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 [1]	-40ºC to +125ºC.

Electrical specifications

Linearity [1]	±1% absolute (0.5% upon request).
Angular range	Programmable from 15 to 360 degrees.
Output [2]	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 [1]	Up to 25V.
Supply current	Typ 8.5mA for single version. Typ 17mA for redundant version.

[1] 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.

[2] 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 360º (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 360º.
- 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.

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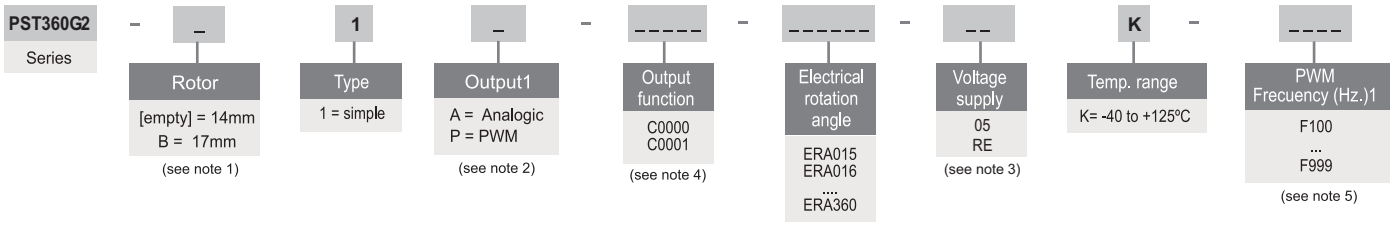
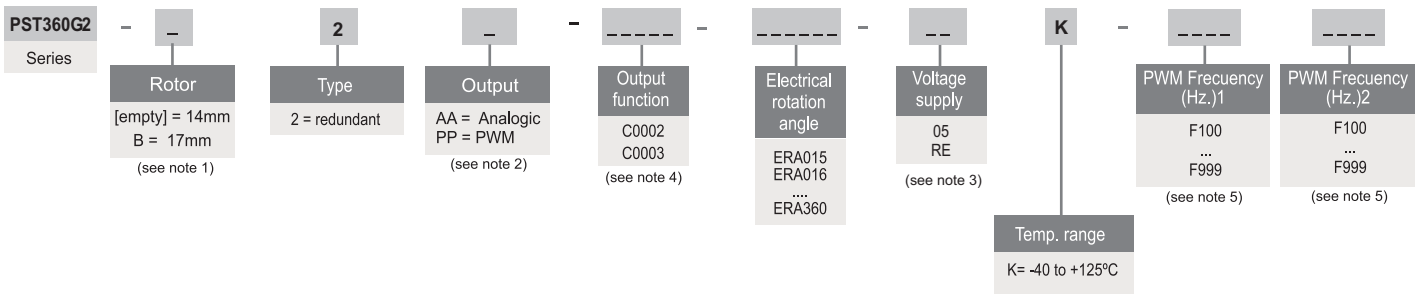
How to order (example: PST360-1A-C0018-ERA190-05K)

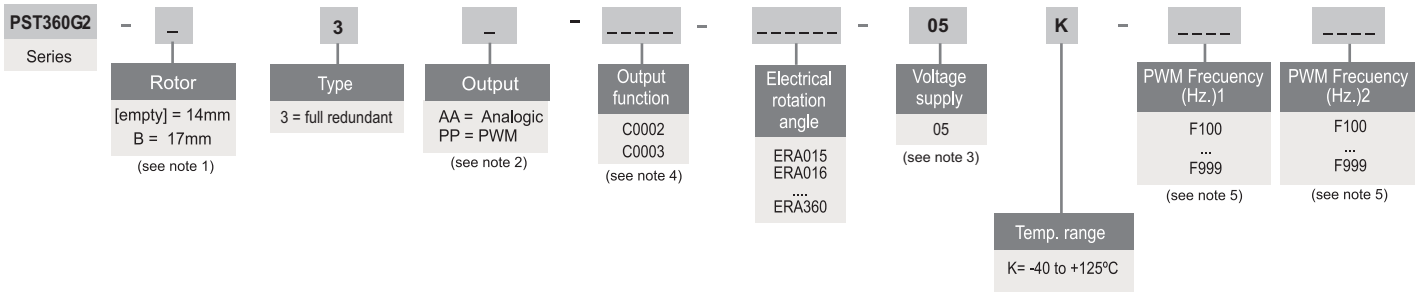
Simple output



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