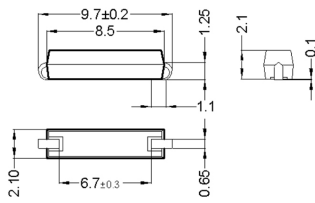


Dimensions (mm)



Recommended Pad Layout

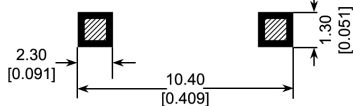


Figure 1. MK17-X-3 Sensor physical layout

Features

- Magnet and Reed Sensor are isolated and have no physical contact by typically having the magnet mounted to a mini paddle wheel, and the Reed Sensor is mounted strategically such that the magnetic field of magnet will be sensed with each rotation of the paddle wheel.
- The reed switch used in the Reed Sensors is hermetically sealed and is therefore not sensitive to wet, watery environment
- The magnet is not affected by its environment
- Tens of millions of reliable operations
- Surface mounting and through hole mounting
- Cylindrical hole and screw fastening mounting
- Contacts dynamically tested

Applications

- Ideal for sensing spring movement in water flow systems within a hot tub or spa.
- Ideal for applications sensing any type of spring movement in a host of different configurations

Introduction

The volume of hot tubs or spas are being used more and more around the world for medicinal reasons and for sheer joy. An essential part of a hot tub is its heating system. There are very high wattage heaters that are designed into hot tubs for quick warm up. If for some reason the water is not flowing and the heaters are activated, the heat would begin boiling and overheating of essential flow components resulting in some serious damage to the hot tub. Hot tub designers have found a reliable solution using MEDER's reed sensors.

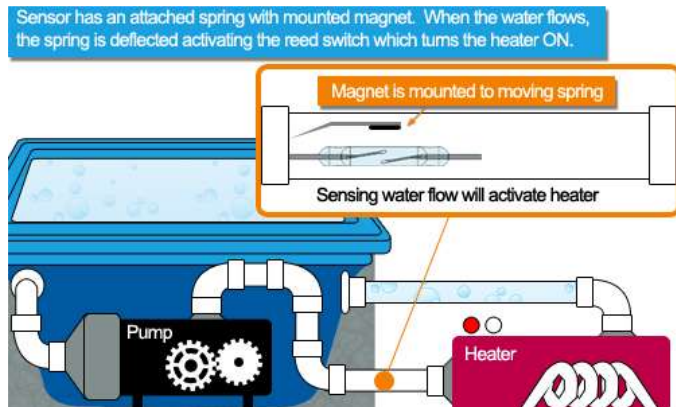


Figure 2. No water is flowing so the spring magnet is retracted away from the reed switch keeping the heating unit OFF.

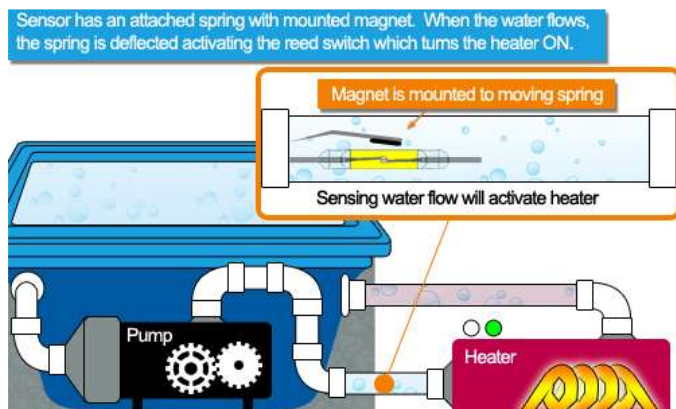


Figure 3. Water flow causes the spring magnet to move into proximity with reed switch causing the contacts to close which switches the heating unit ON.

Reed Sensors are the Choice for Measuring the Volume of Water Flowing Through a Filters

Hot tubs and spas are used around the world with many mounted in back yards, on decks, and in special spa rooms in the house. The hot tubs usually have heated water at approximately 38°C (100°F). To maintain this temperature, thermocouples sense when the temperature drops to a certain level, which will then turn on strong wattage heaters. Just prior to this, the water flow system will be energized. Turning on the heaters with the water not flowing will create a potentially dangerous situation because if the water is not flowing the localized water will be super heated and begin boiling. This can then leave areas with no water. With the heaters continuing to pump out their high wattage, the plastic vessels housing the water flow system could begin to melt or potentially burn with catastrophic results. Spa designers have chosen MEDER's reed sensors as a very reliable solution.

Specifications Defining the MK06 & MK15 Series

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 MK06	-20	85	°C
Storage Temp MK06	-20	85	°C
Operate Temp MK15	-20	130	°C
Storage Temp MK15	-20	130	°C

Dimensions (mm)

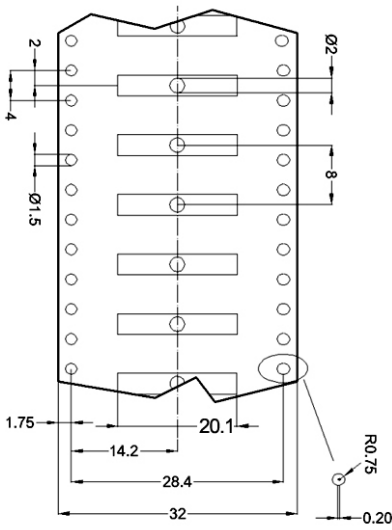


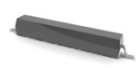







Figure 3. MK15 Tape & Reel





Designers have developed a spring that will deflect when there is water flow in a spa. The spring has a magnet attached to it. When the spring moves, the magnet will move along with it. The reed sensor senses this movement and sends a signal to the electronics alerting it that water is flowing. Armed with this information, the electronics will signal an okay to turn on the heaters when the heat sensors call for more heat. In this way reliable operation is achieved and happy customers are maintained.





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

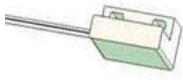


The reed sensor is an excellent choice because it can operate reliably over a wide temperature range, and represents an economical way to carry out the sensing function. MEDER's sensors are packaged for surface mounting as well as through hole mounting. Also, MEDER has cylinder packages as well as screw fastening packages having lead wires for remote attachment to the electronics.

Consider some of the below options in surface mount, through hole, cylindrical and rectangular versions for water flow sensors or similar applications.

Surface Mount Series				Illustration
Series	Dimensions			
	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	11.50	0.453	
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	

Through Hole 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	

Cylindrical Panel Mount Series				
Series		Dimensions		Illustration
		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				
Series		Dimensions		Illustration
		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.