

Hydrogen Fuel Cell Transducer

BHyT Series

Features

- ▶ Zero leakage due to seal-free technology
- ▶ Advanced sensor signal conditioning ASIC ensures high accuracy $\pm 0.25\%$ and $\pm 1\%$ zero offset error.
- ▶ Offers wide operating temperatures $-40\text{ }^{\circ}\text{C}$ to $+100\text{ }^{\circ}\text{C}$ and water tight IP67 protection and compatibility with demanding media such as H₂ and O₂.
- ▶ Superior EMI-EMC protection as per IEC standards & thermally compensated sensors ensure high accuracy over wide temperature ranges to mitigate thermal errors on sensitive components
- ▶ Has the ability to measure pressure ranges from vacuum to 10,000 psi (0-700 BAR)

Applications

- ▶ Hydrogen Fuel Cell
- ▶ Electrolyzers



General Specifications

Supply:	BT3: 7 to 33 VDC BT4: 4.5 to 5.5 VDC ratiometric BT5: 8 to 33 VDC BT6: 12 to 33 VDC
Output:	BT3: 1 to 5 VDC BT4: 0.5 to 4.5 VDC ratiometric BT5: 4 to 20 mA BT6: 0 to 10 VDC
Pressure Range:	0 to 580 psi (0 to 40 bar) (-W) 0 to 10,000 psi (0 to 700 bar) (-M)
Operating Temperature:	-40 to $212\text{ }^{\circ}\text{F}$ (-40 to $100\text{ }^{\circ}\text{C}$)
Compensated Temperature Range:	0 to $165\text{ }^{\circ}\text{F}$ ($-20\text{ }^{\circ}\text{C}$ to $75\text{ }^{\circ}\text{C}$) (-W) 14 to $158\text{ }^{\circ}\text{F}$ ($-10\text{ }^{\circ}\text{C}$ to $70\text{ }^{\circ}\text{C}$) (-M)
Accuracy (BFSL@25°C)	$\pm 0.25\%$ FSO (-W), $\pm 0.50\%$ FSO (-M)
Proof Pressure	2X Typical (Consult factory for specific pressure ranges)
Zero Offset	$\pm 1\%$ FSO
Span Offset	$\pm 1\%$ FSO
Lifecycle	10M cycles minimum
Long-Term Stability	$\pm 0.2\%$ FSO (per year, typical)
Response Time	For current output < 5 ms, For voltage output < 3 ms
Supply Current	BT3, BT4, BT6: 15 mA max, BT5: 22 mA max

* See product configurator for additional options.

Environmental Specifications

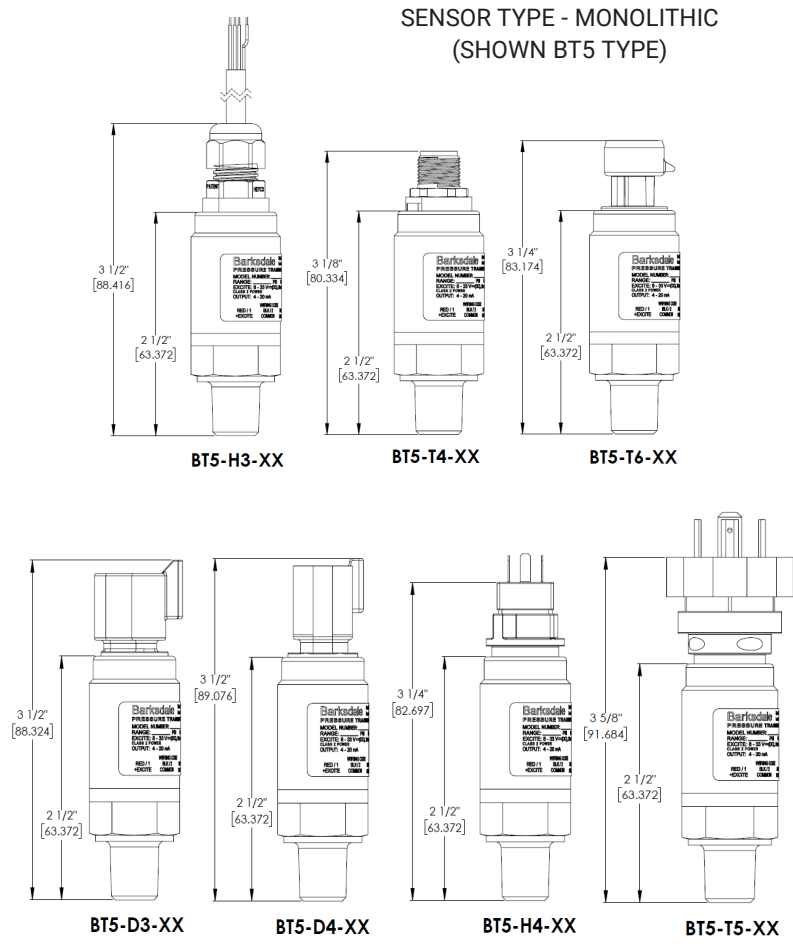
Shock	50 g's, 11 ms, MIL-STD 202 Method 213, Cond. G
Vibration	15 g's, 10 to 2,000 Hz, MIL-STD 202
Storage Temperature	-40 to $212\text{ }^{\circ}\text{F}$ (-40 to $100\text{ }^{\circ}\text{C}$)
Media Temperature	-40 to $248\text{ }^{\circ}\text{F}$ (-40 to $120\text{ }^{\circ}\text{C}$)
Wetted Materials	316L stainless steel
Ingress Protection	IP67
Reverse Polarity	Yes
Enclosure	NEMA 4X
Approvals	UL 508, UL 61010-1 with class II power supply
Compliance	REACH, RoHS, CE
Weight	4.23 oz (120g) Approximately (Consult factory for exact weights)
EMI-EMC Compliance	IEC 61000-4-2: Electrostatic discharge (ESD) IEC 61000-4-3: Radiated immunity IEC 61000-4-4: Burst (fast transient) IEC 61000-4-5: Surge IEC 61000-4-6: Conducted RF IEC 61326-1: CISPR11 Class A for radiated and conducted emissions
Media Compatibility	All common industrial gases and fluids. Compatible with hydrogen media

Electrical Connections

Electrical Signal	Electrical Termination									
	H3		D3/T6		H4/T4/T5		D4		T9	
	Voltage	Current	Voltage	Current	Voltage	Current	Voltage	Current	Voltage	Current
+ Excitation	Red	Red	Pin 1	Pin 1	Pin 1	Pin 1	Pin 2	Pin 2	Pin 1	Pin 1
- Excitation (common)	Black	Black	Pin 2	Pin 2	Pin 2	Pin 2	Pin 1	Pin 1	Pin 3	Pin 3
Voltage Output	White	-	Pin 3	-	Pin 3	-	Pin 4	-	Pin 2	-
Case Ground/ Drain/Earth	Drain	Drain	-	Pin 3	Pin 4	Pin 4	Pin 3	Pin 3	Pin 4	Pin 4

Technical Drawing

SENSOR TYPE - MONOLITHIC
(SHOWN BT5 TYPE)



*Representative Image

Product Configurator

BT5	-H3	-05	A	-P2	-M	-Z17-S131
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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 Shielded & jacketed #24 AWG Cable (1 meter)
-H4 ¹	Mini-DIN 43650 Type "C"
-T4 ¹	M12 circular connector
-T5 ¹	Standard DIN 43650 Type "A"
-T6 ¹	Aptiv/Delphi Metripack 150 Series
-T9 ¹	T4 with European pinning
-D3 ¹	3-Pin Deutsch Connector - DT04-3P
-D4 ¹	4-pin Deutsch Connector - DT04-4P

Pressure Range⁵

-23 ⁴	0-29.0" of Hg	0 to -1 BAR
-27 ⁴	0-1 psi	0-0.1 BAR
-25 ⁴	0-5 psi	0-0.35 BAR
-38 ⁴	0-7 psi	0-0.5 BAR
-01 ⁴	0-15 psi	0-1 BAR
-39 ⁴	0-25 psi	0-1.6 BAR
-21 ⁴	0-30 psi	0-2 BAR
-40 ⁴	0-36 psi	0-2.5 BAR
-03 ⁴	0-50 psi	0-3 BAR
-22 ⁴	0-60 psi	0-4 BAR
-41 ⁴	0-87 psi	0-6 BAR
-04 ⁴	0-100 psi	0-7 BAR
-05 ⁴	0-150 psi	0-10 BAR
-06 ⁴	0-200 psi	0-15 BAR
-42 ⁴	0-230 psi	0-16 BAR
-07 ⁴	0-300 psi	0-20 BAR
-43 ⁴	0-360 psi	0-25 BAR
-08 ⁴	0-500 psi	0-35 BAR
-44	0-580 psi	0-40 BAR
-45	0-725 psi	0-50 BAR
-46	0-870 psi	0-60 BAR
-10	0-1,000 psi	0-70 BAR
-11	0-1,500 psi	0-100 BAR
-12	0-2,000 psi	0-150 BAR
-47	0-2300 psi	0-160 BAR
-13	0-3,000 psi	0-200 BAR
-48	0-3600 psi	0-250 BAR
-14	0-4000 psi	0-300 BAR
-15	0-5,000 psi	0-350 BAR
-16	0-6,000 psi	0-400 BAR
-17	0-7500 psi	0-520 BAR
-36	0-9000 psi	0-600 BAR
-18	0-10,000 psi	0-700 BAR

Pressure Unit and Type

G	PSI - Sealed gauge pressure (standard)
A ^{4,5}	PSI - Absolute pressure
BG	Bar - Sealed gage pressure
BA ^{4,5}	Bar - Absolute Pressure (ranges start from 1 Bar)

Process Connection

Blank	1/4" NPT male
-P2	7/16-20 SAE #4 ORB
-P3	7/16-20 UNF male (JIC 37°)
-P4	1/2" NPT male
-P7	1/8" NPT male
-P9	G1/4 male (gasket seal)
-P17 ⁶	9/16 - 8 (SAE #6, O-RING)
-P11 ⁶	G1/2 male (gasket seal)
-P14 ⁶	7/16-20 UNF male (JIC 37°)
-P18 ⁶	M12 X 1.5
-P19 ⁶	G1/4 EN 837
-P20 ⁶	G1/2 EN 837
-P22 ⁶	3/4-16 UNF-2A

Accuracy

-M	±0.50% FSO
-W ²	±0.25% FSO

Options

Blank	Standard
-Z1	Cleaned for oxygen service
-0(x)	Custom Voltage Output: -01: 1 - 6 VDC -02: 0.5 - 4.5 VDC (non-ratiometric) -03: 0 - 6 VDC -04: 0 - 10 VDC -05: 1 - 10 VDC -06: 1 - 11 VDC -07: 0 - 11 VDC -08: 0 - 5 VDC -09: 0.5 - 5.5 VDC -10: 0.2 - 10 VDC
-Z17 ⁸	Larger pressure port orifice
-A	+6 ft cable
-B	+10 ft cable
-C	+15 ft cable
-D	Consult Factory for Custom length of free leads
-SXXY ³	Special pressure ranges Consult Factory
-Q1...Q999	Custom and proprietary options; consult factory
-U ⁷	UL Approved

- Mating connector not included, consult factory for accessories
- Limited to 580 PSI (40 BAR)
- Add suffix -SXXY for special pressure range calibration. XX = significant digits, Y = number of trailing zeros. Example: 130 psi calibration: add -S131
- With -W option only
- Absolute models available up to 360 psi only
- Consult factory for availability
- cULuS approval with 30 VDC excitation and 55°C max ambient temperature
- For pressure ranges greater than 1450 PSI (100 BAR)

