

# BTE5000 / PTE5000 / PTU5000 Series

## Precision differential pressure transmitters

### FEATURES

- 25 mbar to 10 bar, 0.3 to 150 psi differential pressure
- 1...6 V or 4...20 mA output<sup>12</sup>
- 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 media such as air, dry gases and the like

Housing:  
Aluminium, protection class IP 67 (according to DIN EN 60529, NEMA 6)<sup>1</sup>

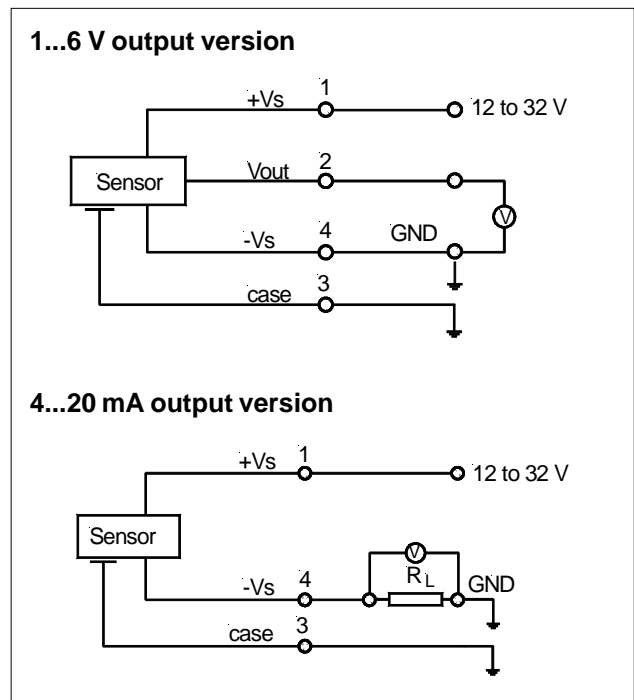


### SPECIFICATIONS<sup>10,11</sup>

#### 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	-40...85 °C
Operating	-25...85 °C
Compensated	0...70 °C
Proof pressure <sup>2</sup>	
devices up to 70 mbar/1 psi	350 mbar / 5 psi
10 bar/150 devices	14 bar / 200 psi
all others	2 x rated pressure
Pressure at any port <sup>3</sup>	
BTEM5x025... / PTx5000.3...	3.5 bar / 50 psi
all others	12 bar / 175 psi

### ELECTRICAL CONNECTION



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### COMMON PERFORMANCE CHARACTERISTICS<sup>8</sup>

Characteristics		Min.	Typ.	Max.	Unit
Thermal effects (0...70°C) <sup>6</sup>	Offset all ≤ 70 mbar / 1 psid devices all 350 mbar / 5 psid devices all others		±0.025 ±0.008 ±0.005 ±0.010	±0.12 ±0.04 ±0.02 ±0.04	%FSO/°C
	Span				
Non-linearity and hysteresis <sup>4</sup>			±0.2	±0.5	%FSO
Long term stability <sup>5</sup>			±0.2		
Output noise (0 ≤ f ≤ 1 kHz)			0.04		
Response time (10 to 90 %)			1		ms

### INDIVIDUAL PERFORMANCE CHARACTERISTICS<sup>8</sup>

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

Characteristics		Min.	Typ.	Max.	Unit
Zero pressure offset	BTE(M)5P... / PTx5P...	3.45	3.5	3.55	V
	all others	0.95	1.0	1.05	
Full scale span <sup>7</sup>	BTE(M)5P... / PTx5P...	2.45	2.5	2.55	
	all others	4.95	5.0	5.05	
Full scale output			6.0		
Power supply rejection	Offset		0.05		%FSO/V
	Span		0.03		
Output impedance				50	Ω
Power consumption			60		mW

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

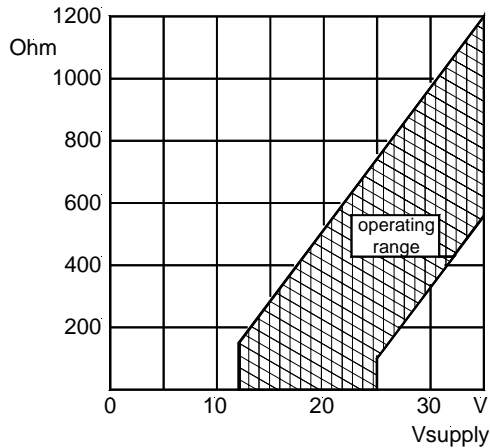
Characteristics		Min.	Typ.	Max.	Unit
Zero pressure offset	BTE(M)5P... / PTx5P...	11.9	12.0	12.1	mA
	all others	3.9	4.0	4.1	
Full scale span <sup>7</sup>	BTE(M)5P... / PTx5P...	7.9	8.0	8.1	
	all others	15.9	16.0	16.1	
Full scale output			20.0		
Power supply rejection	Offset		0.05		%FSO/V
	Span		0.03	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

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### LOAD LIMITATION

4...20 mA output versions



### ELECTROMAGNETIC CAPABILITY<sup>9</sup>

	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

#### Specification notes:

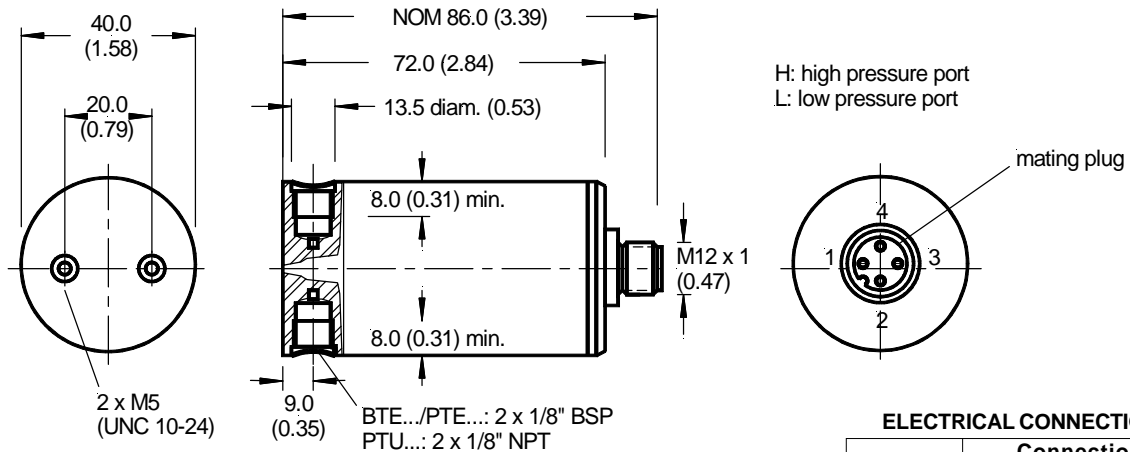
1. IP 67 protection for BTE(M)5...A / PTx5...A is given with locked connector only.
2. Proof pressure is the maximum pressure which may be applied without causing damage to the sensing element.
3. This is the highest pressure which can be applied to any port at any time. At the same time the differential 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 EN 61000-6-2.
10. CE-labelling is in accordance with 2004/108/EC.
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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### OUTLINE DRAWING

#### Connector version

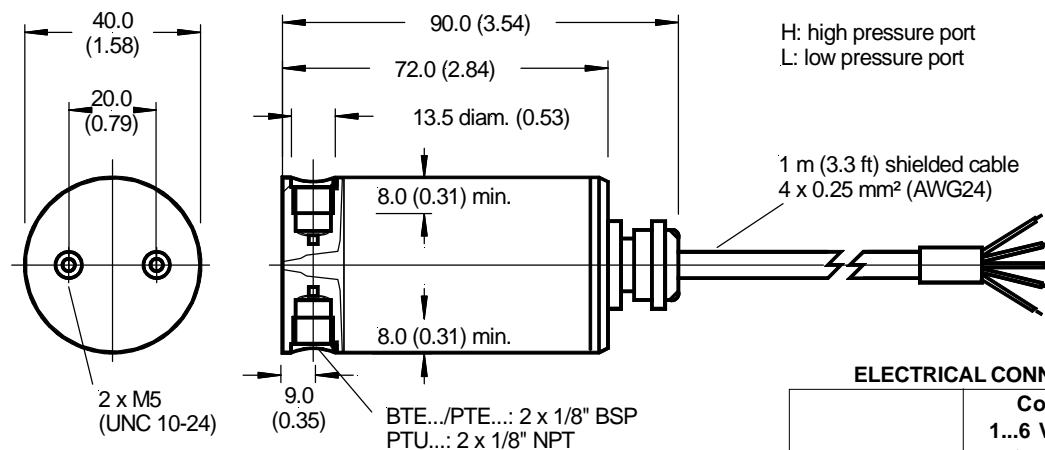


mass: typ. 170 g  
dimensions in mm (inches)

#### ELECTRICAL CONNECTION

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

#### Cable version



mass: typ. 220 g  
dimensions in mm (inches)

#### ELECTRICAL CONNECTION

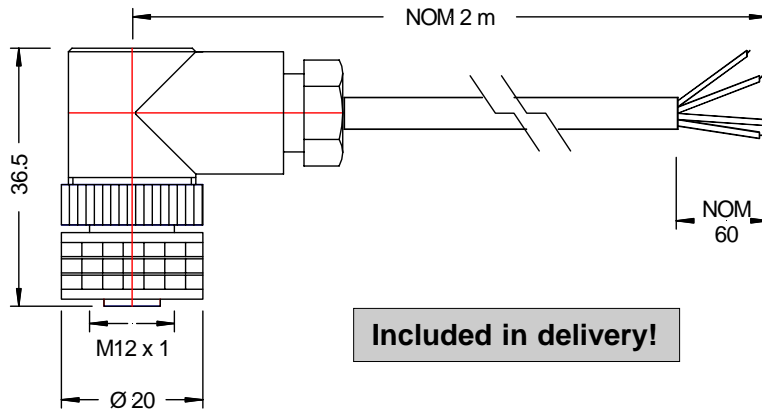
	Connection	
	1...6 V output	4...20 mA output
bare	case/shield	case/shield
brown	+Vs	+Vs
white or orange	NC	NC
green	Vout	NC
yellow	-Vs	-Vs

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### RECOMMENDED CABLE/CONNECTOR ACCESSORY

for connector version (Order number ZK000104-2, other cable lengths on special request)



#### PIN CONNECTION

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

dimensions in mm

### ORDERING INFORMATION

Series/Pressure range		Pressure mode		Output signal		Electrical connection	
<b>BTEM50025</b>	0...25 mbar	<b>D</b>	Differential	<b>1</b>	1...6 V	<b>A</b>	Connector version
<b>BTEM5P025</b>	-25...+25 mbar			<b>4</b>	4...20 mA	<b>C</b>	Cable version
<b>BTEM50070</b>	0...70 mbar						
<b>BTEM5P070</b>	-70...+70 mbar						
<b>BTEM50350</b>	0...350 mbar						
<b>BTEM5P350</b>	-350...+350 mbar						
<b>BTE5001</b>	0...1 bar						
<b>BTE5P01</b>	-1...+1 bar						
<b>BTE5002</b>	0...2 bar						
<b>BTE5005</b>	0...5 bar						
<b>BTE5010</b>	0...10 bar						
<b>PT(E/U)5000.3</b>	0...0.3 psi						
<b>PT(E/U)5001</b>	0...1 psi						
<b>PT(E/U)5P01</b>	-1...+1 psi						
<b>PT(E/U)5005</b>	0...5 psi						
<b>PT(E/U)5P05</b>	-5...+5 psi						
<b>PT(E/U)5015</b>	0...15 psi						
<b>PT(E/U)5P15</b>	-15...+15 psi						
<b>PT(E/U)5030</b>	0...30 psi						
<b>PT(E/U)5100</b>	0...100 psi						
<b>PT(E/U)5150</b>	0...150 psi						

Example: BTE5001D4A

Devices highlighted in grey are preferred items.

For all other devices MOQ may apply.

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

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