

### Installation and Maintenance Instructions

#### COMMON SPECIFICATIONS FOR ALL UNITS:

##### Calibration Reference Conditions:

Ambient Temperature:	-40 TO 176°F (-40 to 80°C)
Relative Humidity:	40 to 60%
Barometric Pressure:	29.92 in. Hg.

##### Performance Characteristics:

Accuracy (L,H&R):	± 0.25% FSO at 75°F (BFSL of L/H/R effects at 75°F) ±0.1% FSO at 75°F (Optional) ±0.5% for Vacuum only [-23] typical
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Long Term Stability:	Will repeat within ± 0.2% FSO of original calibration curve for 3 year
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Proof Pressure:	2X range for up to 7500 psi models; 1.5X range for 7500 – 30000 psi models.
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Vibration:	2000 Hz at 15 g's peak, MIL-STD 202, METHOD 204, COND. B
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Shock:	50 g's, 11 ms, MIL-STD 202, METHOD 213, Cond. G.
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Wetted Material:	316L Stainless Steel (up to 10k psi) 17-4 PH Stainless Steel (>15k psi)
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Pressure Cavity Volume:	0.08 inches <sup>3</sup> maximum approx.
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#### CALIBRATION:

All models are tested to meet or exceed the published specifications. The calibration and testing were done using instrumentation and standards traceable to the National Institute of Standards and Technology (NIST). Also tested in accordance with MIL-STD-45662A.

#### Approvals:



North America:  
UL and c-UL Listed Pressure Transmitter  
For use in Hazardous Locations  
Class I, Div. I, Groups A, B, C & D  
Class II, Div. I, Groups E, F & G.

#### Model Series: H455X(4 – 20 mA), 455X (4-20mA) & 452X (1-5 VDC):

Excitation Voltage:	9 to 30 VDC Or 11/14-30 VDC
Analog Output:	4 to 20 mA (H455X & 455X) 1 – 5 VDC (452X)
Zero Balance:	±1% FSO at 75°F (24°C) Reverse polarity protected
Protection:	Reverse polarity protected
Loop Resistance:	See loop resistance chart on back page
Temperature Range:	Compensated: 0 to +165°F (-18 to +74°C) Operating: -40 to +176°F (-40 to +80°C) Media: -40 to +176°F (-40 to +80°C)

Temperature Error:	±1% per 100°F
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Weight:	16 Oz (453 grams)
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Wiring:	Red = +Excitation Black = -Excitation Green (Drain) = Case/Earth Ground White = Voltage Output only
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Span Adjustment (Turn Down):	10:1 (With HART option only)
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Span Accuracy:	±1% FS AT 75°F (24°C).
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TYPE OF THREADS FOR PROCESS CONNECTIONS			
Code	Thread type	Code	Thread type
BLANK	1/4" NPT, Male	- P11	G 1/2, Washer seal, Male
- P6	1/4" NPT, Female	- P13	G 1/2, Washer seal, Female
- P4	1/2" NPT, Male	- P3	7/16-20, with 37° Flared, Male
- P5	1/2" NPT, Female	- P1	7/16-20, with 37° Flared, Female
- P10	G 1/4, washer seal, Male	- P2	7/16-20, SAE #4, ORB, Male
- P12	G 1/4, Washer seal, Female	- P14	7/16-20, SAE #4, ORB, Female
- P15	HF4 Autoclave, 1/4" Tube, Female		9/16-18 UNF-28 THD

Consult Sales Drawing & EN/IEC 61000-4 for appropriate Electromagnetic Compatibility (EMC) requirements.



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

For Canadian installations, a second conduit seal is not required for all pressure ranges up to 10,000 PSI which are Single Seal compliant to ANSI / ISA 12.27.01 – 2011 Standard. Other higher pressure range models require an appropriate Ex Type Flameproof (“d” protection) approved conduit seal and/or stopping box with minimum temperature rating of -40° to +80 °C. All system design considerations and installation guidelines must be in accordance with the national and local electrical safety codes per CEC 22.1 / NFPA 70 Standards.

### WARNING! READ BEFORE INSTALLATION

Fluid hammer and surges can destroy any pressure transmitter and must always be avoided. A pressure snubber should be installed to eliminate the damaging hammer effects. Fluid hammer occurs when a liquid flow is suddenly stopped, as with quick closing solenoid valves. Surges occur when flow is suddenly begun, as when a pump is turned on at full power or a valve is quickly opened.

Barksdale pressure transmitters having a pressure range 500 psi and higher have a built in pressure surge protection in the input port. The design is such that an orifice is made an integral part of the pressure port. Designed with the upstream side of the orifice as a sharp corner, it acts as a very effective protection. Other orifice devices can be installed upstream of the pressure transmitter in the piping system for extra protection where the system engineer requires it.

Liquid surges are particularly damaging to pressure transmitters if the pipe is originally empty. To avoid damaging surges, fluid lines should remain full (if possible), pumps should be brought up to power slowly, and valves opened slowly. To avoid damage from both fluid hammer and surges, a surge chamber should be installed, and a pressure snubber should be installed on every transmitter.

Symptoms of fluid hammer and surge's damaging effects:

1. Pressure transmitter exhibits an output at zero pressure (large zero offset). If zero offset is less than 10% FS, user can usually re-zero meter, install proper snubber and continue monitoring pressures.
2. Pressure transmitter output remains constant regardless of pressure.
3. In severe cases, there will be no output.

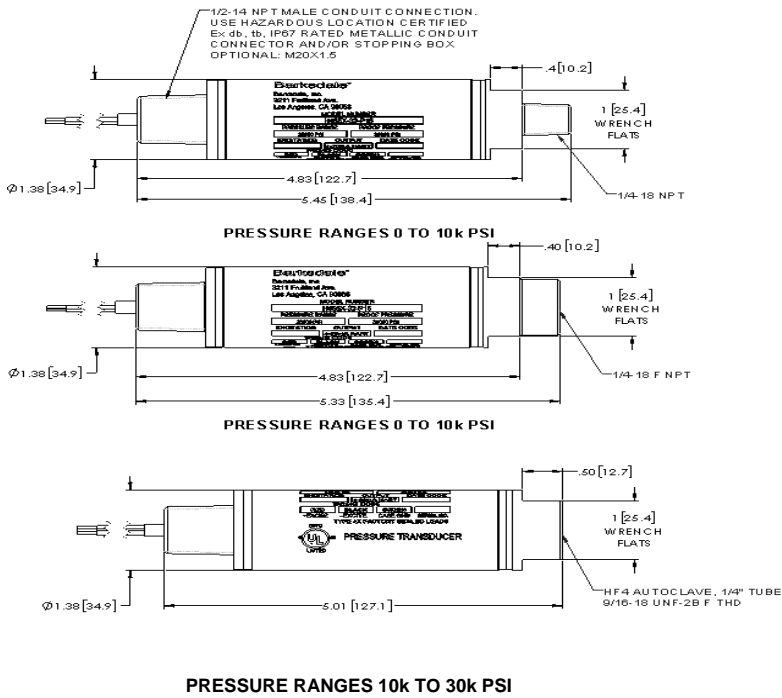
#### TORQUE REQUIREMENTS:

Apply pipe compound sparingly to male pipe threads only. Avoid pipe strain on Transmitter housing by properly supporting and aligning piping. Apply wrench to the flats of fittings only, then tighten the connection. Adequate support of piping and proper mounting of the pressure transmitter should be made to avoid excessive shock and vibration.

TORQUE TO 125 - 150 pound inches.

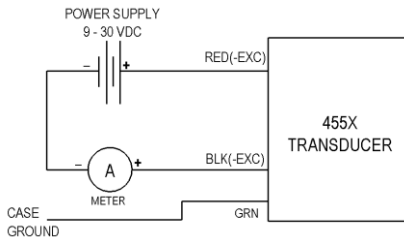
**CAUTION:** For steam service, install a condensate loop (pigtail or steam siphon tube) between the steam line and the pressure transmitter.

## DIMENSIONS

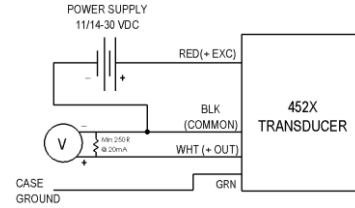


## WIRING

### Current Output (4-20mA):

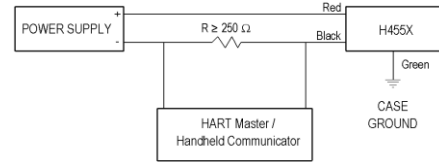


### Voltage Output (1 – 5 VDC / Optional available):

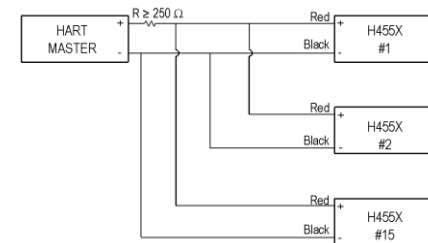


### Configuration with HART Device:

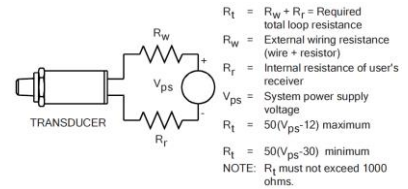
#### 1. Point to Point:



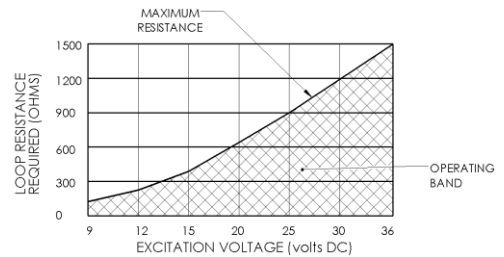
#### 2. Multi Drop:



### Typical Schematic for 450X Transmitter:



### Load Resistance Chart:



## RETURN REQUESTS / INQUIRIES

Direct all warranty and repair requests/inquiries to Barksdale, Inc. Customer Service Department.  
Call 323-589-6181, FAX: 323-589-3463

BEFORE RETURNING ANY PRODUCT(S) TO BARKSDALE, YOU MUST OBTAIN A RETURNED MERCHANDISE AUTHORIZATION FROM OUR CUSTOMER SERVICE DEPARTMENT (IN ORDER TO AVOID PROCESSING DELAYS).

FOR WARRANTY RETURNS, please have the following information available BEFORE contacting Barksdale:

1. P.O. number under which the product was PURCHASED.
2. Model number of the product under warranty.
3. Repair instructions and/or specific problems you are having with the product.
4. Application information. Copyright 2018 Barksdale, Inc.