

BTE4000 / PTU4000 Series

Pressure transmitters

FEATURES

- 0...-1 to 0...10 bar absolute or gage¹, 0...-15 to 0...150 psi gage¹
- 0...5 V, 0...10 V, 1...6 V, 4...20 mA output
- Field interchangeable
- Rugged aluminium housing

MEDIA COMPATIBILITY

Wetted materials:
aluminium, silicon, glass

Housing:
Aluminium, protection class IP 65 (according to DIN EN 60529) respectively NEMA 4¹



SPECIFICATIONS^{9,10}

Maximum ratings

Supply voltage (reverse polarity protection)²

BTE(M)/PTU4...0, ...1, ...7	13...30 V
BTE(M)/PTU4...4	12...36 V

Maximum load current

BTE(M)/PTU4...0, ...1, ...7	10 mA
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Temperature limits

Storage	-55 to 100°C
Operating	-40 to 100°C
Compensated	0 to 50°C

Humidity limits

0 - 100 %RH

Vibration (5 to 500 Hz)

2 g

Mechanical shock

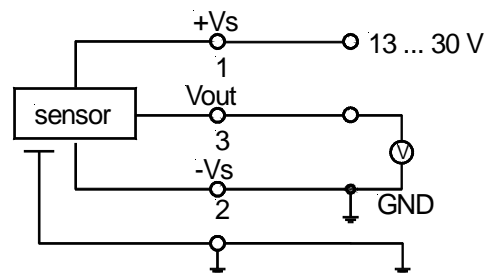
50 g

Proof pressure³

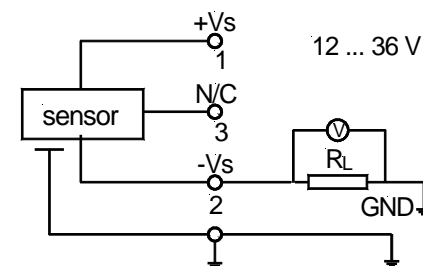
BTEM4.../PTU4x01..., 05...	1.4 bar / 20 psi
BTE4010.../PTU4150...	16 bar / 200 psi
all others	2 x rated pressure

ELECTRICAL CONNECTION

0...5 V, 0...10 V, 1...6 V output



4...20 mA output



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COMMON PERFORMANCE CHARACTERISTICS

($V_s = 15\text{ V}$, $t_{amb} = 25^\circ\text{C}$)

Characteristics		Min.	Typ.	Max.	Unit
Operating pressure	BTEM40070..	0		70	mbar
	BTEM4P070..	-70		70	
	BTEM4N250..	-25		0	
	BTEM40350..	0		350	
	BTEM4N350..	-350		0	
	BTEM4P350..	-350		350	
	BTE4001..	0		1	bar
	BTE4N01..	-1		0	
	BTE4P01..	-1		1	
	BTE4002..	0		2	
	BTE4005..	0		5	
	BTE4010..	0		10	
	PTU4001..	0		1	psig
	PTU4P01..	-1		1	
PTU4005..	0		5		
PTU4P05..	-5		5		
PTU4015..	0		15		
PTU4P015..	-15		15		
PTU4030..	0		30		
PTU4100..	0		100		
PTU4150	0		150		
Thermal effects (0 to 50°C) ⁵ (-20 to 0°C, 50 to 70°C) ⁵	Offset			0.04	%FSO/°C
	Span			0.04	
	Offset		0.02		
	Span		0.02		
Non-linearity and hysteresis (BSL) ⁶			±0.2	±0.50	%FS
Repeatability			±0.10		
Long term stability ⁷			±0.5		
Output noise (0 - 1 kHz)			±0.04		
Response time (10 to 90 %)			1.0		ms
Power supply rejection	Offset		0.05		%V
	Span		0.03		

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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/PTU4N...	4.85	5.0	5.15	V
	all others	-0.15	0	0.15	
Full scale span ⁴	BTE/PTU4N...	4.9	5.0	5.1	
	all others	9.9	10.0	10.1	
Output impedance			6.0	50	Ω
Power consumption (no load)			100		mW

0...5 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/PTU4N...	2.35	2.5	2.65	V
	all others	-0.15	0	0.15	
Full scale span ⁴	BTE/PTU4N...	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

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/PTU4N...	3.35	3.5	3.65	V
	all others	0.85	1.0	1.15	
Full scale span ⁴	BTE/PTU4N...	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 ($V_s = 15\text{ V}$, $R_L = 100\ \Omega$, $t_{amb} = 25^\circ\text{C}$)

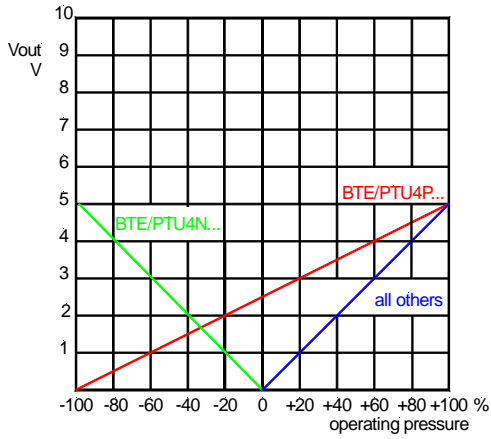
Characteristics		Min.	Typ.	Max.	Unit
Zero pressure offset	BTE/PTU4N...	11.8	12.0	12.2	mA
	all others	3.8	4.0	4.2	
Full scale span ⁴	BTE/PTU4N...	7.9	8.0	8.1	
	all others	15.8	16.0	16.2	
Output impedance			0.1		Ω
Power consumption ($I_L = 20\text{ mA}$)			260		mW

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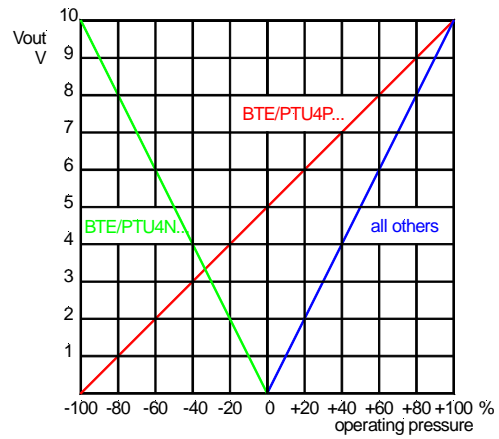
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OUTPUT CHARACTERISTICS

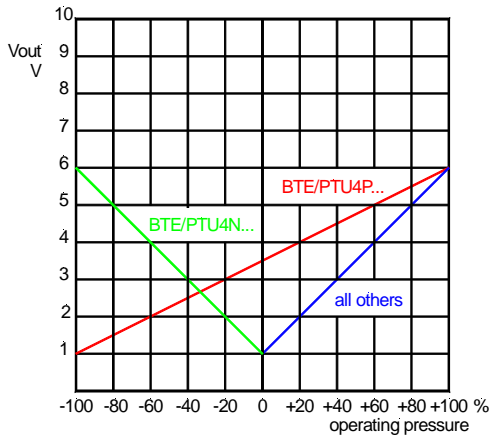
0...5 V output version



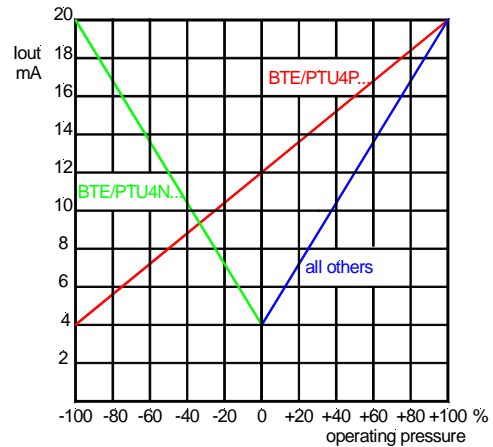
0...10 V output version



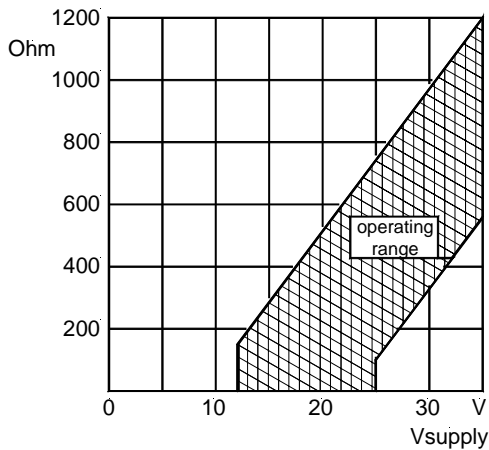
1...6 V output version



4...20 mA output version



LOAD LIMITATION



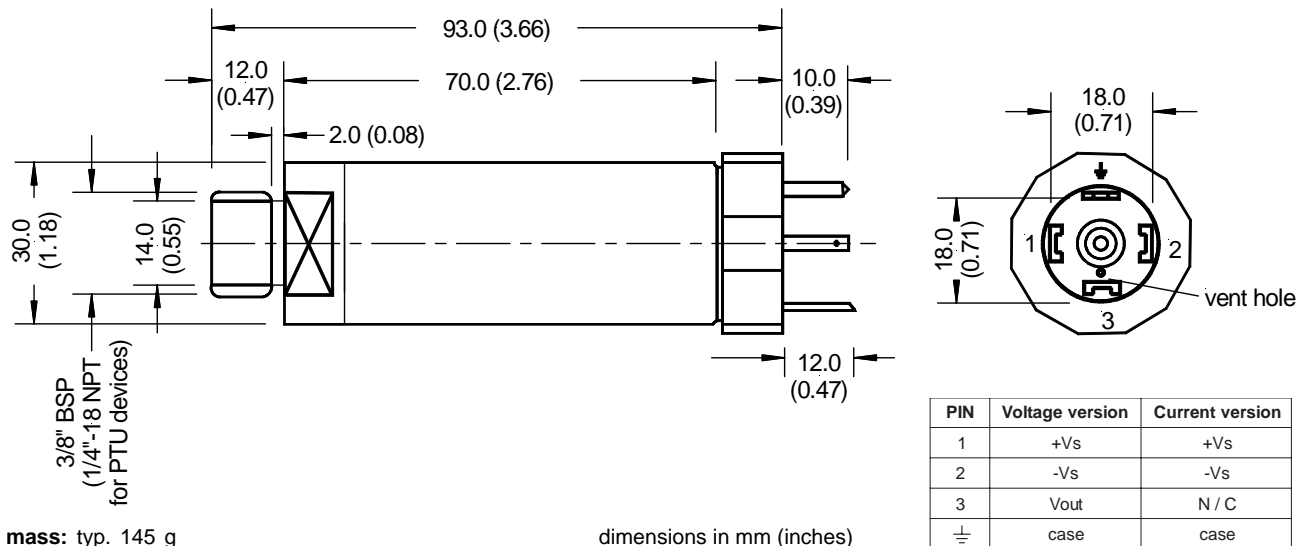
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ELECTROMAGNETIC CAPABILITY⁸

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

OUTLINE DRAWING



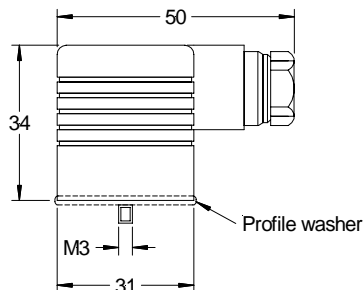
mass: typ. 145 g

dimensions in mm (inches)

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).



dimensions in mm

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

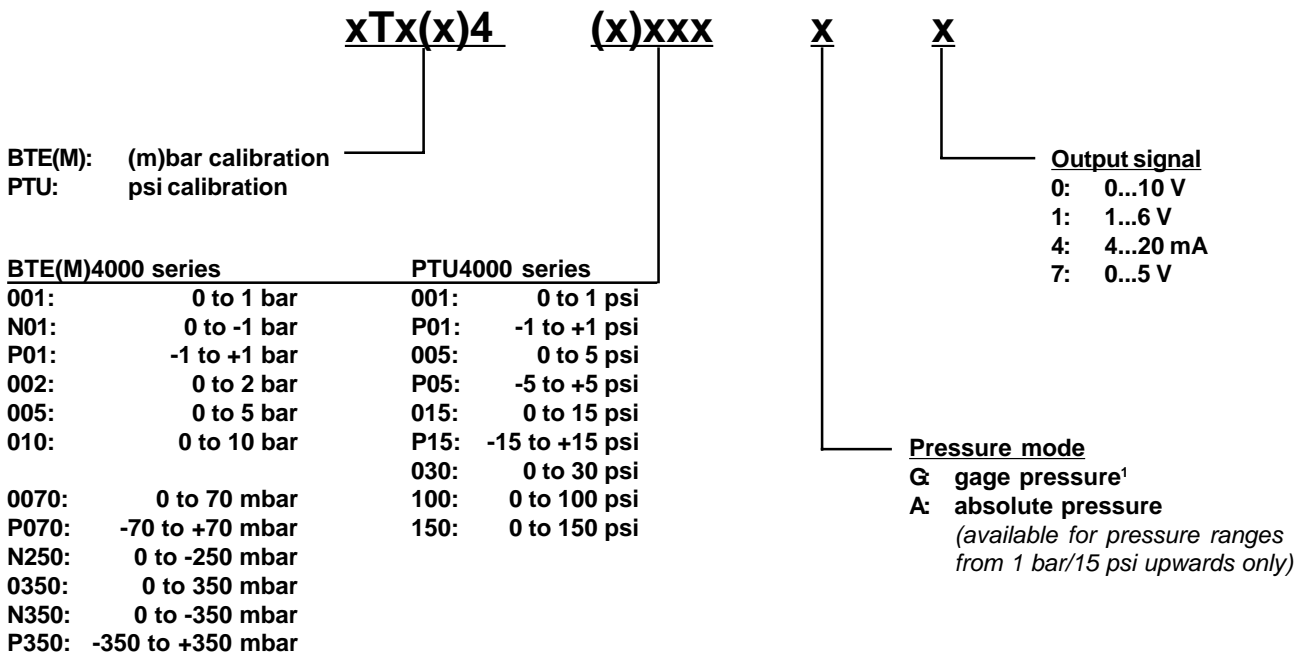
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Specification notes:

1. IP 65 protection is given with locked connector only. The package is an all-sealed housing. For proper function, the gage port is vented to the atmosphere through the connecting cable. 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. Full scale span is the algebraic difference between the positive full scale output and offset.
5. Thermal effects tested and guaranteed from 0 to 50°C relative to 25°C. All specifications shown are relative to 25°C.
6. Linearity refers to the Best Straight Line fit measured for offset pressure, full scale pressure and 1/2 full scale pressure.
7. Long term stability is the change in output after one year or 1 million pressure cycles.
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.

ORDERING INFORMATION



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

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