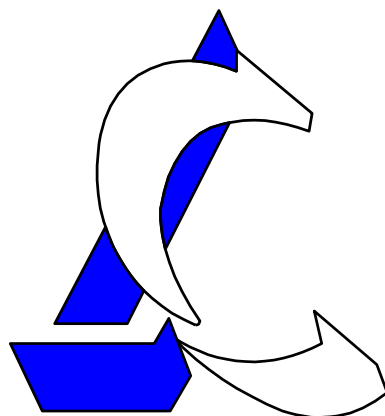


CONFIGURATION MANUAL

ITR 2.0

HUAWEI SUN2000

(+ SMARTLOGGER)



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2 INTRODUCTION

The ITR 2.0 can establish communication and control the PV production of HUAWEI's SUN2000 inverters through its SmartLogger monitoring device. The connection to this device will be made through the local network, using the RJ45 connector available on the ITR.

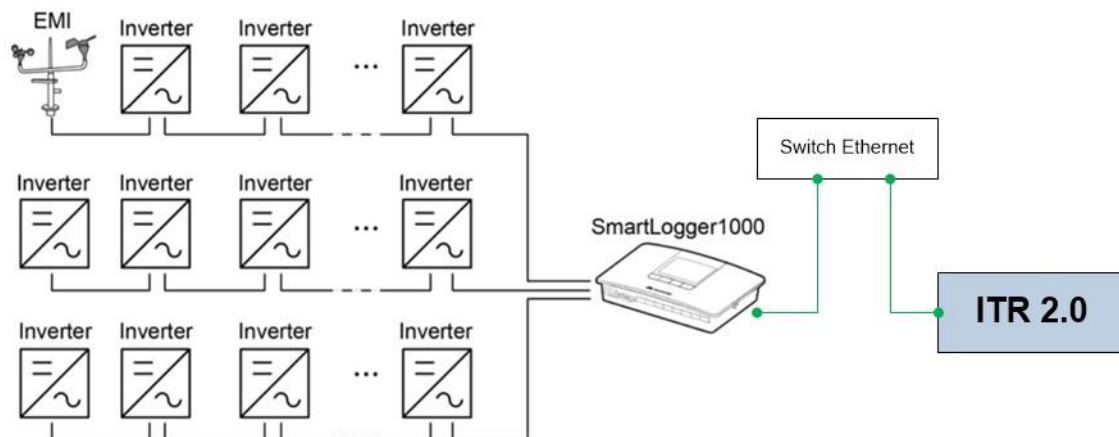


This manual is a supplement to the manuals of the inverter manufacturer and the ITR 2.0 itself.

The information presented in this manual covers the particular details of the communication of the ITR 2.0 with HUAWEI inverters using the SmartLogger, but does not replace the manufacturer's and ITR manuals, which should be consulted for the installation of the system.

3 CONNECTION

The SmartLogger and the ITR 2.0 must be connected on the same local Ethernet network using standard network devices, such as routers or switchers. The inverters will communicate with the SmartLogger via the RS485 bus.



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 ITR and SmartLogger configuration WEB servers through their respective IPs.

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

4 SMARTLOGGER CONFIGURATION

The first step is to access the SmartLogger configuration WEB page using the '**Special User**' account.

Next, in the settings menu, the Modbus TCP communication will be enabled, setting the different options as shown in the following image.



The IP assigned in the '**Client 1 IP Address**' field must correspond to the IP of the ITR 2.0 in the local network.

The screenshot shows the 'Settings' tab selected in the Enspire power system interface. The left sidebar lists various settings: RS485, Power Meter, Modbus TCP (selected), Active Power Control, Reactive Power Control, Remote Shutdown, DI, and Export Limitation. The main content area is titled 'Modbus TCP' and contains the following configuration fields:

Link setting	Enable(Limited)
Client 1 IP Address	192.4.0.176
Client 2 IP Address	0.0.0.0
Client 3 IP Address	0.0.0.0
Client 4 IP Address	0.0.0.0
Client 5 IP Address	0.0.0.0
Address mode	Logical address
SmartLogger address	0 (0-247)

A 'Submit' button is located at the bottom right of the configuration area.



Depending on the firmware version of the SmartLogger it may be necessary to log in as '**Advanced User**' in order to access this option.

The next step will be to enable the active power control, also in the settings menu, as shown in the pictures below depending on the SmartLogger version.

The screenshot shows the 'Settings' tab selected in the Enspire power system interface. The left sidebar lists various settings: RS485, Power Meter, Modbus TCP, Active Power Control (selected), Reactive Power Control, and Remote Shutdown. The main content area is titled 'Active power control' and contains the following configuration fields:

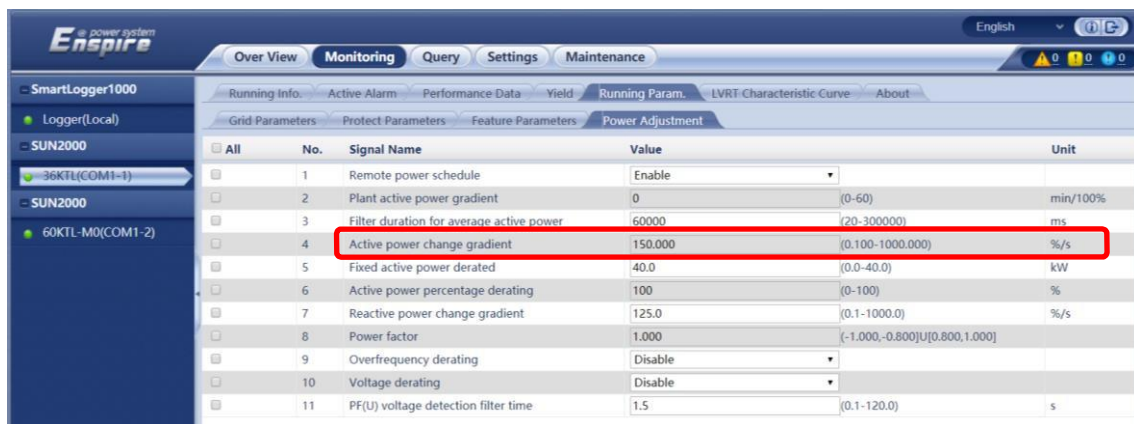
Active power control	Enable
Active power control mode	Remote scheduling
Schedule strategy	Strategy 1
Adjustment coefficient	1.000



Control de potencia activa	
Modo de control de potencia activa	Programación de comunicación remota
Estrategia de programación	Estrategia 1
Coeficiente de ajuste	1.000 [0.900, 1.100]
Apagado ante excepciones de comunicación	Deshabilitar
Tiempo para la detección de excepciones de comunicación	300 [60, 1800] s
Arranque automático al recuperar la comunicación	Habilitar

Finally, it is advisable to verify in each inverter of the plant that the parameter that controls the active power change gradient is set to a value of 150 %/s or higher.

Access to this parameter is found in the Monitoring menu and then, with the desired inverter selected in the left sidebar, in the 'Running Param. -> 'Power Adjustment'.



No.	Signal Name	Value	Unit
1	Remote power schedule	Enable	
2	Plant active power gradient	0 (0-60)	min/100%
3	Filter duration for average active power	60000 (20-300000)	ms
4	Active power change gradient	150.000 (0.100-1000.000)	%/s
5	Fixed active power derated	40.0 (0.0-40.0)	kW
6	Active power percentage derating	100 (0-100)	%
7	Reactive power change gradient	125.0 (0.1-1000.0)	%/s
8	Power factor	1.000 (-1.000,-0.800)U[0.800,1.000]	
9	Overfrequency derating	Disable	
10	Voltage derating	Disable	
11	PF(U) voltage detection filter time	1.5 (0.1-120.0)	s

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 + Smartlogger**' in the menu 'Configuration' -> 'Hardware'.

The screenshot shows the 'Configuración' (Configuration) page in the ITR 2.0 interface. The 'Hardware' tab is active. The 'Fabricante' (Manufacturer) field is highlighted with a red box, showing 'Huawei + Smartlogger' selected. Other fields include 'C1 red / C2 fotovoltaica', 'Primario corriente C1 (A)', 'Primario corriente C2 (A)', 'Tension nominal (V)', 'Zona horaria', 'Número de serie', 'Version del software', and 'Algoritmo de control'. The 'Menú' sidebar on the right lists various configuration options, with 'Hardware' at the top.

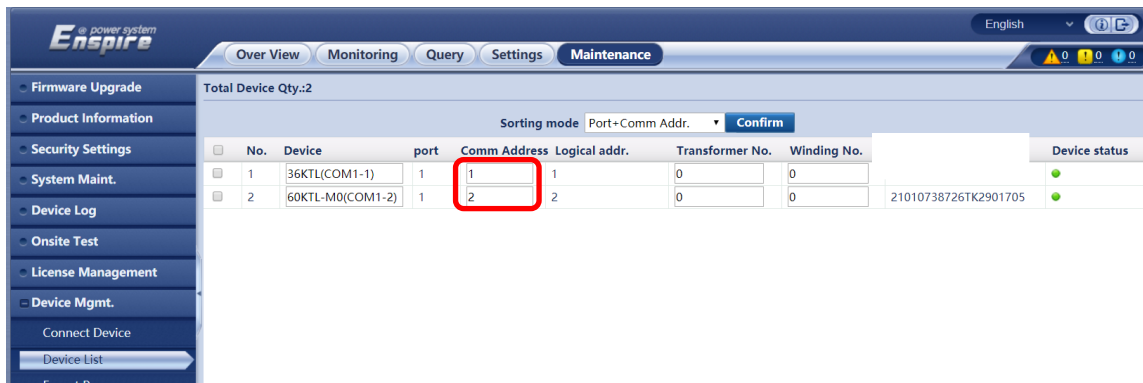
Next, in the 'Inverter table', the 'Add new inverter' button will be used to configure all the inverters in the plant.

The screenshot shows the 'Tabla de Inversores' (Inverter Table) page in the ITR 2.0 interface. The 'Añadir nuevo inversor' (Add new inverter) button is highlighted with a red circle. The 'Menú' sidebar on the right shows 'Tabla de inversores' selected.

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

The screenshot shows the 'Editar inversor' (Edit inverter) window in the ITR 2.0 interface. The 'Fabricante / Modelo' field is highlighted with a red box, showing 'Huawei / SUN2000-33KTL' selected. Other fields include 'Nombre' (Inv1), 'Fase' (Trifásico), 'Interface' (Ethernet), 'Dirección IP SmartLogger2000' (192.168.137.100), 'Número de inverter' (1), and 'Número de serie (opcional)'. The 'Guardar' (Save) and 'Cancelar' (Cancel) buttons are at the bottom.

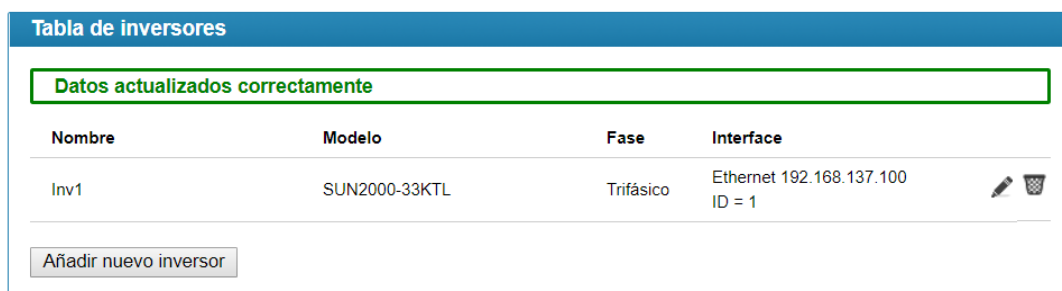
- **Model:** The inverter model will be selected by means of the drop-down menu.
- **Name:** This is the name assigned to the inverter and will be used to identify it later in the data registry.
- **Phase:** If the inverter is three-phase there is no possibility to change the selection. If the inverter is single-phase, the grid phase in which it is connected will be indicated.
- **Interface:** In this case the communication with the inverter will always be
 - Ethernet (through the SmartLogger) and cannot be modified.
- **SmartLogger IP address:** This is the IP address assigned to the SmartLogger on the local network.
- **Inverter number:** This is the communication address of the inverter. It is imperative that all devices connected to the SmartLogger have unique addresses, even if they are on different serial ports. The list of connected devices and their assigned addresses can be found on the maintenance menu page of the SmartLogger:



No.	Device	port	Comm Address	Logical addr.	Transformer No.	Winding No.	Device status
1	36KTL(COM1-1)	1	1	1	0	0	●
2	60KTL-M0(COM1-2)	1	2	2	0	0	●

- **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'.



Nombre	Modelo	Fase	Interface
Inv1	SUN2000-33KTL	Trifásico	Ethernet 192.168.137.100 ID = 1

Añadir nuevo inversor

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 percentage of regulation applied and the status of communication with the inverter.

Nombre	Modelo	Fase	Pot. actual (W)	Limite (%)	Estado
Inv1	SUN2000-33KTL	Trifásico	----	0	FALLO

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.



The screenshot shows the ITR 2.0 LACECAL web interface. The top navigation bar includes the logo, the title 'ITR 2.0 LACECAL', and the user role 'instalador' with a 'Cerrar sesión' button. The main navigation menu has three items: 'Estado de la planta', 'Registro de datos', and 'Configuración'. The 'Configuración' section is active, displaying the 'Parámetros de control' form. This form contains three settings: 'Modo de control de potencia' (set to 'Por fase'), 'Control de los inversores' (set to 'Desactivado'), and 'Potencia máxima de los inversores (%)' (set to 10). The 'Control de los inversores' setting is highlighted with a red rectangular box. An 'Actualizar' button is located at the bottom of the form. To the right of the form is a 'Menú' sidebar with links to 'Hardware', 'Relé de seguridad', 'Tabla de inversores', 'Control' (which is highlighted), and 'Ethernet'.



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