

Kinetix 5500 Capacitor Module

Catalog Number 2198-CAPMOD-1300

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About the Kinetix 5500 Capacitor Module

The Kinetix 5500 capacitor module provides 1360 μF capacitance for applications where the Kinetix 5500 internal shunt module capacity is exceeded. The capacitor module can be used alone or in combination with a Bulletin 2097 external shunt module for applications with excessive regenerative energy.

The Kinetix 5500 capacitor module is an option for Bulletin 2198 servo drive configurations with 200V or 400V-class operation.

IMPORTANT

Use the 2198-CAPMOD-1300 capacitor module in Kinetix 5500 drive configurations where DC bus power is shared through the shared-bus connection system. You cannot use the capacitor module in configurations where only AC input power is shared.

Refer to the Kinetix 5500 Servo Drives User Manual, publication [2198-UM001](#), for detailed information on wiring, applying power, troubleshooting, and integration with ControlLogix® or CompactLogix™ controllers.

Important User Information

Solid state equipment has operational characteristics differing from those of electromechanical equipment. Safety Guidelines for the Application, Installation and Maintenance of Solid State Controls (Publication [SGI-1.1](#) available from your local Rockwell Automation sales office or online at <http://www.rockwellautomation.com/literature/>) describes some important differences between solid state equipment and hard-wired electromechanical devices. Because of this difference, and also because of the wide variety of uses for solid state equipment, all persons responsible for applying this equipment must satisfy themselves that each intended application of this equipment is acceptable.





In no event will Rockwell Automation, Inc. be responsible or liable for indirect or consequential damages resulting from the use or application of this equipment.

The examples and diagrams in this manual are included solely for illustrative purposes. Because of the many variables and requirements associated with any particular installation, Rockwell Automation, Inc. cannot assume responsibility or liability for actual use based on the examples and diagrams.

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Throughout this manual, when necessary, we use notes to make you aware of safety considerations.

	WARNING: Identifies information about practices or circumstances that can cause an explosion in a hazardous environment, which may lead to personal injury or death, property damage, or economic loss.
	ATTENTION: Identifies information about practices or circumstances that can lead to personal injury or death, property damage, or economic loss. Attentions help you identify a hazard, avoid a hazard and recognize the consequences.
	SHOCK HAZARD: Labels may be on or inside the equipment, for example, drive or motor, to alert people that dangerous voltage may be present.
	BURN HAZARD: Labels may be on or inside the equipment, for example, drive or motor, to alert people that surfaces may reach dangerous temperatures.
IMPORTANT	Identifies information that is critical for successful application and understanding of the product.

Before You Begin

Remove all packing material, wedges, and braces from within and around the components. After unpacking, check the item nameplate catalog number against the purchase order.

The Kinetix 5500 servo drives are shipped with the following:

- Wiring plug for the module status (MS) connector
- These installation instructions, publication 2198-IN004

Install the Kinetix 5500 Capacitor Module

These procedures assume that you have prepared your panel, mounted your Kinetix 5500 servo drives, and understand how to bond your system. For installation instructions regarding equipment and accessories not included here, refer to the instructions that came with those products.



SHOCK HAZARD: To avoid the hazard of electrical shock, perform all mounting and wiring of the Kinetix 5500 drive modules prior to applying power. Once power is applied, connector terminals may have voltage present even when not in use.

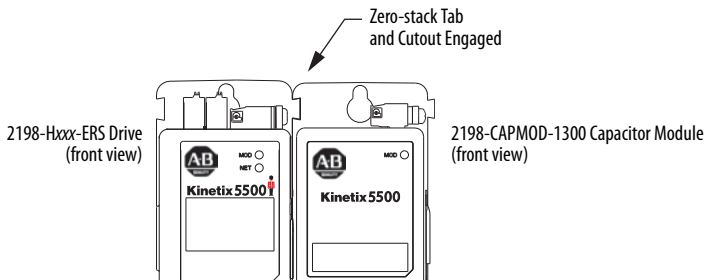


ATTENTION: Plan the installation of your system so that you can perform all cutting, drilling, tapping, and welding with the system removed from the enclosure. Because the system is of open type construction, be careful to keep any metal debris from falling into it. Metal debris or other foreign matter can become lodged in the circuitry, which can result in damage to components.

Zero-stack Tab and Cutout

Engaging the zero-stack tab and cutout from drive-to-drive is required for shared-bus drive systems and includes the Bulletin 2198 capacitor module. This is done to make sure the drive connectors are spaced properly to accept the shared-bus connection system.

Figure 1 - Zero-stack Tab and Cutout Example



Mount the Capacitor Module

Clearance requirements for the Kinetix 5500 capacitor module are identical to the drive modules. Refer to the Kinetix 5500 Servo Drives User Manual, publication [2198-UM001](#), for additional mounting information.

You can mount the capacitor modules to the right of any frame size, but are always rightmost in any drive configuration.

IMPORTANT Mount drives in descending order, left to right, according to frame size with capacitor modules always mounted on the far right.
The shared-bus connection system is required for capacitor module installations.

Figure 2 - Kinetix 5500 Drive System Example with Capacitor Module

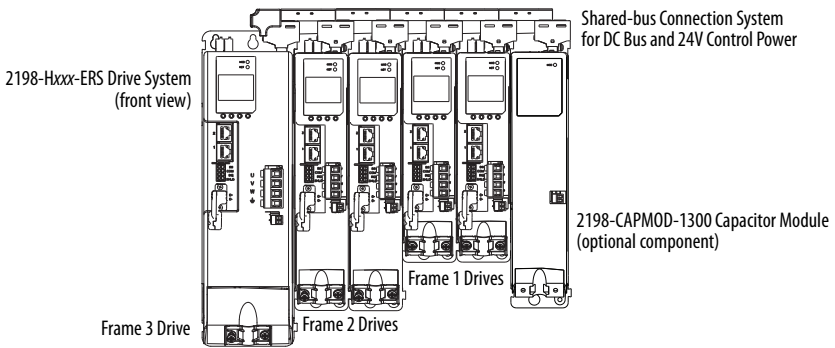


Table 1 - Capacitor Module Support

Drive Cat. No.	Frame Size	Standalone Single Phase Operation	Three-phase Operation			
			Standalone	Shared DC	Shared AC/DC	Shared AC/DC Hybrid
Number of capacitor modules connected, max						
2198-H003-ERS ⁽¹⁾	1	0	0		2	
2198-H008-ERS ⁽¹⁾			1		4	
2198-H015-ERS ⁽¹⁾			3			
2198-H025-ERS	2	N/A	3		4	
2198-H040-ERS			4			
2198-H070-ERS	3		4			

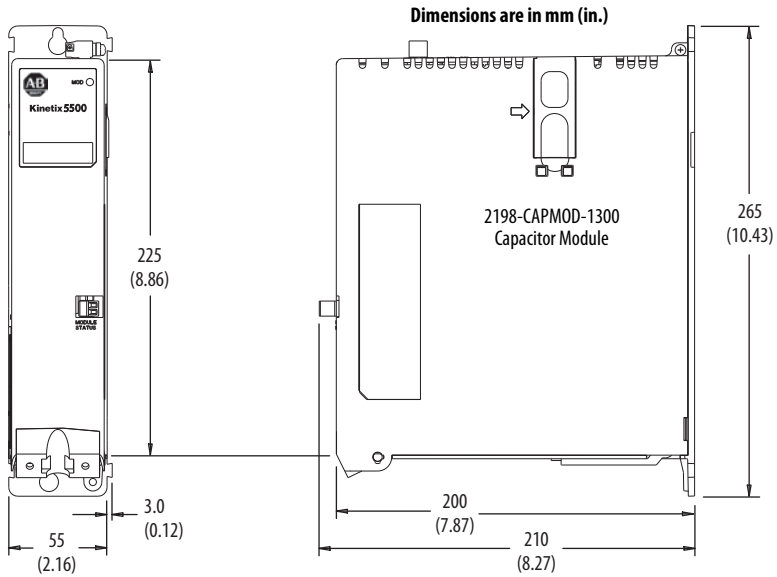
(1) Catalog number 2198-H003-ERS and any drive in standalone single-phase operation is not compatible with the Kinetix 5500 capacitor module.

The recommended mounting hardware is M4 (#8-32) steel bolts. Apply 2.0 N•m (17.7 lb•in) maximum torque to each fastener.

Product Dimensions

Capacitor modules have the same dimensions and drill pattern as frame 2 drives.

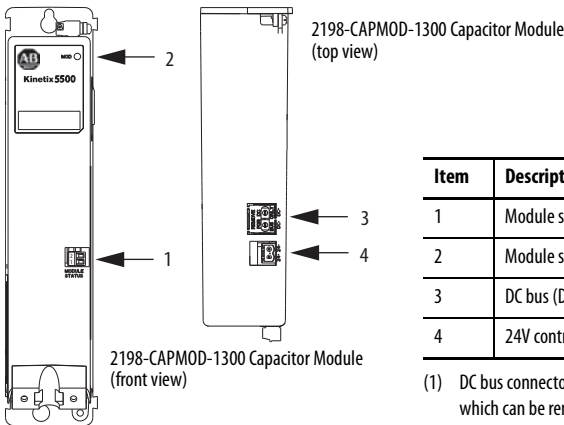
Figure 3 - Capacitor Module Dimensions



Connector Data

The Kinetix 5500 capacitor module is compatible with all 200V and 400V-class drive systems.

Figure 4 - Capacitor Module Features and Indicators



Item	Description
1	Module status (MS) connector
2	Module status indicator
3	DC bus (DC) connector (under cover) ⁽¹⁾
4	24V control input power (CP) connector

(1) DC bus connector ships with protective knock-out cover, which can be removed for use in shared-bus configurations.

Table 2 - DC Bus (DC) Connector Pinout

DC Pin	Description	Signal
1	DC bus connections	DC-
2		DC+

Table 3 - Control Input Power (CP) Connector Pinout

CP Pin	Description	Signal
1	24V power supply, customer-supplied	24V+
2	24V common	24V-

Table 4 - Module Status (MS) Connector Pinout

MS Pin	Description	Signal
1	Module status relay output +	RELAY+
2	Module status relay output -	RELAY-

Wiring Requirements

IMPORTANT The National Electrical Code and local electrical codes take precedence over the values and methods provided.

Table 5 - Capacitor Module Wiring Requirements

Connector Description	Pin	Signal	Recommended Wire Size mm ² (AWG)	Strip Length mm (in.)	Torque Value N·m (lb·in)
Module Status indicator	MS-1 MS-2	RELAY+ RELAY-	0.14...1.5 (28...16)	7.0 (0.28)	0.22...0.25 (1.9...2.2)
PELV/SELV 24V power	CP-1 CP-2	24V+ 24V-	N/A ⁽¹⁾	N/A ⁽¹⁾	N/A ⁽¹⁾
DC bus power	DC-1 DC-2	DC- DC+	N/A ⁽¹⁾	N/A ⁽¹⁾	N/A ⁽¹⁾

(1) 24V control power and DC bus connections are always made from drive-to-drive over the shared-bus connection system. These terminals do not receive discrete wires.



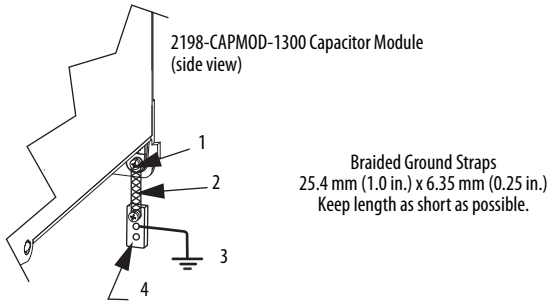
ATTENTION: To avoid personal injury and/or equipment damage, observe the following:

- Make sure installation complies with specifications regarding wire types, conductor sizes, branch circuit protection, and disconnect devices. The National Electrical Code (NEC) and local codes outline provisions for safely installing electrical equipment.
- Use power connectors for connection purposes only. Do not use them to turn the unit on and off.
- Ground shielded power cables to prevent potentially high voltages on the shield.

Ground Your Capacitor Module to the Subpanel

Ground Bulletin 2198 drives and 2198-CAPMOD-1300 capacitor modules to a bonded cabinet ground bus with a braided ground strap or 4.0 mm² (12 AWG) copper wire.

Figure 5 - Connecting the Braided Ground Strap



Item	Description
1	Ground screw (green) 2.0 N•m (17.5 lb-in), max
2	Braided ground strap (customer supplied)
3	Ground grid or power distribution ground
4	Bonded cabinet ground bus (customer supplied)

Additional Resources

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

Resource	Description
Kinetix 5500 Servo Drives User Manual, publication 2198-UM001	Provides information on installing, configuring, start up, and troubleshooting your Kinetix 5500 servo drive system.
Kinetix 300 Shunt Resistor Installation Instructions, publication 2097-IN002	Provides information on installing and wiring Kinetix 300 external shunt resistors.
Industrial Automation Wiring and Grounding Guidelines, publication 1770-4.1	Provides general guidelines for installing a Rockwell Automation industrial system.
Product Certifications website, http://www.ab.com	Provides declarations of conformity, certificates, and other certification details.

You can view or download publications at <http://www.rockwellautomation.com/literature>. To order paper copies of technical documentation, contact your local Allen-Bradley distributor or Rockwell Automation sales representative.

Rockwell Automation Support

Rockwell Automation provides technical information on the Web to assist you in using its products.

At <http://www.rockwellautomation.com/support>, you can find technical manuals, technical and application notes, sample code and links to software service packs, and a MySupport feature that you can customize to make the best use of these tools. You can also visit our Knowledgebase at <http://www.rockwellautomation.com/knowledgebase> for FAQs, technical information, support chat and forums, software updates, and to sign up for product notification updates.

For an additional level of technical phone support for installation, configuration and troubleshooting, we offer TechConnectSM support programs. For more information, contact your local distributor or Rockwell Automation representative, or visit <http://www.rockwellautomation.com/support/>.

Installation Assistance

If you experience a problem within the first 24 hours of installation, please review the information that's contained in this manual. You can also contact a special Customer Support number for initial help in getting your product up and running.

United States or Canada	1.440.646.3434
Outside United States or Canada	Use the Worldwide Locator at http://www.rockwellautomation.com/support/americas/phone_en.html , or contact your local Rockwell Automation representative.

New Product Satisfaction Return

Rockwell Automation tests all of its products to ensure that they are fully operational when shipped from the manufacturing facility. However, if your product is not functioning and needs to be returned, follow these procedures.

United States	Contact your distributor. You must provide a Customer Support case number (call the phone number above to obtain one) to your distributor to complete the return process.
Outside United States	Please contact your local Rockwell Automation representative for the return procedure.

Documentation Feedback

Your comments will help us serve your documentation needs better. If you have any suggestions on how to improve this document, complete this form, publication [RA-DU002](#), available at <http://www.rockwellautomation.com/literature/>.

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