

Figure 1. MK16-x-2 Sensor physical layout

### Features

- Hermetically sealed
- Rugged overmolded surface mount package
- Dynamically tested contacts
- Reliable switching without wearing parts
- Ability to activate and control two sensors with one magnet
- Ability to handle “under the hood” environment
- Ability to operate -40°C to 130°C
- No operating power required
- Millions of switching operations

### Applications

- Any truck gear shift requirement requiring computer control
- Any application requiring accurate position placement sensing

## Introduction

More and more electronic control is being used in automobiles and trucks in “drive by wire” implementations. For improved functionality and ease of control, the transmission shifter arm movement in certain trucks is monitored using reliable reed sensors. The output signals from these sensors allow the vehicle computer to shift the transmission into park, reverse, neutral, drive, drive 2, and low.

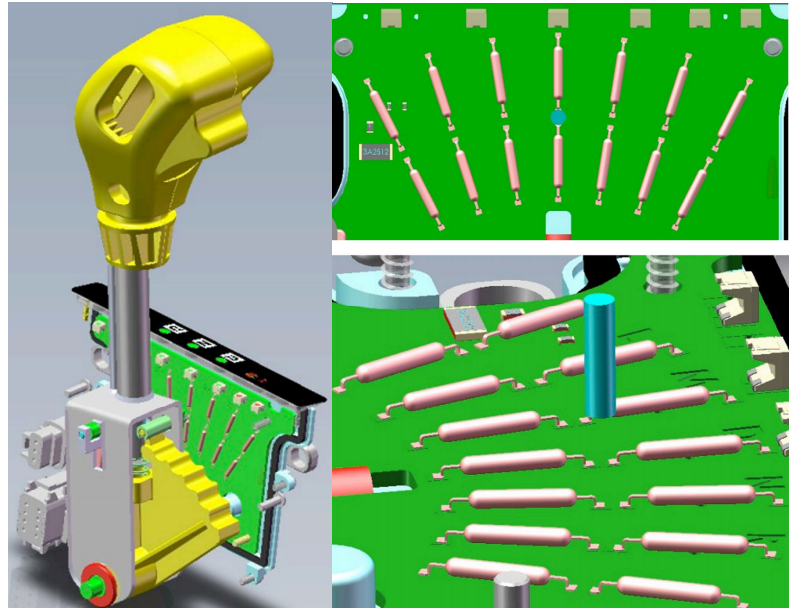


Figure 2. Cut-away of the gear shifter (left) and the sensor matrix top view (top right) and how magnet is centered directly over the sensor pairs .

## MEDER’s Surface Mount Reed Switch Sensors Lead The Way

Truck gear shifts now use MEDER’s surface mounted Reed Sensor to sense the shifter position and send a signal to the micro computer initiating the gear change in the transmission. This approach eliminates the need for all the additional linkage from the transmission to the gear shift. Since the gear shift is one of the most used mechanical systems, its wear is inevitable with subsequent quality problems and ensuing costly repairs. MEDER’s electronic detection eliminates this entire issue. In addition, MEDER’s use of over-molded hermetically sealed reed switches makes it impervious to faulty operation when subjected to various environmental conditions.

In addition, since there could be up to 12 Reed Sensors engaged when the vehicle is in use, there are only two that are activated and drawing a small amount of power at any one time. When the vehicle is off none of the sensors draw any power, insuring any inadvertent battery drain is avoided.

In this application, MEDER’s MK16 accomplishes the sensing action when the two Reed Sensors are activated by a samarium cobalt magnet mounted in the gear shift handle. When the gear shift is moved to a new position the magnet will move into the influence of the next pair of Reed Sensors, which when activated will carry out their dual function.

Consult our engineering group with your specific applications.

## Specifications (@ 20°C) MK16 Series

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	V
Switching current		0.5	Amps
Carry current		0.5	Amps
Contact rating		10	Watts
Static Contact resistance		150	mΩ
Dynamic contact resistance		200	mΩ
Breakdown voltage	230		V
Operate time		0.6	msec
Release time		0.1	msec
Operate Temp	-40	130	°C
Storage Temp	-50	130	°C

## Dimensions (mm)

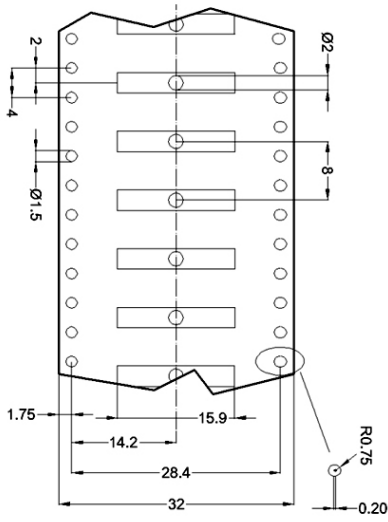


Figure 3. MK16 Tape & Reel

Consider some of the below surface mount options for the gearshift application.

Surface Mount Series				
Series	Dimensions			Illustration
		mm	inches	
<a href="#">MK15</a>	W	2.5	0.098	
	H	2.5	0.098	
	L	19.50	0.768	
<a href="#">MK16</a>	W	2.3	0.091	
	H	2.3	0.091	
	L	15.60	0.614	
<a href="#">MK17</a>	W	2.1	0.083	
	H	2.1	0.083	
	L	12.15	0.478	
<a href="#">MK22</a>	W	2.7	1.060	
	H	2.3	0.091	
	L	15.60	0.614	
<a href="#">MK23-35</a>	W	2.2	0.087	
	H	1.95	0.077	
	L	15.75	0.620	
<a href="#">MK23-66</a>	W	2.2	0.087	
	H	2.7	1.060	
	L	19.60	0.772	
<a href="#">MK23-87</a>	W	2.0	0.079	
	H	2.1	0.083	
	L	15.60	0.614	

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