DRPUM

DIN RAIL MOUNTED CENTRAL PROCESSING UNIT

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 our technical support or consult a professional.

PRODUCT DESCRIPTION

DRPUM is a universal programmable controller that requires a dedicated firmware for a specific application. It features 2 RJ45 sockets - one for Power over Modbus supply and one for connecting slave devices - and 2 RJ12 sockets for slave devices. Thanks to the built-in Modbus RTU communication, various Sentera HVAC sensors and / or fan speed controllers can be controlled by this device. Via splitters, up to 247 slave devices can be connected.

ARTICLE CODES

Article code	Supply voltage	Maximum power consumption
DRPUM	24 VDC (PoM)	0,24 W

INTENDED AREA OF USE

- As a master device for Sentera sensors / fan speed controllers with Modbus RTU communication
- Clean air and non-aggressive, non-combustible gases
- For indoor use only

TECHNICAL DATA

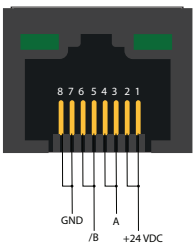
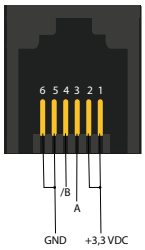
- Supply voltage: 24 VDC (Power over Modbus)
- Output voltage for connected slave devices:
  - RJ45 connectors: 24 VDC
  - RJ12 connectors: 3,3 VDC
- Maximum power consumption: 0,24 W
- Nominal power consumption: 0,01 W
- Imax: 10 mA
- Easy to connect via Modbus RTU RJ45 and RJ12 sockets
- DIN rail mountable
- Internal memory for data logging
- Protection class: IP20
- Enclosure: ABS plastic, colour: grey (RAL7035)
- Storage temperature: -40—85 ºC
- Operating ambient conditions:
  - temperature range: -10—50 ºC
  - rel. humidity: 5—85 % rH (non-condensing)

STANDARDS

- EMC directive 2014/30/EU:
  - EN 61000-6-1:2007
  - Electromagnetic compatibility (EMC) - Part 6-1: Generic standards - Immunity for residential, commercial and light-industrial environments
  - EN 61000-6-3:2007 Electromagnetic compatibility (EMC) - Part 6-3: Generic standards - Emission standard for residential, commercial and light-industrial environments Amendments A1:2011 and AC:2012 to EN 61000-6-3
  - EN 55032:2012 Electromagnetic compatibility (EMC) of multimedia equipment – Emission requirements Amendment AC:2013 to EN 55032
  - CISPR 32:2012
  - EN 50561-1:2013 Power line communication apparatus used in low-voltage installations – Radio disturbance characteristics – Limits and methods of measurement – Part 1: Apparatus for in-home use
- WEEE Directive 2012/19/EC
- RoHs Directive 2011/65/EC

WIRING AND CONNECTIONS

	RJ45 sockets
Pin 1	Supply voltage
Pin 2	Supply voltage
Pin 3	Modbus RTU communication, signal A
Pin 4	Modbus RTU communication, signal A
Pin 5	Modbus RTU communication, signal /B
Pin 6	Modbus RTU communication, signal /B
Pin 7	Ground, supply voltage
Pin 8	Ground, supply voltage
	RJ12 sockets
Pin 1	Supply voltage
Pin 2	Supply voltage
Pin 3	Modbus RTU communication, signal A
Pin 4	Modbus RTU communication, signal /B
Pin 5	Ground, supply voltage
Pin 6	Ground, supply voltage

RJ45 sockets	RJ12 sockets
	

MOUNTING INSTRUCTIONS IN STEPS

Before you start mounting your DRPUM, read carefully *"**Safety and Precautions**"* and follow these steps:

1. Slide the unit along the guides of a standard DIN rail and fix it to the rail by means of the black locking clip on the enclosure. Mind the correct position and mounting dimensions shown in **Fig. 1** *Mounting dimensions* and **Fig. 2** *Mounting position.*

Fig. 1 Mounting dimensions

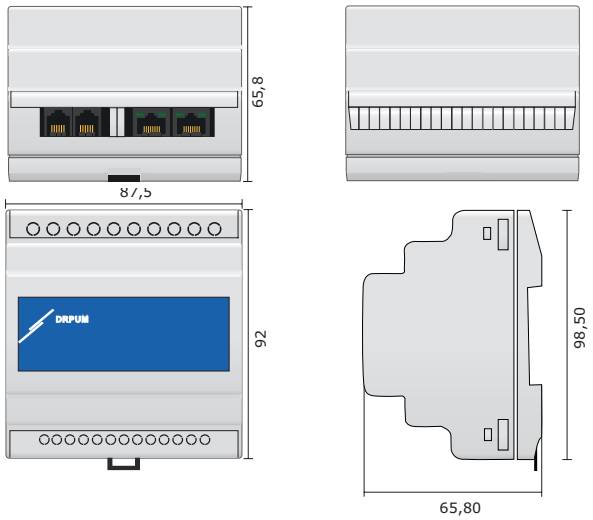
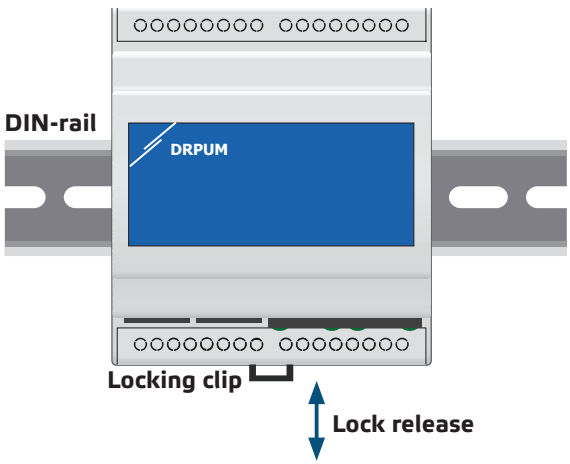


Fig. 2 Mounting position



2. Plug the RJ45 and/or RJ12 jacks into the sockets - see **Fig. 3.**

Fig. 3 RJ45 and RJ12 connections

ATTENTION

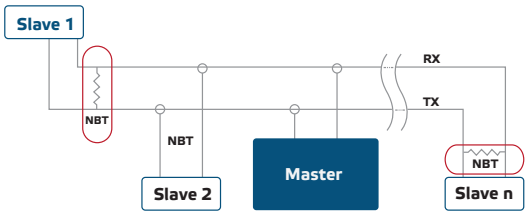
Make sure not to insert an RJ12 connector in an RJ45 socket! This will damage the device!

3. Switch on the power supply.

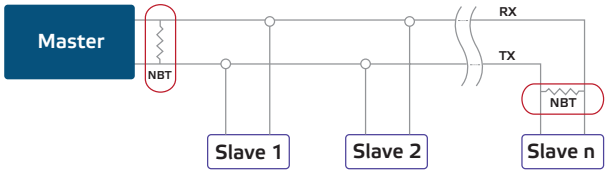
Optional settings

To assure correct communication, the NBT needs to be activated in only two devices on the Modbus RTU network. If necessary, enable the NBT resistor via 3SModbus.

Example 1



Example 2



NOTE

On a Modbus RTU network, two bus terminators (NBTs) need to be activated.

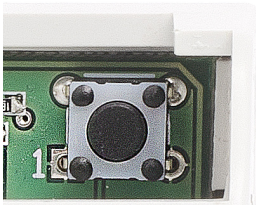
PROGRAMMING INSTRUCTIONS

The DRPUM is intended as local control unit for Sentera devices with Modbus RTU on board according to a previously defined Sentera solution. A customer oriented software is developed and uploaded on the DRPUM flash memory via the free downloadable 3SMBoot Sentera PC software.

Reset of Modbus registers procedure:

Press the button to reset the Modbus registers to their default values (factory pre-set), see **Fig. 4**.

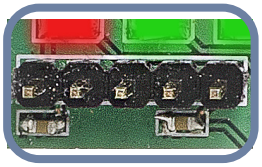
Fig. 4 Modbus register reset tact switch



Bootloader

Thanks to the bootloader functionality, the device firmware is updated via Modbus RTU communication. To enter 'Boot mode", put a jumper onto pins 3 and 4 of the P1 header and restart the power supply (see **Fig. 5**). Once 'Boot mode' is activated, the firmware can be updated via SM Boot application (part of 3SModbus software suite).

Fig. 5 P1 header

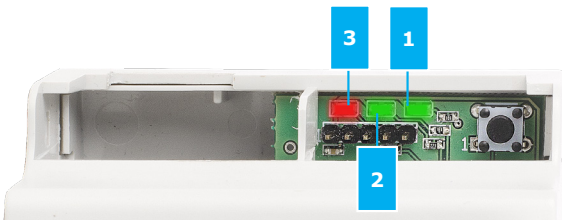


1 2 3 4 5	Put a jumper onto pins 1 and 2 and wait for at least 5 seconds to reset the Modbus communication parameters
1 2 3 4 5	Put a jumper onto pins 3 and 4 and restart the supply to enter bootloader mode

VERIFICATION OF INSTALLATION

1. When green LED1 is on, the unit is supplied and there is active Modbus RTU communication.
2. Green LED2 activation depends on the firmware version, i.e. it is customer orientated.
3. When red LED3 blinks slowly, it indicates system error. Fast blinking indicates that bootloader mode has been entered.

Fig. 6 LED indications



TRANSPORT AND STORAGE

Avoid shocks and extreme conditions. Stock in original packing.

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.