Enabling the Electronics Revolution

PIHER sensing systems
an Amphenol® company

HRPS

Hall-Effect Rotary Position Sensor with integrated connector

DESCRIPTION

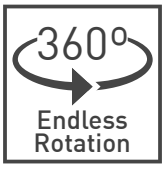
The HRPS Series of Hall-effect Rotary Position Sensors is a cost-effective, non-contacting position sensing solution for applications in harsh environments such as transportation and industrial.

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

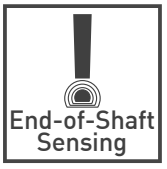
True, contactless operation
Without any gears or mechanical interfaces the sensor is easily assembled and calibrated and subject to limited wear and tear over lifetime.



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 inverted	 10% to 90% Vdc (CW) 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

EMI / EMC TESTING

Characteristic	Standard	Level
Radiated emissions	EN 55032	30 MHz to 1000 MHz
Electrostatic Dischargue (ESD)	ISO 10605	±4 kV contact; ±8 kV air
EFT (Electrical fast transient) / Burst Immunity	EN 61000-4-4	±1 kV
Immunity to interference (BCI)	ISO 11452-4	1 MHz - 200 MHz (Level 100mA)
Immunity to interference (ALSE)	ISO11452-1 + ISO 11452-2	20 MHz - 2 GHz Level 100 V/m
Immunity to conducted disturbances	EN 61000-4-6	150 kHz to 80 MHz – Level 10V

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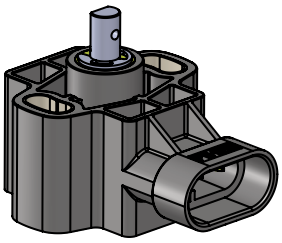
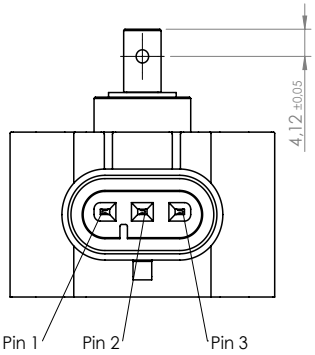
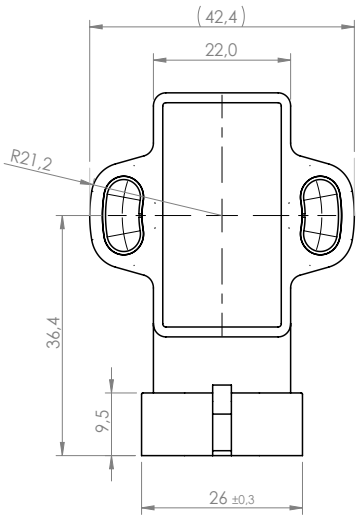
DIMENSIONS (MM)

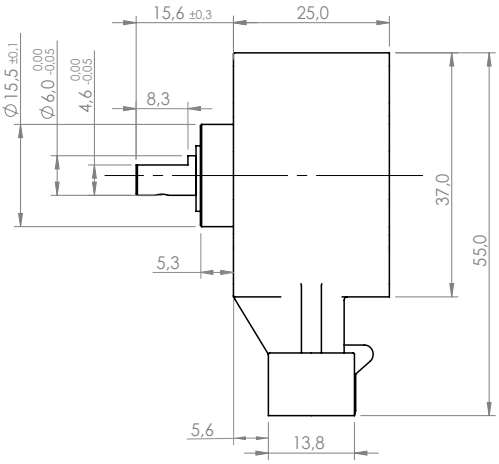
HRPS-F (w/o lever)

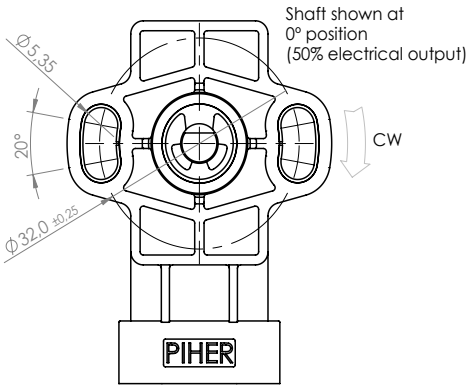
Download the STEP f le here:
www.piher.net



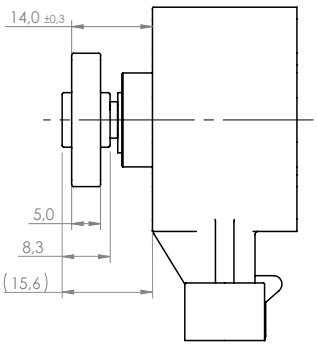


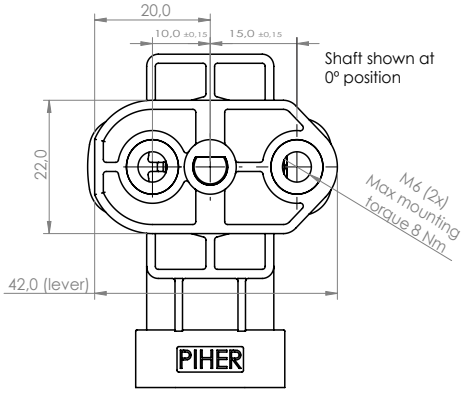


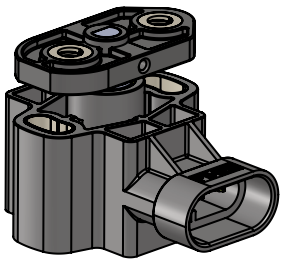




HRPS-H (with lever)







CONNECTION SCHEME

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

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HOW TO ORDER

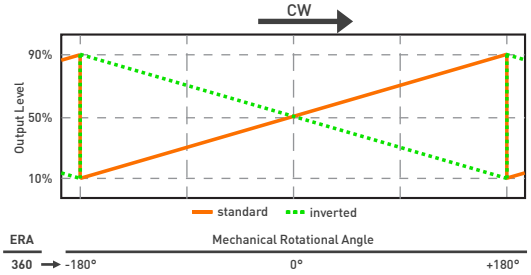
HRPS-Series

HRPS	-	_	-	___	_	-	__	-	_
Series		Actuator		Electric rotational angle	Output Function		Voltage supply		Pinout
		F = Shaft w/o lever H = Shaft with lever		050 060 070 090 120 180 270 360	S = standard (CW) I = inverted (CCW)		05 = 5V ±10% RE = 7V-30V		E = European A = American

check inventory

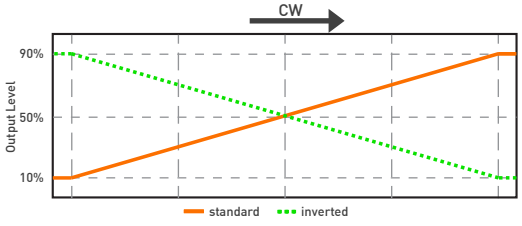
OUTPUT FUNCTIONS

360 degrees



ERA	Mechanical Rotational Angle		
360 →	-180°	0°	+180°

Others



ERA	Mechanical Rotational Angle		
270 →	-135°	0°	+135°
180 →	-90°	0°	+90°
120 →	-60°	0°	+60°
090 →	-45°	0°	+45°
070 →	-35°	0°	+35°
060 →	-30°	0°	+30°
050 →	-25°	0°	+25°

Custom output functions on request.

Please always use the latest updated datasheets and 3D models published on our website.

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