

PIHER Ever closer
SERVICE Collaborative solutions
that really fit your
purpose



Sensors & Controls
Shortform

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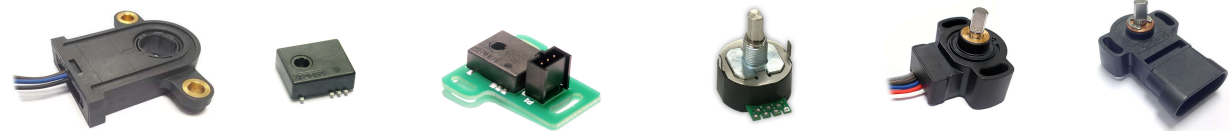
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CONTACTLESS - HALL EFFECT

Original thinking

CONTACTING - POTENTIOMETERS

The family



	Through shaft			End of shaft		
	PST-360	MTS-360	MTS-360PCB	PSC-360U	PSC-360	PSC-360IC
Output	Analog (ratiometric), PWM, SPI	Analog (ratiometric), PWM, SPI	Analog (ratiometric), PWM, SPI	Analog (ratiometric), PWM, SPI	Analog (ratiometric), PWM, SPI	Analog (ratiometric), PWM, SPI
Resolution*	Analog/PWM: 12 bits Serial (SPI): 14 bits	Analog/PWM: 12 bits Serial (SPI): 14 bits	Analog/PWM: 12 bits Serial (SPI): 14 bits	Analog/PWM: 12 bits Serial (SPI): 14 bits	Analog/PWM: 12 bits Serial (SPI): 14 bits	Analog/PWM: 12 bits Serial (SPI): 14 bits
Linearity	±1% absolute (0.5% upon request)	±1% absolute (0.5% upon request)	±1% absolute (0.5% upon request)	±1% absolute (0.5% upon request)	±1% absolute (0.5% upon request)	±1% absolute (0.5% upon request)
Supply voltage	5V - 12V - 15V	5V ±10%	5V ±10%	5V - 12V - 15V	5V - 12V - 15V	5V - 12V - 15V
Supply current	Typ 8.5mA for single version, Typ 17mA for redundant version	Typ 8.5mA for single version, Typ 17mA for redundant version	Typ 8.5mA for single version, Typ 17mA for redundant version	Typ 8.5mA for single version, Typ 17mA for redundant version	Typ 8.5mA for single version, Typ 17mA for redundant version	Typ 8.5mA for single version, Typ 17mA for redundant version
Voltage protection	+10V over voltage protection and -10V reverse voltage protection	+20V over voltage protection and -10V reverse voltage protection	+20V over voltage protection and -10V reverse voltage protection	+10V over voltage protection and -10V reverse voltage protection	+10V over voltage protection and -10V reverse voltage protection	+10V over voltage protection and -10V reverse voltage protection
Rotational life**	Up to 50M cycles	Up to 50M cycles	Up to 50M cycles	Up to 50M cycles	Up to 50M cycles	Up to 50M cycles
Switch output	Yes, programmable	Yes, programmable	Yes, programmable	Yes, programmable	Yes, programmable	Yes, programmable
Angular range	Up to 360° (no dead band)	Up to 360° (no dead band)	Up to 360° (no dead band)	Up to 360° (no dead band)	Up to 360° (no dead band)	Up to 360° (no dead band)
Redundancy	Yes	Yes	Yes	Yes	Yes	Yes
Diameter size	Hollow shaft: 14mm or 17mm	Hollow shaft: 4mm	Hollow shaft: 4mm	Shaft: 6.35mm	Shaft: 6mm	Shaft: 6mm
Mounting	Flange/Fly lead harness	SMD mount	Flange/Molex connector	Flange/PCB	Flange/Fly lead harness	Flange/Delphi connector
Sealing***	IP69	IP50	IP50	IP67	IP69	IP67



	Touchless magnetic hall-effect		
	Variable air gap sensor	Rotary concentric sensor	Linear position sensor
	PS2P-ARC	PS2P-CON	PS2P-LIN
Type	Rotary	Rotary	Linear
Output	Analog (ratiometric), PWM, SPI	Analog (ratiometric), PWM, SPI	Analog (ratiometric), PWM, SPI
Resolution*	Analog/PWM: 12 bits; Serial (SPI): 14 bits	Analog/PWM: 12 bits; Serial (SPI): 14 bits	Analog/PWM: 12 bits; Serial (SPI): 14 bits
Linearity	± 1% absolute (0.5% upon request)	± 1% absolute (0.5% upon request)	± 1% absolute (0.5% upon request)
Supply voltage	5V - 12V - 15V	5V - 12V - 15V	5V - 12V - 15V
Supply current	Typ 8.5mA for single version Typ 17mA for redundant version	Typ 8.5mA for single version Typ 17mA for redundant version	Typ 8.5mA for single version Typ 17mA for redundant version
Voltage protection	+ 10V over voltage protection -10V reverse voltage protection	+ 10V over voltage protection -10V reverse voltage protection	+ 10V over voltage protection -10V reverse voltage protection
Life	Virtually unlimited	Virtually unlimited	Virtually unlimited
Switch output	Yes, programmable	Yes, programmable	Yes, programmable
Measurement range	Custom	Up to 360°	12mm
Redundancy	Yes	Yes	Yes
Sealing	Up to IP69	IP69	IP69

[*] depends on electrical angle and rotational speed [**] depending on application and mounting [***] others upon request

POTENTIOMETERS



Series	N-6	N-6R	PT-6	PS-6	PT-10	PS-10	PTC-10	PT-15	PS-15	PTC-15	ST-15	Detented & custom potentiometers
Type	Single turn	Single turn	Single turn	Single turn	Single turn	Single turn	Single turn	Single turn	Single turn	Single turn	Endless	Single-turn or endless
Dimensions	6mm	6mm	6mm	10mm	10mm	10mm	10mm	15mm	15mm	15mm	15mm	Several
Mounting	SMD Through hole	Through hole	SMD	Through hole	SMD	Through hole	Through hole	Through hole	SMD	Through hole	Through hole	SMD Through hole
Technology							cermet	carbon			cermet	carbon cermet
Enclosure Type	Overmoulded plastic (IP54)		Dust proof plastic (IP54)				Dust proof plastic (IP54) UL 94V-0	Dust proof plastic (IP54)		Dust proof plastic (IP54) UL 94V-0	Dust proof plastic (IP54)	
Typical Applications	Miniature control potentiometer and customised options well suited for most automotive and consumer applications. Consumer app. examples: ovens, ranges, dishwashers, lighting (dimmers), power hand tools, washing machines and HVAC systems. Automotive app. examples: mirror memory, headlamp control/sensor, climate temperature & fan speed controls, throttle control/sensor.											
Standard Power rating (W)	0.1 (50°C)		0.15 (50°C)		0.33 (70°C)	0.25 (50°C)	0.15 (50°C)	0.5 (70°C)	0.25 (50°C)		Detented controls for all types of automotive and consumer applications. Our detent design not only adds a "click" sensation of position, but also offers enormous savings in both cost and space for any given application. Strong and weak detents can be mixed as per customer's request.	
Standard Tolerance (Other upon request)	±30%	±20% ±30%	±30%	±20% ±30%	±30%	±20% ±30%		±30%	±20% ±30%	±30%	Pihier's potentiometers can feature flattened regions in its output curve. Looking more like a "stair step" than a normal output curve, this product allows engineers to precisely control constant voltage outputs within the normal rotational range of their potentiometer.	
Tapers	Linear	Linear Log Antilog Custom	Linear	Linear Log Antilog Custom	Linear	Linear Log Antilog Custom	Linear	Linear Log Antilog Custom	Linear	Linear Log Antilog Custom	Linear	Linear (pot) Switch Encoder
Work Temp (Other upon request)	-25°C +70°C (85°C)		-40°C +85°C	-25°C +70°C (85°C)	-40°C +85°C	-40°C +90°C (up to +120°C check availability)	-25°C +70°C (85°C)	-40°C +85°C	-40°C +90°C (up to +120°C check availability)	-25°C +70°C	-40°C +85°C	-40°C +85°C (+105°C)
Additional Features & Optional Extras	<p>Tape on reel, ammpack, magazine and embossed tape packaging for automatic insertion</p> <p>Endless rotation upon request</p> <p>Bulk for manual assembly</p> <p>6.5% linearity upon request</p> <p>Shaft available</p> <p>ROHS reflowable</p> <p>10K cycles mechanical life version</p> <p>Built-in detents available</p> <p>Long life model for low cost control potentiometer applications</p> <p>Dual gang version</p> <p>Self extinguishable plastic UL 94V-0</p> <p>Magazines for automatic insertion</p> <p>Specifically designed for leadfree reflow soldering processes</p> <p>Mechanical life: 10k cycles</p> <p>Cut track option</p> <p>Custom tapers</p> <p>Low torque version</p> <p>Switch version</p> <p>Improved linearity & hysteresis</p> <p>Wide range of shafts and rotors</p> <p>Embossed tape option</p> <p>Laser trimming capabilities for tighter tolerances</p> <p>Magazines for automatic insertion</p> <p>Mechanical life: 10k cycles</p> <p>Specifically designed for leadfree reflow soldering processes</p> <p>Wide range of shafts and rotors</p> <p>Low torque version</p> <p>200K cycles life version</p> <p>Improved linearity & hysteresis</p> <p>Wide range of shafts and rotors</p> <p>Embossed tape option</p> <p>Laser trimming capabilities for tighter tolerances</p> <p>Magazines for automatic insertion</p> <p>Mechanical life: 10k cycles</p> <p>Available as SPDT switch</p> <p>Low torque version</p> <p>Self extinguishable plastic UL 94V-0</p> <p>200K cycles life version</p> <p>Optional self extinguishable plastic UL 94V-0</p> <p>SMT mounting and custom electrical angles upon request.</p> <p>These regions can be combined with Pihier's detent feature providing a positive mechanical action when rotating the sensor into these constant voltage zones.</p> <p>Rotary switches series</p>											

NOTE: The information contained in this catalogue should be used for reference purposes only. Due to continuous product improvements, we reserve the right to make specification and/or product changes without prior notification.

All models can be adapted to meet customer's requirements.

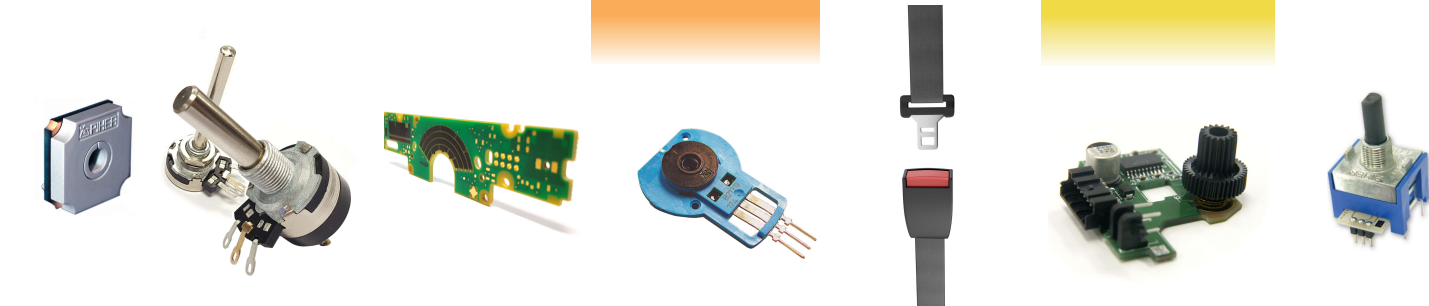
PRINTED PCB RESISTORS

HVAC SENSORS

SEAT BELT SENSOR

AUTOMOTIVE

APPLIANCE



Series	N-15 Z-15	PC-16	T series	PCB printed resistors	HVAC	SEAT BELT	Automotive position sensors	Appliance controls
Type	Endless	Single turn	Single turn	Thin-film resistive elements printed on a wide range of non-conductive substrates.	Climate position sensor (endless rotation)	Detection position sensor	Slide & Rotary	Available as switch, encoder or potentiometer
Dimensions	15mm	16mm	16, 18, 21mm			hall effect reed switch		
Mounting	SMD Through hole	Through hole Panel mount	Through hole Solder lugs					
Technology	carbon			carbon	carbon			
Enclosure type	Dust proof plastic (IP54)	Dust proof	Dust proof	N/A	Dust proof	Dust proof IP67	Overmoulded plastic	Custom
Typical Applications	Customisable control or sensor for all types of automotive and consumer applications	General purpose control (with optional switch)	General purpose control (with single or multiple switch)	Ideal for potentiometer & fixed resistor combinations & high power dissipation applications	Accurate feedback of the position of the cold/hot air flap in car HVAC systems	Off-road & recreational vehicles	Automotive position & angle sensors	Customisable detented controls for all types of automotive and consumer applications
Power rating (W)	0.15 (50°C)	0.2 (50°C)	T-16: 0.2 (50°C) T-18&T-21: 0.25 (50°C)	Depending on model	0.25 (50°C)	N/A	0.25 - 0.5 (50°C)	0.15 (50°C)
Standard Tolerance (Other upon request)	±30%	±20% ±30%		±30, 20, 10, 5, 2% (ratio adj.)	±20%	N/A	±30%	±30%
Tapers	Linear (pot) Switch Encoder	Linear - Log Antilog - Custom		Custom	Linear	N/A	Linear	All
Work Temp (Other upon request)	-40°C +120°C (depending application)	-25°C +70°C (85°C)		-40°C +85°C (+105°C)	-40°C +85°C	-40°C +80°C	-40°C +105°C	-20°C +105°C
Additional Features & Optional Extras	Infinite customisation possibilities	Extensive range of plastic and metal shafts		Special ohmic values	High accuracy (2% linearity) and low cost are among its advantages	Custom harnesses and connectors	Variety of electrical travels and clip styles (slider)	Detents configurable to specific positions in complex tapers
	Mechanical life up to 200K cycles 2M cycles version available (Z-15 series)	Stereo matching Optional switch		Laser trimming			Linearity ± 3%	Configurable end stops
	Shaft insertable from either side	Optional actuating knob (T-18)		Calibrated voltage dividers			Mechanical life: >100K cycles	Available with or without detents
	Mounting methods: through hole, SMD and horizontal adjust	Detents		Resistor family matching			Single or multiturn	plastic / metal shafts
	Electrical Angle 340° ±10°. 360° version available	Various switch types (T21)		3M cycles mechanical life				"plug-and-play" connectors
								High & low torque detents can be freely mixed
								"push to turn" function
								Laser trimming

