

Figure 1. MK02/6-0 Physical Layout

## Features

- One component reed sensor
- The reed sensor does not need to come in direct contact with the GPS
- The reed switch used in the reed sensor is hermetically sealed and is therefore not sensitive to dirty environments and early electromechanical failure
- The reed sensor comes with various leads, connectors and lead lengths for ease of electrical connection
- Millions of reliable operations
- Screw fastening mounting
- Contacts dynamically tested

## Applications

- Ideal for sensing the movement steel as used with truck containers or shipping container
- Can be used for sensing of steel movement on a host of different applications.

## Introduction

Large truck containers and/or shipping containers usually contain valuable equipment worth millions of dollars/euros. So they can attract the interest of unsavory characters wanting none other than to steal the goods contained within the containers. To do this in the most efficient manner they must remove the entire container and/or truck. Truck/container designers working with MEDER's design engineers have come up with a one-component reed sensor that uses the influence of a steel casing to activate the sensor.

Reed Sensor detects the presence of the ferromagnetic steel container which acts as a magnetic shunt. If the GPS unit is removed from container the reed switch contacts close, activating the electronic system to alarm.

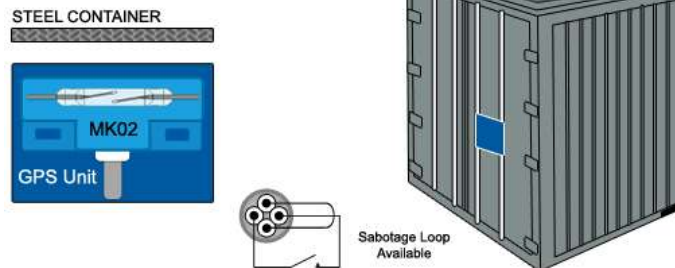


Figure 2. When GPS unit is attached to the steel cargo container which acts magnetic shunt keeping the reed sensor contacts open.

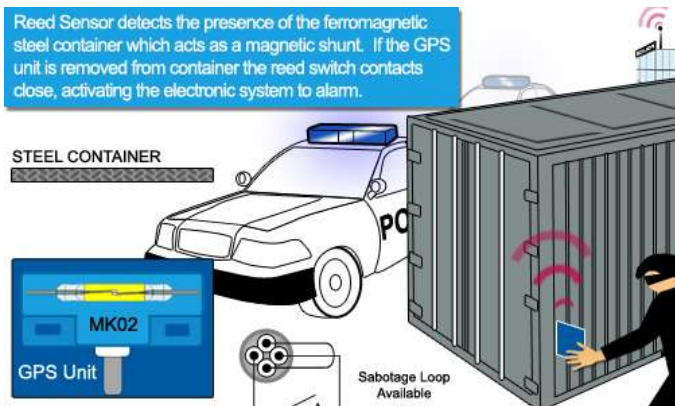


Figure 3. When the GPS unit is removed from the cargo container the magnetic shunt is removed and the sensor contacts close triggering the electronic system alarm.

## Reed Sensors prevent thievery from taking place with truck container

Containers generally are off loaded and sit in secure container yards. They will eventually be loaded on trucks for shipment to their final destination. During this time, they are subject to theft. Since the goods in these containers are generally worth millions of dollars/euros, the trucking companies have found it necessary to have gps systems mounted on the containers to track their whereabouts every 20 minutes. Thieves have found out about this and have taken the GPS's off the container and placed them in a car that drives the route of the original destination, while the thieves drive the containing in a different direction with their heist. Truck designers working with MEDER engineers have come up with a solution to this problem.

## Specifications

Operate specs	Min	Max	Units
Must close distance	5	15	mm
Must open distance	5	15	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.	-20	85	°C
Storage Temp.	-35	85	°C

MEDER's invention and patent of a ferromagnetic metal detection sensor is a 'stand alone sensor'; they only require a ferromagnetic material to be brought within a specified distance, causing the contacts to close. They switch reliably for 10s of millions of operations. No actuating magnet is necessary. The GPS has a steel casing. If the GPS is removed, the ferromagnetic sensor is activated. When the GPS and its casing is removed from the reed sensor, the sensor no longer senses the magnetic shunt. Once this magnetic shunt is removed a signal is sent to a central electronic circuit, which triggers an emergency alarm that immediately alerts the police, who in turn go to the source of the crime to capture the thieves in the act. This approach has deterred this crime from happening on the containers. The sensors can have normally open contacts as well as normally closed contacts. One can also select as an option, the added provision of a sabotage loop built into the sensor. If someone attempted to cut the cable coming from the sensor, the sabotage loop would be cut, alerting the central electronic circuit tripping an alarm.

MEDER's reed sensors are available in several packages with various connectors or lead options allowing the users to meet exact design details. Because of the multitude of design requirements, MEDER, in a matter of fact manner, has the capability of developing specialized packaging for the reed sensor to meet the user's specific needs.

### Screw Fastening Metal Detection Series

Series	Dimensions		Illustration
	Mm	inches	
<a href="#">MK02</a>	L	32.4	1.276
	W	16.7	0.657
	H	10.0	0.394
<a href="#">MK02/5</a>	L	46.0	1.811
	W	18.35	0.722
	H	13.0	0.512

### PCB Through Hole Metal Detection Series

Series	Dimensions		Illustration
	Mm	inches	
<a href="#">MK02/6-0</a>	L	24.0	0.945
	W	8.90	0.350
	H	7.70	0.303
<a href="#">MK02/6-1</a>	L	24.0	0.945
	W	7.70	0.303
	H	8.90	0.350
<a href="#">MK02/7-0</a>	L	40.5	1.594
	W	8.70	0.343
	H	12.70	0.500
<a href="#">MK02/7-1</a>	L	46.0	1.811
	W	12.70	0.500
	H	8.70	0.343

\*Consult our factory for your specific design requirements.