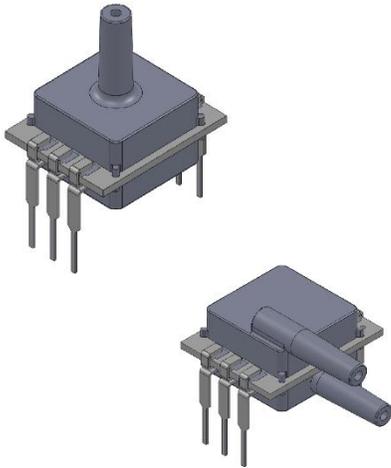


## MSDX Series Pressure Sensors



### Features

- Low-cost, small DIP package
- Constant voltage excitation
- Low Noise
- Compensated range 0 to 50°C
- Absolute, Differential & Gage Configurations
- Pressure ranges from 5 in H<sub>2</sub>O to 100 psi
- Superior Long-term stability

### Applications

- Industrial Automation
- Pneumatic Controls
- Computer Peripherals
- HVAC
- Medical Instrumentation

### Description

Amphenol All Sensors' MSDX series pressure sensors deliver precise and reliable measurement capabilities in a cost-effective, PCB-mountable design. Built with high-quality materials for durability, these sensors are optimized for applications involving clean, dry air and non-corrosive gases. Available in absolute, differential, and gage configurations, the MSDX series offers flexible solutions to meet a wide range of application requirements. Designed as an alternative for the Honeywell SDX series, the MSDX simplifies upgrades and replacements without the need for design modifications.

The MSDX series features a compact, low-cost DIP package, constant voltage excitation, and low-noise performance for superior accuracy. Engineered for long-term stability, these sensors offer a fully calibrated output over a temperature range of 0 to 50°C [32 °F to 122 °F]. With pressure ranges from 5 in H<sub>2</sub>O to 100 psi, the MSDX series delivers dependable performance across various industries, including medical instrumentation, HVAC systems, industrial automation, and pneumatic controls. Whether you require absolute, differential, or gage pressure sensing, the MSDX series provides unmatched versatility and reliability to meet your most demanding application needs. To help you select the best sensor for your specific needs, our experienced application specialists are ready to provide expert support.

## Environmental Specifications

Characteristic	Parameter
Compensated Temperature	0°C to 50°C (32°F to 122°F)
Operating Temperature	-40°C to 85°C (-40°F to 185°F)
Storage Temperature	-55°C to 125°C (-67°F to 257°F)
Humidity Limits	0% RH to 95% RH (non-condensing)

## Pressure Sensor Maximum Ratings

Characteristic	Parameter
Supply Voltage (Vs)	20 Vdc
Common Mode Pressure InH <sub>2</sub> O Devices (L05, L10) PSI Devices (01,05,15,30,60,100)	50 PSIG 150 PSIG
Lead Temperature (soldering 2-4 sec.)	250°C
Maximum Device Temperature	245°C

## Standard Pressure Range Specifications

Device	Operating Range	Proof <sup>(5)</sup> Pressure	Burst <sup>(6)</sup> Pressure	Full-Scale Span (mV) <sup>(1,2)</sup>		
				Min.	Typ.	Max.
MSDX-L05D-xxxx-P	+ 5 in H <sub>2</sub> O	193 in H <sub>2</sub> O	193 in H <sub>2</sub> O	19.50	20.00	20.50
MSDX-L10D-xxxx-P	+ 10 in H <sub>2</sub> O	193 in H <sub>2</sub> O	193 in H <sub>2</sub> O	24.50	25.00	25.50
MSDX-001D-xxxx-H	+ 1 PSI	5 PSID	15 PSID	17.37	18.00	18.63
MSDX-001D-xxxx-P	+ 1 PSI	5 PSID	15 PSID	17.82	18.00	18.18
MSDX-005D-xxxx-H	+ 5 PSI	20 PSID	20 PSID	57.90	60.00	62.10
MSDX-005D-xxxx-P	+ 5 PSI	20 PSID	20 PSID	59.40	60.00	60.60
MSDX-015D-xxxx-H	+ 15 PSI	30 PSID	30 PSID	86.85	90.00	93.15
MSDX-015D-xxxx-P	+ 15 PSI	30 PSID	30 PSID	89.10	90.00	90.90
MSDX-030D-xxxx-H	+ 30 PSI	60 PSID	60 PSID	86.85	90.00	93.15
MSDX-030D-xxxx-P	+ 30 PSI	60 PSID	60 PSID	89.10	90.00	90.90
MSDX-100D-xxxx-H	+ 100 PSI	150 PSID	150 PSID	96.50	100.00	103.50
MSDX-100D-xxxx-P	+ 100 PSI	150 PSID	150 PSID	99.00	100.00	101.00
MSDX-L05G-xxxx-P	0 - 5 in H <sub>2</sub> O	193 in H <sub>2</sub> O	193 in H <sub>2</sub> O	19.50	20.00	20.50
MSDX-L10G-xxxx-P	0 - 10 in H <sub>2</sub> O	193 in H <sub>2</sub> O	193 in H <sub>2</sub> O	24.50	25.00	25.50
MSDX-001G-xxxx-H	0 - 1 PSI	5 PSID	15 PSID	17.37	18.00	18.63
MSDX-001G-xxxx-P	0 - 1 PSI	5 PSID	15 PSID	17.82	18.00	18.18
MSDX-005G-xxxx-H	0 - 5 PSI	20 PSID	20 PSID	57.90	60.00	62.10
MSDX-005G-xxxx-P	0 - 5 PSI	20 PSID	20 PSID	59.40	60.00	60.60
MSDX-015G-xxxx-H	0 - 15 PSI	30 PSID	30 PSID	86.85	90.00	93.15
MSDX-015G-xxxx-P	0 - 15 PSI	30 PSID	30 PSID	89.10	90.00	90.90
MSDX-030G-xxxx-H	0 - 30 PSI	60 PSID	60 PSID	86.85	90.00	93.15
MSDX-030G-xxxx-P	0 - 30 PSI	60 PSID	60 PSID	89.10	90.00	90.90
MSDX-100G-xxxx-H	0 - 100 PSI	150 PSID	150 PSID	96.50	100.00	103.50
MSDX-100G-xxxx-P	0 - 100 PSI	150 PSID	150 PSID	99.00	100.00	101.00
MSDX-015A-xxxx-H	0 - 15 PSIA	30 PSIA	30 PSIA	86.85	90.00	93.15
MSDX-015A-xxxx-P	0 - 15 PSIA	30 PSIA	30 PSIA	89.10	90.00	90.90
MSDX-030A-xxxx-H	0 - 30 PSIA	60 PSIA	60 PSIA	86.85	90.00	93.15
MSDX-030A-xxxx-P	0 - 30 PSIA	60 PSIA	60 PSIA	89.10	90.00	90.90
MSDX-100A-xxxx-H	0 - 100 PSIA	150 PSIA	150 PSIA	96.50	100.00	103.50
MSDX-100A-xxxx-P	0 - 100 PSIA	150 PSIA	150 PSIA	99.00	100.00	101.00

## Performance Characteristics <sup>(7)</sup> for MSDX Series (in H<sub>2</sub>O Devices)

Characteristic	Min.	Typ.	Max.	Unit
Zero Pressure offset <sup>(3)</sup>	-1.0	0.0	+1.0	mV
Combined linearity and hysteresis <sup>(4)</sup>	-	±0.2	±1.0	%FSS
Temperature effect on span, 0°C to 50°C (32°F to 122°F) <sup>(8)</sup>	-	±0.4	±2.0	%FSS
Temperature effect on offset, 0°C to 50°C (32°F to 122°F) <sup>(8)</sup>	-	±0.2	±0.6	mV
Repeatability <sup>(9)</sup>	-	±0.5	-	%FSS
Input resistance <sup>(10)</sup>	-	4.0	-	kΩ
Output resistance <sup>(11)</sup>	-	4.0	-	kΩ
Common mode voltage <sup>(12)</sup>	1.5	3.0	5.0	Vdc
Response time <sup>(13)</sup>	-	100	-	μsec
Long term stability of offset and span <sup>(14)</sup>	-	±0.1	-	%FSS

## Performance Characteristics <sup>(7)</sup> for Standard Grade (H) MSDX Series (in PSI Devices)

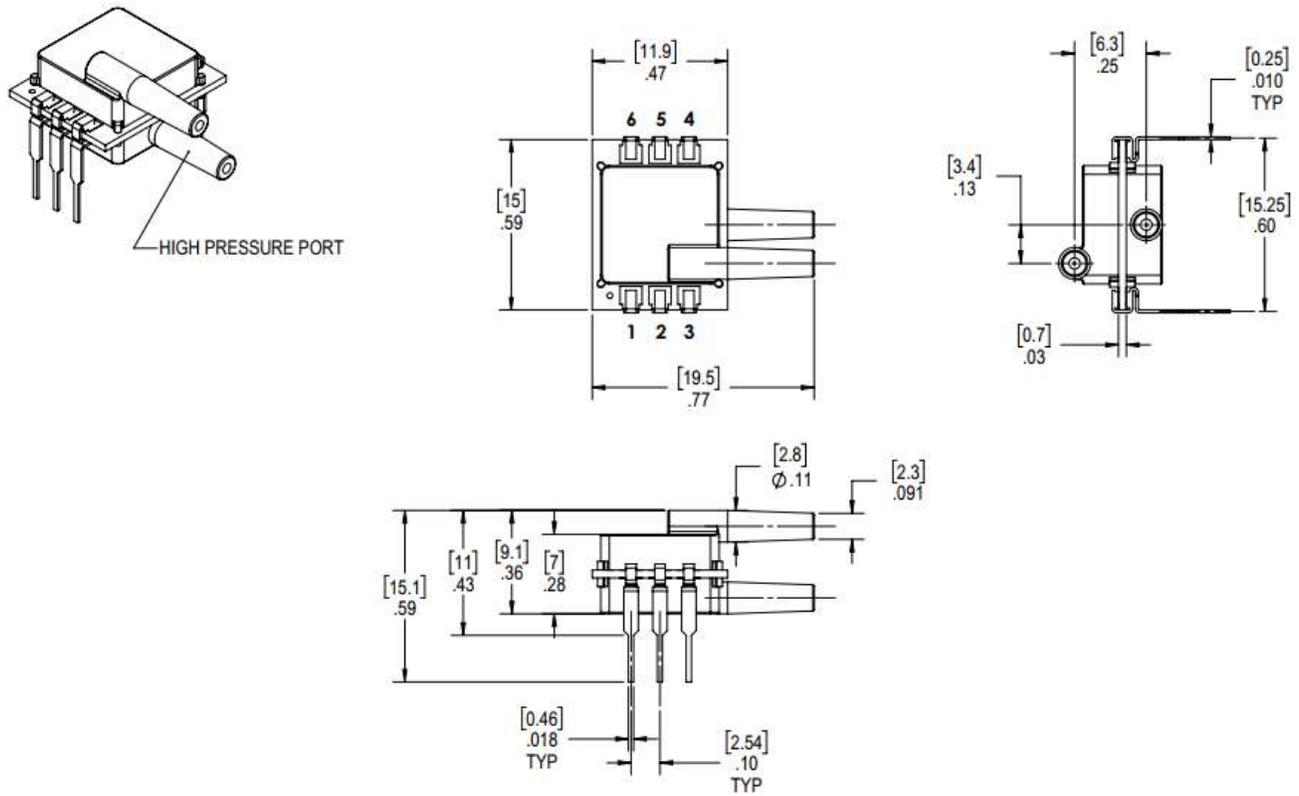
Characteristic	Min.	Typ.	Max.	Unit
Zero Pressure offset <sup>(3)</sup>	-1.0	0.0	+1.0	mV
Combined linearity and hysteresis <sup>(4)</sup>	-	±0.2	±1.0	%FSO
Temperature effect on span, 0°C to 50°C (32°F to 122°F) <sup>(8)</sup>	-	±0.4	±2.0	%FSO
Temperature effect on offset, 0°C to 50°C (32°F to 122°F) <sup>(8)</sup>	-	±0.2	±1.0	mV
Repeatability <sup>(9)</sup>	-	±0.2	±0.5	%FSO
Input resistance <sup>(10)</sup>	-	4.0	-	kΩ
Output resistance <sup>(11)</sup>	-	4.0	-	kΩ
Common mode voltage <sup>(12)</sup>	1.5	3.0	5.0	Vdc
Response time <sup>(13)</sup>	-	100	-	μs
Long term stability of offset and span <sup>(14)</sup>	-	±0.1	-	mV

## Performance Characteristics <sup>(7)</sup> for Prime Grade (P) MSDX Series (in PSI Devices)

Characteristic	Min.	Typ.	Max.	Unit
Zero Pressure offset <sup>(3)</sup>	-0.3	0.0	+0.3	mV
Combined linearity and hysteresis <sup>(4)</sup>	-	±0.1	±0.25	%FSO
Temperature effect on span, 0°C to 50°C (32°F to 122°F) <sup>(8)</sup>	-	±0.4	±1.0	%FSO
Temperature effect on offset, 0°C to 50°C (32°F to 122°F) <sup>(8)</sup>	-	±0.2	±0.5	mV
Repeatability <sup>(9)</sup>	-	±0.1	-	%FSO
Input resistance <sup>(10)</sup>	-	4.0	-	kΩ
Output resistance <sup>(11)</sup>	-	4.0	-	kΩ
Common mode voltage <sup>(12)</sup>	1.5	3.0	5.0	Vdc
Response time <sup>(13)</sup>	-	100	-	μs
Long term stability of offset and span <sup>(14)</sup>	-	±0.1	-	mV

#### Specification Notes:

1. Analog Output Voltage is ratiometric to the supply voltage  $V_{(s)}$ .
2. Full-Scale Span is the algebraic difference between the output voltage at Full-scale pressure and the output at zero pressure. Full-scale span is ratiometric to the supply voltage.
3. Offset voltage is the voltage output at zero pressure
4. Combined Nonlinearity and Hysteresis: Nonlinearity is defined as the BFSL (best fit straight line) across the entire pressure range and Hysteresis is the maximum output difference at any point within the operating pressure range for increasing and decreasing pressure.
5. Proof Pressure is the maximum pressure which may be applied without causing damage to the sensing element
6. Burst Pressure is the maximum pressure which may be applied without causing permanent damage to the sensor.
7. Reference Conditions (unless otherwise noted:
  - $V_{(s)} = 12 \text{ Vdc}$ ,
  - Ambient Temperature  $25^{\circ}\text{C}$  ( $77^{\circ}\text{F}$ )
  - Common Mode Line Pressure = 0 psig, pressure applied to port 2
8. Maximum deviation of Span and offset over the compensated temperature range ( $0^{\circ}\text{C}$  to  $50^{\circ}\text{C}$ ) relative to  $25^{\circ}\text{C}$  ( $77^{\circ}\text{F}$ ).
9. Repeatability is defined as typical deviation from the output signal after 10 pressure cycles
10. Input resistance is the resistance between  $V_{(s)}$  and ground.
11. Output resistance is the resistance between the + and – outputs
12. Common Mode voltage of the output arms for  $V_{(s)} = 12 \text{ Vdc}$
13. Response Time for a 0 psi to Full-Scale Span pressure step change, 10% to 90% rise time.
14. Typical Long-Term Stability over a period of one year.



Differential / Gage

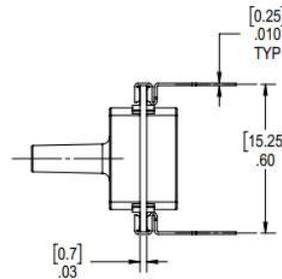
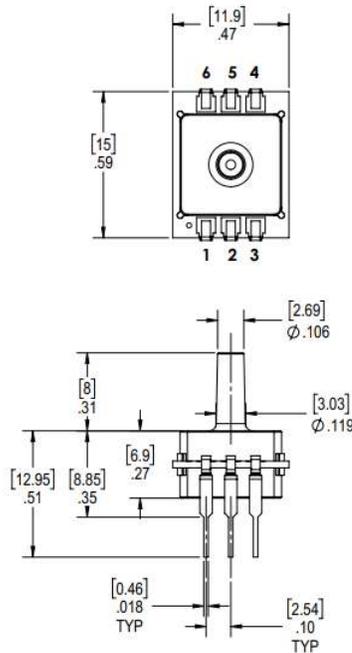
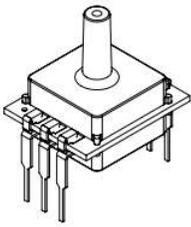
Pin	Name	Function
1	+Vout	Positive output
2	GND	Ground
3	-Vout	Negative Output
4	N/C	No Connection
5	+Vs	Power Supply
6	N/C	No Connection

**\*CAUTION**  
Note: Non-standard Pin Numbering

Absolute

Pin	Name	Function
1	-Vout	Negative output
2	GND	Ground
3	+Vout	Positive Output
4	N/C	No Connection
5	+Vs	Power Supply
6	N/C	No Connection

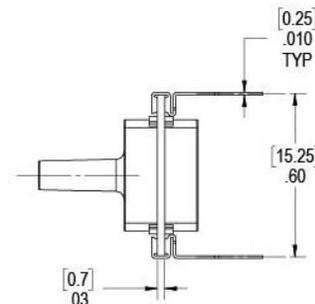
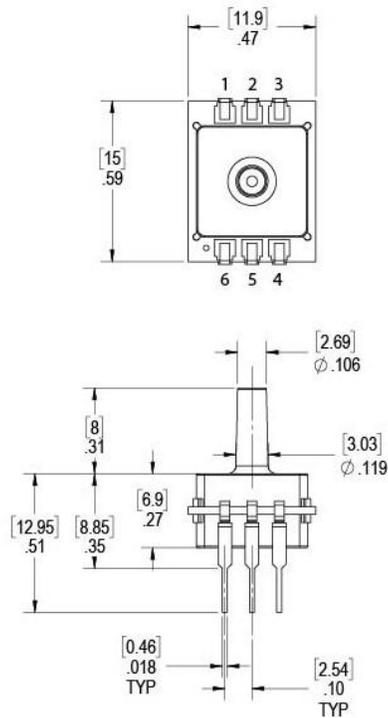
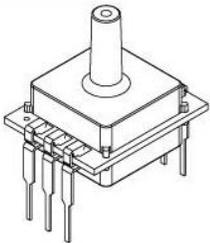
**Absolute**



Pin	Name	Function
1	-Vout	Negative output
2	GND	Ground
3	+Vout	Positive Output
4	N/C	No Connection
5	+Vs	Power Supply
6	N/C	No Connection

\*CAUTION: Non-standard Pin Numbering

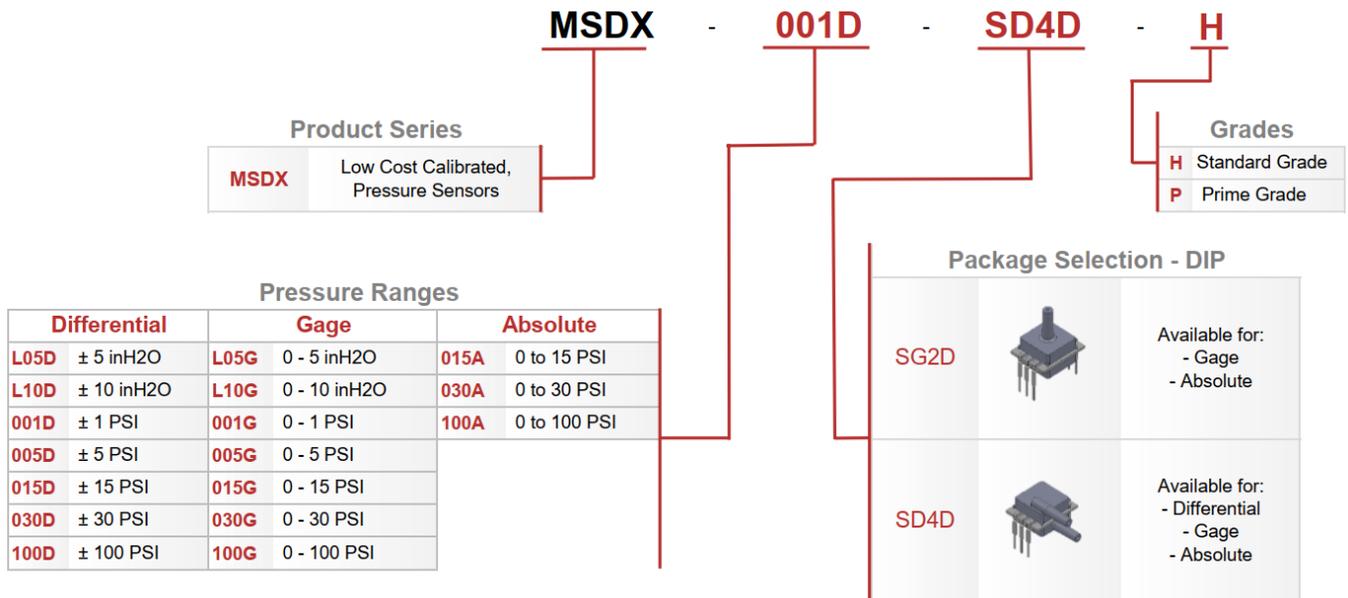
**Gage**



Pin	Name	Function
1	+Vout	Positive output
2	GND	Ground
3	-Vout	Negative Output
4	N/C	No Connection
5	+Vs	Power Supply
6	N/C	No Connection

\*CAUTION: Non-standard Pin Numbering

# How to Order – MSDX



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