

PRODUCT DESCRIPTION

Transmitters and transducers with 4 - 20 mA output are designed to measure ambient temperature, to measure temperature in duct and to conversion signals from Pt1000 or Pt100 sensors to current.

Durable plastic case from ABS contains electronic and connection terminals.

type *	construction	mounting	external probe connection
P0120	ambient air	wall	- - -
P0132	duct mount	insert to thermowell	- - -
P41x1	external probe Pt1000/3850 ppm	wall	2- wire
P61x1	external probe Pt100/3850 ppm	wall	2- wire, 3- wire, 2- wire with compensation loop

* models marked PxxxxZ are custom - specified devices

INSTALLATION AND OPERATION

The transmitters and transducers designed for mounting on the wall are mounted on a flat surface with two screws or bolts. The stem of P0132 transmitter insert into the stainless steel thermowell (thermowell is not included). Pay attention to device mounting, because incorrect choice of working position or measuring point could adversely affect accuracy and long-term stability of measured values.

The connecting terminals are accessible after unscrewing the four screws in the corners of the case and removing the lid. Pass the current loop cable (maximal length 1200 m) through released upper gland and connect the wires according to diagram. The cable of external probe Pt1000 (Pt100) pass through released lower gland, pass it under the display and connect according to diagram too. Tighten glands and screw the lid.

External temperature probe Pt1000 of P41x1 transducer is connected by two wire shielded cable with length up to 10 m.

Connection of external temperature probe Pt100 of P61x1 transducer is enabled by three ways:

- **Two-wire connection** – suitable for short probes (approximately to 1m).
- **Three-wire connection** – used for longer probe leads. This wiring compensates parasite resistance of connected probe leads and its temperature dependence.
- **Two-wire connection with compensation loop** – similar to three-wire connection but there are 4 wires connected to the cable.

The shielding of the probe cable connect **only** to proper terminal of the device and do not connect it to any other circuitry and **do not** ground it. If connected probes are equipped with a metal part, it is recommended to use probes, where metal part is not electrically connected to shielding of the cable. In other cases it is necessary to ensure metal part is not electrically connected to any other circuitry.

For current loop and external probe connection it is recommended to use shielded cable (external diameter 4 to 8 mm) with wire cross-section 0.14 to 1.5 mm².

Devices don't require special operation and maintenance. We recommend you periodic calibration for measurement accuracy validation.

SAFETY INSTRUCTIONS



- Don't connect or disconnect transmitter and transducer while power supply voltage is on.
- Installation, electrical connection and commissioning should be performed by qualified personnel only.
- Devices contain electronic components, it needs to liquidate them according to currently valid conditions.
- For more information, please use detailed manuals and other documentation which are available at www.cometsystem.com

Technical specifications

Device type	P6181	P6191	P4121 až P4191	P0120	P0132																																
Supply voltage	9 to 30V	9 to 30V	9 to 30V	9 to 30V	9 to 30V																																
Output in case of error	< 3.5mA or > 24mA	< 3.5mA or > 24mA	< 3.5mA or > 24mA	< 3.5mA or > 24mA	< 3.5mA or > 24mA																																
Temperature measuring range	-100 to +200°C	-50 to +50°C	see Table	-30 to +80°C	0 to +150°C																																
Accuracy of temperature measurement	± 0.3°C (up to 100°C)** ± 0.4°C (over 100°C)**	± 0.3°C**	see Table**	± 0.4°C	± 0.4°C (up to 100°C) 0.4% FR* (over 100°C)																																
Response time t63	depends on probe	depends on probe	depends on connected temperature probe	< 2min***	< 45s****																																
Response time t90	depends on probe	depends on probe	depends on connected temperature probe	< 4min***	—																																
Recommended calibration interval	2 years	2 years	2 years	2 years	2 years																																
Protection class of the case with electronics	IP65	IP65	IP65	IP65	IP65																																
Temperature operating range of the case with electronics	-30 to +80°C	-30 to +80°C	-30 to +80°C	-30 to +80°C	-30 to +80°C																																
Humidity operating range	0 to 100%RH	0 to 100%RH	0 to 100%RH	0 to 100%RH	0 to 100%RH																																
Mounting position	any position	any position	any position	any position	any position																																
Storage temperature range (environment without condensation)	-30 to +80°C	-30 to +80°C	-30 to +80°C	-30 to +80°C	-30 to +80°C																																
Electromagnetic compatibility according to	EN 61326-1	EN 61326-1	EN 61326-1	EN 61326-1	EN 61326-1																																
Weight	125 g	125 g	125 g	140 g	140 g																																
Dimensions [mm]																																					
Electrical wiring	<p>4 - 20 mA analog output</p> <p>$R[\Omega] < 40 \cdot I_{uss}[V] - 360$</p>																																				
	<p>P41x1 - external probe Pt1000 wiring</p>																																				
	<p>P6181 and P6191 - external probe Pt100 wiring</p> <p>2 - wire 3 - wire 2-wire with closed loop</p>																																				
	<table border="1"> <thead> <tr> <th>Type</th> <th>Measuring range</th> <th>Accuracy</th> <th>Temperature calculation [°C, mA]</th> </tr> </thead> <tbody> <tr> <td>P4121</td> <td>-30 to +80°C</td> <td>±0.3°C</td> <td>T=6.875xI-57.5</td> </tr> <tr> <td>P4131</td> <td>0 to +150°C</td> <td>±0.3°C</td> <td>T=9.375xI-37.5</td> </tr> <tr> <td>P4141</td> <td>-100 to +30°C</td> <td>±0.3°C</td> <td>T=8.125xI-132.5</td> </tr> <tr> <td>P4151</td> <td>0 to +35°C</td> <td>±0.2°C</td> <td>T=2.1875xI-8.75</td> </tr> <tr> <td>P4161</td> <td>0 to +250°C</td> <td>±0.4°C</td> <td>T=15.625xI-62.5</td> </tr> <tr> <td>P4171</td> <td>0 to +400°C</td> <td>±0.7°C</td> <td>T=25xI-100</td> </tr> <tr> <td>P4191</td> <td>-50 to +50°C</td> <td>±0.3°C</td> <td>T=6.25xI-7.5</td> </tr> </tbody> </table>					Type	Measuring range	Accuracy	Temperature calculation [°C, mA]	P4121	-30 to +80°C	±0.3°C	T=6.875xI-57.5	P4131	0 to +150°C	±0.3°C	T=9.375xI-37.5	P4141	-100 to +30°C	±0.3°C	T=8.125xI-132.5	P4151	0 to +35°C	±0.2°C	T=2.1875xI-8.75	P4161	0 to +250°C	±0.4°C	T=15.625xI-62.5	P4171	0 to +400°C	±0.7°C	T=25xI-100	P4191	-50 to +50°C	±0.3°C	T=6.25xI-7.5
Type	Measuring range	Accuracy	Temperature calculation [°C, mA]																																		
P4121	-30 to +80°C	±0.3°C	T=6.875xI-57.5																																		
P4131	0 to +150°C	±0.3°C	T=9.375xI-37.5																																		
P4141	-100 to +30°C	±0.3°C	T=8.125xI-132.5																																		
P4151	0 to +35°C	±0.2°C	T=2.1875xI-8.75																																		
P4161	0 to +250°C	±0.4°C	T=15.625xI-62.5																																		
P4171	0 to +400°C	±0.7°C	T=25xI-100																																		
P4191	-50 to +50°C	±0.3°C	T=6.25xI-7.5																																		

* FR..... from reading

** accuracy of device without temperature probe

*** temperature step from +25°C to +80°C, airflow approximately 1 m/s

**** temperature step from 0°C to +100°C, stem with well immersed to fluid, flow velocity 1 m/s