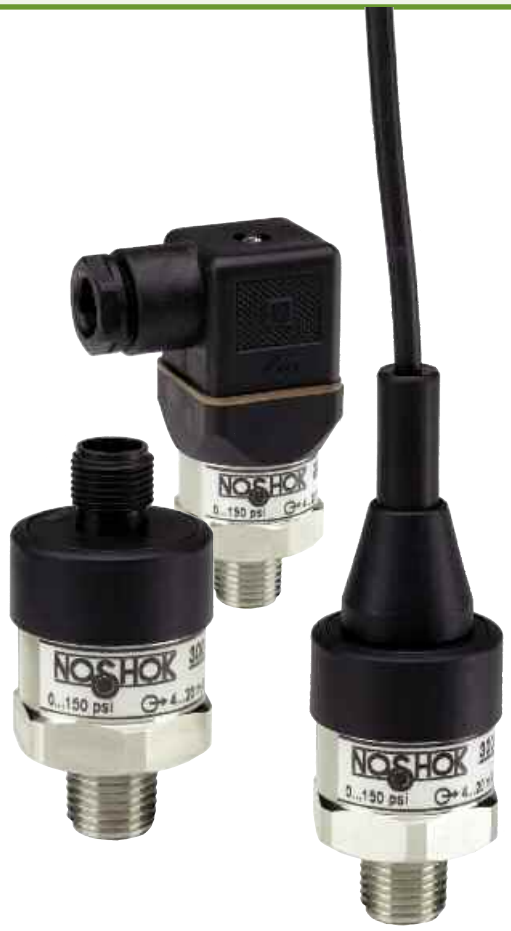
Compact OEM Pressure Transducers



SERIES 300

Ruggedness and long term stability during operation were the focus in the design of this NOSHOK 300 series pressure transducer. As a result of this we were able to develop a transducer for use in general industrial applications with technical specifications exceeding those of transducers costing much more.

A wide variety of electrical and mechanical connections are available for easy installation into most applications along with most popular analog output signals. All electrical components carry a high degree of EMC protection compliant with EN 61 326 which make it ideal for areas where RFI, EMI or ESD signals are present.

The compact size makes it very attractive for applications where space is limited. Constructed of high quality stainless steel makes it compatible with chemically aggressive media. The sensor is welded directly to the process connection eliminating the need for any gaskets or seals while also increasing the resistance to mechanical stress.

FEATURES

- Ranges from 0 psig to 15 psig to 0 psig to 10,000 psig
- RoHS compliant
- Constructed of high quality stainless steel
- Excellent EMC-protection compliant with EN 61 326
- Compact size
- All welded design with no internal seals
- Highly resistant to shock and vibration
- Excellent for use in dynamic or static measurement
- Standard absolute ranges from 15 psia to 200 psia

APPLICATIONS

- Hydraulic and pneumatic systems
- Pumps and compressors
- Stamping and forming presses
- Test equipment and systems
- Industrial machinery and machine tools

SPECIFICATIONS

Output signals	4 mA to 20 mA, 2-wire; 0 Vdc to 5 Vdc, 3-wire; 1 Vdc to 5 Vdc, 3-wire; 0 Vdc to 10 Vdc, 3-wire; 0.5 Vdc to 4.5 Vdc ratiometric, 3-wire
Pressure ranges	Standard gauge ranges from 0 psig to 15 psig; through psig to 10,000 psig Standard absolute ranges 15 psia through 300 psig
Proof Pressure	2 times Full Scale
Burst Pressure	6 times Full Scale
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	≤ ±0.05 % Full Scale
Hysteresis	≤ ±0.1 % Full Scale
Stability	≤ ±0.2 % Full Scale per year, non-accumulating
Response time	≤ 4 ms (between 10 % and 90 % Full Scale)
Power supply	8 Vdc to 30 Vdc unregulated for 4 mA to 20 mA output, 0 Vdc to 5 Vdc output and 1 Vdc to 5 Vdc output; 14 Vdc to 30 Vdc unregulated for 0 Vdc to 10 Vdc output; 5 Vdc ± 10% for 0.5 Vdc to 4.5 Vdc output ratiometric
Load limitations	≤ (VPower -10)/0.020 Amp for 4 mA to 20 mA output ≤ 5,000 Ω for 1 Vdc to 5 Vdc output ≤ 10,000 Ω for 0 Vdc to 10 Vdc output ≤ 4,500 Ω for 0.5 Vdc to 4.5 Vdc output
Wetted materials	316 stainless steel for absolute through 150psi 13-8PH stainless steel sensing diaphragm and 316 stainless steel process connection for higher ranges
Housing material	316L stainless steel
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) Storage -4°F to 176°F (0°C to 80°C) Media 32°F to 176°F (0°C to 80°C) Ambient 32°F to 176°F (0°C to 80°C)
Environmental rating	IP65 to IP67 depending on electrical connection
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	500 g's per IEC 68-2-27
Vibration	10 g's per IEC 68-2-6
Weight	Approximately 2.8 oz.

ORDERING INFORMATION

SERIES 300

PRESSURE RANGES	0 psig to 15 psig	**15**	0 psig to 200 psig	**200**	0 psig to 2000 psig	**2000**	0 psia to 30 psia	**30A**
	0 psig to 30 psig	**30**	0 psig to 300 psig	**300**	0 psig to 3000 psig	**3000**	0 psia to 60 psia	**60A**
	0 psig to 60 psig	**60**	0 psig to 500 psig	**500**	0 psig to 6500 psig	**6500**	0 psia to 100 psia	**100A**
	0 psig to 100 psig	**100**	0 psig to 750 psig	**750**	0 psig to 7500 psig	**7500**	0 psia to 150 psia	**150A**
	0 psig to 150 psig	**150**	0 psig to 1000 psig	**1000**	0 psig to 10000 psig	**10000**	0 psia to 200 psia	**200A**
			0 psig to 1500 psig	**1500**	0 psia to 15 psia	**15A**	0 psia to 300 psia	**300A**
	psig = Gauge Pressure		psia = Absolute Pressure		Other ranges available on special request			

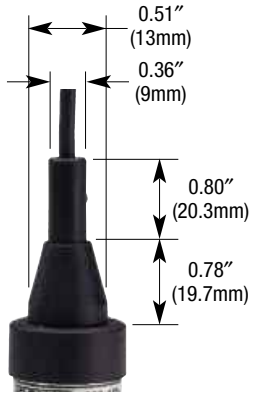
ACCURACY	**1**	±0.5 % Full Scale (BFSL)	**2**	±0.25 % Full Scale (BFSL)				
OUTPUT SIGNALS	**1**	4 mA to 20 mA, 2-wire	**2**	0 Vdc to 5 Vdc, 3-wire	**3**	1 Vdc to 5 Vdc, 3-wire	**5**	0 Vdc to 10 Vdc, 3-wire
	13	0.5 Vdc to 4.5 Vdc, 3-wire (ratiometric)						
PROCESS CONNECTIONS	**2**	1/4 ″ NPT Male	**8**	1/2 ″ NPT Male	**10**	G 1/4 B	**11**	G 1/2 B
	45	7/16 ″ -20 UNF #4 SAE						
ELECTRICAL CONNECTIONS	**1**	36 ″ cable (connected to option 8)			**8**	Hirschmann (DIN EN 175301-803 Form A)		
	36	6 ft Intergral Cable						
	7	Mini-Hirschmann (DIN EN 175301-803 Form C)			**25**	M12 x 1 4-pin		
OPTIONS	**ORF**	Threaded Orifice (.3mm)						

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

EXAMPLE **300 - 500 - 1 - 2 - 2 - 7 - ORF**

Series 300
Pressure Range . . . . . .0 psig to 500 psig
Accuracy . . . . . .±0.50 % Full Scale
Output Signal . . . . . .0 Vdc to 5 Vdc
Process Connection . . . . . .1/4 ″ NPT Male
Electrical Connection . . . . . .Mini-Hirschmann
Option . . . . . .Orifice

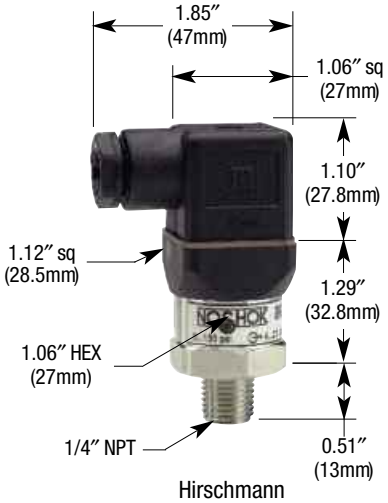
Outline Dimensions



Integral Cable

Mini-Hirschmann

*M12 x 1
*Note: (mate supplied separately or customer supplied)



Hirschmann

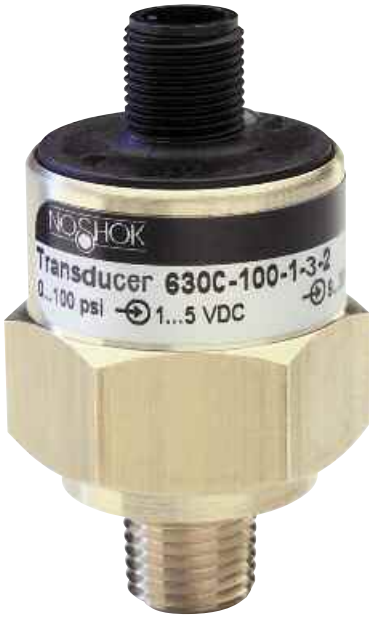
2-WIRE WIRING

Wiring	M12	Hirschmann	Cable
+ Supply	1	1	Brown
+ Output	3	2	Blue

3-WIRE WIRING

Wiring	M12	Hirschmann	Cable
+ Supply	1	1	Brown
Common	3	2	Blue
+ Output	4	3	White

Hall Effect Pressure Transducers



SERIES 630

HALL EFFECT PRESSURE TRANSDUCERS

The NOSHOK 630 pressure transducer is designed to provide excellent performance and reliability at an economical price. This transducer uses a proven diaphragm capsule with an attached highly stable ceramic magnet that is magnetically coupled to a Hall Effect sensing device.

Because it does not use links, levers or any other similar techniques, the nearly frictionless transduction method provides exceptional repeatability, long service life and high reliability. As are all NOSHOK transducers, the 630 is CE compliant, providing significant suppression of radio interference and magnetic interference found in most factory environments.

A rigorous inspection is performed on all NOSHOK Series 630 pressure transducers prior to shipment to ensure 100% “out of the box” reliability.

Please consult your local NOSHOK Distributor or NOSHOK for minimum quantity requirements.

FEATURES

- Proven Hall Effect sensor
- Excellent reliability
- Wide variety of pressure ranges, connections and outputs
- Available ratio-metric output
- CE compliant

APPLICATIONS

- OEM equipment
- Pumps and compressors
- Industrial machinery and machine tools
- HVAC systems
- Medical equipment
- Refrigeration systems

SPECIFICATIONS

Output signals	0 Vdc to 5 Vdc, 3-wire; 0 Vdc to 10 Vdc, 3-wire; 1 Vdc to 5 Vdc, 3-wire .5 Vdc to 4.5 Vdc, 3-wire ratio-metric to the power supply
Accuracy	±1 % Full Scale (BFSL); (Includes the effects of non-linearity, hysteresis, non-repeatability, zero point and full scale errors)
Hysteresis	≤ ±0.4 % Full Scale
Repeatability	≤ ±0.06 % Full Scale
Stability	≤ ±0.4 % Full Scale for 1 year, non-accumulating
Pressure ranges	Standard gauge ranges from vacuum through 300 psig
Proof pressure	3 times Full Scale for ranges 0 psi to 2 psi through 0 psi to 100 psi 2 times Full Scale for ranges 0 psi to 150 psi through 0 psi to 300 psi
Power supply	9 Vdc to 30 Vdc for 0 Vdc to 5 Vdc, 3-wire, unregulated 1 Vdc to 5 Vdc, 3-wire, unregulated 12 Vdc to 30 Vdc for 0 Vdc to 10 Vdc, 3-wire, unregulated 5 Vdc ±10 % for .5 Vdc to 4.5 Vdc, 3-wire ratiometric, unregulated
Load Limitations	≤ 10,000 Ω for 0 Vdc to 10 Vdc, 3-wire ≤ 5,000 Ω for 0 Vdc to 5 Vdc, 3-wire; 1 Vdc to 5 Vdc, 3-wire ≤ 4,500 Ω for .5 Vdc to 4.5 Vdc, 3-wire ratiometric
Wetted materials	Nickel-Copper diaphragm (ranges up through 0 psig to 30 psig) and Nickel-Beryllium diaphragm (ranges greater than 0 psig to 30 psig) and Copper alloy body
Housing material	Copper alloy with Polyamid top cap
Temperature ranges	Compensated -4 °F to 176 °F (-20 °C to 80 °C) Zero effect ±0.022 % Full Scale/°F Span effect ±0.011 % Full Scale/°F Ambient -20 °F to 176 °F (-20 °C to 80 °C) Media -20 °F to 176 °F (-20 °C to 80 °C) Storage -40 °F to 212 °F (-40 °C to 100 °C)
Environmental rating	IP67, NEMA 4X according to EN 60529/IEC529
Electromagnetic rating	CE compliant to EMC norm EN61326: 1997/A1:1998 RFI, EMI and ESD protected
Electrical protection	Reverse polarity, over-voltage and short circuit protection
Weight	Approximately 3.5 oz.

ORDERING INFORMATION

SERIES 630C (copper alloy wetted parts)

PRESSURE RANGES	-30 inHg to 0 psig	**30V**	-30 inHg to 200 psig	**30/200**	0 psig to 30 psig	**30**
	-30 inHg to 15 psig	**30/15**	-30 inHg to 300 psig	**30/300**	0 psig to 60 psig	**60**
	-30 inHg to 30 psig	**30/30**	0 psig to 2 psig	**2**	0 psig to 100 psig	**100**
	-30 inHg to 60 psig	**30/60**	0 psig to 5 psig	**5**	0 psig to 150 psig	**150**
	-30 inHg to 100 psig	**30/100**	0 psig to 10 psig	**10**	0 psig to 200 psig	**200**
	-30 inHg to 150 psig	**30/150**	0 psig to 15 psig	**15**	0 psig to 300 psig	**300**

psig = Gauge Pressure Other ranges available on special request

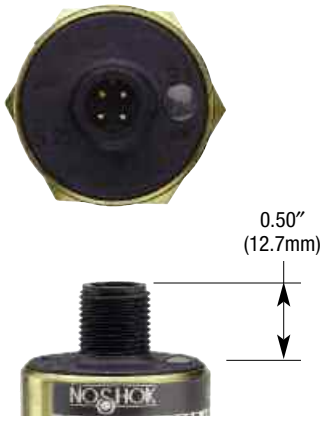
ACCURACY	**1**	±1.0 % Full Scale (Full Scale Typical)
OUTPUT SIGNALS	**2**	0 Vdc to 5 Vdc, 3-wire
	3	1 Vdc to 5 Vdc, 3-wire
	5	0 Vdc to 10 Vdc, 3-wire
	13	. 5 Vdc to 4.5 Vdc ratio-metric to power supply, 3-wire
		Other outputs available on special request
PROCESS CONNECTIONS	**1**	1/8 ″ NPT Male
	2	1/4 ″ NPT Male
ELECTRICAL CONNECTIONS	**1**	36 ″ cable
	25	M12 x 1 4-pin
OPTIONS	**ORF**	Threaded Orifice

Please consult your local NOSHOK Distributor or NOSHOK, Inc. for minimum quantity requirements and delivery information.

EXAMPLE **630C - 300 - 1 - 2 - 2 - 25 - ORF**

Series 630C
Pressure Range . . . . . .0 psig to 300 psig
Accuracy . . . . . .± 1.0 % Full Scale
Output Signal . . . . . .0 Vdc to 5 Vdc
Process Connection . . . . . .1/4 ″ NPT Male
Electrical Connection . . . . . .M12 x 1
Option . . . . . .Orifice

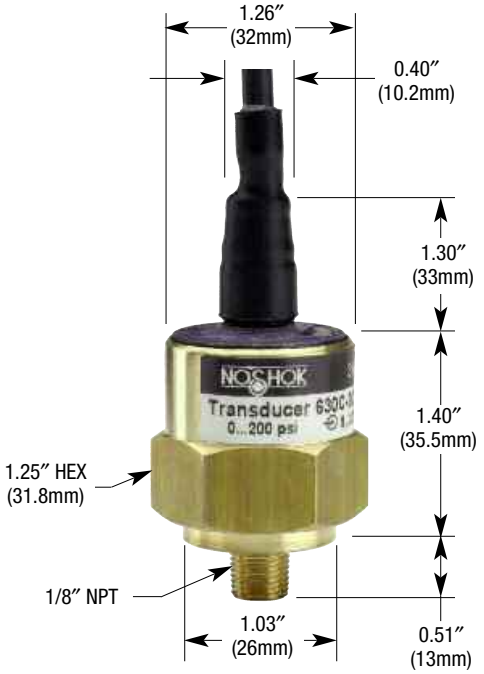
Outline Dimensions



M12 X 1

3-WIRE WIRING

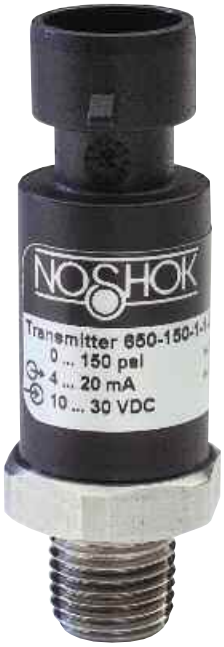
Wire	M12	Cable
+ Supply	1	Brown
Common	3	Blue
+ Output	4	Black



High Volume OEM Pressure Transducers

SERIES 650

HIGH PERFORMANCE HIGH VOLUME OEM PRESSURE TRANSDUCERS



NOSHOK Series 650 pressure transducers combine high performance with off road vehicle reliability under severe process and environmental conditions. The all welded pressure sensor is located in the pressure connection low enough to prevent damage due to physical abuse. These transducers are designed with high overpressure capability to provide reliability and long life in hydraulic and pneumatic applications containing severe process pulsations and high vibration. The sensor utilizes sputtered thin film strain gage technology that provides stainless steel media capability and long term measurement stability. All of this in a small package that is more easily designed into applications than conventional transducers. The pressure chamber is all stainless steel and welded for reliable and trouble-free performance in high shock and vibration conditions often found in off road applications. Variations in pressure connections, outputs and electrical connections are available and custom configurations are possible for volume applications.

Due to a high degree of automation used to produce these OEM pressure transducers, this product is intended for a large commitment.

Please consult your local NOSHOK Distributor or NOSHOK for minimum quantity requirements.

FEATURES

- Welded stainless steel pressure chamber
- Advanced diffused semiconductor and sputtered thin film sensor for maximum stability
- Designed to handle pressure spikes and process pulsation
- Off road capable due to high vibration and shock resistance
- CE compliant to suppress RFI, EMI and ESD

APPLICATIONS

- Hydraulic and pneumatic systems
- Off road vehicles
- Refrigeration controls
- Industrial machinery and machine tools
- Pumps and compressors

SPECIFICATIONS

Output signal	4 mA to 20 mA 2-wire, or 1 Vdc to 5 Vdc 3-wire
Pressure ranges	Standard gauge ranges from 100 psig to 8000 psig
Proof pressure	2 times Full Scale
Burst pressure	8 times Full Scale for ranges 0 psi to 100 psi through 0 psi to 1500 psi 4 times Full Scale for ranges 0 psi to 2000 psi through 0 psi to 8000 psi
Accuracy	±0.50 % Full Scale (BFSL); (Includes the effects of non-linearity, hysteresis, non-repeatability, zero point and full scale errors)
Repeatability	±0.1 % Full Scale
Stability	±.2 % Full Scale for 1 year, non-accumulating
Response time	<5 ms (between 10 % and 90 % Full Scale); restrictor port I.D. to dampen pulsations
Power supply	10 Vdc to 36 Vdc for 4 mA to 20 mA output and 1 Vdc to 5 Vdc outputs, unregulated; 14 Vdc to 36 Vdc for 0 Vdc to 10 Vdc output, unregulated; 5 Vdc ±.5 Vdc for .5 Vdc to 4.5 Vdc output, unregulated
Load limitations	≤ (VPower -10)/0.020 Amp for 4 mA to 20 mA output ≤ 5,000 Ω for 1 Vdc to 5 Vdc output ≤ 10,000 Ω for 0 Vdc to 10 Vdc output ≤ 4,500 Ω for 0.5 Vdc to 4.5 Vdc output
Wetted materials	17-4PH stainless steel sensing diaphragm and 316 stainless steel pressure connection
Housing material	PBT - fiber reinforced plastic
Temperature ranges	Compensated 32 °F to 176 °F (0 °C to 80 °C) Zero effect ±0.008 % Full Scale/°F Span effect ±0.008 % Full Scale/°F Ambient -40 °F to 212 °F (-40 °C to 100 °C) Media -40 °F to 257 °F (-40 °C to 125 °C) Storage -40 °F to 248 °F (-40 °C to 120 °C)
Environmental rating	IP67 for M12x1 electrical connection and Metri Pack connection; IP69K (steam jet cleaning) for cable connection
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	500 g's per DIN EN 837
Vibration	20 g's per IEC 68-2
Weight	Approximately 2.5 oz.

ORDERING INFORMATION

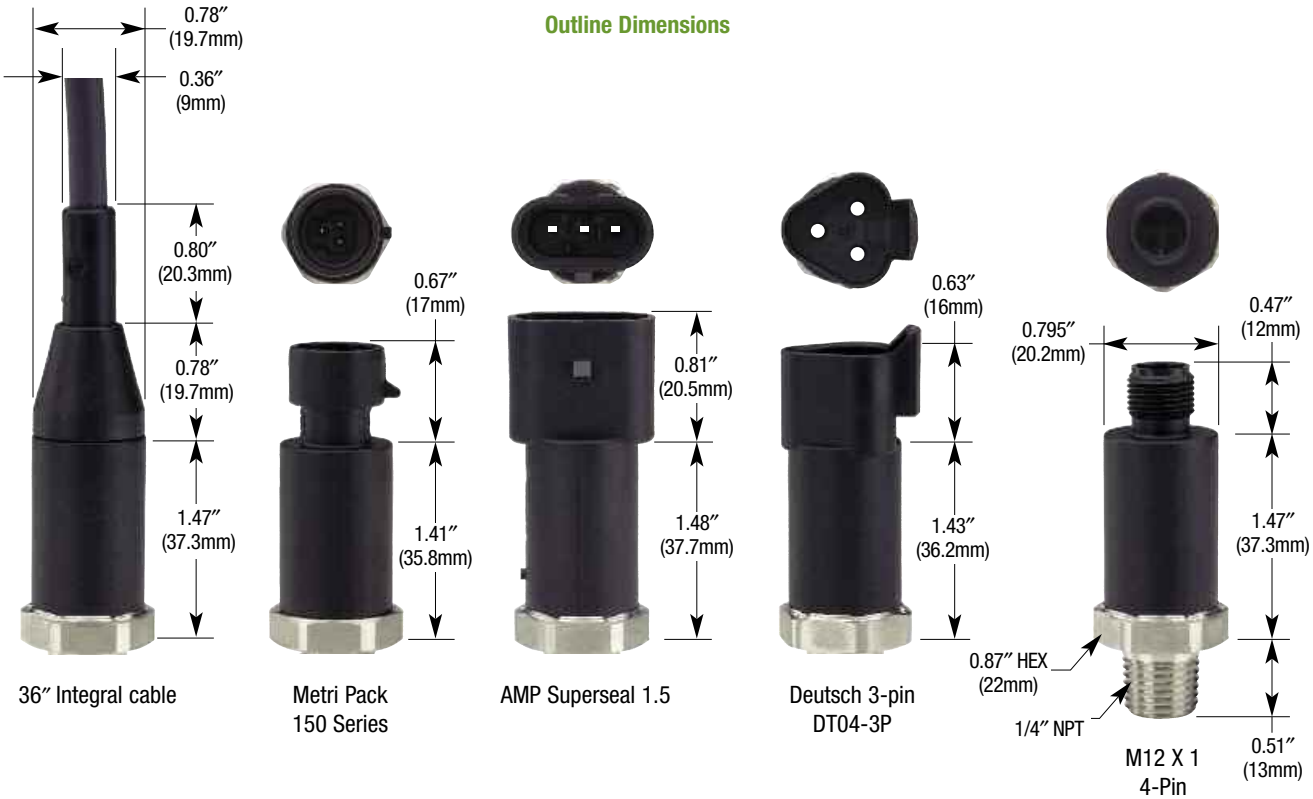
SERIES 650											
PRESSURE RANGES	0 psig to 100 psig	**100**	0 psig to 300 psig	**300**	0 psig to 600 psig	**600**	0 psig to 1500 psig	**1500**	0 psig to 5000 psig	**5000**
	0 psig to 150 psig	**150**	0 psig to 400 psig	**400**	0 psig to 750 psig	**750**	0 psig to 2000 psig	**2000**	0 psig to 8000 psig	**8000**
	0 psig to 200 psig	**200**	0 psig to 500 psig	**500**	0 psig to 1000 psig	**1000**	0 psig to 3000 psig	**3000**		
	psig = Gauge Pressure		Other ranges available on special request							
ACCURACY	**1** ±0.5 % Full Scale (BFSL)									
OUTPUT SIGNALS	**1** 4 mA to 20 mA, 3-wire		**3** 1 Vdc to 5 Vdc, 3-wire		**5** 0 Vdc to 10 Vdc, 3-wire		**13** .5 Vdc to 4.5 Vdc ratio-metric, 3-wire			
PROCESS CONNECTIONS	**2** 1/4 ″ NPT Male		**45** 7/16 ″-20 UNF #4 SAE J 514 Male		**10** G1/4B Male		**24** 7/16-20 2B Schrader			
	35 7/16-20 SAE with 45° flare									
ELECTRICAL CONNECTIONS	**25** M12 x 1 4-pin		**34** Metri Pack 150 series		**36** 18″ Integral cable IP67					
	39 18″ Integral cable IP69		**45** AMP Superseal 1.5		**46** Deutsch 3 pin DT04-3P					

Please consult your local NOSHOK Distributor or NOSHOK, Inc. for minimum quantity requirements and delivery information.

EXAMPLE **650 - 500 - 1 - 1 - 2 - 25**

Series 650
Pressure Range . . . . . .0 psig to 500 psig
Accuracy . . . . . .±0.5 % Full Scale
Output Signal . . . . . .4 mA to 20 mA
Process Connection . . . . . .1/4 ″ NPT Male
Electrical Connection . . . . . .M12 x 1

Outline Dimensions



36″ Integral cable

Metri Pack 150 Series

AMP Superseal 1.5

Deutsch 3-pin DT04-3P

M12 X 1 4-Pin

2-WIRE WIRING

Wiring	Cable	M12	Metripac	AMP Superseal	Deutsch DT04-3P
+ Supply	Brown	1	B	3	A
+ Output	Green	3	A	1	B

3-WIRE WIRING

Wiring	Cable	M12	Metripac	AMP Superseal	Deutsch DT04-3P
+ Supply	Brown	1	B	3	A
Common	Green	3	A	1	B
+ Output	White	4	C	2	C