

BiT – Barksdale Intelligent Transmitter Series H455X, 455X, 452X

Features

- ▶ Lightweight, compact and all-welded rugged stainless steel construction
- ▶ High performance 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: $\pm 0.1\%$ and $\pm 0.25\%$ FSO, (L,H,R)
- ▶ cULus, ATEX, IECEx and Single Seal certifications
- ▶ Explosion proof enclosure with IP66 & IP67 and NEMA 4X, 7 & 9 ratings
- ▶ CE, CRN, and NACE compliant and superior EMI/EMC protection
- ▶ Factory sealed, environment friendly, halogen free wires and cable
- ▶ RoHS & REACH Compliant

Applications

- ▶ Production Control Systems
- ▶ Refineries
- ▶ Chemical Injection Systems
- ▶ Coal and oil fired power plants
- ▶ Oil & gas pipelines
- ▶ Hydraulic Power Units
- ▶ Petrochemical plants
- ▶ Gas transfers for fuel systems



General Specifications*

Accuracy including Linearity, Hysteresis and Repeatability: at 75°F, Typical	$\pm 0.1\%$ of Calibrated FSO (Option [-A1]) $\pm 0.25\%$ of Calibrated FSO (Standard) $\pm 0.5\%$ of Calibrated FSO (Vacuum only [-23])	Dynamic Response Time: H455X: 455X & 452X:	<70 milliseconds <50 milliseconds
Temperature Shift:	Zero & Span: 0.0125% Per °F over the compensated temperature range	Enclosure:	All welded 300 series stainless steel. IP66 & IP67 and NEMA 4X rated. 316 Stainless Steel (optional)
Long Term Stability:	$\pm 0.2\%$ FSO/year of calibration curve	Wetted Parts: Sensor:	17-4 PH Stainless steel (more than 10k psi) 316L Stainless steel (up to 10k psi) 17-4 PH Stainless Steel for -UL option (10k psi)
Typical Life Cycle:	100 million cycles	Fitting:	17-4 PH Stainless steel (all ranges) 316L Stainless steel (optional: up to 10k psi)
Proof Pressure:	2X range for up to 7500 psi models 1.5X range for 7500 - 30000 psi models	Media General:	Gas, vapor, liquid and viscous fluids [-Z17]
Input: H455X: 455X*: 452X*:	Excitation voltage: 9 to 30 VDC Excitation voltage: 9 to 30 VDC Excitation voltage: 9 to 30 VDC * (SELV, PELV), Class II Power Supply	Corrosive and Acidic: (up to 10,000 psi)	316L Stainless Steel, NACE [-SS]
Supply Current: H455X & 455X: 452X:	20 mA max. 20 mA max.	Pressure Connection:	13 available options. Refer to product configurator for available connections and ranges. 3 and 4 pin Deutsch connector (optional)
Output: H455X: 455X: 452X:	Output: 4–20 mA with HART® Protocol Full Scale Output: 20 mA $\pm 1\%$ Zero output: 4 mA $\pm 1\%$ Output: 4–20 mA Full Scale Output: 20 mA $\pm 1\%$ Zero output: 4 mA $\pm 1\%$ Output: 1–5 VDC Full scale output: 5.0 VDC $\pm 1\%$ Zero output: 1.0 VDC $\pm 1\%$	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.

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General Specifications* cont.

Approvals: UL:	cULus approved as telemetering equipment for use in hazardous locations (UL File E146589, WYMV, WYMV7) factory sealed, Type 4X, as follows: Class I, Div. 1, Groups A, B, C & D Class II, Div. 1, Groups E, F & G	Compliances:	CE, CRN (refer to drawing # 272479 for applicable models) NACE (316L SS wetted material)
Single Seal:	CSA C22.2 No. 61010-1 Certified ANSI/ISA 12.27.01 Certified (for ranges up to 6,800 PSI)	Electromagnetic Compatibility (EMC)	
ATEX/IECEx:	CE 0081 CE I 2 G D Ex db IIC T5 Gb Ex tb IIIC T81°C Db, IP66 & IP67 -40 °C ≤ Tamb ≤ +80 °C DEMKO 18 ATEX 2084 IECEx UL 18.0090	IEC/EN 55011: IEC/EN 61000-4-2: IEC/EN 61000-4-3: IEC/EN 61000-4-4: H455X: 455X & 452X:	Emission & radiated emission for class A limits Electrostatic discharge (ESD) test - contact discharge +/-4 kV, Air discharge +/-8 kV Radiated RF, EM field immunity 80mhz-1ghz, 3v/M EFT (Burst) Test, +/-2 kV EFT (Burst) Test, +/-1 kV
HART® Protocol:	HART® 7.6	IEC/EN 61000-4-5: H455X: 455X & 452X: IEC/EN 61000-4-6:	Surge Test, +/-1kV between line and earth ground Surge test not applicable; Class II power supply used at input of the device RF Immunity, 150 kHz – 80 MHz, 3V
Turndown Ratio:	10:1 (Full scale output rangeability)	Weight:	16 Ounces (453 grams)
Analog Output Calibration:	Adjustable zero and span of 4-20mA. Full scale range must be \geq (calibrated span / 10)	Warranty:	1 Year warranty
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		

* See product configurator for additional options.

Wiring Code

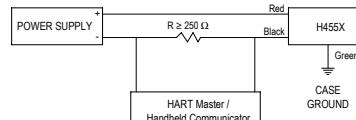
TABLE 1. FREE LEAD WIRE CONNECTIONS

MODEL NO.	RED	BLACK	GREEN	WHITE
H455X	+ EXCITATION	- EXCITATION	EARTH GROUND	NOT INCLUDED
455X	+ EXCITATION	- EXCITATION	EARTH GROUND	NOT INCLUDED
452X	+ EXCITATION	- EXCITATION	EARTH GROUND	VOLTAGE OUTPUT



CONFIGURATION WITH HART

Point to Point



Multi Drop

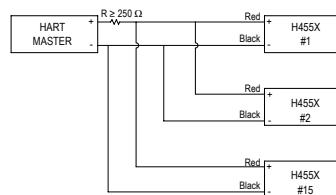


TABLE 2. JACKETED CABLE WIRE CONNECTIONS (-J Option)

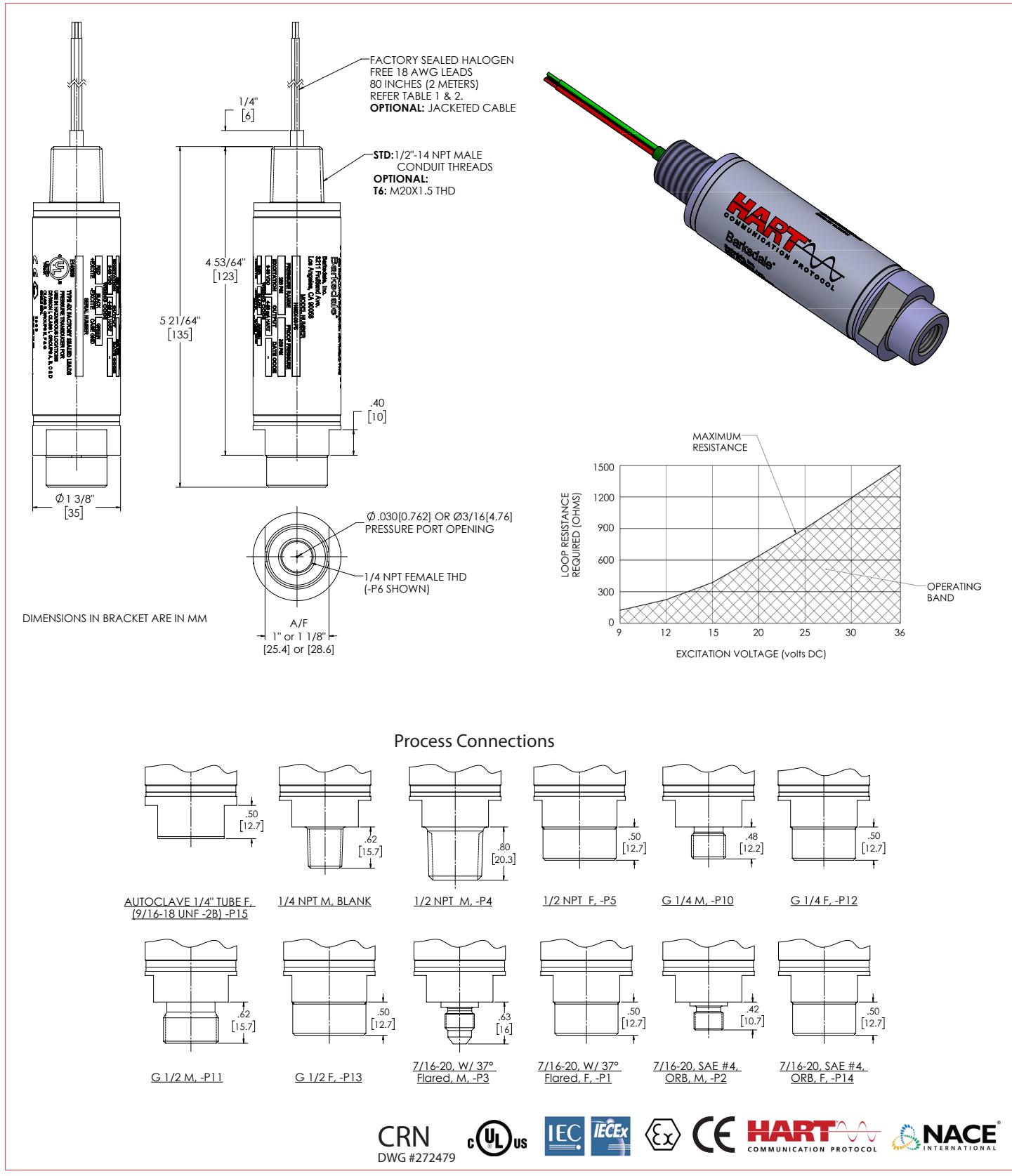
MODEL NO.	WHITE	BROWN	GREEN	YELLOW
H455X	+ EXCITATION	- EXCITATION	EARTH GROUND	NOT INCLUDED
455X	+ EXCITATION	- EXCITATION	EARTH GROUND	NOT INCLUDED
452X	+ EXCITATION	- EXCITATION	EARTH GROUND	VOLTAGE OUTPUT

TABLE 3. DEUTSCH CONNECTOR PIN CONNECTIONS (-D3 & -D4 Option)

MODEL NO.	CONNECTOR	PIN A/1	PIN B/2	PIN C/3	PIN D/4
CURRENT	D3	+ EXCITATION	- EXCITATION	EARTH GROUND	N/A
VOLTAGE	D3	+ EXCITATION	- EXCITATION	VOLTAGE OUTPUT	N/A
CURRENT	D4	- EXCITATION	+ EXCITATION	EARTH GROUND	N/A
VOLTAGE	D4	- EXCITATION	+ EXCITATION	VOLTAGE OUTPUT	EARTH GROUND

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Technical Drawings



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Product Configurator

Example: H455X T6 -29 BA -P15 -M -Z17-A1-Z123																	
Base Model _____		Options _____															
<input checked="" type="checkbox"/> H455X 4 - 20 mA Output with HART® Comm. Protocol		<input type="checkbox"/> -ZVxx Custom voltage output (Available on 452X only). Up to 10VDC. Consult Factory.															
<input type="checkbox"/> 455X 4 - 20 mA Output		<input type="checkbox"/> -Z17 ¹ Larger orifice; without pressure surge protector															
<input type="checkbox"/> 452X 1-5 VDC Output		<input type="checkbox"/> -SS ^{3,4} 316L Stainless steel wetted material (NACE)															
Electrical Connection _____		<input type="checkbox"/> -A1 Accuracy BFSL 0.1% FSO, typical (LHR) at 75°F (Consult factory on vacuum [-23] models)															
<input type="checkbox"/> Blank 1/2"-14 NPT Male conduit		<input type="checkbox"/> -ZXXY Special pressure ranges XX - significant digits Y - number of trailing zeros Example: 130 psi calibration: add -Z131															
<input type="checkbox"/> T6 M20 x 1.5 Male conduit		<input type="checkbox"/> -JXXX Jacketed cable (in inches)															
Pressure Range _____		<input type="checkbox"/> -WXXX Custom length of free leads (in inches)															
<input type="checkbox"/> -23* 0-29.9" of Hg 0 to -1 Bar		<input type="checkbox"/> -D3 ⁶ 3 Pin deutsch connector DT04-3P															
<input type="checkbox"/> -01 0-15 psi 0-1 Bar		<input type="checkbox"/> -D4 ⁶ 4 Pin deutsch connector DT04-4P															
<input type="checkbox"/> -21 0-30 psi 0-2 Bar		<input type="checkbox"/> -Q40 Dual 4-20mA and 1-5VDC output (only on 452X models)															
<input type="checkbox"/> -03 0-50 psi 0-3 Bar		Process Connection _____															
<input type="checkbox"/> -22 0-60 psi 0-4 Bar		<input type="checkbox"/> Blank ³ 1/4"-18 NPT male (standard)															
<input type="checkbox"/> -04 0-100 psi 0-7 Bar		<input type="checkbox"/> -P6 ³ 1/4" NPT female															
<input type="checkbox"/> -05 0-150 psi 0-10 Bar		<input type="checkbox"/> -P4 ³ 1/2" NPT male															
<input type="checkbox"/> -06 0-200 psi 0-15 Bar		<input type="checkbox"/> -P5 ³ 1/2" NPT female															
<input type="checkbox"/> -07 0-300 psi 0-20 Bar		<input type="checkbox"/> -P10 ³ G 1/4, washer seal, male															
<input type="checkbox"/> -08 0-500 psi 0-40 Bar		<input type="checkbox"/> -P12 ³ G 1/4, washer seal, female															
<input type="checkbox"/> -10 0-1,000 psi 0-70 Bar		<input type="checkbox"/> -P11 ³ G 1/2, washer seal, male															
<input type="checkbox"/> -11 0-1,500 psi 0-100 Bar		<input type="checkbox"/> -P13 ³ G 1/2, washer seal, female															
<input type="checkbox"/> -12 0-2,000 psi 0-150 Bar		<input type="checkbox"/> -P3 ³ 7/16-20, with 37° flared, male															
<input type="checkbox"/> -13 0-3,000 psi 0-200 Bar		<input type="checkbox"/> -P1 ³ 7/16-20, with 37° flared, female															
<input type="checkbox"/> -14 0-4,000 psi 0-300 Bar		<input type="checkbox"/> -P2 ³ 7/16-20, SAE #4, ORB, male															
<input type="checkbox"/> -15 0-5,000 psi 0-350 Bar		<input type="checkbox"/> -P14 ³ 7/16-20, SAE #4, ORB, female															
<input type="checkbox"/> -16 0-6,000 psi 0-400 Bar		<input type="checkbox"/> -P15 HF4 Autoclave, 1/4" tube, female (9/16-18 UNF-2B THD)															
<input type="checkbox"/> -17 0-7,500 psi 0-500 Bar																	
<input type="checkbox"/> -18 ³ 0-10,000 psi 0-700 Bar																	
<input type="checkbox"/> -29 ³ 0-15,000 psi 0-1,000 Bar																	
<input type="checkbox"/> -30 ³ 0-20,000 psi 0-1,400 Bar																	
<input type="checkbox"/> -31 ³ 0-22,000 psi 0-1,500 Bar																	
<input type="checkbox"/> -32 ³ 0-25,000 psi 0-1,700 Bar																	
<input type="checkbox"/> -33 ³ 0-30,000 psi 0-2,000 Bar																	
<small>* Vacuum</small>																	
Pressure Unit & Type _____																	
<input type="checkbox"/> Blank PSI - Sealed gage pressure (standard)																	
<input type="checkbox"/> A PSI - Absolute pressure (Not applicable with "-23" range)																	
<input type="checkbox"/> B Bar - Sealed gage pressure																	
<input type="checkbox"/> BA Bar - Absolute Pressure (ranges start from -1 Bar) (Not applicable with "-23" range)																	
Notes																	
1. All pressure ranges have built-in pressure surge protector. Add "-Z17" suffix for no snubber; for use with high viscosity media. Refer to sales drawing for orifice sizes.																	
2. Ranges with more than 10k psi are available only with "-P15" Process Connection																	
3. Available up to 10,000 psi																	
4. -SS option is included in -SC option. -SC does not include material of electrical connection. "-UL" option and more than 10k psi ranges only with 17-4PH SS wetted material.																	
5. -UL option only available for 10,000 PSI range. No cULus approval for 10,000 psi range without -UL option. cULus approval standard for all other ranges. ATEX & IECEx approvals standard for all ranges. "-UL" only with 17-4 PH SS wetted material																	
6. Connected to factory sealed halogen free, 18 AWG free leads 12" (.3m). Also available with -WXXX and -JXXX options.																	
Additional Documents and Accessories																	
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center;">Title</th> <th style="text-align: center;">Reference Number</th> </tr> </thead> <tbody> <tr> <td>Installation and Maintenance Instructions</td> <td style="text-align: center;">272439</td> </tr> <tr> <td>HART Installation and Operation Manual</td> <td style="text-align: center;">272438</td> </tr> <tr> <td>Certificate of Compliance (Found on back of packing slip)</td> <td rowspan="7" style="vertical-align: middle; text-align: center;"> <small>Use Document Title in purchase order. Only available at the time of order.</small> </td> </tr> <tr> <td>Certificate of Compliance (Signed document)</td> </tr> <tr> <td>Test Report</td> </tr> <tr> <td>Calibration Test Sheet (Included in product package)</td> </tr> <tr> <td>Material Certification</td> </tr> <tr> <td>Paper Tag</td> </tr> <tr> <td>Metal Tag</td> </tr> </tbody> </table>				Title	Reference Number	Installation and Maintenance Instructions	272439	HART Installation and Operation Manual	272438	Certificate of Compliance (Found on back of packing slip)	<small>Use Document Title in purchase order. Only available at the time of order.</small>	Certificate of Compliance (Signed document)	Test Report	Calibration Test Sheet (Included in product package)	Material Certification	Paper Tag	Metal Tag
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