

19C Series 0 to 3psi to 0 to 500psi

Low Cost, Stainless Steel Isolated Pressure Sensors



General Description

The stainless steel 19C Series devices were developed for pressure applications that involve measurement of hostile media in harsh environments. These sensors will accommodate any media that will not adversely attack 316 stainless steel.

These 19mm sensors are available for use with either a constant voltage or current source. They feature a variety of pressure connections to allow use in a wide range of OEM equipment.

The 19C Series devices are rugged and reliable transducers for use in a wide variety of pressure sensing applications where corrosive liquids or gases are monitored. Contact your local Invensys representative or the Invensys factory for additional details.

Features

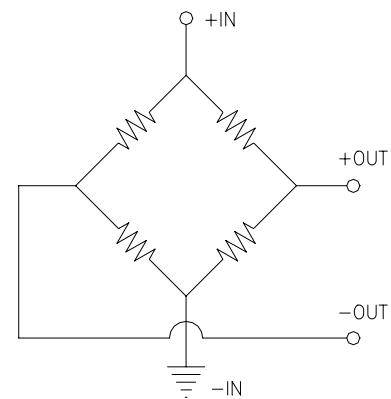
Reliable Semiconductor Technology

- Calibrated and Temperature Compensated
- Isolated
- Rugged--Stainless Steel Package
- Small Size
- Absolute & Gage Pressures
- Reliable Semiconductor Technology

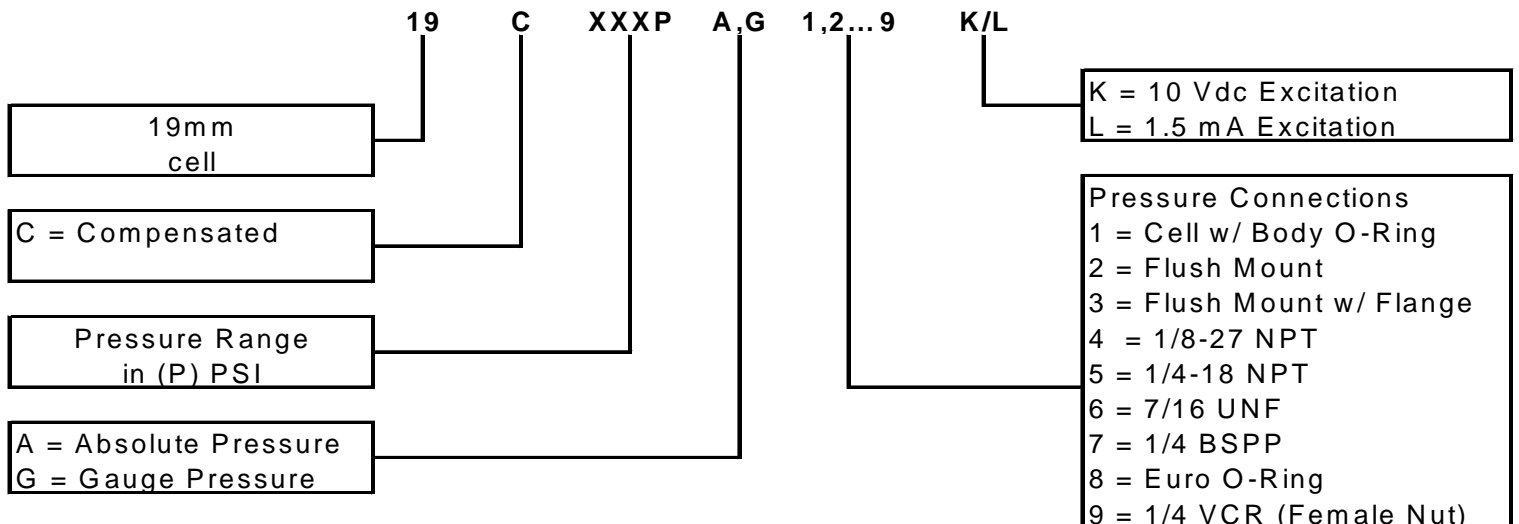
Applications

- Industrial Controls

Equivalent Circuit



Ordering Information - Part # Description



For example: Part #19C100PA4K = 19 mm Cell, Compensated, 100 psi, Absolute, 1/8NPT Port, with 10 Vdc excitation.

Pressure Sensor Characteristics (all devices)**Environmental Specifications**

Compensated: 0°C to +82°C

Operating: -40°C to +125°C

Storage: -40°C to +125°C

Vibration: 10G at 20-2000 Hz

Shock: 100G for 11 msec

Life: 1 Million cycles minimum

Insulation Resistance 100MΩ at 50 Vdc

Maximum Ratings (all devices)Voltage Version "K": Supply Voltage $V_S = +15$ VdcCurrent Version "L": Supply Current $I_S = +2.0$ mA**Pressure Range Specifications**

| SenSym/ICT PART # * | PRESSURE RANGE | PROOF PRESSURE (7) | BURST PRESSURE (8) |
|------------------------------|-------------------|-----------------------|-----------------------|
| 19C 003P G (1...9) (K/L) | 0-3 psig | 9 psig | 15 psig |
| 19C 005P G (1...9) (K/L) | 0-5 psig | 15 psig | 25 psig |
| 19C 010P G (1...9) (K/L) | 0-10 psig | 30 psig | 30 psig |
| 19C 015P (A/G) (1...9) (K/L) | 0-15 psi | 45 psi | 75 psi |
| 19C 030P (A/G) (1...9) (K/L) | 0-30 psi | 90 psi | 150 psi |
| 19C 050P (A/G) (1...9) (K/L) | 0-50 psi | 150 psi | 250 psi |
| 19C 100P (A/G) (1...9) (K/L) | 0-100 psi | 300 psi | 500 psi |
| 19C 200P (A/G) (1...9) (K/L) | 0-200 psi | 600 psi | 1000 psi |
| 19C 300P (A/G) (1...9) (K/L) | 0-300 psi | 900 psi | 1500 psi |
| 19C 500P (A/G) (1...9) (K/L) | 0-500 psi | 1200 psi | 2400 psi |

* Note: Parts are available in Absolute and Gauge pressure (A=Absolute, G=Gauge) and in a variety of ports (1 thru 9).

Performance Characteristics ⁽¹⁾

| Characteristic | Min | Typical | Max | Units |
|--|-----|---------|--------|-------|
| Zero pressure offset | -2 | 0 | +2 | mV |
| Full scale span ⁽²⁾ | 98 | 100 | 102 | mV |
| Full scale span (3 and 5 psi "K" units only) ⁽²⁾ | 48 | 50 | 52 | mV |
| Nonlinearity ⁽³⁾ | -- | ±0.1 | ±0.25 | %FSS |
| Pressure hysteresis ⁽³⁾ | -- | ±0.015 | ±0.030 | %FSS |
| Repeatability | -- | ±0.010 | ±0.030 | %FSS |
| Temp. effect on span ⁽⁴⁾ | -- | ±0.5 | ±1.0 | %FSS |
| Temp. effect on offset ⁽⁴⁾ | -- | ±0.5 | ±1.0 | %FSS |
| Temp. effect on span (0-3 and 0-5 psi only) ⁽⁴⁾ | -- | -- | ±2.0 | %FSS |
| Temp. effect on offset (0-3 and 0-5 psi only) ⁽⁴⁾ | -- | -- | ±2.0 | %FSS |
| Thermal hysteresis (0 to 82°C) | -- | ±0.1 | ±0.3 | %FSS |
| Long term stability of offset & Span ⁽⁵⁾ | -- | ±0.1 | ±0.3 | %FSS |
| Response time (10% to 90%) ⁽⁶⁾ | -- | 0.1 | -- | ms |
| Common Mode Voltage (Voltage Version "K") ⁽⁹⁾ | .50 | 1.25 | 2.0 | Vdc |
| Input impedance (Current Version "L") | 2.0 | 4.5 | 8.0 | kΩ |
| Input impedance (Voltage Version "K") | 8.0 | 25 | 50 | kΩ |
| Output impedance | 3.0 | 4.5 | 6.0 | kΩ |

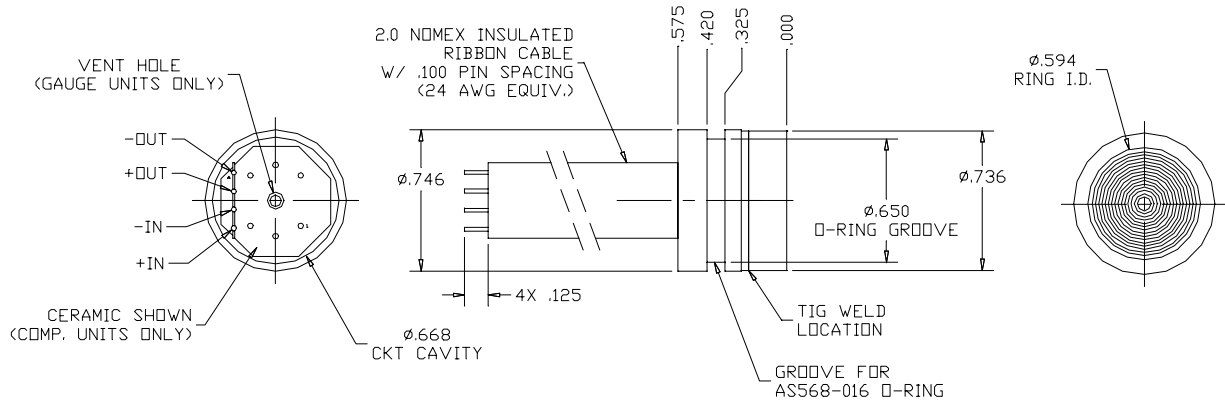
Specification Notes:

- Note 1:** Reference Conditions (unless otherwise noted): Supply, $V_S=10\text{ Vdc}\pm 0.01\text{ Vdc}$ or $I_S=1.5\text{ mA}\pm 0.0015\text{ mA}$; $T_a=25^\circ\text{C}$.
- Note 2:** Span is the algebraic difference between the output voltage at full scale pressure and the output at zero pressure. Full Scale Span (FSS) is ratiometric to the supply voltage.
- Note 3:** Linearity is based on best-fit straight line from the zero to the full scale pressure. Hysteresis is the maximum output difference at any point within the operating pressure range for increasing and decreasing pressure.
- Note 4:** Maximum error band of the offset voltage or span over the compensated temperature range, relative to the 25°C reading.
- Note 5:** Long term stability over a six month period.
- Note 6:** Response time for a step change from the zero pressure to the full scale pressure.
- Note 7:** The maximum pressure that can be applied without changing the transducer's performance or accuracy.
- Note 8:** The maximum pressure that can be applied to a transducer without rupture of either the sensing element or transducer case.
- Note 9:** Common Mode Voltage as measured from output to ground.

Physical Dimensions

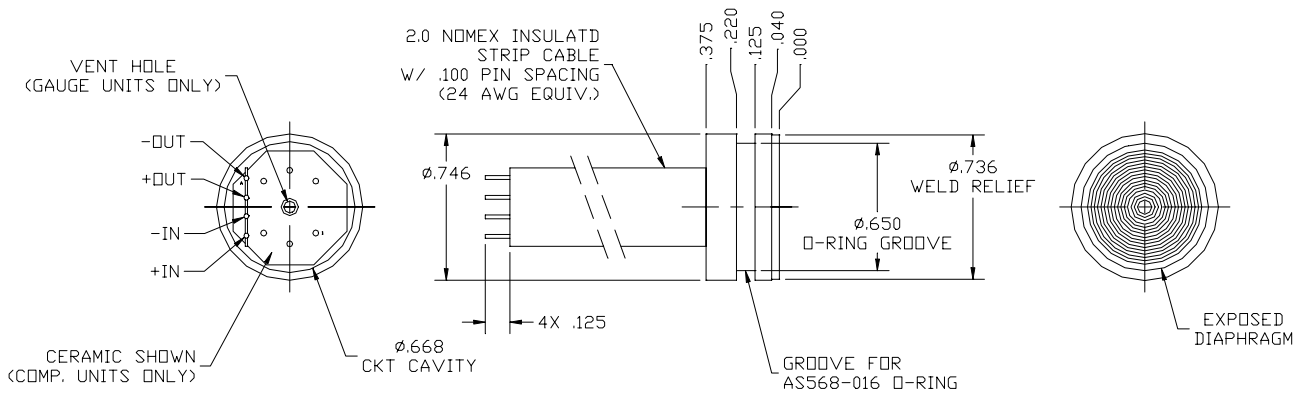
Cell Package "1" (See Note 1)

File: SS60150



Flush Mount Package "2"

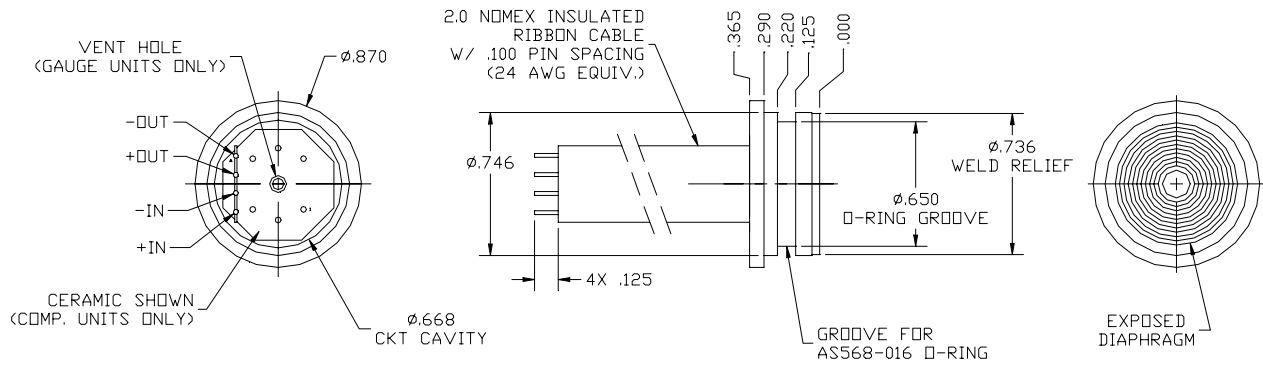
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Physical Dimensions

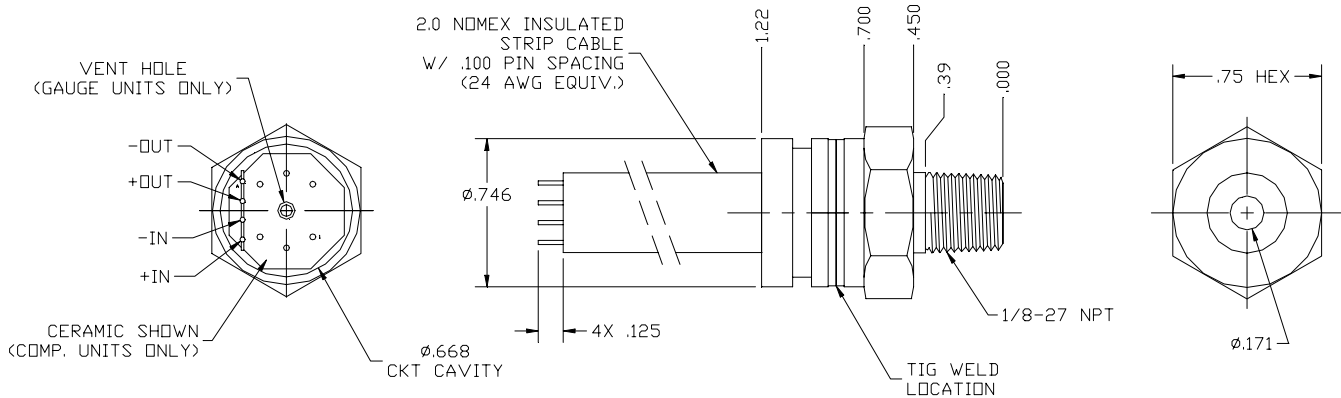
Flush Mount with Flange Package "3"

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Male 1/8-27 NPT Package "4"

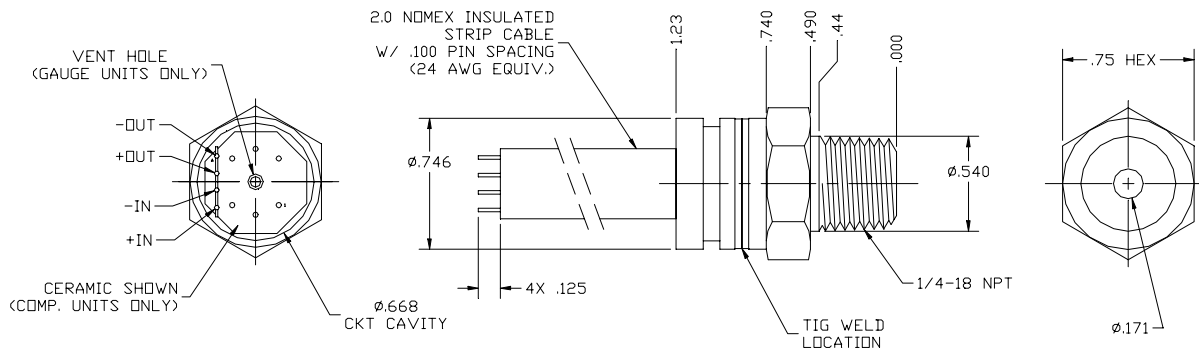
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Physical Dimensions

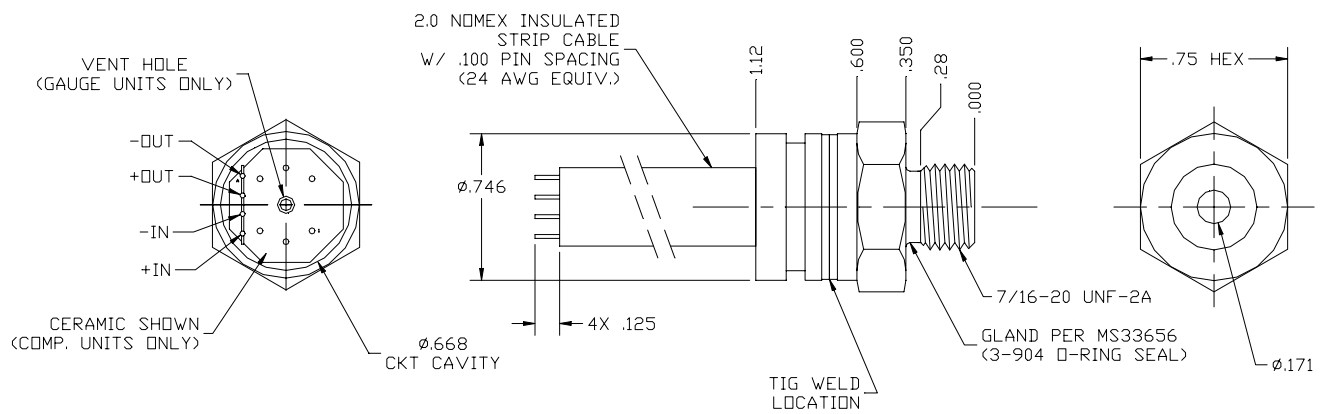
Male 1/4-18 NPT Package "5"

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Male 7/16 UNF Package "6"

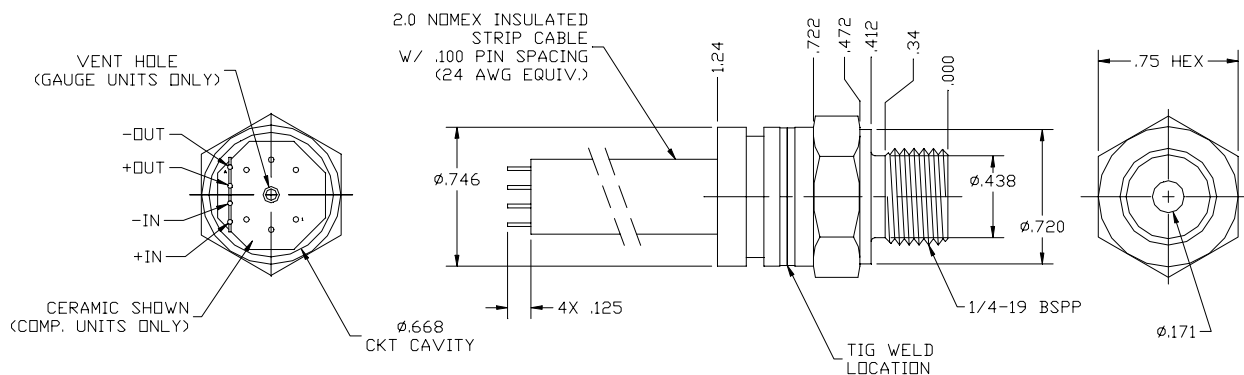
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Physical Dimensions

Male 1/4 BSPP Package "7"

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Euro Ring Package "8" (See Note 1)

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