Pickering Series 62, 63

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 62 - Chassis mounting with push-on connections on the top face
Series 63 - Printed circuit mounting with push-on high voltage connections on the top face

The Series 62 and 63 ranges of high voltage reed relays feature push-on terminals and are supplied complete with the appropriate connectors and insulating boots.

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.

These relays feature an internal mu-metal magnetic screen which permits the Form A (energize to make) versions to be mounted side by side. Special versions can be manufactured with an electrostatic screen and/or earth connection to the magnetic screen. This can often be useful where EMC problems are encountered, please contact our technical sales office.

Form B types are magnetically biased and should not be mounted directly onto ferrous metal chassis or less than 1 inch (25mm) 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.

5, 12, and 24 volt coils are available as standard other voltages can be supplied to special order.

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 62, 63 switch ratings - The contact ratings for each switch type are shown below:

<table>
<thead>
<tr>
<th>Switch No</th>
<th>Switch form</th>
<th>Power rating</th>
<th>Max. switching current</th>
<th>Max. switching volts</th>
<th>Max. stand-off volts</th>
<th>Life expectancy ops (see Note 2 below)</th>
<th>Operate time inc bounce (max)</th>
<th>Release time</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>A or B</td>
<td>350</td>
<td>3A</td>
<td>3500</td>
<td>100</td>
<td>100</td>
<td>3 ms</td>
<td>2 ms</td>
</tr>
<tr>
<td>2</td>
<td>A or B</td>
<td>7500</td>
<td>3.3A</td>
<td>10000</td>
<td>100</td>
<td>100</td>
<td>3 ms</td>
<td>2 ms</td>
</tr>
<tr>
<td>3</td>
<td>A</td>
<td>12500</td>
<td>3.3A</td>
<td>15000</td>
<td>100</td>
<td>100</td>
<td>3 ms</td>
<td>2 ms</td>
</tr>
</tbody>
</table>

Operating voltages

<table>
<thead>
<tr>
<th>Voltage</th>
<th>Stand-off</th>
<th>Release</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 V</td>
<td>3.75 V</td>
<td>0.5 V</td>
</tr>
<tr>
<td>12 V</td>
<td>9 V</td>
<td>1.2 V</td>
</tr>
<tr>
<td>24 V</td>
<td>18 V</td>
<td>2.4 V</td>
</tr>
</tbody>
</table>

Series 62 Co 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 current (initial)</th>
<th>Insulation resistance (minimum)</th>
<th>Capacitance (typical) (see Note 3 below)</th>
<th>Across switch</th>
<th>Closed switch to coil</th>
<th>Across open switch</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Form A</td>
<td>62-1-A-5/1</td>
<td>5</td>
<td>50</td>
<td>0.12 Q</td>
<td>10^12 Q</td>
<td>3 pF</td>
<td>0.15 pF</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>62-1-A-12/1</td>
<td>12</td>
<td>150</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>62-1-A-24/2</td>
<td>24</td>
<td>500</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 Form B</td>
<td>62-1-B-12/2</td>
<td>12</td>
<td>150</td>
<td>0.12 Q</td>
<td>10^12 Q</td>
<td>3 pF</td>
<td>0.15 pF</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>62-1-B-24/2</td>
<td>24</td>
<td>500</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Environmental specification

Standard operating temperature range: -20 to +65 °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. That 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.

Please contact sales@pickeringrelay.com for assistance if necessary.

Vibration: Maximum 20 G

Shock: Maximum 50 G

Note 1 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.

Note 2 Life expectancy

The life of a reed relay depends upon the switch load and end of the 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 1 x 10^6 ops. At the maximum load (resistive), typical life is 1 x 10^6 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.

Note 3 Capacitance across open switch

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

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Pickering Electronics continue to lead the high-end reed relay market through innovative product design, high performance components and exceptional quality control.

Part of the privately-owned Pickering Group, company operations employ around 200 staff across quality accredited factories in the UK and Czech Republic, supplying demanding Aerospace, Infrastructure, Test & Measurement and ATE applications worldwide.

Reliability through quality – 50 Year reputation for exceptional product life longevity derived from continuous staged manufacturing inspection, strenuous full range thermal cycling and 100% testing for all operating parameters.

Reliability through design – Environmentally compliant designs and unique Softcenter® technology combine to create an optimised assembly that minimises internal lifetime stresses, extending working life and contact stability.

Switching Performance – Compared with common bobbin based products, our formerless coil constructions maximise magnetic efficiency resulting in faster switching speeds, optimal switching action and several orders of extended lifetime at operational extremes.

Cost & Size Performance – Industry leading mu-metal magnetically screened packages deliver ultra-high PCB packing densities, saving significant cost and space.

Designers toolkit – Free samples, worldwide tech support and an unrivalled range of specialist and custom devices, Pickering engineers work alongside customers to deliver problem solving solutions for complex and challenging applications.


Distribution – An established global network of group sales offices supported by local agents and distributors, Pickering operate an established logistical supply chain worldwide.

The Pickering Group – Employing around 400 staff across 8 sites in the UK and CZ, Pickering Electronics are a key technology partner for Pickering Interfaces and Pickering Connect, supporting the design and manufacture of high performance modular signal switching and simulation systems.