

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 (Best Fit Straight Line) Includes the combined effects of linearity, hysteresis and repeatability
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 (Best Fit Straight Line)									
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	39 36" Integral cable IP69K	25 M12 x 1 4-pin	34 Metri Pack 150 series	36 36" Integral cable IP67	45 AMP Superseal 1.5	46 Deutsch 3 pin DT04-3P				

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EXAMPLE

650 - 500 - 1 - 1 - 2 - 25

- Series650
- Pressure Range0 psig to 500 psig
- Accuracy±0.5 % Full Scale
- Output Signal4 mA to 20 mA
- Process Connection1/4" NPT Male
- Electrical ConnectionM12 x 1



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