

Through-Shaft Steering Angle Rotary Sensor Offers Small Package



Piher International Corporation has announced the immediate availability of a new shaft angle rotary sensor - the PST-360 Through-Hole Position Sensor. The PST-360 combines a through-shaft design with 360° absolute position feedback in an extremely thin package. Key features include a through-hole design where the sensor fits over existing shaft and bearing assemblies. The new sensor incorporates a proprietary ring magnet with a fully sealed Hall ASIC as the sensor element. This combination is truly non-contacting and does not rely on gears or other interfacing parts and therefore matches the durability specifications of the final application. The proprietary design provides a streamlined sensor with only one moving part along with programmable electronics designed for harsh environments. The result is an exceptionally small form factor, cost-effective product.

Measuring just 9.8mm thick with a body diameter of 37mm and 50.0mm mounting hole spacing, engineers can now integrate a fully featured rotary sensor directly on their existing shafts without the packaging issues that typically accompany encoders or other through shaft sensing devices. The standard model features a rotor with a 14.05mm inside diameter (double flatted) shaft design. Other custom rotor configurations are available from PIHER to adapt existing OEM shafts to the standard PST-360 Sensor.

The PST-360 is an extremely robust design with fully encapsulated electronics surrounding the durable ring magnet, allowing for use in high humidity environments. Unlike optical encoders, it has no sensitivity to dust or dirt and can tolerate high vibration cycles as the ring magnet never comes into contact with the sensing electronics.

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The new device offers electrical angles up to 360° with no dead band and linearity error as low as $\pm 0.5\%$. Rated for use at -40°C to +85°C, optional models are rated up to 150°C. The sensor can be programmed with full scale output with angles as narrow as 20 degrees. The device supports most common electrical signal outputs with minimal investment. Optional outputs include: Analog, PWM (12 bit) or Serial Protocol (SPI) at 14 bits and includes a second output channel to provide a programmable switch signal. Redundant versions are available with duplex, triplex and quad redundant versions all within the same package size.

With its integrated redundancy, the new sensor is ideally suited for use in a wide range of off-highway, construction and agriculture equipment drive-by-wire applications. It can be easily adapted to fit marine outboard steering and throttle control, robotic controls, material handling, electronic braking systems, automation equipment and medical devices.

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