



SERIES 100

HIGH PERFORMANCE CURRENT OUTPUT PRESSURE TRANSMITTERS

NOSHOK 100 Series Current Output Pressure Transmitters are designed to provide a previously unequalled level of performance, utilizing diffused semiconductor and sputtered thin film strain gage technology. 100 Series transmitters are highly repeatable, shock resistant and are extremely stable over long periods of time. CE compliance which includes substantial levels of RFI, EMI and ESD protection combined with reverse polarity and over-voltage protection insure they perform well in the most demanding applications.

Advanced manufacturing techniques combined with technologically advanced standard features allow NOSHOK to offer a level of performance previously found only on transducers costing hundreds of dollars more. Final calibration tests performed on all NOSHOK transmitters prior to shipment ensures 100% "out of the box" reliability.

FEATURES

- Accuracy up to ± 0.25 % Full Scale (BFSL)
- Welded stainless steel pressure chamber
- Advanced diffused semiconductor and sputtered thin film sensor for maximum stability
- Compact size
- High alternating load resistance
- High overpressure protection
- CE compliant to suppress RFI, EMI and ESD
- Compatible with NOSHOK Smart System Indicators

APPLICATIONS

- Hydraulic and pneumatic systems
- Injection molding machines
- Railroad engine controls
- HVAC systems
- Stamping and forming presses
- Refrigeration controls
- Industrial machinery and machine tools
- Pumps and compressors

SPECIFICATIONS

Output signal	4 mA to 20 mA, 2-wire
Pressure ranges	Standard gauge ranges from vacuum to 15000 psi; Standard Absolute ranges from 15 psia to 300 psia
Proof pressure	3 times Full Scale for ranges 0 psi to 5 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 to 15000 psi range
Burst pressure	3.8 times Full Scale for ranges 0 psi to 5 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 to 15000 psi range
Accuracy	± 0.5 % Full Scale (BFSL); Optional ± 0.25 % Full Scale (BFSL); (Includes the effects of non-linearity, hysteresis, non-repeatability, zero point and full scale errors)
Repeatability	$\leq \pm 0.05$ % Full Scale
Hysteresis	$\leq \pm 0.1$ % Full Scale
Stability	$\leq \pm 0.2$ % Full Scale for 1 year, non-accumulating
Response time	≤ 1 ms (between 10 % and 90 % Full Scale)
Power supply	10 Vdc to 30 Vdc, unregulated
Load limitations	$\leq$ (Vpower supply - 10) / .020 Amp
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 material	316 stainless steel
Adjustment	± 10 % Full Scale for zero and span
Pressure cycle limit	150 Hz
Durability	$> 100,000,000$ Full Scale cycles
Temperature ranges	Compensated 32 °F to 176 °F (0 °C to 80 °C) Effect ± 0.017 % Full Scale/°F for zero and span Ambient -40 °F to 185 °F (-40 °C to 85 °C) Media -22 °F to 212 °F (-30 °C to 100 °C) Storage -40 °F to 212 °F (-40 °C to 100 °C)
Environmental rating	IP65, NEMA 4X according to EN 60529/IEC 529
Electromagnetic rating	CE compliant to EMC norm EN 61326:1997/A1:1998 RFI, EMI and ESD protection
Electrical protection	Reverse polarity, over-voltage and short circuit protection
Shock	1000 g's per IEC 770
Vibration	30 g's per IEC 770
Weight	Approximately 3.5 oz.

ORDERING INFORMATION											
SERIES 100											
PRESSURE RANGES	-30 inHg to 0 psig	30V	0 psig to 5 psig	5	0 psig to 200 psig	200	0 psig to 3000 psig	3000	0 psia to 15 psia	15A	
	-30 inHg to 15 psig	30/15	0 psig to 10 psig	10	0 psig to 300 psig	300	0 psig to 4000 psig	4000	0 psia to 30 psia	30A	
	-30 inHg to 30 psig	30/30	0 psig to 15 psig	15	0 psig to 500 psig	500	0 psig to 5000 psig	5000	0 psia to 60 psia	60A	
	-30 inHg to 45 psig	30/45	0 psig to 25 psig	25	0 psig to 600 psig	600	0 psig to 6000 psig	6000	0 psia to 100 psia	100A	
	-30 inHg to 60 psig	30/60	0 psig to 30 psig	30	0 psig to 750 psig	750	0 psig to 7500 psig	7500	0 psia to 150 psia	150A	
	-30 inHg to 100 psig	30/100	0 psig to 60 psig	60	0 psig to 1000 psig	1000	0 psig to 10000 psig	10000	0 psia to 200 psia	200A	
	-30 inHg to 150 psig	30/150	0 psig to 100 psig	100	0 psig to 1500 psig	1500	0 psig to 15000 psig	15000	0 psia to 300 psia	300A	
	-30 inHg to 200 psig	30/200	0 psig to 150 psig	150	0 psig to 2000 psig	2000					
	-30 inHg to 300 psig	30/300									
psig = gauge pressure psia = absolute pressure Other ranges available on special request ranges											
ACCURACY	1	±0.5 % Full Scale (BFSL)			2	±0.25 % Full Scale (BFSL)					
OUTPUT SIGNAL	1	4 mA to 20 mA, 2-wire									
PROCESS CONNECTIONS	1	1/8 " NPT Male		2	1/4 " NPT Male		3	7/16 " -20 UNF #4 SAE J-514 Male		4	1/8 " NPT Female
	9	7/16 " -20 UNF #4 SAE J-514 Female			10	1/4 " BSP Male					
ELECTRICAL CONNECTION	1	36 " cable (connected to option 7)			2	4-pin bendix		3	6-pin bendix		
	7	Mini-Hirschmann (DIN EN 175301-803 Form C)			25	M12 x 1 4-pin		6	1/2 " NPT conduit (with 36" cable)		
OPTIONS											
	ORF	Threaded orifice									

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

EXAMPLE

Series 100
Pressure Range 0 psig to 500 psig
Accuracy ±0.50 % Full Scale
Output Signal 4 mA to 20 mA
Process Connection 1/4 " NPT Male
Electrical Connection ... Mini-Hirschmann
Option Orifice

100 - 500 - 1 - 1 - 2 - 7 - ORF

Load Limitations 4mA to 20mA output

$$V_{min} = 10V + (.020 \times R_L)$$

$$R_L = \text{Loop resistance } (\Omega)$$

$$R_L = R_S + R_W$$

$$R_S = \text{Sensor resistance } (\Omega)$$

$$R_W = \text{Wire Resistance } (\Omega)$$

Outline Dimensions



WIRING

Wire	Bendix 4-pin or 6-pin	Mini- Hirschmann	Cable	M12 x 1
+ Supply	pin A	pin 1	Red	pin 1
+ Output	pin B	pin 2	Black	pin 3

*Note: mate supplied separately or customer supplied



Mini-Hirschmann

Voltage Output Pressure Transducers



FEATURES

- Accuracy up to ± 0.25 % Full Scale (BFSL)
- Welded stainless steel pressure chamber
- Advanced diffused semi-conductor and sputtered thin film sensor for maximum stability
- Compact size
- High alternating load resistance
- High overpressure protection
- CE compliant to suppress RFI, EMI and ESD
- Compatible with NOSHOK Smart System Indicators

APPLICATIONS

- Hydraulic and pneumatic systems
- Injection molding machines
- Railroad engine controls
- HVAC systems
- Stamping and forming presses
- Refrigeration controls
- Industrial machinery and machine tools
- Pumps and compressors

SERIES 200

HIGH PERFORMANCE VOLTAGE OUTPUT PRESSURE TRANSDUCERS

NOSHOK 200 Series Voltage Output Pressure Transducers are designed to provide a previously unequalled level of performance, utilizing diffused semiconductor and sputtered thin film strain gage technology. 200 Series transducers are highly repeatable, shock resistant and are extremely stable over long periods of time. CE compliance which includes substantial levels of RFI, EMI and ESD noise protection combined with reverse polarity and over-voltage protection hardens the product so it performs well in the most demanding applications.

Advanced manufacturing techniques combined with technologically advanced standard features allow NOSHOK to offer a level of performance previously found only on transducers costing hundreds of dollars more. Final calibration tests performed on all NOSHOK transmitters prior to shipment ensures 100% "out of the box" reliability

SPECIFICATIONS

Output signals	0 Vdc to 5 Vdc, 3-wire; 0 Vdc to 10 Vdc, 3-wire; 1 Vdc to 5 Vdc, 3-wire; 1 Vdc to 6 Vdc, 3-wire; 1 Vdc to 11 Vdc, 3-wire;
Pressure ranges	Standard gauge ranges from vacuum to 15000 psi; Standard absolute ranges from 15 psia to 300 psia
Proof Pressure	3 times Full Scale for ranges 0 psi to 5 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
Burst Pressure	3.8 times Full Scale for ranges 0 psi to 5 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
Accuracy	± 0.5 % Full Scale (BFSL); Optional ± 0.25 % Full Scale (BFSL); (Includes the effects of non-linearity, hysteresis, non-repeatability, zero point and full scale errors)
Repeatability	$\leq \pm 0.05$ % Full Scale
Hysteresis	$\leq \pm 0.1$ % Full Scale
Stability	$\leq \pm 0.2$ % Full Scale per year, non-accumulating
Response time	≤ 1 ms (between 10 % and 90 % Full Scale)
Power supply	10 Vdc to 30 Vdc, 14 Vdc to 30 Vdc for 1 Vdc to 11 Vdc and 0 Vdc to 10 Vdc unregulated
Load limitations	≥ 5000 for 0 Vdc to 5 Vdc, 1 Vdc to 5 Vdc, and 1 Vdc to 6 Vdc outputs; ≥ 10000 for 0 Vdc to 10 Vdc and 1 Vdc to 11 Vdc outputs. Current consumption 8 mA
Wetted materials	316 stainless steel for vacuum through 300 psi; 17-4PH stainless steel sensing diaphragm and 316 stainless steel pressure connection for higher ranges
Housing material	316 stainless steel
Adjustment	± 10 % Full Scale for zero and span
Pressure cycle limit	150 Hz
Durability	$> 100,000,000$ Full Scale cycles
Temperature ranges	Compensated 32 °F to 176 °F (0 °C to 80 °C) Effect ± 0.017 % Full Scale/°F for zero and span Ambient -40 °F to 185 °F (-40 °C to 85 °C) Media -22 °F to 212 °F (-30 °C to 100 °C) Storage -40 °F to 212 °F (-40 °C to 100 °C)
Environmental rating	IP65, NEMA 4X according to EN 60529/IEC 529
Electromagnetic rating	CE compliant to EMC norm EN61326: 1997/A1: 1998 RFI, EMI and ESD protection
Electrical protection	Reverse polarity, over-voltage and short circuit protection
Shock	1000 g's per IEC 770
Vibration	30 g's per IEC 770
Weight	Approximately 3.5 oz.

ORDERING INFORMATION

SERIES 200																	
PRESSURE RANGES	-30 inHg to 0 psig	30V	-30 inHg to 300 psig	30/300	0 psig to 200 psig	200	0 psig to 3000 psig	3000	0 psia to 15 psia	15A							
	-30 inHg to 15 psig	30/15	0 psig to 5 psig	5	0 psig to 300 psig	300	0 psig to 4000 psig	4000	0 psia to 30 psia	30A							
	-30 inHg to 30 psig	30/30	0 psig to 10 psig	10	0 psig to 500 psig	500	0 psig to 5000 psig	5000	0 psia to 60 psia	60A							
	-30 inHg to 45 psig	30/45	0 psig to 15 psig	15	0 psig to 600 psig	600	0 psig to 6000 psig	6000	0 psia to 100 psia	100A							
	-30 inHg to 60 psig	30/60	0 psig to 30 psig	30	0 psig to 750 psig	750	0 psig to 7500 psig	7500	0 psia to 150 psia	150A							
	-30 inHg to 100 psig	30/100	0 psig to 60 psig	60	0 psig to 1000 psig	1000	0 psig to 10000 psig	10000	0 psia to 200 psia	200A							
	-30 inHg to 150 psig	30/150	0 psig to 100 psig	100	0 psig to 1500 psig	1500	0 psig to 15000 psig	15000	0 psia to 300 psia	300A							
	-30 inHg to 200 psig	30/200	0 psig to 150 psig	150	0 psig to 2000 psig	2000											
psig = Gauge Pressure psia = Absolute Pressure Other ranges available on special request																	
ACCURACY	1	±0.5 % Full Scale (BFSL) 2 ±0.25 % Full Scale (BFSL)															
OUTPUT SIGNALS	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			
PROCESS CONNECTIONS	1	1/8 " NPT Male		2	1/4 " NPT Male		3 7/16 " -20 UNF #4 SAE J-514 Male				4 1/8 " NPT Female						
	9	7/16 " -20 UNF #4 SAE J-514 Female						10 1/4 " BSP Male									
ELECTRICAL CONNECTIONS	1	36 " cable (connected to option 7)				2 4-pin bendix				3 6-pin bendix				36 Integral cable 36"			
	6	1/2 " NPT conduit (with 36 " cable)				7 Mini-Hirschmann (DIN EN 175301-803 Form C)				25 M12 x 1 4-pin							
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.																	
OPTIONS	ORF Threaded Orifice																

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

EXAMPLE

Series200
 Pressure Range0 psig to 500 psig
 Accuracy±0.50 % Full Scale
 Output Signal0 Vdc to 5 Vdc
 Process Connection1/4 " NPT Male
 Electrical ConnectionMini-Hirschmann
 OptionOrifice

200 - 500 - 1 - 2 - 2 - 7 - ORF

Outline Dimensions



WIRING

Wire	Bendix 4-pin or 6-pin	Mini- Hirschmann	Cable	M12 x 1
+ Supply	pin A	pin 1	Red	pin 1
Common	pin B	pin 2	Black	pin 3
+ Output	pin C	pin 3	White	pin 4

*Note: mate supplied separately or customer supplied



Mini-Hirschmann

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 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

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 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
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
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.

High temperature version available on request

ORDERING INFORMATION

SERIES	615 (internal diaphragm)	SERIES 616 (front flush diaphragm)
PRESSURE	-30 inHg to 0 psig 30vac -30 inHg to 15 psig 30/15 -30 inHg to 30 psig 30/30 -30 inHg to 60 psig 30/60 -30 inHg to 100 psia 30/100 -30 inHg to 150 psig 30/150 -30 inHg to 200 psig 30/200 -30 inHg to 300 psig 30/300	0 psig to 2 psig 2 0 psig to 3 psig 3 0 psig to 5 psig 5 0 psig to 10 psig 10 0 psig to 15 psig 15 0 psig to 30 psig 30 0 psig to 60 psig 60 0 psig to 100 psig 100 0 psig to 150 psig 150 0 psig to 200 psig 200 0 psig to 300 psig 300 0 psig to 400 psig 400 0 psig to 500 psig 500 0 psig to 600 psig 600 0 psig to 750 psig 750 0 psig to 1000 psig 1000 0 psig to 1500 psig 1500 0 psig to 2000 psig 2000 0 psig to 3000 psig 3000 0 psig to 4000 psig 4000 0 psig to 5000 psig 5000 0 psig to 6000 psig 6000 0 psig to 7500 psig 7500 0 psig to 10000 psig 10000 0 psig to 15000 psig 15000 0 psig to 20000 psig 20000 0 psig to 30000 psig 30000 0 psig to 36000 psig 36000 0 psig to 58000 psig 58000 0 psig to 72000 psig 72000 0 psig to 87000 psig 87000 0 psig to 100000 psig 100000 0 psig to 115000 psig 115000 0 psig to 145000 psig 145000 0 psia to 15 psia 15A 0 psia to 30 psia 30A 0 psia to 60 psia 60A 0 psia to 100 psia 100A 0 psia to 150 psia 150A 0 psia to 200 psia 200A 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	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*
*Ranges up to 0 psig to 60000 psig 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

Series615
 Pressure Range500 psig
 Accuracy± 0.25 %
 Output Signal4 mA to 20 mA, 2-Wire
 Process Connection1/2 " NPT Male
 Electrical Connection36 " Cable
 OptionOrifice

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



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