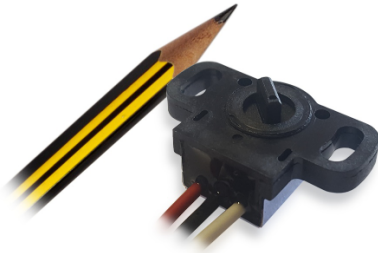


MSC-360

Miniature Hall-Effect Rotary Position Sensor



DESCRIPTION

This rotary sensor provides a perfect fit for preferential use in space constraint applications. Despite its lightweight and miniature size of only 28mm x 17mm, 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 high price-performance ratio even for the most demanding environments.

KEY FEATURES



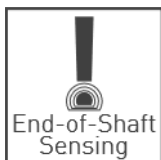
True, contactless operation
Without any gears or mechanical interfaces the sensor is easily assembled and calibrated and subject to limited wear and tear over lifetime.



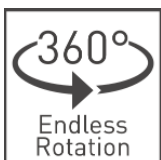
Fits in the smallest of spaces
With a packaging space of less than 28 x 17 x 13 mm and less than 7g this rotary sensor can be used in even the most space-constraint application.



Made for harsh environments
The rugged package protects the sensor from dust, moisture, vibration and extreme temperatures for usage in the most demanding environments.



Integrated shaft
The magnet is securely fastened to the shaft and acts as only moving component in the sensor.



360 degree absolute position feedback
Endless mechanical rotational angle without dead band, keeps the position on power loss with programmable electrical angles from 90 to 360 degrees.



Adaptable to your requirements
Programmable transfer function as well as different output protocols and redundancy levels available.

APPLICATIONS

Industrial

- ▶ Instrumentation
- ▶ Autonomous warehouse robotics
- ▶ Robotics and automation feedback
- ▶ Hand controls
- ▶ Float level sensor

Home and Building Automation

- ▶ HVAC systems
- ▶ Valve monitoring

Transportation

- ▶ EGR valve
- ▶ Gear position sensor
- ▶ Autonomous steering
- ▶ Joystick controls
- ▶ Hand throttle position

MSC-360

Miniature Hall-Effect Rotary Position Sensor

MECHANICAL SPECIFICATIONS

Rotational life ¹	Up to 7,000,000 cycles
Mechanical range	360° [endless rotation]
Magnetic shielding	Yes, models without shielding also available
Shaft Diameter	5.9mm

¹ Higher rotational life upon request

ELECTRICAL SPECIFICATIONS

Linearity ^{1,2}	±1.5% absolute
Electrical angular range ¹	Programmable from 90° to 360°
Output protocols	Analog (Ratiometric), PWM
Output	Simple Redundant
Resolution	Analog, PWM Up to 12 bit
Supply voltage ¹	5V ±10%
Supply current	Simple output Typ 12.6 mA
Voltage protection	+20V / -10V
Self-diagnostic features	yes

¹ Other specifications available

² Ferromagnetic materials close to the sensor (i.e. mounting surface) may affect the sensor's linearity.

ENVIRONMENTAL SPECIFICATIONS

Characteristic	Standard	Level
Operating and storage temperature ¹	n/a	-40° to +125°C
Shock	EN 60068-2-27	500 m/s ² , 11 ms, 3 axis 3 times (Room Temp.)
Vibration	EN 60068-2-6	200 m/s ² , 5 ~ 500 Hz 10 min, 3 axis 2 hours (Room Temp.)
Sealing	IEC 60529	IP67
EMS	ISO 11452-2, 3	100 V/m, 1 MHz ~ 1 GHz
ESD	IEC 61000-4-2	Contact discharge - case to each terminal: ±15kV Contact discharge - between each terminal: ±15kV

Check availability for other specifications

HOW TO ORDER (EXAMPLE: MSC360-1A-C004-ERA360-05K)

Simple Output - Analogic and PWM

MSC360	-	-	-	C _____	-	ERA ____	-	05		K	-	_____
Series		Type	Output¹	Output function²		Electric rotational angle⁴		Voltage supply		Temperature range		PWM Frequency Hz⁵
		1 = simple 2 = redundant	A = analogic P = PWM	C0004 C0005 C0021 C0022		ERA090 ERA091 ... ERA360		05 = 5V ±10%		K = -40°C to +125°C		[...] / F2K5 = 2.5kHz F156 = 156.25Hz F312 = 312.5Hz F625 = 625Hz F1K2 = 1.25kHz F05K = 5kHz F10K = 10kHz F20K = 20kHz

¹ The analog output is ratiometric, proportional to input supply voltage.

² Other output functions available, please check availability. Enter CXXXX as long as the new output function is not defined.

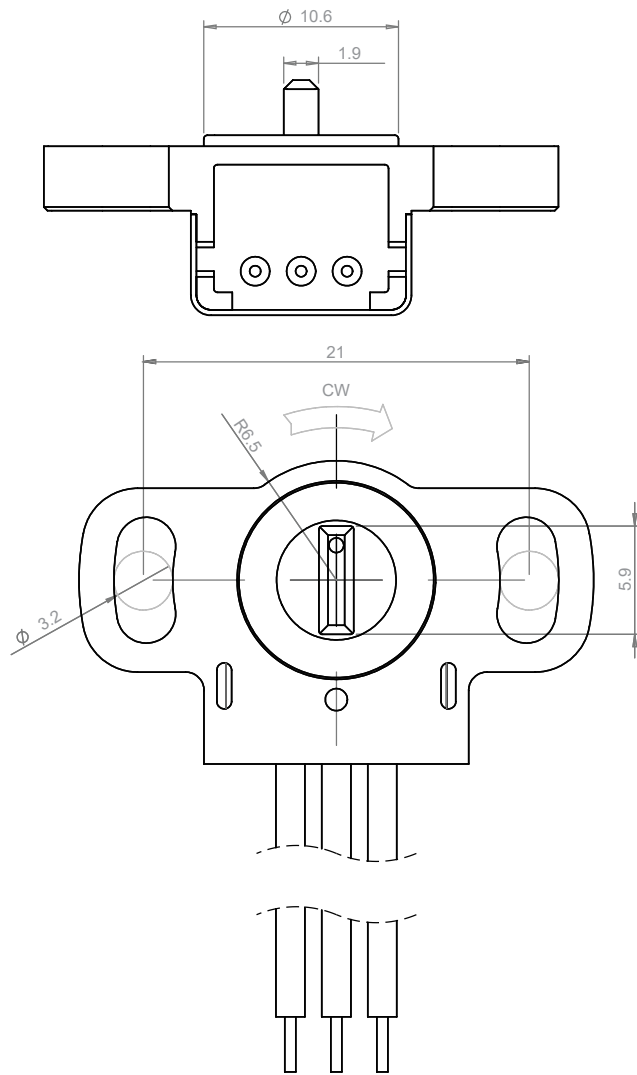
³ Leave empty if not applicable. Default frequency is 2.5kHz

MSC-360

Miniature Hall-Effect Rotary Position Sensor

DIMENSIONS (MM)

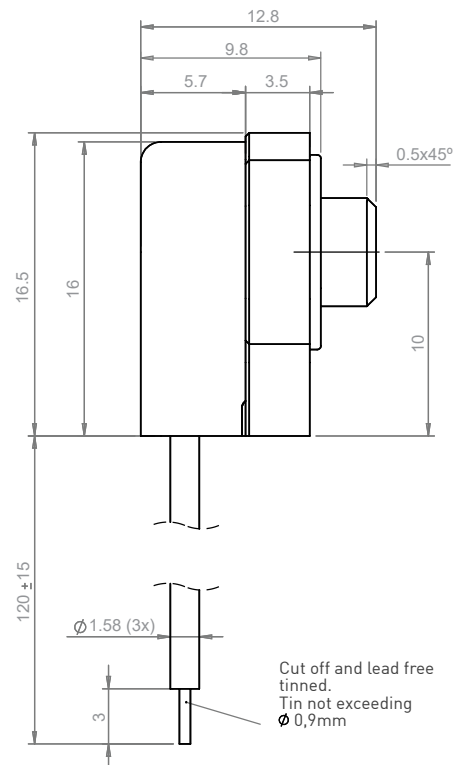
Simple output model with shielding




CONNECTION SCHEME

- Red = Vcc
- Black = Ground
- White = Out

Wires: 3x 22 AWG
TXL SAE J1128



Rotor is shown at 180° position. Sensor is delivered at random position

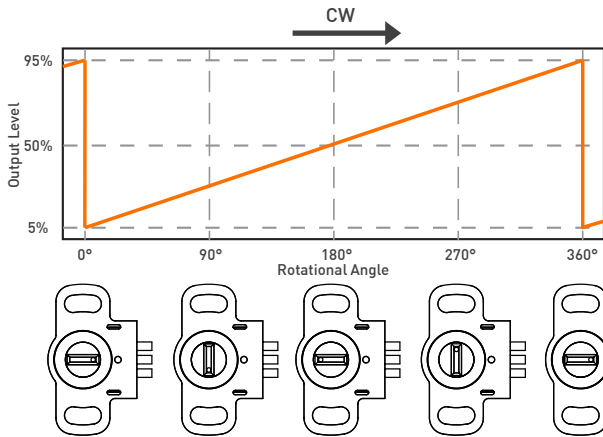
 Download the STEP file here:
www.piher.net

MSC-360

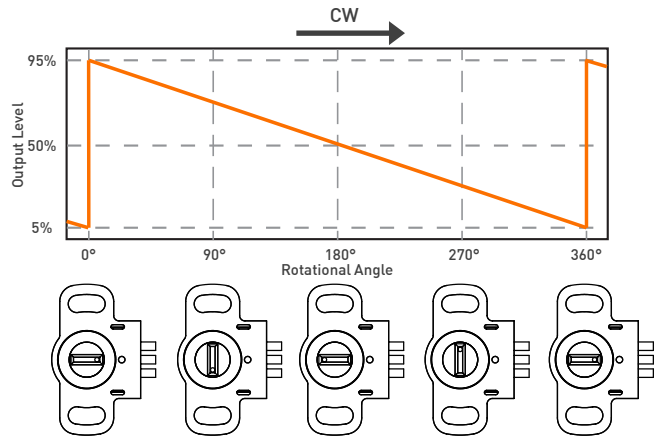
Miniature Hall-Effect Rotary Position Sensor

OUTPUT VOLTAGE DEPENDING ON SHAFT POSITION

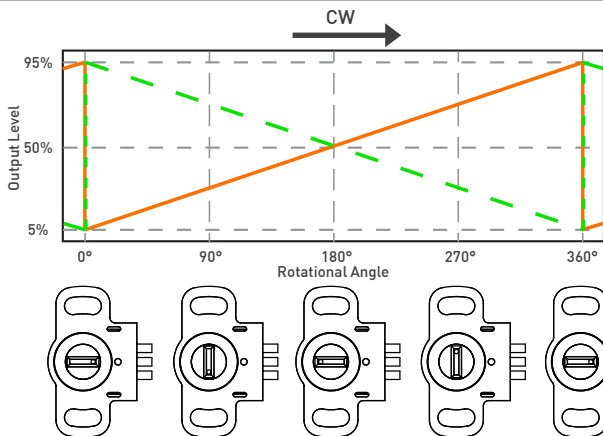
MSC360-1A-C0004-ERA360-05K



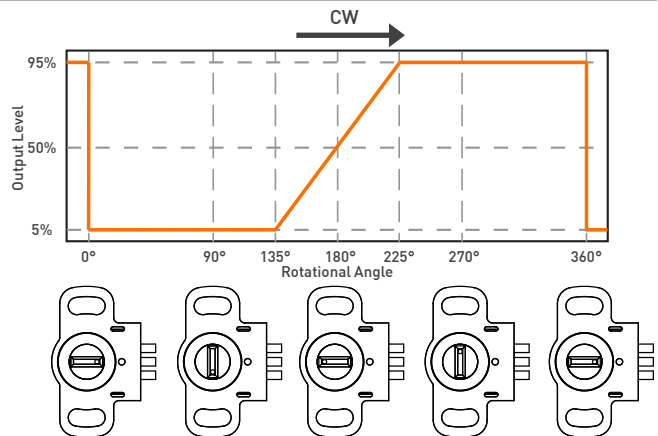
MSC360-1A-C0005-ERA360-05K



MSC360-2A-C0021-ERA360-05K



MSC360-1A-C0022-ERA090-05K



Custom output functions with positive and negative slopes on request.

OUR ADVANTAGE

- ▶ Leading-edge innovative position sensing solutions
 - ▷ Contactless (Hall-effect and Inductive Technology)
 - ▷ Contacting (Potentiometers, Printed Electronics)
- ▶ Engineering design-in support
- ▶ All our products can be customized to fit target application and customer requirement
- ▶ Capability to move seamlessly from development to true high-volume production
- ▶ A global footprint with global engineering and commercial support
- ▶ One-stop shop not limited to position sensors (temperature, pressure, gas,...) through group collaboration
- ▶ Flexibility and entrepreneurship of a medium-sized company with the backing of Amphenol Corporation



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

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