

Kinetix 5000 AC Line Filters

Catalog Numbers 2198-DB08-F, 2198-DB20-F, 2198-DB42-F, 2198-DB80-F, 2198-DB290-F

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About the AC Line Filters

This publication provides wiring and installation instructions for the AC line filters used with the Kinetix® 5000 servo drive families. For more information on installing and wiring your Kinetix 5500 or Kinetix 5700 servo drive, refer to the drive-family user manual listed in Additional Resources on [page 8](#).

Important User Information

Read this document and the documents listed in the additional resources section about installation, configuration, and operation of this equipment before you install, configure, operate, or maintain this product. Users are required to familiarize themselves with installation and wiring instructions in addition to requirements of all applicable codes, laws, and standards.

Activities including installation, adjustments, putting into service, use, assembly, disassembly, and maintenance are required to be carried out by suitably trained personnel in accordance with applicable code of practice.

If this equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

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.

No patent liability is assumed by Rockwell Automation, Inc. with respect to use of information, circuits, equipment, or software described in this manual.

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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 consequence.

IMPORTANT

Identifies information that is critical for successful application and understanding of the product.

Labels may also be on or inside the equipment to provide specific precautions.



SHOCK HAZARD: Labels may be on or inside the equipment, for example, a drive or motor, to alert people that dangerous voltage may be present.



BURN HAZARD: Labels may be on or inside the equipment, for example, a drive or motor, to alert people that surfaces may reach dangerous temperatures.



ARC FLASH HAZARD: Labels may be on or inside the equipment, for example, a motor control center, to alert people to potential Arc Flash. Arc Flash will cause severe injury or death. Wear proper Personal Protective Equipment (PPE). Follow ALL Regulatory requirements for safe work practices and for Personal Protective Equipment (PPE).

Before You Begin

For general guidelines when laying out your panel and mounting your AC line filter, refer to the System Design for Control of Electrical Noise Reference Manual, publication [GMC-RM001](#).

For guidelines specific to your application, refer to your drive-family user manual listed in Additional Resources on [page 8](#).



ATTENTION: To avoid personal injury or damage to equipment due to hazardous voltages, follow these guidelines when installing your AC line filter. NEC and local regulations always take precedence:

- Disconnect mains power before installation.
- Verify that the rated voltage is compatible with the local supply voltage.
- Connect the earth ground connection first.

Install the AC Line Filter

Mount the line filter to the cabinet panel with hardware as specified in the table below.

AC Line Filter Cat. No.	Mounting Bolts	Torque Value N·m (lb·in)
2198-DB08-F	M5 (#10-32)	2.0 (17.7)
2198-DB20-F		
2198-DB42-F	M6 (1/4x20)	4.5 (39.8)
2198-DB80-F		
2198-DB290-F	M10 (3/8x16)	30 (266)

See the System Design for Control of Electrical Noise Reference Manual, publication [GMC-RM001](#), for proper high-frequency (HF) bonding techniques to improve overall system performance.

Wire the AC Line Filter

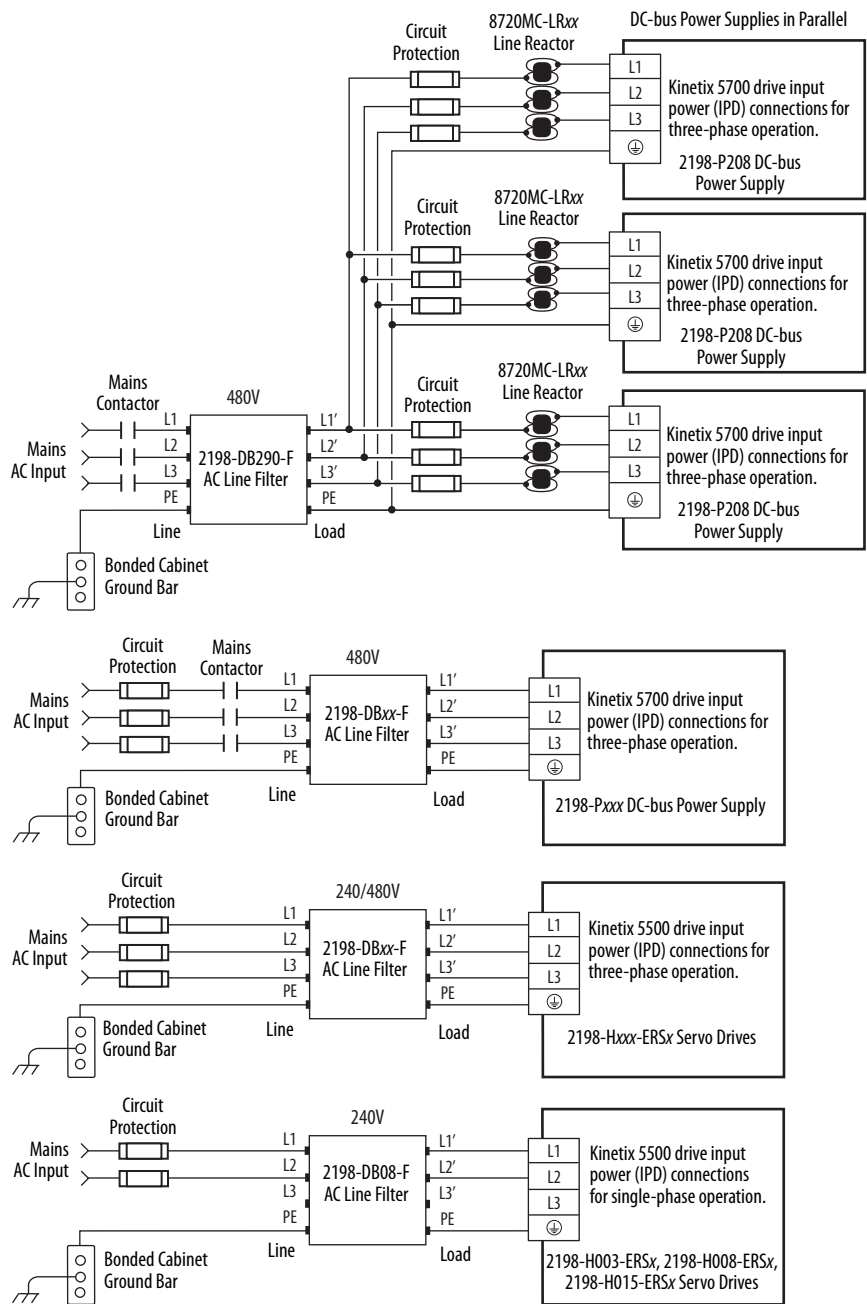
Wire must be copper with 75 °C (167 °F) minimum rating. Phasing of main AC power is arbitrary and earth ground connection is required to improve safety and proper operation.

IMPORTANT

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

When wiring the line filter for single-phase operation (Kinetix 5500 drives only), do not make connections to the L3 terminals. Line and load designations must be observed to meet product specifications.

AC Line Filter Wiring Examples



AC Line Filter Wiring Specifications

Kinetix Drive Cat. No.	AC Line Filter Cat. No.	Signal	Recommended ⁽¹⁾ Wire Size mm ² , AWG	AC Line Filter Strip Length mm (in.)	Terminal Torque Values N·m (lb·in)
2198-H003-ERSx	2198-DB08-F ⁽²⁾	L1, L1' L2, L2' L3, L3'	1.5...6 (16...10)	7.5 (0.30)	0.8 (7.1)
2198-H008-ERSx					
2198-H015-ERSx					
2198-H025-ERSx	2198-DB20-F		1.5...10 (16...8)	9.0 (0.35)	2.0 (17.7)
2198-H040-ERSx					
2198-P031				12.0 (0.47)	
2198-H070-ERSx	2198-DB42-F				
2198-P070					
2198-P141 2198-P208	2198-DB80-F		2.5...35 (14...0)	18.0 (0.71)	5.0 (44.3)
2198-P208 (2 or 3 in parallel)	2198-DB290-F		Bus-bar ⁽³⁾	N/A	30 (266)

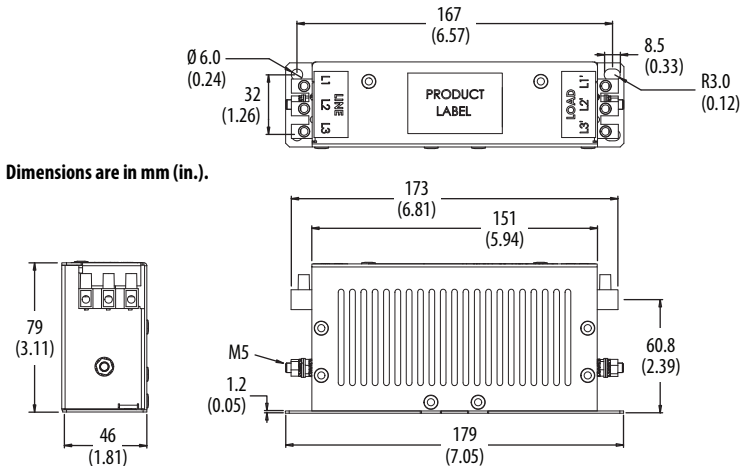
(1) The actual gauge of the input power wiring depends on the system configuration. Consult your machine builder, the NEC, and applicable local codes.

(2) Applies to installations with single-phase or three-phase input power.

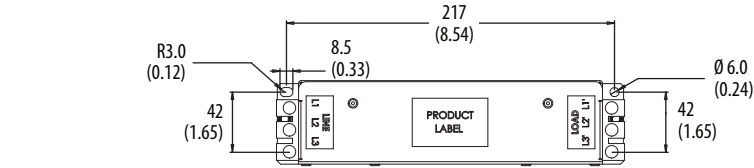
(3) Apply crimp eyelet terminals to lug connections using the supplier-recommended tooling.

AC Line Filter Dimensions

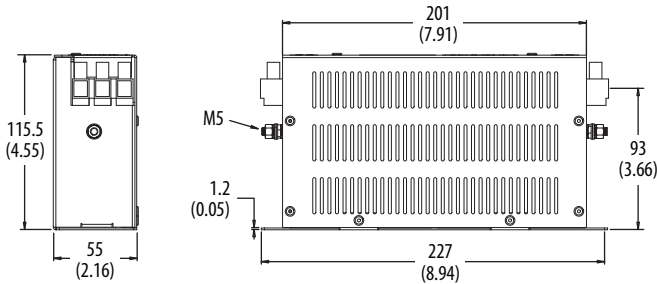
AC Line Filter Dimensions (catalog number 2198-DB08-F)



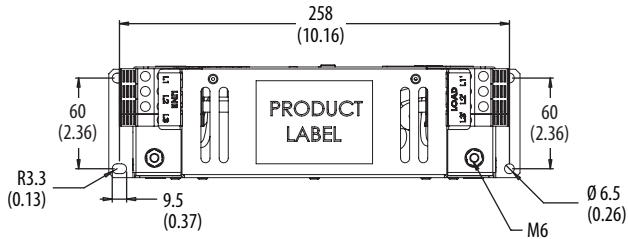
AC Line Filter Dimensions (catalog number 2198-DB20-F)



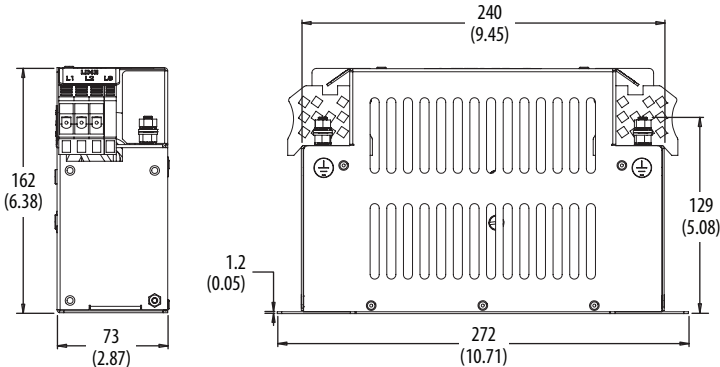
Dimensions are in mm (in.).



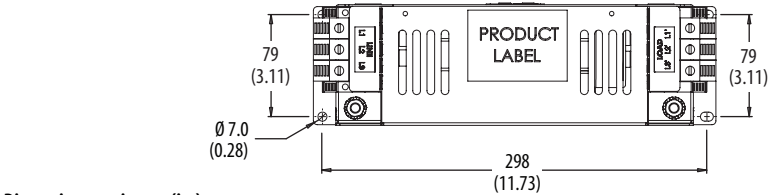
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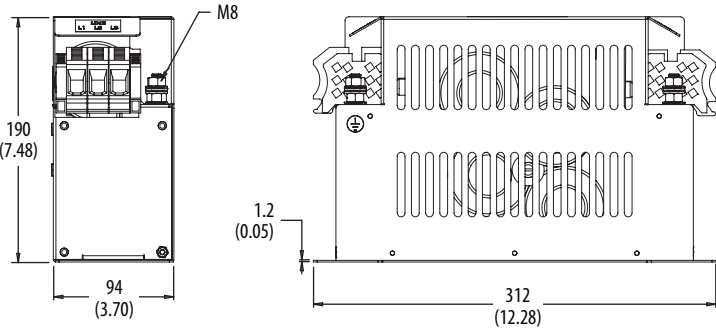
Dimensions are in mm (in.).



AC Line Filter Dimensions (catalog number 2198-DB80-F)

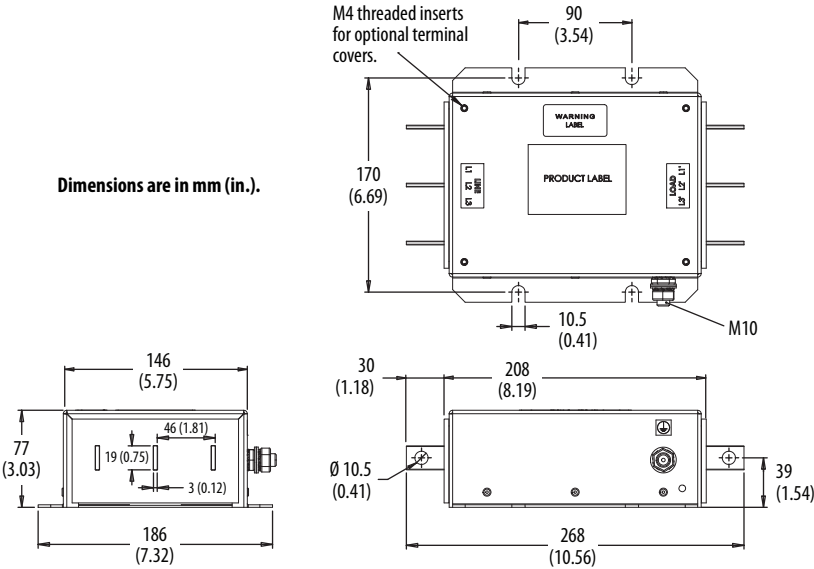


Dimensions are in mm (in.).



AC Line Filter Dimensions (catalog number 2198-DB290-F)

Dimensions are in mm (in.).



AC Line Filter Specifications

AC Line Filter Cat. No.	Voltage Rating	Current Rating A @ 50 °C (122 °F)	Power Loss @ Rated Current W	Leakage Current, typ mA	Weight, approx kg (lb)	Operating Temperature
2198-DB08-F	480V AC ⁽¹⁾ three-phase 50/60 Hz	7.5	3.6	2.5	0.77 (1.70)	0...50 °C (32...122 °F)
2198-DB20-F		20	5.1	5.2	1.63 (3.59)	
2198-DB42-F		42	14.7	4.0	2.70 (5.95)	
2198-DB80-F		80	18.3	13.0	3.95 (8.71)	
2198-DB290-F		290	32.7	19.4	4.20 (9.26)	

(1) Tolerance for this value is +10%.

Additional Resources

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

Resource	Description
Kinetix 5700 Servo Drives User Manual, publication 2198-UM002	Information on installing, configuring, starting, and troubleshooting your Kinetix 5700 servo drive system.
Kinetix 5500 Servo Drives User Manual, publication 2198-UM001	Information on installing, configuring, starting, and troubleshooting your Kinetix 5500 servo drive system.
System Design for Control of Electrical Noise Reference Manual, publication GMC-RM001	Information, examples, and techniques designed to minimize system failures caused by electrical noise.
EMC Noise Management DVD, publication GMC-SP004	
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 maintains current product environmental information on its website at <http://www.rockwellautomation.com/rockwellautomation/about-us/sustainability-ethics/product-environmental-compliance.page>.

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