Instruction Manual **IM01005020E Rev 4**
Effective October 2018
Supersedes 6/2015

Installation Instructions for Eaton Surge Protective Device XXCFXXX10-DIN and XXCFXXX10-DIN2

XXCFXXX10-DIN

XXCFXXX10-DIN2

Contents

Powering Business Worldwide

⚠ WARNING

HAZARDOUS VOLTAGES PRESENT

IMPROPER INSTALLATION OR MISAPPLICATION OF THESE DEVICES MAY RESULT IN SERIOUS INJURY TO INSTALLER AND/OR DAMAGE TO ELECTRICAL SYSTEM OR RELATED EQUIPMENT. READ AND UNDERSTAND ALL INSTRUCTIONS BEFORE BEGINNING INSTALLATION. PROTECTIVE EYEWEAR SHOULD BE WORN WHENEVER WORKING AROUND HAZARDOUS VOLTAGES. THIS DEVICE CONTAINS NO SERVICEABLE PARTS.

NOTICE

ALL INSTRUCTIONS AND MEASUREMENTS MUST BE COMPLETED BY A LICENSED/QUALIFIED ELECTRICIAN IN ACCORDANCE WITH THE U.S. NATIONAL ELECTRICAL CODE, STATE AND LOCAL CODES OR OTHER APPLICABLE COUNTRY CODES. THE U.S. NATIONAL ELECTRICAL CODE AND STATE AND LOCAL REQUIREMENTS (OR OTHER APPLICABLE COUNTRY CODES) SUPERSEDE THIS INSTRUCTION.

Catalog Number	Voltage Range	Protection Modes	VPR	MCOV	In	SCCR	Peak Surge Current Phase
XXCF02410-DIN[1]	5 - 38 Vdc	L-N L-G N-G	N/A	N/A	N/A	N/A	8kA
XXCF04810-DIN[1]	24 - 65 Vdc	L-N L-G N-G	N/A	N/A	N/A	N/A	26kA
XXCF12010-DIN[2]	48 - 149 Vdc[1] 100 - 127 Vac	L-N L-G N-G	500 500 500	150 150 150	3kA	10kA	40kA

Catalog Number	Voltage Range	Protection Modes	VPR	MCOV	In	SCCR	Peak Surge Current Phase
XXCF12010-DIN2[3]	48 - 149 Vdc[1] 100 - 127 Vac	L-N L-G N-G	560 560 560	127 127 127	3kA	N/A	30kA
XXCF24010-DIN2[3]	150 - 300 Vdc[1] 200 - 240 Vac	L-N L-G N-G	980 990 960	254 254 254	3kA	N/A	30kA

[1] UL 1449 4th Edition does not list SPD products rated less than 110 Vac or DC voltages.
[2] UL 1449 4th Edition, UL 1283 7th Edition
[3] UL 1449 4th Edition, IEC61000 - 4.5

1.0 Setup

Verify that system voltages do not exceed those listed in Section 1.5, Specifications.

- All AC measurements should be completed with an RMS voltmeter.
- All DC measurements should be completed with a DC voltmeter.
- **DO NOT INSTALL THE SURGE PROTECTIVE DEVICE IF MEASURED VOLTAGE EXCEEDS MAXIMUM OPERATING LIMITS.**

Choose location for the Surge Protective Device installation so that maximum separation can be maintained between input leads, output leads and ground leads.

1.1 Before Installation

REMOVE POWER FROM ELECTRICAL SYSTEM BEFORE MOUNTING THE SURGE PROTECTIVE DEVICE.

- The Surge Protective Device MUST be mounted within an enclosure to assure personnel safety from exposed terminals.

IMPORTANT

THE SURGE PROTECTIVE DEVICE SHOULD BE LOCATED SO THAT THE SHORTEST POSSIBLE CONDUCTOR LENGTH MAY BE USED. THE SURGE PROTECTIVE DEVICE SHOULD BE MOUNTED TO ALLOW MAXIMUM SEPARATION BETWEEN INPUT AND OUTPUT WIRING.

- The Surge Protective Device contains no position-oriented components and can be mounted upside down or sideways.
- The Surge Protective Device should be placed in electrical circuit so that it is the last device in the circuit before equipment to be protected.
- The Surge Protective Device may be installed in series with the load or, if the load current exceeds 15A, it may be installed in parallel.

1.2 Installation

THE SURGE PROTECTIVE DEVICE MUST BE CONNECTED TO ELECTRICAL SYSTEM WITH A CIRCUIT BREAKER

For AC Applications

- 1 - Single Pole / Single Throw 15A circuit breaker. The Interrupting Rating of the Circuit Breaker Shall Not Be Less Than the Available Fault Current. Circuit Breaker Ratings of 15A, 240V/415V, 10kA Min. AIC Rating.
- **Note:** Pre-existing breakers of the rated load size may be utilized if provisions for multi-conductor connections are made according to NEC 110-14A.
- If Neutral wire is to be utilized as L2, then a circuit breaker must be provided for that phase.

For DC Applications

- DC units to be installed after an overcurrent protective device that is rated not to exceed 100% of the current rating of the unit.

REMOVE POWER FROM ELECTRICAL SYSTEM BEFORE INSTALLING THE SURGE PROTECTIVE DEVICE.

Mechanically mount the Surge Protective Device.

- The Surge Protective Device should be mounted to allow maximum separation between input and output wiring.
- The Surge Protective Device contains no position-oriented components and can be mounted upside down or sideways.
- The Surge Protective Device should be placed in electrical circuit so that it is last device in circuit before equipment to be protected.

1.3 Wiring

NOTICE

AN INSULATED GROUNDING CONDUCTOR THAT IS IDENTICAL IN SIZE AND INSULATION MATERIAL AND THICKNESS TO THE GROUNDED AND UNGROUNDED CIRCUIT SUPPLY CONDUCTORS, EXCEPT THAT IT IS GREEN WITH OR WITHOUT ONE OR MORE YELLOW STRIPES, IS TO BE INSTALLED AS PART OF THE CIRCUIT THAT SUPPLIES THE FILTER. SEE TABLE 250-122 OF THE NATIONAL ELECTRIC CODE (NEC) REGARDING THE APPROPRIATE SIZE OF THE GROUNDING CONDUCTOR.

THE GROUNDING CONDUCTOR IS TO BE GROUNDED TO EARTH AT THE SERVICE EQUIPMENT OR OTHER ACCEPTABLE BUILDING EARTH GROUND SUCH AS THE BUILDING FRAME IN THE CASE OF HIGH-RISE STEEL FRAME STRUCTURE.

ANY ATTACHMENT-PLUG RECEPTACLES IN THE VICINITY OF THE SURGE PROTECTIVE DEVICE ARE TO BE GROUNDING TYPE, AND THE GROUNDING CONDUCTORS SERVING THESE RECEPTACLES ARE TO BE CONNECTED TO EARTH GROUND AT THE SERVICE EQUIPMENT OR OTHER ACCEPTABLE BUILDING EARTH GROUND SUCH AS THE BUILDING FRAME IN THE CASE OF HIGH-RISE STEEL FRAME STRUCTURE.

PRESSURE TERMINAL OR PRESSURE SPLICING CONNECTORS AND SOLDERING LUGS USED IN THE INSTALLATION OF THE SURGE PROTECTIVE DEVICE SHALL BE IDENTIFIED AS BEING SUITABLE FOR THE MATERIAL OF THE CONDUCTORS. CONDUCTORS OF DISSIMILAR METALS SHALL NOT BE INTERMIXED IN A TERMINAL OR SPLICING CONNECTOR WHERE PHYSICAL CONTACT OCCURS BETWEEN DISSIMILAR CONDUCTORS UNLESS THE DEVICE IS IDENTIFIED FOR THE PURPOSE AND CONDITIONS OF USE.

CONDUCTORS SHOULD BE TWISTED TOGETHER TO REDUCE IMPEDANCE FACTOR. EXCESSIVE WIRE LENGTH AND SHARP BENDS DEGRADE FILTER PERFORMANCE; THEREFORE, AVOID EXCESSIVE WIRE LENGTH AND SHARP BENDS.

1.3.1 Series Wiring Applications

- Connect incoming system **GROUND** wire to terminal labeled **G** on unprotected end (labeled as **LINE**).
- Connect load side **GROUND** wire to terminal labeled **G** on protected end (labeled as **EQUIP**).

For AC Applications (See **Figures 1** *and* **2***)*

- Connect incoming system **NEUTRAL** wire to terminal labeled **N** on unprotected end (labeled as **LINE**).
- Connect load side **NEUTRAL** wire to terminal labeled as **N** on protected end (labeled as **EQUIP**).
- Connect incoming system **HOT** wire to terminal labeled **L** on unprotected end (labeled as **LINE**).
- Connect load side **HOT** wire to terminal labeled as **L** on protected end (labeled as **EQUIP**).

For DC Applications (See **Figure 3***)*

- Connect incoming system **NEGATIVE** wire to terminal labeled **N** on unprotected end (labeled as **LINE**).
- Connect load side **NEGATIVE** wire to terminal labeled as **N** on protected end (labeled as **EQUIP**).
- Connect incoming system **POSITIVE** wire to terminal labeled **L** on unprotected end (labeled as **LINE**).
- Connect load side **POSITIVE** wire to terminal labeled as **L** on protected end (labeled as **EQUIP**).

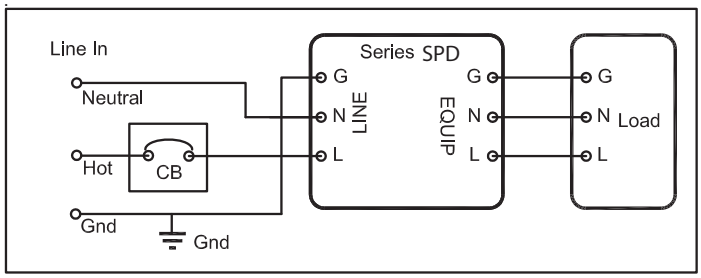

Figure 1. Single Phase Series AC Application

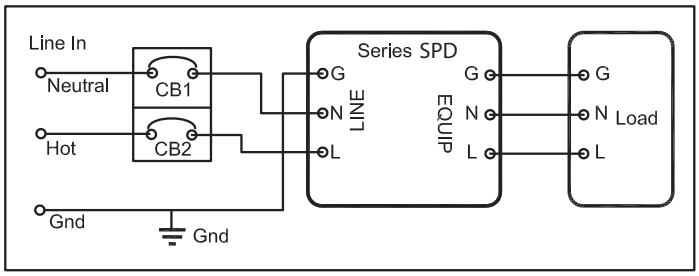

Figure 2. Split Phase Series AC Application (shown with Neutral utilized as L2)

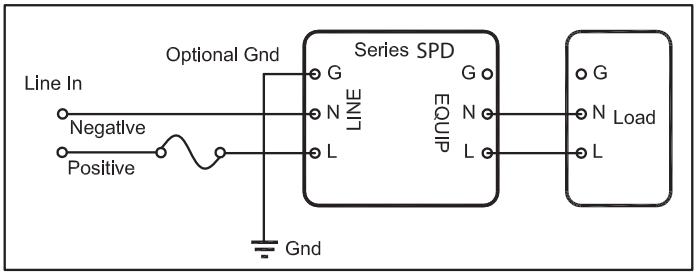

Figure 3. Series DC Application

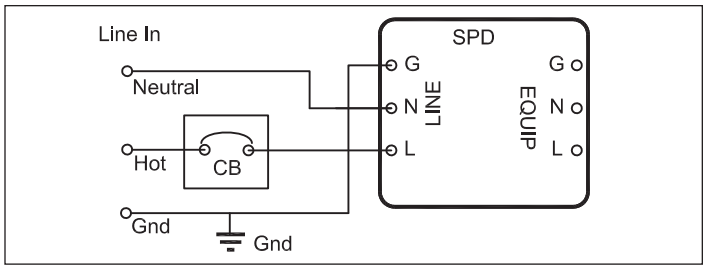

Figure 4. Single Phase Parallel AC Application

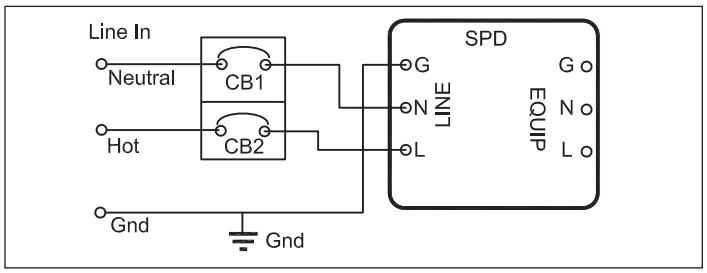

Figure 5. Split Phase Parallel AC Application (Shown with Neutral Utilized as L2)

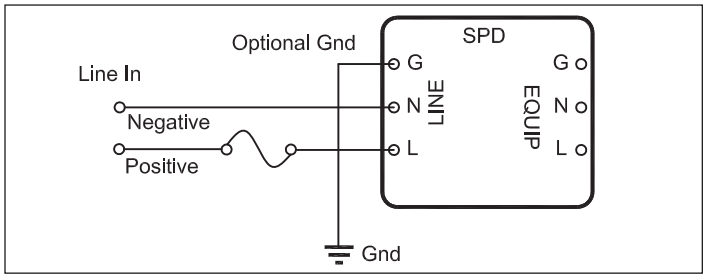

Figure 6. Parallel DC Application

1.3.2 Parallel Wiring Applications

- Connect incoming system **GROUND** wire to terminal labeled **G** on unprotected end (labeled as **LINE**).

For AC Applications

- Connect incoming system **NEUTRAL** wire to terminal labeled **N** on unprotected end (labeled as **LINE**).
- Connect incoming system **HOT** wire to terminal labeled **L** on unprotected end (labeled as **LINE**).
- This will install the SPD in parallel with the supply and it will not be subjected to any load current.

For DC Applications

- Connect incoming system **NEGATIVE** wire to terminal labeled **N** on unprotected end (labeled as **LINE**).
- Connect incoming system **POSITIVE** wire to terminal labeled **L** on unprotected end (labeled as **LINE**).
- This will install the SPD in parallel with the supply and it will not be subjected to any load current.

Note: For ungrounded or isolated control transformer secondary, DO NOT CONNECT Ground terminal on either LINE or EQUIP side.

1.3.3 Wiring Note

Note: A circuit breaker or fuse must be inserted in the LINE input side of the incoming supply. Rating will be according to the required load current and applies to Series connections only.

1.4 Apply Power

Apply power to system. Indicator light should glow. If light does not glow, remove power and contact supplier

1.5 Specifications

Description	Ratings
Catalog Number XXCFXXX10-DIN2	Agency Approvals UL1449 4th Edition, IEC61000 - 4.5
Terminal Wire Gauge Range	30 – 12 AWG
Terminal Screw Torque	12 in-lb
Operating Temperature	-40F(-40C) to +140F(+60C)
System voltages DC AC	 5 - 38 Vdc, 24 - 65 Vdc, 48 - 149 Vdc, 150 - 300 Vdc 100 - 127 Vac, 200 - 240 Vac
Amps*	10A
Circuit Breaker	15A, 240V/415V, 10kA Min. AIC Rating
Input Power Frequency	50/60 Hz
Warranty	5 Years, 10 Years if registered on www.eaton.com/spd
RoHS Compliant	Yes

* Amp rating is for series connection only. Parallel connection is not current dependent.

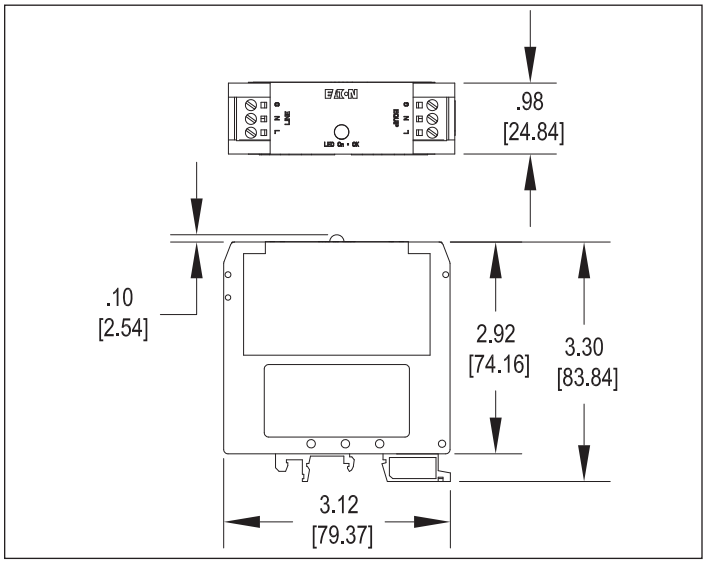

Figure 7. XXCFXXX10-DIN Product Dimensions

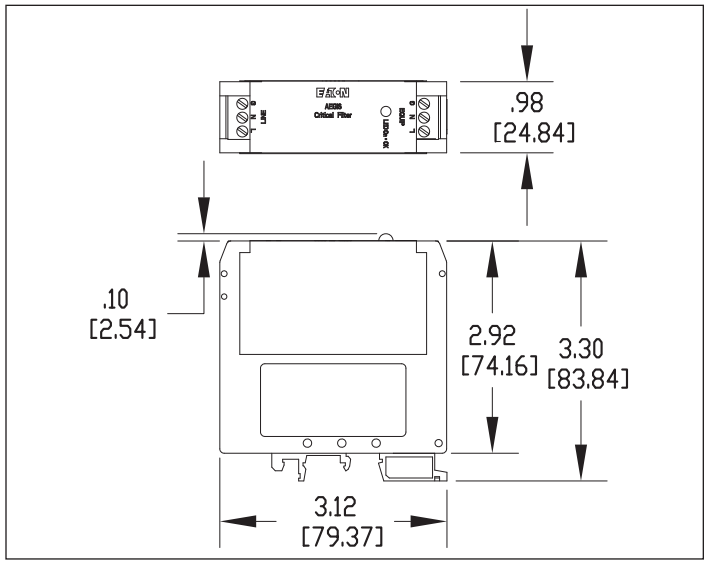

Figure 8. XXCFXXX10-DIN2 Product Dimensions

1.6 Warnings

⚠ WARNING

ALL DEVICES LISTED IN THIS MANUAL CONTAIN NO SERVICEABLE PARTS.

⚠ WARNING

XXCFXXX10-DIN2 DEVICES ARE SUITABLE FOR USE IN CLASS I, DIVISION 2 GROUPS A, B, C AND D OR NON-HAZARDOUS LOCATIONS ONLY.

⚠ WARNING

EXPLOSION HAZARD

DO NOT DISCONNECT EQUIPMENT UNLESS POWER HAS BEEN SWITCHED OFF OR THE AREA IS KNOWN TO BE NON-HAZARDOUS.

1.7 Warranty

Eaton warrants these products for a period of 5 years from the date of delivery to the purchaser, 10 years if registered on www.eaton.com/spd, to be free from defects in both workmanship and materials. Eaton assumes no risk or liability for results of the use of the products purchased from it, including but without limiting the generality of the foregoing; (1) The use in combination with any electrical or electronic components, circuits, systems, assemblies, or any other materials or substances; (2) Unsuitability of any product for use in any circuit or assembly.

Purchaser's right under the warranty shall consist solely of requiring Eaton to repair, or at Eaton's sole discretion, replace, free of charge, F.O.B. factory, and defective items received at said factory or failure to give any advice or recommendations by Eaton shall not constitute any warranty by or impose any liability upon Eaton. The foregoing constitutes the sole and exclusive liability of Eaton AND IS IN LIEU OF ANY AND ALL OTHER WARRANTIES EXPRESSED, IMPLIED OR STATUTORY AS TO THE MERCHANTABILITY, FITNESS FOR PURPOSE SOLD, DESCRIPTION, QUALITY, PRODUCTIVENESS OR ANY OTHER MATTER.

In no event shall Eaton be liable for special or consequential damages or for delay in performance of the warranty.

This warranty does not apply if the product has been misused, abused, altered, tampered with, or used in applications other than specified on the nameplate. At the end of the warranty period, Eaton shall be under no further warranty obligation expressed or implied.

The product covered by this warranty certificate can only be repaired or replaced by the factory. For help on troubleshooting the Critical Protection Product, or for warranty information, call 1-800-809-2772, Option 4, sub-option 2. Repair or replacement units will be returned collect. If Eaton finds the return to be a manufacturer's defect, the product will be returned prepaid.

Eaton
Electrical Sector
1000 Eaton Boulevard
Cleveland, OH 44122
United States
877-ETN-CARE (877-386-2273)
Eaton.com

© 2018 Eaton
All Rights Reserved
Printed in USA
Publication No. IM01005020E Rev 4 / TBG000458
October 2018

Eaton is a registered trademark

All other trademarks are property of their respective owners.

Powering Business Worldwide