

# Pressure transducer P1AP

## Datasheet

### Overview

Digital pressure transducer P1AP is a telemetry-enabled, battery powered pressure sensor, which is primarily used to measure pressure 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

Pressure manometer P1AP is designed for precision measurement and wireless transmit of overpressure, underpressure or absolute pressure 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. In manometer, the pressure the medium creates presses on the mechanical membrane and changes electrical properties of the output signal, which is then electronically amplified and converted to digital numerical form. This measured information is afterwards transmitted over wireless 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

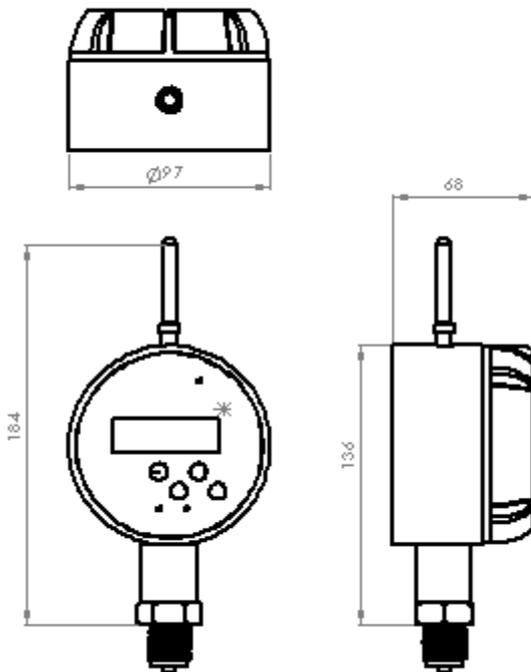
Type of measurement	absolute pressure, overpressure, underpressure
Maximum measurement range	0 - 60MPa
Temperature of measured medium	min. -40°C, max. +125°C
Measurement precision	0,1% from measured range for pressures more or equal to 25kPa 0,25% from measured range for all pressures this combined precision accounts for non-linearity of measurement, hysteresis and repeatability
Additional error due to ambient temperature	less than 0,03 %/10°C in the range of 0 to +60°C less than 0,03 %/10°C in the range of -20 to +60°C
Long-term precision stability	additional error of less than 0,15% of range per year
Recommended calibration frequency	once every two years
Power supply	user replaceable battery - order code P1AB

Wireless uplink technology	Bluetooth, LoRaWAN, Sigfox, XBee, ZigBee, 802.15.4, Bluetooth LE
Process attachment	M20x1,5; G½; G¼; 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/p1ap-manual.pdf>

Example parsers are promptly available on request via [info@moirelabs.com](mailto: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	0-2.5 kPa
M1	0-4 kPa
M2	0-6 kPa
M3	0-10 kPa
M4	0-16 kPa
M5	0-25 kPa
M6	0-40 kPa
M7	0-60 kPa
M8	0-100 kPa
M9	0-160 kPa
M10	0-250 kPa
M11	0-400 kPa
M12	0-600 kPa
M13	0-1 MPa
M14	0-1.6 MPa
M15	0-2.5 MPa
M16	0-4 MPa
M17	0-6 MPa
M18	0-10 MPa
M19	0-16 MPa
M20	0-25 MPa
M21	0-40 MPa
M22	0-60 MPa
M23	80-520 kPa
M24	-100-0 kPa
M25	-100-100 kPa
MX	special - on request
Uplink radio type (R)	
R0	NB-IoT - band 20

R1	LoRaWAN - Class A - EU 868 MHz
R2	LoRaWAN - Class A - US 915 MHz
R3	Bluetooth - 2.4GHz
R4	XBee - 2.4GHz
R5	802.15.4 - 2.4GHz
R6	Sigfox
R7	none - no radio, display only
RX	special - on request

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

Power supply type (C)	
C0	Holder for D-size LiSOCl2 3.6V battery
C1	P1AB-B0-F0 battery module connector
CX	special - on request

Measurement precision (P)	
P0	0.1%
P1	0.25%
P2	0.4%
P3	0.5%
PX	special - on request

Type of measurement (T)	
T0	absolute pressure against vacuum
T1	-
T2	underpressure / overpressure
TX	special - on request

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

Mounting thread (H)	
H0	M20x1.5
H1	G1/2 (BSP-BSPP 1/2)
H2	G1/4 (BSP-BSPP 1/4)
H3	NPT 1/2
H4	clamp type (no threading)
HX	special - on request

Type of measurement nozzle (N)	
N0	standard (EN 837) (with raised nozzle)

N1	clamp (DIN 32676) size 32 (ID of pipe) - material: DIN 1.4301 (US/BS 304)
NX	special - on request

Example order code: P1AP-M0-R1-B0-P3-T2-W1-H0-N0

Interpretation:

Measurement range (M0): 0-2.5 kPa  
Uplink radio type (R1): LoRaWAN - Class A - 868MHz  
Main body material (B0): Stainless steel  
Measurement precision (P3): 0.5%  
Type of measurement (T2): underpressure / overpressure  
Max ambient temperature (W1): 0°C to +60°C  
Mounting thread (H0): M20x1.5  
Type of measurement nozzle (N0): standard (EN 837) (with raised nozzle)

## Installation

The manometer is screwed on to the measurement place with appropriate spanner (24mm). The inner thread on the measurement place and manometer must match! Tightness of the connection is ensured by appropriate gasket - not part of the delivery. The dial body of the manometer must not be used for tightening of the manometer 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](http://www.moirelabs.com)

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