

Dimensions (mm)

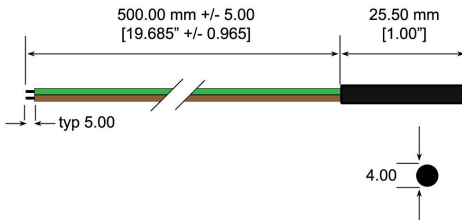


Figure 1. MK14 Sensor physical layout

Features

- The reed switch used in the Reed Sensor is hermetically sealed and is therefore not sensitive and therefore any sparks across the contacted are hermetically sealed from the environment
- EX approved and intrinsically safe available
- The hermetically sealed reed switch is ideally suited for switching low signal level voltages and currents which do not draw an arc
- Magnet and Reed Sensor are isolated and have no physical contact by typically having the magnet mounted to the lid and the Reed Sensor mounted on the gas cap
- The magnet is not affected by its environment
- Millions of reliable operations
- Cylindrical hole and screw fastening mounting
- Contacts dynamically tested
- Large sensing distances possible

Applications

- Ideal for sensing gas lid closure and gas cap in place.
- Ideal for applications sensing closure of an assortment of different lids and/or caps

Introduction

In and around the gas tank and its filling lid is consider a highly explosive area. Anything that can possible cause a spark could potentially ignite the fuel. Use of an electromechanical sensor to detect if the lid and fuel cap are in place could potential cause a spark across the sensor contacts. Detecting if the lid and gas cap are in place designers have turned to the Reed Sensor which uses hermetically sealed reed switches, and are further packaged in a tough plastic encapsulation.

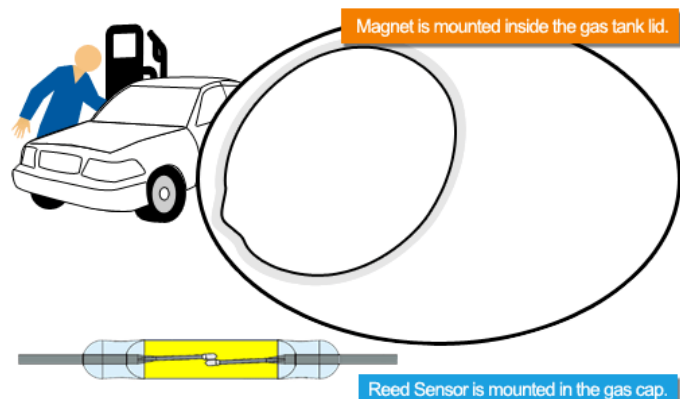


Figure 2. Gas tank lid with magnet is closed activating reed switch contacts to remain closed.

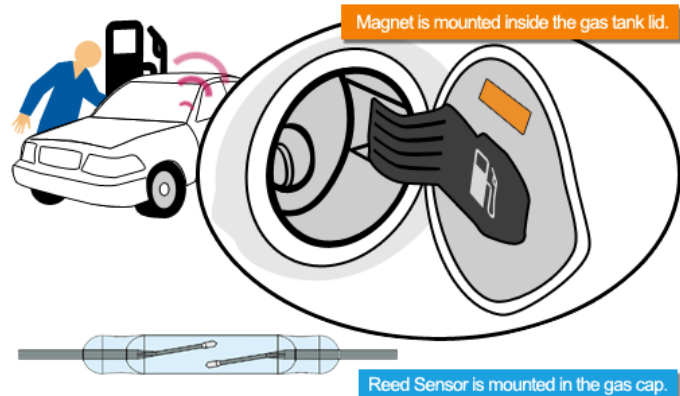


Figure 3. When gas tank lid is opened the magnet moves away from the reed switch sensor causing the contacts to open which activated an alarm.

Reed Sensors are Ideal for Sensing Gas Lid and Gas Cap are in Place

The immediate area in and around the gas cap can be defined as having a potential explosive atmosphere. Any potential arc or spark could ignite the gasoline. Gas lids and gas caps can easily be forgotten to have closed either by the vehicle operator or by a service attendant. Furthermore, with gasoline prices continuing to rise, gasoline theft directly from the tank is on the rise.

Specifications

Operate specs	Min	Max	Units
Must close distance	5	25	mm
Must open distance	5	25	mm
Hysteresis	Typical 50%		





Load Characteristics	Min	Max	Units
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




To solve the above three problems, designer are now going to Reed Sensors. The sensor indeed serves three purposes: 1 It eliminates the potential of an arc or spark across its contacts making it to the outside world by using hermetically sealed reed switches. In this case, any arc or spark occurring across the contacts is enclosed in the hermetically sealed atmosphere of the reed switch, eliminating itself as a potential ignition device. 2. Generally, a magnet is mounted on the gas lid and the reed sensor is mounted on the gas cap. If both are not in place a signal is sent to the on-board computer locking the ignition system not allowing the vehicle to be turned on. 3. If the car is in the locked position and an attempt is made to remove the gas lid, this also triggers the on-board computer, which sounds an alarm.

MEDER's line of EX approved intrinsically reed sensors are ideal for this application. Electromechanical switches are not hermetically sealed and therefore any arc or spark generated across its contacts could represent a potential ignition point.

MEDER's reed sensors are available in several packages with various connector or lead options allowing the users to meet exact design details. Because of the multitude of design requirements, MEDER has the capability of developing specialized packaging for both the reed sensor and the magnet to meet the user's specific needs.

Consider some of the below option standard options as well.

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

Rectangular Screw Flange Mount Series				Illustration
Series	Dimensions		mm	
		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.