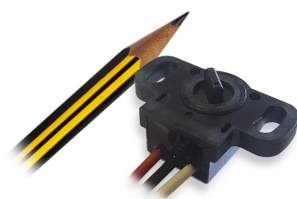


Magnetic rotary angle and position sensor-control

# Miniature Hall-effect Rotary Position Sensor

## MSC-360



Despite its lightweight and miniature size of only 21mm., this hall effect sensor delivers high performance with up to 360° electrical angle (without dead zone), 12bit resolution, extended life and EMI & ESD protection.

The MSC-360 can easily be tailored to customers' needs providing value at the lowest cost even for the most demanding environments.

### Mechanical specifications

Rotational life (depends on application and mounting)	7.000.000 cycles
Operating temperature <sup>1</sup>	-40°C to +125°C
Sealing	IP67 (electronics)

### Electrical specifications

Linearity <sup>1</sup>	±1.5% absolute
Angular range	Programmable from 90 to 360 degrees (without dead band)
Output	Analog, PWM
Over voltage protection	+10V
Reverse voltage protection	-10V
Angular resolution	12 bit
Supply voltage	5V ±10%
Supply current	Typ 12,6mA

<sup>1</sup> Others: check availability.

### Key features

- Simple & Robust magnetic compact design
- Endless rotation
- Up to 360° of electrical angle
- Magnetic shielding (models without shielding are available for better cost-effectiveness)
- Programmable linear transfer characteristics (positive slopes & negative slopes can be programmed)
- Self-diagnostic features
- Over voltage protection and reverse voltage protection
- Analog and PWM output
- Simple or redundant output

### Applications

- Non-Contacting long life angle/position sensor.
- Absolute rotary position sensor
- Pedal position sensor.
- Throttle/EGR valve and gear position sensor.
- Height & suspension sensor.
- Non-contacting potentiometer.
- Float-level sensor.
- Joysticks and hand controls.
- Automatic guided vehicles (AGVs) steering sensor.
- Robotics, material handling, industrial equipment, HVAC monitoring & control, etc.

Magnetic rotary angle and position sensor-control

Miniature Hall-effect Rotary Position Sensor  
MSC-360

How to order (examples: MSC360-1A-C004-ERA360-05K- )

MSC360

Series

-

1

Type

1 = simple  
2 = redundant

-

A

Output

A = analog  
P = PWM

-

C0004

Output function\*

C0004  
C0005  
C0021

-

ERA360

Electrical rotation angle

ERA090  
ERA091  
...  
ERA360

-

0 5

Voltage supply

5 V

-

K

Temp. range

K= -40 to +125°C

-

-----

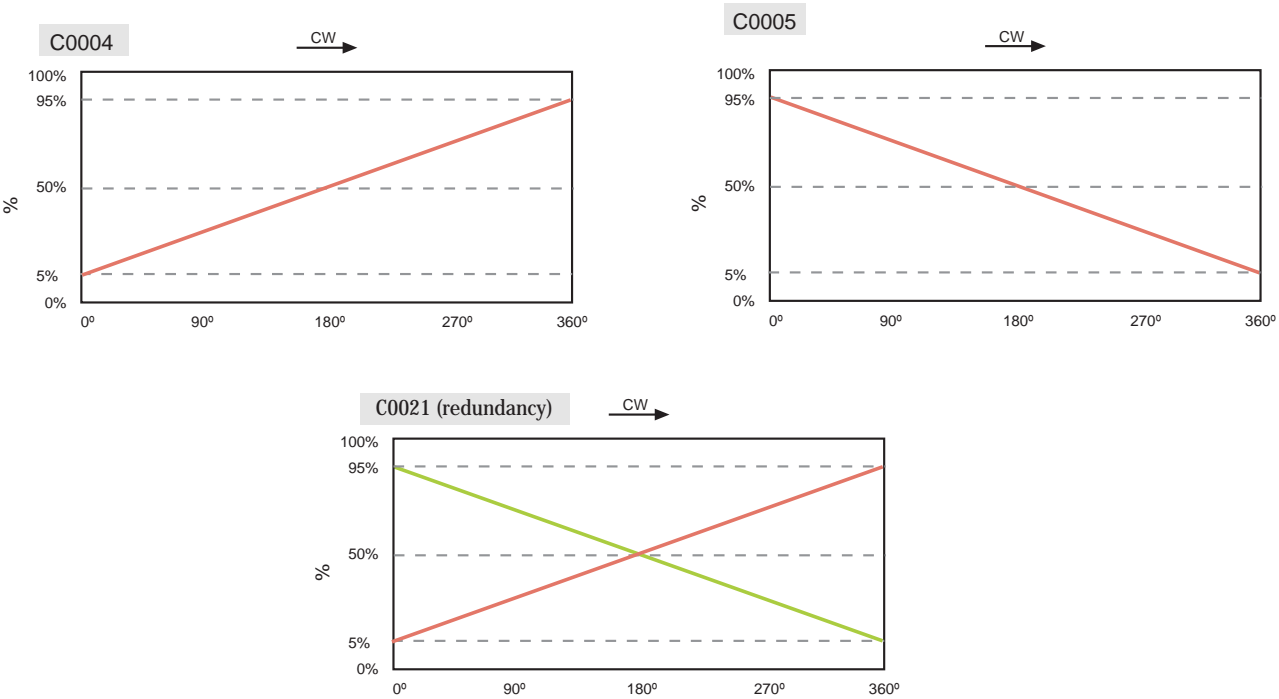
PWM Frecuency\*\*

F156 ..... 156.25 Hz  
F312 ..... 312.5 Hz  
F625 ..... 625 Hz  
F1K2 ..... 1.25 KHz  
F2K5 ..... 2.5 KHz  
F05K ..... 5 KHz  
F10K ..... 10 KHz  
F20K ..... 20 KHz

\*Other output functions available check availability

\*\* Leave empty if no applicable. Default frequency is 2.5 KHz

Output



Tests

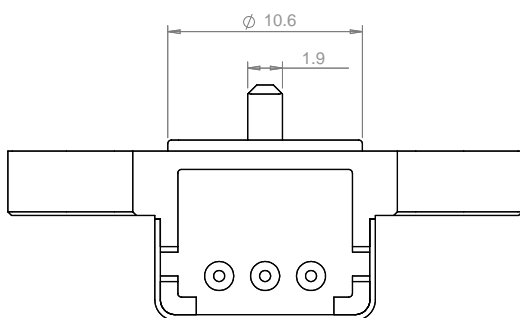
Vibration	EN 60068-2-6	200 m/s², 5 ~ 500 Hz 10 min, 3 axis 2 hours (Room Temp.)
Shock	EN 60068-2-27	500 m/s², 11 ms, 3 axis 3 times (Room Temp.)
IP sealing	IEC 60529	IP67
Operating & storage temperature	°C	-40 to +125
Life	cycles	7.000.000
Mechanical range	degrees	360 (continuous rotation)
EMS	ISO 11452 - 2, 3	100 V/m, 1 MHz ~ 1 GHz
ESD	IEC 61000-4-2	Contact discharge - case to each terminal: ±15 KV Contact discharge - between each terminal: ±15 KV
Wire	SAE J1128	3x 22 AWG TXL. Temp. -40 to +125°C

Check availability for orther specifications

## Magnetic rotary angle and position sensor-control

# Miniature Hall-effect Rotary Position Sensor MSC-360

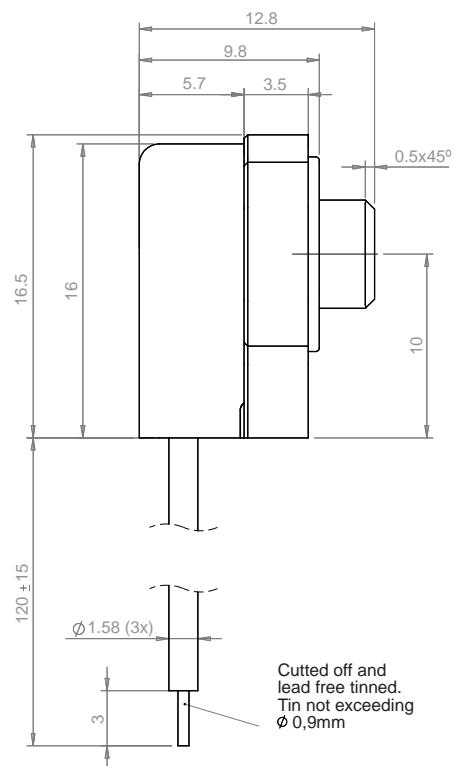
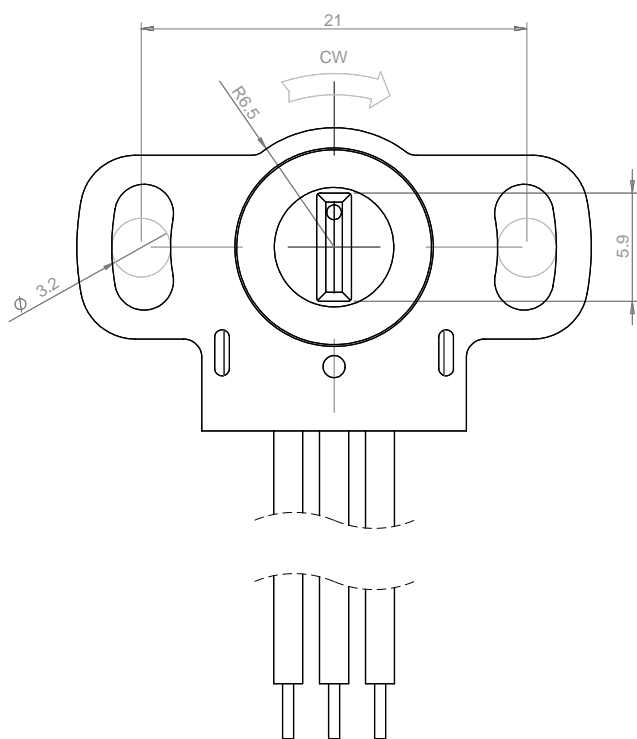
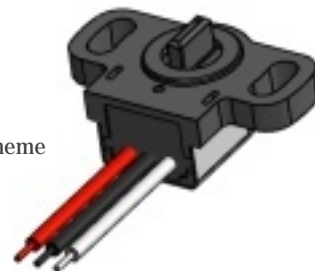
### Dimensions (simple output model with shielding)



Rotor is shown at 180° position.  
The sensor is delivered at random position.

#### Connection scheme

Red = Vcc  
Black = Ground  
White = Out



Download the STEP file here:  
<https://piher.net/piher/?p=1700>

## Magnetic rotary angle and position sensor-control

# Miniature Hall-effect Rotary Position Sensor MSC-360

### Disclaimer



Electronic semiconductor products are sensitive to Electro Static Discharge (ESD). Always observe Electro Static Discharge control procedures whenever handling semiconductor products.

The product information in this catalogue is for reference purposes. Please consult for the most up to date and accurate design information.

Piher Sensors & Controls S.A., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, "Piher"), disclaim any and all liability for any errors, inaccuracies or incompleteness contained herein or in any other disclosure relating to any product described herein.

Piher disclaims any and all liability arising out of the use or application of any product described herein or of any information provided herein to the maximum extent permitted by law. The product specifications do not expand or otherwise modify Piher's terms and conditions of sale, including but not limited to the warranty expressed therein, which apply to these products.

No licence, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Piher.

The products shown herein are not designed for use in medical, life-saving, or life-sustaining applications unless otherwise expressly indicated. Customers using or selling Piher products not expressly indicated for use in such applications do so entirely at their own risk and agree to fully indemnify Piher for any damages arising or resulting from such use or sale. Please contact authorised Piher personnel to obtain written terms and conditions regarding products designed for such applications.

Piher is an Amphenol™ company. Product names and markings noted herein may be trademarks of their respective owners.

Information contained in and/or attached to this catalogue may be subject to export control regulations of the European Community, USA, or other countries. Each recipient of this document is responsible to ensure that usage and/or transfer of any information contained in this document complies with all relevant export control regulations. If you are in any doubt about the export control restrictions that apply to this information, please contact the sender immediately. For any Piher Sensors & Controls SA. Exports, Note: All products / technologies are EAR99 Classified commodities. Exports from the United States are in accordance with the Export Administration Regulations. Diversion contrary to US law is prohibited.

### Our Advantage Value added proposition



Engineering  
design-in  
support



Output  
customization



Cable harness and  
connector assembly



One-stop solution provider for  
different position sensing technologies

Hall-effect	Potentiometric	Inductive
Capacitive	Reed switch	Printed PCB



Global footprint



Manufacturing capabilities  
for high and low volume programs



Diverse portfolio of standard and customised sensors:  
Temperature, Gas & Moisture, Pressure, etc.

### Contact

Tel: +34-948-820450

sales@piher.net  
www.piher.net



**RoHS**  
compliant

Note: All Piher products can be adapted to meet customer's requirements.  
Due to continuous process improvement, specifications are subject to change without notice.  
Please always use the datasheets published at our website [www.piher.net](http://www.piher.net) for the most up-to-date information.

v261020

### Piher Sensors Systems

Potentiometers | [Hall-effect sensors](#) | Inductive sensors  
Printed electronics | Value added assemblies

**PIHER** *sensing*  
systems

# Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

[Amphenol:](#)

[MSC360-1A-C0004-ERA360-05K](#) [MSC360-1A-C0022-ERA090-05K](#) [MSC360-1P-C0004-ERA360-05K](#) [MSC360-1A-C0007-ERA180-05K](#)