



# 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 semiconductor 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

<b>Output signals</b>	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
<b>Pressure ranges</b>	Standard gauge ranges from vacuum to 120000 psig; Standard absolute ranges from 15 psia to 300 psia
<b>Proof pressure</b>	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
<b>Burst pressure</b>	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 0 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
<b>Accuracy</b>	± 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)
<b>Repeatability</b>	≤ ± 0.05 % Full Scale
<b>Hysteresis</b>	≤ ± 0.1 % Full Scale
<b>Stability</b>	≤ ± 0.2 % Full Scale for 1 year, non accumulating
<b>Power supply</b>	10 Vdc to 30 Vdc for current output, unregulated 14 Vdc to 30 Vdc for voltage output, unregulated
<b>Load limitations</b>	≤ (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
<b>Wetted materials</b>	316 stainless steel for vacuum through 300 psi; 17-4PH stainless steel sensing diaphragm and 316 stainless steel process connection for higher ranges
<b>Housing materials</b>	316 stainless steel
<b>Temperature ranges</b>	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
<b>Response time</b>	Less than 1 ms (between 10 % and 90 % Full Scale)
<b>Durability</b>	>100,000,000 Full Scale cycles
<b>Adjustment</b>	± 10 % Full Scale for zero and span
<b>Environmental protection</b>	NEMA 4X, IP65 (IEC 529)
<b>Electromagnetic rating</b>	CE compliant to EMC norm EN61326: 1997/A1: 1998 RFI, EMI and ESD protection
<b>Electrical protection</b>	Reverse polarity, overvoltage and short circuit protection
<b>Shock</b>	Less than ± 0.05 % Full Scale effect or 1000 g's @ 20 ms on any axis
<b>Vibration</b>	Less than ± 0.01 % Full Scale effect for 15 g's @ 0 Hz to 2000 Hz on any axis
<b>Weight</b>	Approximately 7.2 oz.

High temperature version available on request

ORDERING INFORMATION												
SERIES	615 (internal diaphragm)		SERIES 616 (front flush diaphragm)									
<b>PRESSURE</b>	-30 inHg to 0 psig	<b>30vac</b>	0 psig to 2 psig	<b>2</b>	0 psig to 150 psig	<b>150</b>	0 psig to 2000 psig	<b>2000</b>	0 psig to 20000 psig	<b>20000</b>	0 psig to 145000 psig	<b>145000</b>
	-30 inHg to 15 psig	<b>30/15</b>	0 psig to 3 psig	<b>3</b>	0 psig to 200 psig	<b>200</b>	0 psig to 3000 psig	<b>3000</b>	0 psig to 30000 psig	<b>30000</b>	0 psia to 15 psia	<b>15A</b>
	-30 inHg to 30 psig	<b>30/30</b>	0 psig to 5 psig	<b>5</b>	0 psig to 300 psig	<b>300</b>	0 psig to 4000 psig	<b>4000</b>	0 psig to 36000 psig	<b>36000</b>	0 psia to 30 psia	<b>30A</b>
	-30 inHg to 60 psig	<b>30/60</b>	0 psig to 10 psig	<b>10</b>	0 psig to 500 psig	<b>500</b>	0 psig to 5000 psig	<b>5000</b>	0 psig to 58000 psig	<b>58000</b>	0 psia to 60 psia	<b>60A</b>
	-30 inHg to 100 psia	<b>30/100</b>	0 psig to 15 psig	<b>15</b>	0 psig to 600 psig	<b>600</b>	0 psig to 6000 psig	<b>6000</b>	0 psig to 72000 psig	<b>72000</b>	0 psia to 100 psia	<b>100A</b>
	-30 inHg to 150 psig	<b>30/150</b>	0 psig to 30 psig	<b>30</b>	0 psig to 750 psig	<b>750</b>	0 psig to 7500 psig	<b>7500</b>	0 psig to 87000 psig	<b>87000</b>	0 psia to 150 psia	<b>150A</b>
	-30 inHg to 200 psig	<b>30/200</b>	0 psig to 60 psig	<b>60</b>	0 psig to 1000 psig	<b>1000</b>	0 psig to 10000 psig	<b>10000</b>	0 psig to 100000 psig	<b>100000</b>	0 psia to 200 psia	<b>200A</b>
	-30 inHg to 300 psig	<b>30/300</b>	0 psig to 100 psig	<b>100</b>	0 psig to 1500 psig	<b>1500</b>	0 psig to 15000 psig	<b>15000</b>	0 psig to 115000 psig	<b>115000</b>	0 psia to 300 psia	<b>300A</b>
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.												
<b>ACCURACY</b>			<b>1</b>	± 0.25 % Full Scale (BFSL)		<b>2</b>	± 0.125 % Full Scale (BFSL)					
<b>OUTPUT SIGNALS</b>			<b>1</b>	4 mA to 20 mA, 2-wire		<b>4</b>	1 Vdc to 6 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.			
*Ranges up to 0 psig to 60000 psig			<b>2</b>	0 Vdc to 5 Vdc, 3-wire		<b>5</b>	0 Vdc to 10 Vdc, 3-wire					
			<b>3</b>	1 Vdc to 5 Vdc, 3-wire		<b>6</b>	1 Vdc to 11 Vdc, 3-wire*					
<b>PROCESS CONNECTIONS</b>	<b>615:</b>	<b>2</b>	1/4 " NPT Male		<b>6</b>	9/16 "-18 aminco (std on 30000 to 120000 psig)		<b>8</b>	1/2 " NPT Male			
	<b>616:</b>	<b>11</b>	G 1/2 B (pressure ranges 0 psig to 30 psig and below)		<b>13</b>	G 1 B (pressure ranges 0 psig to 30 psig and below)		Other connections available upon request				
<b>ELECTRICAL CONNECTIONS</b>			<b>1</b>	36 " cable (connected to option 8)		<b>8</b>	Hirschmann (DIN EN 175301-803 Form A)		<b>25</b>	M12 x 1 4-pin		
			<b>3</b>	6-pin Bendix		<b>14</b>	Hirschmann type with 1/2 " NPT female conduit		<b>36</b>	Integral 36 " Cable		
			<b>6</b>	1/2 " NPT conduit w/36 " cable								
<b>OPTIONS</b>			<b>ORF</b>	SS Threaded Orifice		<b>G1</b>	G 1 Weld on Adapter (616 only)		<b>G2</b>	G 1/2 Weld on Adapter (616 only)		

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

EXAMPLE

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

615 - 500 - 1 - 1 - 8 - 1 - ORF



Outline Dimensions

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