

## 31EP/EA and 32EP/EA Series Explosion Proof

- ▶ CSA Approved
- ▶ ATEX Approved

Oil & Gas equipment needs a pressure transducer that is reliable and able to withstand extreme environmental and pressure conditions. Gems Sensors explosion proof units offer an alternative to high priced, unreliable alternatives. The 31EP and 32EP are CSA approved explosion proof, and the 31EA/32EA carries the ATEX approval. They all feature all stainless steel wetted parts, a broad selection of pressure connections and a wide choice of electrical outputs—the 32 Series of each group provide higher proof pressures. Our manufacturing process includes the latest automated equipment, producing consistent sensor performance.

The compact yet rugged construction of these units makes them ideal for installation where space in a hazardous environment is at a premium.

### Specifications

Performance	
Long Term Drift	0.2% FS/YR (non-cumulative)
Accuracy	0.25% FS
Thermal Error	
31EP/EA	±1.5% max., ±1% typical / 212°F (100°C)
32EP/EA	±2% max.
Compensated Temperatures	-40°F to +203°F (-40°C to +95°C)
Operating Temperatures	-40°F to +203°F (-40°C to +95°C)
Zero Tolerance, Max.	0.5% of span
Span Tolerance, Max.	0.5% of span
Fatigue Life	Designed for more than 100 M cycles
Mechanical Configuration	
Pressure Port	See under "How to Order," last page
Wetted Parts	17-4 PH Stainless Steel
Electrical Connection	See under "How to Order," last page
Enclosure	IP67
Vibration	BSEN 60068-2-6 (FC) Sine (20G) BSEN 60068-2-64 (FH) Random (14.1 Grms)
Shock	BSEN 60068-2-27 (Ea) (50G, 11ms)
Approvals	
CSA (31EP/32EP)	Class I, Division 1, Groups A, B, C and D Class I, Zone 1 Exd IIC T4 Gb Class I, Zone 1 AExd T4 Gb
ATEX (31EA/32EA)	Exd IIC T4 Gb (Ambient Temperature: -40°C to +95°C)

### EMC Specifications

Emissions Tests: EN61326-1:2006 and EN61326-2-3:2006	
EN55011:2007	Radiated Emissions: 30-230MHz 30dB $\mu$ V/M @10M 230-1000MHz 37dB $\mu$ V/M @10M
Immunity Tests: EN61326-1:2006 and EN61326-2-3:2006	
EN61000-4-2:2009	Electrostatic Discharge: ±4Kv contact ±8Kv air
EN61000-4-3:2006	Radiated Immunity: 10V/M 80-1000MHz 3V/M 1400-2000MHz 1V/M 2000-2700MHz
EN61000-4-4:2004	Fast Transients: ±0.25, 0.5, 1Kv



### Individual Specifications

Voltage	
Output (3-wire)	0 V min. to 10 V max. See under "How to Order," last page
Supply Voltage	1 Volt above full scale to 30 V max @ 4.5 mA
Source and Sinks	2 mA
Current	
Output (2-wire)	4-20 mA
Supply Voltage	8-24 Volts measured at the input to the transducer terminals
Maximum Loop Resistance	(Supply Voltage-8) x 50 ohms
Ratiometric	
Output	0.5 to 4.5 V (Source and sink 2 mA)
Supply Voltage	5 Vdc ±10% @ 4.5 mA

**Pressure Capability**

Pressure Range PSI (Bar)	Proof Pressure (x Full Scale)		Burst Pressure (x Full Scale)	
	31EP/EA	32EP/EA	31EP/EA	32EP/EA
100-300 (7-20)	2.00 x FS	3.00 x FS	40 x FS	
500-1,500 (40-100)			20 x FS	
2,000-6,000 (160-400)			10 x FS	
10,000 (700)			>60,000 PSI (4,000 bar)	
15,000 (1,000)				

**Pressure Ports**

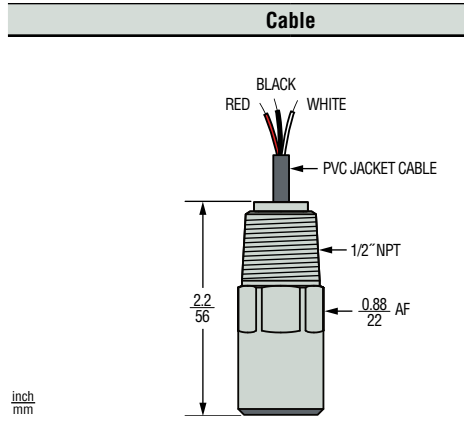
SAE Dimensions in Inches				
	<b>Fitting Code</b> <b>Torque</b>	<b>08</b> = 1/8"-27 NPT 2-3 TFFT*	<b>02</b> = 1/4"-18 NPT 2-3 TFFT*	<b>0H</b> = 1/2" NPT 2-3 TFFT*
	<b>Fitting Code</b> <b>Torque</b>	<b>1J</b> = 7/16"-20 UNF with O-Ring 18-20 NM	<b>0E</b> = 1/4"-18 NPT Internal 2-3 TFFT*	<b>1G</b> = SAE 4 Female 7/16" Schraeder 18-20 NM
	<b>Fitting Code</b> <b>Torque</b>	<b>1P</b> = 9/16-18 "Heavy Duty" 18-20 NM	<b>4C</b> = 1/4"-18 NPT Dryseal 2-3 TFFT*	<b>4D</b> = 1/8"-27 NPT Dryseal 2-3 TFFT*
Metric Dimensions in MM				
	<b>Fitting Code</b> <b>Torque</b>	<b>0S</b> = G1/8" A Stud (BS 5380 Port) 30-35NM	<b>01</b> = G1/4"-27 External 30-35NM	<b>05</b> = G1/4" A Integral Face Seal 30-35 NM
	<b>Fitting Code</b> <b>Torque</b>	<b>4P</b> = G1/2" A 27A/F 30-35NMi	<b>0L</b> = M12 x 1.5 28-30 NM	<b>2T</b> = M12x1.5 HP Metal Washer Seal 30-35 NM

\*NPT Threads 2-3 turns from finger tight. Wrench tighten 2-3 turns.

General Notes:

1. The diameter of all cans is 0.965" (24.5 mm)
2. Hex is 0.866" (22 mm) Across Flats (A/F) for deep socket mounting, except Fitting Code 4P which is 1.063" (27 mm).
3. O-Ring material, where applicable, is Viton®.

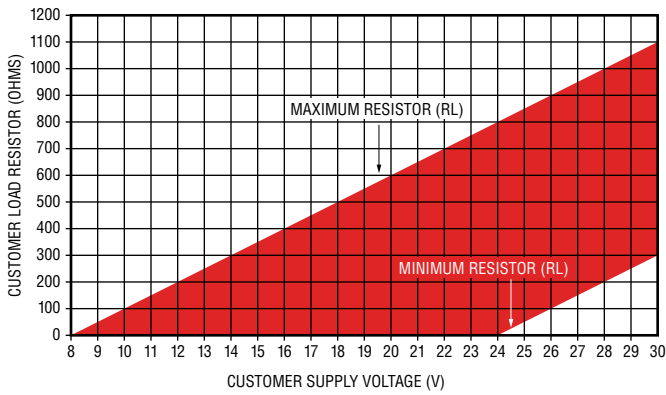
## Cable-Out Type



**Code S**

Wire Color	Voltage Mode	Current Mode
Red	Supply	Supply
Black	Ground	Return
White	V <sub>out</sub>	No Connect

## Current Output Mode (Load Resistor Range)



Minimum Resistor Value =  $50 \cdot (+V - 24)$  for  $+V > 24V$   
 Maximum Resistor Value =  $50 \cdot (+V - 8)$  for  $+V > 8V$

**How to Order**

Use the **bold** characters from the chart below to construct a product code

			<b>31EP</b>	<b>B</b>	<b>200PG</b>	<b>02</b>	<b>S</b>	<b>R</b>	<b>01</b>	
Series	<b>31EP / 32EP</b> - CSA Approved Pressure Transducer <b>31EA / 32EA</b> - ATEX Approved Pressure Transducer									Cable Length
Output	<b>B</b> - 4-20 mA <b>N</b> - 0.5-4.5 V <b>T</b> - 0.5-4.5 V Ratiometric	<b>C</b> - 1-6 V <b>R</b> - 0-5 V	<b>H</b> - 1-5 V <b>S</b> - 0-10 V							<b>01</b> - 1 meter <b>02</b> - 2 meters <b>03</b> - 3 meters <b>04</b> - 4 meters <b>05</b> - 5 meters <b>10</b> - 10 meters
Pressure Range – psi	<b>100PG</b> - 0-100 psiG <b>150PG</b> - 0-150 psiG <b>200PG</b> - 0-200 psiG <b>300PG</b> - 0-300 psiG <b>500PG</b> - 0-500 psiG <b>600PG</b> - 0-600 psiG <b>750PG</b> - 0-750 psiG	<b>10CPG</b> - 0-1,000 psiG <b>15CPG</b> - 0-1,500 psiG <b>20CPS</b> - 0-2,000 psiS <b>25CPS</b> - 0-2,500 psiS <b>30CPS</b> - 0-3,000 psiS <b>35CPS</b> - 0-3,500 psiS <b>40CPS</b> - 0-4,000 psiS <b>50CPS</b> - 0-5,000 psiS <b>60CPS</b> - 0-6,000 psiS <b>75CPS</b> - 0-7,500 psiS	<b>10KPS</b> = 0-10,000 psiS							Optional Restrictor
Pressure Range - bar	<b>0007G</b> - 0-7 barG <b>0010G</b> - 0-10 barG <b>0016G</b> - 0-16 barG <b>0025G</b> - 0-25 barG <b>0040G</b> - 0-40 barG <b>0060G</b> - 0-60 barG <b>0100G</b> - 0-100 barG	<b>0160S</b> - 0-160 barS <b>0250S</b> - 0-250 barS <b>0400S</b> - 0-400 barS <b>0600S</b> - 0-600 barS <b>1000S</b> - 1,000 barS <sup>2</sup>								<b>R</b> - Restrictor <b>0</b> - No Restrictor
Notes:	1. For use with pull-up or pull-down resistors, contact factory. 2. Range 1,000 bar available with <b>-2T</b> pressure port only. 4. Pressure ports <b>0E</b> and <b>1G</b> are NOT available with the Restrictor option.									Electrical Connection
										<b>S</b> - Explosion Proof Conduit 1/2" NPT
										Pressure Port <sup>4</sup>
										<b>08</b> - 1/8"-27 NPT External <b>02</b> - 1/4"-18 NPT External <b>0H</b> - 1/2" NPT <b>04</b> - 7/16"-20 External (SAE #4, J514) <b>1J</b> - 7/16"-20 External (SAE #4, J1926-2) <b>0E</b> - 1/4"-18 NPT Internal <b>1G</b> - Schraeder SAE #4, 7/16" Internal <b>4B</b> - 1/4" Female (7/16UN with Schraeder Deflator) <b>1P</b> - SAE 6 (9/16"-18 UNF 2A) <b>4C</b> - 1/4"-18 NPTF External (Dryseal) <b>4D</b> - 1/8"-27 NPTF External (Dryseal) <b>4N</b> - SAE 3 (3/8"-24 UNF External)
										European Threads
										<b>0S</b> - G1/8" A Stud (BS 5380 Port) <b>01</b> - G1/4" External <b>05</b> - G1/4" External Soft Seal <b>0A</b> - G1/4"-19 PT (JIS) or BSPT <b>4P</b> - G1/2" A 27A/F <b>0L</b> - M12 x 1.5 (<1,000 bar, 15,000 psi) <b>2T</b> - M12 x 1.5 (6g) (≥1,000 bar, 15,000 psi) <b>0K</b> - M14 x 1.5 Straight