Honeywell

Position Sensors Line Guide

Precision, down the line. Honeywell Sensing and Control (S&C) Position Sensors consist of encoders, inertial measurement units, non-contact Hall-effect rotary positions sensors, SMART position sensors, ultrasonic products, and resolvers.

Encoders are available in both mechanical and optical versions, and are best for potential applications requiring panel-mounted, manually-operated rotary sensing.

Inertial Measurement Units (IMU) are high-end position sensors with sensitive multi-axis motion control. These sensors measure the motion of the equipment onto which they are attached and deliver the data to the equipment's control module, allowing the operator to focus on other equipment functions, enabling more precise control than can be achieved by using only the human eye, thus increasing safety, stability and productivity.

Non-Contact Hall-Effect Rotary Position Sensors respond to the presence or to the interruption of a magnetic field, using a solid-state Hall-effect IC to sense rotary movement of the actuator shaft and then producing a proportional output. These sensors provide a 360° operating range, low torque actuation, enhanced resistance to damage from incorrect wiring and electrical noise, wide operating angle tolerant to overtravel, and integrated reverse polarity, short circuit and EMC protection.

SMART Position Sensors (**S**uperior **M**easurement, **A**ccuracy, **R**eliability, and **T**hinking.) enable highly accurate motion control, improving operational efficiency and safety. They measure linear, angular, or rotary movement of a magnet attached to a moving object. Non-contact design eliminates mechanical failure mechanisms, reducing wear and tear, improving reliability and durability, and minimizing downtime. Robust in most harsh environments. Easy to install, reducing set-up costs.

Ultrasonic Sensors measure time delays between emitted and echo pulses, determining the sensor-to-target distance. These non-contact-based products solve the toughest sensing problems by detecting targets made of virtually any material — regardless of color, transparency, shine or opacity.

Resolvers provide non-contact measurement for 360° sensing, enhanced accuracy, resolution, and repeatability under severe environmental conditions. They are inherently radiation hardened and offer durable EMC (Electromagnetic Compatibility) performance.

FEATURES

ENCODERS

510 Series.

Features: Mechanical encoder • High resolution of up to 36 positions • Gray code digital voltage output • Wide operating temperature range of -40 °C to 105 °C [-40 °F to 221 °F] • Mounting flexibility

Benefits: High resolution of up to 36 positions for applications that require high resolution. Gray code digital voltage output may eliminate the need for analog to digital converters, contributing to a more cost-effective solution. Wide operating temperature range helps minimize thermal performance issues. Horizontal or vertical mounting terminations promote flexibility in the application. Potential applications include audio/visual equipment, smoke detectors, irrigation controls, oscilloscopes, robotics, EKG and defibrillation machines.

600 Series.

Features: Optical encoder • Dual quadrature output generating 128 pulses per channel • Non-contact technology, with a minimum of 10 million shaft rotation: • Digital voltage output • TTL-compatible output • Wide operating temperature range of -40 °C to 65 °C [-40 °F to 149 °F] • Choice of mounting terminations

Benefits: Non-contact technology promotes long life in the application. Digital voltage output may eliminate the need for analog to digital converters, contributing to a more cost-effective solution. TTL-compatible output prevents triggering of false highs/lows due to ambient noise. Wide operating temperature range promotes flexibility in the applications. Designed to provide mounting flexibility. Potential applications include motor control, flow control, robotics, computer peripherals, welding equipment, portable diagnostic equipment, home healthcare respiratory equipment, surgical equipment and precision joysticks.

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Encoders: Our mechanical encoders have 2-bit and 4-bit graycode outputs for absolute electrical reference applications. Manually operated optical encoders output two square waves in quadrature.

Inertial Measurement Units (IMU): Designed to Six Sigma standards with industry-leading durability, accuracy, voltage input flexibility, and temperature performance.

Non-Contact Hall-effect Rotary Position Sensors: These products use a magnetically biased, Hall-effect integrated circuit to sense rotary movement of the actuator over a set operating range. Integral actuator or external actuator available.

SMART Position Sensors: The non-contacting technology is designed to provide enhanced product life and durability with less downtime.

Ultrasonic Sensors: We offer analog or digital units, plus programmable versions for tailored applications. Particularly effective detecting clear or shiny objects, or in particle-laden air and splashing liquid environments.

Resolvers: These rotary and angle absolute position sensors provide 360° non-contact sensing with enhanced accuracy for precise motion control. Available in standard styles and are fully customizable.

Encoders

	510 Series	600 Series
Type	mechanical	optical
Pulse per revolution	16, 9, 6, 4	128
Output	2- or 4-bit gray code	quadrature square wave
Temperature range	-40 °C to 105 °C [-40 °F to 221 °F]	-40 °C to 65 °C [-40 °F to 149 °F]
Expected rotational life	100k cycles	10 million rotations min.
Operating speed	50 rpm max.	300 rpm max.
Terminals	PC type C-30 type with/without bracket, B-110 type	PC type B-66, PC type C-24, cable, cable/connector

Inertial Measurement Units (IMU)

	6DF Series
Description	6 Degrees of Freedom, 6-D Motion Variant
Supply voltage	7 V to 32 V
Supply current	350 mA max.
Startup time	700 ms typ.
Output type	SAEJ1939 CAN 29
Operating temperature range	-40 °C to 85 °C [-40 °F to 185 °F]
Accelerometer	2 g, 6 g
Sealing	IP67, IP69K
Housing material	aluminum
Approvals/testing/qualifications	EMI/EMC, ESD, mechanical and thermal shock, random vibration, humidity, salt spray, chemical compatibility, automotive grade