

Figure 1. MK23 Sensor physical layout

Features

- Magnet and Reed Sensor are isolated and have no physical contact by typically having the magnet mounted to a mechanical arm, and the Reed Sensor mounted and positioned usually on a PCB to accurately pick up the movement of the magnetic field from the magnet on the arm.
- The reed switch used in the Reed Sensor is hermetically sealed and is therefore not sensitive to wet, dirty, dusty environments.
- The magnet is not affected by its environment
- Tens of millions of reliable operations.
- Surface mount and through hole packages available
- Contacts dynamically tested

Applications

- Ideal for sensing the hotel card readers when a card is inserted into the slot
- Ideal for applications using card readers in a host of different applications

Introduction

Card readers have come under increased use in hotels and a host of other card detection activities. With the dramatic increase in use, the quality and reliability have become big factors in shaping the technology used for card detection. Furthermore, power requirements can play an important role as well. Designers have chosen reed sensors to improve the quality, reliability and reduce power usage.

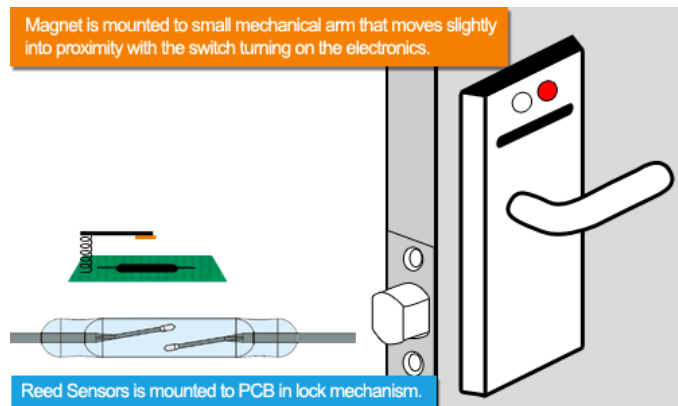


Figure 2. Reed Switch Sensor draws no power in its normally open contact state as shown.

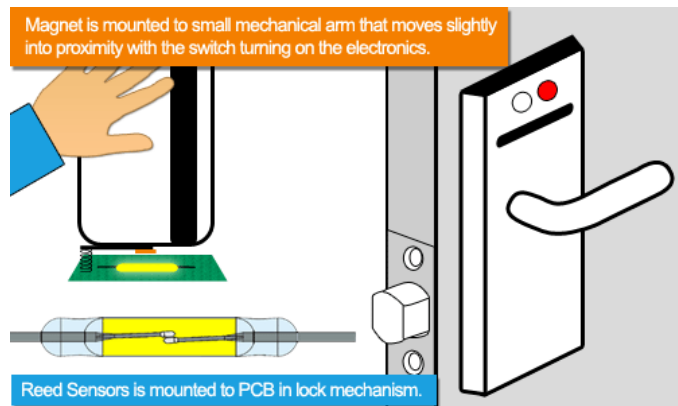


Figure 3. When card is inserted into lock mechanism it moves a small mechanical arm with attached magnet into proximity with the reed switch closing the contacts and activating the lock electronics. When the card is removed the reed switch contact reopens.

Reed Sensors Solve the Reliability and Battery Drainage Problem for Hotel Key Cards

Most hotels have converted over to key cards with a programmed magnetic strip on its surface. The question is when and how to activate the magnetic strip reader? Using a simple mechanical switch to turn on the reader has been fraught with quality problems. Most times the mechanical switches are not sealed and are therefore subject to moisture, dirt and grime. Any of these substances landing on the contact area will corrode the contacts or prevent proper switching. Using an electronic opto-isolator is very reliable but requires power all the time. If the electronics in the door is battery operated, which is often the case, the battery will be used up much quicker. For these reasons, reed sensors have now been chosen as the design-in choice.

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	Volts
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		Volts
Operate time		0.5	msec
Release time		0.1	msec
Operate Temp (MK6)	-20	85	°C
Storage Temp (MK6)	-35	85	°C
Operate Temp (MK15)	-20	120	°C
Storage Temp (MK15)	-35	130	°C





A tiny magnet typically 1 mm in diameter and 1 mm long is mounted to a small mechanical arm that moves slightly when a card is placed in the card slot. This movement is enough to bring the magnet's magnetic field near enough to the reed sensor, which is sitting on a PCB, to activate it. Once activated the reed sensor will turn on the electronics, which in turn activates the magnetic strip reader. The strip reader that reads the magnetic strip on the card and if it is correctly designated, the door lock will deactivate allowing the door to be opened. Once this occurs, the electronics will shut down again conserving battery power. The reed sensor will sit in its inactivated position and will draw zero power. The only time it will draw power is when it is activated.

The reed sensor is an excellent choice because it can operate reliably from -50°C to 150°C and represents an economical way to carry out the sensing function. Because MEDER's sensors use hermetically sealed reed switches that are further packaged in strong high strength plastic, they can be subject to rough treatment and environmental concerns such as grit, water, and moisture without any loss of reliability.

MEDER's sensors are packaged for surface mounting as well as through hole mounting.

Surface Mount Series				
Series	Dimensions			Illustration
		mm	inches	
MK15	W	2.5	0.098	
	H	2.5	0.098	
	L	19.50	0.768	
MK16	W	2.3	0.091	
	H	2.3	0.091	
	L	15.60	0.614	
MK17	W	2.1	0.083	
	H	2.1	0.083	
	L	9.61	0.378	
MK22	W	2.7	0.106	
	H	2.3	0.091	
	L	15.60	0.614	
MK23-35	W	2.2	0.087	
	H	1.95	0.077	
	L	15.75	0.620	
MK23-66	W	2.2	0.087	
	H	2.7	0.106	
	L	19.60	0.772	
MK23-87	W	2.0	0.079	
	H	2.1	0.083	
	L	15.60	0.614	
MK23-80	W	2.0	0.079	
	H	2.1	0.083	
	L	13.0	0.512	



Through Hole Series				Illustration
Series	Dimensions	mm	inches	
MK06-4	W	3.3	0.130	
	H	3.3	0.130	
	L	12.06	0.475	
MK06-5	W	2.8	0.11	
	H	3.2	0.126	
	L	14.30	0.563	
MK06-6	W	3.3	0.130	
	H	4.2	0.165	
	L	17.24	0.679	
MK06-7	W	3.3	0.130	
	H	4.2	0.165	
	L	19.78	0.779	

**Consult our factory for your specific design requirements.