



Technology Solutions

TEK-BAR 3120S

Piezoresistive Pressure Transducer



PRESSURE



Introduction

Tek-Bar 3120S Piezoresistive Pressure Transducer is made from a high-quality silicon piezoresistive sensor. This Piezoresistive Sensor is packaged with stainless steel housing. The Tek-Bar 3120S Piezoresistive Pressure Transducer is a precision-engineered instrument, widely used in industrial pressure processes. Piezoelectric Pressure Sensors measure dynamic pressures. The compact and rugged design makes this transmitter suitable for various applications such as process control systems, hydraulic systems and valves, pumps, refrigeration and HVAC controls, level measurements, compressor testing technologies, laboratory technologies, combustion engines, diesel engines, steam turbines and test equipments. A wide range of processes and electrical connection options are available to meet almost all requirements.

Measuring Principle

The Tek-Bar 3120S piezoresistive Pressure Transducer consists of several thin wafers of silicon embedded between protective surfaces. This protective surface is usually connected to a Wheatstone bridge, for detecting small differences in resistance. The difference in pressure causes the resistance of the piezoresistive sensor to change. Due to this change in resistance, a small amount of current is passed through the sensor. The Wheatstone bridge determines this change.

Benefits

- Measuring range from -14.7psi to 8000psi.
- Measure absolute, gauge and sealed gauge pressure.
- Accuracy: $\pm 1.0\%$ FSO or $\pm 0.5\%$ FSO.
- Calibrated and temperature compensated.
- Stainless steel construction.
- Piezoresistive pressure sensor design.
- Wide range of pressure and electrical connection.
- Output: 4 to 20mA, 0 to 10V, 0 to 5V, and others.

Applications

- Process Control Systems.
- Refrigeration and HVAC Controls.
- Hydraulic Systems and Valves.
- Machine Buildings.
- Pumps.
- Compressor Testing Technologies.
- Laboratory Technologies.
- Combustion Engines.
- Diesel Engines.
- Steam Turbines.

Specifications

Accuracy	±0.5% or 1.0%FSO
Thermal Effects	Temp Coeff-Zero: ±0.75%FSO Temp Coeff-Span: ±0.75%FSO
Long Term Stability	±0.2%FSO/Year
Pressure Range	Pressure Ranges: -14.7 to 8000psi Over Pressure: 1.5XFS
Process Temperature	Operating Temperature: -4°F to 185°F(-20°C to 85°C) Compensated Temperature Range: 14°F to 158°F(-10°C to 70°C) Storage Temperature: -40°F to 257°F(-40°C to 125°C)
Vibration	10G (20 to 2000Hz)
Shock	100G (10ms)
Cycles	10X10 ⁶ Cycles
Output Signal	4 to 20mA 0 to 5VDC 1 to 5VDC 0 to 10VDC
Power Supply	10 to 36VDC
Load Resistance	For Current Output: $<(V_s-12)/0.02A$ For Voltage Output: $>10k\Omega$
Insulation Resistance	100MΩ@50VDC
Media Compatibility	All media compatible with 316L SS
Housing	304 SS
Diaphragm	316L SS
Oil Filling	Silicon Oil
Protection	IP65 (Standard) IP66 (Only for cable)
Weight	Approx. 185g

Standard Pressure Range

-14.7 to 160	Gauge	Sealed	Absolute
-14.7 to 0	*		
-14.7 to 160	*		
0 to 5	*		
0 to 15	*		*
0 to 30	*		*
0 to 50	*		*
0 to 100	*		*
0 to 150	*		
0 to 200	*		
0 to 300	*		
0 to 500		*	
0 to 1000		*	
0 to 3000		*	
0 to 5000		*	
0 to 8000		*	

Note: Other Pressure ranges available on request.

Dimensional Drawing

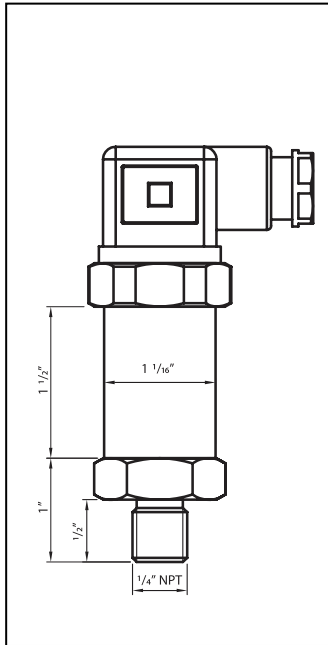


Fig 1: Connector
DIN43650

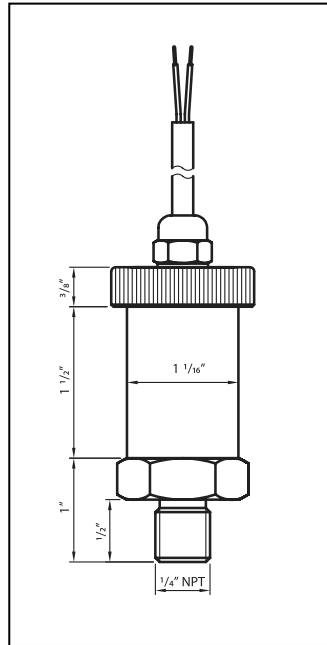


Fig 2: Hirschman Cable
Outlet

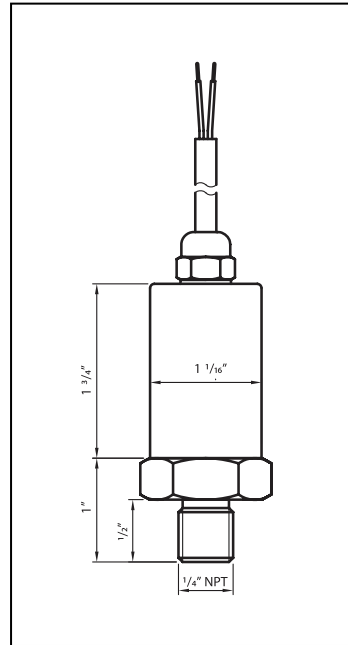


Fig 3: Cable Outlet with
PVC - Cable

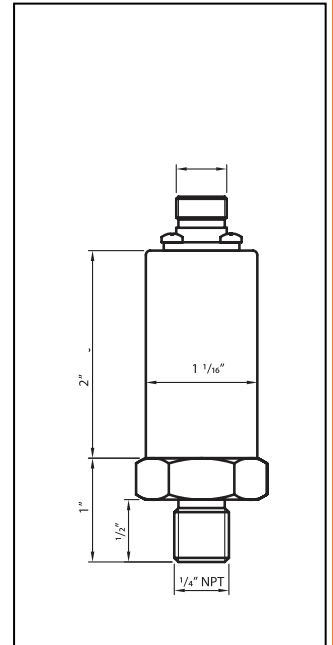


Fig 4: M12X1, 4-Pin

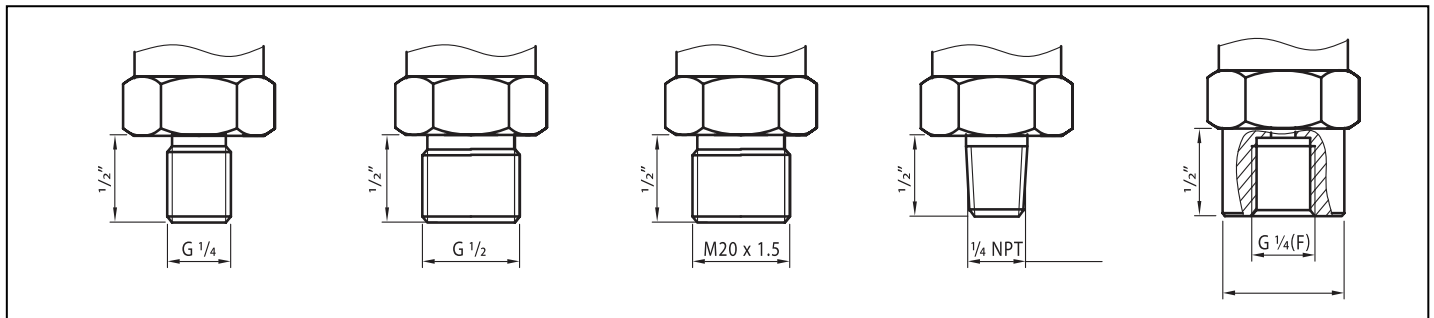


Fig 5: Mechanical Connections

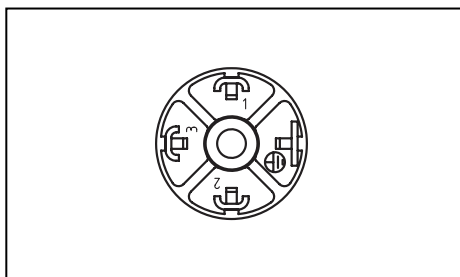


Fig 6: Connector DIN43650

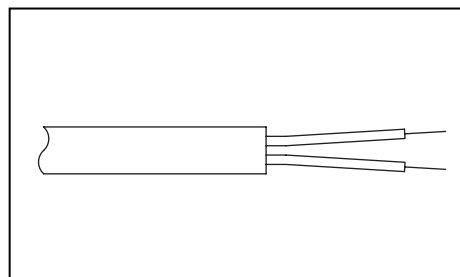


Fig 7: Cable Outlet

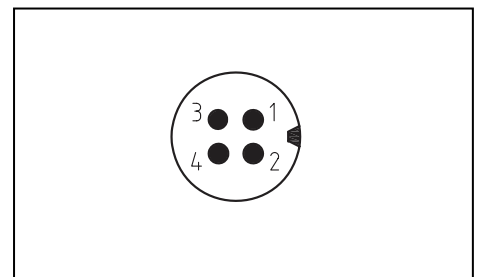


Fig 8: Connector M12x1 (4-pin)

Example	Tek-Bar 3120S	0100	G	42	05	D	N1	Tek-Bar 3120S-0100-G-42-05-D-N1
Series	Tek-Bar 3120S							Piezoresistive Pressure Transducer
Pressure Ranges		B015						-14.7 to 0psi
		B160						-14.7 to 160psi
		0005						0 to 5psi
		0015						0 to 15psi
		0030						0 to 30psi
		0050						0 to 50psi
		0100						0 to 100psi
		0150						0 to 150psi
		0200						0 to 200psi
		0300						0 to 300psi
		0500						0 to 500psi
		1000						0 to 1000psi
		3000						0 to 3000psi
		5000						0 to 5000psi
		8000						0 to 8000psi
Pressure Type			G					Gauge Pressure
			A					Absolute Pressure
			S					Sealed Pressure
Output signal				42				4 to 20mA
				D5				0 to 5VDC
				15				1 to 5VDC
				10				0 to 10VDC
Accuracy					10			1.0% Full Scale
					05			0.5% Full Scale
Electrical Connection						D		Connector DIN43650
						H		Hirschman Cable Outlet
						C		Cable Outlet with PVC - Cable
						M		M12X1, 4-Pin
Process Connection							M2	M20X1.5 (Male)
							N1	¼" NPT (Male)
							G4	G1/4 (Male)
							F4	G1/4 (Female)

Popular Models

Model Number	Description
3120S-0005-G-42-10-D-N1	5psi, 1.0%, 4-20mA, DIN, 1/4"NPT
3120S-0015-G-42-10-D-N1	15psi, 1.0%, 4-20mA, DIN, 1/4"NPT
3120S-0030-G-42-10-D-N1	30psi, 1.0%, 4-20mA, DIN, 1/4"NPT
3120S-0050-G-42-10-D-N1	50psi, 1.0%, 4-20mA, DIN, 1/4"NPT
3120S-0100-G-42-10-D-N1	100psi, 1.0%, 4-20mA, DIN, 1/4"NPT
3120S-0150-G-42-10-D-N1	150psi, 1.0%, 4-20mA, DIN, 1/4"NPT
3120S-0200-G-42-10-D-N1	200psi, 1.0%, 4-20mA, DIN, 1/4"NPT
3120S-0300-G-42-10-D-N1	300psi, 1.0%, 4-20mA, DIN, 1/4"NPT
3120S-0500-S-42-10-D-N2	500psi, 1.0%, 4-20mA, DIN, 1/4"NPT
3120S-1000-S-42-10-D-N2	1000psi, 1.0%, 4-20mA, DIN, 1/4"NPT
3120S-0005-G-42-05-D-N1	5psi, 0.5%, 4-20mA, DIN, 1/4"NPT
3120S-0015-G-42-05-D-N1	15psi, 0.5%, 4-20mA, DIN, 1/4"NPT
3120S-0030-G-42-05-D-N1	30psi, 0.5%, 4-20mA, DIN, 1/4"NPT
3120S-0050-G-42-05-D-N1	50psi, 0.5%, 4-20mA, DIN, 1/4"NPT
3120S-0100-G-42-05-D-N1	100psi, 0.5%, 4-20mA, DIN, 1/4"NPT
3120S-0150-G-42-05-D-N1	150psi, 0.5%, 4-20mA, DIN, 1/4"NPT
3120S-0200-G-42-05-D-N1	200psi, 0.5%, 4-20mA, DIN, 1/4"NPT
3120S-0300-G-42-05-D-N1	300psi, 0.5%, 4-20mA, DIN, 1/4"NPT
3120S-0500-S-42-05-D-N1	500psi, 0.5%, 4-20mA, DIN, 1/4"NPT
3120S-1000-S-42-05-D-N1	1000psi, 0.5%, 4-20mA, DIN, 1/4"NPT
3120S-0005-G-42-10-C-N1	5psi, 1.0%, 4-20mA, Cable, 1/4"NPT
3120S-0015-G-42-10-C-N1	15psi, 1.0%, 4-20mA, Cable, 1/4"NPT
3120S-0030-G-42-10-C-N1	30psi, 1.0%, 4-20mA, Cable, 1/4"NPT
3120S-0050-G-42-10-C-N1	50psi, 1.0%, 4-20mA, Cable, 1/4"NPT
3120S-0100-G-42-10-C-N1	100psi, 1.0%, 4-20mA, Cable, 1/4"NPT
3120S-0150-G-42-10-C-N1	150psi, 1.0%, 4-20mA, Cable, 1/4"NPT
3120S-0200-G-42-10-C-N1	200psi, 1.0%, 4-20mA, Cable, 1/4"NPT
3120S-0300-G-42-10-C-N1	300psi, 1.0%, 4-20mA, Cable, 1/4"NPT
3120S-0500-S-42-10-C-N2	500psi, 1.0%, 4-20mA, Cable, 1/4"NPT
3120S-1000-S-42-10-C-N2	1000psi, 1.0%, 4-20mA, Cable, 1/4"NPT
3120S-0005-G-42-05-C-N1	5psi, 0.5%, 4-20mA, Cable, 1/4"NPT
3120S-0015-G-42-05-C-N1	15psi, 0.5%, 4-20mA, Cable, 1/4"NPT
3120S-0030-G-42-05-C-N1	30psi, 0.5%, 4-20mA, Cable, 1/4"NPT
3120S-0050-G-42-05-C-N1	50psi, 0.5%, 4-20mA, Cable, 1/4"NPT
3120S-0100-G-42-05-C-N1	100psi, 0.5%, 4-20mA, Cable, 1/4"NPT
3120S-0150-G-42-05-C-N1	150psi, 0.5%, 4-20mA, Cable, 1/4"NPT
3120S-0200-G-42-05-C-N1	200psi, 0.5%, 4-20mA, Cable, 1/4"NPT
3120S-0300-G-42-05-C-N1	300psi, 0.5%, 4-20mA, Cable, 1/4"NPT
3120S-0500-S-42-05-C-N1	500psi, 0.5%, 4-20mA, Cable, 1/4"NPT
3120S-1000-S-42-05-C-N1	1000psi, 0.5%, 4-20mA, Cable, 1/4"NPT

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