High Accuracy Heavy Duty Pressure Transducers

SERIES 615/616

HIGH ACCURACY HEAVY DUTY PRESSURE TRANSDUCERS

NOSHOK Series 615/616 Pressure Transducers are designed for heavy duty applications requiring high accuracy and durability. Utilizing similar diffused semiconductor or sputtered Thin Film technology found in the 100 series, these transducers are stable, accurate, shock resistant, and extremely durable.

The durability is coupled with the mechanical integrity of the case, process connection, and wetted parts constructed of corrosion resistant stainless steel, completing the NOSHOK product characteristics you have come to expect.

Available in a wide variety of electrical and process configurations and fully adaptable to the 1800, 1900 and 2000 Series Smart System Digital Indicators, the Series 615/616 Pressure Transducers are the choice for heavy duty applications.

A final electrical output and calibration inspection is performed on all NOSHOK transducers prior to shipment to ensure 100% "out of the box" reliability.

FEATURES

- Advanced diffused semi-conductor and sputtered thin film sensor for maximum stability
- High accuracy and long term stability
- Ranges from vacuum to 120000 psi
- Corrosion resistant stainless steel construction
- Span and zero adjustments
- Compatible with NOSHOK 1800, 1900 and 2000 Series Smart System Indicators

APPLICATIONS

- Hydraulic and pneumatic systems
- Industrial machinery and machine tools
- Injection molding machines
- Stamping and forming presses
- Pumps and compressors
- Laboratory and test equipment
- Railroad equipment
- HVAC systems
- Medical
- Refrigeration equipment
- Marine
- Power generation
- Construction
- Petrochemical
- Water management

Also available with our 1800 Series Attachable Loop Indicator.
See page 42 for more information.

SPECIFICATIONS

Output signals	4 mA to 20 mA, 2-wire; 1 Vdc to 5 Vdc, 1 Vdc to 6 Vdc, 1 Vdc to 11 Vdc, 3-wire; 0 Vdc to 5 Vdc and 0 Vdc to 10 Vdc, 3-wire; 0 Vdc to 5 Vdc and 0 Vdc to 10 Vdc, 4-wire
Pressure ranges	Standard gauge ranges from vacuum to 120000 psig; Standard absolute ranges from 15 psia to 300 psia
Proof pressure	3 times Full Scale for ranges 0 psi to 2 psi through 0 psi to 200 psi 1.75 times Full Scale for ranges 0 psi to 300 psi through 0 psi to 10000 psi 1.5 times Full Scale for 0 psi to 15000 psi range 1.2 times Full Scale for ranges 0 psi to 20000 psi through 0 psi to 120000 psi
Burst pressure	3.8 times Full Scale for ranges 0 psi to 2 psi through 0 psi to 200 psi 4 times Full Scale for ranges 0 psi to 300 psi through o psi to 10000 psi 3 times Full Scale for 0 psi to 15000 psi range 1.5 times Full Scale for ranges 0 psi to 20000 psi through 0 psi to 120000 psi
Accuracy	± 0.25 % Full Scale (BFSL); Optional ± 0.125 % Full Scale (BFSL); (Includes the effects of non-linearity, hysteresis, non-repeatability, zero point and full scale errors)
Repeatability	≤ ± 0.05 % Full Scale
Hysteresis	≤ ± 0.1 % Full Scale
Stability	≤ ± 0.2 % Full Scale for 1 year, non accumulating
Power supply	10 Vdc to 30 Vdc for current output, unregulated 14 Vdc to 30 Vdc for voltage output, unregulated
Load limitations	≤ (VPower-10)/0.020 Amp for 4 mA to 20 mA ≥ 10,000 Ω for 0 Vdc to 10 Vdc, 3-wire ≥ 5,000 Ω for 0 Vdc to 5 Vdc, 3-wire
Wetted materials	316 stainless steel for vacuum through 300 psi; 17-4PH stainless steel sensing diaphragm and 316 stainless steel process connection for higher ranges
Housing materials	316 stainless steel
Temperature ranges	Compensated 32 °F to 175 °F/0 °C to 80 °C Effect ± 0.01 %/°F for zero and span Storage - 40 °F to 212 °F/-40 °C to 100 °C Medium - 20 °F to 212 °F/-30 °C to 100 °C Ambient - 15 °F to 175 °F/-10 °C to 80 °C High temperature version available on request
Response time	Less than 1 ms (between 10 % and 90 % Full Scale)
Durability	>100,000,000 Full Scale cycles
Adjustment	± 10 % Full Scale for zero and span
Environmental protection	NEMA 4X, IP65 (IEC 529)
Electromagnetic rating	CE compliant to EMC norm EN61326: 1997/A1: 1998 RFI, EMI and ESD protection
Electrical protection	Reverse polarity, overvoltage and short circuit protection
Shock	Less than ± 0.05 % Full Scale effect or 1000 g's @ 20 ms on any axis
Vibration	Less than ± 0.01 % Full Scale effect for 15 g's @ 0 Hz to 2000 Hz on any axis
Weight	Approximately 7.2 oz.

ORDERING INFORMATION

SERIES **615** (internal diaphragm) **SERIES 616** (front flush diaphragm)

PRESSURE	-30 inHg to 0 psig	**30vac**	0 psig to 2 psig	**2**	0 psig to 150 psig	**150**	0 psig to 2000 psig	**2000**	0 psig to 20000 psig	**20000**	0 psig to 145000 psig	**145000**
	-30 inHg to 15 psig	**30/15**	0 psig to 3 psig	**3**	0 psig to 200 psig	**200**	0 psig to 3000 psig	**3000**	0 psig to 30000 psig	**30000**	0 psia to 15 psia	**15A**
	-30 inHg to 30 psig	**30/30**	0 psig to 5 psig	**5**	0 psig to 300 psig	**300**	0 psig to 4000 psig	**4000**	0 psig to 36000 psig	**36000**	0 psia to 30 psia	**30A**
	-30 inHg to 60 psig	**30/60**	0 psig to 10 psig	**10**	0 psig to 500 psig	**500**	0 psig to 5000 psig	**5000**	0 psig to 58000 psig	**58000**	0 psia to 60 psia	**60A**
	-30 inHg to 100 psia	**30/100**	0 psig to 15 psig	**15**	0 psig to 600 psig	**600**	0 psig to 6000 psig	**6000**	0 psig to 72000 psig	**72000**	0 psia to 100 psia	**100A**
	-30 inHg to 150 psig	**30/150**	0 psig to 30 psig	**30**	0 psig to 750 psig	**750**	0 psig to 7500 psig	**7500**	0 psig to 87000 psig	**87000**	0 psia to 150 psia	**150A**
	-30 inHg to 200 psig	**30/200**	0 psig to 60 psig	**60**	0 psig to 1000 psig	**1000**	0 psig to 10000 psig	**10000**	0 psig to 100000 psig	**100000**	0 psia to 200 psia	**200A**
	-30 inHg to 300 psig	**30/300**	0 psig to 100 psig	**100**	0 psig to 1500 psig	**1500**	0 psig to 15000 psig	**15000**	0 psig to 115000 psig	**115000**	0 psia to 300 psia	**300A**

psig = Gauge Pressure psia = Absolute Pressure Other ranges available on special request NOTE: Series 616 is not available in pressure ranges 10,000 psig and above.

ACCURACY	**1** ± 0.25 % Full Scale (BFSL)	**2** ± 0.125 % Full Scale (BFSL)			
OUTPUT SIGNALS *Ranges up to 0 psig to 60000 psig	**1** 4 mA to 20 mA, 2-wire **2** 0 Vdc to 5 Vdc, 3-wire **3** 1 Vdc to 5 Vdc, 3-wire	**4** 1 Vdc to 6 Vdc, 3-wire* **5** 0 Vdc to 10 Vdc, 3-wire **6** 1 Vdc to 11 Vdc, 3-wire*	NOTE: 0 Vdc to 5 Vdc and 0 Vdc to 10 Vdc outputs are also available in 4-wire configurations for use with other electrical systems.		
PROCESS CONNECTIONS	**615:** **2** 1/4 ″ NPT Male **616:** **11** G 1/2 B (pressure ranges 0 psig to 30 psig and below)	**6** 9/16 ″-18 aminco (std on 30000 to 120000 psig) **13** G 1 B (pressure ranges 0 psig to 30 psig and below)	**8** 1/2 ″ NPT Male Other connections available upon request		
ELECTRICAL CONNECTIONS	**1** 36 ″ cable (connected to option 8) **3** 6-pin Bendix **6** 1/2 ″ NPT conduit w/36 ″ cable	**8** Hirschmann (DIN EN 175301-803 Form A) **14** Hirschmann type with 1/2 ″ NPT female conduit	**25** M12 x 1 4-pin **36** Integral 36 ″ Cable		
OPTIONS	**ORF** SS Threaded Orifice	**G1** G 1 Weld on Adapter (616 only)	**G2** G 1/2 Weld on Adapter (616 only)		

Please consult your local NOSHOK Distributor or NOSHOK, Inc. for availability and delivery information.

EXAMPLE **615 - 500 - 1 - 1 - 8 - 1 - ORF**

Series 615
Pressure Range .....500 psig
Accuracy .....± 0.25 %
Output Signal .....4 mA to 20 mA, 2-Wire
Process Connection .....1/2 ″ NPT Male
Electrical Connection .....36 ″ Cable
Option .....Orifice

*Note: mate supplied separately or customer supplied

Outline Dimensions

Hirschmann

2-WIRE WIRING

	Hirschmann	Cable	M12	Bendix
+ Supply	1	Red	1	A
+ Output	2	Black	3	B

3-WIRE WIRING

	Hirschmann	Cable	M12	Bendix
+ Supply	1	Red	1	A
Common	2	Black	3	B
+ Output	3	White	4	C

NOTE
See 621/622 Series for G1/2B and G1B Front Flush Process Connection Dimensions pg. 27