



SERIES 500

The NOSHOK Mag-Switch is an electronic pressure switch that utilizes proven diaphragm pressure sensing technology coupled with hall effect magnetic field sensing technology and semiconductor switching technology to provide a highly reliable, accurate, repeatable, cost effective pressure switch without mechanical contacts.

NOSHOK Mag-Switches are available with either one or two switch functions of either PNP (positive) output or NPN (negative) output in either N.O. (normally open) or N.C. (normally closed) configurations. The switch points are field adjustable utilizing readily accessible adjustment screws with an adjustment range of 10-100% of full scale value.

NOSHOK Mag-Switches come in a wide variety of pressure ranges to suit a wide variety of applications. The standard electrical connection is a 4 pin M12 x 1 threaded connector.

FEATURES

- Measuring range from 30 vacuum through 15,000 PSIG
- Field adjustable switch points
- Semiconductor switching relays (no mechanical contacts)
- Suitable for direct connection to PLC's
- Integrated LED switching indication
- N.O. or N.C. switching functions
- Positive (PNP) or negative (NPN) switch functions
- Single or dual switch setpoint functions

APPLICATIONS

- Hydraulic and pneumatic systems
- Industrial machinery and machine tools
- Stamping and forming presses
- Pumps and compressors
- Laboratory and test equipment
- HVAC systems
- Medical
- Refrigeration equipment
- Transportation equipment

SPECIFICATIONS

Pressure Ranges	0-30 inHg vac through 15,000 PSI
Proof Pressure	30 PSI & lower 5x 60 PSI 4x 150 PSI & higher 2x
Process Connection	Brass (1/4 " NPT standard)
Wetted Parts	Copper Alloy 316 SS above 600 PSI
Case	Brass through 350 PSI Aluminum Anodized 600 PSI and higher
Switching Functions	1 N.O. or 1 N.C. contact standard 2 N.O. or 2 N.C. contacts are optional p-switching or n-switching
Adjustability	Adjustment screw Switching point 5 ... 100% of F.S.
Accuracy & Repeatability	≤ 1% of F.S.
Switching Hysteresis	≤ 5% of F.S.
Power Supply	10...30 VDC, unregulated
Contact Rating	Max. 100 mA (max. 30 VDC)
Temperature Compens. Range	32° to 175°F/0° to 80°C
Temperature Effect	0.02% full scale/°F
Temperature Ranges	Storage -22° to 175°F/-30° to 80°C Media -5° to 175°F/-20° to 80°C Ambient -5° to 175°F/-20° to 80°C
Environmental Protection	Cable conn. NEMA 6: IP 67 (IEC 529) M12x1 conn. NEMA 4: IP 65 (IEC 529)
Electromagnetic Capability per IEC 1000 (EN 50081, EN 50082)	ESD Level 1 Fields (RF) Level 2 Burst Level 2 Surge Level 2 CE Compliant
Electrical Protection Types	Reverse polarity and overvoltage protection
Weight	0.2 lbs. on 400 PSI & below, 0.6 lbs. on 600 PSI & higher

ORDERING INFORMATION								
SERIES 500								
SWITCH FUNCTION	1	1 N.O. (PNP)	3	2 N.O. (PNP)	5	1 N.O. (NPN)	7	2 N.O. (NPN)
	2	1 N.C. (PNP)	4	2 N.C. (PNP)	6	1 N.C. (NPN)	8	2 N.C. (NPN)
PROCESS CONNECTIONS	1	1/8" NPT Male		2	1/4" NPT Male			
PRESSURE RANGES		-30 inHg to 0 psig	30V	0 psig to 100 psig	100	0 psig to 600 psig	600	0 psig to 3000 psig
		0 psig to 15 psig	15	0 psig to 150 psig	150	0 psig to 750 psig	750	0 psig to 5000 psig
		0 psig to 30 psig	30	0 psig to 250 psig	250	0 psig to 1000 psig	1000	0 psig to 7500 psig
		0 psig to 60 psig	60	0 psig to 350 psig	350	0 psig to 2000 psig	2000	0 psig to 10000 psig
ELECTRICAL CONNECTIONS	1	5 foot cable			2	4 pin M12x1 connector		
OPTIONS	1	Additional Cable Length (specify length) (available with cable connection only)			ORF	THREADED ORIFICE		
					note:	M12 mating connectors & cordsets are available as separate options. Please refer to price list for details.		

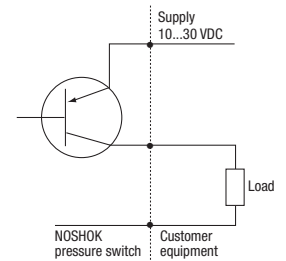
EXAMPLE

Series500
 Switch Function.....2 N.O. (PNP)
 Process Connection.....1/4" NPT Male
 Adjustable Range0 psig to 750 psig
 Electrical Connection4 pin M12 x 1 connector
 Options.....ORIFICE

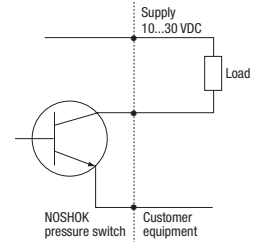
500 - 3 - 2 - 750 - 2 - ORF

Switching Output Schematic

P-switching output

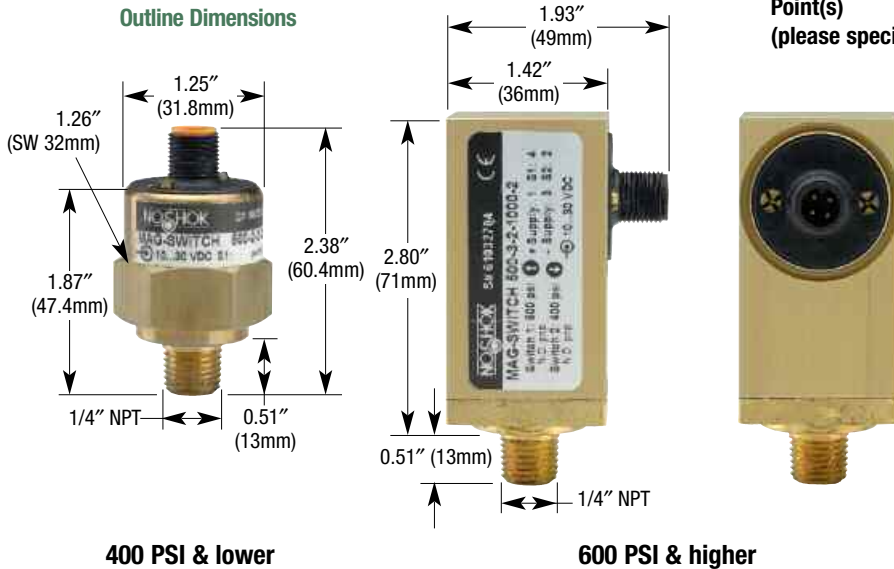


N-switching output



**Additional
Ordering
Information
Switch Set
Point(s)
(please specify)**

Outline Dimensions



400 PSI & lower

600 PSI & higher

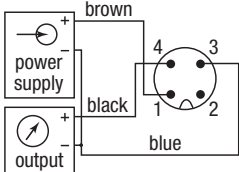
Connection table for 4 PIN M12x1 connector

Function	Connector M12x1
Power supply: +	1 brown
Power supply: -	3 blue
Switching output: S1	4 black
Switching output: S2	2 white

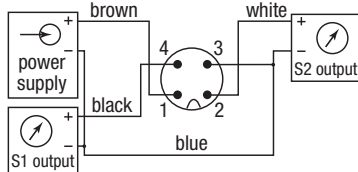
Wiring Diagrams

P-switching, cable or connector

1 switching output

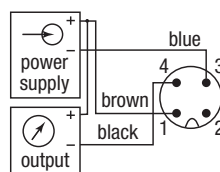


2 switching outputs

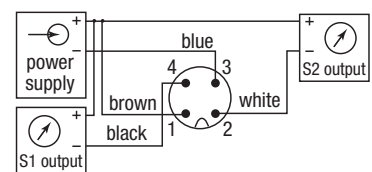


N-switching, cable or connector

1 switching output



2 switching outputs



SERIES 600



FEATURES

- Measuring ranges from 5 PSI through 15,000 PSI including vacuum, compound and absolute.
- Corrosion resistant 316 SS welded construction
- Single or Dual switch setpoint functions
- N.O. or N.C. switching functions
- Positive or negative switching capability
- Programmable, tamperproof setpoints
- High overpressure protection
- Highly resistant to mechanical shock and vibration

APPLICATIONS

- Hydraulic and pneumatic systems
- Industrial machinery and machine tools
- Molding and extruding equipment
- Stamping and forming presses
- Pumps and compressors
- Laboratory and test equipment
- HVAC
- Refrigeration
- Medical
- Water management
- Petrochemical
- Power generation
- Construction equipment
- Transportation equipment
- Marine

The NOSHOK Smart Switch is truly a “State of the Art” pressure switch. It’s design is based upon our proven sputtered thin film and diffused semiconductor pressure transmitters for unparalleled accuracy, stability, overpressure protection and service life. Switching is accomplished digitally by means of an internal signal conditioner which means there are never any mechanical contacts to wear out. They are available with either one or two switch functions of either PNP (positive) output or NPN (negative) output in either N.O. (normally open) or N.C. (normally closed) configurations.

Because the adjustments are made digitally; set points and hysteresis are fully adjustable and completely tamperproof.

Programming can be done at the factory or in the field by means of a PC running Windows and using the NOSHOK Smart Switch software and programming hardware.

All wetted areas are 316 SS and are welded with no o-rings, gaskets or seals to leak or fail.

Available pressure ranges are from 0-5 PSIG through 15,000 PSIG including vacuum, compound and absolute ranges.

They also process the highest EMC capabilities along with the highest mechanical shock and vibration resistance available anywhere.

When only the best will do, the NOSHOK Smart Switch is the only choice.

SPECIFICATIONS

Pressure Ranges	0-5 PSI through 0-15,000 PSI including vacuum, compound and absolute	
Proof Pressure	≤ 200 PSI: 3.5x , 300-10,000 PSI: 2x , above 10,000 PSI: 1.5x	
Process Connection	1/4 " NPT standard; 1/2 " NPT optional	
Wetted Parts	316 SS	
Case	304 SS	
Switching Functions	1 or 2 N.O. or N.C. p-or n-switching	
Adjustment	Switching point	0...100% of F.S.
	Hysteresis	1...99% of F.S.
	Dampening	0...500ms
Accuracy	≤ 1% of F.S. (limit point setting) ≤ 0.5% of F.S. (BFSL)	
Repeatability	≤ 0.25% of F.S.	
Stability per Year	≤ ± 0.2% of F.S. in rated conditions	
Power Supply	10...30 VDC, unregulated (>12 VDC for programming mode) Increase time when switching on the supply 50 V/sec.	
Switching Power	1 channel p-switching	4 ADC (max. 30 VDC)
	n-switching	0.3 ADC (max. 30 VDC)
	2 channel p-switching	2 ADC (max. 30 VDC)
	n-switching	0.3 ADC (max. 30 VDC)
Response Time	p-switching	≤ 6 ms
	n-switching	≤ 10 ms
Temperature Compens. Range	32°-175°F/0-80°C	
Temperature Influence	± 0.02% full scale/°F for zero and span	
Temperature Ranges	Storage -40° to 212°F/-40° to 100°C Medium -22° to 212°F/-30° to 100°C Ambient -5° to 175°F/-20° to 80°C	
Electrical Connection	5 pin M12x1, connector	
Environmental Protection	Nema 6, 6P: IP 67 (IEC 529)	
Electromagnetic Capability per IEC 1000 (EN 50081, EN 50082)	ESD Level 2 Fields (RFI) Level 2 Burst Level 3 Surge Level 2 CE Compliant	
Electrical Protection Types	Reverse polarity, overvoltage and short-circuit protection	
Weight	Approximately 0.5 lbs	

ORDERING INFORMATION										
SERIES 600										
SWITCH FUNCTION	1	1 N.O. or N.C. Switch (PNP)			3	1 N.O. or N.C. Switch (NPN)				
	2	2 N.O. or N.C. Switch (PNP)			4	2 N.O. or N.C. Switch (NPN)				
PROCESS CONNECTIONS	2 1/4" NPT Male				8 1/2" NPT Male					
PRESSURE RANGES	-30 inHg to 0 psig	30V	30 inHg to 300 psig	30/300	0 psig to 100 psig	100	0 psig to 2000 psig	2000	0 psig to 15 psia	15A
	30 inHg to 15 psig	30/15	30 inHg to 400 psig	40/400	0 psig to 150 psig	150	0 psig to 3000 psig	3000	0 psig to 30 psia	30A
	30 inHg to 30 psig	30/30	0 psig to 5 psig	5	0 psig to 200 psig	200	0 psig to 5000 psig	5000	0 psig to 60 psia	60A
	30 inHg to 60 psig	30/60	0 psig to 10 psig	10	0 psig to 300 psig	300	0 psig to 7500 psig	7500	0 psig to 100 psia	100A
	30 inHg to 100 psig	30/100	0 psig to 15 psig	15	0 psig to 500 psig	500	0 psig to 10000 psig	10000	0 psig to 150 psia	150A
	30 inHg to 150 psig	30/150	0 psig to 30 psig	30	0 psig to 750 psig	750	0 psig to 15000 psig	15000	0 psig to 200 psia	200A
	30 inHg to 200 psig	30/200	0 psig to 60 psig	60	0 psig to 1000 psig	1000			0 psig to 300 psia	300A
PSIG = Gauge Pressure PSIA = Absolute Pressure Other ranges available on special request										
ELECTRICAL CONNECTIONS	3	5 pin M12x1 connector								
OPTIONS	ORF	SS Threaded Orifice			note: M12 mating connectors & cordsets are available as separate options. Please refer to price list for details.					

EXAMPLE

Series600
 Switch Function1 N.O. or N.C. Switch (NPN)
 Process Connection1/2" NPT Male
 Switch Adjustment Range0 psig to 150 psig
 Electrical Connection ..5 pin M12 x 1 connection

600 - 3 - 8 - 150 - 3

Additional Ordering Information
 Switch Set Point(s) (please specify)
 Set Point Hysteresis (please specify as a % F.S.)

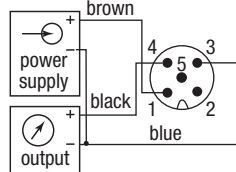


Connection table for 5 PIN M12x1 connector

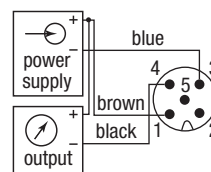
Function	Connector M12x1
Power supply: +	1 brown
Power supply: -	3 blue
Switching output: S1	4 black
Switching output: S2	5 grey

Wiring Diagrams

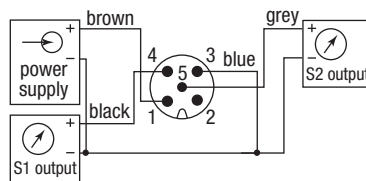
1 switching output p-switching



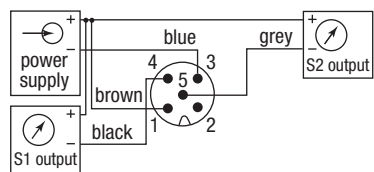
n-switching



2 switching outputs p-switching

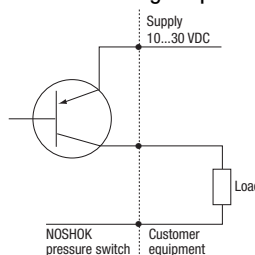


n-switching

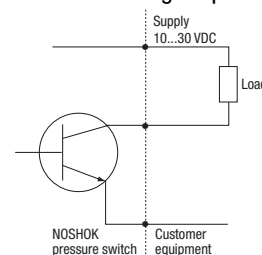


Switching Output Schematic

P-switching output



N-switching output



SERIES 800/810



Switching Output Options Available:

- 2 switching outputs
- 1 switching output and 1 analog output (4...20 mA or 0...10 V)
- 2 switching outputs and 1 analog output (4...20 mA)

The NOSHOK 800 Series Electronic Indicating Pressure Switch/Transmitter provides continuous pressure monitoring and allows the programming of the set points without applying pressure. The set points, contact functions (normally open / normally closed), reset points, contact types (npn / prnp) and switching function (hysteresis / gate) are simple to adjust via the two buttons.

By the use of proven ceramic or thin film sensors, this pressure switch features a high level of repeatability and durability. The turnable display and the optional turnable process connection allow ease of installation and wiring.

SPECIFICATIONS

Pressure Ranges	Standard gauge ranges from -14.5 psig to 30 psig through 0 psig to 9999 psig
Pressure Sensor	Thick film ceramic strain gage for ranges through -15 psig to 1450 psig Sputtered thin film strain gage for all higher pressure ranges
Proof Pressure	2 times Full Scale for ranges Vacuum through 0 psig to 1450 psig. 1.75 times Full scale for ranges 0 psig to 1500 psig through 0 psig to 10000 psig
Burst Pressure	2.5 times Full Scale for ranges Vacuum through 0 psig to 1450 psig. 4 times Full scale for ranges 0 psig to 1500 psig through 0 psig to 10000 psig.
Wetted Materials	Stainless Steel with ceramic sensor and viton seal on ranges through 0 psig to 1450 psig (other sealing materials available upon request) Stainless Steel only for higher pressure ranges.
Housing Material	800-Stainless Steel, 810-Black Anodized Aluminum
Power Supply	12 - 30 Vdc unregulated
Signal Output	4 to 20 mA or 0 to 10 Vdc; programmable and freely adjustable
Switch Points	Individually adjustable via external control keys
Number	1 or 2 (PNP or NPN)
Function	NO/NC; windows - and hysteresis function freely adjustable
Switching rating	0.5 A max
Response time	<10 ms
Accuracy	<1% Full Scale
Display	7-Segment-LED, red 4-digit, height 0.3
Adjustment	Programmable on the display
Switch Point	0.5 to 100% of Full Scale
Hysteresis	0.5 to 99% of Full Scale
Current Consumption	<50 mA (without load)
Accuracy	<0.5% Full Scale (Best Fit Straight Line) ± 1 Digit
Hysteresis	<0.2% Full Scale (<0.3 with pressure range <0 psi - 230 psi)
Repeatability	<0.2% Full Scale
Stability	<0.2% Full Scale (<0.3 with pressure range <0 psi - 230 psi)
Temperature Limits Media	-4°F to 176°F (-20°C to 85°C) (Thin Film Sensor) -4°F to 176°F (-20°C to 85°C) (Ceramic Sensor)
Ambient Storage	-4°F to 158°F (-20°C to 70°C) -22°F to 176°F (-30°C to 80°C)
Compensated Temp Range	32°F to 176°F (0°C to 80°C)
Thermal Zero Effect	$\pm 0.07\%$ Full Scale/°F
Thermal Span Effect	$\pm 0.07\%$ Full Scale/°F
CE compliance	89/336EWG interference emission and immunity see EN 61 326 97/23/EG Pressure equipment directive, Appendix 1
Vibration	> 10 g according to IEC 60068-2-6
Shock	> 50 g according to IEC 60068-2-27
Electrical Protection	Protected against reverse polarity, overvoltage and short circuit
Environmental Protection	NEMA 4 Per IEC 60529/EN 60529
Durability	>10 million Full Scale Cycles
Weight	Approx 0.62 lbs

FEATURES

- Pressure Ranges from -14.5 psig to 9999 psig
- 330° Rotatable Display-Head
- Integrated Password Protection
- Simple 2-Key Programming
- Four-Digit LED-Display
- Scaleable Analog Output
- Fast Response Time

OPTIONAL FEATURES

- 330° Rotatable Pressure Connection
- Minimum/Maximum Value Memory
- Output Dampening up to 2,000 msec
- Switching Time Delay

APPLICATIONS

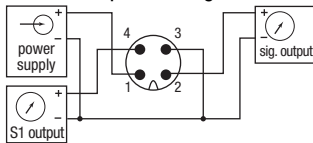
- Hydraulic and Pneumatic Systems
- Molding and Extruding Equipment
- Stamping and Forming Presses
- Pumps and Compressors
- HVAC
- Power Generation
- Transportation Equipment
- Marine

ORDERING INFORMATION						
SERIES 800/810	800	Stainless Steel Housing	810	Black Anodized Aluminum Housing		
SWITCH FUNCTION	1	2 N.O. or 2 N.C. (PNP or NPN)	2	1 N.O. or 1 N.C. (PNP or NPN) with 4 mA to 20 mA Analog Output		
	3	1 N.O. or 1 N.C. (PNP or NPN) with 0 Vdc to 10 Vdc Analog Output	4	2 N.O. or 1 N.C. (PNP or NPN) with 4 mA to 20 mA Analog Output		
PROCESS CONNECTIONS	2	1/4" NPT male	5	1/4" NPT female	8	1/2" NPT male
	11	G1/2B male	19	G1/4B female	45	7/16-20 UNF SAE #4 (Non-Adjustable)
SWITCH ADJUSTMENT RANGE (MAXIMUM WORK PRESSURE)		-14.5 psig to 30 psig	14.5/30	0 psig to 145 psig	145	0 psig to 3750 psig
		-14.5 psig to 75 psig	14.5/75	0 psig to 300 psig	300	0 psig to 6000 psig
		-14.5 psig to 145 psig	14.5/145	0 psig to 750 psig	750	0 psig to 9000 psig
		0 psig to 30 psig	30	0 psig to 1450 psig	1450	
	0 psig to 75 psig	75	0 psig to 2400 psig	2400		
ELECTRICAL CONNECTIONS	2	M12 x 1 (4-Pin)	3	M12 x 1 (5-Pin), 2 switch and analog output		
OPTIONS	ORF	Threaded Orifice	RB	Rotatable Base	EH	Enhanced Software ¹

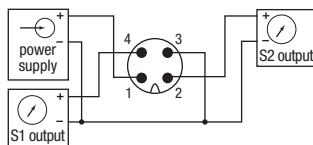
¹Includes Minimum/Maximum Value Memory, Output Dampening, Switching Time Delay

Wiring Diagrams

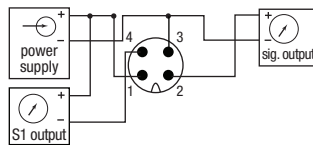
**1 switching output (M12 x 1)
with 4mA to 20 mA Signal
p-switching**



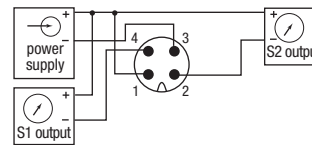
**2 switching output (M12 x 1)
p-switching**



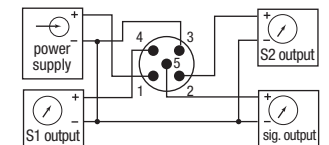
**1 switching output (M12 x 1)
with 4mA to 20 mA Signal
n-switching**



**2 switching output (M12 x 1)
n-switching**



**2 switching output (M12 x 1)
with 4mA to 20 mA Signal
p-switching**

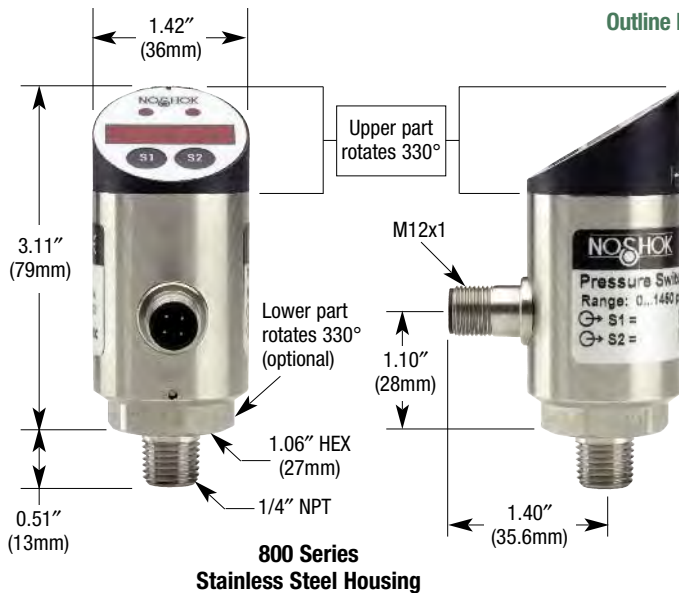


EXAMPLE

Series800
Switch Function ... 2 N.O. or N.C. (npn or npn)
Process Connection1/4" NPT male
Switch Adjustment Range .0 psig to 145 psig
Electrical Connection M12 x 1 (4-pin)
Option Orifice

800 - 1 - 2 - 145 - 2 - ORF

Outline Dimensions



**800 Series
Stainless Steel Housing**



**810 Series
Black anodized
Aluminum Housing**