



General Pressure Transducers

**GPT Series**

35MPa / 350Bar



Datasheet

# General Pressure Transducers

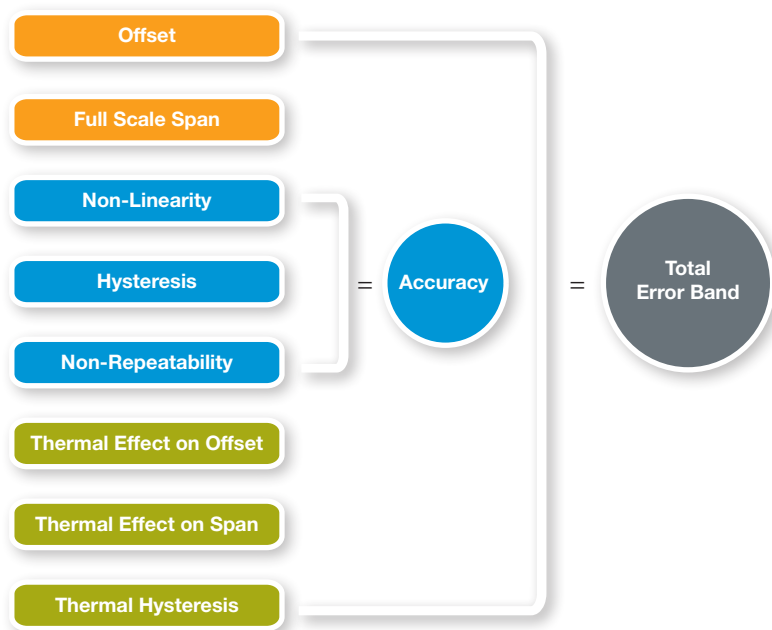
## DESCRIPTION

Honeywell's GPT Series Pressure Transducers use piezoresistive sensing technology with ASIC (Application Specific Integrated Circuit) signal conditioning in a stainless steel housing with electrical connector. The GPT Series are fully calibrated including temperature compensation from 0°C to 70°C.

## VALUE TO CUSTOMERS

- Total Error Band (TEB) ( $\pm 2.0$  %FSS): Provides the most comprehensive, clear and meaningful indication of the transducer's true measurement performance over a specified temperature range; small error promotes system uptime and efficiency. (See Figure 1.)

Figure 1. TEB and Accuracy Definition



- High insulation resistance and dielectric strength: Protect the user and transducer in high over-voltage situations, and ensure that the device is compliant with industry standards.
- Robust EMC performance: Operate reliably in the presence of electromagnetic fields, such as near wireless signals, RF communication, and electrical devices.

# Features and Benefits

## ***DIFFERENTIATION***

- Efficient: Proven tight TEB and accuracy (See Figure 1.).
- Great customer value: Multiple configuration possibilities with the right combination of features provide flexibility of use in the application; configurability on standard ports, pressure reference type, and pressure range and output.
- Durable: Provides the tough environmental specs needed, including insulation resistance and dielectric strength, and EMC performance.

## ***FEATURES***

- Fully media isolated
- Pressure range: 5MPa to 35MPa (absolute and sealed gage)
- Output: 0-10 Vdc, 1 to 6Vdc, 4-20mA or 0.5Vdc to 4.5Vdc
- Fully calibrated and temperature compensated
- Total Error Band:  $\pm 2.0$  %FSS from 0 °C to 70 °C
- Insulation resistance: >100 Mohm, 500 Vdc
- Dielectric strength: 750 Vac, 1 min.
- EMC: Heavy Industrial Level
- Ingress protection up to IP67
- Response time: <2 ms
- RoHS, REACH, and CE compliant

## ***POTENTIAL APPLICATIONS***

- Industrial: Machine Tools, Rubber and Plastic Machinery
- Transportation: Construction Machinery, Agriculture Machinery

## ***PORTFOLIO***

Honeywell's GPT Series joins the PX2 Series, PX3 Series, MLH Series, and SPT Series heavy duty pressure transducers.

# GPT Series

**Table 1. Electrical Specifications**

Characteristic	Parameter				
Output Code	AA	BC	BE	BF	CH
Output	10%-90% Vs	1-6Vdc	0.5-4.5Vdc	0-10Vdc	4-20mA
Supply Voltage (Vs)	4.75-5.25Vdc	8-32Vdc	8-32Vdc	12-32Vdc	8-32Vdc
Over and reverse Voltage	±16 Vdc	±36 Vdc	±36 Vdc	±36 Vdc	±36 Vdc

**Table 2. Performance Specifications ( At 25 °C unless otherwise noted. )**

Characteristic	Parameter
Operating temperature range	-25 °C to 85 °C
Storage temperature range	-40 °C to 125°C
Compensated temperature range	0 °C to 70°C
Accuracy <sup>1</sup>	±0.5%FSS
Total Error Band <sup>2</sup>	±2%FSS over 0 °C to 70°C
Response time	<2 ms (10% to 90% step change in pressure)
Turn on time <sup>3</sup>	<7 ms
EMC rating	
Electrostatic discharge	±4 kV contact, ±8 kV air per IEC 61000-4-2
Radiated immunity	10 V/m (80 MHz to 1000 MHz) per IEC 61000-4-3
Fast transient burst	±1 kV per IEC 61000-4-4
Surge Immunity	±1 kV per IEC 61000-4-5
Immunity to conducted disturbances	3 V per IEC 61000-4-6
Radiated emissions	40 dB (30 MHz to 230 MHz), 47 dB (230 MHz to 1000 MHz) per CISPR 11:2009, A1:2010
Radiated immunity <sup>4</sup>	> 100V/m (200 to 2500 MHz) per ISO 11452-2
Insulation resistance	>100 Mohm, 500 Vdc
Dielectric strength	750 Vac, 1 min.
Load resistance	Voltage output: 2k ohm min; Current Output: (Vs-8)*50 ohm max
Life	5 million cycles minimum to 90% full scale pressure (<=25MPa) 1 million cycles minimum to 90% full scale pressure (>25MPa)

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<sup>1</sup>Accuracy: The maximum deviation in output from a Best Fit Straight Line (BFSL) fitted to the output measured over the pressure range at 25 °C [77 °F]. Includes all errors due to pressure non-linearity, pressure hysteresis, and pressure non-repeatability. See Figure 1.

<sup>2</sup>Total Error Band: The maximum deviation from the ideal transfer function over the entire compensated temperature and pressure range. Includes all errors due to offset, full scale span, pressure non-linearity, pressure hysteresis, pressure non-repeatability, thermal effect on offset, thermal effect on span, and thermal hysteresis. See Figure 1.

<sup>3</sup>Turn on time: Duration from power applied until first valid output.

<sup>4</sup>Radiated immunity: This characteristic is only for 4 to 20mA current output.

**Table 3. Pressure Reference Definitions**

Pressure Reference	Definition
<b>Absolute</b>	The output is calibrated to be proportional to the difference between applied pressure and a fixed reference to perfect vacuum (absolute zero pressure).
<b>Sealed gage</b>	The output is calibrated to be proportional to the difference between applied pressure and a reference of 1 standard atmosphere (1.013 barA).

**Table 4. Pressure Ratings**

MPa			Bar		
Rated Pressure	Over pressure	Burst pressure	Rated Pressure	Over pressure	Burst pressure
<=25	2XFS	75	<=250	2XFS	750
>25( Up to 35)	50	75	>25( Up to 35)	500	750

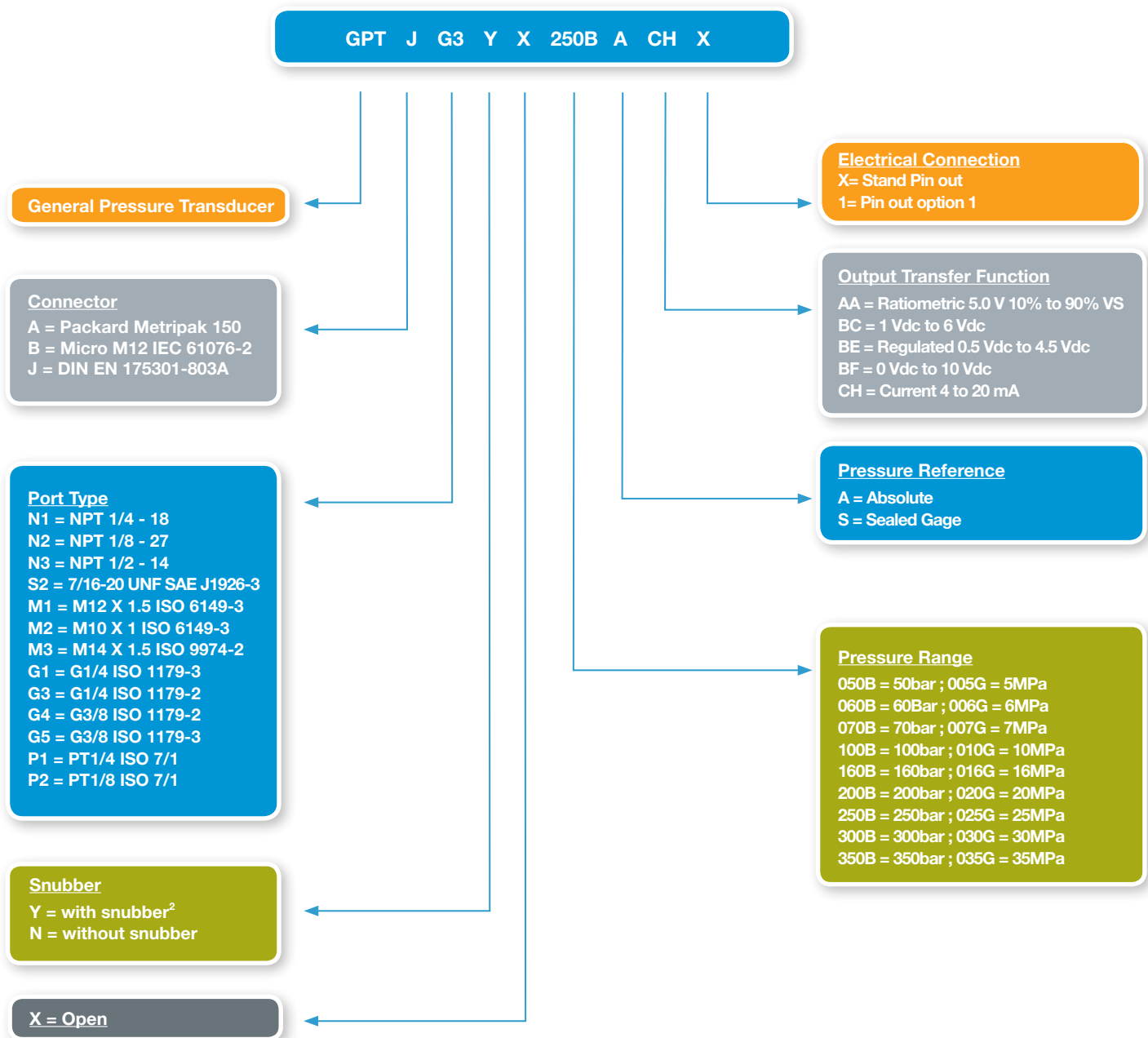
**Table 5. Environmental and Mechanical Specifications**

Characteristic	Parameter
Vibration	20 G sweep, 10 Hz to 2000 Hz
Shock	100 G per MIL-STD-202G, Method 213B, Cond. C
Humidity	0 %RH to 95 %RH, non-condensing
Wetted materials	Port: SS316L; Diaphragm: SS316L; Gasket: NBR
External materials housing connector	304 stainless steel PBT 30% GF



# GPT Series

## Nomenclature and order guide<sup>1</sup>

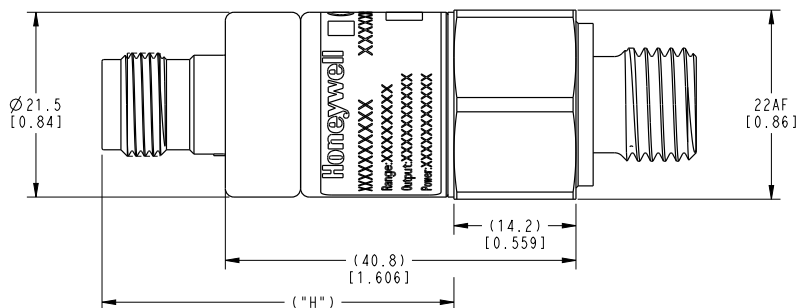


<sup>1</sup>Continuing development some configuration of pressure range, pressure reference, pressure port, electrical terminal and transfer function, please consult with Honeywell representative.

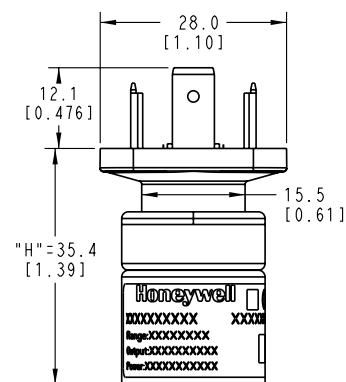
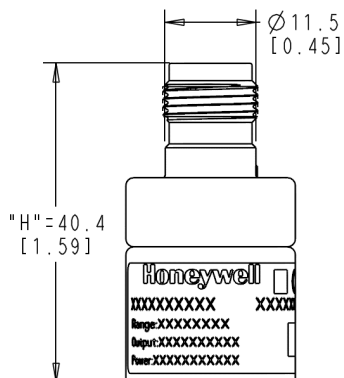
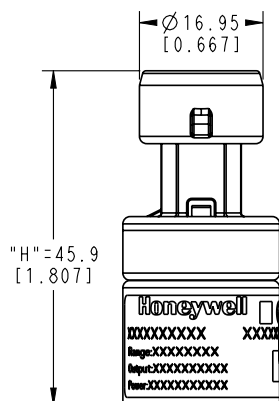
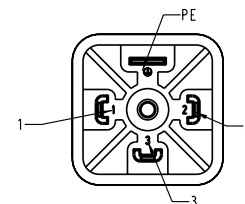
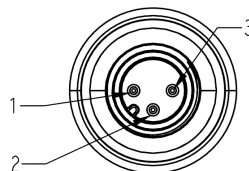
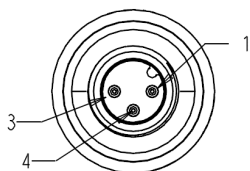
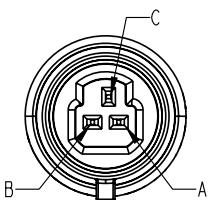
<sup>2</sup>Clogging of the snubber holes may occur in liquids containing particles which may cause wrong output.

# General Pressure Transducers

## Mounting Dimensions Shows by Connectors (Reference only :mm [in])

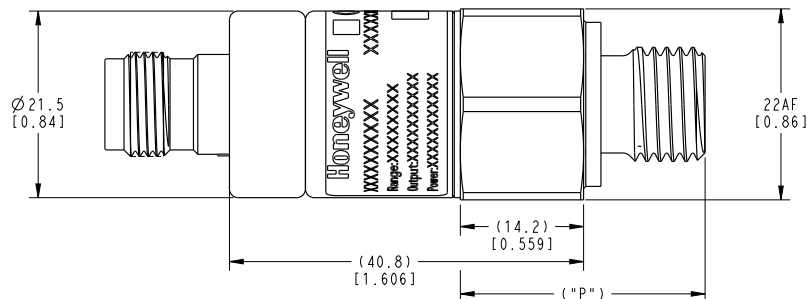


A=Delphi Metri-Pack 150			B=Micro M12 IEC 61076-2				J=DIN EN 175301-803A			
<b>Connector :</b> DELPHI 12078088 <b>Mating Connector:</b> DELPHI 12110192 <b>IP Rating:</b> IP65			<b>Mating Connector:</b> 4 POS TYPE D <b>IP Rating:</b> IP67				<b>Mating Connector:</b> DIN EN 175301-803A, 18mm <b>IP Rating:</b> IP65			
PIN NO.	VOLTAGE OUTPUT	CURRENT OUTPUT	PIN NO.	VOLTAGE OUTPUT	CURRENT OUTPUT	VOLTAGE OUTPUT (OPTION1)	CURRENT OUTPUT (OPTION1)	PIN NO.	VOLTAGE OUTPUT	CURRENT OUTPUT
A	GND	RTN	1	Vs	Vs	Vs	Vs	1	Vs	Vs
B	Vs	Vs	2	--	--	Vout	NC	2	GND	RTN
C	Vout	NC	3	GND	RTN	GND	RTN	3	Vout	NC
			4	Vout	NC	--	--	PE	NC	NC



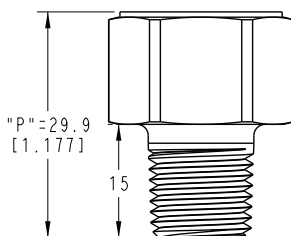
# GPT Series

## Mounting Dimensions Shows by Ports (Reference only :mm [in])



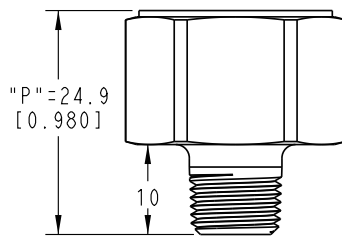
### N1= 1/4-18 NPT

Seal: Pipe thread  
 Mating Geometry: ANSI B1.20.1  
 Installation Torque<sup>1</sup>: 2 to 3 Turns From Finger Tight



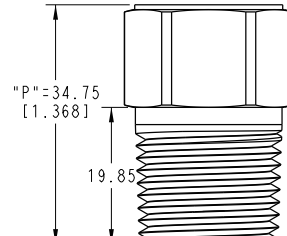
### N2= 1/8-27 NPT

Seal: Pipe thread  
 Mating Geometry: ANSI B1.20.1  
 Installation Torque<sup>1</sup>: 2 to 3 Turns From Finger Tight



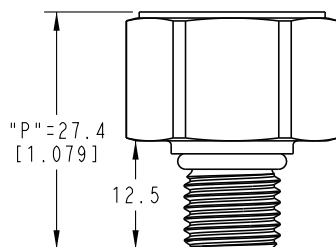
### N3= 1/2-14 NPT

Seal: Pipe thread  
 Mating Geometry: ANSI B1.20.1  
 Installation Torque<sup>1</sup>: 2 to 3 Turns From Finger Tight



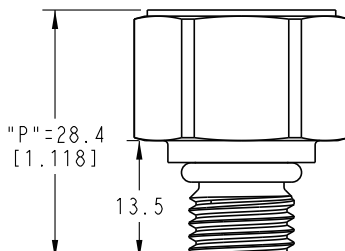
### S2= 7/16-20UNF SAE J1926-3

Seal: O-ring<sup>2,3</sup>  
 Mating Geometry: SAE J1926-1 Installation  
 Torque<sup>1</sup>: 18 N m [12.3 ft lb]



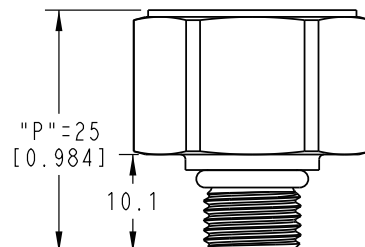
### M1=M12X1.5 ISO 6149-3

Seal: O-ring<sup>2,3</sup>  
 Mating Geometry: ISO 6149-1 Installation  
 Torque: 25 N m [18.4 ft lb]



### M2=M10X1 ISO 6149-3

Seal: O-ring<sup>2,3</sup>  
 Mating Geometry: ISO 6149-1 Installation  
 Torque: 15 N m [11.04 ft lb]

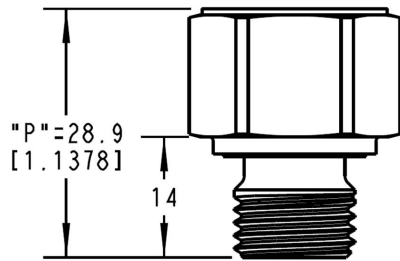




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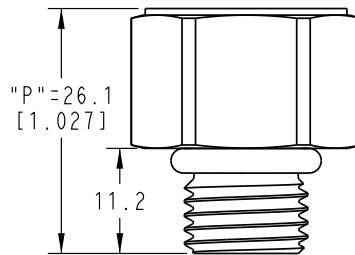
## M3=M14X1.5 ISO 9974-2

Seal: O-ring<sup>2,3</sup>  
 Mating Geometry: ISO 9974-1  
 Installation Torque: 50 N m [38.9 ft lb]



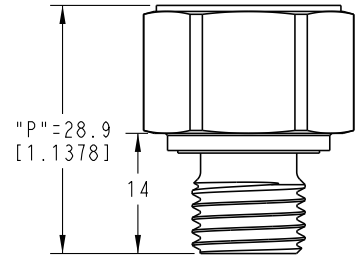
## G1=G1/4 ISO 1179-3

Seal: O-ring<sup>2,3</sup>  
 Mating Geometry: ISO 1179-1 Installation  
 Torque<sup>1</sup>: 50 N m [38.9 ft lb]



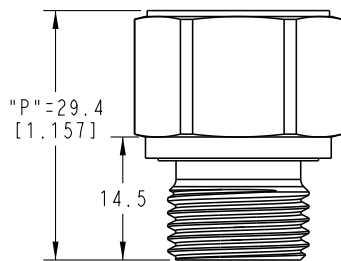
## G3=G1/4 ISO 1179-2

Seal: O-ring<sup>2,3</sup>  
 Mating Geometry: ISO 1179-1 Installation  
 Torque<sup>1</sup>: 50 N m [38.9 ft lb]



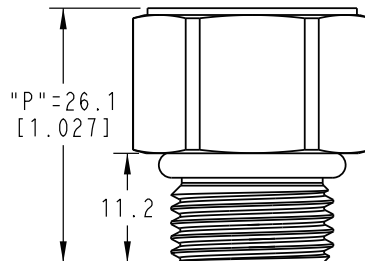
## G4=G3/8 ISO 1179-2

Seal: O-ring  
 Mating Geometry: ISO 1179-1 Installation  
 Torque<sup>1</sup>: 50 N m [38.9 ft lb]



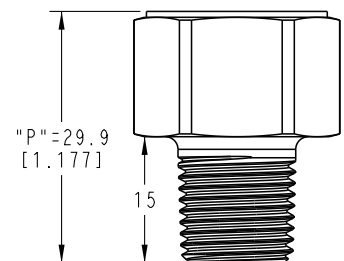
## G5=G3/8 ISO 1179-3

Seal: O-ring  
 Mating Geometry: ISO 1179-1 Installation  
 Torque<sup>1</sup>: 50 N m [38.9 ft lb]



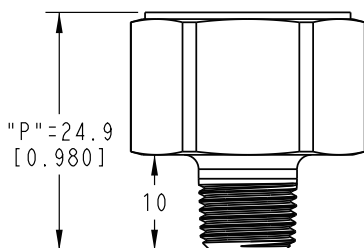
## P1=PT 1/4 ISO 7/1

Seal: Pipe Thread  
 Mating Geometry: ISO 7/1  
 Installation Torque<sup>1</sup>: 2 to 3 Turns From Finger  
 Tight



## P2=PT 1/8 ISO 7/1

Seal: Pipe Thread  
 Mating Geometry: ISO 7/1  
 Installation Torque<sup>1</sup>: 2 to 3 Turns From Finger  
 Tight



<sup>1</sup>Straight thread maximum torque is validated 150% of installation torque

<sup>2</sup>Seals for port order codes G1,G3,G4,G5,M1,M2,S2 are included and assembled to the sensor

<sup>3</sup>O-ring and seal material is NBR -30°C to 125°C[-22°F to 257°F]

## Caution

### PRODUCT DAMAGE

- Ensure torque specifications are determined for the specific application. Values provided are for reference only. (Mating materials and thread sealants can result in significantly different torque values from one application to the next.)
- When using mating parts made of stainless steel, use a thread sealant with anti-seize properties to prevent thread galling. Ensure the sealant is rated for the application.
- Use appropriate tools (such as an open ended wrench or deep well socket) to install transducers.
- Always hand-start transducers into the hole to prevent cross threading and damage.
- Ensure that torque is not applied to the electrical connector.
- Ensure that the proper mating electrical connector with a seal is used to connect the transducer. Improper or damaged seals can compromise ingress protection leading to short circuits.

**Failure to comply with these instructions may result in product damage.**

## ⚠ WARNING

### PERSONAL INJURY

**DO NOT USE** these products as safety or emergency stop devices or in any other application where failure of the product could result in personal injury.

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

## ⚠ WARNING

### MISUSE OF DOCUMENTATION

- The information presented in this datasheet 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.**

## ADDITIONAL INFORMATION

The following associated literature is available on the Honeywell web site at [sensing.honeywell.com](http://sensing.honeywell.com):

- Product line guide
- Product range guide
- Product installation instructions
- Application notes:
  - Heavy Duty Pressure Transducers, PX2 Series and PX3 Series
  - PX2 Series and PX3 Series Heavy Duty Pressure Transducers for Potential Use in Industrial Refrigeration
  - PX2 Series and PX3 Series Heavy Duty Pressure Transducers for Potential Use in Industrial HVAC/R Applications
- Technical Notes:
  - Total Error Band Specification for Honeywell Heavy Duty Pressure Transducers, PX2 Series and PX3 Series
- CAD models, please contact with Honeywell at [sensing.honeywell.com](http://sensing.honeywell.com)

## Find out more

Honeywell serves its customers through a worldwide network of sales offices, representatives and distributors. For application assistance, current specifications, pricing or name of the nearest Authorized Distributor, contact your local sales office.

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## Warranty/Remedy

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