

Dimensions (mm)

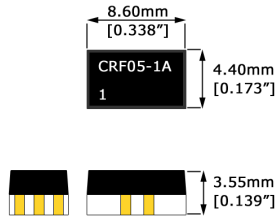


Figure 1. CRR physical layout

Features

- High quality and reliability
- Very small size
- Insulation resistance > 10^{14} Ohms
- Capable of switching and carrying fempto amps
- Dielectric strength across the contacts 200 volts
- Contacts dynamically tested
- Low stable contact resistance
- Long life with up to a billion reliable operations

Applications

- Ideal for use with systems that are switching an assortment of signals from DC to 15 GHz

Introduction

Electrometers are used to measure ultra low currents at the sub-pico amp level. These electrometers are often used in radiation detection, where the radiation going through a gas cylinder ionizes the gas it comes in contact with. Ultra small currents are generated from the ionization, they need to be detected, switched into an operational amplifier, and then quantified for an early alert of the radiation level. Semiconductors have too much capacitance literally 'swallowing up' these signals. Electromechanical relays have too much leakage current and the film buildup on the contacts that needs to be broken for current to flow, never happens with these small signals. The only switch that can handle this environment is the Reed Relay. MEDER's specially designed reed relays meet the requirements necessary to switch and carry this low signals.

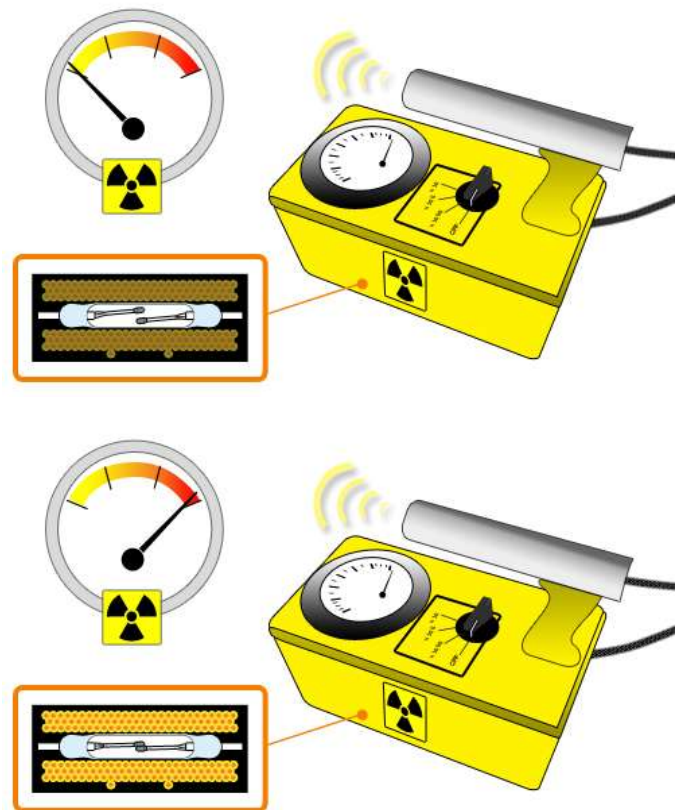


Figure 2. Reed Relays switch low signals in electrometers.

Electrometers Use Reed Relays for Switching and Carrying Small Signals

Today with the vast amount of electric power being generated by nuclear generators and the threat of nuclear bombs ever-present, there is a need for detecting small nuclear radiation levels. Electrometers have been used as the most accurate way of detecting even the smallest amount of radiation. These electrometers usually have an inert gas container with high voltage plates mounted within the gas container. Any radiation passing through the gas will create ionization. With this ionization, a small current will flow. This sub-pico amp current needs to be detected and then sent to an operational amplifier where the information can be quantified, compared and analyzed. Reed relays represent the only technology that can successfully switch and pass these small signals without losing signal integrity. MEDER has specialized in these types of applications and therefore has several series and special designs capable of getting the job done.

Specifications



CRR Series	Min	Norm	Max	Units
Operate Specs (@20°C)				
Coil Characteristics*				
Coil Resistance	135	150	165	Ohms
Coil Voltage		5.0		Volts
Max Pull-in Voltage			3.75	Volts
Min. Drop-out	0.85			Volts
Reed Switch Characteristics				
Contact rating			10	Watts
Switching voltage	0		170	Volts
Switching current	0		0.5	Amps
Carry current	0		0.5	Amps
Max Carry Current for 5 Ms			2.0	Amps
DC Static contact resistance			250	mΩ
Dynamic contact resistance			250	mΩ
Dielectric voltage across contacts	210			Volts
Dielectric voltage from coil to contacts	1500			Volts
Operate time (w/ 40% overdrive min)			0.1	msec
Release time (no coil suppression)			20	μsec
Operate Temperature	-20		100	°C
Storage Temperature	-55		125	°C
*Coil parameters will vary by 0.2% /°C				

MEDER offers both standard through hole and surface mount in very small packages. All materials are selected for extremely high resistivity to avoid any potential leakage paths.


MEDER's reed relays use hermetically sealed reed switches that are further packaged in strong high strength thermoset molding compound, and can therefore be subject to various environments without any loss of reliability.

The reed relay is an excellent choice because it can operate reliably over a wide temperature range, and represents an economical way to carry out billions of switching operations.

Surface Mount Series

Relay Series	Dimensions		Illustration
	mm	inches	
SRR	W	4.0	
	H	3.2	
	L	7.5	
CRR	W	4.4	
	H	3.5	
	L	8.6	

Through Hole & Axial Series

Series	Dimensions		Illustration
	mm	inches	
HI	W	7.5	
	H	7.9	
	L	28.0	

**Consult the factory for more options not listed above.