

Solid State Pressure Sensor

ANALOG
OUTPUT



Model : 33A Series

0.5V ~ 4.5V Output

0 ~ 0.15, 1, 2, 5, 7, 10, 15, 30, 50, 100, 150 PSI

0 ~ -7, -10, -15 PSI

Gage, Vacuum Type

Features

- Easy Design-in
- Temperature Compensated
- Calibrated & Amplified Output
- Low Cost



Applications

- Process Control
- HVAC
- Consumer Electronics
- Medical Devices

Description

The 33A Series incorporates a silicon piezoresistive pressure sensor and signal conditioning ASIC in a 6-pin DIL plastic housing for easy through hole board assembly. A surface mount version is also available. It provides a temperature compensated, calibrated pressure solution for high volume applications at an affordable cost.

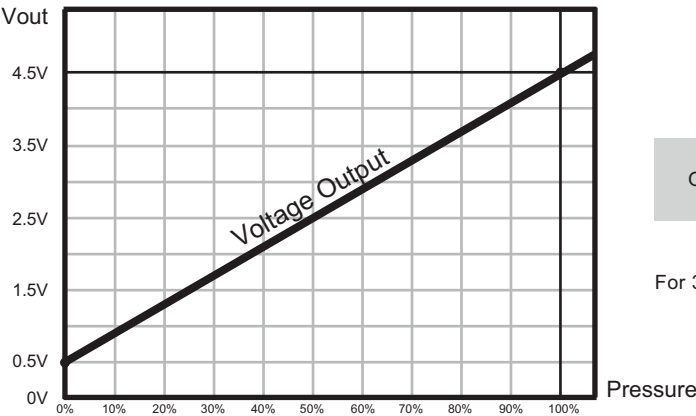
Pressure ranges are available from 0.15 to 150 psig. Ratiometric output at 5V excitation is 0.5 to 4.5 V. Pressure connection is through Tygon tube on the pressure port.

Requirements for customized pressure sensor are available. Please contact the SHIBA KOREA for details.

Selection Table Pressure Sensors

Type	Part Name	Measurement Range		Input Voltage	Output
		PSI	mmHg		
Gage	33A-L15G-2210	0 ~ 0.15	0 ~ 7.75	DC 5V	0.5V ~ 4.5V
	33A-L30G-2210	0 ~ 0.30	0 ~ 15.5		
	33A-L50G-2210	0 ~ 0.50	0 ~ 25.8		
	33A-001G-2210	0 ~ 1	0 ~ 51.7		
	33A-002G-2210	0 ~ 2	0 ~ 103.4		
	33A-005G-2210	0 ~ 5	0 ~ 285.5		
	33A-007G-2210	0 ~ 7	0 ~ 362		
	33A-010G-2210	0 ~ 10	0 ~ 517.1		
	33A-015G-2210	0 ~ 15	0 ~ 775.7		
	33A-030G-2210	0 ~ 30	0 ~ 1551.4		
	33A-050G-2210	0 ~ 50	0 ~ 2585.7		
	33A-100G-2210	0 ~ 100	0 ~ 5171.4		
	33A-150G-2210	0 ~ 150	0 ~ 7757.2		
Vacuum	33A-007I-2210	0 ~ -7	0 ~ -362	DC 5V	0.5V ~ 4.5V
	33A-010I-2210	0 ~ -10	0 ~ -517.1		
	33A-015I-2210	0 ~ -15	0 ~ -775.7		
Sealed Gage	33A-015D-2210	-15 ~ +15	±775.7	DC 5V	0.5V ~ 4.5V

Output Graph (Vin 5V)



$$\text{Output Voltage} = \frac{(\text{Vin} \times 80\%)}{\text{Pressure Range}} \times \text{Pressure Applied} + 0.5$$

$$\text{For 33A-007G-2210, } 3.814\text{V} = \frac{(5\text{V} \times 80\%)}{7 \text{ PSI}} \times 5.8 \text{ PSI} + 0.5$$

33A-XXXG-2210

0.5 ~ 4.5V Output, 0.15 ~ 150 PSI, Gage Type

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OUTPUT

Characteristics

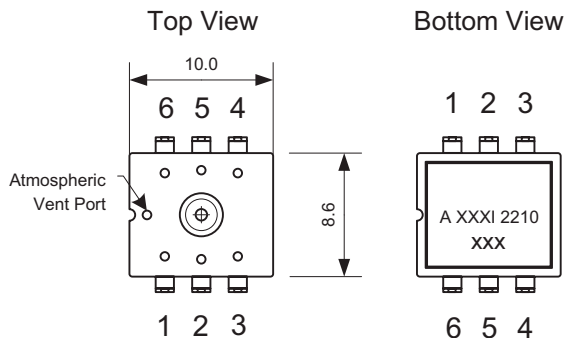
Unless otherwise specified, all parameters are measured at 25 °C and excitation of 5 Vdc

Parameters	Min	Typ	Max	Unit
Supply Voltage	4.75	5.00	5.25	Vdc
Supply Current			3	mA
Pressure Range	0.15		150	psi
Offset	0.428	0.50	0.572	Vdc
Span		4.0		Vdc
Output Current of Buffer		1	2	mA
Accuracy (≤ 3 psi)			± 2.2	%FS
Accuracy (≥ 5 psi)			± 1.8	%FS
Over Pressure (≤ 3 psi)			3X	Rated Pressure
Over Pressure (≥ 5 psi)			2X	Rated Pressure
Temp - Compensating	0		50	°C
Temp - Operating	-20		+85	°C
Temp - Storage	-40		+125	°C

NOTES:

1. Accuracy includes non-linearity, hysteresis, TCS and TCO from 10 to 50 deg C, best fit straight line definition
2. Wetted material contains RTV, silicone and PPS
3. See ordering information for list of available pressure ranges
4. Output is ratiometric to supply voltage

Pin Connection



Note:
Soldering of lead pins: 250 °C for 5 sec max.

PIN #	Description
1	N.C.
2	VDD
3	GND
4	VDD
5	VOUT
6	GND

NOTES:

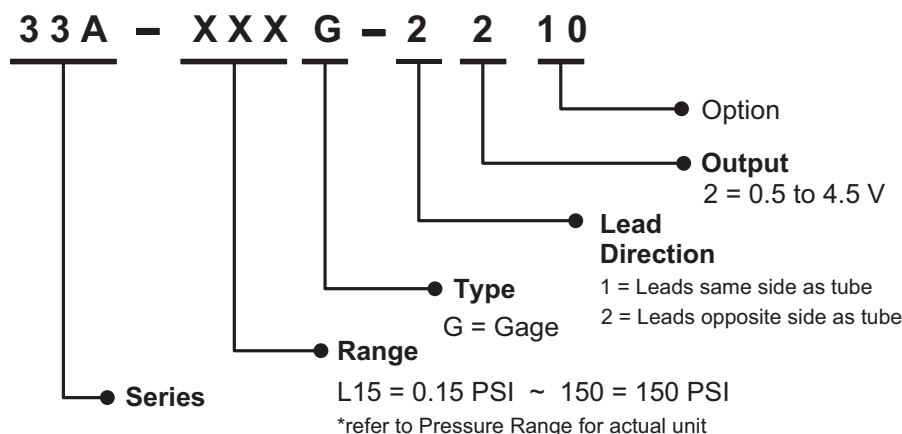
- For the 2, 3, 5, 7, & 10 psi range, Pins 2 & 4 and Pins 3 & 6 must be shorted.
- A 0.1uF capacitor must be connected connected between VDD and GND

PIN #	Description
1	N.C.
2	N.C.
3	GND
4	VDD
5	VOUT
6	N.C.

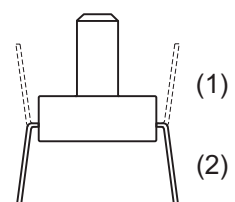
NOTES:

- For other ranges (0.15, 0.3, 0.5, 1, 15, 30, 50, 100, 150 psi), Pins 2 & 6 must be N.C.
- A 0.1uF capacitor must be connected connected between VDD and GND

Ordering Information



Lead Direction



33A-015I-2210

0.5 ~ 4.5V Output, -15 PSI, Vacuum Type



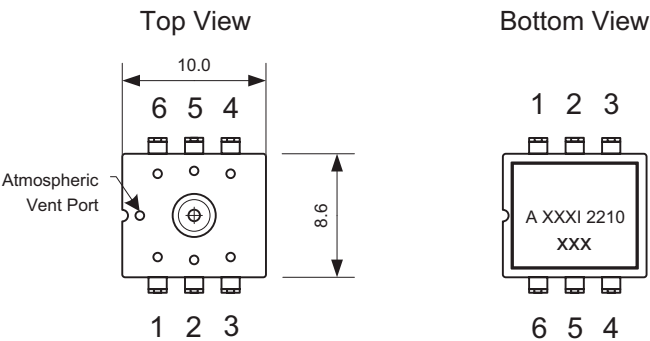
Characteristics

Unless otherwise specified, all parameters are measured at 25 °C and excitation of 5 Vdc

Parameters	Min	Typ	Max	Unit
Supply Voltage	4.75	5.00	5.25	Vdc
Supply Current			3	mA
Pressure Range	-15		0	psi
Offset	0.428	0.50	0.572	Vdc
Span		4.0		Vdc
Output Current of Buffer		1	2	mA
Accuracy			±1.8	%FS
Over Pressure			3X	Rated Pressure
Temp - Compensating	0		50	°C
Temp - Operating	-20		+85	°C
Temp - Storage	-40		+125	°C

- NOTES:
1. Accuracy includes non-linearity, hysteresis, TCS and TCO from 10 to 50 deg C, best fit straight line definition
 2. Wetted material contains RTV, silicn and PPS
 3. See ordering information for list of available pressure ranges
 4. Output is ratiometric to supply voltage

Pin Connection

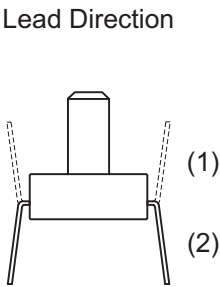
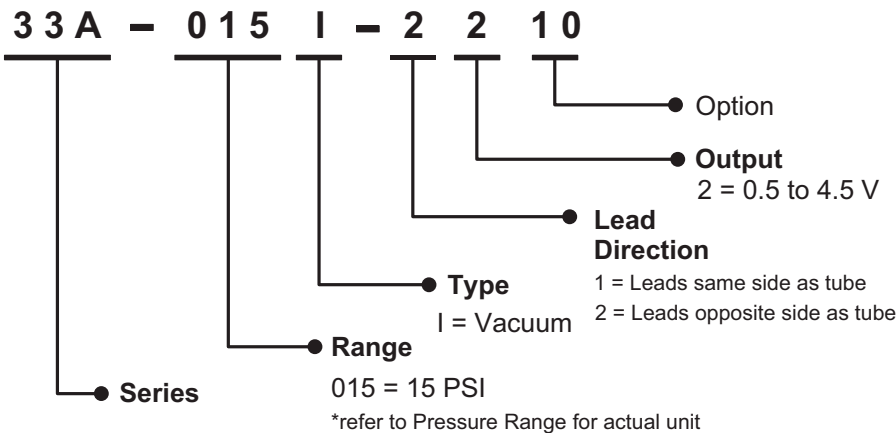


Note:
Soldering of lead pins: 250 °C for 5 sec max.

PIN #	Description
1	N.C.
2	N.C.
3	GND
4	VDD
5	VOU
6	N.C.

- NOTE.
- N.C. pins must be left floating
 - A 0.1uf capacitor must be connected between VDD and GND

Ordering Information



33A-015D-2210

0.5 ~ 4.5V Output, ±15 PSI, Sealed Gage Type

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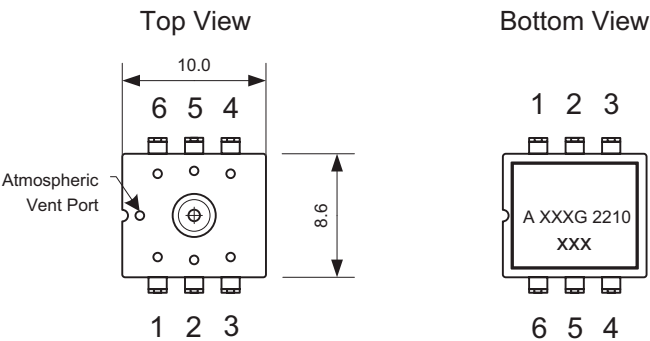
Characteristics

Unless otherwise specified, all parameters are measured at 25 °C and excitation of 5 Vdc

Parameters	Min	Typ	Max	Unit
Supply Voltage	4.75	5.00	5.25	Vdc
Supply Current			3	mA
Measurement Range	-15		+15	psi
Offset	2.428	2.5	2.572	Vdc
Span		±2.0		Vdc
Output Current of Buffer		1	2	mA
Accuracy			±1.8	%FS
Over Pressure			3X	Rated Pressure
Temp - Compensating	0		50	°C
Temp - Operating	-20		+85	°C
Temp - Storage	-40		+125	°C

- NOTES:
1. Accuracy includes non-linearity, hysteresis, TCS and TCO from 10 to 50 deg C, best fit straight line definition
 2. Wetted material contains RTV, silicn and PPS
 3. See ordering information for list of available pressure ranges
 4. Output is ratiometric to supply voltage
 5. Output load resistance to GND or VDD: 2.5KΩ (min), 10KΩ (typ)

Pin Connection

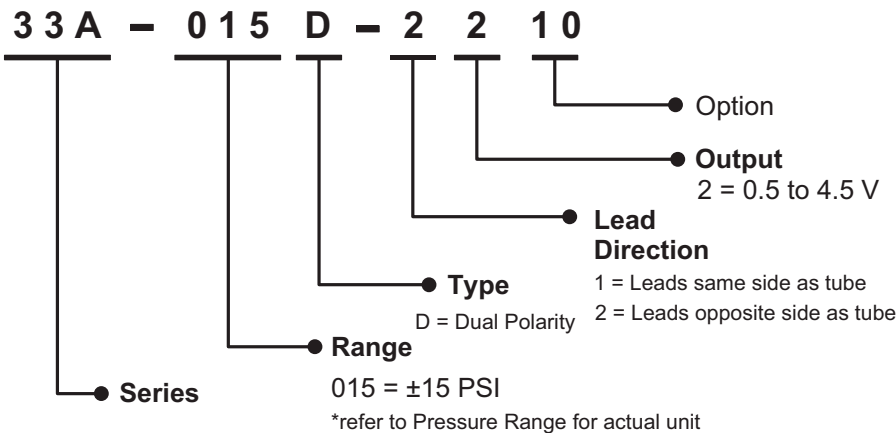


Note:
Soldering of lead pins: 250 °C for 5 sec max.

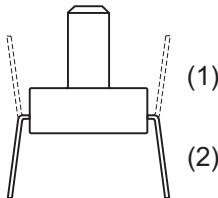
PIN #	Description
1	N.C.
2	N.C.
3	GND
4	VDD
5	VOUT
6	N.C.

- NOTE.
- N.C. pins must be left floating
 - A 0.1uf capacitor must be connected between VDD and GND

Ordering Information



Lead Direction



Basic Schematic

NOTE.

- N.C. pins must be left floating
- **A 0.1uf capacitor must be connected between VDD and GND**

33A-L15G-2210

33A-L30G-2210

33A-L50G-2210

33A-001G-2210

33A-002G-2210

33A-003G-2210

33A-005G-2210

33A-007G-2210

33A-010G-2210

33A-015G-2210

33A-030G-2210

33A-050G-2210

33A-100G-2210

33A-150G-2210

33A-015D-2210

33A-007I-2210

33A-010I-2210

33A-015I-2210

Note:
Soldering of lead pins: 250 °C for 5 sec max.

PIN #	Description
1	N.C.
2	VDD
3	GND
4	VDD
5	VOUT
6	GND

33A-L15G-2210

33A-L30G-2210

33A-L50G-2210

33A-001G-2210

33A-002G-2210

33A-003G-2210

33A-005G-2210

33A-007G-2210

33A-010G-2210

33A-015G-2210

33A-030G-2210

33A-050G-2210

33A-100G-2210

33A-150G-2210

33A-015D-2210

33A-007I-2210

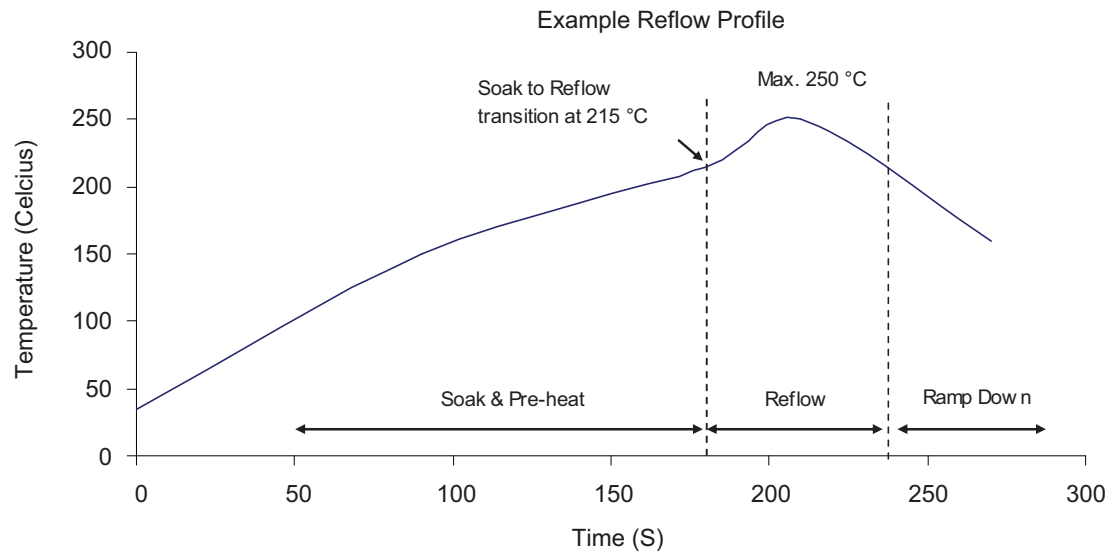
33A-010I-2210

33A-015I-2210

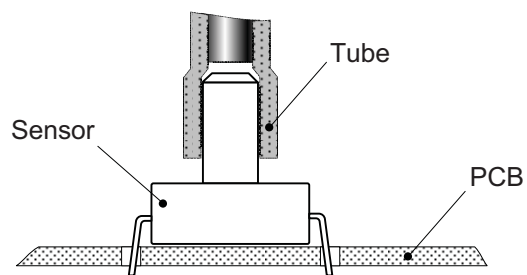
Note:
Soldering of lead pins: 250 °C for 5 sec max.

PIN #	Description
1	N.C.
2	N.C.
3	GND
4	VDD
5	VOUT
6	N.C.

Soldering Guideline



Recommended Installation

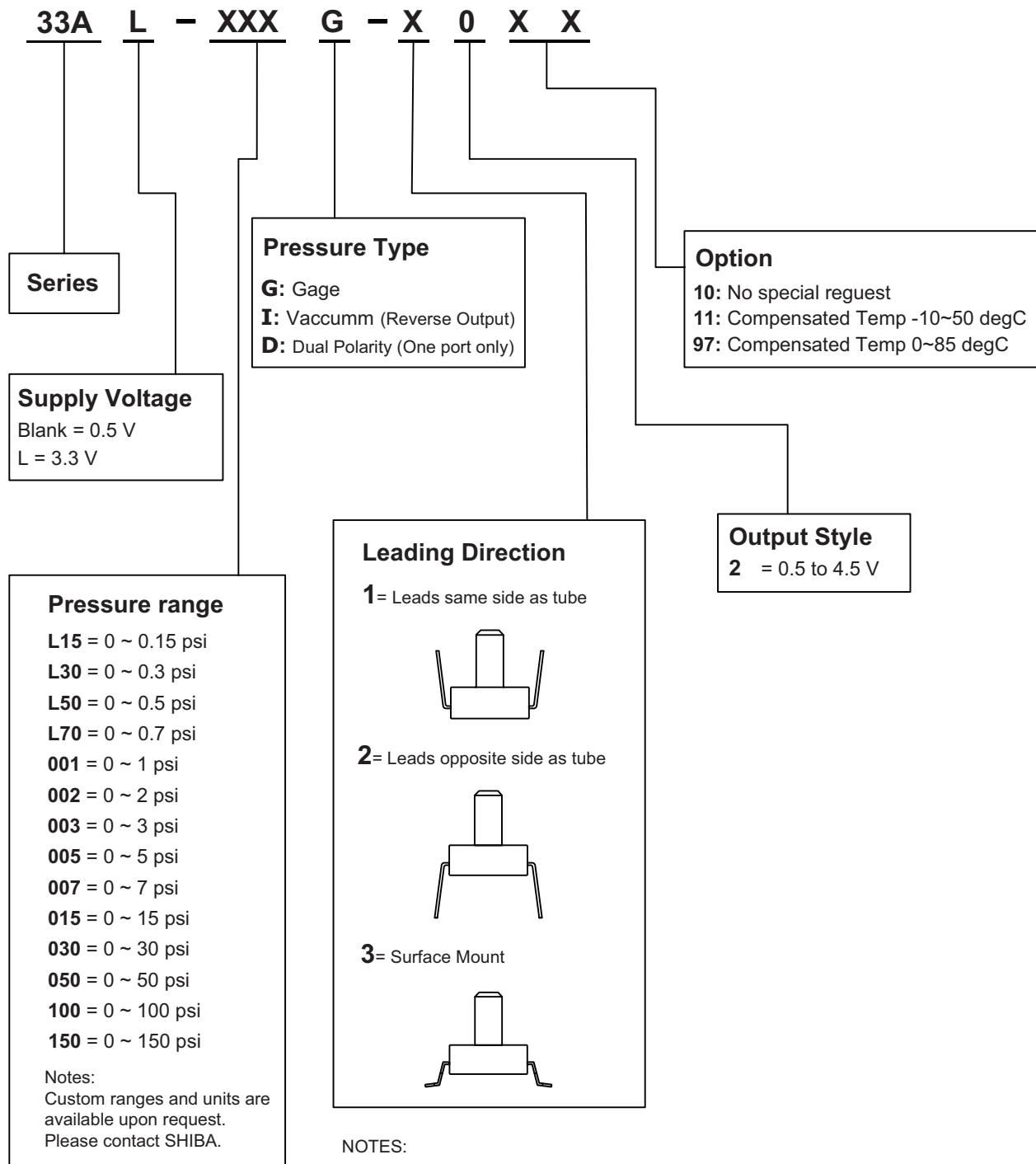


NOTE:

Installation is recommended for Tygon tube connection. For other connection, caution must be taken to avoid applying stress to the sensor.

Ordering Information

33A Series



NOTES:

1. Specifying differential pressure means a \pm pressure range with single port.
2. Differential pressure can be specified to a maximum of ± 150 psi.
3. Custom output, pressure range and temperature compensated range are available.
4. Negative gage normally has offset (0.5V) at 0 psi and full scale output (4.5V).
Reverse is also applicable.
5. Accuracy may vary on pressure range
6. Medium is available for non-corrosive, clean air.

Contact us

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