

HRPS

Hall-Effect Rotary Position Sensor with integrated connector



DESCRIPTION

The HRPS Series of Hall-effect Rotary Position Sensors is a cost-effective, non-contacting position sensing solution for applications in harsh environments such as transportation and industrial.

This compact sensor with integrated AMP superseal connector uses a permanent magnet that is securely fastened to the shaft and acts as the only moving component in the sensor.

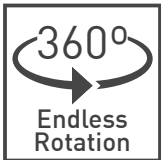
Fully sealed and flanged mounted for easy positioning, the sensor is versatile with configurable angular ranges from 50 to 360 degrees, different pin-out options and support for low and high-voltage power supply.

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 configurable electrical angles from 50 to 360 degrees.



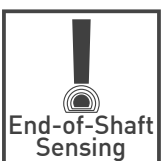
Made for harsh environments

The rugged 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 up to 50 million cycles.



Integrated shaft

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

APPLICATIONS

Industrial

- ▶ Warehouse automatic guided vehicles
- ▶ Valve monitoring
- ▶ HVAC systems

Heavy-duty transportation vehicles

- ▶ Steering wheel angle
- ▶ Pedal position for off-road vehicles
- ▶ Suspension/height detection
- ▶ Fork height and mast tilt
- ▶ Bucket position
- ▶ Hitch position
- ▶ Transmission gear shift

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MECHANICAL SPECIFICATIONS

| | |
|----------------------------|--|
| Rotational life | Up to 50 M cycles |
| Mechanical range | 360° (endless rotation) |
| Mating connector | AMP Superseal 282087-1 |
| Mounting screw sizes | |
| Sensor to mounting surface | non-magnetic, stainless steel M5 screws and 10 mm OD washers |
| Lever to mounting surface | non-magnetic stainless steel M6 screws |

ELECTRICAL SPECIFICATIONS

| | | |
|--|----------------------------|-----------|
| Output Protocol | Analog (Ratiometric) | |
| Supply voltage | 5V ±10% | 7V to 32V |
| Supply current | 12 mA | 14 mA |
| Overvoltage protection | +10V | +36V |
| Reverse voltage protection | -10V | -30V |
| Output | | |
| standard | 10% to 90% Vdc (CW) | |
| inverted | 90% to 10% Vdc (CCW) | |
| Absolute linearity / Accuracy error ¹ | ± 1% (± 0,5% upon request) | |
| Resolution | Up to 12 bit | |
| Self-diagnostic features | yes | |

¹ Ferromagnetic materials close to the sensor (i.e. shaft, mounting surface) may affect the sensor's linearity.

ENVIRONMENTAL SPECIFICATIONS

| | |
|-----------------------|------------------------------|
| Operating temperature | -40° to +125°C |
| Shock | 50g |
| Vibration | 5-2000 Hz; 20g; Amax 0,75 mm |
| Sealing | IP67, IP69K |

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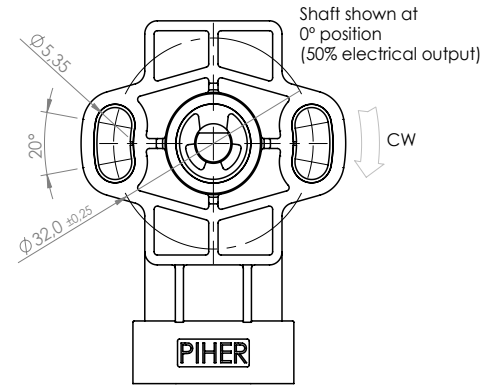
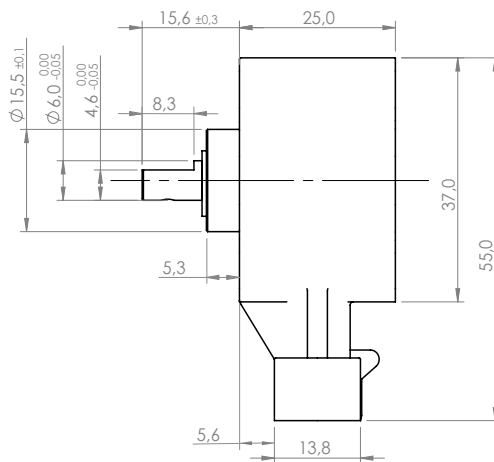
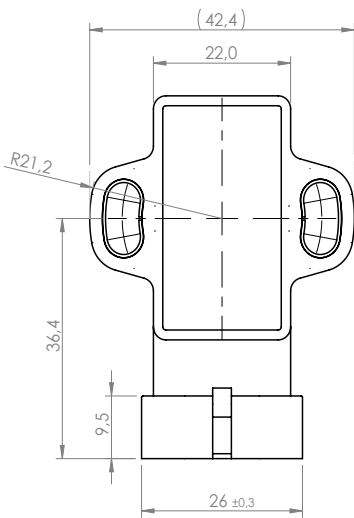
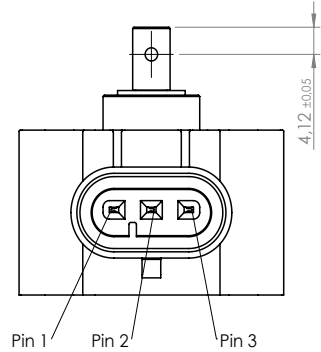
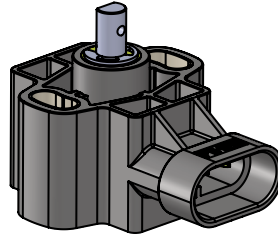
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DIMENSIONS (MM)

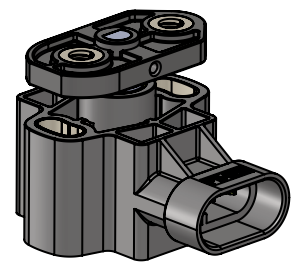
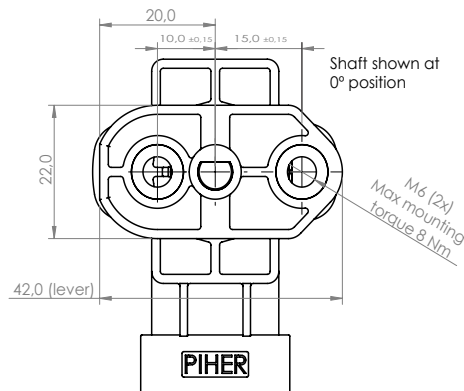
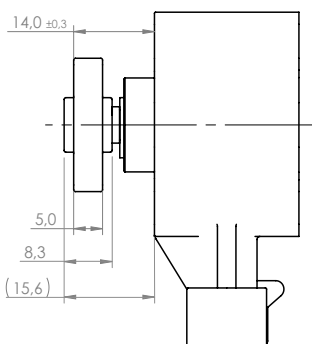
HRPS-F (w/o lever)



Download the STEP file here:
www.pihher.net



HRPS-H (with lever)



CONNECTION SCHEME

| PIN | European Pinout | American Pinout |
|-----|-----------------|-----------------|
| 1 | Ground | Power supply |
| 2 | Power supply | Ground |
| 3 | Signal output | Signal output |