Enabling the Electronics Revolution

PIHER sensing systems
an Amphenol® company

PSE

Compact Panel Mount Hall-Effect Rotary Sensor



DESCRIPTION

Piher Sensing Systems' PSE Series Rotary Position Sensors are based on contactless hall-effect technology and deliver high accuracy and linearity in a compact package. Increased rotational life and robustness against humidity, vibration and shock make them perfectly suited for harsh industrial and transportation environments. These absolute sensors will not lose its values even after a power failure.

The PSE end-of-shaft sensor is offered in two versions: one with 360 degree endless rotation with programmable electrical angles from 15 to 360 degrees (without deadband) and another version that stops the rotary movement at rotational travel of 290 degrees.

Custom versions with different shafts and customer specific output curves can be delivered on request.



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.



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.



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



Adaptable to your requirements
Custom mechanical design, programmable transfer function as well as different output protocols and redundancy levels available.

POTENTIAL APPLICATIONS

Industrial
- Autonomous warehouse robotics
- Robotics and automation feedback
- Valve monitoring
- Paint spray systems
- Conveyor operation
- Test and measurement equipment
- Machine tool control

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

Marine
- Steering and shifter sensor

Home and Building Automation
- HVAC systems

Medical
- Equipment control

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MECHANICAL SPECIFICATIONS

Mechanical Angular Range	360° endless rotation (PSE-360) 290º (PSE-290)
Connection	Fly leads, connector assembly on request
Rotational life	50.000.000 cycles
Shaft diameter	6,25mm
Mounting Method	Panel mount
Rotational torque	⩲1Ncm

Other specifications on request

ELECTRICAL SPECIFICATIONS

Linearity[1]	±1% absolute (±0.5% upon request)
Electrical Angular Range[2]	360°, 270°, 180°, 120°, 90°, 50°
Output Protocol	Analog (Ratiometric), PWM
Resolution	12 bits
Output Range[2] standard inverted	10% to 90% Vdc 90% to 10% Vdc
Supply Voltage[2]	5V ±10%
Supply Current	Typ 8.5 mA
Voltage Protection	±18V
Self-diagnostic features	yes

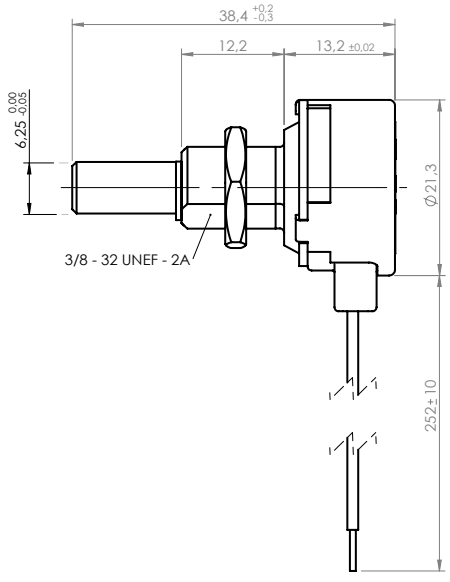
[1] Ferromagnetic materials close to the sensor (i.e. shaft, mounting surface) may affect the sensor's linearity.
[2] Other specification on request

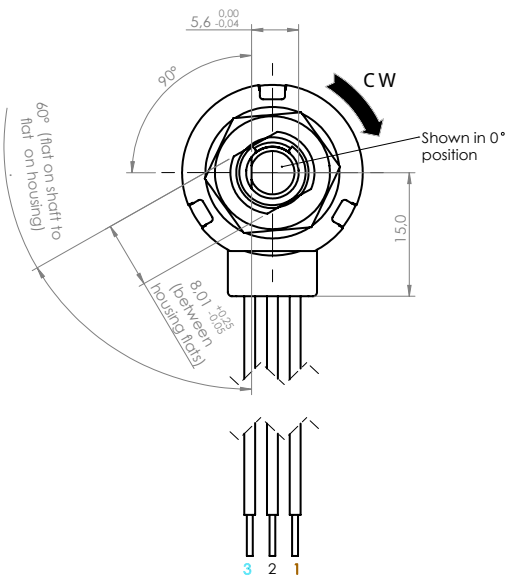
ENVIRONMENTAL SPECIFICATIONS

Operating temperature[1]	-40° to +80°C
Shock	according to SHOCK MIL-STD-202F Method 213B Test Condition C
Vibration	according to MIL-STD-202F Method 204D Test Condition B
Humidity	according to MIL-STD-202F Method 103B Test Condition A
EMI / ESD	according to UNE-EN 61000-4-2:2010 +/-6kV DC; +/-8kV AC

[1] Other specifications available

DIMENSIONS (MM)





Cable color	Function	Pin
Brown	Vcc	1
Black	Out	2
Blue	Gnd	3

The sensor is shipped with one nut installed at its base. An assembled washer and an extra nut are available upon request. Other shafts are also available upon request.

Download the 3D model at www.piher.net

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HOW TO ORDER

PSE-360 (360º endless rotation version) - Standard Configuration: PSE360-A-ERA360S-05

PSE360	-	_	-	ERA ___	_	-	05	-	____
Series		Output[1] A = analogic P = PWM		Electric rotational angle[2] ERA360 ERA270 ERA180 ERA120 ERA090 ERA050		Output function[3] S = standard I = inverted	Voltage supply 05 = 5V ±10%		PWM Frequency Hz.[4] F250

1 The analog output is ratiometric, proportional to input voltage.
2 Other electrical angular ranges available on request.
3 Other output functions available on request. Enter X as long as the new output function is not defined.
4 Leave empty if not applicable. Others available on request.

check inventory

PSE-290 (290º rotation version) - Standard Configuration: PSE290-A-ERA270S-05

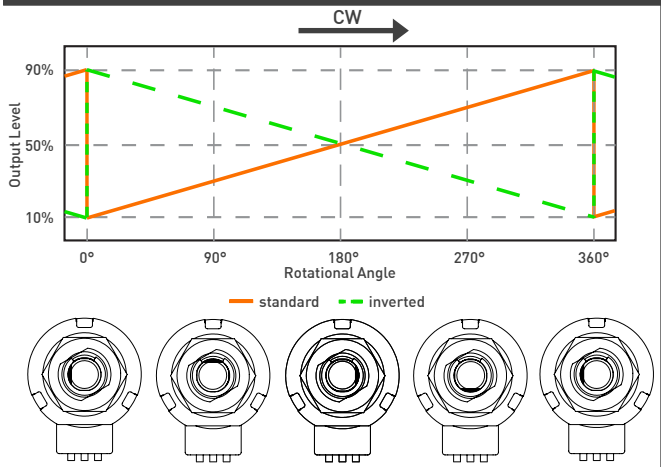
PSE	290	-	A	-	ERA 270	S	-	05	-	____
Series	Mechanical rotational angle[1] 290		Output[2] A = analogic P = PWM		Electric rotational angle[1] ERA270	Output function[3] S = standard I = inverted		Voltage supply 05 = 5V ±10%		PWM Frequency Hz.[4] F250

1 Other mechanical and/or electrical angular ranges available on request.
2 The analog output is ratiometric, proportional to input voltage.
3 Other output functions available on request. Enter X as long as the new output function is not defined.
4 Leave empty if not applicable. Others available on request.

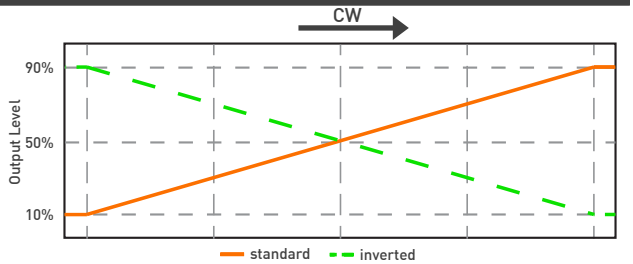
check inventory

PSE-360 TYPICAL OUTPUT CURVE

ERA360



Other electrical angles



ERA	Mechanical Rotational Angle		
270 →	45°	180°	315°
180 →	90°	180°	270°
120 →	120°	180°	240°
090 →	135°	180°	225°
050 →	155°	180°	205°

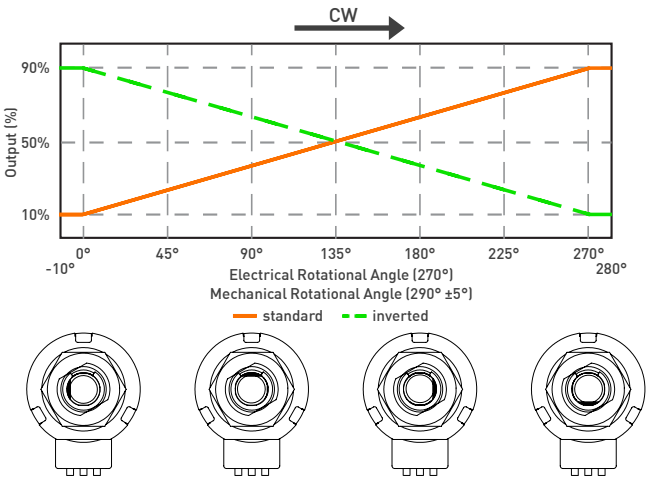
Custom output functions available on request.

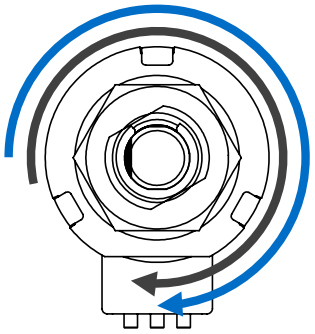
PSE

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PSE-290 TYPICAL OUTPUT CURVE

ERA-270





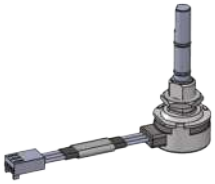
ERA 270°
MRA 290°

Custom output functions available on request.

MECHANICAL CUSTOMIZATION OPTIONS

- Different shaft sizes
- Additional O-rings
- Connector assembly
- Heat shrink wire protectors





HALO GEN FREE

To ensure you have the most up-to-date information, we recommend always downloading the latest version of this datasheet from www.piher.net

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CONTACT

Piher Sensing Systems
Polígono Industrial Municipal
Vial T2, Nº22
31500 Tudela
Spain

sales@piher.net

✆ +34 948 820 450

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