

# RS485 COMMUNICATION CABLES CONNECTION TO INVERTERS SUN2000 30KTL-A, 33KTL, 33KTL-E001, 40KTL



**Huawei Technologies Co. Ltd.**

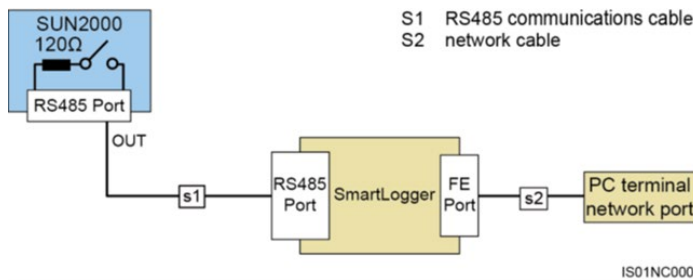
Version	Created by	Date	Remarks
03	Huawei e84081311	30.11.2018	Initial version created

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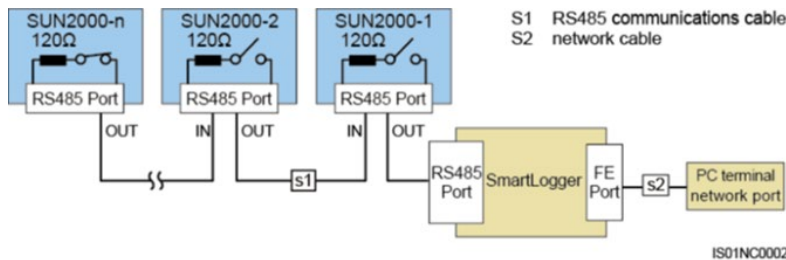
This document describe the function of RS485 port and the method of connecting RS485 communication cables.

The SUN2000 can connect to the SmartLogger over RS485 or to a PC through the SmartLogger to implement communication. You can use the SUN2000 APP, SmartLogger, embedded WebUI, or the network management software (such as the NetEco) on the PC to query information about the SUN2000, such as energy yield, alarms, and running status.

### 1. Communication mode for a single SUN2000



### 2. Communication mode for multiple SUN2000



The RS485 communication distance between the SUN2000 at the end of the daisy chain and the SmartLogger cannot exceed 1000 meters.

- If multiple SUN2000s need to communicate with one another and are connected to a PC over the SmartLogger1000, a maximum of three daisy chains can be configured.
- If multiple SUN2000s need to communicate with one another and are connected to a PC over The SmartLogger2000, a maximum of six daisy chains can be configured.
- To ensure the system response speed, it is recommended that the number of devices on each daisy chain be less than 30.
- For the SUN2000 at the end of the chain, on the **Comm. Param.** screen of the SUN2000 APP, set **Match Resistance** to **Connect** to turn on the switch of the build-out resistor so that the build-out resistor is enabled.

An RS485 communications cable can be connected in two ways:

-Terminal block connection:

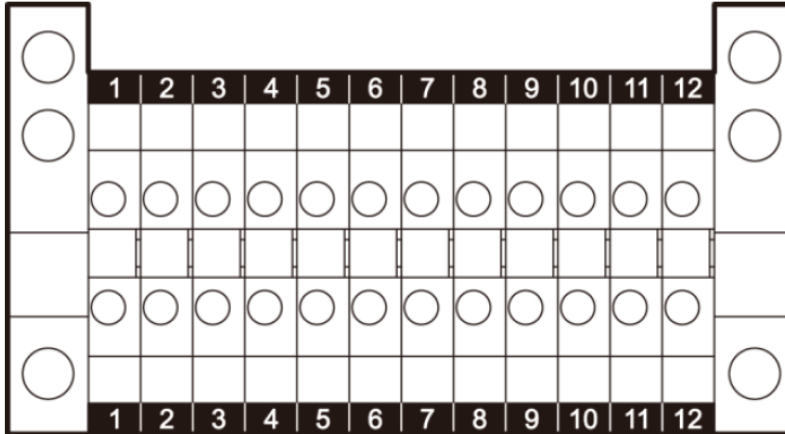
You are recommended to use a DJYP2VP2-22 2x2x1 network cable or a communications cable with a conductor cross-sectional area of 1 mm<sup>2</sup> and cable outer diameter of 14–18 mm.

– RJ45 port connection

You are recommended to use a shielded RJ45 connector and a CAT 5E outdoor shielded network

cable with an outer diameter less than 9 mm and internal resistance not greater than 1.5 ohms/10 m.

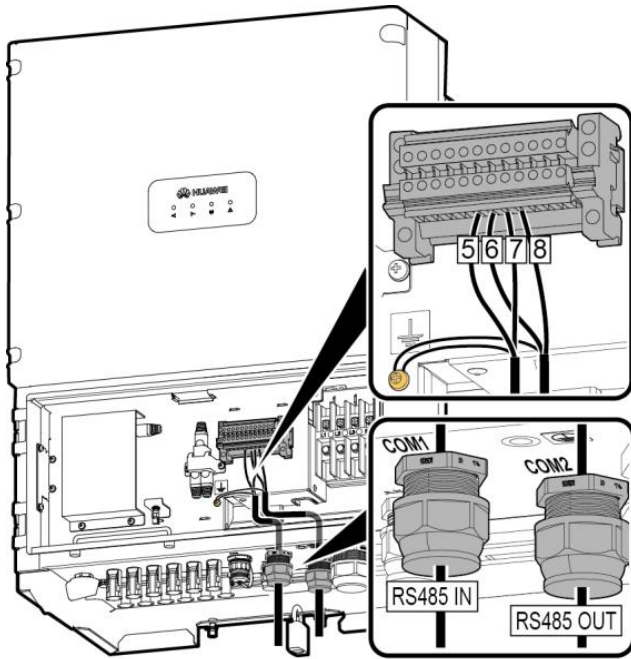
### 3. Terminal block connection



Function of the RS485 terminal block: 5,7 (+) and 6,8 (-)

No.	Function	No.	Function
5	RS485A IN	6	RS485A OUT
7	RS485B IN	8	RS485B OUT

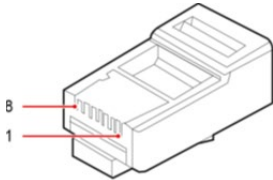
Connecting communication cable to terminal block:



IS01IC0025

#### 4. RJ45 communication connection:

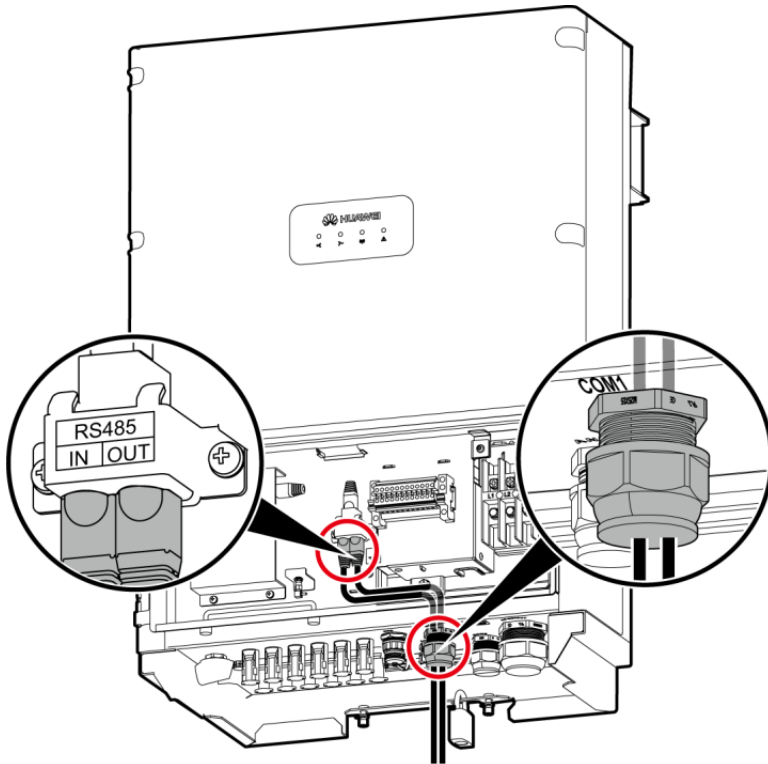
RJ45 pins definition:



IS01WC0032

Pin	Color	Pin Definition
1	White-and-orange	RS485A, RS485 differential signal +
2	Orange	RS485B, RS485 differential signal -
3	White-and-green	N/A
4	Blue	RS485A, RS485 differential signal +
5	White and blue	RS485B, RS485 differential signal -
6	Green	N/A
7	White-and-brown	N/A
8	Brown	N/A

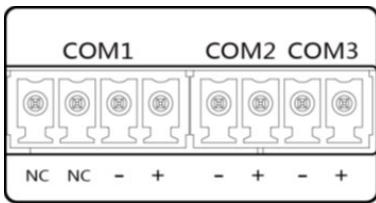
- a. Crimp the connectors using a crimping tool.
- b. Remove the locking cap from the **COM1** waterproof cable connector at the inverter bottom and remove the plugs from the locking cap.
- c. Route the cables through the locking cap and the **COM1** connector at the inverter bottom.
- d. Connect the RJ45 connectors to the **RS485 IN** and **RS485 OUT** ports in the SUN2000 maintenance area, as below



IS011C0024

### 5. Connection on the Smartlogger1000

The Smartlogger1000 provides three COM ports for RS485 communication.



IL01WC0007

Communication ports description:

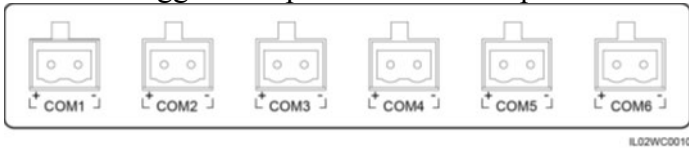
Port	Identifier	Function
COM1 port	NC	Reserved
	NC	Reserved
	-	RS485B, for RS485 negative differential signaling
	+	RS485A, for RS485 positive differential signaling
COM2 port	-	RS485B, for RS485 negative differential signaling
	+	RS485A, for RS485 positive differential signaling
COM3 port	-	RS485B, for RS485 negative differential signaling
	+	RS485A, for RS485 positive differential signaling

If multiple SUN2000s need to communicate with one another and are connected to a PC over the SmartLogger, a maximum of three daisy chains can be configured to support up to 80 devices. It is recommended that the number of devices on each daisy chain be less than 30.

To connect to one of the 3 ports of Smartlogger, the pair from RJ45 connector that must be used is: White-orange, Orange

## 6. Connection on the Smartlogger2000

The SmartLogger2000 provides six Com ports for RS485 communication.

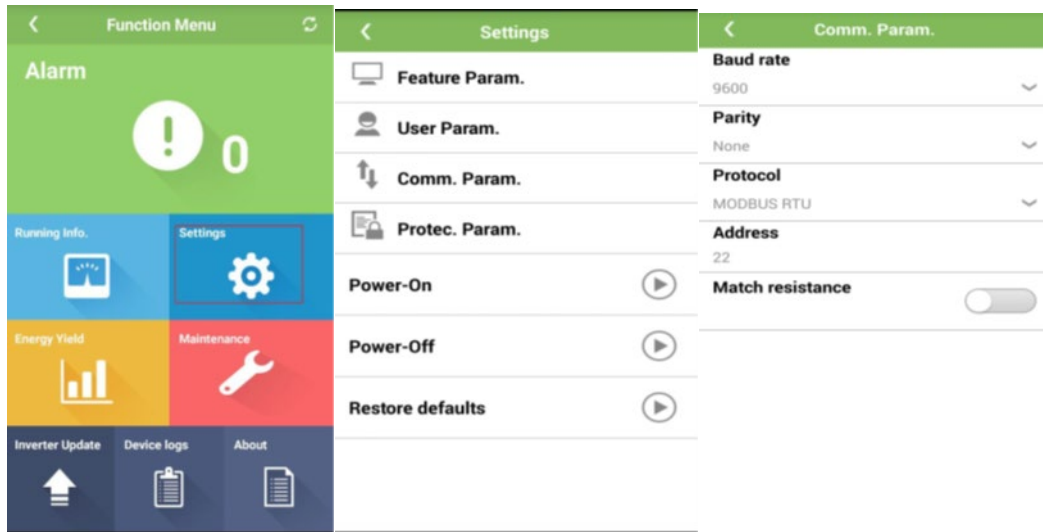


Com ports description:

Port	Identifier	Function
COM1	+	RS485A, RS485 differential signal+
	-	RS485B, RS485 differential signal-
COM2	+	RS485A, RS485 differential signal+
	-	RS485B, RS485 differential signal-
COM3	+	RS485A, RS485 differential signal+
	-	RS485B, RS485 differential signal-
COM4	+	RS485A, RS485 differential signal+
	-	RS485B, RS485 differential signal-
COM5	+	RS485A, RS485 differential signal+
	-	RS485B, RS485 differential signal-
COM6	+	RS485A, RS485 differential signal+
	-	RS485B, RS485 differential signal-

After we have done the connection between inverters and Smartlogger, you need to set the communication parameters:

Login as “**Advanced User**” and tap “**Settings**” on the main menu screen, choose “**Comm. Param**” and check the communication parameters.



-Baud rate: the RS485 baud rate can be 4800, 9600, or 19200 (default 9600).

-Parity: the value can be None, Odd parity, or Even parity (Default none).

-Protocol: the protocol is MODBUS RTU.

-Address: the RS485 address ranges from 1 to 247.

-Match resistance: this parameter is set to **Disable** by default. If signals are distorted or the communication is of poor quality because of a lengthy communications cable, set the parameter to **Enable** (enable this function for the inverter on the end of the chain).