



Application Alley

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Electronics - Reed Sensor

Home and Business Electric Window Shutters/Shades/Blinds

Use Reed Sensors to Control Their Position



Custom
Engineered
Solutions for
Tomorrow

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.

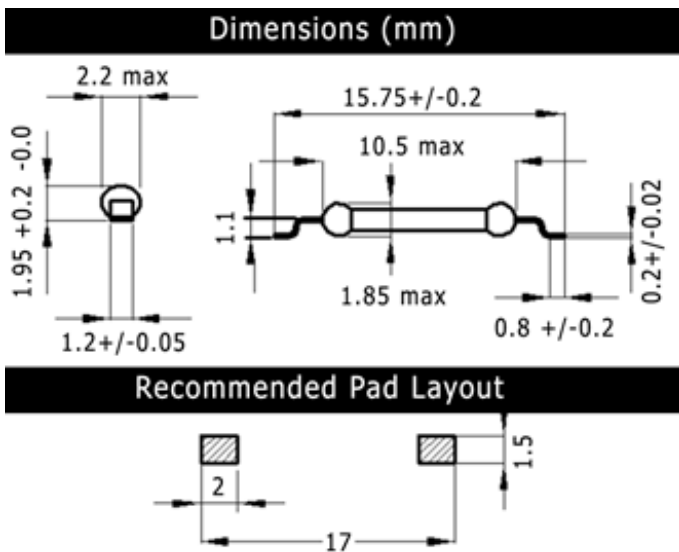


Figure 1. MK23 Sensor physical layout

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

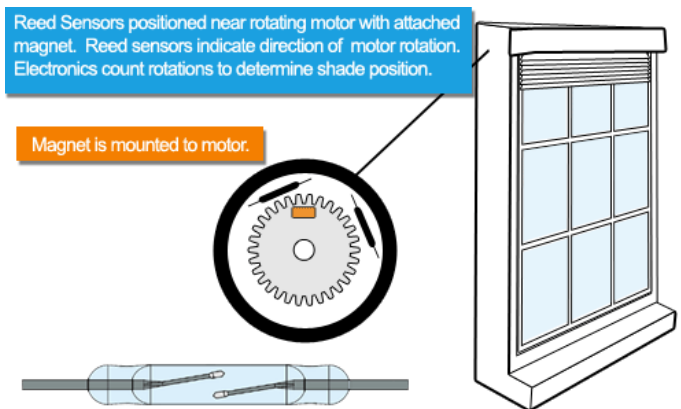


Figure 2. Magnet is shown in the starting position. Neither sensor is activated and shade is all the way up.

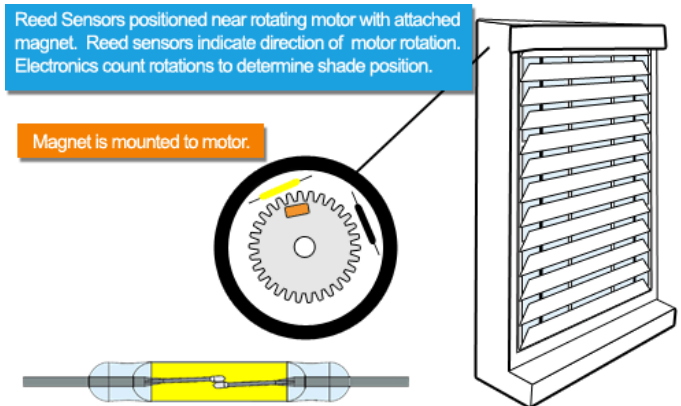


Figure 3. When the magnet passes near each sensor, the sensor is activated turning on the electronics which calculates and keeps track of the shade position. The sensors are used to indicate the rotation direction.

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-Meder'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)

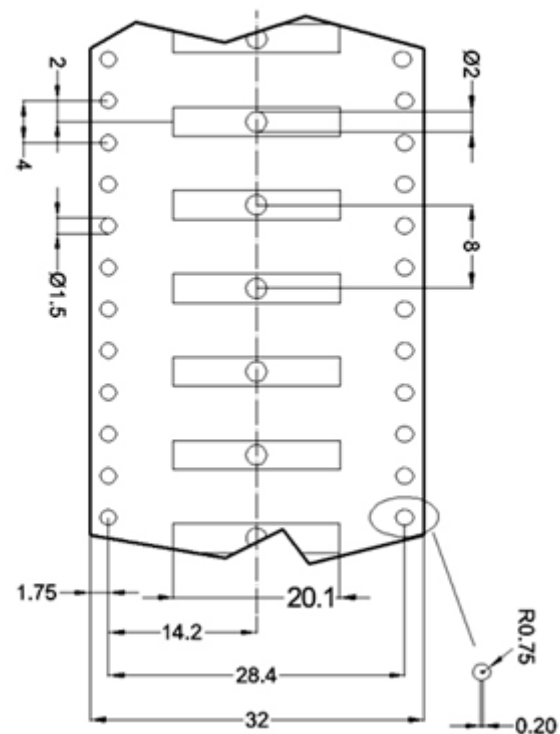










Figure 4. MK15 Tape & Reel





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-Meder'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.standexmeder.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-Meder Electronics

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

Our magnetic offerings include planar, Rogowski, current, and low- and high-frequency transformers and inductors. Our reed switch-based solutions include Meder, Standex and OKI 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 spectrum of product applications in the automotive, medical, test and measurement, military and aerospace, as well as appliance and general industrial markets.

Standex-Meder Electronics has a commitment to absolute customer satisfaction and customer-driven innovation, with a global organization that offers sales support, engineering capabilities, and technical resources worldwide.

Headquartered in Cincinnati, Ohio, USA, Standex-Meder Electronics has eight manufacturing facilities in six countries, located in the United States, Germany, China, Mexico, the United Kingdom, and Canada.

For more information on Standex-Meder Electronics, please visit us on the web at www.standexmeder.com.

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