

# Circutor

RS-485 - LoRa™ converter

**Bridge LR**



**INSTRUCTION MANUAL**

(M377B01-03-22A)





**SAFETY PRECAUTIONS**

Follow the warnings described in this manual with the symbols shown below.

**DANGER**

Warns of a risk, which could result in personal injury or material damage.

**ATTENTION**

Indicates that special attention should be paid to a specific point.

If you must handle the unit for its installation, start-up or maintenance, the following should be taken into consideration:



Incorrect handling or installation of the device may result in injury to personnel as well as damage to the device. In particular, handling with voltages applied may result in electric shock, which may cause death or serious injury to personnel. Defective installation or maintenance may also lead to the risk of fire.

Read the manual carefully prior to connecting the device. Follow all installation and maintenance instructions throughout the device's working life. Pay special attention to the installation standards of the National Electrical Code.

**Refer to the instruction manual before using the device**

In this manual, if the instructions marked with this symbol are not respected or carried out correctly, it can result in injury or damage to the device and /or installations.

CIRCUTOR S.A.U. reserves the right to modify features or the product manual without prior notification.

**DISCLAIMER**

CIRCUTOR S.A.U. reserves the right to make modifications to the device or the unit specifications set out in this instruction manual without prior notice.

CIRCUTOR S.A.U. on its web site, supplies its customers with the latest versions of the device specifications and the most updated manuals.

[www.circutor.com](http://www.circutor.com)



**CIRCUTOR S.A.U.** recommends using the original cables and accessories that are supplied with the device.

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## REVISION LOG

Table 1:Revision log.

Date	Revision	Description
10/22	M377B01-03-22A	Initial Version

## SYMBOLS

Table 2: Symbols.

Symbol	Description
	Compliant with the relevant European standards.
	Device covered by European directive 2012/19/EC. At the end of its useful life, do not leave the unit in a household waste container. Follow local regulations on electronic equipment recycling.
	DC current
	AC current

**Note:** The images of the devices are for illustrative purposes only and may differ from the original device.

## 1.- VERIFICATIONS UPON RECEPTION

The following must be checked upon reception of the device:

- a) The device has been supplied according to the specifications in your order.
- b) The device has not been damaged during transport.
- c) Perform an external visual inspection of the device before connecting it.
- d) Check that it has been supplied with the following:

- An installation guide



Immediately contact the carrier and/or **CIRCUTOR's** after-sales service if you detect any problem in the device upon reception.

## 2.- PRODUCT DESCRIPTION

**Bridge LR** is a gateway that makes the conversion between the **RS-485** physical environment and the **LoRa™** long-range wireless network.

The device is fully configurable using a configuration software.



**CIRCUTOR** has 2 models:

- ✓ **Bridge LR PSAC**, AC powered.
- ✓ **Bridge LR PSDC**, DC.

The device has:

- **3 indicating LEDs** to check transmission status.
- **1 push-button**

### 3.- INSTALLING THE DEVICE

#### 3.1.- PRELIMINARY RECOMMENDATIONS



In order to use the device safely, it is critical that individuals who handle it follow the safety measures set out in the standards of the country where it is being used, use the personal protective equipment necessary (rubber gloves, face protection and approved flame-resistant clothing) to prevent injuries due to electric shock or electric arc due to exposure to current-carrying conductors and pay attention to the various warnings indicated in this instruction manual.

The **Bridge LR** must be installed by authorised and qualified staff.

The power supply must be disconnected before handling, altering the connections or replacing the device. Handling the device while it is connected is hazardous to people nearby.

It is essential to keep the cables in a perfect condition to avoid accidents, personal injury and damage to installations.

Limit the operation of the device to measuring the specified current or voltage values.


The manufacturer of the device shall not be held responsible for any damage resulting from the user or installation company failing to observe the warnings and/or recommendations indicated in this manual nor for any damage resulting from the use of non-original products or accessories or those from other brands.

Do not use the device to take measurements if you detect an anomaly or malfunction.



The device must be disconnected from its power supply sources (power supply and measurement) before undertaking any installation, repair or handling operations on the device's connections. Contact the after-sales service if you suspect that there is an operational fault in the device.

3.2.- INSTALLATION



While the device is connected, the terminals, opening the cover or removing elements may expose hazardous live parts. The device must not be used until the installation process is complete.

Bridge LR has been designed for DIN rail assembly.

3.3.- TERMINALS OF THE DEVICE

3.3.1.- MODEL Bridge LR PSAC

Table 3:List of terminals of Bridge LR PSAC.

Terminals of the device	
1: L, Power supply	4: B(-), RS-485 port
2: N, Power supply	5: GND, RS-485 port
3: A(+), RS-485 port	

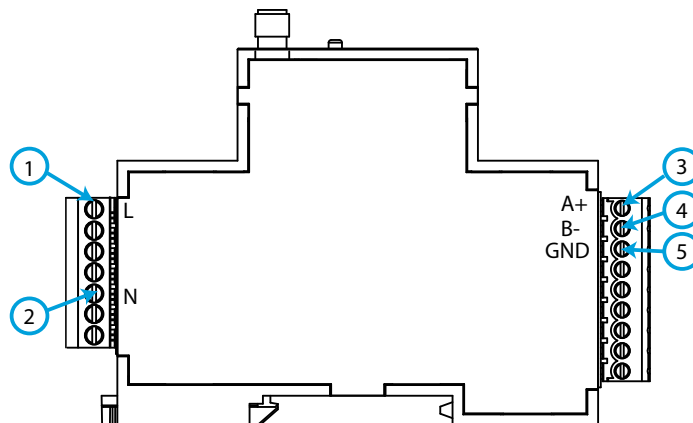


Figure 1:Bridge LR PSAC terminals.

3.3.2.- MODEL Bridge LR PSDC

Table 4:List of terminals of Bridge LR PSDC.

Terminals of the device	
1: V-, Power supply	4: B(-), RS-485 port
2: V+, Power supply	5: GND, RS-485 port
3: A(+), RS-485 port	



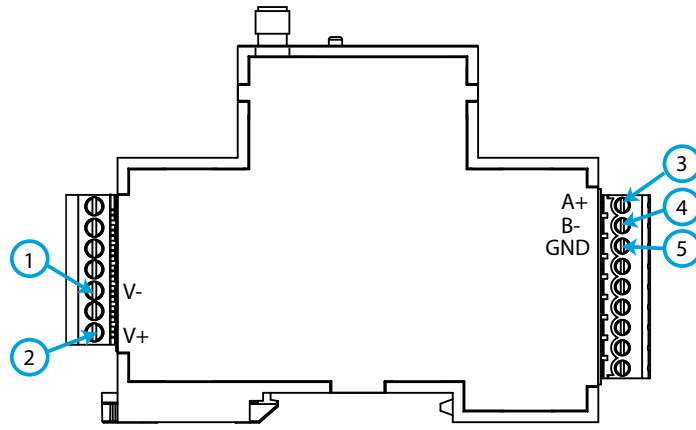


Figure 2: Bridge LR PSDC terminals.

4.- OPERATION

4.1.- LEDs

The **Bridge LR** has 3 LEDs to indicate transmission status, **Table 5**.

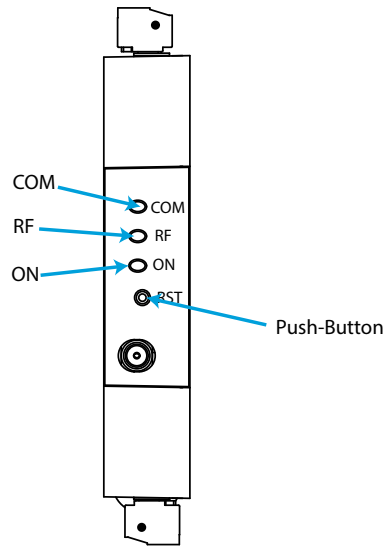


Figure 3: LEDs.

Table 5: LEDs.

LEDs	State
ON	Power supply <i>Green: Activity</i>
RF	LoRa™ communications <i>Red slow flashing</i> : data transmission <i>Green fast flashing</i> : data reception <i>Blue</i> : Silence / Waiting time (only in Master mode)
COM	RS-485 communications <i>Red fast flashing</i> : data transmission <i>Green fast flashing</i> : data reception

4.2.- PUSH-BUTTON

The **Bridge LR** has 1 push-button (**RST** or **RESET**) to reset the device; see **Figure 3**.

### 4.3.- OPERATING PRINCIPLE

The **Bridge LR** is a gateway for converting data between the **RS-485** physical environment and the **LoRa™** long-range wireless network.

These devices can be used to connect multiple **RS-485** buses to a master, considerably reducing the cabling required. This can be done by simply connecting an **Bridge LR** configured as the Master to the **RS-485** master, and an **LR1RS +** configured as the Slave to each of the buses to be connected; see **Figure 4**.

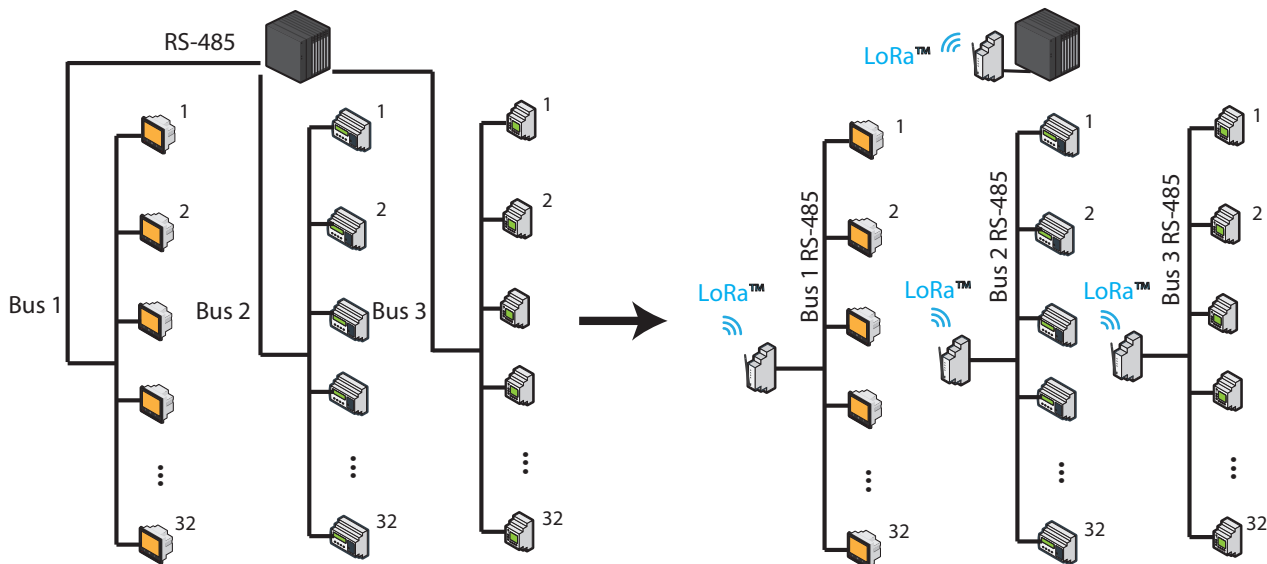


Figure 4: Example of LoRa™ connection.

There can be up to 32 end devices on each communications bus.

Communication between the **Bridge LR** master and slave devices is fully transparent, therefore allowing straightforward installation by simply controlling transmission time between messages and the time-out period from the application's master.

### 4.4.- LoRa™ COMMUNICATION PARAMETERS

The device is connected to **LoRa™** radio technology for private networks.



**Bridge LR** devices can only be used in private networks and cannot be connected to LoRaWAN networks.

In Europe the frequency for **LoRa™** communications is the 868 MHz ISM free band, allowing configuration of up to 9 different channels between 865.1 MHz (channel 0) and 869.85 MHz (channel 9). The default frequency is 869.525 (channel 7).

The channels have different settings of working time and silence time depending on restrictions of each frequency. The **Table 6** shows the **Duty cycle** of each frequency channel which is the percentage of time that it's allowed to transmit in each channel. The smaller the duty cycle is, more restrictive the transmission period is. It's recommended to use channels with bigger duty cycle for applications that

require a faster data refresh time.

Table 6: Duty cycle.

Channel	Frequency	Duty cycle
0	865.1 MHz	1 %
1	865.2 MHz	1 %
2	865.6 MHz	1 %
3	868.5 MHz	1 %
4	868.3 MHz	1 %
5	868.85 MHz	0.10 %
6	868.95 MHz	0.10 %
7	869.525 MHz	10 %
8	869.85 MHz	1 %

The device has 10 transmission and reception modes (Table 7) in order to select speeds between 300 bps and 21875 bps, with the option of increasing communication speed by trading off transmission signal range.

A period of silence during which the device cannot transmit has been set in order to respect the spectral limitation, in accordance with the transmission mode selected in the master; during this time, the RF LED lights up in blue and the device returns "Occupied" through the serial channel.

Table 7: Transmission and Reception modes.

Mode	Bits per second	Description
0	292.97 bps	Maximum distance:  (Max: 15 km), Minimum bit rate:
1	585.94 bps	(Max: 7.50 km),
2	976.56 bps	(Max: 4.50 km),
3	1171.88 bps	(Max: 3.75 km),
4	1953.13 bps	(Max: 2.25 km),
5	2148.44 bps	(Max: 2.05 km),
6	3515.63 bps	(Max: 1.25 km),
7	7031.25 bps	(Max: 0.63 km),
8	12500 bps	(Max: 0.35 km),
9	21875 bps	Minimum distance:  (Max: 0.20 km), Maximum bit rate:

## 4.5.- LoRa™ COMMUNICATION RULES

In a **LoRa™** installation, the following times must be taken into account:

✓ **Transmission time:** It's the time it takes for a data submission to go out of the Modbus Master, get the data from the Modbus slave and return to the Modbus Master (a complete communication cycle). On **LoRa™** communications, it could take from 0,5 to 10 seconds, depending on **Bridge LR** configuration.

✓ **Silence time:** According on the configuration of Mode, Frequency and Transmission time, **Bridge LR** Master fix a silence time. During this time, all RS-485 communication through the **LoRa™** network are blocked. If the Modbus Master continues sending data requests, it will receive timeout answers.

✓ **Time between transmissions:** From the point of view of Modbus Master, it's the time between RS-485 or Ethernet requests. Basically, the sending cadence.

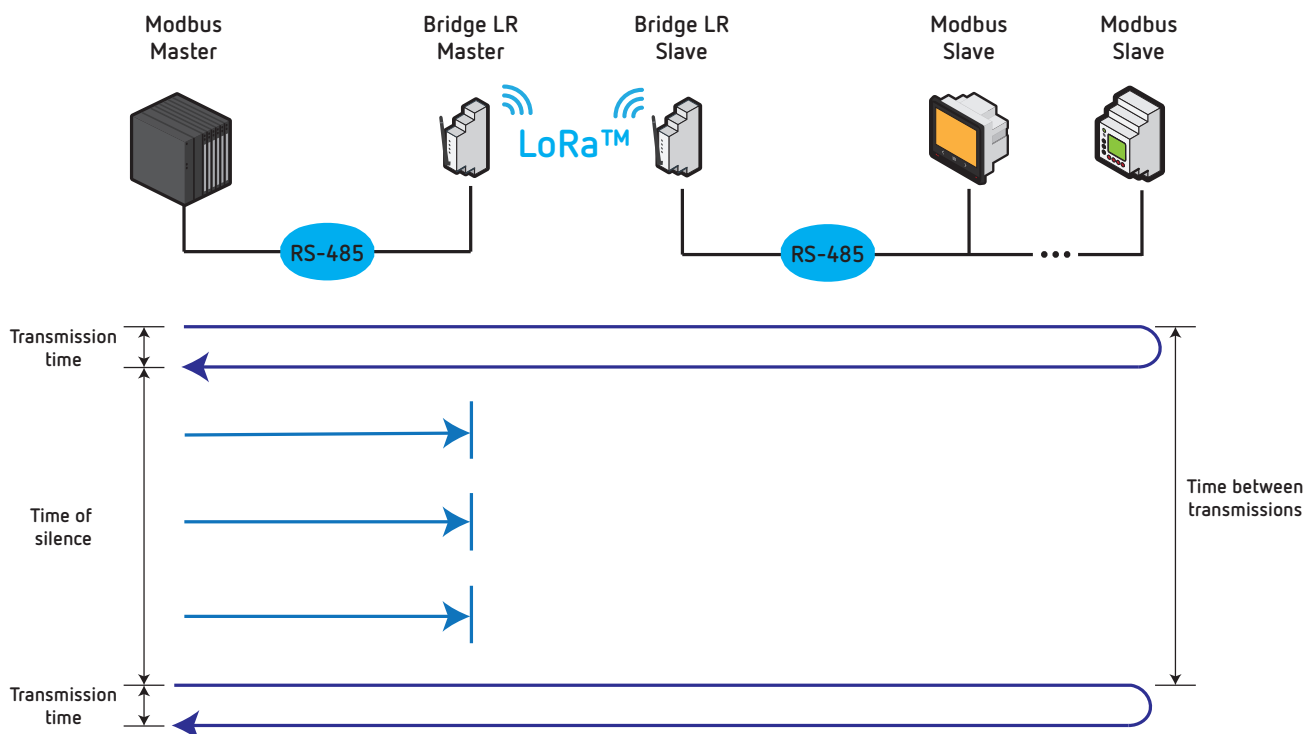


Figure 5: Times in LoRa™ communications.

Based on these times, we establish 2 communication rules that must be applied at the **Modbus Master**.

**Rule #1:** Is completely mandatory in order to establish communication with the Modbus slaves through a **Bridge LR** network:

$$\text{Timeout RX Master Modbus} > \text{Transmission time}$$

**Rule #2:** It allows avoiding having timeouts in the communication bus of the Modbus Master since the Time between transmissions becomes greater than the Transmission Time required plus the Silence Time that the **Bridge LR** Master (RF LED in blue):

$$\text{Time between transmissions} = \text{Transmission time} + \text{Silence time}$$

#### 4.6.- LoRa™ TRANSMISSION CYCLE

In order to reach a wireless communication between the Modbus master and the Modbus slaves (via **Bridge LR**), timing rules must be configured on the Modbus master responsible to communicate with the devices.

In order to facilitate the configuration of the Modbus masters, **Table 8** and **Table 9** show a guide to the Transmission Times and Silence Times generated in two common scenarios, such as the request of 1 and 2 Modbus registers.

The **Transmission time** must be configured as timeout; and the **Total time** must be configured as **Time between transmissions** in the Modbus Master. The first one is totally mandatory for the application to work, while the second one will allow us to control the cadence of questions to be able to make sequential and orderly requests, and thus avoid having Modbus communication errors during the silence time of the **Bridge LR** Master.

##### 1.- Transmission of 1 Modbus register (16 bits)

Table 8:Transmission of 1 Modbus register (16 bits).

LoRa™ Mode	Transmission time	Silence time	Total time
0	4 s	8 s	12 s
1	3 s	3 s	6 s
2	2 s	3 s	5 s
3	2 s	2 s	4 s
4	1 s	2 s	3 s
5	1 s	1 s	2 s
6	1 s	1 s	2 s
7	1 s	1 s	2 s
8	0.402 s	1 s	1.402 s
9	≈ 0	≈ 0	0.126 s

##### 2.- Transmission of 2 Modbus register (32 bits)

Table 9:Transmission of 2 Modbus register (32 bits).

LoRa™ Mode	Transmission time	Silence time	Total time
0	4 s	16 s	18 s
1	3 s	6 s	9 s
2	3 s	3 s	6 s
3	2 s	3 s	5 s
4	2 s	2 s	4 s
5	1 s	2 s	3 s
6	1 s	1 s	2 s
7	1 s	1 s	2 s
8	0.804 s	1 s	1.804 s
9	≈ 0	≈ 0	0.196 s

## 4.7.- RS-485 COMMUNICATION

The **Bridge LR** have one RS-485 communications port, with **MODBUS RTU**®, for reading and writing the device parameters.

In the Modbus protocol uses the RTU (Remote Terminal Unit) mode.  
The Modbus functions implemented in the device are as follows:

**Function 0x03:** Read holding registers.

**Function 0x06:** Preset single register.

**Function 0x10:** Preset multiple registers.

**Note:** All the addresses of Modbus memory are in Hexadecimal.

Table 10: Modbus memory map.

Parameter	Address	Function	Values	Default values
Serial number	00 - 03	03	-	-
Software version	04 - 05	03	-	-
Hardware version	07	03	-	-
Peripheral number	0E - 0F	03, 06, 10	-	1
RS-485 communication	10 - 11	03, 06, 10	0: 9600, 8, N, 1 1: 19200, 8, N, 1 2: 38400, 8, N, 1 3: 57600, 8, N, 1 4: 115200, 8, N, 1 5: 9600, 8, E, 1 6: 19200, 8, E, 1 7: 9600, 8, N, 2 8: 19200, 8, N, 2 13: 38400, 8, N, 2	9600, 8, N, 1
Operating mode	12 - 13	03, 06, 10	0: Slave 1: Master	0
Silence time (only Master)	1E - 1F	03	ms	-
LoRa™ mode UpLink	50 - 51	03, 06, 10	0: 292.97 bps 1: 585.94 bps 2: 976.56 bps 3: 1171.88 bps 4: 1953.13 bps 5: 2148.44 bps 6: 3515.63 bps 7: 7031.25 bps 8: 12500 bps 9: 21875 bps	0
LoRa™ mode DownLink	52 - 53	03, 06, 10		0
LoRa™ frequency UpLink	54 - 55	03, 06, 10	0: 865.1 MHz 1: 865.2 MHz 2: 865.6 MHz 3: 868.5 MHz 4: 868.3 MHz 5: 868.85 MHz 6: 868.95 MHz 7: 869.525 MHz 8: 869.85 MHz	7
LoRa™ frequency DownLink	56 - 57	03, 06, 10		7

Table 10 (Continuation): Modbus memory map.

Parameter	Adress	Function	Values	Default values
Radio synchronization ID	58 - 59	03, 06, 10	<b>0:</b> No subnetworks <b>Other:</b> Subnetwork ID	-
Radio signal strength <sup>(1)</sup>	1004	04	<b>MSB:</b> RSSI (negative dBm) <b>LSB:</b> SNR <sup>(2)</sup>	-

<sup>(1)</sup> Parameter available for firmware version 11.0 or later.

<sup>(2)</sup> If  $0 < \text{SNR} < 15$ , Positive. If  $\text{SNR} > 15$ , Subtract 0xFF and process as Negative.

If the peripheral address assigned to a device is forgotten, the default value can be retrieved as follows:

- 1.- Press the **RST** or **RESET**(Bridge LR PSDC model) push-button for 10 seconds.
- 2.- All the LEDs flash and the device returns to its factory settings when the push-button is released.



## 5.- CONFIGURATION SOFTWARE

The **Bridge LR** is configured using PC software, which can be downloaded from the website ([www.circutor.com](http://www.circutor.com)).

Proceed as follows to start configuration:

- 1.- Connect the **Bridge LR** to the computer via a USB - RS-485 gateway.
- 2.- Run the Configuration software on the computer, which will display the screen in **Figure 6**.



Figure 6: Configuration software: Home screen.

3.- In the **Connection parameters** section, select:

- ✓ The Communications **Port** assigned by the PC.
- ✓ The **Communication mode**.
- ✓ The **Peripheral number**.

4.- Once the device is communicating with the PC, the connection icon turns green, displaying the **Informative parameters** and the default **RS-485** and **LoRaTN parameters** (**Figure 7**).

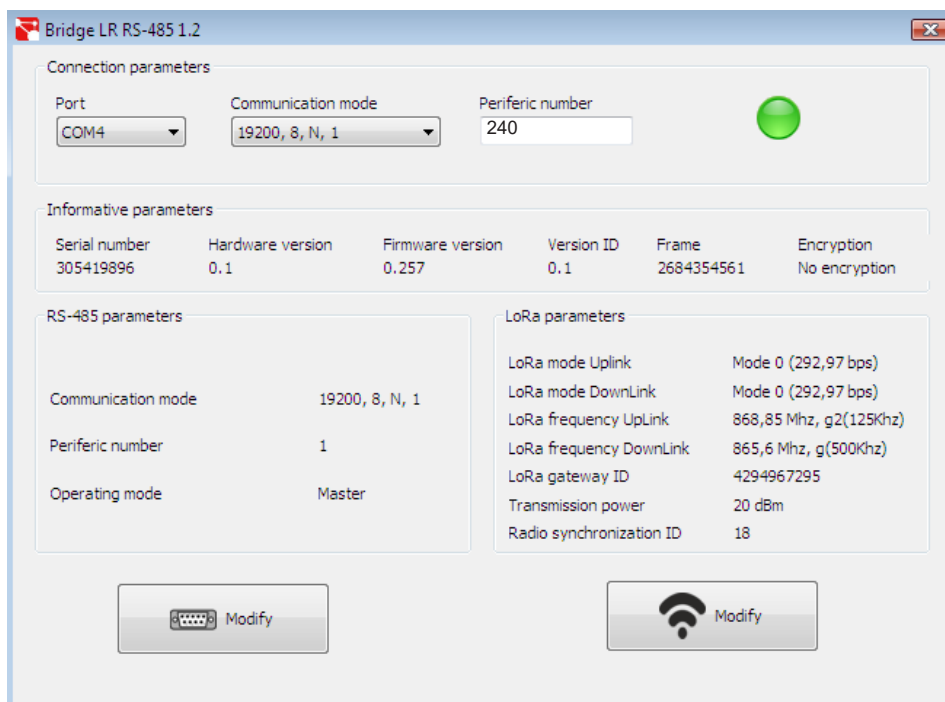



Figure 7: Configuration software: Device connected.

5.- Press the  Modify button to change the **RS-485** communication parameters. The window shown in **Figure 8** will be displayed.

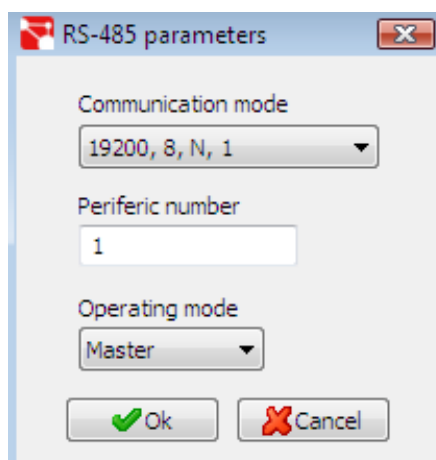


Figure 8: Configuration software: RS-485 parameters.

The following items can be modified in this window:

- ✓The **Communication mode**.
- ✓The **Periferic number**.
- ✓The Device's **Operating mode**, i.e. whether the **Bridge LR** will work as the installation's Master or Slave.

**Note:** Only the device that connects to the **RS-485** master can be configured as the Master in the installation.

Press  to send the changes to the device. The changes are applied automatically.

6.- Press the  button to change the **LoRa™** communication parameters. The window shown in **Figure 9** will be displayed.

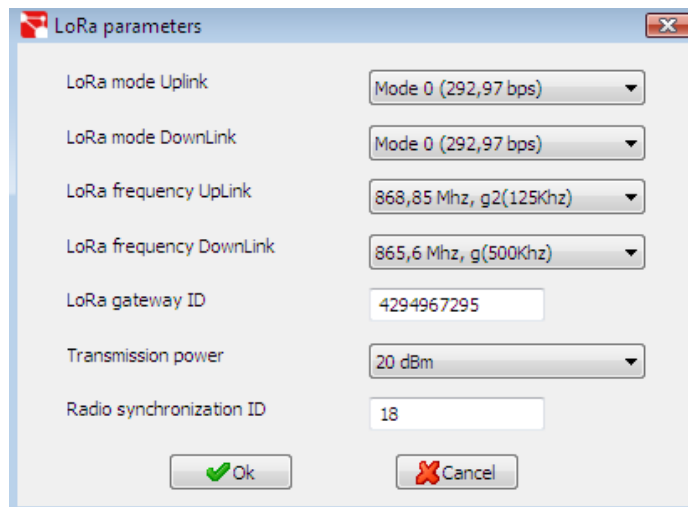


Figure 9: Configuration software: LoRa™. parameters.

The following items can be modified in this window:

- ✓ LoRa mode Uplink.
- ✓ LoRa mode DownLink.
- ✓ LoRa frequency Uplink.
- ✓ LoRa frequency DownLink.
- ✓ LoRa gateway ID.
- ✓ Transmission power.
- ✓ Radio synchronization ID.

For basic configuration, simply ensure that the **Radio synchronization ID** parameter has the same value in all devices, both in the installation's Master and in all the Slaves to be communicated.

The other parameters should only be altered in the event of radio communication problems.

Press  to send the changes to the device. The changes are applied automatically.

## 6.- TECHNICAL FEATURES

AC Power supply: Bridge LR PSAC	
Rated voltage	110 ... 264 V ~
Frequency	47 ... 63 Hz
Maximum Consumption	2.5 ... 4.5 VA
Installation category	CAT III 300V
DC Power supply: Bridge LR PSDC	
Rated voltage	9 ... 36 V ==
Maximum Consumption	1 W
Installation category	CAT III 300V
Serial interface	
Type	RS-485 3 wire
Baud rate	9600 - 19200 - 38400 - 57600 - 115200 bps
Data bits	8
Parity	without - even
Stop bits	1 - 2
Wireless interface	
Technology	LoRa™
Frequency (Europe)	868 MHz ISN band (9 channels)
Standard range	1 km indoor 20 km exterior with direct vision
User interface	
LEDs	3 LEDs
Button	1
Environmental features	
Operating temperature	-10°C ... +60°C
Relative humidity	5 ... 95 %
Maximum altitude	2000 m
Protection degree	IP20
Mechanical features	
Dimensions (mm)	Figure 10
Weight	90 g.
Enclosure	Plastic UL94 - Self-extinguishing V0
Attachment	DIN rail
Electrical safety	
Protection against electric shock	Double insulation class II
Standars	
Safety requirements for electrical equipment for measurement, control and laboratory use -- Part 1: General requirements	EN 61010-1
Electromagnetic compatibility (EMC) -- Part 6-2: Generic standards - Immunity for industrial environments	EN 61000-6-2
Electromagnetic compatibility (EMC) -- Part 6-4: Generic standards - Emission standard for industrial environments	EN 61000-6-4

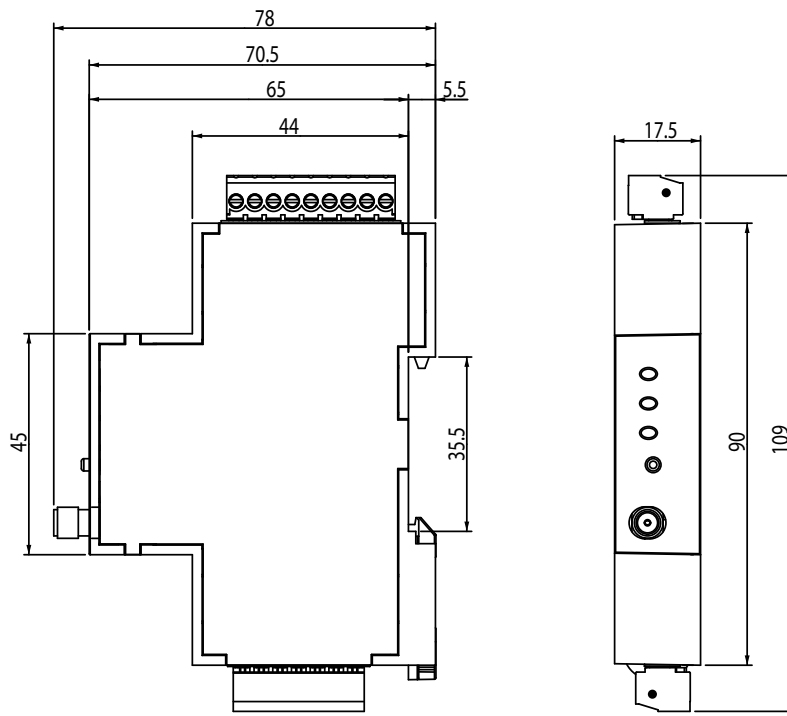


Figure 10: Bridge LR PSAC dimensions.

## 7.- MAINTENANCE AND TECHNICAL SERVICE

The device does not need any maintenance.

In the case of any query in relation to device operation or malfunction, please contact the **CIRCUTOR S.A.U.** Technical Support Service.

### Technical Assistance Service

Vial Sant Jordi, s/n, 08232 - Viladecavalls (Barcelona)

Tel: 902 449 459 (Spain) / +34 937 452 919 (outside of Spain)

email: sat@circutor.com

## 8.- WARRANTY

**CIRCUTOR** guarantees its products against any manufacturing defect for two years after the delivery of the units.

**CIRCUTOR** will repair or replace any defective factory product returned during the guarantee period.



- No returns will be accepted and no unit will be repaired or replaced if it is not accompanied by a report indicating the defect detected or the reason for the return.
- The guarantee will be void if the units has been improperly used or the storage, installation and maintenance instructions listed in this manual have not been followed. "Improper usage" is defined as any operating or storage condition contrary to the national electrical code or that surpasses the limits indicated in the technical and environmental features of this manual.
- **CIRCUTOR** accepts no liability due to the possible damage to the unit or other parts of the installation, nor will it cover any possible sanctions derived from a possible failure, improper installation or "improper usage" of the unit. Consequently, this guarantee does not apply to failures occurring in the following cases:
  - Overvoltages and/or electrical disturbances in the supply;
  - Water, if the product does not have the appropriate IP classification;
  - Poor ventilation and/or excessive temperatures;
  - Improper installation and/or lack of maintenance;
  - Buyer repairs or modifications without the manufacturer's authorisation.

9.- UE DECLARATION OF CONFORMITY

CIRCUITOR, S.A.U. – Vial Sant Jordi, s/n  
08232 Viladecavalls (Barcelona) Spain  
(+34) 937 452 900 – info@circutor.com



**(FR)** **DECLARATION UE DE CONFORMITÉ**  
La présente déclaration de conformité est délivrée sous la responsabilité exclusive de CIRCUITOR dont l'adresse postale est Vial Sant Jordi, s/n – 08232 Viladecavalls (Barcelone) Espagne

**(EN)** **EU DECLARATION OF CONFORMITY**  
This declaration of conformity is issued under the sole responsibility of CIRCUITOR with registered address at Vial Sant Jordi, s/n – 08232 Viladecavalls (Barcelona) Spain

**(ES)** **DECLARACIÓN UE DE CONFORMIDAD**  
La presente declaración de conformidad se expide bajo la exclusiva responsabilidad de CIRCUITOR con dirección en Vial Sant Jordi, s/n – 08232 Viladecavalls (Barcelona) España

Produit:  
**Convertisseur LoRa™ à RS-485**

Product:  
**LoRa™ to RS-485 converter**

Producto:  
**Convertor LoRa™ a RS-485**

Série:  
**Bridge LR**

Series:  
**Bridge LR**

Serie:  
**Bridge LR**

Marque:  
**CIRCUITOR**

Brand:  
**CIRCUITOR**

Marca:  
**CIRCUITOR**

L'objet de la déclaration est conforme à la législation d'harmonisation pertinente dans l'UE, à condition d'avoir été installé, entretenu et utilisé dans l'application pour laquelle il a été fabriqué, conformément aux normes d'installation applicables et aux instructions du fabricant  
2014/35/EU: Low Voltage Directive 2014/30/EU: EMC Directive 2011/65/EU: RoHS2 Directive 2015/863/EU: RoHS Directive

The object of the declaration is in conformity with the relevant EU harmonisation legislation, provided that it is installed, maintained and used for the application for which it was manufactured, in accordance with the applicable installation standards and the manufacturer's instructions  
2014/35/EU: Low Voltage Directive 2014/30/EU: EMC Directive 2011/65/EU: RoHS2 Directive 2015/863/EU: RoHS Directive

EL objeto de la declaración es conforme con la legislación de armonización pertinente en la UE, siempre que sea instalado, mantenido y usado en la aplicación para la que ha sido fabricado, de acuerdo con las normas de instalación aplicables y las instrucciones del fabricante  
2014/35/EU: Low Voltage Directive 2014/30/EU: EMC Directive 2011/65/EU: RoHS2 Directive 2015/863/EU: RoHS Directive

Il est en conformité avec la(les) suivante(s) norme(s) ou autre(s) document(s) réglementaire (s):  
IEC 61010-1:2010+AMD1:2016 Ed 3.0 IEC 61000-6-2:2016 Ed 3.0  
IEC 61000-6-4:2018 Ed 3.0 IEC 63000-2016 Ed 1.0

It is in conformity with the following standard(s) or other regulatory document(s):  
IEC 61010-1:2010+AMD1:2016 Ed 3.0 IEC 61000-6-2:2016 Ed 3.0  
IEC 61000-6-4:2018 Ed 3.0 IEC 63000:2016 Ed 1.0

Está en conformidad con la(s) siguiente(s) norma(s) u otro(s) documento(s) normativos(s):  
IEC 61010-1:2010+AMD1:2016 Ed 3.0 IEC 61000-6-2:2016 Ed 3.0  
IEC 61000-6-4:2018 Ed 3.0 IEC 63000:2016 Ed 1.0



Année de marquage « CE »:  
2018

Year of CE mark:  
2018

Año de marcado "CE":  
2018

Viladecavalls (Spain), 3/11/2022  
Chief Executive Officer: Joan Comellas Cabeza



**KONFORMITÄTSERKÄRUNG UE**

Vorliegende Konformitätserklärung wird unter alleiniger Verantwortung von CIRCUTOR mit der Anschrift, Vial Sant Jordi, s/n – 08232 Viladecavalls (Barcelona) Spanien, ausgestellt

Produkt:

**Umsetzer LoRa™ zu RS-485**

Série:

**Bridge LR**

Marke:

**CIRCUTOR**

Der Gegenstand der Konformitätserklärung ist konform mit der geltenden Gesetzgebung zur Harmonisierung der EU, sofern die Installation, Wartung und Verwendung der Anwendung seinem Verwendungszweck entsprechend gemäß den geltenden Installationsstandards und der Vorgaben des Herstellers erfolgt.

2014/35/EU: Low Voltage Directive 2014/30/EU: EMC Directive  
2011/65/EU: RoHS2 Directive 2015/863/EU: RoHS Directive

Es besteht Konformität mit der/den folgender/folgenden Norm/Normen oder sonstigem/sonstiger Regelwerk/Regelwerken

IEC 61010-1:2010+AMD1:2016 Ed 3.0 IEC 61000-6-2:2016 Ed 3.0  
IEC 61000-6-4:2018 Ed 3.0 IEC 63000:2016 Ed 1.0

Jahr der CE-Kennzeichnung: 2018



**DECLARAÇÃO DA UE DE CONFORMIDADE**

A presente declaração de conformidade é expedida sob a exclusiva responsabilidade da CIRCUTOR com morada em Vial Sant Jordi, s/n – 08232 Viladecavalls (Barcelona) Espanha

Produto:

**Conversor LoRa™ a RS-485**

Série:

**Bridge LR**

Marca:

**CIRCUTOR**

O objeto da declaração está conforme a legislação de harmonização pertinente na UE, sempre que seja instalado, mantido e utilizado na aplicação para a qual foi fabricado, de acordo com as normas de instalação aplicáveis e as instruções do fabricante.

2014/35/EU: Low Voltage Directive 2014/30/EU: EMC Directive  
2011/65/EU: RoHS2 Directive 2015/863/EU: RoHS Directive

Está em conformidade com a(s) seguinte(s) norma(s) ou outro(s) documento(s) normativo(s):

IEC 61010-1:2010+AMD1:2016 Ed 3.0 IEC 61000-6-2:2016 Ed 3.0  
IEC 61000-6-4:2018 Ed 3.0 IEC 63000:2016 Ed 1.0

Ano de marcação "CE": 2018

Viladecavalls (Spain), 3/11/2022  
Chief Executive Officer: Joan Comellas Cabeza



**DICHIARAZIONE DI CONFORMITÀ UE**

La presente dichiarazione di conformità viene rilasciata sotto la responsabilità esclusiva di CIRCUTOR, con sede in

Vial Sant Jordi, s/n – 08232 Viladecavalls (Barcelona) Spagna prodotto:

**Convertitori LoRa™ a RS-485**

Serie:

**Bridge LR**

MARCHIO:

**CIRCUTOR**

L'oggetto della dichiarazione è conforme alla pertinente normativa di armonizzazione dell'Unione Europea, a condizione che venga installato, mantenuto e utilizzato nell'ambito dell'applicazione per cui è stato prodotto, secondo le norme di installazione applicabili e le istruzioni del produttore.

2014/35/EU: Low Voltage Directive 2014/30/EU: EMC Directive  
2011/65/EU: RoHS2 Directive 2015/863/EU: RoHS Directive

È conforme alle seguenti normative o altri documenti normativi:

IEC 61010-1:2010+AMD1:2016 Ed 3.0 IEC 61000-6-2:2016 Ed 3.0  
IEC 61000-6-4:2018 Ed 3.0 IEC 63000:2016 Ed 1.0

Anno di marcatura "CE": 2018





CIRCUTOR, S.A.U. – Vial Sant Jordi, s/n  
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**DEKLARACJA ZGODNOŚCI UE**

Niniejsza deklaracja zgodności zostaje wydana na wyłączną odpowiedzialność firmy CIRCUTOR z siedzibą pod adresem: Vial Sant Jordi, s/n – 08232 Viladecavalls (Barcelona) Hiszpania

produkt:

**Konwertery LoRa™ a RS-485**

Seria:

**Bridge LR**

marka:

**CIRCUTOR**

Przedmiot deklaracji jest zgodny z odnośnymi wymaganiami prawodawstwa harmonizacyjnego w Unii Europejskiej pod warunkiem, że będzie instalowany, konserwowany i użytkowany zgodnie z przeznaczeniem, dla którego został wyprodukowany, zgodnie z mającymi zastosowanie normami dotyczącymi instalacji oraz instrukcjami producenta

2014/35/EU: Low Voltage Directive    2014/30/EU: EMC Directive  
2011/65/EU: RoHS2 Directive    2015/863/EU: RoHS Directive

Jest zgodny z następującą(y)mi) normą(ami) lub innym(i) dokumentem(ami) normatywnym(i):

IEC 61010-1:2010+AMD1:2016 Ed 3.0    IEC 61000-6-2:2016 Ed 3.0  
IEC 61000-6-4:2018 Ed 3.0    IEC 63000:2016 Ed 1.0

Rok oznakowania "CE":

2018



Viladecavalls (Spain), 3/11/2022  
Chief Executive Officer: Joan Comellas Cabeza

**CIRCUTOR S.A.U.**

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