

## Modbus network setting

### Communication setting value

Please set the Modbus communication parameters by PCON or HMI for the communication.

- Slave address
- Baud rate
- Parity
- Communication loss timeout

### Slave address

The EOCR has slave addresses from 1 to 247.

The factory default setting is 1.

### Baud rate

The Communication speed provided is like below.

- 1.2kbps
- 2.4kbps
- 4.8kbps
- 9.6kbps
- 19.2kbps
- 38.4kbps

The factory default setting is 19.2kbps

### Parity setting

- Even
- Odd
- None

The factory default setting is even. Please refer to the table for the stop bit setting.

Parity setting	Stop bit
Even or Odd	1
None	2

### Communication loss timeout

It is the criteria to confirm the communication disconnection with a master like as PLC.

EOCR judges it as a communication disconnection error, if there is no call from the master during a certain preset time.

The time setting range is 1~999sec the factory default setting is OFF. The OFF means no communication error check. It is advised to set it at OFF, if there is no concern of communication disconnection or no needs of communication error check at ordinary times.

## RS485 bus connection

RS485 standard allows several different characteristics.

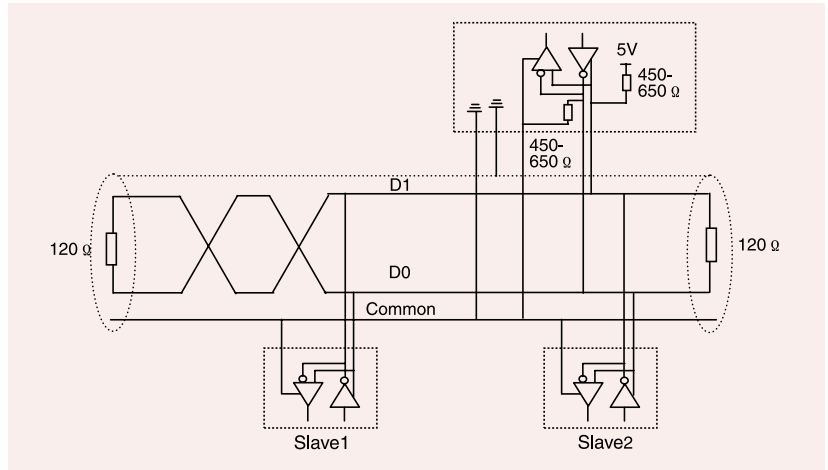
- Polarization
- Line terminator
- Number of slaves
- Length of the bus

There is a definition of Modbus presented in detail at the website of Modbus.org in 2002.

Standard connection

## Standard connection

The standard connection conforms to the Modbus specifications, sepecially 2 wire multidrop serial bus diagram, presented at the website of Modbus.org in 2002 (Modbus\_over\_serial\_line\_V1.pdf, Nov.2002). Simple wiring diagram is like below.

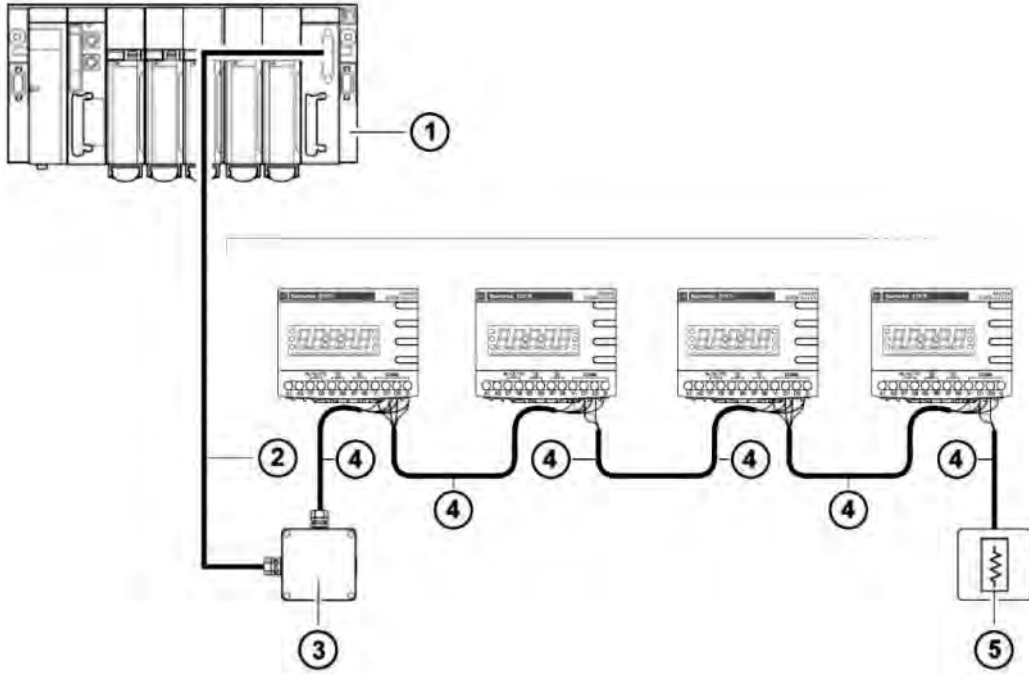


The characteristics is like below in case of a direct connection to the bus.

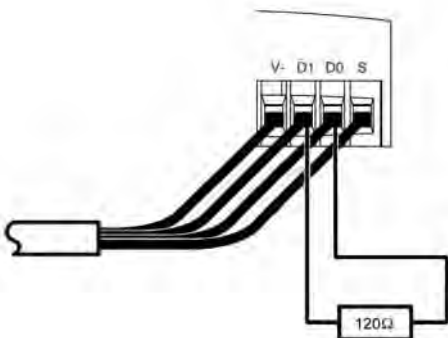
Items	Contents
<b>Type of trunk cable</b>	single, shielded, twisted pair cable. Min 3rd cable
<b>Maximum length of the bus</b>	1000m (3,2181 ft) (at 19.2kbps)
<b>Maximum number of stations without repeater</b>	32 stations (31 slaves)
<b>Maximum length of tapoffs</b>	<ul style="list-style-type: none"> <li>• 20m (66ft, at 1 tapoff)</li> <li>• 40m (131ft, divided by tapoff no. in Multi-Junction Box)</li> </ul>
<b>Bus polarization</b>	<ul style="list-style-type: none"> <li>• 450 - 650Ω Pullup resistor, 5V basis</li> <li>• 450 - 650Ω Pulldown resistor, Recommend the polarization to Master at Common. There is no polarization at RS485 of EOCR .</li> </ul>
<b>Line terminator</b>	120Ω Resistor, +/- 5%
<b>Common polarity</b>	YES (connect 1 protection ground minimum to the bus)

# Communication Guide

## Bus connection through a SCA type junction box



1. Master (PLC, PC or communication module)
2. Modbus cable (It is different according to the master side or a master having polarization combined to the other part of Bus)
3. Junction box
4. Modbus cable
5. Line terminators :  $120\Omega - 0.25W$



Please use a cable with 2pair shielded twisted conductors for Interface protection. It is advised to isolate the Modbus cable 30cm(11.8in) at least from a power cable. If necessary, intersect the Modbus cable to a power cable perpendicularly. Refer to the diagram in the left side for the line terminator wiring.