



# Application Alley

## Automotive - Reed Sensor

*Battery Deactivation Controlled by a Reed Sensor*

## Introduction

When an automobile is completed at the factory, it is ready to be driven. However, the vehicle may sit in a completion lot for several day or weeks awaiting transportation. The vehicle is then transported either by truck all over the country or even sent overseas on a ship. Once the vehicle arrives at its final destination it may sit for an extended period of time. The entire process could add up to several months for which the vehicle has been sitting idle prior to being sold. During that idle period, if the vehicle's battery was connected it would have undergone small leakage currents that exist in any car. These leakage currents would drain the battery, leaving the new owner with a car that won't start. Standex Electronics designers working with automotive engineers have solved these leakage current issues by using a magnetic Reed Sensor.

## Features

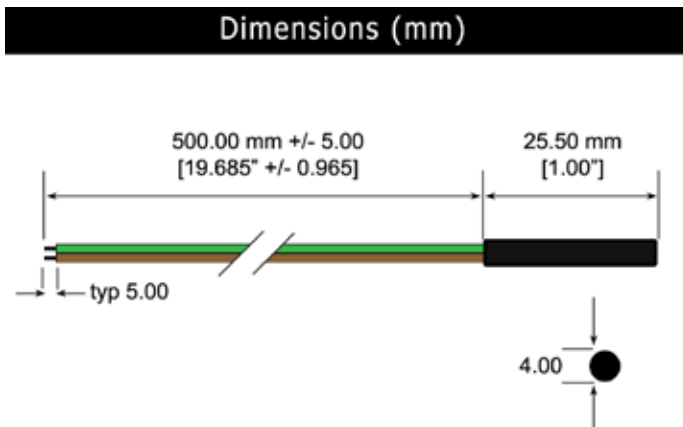


Figure 1. MK14 Sensor physical layout

- The reed sensors reliably operate between -50°C to 150°C
- Magnet and Reed Sensor are isolated and have no physical contact by typically having the Reed Sensor module mounted beneath the car windshield and the magnet is manually positioned over the module to accurately detect the magnet and deactivate the battery
- The reed switch used in the Reed Sensor is

hermetically sealed and is therefore not sensitive to rough, wet environments

- The magnet is not affected by its environment
- Tens of millions of reliable operations
- Surface mount and through hole packages available
- Cylindrical hole and screw fastening mounting
- Contacts dynamically tested

Sensor module is turned off when magnet is placed over module, deactivating battery and avoiding battery drain.

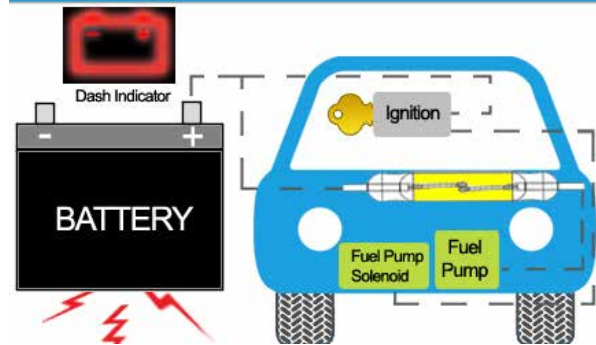


Figure 2. Connected battery showing small current leakage.

Sensor module is turned off when magnet is placed over module, deactivating battery and avoiding battery drain.

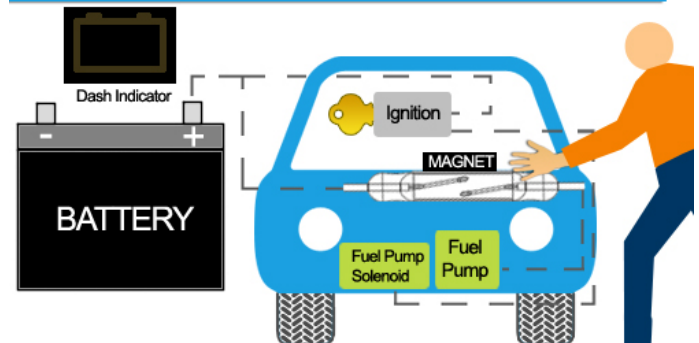


Figure 3. Magnet is placed over the sensor module to deactivate the battery to prevent battery drain.

## Applications

- Ideal for sensing remotely when the magnet is clearly separated from the reed sensor by non-ferromagnetic material (glass, plastics, etc).

## Standex Electronics's Reed Sensor Modules Are Able To Control The Discharge Of An Automobile Battery

Many automotive salesmen and auto dealers have been embarrassed when they have attempted to take potential customers for a test drive only to find that the vehicle of their dreams will not start. New cars that have sat around for months will experience small leakage currents that naturally exist in all cars causing their battery to drain.

Specifications (@ 20°C) MK14 Series			
	Min	Max	Units
<b>Operate Specifications</b>			
Must close distance	5	25	mm
Must open distance	5	25	mm
Hysteresis	Typical 50%		
<b>Load characteristics</b>			
Switching voltage		200	V
Switching current		0.5	Amps
Carry current		1.5	Amps
Contact rating		10	Watts
Static contact resistance		150	mΩ
Dynamic contact resistance	200		mΩ
Breakdown voltage	320		V
Operate time		0.5	msec
Release time		0.1	msec
Operate temp	-20	85	°C
Storage temp	-20	85	°C





Standex Electronics designers working with the auto makers have solved this problem by using a magnet external to the car coupled with a reed sensor internally in the car. Here the dealer can activate and deactivate the reed sensor by using an external magnet from outside the car.

Standex Electronics has designed a reed sensor module that is mounted under the window of car. When the dealer brings a magnet near the sensor from outside the window, the sensor activates triggering an electronic switch that in turn can turn the battery circuitry on and off. In this manner the battery power is saved when it is really needed. An additional advantage with this approach is that




when the vehicle is sold, the reed sensor module is removed and can be re-used by the automotive manufacturer by mounting it on another vehicle. Standex Electronics's reed sensor module is designed for ease of connecting and disconnecting its electrical leads.

Consider some of the below options in cylindrical panel mount and rectangular screw flange mount for the battery deactivation sensor or other similar applications.

### Cylindrical Panel Mount Sensor Series

Series		Dimensions		Illustration
		mm	inches	
MK03	D	5.25	0.207	
	L	25.5	1.004	
MK14	D	4	0.157	
	L	25.5	1.004	
MK18	D	5	0.197	
	L	17	0.669	
MK20/1	D	2.72	0.107	
	L	10	0.394	

### Rectangular Panel Mount Sensor Series

Series		Dimensions		Illustration
		mm	inches	
MK04	W	13.9	0.547	
	H	5.9	0.232	
	L	23.0	0.906	
MK05	W	19.6	0.772	
	H	6.1	0.240	
	L	23.2	0.913	
MK12	W	14.9	0.587	
	H	6.9	0.272	
	L	32.0	1.260	

\*\*Consult the factory for more options not listed above.

Find out more about our ability to propel your business with our products by visiting [www.standelectronic.com](http://www.standelectronic.com) or by giving us a [hello@standelectronic.com](mailto:hello@standelectronic.com) today! One of our

engineers or solution selling sales leaders will listen to you immediately.

## About Standex Electronics

Standex Electronics is a worldwide market leader in the design, engineering, and manufacture of standard and custom electro-magnetic components, including magnetics products and reed switch-based solutions.

Our magnetics offerings include planar, current sense, and conventional low- and high-frequency transformers and inductors. Reed switch-based solutions include Meder, Kent, and KOFU brand reed switches, as well as a complete portfolio of reed relays, and a comprehensive array of fluid level, proximity, motion, water flow, HVAC condensate, hydraulic pressure differential, capacitive, conductive and inductive sensors.

We offer engineered product solutions for a broad range of product applications in the transportation, automotive, medical, test and measurement, military and aerospace, aviation, HVAC, appliance, security and safety, and general power and industrial markets.

Standex Electronics has a commitment to absolute customer satisfaction through a partner, solve, and deliver approach. With a global organization that offers sales support, engineering capabilities, and technical resources worldwide – we implement customer driven innovation that puts the customer first.

For more information on Standex Electronics, visit us on the web at [standexelectronics.com](http://standexelectronics.com).

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