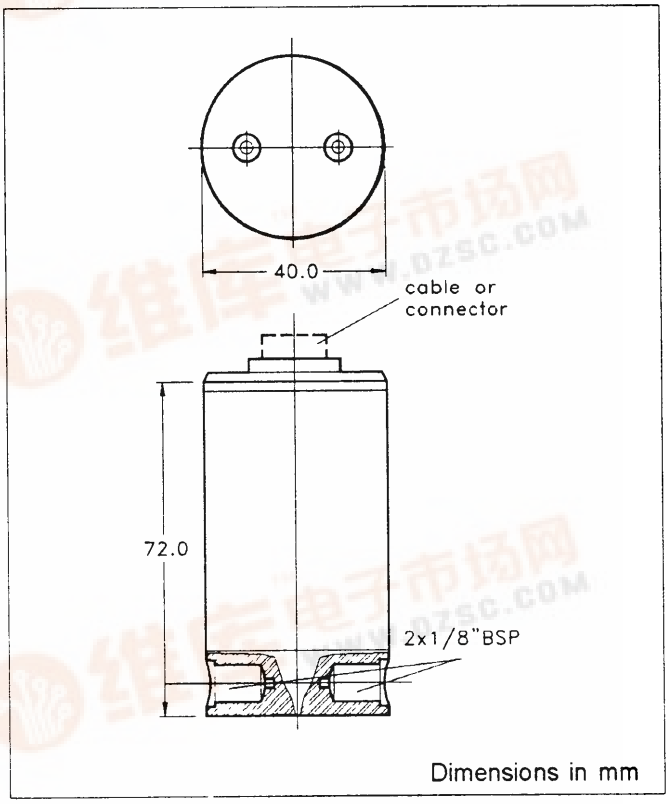
BTE5000D.../PTE5000D - Series

Precision differential pressure transmitters

FEATURES

- ±70 mbar to 10 bar or±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



Dimensions in mm

SERVICE

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

Housing: Protection class IP67 according to DIN40050[1]

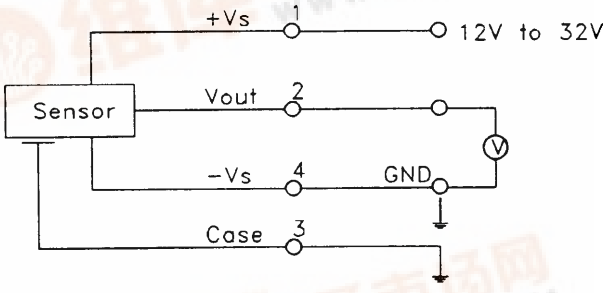
SPECIFICATIONS

Maximum ratings

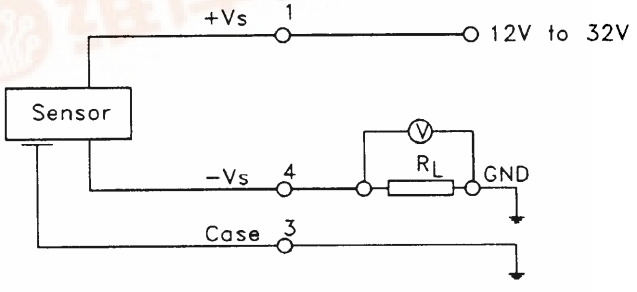
Supply voltage	12 V to 32 V
Output current BTE/PTE5000D1	
Source	20 mA
Sink	10 mA
Output current BTE/PTE5000D4	30 mA
Temperature limits	
Operating	-40°C to 85°C
Storage	-55°C to 100°C
Compensated	0 to 70°C
Proof pressure [2]	
all BTEM5...	1.4 bar
all others	2 x rated pressure
Pressure at any port[3]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

ELECTRICAL CONNECTION

1 - 6 V output version



4 - 20 mA output version



COMMON PERFORMANCE CHARACTERISTICS

Characteristics		Min.	Typ.	Min.	Unit
Operating pressure					
	BTEM50070D...	0		70	mbar
	BTEM5P070D...	-70		70	
	BTEM50350D...	0		350	
	BTEM5P350D...	-350		350	
	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[4]			±0.2	±1	%FSO
Output noise (0 ≤ f ≤ 1 kHz)			0.04		
Long term stability[5]			±0.2		
Thermal effects (0-70°C)[6]					%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

PERFORMANCE CHARACTERISTICS[8]
1 - 6 V output versions
(unless otherwise noted V_S = 15 V, t_{amb} = 25°C, R_L > 100 kΩ, com. mode pressure = 0)

Characteristics	Min.	Typ.	Min.	Unit
Zero pressure offset BTEM5.../BTE5.../PTE5... BTEM5P../BTE5P../PTE5P..	 0.9 3.4	 1.0 3.5	 1.1 3.6	
Full scale span[7] BTEM5.../BTE5.../PTE5... BTEM5P../BTE5P../PTE5P..	 4.9 2.4	 5.0 2.5	 5.1 2.6	V
Full scale output		6.0		
Output impedance			50	Ω
Power supply rejection Offset Span		 0.005 0.003		%FSO/V
Power consumption		60		mW

PERFORMANCE CHARACTERISTICS[8]
4 - 20 mA Output versions
(unless otherwise noted V_S = 15 V, t_{amb} = 25°C, R_L = 100 Ω, com. mode pressure = 0)

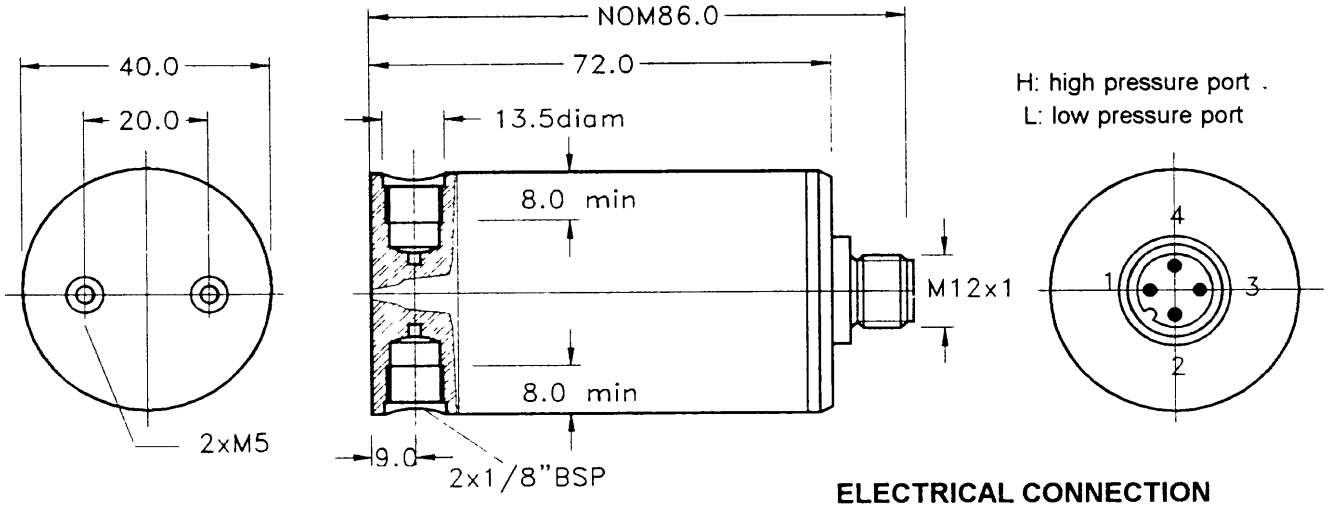
Characteristics	Min.	Typ.	Min.	Unit
Zero pressure offset BTEM5.../BTE5.../PTE5... BTEM5P../BTE5P../PTE5P..	 3.9 11.9	 4.0 12.0	 4.1 12.1	
Full scale span[7] BTEM5.../BTE5.../PTE5... BTEM5P../BTE5P../PTE5P..	 15.9 7.9	 16.0 8.0	 16.1 8.1	mA
Full scale output		20.0		
Output impedance			0.1	Ω
Power supply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

ELECTROMAGNETIC CAPABILITY[9]

	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

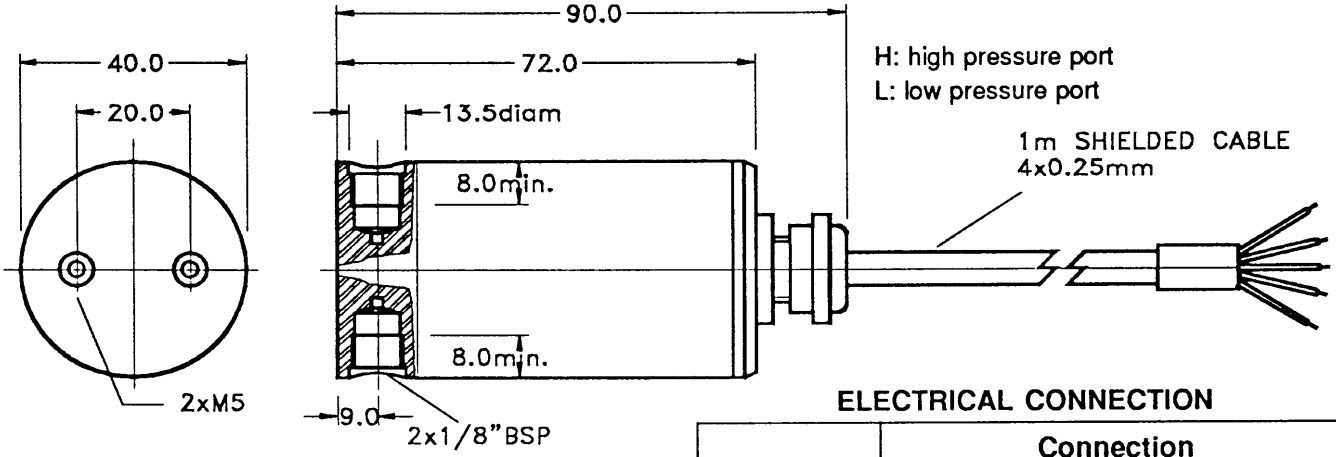
Dimensions in mm

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

OUTLINE DRAWING (cont.)

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



Mass: typ. 220g

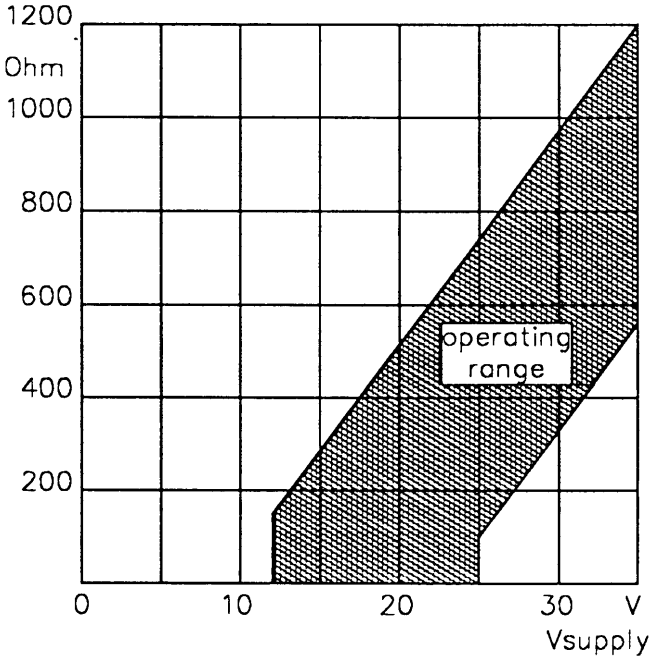
Dimensions in mm

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

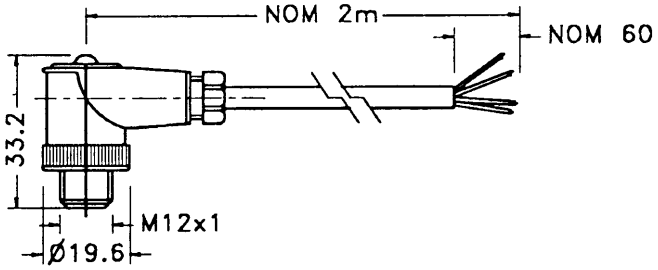
4 - 20 mA output versions



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

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SPECIFICATION NOTES:

1. IP67 protection for BTE5000**A**.../PTE5000**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 maxiumum overpressure.
4. Non-linearity - the maximum deviation of measured output, at constant temperature (25°C), from "**B**est **S**traight **L**ine" through three points (offset pressure, full scale pressure, one-half full scale pressure).

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

(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

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