

Pressure Transducers



- ▶ Electronic Products
- ▶ Pressure Transducers
- ▶ Mechanical Pressure Products
- ▶ Valves & Regulators
- ▶ Temperature Products
- ▶ Level Products
- ▶ Air Suspension Valves

Barksdale®

CONTROL PRODUCTS



Barksdale, Inc./Barksdale GmbH
A Subsidiary of Crane Co.

Barksdale - the total control solutions partner

At Barksdale, our goal is to help our customers “Control Every Move”. For us, this isn’t simply a motto, but rather a vision that guides the way we do business with our valued customers. At every stage in the process from needs assessment, design and manufacturing to customer support, we provide peace of mind by delivering a total controls solution tailored to meet the specific needs of each customer. We accomplish this by leveraging the following:

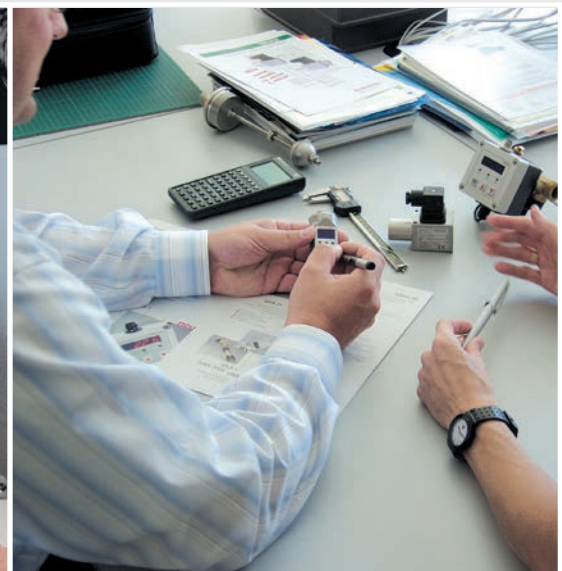
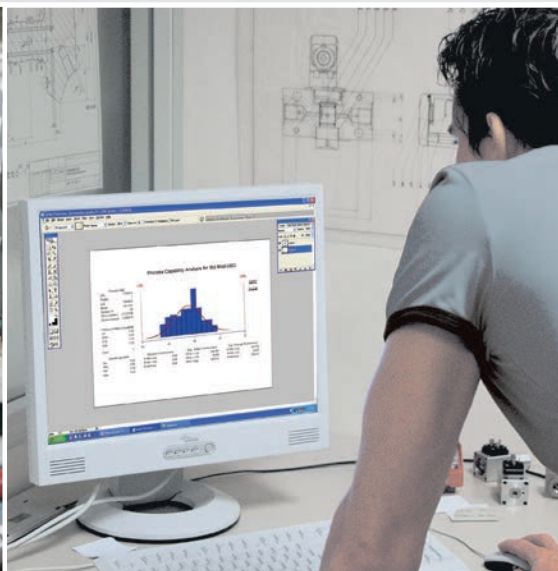
- A **Highly Experienced Team** of engineers that work closely with customers to meet, exceed and even anticipate their every control need.
- A **Diverse Product Portfolio** of quality standard and custom-tailored product solutions that help control Pressure, Temperature, Level and Flow in the most demanding applications in the industry.

Our **Global Reach and Support** via our:

- ▶ Worldwide direct sales force of experts
- ▶ Manufacturing facilities in North America and Europe
- ▶ Team of highly capable and friendly customer support staff that make it easy to do business with
- ▶ Barksdale anywhere in the world

■ **Dedicated Tools & Processes**

- ▶ Production Part Approval Process (PPAP) to satisfy the most stringent quality control requirements
- ▶ ATEX / IECx compliant facilities
- ▶ 6 Sigma culture / Process Capability
- ▶ ISO 9001:2015 certified (quality management system)
- ▶ ISO 14001:2015 certified (environmental management systems)
- ▶ IATF 16949:2016 certified for automotive industry



Pressure Transducers / Transmitters

Table of Contents

▶ BiT intelligent transmitter Series 450	4
▶ BiT intelligent transmitter Series 450X (Explosion Proof)	8
▶ BiT intelligent transmitter Series 450E (Intrinsically Safe)	12
▶ OEM Transducer Series 623, 625, 626, 627	16
▶ General Industrial Transducer (Unamplified) Series 420, 422	18
▶ General Industrial Transducer (Amplified) Series 423, 425, 426	20
▶ Non-Incendive Transducer Series 433, 435, 436	22
▶ Intrinsically Safe Transducer Series 443, 445, 446	24
▶ Explosion Proof Transducer (Amplified) Series 423X, 425X, 426X	26

Transmitter

BiT – Barksdale Intelligent Transmitter

Series H455, 455, 452

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 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:	$\pm 0.1\%$ of Calibrated FSO (Option [-A1]) $\pm 0.25\%$ of Calibrated FSO (Standard) $\pm 0.5\%$ of Calibrated FSO (Vacuum only [-23])	Dynamic Response Time: H455: 455 & 452:	<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) Inconel (optional: 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 and 718 Inconel (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: H455: 455*: 452*:	Excitation voltage: 9 to 30 VDC Excitation voltage: 9 to 30 VDC Excitation voltage: 12 to 30 VDC * (SELV, PELV), Class II Power Supply	Corrosive and Acidic: (up to 10,000 psi)	718 Inconel wetted material, NACE [-NC]; and 316L Stainless Steel, NACE [-SS]
Supply Current: H455 & 455: 452:	 20mA max. 20mA max.	Pressure Connection:	13 available options. Refer to product configurator for available connections and ranges.
Output: H455: 455: 452:	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.

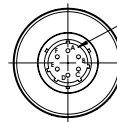
General Specifications* cont.

Approvals: cULus:	cULus approved for ordinary locations (UL 61010-1)	Electromagnetic Compatibility (EMC) IEC/EN 55011:	Emission & radiated emission for class A limits
HART® Protocol: Turndown Ratio: Analog Output Calibration: Sensor Trim: Diagnostics:	HART® 7.6 10:1 (Full scale output rangeability) Adjustable zero and span of 4-20mA. Full scale range must be ≥ (calibrated span / 10) Sensor zero and full scale trim Transmitter failure indicated by off-scale analog signals to alarm the user See HART Installation and Operation Manual 272438 for detailed information	IEC/EN 61000-4-2: IEC/EN 61000-4-3: IEC/EN 61000-4-4: H455: 455 & 452: IEC/EN 61000-4-5: H455: 455 & 452: IEC/EN 61000-4-6:	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 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
Compliances:	CE, CRN (refer to drawing # 272479 for applicable models) NACE (316L SS or 718 Inconel wetted material)	Weight: Warranty:	16 Ounces (453 grams) 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



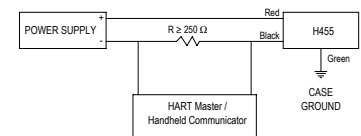
'A' TO 'F' ARE PINS FOR CONNECTION REFER TABLE 1.

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

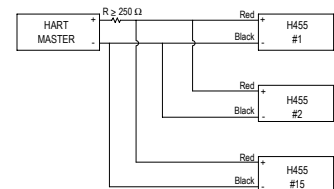
TABLE 3. DEUTSCH CONNECTOR PIN CONNECTIONS (-D3 & -D4 Option)					
MODEL NO.	CONNECTOR	PIN A/1	PIN B/2	PIN C/3	PIN D/4
CURRENT	D3	+ EXCITATION	- EXCITATION	EARTH GROUND	N/A
VOLTAGE	D3	+ EXCITATION	- EXCITATION	VOLTAGE OUTPUT	N/A
CURRENT	D4	- EXCITATION	+ EXCITATION	EARTH GROUND	N/A
VOLTAGE	D4	- EXCITATION	+ EXCITATION	VOLTAGE OUTPUT	EARTH GROUND

CONFIGURATION WITH HART

Point to Point



Multi Drop

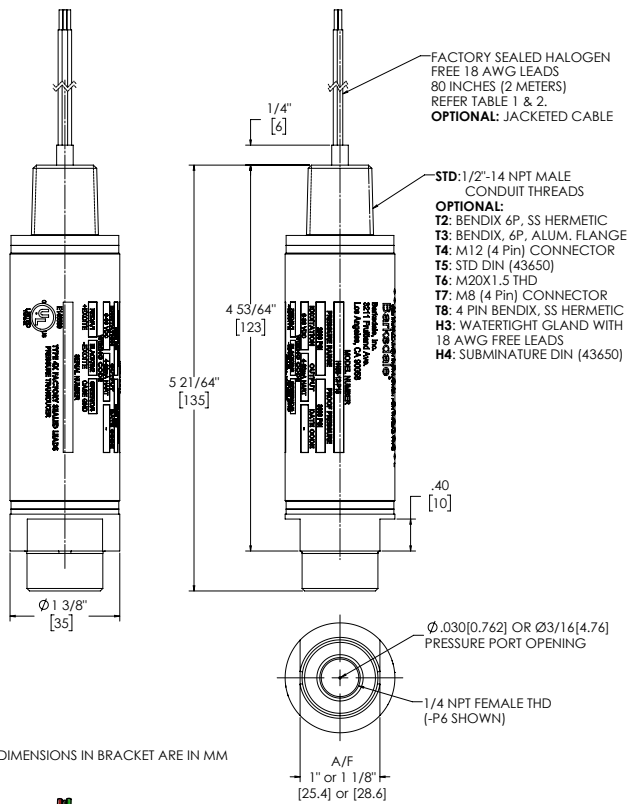


Transmitter

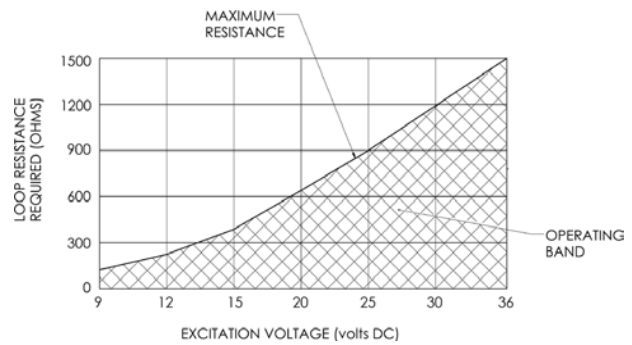
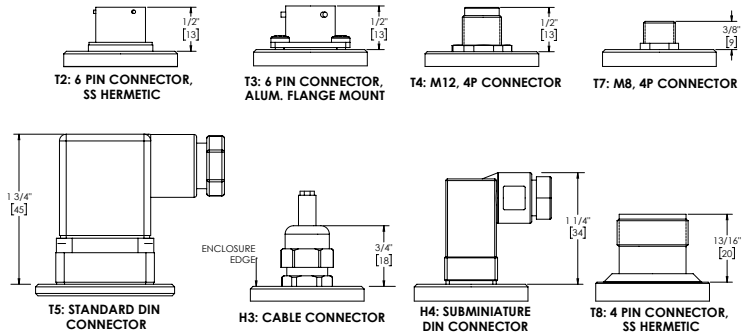
BiT - Barksdale Intelligent Transmitter

Series H455, 455, 452

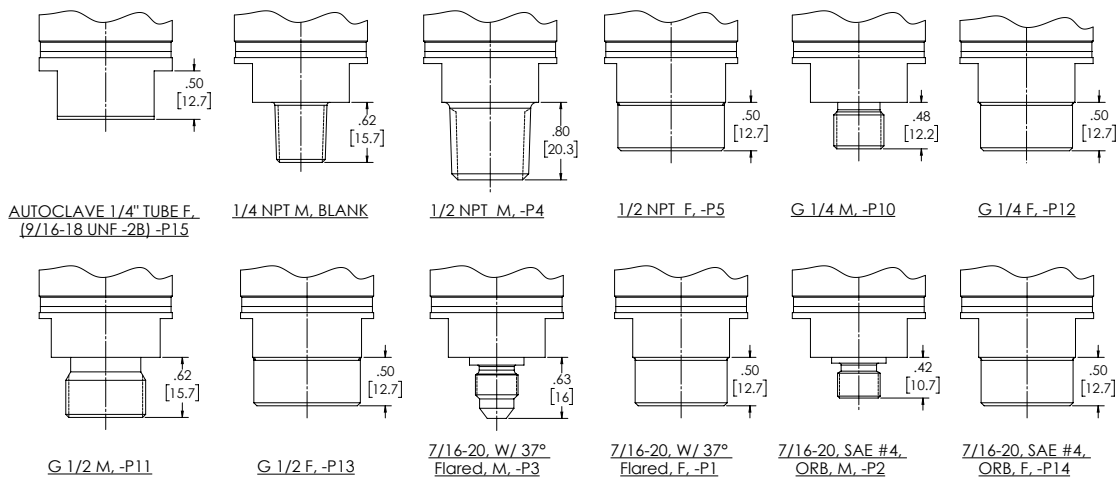
Technical Drawings



Standard and Optional Electrical Connections



Process Connections



BiT – Barksdale Intelligent Transmitter

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	6 pin connector, Alum. Flange Mount, PT02E-10-6P
T4	M12 (4 Pin) connector
T5	Standard DIN (EN 175301-803, Type A)
T6	M20 x 1.5 Male conduit
T7	M8 (4 Pin) connector
T8	4 pin connector, SS Hermetic, PTIH-14S-2P
H3	Watertight Gland with 18AWG Free Leads
H4	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	0-500 psi	0-40 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
-13	0-3,000 psi	0-200 Bar
-14	0-4,000 psi	0-300 Bar
-15	0-5,000 psi	0-350 Bar
-16	0-6,000 psi	0-400 Bar
-17	0-7,500 psi	0-500 Bar
-18 ⁷	0-10,000 psi	0-700 Bar
-29 ³	0-15,000 psi	0-1,000 Bar
-30 ³	0-20,000 psi	0-1,400 Bar
-31 ³	0-22,000 psi	0-1,500 Bar
-32 ³	0-25,000 psi	0-1,700 Bar
-33 ³	0-30,000 psi	0-2,000 Bar

Pressure Unit & Type

Blank	PSI - Sealed gage pressure (standard)
A	PSI - Absolute pressure (Not applicable with "-23" range)
B	Bar - Sealed gage pressure
BA	Bar - Absolute Pressure (ranges start from -1 Bar) (Not applicable with "-23" range)

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-2B THD)

Options

-ZVxx	Custom voltage output (Available on 452X only). Up to 10VDC. Consult Factory.
-Z17 ²	Larger orifice; without pressure surge protector
-SC ⁶	316 Stainless steel enclosure
-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 (Consult factory on vacuum [-23] models)
-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	Custom Length of free leads (Available on Conduit and gland electrical connections) (In Inches)
-D3 ⁸	3 Pin deutsch connector DT04-3P
-D4 ⁸	4 Pin deutsch connector DT04-4P

Notes

- No agency approvals
- 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.
- Ranges with more than 10k psi are available only with -P15 Process Connection
- Available up to 10,000 psi
- "-NC" option only available with following pressure ranges: -11, -13, -16 and -18. Consult factory for availability on other pressure ranges. Not available for Vacuum [-23] range and Absolute models [A] & [BA].
- 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.
- 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. -UL only with 17-4 PH SS wetted material
- Connected to factory sealed halogen free, 18 AWG free leads 12" (3m). Also available with -WXXX and -JXXX options.

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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Barksdale
CONTROL PRODUCTS

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Transmitter

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
- ▶ Chemical Injection Systems
- ▶ Oil & gas pipelines
- ▶ Petrochemical plants
- ▶ Refineries
- ▶ Coal and oil fired power plants
- ▶ Hydraulic Power Units
- ▶ 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: 12 to 30 VDC * (SELV, PELV), Class II Power Supply	Corrosive and Acidic: (up to 10,000 psi)	316L Stainless Steel, NACE [-SS]
Supply Current:		Pressure Connection:	13 available options. Refer to product configurator for available connections and ranges.
H455X & 455X:	20 mA max.	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.
452X:	20 mA max.	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)
Output: H455X:	Output: 4–20 mA with HART® Protocol Full Scale Output: 20 mA $\pm 1\%$ Zero output: 4 mA $\pm 1\%$	Vibration:	10 g's, 10-500 Hz, MIL-STD 202, Method 204, Cond A.
455X:	Output: 4–20 mA Full Scale Output: 20 mA $\pm 1\%$ Zero output: 4 mA $\pm 1\%$	Shock:	50 g's, 11 mS, MIL-STD 202 Method 213, Cond. G.
452X:	Output: 1–5 VDC Full scale output: 5.0 VDC $\pm 1\%$ Zero output: 1.0 VDC $\pm 1\%$		

* See product configurator for additional options.

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

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
Single Seal:	CSA C22.2 No. 61010-1 Certified ANSI/ISA 12.27.01 Certified (for ranges up to 10,000 PSI)
ATEX/IECEx:	CE 0081 CE II 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
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 (refer to drawing # 272479 for applicable models) NACE (316L SS 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: H455X:	EFT (Burst) Test, +/-2 kV
455X & 452X:	EFT (Burst) Test, +/-1 kV
IEC/EN 61000-4-5: H455X:	Surge Test, +/-1kV between line and earth ground
455X & 452X:	Surge test not applicable; Class II 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

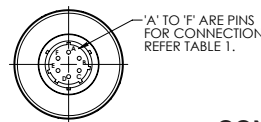
* See product configurator for additional options.

Wiring Code

TABLE 1. FREE LEAD 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

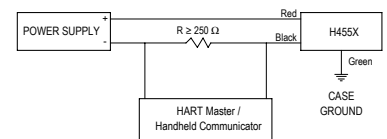
TABLE 2. JACKETED CABLE WIRE CONNECTIONS (-J Option)				
MODEL NO.	WHITE	BROWN	GREEN	YELLOW
H455X	+ EXCITATION	- EXCITATION	EARTH GROUND	NOT INCLUDED
455X	+ EXCITATION	- EXCITATION	EARTH GROUND	NOT INCLUDED
452X	+ EXCITATION	- EXCITATION	EARTH GROUND	VOLTAGE OUTPUT

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

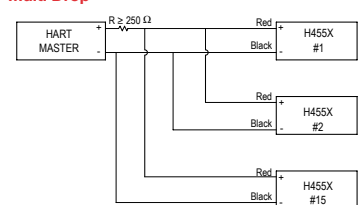


CONFIGURATION WITH HART

Point to Point



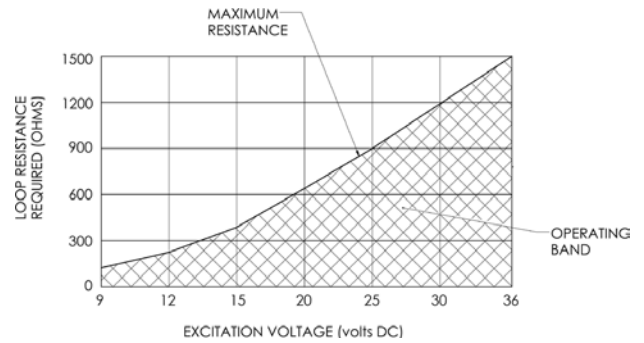
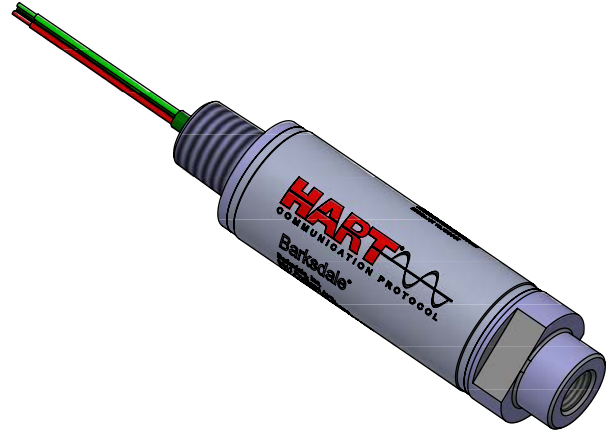
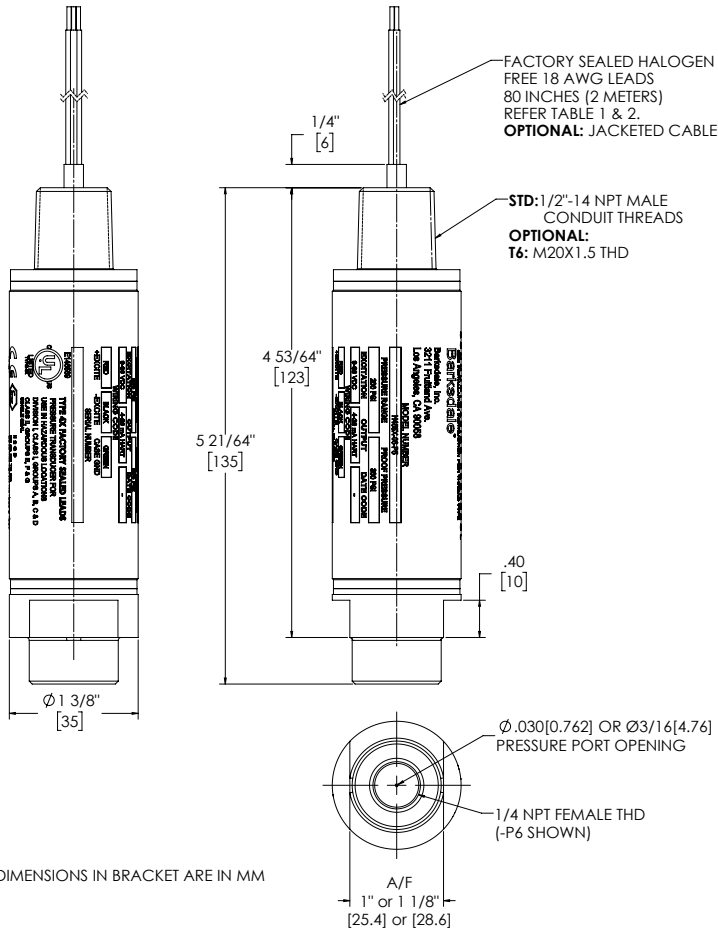
Multi Drop



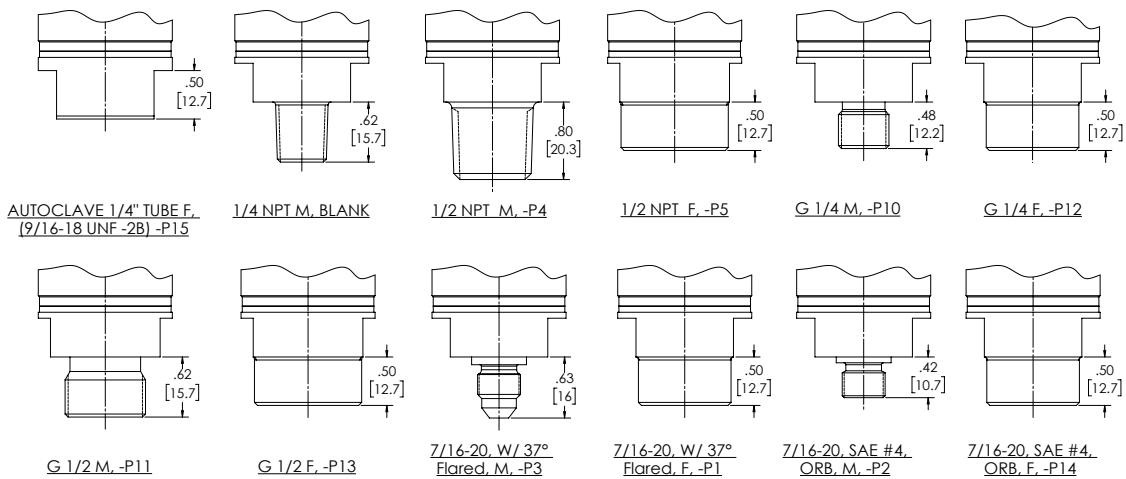
Transmitter

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

Technical Drawings



Process Connections



CRN
DWG #272479



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

Product Configurator

Example: **H455X T6 -29 BA -P15 -Z17-A1-Z123**

Base Model

H455X	4 - 20 mA Output with HART® Comm. Protocol
455X	4 - 20 mA Output
452X	1-5 VDC Output

Electrical Connection

Blank	1/2"-14 NPT Male conduit
T6	M20 x 1.5 Male conduit

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	0-500 psi	0-40 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
-13	0-3,000 psi	0-200 Bar
-14	0-4,000 psi	0-300 Bar
-15	0-5,000 psi	0-350 Bar
-16	0-6,000 psi	0-400 Bar
-17	0-7,500 psi	0-500 Bar
-18 ⁵	0-10,000 psi	0-700 Bar
-29 ²	0-15,000 psi	0-1,000 Bar
-30 ²	0-20,000 psi	0-1,400 Bar
-31 ²	0-22,000 psi	0-1,500 Bar
-32 ²	0-25,000 psi	0-1,700 Bar
-33 ²	0-30,000 psi	0-2,000 Bar

* Vacuum

Pressure Unit & Type

Blank	PSI - Sealed gage pressure (standard)
A	PSI - Absolute pressure (Not applicable with "-23" range)
B	Bar - Sealed gage pressure
BA	Bar - Absolute Pressure (ranges start from -1 Bar) (Not applicable with "-23" range)

Options

-ZVxx	Custom voltage output (Available on 452X only). Up to 10VDC. Consult Factory.
-Z17 ¹	Larger orifice; without pressure surge protector
-SC ⁴	316 Stainless steel enclosure
-SS ^{3,4}	316L Stainless steel wetted material (NACE)
-UL ⁵	cULus in addition to ATEX & IECEx approvals for -18 range (10k psi) only
-A1	Accuracy BFSL 0.1% FSO, typical (LHR) at 75°F (Consult factory on vacuum [-23] models)
-ZXXY	Special pressure ranges XX - significant digits Y - number of trailing zeros Example: 130 psi calibration: add -Z131
-JXXX	Jacketed cable (in inches)
-WXXX	Custom length of free leads (in inches)
-D3 ⁶	3 Pin deutsch connector DT04-3P
-D4 ⁶	4 Pin deutsch connector DT04-4P

Process Connection

Blank ³	1/4-18 NPT male (standard)
-P6 ³	1/4" NPT female
-P4 ³	1/2" NPT male
-P5 ³	1/2" NPT female
-P10 ³	G 1/4, washer seal, male
-P12 ³	G 1/4, washer seal, female
-P11 ³	G 1/2, washer seal, male
-P13 ³	G 1/2, washer seal, female
-P3 ³	7/16-20, with 37° flared, male
-P1 ³	7/16-20, with 37° flared, female
-P2 ³	7/16-20, SAE #4, ORB, male
-P14 ³	7/16-20, SAE #4, ORB, female
-P15	HF4 Autoclave, 1/4" tube, female (9/16-18 UNF-2B THD)

Notes

- 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.
- Ranges with more than 10k psi are available only with "-P15" Process Connection
- Available up to 10,000 psi
- 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.
- 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
- Connected to factory sealed halogen free, 18 AWG free leads 12" (.3m). Also available with -WXXX and -JXXX options.

Additional Documents and Accessories

Title	Reference Number
Installation and Maintenance Instructions	272439
HART Installation and Operation Manual	272438
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	

Transmitter

BiT – Barksdale Intelligent Transmitter

Series H455E, 455E

Features

- ▶ Intrinsic safety certification with ATEX, IECEx and CSA approvals
- ▶ Lightweight, compact and all-welded rugged stainless steel construction
- ▶ High performance sensors
- ▶ Optional HART® communication protocol with diagnostics & field calibration, reducing maintenance time and cost; 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 0.25% FSO, (L,H,R)
- ▶ Additional CSA certification for ordinary locations
- ▶ Factory sealed IP66 & IP67 and NEMA 4X enclosure
- ▶ CE, NACE compliant and superior EMC/EMI protection
- ▶ RoHS / REACH Compliant

Applications

- ▶ Drilling rig control & monitoring instrumentation
- ▶ Drilling and frac offshore equipment skids
- ▶ Production control systems
- ▶ Chemical injection systems
- ▶ Oil & gas pipelines
- ▶ Petrochemical plants
- ▶ Refineries
- ▶ Gas and oil fired power plants
- ▶ Hydraulic power units
- ▶ Gas transfers for fuel systems
- ▶ O&G process pumps
- ▶ Gas compressors
- ▶ Generators and turbines



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])	Wetted Parts: Sensor:	17-4 PH Stainless steel (more than 10k psi) 316L Stainless steel (up to 10k psi) Inconel (optional: up to 10k psi) 17-4 PH Stainless steel for -UL option (10k psi)
Temperature Shift:	Zero & Span: 0.0125% Per °F over the compensated temperature range	Fitting:	17-4 PH Stainless steel (all ranges) 316L Stainless steel and 718 Inconel (optional: up to 10k psi)
Long Term Stability:	$\pm 0.2\%$ FSO /year of calibration curve	Media General:	Gas, vapor, liquid and viscous fluids [-Z17]
Typical Life Cycle:	100 million cycles	Corrosive and Acidic: (up to 10,000 psi)	718 Inconel wetted material, NACE [-NC], and 316L stainless steel, NACE [-SS]
Proof Pressure:	2X range for up to 7500 psi models 1.5X range for 7500 - 30000 psi models	Pressure Connection:	13 available options. Refer to product configurator for available connections and ranges.
Input:	Excitation voltage: 9 to 30 VDC	Electrical Connection:	10 available electrical connections such as M12, Bendix, DIN, conduit, gland and etc. Option for free leads from conduit or gland electrical connection includes two signal leads plus ground lead consisting of 18AWG halogen free type, 80" (2m) long or optional jacketed cable exiting 1/2 NPT or M20 conduit or gland connections.
Supply Current:	20mA max.	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)
Output: H455E:	Output: 4-20 mA with HART® Protocol Full Scale Output: 20 mA $\pm 1\%$ Zero output: 4 mA $\pm 1\%$	Vibration:	10 g's, 10-500 Hz, MIL-STD 202, Method 204, Cond. A
455E:	Output: 4-20 mA Full Scale Output: 20 mA $\pm 1\%$ Zero output: 4 mA $\pm 1\%$	Shock:	50 g's, 11 mS, MIL-STD 202 Method 213, Cond. G.
Dynamic Response Time:	<70 milliseconds		
Enclosure:	All welded 300 series stainless steel. IP66 & IP67 and NEMA 4X rated. 316 Stainless Steel (optional)		

* See product configurator for additional options.

Barksdale®

Subject to technical changes.

General Specifications* cont.

Approvals: CSA	cCSAus Ordinary Locations
CSA	cCSAus Intrinsic Safety for Hazardous Locations Class I, Div. 1, Groups A, B, C & D Class II, Div. 1, Groups E, F & G Ex ia IIC T4 Ga Ex ia IIIC T135°C Da Class 1 Zone 0, AEx ia IIC T4 Ga Zone 20 AEx ia IIIC T135°C Da
ATEX/IECEx:	Factory sealed IP66 & IP67 and NEMA 4X enclosure CE 0081 Ex II 1 G D Ex ia IIC T4 Ga Ex ia IIIC T135°C Da, IP66 & IP67 -40 °C ≤ Tamb ≤ +80 °C CML 19 ATEX 2240X IECEx CML 19.0066X
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, 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:	EFT (Burst) Test, +/-2 kV
IEC/EN 61000-4-5:	Surge Test, +/-1kV between line and earth ground
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.

Installation: Intrinsic Safety Installation for Hazardous Locations: Install per Barksdale Control Drawing 272471

I.S. Entry Parameters	Supply/Signal Barrier		Pressure Transmitter		
	Vmax (Ui)	Imax	Ci	Li	Pi max
	30 VDC	100 mA	2.2 nF	30 µH	750 mW

Wiring Code

TABLE 1. FREE LEAD WIRES AND CONNECTOR PIN CONNECTIONS

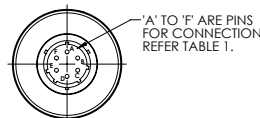
MODEL NO.	RED/A/1	BLACK/B/2	GREEN/D/4
H455E	+ EXCITATION	- EXCITATION	EARTH GROUND
455E	+ EXCITATION	- EXCITATION	EARTH GROUND

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

MODEL NO.	WHITE	BROWN	GREEN
H455E	+ EXCITATION	- EXCITATION	EARTH GROUND
455E	+ EXCITATION	- EXCITATION	EARTH GROUND

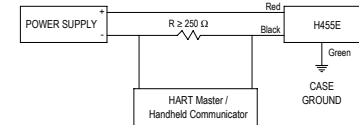
TABLE 3. DEUTSCH CONNECTOR PIN CONNECTIONS (-D3 & -D4 Option)

MODEL NO.	CONNECTOR	PIN A/1	PIN B/2	PIN C/3	PIN D/4
H455E & 455E	D3	+ EXCITATION	- EXCITATION	EARTH GROUND	N/A
H455E & 455E	D4	- EXCITATION	+ EXCITATION	EARTH GROUND	N/A

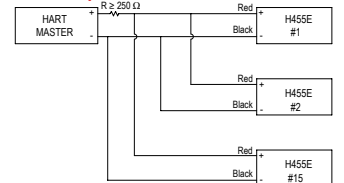


CONFIGURATION WITH HART®

Point to Point



Multi Drop



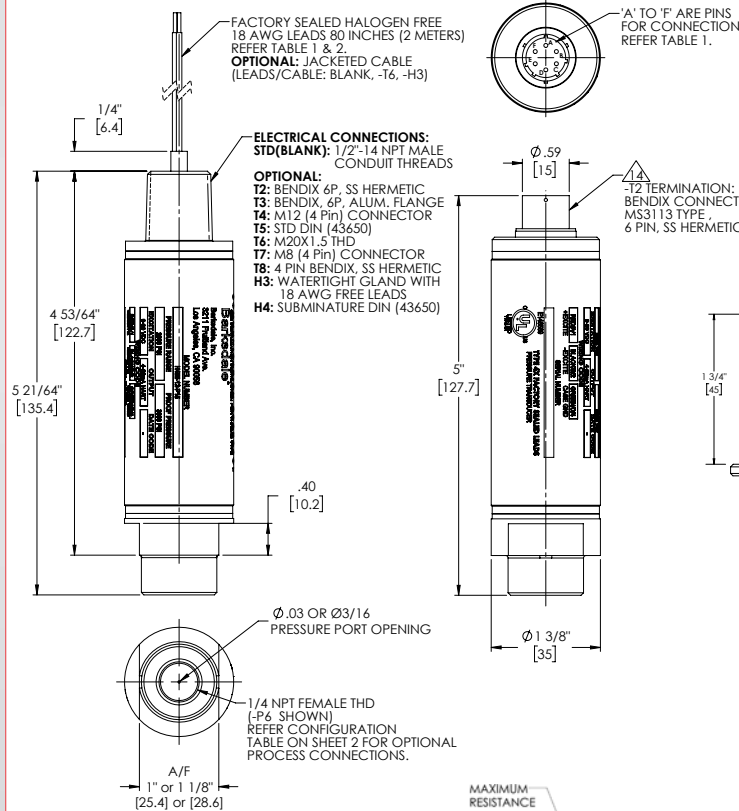
Transmitter

BiT – Barksdale Intelligent Transmitter

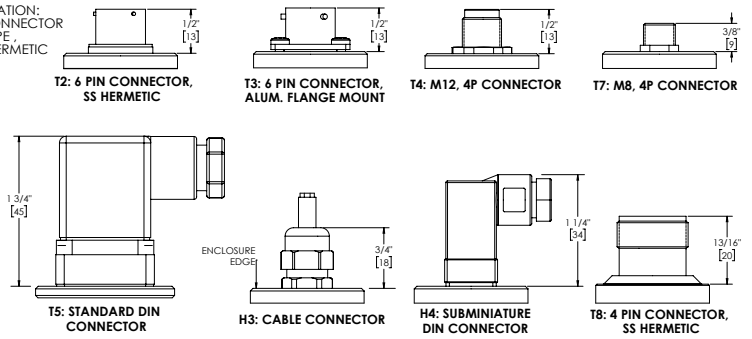
Series H455E, 455E

Technical Drawings

DIMENSIONS IN BRACKET ARE IN MM

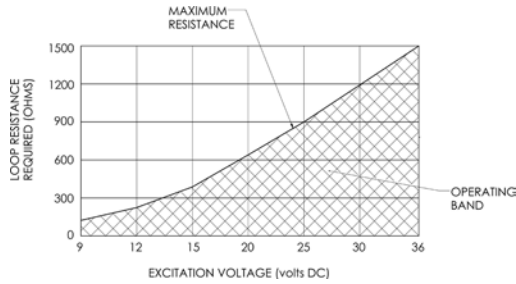


Standard and Optional Electrical Connections

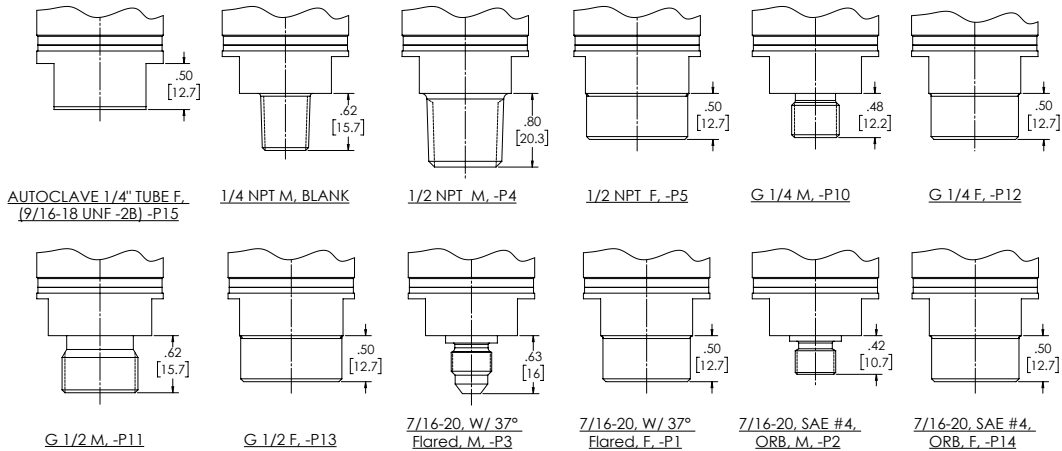


-D3 CONNECTOR OPTION

-D4 CONNECTOR OPTION WITH WATERTIGHT GLAND (H3)



Process Connections



BiT – Barksdale Intelligent Transmitter

Series H455E, 455E

Product Configurator Example: **H455E T6 -29 BA -P15 -Z17-A1-Z123**

Base Model

H455E	4 - 20 mA Output with HART® Comm. Protocol
455E	4 - 20 mA Output

Electrical Connection

Blank	1/2"-14 NPT Male conduit
T2	6 pin connector, SS Hermetic, PTIH-10-6P
T3	6 pin connector, Alum. Flange Mount, PT02E-10-6P
T4	M12 (4 Pin) connector
T5	Standard DIN (EN 175301-803, Type A)
T6	M20 x 1.5 Male conduit
T7	M8 (4 Pin) connector
T8	4 pin connector, SS Hermetic, PTIH-14S-2P
H3	Watertight Gland with 18AWG Free Leads
H4	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	0-500 psi	0-40 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
-13	0-3,000 psi	0-200 Bar
-14	0-4,000 psi	0-300 Bar
-15	0-5,000 psi	0-350 Bar
-16	0-6,000 psi	0-400 Bar
-17	0-7,500 psi	0-500 Bar
-18 ¹	0-10,000 psi	0-700 Bar
-29 ³	0-15,000 psi	0-1,000 Bar
-30 ³	0-20,000 psi	0-1,400 Bar
-31 ³	0-22,000 psi	0-1,500 Bar
-32 ³	0-25,000 psi	0-1,700 Bar
-33 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)
B	Bar - Gauge Pressure
BA	Bar - Absolute Pressure (ranges start from -1 Bar) (Not applicable with "-23" range)

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-2B 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 ⁵	All 316 stainless steel construction with 316L SS wetted material (NACE)
-SS ^{4,6}	316L stainless steel wetted material (NACE)
-NC ^{4,5}	718 Inconel wetted material (NACE)
-UL ¹	cCSAus approval, only for 10k psi "-18" range. Includes ATEX & IECEX approvals.
-A1	Accuracy BFSL 0.1% FSO (LHR) at 75°F (Consult factory on vacuum [-23] models)
-ZXXX	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	Custom Length of free leads (Available on Conduit and gland electrical connections) (In Inches)
-D3 ⁷	3 Pin deutsch connector DT04-3P
-D4 ⁷	4 Pin deutsch connector DT04-4P

Notes

- UL option only available for 10,000 psi range. No cCSAus approval for 10,000 psi range without -UL suffix option. cCSAus approval standard for all other ranges
- All pressure ranges 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.
- Ranges with more than 10k psi are only available with -P15 Process Connection
- Available up to 10,000 psi
- "-NC" option only available with following pressure ranges: -11, -13, -16 and -18. Consult factory for availability on other pressure ranges. Not available for Vacuum [-23] range and Absolute models [A] & [BA].
- SS option is included in -SC option. -SC does not include material of electrical connection. -UL option and ranges that are more than 10k psi are only available with 17-4PH SS wetted material.
- Connected to factory sealed halogen free, 18 AWG free leads 12" (.3m). Also available with -WXXX and -JXXX options.

Additional Documents & Accessories

Title	Reference Number
Installation and Maintenance Instructions, Control Drawing	272441, 272471
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

3211 Fruitland Avenue • Los Angeles, CA 90058 • ☎ 800-835-1060 • Fax: 323-589-3463 • www.barksdale.com

Barksdale
CONTROL PRODUCTS

Transducer

OEM Transducer

Series 623, 624, 625, 626, 627

Features

- ▶ UL and cUL approved
- ▶ Compact size
- ▶ Stainless steel construction
- ▶ Ceramic sensor technology
- ▶ Current and voltage outputs
- ▶ 0.5% accuracy


Applications

- ▶ Water irrigation systems
- ▶ Medical gas systems
- ▶ HVAC systems
- ▶ Pumps and compressors
- ▶ Machine tools
- ▶ Hydraulic and pneumatic applications
- ▶ Mobile hydraulics
- ▶ General industrial applications

General Specifications*

Accuracy (LH & R):	±0.5% FSO at 75°F (24°C), typical
Typical Life Cycle:	100 million cycles
Proof Pressure:	2 times rated pressure, except -16 and -18 pressure ranges
Input/Excitation Voltage:	
625 (2-wire):	9 to 28 VDC
623 (3-wire):	9 to 30 VDC
624 (3-wire):	5 VDC (fixed)
626 (3-wire):	14 to 30 VDC
627 (3-wire):	14 to 30 VDC
Output:	
625:	Output: 4 to 20 mA Full scale output: 16 mA ± 1% Zero output: 4 mA ± 2%
623:	Output: 0.5 to 5.5 VDC Full scale output: 5.0 VDC ± 1% Zero output: 0.5 VDC ± 2%
624:	Output: 0.5 to 4.5 VDC ratiometric Full scale output: 4.0 VDC ± 2% Zero output: 0.5 VDC ± 2%
626:	Output: 1 to 11 VDC Full scale output: 10 VDC ± 1% Zero output: 1.0 VDC ± 2%
627:	Output: 0 to 10 VDC Full scale output: 10 VDC ± 1% Zero output: 0 VDC ± 2%
Supply Current:	15 mA maximum (no load)
Wetted Parts:	316 stainless steel, ceramic and Viton® O-ring (standard)
Enclosure**:	NEMA 4X (IP 65)



Pressure Connection:	1/4" NPT standard. Other options available.
Electrical Connection:	PVC jacketed cable standard. Other options available.
Temperature Ranges:	
Operating:	-40°F to +185°F (-40°C to +85°C)
Compensated:	30°F to +130°F (-1°C to +54°C)
Storage:	-40°F to +185°F (-40°C to +85°C)
Temperature Shift:	
Zero and Span:	±0.06% FS/K over operating temperature range
Vibration:	15 g's, 10-2000 Hz, MIL-STD 202
Approval:	 UL File E302981, to UL 508, as Industrial Control Equipment (NMTR, NMTR7), and to UL 61010-1, as Process Control Equipment (QUYX, QUYX7).
Shock:	50 g's, 11 ms, MIL-STD 202 Method 213, Cond. G.
Weight:	5.1 oz (145 grams) (typical)
Warranty:	1 year

1. Conditions of Use: Class 2 power source, Type 4X indoor, 122°F (50°C) max. ambient.

Wiring Code

Electrical Termination		Voltage Output	Current Output	Current Output
H3	H4 / T4 / T5	Series 623/624/626/627	Series 625	Series 625-H4 (-Q21)
Red	1	+ Excitation	+ Excitation	Common
Black	2	Common	- Excitation	Not used
White	3	+ Output	Not used	+ Excitation
Drain	4	Case Ground	Case Ground	Case Ground

Pin Out Diagram



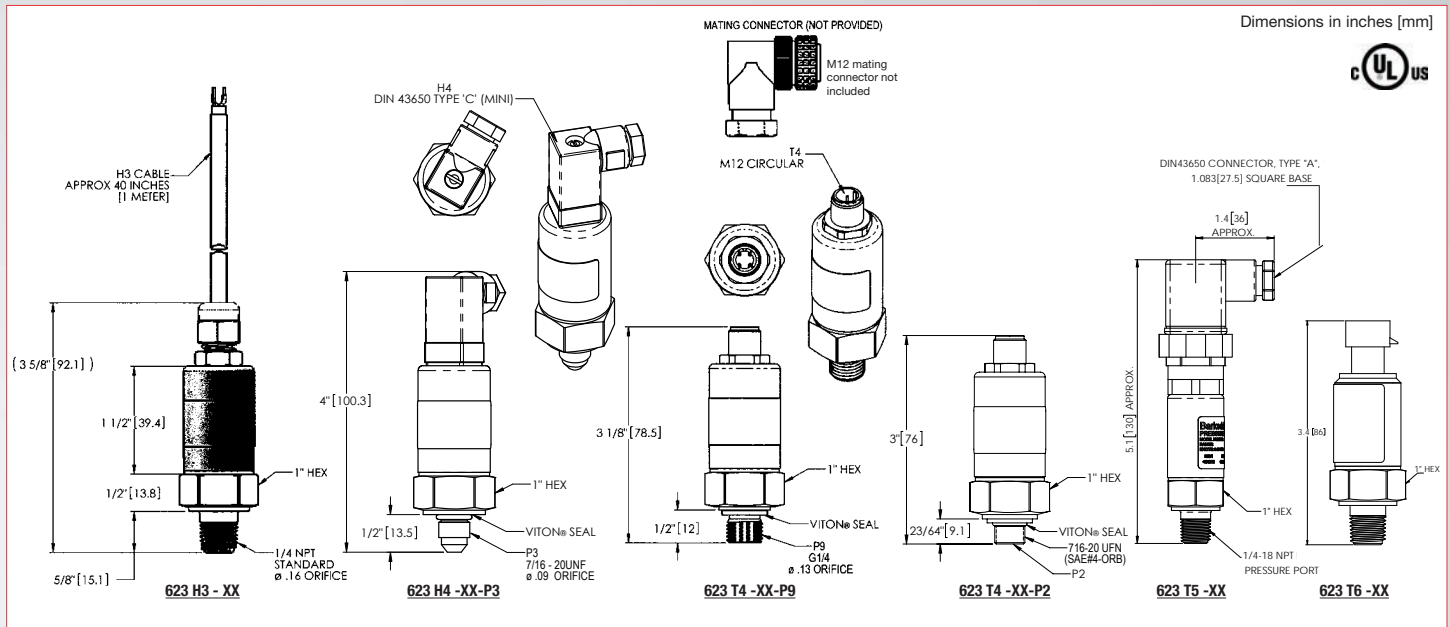
* See product configurator for additional options.

** Mating connector must be properly installed to preserve enclosure rating

Barksdale®
CONTROL PRODUCTS

Barksdale, Inc./Barksdale GmbH
A Subsidiary of Crane Co.

Technical Drawings



Product Configurator

Example: **625 H3 -05**

Base Model

625	4-20 mA analog output
623	0.5-5.5 VDC analog output
624 ⁵	0.5-4.5 VDC ratiometric analog output (not agency approved)
626	1-11 VDC analog output
627	0-10 VDC analog output

Electrical Connection

H3	PVC Shielded & jacketed #22 AWG cable (1 meter)
H4	Mini-DIN 43650 Type "C" - mating connector included (Industry std-9.4mm)
T4 ¹	M12 connector (mating connector NOT included)
T5 ⁵	Standard DIN (43650) mating connector included (Not UL approved)
T6 ¹	Delphi Metri-Pack Series 150 (Not UL approved)

Pressure Range^{2,4}

-21	0-30 PSI (0-2.07 BAR)
-26	0-75 PSI (0-5.17 BAR)
-05	0-150 PSI (0-10.34 BAR)
-07	0-300 PSI (0-20.69 BAR)
-27	0-750 PSI (0-51.71 BAR)
-11	0-1500 PSI (0-103.42 BAR)
-13	0-3000 PSI (0-206.9 BAR)
-16 ⁸	0-6000 PSI (0-413.7 BAR)
-18 ^{5, 6, 7, 9}	0-8700 PSI (0-600 BAR)

Process Connection

Blank	1/4" NPT male
-P3	7/16-20 UNF male (JIC 37°)
-P9	G1/4 male (gasket seal)
-P2	7/16-20 SAE #4 ORB
-P7 ¹⁰	1/8" NPT male

Options

Blank	Standard
-Z1	Cleaned for oxygen service
-Z15 ⁴	Calibrated in 'bar' unit
-Z10	1 to 5 V output (only available on 623)
-Z11	1 to 6 V output (only available on 623)
-Z12	0.5 to 4.5 V output (only available on 623)
-Z19	Built in pressure surge suppressor (0.031" orifice)
-Z21	Built in pressure surge suppressor (0.011" orifice)
-Z22	Combination options: P9 + Z15 + Z19
-Z23	Combination options: P9 + Z15 + Z21
-ZXXY ^{3, 7}	Special pressure ranges
-Wxxx	Specify cable length in inches (H3 option)
-Q21	Use with 625H4 only. (See Page 1 for pinout information)

Accessories

/A	4 pin M12 female right angle plug molded cable, 3.28 ft. (1 m)
/B	4 pin M12 female right angle plug molded cable, 6.56 ft. (2 m)
/E	4 pin M12 female right angle plug molded cable, 16.40 ft. (5 m)
/F	4 pin M12 female right angle plug molded cable, 32.81 ft. (10 m)
/G	4 pin M12 female straight plug molded cable, 3.28 ft. (1 m)
/H	4 pin M12 female straight plug molded cable, 6.56 ft. (2 m)
/K	4 pin M12 female straight plug molded cable, 16.40 ft. (5 m)
/L	4 pin M12 female straight plug molded cable, 32.81 ft. (10 m)
/M	4 pin M12 female straight connector
/P	4 pin M12 female right angle connector

- Note: 1. Mating connector not included
 2. Other ranges available with the use of -ZXXY Option. Consult factory.
 3. Add suffix ZXXY for special pressure range calibration. XX = significant digits. Y = number of trailing zeros. Example: 130 psi calibration: add -Z131.

4. To calibrate unit in 'BAR', select the closest pressure range then add suffix '-Z15' and 'ZXXY'. Example: 15 bar = 625H3-07-Z15-Z150
 5. No agency approvals
 6. Built with 0.011 orifice on pressure port
 7. 8,700 PSI (600 BAR) range is not available with special pressure ranges
 8. Proof pressure is 9000 PSI
 9. Proof pressure is 11,000 PSI
 10. Only up to 3,000 PSI

Transducer

General Industrial Transducer (Unamplified)

Series 420, 422

Features

- ▶ General purpose, industrial grade transducer
- ▶ Diffused silicon sensor for high accuracy and reliability
- ▶ Rugged stainless steel construction
- ▶ Built-in pressure snubber for high pressure applications (2000 psi and above)
- ▶ Wide range of electrical connections available

Applications

- ▶ Oil pressure hydraulics
- ▶ Cranes
- ▶ Presses
- ▶ Gas metering
- ▶ HVAC
- ▶ Medical equipment



General Specifications*

Accuracy (LH & R):	±0.25% FSO at 75°F (24°C) typical	Pressure Connection:	1/4"-18 NPT male
Long Term Stability:	±0.5% FSO of calibration curve	Electrical Connection:	4 conductor, 22 awg, PVC jacketed, unshielded cable, 3 ft. (1 m) long with integral strain relief and case ground
Typical Life Cycle:	100 million cycles	Temperature Ranges:	
Proof Pressure:	2 times rated pressure or 13,000 psi max. (896 bar), whichever is less	Operating:	-40° to 185°F (-40° to 85°C)
Input:	Excitation voltage: 10 Volt, nominal 5 to 15 VDC (regulated)	Compensated:	30° to 160°F (-1 to 71°C)
Input Resistance:	15,000 ohm (maximum)	Storage:	-40° to 185°F (-40° to 85°C)
Output:		Temperature Shift:	
Model 420:	Full scale output: 30 mV ±1 mV 3 mV/V sensitivity Zero output: 0 mV ±2mV	Zero & Span:	±3.0% FSO (max.) over compensated range
Model 422:	Full scale output: 100 mV ±1 mV 10 mV/V sensitivity Zero output: 0 mV ±2mV	Vibration:	15 g's, 10-2000 Hz, MIL-STD 202
Wetted Parts:	17-4 PH & 300 series stainless steel	Shock:	50 g's, 11 ms, MIL-STD 202 Method 213, Cond. G.
Enclosure:	NEMA 3, 304 stainless steel	Built-in Protection:	Built-in pressure snubber for 2K psi and greater
Response Time:	2 kHz	Weight:	4.6 oz. (130 grams) to 1000 psi 6.7 oz. (190 grams) 1000 psi and higher
		Warranty:	1 year warranty

* See product configurator for additional options.

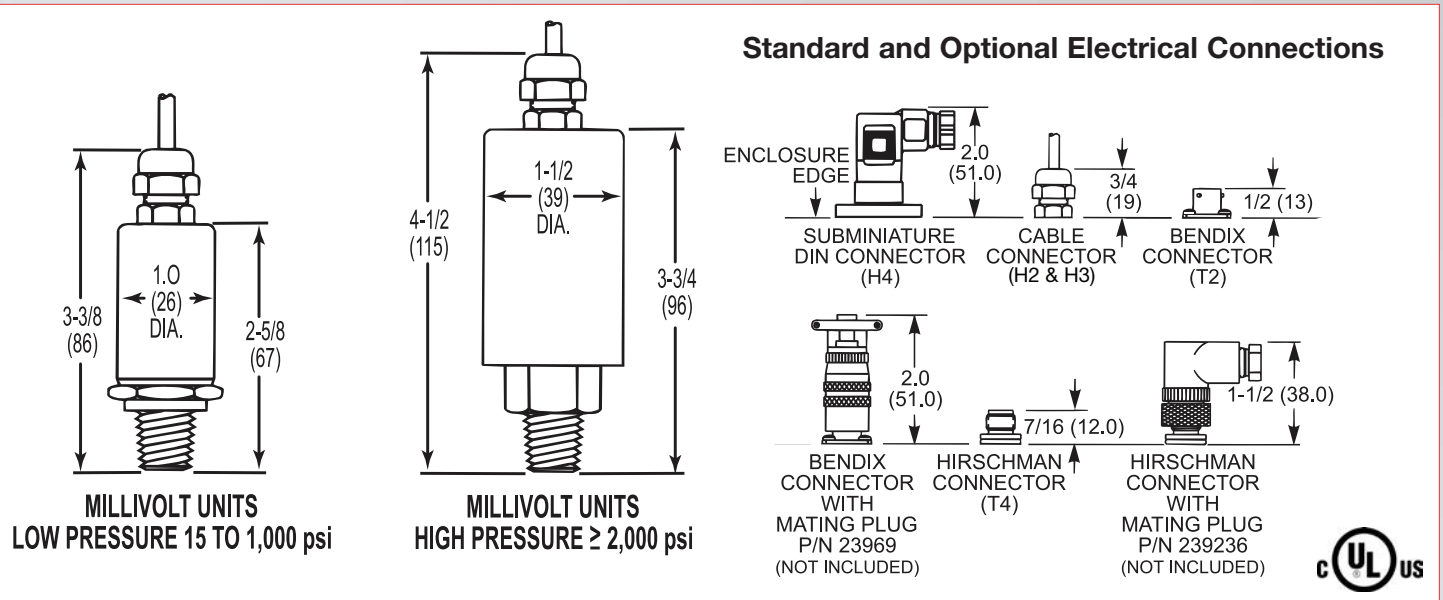
Wiring Code

MILLIVOLT SERIES - 420 & 422				
DIN Conn. (H4)	Bendix Conn. (T2)	M12 Hirschman Conn. (T4)	Cable (H2/H3)	Signal
1	A	1	Red	+ Excitation
4	D	4	Black	- Excitation
2	B	3	Green	+ Output
3	C	2	White	- Output
-	-	-	Bare	Shield

General Industrial Transducer (Unamplified)

Series 420, 422

Technical Drawings



Product Configurator

Example: 422 H3 -04 -A -P1

Base Model

420	30mV full scale output (3mV/V)
422	100mV full scale output (10mV/V)

Electrical Connection

H2	Unshielded jacketed #22 AWB cable (1 meter)
H3	Shielded & jacketed #22 AWB cable (1 meter) (standard)
H4	Mini-DIN connector (43650 type) - mating connector included
T2 ¹	Bendix connector (PT02A-8-4P)-4 pin
T3	Bendix connector (PT02E-10-6P)-6 pin
T4 ²	M12 Hirschman connector (ELST 412 PG9)

Pressure Range

-25	0 - 5 psi (0 - 0.35 bar) ³
-01	0 - 15 psi (0 - 1 bar) ⁴
-21	0 - 30 psi (0 - 2 bar) ³
-03	0 - 50 psi (0 - 3.5 bar) ⁴
-22	0 - 60 psi (0 - 4 bar) ³
-04	0 - 100 psi (0 - 6.9 bar) ⁴
-05	0 - 150 psi (0 - 10.3 bar) ⁴
-06	0 - 200 psi (0 - 12.8 bar) ⁴
-07	0 - 300 psi (0 - 20.7 bar) ⁴
-08	0 - 500 psi (0 - 34.5 bar)
-10	0 - 1,000 psi (0 - 69 bar)
-11	0 - 1,500 psi (0 - 104 bar)
-12	0 - 2,000 psi (0 - 138 bar) ⁵
-13	0 - 3,000 psi (0 - 207 bar) ⁵
-14	0 - 4,000 psi (0 - 276 bar) ⁵
-15	0 - 5,000 psi (0 - 345 bar) ⁵
-17	0 - 7,500 psi (0 - 517 bar) ⁵
-18	0 - 10,000 psi (0 - 689 bar) ⁵

Options

-U	UL approved
-Z1	Cleaned for oxygen service (not UL approved)
-N4	NEMA 4 enclosure
-WXXX	Additional length of free leads (in inches) (H3/H2 connection)

Process Connection

Blank	1/4-18 NPT male (standard)
-P1	7/16-20 UNF-2B female

Accessories

Order #	Description
23969	Mating conn. for T2 Bendix connection
239236	Mating conn. for T4 Hirschman connection
208360	Pressure snubber (1/4-18 NPT)

¹ Mating connector: Bendix # PT06E-8-4S or equivalent (not included)

² Mating connector: Hirschman # ELWIK 4021 PG7 or equivalent (not included)

³ Available only on 422 Series; 75mV ± 1mV output at 75°F

⁴ Available in absolute range for 422 Series

⁵ Built-in snubber

Transducers

General Industrial Transducer (Amplified)

Series 423, 425, 426

Features

- ▶ General purpose, industrial grade transducer
- ▶ Diffused silicon sensor for high accuracy and reliability
- ▶ Rugged stainless steel enclosure
- ▶ Superior surge voltage protection and EMI/RFI immunity
- ▶ Built-in high pressure snubber (2000 psi and above)
- ▶ Current and voltage signals
- ▶ UL and cUL approved (UL508)

Applications

- ▶ Industrial hydraulic equipment
- ▶ Cranes
- ▶ Compressors
- ▶ Gas metering
- ▶ Vacuum machinery packaging



General Specifications*

Accuracy (LH & R):	±0.25% FSO (±0.5% for vacuum only [-23]) at 75°F (24°C), typical
Long Term Stability:	±0.5% FSO of calibration curve
Typical Life Cycle:	100 million cycles
Proof Pressure:	2 times rated pressure or 13,000 psi max. (896 bar), whichever is less
Input:	
423:	Excitation voltage: 11 to 30 VDC
426:	Excitation voltage: 14 to 30 VDC
425:	Excitation voltage: 12 to 30 VDC
Supply Current:	16 mA maximum (no load)
Min. Load Resistance:	2K ohms (voltage series only)
Output:	
423:	Output: 0.5 to 5.5 VDC Full scale output: 5.0 VDC ± 1% Zero output: 0.5 VDC ± 2%
426:	Output: 1 to 11 VDC Full scale output: 10 VDC ± 1% Zero output: 1.0 VDC ± 2%
425:	Output: 4 to 20 mA Full scale output: 16 mA ± 1% Zero output: 4 mA ± 2%

* See product configurator for additional options.

Wiring Code

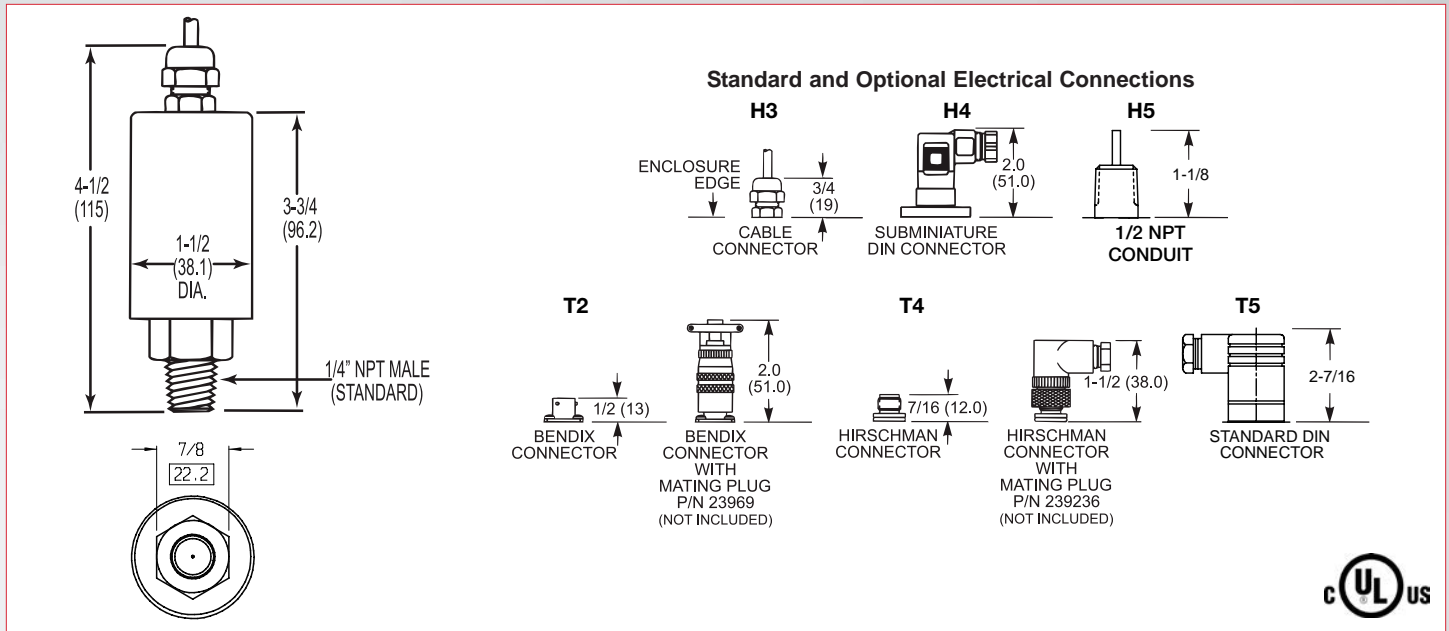
Voltage - Series 423, 426			
T2		H3	
A	1	Red	+ Excitation
B	3	White	+ Output
C	2	Black	Common
D	4	Bare	Case Drain
Milliamp - Series 425			
A	1	Red	+ Excitation
B	2	Black	- Excitation
D	4	Bare	Case Drain

Wetted Parts:	17-4 PH (fitting) & 300 stainless steel (sensor)
Enclosure:	NEMA 4, 300 series stainless steel
Pressure Connection:	1/4"-18 NPT male (STD)
Response Time:	2 kHz
Electrical Connection:	3 conductor for voltage series and 2 conductor for current series, 24 awg, PVC jacketed, shielded cable, 3 ft. (1 m) long with integral strain relief and case ground.
Temperature Ranges:	
Operating:	-40° to 185°F (-40° to 85°C)
Compensated:	30° to 160°F (-1° to 71°C)
Storage:	-40° to 185°F (-40° to 85°C)
Temperature Shift:	
Zero & Span:	± 0.0125% per °F over compensated range, 75°F reference
Vibration:	15 g's, 10-2000 Hz, MIL-STD 202
Shock:	50 g's, 11 ms, MIL-STD 202 Method 213, Cond. G.
Built-in Electrical Protection:	Conducted & radiated RF emissions/interference to EN 55011 IEC 801-2, -3, -4, -5, and -6 EN/IEC 61000-4-2, -3, -4, -5, -6 Refer to engineering sales drawing for details.
Weight:	
423 & 426:	7.4 oz. (221 grams) to 1000 psi 9.9 oz. (281 grams) 2,000 psi and higher
425:	7.4 oz. (210 grams) to 1000 psi 9.4 oz. (266 grams) 2,000 psi and higher
Warranty:	1 year warranty

General Industrial Transducer (Amplified)

Series 423, 425, 426

Technical Drawings



Product Configurator

Example	425	H3	-19		-P1	
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Base Model

423	0.5 - 5.5 VDC analog output
425	4 - 20 mA analog output
426	1 - 11 VDC analog output

Electrical Connection

H3	Shielded & jacketed #22 AWB cable (1 meter) (standard)
H4	Subminiature DIN connector (43650 type) - mating connector included
H5	Shielded & jacketed cable with 1/2" male conduit
T2 ¹	Bendix connector (PT02A-8-4P) - 4 pin
T3	Bendix connector (PT02E-10-6P)-6 pin
T4 ²	M12 Hirschman connector (ELST 4012 PG7)
T5	Standard DIN connector (43650 A) -mating connector included

Pressure Range

-23	0 - 29.9" of Hg (Vacuum)
-25	0 - 5 psi (0 - 0.35 bar)
-01 ⁴	0 - 15 psi (0 - 1 bar)
-21 ⁴	0 - 30 psi (0 - 2 bar)
-03 ⁴	0 - 50 psi (0 - 3.5 bar)
-22 ⁴	0 - 60 psi (0 - 4 bar)
-04 ⁴	0 - 100 psi (0 - 6.9 bar)
-05 ⁴	0 - 150 psi (0 - 10.3 bar)
-06 ⁴	0 - 200 psi (0 - 13.8 bar)
-07 ⁴	0 - 300 psi (0 - 20.7 bar)
-08	0 - 500 psi (0 - 34.5 bar)
-19	0 - 600 psi (0 - 41 bar)
-10	0 - 1,000 psi (0 - 69 bar)
-11	0 - 1,500 psi (0 - 104 bar)
-12 ⁵	0 - 2,000 psi (0 - 138 bar)
-13 ⁵	0 - 3,000 psi (0 - 207 bar)
-14 ⁵	0 - 4,000 psi (0 - 276 bar)
-15 ⁵	0 - 5,000 psi (0 - 345 bar)
-16 ⁵	0 - 6,000 psi (0 - 414 bar)
-17 ⁵	0 - 7,500 psi (0 - 517 bar)
-18 ⁵	0 - 10,000 psi (0 - 689 bar)

Options

-N4X ⁷	Nema 4X enclosure (H3 Option only) \$200 minimum per order
-E ⁶	External zero span adjustment
-Z15	Calibrated in 'bar' unit
-Z10	1 to 5V output (available only on 423 models)
-Z11	1 to 6V output (available only on 423 models)
-Z12	0.5 to 4.5V output (available only on 423 models)
-Z16 ⁷	0.2 to 10V output (available only on 426 models) Not UL approved
-WXXX	Additional length of free leads (in inches) (H3/H5 connection)
-ZXXY ³	Special pressure ranges
-Z1 ⁷	Cleaned for oxygen service
-U ⁸	UL & cUL approved

Accessories

Order #	Description
23969	Bendix mating connector (T2 electrical option)
239236	Hirschman mating connector (T4 electrical option)
208360	Pressure snubber (1/4-18 NPT female/male)

Process Connection

Blank	1/4-18 NPT male (standard)
-P1	7/16-20 UNF-2B female
-P3	7/16-20 UNF-2A male (JIC 37°)
-P4	1/2" NPT male
-P5	1/2" NPT female
-P6	1/4" NPT female
-P9	G1/4 male (Gasket Seal)
Blank	Gauge pressure
-A	Absolute pressure range (<300psi)

¹ Mating connector: Bendix # PT06E-8-4S or equivalent (not included). Order number: 23969
² Mating connector: Hirschman # ELWIKA 4012 PG7 or equivalent (not included). Order number: 239236
³ Add suffix ZXXY for special pressure ranges. XX = significant digits. Y = number of trailing zeros. Example: for 230psi calibration, add Z231
⁴ Available in absolute ranges
⁵ Built-in surge protector
⁶ Available with connector options H3 and T4 only
⁷ Not UL approved
⁸ Ambient: 60° C - 420, 422; 80° C - 423, 425, 426

Transducer

Non-Incendive Transducer

Series 433, 435, 436

Features

- ▶ High accuracy
- ▶ Protection in hazardous environments, Class I, Div 2
- ▶ Rugged all-welded stainless steel construction
- ▶ Superior EMI, ESD and RFI protection
- ▶ NEMA 4
- ▶ Built-in high pressure snubber (2000 psi and above)

Applications

- ▶ Oil & gas pipelines
- ▶ Oil patch
- ▶ Petrochemical plants
- ▶ Refineries
- ▶ Pulp and paper mills
- ▶ Coal and oil fired power plants
- ▶ Cement plants
- ▶ Gas transfers for fuel systems
- ▶ Gas panels
- ▶ Gas mixing systems

General Specifications*

Accuracy (LH & R):	±0.25% FSO at 75°F (±0.5% for vacuum only [-23]) typical
Long Term Stability:	±0.5% FSO of calibration curve
Typical Life Cycle:	100 million cycles
Proof Pressure:	2 times rated pressure or 13,000 psi max. (896 bar), whichever is less
Input:	
433:	Excitation voltage: 11 to 30 VDC
436:	Excitation voltage: 14 to 30 VDC
435:	Excitation voltage: 12 to 28 VDC
Supply Current:	3.0 mA maximum (no load)
Min. Load Resistance:	2K ohms (voltage series)
Output:	
433:	Output: 0.5 to 5.5 VDC Full scale output: 5.0 VDC ± 0.8% Zero output: 0.5 VDC ± 0.4%
436:	Output: 1 to 11 VDC Full scale output: 10 VDC ± 0.4% Zero output: 1.0 VDC ± 0.2%
435:	Output: 4 to 20 mA Full scale output: 16 mA ± 1% Zero output: 4 mA ± 2%
Wetted Parts:	17-4 PH (fitting) & 300 stainless steel (sensor)
Enclosure:	NEMA 4, 300 series stainless steel
Pressure Connection:	1/4"-18 NPT male

* See product configurator for additional options.

MILLIVOLT SERIES - 433 & 436		
(T4/T5)	(H3/H5)	Signal
1	Red	+ Excitation
3	White	+ Output
2	Black	Common
4	Bare	Drain
MILLIAMP SERIES - 435		
1	Red	+ Excitation
2	Black	- Excitation
4	Bare	Case Drain

◀ Wiring Code

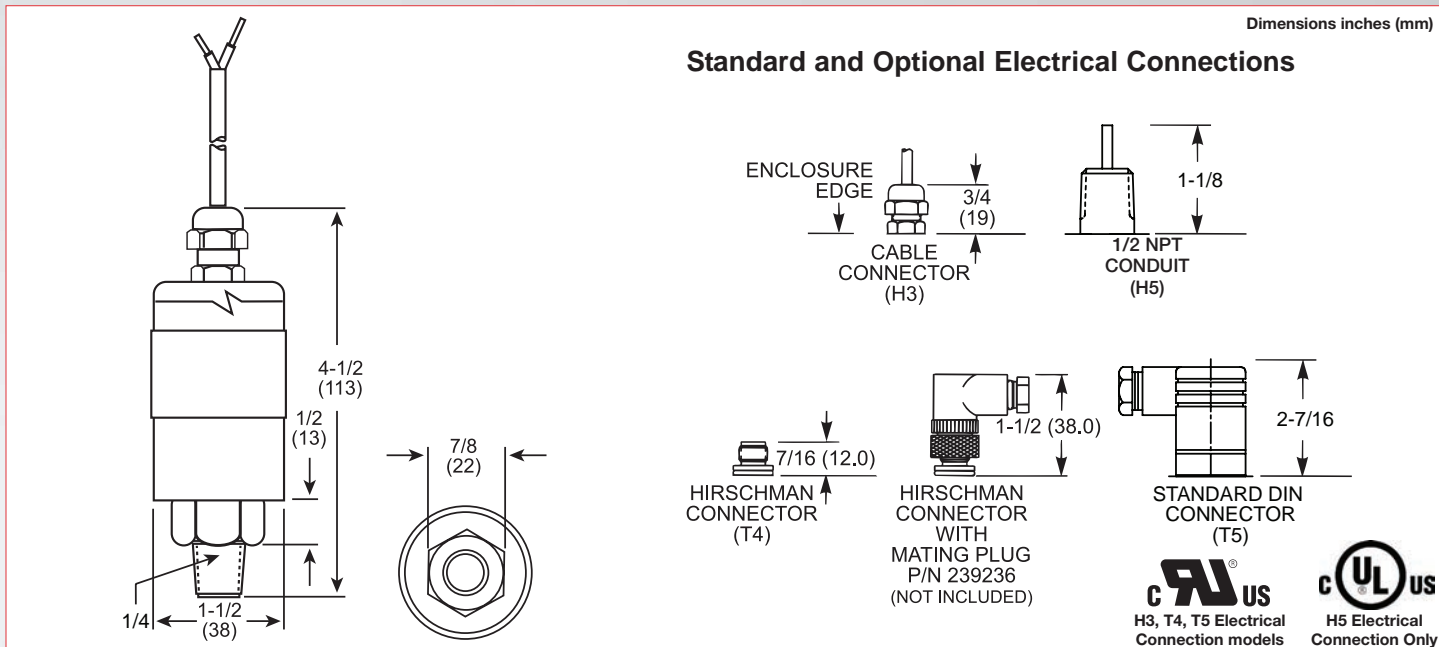


Response Time:	2kHz
Electrical Connection:	3 conductor for voltage series and 2 conductor for current series, 24 awg, PVC jacketed, shielded cable, 3 ft. (1 m) long with integral strain relief and case ground (standard).
Temperature Ranges:	
Operating:	-40° to 158°F (-40° to 70°C)
Compensated:	-40° to 158°F (-40° to 70°C)
Storage:	-40° to 185°F (-40° to 85°C)
Temperature Shift:	
Zero & Span:	0.01% per °F over compensated range
Vibration:	15 g's, 10-2000 Hz, MIL-STD 202
Shock:	50 g's, 11 ms, MIL-STD 202 Method 213, Cond. G.
Approvals:	Nonincendive pressure transmitters are UL and cUL approved as telemetering equipment for use in Div. 2 hazardous locations as follows: Class I, Div. 2, Groups A, B, C & D Class II, Div. 2 Groups F & G Agency approval varies by electrical termination type as follows: H5(-E) models are cULus listed in UL File E146589, (WYMV, WYMV7). H3(-E), T4(-E) & T5 (-E) models are cURus recognized components in UL File E146589, (WYMV2, WYMV8).
Weight:	
433 & 436:	7.4 oz. (221 grams) to 1,000 psi 9.9 oz. (281 grams) 2,000 psi and higher
435:	7.4 oz. (210 grams) to 1,000 psi 9.4 oz. (266 grams) 2,000 psi and higher
Warranty:	1 year warranty

Non-Incendive Transducer

Series 433, 435, 436

Technical Drawings



Product Configurator

Example: **433 H3 -21**

Base Model

433	0.5 - 5.5 VDC analog output
435	4 - 20 mA analog output
436	1 - 11 VDC analog output

Electrical Connection

H3	Shielded & jacketed #22 AWB cable (1 meter), (standard)
H5	Shielded & jacketed cable with 1/2" male conduit, UL/CSA
T4 ¹	M12 Hirschman connector (ELST 412 PG9)
T5	Standard DIN connector (43650 A) - mating connector included

Pressure Range

-23	0 - 29.9" of Hg (Vacuum)
-25	0 - 5 psi (0 - 0.35 bar)
-01 ²	0 - 15 psi (0 - 1 bar)
-21 ²	0 - 30 psi (0 - 2 bar)
-03 ²	0 - 50 psi (0 - 3.5 bar)
-22 ²	0 - 60 psi (0 - 4 bar)
-04 ²	0 - 100 psi (0 - 6.9 bar)
-05 ²	0 - 150 psi (0 - 10.3 bar)
-06 ²	0 - 200 psi (0 - 13.8 bar)
-07 ²	0 - 300 psi (0 - 20.7 bar)
-08	0 - 500 psi (0 - 34.5 bar)
-19	0 - 600 psi (0 - 41 bar)
-10	0 - 1,000 psi (0 - 69 bar)
-11	0 - 1,500 psi (0 - 104 bar)
-12 ³	0 - 2,000 psi (0 - 138 bar)
-13 ³	0 - 3,000 psi (0 - 207 bar)
-14 ³	0 - 4,000 psi (0 - 276 bar)
-15 ³	0 - 5,000 psi (0 - 345 bar)
-16 ³	0 - 6,000 psi (0 - 414 bar)
-17 ³	0 - 7,500 psi (0 - 517 bar)
-18 ³	0 - 10,000 psi (0 - 689 bar)

Options

-E ⁷	External adjustment - Zero/Span
-Z10	1 to 5V output (available only on 433 models)
-Z11	1 to 6V output (available only on 433 models)
-Z12	0.5 to 4.5V output (available only on 433 models)
-Z15	Calibrated in 'bar' unit
-Z16 ⁴	0.2 to 10V output (available only on 436 models)
-Z17 ^{4,5}	For high pressure models with larger orifice
-Z18 ⁴	Z17 and Z10 options combined
-ZXXY ⁶	Special pressure ranges
-WXXX	Additional length of free leads (in inches) (H3 & H6 connection)

Accessories

Order #	Description
239236	Hirschman mating connector (T4 electrical option)
208360	Pressure snubber (1/4-18 NPT female/male)

Process Connection*

Blank	1/4-18 NPT male (standard)
-P1	7/16-20 UNF-2B female (SAE #4)
-P3	7/16-20 UNF-2A male (JIC 37°)
-P4	1/2" NPT male
-P5	1/2" NPT female
-P6	1/4" NPT female

* Consult factory for more options

Blank	Gauge pressure
-A	Absolute pressure range (<300psi)

¹ Mating connector: Hirschman # ELWIKA 4021 PG7 or equivalent (not included). Order number: 239236

² Available in absolute ranges

³ Built-in surge protector

⁴ Not UL Approved

⁵ For pressure > 1,000 psi a 3/16 diameter pressure port orifice with no surge protector is offered.

⁶ Add suffix ZXXY for special pressure ranges. XX = significant digits. Y = number of trailing zeros.

Example: for 230 psi calibration, add Z231

⁷ Available with connector options H3 and T4 only

Transducer

Intrinsically Safe Transducer

Series 443, 445, 446

Features

- ▶ High accuracy
- ▶ Protection in hazardous environments, Class I, Div 1
- ▶ Superior EMI, ESD and RFI protection
- ▶ Rugged all-welded stainless steel construction
- ▶ NEMA 4
- ▶ Built-in high pressure snubber (2000 psi and above)
- ▶ cULus, CE approved
- ▶ ATEX / IECEx certified - 445 only

Applications

- ▶ Oil & gas pipelines
- ▶ Oil patch
- ▶ Petrochemical plants
- ▶ Refineries
- ▶ Pulp and paper mills
- ▶ Coal and oil fired power plants
- ▶ Cement plants
- ▶ Gas transfers for fuel systems
- ▶ Gas panels
- ▶ Gas mixing systems

General Specifications*



Accuracy (LH & R):	±0.25% FSO at 75°F (±0.5% for vacuum only [-23]) typical
Long Term Stability:	±0.5% FSO of calibration curve
Typical Life Cycle:	100 million cycles
Proof Pressure:	2 times rated pressure or 13,000 psi max. (884 bar), whichever is less
Input:	
443:	Excitation voltage: 11 to 28 VDC
446:	Excitation voltage: 14 to 28 VDC
445:	Excitation voltage: 12 to 28 VDC
Supply Current:	3.0 mA maximum (no load)
Output:	
443:	Output: 0.5 to 5.5 VDC Full scale output: 5.0 VDC ± 0.8% Zero output: 0.5 VDC ± 0.4%
446:	Output: 1 to 11 VDC Full scale output: 10 VDC ± 0.4% Zero output: 1.0 VDC ± 0.2%
445:	Output: 4 to 20 mA Full scale output: 16 mA ± 1% Zero output: 4 mA ± 2%
Wetted Parts:	17-4 PH (fitting) & 300 stainless steel (sensor)
Enclosure:	NEMA 4, 300 series stainless steel

Response Time:	2 kHz
Pressure Connection:	1/4"-18 NPT male
Electrical Connection:	3 conductor for voltage series and 2 conductor for current series, 24 awg, PVC jacketed, shielded cable, 3 ft. (1 m) long with integral strain relief and case ground (standard).
Temperature Ranges:	
Operating:	-40° to 158°F (-40° to 70°C)
Compensated:	-40° to 158°F (-40° to 70°C)
Storage:	-40° to 185°F (-40° to 85°C)
Temperature Shift:	
Zero & Span:	0.01% per °F over compensated range reference
Vibration:	15 g's, 10-2000 Hz, MIL-STD 202
Shock:	50 g's, 11 ms, MIL-STD 202 Method 213, Cond. G.
Approvals:	Intrinsically safe pressure transducers are UL and cULus approved as telemetering equipment for use in hazardous locations (UL File E146589, WYMV, WYMV7) as follows: Class I, Div. 1, Groups A, B, C & D Class II, Groups E, F & G, when installed in accordance with control drawing 272148 (443); TD-B77 (445); 272147 (446). 445 only: ATEX/IECEx Certification: CE 0081 (S) II 1 G D, Ex ia IIC T4 Ga, Ex ia IIIC T135°C Da, -40°C to 70°C, DEMKO 09 ATEX 143402, IECEx UL 13.0069
Weight:	
443 & 446:	7.4 oz. (221 grams) to 1000 psi 9.9 oz. (281 grams) 2,000 psi and higher
445:	7.4 oz. (210 grams) to 1000 psi 9.4 oz. (266 grams) 2,000 psi and higher
Warranty:	1 year warranty

* See product configurator for additional options.

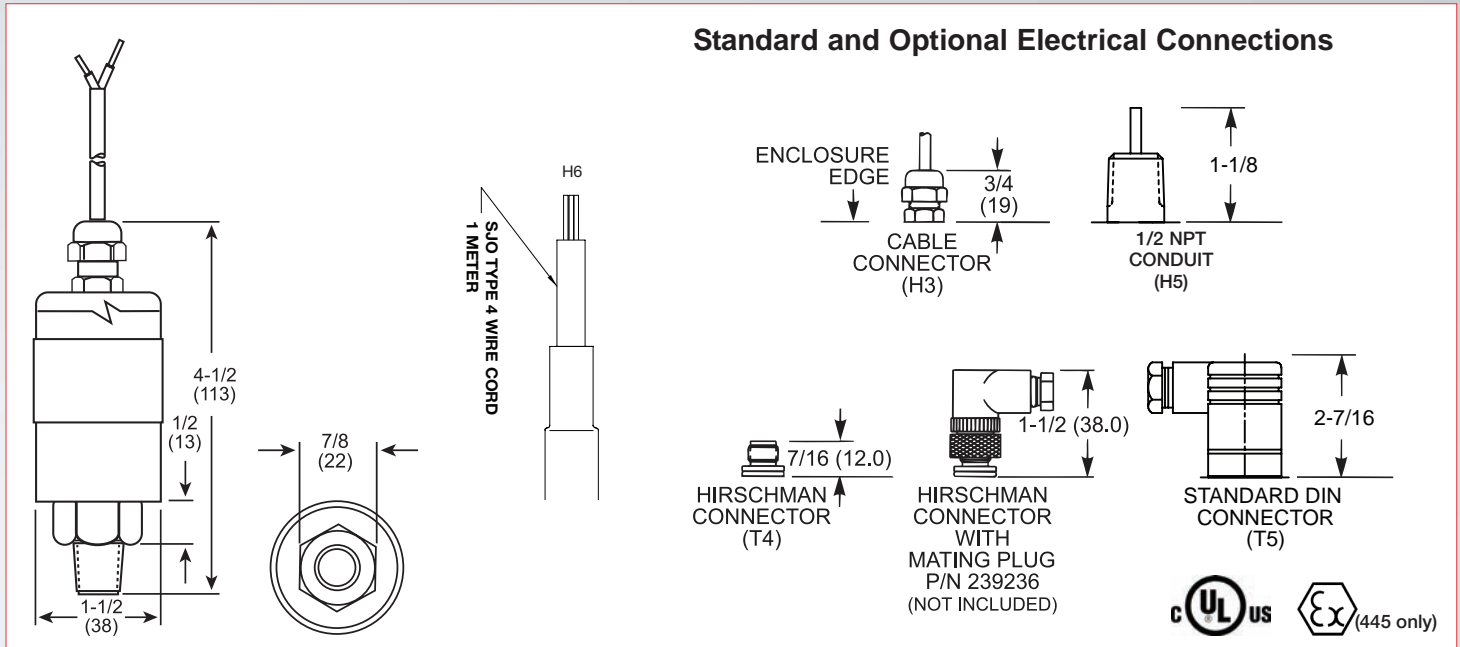
MILLIVOLT SERIES - 443 & 446		
(T4/T5)	(H3/H5)	Signal
1	Red	+ Excitation
3	White	+ Output
2	Black	Common
4	Bare	Case Drain
MILLIAMPER SERIES - 445		
1	Red	+ Excitation
2	Black	- Excitation
4	Bare	Case Drain

Wiring Code

Intrinsically Safe Transducer

Series 443, 445, 446

Technical Drawings



Product Configurator

Example: **445 H3 -05 A**

Base Model

443 ¹	0.5 - 5.5 VDC analog output
445	4 - 20 mA analog output
446 ¹	1 - 11VDC analog output

Electrical Connection

H3	Shielded & jacketed #22 AWB cable (1 meter) (standard)
H5	1/2" male conduit with shielded & jacketed cable
H6 ¹	SJO cable type (1 meter)
T4 ²	M12 Hirschman connector (ELST 412 PG9)
T5 ¹	Standard DIN connector (43650 A) - mating connector included
T8 ¹	DIN 43650 1/2" connector

Pressure Range

-23	0 - 29.9" of Hg (Vacuum)
-25	0 - 5 psi (0 - 0.35 bar)
-01 ³	0 - 15 psi (0 - 1 bar)
-21 ³	0 - 30 psi (0 - 2 bar)
-03 ³	0 - 50 psi (0 - 3.5 bar)
-22 ³	0 - 60 psi (0 - 4 bar)
-04 ³	0 - 100 psi (0 - 6.9 bar)
-05 ³	0 - 150 psi (0 - 10.3 bar)
-06 ³	0 - 200 psi (0 - 13.8 bar)
-07 ³	0 - 300 psi (0 - 20.7 bar)
-08	0 - 500 psi (0 - 34.5 bar)
-19	0 - 600 psi (0 - 41 bar)
-10	0 - 1,000 psi (0 - 69 bar)
-11	0 - 1,500 psi (0 - 103.4 bar)
-12 ⁴	0 - 2,000 psi (0 - 138 bar)
-13 ⁴	0 - 3,000 psi (0 - 207 bar)
-14 ⁴	0 - 4,000 psi (0 - 276 bar)
-15 ⁴	0 - 5,000 psi (0 - 345 bar)
-16 ⁴	0 - 6,000 psi (0 - 414 bar)
-17 ⁴	0 - 7,500 psi (0 - 517 bar)
-18 ⁴	0 - 10,000 psi (0 - 689 bar)

Options

-E ⁵	External adjustment - Zero/Span
-Z10	1 to 5V output (available only on 443 models)
-Z11	1 to 6V output (available only on 443 models)
-Z12	0.5 to 4.5V output (available only on 443 models)
-Z15	Calibrated in 'bar' unit
-Z16	0.2 to 10V output (available only on 446 models)
-Z17 ⁶	For high pressure models with larger orifice
-Z18 ¹	Z17 and Z10 options combined
-ZXXY ⁷	Special pressure ranges
-WXXX	Additional length of free leads (in inches) (with H3, H5 & H6 connection)

Process Connections*

Blank	1/4-18 NPT male (standard)
-P1	7/16-20 UNF-2B female (SAE #4)
-P3	7/16-20 UNF-2A male (JIC 37°)
-P4	1/2" NPT male
-P5	1/2" NPT female
-P6	1/4" NPT female

* Consult factory for more options

Blank	Gauge pressure
A	Absolute pressure range (<300psi)

Accessories

Order #	Description
239236	Hirschman mating connector (T4 electrical option)
208360	Pressure snubber (1/4-18 NPT female/male)

¹Not ATEX/IECEx certified

²Mating connector: Hirschman # ELWIK4 4021 PG7 or equivalent (not included). Order number: 239236

³Available in absolute ranges

⁴Built-in surge protector

⁵Available with connector options H3 and T4 only

⁶For pressure >1,000 psi a 3/16 diameter pressure port orifice with no surge protector is offered.

⁷Add suffix ZXXY for special pressure ranges. XX = significant digits. Y = number of trailing zeros. Example: for 230 psi calibration, add Z231

Transducer

Explosion Proof Transducer (Amplified) *Series 423X, 425X, 426X*

Features

- ▶ Diffused silicon sensor for high accuracy
- ▶ Explosion proof enclosure for hazardous locations
- ▶ Superior EMI, ESD and RFI protection
- ▶ Rugged stainless steel construction
- ▶ NEMA 4X, 7 and 9
- ▶ ATEX/IECEX certification for 425X Series only
- ▶ Modular concept
- ▶ Built-in high pressure snubber (2000 psi and above)
- ▶ cULus, CE approved

Applications

- ▶ Oil & gas pipelines
- ▶ Oil patch
- ▶ Petrochemical plants
- ▶ Refineries
- ▶ Pulp and paper mills
- ▶ Coal and oil fired power plants
- ▶ Cement plants
- ▶ Gas transfers for fuel systems
- ▶ Gas panels
- ▶ Gas mixing systems

General Specifications*

Accuracy (LH & R):	±0.25% FSO at 75°F (±0.5% for vacuum only [-23]) typical
Long Term Stability:	±0.5% FSO of calibration curve
Typical Life Cycle:	100 million cycles
Proof Pressure:	2 times rated pressure or 13,000 psi max. (896 bar), whichever is less
Input:	
423X:	Excitation voltage: 11 to 30 VDC
426X:	Excitation voltage: 14 to 30 VDC
425X:	Excitation voltage: 12 to 28 VDC
Supply Current:	3.0 mA maximum (no load)
Output:	
423X:	Output: 0.5 to 5.5 VDC Full scale output: 5.0 VDC ± 1% Zero output: 0.5 VDC ± 2%
426X:	Output: 1 to 11 VDC Full scale output: 10 VDC ± 1% Zero output: 1.0 VDC ± 2%
425X:	Output: 4 to 20 mA Full scale output: 16 mA ± 1% Zero output: 4 mA ± 2%
Wetted Parts:	17-4 PH (fitting)** & 300 series stainless steel (sensor)

* See product configurator for additional options.

** Consult factory for 316SS option

MILLIVOLT SERIES - 423X & 426X	
Cable	Signal
Red	+ Excitation
White	+ Output
Black	Common
Bare	Drain
MILLIAMPER SERIES - 425X	
Red	+ Excitation
Black	- Excitation
Bare	Drain

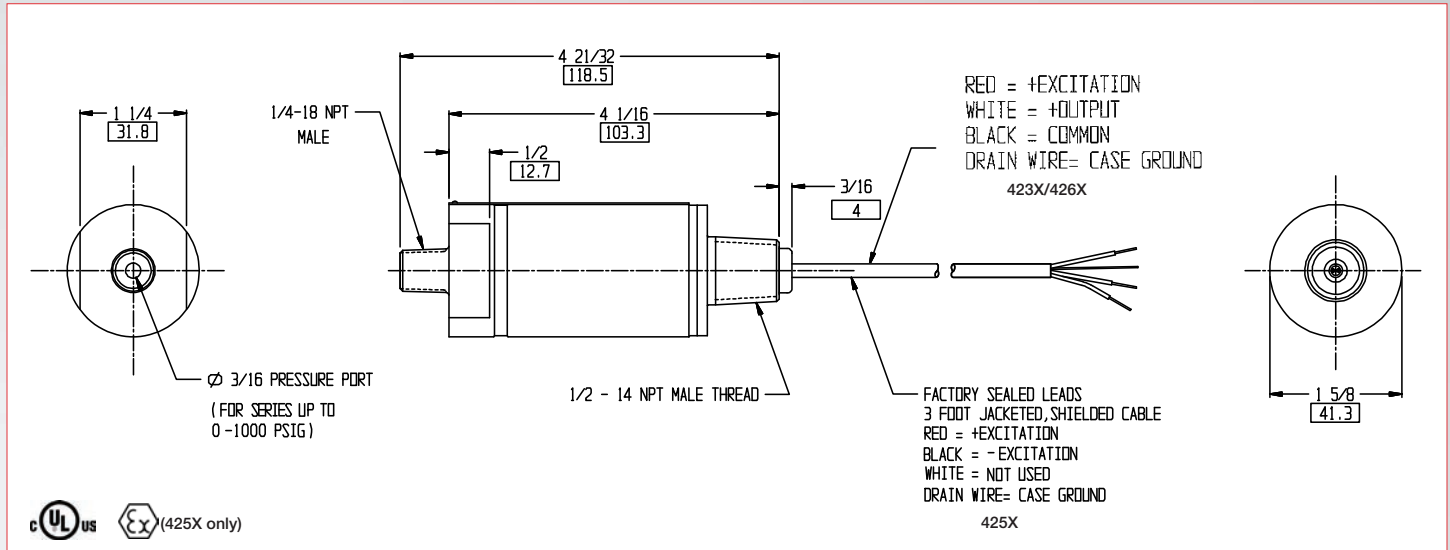
Wiring Code



Enclosure:	NEMA 4X, 300 series stainless steel
Pressure Connection:	1/4"-18 NPT male
Electrical Connection:	3 conductor for voltage series and 2 conductor for current series, 24 awg, PVC jacketed, shielded cable, 3 ft. (1 m) long with integral strain relief and case ground (standard).
Temperature Ranges:	
Operating:	-40° to 185°F (-40° to 85°C)
Compensated:	0° to 160°F (-18° to 71°C)
Storage:	-40° to 185°F (-40° to 85°C)
Temperature Shift:	
Zero & Span:	0.0125% per °F over compensated range reference
Vibration:	15 g's, 10-2000 Hz, MIL-STD 202
Shock:	50 g's, 11 ms, MIL-STD 202 Method 213, Cond. G.
Approvals:	
All:	cULus approved as telemetering equipment for use in hazardous locations (UL File E146589, WYMV, WYMV7) as follows: Class I, Div. 1, Groups A, B, C & D Class II, Groups E, F & G.
425X only:	ATEX/IECEX Certification: CE 0081 II 2 G D, Ex d IIC 91°C (T5) Gb, Ex tb IIIC T100°C Db IP66, -40°C ≤ Tamb ≤ 85°C, DEMKO 04 ATEX 0334369, IECEx UL 13.0036X
Weight:	
423X & 426X:	7.4 oz. (221 grams) to 1000 psi 9.9 oz. (281 grams) 2,000 psi and higher
425X:	7.4 oz. (210 grams) to 1000 psi 9.4 oz. (266 grams) 2,000 psi and higher
Warranty:	1 year warranty

Explosion Proof Transducer (Amplified) *Series 423X, 425X, 426X*

Technical Drawings



Product Configurator

Example: **425X -04 -A**

Base Model

423X	0.5 - 5.5 VDC analog output (NOT ATEX APPROVED)
425X	4 - 20 mA analog output
426X	1 - 11 VDC analog output (NOT ATEX APPROVED)

Pressure Range

-23	0 - 29.9" of Hg (Vacuum)
-25	0 - 5 psi (0 - 0.35 bar)
-01 ¹	0 - 15 psi (0 - 1 bar)
-21 ¹	0 - 30 psi (0 - 2.1 bar)
-03 ¹	0 - 50 psi (0 - 3.5 bar)
-22 ¹	0 - 60 psi (0 - 4.1 bar)
-04 ¹	0 - 100 psi (0 - 6.9 bar)
-05 ¹	0 - 150 psi (0 - 10.3 bar)
-06 ¹	0 - 200 psi (0 - 13.8 bar)
-07 ¹	0 - 300 psi (0 - 20.7 bar)
-08	0 - 500 psi (0 - 34.5 bar)
-19	0 - 600 psi (0 - 41 bar)
-10	0 - 1,000 psi (0 - 69 bar)
-11	0 - 1,500 psi (0 - 104 bar)
-12 ²	0 - 2,000 psi (0 - 138 bar)
-13 ²	0 - 3,000 psi (0 - 207 bar)
-14 ²	0 - 4,000 psi (0 - 276 bar)
-15 ²	0 - 5,000 psi (0 - 345 bar)
-16 ²	0 - 6,000 psi (0 - 414 bar)
-17 ²	0 - 7,500 psi (0 - 517 bar)
-18 ²	0 - 10,000 psi (0 - 689 bar)

Blank	Gauge pressure (standard)
-A	Absolute pressure range (<300psi)

Options

-Z10	1 to 5V output (available only on 423X models)
-Z11	1 to 6V output (available only on 423X models)
-Z12	0.5 to 4.5V output (available only on 423X models)
-Z15	Calibrated in "bar" unit
-Z16	0.2 to 10V output (available only on 426X models)
-Z17 ³	For high pressure models with larger orifice
-Z18	Z17 and Z10 options combined
-ZXXY ⁴	Special pressure ranges
-WXXX	Additional length of free leads (in inches)

Process Connection

Blank	1/4-18 NPT male (standard)
-P1	7/16-20 UNF-2B female (SAE#4)
-P3	7/16-20 UNF-2A male (SAE#4)
-P4	1/2" NPT male
-P5	1/2" NPT female
-P6	1/4" NPT female

Notes

- 1: Available in absolute range
- 2: Built-in surge protector
- 3: For pressure >2kpsi with a 3/16 diameter pressure port orifice, no surge protector will be offered.
- 4: Add suffix ZXXY for special pressure range calibration. XX = significant digits. Y = number of trailing zeros. Example: 130 psi calibration: add -Z131



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