

## MBS4R - 4S

### General description

MBR-4-S4 is slave two-wires RS-485 serial communication, using Modbus RTU protocol. It has 4 relays, 4 pushbutton inputs, designed for local switching operations such as: electrical limit switch operations, motors, contactors, lamps, solenoids, etc. Setting of the slave address, bit rate and parity is done by software. Possible settings are addresses 25 to 256 and baud rates 1200 to 57600Bd. Statements contained in the handbook are general guidelines only and in no way are designed to supersede the instructions contained with other products. We recommend that the advice of a registered electrician be sought before any installation work commences. Including consequential damage due to reliance on any material contained in this handbook.

### Features

- 4 relay outputs ( 4A, 240Vac contacts )
- 4 dry switch contact input
- Communication Watchdog
- 1200 to 57600 Baud Rate
- Modbus RTU Command Protocol
- RS-485, 2-wire Interface
- 32 Nodes on network
- RS-485 Lines Surge Protection
- 24 Vac/dc supply input optimal
- Status indication led for each relay
- Din rail mount

### General specification

Items	Specifications
Rated Power Input	230VAC $\pm$ 5% / 24 VAC/DC 50 Hz optimal
Power Consumption	1.5 VA
Communication Protocol	ModBus RTU
Modbus Address	25~147
Data format	8 bit, parity NONE, Stop bit 1
Communication Interface	RS485
Baud Rate	1200,2400, 4800, 9600, 19200, 28800, 57600Bps
Relay Output	Total current of device Max current / channel 4A (rated 240VAC@3A or 30VDC@3A)
Isolated Type	Relay Output separately isolated
Withstand Tests	Input / Output / Shell: 2000VAC/min.; 500VDC>100 M $\Omega$
Mounting Position	on DIN-rail TS according to en 50022
Operation Temperature	-20~70°C
Storage Temperature	-40~85°C
Relative Humidity	5~85%RH.; (at -40°C, non condensate)
Duty cycle	100%
Display	LED red indicates relay energize
Protection class open air	IP20
Protection class enclosed	IP 40
Self-extinguishing plastic housing	VO UL94 acc IEC 529
Dimension	74 x 62 x 68 mm (H x W x D)
Net Weight	210g

## Install the MB4R-4S

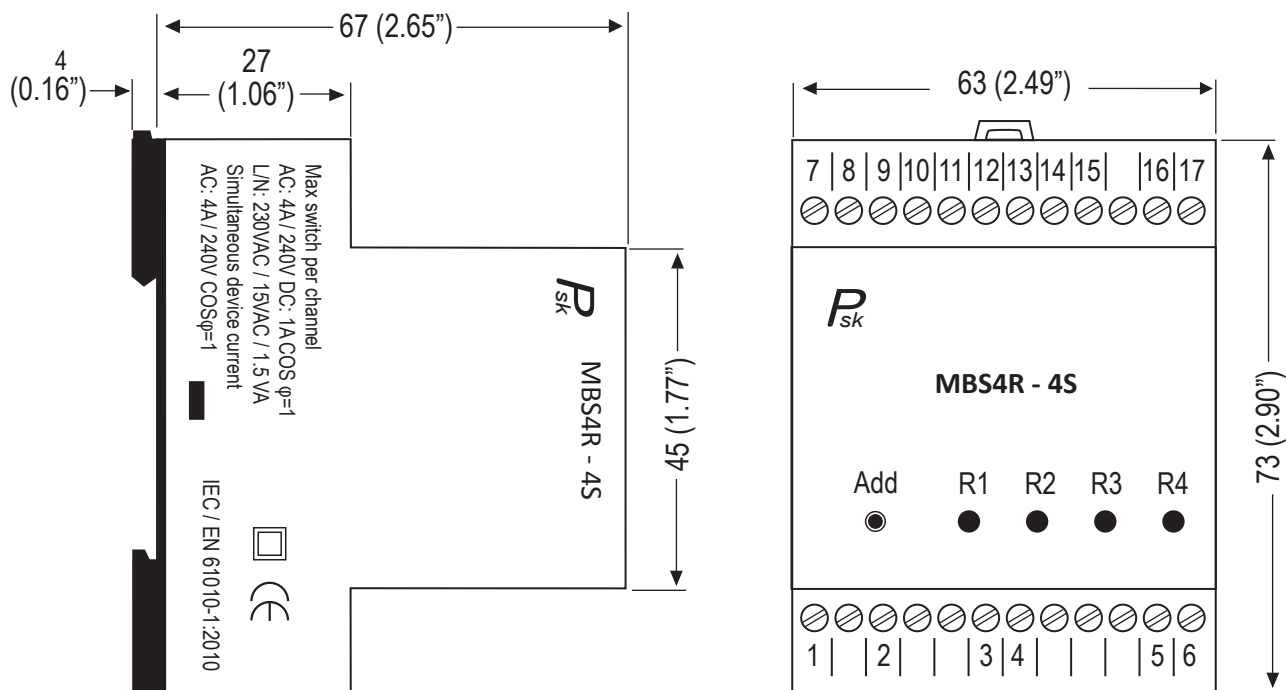
Please install the MB4R-4S to the Din Rail 35 mm slot, and then connect the wires.

Wiring Tips:

- 1 Connecting the block terminal to the MB4R-4S;
- 2 Using the 0.2~3.3 mm<sup>2</sup> wires to connection, please remove the insulator from each wire end about 6 mm;
- 3 Using the screw to the fix the wires to the block terminal, the force is 0.56~0.79N.m.

PIN	Definition	Description
1	∅L	Power Phase
2	N	Power Nutral
3	N/O	Normal Open Relay 1
4		
5	N/O	Normal Open Relay 2
6		
7	A+	RS485 A+
8	B-	RS485 B-
9	Com	Shared trigger for buttons
10	S1	Switch button
11	S2	Switch button
12	S3	Switch button
13	S4	Switch button
14		
15	N/O	Normal Open Relay 3
16		
17	N/O	Normal Open Relay 4
18		

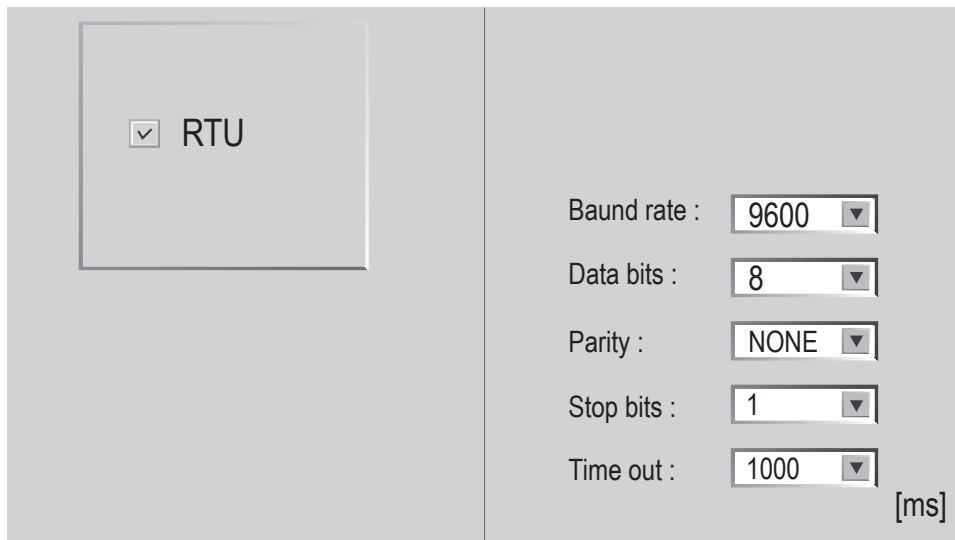
## Dimensions [mm(inch)]



# Modbus RTU Display Network

## 1 Initial state.

- Bound rate: 9600, 8 bit, parity NONE, Stop bit 1.
- Modbus Node ID: 25 .
- Mode: RTU.



## 2 Node ID change.

- To change device ID (Modbus node ID) you have to write into Register-1 Address (40001).
- Valid address set: 3-254 (address 255 is reserved for internal needs).

## 3 Bound rate change.

- To change bound rate you have to write into register 2 (40002).
- Valid address
  - 0 - 1200
  - 1 - 2400
  - 2 - 4800
  - 3 - 9600
  - 4 - 19200
  - 5 - 28800
  - 6 - 57600

## 4 Data enter.

Relay Display Address: Regester (4003)

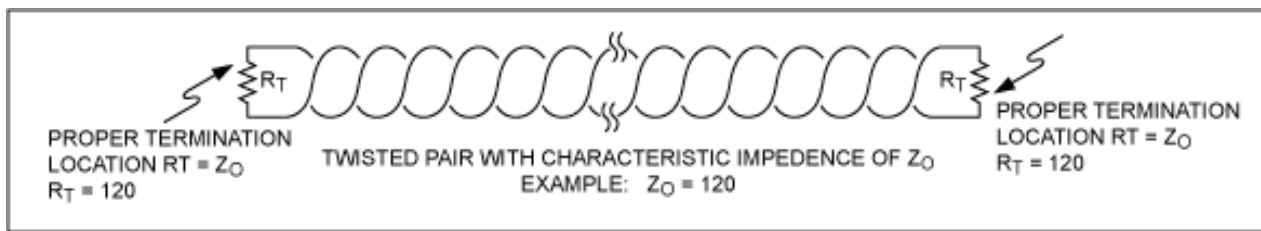
bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
name								R4	R3	R2	R1					
	X	X	X	X	X	X	X	1	1	1	1	X	X	X	X	X

## Switch Display Address: Register (4004)

bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
name								S4	S3	S2	S1					
	X	X	X	X	X	X	X	1	1	1	1	X	X	X	X	X

## 5 Termination Resistors.

Because of the high frequencies and the distances involved, proper attention must be paid to transmission-line effects. The value of the terminating resistor is ideally the same value as the characteristic impedance of the cable.



## 6 Network connection.

- Wiring: Shielded twisted per.
- Cable maximum length: 1200M.
- Slave PLC connection: serial connection "Daisy Chain".
- Each PLC has one address.
- PLC appliance sold to customers with Default address (25), can be change by the client.
- Number of PLC slaves can be connected to one chain: up to 32.

### Shielding

Always shield a Modbus over Serial Line Cable. At one end of each cable its shield must be connected to protective ground. If a connector is used at this end, the shell of the connector is connected to the shield of the cable.

### Cable specification

A RS485-Modbus must use a balanced pair (for D0-D1) and a third wire (for the Common). For the balanced pairs used in an RS485-system, a Characteristic Impedance with a value 120 Ohms must be used.

