

# PSC-360

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



Available with

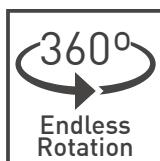
**CAN**

### 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.



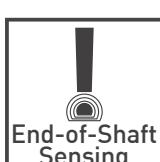
#### Made for harsh environments

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

# PSC-360

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

MECHANICAL SPECIFICATIONS		
PSC-360		PSC-360U
Rotational life		Up to 50.000.000 cycles
Mechanical range		360° (endless rotation)
Shaft diameter	6mm	6,35mm

ELECTRICAL SPECIFICATIONS		
PSC-360		PSC-360U
Linearity <sup>1</sup>		±1% absolute (±0.5% on request)
Electrical angular range		Programmable from 15° to 360°
Output protocols	Analog (Ratiometric), PWM Serial Protocol (SPI) upon request CAN SAE J1939 CAN OPEN	Analog (Ratiometric), PWM Serial Protocol (SPI)
Output	Simple Redundant Full-redundant	
Switch output	On request	Configurable
Resolution	CAN, Analog, PWM SPI	Up to 12 bit n/a
Supply voltage <sup>2</sup>	5V ±10% 7V to 15V	5V ±10% 12V ±10% 15V ±10%
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>		-40° to +125°C
Shock		50g
Vibration		5-2000 Hz; 20g; Amax 0,75 mm

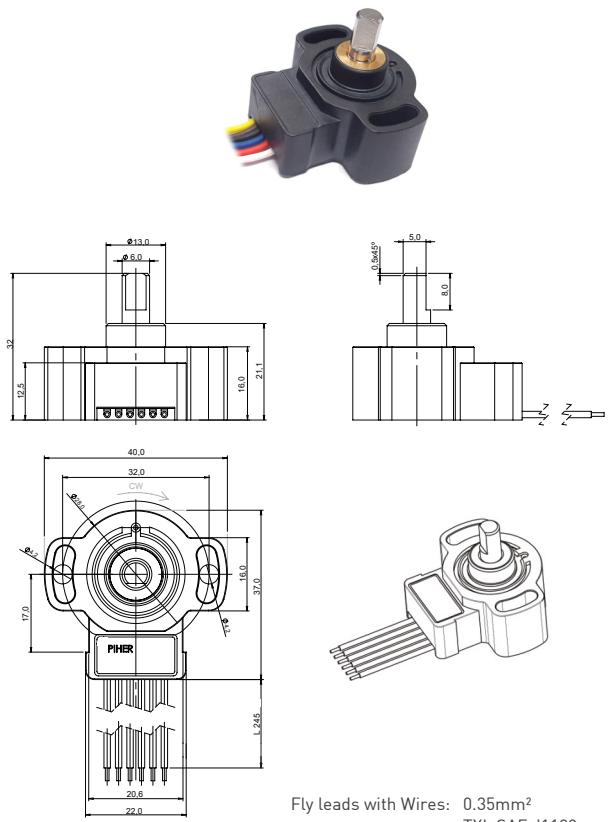
<sup>1</sup> Other specifications available

# PSC-360

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

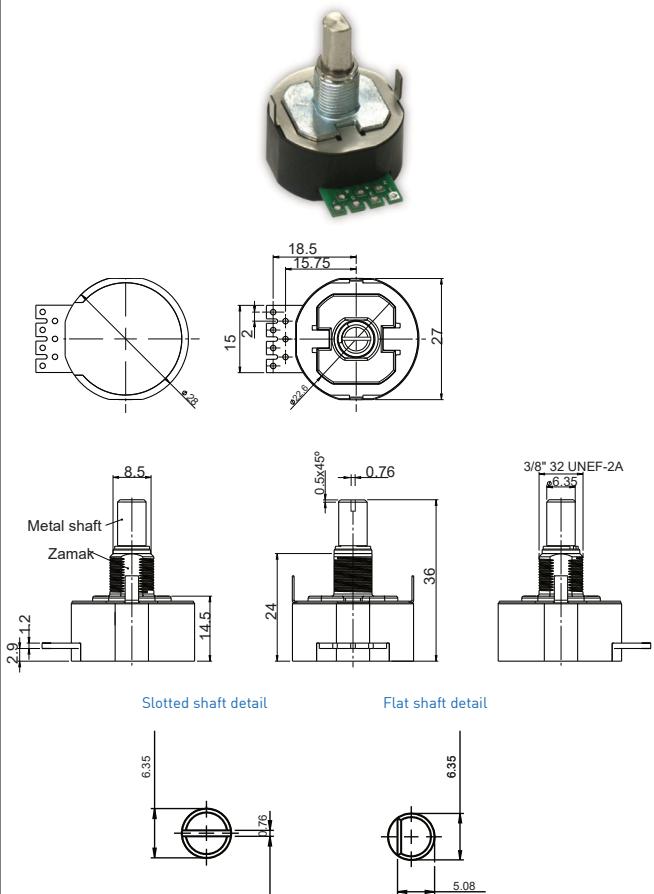
### DIMENSIONS (MM)

PSC-360G2



Sensor shown with the shaft at zero position.

PSC-360U - panel mount version



Sensor shown with the shaft at 0° position. Nut and washer included.



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

Sensor delivered at random position. Assembly of any type of connector on request.

### 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	SPI
	5V	7V to 15V	5V	7V to 15V	
Brown	Power supply	Power supply	Power supply	Power supply 1	Power supply
Blue	Ground	Ground	Ground	Ground 1	Ground
Black	Signal output	Signal output	Signal output 1	Signal output 1	CAN High
White	n/a	n/a	Signal output 2	Signal output 2	CAN Low
Red	n/a	n/a	n/a	Power supply 2	n/a
Yellow	n/a	n/a	n/a	Signal output 1	n/a
Grey	n/a	Not used	n/a	n/a	SCLK

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



### HOW TO ORDER [Example: PSC360G2-F1A-C0001-ERA360-05K]

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

PSC360G2	-	F	1	-	C ____	-	ERA ____	-	---	K	-	---
Series	Shaft	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 <sup>5</sup>				
	F = flat	1 = simple	A = analogic P = PWM J = CAN SAE J1939 O = CAN OPEN	C0000 C0001	ERA040 ERA041 ... ERA360	05 = 5V ±10% RE = 7V-15V	K = -40°C to +125°C	[empty] = 200Hz F100 = 100Hz F101 = 101Hz ... F999 = 999Hz				

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

PSC360G2	-	F	2	-	C ____	-	ERA ____	-	---	K	-	---
Series	Shaft	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>5</sup>	PWM Frequency Hz. (2) <sup>5</sup>			
	F = flat	2 = redundant	AA = analogic PP = PWM JJ = CAN SAE J1939 OO = CAN OPEN	C0002	ERA040 ERA041 ... ERA360	05 = 5V ±10% RE = 7V-15V	K = -40°C to +125°C	F100 F101 ... F999	F100 F101 ... F999			

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

PSC360G2	-	F	3	-	C ____	-	ERA ____	-	05	K	-	---
Series	Shaft	Type	Output <sup>1</sup>	Output function <sup>2</sup>	Electric rotational angle <sup>3</sup>	Voltage supply	Temp. range	PWM Frequency Hz. (1) <sup>4</sup>	PWM Frequency Hz. (2) <sup>4</sup>			
	F = flat	3 = full-redundant	AA = analogic PP = PWM	C0002	ERA040 ERA041 ... ERA360	05 = 5V ±10%	K = -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.

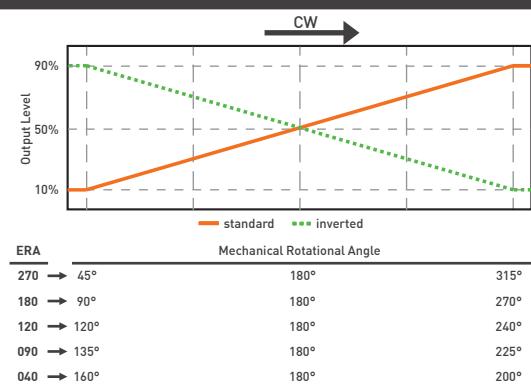
2 Other output functions available, please check availability. Enter CXXXX as long as the new output function is not defined.

3 Models with ERA < 40° available on request

4 Voltages up to 25V possible on request.

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

#### OUTPUT FUNCTIONS



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

Custom output functions on request.

# PSC-360U Panel Mount Version



## HOW TO ORDER - PANEL MOUNT VERSION (Example: PSC360U-F1A-C0000-ERA360-05E)

### Simple Output - Analogic and PWM

PSC360U	-	—	1	—	—	—	-	C _____	-	ERA _____	-	—	—	-	—
Series	Shaft	Type	Output <sup>1</sup>	Switch	Switch position <sup>2</sup>	Output function <sup>3</sup>	Electric rotational angle <sup>4</sup>	Voltage supply	Temp. range	PWM Frequency Hz <sup>5</sup>					

Annotations:  
1. F = flat shaft  
2. 1 = simple  
3. A = analogic  
4. P = PWM  
5. [empty] = none  
6. W = switch  
7. 000  
8. 016  
9. ...  
10. 360  
11. C0000  
12. C0001  
13. ERA040  
14. ERA041  
15. ...  
16. ERA360  
17. 05 = 5V  
18. 12 = 12V  
19. 15 = 15V  
20. E = -40°C to +85°C  
21. K = -40°C to +125°C  
22. [empty] = 200Hz  
23. F100 = 100Hz  
24. F101 = 101Hz  
25. F999 = 999Hz

### Simple output - SPI

PSC360U	-	—	1	S	-	C _____	-	ERA _____	-	—	—	—	—	—
Series	Shaft	Type	Output	Output function <sup>3</sup>	Electric rotational angle <sup>4</sup>	Voltage supply	Temp. range							

Annotations:  
1. The analog output is ratiometric, proportional:  
- For supply voltage 5V: to input supply voltage.  
- For supply voltage 12V and 15V: to 5V.  
2. Leave empty if not applicable. Switch function diagram: see next page.  
3. Other output functions available, please check availability. Enter CXXXX as long as the new output function is not defined.  
4. Models with ERA < 40° available on request  
5. Leave empty if not applicable. Default frequency is 200 Hz

### Redundant output - Analogic and PWM

PSC360U	-	—	2	—	—	—	—	—	—	C _____	-	ERA _____	-	—	—	—	—	
Series	Shaft	Type	Output <sup>1</sup>	Switch1	Switch1 position <sup>2</sup>	Switch2	Switch2 position <sup>2</sup>	Output function <sup>3</sup>	Electric rotational angle <sup>4</sup>	Voltage supply	Temp. range	PWM Frequency Hz. (1) <sup>5</sup>	PWM Frequency Hz. (2) <sup>5</sup>					

Annotations:  
1. F = flat shaft  
2. L = slot shaft  
3. 2 = redundant  
4. AA = analogic  
5. PP = PWM  
6. [empty] = none  
7. W = switch  
8. 000  
9. 016  
10. ...  
11. 360  
12. C0002  
13. C0003  
14. ERA040  
15. ERA041  
16. ...  
17. ERA360  
18. 05 = 5V  
19. 12 = 12V  
20. 15 = 15V  
21. E = -40°C to +85°C  
22. K = -40°C to +125°C  
23. F100  
24. F101  
25. ...  
26. F999  
27. F100  
28. F101  
29. ...  
30. F999

### Full-redundant output - Analogic and PWM

PSC360U	-	—	3	—	—	—	—	—	—	C _____	-	ERA _____	-	—	—	—	—	
Series	Shaft	Type	Output <sup>1</sup>	Switch1	Switch1 position <sup>2</sup>	Switch2	Switch2 position <sup>2</sup>	Output function <sup>3</sup>	Electric rotational angle <sup>4</sup>	Voltage supply	Temp. range	PWM Frequency Hz. (1) <sup>5</sup>	PWM Frequency Hz. (2) <sup>5</sup>					

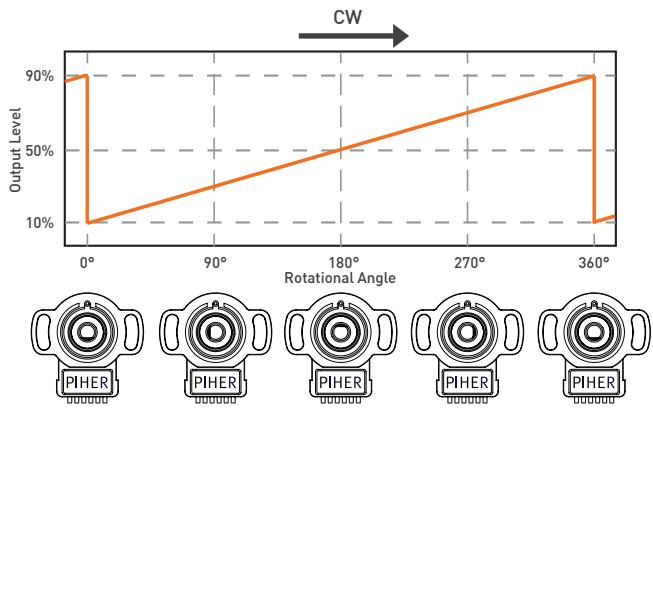
Annotations:  
1. F = flat shaft  
2. L = slot shaft  
3. 3 = redundant  
4. AA = analogic  
5. PP = PWM  
6. [empty] = none  
7. W = switch  
8. 000  
9. 016  
10. ...  
11. 360  
12. C0002  
13. C0003  
14. ERA040  
15. ERA041  
16. ...  
17. ERA360  
18. 05 = 5V  
19. E = -40°C to +85°C  
20. K = -40°C to +125°C  
21. F100  
22. F101  
23. ...  
24. F999  
25. F100  
26. F101  
27. ...  
28. F999

# PSC-360

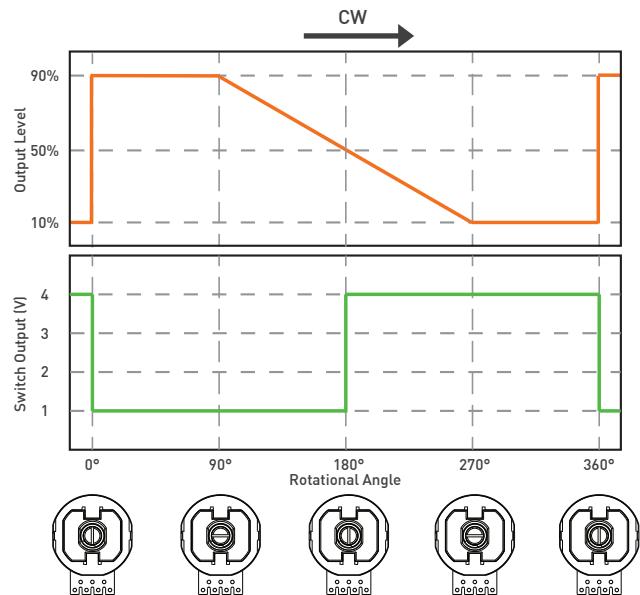
## Hall-Effect End-of-Shaft Rotary Position Sensor

### OUTPUT VOLTAGE DEPENDING ON MAGNET POSITION

PSC360G2-F1A-C0000-ERA360-05K



PSC360U-L1A-W180-C0072-ERA180-05K



Custom output functions on request.

### CONTACT PIHER SENSING SYSTEMS FOR CUSTOM SOLUTIONS



Custom design with integrated connector.



Custom design with return spring lever.

### 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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