CONFIGURATION MANUAL

ITR 2.0

FRONIUS

(ETHERNET INTERFACE)

LACECAL

LACECAL I+D
Edificio UVAINNOVA
Campus Miguel Delibes
Paseo de Belén 11
47011 Valladolid
http://www.lacecal.es

Distributed by Amara NZero
Technical Department
☎ +34 91 167 10 52
tecnicos.solar@amaranzero.com
https://amaranzero.es

1 TABLE OF CONTENTS

2 INTRODUCTION

The ITR 2.0 can communicate with and control the PV production of Fronius SYMO, PRIMO, ECO, GALVO and IG Plus inverters through its Datamanager monitoring device, as well as GEN24 and Tauro inverters incorporating the Fronius Pilot communication card.

Communication will be through the local network, using the Ethernet RJ45 network connector available on the ITR.

	**This manual is a supplement to the manuals of the inverter manufacturer and the ITR 2.0 itself.** The information given in this manual covers the particular details of the communication of the ITR 2.0 with Fronius inverters using the Ethernet network, but does not replace the manufacturer's and ITR manuals, which should be consulted for the installation of the system.

Additionally and optionally, the Datamanager or an inverter with Fronius Pilot communication card will be able to obtain the power and energy readings made by the ITR 2.0 using the RS-485 bus.

3 CONNECTION

The Datamanager(s) to which the inverters, the GEN24 or Tauro inverters with Pilot card and the ITR 2.0 are connected must be connected on the same local Ethernet network using standard network devices, such as routers or switchers.

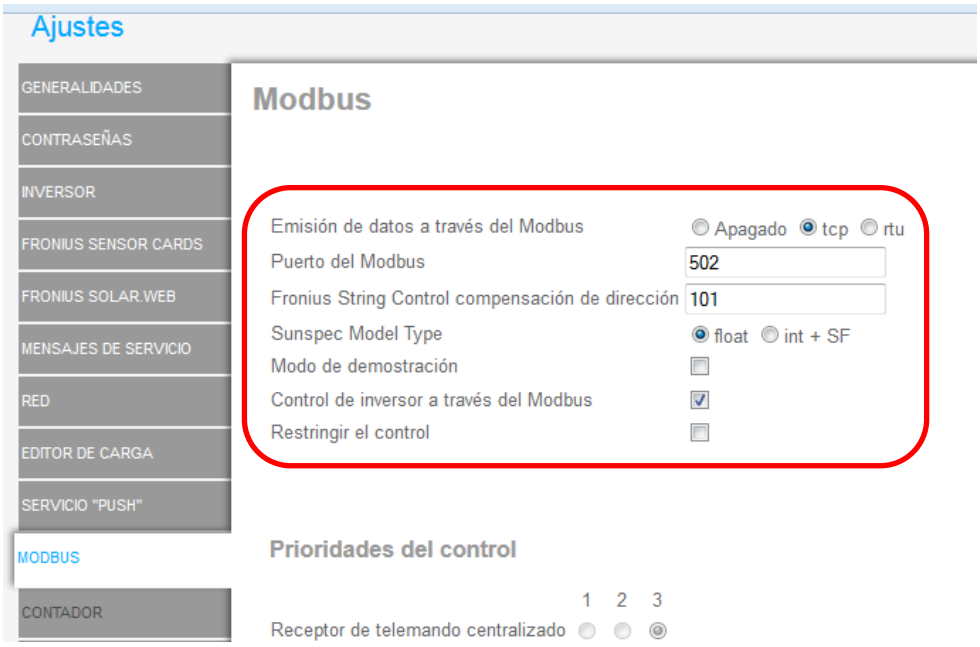
To configure the system it will also be necessary to connect a personal computer in the same local network, accessing through a browser to the WEB servers for configuration of the ITR and Fronius devices using its IP address.

	**Follow the instructions in the Fronius and ITR 2.0 manuals to incorporate all devices into the local network.** **Each device must be assigned a fixed and unique IP in the local network.** **It is not recommended to connect more than 10 inverters to the same Datamanager to obtain a good system response.**

If the local network has internet access, once the system is connected and correctly configured the inverters can send their information to the Fronius monitoring portal, and the ITR will send the operating data of the entire installation to its own WEB platform.

4 DATAMANAGER CONFIGURATION

Access the 'Settings' menu and select the following operating parameters in the 'MODBUS' option.

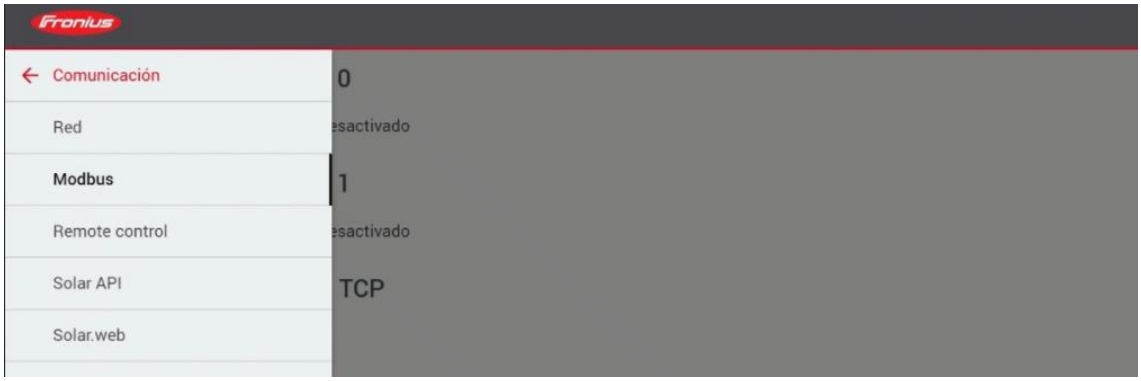


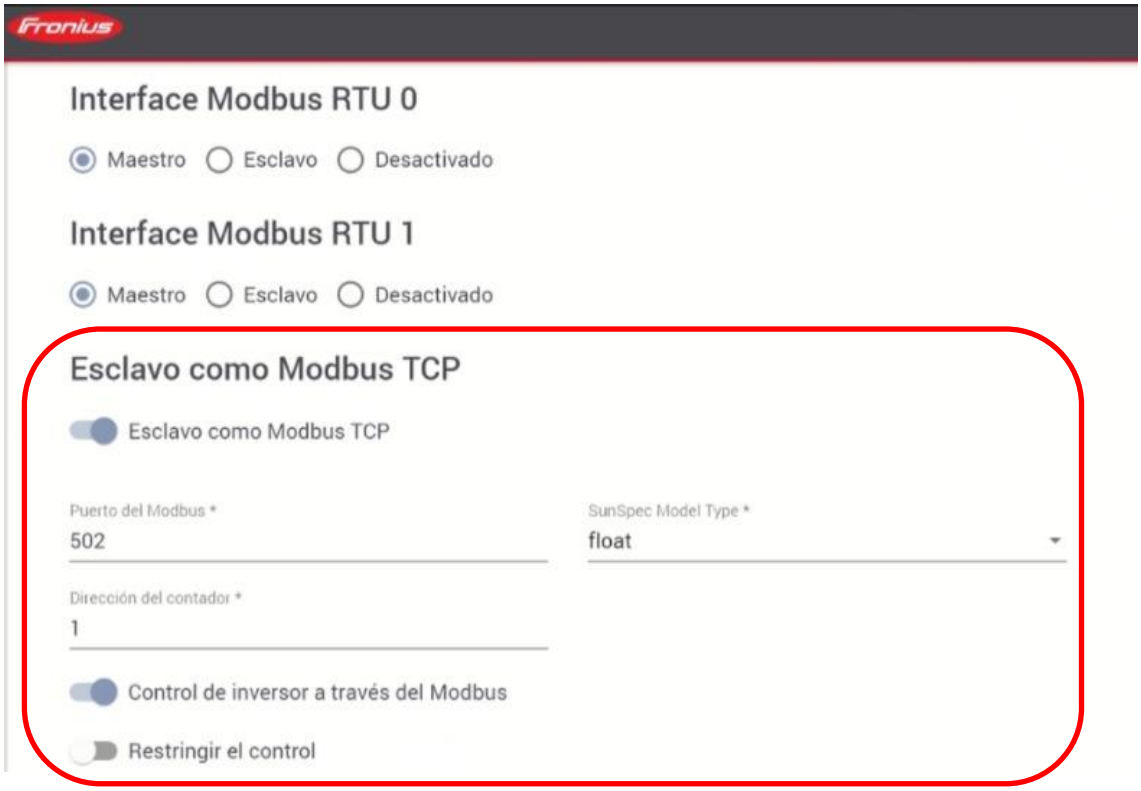
If you are configuring a Datamanager you should note the number that has been assigned to each of the inverters, as it will be needed to configure the ITR 2.0 in the next step. This number can be found in the 'System information' of the 'Services' section in the right side menu.

A screen will be displayed with various information: Datamanager ID, software version, hardware version, etc... In the 'Componentes' section, all the inverters connected to the Datamanager and their assigned number for communication will be displayed.

5 CONFIGURATION OF GEN24 AND TAURO INVERTERS

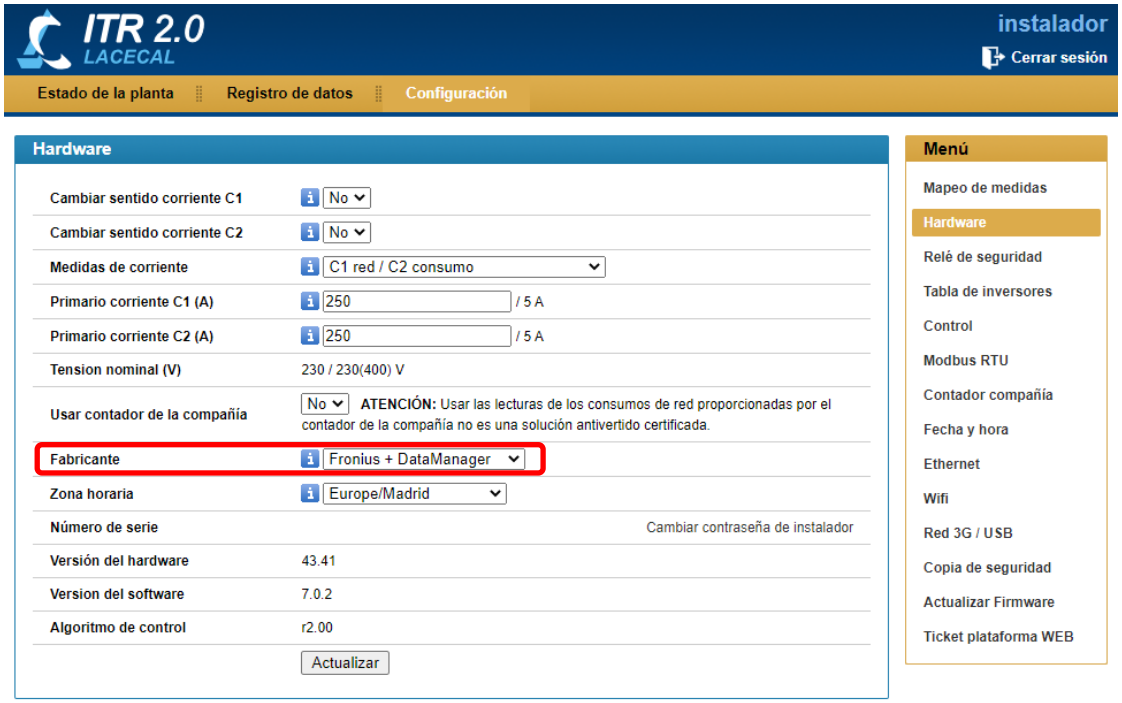
Access the 'Communication' menu and in the 'Modbus' option select the operating parameters shown below.





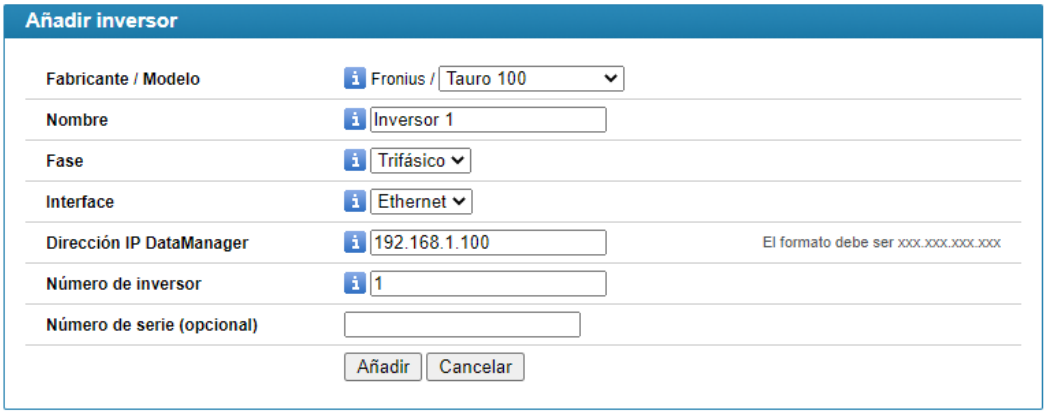
6 ITR 2.0 CONFIGURATION

To configure the inverters in the ITR 2.0 the first step is to select from the list of manufacturers the option '**Fronius + Datamanager**' in the menu 'Configuration' -> 'Hardware'.



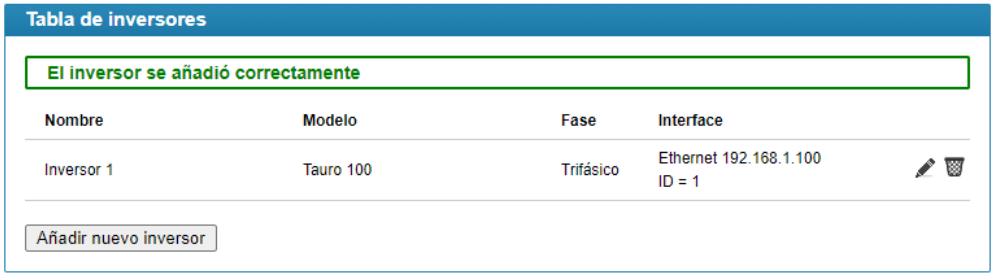
Next, in the 'Inverter table', the 'Add new inverter' button will be used to configure all the inverters in the plant.

The following window will then appear, where the particular data of the inverter must be entered:



- Model: The inverter model will be selected by means of the drop-down menu.
- Name: This is the name assigned to the inverter and will be used to identify it later in the data registry.
- Phase: If the inverter is three-phase there is no possibility to change the selection. If the inverter is single-phase, the grid phase in which it is connected will be indicated.
- Interface: The only available option will be 'Ethernet'.
- Datamanager IP address: This is the IP address assigned to the Datamanager to which the inverter is connected or the IP address of the inverter's Pilot card in the case of the GEN24 or Tauro.
- Inverter number: This is the number that identifies the inverter in the Datamanger. In the case of GEN24 and Taurus it will always be set to 1.
- Serial number: This is an optional field to identify the inverter.

Once all the data has been configured, the inverter will be added by pressing the 'Add' button, which will automatically return to the 'Inverter Table'.



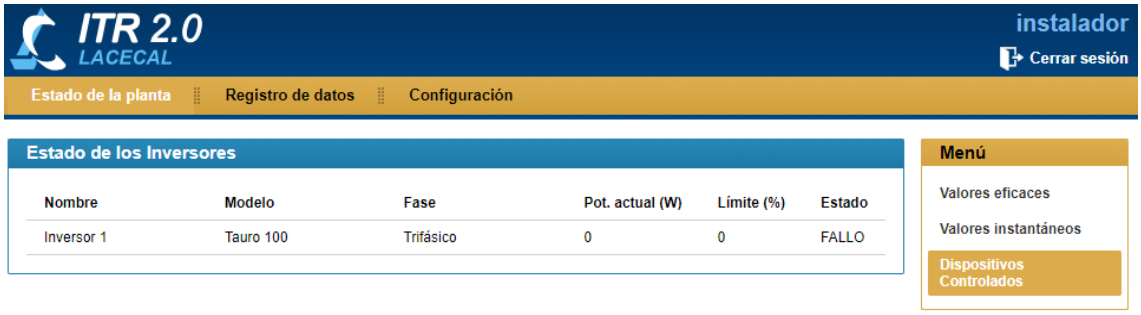
The same process must be repeated for each inverter in the plant.

7 FUNCTIONAL CHECK

Finally, once the entire system has been configured, it is advisable to perform some checks to verify that it is working properly.

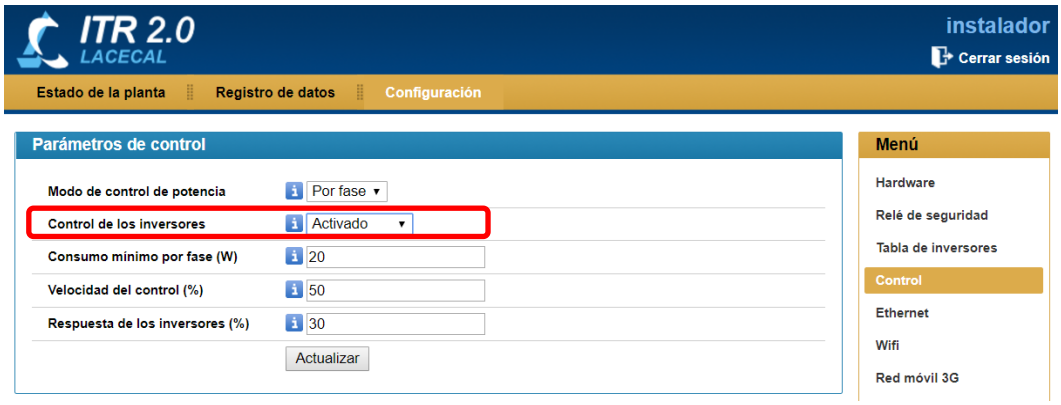
7.1 INVERTER COMMUNICATION

The first step is to verify that the communication with all inverters is correct. To do this, access the menu 'Plant Status' -> 'Controlled Devices', where a list of all inverters will appear. This list shows the current power they are generating, the percentage of regulation applied and the communication status.



7.2 POWER REGULATION

It is also possible to verify that the power regulation is working. To do this, access the 'Configuration' -> 'Control' menu.



The default situation is that the inverter control is active to avoid dumping energy into the power grid. However, it can be temporarily deactivated to verify that the inverters adjust their production to the selected value.

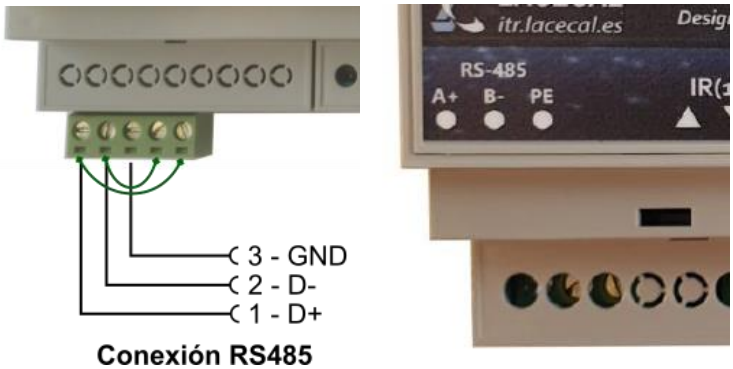
To do this, select 'Disabled' in the 'Inverter control' option and then enter the maximum power percentage (with respect to the nominal power of each inverter) that is allowed to be generated. Values between 0% (off) and 100% can be selected.

	Do not forget to return this option to its original setting to perform the zero injection control.

8 USING THE ITR 2.0 AS A FRONIUS SMART METER

8.1 CONNECTION

In order for the Datamanager or the Fronius GEN24 series inverters to use the readings of the ITR 2.0 as the system's mains consumption meter, both must be connected via the RS485 bus available in the lower left corner of the ITR.

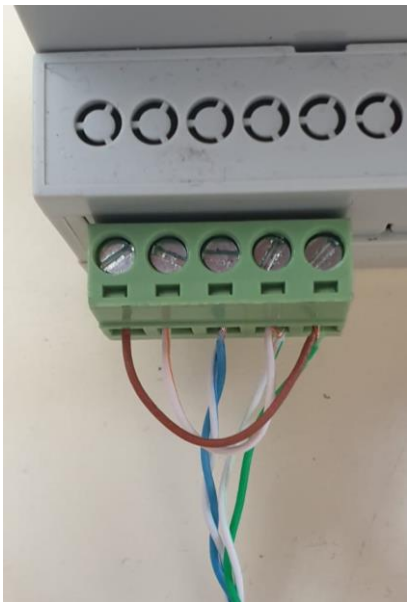


Conexión RS485

Depending on the model, the designation of the output connections may vary, checking the equivalences in the following table:

ITR Connector	
NO.	Function
1	D+ / A+
2	D- / B-
3	GND / PE

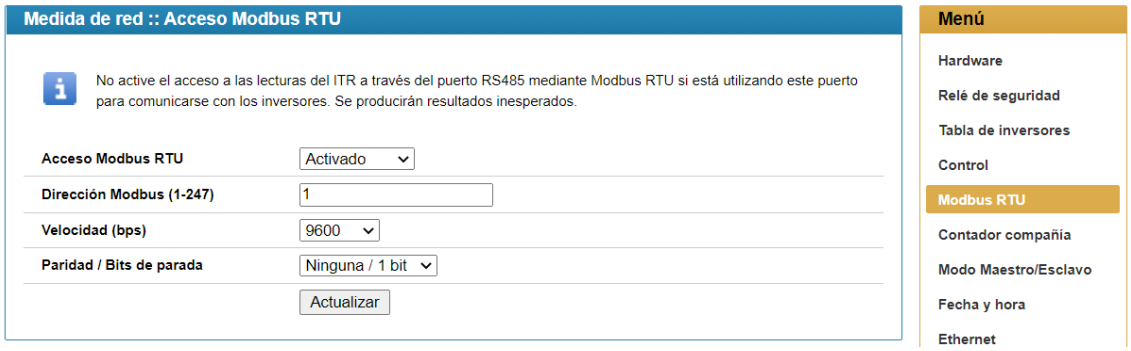
The following pictures show the connections at both ends of the RS485 bus, on the ITR 2.0 and on a GEN24 inverter.



	**To avoid communication failures:** Always use the two wires of the same twisted pair for the D+ and D- data lines of the RS485 bus. Connect the shield of the communication cable to the SHIELD pin on the inverter side, leaving it unconnected on the ITR 2.0 side. The ITR 2.0 includes the bus termination resistor. Activate this resistor on the inverter side as well.

8.2 CONFIGURATION

In the 'Modbus RTU' option of the ITR 2.0 configuration menu, access must be enabled so that the Fronius Datamanager or inverter can establish communication.



Always select communication speed 9600 bps, no parity and 1 stop bit.

The Modbus address is the address where the Smart Meter is configured in the Datamanager or inverter (usually number 1).

	**Refer to the specific Fronius manuals to activate Smart Meter measurements.**