

# GENERAL PRESSURE TRANSDUCERS GPT III SERIES



**Honeywell**

# GENERAL PRESSURE TRANSDUCERS

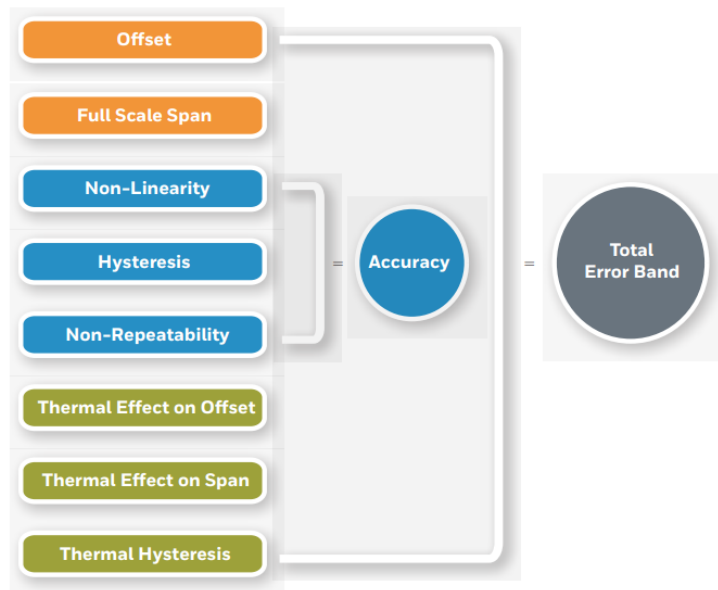
## DESCRIPTION

Honeywell's GPT III 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 III Series are fully calibrated including temperature compensation from -40°C to 125°C.

## VALUE TO CUSTOMERS

- Total Error Band (TEB) ( $\pm 1.5\% \text{FSS}$ ): 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: 10MPa – 70MPa(sealed gage).
- Output: 4-20mA, Ratiometric and Regulated voltage
- Fully calibrated and temperature compensated
- Total Error Band:  $\pm 1.5\%FSS@ -40^{\circ}C \sim 125^{\circ}C$ ,  $\pm 1.2\%FSS@ -20^{\circ}C \sim 85^{\circ}C$
- Insulation resistance:  $> 100M\Omega$ , 500Vdc
- Dielectric strength: 250Vac, 1min.
- EMC: Heavy Industrial Level
- Response time  $< 1$  ms TYP. (without snubber)
- RoHS, REACH, and CE compliant

## **POTENTIAL APPLICATIONS**

- Industrial: Machine Tools, Injection Molding Machine
- Transportation: Construction Machinery, Agriculture Machinery

## **PORTFOLIO**

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

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Table 1. Electrical Specifications

Characteristic	Parameter			
Output Code	AA	BE	BF	CH
Output	10%-90% Vs	0.5-4.5Vdc	0-10Vdc	4-20mA
Supply Voltage (Vs)	4.75-5.25Vdc	8-32Vdc	12-32Vdc	8-32Vdc
Over and reverse Voltage	±30 Vdc	±36 Vdc	±36 Vdc	±36 Vdc

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

Characteristic	Parameter
Operating temperature range	-40 °C to 125 °C
Storage temperature range	-40 °C to 125°C
Compensated temperature range	-40 °C to 125 °C
Accuracy <sup>1</sup>	±0.5%FSS, ±0.25%FSS Optional
Total Error Band <sup>2</sup>	±1.5%FSS over -40 °C to 125°C, ±1.2%FSS over -20 °C to 85°C
Response time	1 ms TYP (10% to 90% step change in pressure) without snubber
Turn on time <sup>3</sup>	<7 ms
Electrostatic discharge	±8 kV contact, ±15 kV air per IEC 61000-4-2
Radiated immunity	30 V/m (26 MHz to 1000 MHz) per IEC 61000-4-3 3V/m (1.4GHz~2.7GHz) per IEC 61000-4-3
Fast transient burst	±4 kV per IEC 61000-4-4
Surge Immunity	±1 kV per IEC 61000-4-5
Immunity to conducted disturbances	10 V per IEC 61000-4-6
Radiated emissions	50 dB (30 MHz to 230 MHz), 57 dB (230 MHz to 1000 MHz) per CISPR 11:2009, A1:2010
Radiated immunity	100V/m (200 to 2500 MHz) per ISO 11452-2
Insulation resistance	>100 Mohm, 500 Vdc
Dielectric strength	250 Vac, 1 min.
Load resistance	Voltage output: 2k ohm min; Current Output: (Vs-8)*50 ohm max
Life	10 million cycles minimum to 90% full scale pressure

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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.

**Table 3. Pressure Reference Definitions**

Pressure Reference	Definition
Sealed gage	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**

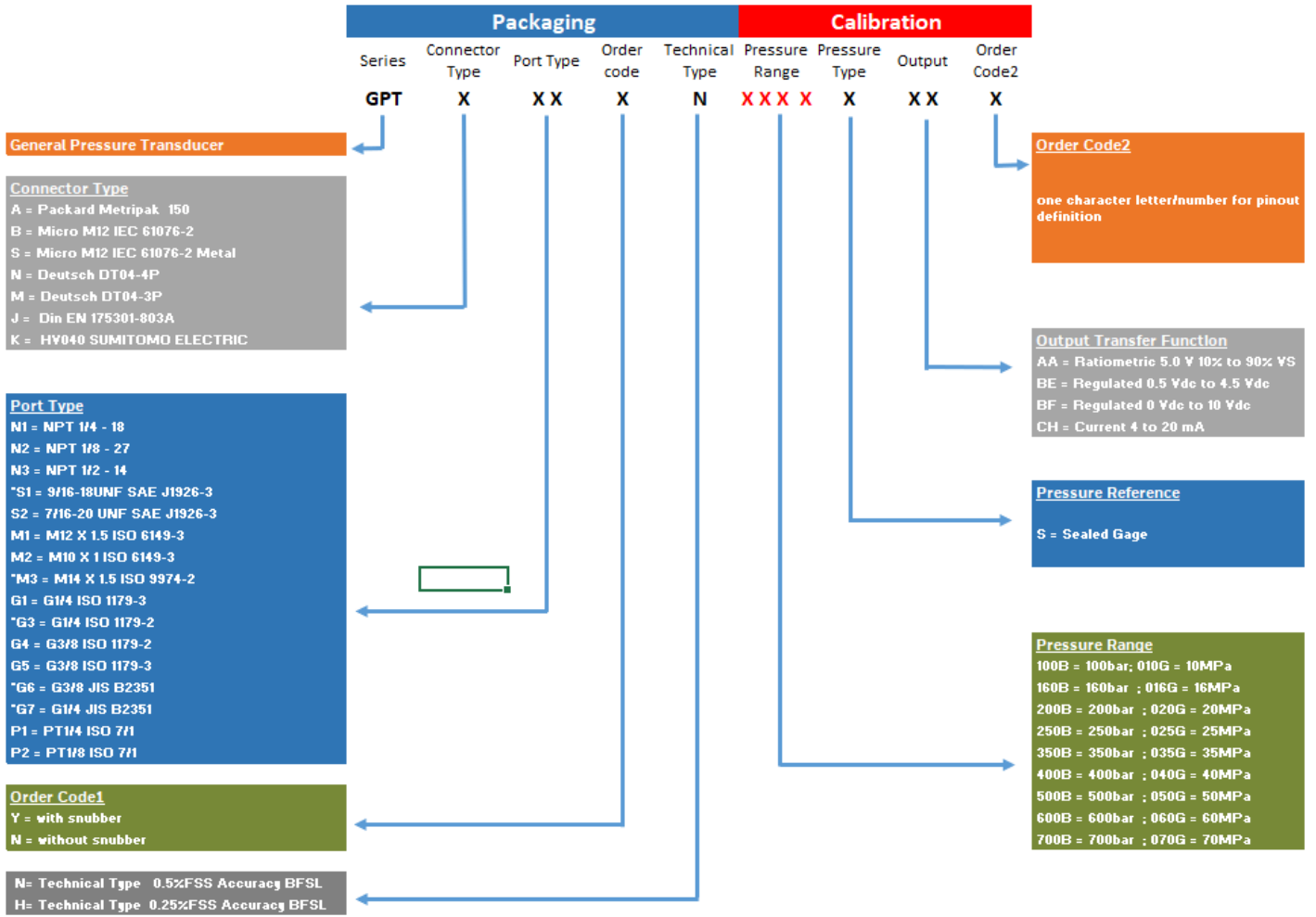
MPa			Bar		
Rated Pressure	Over Pressure	Burst Pressure	Rated Pressure	Over Pressure	Burst Pressure
10	3XFS	5XFS	100	3XFS	5XFS
<=25	3XFS	5XFS	<=250	3XFS	5XFS
35	3XFS	5XFS	350	3XFS	5XFS
40	3XFS	5XFS	400	3XFS	5XFS
50	3XFS	5XFS	500	3XFS	5XFS
60	3XFS	5XFS	600	3XFS	5XFS
70	3XFS	5XFS	700	3XFS	5XFS

**Table 5. Environmental and Mechanical Specifications**

Characteristic	Parameter
Vibration	20G sweep, 10Hz to 2000Hz, EN60068-2-6
Shock	100G ,6ms, EN60068-2-27
Humidity	0 %RH to 95 %RH, non-condensing
Wetted materials	Port and Diaphragm: 17-4PH; Gasket: NBR
External materials housing connector	304 Stainless Steel PBT+30%GF

## GPT III SERIES

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



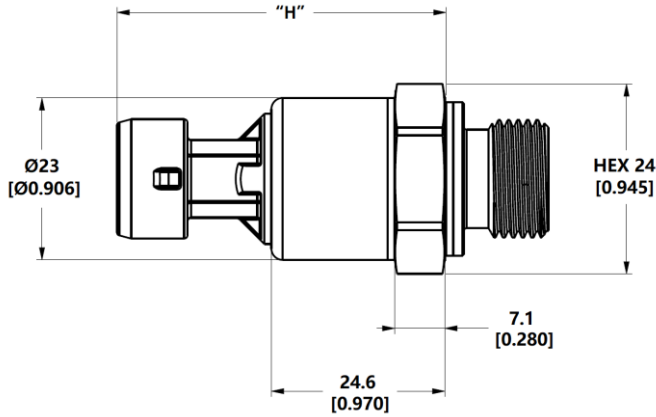
<sup>1</sup>Continuing development some configuration of pressure range, pressure reference, pressure port, electrical terminal and transfer function, please consult with Honeywell representative.

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

<sup>3</sup>Port type with "\*" is existing product, contact with engineering team if you have other requirements

# GPT III SERIES

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



A = Delphi Metri-Pack 150			B = Micro M12 IEC 61076-2				S = Metal Micro M12 IEC 61076-2				J = DIN EN 175301-803A				
Mating Connector: DELPHI 12110192			Mating Connector: 4 POS TYPE D				Mating Connector: 4 POS TYPE D				Mating Connector: DIN EN 175301-803A 18mm				
IP Rating: IP67			IP Rating: IP67				IP Rating: IP67				IP Rating: IP65 <sup>1</sup>				
PIN NO	Voltage output	Current Output	PIN NO	Voltage output	Current Output	Voltage output	Current Output	PIN NO	Voltage output	Current Output	Voltage output	Current Output	PIN NO	Voltage output	Current Output
A	Vs	RTN	1	Vs	Vs	Vs	Vs	1	Vs	Vs	Vs	Vs	1	Vs	Vs
B	GND	Vs	2	NC	NC	V <sub>out</sub>	RTN	2	NC	NC	V <sub>out</sub>	RTN	2	GND	RTN
C	V <sub>out</sub>	NC	3	GND	RTN	GND	NC	3	GND	RTN	GND	NC	3	V <sub>out</sub>	NC
Standard			4	V <sub>out</sub>	NC	NC	NC	4	V <sub>out</sub>	NC	NC	NC	PE	NC	NC
			Standard		Option 1	Option 3	Standard		Option 1	Option 3	Standard				

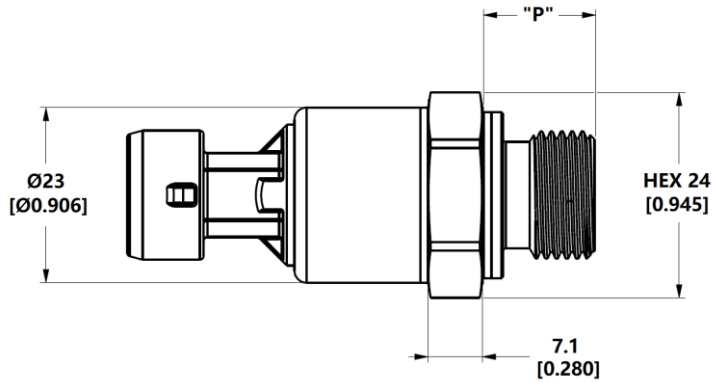
1. Tightening torque: Locking Screw 0.4 Nm

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K = Sumitomo HV040			M = Deutsch DT04-3P			N = Deutsch DT04-4P		
Mating Connector: HV series 6189-7037			Mating Connector: Deutsch DT06-3S			Mating Connector: Deutsch DT06-4S		
IP Rating: IP67			IP Rating: IP67			IP Rating: IP67		
PIN NO	Voltage output	Current Output	PIN NO	Voltage output	Current Output	PIN NO	Voltage output	Current Output
A	Vs	Vs	A	Vs	Vs	1	GND	RTN
B	GND	RTN	B	GND	RTN	2	Vs	Vs
C	Vout	NC	C	Vout	NC	3	NC	NC
Standard			Standard			4	V <sub>out</sub>	NC

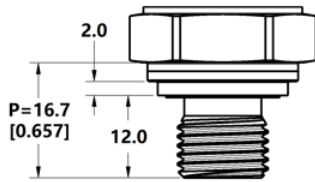
# GPT III SERIES

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



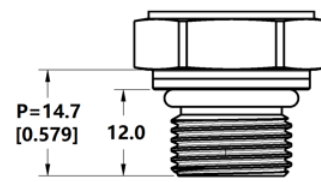
## G3 = G1/4 ISO 1179-2

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



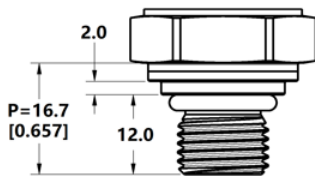
## G6 = G3/8 JIS B2351

Seal: O-Ring<sup>2,3</sup>  
 Mating Geometry: JIS B2351  
 Installation Torque<sup>1</sup>: 50Nm [38.9 ft lb]



## G7 = G1/4 JIS B2351

Seal: O-Ring<sup>2,3</sup>  
 Mating Geometry: JIS B2351  
 Installation Torque<sup>1</sup>: 50Nm [38.9 ft lb]



## M3 = M14x1.5 ISO 9974-2

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

## S1 = 9/16-18UNF SAE J1926-3

Seal: O-Ring<sup>2,3</sup>  
 Mating Geometry: SAE J1926-3  
 Installation Torque<sup>1</sup>: 50Nm [38.9 ft lb]

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

Seal: O-Ring<sup>2,3</sup>  
 Mating Geometry: SAE J1926-3  
 Installation Torque<sup>1</sup>: 50Nm [38.9 ft lb]

## 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.

## WARRANTY/REMEDY

Honeywell warrants goods of its manufacture as being free of defective materials and faulty workmanship. Honeywell's standard product warranty applies unless agreed to otherwise by Honeywell in writing; please refer to your order acknowledgement 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 it 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 we provide application assistance personally, through our literature and the Honeywell web site, it is up to the customer to determine the suitability of the product in the application.

Specifications may change without notice. The information we supply is believed to be accurate and reliable as of this printing. However, we assume no responsibility for its use.



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FUTURE  
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