

BTE6000 / PTU6000...CS Series

Submersible precision stainless steel transmitters

FEATURES

- 0...100 mbar to 0...10 bar, 0...2 to 0...150 psi gage or absolute
- For corrosive media
- 0...10 V, 1...6 V, 0...20 mA or 4...20 mA output
- Field interchangeable
- For harsh environments

MEDIA COMPATIBILITY

Wetted materials:
stainless steel 1.4404 (316L), PVC, PUR, NBR¹¹

Housing:
protection class IP 68 (according to DIN EN 60529)
respectively NEMA 6P¹

SPECIFICATIONS^{9,10}

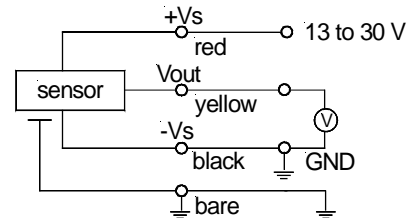
Maximum ratings

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	-40 to 85°C
Operating	-25 to 85°C
Compensated	0 to 70°C
Vibration (5 to 500 Hz)	10 g _{RMS}
Mechanical shock	50 g
Proof pressure ³	2 x rated pressure

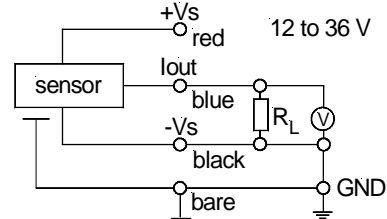


ELECTRICAL CONNECTION

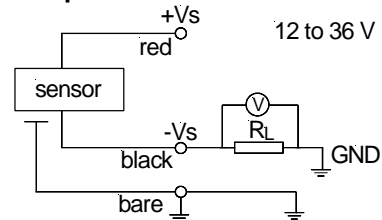
0...10 V, 1...6 V output



0...20 mA output



4...20 mA output



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COMMON PERFORMANCE CHARACTERISTICS¹

Characteristics		Min.	Typ.	Max.	Unit
Operating pressure	BTEM6100...	0		100	mbar
	BTEM6250...	0		250	
	BTEM6350...	0		350	
	BTEM6500...	0		500	
	BTE6001...	0		1	bar
	BTE6002...	0		2	
	BTE6005...	0		5	
	BTE6010...	0		10	
	PTU6002...	0		2	psi
	PTU6003...	0		3	
	PTU6005...	0		5	
	PTU6010...	0		10	
	PTU6015...	0		15	
	PTU6030...	0		30	
	PTU6050...	0		50	
	PTU6100...	0		100	
	PTU6150...	0		150	
Thermal effects (0 to 70°C) ⁴ (-25 to 0°C, 70 to 85°C)	Offset		0.02	0.04	%FSO/°C
	Span		0.02	0.04	
	Offset		0.03		
	Span		0.03		
Non-linearity and hysteresis (BSL) ⁵			±0.1	0.25	%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		0.05		%FSO/V
	Span		0.05		

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INDIVIDUAL PERFORMANCE CHARACTERISTICS¹

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

Characteristics	Min.	Typ.	Max.	Unit
Zero pressure offset	-0.15	0	0.15	V
Full scale span ⁷	9.9	10.0	10.1	
Output impedance			50	Ω
Power consumption (no load)		100		mW

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

Characteristics	Min.	Typ.	Max.	Unit
Zero pressure offset	0.85	1.0	1.15	V
Full scale span ⁷	4.9	5.0	5.1	
Full scale output		6.0		
Output impedance			50	Ω
Power consumption (no load)		100		mW

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

Characteristics	Min.	Typ.	Max.	Unit
Zero pressure offset	3.85	4.0	4.15	mA
Full scale span ⁷	15.9	16.0	16.1	
Output impedance		0.1		Ω
Power consumption ($I_L = 20\text{ mA}$)		260		mW

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

Characteristics	Min.	Typ.	Max.	Unit
Zero pressure offset	-0.15	0	0.15	mA
Full scale span ⁷	19.9	20.0	20.1	
Output impedance		0.1		Ω
Power consumption ($I_L = 20\text{ mA}$)		260		mW

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ELECTROMAGNETIC CAPABILITY⁸

	Test conditions	Criterion	Interference
Radiated, radio frequency electromagnetic field immunity (RFI)	EN61000-4-3: Grade 3 10 V/m, 80 MHz 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

Specification notes (for all devices):

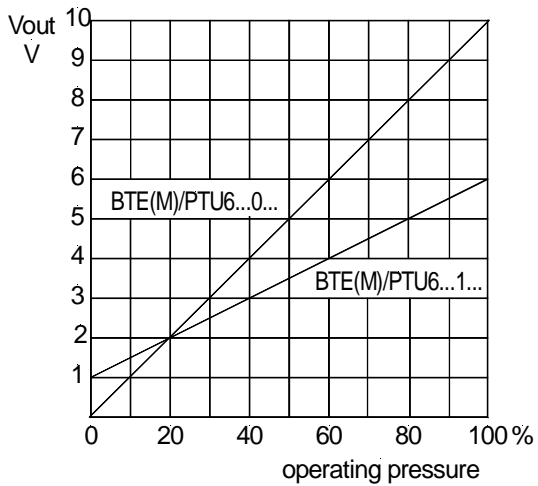
1. The package is a all-sealed housing. Gage devices are vented through an integral PE tube of the connecting cable.
2. The minimum supply voltage is directly proportional to the load resistance seen by the transmitter. For more details see the [load limitation diagrams](#).
3. Proof pressure is the 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 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. Other sealing materials are available on request.

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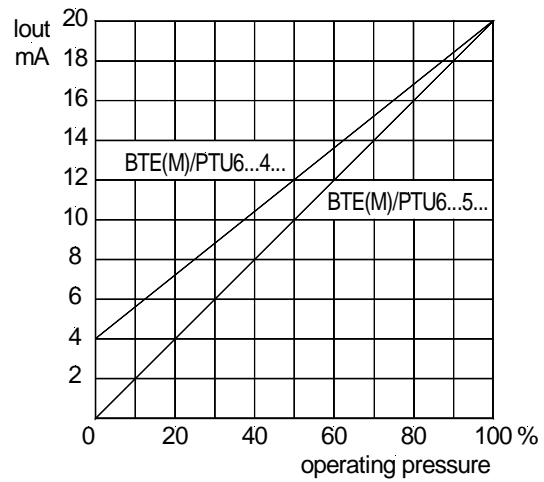
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OUTPUT CHARACTERISTICS

Voltage output versions

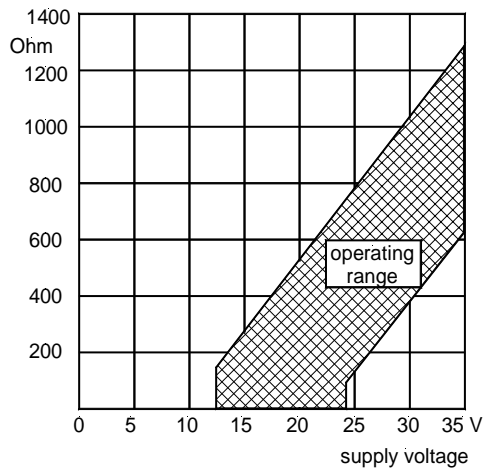


Current output versions



LOAD LIMITATION

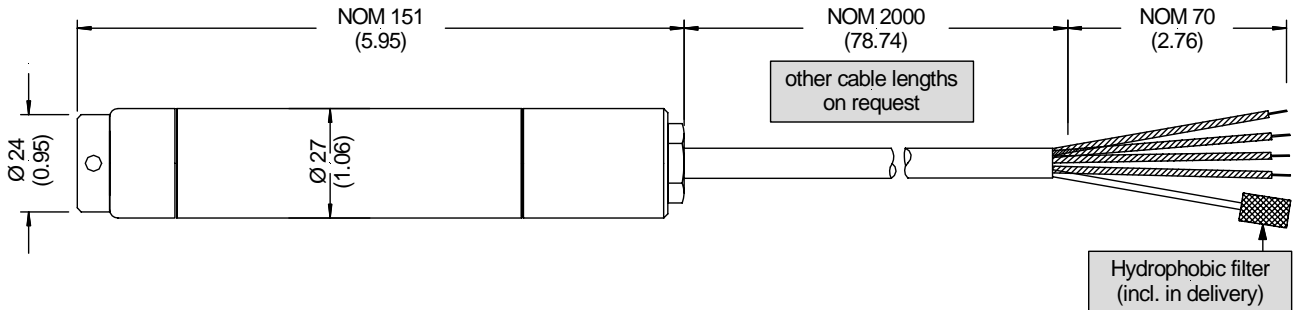
- 0...20 mA output version
- 4...20 mA output version



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OUTLINE DRAWING



mass: typ. 350 g (without cable)

dimensions in mm (inches)

ORDERING INFORMATION

	BTE/PTU	M	6xxx	x	x	C	x	S	
calibration	BTE: calibration in bar PTU: calibration in psi								submersible
mbar-ranges									cable length in m
pressure range									cable version
100: 0...100 mbar	002: 0...2 psi								output signal
250: 0...250 mbar	003: 0...3 psi								0: 0...10 V
350: 0...350 mbar	005: 0...5 psi								1: 1...6 V
500: 0...500 mbar	010: 0...10 psi								4: 4...20 mA
	015: 0...15 psi								5: 0...20 mA
001: 0...1 bar	030: 0...30 psi								pressure mode
002: 0...2 bar	050: 0...50 psi								G: gage pressure
005: 0...5 bar	100: 0...100 psi								A: absolute pressure
010: 0...10 bar	150: 0...150 psi								(available for pressure ranges from 1 bar/15 psi absolute upwards only!)

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

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