Kinetix 5700 Passive Shunt Modules

Catalog Numbers 2198-R014, 2198-R031, 2198-R127, 2198-R004

Summary of Changes

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<td>Added details regarding required clearance on all sides of the 2198-R004 shunt resistor.</td>
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<td>Added high-temperature wire rating for customer-supplied shunt wiring.</td>
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About the Passive Shunt Modules

The Kinetix® 5700 passive shunts are external modules that provide additional shunt capacity for applications where the internal shunt capacity of the drive is exceeded.

Catalog numbers 2198-R014, 2198-R031, and 2198-R127 are comprised of resistor coils that are housed inside an enclosure. Catalog number 2198-R004 is a shunt resistor without an enclosure.

See the Kinetix 5700 Servo Drives User Manual, publication 2198-UM002, for detailed information on wiring, applying power, troubleshooting, and integration with ControlLogix® or CompactLogix™ controllers.
Install the 2198-R014, 2198-R031, and 2198-R127 Shunt Modules

Observe these guidelines to install catalog numbers 2198-R014, 2198-R031, and 2198-R127:

- Remove the ventilated cover to access the mounting holes.
  - The cover is secured with 5/16 in. hex screws.
- Mount the shunt module in a ventilated location outside the drive system cabinet and observe the clearance requirements as shown in the figure below.
  - Bond the shunt enclosure to the panel to reduce the effects of electromagnetic interference (EMI). For more information on the concept of high-frequency (HF) bonding, refer to the System Design for Control of Electrical Noise Reference Manual, publication GMC-RM001.
  - See Product Dimensions on page 5 for mounting hole locations.
- Attach the shunt module by using M10 (3/8 in.) fasteners.
- Replace the ventilated cover.

Clearance Requirements (shunt modules)

See the Kinetix 5700 Servo Drives User Manual, publication 2198-UM002, for additional information on the drive system installation.
Install the 2198-R004 Shunt Resistor

Observe these guidelines to install catalog number 2198-R004:

- Mount the shunt resistor inside the drive system cabinet and directly to the subpanel.
  - See the figure below for clearance requirements and product dimensions on page 5 for mounting hole locations.
  - Bond the shunt enclosure to reduce the effects of electromagnetic interference (EMI). For more information on the concept of high-frequency (HF) bonding, refer to the System Design for Control of Electrical Noise Reference Manual, publication GMC-RM001.
- Attach the shunt module by using M5 (#10) fasteners.

Clearance Requirements (shunt resistor)

![Clearance Diagram]

**ATTENTION:** To achieve full performance, the 2198-R004 shunt resistor must be mounted vertically inside the drive cabinet.

**ATTENTION:** Do not touch the resistor during operation. This shunt resistor has no thermal protection device and the surface temperature can reach up to 385 °C (725 °F). Do not install resistor near flammable material. Any component mounted next to this passive shunt resistor can be directly affected and can create an over-temperature condition for that component. We also recommend that you install the shunt resistor in a manner that prevents user contact.
Product Dimensions

These dimensions apply to units with an enclosure.

Catalog Numbers 2198-R014, 2198-R031, and 2198-R127

These dimensions apply to catalog number 2198-R004 (units without an enclosure).

Catalog Number 2198-R004
Wiring Requirements (units with enclosures)

Follow these steps to attach shunt wiring on units with enclosures (catalog numbers 2198-R014, 2198-R031, and 2198-R127).

1. Remove the left side cover by removing the four 5/16 in. hex screws.
2. Remove a convenient conduit knockout for passing the shunt connections through.
3. Connect high-temperature wiring from the servo drive to terminals R1 and R2. 
   
   ![Image of a clamp](image-url)

   ATTENTION: To avoid damage to the wires and provide stress relief for the shunt connections, a clamp must be added in the conduit knockout to secure the wires.

   Apply 2.3 N•m (20 lb•in) torque to the R1 and R2 terminals.

4. Connect the thermostat input from the drive I/O to the thermostat spade connectors.
5. Connect the (green) ground terminal to the cabinet ground bus. 
   
   ![Image of a clamp](image-url)

   ATTENTION: To avoid damage to the wires and provide stress relief for the shunt connections, a clamp must be added in the conduit knockout to secure the wires.

   Apply 2.3 N•m (20 lb•in) torque to the ground terminal.
6. Replace the left side cover.

Catalog Numbers 2198-R014, 2198-R031, and 2198-R127

Wiring Requirements (units without enclosures)

The 2198-R004 shunt resistor leads connect directly to the servo drive.

Catalog Number 2198-R004

![Image of a clamp](image-url)
Shunt Module Specifications

<table>
<thead>
<tr>
<th>Cat. No.</th>
<th>Resistance Ω</th>
<th>Continuous Power W</th>
<th>Weight, approx kg (lb)</th>
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</thead>
<tbody>
<tr>
<td>2198-R004</td>
<td>33</td>
<td>400</td>
<td>1.8 (4.0)</td>
</tr>
<tr>
<td>2198-R014</td>
<td>9.4</td>
<td>1400</td>
<td>9.1 (20)</td>
</tr>
<tr>
<td>2198-R031</td>
<td>33</td>
<td>3100</td>
<td>16.8 (37)</td>
</tr>
<tr>
<td>2198-R127</td>
<td>13</td>
<td>12,700</td>
<td>22.2 (49)</td>
</tr>
</tbody>
</table>

(1) This product presents a lift hazard. To avoid personal injury, use care when lifting the product.

Refer to the Kinetix Servo Drives Specifications Technical Data, publication KNX-TD003, for drive and shunt resistor combinations. Use Motion Analyzer software to evaluate shunt resistor selection. Motion Analyzer software uses your motion profile and load requirements to determine regeneration needs. Download Motion Analyzer software at https://motionanalyzer.rockwellautomation.com/.

Additional Resources

These documents contain additional information concerning related products from Rockwell Automation.

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<tr>
<td>Kinetix 5700 Servo Drives User Manual, publication 2198-UM002</td>
<td>Provides information on installing, configuring, start up, and troubleshooting your Kinetix 5700 servo drive system.</td>
</tr>
<tr>
<td>System Design for Control of Electrical Noise Reference Manual, publication GMC-RM001</td>
<td>Information, examples, and techniques that are designed to minimize system failures caused by electrical noise.</td>
</tr>
<tr>
<td>Motion Analyzer System Sizing and Selection Tool <a href="https://motionanalyzer.rockwellautomation.com/">https://motionanalyzer.rockwellautomation.com/</a></td>
<td>Provides comprehensive motion application sizing tool used for analysis, optimization, selection, and validation of your Kinetix Motion Control system.</td>
</tr>
<tr>
<td>Product Certifications website, rok.auto/certifications</td>
<td>Provides declarations of conformity, certificates, and other certification details.</td>
</tr>
<tr>
<td>Industrial Automation Wiring and Grounding Guidelines, publication 1770-4.1</td>
<td>Provides general guidelines for installing a Rockwell Automation industrial system.</td>
</tr>
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You can view or download publications at http://www.rockwellautomation.com/global/literature-library/overview.page.
# Rockwell Automation Support

Use the following resources to access support information.

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<tr>
<td>Direct Dial Codes</td>
<td>Find the Direct Dial Code for your product. Use the code to route your call directly to a technical support engineer.</td>
<td><a href="http://www.rockwellautomation.com/global/support/direct-dial.page">http://www.rockwellautomation.com/global/support/direct-dial.page</a></td>
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