

## 31IS Series and 32IS Heavy Duty Series Intrinsically Safe Industrial Pressure Transmitters

- ▶ Ex II 1G; Ex ia IIB T4 Ga
- ▶ The 3XIS series is certified Intrinsically Safe for use in Group IIB Hazardous Areas, Zones 0, 1 and 2
- ▶ Certification: ATEX Certificate Baseefa10ATEX0196  
IECEX Certificate GB/BAS/ExTR10/0230/00

For OEMs that need intrinsically safe pressure sensors with consistent high levels of performance, reliability and stability, the 31/32IS Series sputtered thin film units offer an unbeatable price performance ratio in a small package size. Their size makes them ideal for installation where space is at a premium. They feature all stainless steel wetted parts, a broad selection of electrical and pressure connections and a wide choice of electrical outputs.

32IS Series transmitters feature a thicker diaphragm and a pressure restrictor to withstand the rigors of cavitation or extreme pressure spikes, delivering years of reliable and stable performance in pulsating applications.

### Specifications

<b>Performance</b>	
<b>Long Term Drift</b>	0.2% FS/YR (non-cumulative)
<b>Accuracy</b>	0.25% FS
<b>Thermal Error</b>	
<b>31IS</b>	±1.5% max, ±1% typical / 212°F (100°C)
<b>32IS</b>	±2% max
<b>Operating &amp; Compensated Temperatures</b>	
	-40°F to +176°F (-40°C to +80°C)
<b>Zero Tolerance, Max.</b>	0.5% of span
<b>Span Tolerance, Max.</b>	0.5% of span
<b>Fatigue Life</b>	Designed for more than 100 M cycles
<b>Mechanical Configuration</b>	
<b>Pressure Port</b>	See under "How to Order," last page
<b>Wetted Parts</b>	17-4 PH Stainless Steel
<b>Electrical Connection</b>	See under "How to Order," last page
<b>Enclosure</b>	IP67 (IP65 for electrical code G)
<b>Vibration</b>	BSEN 60068-2-6 (FC) Sine (20G) BSEN 60068-2-64 (FH) Random (14.1 Grms)
<b>Shock</b>	BSEN 60068-2-27 (Ea) (50G, 11ms)
<b>Approvals</b>	
<b>ATEX</b>	Ex II 1G; Ex ia IIB T4 Ga, -40°F ≤ Ta ≤ +176°F (-40°C ≤ Ta ≤ +80°C)
<b>IECEX</b>	Ex ia IIB T4 Ga -40°F ≤ Ta ≤ +176°F (-40°C ≤ Ta ≤ +80°C)
<b>ATEX/IECEX Common</b>	When used in conjunction with a Zener safety barrier or Galvanic Isolation barrier. Fully RoHS Compliant
<b>Weight</b>	1.8 to 5.3 ounces (50-150 grams). Configuration dependant

### EMC Specifications

<b>Emissions Tests: EN61326-1:2006 and EN61326-2-3:2006</b>	
<b>EN55011:2007</b>	Radiated Emissions: 30-230MHz 30dB µV/M @10M 230-1000MHz 37dB µV/M @10M
<b>Immunity Tests: EN61326-1:2006 and EN61326-2-3:2006</b>	
<b>EN61000-4-2:2009</b>	Electrostatic Discharge: ±4Kv contact ±8Kv air
<b>EN61000-4-3:2006</b>	Radiated Immunity: 10V/M 80-1000MHz 3V/M 1400-2000MHz 1V/M 2000-2700MHz
<b>EN61000-4-4:2004</b>	Fast Transients: ±0.25, 0.5, 1Kv
<b>EN61000-4-6:2007</b>	Conducted Immunity: 3V 0.15 to 80MHz 80% 1KHz modulation



### Individual Specifications

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

**SPUTTERED THIN FILM**

**Pressure Capability**

Pressure Range PSI (Bar)	Proof Pressure (x Full Scale)		Burst Pressure (x Full Scale)	
	31IS	32IS	31IS	32IS
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 (140-400)			10 x FS	
10,000 (700)			> 60,000 PSI (4,000 bar)	
15,000 (1,000)	2.50 x FS			
25,000 (1,800)	1.70 x FS			
30,000 (2,200)	1.40 x FS	—		

**Pressure Ports**

NPT and SAE Dimensions in Inches. Metric and BSP Dimensions in MM.

<b>Fitting Code</b> <b>08</b> = 1/8"-27 NPT	<b>4D</b> = 1/8"-27 NPTF Dryseal	<b>02</b> = 1/4"-18 NPT	<b>0E</b> = 1/4"-18 NPT Internal
<b>Torque</b> 2-3 TFFT*	2-3 TFFT*	2-3 TFFT*	2-3 TFFT*
<b>Fitting Code</b> <b>4C</b> = 1/4"-18 NPTF Dryseal	<b>4N</b> = 3/8"-24 UNF	<b>1J</b> = 7/16"-20 UNF	<b>04</b> = 7/16"-20 UNF with 37° Flare
<b>Torque</b> 2-3 TFFT*	18-20 NM	18-20 NM	15-16 NM
<b>Fitting Code</b> <b>1G</b> = SAE 4 Female 7/16" Schraeder	<b>1P</b> = 9/16"-18 "Heavy Duty"	<b>01</b> = G1/4"-19 A	<b>05</b> = G1/4"-19 A Integral Face-Seal
<b>Torque</b> 18-20 NM	18-20 NM	30-35 NM	30-35 NM
<b>Fitting Code</b> <b>0L</b> = M12 x 1.5	<b>2T</b> = M12x1.5 HP Metal Washer Seal	<b>0K</b> = M14 x 1.5	
<b>Torque</b> 28-30 NM	30-35 NM	2-3 TFFT*	

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

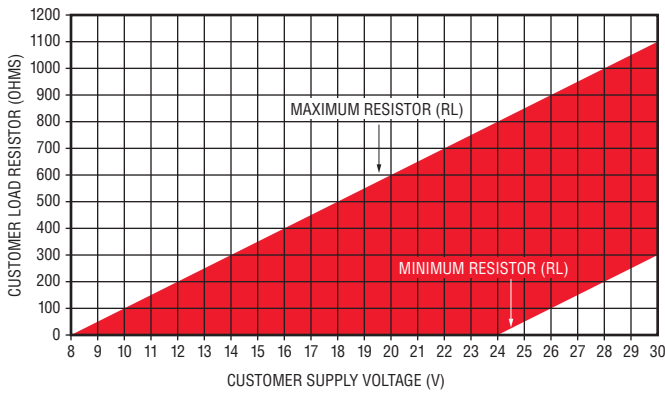
General Notes:

1. The diameter of all cans is 19 mm (0.748")
2. Hex is 22 mm (0.866") Across Flats (A/F) for deep socket mounting
3. O-Ring material, where applicable, is Viton® unless otherwise specified.

### Electrical Connector

DIN 9.4 mm		M12 x 1P		Amp Superseal 1.5		Deutsch DT04-4P		DIN 43650A		
<b>Code R</b>		<b>Code E</b>		<b>Code 6</b>		<b>Code 8</b>		<b>Code G</b>		
Pin #	Voltage Mode	Current Mode	Voltage Mode	Current Mode	Voltage Mode	Current Mode	Voltage Mode	Current Mode	Voltage Mode	Current Mode
1	V <sub>supply</sub>	Supply	V <sub>supply</sub>	Supply	V <sub>out</sub>	No Connect	Ground	Return	V <sub>supply</sub>	Supply
2	Ground	Return	V <sub>out</sub>	No Connect	Ground	Return	V <sub>supply</sub>	Supply	Ground	Return
3	V <sub>out</sub>	No Connect	Ground	Return	V <sub>supply</sub>	Supply	No Connect	No Connect	V <sub>out</sub>	No Connect
4	No Connect	No Connect	No Connect	No Connect	—	—	V <sub>out</sub>	No Connect	No Connect	No Connect

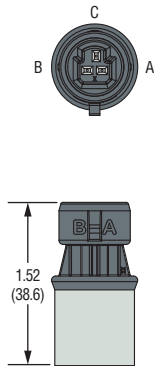
### Current Output Mode (Load Resistor Range)



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

**Cable-Out Types**

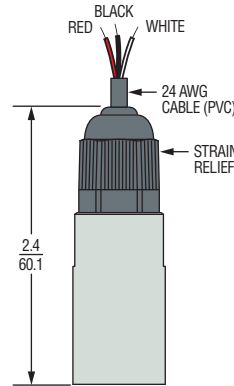
**Packard MetriPack**



**Code 9**

Pin ID	Voltage Mode	Current Mode
<b>C</b>	V <sub>out</sub>	No Connect
<b>A</b>	Ground	Return
<b>B</b>	V <sub>supply</sub>	Supply
—	—	—

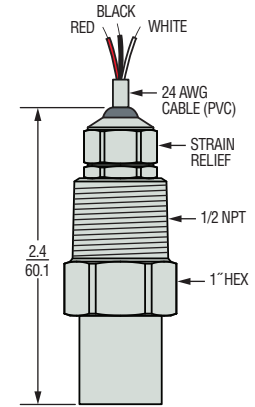
**Cable**



**Code F**

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

**1/2" Conduit Connection**



**Code 3**

Voltage Mode	Current Mode
Supply	Supply
Ground	Return
V <sub>out</sub>	No Connect

**How to Order**

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

Series **31IS** / **32IS** - Pressure Transducer

Output **B** - 4-20 mA      **C** - 1-6 V      **H** - 1-5 V  
**N** - 0.5-4.5 V      **R** - 0-5 V<sup>1</sup>      **S** - 0-10 V<sup>1</sup>  
**T** - 0.5-4.5 V Ratiometric

Pressure Range - psi

<b>100PG</b> - 0-100 psiG	<b>15CPS</b> - 0-1,500 psiS	<b>10KPS</b> = 0-10,000 psiS
<b>150PG</b> - 0-150 psiG	<b>20CPS</b> - 0-2,000 psiS	<b>15KPS</b> - 0-15,000 psiS <sup>2</sup>
<b>200PG</b> - 0-200 psiG	<b>25CPS</b> - 0-2,500 psiS	<b>20KPS</b> - 0-20,000 psiS <sup>2</sup>
<b>300PG</b> - 0-300 psiG	<b>30CPS</b> - 0-3,000 psiS	<b>25KPS</b> - 0-25,000 psiS <sup>2</sup>
<b>500PG</b> - 0-500 psiG	<b>35CPS</b> - 0-3,500 psiS	
<b>600PG</b> - 0-600 psiG	<b>40CPS</b> - 0-4,000 psiS	
<b>750PG</b> - 0-750 psiG	<b>50CPS</b> - 0-5,000 psiS	
<b>10CPG</b> - 0-1,000 psiG	<b>60CPS</b> - 0-6,000 psiS	
	<b>75CPS</b> - 0-7,500 psiS	

Pressure Range - bar

<b>0007G</b> - 0-7 barG	<b>0100S</b> - 0-100 barS	<b>1000S</b> - 1,000 barS <sup>2</sup>
<b>0010G</b> - 0-10 barG	<b>0160S</b> - 0-160 barS	<b>1600S</b> - 1,600 barS <sup>2</sup>
<b>0016G</b> - 0-16 barG	<b>0250S</b> - 0-250 barS	
<b>0025G</b> - 0-25 barG	<b>0400S</b> - 0-400 barS	
<b>0040G</b> - 0-40 barG	<b>0600S</b> - 0-600 barS	
<b>0060G</b> - 0-60 barG		

Notes:

- For use with pull-up or pull-down resistors, contact factory.
- Ranges 15,000 psi (1,000 bar) and above available with **-2T** pressure port only.
- Pressure ports **0E** and **1G** are NOT available with the Restrictor option.
- For electrical codes **F** & **3**, specify cable length in meters.

Cable Length (For electrical connections F& 3 only)

<b>00</b> - No Cable	<b>03</b> - 3 meters
<b>01</b> - 1 meter	<b>04</b> - 4 meters
<b>02</b> - 2 meters	<b>05</b> - 5 meters

Optional Restrictor (32IS only)

**R** - Restrictor  
**0** - No Restrictor

Electrical Connection<sup>4</sup>

**B** - Industrial DIN 9.4 mm (mating connector not supplied)  
**E** - M12 x 1P (4-Pin)  
**F** - Cable version  
**G** - Large DIN  
**R** - Industrial DIN 9.4 mm (alternate pin out)  
**3** - 1/2" NPT Male Conduit  
**6** - Amp - Superseal 1.5 Series  
**8** - Deutsch DT04-4P  
**9** - Packard MetriPack

Pressure Port<sup>3</sup>

**08** - 1/8-27 NPT External  
**02** - 1/4-18 NPT External  
**04** - 7/16-20 External (SAE #4, J514)  
**1J** - 7/16-20 External (SAE #4, J1926-2)  
**0E** - 1/4"-18 NPT Internal  
**0K** - M14 x 1.5 Straight  
**1G** - Schrader SAE #4, 7/16" Internal  
**1P** - SAE 6 (9/16"-18 UNF 2A)  
**4C** - 1/4-18 NPTF External (Dryseal)  
**4D** - 1/8-27 NPTF External (Dryseal)  
**4N** - SAE 3 (3/8-24 UNF External)  
**01** - G1/4 External  
**05** - G1/4 External Soft Seal  
**0L** - M12 x 1.5 (<15,000 psi, 1,000 bar)  
**2T** - M12 x 1.5 (6g) (>15,000 psi, 1,000 bar)



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