

Application Note AN009

Fox ESS RS485 Wiring & Setup Guide

Connecting Levelise Hub 1.5 (LEV0001) to the Fox ESS H1-G2 hybrid inverter using RS485.

Overview

The Fox ESS H1-G2 hybrid inverter uses a proprietary communications connector that combines the RS485, meter and CT connections into a single plug. It also ships with incompatible default Modbus settings. As a result, the inverter's Modbus configuration must be updated and a custom-made RS485 cable must be used instead of the RS485 cable included in the box with Levelise Hub 1.5.

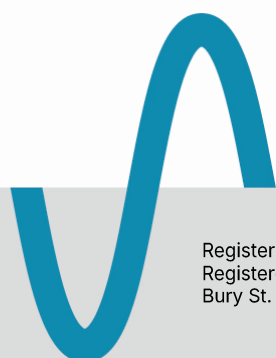
This note explains how to update the inverter's Modbus settings and how to make a suitable RS485 cable by modifying any standard Cat5e Ethernet patch cable.

What You'll Need

- A TIA/EIA-568-B compliant Cat5e Ethernet patch cable of the required length
- The Fox ESS 8- or 16-pin communication connector provided with the inverter
- Wire strippers
- Screwdrivers

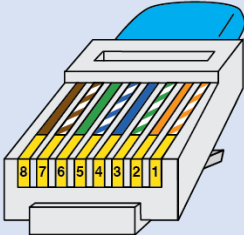
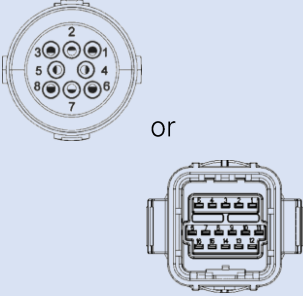
Compatibility

- Levelise Hub 1.5
- Fox AC1/H1-[3.7,5.0]-E-G2 and ECS2900 batteries
- Fox AC1/H1-[3.7,5.0]-E-G2 and EP[6,12] batteries



Quick Summary for Experienced Users

If you're confident, use the pinout table to rewire one end of a standard patch cable into the H1-G2 communication connector:

Connector Pin	Hub End (Standard TIA/EIA-568-B RJ45)	H1-G2 End (Proprietary Connector)
		
1	White/Orange	Unused by Hub
2	Orange (RS485 A+)	Unused by Hub
3	White/Green	Blue (RS485 B-)
4	Blue (RS485 B-)	Orange (RS485 A+)
5	White/Blue	Unused by Hub
6	Green	Unused by Hub
7	White/Brown	Unused by Hub
8(-16)	Brown	Unused by Hub

Tip: The Hub end of the cable uses a standard Ethernet configuration and does not need modification.

Confirm or update the Modbus Settings to match the values below:

Setting	Value
Modbus Address	247
Baud Rate	19200

If preferred, follow the detailed steps below.



Detailed Steps-by-Step Guide

1. Update the Inverter Settings

Use the **Up (^)**, **Down (v)**, **OK (✓)** and **Return (↵)** buttons on the control panel to navigate

- Go to Menu → Setting → Communication → RS485
- Enter password when prompted (default **0000**)
- Set **Device ID** to **247** and/or confirm.
- Go to Menu → Setting → Feature
- Set **UART1BpsSet** to **19200** and confirm
- Return to the top menu and repeat the steps to confirm both values

2. Prepare the Cable

- Cut off one RJ45 connector from the ethernet patch cable using wire cutters.
- Strip ~30mm of the outer sheath from the cut end.
- Untwist and straighten the wire pairs.
- Trim wires evenly, leaving ~25 mm exposed.
- Identify the orange and blue wires.
- Strip about 5 mm of insulation from the orange and blue wires.

Important: Ensure that the remaining unused wires are appropriately trimmed and/or terminated to avoid shorting.

- Insert each stripped wire into an appropriately sized ferrule and crimp.

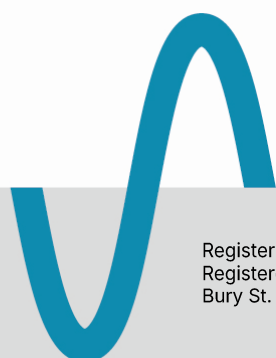
3. Prepare the Fox ESS Connector*

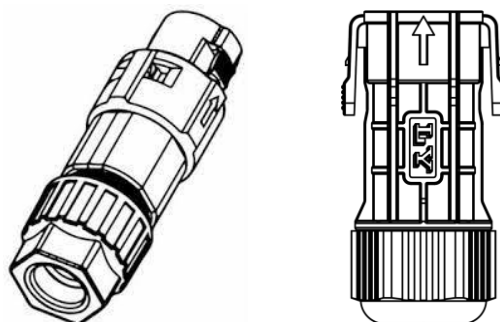
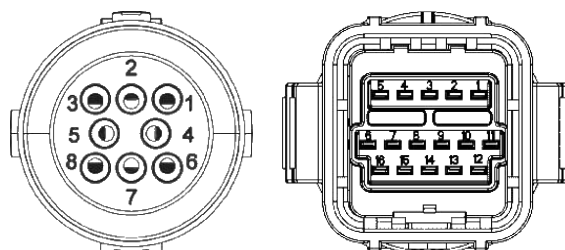
- The Fox ESS H1-G2 inverter is provided with either an 8- or 16-pin communications connector that plugs into the 'METER/CT/RS485' port on the underside of the inverter.
- Locate the 8- or 16-pin connector (see below).

Connector
type

8-pin

16-pin



Assembled
connectorConnector
pin
arrangement

- Carefully loosen the connector gland and remove the connector end from its housing.

4. Terminate the Cable

- Feed the cable through the gland on the connector housing.
- Push the **orange** and **blue** ferruled wires, corresponding to **RS485 A+** and **RS485 B-**, into terminals 4 and 3 respectively.

Important: If the connector uses screw terminals, loosen and then retighten the screws before and after inserting. * Important: Where these steps differ from or conflict with the manufacturer instructions, the manufacturer's instructions take precedence. If the connector uses spring clamps, press gently with a screwdriver to open the clamp before inserting.

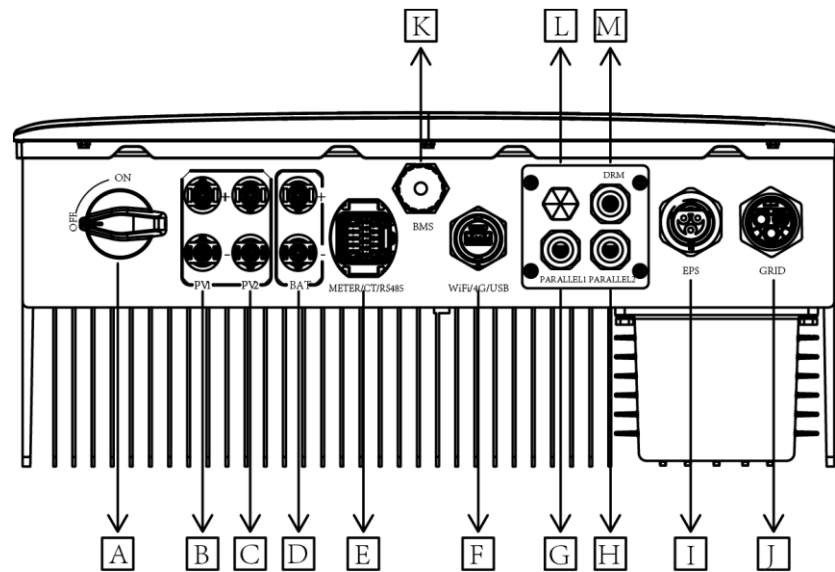
- Reassemble the connector to its housing and tighten the cable gland for proper sealing.

Important: Ensure the cable sheath also enters the housing via the gland for strain relief.

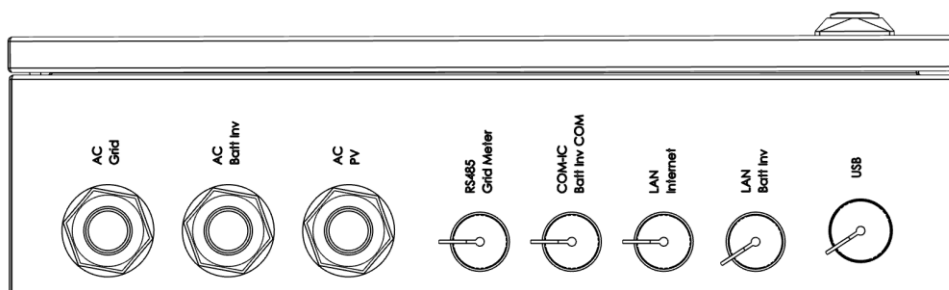
5. Connect the Cable

- Insert the communication connector into port (E) labelled 'METER/CT/RS485' the underside of the inverter (see below).





- Plug the unmodified RJ45 end into the port marked 'COM-IC Batt Inv Com' on the Hub.



- For outdoor use, ensure all cable glands are properly sealed.

Additional Resources

For more details on the H1-G2 system, refer to Fox ESS's documentation at fox-ess.com