



TFSP

## Features

- Simple strap on mounting
- Easy to change place

## Application

The immersion temperature sensor TFSP is used to sense temperature in HVAC systems and are field for applications as:

- Sensor for frost protection.
- Supply water high or low limit.
- Sensor for direct interfacing with process control instrumentation or any Energy Management System.

## Technical Data

	TFSP-PTC	TFSP-NTC	TFSP-PT100 TFSP-PT1000
<b>Range:</b>	-40...+180°C	-40...+180°C	-40...+180°C
<b>Element:</b>	Silicon PTC	Thermistor	Platinum
<b>Time constant:</b>	12 sec	12 sec	12 sec
<b>Dead time:</b>	1,0 sec	1,0 sec	1,0 sec
<b>Contact surface:</b>	Copper	Copper	Copper
<b>Flying lead:</b>	1m	1m	1m
<b>Wiring:</b>	2-wire	2-wire	2-, 3-), 4-1)wire
<b>Tolerance at 25°C:</b>	1980-2020 ohm	±1%	109,58-109,88 ohm <sup>1)</sup> 1095,78-1098,89ohm <sup>2)</sup>
<b>Resistance at 0°C:</b>	1635,0 ohm	32 660,0 ohm	100,00 ohm <sup>1)</sup> 1000,00 ohm <sup>2)</sup>
<b>Resistance at 25°C:</b>	2000 ohm	10 000 ohm	109,73 ohm <sup>1)</sup> 1097,34 ohm <sup>2)</sup>
<b>Measuring current:</b>	10mA 25°C		0,3-1,0mA
<b>Accuracy at 25°C:</b>	±1,0°C	±0,2°C	±0,4°C
<b>Weight:</b>	0,2 kg	0,2 kg	0,2 kg

<sup>1)</sup> DIN 43760, IEC 751, TFSP-PT100

<sup>2)</sup> DIN 43760, IEC 751, TFSP-PT1000

## General Description

The sensing element is positioned at the end of the strap-on sensor.

The strap-on temperature sensor is supply with strap, rubber sleeve for insulation and a flying lead (length 1m).

The sensing elements change their resistance value with respect to temperature:

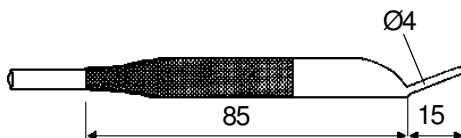
- PTC, PT100, PT1000 - increasing resistance by increasing temperature.
- NTC - increasing resistance by decreasing temperature.

## Ordering Codes

<b>TFSP PTC</b>	Geamatic, Satchwell, NCS, EM-Systemer, Diana
<b>TFSP NTC</b>	Unitron, Trend, Honeywell(Aquatrol), Thorn, Elesta, SIOX, Seachange
<b>TFSP PT100/2</b>	2-wire INU, Serck, Satt, SIOX, ABB
<b>TFSP PT100/4</b>	4-wire INU, Serck, Satt, SIOX, ABB
<b>TFSP PT1000</b>	Unitron, Johnson, IVT, Exomatic, Honeywell, Serck, Diana, KTC

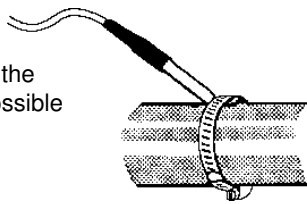
Other options on request

## Dimensions (mm)

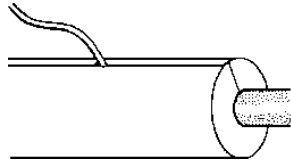


## Mounting

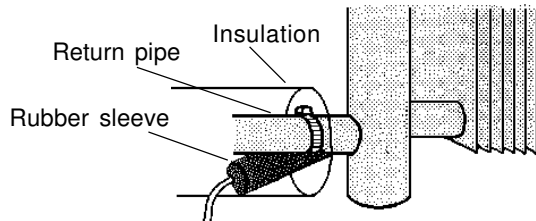
Strap the sensor securely to the pipework to ensure best possible contact.



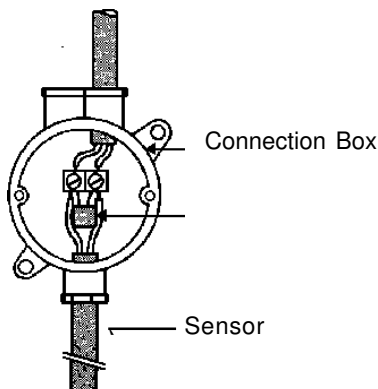
Fix the insulation over both sensor and pipework.



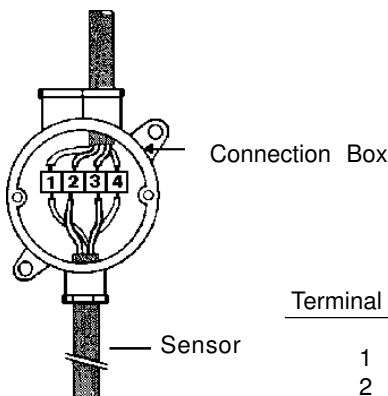
When using the sensor for heater battery frost protection, use the rubber sleeve to prevent external cooling and therefore false readings.



## Wiring PTC / NTC / PT1000



## Wiring PT100

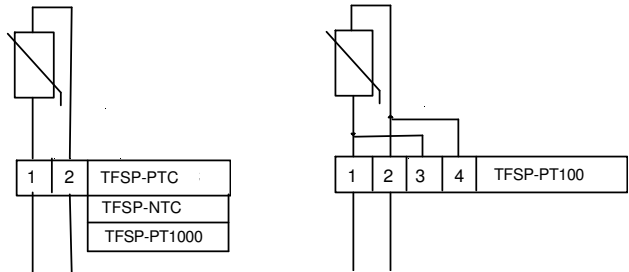


Terminal no.	Color
1	Brown
2	Blue
3	Black
4	White

## Wiring Diagram

### 2-Wire Connection

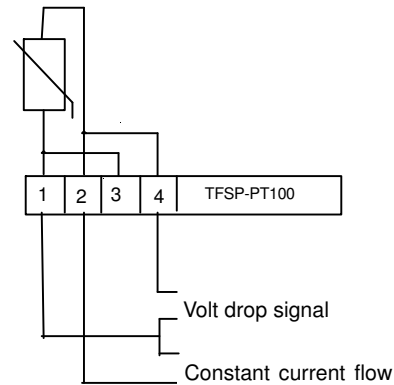
Are used when the resistance of connection wires are negligible compared with the elements resistance.



### 3 and 4-Wire Connection

The principle of both 3 and 4 wire connection is to provide a constant current flow through the element and measure the volt drop as close to the element as possible.

The addition of a third wire eliminates the error from one of the two original installation wires.



4 wire connection eliminates the error from both of the original installation wires.

