

Figure 1. MK17-x-3 physical layout

Features

- Magnet and Reed Sensor are isolated and have no physical contact by typically having the magnet mounted in the float that floats in the water softener, and the Reed Sensor is mounted on the inner casing of the body such that it will detect the magnetic field of magnet when it reaches a low point in the fluid.
- The reed switch used in the Reed Sensor is hermetically sealed and is therefore not sensitive to rough, wet, moist, high temperature 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 low level of water softener fluids in dishwashers
- Ideal for applications sensing any kind of fluid in a host of different configurations

Introduction

Most modern kitchens today have as an essential component - a dishwasher. In many areas the water supplied to the home is considered 'hard' and when flooded over clear glass and dried will leave stains that are visible to the eye. The user will feel the glasses are not cleaned. In reality, the stains are just simple minerals existing in the water that represent no health hazard. In fact, some are very healthy supplying needed minerals to the body. In the case of clean stainless glasses none of this matters. The user does not want any spots or dried stains on their glassware. The appliance designers have come to the rescue using water softeners in conjunction with MEDER's reed sensors.

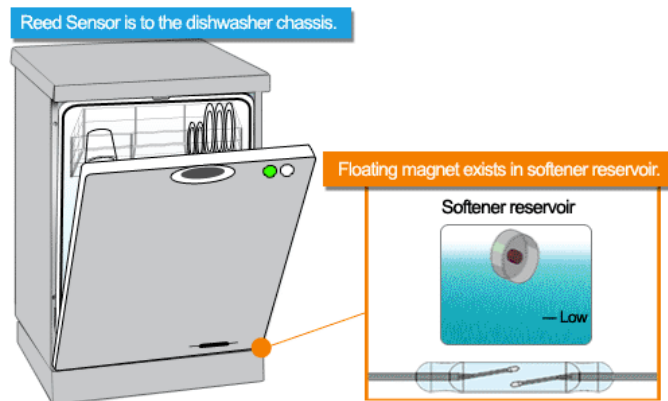


Figure 2. Floating magnet moves up and down with the water softener level.

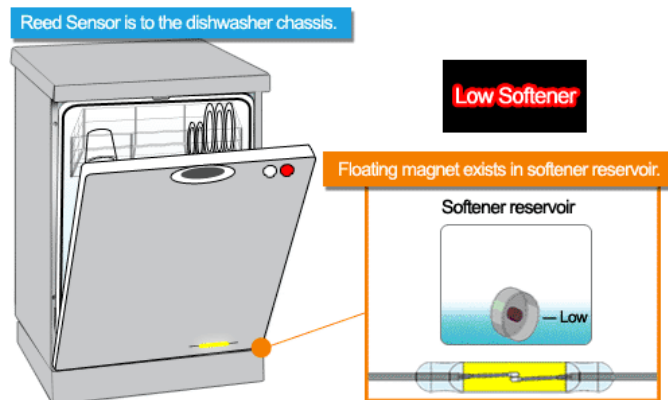


Figure 3. When the water softener fluid reaches a low level, the floating magnet will activated the reed switch sensor which is mounted outside the reservoir and at the base of the dishwasher.

Reed Sensors Help Solve the 'Hard' Water Stains From Dishwashers

Dishwashers generally do a great job, but if the water is loaded with minerals (hard water), stain or water marks will be present on clear glassware. To try to rub these away can take a lot of time and effort. Customers do not like this effect even if it is a harmless mineral stain. This is particularly disconcerting when one places its glassware out for dinner guests with these mineral stains present. Appliance designers have gone over to using water softeners in conjunction with MEDER's reed sensors.

Water Softener Levels in Dishwashers controlled by Reed Sensors

Specifications

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	Volts
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		Volts
Operate time		0.5	msec
Release time		0.1	msec
Operate Temp (MK6)	-20	85	°C
Storage Temp (MK6)	-35	85	°C
Operate Temp (MK15)	-20	13	C
Storage Temp (MK15)	-35	130	°C





A magnet is generally imbedded in a float that rises and falls with the amount of water softener fluid. A reed sensor is mounted in the chassis of the dishwasher on a PCB. The reed sensor is strategically placed to energize when the water softener fluid drops to the low level limit. When this happens a light on the outside panel will begin to flash and a beeper begins to alert the user that they must fill the water softener fluid reservoir. Once the user fills the reservoir the dishwasher electronics will reset and resume its normal operation.





In this application, the reed sensor may experience water and steam spray including the high and low temperatures, all of which exist on the interior of the dishwasher. Because 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 water sprays, and moisture 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.

Surface Mount 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	

Through Hole Series				Illustration
Series	Dimensions			
	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				Illustration
Series	Dimensions			
	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				Illustration
Series	Dimensions			
	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 our factory for your specific design requirements.