# Temperature Transmitter
## BT1



### Features

**Fast response:** Compact stainless-steel construction delivers fast-response temperature sensing and drift-resistant performance in aggressive media and high-cycle environments.

**Hazardous-location approvals:** Intrinsically safe CSA and ATEX options are available for hazardous locations.

### Applications

- Hydraulic and Pneumatic Systems
- Heavy Mobile Equipment
- OEM Factory Automation
- Wellhead Tubing, Casing & BOP
- Fracking Trucks
- Natural Gas Compressors & Turbines
- Mobile Hydraulics

### Performance Characteristics

| | |
|---|---|
| **Temperature Range** | From -65°F to 392°F (-55°C to + 200°C) |
| **Probe Length** | 1.0" to 4.0" (custom lengths available) |
| **Pressure Port Thread** | G1/4 Form E, 1/4" - 18NPT, 7/16"-20 UNF, 9/16"-18 UNF |
| **Electrical Connector** | EN 175 301-803-A /-C; M12x1 (S763-4);<br>Deutsch DT04-3P; Packard Metri-Pack; cable outlet |
| **Protection grade** | IP65/IP67 (depending on connector) |
| **Material of Construction** | 316 Stainless Steel |
| **Approvals** | **ATEX, IECEx:** II 2G Ex ia IIC T3 Gb, -40 °C ≤ Ta ≤ 85 °C<br>**CSA:** IS Class I, Division 1, Groups C and D, T3; Class I, Zone 1, AEx ia IIB T3 Gb; Ex ia IIB T3 Gb.<br>Rated for: Class 2258 04 Process Control Equipment (for hazardous Canadian locations) and Class 2258 84 Process Control Equipment (for hazardous locations, certified to U.S. standards). |
| **Accuracy (25°C)** | +/- 1 % FS |
| **Overall accuracy** | +/- 2 % FS |
| **Long-term stability** | ±0.1 % FS per year in referential condition |

| | |
|---|---|
| **Ambient temperature range** | - 40 °C ... 85 °C (-40 °F ... 185 °F) |
| **Storage temperature range** | - 40 °C ... 85 °C (- 40 °F ... 185 °F) |
| **Humidity** | 0 ... 100 % r. h., non-condensing |
| **Shock protection** | EN/IEC 60068-2-32 (1 m free fall) |
| **Vibration** | 20 g / 3 axes to EN/IEC 60068-2-6 |
| **EMI/RFI emission** | EN 61326-1:2013-section 7<br>EN 61326-2-3:2013 |
| **EMI/RFI susceptibility** | EN 61326-1:2013 - section 6<br>EN 61326-2-3:2013 |
| **Material of wetted parts** | Stainless steel |
| **Media temperature range** | - 40 °C ... 200 °C (-40 °F ... 392 °F) |
| **Measuring element** | 1 x PT100, class B |
| **Max. operating pressure** | 10,000 psi |

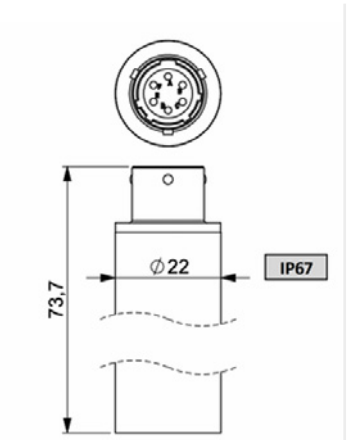
### Electrical Data

| **Certifications** | **CSA/ATEX (Current Output)** | **CSA (Voltage Output)** | **CSA (Ratiometric Output)** |
|---|---|---|---|
| **Output signal** | 4 ... 20 mA | 0/1 ... 5 V DC;<br>0/1 ... 6 V DC;<br>0/1 ... 10 V DC | 0,5 ... 4,5 V DC<br>ratiometric |
| **Supply voltage (DC)** | CSA : 12 ... 27 V<br>ATEX : 20 ... 27 V | 10 ... 27 V (Vout x ... 5 V)<br>10 ... 27 V (Vout x ... 6 V)<br>15 ... 27 V (Vout x ... 10 V) | 5 V DC +/- 5 % |
| **Load resistance** | < (Vcc-10 V)/20 mA | > 5 kOhm | > 2,5 kOhm |
| **Current consumption** | 3,6 ... 21,4 mA | 7 mA typ. | 7 mA typ |
| **Response time** | < 2 ms | < 2 ms | < 2 ms |
| **Reverse and overvoltage protection** | yes | yes | yes |

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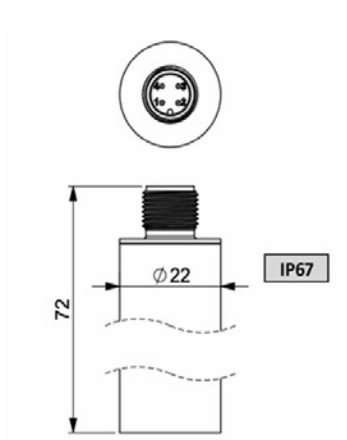
### Electrical connection

MIL-C-26482



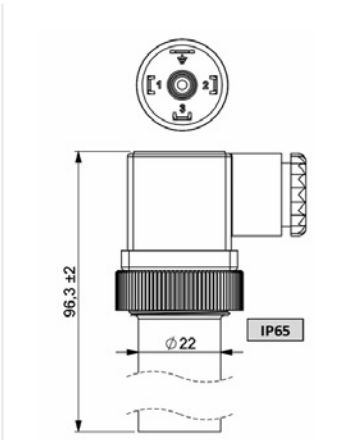

| Output | Pin A | Pin B | Pin C |
|---|---|---|---|
| Volt | + | - | Vout |
| mA | + | - | nc |

M12x1 (S763)



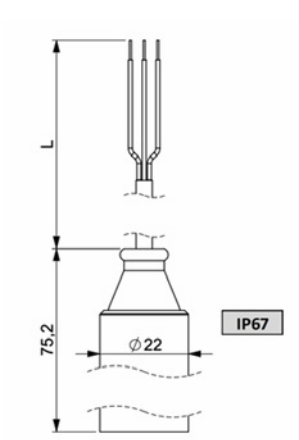

| Output | Pin 1 | Pin 3 | Pin 4 |
|---|---|---|---|
| Volt | + | - | Vout |
| mA | + | - | nc |

EN 175 301-803-A




| Output | Pin 1 | Pin 2 | Pin 3 |
|---|---|---|---|
| Volt | + | - | Vout |
| mA | + | - | nc |

Cable




| Output | Red | Black | White |
|---|---|---|---|
| Volt | + | - | Vout |
| mA | + | - | |

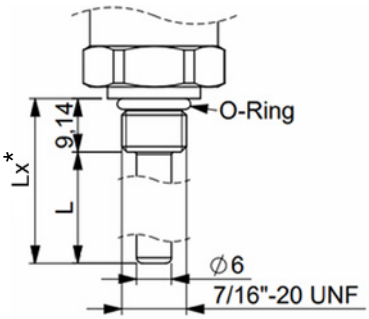
### Process connection

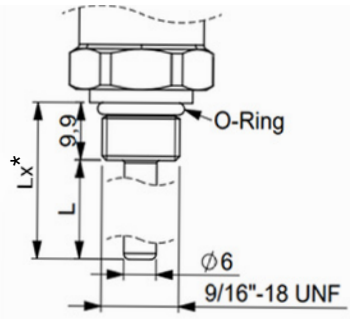
**Process connections (standard)** G1/4 Form E, 1/4"-18NPT, 7/16"-20 UNF, 9/16"-18 UNF

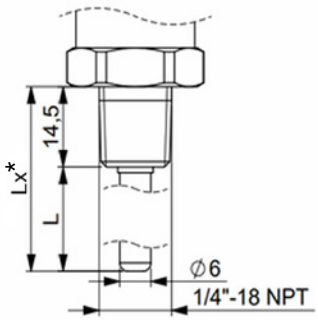
**Temperature tip** Stainless steel tip with a diameter of 6 mm (0.24")

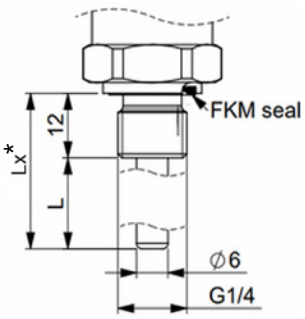
10 mm ... 500 mm

** Lx= Probe Length, where x = 1,2,3,4 inches respectively*



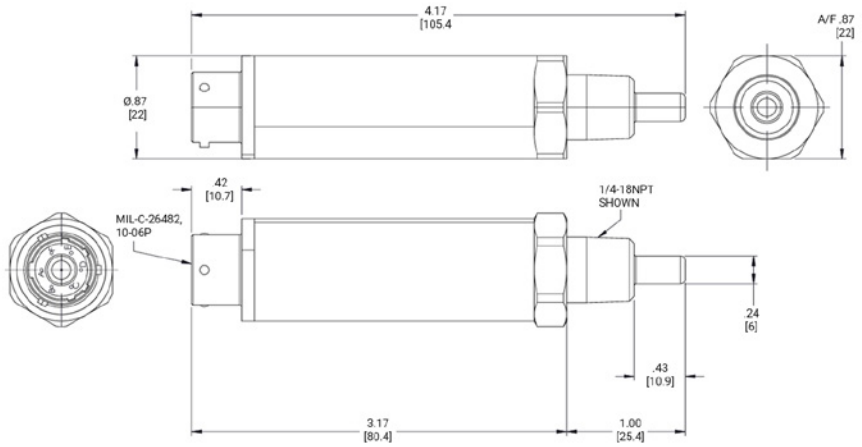




### Entity Parameters

| Type | Model | Supply/Signal Barrier | | Temperature Transmitter | | |
|---|---|---|---|---|---|---|
| | | Vmax (Ui) | Imax (Ii) | Ci | Li | Pi max |
| Current Output | BT1/BT2-..-5 | 27 V | 125 mA | 12.1 nF | 0 | 0.85 W |
| Voltage Output | BT1/BT2-..-3 | 6V | 600 mA | 9.27 nF | 0 | 0.9 W |
| Ratiometric Output | BT1/BT2-..-4 | 6V | 600 mA | 9.27 nF | 0 | 0.9 W |




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Barksdale® CONTROL PRODUCTS

# Temperature Transmitter

## BT1

### Product configurator

| Example | BT1 | CS | -5 | -KZ | F | -L1 | P8 | T2 |
|---|---|---|---|---|---|---|---|---|

**Base Model**

| | |
|---|---|
| **BT1** | Barksdale Temperature Transmitter |

**Approvals**

| | |
|---|---|
| **CS** | CSA, Standard application |
| **AT** | ATEX, Standard application |
| **CH** | CSA, Hydrogen application |
| **AH** | ATEX, Hydrogen application |

**Electrical Output**

| | |
|---|---|
| **-3** | Voltage Output |
| **-4** | Ratiometric Output |
| **-5** | Current Output |
| **-6** | Custom Voltage Output |

**Temperature Range** [1]

| | °C | °F |
|---|---|---|
| **V** | -55 | -65 |
| **N** | -50 | -60 |
| **K** | -40 | -40 |
| **H** | -30 | -20 |
| **G** | -20 | 0 |
| **D** | -10 | 20 |
| **0** | 0 | 32 |
| **1** | 10 | 50 |
| **2** | 20 | 70 |
| **3** | 30 | 85 |
| **4** | 40 | 100 |
| **5** | 50 | 120 |
| **6** | 60 | 140 |
| **7** | 70 | 160 |
| **8** | 80 | 180 |
| **9** | 90 | 200 |
| **X** | 100 | 210 |
| **Y** | 110 | 230 |
| **Z** | 120 | 250 |
| **B** | 130 | 265 |
| **E** | 140 | 285 |
| **M** | 150 | 300 |
| **J** | 180 | 355 |
| **P** | 200 | 392 |

**Temperature Unit**

| | |
|---|---|
| **F** | Fahrenheit |
| **C** | Celsius |
| **K** | Kelvin |

**Probe Length**

| | |
|---|---|
| **-L1** | 1 Inch |
| **-L2** | 2 Inch |
| **-L3** | 3 Inch |
| **-L4** | 4 Inch |

**Process Connection**

| | |
|---|---|
| **P1** | G 1/4, washer seal, Male |
| **P3** | 7/16-20 UNF |
| **P8** | 1/4" -18 NPT |
| **PC** [1] | Custom |

**Electrical Connection**

| | |
|---|---|
| **T2** | MIL-C-26482 |
| **T4** | M12x1 (S763-4) |
| **T5** | EN 175 301-803-A |
| **H3** | Cable 4P |
| **TC** [1] | Custom |

*Example part number format: BT1CS-5-KZF-L1P8T2*

[1] *Consult the factory for a custom options.*