


Technology	C A R B O N												
Type	CONTROLS & SENSORS												
Appearance	ROTARY												
Series	N-6	PT-6	PT-10	PT-15	PS-15	PC-16	T-16	T-21	T-18	N-15 A-15	E-15 S-15	DCM-PT15	DCM-PTT
Description	6mm square single turn SMD or through hole mount	6mm round single turn	10mm round single turn	15mm round single turn	15mm SMD sensor/pot.	16mm square single turn	16mm round single turn	21mm round single turn	18mm round single turn	15mm long life position/angle sensor	15mm incremental encoder or rotary switch	Detented control for PT-15, PTC-15 and PS-15	Appliance control
Enclosure Type	Overmoulded plastic		Dust proof plastic					Dust proof plastic		Dust proof plastic			
Typical Applications	General purpose & miniature control pot.		Miniature control potentiometer and customised options			General purpose (with switch)		Audio		Customisable control or sensor for all types of automotive and consumer applications	Automotive, Consumer HVAC, major appliances, electrical houseware & power tools...	Customisable detented control for all types of automotive and consumer applications	Customisable control for appliance / consumer applications
Power Rating (W)	0.1 (50°C)	0.1 (50°C)	0.15 (50°C)	0.25 (50°C)		0.2 (50°C)	0.25 (50°C)		0.15 (50°C)			0.15 (50°C)	
Temp. Coef.	±300 (R<100KΩ)												
Standard Resistance	100Ω to 1MΩ	220Ω to 5MΩ	100Ω to 5MΩ		1kΩ to 1MΩ		100Ω to 5MΩ		5k, 10k, 100k		1K Ω to 1M Ω		
Tapers	Linear		Linear - Log - Antilog - Specials			Linear		Linear - Log - Antilog - Specials					
Work Temp	-25°C +70°C *(85°C)		-40°C +85°C		-25°C +70°C *(85°C)		-40°C +120°C		-40°C +120°C (depending application)		-40°C +120°C		
Additional Features & Optional Extras	Tape on reel, ammpack, magazine and embossed tape packaging for automatic insertion RoHS reflowable version available Endless rotation upon request Bulk for manual assembly 6.5% linearity upon request 10K cycles version Shaft available		Dual gang version	Wide range of special shafts and rotors		Embossed tape option	Extensive range of plastic and metal shafts		Extensive range of plastic and metal shafts	Optional actuating knob	Infinite Customisation possibilities Encoder standard versions: 3 pulse (through hole); 6 Pulse (SMD) Switch standard versions: 2 and 6 positions Endless rotation Shaft insertable form either side Polarised "T" rotor Mounting methods: through hole, SMD and horizontal adjust Electrical Angle 340° ±10°, 360° version available: A15		High & low torque detents can be freely mixed Detents configurable to specific positions in complex tapers. Configurable end stops Up to 16 high torque detents Wiper positioned at 50% or fully clockwise Detent Torque: up to 8.8 Ncm Detent Torque: 8.8-14.7 Ncm Availability as switch, encoder or potentiometer "push to turn" function Laser trimming
Additional Features & Optional Extras	Long life model for low cost control potentiometer applications Supplied in magazines for automatic insertion Special tapers Mechanical detents (up to 27) Low or extra low torque Low torque version 200K cycles version Switch version Improved linearity & hysteresis UL Switch available www.pihernet		Self extinguishable plastic UL 94V-0 Cut track option	Stereo matching		Stereo matching	Stereo matching		Optional SPST switch	Mechanical detents		Various switch types	

Technology	C E R M E T		
Type	CONTROLS & SENSORS		
Appearance	ROTARY		
Series	PTC-10	PTC-15	CP-21
Description	10mm round single turn	15mm round single turn	21mm high power (2W)
Enclosure Type	Dust proof plastic UL 94V-0		
Typical Applications	Improved performance option for miniature control potentiometer and customised applications		General purpose
Power Rating (W)	0.33 (70°C)	0.5 (70°C)	2 (70°C)
Temp. Coef.	±100 (R<100KΩ)		
Standard Resistance	100Ω to 5MΩ		
Tapers	Linear - Log - Antilog - Specials		
Work Temp	-40°C +90°C		
Additional Features & Optional Extras	Laser trimming capabilities for tighter tolerances	Long life model for low cost control potentiometer applications	Wide range of special shafts and rotors Available as SPDT switch Mechanical detents
Additional Features & Optional Extras	Magazine for automatic insertion Low and extra low torque options	Low torque	Datasheets available at: www.pihernet

CUSTOM MECHATRONICS




CUSTOM PRODUCTS

Piher is recognised as a world leader in custom controls and sensor solutions by the top Land Vehicle/Automotive and Appliance players.

One of our core competences has always been the high experience in manufacturing custom sensors and controls according to customers' requirements, coping with even the harshest environments' conditions using rotary, linear and multicontact and non-contact technologies

The pursuit of the most cost-effective total solution for your needs is firmly embedded in our business philosophy, so whatever your requirements may be, from adapting standard products to complete new designs, be sure that Piher will deliver.

PRINTED RESISTORS



PCR

Thick-film resistive elements printed on a wide range of non-conductive substrates.

Ideal for potentiometer & fixed resistor combinations & high power dissipation applications

Depending on model

±300

10 Ω to 1M Ω

±30, 20, 10, 5, 2% (ratio adj.)

Specials

-40°C +85°C *(+105°C)

Special ohmic values

Functional trimming

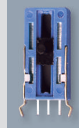
Laser trimming

Calibrated voltage dividers

Resistor family matching

3M cycles mechanical life

SLIDE



NPL

7mm - 12mm travel slide

Overmoulded plastic

Automotive position sensors

0.25 - 0.5 (70°C)


1K Ω to 100K Ω

Linear

-40°C +105°C

Variety of electrical travels and clip styles

CONTACTLESS SENSORS



PSC-360 PSC-360U

23mm round Panel mount

Plastic Standard: IP65 (others upon request)

Automotive, harsh environments, off-road applications, marine, industrial equipment, HVAC...

Configurable switch output

True redundancy available

Mechanical life: >50M cycles

Mechanical rotation angle: up to 360° (Endless)

Programmable angular range up to 360°

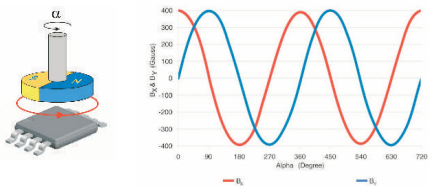
Standard linearity: ±1% (others upon request)

Contactless position sensors for harsh environments

Measurement of angular position using variation of magnetic field amplitude induced by the displacement of a moving magnet has been intensively developed over the last fifteen years. However, these solutions have limits in terms of angular range and temperature influence.

The technology used by Piher is only sensitive to the flux density coplanar with the IC surface. This allows to decode the absolute rotary (angular) position from 0 to 360 degrees. It enables the design of high performance non-contacting rotary position sensors for both automotive and industrial applications without the limitations of potentiometric solutions (wear, electrical angle...).

In combination with the appropriate signal processing, the magnetic flux density of a small magnet (diametral magnetization) rotating above the IC can be measured in a non-contacting way. The angular information is computed from both vectorial components of the flux density (i.e. BX and BY). Then an output signal proportional to the decoded angle is produced. The output is selectable between Analog, PWM and Serial Protocol. A configurable switch output is integrated within the sensor too.



Redundancy is also integrated in the circuit and furthermore you can request a dual-chip sensor for true full redundancy which comprises a dual switch output.

Piher contactless sensors are sealed and flange mounted for easy positioning when necessary. They provide 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. Endless connector configurations are available too.

These products show Piher's competences in sensors for use in harsh environments and custom product tailoring for use on Tier One and OEM platforms including contactless magnetic technology complete sub-assemblies.

Main features

- Low cost
- 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)
- Selectable Analog (Ratiometric), PWM, Serial Protocol
- Programmable switch output
- Up to 14 bit Angular Resolution
- Full Redundant option upon request
- 40 bit ID Number
- Self-Diagnostic features
- Rotational life: up to 50.000.000 cycles (depending on application and mounting)
- Operating temperature: -40°C to $+150^{\circ}\text{C}$
- Supply voltage: $5\text{V} \pm 10\%$ (others upon request)
- +20V over voltage protection and -10V reverse voltage protection
- 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
- Turn counter
- Precision Robotics, industrial equipment and HVAC monitoring & control...



PIHER

Controls & sensors

Shortform v3.0

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