



Application Alley

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Medical - Reed Sensor

Microcircuits That Detect Clogged Arteries Use Reed Sensors



Custom
Engineered
Solutions for
Tomorrow

Introduction

The carotid artery is the main artery feeding blood into the brain. It passes from the chest cavity through the neck and into the head. All arteries serve a critical purpose and if any become clogged, damage to the body will result in one form or another. However, if the carotid artery becomes clogged to such an extent that blood flow to the brain is minimal or stops entirely, serious brain damage and/or death will occur within a few minutes. The carotid artery like all arteries are susceptible to plaque build-up on the walls of the arteries. As the plaque thickens the blood flow will be lessened and the arteries could become totally clogged if a blood clot forms. Microcircuits with micro reed sensors are used to help control and/or alert the patient and doctors of a serious condition.

Dimensions (mm)

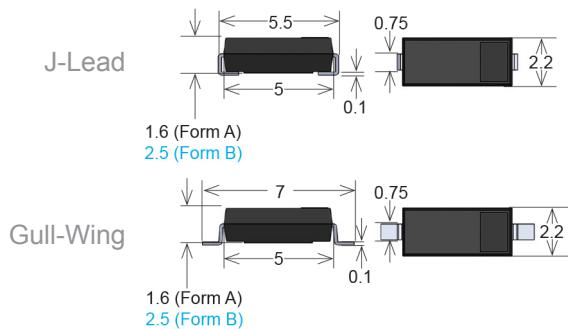


Figure 1. MK24 Sensor physical layout

Features

- One of the smallest reed sensors on the market
- The reed switch used in the Reed Sensor is hermetically sealed and is therefore not sensitive to wet, moist environments
- The micro reed sensor is capable of human body implantation.
- Supplied in tape and reel for Surface mounting
- Contacts dynamically tested

- High reliability
- Zero power consumption

Applications

- Ideal for use where space is critical in battery operated devices and where human body implantation is a requirement

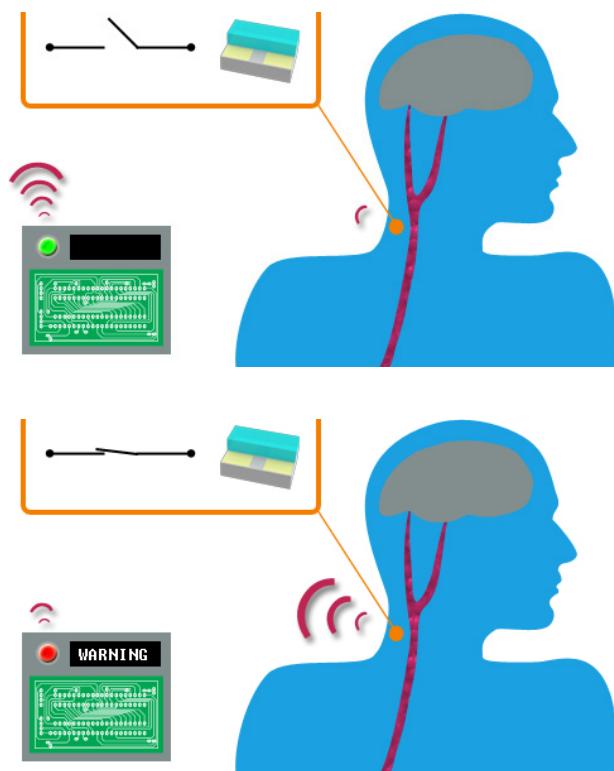


Figure 2. When the implanted Micro Reed Sensor is activated, it sends a signal to the electronics sounding an alarm.

Micro Reed Sensors Used in Implantable Microcircuits Detect Clogged Carotid Arteries

Some people are more susceptible to plaque buildup than others in the carotid arteries. Such people now have the option of having a micro-circuit mounted in the body near the artery to monitor the plaque and/or blood flow level.

If the blood flow level drops to a critical level, an alert from the circuitry is triggered notifying the patient and/or doctors to take immediate action. Often settings may need changing or information needs to be extracted from the microcircuitry. Standex-Meder's micro reed sensors answer this need to solve the problem.

The micro-circuitry needs to perform a function when a fault is detected. The device often remains in the human body for several years using minimal battery power. Since adjustments or mode changes need to be made occasionally, the hermetically sealed micro reed sensor is used to perform the adjustment/mode changes. Importantly, the reed switch draws no power when in its off state, and after only a brief period of being energized is able to carry out its intended function (e.g. wireless transfer of information, adjustments and/or mode changes).

Because Standex-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.

Standex-Meder's sensors are packaged for sur-

Specifications (@ 20°C) MK24 Series

	Min	Max	Units
Operate Specifications			
Must close distance	1.7	4.4	mT
Must open distance	0.7		mT
Hysteresis			Typical 50%
Load characteristics			
Switching voltage		30	V
Switching current		0.3	Amps
Carry current		0.3	Amps
Contact rating		3	Watts
Static contact resistance	100	250	mΩ
Dynamic contact resistance	100	250	mΩ
Breakdown voltage	60		V
Operate time		1.0	msec
Release time		0.5	msec
Operate temp	-40	130	°C
Storage temp	-50	130	°C

face mounting and are supplied in tape and reel of ease of manufacture.

Surface Mount Sensor Series

Series	Dimensions		Illustration
	mm	inches	
MK24	W 2.2	0.086	
	H 1.6	0.063	
	L 5.0	0.195	

Dimensions (mm)

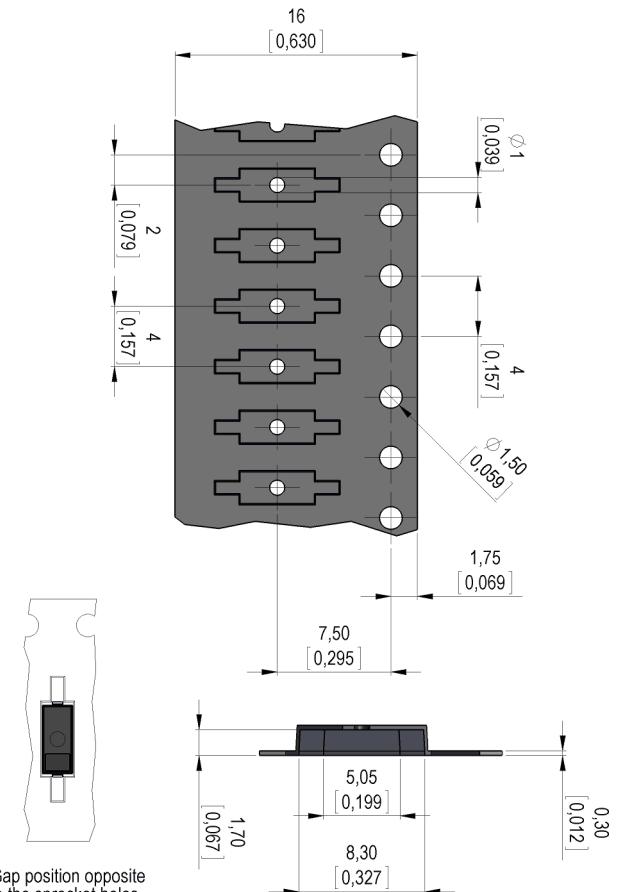


Figure 3. MK24 Tape & Reel

Find out more about our ability to propel your business with our capabilities and solutions by visiting www.standexmeder.com. Give us a hello@standexelectronics.com today! One of our engineers or sales leaders will engage your team.

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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