Pickering Series 60, 65

High Voltage Dry Reed Relays
for up to 15kV

Features

- SoftCenter® construction
- Up to 15 kV stand-off
- Up to 12.5 kV switching
- Small size
- Easy mounting
- Long life
- Fully encapsulated

Series 60 - Chassis mounting with solder connections on the top face

Series 65 - Printed circuit mounting

The Series 60 and 65 ranges of high voltage reed relays have been manufactured for many years and remain popular due to their small size and ease of use. They are available for up to 15kV stand-off, 12.5kV switching at 50 Watts maximum. Tungsten plated contacts ensure a long and reliable life.

Both Form A (energize to make) and Form B (energize to break) configurations are available and it is usually possible to achieve a Form C (change-over) function by using a Form A and a Form B type together.

Form B types are magnetically biased and should not be mounted directly onto ferrous metal chassis or less than 1.5 inches (38mm) away from other relays as the coil operating voltage characteristics will be altered due to magnetic interaction. The coils of Form B relays are polarity sensitive, the positive connection is identified by a red spot.

Form A types can be mounted on ferrous chassis but a space of 1 inch (25mm) should be allowed between adjacent relays. 5, 12, and 24 volt coils are available as standard other voltages can be supplied to special order, please contact our sales office.

If similar relays with “push-on” connectors are preferred, please look at our Series 62 and Series 63.

Switch Ratings

- 1 Form A (energize to make) Switch Number 1
  5kV stand-off, 3.5kV switching at up to 50 Watts
- 1 Form A (energize to make) Switch Number 2
  10kV stand-off, 7.5kV switching at up to 50 Watts
- 1 Form A (energize to make) Switch Number 3
  15kV stand-off, 12.5kV switching at up to 50 Watts
- 1 Form B (energize to break) Switch Number 1
  5kV stand-off, 3.5kV switching at up to 50 Watts
- 1 Form B (energize to break) Switch Number 2
  10kV stand-off, 7.5kV switching at up to 50 Watts
### Series 60, 65 switch ratings - The contact ratings for each switch type are shown below:

<table>
<thead>
<tr>
<th>Switch No</th>
<th>Switch form</th>
<th>Operating voltage</th>
<th>Max. contact resistance (</th>
<th>Switch to coil</th>
<th>Across switch</th>
<th>Capacitance (typical)</th>
<th>Switch number (see Note a) below</th>
<th>Release time</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>A or B 50 W</td>
<td>3.6 V</td>
<td>0.12 Ω</td>
<td>10^2 Ω</td>
<td>10^2 Ω</td>
<td>3 μF</td>
<td>3 ms</td>
<td>2 ms</td>
</tr>
<tr>
<td>2</td>
<td>A or B 50 W</td>
<td>3.6 V</td>
<td>0.12 Ω</td>
<td>10^2 Ω</td>
<td>10^2 Ω</td>
<td>3 μF</td>
<td>3 ms</td>
<td>2 ms</td>
</tr>
<tr>
<td>3</td>
<td>A 50 W</td>
<td>3.6 V</td>
<td>0.12 Ω</td>
<td>10^2 Ω</td>
<td>10^2 Ω</td>
<td>3 μF</td>
<td>3 ms</td>
<td>2 ms</td>
</tr>
</tbody>
</table>

### Operating voltages

- **Coil voltage - nominal**: 5 V
- **Must operate voltage - maximum at 25°C**: 12 V
- **Must release voltage - minimum at 25°C**: 18 V

### Series 60 Coil data and type numbers

<table>
<thead>
<tr>
<th>Device type</th>
<th>Type Number</th>
<th>Coil (V)</th>
<th>Coil resistance</th>
<th>Max. contact resistance (initial)</th>
<th>Insulation resistance (minimum)</th>
<th>Capacitance (typical)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Form A (energize to make)</td>
<td>65-1-A-5/1</td>
<td>5</td>
<td>35 Ω</td>
<td>0.12 Ω</td>
<td>10^2 Ω</td>
<td>3 μF</td>
</tr>
<tr>
<td>1 Form B (energize to break)</td>
<td>65-1-B-5/1</td>
<td>5</td>
<td>35 Ω</td>
<td>0.12 Ω</td>
<td>10^2 Ω</td>
<td>3 μF</td>
</tr>
</tbody>
</table>

### Series 65 Coil data and type numbers

<table>
<thead>
<tr>
<th>Device type</th>
<th>Type Number</th>
<th>Coil (V)</th>
<th>Coil resistance</th>
<th>Max. contact resistance (initial)</th>
<th>Insulation resistance (minimum)</th>
<th>Capacitance (typical)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Form A (energize to make)</td>
<td>65-1-A-5/1</td>
<td>5</td>
<td>35 Ω</td>
<td>0.12 Ω</td>
<td>10^2 Ω</td>
<td>3 μF</td>
</tr>
<tr>
<td>1 Form B (energize to break)</td>
<td>65-1-B-5/1</td>
<td>5</td>
<td>35 Ω</td>
<td>0.12 Ω</td>
<td>10^2 Ω</td>
<td>3 μF</td>
</tr>
</tbody>
</table>

### Environmental specification

**Standard operating temperature range**: -20 to +85 °C

**Note**: The upper temperature limit can be extended to +125 °C if the coil drive voltage is increased to accommodate the resistance/temperature coefficient of the copper coil winding. This is approximately 0.4% per °C. This means that at 125 °C the coil drive voltage will need to be increased by approximately 40 x 0.4 =16% to maintain the required magnetic drive level.

**Vibration**: Maximum 20 G

**Shock**: Maximum 50 G

**Note1 - Important - Current Rating**

This is the maximum current rating at 50 Watts. If, for example, you wish to switch 5000 volts, the maximum current will be 10mA. Multiply your instantaneous switching current by the voltage to be switched, to ensure that you do not exceed this 50 Watts rating.

**Capacitive inrush currents can sometimes be high due to the voltages involved, if possible insert a series resistance into the circuit to limit this. Contact our Technical Department for assistance if required.**

**Note2 - Life expectancy**

The life of a reed relay depends upon the switch load and end of life criteria. For example, for an ‘end of life’ contact resistance specification of 1 Ω, switching low loads (10 V at 10 mA resistive) or when ‘cold’ switching, typical life is approx 10 x 10^6 ops. At the maximum load (resistive), typical life is 1 x 10^7 ops. In the event of abusive conditions, e.g. high currents due to capacitive inrushes, this figure reduces considerably. Pickering will be pleased to perform life testing with any particular load condition.

**Note3 - Capacitance across open switch**

The capacitance across the open switch was measured with other connections guarded.

**Main contact:**

UK Headquarters: email: sales@pickeringrelay.com | Tel. +44 1255 428141

Worldwide contacts:

USA: email: usasales@pickeringtest.com | Tel. +1 781 897 1710

Germany: email: desales@pickeringtest.com | Tel. +49 9125 953 160

China: email: jaohnson@lomtech.cn | Tel. 0755 8374 5452

For a full list of agents and representatives visit: pickeringrelay.com/agents