



**MEC PRODUCT SPECIFICATION**

**MAGNETISM COMPONENT**

**MPR103WIII REED SWITCH**

<b>MOBICON HOLDINGS LTD.</b>		
<b>Drawn</b>	<b>Sign.</b>	<b>Approved</b>
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# MIEC

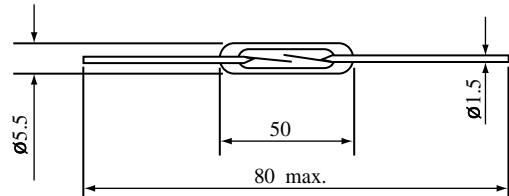
**GERMANY**

## MPR103WIII REED SWITCH

General purpose Rhodium plated miniature Reed Switch. Applications including sensing elements used in safety and security systems, level sensing , counting and miniature relays.

### PHYSICAL CHARACTERISTICS (mm) DIMENSIONS

Glass Diameter	5.5 (max.)
Glass Length	50.0 (max.)
Lead Diameter	1.5 (typ.)
Overall Length	80.0 (max.)



Glass Appearance : Brown Transparent

### ELECTRICAL CHARACTERISTICS

Contact Arrangement	SPST Form A Centre gap.
Contact Material	Rhodium
(1) Power Rating	250 VA
Switching Current	5.0 ADC 5.0 AAC max.
Carrying Current	5.0 ADC 5.0 AAC max.
Switching Voltage	250 V <sub>DC</sub> 250 V <sub>AC</sub> - RMS max.
(2) Breakdown Voltage	700 V <sub>DC</sub>
(3) Contact Resistance	150 m $\Omega$ max.
Insulation Resistance	10 <sup>9</sup> $\Omega$ min.
Contact Capacitance	1.0 pF max.

### OPERATING CHARACTERISTICS

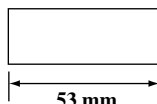
Operate Time including Bounce	2.5 ms (typ.)
Release Time	1.0 ms (typ.)
Resonant Frequency	700Hz (typ.)
Vibration 10 - 2,000Hz	15 G max.
Shock - 11ms, 1/2 Sine Wave	40 G max.
Operating Temperature	-40 °C ~ +100 °C
Storage Temperature	-50 °C ~ +100 °C
Pull-In Range	50 AT ~ 100 AT
Drop-Out	20 AT
Switching Frequency	5 Hz max.

### LIFE EXPECTANCY & RELIABILITY

Test Modes

250 VAC or 250 VDC at 1A resistive load with 1 x 10<sup>5</sup> time min. at operation frequency of 5Hz

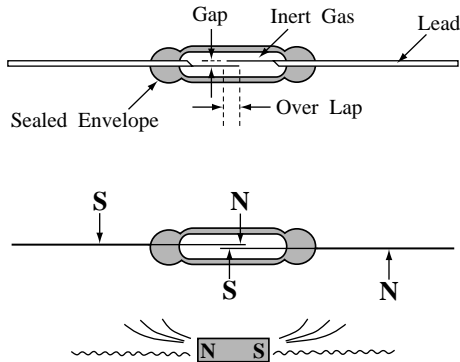
TEST COIL : NUMBER OF TURNS : 5,000  
RESISTANCE OF COILS : 335  $\Omega$



BIN COOE : 50202

# MIEC

## CONSTRUCTION



The reed switch consists of a pair of flexible reeds made of a magnetic material, and sealed in a glass tube filled with inert gas.

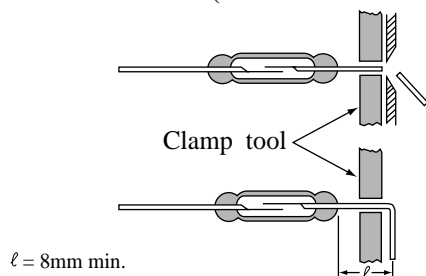
The reeds are overlapped but separated by a small gap. The contact area of each reed is plated with a noble metal, such as Rhodium or Ruthenium, to provide the switch with stable characteristics and long life.

Application of magnetic field, generated by a permanent magnet or a coil, to the reed switch causes both reeds to be magnetized. This produces an N-pole at the contact area of one reed, and an S-pole at that of the other reed, in a manner shown on the drawing (left). If the magnetic attracting force overcomes the resistive force caused by elasticity of the reed, the reeds come in contact (Pull-In) i.e., the circuit is closed. Once the magnetic field is removed, the reeds are separated again by the effect of elasticity of the reed (Drop-Out) i.e., the circuit is opened.

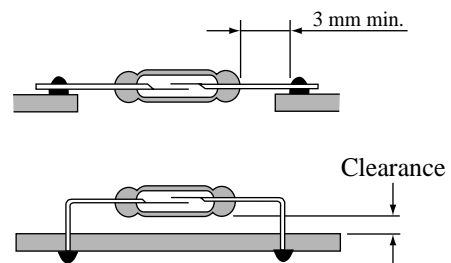
## FEATURES

- Compact and Light** ..... The reed switch can be mounted in a very limited space ; it is ideal for use in miniaturized equipment.
- Hermetically Sealed** ..... The switching elements of the reed switch are hermetically sealed in an inert gas atmosphere, so that they are never exposed to the external environment.
- Long Life** ..... The reed switch employs no sliding parts, so that there is no fatigue related degradation in the quality of the materials used, ensuring a virtually unlimited mechanical life.
- High Speed Operation** .... Every movable element has a very low mass resulting in a high speed of operation. This enables the reed switch to be used as an interface to a transistor or integrated circuit.

## LEAD FORMING (CUTTING AND BENDING)



## MOUNTING



## CONTACT MATERIAL

### Rhodium

Rhodium plated contacts are most popular. They have very stable characteristics and long life when switching low level to heavy loads. This is due to Rhodium's high melting point and high hardness.

### Ruthenium

Ruthenium's hardness is even greater than that of Rhodium. Ruthenium contacts have better mechanical wear and heat dissipation characteristics, yet only when switching low Loads.

## CONTACT FORM

### Form "A" (Normally Open)

Switch contacts will close in the presence of magnetic field.



## General application switches

Switching power rating of 10 watt. Applications are wide including switching signal loads, driving electromechanical relays, etc.

## High inrush current switches

May be used for switching in incandescent lamp or capacitive loads without external current limiting resistors.