Product overview

PTA

High-end pressure sensor family for demanding tasks

SICK
Sensor Intelligence.

Advantages

The right fit for custom applications

Whether as a PTAC with capacitive ceramic measuring chamber for applications with high overload safety, or as a PTAM with stainless steel diaphragm for high pressures and hygiene applications: The two product families of the PTA sensor offer a high degree of flexibility. Thanks to different process connections, outputs, measuring chamber options, optional explosion protection and more, the pressure sensors can be individually adapted to the particular requirements on site – without having to resort to different sensor systems or manufacturers. The PTA meets the requirements of demanding industries such as mechanical engineering, the pharmaceutical industry, battery manufacturing and food production.

For explosion-hazardous areas
The PTA is also available as an explosion-proof version with international approvals for Europe, the USA or China.

Industry 4.0-capable
Thanks to the IO-Link interface, the PTA can be easily integrated into modern system environments and automated control systems. In addition to pressure, other parameters such as the temperature of the measuring chamber can also be read out via IO-Link.

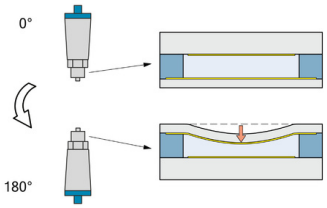
Easy integration and monitoring via WPAN® and app

The Smart Assistant app from SICK offers quick access to all integrated sensors via a WPAN interface. Whether parameterization, status indicator or status diagnostics – the sensors can be conveniently controlled and monitored via mobile de-

vices without having to interrupt operation. This saves time during integration and optimizes the response time in the event of anomalies during operation.

Visual status indicator
A configurable 360° LED light ring ensures greater safety on site. As a clearly visible status indicator, the light ring indicates the current status of the sensor with different colors.

Versatile diagnostic functions for high availability
Various diagnostic data can be viewed – from the maximum pressure using the drag indicator to the temperature of the measuring chamber and electronics. It is also possible to define threshold values for an alarm signal.



Practical offset correction
For high accuracy, the initial standard pressure can be corrected depending on the installation situation or altitude of the location.

Two measuring chamber options for versatile use

The PTA pressure sensor family has two measuring chambers with which a wide range of applications can be individually realized. As a PTAM, the sensor has metallic measuring chambers with hygiene approvals, which are also designed for high pressures. In the PTAC version, a capacitive ceramic measuring chamber is integrated into the pressure transmitter, which eliminates any potential risk of contamination due to its transmission medium free design. Regardless of the choice of measuring chamber, no residues are deposited on the sensor head thanks to dead space-free and hygienic process connections – ensuring reliable data delivery.

Metallic measuring chambers (PTAM) for a wide temperature and pressure range with hygiene approvals

Pressures up to 1,000 bar and temperatures up to 130 °C are no problem for the PTAM, which means that it can also be used in harsh ambient conditions. Due to its high temperature resistance and EHEDG and 3 A approval, the sensor is suitable for hygienic applications including CIP and SIP processes. As a fully welded measuring chamber without an elastomer seal, the PTAM pressure sensors can be used to measure aggressive media.

Capacitive ceramic measuring chamber (PTAC) for pressure spikes and applications with abrasive media

The PTAC is suitable as a dry measuring system wherever purity and sterility are essential in the process. The advantages of the ceramic diaphragm really come to the fore with abrasive media. The ceramic measuring chamber has an orders of magnitude higher overload resistance and high long-term stability with low signal drift – pressure surges caused by the opening or closing of valves are therefore unproblematic.

Technical data overview

Medium	Liquid, gaseous
Pressure type	Gauge pressure Absolute pressure (depends on variant)
Pressure unit	bar, psi
Measuring chamber type	Ceramic pressure measuring cell / Metallic pressure measuring cell (depends on variant)
Accuracy	≤ ± 0.3 %
Process connection	G ¼ A (ISO 1179-2) G 1 flush-mounted (ISO 228-1) G ½ flush-mounted (DIN 3852-A) G ½ (ISO 228-1) G **¼** B (EN 837) G ½ B (EN 837) ¼" NPT Clamp 1" (DIN 32676, ISO 2852), PN 40, flush-mounted, 316L (Ra < 0.38 µm) G ½ flush-mounted (ISO 228-1) Clamp 2" (DIN 32676, ISO 2852), PN 40, flush-mounted, 316L (Ra < 0.38 µm) Clamp 1 1/2" (DIN 32676, ISO 2852), PN 40, flush-mounted, 316L (Ra < 0.38 µm) Coupling (DIN 11864-1) DN 25 form A with union nut (depends on variant)
Connection type	M12 round connector x 1, 4-pin
Enclosure rating	IP66 IP67 IP69
Process temperature	–20 °C ... +130 °C (depends on variant)
Seal	FKM / FFKM (depends on variant)
Communication interface	Bluetooth - IO-Link (depends on variant)
Output signal	4 mA ... 20 mA, 2-wire 4 mA ... 20 mA, IO-Link, transistor, 3-wire IO-Link, 3-wire, 2x transistor or 4 ... 20 mA plus 1x transistor (depends on variant)
Supply voltage	12 V DC ... 35 V DC

Product description

The PTA product comprises high-quality and versatile pressure sensors for measuring the pressure of liquid and gaseous media. The sensors are available as PTAC with a capacitive ceramic measuring cell or as PTAM with a fully welded stainless steel measuring cell. Thanks to flush-mounted connection options, even viscous and sticky media pose no problem. Appropriate variants are available for hygienic applications and use in explosion-hazardous areas. With the optional IO-Link and WPAN interfaces, the PTA can be easily integrated into digital system environments and provides reliable print data for automated systems. The Smart Assistant app from SICK makes location-independent commissioning, adjustment and diagnostics easier.

At a glance

- Measuring ranges between –1 bar and +1,000 bar
- Measurement accuracy: ± 0.3%
- Process temperature: –40 °C to +130 °C (briefly up to +150 °C)
- Round connector M12, 4-pin
- 360° LED status ring
- IO-Link and WPAN interfaces
- Configurable via the Smart Assistant app
- Also available in an ATEX version

Your benefits

- Industry 4.0-capable thanks to IO-Link and WPAN interfaces
- Uncomplicated commissioning, monitoring and diagnostics via the Smart Assistant app
- Wide range of application possibilities thanks to two measuring cell options (metallic and ceramic) and numerous connection options
- Particularly rugged and durable thanks to solid stainless steel housing
- Safe hygienic operation thanks to flush-mounted and hygienic process connections
- Suitable for CIP and SIP processes thanks to transient temperature resistance up to 150 °C

Fields of application

- Monitoring and control of the pressure in packaging and processing machines (e.g. in tanks for filling applications)
- Monitoring and control of the pressure in applications such as battery and solar cell production (battery cathode coating process, with Ex certification)
- Monitoring and control of the pressure in general industrial machines such as machine hydraulics and cooling lubricant circuits

Type code

Other models and accessories ➜ www.sick.com/PTA

Metallic pressure measuring cell

Explosion protection

XX	Ex-free area
VA	ATEX, UKEX;Gas, increased safety,Zone 2: II 3G Ex ec IIC T4 Gc
VC	ATEX, UKEX, IEC, c-UL-us;Gas, intrinsic safety,Zone 0, 0/1, 1, 2 (Class I Division 1, 2)
TC	NEPSI;Gas, intrinsic safety;Zone 0, 0/1, 1, 2

Approvals

X	Without certifications

Food/pharmaceutical certificate

X	Without certificates
F	FDA, EG1935/2004 certificate
D	FDA, EC1935/2004, 3A, EHEDG certificate

Process connection

C2	M20x1.5 thread; EN837; pressure gage connection / 316L
9L	G1/2 –15mm thread, DIN3852- A; flush-mounted / 316L
LU	G1/2 thread, ISO228-1; flush-mounted with O-ring / 316L; FKM
3P	G1/2 thread, ISO228-1; flush-mounted with O-ring / 316L; EPDM
TJ	G1/4 B thread, EN837/316L
TI	1/4NPT thread, ASM B1.20.1/316L
88	G1/4 A thread, ISO1179-2/316L
C5	G1 thread, ISO228-1; flush-mounted / 316L; FKM
LX	G1 thread, ISO228-1; flush-mounted / 316L (Ra< 0.76 µm), EPDM; for hygiene adapter with O-ring seal
3Q	G1 thread, ISO228-1; flush-mounted / 316L; EPDM
DU	G1/2 B thread, EN837; pressure gage connection / 316L
DH	G1 thread, ISO228-1; cone 40°, flush-mounted / 316L (Ra< 0.76 µm); for hygiene adapters with metal-to-metal seal
DN	G1/2 thread, G1/4 internal, ISO228-1/316L
VD	Clamp 3/4" PN40 (ø50.5 mm) DIN32676, ISO2852; flush-mounted / 316L (Ra< 0.38 µm)
AV	Clamp 1" PN40 (ø50.5 mm) DIN32676, ISO2852; flush-mounted / 316L (Ra< 0.38 µm)
AT	Clamp 1 1/2" PN40 (ø50.5 mm) DIN32676, ISO2852; flush-mounted / 316L (Ra< 0.38 µm)
AR	Clamp 2" PN40 (ø64 mm) DIN32676, ISO2852; flush-mounted / 316L (Ra< 0.38 µm)
E5	Coupling DN25 PN40, DIN11851; flush-mounted / 316L (Ra< 0.76 µm)
EZ	Coupling DN40 PN40, DIN11851; flush-mounted / 316L (Ra< 0.76 µm)
E2	Coupling DN40 PN40 form A, DIN11864-1; flush-mounted / 316L (Ra< 0.8 µm)
NB	Coupling DN50 PN25, DIN11851; flush-mounted / 316L (Ra< 0.76 µm)
U5	Coupling DN25 PN40 form A, DIN11864-1; flush-mounted / 316L (Ra< 0.8 µm)
FC	SMS DN25 40 bar flush-mounted / 316/316L (Ra< 0.76 µm)
FA	SMS DN38 25 bar / 316/316L (Ra< 0.76 µm)
FB	SMS DN51 25 bar / 316/316L (Ra< 0.76 µm)
E7	Ingold connection PN10/316L (Ra< 0.76 µm)
FR	Varivent N50-40 PN25; flush-mounted /316L (Ra< 0.38 µm)
FS	Varivent F25 PN25; flush-mounted / 316L (Ra< 0.76 µm)
9V	Ra52 PN40 hygiene adapter; with coupling nut / 316L (Ra< 0.38 µm); EPDM

Measuring range

M	Absolute, 0 bar ... 1.0 bar (0 psi ... 14.5 psi)
7	Absolute, 0 bar ... 2.5 bar (0 psi ... 36 psi)
8	Absolute, 0 bar ... 5.0 bar (0 psi ... 72.5 psi)
9	Absolute, 0 bar ... 10.0 bar (0 psi ... 145 psi)
Q	Absolute, 0 bar ... 25.0 bar (0 psi ... 360 psi)
C	Relative, 0 bar ... 0.4 bar (0 psi ... 5.8 psi)
D	Relative, 0 bar ... 1.0 bar (0 psi ... 14.5 psi)
E	Relative, 0 bar ... 2.5 bar (0 psi ... 36 psi)
F	Relative, 0 bar ... 5.0 bar (0 psi ... 72 psi)
G	Relative, 0 bar ... 10.0 bar (0 psi ... 145 psi)
I	Relative, 0 bar ... 25.0 bar (0 psi ... 360 psi)
K	Relative, 0 bar ... 60.0 bar (0 psi ... 870 psi)
4	Relative, –0.2 bar ... +0.2 bar (-3.0 psi ... +3.0 psi)
5	Relative, –0.5 bar ... +0.5 bar (-7.0 psi ... +7.0 psi)
T	Relative, –1 bar ... 0.0 bar (-14.5 psi ... 0.0 psi)
U	Relative, –1 bar ... +1.5 bar (-14.5 psi ... +22 psi)
V	Relative, –1 bar ... +5.0 bar (-14.5 psi ... +72.5 psi)
L	Relative, 0 bar ... 100.0 bar (0 psi ... 1,450 psi)
N	Relative, 0 bar ... 250.0 bar (0 psi ... 3,625 psi)
O	Relative, 0 bar ... 600 bar (0 psi ... 8,700 psi)
P	Relative, 0 bar ... 1,000 bar (0 psi ... 14,500 psi)

Electrical connection/Enclosure rating

M	M12x1 plastic / IP66/IP67/IP69
E	M12x1 stainless steel / IP66/IP67/IP69

Electronics

Z	4 mA ... 20 mA, 2-wire
A	3-wire with IO-Link (2x transistor or 4 ... 20 mA plus 1x transistor)

Sensor adjustment

B	With sensor adjustment via smartphone and SICK Tools app
X	Without sensor adjustment via smartphone and SICK Smart Assistant app

Not all variants of the type code can be combined! Not all available variants are shown.

Ceramic pressure measuring cell

Explosion protection

XX	Ex-free area
VA	ATEX, UKEX;Gas, increased safety,Zone 2: II 3G Ex ec IIC T4 Gc
VC	ATEX, UKEX, IEC, c-UL-us;Gas, intrinsic safety,Zone 0, 0/1, 1, 2 (Class I Division 1, 2)
TC	NEPSI;Gas, intrinsic safety;Zone 0, 0/1, 1, 2

Approvals

X	Without certifications

Food/pharmaceutical certificate

X	Without certificates
F	FDA, EG1935/2004 certificate

Process connection

C2	M20x1.5 thread; EN837; pressure gage connection / 316L
C3	G1/2 thread, ISO228-1; flush-mounted / 316L
9L	G1/2 –15 mm thread, DIN3852- A; flush-mounted / 316L
TJ	G1/4 B thread, EN837/316L
TI	1/4NPT thread, ASM B1.20.1/316L
88	G1/4 A thread, ISO1179-2/316L
9M	G1 thread, DIN3852-E; flush-mounted/PEEK
C5	G1 thread, ISO228-1; flush-mounted / 316L; FKM
LX	G1 thread, ISO228-1; flush-mounted / 316L (Ra< 0.76 µm), EPDM; for hygiene adapter with O-ring seal
Z9	G1 thread, DIN3852-E; flush-mounted/duplex (1.4462)
DU	G1/2 B thread, EN837; pressure gage connection / 316L
DH	G1 thread, ISO228-1; cone 40°, flush-mounted / 316L (Ra< 0.76 µm); for hygiene adapters with metal-to-metal seal
DN	G1/2 thread, G1/4 internal, ISO228-1/316L
VD	Clamp 3/4" PN40 (ø50.5 mm) DIN32676, ISO2852; flush-mounted / 316L (Ra< 0.38 µm)
AV	Clamp 1" PN40 (ø50.5 mm) DIN32676, ISO2852; flush-mounted / 316L (Ra< 0.38 µm)
AT	Clamp 1 1/2" PN40 (ø50.5 mm) DIN32676, ISO2852; flush-mounted / 316L (Ra< 0.38 µm)
AR	Clamp 2" PN40 (ø64 mm) DIN32676, ISO2852; flush-mounted / 316L (Ra< 0.38 µm)
E5	Coupling DN25 PN40, DIN11851; flush-mounted / 316L (Ra< 0.76 µm)
EZ	Coupling DN40 PN40, DIN11851; flush-mounted / 316L (Ra< 0.76 µm)
E2	Coupling DN40 PN40 form A, DIN11864-1; flush-mounted / 316L (Ra< 0.8 µm)
NB	Coupling DN50 PN25, DIN11851; flush-mounted / 316L (Ra< 0.76 µm)
U5	Coupling DN25 PN40 form A, DIN11864-1; flush-mounted / 316L (Ra< 0.8 µm)
FC	SMS DN25 40 bar flush-mounted / 316/316L (Ra< 0.76 µm)
FA	SMS DN38 25 bar / 316/316L (Ra< 0.76 µm)
FB	SMS DN51 25 bar / 316/316L (Ra< 0.76 µm)
E7	Ingold connection PN10/316L (Ra< 0.76 µm)
FR	Varivent N50-40 PN25; flush-mounted /316L (Ra< 0.38 µm)
FS	Varivent F25 PN25; flush-mounted / 316L (Ra< 0.76 µm)
9V	Ra52 PN40 hygiene adapter; with coupling nut / 316L (Ra< 0.38 µm); EPDM

Measuring chamber seal/process temperature

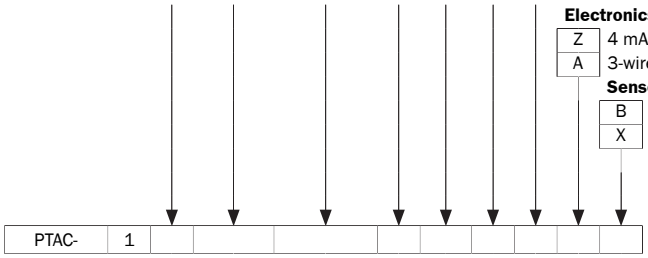
A	FKM (VP2 / A) / –20 °C ... +130 °C (-4 °F ... +266 °F)
D	EPDM (A+P 70.10-02) / –40 °C ... +130 °C (-40 °F ... +266 °F)
F	FFKM (Perlast G74S) / –15 °C ... +130 °C (+5 °F ... +266 °F)

Measuring range

A	Absolute, 0 bar ... 0.1 bar (0 psi ... 1.45 psi)
M	Absolute, 0 bar ... 1.0 bar (0 psi ... 14.5 psi)
7	Absolute, 0 bar ... 2.5 bar (0 psi ... 36 psi)
8	Absolute, 0 bar ... 5.0 bar (0 psi ... 72.5 psi)
9	Absolute, 0 bar ... 10.0 bar (0 psi ... 145 psi)
Q	Absolute, 0 bar ... 25.0 bar (0 psi ... 360 psi)
R	Absolute, 0 bar ... 60.0 bar (0 psi ... 870 psi)
B	Relative, 0 bar ... 0.1 bar (0 psi ... 1.45 psi)
C	Relative, 0 bar ... 0.4 bar (0 psi ... 5.8 psi)
D	Relative, 0 bar ... 1.0 bar (0 psi ... 14.5 psi)
E	Relative, 0 bar ... 2.5 bar (0 psi ... 36 psi)
F	Relative, 0 bar ... 5.0 bar (0 psi ... 72 psi)
G	Relative, 0 bar ... 10.0 bar (0 psi ... 145 psi)
I	Relative, 0 bar ... 25.0 bar (0 psi ... 360 psi)
K	Relative, 0 bar ... 60.0 bar (0 psi ... 870 psi)
3	Relative, –0.05 bar ... +0.05 bar (-0.7 psi ... +0.7 psi)
4	Relative, –0.2 bar ... +0.2 bar (-3.0 psi ... +3.0 psi)
5	Relative, –0.5 bar ... +0.5 bar (-7.0 psi ... +7.0 psi)
T	Relative, –1 bar ... 0.0 bar (-14.5 psi ... 0.0 psi)
U	Relative, –1 bar ... +1.5 bar (-14.5 psi ... +22 psi)
V	Relative, –1 bar ... +5.0 bar (-14.5 psi ... +72.5 psi)

Electrical connection/Enclosure rating

M	M12x1 plastic / IP66/IP67/IP69
E	M12x1 stainless steel / IP66/IP67/IP69



Electronics

Z	4 mA ... 20 mA, 2-wire
A	3-wire with IO-Link (2x transistor or 4 ... 20 mA plus 1x transistor)

Sensor adjustment

B	With sensor adjustment via smartphone and SICK Smart Assistant app
X	Without sensor adjustment via smartphone and SICK Smart Assistant app

Not all variants of the type code can be combined! Not all available variants are shown.

SICK AT A GLANCE

SICK is one of the leading manufacturers of intelligent sensors and sensor solutions for industrial applications. A unique range of products and services creates the perfect basis for controlling processes securely and efficiently, protecting individuals from accidents and preventing damage to the environment.

We have extensive experience in a wide range of industries and understand their processes and requirements. With intelligent sensors, we can deliver exactly what our customers need. In application centers in Europe, Asia and North America, system solutions are tested and optimized in accordance with customer specifications. All this makes us a reliable supplier and development partner.

Comprehensive services complete our offering: SICK LifeTime Services provide support throughout the machine life cycle and ensure safety and productivity.

For us, that is “Sensor Intelligence.”

WORLDWIDE PRESENCE:

Contacts and other locations –www.sick.com

SICK
Sensor Intelligence.