



**PIHER** *sensing*  
*systems*  
an Amphenol® company

# Industrial Automation

Overview

# Automation Industrial Applications

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Gembal camera



Robot Arm Position



Joystick controls



Valve Position



Autonomous Mobile Robots



Industrial Gears

# Contactless Rotary and Linear Position Sensors

# Inductive and Hall-effect Technology

Industry  
4.0



# Contactless Position Sensors

Piher Sensing Systems Named a 2023 Best of Sensors Awards Finalist

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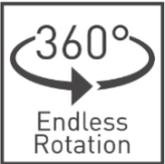
*“Real time tracking and control of industrial components such as robotic arms, conveyor systems, and actuators and other movable parts is crucial for ensuring optimal motion control, efficiency and safety.”*

# Contactless Position Sensors

## Hall-effect Position Sensors



Non-contacting



360°  
Endless Rotation



50 million  
Extra-long life

Available with

**CAN**

### End-of-shaft sensors



### Touchless sensors



### Through shaft sensors



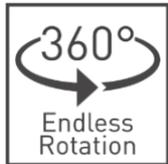
### Play resistant



Position sensors in industrial robots are used to determine the current location of the robot arm and its attachments. Our non-contact magnetic position sensors are highly accurate and can be placed in robot pivot joints where angle or linear position feedback is needed.

# Contactless Position Sensors

## Miniature Hall-effect Rotaru Position Sensors



Available with  
**CAN**



### Applications

- Embedded OEM motion control applications
- Throttle/EGR valve and gear position sensor
- Medical devices
- Industrial automation displacement sensor
- Joysticks and hand controls
- Automatic guided vehicles (AGVs) steering sensor
- HVAC monitoring & control



# Touchless Position Sensors

## Rotary and Linear Hall-effect Position Sensors

### Touchless sensors

- Separate sensing element and magnet
- Virtually **unlimited mechanical life**
- **Truly touchless**, no need for gears or bearings
- Easy to assemble with low sensitivity to radial and axial play
- Compact, **fully sealed modules**

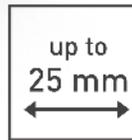
#### Customization options

- Magnet mounting
- Linear stroke up to 40mm

PS2P-LIN



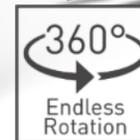
Available with  
**CAN**



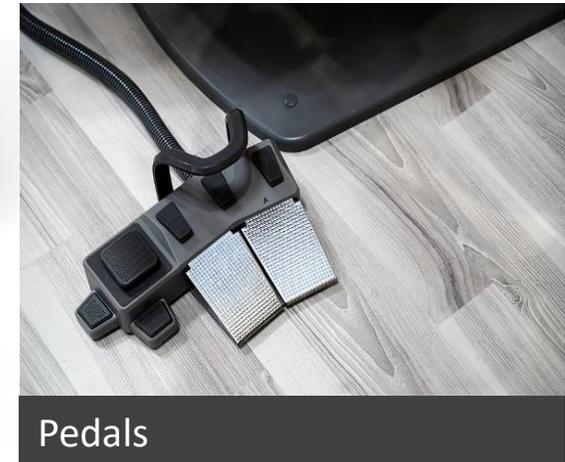
HRPM



PS2P-CON



Gears shift



Pedals

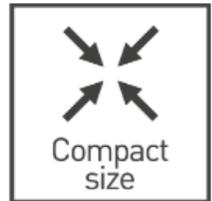
# Play Resistant Arc Position Sensor

2-piece design immune to radial and axial play

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Available with

**CAN**

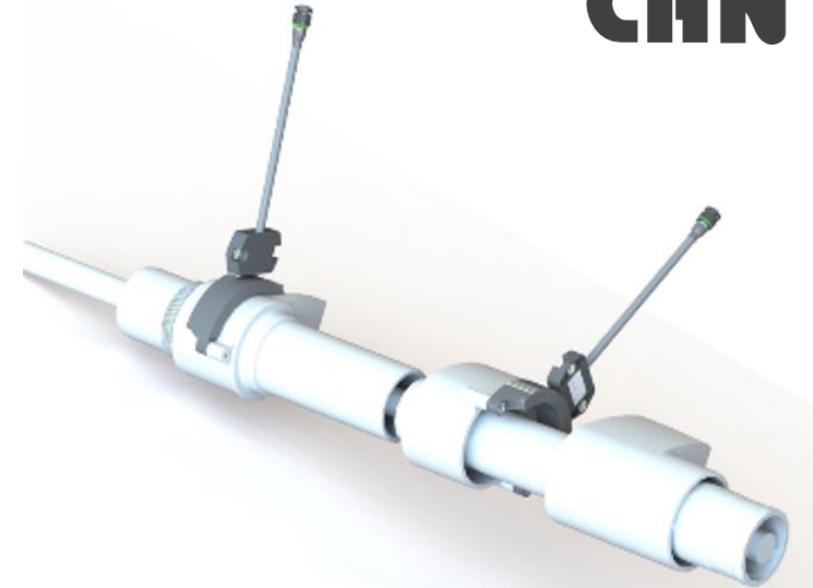


## Play resistant

- Immune to radial and axial play
- Virtually unlimited mechanical life
- **Air gap** distance between sensor and target can be customized
- Also available based on inductive technology



PS2P-ARC



Radial / Torsion monitoring in cylinders

# Contactless Position Sensors

## Inductive Position Sensors

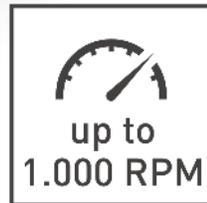


- Excellent accuracy
- Reliable **non-contacting** position feedback in compact packaging
- High performance in **harsh environmental conditions**
- Suitable for environments with **electromagnetic strayfields**



PSAI

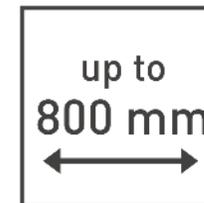
Rotary Sensors



Available with  
**CAN**



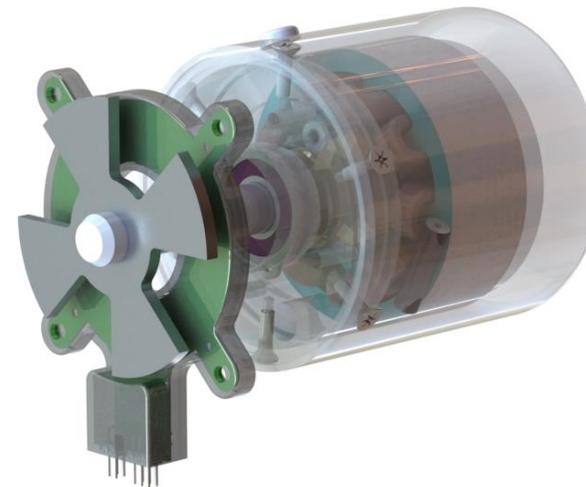
Linear Sensors



# Inductive eMotor Rotor Position Sensor



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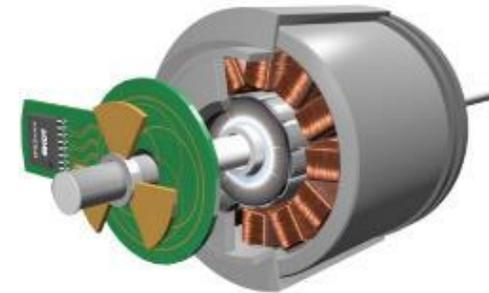
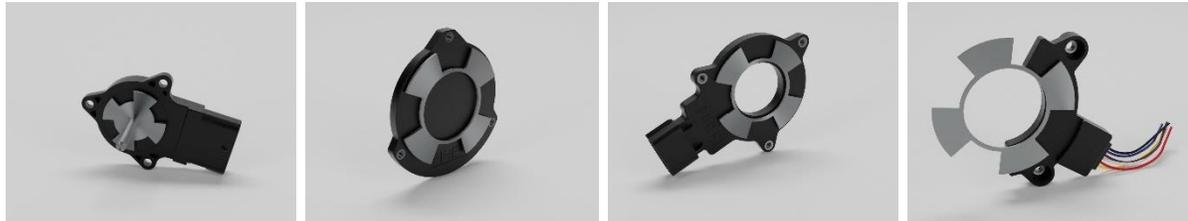
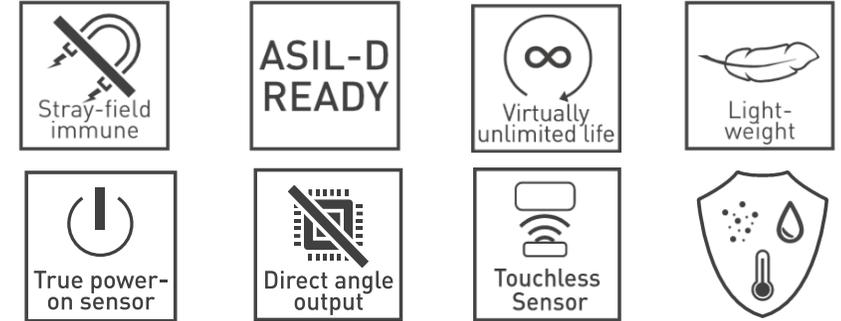
# Inductive eMotor Rotor Position Sensors

Alternative to conventional resolvers

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## ➤ Key Features

- Rotor position sensor for high-speed and low motor commutation
- Up to 600.000 rpm (if only 1PP)
- Low power consumption
- Cost efficient and lightweight by design
- Stray field immune
- Flexible design (end of shaft, through shaft and arc):



# Speed Sensors

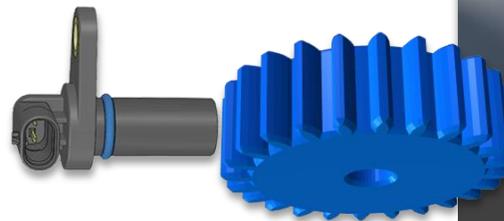


# Gear Speed Sensors

## Hall-effect Speed and Direction Sensors



- Speed and direction feedback
- Solid state sensor based on Hall effect working principle
- Resistant for harsh industrial environments

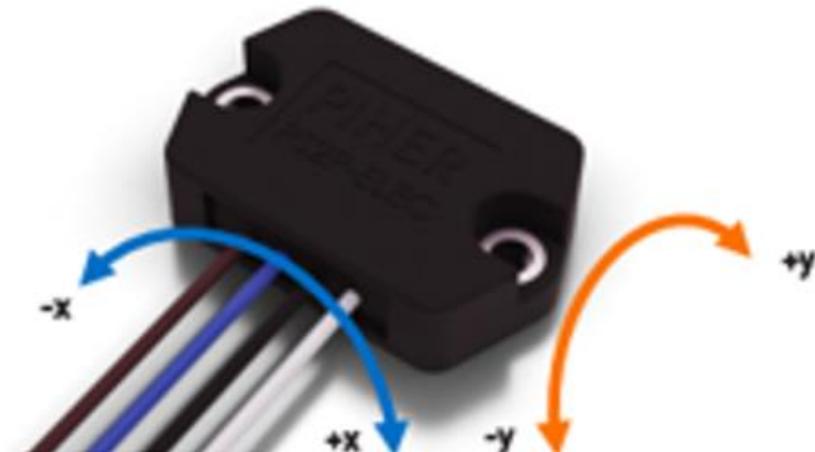


Industrial conveyors



Gear speed & direction

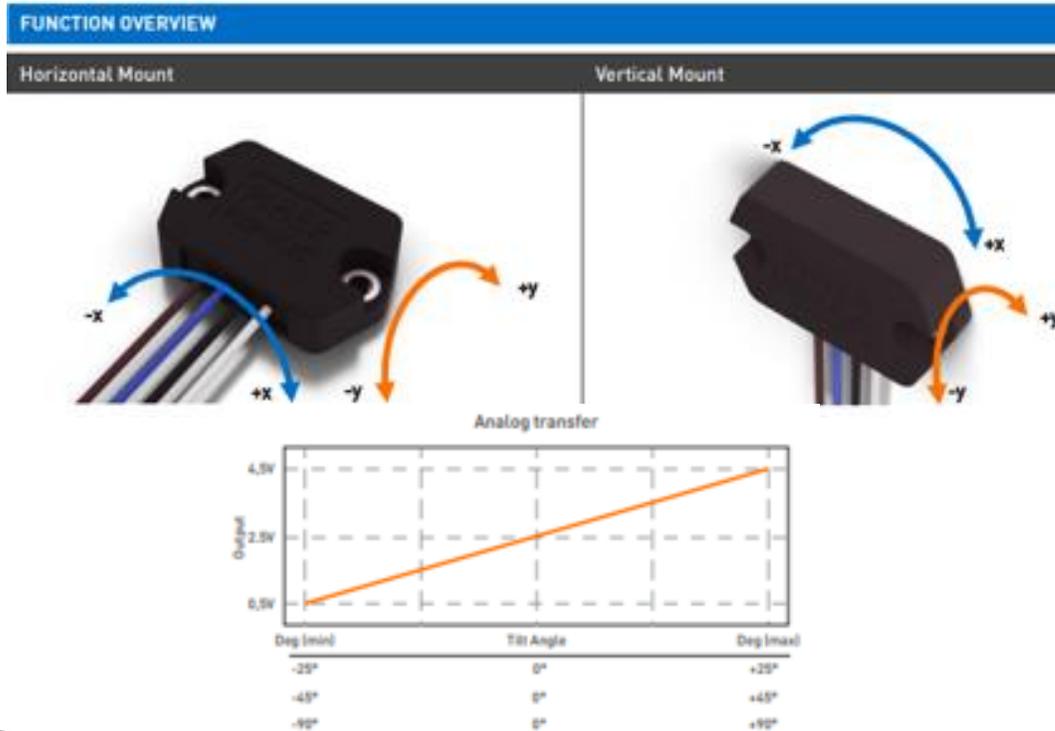
# Tilt Sensors



# Tilt sensors

## Dual axis MEMS inclinometer

- Reliable and wear-free MEMS technology
- Dual axis combined gyroscope and accelerometer
- Analog and CAN output



# Trimmer & Control Potentiometers



# Control Potentiometers

## PCB mounting

- Through hole potentiometers



- SMD potentiometers



### Application Examples



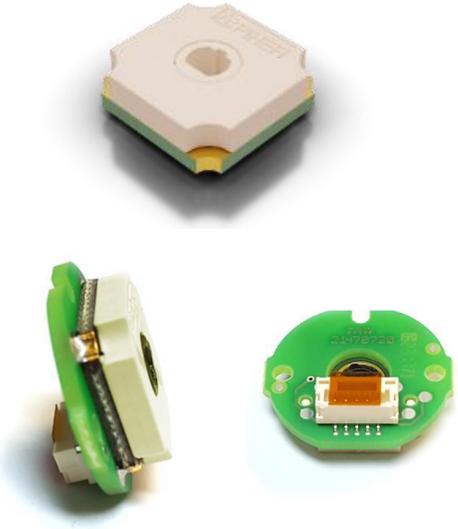
Detection



Timer and control Relays

# Industrial actuators

Highly customizable rotary control

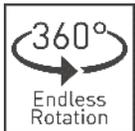


## Key Features

- SMD or Through-hole mount
- Excellent performance (3% linearity)
- Up to 2.000.000 life cycles
- Endless rotation with 340° electrical angle
- Low profile (4.4 mm) and footprint (15 mm)
- Embossed tape packaging according to IEC

**Also available as 6-pulse incremental encoder or mechanical switch with up to 12 positions.**

N-15



## Application Examples



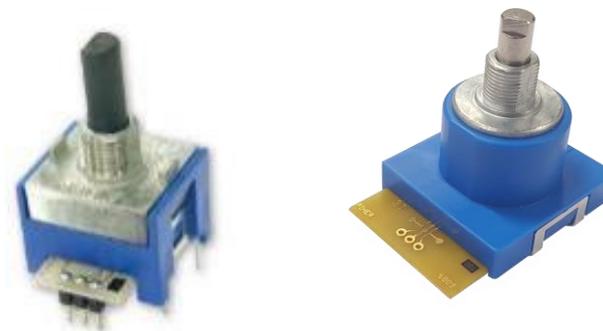
GIMBAL CAMERA



GEAR SHIFT KNOB

# Panel Controls

Industry  
4.0



Magnetic  
Non-  
contact  
types  
available

# Panel Controls

## Push-To-Turn Panel Controls / HMI

### Key Features

- Selectors with added value top features:
  - Dual shaft control with two functions in a single knob
  - Boost angle range
  - Curves, detents, end stops, shaft
- Output options:
  - Gray code/incremental encoder



### Application Examples



CNC machines use various control interfaces such as working mode selection or speed selection. Our panel-mount potentiometers features a mechanical packages where the rotary movement can be combined with robust detent mechanisms to obtain a high number of mechanical stops.

Thank you!



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