



# Application Alley

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## **Instrumentation - Reed Relays**

**Modular Instrumentation Uses an Assortment of Reed Relays**



Custom  
Engineered  
Solutions for  
Tomorrow

## Introduction

Modular instrumentation has been around for the past 30 years, but continues to grow in popularity. The systems have become more functional with the ability to carry out multiple tasks in parallel. There are many types of modular platforms: VXI, PXI, PACs, Labview, AXie, USB, GPIB, etc, etc. All these platforms have their own bus arrangements and standards. They all offer different advantages for a given set of applications or functions. They all offer several different plug-in boards that carry out singular and/or multiple functions. Several of the plug-in boards require relays to carry out various switching functions. Standex-Meder's relays offer a wide variety of reed relays to meet the multiple usage requirements required in these modular instrumentation systems.

### Dimensions (mm)

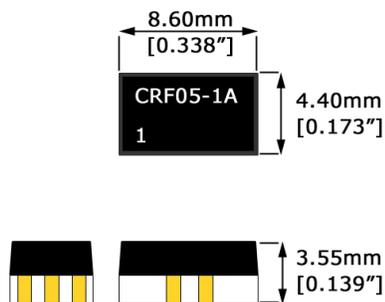


Figure 1. CRF physical layout

## Reed Relays are Key Components in the New Modular Instruments

Today's new modular systems have more capability with more functionality than ever before. This has been brought about with the improved component offerings coupled with new innovative components. Also, the quality and reliability of the components offered today allow modular system designers with innovative functionality, but in a high reliability atmosphere. Standex-Meder's reed relay offerings have

been growing right along with modular systems needs.

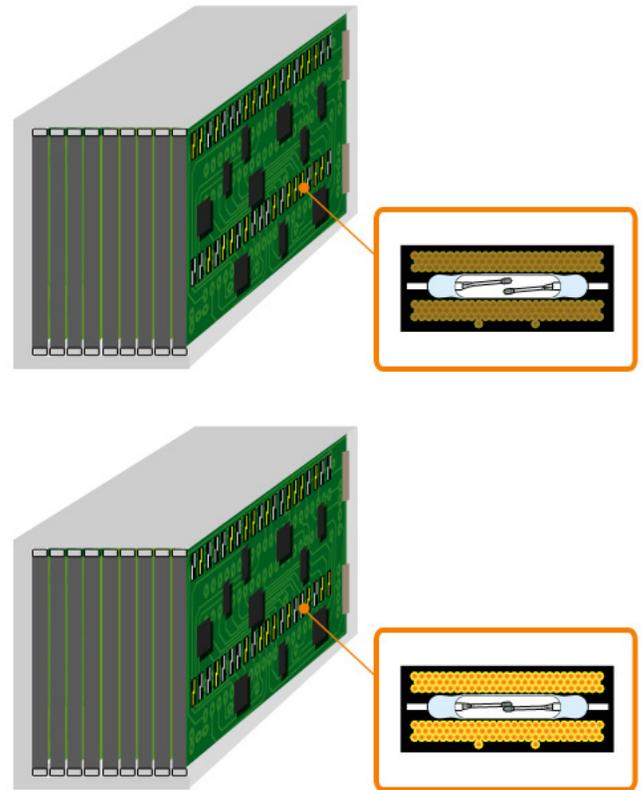


Figure 2. Reed Relays switch on/off in modular instrumentation.

## Features

- High quality and reliability
- Very small sizes available
- Available in surface mounting and thru hole mounting
- Ability to switch up to 1 amp
- Insulation resistance >  $10^{12}$  Ohms typical with >  $10^{14}$  Ohms available
- Capable of switching and carrying up to 15 GHz
- Dielectric strength across the contacts 200 volts
- Contacts dynamically tested
- Low stable contact resistance
- Long life with up to a billion reliable operations at relatively low levels

**Applications**

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

Specifications (@ 20°C) CRF Series				
	Min	Typ	Max	Units
<b>Coil characteristics</b>				
Coil resistance	135	150	165	Ω
Coil voltage		5.0		V
Pull-In			3.75	V
Drop-Out	0.85			V
<b>Switch characteristics</b>				
Contact rating			10	Watts
Switching voltage			170	V
Switching current			0.5	Amps
Carry current			0.5	Amps
Static contact resistance			250	mΩ
Dynamic contact resistance			250	mΩ
Dielectric from voltage across the contacts	210			V
Dielectric from voltage coil to contacts	1500			V
Insertion Loss (@ the -3 dB down point)			7	GHz
Operate time			0.1	msec
Release time			20	μsec
Operate temp	-10		100	°C
Storage temp	-55		125	°C

\*Coil parameters will vary by 0.2% /oC

Modular RF analog switching boards are now housed with Standex-Meder’s CRF and SRF relays that allow passage of up to 17.5 GHz in a distortion free manner. Also, high speed digital modular switching matrices have been developed and been made possible by Standex-Meder’s ultra small line of surface mount relays.

Modular general purpose switching matrices have been developed where several hundred reed relays were needed to fit in only a 3 inch by 3 inch square (7.5 x 7.5 cm). Again Standex-Meder’s ultra small reed relays met the requirement. With so many relays, the quality and

reliability along with functionality was a critical part of the selection process.

Standex-Meder offers both standard through hole and surface mount in very small packages. All relays come with magnetic shielding allowing for very close packaging. Also, our surface mount CRR series can switch and carry DC to 2 GHz signals for use in high frequency requirements or fast digital pulses. Our standard SIL and MS in-line pin layouts are both considered standards in the industry and meet the stringent conditions for high quality and reliability. All series can carry up to 1 amp and hold off 200 Volts across the contacts.

Standex-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 RF Reed Relay Series				
Series		Dimensions		Illustration
		mm	inches	
SRF	W	4.0	0.157	
	H	3.2	0.126	
	L	7.5	0.295	
CRF	W	4.4	0.173	
	H	3.5	0.137	
	L	8.6	0.338	

## Through Hole Reed Relay Series

Series	Dimensions			Illustration
		mm	inches	
MS	W	3.8	0.150	
	H	6.8	0.268	
	L	15.2	0.598	
SIL	W	5.08	0.200	
	H	7.8	0.307	
	L	19.08	0.780	

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