Transponder for sensor signals

Characteristics

Input: semiconductor temperature sensor -10...+120°C
(in area of stainless steel tube)

Output: 0(4)...20 mA at 0...100 °C

Supply: sensor 2,5...5,5 V / 10 µA
base station 24 VDC/ 100 mA

Transmission distance: 5...8 mm

Differential velocity: 0...4 m/s

Tolerance base station: 1% of end scale value

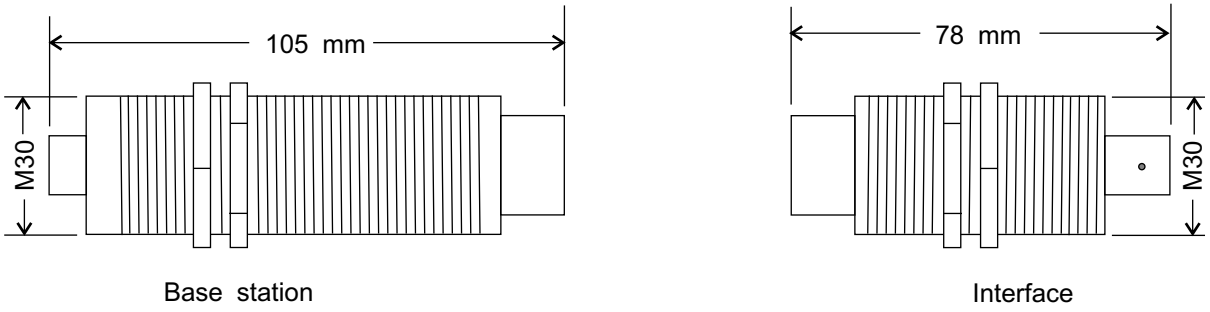
Degree of protection: IP67

Freedom of wear and maintenance

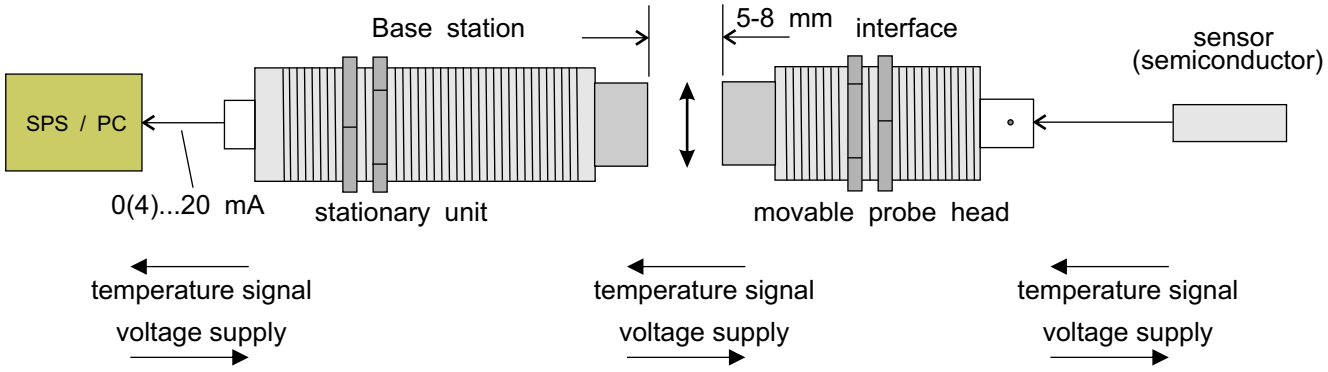
Voltage supply for base station only

Option: Output signal 4 mA without valid measured values

Dimensions



Priciple of function



Applications

The transponder is for use in all ranges, where measurement of temperature is necessary at moving constructions and a signal for processing is needed. Due to the high degree of protection its use is possible in rough ambient conditions, too.

Ordering code

T	U	X	X	X	X	X	X	-	X	X	X

Transponder:	base station analogue	0
Transponder:	Interface	0
Temperature sensor:	without	0
	semiconductor sensor with 2 m cable	1
	semiconductor sensor with 0,5 m cable	2
Output:	0...20 mA	0
	4...20 mA	1
Other / accessories:	on request	0

Technical data

Input

Interface: 0...2,048 V (signal of sensor)
input capacity 42...52 nF
input resistance >1 Mohms
Distance of transmission: base station-interface 5...8 mm
Differential velocity: 0...4 m/s

Output

Base station: 0(4)...20 mA
load resistance <750 Ohm
(supply >20 V)
Interface: 2,5...2,9 V / 0,7 mA (sensor supply)
Temperature sensor: 0,43...2,0 V (-10...+120°C)
load resistance >2,2 MOhm
short circuit proof

Accuracy

Temperature sensor: error due to load resistance <0,1%
temperatur to voltage error

-10°C	<±2,1°C
0°C	<±1,9°C
+25°C	<±1,5°C
+85°C	<±2,1°C
+100°C	<±2,2°C
+120°C	<±2,5°C

Transponder: measuring cycle time 6 ms
recover time >2 ms
Base station: 1% of end scale value

Voltage supply

Supply: base station 24 VDC (12...36 V)
(pole protection, no overvoltage protection)
temperature sensor 2,4...5,5 V
(no overvoltage and pole protection)
Current consumption: base station 45...100 mA
temperature sensor 10 µA
power consumption at I=0, U=<4 V

Ambient conditions

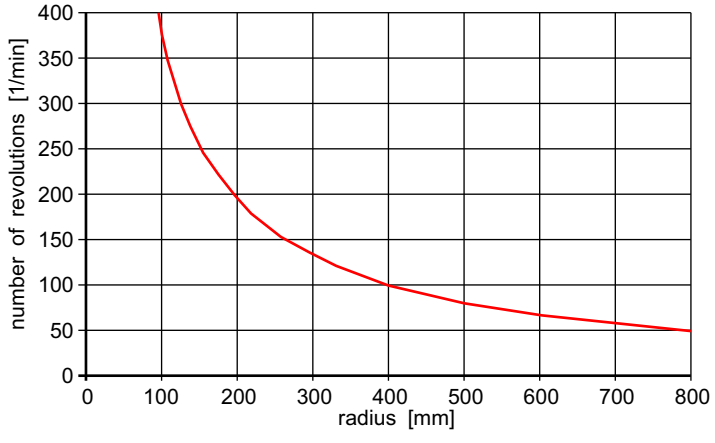
Operation temperature: base station/interface -10...+60°C
temperature sensor -10...+120 °C (tube)
Storage temperature: base station/interface -25...+60°C
temperature sensor -25...+85°C

Mechanics

Case: base station: threaded tube M30x1,5 with plastic cap
interface: threaded tube M30x1,5 with plastic cap
temperature sensor: stainless steel tube Ø 6 mm
Dimension: base station: length 105 mm (175 mm with plug)
interface: length 78 mm (106 mm with plug)
temperature sensor: length 40 mm
Weight: base station: approx. 150 g (without plug/cable)
interface: approx. 110 g (without plug/cable)
temperature sensor: approx. 50 g
Connection: base station: plug (jack) 8-pole, M12x1
type Binder series 713
interface: plug 4-pole, M12x1, PG7
type Binder series 713
temperature sensors: with silicon cable Ø 4,8 mm
(oil resistant) and angled connector M12x1,
4-pole, type Bender series 713
Protection: degree IP67

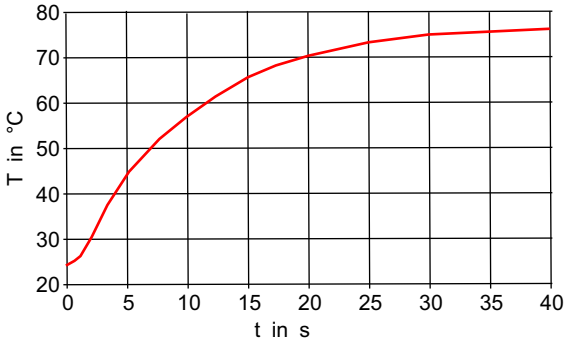
Characteristic curves

Area of application



the operating conditions are underneath the curve

Reaction time of sensor



Measurement conditions: Immerse the 23°C warm sensor into 80°C warm water with a submerge of 15 mm.