



Technology Solutions

TEK-BAR 3120B

Exp Absolute/Gauge Pressure Transmitter



PRESSURE



Introduction

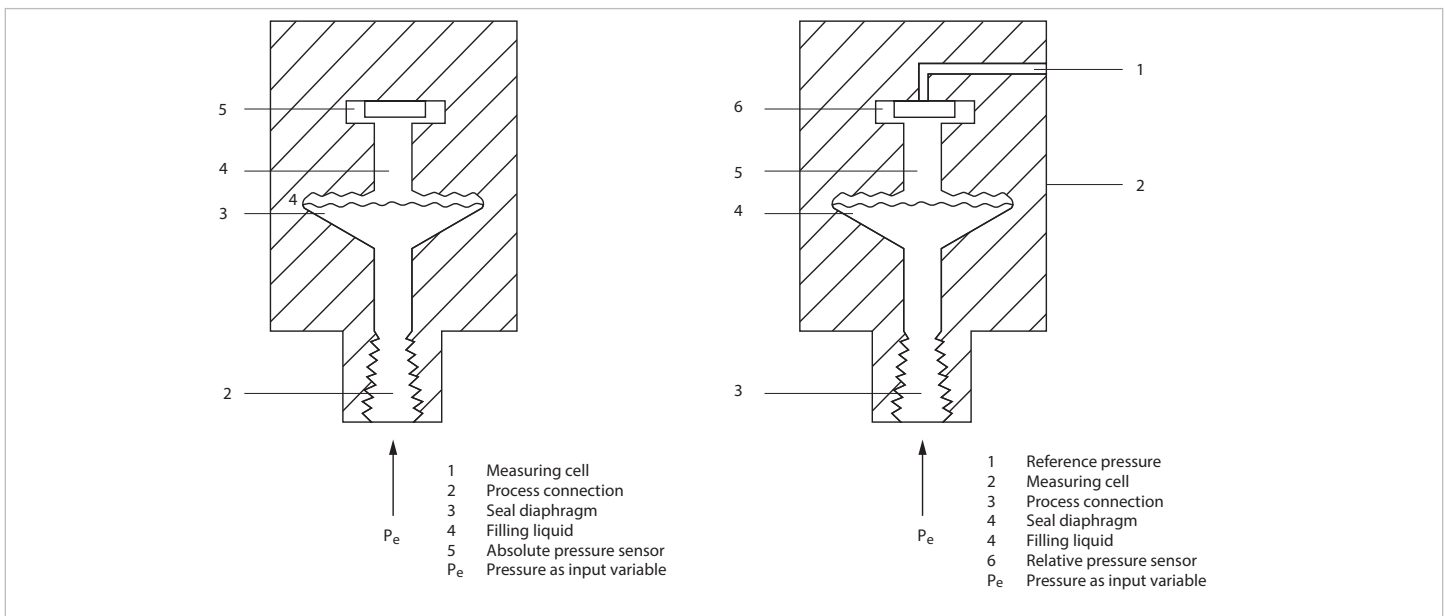
Tek-Bar 3120B Exp Absolute/Gauge Pressure Transmitter uses the world's advance silicon Piezo pressure sensor technology and state of the art encapsulation technology. This is a high performance pressure transmitter with HART or Modbus RS485 communication protocol and is used to measure pressure. It is used to measure liquid, gas, or steam flow as well as liquid level and density of medium. It has a high accuracy of up to 0.04% of URL and has IP67 water-proof protection. Can be configured using Hart and Push buttons.

Measuring Principle

The Tek-Bar 3120B works on the principle of Piezo technology. The pressure sensor of the transmitter is located on the top of the sensor body, away from the service fluid. This enables mechanical and thermal isolation of the sensor from the fluid in service.

When pressure is applied on the diaphragm and the Piezo sensor, they become stressed and undergo a change in voltage resistance. This change in resistance is directly proportional to the applied pressure, which is transferred to the transmitter body using lead wires.

Built on semiconductor technology, the resistance change (piezoelectric effect) is notably higher than exhibited in standard strain gauges. Therefore, the sensitivity of mono-crystalline sensors is higher than the sensitivity of most other types.



Benefits

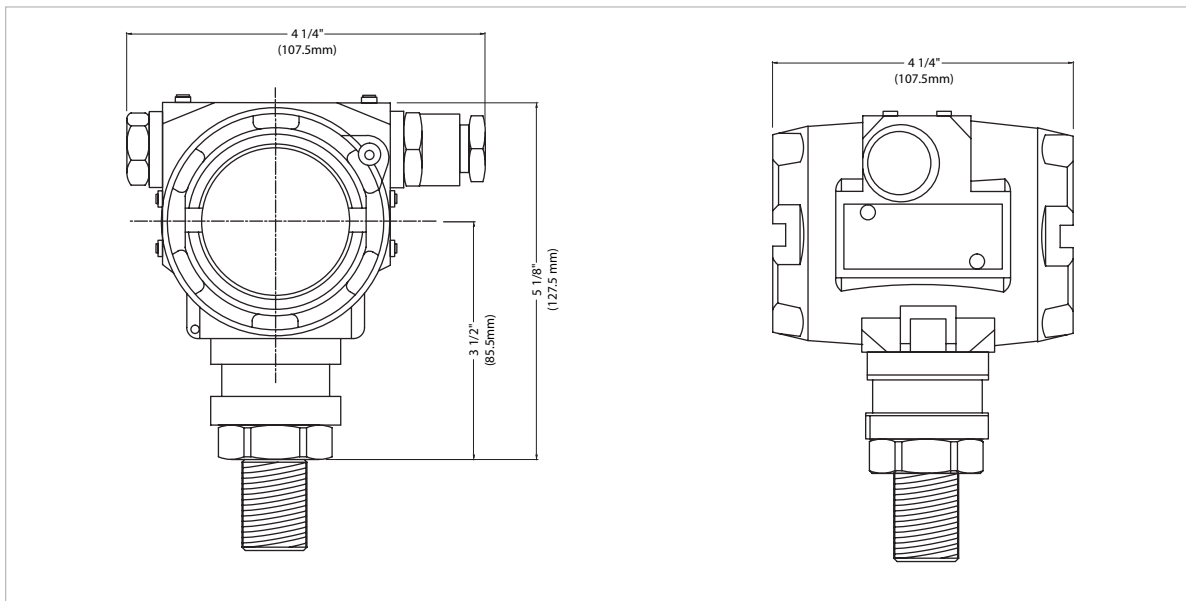
- Digital communication HART protocol or Modbus RS485
- Accuracy up to $\pm 0.075\%$ (optional $\pm 0.04\%$)
- 4.20mA W/ Hart output (optional 1-5 VDC or Modbus)
- Full temp compensated
- Fully-sealed and fully isolated Piezo sensor
- Hastelloy c Diaphragm
- 355° Rotatable display
- Can be configured using push buttons

Applications

- Water and Waste water
- Pulp and Paper
- Food Processing
- Oil and Gas
- Chemical
- Power

Dimensional Drawing

Drawing and dimension with display



Specifications

Pressure Type	Gauge or Absolute
Accuracy	±0.075% F.S. (Optional ± 0.04% F.S.)
Diaphragm Materials	Hastelloy C
Measuring Range	5 to 10000psig (5 to 1500psig)
Stability	±0.2 % URL/5 year
Process Connection	½" MNPT (other options available)
Wetted material	316 L SS and Hastelloy C
Working Humidity	5 to 100%
Output Signal	4 mA to 20 mA with HART® Communication (optional Modbus RS485 and 1-5VDC)
Mounting Position Effect	Apply to any position. Max value lower than 1.6 w.c. (400 Pa) can be corrected by zero clearing function
Insulation Resistance	≥20 M Ω at 100VDC
Enclosure Rating	NEMA 4X (IP67); Optional IP68
Weight (excluding Option Items)	3.43 lb (1.55kg)
Testing Standard	IEC60770
Agency Approval	CE, CSA Class I Div I

Damping Time

Damping time of amplifier	0-100 s adjustable
Diaphragm capsule (isolated diaphragm and silicon oil filling) damping time	≤0.2s
Start-up after power off	≤6s

Environmental Conditions

Working Temperature	-40 °F to 180 °F (-40 °C to 82 °C)
Storage Temperature	-40 °F to 230 °F (-40 °C to 110 °C)
Media Temperature	-40 °F to 248 °F (-40 °C to 120 °C)
Working humidity	5-100% RH at 104 °F

Power Supply

Standard/flame proof	10.5-55 VDC (Hart 16.5-55 VDC, 250 Ω)
Load resistance	0-2119 Ω for working condition, 250- 600 Ω for HART protocol
Transmission distance	<1000 m
Power consumption	≤500 mW at 24 VDC, 20.8 mA

Measuring Range and Limit

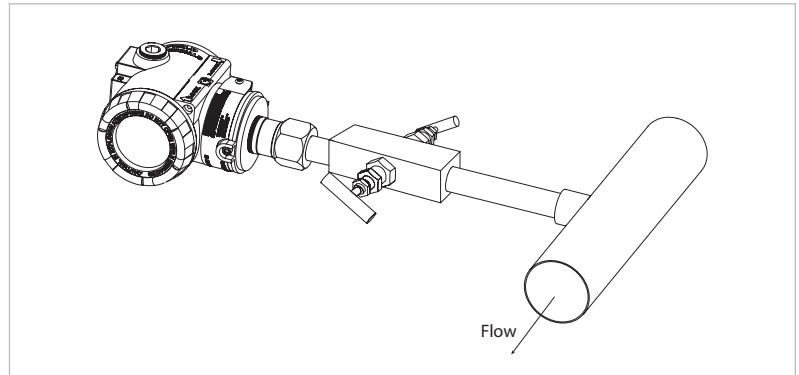
Nominal Value	Smallest Calibrated Span	Lower Range Limit (LRL)	Upper Range Limit (URL)	Max Pressure
5psig	0.3psig	-5psig	5psig	150psig
30psig	2psig	-14.5psig	30psig	550psig
150psig	8psig	-14.5psig	150psig	850psig
450psig	23psig	-14.5psig	450psig	2100psig
1500psig	73psig	-14.5psig	1500psig	2900psig
3000psig	725psig	0psig	3000psig	11600psig
6000psig	725psig	0psig	6000psig	11600psig
10000psig	5000psig	0psig	10000psi	16000psig

Nominal Value	Smallest Calibrated Span	Lower Range Limit (LRL)	Upper Range Limit (URL)	Max Pressure
0.35bar	0.02mbar	-0.35bar	0.35bar	10bar
2bar	0.14bar	-1bar	2bar	40bar
10bar	0.5bar	-1bar	10bar	60bar
30bar	1.5bar	-1bar	30bar	150bar
100bar	5bar	-1bar	100bar	200bar
200bar	50bar	0bar	200bar	800bar
415bar	50bar	0bar	415bar	800bar
690bar	344bar	0bar	690bar	1100bar

Installation

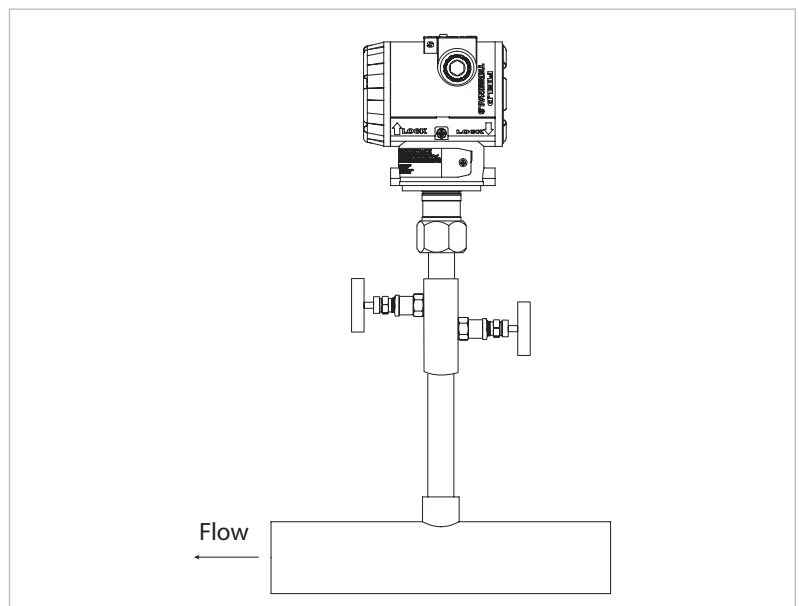
Mounting in liquid applications

- Place taps to the side of the line.
- Mount beside or below the taps.
- Mount the transmitter so the drain/vent valves are oriented upward.



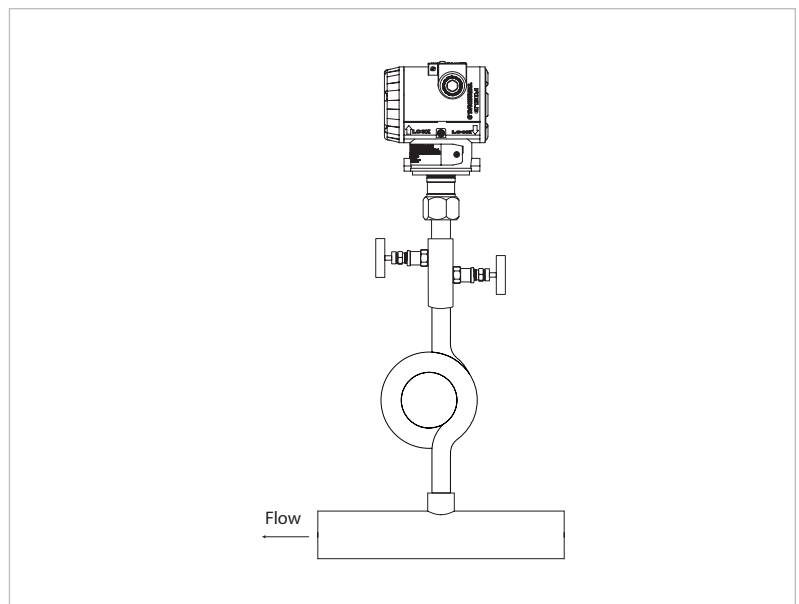
Mounting in gas applications

- Place taps in the top or side of the line
- Mount beside or above the taps



Mounting in steam applications

- Place taps to the side of the line.
- Mount beside or below the taps.
- Fill impulse lines with water.



Model Chart

Example	Tek-Bar 3120B	G	3	WP	1	HC	1	#	Tek-Bar 3120B-G-3-WP-1-HC-1
Series	Tek-Bar 3120B								Smart Absolute/Gauge Pressure Transmitter
Types		G A							Gauge Pressure Absolute Pressure
Range Options			1 2 3 4 5 8 6 7						0 to 5 psig (G or A) (20:1 Turndown, Adj. Range: -5 to 5psi) 0 to 30 psig (G or A) (20:1 Turndown, Adj. Range: -14.5 to 36psi) 0 to 150 psig (G or A) (20:1 Turndown, Adj. Range: -14.5 to 145psi) 0 to 450 psig (G or A) (20:1 Turndown, Adj. Range: -14.5 to 435psi) 0 to 1500psi (G or A) (20:1 Turndown, Adj. Range: -14.5 to 1500psi) 0 to 3000psi (G) (4:1 Turndown, Adj. Range: 0 to 3000psi) 0 to 6000psi (G) (8:1 Turndown, Adj. Range: 0 to 6000psi) 0 to 10000psi (G) (2:1 Turndown, Adj. Range: 0 to 10000psi)
Approval Rating				WP CSA					General Purpose NEMA 4X/IP66 CSA Class I Div I Explosion-Proof
Process Connections					1 X				½" NPT Male Diaphragm Seal
Diaphragm Material						HC			Hastelloy C
Electrical Connections							1		½" NPT Female
Options								MOD MOD2 CC 2WB FC BA TAG IP68 EA VDC	Modbus RS485 Communication (4-Wire) Modbus RS485 +4 to 20mA (5-Wire) Custom Calibration with 5 point Calibration Certificate 2-Valve Manifold Factory Configuration, No Certificate Stainless Steel Bracket (Angle type) with SST Bolts Custom Etching of the Name Plate (Must specify on P.O.) Submersible Rated Extended Accuracy ± 0.04% 1-5VDC Output

Popular Models

Model Number	Description
3120B-G-1-CSA-1-HC-1	EXP Pressure Transmitter, 0 to 5 psig, LCD
3120B-G-2-CSA-1-HC-1	EXP Pressure Transmitter, 0 to 30 psig, LCD
3120B-G-3-CSA-1-HC-1	EXP Pressure Transmitter, 0 to 150 psig, LCD
3120B-G-4-CSA-1-HC-1	EXP Pressure Transmitter, 0 to 450 psig, LCD
3120B-G-5-CSA-1-HC-1	EXP Pressure Transmitter, 0 to 1500 psig, LCD
3120B-G-8-CSA-1-HC-1	EXP Pressure Transmitter, 0 to 3000 psig, LCD
3120B-G-6-CSA-1-HC-1	EXP Pressure Transmitter, 0 to 6000 psig, LCD
3120B-G-7-CSA-1-HC-1	EXP Pressure Transmitter, 0 to 10000 psig, LCD
3120B-G-1-WP-1-HC-1	Pressure Transmitter, 0 to 5 psig, LCD
3120B-G-2-WP-1-HC-1	Pressure Transmitter, 0 to 30 psig, LCD
3120B-G-3-WP-1-HC-1	Pressure Transmitter, 0 to 150 psig, LCD

Customer Service & Support



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