BTE6000 / PTU6000 Series

Precision stainless steel pressure transmitters

FEATURES

- **0...-1 to 0...350 bar, 0...-15 to 0...5000 psi gage[1] or absolute[11]**
- **For corrosive media**
- **Flush mount versions**
- **0...10 V, 1...6 V, 0...20 mA, 4...20 mA output**
- **Field interchangeable**
- **For harsh environments**

MEDIA COMPATIBILITY

Wetted materials:
stainless steel 1.4404 (316L), NBR[12]

Housing:
stainless steel 1.4404 (316L), protection class IP 65 (according to DIN EN 60529) respectively NEMA 4X[1]

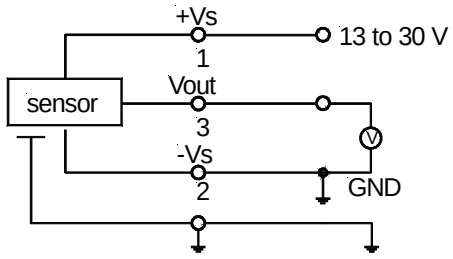
SPECIFICATIONS[9,10]

Maximum ratings

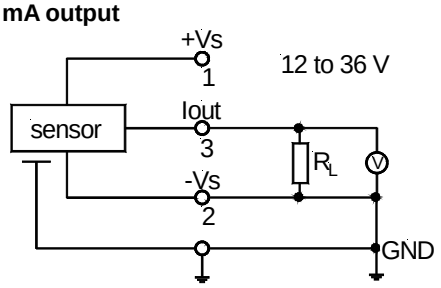
Supply voltage (reverse polarity protection)	
BTE(M)/PTU6...0, ...1	13...30 V
BTE(M)/PTU6...4, ...5[2]	12...36 V
Maximum load current	
BTE(M)/PTU6...0, ...1	10 mA
Temperature limits	
Storage	-55 to 100°C
Operating	-40 to 100°C
Compensated	0 to 70°C
Humidity limits	0 - 95 %RH
Vibration (5 to 500 Hz)	10 g_{RMS}
Mechanical shock	50 g
Proof pressure[3]	2 x rated pressure

ELECTRICAL CONNECTION

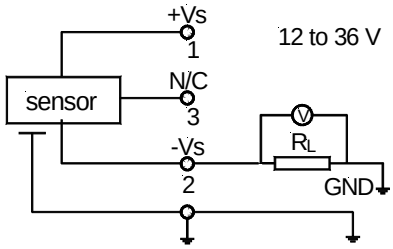
0...10 V, 1...6 V output



0...20 mA output



4...20 mA output



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COMMON PERFORMANCE CHARACTERISTICS[1]

Characteristics		Min.	Typ.	Max.	Unit
Operating pressure	BTEM6200... BTEM6350...	0 0		200 350	mbar
	BTE6001... BTE6N01... BTE6P01... BTE6002... BTE6005... BTE6010... BTE6016... BTE6035... BTE6070... BTE6350...	0 -1 -1 0 0 0 0 0 0 0		1 +1 0 2 5 10 16 35 70 350	bar
	PTU6003... PTU6005... PTU6015... PTU6N15... PTU6P15... PTU6030... PTU6100... PTU6250... PTU6500... PTU61K0... PTU65K0...	0 0 0 -15 -15 0 0 0 0 0 0		3 5 15 +15 0 30 100 250 500 1000 5000	psi
Thermal effects (0 to 70°C)[4]	Offset Span		0.01 0.01	0.03 0.03	%FSO/°C
200/300 mbar, 3/5 psi only	Offset Span			0.06 0.04	
Thermal effects (-40 to 0°C, 70 to 100°C)	Offset Span		0.03 0.03		
Non-linearity and hysteresis (BSL)[5]			±0.1	±0.5	%FSO
Repeatability			±0.1		
Long term stability[6]			±0.2		
Output noise (0 < f < 1 kHz)			±0.04		
Response time (10 to 90 %)			1		ms
Power supply rejection	Offset Span		0.05 0.05		%FSO/V

INDIVIDUAL PERFORMANCE CHARACTERISTICS[1]

0...10 V output (V_S = 15 V, R_L > 100 kΩ, t_{amb} = 25°C)

Characteristics		Min.	Typ.	Max.	Unit
Zero pressure offset	BTE/PTU6N... all others	4.85 -0.15	5.0 0	5.15 0.15	V
Full scale span[7]	BTE/PTU6N... all others	4.9 9.9	5.0 10.0	5.1 10.1	
Output impedance				50	Ω
Power consumption (no load)			100		mW

1...6 V output (V_S = 15 V, R_L > 100 kΩ, t_{amb} = 25°C)

Characteristics		Min.	Typ.	Max.	Unit
Zero pressure offset	BTE/PTU6N... all others	3.35 0.85	3.5 1.0	3.65 1.15	V
Full scale span[7]	BTE/PTU6N... all others	2.4 4.9	2.5 5.0	2.6 5.1	
Output impedance			6.0	50	Ω
Power consumption (no load)			100		mW

4...20 mA output (V_S = 15 V, R_L = 100 Ω, t_{amb} = 25°C)

Characteristics		Min.	Typ.	Max.	Unit
Zero pressure offset	BTE/PTU6N... all others	11.85 3.85	12.0 4.0	12.15 4.15	mA
Full scale span[7]	BTE/PTU6N... all others	7.9 15.9	8.0 16.0	8.1 16.1	
Output impedance			0.1		Ω
Power consumption (I_L = 20 mA)			260		mW

0...20 mA output (V_S = 15 V, R_L = 100 Ω, t_{amb} = 25°C)

Characteristics		Min.	Typ.	Max.	Unit
Zero pressure offset	BTE/PTU6N... all others	9.85 -0.15	10.0 0	10.15 0.15	mA
Full scale span[7]	BTE/PTU6N... all others	9.9 19.9	10.0 20.0	10.1 20.1	
Output impedance			0.1		Ω
Power consumption (I_L = 20 mA)			260		mW

Specification notes:

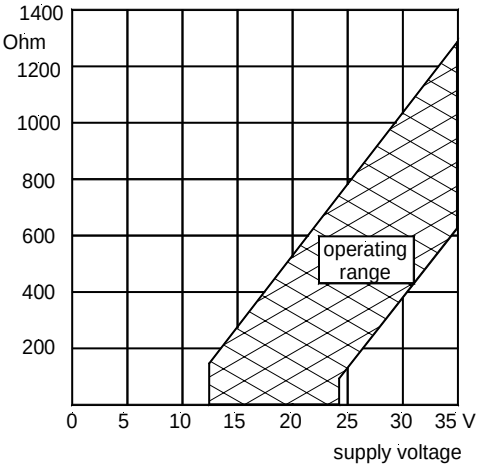
1. IP 65 protection is given when the connector is locked with a rubber washer. For proper function the gage port is vented to the atmosphere through the connector/cable assembly. Thus the cable end must have access to the ambient pressure.
2. The minimum supply voltage is directly proportional to the load resistance seen by the transmitter. For more details see the load limitation diagram.
3. Proof pressure is the maximum pressure which may be applied without causing damage to the sensing element.
4. Thermal effects tested and guaranteed from 0 to 70°C relative to 25°C. All specifications shown are relative to 25°C.
5. Non-linearity refers to the **B**est **S**traight **L**ine fit measured for offset, full scale span and 1/2 full scale span.
6. Long term stability is the change in output after one year or 1 million pressure cycles.
7. Span is the arithmetic difference in transmitter output signal measured at zero pressure and the maximum operating pressure.
8. Test are in accordance with EN61000-6-2, April 1999.
9. CE-labelling is in accordance with 89/336/EEC.
10. The pressure transmitters must not be used as safety accessories according to article 1, 2.1.3 of the directive 97/23/EC.
11. Available for pressure ranges from 1 bar (15 psi) absolute upwards only.
12. Other sealing materials are available on request.

ELECTROMAGNETIC CAPABILITY[8]

	Test conditions	Criterion	Interference
Radiated, radio frequency electromagnetic field immunity (RFI)	EN61000-4-3: Grade 3, 10 V/m, 80 to 1000 MHz 80 % AMC (1 kHz)	A	<1 %FSO
Electrical fast transient / burst immunity (EFT)	EN61000-4-4: Grade 3, ±2 kV	B	<1 %FSO
Electrostatic discharge immunity test (ESD)	EN61000-4-2: Grade 4, ±8 kV, contact discharge	B	<1 %FSO
Immunity to conducted disturbances induced by radio-frequency fields	EN61000-4-6: Grade 3, 0.15 to 80 MHz 10 V, 80 % AMC (1 kHz)	A	<1 %FSO

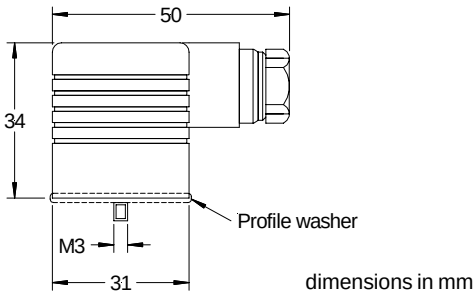
LOAD LIMITATION

0...20 mA output version
4...20 mA output version



RECOMMENDED ACCESSORY

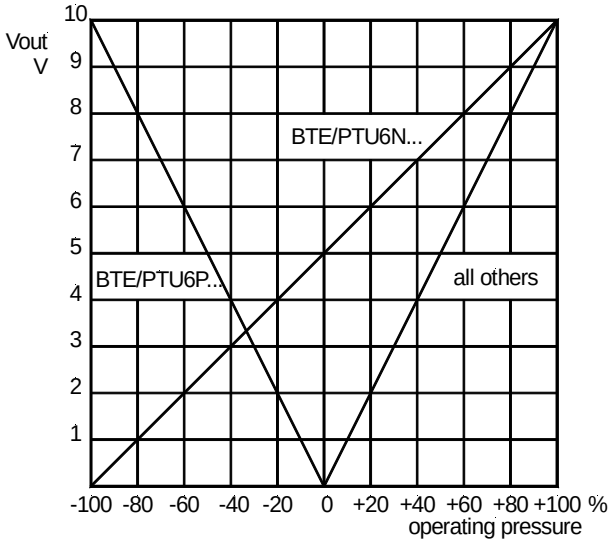
Plug **DIN EN 175301-803 A** and profile washer included in delivery. For a complete connector/cable assembly use order no. **ZK000110-x** (x=cable lenghts in m).



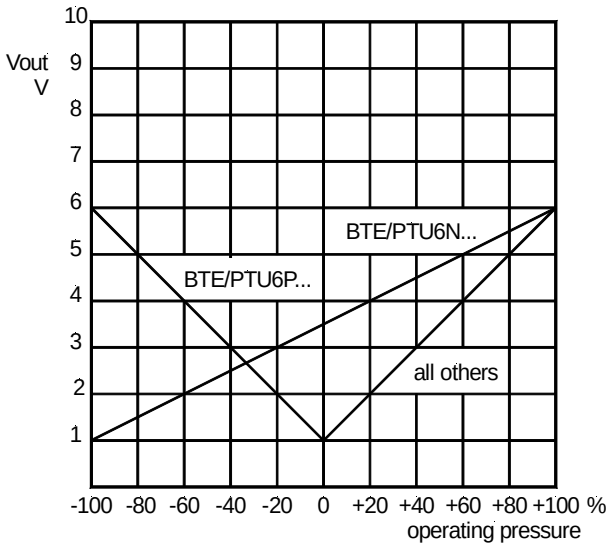
Note:
For proper function of all gage devices the gage port must be vented to the atmosphere through the connector/cable assembly.

OUTPUT CHARACTERISTICS

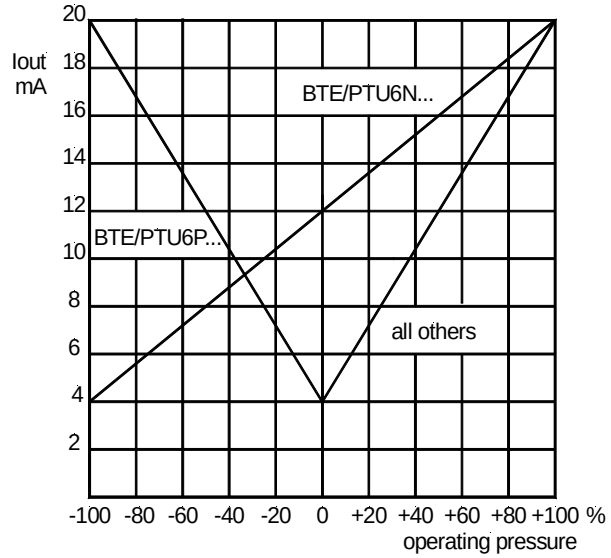
0...10 V output version



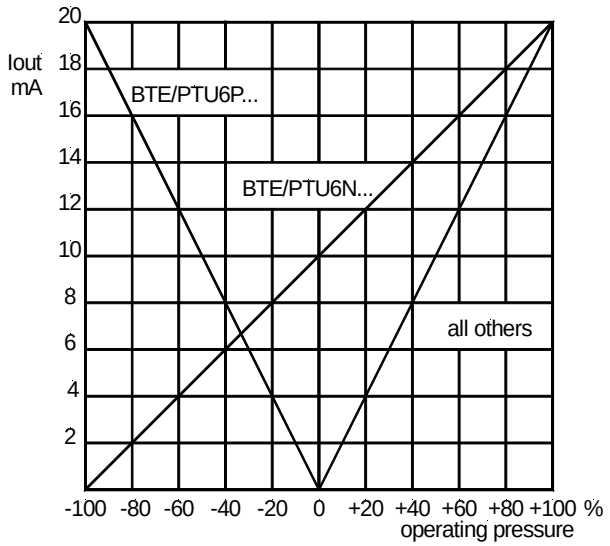
1...6 V output version



4...20 mA output version

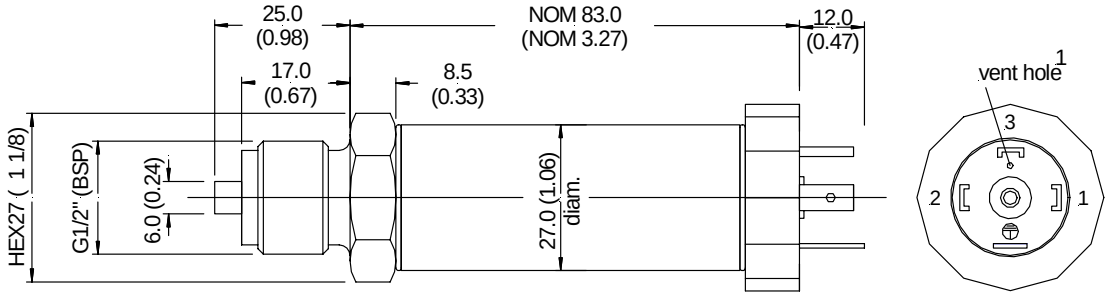


0...20 mA output version



OUTLINE DRAWING

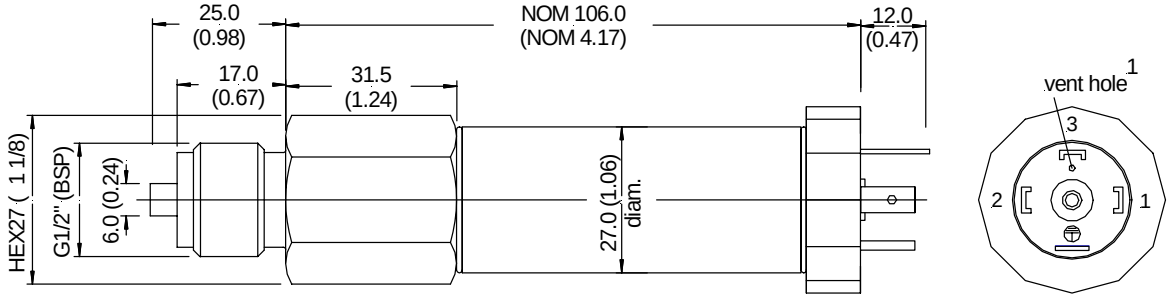
BTE6... (for pressure ranges < 35 bar)



mass: 230 g

dimensions in mm (inches)

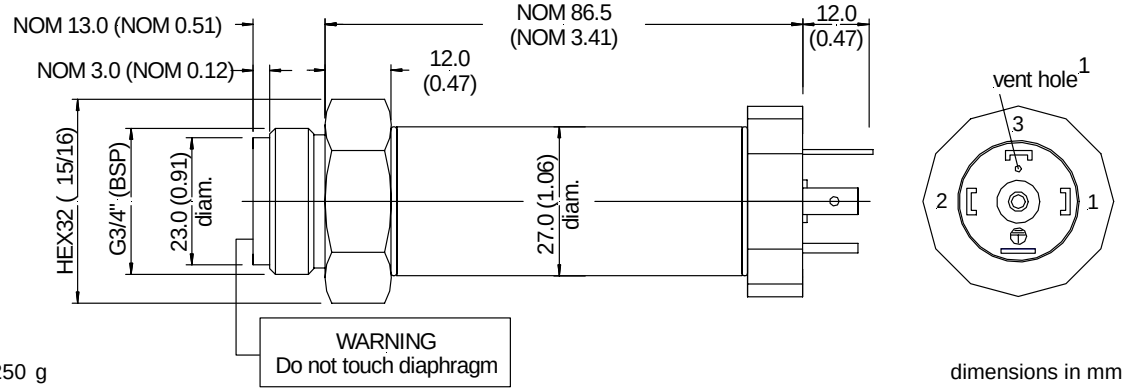
BTE6... (for pressure ranges ≥ 35 bar)



mass: 280 g

dimensions in mm (inches)

BTE6...-FL

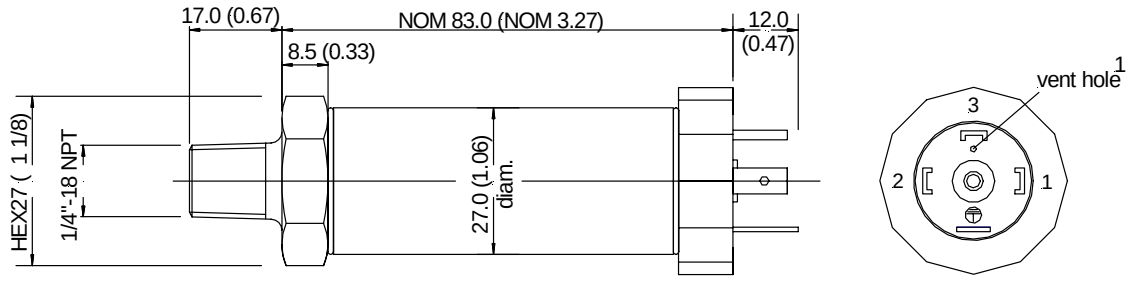


mass: 250 g

dimensions in mm (inches)

OUTLINE DRAWING

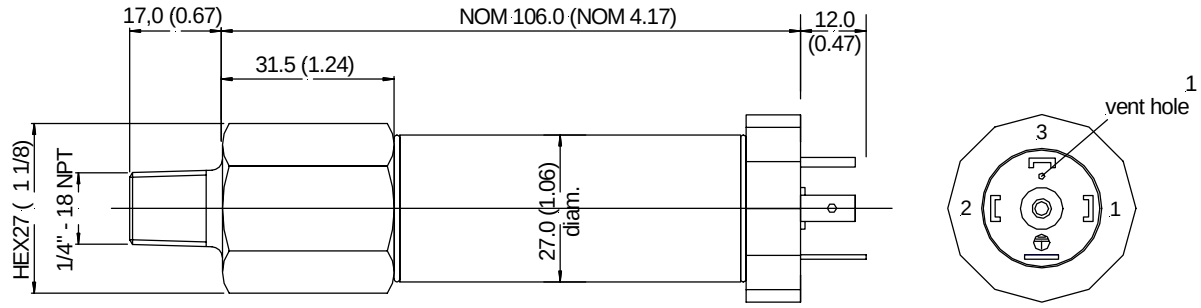
PTU6... (for pressure ranges < 500 psi)



mass: typ. 280 g

dimensions in mm (inches)

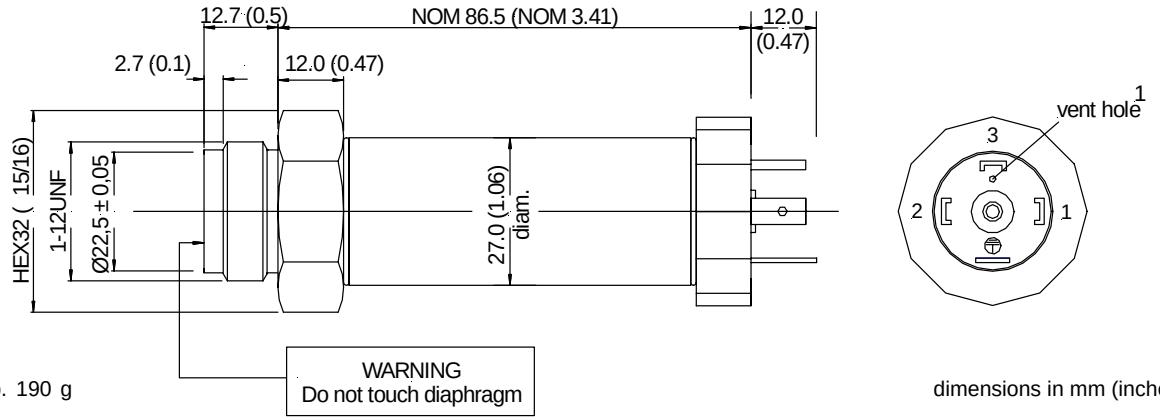
PTU6... (for pressure ranges ≥ 500 psi)



mass: typ. 280 g

dimensions in mm (inches)

PTU6...-FL



mass: typ. 190 g

dimensions in mm (inches)

ORDERING INFORMATION

(European standard devices)

Operating pressure	0...10 V output		1...6 V output		4...20 mA output		0...20 mA output	
	½ " mano-meter thread	flush mount	½ " mano-meter thread	flush mount	½ " mano-meter thread	flush mount	½ " mano-meter thread	flush mount
0 to 1 bar absolute	BTE6001A0	BTE6001A0-FL	BTE6001A1	BTE6001A1-FL	BTE6001A4	BTE6001A4-FL	BTE6001A5	BTE6001A5-FL
0 to 2 bar absolute	BTE6002A0	BTE6002A0-FL	BTE6002A1	BTE6002A1-FL	BTE6002A4	BTE6002A4-FL	BTE6002A5	BTE6002A5-FL
0 to 5 bar absolute	BTE6005A0	BTE6005A0-FL	BTE6005A1	BTE6005A1-FL	BTE6005A4	BTE6005A4-FL	BTE6005A5	BTE6005A5-FL
0 to 10 bar absolute	BTE6010A0	BTE6010A0-FL	BTE6010A1	BTE6010A1-FL	BTE6010A4	BTE6010A4-FL	BTE6010A5	BTE6010A5-FL
0 to 16 bar absolute	BTE6016A0	BTE6016A0-FL	BTE6016A1	BTE6016A1-FL	BTE6016A4	BTE6016A-FL	BTE6016A5	BTE6016A5-FL
0 to 35 bar absolute	BTE6035A0	---	BTE6035A1	---	BTE6035A4	---	BTE6035A5	---
0 to 70 bar absolute	BTE6070A0	---	BTE6070A1	---	BTE6070A4	---	BTE6070A5	---
0 to 350 bar absolute	BTE6350A0	---	BTE6350A1	---	BTE6350A4	---	BTE6350A5	---
0 to 35 bar sealed gage	BTE6035G0	---	BTE6035G1	---	BTE6035G4	---	BTE6035G5	---
0 to 70 bar sealed gage	BTE6070G0	---	BTE6070G1	---	BTE6070G4	---	BTE6070G5	---
0 to 350 bar sealed gage	BTE6350G0	---	BTE6350G1	---	BTE6350G4	---	BTE6350G5	---
0 to 200 mbar gage	BTEM6200G0	---	BTEM6200G1	---	BTEM6200G4	---	BTEM6200G5	---
0 to 350 mbar gage	BTEM6350G0	---	BTEM6350G1	---	BTEM6350G4	---	BTEM6350G5	---
0 to 1 bar gage	BTE6001G0	BTE6001G0-FL	BTE6001G1	BTE6001G1-FL	BTE6001G4	BTE6001G4-FL	BTE6001G5	BTE6001G5-FL
0 to -1 bar gage	BTE6P01G0	BTE6P01G0-FL	BTE6P01G1	BTE6P01G1-FL	BTE6P01G4	BTE6P01G4-FL	BTE6P01G5	BTE6P01G5-FL
0 to ±1 bar gage	BTE6N01G0	BTE6N01G0-FL	BTE6N01G1	BTE6N01G1-FL	BTE6N01G4	BTE6N01G4-FL	BTE6N01G5	BTE6N01G5-FL
0 to 2 bar gage	BTE6002G0	BTE6002G0-FL	BTE6002G1	BTE6002G1-FL	BTE6002G4	BTE6002G4-FL	BTE6002G5	BTE6002G5-FL
0 to 5 bar gage	BTE6005G0	BTE6005G0-FL	BTE6005G1	BTE6005G1-FL	BTE6005G4	BTE6005G4-FL	BTE6005G5	BTE6005G5-FL
0 to 10 bar gage	BTE6010G0	BTE6010G0-FL	BTE6010G1	BTE6010G1-FL	BTE6010G4	BTE6010G4-FL	BTE6010G5	BTE6010G5-FL
0 to 16 bar gage	BTE6016G0	BTE6016G0-FL	BTE6016G1	BTE6016G1-FL	BTE6016G4	BTE6016G4-FL	BTE6016G5	BTE6016G5-FL

(American standard devices)

Operating pressure	0...10 V output		4...20 mA output	
	¼ " NPT	flush mount	¼ " NPT	flush mount
0 to 15 psi absolute	PTU6015A0	PTU6015A0-FL	PTU6015A4	PTU6015A4-FL
0 to 30 psi absolute	PTU6030A0	PTU6030A0-FL	PTU6030A4	PTU6030A4-FL
0 to 100 psi absolute	PTU6100A0	PTU6100A0-FL	PTU6100A4	PTU6100A4-FL
0 to 250 psi absolute	PTU6250A0	PTU6250A0-FL	PTU6250A4	PTU6250A4-FL
0 to 500 psi absolute	PTU6500A0	---	PTU6500A4	---
0 to 1000 psi absolute	PTU61K0A0	---	PTU61K0A4	---
0 to 5000 psi absolute	PTU65K0A0	---	PTU65K0A4	---
0 to 500 psi sealed gage	PTU6500S0	---	PTU6500S4	---
0 to 1000 psi sealed gage	PTU61K0S0	---	PTU61K0S4	---
0 to 5000 psi sealed gage	PTU65K0S0	---	PTU65K0S4	---
0 to 3 psi gage	PTU6003G0	---	PTU6003G4	---
0 to 5 psi gage	PTU6005G0	---	PTU005G4	---
0 to 15 psi gage	PTU6015G0	PTU6015G0-FL	PTU6015G4	PTU6015G4-FL
0 to -15 psi gage	PTU6P15G0	PTU6P15G0-FL	PTU6P15G4	PTU6P15G4-FL
0 to ±15 psi gage	PTU6N15G0	PTU6N15G0-FL	PTU6N15G4	PTU6N15G4-FL
0 to 30 psi gage	PTU6030G0	PTU6030G0-FL	PTU6030G4	PTU6030G4-FL
0 to 100 psi gage	PTU6100G0	PTU6100G0-FL	PTU6100G4	PTU6100G4-FL
0 to 250 psi gage	PTU6250G0	PTU6250G0-FL	PTU6250G4	PTU6250G4-FL

Note: Other pressure ranges and options are widely available.
Please contact your nearest Sensortechnics sales representative.