Temperature Sensor Type TS

TEMPERATURE SENSOR
FOR REFRIGERATION AND HVAC APPLICATIONS

PRODUCT-DATA

Special Characteristics

- Apply Temperature Sensors for usage in regrigeration and HVAC applications
- For installation in liquid line, injection line, hot gas line and suction line
- For usage of refrigerants R22, R134a, R404A, R407C, R410A, R502, R507; not for Ammonia
- Condensation-tight body IP67
- Type TS – NFN & TS – NFR: NTC 10K
- Type TS – RFH: PT1000

Application

Temperature Sensor Type TS is used in refrigeration circuits to measure the refrigerant's temperature.

The Temperature Sensor TS can be used according to its measuring range in the liquid line, in the injection line, in the hot gas line and in the suction line of refrigeration circuits. Due to fast temperature capture in refrigeration circuits the signal can be communicated very fast.

Materials

Body	Stainless Steel, AISI 304
Cable	Thermical rubber poly.
Electrical Connection	Pins

Other appplications on request.

Types

Description	Sensor Type	Temperature Range
TS - NFN	NTC 10K Fast	-50 °C ... 110 °C
TS - NFR	NTC 10K Fast	-50 °C ... 110 °C
TS - RFH	PT1000	-50 °C ... 110 °C

Technical Data

Resistance Value:	
TS – NFN; TS – NFR	10 kΩ at 25 °C
TS – RFH	1 kΩ at 0 °C
Accuracy:	
TS – NFN	1 % Full scale
TS – NFR	± 0,2 °C
TS – RFH	Class A
Response Time:	K = 5 sec in liquid V = 2 m/s
Sensitivity:	
TS – NFN; TS – NFR	NTC 10K fast
TS – RFH	PT1000
Measuring Range:	-50 °C ... +110 °C
Storage Temperature	-25 °C ... 80 °C
Ambient Temperature	-25 °C ... 80 °C
Electrical Connection	2-wire
Dimension	Ø 4 mm; l = 40 mm
Connecting Cable	3 m
Insulation Voltage	250 VAC
Electr. Protection degree:	IP67

More Technical Details:

Type	TS – NFN	TS – NFR	TS – RFH
Element Type	NTC 10K 1% BETA 3435	NTC 10K BETA 3977 tolerance ± 0,2 °C	PT 1000 Class A
Cable Type	Thermical rubber poly.	Thermical rubber poly.	Thermical rubber poly.
Cable colour	Black	Yellow	Green
Cable diameter	2x0,25 mm² Ø 3,3 mm	2x0,25 mm² Ø 3,3 mm	2x0,25 mm² Ø 3,3 mm
Connection	Pins	Pins	Pins
Filling	Polyuretanic resin	Polyuretanic resin	Polyuretanic resin

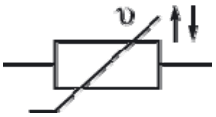
Type Description

Temperature Sensor

	TS	NFN
Type		
Type: NFN = NTC 10K 1% Beta 3435 NFR = NTC 10K Beta 3977 ±0,2°C RFH = Pt 1000 class A		

Electrical Connections

Connection of Temperature Sensors according below picture. Temperature Sensor is insensible against reverse polarity. TS Sensors have a 2-wire structure. To minimize electromagnetic perturbation the cable should be as short as possible.



Function

Due to temperature changes the resistance of temperature sensor will be changed. These change of resistance is changing proportional to the temperature and can be evaluated accordingly.

Remarks:

- Select the appropriate temperature sensor with regard to scale range, performance and specific measurement conditions prior to installing and starting the refrigeration system.
- Please make sure that the temperature sensor is only used within the valid measuring range

Assembly

- Position the temperature sensor on the refrigerant pipe in the position between 10 and 14 o'clock (at horizontal pipe installation).
- Pay attention to install sensor to clean and intact surfaces at the measuring point.
- Provide sufficient thermal compound at the measuring point between temperature sensor and measuring surface.
- Fasten the temperature sensor by means of aluminum tape and/or fastening clips to the refrigerant pipe.
- Insulate the fastened temperature sensor with heat insulation material.
- Connect the temperature sensor according to the instructions of the evaluating equipment.
- Ensure that no humidity may enter at cable-ends.

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