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HVAC/R- Reed Sensor

Air Conditioners and Dehumidifiers Use Reed Sensors to Sense the Upper Limit of Their Reservoirs

Standex MEDER ELECTRONICS

Custom Engineered Solutions for Tomorrow

Air Conditioners and Dehumidifiers Use Reed Sensors to Sense the Upper Limit of Their Reservoirs

Introduction

In the summer months, warm and humid air invades the area. This is the case in most regions of the world. Depending how close one is to the equator this condition may exist throughout the year. During this time, many businesses and homes are equipped with air conditioners and Dehumidifiers to cool the air and reduce the humidity. A typical unit can accumulate up to 15 gallons (60 liters) of water in a single day. With this much water being produced, care must be taken with the reservoirs to prevent water overflow. Reed sensors provide a reliable way to detect maximum levels to either alert the user or turn on a water pump.

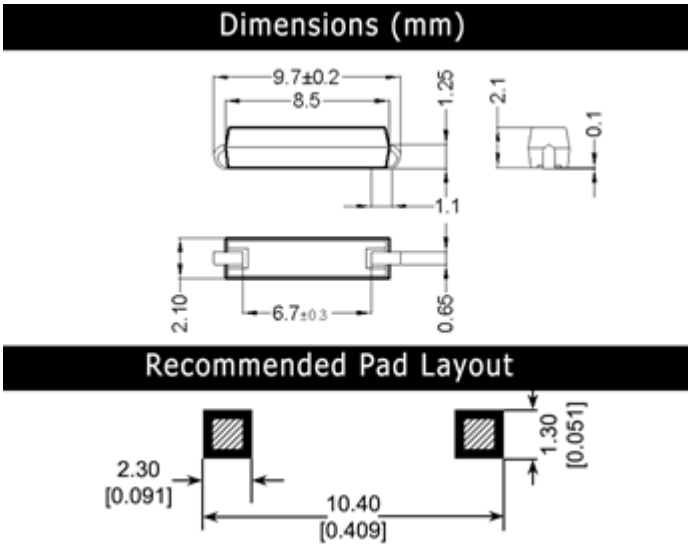

Figure 1. MK17-x-3 Sensor physical layout

Features

- Magnet and Reed Sensor are isolated and have no physical contact by typically having the magnet mounted to a float and the Reed Sensor is mounted on the body of the casing close to the high point of the water and positioned to accurately pick up the magnetic field from the magnet in the float.
- The reed switch used in the Reed Sensor is hermetically sealed and is therefore not sensitive to rough, wet, moist environments
- The magnet is not affected by its environment
- Tens of millions of reliable operations
- Surface mount and through hole packages available
- Cylindrical hole and screw fastening mounting
- Contacts dynamically tested

Applications

- Ideal for sensing the water level in air conditioners and Dehumidifiers
- Ideal for applications sensing any kind of liquid level in a host of different configurations

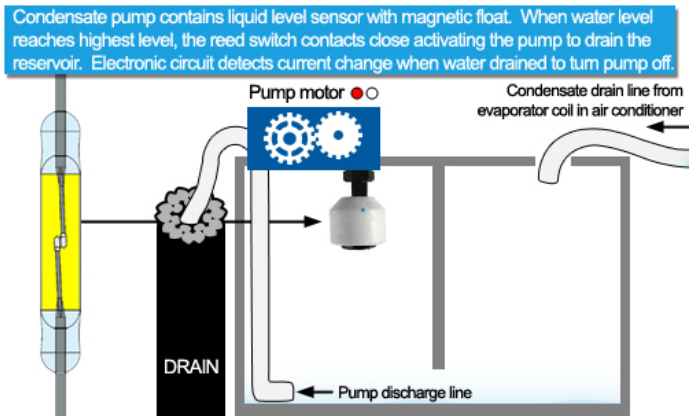

Figure 2. Pump is off until magnetic float moves up the reed sensor once the water reaches the highest level in the reservoir.

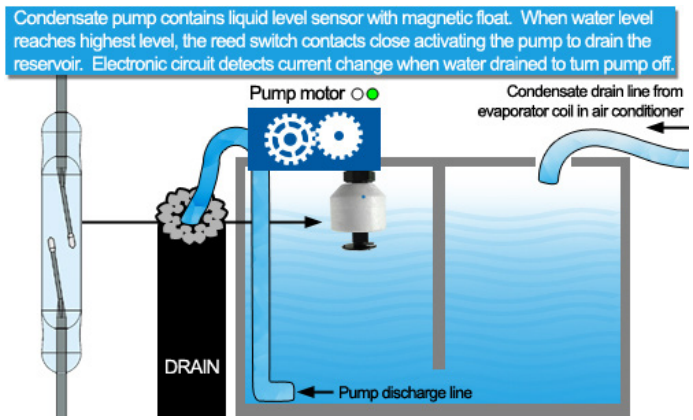

Figure 3. When water reaches highest level, magnetic float moves up the reed sensor switching the pump on. The pump will remain on until the internal circuitry senses the current change at the lowest point in the tank.

Air Conditioners And Dehumidifiers Use Reed Sensors To Detect Reservoir Full Conditions

Many of us must have our air conditioners running full force in the warm humid months. The air conditioners do a great job of cooling and reducing the air temperature. They also remove some of the humidity, but most of the time not enough to eliminate mildew and mold that loves moist warm environments. This mold and mildew can cause allergy outbreaks and affect people with asthma. So, many times air conditioners and Dehumidifiers will be working together in unison. Both systems condense a serious amount of water vapor from the air creating large volumes of water. Storage containers or reservoirs must be monitored in some fashion for potential water overflow. Standex-Meder's reed sensors have made an excellent choice in carrying out this monitoring.

Surface Mount Sensor Series

Series		Dimenstions mm	Dimenstions inches	Illustration
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	

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)

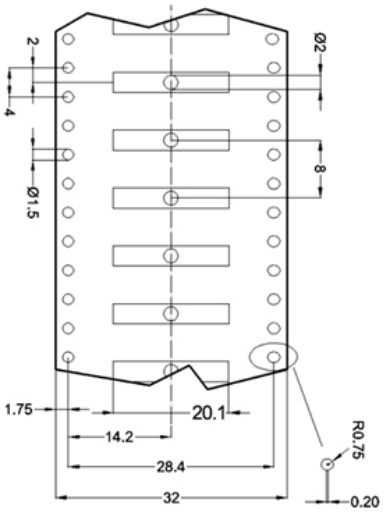

Figure 4. MK15 Tape & Reel

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Air Conditioners and Dehumidifiers Use Reed Sensors to Sense the Upper Limit of Their Reservoirs

A magnet is generally mounted in a float that rides up and down with the water level in the storage container or reservoir. As the water level reaches the upper limit, Standex-Meder's reed sensor, which is conveniently positioned near the top of the reservoir, will sense this high water mark. For manually emptied air conditioners and Dehumidifier models, the reed sensor will directly switch off these models. Some of the models are equipped with a beeping sound and/or a water full light will be turned on, alerting the user its time to empty the water. Once the water is emptied, the air conditioner and/or the Dehumidifier will turn back on. However, in more and more models the reed sensor will switch on a water pump instead, allowing water to be emptied automatically where the water is pumped into a water drain system. Having a pump that only turns on when the reservoir is full is very energy efficient, compared to having the pump running all the time.

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. 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 spillage water, and moisture without any loss of reliability.

Standex-Meder's sensors are packaged for surface mounting as well as through hole mounting. Also, Standex-Meder has cylinder packages and well as screw fastening packages having lead wires for remote attachment to the electronics.

Cylindrical Panel Mount Sensor Series

Series	Dimenstions	mm	inches	Illustration
MK03	D	5.25	0.207	
	L	25.5	1.004	
MK14	D	4	0.157	
	L	25.5	1.004	
MK18	D	5	0.197	
	L	17	0.669	
MK20/1	D	2.72	0.107	
	L	10	0.394	

Through Hole Sensor Series

Series	Dimenstions	mm	inches	Illustration
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	

Rectangular Panel Mount Sensor Series				
	Dimenstions	mm	inches	Illustration
Series				
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.

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.

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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