



Technology Solutions

# TEK-BAR 3120S

## Piezoresistive Pressure Transducer



PRESSURE



## Introduction

Tek-Bar 3120S Pressure Transducer is made from high-quality silicon Piezoresistive sensor. This Piezoresistive sensor is packaged with stainless steel housing. The Tek-Bar 3120S Pressure Transmitter is a precision-engineered instrument, widely used in industrial pressure instrument. The compact and rugged design make this transmitter suitable for various application such as process control system, hydraulic system and valves, refrigeration and HVAC control, level measurement, and test equipment. 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 is change. Due to this change in resistance, a small amount of current is passed through the sensor. The Whetstone bridge determines this change.

## Features

- 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 system.
- Refrigeration and HVAC control.
- Hydraulic system and valve.
- Machine building.
- Pumps and compressors.

## Specifications

<b>Accuracy</b>	±0.5% or 1.0%FSO
<b>Thermal Effects</b>	Temp Coeff-Zero: ±0.75%FSO Temp Coeff-Span: ±0.75%FSO
<b>Long Term Stability</b>	±0.2%FSO/Year
<b>Pressure Range</b>	Pressure Ranges: -14.7 to 8000psi Over Pressure: 1.5 X FS
<b>Process Temperature</b>	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)
<b>Vibration</b>	10G (20 to 2000Hz)
<b>Shock</b>	100G (10ms)
<b>Cycles</b>	10 X 10 <sup>6</sup> Cycles
<b>Output Signal</b>	4 to 20mA 0 to 5 VDC 1 to 5 VDC 0 to 10 VDC
<b>Power Supply</b>	10 to 36 VDC
<b>Load Resistance</b>	For Current Output: $<(V_s-12)/0.02A$ For Voltage Output: $>10k\Omega$
<b>Insulation Resistance</b>	100MΩ@50VDC
<b>Media Compatibility</b>	All media compatible with 316L stainless steel
<b>Housing</b>	304 stainless steel
<b>Diaphragm</b>	316L stainless steel
<b>Oil Filling</b>	Silicon Oil
<b>Protection</b>	IP65 (Standard) IP66 (Only for cable)
<b>Weight</b>	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.

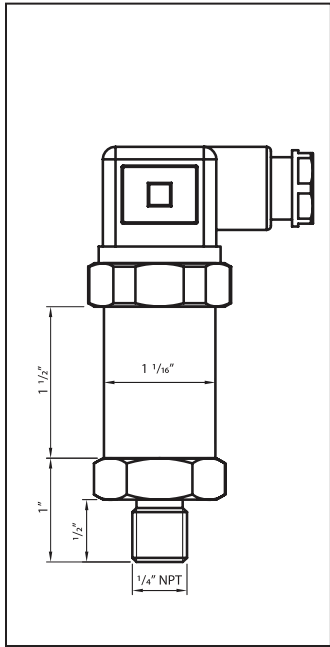


Fig 1: Connector DIN43650

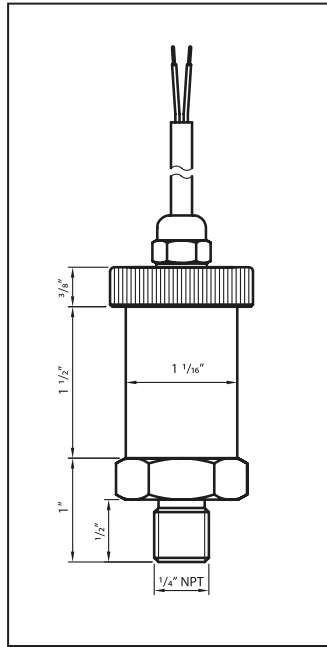


Fig 2: Hirschman Cable Outlet

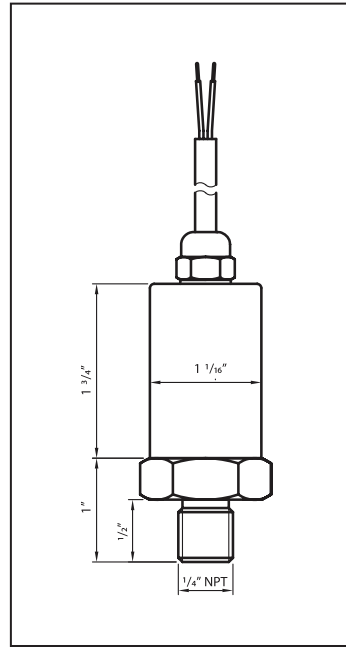


Fig 3: Cable Outlet with PVC - Cable

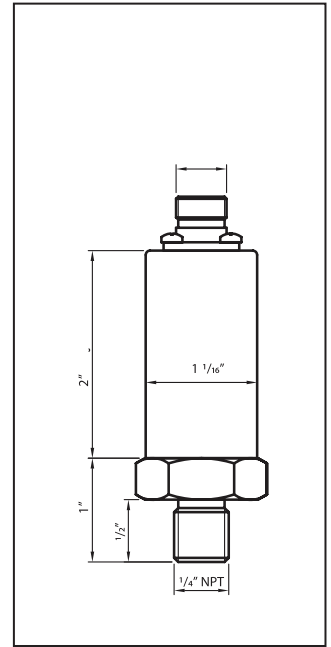


Fig 4: M1 2X1, 4-Pin

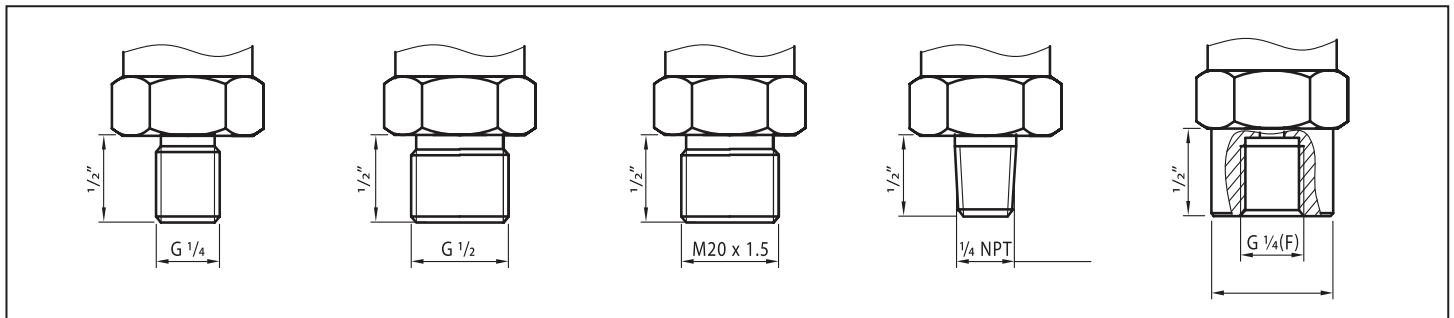


Fig 5: Mechanical Connections

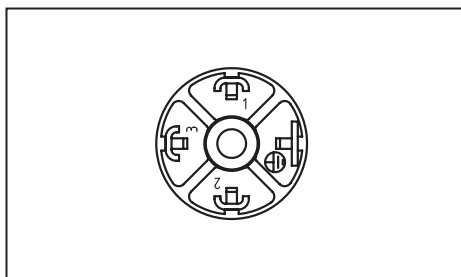


Fig 6: Connector DIN43650

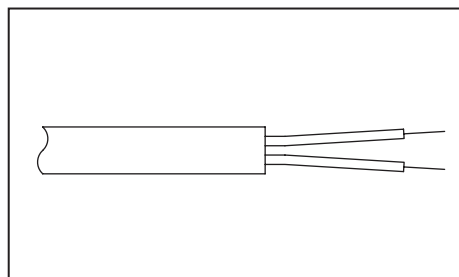


Fig 7: Cable Outlet

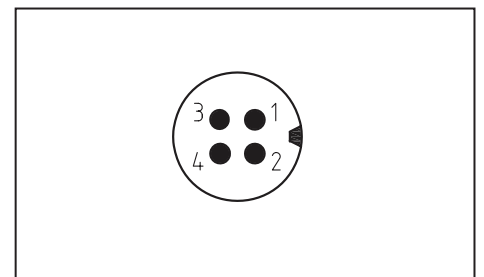


Fig 8: Connector M12x1 (4-pin)

## Model Chart

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 Transmitter
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 5 VDC
				15				1 to 5 VDC
				10				0 to 10 VDC
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		M1 2X1, 4-Pin
Process Connection							M2	M20 X 1.5 (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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