

# PX3

## INDUSTRIAL PRESSURE TRANSMITTER



### Description

**PX3** is a rugged pressure transmitter based on piezoresistive technology, designed to meet the requirements of most industrial pressure measurement applications where high-quality, high-accuracy, and low cost are of the highest priorities. It offers reliable pressure measurement, even under harsh environmental conditions.

The combination of its electronic module with full digital temperature compensation, good electromagnetic compatibility, and its robust construction makes the **PX3** ideal for demanding long-term applications requiring high performance.

### Application

- Machine tools
- Hydraulics and pneumatics
- Water treatment
- Plant control and monitoring
- Refrigeration systems
- Pumps and compressors control



### Main Feature

<ul style="list-style-type: none"> <li>■ <b>Pressure Type:</b> Absolute, Gauge, Sealed Gauge</li> </ul>	<ul style="list-style-type: none"> <li>■ <b>Measuring Range:</b> 0 ... 100 mbar to 0 ... 250 bar</li> </ul>
<ul style="list-style-type: none"> <li>■ <b>Output Signal:</b> 4 ... 20 mA, 0 ... 10 VDC, 0 ... 5 VDC, 1 ... 5 VDC 0.5 ... 4.5 VDC, 0.5 ... 4.5 VDC Ratiometric</li> </ul>	<ul style="list-style-type: none"> <li>■ <b>Accuracy @ 25°C:</b> Conform To IEC 61298-2 ≤ ±0.25 %FS ≤ ±0.5 %FS ≤ ±1 %FS</li> </ul>
<ul style="list-style-type: none"> <li>■ <b>Media Temperature:</b> -30°C ... +85°C</li> </ul>	<ul style="list-style-type: none"> <li>■ <b>Ambient Temperature:</b> -30°C ... +85°C</li> </ul>
<ul style="list-style-type: none"> <li>■ <b>Process Connection:</b> R 1/4", Male, std. ISO 7 G 1/4" A, Male, std. ISO 1179-2 M20 x 1.5, Male, std. ISO 9974-2 1/4" NPT, Male, std. ANSI/ASME B1.20.1 Other threads available on request</li> </ul>	<ul style="list-style-type: none"> <li>■ <b>Electrical Connection:</b> Cable Ø5.0 mm x 0.12 mm<sup>2</sup> Polyurethane (PUR) Angular Connector DIN EN 175301-803, Form A Circular Aviation Plug M12x1, 4-pin, IEC 61076-2-101</li> </ul>
<ul style="list-style-type: none"> <li>■ <b>Structure Specification:</b> Full Welded, Molecular Sieve</li> </ul>	<ul style="list-style-type: none"> <li>■ <b>Media:</b> Air, water, mixed oil or other fluid that can be compatible with wetted parts</li> </ul>

## Pressure Range

Gauge Pressure			Absolute Pressure		
Unit	Pressure Range	Overpressure	Unit	Pressure Range	Overpressure
mbar	0 ... 250	500	mbar	0 ... 250	500
	0 ... 400	1000		0 ... 400	1000
	0 ... 600	1000		0 ... 600	1000
	0 ... 1000	2000		0 ... 1000	2000
	0 ... 1600	3000		0 ... 1600	3000
	0 ... 2500	5000		0 ... 2500	5000
	0 ... 4000	10000		0 ... 4000	10000
	0 ... 6000	10000		0 ... 6000	10000
bar	0 ... 2.5	5	bar	0 ... 2.5	5
	0 ... 4	10		0 ... 4	10
	0 ... 6	10		0 ... 6	10
	0 ... 10	20		0 ... 10	20
	0 ... 16	30		0 ... 16	30
	0 ... 25	50		0 ... 25	50
	0 ... 40	100	psi	0 ... 10	15
	0 ... 60	100		0 ... 15	20
	0 ... 100	150		0 ... 30	45
	0 ... 160	300		0 ... 60	150
0 ... 250	375	0 ... 100	150		
psi	0 ... 5	10	0 ... 160	300	
	0 ... 10	15	0 ... 200	300	
	0 ... 15	20	0 ... 300	450	
	0 ... 30	45	0 ... 600	1500	
	0 ... 60	150	0 ... 1000	1500	
	0 ... 100	150	0 ... 1500	2000	
	0 ... 160	300	0 ... 2000	3000	
	0 ... 200	300	0 ... 3000	4500	
	0 ... 300	450			
	0 ... 600	1500			
	0 ... 1000	1500			
	0 ... 1500	2000			

Pressure Range ≤ 35 bar : Gauge

Pressure Range > 35 bar : Sealed Gauge

## Pressure Range

Vacuum / Compound					
Unit	Pressure Range	Overpressure	Unit	Pressure Range	Overpressure
mbar	-50 ... + 200	±300	psi	-30 inHg ... 0	20
	-50 ... + 250	±500		-30 inHg ... +15	20
	-150 ... + 150	±300		-30 inHg ... +30	45
	-200 ... + 200	±300		-30 inHg ... +60	150
	-250 ... 0	±500		-30 inHg ... +100	150
	-250 ... + 250	±500		-30 inHg ... +160	300
	-300 ... + 300	±500		-30 inHg ... +200	300
	-400 ... 0	±1000		-30 inHg ... +300	450
	-500 ... + 500	1000			
	-600 ... 0	1000			
	-1000 ... 0	1500			
	-1000 ... + 600	1500			
	-1000 ... + 1500	3000			
	-1000 ... + 3000	5000			
	-1000 ... + 5000	10000			
	-1000 ... + 9000	20000			
bar	-0.15 ... + 0.15	±0.3			
	-0.2 ... + 0.2	±0.3			
	-0.25 ... 0	±0.5			
	-0.25 ... + 0.25	±0.5			
	-0.3 ... + 0.3	±0.5			
	-0.4 ... 0	±1			
	-0.5 ... + 0.5	1			
	-0.6 ... 0	1			
	-1 ... 0	1.5			
	-1 ... + 0.6	1.5			
	-1 ... + 1.5	3			
	-1 ... + 3	5			
	-1 ... + 5	10			
	-1 ... + 9	20			
-1 ... + 15	30				
-1 ... + 24	50				

## Reference Pressure

Pressure Type	Code
Absolute	A
Gauge	G
Sealed Gauge	S

If the pressure range you require is not listed in the table, please contact us.

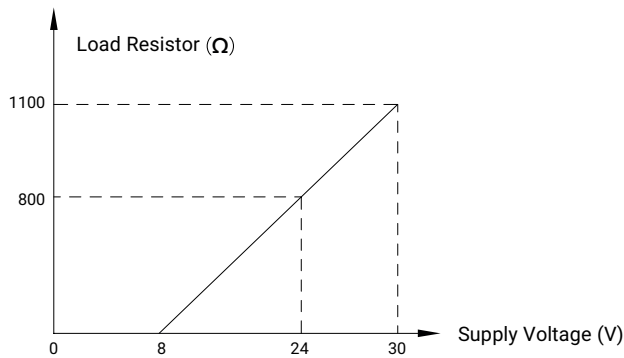
## Output Signal

Type	Output	Code
Current (2-wire)	4 ... 20 mA	C01
Voltage (3-wire)	0 ... 10 VDC	V01
	0 ... 5 VDC	V03
	1 ... 5 VDC	V04
	0.5 ... 4.5 VDC	V07
Ratio Voltage (3-wire)	0.5 ... 4.5 VDC	V08

### ■ Load (Ω)

Current (2-wire) :  $\leq (\text{Power Supply}-8\text{V})/0.02 \text{ A}$

Voltage (3-wire) :  $>10 \text{ k}$



Current Output Mode (Load Resistor Range)

## Power Supply

Output	Power Supply	Voltage Effect	Output Ripple
4 ... 20 mA	8 ... 30 VDC	$\leq \pm 0.1\% \text{FS}$	$\leq 1\%$
0 ... 10 VDC	14 ... 30 VDC		
0 ... 5 VDC	8 ... 30 VDC		
1 ... 5 VDC	8 ... 30 VDC		
0.5 ... 4.5 VDC	8 ... 30 VDC		
0.5 ... 4.5 VDC	( $5 \pm 0.5$ ) VDC Ratio	-	$\leq 20 \text{ mV}$

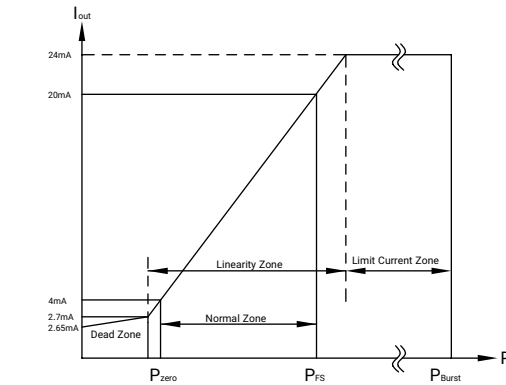
The power supply of the pressure transmitter should be the electrical connection that meets the standard of the 9.3 part of UL/EN/IEC 61010-1, UL/EN/IEC 60950-1 LPS or UL 1310/UL 1585(NEC or CEC) Class 2 standard requirement.

If the pressure transmitter is used in where the altitude is higher than 2000m, the power supply should be workable normally under the certain condition.

### ■ Total Current Consumption

Current (2-wire): Signal current, 23 mA (max.)

Voltage (3-wire):  $<8 \text{ mA}$



Output Current VS Pressure

## Accuracy

### Conform To IEC 61298-2

Accuracy	$\leq \pm 0.25\% \text{FS}$	$\leq \pm 0.5\% \text{FS}$	$\leq \pm 1\% \text{FS}$
Nonlinearity	$\leq \pm 0.2\% \text{FS}$	$\leq \pm 0.25\% \text{FS}$	$\leq \pm 1\% \text{FS}$
Code	B2	A5	A6

### Note:

0.25 %FS is available in the following ranges:

Upper Range Limit  $\geq 1 \text{ bar}$  (Gauge), 2.5 bar (Absolute), 2 bar (Vacuum)

1 %FS for Pressure Range  $< 250 \text{ mbar}$

### ■ Total error band:

0°C ... 50°C  $\pm 0.75\% \text{FS}$  (max.)

-10°C ... 80°C  $\pm 1.25\% \text{FS}$  (max.)

### Note:

Total error band includes nonlinearity, hysteresis, repeatability, temperature effect, zero and span thermal error.

### ■ Specification

Hysteresis:  $\leq 0.1\% \text{FS}$

Repeatability:  $\leq 0.1\% \text{FS}$

Overpressure: See Table "Pressure Range"

Long-term Stability:  $\leq \pm 0.1\% \text{FS/year}$  (typ.)

$\leq \pm 0.2\% \text{FS/year}$  (max.)

### ■ Response Time

Fluid Viscosity ( $< 100 \text{ cSt}$ ):  $< 4 \text{ ms}$

Gas:  $< 35 \text{ ms}$

## Environment Condition

Item	Temperature Range
Medium Temperature	-30°C ... 85°C
Environment Temperature	-30°C ... 85°C
Storage Temperature	-40°C ... 100°C

The measuring medium should not be solid or semisolid;  
The selected process connection sealing element will have limit on temperature range (please check the "Sealing Element").

## Operation Condition

### ■ Protection Class

IP65, IP67 IEC 60529

### ■ Atmospheric Pressure

860 mbar ... 1060 mbar

### ■ Vibration Resistance

10 g (10 ... 2000 Hz) IEC 60068-2-6

### ■ Shock Resistance

100 g / 11 ms IEC 60068-2-27

### ■ Service Life

Within Measuring Range: > 10 million times load cycle

### ■ Position Influence

≤ ±0.1 %FS

## Reference Condition IEC 61298-1

### ■ Temperature

15°C ... 25°C

### ■ Relative Humidity

45% ... 75%

### ■ Power Supply

(24±0.24) VDC; (5±0.05) VDC

### ■ Installation Direction

Pressure Port should be vertically downward

## Structure Material

### ■ Wetted part

Isolation Diaphragm: Stainless Steel 304 / Stainless Steel 316L

Pressure Port: Stainless Steel 304 / Stainless Steel 316L

Sealing Ring: FKM / NBR / Copper

### ■ Non-Wetted part

Housing: Stainless Steel 304 / Stainless Steel 316L

Cable: Polyurethane (PUR), Ø5 mm, 5x0.12 mm<sup>2</sup>

### ■ Pressure Transmission Medium

Silicone Oil

## Process Connection

Pressure Port	Code
G 1/8" B, Male, std. EN 837	01
G 1/4" B, Male, std. EN 837	02
G 3/8" B, Male, std. EN 837	03
G 1/2" B, Male, std. EN 837	04
M20 x 1.5, Male, std. EN 837	05
G 1/8", Female, std. EN 837	06
G 1/4", Female, std. EN 837	07
R 1/4", Male, std. ISO 7	08
R 3/8", Male, std. ISO 7	09
R 1/2", Male, std. ISO 7	10
G 1/4", Female, std. ISO 1179-1	12
G 1/4" A, Male, std. ISO 1179-2	13
G 3/8" A, Male, std. ISO 1179-2	14
G 1/2" A, Male, std. ISO 1179-2	15
M12 x 1.5, Male, std. ISO 9974-2	16
M14 x 1.5, Male, std. ISO 9974-2	17
M20 x 1.5, Male, std. ISO 9974-2	19
1/8" NPT, Male, std. ANSI/ASME B1.20.1	22
1/4" NPT, Male, std. ANSI/ASME B1.20.1	23
1/2" NPT, Male, std. ANSI/ASME B1.20.1	24
1/8" NPT, Female, std. ANSI/ASME B1.20.1	25
1/4" NPT, Female, std. ANSI/ASME B1.20.1	26
1/2" NPT, Female, std. ANSI/ASME B1.20.1	27
7/16-20 UNF - 74°Taper Male, std. SAE J514 E	28

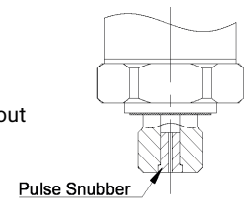
## Gasket material

Standard	Default	Applicable Temperature	Code
ISO 7/ANSI/SAE J514 E /ASMEB1.20.1	Without Seal	-	W
ISO 1179 / ISO 9974-2	NBR	-30°C ... 85°C	N
ISO 1179 / ISO 9974-2	FKM	-10°C ... 85°C	F
EN 837	Copper	-	C

Note: When the Standard is "ISO 7/ANSI/SAE J514 E/ASMEB1.20.1" the recommended sealing material is PTFE tape. The other material for each code is as above.

### Torque

The max. torque during the installation and uninstallation of the transmitter is about 20N•m ... 35N•m.



### Note:

Defaulted leading hole is of  $\Phi 4\text{mm}$ ; With  $\phi 0.8\text{mm}$  Pulse Snubber.

## Electrical Connection

Item	Protection	Cable Length	Code	
Angular Connector DIN EN 175301-803, Form A	P65	-	D1	-
• With assorted connector		-	-	B1
Circular Aviation Connector M12x1, 4-pin IEC 61076-2-101 Mat. Plastic	P65/IP67	-	M1	-
• Without assorted connector		-	-	null
• Straight connector integrated with cable		2m	-	B2
• Right-angle plug harness		2m	-	B3
Cable Outlet	P67	1m	C1	-

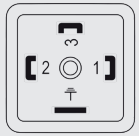
**Note:** Circular Aviation Connector M12x1 : ≤ 25 bar IP65  
> 25 bar IP67

**With Reverse Polarity Protection** +V vs GND  
(Except for ratiometric output)

## Electrical Definition

Code	Definition
+V	Supply Voltage +
GND	Supply Voltage -
I Out	Current Output
+V Out	Voltage Output
N.C	No Connection
⏏	Grounding

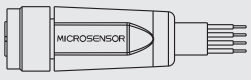
DIN EN 175301-803, Form A Angular Connector

	PIN	2-wire	3-wire
	PIN 1	+V	+V
	PIN 2	I Out	GND
	PIN 3	N.C	+V Out
	⏏	⏏	⏏

M12x1, 4-pin, Circular Aviation Connector

	PIN	2-wire	3-wire
	PIN 1	N.C	+V Out
	PIN 2	I Out	GND
	PIN 3	⏏	⏏
	PIN 4	+V	+V

Female Straight Connector M12x1, 4-pin Integrated with 2m Cable (B2)

	Wire color	2-wire	3-wire
	Brown	+V	+V
	Blue	I Out	GND
	Black	N.C	+V Out
	Yellow green	⏏	⏏

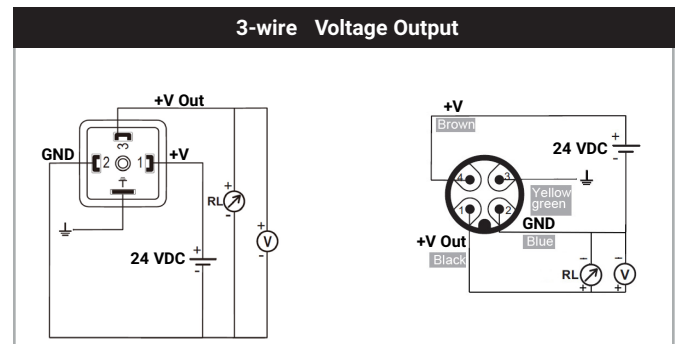
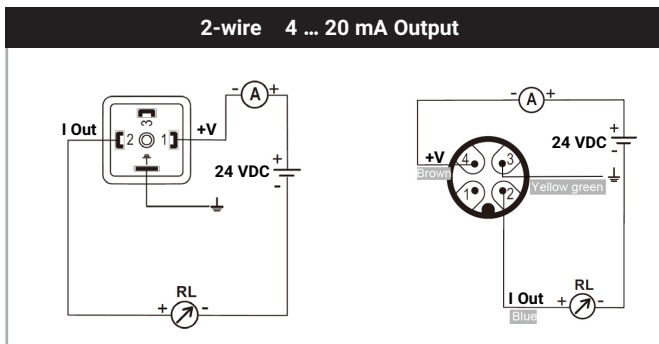
Female Right Angle Connector M12x1, 4-pin Integrated with 2m Cable (B3)

	Wire color	2-wire	3-wire
	Brown	+V	+V
	Blue	I Out	GND
	Black	N.C	+V Out
	Yellow green	⏏	⏏

Cable

	Wire color	2-wire	3-wire
	Red	+V	+V
	Black	I Out	GND
	White	N.C	+V Out
	Green	⏏	⏏

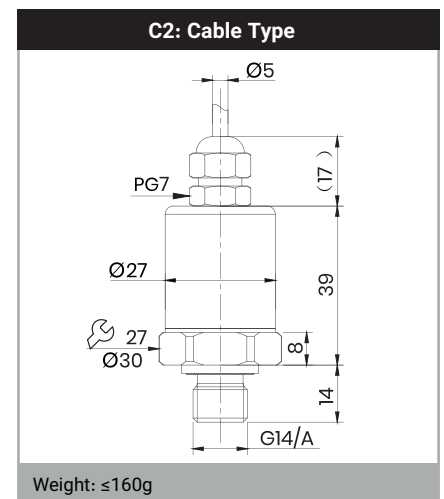
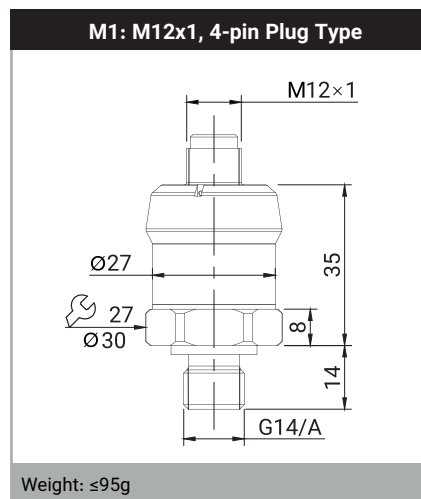
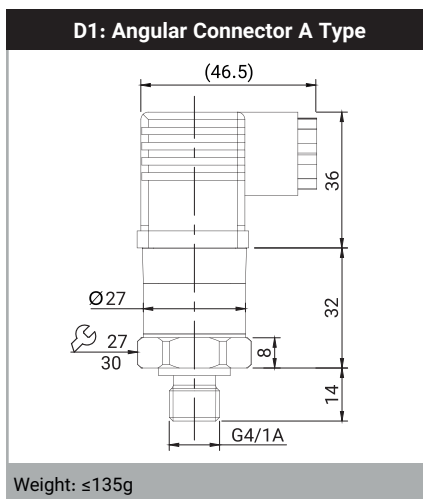
## Wiring



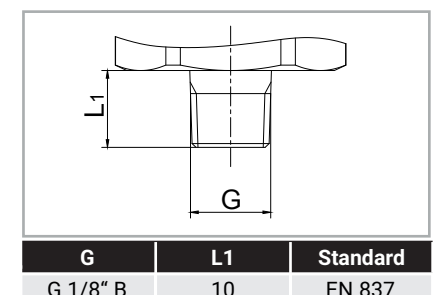
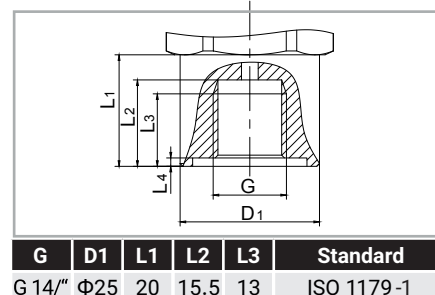
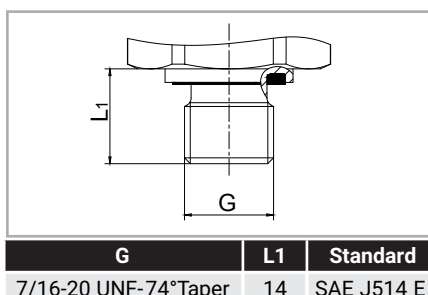
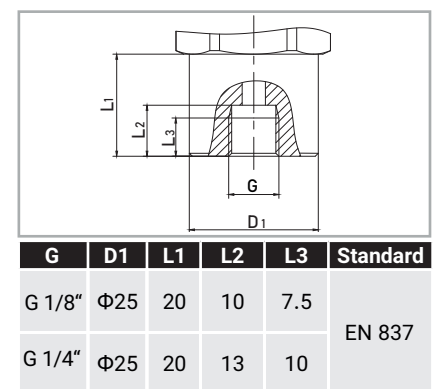
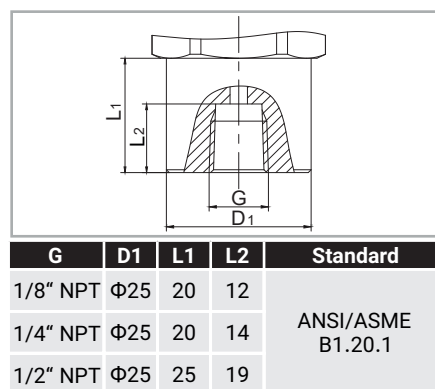
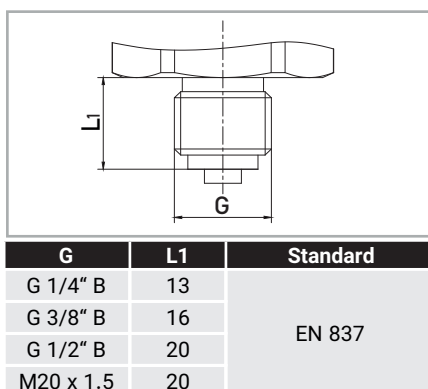
Note: The wire color is for reference only.

## Dimension

Overall Dimension (Take G 1/4" A pressure port as an example. unit: mm)

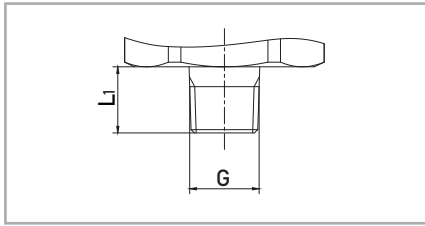


## Process Connection (Unit: mm)

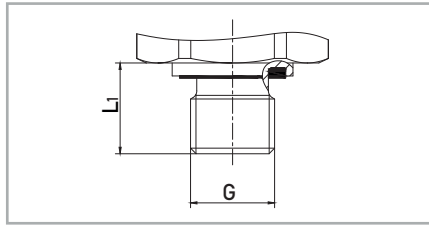




## Process Connection(Unit: mm)



G	L1	Standard
NPT1/8	10	ANSI/ASME B1.20.1
NPT1/4	13	
NPT1/2	19	
R1/4	13	ISO 7
R3/8	15	
R1/2	19	



G	L1	Standard
G1/4 A	14	ISO 1179-2
G3/8 A	14.5	
G1/2 A	17	
M12×1.5	14	ISO 9974-2
M14×1.5	14	
M20×1.5	16.5	

## Electromagnetic Compatibility

Code	Test Item	Standard	Test Condition	Performance Class
1	Electrostatic Discharge Immunity	GB/T 17626.2/IEC 61000-4-2	6kV(Contact), 8kV(Air)	B
2	Radio-frequency Field	GB/T 17626.3/IEC 61000-4-3	10V/m;80MHz ~ 6GHz; 80%AM(1kHz)	A
3	Power Frequency Magnetic Field	GB/T 17626.8/IEC 61000-4-8	Stable sustained magnetic field strength50Hz,60Hz,100A/m	A
4	Immunity of Electrical Fast Pulse Group	GB/T 17626.4/IEC 61000-4-4	±2kV; 5/50 Tr/Tk ns, 5kHz	B
5	Surge Immunity	GB/T 17626.5/IEC 61000-4-5	±2kV; 1.2/50(8/20) Tr/Th us	B
6	RF Induction Conduction Anti-harassment	GB/T 17626.6/IEC 61000-4-6	10V(150kHz ~ 80MHz); 80%AM(1kHz)	A

Note: Level A means that the performance is normal within the limit of technical specification.  
Level B means that during testing, function or performance is temporarily reduced or lost, but can recover by itself, and the actual operation status, storage and data remain unchanged.

## Certificate:

Sign	Instruction	Country Or Region
	<b>EU Declaration of Conformity</b> EMC instruction of radiated interference and noise immunity standard for pressure devices	EU
	<b>RoHS Conformity</b>	EU

## How to Order

**PX3** - X - (X...X) X - XXX - XXX - XX - XX - X - XX-XX - XX - X

Pressure Type	
Absolute	<b>A</b>
Gauge	<b>G</b>
Sealed Gauge	<b>S</b>

Pressure Range
e.g. (0 ... 250)

Unit	
kPa	mbar
MPa	bar
kgf/cm <sup>2</sup>	psi

Power Supply	
5 ± 0.5 VDC	<b>S05</b>
8 ... 30 VDC	<b>S08</b>
14 ... 30 VDC	<b>S17</b>
Customized	<b>XX</b>

Output Signal	
4 ... 20 mA / 2-wire	<b>C01</b>
0 ... 10 VDC / 3-wire	<b>V01</b>
0 ... 5 VDC / 3-wire	<b>V03</b>
1 ... 5 VDC / 3-wire	<b>V04</b>
0.5 ... 4.5 VDC / 3-wire	<b>V07</b>
0.5 ... 4.5 VDC Ratiometric / 3-wire	<b>V08</b>
Customized	<b>XX</b>

Accuracy	
≤ ±0.25 %FS	<b>B2</b>
≤ ±0.5 %FS	<b>A5</b>
≤ ±1 %FS	<b>A6</b>
Customized	<b>XX</b>

Sealing Material	
<b>W</b>	Without Seal
<b>N</b>	NBR
<b>F</b>	FKM
<b>C</b>	Copper
<b>X</b>	Customized

	Material		
	Diaphragm	Pressure Port	Housing
<b>22</b>	SS 304	SS 304	SS 316L
<b>44</b>	SS 316L	SS 316L	SS 316L
<b>XX</b>	Customized		

Electrical Connection	
<b>D1</b>	DIN EN 175301-803, Form A
<b>M1</b>	M12x1, 4-pin, Mat. Plastic
<b>C2</b>	Cable Outlet, Mat. PUR
<b>XX</b>	Customized

Extension Cable	
<b>null</b>	Without Assorted Connector
<b>B1</b>	With Assorted Connector
<b>B2</b>	Female Straight Connector M12x1, 4-pin Integrated with 2m Cable
<b>B3</b>	Female Right Angle Connector M12x1, 4-pin Integrated with 2m Cable
<b>Ln</b>	n means cable length when electrical connection is C2 type (exc. L0 = 0.5 m)
<b>XX</b>	Customized

Snubber	
<b>null</b>	Without Snubber
<b>S</b>	With Snubber
<b>C</b>	Customized Pressure Channel

Process Connection			
<b>01</b>	G 1/8" B, Male, std. EN 837	<b>14</b>	G 3/8" A, Male, std. ISO 1179-2
<b>02</b>	G 1/4" B, Male, std. EN 837	<b>15</b>	G 1/2" A, Male, std. ISO 1179-2
<b>03</b>	G 3/8" B, Male, std. EN 837	<b>16</b>	M12 x 1.5, Male, std. ISO 9974-2
<b>04</b>	G 1/2" B, Male, std. EN 837	<b>17</b>	M14 x 1.5, Male, std. ISO 9974-2
<b>05</b>	M20 x 1.5, Male, std. EN 837	<b>19</b>	M20 x 1.5, Male, std. ISO 9974-2
<b>06</b>	G 1/8", Female, std. EN 837	<b>22</b>	1/8" NPT, Male, std. ANSI/ASME B1.20.1
<b>07</b>	G 1/4", Female, std. EN 837	<b>23</b>	1/4" NPT, Male, std. ANSI/ASME B1.20.1
<b>08</b>	R 1/4", Male, std. ISO 7	<b>24</b>	1/2" NPT, Male, std. ANSI/ASME B1.20.1
<b>09</b>	R 3/8", Male, std. ISO 7	<b>25</b>	1/8" NPT, Female, std. ANSI/ASME B1.20.1
<b>10</b>	R 1/2", Male, std. ISO 7	<b>26</b>	1/4" NPT, Female, std. ANSI/ASME B1.20.1
<b>12</b>	G 1/4", Female, std. ISO 1179-1	<b>27</b>	1/2" NPT, Female, std. ANSI/ASME B1.20.1
<b>13</b>	G 1/4" A, Male, std. ISO 1179-2	<b>28</b>	7/16 -20 UNF - 74°Taper Male, std. SAE J514 E

## Example

### **PX3-S-(0 ... 160)bar-S08-C01-A5-13-S-M1-B2-44-N**

Sealed Gauge Pressure Transmitter, Range: 0 ... 160 bar

Supply: 8 ... 30 VDC, Output: 4 ... 20 mA, Accuracy:  $\leq \pm 0.5$  %FS

Process Connection: G 1/4" A Male, With Snubber

Electrical Connection: M12x1, 4-pin + Female Straight Connector Integrated with 2m Cable

Wetted Parts Material: Stainless Steel 316L + NBR Sealing

#### ■ Notes:

1. For products which are powered by S04 with cable connection, the cable length must be less than 10m.
2. If you require a calibration certificate for the ordered product or have any other special requirements, please reach out to our company for assistance.