

BTE5000 / PTE5000 / PTU5000 Series

Precision differential pressure transmitters



FEATURES

- 25 mbar to 10 bar or 0.3 to 150 psi differential pressure
- High level output, 1...6 V or 4...20 mA (2-wire connection)¹²
- Precision temperature compensated and calibrated
- Rugged aluminium housing
- Female 1/8" BSP and 1/8" NPT fittings

MEDIA COMPATIBILITY

Pressure inlet:

Non-corrosive, non-ionic working fluids such as air, dry gases and the like

Housing:

Aluminium, protection class IP 67 (according to DIN EN 60529) respectively NEMA 6¹



SPECIFICATIONS^{10,11}

Maximum ratings

Supply voltage 12...32 V

Output current BTE(M)/PTE/PTU5...D1...

Source 20 mA

Sink 10 mA

Output current BTE(M)/PTE/PTU5...D4... 30 mA

Temperature limits

Storage -55 to 100°C

Operating -40 to 85°C

Compensated 0 to 70°C

Proof pressure²

BTEM5x025... / PTx5000.3... 0.35 bar / 5 psi

BTEM5x070..., BTEM5x350... / 1.4 bar / 20 psi

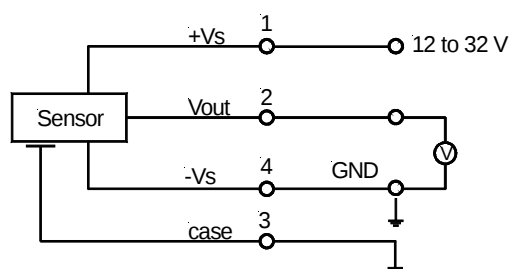
PTx5001..., PTx5005...

all others 2 x rated pressure

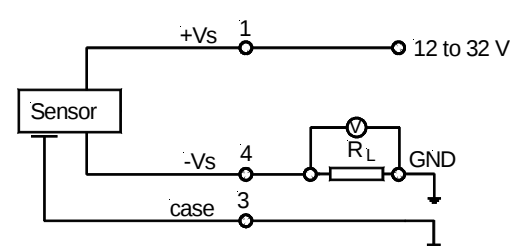
Pressure at any port³ 12 bar / 175 psi

ELECTRICAL CONNECTION

1...6 V output version



4...20 mA output version



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COMMON PERFORMANCE CHARACTERISTICS⁸

Characteristics			Min.	Typ.	Max.	Unit
Operating pressure	BTEM50025... BTEM5P025... BTEM50070... BTEM5P070... BTEM50350... BTEM5P350...		0 -25 0 -70 0 -350		25 25 70 70 350 350	mbar
	BTE5001... BTE5P01... BTE5002... BTE5005... BTE5010...		0 -1 0 0 0		1 1 2 5 10	bar
	PTU5000.3... PTx5001... PTx5P01... PTx5005... PTx5P05... PTx5015... PTx5P15... PTx5030... PTx5100... PTx5150...		0 0 -1 0 -5 0 -15 0 0 0		0.3 1 1 5 5 15 15 30 100 150	psid
Thermal effects (0 to 70°C) ⁶	Offset	all ≤ 70 mbar / 1 psid devices all 350 mbar / 5 psid devices all others		±0.025 ±0.008 ±0.005	±0.125 ±0.040 ±0.025	%FSO/°C
	Span			±0.001	±0.045	
Non-linearity and hysteresis ⁴				±0.2	±1	%FSO
Long term stability ⁵				±0.2		
Output noise (0 ≤ f ≤ 1 kHz)				0.04		
Response time (10 to 90 %)				1		ms

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PERFORMANCE CHARACTERISTICS⁸

1...6 V output versions (unless otherwise noted $V_S = 15\text{ V}$, $t_{\text{amb}} = 25^\circ\text{C}$, $R_L > 100\text{ k}\Omega$, com. mode pressure = 0)

Characteristics		Min.	Typ.	Max.	Unit
Zero pressure offset	BTE(M)5P... / PTx5P... all others	3.4 0.9	3.5 1.0	3.6 1.1	V
Full scale span ⁷	BTE(M)5P... / PTx5P... all others	2.4 4.9	2.5 5.0	2.6 5.1	
Full scale output			6.0		
Power supply rejection	Offset Span		0.05 0.03		%FSO/V
Output impedance				50	Ω
Power consumption			60		mW

4...20 mA output versions (unless otherwise noted $V_S = 15\text{ V}$, $t_{\text{amb}} = 25^\circ\text{C}$, $R_L = 100\text{ }\Omega$, com. mode pressure = 0)

Characteristics		Min.	Typ.	Max.	Unit
Zero pressure offset	BTE(M)5P... / PTx5P... all others	11.9 3.9	12.0 4.0	12.1 4.1	mA
Full scale span ⁷	BTE(M)5P... / PTx5P... all others	7.9 15.9	8.0 16.0	8.1 16.1	
Full scale output			20.0		
Power supply rejection	Offset Span		0.05 0.03		%FSO/V
Output impedance				0.1	Ω
Power consumption ($I_L = 20\text{ mA}$)			260		mW

Specification notes:

1. IP 67 protection for BTE(M)5...A / PTx5...A is given with locked connector only.
2. Proof pressure is the maximum pressure which may be applied without causing damage to the sensing element.
3. This is the highest pressure which can be applied to any port at any time. At the same time the differential pressure between the ports H and L must not exceed the maximum proof pressure.
4. Non-linearity refers to the **Best Straight Line** fit measured for offset, full scale span and 1/2 full scale span.
5. Long term stability is the change in output after one year or 1 million pressure cycles.
6. Thermal effects tested and guaranteed from 0 - 70 °C relative to 25°. All specifications shown are relative to 25°C.
7. Full scale span is the algebraic difference between the positive full scale output and zero pressure offset.
8. Higher pressure applied to port H.
9. Test are in accordance with EN61000-6-2, April 1999.
10. CE-labelling is in accordance with 89/336/EEC.
11. The pressure transmitters must not be used as safety accessories according to article 1, 2.1.3 of the directive 97/23/EC.
12. 0...10 V square rooting output signal on special request.

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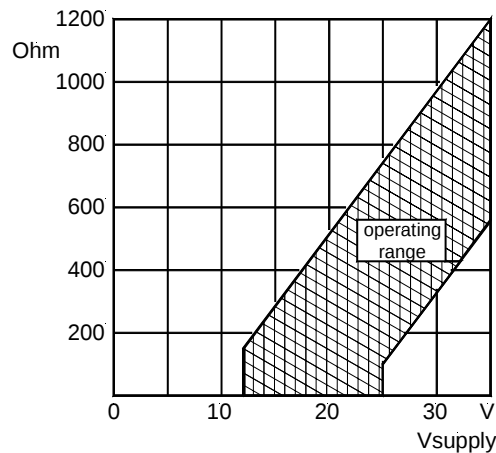
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ELECTROMAGNETIC CAPABILITY⁹

	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

LOAD LIMITATION

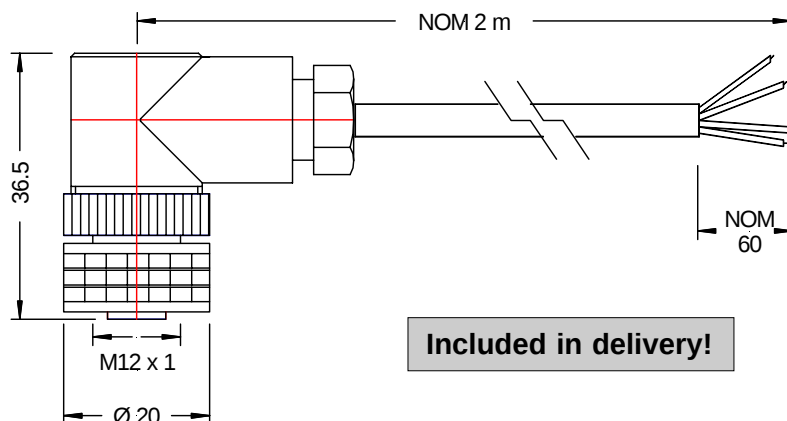
4...20 mA output versions



RECOMMENDED CABLE/CONNECTOR ACCESSORY

for connector version

Order number **ZK000101**, other cable length on special request



PIN CONNECTION

Pin	Flying lead end
1	brown
2	green
3	white + shield
4	yellow

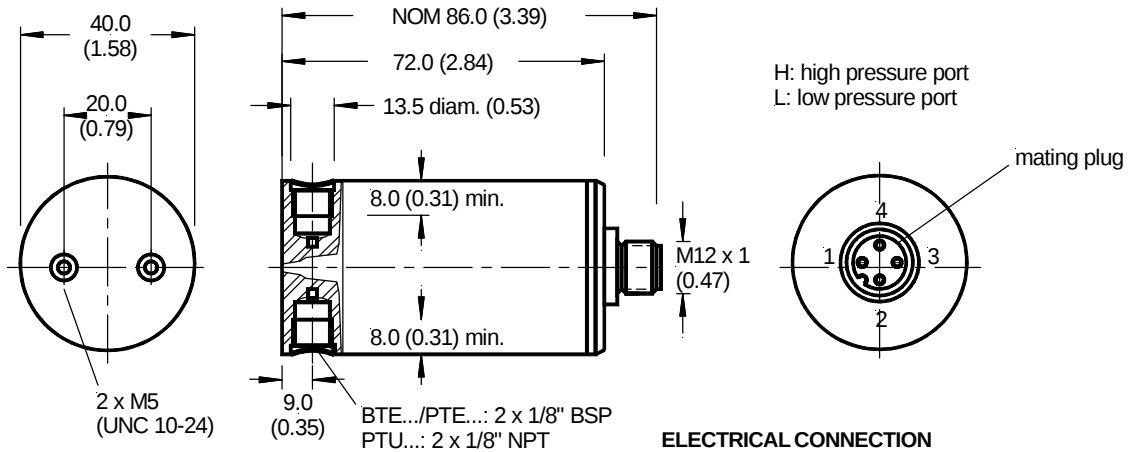
Included in delivery!

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OUTLINE DRAWING

Connector version



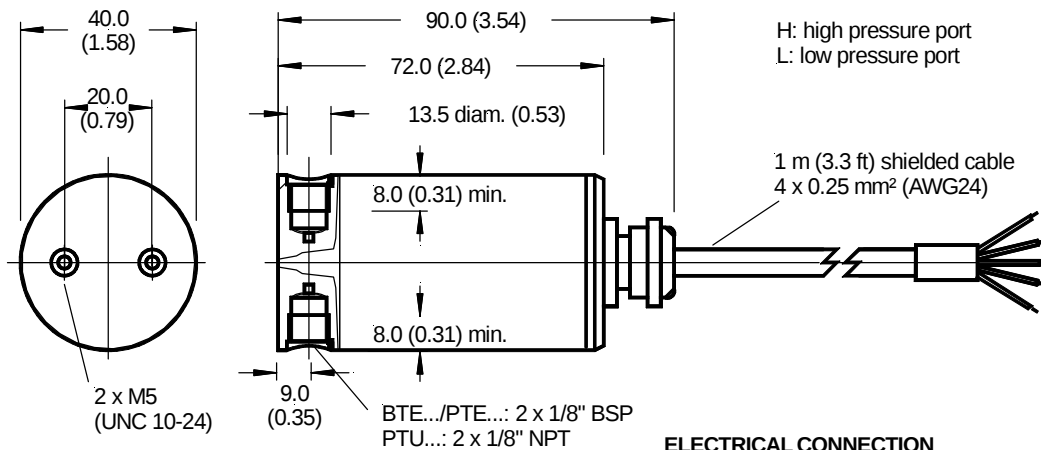
mass: typ. 170 g

ELECTRICAL CONNECTION

Pin	Connection	
	1 - 6 V output	4 - 20 mA output
1	+Vs	+Vs
2	Vout	NC
3	case	case
4	-Vs	-Vs

dimensions in mm
(inches)

Cable version



mass: typ. 220 g

ELECTRICAL CONNECTION

	Connection	
	1 - 6 V output	4 - 20 mA output
bare	case/shield	case/shield
brown	+Vs	+Vs
white	NC	NC
green	Vout	NC
yellow	-Vs	-Vs

dimensions in mm
(inches)

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ORDERING INFORMATION

Operating pressure	Fitting	Order number			
		1...6 V output		4...20 mA output	
		Connector version	Cable version	Connector version	Cable version
0 to 25 mbar	1/8" BSP	BTEM50025D1A	BTEM50025D1C	BTEM50025D4A	BTEM50025D4C
0 to ± 25 mbar		BTEM5P025D1A	BTEM5P025D1C	BTEM5P025D4A	BTEM5P025D4C
0 to 70 mbar		BTEM50070D1A	BTEM50070D1C	BTEM50070D4A	BTEM50070D4C
0 to ± 70 mbar		BTEM5P070D1A	BTEM5P070D1C	BTEM5P070D4A	BTEM5P070D4C
0 to 350 mbar		BTEM50350D1A	BTEM50350D1C	BTEM50350D4A	BTEM50350D4C
0 to ± 350 mbar		BTEM5P350D1A	BTEM5P350D1C	BTEM5P350D4A	BTEM5P350D4C
0 to 1 bar		BTE5001D1A	BTE5001D1C	BTE5001D4A	BTE5001D4C
0 to ± 1 bar		BTE5P01D1A	BTE5P01D1C	BTE5P01D4A	BTE5P01D4C
0 to 2 bar		BTE5002D1A	BTE5002D1C	BTE5002D4A	BTE5002D4C
0 to 5 bar		BTE5005D1A	BTE5005D1C	BTE5005D4A	BTE5005D4C
0 to 10 bar		BTE5010D1A	BTE5010D1C	BTE5010D4A	BTE5010D4C
0 to 0.3 psi		PTE5000.3D1A	PTE5000.3D1C	PTE5000.3D4A	PTE5000.3D4C
0 to 1 psi		PTE5001D1A	PTE5001D1C	PTE5001D4A	PTE5001D4C
0 to ± 1 psi		PTE5P01D1A	PTE5P01D1C	PTE5P01D4A	PTE5P01D4C
0 to 5 psi		PTE5005D1A	PTE5005D1C	PTE5005D4A	PTE5005D4C
0 to ± 5 psi		PTE5P05D1A	PTE5P05D1C	PTE5P05D4A	PTE5P05D4C
0 to 15 psi		PTE5015D1A	PTE5015D1C	PTE5015D4A	PTE5015D4C
0 to ± 15 psi		PTE5P15D1A	PTE5P15D1C	PTE5P15D4A	PTE5P15D4C
0 to 30 psi		PTE5030D1A	PTE5030D1C	PTE5030D4A	PTE5030D4C
0 to 100 psi		PTE5100D1A	PTE5100D1C	PTE5100D4A	PTE5100D4C
0 to 150 psi		PTE5150D1A	PTE5150D1C	PTE5150D4A	PTE5150D4C
0 to 0.3 psi	1/8" NPT	PTU5000.3D1A	PTU5000.3D1C	PTU5000.3D4A	PTU5000.3D4C
0 to 1 psi		PTU5001D1A	PTU5001D1C	PTU5001D4A	PTU5001D4C
0 to ± 1 psi		PTU5P01D1A	PTU5P01D1C	PTU5P01D4A	PTU5P01D4C
0 to 5 psi		PTU5005D1A	PTU5005D1C	PTU5005D4A	PTU5005D4C
0 to ± 5 psi		PTU5P05D1A	PTU5P05D1C	PTU5P05D4A	PTU5P05D4C
0 to 15 psi		PTU5015D1A	PTU5015D1C	PTU5015D4A	PTU5015D4C
0 to ± 15 psi		PTU5P15D1A	PTU5P15D1C	PTU5P15D4A	PTU5P15D4C
0 to 30 psi		PTU5030D1A	PTU5030D1C	PTU5030D4A	PTU5030D4C
0 to 100 psi		PTU5100D1A	PTU5100D1C	PTU5100D4A	PTU5100D4C
0 to 150 psi		PTU5150D1A	PTU5150D1C	PTU5150D4A	PTU5150D4C

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

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