OWEN BROTHERS
METERING UK LTD

RS485 Wiring Arrangements

Owen Brother's products with embedded RS485 interface Transmit Data (TX) and Receive Data (RX) via RS485 2-wire (half duplex) system.
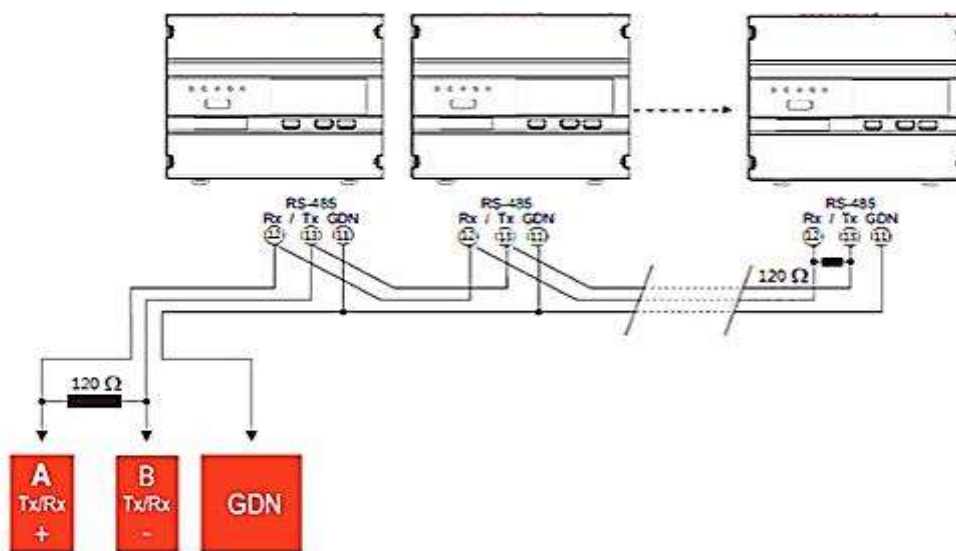
Half Duplex means that data can only pass in one direction at a time.

In this arrangement both TX and RX signals share a single pair of wires which in turn saves on installation costs & complexity.

High quality shielded twisted pair cable (24AWG) is recommended.

Preventing Voltage Reflection

When a signal is sent down a cable there is always a reflection voltage which returns through the cable. This reflection is greater as signal edges get faster and lines get longer. This can be minimised by terminating the ends of the line with the characteristic impedance of the system i.e. 120 ohm for RS485.

Ideal RS485 Wiring

Ideally an RS485 system consists of a single linear cable (no branches) with 120 ohm resistors connected across the 2 wires at each end of the cable.

RS485 can handle speeds of over 10 Mbits per second on line lengths of over 1 km. If you are operating anywhere near these values you must arrange you're wiring close to the ideal.

The majority of applications where baud rates are 9600 baud and lines are only tens of meters long, this is not essential & wiring requirements can be relaxed.