

Figure 1. A) Picture of Reed Switch Sensor & (B) Actuator Magnet Housing

Features

- Hermetically sealed
- Designed for SPST (Form A) and SPDT (Form C) switching
- Dynamically tested contacts
- Reliable switching
- Ability to activate and control switching function from only one side of the buckle
- Designed to handle high shock environments
- Designed to operate in dirty environments
- Millions of reliable switching operations

Applications

- Detection is seat belt closure in aircraft seat belt detection where ever used

Introduction

As we all know, seat belts are now used by all airlines and in almost all automotive vehicles with the possibility that they may become mandatory for buses and trains as well. In recent years the Reed Switch sensor has been discovered by safety belt designers as being perhaps the best and most reliable way to detect when a seat belt has been engaged.

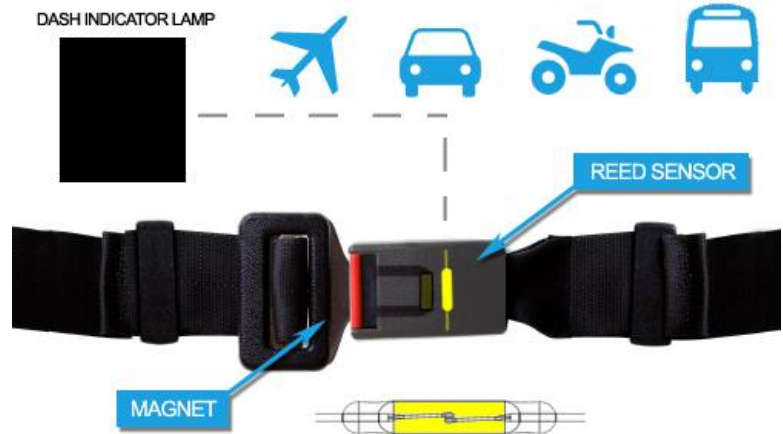


Figure 2. Shows the entire seat belt in the buckled position. Reed Switch is actuated. So when the tongue section of the buckle is inserted and connected to the main buckle housing the sensor and magnet become magnetically isolated. This in turn carries out the switching/sensing function.



Figure 3. Shows the entire seat belt in the unbuckled position.

MEDER Has Developed Both A Normally Open (Form A) Solution And A Single Pole Double Throw (Form C) Solution

Everyone has experienced the need to fasten their seat belts; and because of the safety aspect, laws have been passed making it mandatory to 'buckle up'.

Identifying a reliable technology that could be used to indicate the closure and opening of a seat belt aboard an aircraft has been a difficult challenge until Reed Sensors were considered. Aboard an aircraft, several times a day, different passengers will make the aircraft seat their residence. Some of these people are careful and conscience and some are not as careful, The net result to the seat belt is that it can be slammed around, spilled upon, splattered with

Specifications (@ 20°C) KSS Series

Operate specs	Min	Max	Units
Must close distance	Ref	Ref	mm
Must open distance	Ref	Ref	mm
Hysteresis			

Load Characteristics	Min	Max	Units
Switching voltage		150	V
Switching current		1.0	Amps
Carry current		1.0	Amps
Contact rating		10	Watts
Static Contact resistance		150	mΩ
Dynamic contact resistance		250	mΩ
Breakdown voltage	200		V
Operate time		2.5	msec
Release time		1.5	msec
Operate Temp	-20	130	°C
Storage Temp	-55	100	°C





food, used as toys by children, etc. etc. The hermetically sealed Reed Switch is perfectly suited to withstand the above abuses and still perform its switching function.

MEDER is currently working closely with the airline industry to develop a Reed Sensor that will be electrically connected to a panel to indicate when and where an unbuckled seat belt for a given seat exists. Flight attendants and/or the pilot will quickly be able to make this observation and correct the condition accordingly.

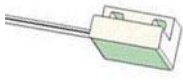
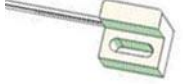

MEDER has developed a sensor totally built into the receiving buckle (see picture sequence). The receiving buckle is the larger of the two that receives the metal 'tongue' from the other buckle element. MEDER has come up with an approach whereby the metal 'tongue', when inserted into the other seat belt element, blocks the magnetic system in place between a magnet and Reed Sensor. This interference essentially isolates the two elements from each other, changing the state of the Reed Sensor contacts. When the seat belts are disengaged, the interference no longer exists and the Reed Sensor contact reverts to the reset state. This Reed Sensor design also needed to take into consideration all the magnetic elements internal and external to the seat belt.

The Reed Sensor's reliability is unquestioned, where tens of millions of operations are typical.

Cylindrical Panel Mount Series

Series	Dimensions		Illustration	
	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

Series	Dimensions		Illustration	
	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 the factory for more options not listed above.