

# Installation and configuration manual HBTS – TR temperature sensor with transmitter



## Introduction

The HBTS-TR sensor measures the temperature and transmit an analog signal 4-20 mA linear to the temperature range. The sensor can operate from -50°C to 150°C and can be delivered with either with a 2 m cable or without. The accuracy of the sensor is +/- 1%

The sensor has a standard M12 interface like other HB-product sensors and is configured by the HB tool.

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## Safety Instructions

**CAUTION!** Always read the operational guidelines before commencing work! Read all warnings Installation of HBTS requires technical knowledge of electronics. Only qualified personnel should work with the product. The technician must be aware of the consequences of an improperly installed sensor and must be committed to adhering to the applicable local legislation.

If changes are made to type-approved equipment, this type approval becomes void. The product's input and output, as well as its accessories, may only be connected as shown in this guide. HB Products assumes no responsibility for damages resulting from not adhering to the above.

Explanation of the symbol for safety instructions. In this guide, the symbol below is used to point out important safety instructions for the user. It will always be found in places in the chapters where the information is relevant. The safety instructions and the warnings in particular, must always be read and adhered to.

	<p><b>CAUTION!</b> Refers to a possible limitation of functionality or risk in usage. <b>NOTE!</b> Contains important additional information about the product and provides further tips. The person responsible for operation must commit to adhering to all the legislative requirements, preventing accidents, and doing everything to avoid damage to people and materials.</p>
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Intended use, terms of use. The HBTS temperature sensor is designed for measuring temperature. If the HBTS is to be used in a different way and if the operation of the product in this function is determined to be problematic, prior approval must be obtained from HB Products.

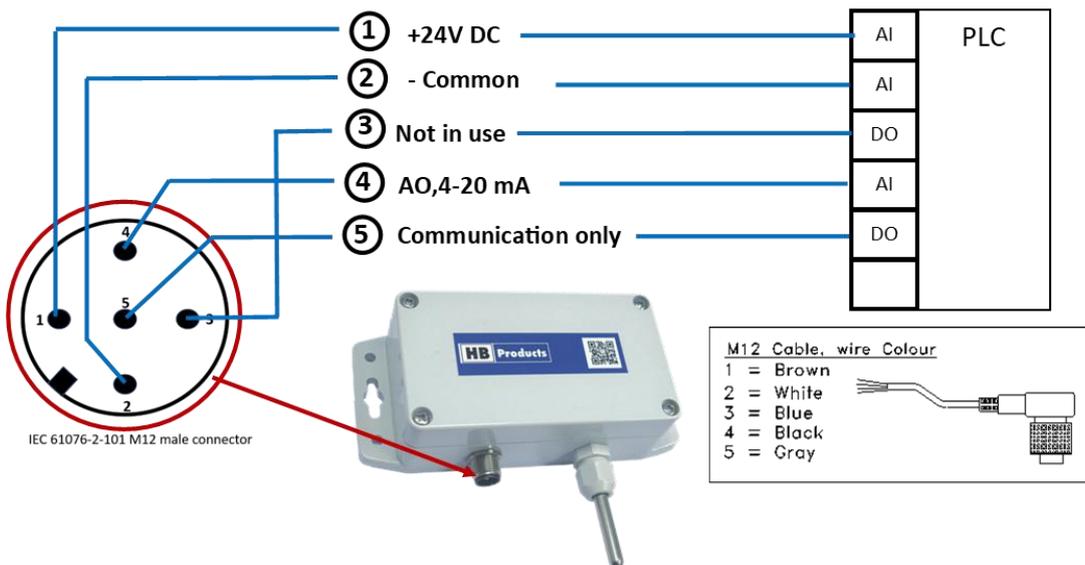
Preventing collateral damage: Make sure that qualified personnel assess any faults and take necessary precautions before attempting to make replacements or repairs, to avoid collateral damage. Disposal instructions: HBTS is constructed so that the modules can easily be removed and sorted for disposal.

### Installation

- 1) The sensor box is installed in a suitable location fulfilling the installation conditions.
- 2) Wired temperature sensors are mounted in position. The sensor is sealed and can be dipped in water.
- 3) Normally installed with a standard unshielded cable. If the EMC is higher than described in EN 61326, a shielded cable must be used.

### Wiring the sensor

The sensor box is connected to a PLC, computer or similar where the temperature result is needed. The M12 plug is used for power supply and the analog output. The M12 plug is also used for configuration of the sensor span, using a USB cable and a laptop with HB-tool.



The temperature sensor is mounted in the box at delivery. The Sensor wire can be demounted/mounted/replaced using the green connector named "Ten". The large black connector named GND and Wire is not used.

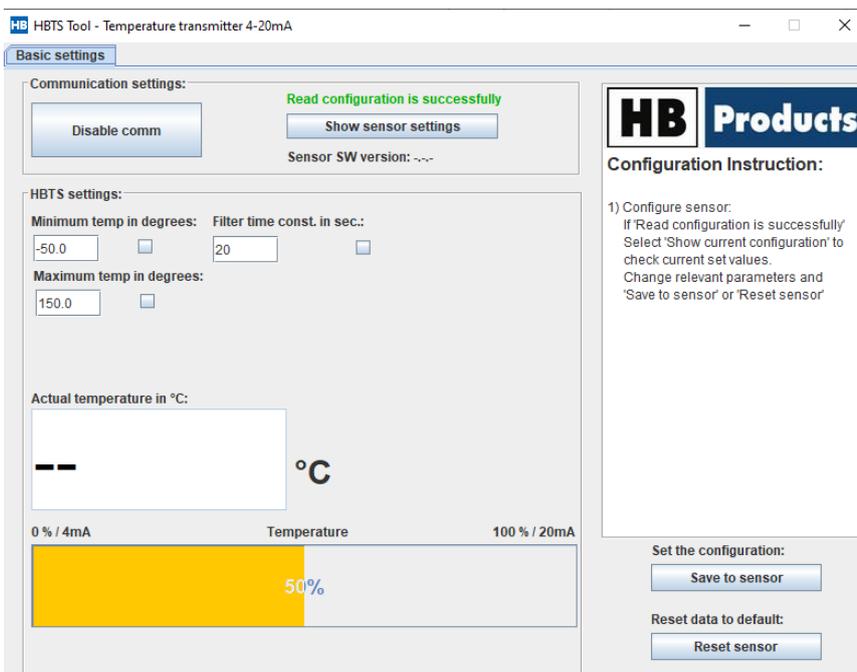
### Configuration

All HB-product sensors can be configured using a laptop and a “M12-USB” cable. The software can be downloaded freely on the HB products web page. The configuration data can be stored in the sensor and will be there until erased even without power connection—just like you store data on a memory stick. When you change a value/setting there will be put a check mark next to it and that indicates you have changed something and need to store the data in the sensor.



### Sensor setup

The temperature sensor is simple to setup, only the range and the filter time can be adjusted. The mA output is linear to the range. 4 mA is transmitted for the minimum temperature and 20mA for maximum. The filter time can be set between 0 and 200 seconds. A high number will smoothen the signal and make it slower. The range is set in degree Celsius from -50°C to 150°C. When the setting is typed in, you click on the “save to sensor” button and the data are stored, on the sensor.



Technical Data

Supply voltage:	24 V AC/DC	Vibrations:	IEC 68-2-6 (4g)
Electricity consumption:	250 mA incl. heater	Accuracy temperature	+/- 1%
Electrical connection:	Wire terminals	Accuracy/step mA	0,02mA
Analog output:	4-20 mA	Certifications:	
Installation conditions:		EMC Emission:	EN61000-3-2
Ambient temperature:	-30...+50°C	EMC Immunity:	EN61000-4-2
PT1000 sensor	-50...+150°C		
Waterproof rating:	IP65		

Sensor Repair

Complaints are processed by HB Products’ dealers/distributors.  
Please consider their complaint procedures before returning the sensor.



Note! All terminals are protected against improper termination for a supply voltage up to 40 V. If the supply voltage is higher than 40 V, the electronics will be damaged.

Spare Parts

Position	Designation	Specification	Product number
1	Electronic part	PCB	HBDF-MK2-EL
2	Temp. sensor	Pt1000-Cable type	HBPT-Pt1000 cable
3	Communication cable	HB USB cable	HBxC-USB