

BTE6000 / PTU6000 Series

Precision stainless steel pressure transmitters



FEATURES

- 0...-1 to 0...16 bar, 0...-15 to 0...250 psi gage¹ or absolute¹¹
- 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), NBR¹²

Housing:

Stainless steel 1.4404 (316L), protection class IP 65 (according to DIN EN 60529, 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...100°C
Operating	-40...100°C
Compensated	0...70°C

Humidity limits

0...95 %RH

Vibration (5 to 500 Hz)

10 g_{RMS}

Mechanical shock

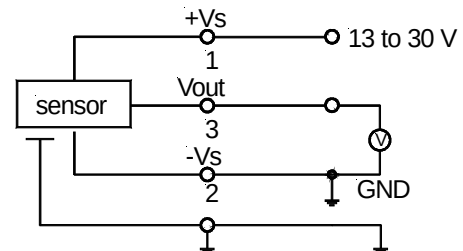
50 g

Proof pressure³

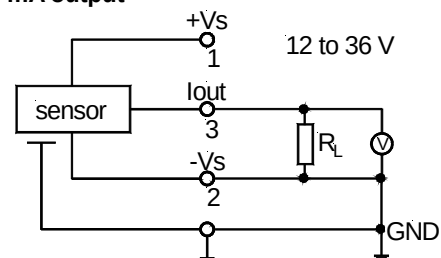
2 x rated pressure

ELECTRICAL CONNECTION

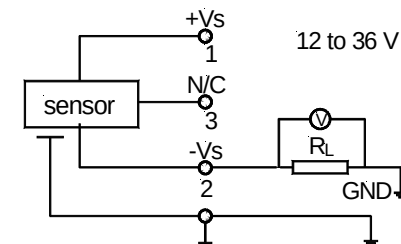
0...10 V, 1...6 V output



0...20 mA output



4...20 mA output



BTE6000 / PTU6000 Series

Precision stainless steel pressure transmitters

COMMON PERFORMANCE CHARACTERISTICS¹

Characteristics		Min.	Typ.	Max.	Unit
Thermal effects (0 to 70°C) ⁴ 200/300 mbar, 3/5 psi only	Offset		±0.01	±0.03	%FSO/°C
	Span		±0.01	±0.03	
	Offset			±0.06	
	Span			±0.04	
Thermal effects (-40 to 0°C, 70 to 100°C)	Offset		±0.03		%FSO
	Span		±0.03		
Non-linearity (BSL) and hysteresis ⁵			±0.1	±0.5	
Repeatability			±0.1		
Long term stability ⁶			±0.2		ms
Output noise (0 < f < 1 kHz)			±0.04		
Response time (10 to 90 %)			1		
Power supply rejection	Offset		±0.05		%FSO/V
	Span		±0.05		

INDIVIDUAL PERFORMANCE CHARACTERISTICS¹

0...10 V output ($V_s = 15\text{ V}$, $R_L > 100\text{ k}\Omega$, $t_{amb} = 25^\circ\text{C}$)

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

1...6 V output ($V_s = 15\text{ V}$, $R_L > 100\text{ k}\Omega$, $t_{amb} = 25^\circ\text{C}$)

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

4...20 mA output ($V_s = 15\text{ V}$, $R_L = 100\text{ }\Omega$, $t_{amb} = 25^\circ\text{C}$)

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

BTE6000 / PTU6000 Series

Precision stainless steel pressure transmitters

INDIVIDUAL PERFORMANCE CHARACTERISTICS¹ (cont.)

0...20 mA output ($V_s = 15\text{ V}$, $R_L = 100\ \Omega$, $t_{amb} = 25^\circ\text{C}$)

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

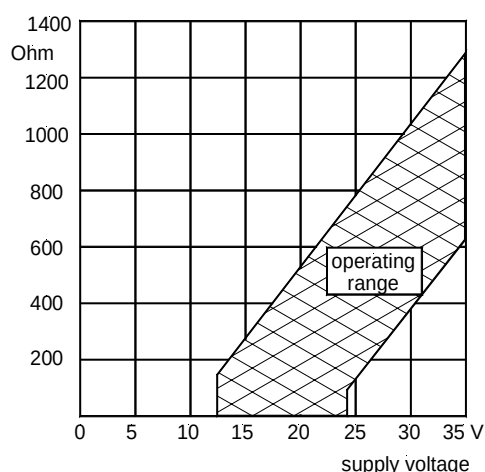
ELECTROMAGNETIC CAPABILITY⁸

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

LOAD LIMITATION

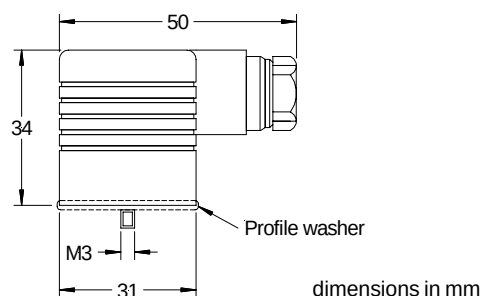
0...20 mA output version

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 lengths in m).



Note:

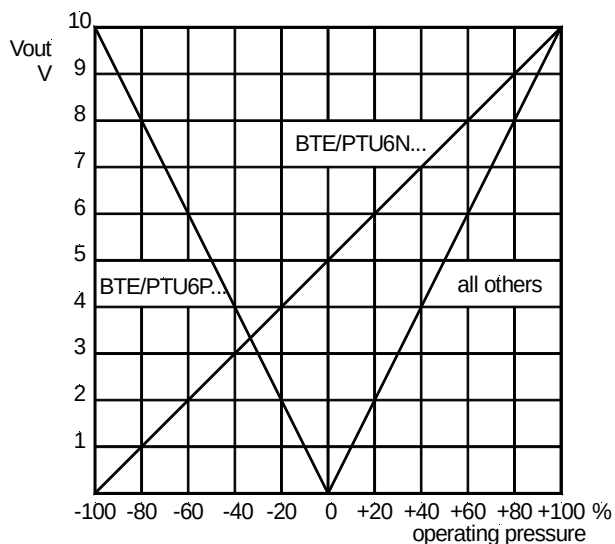
For proper function of all gage devices the gage port must be vented to the atmosphere through the connector/cable assembly.

BTE6000 / PTU6000 Series

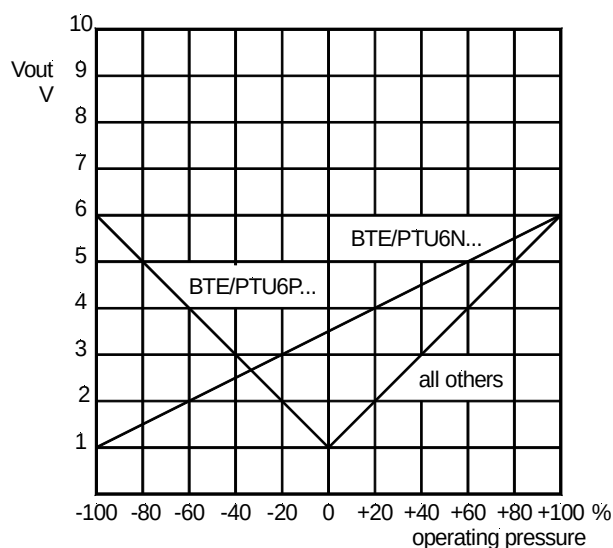
Precision stainless steel pressure transmitters

OUTPUT CHARACTERISTICS

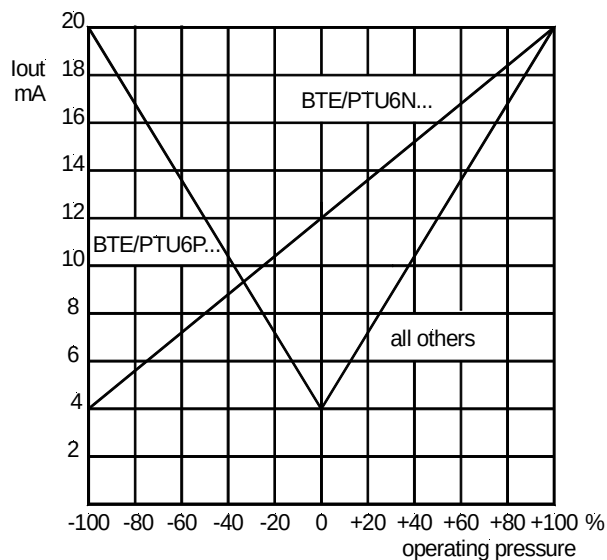
0...10 V output version



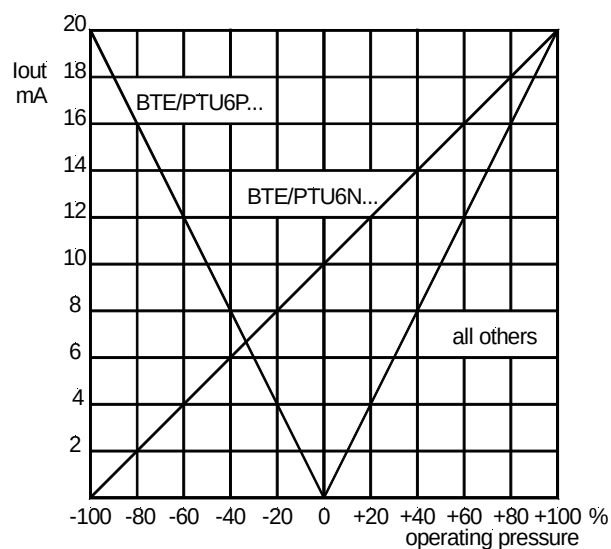
1...6 V output version



4...20 mA output version



0...20 mA output version

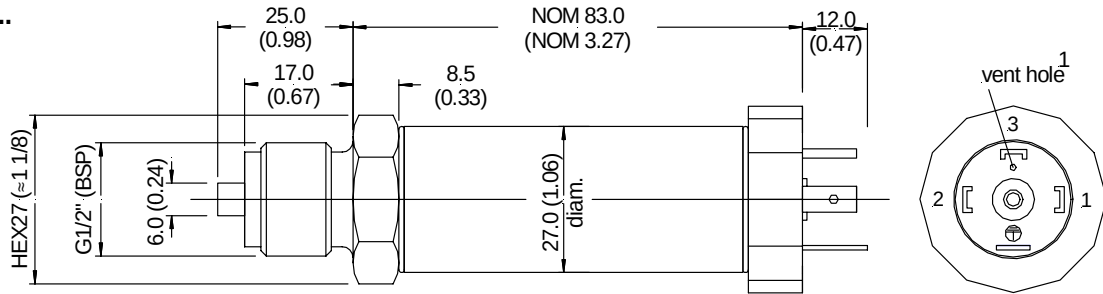


BTE6000 / PTU6000 Series

Precision stainless steel pressure transmitters

OUTLINE DRAWING

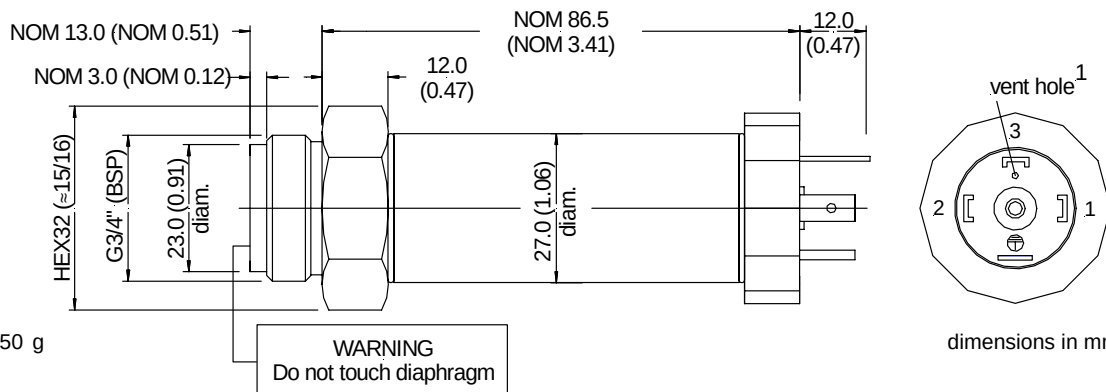
BTE6...



mass: 230 g

dimensions in mm (inches)

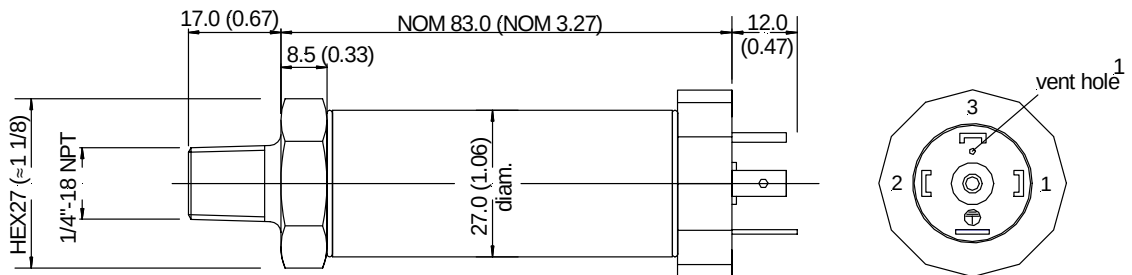
BTE6...-FL



mass: 250 g

dimensions in mm (inches)

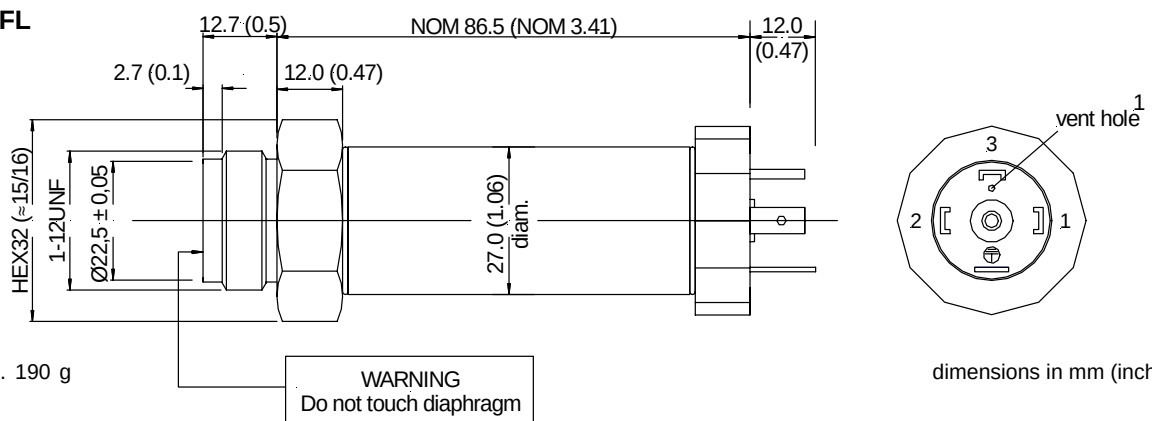
PTU6...



mass: typ. 280 g

dimensions in mm (inches)

PTU6...-FL



mass: typ. 190 g

dimensions in mm (inches)

BTE6000 / PTU6000 Series

Precision stainless steel pressure transmitters

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 **Best Straight Line** 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 EN 61000-6-2.
9. CE-labelling is in accordance with 2004/108/EC.
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.

ORDERING INFORMATION

		BTE/PTU	(M)	6xxx	x	x	(-FL)		
Calibration/Pressure connection								Flush mount version	
BTE: mbar/bar calibration, 1/2" manometer thread (3/4" thread for flush mount versions)								Output signal	
PTU: psi calibration, 1/4" NPT thread (1-12 UNF thread for flush mount versions)								0: 0...10 V	
								1: 1...6 V	
								4: 4...20 mA	
								5: 0...20 mA	
For mbar ranges only								Pressure mode	
								G: gage pressure ¹	
								A: absolute pressure (from 1 bar/15 psi)	
Pressure range									
<u>BTE6000 series</u>								<u>PTU6000 series</u>	
200: 0...200 mbar								003: 0...3 psi	
350: 0...350 mbar								005: 0...5 psi	
001: 0...1 bar								015: 0...15 psi	
N01: -1...+1 bar								N15: -15...+15 psi	
P01: 0...-1 bar								P15: 0...-15 psi	
002: 0...2 bar								030: 0...30 psi	
005: 0...5 bar								100: 0...100 psi	
010: 0...10 bar								250: 0...250 psi	
016: 0...16 bar									

Other pressure ranges and options are widely available. Please contact First Sensor.

First Sensor reserves the right to make changes to any products herein. First Sensor does not assume any liability arising out of the application or use of any product or circuit described herein, neither does it convey any license under its patent rights nor the rights of others.