



VISHAY INTERTECHNOLOGY, INC.

RESISTIVE PRODUCTS

SOLUTIONS FOR OFF-ROAD VEHICLES

Vishay Sfernice

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.

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

- All products are then customized to fit in each application
- Throttle body case can also be offered with a spring return option (Model 981HE 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)


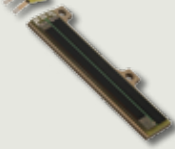




Available Custom Kits for Forklifts, Tractors, and Trucks

- 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 / 981HE / 351HE... (for Hall effect sensors)

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



Panel Potentiometers						
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 %	±0.25 %
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 sealed solutions. Our value-added and custom capabilities help customers to reduce their assembly costs.

Products: P11S, PE30, PRV4, P30L, and PRV6S

Features and Benefits

- IP67 sealing
- High operating and end-stop torques
- Long operational life: 1 million cycles for P30L
- 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	PRV6S
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
Life Cycles	25,000	50,000 (1,000,000)	25,000	1,000,000	50,000
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"
Power Rating (PR)	3 W	1 W	2 W	2 W	1.5 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

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 TO220, TO247, DPAK, or D²PAK, our thick film technology is non-inductive by design and allows high power dissipation in small cases.

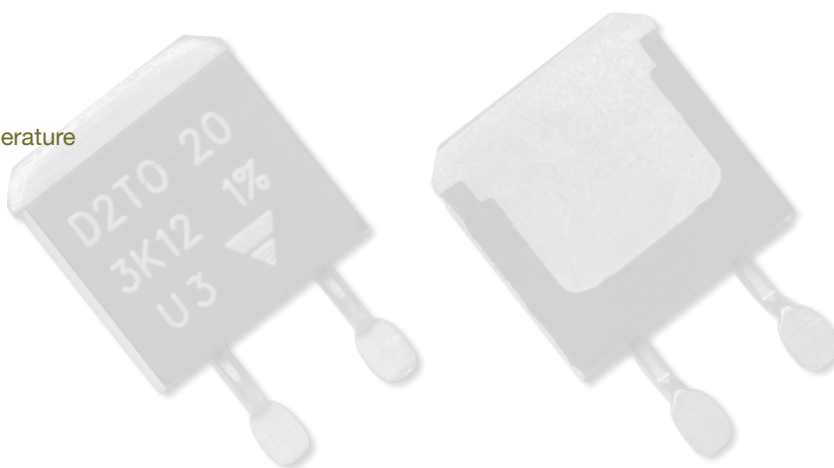
Products: RTO20, RTO50, LTO30, LTO50, D2TO20, D2TO35, and DTO25

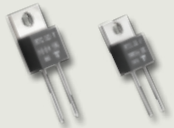

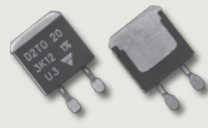

Features and Benefits

- 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

Major Off-Road Vehicle Applications

- Engine control units
- Converters

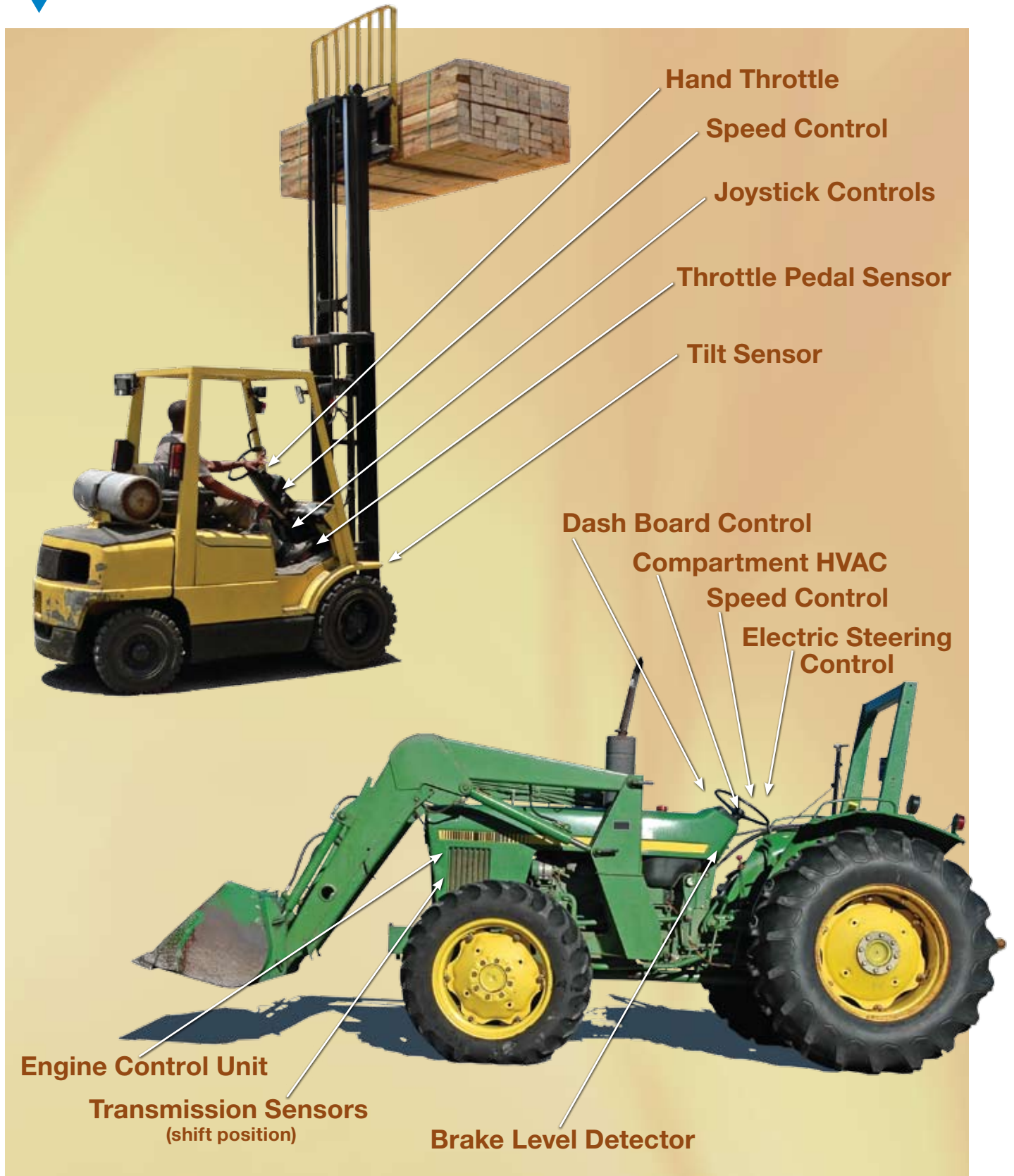


Thick Film Power Resistors				
	RTO	LTO	D2TO	DTO 25
Models				
Power Rating Mounted (PR)	20 W & 50 W	30 W to 100 W	20 W & 35 W	25 W
Thermal Resistance	RTO20 = 6.5 °C/W RTO50 = 2.6 °C/W	4.2 °C/W to 1.5 °C/W	D2TO20: 6.5 °C/W D2TO35: 4.2 °C/W	5 °C/W
Package	TO220	TO220 and TO247	TO263 Style (D2 PAK)	TO252 Style (D 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 	<ul style="list-style-type: none"> • Standard package for SMD • Lead (Pb)-free and RoHS compliant • Solder reflow secure at 270 °C/10s



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SEMICONDUCTORS:

Rectifiers • High-Power Diodes and Thyristors • Small-Signal Diodes • Zener and Suppressor Diodes
• FETs • Optoelectronics • ICs • Modules

PASSIVE COMPONENTS:

Resistive Products • Magnetics • Capacitors • Strain Gage Transducers and Stress Analysis Systems



One of the World's Largest Manufacturers of
Discrete Semiconductors and Passive Components

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