Transmitter

BiT – Barksdale Intelligent Transmitter — *Series H455, 455, 452*

Features

- Lightweight, compact and all-welded rugged stainless steel construction
- Thin-film & diffused silicon sensors for high accuracy
- Optional HART® communication protocol with diagnostics & field calibration, reducing maintenance time and cost; and 10:1 turndown ratio for re-ranging, maintaining high accuracy and allowing one part number for multiple pressure ranges
- High accuracy (±0.1% and 0.25% FSO, (including L,H,R)
- cULus Certification for Ordinary Locations
- IP66 & IP67 and NEMA 4X Protection
- CE, CRN, NACE compliant and Superior EMC/EMI protection
- RoHS / REACH Compliant



Applications

- Hydraulic and Pneumatic Product Testing
- Engine Testing
- Hydraulic Equipment
- O&G BOP Pressure Testing
- Acid Pumps
- Data Acquisition System
- Heavy Mobile Equipment Testing
- OEM Factory Acceptance Testing
- Pressure Data Loggers
- Mobile Pressure Test Labs

General Specifications*

Accuracy including Linearity, Hysteresis and Repeatability: at 75°F, Typical	±0.1% of Calibrated FSO (Option [–A1]) ±0.25% of Calibrated FSO (Standard) ±0.5% of Calibrated FSO (Vacuum only [-23])
Temperature Shift:	Zero & Span: 0.0125% Per °F over the compensated temperature range
Long Term Stability:	±0.2% FSO /year of calibration curve
Typical Life Cycle:	100 million cycles
Proof Pressure:	2X range for up to 7500 psi models 1.5X range for 7500 - 30000 psi models
Input: H455: 455*: 452*:	 Excitation voltage: 9 to 30 VDC Excitation voltage: 9 to 30 VDC Excitation voltage: 12 to 30 VDC * (SELV, PELV), Class 2 Power Supply
Supply Current: H455 & 455: 452:	 20mA max. 20mA max.
Output: H455: 455: 452:	 Output: 4–20 mA with HART® Protocol Full Scale Output: 20 mA ±1% Zero output: 4 mA ±2% Output: 4–20 mA Full Scale Output: 20 mA ±1% Zero output: 4 mA ± 2% Output: 1–5 VDC Full scale output: 5.0 VDC ± 1% Zero output: 1.0 VDC ± 2%

Dynamic Response Time: H455: 455 & 452:	 <70 milliseconds <50 milliseconds
Sensors:	Thin-Film (15k to 30k psi ranges, and –UL option for 10k psi range) Diffused Silicon (Vacuum to 10k psi ranges)
Enclosure:	All welded 300 series stainless steel. IP66 & IP67 and NEMA 4X rated. 316L Stainless Steel (optional)
Wetted Parts: Sensor: Fitting:	 17-4 PH Stainless steel (15k–30k psi) 316L Stainless steel (up to 10k psi) Inconel (optional: up to 10k psi) 17-4 PH Stainless Steel for -UL option 17-4 PH Stainless steel (all ranges) 316L Stainless steel and 718 Inconel (optional: up to 10k psi)
Media General: Corrosive and Acidic: (up to 10,000 psi)	 Gas, vapor, liquid and viscous fluids [-Z17] 718 Inconel wetted material, NACE [-NC]; and 316L Stainless Steel, NACE [-SS]
Pressure Connection:	13 available options. Refer to product configurator for available connections and ranges.
Electrical Connection:	3 conductors for voltage output series and 2 conductors for current output series, 18 AWG, 80" (2 m) long with integral strain relief and case ground (standard). Jacketed cable (optional). Halogen free wires and cable.
Temperature Ranges: Operating (Ambient): Compensated: Media: Storage:	 -40 to +176 °F (-40 to +80 °C) 0 to +165 °F (-18 to +74 °C) -40 to +176 °F (-40 to +80 °C) -40 to +185 °F (-40 to +85 °C)
Vibration:	10 g's, 10-500 Hz, MIL-STD 202, Method 204, Cond. A
Shock:	50 g's, 11 mS, MIL-STD 202 Method 213, Cond. G.

* See product configurator for additional options.

Barksdale®
CONTROL PRODUCTS

Subject to technical changes.

General Specifications* cont.

Approvals: **cULus:**	cULus approved for ordinary locations (UL 61010-1)
HART® Protocol:	HART® 7.6
Turndown Ratio:	10:1 (Full scale output rangeability)
Analog Output Calibration:	Adjustable zero and span of 4-20mA. Full scale range must be ≥ (calibrated span / 10)
Sensor Trim:	Sensor zero and full scale trim
Diagnostics:	Transmitter failure indicated by off-scale analog signals to alarm the user See HART Installation and Operation Manual 272438 for detailed information
Compliances:	CE, CRN, NACE (316L SS or 718 Inconel wetted material)

Electromagnetic Compatibility (EMC) IEC/EN 55011:	Emission & radiated emission for class A limits
IEC/EN 61000-4-2:	Electrostatic discharge (ESD) test - contact discharge +/-4 kV, Air discharge +/-8 kV
IEC/EN 61000-4-3:	Radiated RF, EM field immunity 80mhz-1ghz, 3v/M
IEC/EN 61000-4-4: H455:	EFT (Burst) Test, +/-2 kV
455 & 452:	EFT (Burst) Test, +/-1 kV
IEC/EN 61000-4-5: H455:	Surge Test, +/-1kV between line and earth ground
455 & 452:	Surge test not applicable; Class 2 power supply used at input of the device
IEC/EN 61000-4-6:	RF Immunity, 150 kHz – 80 MHz, 3V
Weight:	16 Ounces (453 grams)
Warranty:	1 year warranty

* See product configurator for additional options.

Wiring Code

TABLE 1. FREE LEAD WIRES AND CONNECTOR PIN CONNECTIONS

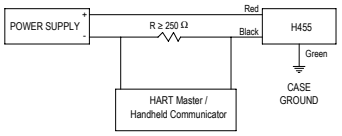
MODEL NO.	RED/A/1	BLACK/B/2	GREEN/D/4	WHITE/C/3
H455	+ EXCITATION	- EXCITATION	EARTH GROUND	NOT INCLUDED
455	+ EXCITATION	- EXCITATION	EARTH GROUND	NOT INCLUDED
452	+ EXCITATION	- EXCITATION	EARTH GROUND	VOLTAGE OUTPUT

TABLE 2. JACKETED CABLE WIRE CONNECTIONS (-J Option)

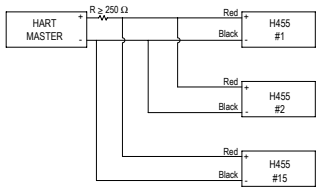
MODEL NO.	WHITE	BROWN	GREEN	YELLOW
H455	+ EXCITATION	- EXCITATION	EARTH GROUND	NOT INCLUDED
455	+ EXCITATION	- EXCITATION	EARTH GROUND	NOT INCLUDED
452	+ EXCITATION	- EXCITATION	EARTH GROUND	VOLTAGE OUTPUT

CONFIGURATION WITH HART

Point to Point



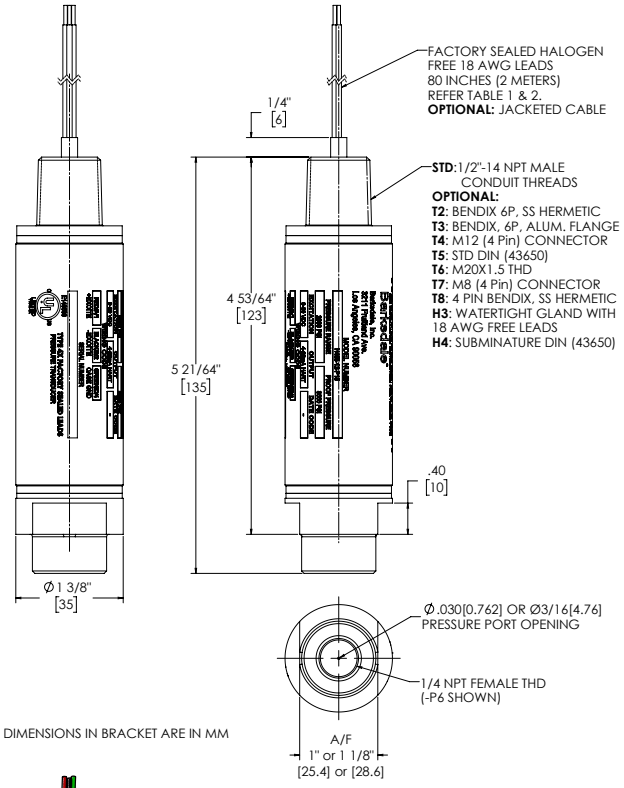
Multi Drop



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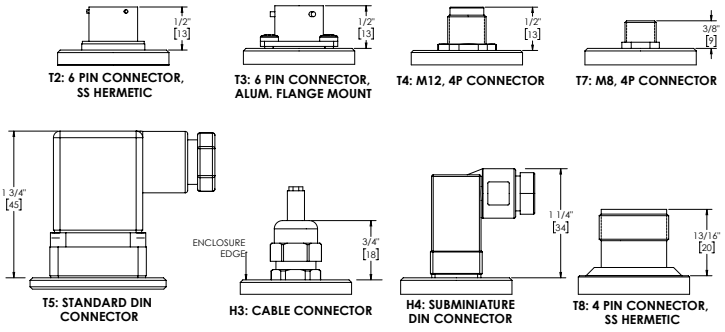
Series H455, 455, 452

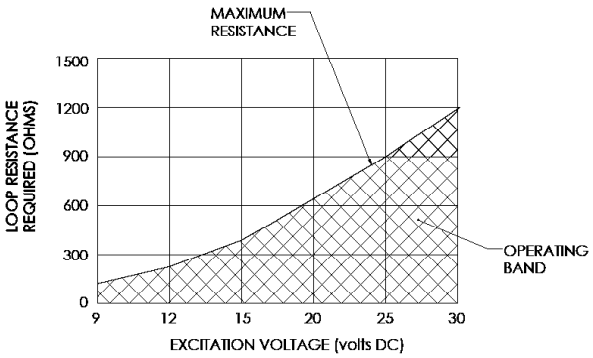
Technical Drawings



DIMENSIONS IN BRACKET ARE IN MM

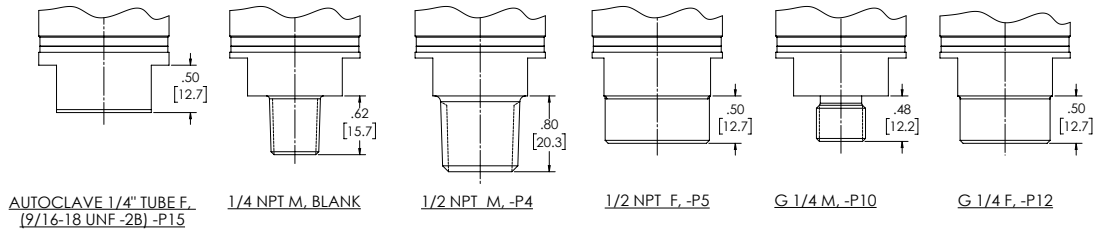
Standard and Optional Electrical Connections

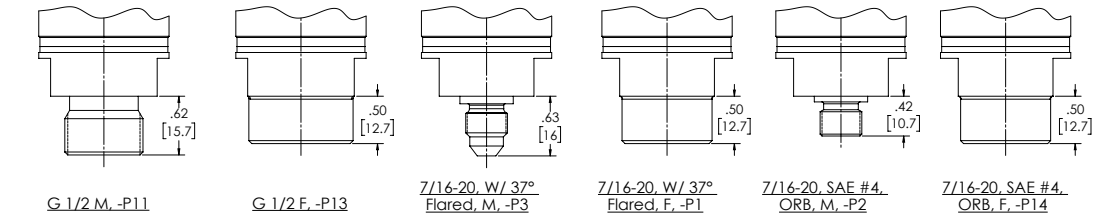






Process Connections





* For ordinary location

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Series H455, 455, 452

Product Configurator

Example:	H455	T6	-29	BA	-P15	-Z17-A1-Z123

Base Model

H455	4 - 20 mA Output with HART® Comm. Protocol
455	4 - 20 mA Output
452	1-5 VDC Output

Electrical Connection

Blank	1/2"-14 NPT Male conduit
T2	6 pin connector, SS Hermetic, PTIH-10-6P
T3[1]	6 pin connector, Alum. Flange Mount, PT02E-10-6P
T4[1]	M12 (4 Pin) connector
T5[1]	Standard DIN (EN 175301-803, Type A)
T6	M20 x 1.5 Male conduit
T7[1]	M8 (4 Pin) connector
T8[1]	4 pin connector, SS Hermetic, PTIH-14S-2P
H3[1]	Watertight Gland with 18AWG Free Leads
H4[1]	Mini DIN (EN 175301-803, Type C)

Pressure Range

-23*	0-29.9" of Hg	0 to -1 Bar
-01	0-15 psi	0-1 Bar
-21	0-30 psi	0-2 Bar
-03	0-50 psi	0-3 Bar
-22	0-60 psi	0-4 Bar
-04	0-100 psi	0-7 Bar
-05	0-150 psi	0-10 Bar
-06	0-200 psi	0-15 Bar
-07	0-300 psi	0-20 Bar
-08[2]	0-500 psi	0-40 Bar
-10[2]	0-1,000 psi	0-70 Bar
-11[2]	0-1,500 psi	0-100 Bar
-12[2]	0-2,000 psi	0-150 Bar
-13[2]	0-3,000 psi	0-200 Bar
-14[2]	0-4,000 psi	0-300 Bar
-15[2]	0-5,000 psi	0-350 Bar
-16[2]	0-6,000 psi	0-400 Bar
-17[2]	0-7,500 psi	0-500 Bar
-18[2,7]	0-10,000 psi	0-700 Bar
-29[2,3]	0-15,000 psi	0-1,000 Bar
-30[2,3]	0-20,000 psi	0-1,400 Bar
-31[2,3]	0-22,000 psi	0-1,500 Bar
-32[2,3]	0-25,000 psi	0-1,700 Bar
-33[2,3]	0-30,000 psi	0-2,000 Bar

Pressure Unit & Type

Blank	PSI - Gauge pressure (standard)
A	PSI - Absolute pressure (Not applicable with "-23" range; only available up to 300 psi)
B	Bar - Gauge Pressure
BA	Bar - Absolute Pressure (ranges start from -1 Bar) (Not applicable with "-23" range; only available up to 20 Bar)

Process Connection

Blank[4]	1/4-18 NPT male (standard)
-P6[4]	1/4" NPT female
-P4[4]	1/2" NPT male
-P5[4]	1/2" NPT female
-P10[4]	G 1/4, washer seal, male
-P12[4]	G 1/4, washer seal, female
-P11[4]	G 1/2, washer seal, male
-P13[4]	G 1/2, washer seal, female
-P3[4]	7/16-20, with 37° flared, male
-P1[4]	7/16-20, with 37° flared, female
-P2[4]	7/16-20, SAE #4, ORB, male
-P14[4]	7/16-20, SAE #4, ORB, female
-P15	HF4 Autoclave, 1/4" tube, female (9/16-18 UNF-28 THD)

Options

-ZVxx	Custom voltage output (Available on 452X only). Up to 10VDC. Consult Factory.
-Z17[2]	For high pressure models with larger orifice; without pressure surge protector
-SC[4,6]	All 316 Stainless Steel construction with 316L SS wetted material (NACE)
-SS[4,6]	316L stainless steel wetted material (NACE)
-NC [1,4,5]	718 Inconel wetted material (NACE)
-UL[7]	cULus approval for -18 range (10k psi) only
-A1	Accuracy BFSL 0.1% FSO (LHR) at 75°F
-ZXXY	Special pressure ranges XX - significant digits Y - number of trailing zeros Example: 130 psi calibration: add -Z131
-JXXX	Jacketed cable (available on conduit and gland electrical connections) (in inches)
-WXXX	Additional length of free leads/cable (in inches)

Notes

1. No agency approvals
2. Pressure ranges indicated have built-in pressure surge protector. Add "-Z17" suffix for high pressure models with no snubber; for use with high viscosity media. Refer to Sales drawing for orifice sizes.
3. 15k to 30k psi ranges available only with -P15 Process Connection
4. Available up to 10,000 psi
5. "–NC" option only available with following pressure ranges: -11, -13, -16 and -18. Consult factory for availability on other pressure ranges.
6. -SS option is included in -SC option. -SC does not include material of electrical connection. Not available with -UL option
7. -UL option only available for 10,000 psi range. No cULus approval for 10,000 psi range without -UL suffix option. cULus approval standard for all other ranges

Additional Documents and Accessories

Title	Reference Number
Installation and Maintenance Instructions	272441
HART Installation and Operation Manual	272438
Cable & Connectors	Cable & Connectors. Bulletin #S0115-C
Certificate of Compliance (Found on back of packing slip)	Use Document Title in purchase order. Only available at the time of order.
Certificate of Compliance (Signed document)	
Test Report	
Calibration Test Sheet (Included in product package)	
Material Certification	
Paper Tag	
Metal Tag	

* Vacuum

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