

# BTE5000D.../PTE5000D - Series

## Precision differential pressure transmitters

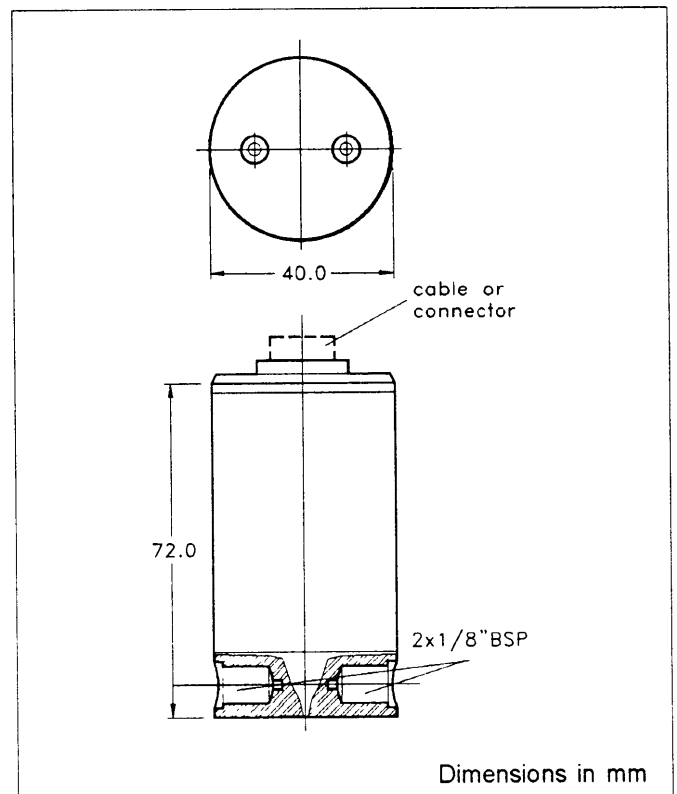
### FEATURES

- $\pm 70$  mbar to 10 bar or  $\pm 1$  psi to 150 psi differential pressure
- High level output  
1 ... 6 V or  
4 ... 20 mA (2-wire connection)
- Precision temperature compensated and calibrated
- Rugged aluminium housing
- Female 1/8" BSP fittings

### SERVICE

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

Housing: Protection class IP67 according to DIN40050<sup>1</sup>



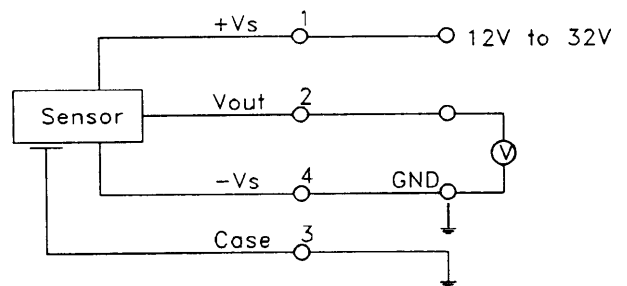
### SPECIFICATIONS

#### Maximum ratings

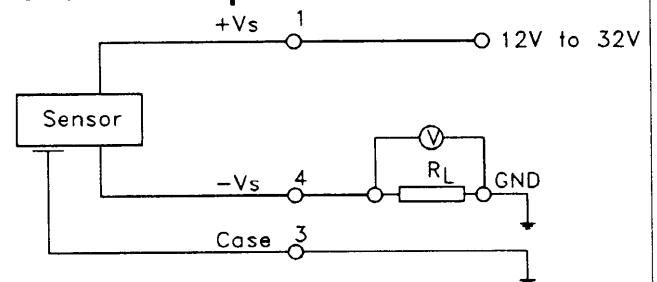
Supply voltage	12 V to 32 V
Output current BTE/PTE5000D1	
Source	20 mA
Sink	10 mA
Output current BTE/PTE5000D4	30 mA
Temperature limits	
Operating	-40°C to 85°C
Storage	-55°C to 100°C
Compensated	0 to 70°C
Proof pressure <sup>2</sup>	
all BTEM5...	1.4 bar
all others	2 x rated pressure
Pressure at any port <sup>3</sup>	12 bar / 175 psi

### ELECTRICAL CONNECTION

#### 1 - 6 V output version



#### 4 - 20 mA output version



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### COMMON PERFORMANCE CHARACTERISTICS

Characteristics	Min.	Typ.	Min.	Unit	
Operating pressure	BTEM50070D...	0	70	mbar	
	BTEM5P070D...	-70	70		
	BTEM50350D...	0	350		
	BTEM5P350D...	-350	350		
Operating pressure	BTE5001D...	0	1	bar	
	BTE5P01D...	-1	1		
	BTE5002D...	0	2		
	BTE5005D...	0	5		
	BTE5010D...	0	10		
	PTE5001D...	0	1		psid
	PTE5P01D...	-1	1		
PTE5005D...	0	5			
PTE5P05D...	-5	5			
PTE5015D...	0	15			
PTE5P15D...	-15	15			
PTE5030D...	0	30			
PTE5100D...	0	100			
PTE5150D...	0	150			
Non-linearity and hysteresis <sup>4</sup>		±0.2	±1	%FSO	
Output noise (0 ≤ f ≤ 1 kHz)		0.04			
Long term stability <sup>5</sup>		±0.2			
Thermal effects (0-70°C) <sup>6</sup>				%FSO/°C	
Offset	all 70 mbar / 1 psid devices	±0.025	±0.125		
	all 350mbar / 5 psid devices	±0.008	±0.040		
	all others	±0.005	±0.025		
Span		±0.001	±0.045		
Response time (10% to 90%)		0.1		ms	

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

#### 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.	Min.	Unit
Zero pressure offset				V
BTEM5.../BTE5.../PTE5... BTEM5P../BTE5P../PTE5P..	0.9 3.4	1.0 3.5	1.1 3.6	
Full scale span <sup>7</sup>				V
BTEM5.../BTE5.../PTE5... BTEM5P../BTE5P../PTE5P..	4.9 <sup>+</sup> 2.4	5.0 2.5	5.1 2.6	
Full scale output		6.0		
Output impedance			50	$\Omega$
Power supply rejection				%FSO/V
Offset Span		0.005 0.003		
Power consumption		60		mW

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

#### 4 - 20 mA Output versions

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

Characteristics	Min.	Typ.	Min.	Unit
Zero pressure offset				mA
BTEM5.../BTE5.../PTE5... BTEM5P../BTE5P../PTE5P..	3.9 11.9	4.0 12.0	4.1 12.1	
Full scale span <sup>7</sup>				mA
BTEM5.../BTE5.../PTE5... BTEM5P../BTE5P../PTE5P..	15.9 7.9	16.0 8.0	16.1 8.1	
Full scale output		20.0		
Output impedance			0.1	$\Omega$
Power supply rejection				%FSO/V
Offset Span		0.005 0.003		
Power consumption ( $I_L = 20\text{ mA}$ )		260		mW

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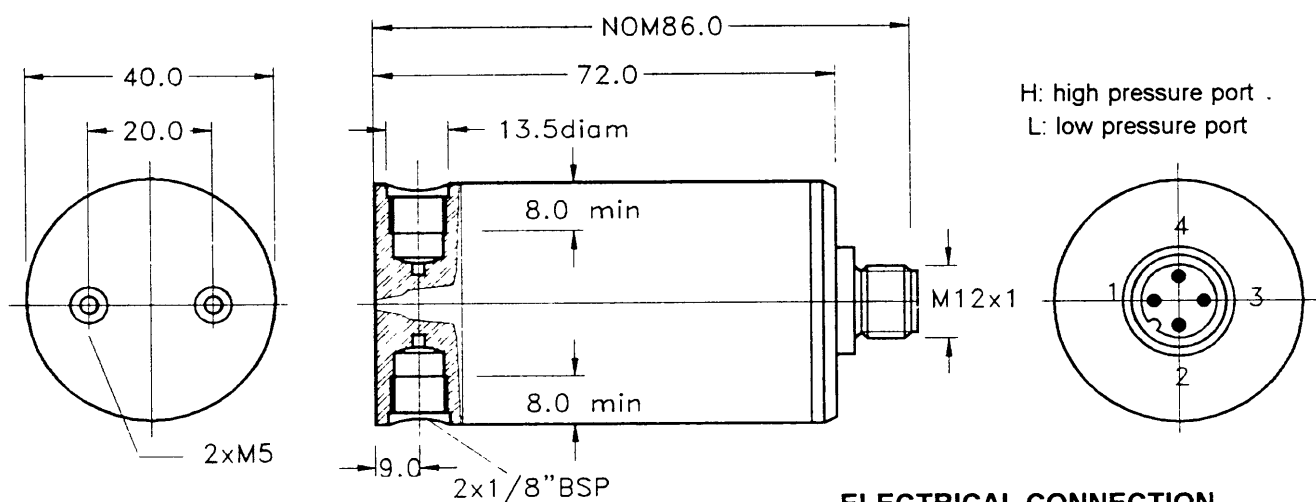
## Precision differential pressure transmitters

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

	Test conditions	Interference
Radiated, radio frequency electromagnetic field immunity (RFI)	IEC801-3: Grade 3 10V/m, 1MHz to 1000 MHz unmodulated and 80% modulated	<1% FSO
Electrical fast transient/burst immunity (EFT)	IEC 801-4: Grade 3 ±2 kV	<1% FSO
Electrostatic discharge immunity (ESD)	IEC 801-2: Grade 3 ±8 kV, contact discharge	<1% FSO

### OUTLINE DRAWING

#### Connector version BTE5000D...A / PTE5000D...A



Mass: typ. 170g

Dimensions in mm

#### ELECTRICAL CONNECTION

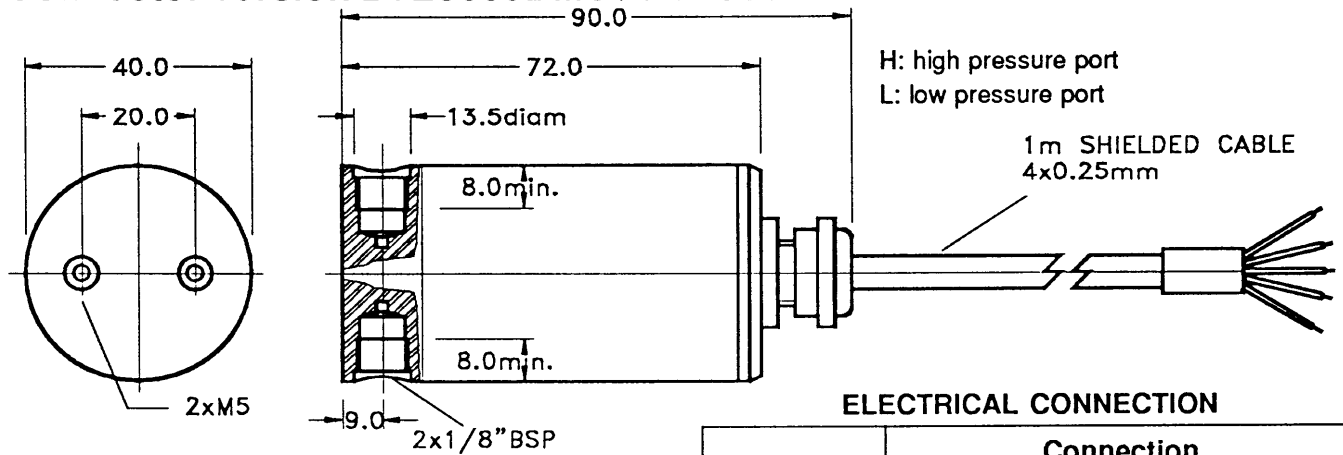
Pin	Connection	
	1 - 6 V output	4 - 20 mA output
1	+Vs	+Vs
2	Vout	NC
3	case/shield	case/shield
4	-Vs	-Vs

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## Precision differential pressure transmitters

### OUTLINE DRAWING (cont.)

#### Connector version BTE5000D...C / PTE5000D...C



Mass: typ. 220g

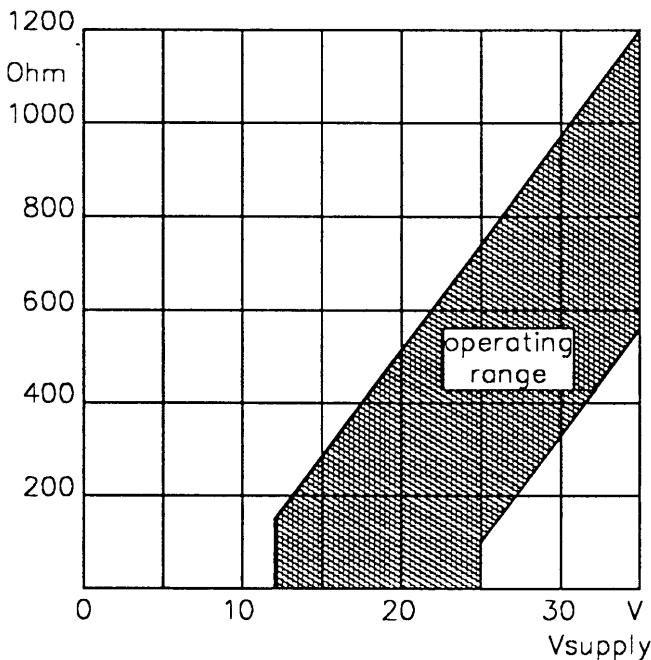
Dimensions in mm

#### ELECTRICAL CONNECTION

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

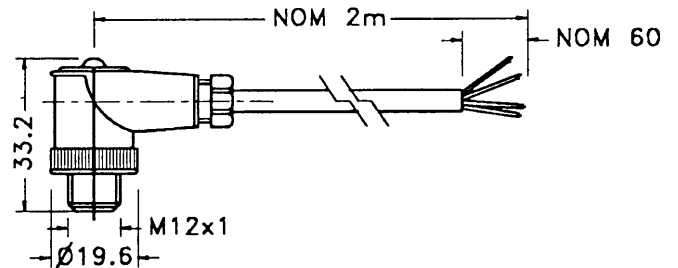
### LOAD LIMITATION

#### 4 - 20 mA output versions



### RECOMMENDED CABLE / CONNECTOR ACCESSORY FOR Connector version, BTE5...DA

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

# BTE5000D.../PTE5000D - Series

## Precision differential pressure transmitters

### SPECIFICATION NOTES:

1. IP67 protection for BTE5000A.../PTE5000A... 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 overpressure.
4. Non-linearity - the maximum deviation of measured output, at constant temperature (25°C), from "Best Straight Line" through three points (offset pressure, full scale pressure, one-half full scale pressure).

$$\%FS \text{ error} = \frac{V_{1/2 \text{ full scale}} - \left\{ \left( \frac{V_{\text{full scale}} - V_{\text{offset}}}{\text{full scale pressure}} \right) \times (1/2 \text{ full scale pressure}) + V_{\text{offset}} \right\}}{2(V_{\text{full scale}})} \times 100\%$$

(V = measured value for each device)

5. Long term stability over a one year period of offset and span.
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 EN50082-2, Jan. 93.

### ORDER INFORMATION

Operating pressure	Order number			
	1 - 6 V output		4 - 20 mA output	
	Connector version	Cable version	Connector version	Cable version
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 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