

Instruction and operation manual

**Temperature
transmitter**



Dear Customer,

Thank you for choosing our product.

The operating instructions must be read in full and carefully observed before starting up the device. The manufacturer cannot be held liable for any damage which occurs as a result of non-observance or non-compliance with this manual.

Should the device be tampered with in any manner other than a procedure which is described and specified in the manual, the warranty is cancelled and the manufacturer is exempt from liability.

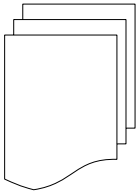
The device is destined exclusively for the described application.

SUTO offers no guarantee for the suitability for any other purpose. SUTO is also not liable for consequential damage resulting from the delivery, capability or use of this device.

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1. Safety instructions



Please check if this instruction manual accords to the product type.

Please observe all notes and instructions indicated in this manual. It contains essential information which have to be observed before and during installation, operation and maintenance. Therefore this instruction manual has to be read carefully by the technician as well as by the responsible user / qualified personnel.

This instruction manual has to be available at the operation site of the temperature transmitter at any time. In case of any obscurities or questions, regarding this manual or the product, please contact the manufacturer.



WARNING!

Compressed air!

Any contact with quickly escaping air or bursting parts of the compressed air system can lead to serious injuries or even death!

- Only use pressure tight installation material.
- Avoid that persons get hit escaping air or bursting parts of the instrument.
- The system must be pressureless during maintenance work.



WARNING!

Voltage used for supply!

Any contact with energized parts of the product, may lead to a electrical shock which can lead to serious injuries or even death!

- Consider all regulations for electrical installations.
- The system must be disconnected from any power supply during maintenance work.
- Any electrical work on the system is only allowed by authorized qualified personal.

**WARNING!****Permitted operating parameters!**

Observe the permitted operating parameters, any operation exceeding this parameters can lead to malfunctions and may lead to damage on the instrument or the system.

- Do not exceed the permitted operating parameters.
- Make sure the product is operated in its permitted limitations.
- Do not exceed or undercut the permitted storage and operation temperature and pressure.
- The product should be maintained and calibrated frequently, at least annually.

General safety instructions

- It is not allowed to use the product in explosive areas.
- Please observe the national regulations before/during installation and operation.

Remarks

- It is not allowed to disassemble the product.
- Always use spanner to mount the product properly.

**ATTENTION!****Measurement values can be affected by malfunction!**

The product must be installed properly and frequently maintained, otherwise it may lead to wrong measurement values, which can lead to wrong results.

- Do not exceed the maximum operation temperature at the sensors tip.
- Avoid condensation on the sensor element as this will affect the accuracy enormously.

Storage and transportation

- Make sure that the transportation temperature of the device is between -40°C ... 100°C .
- For transportation it is recommended to use the packaging which comes with the device.

- Please make sure that the storage temperature of the device is between -40°C ... 100°C .
- Avoid direct UV and solar radiation during storage.
- For the storage the humidity has to be $<90\%$, no condensation.

2. Application

The temperature transmitter is a sensor which is designed to measure the temperature of liquid, vapour, compressed air and gases within the permissible operating parameters. These parameters can be found in the technical data section.

The temperature transmitter is not developed to be used in explosive areas. For the use in explosive areas please contact the manufacturer.

The temperature transmitter is mainly used in compressed air systems in industrial environment.

3. Features

- Easy installation in compressed air systems.
- Measure the inlet / outlet temperature of dryers.
- Measure the outlet temperature of compressors.
- IP65 casing provides robust protection in the industrial environment.

4. Technical Data

4.1 General

CE	
Parameters	Standard unit temperature: °C
Principle of measurement	Resistance change
Sensor	PT 100, class A
Measuring medium	Non-corrosive gases
Measuring range	-50°C ... 200°C
Ambient temperature	-40°C ... 85°C
Tube material	Stainless steel 1.4404
Protection class	IP65
Dimensions	See dimensional drawing below
Weight	80 g

4.2 Electrical Data

Power supply	8 ... 45 VDC / < 30 mA
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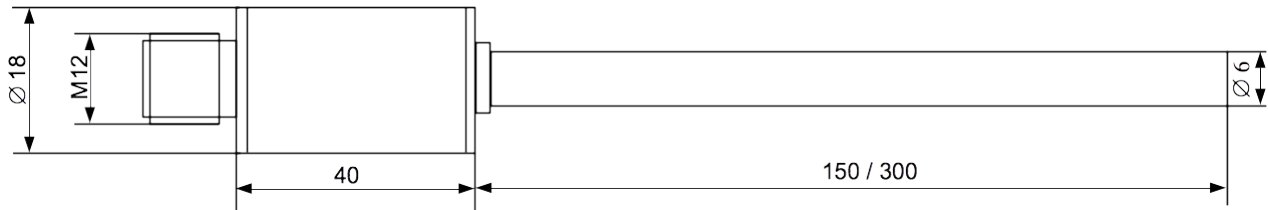
4.3 Output-Signals

Analogue output	4 ... 20 mA, 2 wire loop powered
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4.4 Accuracy

Accuracy	0.5 % of reading + 0.2 % FS
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5. Dimensional drawing



6. Determination of the installation point

In order to maintain the accuracy stated in the technical data, the sensor must be installed correctly. The sensor tip shouldn't contact the inner wall of the pipe, it will lead to wrong measurement values. For further instructions, please read the next chapter carefully.

Please consider that enough space exists at your site for a adequate installation as described in this manual.



ATTENTION!

Wrong measurement is possible, if the sensor is not installed correctly.

- Careful attention must be paid to the insertion depth of the sensor. Not less than 2/3 of the sensor shaft should be inside of the pipe.
- The sensor tip may not contact the inner wall of the pipe.
- The sensor is for indoor use only! At an outdoor installation, the sensor must be protected from solar radiation and rain.
- It is strongly recommend not to install the transmitter permanently in wet environment as it exists usually right after a compressor outlet.

7. Installation

Please make sure that all components listed below are included in your package.

Qty	Description	Item No.
1	Temperature transmitter	S693 0003/ S693 0004
1	M12 connector	C219 0055
1	Instruction manual	No P/N

7.1 Installation Requirements

To install the temperature transmitter a nozzle and a compression fitting is needed.

- The inner thread has to be G 1/2".
- The diameter of the hole must be ≥ 6 mm, other wise the shaft can not be inserted.

7.2 Installation Procedure

The following steps explain the procedure of an appropriate installation.

Installation of the instrument

1. Screw the compression fitting tightly to the nozzle of the pipe.
2. Loosen the nut of the compression fitting.
3. Move the temperature transmitter slightly through the compression fitting into the pipe.
 - Not less than 2/3 of the sensor shaft should be inside of the pipe.
 - The sensor tip may not contact the inner wall of the pipe.
4. Screw the nut of the compression fitting.

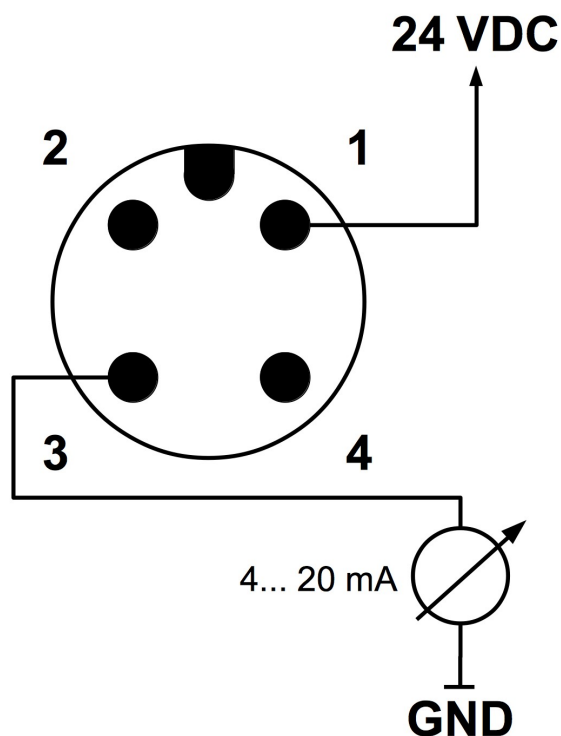
Removal of the instrument

1. Loosen the nut of the compression fitting.
2. Pull out the temperature transmitter slowly.

7.3 Electrical connection

The temperature transmitter is equipped with a M12 connector plug. The cable is connected to the transmitter using the M12 connector.

Please refer to connection diagram below.



ATTENTION!

Do not screw the M12 plug using force. Otherwise, it may damage the connecting pins.

8. Signal outputs

8.1 Analog output

The temperature transmitter has an analog output range of 4... 20 mA. It is a 2-wire loop powered analog output. This output is scaled to:

- 4 mA = -50°C
- 20 mA = 200°C

9. Optional extra accessories

9.1 Compression fitting

There are different types of compression fittings available:

- compression fitting 6mm, G1/2", PTFE ring, 0.6 MPa
- compression fitting 6mm, G1/2", metal ring, 1.6 MPa

10. Calibration

It is recommended to calibrate respectively adjust the sensor annually. For this please contact the manufacturer.

11. Maintenance

To clean the sensor and its accessories it is recommended to use moist cloth only

12. Disposal or waste

Electronic devices are recyclable material and do not belong in the household waste.

The sensor, the accessories and its packings must be disposed according to your local statutory requirements. The dispose can also be carried by the manufacturer of the product, for this please contact the manufacturer.

13. Warranty

SUTO provides a warranty for this product of 24 months covering the material and workmanship under the stated operating conditions from the date of delivery. Please report any findings immediately and within the warranty time. If faults occurring during the warranty time SUTO will repair or replace the defective unit, without charge for labour and material costs but there is a charge for other service such as transport and packing costs.

Excluded from this warranty is:

- Damage caused by:
 - Improper use and non-adherence to the instruction manual.
 - Use of unsuitable accessories.
 - External influences (e.g. damage caused by vibration, damage

during transportation, excess heat or moisture).

The warranty is cancelled:

- If the user opens the measurement instrument without a direct request written in this instruction manual.
- If repairs or modifications are undertaken by third parties or unauthorised persons.
- If the serial number has been changed, damaged or removed.

Other claims, especially those for damage occurring outside the instrument are not included unless responsibility is legally binding.

Warranty repairs do not extend the period of warranty.



ATTENTION!

Batteries have a reduced warranty time of 12 month.

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