Instead of using coil, packaged solid-state relays (SSR) use power semiconductor devices such as thyristors and transistors, which provide a much faster switching speed than the mechanical relays. The Grove - 8-Channel Solid State Relay is based on the high-quality G3MC202P module, which allows you to use a 5VDC to control a 240VAC. With the help of Grove interface, it becomes very convenient to use the SSR with your Arduino.

We use an on-board STM32F030F4P6 to control the channels separately. The command from Arduino or other boards is transmitted via the I2C interface, the on-board STM32F030F4P6 will parse the command, so that you can control the switch you want.

According to different application scenarios, we’ve prepared a series of solid state relays for you.

**Grove - Solid State Relay V2**
**Grove - 2-Channel Solid State Relay**
**Grove - 4-Channel Solid State Relay**
**Grove - 8-Channel Solid State Relay**

1. Please be careful when working with high voltage AC load, please do not operate with power on.
2. This relay only works with AC load, if you use DC load, once the relay is turned on, it will always stay on.
3. Due to the leakage current, we do not recommend you to use this relay with low power appliance.
- Zero Cross
- Long lasting.
- Optional I2C address.
- Eight-channel independent control.

### Advantages over mechanical relays:

1. Solid-state relays have much faster switching speeds compared with electromechanical relays, and have no physical contacts to wear out.
2. Totally silent operation.
3. No physical contacts means no sparking, allows it to be used in explosive environments, where it is critical that no spark is generated during switching.
4. Increased lifetime, even if it is activated many times, as there are no moving parts to wear and no contacts to pit or build up carbon.
5. Compact, thin-profile SSR of monoblock construction with an all-in-one lead frame incorporates a PCB, terminals and heat sink, which is much smaller than mechanical relays, and can integrate more channels.

### Disadvantages:

1. When closed, higher resistance (generating heat) and increased electrical noise.
2. When open, lower resistance, and reverse leakage current.
3. Only works for AC load.

### Typical Applications

- Operations that require low-latency switching, e.g. stage light control.
- Devices that require high-stability, e.g. medical devices, traffic signals.
- Situations that require explosion-proof, anticorrosion, moisture-proof, e.g. coal, chemical industries.

### Pin Map

- GND: connect this module to the system GND
- VCC: you can use 5V or 3.3V for this module
- SDA: a bidirectional input/output pin for data transmission
- SCL: a clock input pin, provide time base
- LOAD0: one port of switch 1 to connect to the load wire
- LOAD1: the other port of switch 1 to connect to the load wire

### Technical Details

<table>
<thead>
<tr>
<th>Dimension</th>
<th>120mm x 60mm x 25mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight</td>
<td>G.W 255g</td>
</tr>
<tr>
<td>Operating Input Voltage</td>
<td>4~6V</td>
</tr>
<tr>
<td>Rated Input Voltage</td>
<td>5V</td>
</tr>
<tr>
<td>Load Voltage Range</td>
<td>75 to 264 VAC 50/60 Hz</td>
</tr>
<tr>
<td>Rated Load Voltage</td>
<td>100 to 240 VAC 50/60 Hz</td>
</tr>
<tr>
<td>Load Current</td>
<td>0.1 to 2 A</td>
</tr>
<tr>
<td>Leakage Current</td>
<td>1.5 mA max. (at 200 VAC)</td>
</tr>
<tr>
<td>Insulation Resistance</td>
<td>1,000 MΩ min. (at 500 VDC)</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>-30°C to 80°C (with no icing or condensation)</td>
</tr>
<tr>
<td>Zero Cross</td>
<td>45% to 85%RH</td>
</tr>
<tr>
<td>Certification</td>
<td>UL / CSA</td>
</tr>
</tbody>
</table>

### Part List

- [Downloaded from Arrow.com](https://www.arrow.com)