

Temperature transducers with frequency output are determined for a distance temperature measuring of the liquids, vapour, air and other medium in the controlling systems or regulating systems that are able to process the frequency signal of rectangle shape within 10 kHz.

Main preference – high level immunity of output signal and possibility to direct route to control system. The transducer head is made of a plastics material, all metallic parts are of class DIN 1.4301 stainless steel. The resistance transducer is encapsulated in a stem; the leading-in elements of the transducer is comprised of wires, the other ends of which are connected to the converter temperature – frequency, which is positioned in the transducer head.

Summary

Transducers	frequency	SMT160
Wall Mount (Interior)	P10x T1/T2	P10T
Outdoor Air	P11x T1/T2	P11T
Duct Probes	P12x T1/T2	P12T
Well insertion probe	P13x T1/T2	P13T
Strap - Mount	P14x T1/T2	P14T
Quick-acting	P16x T1/T2	P16T

x = FA transducers with output 2 to 10 kHz
 x = FB transducers with output 1 to 5 kHz
 x = FC transducers with output 5 to 15 Hz

Standard length L1 and L2

L1 (mm)	L2 (mm)
120	100
180	160
240	220
300	280
360	340
420	400

Operating measurement range : - 30 to 60 °C
 0 to 35 °C
 0 to 100 °C
 0 to 150 °C

The frequency is growing linearly with the temperature withing the range of 2 to 10 kHz , of 1 to 5 kHz or 5 to 15Hz in transmitters with frequency output. Amplitude of output signal is within the range of power supply voltage.

We can supply also transducers with the amplitude of output signal 5V and 15V.

Transducers with the component SMT160-30 - duty-cycle modulated square wave output voltage with linear response to temperatures in the -45 °C to +130 °C range.

D.C. = $0,320+0,0047 \cdot t$ where t = temperature in °C
 D.C. = duty cycle, rate of level H (log.1) to the length of output signal cycle

Technical description, construction

P10F... T1/T2, P10T
P11F... T1/T2, P11T

- transducers for temperature measurement in indoor air
- transducer is established for temperature measurement in the outdoor air. He is equipped with a plastic bracket for mounting on the wall. The proper measurement cell is located in stainless steel stem with the length of 25 mm. The terminal block is placed in the plastic sensor head

P12F...-L1 T1/T2, P12T-L1

- transducer version with the bracket for mounting into ducts. This version is excluded the bracket the same as P11F; L1 sets the stem length in millimetres. E.g. P12F - 120 is a standard transmitter with the stem length of 120 mm

P13F...-L2 T1/T2, P13T-L2

- transducers for temperature measurement in the pipe work. The transmitter includes a L2 millimetres long stainless steel pocket with G - thread 1/2". This pocket is tested by the pressure of 4,0 MPa

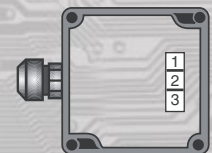
P14F... T1/T2, P14T
P16F...-L3, P16T-L3

- Strap-Mount transducers, simple temperature measurements on pipes.
- transducer with quick response ; standard length of 100 or 160 mm.

Basic technical parameters

Transducers	Frequency output	SMT160
Power supply	18 to 30 V DC	4,75 to 7 V DC
Output frequency f	2 to 10 kHz (FA)	Range 1 to 4 kHz
	1 to 5 kHz (FB)	
	3 to 15 Hz (FC)	
Measurement error	< 0,6%	< 1,5%
Load resistance Rz	Rz >200 [Ω] *	Rz >200 [Ω] *
Output resistance R _v	Aprox. 200 Ω	Aprox. 200 Ω
Max. measure temperature	150 °C	130 °C
Sensing element break	f > 60 kHz	-
Sensing element short	f < 50 Hz	-
Ambient temperature	-30 to 80°C	-30 to 80°C
Relative humidity	< 80 %	< 80 %
Degree of protection	IP 65 *	IP 65 *
Cable recommended cross section	0,35 to 2 mm ²	0,35 to 2 mm ²

* The type P10x have got degree of protection IP30



- 1: Output
- 2: Negative pole of supply source
- 3: Positive pole of supply source

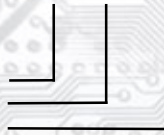
Method of ordering

There have to be given the number of pieces and the type of temperature transmitter in the order.

E. g.:

5 pcs transducers P13FA-100 0/150

Transducer type
Thermowell length
Temperature range



Mounting the transducers

Transducers for outdoor air conditioning ducts and into the pipelines

Screw out the small screws and remove the head cover, then connect the lead-in cable of the recommended cross section from 0,35 to 2 mm² and of outer diameter 4 to 8 mm to the terminal board through the cable gland. Once the cover is replaced onto the head and the small screws screwed in, the mounting is terminated and the transducer is ready for operation.

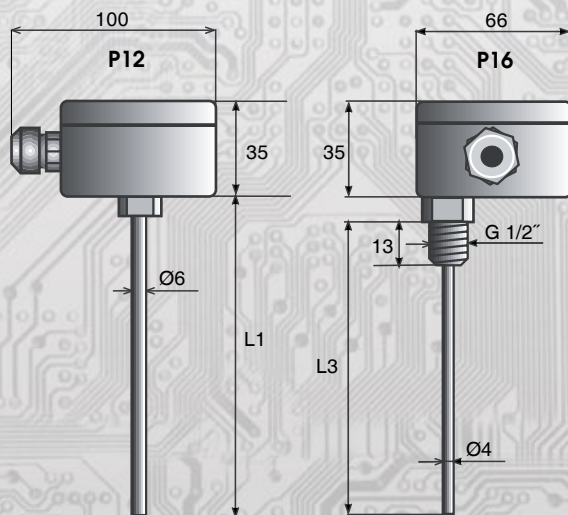
Wall mount transducers

Hinge the perforated cover open and pass the incoming cable through the hole at the base, connecting the lead-in cable to the terminal board thereafter. Fasten the base onto the wall using two wood screws, which should be inserted into holes in opposite corners of the base. Snap the cover with a click into the base, whereupon the transducers ready for operation.

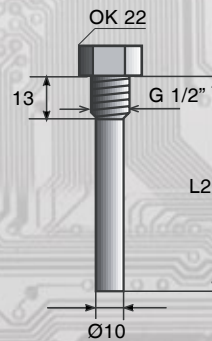
Strap-Mount transducers

Fasten the transducer onto the pipeline, using a tape, and having removed the cover, connect the lead-in cable of recommended cross section from 0,35 to 2 mm² and of outer diameter 4 to 8 mm to the terminal board through the cable gland. Replace the cover onto the head and screw in the small screws, whereupon the mounting is terminated and the transducer is ready for operation.

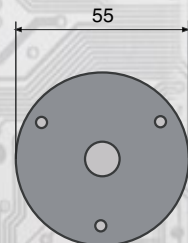
Dimensions and accessories



Thermowell



Central holder A - for P 12



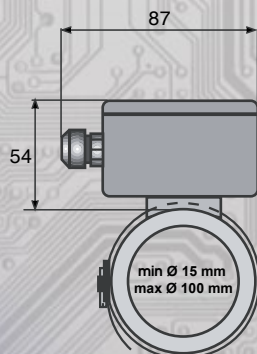
3 holes of 4.5 mm in diameter

Side holder A - for P11



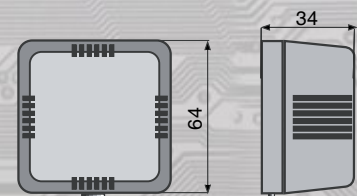
2 holes of 4.5 mm in diameter

Strap - Mount with head - P14



Maximum temperature of the measured surface
 $t_p < 120^\circ\text{C}$

Wall Mount transducer - P10



Remark: 1) Subject of an order, also non-standart transducer lengths or other thermowell thread types may be delivered, such as M20x1,5.