



SOLUTIONS FOR OFF-ROAD VEHICLES

Vishay Sfernice

RESISTIVE PRODUCTS

CAPABILITIES





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Precision Potentiometers / Motion Transducers

Vishay Sfernice precision potentiometers are built with a conductive plastic ink laid upon various types of supports. This resistive element is then mounted inside a housing or directly in the customer's sub-assemblies and joined to a high-quality wiper assembly constructed from precious metal alloy. The range of Vishay Sfernice motion transducers includes both single-turn, rotational, and linear devices.

Vishay Sfernice also offers some products based on a contact-less Hall effect solution for all applications requiring a high level of dithering. The models are easily recognizable by the letters "HE" in their reference.

Products: 357, KIT LMF, KIT RMF, 351 HE, RMHE, and 981 HE

Features and Benefits

- Long operational life: 10 million cycles and up
- Linearity of 1 % or less and excellent repeatability
- Redundant track and fully sealed options available
- Wide operating temperature range of - 55 °C to + 125 °C
- For harsh environments, models based on Hall effect technology are highly recommended as these products can withstand high levels of vibration

Major Off-Road Vehicle Applications

- Forklift positioning and steering
- Speed control
- Accelerator – control of the angle of the pedal
- Plow – height control
- Gear shift – tractor
- Hitch control – tractor
- Ladder steering assembly (fire truck)
- Clutch – pedal position
- Dashboard control

Available Custom Kits for Forklifts, Tractors, and Trucks

- Generally based on the following catalog products: **KIT LMF / KIT RMF / Model 357...** (for conductive plastic models)
- Generally based on the following catalog products: **KIT RMHE / 981 HE / 351 HE...** (for Hall effect sensors)
- All products are then customized to fit in each application
- Throttle body case can also be offered with a spring return option (Model 981 HE can be offered either in hollow shaft or in steel D-shaft version)
- Special housings can be designed in partnership with our customers (see cover image)



Precision Potentiometers / Hall Effect Sensors						
	357	KIT LMF	KIT RMF	351 HE	RMHE	981 HE
Models						
Main Features	Conductive plastic	Conductive plastic	Conductive plastic	Hall effect	Hall effect	Hall effect
Life Cycles	5 M	25 M	25 M	10 M	20 M	10 M
Linearity	± 1 %	± 0.1 %	± 0.1 %	± 0.5 %	± 0.5 %	± 0.5 %
Miscellaneous Features	Fully customized model	Fully customized model	Fully customized model	360° electrical angle	Fully sealed IP67	Spring loaded shaft

Panel Potentiometers

Vishay Sfernice offers both cermet and conductive plastic single-turn panel potentiometers. Our wide range of products includes standard sealed designs units, modular potentiometers, robust high-power, and long-life solutions. Our value-added and custom capabilities help customers to reduce their assembly costs.

Products: PE30, P11S, PRV4, P30L, PRV6, and P11L

Features and Benefits

- IP67 sealing
- High operating and end-stop torques
- Long operational life: 2 million cycles for P30L and P11L
- Multi-gang assembly with switch/detent options

Available Custom Features

- Shaft and panel sealing
- Locking devices
- Cable, harness, and connectors to customer's specification
- Custom bushings and shafts
- Special tapers and track angles
- Special linearity or inter-linearity

Major Off-Road Vehicle Applications

- Climate control
- Dashboard and interior illumination
- Compartment HVAC
- Fork lift speed control
- Fork lift dashboard control
- Lighting controls



Panel Potentiometers						
Models	PE30	P11S	PRV4	P30L	PRV6	P11L
Main Features	Fully sealed 3 W Robust High torque	Versatile Modular Options	Fully sealed 2 W Robust High torque	High rotational life Fully sealed High torque	Fully sealed Mil design	High rotational life Modular Options
Life Cycles	25,000	50,000	25,000	2,000,000	50,000	2,000,000
Size	19.7 mm diam. 3/4"	12.5 mm square 1/2"	19.7 mm diam. 3/4"	19.7 mm diam. 3/4"	12.5 mm diam. 1/2"	12.5 mm diam. 1/2"
Power Rating (PR)	3 W	1 W	2 W	2 W	1.5 W	0.1 W
Miscellaneous Features	300° Mech. travel IP67 Sealing Panel sealing optional	300° Mech. travel IP64 Sealing Panel sealing optional	300° Mech. travel IP67 Sealing Panel sealing optional	300° Mech. travel IP67 Sealing Panel sealing optional	300° Mech. travel IP67 Sealing Panel sealing optional	300° Mech. travel IP64 Sealing



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Thick Film Power Resistors

Vishay Sfernice offers the widest range of thick film power resistors in the industry. Offered in standard semiconductor packages such as the TO-220, TO-247, DPAK, or D²PAK, our thick film technology is non-inductive by design and allows high power dissipation in small cases.

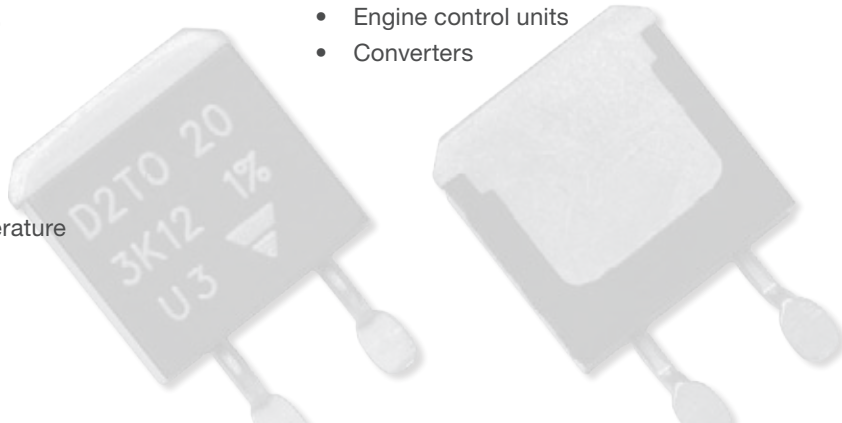
Products: RTO 20, RTO 50, LTO 30, LTO 50, D2TO20, and D2TO35

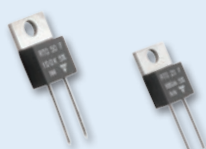

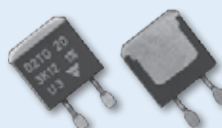
Features and Benefits

- High power in standard TO-220, DPAK or D²PAK packages
- Non-inductive by design
- Low profile and small size
- Low thermal radiation
- Cost competitive
- RoHS-compliant for high-temperature soldering of SMD products
- AEC-Q200 for D2TO35

Major Off-Road Vehicle Applications

- Engine control units
- Converters



Thick Film Power Resistors			
	RTO	LTO	D2TO
Models			
Power Rating Mounted (PR)	20 W & 50 W	30 W to 100 W	20 W & 35 W
Thermal Resistance	RTO 20 = 6.5 °C/W RTO 50 = 2.6 °C/W	4.2 °C/W to 1.5 °C/W	D2TO20: 6.5 °C/W D2TO35: 4.2 °C/W
Package	TO-220	TO-220 and TO-247	TO-263 Style (D ² PAK)
Features	<ul style="list-style-type: none"> • 2 models within range • Custom designs available • Through-hole and SMD • Lead (Pb)-free and RoHS available 	<ul style="list-style-type: none"> • 3 models within range • Direct mounting ceramic on heatsink • Lead (Pb)-free and RoHS compliant • Custom designs available 	<ul style="list-style-type: none"> • 2 models within range • Standard package for SMD • Lead (Pb)-free and RoHS compliant • Solder reflow secure at 270 °C/10s • AEC-Q200 (D2TO35)

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NOTES

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SEMICONDUCTORS:

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PASSIVE COMPONENTS:

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VMN-PL0421-1005