

Heavy Duty Pressure Sensors/ Transducers Line Guide



Heavy Duty products. Built for the toughest applications. Honeywell Sensing and Productivity Solutions (S&PS) offers decades of experience in the heavy duty pressure products industry. That's why, industry-wide, our heavy duty pressure sensors and transducers are known for enhanced quality, reliability, and service – which adds up to outstanding value for your applications.

Heavy Duty Pressure Sensors are small, allowing them to be used on their own in tight packages or as the building block for a complete transducer. The 13 mm Series and the 19 mm Series were developed for potential use in pressure applications that involve measurement of hostile media in harsh environments

compatible with 316 stainless steel, a type of steel that increases corrosion resistance, improves resistance to pitting from chloride ion solutions, and provides increased strength at high temperatures.

Heavy Duty Pressure Transducers are complete amplified and compensated pressure measurement solutions. With a choice of ports, connectors, outputs and pressure ranges, the, MLH Series, SPT Series, PX2 Series, and PX3 Series transducers can be configured to meet the needs of the application. They are engineered to be resistant to a wide variety of media for use in most harsh environments.

FEATURES

HEAVY DUTY PRESSURE SENSORS

13 mm Series.

Features: Rugged, isolated stainless steel package • Accommodates media that will not adversely affect 316L stainless steel • Based on reliable semiconductor technology • Calibrated and temperature compensated • Voltage or current supply options • Absolute and sealed gage pressures • For potential applications from 500 psi to 5,000 psi

Benefits: Used in high pressure potential applications involving measurement of hostile media in harsh environments. Piezoresistive semiconductor sensor chip in oil-isolated housing with or without an integral ceramic for temperature compensation and calibration is designed to provide reliable, stable, and accurate performance. Weld-ring collar and special back support ring for enhanced cycle life capability as well as further package integration in OEM applications. Potential applications include industrial and

hydraulic controls, tank pressure, pressure transmitters, and process control systems.

19 mm Series.

Features: Rugged, isolated stainless steel package • Accommodates media that will not adversely affect 316L stainless steel • Small size • Based on reliable semiconductor technology • Absolute and gage pressures • Vacuum compatible, isolated sensors • Calibrated and temperature compensated (some listings) • For potential applications up to 500 psi

Benefits: Variety of pressure connections allow use in wide range of OEM equipment. Uncompensated version for use in potential applications using specialized circuit designs. Rugged for use in potential applications where corrosive liquids or gases are monitored and may also be exposed to a vacuum such as industrial controls, process control systems, industrial automation and flow control, and pressure calibrators.

HEAVY DUTY PRESSURE TRANSDUCERS

SPT Series.

Features: Based on reliable semiconductor technology • Rugged, 316L stainless steel wetted parts • Calibrated and temperature compensated • Absolute, gage, sealed gage, and vacuum gage pressures • For use in potential medical applications where compatibility is a problem.

Benefits: Variety of pressure connections allows use in wide range of OEM equipment. For use in potential applications where corrosive liquids and gases are monitored such as industrial automation and flow control, pressure instrumentation, hydraulic systems, and process control.

MLH Series.

Features: All-metal wetted parts • No internal elastomeric seals • Stable and creep free • Input reverse voltage

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When reliability is demanded, Honeywell delivers.

Heavy Duty Pressure Sensors and Transducers are found in applications where they cannot be easily replaced — where supreme durability is a top priority. That's why you'll find Honeywell S&PS heavy duty pressure products performing expertly in many potential applications, such as compressors and hydraulic controls, and in industries as diverse as aerospace, medical, transportation, agriculture, refrigeration, and industrial. Our full line of products deliver enhanced performance and reliability, plus: absolute, gage and sealed-gage measurement; a wide array of pressure ranges, port styles, termination types, and outputs; package types from miniature surface mount sensors to high-end stainless steel isolated (for stringent process control); pressure ranges from 3 psi to 8,000 psi; and corrosion resistance.



Heavy Duty Pressure Sensors

13 mm Series

19 mm Series

| | | |
|--------------------------------------|---|---|
| Pressure connection | weld ring with back support, 1/8-27 NPT, 1/4-18 NPT, 7/16 UNF | weld ring with body O-ring, flush mount, flush mount with flange, 1/4-18 NPT, 1/8-27 NPT, 7/16 UNF, 1/4 BSPP, Euro O-ring, 1/4 VCR (female nut) |
| Measurement type | absolute, sealed gage | absolute, gage, vacuum gage |
| Construction | wetted parts 316L SS | wetted parts 316L SS |
| Pressure range | 0 psi to 500 psi through 0 psi to 5000 psi | 0 psi to 3 psi through 0 psi to 500 psi |
| Output | 0 mV to 100 mV (nominal) | 0 mV to 100 mV (nominal) |
| Linearity | ±0.25 %BFSL max. | ±0.25 %BFSL max. |
| Amplified | no | no |
| Compensated temperature range | 0 °C to 82 °C [32 °F to 180 °F] | 0 °C to 82 °C [32 °F to 180 °F] |
| Termination | ribbon cable | ribbon cable |



Heavy Duty Pressure Transducers

SPT Series

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|--------------------------------------|---|
| Pressure connection | 1/8-27 NPT, 1/4-18 NPT, 7/16-20 UNF, 1/4-19 BSPP, 1/4 VCR gland |
| Measurement type | absolute, gage, sealed gage, vacuum gage pressures |
| Construction | wetted parts 316L SS |
| Pressure range | 0 psi to 3 psi through 0 psi to 5000 psi |
| Output | 4 mA to 20 mA, 0 mV to 100 mV, 1 Vdc to 5 Vdc |
| Linearity | ±0.25 %BFSL max. |
| Amplified | yes, amplified and unamplified |
| Compensated temperature range | -10 °C to 85 °C [14 °F to 185 °F] |
| Termination | bayonet connector, cable |



Heavy Duty Pressure Transducers

MLH Series

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|--------------------------------------|---|
| Pressure connection | 1/4-18 NPT, M12 x 1.5 (ISO 6149), M14 x 1.5 (ISO 6149), 3/8-24 UNF (SAE-3 O-ring boss), M18 x 1.5 (ISO 6149), 1/8 in-27 NPT, 1/2 in-20 UNF (SAE-5 O-ring boss), M10 x 1 (ISO 6149), 1/4 in SAE female Schrader (7/16-20 UNF-2B internal thread), 7/16-20 UNF (SAE-4 O-ring boss), 1/2 in NPT; 9/16-18 UNF (SAE-6 O-ring boss), R 1/4-19 BSPT (ISO 7-1 tapered thread), G 1/4-19 (DIN 3852-2), G 1/8 with O-ring groove, M16 x 1.5 (ISO 6149), G 1/4 with O-ring groove, G 1/8 (DIN 3852-2), R 1/8-28 BSPT (ISO 7-1 tapered thread), M20 x 1.5 (ISO 6149), 1/2-20 (SAE J514) |
| Measurement type | gage, sealed gage |
| Construction | port: 304L stainless steel; diaphragm: Haynes 214 alloy |
| Pressure range | 0 psi to 50 psi through 0 psi to 8000 psi |
| Output | ratiometric (from 5 Vdc excitation): 0.5 Vdc to 4.5 Vdc regulated: 1 Vdc to 6 Vdc, 0.25 Vdc to 10.25 Vdc, 0.5 Vdc to 4.5 Vdc, 1 Vdc to 5 Vdc current: 4 mA to 20 mA |
| Accuracy | ±0.25 %FSS (±0.5 %FSS on ranges below 100 psi) |
| Amplified | yes |
| Compensated temperature range | ratiometric output: -40 °C to 125 °C [-40 °F to 257 °F] regulated and current outputs: -40 °C to 125 °C [-40 °F to 257 °F] (See product literature for operating and temperature compensated area graphics.) |
| Termination | Delphi Metri-Pack 150, Hirschmann (mates with G4W1F), M12 x 1 (Brad Harrison micro), DIN 43650-C, 8 mm-male, Amp Superseal 1.5; cable (1 m), cable (3 m), flying leads (20 AWG – 6 in), Deutsch DTM04-3P (integral) |



Heavy Duty Pressure Transducers

PX2 Series

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| Pressure connection | 7/16-20 UNF 1/4 in 45° Flare Female Schrader (SAE J512), 7/16-20 UNF 45° Flare Male (SAE J513), 7/16-20 UNF 37° Flare Male (SAE J514), G1/4 (ISO 1179-3), G1/8 (ISO 1179-3), M12 x 1.5 (ISO 6149-3), 1/4-18 NPT, 1/8-27 NPT, 9/16-18 UNF, (SAE J1926-3), 7/16-20 UNF (SAE J1926-3) |
| Measurement type | absolute, sealed gage, vented gage |
| Construction | port and housing: 304 stainless steel; connector: PBT 30% GF |
| Pressure range | 1 bar to 70 bar 100 kPa to 7 MPa 15 psi to 1000 psi |
| Output | ratiometric: 5.0 V, 10 %Vs to 90 %Vs; 5.0 V, 5 %Vs to 95 %Vs; 3.3 V, 10 %Vs to 90 %Vs; 3.3 V, 5 %Vs to 95 %Vs regulated: 1 Vdc to 6 Vdc, 0.25 Vdc to 10.25 Vdc, 0.5 Vdc to 4.5 Vdc, 1 Vdc to 5 Vdc current: 4 mA to 20 mA |
| Accuracy | ±0.25 %FSS |
| Total Error Band | ±2 %FSS at -40 °C to 125 °C [-40 °F to 257 °F] |
| Amplified | yes |
| Compensated temperature range | -40 °C to 125 °C [-40 °F to 257 °F] |
| Termination | Delphi Metri-Pack 150 (UL 94 HB or V-0 options), Micro M12, DIN, Deutsch, cable harness (1 m, 2 m, 3 m, or 5 m). |



Heavy Duty Pressure Transducers

PX3 Series

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|--------------------------------------|--|
| Pressure connection | 7/16-20 UNF 1/4 inch 45° Flare Female Schrader (SAE J512), G1/4 (ISO 1179-3), M12 x 1.5 (ISO 6149-3), 1/4-18 NPT, 1/8-27 NPT |
| Measurement type | absolute, sealed gage |
| Construction | port: brass C36000 (Pb content: 3.7% max.), connector: PBT 30% GF |
| Pressure range | 1 bar to 46 bar 15 psi to 667 psi |
| Output | ratiometric: 0.5 Vdc to 4.5 Vdc |
| Accuracy | ±0.25 %FSS |
| Total Error Band | ±1.0 %FSS at -20 °C to 85 °C [-4 °F to 185 °F] ±2.0 %FSS at <-20 °C, >85 °C [<-4 °F, >185 °F] |
| Amplified | yes |
| Compensated temperature range | -40 °C to 125 °C [-40 °F to 257 °F] |
| Termination | Metri-Pack 150 (UL V-0) |

protection • Less than 2 ms response time • Easy customization • Rated IP65 or better • Exceeds CE heavy industrial EMC for use in areas of high RFI/EMI

• Amplified and temperature compensated • Wide choice of connections and terminations • Calibration for special pressure ranges

Benefits: Combines ASIC technology with media isolated, metal diaphragm. All-metal wetted parts for use in a variety of potential fluid applications. Amplified outputs often eliminate cost of external amplifiers. Wide selection of industry-standard connectors and process ports for enhanced reliability and user flexibility. Potential applications include compressors, refrigeration and HVAC/R, general industrial and hydraulics, multiple transportation applications including braking and alternate fuels, medical.

PX2 Series.

Features: Cost-effective • Designed for configurability • Application expertise • Global support • Wide selection of options • Short lead time • Small Total Error Band (TEB) • Fast response time • Application life • Six Sigma design standards • Environmentally tough • Wide operating temperature range • Shock and vibration resistant • Good EMC protection

Benefits: Precise pressure measurement solution optimizes system performance at a competitive cost. Over 60,000 standard configurations. Honeywell's knowledgeable application engineers are available to answer customer's specific design questions during the development of their product. Honeywell's global presence offers immediate product and application support throughout the development cycle, from design to global

manufacturing. Numerous standard or and warranty requirements. Fast response time maximizes system performance. 10 million cycles (minimum) to operating pressure provides enhanced life in the application. AC and AD output transfer functions offer a 3.3 V ratiometric output with a <7 ms turn-on time to enable use when energy efficiency is a key requirement. Six Sigma design standards result in a high level of quality, performance, and consistency so that customers are assured that the transducer will perform to specification. Compatibility with a wide variety of harsh media, including brake fluid, common hydrofluorocarbon refrigerants, engine oil, tap water, hydraulic fluids, and compressed air, up to IP69K ingress protection sealing, and 100 V/m radiated immunity allow for use in tough environments. Wide compensated operating temperature range allows

customers to design the same sensor into a variety of applications. Shock and vibration resistance increase flexibility of use within the application. Good EMC protection means that the transducer will not be damaged by environmental electromagnetic interference. Potential applications include industrial HVAC/R and air compressors, as well as a wide variety of general system and factory automation pump, valve and fluid pressure applications.

PX3 Series.

Features: Pressure range: 1 bar to 46 bar | 15 psi to 667 psi (absolute and sealed gage) • Ratiometric output: 0.5 Vdc to 4.5 Vdc • Fully calibrated and temperature compensated • Total Error Band: ± 1.0 %FSS from -20 °C to 85 °C [-4 °F to 185 °F] • External freeze/thaw resistance: 6 cycles from -30 °C to 50 °C [-22 °F to 122 °F] • High insulation resistance: >100 MOhm, 1500 Vdc • Dielectric strength: AC1500V, 1 min. or AC1800, 1 s • Current consumption: 3.5 mA max. • EMC Radiated Immunity: 200 V/m per ISO 11452-2 • Ingress protection up to IP67 • Response time: <2 ms • RoHS, REACH, and CE compliant

Benefits: Total Error Band provides the most comprehensive, clear and meaningful indication of the sensor's true measurement performance over a specified temperature range; small error promotes system uptime and efficiency. Survives exposure to frost, commonly found in refrigeration systems. Protects the user and sensor in high over-voltage situations, and ensures that the device is compliant with industry standards. Operates reliably in the presence of electro-magnetic fields, such as near wireless signals, RF communication, and electrical devices. Helps to reduce energy costs, and enhances product life if used in battery driven systems. Compatible with common HFC (hydrofluorocarbon) refrigerants, next generation low global

warming potential (GWP) refrigerants such as R32 and R1234ZE, petroleum oils, lubricants, hydraulic fluids, brake fluids, air and water. (For ammonia and other corrosive media, see Honeywell's MLH Series and SPT Series.) Potential industrial applications include refrigerant pressure monitoring in HVAC/R systems and air compressor system pressure. Potential transportation applications include air system monitoring and hydraulic oil pressure monitoring.

Warranty. 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 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.

To learn more about Honeywell Sensing and Productivity Solutions' products, call **+1-815-235-6847** or **1-800-537-6945**, visit **sensing.honeywell.com**, or e-mail inquiries to **info.sc@honeywell.com**

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