

## Industrial Pressure Sensors, Intrinsically Safe

Model IP IS

32309483

Issue 1

Datasheet



### DESCRIPTION

Honeywell's Industrial Pressure Sensors, Intrinsically Safe<sup>1</sup>, Model IP IS, are a new platform of sensors designed to offer repeatable, reliable and accurate pressure measurements over time. These rugged, stainless steel, all-welded pressure sensors are pre-configured with the most commonly requested options. They may be used in many demanding, harsh environments and with a variety of media. Configurations for current measurements are fully temperature compensated and calibrated.

### VALUE TO CUSTOMERS

- **Configurable:** Simplifies flexibility of sensor use in the application
- **Durable and accurate:** Wide standard compensated temperature range; standard accuracy and enhanced accuracy option; shock and vibration tested

### DIFFERENTIATION

- Standard compensated temperature range -10 °C to 85 °C [14 °F to 185 °F]
- Standard accuracy of  $\pm 0.25$  % BFSL and optional enhanced accuracy option of  $\pm 0.15$  % BFSL

### FEATURES

- All welded, 300 series stainless steel and Hastelloy®
- 7 bar to 350 bar [100 psi to 5000 psi] pressure range
- Accuracy options:
  - Standard accuracy: IPG2 provides  $\pm 0.25$  % BFSL<sup>2</sup>
  - Optional enhanced accuracy: IPG1 provides  $\pm 0.15$  % BFSL<sup>2</sup>
- 4 mA to 20 mA current output
- $\pm 2$  %FS Total Error Band<sup>3</sup> (see Figure 1)
- IP65 rated protection
- <2 ms response time provides accurate, high-speed measurement
- CE and RoHS compliant<sup>1</sup>

### POTENTIAL APPLICATIONS

#### Industrial

- Oil and gas industrial process control (gas head control panels)
- Factory automation/industrial equipment
- Pump/compressor control
- Power generation (wind, propulsion)

#### Transportation

- Construction equipment

### PORTFOLIO

The Model IP Intrinsically Safe Series joins the [Model IP Platform](#) of Industrial Pressure Sensors.

<sup>1</sup> NEPSI approved for China sales only

<sup>2</sup> Best Fit Straight Line; includes pressure non-linearity (BFSL), pressure hysteresis and non-repeatability; thermal errors are not included

<sup>3</sup> Includes zero error, span error, thermal effect on zero, thermal effect on span, thermal hysteresis, pressure-non-linearity, pressure hysteresis and non-repeatability

# Industrial Pressure Sensors, Intrinsically Safe, Model IP IS

**Table 1. Pressure Range Specifications at 25 °C [77 °F]**

psi (gage)											
Pressure	100	150	200	250	500	750	1000	1500	2000	3000	5000
Proof pressure	400	450	600	750	1500	2000	2000	3000	4000	6000	7500
Burst pressure	1000	1500	2000	2500	5000	7500	10000	15000	15000	30000	30000

bar (gage)											
Pressure	7	10	16	25	40	60	100	160	250	350	
Proof pressure	28	30	48	75	80	120	200	320	500	700	
Burst pressure	100	100	160	250	400	600	1000	1600	2068	2068	

**Table 2. Physical and Environmental Specifications**

Characteristic	Parameter
Material in contact with media	Port: 300 Series stainless steel, Hastelloy®
Housing material	300 Series stainless steel
Weight	158 g [5.6 oz] (1/4 BSP port with DIN 43650)
Shock	100 g peak [11 ms]
Vibration	MIL-STD-810C, Figure 514.2-5, Curve AK, Table 514.2-V, Random Vibration Test [overall g rms = 20.7 min]
Compensated temperature range	-10 °C to 85 °C [14 °F to 185 °F]
Operating temperature range	-40 °C to 85 °C [-40 °F to 185 °F]
Intrinsic safety approval	NEPSI Ex ia IIC T4 Ga (Ta≤85°C) (refer to installation instructions 008-0692-00 for information regarding installation and intrinsic safety approvals)
Approvals	CE, RoHS

**Table 3. Performance Specifications at 25 °C [77 °F] and a rated excitation, unless otherwise noted**

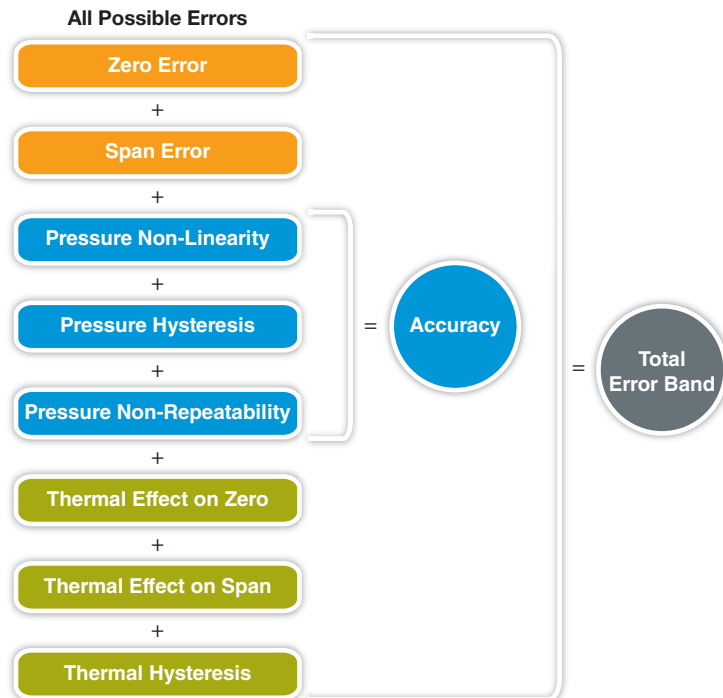
Characteristic	Parameter
Response time	<2 ms
Accuracy	±0.15 % BFSL (see note 1); ±0.25 % BFSL (see note 1)
Total error band	±2 %FS (across compensated temperature range) (see Note 2 and Figure 1)

<sup>1</sup> Includes pressure non-linearity (BFSL), pressure hysteresis and non-repeatability. Thermal errors are not included.

<sup>2</sup> Includes zero error, span error, thermal effect on zero, thermal effect on span, thermal hysteresis, pressure-non-linearity, pressure hysteresis and pressure non-repeatability.

**Figure 1. Total Error Band**

Total Error Band (TEB) is a single specification that includes all possible sources of error. TEB should not be confused with Accuracy, which is actually a component of TEB. TEB is the worst error that the sensor could experience. The TEB specification on a datasheet may be confusing. Honeywell uses the TEB specification in its datasheet because it is the most comprehensive measurement of a sensor's true Accuracy. Honeywell also provides the Accuracy specification in order to provide a common comparison with competitors' literature that does not use the TEB specification. Many competitors do not use TEB—they simply specify the Accuracy of their device. Their Accuracy specification, however, may exclude certain parameters. On their datasheet, the errors are listed individually. When combined, the total error (or what would be TEB) can be significant.



# Industrial Pressure Sensors, Intrinsically Safe, Model IP IS

**Table 4. Electrical Specifications at 25 °C [77 °F] and a rated excitation, unless otherwise noted**

Characteristic	Parameter
Zero output	4 mA
Full scale span (FSS)	16 mA (4 mA to 20 mA)
Excitation	9 Vdc to 28 Vdc

**Table 5. Order Codes and Descriptions**

These are examples of common configurations that are available. Please refer to the “Nomenclature and Order Guide” below for all possible product configurations. Order via Test and Measurement’s web site <http://measurementsensors.honeywell.com> or call our Inside Sales Team +1 614-850-5000 or 1-800-848-6564.

Order Code	Description
IPG1BR,1BA, 2AE, 5A, 6A	Model IPG, ±0.15 % accuracy, 100 psi, -10 °C to 85 °C [14 °F to 185 °F], 4 mA to 20 mA, 1/4 NPT Female, Bendix connector
IPG2CN,1BA, 2AE, 5F, 6M	Model IPG, ±0.25 % accuracy, 250 psi, -10 °C to 85 °C [14 °F to 185 °F], 4 mA to 20 mA, G1/4 B Female, DIN 43650 connector
IPG1CV,1BA, 2AE, 5B, 6N	Model IPG, ±0.15 % accuracy, 1000 psi, -10 °C to 85 °C [14 °F to 185 °F], ], 4 mA to 20 mA, 1/4 NPT male, Mini DIN 40050 connector
IPG1DL,1BA, 2AE, 5G, 6M	Model IPG, ±0.15 % accuracy, 2000 psi, -10 °C to 85 °C [14 °F to 185 °F], ], 4 mA to 20 mA, 1/4 B male, DIN 43650 connector

**Figure 2. Product Nomenclature**

Combine the order code and options code.

**IPG1BR**    **1BA,2AE,5A,6M**

Order code      Options code

	<b>IPG</b>	<b>1</b>	<b>BR</b>	<b>1BA</b>	<b>2AE</b>	<b>5A</b>	<b>6M</b>
	Pressure Type	Accuracy	Range	Temperature Compensation	Electrical Output	Pressure Connection	Electrical Termination
<b>IPG</b>	Gage	<b>1</b> 0.15 %	<b>BR</b> 100 psi <b>NB</b> 7 bar	<b>1BA</b> -10 °C to 85 °C [14 °F to 185 °F]	<b>2AE</b> 4 mA to 20 mA with I.S.	<b>5A</b> 1/4-18 NPT female	<b>6A</b> Bendix PTIH-10-6P
		<b>2</b> 0.25 %	<b>CJ</b> 150 psi <b>MH</b> 10 bar			<b>5B</b> 1/4-18 NPT male	<b>6M</b> DIN 43650 standard
			<b>CL</b> 200 psi <b>NY</b> 16 bar			<b>5D</b> 7/16-20 UNF male	<b>6N</b> DIN 40050 (Mini)
			<b>CN</b> 250 psi <b>NZ</b> 25 bar			<b>5F</b> 1/4 B female	
			<b>CR</b> 500 psi <b>PB</b> 40 bar			<b>5G</b> 1/4 B male	
			<b>CT</b> 750 psi <b>PC</b> 60 bar				
			<b>CV</b> 1000 psi <b>ML</b> 100 bar				
			<b>DJ</b> 1500 psi <b>PD</b> 160 bar				
			<b>DL</b> 2000 psi <b>NL</b> 250 bar				
			<b>DN</b> 3000 psi <b>NG</b> 350 bar				
			<b>DR</b> 5000 psi				

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Figure 2. Mounting Dimensions

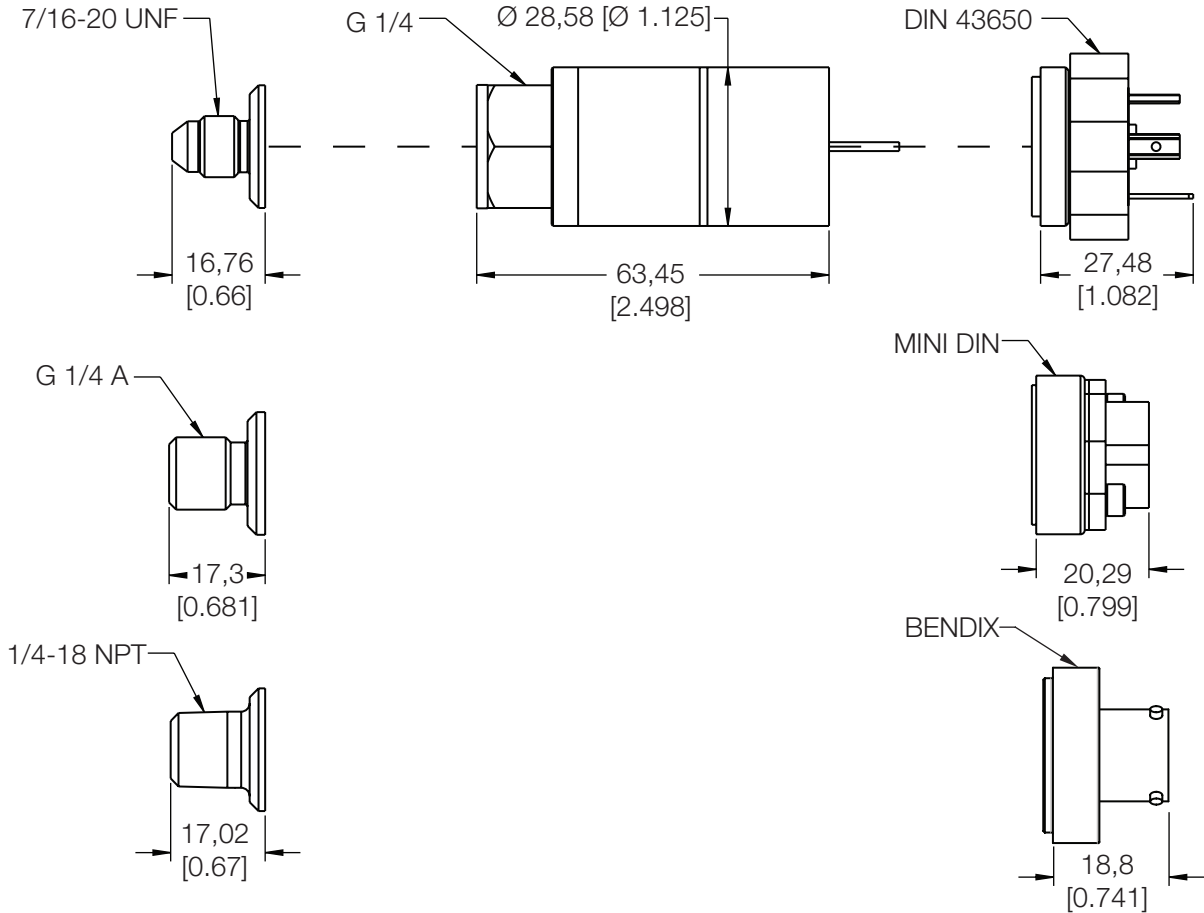


Figure 3. External Wiring Diagram - Bendix Connector

2AE AMP, 3-Cond, 6-Pin, GND

Pin	Designation
A	(+) supply
B	N/C
C	N/C
D	(+) output
E	Case ground
F	N/C

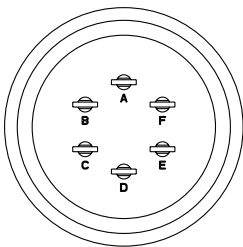


Figure 4. External Wiring Diagram - DIN 43650 Connector

2AE AMP, 3-Cond, 4-Pin, GND

Pin	Designation
1	(+) supply
2	(+) output
3	Case ground
4	N/C

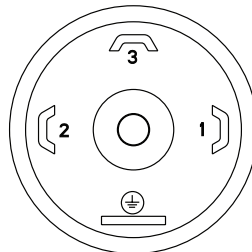
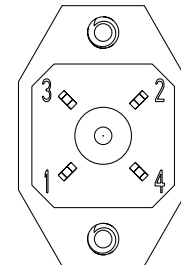


Figure 5. External Wiring Diagram - Mini DIN 40050 Connector

2AE AMP, 3-Cond, 4-Pin, GND

Pin	Designation
1	(+) supply
2	(+) output
3	Case ground
4	N/C



## ADDITIONAL MATERIALS

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

- Installation instructions
- Product part listing/nomenclature tree
- Application note

### **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 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.**

### 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. To learn more about Honeywell's test and measurement products, call **+1-614-850-5000**, visit **measurementsensors.honeywell.com**, or e-mail inquiries to **info.tm@honeywell.com**.

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### 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.

# Honeywell

Manufacturer Part Number	Vendor Stock Number
060-P673-06	IPG2CT,1BA,2AE,5A,6A
060-P686-03	IPG2CL,1BA,2AE,5B,6M
060-P686-04	IPG2CN,1BA,2AE,5B,6M
060-P673-08	IPG2DJ,1BA,2AE,5A,6A
060-P674-11	IPG2DR,1BA,2AE,5B,6A
060-P674-07	IPG2CV,1BA,2AE,5B,6A
060-P673-11	IPG2DR,1BA,2AE,5A,6A
060-P686-06	IPG2CT,1BA,2AE,5B,6M
060-P674-04	IPG2CN,1BA,2AE,5B,6A
060-P686-02	IPG2CJ,1BA,2AE,5B,6M
060-P674-05	IPG2CR,1BA,2AE,5B,6A
060-P673-01	IPG2BR,1BA,2AE,5A,6A
060-P687-01	IPG2BR,1BA,2AE,5D,6M
060-P685-10	IPG2DN,1BA,2AE,5A,6M
060-P686-05	IPG2CR,1BA,2AE,5B,6M
060-P685-08	IPG2DJ,1BA,2AE,5A,6M
060-P681-03	IPG2CL,1BA,2AE,5D,6A
060-P681-07	IPG2CV,1BA,2AE,5D,6A
060-P686-09	IPG2DL,1BA,2AE,5B,6M
060-P673-04	IPG2CN,1BA,2AE,5A,6A
060-P674-01	IPG2BR,1BA,2AE,5B,6A
060-P673-05	IPG2CR,1BA,2AE,5A,6A
060-P674-03	IPG2CL,1BA,2AE,5B,6A
060-P685-02	IPG2CJ,1BA,2AE,5A,6M
060-P685-06	IPG2CT,1BA,2AE,5A,6M
060-P673-10	IPG2DN,1BA,2AE,5A,6A
060-P681-02	IPG2CJ,1BA,2AE,5D,6A
060-P685-01	IPG2BR,1BA,2AE,5A,6M
060-P673-09	IPG2DL,1BA,2AE,5A,6A
060-P686-01	IPG2BR,1BA,2AE,5B,6M
060-P685-11	IPG2DR,1BA,2AE,5A,6M
060-P685-03	IPG2CL,1BA,2AE,5A,6M
060-P685-04	IPG2CN,1BA,2AE,5A,6M
060-P686-07	IPG2CV,1BA,2AE,5B,6M
060-P673-02	IPG2CJ,1BA,2AE,5A,6A
060-P686-10	IPG2DN,1BA,2AE,5B,6M
060-P687-10	IPG2DN,1BA,2AE,5D,6M
060-P674-02	IPG2CJ,1BA,2AE,5B,6A
060-P674-09	IPG2DL,1BA,2AE,5B,6A
060-P681-01	IPG2BR,1BA,2AE,5D,6A

060-P685-05	IPG2CR,1BA,2AE,5A,6M
060-P673-07	IPG2CV,1BA,2AE,5A,6A
060-P673-03	IPG2CL,1BA,2AE,5A,6A
060-P686-11	IPG2DR,1BA,2AE,5B,6M
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060-P685-09	IPG2DL,1BA,2AE,5A,6M
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060-P687-02	IPG2CJ,1BA,2AE,5D,6M
060-P681-08	IPG2DJ,1BA,2AE,5D,6A
060-P674-10	IPG2DN,1BA,2AE,5B,6A
060-P686-08	IPG2DJ,1BA,2AE,5B,6M
060-P685-07	IPG2CV,1BA,2AE,5A,6M