

# Hydrogen Fuel Cell Transducer

## BHyT Series

Data Sheet

### 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 H<sub>2</sub> and O<sub>2</sub>.
- 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)



Exactly What OEMs Want...Without the Wait

### Applications

- Hydrogen Fuel Cell
- Electrolyzers

### General Specifications

Supply (Class II power 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)
Operating Temperature	$-40\text{ }^{\circ}\text{F}$ to $212\text{ }^{\circ}\text{F}$ ( $-40\text{ }^{\circ}\text{C}$ to $100\text{ }^{\circ}\text{C}$ )
Compensated Temperature Range	$14\text{ }^{\circ}\text{F}$ to $158\text{ }^{\circ}\text{F}$ ( $-10\text{ }^{\circ}\text{C}$ to $70\text{ }^{\circ}\text{C}$ )
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 (W), $\pm 1\%$ FSO (M)
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 : 22mA max

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	316 L 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 (120gm) 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 emission
Media Compatibility	All common industrial gases and fluids. Compatible with hydrogen media

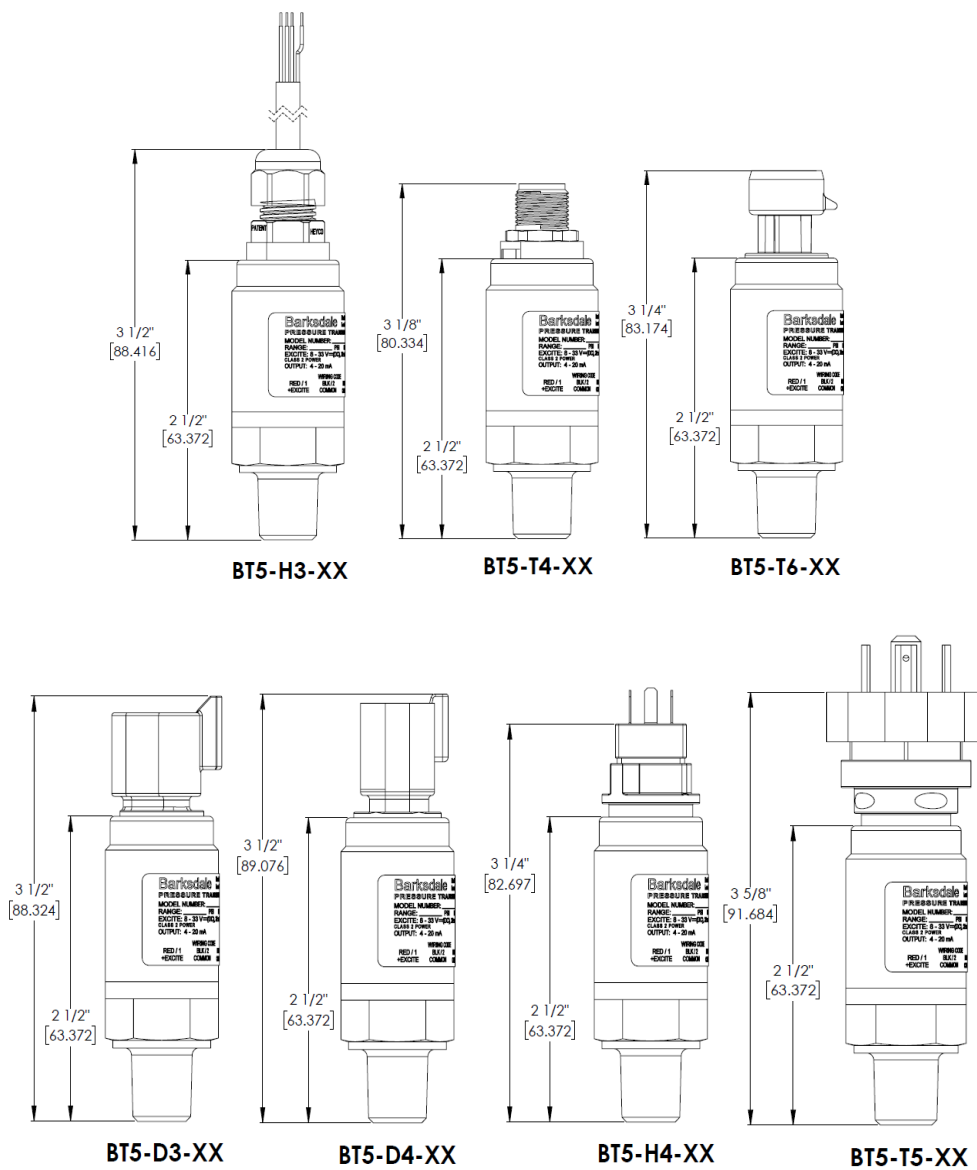
# Industrial Transducer

## BHyT Series

### 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

### SENSOR TYPE - MONOLITHIC (SHOWN BT5 TYPE)



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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 <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
-T9 <sup>1</sup>	T4 with European pinning
-D3 <sup>1</sup>	3-Pin Deutsch Connector - DT04-3P
-D4 <sup>1</sup>	4-pin Deutsch Connector - DT04-4P

### Pressure Range<sup>5</sup>

-23 <sup>4</sup>	0-29.9" of Hg	0 to -1 BAR
-27 <sup>4</sup>	0-1 psi	0-0.1 BAR
-25 <sup>4</sup>	0-5 psi	0-0.35 BAR
-38 <sup>4</sup>	0-7 psi	0-0.5 BAR
-01 <sup>4</sup>	0-15 psi	0-1 BAR
-39 <sup>4</sup>	0-25 psi	0-1.6 BAR
-21 <sup>4</sup>	0-30 psi	0-2 BAR
-40 <sup>4</sup>	0-36 psi	0-2.5 BAR
-03 <sup>4</sup>	0-50 psi	0-3 BAR
-22 <sup>4</sup>	0-60 psi	0-4 BAR
-41 <sup>4</sup>	0-87 psi	0-6 BAR
-04 <sup>4</sup>	0-100 psi	0-7 BAR
-05 <sup>4</sup>	0-150 psi	0-10 BAR
-06 <sup>4</sup>	0-200 psi	0-15 BAR
-42 <sup>4</sup>	0-230 psi	0-16 BAR
-07 <sup>4</sup>	0-300 psi	0-20 BAR
-43 <sup>4</sup>	0-360 psi	0-25 BAR
-08 <sup>4</sup>	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 <sup>4, 5</sup>	PSI - Absolute pressure
BG	Bar - Sealed gage pressure
BA <sup>4, 5</sup>	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 <sup>6</sup>	9/16 - 8 (SAE #6, O-RING)
-P11 <sup>6</sup>	G1/2 male (gasket seal)
-P14 <sup>6</sup>	7/16-20 UNF female (JIC 37°)
-P18 <sup>6</sup>	M12 X 1.5
-P19 <sup>6</sup>	G1/4 EN 837
-P20 <sup>6</sup>	G1/2 EN 837

### Accuracy

-M	±0.50% FSO
-W <sup>2</sup>	±0.25% FSO

### Options

Blank	Standard
-0(x)	Custom Voltage Output Up to 11VDC. Consult Factory -01 : 1-6 VDC Output -02 : 0.5-4.5 VDC Non-ratiometric
-Z17	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 <sup>7</sup>	Special pressure ranges Consult Factory
-Q1...Q999	Custom and proprietary options; consult factory
-U <sup>7</sup>	UL approved

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