

31CA Series and 32CA Heavy Duty Series CSA Non-Incendive Industrial Pressure Transmitters



For OEMs that need non-incendive pressure sensors with consistent high levels of performance, reliability and stability, the 31/32CA Series sputtered thin film units offer an unbeatable price performance ratio in a small package size. They feature all stainless steel wetted parts, a broad selection of electrical and pressure connections and a wide choice of electrical outputs.

Our manufacturing process includes the latest automated equipment, producing consistent sensor performance.

Additionally the 32CA 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.

The compact construction of both these series makes them ideal for installation where space is at a premium.

Specifications

| | |
|---|--|
| Performance | |
| Long Term Drift | 0.2% FS/YR (non-cumulative) |
| Accuracy | 0.25% FS |
| Thermal Error | |
| 31CS | ±1.5% max, ±1% typical / 212°F (100°C) |
| 32CS | ±2% max |
| Operating & Compensated Temperatures | |
| | -40°F to +176°F (-40°C to +80°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 (IP65 for electrical code G) |
| 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 Certified Non-Incendive for use in: Class I, Division 2, Groups A, B, C, and D T4 Single Seal Approval Fully RoHS Compliant |
| Weight | 1.8 to 5.3 ounces (50-150 grams). Configuration dependant |

EMC Specifications

| | |
|---|---|
| Emissions Tests: EN61326-1:2006 and EN61326-2-3:2006 | |
| EN55011:2007 | Radiated Emissions: 30-230MHz 30dB µV/M @10M 230-1000MHz 37dB µV/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 |
| EN61000-4-6:2007 | Conducted Immunity: 3V 0.15 to 80MHz 80% 1KHz modulation |

Integral Connector Versions



Individual Specifications

| | |
|--------------------------------|---|
| Voltage | |
| Output (3-wire) | 0V min. to 10V max. See under "How to Order," last page |
| Supply Voltage | 1 Volt above full scale with minimum supply of 8V; maximum 30V @ 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 50ohms See Graph |
| Ratiometric | |
| Output | 0.5 to 4.5V (Source and sink 2mA) |
| Supply Voltage | 5 Vdc ±10% @ 4.5mA |

Pressure Capability

| Pressure Range PSI (Bar) | Proof Pressure (x Full Scale) | | Burst Pressure (x Full Scale) | |
|-----------------------------|----------------------------------|-----------|----------------------------------|------|
| | 31CA | 32CA | 31CA | 32CA |
| 100-300 (7-20) | 3.00 x FS | 3.00 x FS | 40 x FS | |
| 500-1,500 (40-100) | 2.00 x FS | | 20 x FS | |
| 2,000-6,000 (140-400) | | | 10 x FS | |
| 10,000 (700) | 1.40 x FS | 2.50 x FS | > 60,000 PSI (4,000 bar) | |
| 15,000 (1,000) | | 1.70 x FS | | |
| 25,000 (1,800) | | — | | |
| 30,000 (2,200) | | | | |

Pressure Ports

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

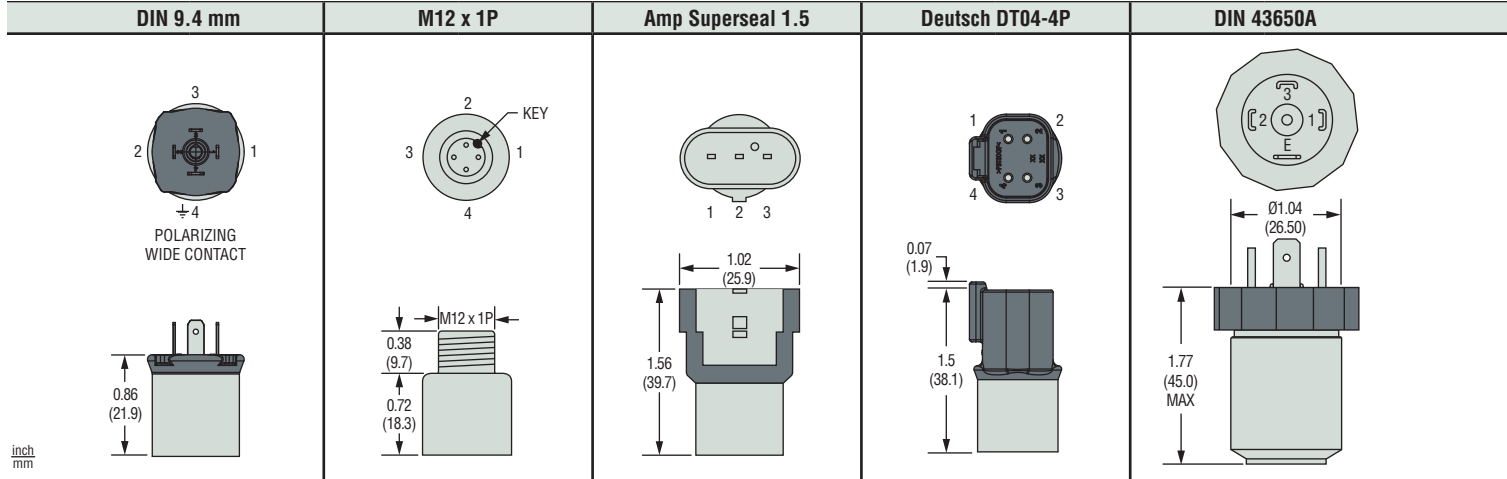
| | | | |
|--|-----------------------------------|--|---|
| | | | |
| Fitting Code 08 = 1/8"-27 NPT | 4D = 1/8"-27 NPTF Dryseal | 02 = 1/4"-18 NPT | 0E = 1/4"-18 NPT Internal |
| Torque 2-3 TFFT* | 2-3 TFFT* | 2-3 TFFT* | 2-3 TFFT* |
| | | | |
| Fitting Code 4C = 1/4"-18 NPTF Dryseal | 4N = 3/8"-24 UNF | 1J = 7/16"-20 UNF | 04 = 7/16"-20 UNF with 37° Flare |
| Torque 2-3 TFFT* | 18-20 NM | 18-20 NM | 15-16 NM |
| | | | |
| Fitting Code 1G = SAE 4 Female 7/16" Schraeder | 1P = 9/16"-18 "Heavy Duty" | 6B = Autoclave F250C | 01 = G1/4"-19 A |
| Torque 18-20 NM | 18-20 NM | 18-20 NM | 30-35 NM |
| | | | |
| Fitting Code 05 = G1/4"-19 A Integral Face-Seal | 0L = M12 x 1.5 | 2T = M12x1.5 HP Metal Washer Seal | 4J = M14 x 1.5 |
| Torque 30-35 NM | 28-30 NM | 30-35 NM | 30-35 NM |

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

General Notes:

- The diameter of all cans is 19 mm (0.748")
- Hex is 22 mm (0.866") Across Flats (A/F) for deep socket mounting

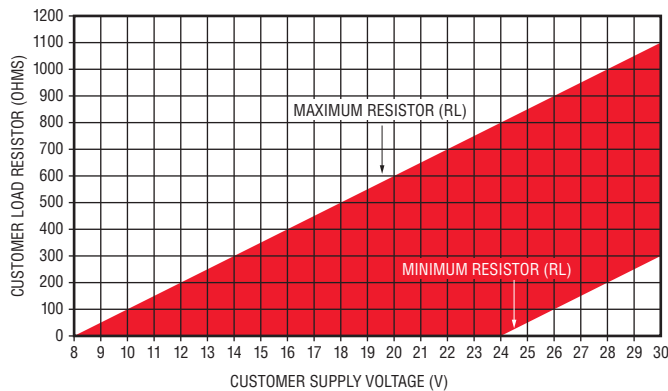
Electrical Connector



| | Code R | | Code E | | Code 6 | | Code 8 | | Code G | |
|-------|---------------------|--------------|---------------------|--------------|---------------------|--------------|---------------------|--------------|---------------------|--------------|
| Pin # | Voltage Mode | Current Mode | Voltage Mode | Current Mode | Voltage Mode | Current Mode | Voltage Mode | Current Mode | Voltage Mode | Current Mode |
| 1 | V _{supply} | Supply | V _{supply} | Supply | V _{out} | No Connect | Ground | Return | V _{supply} | Supply |
| 2 | Ground | Return | V _{out} | No Connect | Ground | Return | V _{supply} | Supply | Ground | Return |
| 3 | V _{out} | No Connect | Ground | Return | V _{supply} | Supply | No Connect | No Connect | V _{out} | No Connect |
| 4 | No Connect | No Connect | No Connect | No Connect | — | — | V _{out} | No Connect | No Connect | No Connect |

*This pin is used for temperature sensing output when this option is utilized. Otherwise, the pin is used for PE.

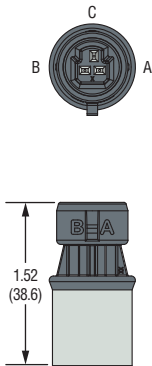
Current Output Mode (Load Resistor Range)



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

Cable-Out Types

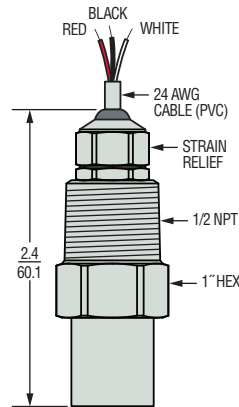
Packard MetriPack



Code 9

| Pin ID | Voltage Mode | Current Mode |
|----------|---------------------|--------------|
| A | Ground | Return |
| B | V _{supply} | Supply |
| C | V _{out} | No Connect |
| E | — | — |

1/2" Conduit Connection



Code 3

| Wire Color | Voltage Mode | Current Mode |
|--------------|------------------|--------------|
| Red | Supply | Supply |
| Black | Ground | Return |
| White | V _{out} | No Connect |

How to Order

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

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

Output **B** - 4-20 mA **C** - 1-6 V **H** - 1-5 V
N - 0.5-4.5 V **R** - 0-5 V¹ **S** - 0-10 V¹
T - 0.5-4.5 V Ratiometric

Pressure Range - psi

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

Pressure Range - bar

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

Pressure Port³

- 08** - 1/8-27 NPT External
- 02** - 1/4-18 NPT External
- 04** - 7/16-20 External (SAE #4, J514)
- 0E** - 1/4"-18 NPT Internal
- 1G** - Schrader SAE #4, 7/16" Internal
- 1J** - 7/16-20 External (SAE #4, J1926-2)
- 1P** - SAE 6 (9/16"-18 UNF 2A)
- 4C** - 1/4-18 NPTF External (Dryseal)
- 4D** - 1/8-27 NPTF External (Dryseal)
- 4N** - 3/8-24 UNF External (SAE J1926)
- 6B** - Autoclave 250C Internal (15,000 psi, >1000 bar)

European Threads

- 01** - G1/4 A External
- 05** - G1/4 A External Soft Seal
- 0L** - M12 x 1.5 (<1,000 bar, 15,000 psi)
- 2T** - M12 x 1.5 (6g) (≥1,000 bar, 15,000 psi)
- 4J** - M14 x 1.5 Straight

Cable Length (For electrical connection 3 only)

- 00** - No Cable
- 01** - 1 meter
- 02** - 2 meters
- 03** - 3 meters
- 04** - 4 meters
- 05** - 5 meters
- 10** - 10 meters

Optional Restrictor (32CA only)

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

Electrical Connection⁴

- E** - M12 x 1P (4-Pin)
- 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

- 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**, **6B**, and **1G** are not available with the -R Restrictor option.
 - For electrical code **3**, specify cable length in meters.