CONFIGURATION MANUAL

ITR 2.0

HUAWEI SUN2000

(MODBUS INTERFACE)

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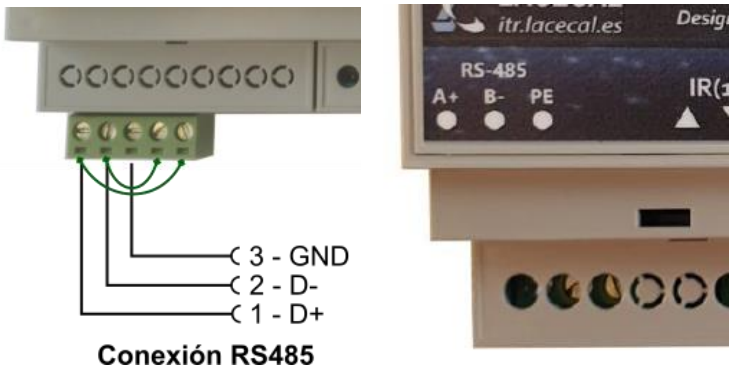
2 INTRODUCTION

The ITR 2.0 Self-consumption and Zero Injection Manager can establish communication and control the PV production of the HUAWEI SUN2000 inverters via the RS485 communication bus. The connection to the inverters will be made using 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

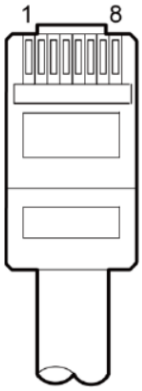
	**Refer to the specific HUAWEI manuals regarding 'Communication Port Description' to determine the maximum allowable cable types and lengths.**

	**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 the HUAWEI SUN2000 inverters using the RS485 bus, but does not replace the manufacturer's and ITR manuals, which should be consulted for the installation of the system.

3 CONNECTION

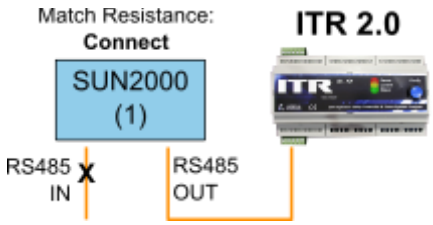
⚠	**Depending on the inverter model, the RS485 bus connection may be different. Please refer to the RS485 connection section in the Huawei manual of your inverters.**

If the inverters are equipped with RJ45 connectors for the RS485 bus, they have the following pin assignment and functions:

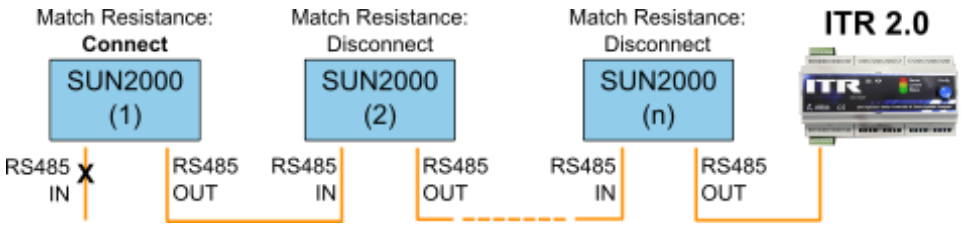


NO.	Color	Function
1	White and orange	RS485A, RS485 differential signal D+
2	Orange	RS485B, RS485 differential signal D-
3	White and green	PGND
4	Blue	RS485A, RS485 differential signal D+
5	White and blue	RS485B, RS485 differential signal D-
6	Green	PGND
7	White and brown	PGND
8	Brown	PGND

If there is only one inverter in the installation, it will be connected to the ITR using the RS485 OUT connection and leaving the RS485 IN connection free. In addition, the 'Match Resistance' option of the inverter must be configured in 'Connect' (If this option is available, see section 4.4.1.2). 4).



If there are several inverters, they will be connected in cascade as shown in the following figure. In the inverter located at the opposite end to the ITR the 'Match Resistance' option will be set to 'Connect', and in the rest of the inverters to 'Disconnect' (If this option is available).

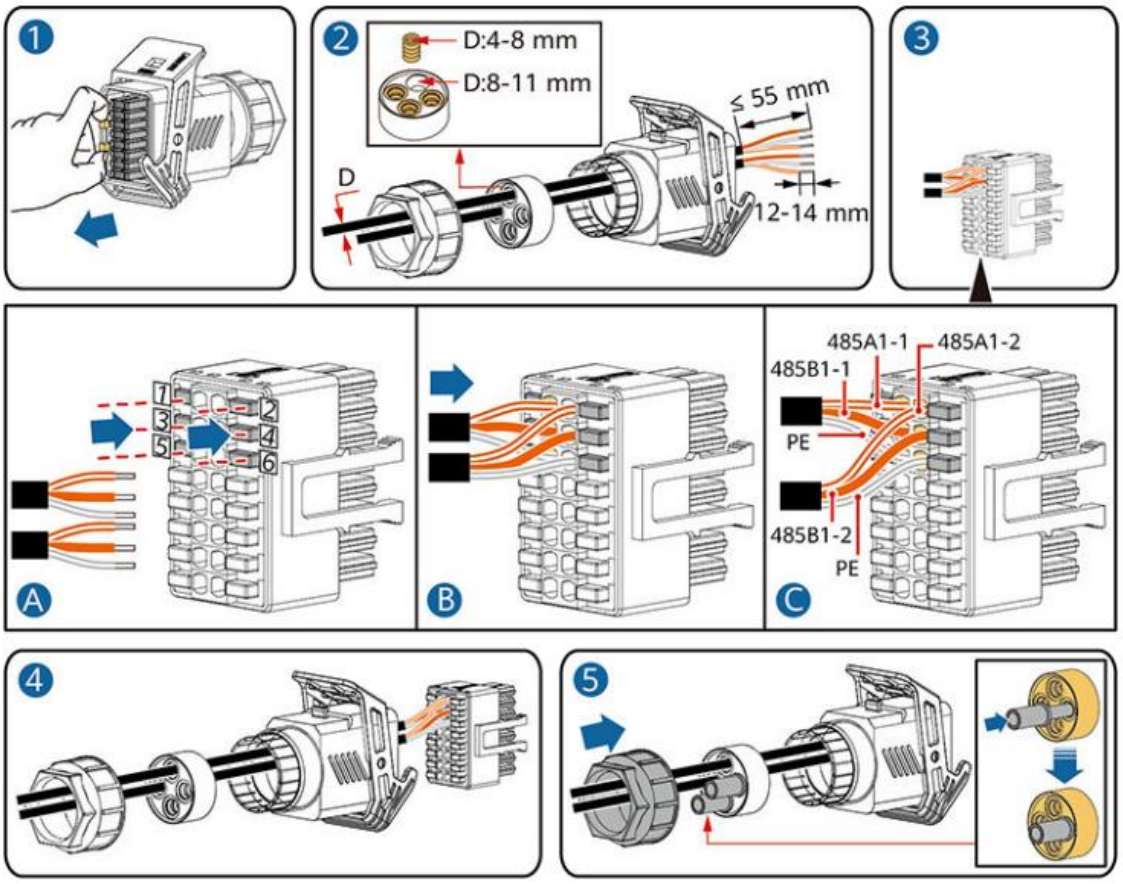


Finally, the connection of the network cable in the ITR will be carried out following this function assignment:

HUAWEI : RJ45 Connector			ITR Connector	
NO.	Color	Function	NO.	Function
1	White and orange	RS485A, D+	1	D+ /A+
2	Orange	RS485B, D-	2	D- / B-
3	White and green	PGND	3	GND / PE

If the inverter has another type of connector, follow the instructions in the manual to connect all the inverters in the system in series.

For connection to the ITR 2.0, the same function pairing as detailed in the table above must always be maintained.



4 INVERTER CONFIGURATION

The RS485 communication parameters must be properly configured in each of the inverters of the installation using the inverter's own display and keypad or its mobile application.

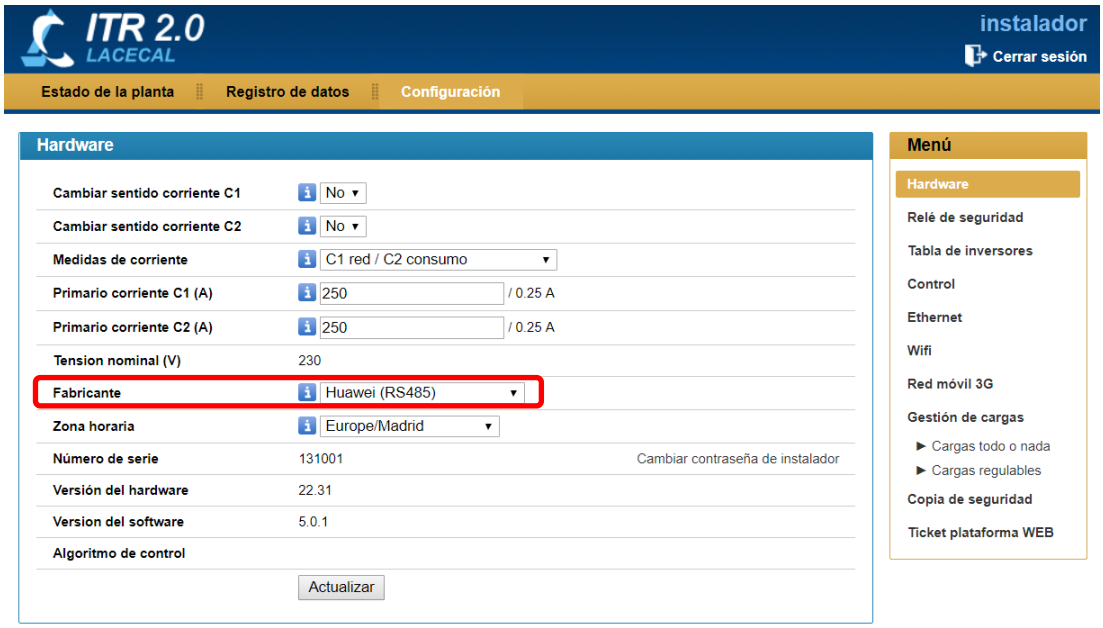
	**Refer to the HUAWEI manuals to configure the RS485 communication options of the inverter.**

The following communication options will be selected in the inverter (some of them may not be available depending on the model):

- Address: A different address number must be assigned for each inverter in the plant, starting at 1.
- Protocol: Modbus.
- Baud Rate: 9600bps.
- Match Resistance: It will be set to 'Disconnect' or 'Connect' depending on the position of the inverter in the connection string (See section 3.3.1.2). 3).

5 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 '**Huawei (RS485)**' 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: RS422/RS485 will always be selected to use the serial port integrated in the ITR and available on Connector A.
- Inverter address: This is the address assigned to the inverter during the configuration described in section 4.4.1. 4.
- 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'.

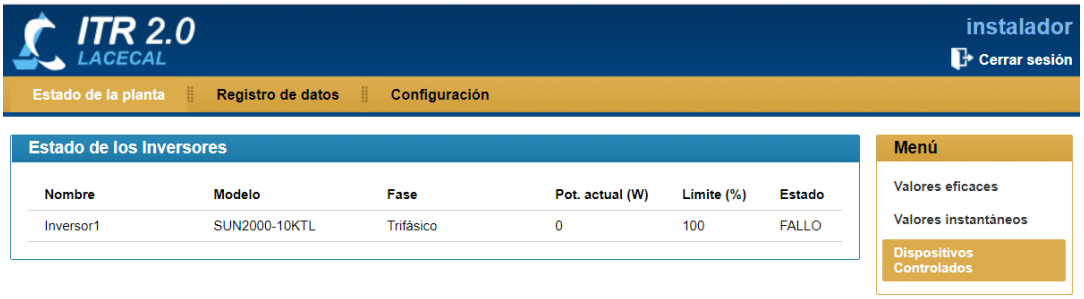
The same process must be repeated for each inverter in the plant.

6 FUNCTIONAL CHECK

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

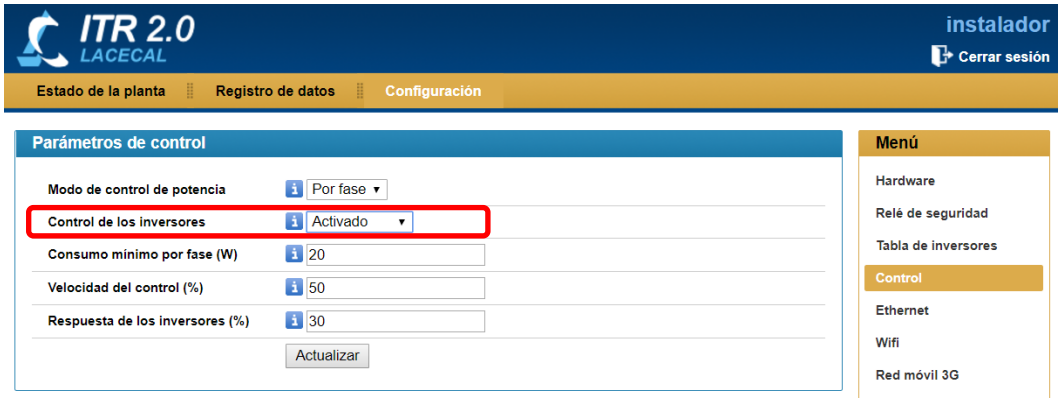
6.1 INVERTER COMMUNICATION

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.



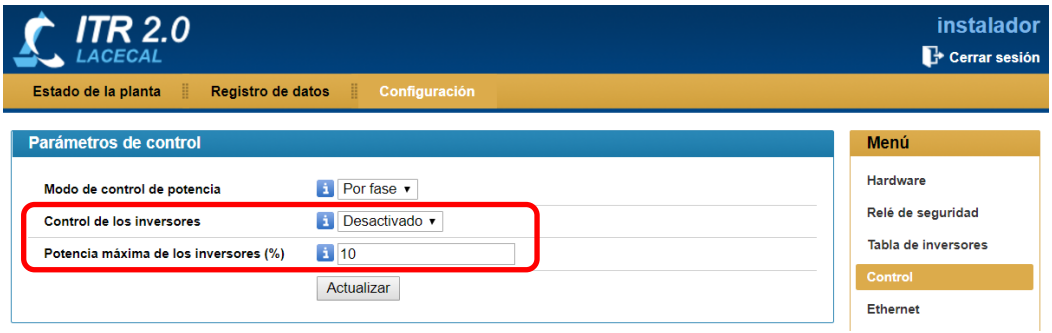
6.2 POWER REGULATION

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.**