# CONV32 Ver.03

## SERIAL CONVERTER

RS 485 Serial communication

USB

CONV32V03-01T-17183

⚠ Have this manual in your hands using the **FG Finder** app.

## WARNING

⚠ **BEFORE THE INSTALLATION OF THIS CONVERTER, WE RECOMMEND READING THE FULL INSTRUCTION MANUAL TO PREVENT POSSIBLE DAMAGE TO THE PRODUCT.**

⚠ **PRODUCT INSTALLATION PRECAUTIONS:**
- Ensure the instrument has adequate ventilation, avoiding installation on control panels containing devices that could cause it to operate outside its specified temperature range;
- Install the product away from sources that may generate electromagnetic noise, such as: motors, contactors, relays, electrovalves, etc;

⚠ **AUTHORIZED SERVICES:**
The installation and maintenance of the product must be performed only by qualifed personnel;

⚠ **ACCESSORIES:**
Use only Full Gauge Controls original accessories. If you have any questions, please contact our technical support.

**THROUGH CONTINUOUS DEVELOPMENT, FULL GAUGE CONTROLS RESERVES THE RIGHT TO CHANGE THE INFORMATION CONTAINED IN THIS MANUAL AT ANY TIME, WITHOUT PRIOR NOTICE.**

## 1. DESCRIPTION

**CONV32** Interface allows Full Gauge controllers, equipped with serial communication, to be connected to a computer that has a USB serial communications port.
The Interface then takes care of the transformation of the voltage levels used by the computer to the RS-485 voltage levels used by the controllers.
Full Gauge uses a RS-485 network to make the communication between the controllers and Sitrad software more reliable. The communication uses two wires (A and B), allowing the performance of Half-Duplex communication, where the computer is the master and the controllers are slaves.

## 2. TECHNICAL SPECIFICATIONS

| | |
|---|---|
| Operating temperature | 0 to 50ºC / 32 to 122ºF |
| Operating humidity | 10 to 90% UR (without condensation) |
| Number of instruments supported per converter in the RS-485 network | 32 |
| Product dimensions | 91,0 x 91,1 x 37,1 mm (WxHxD) |
| Maximum converter power consumption | 70 mA |

⚠ **IMPORTANT:**
**For a correct and robust installation of the RS-485 network, see item *6 - Interconnecting the controllers and CONV32.***

**- The extension of the RS-485 network must not exceed 1000 meters.**

**- Always use a shielded USB cable with a maximum length of 6 ft (1.8 meters) and certified by USB.org.**

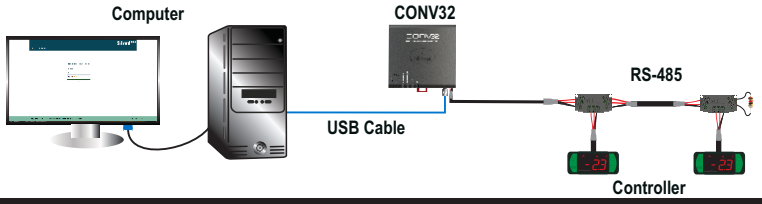
**- Sitrad Pro allows installing more than one CONV32 Interface version 03 or higher.**

## 3. INSTALLATION

1 - The **CONV32** does not require the installation of any driver in Windows;

2 - This conversion interface uses a HID (Human Interface Device) communication;

3 - Check Item 5 - Installation and operation to register the converter in Sitrad software.




## 4. INDICATORS

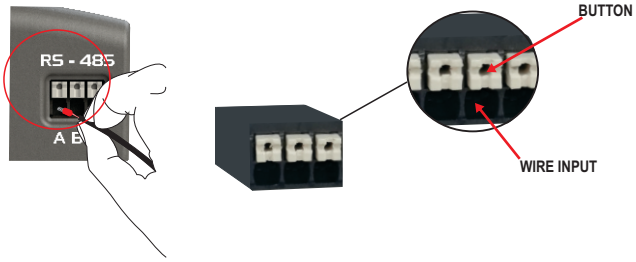

RS-485 network reception indication LED
RS-485 network transmission indication LED
Status LED - Connection status indication LED
Power LED - Power indication LED


USB connection

RS-485 network communication input

Note: Use the cable supplied with the converter to connect it to the computer.

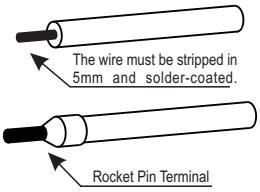
### 4.1. CONNECTION SYSTEM (QUICK CONNECTION): PUSH IN




**CONNECTION:**
- Hold the wire close to its end and insert it in the desired input.
- If required, press the button to help make the connection.

**NOTE:**
- For the Push In connectors, the maximum wire gauge is 1.5mm².
- The wires must be coated with solder or use Rocket Pin terminals with a 0.75mm² maximum gauge.

**DISCONNECTION:**
- To disconnect the wire, press the white button and remove it.



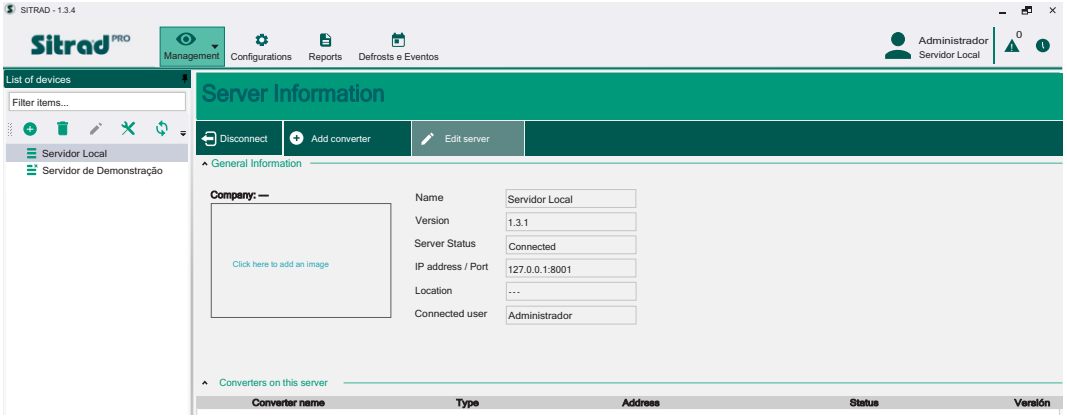
# 5. INSTALLATION AND OPERATION

## 5.1. SITRAD PRO

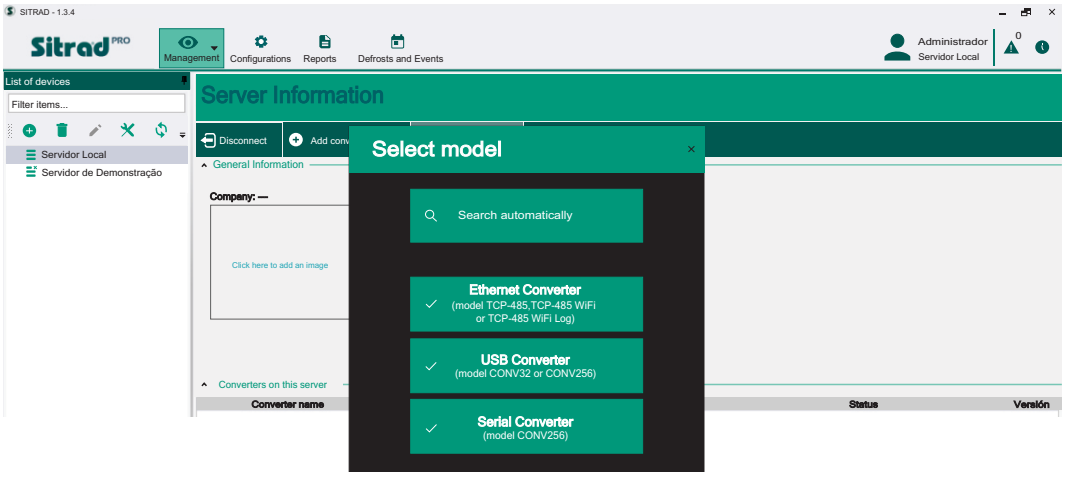
**Download the most recent version of Sitrad Pro from: http://www.sitrad.com.br**

### 5.1.1 Register converter

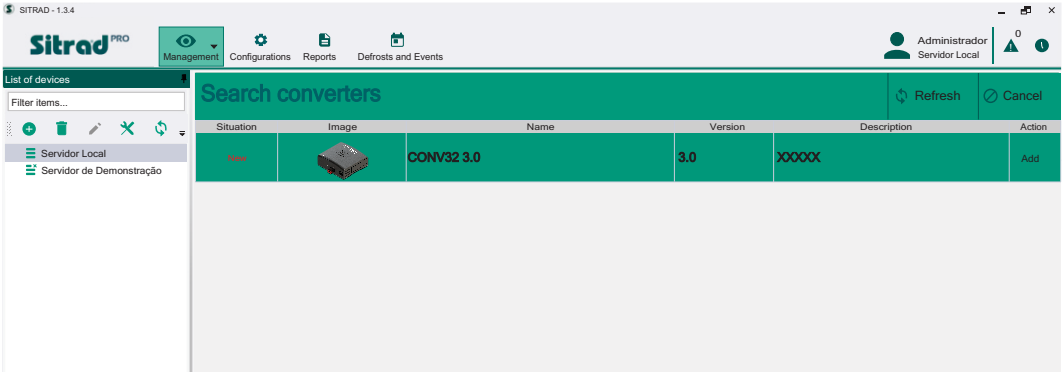
**Step 1:** With **CONV32** connected to the computer, open Sitrad Pro the server information page will be displayed, then click on **"Add Converter"**.



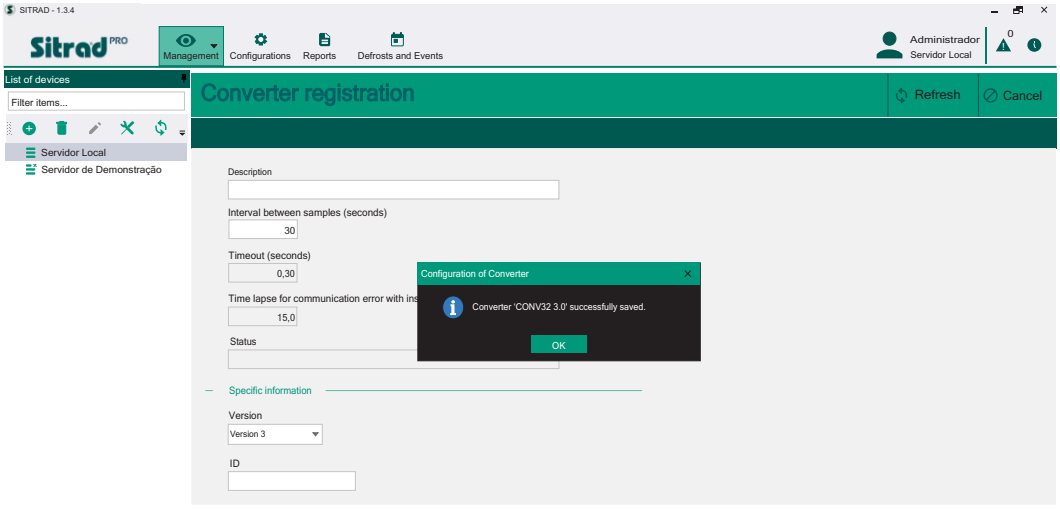

**Step 2:** At this stage, choose **"Select model"**.



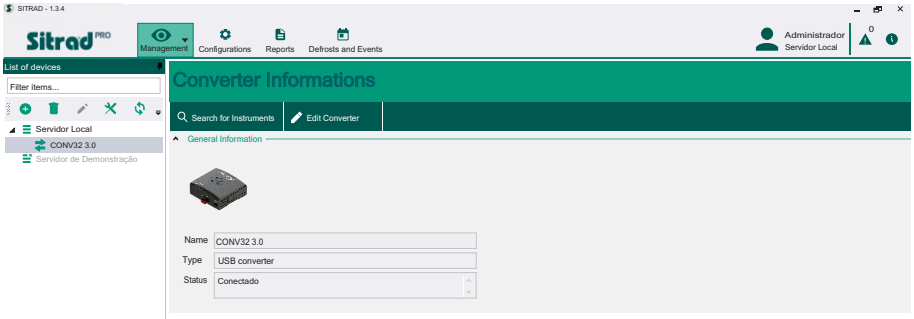

**Step 3:** The **CONV32** default name should show up. If not, the **"Refresh"** button starts a new search for the converter in the network.



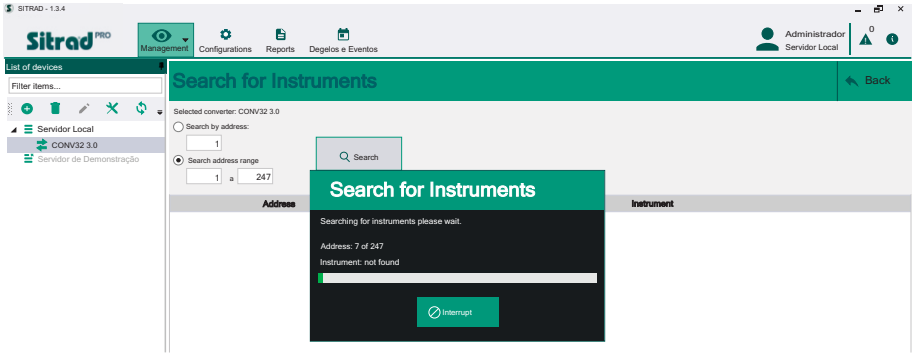

**Step 4:** Click on **"Add"** to register the new converter. Check if the information is correct and click **"Save"**. After saving, the converter will appear in the list of devices.



**Step 5:** To register the instruments that are in the RS-485 network of the new converter, select the new converter from the list of devices and click **''Search Instruments"** on the right hand side.




**Step 6:** On this screen, you can automatically search all instruments that are in the RS-485 network, or manually enter the network address of each controller, as shown in the figure below.

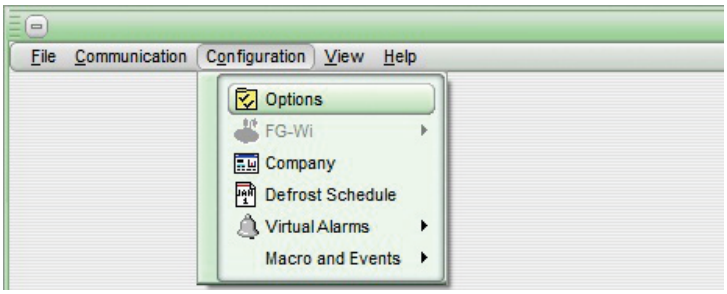



⚠**Sitrad Pro allows installing more than one CONV32 Interface version 03 or higher.**

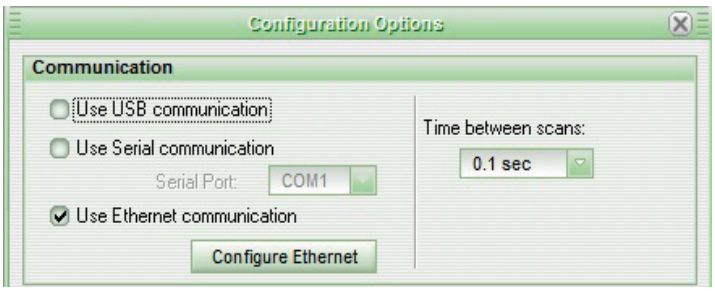
## 5.2 SITRAD 4.13

⚠**Download the most recent version of Sitrad Pro from: http://www.sitrad.com.br**

**Step 1** : With the CONV configured, run Sitrad, click **''Configuration"** and then **''Options"**.

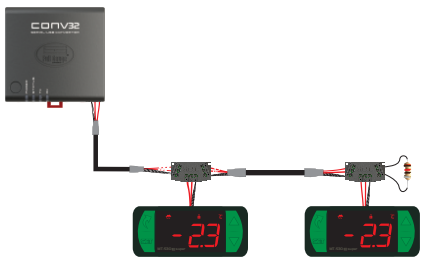



**Step 2** : Select the option **''Use USB communication"**. Then click on the **''OK"** button below.



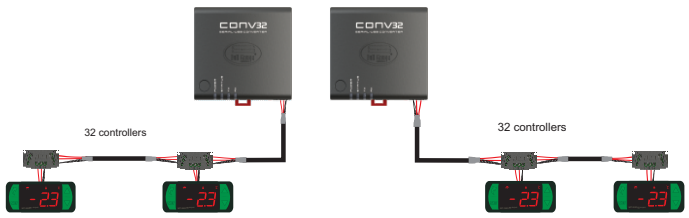

⚠**IMPORTANT : Sitrad 4.13 does not allow installing more than one CONV32.**

## 6. INTERCONNECTING THE CONTROLLERS AND CONV32

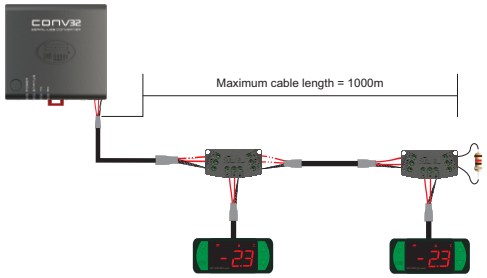



### 6.1 FOR A ROBUST ELECTRICAL INSTALLATION, FOLLOW THE RECONMMEDATIONS BELOW:

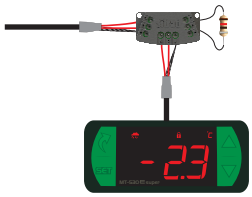
- Use a 2-way cable, minimum 24AWG;
- Preferably, use cables with mesh shielding to protect the communication line from outside interference;
- Avoid splicing the cable;
- Use the junction boxes provided by Full Gauge to connect the taps to the controllers. Besides facilitating the connection, they also have a protection function;
- Avoid connections longer that 2 meters between the junction box and the controller;
- Use a maximum of 32 devices connected to each interface.



- Size networks with maximum length of 1000 meters between the interface and the last controller;



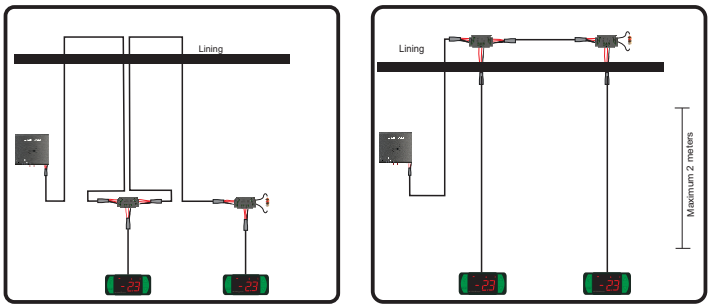

- Connect a 120 ohm termination resistor between terminals A and B at the end of the line when using a cable with a length greater than 100m.



## 6.2 RECOMMENDED TOPOLOGIES

- Use one of the following arragements to create a well-defined path;

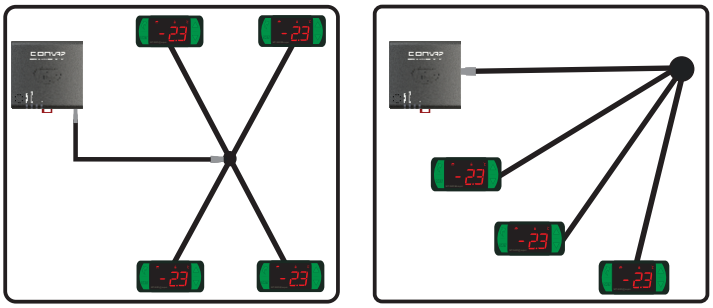
CORRECT




## 6.3 NON-RECOMMENDED TOPOLOGIES

- Avoid creating long network branches.

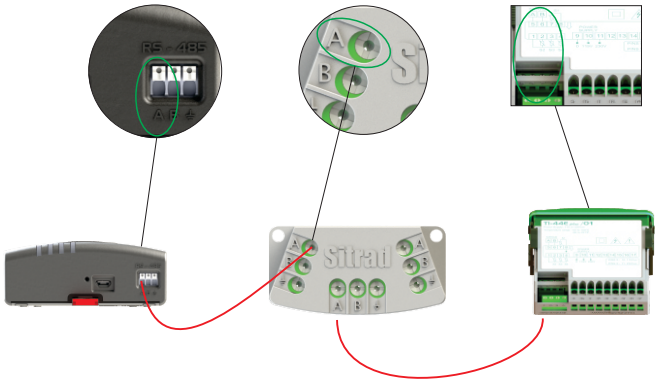
INCORRECT



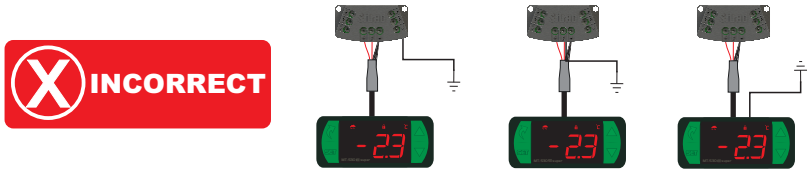
## 6.4 CONNECTION BLOCK FOR SERIAL COMMUNICATION

**Sold separately*

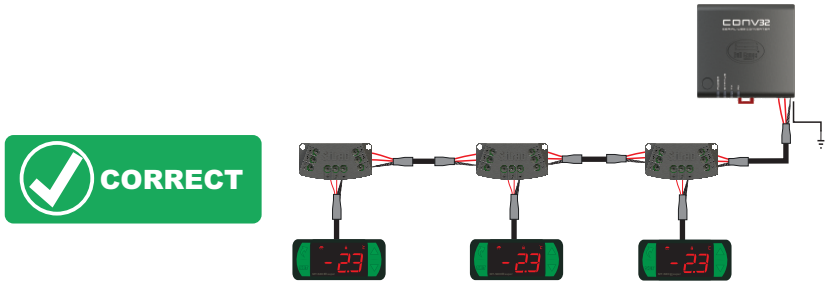
It is used to interconnect more than one controller to the interface. The wires must be connected as follows: Terminal **A** of the controller connected to Terminal **A** of the connection block, which in turn must be connected to Terminal **A** of the interface. Repeat the procedure for Terminals **B** and ⏚, with ⏚ being the cable mesh. The terminal ⏚ of the connection block must be connected to the respective terminals ⏚ of each controller.



- Do not ground independent controllers.

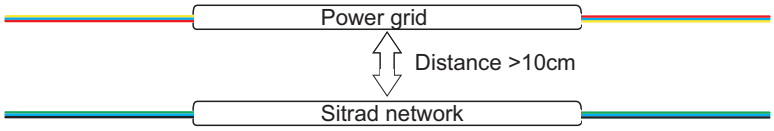



- Ground the cable shield at one point only, preferably near the interface.



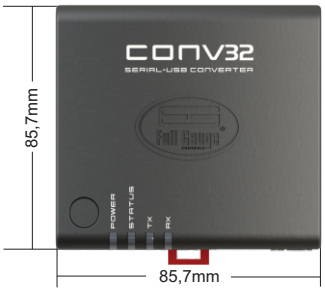

### 6.5 IMPORTANT

According to chapters of NBR 5410 standard:
1. Install surge protectors on the power line.
2. Serial communication sensor cables can be installed together but not in the same conduit where power supply and load drive cables are installed.

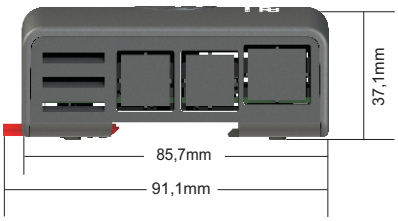



## 7. ANNEXES - REFERENCE IMAGES

**Top view**



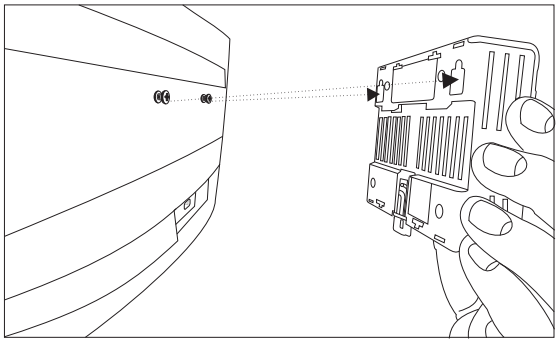

**Rear view**



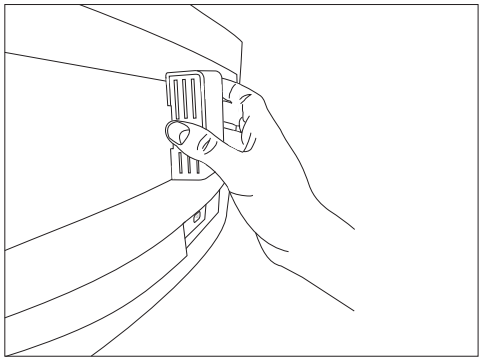

## 8. INTERFACE INSTALLATION

### 8.1 FASTENING WITH SCREWS

**8.1.1** - To attach the interface next to the monitor or the wall, use the Vesa fastening system with a 75mm dimension. The screw used must be: M4 cylindrical head (slotted or Philips) at least 8mm long.

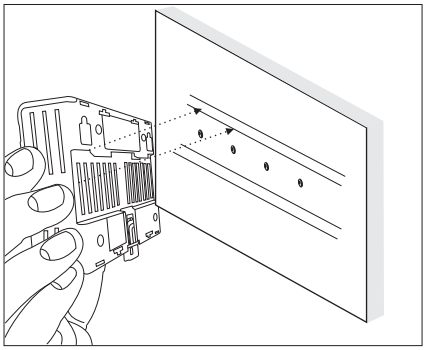


**8.1.2** - After positioning the interface, push down to secure it.

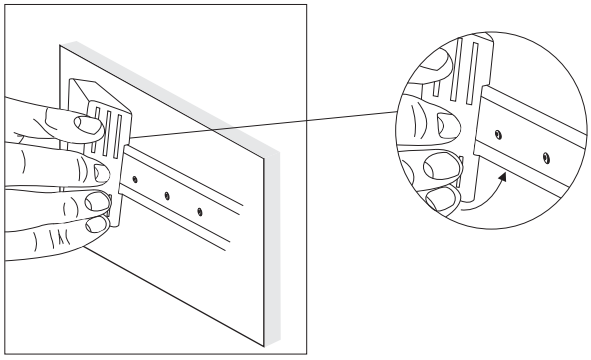


### 8.2 FASTENING BY DIN RAIL

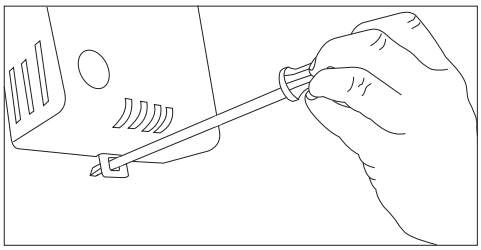
**8.2.1** - To attach the interface to a DIN rail, place the interface according to the picture and insert the top.



**7.2.2** - Then, insert the bottom and check that the lock is blocked.



**8.2.3** - To remove the interface from the DIN rail, use a screwdriver that is compatible with the size of the lock as a lever.



## 9. WARRANTY

**ENVIRONMENTAL INFORMATION**

**Packaging:**
Materials used in the packaging of Full Gauge products are 100% recycable.
Be sure to dispose of using specialized recycling facilities.

**Product:**
The components used in Full Gauge controllers may be recycled and reused if disassembled by specialized companies.

**Disposal:**
Do not incinerate or dispose of the controllers that reached the end of their service life in household waste. Check the legislation in your region regarding the disposal of the product. In the event of doubt, please contact Full Gauge Controls.

### WARRANTY - FULL GAUGE CONTROLS

Products manufactured by Full Gauge Controls as of May 2005 have a ten (10) - year warranty directly with the factory and one (1) year before the reseller network, counted as of the date of consigned sale as stated on the invoice. After this said year before the reseller network, the warranty shall continue to be executed if the instrument is sent directly to Full Gauge Controls. The products are warranted in case of defects in the workmanship, making them unsuitable or inadequate for the intended applications. The warranty is limited to maintenance of instruments manufactured by Full Gauge Controls, disregarding other kinds of expenses, such as indemnity for damages caused to other equipment.

**EXCEPTIONS TO WARRANTY**

The warranty does not cover expenses incurred for freight and/or insurance for sending the products with signs of defect or malfunctioning to the provider of Technical Support Services. The following events are also excluded from warranty: natural wear and tear of parts, external damages caused by falls or inadequate packaging of products.

**INVALIDATION OF WARRANTY**

The product warranty shall automatically lose validity if:

-The instructions for use and assembly contained in the technical description and the installation procedures described in Standard NBR5410 are not followed;

-The product is submitted to conditions beyond the limits specified in its technical description;

-The product is violated or repaired by a person not integrating the technical team of Full Gauge Controls;

-The damages are due to a fall, blow and/or impact, water damage, overload and/or atmospheric discharge.

**USE OF WARRANTY**

To use the warranty, the customer should send the adequately packaged product, along with the respective invoice to Full Gauge Controls. The customer will bear the freight cost for sending of the products. Also, as much information as possible with regard to the defect verified should be sent in order to facilitate the analysis, testing and performance of the service.

Those processes and any product maintenance shall only be performed by the Technical Support Services of Full Gauge Controls, at the Company headquarters - Rua Júlio de Castilhos, 250 - ZIP Code 92120-030 - Canoas - Rio Grande do Sul - Brazil