

PSCR-360

High-Precision Non-Contact Rotary Sensor

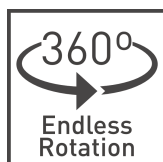


KEY FEATURES



True, contactless operation

Without any gears or mechanical interfaces the sensor is easily assembled and calibrated and subject to limited wear and tear over lifetime.



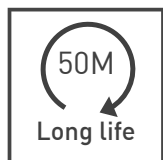
360 degree absolute position feedback

Endless mechanical rotational angle without dead band, keeps the position on power loss with programmable electrical angles from 15 to 360 degrees.



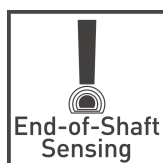
Made for harsh environments

The rugged IP65 package protects the sensor from dust, moisture, vibration and extreme temperatures for usage in the most demanding environments.



Durable and robust design

The non-contacting design allows for an extra-long product lifetime of million of cycles.



Integrated shaft

The magnet is securely fastened to the shaft and acts as only moving component in the sensor.

DESCRIPTION

The PSCR-360 rotary angle sensor delivers reliable, high-accuracy position feedback in a compact, roughly 28-millimeter diameter housing. Its contactless measurement principle ensures minimal wear and long operational life, even under demanding conditions. With high linearity ($\pm 0.3\%$) and a 12-bit resolution, the sensor provides precise and stable output signals tailored to your application's requirements. The integrated flange simplifies installation and alignment, making it easy to retrofit into existing systems. Full redundancy options enhance safety-critical operations, while its cost-effective design helps maintain project budgets. The PSCR-360 is a versatile solution that combines durability, accuracy, and affordability.

The sensor also features robust construction that resists shock, vibration, and wide temperature ranges, which is why it's commonly used in industrial automation, off-highway vehicles, medical equipment, and other demanding applications.

APPLICATIONS EXAMPLES

Industrial

- Robotics and automation feedback
- Valve and actuator position monitoring
- Conveyor operation

Transportation & Agriculture & Construction

- Throttle and brake pedal position
- Suspension and chassis height detection
- Fork height and mast tilt
- Hitch position
- Crane jib and boom angle
- Position sensing for boom arms, loaders, and other articulated mechanisms
- Angle detection in control levers for tractors, harvesters, and construction equipment
- Steering angle measurement in passenger cars and commercial vehicles

Renewable Energy

- Wind turbines blade pitch and yaw

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| MECHANICAL SPECIFICATIONS | |
|---------------------------|-------------------------|
| Rotational life | Up to 50.000.000 cycles |
| Mechanical range | 360° (endless rotation) |
| Shaft diameter | 6mm |
| Max. mounting torque | 2.5Nm |
| Bearing type | Plain |

| ELECTRICAL SPECIFICATIONS | |
|--|--|
| Linearity* | ±0.3% independent |
| Electrical angular range | Configurable from 15° to 360° |
| Output Ratiometric (when 5V supply) RE | 10% to 90% of Supply Voltage 0.5 to 4.5 VDC |
| Angular resolution | 12 bit |
| Supply voltage | 4.5 to 5.5 V / 8 to 35 V (RE) |
| Supply current Ratiometric RE | 8mA 10mA |
| Over / Reverse voltage protection Ratiometric RE | +15/-10V +30V/-30V |
| Self-diagnostic features | Yes |

* Ferromagnetic materials and external magnetic fields close to the sensor (i.e. shaft, mounting surface) may affect the sensor's linearity.

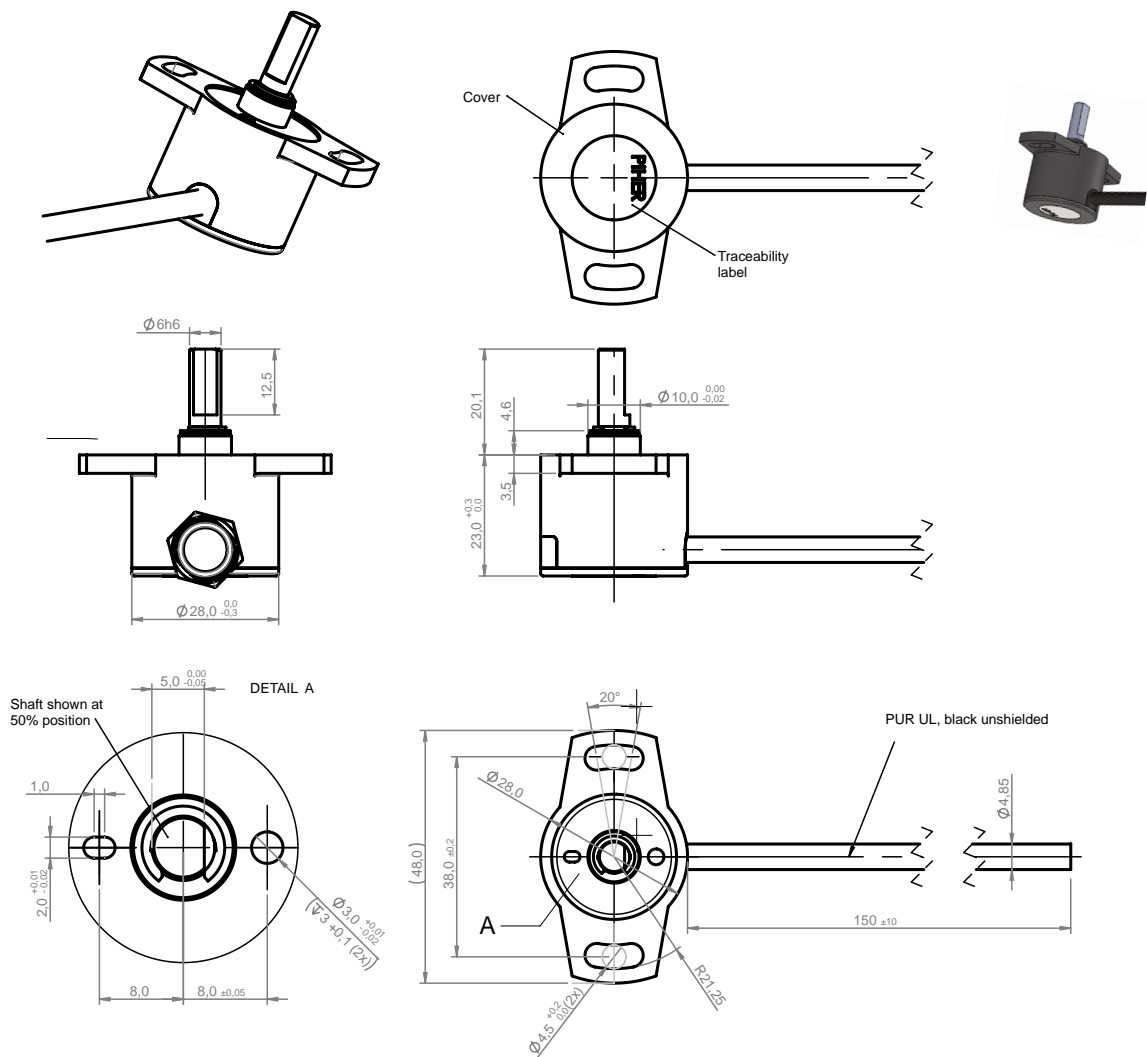
| ENVIRONMENTAL SPECIFICATIONS | |
|--|---------------|
| Operating and storage temperature ¹ | -40° to +80°C |
| Sealing | IP65 |

¹ Other specifications on request

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DIMENSIONS [MM]



WIRING

| Output function | 3-wire cable [AWG22] Length 1m | 4-wire cable [AWG22] Length 1m | 6-wire cable [AWG22] Length 1m |
|-----------------|-----------------------------------|-----------------------------------|-----------------------------------|
| Simple S / I | ✓ | | |
| Redundant | | ✓ | |
| Full Redundant | | | ✓ |

CONNECTION SCHEME

| Color | Simple output | Redundant output | Full-redundant output |
|--------|---------------|------------------|-----------------------|
| Brown | Power supply | Power supply | Power supply 1 |
| Blue | Ground | Ground | Ground 1 |
| Black | Signal output | Signal output 1 | Ground 2 |
| White | n/a | Signal output 2 | Signal output 2 |
| Red | n/a | n/a | Power supply 2 |
| Yellow | n/a | n/a | Signal output 1 |
| Grey | n/a | n/a | n/a |

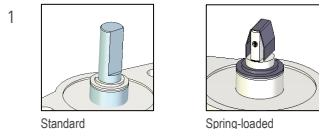
Connector assembly is available upon request. The sensor will be delivered with the appropriate number of wires based on the selected output type. Drawings may not be to scale.

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HOW TO ORDER (Example: PSCR360-F-A-120S-05)

| | | | | | | |
|---------|----------------------------|------------------------------|--|--|-----------------------------------|---|
| PSCR360 | - | - | - | - | - | - |
| Series | Actuator ¹ | Output protocol ² | Electric rotational angle ³ | Output function ⁴ | Voltage supply | |
| | F = flat H = spring fit | A = analogic | 030 050 070 090 120 180 270 360 | S = standard (CW) I = inverted (CCW) R = redundant F = full redundant | 05 = 5 VDC ±10% RE = 8 to 35 V | |



2 The analog output is ratiometric, proportional:

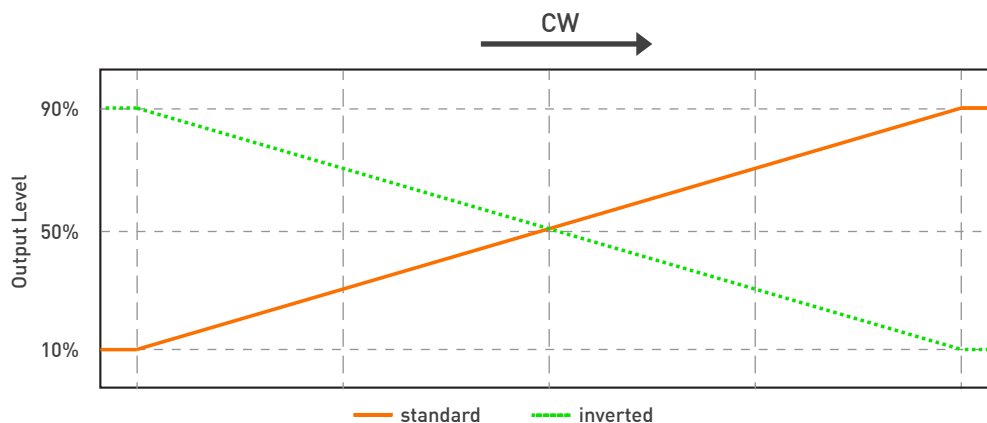
- for supply voltage "5V" to input voltage;
- for supply voltage "RE" to 5V.

"I" models must use "RE" voltage supply.

3 Models with ERA < 30° available on request.

4 Other output functions available (PWM, SPI, 4-20mA, 0-10V, CAN), please check availability.

OUTPUT VOLTAGE DEPENDING ON SHAFT POSITION



| ERA | Mechanical Rotational Angle | | |
|-------|-----------------------------|----|-------|
| 360 → | -180° | 0° | +180° |
| 270 → | -135° | 0° | +135° |
| 180 → | -90° | 0° | +90° |
| 120 → | -60° | 0° | +60° |
| 090 → | -45° | 0° | +45° |
| 070 → | -35° | 0° | +35° |
| 050 → | -25° | 0° | +25° |
| 030 → | -15° | 0° | +15° |

ERA = electrical rotation angle. The electrical rotation angle is the part of the rotation where the rotor's position affects the sensor's output.
Custom output functions available on request.

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One Stop Shop *Our Advantage*



Engineering
design-in
support



Output
customization



Cable harness and
connector assembly



One-stop solution provider for
different position sensing
technologies

Hall-effect

Inductive

Resistive

TMR

Printed electronics



Global
footprint



Manufacturing
capabilities for high
and low volume
programs



Diverse portfolio of standard and customized
sensors: Position, Current, Tilt and Speed.



For the most up-to-date information, we recommend downloading the latest version of this datasheet from www.piher.net.

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