2-pole solid state relays

Switches
2-pole solid state relays

Space costs money! Reducing the size of equipment is becoming a necessity for equipment manufacturers who want to stay competitive. Carlo Gavazzi aligned its product offering accordingly and provide solutions that minimise space requirements without compromising performance.

Amongst these solutions are 2-pole solid state relays that have two outputs which can be either independently or commonly controlled, packaged in one housing providing up to 50% space savings.

The RA2A series covers ratings up to 40 AAC per pole and is equipped with FASTON terminations whilst the RK series is a more advanced version using the latest design and assembly technology covering ratings up to 75 AAC per pole and is equipped with screw terminations.

Space optimisation solutions

Space savings
- Up to 50% space savings for 2-poles
- Economy switching of 3-phase loads using 2-poles

Time savings in installation
- FASTONs for low current loads (RA2)
- Spring plug for control termination (RK..P)

Long lifetime
- Robust solution with back-to-back thyristor technology instead of triacs
- No internal moulding mass to reduce thermal stresses
- Wire bonding on power chips to reduce thermal and mechanical stresses (RK)

Efficient heat dissipation
- Optimal thermal efficiency by design - low junction temperature due to the low junction to heatsink thermal resistance (RK)

Certifications and conformance
- Certified to International standards
- 100,000 cycle test according UL requirements for Food equipment (RK)
- Conformance to glow wire requirements for Food equipment according to EN 60335 (RK)

One stop shop
- A range of Accessories including heatsinks and cables for a complete package from one supplier
Plastic & rubber

- Injection machines
- Thermofoming machines
- Temperature control units
- Dryers

Food & beverage

- Electrical ovens
- Fryers
- Griddles
- Coffee machines

Product range overview

<table>
<thead>
<tr>
<th>Series</th>
<th>RA2A</th>
<th>RA2A...C</th>
<th>RK...C</th>
<th>RK...P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current ratings</td>
<td>2x 25 A, 40 A</td>
<td>2x 25 A, 40 A</td>
<td>2x 50 A, 75 A</td>
<td>2x 50 A, 75 A</td>
</tr>
<tr>
<td>Max. operating voltage</td>
<td>660 VAC</td>
<td>660 VAC</td>
<td>660 VAC</td>
<td>660 VAC</td>
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<tr>
<td>Power connection</td>
<td>FASTON 6.35mm</td>
<td>FASTON 6.35mm</td>
<td>Screw</td>
<td>Screw</td>
</tr>
<tr>
<td>Control connection</td>
<td>FASTON 6.35mm</td>
<td>2.54mm pitch header</td>
<td>2.54mm pitch header</td>
<td>spring plug (provided)</td>
</tr>
<tr>
<td>Variants</td>
<td>Dual output with independent control</td>
<td>Dual output with independent or common control</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Switching mode</td>
<td>Zero cross</td>
<td>Zero cross</td>
<td>Zero cross or Instant on</td>
<td></td>
</tr>
<tr>
<td>Control ON LED indication (x2)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DC control voltage</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Integrated overvoltage protection</td>
<td>-</td>
<td>Varistor</td>
<td>Transil</td>
<td>Transil</td>
</tr>
<tr>
<td>Dimensions W x H x D mm</td>
<td>45 x 58 x 32</td>
<td>45 x 58 x 35</td>
<td>45 x 58 x 33</td>
<td>45 x 58 x 44</td>
</tr>
<tr>
<td>Approvals</td>
<td>CARLO GAVAZZI Automation Components. Specifications are subject to change without notice. Illustrations are for example only.</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>
RA2A series

2-pole solid state relays

The RA2A series consists of solid state relays having 2 outputs independently controlled packaged in a housing having a maximum width of 45mm. This gives a maximum 50% space saving in control panels when compared to 2x standard 1-pole solid state relays.

The RA2A is equipped with FASTON terminals on both input and output for time savings in installations. The RA2A..C variants are also equipped with FASTONs on the output but the control termination consists of a 2.54mm pitch header.

Ratings go up to 660 VAC, 40 A. The RA2A is ideally suited for resistive loads, and the RA2A..M is specifically designed for inductive loads.

Applications
In some cases, the application conditions will necessitate that the solid state relay is mounted on a heatsink in order to keep the junction temperature of the solid state relay from exceeding its maximum rating.

The size of heatsink required can be determined either from the product datasheets or by making use of the online Heatsink Selector Tool available at:
http://www.productselection.net/heatsink/heatsinkSelector.php

Carlo Gavazzi offers a range of heatsinks that can be provided with a pre-mounted solid state relay. Consult a Carlo Gavazzi representative for further details regarding these assemblies.

Fast installation with quick connect terminals

Switches

CARLO GAVAZZI Automation Components. Specifications are subject to change without notice. Illustrations are for example only.
Main features

**Fast installation**
Quick connect terminals (FASTONs)

**User friendly**
2x green LEDs for control ON indication

**Control termination**
6.35mm FASTONs for RA2A

**Control termination**
2.54mm pitch header for RA2A..C

**Compact**
2 independently controlled poles in 1 housing

**Reliable**
Integrated overvoltage protection for RA2A..C

**Approvals**

**Long lifetime**
Free of moulding mass to ensure components are not subject to thermal and mechanical stresses

**Versatile**
RA2A for resistive loads
RA2A..M for inductive loads

**Main features**

- Compact
- 2 independently controlled poles in 1 housing
- User friendly
- 2x green LEDs for control ON indication
- Reliable
- Integrated overvoltage protection for RA2A..C
- Approvals
- Long lifetime
- Free of moulding mass to ensure components are not subject to thermal and mechanical stresses
- Versatile
- RA2A for resistive loads
- RA2A..M for inductive loads

**Selection guide**

**RA2A series** - 2 independently controlled poles for resistive loads

<table>
<thead>
<tr>
<th>Control termination</th>
<th>Max. current</th>
<th>Control voltage</th>
<th>24-265 VAC</th>
<th>42-530 VAC</th>
<th>42-660 VAC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fastons</td>
<td>2 x 25 AAC</td>
<td>4.5 - 32 VDC</td>
<td>RA2A23D25</td>
<td>RA2A48D25</td>
<td>RA2A60D25</td>
</tr>
<tr>
<td></td>
<td>2 x 40 AAC</td>
<td>4.5 - 32 VDC</td>
<td>RA2A23D40</td>
<td>RA2A48D40</td>
<td>RA2A60D40</td>
</tr>
<tr>
<td>Pins</td>
<td>2 x 25 AAC</td>
<td>4.5 - 32 VDC</td>
<td>RA2A23D25C</td>
<td>-</td>
<td>RA2A60D25C</td>
</tr>
<tr>
<td></td>
<td>2 x 40 AAC</td>
<td>4.5 - 32 VDC</td>
<td>RA2A23D40C</td>
<td>-</td>
<td>RA2A60D40C</td>
</tr>
</tbody>
</table>

**RA2A..M series** - 2 independently controlled poles for inductive loads

<table>
<thead>
<tr>
<th>Control termination</th>
<th>Max. current</th>
<th>Control voltage</th>
<th>24-265 VAC</th>
<th>42-530 VAC</th>
<th>42-660 VAC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fastons</td>
<td>2 x 25 AAC</td>
<td>4.5 - 32 VDC</td>
<td>RA2A23D25M</td>
<td>RA2A48D25M</td>
<td>RA2A60D25M</td>
</tr>
<tr>
<td></td>
<td>2 x 40 AAC</td>
<td>4.5 - 32 VDC</td>
<td>RA2A23D40M</td>
<td>RA2A48D40M</td>
<td>RA2A60D40M</td>
</tr>
</tbody>
</table>

Further details are available on online datasheets at www.gavazziautomation.com

CARLO GAVAZZI Automation Components. Specifications are subject to change without notice. Illustrations are for example only.
The **RK** series also consists of solid state relays with 2 outputs packaged in a platform having a maximum product width of 45mm. However, the **RK** series is dedicated for high rated loads up to 660 VAC, 75 A and hence termination for power connection consists of screw terminals.

The **RK..P** is equipped with a spring plug for control connection that is provided with the solid state relay whilst the **RK..C** is equipped with a 2.54mm pitch header.

The **RK** series consists of 2 variants: the **RKD2** series has an independent control for each of the poles, the **RK2** series has common control for the 2 poles making it ideal for economy switching of 3-phase loads.

**Screw output termination for high power**

**Applications**

The two loads can be controlled independently with the **RKD2** series.

Economy switching of a 3-phase load with the **RK2** series.
Main features

- Easy replacement: Pluggable control termination
- Flexible connections: Removable touch protection cover for connection of ring lugs
- Long lifetime: Wire bonding technology for lower thermal and mechanical stresses on power chips
- Time saving: Pre-attached thermal interface to backplate
- User friendly: 2x green LEDs for control ON indication
- Conformance to Food Industry: UL certified for 100,000 cycle test, Conforms to glow wire requirements of EN 60335
- Low downtime: Integrated overvoltage protection
- Space savings: 2 poles in a 45mm wide housing RKD2 for independent control
- RK2 for common control

Selection guide

**RKD2 series** - 2 independently controlled poles

<table>
<thead>
<tr>
<th>Control termination</th>
<th>Max. current</th>
<th>I²t</th>
<th>Control voltage</th>
<th>Operational voltage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pins</td>
<td>2x 50 AAC</td>
<td>1500 A²s</td>
<td>4 - 32 VDC</td>
<td>RKD2A23D50C, RKD2A60D50C</td>
</tr>
<tr>
<td></td>
<td>2x 50 AAC</td>
<td>3000 A²s</td>
<td>4 - 32 VDC</td>
<td>RKD2A23D51C, RKD2A60D51C</td>
</tr>
<tr>
<td></td>
<td>2x 75 AAC</td>
<td>9800 A²s</td>
<td>4 - 32 VDC</td>
<td>RKD2A60D75C</td>
</tr>
<tr>
<td>Spring plug</td>
<td>2x 50 AAC</td>
<td>1500 A²s</td>
<td>4 - 32 VDC</td>
<td>RKD2A23D50P, RKD2A60D50P</td>
</tr>
<tr>
<td></td>
<td>2x 50 AAC</td>
<td>3000 A²s</td>
<td>4 - 32 VDC</td>
<td>RKD2A23D51P, RKD2A60D51P</td>
</tr>
<tr>
<td></td>
<td>2x 75 AAC</td>
<td>9800 A²s</td>
<td>4 - 32 VDC</td>
<td>RKD2A60D75P</td>
</tr>
</tbody>
</table>

**RK2 series** - common control for the 2 poles

<table>
<thead>
<tr>
<th>Control termination</th>
<th>Max. current</th>
<th>I²t</th>
<th>Control voltage</th>
<th>Operational voltage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pins</td>
<td>2x 50 AAC</td>
<td>1500 A²s</td>
<td>4 - 32 VDC</td>
<td>RK2A60D50C</td>
</tr>
<tr>
<td></td>
<td>2x 50 AAC</td>
<td>3000 A²s</td>
<td>4 - 32 VDC</td>
<td>RK2A60D51C</td>
</tr>
<tr>
<td></td>
<td>2x 75 AAC</td>
<td>9800 A²s</td>
<td>4 - 32 VDC</td>
<td>RK2A60D75C</td>
</tr>
<tr>
<td>Spring plug</td>
<td>2x 50 AAC</td>
<td>1500 A²s</td>
<td>4 - 32 VDC</td>
<td>RK2A60D50P</td>
</tr>
<tr>
<td></td>
<td>2x 50 AAC</td>
<td>3000 A²s</td>
<td>4 - 32 VDC</td>
<td>RK2A60D51P</td>
</tr>
<tr>
<td></td>
<td>2x 75 AAC</td>
<td>9800 A²s</td>
<td>4 - 32 VDC</td>
<td>RK2A60D75P</td>
</tr>
</tbody>
</table>

Instant on versions are also available: RKD2B.., RK2B..
Further details are available on online datasheets at www.gavazziautomation.com