RS485 Communication Checklist

Disclaimer

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RS485 - General:

RS485 is a communication protocol and is transmitted to devices on a 2-wire system, being RS485A+ and RS485B-

In the cases where communication faults are reported on C&I systems, please use the following checklist:

1. Cable:

Has shielded twisted pair been used (minimum 0.75mm CSA)

Diagram 1 - Example Shielded Twisted Pair cable

2. Daisy-Chain wiring:

Has the correct polarity been used throughout i.e. RS485A+ and RS485B-

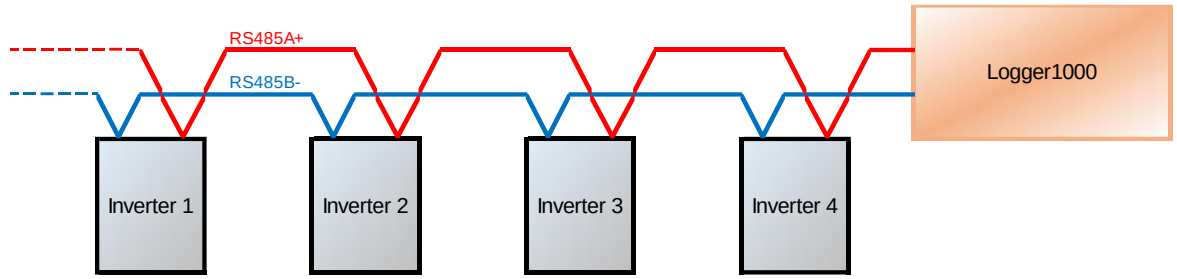

Diagram 2 - Daisy-Chain wiring

3. RS485 Channel:

Is the RS485 cable connected to the same RS485 channel (A1/B1) in all inverters (Sungrow recommend the direct wiring method of connection.)

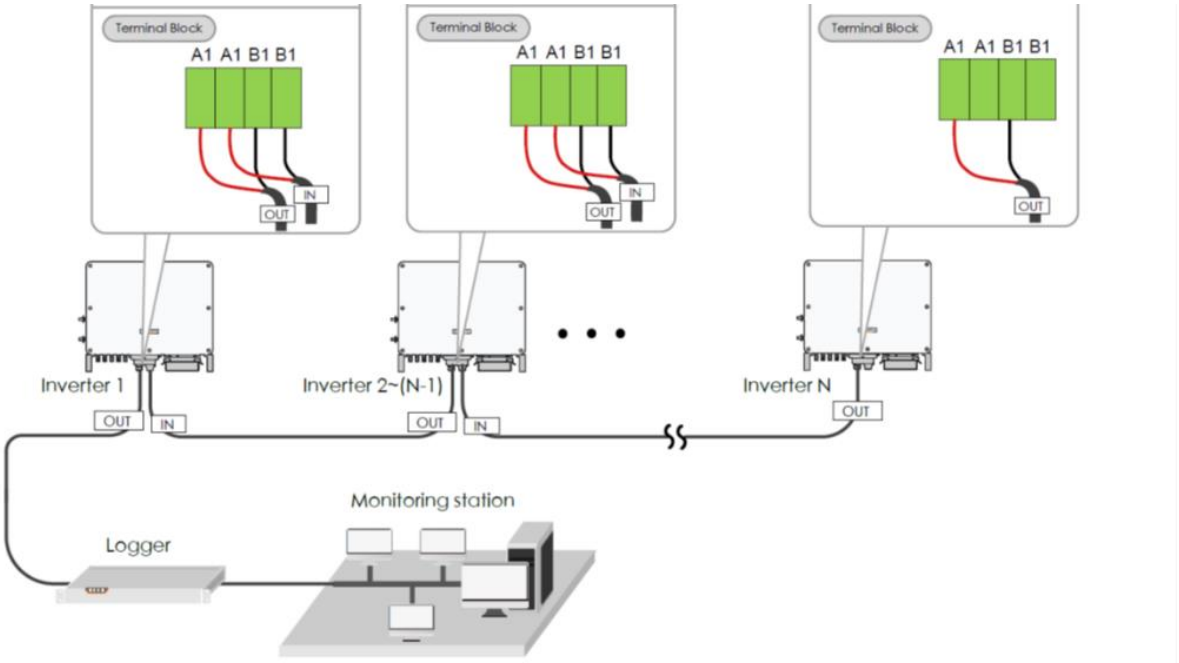

Diagram 3 - Uniform connection protocol

Make sure the Energy meter is on a different RS485 channel to the inverters

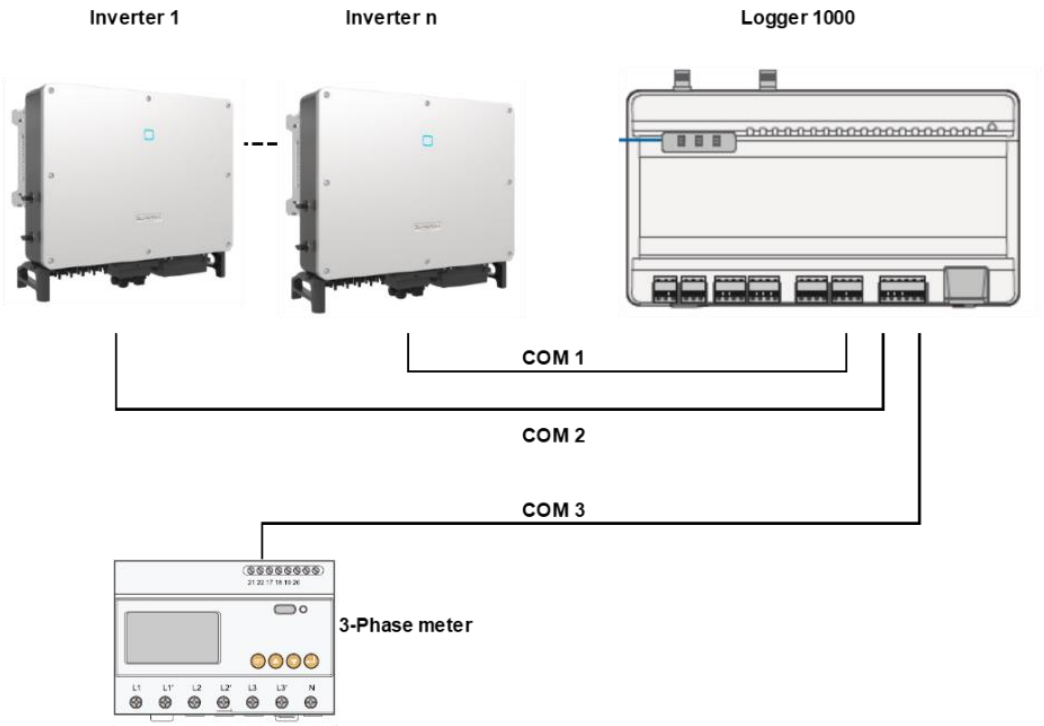

Diagram 4 - Meter using different RS485 (Com) channel

4. Energising:

Are the Inverters powered. Look at the front panel of the inverter. Is the Blue LED on?

LED indicator	LED state	Definition
	Steady Blue	The device is connected to the grid and operating normally.
	Flashing blue (fast)	The Bluetooth communication is connected and there is data communication. No inverter fault occurs.
	Flashing blue (slow)	The DC or AC side is powered on and the device is in standby or startup state (not feeding power into the gird).
	Steady Red	A fault occurs and the device cannot connect to the gird
	Flashing Red	The Bluetooth communication is connected and there is data communication. Fault occurs.
	OFF	Both the AC and DC sides are powered down.

Diagram 5 - LED showing operating state

5. Potential conflicts:

If a Logger1000 is being used, make sure there are no other devices connected in the com ports i.e. Dongles

Diagram 6 - EyeM4 dongle

6. Scanning:

Is the Logger1000 picking up all inverters during the scan, or is it picking up some inverters?

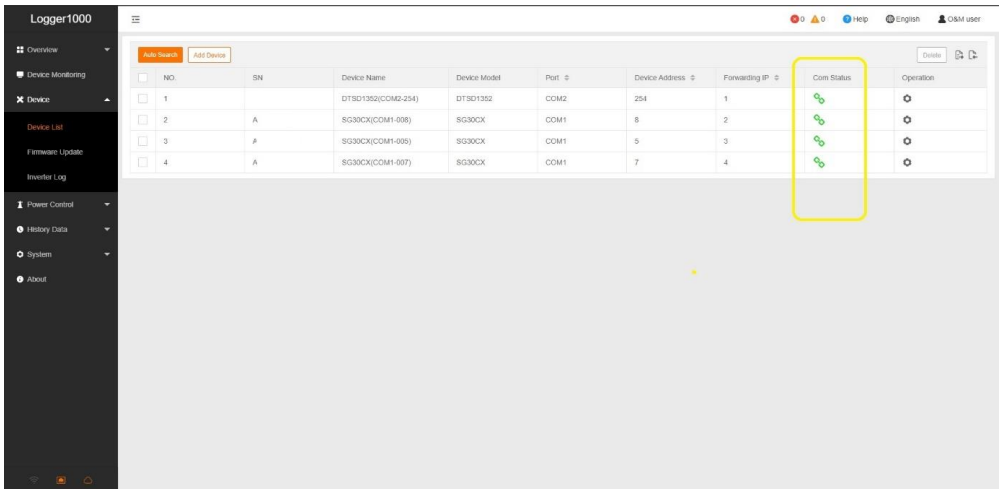

Diagram 7 - All inverters connected

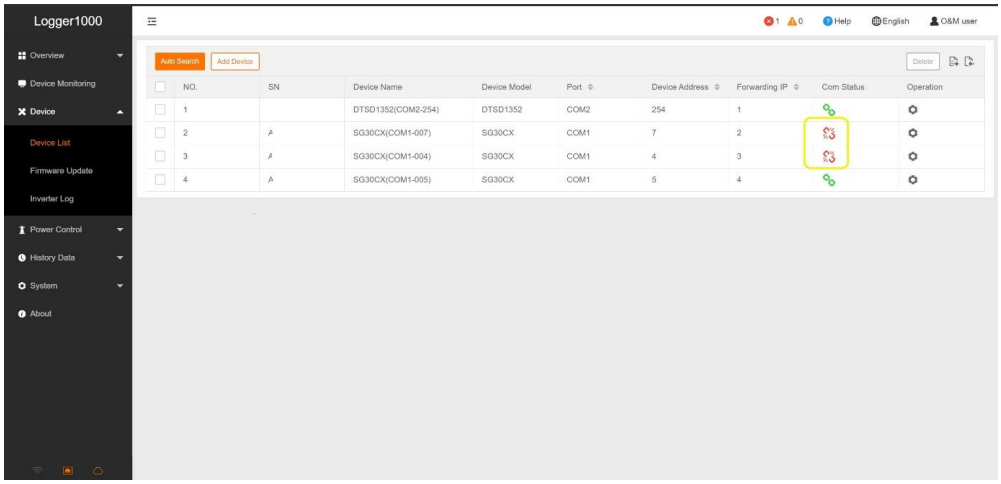

Diagram 8 - Communication dropout issues

7. Voltage Test:

In the case of trouble scanning for all inverters, please check the RS485 wiring for voltage and polarity:

The voltage across RS485A+ and RS485B- should be between 3 and 4.6 VDC

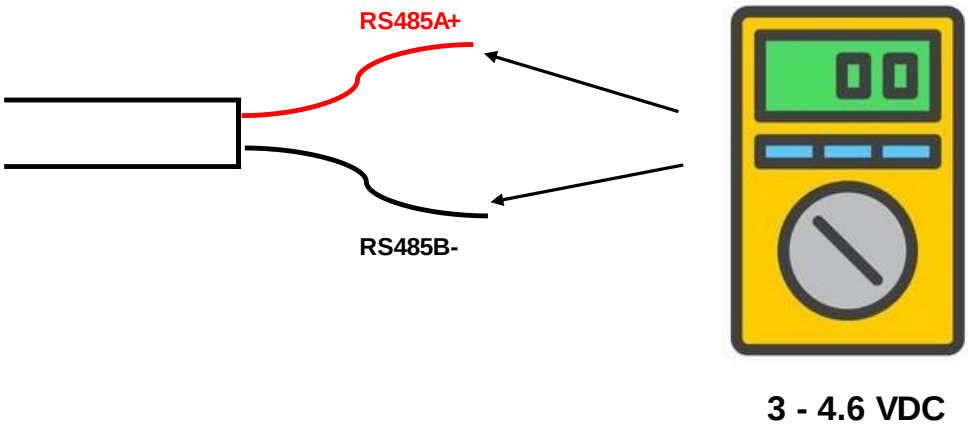

Diagram 9 – Checking the RS485 voltage

8. Single Scanning:

Disconnect all other inverters, connect just the one inverter that is showing the problem and re-scan.

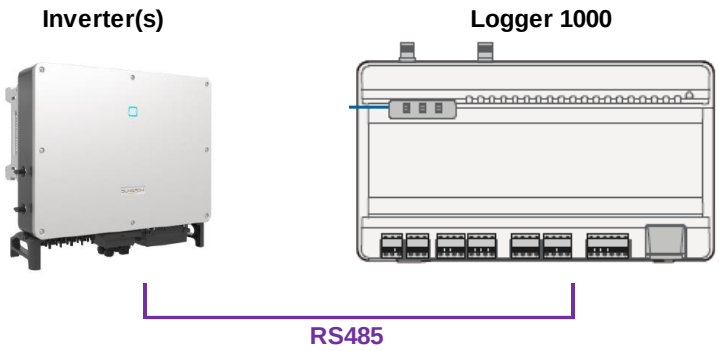

Diagram 10 – Single RS485 connection

9. COM Port Test:

Remove the RS485 wiring and plug in a dongle (EyeM4)

Do the LED's light up?

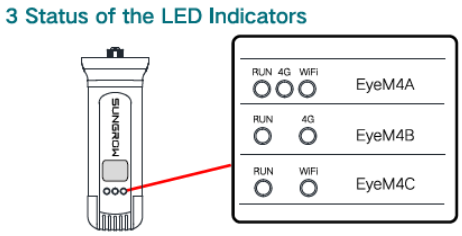

Diagram 11 - Dongle

10. WiFi Test:

Can a WiFi connection be made between dongle and a Smart Phone?

Diagram 12 – Successfully connected WiFi

If the above have all been confirmed as correct, installer may either:

- Lodge a warranty claim for the replacement (Sungrow may process as a conditional replacement*), or
- Lodge a warranty claim to request an Approved Sungrow Service Partner attend site* (actual service costs will be charged if it is not faulty).

*Subject to Sungrow's Warranty terms and conditions