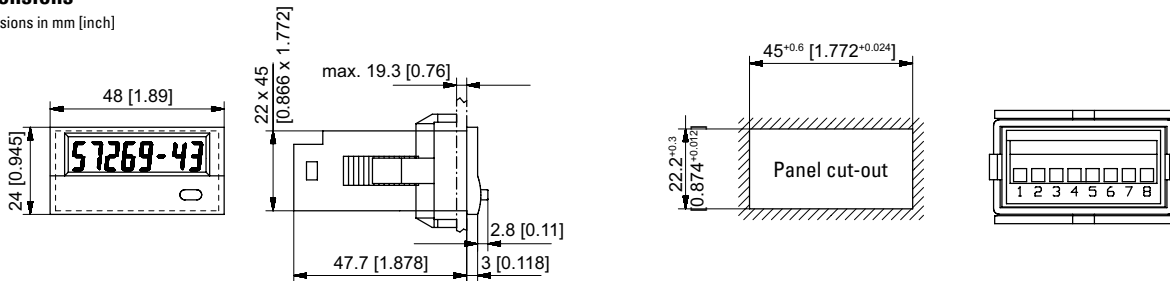
BL = backlighting

## Display and time ranges

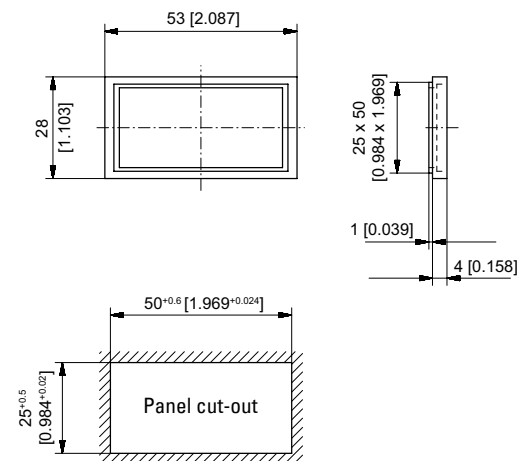
time range	display
99999 h 59 m	99999 - 59
99999.99 h	99999 - 99

## Dimensions

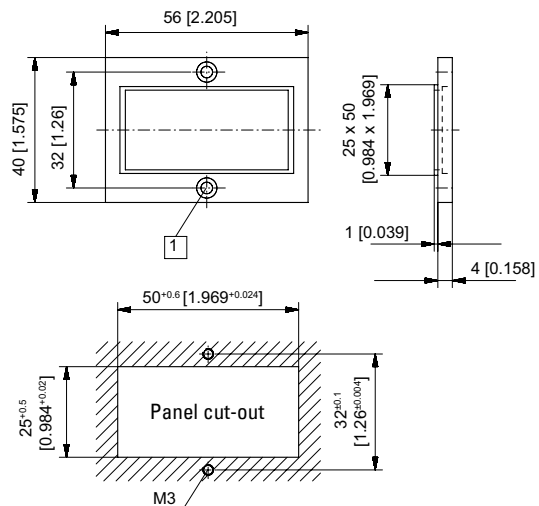
Dimensions in mm [inch]



## Front bezel for clip mounting (included in delivery)



## Front bezel for screw mounting (included in delivery)



1 Countersinking Af3, DIN 74

# Hour meters / timers, electronic

<b>LCD hour meters</b>	<b>Max. time range 9999 h 59 min 59 sec or 9999999.9 sec</b>	<b>Codix 135</b>
------------------------	--	------------------



The Codix 135 is a simple battery-powered hour meter for PNP, NPN and high-voltage applications.

Its 8-digit LCD display with optional backlighting can display various time ranges.



Product overview  
Basics  
Pulse counters  
Preset counters  
Hour meters  
Timers  
Frequency displays  
Tachometers  
Position displays  
Multifunction devices  
Energy meters  
Process devices  
Temperature devices  
Strain-gauge controllers  
Accessories  
Index

Battery powered	Timer	Input type	Pulse voltage 4 ... 30 V	AC 10 ... 260 V	Temperature range - 10° + 60°	High protection level IP65	DIN front bezel DIN 48 x 24	LCD display 8 LCDs	Lockable reset

### Powerful

- High quality LCD display with 8 mm high figures - optional display backlighting.
- Time range up to 9999999.9 seconds or 9999h99m99s programmable via control input.
- Battery lifetime 8 years.
- High voltage versions for 10 ... 260 V AC/DC voltage pulses, thus to be connected directly via contactors, relays and motors.
- Very high accuracy: 100 ppm.

### Simple

- Screw terminals, RM 5 mm.
- Reset key lockable via the input 'Reset Enable'.
- According to version for PNP, NPN switching level or high voltage version for 10 ... 260 V AC/DC switching voltage.
- Accumulated time is always readable thanks to battery powering.
- High protection level IP65.

**Order code** 6.135 . 012 . 8XX

a b

**a** Backlighting

- 5 = without <sup>1)</sup>
- 6 = with

**b** Input type: measurement of short times

Input type	INP A		INP B	
0 = adding <sup>1)</sup>	-		0 ... 0.7 V DC	NPN
1 = adding <sup>1)</sup>	-		4 ... 30 V DC	PNP
3 = adding <sup>1)</sup>	10 ... 260 V AC/DC	AC/DC	10 ... 260 V AC/DC	AC/DC

*Delivery specification*

- Timer
- Mounting clip
- Front bezel for screw mounting (T008181) 56 x 40 mm [2.20 x 1.57"], panel cut-out 50 x 25 mm [1.97 x 0.98"]
- Front bezel for clip mounting (T008180) 53 x 28 mm [2.09 x 1.10"], panel cut-out 50 x 25 mm [1.97 x 0.98"]
- Gasket
- Instruction manual, multilingual

1) Stock types

# Hour meters / timers, electronic

LCD hour meters		Max. time range 9999 h 59 min 59 sec or 9999999.9 sec	Codix 135
Accessories	Dimensions in mm [inch]		Order no.
<b>Adapter front bezel, 72 x 36 [2.83 x 1.42]</b>	For cut-out 68 x 33 [2.68 x 1.30] to cut-out 45 x 22.2 [1.77 x 0.87], for counters 48 x 24 [1.89 x 0.94], as set black and silver anodised		<b>162704 Set</b>
<b>Adapter front bezel, 48 x 48 [1.89 x 1.89]</b>	For cut-out 45 x 45 [1.77 x 1.77] to cut-out 45 x 22.2 [1.77 x 0.87], with clip mounting for counters 48 x 24 [1.89 x 0.94] black		<b>T008883</b>
<b>Adapter front bezel, 60 x 50 [2.36 x 1.97]</b>	For cut-out 54 x 29 [2.13 x 1.14] to cut-out 45 x 22.2 [1.77 x 0.87], with screw mounting and gasket for counters 48 x 24 [1.89 x 0.94] black		<b>N003001</b>
<b>Transparent cover, lockable, IP65</b>	For cut-out 54 x 29 [2.13 x 1.14], for screw mounting to front bezel F1B or adapter front bezel N003001, for counters with cut-out 50 x 25 [1.97 x 0.98] or 45 x 22.2 [1.77 x 0.87]		<b>N003002</b>
<b>Sealing cover type K1, IP65</b>	Suitable for front bezel 60 x 50 [2.36 x 1.97], for screw mounting of electromech. counters and via adapter front bezel N003001 for counters 48 x 24 [1.89 x 0.94]		<b>G008301</b>
<b>Mounting frame</b> with cut-out 50 x 25 [2.36 x 1.97] via separate adapter also for 45 x 22.2 [1.77 x 0.87]	For snap-on mounting on 35 [1.38] top-hat DIN rail, for counters 53 x 28 [2.09 x 1.10] and via separate adapter (T008180) for counters 48 x 24 [1.89 x 0.94] chromated		<b>G300004</b>

Suitable gaskets, other accessories and installation examples for optional accessories can be found in chapter accessories or in the accessories section under: [www.kuebler.com/accessories](http://www.kuebler.com/accessories).

## Technical data

General technical data	
<b>Display</b>	LCD, 8-digits, 8 mm [0.31"] high
<b>Backlighting</b>	external electrical source 24 V DC $\pm 20\%$ , 50 mA
<b>Counting direction</b>	adding
<b>Display range</b>	see next page
<b>Reset</b>	manual and electrical
<b>Working temperature</b>	-10°C ... +55°C [+14°F ... +131°F] (non-condensing)
<b>Operating temperature</b>	-10°C ... +60°C [+14°F ... +140°F] (non-condensing)
<b>Storage temperature</b>	-20°C ... +70°C [-4°F ... +158°F]
<b>Altitude</b>	up to 2000 m

Electrical characteristics	
<b>Power supply</b>	internal lithium battery approx. 8 years at 20°C [68°F]
<b>EMC standards</b>	EN 55011 class B EN 61000-6-2, EN 61000-6-3
<b>Device safety</b>	Designed to EN 61010 part 1 Protection class 2 Application area pollution level 2
<b>UL approval</b>	file E128604

Mechanical characteristics	
<b>Housing</b>	dark grey RAL 7021
<b>Protection</b>	IP65 (front side)
<b>Weight</b>	approx. 50 g [1.76 oz]

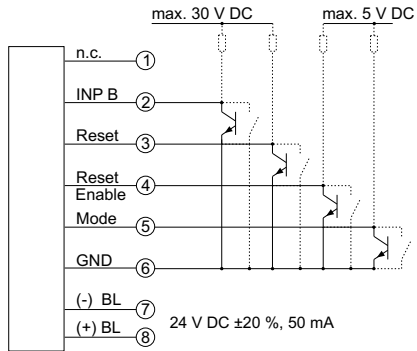
Count input	
<b>A. Timer inputs DC versions</b> (max. 30 V DC) INP B	
Timer input	NPN or PNP depending on the type (see table)
Switching level	NPN LOW: 0 ... 0.7 V DC HIGH: 3 ... 30 V DC PNP LOW: 0 ... 0.7 V DC HIGH: 4 ... 30 V DC
Counting start	NPN for LOW signal at the timer input PNP for HIGH signal at the timer input
<b>B. Timer inputs high voltage versions</b> (10 ... 260 V DC/V AC) INP A	
Timer input	optocoupler input
Min. pulse time	16 ms
Switching level	LOW: 0 ... 2 V DC/V AC HIGH: 10 ... 260 V DC/V AC
Counting start	for HIGH signal at the timer input
<b>C. Time range change (Mode)</b>	
Contact input	NPN open collector (switching at 0 V) LOW 0 ... 0.7 V DC HIGH 3 ... 5 V DC
Time range	depending on the circuit (s. order inform.)
<b>D. Reset input</b> for DC and high voltage	
Min. pulse time	DC 50 ms High voltage 16 ms
Contact input DC	NPN LOW 0 ... 0.7 V DC HIGH 3 ... 30 V DC
High voltage input	10 ... 260 V AC/DC
<b>E. Reset locking input</b> (for DC and AC)	
Electrical reset key locking	Input not active
Contact input	reset key locked open collector NPN (switching at 0 V)
Switching level	NPN LOW 0 ... 0.7 V DC HIGH 3 ... 5 V DC

# Hour meters / timers, electronic

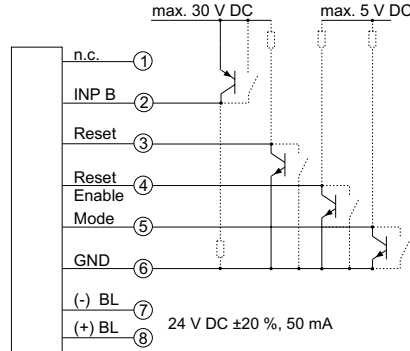
<b>LCD hour meters</b>	<b>Max. time range 9999 h 59 min 59 sec or 9999999.9 sec</b>	<b>Codix 135</b>
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## Terminal assignment

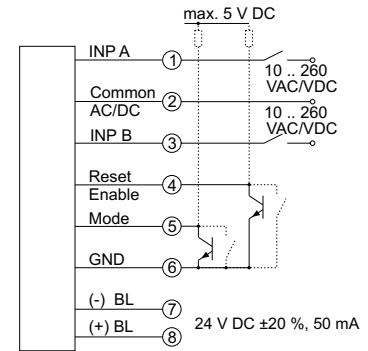
DC type: 6.135.012.8x0



DC type: 6.135.012.8x1



AC type: 6.135.012.8x3



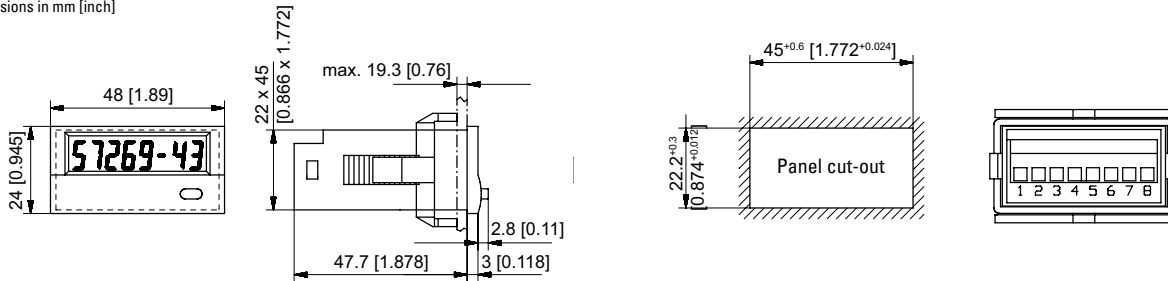
BL = backlighting

## Display and time ranges

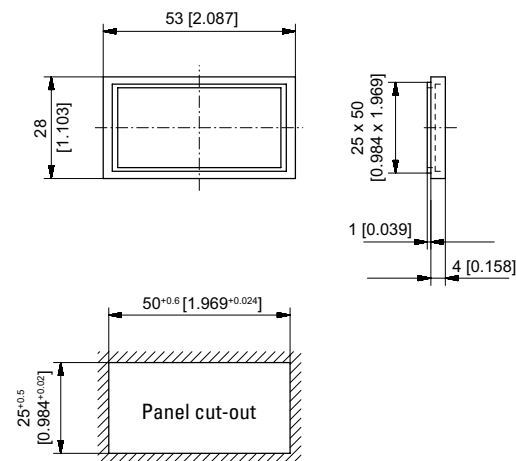
time range	display
9999h 59m 59s	
9999999.9 s	

## Dimensions

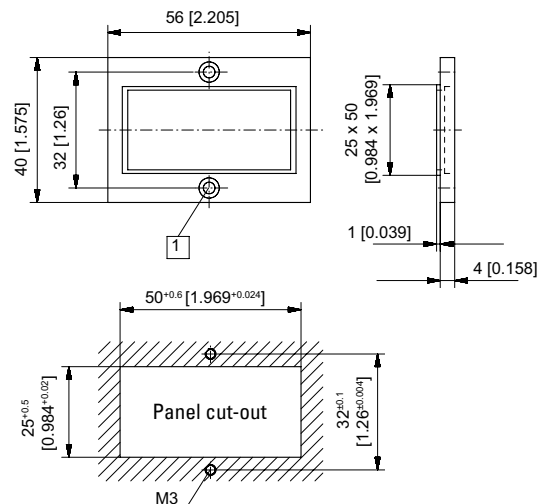
Dimensions in mm [inch]



## Front bezel for clip mounting (included in delivery)



## Front bezel for screw mounting (included in delivery)



1 Countersinking Af3, DIN 74

Product overview  
Basics  
Pulse counters  
Preset counters  
Hour meters  
Timers  
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Tachometers  
Position displays  
Multifunction devices  
Energy meters  
Process devices  
Temperature devices  
Strain-gauge controllers  
Accessories  
Index



# Hour meters / timers, electronic

LCD hour meters		Adding counter / service timer, 99999.99 h (DC)		Codix 141 / 143
Accessories	Dimensions in mm [inch]		Order no.	
<b>Adapter front bezel, 53 x 28 [2.09 x 1.10]</b>	For cut-out 50 x 25 [1.97 x 0.98] to cut-out 45 x 22.2 [1.77 x 0.87], with clip mounting for counters 48 x 24 [1.89 x 0.94]		anthracite	<b>T008180</b>
<b>Adapter front bezel, 56 x 40 [2.20 x 1.57]</b>	For cut-out 50 x 25 [1.97 x 0.98] to cut-out 45 x 22.2 [1.77 x 0.87], with screw mounting for counters 48 x 24 [1.89 x 0.94]		anthracite	<b>T008181</b>
<b>Adapter front bezel, 72 x 36 [2.83 x 1.42]</b>	For cut-out 68 x 33 [2.68 x 1.30] to cut-out 45 x 22.2 [1.77 x 0.87], for counters 48 x 24 [1.89 x 0.94], as set		black and silver anodised	<b>162704 Set</b>
<b>Adapter front bezel, 48 x 48 [1.89 x 1.89]</b>	For cut-out 45 x 45 [1.77 x 1.77] to cut-out 45 x 22.2 [1.77 x 0.87], with clip mounting for counters 48 x 24 [1.89 x 0.94]		black	<b>T008883</b>
<b>Adapter front bezel, 60 x 50 [2.36 x 1.97]</b>	For cut-out 54 x 29 [2.13 x 1.14] to cut-out 45 x 22.2 [1.77 x 0.87], with screw mounting and gasket for counters 48 x 24 [1.89 x 0.94]		black	<b>N003001</b>
<b>Transparent cover, lockable, IP65</b>	For cut-out 54 x 29 [2.13 x 1.14], for screw mounting to front bezel F1B or adapter front bezel N003001, for counters with cut-out 50 x 25 [1.97 x 0.98] or 45 x 22.2 [1.77 x 0.87]			<b>N003002</b>
<b>Sealing cover type K1, IP65</b>	Suitable for front bezel 60 x 50 [2.36 x 1.97], for screw mounting of electromech. counters and via adapter front bezel N003001 for counters 48 x 24 [1.89 x 0.94]			<b>G008301</b>
<b>Mounting frame</b> with cut-out 50 x 25 [2.36 x 1.97] via separate adapter also for 45 x 22.2 [1.77 x 0.87]	For snap-on mounting on 35 [1.38] top-hat DIN rail, for counters 53 x 28 [2.09 x 1.10] and via separate adapter (T008180) for counters 48 x 24 [1.89 x 0.94]		chromated	<b>G300004</b>

Suitable gaskets, other accessories and installation examples for optional accessories can be found in chapter accessories or in the accessories section under: [www.kuebler.com/accessories](http://www.kuebler.com/accessories).

Technical data	
<b>General technical data</b>	
<b>Display</b>	LCD, 7 digits, 8 mm [0.31"] high
<b>Undervoltage</b>	display for $U_B < 8$ V: PO-FAIL and data backup
<b>Counting range</b>	0 ... 99999.99 h decimal point 0.00
<b>Data backup</b>	EEPROM
<b>Operating temperature</b>	-20°C ... +65°C [-4°F ... +149°F] (non-condensing)
<b>Storage temperature</b>	-25°C ... +75°C [-13°F ... +167°F]
<b>Mechanical characteristics</b>	
<b>Housing</b>	front panel mount, DIN 43700 48 x 24 mm [1.89 x 0.94"] dark grey Ral 7021
<b>Connections</b>	8-pole screw terminals, pitch 5.08 mm [2.00"]
<b>Cleaning</b>	the front side should be cleaned using only a soft cloth moistened with water
<b>Weight</b>	40 g [1.41 oz]
<b>Protection</b>	IP65 (front side) IP20 (rear side)
<b>Vibration resistance</b> acc. to EN 60068-2-6	10 ... 55 Hz / 1 mm [0.04"] / 30 min
<b>Shock resistance</b> acc. to EN 60068-2-27	100 G: 2 ms 10 G: 6 ms
<b>Electrical characteristics</b>	
<b>Power supply</b>	10 ... 30 V DC, max. 25 mA
<b>Start delay</b>	500 ms
<b>EMC standards</b>	EN 55011 class B, EN 61000-6-2, EN 61000-6-3 EN 61326-1
<b>Inputs</b>	
<b>Input A</b>	static PNP input
<b>Input B</b>	static NPN input
<b>Reset key enable input</b>	static NPN input
<b>Reset</b>	edge-triggered NPN input (min. 20 ms)
<b>Input resistance</b>	10 kOhm
<b>Switching level</b>	LOW 0 ... 2 V DC HIGH 3.5 ... 30 V DC
<b>Switching threshold</b>	approx. 2.7 V DC
<b>Additional data for Codix 143 (service timer)</b>	
<b>Output</b>	NPN transistor output, open collector
<b>Output voltage</b>	max. 30 V DC
<b>Output current</b>	max. 50 mA

# Hour meters / timers, electronic

## LCD hour meters      Adding counter / service timer, 99999.99 h (DC)      Codix 141 / 143

### Display and inquiry mode service timer

If the reset key is not released by means of the activation input of pin 6, pressing the key makes the following functions available to the user.

Press 1x: The text "SErVICE" is displayed

Press 2x: The following service value is displayed

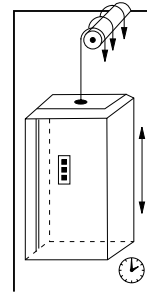
Press 3x: The text „PRESErV" is displayed

Press 4x: The following preservice value is displayed

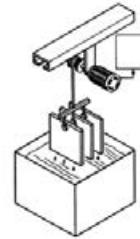
Press 5x: The current value is displayed

For the service timers, the values counted remain stored, the service values are incremented by the stored preset value when resetting. E.g. service value 5000.00 h, counter count when resetting 5100.00 h, new service value 10100.00 h.

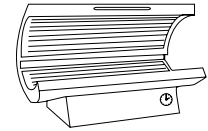
### Applications



Operating time and service interval



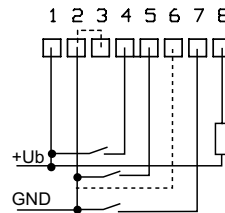
Total time and service interval



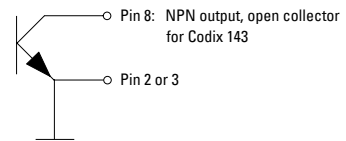
Service interval and total time of the UV lamps

### Terminal assignment

PIN	Description	Standard timer	Service timer
Power supply			
1	+U <sub>B</sub>	10 ... 30 V DC	10 ... 30 V DC
2	0 V DC, GND	GND	GND
Inputs			
3	0 V DC, GND	GND	GND
4	Fast counting input	INP PNP	INP PNP
5	Slow counting input	INP NPN	INP NPN
6	Reset enable input	RESET MANUAL ENABLE	RESET MANUAL ENABLE
7	Reset input	RESET	RESET
Output			
8	NPN output	n.c.	OUT

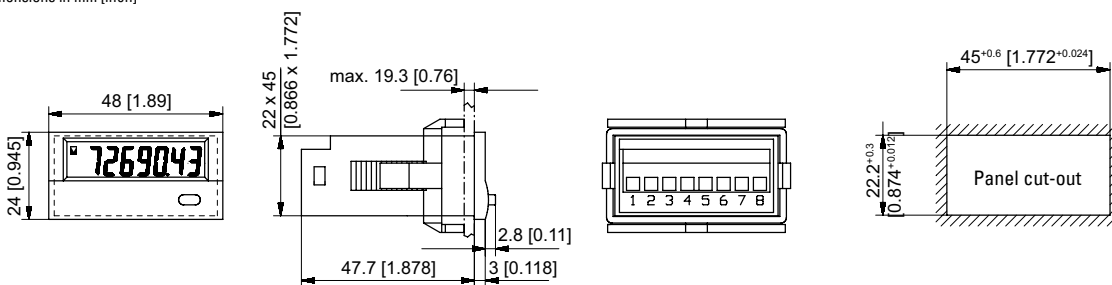


Output 8 is only used with Codix 143 as a NPN output



### Dimensions

Dimensions in mm [inch]



Product overview  
Basics

Pulse counters

Preset counters

Hour meters  
Timers

Frequency displays  
Tachometers

Position displays

Multifunction  
devices

Energy meters

Process devices

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devices

Strain-gauge  
controllers

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<b>LED timers</b>	<b>h, min, sec or hh.mm.ss (DC)</b>	<b>Codix 523</b>
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The Codix 523 is an externally powered timer, hour meter or short-time meter with 4 start input types and individually adjustable time base.

The 6-digit LED display shows the NPN, PNP input signals used for pulse width or time interval measurement.



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<b>DC</b> 10 ... 30 V Power supply	<b>000000</b> DIN 48 x 24 DIN front bezel	<b>-20° + 65°</b> Temperature range	<b>IP65</b> High protection level	<b>Prog</b> Menu-driven programming	<b>Timer</b>	<b>≥ 1 ms</b> Resolution
--	---	--	--------------------------------------	--	--------------	-----------------------------

### Powerful

- High accuracy thanks to quartz time base.
- Robust housing – IP65 protected.
- Very bright LED display, 8 mm high.
- Time base can be set individually
  - hours, minutes or seconds, the decimal point allows setting it even more accurately, up to max. 3 decimal places.
  - smallest achievable resolution: milliseconds.
  - time base hours (minutes and seconds as real-time display).
- Short start-up time – detects incoming pulses already 16 ms after having been switched on => no loss of pulses in case of a simultaneous motor start.
- Individually adjustable Start/Stop function  
2 Start/Stop inputs allow achieving 4 different measuring principles such as, for example, active or passive pulse width measurement, time interval measurement with one single input or with separate inputs.

### User-friendly and universal

- Large keys – pressing either of the keys switches between displays (can also be operated wearing gloves).
- Programming
  - simple uniform menu-driven programming and operation.
  - possibility to enter the programming mode also during operation with an authentication query.
- Manual or electrical reset  
Tamper-proof thanks to lockable reset function.
- Freely programmable setpoint  
Start time at which time counting begins.
- As an alternative to the HTL inputs, devices with a 4 ... 30 V DC input level are available, for use as parallel displays for PLCs.
- Optional output: 1 Hz clock pulse in case of active time measurement.

### Order code

6.523 . 01 X . 3 X 0

- |                             |                                  |
|-----------------------------|----------------------------------|
| <b>a</b> Output             | <b>b</b> Input switch level      |
| 1 = Optocoupler             | 0 = Standard (HTL) <sup>1)</sup> |
| 2 = No output <sup>1)</sup> | A = 4 ... 30 V DC                |

#### Delivery specification

- Timer
- Mounting clip
- Gasket
- Instruction manual, multilingual
- Front bezel for screw mounting (T008181) 56 x 40 mm [2.20 x 1.57"], panel cut-out 50 x 25 mm [1.97 x 0.98"]
- Front bezel for clip mounting (T008180) 53 x 28 mm [2.09 x 1.10"], panel cut-out 50 x 25 mm [1.97 x 0.98"]

1) Stock types

# Hour meters / timers, electronic

LED timers	h, min, sec or hh.mm.ss (DC)	Codix 523
Accessories	Dimensions in mm [inch]	Order no.
<b>Adapter front bezel, 72 x 36 [2.83 x 1.42]</b>	For cut-out 68 x 33 [2.68 x 1.30] to cut-out 45 x 22.2 [1.77 x 0.87], for counters 48 x 24 [1.89 x 0.94], as set black and silver anodised	<b>162704 Set</b>
<b>Adapter front bezel, 48 x 48 [1.89 x 1.89]</b>	For cut-out 45 x 45 [1.77 x 1.77] to cut-out 45 x 22.2 [1.77 x 0.87], with clip mounting for counters 48 x 24 [1.89 x 0.94]	black <b>T008883</b>
<b>Adapter front bezel, 60 x 50 [2.36 x 1.97]</b>	For cut-out 54 x 29 [2.13 x 1.14] to cut-out 45 x 22.2 [1.77 x 0.87], with screw mounting and gasket for counters 48 x 24 [1.89 x 0.94]	black <b>N003001</b>
<b>Transparent cover, lockable, IP65</b>	For cut-out 54 x 29 [2.13 x 1.14], for screw mounting to front bezel F1B or adapter front bezel N003001, for counters with cut-out 50 x 25 [1.97 x 0.98] or 45 x 22.2 [1.77 x 0.87]	<b>N003002</b>
<b>Sealing cover type K1, IP65</b>	Suitable for front bezel 60 x 50 [2.36 x 1.97], for screw mounting of electromech. counters and via adapter front bezel N003001 for counters 48 x 24 [1.89 x 0.94]	<b>G008301</b>
<b>Mounting frame</b> with cut-out 50 x 25 [2.36 x 1.97] via separate adapter also for 45 x 22.2 [1.77 x 0.87]	For snap-on mounting on 35 [1.38] top-hat DIN rail, for counters 53 x 28 [2.09 x 1.10] and via separate adapter (T008180) for counters 48 x 24 [1.89 x 0.94]	chromated <b>G300004</b>

Suitable gaskets, other accessories and installation examples for optional accessories can be found in chapter accessories or in the accessories section under: [www.kuebler.com/accessories](http://www.kuebler.com/accessories).

## Technical data

General technical data	
<b>Display</b>	6 digits, red 7 segment LED display; 8 mm [0.31"] high
<b>Data backup</b>	EEPROM
<b>Operating temperature</b>	10 ... 26 V DC -20°C ... +65°C [-4°F ... +149°F] > 26 ... 30 V DC -20°C ... +55°C [-4°F ... +131°F] (non-condensing)
<b>Storage temperature</b>	-25°C ... +70°C [-13°F ... +158°F]

Mechanical characteristics	
<b>Housing</b>	front panel mount 48 x 24 mm [1.89 x 0.94"] acc. to DIN 43700; RAL 7021, dark grey
<b>Protection</b>	IP65 (front side)
<b>Weight</b>	approx. 50 g [1.76 oz]
<b>Vibration resistance</b> acc. to EN 60068-2-6	10 ... 55 Hz / 1 mm [0.04"] / 30 min
<b>Shock resistance</b> acc. to EN 60068-2-27	100 G: 2 ms 10 G: 6 ms

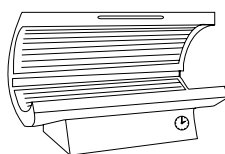
Outputs (optional)	
<b>Output power optocoupler</b>	max. 30 V, 10 mA

Electrical characteristics	
<b>Power supply</b>	10...30 V DC, with integrated reverse polarity protection
<b>Current consumption</b>	max. 55 mA
<b>EMC standards</b>	EN 55011 class B, EN 61000-6-2, EN 61000-6-3 EN 61326-1
<b>UL-Zulassung</b>	File E128604

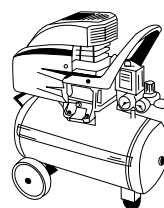
Inputs	
<b>Polarity of inputs</b>	programmable, NPN or PNP for all inputs
<b>Input resistance</b>	approx. 5 kΩ
<b>Resolution</b>	up to 0.001 s
<b>Minimum pulse duration of the reset input</b>	5 ms
<b>Input switching level standard version (HTL)</b>	LOW 0 ... 0.2 x U <sub>B</sub> [V DC] HIGH 0.6 x U <sub>B</sub> ... 30 V DC
<b>Input switching level at 4 ... 30 V DC</b>	LOW 0 ... 2 V DC HIGH 4 ... 30 V DC
<b>Accuracy</b>	< 50 ppm

## Applications for time and hour meters, short-time meters

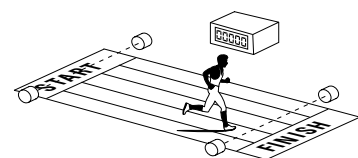
- Time measurements such as hours run recording on all machines and plant, e.g. compressors, solariums, special lights and lamps
- Accessories, OEM equipment or retrofitting to production machine
- Measurement of short times on processes and procedures, time recording (stopwatch function) at sporting events
- Hours run recording for motor vehicles and time monitoring for rally vehicles



Hours run of UV lamps



Operating hours

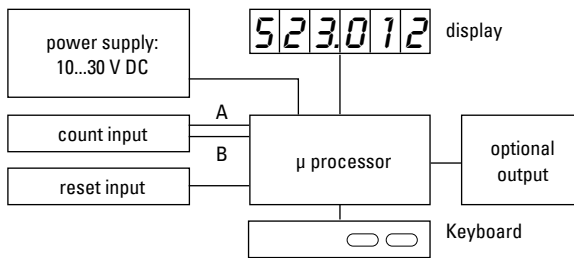


Short time measurement > 1 ms

# Hour meters / timers, electronic

<b>LED timers</b>	<b>h, min, sec or hh.mm.ss (DC)</b>	<b>Codix 523</b>
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## Block diagram

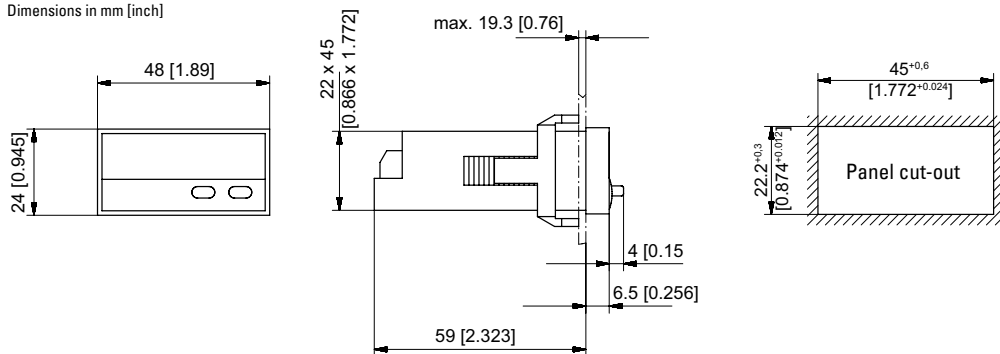


## Terminal assignment

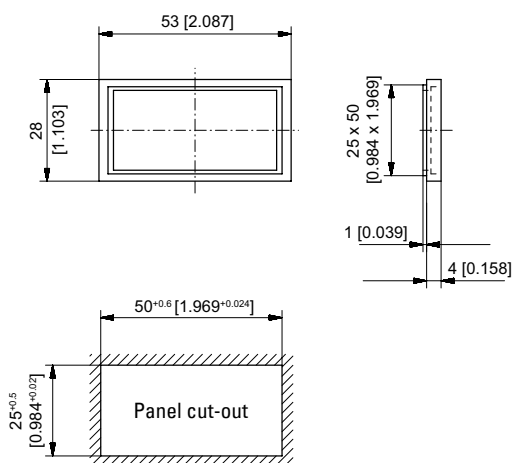
without optocoupler		with optocoupler (NPN)	
1	10 ... 30 V DC	1	10 ... 30 V DC
2	0 V GND	2	0 V GND
3	INP A	3	INP A
4	INP B	4	INP B
5	reset	5	reset
		6	emitter
		7	collector

## Dimensions

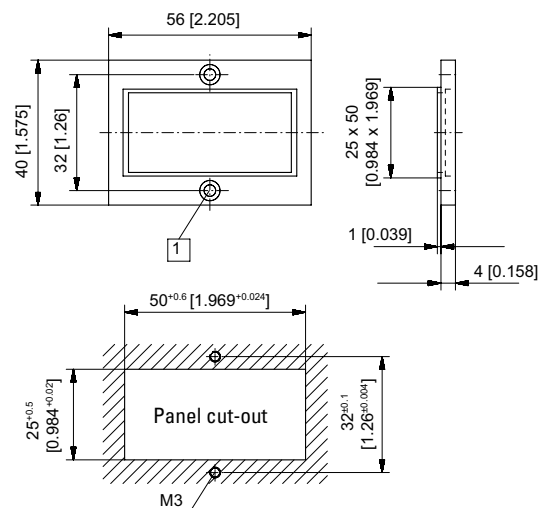
Dimensions in mm [inch]



## Front bezel for clip mounting (included in delivery)



## Front bezel for screw mounting (included in delivery)



1 Countersinking Af3, DIN 74

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Accessories Index

<b>LED timers</b>	<b>h, min, sec or hh.mm.ss (AC+DC)</b>	<b>Codix 543</b>
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The Codix 543 is an externally powered timer, hour meter or short-time meter with 4 start input types and individually adjustable time base.

The 6-digit LED display shows the NPN, PNP input signals used for pulse width or time interval measurement.



<b>DC</b> 10 ... 30V	<b>AC</b> 100 ... 240V	 DIN 96 x 48	 -20° + 65°	 IP65	 Plug-in screw terminal	 Menu-driven programming	 Timer	 ≥ 1 ms
Power supply		DIN front bezel	Temperature range	High protection level		Menu-driven programming		Resolution

### Powerful

- High accuracy thanks to quartz time base.
- Robust housing – IP65 protection.
- Very bright LED display 14 mm high.
- Time base can be set individually
  - hours, minutes or seconds, the decimal point allows setting it even more accurately, up to max. 3 decimal places.
  - smallest achievable resolution: milliseconds.
  - time base hours (minutes and seconds as real-time display).
- Short start-up time – detects incoming pulses already 16 ms after having been switched on => no loss of pulses in case of a simultaneous motor start.
- Individually adjustable Start/Stop function
  - 2 Start/Stop inputs allow achieving 4 different measuring principles such as, for example, active or passive pulse width measurement, time interval measurement with one single input or with separate inputs.

### User-friendly and universal

- Large keys – pressing either of the keys switches between displays (utilisables même avec des gants).
- Programming
  - Simple and unified programming and operation thanks to menu-driven programming.
  - possibility to enter the programming mode also during operation with an authentication query.
- Manual or electrical reset
  - Tamper-proof thanks to lockable reset function.
- Freely programmable setpoint
  - Start time at which time counting begins.
- AC or DC power supply with sensor power supply.
- As an alternative to the HTL inputs, devices with a 5 V DC input level are available, for use as parallel displays for PLCs.
- Optional output: 1 Hz clock pulse in case of active time measurement.

### Order code

**6.543 . 01 X . XX 0**

a    b    c

**a** Output

- 1 = Optocoupler
- 2 = No output <sup>1)</sup>

**b** Power supply

- 0 = 100 ... 240 V AC, ±10 % <sup>1)</sup>
- 3 = 10 ... 30 V DC <sup>1)</sup>

**c** Input switch level

- 0 = Standard (HTL) <sup>1)</sup>
- A = 4 ... 30 V DC

Delivery specification

- Digital display
- Mounting clip
- Gasket
- 2 screw terminals
- Instruction manual, multilingual

Replacement parts

- 7 pin screw terminal RM 3.81 1 ... 7: N100387
- 2 pin screw terminal RM 5.08 1 ... 2: N100133

Accessories	Dimensions in mm [inch]	Order no.
<b>Mounting frame</b> with cut-out 92 x 45 [3.62 x 1.77]	for snap-on mounting on 35 [1.38] top-hat DIN rail, for counters 96 x 48 [3.74 x 1.89]	grey <b>G300005</b>

Suitable gaskets as well as further accessories can be found in the accessories section or in the accessories area of our website at: [www.kuebler.com/accessories](http://www.kuebler.com/accessories).

1) Stock types

# Hour meters / timers, electronic

<b>LED timers</b>	<b>h, min, sec or hh.mm.ss (AC+DC)</b>	<b>Codix 543</b>
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## Technical data

General technical data	
<b>Display</b>	6 digit, red 7 segment LED display; 14 mm [0.55"] high
<b>Data backup</b>	EEPROM
<b>Operating temperature</b>	-20°C ... +60°C [-4°F ... +140°F] (non-condensing)
<b>Storage temperature</b>	-20°C ... +70°C [-4°F ... +158°F]
<b>Altitude</b>	up to 2000 m [6562']

Electrical characteristics	
<b>Power supply</b>	10 ... 30 VDC, with reverse polarity protection 100 ... 240 V AC, ±10 %
<b>Current consumption</b>	max. 50 mA, 6 VA
<b>EMC standards</b>	EN 55011 class B, EN 61000-6-2, EN 61000-6-3
<b>Device safety</b>	designed to protection class 2 application area EN 61010 part 1 pollution level 2

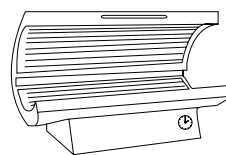
Mechanical characteristics	
<b>Housing</b>	front panel mount 96 x 48 mm [3.74 x 1.89"] acc. to DIN 43700; RAL 7021, dark grey
<b>Protection</b>	IP65 (front side)
<b>Weight</b>	approx. 150 g [5.29 oz]

Inputs	
<b>Polarity of inputs</b>	programmable, NPN or PNP for all inputs
<b>Input resistance</b>	approx. 5 kΩ
<b>Resolution</b>	up to 0.001 s
<b>Minimum pulse duration of the reset input</b>	5 ms
<b>Input switching level standard version (HTL)</b>	
DC power supply	LOW 0 ... 0.2 x U <sub>B</sub> [V DC] HIGH 0.6 x U <sub>B</sub> ... 30 V DC
AC power supply	LOW 0 ... 4 V DC HIGH 12 ... 30 V DC
<b>Input switching level at 4 ... 30 V DC</b>	LOW 0 ... 2 V DC HIGH 4 ... 30 V DC
<b>Accuracy</b>	< 50 ppm

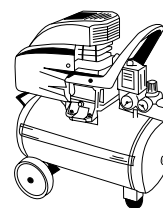
Outputs	
<b>Sensors power supply (AC version)</b>	24 V DC ±15 %/100 mA
<b>Output power optocoupler</b>	max. 30 V DC, 10 mA

### Applications for time and hour meters, short-time meters

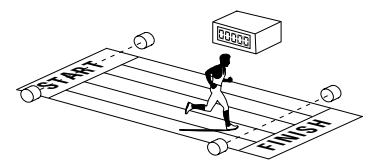
- Time measurements such as hours run recording on all machines and plant, e.g. compressors, solariums, special lights and lamps
- Accessories, OEM equipment or retrofitting to production machine
- Measurement of short times on processes and procedures, time recording (stopwatch function) at sporting events
- Hours run recording for motor vehicles and time monitoring for rally vehicles



Hours run of UV lamps

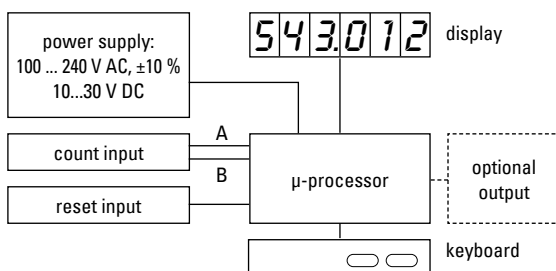


Operating hours



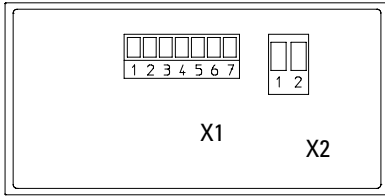
Short time measurement > 1 ms

### Block diagram



**LED timers**      **h, min, sec or hh.mm.ss (AC+DC)**      **Codix 543**

### Terminal assignment



Connection X1

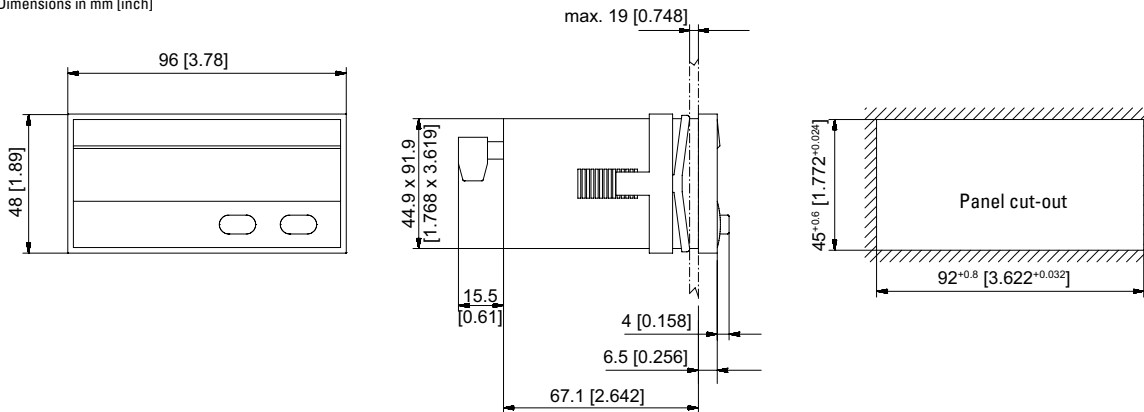
PIN	AC version	DC version
1	Optocoupler output	emitter
2	Optocoupler output	collector
3	Reset	
4	INP B	
5	INP A	
6	GND out	n.c.
7	+24 V out	n.c.

Connection X2

PIN	AC version	DC version
1	100 ... 240 V AC, ±10 %	0 V DC (GND)
2	100 ... 240 V AC, ±10 %	10 ... 30 V DC

### Dimensions

Dimensions in mm [inch]



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# Hour meters / timers, electronic

<b>LCD time modules</b>	<b>Max. time range 9999.99 h (DC)</b>	<b>194</b>
-------------------------	---------------------------------------	------------



The timer module of the type 194 for PCB mount features a 6-digit LCD display and 2 voltage ranges (4.75...15 V DC and 9...60 V DC).

It is extremely robust and suitable for many different applications thanks to its wide temperature range.



Timer	DC 4.75...60V Power supply	PNP Input type	High shock resistance	-40° + 80° Temperature range	PCB mount	6 LCDs LCD display	Electrical reset
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### Powerful

- Display range up to 9999-99 hours.
- 6-digit LCD display, 6 mm high.
- Low power consumption.
- Wide voltage and temperature range.
- Very high shock and vibration resistance.

### Simple

- Non-volatile memory (no battery).
- Counting starts as soon as power supply is applied.
- Electrical reset.
- Very high reliability.
- Small size and low cost.

### Order specifications

Power supply	Order no.	Art.-No.	Delivery specification
4.75 ... 15 V DC	<b>6.194.012.F00</b>	162 137	· LCD hour meter module type 194
9 ... 60 V DC	<b>6.194.012.G00</b>	162 138	· Operating instructions

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# Hour meters / timers, electronic

<b>LCD time modules</b>	<b>Max. time range 9999.99 h (DC)</b>	<b>194</b>
-------------------------	---------------------------------------	------------

## Technical data

General technical data	
<b>Display</b>	6 digits, LCD display, figure height 6 mm [0.24"]
<b>Display range</b>	9999.99 h
<b>Data backup</b>	CMOS EEPROM non-volatile memory up to 10 years
<b>Operating temperature</b>	-40°C ... +85°C [-40°F ... +185°F] (non-condensing)
<b>Working temperature</b>	-20°C ... +80°C [-4°F ... +176°F] (non-condensing)
<b>Storage temperature</b>	-50°C ... +90°C [-58°F ... +194°F]

Electrical characteristics	
<b>Power supply</b>	...F00 4.75 ... 15 V DC, with reverse polarity protection ...G00 9 ... 60 V DC
<b>Current consumption</b>	...F00 8 mA at 4.75 ... 15 V DC ...G00 6 mA at 9 ... 60 V DC
<b>EMC standards</b>	EN 55011 class B EN 61000-6-2, EN 61000-6-3 EN 61326-1

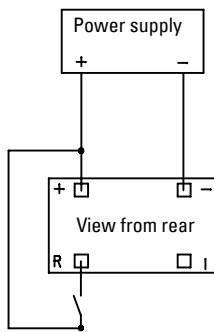
The module must be protected against inductive voltage spikes and high energy noise interference.

Mechanical characteristics	
<b>Housing</b>	color black
<b>Weight</b>	approx. 8 g [0.28 oz]
<b>Shock resistance</b> acc. to DIN-IEC 68-2-27	550 m/s <sup>2</sup> , 11 ms
<b>Vibration resistance</b> acc. to DIN-IEC 68-2-6	50 ... 200 m/s <sup>2</sup> , 10 ... 80 Hz

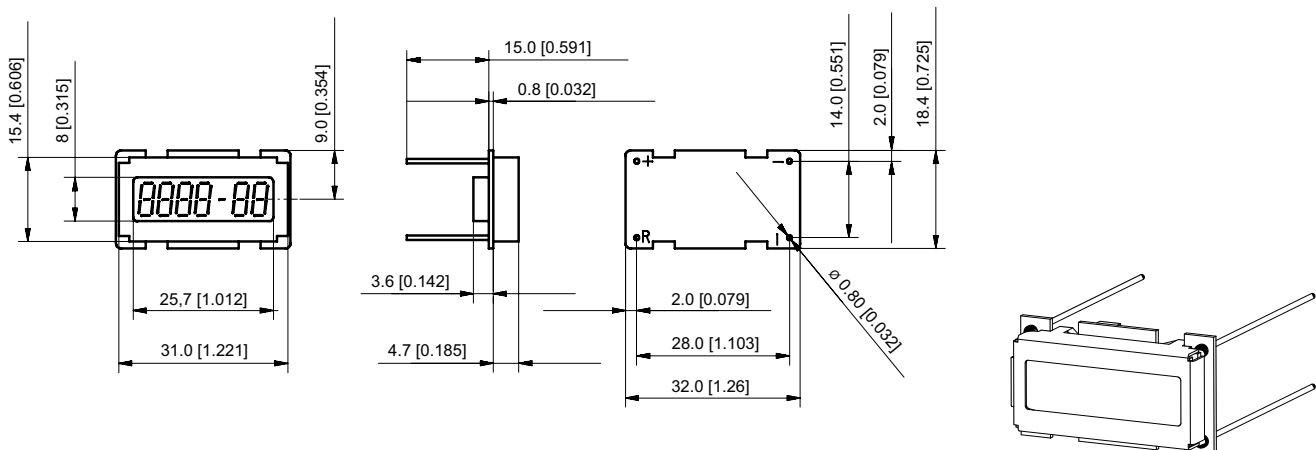
Inputs	
<b>Reset input</b>	HIGH 4 ... 60 V DC LOW 0 ... 0.7 V DC pulse length min. 1 ms, edge triggered (rising)
<b>Measuring error</b>	a max. error of 36 sec. occur per Start/Stop cycle
<b>Accuracy (Quarz)</b>	max. 200 ppm 25°C [+77°F]

### Terminal assignment



### Dimensions

Dimensions in mm [inch]



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# Hour meters / timers, electronic

<b>LCD time modules</b>	<b>Max. time range 99999.9 h (DC)</b>	<b>198</b>
-------------------------	---------------------------------------	------------



The timer module of the type 198 with 6-digit LCD display for PCB mounting features a wide voltage range from 8 to 28 V DC.

It is extremely robust and suitable for many different applications thanks to its wide temperature range.



Timer	DC 8 ... 28 V	PNP	High shock resistance	Temperature range - 40° + 85°	PCB mount	6 LCDs	Electrical reset
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### Powerful

- Display range up to 99999.9 hours.
- 6-digit LCD display, 5 mm high.
- Low power consumption.
- Wide voltage and temperature range.
- Very high shock and vibration resistance.

### Simple

- Non-volatile memory (no battery).
- Start/Stop input.
- Electrical reset.
- Very high reliability.
- Small size and low cost.

## Order specifications

<b>Power supply</b> 8 ... 28 V DC	<b>Order no.</b> <b>6.198.012.H00<sup>1)</sup></b>	<b>Delivery specification</b> · LCD counter module type 198 · Operating instructions
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1) Stock types

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# Hour meters / timers, electronic

<b>LCD time modules</b>	<b>Max. time range 99999.9 h (DC)</b>	<b>198</b>
-------------------------	---------------------------------------	------------

## Technical data

General technical data	
<b>Display</b>	6 digits, LCD display, figure height 5 mm [0.20"]
<b>Display range</b>	99999.9 h
<b>Data backup</b>	CMOS EEPROM non-volatile memory up to 10 years (without battery)
<b>Operating / working / storage temperature</b>	-40°C ... +80°C [-40°F ... +185°F] (non-condensing)
<b>Humidity</b>	95 % RH at +32°C [+90°F] for max. 2 hours

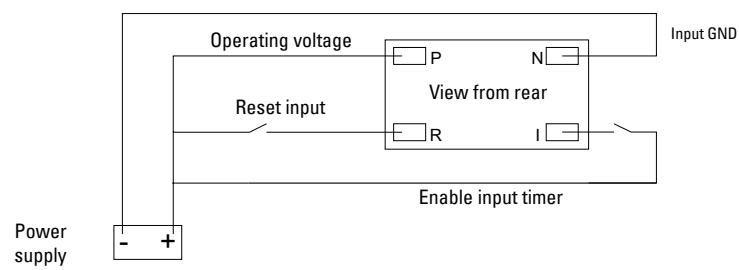
Electrical characteristics	
<b>Power supply</b>	8 ... 28 V DC
<b>Current consumption</b>	3 mA max. at 4.5 V DC 10 mA at 28 V DC
<b>EMC standards</b>	EN 55011 class B EN 61000-6-2, EN 61000-6-3 EN 61326-1, EN 61326-3-1

The module must be protected against inductive voltage spikes and high energy noise interference.

Mechanical characteristics		
<b>Housing</b>	dimensions	18.4 x 32.4 mm [0.72 x 1.28"]
	color	black
<b>Weight</b>		approx. 8 g [0.28 oz]
<b>Vibration resistance</b> acc. to DIN-IEC 68-2-6		10 ... 80 m/s <sup>2</sup> , 10 ... 75 Hz

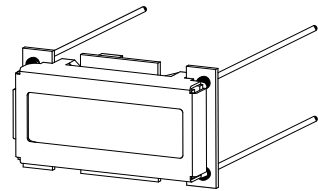
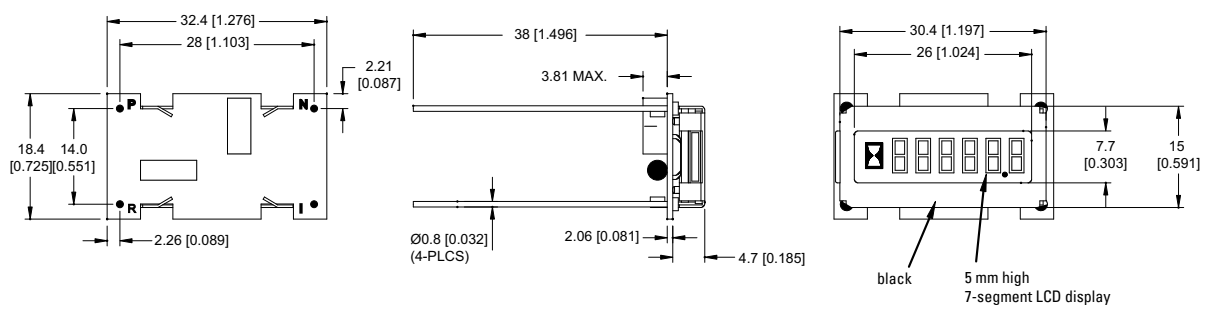
Inputs		
<b>Start/Stop input</b> (Enable input timer) On-times smaller than 16 sec will not be counted		8 ... 28 V DC
<b>Reset input</b>	pulse length	8 ... 28 V DC min. 500 ms

### Terminal assignment



### Dimensions

Dimensions in mm [inch]



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Hour meters  
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Position displays  
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# Hour meters / timers, electromechanical

<b>Micro timers</b>	<b>High shock resistance (DC)</b>	<b>HK 47</b>
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The micro timers HK 47 have a very high shock resistance.

Available as panel and PCB mount versions, they can be used in many different fields of application. Thanks to their encapsulated housing, these non-resettable counters are extremely tamper-proof.

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## Characteristics

- 7-digit micro hour meter.
- Low cost.
- High shock resistance.
- Small dimensions.
- Magnified large figures.
- Different reading possibilities.
- Panel-mount counter with integrated spring clip (HK 47.20).
- PCB mount counter (HK 47.80).

## Benefits

- Low power consumption; suitable for battery operation.
- Solderable and wash-proof (HK 47.80).
- Data retention in case of power failure.
- Long service life.

## Applications

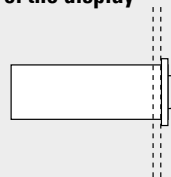
Time registration, maintenance intervals for measuring instruments (respiration units, oxygen, dialysis), small appliances, UV lamps, display panels.

## Type series

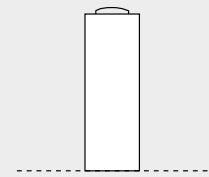
Fig.	Mounting options	Display	Protection	El. connection	Type
1)	Panel mount with latch	front side	IP65, front side	flying leads	<b>HK 47.20</b>
2)	PCB mount, upright	front side	IP65, front side/on rear	solder pins	<b>HK 47.80</b>

### Mounting options and position of the display

1) Panel mount  
display front side



2) PCB mount, upright  
display front side



Technical data	
<b>Drive</b>	pulse-driven, precision crystal controller via electronic divider circuit
<b>Pulse duration</b>	32 ms; every 36 s = 0.01 h power on times < 36 s are not counted
<b>Electrical connection</b>	HK 47.20 flying leads AWG 22, approx. 150 mm [5.91"] long (red +, black -) HK 47.80 solder pins $\varnothing$ 0.64 mm [0.025"]
<b>Display</b>	99999.99 h
<b>Counting drum</b>	figures white on black, decimal place red on black
<b>Rated Voltage</b>	4.5 ... 35 V DC
<b>Residual ripple</b>	< 1 %
<b>Current consumption</b>	< 1.5 mA (average)
<b>Power consumption</b>	(count pulses every 36 s with a pulse duration of 32 ms)
	at $U_B = 5$ V DC typ. 82 mW
	at $U_B = 12$ V DC typ. 135 mW
	at $U_B = 24$ V DC typ. 135 mW
	max. 170 mW

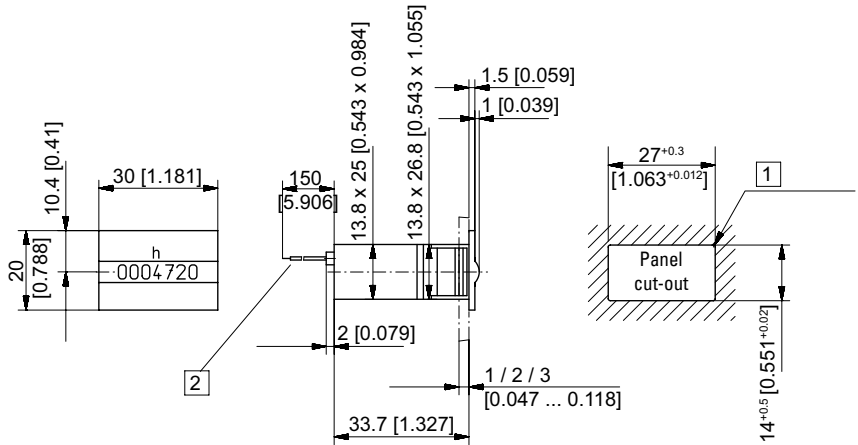
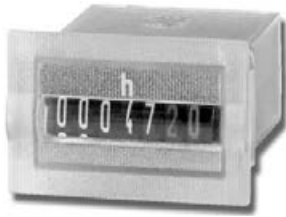
<b>Accuracy</b>	22.5 ppm at 25°C [77°F]
<b>Height of figures</b>	4 x 1.25 mm [0.16 x 0.049"]
<b>Reset</b>	no reset
<b>Operating temperature</b>	-10°C ... +60°C [+14°F ... +140°F] (non-condensing)
<b>Storage temperature</b>	-20°C ... +70°C [-4°F ... +158°F]
<b>Mounting position</b>	horizontal (other on request)
<b>Solderable and wash proof version</b>	HK 47.80
<b>Soldering temperature</b>	265°C [+509°F], 3 s
<b>Protection</b>	HK 47.80 IP65
(acc. to EN 60529)	HK 47.20 IP65 (front side)
<b>EMC standards</b>	EN 55011 class B EN 61000-6-2, EN 61000-6-3
<b>Housing</b>	PC transparent; HK 47.80 fully sealed (potted)
<b>Weight</b>	13 ... 15 g [0.46 ... 0.53 oz]

# Hour meters / timers, electromechanical

<b>Micro timers</b>	<b>High shock resistance (DC)</b>	<b>HK 47</b>
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Options	
<b>HK 47.20, HK 47.80</b>	flat pin 0.8 x 2.8 mm [0.031 x 0.11"] and push-on connectors
<b>HK 47.20</b>	solder pins $\varnothing$ 0.64 x 1.2 mm [0.025 x 0.047"]
<b>HK 47.80</b>	flying leads AWG 22 approx. 150 mm [5.91"] long

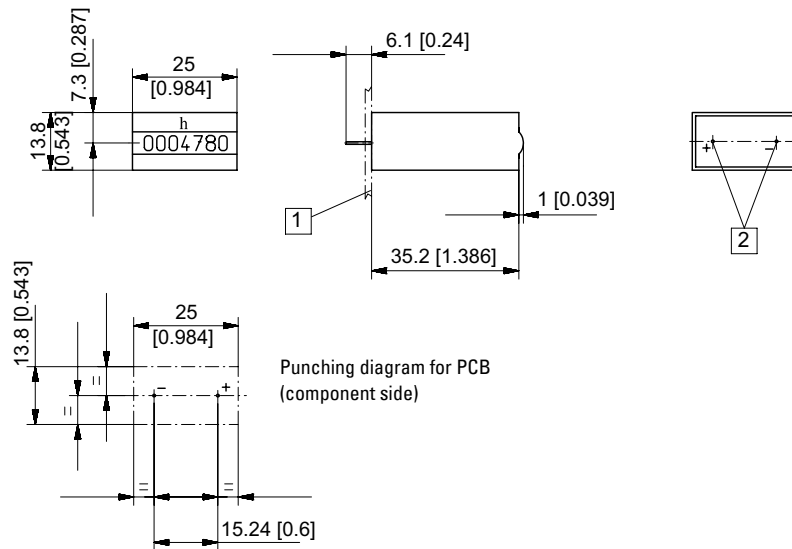
**Panel mount  
with injection-moulded spring-clips  
Type HK 47.20**



1) R<sub>max</sub> 0.5 2) Flying leads AWG 22 (red+ / black-)

Type	Display	Art. no. 4.5 ... 35 V DC
<b>HK 47.20</b>	99999.99 h	<b>3.060.200.383</b> <sup>1)</sup>

**PCB mount  
Type HK 47.80**



1) PCB 2) Solder pins  $\varnothing$  0.64 [0.025]

Type	Display	Art. no. 4.5 ... 35 V DC
<b>HK 47.80</b>	99999.99 h	<b>3.060.800.383</b>

# Hour meters / timers, electromechanical

<b>Micro timers</b>	<b>Many different installation options (DC)</b>	<b>HK 07 / AHK 07</b>
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The micro timers of the HK 07 and AHK 07 families offer a particularly large number of variants and can be used in many different applications thanks to their wide voltage range from 4.5 to 35 V DC.

Available as panel, base and PCB mount versions, they can be used in many different fields of application. Thanks to their encapsulated housing, these non-resettable counters are extremely tamper-proof.

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<h3>Characteristics</h3> <ul style="list-style-type: none"> <li>• 7-digit micro hour meter.</li> <li>• High shock and impact resistance.</li> <li>• Low power consumption; suitable for battery operation.</li> <li>• Small dimensions – magnified large figures.</li> <li>• Panel-mount counter with integrated spring clip.</li> <li>• PCB-mount counter.</li> <li>• Machine-solderable and wash-proof.</li> <li>• Protection IP65.</li> </ul>	<h3>Benefits</h3> <ul style="list-style-type: none"> <li>• Wide voltage range 4.5 ... 35 V DC.</li> <li>• Count retention in case of power failure.</li> <li>• Long service life.</li> </ul> <h3>Applications</h3> <p>General time measurement, maintenance intervals for measuring instruments (respiration units, oxygen, dialysis), small appliances, UV lamps, display panels in vehicles.</p>
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## Type series

Fig.	Mounting options	Display	Protection	El. connection	Housing	Height of fig.	Type
1)	Panel mount with latch	front side	IP65, front side	flying leads	plastic	4 mm [0.16"]	<b>HK 07.20</b>
2)	PCB mount, lying	on the top	IP65, front side/on rear	solder pins	plastic	4 mm [0.16"]	<b>HK 07.90</b>
4)	PCB mount, upright	front side	IP65, front side/on rear	solder pins	plastic	4 mm [0.16"]	<b>HK 07.92</b>
5)	Base mount, upright	front side	IP40	flying leads	plastic	4 mm [0.16"]	<b>AHK 07.00</b>

### Mounting options and position of the display

1) Panel mount  
display front side

2) PCB mount, lying  
display on the top

3) PCB mount, upright  
display front side

4) Base mount, upright  
display front side

Optional: PCB mount, hanging  
display front side

Accessories	Dimensions in mm [inch]	Order no.
<b>Gasket 32 x 15 [1.26 x 0.59]</b>	for cut-out 27 x 13 [1.06 x 0.51], suitable for HK 07.20	<b>N511058</b>

# Hour meters / timers, electromechanical

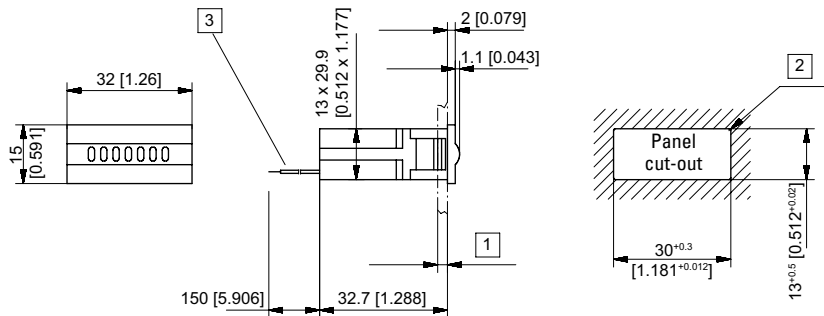
## Micro timers Many different installation options (DC) HK 07 / AHK 07

Technical data		
<b>Electrical connection</b>	panel mount	flying leads, AWG 22 (red +, black -) approx. 150 mm [5.91"], 6 mm [0.24"] stripped wire ends, tinned
	PCB mount	solder pins 0.4 x 1.2 mm [0.016 x 0.047"], tinned
<b>Power consumption</b> (every 36 s with a pulse length of 32 ms)		
	at $U_B = 5$ V DC	typ. 82 mW
	at $U_B = 12$ V DC	typ. 135 mW
	at $U_B = 24$ V DC	typ. 135 mW max. 170 mW
<b>Rated voltage</b>	4.5 ... 35 V DC	
<b>Residual ripple</b>	< 1 %	
<b>Current consumption</b>	< 1.5 mA (average)	
<b>On time</b>	100 %	
<b>Pulse duration</b>	32 ms; every 36 s = 0.01 h On-times < 36 s will not be counted	
<b>Number of digits</b>	7: 99999.99 h	
<b>Accuracy</b>	22.5 ppm at 25°C [77°F]	

<b>Height of figures</b>	1.2 x 4.0 mm [0.047 x 0.16"]
<b>Color of figures</b>	white and red on black
<b>Reset</b>	no reset
<b>Operating temperature</b>	-10°C ... +60°C [+14°F ... +140°F] (non-condensing)
<b>Mounting position</b>	horizontal, other on request
<b>Solderable and washproof versions</b>	HK 07.90, HK 07.91, HK 07.92
<b>Soldering temperature</b>	265°C [+509°F], 3 s
<b>Protection</b>	up to IP65 depending on kind of type
<b>EMC standards</b>	EN 55011 class B EN 61000-6-2, EN 61000-6-3
<b>Housing</b>	plastic PC (Polycarbonate)
<b>Weight</b>	15 ... 18 g [0.53 ... 0.63 oz]

Options	
HK 07.20 flat pin 0.8 x 2.8 mm [0.031 x 0.11"] (others on request)	

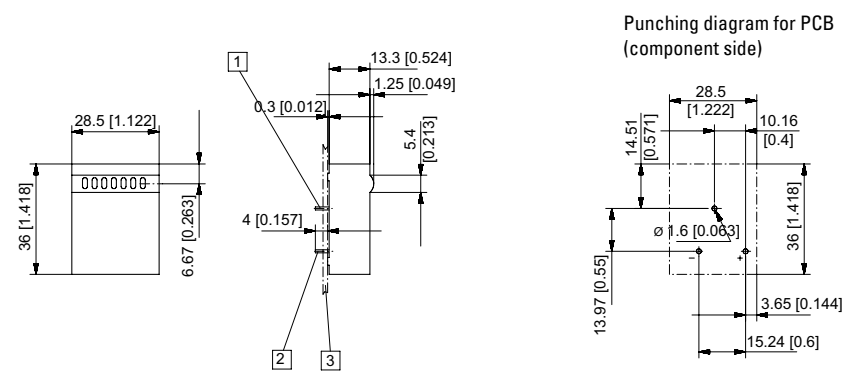
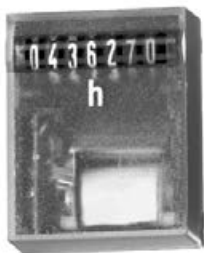
### Panel mount with latch / display front side Type HK 07.20



1) 1.2 ... 3 [0.047 x 0.12"] 2) R<sub>max</sub> 0.5 3) Flying leads (red+ / black-)

Type	Display	Art. no.
		4.5 ... 35 V DC
HK 07.20	7 digits	3.100.200.383 <sup>1)</sup>
HK 07.20.35 with flat pins	7 digits	3.107.200.383 <sup>1)</sup>

### PCB mount, lying / display on the top Type HK 07.90



1) Mounting pin without el. function 0.4 x 1.2 [0.016 x 0.047]  
2) Electrical connection 0.4 x 1.2 [0.016 x 0.047] 3) PCB

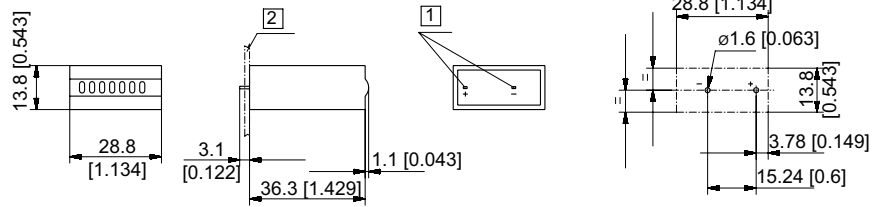
Type	Display	Art. no.
		4.5 ... 35 V DC
HK 07.90	7 digits	3.100.900.383

# Hour meters / timers, electromechanical

**Micro timers**      **Many different installation options (DC)**      **HK 07 / AHK 07**

PCB mount, upright / display front side  
Type HK 07.92

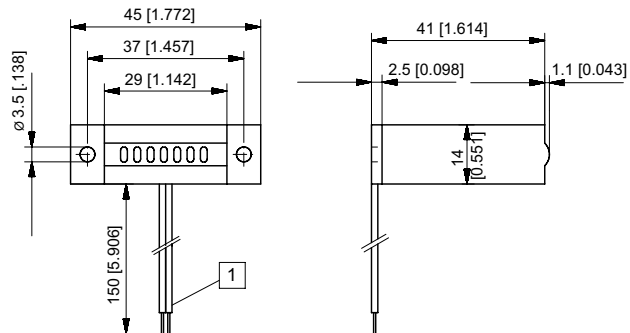
Punching diagram for PCB  
(component side)



1) Electrical connection 0.4 x 1.2 [0.016 x 0.047]    2) PCB

Type	Display	Art. no.
HK 07.92	7 digits	3.100.920.383

Base mount, upright / display front side  
Type AHK 07.00



1) Flying leads (red+ / black-)

Type	Display	Art. no.
AHK 07.00	7 digits	3.100.000.383 <sup>1)</sup>

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Timers with DIN dimensions

Small format (AC+DC)

HK 17



The hour meters HK 17 feature a very high shock resistance.

These panel-mount counters are available in many panel sizes. They can be used in many different fields of application. These non-resettable counters are extremely tamper-proof.

## Characteristics

- 7 or 8-digit hour meter.
- Without reset.
- High shock resistance.
- Small dimensions.
- Magnified large figures.
- Protection IP65 on the front side.
- UL-approved.

## Benefits

- Many different front panel sizes and cut-outs.
- Data retention in case of power failure.
- Long service life.

## Applications

General time measurement, maintenance intervals for medical equipment (respiration units, oxygen, dialysis), small appliances, UV lamps, display panels in vehicles.

## Order code

HK17 . **XX** **1** . **XX** . **56**<sup>1)</sup>

### a Front bezel

- 0 = without front bezel (through housing)
- 2 = small front bezel with clip
- 4 = front bezel with holes at the side

### b Type of housing

- 5 = housing black with welded viewing window

### c Color

- 1 = black

### d Electrical connection

- 11 = flat pin 0.8 x 6.3 mm [0.031 x 0.25"] (en option)
- 39 = screw terminal (standard) with flat pin 0.8 x 6.3 mm [0.031 x 0.25"]

Suitable gaskets as well as further accessories can be found in the accessories section or in the accessories area of our website at: [www.kuebler.com/accessories](http://www.kuebler.com/accessories).

## Technical data

<b>Electrical connection</b>	flat pins 0.8 x 6.3 mm [0.031 x 0.25"] with screw terminals (max. tightening torque 0.8 Nm) or flat pins 0.8 x 6.3 mm [0.031 x 0.25"]																
<b>Power consumption</b>	<table border="0"> <tr> <td>10 ... 30 V DC</td> <td>approx. 500 mW</td> </tr> <tr> <td>36 ... 80 V DC</td> <td>approx. 900 mW</td> </tr> <tr> <td>100 ... 130 V DC</td> <td>approx. 750 mW</td> </tr> <tr> <td>20 ... 30 V AC, 50 Hz</td> <td>approx. 0.3 VA</td> </tr> <tr> <td>42 ... 48 V AC, 50 Hz</td> <td>approx. 0.25 VA</td> </tr> <tr> <td>100 ... 130 V AC, 50 Hz</td> <td>approx. 0.6 VA</td> </tr> <tr> <td>187 ... 264 V AC, 50 Hz</td> <td>approx. 1.2 VA</td> </tr> <tr> <td>360 ... 440 V AC, 50 Hz</td> <td>approx. 1.65 VA</td> </tr> </table>	10 ... 30 V DC	approx. 500 mW	36 ... 80 V DC	approx. 900 mW	100 ... 130 V DC	approx. 750 mW	20 ... 30 V AC, 50 Hz	approx. 0.3 VA	42 ... 48 V AC, 50 Hz	approx. 0.25 VA	100 ... 130 V AC, 50 Hz	approx. 0.6 VA	187 ... 264 V AC, 50 Hz	approx. 1.2 VA	360 ... 440 V AC, 50 Hz	approx. 1.65 VA
10 ... 30 V DC	approx. 500 mW																
36 ... 80 V DC	approx. 900 mW																
100 ... 130 V DC	approx. 750 mW																
20 ... 30 V AC, 50 Hz	approx. 0.3 VA																
42 ... 48 V AC, 50 Hz	approx. 0.25 VA																
100 ... 130 V AC, 50 Hz	approx. 0.6 VA																
187 ... 264 V AC, 50 Hz	approx. 1.2 VA																
360 ... 440 V AC, 50 Hz	approx. 1.65 VA																
<b>Rated voltages</b>	<table border="0"> <tr> <td>AC (50 or 60 Hz)</td> <td>20 ... 30 V, 42 ... 48 V, 100 ... 130 V, 187 ... 264 V, 360 ... 440 V</td> </tr> <tr> <td>DC</td> <td>10 ... 30 V, 36 ... 80 V, 100 ... 130 V</td> </tr> </table>	AC (50 or 60 Hz)	20 ... 30 V, 42 ... 48 V, 100 ... 130 V, 187 ... 264 V, 360 ... 440 V	DC	10 ... 30 V, 36 ... 80 V, 100 ... 130 V												
AC (50 or 60 Hz)	20 ... 30 V, 42 ... 48 V, 100 ... 130 V, 187 ... 264 V, 360 ... 440 V																
DC	10 ... 30 V, 36 ... 80 V, 100 ... 130 V																
<b>Number of digits</b>	<table border="0"> <tr> <td>7 at AC</td> <td>99999.99 h</td> </tr> <tr> <td>8 at DC</td> <td>999999.99 h</td> </tr> </table>	7 at AC	99999.99 h	8 at DC	999999.99 h												
7 at AC	99999.99 h																
8 at DC	999999.99 h																
<b>Accuracy</b>	<table border="0"> <tr> <td>AC</td> <td>supply frequency + 30 ms</td> </tr> <tr> <td>DC</td> <td>&lt;0.003 % (at 24 h)</td> </tr> </table>	AC	supply frequency + 30 ms	DC	<0.003 % (at 24 h)												
AC	supply frequency + 30 ms																
DC	<0.003 % (at 24 h)																

<b>Height of figures</b>	3.8 x 1.7 mm [0.15 x 0.067"] optical				
<b>Color of figures</b>	white and red on black				
<b>Operating temperature</b>	-15°C ... +50°C [+5°F ... +122°F] (non-condensing)				
<b>Storage temperature</b>	-40°C ... +85°C [-40°F ... +185°F]				
<b>Mounting position</b>	any				
<b>Protection</b>	IP65 (front side)				
<b>EMC standards</b>	EN 55011 class B EN 61000-6-2, EN 61000-6-3				
<b>Device safety</b>	<table border="0"> <tr> <td>designed to protection class</td> <td>EN 61010 part 1</td> </tr> <tr> <td>application area</td> <td>2 pollution level 2</td> </tr> </table>	designed to protection class	EN 61010 part 1	application area	2 pollution level 2
designed to protection class	EN 61010 part 1				
application area	2 pollution level 2				
<b>UL approval</b>	file E128604 <sup>2)</sup>				
<b>Housing</b>	plastic PC (Polycarbonate) types with protection IP65 are sealed				
<b>Weight</b>	approx. 40 g [1.41 oz]				

## Options

Counter with flat pin 0.8 x 6.3 mm [0.031 x 0.25"]	Art. no. 3.138.X51.XXX
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1) 56 for front bezel 36 x 24 mm [1.42 x 0.94"]

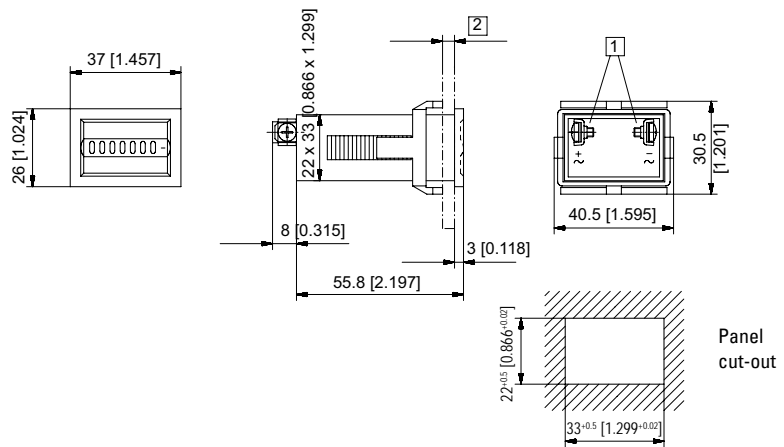
2) The version 360 ... 440 V AC is not UL listed



# Hour meters / timers, electromechanical

**Timers with DIN dimensions**    **Small format (AC+DC)**    **HK 17**

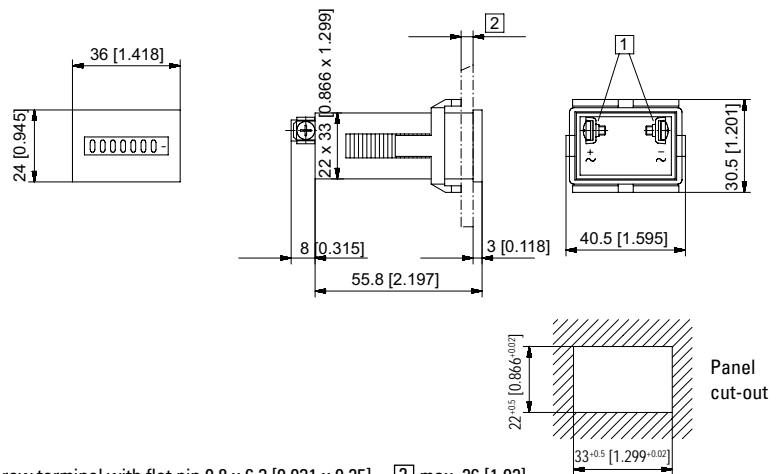
**Panel mount with mounting clip**  
Type HK 17.251.39



1) Screw terminal with flat pin 0.8 x 6.3 [0.031 x 0.25]    2) max. 26 [1.02]

Type	Display	Voltage	Art. no.						
			10 ... 30 V	20 ... 30 V	36 ... 80 V	42 ... 48 V	100 ... 130 V	187 ... 264 V	360 ... 440 V
HK 17.251.39	7 digits	AC (50 Hz)		3.130.251.071		3.130.251.072	3.130.251.074	3.130.251.075 <sup>1)</sup>	3.130.251.079
	7 digits	AC (60 Hz)		3.130.251.081		3.130.251.082	3.130.251.084	3.130.251.085	3.130.251.089
	8 digits	DC	3.130.251.351 <sup>1)</sup>		3.130.251.353		3.130.251.381		

**Panel mount with mounting clips**  
Type HK 17.251.39.56



1) Screw terminal with flat pin 0.8 x 6.3 [0.031 x 0.25]    2) max. 26 [1.02]

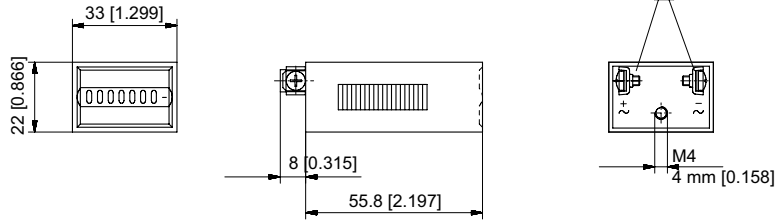
Type	Display	Voltage	Art. no.						
			10 ... 30 V	20 ... 30 V	36 ... 80 V	42 ... 48 V	100 ... 130 V	187 ... 264 V	360 ... 440 V
HK 17.251.39.56	7 digits	AC (50 Hz)		3.130.251.071.056		3.130.251.072.056	3.130.251.074.056	3.130.251.075.056 <sup>1)</sup>	3.130.251.079.056
	7 digits	AC (60 Hz)		3.130.251.081.056		3.130.251.082.056	3.130.251.084.056	3.130.251.085.056	3.130.251.089.056
	8 digits	DC	3.130.251.351.056 <sup>1)</sup>		3.130.251.353.056		3.130.251.381.056		

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# Hour meters / timers, electromechanical

**Timers with DIN dimensions**    **Small format (AC+DC)**    **HK 17**

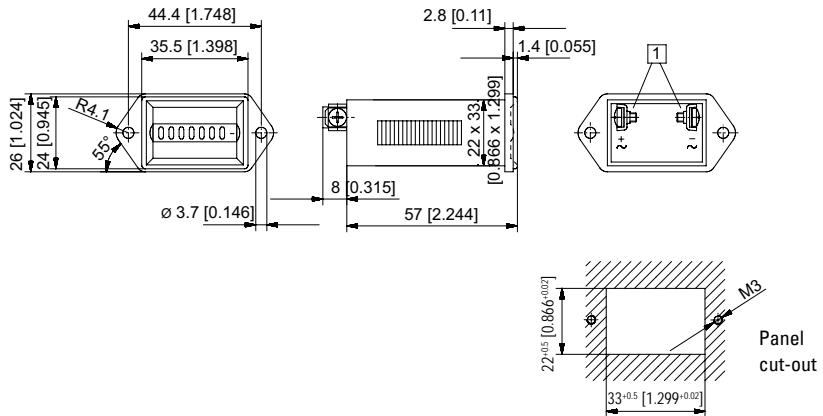
Base mount with central fixing on rear  
Type HK 17.051.39



1) Screw terminal with flat pin 0.8 x 6.3 [0.031 x 0.25]

Type	Display	Voltage	Art. no.						
			10 ... 30 V	20 ... 30 V	36 ... 80 V	42 ... 48 V	100 ... 130 V	187 ... 264 V	360 ... 440 V
HK 17.051.39	7 digits	AC (50 Hz)		3.130.051.071		3.130.051.072	3.130.051.074	3.130.051.075	3.130.051.079
	7 digits	AC (60 Hz)		3.130.051.081		3.130.051.082	3.130.051.084	3.130.051.085	3.130.051.089
	8 digits	DC	3.130.051.351		3.130.051.353		3.130.051.381		

Panel mount with 2 holes at the side  
Type HK 17.451.39



1) Screw terminal with flat pin 0.8 x 6.3 [0.031 x 0.25]

Type	Display	Voltage	Art. no.						
			10 ... 30 V	20 ... 30 V	36 ... 80 V	42 ... 48 V	100 ... 130 V	187 ... 264 V	360 ... 440 V
HK 17.451.39	7 digits	AC (50 Hz)		3.130.451.071		3.130.451.072	3.130.451.074	3.130.451.075 <sup>1)</sup>	3.130.451.079
	7 digits	AC (60 Hz)		3.130.451.081		3.130.451.082	3.130.451.084	3.130.451.085	3.130.451.089
	8 digits	DC	3.130.451.351		3.130.451.353		3.130.451.381		

# Hour meters / timers, electromechanical

**Timers with DIN dimensions**    **DIN counters for panel mount, 48 x 24 mm (AC+DC)**    **H 37**



The hour meters H 37 feature a very high shock resistance.

These panel mount counters with standard DIN dimensions can be used in many different fields of application. These non-resettable counters are extremely tamper-proof.



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## Characteristics

- 7- or 8-digit hour meter.
- Without reset, high shock resistance.
- Small dimensions, magnified large figures.
- Protection IP65 on the front side.
- Panel mount counter with integrated spring clip (H 37.4).
- UL-approved.

## Benefits

- 5 years guarantee. <sup>1)</sup>
- High reliability: for a better sale of your final product.
- Data retention in case of power failure.
- Long service life.

## Applications

General time measurement, maintenance intervals for measuring instruments (respiration units, oxygen, dialysis), small appliances, UV lamps, display panels in vehicles.

## Type series

Description	Mounting	Panel cut-out	Type
Standard DIN counter for panel mount	mounting clip, on rear	45 x 22 [1.77 x 0.91"]	<b>H 37</b>
Standard DIN counter for panel mount	2 mounting holes	50 x 25 [1.97 x 0.98"]	<b>H 37.1</b>
Standard DIN counter for panel mount	mounting clip, on rear	50 x 25 [1.97 x 0.98"]	<b>H 37.2</b>
Standard DIN counter for panel mount	mounting clip, on rear	45 x 22 [1.77 x 0.91"]	<b>H 37.5</b>

Dual function timer  
48 x 48 mm [1.89 x 1.89"] on request



1) When used as specified in the technical data

# Hour meters / timers, electromechanical

Timers with DIN dimensions	DIN counters for panel mount, 48 x 24 mm (AC+DC)	H 37	
Accessories	Dimensions in mm [inch]		Order no.
<b>Adapter front bezel, 72 x 36 [2.83 x 1.42]</b>	for cut-out 68 x 33 [2.68 x 1.30] to cut-out 45 x 22.2 [1.77 x 0.87], for counters 48 x 24 [1.89 x 0.94], as set	black and silver anodised	<b>162704 Set</b>
<b>Adapter front bezel, 48 x 48 [1.89 x 1.89]</b>	for cut-out 45 x 45 [1.77 x 1.77] to cut-out 45 x 22.2 [1.77 x 0.87], with clip mounting for counters 48 x 24 [1.89 x 0.94]	black	<b>T008883</b>
<b>Adapter front bezel, 60 x 50 [2.36 x 1.97]</b>	for cut-out 54 x 29 [2.13 x 1.14] to cut-out 45 x 22.2 [1.77 x 0.87], with screw mounting and gasket for counters 48 x 24 [1.89 x 0.94]	black	<b>N003001</b>
<b>Adapter front bezel, 56 x 40 [2.20 x 1.57]</b>	for cut-out 50 x 25 [1.97 x 0.98] to cut-out 45 x 22.2 [1.77 x 0.87], with screw mounting for counters 48 x 24 [1.89 x 0.94]	black	<b>T008161</b>
<b>Adapter front bezel, 53 x 28 [2.09 x 1.10]</b>	for cut-out 54 x 29 [2.13 x 1.14] to cut-out 45 x 22.2 [1.77 x 0.87], with clip mounting for counters 48 x 24 [1.89 x 0.94]	grey black	<b>T008164</b> <b>T008165</b>
<b>Transparent cover, lockable, IP65</b>	for cut-out 54 x 29 [2.13 x 1.14], for screw mounting to front bezel F1B or adapter front bezel N003001, for counters with cut-out 50 x 25 [1.97 x 0.98] or 45 x 22.2 [1.77 x 0.87]		<b>N003002</b>
<b>Sealing cover type K1, IP65</b>	suitable for front bezel 60 x 50 [2.36 x 1.97], for screw mounting of electromech. counters and via adapter front bezel N003001 for counters 48 x 24 [1.89 x 0.94]		<b>G008301</b>
<b>Mounting frame</b> with cut-out 50 x 25 [1.97 x 1.97] via separate adapter also for 45 x 22.2 [1.77 x 0.87]	for snap-on mounting on 35 [1.38] top-hat DIN rail, for counters 53 x 28 [2.09 x 1.10] and via separate adapter (T008180) for counters 48 x 24 [1.89 x 0.94]	chromated	<b>G300004</b>
<b>Gasket 53 x 28 [2.09 x 1.10]</b>	for cut-out 50 x 25 [1.97 x 0.98], suitable for H 37.2 and H 37.4	black	<b>N511015</b>
<b>Gasket 48 x 24 [1.89 x 0.94]</b>	for cut-out 45 x 22.2 [1.77 x 0.87], suitable for H 37 and H 37.5	black	<b>N511029</b>
<b>Terminal cover type KA 37</b>	for H 37 counters (2 pcs. per counter required)	transparent	<b>T051687</b>

Suitable gaskets, other accessories and installation examples for optional accessories can be found in chapter accessories or in the accessories section under: [www.kuebler.com/accessories](http://www.kuebler.com/accessories).

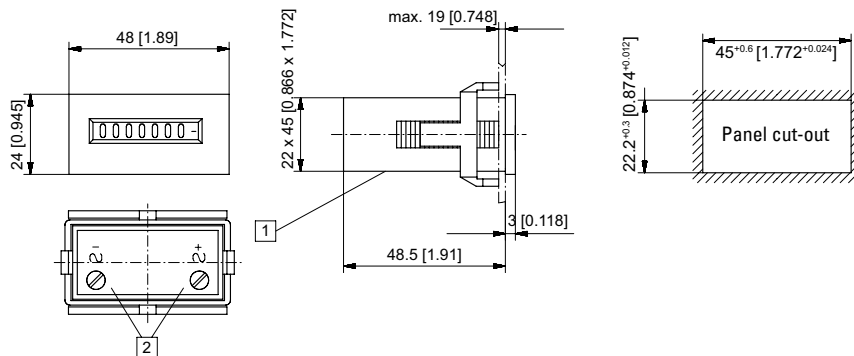
Technical data	
<b>Electrical connection</b>	screw terminals (tightening torque max. 0.8 Nm)
<b>Power consumption</b>	10 ... 30 V DC approx. 500 mW 36 ... 80 V DC approx. 900 mW 100 ... 130 V DC approx. 750 mW 20 ... 30 V AC, 50 Hz approx. 0.3 VA 42 ... 48 V AC, 50 Hz approx. 0.25 VA 100 ... 130 V AC, 50 Hz approx. 0.6 VA 187 ... 264 V AC, 50 Hz approx. 1.2 VA
<b>Rated voltages</b>	AC (50 or 60 Hz) 20 ... 30 V, 42 ... 48 V, 100 ... 130 V, 187 ... 264 V DC 10 ... 30 V, 36 ... 80 V, 100 ... 130 V
<b>On time</b>	100 %
<b>Number of digits</b>	AC 7 – 99999.99 h DC 8 – 999999.99 h
<b>Resolution</b>	0.01 h equals 36 s
<b>Height of figures</b>	4 mm [0.16"]
<b>Color of figures</b>	white and red on black
<b>Reset</b>	no reset
<b>Operating temperature</b>	-15°C ... +50°C [+5°F ... +122°F] (non-condensing)
<b>Storage temperature</b>	-40°C ... +85°C [-40°F ... +185°F]
<b>Relativ humidity</b>	< 95 % (non-condensing)
<b>Mounting position</b>	any

<b>Protection</b>	IP65 (front side) built in with gasket, (order gasket separately)
<b>EMC standards</b>	EN 55011 class B EN 61000-6-2, EN 61000-6-3
<b>Device safety</b>	designed to protection class EN 61010 part 1 application area 2 pollution level 2
<b>UL approval</b>	file E128604
<b>Housing</b>	plastic PC (Polycarbonate) types with IP65 protection are sealed (potted)
<b>Accuracy</b>	AC supply frequency + 30 ms DC < 0.003 % (at 24 h)
<b>Weight</b>	H 37 approx. 50 g [1.76 oz] slip on bezel 37.1 6 g [0.21 oz] slip on bezel 37.2 2 g [0.07 oz]
Options	
<b>Color of housing</b>	grey Art. no. 3.130.X50.XXX
<b>Electrical connection</b>	flat pin 0.8 x 6.3 mm [0.031 x 0.25"] Art.-No.: 3.24X.20X.XXX.011 screw terminal with terminal cover Art.-No.: 3.24X.20X.XXX.456 spring-type terminal on request
<b>360 - 440 V AC</b>	on request

# Hour meters / timers, electromechanical

## Timers with DIN dimensions    DIN counters for panel mount, 48 x 24 mm (AC+DC)    H 37

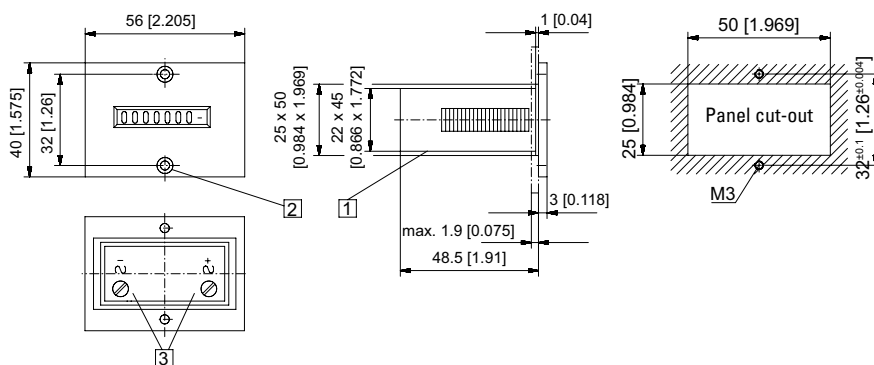
Mounting clip, on rear,  
panel mount dimensions 45 x 22 [1.77 x 0.91]  
Type H 37



1 Wire entry    2 Screw terminal with flat pin 0.8 x 6.3 [0.031 x 0.25]

Type	Display	Voltage	Art. no.					
			10 ... 30 V	20 ... 30 V	36 ... 80 V	42 ... 48 V	100 ... 130 V	187 ... 264 V
H 37	7 digits	AC (50 Hz)		3.240.201.071		3.240.201.072	3.240.201.074 <sup>1)</sup>	3.240.201.075 <sup>1)</sup>
	7 digits	AC (60 Hz)		3.240.201.081		3.240.201.082	3.240.201.084	3.240.201.085
	8 digits	DC	3.240.201.351 <sup>1)</sup>	3.240.201.353		3.240.201.381		

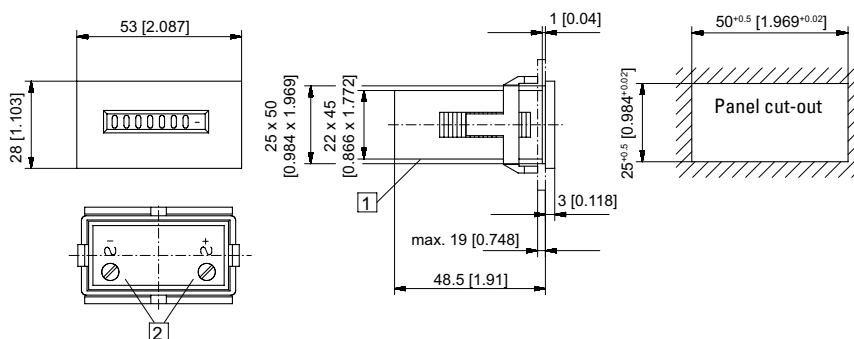
2 mounting holes,  
panel mount dimensions 50 x 25 [1.97 x 0.98"]  
Type H 37.1



1 Wire entry    2 Countersinking Af3, DIN 74    3 Screw terminal with flat pin 0.8 x 6.3 [0.031 x 0.25]

Type	Display	Voltage	Art. no.					
			10 ... 30 V	20 ... 30 V	36 ... 80 V	42 ... 48 V	100 ... 130 V	187 ... 264 V
H 37.1	7 digits	AC (50 Hz)		3.241.201.071		3.241.201.072	3.241.201.074	3.241.201.075
	7 digits	AC (60 Hz)		3.241.201.081		3.241.201.082	3.241.201.084	3.241.201.085
	8 digits	DC	3.241.201.351 <sup>1)</sup>	3.241.201.353		3.241.201.381		

Mounting clip, on rear,  
panel mount dimensions 50 x 25 [1.97 x 0.98"]  
Type H 37.2



1 Wire entry    2 Screw terminal with flat pin 0.8 x 6.3 [0.031 x 0.25]

Type	Display	Voltage	Art. no.					
			10 ... 30 V	20 ... 30 V	36 ... 80 V	42 ... 48 V	100 ... 130 V	187 ... 264 V
H 37.2	7 digits	AC (50 Hz)		3.242.201.071		3.242.201.072	3.242.201.074	3.242.201.075 <sup>1)</sup>
	7 digits	AC (60 Hz)		3.242.201.081		3.242.201.082	3.242.201.084	3.242.201.085
	8 digits	DC	3.242.201.351 <sup>1)</sup>	3.242.201.353		3.242.201.381		

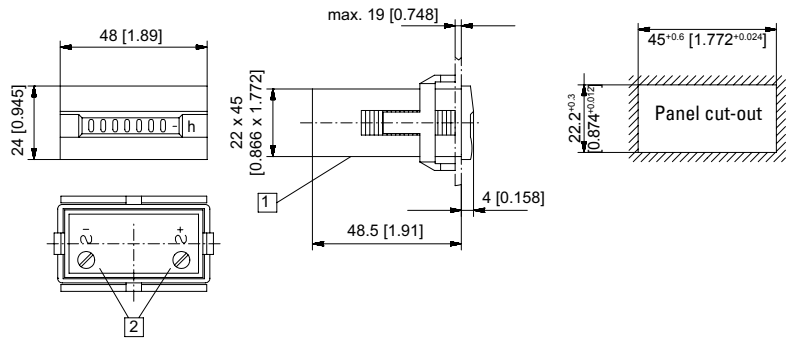
Dimensions in mm [inch]

1) Stock types

# Hour meters / timers, electromechanical

**Timers with DIN dimensions**    **DIN counters for panel mount, 48 x 24 mm (AC+DC)**    **H 37**

**DIN counter for panel mount mounting clip, on rear, panel mount dimensions 45 x 22 [1.77 x 0.91] Type H 37.5**



1 Wire entry    2 Screw terminal with flat pin 0.8 x 6.3 [0.031 x 0.25]

Type	Display	Voltage	Art. no.					
			10 ... 30 V	20 ... 30 V	36 ... 80 V	42 ... 48 V	100 ... 130 V	187 ... 264 V
<b>H 37.5</b>	7 digits	AC (50 Hz)		<b>3.245.201.071</b>		<b>3.245.201.072</b>	<b>3.245.201.074</b>	<b>3.245.201.075</b> <sup>1)</sup>
	7 digits	AC (60 Hz)		<b>3.245.201.081</b>		<b>3.245.201.082</b>	<b>3.245.201.084</b>	<b>3.245.201.085</b>
	8 digits	DC	<b>3.245.201.351</b> <sup>1)</sup>		<b>3.245.201.353</b>		<b>3.245.201.381</b>	

# Hour meters / timers, electromechanical

**Timers with DIN dimensions**    **DIN counter for panel mount / DIN rail housing, 48 x 48 mm**    **H 57 / AH 57**



The hour meters H 57, H 57.55, H 57.72 and AH 57 feature a very high shock resistance. These panel / DIN rail mount counters have a reduced mounting depth. They can be used in many different fields of application. These non-resettable counters are extremely tamper-proof.

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## Characteristics

- 7 or 8-digit hour meter.
- High shock and impact resistance.
- Without reset, small mounting depth.
- Magnified large figures.
- Protection IP52 (optional IP65), suitable for any mounting position.
- UL-approved.
- Various front bezel sizes
  - H 57      48 x 48 mm
  - H 57.55    55 x 55 mm
  - H 57.72    72 x 72 mm
  - AH 57    48 x 48 mm for DIN rail

## Benefits

- 5 years guarantee. <sup>1)</sup>
- High reliability: for a better sale of your final product.
- Data retention in case of power failure.
- Long service life.

## Applications

General time measurement, maintenance intervals for measuring instruments (respiration units, oxygen, dialysis), small appliances, UV lamps, display panels in vehicles

## Type series

Description	Mounting	Front bezel	Type
Standard DIN timer	clip mounting, on rear	48 x 48 mm [1.89 x 1.89"]	<b>H 57</b>
Standard DIN timer	clip mounting, on rear	55 x 55 mm [1.97 x 1.97"]	<b>H 57.55</b>
Standard DIN timer	clip mounting, on rear	72 x 72 mm [2.83 x 2.83"]	<b>H 57.72</b>
Base mount timer	DIN rail 35 mm [1.38"] acc. to DIN EN 50022		<b>AH 57</b>

Accessories	Dimensions in mm [inch]	Order no.
<b>Adapter front bezel, 55 x 55 [2.17 x 2.17]</b>	for cut-out 50 x 50 [1.97 x 1.97] or ø 50.5 [2.17] to cut-out 45 x 45 [1.77 x 1.77], with clip mounting for counters 48 x 48 [1.89 x 1.89]	<b>T008171</b>
<b>Adapter front bezel, 60 x 75 [2.36 x 2.95]</b>	for cut-out 50 x 50 [1.97 x 1.97] to cut-out 45 x 45 [1.77 x 1.77] with screw mounting for counters 48 x 48 [1.89 x 1.89]	<b>T008860</b>
<b>Adapter front bezel, 72 x 72 [2.83 x 2.83]</b>	for cut-out 68 x 68 [2.68 x 2.68] to cut-out 45 x 45 [1.77 x 1.77] (Mating clip T009420 must be ordered separately)	<b>T008177</b>
<b>Adapter front bezel, ø 72 [2.83]</b>	for cut-out ø 60 [2.36] to 45 x 45 [1.77 x 1.77], with clip mounting for counters 48 x 48 [1.89 x 1.89]	<b>N510226</b>
<b>Base-mount socket</b>	for H 57	<b>G008040</b>

Suitable gaskets, other accessories and installation examples for optional accessories can be found in chapter accessories or in the accessories section under: [www.kuebler.com/accessories](http://www.kuebler.com/accessories).

1) When used as specified in the technical data

# Hour meters / timers, electromechanical

## Timers with DIN dimensions    DIN counter for panel mount / DIN rail housing, 48 x 48 mm    H 57 / AH 57

Technical data	
<b>Electrical connection</b>	screw terminals (tightening torque max. 0.8 Nm) wire entry from behind, for $\varnothing$ 2.5 mm <sup>2</sup> [AWG13]
<b>Power consumption</b>	10 ... 30 V DC approx. 500 mW 100 ... 130 V DC approx. 750 mW 20 ... 30 V AC, 50 Hz approx. 0.3 VA 42 ... 48 V AC, 50 Hz approx. 0.25 VA 100 ... 130 V AC, 50 Hz approx. 0.6 VA 187 ... 264 V AC, 50 Hz approx. 1.2 VA 360 ... 440 V AC, 50 Hz approx. 1.65 VA
<b>Rated voltages</b>	AC (50 or 60 Hz) 20 ... 30 V, 42 ... 48 V, 100 ... 130 V, 187 ... 264 V, 360 ... 440 V DC 10 ... 30 V, 36 ... 80 V, 100 ... 130 V
<b>On time</b>	100 %
<b>Number of digits</b>	7 at AC 99999.99 h 8 at DC 999999.99 h
<b>Count mode</b>	adding
<b>Height of figures</b>	4 mm [0.16"]
<b>Color of figures</b>	white and red on black
<b>Operating temperature</b>	-15°C ... +50°C [+5°F ... +122°F] (non-condensing)
<b>Storage temperature</b>	-40°C ... +85°C [-40°F ... +185°F]
<b>Relative humidity</b>	< 95 % (non-condensing)
<b>Mounting position</b>	any
<b>Protection</b>	IP52, DIN 40050 (front side)
<b>EMC standards</b>	EN 55011 class B EN 61000-6-2, EN 61000-6-3
<b>Device safety</b>	designed to EN 61010 part 1 protection class 2 application area pollution level 2
<b>UL approval</b>	file E128604 the version 360 ... 440 V AC is not UL listed
<b>Housing</b>	plastic PC (Polycarbonate)
<b>Accuracy</b>	AC supply frequency + 30 ms DC < 0.003 % (at 24 h)
<b>Weight</b>	H 57 approx. 48 g [1.69 oz] base mount socket no. 48 36 g [1.27 oz] slip-on bezel 55 8 g [0.28 oz] slip-on bezel 72 13 g [0.46 oz]
<b>Operating indicator of the running time meter</b>	AC fast rotating wheel with red dashes DC 1/100 h display turns continuously by 1 digit in 36 s
<b>Test voltage</b>	2000 V AC, 50 Hz for AC counters

Options	
<b>Color of housing</b>	grey Art. no. 3.22X.400.XXX
<b>Timer H 57.55 mounted with adapter front bezel 55 x 55 mm [2.17 x 2.17"]</b>	Art. no. 3.221.XXX.XXX
<b>Timer H 57.72 montiert mit Adapter-Frontrahmen 72 x 72 mm [2.83 x 2.83"]</b>	Art. no. 3.222.XXX.XXX
<b>Electrical connection</b>	flat pin 0.8 x 6.3 mm [0.031 x 0.25"] Art.-No.: 3.228.401.XXX
<b>IP65 version, welded front cover</b>	H 57 Art. no. 3.220.XXX.XXX.422 H 57.55 Art. no. 3.221.XXX.XXX.423 H 57.72 Art. no. 3.222.XXX.XXX.424
<b>Required gaskets</b>	between the counter and the bezel H 57 N511018
<b>Gasket set</b>	H 57.55 N511018 + N511017 H 57.72 N511018 + N511016
(with the IP65 version, the gasket is included in the delivery)	
Further voltages on request	
Counter with cable inlet from underneath, screw fixing from rear Art. no. 3.220.401.XXX.044	

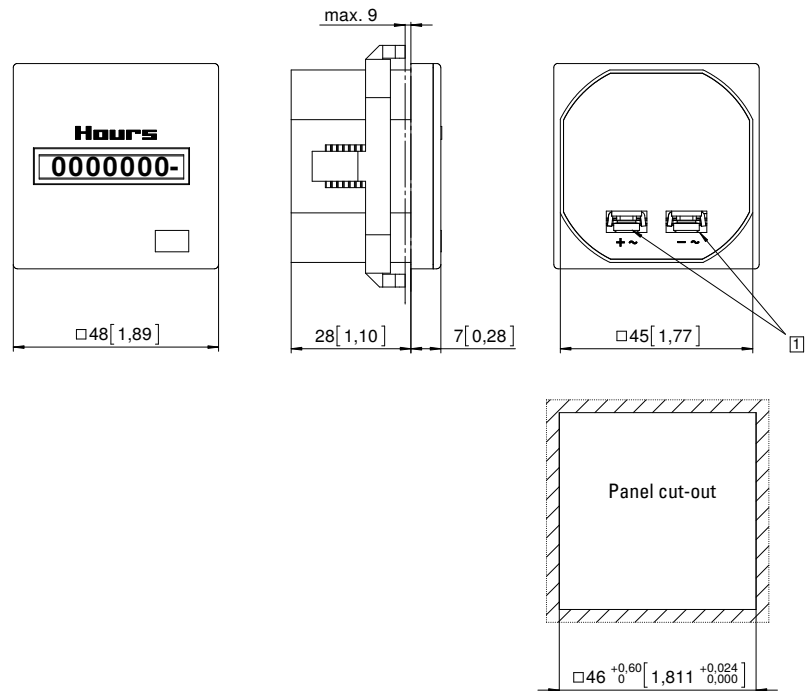
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# Hour meters / timers, electromechanical

**Timers with DIN dimensions**     **DIN counter for panel mount / DIN rail housing, 48 x 48 mm**     **H 57 / AH 57**

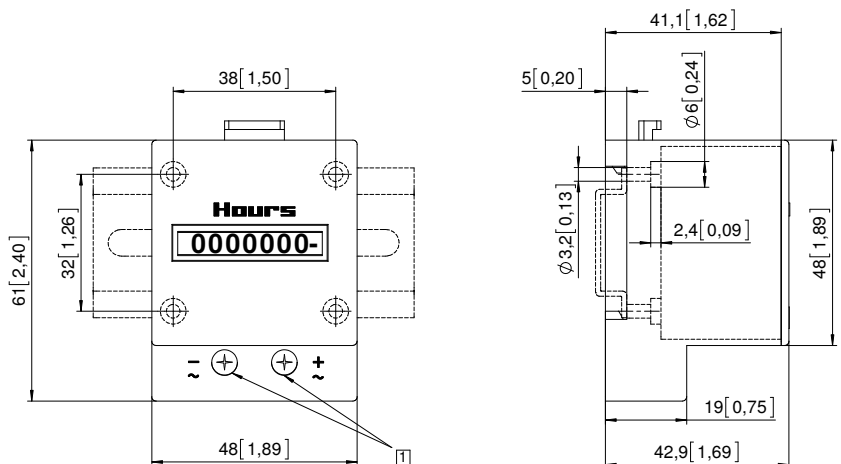
**Standard DIN timer**  
clip mounting, on rear  
**Type H 57**



1) Screw terminal with flat pin x 6.3 [0.031 x 0.25]

Type	Display	Voltage	Art. no.					
			10 ... 30 V	20 ... 30 V	42 ... 48 V	100 ... 130 V	187 ... 264 V	360 ... 440 V
<b>H 57</b>	7 digits	AC (50 Hz)		3.220.401.071 <sup>1)</sup>	3.220.401.072	3.220.401.074 <sup>1)</sup>	3.220.401.075 <sup>1)</sup>	3.220.401.079
	7 digits	AC (60 Hz)		3.220.401.081 <sup>1)</sup>	3.220.401.082	3.220.401.084 <sup>1)</sup>	3.220.401.085 <sup>1)</sup>	3.220.401.089
	8 digits	DC	3.220.401.351 <sup>1)</sup>			3.220.401.381		
Further stock types:			3.220.401.075.422	187... 264 V AC, IP65				
			3.220.401.351.422	10 ... 30 V DC, IP65				

**Base mount timer**  
DIN rail mount 35 [1.38] acc. to DIN EN 50022  
**Type AH 57**



1) Screw terminals

Type	Display	Voltage	Art. no.					
			10 ... 30 V	20 ... 30 V	42 ... 48 V	100 ... 130 V	187 ... 264 V	360 ... 440 V
<b>AH 57</b>	7 digits	AC (50 Hz)		3.223.401.071	3.223.401.072	3.223.401.074 <sup>1)</sup>	3.223.401.075 <sup>1)</sup>	3.223.401.079
	7 digits	AC (60 Hz)		3.223.401.081	3.223.401.082	3.223.401.084 <sup>1)</sup>	3.223.401.085 <sup>1)</sup>	3.223.401.089
	8 digits	DC	3.223.401.351 <sup>1)</sup>			3.223.401.381		

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<b>Timers for DIN rail mounting</b>	<b>Micro DIN rail housing (AC+DC)</b>	<b>SHK 07.1</b>
-------------------------------------	---------------------------------------	-----------------



The micro timers SHK 07.1 feature a very high shock resistance.

These base and DIN rail mount counters can be used in many different fields of application. These non-resettable counters are extremely tamper-proof.

### Characteristics

- 7-digit micro hour meter.
- DIN rail mount according to EN 50022.
- Base mount counter.
- High shock resistance.
- Low power consumption.
- Small dimensions.
- Magnified large figures.
- Display range 99999.99 h.

### Benefits

- Wide voltage range 4.5 ...35 V DC, 20 ...264 V AC.
- Data retention in case of power failure.
- Long service life.

### Applications

General time measurement, integration in control cabinets.

### Type series

Description	Mounting	Type
Timer	DIN rail 35 mm [1.38"] acc. to DIN EN 50022	<b>SHK 07.1</b>

### Technical data

<b>Electrical connection</b>	clamp terminal tightening torque max.	up to 2.5 mm <sup>2</sup> [AWG13] 0.8 Nm
<b>Power consumption</b>	(count pulses every 36 s with a pulse duration of 32 ms)	
	at U <sub>B</sub> = 5 V DC	typ. 82 mW
	at U <sub>B</sub> = 12 V DC	typ. 135 mW
	at U <sub>B</sub> = 24 V DC	typ. 135 mW
	at U <sub>B</sub> = 22 ... 32 V DC	typ. 170 mW
	20 ... 30 V AC	approx. 0.43 VA
	100 ... 130 V AC	approx. 0.82 VA
	187 ... 264 V AC	approx. 1.8 VA
<b>On time</b>		100 %
<b>Number of digits</b>		7 (99999.99 h)
<b>Accuracy</b>		22.5 ppm at 25°C [77°F]
<b>EMC standards</b>		EN 55011 class B EN 61000-6-2, EN 61000-6-3
<b>Device safety</b>	designed to protection class application area	EN 61010 part 1 2 pollution level 2

<b>Height of figures</b>	1.2 x 4 mm [0.047 x 0.016"]
<b>Color of figures</b>	white and red on black
<b>Operating temperature</b>	AC -10°C ... +50°C [-40°F ... +122°F] (non-condensing)
	DC -10°C ... +60°C [+14°F ... +140°F] (non-condensing)
<b>Mounting position</b>	horizontal, other on request
<b>Protection</b>	up to IP52 depends on version
<b>Housing</b>	plastic PC (Polycarbonate)
<b>Weight</b>	approx. 55 g [1.94 oz]

### Options

<b>Color of housing</b>	grey
<b>Temperature range</b>	-30°C ... +85°C [-22°F ... +185°F]
<b>Version with 6 digits width of figures</b>	1.7 mm [0.067"]

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Pulse counters

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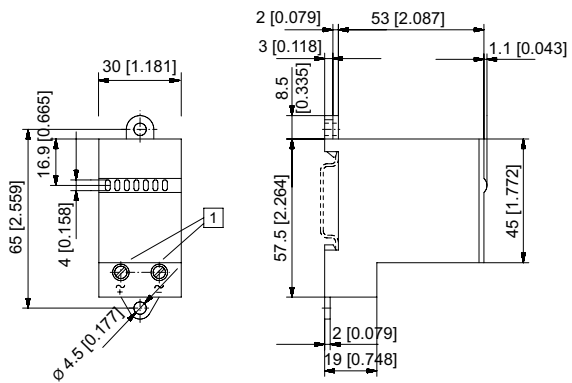
Strain-gauge  
controllers

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# Hour meters / timers, electromechanical

**Timers for DIN rail mounting**    **Micro DIN rail housing (AC+DC)**    **SHK 07.1**

Timer for DIN rail mount  
Type SHK 07.1



1) Electrical connection

Type	Display	Voltage	Art. no.			
			4.5 ... 35 V	20 ... 30 V	100 ... 130 V	187 ... 264 V
<b>SHK 07.1</b>	7 digits	AC (50...60 Hz)		<b>3.102.101.310</b>	<b>3.102.101.312</b>	<b>3.102.101.313</b> <sup>1)</sup>
	7 digits	DC	<b>3.102.101.383</b> <sup>1)</sup>			

Dimensions in mm [inch]

1) Stock types

- Product overview Basics
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- Frequency displays Tachometers
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# Hour meters / timers, electromechanical

<b>Timers for DIN rail mounting</b>	<b>DIN rail housing, 2 modules wide (AC+DC)</b>	<b>SH 17</b>
-------------------------------------	---	--------------



The hour meters SH 17 feature a very high shock resistance.

These DIN rail mount counters can be used in many different fields of application. These non-resettable counters are extremely tamper-proof.

## Characteristics

- 7-digit hour meter.
- DIN rail-mount housing, width 2 modules.
- High shock and impact resistance.
- Without reset.
- Magnified large figures.
- Protection IP65 on the front side.

## Benefits

- Easy mounting.
- Data retention in case of power failure.
- Long service life.

## Applications

General time measurement, maintenance intervals for measuring instruments, small appliances, UV lamps, integration in control cabinets.

## Type series

Description	Mounting	Type
Standard timer	DIN rail 35 mm [1.38"] acc. to DIN EN 50022	<b>SH 17</b>

## Technical data

<b>Electrical connection</b>	screw terminals	0 ... 2.5 mm <sup>2</sup> [AWG13]
	finely-stranded	0 ... 4 mm <sup>2</sup> [AWG11]
	single-wires	tightening torque max. 0.5 Nm
<b>Power consumption</b>	DC	approx. 1 W
	AC	approx. 2.5 VA
<b>Rated voltages</b>	24, 115, 230 V AC ±10 %, 50Hz	
	115 V AC ±10 %, 60Hz	
	10 ... 27 V DC	
<b>On time</b>		100 %
<b>Number of digits</b>		7: 99999.99 h
<b>Height of figures</b>		1.8 x 3.6 mm [0.071 x 0.14"]
<b>Color of figures</b>		white on black
<b>Decimal figures</b>		black on white
<b>Housing</b>		plastic PC (Polycarbonate)
<b>Weight</b>		approx. 60 g [2.12 oz]
<b>Color of housing</b>		grey, Ral 7035

<b>Reset</b>		no reset
<b>Operating temperature</b>	AC/DC	-10°C ... +70°C [+14°F ... +158°F] (non-condensing)
<b>Storage temperature</b>	AC/DC	-40°C ... +80°C [-40°F ... +176°F]
<b>Mounting position</b>		any
<b>Protection</b> acc. to EN 60529		IP65 (front side)
	screw terminal	IP20
<b>Vibration resistance</b>		1 g (10 ... 500 Hz) acc. to EN 60028-2-34
<b>Shock resistance</b>		30 g (18 ms) acc. to EN 60068-2-27
		25 g (6 ms) acc. to EN 60068-2-29
<b>EMC standards</b>		EN 55011 class B
		EN 61000-6-2, EN 61000-6-3
<b>Device safety</b>	designed to protection class application area	EN 61010 part 1
		2 pollution level 2
<b>Accuracy</b>		< 0.01%, for all versions

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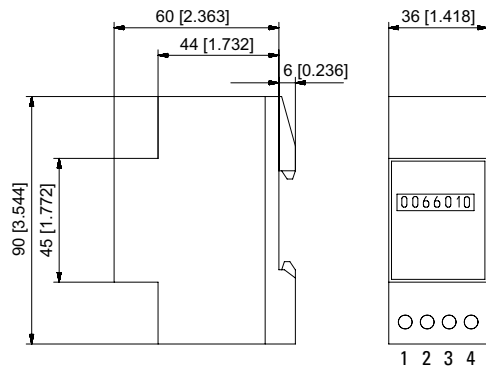
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# Hour meters / timers, electromechanical

**Timers for DIN rail mounting**    **DIN rail housing, 2 modules wide (AC+DC)**    **SH 17**

**Standard timer**  
**Type SH 17**



**Terminal assignment**

PIN	DC	AC
1	n.c.	n.c.
2	+	~
3	-	~
4	n.c.	n.c.

Type	Display	Voltage	Art. no.			
			24 V	115 V	230 V	10 ... 27 V DC
<b>SH 17</b>	7 digits	AC (50 Hz)	<b>0.170.000.071</b>	<b>0.170.000.284</b>	<b>0.170.000.075</b> <sup>1)</sup>	
	7 digits	AC (60 Hz)		<b>0.170.000.287</b>		
	7 digits	DC				<b>0.170.000.351</b> <sup>1)</sup>

Dimensions in mm [inch]

1) Stock types

- Product overview Basics
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# Hour meters / timers, electromechanical

<b>Timers, round design</b>	<b>With LED run indicator (AC+DC)</b>	<b>HR 47</b>
-----------------------------	---------------------------------------	--------------



The hour meter HR 47 with run indicator feature a very high shock resistance.

These panel-mount counters for round panel cut-outs can be used in many different fields of application. These non-resettable counters are very robust and extremely tamper-proof.

### Characteristics

- 7-digit hour meter.
- For voltage ranges 10 ... 80 V DC, 100 ... 130 V AC and 187 ... 264 V AC.
- Magnified large figures.
- Protection IP65 on the front and rear sides.
- Suitable for any mounting position.
- Without reset, and thus tamper-proof.
- High shock and impact resistance.

### Benefits

- With run indicator (AC version), optional LED (DC version).
- For panel cut-out  $\varnothing$  50.5 mm with front panel dimensions  $\varnothing$  58 mm.
- Simple and secure mounting with screwed clamping clip.

### Applications

General time measurement, construction machinery and industrial trucks, small appliances, UV lamps, display panels in vehicles, compressors, air-conditioning equipment, etc..

### Type series

Description	Mounting	Type
Timer, round	Clamping clip fixing, screw-on	<b>HR 47</b>

Accessories	Dimensions in mm [inch]	Order no.
<b>Counter mounting fixture</b>	for round counters with cut-out $\varnothing$ 53 [2.09"]	black <b>N510199</b>
<b>Gasket, <math>\varnothing</math> 58 [2.28"]</b>	for cut-out $\varnothing$ 50 [1.97"]	black <b>N511182</b>
<b>Adapter and anti-vibration set</b>	for HR 47, $\varnothing$ 80 [3.15"] for cut-out $\varnothing$ 71 [2.80"]	black <b>255319</b>

Suitable gaskets as well as further accessories can be found in the accessories section or in the accessories area of our website at: [www.kuebler.com/accessories](http://www.kuebler.com/accessories).

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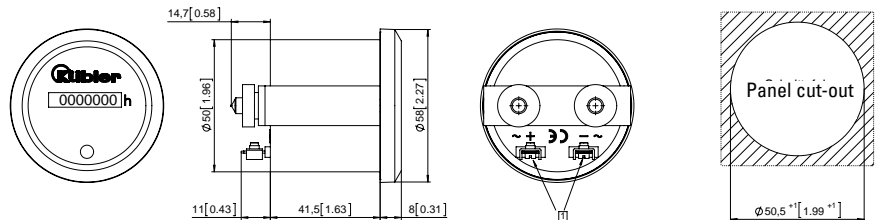
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# Hour meters / timers, electromechanical

Timers, round design		With LED run indicator (AC+DC)		HR 47	
<b>Technical data</b>					
<b>Electrical connection</b>	screw terminal for flat pin 6.3 x 0.8 mm [0.25 x 0.031"]				
<b>Power consumption</b>	10 ... 80 V DC	max. 720 mW			
	100 ... 130 V AC, 60 Hz	max. 1.1 VA			
	187 ... 264 V AC, 50 Hz	approx. 1.2 VA			
<b>Rated voltages</b>	AC (50 or 60 Hz)	100 ... 130/187 ... 264 V AC,			
	DC	10 ... 80 V DC			
<b>On time</b>	100 %				
<b>Number of digits</b>	AC	7: 99999.99 h			
	DC	7: 999999.9 h			
<b>Resolution</b>	AC	0.01 h equals 36 s			
	DC	0.1 h equals 6 min			
<b>Count mode</b>	adding				
<b>Height of figures</b>	4 mm [0.16"]				
<b>Color of figures</b>	hours	white on black			
	decimal position	50 Hz - red on black 60 Hz - red on white			
<b>Count position at delivery</b>	1.00 - 1.02				
<b>Operating temperature</b>	AC	-25°C ... +80°C [-13°F ... +176°F] (non-condensing)			
	DC	-20°C ... +70°C [-4°F ... +158°F] (non-condensing)			
<b>Relative humidity</b>	< 95 % (non-condensing)				
<b>Mounting position</b> any					
<b>Protection</b> IP65, EN 60529 (except the connections)					
<b>Housing</b> plastic PC (Polycarbonate)					
<b>Accuracy</b>	AC	±0.02 %			
	DC	±0.002 %			
<b>Weight</b>	approx. 50 g [1.76 oz]				
<b>Run indicator</b>	AC	fast rotating wheel in viewing window			
	DC	optional LED			
<b>Test voltage</b>	2000 V AC, 50 Hz for AC version				
<b>EMC standards</b>	EN 55011 class B EN 61000-6-2, EN 61000-6-3				
<b>Device safety</b>	designed to protection class	EN 61010 part 1 2			
	application area	pollution level 2			
<b>Options</b>					
Counter for ø 52 mm [0.20"] with screwed clamping bracket or screw thread on request					

## Timer, round Type HR 47



1) Electrical connection: +/~ left, -/~ right (rear view)

Front bezel thickness max. 6 [0.24] without having to shorten the clamping bracket

Type	Display	Voltage	Art. no.		
			10 ... 80 V DC	100 ... 130 V 60 Hz	187 ... 264 V 50 Hz
HR 47	7 digits	V AC, with run indicator		3.474.901.084 <sup>1)</sup>	3.474.901.075 <sup>1)</sup>
	7 digits	V DC, without run indicator	3.474.901.373 <sup>1)</sup>		
	7 digits	V DC, with run indicator	3.474.911.373 <sup>1)</sup>		
			further types on request		

# Hour meters / timers, electromechanical

<b>Timers, round design</b>	<b>High protection rating (AC+DC)</b>	<b>HR 76</b>
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The hour meter HR 76 feature a very high shock resistance.

These panel-mount counters for round panel cut-outs can be used in many different fields of application. These non-resettable counters are very robust and extremely tamper-proof.

## Characteristics

- 6-digit hour meter.
- Low cost.
- High shock resistance.
- Low energy consumption.
- Magnified large figures.
- Protection IP65.
- Data retention in case of power failure.
- Long service life.

## Benefits

- 50/60 Hz in the same device.
- Small mounting depth.
- Waterproof on the front and on the rear.

## Applications

Operating hours measurement with construction and agricultural machinery, compressors, power units.

## Type series

Description	Mounting	Type
Timer, round	screw mounting front side	<b>HR 76.1</b>
Timer, round	clip mounting	<b>HR 76.2</b>

## Accessories

	Dimensions in mm [inch]	Order no.
<b>Counter mounting fixture</b>	for round counters with cut-out $\varnothing$ 53 [2.09"]	black <b>N510199</b>

Suitable gaskets as well as further accessories can be found in the accessories section or in the accessories area of our website at: [www.kuebler.com/accessories](http://www.kuebler.com/accessories).

## Technical data

<b>Electrical connection</b>	flat pin 0.8 x 6.3 mm [0.031 x 0.25"]	
<b>Power consumption</b>	AC	max. 0.4 VA
	12 V DC	max. 0.08 W
	48 V DC	max. 0.7 W
<b>Rated voltages</b>	AC (50 or 60 Hz)	115/230 V AC, $\pm$ 10 %, 50/60 Hz
	DC	10 ... 80 V DC
<b>On time</b>	100 %	
<b>Number of digits</b>	6: 99999.9 h	
<b>Count mode</b>	adding	
<b>Height of figures</b>	3.5 mm [0.14"] heigh	
<b>Color of figures</b>	white on black	
<b>Reset</b>	no reset	

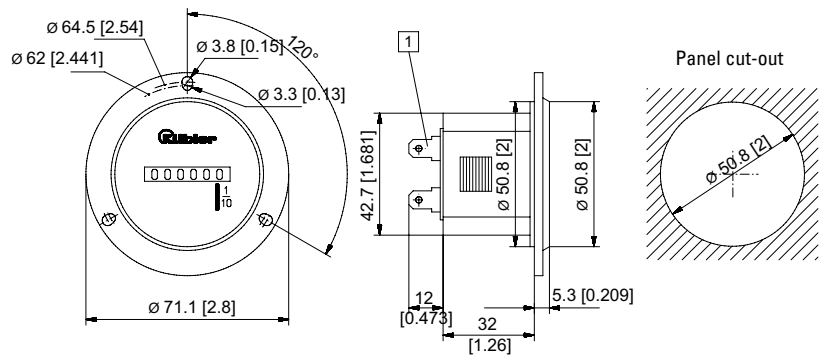
<b>Operating temperature</b>	-30°C ... +65°C [-22°F ... +185°F] (non-condensing)	
<b>Storage temperature</b>	-40°C ... +85°C [-40°F ... +149°F]	
<b>Mounting position</b>	any	
<b>Protection</b>	IP65 (except the connections)	
<b>Housing</b>	plastic PC (Polycarbonate)	
<b>Accuracy</b>	< 0.02 % over the full range	
<b>Weight</b>	HR 76.1	56 g [1.98 oz]
	HR 76.2	54 g [1.91 oz]
<b>EMC standards</b>	EN 55011 class B EN 61000-6-2, EN 61000-6-3 EN 61326-1	
<b>Device safety</b>	designed to protection class application area	EN 61010 part 1 2 pollution level 2
<b>UL approval</b>	file E128604	



# Hour meters / timers, electromechanical

**Timers, round design**      **High protection rating (AC+DC)**      **HR 76**

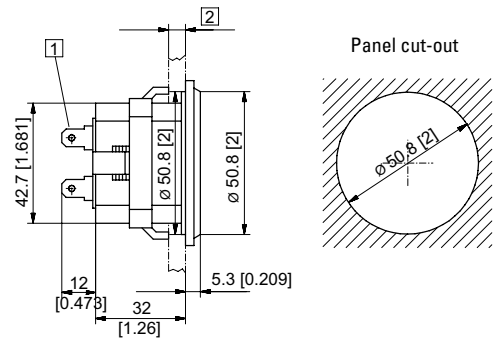
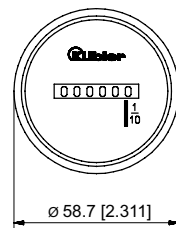
**Timer, round screw mounting front side**  
Type HR 76.1



1) Electrical connection: flat pin 0.8 x 6.3 [0.031 x 0.25]

Type	Display	Voltage	Art. no.			
			10 ... 80 V DC	115 V	230 V	
HR 76.1	6 digits	AC (50/60 Hz)		0.135.100.301 <sup>1)</sup>	0.135.100.302 <sup>1)</sup>	Gasket for front bezel N511150 not included in delivery
	6 digits	DC	0.135.100.373 <sup>1)</sup>			

**Timer, round clip mounting**  
Type HR 76.2



For mounting the counter onto a flat plate, see accessories chapter  
Art. no.: N510199

1) Electrical connection: flat pin 0.8 x 6.3 [0.031 x 0.25]      2) max. 9 [035]

Type	Display	Voltage	Art. no.			
			10 ... 80 V DC	115 V	230 V	
HR 76.2	6 digits	AC (50/60 Hz)		0.135.200.301 <sup>1)</sup>	0.135.200.302 <sup>1)</sup>	Gasket integrated in counter
	6 digits	DC	0.135.200.373 <sup>1)</sup>			

# Hour meters / timers, electromechanical

<b>Standard timers</b>	<b>9999.99 h / 99999.9 h with reset (AC+DC)</b>	<b>HB 26</b>
------------------------	---	--------------



The timer HB 26 with reset measure time ranges up to max. 99999.9 h or 9999.99 h.

These panel-mount counters can be used in many different fields of application.

### Characteristics

- 6-digit hour meter without reset.
- High shock and impact resistance.
- Magnified large figures; height 4.5 mm.
- Data retention in case of power failure.
- Long service life.
- Plug-in versions.
- Counter without front bezel for mounting in front bezel F1B and F2B and for combination in 50 x 25 mm size with socket box 945.2.

### Benefits

- Can be combined with preset counters BVa and HVa, and with pulse counter B.
- Can be equipped with various sealing covers to protect the counter against dust, dirt and moisture.
- Key-locking 0-reset.

### Applications

General time measurement, maintenance intervals for measuring instruments (respiration units, oxygen, dialysis), small appliances, UV lamps, display panels in vehicles.

### Type series

#### Description

- Screw mounting, 56 x 40 mm [2.20 x 1.57"]
- Clip mounting, 53 x 28 mm [2.09 x 1.10"]
- Plug-in for socket box 945.2 and front bezel F1B

#### Type

- HB 26.11**
- HB 26.21**
- HB 26.01.3**

#### Options

- Different voltages
- Extended temperature range on request
- Flat pin 0.8 x 6.3 mm [0.031 x 0.25"] without flat push on connectors: Art.-Nr. 3.168.X11.XXX
- Flat pin 0.8 x 2.8 mm [0.031 x 0.11"] with flat push on connectors: Art.-Nr. 3.167.X11.XXX
- Lockable 0-reset: Art.-Nr. 3.160.XX7.XXX  
The button can be unlocked by means of the key



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# Hour meters / timers, electromechanical

Standard timers	9999.99 h / 99999.9 h with reset (AC+DC)	HB 26	
Accessories	Dimensions in mm [inch]		Order no.
<b>Front bezel, type F1B</b> plastic	for cut-out 54 x 49 [2.13 x 1.93], for screw mounting, for plug-in counters B1x.0x and HB2x.0x in socket box type 945.2	beige black	<b>G007501</b> <b>G007502</b>
<b>Socket box, type 945.2</b>	for counters B1x.0x and HB2x.0x, can be used for plug-in connections in front bezel F1B	black	<b>G008434</b>
<b>Sealing cover, type K1, IP65</b>	for front bezel 60 x 50 [2.36 x 1.97], with screw mounting, for electromechanical counters and via adapter front bezel N003001 for counters 48 x 24 [1.89 x 0.94]	transparent / grey transparent / black	<b>G008300</b> <b>G008301</b>
<b>Transparent cover, lockable, IP65</b>	for cut-out 54 x 29 [2.13 x 1.14], for screw mounting to front bezel F1B or adapter front bezel N003001, for counters with cut-out 50 x 25 [1.97 x 0.98] or 45 x 22.2 [1.77 x 0.87]		<b>N003002</b>
<b>Blind enclosure, 53 x 28 [2.07 x 1.10]</b>	for cut-out 50 x 25 [1.97 x 0.98], for counters 53 x 28 [2.09 x 1.10]	black	<b>T005753</b>
<b>Mounting frame</b> with cut-out 50 x 25 [2.36 x 1.97] via separate adapter also for 45 x 22.2 [1.77 x 0.87]	for snap-on mounting on 35 [1.38] top-hat DIN rail, for counters 53 x 28 [2.09 x 1.10] and via separate adapter (T008180) for counters 48 x 24 [1.89 x 0.94]	chromated	<b>G300004</b>
<b>Mounting rail frame SR</b>	for B and HB counters for snap-on mounting on 35 [1.38] top-hat DIN rail	SR 1 for 1x3 B counters SR 2 for 2x3 B counters	<b>G300000</b> <b>G300001</b>

Suitable gaskets, other accessories and installation examples for optional accessories can be found in chapter accessories or in the accessories section under: [www.kuebler.com/accessories](http://www.kuebler.com/accessories).

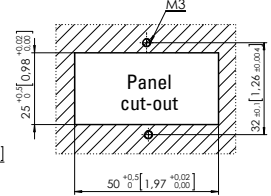
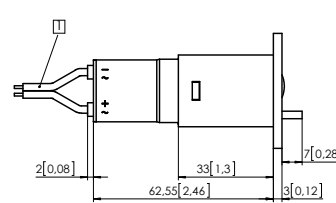
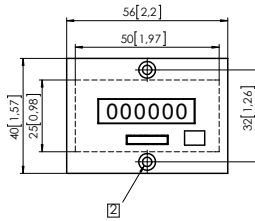
## Technical data

Electrical characteristics		General technical data	
<b>Electrical connection</b>	cable 2 x 0.5 mm <sup>2</sup> [AWG20], NYFAZ, 0.5 m [1.64'] long AC: grey/grey, DC: red +, black - type HB 26.01.3 round pins ø 1.6 mm [0.063"] (plugs into socket box type 945.2)	<b>Display</b>	number of digits 6, AC: 9999.99 h, DC: 99999.9 h height of figures 4.5 mm [0.17"] color of figures white and red on black
<b>Power consumption</b>	10 ... 30 V DC approx. 500 mW 36 ... 80 V DC approx. 900 mW 100 ... 130 V DC approx. 750 mW 20 ... 30 V AC approx. 0.3 VA 42 ... 48 V AC approx. 0.25 VA 100 ... 130 V AC approx. 0.6 VA 187 ... 264 V AC approx. 1.2 VA 360 ... 440 V AC approx. 1.65 VA	<b>Operating temperature</b>	-15°C ... +50°C [+5°F ... +122°F] (non-condensing)
<b>Rated voltages</b>	AC (50 or 60 Hz) 20 ... 30 / 42 ... 48 / 100 ... 130 / 187 ... 264 / 360 ... 440 V AC DC 10 ... 30 / 36 ... 80 / 100 ... 130 V DC	<b>Mounting position</b>	any
<b>Accuracy</b>	AC supply frequency + 30 ms DC < 0.003 % (at 24 h)	<b>Mechanical characteristics</b>	
<b>EMC standards</b>	EN 55011 class B EN 61000-6-2, EN 61000-6-3	<b>Housing</b>	plastic PC (Polycarbonate)
<b>Device safety</b>	designed to EN 61010 part 1 protection class 2 application area pollution level 2	<b>Protection</b>	IP41 (front side) with flexible sealing cover K1 IP54 (front side) with transparent cover Dv., Dvs IP55 (front side)
		<b>Weight</b>	approx. 45 g [1.59 oz]
		<b>Options</b>	
		Different voltages and extended temperature range on request	
		Flat pin 0.8 x 6.3 mm [0.031 x 0.25"] without flat push on connectors	Art. no. 3.168.X11.XXX
		Flat pin 0.8 x 2.8 mm [0.031 x 0.11"] with flat push on connectors	Art. no. 3.167.X11.XXX
		Key-locking 0-reset	Art. no. 3.160.XX7.XXX

# Hour meters / timers, electromechanical

**Standard timers**      **9999.99 h / 99999.9 h with reset (AC+DC)**      **HB 26**

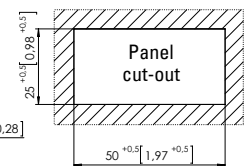
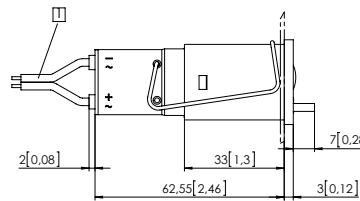
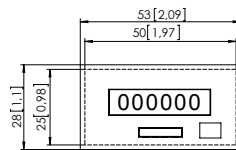
Screw mounting, 56 x 40 [2.20 x 1.57]  
Type HB 26.11



1) Connection cable, 2 x 0.5 mm<sup>2</sup> [AWG20], NYFAZ, 0.5 m [1.64'] long    2) Countersinking Af3, DIN 74

Type	Display	Voltage	Art. no.						
			10 ... 30 V	20 ... 30 V	36 ... 80 V	42 ... 48 V	100 ... 130 V	187 ... 264 V	360 ... 440 V
HB 26.11	6 digits	AC (50 Hz)		3.160.111.071		3.160.111.072	3.160.111.074	3.160.111.075 <sup>1)</sup>	3.160.111.079
	6 digits	AC (60 Hz)		3.160.111.081		3.160.111.082	3.160.111.084	3.160.111.085	3.160.111.089
	6 digits	DC	3.160.111.351 <sup>1)</sup>		3.160.111.353	3.160.111.381			

Clip mounting, 53 x 28 [2.09 x 1.10]  
Type HB 26.21



1) Connection cable, 2 x 0.5 mm<sup>2</sup> [AWG20], NYFAZ, 0.5 m [1.64'] long

Type	Display	Voltage	Art. no.						
			10 ... 30 V	20 ... 30 V	36 ... 80 V	42 ... 48 V	100 ... 130 V	187 ... 264 V	360 ... 440 V
HB 26.21	6 digits	AC (50 Hz)		3.160.211.071		3.160.211.072	3.160.211.074	3.160.211.075 <sup>1)</sup>	3.160.211.079
	6 digits	AC (60 Hz)		3.160.211.081		3.160.211.082	3.160.211.084	3.160.211.085	3.160.211.089
	6 digits	DC	3.160.211.351 <sup>1)</sup>		3.160.211.353	3.160.211.381			
Further stock types:			187... 264 V AC, key lockable reset			3.160.217.075			
			187... 264 V AC, flat pin 0.8 x 2.8 mm [0.031 x 0.11"]			3.167.211.075			
			10 ... 30 V DC, flat pin 0.8 x 2.8 mm [0.031 x 0.11"]			3.167.211.351			

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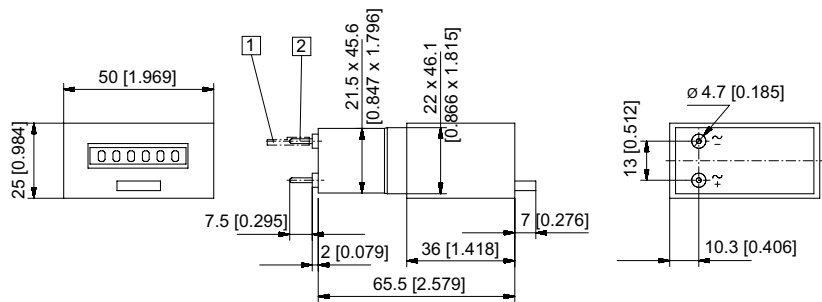
# Hour meters / timers, electromechanical

<b>Standard timers</b>	<b>9999.99 h / 99999.9 h with reset (AC+DC)</b>	<b>HB 26</b>
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**Plug-in for socket box 945.2 and front bezel F1B**  
**Type HB 26.01.3**



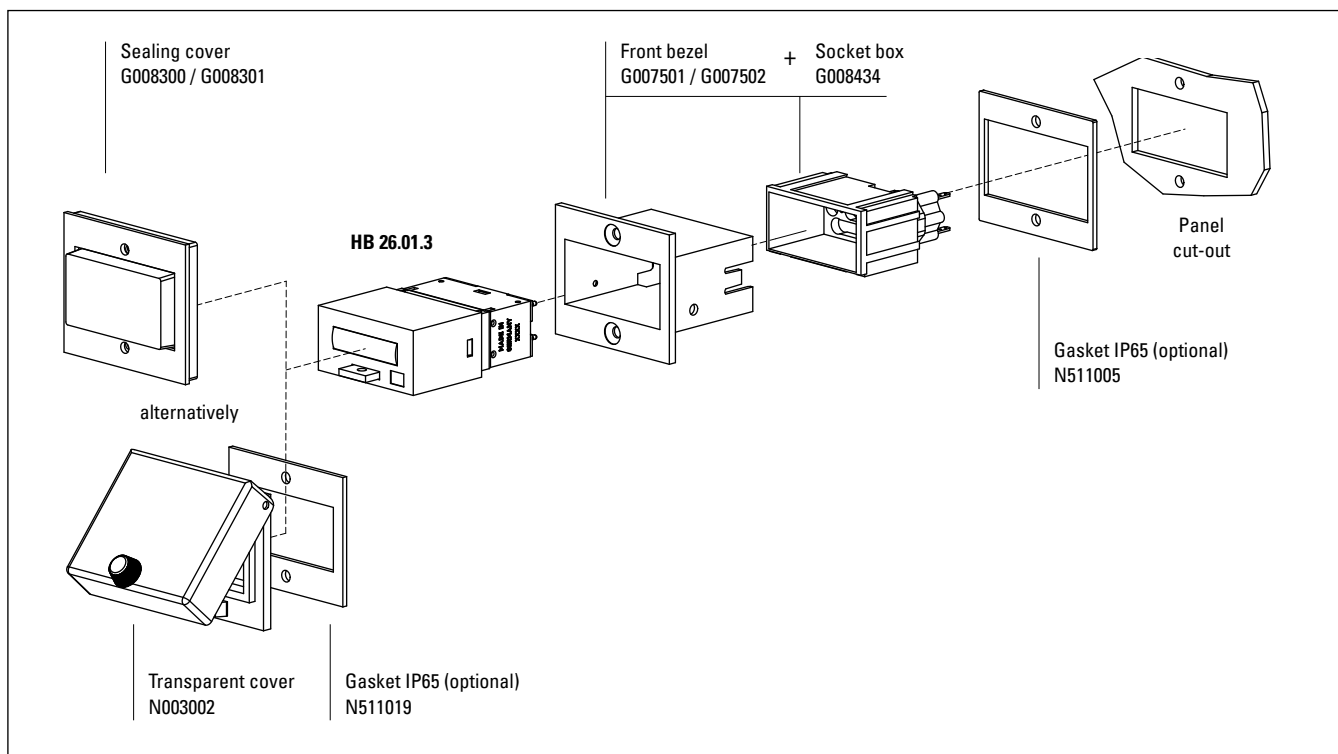
socket box 945.2 not included in delivery



- 1 Push on connector  $\varnothing$  1.5 [0.059] tinned    2 Round pin  $\varnothing$  1.6 [0.063] tinned

Type	Display	Voltage	Art. no.						
			10 ... 30 V	20 ... 30 V	36 ... 80 V	42 ... 48 V	100 ... 130 V	187 ... 264 V	360 ... 440 V
HB 26.01.3	6 digits	AC (50 Hz)		3.165.011.071		3.165.011.072	3.165.011.074	3.165.011.075	3.165.011.079
	6 digits	AC (60 Hz)		3.165.011.081		3.165.011.082	3.165.011.084	3.165.011.085	3.165.011.089
	6 digits	DC	3.165.011.351		3.165.011.353		3.165.011.381		

## Mounting examples for optional accessories



Dimensions in mm [inch]

Product overview  
Basics  
Pulse counters  
Preset counters  
Hour meters  
Timers  
Frequency displays  
Tachometers  
Position displays  
Multifunction devices  
Energy meters  
Process devices  
Temperature devices  
Strain-gauge controllers  
Accessories  
Index

# Hour meters / timers, electromechanical

<b>Standard timers</b>	<b>99999.99 h (AC) / 999999.9 h (DC) without reset</b>	<b>HB 27</b>
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The timers HB 27 without reset measure time ranges up to max. 99999.99 h (AC) or 999999.9 h (DC).

These panel mount counters can be used in many different fields of application.

## Characteristics

- 7-digit hour meter without reset.
- High shock and impact resistance.
- Magnified large figures; height 4.5 mm.
- Data retention in case of power failure.
- Long service life.
- Plug-in versions.
- Counter without front bezel for mounting in front bezel F1B and F2B and for combination in 50 x 25 mm size with socket box 945.2.

## Benefits

- Can be combined with preset counters BVa and HVa, and with pulse counter B.
- Can be equipped with various sealing covers to protect the counter against dust, dirt and moisture.
- Tamper-proof.

## Applications

General time measurement, maintenance intervals for measuring instruments (respiration units, oxygen, dialysis), small appliances, UV lamps, display panels in vehicles.

## Type series

Description	Type	Options
Plug-in for socket box 945.2 945.2 and front bezel F1B	<b>HB 27.00.3</b>	<ul style="list-style-type: none"> <li>• Different voltages / extended temperature range on request</li> <li>• Flat pin 0.8 x 6.3 mm [0.031 x 0.25"] without flat push on connectors: Art. no. 3.208.X11.XXX</li> <li>• Flat pin 0.8 x 2.8 mm [0.031 x 0.11"] with flat push on connectors: Art. no. 3.207.X01.XXX</li> <li>• Round pins ø 1.5 mm (tinned) with push on connectors Art. no. 3.205.X01.XX</li> </ul>
Screw mounting 56 x 40 mm [2.20 x 1.57"]	<b>HB 27.10</b>	
Clip mounting 53 x 28 mm [2.09 x 1.10"]	<b>HB 27.20</b>	

Accessories	Dimensions in mm [inch]	Order no.
<b>Front bezel, type F1B</b> plastic	For cut-out 54 x 49 [2.13 x 1.93], with screw mounting, for plug-in counters B1x.0x and HB2x.0x in socket box type 945.2	beige black <b>G007501</b> <b>G007502</b>
<b>Socket box, type 945.2</b>	For counters B1x.0x and HB2x.0x, can be used for plug-in connections in front bezel F1B	black <b>G008434</b>
<b>Sealing cover, type K1, IP65</b>	For front bezel 60 x 50 [2.36 x 1.97], with screw mounting, for electromechanical counters and via adapter front bezel N003001 for counters 48 x 24 [1.89 x 0.94]	transparent / grey transparent / black <b>G008300</b> <b>G008301</b>
<b>Transparent cover, lockable, IP65</b>	For cut-out 54 x 29 [2.13 x 1.14], with screw mounting to front bezel F1B or adapter front bezel N003001, for counters with cut-out 50 x 25 [1.97 x 0.98"] or 45 x 22.2 [1.77 x 0.87]	transparent / black <b>N003002</b>
<b>Blind enclosure, 53 x 28 [2.09 x 1.10]</b>	For cut-out 50 x 25 [1.97 x 0.98], for counters 53 x 28 [2.09 x 1.10]	black <b>T005753</b>
<b>Mounting frame</b> with cut-out 50 x 25 [1.97 x 1.97] via separate adapter also for 45 x 22.2 [1.77 x 0.87]	For snap-on mounting on 35 [1.38] top-hat DIN rail, for counters 53 x 28 [2.09 x 1.10] and via separate adapter (T008180) for counters 48 x 24 [1.89 x 0.94]	chromated <b>G300004</b>
<b>Mounting rail frame SR</b>	For B and HB counters for snap-on mounting on 35 [1.38] top-hat DIN rail	SR 1 for 1x3 B counters SR 2 for 2x3 B counters <b>G300000</b> <b>G300001</b>

Suitable gaskets, other accessories and installation examples for optional accessories can be found in chapter accessories or in the accessories section under: [www.kuebler.com/accessories](http://www.kuebler.com/accessories).

# Hour meters / timers, electromechanical

<b>Standard timers</b>	<b>99999.99 h (AC) / 999999.9 h (DC) without reset</b>	<b>HB 27</b>
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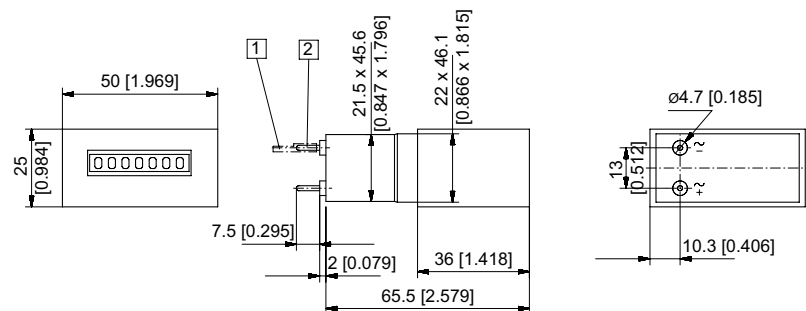
## Technical data

General technical data	
<b>Display</b>	7 digits AC 99999.99 h DC 999999.9 h
<b>Height of figures</b>	4.5 mm [0.17"]
<b>Color of figures</b>	white and red on black
<b>Operating temperature</b>	-15°C ... +50°C [+5°F ... +122°F] (non-condensing)
<b>Mounting position</b>	any

Mechanical characteristics	
<b>Protection</b>	up to IP51 (front side) with sealing cover K1 IP54 (front side) with transparent cover Dv, Dvs IP55 (front side)
<b>Housing</b>	plastic PC (Polycarbonate)
<b>Weight</b>	approx. 45 g [1.59 oz]

Electrical characteristics		
<b>Electrical connection</b>	cable	2 x 0.5 mm <sup>2</sup> [AWG20], NYFAZ, 0.5 m [1.64'] long AC: grey/grey DC: red +, black - type HB 27.00.3 round pins ø 1.6 mm [0.063"] (plugs into socket box type 945.2)
<b>Test voltage</b>		2000 V AC, 50 Hz for AC counters
<b>Power consumption</b>	10 ... 30 V DC 36 ... 80 V DC 100 ... 130 V DC 20 ... 30 V AC 42 ... 48 V AC 100 ... 130 V AC 187 ... 264 V AC 360 ... 440 V AC	approx. 500 mW approx. 900 mW approx. 750 mW approx. 0.3 VA approx. 0.25 VA approx. 0.6 VA approx. 1.2 VA approx. 1.65 VA
<b>Rated voltages</b>	AC (50 or 60 Hz) DC	20 ... 30 / 42 ... 48 / 100 ... 130 / 187 ... 264 / 360 ... 440 V AC 10 ... 30 / 36 ... 80 / 100 ... 130 V DC
<b>Accuracy</b>	AC DC	supply frequency + 30 ms < 0.003 % (at 24 h)
<b>EMC standards</b>		EN 55011 class B EN 61000-6-2, EN 61000-6-3
<b>Device safety</b>	designed to protection class application area	EN 61010 part 1 2 pollution level 2

**Plug-in for socket box 945.2 and front bezel F1B**  
**Type HB 27.00.3**



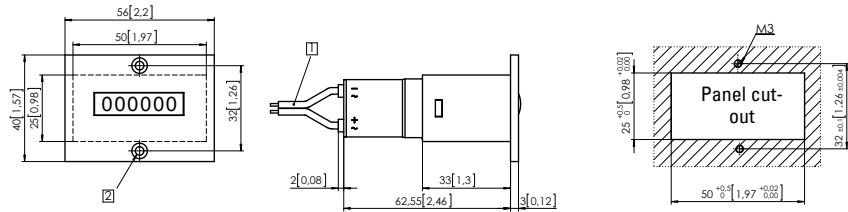
1 Push on connector ø 1.5 [0.059] tinned    2 Round pin ø 1.6 [0.063] tinned

Type	Display	Voltage	Art. no.						
			10 ... 30 V	20 ... 30 V	36 ... 80 V	42 ... 48 V	100 ... 130 V	187 ... 264 V	360 ... 440 V
HB 27.00.3	7 digits	AC (50 Hz)		3.205.001.071		3.205.001.072	3.205.001.074	3.205.001.075	3.205.001.079
	7 digits	AC (60 Hz)		3.205.001.081		3.205.001.082	3.205.001.084	3.205.001.085	3.205.001.089
	7 digits	DC	3.205.001.351		3.205.001.353		3.205.001.381		

# Hour meters / timers, electromechanical

**Standard timers**      **99999.99 h (AC) / 999999.9 h (DC) without reset**      **HB 27**

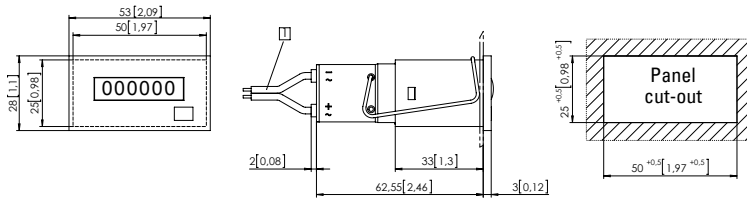
**Screw mounting 56 x 40 [2.20 x 1.57]**  
**Type HB 27.10**



1) Connection cable, 2 x 0.5 mm<sup>2</sup> [AWG20], NYFAZ, 0.5 m [1.64'] long    2) Countersinking Af3, DIN 74

Type	Display	Voltage	Art. no.						
			10 ... 30 V	20 ... 30 V	36 ... 80 V	42 ... 48 V	100 ... 130 V	187 ... 264 V	360 ... 440 V
<b>HB 27.10</b>	7 digits	AC (50 Hz)		<b>3.200.101.071</b>		<b>3.200.101.072</b>	<b>3.200.101.074</b>	<b>3.200.101.075</b>	<b>3.200.101.079</b>
	7 digits	AC (60 Hz)		<b>3.200.101.081</b>		<b>3.200.101.082</b>	<b>3.200.101.084</b>	<b>3.200.101.085</b>	<b>3.200.101.089</b>
	7 digits	DC	<b>3.200.101.351</b>		<b>3.200.101.353</b>		<b>3.200.101.381</b>		

**Clip mounting 53 x 28 [2.09 x 1.10]**  
**Type HB 27.20**



1) Connection cable, 2 x 0.5 mm<sup>2</sup> [AWG20], NYFAZ, 0.5 m [1.64'] long

Type	Display	Voltage	Art. no.						
			10 ... 30 V	20 ... 30 V	36 ... 80 V	42 ... 48 V	100 ... 130 V	187 ... 264 V	360 ... 440 V
<b>HB 27.20</b>	7 digits	AC (50 Hz)		<b>3.200.201.071</b>		<b>3.200.201.072</b>	<b>3.200.201.074</b>	<b>3.200.201.075</b>	<b>3.200.201.079</b>
	7 digits	AC (60 Hz)		<b>3.200.201.081</b>		<b>3.200.201.082</b>	<b>3.200.201.084</b>	<b>3.200.201.085</b>	<b>3.200.201.089</b>
	7 digits	DC	<b>3.200.201.351</b>		<b>3.200.201.353</b>		<b>3.200.201.381</b>		
Further stock types:			187... 264 V AC, flat pin 0.8 x 2.8 mm [0.031 x 0.11"]			3.207.201.075			

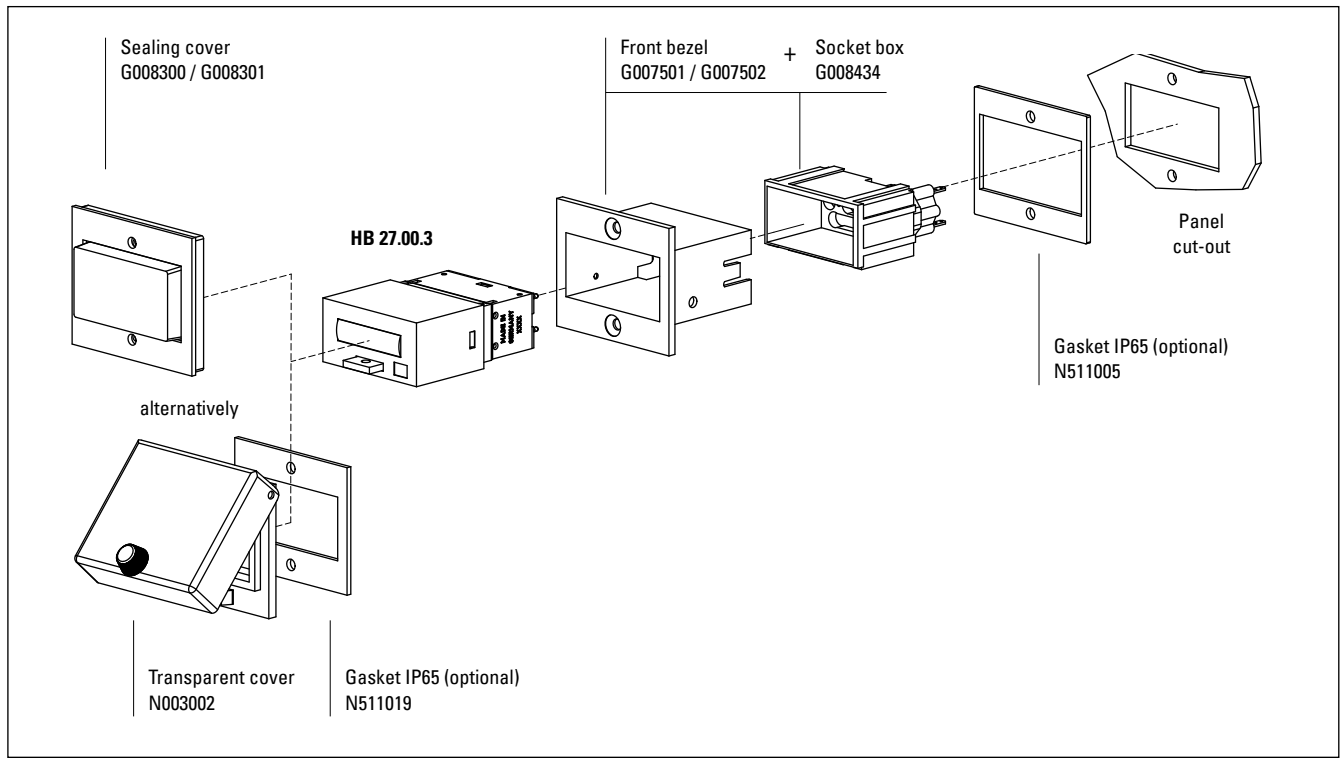
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# Hour meters / timers, electromechanical

**Standard timers**      **99999.99 h (AC) / 999999.9 h (DC) without reset**      **HB 27**

## Mounting examples for optional accessories



- Product overview
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## Dual function counters

## Pulse + time / 2 x time (AC+DC)

## HC 77



The counter combinations HC 77 and HC 77.55 comprise an hour meter and a totalizer. They can be controlled both simultaneously and separately.

These panel mount counters have a reduced mounting depth. They can be used in many different fields of application.

Optionally with 2 hour meters on request.

### Characteristics

- Hour meter and totalizer in one single device.
- Without reset.
- High shock resistance.
- Magnified large figures.
- Protection IP52 front side (optional IP65).
- Data retention in case of power failure.
- UL-approved.

### Benefits

- Long service life.
- Optional: counters controlled separately.

### Applications

General time measurement, maintenance intervals for measuring instruments (respiration units, oxygen, dialysis), small appliances, UV lamps, display panels in vehicles, lifts, heating burners.

### Type series

Description	Type	Options
Dual function counter 48 x 48 mm [1.89 x 1.89"]	<b>HC 77</b>	<ul style="list-style-type: none"> <li>• Color of housing grey Art. no. 3.55X.40X.XXX</li> </ul>
With adapter front bezel 55 x 55 mm [2.17 x 2.17"]	<b>HC 77.55</b>	<ul style="list-style-type: none"> <li>• Flat pin 0.8 x 6.3 mm [0.031 x 0.25"] Art.-No.: 3.55X.40X.XXX.011</li> <li>• Separate connections for running time meter and adding counter. This model is available for AC or DC (not mixed)</li> <li>• Adding counter max. 10 Hz</li> <li>• Electrical connection: 2 x cable 2 x 0.5 mm<sup>2</sup> [AWG20], NYFAZ, 0.5 m [1.64'] (hour meter cable red/black, adding counter grey cable) Art. no. 3.55X.40X.XXX.060</li> <li>• Sealed window (IP65 front side) with: <ul style="list-style-type: none"> <li>- Screw terminal Art. no. 3.55X.40X.XXX.419</li> <li>- Flat pin 0.8 x 6.3 mm [0.031 x 0.25"] Art. no. 3.55X.40X.XXX.062</li> <li>- Separated connections (cable) Art. no. 3.55X.40X.XXX.061</li> </ul> </li> <li>• Counter combination with 2 hour meters 10 ... 30 V DC <ul style="list-style-type: none"> <li>- 2 x cable 2 x 0.5 mm<sup>2</sup> [AWG20] Art. no. 3.554.401.351.060</li> <li>- Spring-type terminal on request</li> </ul> </li> </ul>

Order information:  
Art. no. (for special voltages etc. indicate exact model, voltage and frequency e.g. HC 77, 120 V AC, 60 Hz)

Accessories	Dimensions in mm [inch]	Order no.
<b>Adapter front bezel, 55 x 55 [2.17 x 2.17"]</b>	for cut-out 50 x 50 [1.97 x 1.97] to cut-out ø 50.5 [1.99], with clip mounting for counters 48 x 48 [1.89 x 1.89]	black <b>T008171</b>
<b>Adapter front bezel, 60 x 75 [2.36 x 2.95"]</b>	for cut-out 50 x 50 [1.97 x 1.97] to cut-out 45 x 45 [1.7 x 1.77], with screw mounting for counters 48 x 48 [1.89 x 1.89]	black <b>T008860</b>
<b>Adapter front bezel, 72 x 72 [2.83 x 2.83"]</b>	for cut-out 68 x 68 [2.68 x 2.68] to cut-out 45 x 45 [1.7 x 1.77], (Mating clip T009420 must be ordered separately)	black <b>T008177</b>
<b>Adapter front bezel, ø 72 [2.83"]</b>	for cut-out ø 60 [2.36] to 45 x 45 [1.77 x 1.77], with clip mounting for counters 48 x 48 [1.89 x 1.89]	black <b>N510226</b>

Suitable gaskets as well as further accessories can be found in the accessories section or in the accessories area of our website at: [www.kuebler.com/accessories](http://www.kuebler.com/accessories).

# Hour meters / timers, electromechanical

<b>Dual function counters</b>	<b>Pulse + time / 2 x time (AC+DC)</b>	<b>HC 77</b>
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## Technical data

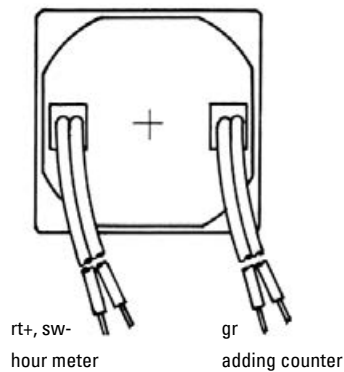
General technical data		
<b>Operating indicator of the running time meter</b>	AC	fast rotating wheel with red dashes: 99999.99 h
	DC	1/100 h display turns continuously by 1 digit in 36 s: 999999.99 h
<b>Height of figures</b>	4 x 1.7 mm [0.16 x 0.067"] optical	
<b>Color of figures</b>	hour meter	hour: white on black decimal: red on black
	pulse counter	white on black
<b>Operating temperature</b>	-15°C ... +50°C [+5°F ... +122°F] (non-condensing)	
<b>Mounting position</b>	any	

Mechanical characteristics		
<b>Protection</b>	IP52 (front side) when built in	
<b>Color of housing</b>	black (standard)	
<b>Weight</b>	HC 77	65 g [2.29 oz]
	plug in frame 55	8 g [0.28 oz]
	plug in frame 72	13 g [0.46 oz]

Electrical characteristics		
<b>Electrical connection</b>	screw terminal (tightening torque max. 0.8 Nm)	
<b>Power consumption</b>	10 ... 30 V DC	approx. 1 W
	36 ... 80 V DC	approx. 1.65 W
	100 ... 130 V DC	approx. 1.75 W
	20 ... 30 V AC, 50 Hz	approx. 0.53 VA
	42 ... 48 V AC, 50 Hz	approx. 0.53 VA
	100 ... 130 V AC, 50 Hz	approx. 1.43 VA
<b>Rated voltages</b>	AC (50 or 60 Hz)	20 ... 30/42 ... 48/100 ... 130/187 ... 264 V
	DC	10 ... 30/36 ... 80/100 ... 130 V
<b>On time</b>	100 %	
<b>Count mode</b>	adding	
<b>Accuracy</b>	AC	supply frequency + 30 ms
	DC	< 0.003 % (at 24 h)
<b>Reset</b>	no reset	
<b>EMC standards</b>	EN 55011 class B	
	EN 61000-6-2, EN 61000-6-3	
<b>Device safety</b>	designed to protection class	EN 61010 part 1
	application area	2 pollution level 2
<b>UL approval</b>	file E128604	

### Terminal assignment

Counter with separate connections (rear view)



# Hour meters / timers, electromechanical

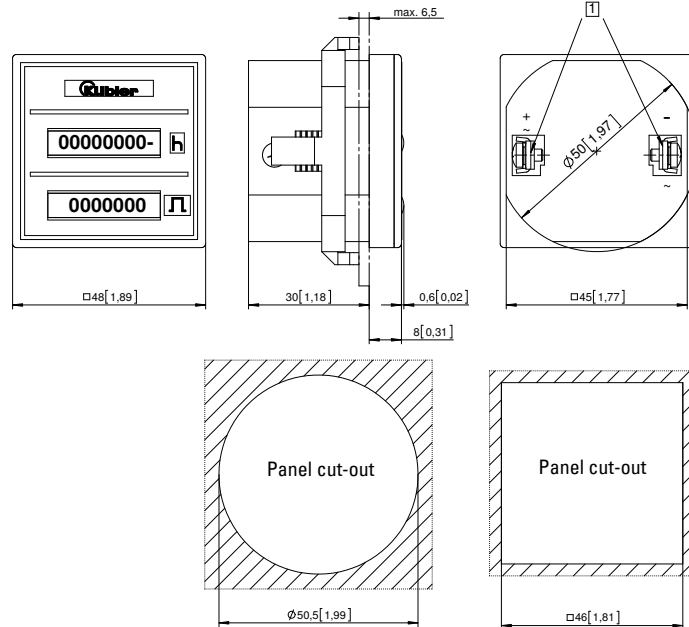
## Dual function counters

## Pulse + time / 2 x time (AC+DC)

## HC 77

### Dual function counter 48 x 48 [1.89 x 1.89"]

#### Type HC 77

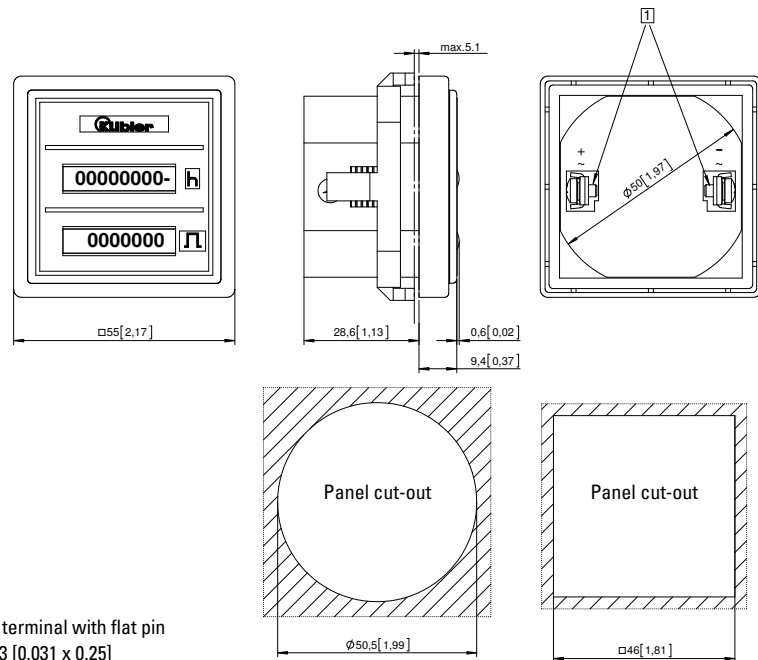


1) Screw terminal with flat pin  
0.8 x 6.3 [0.031 x 0.25]

Type	Display	Voltage	Art. no.					
			10 ... 30 V	20 ... 30 V	36 ... 80 V	42 ... 48 V	100 ... 130 V	187 ... 264 V
HC 77	7/8 digits	AC (50 Hz)		3.550.401.071		3.550.401.072	3.550.401.074 <sup>1)</sup>	3.550.401.075 <sup>1)</sup>
	7/8 digits	AC (60 Hz)		3.550.401.081		3.550.401.082	3.550.401.084	3.550.401.085
	7/8 digits	DC	3.550.401.351 <sup>1)</sup>		3.550.401.353		3.550.401.381	
Color of housing grey:			Art. no.		3.550.400.XXX			

### Dual function counter 48 x 48 [1.89 x 1.89"] with adapter front bezel 55 x 55 [2.17 x 2.17"]

#### Type HC 77.55



1) Screw terminal with flat pin  
0.8 x 6.3 [0.031 x 0.25]

Type	Display	Voltage	Art. no.					
			10 ... 30 V	20 ... 30 V	36 ... 80 V	42 ... 48 V	100 ... 130 V	187 ... 264 V
HC 77.55	7-/8 digits	AC (50 Hz)		3.551.401.071		3.551.401.072	3.551.401.074	3.551.401.075
	7/8 digits	AC (60 Hz)		3.551.401.081		3.551.401.082	3.551.401.084	3.551.401.085
	7/8 digits	DC	3.551.401.351		on request		3.551.401.381	
Color of housing grey:			Art. no.		3.551.400.XXX			

Dimensions in mm [inch]

1) Stock types

# Hour meters / timers, electromechanical

<b>Dual function counters</b>	<b>Pulse + time for DIN rail (AC+DC)</b>	<b>SHC 77</b>
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The counter combinations SHC 77 comprise an hour meter and a totalizer. They can be controlled both simultaneously and separately.

These DIN rail mount counters have a reduced mounting depth. They can be used in many different fields of application.

Product overview  
Basics

Pulse counters

Preset counters

Hour meters  
Timers

Frequency displays  
Tachometers

Position displays

Multifunction  
devices

Energy meters

Process devices

Temperature  
devices

Strain-gauge  
controllers

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## Characteristics

- Hour meter and totalizer in one single device  
optional: counters controlled separately.
- Without reset.
- High shock resistance.
- Magnified large figures.
- Protection IP52 (on the front side).
- Data retention in case of power failure.

- Long service life.
- UL-approved.

## Applications

General counting, alarm systems, pay stations, electricity meters, vending and gaming machines, copying machines, medical equipment, car washes, lifts, heating burners.

## Type series

Description	Type	Options
Dual function counter, common connections	<b>SHC 77</b>	SHC 77: The two meters are connected in parallel, this means, that the adding counter registers the total number of events and the time meter the total operating time of the device.
Dual function counter, separate connections	<b>SHC 77.60</b>	SHC 77.60: Hour meter and adding counter have two separate connections. This version is available for either AC or DC version (not mixed).
Order information: Art. no. (for special voltages etc. indicate exact counter types, voltage and frequency e.g. SHC 77, 120 V AC, 60 Hz)		

## General technical data

<b>Operating indicator of the hour meter</b>	AC	fast rotating wheels with red dashes: 99999.99 h
	DC	1/100 h display turns continuously by 1 digit per 36 s: 999999.99 h
<b>Height of figures</b>	4 x 1.7 mm [0.16 x 0.067"] optical	
<b>Color of figures</b>	hour meter	hours: white figures on black
	1/10 u. 1/100 h adding counter	red figures on black white figures on black
<b>Operating temperature</b>	-15°C ... +50°C [+5°F ... +122°F] (non-condensing)	
<b>Mounting position</b>	any	

## Mechanical characteristics

<b>Protection</b>	IP52 (front side) when built-in	
<b>Color of housing</b>	black (standard)	
<b>Weight</b>	SHC 77	85 g [3.00 oz]
	SHC 77.60	105 g [1.70 oz]

## Electrical characteristics

<b>Electrical connection</b>	SHC 77	screw terminal (tightening torque max. 0.8 Nm)
	SHC 77.60	2 x cable – 2 x 0.5 mm <sup>2</sup> [AWG20] NYFAZ, 0.5 m [1.64'] hour meter red/black adding counter grey
<b>Power consumption</b>	10 ... 30 V DC	approx. 1 W
	36 ... 80 V DC	approx. 1.65 W
	100 ... 130 V DC	approx. 1.75 W
	20 ... 30 V AC, 50 Hz	approx. 0.53 VA
	42 ... 48 V AC, 50 Hz	approx. 0.53 VA
	100 ... 130 V AC, 50 Hz 187 ... 264 V AC, 50 Hz	approx. 1.43 VA approx. 3.0 VA
<b>Rated voltages</b>	AC (50 or 60 Hz)	20 ... 30/42 ... 48/100 ... 130/187 ... 264 V DC 10 ... 30/36 ... 80/100 ... 130 V
<b>On time</b>	100 %	
<b>Count mode</b>	adding	
<b>Accuracy</b>	AC	supply frequency + 30 ms
	DC	< 0.003 % (at 24 h)
<b>Reset</b>	no reset	
<b>Test voltage</b>	2500 V AC, 50 Hz	
<b>EMC standards</b>	EN 55011 class B EN 61000-6-2, EN 61000-6-3	
<b>Device safety</b>	designed to protection class	EN 61010 part 1
	application area	2 pollution level 2
<b>UL approval</b>	file E128604	

# Hour meters / timers, electromechanical

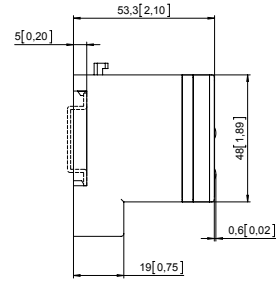
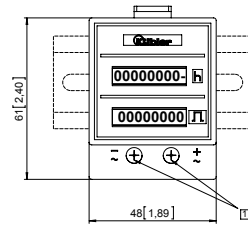
## Dual function counters

## Pulse + time for DIN rail (AC+DC)

## SHC 77

Dual function counter  
with common connections

Type SHC 77

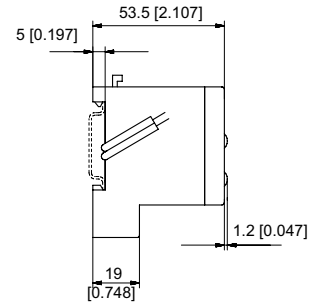
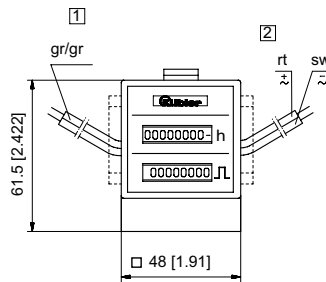


1 screw terminal

Type	Display	Voltage	Art. no.					
			10 ... 30 V	20 ... 30 V	36 ... 80 V	42 ... 48 V	100 ... 130 V	187 ... 264 V
SHC 77	7/8 digits	AC (50 Hz)		3.553.401.071		3.553.401.072	3.553.401.074	3.553.401.075
	7/8 digits	AC (60 Hz)		3.553.401.081		3.553.401.082	3.553.401.084	3.553.401.085
	7/8 digits	DC	3.553.401.351		3.553.401.353		3.553.401.381	

Dual function counter  
with separate connections

Type SHC 77.60



1 adding counter

2 hour meter

Type	Display	Voltage	Art. no.					
			10 ... 30 V	20 ... 30 V	36 ... 80 V	42 ... 48 V	100 ... 130 V	187 ... 264 V
SHC 77.60	7/8 digits	AC (50 Hz)		3.553.401.071.060		3.553.401.072.060	3.553.401.074.060	3.553.401.075.060
	7/8 digits	AC (60 Hz)		3.553.401.081.060		3.553.401.082.060	3.553.401.084.060	3.553.401.085.060
	7/8 digits	DC	3.553.401.351.060		on request		3.553.401.381.060	

# Time preset counters, electromechanical

Standard time preset counters	Adding with mechanical reset (AC+DC)	HVa 15
-------------------------------	--------------------------------------	--------



The time preset counters HVa 15 (with manual reset) have a robust construction.

They are used in harsh industrial environments as single counters or in combination, as a plug-in version, with other B, BVa, HB or HVa counters. They display the current counter value and the preset value.

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<b>Characteristics</b>	<b>Benefits</b>
<ul style="list-style-type: none"> <li>5-digit adding time preset counter with stationary preset.</li> <li>Manual reset.</li> <li>Potential-free changeover contact (microswitch) when the preset time is reached.</li> <li>Contact remains switched until reset occurs.</li> <li>Counter without front bezel, for mounting in front bezel F2B; can be combined in 50 x 50 mm size.</li> </ul>	<ul style="list-style-type: none"> <li>Can be combined with the counters of the B, BVa, HB and HVa series.</li> <li>Counter value and preset value are constantly displayed.</li> <li>Versions with transparent cover, sealing cover, lockable zero reset.</li> </ul>
<b>Applications</b>	
	Time control, automation.

Type series		
Description	Type	Options
Mounting clip	HVa 15.21	· Lockable 0-reset
Front bezel 3, with mounting holes	HVa 15.31	· Housing: black (standard) Art. no. 3.30X.X17.XXX grey Art. no. 3.30X.X16.XXX
		· HVa 15.01 (without front bezel) - plugs into socket box 946.1 - DIN Rail mount SR 3
		Housing black (standard) Art. no. 3.300.011.XXX grey Art. no. 3.300.010.XXX

Accessories	Dimensions in mm [inch]	Order no.
<b>Socket box, type 946.1</b>	for HVa 15 for plug-in connections in front bezel F2B	black <b>G008439</b>
<b>Sealing cover type K2, IP65</b>	suitable for front bezel 75 x 60 [2.95 x 2.36] with screw mounting	grey <b>G008302</b>
		black <b>G008303</b>
<b>Mounting frame</b> with cut-out 50 x 50 [1.97 x 1.97] via separate adapter also for 45 x 45 [1.77 x 1.77]	for snap-on mounting on 35 [1.38] top-hat DIN rail, for counters 48 x 48 [1.89 x 1.89], 53 x 28 [2.09 x 2.09] and 55 x 55 [2.17 x 2.17]	chromated <b>G300003</b>
<b>DIN rail mount SR 3</b>	for snap-on mounting on 35 [1.38] top-hat DIN rail	<b>G300002</b>

Suitable gaskets, other accessories and installation examples for optional accessories can be found in chapter accessories or in the accessories section under: [www.kuebler.com/accessories](http://www.kuebler.com/accessories).

# Time preset counters, electromechanical

## Standard time preset counters    Adding with mechanical reset (AC+DC)    HVa 15

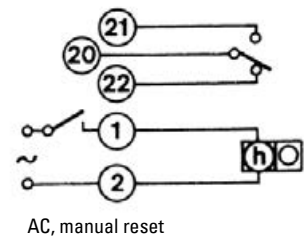
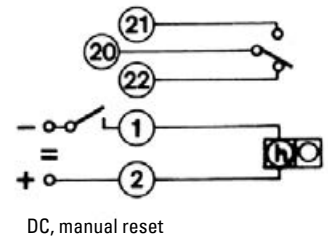
### Technical data

General technical data		
Color of figures preset	hours	figures white on black
	1/10 and 1/100 h	figures red on white
hours	hours	figures yellow on black
	1/10 and 1/100 h	figures red on white (approx. 4 mm [0.16"] high)
Reset	manual	
Mounting position	any	
Operating temperature	-15°C ... +50°C [+5°F ... +122°F] (non-condensing)	
Gasket	oil and gasoline-resistant synthetic rubber, particularly suitable for use with acids and alkalis, very good age stability	

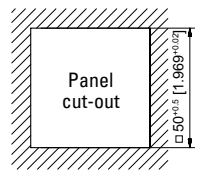
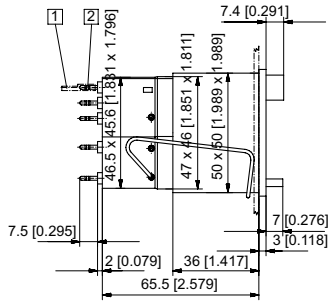
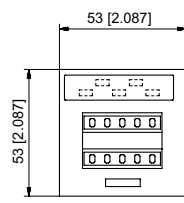
Mechanical characteristics		
Protection	sealing cover K1	IP42 (front side)
	transparent cover Dv and Dvs	IP65 (front side)
Color of housing	black (standard)	
EMC standards	EN 55011 class B EN 61000-6-2, EN 61000-6-3	
Device safety	designed to protection class	EN 61010 part 1 2
	application area	pollution level 2

Electrical characteristics		
Switching contact	1 changeover contact (micro switch) release at the preset time	
	loading capacity at AC	max. 250 V, max. 2 A
	loading capacity at DC (ohmic load)	24 V max. 2.0 A 60 V max. 0.7 A 115 V max. 0.4 A 230 V max. 0.2 A
	With inductive load, spark quenching is required reducing the max. current to 60 %	
Test voltage	2000 V AC, 50 Hz for AC counter	
Electrical connection	tinned round pins $\varnothing$ 1.6 mm [0.063"], with push on connectors	
Power consumption	10 ... 30 V DC	approx. 0.5 W
	36 ... 80 V DC	approx. 0.9 W
	100 ... 130 V DC	approx. 0.75 W
	20 ... 30 V AC, 50 Hz	approx. 0.3 VA
	42 ... 48 V AC, 50 Hz	approx. 0.25 VA
	100 ... 130 V AC, 50 Hz	approx. 0.6 VA
	187 ... 264 V AC, 50 Hz	approx. 1.2 VA
360 ... 440 V AC, 50 Hz	approx. 1.65 VA	
Rated voltages	AC (50 or 60 Hz)	20 ... 30/42 ... 48/100 ... 130/187 ... 264, 360 ... 440 V
	DC	10 ... 30/36 ... 80/100 ... 130
On time	100 %	
Count mode	adding	
Count range	AC	999.99 h
	DC	9999.9 h

### Terminal assignment



### Mounting clip Type HVa 15.21



1 Push on connector  $\varnothing$  1.5 [0.059] tinned    2 Round pin  $\varnothing$  1.6 [0.063] tinned

Type	Voltage	Art. no.					
		10 ... 30 V	20 ... 30 V	42 ... 48 V	100 ... 130 V	187 ... 264 V	360 ... 440 V
HVa 15.21	AC (50 Hz)		3.300.211.071	3.300.211.072	3.300.211.074	3.300.211.075	on request
	AC (60 Hz)		3.300.211.081	3.300.211.082	3.300.211.084	3.300.211.085	on request
	DC	3.300.211.351					

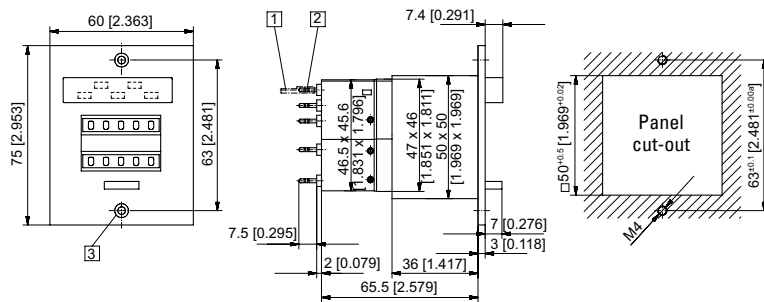
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# Time preset counters, electromechanical

**Standard time preset counters**    **Adding with mechanical reset (AC+DC)**    **HVa 15**

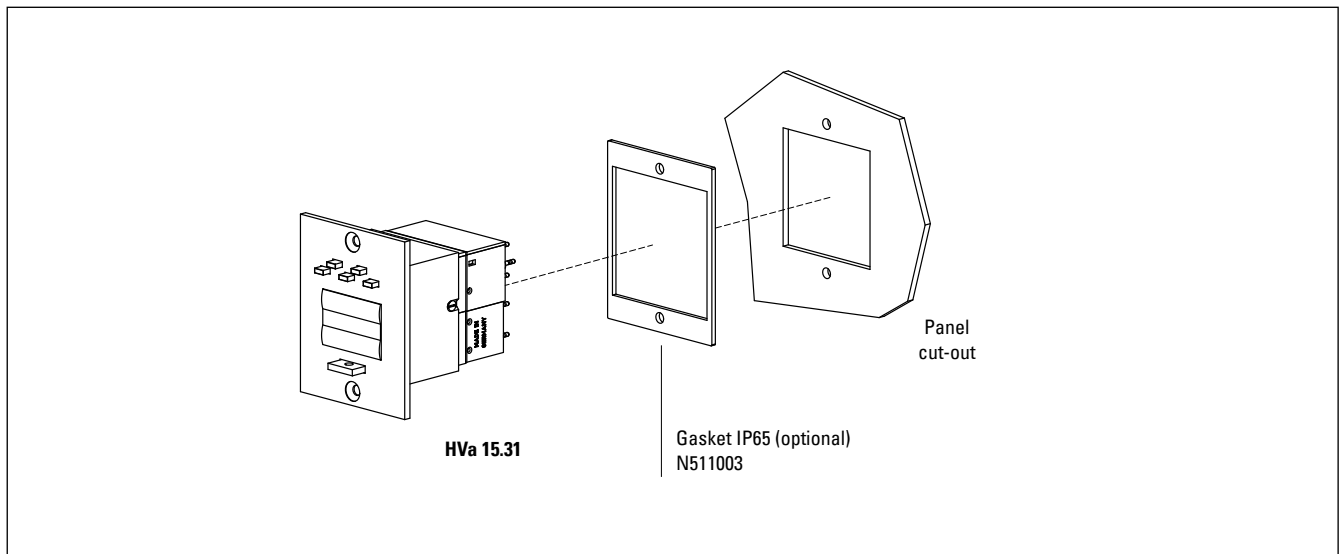
Front bezel 3, with mounting holes  
Type HVa 15.31



1 Push on connector  $\varnothing$  1.5 [0.059] tinned    2 Round pin  $\varnothing$  1.6 [0.063] tinned    3 Countersinking Af4, DIN 74

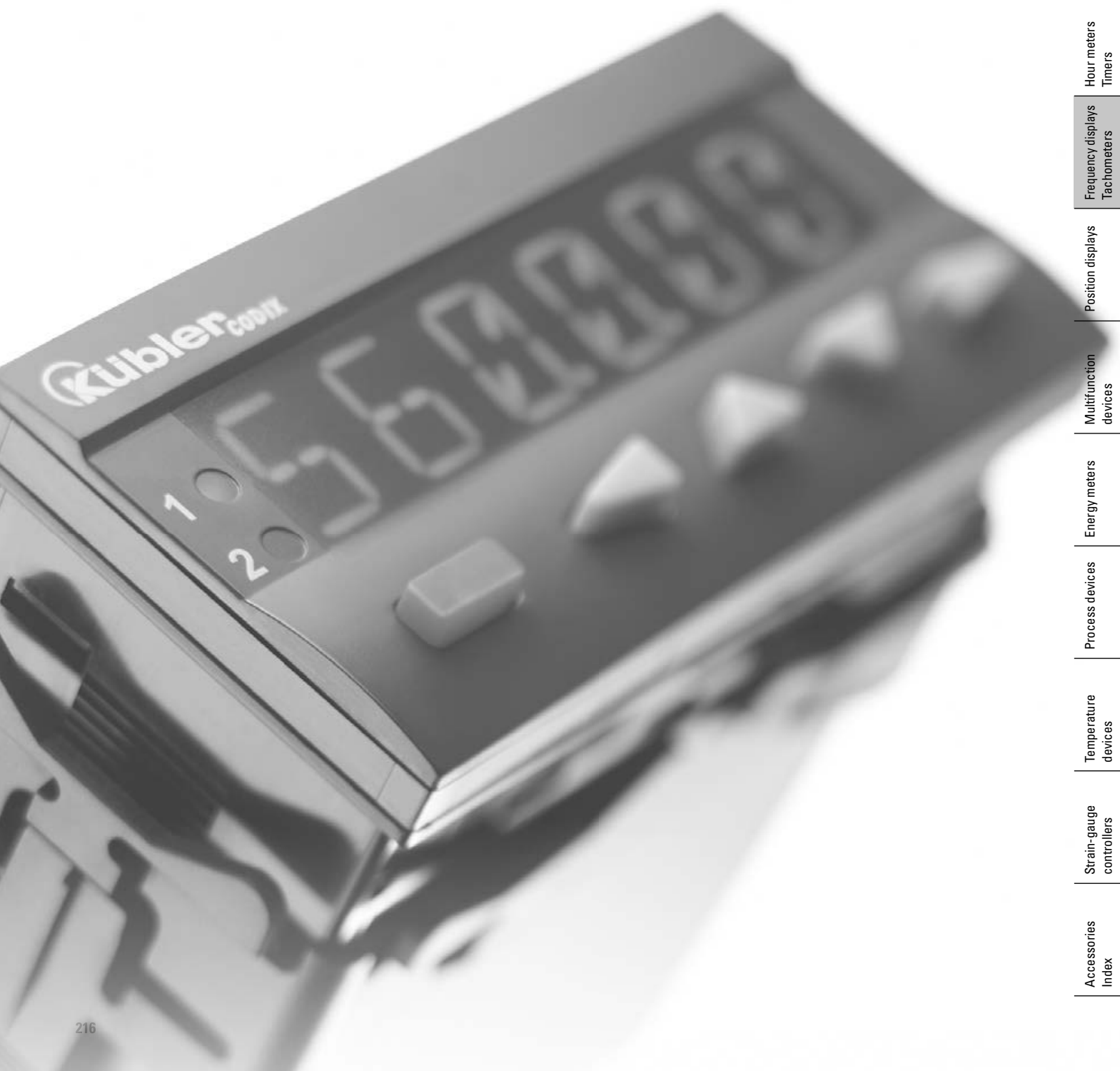
Type	Voltage	Art. no.					
		10 ... 30 V	20 ... 30 V	42 ... 48 V	100 ... 130 V	187 ... 264 V	360 ... 440 V
HVa 15.31	AC (50 Hz)		3.300.311.071	3.300.311.072	3.300.311.074	3.300.311.075	on request
	AC (60 Hz)		3.300.311.081	3.300.311.082	3.300.311.084	3.300.311.085	on request
	DC	3.300.311.351					

## Mounting examples for optional accessories



Dimensions in mm [inch]

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## Frequency displays / tachometers

Frequency displays / tachometers		Type	Page
<b>LCD frequency display</b>	Measuring in Hz (battery)	Codix 136	<b>218</b>
<b>LED frequency displays</b>	Measuring range 1/min or 1/sec HRA-measurement (DC)	Codix 522	<b>221</b>
	Multifunctional – pulse, frequency, time (DC)	Codix 524	<b>240</b>
	Universal with dual functions 4 combinations (DC)	Codix 52U	<b>250</b>
	6 count modes with tachometer (DC)	Codix 52P	<b>254</b>
	Measuring range 1/min or 1/sec HRA-measurement (AC+DC)	Codix 542	<b>224</b>
	Multifunctional – pulse, frequency, time (AC+DC)	Codix 544	<b>244</b>
	Universal with dual functions 4 combinations (AC+DC)	Codix 54U	<b>258</b>
	6 count modes with tachometer (AC+DC)	Codix 54P	<b>261</b>
Frequency displays / tachometers with limits		Type	Page
<b>LCD tachometer</b>	Multifunctional – pulse, frequency, time – 1 ... 6 presets (AC+DC)	Codix 923 / 924	<b>127</b>
<b>Tachometer with multicolor, LED look</b>	Multifunctional – pulse, frequency, time – 1 ... 6 presets (AC+DC)	Codix 923 / 924	<b>127</b>
<b>LED tachometers</b>	Multifunctional – pulse, frequency, time – 65 kHz, 2 presets (AC+DC)	Codix 560	<b>134</b>
	Pulse, frequency, time (also reciprocal), with analog output (AC+DC)	574	<b>227</b>
<b>LCD touch tachometer</b>	 Pulse, frequency, time (also reciprocal) – (AC+DC)	571T	<b>247</b>

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# Frequency displays / tachometers

<b>LCD frequency displays</b>	<b>Measuring range in Hz (battery)</b>	<b>Codix 136</b>
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The Codix 136 is a simple battery powered frequency display / tachometer for NPN, PNP pulses.  
Fast and slow count pulses are displayed directly in Hz via the 8-digit LCD display with its optional backlighting.



Battery powered	Frequency display/Tachometer	Type of input	Pulse voltage	Max. count frequency	Temperature range	High protection level	DIN front bezel	LCD display	Lockable reset

## Powerful

- Input frequency range from 1 Hz ... 12 kHz – gate measuring method, gate time 1 second.
- Battery life approx. 8 years.
- Filter function for bounce-free counting with mechanical contacts .
- Count frequency max. 12 kHz – accuracy 0.05 %.
- High protection level IP65.

## Simple

- Screw terminals, RM 5 mm.
- For positive or negative edges, depending on version.
- Large 8-digit LCD display with 8 mm high figures and optional backlighting.
- Display directly in Hz.

**Order code**      6.136 . 012 . 8XX

**a** Backlighting  
5 = without<sup>1)</sup>  
6 = with

**b** Count input

Mode	INP A			INP B		
0 = Tacho	0 ... 0.7 V DC	NPN	7 kHz	0 ... 0.7 V DC	NPN	30 Hz
1 <sup>1)</sup> = Tacho	4 ... 30 V DC	PNP	12 kHz	0 ... 0.7 V DC	PNP	30 Hz

### Delivery specification

- Pulse counter
- Mounting clip
- Front bezel for screw mounting (T008181) 56 x 40 mm [2.20 x 1.57"], panel cut-out 50 x 25 mm [1.97 x 0.98"]
- Front bezel for clip mounting (T008180) 53 x 28 mm [2.09 x 1.10"], panel cut-out 50 x 25 mm [1.97 x 0.98"]
- Gasket
- Instruction manual, multilingual

1) Stock types

# Frequency displays / tachometers

LCD frequency displays	Measuring range in Hz (battery)	Codix 136	Product overview Basics
Accessories	Dimensions in mm [inch]	Order no.	
<b>Adapter front bezel, 72 x 36 [2.83 x 1.42]</b>	For cut-out 68 x 33 [2.68 x 1.30] to cut-out 45 x 22.2 [1.77 x 0.87], for counters 48 x 24 [1.89 x 0.94], as set black and silver anodised	<b>162704 Set</b>	
<b>Adapter front bezel, 48 x 48 [1.89 x 1.89]</b>	For cut-out 45 x 45 [1.77 x 1.77] to cut-out 45 x 22.2 [1.77 x 0.87], with clip mounting for counters 48 x 24 [1.89 x 0.94] black	<b>T008883</b>	Pulse counters
<b>Adapter front bezel, 60 x 50 [2.36 x 1.97]</b>	For cut-out 54 x 29 [2.13 x 1.14] to cut-out 45 x 22.2 [1.77 x 0.87], with screw mounting and gasket for counters 48 x 24 [1.89 x 0.94] black	<b>N003001</b>	Preset counters
<b>Transparent cover, lockable, IP65</b>	For cut-out 54 x 29 [2.13 x 1.14], for screw mounting to front bezel F1B or adapter front bezel N003001, for counters with cut-out 50 x 25 [1.97 x 0.98] or 45 x 22.2 [1.77 x 0.87]	<b>N003002</b>	
<b>Sealing cover type K1, IP65</b>	Suitable for front bezel 60 x 50 [2.36 x 1.97], for screw mounting of electromech. counters and via adapter front bezel N003001 for counters 48 x 24 [1.89 x 0.94]	<b>G008301</b>	Hour meters Timers
<b>Mounting frame</b> with cut-out 50 x 25 [2.36 x 1.97] via separate adapter also for 45 x 22.2 [1.77 x 0.87]	For snap-on mounting on 35 [1.38] top-hat DIN rail, for counters 53 x 28 [2.09 x 1.10] and via separate adapter (T008180) for counters 48 x 24 [1.89 x 0.94] chromated	<b>G300004</b>	

Suitable gaskets, other accessories and installation examples for optional accessories can be found in chapter accessories or in the accessories section under: [www.kuebler.com/accessories](http://www.kuebler.com/accessories).

## Technical data

### General technical data

<b>Display</b>	LCD, 8 digits, 8 mm [0.32"] high
<b>Backlighting</b>	external electrical source 24 V DC $\pm 20\%$ , 50 mA
<b>Display range</b>	0 ... 99999999
<b>Resolution</b>	1/sec (1 Hz)
<b>Working temperature</b>	-10°C ... +55°C [+14°F ... +131°F] (non-condensing)
<b>Operating temperature</b>	-10°C ... +60°C [+14°F ... +140°F] (non-condensing)
<b>Storage temperature</b>	-20°C ... +70°C [-4°F ... +158°F]

### Electrical characteristics

<b>Power supply</b>	internal lithium battery approx. 8 years at 20°C [68°F]
<b>EMC standards</b>	EN 55011 class B, EN 61000-6-2, EN 61000-6-3
<b>Device safety</b>	designed to protection class application area EN 61010 part 1 2 pollution level 2
<b>UL approval</b>	file E128604

### Mechanical characteristics

<b>Housing</b>	dark grey RAL 7021
<b>Protection</b>	IP65 (front side)
<b>Weight</b>	approx. 50 g [1.76 oz]

### Counting inputs

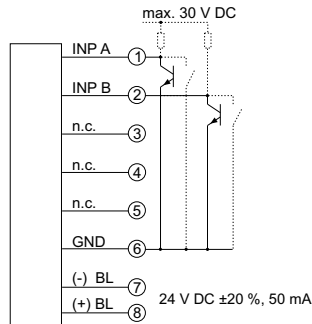
Counting input of the DC-versions (max. 30 V DC)		
slow counting input	max.	30 Hz NPN or PNP
fast counting input	max.	12 kHz (PNP), 7 kHz (NPN)
switching level NPN	LOW	0 ... 0.7 V DC
	HIGH	3 ... 30 V DC
switching level PNP	LOW	0 ... 0.7 V DC
	HIGH	4 ... 30 V DC

# Frequency displays / tachometers

<b>LCD frequency displays</b>	<b>Measuring range in Hz (battery)</b>	<b>Codix 136</b>
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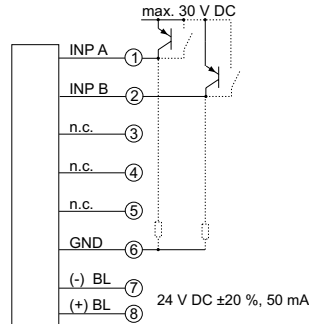
## Terminal assignment

DC type: 6.136.012.8x0



BL = backlighting

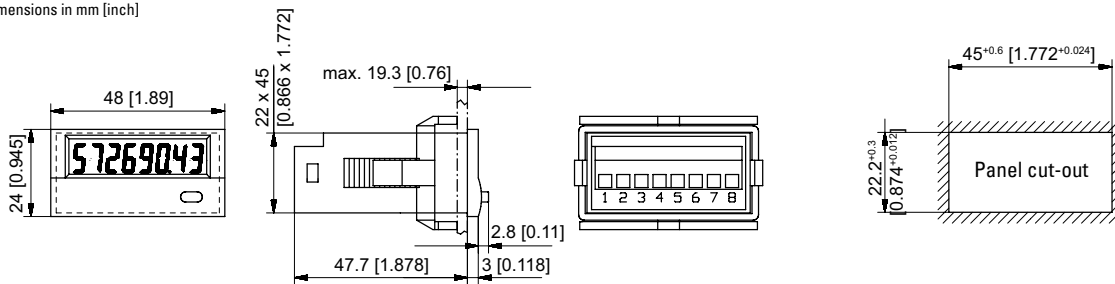
DC type: 6.136.012.8x1



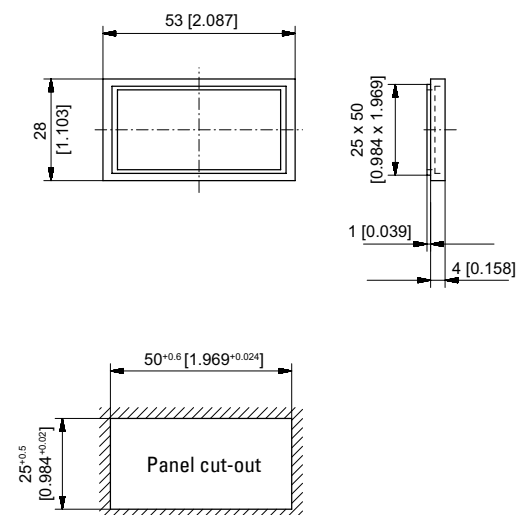
BL = backlighting

## Dimensions

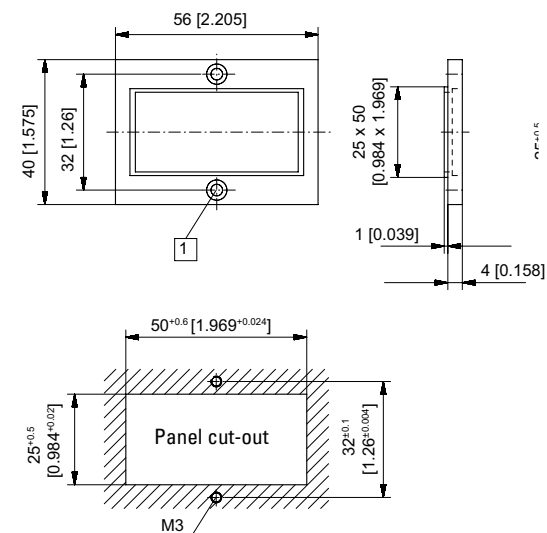
Dimensions in mm [inch]



## Front bezel for clip mounting (included in delivery)



## Front bezel for screw mounting (included in delivery)



1 Countersinking Af3, DIN 74

# Frequency displays / tachometers

**LED frequency displays**      **Measuring range 1/min or 1/sec HRA-measurement (DC)**      **Codix 522**



The Codix 522 is a simple voltage powered frequency display / tachometer.

Display in 1/min or 1/sec, freely scalable, for fast and slow count pulses, with 6-digit LED display for NPN, PNP input signals, with fast HRA measurement system (High Rate Accuracy).



<b>DC</b> 10 ... 30 V Power supply	<b>000000</b> DIN 48 x 24 DIN front bezel	<b>-20...+65°C</b> Temperature range	<b>IP65</b> High protection level	<b>Prog</b> Menu-driven programming	<b>1/sec 1/min</b> Frequency display/ Tachometer	<b>t / Hz</b> HRA Frequency display with HRA
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## Powerful

- Very bright LED display, 8 mm high.
- Fast count input – input frequency max. 60 kHz.
- Robust housing – IP65 protected.
- Very accurate precise frequency measurement principle (HRA - High Rate Accuracy System)  
Frequencies up to 38 Hz are calculated using time-interval (period duration) measurement. Frequencies > 38 Hz are calculated using a special time base (gate time) measurement. A very high accuracy of < 0.1 % is achieved, even with very short gate times. The resulting measurement is available after a max. of 50 ms.

## User-friendly and universal

- Large keys – can also be operated when wearing gloves.
- Simple uniform menu-driven programming and operation. Possible to enter the programming also during operation with a confirmation prompt.
- Individually programmable scaling – multiplication and division factor (0.0001 to 99.9999), to display corresponding engineering units, e.g. frequency in Hz and speed in RPM.
- Programmable decimal point, can be set from 0.0 to 0.000 (this determines the resolution).
- Programmable delay until 0 is displayed.
- Display in 1/min or 1/sec.
- As an alternative to the HTL inputs, devices with a 4 ... 30 V DC input level are available.
- Optional output for zero-speed monitoring.

## Order code

6.522 . 01 X . 3 X 0

- a** Output  
1 = optocoupler output  
2 = no output <sup>1)</sup>
- b** Input switching level  
0 = Standard (HTL) <sup>1)</sup>  
A = 4 ... 30 V DC level

### Delivery specification

- Pulse counter
- Mounting clip
- Front bezel for screw mounting (T008181) 56 x 40 mm [2.20 x 1.57"], panel cut-out 50 x 25 mm [1.97 x 0.98"]
- Front bezel for clip mounting (T008180) 53 x 28 mm [2.09 x 1.10"], panel cut-out 50 x 25 mm [1.97 x 0.98"]
- Gasket
- Instruction manual, multilingual

1) Stock types

# Frequency displays / tachometers

LED frequency displays	Measuring range 1/min or 1/sec HRA-measurement (DC)	Codix 522
Accessories	Dimensions in mm [inch]	Order no.
<b>Adapter front bezel, 72 x 36 [2.83 x 1.42]</b>	for cut-out 68 x 33 [2.68 x 1.30] to cut-out 45 x 22.2 [1.77 x 0.87], for counters 48 x 24 [1.89 x 0.94], as set	black and silver anodised <b>162704 Set</b>
<b>Adapter front bezel, 48 x 48 [1.89 x 1.89]</b>	for cut-out 45 x 45 [1.77 x 1.77] to cut-out 45 x 22.2 [1.77 x 0.87], with clip mounting for counters 48 x 24 [1.89 x 0.94]	black <b>T008883</b>
<b>Adapter front bezel, 60 x 50 [2.36 x 1.97]</b>	for cut-out 54 x 29 [2.13 x 1.14] to cut-out 45 x 22.2 [1.77 x 0.87], with screw mounting and gasket for counters 48 x 24 [1.89 x 0.94]	black <b>N003001</b>
<b>Transparent cover, lockable, IP65</b>	for cut-out 54 x 29 [2.13 x 1.14], for screw mounting to front bezel F1B or adapter front bezel N003001, for counters with cut-out 50 x 25 [1.97 x 0.98] or 45 x 22.2 [1.77 x 0.87]	<b>N003002</b>
<b>Sealing cover type K1, IP65</b>	suitable for front bezel 60 x 50 [2.36 x 1.97], for screw mounting of electromech. counters and via adapter front bezel N003001 for counters 48 x 24 [1.89 x 0.94]	<b>G008301</b>
<b>Mounting frame</b> with cut-out 50 x 25 [2.36 x 1.97] via separate adapter also for 45 x 22.2 [1.77 x 0.87]	for snap-on mounting on 35 [1.38] top-hat DIN rail, for counters 53 x 28 [2.09 x 1.10] and via separate adapter (T008180) for counters 48 x 24 [1.89 x 0.94]	chromated <b>G300004</b>

Suitable gaskets, other accessories and installation examples for optional accessories can be found in chapter accessories or in the accessories section under: [www.kuebler.com/accessories](http://www.kuebler.com/accessories).

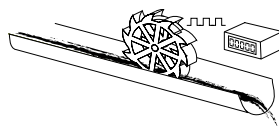
## Technical data

General technical data	
<b>Display</b>	6 digits, red 7 segment LED display; 8 mm [0.32"] high
<b>Data backup</b>	EEPROM
<b>Operating temperature</b>	10 ... 26 V DC -20°C ... +65°C [-4°F ... +149°F] > 26 ... 30 V DC -20°C ... +55°C [-4°F ... +131°F] (non-condensing)
<b>Storage temperature</b>	-25°C ... +70°C [-13°F ... +158°F]
Mechanical characteristics	
<b>Housing</b>	front panel mount 8 x 24 mm [1.89 x 0.94"] acc. to DIN 43700; RAL 7021, dark grey
<b>Protection</b>	IP65 (front side)
<b>Weight</b>	approx. 50 g [1.76 oz]
<b>Vibration resistance</b> acc. to EN 60068-2-6	10 ... 55 Hz / 1 mm [0.04"] / 30 min
<b>Shock resistance</b> acc. to EN 60068-2-27	10 G: 2 ms 10 G: 6 ms
Outputs (optional)	
<b>Optocoupler output</b>	max. 30 V DC, 10 mA

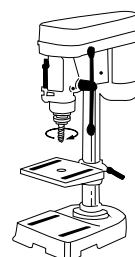
Electrical characteristics	
<b>Power supply</b>	10 ... 30 V DC, with integrated reverse polarity protection
<b>Current consumption</b>	max. 50 mA
<b>EMC standards</b>	EN 55011 class B, EN 61000-6-2, EN 61000-6-3 EN 61326-1
<b>UL approval</b>	file E128604
Inputs	
<b>Polarity of inputs</b>	programmable, NPN or PNP
<b>Input resistance</b>	approx. 5 kΩ
<b>Counting frequency</b>	max. 60 kHz, can be damped to 30 Hz
<b>Measurement principle / Accuracy</b>	Gate and/or time interval (period duration) measure ment, with high accuracy <0.1 % (HRA)
<b>Input switching level (HTL)</b>	LOW 0 ... 0.2 x U <sub>B</sub> [V DC] HIGH 0.6 x U <sub>B</sub> ... 30 V DC
<b>Input switching level at 4 ... 30 V DC</b>	LOW 0 ... 2 V DC HIGH 4 ... 30 V DC

## Applications for speed and frequency displays

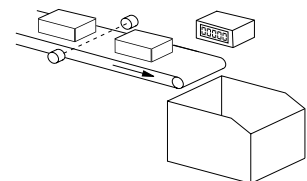
- Rotary speed applications, e.g. OEM equipment or retrofitting to drilling machines
- OEM equipment for flow rate measuring, e.g. current flow rate; production data such as volume/time
- Speed applications on motors, turbines, machines; feed-rate measurement
- Recording of production rates
- Frequency measurement



Mass flow rate



Drilling machine head, rotary speed



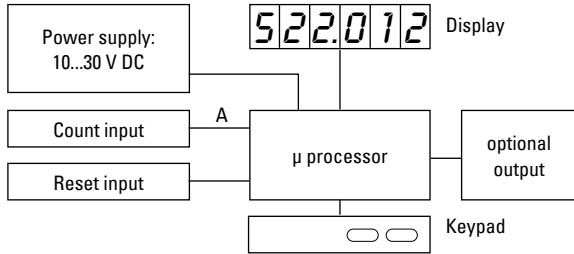
Production rate



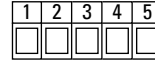
# Frequency displays / tachometers

## LED frequency displays    Measuring range 1/min or 1/sec HRA-measurement (DC)    Codix 522

### Block diagram



### Terminal assignment



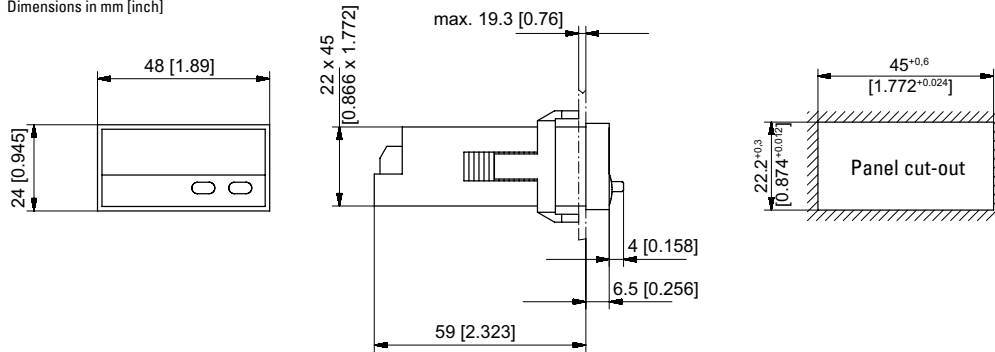
PIN	without optocoupler
1	10 ... 30 V DC
2	0 V GND
3	INP
4	-
5	-



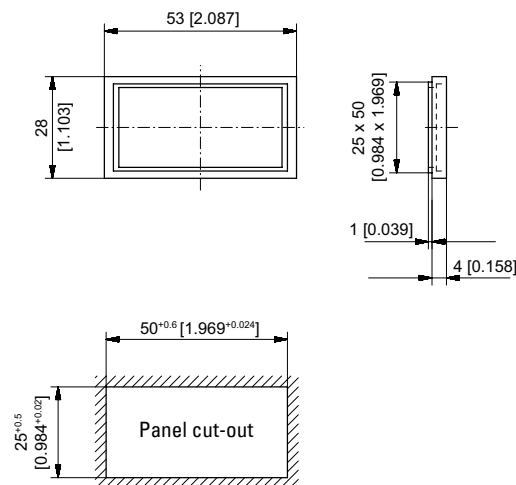
PIN	with optocoupler (NPN)
1	10 ... 30 V DC
2	0 V GND
3	INP
4	-
5	-
6	Emitter
7	Collector

### Dimensions

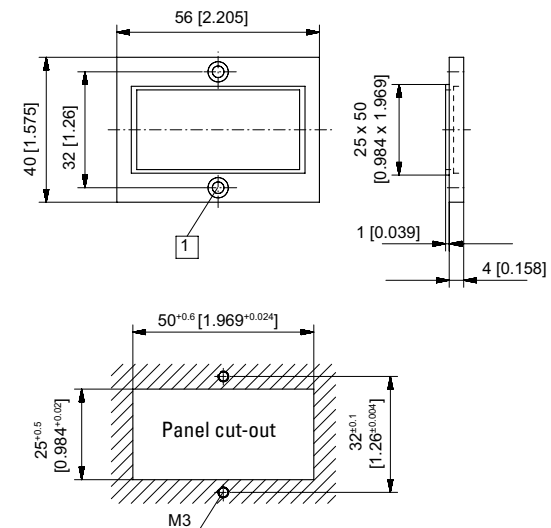
Dimensions in mm [inch]



### Front bezel for clip mounting (included in delivery)



### Front bezel for screw mounting (included in delivery)



1 Countersinking Af3, DIN 74

# Frequency displays / tachometers

**LED frequency displays**    **Measuring range 1/min or 1/sec HRA-measurement (AC+DC)**    **Codix 542**



The Codix 542 is a voltage powered frequency display / tachometer, with 6-digit LED display for NPN, PNP input signals. The display in 1/min or 1/sec is freely scalable for fast and slow count pulses – with fast HRA measurement system (High Rate Accuracy).



<b>DC</b> 10 ... 30 V Power supply	<b>AC</b> 100 ... 240 V Power supply	<b>-20°...+65°C</b> Temperature range	<b>IP65</b> High protection level	<b>Plug-in screw terminal</b>	<b>Menu-driven programming</b>	<b>Operation with gloves</b>	<b>1/sec 1/min</b> Frequency display/ Tachometer	<b>HRA</b> Frequency display with HRA
--	--	--	--------------------------------------	-------------------------------	--------------------------------	------------------------------	---	--

## Powerful

- Very bright LED display, 14 mm high.
- Fast count input – input frequency max. 60 kHz.
- Robust housing – IP65 protected.
- Very accurate precise frequency measurement principle (HRA - High Rate Accuracy System)  
Frequencies up to 38 Hz are calculated using time-interval (period duration) measurement. Frequencies > 38 Hz are calculated using a special time base (gate time) measurement. A very high accuracy of < 0.1 % is achieved, even with very short gate times. The resulting measurement is available after a max. of 50 ms.

## User-friendly and universal

- Large keys – can also be operated when wearing gloves.
- Simple uniform menu-driven programming and operation. Possible to enter the programming also during operation with a confirmation prompt.
- Programmable decimal point, can be set from 0.0 to 0.000 (this determines the resolution).
- As an alternative to the HTL inputs, devices with a 4 ... 30 V DC input level are available.
- Individually programmable scaling – multiplication and division factor (0.0001 to 99.9999), to display corresponding engineering units, e.g. frequency in Hz and speed in RPM.
- Programmable delay until 0 is displayed.
- Display in 1/min or 1/sec.
- AC or DC power supply with sensor power supply.
- Optional output for zero-speed monitoring.

## Order code

6.542 . 01 X . X X 0

### a Output

- 1 = Optocoupler output
- 2 = No output <sup>1)</sup>

### b Power supply

- 0 = 100 ... 240 V AC, ±10 % <sup>1)</sup>
- 3 = 10 ... 30 V DC <sup>1)</sup>

### c Input switching level

- 0 = Standard level (HTL) <sup>1)</sup>
- A = 4 ... 30 V DC level

### Delivery specification

- Digital display
- Mounting clip
- Gasket
- Instruction manual, multilingual

<sup>1)</sup> Stock types

# Frequency displays / tachometers

## LED frequency displays Measuring range 1/min or 1/sec HRA-measurement (AC+DC) Codix 542

Accessories	Dimensions in mm [inch]	Order no.
<b>Mounting frame</b> with cut-out 92 x 45 [3.62 x 1.77]	for snap-on mounting on 35 [1.38] top-hat DIN rail, for counters 96 x 48 [3.74 x 1.89]	grey <b>G300005</b>

Suitable gaskets as well as further accessories can be found in the accessories section or in the accessories area of our website at: [www.kuebler.com/accessories](http://www.kuebler.com/accessories).

### Technical data

General technical data	
<b>Display</b>	6 digit, red 7 segment LED display; 14 mm [0.55"] high
<b>Data backup</b>	EEPROM
<b>Operating temperature</b>	-20°C ... +65°C [-4°F ... +149°F] (non-condensing)
<b>Storage temperature</b>	-20°C ... +70°C [-4°F ... +158°F]
<b>Altitude</b>	up to 2000 m [6562']

Electrical characteristics	
<b>Power supply</b>	10 ... 30 VDC, with reverse polarity protection 100 ... 240 V AC, ±10 %
<b>Current consumption</b>	max. 50 mA, 6 VA
<b>EMC standards</b>	EN 55011 class B, EN 61000-6-2, EN 61000-6-3
<b>Device safety</b>	designed to protection class 2 application area pollution level 2
<b>UL approval</b>	file E128604

Mechanical characteristics	
<b>Housing</b>	front panel mount 96 x 48 mm [3.74 x 1.89"] acc. to DIN 43700; RAL 7021, dark grey
<b>Protection</b>	IP65 (front side)
<b>Weight</b>	approx. 150 g [5.29 oz]

Inputs	
<b>Polarity of inputs</b>	programmable, NPN or PNP for all inputs
<b>Input resistance</b>	approx. 5 kΩ
<b>Counting frequency<sup>1)</sup></b>	max. 60 kHz, can be damped to 30 Hz
<b>Measurement principle / Accuracy</b>	Gate and/or time interval (period duration) measurement, with high accuracy < 0.1 % (HRA)

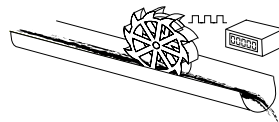
Input switching level standard version (HTL)	
DC power supply	LOW 0 ... 0.2 x U <sub>B</sub> [V DC] HIGH 0.6 x U <sub>B</sub> ... 30 V DC
AC power supply	LOW 0 ... 4 V DC HIGH 12 ... 30 V DC

Input switching level at 4 ... 30 V DC	
LOW	0 ... 2 V DC
HIGH	4 ... 30 V DC

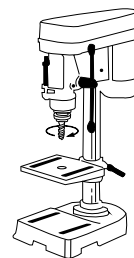
Outputs	
<b>Sensors power supply (AC version)</b>	24 V DC ±15 %/100 mA
<b>Output power optocoupler</b>	max. 30 V DC, 10 mA

### Applications for speed and frequency displays

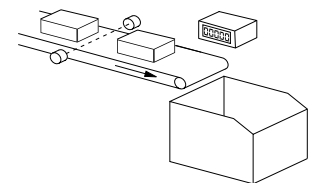
- Rotary speed applications, e.g. OEM equipment or retrofitting to drilling machines
- OEM equipment for flow rate measuring, e.g. current flow rate; production data such as volume/time
- Speed applications on motors, turbines, machines; feed-rate measurement
- Recording of production rates
- Frequency measurement



Mass flow rate



Drilling machine head, rotary speed



Production rate

1) Please refer to the manual

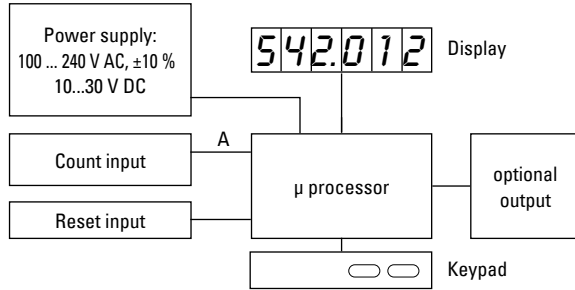
# Frequency displays / tachometers

**LED frequency displays**

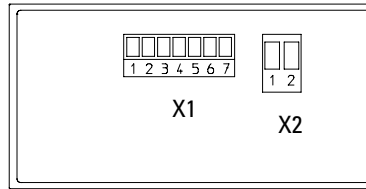
**Measuring range 1/min or 1/sec HRA-measurement (AC+DC)**

**Codix 542**

## Block diagram



## Terminal assignment



### Connection X1

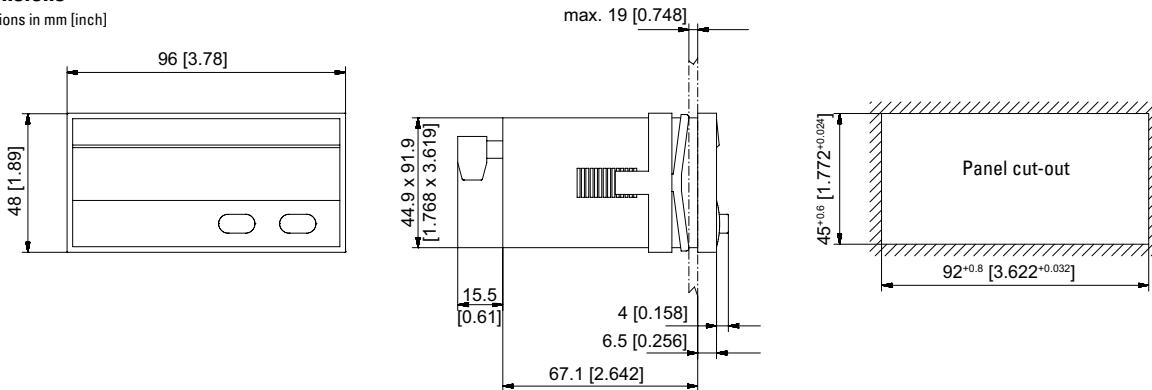
PIN	AC version	DC version
1	Optocoupler-output	Collector
2	Optocoupler-output	Emitter
3	n.c.	
4	n.c.	
5	INP A	
6	GND out	n.c.
7	+24 V out	n.c.

### Connection X2

PIN	AC version	DC version
1	100 ... 240 V AC, ±10 %	0V DC (GND)
2	100 ... 240 V AC, ±10 %	10...30 V DC

## Dimensions

Dimensions in mm [inch]



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# Frequency displays / tachometers with limits

<b>LED tachometers</b>	<b>Dual frequency displays with 4 outputs and analog output (AC+DC)</b>	<b>574</b>
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Frequency display for demanding applications, with two individually scalable encoder inputs, in each case A, /A, B, /B for count frequencies up to 1 MHz per channel (also for single channel use).

Operating modes can be selected for tachometer or frequency display with measurements for difference, total value, product or ratio (also with reciprocal display).

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<b>AC/DC</b> 24/17...30V Power supply	<b>000000</b> DIN 96 x 48 DIN front bezel	<b>IP65</b> High protection level	<b>max.</b> 1 MHz 2 separate pulse inputs	 Operation with gloves	 TTL, HTL and RS422-input	<b>6 LED</b> LED display	<b>DC OUT</b> 5 / 24 V 2 x Sensor supply	 mA, V Analog output optional	<b>4</b> Transistor output	<b>RS232</b> Interface
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### Innovative

- 2 separate freely scalable frequency inputs: HTL or TTL (both also with inverted inputs), max. input frequency 1 MHz/channel.
- Very bright LED display, 15 mm high (6 digits).
- 4 freely programmable fast solid-state outputs, each with 350 mA output current.
- Many different output modes.
- Simple programming – with function codes, dependent on the operating mode selected.
- With 9 fixed different frequency functions, e.g.:
  - Single, difference and total value measurement of both inputs.
  - Product and ratio measurement.
  - Percentage measurement.
  - In-process time calculated from frequency (reciprocal speed).

### Compact and multifunctional

- Up to 3 display values in a single device: display counter 1, display counter 2 as well as the display calculated from counter 1 and 2.
- AC and DC power supply in one device.
- Simple programming with 4 keys, all keys can be assigned dual programming functions.
- Can be used as a frequency display or tachometer with limit values.
- Monitoring function, where 2 values are monitored or calculated with respect to each other.
- 4 fast programmable inputs with various functions such as start delay, key lockout, display memory, reference input or switching between the display values.
- Scalable analog output 0/4 ... 20 mA, +/-10 V or 0 ... 10 V.
- Standard interface RS232 for parameter setting, for reading out the values to a PC or PLC, for modifications during operation.

### Order specifications

4 fast switch outputs, serial interface (RS232)	Order no.	Delivery specification
6 digits	<b>6.574.0116.D05</b>	• Controller 574
6 digits, scalable analog output	<b>6.574.0116.D95</b>	• Gasket
6 digits, RS232 and RS485	<b>6.574.0116.D07</b>	• Fastening set
		• Instruction manual German/English

Accessories	Dimensions in mm [inch]	Order no.
<b>Mounting frame for DIN rail mount</b>	with cut-out 92 x 45 [3.62 x 1.77]	<b>G300005</b>



<b>OS6.0 software for parameter setting</b>	can be downloaded at <a href="http://www.kuebler.com">www.kuebler.com</a>
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Suitable gaskets as well as further accessories can be found in the accessories section or in the accessories area of our website at: [www.kuebler.com/accessories](http://www.kuebler.com/accessories).

# Frequency displays / tachometers with limits

## LED tachometers Dual frequency displays with 4 outputs and analog output (AC+DC) **574**

### Technical data

General technical data		
<b>Display</b>	6-digit	LED display, 15 mm [0.59"] high
<b>Operating temperature</b>	0°C ... +45°C [+32°F ... +113°F] (non-condensing)	
<b>Storage temperature</b>	-25°C ... +70°C [-13°F ... +158°F]	

Electrical characteristics		
<b>Power supply</b>	24 V AC, + 10 % 24 (17 ... 30) V DC	
<b>Current consumption DC</b>	100 mA + current consumption encoder	
<b>Connected load AC</b>	15 VA	
<b>Auxiliary power supply (for sensors)</b>	2 x 5.2 V DC, each 150 mA 2 x 24 V DC, each 120 mA	
<b>EMC standards</b>	EN 55011 class B, EN 61000-6-2, EN 61000-6-3 EN 61326-3-2	
<b>Device safety</b>	designed to protection class application area	EN 61010 part 1 2 pollution level 2

Mechanical characteristics		
<b>Housing material</b>	Noryl UL94-V-0	
<b>Screw terminal</b>	cable cross-section	max. 1.5 mm <sup>2</sup> [AWG 15]
<b>Protection</b>	IP65 from front	
<b>Weight</b>	approx. 250 g [8.82 oz]	

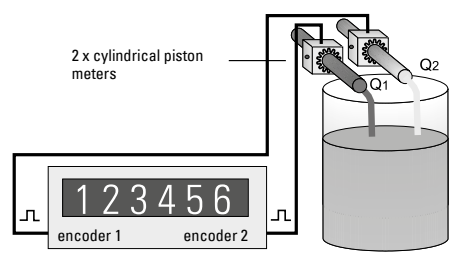
Inputs	
2 universal incremental encoder inputs	
<b>Count frequency (per encoder)</b>	
RS422 and TTL with inv.	1 MHz
HTL asymmetric	200 kHz
TTL asymmetric	200 kHz

Entrées de commande	
4 control inputs HTL	
Ri	3.3 kOhm
Low	< 2.5 V
High	> 10 V
min. pulse duration	50 µs

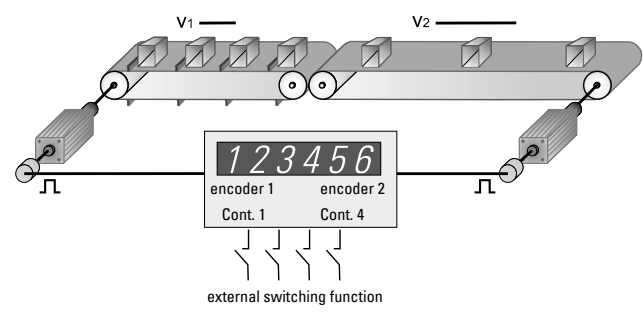
Outputs	
<b>Switch outputs</b>	
4 fast power transistors	5 ... 30 V DC, 350 mA
reaction time	< 1 ms <sup>1)</sup>
inductive loads require a freewheeling diode	
<b>Serial interface</b>	
	RS232, 2400 ... 38400 baud
	RS485 (6.574.0116.D07)
<b>Analog outputs (6.574.0116.D95)</b>	
0 / 4 ... 20 mA	load max. 270 Ohm
0 ... +10 V	max. 2 mA
Resolution	14 bit
precision	0.1 %
reaction time	< 1 ms

### Application examples

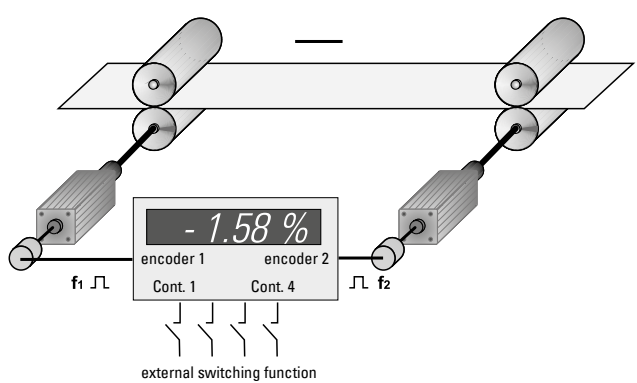
#### Total flow rate



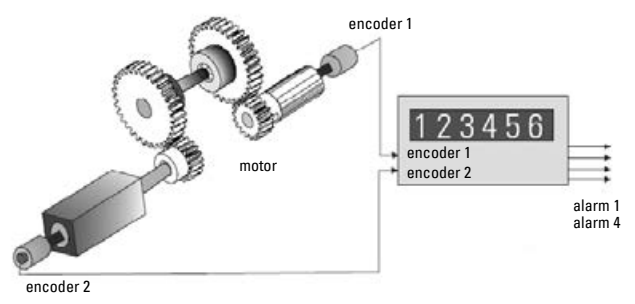
#### Speed difference



#### Material stretching to create tensile stress



#### Monitoring of torsion, shafts or gear breakage



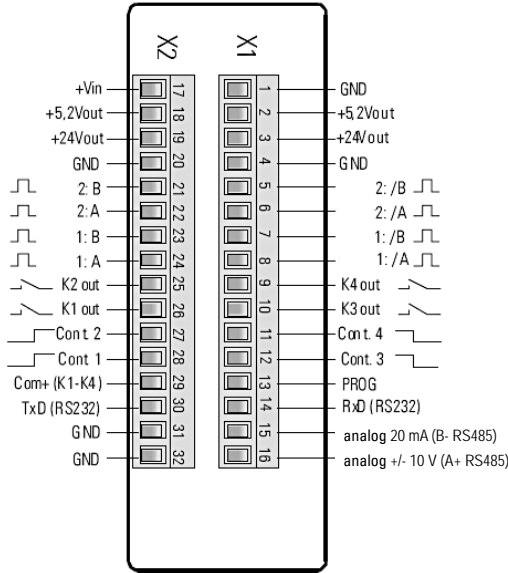
1) Intensive serial communication can temporarily increase the reaction time.

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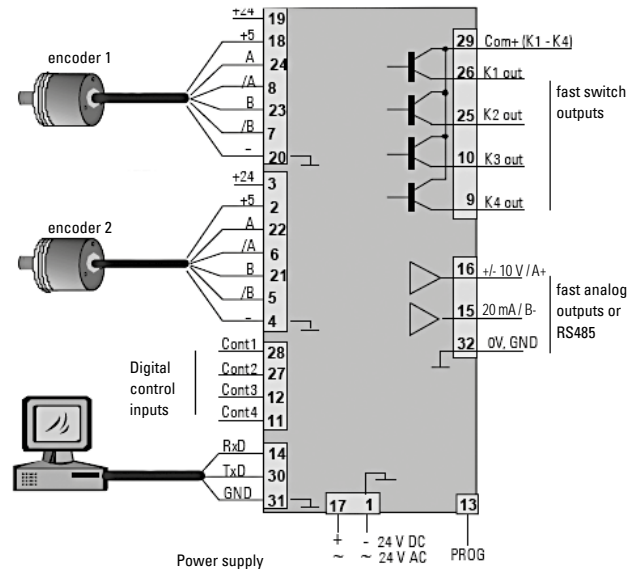
# Frequency displays / tachometers with limits

## LED tachometers Dual frequency displays with 4 outputs and analog output (AC+DC) 574

### Terminal assignment

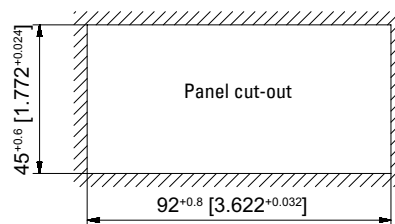
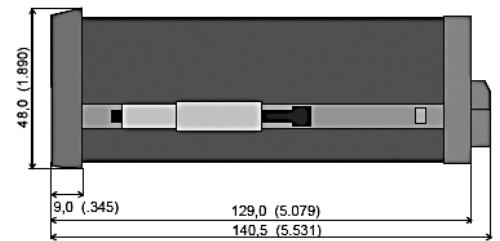
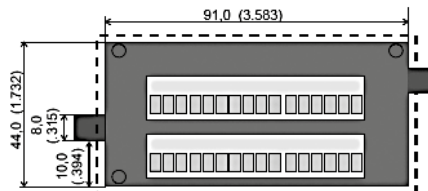
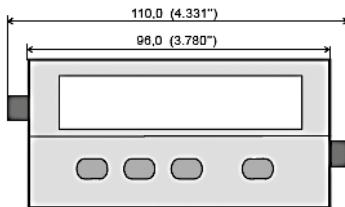


### Application examples



### Dimensions

Dimensions in mm [inch]



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# Position displays

Position displays		Type	Page
<b>LCD position display</b>	Phase discriminator (quadrature) x1 and x2 evaluation (battery)	Codix 133	<b>232</b>
<b>LED position displays</b>	6 count modes (DC)	Codix 521	<b>63</b>
	Multifunctional – pulse, frequency, time (DC)	Codix 524	<b>240</b>
	6 count modes with tachometer (DC)	Codix 52P	<b>254</b>
	6 count modes (AC+DC)	Codix 541	<b>75</b>
	Multifunctional – pulse, frequency, time (AC+DC)	Codix 544	<b>244</b>
<b>LED position displays</b>	6 count modes with tachometer (AC+DC)	Codix 54P	<b>261</b>
<b>LCD touch position display</b>	 SSI absolute encoder display (AC+DC)	570T	<b>235</b>
Position displays with limits		Type	Page
<b>LCD position preset counters</b>	1 or 2 presets – pulse, time – 5 kHz (AC+DC)	Codix 907 / 908	<b>124</b>
	Multifunctional – pulse, frequency, time – 1 ... 6 presets (AC+DC)	Codix 923 / 924	<b>127</b>
<b>Position preset counter with multicolour or LED look</b>	Multifunctional – pulse, frequency, time – 1 ... 6 presets (AC+DC)	Codix 923 / 924	<b>127</b>
<b>LCD touch position preset counters</b>	 SSI absolute encoder display (AC+DC)	570T	<b>235</b>
	 Pulse, frequency, time (also reciprocal) – (AC+DC)	571T	<b>247</b>
<b>LED position preset counters</b>	Multifunctional – pulse, frequency, time – 65 kHz, 2 Vorwahlen (AC+DC)	Codix 560	<b>134</b>
	Dual preset counters with 4 outputs and analog output (AC+DC)	572	<b>139</b>
	SSI o. incremental inputs / 4 switching outputs + analog output (AC+DC)	575	<b>142</b>

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# Position displays

## LCD position displays      Phase discriminator (quadrature) x1 and x2 evaluation      Codix 133



The Codix 133 is a simple battery-powered position display with a phase discriminator (quadrature) counting input. NPN and PNP pulses can be shown on the 8-digit LCD display that is also available with optional backlighting.



Battery powered	Type of input	Phase discriminator	Pulse voltage	Max. count frequency	Temperature range	High protection level	DIN front bezel	LCD display	Lockable reset

### Powerful

- High quality 8-digit LCD display with 8 mm high figures with optional backlighting.
- Counting modes include phase discriminator (quadrature) counting (also with pulse doubling) for connection to incremental encoders.
- Battery life approx. 8 years.
- Count frequency max. 6 kHz.
- High protection level IP65.

### Simple

- Screw terminals, RM 5 mm.
- Reset key can be enabled via "Reset Enable" input.
- For positive or negative counting edge, depending on version.

### Order code

6.133 . 012 . 8XX  
a b

#### **a** Backlighting

5 = without <sup>1)</sup>  
 6 = with

#### **b** Count input (input type: NPN/PNP <sup>2)</sup>)

Input type	INP A				INP B			
0 = Quad/Quad <sup>2)</sup>	0 ... 0.7 V DC	channel A	NPN	3 kHz	0 ... 0.7 V DC	channel B	NPN	3 kHz
1 <sup>1)</sup> = Quad/Quad <sup>2)</sup>	4 ... 30 V DC	channel A	PNP	6 kHz	4 ... 30 V DC	channel B	PNP	6 kHz

#### Delivery specification

- Counter
- Mounting clip
- Front bezel for screw mounting (T008181) 56 x 40 mm [2.20 x 1.57"], panel cut-out 50 x 25 mm [1.97 x 0.98"]
- Front bezel for clip mounting (T008180) 53 x 28 mm [2.09 x 1.10"], panel cut-out 50 x 25 mm [1.97 x 0.98"]
- Gasket
- Instruction manual, multilingual

1) Stock types

2) Phase discriminator for incremental encoders with x1 / x2 evaluation

# Position displays

## LCD position displays    Phase discriminator (quadrature) x1 and x2 evaluation    Codix 133

Accessories	Dimensions in mm [inch]	Order no.
<b>Adapter front bezel, 72 x 36 [2.83 x 1.42]</b>	for cut-out 68 x 33 [2.68 x 1.30] to cut-out 45 x 22.2 [1.77 x 0.87], for counters 48 x 24 [1.89 x 0.94], as set	black and silver anodised <b>162704 Set</b>
<b>Adapter front bezel, 48 x 48 [1.89 x 1.89]</b>	for cut-out 45 x 45 [1.77 x 1.77] to cut-out 45 x 22.2 [1.77 x 0.87], with clip mounting for counters 48 x 24 [1.89 x 0.94]	black <b>T008883</b>
<b>Adapter front bezel, 60 x 50 [2.36 x 1.97]</b>	for cut-out 54 x 29 [2.13 x 1.14] to cut-out 45 x 22.2 [1.77 x 0.87], with screw mounting and gasket for counters 48 x 24 [1.89 x 0.94]	black <b>N003001</b>
<b>Transparent cover, lockable, IP65</b>	for cut-out 54 x 29 [2.13 x 1.14], for screw mounting to front bezel F1B or adapter front bezel N003001, for counters with cut-out 50 x 25 [1.97 x 0.98] or 45 x 22.2 [1.77 x 0.87]	<b>N003002</b>
<b>Sealing cover type K1, IP65</b>	suitable for front bezel 60 x 50 [2.36 x 1.97], for screw mounting of electromech. counters and via adapter front bezel N003001 for counters 48 x 24 [1.89 x 0.94]	<b>G008301</b>
<b>Mounting frame</b> with cut-out 50 x 25 [2.36 x 1.97] via separate adapter also for 45 x 22.2 [1.77 x 0.87]	for snap-on mounting on 35 [1.38] top-hat DIN rail, for counters 53 x 28 [2.09 x 1.10] and via separate adapter (T008180) for counters 48 x 24 [1.89 x 0.94]	chromated <b>G300004</b>

Suitable gaskets, other accessories and installation examples for optional accessories can be found in chapter accessories or in the accessories section under: [www.kuebler.com/accessories](http://www.kuebler.com/accessories).

### Technical data

General technical data	
<b>Display</b>	LCD, 8 digits, 8 mm [0.32"] high
<b>Backlighting</b>	external electrical source 24 V DC $\pm$ 20 %, 50 mA
<b>Modes</b>	phase discriminator x1 or x2 evaluation selectable
<b>Display range</b>	-9999999 ... 99999999, with overflow display
<b>Reset</b>	manual and electrical
<b>Working temperature</b>	-10°C ... +55°C [+14°F ... +131°F] (non-condensing)
<b>Operating temperature</b>	-10°C ... +60°C [+14°F ... +140°F] (non-condensing)
<b>Storage temperature</b>	-20°C ... +70°C [-4°F ... +158°F]

Electrical characteristics	
<b>Power supply</b>	internal lithium battery approx. 8 years at 20°C [68°F]
<b>EMC standards</b>	EN 55011 class B EN 61000-6-2, EN 61000-6-3
<b>UL approval</b>	file E128604

Mechanical characteristics	
<b>Housing</b>	dark grey RAL 7021
<b>Protection</b>	IP65 (front side)
<b>Weight</b>	approx. 50 g [1.76 oz]

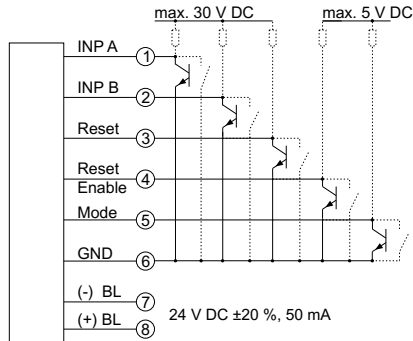
Counting inputs		
<b>Fast counting input</b> max. 6 kHz (PNP), 3 kHz (NPN)		
Switching level NPN	LOW	0 ... 0.7 V
	HIGH	3 ... 30 V DC
Switching level PNP	LOW	0 ... 0.7 V
	HIGH	4 ... 30 V DC
Switching		x1 or x2 evaluation can be set via the mode input
<b>Switching (mode)</b>		
Contact input		Open Collector NPN (switching at 0 V DC)
Switching level NPN	LOW	0 ... 0.7 V
	HIGH	3 ... 5 V DC
<b>Reset input</b>		
Minimum pulse time	DC	50 ms
	high voltage	16 ms
Contact input DC – NPN	LOW	0 ... 0.7 V
	HIGH	3 ... 30 V DC
<b>Electrical reset key locking</b>		
Contact input		Open Collector NPN (switching at 0 V DC)
Switching level – NPN	LOW	0 ... 0.7 V
	HIGH	3 ... 5 V DC

# Position displays

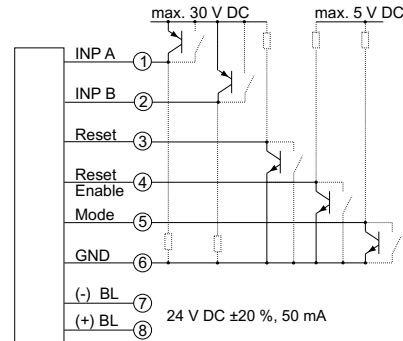
## LCD position displays      Phase discriminator (quadrature) x1 and x2 evaluation      Codix 133

### Terminal assignment

DC type: 6.133.012.8x0



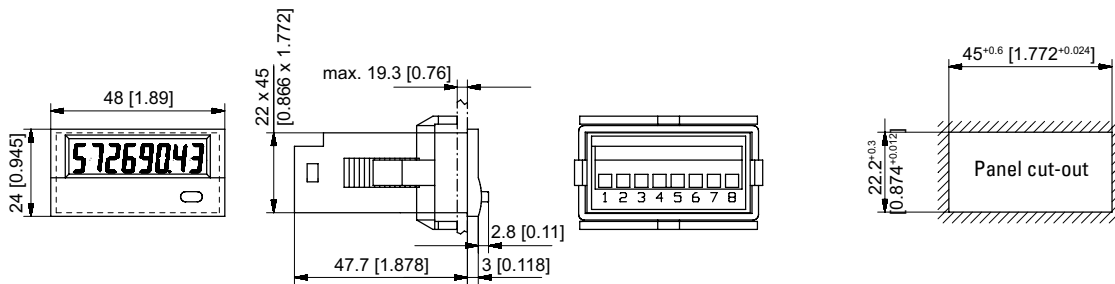
DC type: 6.133.012.8x1



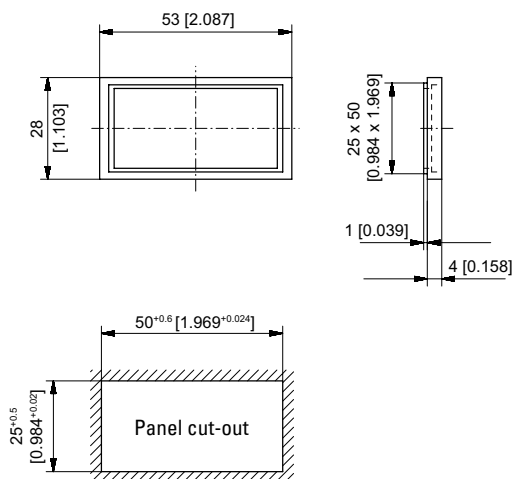
BL = backlighting

### Dimensions

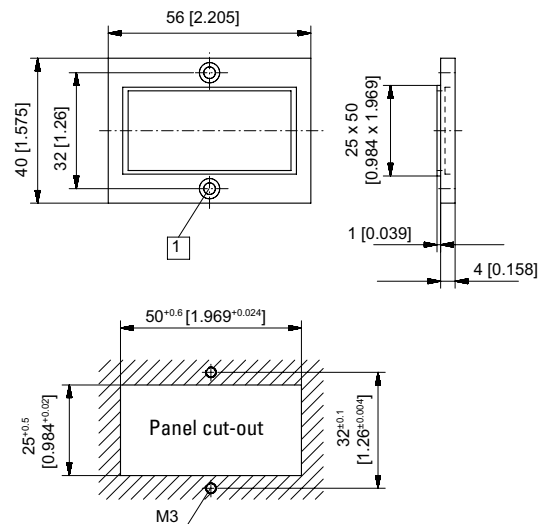
Dimensions in mm [inch]



### Front bezel for clip mounting (included in delivery)



### Front bezel for screw mounting (included in delivery)



1 Countersinking Af3, DIN 74

# Position displays with limits

LCD touch position preset counters	SSI absolute encoder display (AC+DC)	570T
------------------------------------	--------------------------------------	------



The fast SSI display type 570T is designed for absolute SSI encoders with a resolution up to 32 bits. It can be used as either a master or a slave display.

Thanks to simple bit assignment and bit blanking the display, which can be scaled and linearized, can also be cascaded, in order to extend the display range as desired. Output options include 4 limit values, analog output or RS232 or RS485 interface.



<b>AC</b> 115... 230V Power supply	<b>DC</b> 18... 30 V Power supply	<b>SSI</b> SSI input	<b>max.</b> 1 MHz Count frequency	<b>4</b> 4 switching outputs	<b>2</b> Relay output	<b>mA, V</b> Analog output	<b>16 bit</b> Resolution analog output	<b>RS 232 / 485</b> RS232 / RS485 interface	<b>IP65</b> High protection level	<b>POSITION</b> Position display
<b>DIN 96 x 48</b> DIN front bezel	<b>8 LCDs</b> LCD touch display	<b>Menu-driven programming</b>	<b>SSI</b> Display linearization	<b>Touch display</b>	<b>Operation with gloves</b>					

## Characteristics

- Suitable for SSI-protocols from 8 up to 32 bits.
- 4 switching outputs to work as limit or preset values (reaction time < 1 ms), also with programmable tracking preset.
- Scaleable analog output (reaction time < 1 ms), resolution 16 bit, -10 ... +10 V, 0 ... 20 mA or 4 ... 20 mA.
- Serial interface RS232 or RS485 for reading data in and out.
- Version with 2 relay outputs as limit values or presets; can also be programmed as tracking preset.
- Gray or binary code.
- 96 x 48 mm DIN-housing, IP65.

## Benefits

- AC and DC power supply in one unit.
- Master- or slave mode.
- Screw terminal connection.
- SSI-clock frequency from 100 Hz up to 1 MHz.
- Display may be adjusted using scaling- and offset-features.
- Large 13 mm high LCD display, 8-digit, with adjustable brightness. Tri-color – red/green/yellow – programmable.
- Round-loop function.
- 24-point linearization.
- bit blanking.

<b>Order code</b>	<b>6.570T . 01X . XXX</b>
	<b>a b c d</b>

**a** Relay outputs  
0 = 2 relay outputs  
2 = without output

**b** Power supply  
3 = 18 ... 30 V DC  
E = 18 ... 30 V DC + 115 ... 230 V AC

**c** Further options  
0 = standard  
A = with wire break monitoring

**d** Electrical outputs  
0 = none  
1 = RS232, 4 switching outputs  
2 = RS232, 4 switching outputs, analog output  
3 = RS485, 4 switching outputs

**Delivery specification**  
· Display 570T  
· Gasket  
· Mounting kit  
· Manual German/English

**Stock types**  
6.570T.012.301  
6.570T.012.302  
6.570T.010.302  
6.570T.010.E02

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# Position displays with limits

LCD touch position preset counters		SSI absolute encoder display (AC+DC)	570T	Order no.
<b>Accessories</b>				
<b>Mounting frame</b> with cut-out 92 x 45 [3.62 x 1.77]	for snap-on mounting on 35 [1.38] top-hat DIN rail, for counters 96 x 48 [3.74 x 1.89]		grey	<b>G300005</b>
<b>OS6.0 software for parameter setting</b>	can be downloaded at <a href="http://www.kuebler.com">www.kuebler.com</a>			

Suitable gaskets as well as further accessories can be found in the accessories section or in the accessories area of our website at: [www.kuebler.com/accessories](http://www.kuebler.com/accessories).

## Technical data

General technical data	
<b>Display</b>	LCD touch display, 13 mm high 8 decades + sign
<b>Operating temperature</b>	-20°C ... +60°C [-4°F ... +140°F] (non-condensing)
<b>Storage temperature</b>	-25°C ... +70°C [-13°F ... +158°F]
<b>Altitude</b>	up to 2000 m [6562']
Electrical characteristics	
<b>Power supply</b>	18 ... 30 V DC, with reverse polarity protection (rated voltage 24 V DC) 115 ... 230 V AC, 50/60 Hz (option)
<b>Current consumption DC</b>	100 mA, without load
<b>Power consumption AC</b>	approx. 3 VA, without load
<b>Auxiliary power supply (for sensors)</b> (in case of wire break monitoring, switchable from 24 V DC to 5 V DC / 250 mA)	AC supply 24 V DC ±15 %, 150 mA (up to +45°C) 80 mA (from +46°C) DC supply U <sub>B</sub> - 1 V, 250 mA
<b>EMC standards</b>	EN 61000-6-2, EN 61000-6-3, EN 61000-6-4, EN 61326-3-2
<b>Device safety</b>	designed to protection class 2 application area pollution level 2

Mechanical characteristics	
<b>Housing</b>	ABS UL94-V-0
<b>Weight</b>	approx. 200 g
<b>Protection</b>	IP65 (front side) IP20 (rear side)
<b>Terminals</b>	max. 1.5 mm <sup>2</sup>

Inputs	
<b>SSI interface</b>	differential RS422 input/output
clock frequency	100 Hz ... 1 MHz
input level	RS422: > 0.5 V
load	max. 3 mA / R <sub>i</sub> > 10 kΩ / 47 pF
<b>3 control inputs (Cnt 1 - 3)</b>	PNP
input frequency	max. 10 kHz
input level	HTL: Low 0 ... 3 V / High 9 ... 30 V
load	max. 2 mA / R <sub>i</sub> > 15 kΩ / 470 pF

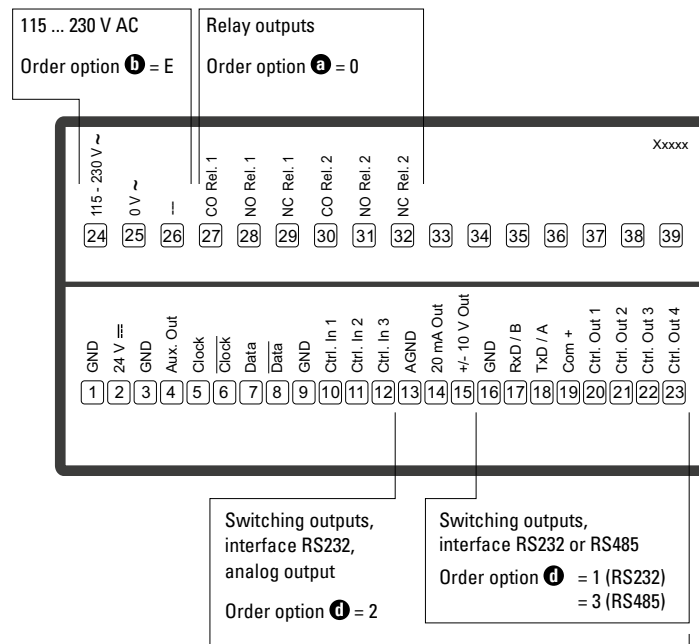
Outputs (option)	
<b>4 switching outputs</b>	5 ... 30 V DC/200 mA (PNP)
reaction time	< 1 ms
<b>Interface</b>	RS232 or RS485 Drivecom protocol / Modbus / Printer 9600 ... 38400 Baud
<b>Analog output</b>	-10 ... +10 V (max. 2 mA) or 0 ... 20 mA, 4 ... 20 mA (max. 270 Ω)
resolution	16 bit (15 bit + sign)
accuracy	±0.1 %
reaction time	< 1 ms
<b>Relay output</b>	2 changeover contacts (potential free) max. 250 V AC / 3 A / 750 VA max. 150 V DC / 2 A / 50 W
reaction time	< 20 ms

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# Position displays with limits

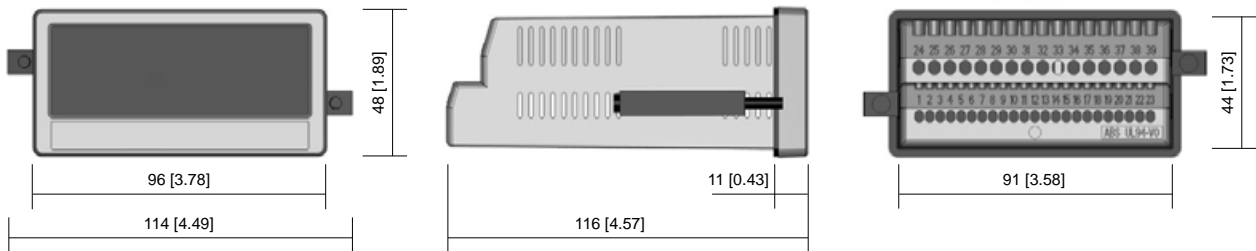
<b>LCD touch position preset counters</b>	<b>SSI absolute encoder display (AC+DC)</b>	<b>570T</b>
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## Terminal assignment



## Dimensions

Dimensions in mm [inch]



Panel cut-out  
92 x 45 mm [3.62 x 1.77"]

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## Multifunction devices

Multifunction devices, electronic		Type	Page
<b>LED multifunction displays</b>	Multifunctional – pulse, frequency, time (DC)	Codix 524	<b>240</b>
	Multifunctional – pulse, frequency, time (AC+DC)	Codix 544	<b>244</b>
<b>LCD multifunction preset counters</b>	 1 preset – pulse, time (battery)	Codix 901	<b>120</b>
	1 or 2 presets – pulse, time – 5 kHz (AC+DC)	Codix 907 / 908	<b>124</b>
	Multifunctional – pulse, frequency, time – 1 ... 6 presets (AC+DC)	Codix 923 / 924	<b>127</b>
<b>Multifunction preset counters with multicolor or LED look</b>	Multifunctional – pulse, frequency, time – 1 ... 6 presets (AC+DC)	Codix 923 / 924	<b>127</b>
<b>LED multifunction preset counters</b>	Multifunctional – pulse, frequency, time – 65 kHz, 2 presets (AC+DC)	Codix 560	<b>134</b>
<b>LCD touch multifunction preset counter</b>	 Pulse, frequency, time (also reciprocal) – (AC+DC)	571T	<b>247</b>
<b>LED dual function displays</b>	Universal with dual functions, 4 combinations (DC)	Codix 52U	<b>250</b>
	6 count modes with tachometer (DC)	Codix 52P	<b>254</b>
	2 counters with separate scaling (DC)	Codix 52T	<b>66</b>
	2 counters with separate inputs and separate scaling (DC)	Codix 52C	<b>69</b>
	Universal with dual functions, 4 combinations (AC+DC)	Codix 54U	<b>258</b>
	6 count modes with tachometer (AC+DC)	Codix 54P	<b>261</b>
Multifunction devices, electromechanical		Type	Page
<b>Dual function counters</b>	Pulse + time / 2 x time (AC+DC)	HC 77	<b>208</b>
	Pulse + time for DIN rail (AC+DC)	SHC 77	<b>211</b>
	Energy + time (AC)	HW 66 / HW 66 M	<b>266</b>

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**LED multifunction display**

**Multifunctional – pulse, frequency, time (DC)**

**Codix 524**



The Codix 524 is a voltage-powered multifunction counter with 4 functions in one device:  
**Pulse, position, frequency and speed display, timer and short time meter.**  
 With 6-digit LED display for NPN / PNP input signals.



<b>DC</b> 10 ... 30 V Power supply	<b>000000</b> DIN 48 x 24 DIN front bezel	<b>-20°...+65°C</b> Temperature range	<b>IP65</b> High protection level	<b>PROG</b> Menu-driven programming	<b>max.</b> 60 kHz Pulse counter/ Totalizer	<b>POSITION</b> Position display	<b>1/sec 1/min</b> Frequency meter/ tachometer	<b>Timer</b>	<b>t Hz</b> HRA Frequency meter HRA
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### Powerful

- Fast count and frequency input – input frequency max. 60 kHz (can be damped to 30 Hz for mechanical contacts).
- Robust housing – IP65 protected.
- Very bright LED display, 8 mm high, 6 digits.
- Very accurate precise frequency measurement principle (HRA-High Rate Accuracy System)  
 Frequencies up to 38 Hz are calculated using time-interval (period duration) measurement. Frequencies > 38 Hz are calculated using a special time base (gate time) measurement. A very high accuracy of < 0.1 % is achieved, even with very short gate times. The resulting measurement is available after a max. of 50 ms.
- Short start-up time – detects input pulses just 16 msec after being switched on => no pulses are lost with a simultaneous motor start-up.

### User-friendly and universal

- Large keys – can also be operated when wearing gloves.
- Programming:
  - Simple uniform menu-driven programming and operation.
  - Possible to enter the programming also during operation with a confirmation prompt.
- Individually programmable scaling: Multiplication and division factor (0.0001...99.9999), to display corresponding engineering units, e.g. position in 1/10 mm and speed in RPM.
- 4 different count input modes: 2-channel count input for detecting count direction, difference or adding mode, quadrature with x1, x2 or x4 evaluation.
- Frequency measurement: display in 1/min or 1/sec.
- Time counting: pulse width or time interval measurement in hours, minutes or seconds, as well as real-time display.
- Inputs: as an alternative to the HTL inputs, devices are available with a 4 ... 30 V DC input level, for use as parallel displays to PLCs.
- Optional output: zero signal for position and count, zero speed monitoring, 1 Hz clock pulse for active time measurement.

### Order code

**6.524 . 01 X . 3 X 0**

- a** Output  
 1 = optocoupler <sup>1)</sup>  
 2 = no output <sup>1)</sup>

- b** Input switching level  
 0 = Standard (HTL) <sup>1)</sup>  
 A = 4 ... 30 V DC

#### Delivery specification

- Counter
- Mounting clip
- Front bezel for screw mounting (T008181) 56 x 40 mm [2.20 x 1.57"], panel cut-out 50 x 25 mm [1.97 x 0.98"]
- Front bezel for clip mounting (T008180) 53 x 28 mm [2.09 x 1.10"], panel cut-out 50 x 25 mm [1.97 x 0.98"]
- Gasket
- Instruction manual, multilingual

1) Stock types

# Multifunction devices, electronic

LED multifunction display	Multifunctional – pulse, frequency, time (DC)	Codix 524	
Accessories	Dimensions in mm [inch]	Order no.	
<b>Adapter front bezel, 72 x 36 [2.83 x 1.42]</b>	for cut-out 68 x 33 [2.68 x 1.30] to cut-out 45 x 22.2 [1.77 x 0.87], for counters 48 x 24 [1.89 x 0.94], as set	black and silver anodised	<b>162704 Set</b>
<b>Adapter front bezel, 48 x 48 [1.89 x 1.89]</b>	for cut-out 45 x 45 [1.77 x 1.77] to cut-out 45 x 22.2 [1.77 x 0.87], with clip mounting for counters 48 x 24 [1.89 x 0.94]	black	<b>T008883</b>
<b>Adapter front bezel, 60 x 50 [2.36 x 1.97]</b>	for cut-out 54 x 29 [2.13 x 1.14] to cut-out 45 x 22.2 [1.77 x 0.87], with screw mounting and gasket for counters 48 x 24 [1.89 x 0.94]	black	<b>N003001</b>
<b>Transparent cover, lockable, IP65</b>	for cut-out 54 x 29 [2.13 x 1.14], for screw mounting to front bezel F1B or adapter front bezel N003001, for counters with cut-out 50 x 25 [1.97 x 0.98] or 45 x 22.2 [1.77 x 0.87]		<b>N003002</b>
<b>Sealing cover type K1, IP65</b>	suitable for front bezel 60 x 50 [2.36 x 1.97], for screw mounting of electromech. counters and via adapter front bezel N003001 for counters 48 x 24 [1.89 x 0.94]		<b>G008301</b>
<b>Mounting frame</b> with cut-out 50 x 25 [2.36 x 1.97] via separate adapter also for 45 x 22.2 [1.77 x 0.87]	for snap-on mounting on 35 [1.38] top-hat DIN rail, for counters 53 x 28 [2.09 x 1.10] and via separate adapter (T008180) for counters 48 x 24 [1.89 x 0.94]	chromated	<b>G300004</b>

Suitable gaskets, other accessories and installation examples for optional accessories can be found in chapter accessories or in the accessories section under: [www.kuebler.com/accessories](http://www.kuebler.com/accessories).

## Technical data

General technical data		Inputs	
<b>Display</b>	6 digits, red 7 segment LED display; 8 mm high	<b>Polarity of inputs</b>	programmable, NPN or PNP
<b>Data backup</b>	EEPROM	<b>Input resistance</b>	approx. 5 kΩ
<b>Operating temperature</b>	10 ... 26 V DC -20°C ... +65°C [-4°F ... +149°F] > 26 ... 30 V DC -20°C ... +55°C [-4°F ... +131°F] (non-condensing)	<b>Counting frequency<sup>1)</sup></b>	max. 60 kHz, can be damped to 30 Hz for position display max. 25 kHz
<b>Storage temperature</b>	-25°C ... +70°C [-13°F ... +158°F]	<b>Display range</b>	timer 0.001 s ... 999999 h frequency meter 1/min or 1/sec
<b>Electrical characteristics</b>		<b>Minimum pulse duration of the reset input</b>	5 ms
<b>Power supply</b>	10 ... 30 VDC, with reverse polarity protection	<b>Input switching level (HTL)</b>	LOW 0 ... 0.2 x U <sub>B</sub> [V DC] HIGH 0.6 x U <sub>B</sub> ... 30 V DC
<b>Current consumption</b>	max. 55 mA	<b>Input switching level at 4 ... 30 V DC</b>	LOW 0 ... 2 V DC HIGH 4 ... 30 V DC
<b>EMC standards</b>	EN 55011 class B, EN 61000-6-2, EN 61000-6-3 EN 61326-1	<b>Accuracy</b>	tachometer < 0.1 % timer < 50 ppm
<b>UL approval</b>	file E128604	<b>Outputs (optional)</b>	
<b>Mechanical characteristics</b>		<b>Optocoupler output</b>	max. 30 V, 10 mA
<b>Housing</b>	front panel mount 48x24 mm acc. to DIN 43700; RAL 7021, dark grey		
<b>Protection</b>	IP65 (front side)		
<b>Weight</b>	approx. 50 g [1.76 oz]		
<b>Vibration resistance</b> acc. to EN 60068-2-6	10 ... 55 Hz / 1 mm [0.04"] / 30 min		
<b>Shock resistance</b> acc. to EN 60068-2-27	100 G: 2 ms 10 G: 6 ms		

1) Details see manual

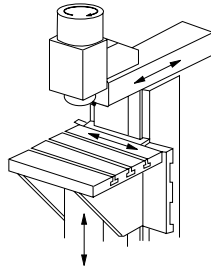
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# Multifunction devices, electronic

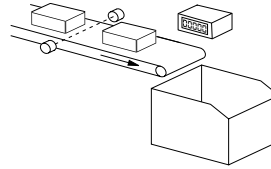
<b>LED multifunction display</b>	<b>Multifunctional – pulse, frequency, time (DC)</b>	<b>Codix 524</b>
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## Applications for multifunction display

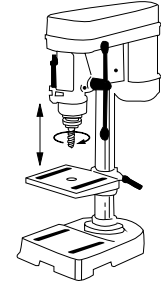
- Counting tasks such as quantity and piece counting, measuring and recording of speed and of operating and processing times
- Piece counting or tool-life measurement on die cutters, presses, extruders, woodworking machines, drilling machines, pick-and-place machines, guillotines, special-purpose vehicles etc.
- Positioning tasks on processing machines, such as sawing machines, milling machines, bending and folding machines, etc.
- Production data acquisition by means of piece counting (using difference or adding), or measurement of production times or production speeds
- Totalizing flow, quantity and other scaleable media, or display of current flow rates



Position or rotary speed on milling machine



Piece count on conveyor or production speed



Drilling machine head, speed or drilling depth

## Functions

### Pulse counter:

Various counting modes such as count direction, difference, addition, phase discriminator

### Position display:

Phase discriminator with simple, double or quadruple evaluation

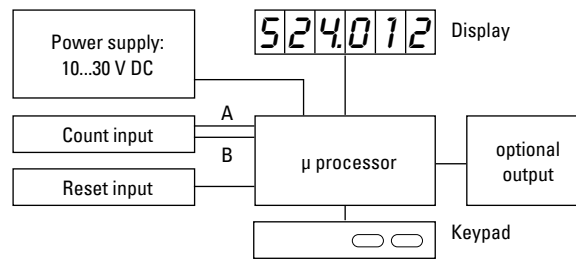
### Frequency and speed display:

Pulses per minute or per second scaleable, with HRA measurement

### Hour meters and short-time meters:

Various programmable time ranges with different ways of measuring

## Block diagram



## Terminal assignment

1	2	3	4	5
□	□	□	□	□

1	2	3	4	5	6	7
□	□	□	□	□	□	□

PIN without optocoupler	
1	10 ... 30 V DC
2	0 V GND
3	INP A
4	INP B
5	Reset / Set

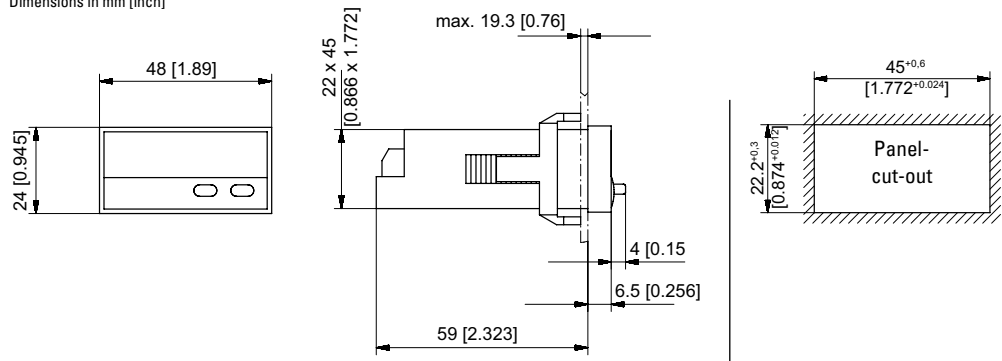
PIN with optocoupler (NPN)	
1	10 ... 30 V DC
2	0 V GND
3	INP A
4	INP B
5	Reset / Set
6	Emitter
7	Collector

# Multifunction devices, electronic

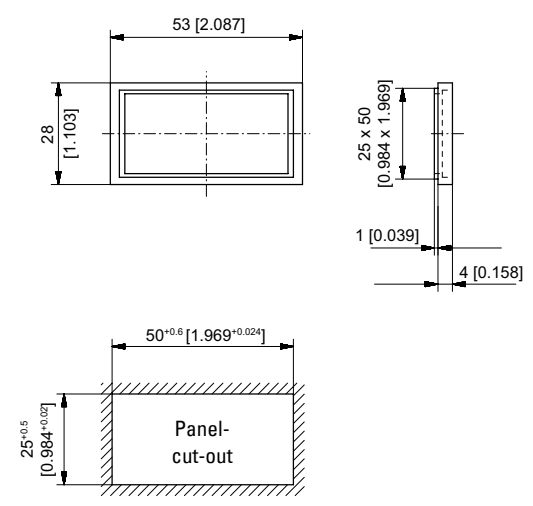
**LED multifunction display**      **Multifunctional – pulse, frequency, time (DC)**      **Codix 524**

### Dimensions

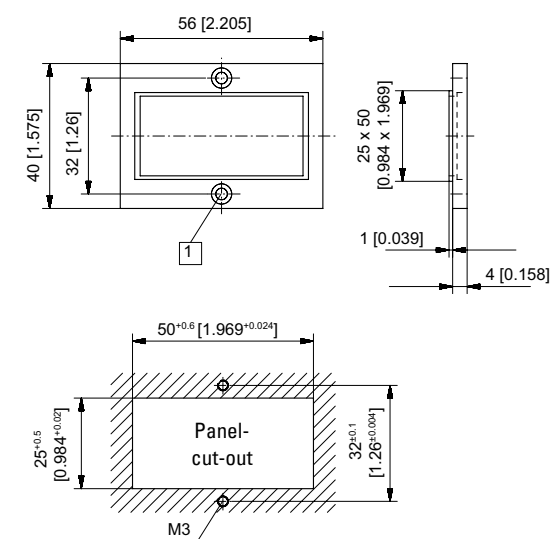
Dimensions in mm [inch]



### Front bezel for clip mounting (included in delivery)



### Front bezel for screw mounting (included in delivery)



1 Countersinking Af3, DIN 74

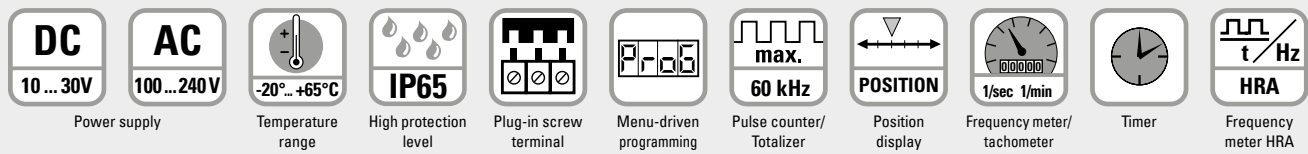
- Product overview Basics
- Pulse counters
- Preset counters
- Hour meters Timers
- Frequency displays Tachometers
- Position displays
- Multifunction devices
- Energy meters
- Process devices
- Temperature devices
- Strain-gauge controllers
- Accessories Index



The Codix 544 is a voltage-powered multifunction counter with 4 functions in one device:

**Pulse, position, frequency and speed display, timer and short time meter.**

With 6-digit LED display for NPN, PNP input signals.



## Powerful

- Fast count and frequency input – input frequency max. 60 kHz (can be damped to 30 Hz for mechanical contacts).
- Robust housing – IP65 protected.
- Very bright LED display, 14 mm high, 6 digits.
- Very accurate precise frequency measurement principle (HRA-High Rate Accuracy System)  
Frequencies up to 38 Hz are calculated using time-interval (period duration) measurement. Frequencies > 38 Hz are calculated using a special time base (gate time) measurement. A very high accuracy of < 0.1 % is achieved, even with very short gate times. The resulting measurement is available after a max. of 50 ms.
- Short start-up time – detects input pulses just 16 msec after being switched on => no pulses are lost with a simultaneous motor start-up.

## User-friendly and universal

- Large keys – can also be operated when wearing gloves.
- Programming:
  - Simple uniform menu-driven programming and operation.
  - Possible to enter the programming also during operation with a confirmation prompt.
- Individually programmable scaling: multiplication and division factor (0.0001...99.9999), to display corresponding engineering units, e.g. position in 1/10 mm and speed in RPM.
- 4 different count input modes: 2-channel count input for detecting count direction, difference or adding mode, quadrature with x1, x2 or x4 evaluation.
- Frequency measurement: display in 1/min or 1/sec.
- Time counting: pulse width or time interval measurement in hours, minutes or seconds, as well as real-time display.
- AC or DC power supply.
- Inputs: as an alternative to the HTL inputs, devices are available with a 5 V DC input level, for use as parallel displays to PLCs.
- Optional output: zero signal for position and count, zero speed monitoring, 1 Hz clock pulse for active time measurement.

## Order code

6.544 . 01 X . XX 0  
a b c

### a Output

- 1 = optocoupler
- 2 = no output <sup>1)</sup>

### b Power supply

- 0 = 100 ... 240 V AC, ±10 % <sup>1)</sup>
- 3 = 10 ... 30 V DC <sup>1)</sup>

### c Input switching level

- 0 = Standard (HTL) <sup>1)</sup>
- A = 4 ... 30 V DC

### Delivery specification

- Digital display
- Mounting clip
- Gasket
- 2 plug-in screw terminals
- Instruction manual, multilingual

### Replacement parts

- 7 pin screw terminal RM 3.81 1 ... 7: N100387
- 2 pin screw terminal RM 5.08 1 ... 2: N100133

1) Stock types

# Multifunction devices, electronic

## LED multifunction display    Multifunctional – pulse, frequency, time (AC+DC)    Codix 544

Accessories	Dimensions in mm [inch]	Order no.
<b>Mounting frame</b> with cut-out 92 x 45 [3.62 x 1.77]	for snap-on mounting on 35 [1.38] top-hat DIN rail, for counters 96 x 48 [3.74 x 1.89]	grey <b>G300005</b>

Suitable gaskets as well as further accessories can be found in the accessories section or in the accessories area of our website at: [www.kuebler.com/accessories](http://www.kuebler.com/accessories).

### Technical data

General technical data	
<b>Display</b>	6 digit, red 7 segment LED display; 14 mm [0.55"] high
<b>Data backup</b>	EEPROM
<b>Operating temperature</b>	-20°C ... +65°C [-4°F ... +149°F] (non-condensing)
<b>Storage temperature</b>	-25°C ... +70°C [-13°F ... +158°F]
<b>Altitude</b>	up to 2000 m [6562']

Electrical characteristics	
<b>Power supply</b>	10 ... 30 VDC, with integrated reverse polarity protection 100 ... 240 V AC, ±10 %
<b>Current consumption</b>	max. 50 mA, 6 VA
<b>EMC standards</b>	EN 55011 class B, EN 61000-6-2, EN 61000-6-3
<b>Device safety</b>	designed to protection class 2 application area pollution level 2
<b>UL approval</b>	file E128604

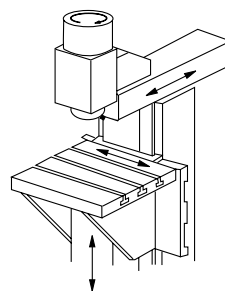
Mechanical characteristics	
<b>Housing</b>	front panel mount 96 x 48 mm [3.74 x 1.89"] acc. to DIN 43700; RAL 7021, dark grey
<b>Protection</b>	IP65 (front side)
<b>Weight</b>	approx. 150 g [5.29 oz]

Inputs	
<b>Polarity of inputs</b>	programmable, NPN or PNP for all inputs
<b>Input resistance</b>	approx. 5 kΩ
<b>Counting frequency <sup>1)</sup></b>	max. 60 kHz, can be damped to 30 Hz for position display max. 25 kHz
<b>Display range</b>	timer 0.001 s ... 999999 h frequency meter 1/min or 1/sec
<b>Minimum pulse duration of the reset input</b>	5 ms
<b>Input switching level standard version (HTL)</b>	
DC power supply	LOW 0 ... 0.2 x U <sub>B</sub> [V DC] HIGH 0.6 x U <sub>B</sub> ... 30 V DC
AC-power supply	LOW 0 ... 4 V DC HIGH 12 ... 30 V DC
<b>Input switching level at 4 ... 30 V DC</b>	
	LOW 0 ... 2 V DC HIGH 4 ... 30 V DC
<b>Accuracy</b>	tachometer < 0.1 % timer < 50 ppm

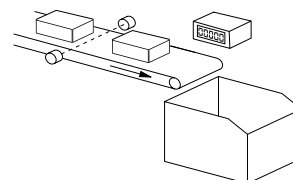
Outputs	
<b>Sensor power supply (AC version)</b>	24 V DC ±15 %/100 mA
<b>Optocoupler output</b>	max. 30 V, 10 mA

### Applications for multifunction display

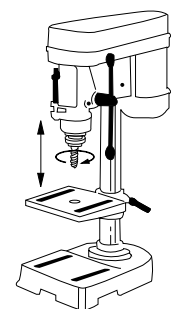
- Counting tasks such as quantity and piece counting, measuring and recording of speed and of operating and processing times
- Piece counting or tool-life measurement on die cutters, presses, extruders, woodworking machines, drilling machines, pick-and-place machines, guillotines, special-purpose vehicles etc.
- Positioning tasks on processing machines, such as sawing machines, milling machines, bending and folding machines, etc.
- Production data acquisition by means of piece counting (using difference or adding), or measurement of production times or production speeds
- Totalizing flow, quantity and other scaleable media, or display of current flow rates.



Position or rotary speed on milling machine



Piece count on conveyor or production speed



Drilling machine head, speed or drilling depth

1) Details see manual

# Multifunction devices, electronic

## LED multifunction display

## Multifunctional – pulse, frequency, time (AC+DC)

## Codix 544

### Functions

#### Pulse counter:

Various counting modes such as count direction, difference, addition, phase discriminator

#### Position display:

Phase discriminator with simple, double or quadruple evaluation

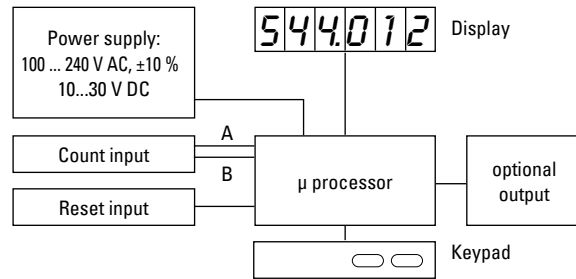
#### Frequency and speed display:

Pulses per minute or per second scaleable, with HRA measurement

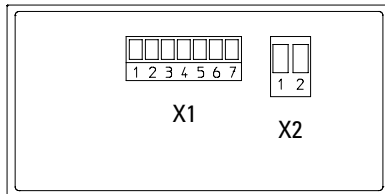
#### Hour meters and short-time meters:

Various programmable time ranges with different ways of measuring

### Block diagram



### Terminal assignment



#### Connection X1

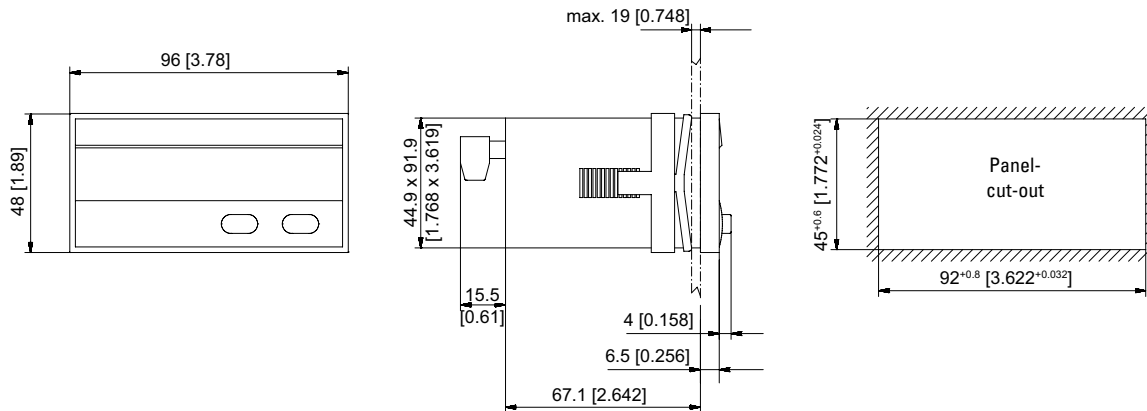
PIN	AC version	DC version
1	Optocoupler output	Emitter
2	Optocoupler output	Collector
3	Reset / Set	
4	INP B	
5	INP A	
6	GND out	n.c.
7	+24 V out	n.c.

#### Connection X2

PIN	AC version	DC version
1	100 ... 240 V AC, ±10 %	0VDC (GND)
2	100 ... 240 V AC, ±10 %	10...30 V DC

### Dimensions

Dimensions in mm [inch]





## LCD touch multifunction preset counters Pulse, frequency, time (also reciprocal) – (AC+DC) 571T



The multifunction preset counter 571T with its max. 250 kHz count frequency is ideal for fast counting tasks. It can also be used as a tachometer, short time meter, stop-watch or to measure machine cycle times or throughput times.

Output options include 4 limit values, analog output and RS232 or RS485 interface.

This device is thus able to carry out virtually all count, measurement and control tasks.

Product overview  
Basics  
Pulse counters  
Preset counters  
Hour meters  
Timers  
Frequency displays  
Tachometers  
Position displays  
Multifunction devices  
Energy meters  
Process devices  
Temperature devices  
Strain-gauge controllers  
Accessories  
Index

<b>AC</b> 115... 230V Power supply	<b>DC</b> 18... 30 V Multifunctional	 max. 1 MHz Input frequency (RS422)	 4 4 switching outputs	 2 Relay output	 mA, V Analog output	 16 bit Resolution analog output	 RS 232 / 485 RS232 / RS485 interface	 IP65 High protection level	 POSITION Position display
 DIN 96 x 48 DIN front bezel	 8 LCDs LCD touch display	 Menu-driven programming	 Touch display	 Operation with gloves					

### Characteristics

- Fast count input, works with our Limes measuring system (250 kHz/HTL, 1 MHz/RS422).
- 4 switching outputs to work as limit values (reaction time < 1 ms).
- Scalable analog output (reaction time < 1 ms), resolution 16 bit, -10 ... +10 V, 0 ... 20 mA or 4 ... 20 mA.
- Serial interface RS232 or RS485 for reading data in and out.
- Sensor power supply 24 V DC / 150 mA (AC version) or U<sub>B</sub> - 1 V / max. 250 mA (DC version).
- 96 x 48 mm DIN housing, IP65.
- Touch display with 8-digit display value and menu-driven programming.
- 2 relay outputs that can be assigned to the limit values.

### Benefits

- AC and DC power supply in one unit.
- Measuring function can be programmed for RPM, speed, speed from elapsed time, machine cycle time, throughput time (reciprocal rotary speed), as well as numerous count and stop-watch functions.
- 4 switching outputs; can also be programmed as a tracking preset.
- Freely programmable.
- Large 13 mm high LCD display, 8-digit, with adjustable brightness. Tri-color – red / green / yellow – programmable.
- Display linearization with teach function.

### Order code

6.571T . 01 X . XXX

a
b
c
d

#### a Relay outputs

- 0 = 2 relay outputs
- 2 = without output

#### b Power supply

- 3 = 18 ... 30 V DC
- E = 18 ... 30 V DC + 115 ... 230 V AC

#### c Further options

- 0 = HTL count inputs (standard)
- A = RS422 / HTL differential / HTL count inputs (option)

#### d Electrical outputs

- 0 = none
- 1 = RS232, 4 switching outputs
- 2 = RS232, 4 switching outputs, analog output
- 3 = RS485, 4 switching outputs

#### Delivery specification

- Display 571T
- Gasket
- Mounting kit
- Manual German/English

#### Stock types

- 6.571T.012.301
- 6.571T.012.302
- 6.571T.010.302
- 6.571T.010.E02

# Multifunction devices, electronic

## LCD touch multifunction preset counters Pulse, frequency, time (also reciprocal) – (AC+DC) 571T

Accessories		Order no.
<b>Mounting frame</b> with cut-out 92 x 45 [3.62 x 1.77]	for snap-on mounting on 35 [1.38] top-hat DIN rail, for counters 96 x 48 [3.74 x 1.89]	grey <b>G300005</b>
<b>OS6.0 software for parameter setting</b>	can be downloaded at <a href="http://www.kuebler.com">www.kuebler.com</a>	

Suitable gaskets as well as further accessories can be found in the accessories section or in the accessories area of our website at: [www.kuebler.com/accessories](http://www.kuebler.com/accessories).

### Technical data

#### General technical data

<b>Display</b>	LCD touch display, 13 mm high 8 decades + sign
<b>Operating temperature</b>	-20°C ... +60°C [-4°F ... +140°F] (non-condensing)
<b>Storage temperature</b>	-25°C ... +70°C [-13°F ... +158°F]
<b>Altitude</b>	up to 2000 m [6562']

#### Electrical characteristics

<b>Power supply</b>	18 ... 30 V DC, with reverse polarity protection (rated voltage 24 V DC) 115 ... 230 V AC, 50/60 Hz (option)
<b>Current consumption DC</b>	100 mA, without load
<b>Power consumption AC</b>	approx. 3 VA, without load
<b>Auxiliary voltage for sensors</b> (with RS 422 switchable from 24 V DC to 5 V DC / 250 mA)	AC supply 24 V DC ±15 %, 150 mA (up to +45°C) 80 mA (from +46°C) DC supply $U_B - 1 V$ , 250 mA
<b>EMC standards</b>	EN 61000-6-2, EN 61000-6-3, EN 61000-6-4, EN 61326-3-2
<b>Device safety</b>	designed to protection class application area EN 61010 part 1 2 pollution level 2

#### Mechanical characteristics

<b>Housing</b>	ABS UL94-V-0
<b>Weight</b>	approx. 200 g
<b>Protection</b>	IP65 (front side) IP20 (rear side)
<b>Terminals</b>	max. 1.5 mm <sup>2</sup>

#### Inputs

<b>2 incremental inputs (A, B)</b> <b>HTL</b> (standard)	pulse input frequency input level load	Tri-State, PNP, NPN and Namur max. 250 kHz Low: 0 ... 3 V / High: 9 ... 30 V max. 6 mA / $R_i > 5 k\Omega$ / 470 pF
<b>4 incremental inputs (A, /A, B, /B)</b> <b>RS422 / HTL differential / HTL PNP-NPN</b> (option)	input frequency input level load	RS422: max. 1 MHz HTL differential: max. 500 kHz HTL: max. 250 kHz RS422: > 0.5 V HTL differential: > 2 V HTL: Low 0 ... 3 V / High 9 ... 30 V max. 3 mA / $R_i > 10 k\Omega$ / 47 pF
<b>3 control inputs (Cnt 1 - 3)</b>	input frequency input level load	PNP max. 10 kHz HTL: Low 0 ... 3 V / High 9 ... 30 V max. 2 mA / $R_i > 15 k\Omega$ / 470 pF
<b>Accuracy frequency</b>		±1 ppm ±1 digit

#### Outputs (option)

<b>4 switching outputs</b>	reaction time	5 ... 30 V DC/200 mA (PNP) < 1 ms
<b>Interface</b>		RS232 or RS485 Drivecom protocol / Modbus / Printer 9600 ... 38400 Baud
<b>Analog output</b>	resolution accuracy reaction time	-10 ... +10 V (max. 2 mA) or 0 ... 20 mA, 4 ... 20 mA (max. 270 $\Omega$ ) 16 bit (15 bit + sign) ±0.1 % < 1 ms
<b>Relay output</b>	reaction time	2 changeover contacts (potential free) max. 250 V AC / 3 A / 750 VA max. 150 V DC / 2 A / 50 W < 20 ms

Product overview  
Basics

Pulse counters

Preset counters

Hour meters  
Timers

Frequency displays  
Tachometers

Position displays

Multifunction  
devices

Energy meters

Process devices

Temperature  
devices

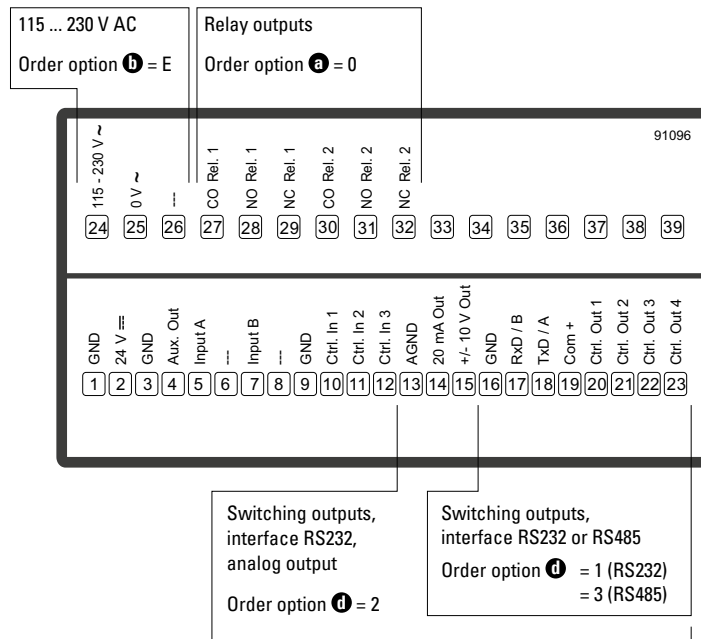
Strain-gauge  
controllers

Accessories  
Index

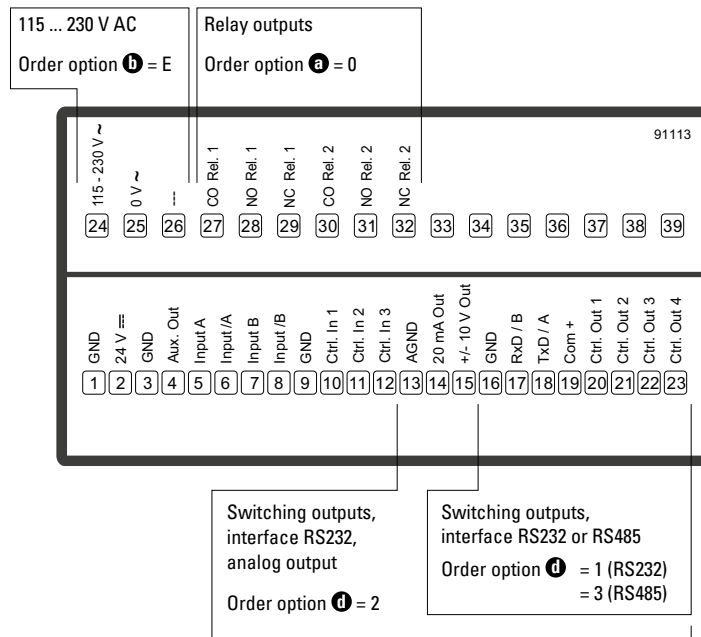
# Multifunction devices, electronic

## LCD touch multifunction preset counters Pulse, frequency, time (also reciprocal) – (AC+DC) **571T**

**Terminal assignment HTL (standard)**

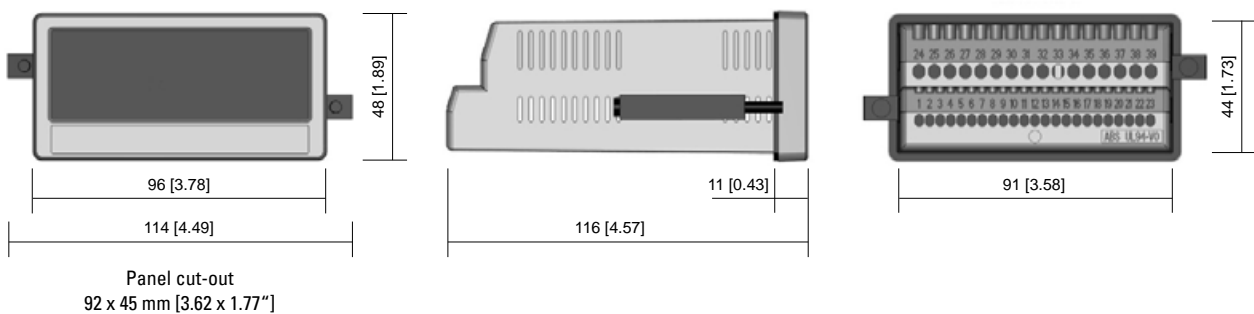


**Terminal assignment RS422 / HTL differential / HTL (option)**



### Dimensions

Dimensions in mm [inch]



- Product overview Basics
- Pulse counters
- Preset counters
- Hour meters Timers
- Frequency displays Tachometers
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**LED dual function displays**

**Universal with dual functions, 4 combinations (DC)**

**Codix 52U**



The Codix 52U is a voltage-powered dual function counter with 4 functions in one device:

Counter with 2 totalizing ranges, totalizer and timer, totalizer and frequency meter, timer with 2 time ranges.

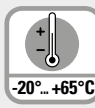
For fast and slow count pulses, with 6-digit LED display for NPN, PNP input signals.



Power supply



DIN front bezel



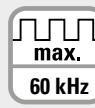
Temperature range



High protection level



Menu-driven programming



Pulse counter/ Totalizer



Frequency meter/ tachometer



Timer



Frequency meter HRA

## Powerful

- Fast count and frequency input – input frequency max. 60 kHz (can be damped to 30 Hz for mechanical contacts).
- Robust housing – IP65 protected.
- Very bright LED display, 8 mm high, 6 digits.
- Very accurate precise frequency measurement principle (HRA-High Rate Accuracy System)  
Frequencies up to 38 Hz are calculated using time-interval (period duration) measurement. Frequencies > 38 Hz are calculated using a special time base (gate time) measurement. A very high accuracy of < 0.1 % is achieved, even with very short gate times. The resulting measurement is available after a max. of 50 ms.
- Short start-up time – detects input pulses just 16 msec after being switched on => no pulses are lost with a simultaneous motor start-up.

## User-friendly and universal

- Large keys – can also be operated when wearing gloves.
- Programming:
  - Simple uniform menu-driven programming and operation.
  - Possible to enter the programming also during operation with a confirmation prompt.
  - Pressing the right key switches between displays.
- Individually programmable scaling: multiplication and division factor (0.0001...99.9999), to display corresponding engineering units, e.g. position in 1/10 mm and speed in RPM.
- Separate factors for frequency- and pulse counting.
- Inputs: as an alternative to the HTL inputs, devices are available with a 4 ... 30 V DC input level, for use as parallel displays to PLCs.
- Timer specials: timer or hours-run meter with various Start/Stop measurements, time range settings in hours, minutes or seconds, with decimal point. Resolutions up to 1/1000 can be programmed.

## Order code

6.52U . 01 2 . 3 X 0

- a** Input switching level  
 0 = Standard (HTL) <sup>1)</sup>  
 A = 4 ... 30 V DC

### Delivery specification

- Counter
- Mounting clip
- Front bezel for screw mounting (T008181) 56 x 40 mm [2.20 x 1.57"], panel cut-out 50 x 25 mm [1.97 x 0.98"]
- Front bezel for clip mounting (T008180) 53 x 28 mm [2.09 x 1.10"], panel cut-out 50 x 25 mm [1.97 x 0.98"]
- Gasket
- Instruction manual, multilingual

1) Stock types

# Multifunction devices, electronic

LED dual function displays	Universal with dual functions, 4 combinations (DC)	Codix 52U	
Accessories	Dimensions in mm [inch]	Order no.	
<b>Adapter front bezel, 72 x 36 [2.83 x 1.42]</b>	for cut-out 68 x 33 [2.68 x 1.30] to cut-out 45 x 22.2 [1.77 x 0.87], for counters 48 x 24 [1.89 x 0.94], as set	black and silver anodised	<b>162704 Set</b>
<b>Adapter front bezel, 48 x 48 [1.89 x 1.89]</b>	for cut-out 45 x 45 [1.77 x 1.77] to cut-out 45 x 22.2 [1.77 x 0.87], with clip mounting for counters 48 x 24 [1.89 x 0.94]	black	<b>T008883</b>
<b>Adapter front bezel, 60 x 50 [2.36 x 1.97]</b>	for cut-out 54 x 29 [2.13 x 1.14] to cut-out 45 x 22.2 [1.77 x 0.87], with screw mounting and gasket for counters 48 x 24 [1.89 x 0.94]	black	<b>N003001</b>
<b>Transparent cover, lockable, IP65</b>	for cut-out 54 x 29 [2.13 x 1.14], for screw mounting to front bezel F1B or adapter front bezel N003001, for counters with cut-out 50 x 25 [1.97 x 0.98] or 45 x 22.2 [1.77 x 0.87]		<b>N003002</b>
<b>Sealing cover type K1, IP65</b>	suitable for front bezel 60 x 50 [2.36 x 1.97], for screw mounting of electromech. counters and via adapter front bezel N003001 for counters 48 x 24 [1.89 x 0.94]		<b>G008301</b>
<b>Mounting frame</b> with cut-out 50 x 25 [2.36 x 1.97] via separate adapter also for 45 x 22.2 [1.77 x 0.87]	for snap-on mounting on 35 [1.38] top-hat DIN rail, for counters 53 x 28 [2.09 x 1.10] and via separate adapter (T008180) for counters 48 x 24 [1.89 x 0.94]	chromated	<b>G300004</b>

Suitable gaskets, other accessories and installation examples for optional accessories can be found in chapter accessories or in the accessories section under: [www.kuebler.com/accessories](http://www.kuebler.com/accessories).

## Technical data

General technical data	
<b>Display</b>	6 digits, red 7 segment LED display; 8 mm [0.32"] high
<b>Data backup</b>	EEPROM
<b>Operating temperature</b>	10 ... 26 V DC -20°C ... +65°C [-4°F ... +149°F] > 26 ... 30 V DC -20°C ... +55°C [-4°F ... +131°F] (non-condensing)
<b>Storage temperature</b>	-25°C ... +70°C [-13°F ... +158°F]

Electrical characteristics	
<b>Power supply</b>	10 ... 30 V DC, with integrated reverse polarity protection
<b>Current consumption</b>	max. 40 mA
<b>EMC standards</b>	EN 55011 class B, EN 61000-6-2, EN 61000-6-3 EN 61326-1
<b>UL approval</b>	file E128604

Mechanical characteristics	
<b>Housing</b>	front panel mount 48x24 mm [1.89 x 0.94"] acc. to DIN 43700; RAL 7021, dark grey
<b>Protection</b>	IP65 (front side)
<b>Weight</b>	approx. 50 g [1.76 oz]
<b>Vibration resistance</b> acc. to EN 60068-2-6	10 ... 55 Hz / 1 mm [0.04"] / 30 min
<b>Shock resistance</b> acc. to EN 60068-2-27	100 G: 2 ms 10 G: 6 ms

Inputs	
<b>Polarity of inputs</b>	programmable, NPN or PN
<b>Input resistance</b>	approx. 5 kΩ
<b>Counting frequency</b> <sup>1)</sup>	max. 60 kHz, can be damped to 30 Hz
<b>Display range</b>	timer 0.001 s ... 999999 h frequency meter 1/min or 1/sec
<b>Minimum pulse duration of the reset input</b>	5 ms
<b>Input switching level (HTL)</b>	LOW 0 ... 0.2 x U <sub>B</sub> [V DC] HIGH 0.6 x U <sub>B</sub> ... 30 V DC
<b>Input switching level at 4 ... 30 V DC</b>	LOW 0 ... 2 V DC HIGH 4 ... 30 V DC
<b>Accuracy</b>	< 0.1 % frequency meter, tachometer

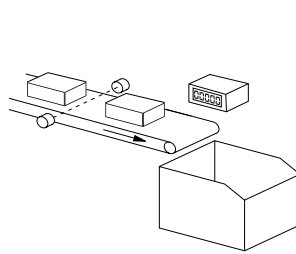
1) Details see manual

# Multifunction devices, electronic

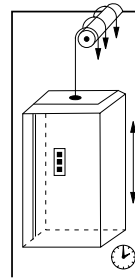
**LED dual function displays**      **Universal with dual functions, 4 combinations (DC)**      **Codix 52U**

### Applications for dual functions

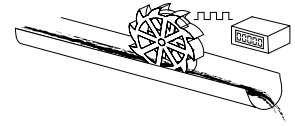
- Pulse and frequency (speed)  
e.g. production data acquisition: total piece count and speed on OEM equipment, flow rate measuring systems – total flow and current flow
- 2 pulse counters  
Measurement of batch and total piece count or of daily production count and total count values
- Pulse and time (maintenance counter)  
Used in the lift industry as trip counters and hours-run meters and on production machines for piece and time counting, flow and time measurement, materials handling time and quantities
- 2 timers  
Measurement of total time and orderspecific times, maintenance intervals and total time, time of day and total time



Piece count on conveyor and production speed

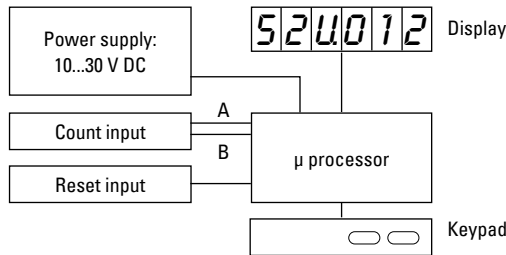


Trip counter and hours-run

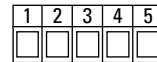


Flow rate and total volume

### Block diagram



### Terminal assignment



PIN	DC version
1	10 ... 30 V DC
2	0 V GND
3	INP A
4	INP B
5	Reset

Function of the inputs INP A, INP B

#### Counter with 2 totalizing ranges:

INP A: Dynamic count input counter 1 and counter 2  
INP B: Inactive

#### Totalizer and timer:

INP A: Dynamic count input for totalizer  
INP B: Start/Stop or gate input for timer

#### Totalizer and frequency meter:

INP A: Dynamic count input/frequency input  
INP B: Inactive

#### Timer with 2 time ranges:

INP A: Start input (depends on input type)  
INP B: Start/Stop or gate input for timer (depends on input type)

Product overview  
Basics

Pulse counters

Preset counters

Hour meters  
Timers

Frequency displays  
Tachometers

Position displays

Multifunction  
devices

Energy meters

Process devices

Temperature  
devices

Strain-gauge  
controllers

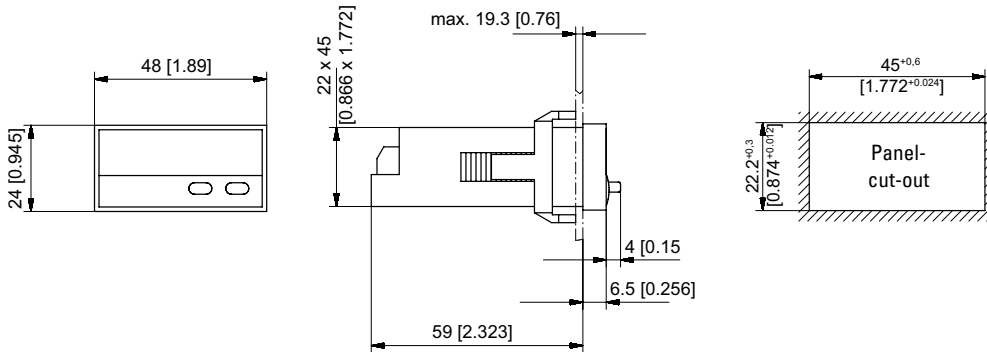
Accessories  
Index

# Multifunction devices, electronic

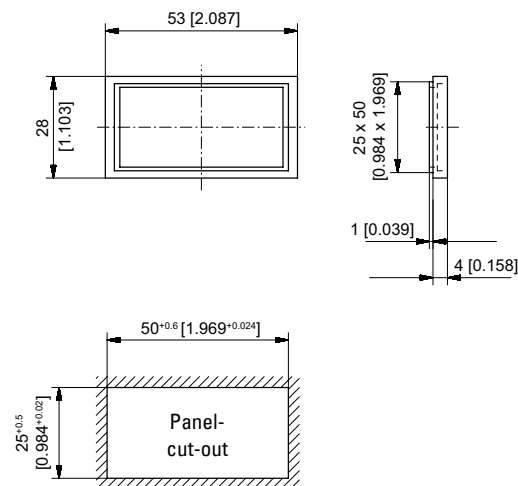
<b>LED dual function displays</b>	<b>Universal with dual functions, 4 combinations (DC)</b>	<b>Codix 52U</b>
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## Dimensions

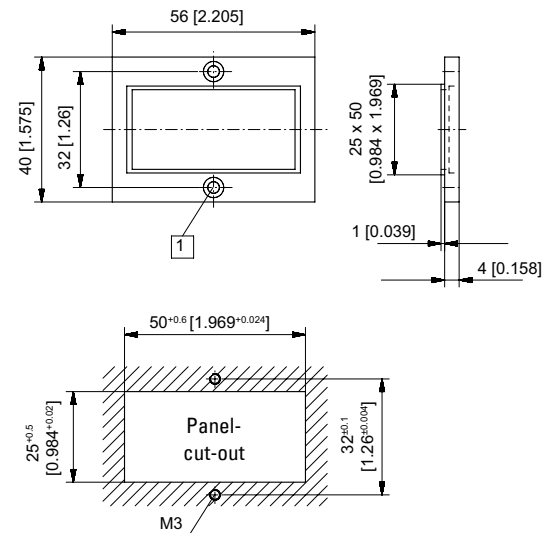
Dimensions in mm [inch]



Front bezel for clip mounting (included in delivery)



Front bezel for screw mounting (included in delivery)



1 Countersinking Af3, DIN 74

Product overview	Basics
Pulse counters	
Preset counters	
Hour meters	Timers
Frequency displays	Tachometers
Position displays	
Multifunction devices	
Energy meters	
Process devices	
Temperature devices	
Strain-gauge controllers	
Accessories	Index

## LED dual function displays

## 6 count modes with tachometer (DC)

## Codix 52P



The Codix 52P is a voltage-powered pulse counter/ position display with 4 different count input modes and separate tachometer.

With separate inputs, for fast and slow count pulses, with 6-digit LED display for NPN, PNP input signals.



<b>DC</b> 10 ... 30V Power supply	<b>000000</b> DIN 48 x 24 DIN front bezel	<b>-20...+65°C</b> Temperature range	<b>IP65</b> High protection level	<b>PROG</b> Menu-driven programming	<b>max.</b> 30 kHz Pulse counter/ Totalizer	<b>1/sec 1/min</b> Frequency meter/ tachometer	<b>POSITION</b> Position display	<b>HRA</b> Frequency meter HRA
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### Powerful

- Fast count and frequency input – input frequency max. 30 kHz (can be damped to 30 Hz for mechanical contacts).
- Robust housing – IP65 protected.
- Very bright LED display, 8 mm high, 6 digits.
- Very accurate precise frequency measurement principle (HRA-High Rate Accuracy System)  
Frequencies up to 38 Hz are calculated using time-interval (period duration) measurement. Frequencies > 38 Hz are calculated using a special time base (gate time) measurement. A very high accuracy of < 0.1 % is achieved, even with very short gate times. The resulting measurement is available after a max. of 50 ms.
- Short start-up time – detects input pulses just 16 msec after being switched on => no pulses are lost with a simultaneous motor start-up.

### User-friendly and universal

- Large keys – can also be operated when wearing gloves.
- Programming:
  - Simple uniform menu-driven programming and operation.
  - Possible to enter the programming also during operation with a confirmation prompt.
  - Pressing the right key switches between displays.
- Individually programmable scaling: multiplication and division factor (0.0001...99.9999), to display corresponding engineering units, e.g. position in 1/10 mm and speed in RPM.
- Separate factors for frequency- and pulse counting.
- 4 different count input modes for the position display: 2-channel input for detecting count direction, difference or adding mode, quadrature x1, x2 or x4. 1 separate input for rotary speed and speed, display in 1/min or 1/sec.
- Inputs: as an alternative to the HTL inputs, devices are available with a 4 ... 30 V DC input level, for use as parallel displays to PLCs.

### Order code

6.52P . 01 2 . 3 X 0

**a** Input switching level  
0 = Standard (HTL)  
A = 4 ... 30 V DC

#### Delivery specification

- Counter
- Mounting clip
- Front bezel for screw mounting (T008181) 56 x 40 mm [2.20 x 1.57"], panel cut-out 50 x 25 mm [1.97 x 0.98"]
- Front bezel for clip mounting (T008180) 53 x 28 mm [2.09 x 1.10"], panel cut-out 50 x 25 mm [1.97 x 0.98"]
- Gasket
- Instruction manual, multilingual

Product overview  
Basics

Pulse counters

Preset counters

Hour meters  
Timers

Frequency displays  
Tachometers

Position displays

Multifunction  
devices

Energy meters

Process devices

Temperature  
devices

Strain-gauge  
controllers

Accessories  
Index



# Multifunction devices, electronic

## LED dual function displays 6 count modes with tachometer (DC) Codix 52P

Accessories	Dimensions in mm [inch]	Order no.
<b>Adapter front bezel, 72 x 36 [2.83 x 1.42]</b>	for cut-out 68 x 33 [2.68 x 1.30] to cut-out 45 x 22.2 [1.77 x 0.87], for counters 48 x 24 [1.89 x 0.94], as set	black and silver anodised <b>162704 Set</b>
<b>Adapter front bezel, 48 x 48 [1.89 x 1.89]</b>	for cut-out 45 x 45 [1.77 x 1.77] to cut-out 45 x 22.2 [1.77 x 0.87], with clip mounting for counters 48 x 24 [1.89 x 0.94]	black <b>T008883</b>
<b>Adapter front bezel, 60 x 50 [2.36 x 1.97]</b>	for cut-out 54 x 29 [2.13 x 1.14] to cut-out 45 x 22.2 [1.77 x 0.87], with screw mounting and gasket for counters 48 x 24 [1.89 x 0.94]	black <b>N003001</b>
<b>Transparent cover, lockable, IP65</b>	for cut-out 54 x 29 [2.13 x 1.14], for screw mounting to front bezel F1B or adapter front bezel N003001, for counters with cut-out 50 x 25 [1.97 x 0.98] or 45 x 22.2 [1.77 x 0.87]	<b>N003002</b>
<b>Sealing cover type K1, IP65</b>	suitable for front bezel 60 x 50 [2.36 x 1.97], for screw mounting of electromech. counters and via adapter front bezel N003001 for counters 48 x 24 [1.89 x 0.94]	<b>G008301</b>
<b>Mounting frame</b> with cut-out 50 x 25 [2.36 x 1.97] via separate adapter also for 45 x 22.2 [1.77 x 0.87]	for snap-on mounting on 35 [1.38] top-hat DIN rail, for counters 53 x 28 [2.09 x 1.10] and via separate adapter (T008180) for counters 48 x 24 [1.89 x 0.94]	chromated <b>G300004</b>

Suitable gaskets, other accessories and installation examples for optional accessories can be found in chapter accessories or in the accessories section under: [www.kuebler.com/accessories](http://www.kuebler.com/accessories).

### Technical data

General technical data	
<b>Display</b>	6 digits, red 7 segment LED display; 8 mm [0.32"] high
<b>Data backup</b>	EEPROM
<b>Operating temperature</b>	10 ... 26 V DC -20°C ... +65°C [-4°F ... +149°F] > 26 ... 30 V DC -20°C ... +55°C [-4°F ... +131°F] (non-condensing)
<b>Storage temperature</b>	-25°C ... +70°C [-13°F ... +158°F]

Electrical characteristics	
<b>Power supply</b>	10 ... 30 VDC, with integrated reverse polarity protection
<b>Current consumption</b>	max. 40 mA
<b>EMC standards</b>	EN 55011 class B, EN 61000-6-2, EN 61000-6-3 EN 61326-1
<b>UL approval</b>	file E128604

Mechanical characteristics	
<b>Housing</b>	front panel mount 48 x 24 mm [1.89 x 0.94"] acc. to DIN 43700; RAL 7021, dark grey
<b>Protection</b>	IP65 (front side)
<b>Weight</b>	approx. 50 g [1.76 oz]
<b>Vibration resistance</b> acc. to EN 60068-2-6	10 ... 55 Hz / 1 mm [0.04"] / 30 min
<b>Shock resistance</b> acc. to EN 60068-2-27	100 G: 2 ms 10 G: 6 ms

Inputs	
<b>Polarity of inputs</b>	programmable, NPN or PNP for all inputs
<b>Input resistance</b>	approx. 5 kΩ
<b>Counting frequency</b> <sup>1)</sup>	max. 30 kHz, can be damped to 30 Hz
<b>Display range</b>	tachometer 1/min or 1/sec
<b>Minimum pulse duration of the reset input</b>	5 ms
<b>Input switching level (HTL)</b>	LOW 0 ... 0.2 x U <sub>B</sub> [V DC] HIGH 0.6 x U <sub>B</sub> ... 30 V DC
<b>Input switching level at 4 ... 30 V DC</b>	LOW 0 ... 2 V DC HIGH 4 ... 30 V DC
<b>Accuracy</b>	< 0.1 % frequency meter, tachometer

1) Details see manual

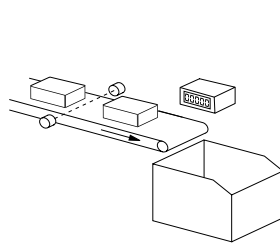
# Multifunction devices, electronic

**LED dual function displays**      **6 count modes with tachometer (DC)**      **Codix 52P**

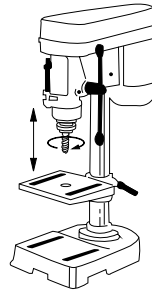
### Applications for frequency and position display / totalizer

Position and rotary speed applications, e.g.

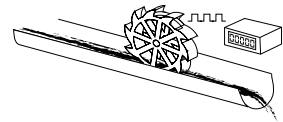
- OEM equipment or retrofitting to drilling machines
- OEM equipment on flow measuring plant, e.g. total flow and current flow
- Total piece count and pieces per minute, where the pulse counting occurs in the add/subtract mode, in order to deduct reject parts
- Production data acquisition: total piece count and production speed, or absolute distance traversed and current speed



Piece count on conveyor and production speed

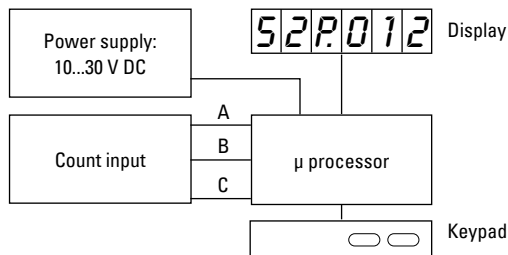


Rotary speed and drilling depth

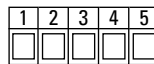


Flow rate and total volume

### Block diagram



### Terminal assignment



PIN	DC version
1	10 ... 30 V DC
2	0 V GND
3	INP A (count)
4	INP B (count)
5	INP C (frequency)

Function of the inputs INP A, INP B, INP C

#### INP A and INP B:

Two channel pulse input with 6 different count modes

#### INP C:

Frequency input, single channel

Product overview  
Basics

Pulse counters

Preset counters

Hour meters  
Timers

Frequency displays  
Tachometers

Position displays

Multifunction  
devices

Energy meters

Process devices

Temperature  
devices

Strain-gauge  
controllers

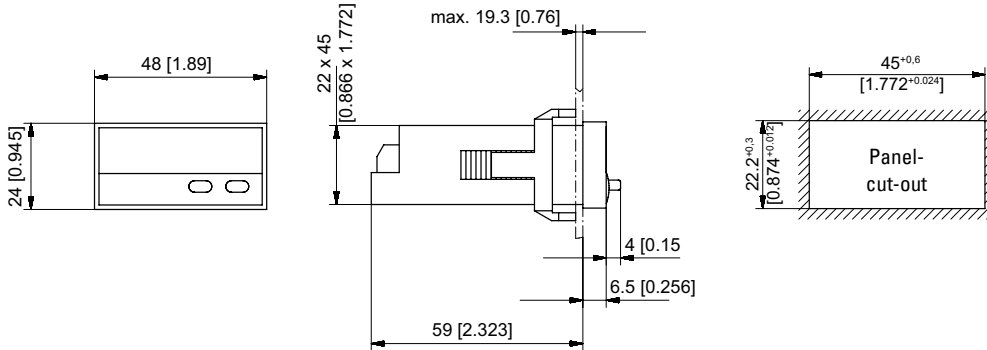
Accessories  
Index

# Multifunction devices, electronic

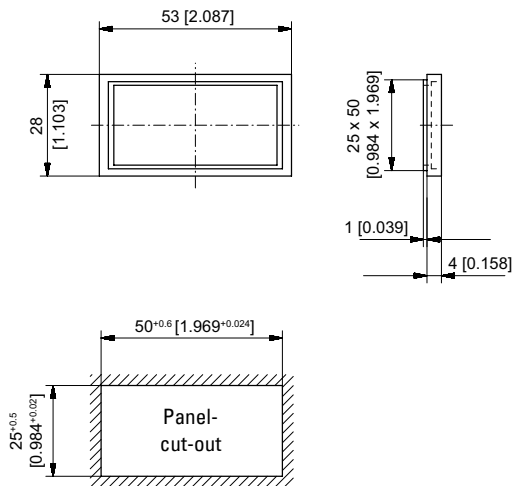
## LED dual function displays    6 count modes with tachometer (DC)    Codix 52P

### Dimensions

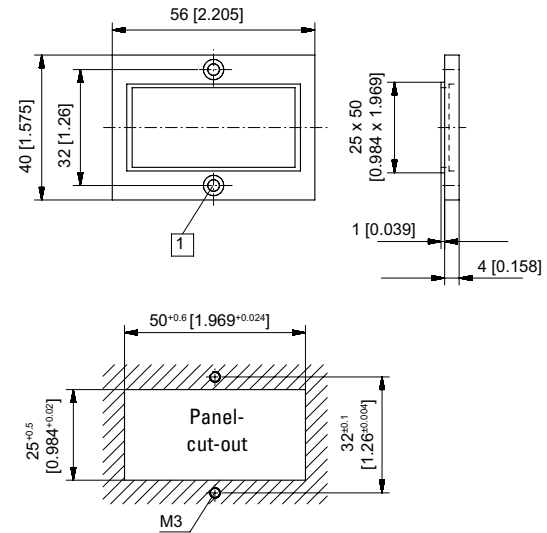
Dimensions in mm [inch]



Front bezel for clip mounting (included in delivery)



Front bezel for screw mounting (included in delivery)



1 Countersinking A13, DIN 74

Product overview  
Basics

Pulse counters

Preset counters

Hour meters  
Timers

Frequency displays  
Tachometers

Position displays

Multifunction  
devices

Energy meters

Process devices

Temperature  
devices

Strain-gauge  
controllers

Accessories  
Index

**LED dual function displays**

**Universal with dual functions, 4 combinations (AC+DC)**

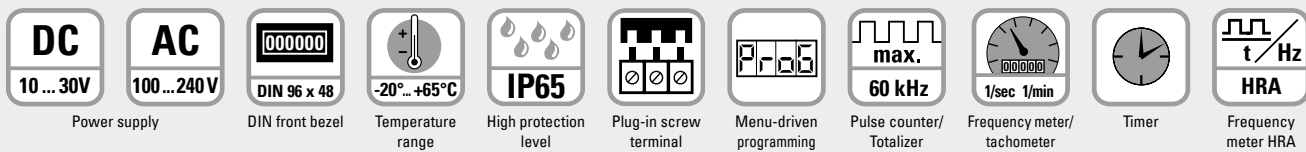
**Codix 54U**



The Codix 54U is a voltage-powered dual function counter with 4 functions in one device:

Counter with 2 totalizing ranges, totalizer and timer, totalizer and frequency meter, timer with 2 time ranges.

For fast and slow count pulses, with 6-digit LED display for NPN, PNP input signals.



## Powerful

- Fast count and frequency input – input frequency max. 60 kHz (can be damped to 30 Hz for mechanical contacts).
- Robust housing – IP65 protected.
- Very bright LED display, 14 mm high, 6 digits.
- Very accurate precise frequency measurement principle (HRA-High Rate Accuracy System)  
Frequencies up to 38 Hz are calculated using time-interval (period duration) measurement. Frequencies > 38 Hz are calculated using a special time base (gate time) measurement. A very high accuracy of < 0.1 % is achieved, even with very short gate times. The resulting measurement is available after a max. of 50 ms.
- Short start-up time – detects input pulses just 16 msec after being switched on => no pulses are lost with a simultaneous motor start-up.

## User-friendly and universal

- Large keys – can also be operated when wearing gloves.
- Programming:
  - Simple uniform menu-driven programming and operation.
  - Possible to enter the programming also during operation with a confirmation prompt.
  - Pressing the right key switches between displays.
- Individually programmable scaling: multiplication and division factor (0.0001...99.9999), to display corresponding engineering units, e.g. position in 1/10 mm and speed in RPM.
- Separate factors for frequency- and pulse counting.
- AC or DC power supply.
- Inputs: as an alternative to the HTL inputs, devices with a 5 V DC input level are available, for use as parallel displays for PLCs.
- Timer specials: timer or hours-run meter with various Start/Stop measurements, time range settings in hours, minutes or seconds, with decimal point. Resolutions up to 1/1000 can be programmed.

## Order code

6.54U . 01 2 . XX 0  
a b

**a** Power supply  
 0 = 100 ... 240 V AC, ±10 %  
 3 = 10 ... 30 V DC

**b** Input switching level  
 0 = Standard (HTL)  
 A = 4 ... 30 V DC

**Delivery specification**

- Digital display
- Mounting clip
- Gasket
- 2 plug-in screw terminals
- Instruction manual, multilingual

**Replacement parts**

7 pin screw terminal RM 3.81 1 ... 7: N100387  
 2 pin screw terminal RM 5.08 1 ... 2: N100133

# Multifunction devices, electronic

## LED dual function displays **Universal with dual functions, 4 combinations (AC+DC)** **Codix 54U**

Accessories	Dimensions in mm [inch]	Order no.
<b>Mounting frame</b> with cut-out 92 x 45 [3.62 x 1.77]	for snap-on mounting on 35 [1.38] top-hat DIN rail, for counters 96 x 48 [3.74 x 1.89]	grey <b>G300005</b>

Suitable gaskets as well as further accessories can be found in the accessories section or in the accessories area of our website at: [www.kuebler.com/accessories](http://www.kuebler.com/accessories).

### Technical data

General technical data	
<b>Display</b>	6 digit, red 7 segment LED display; 14 mm [0.55"] high
<b>Data backup</b>	EEPROM
<b>Operating temperature</b>	10 ... 26 V DC -20°C ... +65°C [-4°F ... +149°F] (non-condensing)
<b>Storage temperature</b>	-25°C ... +70°C [-13°F ... +158°F]
<b>Altitude</b>	up to 2000 m [6562']

Electrical characteristics	
<b>Power supply</b>	10 ... 30 V DC, with reverse polarity protection 100 ... 240 V AC, ±10 %
<b>Current consumption</b>	max. 50 mA, 6 VA
<b>EMC standards</b>	EN 55011 class B, EN 61000-6-2, EN 61000-6-3
<b>Device safety</b>	designed to protection class 2 application area pollution level 2
<b>UL approval</b>	file E128604

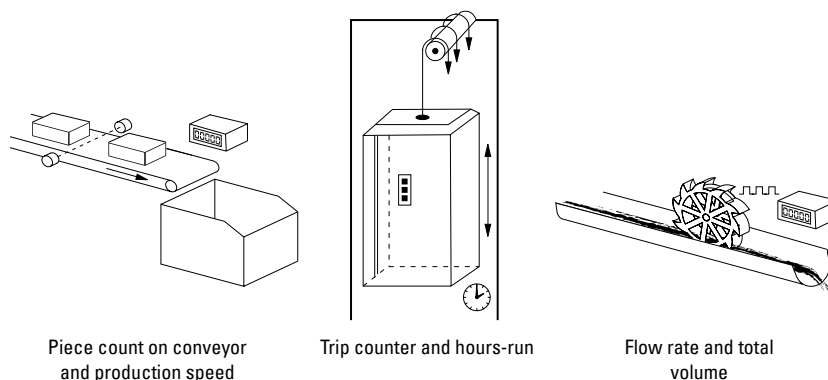
Mechanical characteristics	
<b>Housing</b>	front panel mount 96 x 48 mm [3.74 x 1.89"] acc. to DIN 43700; RAL 7021, dark grey
<b>Protection</b>	IP65 (front side)
<b>Weight</b>	approx. 150 g [5.29 oz]

Inputs	
<b>Polarity of inputs</b>	programmable, NPN or PNP for all inputs
<b>Input resistance</b>	approx. 5 kΩ
<b>Counting frequency <sup>1)</sup></b>	max. 60 kHz, can be damped to 30 Hz
<b>Display range</b>	timer 0.001 s ... 999999 h frequency meter 1/min or 1/sec
<b>Minimum pulse duration of the reset input</b>	5 ms
<b>Input switching level standard version (HTL)</b>	
DC power supply	LOW 0 ... 0.2 x U <sub>B</sub> [V DC] HIGH 0.6 x U <sub>B</sub> ... 30 V DC
AC power supply	LOW 0 ... 4 V DC HIGH 12 ... 30 V DC
<b>Input switching level at 4 ... 30 V DC</b>	
	LOW 0 ... 2 V DC HIGH 4 ... 30 V DC
<b>Accuracy</b>	
frequency meter / tachometer	< 0.1 %
timer	< 50 ppm

Outputs	
<b>Sensor power supply (AC version)</b>	24 V DC ±15 %/100 mA

### Applications for dual functions

- Pulse and frequency (speed)  
e.g. production data acquisition: total piece count and speed on OEM equipment, flow rate measuring systems – total flow and current flow
- 2 pulse counters  
Measurement of batch and total piece count or of daily production count and total count values
- Pulse and time (maintenance counter)  
Used in the lift industry as trip counters and hours-run meters and on production machines for piece and time counting, flow and time measurement, materials handling time and quantities
- 2 timers  
Measurement of total time and orderspecific times, maintenance intervals and total time, time of day and total time



Piece count on conveyor and production speed

Trip counter and hours-run

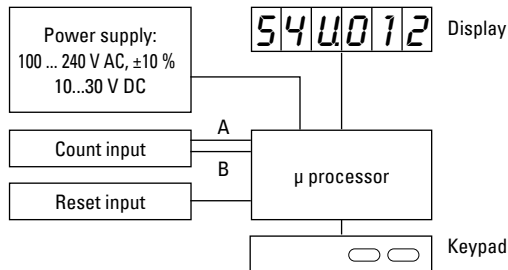
Flow rate and total volume

1) Details see manual

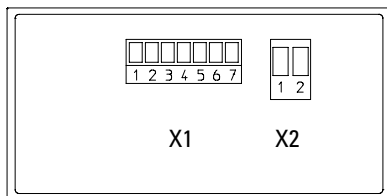
# Multifunction devices, electronic

## LED dual function displays Universal with dual functions, 4 combinations (AC+DC) Codix 54U

### Block diagram



### Terminal assignment



#### Connection X1

PIN	AC version	DC version
1	n.c.	
2	n.c.	
3	Reset	
4	INP B	
5	INP A	
6	GND out	n.c.
7	+24 V out	n.c.

#### Connection X2

PIN	AC version	DC version
1	100 ... 240 V AC, ±10 %	0 V DC (GND)
2	100 ... 240 V AC, ±10 %	10 ... 30 V DC

Function of the inputs INP A, INP B

#### Counter with 2 totalizing ranges:

INP A: Dynamic count input counter 1 and counter 2  
INP B: Inactive

#### Totalizer and timer:

INP A: Dynamic count input for totalizer  
INP B: Start/Stop or gate input for timer

#### Totalizer and frequency meter:

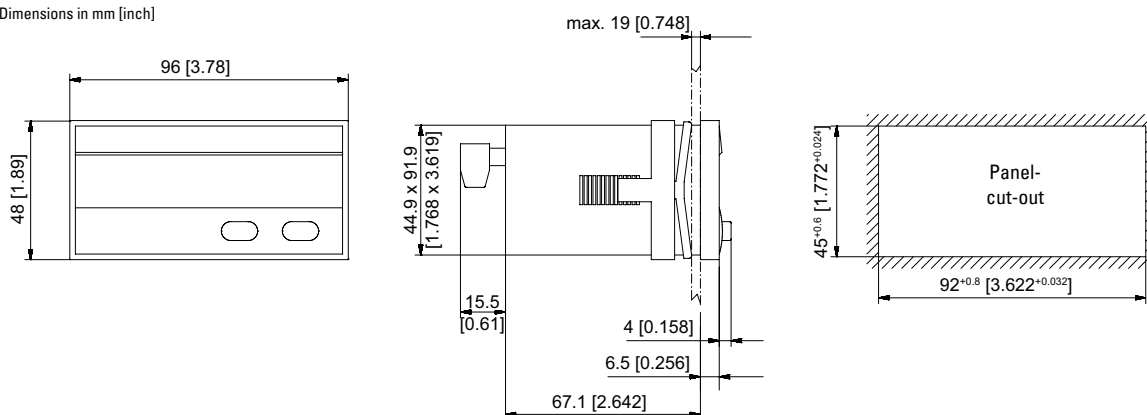
INP A: Dynamic count input/frequency input  
INP B: Inactive

#### Timer with 2 time ranges:

INP A: Start input (depends on input type)  
INP B: Start/Stop or gate input for timer (depends on input type)

### Dimensions

Dimensions in mm [inch]



**LED dual function displays**      **6 count modes with tachometer (AC+DC)**      **Codix 54P**



The Codix 54P is a voltage-powered pulse counter/ position display with 4 different count input modes and separate tachometer.

With separate inputs, for fast and slow count pulses, with 6-digit LED display for NPN, PNP input signals.



<b>DC</b> 10 ... 30V Power supply	<b>AC</b> 100 ... 240V DIN front bezel	<b>000000</b> DIN 96 x 48	<b>-20°...+65°C</b> Temperature range	<b>IP65</b> High protection level	<b>Plug-in screw terminal</b>	<b>Menu-driven programming</b>	<b>max. 30 kHz</b> Pulse counter/ Totalizer	<b>1/sec 1/min</b> Frequency meter/ tachometer	<b>POSITION</b> Position display	<b>HRA</b> Frequency meter HRA
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### Powerful

- Fast count and frequency input – input frequency max. 30 kHz (can be damped to 30 Hz for mechanical contacts).
- Robust housing – IP65 protected.
- Very bright LED display, 14 mm high, 6 digits.
- Very accurate precise frequency measurement principle (HRA-High Rate Accuracy System)  
Frequencies up to 38 Hz are calculated using time-interval (period duration) measurement. Frequencies > 38 Hz are calculated using a special time base (gate time) measurement. A very high accuracy of < 0.1 % is achieved, even with very short gate times. The resulting measurement is available after a max. of 50 ms.
- Short start-up time – detects input pulses just 16 msec after being switched on => no pulses are lost with a simultaneous motor start-up.

### User-friendly and universal

- Large keys – can also be operated when wearing gloves.
- Programming:
  - Simple uniform menu-driven programming and operation .
  - Possible to enter the programming also during operation with a confirmation prompt.
  - Pressing the right key switches between displays.
- Individually programmable scaling: multiplication and division factor (0.0001...99.9999), to display corresponding engineering units, e.g. position in 1/10 mm and speed in RPM.
- Separate factors for frequency and pulse counting.
- 4 different count input modes for the position display: 2-channel input for detecting count direction, difference or adding mode, quadrature x1, x2 or x4. 1 separate input for rotary speed and speed, display in 1/min or 1/sec.
- AC or DC supply with sensor power supply.
- Inputs: as an alternative to the HTL inputs, devices with a 5 V DC input level are available, for use as parallel displays for PLCs.

### Order code

**6.54P . 012 . XX0**

**a** Power supply  
0 = 100 ... 240 V AC, ±10 %  
3 = 10 ... 30 V DC

**b** Input switching level  
0 = Standard (HTL)  
A = 4 ... 30 V DC

**Delivery specification**

- Digital display
- Mounting clip
- Gasket
- 2 plug-in screw terminals
- Instruction manual, multilingual

**Replacement parts**

7 pin screw terminal RM 3.81 1 ... 7: N100387  
2 pin screw terminal RM 5.08 1 ... 2: N100133

# Multifunction devices, electronic

<b>LED dual function displays</b>	<b>6 count modes with tachometer (AC+DC)</b>	<b>Codix 54P</b>
<b>Accessories</b>	<b>Dimensions in mm [inch]</b>	<b>Order no.</b>
<b>Mounting frame</b> with cut-out 92 x 45 [3.62 x 1.77]	for snap-on mounting on 35 [1.38] top-hat DIN rail, for counters 96 x 48 [3.74 x 1.89]	grey <b>G300005</b>

Suitable gaskets as well as further accessories can be found in the accessories section or in the accessories area of our website at: [www.kuebler.com/accessories](http://www.kuebler.com/accessories).

## Technical data

General technical data	
<b>Display</b>	6 digit, red 7 segment LED display; 14 mm [0.55"] high
<b>Data backup</b>	EEPROM
<b>Operating temperature</b>	-20°C ... +65°C [-4°F ... +149°F] (non-condensing)
<b>Storage temperature</b>	-25°C ... +70°C [-13°F ... +158°F]
<b>Altitude</b>	up to 2000 m [6562']

Electrical characteristics	
<b>Power supply</b>	10 ... 30 VDC, with reverse polarity protection 100 ... 240 V AC, ±10 %
<b>Current consumption</b>	max. 50 mA, 6 VA
<b>EMC standards</b>	EN 55011 class B, EN 61000-6-2, EN 61000-6-3
<b>Device safety</b>	designed to protection class 2 application area pollution level 2
<b>UL approval</b>	file E128604

Mechanical characteristics	
<b>Housing</b>	front panel mount 96 x 48 mm [3.74 x 1.89"] acc. to DIN 43700; RAL 7021, dark grey
<b>Protection</b>	IP65 (front side)
<b>Weight</b>	approx. 150 g [5.29 oz]

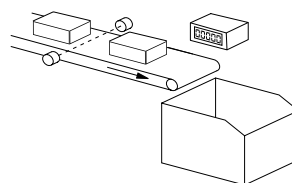
Inputs	
<b>Polarity of inputs</b>	programmable, NPN or PNP for all inputs
<b>Input resistance</b>	approx. 5 kΩ
<b>Counting frequency <sup>1)</sup></b>	max. 30 kHz, can be damped to 30 Hz
<b>Display range</b>	tachometer 1/min or 1/sec
<b>Minimum pulse duration of the reset input</b>	5 ms
<b>Input switching level standard version (HTL)</b>	
DC power supply	LOW 0 ... 0.2 x U <sub>B</sub> [V DC] HIGH 0.6 x U <sub>B</sub> ... 30 V DC
AC power supply	LOW 0 ... 4 V DC HIGH 12 ... 30 V DC
<b>Input switching level at 4 ... 30 V DC</b>	
	LOW 0 ... 2 V DC HIGH 4 ... 30 V DC
<b>Accuracy</b>	frequency meter/tachometer < 0.1 %

Outputs	
<b>Sensor power supply (AC version)</b>	24 V DC ±15 %/100 mA

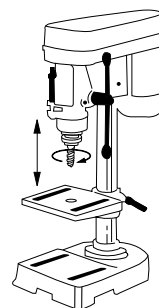
## Applications for frequency and position display / totalizer

Position and rotary speed applications, e.g.

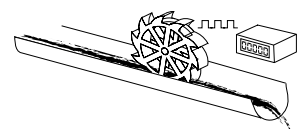
- OEM equipment or retrofitting to drilling machines
- OEM equipment on flow measuring plant, e.g. total flow and current flow
- Total piece count and pieces per minute, where the pulse counting occurs in the add/subtract mode, in order to deduct reject parts
- Production data acquisition: total piece count and production speed, or absolute distance traversed and current speed



Piece count on conveyor and production speed



Rotary speed and drilling depth



Flow rate and total volume

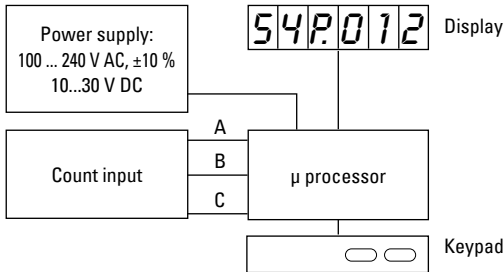
1) Details see manual



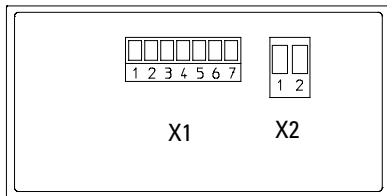
# Multifunction devices, electronic

## LED dual function displays      6 count modes with tachometer (AC+DC)      Codix 54P

### Block diagram



### Terminal assignment



#### Connection X1

PIN	AC version	DC version
1	n.c.	
2	n.c.	
3	INP C (frequency)	
4	INP B (frequency)	
5	INP A (Count)	
6	GND out	n.c.
7	+24 V out	n.c.

#### Connection X2

PIN	AC version	DC version
1	100 ... 240 V AC, ±10 %	0 V DC (GND)
2	100 ... 240 V AC, ±10 %	10 ... 30 V DC

Function of the inputs INP A, INP B, INP C

#### INP A and INP B:

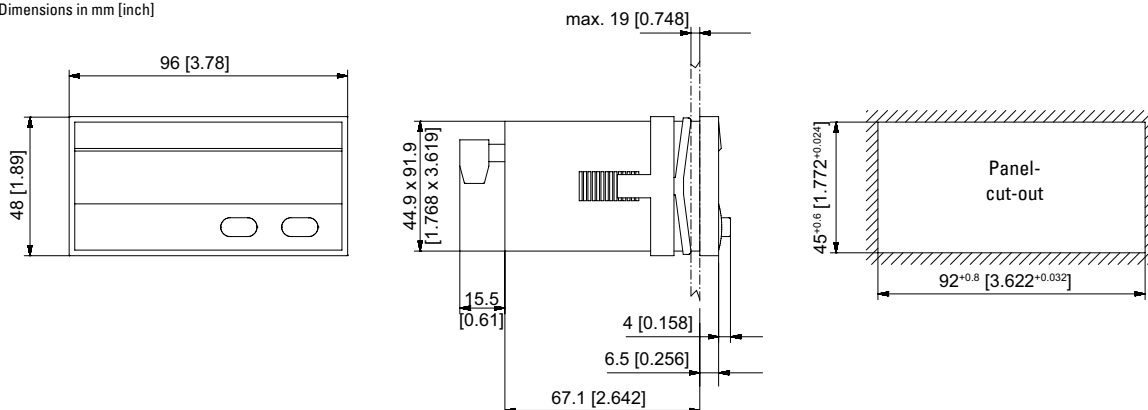
Two channel pulse input with 6 different count modes

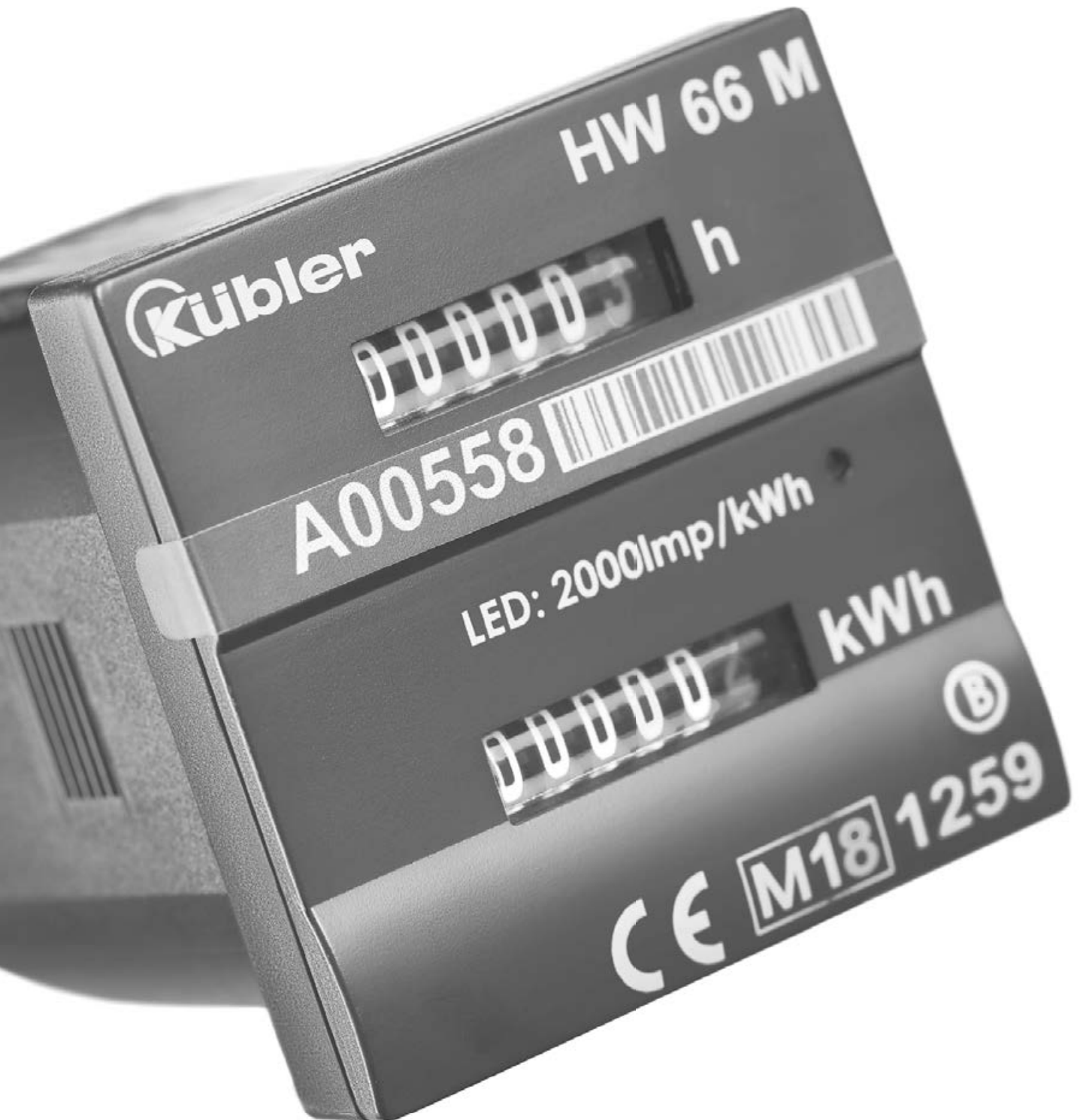
#### INP C:

Frequency input, single channel

### Dimensions

Dimensions in mm [inch]





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# Energy meters

Energy meters		Type	Page
<b>Dual function counters</b>	Energy and time (AC)	HW 66 / HW 66 M	<b>266</b>

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**Dual function counters**      **Energy and time (AC)**      **HW 66 / HW 66 M**



MID approved



The HW 66 and HW 66 M combination meters consist of an hour meter and an energy meter.

These panel-mounted devices require only a limited installation depth and can be used in a wide variety of application areas. The count pulses can be read out via the SO output.

**Additional model:**  
HW 66 M – MID version for applications requiring official calibration.



<b>AC</b> 115/230V Power supply	<b>-20° + 55°</b> Temperature range	<b>DIN 48 x 48</b> DIN front bezel	<b>IP65</b> High protection level	<b>12345</b> No reset	<b>2 x 6</b> Display 2 x 6 digit	<b>kWh</b> Energy meter	<b>Timer</b>
---------------------------------------	--	---------------------------------------	--------------------------------------	--------------------------	-------------------------------------	----------------------------	--------------

### Product features

- Metering of hours run and energy consumption in one compact device – panel mounting.
- Wide temperature range.
- Remote readout via SO outputs on request.
- Shows both values in parallel.
- Easy-to-read display – can also be read if no voltage present.

### Benefits

- Tamper-proof fixed installation with high degree of protection.
- High measuring accuracy.
- Can be officially calibrated (MID).

### Applications

Dehumidifiers, hire equipment and machinery, air-conditioning, production equipment, current generators.

### Order specifications

Type	Voltage	Order no.	Delivery includes	Only for MID version:
HW 66	230 V AC	<b>3.563.201.075</b> <sup>1)</sup>	• Counter • Flat gasket • Mounting clip • Instruction manual	• Type plate
HW 66	115 V AC	<b>3.563.201.074</b> <sup>1)</sup>		
MID version: HW 66 M	230 V AC	<b>3.56M.201.075</b> <sup>1)</sup>		If the type plate on the side of the HW 66 M is no longer legible after the installation, the provided additional type plate can be affixed on the front panel of the device in order to comply if necessary with the legal requirements relating to calibration.

Accessories	Dimensions in mm [inch]	Order no.
<b>Adapter front bezel, 55 x 55 [2.17 x 2.17]</b>	for cut-out 50 x 50 [1.97 x 1.97] to ø 50.5 [1.99], with clip mounting for counters 48 x 48 [1.89 x 1.89]	black <b>T008171</b>
<b>Adapter front bezel, 60 x 75 [2.36 x 2.95]</b>	for cut-out 50 x 50 [1.97 x 1.97] to cut-out 45 x 45 [1.77 x 1.77] with screw mounting for counters 48 x 48 [1.89 x 1.89]	black <b>T008860</b>
<b>Adapter front bezel, 72 x 72 [2.83 x 2.83]</b>	for cut-out 68 x 68 [2.68 x 2.68] to cut-out 45 x 45 [1.77 x 1.77] Mating clip T009420 must be ordered separately	black <b>T008177</b>
<b>Adapter front bezel, ø 72 [2.83]</b>	for cut-out ø 60 [2.36] to cut-out 45 x 45 [1.77 x 1.77] with clip mounting for counters 48 x 48 [1.89 x 1.89]	black <b>N510226</b>
<b>Adapter front bezel, 55 x 55 [2.17 x 2.17]</b>	for cut-out 50 x 50 [1.97 x 1.97] to cut-out 45 x 45 [1.77 x 1.77] with clip mounting for counters 48 x 48 [1.89 x 1.89]  Gasket 58 x 58 [2.28 x 2.28], for cut-out 50.2 x 50.2 [1.98 x 1.98]	black <b>T008853</b> <b>N511004</b>
<b>Mounting frame</b> with cut-out 50 x 50 [2.36 x 2.36] via separate adapter also for 45 x 45 [1.77 x 1.77]	for snap-on mounting on 35 [1.38] top-hat DIN rail, for counters 48 x 48 [1.89 x 1.89], 53 x 53 [2.09 x 2.09] and 55 x 55 [2.17 x 2.17]	chromated <b>G300003</b>

Suitable gaskets as well as further accessories can be found in the accessories section or in the accessories area of our website at: [www.kuebler.com/accessories](http://www.kuebler.com/accessories).

1) Standard stock model

# Energy meters

## Dual function counters Energy and time (AC) HW 66 / HW 66 M

### Technical data

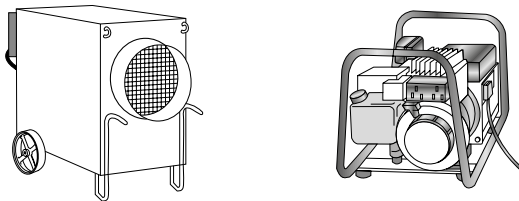
General technical data	
<b>Power supply</b>	115/230 V AC, -20 % / +15 % 50 or 60 Hz
<b>Digits</b>	2 x 6 digit (single units digit red)
<b>Height of figures (optical)</b>	4 x 1.7 mm [0.16 x 0.067"]
<b>Colour of figures</b>	white and red on black
<b>Operating temperature</b>	HW 66 -20°C ... +55°C [-4°F ... +131°F] HW 66 M -10°C ... +55°C [+14°F ... +131°F] (non-condensing)
<b>Storage temperature</b>	-25°C ... +65°C [-13°F ... +149°F]
<b>Housing</b>	DIN panel-mount 48 x 48 mm [1.89 x 1.89"]
<b>Depth</b>	55 mm [2.17"]
<b>EMC standards</b>	EN 55011 classe B, EN 61000-6-2, EN 61000-6-3, EN 61326-3-2
<b>Measuring instruments directive (MID)</b>	EN 50470-1, EN 50470-3
<b>Protection</b>	IP65, EN 60529 (front side) IP20 (rear side)
<b>Connections</b>	screw terminal, touch-safe
<b>Max. core cross-section</b>	inputs/outputs 2.5 mm <sup>2</sup> [AWG 13] S0 output 2.5 mm <sup>2</sup> [AWG 13]
<b>LED function</b>	LED on when power supply is connected LED blinks when energy is being measured

Energy meter	
<b>Display</b>	99999.9 kWh
<b>Accuracy</b>	class B, acc. to MID (for 50 Hz version)
<b>Current</b>	I <sub>B</sub> = 5 A, I <sub>max</sub> = 16 A
<b>Current limits</b>	≥ 20 mA up to 16 A
<b>Start current</b>	≥ 20 mA
<b>S0 output</b>	1000 pulses/kWh, 5 ... 30 V DC, I <sub>max</sub> = 20 mA
<b>Pulse duration</b>	50 ms

Hour meter	
<b>Display</b>	99999.9 h (0.1 h = 6 min)
<b>Accuracy</b>	± 2 %
<b>S0 output</b>	10 imp/h, 5 ... 30 V DC, I <sub>max</sub> = 20 mA
<b>Pulse duration</b>	50 ms
<b>Start (Operating time)</b>	with voltage applied to L <sub>in</sub>

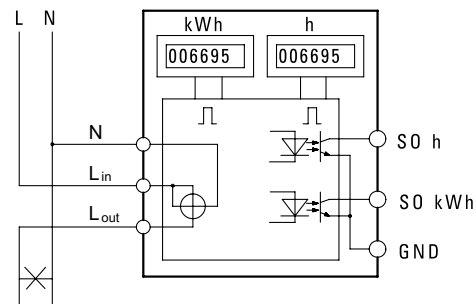
This hour meter shall not be used for electricity consumption calculation.

### Applications



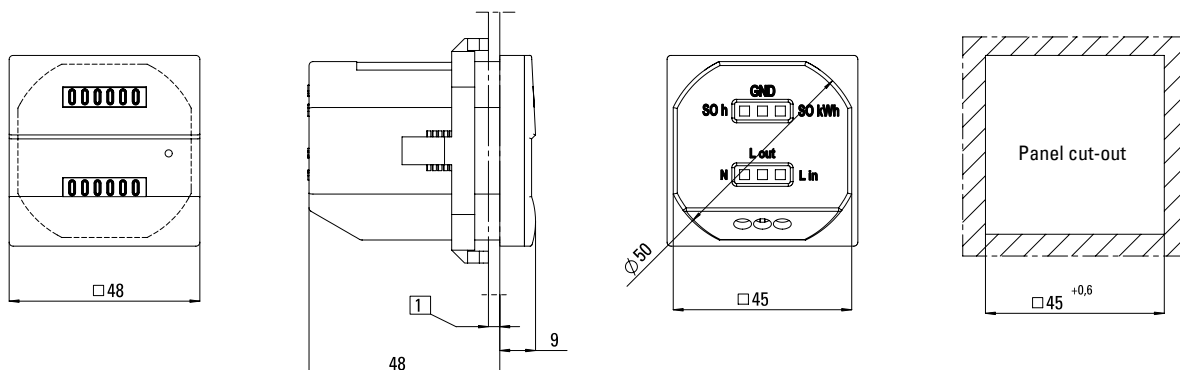
Retro- or standard fitting in dehumidifiers, current generators, air-conditioning, production equipment etc. for the accurate, traceable billing of operating and energy costs – especially also for hire equipment.

### Terminal assignment



### Dimensions

Dimensions in mm



1 max. 6.5

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## Process displays / Process controllers / Setpoint adjuster

Process displays		Type	Page
<b>LED process displays</b>	 Standard signals with Min / Max value detection, totalizer function (DC)	Codix 534	<b>270</b>
	Standard signals with Min / Max value detection, totalizer function (AC+DC)	Codix 565	<b>273</b>
Process controllers		Type	Page
<b>LED process controllers</b>	Standard signals with 2 limit values, analog output (AC+DC)	Codix 565	<b>273</b>
<b>LCD touch process controllers</b>	 2 standard signal inputs + 2 limit values or analog output (AC+DC)	573T	<b>277</b>
Setpoint adjuster		Type	Page
<b>LED setpoint adjuster</b>	Standard signal output for mA or V, also time-controlled (DC)	Codix 533	<b>281</b>

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# Process displays

**LED process displays**      **Standard signals with Min / Max value detection, totalizer**      **Codix 534**



Cost-effective standard signal display for front panel mount with scalable bright 5-digit LED display.

The 14 bit resolution ensures an accurate measuring value display range with minimum and maximum value detection and scalable totalizer for time-controlled summation of the measured value.



<b>DC</b> 10 ... 30 V Power supply	 mA, V Display scaling	 14 bit Resolution	 Menu-driven programming	 AC/DC Galvanic isolation	 -20°... +60°C Temperature range	 IP65 High protection level	 min / max Min / Max value detection	 DIN 48 x 24 DIN front bezel	 5 LED LED display	 Σ Totalizer function
--	------------------------------	--------------------------	-----------------------------	---------------------------------	--	-----------------------------------	--	------------------------------------	--------------------------	-----------------------------

## Product features

- Input range: 1 current measuring input, 1 voltage measuring input.
- Compact display for standard signals.
- Display range -19 999 ... 99 999 with leading zeros suppression and programmable decimal point.
- Modern industrial design.
- Fast measuring time of max. 0.1 second.

## Benefits

- Galvanic isolation with protection against incorrect polarity.
- Autom. Min / Max value detection.
- Totalizer with programmable factor, divisor and decimal point.
- Freely programmable characteristic curve end points to adapt the desired display value.
- Input for display hold or reset input for Min / Max value and totalizer.

## Order no.

Display for analog signals with Min / Max value detection and totalizer

**6.534.012.300** <sup>1)</sup>

### Delivery specification

- Digital display
- Mounting clip
- Gasket
- Front bezel for screw mounting (T008181) 56 x 40 mm [2.20 x 1.57"], panel cut-out 50 x 25 mm [1.97 x 0.98"]
- Front bezel for clip mounting (T008180) 53 x 28 mm [2.09 x 1.10"], panel cut-out 50 x 25 mm [1.97 x 0.98"]
- 1 set of self-adhesive symbols
- Instruction manual, multilingual

1) Stock types.

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# Process displays

LED process displays	Standard signals with Min/Max value detection, totalizer	Codix 534
Accessories	Dimensions in mm [inch]	Order no.
<b>Adapter front bezel, 72 x 36 [2.83 x 1.42]</b>	for cut-out 68 x 33 [2.68 x 1.30] to cut-out 45 x 22.2 [1.77 x 0.87], for counters 48 x 24 [1.89 x 0.94], as set	black and silver anodized <b>162704 Set</b>
<b>Adapter front bezel, 48 x 48 [1.89 x 1.89]</b>	for cut-out 45 x 45 [1.77 x 1.77] to cut-out 45 x 22.2 [1.77 x 0.87], with clip mounting for counters 48 x 24 [1.89 x 0.94]	black <b>T008883</b>
<b>Adapter front bezel, 60 x 50 [2.36 x 1.97]</b>	for cut-out 54 x 29 [2.13 x 1.14] to cut-out 45 x 22.2 [1.77 x 0.87], with screw mounting and gasket for counters 48 x 24 [1.89 x 0.94]	black <b>N003001</b>
<b>Transparent cover, lockable, IP65</b>	for cut-out 54 x 29 [2.13 x 1.14], for screw mounting to front bezel F1B or adapter front bezel N003001, for counters with cut-out 50 x 25 [1.97 x 0.98] or 45 x 22.2 [1.77 x 0.87]	<b>N003002</b>
<b>Sealing cover type K1, IP65</b>	suitable for front bezel 60 x 50 [2.36 x 1.97], for screw mounting of electromech. counters and via adapter front bezel N003001 for counters 48 x 24 [1.89 x 0.94]	<b>G008301</b>
<b>Mounting frame</b> with cut-out 50 x 25 [2.36 x 1.97] via separate adapter also for 45 x 22.2 [1.77 x 0.87]	for snap-on mounting on 35 [1.38] top-hat DIN rail, for counters 53 x 28 [2.09 x 1.10] and via separate adapter (T008180) for counters 48 x 24 [1.89 x 0.94]	chromated <b>G300004</b>

Suitable gaskets, other accessories and installation examples for optional accessories can be found in chapter accessories or in the accessories section under: [www.kuebler.com/accessories](http://www.kuebler.com/accessories).

## Technical data

General technical data	
<b>Display</b>	5 digits, red 7 segment LED display; 8 mm [0.32"] high
<b>Measuring rate</b>	10 measurements/second
<b>Data backup</b>	EEPROM
<b>Operating temperature</b>	-20°C ... +60°C [-4°F ... +140°F] (non-condensing)

Electrical characteristics	
<b>Power supply</b>	10 ... 30 V DC, galvanically isolated with integrated reverse polarity protection
<b>Current consumption</b>	max. 50 mA
<b>EMC standards</b>	EN 55011 class B EN 61000-6-2, EN 61000-6-3 EN 61326-1
<b>UL approval</b>	file E128604

Mechanical characteristics	
<b>Housing</b>	front panel mount 48x24 mm [1.89 x 0.94"] acc. to DIN 43700; RAL 7021, dark grey
<b>Protection</b>	IP65 (front side)
<b>Weight</b>	approx. 50 g [1.76 oz]
<b>Vibration resistance</b> acc. to EN 60068-2-6	10 ... 55 Hz / 1 mm [0.04"] / 30 min
<b>Shock resistance</b> acc. to EN 60068-2-27	100 G: 2 ms 10 G: 6 ms
<b>Connections</b>	screw terminal, pitch 5.08 mm [2"], 7 pin

Inputs	
<b>Input current measurement</b>	0 ... 20 mA (display range 0.5 ... 20.5 mA, programmable) 4 ... 20 mA (display range 3.5 ... 20.5 mA, programmable)
<b>Voltage drop</b>	max. 1,5 V DC
<b>Input voltage measurement</b>	0 ... 10 V (display range 0.5 ... 10.5 V, programmable) 2 ... 10 V (display range 1.5 ... 10.5 V, programmable) input resistance approx. 1 MΩ max. input signal level 30 V DC
<b>Control inputs</b>	HIGH 4 ... 30 V DC Display hold LOW 0 ... 2 V DC
<b>Resolution</b>	14 bit
<b>Accuracy</b>	< 0.1 % for the whole measuring range at an operating temperature of 20°C [68°F]
<b>Temperature drift</b>	< 70 ppm/K <sub>Ambient</sub>

### Terminal assignment



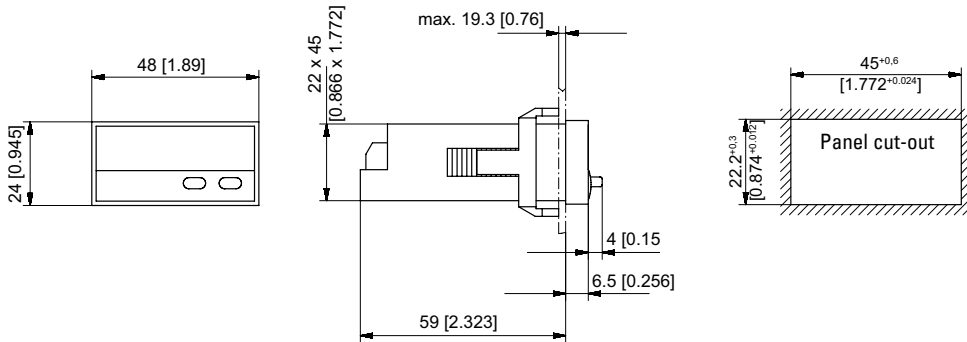
PIN	
1	10 ... 30 V DC
2	GND
3	GND
4	Latch
5	0 (4) ... 20 mA
6	Analog GND
7	0 (2) ... 10 V DC

# Process displays

## LED process displays      Standard signals with Min/Max value detection, totalizer      Codix 534

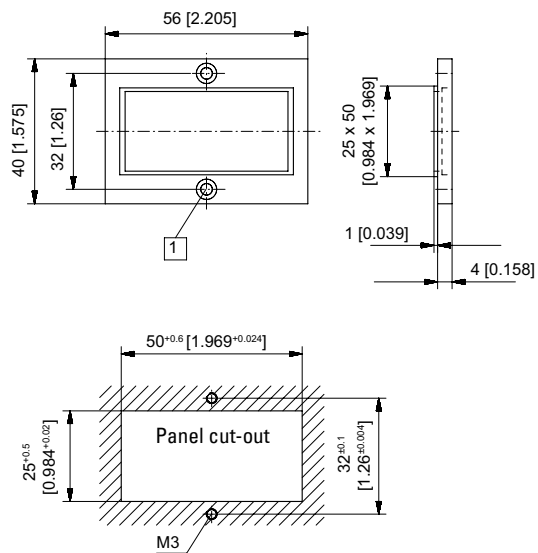
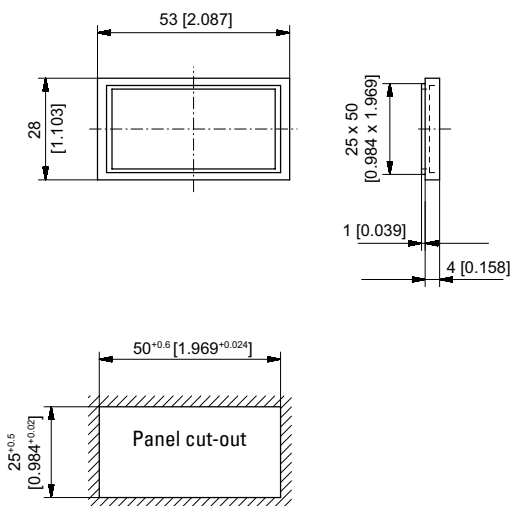
### Dimensions

Dimensions in mm [inch]



Front bezel for clip mounting (included in delivery)

Front bezel for screw mounting (included in delivery)



1 Countersinking Af3, DIN 74

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**LED process controllers** For standard signal inputs (AC+DC) **Codix 565**



The process controller Codix 565 with totalizer function displays V and mA standard signal inputs in high resolution. In addition it can monitor and control 2 limit values.

These fast displays set new standards when it comes to user friendliness. Their easy-to-read 14-segment LED display, easy-to-understand running help texts and a practical quick-start guide eliminate the need to wade through time-consuming full instruction manuals.

With optional analog output.

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<b>DC</b> 10 ... 30 V Power supply	<b>AC</b> 100 ... 240 V Power supply	<b>A..Z*</b> 6 LEDs 14-segment LED display	<b>Prog</b> Menu-driven programming	<b>mA, V</b> Display linearization	<b>Tara</b> Tare function	<b>Σ</b> Totalizer-Function	<b>mA, V</b> Input	<b>min / max</b> Min / Max value detection	<b>2</b> 2 limit values	<b>AC/DC</b> Galvanic isolation
<b>15 bit</b> Resolution	<b>-20° + 65°</b> Temperature range	<b>DIN 96 x 48</b> DIN front bezel	<b>Installation in mosaic systems</b>	<b>Operation with gloves</b>	<b>mA, V</b> Analog output optional					

### User-friendly

- Practical quick-start guide for setting the parameters and operating the device.
- Help text as running text.
- Easy-to-read 14-segment LED display, 6 digits 14 mm [0.55] high.
- Simple programming via 4 keys on the front.
- One front key as well as 2 additional inputs can be programmed for specific applications.
- Customer-specific characteristic (linearization) curve via 12 control points for all measurement signal inputs.
- MIN/MAX memory function, individually resettable.

### Powerful

- Sampling rate of 10 readings per second.
- Time-controlled totalizer function for totalizing the measured values. Can be reset separately.
- 2 relay outputs (changeover contacts) for limit monitoring with hysteresis and ON/OFF delay function for current measured or totalizer values.
- Analog output for the current measured value, MIN-value, MAX-value or totalizer value.
- Auxiliary sensor power supply 15 V DC / 25 mA, also for 2-wire transmitters.
- Inputs and outputs galvanically isolated .
- Digital filter (first-order) for smoothing display fluctuation with unstable input signals.
- Tare function.

### Order code

6.56 **5** . 0 1 0 . **X** 0 **X**

a
b
c
d

- a** Input type  
5 = standard signal input <sup>1)</sup>
- b** Outputs  
0 = relays <sup>1)</sup>
- c** Power supply  
0 = 100 ... 240 V AC, ± 10% <sup>1)</sup>  
3 = 10 ... 30 V DC <sup>1)</sup>
- d** Further outputs (optional)  
0 = none <sup>1)</sup>  
9 = analog output  
(only for DC version)

**Delivery specification:**

- Process device
- Mounting clip
- Gasket
- Instruction manual, multilingual
- 1 sheet of self-adhesive symbols
- Quick-start guide

Practical quick-start guide for setting the parameters and operating the device. The guide can be affixed directly to the front of the unit and can be removed and re-applied as required.



1) Stock types.

<b>LED process controllers</b>	<b>For standard signal inputs (AC+DC)</b>	<b>Codix 565</b>
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Accessories	Dimensions in mm [inch]	Order no.
<b>Mounting frame</b> with cut-out 92 x 45 [3.62 x 1.77]	for snap-on mounting on 35 [1.38] top-hat DIN rail, for counters 96 x 48 [3.74 x 1.89]	grey <b>G300005</b>

Suitable gaskets as well as further accessories can be found in the accessories section or in the accessories area of our website at: [www.kuebler.com/accessories](http://www.kuebler.com/accessories).

### Technical data

General technical data	
<b>Display</b>	6-digit, 14 segment LED
<b>Digit height</b>	14 mm [0.55"]
<b>Display range</b>	-199999 ... 999999, with leading zero blanking
<b>Data retention</b>	> 10 years, EEPROM
<b>Operation</b>	5 keys
<b>Operating temperature</b>	-20°C ... +65°C [-4°F ... +149°F] (non-condensing)
<b>Storage temperature</b>	-25°C ... +75°C [-13°F ... +167°F]
<b>Relative humidity (non-condensing)</b>	R.H. 93 % at +40°C [+104°F]
<b>Altitude</b>	up to 2000 m [6562']

Electrical characteristics	
<b>Power supply</b>	AC supply 100 ... 240 V AC / max. 9 VA 50 / 60 Hz, tolerance ±10% ext. fuse protection: T 0.1 A
	DC supply 10 ... 30 V DC / max. 3.8 W with galvanic isolation and reverse polarity protection ext. fuse protection: T 0.4 A
<b>Mains hum suppression</b>	50 Hz or 60 Hz, programmable
<b>Sensor power supply</b>	AC supply 24 V DC ±15 %, 30 mA 15 V DC ± 1 %, 25 mA
	DC supply 15 V DC ± 1 %, 25 mA
<b>EMC standards</b>	EN 55011 class B EN 61000-6-2, EN 61000-6-3 with shielded signal and control cables
<b>Device safety</b>	designed to EN 61010 part 1 protection class 2 (front side) application area pollution level 2 overvoltage category II
<b>UL approval</b>	file E128604

Mechanical characteristics	
<b>Housing</b>	Panel mount housing to DIN 43700, RAL 7021
<b>Dimensions</b>	96 x 48 x 102 mm [3.78 x 1.89 x 4.02"]
<b>Panel cut-out</b>	92+0.8 x 45+0.6 mm [3.62+0.032 x 1.77+0.024"]
<b>Installation depth</b>	approx. 92 mm [3.62"] incl. terminals
<b>Weight</b>	approx. 180 g [6.34 oz] with analog output 200 g [7.06 oz]
<b>Protection</b>	IP65 (front side)
<b>Housing material</b>	Polycarbonate UL94 V-2
<b>Vibration resistance</b> acc. to EN 60068-2-6	10 ... 55 Hz / 1 mm / XYZ 30 min in each direction
<b>Shock resistance</b> acc. to EN 60068-2-27	100G / 2 ms / XYZ 3 times in each direction
	acc. to EN 60068-2-29 10G / 6 ms / XYZ 2000 times in each direction
<b>Connections</b>	
<b>Power supply and outputs</b>	Plug-in screw terminal, 8-pin, RM 5.00, core ø max. 2.5 mm² [AWG 13]
<b>Signal and control inputs</b>	Plug-in screw terminal, 9-pin, RM 3.50, core ø max. 1.5 mm² [AWG 15]

Measuring signal inputs	
<b>Sampling rate</b>	10 readings/sec
<b>Voltage input</b>	
<b>Input signal</b>	0 ... 10 V, 2 ... 10 V, ± 10 V
<b>Measuring range</b>	-10.5 ... +10.5 V
<b>Resolution</b>	< 0.4 mV (±15 bit)
<b>Measuring accuracy at 23°C [73°F]</b> (% of range)	typ. 0.02 % / max. ≤ 0.05 %
<b>Temperature drift</b>	< 100 ppm/K <sub>Ambient</sub>
<b>Input resistance</b>	1 MΩ
<b>Max. voltage</b>	± 30 V
<b>Current input</b>	
<b>Input signal</b>	0 ... 20 mA, 4 ... 20 mA
<b>Measuring range</b>	-0.5 ... 21 mA
<b>Resolution</b>	1 µA (> 14 bit)
<b>Measuring accuracy at 23°C [73°F]</b> (% of range)	typ. 0.02 % / max. ≤ 0.05 %
<b>Temperature drift</b>	< 100 ppm/K <sub>Ambient</sub>
<b>Input resistance</b>	22 Ω + PTC 25 Ω
<b>Voltage drop</b>	approx. 1.8 V at 20 mA
<b>Max. current</b>	60 mA

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# Process controllers

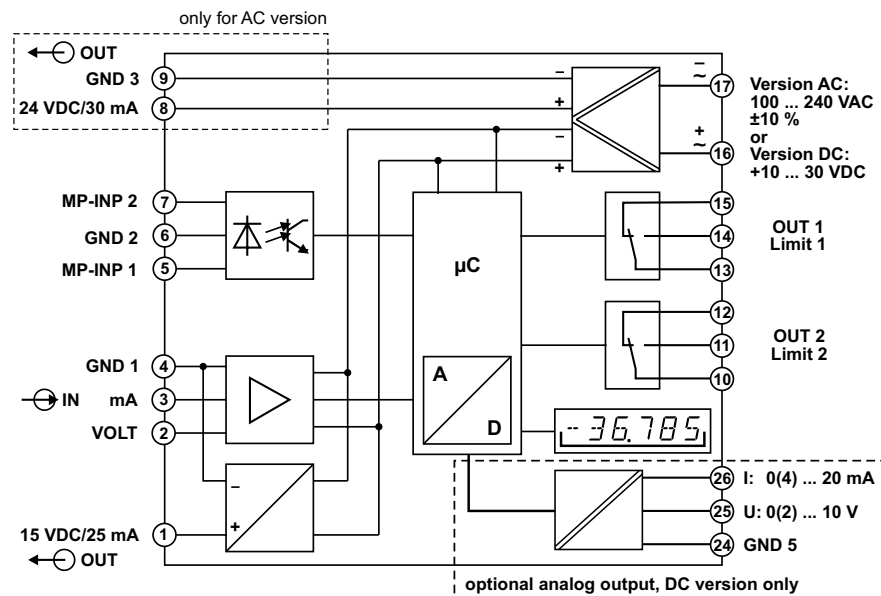
## LED process controllers For standard signal inputs (AC+DC) Codix 565

Control inputs MPI 1 / MPI 2	
Quantity	2 optocouplers
Function	programmable
Switching levels	LOW < 2 V HIGH > 4 V (max. 30 V)
Pulse length	> 100 ms

Analog output (optional - only for DC version)	
Output ranges	0 (4) ... 20 mA / 0 (2) ... 10 V
Load	current output $\leq 500 \Omega$ voltage output $\geq 2000 \Omega$
Resolution	15 bit
Update time (basic device measuring rate)	100 ms
Temperature drift	$\leq 100 \text{ ppm/K}_{\text{Ambient}}$
Accuracy	$\pm 0.1\%$ of the output range high value
Output ripple	$\leq 10 \text{ mV}$
Isolation voltage	500 V AC for 1 minute or 1 kV DC for 1 second

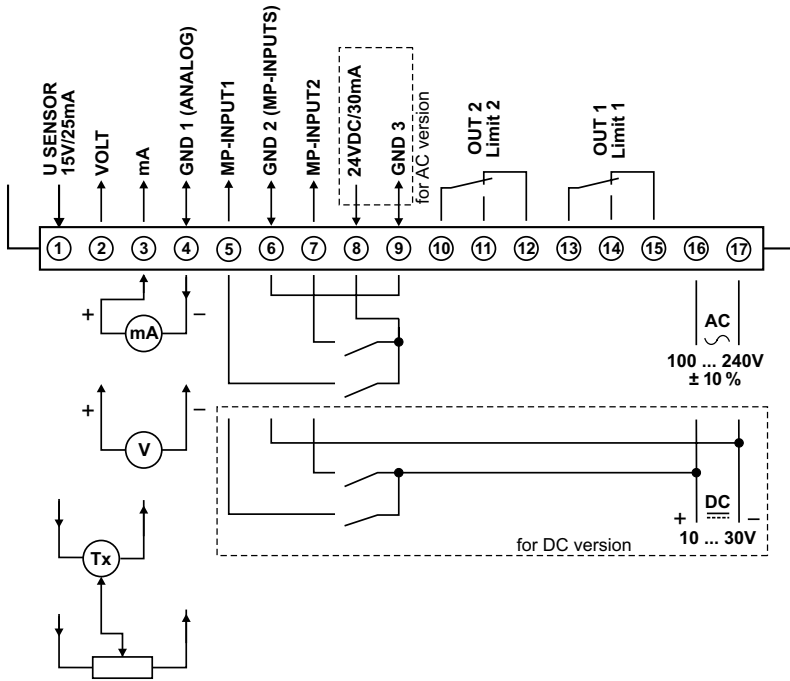
Alarm outputs	
Relays	changeover contacts
Switching voltage	max. 250 V AC / 125 V DC min. 5 V AC / 5 V DC
Switching current	max. 5 A AC / 5 A DC min. 10 mA DC
Switching capacity	max. 1250 VA / 150 W

### Block diagram

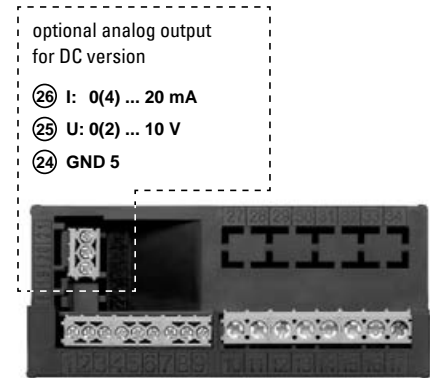


**LED process controllers** For standard signal inputs (AC+DC) **Codix 565**

### Terminal assignment

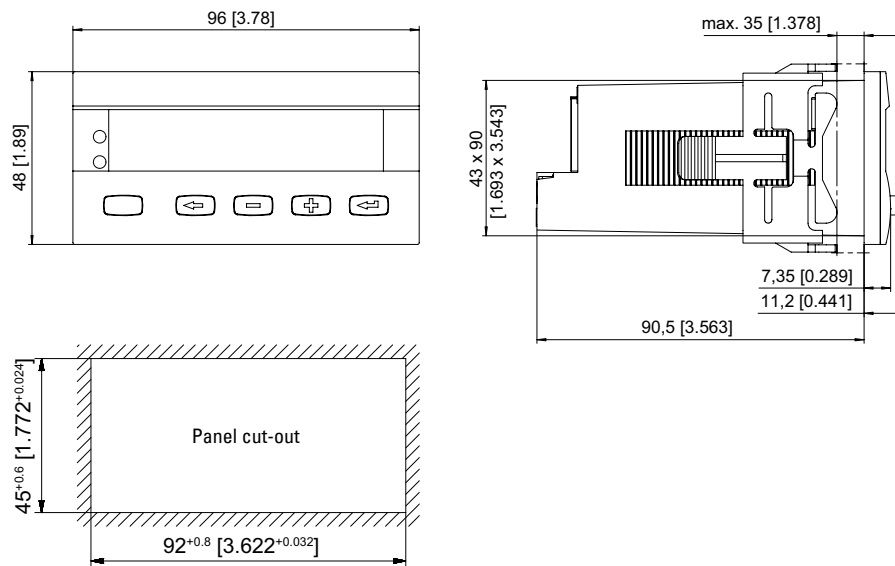


### Rear side view



### Dimensions

Dimensions in mm [inch]



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**LCD touch process controllers**    **2 standard signal inputs + analog and switching outputs**    **573T**



The process controller with 2 analog inputs can be used in both single channel mode as well as in dual channel. In dual channel mode, all arithmetic operations are available for displaying the sum total, difference, ratio or the product. Inputs and outputs can be scaled separately.

Can be used as a simple process signal converter, process controller (ON/OFF controller) or for complex measuring tasks, where the relationship between two values, one to the other, must be monitored, calculated or further processed in a higher-level controller.

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<b>AC</b> 115... 230V Power supply	<b>DC</b> 18... 30 V 2 inputs	<b>mA, V</b> 2 inputs	<b>4</b> 4 switching outputs	<b>2</b> Relay output	<b>mA, V</b> Analog output	<b>16 bit</b> Resolution analog output	<b>RS 232 / RS485</b> interface	<b>IP65</b> High protection level	<b>Tara</b> Tare function	<b>DIN 96 x 48</b> DIN front bezel
<b>8 LCDs</b> LCD touch display	<b>Menu-driven programming</b>	<b>Touch display</b>	<b>Operation with gloves</b>							

### Innovative

- 2 separate freely scalable analog inputs  $\pm 10$  V and 0/4 ... 20 mA, resolution 16 bit.
- Tare function – the unit can be set to 0 for any input voltage.
- Programmable linearization: with up to 24 control points, input via key-pad or via the teach-in function.
- Averaging measurement over 2 to 16 measuring cycles, for use with serious fluctuations of the input signals.
- Easy to programme - the desired display value is simply keyed-in for a specific input signal.
- Fast 1 ms sampling rate per channel alternating.
- Serial interface RS232 or RS485 for reading data in and out.

### Compact and multifunctional

- Up to 3 display values in one device, display 1, display 2 + display calculated based on 1 and 2.
- AC and DC power supply in one device.
- Simple menu-driven programming via touch display, as well as tare or teach-in key.
- Can be used as a simple process signal converter, process controller (ON/OFF controller) or for complex measuring tasks where the relationship between two values, one to the other, must be monitored, calculated or further processed in a higher-level controller.
- Mathematical operation of the measured values of inputs 1 and 2. The result can also if required be multiplied, divided or added to an offset value, in order to obtain the desired display value.
- Analog output 0/4 ... 20 mA or  $\pm 10$  V.
- 4 fast PNP switching outputs (reaction time < 1 ms), with switching hysteresis, step or tracking preset.
- Programmable display refresh time.

**Order code**    **6.573T . 01X . X0X**

**a** Relay outputs  
0 = 2 relay outputs  
2 = without output

**b** Power supply  
3 = 18 ... 30 V DC  
E = 18 ... 30 V DC + 115 ... 230 V AC

**c** Further options  
0 = none

**d** Electrical outputs  
0 = none  
1 = RS232, 4 switching outputs  
2 = RS232, 4 switching outputs, analog output  
3 = RS485, 4 switching outputs

**Delivery specification**  
· Display 573T  
· Gasket  
· Mounting kit  
· Manual German/English

**Stock types**  
6.573T.012.301  
6.573T.012.302  
6.573T.010.302  
6.573T.010.E02

# Process controllers

<b>LCD touch process controllers</b>	<b>2 standard signal inputs + analog and switching outputs</b>	<b>573T</b>
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Accessories		Order no.
<b>Mounting frame</b> with cut-out 92 x 45 [3.62 x 1.77]	for snap-on mounting on 35 [1.38] top-hat DIN rail, for counters 96 x 48 [3.74 x 1.89]	grey <b>G300005</b>
<b>OS6.0 software for parameter setting</b>	can be downloaded at <a href="http://www.kuebler.com">www.kuebler.com</a>	

Suitable gaskets as well as further accessories can be found in the accessories section or in the accessories area of our website at: [www.kuebler.com/accessories](http://www.kuebler.com/accessories).

## Technical data

General technical data	
<b>Display</b>	LCD touch display, 13 mm high 8 decades + sign
<b>Operating temperature</b>	-20°C ... +60°C [-4°F ... +140°F] (non-condensing)
<b>Storage temperature</b>	-25°C ... +70°C [-13°F ... +158°F]
<b>Altitude</b>	up to 2000 m [6562']
Electrical characteristics	
<b>Power supply</b>	18 ... 30 V DC, with reverse polarity protection (rated voltage 24 V DC) 115 ... 230 V AC, 50/60 Hz (option)
<b>Current consumption DC</b>	100 mA, without load
<b>Power consumption AC</b>	approx. 3 VA, without load
<b>Auxiliary power supply (for encoder)</b>	
AC supply	24 V DC ±15 %, 150 mA (up to +45°C) 80 mA (from +46°C)
DC supply	U <sub>B</sub> - 1 V, 250 mA
<b>Reference output</b>	
output voltage	10 V DC
accuracy	±0.1 %
load	max. 10 mA / ≥ 1 kΩ
<b>EMC standards</b>	EN 61000-6-2, EN 61000-6-3, EN 61000-6-4, EN 61326-3-2
<b>Device safety</b>	
designed to protection class	EN 61010 part 1 2
application area	pollution level 2

Mechanical characteristics	
<b>Housing</b>	ABS UL94-V-0
<b>Weight</b>	approx. 200 g
<b>Protection</b>	IP65 (front side) IP20 (rear side)
<b>Terminals</b>	max. 1.5 mm <sup>2</sup>

Inputs	
<b>2 analog inputs</b>	0 ... 20 mA, 4 ... 20 mA -10 ... +10 V
input resistance current	R <sub>i</sub> = 120 Ω
input resistance voltage	R <sub>i</sub> = 50 kΩ
measuring time per channel	min. 1 ms (programmable)
resolution	16 bit (15 bit + sign)
accuracy	±0.1 % ±1 digit
<b>3 control inputs (Cnt 1 - 3)</b>	PNP
input frequency	max. 10 kHz
input level	HTL: Low 0 ... 3 V / High 9 ... 30 V
load	max. 2 mA / R <sub>i</sub> > 15 kΩ / 470 pF

Outputs (option)	
<b>4 switching outputs</b>	5 ... 30 V DC/200 mA (PNP)
reaction time	< 1 ms
<b>Interface</b>	RS232 or RS485 Drivecom Protokoll / Modbus / Printer 9600 ... 38400 Baud
<b>Analog output</b>	-10 ... +10 V (max. 2 mA) or 0 ... 20 mA, 4 ... 20 mA (max. 270 Ω)
resolution	16 bit (15 bit + sign)
accuracy	±0.1 %
reaction time	< 1 ms
<b>Relay output</b>	2 changeover contacts (potential free) max. 250 V AC / 3 A / 750 VA max. 150 V DC / 2 A / 50 W
reaction time	< 20 ms

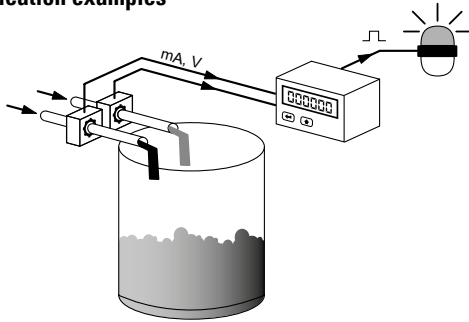
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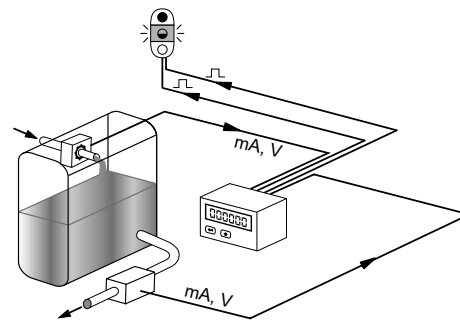
# Process controllers

**LCD touch process controllers**    **2 standard signal inputs + analog and switching outputs**    **573T**

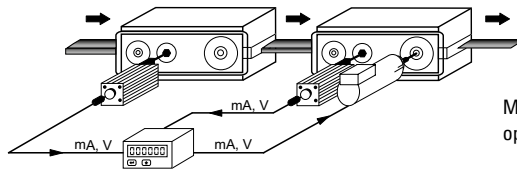
## Application examples



Monitoring of mixing ratios and display of flow rate



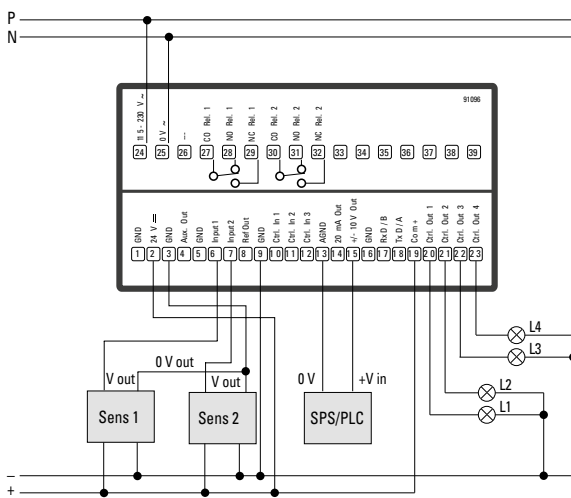
Level monitoring and adjustment, display of inflow and outflow



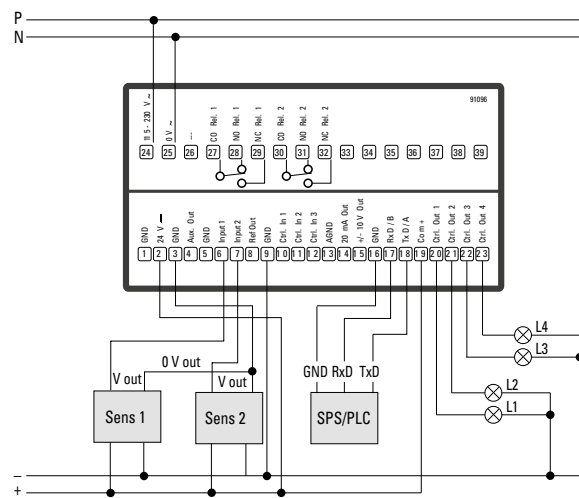
Material stretching, as well as monitoring of synchronous operation, with display of individual speeds

## Connection example

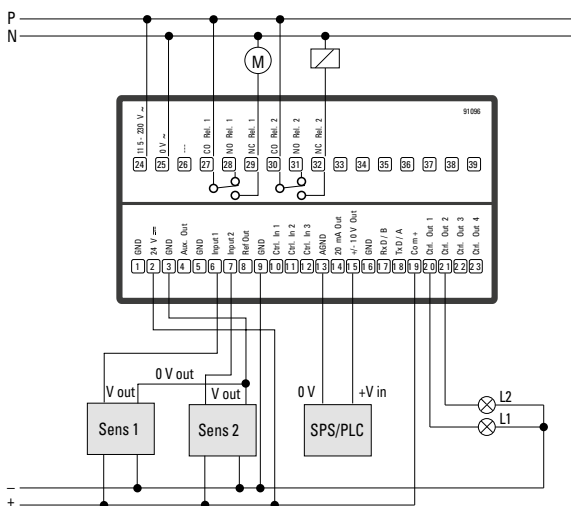
Analog input, analog output, switching outputs



Analog input, switching outputs, interface RS232



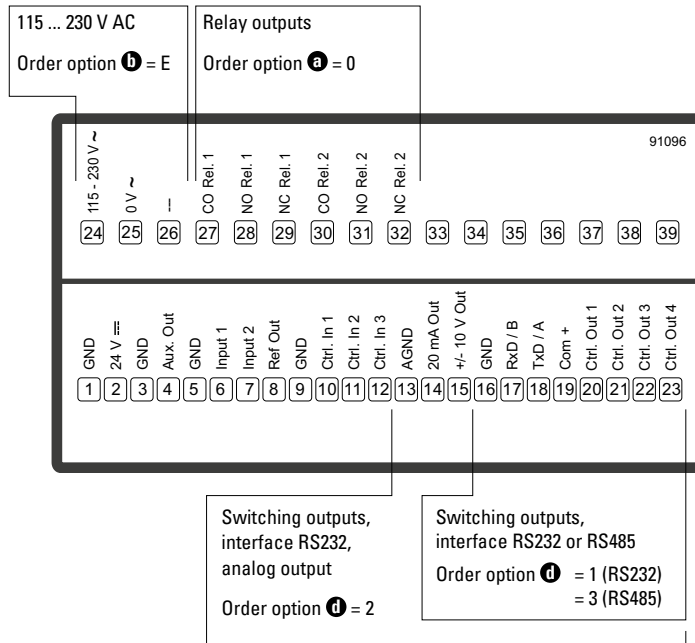
Analog input, analog output, load output (relay), switching outputs



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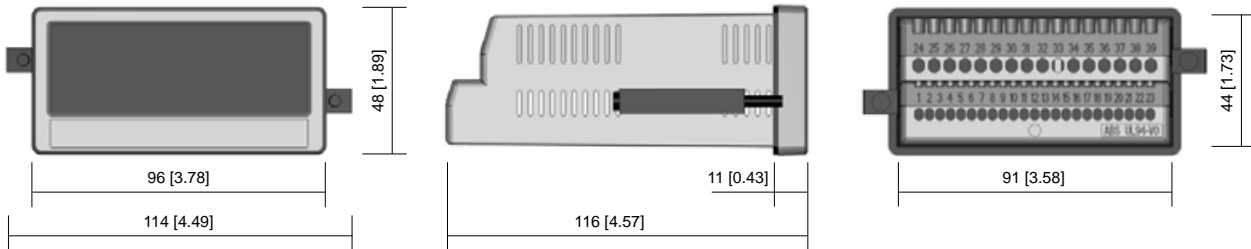
**LCD touch process controllers**    **2 standard signal inputs + analog and switching outputs**    **573T**

### Terminal assignment



### Dimensions

Dimensions in mm [inch]



Panel cut-out  
92 x 45 mm [3.62 x 1.77"]

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# Setpoint adjuster

**LED setpoint adjuster**      **Standard signal output for mA or V, also time-controlled (DC)**      **Codix 533**



The setpoint adjuster Codix 533 triggers a standard analog signal or a freely programmable signal sequence from 0 ... 12 V or from 0 ... 24 mA.

The setpoint adjuster is a real innovation, opening up new application potentials in process technology and automation.



<b>DIN 48 x 24</b>	<b>4 LED</b>	<b>DC</b> 10 ... 30 V	<b>Menu-driven programming</b>	<b>IP65</b>	<b>-20° + 65°</b> Temperature range	<b>mA, V</b> Output	<b>AC/DC</b> Galvanic isolation
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### Innovative

- Function of a digital time controller with analog output.
- Manual functions with direct input or stepped incremental output of the setpoint.
- 4-digit, 8 mm high top-quality LED display.
- Physical variables output / 0 ... 12 V or 0 ... 24 mA analog signals.
- Units of display can be freely programmed and displayed – no conversion of the specified output value required.
- Ideal for simulation runs without the need for expensive, time-consuming running-in of processes.

### Powerful

- Simpler to run processes than with a PLC or process controller.
- Everything can be programmed easily by means of 2 keys and the text menu.
- Digital setting - no additional DIP switches or potentiometers.
- Display allows simple monitoring of the specified setpoint output.
- User-friendly display form as direct digital value.
- 3 separate functions integrated as standard in the Codix 533.
- High accuracy of < 0.2% of the final value.

### Order no.

**Setpoint adjuster**      **6.533.012.300 <sup>1)</sup>**

#### Delivery specification

- Setpoint adjuster
- Mounting clip
- Gasket
- Front bezel for screw mounting (T008181) 56 x 40 mm [2.20 x 1.57"], panel cut-out 50 x 25 mm [1.97 x 0.98"]
- Front bezel for clip mounting (T008180) 53 x 28 mm [2.09 x 1.10"], panel cut-out 50 x 25 mm [1.97 x 0.98"]
- 1 set of self-adhesive symbols
- Instruction manual, multilingual

1) Stock types

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# Setpoint adjuster

<b>LED setpoint adjuster</b>	<b>Standard signal output for mA or V, also time-controlled (DC)</b>	<b>Codix 533</b>
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Accessories	Dimensions in mm [inch]	Order no.
<b>Adapter front bezel, 72 x 36 [2.83 x 1.42]</b>	for cut-out 68 x 33 [2.68 x 1.30] to cut-out 45 x 22.2 [1.77 x 0.87], for counters 48 x 24 [1.89 x 0.94], as set black and silver anodized	<b>162704 Set</b>
<b>Adapter front bezel, 48 x 48 [1.89 x 1.89]</b>	for cut-out 45 x 45 [1.77 x 1.77] to cut-out 45 x 22.2 [1.77 x 0.87], with clip mounting for counters 48 x 24 [1.89 x 0.94] black	<b>T008883</b>
<b>Adapter front bezel, 60 x 50 [2.36 x 1.97]</b>	for cut-out 54 x 29 [2.13 x 1.14] to cut-out 45 x 22.2 [1.77 x 0.87], with screw mounting and gasket for counters 48 x 24 [1.89 x 0.94] black	<b>N003001</b>
<b>Transparent cover, lockable, IP65</b>	for cut-out 54 x 29 [2.13 x 1.14], for screw mounting to front bezel F1B or adapter front bezel N003001, for counters with cut-out 50 x 25 [1.97 x 0.98] or 45 x 22.2 [1.77 x 0.87]	<b>N003002</b>
<b>Sealing cover type K1, IP65</b>	suitable for front bezel 60 x 50 [2.36 x 1.97], for screw mounting of electromech. counters and via adapter front bezel N003001 for counters 48 x 24 [1.89 x 0.94]	<b>G008301</b>
<b>Mounting frame</b> with cut-out 50 x 25 [2.36 x 1.97] via separate adapter also for 45 x 22.2 [1.77 x 0.87]	for snap-on mounting on 35 [1.38] top-hat DIN rail, for counters 53 x 28 [2.09 x 1.10] and via separate adapter (T008180) for counters 48 x 24 [1.89 x 0.94] chromated	<b>G300004</b>

Suitable gaskets, other accessories and installation examples for optional accessories can be found in chapter accessories or in the accessories section under: [www.kuebler.com/accessories](http://www.kuebler.com/accessories).

## Technical data

General technical data	
<b>Display</b>	4 digits, red 7 segment LED display, 8 mm [0.32"] high
<b>Data backup</b>	EEPROM
<b>Operating temperature</b>	-20°C ... +65°C [-4°F ... +149°F] (non-condensing)
<b>Storage temperature</b>	-25°C ... +85°C [-13°F ... +185°F]

Electrical characteristics	
<b>Power supply</b>	10 ... 30 VDC, galvanically isolated with integrated reverse polarity protection
<b>Power consumption</b>	max. 1 W
<b>Test voltage</b>	500 V, 50 Hz, 1 min.
<b>EMC standard</b>	EN 55011 class B EN 61000-6-2, EN 61000-6-3
<b>UL approval</b>	file E128604

Mechanical characteristics	
<b>Housing</b>	front panel mount 48 x 24 mm [1.89 x 0.94"] acc. to DIN 43700; RAL 7021, dark grey
<b>Protection</b>	IP65 (front side)
<b>Weight</b>	approx. 50 g [1.76 oz]
<b>Connections</b>	screw terminal, pitch 5.08 mm [2"], 7 pin

Standard signal outputs / control input	
<b>Current output</b>	0 ... 24 mA, increment 10 µA load 20 mA: ≤ 500 Ohm > 20 mA: ≤ 400 Ohm
<b>Voltage output</b>	0 ... 12 V, increment 10 mV load ≥ 2 kOhm
<b>Control input</b>	HIGH 4 ... 30 V DC Hold (HIGH active) LOW 0 ... 2 V DC
<b>Accuracy</b>	< 0.2% of the full scale value ±0.02 %/K <sub>Ambient</sub>

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# Setpoint adjuster

<b>LED setpoint adjuster</b>	<b>Standard signal output for mA or V, also time-controlled (DC)</b>	<b>Codix 533</b>
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## 3 operating modes programmable

### Manual direct input (Setp)

- Fast adjustment and manual approach to the desired setpoint value.
- Setpoint value can be specified directly during operation via the keys in V or mA.
- Output of the value 3 seconds after the last key actuation.

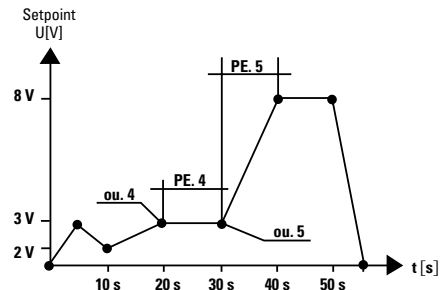
### Manual ramping function (Man)

- Possibility of a stepped, incremental approach to the desired setpoint value using the keys on the front.
- Input of the minimum and maximum setpoint values and the increment by key actuation in the programming level.
- During operation the device starts with the minimum setpoint value – the right key is used to increase the value by the amount of the increment; the left key decreases the value.
- The programmed maximum value cannot be exceeded.

### Automatic ramping function (Auto)

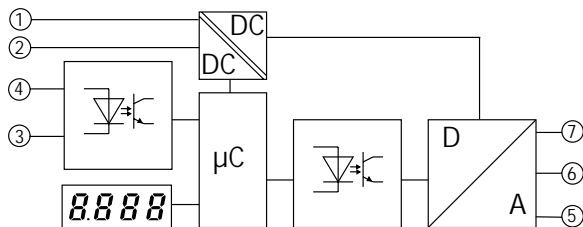
- Function of a digital time based controller with analog output. Setpoint values can be programmed and carried out for process sequences, either cyclic or time dependent: irrigating, dosing, lubricating, filling, venting, mixing.
- With max. 20 current or voltage values.
- Cyclically limited (time) or unlimited.

Example of an automatic ramping function



Example with 8 points	
ou. 1	0 V
PE 1	5 s
ou.2	3 V
PE 2	5 s
ou. 3	2 V
PE 3	10 s
ou. 4	3 V
PE 4	10 s
ou. 5	3 V
PE 5	10 s
ou. 6	8 V
PE 6	10 s
ou. 7	8 V
PE 7	10 s
ou. 8	0 V
PE 8	5 s

## Block diagram



Inputs

1	2	3	4
10 ... 30 V DC	GND_1	GND_2	Hold

Outputs

5	6	7
0 ... 24 mA (Iout)	GND_3	0 ... 12 V DC Uout

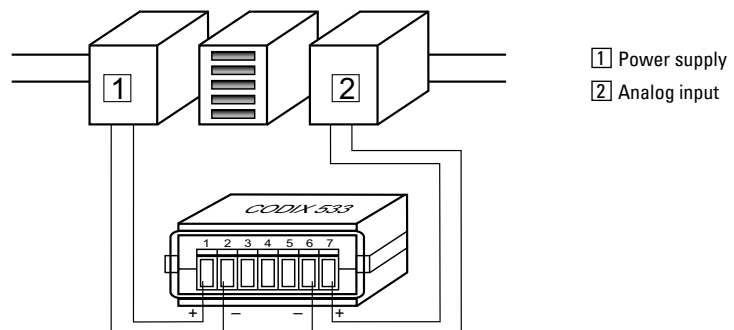
## Terminal assignment

Inputs

1	2	3	4
10 ... 30 V DC	GND_1	GND_2	Hold

Outputs

5	6	7
0 ... 24 mA	Analog GND_3	0 ... 12 V DC



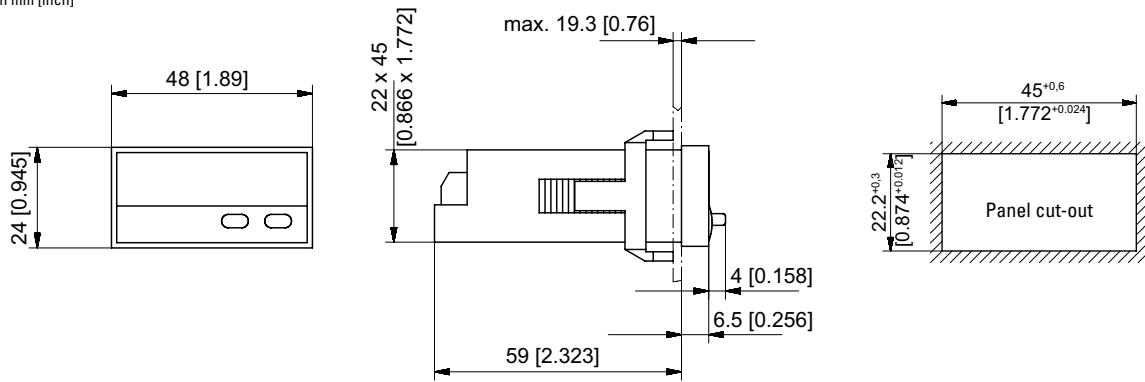
- 1 Power supply
- 2 Analog input

# Setpoint adjuster

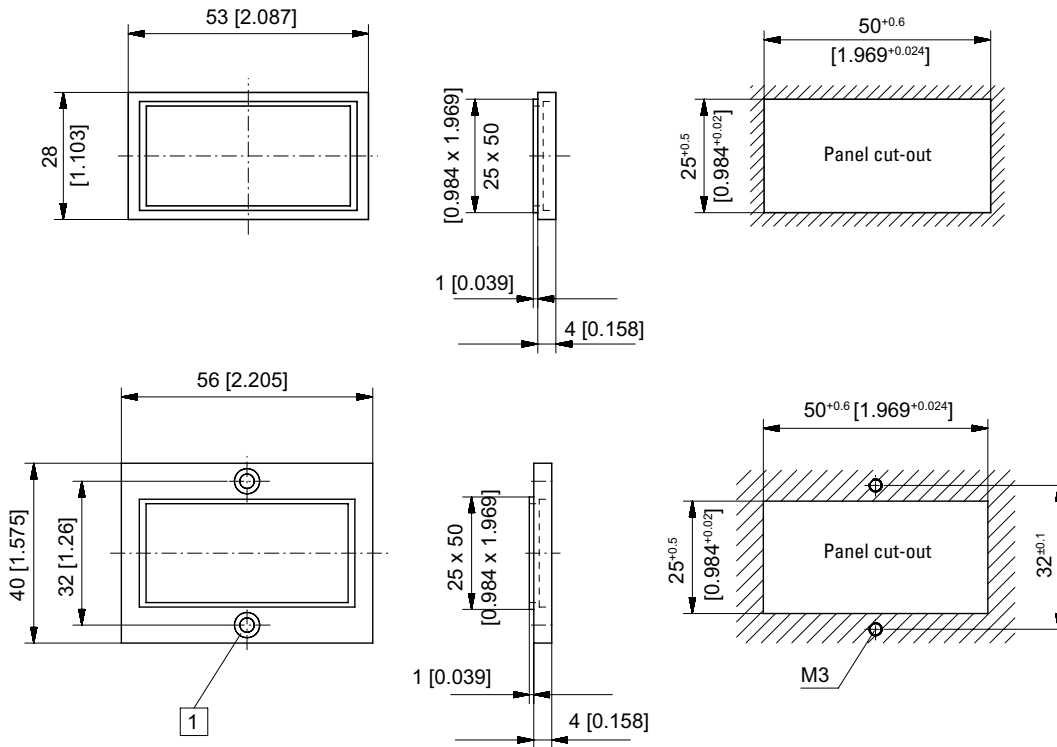
<b>LED setpoint adjuster</b>	<b>Standard signal output for mA or V, also time-controlled (DC)</b>	<b>Codix 533</b>
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## Dimensions

Dimensions in mm [inch]



## Front bezel



1 Countersinking Af3, DIN 74

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# Setpoint adjuster

<b>LED setpoint adjuster</b>	<b>Standard signal output for mA or V, also time-controlled (DC)</b>	<b>Codix 533</b>
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## Areas of application / Applications

### Simple control (fixed installation) in plants, machines and devices

Time-based ramping up or down of:

Rotary speeds (e.g. frequency converter), flow rates, temperatures, positions, pressure and fill levels.  
In short: all physical quantities that can be represented with analog standard signals.

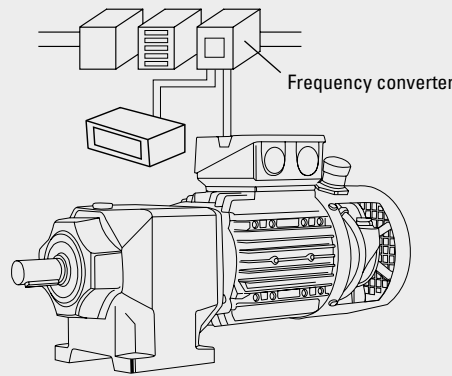
### For use in set-up mode of plants, machines and devices

Manual (direct) specification or time-based or manual setting (ramping up or down) of:

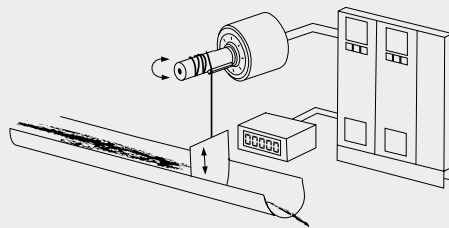
## Applications

Simple time controller with standard signal output

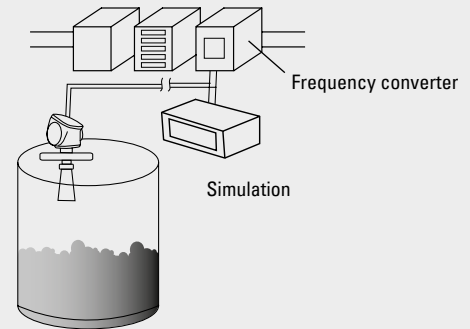
Commissioning, running-in processes or rotary speed control of motors through setpoint setting.



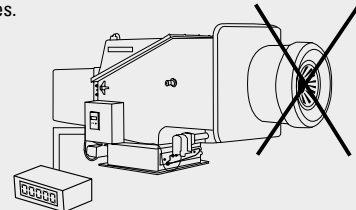
Control of simple, time-based processes by means of an analog signal, e.g. ramping control for locks and sluices



Calibration of filling levels and flow rates: the setpoint adjuster simulates the output signals of a level or flow sensor for configuring a control.



Alignment for temperature-based processes without having to heat up the plant: the setpoint adjuster can simulate various processes for test purposes.



## Solution with different modes

2 operating modes are provided for that purpose:

- Manual ramping function
- Automatic ramping function

The following operating modes are provided for that purpose:

- Manual direct input
- Manual ramping function
- Automatic ramping function

## Advantages

Instead of using an expensive, complex and difficult-to-use PLC, our setpoint adjuster can handle this task as a standalone device. The user saves costs and the task can be performed in a flexible and quick way, even without any prior knowledge.

The setpoint adjuster simulates the sensor signal that is read by the physical process, e.g. the rise of the temperature, the filling of tank plants. Expensive and complex running-in of processes can be replaced with the simulation performed by the setpoint adjuster.

The output signal can be displayed directly or scaled in any desired unit.  
The user always sees the exact progress.  
An easy-to-use device with three selectable modes is available.

Product overview
Basics
Pulse counters
Preset counters
Hour meters
Timers
Frequency displays
Tachometers
Position displays
Multifunction devices
Energy meters
Process devices
Temperature devices
Strain-gauge controllers
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## Temperature displays / Temperature controllers

Temperature displays		Type	Page
<b>LED temperature displays</b>	Pt100 and Ni100 input (DC)	Codix 531	<b>288</b>
	For thermocouple inputs J, K and N (DC)	Codix 532	<b>291</b>
	mV, resistance, thermocouple inputs (AC+DC)	Codix 564	<b>294</b>
Temperature controller		Type	Page
<b>LED temperature controller</b>	mV, resistance, thermocouple inputs, 2 limit values (AC+DC)	Codix 564	<b>294</b>

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Pulse counters

Preset counters

Hour meters  
Timers

Frequency displays  
Tachometers

Position displays

Multifunction  
devices

Energy meters

Process devices

Temperature  
devices

Strain-gauge  
controllers

Accessories  
Index

# Temperature displays

**LED temperature displays**

**Pt100 and Ni100 input (DC)**

**Codix 531**



Cost-effective temperature display for front panel mount with bright 5-digit LED display for values in °C or °F.

For very accurate temperature measurements using Pt100 and Ni100 resistance thermometers in 2, 3 or 4-wire technology, with permanently stored characteristic curves.

Minimum and maximum value detection for temperature monitoring over long periods of time.



<b>DC</b> 10 ... 30V Power supply	 2, 3, 4 2-, 3-, 4-wire technology	 Pt100 / Ni100	 Menu-driven programming	 AC/DC Galvanic isolation	 - 20° + 65° Temperature range	 IP65 High protection level	 min / max Min / Max value detection	 DIN 48 x 24 DIN front bezel	 5 LED LED display
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## Product features

- Input range: resistance thermometer.
- Compact and low-price temperature display.
- Easy programming and operation.
- Modern industrial design.
- 5 measurements/second.

## Benefits

- Temperature display in °C or °F.
- MIN/MAX value acquisition and data backup in case of power off.
- Galvanic isolation with protection against incorrect polarity.
- Screw terminal connection: pitch 5 mm.
- Display hold input.

## Order no.

Temperature display for Pt100 and Ni100 resistance thermometer

**6.531.012.300** <sup>1)</sup>

### Delivery specification

- Digital display
- Mounting clip
- Gasket
- Front bezel for screw mounting (T008181) 56 x 40 mm [2.20 x 1.57"], panel cut-out 50 x 25 mm [1.97 x 0.98"]
- Front bezel for clip mounting (T008180) 53 x 28 mm [2.09 x 1.10"], panel cut-out 50 x 25 mm [1.97 x 0.98"]
- 1 set of self-adhesive symbols
- Instruction manual, multilingual

1) Stock types.

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Accessories Index

# Temperature displays

LED temperature displays	Pt100 and Ni100 input (DC)	Codix 531	
Accessories	Dimensions in mm [inch]		Order no.
<b>Adapter front bezel, 72 x 36 [2.83 x 1.42]</b>	for cut-out 68 x 33 [2.68 x 1.30] to cut-out 45 x 22.2 [1.77 x 0.87], for counters 48 x 24 [1.89 x 0.94], as set	black and silver anodized	<b>162704 Set</b>
<b>Adapter front bezel, 48 x 48 [1.89 x 1.89]</b>	for cut-out 45 x 45 [1.77 x 1.77] to cut-out 45 x 22.2 [1.77 x 0.87], with clip mounting for counters 48 x 24 [1.89 x 0.94]	black	<b>T008883</b>
<b>Adapter front bezel, 60 x 50 [2.36 x 1.97]</b>	for cut-out 54 x 29 [2.13 x 1.14] to cut-out 45 x 22.2 [1.77 x 0.87], with screw mounting and gasket for counters 48 x 24 [1.89 x 0.94]	black	<b>N003001</b>
<b>Transparent cover, lockable, IP65</b>	for cut-out 54 x 29 [2.13 x 1.14], for screw mounting to front bezel F1B or adapter front bezel N003001, for counters with cut-out 50 x 25 [1.97 x 0.98] or 45 x 22.2 [1.77 x 0.87]		<b>N003002</b>
<b>Sealing cover type K1, IP65</b>	suitable for front bezel 60 x 50 [2.36 x 1.97], for screw mounting of electromech. counters and via adapter front bezel N003001 for counters 48 x 24 [1.89 x 0.94]		<b>G008301</b>
<b>Mounting frame</b> with cut-out 50 x 25 [2.36 x 1.97] via separate adapter also for 45 x 22.2 [1.77 x 0.87]	for snap-on mounting on 35 [1.38] top-hat DIN rail, for counters 53 x 28 [2.09 x 1.10] and via separate adapter (T008180) for counters 48 x 24 [1.89 x 0.94]	chromated	<b>G300004</b>

Suitable gaskets, other accessories and installation examples for optional accessories can be found in chapter accessories or in the accessories section under: [www.kuebler.com/accessories](http://www.kuebler.com/accessories).

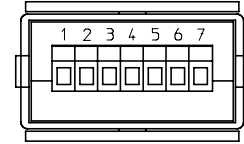
Technical data	
General technical data	
<b>Display</b>	5 digits, red 7 segment LED display; 8 mm [0.32"] high
<b>Display refresh</b>	1 ... 2 times per second
<b>Data backup</b>	EEPROM
<b>Operating temperature</b>	-20°C ... +65°C [-4°F ... +149°F] (non-condensing)
Electrical characteristics	
<b>Power supply</b>	10 ... 30 VDC, galvanically isolated with integrated reverse polarity protection
<b>Current consumption</b>	max. 40 mA
<b>Circuit type</b>	2-wire, 3-wire and 4-wire technology, programmable
<b>EMC standards</b>	EN 55011 class B EN 61000-6-2, EN 61000-6-3 EN 61326-1
<b>UL approval</b>	file E128604
Mechanical characteristics	
<b>Housing</b>	front panel mount 48 x 24 mm [1.89 x 0.94"] acc. to DIN 43700; RAL 7021, dark grey
<b>Protection</b>	IP65 (front side)
<b>Weight</b>	approx. 50 g [1.76 oz]
<b>Connections</b>	screw terminal, pitch 5.08 mm [2"], 7 pin
Measuring signal inputs	
<b>Measuring rate</b>	5 measurements / second
<b>Input</b>	Pt100 resistance thermometer Ni100 resistance thermometer with sensor breakage monitoring
<b>Control inputs</b>	HIGH 4 ... 30 V DC LOW 0 ... 2 V DC
<b>Supply current</b>	1 mA
<b>Supply line</b>	2-wire max. 20 Ω, programmable 3-wire, 4-wire max. 20 Ω, no balancing required
<b>Temperature ranges</b>	Pt100 acc. to DIN IEC 751 -199.9°C ... +850.0°C [-327.8°F ... +1562.0°F] Ni100 acc. to DIN 43760 -60.0°C ... +250.0°C [-76.0°F ... +482.0°F]
<b>Resolution</b>	0.1°C (0.1°F) or 1°C (1°F)
<b>Linearity error</b>	Pt100 < 0.1 % for the whole measuring range at an operating temperature of 20°C [68°F] Ni100 < 0.2 % for the whole measuring range at an operating temperature of 20°C [68°F]
<b>Temperature drift</b>	0.1 K/K <sub>Ambient</sub>

# Temperature displays

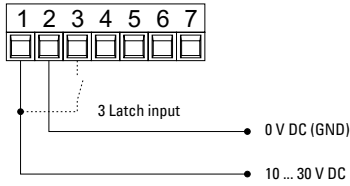
## LED temperature displays Pt100 and Ni100 input (DC) Codix 531

### Terminal assignment

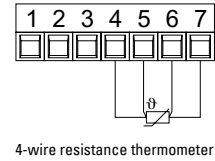
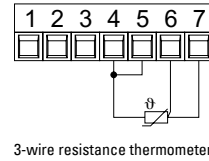
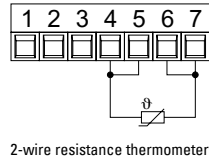
1	2	3	4	5	6	7
10 ... 30 V DC	0 V DC (GND)	Latch input	Pt100/Ni100	Pt100/Ni100	Pt100/Ni100	Pt100/Ni100



### Connection power supply and latch input

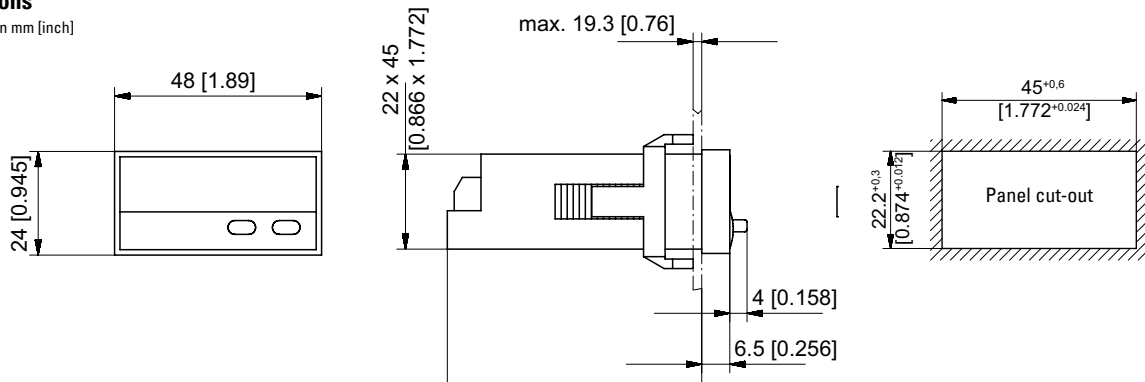


### Connection resistance thermometer Pt100/Ni100

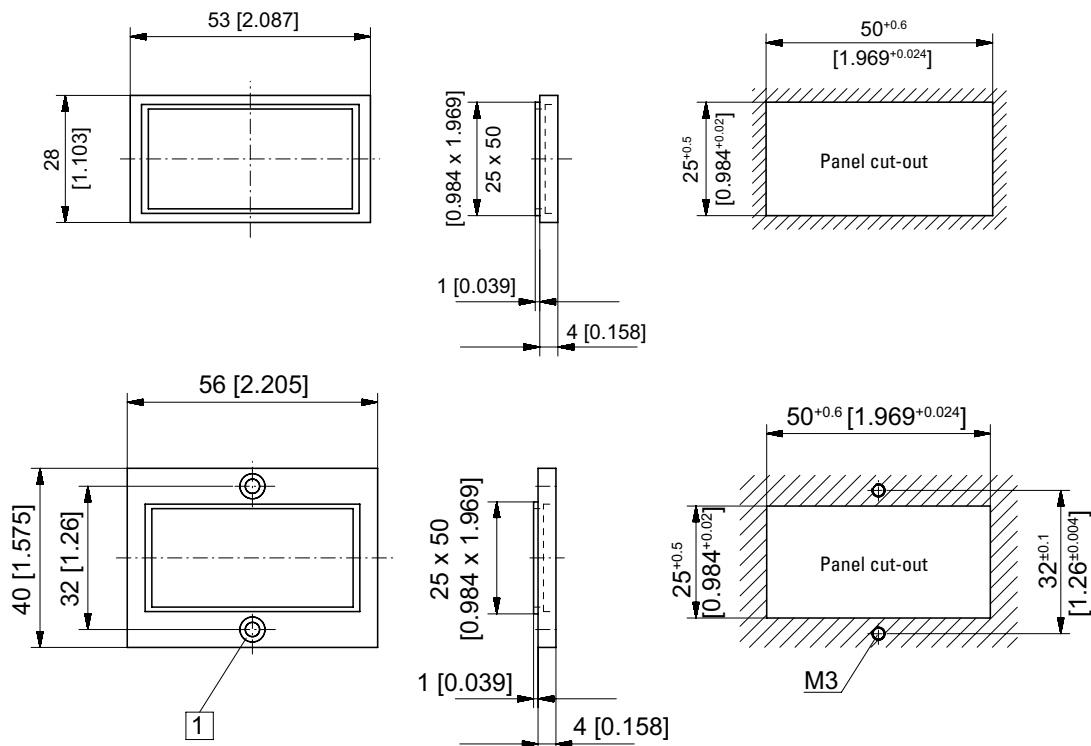


### Dimensions

Dimensions in mm [inch]



### Front bezel



1 Countersinking Af3, DIN 74

# Temperature displays

**LED temperature displays**      **For thermocouple inputs J, K and N (DC)**      **Codix 532**



**Cost-effective temperature display for front panel mount with bright 5-digit LED display for values in °C or °F.**

**For very accurate temperature measurements using J, K or N thermocouples with permanently stored characteristic curves and selectable cold junction compensation.**

**Minimum and maximum value detection for temperature monitoring over long periods of time.**



<b>DC</b> 10 ... 30V Power supply	J, K, N thermocouples	Menu-driven programming	Galvanic isolation	Temperature range - 20° + 65°	High protection level IP65	Min / Max value detection	DIN front bezel DIN 48 x 24	LED display 5 LED
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### Product features

- Input ranges: J, K, N thermocouples with external or internal cold junction compensation.
- Compact and cost-effective temperature display.
- Easy programming and operation.
- Modern industrial design.
- 5 measurements / second.

### Benefits

- Temperature display in °C or °F.
- MIN/MAX value acquisition and data backup in case of power off.
- Galvanic isolation with protection against incorrect polarity.
- Screw terminal connection: pitch 5 mm.
- Display hold input.

### Order no.

Temperature display for J, K and N thermocouples      **6.532.012.300** <sup>1)</sup>

#### Delivery specification

- Digital display
- Mounting clip
- Gasket
- Front bezel for screw mounting (T008181) 56 x 40 mm [2.20 x 1.57"], panel cut-out 50 x 25 mm [1.97 x 0.98"]
- Front bezel for clip mounting (T008180) 53 x 28 mm [2.09 x 1.10"], panel cut-out 50 x 25 mm [1.97 x 0.98"]
- 1 set of self-adhesive symbols
- Instruction manual, multilingual

1) Stock types

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# Temperature displays

LED temperature displays	For thermocouple inputs J, K and N (DC)	Codix 532
Accessories	Dimensions in mm [inch]	Order no.
<b>Adapter front bezel, 72 x 36 [2.83 x 1.42]</b>	for cut-out 68 x 33 [2.68 x 1.30] to cut-out 45 x 22.2 [1.77 x 0.87], for counters 48 x 24 [1.89 x 0.94], as set	black and silver anodized <b>162704 Set</b>
<b>Adapter front bezel, 48 x 48 [1.89 x 1.89]</b>	for cut-out 45 x 45 [1.77 x 1.77] to cut-out 45 x 22.2 [1.77 x 0.87], with clip mounting for counters 48 x 24 [1.89 x 0.94]	black <b>T008883</b>
<b>Adapter front bezel, 60 x 50 [2.36 x 1.97]</b>	for cut-out 54 x 29 [2.13 x 1.14] to cut-out 45 x 22.2 [1.77 x 0.87], with screw mounting and gasket for counters 48 x 24 [1.89 x 0.94]	black <b>N003001</b>
<b>Transparent cover, lockable, IP65</b>	for cut-out 54 x 29 [2.13 x 1.14], for screw mounting to front bezel F1B or adapter front bezel N003001, for counters with cut-out 50 x 25 [1.97 x 0.98] or 45 x 22.2 [1.77 x 0.87]	<b>N003002</b>
<b>Sealing cover type K1, IP65</b>	suitable for front bezel 60 x 50 [2.36 x 1.97], for screw mounting of electromech. counters and via adapter front bezel N003001 for counters 48 x 24 [1.89 x 0.94]	<b>G008301</b>
<b>Mounting frame</b> with cut-out 50 x 25 [2.36 x 1.97] via separate adapter also for 45 x 22.2 [1.77 x 0.87]	for snap-on mounting on 35 [1.38] top-hat DIN rail, for counters 53 x 28 [2.09 x 1.10] and via separate adapter (T008180) for counters 48 x 24 [1.89 x 0.94]	chromated <b>G300004</b>

Suitable gaskets, other accessories and installation examples for optional accessories can be found in chapter accessories or in the accessories section under: [www.kuebler.com/accessories](http://www.kuebler.com/accessories).

## Technical data

General technical data	
<b>Display</b>	5 digits, red 7 segment LED display; 8 mm [0.32"] high
<b>Display refresh</b>	1 ... 2 times per second
<b>Data backup</b>	EEPROM
<b>Operating temperature</b>	-20°C ... +65°C [-4°F ... +149°F] (non-condensing)

Electrical characteristics	
<b>Power supply</b>	10 ... 30 VDC, galvanically isolated with integrated reverse polarity protection
<b>Current consumption</b>	max. 40 mA
<b>EMC standards</b>	EN 55011 class B EN 61000-6-2, EN 61000-6-3 EN 61326-1
<b>UL approval</b>	file E128604

Mechanical characteristics	
<b>Housing</b>	front panel mount 48x24 mm [1.89 x 0.94"] acc. to DIN 43700; RAL 7021, dark grey
<b>Protection</b>	IP65 (front side)
<b>Weight</b>	approx. 50 g [1.76 oz]
<b>Connections</b>	screw terminal, pitch 5.08 mm [2"], 7 pin

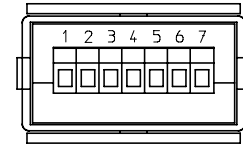
Measuring signal inputs		
<b>Measuring rate</b>	5 measurements / second	
<b>Input</b>	thermocouple sensor J (Fe-CuNi) K (Ni-CrNi) N (NiCrSi-NiSi) with sensor breakage monitoring	
<b>Temperature ranges</b> (according to DIN IEC 584)	J (Fe-CuNi)	-210.0°C ... +1200.0°C [-346.0°F ... +2192.0°F]
	K (Ni-CrNi)	-200.0°C ... +1372.0°C [-328.0°F ... +2501.6°F]
	N (NiCrSi-NiSi)	-200.0°C ... +1300.0°C [-328.0°F ... +2370.0°F]
<b>Resolution</b>	0.1°C (0.1°F) or 1°C (1°F)	
<b>Linearity error</b>	< 0.4 % for the whole measuring range at an operating temperature of 20°C [68°F]	
<b>Temperature drift</b>	0.1 K/K <sub>Ambient</sub>	
<b>Cold junction error</b>	±1°C typ. / ±3°C max.	
<b>Control inputs</b>	HIGH	4 ... 30 V DC
	LOW	0 ... 2 V DC

# Temperature displays

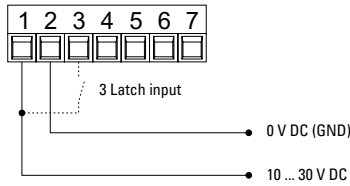
## LED temperature displays For thermocouple inputs J, K and N (DC) Codix 532

### Terminal assignment

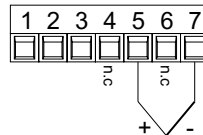
1	2	3	4	5	6	7
10 ... 30 V DC	0 V DC GND	Latch input	n.c.	Thermocouple +	n.c.	Thermocouple -



### Connection power supply and latch input

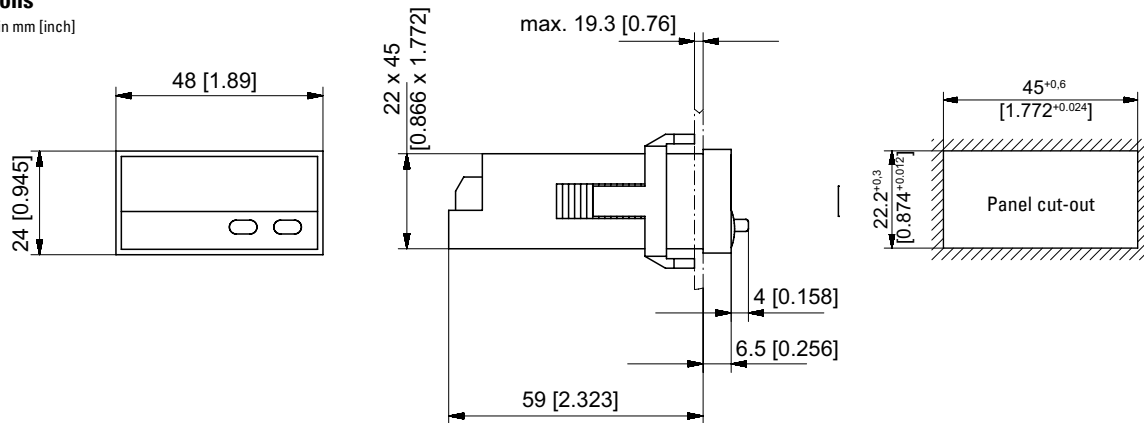


### Connection thermocouple sensor

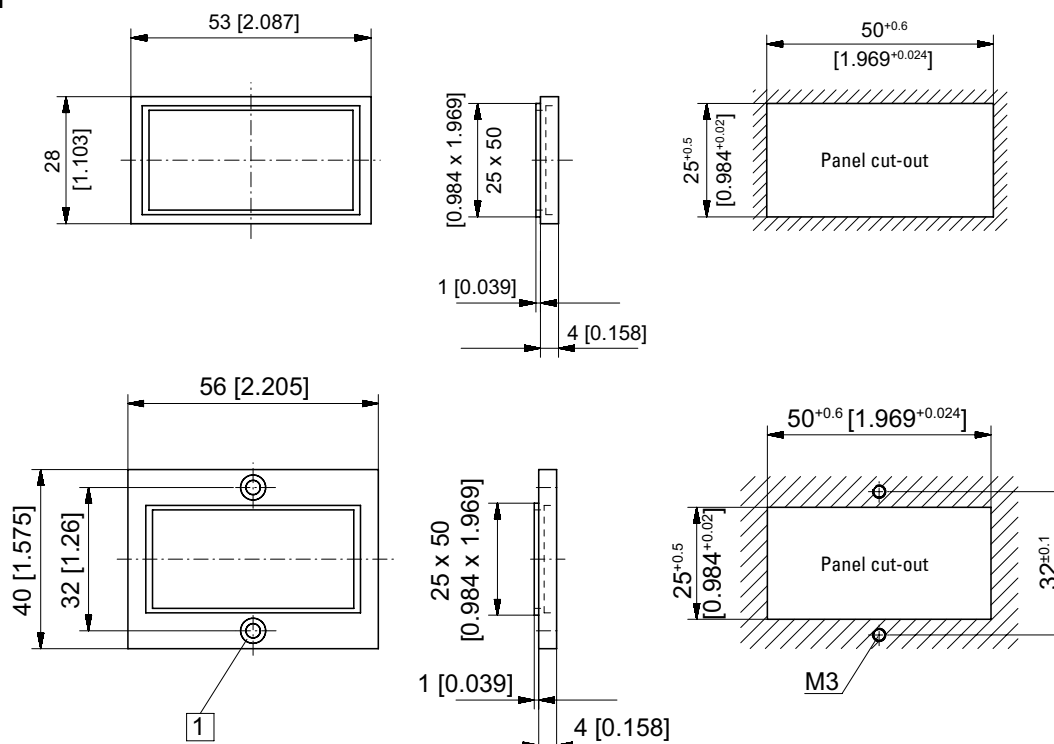


### Dimensions

Dimensions in mm [inch]



### Front bezel



1 Countersinking Af3, DIN 74

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# Temperature controllers

**LED temperature controllers**

**For temperature sensors with limit value (AC+DC)**

**Codix 564**



The temperature controller Codix 564 displays temperature values in high resolution. In addition it can monitor and control 2 limit values. All current temperature sensors, such as thermocouple types B, E, J, K, N, R, S and T, as well as mV inputs, Pt100 and resistance inputs, can be connected to the device.

These fast displays set new standards when it comes to user friendliness. Their easy-to-read 14-segment LED display, easy-to-understand running help texts and a practical quick-start guide eliminate the need to wade through time-consuming full instruction manuals.

With optional analog output.

<b>DC</b> 10 ... 30 V Power supply	<b>AC</b> 100 ... 240 V Power supply	<b>A..Z*</b> 6 LEDs 14-segment LED display	<b>Prog</b> Menu-driven programming	<b>mV, Ω</b> Display linearization	<b>Temperature input</b>	<b>2, 3, 4</b> 2-, 3-, 4-wire technology	<b>min / max</b> Min / Max value detection	<b>2</b> 2 limit values	<b>AC/DC</b> Galvanic isolation	<b>15 bit</b> Resolution
<b>-20° + 65°</b> Temperature range	<b>DIN 96 x 48</b> DIN front bezel	<b>Installation in mosaic systems</b>	<b>Operation with gloves</b>	<b>mA, V</b> Analog output optional						

## User-friendly

- Practical quick-start guide for setting the parameters and operating the device.
- Help text as running text.
- Easy-to-read 14-segment LED, 6-digit display, 14 mm high.
- Simple programming via 4 keys on the front.
- One front key as well as 2 additional inputs can be programmed for specific applications.
- Characteristic curves for thermocouples and RTD permanently stored.
- MIN/MAX memory function, individually resettable.

## Powerful

- Sampling rate of 10 readings per second.
- Customized linearization via 12 control points.
- 2 relay outputs (changeover contacts) for limit monitoring with hysteresis and ON/OFF delay function.
- Analog output for the current measured value, MIN-value, MAX-value.
- Auxiliary sensor power supply with AC version.
- Inputs and outputs galvanically isolated.
- Digital filter (first-order) for smoothing display fluctuations with unstable input signals.

## Order code

6.564 . 0 1 0 . X 0 X

- a** Input type  
4 = Temperature signal input <sup>1)</sup>
- b** Outputs  
0 = relays <sup>1)</sup>
- c** Power supply  
0 = 100 ... 240 V AC, ±10 % <sup>1)</sup>  
3 = 10 ... 30 V DC <sup>1)</sup>
- d** Further outputs (optional)  
0 = none <sup>1)</sup>  
9 = analog output <sup>1)</sup>  
(only for DC version)

### Delivery specification:

- Process device
- Mounting clip
- Gasket
- Instruction manual, multilingual
- 1 sheet of self-adhesive symbols
- Quick-start guide

Practical quick-start guide for setting the parameters and operating the device.

The guide can be affixed directly to the front of the unit and can be removed and re-applied as required.



1) Stock types.



# Temperature controllers

## LED temperature controllers For temperature sensors with limit value (AC+DC) Codix 564

Accessories	Dimensions in mm [inch]	Order no.
<b>Mounting frame</b> with cut-out 92 x 45 [3.62 x 1.77]	for snap-on mounting on 35 [1.38] top-hat DIN rail, for counters 96 x 48 [3.74 x 1.89]	grey <b>G300005</b>

Suitable gaskets as well as further accessories can be found in the accessories section or in the accessories area of our website at: [www.kuebler.com/accessories](http://www.kuebler.com/accessories).

### Technical data

General technical data	
<b>Display</b>	6-digit, 14 segment LED
<b>Digit height</b>	14 mm [0.55"]
<b>Display range</b>	-199999 ... 999999, with leading zero blanking
<b>Data retention</b>	> 10 years, EEPROM
<b>Operation</b>	5 keys
<b>Operating temperature</b>	-20°C ... +65°C [-4°F ... +149°F] (non-condensing)
<b>Storage temperature</b>	-25°C ... +75°C [-13°F ... +167°F]
<b>Relative humidity (non-condensing)</b>	R.H. 93 % at +40°C [+104°F]
<b>Altitude</b>	up to 2000 m [6562']

Electrical characteristics	
<b>Power supply</b>	AC supply 100 ... 240 V AC / max. 9 VA, 50 / 60 Hz, tolerance ±10 % ext. fuse protection: T 0.1 A
	DC supply 10 ... 30 V DC / max. 3.8 W with galvanic isolation and reverse polarity protection ext. fuse protection: T 0.4 A
<b>Mains hum suppression (programmable)</b>	50 Hz or 60 Hz
<b>Sensor power supply</b>	AC supply 24 V DC ±15 %, 30 mA
<b>EMC standard</b>	EN 55011 class B EN 61000-6-2, EN 61000-6-3 with shielded signal and control cables
<b>Device safety</b>	designed to EN 61010 part 1 protection class 2 (front side) application area pollution level 2 overvoltage category II
<b>UL approval</b>	file E128604

Measuring signal inputs	
<b>Sampling rate</b>	10 readings/sec
<b>Temperature drift</b>	< 100 ppm/K <sub>Ambient</sub>
<b>Input Thermocouple</b>	
thermocouple:	range: accuracy at 23°C [73.4°F]:
type B	+250°C ... 1820°C [+482°F ... 3308°F] typ. 1.0°C, max. 2.0°C
E	-200°C ... +1000°C [-328°F ... +1832°F] typ. 0.2°C, max. 0.5°C
J	-210°C ... +1200°C [-346°F ... +2192°F] typ. 0.2°C, max. 0.5°C
K	-200°C ... 499.9°C [-328°F ... +931.82°F] -500°C ... +1372°C [-868°F ... 2502°F] typ. 0.6°C, max. 1.0°C typ. 0.3°C, max. 0.5°C
N	-200°C ... +1300°C [-328°F ... 2372°F] typ. 0.3°C, max. 0.7°C
R	-50°C ... +1768°C [-58°F ... +3214°F] typ. 1.0°C, max. 2.0°C
S	-50°C ... +1768°C [-58°F ... +3214°F] typ. 1.0°C, max. 2.0°C
T	-200°C ... +400°C [-328°F ... +752°F] typ. 0.2°C, max. 0.5°C
<b>Resolution J, K, T, E, N</b>	1 or 0.1°C/°F
<b>Resolution S, R, B</b>	1°C/°F
<b>Reference point</b>	internal or external constant
<b>Reference point accuracy</b>	≤ ±1°C
<b>Input mV</b>	
<b>Measuring range</b>	±105 mV (resolution ±15 bit)
<b>Measuring accuracy at 23°C [73.4°F]</b> (% of range)	typ. 0.02 / max. ≤ 0.05
<b>Input resistance</b>	> 2 MΩ
<b>Input Pt100</b>	
<b>Measuring range</b>	-200°C ... +850°C [-328°F ... +1562°F]
<b>Resolution</b>	1 or 0.1°C / °F
<b>Measuring accuracy at 23°C [73.4°F]</b>	typ. 0.3°C, max. ≤ 0.6°C
<b>Measuring current</b>	200 µA
<b>Connection</b>	2-, 3-, 4-wire
<b>Lead wire resistance</b>	max. 25 Ω per wire
<b>Input 500 Ω</b>	
<b>Measuring range</b>	0 ... 525 Ω (resolution ±15 bit)
<b>Measuring accuracy at 23°C [73.4°F]</b>	typ. 0.1 Ω, max. ≤ 0.2 Ω
<b>Measuring current</b>	200 µA
<b>Connection</b>	2-, 3-, 4-wire
<b>Lead wire resistance</b>	max. 25 Ω per wire

# Temperature controllers

## LED temperature controllers For temperature sensors with limit value (AC+DC) Codix 564

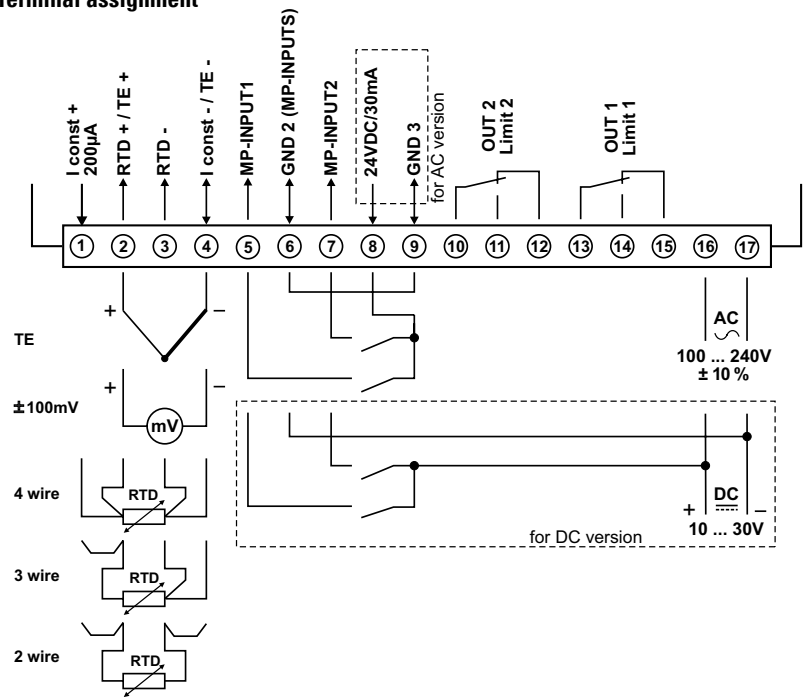
Mechanical characteristics	
<b>Housing</b>	Panel mount housing to DIN 43700 RAL 7021
<b>Dimensions</b>	96 x 48 x 102 mm [3.78 x 1.89 x 4.02"]
<b>Panel cut-out</b>	92 +0.8 x 45 +0.6 mm [3.62 +0.032 x 1.77 +0.024"]
<b>Installation depth</b>	approx. 92 mm [3.62"] incl. terminals
<b>Weight</b>	approx. 180 g [6.34 oz] with analog output 200 g [7.06 oz]
<b>Protection</b>	IP65 (front side)
<b>Housing material</b>	Polycarbonate UL94 V-2
<b>Vibration resistance</b> acc. to EN 60068-2-6	10 - 55 Hz / 1 mm / XYZ 30 min in each direction
<b>Shock resistance</b> acc. to EN 60068-2-27	100 G / 2 ms / XYZ 3 times in each direction
acc. to EN 60068-2-29	10 G / 6 ms / XYZ 2000 times in each direction
Connections	
<b>Power supply and outputs</b>	Plug-in screw terminal, 8-pin, RM 5.00, core $\varnothing$ max. 2.5 mm <sup>2</sup> [AWG 13]
<b>Signal and control inputs</b>	Plug-in screw terminal, 9-pin, RM 3.50, core $\varnothing$ max. 1.5 mm <sup>2</sup> [AWG 15]

Alarm outputs	
<b>Relays</b>	changeover contacts
<b>Switching voltage</b>	max. 250 V AC / 125 V DC min. 5 V AC / 5 V DC
<b>Switching current</b>	max. 5 A AC / 5 A DC min. 10 mA DC
<b>Switching capacity</b>	max. 1250 VA / 150 W
<b>Pull-in time</b>	approx. 10 ms

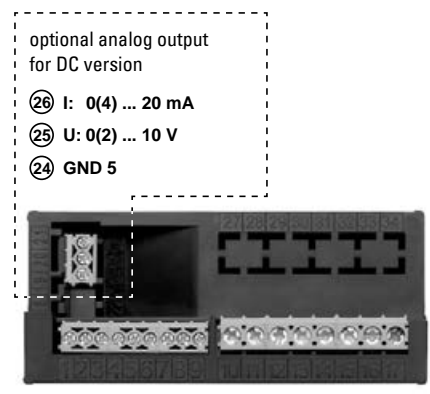
Analog output (optional - only for DC version)	
<b>Output ranges</b>	0 (4) ... 20 mA / 0 (2) ... 10 V
<b>Load</b>	current output $\leq 500 \Omega$ voltage output $\geq 2000 \Omega$
<b>Resolution</b>	15 bit
<b>Update time</b> (basic device measuring rate)	100 ms
<b>Temperature drift</b>	$\leq 100 \text{ ppm/K}_{\text{Ambient}}$
<b>Accuracy</b>	$\pm 0.1 \%$ of the output range high value
<b>Output ripple</b>	$\leq 10 \text{ mV}$
<b>Isolation voltage</b>	500 V AC for 1 minute or 1 kV DC for 1 second

Control inputs MPI 1 / MPI 2	
<b>Quantity</b>	2 optocouplers
<b>Function</b>	programmable
<b>Switching levels</b>	LOW $< 2 \text{ V}$ HIGH $> 4 \text{ V (max. 30 V)}$
<b>Pulse length</b>	$> 100 \text{ ms}$

### Terminal assignment



### Rear side view

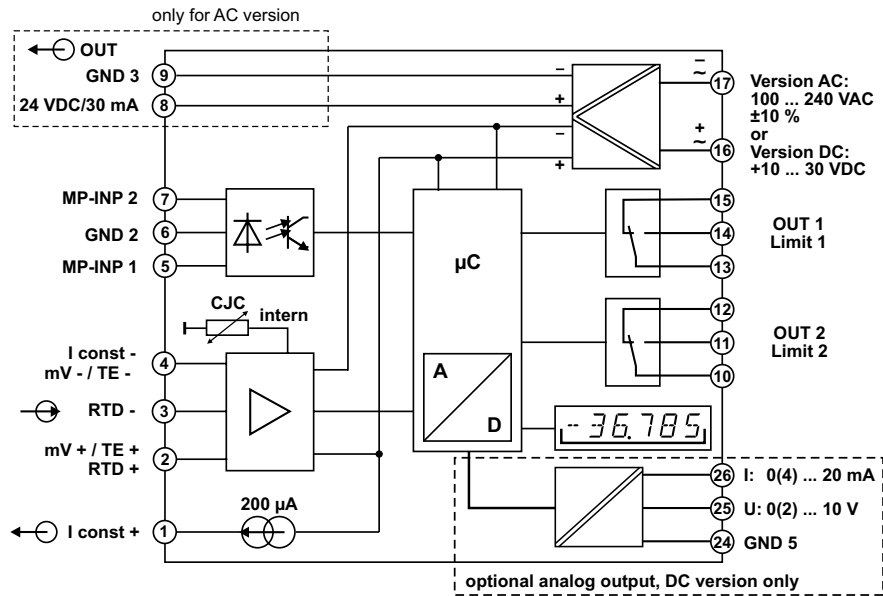


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# Temperature controllers

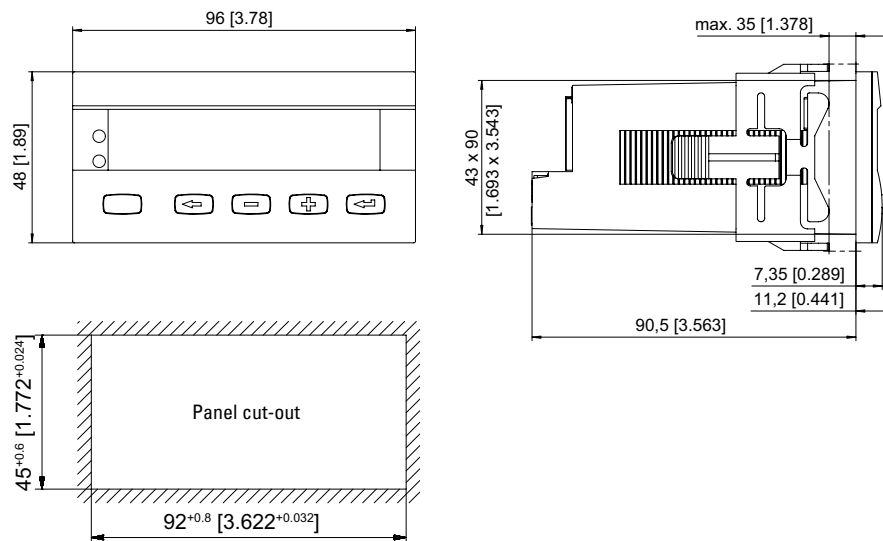
## LED temperature controllers For temperature sensors with limit value (AC+DC) Codix 564

### Block diagram



### Dimensions

Dimensions in mm [inch]



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# Strain-gauge controllers

Strain-gauge controllers		Type	Page
<b>LED strain-gauge controllers</b>	For strain-gauge inputs	Codix 566	<b>300</b>

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# Strain-gauge controllers

**LED strain-gauge controllers**

**For strain-gauge inputs (AC+DC)**

**Codix 566**



The process controller Codix 566 with totalizer function displays measured values from all common strain-gauge inputs in high resolution. In addition it can monitor and control 2 limit values.

These fast displays set new standards when it comes to user friendliness. Their easy-to-read 14-segment LED display, easy-to-understand running help texts and a practical quick-start guide eliminate the need to wade through time-consuming full instruction manuals.

With optional analog output.

<b>DC</b> 10 ... 30 V Power supply	<b>AC</b> 100 ... 240 V Power supply	<b>A.Z*</b> 6 LEDs 14-segment LED display	<b>Prog</b> Menu-driven programming	<b>mV</b> Display linearization	<b>Tara</b> Tare function	<b>Σ</b> Totalizer function	<b>Strain-gauge input</b>	<b>min / max</b> Min / Max value detection	<b>2</b> 2 limit values	<b>AC/DC</b> Galvanic isolation
<b>15 bit</b> Resolution	<b>-20° + 65°</b> Temperature range	<b>DIN 96 x 48</b> DIN front bezel	<b>Installation in mosaic systems</b>	<b>Operation with gloves</b>	<b>Analog output optional</b>					

## User-friendly

- Practical quick-start guide for setting the parameters and operating the device.
- Help text as running text.
- Easy-to-read 14-segment LED, 6-digit display, 14 mm high.
- Simple programming via 4 keys on the front.
- One front key as well as 2 additional inputs can be programmed for specific applications.
- Customer-specific characteristic (linearization) curve via 12 control points for all measurement signal inputs.
- MIN/MAX memory function, individually resettable.

## Powerful

- Sampling rate of 10 readings per second.
- Application-specific characteristic curves via 12 measurement points.
- Manual totalizer function for totalizing the measured values. Can be reset separately.
- 2 relay outputs (changeover contacts) for limit monitoring with hysteresis and ON/OFF delay function for current measured or totalizer values.
- Analog output for the current measured value, MIN-value, MAX-value or totalizer value.
- Auxiliary sensor power supply 10 V DC / 30 mA for powering 350 Ω bridges.
- Inputs and outputs galvanically isolated.
- Digital filter (first-order) for smoothing display fluctuation with unstable input signals.
- Tare function.

## Order code

6.56 **6** . 0 1 0 . **X** 0 **X**

**a** Input type  
6 = Strain-gauge inputs <sup>1)</sup>

**b** Outputs  
0 = relays <sup>1)</sup>

**c** Power supply  
0 = 100 ... 240 V AC, ±10 % <sup>1)</sup>  
3 = 10 ... 30 V DC <sup>1)</sup>

**d** Further outputs (optional)  
0 = none <sup>1)</sup>  
9 = analog output <sup>1)</sup> (only for DC version)

### Delivery specification:

- Process device
- Mounting clip
- Gasket
- Instruction manual, multilingual
- 1 sheet of self-adhesive symbols
- Quick-start guide

Practical quick-start guide for setting the parameters and operating the device.

The guide can be affixed directly to the front of the unit and can be removed and re-applied as required.



1) Stock types.

# Strain-gauge controllers

## LED strain-gauge controllers For strain-gauge inputs (AC+DC) Codix 566

Accessories	Dimensions in mm [inch]	Order no.
<b>Mounting frame</b> with cut-out 92 x 45 [3.62 x 1.77]	for snap-on mounting on 35 [1.38] top-hat DIN rail, for counters 96 x 48 [3.74 x 1.89]	grey <b>G300005</b>

Suitable gaskets as well as further accessories can be found in the accessories section or in the accessories area of our website at: [www.kuebler.com/accessories](http://www.kuebler.com/accessories).

### Technical data

General technical data	
<b>Display</b>	6-digit, 14 segment LED
<b>Digit height</b>	14 mm [0.55"]
<b>Display range</b>	-199999 ... 999999, with leading zero blanking
<b>Data retention</b>	> 10 years, EEPROM
<b>Operation</b>	5 keys
<b>Operating temperature</b>	-20°C ... +65°C [-4°F ... +149°F] (non-condensing)
<b>Storage temperature</b>	-25°C ... +75°C [-13°F ... +167°F]
<b>Relative humidity (non-condensing)</b>	R.H. 93 % at +40°C [+104°F]
<b>Altitude</b>	up to 2000 m [6562']

Electrical characteristics	
<b>Power supply</b>	AC supply 100 ... 240 V AC / max. 9 VA 50 / 60 Hz, tolerance ±10 % ext. fuse protection: T 0.1 A
	DC supply 10 ... 30 V DC / max. 3.8 W with galvanic isolation and reverse polarity protection ext. fuse protection: T 0.4 A
<b>Mains hum suppression</b>	50 Hz or 60 Hz programmable
<b>Sensor power supply</b>	AC supply 24 V DC ±15 %, 30 mA
	DC supply 10 V DC ±1 %, 30 mA
<b>EMC standard</b>	EN 55011 class B EN 61000-6-2, EN 61000-6-3 with shielded signal and control cables
<b>Device safety</b>	designed to EN 61010 part 1 protection class 2 (front side) application area pollution level 2 overvoltage category II
<b>UL approval</b>	file E128604

Mechanical characteristics	
<b>Housing</b>	Panel mount housing to DIN 43700 RAL 7021
<b>Dimensions</b>	96 x 48 x 102 mm [3.78 x 1.89 x 4.02"]
<b>Panel cut-out</b>	92 +0.8 x 45 +0.6 mm [3.62 +0.032 x 1.77 +0.024"]
<b>Installation depth</b>	approx. 92 mm [3.62"] incl. terminals
<b>Weight</b>	approx. 180 g [6.34 oz] with analog output 200 g [7.06 oz]
<b>Protection</b>	IP65 (front side)
<b>Housing material</b>	Polycarbonate UL94 V-2
<b>Vibration resistance</b> acc. to EN 60068-2-6	10 - 55 Hz / 1 mm / XYZ 30 min in each direction
<b>Shock resistance</b> acc. to EN 60068-2-27	100 G / 2 ms / XYZ
	3 times in each direction acc. to EN 60068-2-29 10 G / 6 ms / XYZ 2000 times in each direction
<b>Connections</b>	
<b>Power supply and outputs</b>	Plug-in screw terminal, 8-pin, RM 5.00, core ø max. 2.5 mm² [AWG 13]
<b>Signal and control inputs</b>	Plug-in screw terminal, 9-pin, RM 3.50, core ø max. 1.5 mm² [AWG 15]

Control inputs MPI 1 / MPI 2	
<b>Quantity</b>	2 optocouplers
<b>Function</b>	programmable
<b>Switching levels</b>	LOW < 2 V
	HIGH > 4 V (max. 30 V)
<b>Pulse length</b>	> 100 ms

Measuring signal inputs	
<b>Sampling rate</b>	10 readings/sec
<b>Input resistance</b>	1 MΩ
<b>Max. measuring signal range</b>	approx. ±35 mV
<b>Max. voltage</b>	±10 V

Sensitivity ranges: 3.3 – 3.0 – 2.0 mV / V	
<b>Resolution</b>	±15 bit
<b>Measuring accuracy at 23°C</b> (% of range)	typ. 0.05 % / max. ≤ 0.1 %
<b>Temperature drift</b>	< 100 ppm/K <sub>Ambient</sub>

Sensitivity ranges: 1.5 – 1.0 mV / V	
<b>Resolution</b>	±14 bit
<b>Measuring accuracy at 23°C</b> (% of range)	typ. 0.1 % / max. ≤ 0.2 %
<b>Temperature drift</b>	< 100 ppm/K <sub>Ambient</sub>

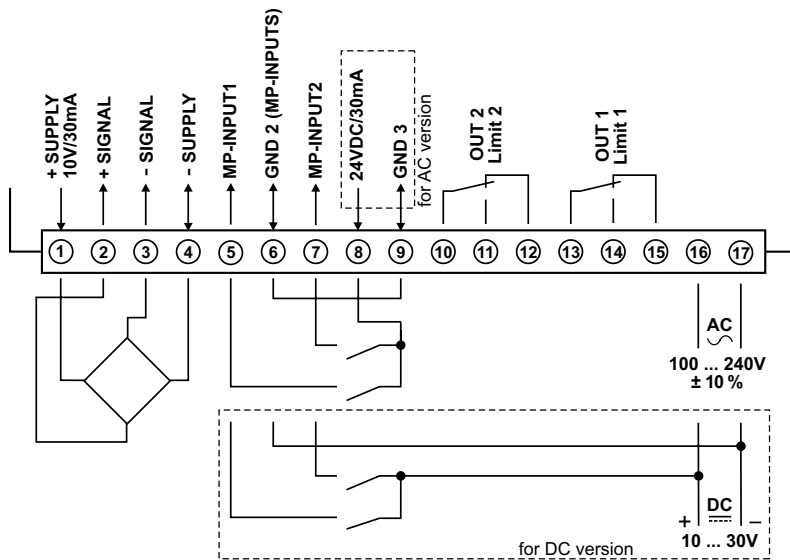
# Strain-gauge controllers

## LED strain-gauge controllers For strain-gauge inputs (AC+DC) Codix 566

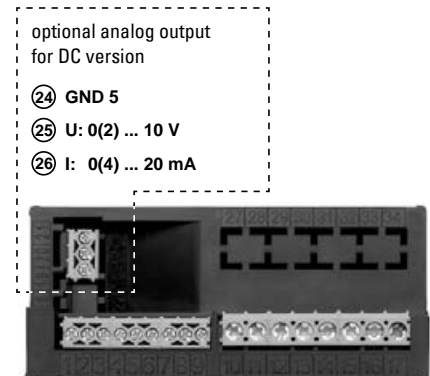
Analog output (optional - only for DC version)	
<b>Output ranges</b>	0 (4) ... 20 mA / 0 (2) ... 10 V
<b>Load</b>	current output $\leq 500 \Omega$ voltage output $\geq 2000 \Omega$
<b>Resolution</b>	15 bit
<b>Update time</b> (basic device measuring rate)	100 ms
<b>Temperature drift</b>	$\leq 100 \text{ ppm/K}_{\text{Ambient}}$
<b>Accuracy</b>	$\pm 0.1 \%$ of the output range high value
<b>Output ripple</b>	$\leq 10 \text{ mV}$
<b>Isolation voltage</b>	500 V AC for 1 minute or 1 kV DC for 1 second

Alarm outputs	
<b>Relays</b>	changeover contacts
<b>Switching voltage</b>	max. 250 V AC / 125 V DC min. 5 V AC / 5 V DC
<b>Switching current</b>	max. 5 A AC / 5 A DC min. 10 mA DC
<b>Switching capacity</b>	max. 1250 VA / 150 W
<b>Pull-in time</b>	approx. 10 ms

### Terminal assignment



### Rear side view

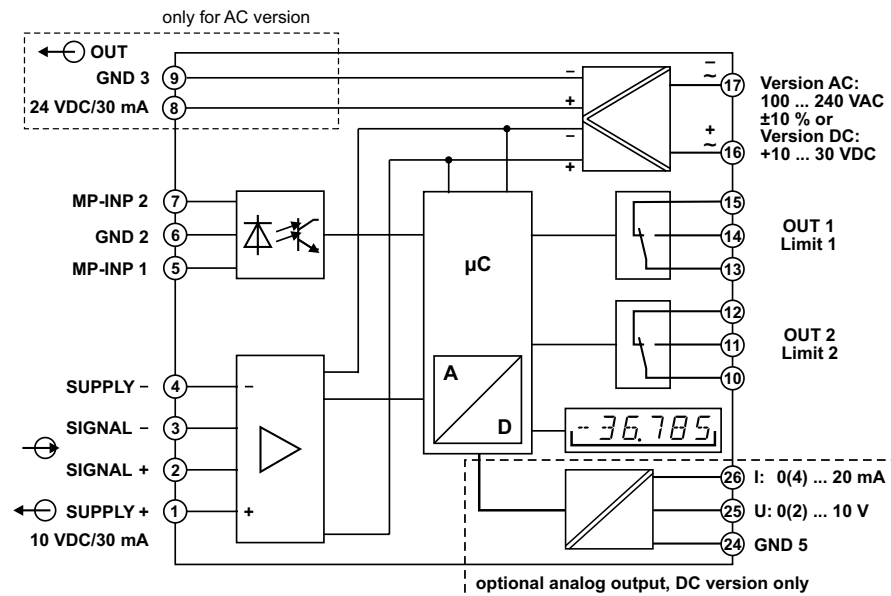




# Strain-gauge controllers

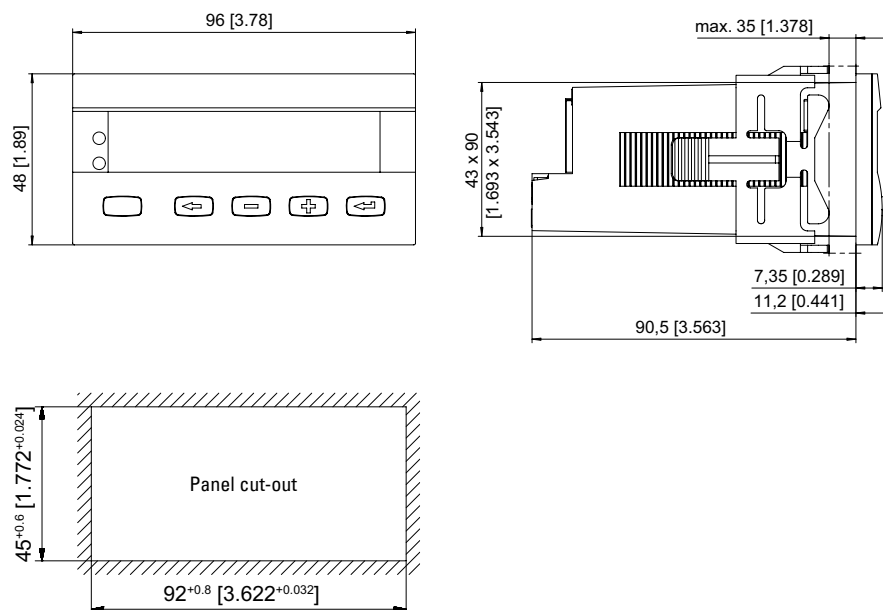
## LED strain-gauge controllers For strain-gauge inputs (AC+DC) Codix 566

### Block diagram



### Dimensions

Dimensions in mm [inch]





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	<b>Mounting examples for optional accessories</b>	For counters 48 x 24 mm [1.89 x 0.94"]	Codix 13X / Codix 14X / Codix 52X / Codix 53X W15.51 / W16.50 / W17.50 / H37 / H37.5	
For counters 48 x 48 mm [1.89 x 1.89"]		Codix 901 / Codix 907 / Codix 908 / Codix 923 / Codix 924 H 57 / HC 77 / HW 66	327	
For counters 50 x 25 mm [1.97 x 0.98"]		B16.01 / B18.00 / HB26.01.3 / HB27.00.3 B16.3X / B18.30	328	Multifunction devices
For 2 counters 50 x 25 mm [1.97 x 0.98"]		B16.01 / B18.00 / HB26.01.3 / HB27.00.3 (any combination of 2 counters)	329	
For counters 50 x 50 mm [1.97 x 1.97"]		BVa 15.01 / BVa 15.31	330	
<b>Gaskets</b>			331	Energy meters
<b>Index</b>			<b>Page</b>	
<b>List of order numbers</b>			<b>332</b>	Process devices
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				Strain-gauge controllers

## Overview

Adapter front bezel							counter 48 x 24 mm [1.89 x 0.94"]						counter 48 x 48 mm [1.89 x 1.89"]			counter 96 x 48 mm [3.78 x 1.89"]		
Figure	Size	for cut-out	to cut-out	Order no.	Details s. page	Codix 13x	Codix 14x	Codix 52x	Codix 53x	W 1x.5	H 37, H 37.5	Codix 90x, 92x	901	H 57, HC 77, HW 66	Codix 54x	Codix 56x	Codix 57x	
	<b>53 x 28 mm</b> [2.09 x 1.10"]	50 x 25 mm [1.97 x 0.98"]	45 x 22.2 mm [1.77 x 0.94"]	grey black anthracite	<b>T008164</b> <b>T008165</b> <b>T008180</b>	312	X	X	X	X	X							
	<b>56 x 40 mm</b> [2.20 x 1.57"]	50 x 25 mm [1.97 x 0.98"]	45 x 22.2 mm [1.77 x 0.94"]	black anthracite	<b>T008161</b> <b>T008181</b>	312	X	X	X	X	X							
	<b>72 x 36 mm</b> [2.83 x 1.42"]	68 x 33 mm [2.68 x 1.30"]	45 x 22.2 mm [1.77 x 0.94"]	black and silver anodised as set	<b>162704 Set</b>	312	X	X	X	X	X							
	<b>60 x 50 mm</b> [2.36 x 1.97"]	54 x 29 mm [2.13 x 1.14"]	45 x 22.2 mm [1.77 x 0.94"]	black	<b>N003001</b>	313	X	X	X	X	X							
	<b>48 x 48 mm</b> [1.89 x 1.89"]	45 x 45 mm [1.77 x 1.77"]	45 x 22.2 mm [1.77 x 0.94"]	black	<b>T008883</b>	313	X	X	X	X	X							
	<b>55 x 55 mm</b> [2.16 x 2.16"]	50 x 50 mm [1.97 x 1.97"] or ø 50.5 mm [1.99"]	45 x 45 mm [1.77 x 1.77"]	grey black	<b>T008170</b> <b>T008171</b>	313							X					
	<b>55 x 55 mm</b> [2.16 x 2.16"]	50 x 50 mm [1.97 x 1.97"]	45 x 45 mm [1.77 x 1.77"]	black	<b>T008853</b>	313						X	X	X				
	<b>60 x 75 mm</b> [2.36 x 2.95"]	50 x 50 mm [1.97 x 1.97"]	45 x 45 mm [1.77 x 1.77"]	black	<b>T008860</b>	314						X	X	X				
	<b>72 x 72 mm</b> [2.83 x 2.83"]	68 x 68 mm [2.68 x 2.68"]	45 x 45 mm [1.77 x 1.77"]	grey black mating clip	<b>T008176</b> <b>T008177</b> <b>T009420</b>	314						X	X	X				
	<b>ø 72 mm</b> [2.83"]	ø 60 mm [2.36"]	45 x 45 mm [1.77 x 1.77"]	black	<b>N510226</b>	314						X	X	X				

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## Overview

Sealing cover						for electromechanical counters						counter 48 x 24 mm [1.89 x 0.94"] <sup>1)</sup>		counter 48 x 48 mm [1.89 x 1.89"] <sup>2)</sup>		
Figure	Type	Description	Order no.	Details s. page	B 1x.3x	HB 2x.3x	BVa 15.3x	HVa 15.3x	MVs 16.3x	MVs 13.1x	Codix 13x, 14x	Codix 52x, 53x	W 1x.5	H 37, H 37.5	Codix 90x, 92x	901
	<b>K1</b>	for front bezel 60 x 50 mm [2.36 x 1.97"]	transparent / grey transparent / black	<b>G008300</b> <b>G008301</b>	<b>315</b>	X	X				X	X	X	X		
	<b>K2</b>	for front bezel 75 x 60 mm [2.95x 2.36"]	transparent / grey transparent / black	<b>G008302</b> <b>G008303</b>	<b>315</b>			X	X	X					X	X
	<b>KV3</b>	for front bezel 39 x 68 mm [1.54 x 2.68"]	transparent / grey transparent / black	<b>G008310</b> <b>G008311</b>	<b>315</b>					X						



1) via adapter front bezel N003001  
2) via adapter front bezel T008860




Transparent cover						for electromechanical counters						counter 48 x 24 mm [1.89 x 0.94"] <sup>3)</sup>		counter 48 x 48 mm [1.89 x 1.89"]			
Figure	Type	Description	Order no.	Details s. page	B 1x.3x, HB 2x.3x	B 1x.0x, HB 2x.0x					Codix 13x, 14x	Codix 52x, 53x	W 1x.5	H 37, H 37.5	Codix 90x, 92x	901	H 57, HC 77, HW 66
	<b>2 Dv</b> (mounted on bezel)	lockable cover, IP65 for cut-out 50 x 50 mm [1.97 x 1.97"]	transparent / black	<b>G008143</b>	<b>316</b>										X	X	X
	<b>2 Dvs</b> (mounted on bezel)	key lockable cover, IP65 for cut-out 50 x 50 mm [1.97 x 1.97"]	transparent / black	<b>G008153</b>	<b>316</b>										X	X	X
	<b>1 Dv</b> (mounted on bezel)	lockable cover, IP65 for cut-out 54 x 29 mm [2.13 x 1.14"]	transparent / black	<b>N003002</b>	<b>317</b>	X	X <sup>4)</sup>				X	X	X	X			

4) with front bezel FIB  
3) with adapter front bezel N003001

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## Overview

Front bezel						for electromechanical counters		
Figure	Type	Description	Order no.	Details s. page	B 1x.0x, HB 2x.0x (in socket box type 945.2)	BVa 15.0x (in socket box type 946.1)	2 x B- or HB counters (in 2 x socket box type 945.2)	
	<b>F1B</b>	for cut-out 54 x 49 mm [2.13 x 1.93"]	beige black <b>G007501</b> <b>G007502</b>	<b>318</b>	<b>X</b>			
	<b>F2B</b>	for cut-out 54 x 54 mm [2.13 x 2.13"]	beige black <b>G007503</b> <b>G007504</b>	<b>318</b>		<b>X</b>	<b>X</b>	

Socket boxes						for electromechanical counters		
Figure	Type	Description	Order no.	Details s. page	B 1x.0x, HB 2x.0x	MVs 16.0	BVa 15, HVa 15	
	<b>945.2</b>	for plug-in connection in front bezel F1B	black <b>G008434</b>	<b>319</b>	<b>X</b>			
	<b>926.1</b>	for plug-in connection of MVs 16	transparent <b>G008433</b>	<b>320</b>		<b>X</b>		
	<b>946.1</b>	for plug-in connection in front bezel F2B	black <b>G008439</b>	<b>320</b>			<b>X</b>	

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# Accessories

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Mounting examples for optional accessories							
Figure	s. page	for counters 48 x 24 mm [1.89 x 0.94"] in cut-out 50 x 25 mm [1.97 x 0.98"] W, H37, Codix 13x / 14x / 52x / 53x	for counters 48 x 48 mm [1.89 x 1.89"] in cut-out 50 x 50 mm [1.97 x 1.97"] Codix 90x / 92x, H 57, HC 77, HW 66	for counters 50 x 25 mm [1.97 x 0.98"] in cut-out 54 x 29 mm [2.13 x 1.14"] B and HB counters	for counter combinations of 2 counters 50 x 25 mm [1.97 x 0.98"] in cut-out 54 x 54 mm [2.13 x 2.13"] B and HB counters	for counters 50 x 50 mm [1.97 x 1.97"] in cut-out 54 x 54 mm [2.13 x 2.13"] BVa and HVa counters	
	326	X					
	327		X				
	328			X			
	329				X		
	330					X	

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Mounting frame						for electrom. counters			counter 48 x 24 mm [1.89 x 0.94"] <sup>1)</sup>			counter 48 x 48 mm [1.89 x 1.89"]			c. 96 x 48 mm [3.78 x 1.89"]	
Figure	Cut-out	Description	Order no.	Details s. page	BVa 15.21	MVs 16.2x	B 1x.2x, HB 2x.2x	Codix 13x, 14x	Codix 52x, 53x	W 1x.5	H 37, H 37.5	Codix 90x, 92x	901	H 57, HC 77, HW 66	Codix 54x, 55x	Codix 56x, 57x
	<b>92 x 45 mm</b> [3.62 x 1.77"]	For snap-on mounting on 35 mm [1.38"] top-hat DIN rail	grey	<b>G300005</b>	<b>321</b>										<b>X</b>	<b>X</b>
	<b>50 x 50 mm</b> [1.97 x 1.97"] (45 x 45 mm [1.77 x 1.77"] via supplied adapter)	For snap-on mounting on 35 mm [1.38"] top-hat DIN rail	chromated	<b>G300003</b>	<b>321</b>	<b>X</b>	<b>X</b>					<b>X</b>	<b>X</b>	<b>X</b>		
	<b>50 x 25 mm</b> [1.97 x 0.98"] (45 x 22.2 mm [1.77 x 0.87"] via separate adapter)	For snap-on mounting on 35 mm [1.38"] top-hat DIN rail	chromated	<b>G300004</b>	<b>321</b>			<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>					

1) via adapter T008180

DIN rail mount						for electrom. counters		
Figure	Type	Description	Order no.	Details s. page	B and HB counter	2 x B and HB counter	BVa and HVa counter	
	<b>SR 1</b>	For snap-on mounting on on 35 mm [1.38"] top-hat DIN rail	<b>G300000</b>	<b>322</b>	<b>X</b>			
	<b>SR 2</b>	For snap-on mounting on on 35 mm [1.38"] top-hat DIN rail	<b>G300001</b>	<b>322</b>		<b>X</b>		
	<b>SR 3</b>	For snap-on mounting on on 35 mm [1.38"] top-hat DIN rail	<b>G300002</b>	<b>322</b>			<b>X</b>	

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Enclosure blind						counter 48 x 24 mm [1.89 x 0.94"]				counter 53 x 28 mm [2.09 x 1.10"]	
Figure	Size	Cut-out	Order no.	Details s. page	Codix 13x, 14x	Codix 52x, 53x	W 1x.5	H 37, H 37.5	B and HB counters		
	<b>48 x 24 mm</b> [1.89 x 0.94"]	for cut-out 45 x 22.2 mm [1.77 x 0.87"] and 50 x 25 mm [1.97 x 0.98"]	anthracite <b>G003836</b>	<b>323</b>	X	X	X	X			
	<b>53 x 28 mm</b> [2.09 x 1.10"]	for cut-out 50 x 25 mm [1.97 x 0.98"]	black <b>T005753</b>	<b>323</b>					X		

Other accessories					for counters			
Figure	Description	Order no.	Details s. page	H 37	H 57	HR 76.2	HR 47	
	<b>Terminal cover type KA 37</b>	transparent <b>T051687</b>	<b>324</b>	X				
	<b>Base-mount socket</b>	black <b>G008040</b>	<b>324</b>		X			
	<b>Mounting support</b>	black <b>N510199</b>	<b>324</b>			X	X	
	<b>Adapter and anti-vibration set</b>	black <b>255319</b>	<b>325</b>				X	

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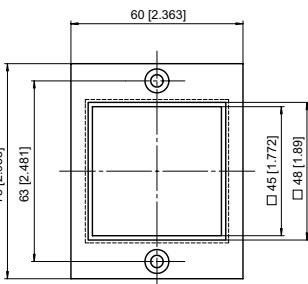
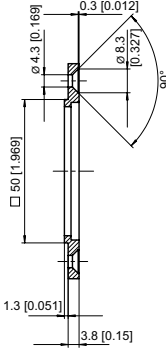

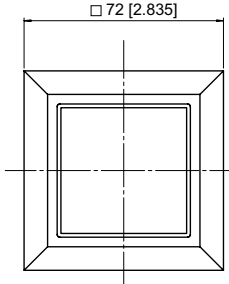
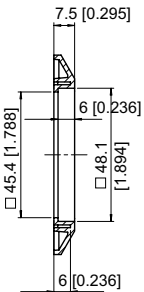

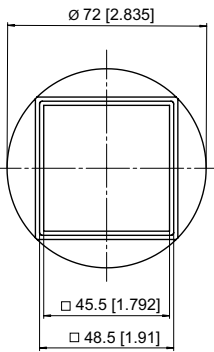
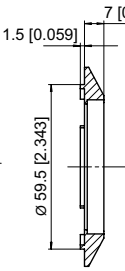
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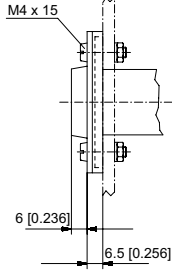
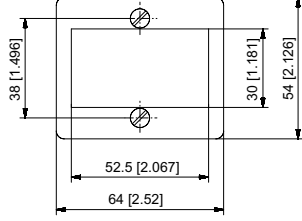

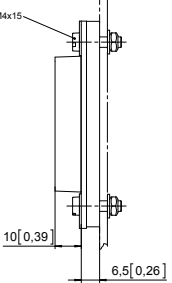
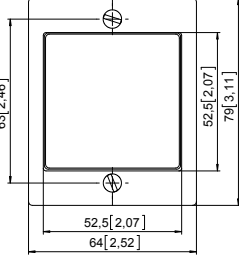

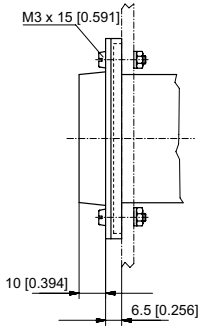
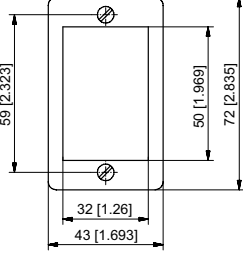
Adapter front bezel		Details		Order no.	Product overview Basics
Dimensions / Details	Dimensions in mm [inch]				
<b>Adapter front bezel, 53 x 28 mm [2.09 x 1.10"]</b> with clip mounting for counters 48 x 24 mm [1.89 x 0.94"]	<b>cut-out:</b> for cut-out 50 x 25 mm [1.97 x 0.98"] to cut-out 45 x 22.2 mm [1.77 x 0.94"]	<b>suitable for:</b> Codix 13x, 14x, 52x, 53x, W 15.5, W 16.5, W 17.5, H 37, H 37.5	grey black anthracite	<b>T008164</b> <b>T008165</b> <b>T008180</b>	Pulse counters Preset counters
<b>Adapter front bezel, 56 x 40 mm [2.20 x 1.57"]</b> with screw mounting for counters 48 x 24 mm [1.89 x 0.94"]	<b>cut-out:</b> for cut-out 50 x 25 mm [1.97 x 0.98"] to cut-out 45 x 22.2 mm [1.77 x 0.94"]	<b>suitable for:</b> Codix 13x, 14x, 52x, 53x, W 15.5, W 16.5, W 17.5, H 37, H 37.5	black anthracite	<b>T008161</b> <b>T008181</b>	Hour meters Timers Frequency displays Tachometers Position displays
<b>Adapter front bezel, 72 x 36 mm [2.83 x 1.42"]</b> for counters 48 x 24 mm [1.89 x 0.94"]	<b>cut-out:</b> for cut-out 68 x 33 mm [2.68 x 1.30"] to cut-out 45 x 22.2 mm [1.77 x 0.94"]	<b>suitable for:</b> Codix 13x, 14x, 52x, 53x, W 15.5, W 16.5, W 17.5, H 37, H 37.5	black and silver anodised as set	<b>162704 Set</b>	Multifunction devices Energy meters Process devices Temperature devices Strain-gauge controllers
<b>1</b> Front bezel (1 x black, 1 x silver anodised)	<b>2</b> Bezel adapter				

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Adapter front bezel		Details		Order no.	Product overview
Dimensions / Details	Dimensions in mm [inch]				Basics
<b>Adapter front bezel, 60 x 50 mm [2.36 x 1.97"]</b> with screw mounting, incl. gasket for counters 48 x 24 mm [1.89 x 0.94"]	<b>cut-out:</b> for cut-out 54 x 29 mm [2.13 x 1.14"] to cut-out 45 x 22.2 mm [1.77 x 0.94"]	<b>suitable for:</b> Codix 13x, 14x, 52x, 53x, W 15.5, W 16.5, W 17.5, H 37, H 37.5	black	<b>N003001</b>	Pulse counters
					Preset counters
<b>Adapter front bezel, 48 x 48 mm [1.89 x 1.89"]</b> with clip mounting for counters 48 x 24 mm [1.89 x 0.94"]	<b>cut-out:</b> for cut-out 45 x 45 mm [1.77 x 1.77"] to cut-out 45 x 22.2 mm [1.77 x 0.94"]	<b>suitable for:</b> Codix 13x, 14x, 52x, 53x, W 15.5, W 16.5, W 17.5, H 37, H 37.5	black	<b>T008883</b>	Hour meters
					Timers
<b>Adapter front bezel, 55 x 55 mm [2.16 x 2.16"]</b> with clip mounting for counters 48 x 48 mm [1.89 x 1.89"]	<b>cut-out:</b> for cut-out 50 x 50 mm [1.97 x 1.97"] or $\varnothing$ 50.5 mm [1.99"] to cut-out 45 x 45 mm [1.77 x 1.77"]	<b>suitable for:</b> H 57, HC 77, HW 66, HW 66 M	grey black	<b>T008170</b> <b>T008171</b>	Frequency displays
					Tachometers
<b>Adapter front bezel, 55 x 55 mm [2.16 x 2.16"]</b> with clip mounting for counters 48 x 48 mm [1.89 x 1.89"]	<b>cut-out:</b> for cut-out 50 x 50 mm [1.97 x 1.97"] to cut-out 45 x 45 mm [1.77 x 1.77"]	<b>suitable for:</b> 901, Codix 907 / 908, Codix 923 / 924, H 57, HC 77, HW 66, HW 66 M	black	<b>T008853</b>	Position displays
					Multifunction devices

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Adapter front bezel		Details		Order no.	Product overview
Dimensions / Details	Dimensions in mm [inch]				Basics
<b>Adapter front bezel, 60 x 75 mm [2.36 x 1.97"]</b> with screw mounting for counters 48 x 48 mm	<b>cut-out:</b> for cut-out 50 x 50 mm [1.97 x 1.97"] to cut-out 45 x 45 mm [1.77 x 1.77"]	<b>suitable for:</b> 901, Codix 907 / 908, Codix 923 / 924, H 57, HC 77, HW 66, HW 66 M	black	<b>T008860</b>	Pulse counters Preset counters Hour meters Timers
					
<b>Adapter front bezel, 72 x 72 mm [2.83 x 2.83"]</b> with clip mounting for counters 48 x 48 mm (Mating clip must be ordered separately)	<b>cut-out:</b> for cut-out 68 x 68 mm [2.68 x 2.68"] to cut-out 45 x 45 mm [1.77 x 1.77"]	<b>suitable for:</b> 901, Codix 907 / 908, Codix 923 / 924, H 57, HC 77, HW 66, HW 66 M	grey black mating clip	<b>T008176</b> <b>T008177</b> <b>T009420</b>	Frequency displays Tachometers Position displays Multifunction devices
					
<b>Adapter front bezel, ø 72 mm [2.83"]</b> with clip mounting for counters 48 x 48 mm	<b>cut-out:</b> for cut-out ø 60 mm [2.36"] to cut-out 45 x 45 mm [1.77 x 1.77"]	<b>suitable for:</b> 901, Codix 907 / 908, Codix 923 / 924, H 57, HC 77, HW 66, HW 66 M	black	<b>N510226</b>	Energy meters Process devices Temperature devices Strain-gauge controllers
					

Sealing cover		Details		Order no.	Product overview Basics
Dimensions / Details	Dimensions in mm [inch]				
<p><b>Sealing cover type K1</b></p> <p>(screw mounting) for electromechanical counters and via adapter front bezel N003001 for counters 48 x 24 mm [1.89 x 0.94"]</p> 	<p><i>description:</i></p> <ul style="list-style-type: none"> <li>- for front bezel 60 x 50 mm [2.36 x 1.97"]</li> <li>- flexible sealing cover made of soft PVC, with varnished steel metal frame and fixing screws</li> <li>- IP65 protection to DIN 40050 when installed</li> </ul>  	<p><i>suitable for:</i></p> <p>B 1x.3x, HB 2x.3x via adapter front bezel: Codix 13x, 14x, 52x, 53x, W 15.5, W 16.5, W 17.5, H 37, H 37.5</p> <p>transparent / grey transparent / black</p>	<p><b>G008300</b></p> <p><b>G008301</b></p>	<p>Pulse counters</p> <p>Preset counters</p> <p>Hour meters Timers</p>	
<p><b>Sealing cover type K2</b></p> <p>(screw mounting) for electromechanical counters and via adapter front bezel T008860 for counters 48 x 48 mm [1.89 x 1.89"]</p> 	<p><i>description:</i></p> <ul style="list-style-type: none"> <li>- for front bezel 75 x 60 mm [2.95x 2.36"]</li> <li>- flexible sealing cover made of soft PVC, with varnished steel metal frame and fixing screws</li> <li>- IP65 protection to DIN 40050 when installed</li> </ul>  	<p><i>suitable for:</i></p> <p>BVa 15.3x, HVa 15.3x, MVa 16.3x via adapter front bezel: 901, Codix 907 / 908, Codix 923 / 924</p> <p>transparent / grey transparent / black</p>	<p><b>G008302</b></p> <p><b>G008303</b></p>	<p>Frequency displays Tachometers</p> <p>Position displays</p> <p>Multifunction devices</p> <p>Energy meters</p>	
<p><b>Sealing cover type KV3</b></p> <p>(screw mounting) for electromechanical counters</p> 	<p><i>description:</i></p> <ul style="list-style-type: none"> <li>- for front bezel 39 x 68 mm [1.54 x 2.68"]</li> <li>- flexible sealing cover made of soft PVC, with varnished steel metal frame and fixing screws</li> <li>- IP65 protection to DIN 40050 when installed</li> </ul>  	<p><i>suitable for:</i></p> <p>MVs 13.1x</p> <p>transparent / grey transparent / black</p>	<p><b>G008310</b></p> <p><b>G008311</b></p>	<p>Process devices</p> <p>Temperature devices</p> <p>Strain-gauge controllers</p>	

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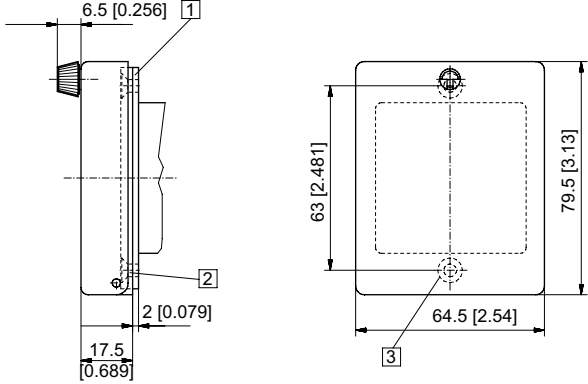

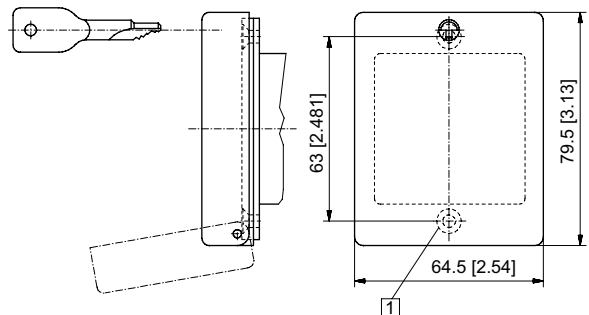
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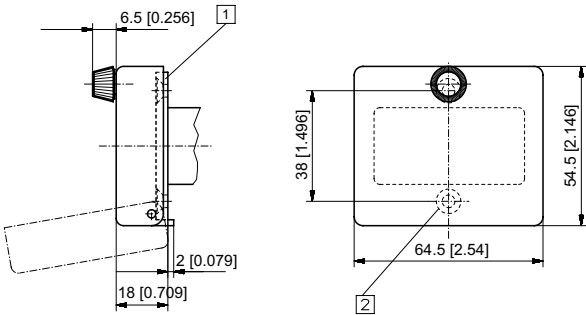
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## Transparent cover

Dimensions / Details	Dimensions in mm [inch]	Order no.	Product overview Basics
<p><b>Transparent cover type 2 Dv</b></p> <p>(mounted on bezel) lockable, IP65 for counter with cut-out 45 x 45 mm [1.77 x 1.77"] and front bezel 48 x 48 mm [1.89 x 1.89"]</p>  <p>1 Gasket 2 Front bezel 3 Countersinking Bf4, DIN 74</p>	<p><i>description:</i></p> <ul style="list-style-type: none"> <li>- for cut-out 50 x 50 mm [1.97 x 1.97"]</li> <li>- screw mounting</li> <li>- IP65 protection</li> <li>- with gaskets and screws</li> </ul> <p><i>suitable for:</i></p> <p>901, Codix 907 / 908, Codix 923 / 924, H 57, HC 77, HW 66, HW 66 M      transparent / black</p> 	<p><b>G008143</b></p>	Pulse counters
<p><b>Transparent cover type 2 Dvs</b></p> <p>(mounted on bezel) key lockable, IP65 for counter with cut-out 45 x 45 mm [1.77 x 1.77"] and front bezel 48 x 48 mm [1.89 x 1.89"]</p>  <p>1 Countersinking Bf4, DIN 74</p>	<p><i>description:</i></p> <ul style="list-style-type: none"> <li>- for cut-out 50 x 50 mm [1.97 x 1.97"]</li> <li>- screw mounting</li> <li>- IP65 protection</li> <li>- with gaskets and screws</li> </ul> <p><i>suitable for:</i></p> <p>901, Codix 907 / 908, Codix 923 / 924, H 57, HC 77, HW 66, HW 66 M      transparent / black</p> 	<p><b>G008153</b></p>	Preset counters
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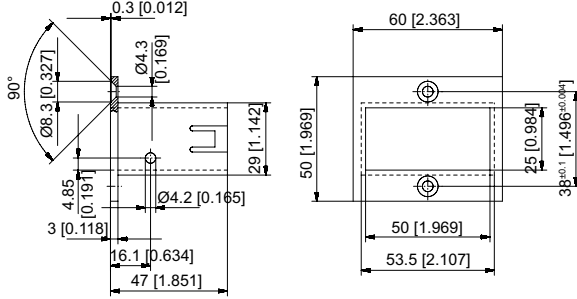

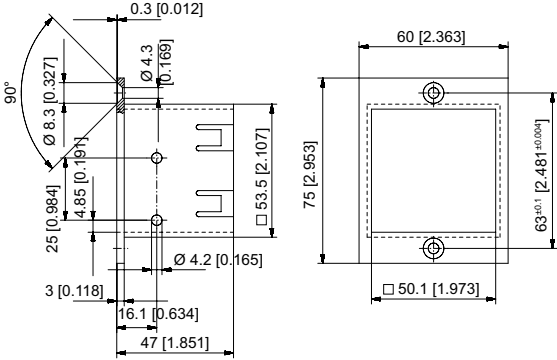
## Transparent cover Details

Dimensions / Details	Dimensions in mm [inch]	Order no.
<p><b>Transparent cover type 1 Dv</b>                      (mounted on bezel)                      lockable, IP65                      for counters with cut-out 50 x 25 mm [1.97 x 0.98"]                      or 45 x 22.2 mm [1.77 x 0.94"]</p> 	<p><i>description:</i></p> <ul style="list-style-type: none"> <li>- for cut-out 54 x 29 mm [2.13 x 1.14"]</li> <li>- screw mounting on front bezel F1B or adapter front bezel N003001</li> <li>- IP65 protection with front bezel</li> </ul> <p><i>suitable for:</i></p> <p>B 1x.3x, HB 2x.3x</p> <p>with front bezel F1B:                      B 1x.0x, HB 2x.0x</p> <p>via adapter front bezel N003001:                      Codix 13x, 14x, 52x, 53x,                      W 15.5, W 16.5, W 17.5,                      H 37, H 37.5</p> 	<p><b>N003002</b></p>

- 1 Front bezel
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## Front bezel

Dimensions / Details	Dimensions in mm [inch]	Order no.
<p><b>Front bezel type F1B</b></p> <p>for plug-in counters B 1x.0x and HB 2x.0x in socket box type 945.2</p> 	<p><i>description:</i></p> <ul style="list-style-type: none"> <li>- for cut-out 54 x 29 mm [2.13 x 1.14"]</li> <li>- screw mounting</li> </ul> <p><i>suitable for:</i></p> <p>B 1x.0x, HB 2x.0x</p> <p>beige black</p> 	<p><b>G007501</b> <b>G007502</b></p>
<p><b>Front bezel type F2B</b></p> <p>for plug-in counters BVa 15.0x in socket box type 946.1 or 2 x B- or HB counters in socket box type 945.2</p> 	<p><i>description:</i></p> <ul style="list-style-type: none"> <li>- for cut-out 54 x 54 mm [2.13 x 2.13"]</li> <li>- screw mounting</li> </ul> <p><i>suitable for:</i></p> <p>BVa 15.0x</p> <p>beige black</p> 	<p><b>G007503</b> <b>G007504</b></p>

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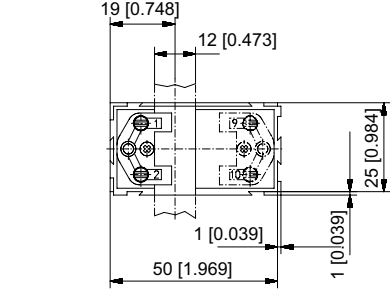
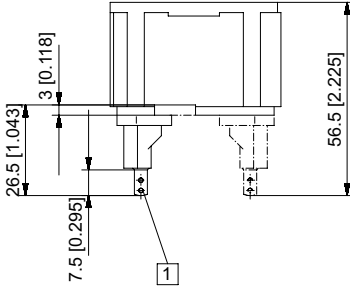
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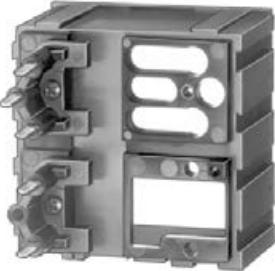
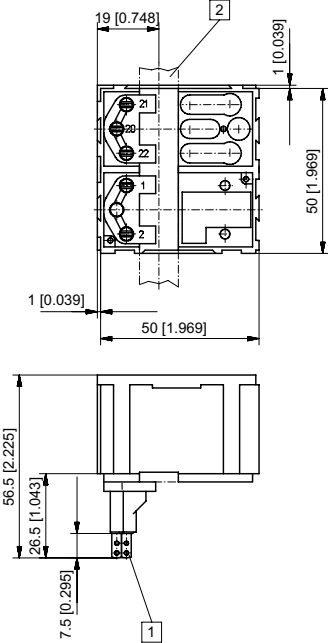


Socket box		Details		Order no.
Dimensions / Details	Dimensions in mm [inch]			
<b>Socket box type 945.2</b> 	<i>description:</i> for plug-in connection in front bezel F1B	<i>suitable for:</i> B 1x.0x, HB 2x.0x	black	<b>G008434</b>
				
				
	1 Flat pin 0.8 x 2.8 [0.032 x 0.11"] silver-plated			

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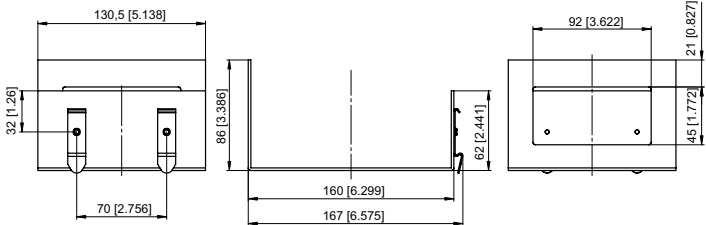

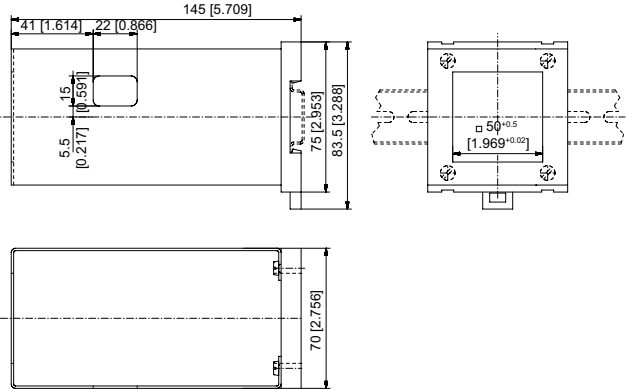

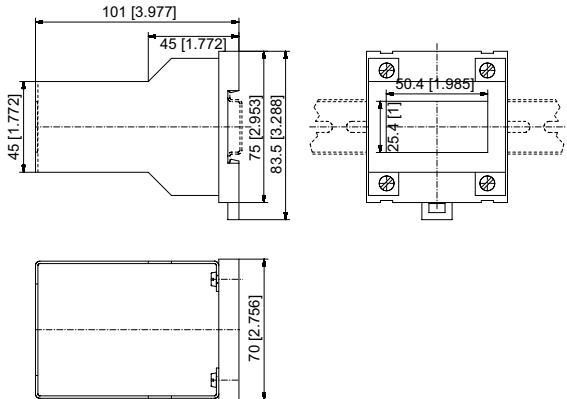
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## Socket box Details

Dimensions / Details	Dimensions in mm [inch]			Order no.
<b>Socket box type 926.1</b> 	<i>description:</i> for plug-in connection	<i>suitable for:</i> MVs 16	transparent	<b>G008433</b>
<b>Socket box type 946.1</b> 	<i>description:</i> for plug-in connection in front bezel F2B	<i>suitable for:</i> BVa 15, HVa 15	transparent	<b>G008439</b>
<div style="display: flex; align-items: flex-start;"> <div style="margin-right: 20px;"> <p>① Flat pin 0.8 x 2.8 [0.032 x 0.11"] silver-plated</p> <p>② Fixing strip 3 x 12 mm [0.12 x 0.47"]</p> </div> <div>  </div> </div>				

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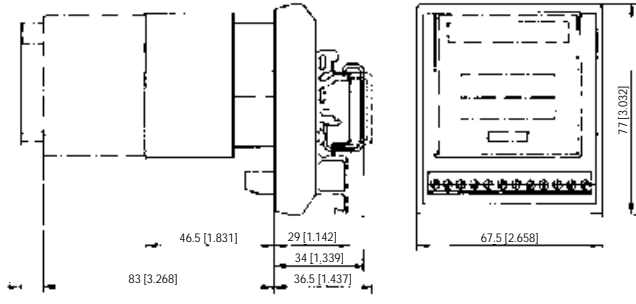
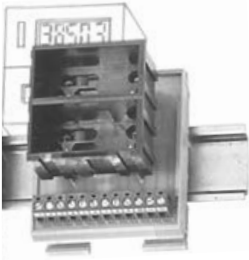
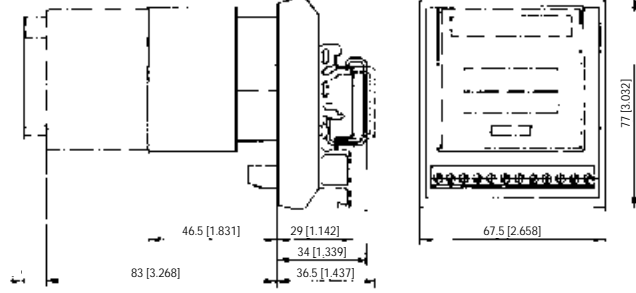
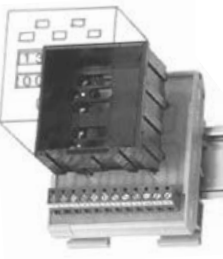
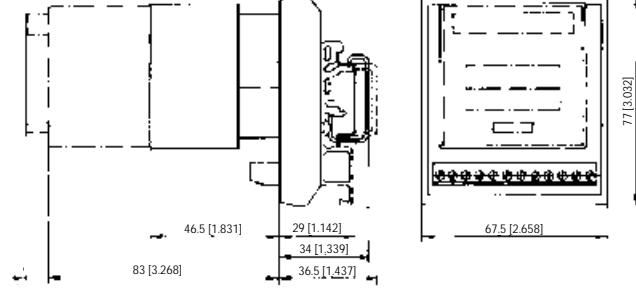
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Mounting frame		Details		Order no.	Product overview
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<p><b>Mounting frame with cut-out</b> 92 x 45 mm [3.62 x 1.77"]</p> <p>for counters 96 x 48 mm [3.78 x 1.89"]</p> 	<p><i>description:</i></p> <p>for snap-on mounting on 35 mm [1.38"] top-hat DIN rail</p>	<p><i>suitable for:</i></p> <p>Codix 54x, 55x, 56x, 57x</p> <p>grey</p>		<b>G300005</b>	Pulse counters
<p><b>Mounting frame with cut-out</b> 50 x 50 mm [1.97 x 1.97"]</p> <p>for counters 53 x 53 mm [2.09 x 2.09"] and 55 x 55 mm [2.16 x 2.16"] (cut-out 45 x 45 mm [1.77 x 1.77"] via supplied adapter for counter 48 x 48 mm [1.89 x 1.89"])</p> 	<p><i>description:</i></p> <p>for snap-on mounting on 35 mm [1.38"] top-hat DIN rail</p>	<p><i>suitable for:</i></p> <p>BVa 15.21, HVa 15.21, MVs 16.2x chromated</p> <p>via supplied adapter for: 901, Codix 907 / 908, Codix 923 / 924, H 57, HC 77, HW 66, HW 66 M,</p>		<b>G300003</b>	Hour meters Timers Frequency displays Tachometers Position displays
<p><b>Mounting frame with cut-out</b> 50 x 25 mm [1.97 x 0.98"]</p> <p>for counters 53 x 28 mm (cut-out 45 x 22.2 mm [1.77 x 0.94"] via separate adapter T008180 or T008165 for counter 48 x 24 mm [1.89 x 0.94"])</p> 	<p><i>description:</i></p> <p>for snap-on mounting on 35 mm [1.38"] top-hat DIN rail</p>	<p><i>suitable for:</i></p> <p>B 1x.2x, HB 2x.2x., H 37.2 chromated</p> <p>via supplied adapter T008180 for: Codix 13x, 14x, 52x, 53x, W 15.5, W 16.5, W 17.5, H 37.5</p> <p>via adapter T008165: H 37</p>		<b>G300004</b>	Multifunction devices Energy meters Process devices Temperature devices Strain-gauge controllers

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## DIN rail mount Details

Dimensions / Details	Dimensions in mm [inch]		Order no.
<p><b>DIN rail mount SR 1</b> for B and HB counters</p> 	<p><i>description:</i> for snap-on mounting on 35 mm [1.38"] top-hat DIN rail</p>	<p><i>suitable for:</i> B and HB counters</p> 	<b>G300000</b>
<p><b>DIN rail mount SR 2</b> for 2 x B and HB counters</p> 	<p><i>description:</i> for snap-on mounting on 35 mm [1.38"] top-hat DIN rail</p>	<p><i>suitable for:</i> B and HB counters</p> 	<b>G300001</b>
<p><b>DIN rail mount SR 3</b> for BVa and HVa counters</p> 	<p><i>description:</i> for snap-on mounting on 35 mm [1.38"] top-hat DIN rail</p>	<p><i>suitable for:</i> BVa and HVa counters</p> 	<b>G300002</b>

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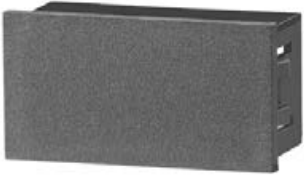
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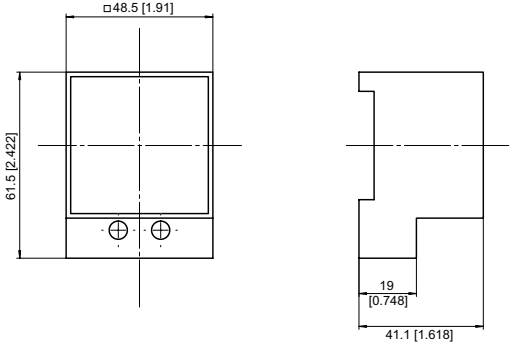

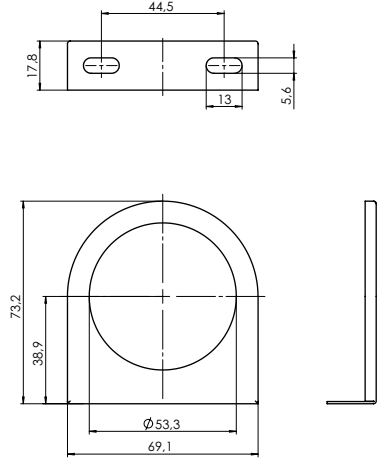
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Enclosure blind		Details			Order no.	Product overview Basics
Dimensions / Details	Dimensions in mm [inch]					
<b>Enclosure blind, 48 x 24 mm [1.89 x 0.94"]</b> for counters 48 x 24 mm [1.89 x 0.94"] and 53 x 28 mm [2.09 x 1.10"] (via adapter front bezel T008180 or T008181; included in delivery)	<i>description:</i> for cut-out 45 x 22.2 mm [1.77 x 0.94"] and cut-out 50 x 25 mm [1.97 x 0.98"]	<i>suitable for:</i> Codix 13x, 14x, 52x, 53x, W 15.5, W 16.5, W 17.5, H 37, H 37.5	anthracite	<b>G003836</b>	Pulse counters	
					Preset counters	
<b>Enclosure blind, 53 x 28 mm [2.09 x 1.10"]</b> for counters 53 x 28 mm [2.09 x 1.10"]	<i>description:</i> for cut-out 50 x 25 mm [1.97 x 0.98"]	<i>suitable for:</i> B and HB counters	black	<b>T005753</b>	Hour meters Timers	
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## Other accessories Details

Dimensions / Details	Dimensions in mm [inch]			Order no.
<b>Terminal cover type Typ KA 37</b> for counter H 37 	<i>description:</i> 2-pcs. per counter required	<i>suitable for:</i> H 37	transparent	<b>T051687</b>
<b>Base mount socket</b> for H 57 / AH 57 counters 	<i>description:</i> for DIN rail mount	<i>suitable for:</i> H 57	black	<b>G008040</b>
				
<b>Mounting support</b> for HR 76.2, HR 47 	<i>description:</i> for mounting the counter onto a flat plate	<i>suitable for:</i> HR 76.2, HR 47	black	<b>N510199</b>
				

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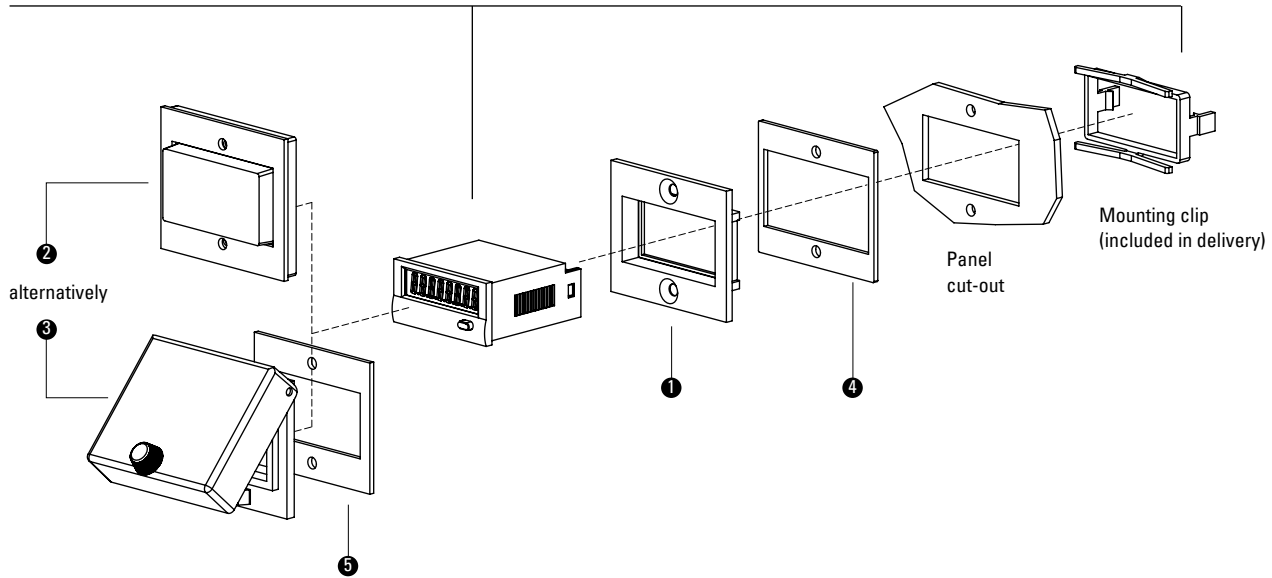
Other accessories		Details		
Dimensions / Details	Dimensions in mm [inch]			Order no.
<b>Adapter and anti-vibration set</b> for HR 47 	<i>description:</i> Adapter and anti-vibration set for panel cut-out $\varnothing$ 71 mm [2.80"], outer diameter $\varnothing$ 80 mm [3.15"]  <i>Delivery specification:</i> 1 x rubber adapter 2 x cover mask 1 x spacer ring 1 x clamping bracket, shortened	<i>suitable for:</i> HR 47	black	<b>255319</b>

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## Mounting examples for optional accessories

For counters 48 x 24 mm [1.89 x 0.94"]

Codix 13X / Codix 14X / Codix 52X / Codix 53X / W15.51 / W16.50 / W17.50 / H37 / H37.5



		Type / size	Description		Order no.	Details see page	④ suitable ⑤ gasket
① Adapter front bezel		<b>53 x 28 mm</b> [2.09 x 1.10"]	for cut-out 50 x 25 mm [1.97 x 0.98"] to cut-out 45 x 22.2 mm [1.77 x 0.94"]	grey black anthracite	<b>T008164</b> <b>T008165</b> <b>T008180</b>	312	N511015
		<b>56 x 40 mm</b> [2.20 x 1.57"]	for cut-out 50 x 25 mm [1.97 x 0.98"] to cut-out 45 x 22.2 mm [1.77 x 0.94"]	black anthracite	<b>T008161</b> <b>T008181</b>	312	N511045
		<b>72 x 36 mm</b> [2.83 x 1.42"]	for cut-out 68 x 33 mm [2.68 x 1.30"] to cut-out 45 x 22.2 mm [1.77 x 0.94"]	black and silver anodised as set	<b>162704 Set</b>	312	–
		<b>60 x 50 mm</b> [2.36 x 1.97"]	for cut-out 54 x 29 mm [2.13 x 1.14"] to cut-out 45 x 22.2 mm [1.77 x 0.94"]	black	<b>N003001</b>	313	④ N511005
		<b>48 x 48 mm</b> [1.89 x 1.89"]	for cut-out 45 x 45 mm [1.77 x 1.77"] to cut-out 45 x 22.2 mm [1.77 x 0.94"]	black	<b>T008883</b>	313	–
② Sealing cover IP65		<b>K1</b>	only in conjunction with adapter front bezel 60 x 50 mm N003001	transparent / grey transparent / black	<b>G008300</b> <b>G008301</b>	315	–
③ Transparent cover IP65		<b>1 Dv</b> (mounted on bezel)	cover lockable,, for cut-out 54 x 29 mm, only in conjunction with adapter front bezel 60 x 50 mm N003001	transparent / black	<b>N003002</b>	317	⑤ N511019
Mounting frame	via adapter T008180				<b>G300004</b>	321	
Enclosure blind					<b>G003836</b>	323	

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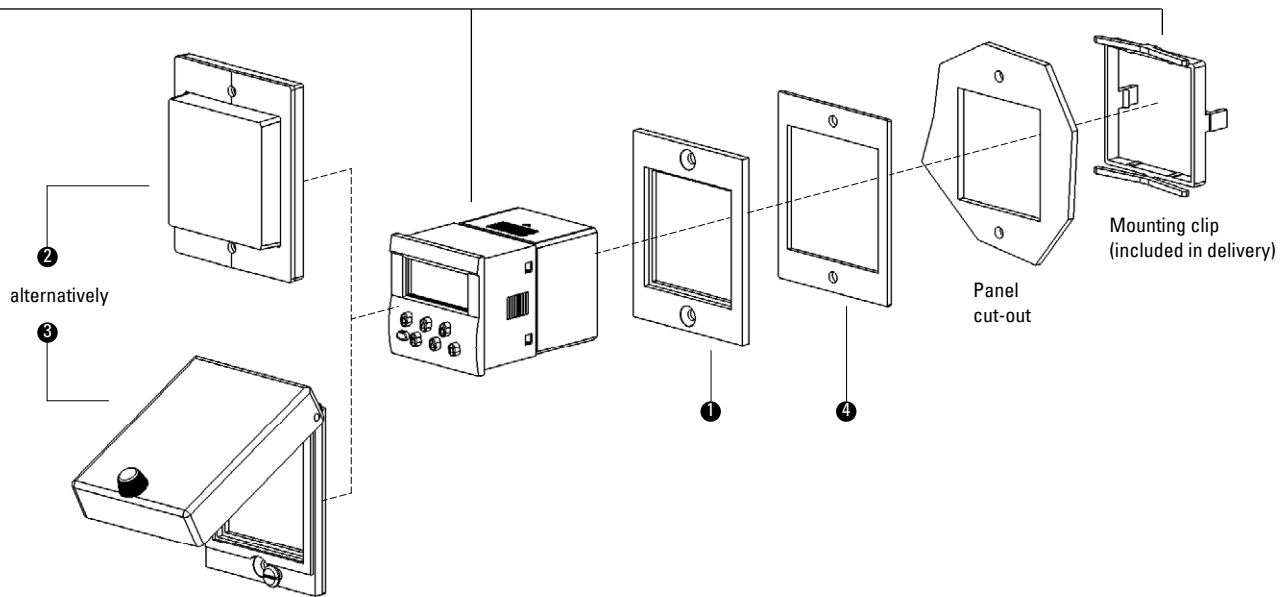
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## Mounting examples for optional accessories For counters 48 x 48 mm [1.89 x 1.89"]

Codix 901 / Codix 907 / Codix 908 / Codix 923 / Codix 924 / H 57 / HC 77 / HW 66



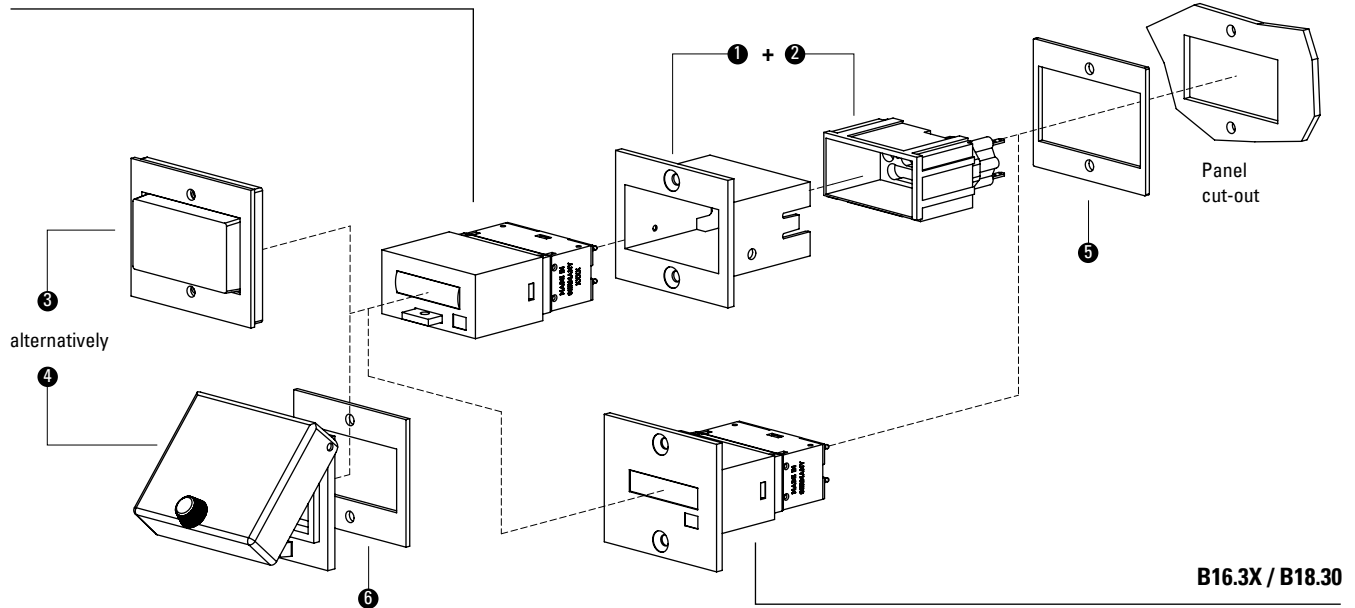
		Type / size	Description		Order no.	Details see page	④ suitable gasket
① Adapter front bezel		55 x 55 mm	for cut-out 50 x 50 mm [1.97 x 1.97"] 0r ø 50.5 mm to cut-out 45 x 45 mm [1.77 x 1.77"]	grey black	T008170 T008171	313	N511017
		55 x 55 mm	for cut-out 50 x 50 mm [1.97 x 1.97"] to cut-out 45 x 45 mm [1.77 x 1.77"]	black	T008853	313	N511004
	①	60 x 75 mm	for cut-out 50 x 50 mm [1.97 x 1.97"] to cut-out 45 x 45 mm [1.77 x 1.77"]	black	T008860	314	④ N511020
		72 x 72 mm	for cut-out 68 x 68 mm to cut-out 45 x 45 mm [1.77 x 1.77"]	grey black mating clip	T008176 T008177 T009420	314	N511016
		ø 72 mm	for cut-out ø 60 mm to cut-out 45 x 45 mm [1.77 x 1.77"]	black	N510226	314	-
② Sealing cover IP65		K2	only in conjunction with adapter front bezel 60 x 75 mm T008860	transparent / grey	G008302	315	-
				transparent / black	G008303		
③ Transparent cover IP65 with gasket		2 Dv (mounted on bezel)	cover lockable, for cut-out 50 x 50 mm, only in conjunction with adapter front bezel 60 x 75 mm T008860	transparent / black	G008143	316	-
		2 Dvs (mounted on bezel)	cover key lockable, for cut-out 50 x 50 mm, only in conjunction with adapter front bezel 60 x 75 mm T008860	transparent / black	G008153	316	-
Mounting frame					G300003	321	

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## Mounting examples for optional accessories

For counters 50 x 25 mm [1.97 x 0.98"]

B16.01 / B18.00 / HB26.01.3 / HB27.00.3



		Type / size	Description		Order no.	Details see page	5 suitable 6 gasket
<b>1</b> Front bezel		<b>F1B</b>	for cut-out 54 x 29 mm (only in conjunction with socket box G008434)	beige black	<b>G007501</b> <b>G007502</b>	318	<b>5</b> N511005
<b>2</b> Socket box		<b>945.2</b>	for plug-in connection in front bezel F1B	black	<b>G008434</b>	319	—
<b>3</b> Sealing cover IP65		<b>K1</b>	only in conjunction with front bezel F1B	transparent / grey transparent / black	<b>G008300</b> <b>G008301</b>	315	—
<b>4</b> Transparent cover IP65		<b>1 Dv</b> (mounted on bezel)	cover lockable, for cut-out 54 x 29 mm, only in conjunction with front bezel F1B	transparent / black	<b>N003002</b>	317	<b>6</b> N511019
<b>DIN rail mount</b>					<b>G300000</b>	322	

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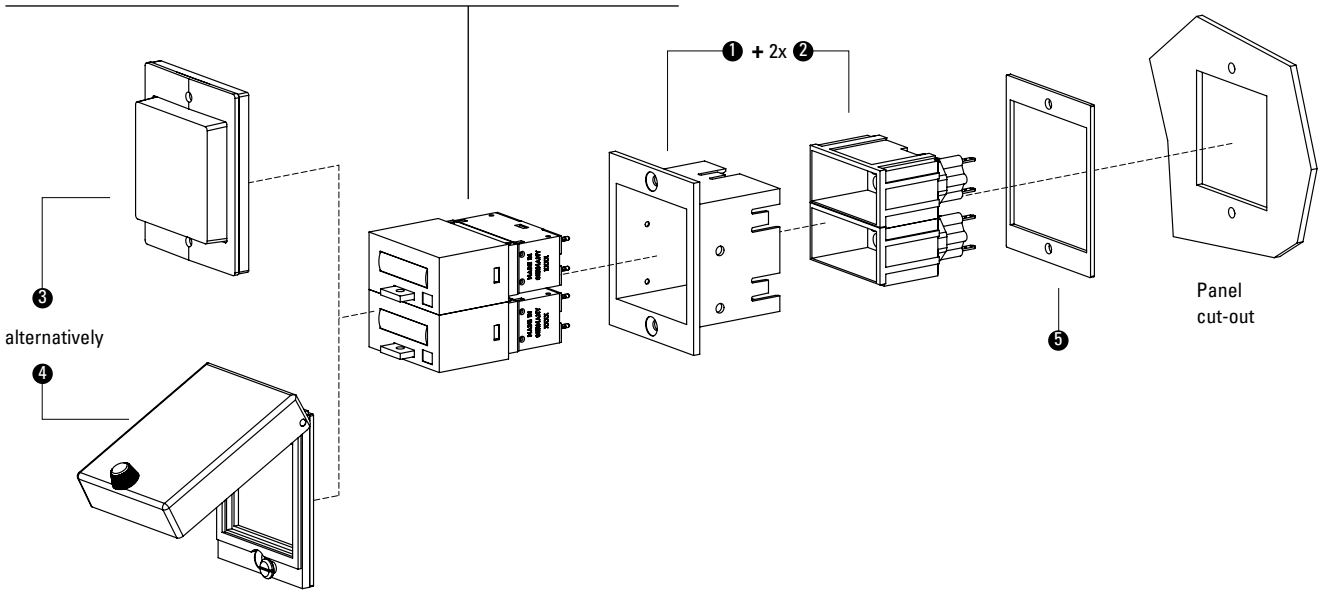
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## Mounting examples for optional accessories For 2 counters 50 x 25 mm [1.97 x 0.98"]

B16.01 / B18.00 / HB26.01.3 / HB27.00.3 (any combination of 2 counters)

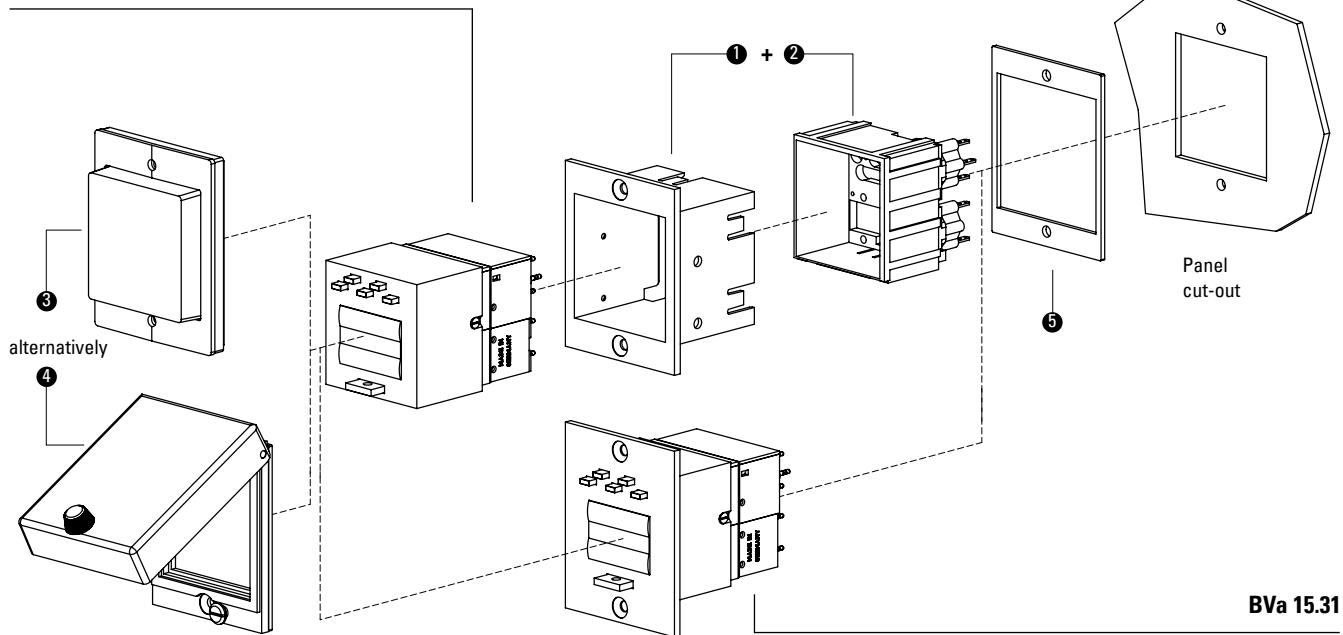


		Type / size	Description		Order no.	Details see page	5 suitable gasket
<b>1 Front bezel</b>		<b>F2B</b>	for cut-out 54 x 54 mm (only in conjunction with 2 socket boxes G008434)	beige black	<b>G007503</b> <b>G007504</b>	318	<b>5</b> N511003
<b>2 Socket box (2x)</b>		<b>945.2</b>	for plug-in connection in front bezel F2B	black	<b>G008434</b>	319	–
<b>3 Sealing cover IP65</b>		<b>K2</b>	only in conjunction with front bezel F2B	transparent / grey transparent / black	<b>G008302</b> <b>G008303</b>	315	–
<b>4 Transparent cover IP65 with gasket</b>		<b>2 Dv</b> (mounted on bezel)	cover lockable, for cut-out 50 x 50 mm, only in conjunction with front bezel F2B	transparent / black	<b>G008143</b>	316	–
		<b>2 Dvs</b> (mounted on bezel)	cover key lockable, for cut-out 50 x 50 mm, only in conjunction with front bezel F2B	transparent / black	<b>G008153</b>	316	–
<b>DIN rail mount</b>					<b>G300001</b>	322	

## Mounting examples for optional accessories

For counters 50 x 50 mm [1.97 x 1.97"]

BVa 15.01



		Type / size	Description		Order no.	Details see page	5 suitable gasket
<b>1</b> Front bezel		<b>F2B</b>	for cut-out 54 x 49 mm (only in conjunction with 2 socket boxes G008434)	beige black	<b>G007503</b> <b>G007504</b>	318	<b>5</b> N511003
<b>2</b> Socket box		<b>946.1</b>	for plug-in connection in front bezel F2B	black	<b>G008439</b>	320	—
<b>3</b> Sealing cover IP65		<b>K2</b>	only in conjunction with front bezel F2B	transparent / grey transparent / black	<b>G008302</b> <b>G008303</b>	315	—
<b>4</b> Transparent cover IP65 with gasket		<b>2 Dv</b> (mounted on bezel)	cover lockable, for cut-out 50 x 50 mm, only in conjunction with front bezel F2B	transparent / black	<b>G008143</b>	316	—
		<b>2 Dvs</b> (mounted on bezel)	cover key lockable for cut-out 50 x 50 mm, only in conjunction with front bezel F2B	transparent / black	<b>G008153</b>	316	—
<b>DIN rail mount</b>					<b>G300002</b>	322	

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Gaskets		Overview				
Gasket, outer diameter	for cut-out	thickness	suitable for		Order no.	
60 x 75 mm [2.36 x 2.95"]	54.4 x 54.4 mm [2.14 x 2.14"]	2,0 mm [0.079"]	F2B (G007503, G007504) + BVa 15.0x, MVs 16, T008860	black	N511003	Product overview Basics
58 x 58 mm [2.28 x 2.28"]	50.2 x 50.2 mm [1.98 x 1.98"]	1,5 mm [0.059"]	BVa 15.2x, HVa 15.2x, MVs 16.2x, T008853	black	N511004	Pulse counters
60 x 50 mm [2.36 x 1.97"]	54.4 x 29.4 mm [2.14 x 1.16"]	2,0 mm [0.079"]	F1B (G007501, G007502) + B 1x.0x, HB 2x.0x, N003001	black	N511005	
58 x 33 mm [2.28 x 1.30"]	50.2 x 25.2 mm [1.98 x 0.99"]	2,0 mm [0.079"]	B 1x.2x, HB 2x.2x	black	N511006	Preset counters
39 x 40 mm [1.54 x 1.57"]	33.3 x 22 mm [1.31 x 0.87"]	1,5 mm [0.059"]	Mk 14.11, PMk 14.11, Hk 17.151	black	N511011	
53 x 28 mm [2.09 x 1.10"]	50 x 25 mm [1.97 x 0.98"]	1,0 mm [0.039"]	B 1x.2x, HB 2x.2x, H 37.2, H 37.4, T008164, T008165, T008180	black	N511015	Hour meters Timers
72 x 72 mm [2.83 x 2.83"]	ø 50.5 mm and 45 x 45 mm	2,0 mm [0.079"]	H 57.72, HC 77.72, T008176, T008177	black	N511016	
55 x 55 mm [2.16 x 2.16"]	ø 50.5 mm and 45 x 45 mm	2,0 mm [0.079"]	H 57.55, HC 77.55, T008171, T008170	black	N511017	Frequency displays Tachometers
48 x 48 mm [1.89 x 1.89"]	ø 50 mm and 45 x 45 mm	1,5 mm [0.059"]	H 57, HC 77, HW 66	black	N511018	
60 x 50 mm [2.36 x 1.97"]	50 x 25 mm [1.97 x 0.98"]	2,0 mm [0.079"]	B 1x.3x, HB 2x.3x	black	N511019	Position displays
60 x 75 mm [2.36 x 2.95"]	50 x 50 mm [1.97 x 1.97"]	2,0 mm [0.079"]	BVa 15.3x, HVa 15.3x, MVs 16.3x, T008860	black	N511020	
48 x 48 mm [1.89 x 1.89"]	45 x 45 mm [1.77 x 1.77"]	0,5 mm [0.02"]	901, Codix 907 / 908, Codix 923 / 924, H 57, HC 77, HW 66	black	N511028	Multifunction devices
48 x 24 mm [1.89 x 0.94"]	45 x 22 mm [1.77 x 0.87"]	0,5 mm [0.02"]	Codix 13x, Codix 14x, Codix 52x, Codix 53x, W 15.5, W 16.5, W 17.5, H 37, H 37.5	black	N511029	
96 x 49 mm [3.78 x 1.93"]	92 x 45 mm [3.62 x 1.77"]	1,5 mm [0.059"]	Codix 54x, Codix 55x	black	N511031	Energy meters
49 x 49 mm [1.93 x 1.93"]	45 x 45 mm [1.77 x 1.77"]	1,5 mm [0.059"]	901, Codix 907 / 908, Codix 923 / 924, H 57, HC 77, HW 66	black	N511033	
49 x 25 mm [1.93 x 0.98"]	45 x 22 mm [1.77 x 0.87"]	1,5 mm [0.059"]	Codix 13x, Codix 14x, Codix 52x, Codix 53x, W 15.5, W 16.5, W 17.5, H 37, H 37.5	black	N511034	Process devices
36 x 24 mm [1.42 x 0.94"]	33.3 x 22 mm [1.31 x 0.87"]	1,0 mm [0.039"]	HK 17.251 ... 56	black	N511040	
55 x 26 mm [2.17 x 1.02"]	33.3 x 22 mm [1.31 x 0.87"]	1,5 mm [0.059"]	HK 17.451	black	N511043	Temperature devices
56 x 40 mm [2.20 x 1.57"]	50 x 25 mm [1.97 x 0.98"]	1,5 mm [0.059"]	H37.1, B16.10, B16.11, B18.10, T008161, T008181	black	N511045	
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# Kübler worldwide

## Kübler Group

-  **Fritz Kübler GmbH**  
Germany  
Phone +49 7720 3903-0  
info@kuebler.com  
www.kuebler.com
-  **Fritz Kübler SARL**  
France  
Phone +33 3 89 53 45 45  
info@kuebler-sarl.com  
www.kuebler.fr
-  **Kübler Italia S.r.l.**  
Italy  
Phone +39 026 423 345  
info@kuebler.it  
www.kuebler.it
-  **Kübler Österreich**  
Austria  
Phone +43 720 510459  
at@kuebler.com  
www.kuebler.com
-  **Kubler SP. Z O.O.**  
Poland  
Phone +48 61 84 99 902  
info@kubler.pl  
www.kubler.pl
-  **Kübler Group**  
Spain  
Phone +34 91 1516773  
alejandroperez-manrique@kuebler.com  
www.kuebler.com

-  **Kübler Turkey Otomasyon Ticaret Ltd. Sti.**  
Turkey  
Phone +90 216 999 9791  
cengizhan.temurcin@kuebler.com  
www.kuebler.com.tr

-  **Kuebler (Beijing) Automation Trading Co. Ltd.**  
China  
Phone +86 10 8471 0818  
beijing@kuebler.com  
www.kuebler.com

-  **Kuebler Automation India Pvt. Ltd.**  
India  
Phone +91 2135 618200  
Fax +91 2135 618232  
info@kuebler.in  
www.kuebler.in

-  **Kuebler Korea (by F&B)**  
South Korea  
Phone +82 51 319 12 30  
fnb@kuebler.co.kr  
www.kuebler.kr

-  **Kuebler Inc.**  
USA  
Phone +1-704-705-4710  
Toll Free +1-855-KUEBLER (583-2537)  
usa@kuebler.com  
www.kuebler.com/usa

## Europe

- Austria** .....  
Kübler Österreich  
Deutsch Bieling 35  
A-7522 Heiligenbrunn  
Phone +43 720 510459  
Fax +43 720 510456  
at@kuebler.com  
www.kuebler.com
- Belarus** .....  
FEK Company  
Pushkin Ave., 29B  
BY-220015 Minsk  
Phone +375 17 202 68 00  
Fax +375 17 202 68 01  
turck@fek.by  
www.fek.by
- Belgium** .....  
Turck Multiprox N.V.  
Lion d'Orweg 12  
B-9300 Aalst  
Phone +32 53 76 65 66  
Fax +32 53 78 39 77  
mail@multiprox.be  
www.multiprox.be
- Bulgaria** .....  
Sensomat Ltd.  
Ul.Stratsin 4, vh.A, app.1  
P.O.B. 116  
BG-9300-Dobrich  
Phone +359-888 403 570  
Fax +359-58-603 033  
info@sensomat.info  
www.sensomat.info
- Croatia** .....  
Bering d.o.o.  
Ulica Pri rampi 2  
HR-49210 Zabok  
Phone +385 49 221 182  
Fax +385 49 223 658  
bering@bering.hr  
www.bering.hr
- Czech Republic** .....  
TURCK s.r.o.  
Na Brně 2065  
CZ-500 06 Hradec Králové  
Phone +420 - 4 95 51 87 66  
Fax +420 - 4 95 51 87 67  
turck-cz@turck.com  
www.turck.cz
- Denmark** .....  
Hans Følsgaard A/S  
Theilgaards Torv 1  
DK-4600 Køge  
Phone +45 43 20 86 00  
Fax +45 43 96 88 55  
hf@hf.net  
www.hf.net
- Estonia** .....  
Standel AS  
Klisa 8  
EE-11313 Tallinn  
Phone +372 6 558 180  
Fax +372 6 558 179  
standel@standel.ee  
www.standel.ee
- Finland** .....  
Sähkölehto Oy  
Holkittie 14  
FIN-00880 Helsinki  
Phone +358 9 774 6420  
Fax +358 9 759 1071  
office@sahkolehto.fi  
www.sahkolehto.fi
- France** .....  
Fritz Kübler S.à.r.l.  
Copteurs et codeurs  
industriels  
2 rue de Grande Bretagne  
F-68310 Wittelsheim  
Phone +33 3 89 53 45 45  
Fax +33 3 89 53 66 77  
info@kuebler-sarl.com  
www.kuebler.fr
- Germany** .....  
Fritz Kübler GmbH  
Schubertstrasse 47  
D-78054  
Villingen-Schwenningen  
Phone +49 7720 3903-0  
Fax +49 7720 21564  
info@kuebler.com  
www.kuebler.com
- Great Britain** .....  
OEM Automatic Ltd  
Whiteacres, Cambridge Road  
Whetstone  
GB-Leicester LE8 6ZG  
Phone +44 116 284 99 00  
Fax +44 116 284 17 21  
information@uk.oem.se  
www.oem.co.uk
- Greece** .....  
Industrial Automation Systems  
L.J. Skourgialos  
241, El. Venizelou Ave.  
GR-176 73 Kallithea - Athens  
Phone +30 210 9510260  
Fax +30 210 9511048  
info@ias.gr  
www.ias.gr
- Hungary** .....  
Kvalix Automatika Kft.  
Kiss Ernő u. 1-3  
H-1046 Budapest  
Phone +36 1 272 2242  
Fax +36 1 272 2244  
info@kvalix.hu  
www.kvalix.hu
- Iceland** .....  
Reykjafell Ltd.  
Skiptihóli 35  
IS-125 Reykjavik  
Phone +354 5 88 60 00  
Fax +354 5 88 60 88  
reykjafell@reykjafell.is  
www.reykjafell.is
- Ireland** .....  
Kübler Group  
Fritz Kübler GmbH  
Schubertstr. 47  
D-78054  
Villingen-Schwenningen  
Phone +49 7720 3903-0  
Fax +49 7720 21564  
info@kuebler.com  
www.kuebler.com
- Italy** .....  
• Encoders:  
Kübler Italia S.r.l.  
Viale Sarca, 96  
I-20125 Milano MI  
Phone +39 026 423 345  
Fax +39 026 611 3843  
info@kuebler.it  
www.kuebler.it
- Counters and process devices:  
MAS AUTOMAZIONE S.R.L.  
Via G. Galilei 20  
I-20090 Segrate (MI)  
Phone +39 02 26 92 20 90  
Fax +39 02 26 92 16 87  
info@masautomazione.it  
www.masautomazione.it
- Lithuania** .....  
UAB FEK Elektronika  
Naugarduko 91-415  
LT-03160, Vilnius, Lietuva  
Phone +370 700 01760  
Phone +3705 2133603  
Fax +3705 2159198  
info@fek.lt  
www.fek.lt
- Netherlands** .....  
Duranmatic B.V.  
Robijn 800  
NL-3316 KE Dordrecht  
Phone +31 78 631 05 99  
Fax +31 78 613 11 33  
info@duranmatic.nl  
www.duranmatic.nl
- Norway** .....  
ELTECO AS  
Floodmyrveien 24  
N-3946 Porsgrunn  
Phone +47 35 56 20 70  
Fax +47 35 56 20 99  
firmapost@elteco.no  
www.elteco.no
- Poland** .....  
Kubler Sp. z o.o.  
ul. Dabrowskiego 441  
PL-60-451 Poznan  
Phone +48 61 849 99 02  
Fax +48 61 849 99 03  
info@kubler.pl  
www.kubler.pl
- Electronic counters and process displays:  
IMPOL-1 Sp.J.  
ul. Krakowiaków 103  
PL-02-255 Warszawa  
Phone +48 22 886 56 02  
Fax +48 22 886 56 04  
biuro@impol-1.pl  
www.impol-1.pl
- Encoders:  
OEM AUTOMATIC Sp. z o.o.  
ul. Działkowa 121 A  
PL-02-234 Warszawa  
Phone +48 22 863 27 22  
Fax +48 22 863 27 24  
info@pl.oem.se  
www.oemautomatic.pl
- Portugal** .....  
Kübler Group  
C/ Aviación Española 5, 4 D  
28003 Madrid, Spain  
Phone +34 91 1516773  
Mobil +34 630 976 107  
alejandroperez-manrique@kuebler.com  
www.kuebler.com
- vLA2P – Tecnologias de Auto-  
mação, LDA  
Rua Teófilo Braga, 156 A  
Escrit. F - Edifício S. Domingos  
Cabeço do Moura  
PT-2785-122 S. Domingos de Rana  
Phone +351 21 444 70 70  
Fax +351 21 444 70 75  
la2p@la2p.pt  
www.la2p.pt
- Russia** .....  
LLC Servotechnica  
Klara Tsetkin str., 33/35  
RUS-125130 Moscow  
Phone +7 495 797 8866  
Fax +7 495 450 0043  
info@servotechnica.ru  
www.servotechnica.ru
- Slovakia** .....  
S.D.A. s. r. o.  
Jána Bottu 4  
SK-974 01 Banská Bystrica  
Phone +421 48 472 34 11  
Fax +421 48 472 343 69  
sekretariat@s-d-a.sk  
www.s-d-a.sk
- Slovenia** .....  
Balluff d.o.o.  
Livadna ulica 1  
SLO-2204  
Miklavž na Dravskem polju  
Phone +386 2 6 29 03 00  
Fax +386 2 6 29 03 02  
senzorji.sb@siol.net  
www.senzorji-sb.si
- Spain** .....  
Kübler Group  
C/ Aviación Española 5, 4 D  
28003 Madrid  
Phone +34 91 1516773  
Mobil +34 630 976 107  
alejandroperez-manrique@kuebler.com  
www.kuebler.com
- Elion, S.A.  
Farell, 5  
E-08014 Barcelona  
Phone +34 93 298 20 00  
Fax +34 93 431 18 00  
elion@elion.es  
www.elion.es
- Sweden** .....  
Kubler Sp. z o.o.  
OEM AUTOMATIC AB  
Dalagatan 4, Box 1011  
S-57328 Tranås  
Phone +46 75-242 4100  
Fax +46 75-242 4119  
info@aut.oem.se  
www.oemautomatic.se
- Ⓣ Fritz Kübler S.à.r.l.  
2 rue de Grande Bretagne  
F-68310 Wittelsheim  
Phone +33 3 89 53 45 45  
Fax +33 3 89 53 66 77  
info@kuebler-sarl.com  
www.kuebler.fr
- Ⓛ Kübler Italia S.r.l.  
Viale Sarca, 96  
I-20125 Milano MI  
Phone +39 026 423 345  
Fax +39 026 611 3843  
info@kuebler.it  
www.kuebler.it
- Ⓧ Fritz Kübler GmbH  
Schubertstraße 47  
D-78054 Villingen-Schwenningen  
Phone +49 7720 3903-0  
Fax +49 7720 21564  
info@kuebler.com  
www.kuebler.com
- Turkey** .....  
Kübler Turkey Otomasyon  
Ticaret Ltd. Sti.  
Bahçelievler Mah.  
Serpinti Sok.No:6 Kat:4  
TR - 34893 Pendik/Istanbul  
Phone +90 216 999 9791  
Fax +90 216 999 9784  
cengizhan.temurcin@kuebler.com  
www.kuebler.com
- System Integrator  
ROBOSAN Otomasyon San.Tic. Ltd.  
Robosan Plaza Bahçelievler Mah.  
Serpinti Sok. No:6 Pendik  
TR-34893 Pendik/Istanbul  
Phone +90 216 340 39 70  
Fax +90 216 340 39 64  
info@robosan.com.tr  
www.robosan.com.tr
- Encoders, process devices and transmission technology:  
Sanil Teknik  
Elektrik San. ve Tic. Ltd. Sti.  
Okçumusa Caddesi  
Tusak Sokak  
No: 27/5 Karaköy  
TR-34420 Istanbul  
Phone +90 212 256 94 28  
Fax +90 212 256 94 04  
sanil@sanil.com.tr  
www.sanil.com.tr
- Counters:  
ERUZ Elektrik San. ve Tic. A.S.  
Necatibey Caddesi  
Sait Demirbaş Han No.5 K.1  
TR-34425 Istanbul  
Phone +90 212 2 93 60 36  
Fax +90 212 2 44 51 56  
eruzelektrik@eruzelektrik.com.tr  
www.eruzelektrik.com.tr
- Ukraine** .....  
SV Altera Ltd.  
4, Ivana Lepse blvd, Kyiv,  
UA-03680 Ukraine  
Phone +38 044 496-18-88  
Fax +38 044 496-18-18  
office@sv-altera.com  
www.svaltera.ua

Product overview  
Basics

Pulse counters

Preset counters

Hour meters  
Timers

Frequency displays  
Tachometers

Position displays

Multifunction  
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## America, Asia, Australia, Africa

### Catalog distributors: (Europe)

**Austria** .....  
Farnell GmbH  
Birkenstrasse 2  
A-5300 Salzburg/Hallwang  
Phone +43 662 - 218 06 80  
Fax +43 662 - 218 06 70  
verkauf.at@farnell.com  
www.farnell.at

RS Components  
Albrechtser Straße 11  
A-3950 Gmünd  
Phone +43 28 52 505  
Fax +43 28 52 53 223  
www.rs-components.at

**France** .....  
RS Components SAS  
Rue Norman King BP 40453  
F-60031 Beauvais CEDEX  
Phone +33 3 44 10 16 48  
Fax +33 3 44 10 16 44  
www.radiospares.fr

Farnell France SAS  
81-83 rue Henri Depagneux  
BP 60426 Limas  
F-69654 Villefranche sur  
Saône  
Cedex  
Phone +33 4 74 68 99 99  
Fax +33 4 74 68 99 90  
ventes@farnell.com  
www.farnell.fr

**Great Britain** .....  
RS Components Ltd.  
PO Box 99, Corby  
GB-Northants NN17 9RS  
Phone +44 84 58 50 99 00  
Fax +44 15 36 40 56 78  
www.rs-components.com

Farnell  
Canal Road  
GB-Leeds, LS12 2TU  
Phone +44 8447 11 11 11  
Fax +44 8447 11 11 13  
sales@farnell.co.uk  
www.farnell.co.uk

**Italy** .....  
RS Components S.p.A.  
Via De Vizzi 93/95  
I-20092, Cinisello Balsamo,  
Milano  
Phone +39 02 660 581  
Fax +39 02 660 580 51  
www.rs-components.it

Distrelec Italia s.r.l.  
Via Canova 40/42  
I-20020 Lainate (Mi)  
Phone +39 02 - 93 75 51  
Fax +39 02 - 93 75 57 55  
info-it@distrelec.com  
www.distrelec.com

**Switzerland** .....  
Distrelec AG  
Grabenstraße 6  
CH-8606 Nänikon  
Phone +41- 44 9 44 99 11  
Fax +41- 44 9 44 99 88  
www.distrelec.com

Farnell AG  
Brandschenkestr. 178  
Postfach 1703  
CH-8027 Zürich  
Phone +41 1 - 204 64 64  
Fax +41 1 - 204 64 54  
verkauf.ch@farnell.com  
www.farnell.ch

**Argentina** .....  
AUMECON S.A.  
Acassuso 4768  
1605 Munro  
Prov. de Buenos Aires  
Phone +54 11 47 56 1251  
Fax +54 11 47 62 63 31  
ventas@aumecon.com.ar  
www.aumecon.com.ar

**Australia** .....  
Balluff PTY LTD  
18 Malvern Street  
Bayswater, VIC 3153  
Phone +61 1300 225833  
Fax +61 1300 653894  
sales@balluff.com.au  
www.balluff.com.au

**Brazil** .....  
Brastronic Comércio e  
Serviço Importação e  
Exportação Ltda.  
Representante Exclusivo  
no Brasil  
Rua Antônio Pagano,  
43 - Jardim Prudência  
Cep 04368-040 São Paulo  
Phone +55 (11) 5670-8970  
vendas@kebbrazil.com.br  
www.kebbrazil.com.br

**Canada** .....  
Turck Chartwell Canada Inc.  
140 Duffield Drive  
Markham, Ontario L6G 1B5  
Phone +1 905 513 7100  
Fax +1 905 513 7101  
sales@www.chartwell.ca  
www.chartwell.ca

**China** .....  
Kuebler (Beijing) Automation  
Trading Co. Ltd.  
Rm 1603, B Area, Tower 2,  
Wangjing Soho,  
No.1 Futong East Street,  
Chaoyang, Beijing,  
China,100102  
Phone +86 10 8471 0818  
Fax: +86 10 8471 0819  
beijing@kuebler.com  
www.kuebler.com

**Egypt** .....  
AEE Advanced Electronic  
Engineering Co.  
14 Gamal EL Din Aly Khairy St.,  
AL Nozha AL Gadida  
Heliopolis, Cairo  
Tel. +202 26229472  
Fax +202 26229473  
sales.dep@aeecontrols.com  
www.aeecontrols.com

**Hong Kong** .....  
Po Kwong Electric (HK) Ltd.  
Rm. 177-180, 1/F, Blk C,  
Hang Wai Ind. Ctr.,  
6 Kin Tai St., Tuen Mun, N.T  
Phone +852 24 23 66 22  
Fax +852 24 61 10 02  
sales@pokwong.com  
www.pokwong.com

**India** .....  
Kuebler Automation India Pvt Ltd  
Plot No 677, S. No. 269/3,  
Paud Road, Bhugaon,  
Pune 412 115,  
Maharashtra  
Phone +91 99 7065 5599  
Phone +91 20 6790 1-200 / 230 /  
214 / 202  
Fax +91 20 6790 1232  
info@kuebler.in  
www.kuebler.in

**Indonesia** .....  
PT. Supra Engineering  
Jl. Pecenongan 17 D  
RI-10120 Jakarta  
Phone +62 21 345 73 55  
Fax +62 21 345 73 18  
atsupra@supra.co.id  
www.supra-engineering.com

**Israel** .....  
Omega Engineering  
P.o.Box 190  
Ein Carmel 30860  
Phone +972-4-9544993  
Fax +972-4-9544992  
info@omegae.net  
www.omegae.net

**Lebanon** .....  
Industrial Technologies S.A.L  
(ITEC)  
Blvd. Fouad Chehab  
Point Center, Sin El Fil, Beirut  
Phone +961 (1) 491161  
Phone +961 (1) 491162  
info@iteclb.com  
www.iteclb.com

**Malaysia** .....  
dpstar Smart Solutions Sdn Bhd  
No. 37-1, Jalan OP 1/2  
Pusat Perdagangan One Puchong,  
Off Jalan Puchong,  
47160 Puchong,  
Selangor Darul Ehsan,  
Malaysia  
Phone +603 8074 8866  
Fax +603 8074 8666  
christian@dpstar.com.my  
www.dpstar.com.my

**Mexico** .....  
TURCK Comercial, S. de RL de CV  
Blvd. Campestre No. 100  
Parque Industrial SERVER  
C.P. 25350 Arteaga, Coahuila  
Phone +52 844 411 6650  
Toll Free: 01-800-01-TURCK  
(Mexico only)  
Fax +52 844 482 6926  
mexico@turck.com  
www.turck.com.mx

**Morocco** .....  
r2i Consult SARL  
109 rue Montaigne Val  
Fleuri Maarif Casablanca  
Maroc  
Phone +212522986960  
Fax +212522989537  
info@r2imaroc.ma  
www.r2imaroc.com

**New Zealand** .....  
Carrel-Electrade Ltd.  
P.O. Box 11-078  
Eilerslie  
NZ-Auckland 1542  
Phone +64 95251753  
Fax +64 95251756  
sales@carrel-electrade.co.nz  
www.carrel-electrade.co.nz

**Peru** .....  
Techpro SAC  
Calle Alberto del Campo 414  
Magdalena del Mar  
Lima 17 - Peru  
Phone +51 98943 58-54  
Fax +51 17272 685  
techpro.peru@techprocorp.net  
www.techprocorp.net

**Philippines** .....  
Technorand Sales Coporation  
122 McArthur Highway  
0 Malabon, Metro Manila  
Phone +632 985 07 05  
Fax +632 716 59 86  
technorand@gmail.com

**Singapore** .....  
Raymond International Pte. Ltd.  
Blk 219 Henderson Road #07-04  
Henderson Industrial Park  
Singapore 159556  
Phone +65 62 76 37 38  
Fax +65 62 76 37 39  
sales@raymondcom.com  
www.raymondcom.com

**South Africa** .....  
Kübler Group  
DC Auto-Motion (Pty) Ltd.  
11 Sunrock Close,  
131 Sunnyrock, Ext. 2  
Germiston, Gauteng.  
Phone +27 11 453 1740  
Fax +27 86 508 5929  
dave@dcauto-motion.co.za  
www.kuebler.co.za

**South Korea** .....  
Kuebler Korea (by F&B)  
578, Kwaebop-dong, Sasang-ku  
Pusan Industrial Supplies  
Market 9-116  
PUSAN  
Phone +82 51 319 12 30  
Fax +82 51 319 12 50  
fnb@kuebler.co.kr  
www.kuebler.kr

**Taiwan, R.O.C.** .....  
• Encoders, transmission  
technology:  
E-E-Sensors & Automation Int'l Corp.  
No.17-2, Beichang 2nd St.  
Fengshan Dist.,  
Kaohsiung City 83053  
Taiwan, R.O.C.  
Phone +886-7-7323606  
Fax +886-7-7333023  
ez-corp@umail.hinet.net  
www.e-sensors.com.tw

• Electronic counters and  
process devices:  
Canaan Electric Corp.  
6F-5, No. 63, Sec. 2  
Chang An East Road  
Taipei  
Phone +886 225 08 23 31  
Fax +886 225 08 47 44  
sales@canaan-elec.com.tw  
www.canaan-elec.com.tw

**Thailand** .....  
Technology Instruments Co., Ltd.  
549/9 Onnut Road Kwaeng  
Pravet, Khet Pravet  
Bangkok 10250  
Phone +662 74 388 88  
Fax +662 74 388 43  
marketing@tic.co.th  
www.tic.co.th

**Tunisia** .....  
H2M Technologies  
13, Rue El Moutanabi  
TN-2037 El Menzah 7 - Tunis  
Phone +216 71 42 76 77  
Fax +216 71 42 76 88  
h2m.tech@planet.tn

**U.S.A.** .....  
**Kuebler Inc.**  
10430-J Harris Oak Boulevard  
Charlotte, NC 28269  
Phone +1-704-705-4710  
Toll Free +1-855-KUEBLER (583-2537)  
Fax +1-704-733-9170  
usa@kuebler.com  
www.kuebler.com/usa

• Counting and process  
technology:  
Howland Technology  
8129 North Austin AVE  
Morton Grove, IL 60053  
Toll-free number:  
1-800-951-8774  
Phone 847 965 9808  
Fax 847 901 9846  
sales@howlandtechnology.com  
www.kueblerusa.com

**United Arab Emirates** .....  
Baer Measurements LLC  
P.O. Box 111393  
Al Gaith Tower 1902,  
Hamdan Street  
Abu Dhabi - UAE  
Phone +971 2 627 2097  
Fax +971 2 627 2091  
info@bml.ae  
www.bml-international.com

**Vietnam** .....  
GNN Co., Ltd  
153, Nguyen Van Thu  
Da Koa Ward, District 1  
Ho Chi Minh City  
Phone +84 8 3517 4923  
Fax +84 8 3517 4924  
contact@gnnvietnam.com  
www.gnnvietnam.com

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## Contact partners in Germany

**PLZ 01000 ... 09999**  
**PLZ 15000 ... 15999**  
 Kübler Vertriebsbüro Süd-Ost  
 Lars Meyer  
 Durchfahrt 9  
 09569 Oederan  
 Phone +49 37292 283500  
 Fax +49 37292 283501  
 lars.meyer@kuebler.com

**PLZ 10000 ... 14999**  
**PLZ 16000 ... 19999**  
**PLZ 20000 ... 32999**  
**PLZ 38000 ... 39999**  
 Kübler Vertriebsbüro Nord  
 Hermi Herrmann  
 Mohndblumenweg 6  
 28876 Oyten  
 Phone +49 4207 6880-32  
 Fax +49 4207 6880-34  
 hermi.herrmann@kuebler.com

**PLZ 33000 ... 33999**  
 Kübler Vertriebsbüro West  
 Torsten Czubkowski  
 Auf der Ümcke 11 a  
 59757 Arnsberg  
 Phone +49 2932 891898  
 Fax +49 2932 53311  
 torsten.czubkowski@kuebler.com

**PLZ 34000 ... 37999**  
 Kübler Vertriebsbüro Mitte  
 Stefan Heinigk  
 Gartenstraße 10  
 35759 Driedorf  
 Phone +49 2775 578427  
 Fax +49 2775 578428  
 stefan.heinigk@kuebler.com

**PLZ 40000 ... 47999**  
 Kübler Vertriebsbüro West  
 Torsten Czubkowski  
 Auf der Ümcke 11a  
 59757 Arnsberg  
 Phone +49 2932 891898  
 Fax +49 2932 53311  
 torsten.czubkowski@kuebler.com

**PLZ 48000 ... 49999**  
 Kübler Vertriebsbüro Nord  
 Hermi Herrmann  
 Mohndblumenweg 6  
 28876 Oyten  
 Phone +49 4207 6880-32  
 Fax +49 4207 6880-34  
 hermi.herrmann@kuebler.com

**PLZ 50000 ... 54999**  
**PLZ 55300 ... 55999**  
**PLZ 56500 ... 56999**  
**PLZ 58000 ... 59999**  
 Kübler Vertriebsbüro West  
 Torsten Czubkowski  
 Auf der Ümcke 11a  
 59757 Arnsberg  
 Phone +49 2932 891898  
 Fax +49 2932 53311  
 torsten.czubkowski@kuebler.com

**PLZ 55000 ... 55299**  
**PLZ 56000 ... 56499**  
**PLZ 57000 ... 57999**  
 Kübler Vertriebsbüro Mitte  
 Stefan Heinigk  
 Gartenstraße 10  
 35759 Driedorf  
 Phone +49 2775 578427  
 Fax +49 2775 578428  
 stefan.heinigk@kuebler.com

**PLZ 60000 ... 65999**  
**PLZ 67000 ... 67599**  
**PLZ 68000 ... 69999**  
 Kübler Vertriebsbüro Mitte  
 Stefan Heinigk  
 Gartenstraße 10  
 35759 Driedorf  
 Phone +49 2775 578427  
 Fax +49 2775 578428  
 stefan.heinigk@kuebler.com

**PLZ 66000 ... 66999**  
**PLZ 67600 ... 67999**  
 Kübler Vertriebsbüro West  
 Torsten Czubkowski  
 Auf der Ümcke 11a  
 59757 Arnsberg  
 Phone +49 2932 891898  
 Fax +49 2932 53311  
 torsten.czubkowski@kuebler.com

**PLZ 70000 ... 79999**  
 Kübler Vertriebsbüro Süd-West  
 Michael Schwarz  
 Im Lug 36  
 74360 Ilsfeld  
 Phone +49 7133 2294895  
 Fax +49 7133 2294896  
 michael.schwarz@kuebler.com

**PLZ 80000 ... 83999**  
**PLZ 87000 ... 87999**  
**PLZ 89200 ... 89499**  
 Kübler Vertriebsbüro Süd  
 Schubertstraße 47  
 78054 VS-Schwenningen  
 Phone +49 7720 3903-0  
 Fax +49 7720 21564  
 info@kuebler.com

**PLZ 84000 ... 86999**  
 Kübler Vertriebsbüro Süd-Ost  
 Lars Meyer  
 Durchfahrt 9  
 09569 Oederan  
 Phone +49 37292 283500  
 Fax +49 37292 283501  
 lars.meyer@kuebler.com

**PLZ 88000 ... 89199**  
**PLZ 89500 ... 89999**  
 Kübler Vertriebsbüro Süd-West  
 Michael Schwarz  
 Im Lug 36  
 74360 Ilsfeld  
 Phone +49 7133 2294895  
 Fax +49 7133 2294896  
 michael.schwarz@kuebler.com

**PLZ 90000 ... 95999**  
 Kübler Vertriebsbüro Süd-Ost  
 Lars Meyer  
 Durchfahrt 9  
 09569 Oederan  
 Phone +49 37292 283500  
 Fax +49 37292 283501  
 lars.meyer@kuebler.com

**PLZ 96000 ... 99999**  
 Kübler Vertriebsbüro Mitte  
 Stefan Heinigk  
 Gartenstraße 10  
 35759 Driedorf  
 Phone +49 2775 578427  
 Fax +49 2775 578428  
 stefan.heinigk@kuebler.com

### Approved system partners/ distributors

**22149 Hamburg**  
 Hermann Seidel GmbH  
 Techn. Vertretungen  
 Rahlstedter Str. 16  
 Phone +49 40 675085-0  
 Fax +49 40 675085-85  
 info@seidel-gmbh.de  
 www.seidel-gmbh.de

**42499 Hückeswagen**  
 Fuhrmeister + Co. GmbH  
 Industrie-Elektronik  
 Stahlschmidtsbrücke 61  
 Phone +49 2192 851122  
 Fax +49 2192 851127  
 info@fuhrmeister-gmbh.de  
 www.fuhrmeister-gmbh.de

**66287 Götterborn**  
 Herbert Neundoerfer  
 GmbH & Co. KG  
 Werksvertretungen  
 Am Campus 5  
 Phone +49 6825 9545-0  
 Fax +49 6825 9545-99  
 info@herbert-neundoerfer.de  
 www.herbert-neundoerfer.de

**82069 Hohenschäftlarn**  
 Bachmann  
 Electronic GmbH  
 Am Wagnerfeld 4  
 Phone +49 8178-8676-0  
 Fax +49 8178-8676-50  
 info@bachmann-electronic.de  
 www.bachmann-electronic.de

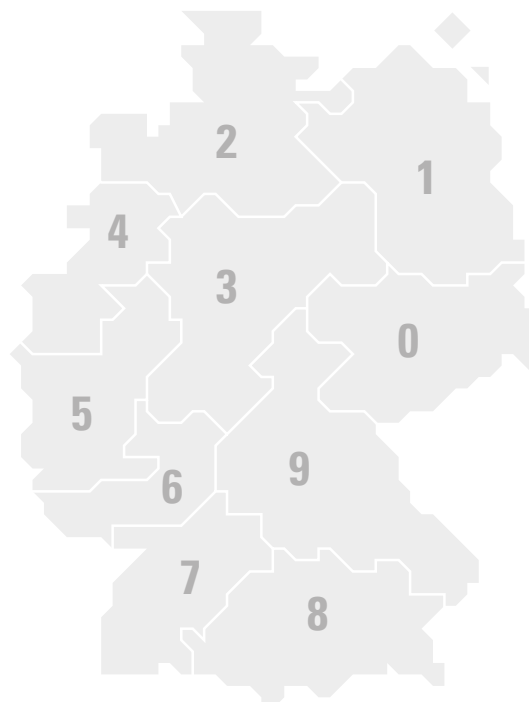
### Catalogue distributors (Germany):

**28359 Bremen**  
 Distrelec Schuricht GmbH  
 Lise Meitner-Str. 4  
 Phone +49 1805 2234-35  
 Fax +49 1805 2234-36  
 scc@distrelec.de  
 www.distrelec.de

**64546 Mörfelden-Walldorf**  
 RS Components GmbH  
 Hessenring 13 b  
 Phone +49 6105 401234  
 Fax +49 6105 401100  
 www.rs-components.de

**82041 Oberhaching**  
 Farnell GmbH  
 Keltenring 14  
 Phone +49 89 61393939  
 www.farnell.de

**92240 Hirschau**  
 Conrad Electronic SE  
 Klaus-Conrad-Straße 1  
 92240 Hirschau  
 Phone +49 9604 408 787  
 www.conrad.com



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South Korea  
Taiwan, R.O.C  
Thailand  
United Arab Emirates  
Vietnam

**Kübler Group**  
**Fritz Kübler GmbH**  
Schubertstrasse 47  
D-78054 Villingen-Schwenningen  
Germany  
Phone +49 7720 3903-0  
Fax +49 7720 21564  
info@kuebler.com  
www.kuebler.com

[www.kuebler.com/counters](http://www.kuebler.com/counters)  
[www.kuebler.com/process\\_devices](http://www.kuebler.com/process_devices)