

Gas Compression Skid Controls

BACKGROUND

Reliable and rugged pressure transducers are required for engine monitoring and control for compressors, pumps, generators and other equipment used in field gas gathering, gas transmission, power generation, and other industrial applications.

Sensors are used to measure a variety of monitoring and/or control points. One example is compressor inlet and discharge pressure for fault monitoring. If either parameter is outside of a defined tolerance, a fault alarm is generated and/or other action initiated by the control system, such as compressor shut down. (See Figure 1).

SOLUTION

Due to the nature of the application, repeatability and accuracy of the measurement is critical. However, this has to be within a set cost structure – which rules out many of the traditional players in this market. Customers require the sensor to be constructed with materials compatible with the wide range of elements that the sensor may come into contact with. It's also important to have NACE Compatibility and be able to provide certification and approvals often required in gas compression applications. In addition, a close working

relationship with the customer is vital to ensure constant steady product supply in an industry that demands very quick turnaround times.

IP PRESSURE TRANSDUCER

Honeywell's Industrial Pressure (IP) series is a new platform of general purpose pressure sensors designed to offer repeatable, reliable, and accurate pressure measurements over time. These rugged, stainless steel, all-welded pressure sensors are pre-configured with tailored features and options for a wide range of demanding applications. All models are designed to work with a variety of media and built to provide consistent performance in harsh environments.


Configurations for voltage and current measurements are fully temperature compensated and calibrated for pressure ranges from 0.5 bar to 700 bar and 5 psi to 10K psi. Honeywell's IPG1 sensors deliver $\pm 0.15\%$ full scale accuracy Best Fit Straight Line (BFSL) and has a low 2 % total error band over a temperature range of $-40\text{ }^{\circ}\text{C}$ to $125\text{ }^{\circ}\text{C}$ [$-40\text{ }^{\circ}\text{F}$ to $257\text{ }^{\circ}\text{F}$] (range dependant). The IPG2 is similar to the IPG1, except it offers $\pm 0.25\%$ BFSL (Best Fit Straight Line) accuracy. (See Table 1.)

Figure 1. Application



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Table 1. IP Pressure Transducer Series

| IP Series | Features |
|---|---|
|  <p>The image shows three Honeywell IP pressure transducers. Each has a cylindrical stainless steel body with a black top cap and a threaded bottom. The labels on the sensors provide technical specifications:</p> <ul style="list-style-type: none"> Left sensor: MODEL: IP50, PNE. SER. - N431-01, RANGE CODE: IP05.0.NV.14.01.01, RANGE: 40 BAR, SUPPLY: 9-28 VDC, OUTPUT: 4-20 mA Middle sensor: MODEL: IP50, PNE. SER. - N431-01, RANGE CODE: IP15.0.NV.14.01.01, RANGE: 40 BAR, SUPPLY: 9-28 VDC, OUTPUT: 4-20 mA Right sensor: MODEL: IP50, PNE. SER. - N431-01, RANGE CODE: IP05.0.NV.14.01.01, RANGE: 40 BAR, SUPPLY: 9-28 VDC, OUTPUT: 4-20 mA | <ul style="list-style-type: none"> ● All-welded 300 series stainless steel sensor with IP65 rating <ul style="list-style-type: none"> ○ Rugged, robust sensor suitable for long-term operation in challenging environments, i.e. dust, water ○ Wide media compatibility with a variety liquids and gases ● Accuracy options: $\pm 0.15\%$, $\pm 0.25\%$ BFSL <ul style="list-style-type: none"> ○ Choose accuracy level best suited for a particular application ● Voltage and current outputs <ul style="list-style-type: none"> ○ Easy interface to existing applications ● Most common features and options pre-configured <ul style="list-style-type: none"> ○ Essential electrical terminations and process connections meet a variety of application needs ● Total Error Band includes accuracy for linearity, repeatability, and hysteresis as well as temperature error <ul style="list-style-type: none"> ○ Higher level of confidence that measurement is not additionally influenced by temperature ● CE certification, RoHS compliant* <ul style="list-style-type: none"> ○ Certified for global use <p><i>* RoHS compliant for 100 psi to 5000 psi [7 bar to 350 bar]</i></p> |

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WARNING

PERSONAL INJURY

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

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.

WARNING

MISUSE OF DOCUMENTATION

- The information presented in this application note 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.

SALES AND SERVICE

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** or **1-800-848-6564**, visit <http://measurementsensors.honeywell.com>, or e-mail inquiries to info.tm@honeywell.com