SplusS TF65 Temperature Sensor Instruction Manual

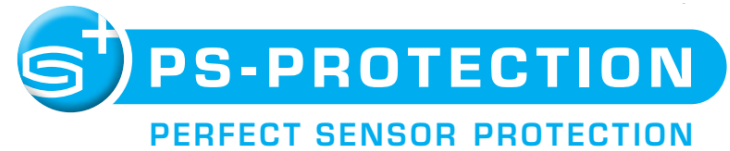
SplusS TF65 Temperature Sensor

Contents

Operating And Mounting Instructions

Duct temperature sensor, including mounting flange, with passive output

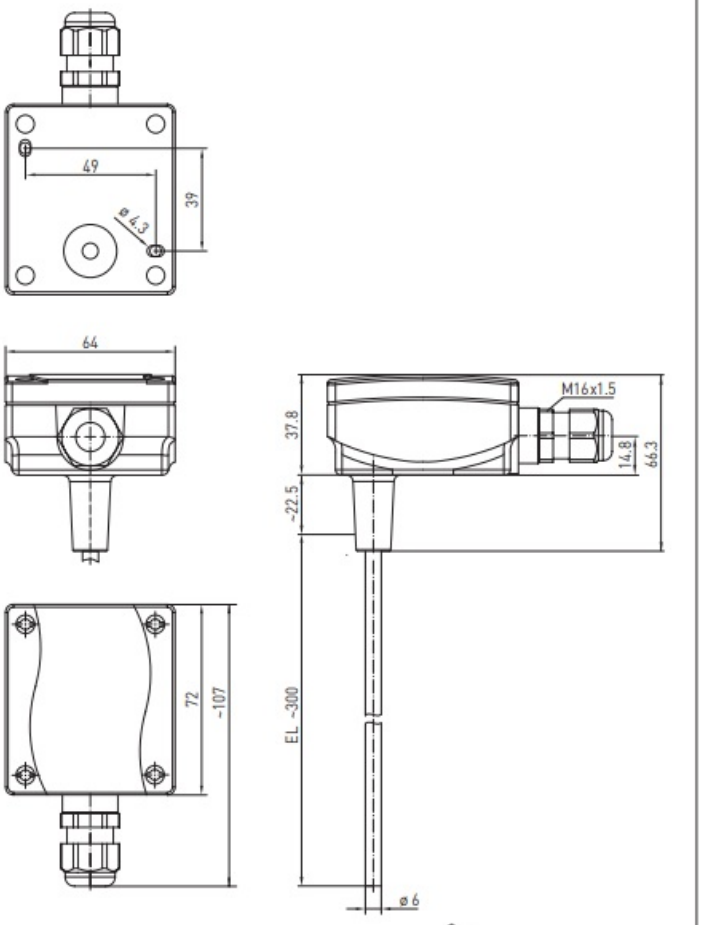
High-performance encapsulation against vibration, mechanical stress and humidity

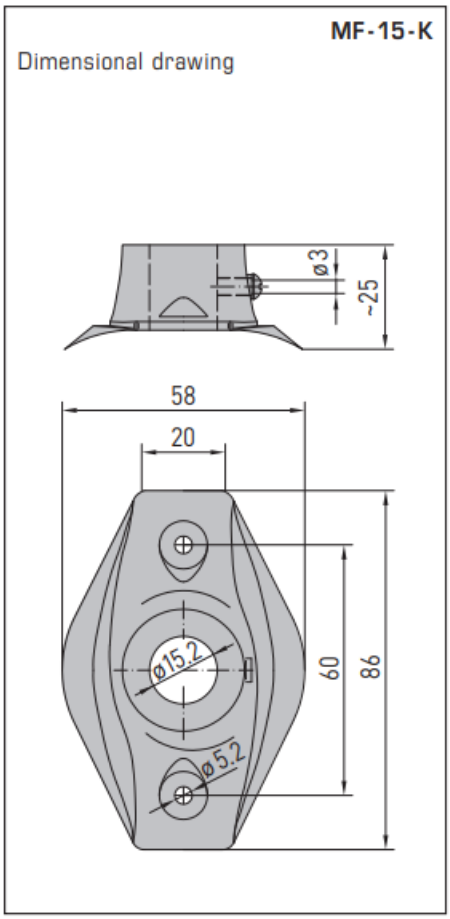


Basic device with accessories

Type TF65

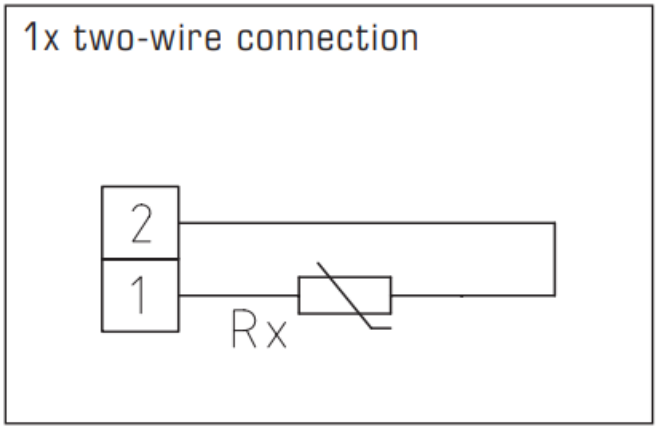
Dimensional drawing





Mounting Flange, Plastic

Resistance thermometer with a passive output, housing made from impact-resistant plastic with quick-locking screws, and straight protective tube, incl. mounting flange.
These duct temperature sensors are electric contact thermometers for temperature measurement in liquids and gases, which are installed for example in piping systems and vessels. For aggressive media, stainless steel immersion sleeves must be used.
Applications of these temperature sensors in piping systems, in heating technology, in storage tanks, in district heating compact stations, in hot and cold-water systems, in oil and lubricant circulation systems, in mechanical, apparatus and plant engineering as well as in the entire industrial sector.



TECHNICAL DATA

Measuring range:	–30…+150 °C (T max NTC = +150 °C, T max LM235Z = +125 °C)
Sensors / output:	Pt1000 (according to DIN EN 60 751, class B), passive (Perfect Sensor Protection)
Connection type:	2-wire connection
Testing current:	< 0.6 mA (Pt1000)
Insulating resistance:	≥ 100 MΩ, at +20 °C (500 V DC)
Ambient temperature:	–20…+100 °C
Housing	plastic, UV-resistant, material polyamide, 30 % glass-globe reinforced, with quick-locking screws (slotted / Phillips head combination), colour traffic white (similar to RAL 9016)
Housing dimensions:	72 x 64 x 37.8 mm (Tyr 1)
Cable connection:	cable gland, plastic (M 16 x 1.5; with strain relief, exchangeable, max. inner diameter 10.4 mm)
0.14 – 1.5 mm², via terminal screws	Electrical connection:
Protective tube:	stainless steel, V4A (1.4571), Ø = 6 mm, inserted length (EL) = 300 mm
Process connection:	by mounting flange, plastic
Permissible humidity:	< 95 % RH, non-precipitating air
Protection class:	III (according to EN 60 730)
Protection type:	IP 67 (according to EN 60 529) Housing in the built-in state Housing tested, TÜV SÜD, Report No. 713139052 (Tyr 1)
ACCESSORIES	
Mounting flange, plastic, 56.8 x 84.3 mm, Ø = 15.2 mm tube gland, Tmax= +100 °C (included in the scope of delivery)	MF – 15 – K

TF 65	Temperature sensor, passive, Premium		
Type	Inserted Length (EL)	Type	Danfoss Part Number
Type TF 65	300 mm	Pt1000 (according to DIN EN 60 751, class B)	134B9412

General notes

In order to avoid damages / errors, preferably shielded cables are to be used.
Laying measuring cables parallel with current-carrying cables must in any case be avoided. EMC directives shall be observed!
These instruments must be installed by authorised specialists only!

Note!
Select immersion depth for built-in sensors so that the error caused by heat dissipation stays within the admissible error margins. A standard value is: 10 x diameter of protection tube + sensor length. In connection with housing-type sensors, particularly with outdoor sensors, please consider the influence of thermal radiation. If the sensor is used in refrigeration circuits, it must be insulated together with the housing to reduce the temperature potential between the device and the medium to a minimum and thus prevent condensation damage.
Maximum thermal load on components:
On principle, all temperature sensors shall be protected against unacceptable overheating!
Standard values for individual components and materials selected are shown for operation under neutral atmosphere and otherwise normal conditions (see table to the right).
For combinations of different insulating materials, the lowest temperature limit shall always apply.
Limiting deviation according to classes
Tolerances at 0 °C:
Platinum sensors (Pt1000):
DIN EN 60751, class B :± 0,3 K
ATTENTION, NOTE !
Testing current influences the thermometer‘s measuring accuracy due to intrinsic heating and therefore, should never be greater than as specified below:
Sensor current, maximum Imax
Pt1000 (thin-layer) :< 0.6 mA

Installation and Commissioning

Devices are to be connected under dead-voltage condition. Devices must only be connected to safety extra-low voltage. Consequential damages caused by a fault in this device are excluded from warranty or liability.
These devices must be installed and commissioned by authorised specialists. The technical data and connecting conditions shown on the device labels and in the mounting and operating instructions delivered together with the device are exclusively valid. Deviations from the catalogue representation are not explicitly mentioned and are possible in terms of technical progress and continuous improvement of our pro ducts. In case of any modifications made by the user, all warranty claims are forfeited. Operating this device close to other devices that do not comply with EMC directives may influence functionality. This device must not be used for monitoring applications, which serve the purpose of protecting persons against hazards or injury, or as an EMERGENCY STOP switch for systems or machinery, or for any other similar safety-relevant purposes.
Dimensions of housing or housing accessories may show slight tolerances on the specifications provided in these instructions.
Modifications of these records are not permitted.
In case of a complaint, only complete devices returned in original packing will be accepted.
Our “General Terms and Conditions for Business“ together with the “General Conditions for the Supply of Products and Services of the Electrical and Electronics Industry“ (ZVEI conditions) including supplementary clause “Extended Retention of Title“ apply as the exclusive terms and conditions“.
Notes regarding mechanical mounting and attachment: Mounting shall take place while observing all relevant regulations and standards applicable for the place of measurement (e.g. such as welding instructions, etc.).
Particularly the following shall be regarded:

- VDE / VDI directive technical temperature measurements, measurement set – up for temperature measurements.
- The EMC directives must be adhered to.
- It is imperative to avoid parallel laying of current-carrying lines.
- We recommend to use shielded cables with the shielding being attached at one side to the DDC / PLC.
- If the sensor is used in refrigeration circuits, it must be insulated together with the housing to reduce the temperature potential between the device and the medium to a minimum and thus prevent condensation damage.

  Before mounting, make sure that the existing thermometer‘s technical parameters comply with the actual conditions at the place of utilization, in particular in respect of:
- Measuring range
- Permissible maximum pressure, flow velocity
- Installation length, tube dimensions
- Oscillations, vibrations, shocks are to be avoided (< 0.5 g)

Attention! In any case, please observe the mechanical and thermal load limits of the protective tubes according to DIN 43763 or according to specific S+S standards!

Flange mounting:

In case of flange mounting, screws in the flange part must be equally tightened. The lateral pressure screw must clamp securely, otherwise the feeler shaft might slip through.

Commissioning is mandatory and may only be performed by qualified personnel!

Resistance characteristics of passive temperature sensors

Pt 1000	
°C	Ω
– 50	**803**
– 40	**843**
– 30	**882**
– 20	**922**
– 10	**961**
0	**1000**
+10	**1039**
+20	**1078**
+30	**1117**
+40	**1155**
+50	**1194**
+60	**1232**
+70	**1271**
+80	**1309**
+90	**1347**
+100	**1385**
+110	**1423**
+120	**1461**
+130	**1498**
+140	**1536**
+150	**1573**

CUSTOMER SUPPORT

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Documents / Resources

	SplusS TF65 Temperature Sensor [pdf] Instruction Manual TF65 Temperature Sensor, TF65, Temperature Sensor, Sensor

References

- S+S Regeltechnik | Ihr sensorik Partner
- User Manual