



Application Alley

Electronics - Reed Sensor

Home and Business Electric Window Shutters/Shades/Blinds

Use Reed Sensors to Control Their Position

Introduction

Many households and businesses have now been going over to the use of programmable shutters/blinds/shades where their exact position can be programmed and later executed to that position with the use of a wireless remote. Because the sun position changes throughout the day, it may play a role in how it affects the people in the house or business. One watching the television may be bothered by too much sunlight coming into the room; one trying to make a presentation in a boardroom where, again, the sun is playing a role letting too much light into the room may swamp out the presenting images. Designers have chosen reed sensors as a key component in carrying out their programmable shade designs.

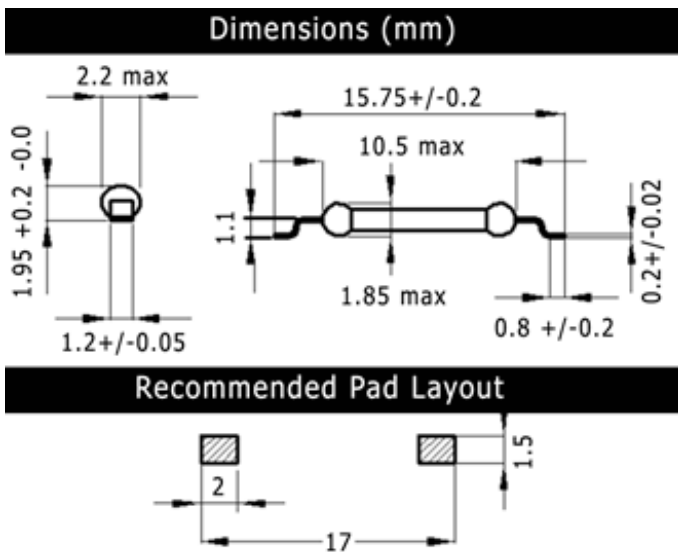


Figure 1. MK23 Sensor physical layout

Features

- Magnet and Reed Sensor are isolated and have no physical contact by typically having the magnet mounted to a rotating disk, and the Reed Sensors are mounted strategically to a PCB, such that the magnetic field of magnet will be sensed with each rotation of the disk.

- The reed switch used in the Reed Sensors is hermetically sealed and is therefore not sensitive to its surrounding environment
- The magnet is not affected by high and low temperature environments
- Tens of millions of reliable operations
- Surface mounting and through hole mounting
- Contacts dynamically tested

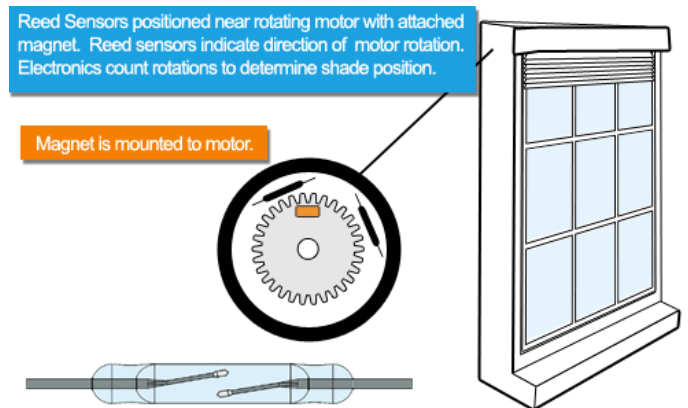


Figure 2. Magnet is shown in the starting position. Neither sensor is activated and shade is all the way up.

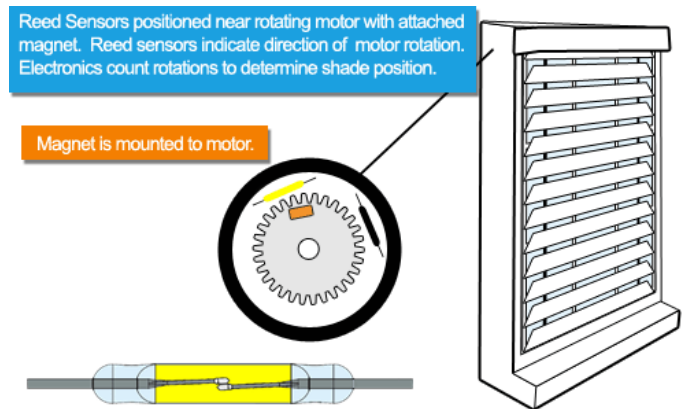


Figure 3. When the magnet passes near each sensor, the sensor is activated turning on the electronics which calculates and keeps track of the shade position. The sensors are used to indicate the rotation direction.

Applications

- Ideal for applications sensing rotation in a host of different configurations

- Ideal for sensing the position of shutters/shades/blinds used in the home and in business environments

Reed Sensors Are Used in Shutter System to Keep Track of Their Exact Position

In areas of the home where the sun needs to be blocked out during periods of the day or completely closed at night, programmable shutters/shades/blinds are becoming increasingly popular. This also, may be the same issue/s in the business environment as well. Essentially these new shade systems are programmable and can be directed with a wireless hand held device. Once a new position is selected it can then be programmed to remember that position. Simply selecting that position and energizing the remote will execute the new position. To accomplish this in an effective, reliable manner reed sensors are used.

First a small magnet is mounted to a rotating disk. Two sensors are used to count the rotation. In this case, two sensors are used to determine direction of the rotating disk. Using only one sensor, will not allow detection of the direction of rotation. As the shutters are moved in one direction the disk rotates in a given direction. The reed sensors detect the direction of rotation and count the number of rotations. The reed sensors send their information to the electronics where the direction of rotation is recorded and the rotations are counted. With a few simple algorithms the exact position is calculated and stored for immediate or later use. This new position may be stored and later retrieved by simply calling up the position code and pressing the remote. The shutter position will automatically go to this new position.

Because Standex Electronics's sensors use hermetically sealed reed switches that are further packaged in strong high strength plastic, they can be subject to various environments without any loss of reliability.

Specifications (@ 20°C) MK15 & MK06 Series			
	Min	Max	Units
Operate Specifications			
Must close distance	5	25	mm
Must open distance	5	25	mm
Hysteresis	Typical 50%		
Load characteristics			
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 MK06	-20	85	°C
Storage temp MK06	-20	85	°C
Operate temp MK15	-20	130	°C
Storage temp MK15	-20	130	°C

Dimensions (mm)

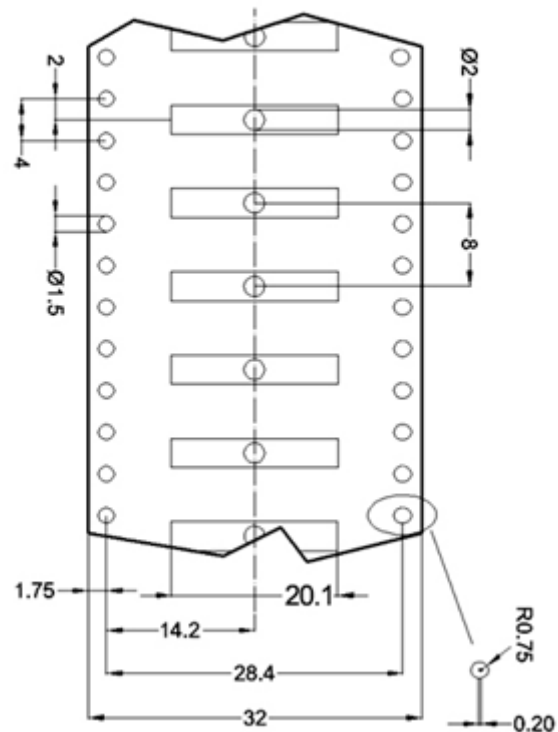










Figure 4. MK15 Tape & Reel





Surface Mount Sensor 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	1.060	
	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	1.060	
	L	19.60	0.772	
MK23-87	W	2.0	0.079	
	H	2.1	0.083	
	L	15.60	0.614	
MK23-90	W	2.54	0.100	
	H	3.05	0.120	
	L	24.9	0.980	

The reed sensor is an excellent choice because it can operate reliably over a wide temperature range, and represents an economical way to carry out the sensing function. Standex Electronics's sensors are packaged for surface mounting as well as through hole mounting.

Find out more about our ability to propel your business with our products by visiting www.standexelectronics.com or by giving us a hello@standexelectronics.com today! One of our engineers or solution selling sales leaders will listen to you immediately.

Through Hole Sensor Series

Series	Dimensions		Illustration	
	mm	inches		
MK06-4	W	3.3	0.130	
	H	3.3	0.130	
	L	12.06	0.475	
MK06-5	W	2.8	0.110	
	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	

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.

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