# PDM-8-MB | POWER OVER MODBUS MODULE

## Mounting and operating instructions

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## SAFETY AND PRECAUTIONS

Read all the information, the datasheet, mounting and operating instructions and study the wiring and connection diagram before working with the product. For personal and equipment safety, and for optimum product performance, make sure you entirely understand the contents before installing, using, or maintaining this product.

For safety and licensing (CE) reasons, unauthorised conversion and / or modifications of the product are inadmissible.


The product should not be exposed to abnormal conditions, such as: extreme temperatures, direct sunlight or vibrations. Long-term exposure to chemical vapours in high concentration can affect the product performance. Make sure the work environment is as dry as possible; avoid condensation.

All installations shall comply with local health and safety regulations and local electrical standards and approved codes. This product can only be installed by an engineer or a technician who has expert knowledge of the product and safety precautions.

Avoid contacts with energised electrical parts. Always disconnect the power supply before connecting, servicing or repairing the product.

Always verify that you apply appropriate power supply to the product and use appropriate wire size and characteristics. Make sure that all the screws and nuts are well tightened and fuses (if any) are fitted well.

Recycling of equipment and packaging should be taken into consideration and these should be disposed of in accordance with local and national legislation / regulations.

In case there are any questions that are not answered, please contact your technical support or consult a professional.

## PRODUCT DESCRIPTION

PDM-8-MB are power over Modbus supply modules with galvanically isolated RS485 communication and two galvanically isolated 24 VDC power supply lines (channels). The PDM-8-MB is used to interconnect and supply Sentera controllers and sensors that have integrated Modbus RTU communication.

## INTENDED AREA OF USE

- Powering Sentera Modbus controllers and sensors
- Providing safe galvanic isolation for Modbus communication
- For indoor use only!

## TECHNICAL DATA

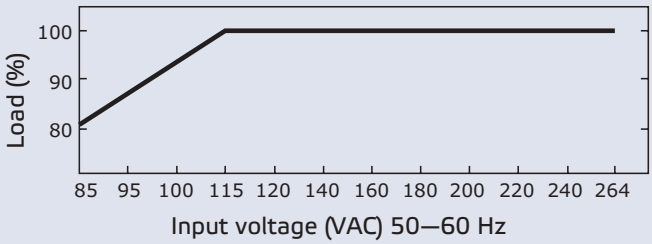
- Supply voltage: 85—264 VAC / 50—60 Hz
- 2 x Modbus RJ45 connections with integrated power supply: 24 VDC / 20 W / 900 mA
- Galvanically isolated half-duplex mode repeater for Modbus RTU communication
- Asynchronous serial data transmission
- Output connections with Power over Modbus RJ45 connection
- Protections:
  - short circuit
  - overload
  - overvoltage
  - protection standard: IP30 (according to EN 60529)
- Automatic baud-rate fitting up to 115,2 Kbps
- Distance up to 1.200 m
- Up to 32 modules can be connected, depending on distance and power consumption
- Operating humidity range: 5—85 % rH, non-condensing
- Enclosure: ABS plastic, colour: grey, RAL7035
- Operating ambient conditions:
  - temperature range: -20—40 ºC
  - rel. humidity: 5—85 % rH (non-condensing)

## STANDARDS

CE

- Low Voltage Directive 2014/35/EC
- EMC Directive 2014/30/EC
- WEEE Directive 2012/19/EC
- RoHs Directive 2011/65/EC

## OPERATIONAL DIAGRAMS




## WIRING AND CONNECTIONS

| | |
|---|---|
| 24 VDC | +24 VDC - pins 1 & 2 of the RJ45 connector up to 900 mA (See the *Operational diagram* above) |
| GND | Ground - pins 7 & 8 of the RJ45 connector |
| A | Modbus RTU communication (RS485) - pins 3 & 4 of the RJ45 connector |
| /B | Modbus RTU communication (RS485) - pins 5 & 6 of the RJ45 connector |
| Green LED | Power OK |
| Connections | Standard Ethernet cable with 2 x RJ45 connector or with 1x RJ45 connector and loose wire ends at the other side. |

| **RJ45 Wires** | | |
|---|---|---|
| Pin 1 | 24 VDC | Supply voltage |
| Pin 2 | 24 VDC | Supply voltage |
| Pin 3 | A | Modbus RTU communication (A) |
| Pin 4 | A | Modbus RTU communication (A) |
| Pin 5 | /B | Modbus RTU communication (/B) |
| Pin 6 | /B | Modbus RTU communication (/B) |
| Pin 7 | GND | Supply voltage |
| Pin 8 | GND | Supply voltage |

## MOUNTING INSTRUCTIONS IN STEPS

Before you start mounting the PDM-8-MB power over Modbus module, read carefully **"Safety and Precautions"**.

**⚠ ATTENTION**

*Do not disassemble the unit!*

This unit is free-standing, but can also be surface mounted. If PDM-8-MB is to be mounted onto a surface, choose a smooth mounting location e.g. a wall, a panel, etc. (for dimensions between holes, see **Fig. 1** *Wall mounting*) and follow these steps:

1. Power the module using an IEC 320 power cable (AC supply source 85—264 VAC / 50—60 Hz) (see **Fig. 2** *Power Cable*).

**Fig. 1 Wall mounting**

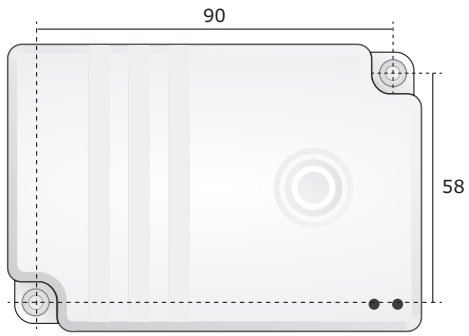
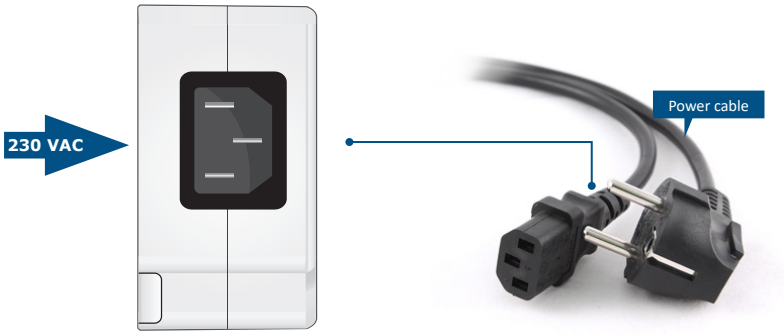
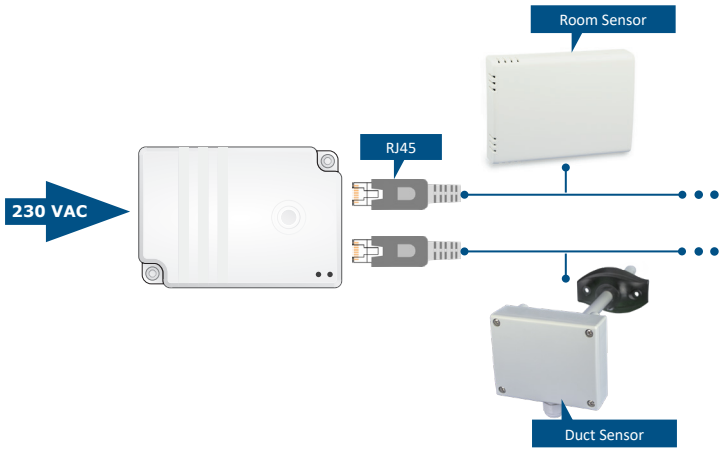



**Fig. 2 Power cable**



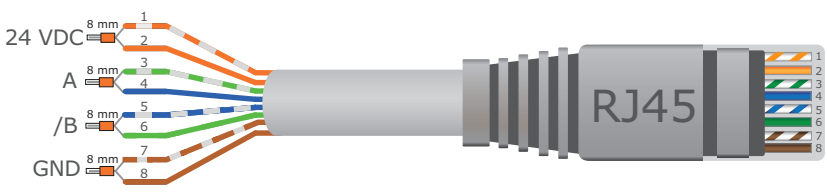

2. Use a standard Ethernet cable to connect the PDM-8-MB module and controller / sensor to the RJ45 socket on it. (See **Fig. 3** *Ethernet Cable*).

**Fig. 3 Ethernet Cable**



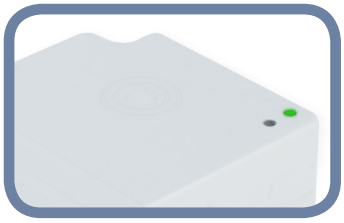

3. If the controller / sensor does not have an RJ45 socket, connect the wires of the cable as shown in **Fig. 4** *Connecting cable* and do the wiring using the information from section ***"Wiring and connections"*** above **.**

**Fig. 4 Connecting cable**



## VERIFICATION OF THE INSTALLATION INSTRUCTIONS

After the module has been powered, the green LED on the enclosure should be on meaning the power is appropriate (see **Fig. 5** *Operation LED indication*).
Blinking green LEDs on the RJ connectors (RX and TX) show established communication over Modbus RTU network (see **Fig. 6** *Communication LED indications*).

| Fig. 5 Operation LED indication | Fig. 6 Communication LED indications |
|---|---|
|  |  |

**⚠ ATTENTION**

*After unplugging an RJ45 connector, wait minimum 60 seconds before reconnecting another device to PDM-8-MB, otherwise you risk damaging your equipment.*

## TRANSPORT AND STORAGE

Avoid shocks and extreme conditions; stock in original packing at temperatures -20—40˚C.

## WARRANTY AND RESTRICTIONS

Two years from the delivery date against defects in manufacturing. Any modifications or alterations to the product after the date of publication relieve the manufacturer of any responsibilities. The manufacturer bears no responsibility for any misprints or mistakes in this data.

## MAINTENANCE

In normal conditions these controllers are maintenance-free. If soiled, clean with a dry or damp cloth. In case of heavy pollution, clean with a non-aggressive product. In these circumstances, the unit should be disconnected from the main supply. Pay attention that no fluids enter the unit. Only reconnect the controller to the main supply when it is completely dry.