Installation Instructions

Original Instructions

Allen-Bradley

Kinetix 5700 Passive Shunt Modules

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

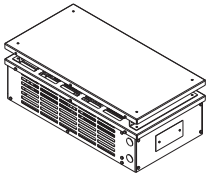
Summary of Changes

Topic	Page
Added details regarding required clearance on all sides of the 2198-R004 shunt resistor.	4
Added high-temperature wire rating for customer-supplied shunt wiring.	6

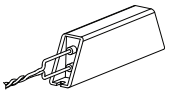
About the Passive Shunt Modules

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.



2198-R014, 2198-R031, and 2198-R127
Shunt Modules



2198-R004
Shunt Resistor

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.

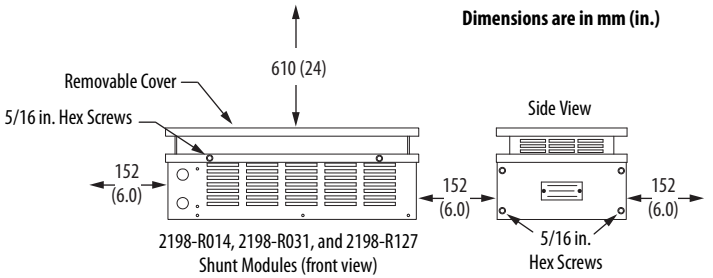
Install the 2198-R014, 2198-R031, and 2198-R127 Shunt Modules

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

ATTENTION: The 2198-R127 shunt module weighs 22.2 kg (49 lb) and presents a lift hazard. To avoid personal injury, use care when lifting the product.

- 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)



ATTENTION: To achieve full performance from these Bulletin 2198 passive shunt modules, the shunt must be mounted outside the drive cabinet with the removable cover facing up.

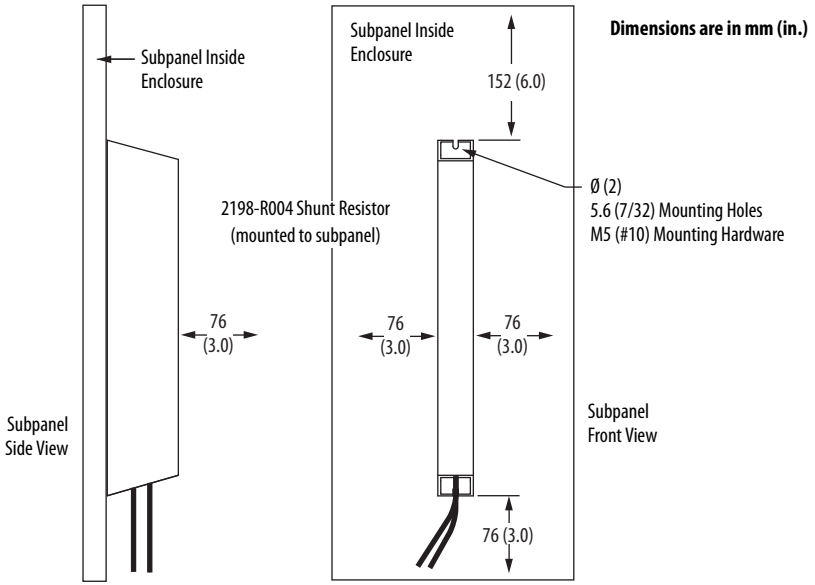
See the Kinetix 5700 Servo Drives User Manual, publication 2198-UM002, for additional information on the drive system installation.

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)



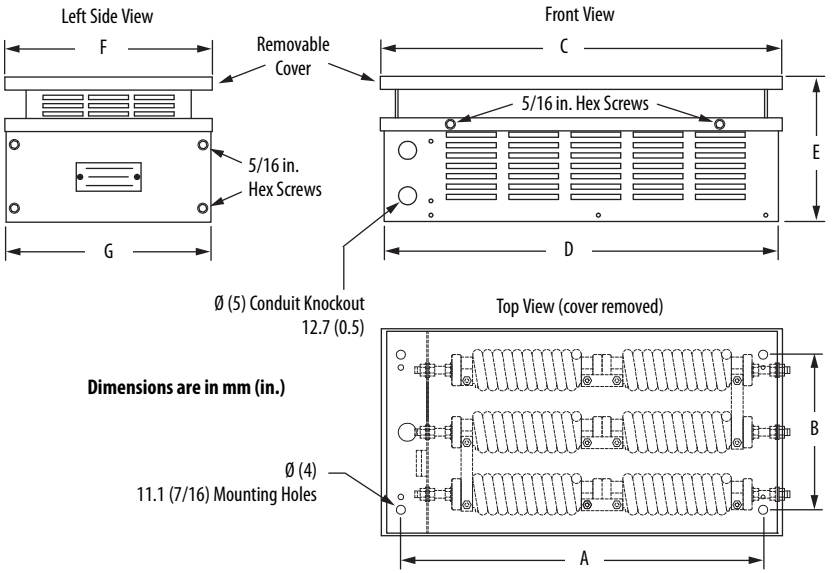
ATTENTION: To achieve full performance, the 2198-R004 shunt resistor must be mounted vertically inside the drive cabinet.

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.

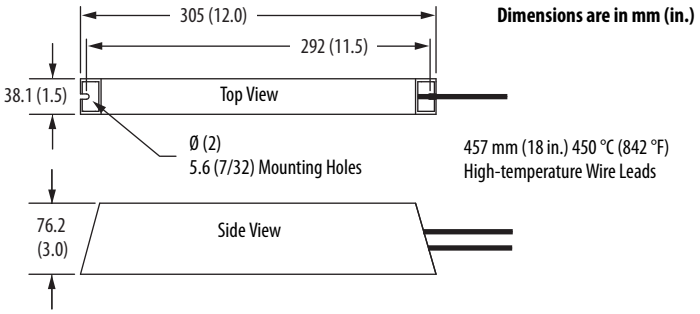
Catalog Numbers 2198-R014, 2198-R031, and 2198-R127



Cat. No.	A	B	C	D	E	F	G
2198-R014	445 (17.5)	191 (7.5)	492 (19.38)	483 (19.0)	178 (7.0)	254 (10.0)	251 (9.88)
2198-R031	635 (25.0)	343 (13.5)	683 (26.88)	673 (26.5)		406 (16.0)	403 (15.88)
2198-R127	673 (26.5)	267 (10.5)	721 (28.38)	711 (28.0)	305 (12.0)	330 (13.0)	327 (12.88)

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).

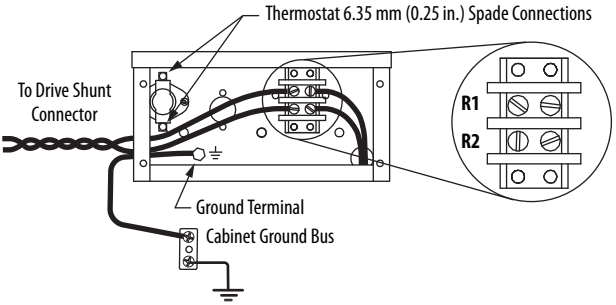
1. Remove the left side cover by removing the four 5/16 in. hex screws.
2. Remove a convenient conduit knockout for passing the shunt connections through.
3. Connect high-temperature wiring from the servo drive to terminals R1 and R2.

ATTENTION: To avoid damage to shunt wiring, use 1000V rated high-temperature twisted wire run in conduit separate from control wiring. The National Electrical Code and local electrical codes take precedence over the values and methods provided.

   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.

   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



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.

Wiring Requirements (units without enclosures)

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

Catalog Number 2198-R004

Shunt Module Specifications

Cat. No.	Resistance Ω	Continuous Power W	Weight, approx kg (lb)
2198-R004	33	400	1.8 (4.0)
2198-R014	9.4	1400	9.1 (20)
2198-R031	33	3100	16.8 (37)
2198-R127 (1)	13	12,700	22.2 (49)

(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.

Resource	Description
Kinetix 5700 Servo Drives User Manual, publication 2198-UM002	Provides information on installing, configuring, start up, and troubleshooting your Kinetix 5700 servo drive system.
System Design for Control of Electrical Noise Reference Manual, publication GMC-RM001	Information, examples, and techniques that are designed to minimize system failures caused by electrical noise.
Motion Analyzer System Sizing and Selection Tool https://motionanalyzer.rockwellautomation.com/	Provides comprehensive motion application sizing tool used for analysis, optimization, selection, and validation of your Kinetix Motion Control system.
Product Certifications website, rok.auto/certifications	Provides declarations of conformity, certificates, and other certification details.
Industrial Automation Wiring and Grounding Guidelines, publication 1770-4.1	Provides general guidelines for installing a Rockwell Automation industrial system.

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.

Technical Support Center	Knowledgebase Articles, How-to Videos, FAQs, Chat, User Forums, and Product Notification Updates.	https://rockwellautomation.custhelp.com/
Local Technical Support Phone Numbers	Locate the phone number for your country.	http://www.rockwellautomation.com/global/support/get-support-now.page
Direct Dial Codes	Find the Direct Dial Code for your product. Use the code to route your call directly to a technical support engineer.	http://www.rockwellautomation.com/global/support/direct-dial.page
Literature Library	Installation Instructions, Manuals, Brochures, and Technical Data.	http://www.rockwellautomation.com/global/literature-library/overview.page
Product Compatibility and Download Center (PCDC)	Get help determining how products interact, check features and capabilities, and find associated firmware.	http://www.rockwellautomation.com/global/support/pcdc.page

Documentation Feedback

Your comments will help us serve your documentation needs better. If you have any suggestions on how to improve this document, complete the How Are We Doing? form at http://literature.rockwellautomation.com/idc/groups/literature/documents/du/ra-du002_-en-e.pdf.

Rockwell Automation maintains current product environmental information on its website at http://www.rockwellautomation.com/rockwellautomation/about-us/sustainability-ethics/product-environmental-compliance.page.

Rockwell Otomasyon Ticaret A.Ş., Kar Plaza İş Merkezi E Blok Kat:6 34752 İçerenköy, İstanbul, Tel: +90 (216) 5698400

www.rockwellautomation.com

Power, Control and Information Solutions Headquarters

Americas: Rockwell Automation, 1201 South Second Street, Milwaukee, WI 53204-2496 USA, Tel: (1) 414.382.2000, Fax: (1) 414.382.4444
Europe/Middle East/Africa: Rockwell Automation NV, Pegasus Park, De Kleetlaan 12a, 1831 Diegem, Belgium, Tel: (32) 2 663 0600, Fax: (32) 2 663 0640
Asia Pacific: Rockwell Automation, Level 14, Core F, Cyberport 3, 100 Cyberport Road, Hong Kong, Tel: (852) 2887 4788, Fax: (852) 2508 1846

Publication 2198-IN011B-EN-P - March 2019

Supersedes Publication 2198-IN011A-EN-P - March 2015