

HRPS-M50

Hall-Effect Angle Sensor with Integrated Connector

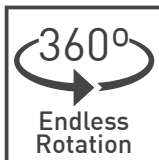


KEY FEATURES



True, contact-less operation

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



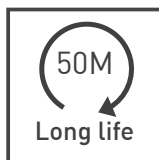
360 degree absolute position feedback

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



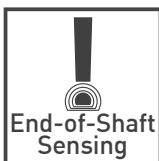
Made for harsh environments

The rugged IP67 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.



Mechanical lever available

The optional lever allows the sensor to detect positions over a larger range or area, as it can extend out from the sensor body.

DESCRIPTION

The HRPS-M50 angular sensor is a high-performance device designed for precise angle measurement. It uses a non-contact Hall effect measurement system for exceptional reliability, offering a service life of up to 50 million cycles. Housed in a robust IP67-rated enclosure, the HRPS-M50 is well-suited for demanding environments such as industrial automation, agriculture, and renewable energy.

To simplify installation and maintenance, the HRPS-M50 features a convenient integrated connector that allows for quick and secure electrical connections. With ratiometric or current-based output options, this multipurpose sensor is ideal for applications like throttle position sensing, valve monitoring, and wind turbine blade positioning.

In addition to its durable design and programmable electrical angle from 45° to 360°, the HRPS-M50 can be fitted with an optional mechanical lever for extended range detection. We also offer two off-the-shelf lever sizes—70mm and 50mm—to accommodate different setups. Like all our products, the HRPS-M50 can be adapted to meet specific customer requirements, providing a truly flexible angle sensing solution.

APPLICATIONS EXAMPLES

Industrial

- Robotics and automation feedback
- Valve monitoring
- Conveyor operation

Transportation & Agriculture & Construction

- Throttle and brake pedal position
- Suspension / height detection
- Fork height and mast tilt
- Hitch position
- Crane jib and boom angle

Renewable Energy

- Wind turbines blade pitch and yaw

HRPS-M50

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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 ¹	±1% absolute
Electrical angular range ²	Configurable from 45° to 360°
Output	
Ratiometric RE Current	10% to 90% of Supply Voltage 0.5 to 4.5 VDC 4 to 20mA
Angular resolution	0.1°
Supply voltage	4.5 to 5.5 V / 10-30V (RE-mA)
Supply current	20mA
Over / Reverse voltage protection	
Ratiometric RE, Current	+15/-10V +30V/-30V
Self-diagnostic features	Yes

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

² Models with ERA < 45°: check availability.

ENVIRONMENTAL SPECIFICATIONS	
Operating and storage temperature ¹	-40° to +125°C
Sealing	IP67, IP69K (connector not included)

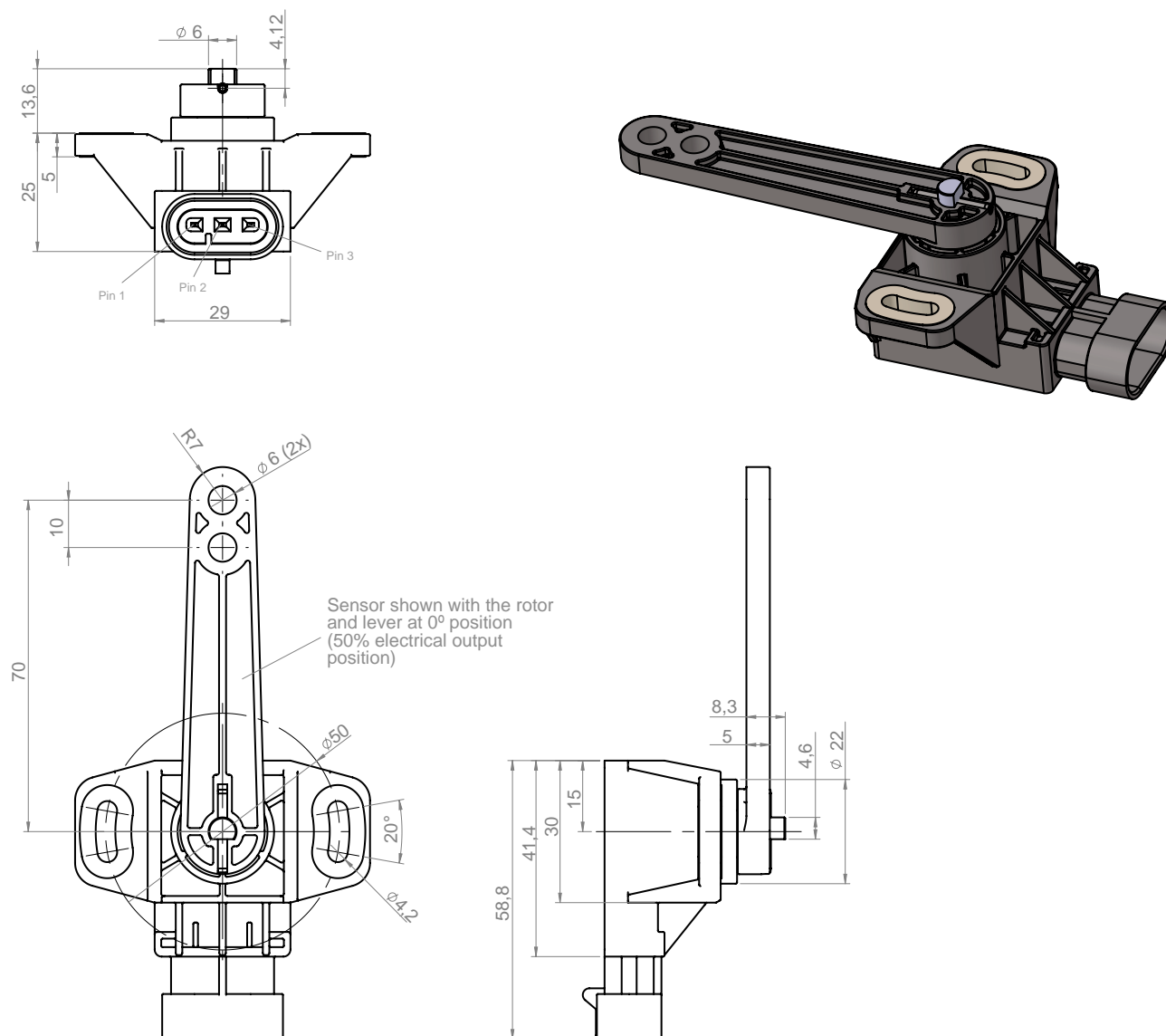
¹ Other specifications on request

HRPS-M50

Hall-Effect Angle Sensor with Integrated Connector

DIMENSIONS (MM)

SENSOR WITH "H" LEVER



 Download the 3D model file at www.pihernet.net

CONNECTION SCHEME

PIN	Function
1	Ground
2	Power supply
3	Signal output

Amp superseal 1.5 SRS, 3P integrated connector ref. 282105-1

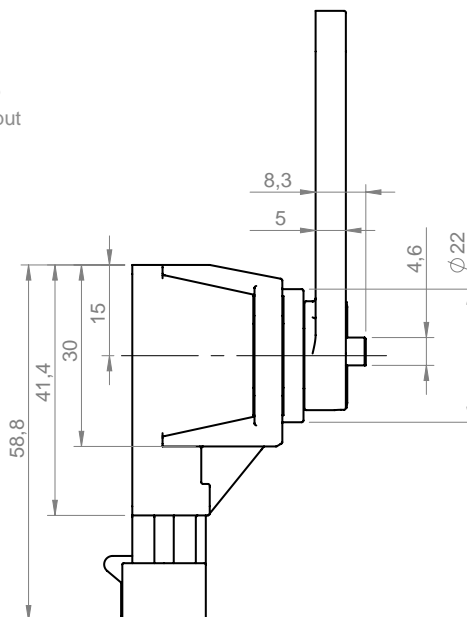
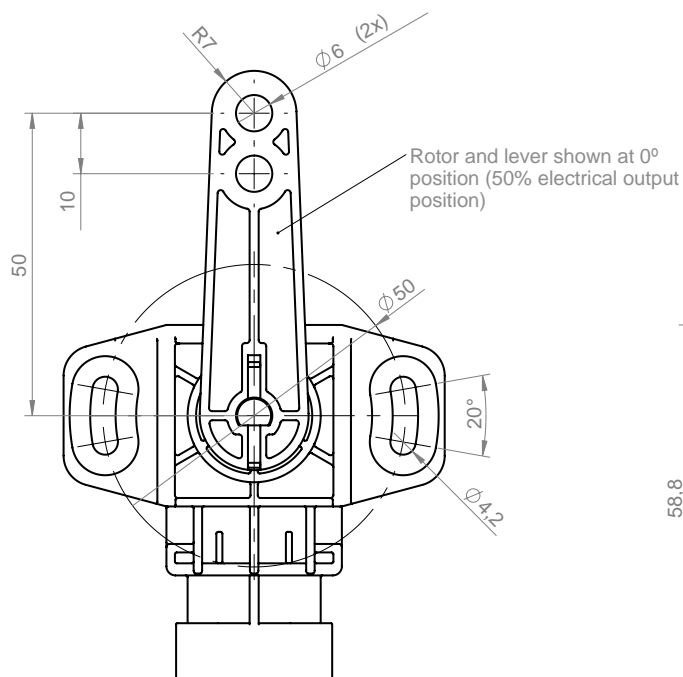
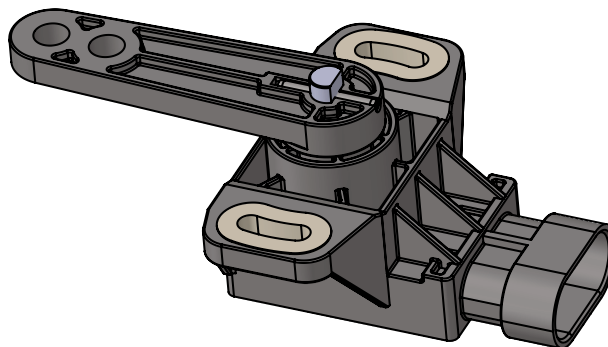
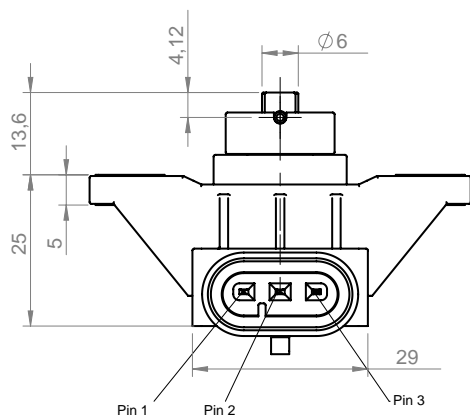
Matting connector ref: 282087-1

HRPS-M50

Hall-Effect Angle Sensor with Integrated Connector

DIMENSIONS (MM)

SENSOR WITH "K" LEVER



Download the 3D model file
at www.piher.net

CONNECTION SCHEME

PIN	Function
1	Ground
2	Power supply
3	Signal output

Amp superseal 1.5 SRS, 3P integrated connector ref. 282105-1

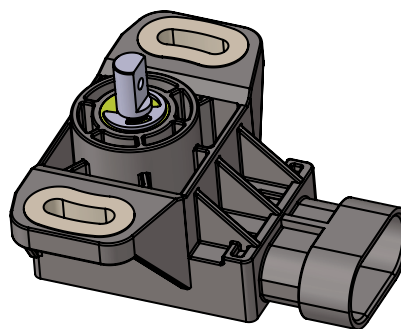
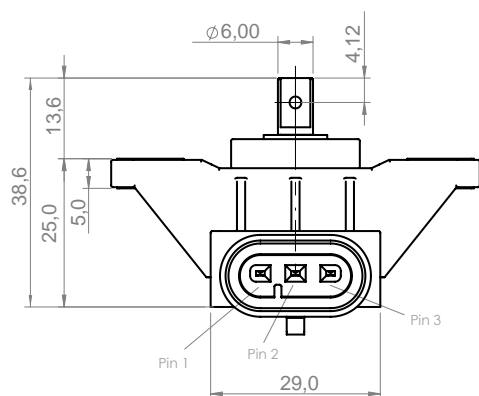
Matting connector ref: 282087-1

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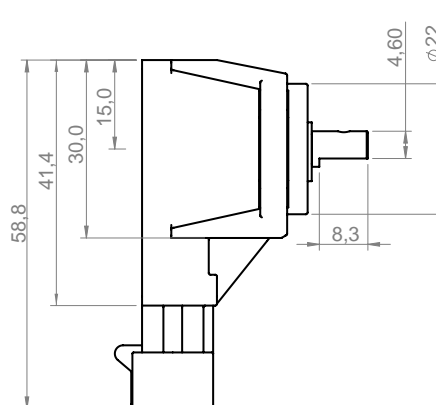
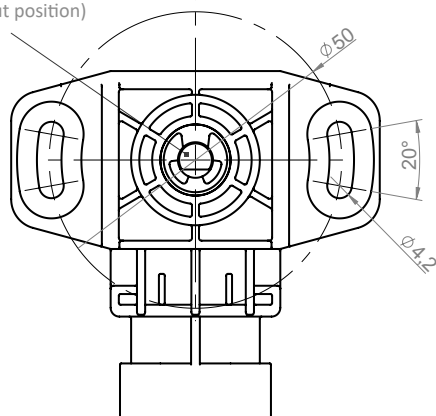
Hall-Effect Angle Sensor with Integrated Connector

DIMENSIONS (MM)

SENSOR WITHOUT LEVER



Sensor shown with the rotor at 0° position
(50% electrical output position)



Download the 3D model file
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CONNECTION SCHEME

PIN	Function
1	Ground
2	Power supply
3	Signal output

Amp superseal 1.5 SRS, 3P integrated connector ref. 282105-1

Matting connector ref: 282087-1

HRPS-M50

Hall-Effect Sensor with Integrated Connector

HOW TO ORDER (Example: HRPSM50-F-A120S-05)

HRPSM50	-	-	-	---	-	-
Series	Actuator	Output protocol ¹	Electric rotational angle ²	Output function ³	Voltage supply	
	F = flat shaft H = lever 70mm K = lever 50mm	A = analogic I = current	045 060 090 120 180 270 360	S = standard (CW) I = inverted (CCW)	05 = 4.5 to 5.5 V RE = 10 to 30 V	

1 The analog output is ratiometric, proportional:

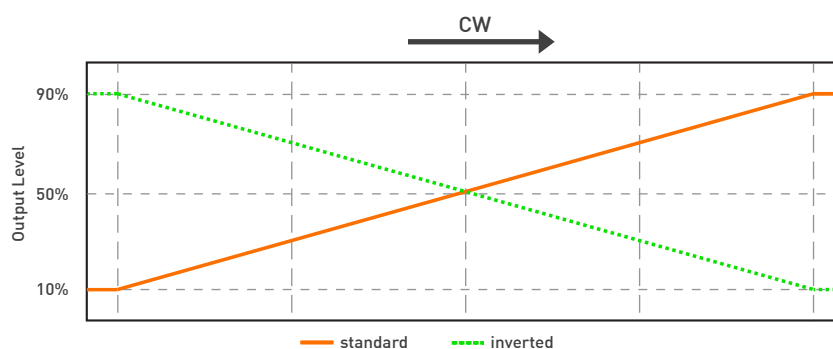
- for supply voltage "5V" to input voltage;
- for supply voltage "RE" to 5V.

"I" models (4 to 20mA) must use "RE" voltage supply.

2 Models with ERA < 45° available on request.

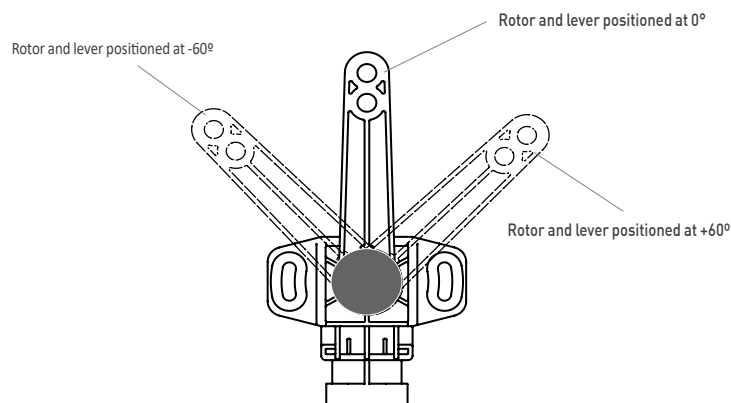
3 Other output functions available, please check availability.

OUTPUT VOLTAGE DEPENDING ON LEVER 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°
060 → -30°	0°		+30°
045 → -22.5°	0°		+22.5°

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.



HRPS-M50

Hall-Effect Sensor with Integrated Connector

SIMILAR PIHER'S ANGULAR MAGNETIC POSITION SENSORS



PSC-360U series - Panel mount 360° Angular Sensor

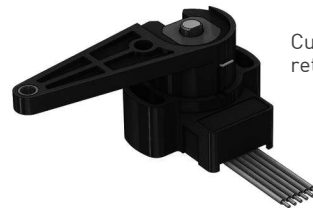


HRPS series - standard design with integrated connector

CUSTOM POSITION AND ANGLE SENSORS AND CONTROLS



Bespoke position sensor design with integrated connector



Custom design with return spring lever

One Stop Shop

Multiple Advantages



Engineering design-in support



Output customization



Cable harness and connector assembly



One-stop solution provider for different sensing technologies



Global footprint



Manufacturing capabilities for high and low volume programs



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

Hall-effect	TMR
Resistive	Inductive
Printed electronics	



To ensure you have the most up-to-date information, we recommend always downloading the latest version of this datasheet from www.piher.net

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