13 MM SERIES

008131
Issue 3

13U/13C: Standard 316L stainless steel, media-isolated sensors



DESCRIPTION

Honeywell 13 mm Series stainless steel pressure sensors are designed for high pressure applications that involve measurement of hostile media in harsh environments. This series uses the Honeywell proven piezoresistive semiconductor sensor chip in an oil-isolated housing with or without an integral ceramic for temperature compensation and calibration. This design has proven to be highly reliable, stable and accurate.

These sensors feature a weld-ring collar and special back support ring for high cycle life capability as they are designed for further package integration in OEM (Original Equipment Manufacturer) applications. Products are available with pressure ranges from 500 psi through 5000 psi and can be used with voltage or current supplies.

FEATURES

- Rugged, isolated stainless steel package
- Reliable semiconductor technology
- Calibrated and temperature compensated
- Voltage or current supply options
- Absolute and sealed gage pressures
- 0 psi to 500 psi, 1000 psi, 2000 psi, 3000 psi, and 5000 psi

APPLICATIONS

- Industrial controls
- Hydraulic controls
- Tank pressure
- Pressure transmitters
- Process control systems

DIFFERENTIATION

- Reliable and proven piezoresistive semiconductor technology
- Low-cost cell package for further OEM package integration
- Range of pressure and package options
- Operating temperature range: -40°C to 125°C [-40°F to 257°F]
- Threaded/welded process connections

PORTFOLIO

The 13mm Series is part of an extensive line of heavy-duty pressure sensors. To learn more about the product, or the many other Honeywell pressure sensors in this series, click here.

Honeywell

STANDARD 316L STAINLESS STEEL, MEDIA-ISOLATED SENSORS
13 MM SERIES

TABLE 1. ENVIRONMENTAL SPECIFICATIONS – COMPENSATED AND UNCOMPENSATED SERIES	
Characteristic	**Parameter**
Compensated temperature range	0°C to 82°C [32°F to 180°F]
Operating temperature range	-40°C to 125°C [-40°F to 257°F]
Storage temperature range	-40°C to 125°C [-40°F to 257°F]
Vibration	10 G at 20 Hz to 2000 Hz
Shock	100 G for 11 ms
Life	1 million cycles min.
Insulation resistance	100 mΩ at 50 Vdc
Maximum ratings	
Voltage version “K”	Supply voltage V_S = +15 Vdc
Voltage version “L”	Supply current I_S = +2.0 mA

TABLE 2. PERFORMANCE CHARACTERISTICS – COMPENSATED SERIES[1]				
Characteristic	**Minimum**	**Typical**	**Maximum**	**Units**
Zero pressure offset	-2	0	+2	mV
Pressure non-linearity[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
Thermal hysteresis (0°C to 82°C [32°F to 180°F])	–	±0.1	±0.3	%FSS
Long-term stability of offset and span[5]	–	±0.1	±0.3	%FSS
Response time[6]	–	0.1	–	ms
Common mode voltage (voltage version “K”)[9]	0.50	1.25	2.0	Vdc
Input resistance (current version “L”)	2.0	4.5	8.0	kΩ
Input resistance (voltage version “K”)	8.0	25	50	kΩ
Output resistance	3.0	4.5	6.0	kΩ

TABLE 3. PRESSURE RANGE SPECIFICATIONS - COMPENSATED SERIES				
Catalog Listing	**Pressure range**	**Full scale span[2]**	**Proof pressure[7]**	**Burst pressure[8]**
13C 0500P (A,S) (1,4,5,6) (K,L)	0 psi to 500 psi	98 mV to 102 mV	1500 psi	2500 psi
13C 1000P (A,S) (1,4,5,6) (K,L)	0 psi to 1000 psi	98 mV to 102 mV	3000 psi	5000 psi
13C 2000P (A,S) (1,4,5,6) (K,L)	0 psi to 2000 psi	98 mV to 102 mV	6000 psi	10,000 psi
13C 3000P (A,S) (1,4,5,6) (K,L)	0 psi to 3000 psi	98 mV to 102 mV	9000 psi	10,000 psi
13C 5000P (A,S) (1,4,5,6) (K,L)	0 psi to 5000 psi	148 mV to 152 mV	10,000 psi	10,000 psi

1. Reference conditions (unless otherwise noted): T_A = 25°C [77°F]; Supply V_S = 10 Vdc ±0.01 Vdc or I_S = 1.5 mA ±0.0015 mA.
2. Full-scale span (FSS) is the algebraic difference between the output voltage at full-scale pressure and the output at zero pressure. FSS is ratiometric to supply voltage.
3. Pressure non-linearity is based on best-fit straight line from zero to the full-scale pressure. Pressure hysteresis is the maximum output difference at any point within the operating pressure range for increasing and decreasing pressure.
4. Maximum error band of the offset voltage or span over the compensated temperature range, relative to the 25 °C [77 °F] reading.
5. Long-term stability over a six-month period.
6. Response time for a 0 psi to FSS pressure step change, 10 % to 90 % rise time.
7. The maximum pressure that can be applied without changing the transducer’s performance or accuracy.
8. The maximum pressure that can be applied to a transducer without rupture of either the sensing element or transducer case.
9. Common mode voltage as measure from output to ground.

STANDARD 316L STAINLESS STEEL, MEDIA-ISOLATED SENSORS
13 MM SERIES

TABLE 4. PERFORMANCE CHARACTERISTICS – UNCOMPENSATED SERIES[1]

Characteristic	Minimum	Typical	Maximum	Units
Zero pressure offset	-7.5	0	+7.5	mV/V
Pressure non-linearity[3]	–	±0.1	±0.25	%FSS
Pressure hysteresis[3]	–	±0.015	±0.030	%FSS
Repeatability	–	±0.010	±0.030	%FSS
Temp. coefficient of span[4] (0°C to 82°C [32°F to 180°F])	360	990	1620	ppm/°C
Temp. coefficient of resistance[4] (0°C to 82°C [32°F to 180°F])	2700	3420	4500	ppm/°C
Temp. coefficient of offset[4] (0°C to 82°C [32°F to 180°F])	–	30	–	µV/V/°C
Thermal hysteresis (0°C to 82°C [32°F to 180°F])	–	±0.1	±0.3	%FSS
Long-term stability of offset and span[5]	–	±0.1	±0.3	%FSS
Response time[6]	–	0.1	–	ms
Input resistance	4.0	5.0	6.0	kΩ
Output resistance	4.0	5.0	6.0	kΩ

TABLE 5. PRESSURE RANGE SPECIFICATIONS - UNCOMPENSATED SERIES

Catalog Listing	Pressure range	Full scale span[2]	Proof pressure[7]	Burst pressure[8]
13U 0500P A 0 K	0 psi to 500 psi	150 mV to 300 mV	1200 psi	2400 psi
13U 1000P A 0 K	0 psi to 1000 psi	150 mV to 300 mV	3000 psi	5000 psi
13U 2000P A 0 K	0 psi to 2000 psi	150 mV to 300 mV	6000 psi	10,000 psi
13U 3000P A 0 K	0 psi to 3000 psi	150 mV to 300 mV	9000 psi	10,000 psi
13U 5000P A 0 K	0 psi to 5000 psi	250 mV to 500 mV	10,000 psi	10,000 psi

1. Reference conditions (unless otherwise noted): T_A = 25°C [77°F]; Supply V_S = 5 Vdc or I_S = 1.0 mA ±0.001 mA.
2. Full-scale span (FSS) is the algebraic difference between the output voltage at full-scale pressure and the output at zero pressure. FSS is ratiometric to supply voltage.
3. Pressure non-linearity is based on best-fit straight line from zero to the full-scale pressure. Pressure hysteresis is the maximum output difference at any point within the operating pressure range for increasing and decreasing pressure.
4. The error band resulting from maximum deviation of a transducer's output parameter (offset, span, or resistance) as temperature is varied from 25°C [77°F] to any other temperature within the specified range 0°C to 82°C [32°F to 180°F]. This parameter is not 100 % tested and is guaranteed by process design and tested on a sample basis only. Temperature coefficient of span is evaluated using a constant current source.
5. Long-term stability over a six-month period.
6. Response time for a 0 psi to FSS pressure step change, 10 % to 90 % rise time.
7. The maximum pressure that can be applied without changing the transducer's performance or accuracy.
8. The maximum pressure that can be applied to a transducer without rupture of either the sensing element or transducer case.

STANDARD 316L STAINLESS STEEL, MEDIA-ISOLATED SENSORS
13 MM SERIES

EQUIVALENT CIRCUIT

Figure 1. 13 mm Compensated Series

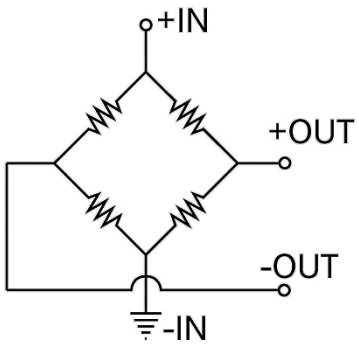
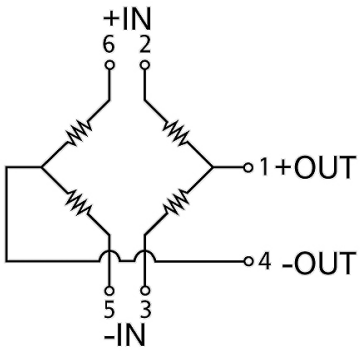
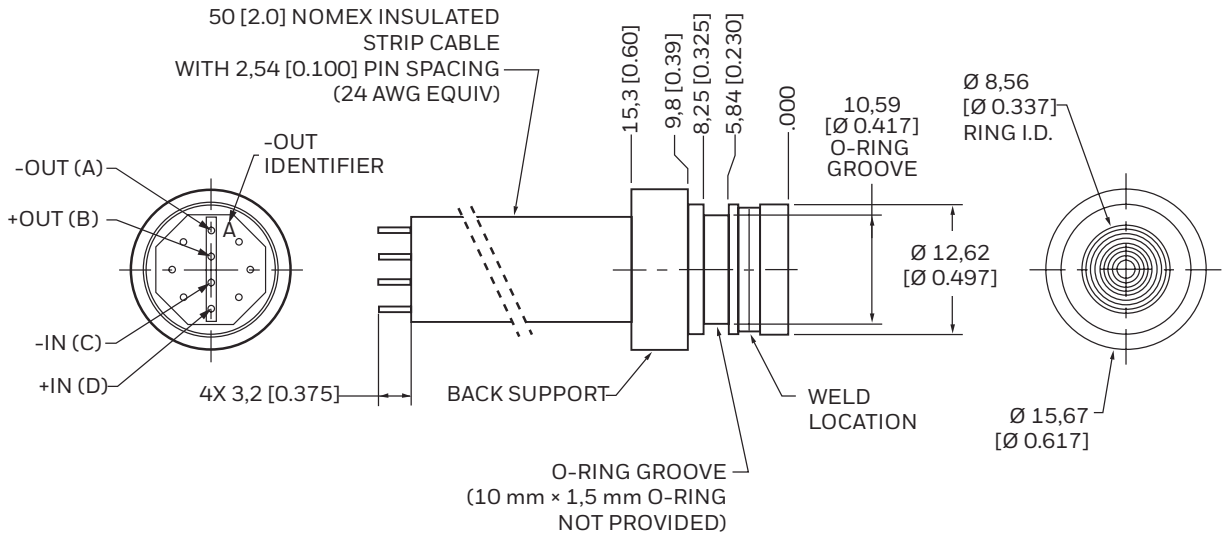


Figure 2. 13 mm Uncompensated Series



PHYSICAL DIMENSIONS for reference only mm [in]

Figure 2. Package 1 (see note): Ring with back support



Note: Non-concentricity effects at the diaphragm weld area may cause runout of up to ±0.006 in between the upper and lower portions of the sensor body. (It is recommended to use a counter bore to mate with this device to allow for this non-concentricity).

Figure 3. Package 4: 1/8-27 NPT

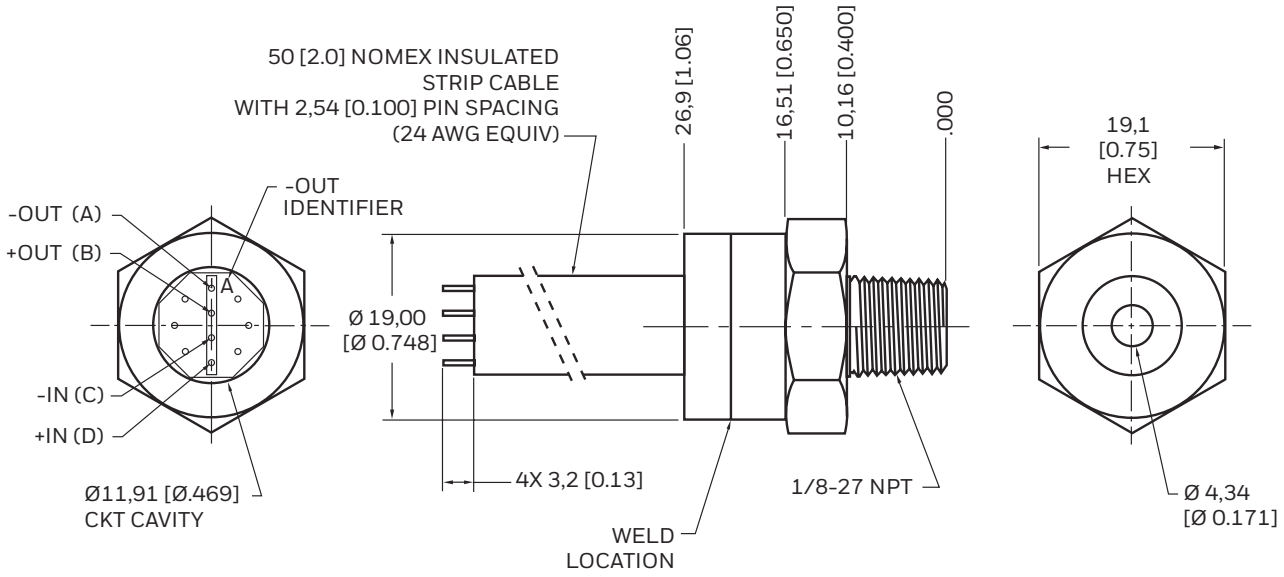


Figure 4. Package 5: 1/4-18 NPT

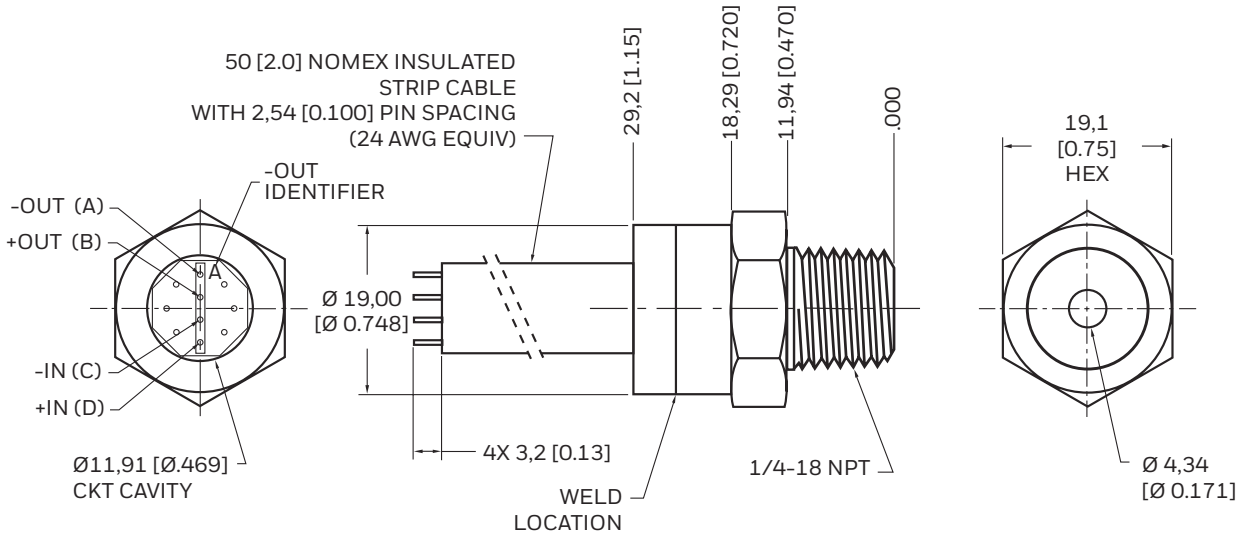


Figure 5. Package 6: 7/16-20 UNF

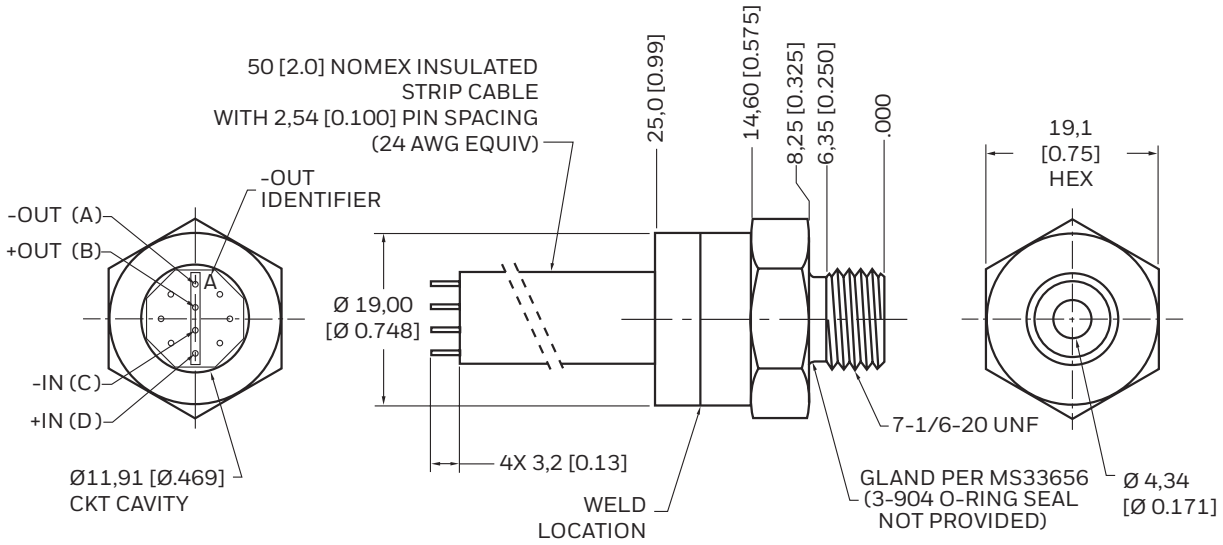
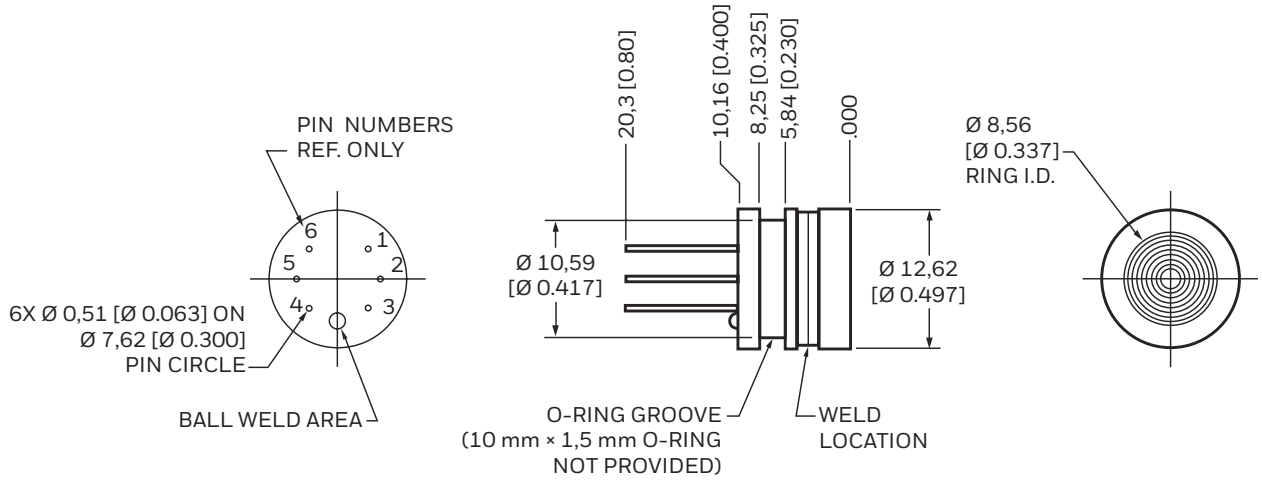


Figure 6. Package 0 (see note): Ring and Cell



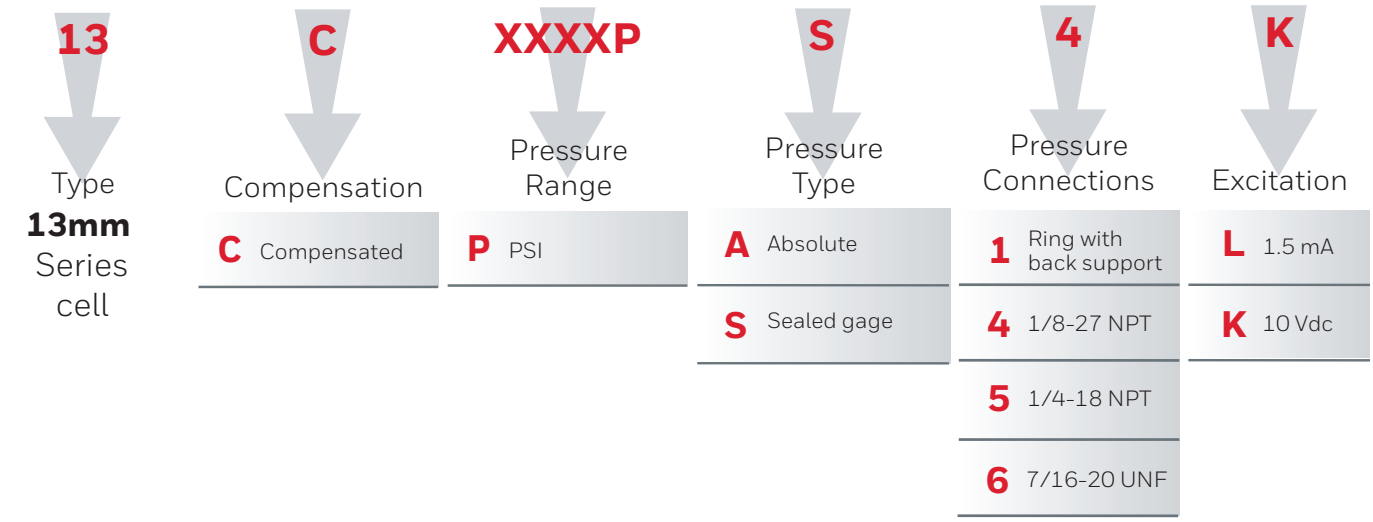
Note: Non-concentricity effects at the diaphragm weld area may cause runout of up to ±0.006 in between the upper and lower portions of the sensor body. (It is recommended to use a counter bore to mate with this device to allow for this non-concentricity).

STANDARD 316L STAINLESS STEEL, MEDIA-ISOLATED SENSORS
13 MM SERIES

ORDERING INFORMATION

Figure 7.

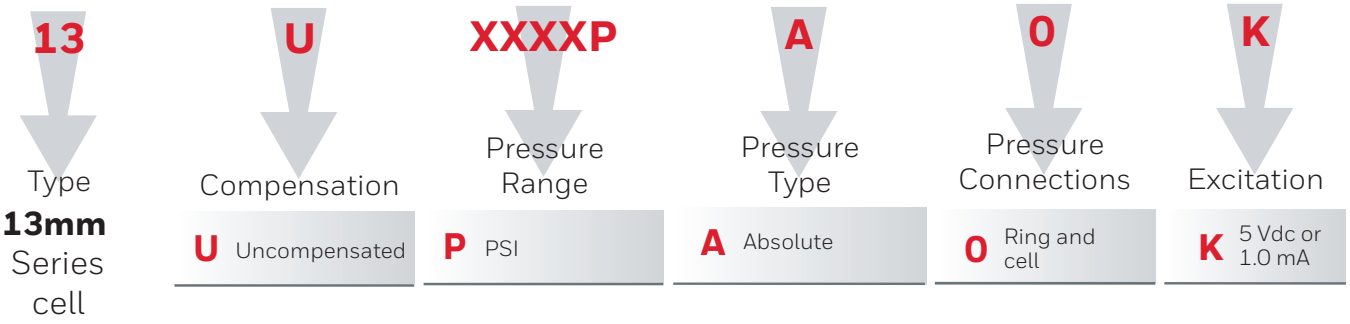
13 mm COMPENSATED Series Product Nomenclature



For example: Part #13C3000PS4K = 13 mm cell, compensated, 3000 psi, sealed gage, 1/8NPT port with 10 Vdc excitation.

Figure 8.

13 mm UNCOMPENSATED Series Product Nomenclature



For example: Part #13U3000PA0K = 13 mm cell, uncompensated, 3000 psi, absolute, ring pressure connection wtih 5 Vdc excitation.

⚠ WARNING
IMPROPER INSTALLATION

- Consult with local safety agencies and their requirements when designing a machine-control link, interface and all control elements that affect safety.
- Strictly adhere to all installation instructions.

Failure to comply with these instructions could result in death or serious injury.

⚠ WARNING
MISUSE OF DOCUMENTATION

- The information presented in this product sheet is for reference only. Do not use this document as a product installation guide.
- Complete installation, operation, and maintenance information is provided in the instructions supplied with each product.

Failure to comply with these instructions could result in death or serious injury.

WARRANTY/REMEDY

Honeywell warrants goods of its manufacture as being free of defective materials and faulty workmanship during the applicable warranty period. Honeywell's standard product warranty applies unless agreed to otherwise by Honeywell in writing; please refer to your order acknowledgment or consult your local sales office for specific warranty details. If warranted goods are returned to Honeywell during the period of coverage, Honeywell will repair or replace, at its option, without charge those items that Honeywell, in its sole discretion, finds defective. **The foregoing is buyer's sole remedy and is in lieu of all other warranties, expressed or implied, including those of merchantability and fitness for a particular purpose. In no event shall Honeywell be liable for consequential, special, or indirect damages.**

While Honeywell may provide information or engineering support for its products through Honeywell personnel, literature and website, it is the buyer's sole responsibility to determine the suitability of the Honeywell product(s) for the buyer's requirements

Specifications may change without notice. The information we supply is believed to be accurate as of this writing. However, Honeywell assumes no responsibility for its use.

For more information

Honeywell Sensing Solutions services its customers through a worldwide network of sales offices and distributors. For application assistance, current specifications, pricing, or the nearest Authorized Distributor, visit automation.honeywell.com or call:

USA/Canada	+302 613 4491
Latin America	+1 305 805 8188
Europe	+44 1344 238258
Japan	+81 (0) 3-6730-7152
Singapore	+65 6355 2828
Greater China	+86 4006396841

Honeywell Sensing Solutions
830 East Arapaho Road
Richardson, TX 75081
www.honeywell.com

008131-3-EN | 3 | 06/25
© 2025 Honeywell International Inc. All rights reserved.

Honeywell