

## Product Specification Sheet

Online Document Number or 00815-0100-4717, Rev AA  
May 2002

Model 205

# Model 205 Pressure Sensor Module

## EQUIPMENT DESCRIPTION

- Ribbon cable interface, capacitance DP, piezoresistive (AP or GP), temperature, high-performance multivariable pressure sensor module with SPI based communication
- Small, lightweight, Coplanar™ design

## REFERENCE

Material supplied under this specification shall be in conformance with the National Electrical Code.

## ENVIRONMENTAL CONDITIONS

The sensor module selected shall be suitable for the following conditions:

### Ambient Temperature Limits

40 to 185 °F (-40 to 85 °C) Silicon Fill

### Ambient Temperature Limits

0 to 185 °F (-17.8 to 20 °C) Inert Fill

### Storage Temperature Limits

-50 to 230 °F (-46 to 100 °C)

### Cenelec Process Temperature Cable:

#### Ambient Temperature Limits

-40 to 149 °F (-40 to 65 °C)

#### Storage Temperature Limits

-40 to 149 °F (-40 to 65 °C)

## PROCESS CONNECTIONS

Suitable for liquid, gas, and vapor service

### Process Temperature Limits:

#### Silicone Fill

-40 to 250 °F (-40 to 121 °C) with Coplanar flange

#### Inert Fill

0 to 185 °F (-17.8 to 20 °C) above atmospheric pressure

### Over Pressure Limits:

#### Differential Pressure Sensor

Range 2, 3

0 psia to 3626 psi (250 Bar) Applied on either or both sides without damage to the sensor.

#### Absolute Pressure Sensor

Range 3

0 - 800 psia

Range 4

0 - 3626 psia

#### Gage Pressure Sensor

Range C

0 - 800 psig

Range D

0 - 3626 psig

### Static Line Pressure Limits

#### Differential Pressure Sensor

Range 2, 3

0.5 psia (0.0345 Bar absolute) to 3626 psi (250 Bar)

Operates within specifications between static line pressures of 0.5 psia and the URL of the absolute pressure sensor.

## CALIBRATION

All sensor modules are shipped with 0 to URL trim points.

## MEASUREMENT RANGES

### Differential

Range 2

0-25 to 0-250 inH<sub>2</sub>O (0- 6.2 to 0 - 62.2 kPa)

Range 3

0-10 to 0-1000 inH<sub>2</sub>O (0- 2.48 to 0 - 248 kPa)

### Absolute

Range 3

0-8 to 0-800 psia (0- 55.16 to 0 - 5515.8 kPa)

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Range 4

0-36.26 to 0- 3626 psia (0- 250 to 0 - 25000 kPa)

## Gage

Range C

0-8 to 0-800 psi (0- 55.16 to 0 - 5515.8 kPa)

Range D

0-36.26 to 0- 3626 psi (0- 250 to 0 - 25000 kPa)

## DATA STORAGE

- Sensor module data shall be stored in nonvolatile EEPROM memory.
- Sensor module characterization data shall be an integral part of the sensor module.

## PERFORMANCE

The sensor module performance shall meet the following performance criteria as a minimum. Maximum working pressure of the unit shall be the URL of the absolute sensor.

### Specification Conformance

The Model 205 Family maintains a specification conformance of at least  $3\sigma$ .

### Zero Stability

DP, GP & AP Channels:

$\pm 0.1\%$  of URL for 12 months at reference conditions.

RTD Channel:

$\pm 0.5$  °C for 12 months at reference conditions.

### Reference Accuracy

Applicable under reference conditions and zero-based spans. Includes combined effects of terminal based linearity, hysteresis, and repeatability.

#### Differential Pressure Sensor

Model 205P:  $\pm 0.075\%$  of span for spans from 1:1 to 10:1 of URL. For spans less than 10:1 rangedown; Accuracy =  $\pm (0.025 + 0.005 \text{ (URL/Span)})$  percent of span

Model 205E:  $\pm 0.10\%$  of span

#### Gage / Absolute Pressure Sensor

Model 205P:  $\pm 0.075\%$  of span for spans from 1:1 to 10:1 of URL. For spans less than 10:1 rangedown; Accuracy =  $\pm (0.03 + 0.0075 \text{ (URL/Span)})$  percent of span.

Model 205E:  $\pm 0.10\%$  of span

## Process Temperature (RTD)

Specification for process temperature is for the Model 205 only. Sensor errors caused by the RTD are not included.

Range 2:

-40 to 1200 °F (-40 to 649°C), accuracy:  $\pm 1.0$  °F

Range 3:

-300 to 1200 °F (-184 to 649 °C), accuracy:  $\pm 1.0$  °F

1200 to 1500 °F (649 to 816 °C),

accuracy:  $\pm 0.5$  °F per 50 °F

## Ambient Temperature Effect: Per 50F

### Differential Pressure

Model 205P:  $\pm (0.025\% \text{ of URL} + 0.125\% \text{ of span})$

Model 205E:  $\pm (0.15\% \text{ URL} + 0.3\% \text{ of span})$

### Absolute Pressure

Model 205P:  $\pm (0.05\% \text{ of URL} + 0.125\% \text{ span})$

Model 205E:  $\pm (0.15\% \text{ URL} + 0.3\% \text{ of span})$

### Process Temperature

$\pm 0.72$  °F

## Static Line Pressure Effects

### Differential Only

Zero:

$\pm 0.05\%$  of URL per 1000 psi (6894kPa)

Span:

$\pm 0.2\%$  of reading per 1000 psi (6894kPA)

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