

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

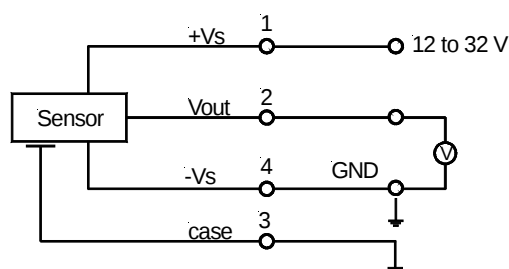
PTx5001..., PTx5005...

all others 2 x rated pressure

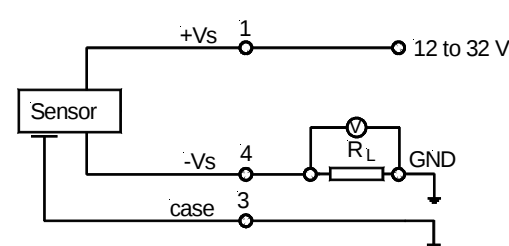
Pressure at any port³ 12 bar / 175 psi

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:

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

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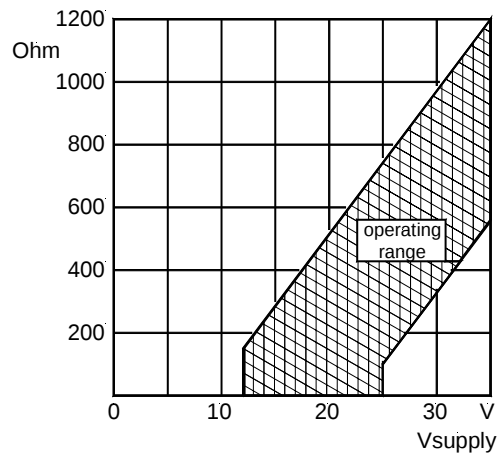
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ELECTROMAGNETIC CAPABILITY⁹

	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

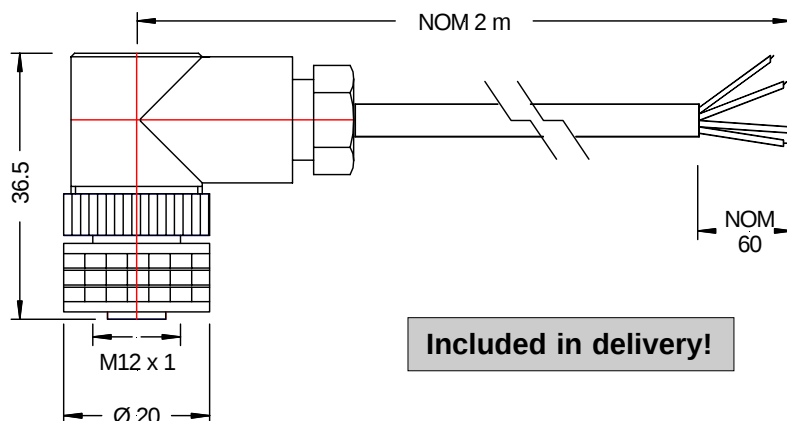
4...20 mA output versions



RECOMMENDED CABLE/CONNECTOR ACCESSORY

for connector version

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



Included in delivery!

PIN CONNECTION

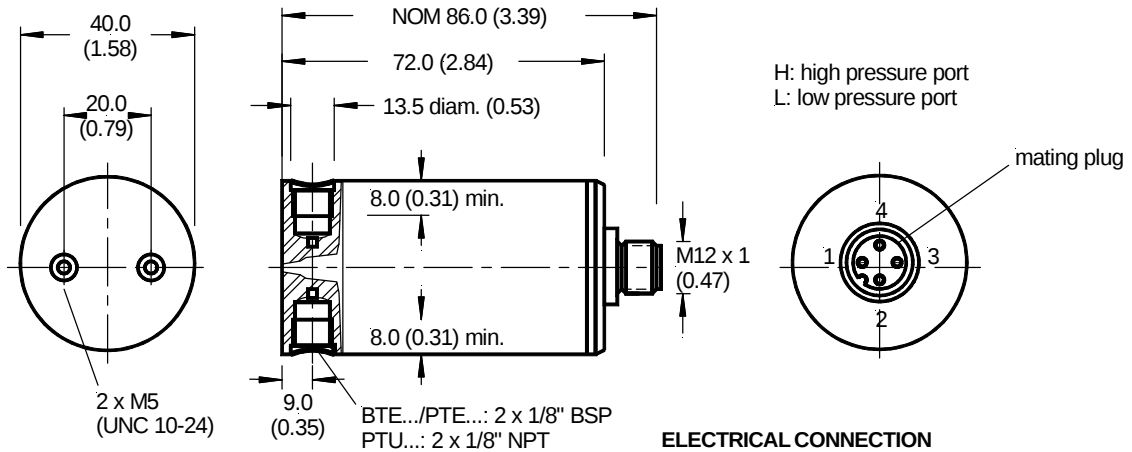
Pin	Flying lead end
1	brown
2	green
3	white + shield
4	yellow

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OUTLINE DRAWING

Connector version



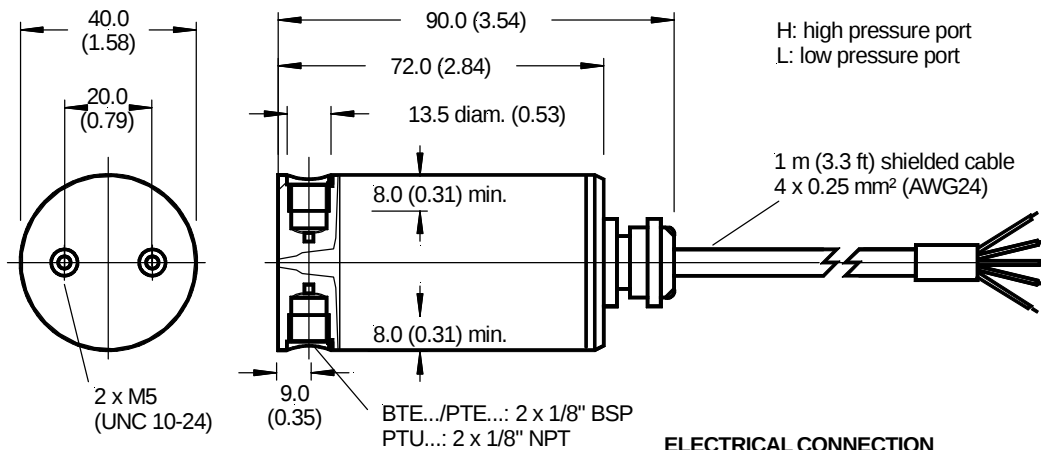
mass: typ. 170 g

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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