

DTP-M | DIGITAL TEMPERATURE PIPE SENSOR

Mounting and operating instructions



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SAFETY AND PRECAUTIONS



Read all the information, the datasheet, Modbus map, 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

The DTP-M series are digital temperature water pipe sensors powered over Modbus with 24 VDC via an RJ45 connector. They are intended for mounting onto metal pipes and are compatible with various temperature control systems. Thanks to the copper contact plate, we can ensure fast response times and faster response time and a more accurate temperature measurement of the media within the pipe.

ARTICLE CODES

Code	Power supply	I _{max}
DTP-M	24 VDC, PoM	8 mA


INTENDED AREA OF USE

Measuring temperature in metal water pipes

TECHNICAL DATA

- Sensor range: 0–85 °C
- Modbus RTU communication
- Easy wiring via an RJ45 socket
- Quick and easy mounting via a cable tie
- Copper plate for enhanced thermal conductivity
- Heat resistant cable tie 300 x 4,8 mm included
- Thermal pad for a more accurate temperature measurement included (19 x 14 x 1,5 mm)
- Supply voltage: 24 VDC, Power over Modbus
- Protection standard: IP65
- Operating ambient conditions:
 - ▶ temperature: -30–85 °C
 - ▶ rel. humidity: 5–95 % rH (non-condensing)

STANDARDS

- EMC directive 2014/30/EU: 
 - ▶ EN 61326-1:2013 Electrical equipment for measurement, control and laboratory use - EMC requirements - Part 1: General requirements
 - ▶ EN 61326-2-3:2013 Electrical equipment for measurement, control and laboratory use - EMC requirements - Part 2-3: Particular requirements - Test configuration, operational conditions and performance criteria for transducers with integrated or remote signal conditioning
 - ▶ EN 61326-2-5:2013 Electrical equipment for measurement, control and laboratory use - EMC requirements - Part 2-5: Particular requirements - Test configurations, operational conditions and performance criteria for devices with field bus interfaces according to IEC 61784-1
- WEEE Directive 2012/19/EC
- RoHs Directive 2011/65/EC

WIRING AND CONNECTIONS

RJ45 sockets (Power over Modbus)		
Pin 1	24 VDC	Supply voltage
Pin 2		
Pin 3	A	Modbus RTU communication, signal A
Pin 4		
Pin 5	/B	Modbus RTU communication, signal /B
Pin 6		
Pin 7	GND	Ground, supply voltage
Pin 8		

MOUNTING & OPERATING INSTRUCTIONS IN STEPS

Before you start mounting the unit, read carefully **“Safety and Precautions”**.

Follow these steps:

1. Remove the rubber cap of the unit and mount the unit onto the pipe outer surface via placing the thermal pad between the copper plate and the pipe.
2. Secure the unit using the cable tie included in the set as shown in **Fig. 1**.

Fig. 1 Mounting position

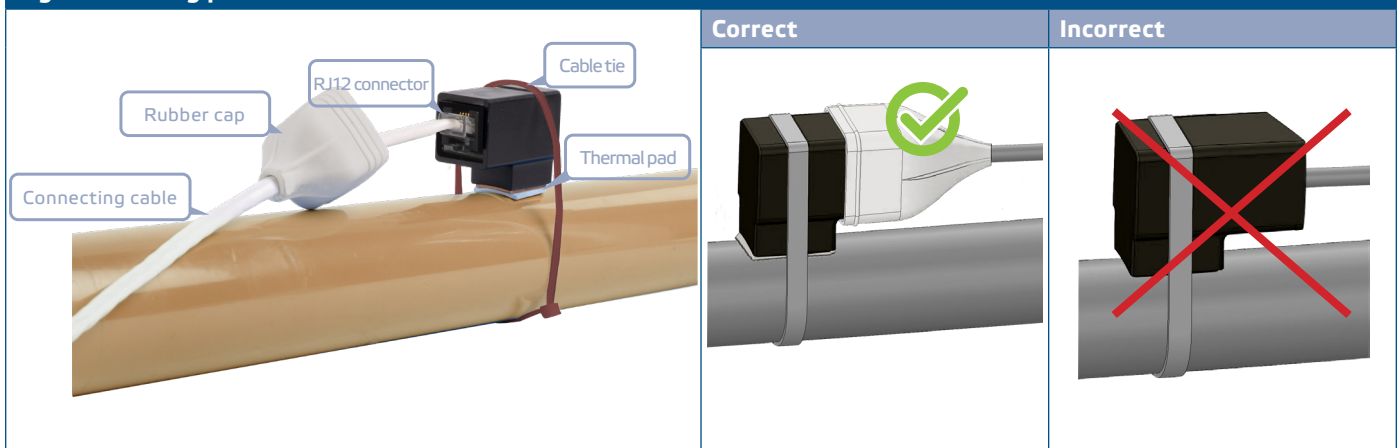
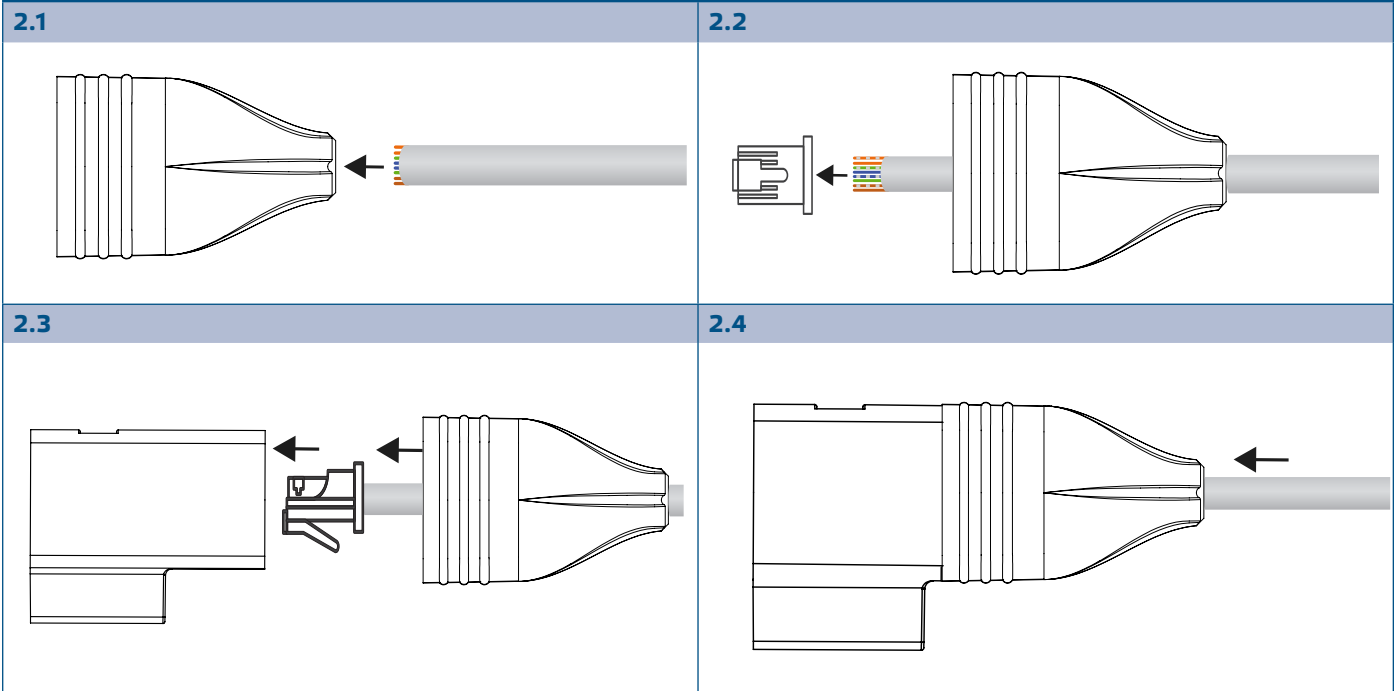


Fig. 2 Mounting steps



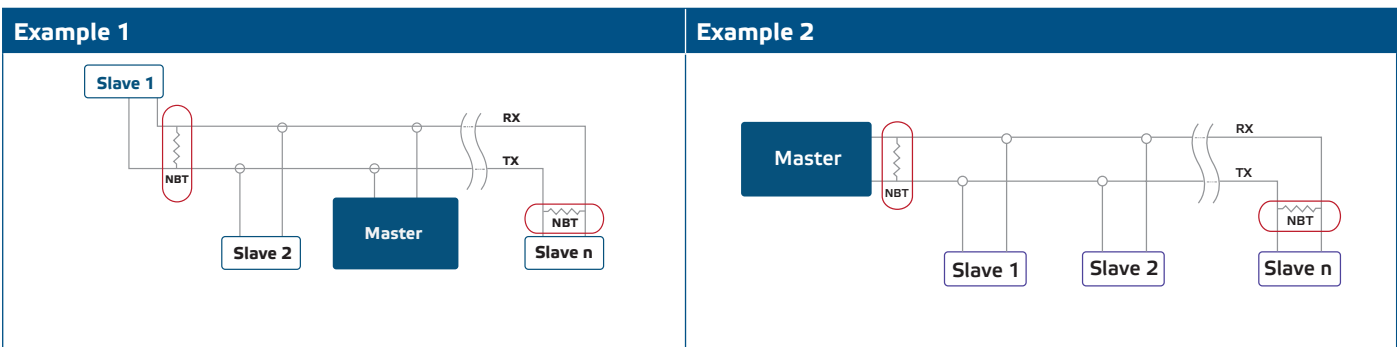
3. Insert the connecting cable into the cap opening (see **Fig. 2.1**).
4. Crimp the cable with an RJ45 connector adhering to the information in section **“Wiring and connections”** above and plug it into the socket (see **Fig. 2.2** and **Fig. 2.3**).
5. Slide the cap along the cable to cover the connector and maintain the IP rating of the unit (see **Fig. 2.4**).
6. Switch on the mains supply.
7. Customise the factory settings to the desired ones via the SenteraWeb, 3SModbus software or Sensistant (if necessary). For the default factory setting refer to the product *Modbus register map*.

NOTE

For the complete Modbus register data, refer to the product Modbus Register Map, which is a separate document attached to the article code on the website and contains the registers list. Products with earlier firmware versions may not be compatible with this list.

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 or Sensistant (*Holding register 9*).





NOTE

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



CAUTION

Do not expose to direct sunlight!

VERIFICATION OF INSTALLATION

After powering the unit, the LED on the left of the RJ45 socket (**Fig. 4 - 1**) should light up to indicate that the unit is supplied.

The LED on the right of the RJ45 socket (**Fig. 4 - 2**) indicates that there is active Modbus communication.

If your unit does not function as expected, please check the connections.

Fig. 4 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 this product is 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 supply. Pay attention that no fluids enter the unit. Only reconnect it to the supply when it is completely dry.

