BTE6000 / PTU6000 Series

Precision stainless steel pressure transmitters

FEATURES

- **0...-1 to 0...16 bar, 0...-15 to 0...250 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, NEMA 4X)[1]

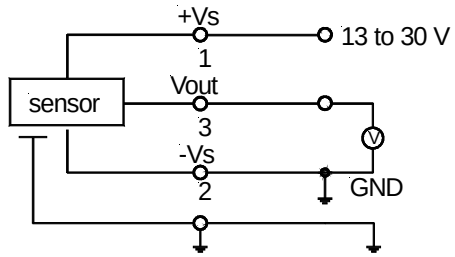
SPECIFICATIONS[9,10]

Maximum ratings

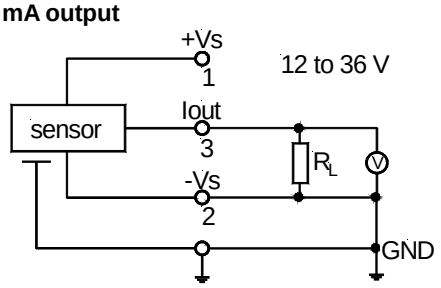
Supply voltage (reverse polarity protection)	
BTE(M)/PTU6...0, ...1	13...30 V
BTE(M)/PTU6...4, ...5[2]	12...36 V
Maximum load current	
BTE(M)/PTU6...0, ...1	10 mA
Temperature limits	
Storage	-55...100°C
Operating	-40...100°C
Compensated	0...70°C
Humidity limits	0...95 %RH
Vibration (5 to 500 Hz)	10 g_{RMS}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

ELECTRICAL CONNECTION

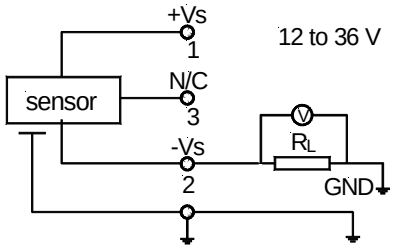
0...10 V, 1...6 V output



0...20 mA output



4...20 mA output



First Sensor

COMMON PERFORMANCE CHARACTERISTICS[1]

Characteristics		Min.	Typ.	Max.	Unit
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 (BSL) and hysteresis[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

INDIVIDUAL PERFORMANCE CHARACTERISTICS[1] (cont.)

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

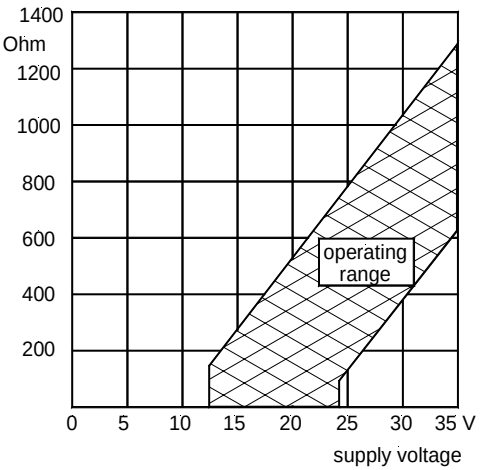
Characteristics		Min.	Typ.	Max.	Unit
Zero pressure offset	BTE/PTU6N... all others	9.85 -0.15	10.0 0	10.15 0.15	mA
Full scale span[7]	BTE/PTU6N... all others	9.9 19.9	10.0 20.0	10.1 20.1	
Output impedance			0.1		Ω
Power consumption (I_L = 20 mA)			260		mW

ELECTROMAGNETIC CAPABILITY[8]

	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:	±2 kV	B	<1 %FSO
Electrostatic discharge immunity test (ESD)	EN61000-4-2:	±4 kV, contact discharge ±8 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

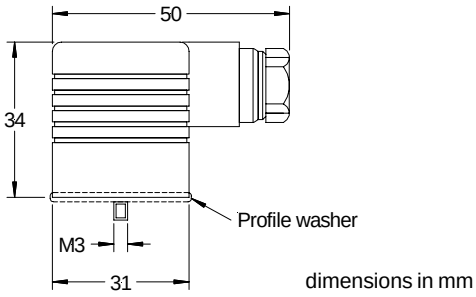
LOAD LIMITATION

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 lenghts in m).

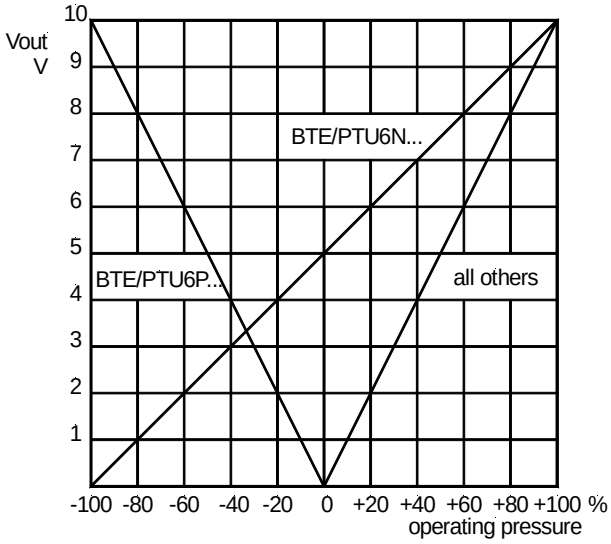


Note:
For proper function of all gage devices the gage port must be vented to the atmosphere through the connector/cable assembly.

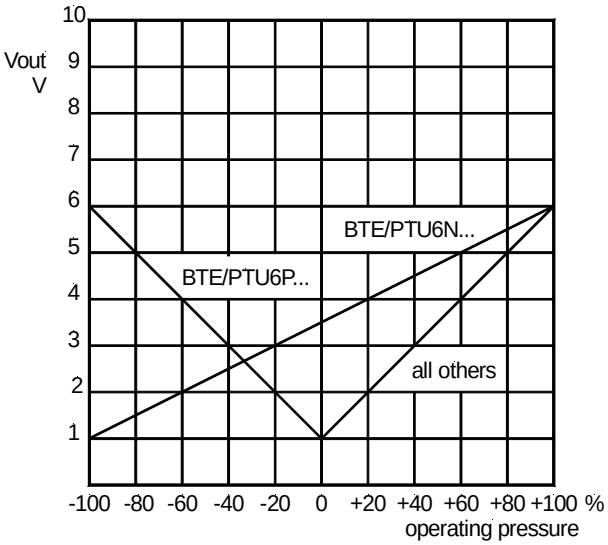
First Sensor

OUTPUT CHARACTERISTICS

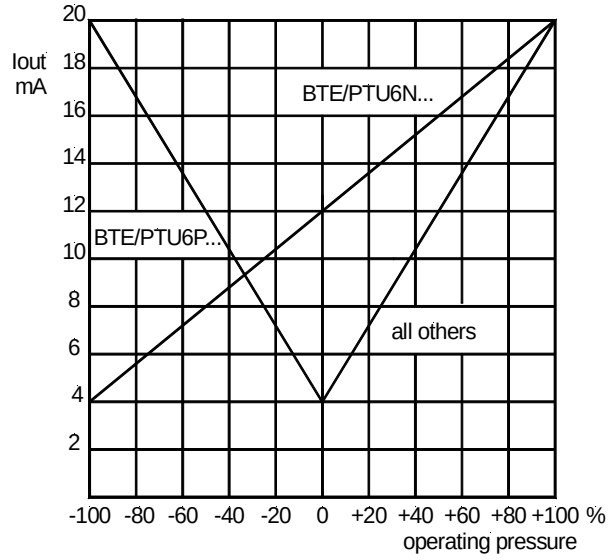
0...10 V output version



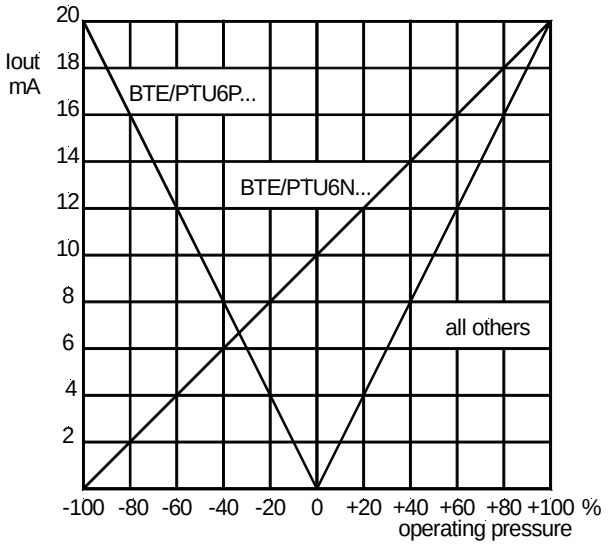
1...6 V output version



4...20 mA output version

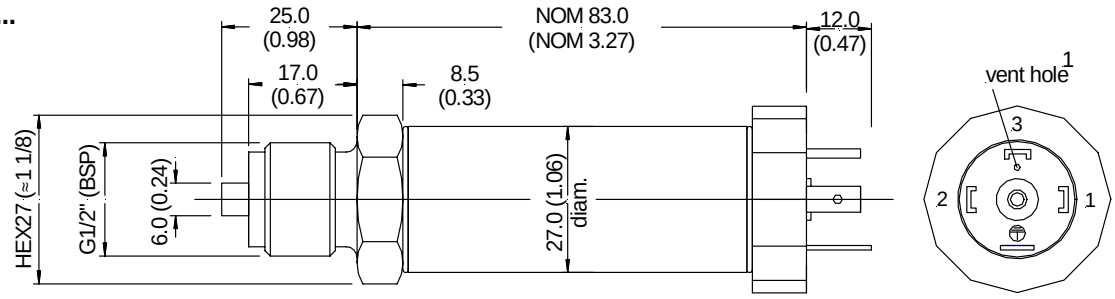


0...20 mA output version



OUTLINE DRAWING

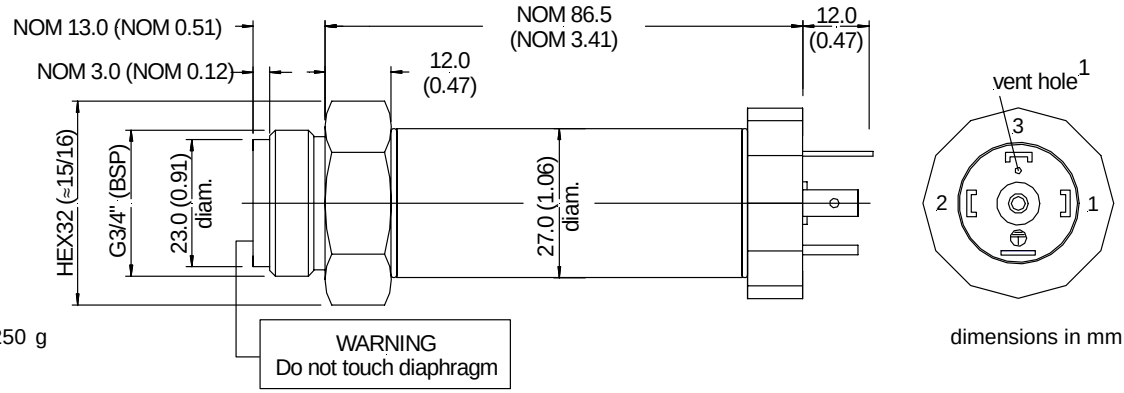
BTE6...



mass: 230 g

dimensions in mm (inches)

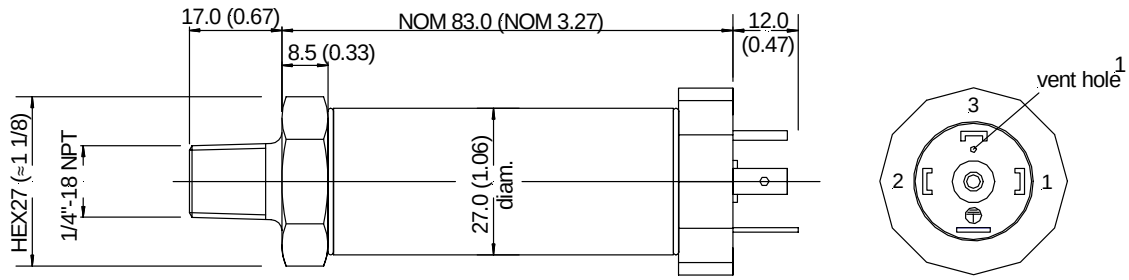
BTE6...-FL



mass: 250 g

dimensions in mm (inches)

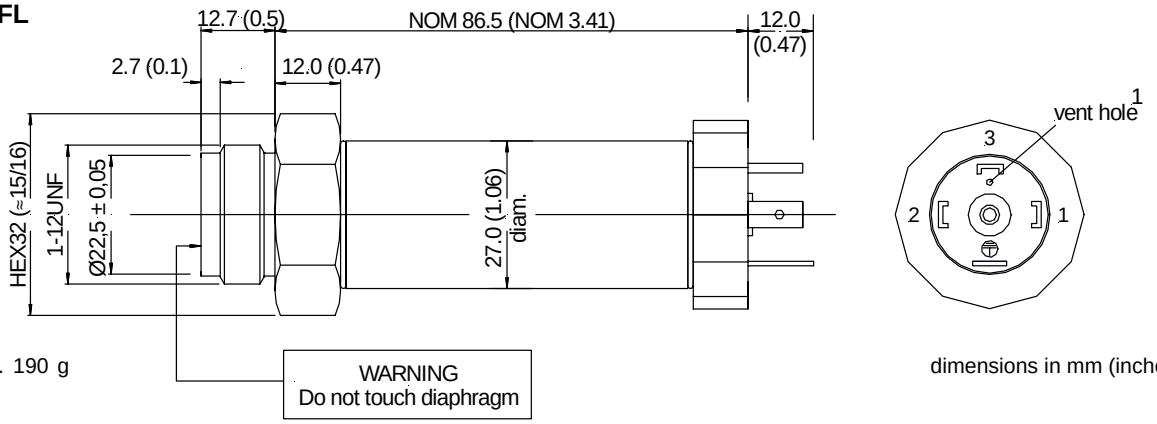
PTU6...



mass: typ. 280 g

dimensions in mm (inches)

PTU6...-FL



mass: typ. 190 g

dimensions in mm (inches)

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 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
BTE: mbar/bar calibration,
1/2" manometer thread
(3/4" thread for flush mount versions)
PTU: psi calibration,
1/4" NPT thread
(1-12 UNF thread for flush mount versions)

For mbar ranges only

Pressure range

BTE6000 series		PTU6000 series	
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		

Pressure mode
G: gage pressure[1]
A: absolute pressure
(from 1 bar/15 psi)

Output signal
0: 0...10 V
1: 1...6 V
4: 4...20 mA
5: 0...20 mA

Flush mount version

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