High Sensitivity Reed Relays
Dry and mercury wetted

Features

- Encapsulated in a plastic package with internal mu-metal magnetic screen
- Wide range of switch configurations
- Dry and mercury wetted switches are available with the same pin configuration and footprint (see “A useful tip” below)
- 5, 12 or 24 Volt coils with or without internal diode

These ranges of reed relays are essentially the same as the dry Series 80 and 85 and the mercury wetted Series 88 and 89 but with coil resistances between 2 and 3 times higher. This feature is particularly useful when using large numbers of relays, to reduce overall current requirements and heating effects, or when the available coil drive power is restricted, for example, in battery operated equipment.

Many special resistances are available, and relays can be designed to customers specific requirements.

These Pickering reed relays fit straight onto P.C. boards with pins on 0.1 inch grid. They are completely protected, being encapsulated with plastic covers. All relays are fitted with internal magnetic screens to avoid stray magnetic interaction between adjacent relays.

The Series 86 and 87 are electrically identical ranges but offer alternative pin configurations. These are shown overleaf.

A useful tip

If there is a chance that you might want to use mercury wetted relays instead of dry relays at a later date, for example to increase switch ratings, lay out the PCB initially as though for the mercury wetted type. This allows uprating later without PCB changes.

Switch Ratings - Dry Switches

- 1 Form A (energize to make), 10 watts at 200V
- 1 Form B (energize to break), 10 watts at 200V
- 1 Form C (change-over), 3 watts at 200V
- 2 Form A (energize to make), 10 watts at 200V

Switch Ratings - Mercury Wetted Switches

- 1 Form A (energize to make), 50 watts at 500V
### Series 86, 87 switch ratings

- **Switch No**: A or B
- **Switch form**: 10 W
- **Power rating**: 0.5 A
- **Max. switch current**: 1.2 A
- **Max. switching voltage**: 200 V
- **Life expectancy ops typical**: 10^6
- **Special features**: General purpose

### Operating voltages

<table>
<thead>
<tr>
<th>Voltage</th>
<th>Current</th>
<th>Life expectancy ops typical</th>
<th>Special features</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 V</td>
<td>3.75 V</td>
<td>0.5 V</td>
<td></td>
</tr>
<tr>
<td>12 V</td>
<td>9 V</td>
<td>1.2 V</td>
<td></td>
</tr>
<tr>
<td>24 V</td>
<td>18 V</td>
<td>2.4 V</td>
<td></td>
</tr>
</tbody>
</table>

### Mercury Reed: Series 86, 87 switch ratings

- **Switch No**: 8
- **Switch form**: A
- **Power rating**: 50 W
- **Max. switch current**: 3 A
- **Max. switching voltage**: 500 V
- **Life expectancy ops typical**: 10^6
- **Special features**: Standard Mercury

### Mercury Relay: Series 86, 87 Coil data and type numbers

<table>
<thead>
<tr>
<th>Device type</th>
<th>Type Number</th>
<th>Type Number</th>
<th>Coil (V)</th>
<th>Coil resistance</th>
<th>Max. contact resistance (initial)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Form A (energize to make)</td>
<td>86-1-A-5/1D</td>
<td>87-1-A-5/1D</td>
<td>5</td>
<td>1000 Ø</td>
<td>0.15 Ø</td>
</tr>
<tr>
<td>General Purpose</td>
<td>86-1-A-12/1D</td>
<td>87-1-A-12/1D</td>
<td>12</td>
<td>3000 Ø</td>
<td>0.15 Ø</td>
</tr>
<tr>
<td>Switch No. 1</td>
<td>86-1-A-24/1D</td>
<td>87-1-A-24/1D</td>
<td>24</td>
<td>6000 Ø</td>
<td></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.
- Please contact sales@pickeringrelay.com for assistance if necessary.

- **Vibration**: Maximum 20 G
- **Shock**: Maximum 50 G

### Pin Configurations

- **Schematics are shown from UNDERNEATH the relay.**

### Mercury Wetted Versions

- Mercury wetted relays should be mounted vertically in the direction of the arrow printed on the package.

### Order Code

- **Series**: 86 - 1 - A - 5 / D
- **Number of reeds**: 2
- **Switch form**: as per table adjacent
- **Coil voltage**: as per diagram
- **Switch number**: as per diagram
- **Diode fitted**: Omit if not required

### Help

- If you need any technical advice or other help, for example, any special tests that you would like carried out, please do not hesitate to contact our Technical Sales Department. We will always be pleased to discuss Pickering relays with you.
- email: techsales@pickeringrelay.com

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