

# Industrial Pressure Transducer

## BOT Series

### Features

- Heavy-duty, rugged construction with 316 and 17-4 stainless steel for superior corrosion resistance
- Up to 23X rating over-pressure protection to protect against pressure hammering and burst pressures
- Advanced digital electronics reduce the effects of EMI/EMC according to IEC 61000 standards and provide excellent longterm stability
- Thermally compensated sensors ensure high accuracy over wide temperature ranges to mitigate thermal errors on sensitive components
- Modular design platform to support fully customizable pressure ranges, mechanical or electrical connections, and other application-specific requirements

### Applications

- General industrial equipment
- Pumps and compressors
- Mobil hydraulic equipment
- Off-highway vehicles
- Integration equipment systems
- Medical gas systems
- Hydrogen systems
- Marine applications

### General Specifications

|                               |  |
|-------------------------------|--|
| Sensor element                | Ceramic sensor (-C)<br>Piezoresistive sensor (-P)<br>Welded stainless steel (-W)             |
| Supply                        | BT3: 7 to 33 VDC<br>BT4: 4.5 to 5.5 VDC ratiometric<br>BT5: 8 to 33 VDC<br>BT6: 12 to 33 VDC |
| Output                        | BT3: 1 to 5 VDC<br>BT4: 0.5 to 4.5 VDC ratiometric<br>BT5: 4 to 20 mA<br>BT6: 0 to 10 VDC    |
| Pressure Range                | 0 to 400 bar (-C Class)<br>0 to 600 bar (-P Class)<br>0 to 35 bar (-W Class)                 |
| Operating Temperature         | -40 to 100 °C (-40 to 212 °F)  |
| Compensated Temperature Range | -P, -W Class: -18 to 74 °C (0 to 165 °F)<br>-C Class: 25 to 85 °C (77 to 185 °F)             |
| Accuracy (BFSL@25°C)          | -P, -W Class: ± 0.25% FSO<br>-C Class: ± 0.5% FSO  |
| Proof Pressure                | 2X Pressure range  |
| Zero Offset                   | ± 1% FSO (P,W)<br>± 2% FSO (C)   |
| Span Offset                   | ± 1% FSO   |
| Lifecycle                     | 10M pressure cycles  |
| Long-Term Stability           | ± 0.2% FSO (per year, typical)   |
| Response Time                 | 1-5 ms Typical   |
| No-Load Supply Current        | BT3, BT4, BT6: max. 15 mA<br>BT5: max. 22 mA   |



Exactly What OEMs Want...Without the Wait

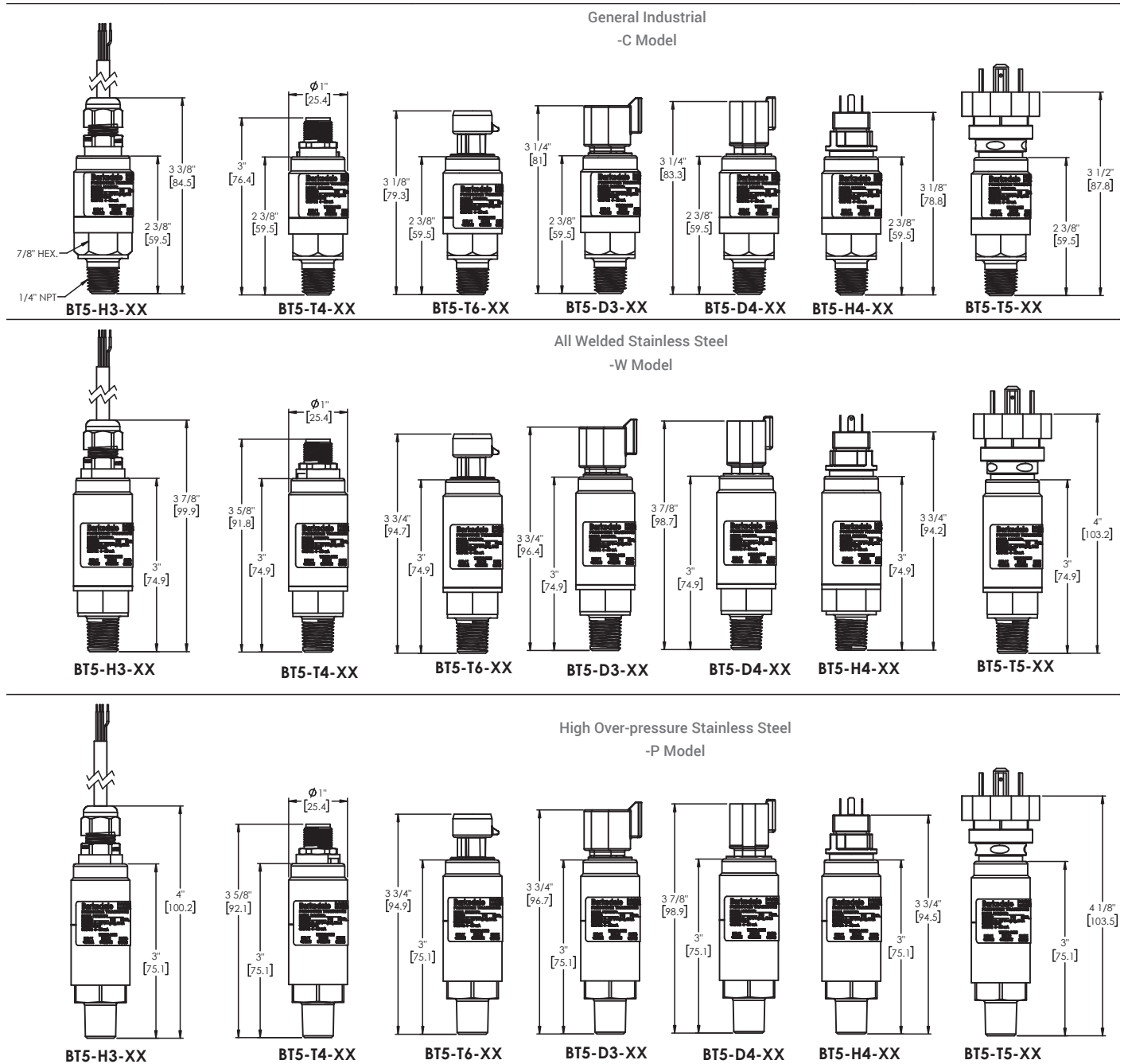
### Environmental Specifications

|   |  |
|---|--|
| Shock                                     | 50 g's, 11 ms, MIL-STD 202 Method 213, Cond. G   |
| Vibration                                 | 15 g's, 10 to 2,000 Hz, MIL-STD 202  |
| Storage Temperature                       | -40 to 100 °C (-40 to 212 °F)  |
| Media Temperature                         | -40 to 120 °C (-40 to 248 °F)  |
| Wetted Materials                          | 17-4 PH SS, NBR (-P Class)<br>316 SS, ceramic, FKM (-C Class)<br>316 SS all welded construction (-W Class)   |
| Ingress Protection                        | IP67 (-H3, -T4)<br>IP65 (-H4, -T5, -T6, -D3, -D4)  |
| Reverse Polarity and Miswiring Protection | Yes  |
| Enclosure                                 | NEMA 4X  |
| Approvals                                 | UL 508, UL 61010-1, DNV  |
| Compliance                                | REACH, RoHS, CE  |
| Weight                                    | 120 g (approximately)  |
| EMC/ESD Compliance                        | IEC 61000-4-2: Electrostatic discharge (ESD)<br>IEC 61000-4-3: Radiated immunity<br>IEC 61000-4-4: Burst (fast transient)<br>IEC 61000-4-5: Surge<br>IEC 61000-4-6: Conducted RF<br>IEC 61326-1: CISPR 16-1 and CISPR 16-2 |
| Media Compatibility                       | All common industrial and gases and fluids.<br>Refer to wetted materials section or consult factory for special media compatibility.   |

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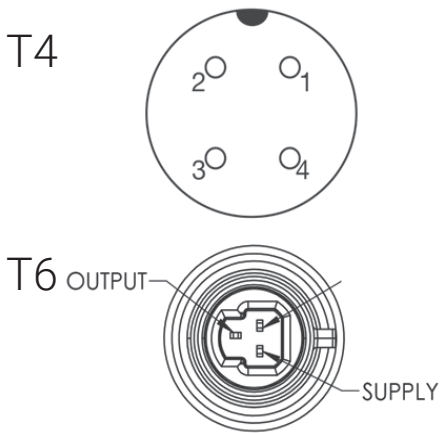
### Sizes and Dimensions



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## Pin Out Diagram



## Wiring Code

| Connection   | Voltage Output  |    |    |    |    |
|--------------|-----------------|----|----|----|----|
|              | H3              | H4 | T4 | T5 | T9 |
| + Excitation | Red (rot)       | 1  | 1  | 1  | 1  |
| Common       | Black (schwarz) | 2  | 2  | 2  | 3  |
| + Output     | White (weiß)    | 3  | 3  | 3  | 2  |
| Case Ground  | Drain           | 4  | 4  | 4  | 4  |

| Connection   | Current Output  |    |    |    |    |
|--------------|-----------------|----|----|----|----|
|              | H3              | H4 | T4 | T5 | T9 |
| + Excitation | Red (rot)       | 1  | 1  | 1  | 1  |
| - Excitation | Black (schwarz) | 2  | 2  | 2  | 3  |
| Not Used     | -               | -  | -  | -  | -  |
| Case Ground  | Drain           | 4  | 4  | 4  | 4  |

| Deutsch Connector PIN |                |         |              |                |         |
|-----------------------|----------------|---------|--------------|----------------|---------|
| Connection            | Voltage Output |         | Connection   | Current Output |         |
|                       | D3             | D4      |              | D3             | D4      |
| + Excitation          | PIN A/1        | PIN A/1 | + Excitation | PIN A/1        | PIN A/1 |
| - Excitation          | PIN B/2        | PIN B/2 | - Excitation | PIN B/2        | PIN B/2 |
| Voltage Output        | PIN C/3        | PIN C/3 | Earth Ground | PIN C/3        | PIN C/3 |
| Earth Ground          | N/A            | PIN D/4 | N/A          | N/A            | N/A     |

Order Code

| Base Model |                                       |
|------------|---------------------------------------|
| BT3        | 1-5 VDC analog output                 |
| BT4        | 0.5-4.5 VDC ratiometric analog output |
| BT5        | 4-20 mA analog output                 |
| BT6        | 0-10 VDC analog output                |

| Electrical Connection |   |
|-----------------------|---|
| -H3                   | PVC jacketed cable 24 AWG (1 meter)                           |
| -H4 <sup>1</sup>      | Mini-DIN 43650 Type "C"                                       |
| -T4 <sup>1</sup>      | M12 circular connector  |
| -T5 <sup>1</sup>      | Standard DIN 43650 Type "A"                                   |
| -T6 <sup>1</sup>      | Aptiv/Delphi Metripack 150 Series                             |
| -D3 <sup>1</sup>      | 3-Pin Deutsch Connector - DT04-3P                             |
| -D4 <sup>1</sup>      | 4-Pin Deutsch Connector - DT04-4P                             |
| -T9 <sup>1</sup>      | M12 circular connector pinning acc. to European ASAM standard |

| Pressure Range   | psi   | bar    | bar vacuum | Pressure Range     | psi      | bar   |
|------------------|-------|--------|------------|--------------------|----------|-------|
| -27 <sup>2</sup> | 0-1   | 0-0.1  |            | -10                | 0-1000   | 0-70  |
| -25 <sup>2</sup> | 0-5   | 0-0.35 |            | -11 <sup>3</sup>   | 0-1500   | 0-100 |
| -38 <sup>2</sup> | 0-7   | 0-0.5  |            | -12 <sup>3</sup>   | 0-2000   | 0-150 |
| -01 <sup>2</sup> | 0-15  | 0-1    |            | -47 <sup>3</sup>   | 0-2300   | 0-160 |
| -39              | 0-25  | 0-1.6  | -1-0.6     | -13 <sup>3</sup>   | 0-3000   | 0-200 |
| -21              | 0-30  | 0-2    | -1-1.0     | -48 <sup>3</sup>   | 0-3600   | 0-250 |
| -40              | 0-36  | 0-2.5  | -1-1.5     | -14 <sup>3</sup>   | 0-4000   | 0-300 |
| -03              | 0-50  | 0-3    | -1-2.0     | -15 <sup>3</sup>   | 0-5000   | 0-350 |
| -22              | 0-60  | 0-4    | -1-3.0     | -16 <sup>3</sup>   | 0-6000   | 0-400 |
| -41              | 0-87  | 0-6    | -1-5.0     | -17 <sup>3</sup>   | 0-7500   | 0-520 |
| -04              | 0-100 | 0-7    | -1-6.0     | -36 <sup>2,3</sup> | 0-9,000  | 0-600 |
| -05              | 0-150 | 0-10   | -1-9.0     | -18 <sup>2,3</sup> | 0-10,000 | 0-700 |
| -06              | 0-200 | 0-15   | -1-13.0    |                    |          |       |
| -42              | 0-230 | 0-16   | -1-15.0    |                    |          |       |
| -07              | 0-300 | 0-20   | -1-19.0    |                    |          |       |
| -43              | 0-360 | 0-25   | -1-24.0    |                    |          |       |
| -08              | 0-500 | 0-35   |            |                    |          |       |
| -44              | 0-580 | 0-40   |            |                    |          |       |
| -45              | 0-725 | 0-50   |            |                    |          |       |
| -46              | 0-870 | 0-60   |            |                    |          |       |

| Pressure Unit and Type |   |
|------------------------|---|
| G                      | PSI - Sealed gauge pressure (standard)                              |
| A <sup>4</sup>         | PSI - Absolute pressure (requires piezoresistive sensor / code P/W) |
| BG                     | Bar - Gauge pressure  |
| BA <sup>4</sup>        | Bar - Absolute pressure (requires piezoresistive sensor / code P/W) |
| V                      | PSI - Compound pressure range                                       |
| BV                     | Bar - Compound pressure range                                       |

| Process Connection |  |
|--------------------|--|
| Blank              | 1/4" NPT male  |
| -P1 <sup>6</sup>   | 7/16-20 UNF female (JIC 37°)   |
| -P3                | 7/16-20 UNF male (JIC 37°)   |
| -P9                | G1/4 male (gasket seal)  |
| -P2                | 7/16-20 SAE #4 ORB   |
| -P7                | 1/8" NPT male  |
| -P17 <sup>6</sup>  | 9/16 - 8 (SAE#6, O-Ring)   |
| -P11 <sup>6</sup>  | G1/2" male (gasket seal)   |
| -P16 <sup>2</sup>  | G1/2" flush diaphragm (available with H3, T4, T9 and T5 electrical connection) |
| -P18 <sup>6</sup>  | M12x1,5  |
| -P19 <sup>6</sup>  | G1/4 EN837   |
| -P20 <sup>6</sup>  | G1/2 EN837   |

| Sensor |   |
|--------|---|
| C      | ±0.5% FSO                                   |
| P      | ±0.25% FSO                                  |
| W      | ±0.25% FSO Available up to 500 psi / 35 bar |

| Options           |   |
|-------------------|---|
| Blank             | Standard  |
| -Z1               | Cleaned for oxygen service                      |
|                   | Custom Voltage Output                           |
| -01               | 1-6 VDC Output                                  |
| -02               | 0.5 to 4.5 VDC Output (Non-Ratiometric)         |
| -Z17 <sup>3</sup> | Larger pressure port orifice                    |
| -A                | +6 ft cable                                     |
| -B                | +10 ft cable                                    |
| -C                | +15 ft cable                                    |
| -SXXY             | Special pressure ranges; consult factory        |
| -Q1-Q999          | Custom and proprietary options; consult factory |
| -U <sup>5</sup>   | UL Approved                                     |
| -K                | DNV approval                                    |

Example  
BT5 -T5 -11 BG -P9 C

1) Mating connector not included. 2) Only available with -P model accuracy. Pressure ranges less than 1 bar available with -P model or -W model accuracy.  
 3) High pressure models includes built-in surge dampener with 0.03 in (0,76 mm) diameter orifice for pressure spike protections. Add -Z17 option for larger pressure orifice 0.125 in (3,1 mm) opening.  
 4) Only available on pressure ranges options from 15 psi (1 bar) to 300 psi (20 bar) pressure ports. Only available in combination with -P or -W model.  
 5) cULuS approval limited to 600 bar/ 9000 psi for -P; 200 bar / 3000 psi for -W, -C; 30 VDC excitation and 55°C max. ambient temperature.  
 6) On request