

# PSC-360

## Hall-Effect End-of-Shaft Rotary Position Sensor



Available with

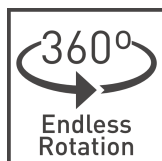
**CAN**

### 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.



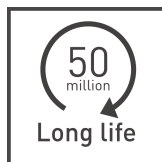
#### 360 degree absolute position feedback

Endless mechanical rotational angle without dead band, keeps the position on power loss with programmable electrical angles from 15 to 360 degrees.



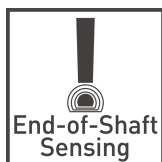
#### Made for harsh environments

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.



#### Adaptable to your requirements

Programmable transfer function and switch outputs as well as different output protocols and redundancy levels available.

### DESCRIPTION

The robust PSC-360 is a cost-effective non-contacting rotary position sensor that provides high performance in harsh environments such as transportation, industrial and medical applications.

This compact sensor of Piher Sensing Systems is truly non-contacting with a permanent magnet that is securely fastened to the shaft and acts as the only moving component in the sensor. Redundant versions provide independent voltage outputs with fully customizable characteristics. Additionally a switch output can optionally be configured.

The endless rotation sensor is highly configurable with a programmable angular range between 15 and 360 degrees, different signal output options and support for low and high-voltage power supply. Sealed, flange mounted for easy positioning and with fly leads, it can be customized to fit any desired connector configuration.

Multi-turn configurations are available on request.

### APPLICATIONS

#### Industrial

- ▶ Autonomous warehouse robotics
- ▶ Robotics and automation feedback
- ▶ Robot arm position
- ▶ Valve monitoring
- ▶ Conveyor operation

#### Transportation

- ▶ Steering wheel angle
- ▶ Pedal Position
- ▶ Suspension/height detection
- ▶ Fork height and mast tilt
- ▶ Bucket position
- ▶ Hitch position
- ▶ Transmission gear shift

#### Marine

- ▶ Steering and shifter sensor

#### Home and Building Automation

- ▶ HVAC systems

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### MECHANICAL SPECIFICATIONS

Rotational life	Up to 50.000.000 cycles
Mechanical range	360° (endless rotation)
Shaft diameter	6mm

### ELECTRICAL SPECIFICATIONS

Linearity <sup>1</sup>	Analog, PWM CAN	±1% absolute (±0.5% on request) ±3 degrees absolute
Electrical angular range		Configurable from 15° to 360°
Output protocols		Analog (Ratiometric), PWM CAN SAE J1939 CAN OPEN
Output		Simple Redundant Full-redundant
Switch output		On request
Resolution		Up to 12 bit
Supply voltage <sup>2</sup>	Analog, PWM Analog, PWM, CAN	5V ±10% 7V to 15V
Supply current	Single version Redundant version CAN version	Typ 8.5 mA Typ 17 mA Typ 47 mA
Voltage protection		±10V
Self-diagnostic features		yes

<sup>1</sup> Ferromagnetic materials close to the sensor (i.e. shaft, mounting surface) may affect the sensor's linearity.

<sup>2</sup> Voltages up to 25V possible on request.

### ENVIRONMENTAL SPECIFICATIONS

Operating and storage temperature <sup>1</sup>	Analog, PWM CAN	-40° to +125°C -40° to +85°C
Shock		50g
Vibration		5-2000 Hz; 20g; Amax 0,75 mm

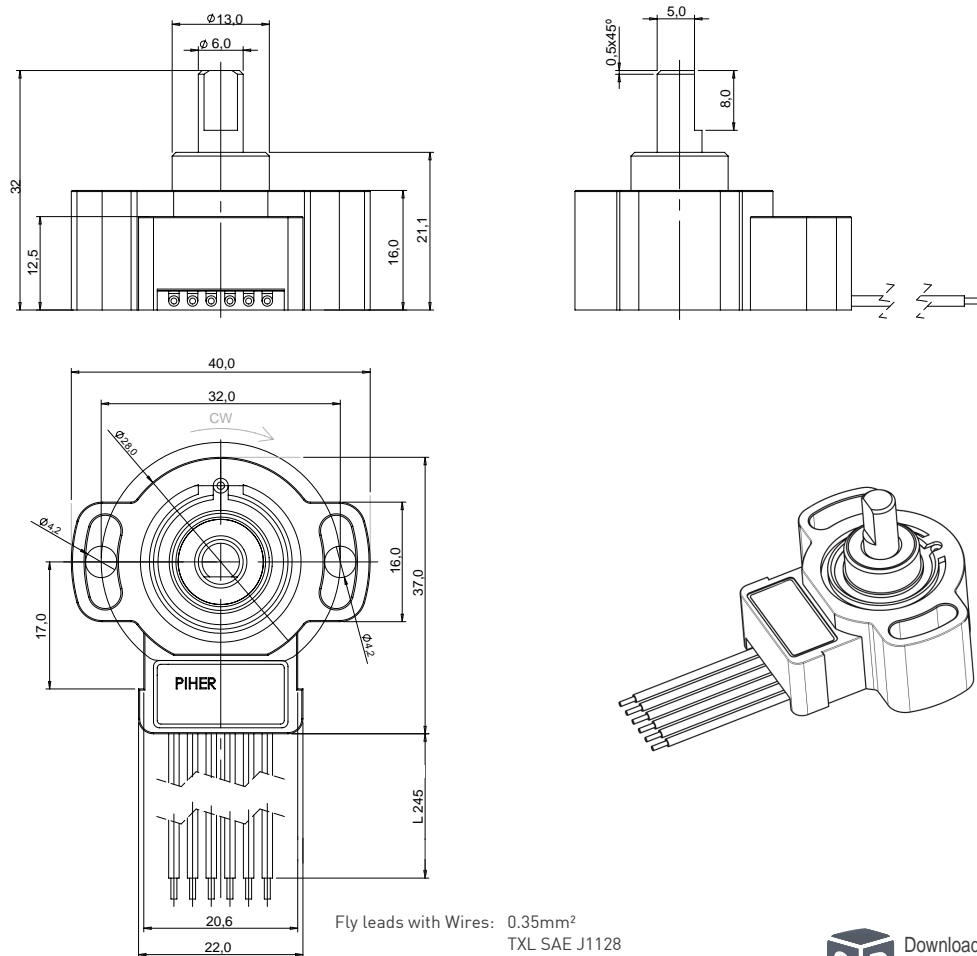
<sup>1</sup> Other specifications on request

# PSC-360

## Hall-Effect End-of-Shaft Rotary Position Sensor

### DIMENSIONS (MM)

PSC-360G2-F



Fly leads with Wires: 0.35mm<sup>2</sup>  
TXL SAE J1128



Download the STEP file here:  
[www.piher.net](http://www.piher.net)

Sensor shown with the shaft at zero position.

### MOUNTING INSTRUCTIONS

1. Place the component on a flat surface.
2. Fit the actuator onto the shaft avoiding any mechanical play/wobble.
3. Fasten the two M4 screws (M4 washers are recommended).

### CONNECTION SCHEME

Color	Simple		Redundant		Full-redundant		CAN
	5V	7V to 15V	5V	7V to 15V	5V	7V to 15V	
Brown	Power supply	Power supply	Power supply	Power supply	Power supply 1	Power supply 1	Power supply
Blue	Ground	Ground	Ground	Ground	Ground 1	Ground 1	Ground
Black	Signal output	Signal output	Signal output 1	Signal output 1	Ground 2	Ground 2	CAN High
White	n/a	n/a	Signal output 2	Signal output 2	Signal output 2	Signal output 2	CAN Low
Red	n/a	n/a	n/a	n/a	Power supply 2	Power supply 2	n/a
Yellow	n/a	n/a	n/a	n/a	Signal output 1	Signal output 1	n/a
Grey	n/a	Not used	n/a	Not used	n/a	n/a	n/a
Green	n/a	n/a	n/a	n/a	n/a	Not used	n/a

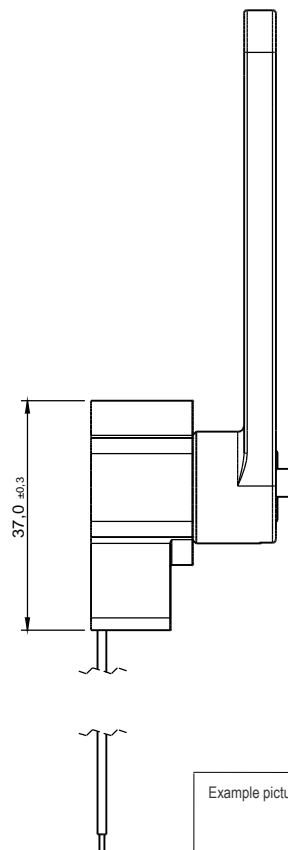
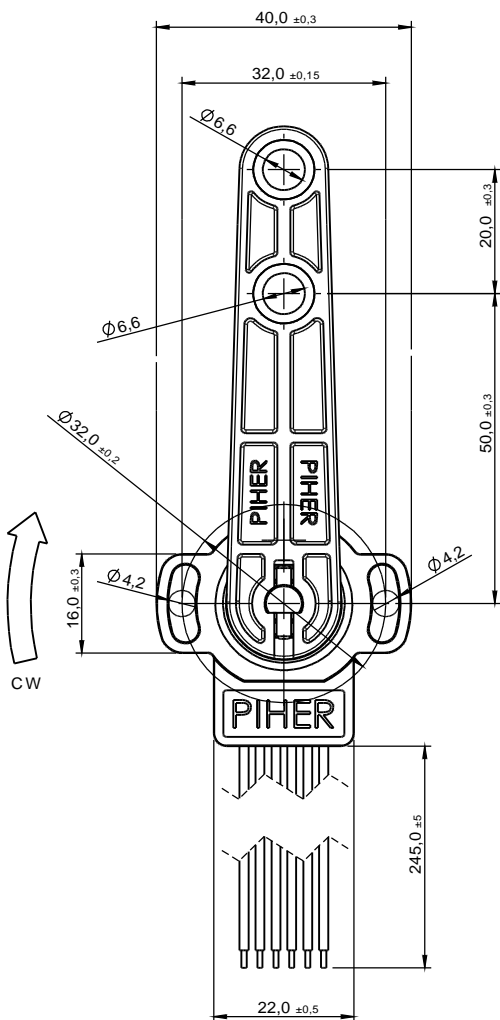
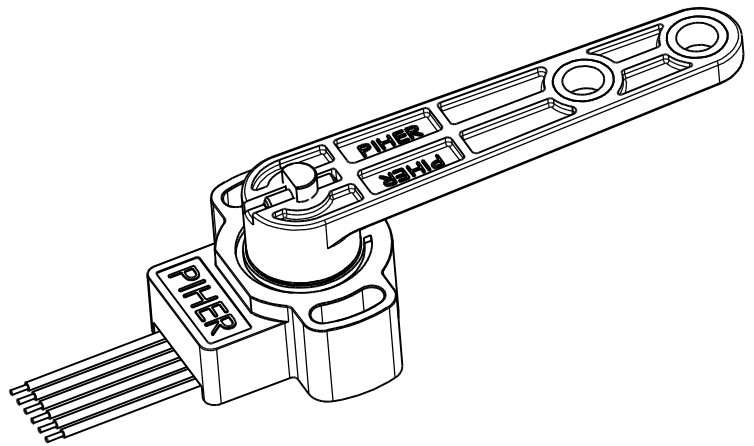
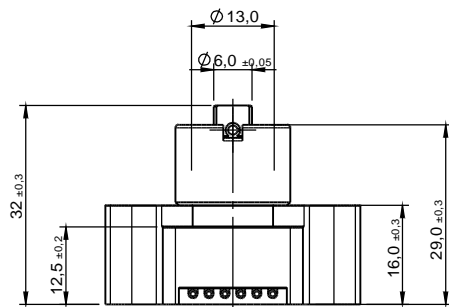
More instructions of use on [www.piher.net](http://www.piher.net). Connector assembly available on request.

# PSC-360

## Hall-Effect End-of-Shaft Rotary Position Sensor

### DIMENSIONS [MM]

PSC-360G2-H



Example picture of the sensor with a lever and a mounting plate.



Download the STEP's file here:  
[www.piher.net](http://www.piher.net)

Sensor shown with the rotor at zero position.

# PSC-360

## Hall-Effect End-of-Shaft Rotary Position Sensor

### HOW TO ORDER (Example: PSC360G2-F1A-C0001-ERA360-05K)

#### Simple Output - Analogic, PWM and CAN

PSC360G2	-	F	-	1	-	C	-	ERA	-	-	K	-	-
Series	Actuator	Mounting plate	Type	Output <sup>1</sup>	Output function <sup>2</sup>	Electric rotational angle <sup>3</sup>	Voltage supply <sup>4</sup>	Temp. range <sup>5</sup>	PWM Frequency Hz <sup>6</sup>				
	F = flat shaft H = lever	[empty] = no M = yes	1 = simple	A = analogic P = PWM J = CAN SAE J1939 O = CAN OPEN	C0000 C0001	ERA040 ERA041 ... ERA360	05 = 5V ±10% RE = 7V-15V	Analogic, PWM = -40°C to +125°C CAN: -40°C to +85°C	[empty] = 200Hz F100 = 100Hz F101 = 101Hz ... F999 = 999Hz				

#### Redundant output - Analogic, PWM and CAN

PSC360G2	-	F	2	--	-	C ____	-	ERA ____	-	--		K	-	----	----
Series	Actuator	Type	Output <sup>1</sup>	Output function <sup>2</sup>	Electric rotational angle <sup>3</sup>	Voltage supply <sup>4</sup>	Temp. range <sup>5</sup>	PWM Frequency Hz. [1] <sup>6</sup>	PWM Frequency Hz. [2] <sup>6</sup>						
	F = flat H = lever	2 = redundant	AA= analogic PP = PWM JJ = CAN SAE J1939 OO = CAN OPEN	C0002	ERA040 ERA041 ... ERA360	05 = 5V ±10% RE = 7V-15V	Analogic, PWM = -40°C to +125°C CAN: -40°C to +85°C	F100 F101 ... F999	F100 F101 ... F999						

#### Full-redundant output - Analogic and PWM

PSC360G2	-	F	3	--	-	C----	-	ERA----	-	05	K	-	----	----
Series	Actuator	Type	Output <sup>1</sup>	Output function <sup>2</sup>	Electric rotational angle <sup>3</sup>	Voltage supply <sup>4</sup>	Temp. range	PWM Frequency Hz. [1] <sup>6</sup>	PWM Frequency Hz. [2] <sup>6</sup>					
	F = flat H = lever	3 = full-redundant	AA = analogic PP = PWM	C0002	ERA040 ERA041 ... ERA360	05 = 5V ±10% RE = 7V-15V	-40°C to +125°C	F100 F101 ... F999	F100 F101 ... F999					

1 The analog output is ratiometric, proportional:

- for supply voltage "5V" to input voltage;
- for supply voltage "RE" to 5V.

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

3 Models with ERA < 40° available on request

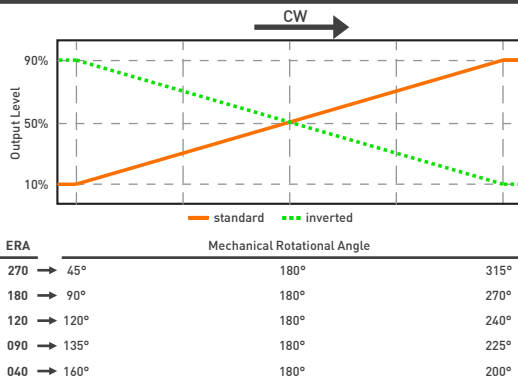
4 CAN models are available in 7V-15V. For other voltages up to 25V, check availability. For 7V-15V PWM Full-redundant models please contact us before ordering.

5 CAN models: other temperatures to be studied on request

6 Leave empty if not applicable. Default frequency is 200 Hz

 [check inventory](#)

### OUTPUT FUNCTIONS



ERA	Standard	Inverted	Redundant & Full redundant
360°	C0000	C0001	C0002
270°	C0208	C0158	C0031
180°	C0007	C0072	C0036
120°	C0024	On request	C0032
90°	C0011		C0025
70°	C0150		C0149
60°	C0006		C0020
40°	C0026		C0123

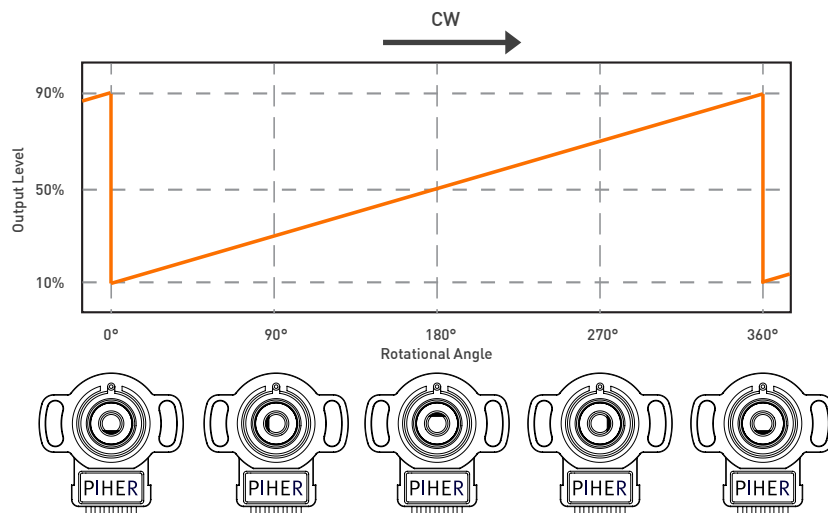
Custom output functions on request

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### OUTPUT VOLTAGE DEPENDING ON MAGNET POSITION

PSC360G2-F1A-C0000-ERA360-05K



Custom output functions on request.

### SIMILAR PIHER'S ANGULAR MAGNETIC POSITION SENSORS (END-OF-SHAFT)



PSC-360U series - Panel mount 360° Angular Sensor



HRPS series - standard design with integrated connector



To ensure you have the most up-to-date information, we recommend always downloading the latest version of this datasheet from [www.piher.net](http://www.piher.net)

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