Product Technical Information
DS_PPC10_2203_EN

Series T-Pascal P, Model PPC10

Pressure transmitter for process control
Threaded process connection. 0.25 % Total accuracy

Application

The T-Pascal P series of transmitters are intelligent pressure transmitters with good precision and stability. The model PPC10 has an excellent total accuracy of 0.25 %.
Manufactured with piezoresistive measuring cell, digital temperature compensation, non-linearity correction technique, the entire product has compact size, light weight and wider pressure ranges for precise measurement and control of flow pressure.
Standard construction totally in stainless steel 316L, configurable measurement ranges and overpressure limits up to 7.5X.

Your Advantages

✓	Best accuracy on its segment
✓	Standard wetted parts and housing in Aisi 316L
✓	Pressure ranges up to 400 bar
✓	Better affordable flush mount version
✓	OEM customization

Overview

Informative Signs

	Information	This symbol contains device oriented information which does not result in personal injury.
	Checking	This symbol contains procedures and other facts to get the most of the device and which do not result in personal injury.
	Caution	This symbol alerts you to a dangerous situation. Failure to avoid this situation can result in damaged device and which do not result in personal injury.
	Warning	This symbol alerts you to a dangerous situation. Failure to avoid this situation can result in minor or medium injury.
	Danger	This symbol alerts you to a dangerous situation. Failure to avoid this situation will result in serious or fatal injury.

Product Overview

Based on different pressure sensing technology, there are piezoresistive pressure sensors, piezo-electric pressure sensors and capacitive pressure sensors etc. Delta Sensor supplies piezoresistive pressure sensors mainly. Transmitter features includes measuring cell and circuit compensation in all ranges, negligible thermal influence, shock, vibration and interference resistance, protection of short circuit and reversed polarity to ensure the product is stable and reliable. Are also provided optional output signals and pressure ports for different and complex applications, to satisfy customer's requirements with the product good adaptability.

Featuring integrated design, great compatibility, small size, high accuracy, light weight and wide pressure range, T-Pascal P PPC10 pressure transmitters can be applied in many fields which involve good accuracy required of fluids measurement.

- ☑ Pumping and compressor monitoring
- ☑ Level control
- ☑ Refrigeration and air conditioning equipment
- ☑ Preventing filter fouling

The T-Pascal P PPC10 compact pressure transmitter, is designed for use in almost all industrial applications, and offers a reliable pressure measurement, even under harsh environmental conditions.

- ☑ Steel Industry
- ☑ Chemical plants
- ☑ Cement plants
- ☑ Shipbuilding
- ☑ Auxiliary services on pharmaceutical, beverages and food processing plants

The T-Pascal P PPC10 offers a compact design with a metallic measuring diaphragm installed in robust stainless steel 316L housing. Depending on required ingress protection, can be electrically connected through a M12 plug IP67, or IP65 with connector complying with EN 175301-803-A. The output is factory scaled and calibrated in users required current or voltage range.

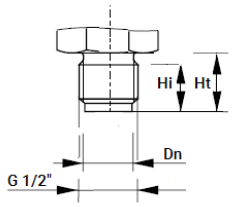
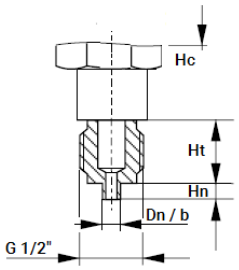
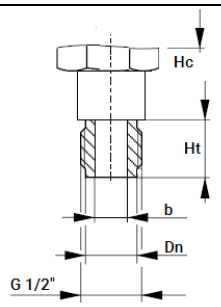
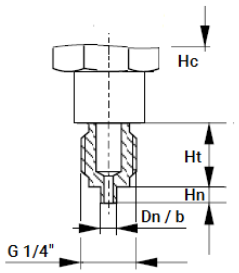
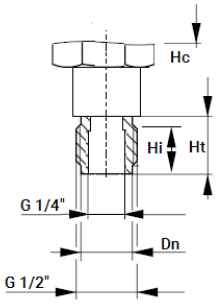
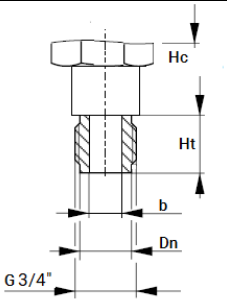
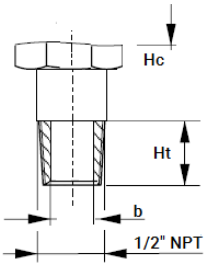
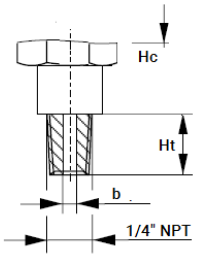
	This product is not intended to be used in oxygen service or in classified zones under ATEX directive.
	When measuring pressure in vapour or steam, install device in a siphon. This will prevent any failure due to over temperature and allow full temperature compensation.
	If necessary, clean the membrane with soft material. Do not remove any dirt with sharp object as membrane will be permanently affected. Keep membrane cap in product until moment of installation.
	Make sure the transmitter is not installed in pump inlet or at the same level of an agitator.

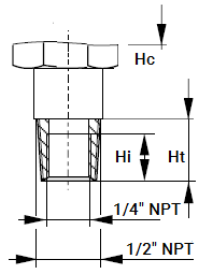
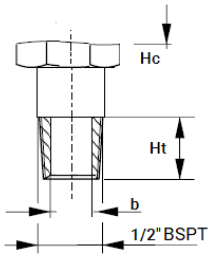
Technical Data

Device		
Application	Gauge and absolute pressure measurement	
	Hydrostatic level measurement	
Principle	Piezoresistive sensor	
Measuring cell	From 0-1 bar to 0-400 bar	
Pressure reference	Gauge, Absolute	
Adjustable cell ranges	See How to Order section	
Performance		
Total Accuracy	±0.25 %FS (including linearity, hysteresis, repeatability and thermal error)	
Stability	±0.2 %FS/year	
Compensated temperature	-10 to 85ºC	
Overpressure	Up 7.5x of calibrated span	
Electrical Specifications		
Output signal (short-circuit protected) (polarity inversion protected)	4-20 mA	Loop power 2 wires
	4-20 mA + RS-485	Loop power 2 wires + comms
	1-5 Vdc	3 wires
Power supply	10 to 28 Vdc	
Current comsumption	≤ 5mA (voltage output only)	
Current limitation	28 mA	
Load [RL]	RL ≤ (UB - 10V) / 0.02 A	
Output impedance	≤25 kΩ	
Insulation resistance	100 MΩ/50 V	
Mechanical Characteristics		
Materials	Measuring diaphragm	EN 10088-1; 1.4404 (AISI 316 L) See mechanical construction section
	Process connection	EN 10088-1; 1.4404 (AISI 316 L) See mechanical construction section
	Housing	EN 10088-1; 1.4404 (AISI 316 L)
	Connectors	See additional information section
	Internal seal	Viton ®, EPDM, Kalrez ®, FKM (not for flush mount version – welded diaphragm)
Dimensions	110 to 135 mm, depending on process and electrical connections	
Process connection	Flush mount version G ½”	DIN 3852-E (form A/ including Viton o-ring)
	Versions G ½”, G ¼”, G ¾”	EN 837 (form B)
	Versions ½” NPT, ¼” NPT	ASME / ANSI
	Version ½” BSPT (R ½”)	BS-21, ISO-7 e EN-1022
Impact	20 g, 11 ms	
Environmental Conditions		
Operating temperature	Min	-40ºC
	Max	Depending on process connection. See mechanical construction section
Storage temperature	-30 to 80ºC	
Relative humidity	0 to 90 %RH	
Calibration units	bar, mbar, psi, mH_2O, mmH_2O, kPa, MPa	
Vibration resistance	20 g, 20 to 5000 Hz	
Weight	0.20 to 0.35 kg (depending on process connection, electrical connection and accessories)	
Protection class (complying with EN 60529)	IP 65 with plug ISO 4400, EN 175301-803-A Form A IP67 with connector M12x1, IEC 61076-2-101	
Approvals, Certifications	RoHS 2, CE	

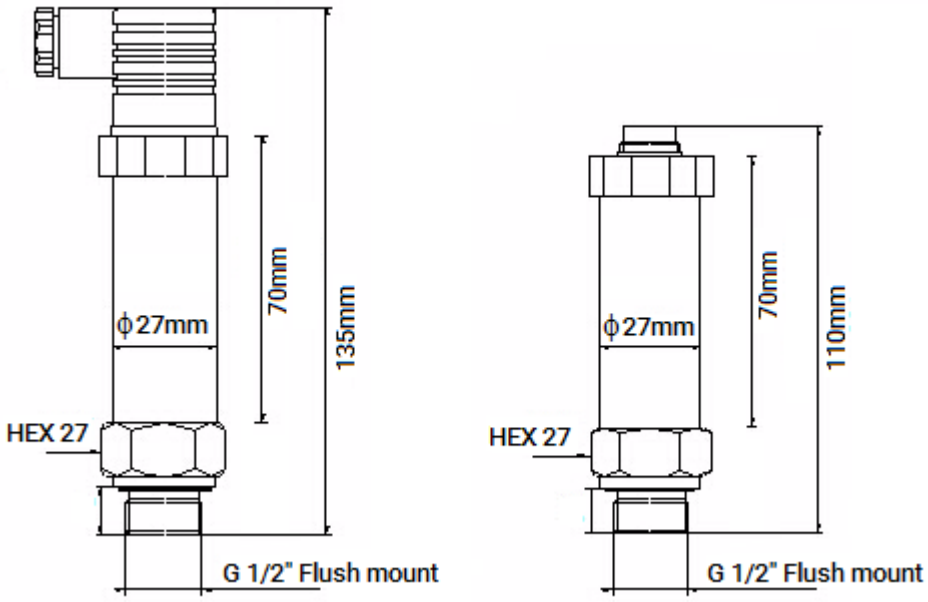
Mechanical Construction

Process Connections

Option code: F12	Process connection: G ½" flush mount	Option code: G12	Process connection: G ½"
	Seal: Viton o-ring, ISO 1179-2/ DIN 3852-11 Material: Aisi 316L Max. temperature: 100ºC Nipple diameter (Dn): 18 mm Thread (Hi): 12 mm Thread height (Ht): 14 mm		Material: Aisi 316L Max. temperature: 125ºC Nipple diameter (Dn): 6 mm Bore (b): 3 mm Nipple height Hn: 3 mm Thread height (Ht): 16 mm Neck Length (Hc): 28 mm
Option code: G13	Process connection: G ½"	Option code: G14	Process connection: G ¼"
	Material: Aisi 316L Max. temperature: 125ºC Nipple diameter (Dn): 18mm Bore (b): 11.4 mm Thread height (Ht): 20 mm Neck Length (Hc): 28 mm		Material: Aisi 316L Max. temperature: 125ºC Nipple diameter (Dn): 6 mm Bore (b): 3 mm Nipple height Hn: 3 mm Thread height (Ht): 20 mm Neck Length (Hc): 28 mm
Option code: G24	Process connection: G ½" M, G ¼" F	Option code: G33	Process connection: G ¾"
	Material: Aisi 316L Max. temperature: 125ºC Nipple diameter (Dn): 18 mm Inner length Hi: 12 mm Thread height (Ht): 20 mm Neck Length (Hc): 28 mm		Material: Aisi 316L Max. temperature: 125ºC Nipple diameter (Dn): 23.4 mm Bore (b): 11.4 mm Thread height (Ht): 22 mm Neck Length (Hc): 28 mm
Option code: N13	Process connection: ½" NPT	Option code: N14	Process connection: ¼" NPT
	Material: Aisi 316L Max. temperature: 125ºC Bore (b): 11.4 mm Thread height (Ht): 20 mm Neck Length (Hc): 28 mm		Material: Aisi 316L Max. temperature: 125ºC Bore (b): 6 mm Thread height (Ht): 15 mm Neck Length (Hc): 28 mm

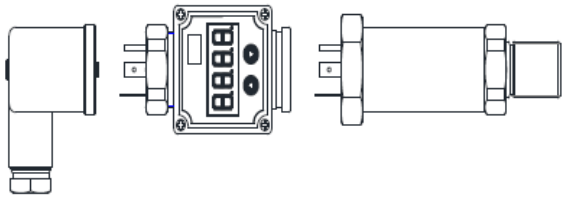
Option code: N24	Process connection: ½” MNPT, ¼” FNPT	Option code: R13	Process connection: ½” BSPT
	Material: Aisi 316L Max. temperature: 125°C Inner length Hi: 12 mm Thread height (Ht): 20 mm Neck Length (Hc): 28 mm		Material: Aisi 316L Max. temperature: 125°C Bore (b): 11.4 mm Thread height (Ht): 20 mm Neck Length (Hc): 28 mm

Housing



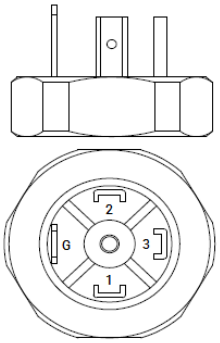
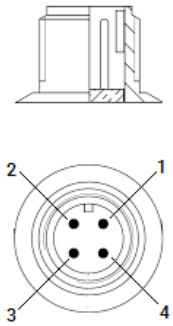
Left: device assembled with connector ISO 4400, flush mount diaphragm.
Right: device assembled with M12x1 plug, flush mount diaphragm.

⚠	With connector ISO 4400 is strongly recommended the use of a gasket to ensure the ratted ingress protection. These gaskets are not supplied on basic delivery and are available options through extended fields of order code structure, or as separate/spare parts.
ⓘ	Note that connector ISO 4400 cable socket and M12 socket are not supplied on basic delivery. These components are available options through extended fields of order code structure, or as separate/spare parts.



ⓘ	Above shown LED display is not supplied on basic delivery and is an available option through extended fields of order code structure, or as separate/spare part. Please check details at Accessories, additional information section.

Wirings

		4-20 mA		4-20 mA + RS485		1-5 Vdc	
ISO 4400 EN 175301-803-A Form A		1	V+	1	V+	1	V+
		2	V-	2	V-	2	V-
		3	Not used	3	RS485-A	3	Vout
		G	Not used	G	RS485-B	G	Not used
M12 x 1 IEC 61076-2-101		1	V+	1	V+	1	V+
		2	Not used	2	RS485-A	2	Not used
		3	V-	3	V-	3	V-
		4	Not used	4	RS485-B	4	Vout

	Make sure power supply is switched off during wiring procedures.
	Make sure power supply is according to specification on device label.
	Check if connection cable is according device connector requirements.
	Check if maximum load resistance is according device specifications.

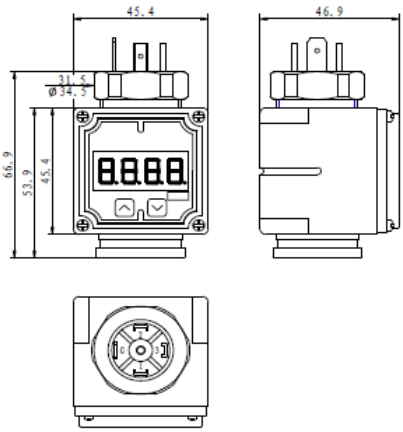
Additional Information

Accessories

Model DVA50	Functionalities
Plug-in 4-digit LED display	Programmable parameters are display zero and span, calibrated range, base point drift, decimal point, linearity correction and filter.

Electrical Specifications	
Display	LED 4 digits
Power supply	4-20mA DC loop powered
Current range	3- 25 mA
Voltage drop	≤3.8 V
Display range	-1999 to 9999
Sampling rate	3 times per second
Electrical connections	ISO 4400, EN 175301-803-A Form A; 3P+G

Performance	
Accuracy	±0.2 %FS
Thermal drift	≤80 ppm/ºC



Environmental Conditions	
Operating temperature	-30 to 85ºC
Storage temperature	-40 to 85ºC
Relative humidity	0 to 85 %RH
Shock resistance	5 g, 10 to 200 Hz
Impact	50 g, 11 ms
Weight	Approx. 70 g
Protection class (complying with EN 60529)	IP 65 with plug ISO 4400, EN 175301-803-A Form A

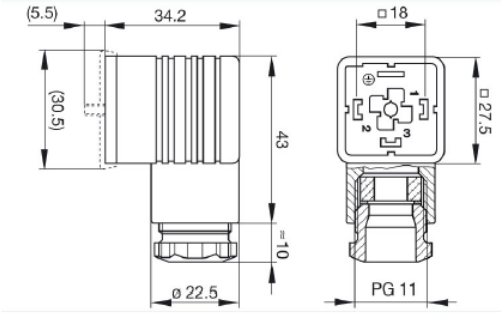
Please note this display is only available for devices with 4-20mA output.

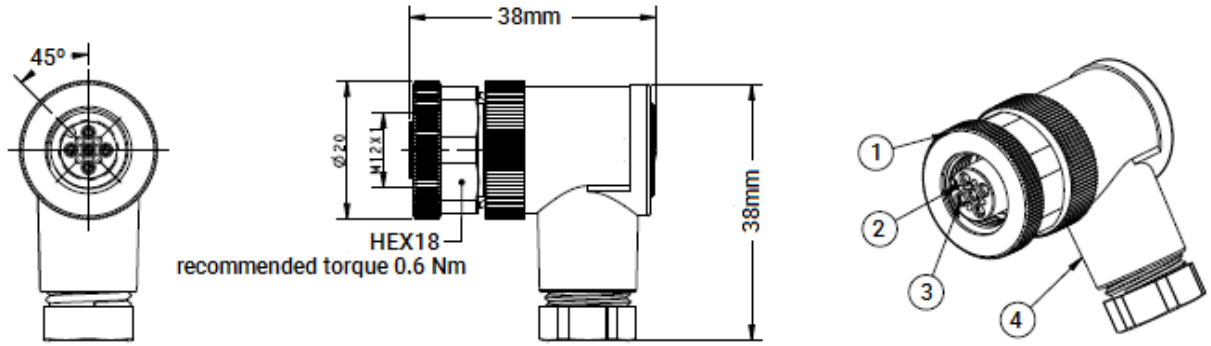
Gaskets connector ISO 4400 EN 175301-803-A Form A

Gasket type	Flat
Operating temperature	-40 to 125°C
Material	EPDM
Article number	1000646

Gasket type	Flat
Operating temperature	-30 to 90°C
Material	NBR
Article number	1001089

Gasket type	Flange
Operating temperature	-30 to 90°C
Material	NBR
Article number	1000648

Cable socket with central screw M3 x 35		
Article number: 1000645	Number of contacts	3 + PE
	Cable gland	Pg11
	Cable external diameter	6 to 9 mm
	Conductor size	≤ 1.5 mm²
	Standards	DIN EN 175 301-803-A, ISO 4400
	Housing color	Black
	Construction	Type A
	Contact surface material	Sn
	Contact bearer material	PA
	Housing material	PA
	Protection class	IP 65 (gasket necessary)
	Temperature range	-40 to 125°C
		

Cable socket M12 x 1		
Article number: 1001010	Connector type	M12x1
	Number of contacts	5
	Cable gland	Pg9
	Cable external diameter	6 to 8 mm
	Conductor size	18 to 24 AWG ≤ 0.75 mm²
	Contact resistance	≤ 8 mΩ
	Insulation resistance	≥ 100 MΩ
	Construction	Type A
	Nut (1)	Brass
	Housing material (2)	PA
	Contact material (3)	Bronze
	Housing body (4)	PBT + GF
	Contact finish	Gold over nickel
	Protection class	IP67
	Standards	IEC 61076-2-101
	Temperature range	-40 to 85°C
		

How to Order

Sign		Instruction
Tick	✓	Single option selection field necessary
Double tick	✓✓	Multiple option selection field available
Added extra	⊕	Not mandatory selection field

Order Code		Description		
PPC10-		Pressure transmitter Series T-Pascal P, Model PPC10		
010	✓	Process Connection; Membrane; Material		
F12		Thread ISO228 G1/2, 316L flush mount		
G12		Thread ISO228 G1/2 EN837, hole 3mm, 316L		
G13		Thread ISO228 G1/2 EN837, hole 11.4mm, 316L		
G24		Thread ISO228 G1/2M G1/4F EN837, 316L		
G33		Thread ISO228 G3/4 EN837, hole 11.4mm, 316L		
G34		Thread ISO228 G1/4 F, 316L		
N13		Thread ASME MNPT1/2, hole 11.4mm, 316L		
N14		Thread ASME MNPT1/4, hole 3mm; 316L		
N24		Thread ASME MNPT1/2 FNPT1/4, 316L		
R13		Thread BS-21 R1/2 BSPT, hole 11.4mm, 316L		
020	✓	Seal		
A		Not used; welded membrane		
E		EPDM		
F		FKM		
K		Kalrez®		
V		Viton®		
030	✓	Minimum Pressure Range	Maximum Pressure Range	Overpressure
G01		0 … 0.1 bar g	1 bar/100 kPa gauge	1.5 bar/150 kPa
G04		0 … 0.4 bar g	4 bar/400 kPa gauge	6 bar/600 kPa
G06		0 … 0.6 bar g	6 bar/600 kPa gauge	9 bar/900 kPa
G10		0 … 1 bar g	10 bar/1 MPa gauge	15 bar/1.5 MPa
G16		0 … 1.6 bar g	16 bar/1.6 MPa gauge	24 bar/2.4 MPa
G25		0 … 5 bar g	25 bar/2.5 MPa gauge	37.5 bar/3.7 MPa
G40		0 … 8 bar g	40 bar/4 MPa gauge	60 bar/6 MPa
GA0		0 … 20 bar g	100 bar/10 MPa gauge	150 bar/37 MPa
GA6		0 … 32 bar g	160 bar/16 MPa gauge	240 bar/24 MPa
GB0		0 … 50 bar g	250 bar/25 MPa gauge	375 bar/37.5 MPa
GD0		0 … 80 bar g	400 bar/40 MPa gauge	600 bar/60 MPa
S01		0 … 0.1 bar a	1 bar/100 kPa abs	1.5 bar/150 kPa
S04		0 … 0.4 bar a	4 bar/400 kPa abs	6 bar/600 kPa
S06		0 … 0.6 bar a	6 bar/600 kPa abs	9 bar/900 kPa
S10		0 … 1 bar a	10 bar/1 MPa abs	15 bar/1.5 MPa
S16		0 … 1.6 bar a	16 bar/1.6 MPa abs	24 bar/2.4 MPa
S25		0 … 5 bar a	25 bar/2.5 MPa abs	37.5 bar/3.7 MPa
S40		0 … 8 bar a	40 bar/4 MPa abs	60 bar/6 MPa
SA0		0 … 20 bar a	100 bar/10 MPa abs	150 bar/15 MPa
SA6		0 … 32 bar a	160 bar/16 MPa abs	240 bar/24 MPa
SB0		0 … 50 bar a	250 bar/25 MPa abs	375 bar/37.5 MPa
SD0		0 … 80 bar a	400 bar/40 MPa abs	600 bar/60 MPa

How to Order (continuation)

040	✓	Calibration Units
A		kPa, MPa
B		mbar, bar
C		%
P		psi
W		mmH20, mH2O
050	✓	Signal Output
A		4-20 mA
R		4-20 mA + RS485
M		1-5 Vdc
060	✓	Electrical Wiring
P4		M12x1 plug, 4 poles, IP 67
VM		Plug ISO 4400, Type A, 18mm; PIN 3P+G; IP 65
⊕ 070	✓✓	Additional Accessories
D0		Plug-in display DVA50, 4-20mA loop powered, LED 4 digits
F4		M12x1 Socket, 4 poles, 90º, IP 67
F5		M12x1 Socket, 5 poles, 90º, IP 67
VF		Socket ISO 4400, Type A, 18mm; PIN 3P+G, 1.5mm2; IP 65
⊕ 080	✓	Gasket; Material and Temperature
E		Flat gasket for ISO 4400 connector; EPDM; -40...125ºC
F		Flange gasket for ISO 4400 connector; NBR; -30...90ºC
N		Flat gasket for ISO 4400 connector; NBR; -30...90ºC

Selection Example	
Process connection G½" flush mount, range of 0 to 6 bar gauge, minimum overpressure of 24 bar, 4-20mA output, wiring with matching pair of valve connectors	
Order code	PPC10-F12AG16BAVM+VFF/0…6 bar g

Contact

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