

HRPM

Hall-Effect Rotary Position Sensor with integrated connector

DESCRIPTION

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

This compact sensor with integrated AMP superseal connector is based on a touchless concept with separate housings for electronics and magnet. The magnet is mounted on the actuated axis and without wear and tear due to radial forces, the reliability and lifetime are increased significantly.

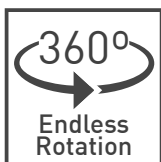
Fully sealed and flanged mounted for easy positioning, the sensor is versatile with configurable angular ranges from 50 to 360 degrees, option for a bare or housed magnet, different pin-outs and support for low and high-voltage power supply.

KEY FEATURES



True touchless operation

Without any internal or external gears or linkages the sensor is easily assembled and calibrated and free from 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.



Unlimited mechanical life

The separation of electronics and magnet module allows for a virtually unlimited lifetime independent of number of revolutions.



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.

POTENTIAL 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	Virtually unlimited
Mechanical range	360° (endless rotation)
Mating connector	AMP Superseal 282087-1
Air Gap	3 ± 0.5 mm
Mounting screw sizes	
Sensor to mounting surface	non-magnetic, stainless steel M4 X 0.7 screws and 8 mm OD washers
Housed magnet to actuator mounting shaft	non-magnetic, stainless steel M3 X 0.5 plain cup point set 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)	
Linearity	± 1% (0,5% on 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

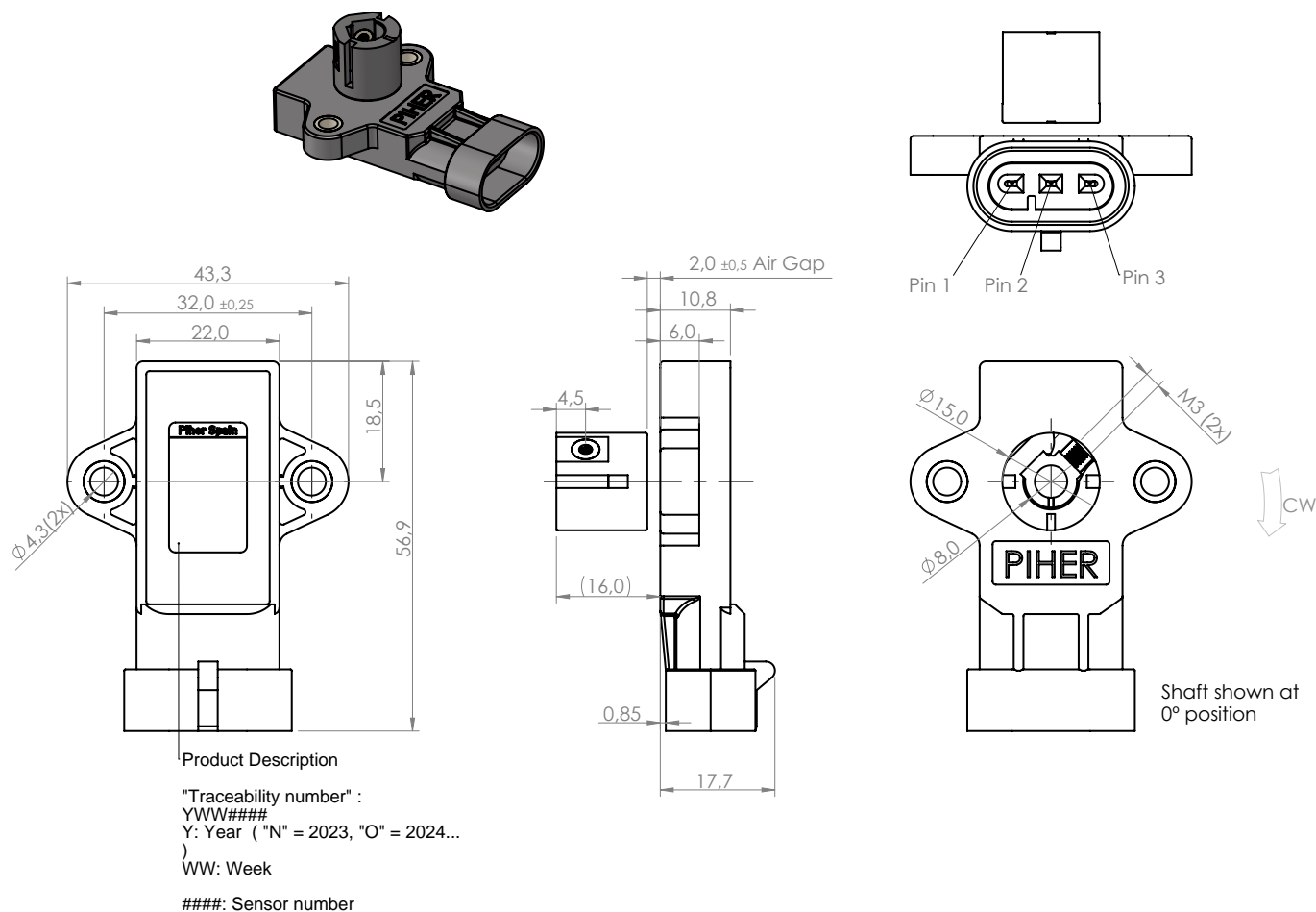
Characteristic	Standard	Level
Radiated emissions	EN 55032	30 MHz to 1000 MHz
Electrostatic Discharge (ESD)	ISO 10605	±4 kV contact; ±8 kV air
EFT (Electrical fast transient) / Burst Immunity	EN 61000-4-4	±1 kV
Immunity to interference (BCI)	ISO 11452-4	1 MHz - 200 MHz (Level 100mA)
Immunity to interference (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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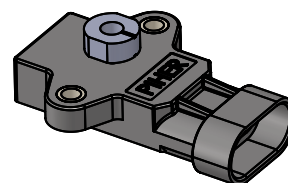
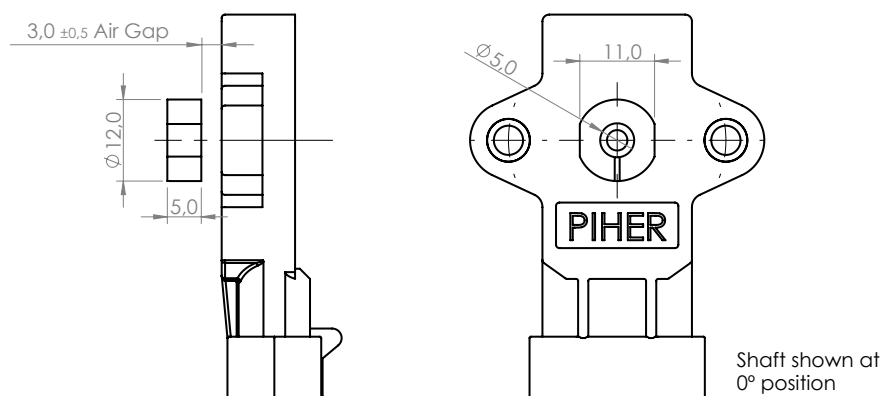
DIMENSIONS (MM)

HRPM-A (housed magnet)



HRPM-M (bare magnet)

Download STEP files here:
www.piher.net



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

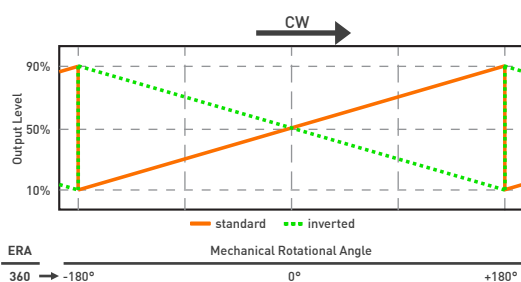
HRPM-Series (two piece design / separate magnet)

HRPM	-	-	---	-	--	-	-
Series	Actuator	Electric rotational angle	Output Function	Voltage supply	Pinout		
	M = Bare magnet A = Housed magnet	050 060 070 090 120 180 270 350 360	S = standard [CW] I = inverted [CCW]	05 = 5V ±10% RE = 7V-32V	E = European A = American		

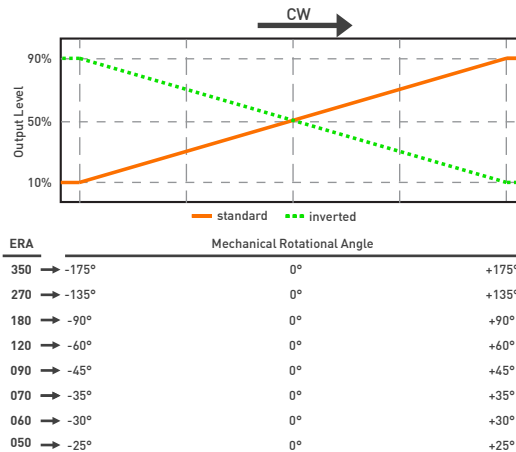


OUTPUT FUNCTIONS

360 degrees



Others



Custom output functions on request.



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

Disclaimer

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