

Temperature transducer P1AT

Datasheet

Overview

Digital temperature transducer P1AT is a telemetry-enabled, battery powered temperature sensor, which is primarily used to measure temperature in distribution pipes of gasses or liquids and sending the measured data over the wireless network into centralised measurement systems such as SCADA. Wireless communication of the transducer is provided utilising one of the LoRaWAN, Sigfox, Bluetooth or ZigBee (XBee / 805.15.4) radio technology using various RF frequency spectrums.



Application

Temperature sensor P1AT is designed for precision measurement and wireless transmit of temperature of gasses or liquids inside distribution piping. The main measurement body is made from stainless steel, so any medium can be measured which does not react with stainless steel type DIN 1.4301, also known as AISI 304 also wknown as X5CrNi18 10. The sensor uses very sensitive platinum elements to measure temperature in the tip of the probe. This measured information is afterwards transmitted over wirelsss network to the final system for monitoring, metering or controlling purposes.

Mechanical information

The transducer is enclosed in a robust stainless steel enclosure. The back cover is made from UV-stabilized ABS-based plastics.

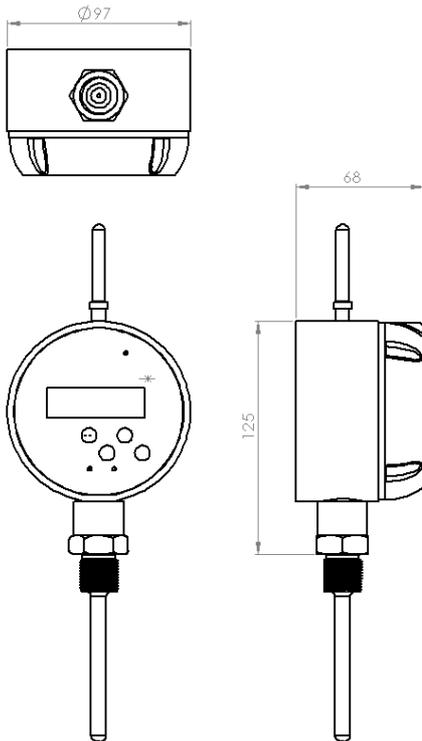
Technical parameters

Type of measurement	temperature
Maximum measurement range	-50 to 400C
Max pressure of measured medium	2 MPa
Measurement precision	0.25% from measured range this combined precision accounts for non-linearity of measurement, hysteresis and repeatability
Long-term precision stability	additional error of less than 0,05% of range per year
Recommended calibration frequency	once every three years
Power supply	user replaceable battery - order code P1AB
Wireless uplink technology options	Bluetooth, LoRaWAN, Sigfox, XBee, ZigBee, 802.15.4, Bluetooth LE - see ordering table below
Process attachment	M20x1,5; G½; G¾; other - see ordering table below

Material of process attachment	DIN 1.4301 (AISI 304 / X5CrNi18 10) stainless steel
Material of the dial body	Anodized aluminium or stainless steel
Isolation resistance at 500V	RIZ > 2 M Ohm
IP protection grade according to (IEC 60 529) EN 60 529	IP 65

Weight and dimensions

Weight ex. battery:
Dimensions in [mm]



Software

LoRaWAN packet format - see user manual: <https://lorawantransducer.com/t1ap-manual.pdf>
Example parsers are promptly available on request via info@moirelabs.com

Markings

Information included on the label:

- Manufacturer
- Unit order code
- Measurement range and measurement precision
- Serial number
- IP rating

Ordering

Order shall contain the following information:

- Date and internal number of the order

- Name and address (including VAT number where appropriate)
- Order number assembled from order tables including number of units and requested delivery date
- Type of delivery
- Optional extras to include (for example high pressure shock damping filter)

Packaging

Sensors are appropriately packed individually into padded cartons.
The packaging includes all information required for proper use and servicing of the equipment.

Order information / Ordering table

Measurement range (M)	
M0	-30C to +70C
M1	0C to +100C
M2	0C to +200C
M3	0C to 300C
M4	0C to 400C
M5	-50C to +50C
MX	special - on request

Uplink radio type (R)	
R0	NB-IoT - band 20
R1	LoRaWAN - Class A - 868MHz
R2	LoRaWAN - Class A - US 915 MHz
R3	Bluetooth - 2.4GHz
R4	XBee - 2.4GHz
R5	802.15.4 - 2.4GHz
R6	Sigfox
RX	special - on request

Main body material (B)	
B0	Stainless steel
B1	Aluminium
BX	special - on request

Measurement precision (% of measurement range) (P)	
P0	0.1%
P1	0.25%
P2	0.5%
P3	1%
PX	special - on request

Working temperature (W)	
W0	-20 to +60C
W1	0 to +60C
WX	special - on request

Mounting thread (T)	
T0	M20x1.5
T1	G1/2
T2	G1/4
T3	NPT 1/2
TX	special - on request

Probe length including mounthing thread (L)	
L0	100mm
L1	160mm
L2	250mm
LX	special - on request

Probe diameter (D)	
D0	8mm
D1	6mm
DX	special - on request

Order code example: P1AT-M3-R1-B0-P2-W1-T2-L0-DX=10mm

Measurement range (M3): 0C to 300C
Uplink radio type (R1): LoRaWAN - Class A - 868MHz
Main body material (B0): Stainless steel
Measurement precision (% of measurement range) (P2): 0.5%
Working temperature (W1): 0 to +60C
Mounting thread (T2): G1/4
Probe length including mounthing thread (L0): 100mm
DX - special request - probe diameter = 10mm

Installation

The sensor is screwed onto the measurement place with appropriate spanner (24mm). The inner thread on the measurement place and sensor must match! Tightness of the connection is ensured by appropriate gasket – not part of the delivery. The dial body of the sensor must not be used for tightening of the unit to the measured place. Always use spanner and dedicated mounting nut.

Design and manufacture

Moire Labs s.r.o.
 Zamocka 14
 811 01 Bratislava
 Slovakia
 European Union

Support

For support please contact your distributor or manufacturer directly via www.moirelabs.com
