

## Magnetic rotary hollow-shaft position sensor/control

# Contactless sensor PST-360

Available with  
**CAN** SAE J1939



The PST-360 through hole / hollow-shaft position sensors combine three critical design features; 1) through hole where the shaft passes through the sensor, 2) high accuracy absolute position feedback over up to 360 degrees, and 3) a true non-contacting sensing element. Piher's design does not rely on gears or other rotating parts.

This innovative and unique patented design features the following advantages:

- Compliments the attributes of the target application.
- Mechanical integrity that matches customer's application by design.
- Unique shaft mounted design that mounts at the pivot point of the application.
- No levers, connecting rods or mechanical interfaces needed.
- Adapts to shaft's eccentricity, mounting tolerances and mechanical wear over the life of the application.

## Mechanical specifications

Rotational life (depends on application and mounting)	up to 50.000.000 cycles.
Operating temperature <sup>1</sup>	-40°C to +125°C.

## Electrical specifications

Linearity <sup>1</sup>	±1% absolute (0.5% upon request).
Angular range	Programmable from 15 to 360 degrees.
Output <sup>2</sup>	Analog (Ratiometric), PWM. Serial protocol (SPI) and CAN SAE J1939 upon request.
Switch output	Upon request. Programmable.
Angular Resolution (depends on electrical angle and rotational speed)	Analog & PWM: up to 12 bits. Serial protocol (SPI): up to 14 bits.
Supply voltage <sup>1</sup>	Up to 25V.
Supply current	Typ 8.5mA for single version. Typ 17mA for redundant version.

<sup>1</sup> Others: check availability. Ferromagnetic materials close to the sensor (i.e. shaft, mounting surface) may affect the sensor's linearity. Please contact Piher for advise.

<sup>2</sup> CAN protocol model: physical dimensions may vary. Check available versions before ordering.

## Key features

- Simple and robust magnetic design.
- High resolution (up to 14-bit).
- Ratiometric analog or PWM.
- Absolute position feedback up to 360° (keeps position on power loss).
- True full redundant version.
- Sealed construction for harsh environments such as off-highway and marine.
- Protected from dust, moisture, vibration and extreme temperatures.
- Endless rotation.
- Fully programmable transfer function output at the factory with electrical outputs up to 360°.
- Self-diagnostic features.
- Over voltage protection and reverse voltage protection.
- Extended voltage input supply values.

Also upon request:

- Programmable switch output.
- CAN and SPI output.

## Industries served

- Automotive and On-highway (road vehicles, trucks, recreational vehicles, road sweepers).
- Off-highway (agriculture, construction and forestry, motorsport, airport operations).
- Material handling.
- Marine engines.
- Medical.
- Industrial.

## Applications

- Non-contacting long life angle / position sensor.
- Absolute rotary position sensor.
- Pedal position sensor.
- Throttle / EGR valve and gear position sensor.
- Height and suspension sensor.
- Motor-shaft position sensor.
- Pivot point angle sensing.
- Off road / highway steering.
- Agricultural machinery hydraulic lift arms, scoops, articulation/joints.
- Forklifts / material handling.
- Industrial pumps.
- Accelerator / Steering / Shifter position sensor for marine outboard engine.
- Precision robotics, industrial equipment, HVACR monitoring & control, etc.

## Piher Sensing Systems

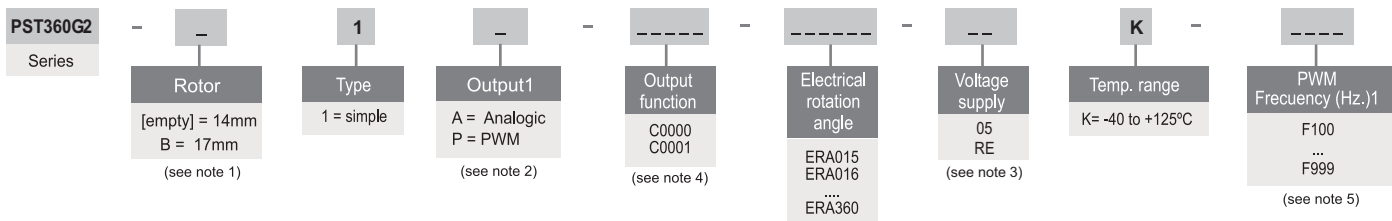
Our product competencies and services:  
Potentiometers | [Position / angle sensors](#) | Rotary switches | Incremental encoders  
Printed circuit resistors | Mechatronics | Value added assemblies

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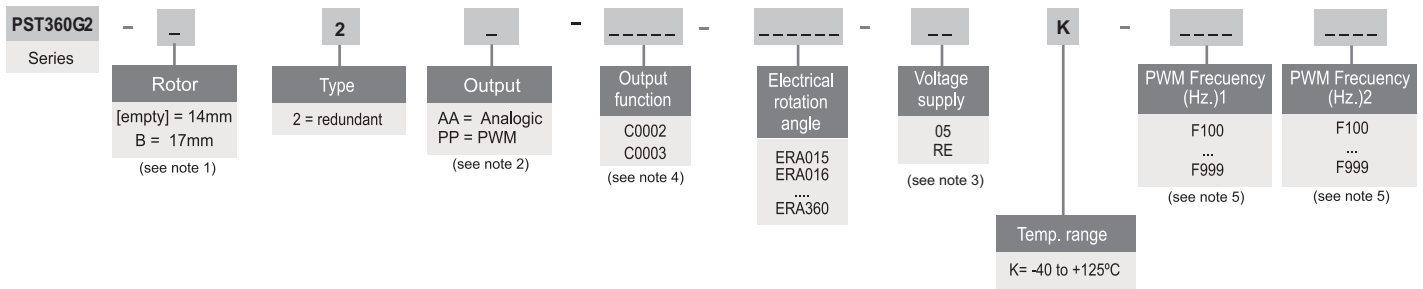
# Contactless sensor PST-360

### How to order (example: PST360-1A-C0018-ERA190-05K)

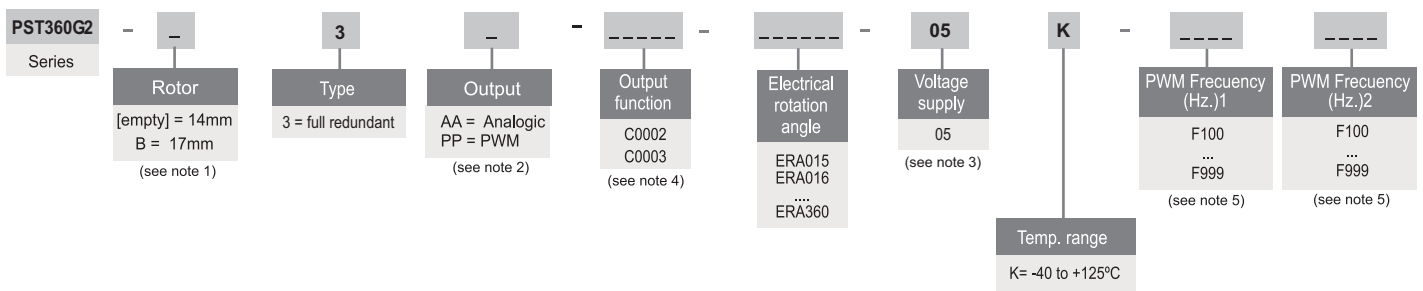
#### Simple output



#### Redundant output



#### Full redundant output



Other product configurations will be studied case by case.

#### Notes

- (1) Other rotors: check availability.
- (2) The analog output is a ratiometric output, proportional to:
  - For supply voltage 5V: to input supply voltage.
  - For supply voltage RE: to 5V.
- (3) 05: 5V ±10%  
RE: 7V - 25V
- (4) Other output functions available check availability. In the How To Order reference, enter CXXXX meanwhile the new output function reference is not defined.  
E.g.: PST360-1A-CXXXX-ERA190-05K
- (5) Leave empty if no applicable. Default frequency is 200 Hz