

Magnetic rotary angle and position sensor-control.

# Contactless sensor. PSC-360



The robust PSC-360 is a low-cost high performance non-contacting rotary position sensor for automotive, off-road, medical and industrial applications without the limitations of potentiometric solutions (wear, limited electrical angles...) A configurable switch output is integrated within the sensor too.

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

Sealed and flange mounted for easy positioning when necessary, 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 as well as connector configurations.

## Mechanical specifications

Rotational life [depends on application and mounting]	up to 50.000.000 cycles.
Operating temperature <sup>1</sup>	up to -40°C to +125°C.
Sealing <sup>1</sup>	IP67.

## Electrical specifications

Linearity <sup>1</sup>	±1% absolute (0.5% check availability).
Angular range	Programmable from 15 to 360 degrees (without dead band).
Output	Analog (Ratiometric), PWM, Serial Protocol.
Switch output	Yes, programmable.
Angular Resolution [depends on electrical angle and rotational speed]	Analog & PWM: up to 12 bits. Serial Protocol (SPI): up to 14 bits.
Operating temperature	-40°C to +85°C (-13°F to + 158°F).
Supply voltage <sup>1</sup>	5V/12V/15V ±10%.
Supply current	Typ 8.5mA for single version. Typ 17mA for redundant version.

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

## Piher Sensors & Controls SA

Our product competencies and services:  
Potentiometers | **Position / angle sensors** | Rotary switches | Incremental encoders  
Printed circuit resistors | Mechatronics | Value added assemblies

### Key features

- Simple & Robust Magnetic Design.
- Multiturn.
- Programmable switch output.
- 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)
- Self-Diagnostic features
- Over voltage protection and reverse voltage protection.

Also upon request:

- True full redundant version.

### 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.
- Motor-shaft position sensor.
- Precision robotics, industrial equipment, HVAC monitoring & control, etc.

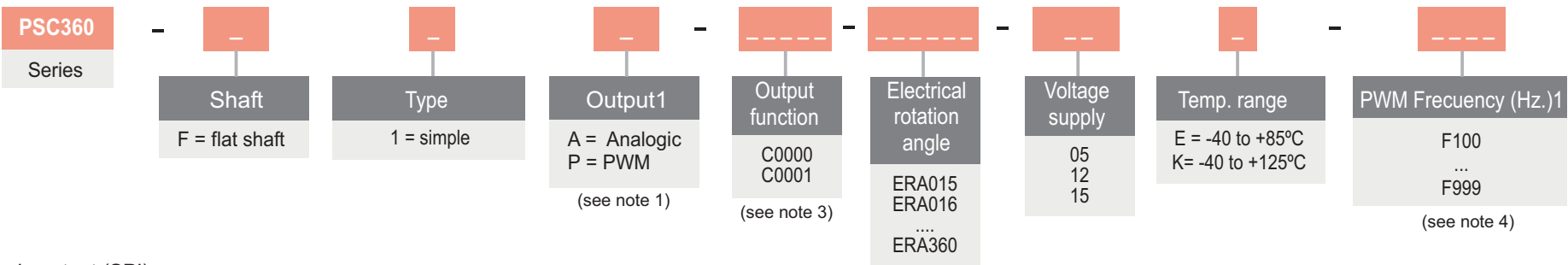


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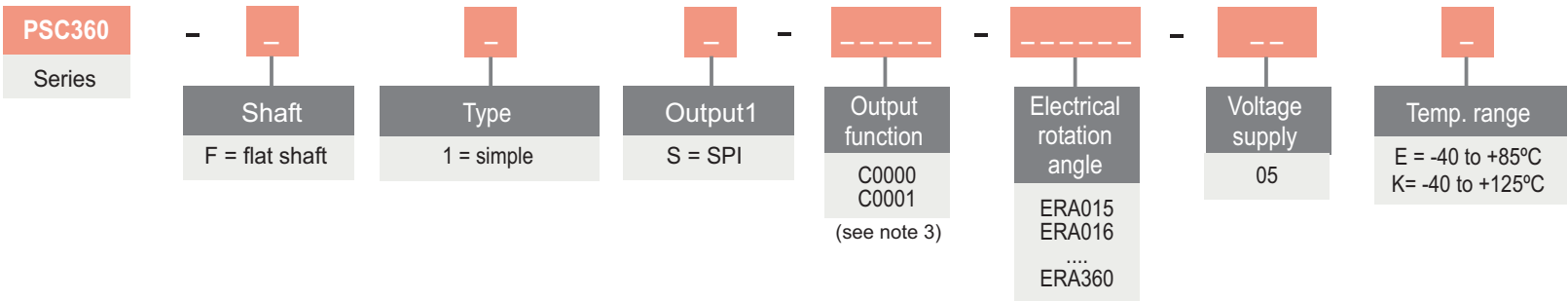
Contactless sensor.  
PSC-360

How to order.

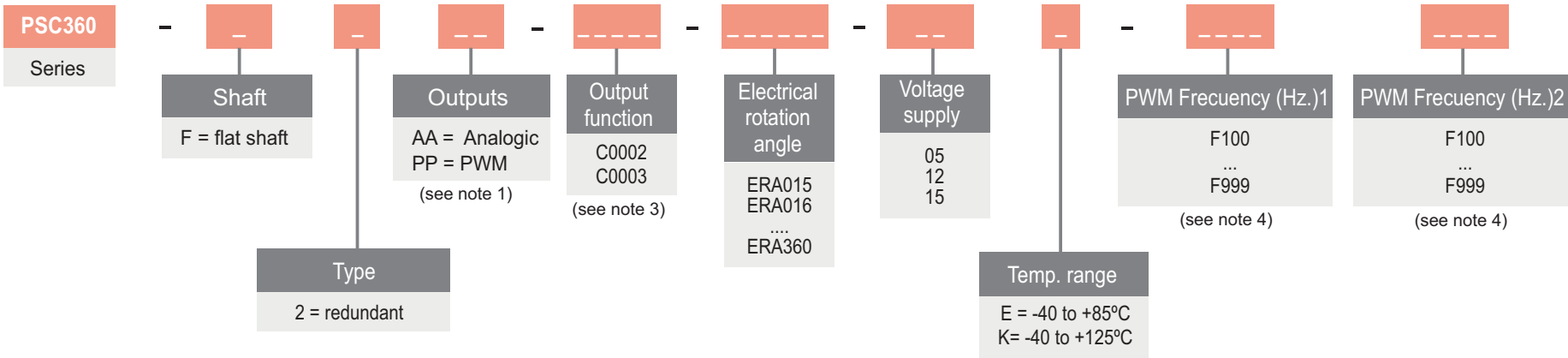
Simple output (analogic / PWM)



Simple output (SPI)



Redundant output (analogic / PWM) without switch



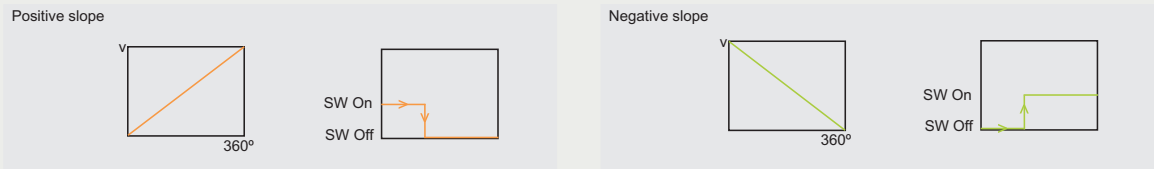
Other product configurations will be studied case by case.

Notes

- (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 check availability. 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

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# Contactless sensor. PSC-360

- Special outputs slopes and protocols.
- Full redundant version with switches.
- Energy harvesting versions.
- Fast versions.
- Connectors.
- IP sealing.
- Shaft interfaces.
- Contact the factory for other options.

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 Potentiometers | **Position / angle sensors** | Rotary switches | Incremental encoders  
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## Magnetic rotary angle and position sensor-control.






# Contactless sensor. PSC-360

## Mounting instructions.

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

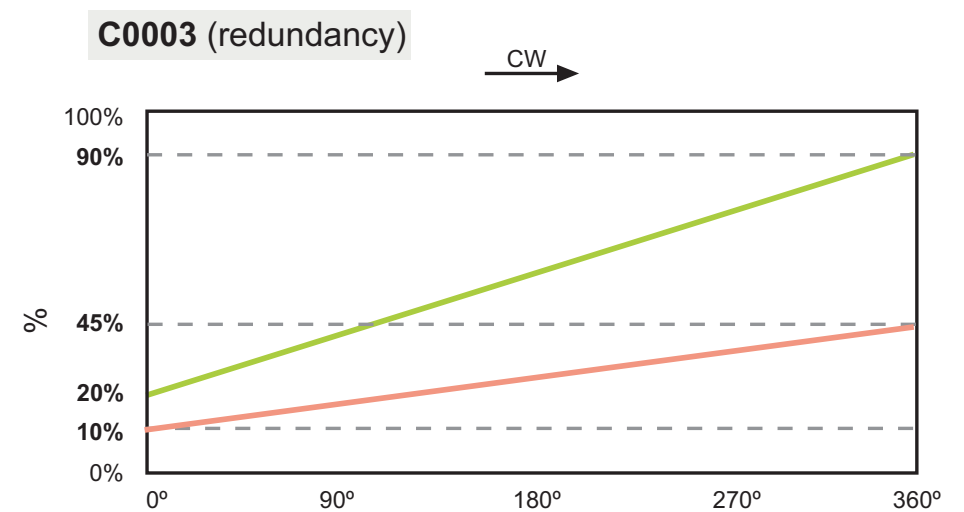
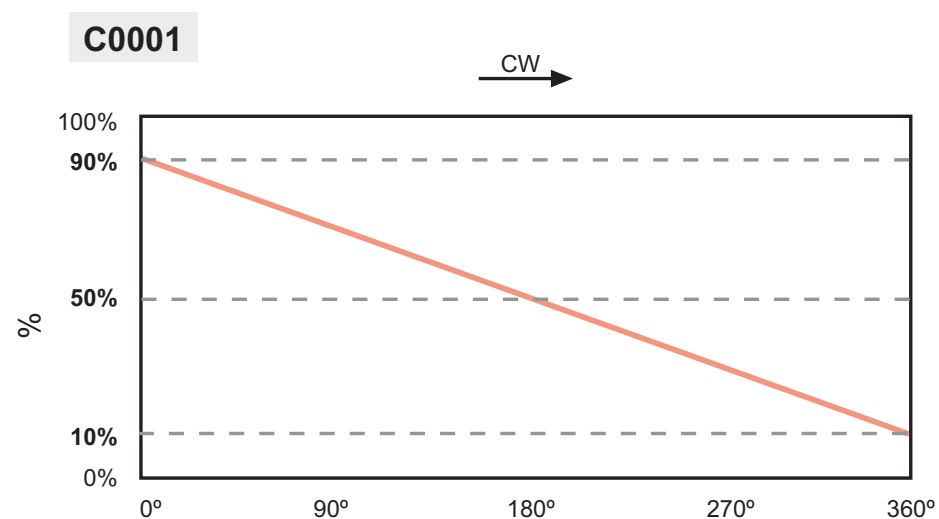
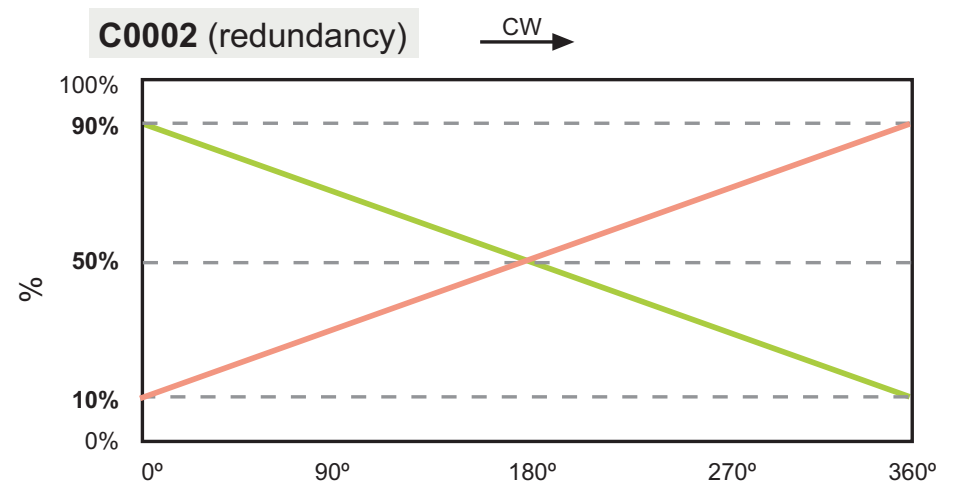
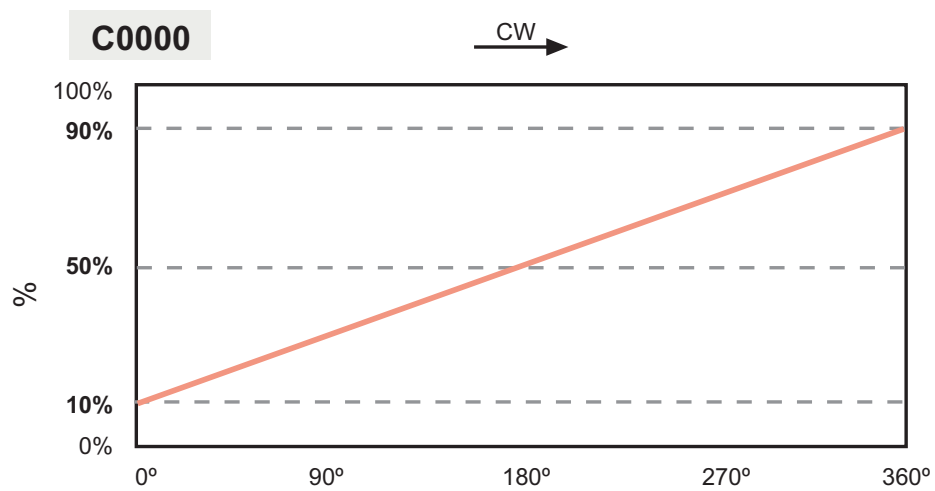
## Connections scheme.

Simple analog output connection wiring scheme:

-  Brown = Power supply.
-  Blue = Ground.
-  Black = Signal output.
-  White = Not used.
-  Grey = Not used.

Cable length: 245mm

## Output.



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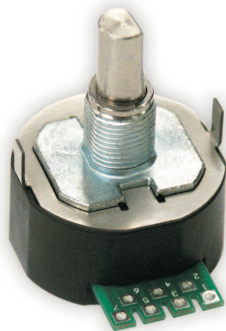
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# Contactless sensor. PSC-360U



The robust PSC-360U is a low-cost high performance non-contacting rotary position sensor for automotive, off-road, medical and industrial applications without the limitations of potentiometric solutions (wear, limited electrical angles...) A configurable switch ouptput is integrated within the sensor too.

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

Sealed and flange mounted for easy positioning when necessary, 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 as well as connector configurations.

## Mechanical specifications

Rotational life [depends on application and mounting]	up to 50.000.000 cycles.
Operating temperature <sup>1</sup>	up to -40°C to +125°C
Sealing <sup>1</sup>	IP67

## Electrical specifications

Linearity <sup>1</sup>	±1% absolute (0.5% check availability).
Angular range	Programmable from 15 to 360 degrees (without dead band).
Output	Analog (Ratiometric), PWM, Serial Protocol.
Switch output	Yes, programmable.
Angular Resolution [depends on electrical angle and rotational speed]	Analog & PWM: up to 12 bits. Serial Protocol (SPI): up to 14 bits.
Operating temperature	-40°C to +85°C (-13°F to + 158°F).
Supply voltage <sup>1</sup>	5V/12V/15V ±10%.
Supply current	Typ 8.5mA for single version. Typ 17mA for redundant version.

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

## Key features

- Simple & Robust Magnetic Design.
- High resolution (up to 14-bit)
- Absolute position feedback up to 360° (keeps position on power loss).
- Low profile.
- Easy integration into existing systems
- Full true-redundant versions.
- Conceived for harsh environments applications.
- Protected from magnetic fields, dust, moisture, vibrations, exteme temperatures.
- Analog oputput ready for easy potentiometer replacement.
- Multiturn.
- 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)
- Self-Diagnostic features
- Over voltage protection and reverse voltage protection.

## Applications

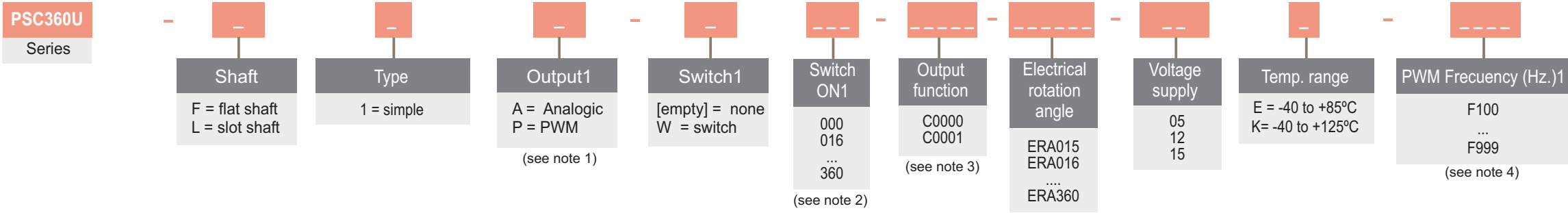
- Non-Contacting long life angle/position sensor.
- Absolute rotary position sensor
- Pedal position sSensor.
- Throttle/EGR valve and gear position sensor.
- Height & suspension sensor.
- Non-contacting potentiometer.
- Float-level sensor.
- Motor-shaft position sensor.
- Precision robotics, industrial equipment, HVAC monitoring & control, etc.



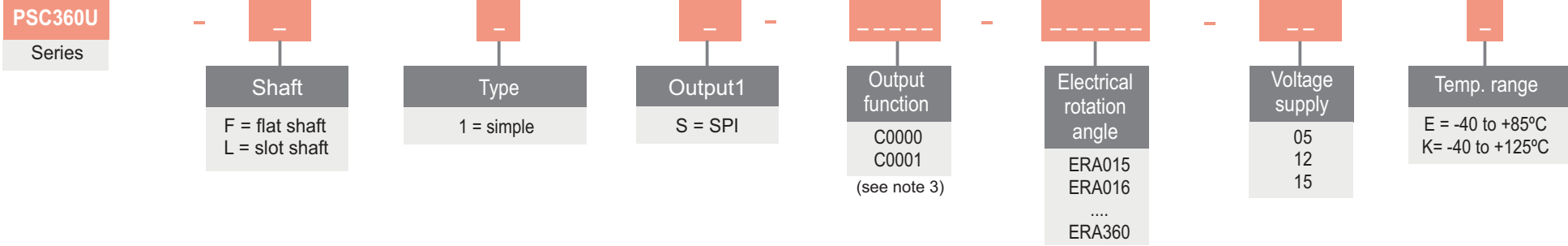
How to order.

Sensors  
Controls

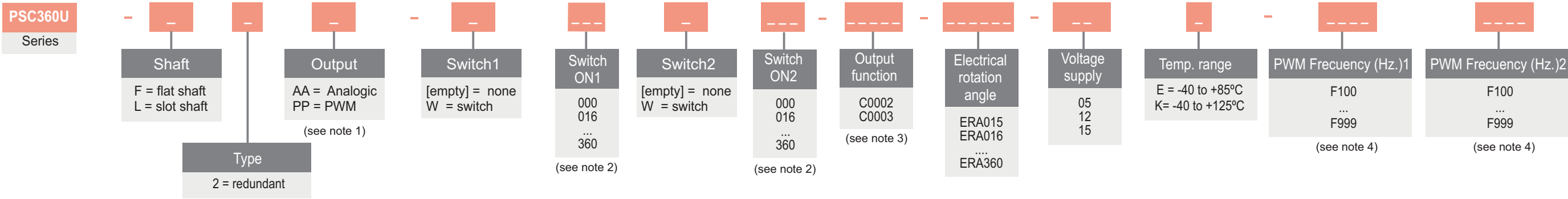
Simple output (analogic / PWM)



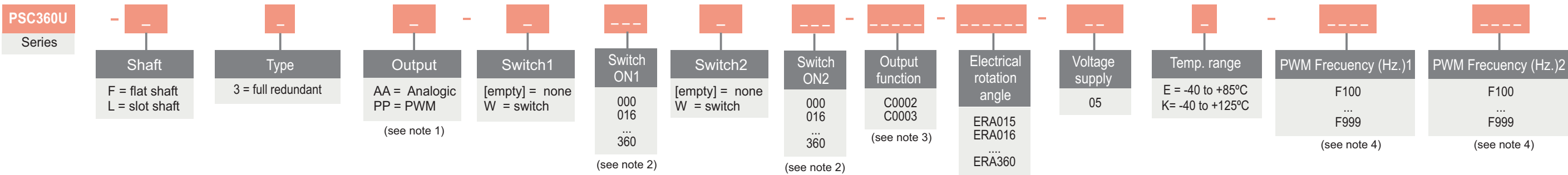
Simple output (SPI)



Redundant output (analogic / PWM)



Full redundant output (analogic / PWM)



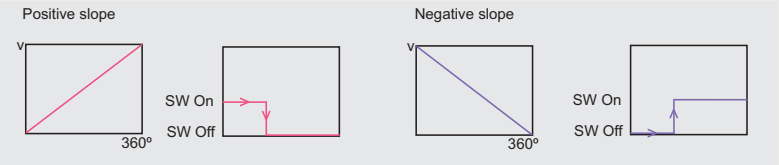
Other product configurations will be studied case by case.

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Switch function diagram:



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

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Notes



## Magnetic rotary angle and position sensor-control.

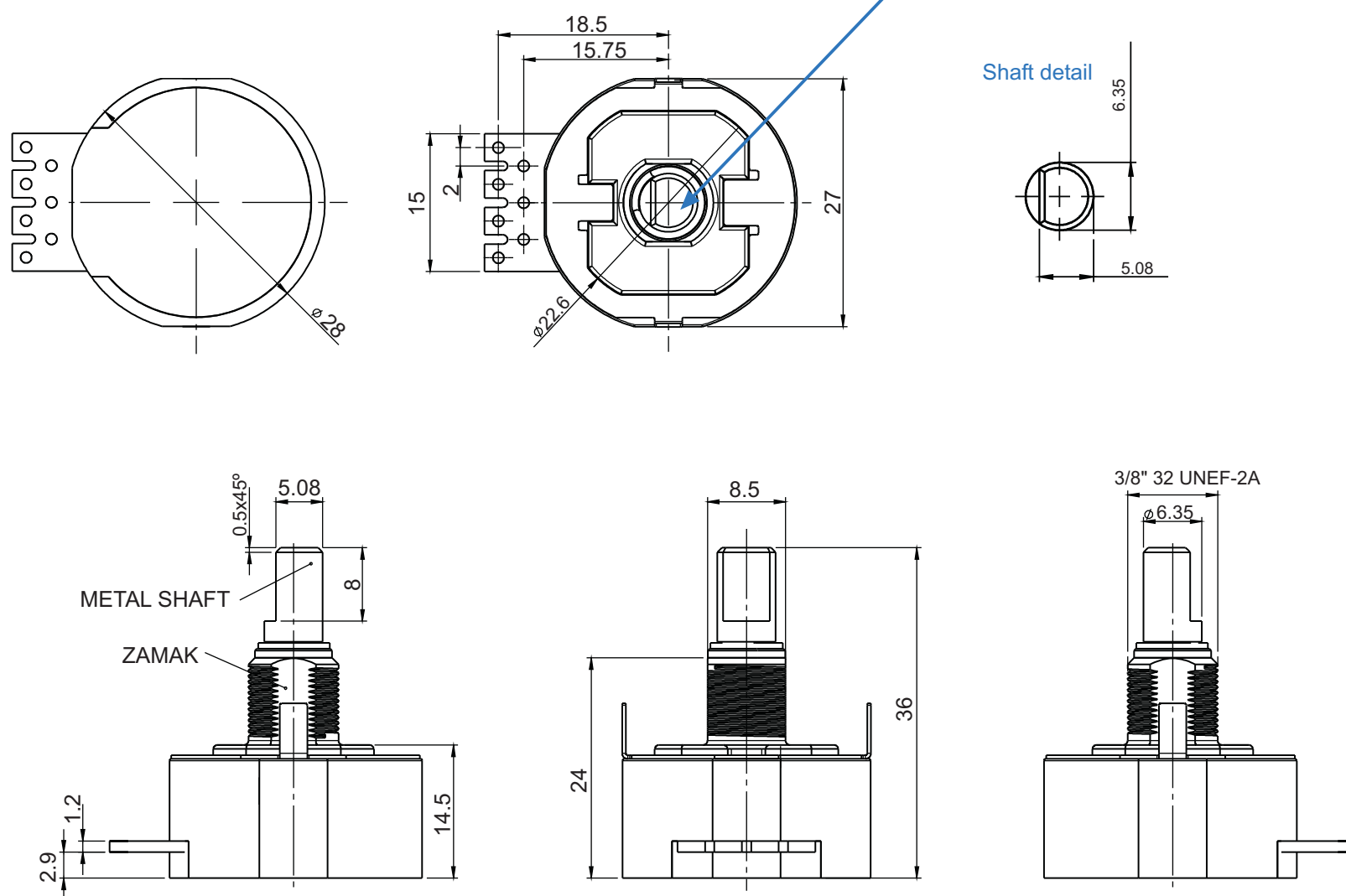
# Contactless sensor. PSC-360U

## Options.

- Special outputs slopes and protocols.
- Full redundant version with switches.
- Energy harvesting versions.
- Fast versions.
- Connectors.
- IP sealing.
- Shaft interfaces.
- Contact the factory for other options.

## Dimensions.

Flat shaft version.



\* Nut & washer included.

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Potentiometers | **Position / angle sensors** | Rotary switches | Incremental encoders  
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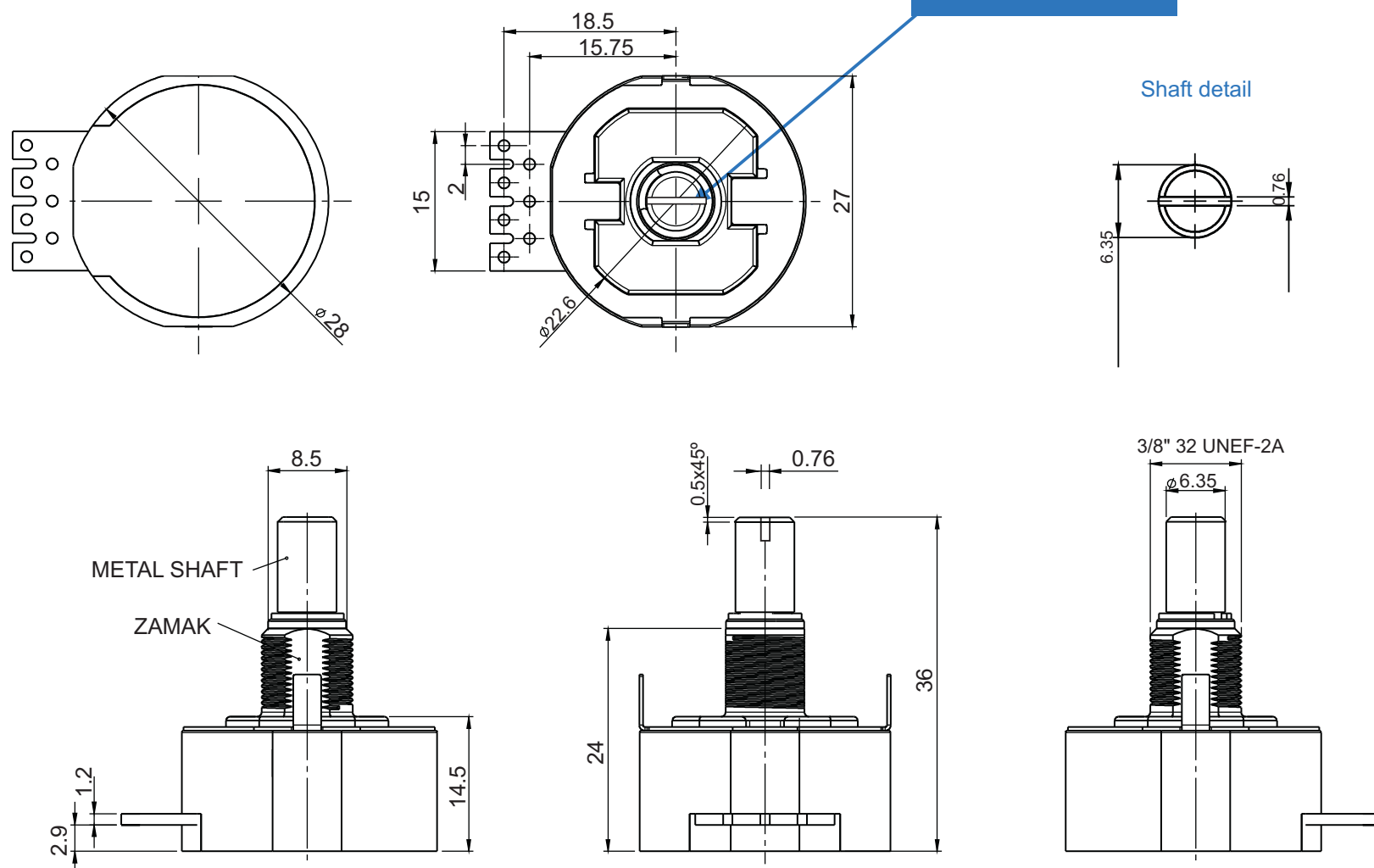


## Magnetic rotary angle and position sensor-control.

# Contactless sensor. PSC-360U

## Dimensions.

Slotted shaft version.



\* Nut & washer included.

## Mounting instructions.

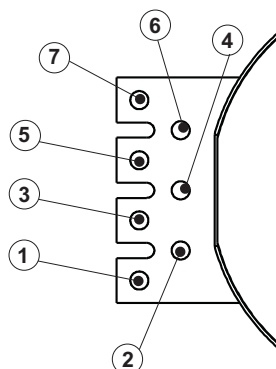
Electronic semiconductor products are sensitive to Electro Static Discharge (ESD).

Always observe Electro Static Discharge control procedures whenever handling semiconductor products.

## Connections scheme.

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

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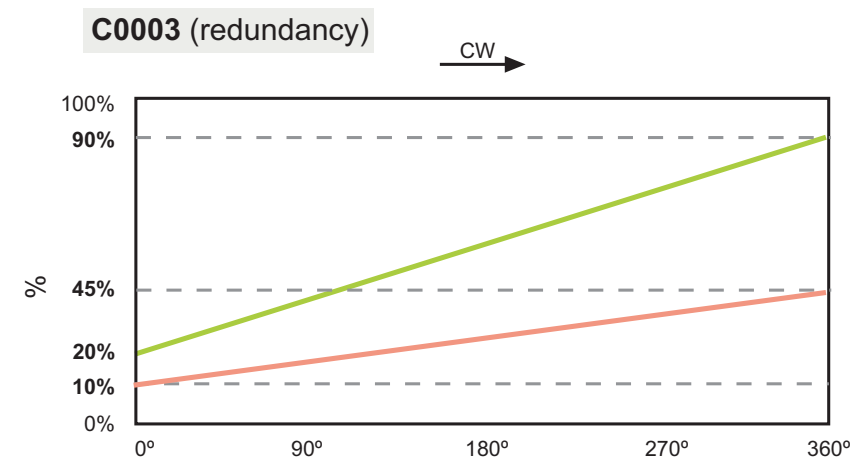
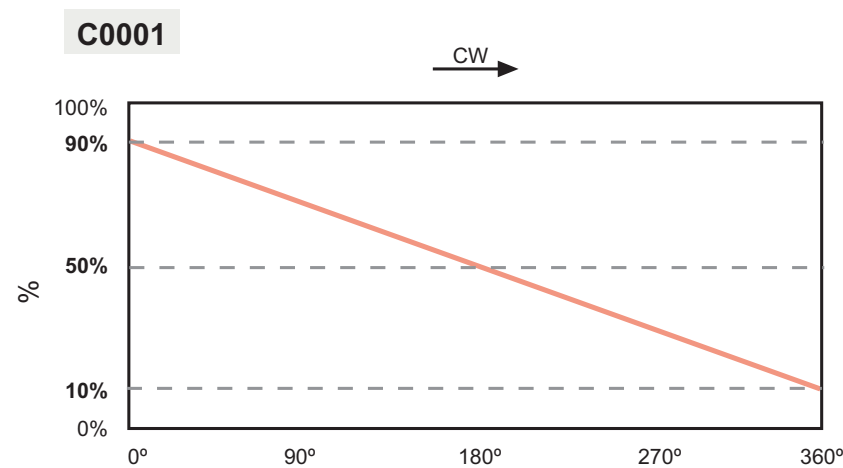
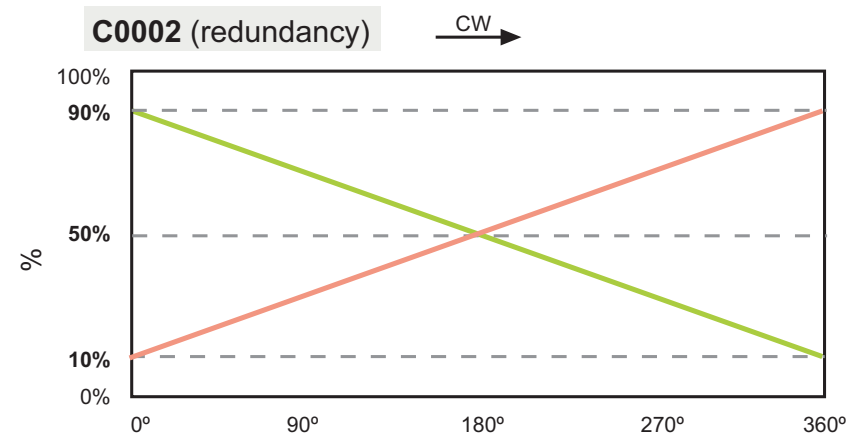
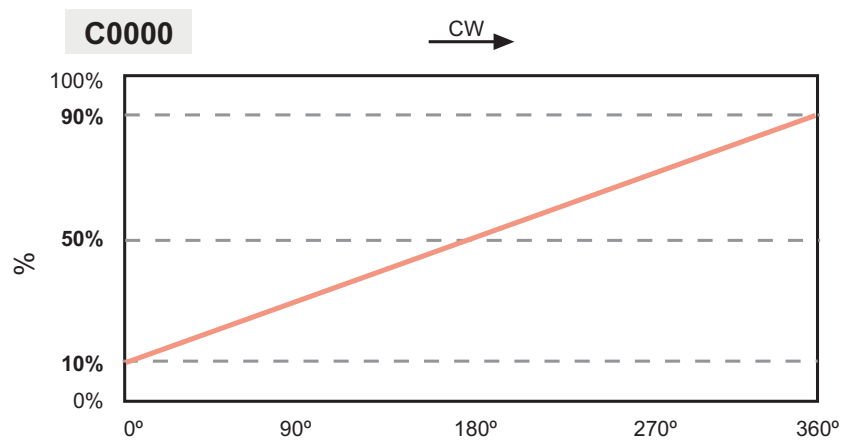
Potentiometers | **Position / angle sensors** | Rotary switches | Incremental encoders  
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## Output.



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