



Miniature Circuit Breakers in DC Applications

Bulletins 1489-M, 1492-SPM, and 1492-D

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Summary of Changes

This publication contains the following new or updated information. This list includes substantive updates only and is not intended to reflect all changes.

Topic	Page
Updated diagram within table for 1489-M1, 1-pole for Supply from the Top and DC clarification.	3
Updated diagram within table for 1492-SPM1, 1-pole for Supply from the Top and DC clarification.	4
Updated diagram within table for 1492-D, 1-pole for Supply from the Top and DC clarification.	5

1489-M Thermal-magnetic Miniature Circuit Breakers

1489-M miniature circuit breakers (MCBs) can be used in the 1-pole version up to 48V DC and the 2-pole version with series connection of the two poles up to 96V DC. If voltages to earth exceeding 48V DC occur, see the 2-pole version of Bulletin 1489-M for 1-pole disconnection. During the installation process, polarity does not need to be considered. The outgoing circuit can be implemented from above or below the device. For voltage exceeding 48V DC up to 96V DC, series connection of two poles is required.

Example of Permissible Voltages between the Conductors - depending upon the number of poles and circuit layout

Description		1489-M1, 1-pole	1489-M2, 2-pole	1489-M2, 2-pole	1489-M2, 2-pole
Voltage Between Conductors	U_n	48V DC	96V DC	96V DC	96V DC
Voltages between Conductor and Earth	U_n	48V DC	48V DC	96V DC	48V DC
Supply from the Bottom					

1492-SPM Supplementary Protectors

The 1492-SPM Supplementary Protectors can be used in the 1-pole version up to 48 DC and in the 2-pole version with series connection of the two poles up to 96V DC. If voltage to earth exceeding 48V DC occur, use the 2-pole version of the 1492-SPM for 1-pole disconnection. During the installation process, polarity does not need to be considered. Implement the outgoing circuit from above or below the device. For voltage exceeding 48V DC up to 96V DC, series connection of two poles is required.

Example of Permissible Voltages between the Conductors - depending upon the number of poles and circuit layout

Description		1492-SPM1, 1-pole	1492-SPM2, 2-pole	1492-SPM2, 2-pole	1492-SPM2, 2-pole
Voltage between Conductors	U_n	48V DC	96V DC	96V DC	96V DC
Voltages between Conductor and Earth	U_n	48V DC	48V DC	96V DC	48V DC
Supply from the Bottom					

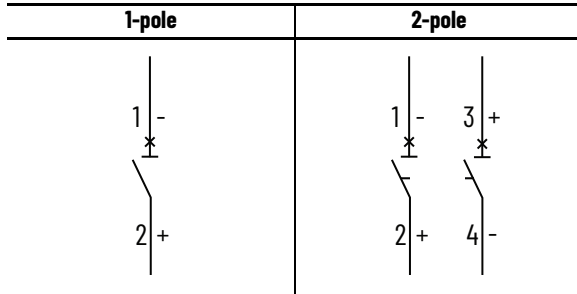
1492-D DC High Voltage MCBs

In UL and CSA Applications: The 1492-D MCB products can be used up to 250V DC in the 1-pole version and up to 500V DC in the 2-pole version when both poles are wired in series to switch a one pole DC load.

In IEC Applications: The 1492-D1 MCB products can be used up to 220V DC in the 1-pole version and up to 440V DC in the 2-pole version when wired in a series to switch a one pole DC load.

IMPORTANT Unlike the 1492-SPM, the 1492-D MCB is supplied with permanent magnets that help extinguish the arch. It is necessary to take the polarity of the 1492-D MCB and the supplied power into account during the installation process. Incorrect polarities can damage the 1492-D MCB. See the wiring diagrams below.

Polarity of 1492-D MCB



Examples of Supply Voltages and Wiring Diagram

Description	Application	1492-D 1-pole	1492-D 2-pole	1492-D 2-pole	1492-D 2-pole
Supply Voltage L+ to L-	UL/CSA	250V DC	500V DC	500V DC	500V DC
	IEC	220V DC	440V DC	440V DC	440V DC
Voltage L+ to Ground L- to Ground	UL/CSA	250V DC	250V DC	500V DC	250V DC
	IEC	220V DC	220V DC	440V DC	220V DC
Voltage Supplied from Below					
Voltage Supplied from Above					

Note No.	Information
1	The negative pole is grounded in the circuit
2	The position pole is grounded in the circuit



If voltages to earth ground exceed 250V DC (UL/CSA) or 220V DC (IEC), a 2-pole 1492-D must be used for 1-pole disconnection.

Examples for Symmetrical and Unsymmetrical Voltage Supplies - 1492-D2 2-Pole

Description		
Supply Voltage L+ to L-	500V DC All-pole Disconnection	500V DC 1-pole Disconnection
Voltage L+ to Ground, L- to Ground	250V DC Symmetrically Grounded	500V DC Unsymmetrically Grounded
Circuit Diagram Examples		

Additional Resources

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

Resource	Description
Control Circuit and Load Protection Selection Guide, publication 1492-SG122	Provides selection information and specifications for Bulletin 188, 1489, 1492, 1694 devices.
Molded Case Circuit Breaker Selectivity Guide, publication 140G-TD050	Aids in selecting circuit breaker pairs for line and load side protection.
Short-circuit Current Ratings and Your Industrial Control Panel, publication SCCR-AT002	Provides examples for short-circuit current ratings of panels based on the methods stated in UL 508A Supplement B.
UL Standards Listing for Industrial Control Products, publication CMPNTS-SR002	Assists original equipment manufacturers (OEMs) with construction of panels, to help ensure that they conform to the requirements of Underwriters Laboratories.
American Standards, Configurations, and Ratings: Introduction to Motor Circuit Design, publication IC-AT001	Provides an overview of American motor circuit design based on methods that are outlined in the NEC.
Industrial Components Preventive Maintenance, Enclosures, and Contact Ratings Specifications, publication IC-TD002	Provides a quick reference tool for Allen-Bradley industrial automation controls and assemblies.
Safety Guidelines for the Application, Installation, and Maintenance of Solid-state Control, publication SGI-1.1	Designed to harmonize with NEMA Standards Publication No. ICS 1.1-1987 and provides general guidelines for the application, installation, and maintenance of solid-state control in the form of individual devices or packaged assemblies incorporating solid-state components.
Industrial Automation Wiring and Grounding Guidelines, publication 1770-4.1	Provides general guidelines for installing a Rockwell Automation industrial system.
Global Short-circuit Rating Tool, rok.auto/sccr	Provides coordinated high-fault branch circuit solutions for motor starters, soft starters, and component drives.
Product Certifications website, rok.auto/certifications .	Provides declarations of conformity, certificates, and other certification details.

You can view or download publications at [rok.auto/literature](#).

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