

PSC-360

Contactless
Sensor

DESCRIPTION

The PSC-360 is a vertical Hall-effect magnetic sensor that is 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 precisely feedback the absolute position from 0 to 360 degrees. It enables the design of low-cost high performance non-contacting rotary position sensors for both automotive and industrial applications without the limitations of potentiometric solutions (wear, limited electrical angles...) A configurable switch output 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 PSC360 is 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. Panel mount package for bush mounting 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.

STANDARDS

- EN 55022 class B, emission radiated (30 ... 230 MHz)
- EN 55022, class B, emission radiated (230 ... 1000MHz)
- EN 61000-4-2, ESD on housing and connections (contact / air)
- EN 61000-4-3, emission HF radiated (80 ... 1000MHz)
- EN 61000-4-4, Burst (on supply lines / signal lines)
- EN 61000-4-5, Surge (on supply lines / signal lines)
- EN 61000-4-6, emission HF conducted (0.15 ... 80MHz)
- EN 61000-4-8, emission magnetic field (50Hz)
- IEC 60393-1, Insulation resistance (500VDC, 1bar, 2s)
- IEC 60393-1, Dielectric strength (VAC, 50Hz, 1min, 1bar)
- IEC 68-2-6, Vibration (Amax=0.75mm, f=5 ... 2000 Hz)
- IEC 68-2-27 Shock



Panel mount
version



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STANDARD SPECIFICATIONS

- Linearity: $\pm 1\%$ absolute (0.5% upon request)
- Simple & Robust Magnetic Design
- Programmable Angular Range up 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
 - Analog & PWM: 12 bits
 - Serial Protocol (SPI): 14 bits
- Full Redundant option upon request
- 40 bit ID Number
- Self-Diagnostic features
- Rotational life: >50.000.000 cycles (depending on application and mounting)
- Operating temperature: -40°C to $+150^{\circ}\text{C}$
- +20V over voltage protection and -10V reverse voltage protection
- Supply voltage: $5\text{V} \pm 10\%$ (others upon request)
- IP65 (others upon request)

APPLICATION EXAMPLES

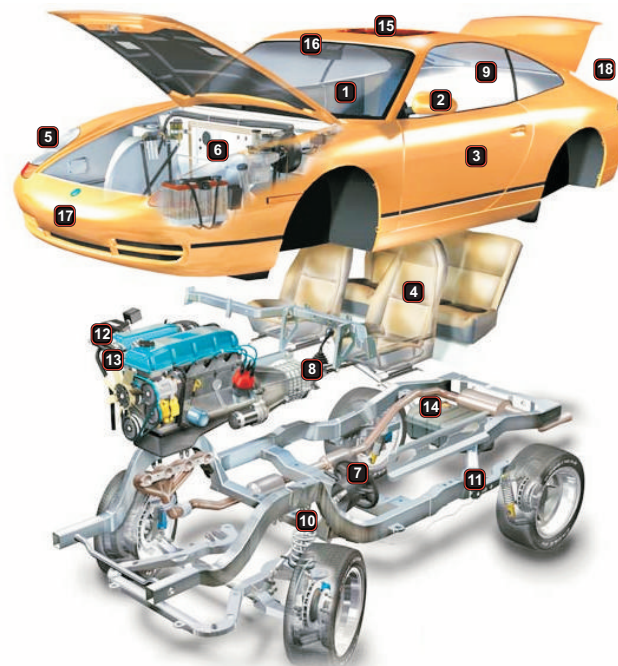
- Non-Contacting long life angle/position sensor
- Absolute Rotary Position Sensor
- Pedal Position Sensor
- Throttle/EGR Valve and Gear Position Sensor
- Height & suspension Sensor
- Non-Contacting Potentiometer
- Float-Level Sensor
- Motor-shaft Position Sensor
- Precision Robotics, industrial equipment, HVAC monitoring & control...

www.piher.net

NOTE: The information contained here should be used for reference purposes only.

PIHER

Controls & Sensors Automotive products



- 1 - Headlamp levelling control / Interior Lighting controls / Infotainment controls / Instrument panel dimming controls / Traction control / HVAC controls / Airbag enable-disable / Tachograph mode switch / Navigation system function select
- 2 - Mirror memory
- 3 - Door position sensor
- 4 - Seat:
 - Seat heating control
 - Recliner position sensor
 - Head restraint position sensor
 - Lumbar position sensor
 - Seat memory position sensor (linear & rotary)
- 5 - Headlamp levelling sensor / Adaptive frontlighting
- 6 - HVAC air flap position sensor
- 7 - Windshield wiper delay control / Steering angle position sensor
- 8 - Gear select position sensor
- 9 - Window position sensor
- 10 - Pedal position sensor
- 11 - Suspension & chassis height
- 12 - Throttle position / air-intake valve
- 13 - Swirl system / EGR
- 14 - Liquid level sensor
- 15 - Power sunroof control / Convertible hood control
- 16 - Rear-view mirror actuator feedback sensor
- 17 - Anti-collision radar
- 18 - Anti-pinch sensor / Aided parking

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extreme environments



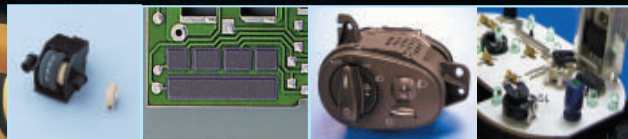
PCR - Carbon track on glass fibre substrate

Cermet track on ceramic substrate

MIRROR POSITION SENSOR

PTC-10

NPL



PTC-15 & PCR

HEADLAMP LEVELING CONTROLS



NPL

PT-15



PT-15

T-16



MT-150

MT-5

SEAT POSITION SENSOR

INSTRUMENT PANEL LIGHT DIMMER CONTROL



PT-15 with custom actuator

N6 SMD

AUDIO CONTROLS

Other control applications:
 Headlamp Switch
 Windshield wiper speed/delay
 Airbag Enable/Disable switch
 Navigation system function select
 Tachograph mode switch
 Power Sunroof



PT-10

PT-10 Dual Gang

PT-6

N-6

PT-10

CI-11/ CI11LM

PTC-10 Dual Gang

PC-16

HEADLAMP LEVELING SENSOR



NPL

Laser Trimmed PCR

N/Z-15

NPL

HVAC CONTROLS



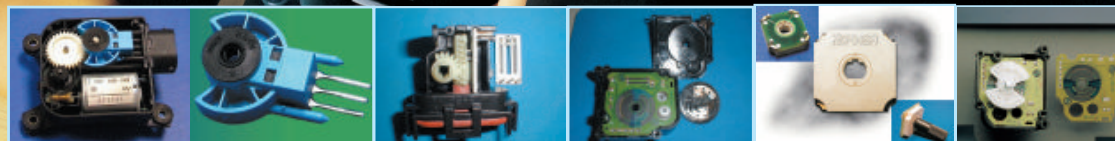
PT-15 with extended terminals

CR-24

PC-16 Bushless

N-15

AIR FLAP POSITION SENSOR



VMC 2.1

PL-21

PCR

N-15

PCR

Other sensor applications:
 Pedal position
 Suspension Height
 Throttle position
 Swirl System
 Gear select

The Automotive market is one of the key drivers of Piher's success. Demanding new and cost effective ideas year on year has shaped the company in to what it is today: proactive and customer driven. Since the seventies Piher has served the key European Automotive OEM's and component suppliers and has developed an expertise in providing custom Control and Sensor solutions unrivalled in today's Automotive sector.

Along with the acquisition of a prestigious array of quality awards representative of this sector: ISO 9001, QS9000, ISO 14001 and ISO TS 16949, Piher's products are listed in the IMDS database providing detailed information on product recyclability.

