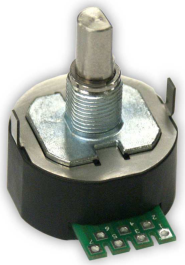
PIHER

PSC-360U

Contactless sensor



STANDARD SPECIFICATIONS

- Linearity: ±1% absolute (0.5% upon request)
- Simple & Robust Magnetic Design
- Programmable Angular Range from 15 to 360 Degrees (without dead band)
- Programmable Linear Transfer Characteristic

  (some positive slopes & one negative slope can be programmed in the same transfer characteristic; up to 4 programmable points; *see last page*)
- Selectable Analog (Ratiometric), PWM, Serial Protocol
- Programmable switch output
- Angular Resolution (depends on electrical angle and rotational speed)

  Analog & PWM: up to 12 bits
  Serial Protocol (SPI): up to 14 bits
- Self-Diagnostic features
- Rotational life: up to 50.000.000 cycles (depending on application and mounting)
- Operating temperature: up to -40ºC to +125ºC (others upon request)
- Over voltage protection and reverse voltage protection
- Supply voltage: 5V/12V/15V ±10% (others upon request)
- Supply current

  Typ 8.5mA for single version.
  Typ 17mA for redundant version.
- IP67 (others upon request). Customer to seal the PCB connections.

APPLICATION EXAMPLES

- 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
- Motor-shaft Position Sensor
- Precision Robotics,industrial equipment, HVAC monitoring & control...

DESCRIPTION

The PSC-360U is a vertical Hall-effect magnetic rotary sensor that has been designed to overcome the limitations of potentiometer-based devices in a wide range of applications. The performance of magnetic sensors has traditionally been limited by their poor tolerance to thermal and magnetic fluctuations. And although these limitations can be overcome by careful circuit design, the complexity this has entailed has often discouraged OEMs from designing with these sensors.

The technology used by Piher is only sensitive to the flux density coplanar with the IC surface. This allows to precise feedback the absolute position from 15 to 360 degrees. It enables the design of low-cost high performance non-contacting rotary position sensors for both automotive and industrial applications whithout the limitations of potentiometric solutions (wear, limited electrical angles...) A configurable switch ouptput is integrated within the sensor too.

Furthermore full redundancy can be achieved by employing a dual core version or the simple placement of two sensors within the housing.

The robust PSC-360U is sealed and delivered in panel mount package for easy bush mounting. It provides high stability under harsh environment conditions such as vibration, shock, extreme temperatures / humidity, dither, moisture or dirt. Featuring a modular architecture, electrical & mechanical characteristics can be fully customised to customer´s needs. Flange mount package for easy positioning is also available.

This product shows Piher´s competences in sensors for use in harsh environments and custom product tailoring for use on Tier One and OEM platforms.

PSC-360U: HOW TO ORDER

Simple output (analogic / PWM)

PSC360U - _ _ - _ - _ _ _ - _ _ _ _ _ - _ _ _ _ _ _ - _ _ - _ - _ _ _ _

Shaft	Type	Output1	Switch1	Switch ON1	Output function	Electrical rotation angle	Voltage supply	Temp. range	PWM Frecuency (Hz.)1
F = flat shaft L = slot shaft	1 = simple	A = Analogic P = PWM (see note 1)	[empty] = none W = switch	000 016 ... 360 (see note 2)	C0000 C0001 (see note 3)	ERA015 ERA016 .... ERA360	05 12 15	E = -40 to +85ºC K= -40 to +125ºC	F100 ... F999 (see note 4)

Simple output (SPI)

PSC360U - _ - _ - _ - _ _ _ _ _ - _ _ _ _ _ _ - _ _ - _

Shaft	Type	Output1	Output function	Electrical rotation angle	Voltage supply	Temp. range
F = flat shaft L = slot shaft	1 = simple	S = SPI	C0000 C0001 (see note 3)	ERA015 ERA016 .... ERA360	05 12 15	E = -40 to +85ºC K= -40 to +125ºC

Redundant output (analogic / PWM)

PSC360U - _ - _ - _ - _ - _ - _ _ _ - _ - _ _ _ - _ _ _ _ _ - _ _ _ _ _ _ - _ _ - _ - _ _ _ _ - _ _ _ _

Shaft	Type	Output1	Output2	Switch1	Switch ON1	Switch2	Switch ON2	Output function	Electrical rotation angle	Voltage supply	Temp. range	PWM Frecuency (Hz.)1	PWM Frecuency (Hz.)2
F = flat shaft L = slot shaft	2 = redundant	A = Analogic P = PWM (see note 1)	A = Analogic P = PWM (see note 1)	[empty] = none W = switch	000 016 ... 360 (see note 2)	[empty] = none W = switch	000 016 ... 360 (see note 2)	C0002 C0003 (see note 3)	ERA015 ERA016 .... ERA360	05 12 15	E = -40 to +85ºC K= -40 to +125ºC	F100 ... F999 (see note 4)	F100 ... F999 (see note 4)

Redundant output (SPI)

PSC360U - _ - _ - _ - _ - _ _ _ _ _ - _ _ _ _ _ _ - _ _ - _

Shaft	Type	Output1	Output2	Output function	Electrical rotation angle	Voltage supply	Temp. range
F = flat shaft L = slot shaft	2 = redundant	S = SPI	S = SPI	C0002 C0003 (see note 3)	ERA015 ERA016 .... ERA360	05 12 15	E = -40 to +85ºC K= -40 to +125ºC

Full redundant output (analogic / PWM)

PSC360U - _ - _ - _ - _ - _ - _ _ _ - _ - _ _ _ - _ _ _ _ _ - _ _ _ _ _ _ - _ _ - _ - _ _ _ _ - _ _ _ _

Shaft	Type	Output1	Output2	Switch1	Switch ON1	Switch2	Switch ON2	Output function	Electrical rotation angle	Voltage supply	Temp. range	PWM Frecuency (Hz.)1	PWM Frecuency (Hz.)2
F = flat shaft L = slot shaft	3 = full redundant	A = Analogic P = PWM (see note 1)	A = Analogic P = PWM (see note 1)	[empty] = none W = switch	000 016 ... 360 (see note 2)	[empty] = none W = switch	000 016 ... 360 (see note 2)	C0002 C0003 (see note 3)	ERA015 ERA016 .... ERA360	05	E = -40 to +85ºC K= -40 to +125ºC	F100 ... F999 (see note 4)	F100 ... F999 (see note 4)

(1) The analog output is a ratiometric output, proportional to:

- For supply voltage 5V: to input supply voltage.
- For supply voltage 12V: to 5V.
- For supply voltage 15V: to 5V.

(2) Leave empty if no applicable.

Switch function diagram:

(3) Other output functions available upon request.In the How To Order reference, enter **CXXXX** meanwhile the new output function reference is not defined.

(4) Leave empty if no applicable. Default frequency is 200 Hz

Other product configurations will be studied case by case.

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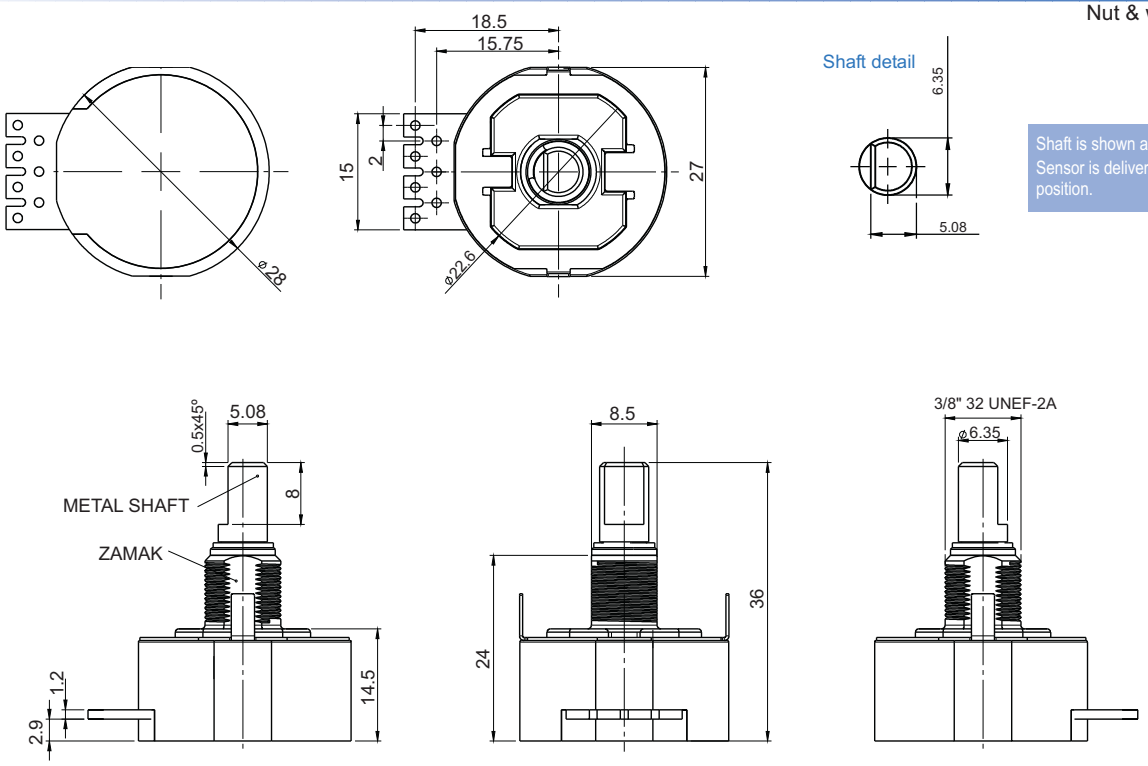
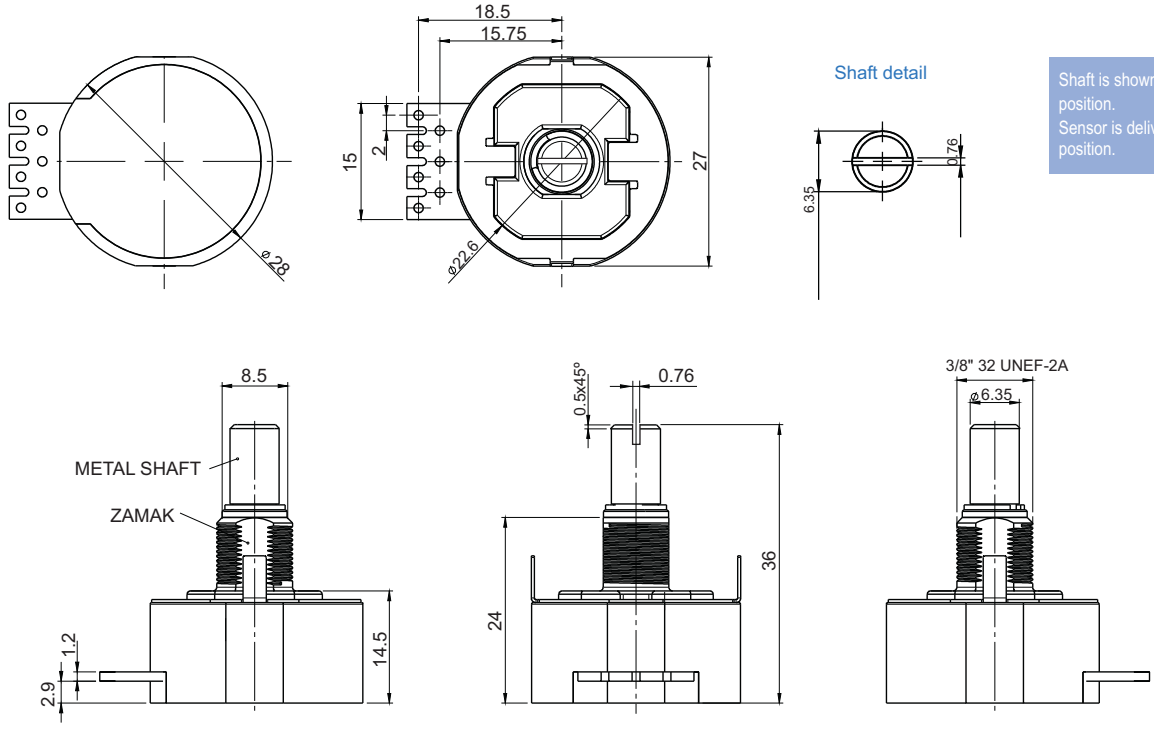
DIMENSIONS (Flat shaft)

Nut & washer included



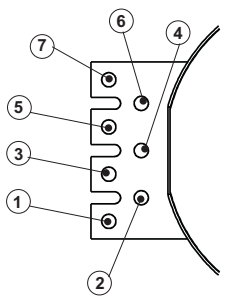
DIMENSIONS (Shaft with slot)

Nut & washer included



SIMPLE ANALOG OUTPUT CONNECTION SCHEME

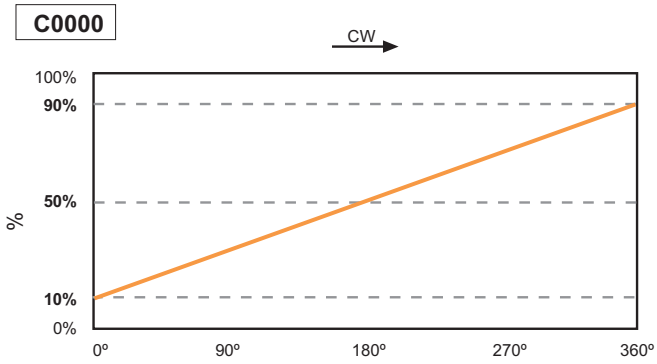
1.- Supply voltage
2.- Not used *
3.- Not used
4.- Not used
5.- Not used
6.- Ground
7.- Analog output



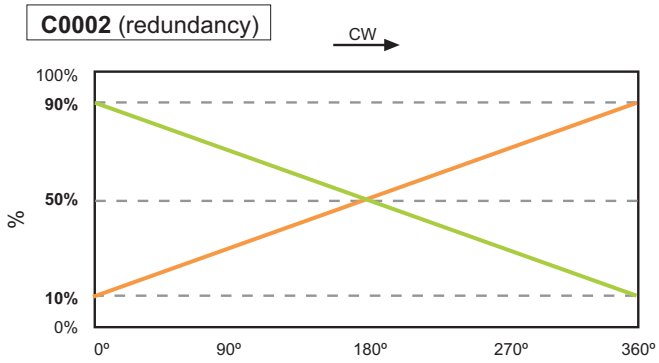
* The output pin needs to be connected to the ground

STANDARD OUTPUT FUNCTIONS

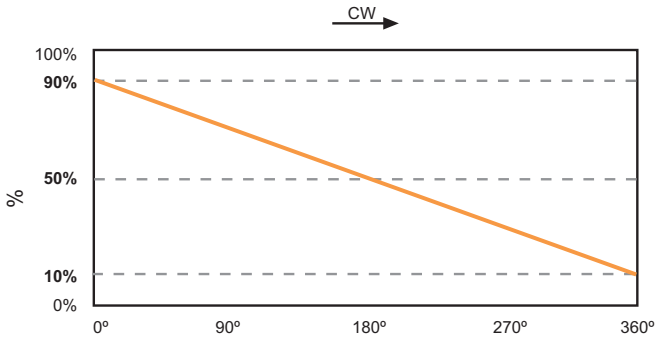
C0000



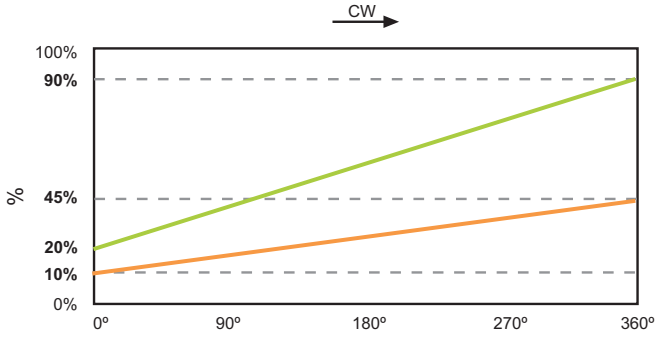
C0002 (redundancy)



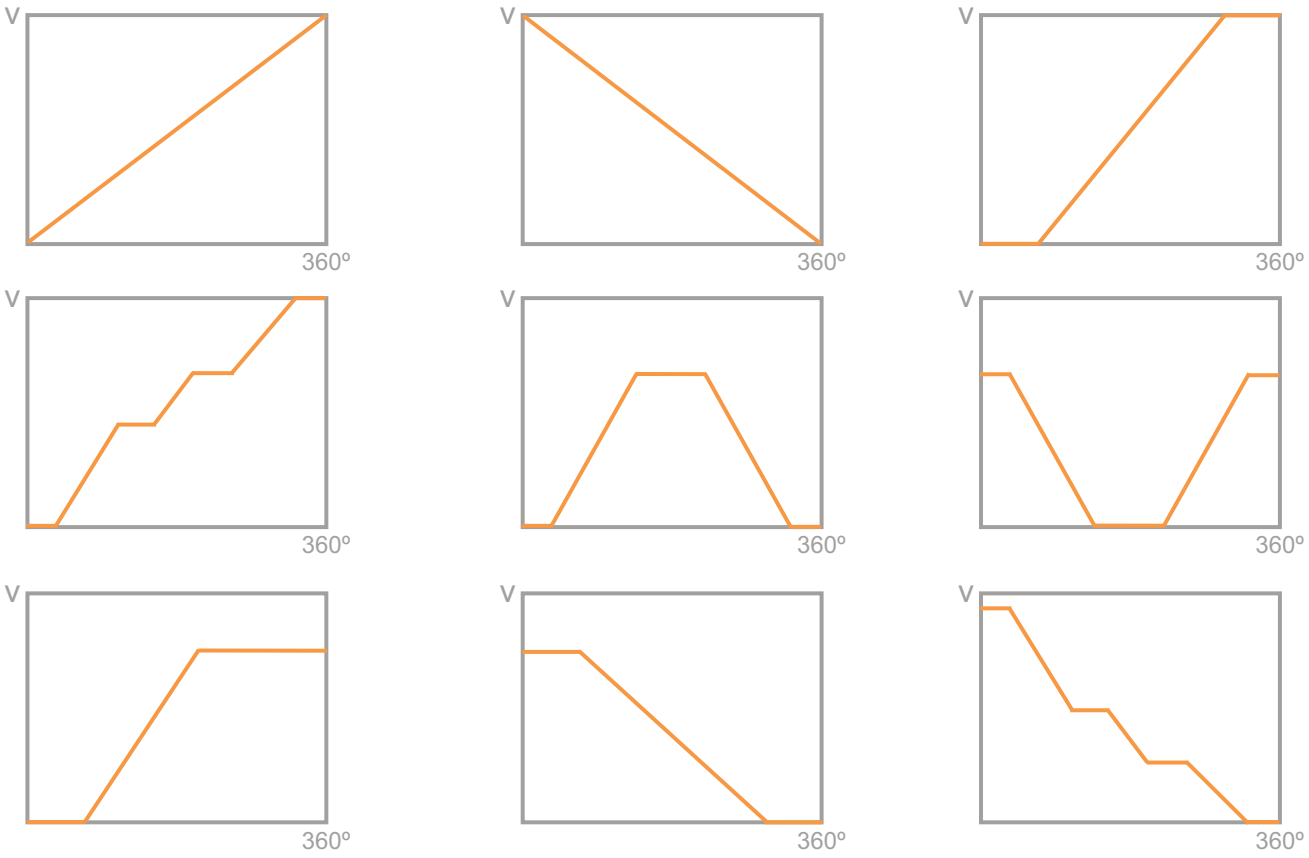
C0001



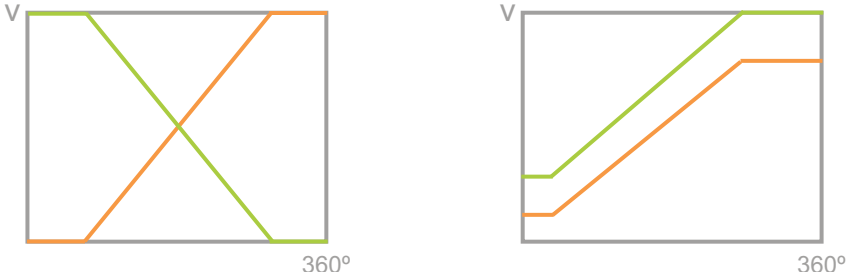
C0003 (redundancy)



OUTPUT FUNCTION EXAMPLES



Redundant examples:



Disclaimer

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

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TEXIM EUROPE

Partner in Electronic Components & Supply Chain Solutions

The Netherlands

Elektrostraat 17
NL-7483 PG Haaksbergen
Tel: +31 (0)53 573 33 33
Fax: +31 (0)53 573 33 30
nl@texim-europe.com

Denmark

Nørregade 15
DK-9240 Nibe
Tel: +45 88 20 26 30
Fax: +45 88 20 26 39
nordic@texim-europe.com

Belgium

Gentsesteenweg 1154-C22
Chaussée de Gand 1154-C22
B-1082 Brussel / Bruxelles
Tel: +32 (0)2 462 01 00
Fax: +32 (0)2 462 01 25
belgium@texim-europe.com

United Kingdom

St. Mary's House, Church Lane
Carlton Le Moorland
Lincoln LN5 9HS
Tel: +44 (0)1522 789 555
Fax: +44 (0)845 299 22 26
uk@texim-europe.com

Germany

Justus-von-Liebig-Ring 7-9
D-25451 Quickborn
Tel: +49 (0)4106 627 07-0
Fax: +49 (0)4106 627 07-20
germany@texim-europe.com

Germany

Martin-Kollar-Strasse 9
D-81829 München
Tel: +49 (0)89 436 086-0
Fax: +49 (0)89 436 086-19
germany@texim-europe.com

Austria

Warwitzstrasse 9
A-5020 Salzburg
Tel: +43 (0)662 216026
Fax: +43 (0)662 216026-66
austria@texim-europe.com

Texim Europe B.V.
Elektrostraat 17
NL-7483 PG Haaksbergen
Tel: +31 (0)53 573 33 33
info@texim-europe.com
www.texim-europe.com

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