

Below a short explanation about cable connection / MOD-BUS requirements:

Instructions: Connecting EFAN-230 / EFAN-24 to a Modbus RS-485 Network

1. System Overview

Modbus RTU is a serial communication protocol using a master-slave setup. It works with a differential RS-485 interface and uses two data lines:

- A+ (DATA+)
- B- (DATA-)

It does not require a clock signal or synchronization.

2. Devices: EFAN-230, EFAN-24, E10-MB

These devices (EFAN-230, EFAN-24, and E10-MODBUS) have:

- A+ terminal (positive data line)
- B- terminal (negative data line)
- No GND (ground) terminal for communication

Even without a GND terminal, communication works well if:

- Shielded cables are used
- The network is wired correctly

3. RS-485 Cabling Guidelines

Cable Type:

- Shielded twisted pair, 120 Ω impedance

Recommended Cables:

- Belden 3105A (2x24 AWG, shielded)
- LIYCY 2x0.5 mm²
- FTP/STP Cat5e (use one twisted pair and shield)

Topology:

- Use a linear (bus) layout — avoid star topology

Maximum Length:

- Up to 1200 meters at 9600 bps

Termination:

- Use 120 Ω resistors between A and B at both ends of the RS-485 bus

Shielding:

- Connect the cable shield to PE or GND only on the Master side
- Do not connect the shield on the Slave (EFAN-230 / EFAN-24) side

4. Additional Notes

- In environments with high electromagnetic interference or different power sources, use RS-485 converters with galvanic isolation
- Avoid ground loops and voltage differences. Even without a GND terminal, proper shielding usually ensures stable communication.

