Installation and Operation Manual

Be smart. **Measure it.**

S020

Temperature Transmitter



English

www.suto-itec.com

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

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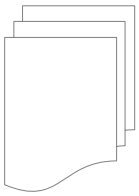
1 Safety Instructions



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

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

This instruction manual must be available at the operation site of the temperature transmitter at any time. If anything in this manual is unclear, or if you have questions, please contact the manufacturer.



WARNING: Compressed Air Hazard!

Contact with rapidly escaping pressurized air or bursting components can cause serious injury or death.

- Only use pressure tight installation material.
- Ensure that nobody can be hit by escaping air or bursting parts of the device.
- The system must be depressurized before any maintenance work.



WARNING: Electrical Hazard!

Contact with energized electrical components may cause electric shock, resulting in serious injury or 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 personnel.



CAUTION: Permitted Operating Parameters!

Operating the device outside the specified limits may result in malfunctions, measurement errors, or damage to the device and associated system components.

- Do not exceed the permitted operating parameters.
- Make sure the device is operated within its permitted limits.
- 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

- Do not use the product in explosive areas.
- Please observe the national regulations before/during installation and operation.

Remarks

- Do not disassemble the device.
- Always use a spanner to mount the product properly.



CAUTION: Measurement Accuracy!

Improper use or inadequate maintenance of the device may affect measurement accuracy and lead to unreliable measurement results.

- Do not exceed the maximum operating temperature at the sensor tip.

Storage and transportation

- Transportation temperature: -30 … +85°C.
- Storage temperature: -30 … +85°C
- Original packaging recommended: use the supplied packaging for the device during transit.
- Protect from direct UV and solar radiation during storage.
- Storage humidity: less than 90%, no condensation.

2 Registered Trademarks

SUTO®

Registered trademark of SUTO iTEC

3 Application

The S020 Temperature Transmitter is a sensor which is designed to measure the temperature of non-corrosive liquid, vapour, compressed air and gases within the permissible operating parameters. These parameters can be found in the Technical Data section.

The S020 Temperature Transmitter is not developed to be used in explosive areas. For the use in explosive areas please contact the manufacturer.

The S020 Temperature Transmitter is mainly used in compressed air systems in an industrial environment.

4 Features

- Easy installation in compressed air systems.
- Measures the inlet / outlet temperature of dryers.
- Measures the outlet temperature of compressors.
- Provides wide measurement range of -50 … +200°C.
- High-precision temperature measurement.
- Supports IP67 protection.

5 Technical Data

5.1 General

CE	
Measured parameter	Temperature Standard unit: °C
Principle of measurement	Resistance change
Sensor	PT1000, class A
Measuring medium	Non-corrosive liquid and gases
Measuring range	-50°C ... +200°C
Ambient temperature	-30 … +85°C
Operating pressure	0 … 1.6 MPa
Tube material	Stainless steel 1.4571
Protection class	IP67
Dimensions	See dimensional drawing in chapter 6 .
Weight	250 g

5.2 Electrical Data

Power supply	8 ... 35 VDC

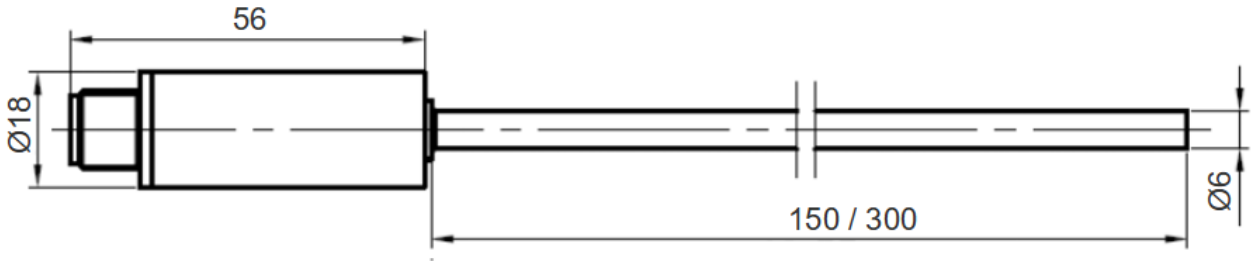
5.3 Output Signals

Analogue output	4 ... 20 mA, 2-wire loop powered

5.4 Accuracy

Sensor tolerance	±(0.15+0.002 × |t|) °\
Transmitter accuracy	Max. ±0.2 K
Note: The overall measurement accuracy of the S020 depends on both the sensor tolerance and the transmitter accuracy.	

6 Dimensional Drawing



7 Determination of the Installation Point

To maintain the accuracy stated in the technical data, the Temperature Transmitter must be installed correctly. The sensor tip must not touch the inner wall of the pipe, which will lead to wrong measurement values. For further instructions, please read the next chapter carefully.

Ensure that there is enough space at the site for proper installation.



CAUTION!

Wrong measurement is possible, if the Temperature Transmitter is not installed correctly.

- Careful attention must be paid to the insertion depth of the Temperature Transmitter. 40% - 60% depth of the Temperature Transmitter shaft must be inside of the pipe.
- The sensor tip must not touch the inner wall of the pipe.
- The Temperature Transmitter is for indoor use only! For outdoor installation, protect the transmitter from solar radiation and rain.
- It is strongly recommended not to install the Temperature Transmitter permanently in a wet environment, such as typically found directly after a compressor outlet.

8 Installation

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

Qty	Description	Item No.
1	S020 Temperature Transmitter	S693 0003 — 150 mm S693 0004 — 300 mm
1	Depending on orders: M12 plug or M12 cable	Plug: C219 0059 Cable: A553 0104/A553 0105
1	Instruction manual	No P/N

8.1 Installation Requirements

To install the S020, a nozzle and a compression fitting are needed.

- The inner thread must be G½”.
- The diameter of the hole must be > 6 mm. Otherwise, the shaft cannot be inserted.

8.2 Installation and Removal

The following steps describe the installation procedure.

Install the S020

1. Screw the compression fitting tightly to the nozzle of the pipe.
2. Loosen the nut of the compression fitting.
3. Slide the S020 gently through the compression fitting into the pipe.
   - Install 40% – 60% depth of the shaft inside the pipe.
   - The sensor tip must not touch the inner wall of the pipe.
4. Tighten the nut of the compression fitting.

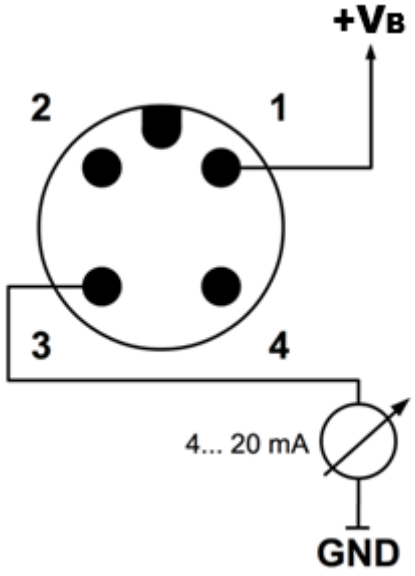
Remove the S020

1. Loosen the nut of the compression fitting.
2. Pull out the S020 slowly.

8.3 Electrical Connection

The S020 is equipped with an M12 connector plug. The cable is connected to the S020 using the M12 connector.

Refer to connection diagram below.



CAUTION!

Do not overtighten the M12 connector; this may damage the pins.

9 Signal Outputs

The S020 has an analogue output range of 4 ... 20 mA. It is a 2-wire loop powered analogue output. This output is scaled to:

- 4 mA = -50°C
- 20 mA = +200°C

10 Optional Accessories

10.1 Compression Fitting

There are different types of compression fittings available:

- Compression fitting 6 mm, G½”, PTFE ring, 0.6 MPa (A554 6003)
- Compression fitting 6 mm, G½”, metal ring, 1.6 MPa (A554 6004)

11 Calibration

The instrument is calibrated in the factory. The calibration date is printed on the certificate provided with the instrument. The accuracy of the instrument is limited by site conditions, such as oil, high humidity, or other impurities that can affect calibration and accuracy. It is recommended to have the device calibrated by the manufacturer annually. Instrument warranty does not cover calibration services. Please note the last calibration date on the calibration certificate.

12 Maintenance

To clean the instrument and its accessories, use only a moist cloth.

13 Disposal of Waste



Electronic devices are recyclable material and do not belong in the household waste.
The instrument, accessories and packaging must be disposed of in accordance with local statutory requirements. Disposal can also be carried out by the manufacturer; please contact the manufacturer.

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