

MOV Storm Trapper secondary class surge arrester installation instructions



DISCLAIMER OF WARRANTIES AND LIMITATION OF LIABILITY

The information, recommendations, descriptions and safety notations in this document are based on Eaton Corporation's ("Eaton") experience and judgment and may not cover all contingencies. If further information is required, an Eaton sales office should be consulted. Sale of the product shown in this literature is subject to the terms and conditions outlined in appropriate Eaton selling policies or other contractual agreement between Eaton and the purchaser.

THERE ARE NO UNDERSTANDINGS, AGREEMENTS, WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING WARRANTIES OF FITNESS FOR A PARTICULAR PURPOSE OR MERCHANTABILITY, OTHER THAN THOSE SPECIFICALLY SET OUT IN ANY EXISTING CONTRACT BETWEEN THE PARTIES. ANY SUCH CONTRACT STATES THE ENTIRE OBLIGATION OF EATON. THE CONTENTS OF THIS DOCUMENT SHALL NOT BECOME PART OF OR MODIFY ANY CONTRACT BETWEEN THE PARTIES.

In no event will Eaton be responsible to the purchaser or user in contract, in tort (including negligence), strict liability or otherwise for any special, indirect, incidental or consequential damage or loss whatsoever, including but not limited to damage or loss of use of equipment, plant or power system, cost of capital, loss of power, additional expenses in the use of existing power facilities, or claims against the purchaser or user by its customers resulting from the use of the information, recommendations and descriptions contained herein. The information contained in this manual is subject to change without notice.

Contents

SAFETY INFORMATION

Safety Information	4
--------------------------	---

PRODUCT INFORMATION

Introduction	5
Acceptance and Initial Inspection	5
Handling and Storage	5
Standards	5
Applications	5

INSTALLATION PROCEDURE

Before Installing a Storm Trapper Surge Arrester	6
Knockout Installation	6
Surface-mounting Installation	6
Lead Suspension Installation	6



Safety for life



Eaton meets or exceeds all applicable industry standards relating to product safety in its Cooper Power™ series products. We actively promote safe practices in the use and maintenance of our products through our service literature, instructional training programs, and the continuous efforts of all Eaton employees involved in product design, manufacture, marketing, and service.

We strongly urge that you always follow all locally approved safety procedures and safety instructions when working around high voltage lines and equipment, and support our “Safety For Life” mission.

Safety information

The instructions in this manual are not intended as a substitute for proper training or adequate experience in the safe operation of the equipment described. Only competent technicians who are familiar with this equipment should install, operate, and service it.

A competent technician has these qualifications:

- Is thoroughly familiar with these instructions.
- Is trained in industry-accepted high and low-voltage safe operating practices and procedures.
- Is trained and authorized to energize, de-energize, clear, and ground power distribution equipment.
- Is trained in the care and use of protective equipment such as arc flash clothing, safety glasses, face shield, hard hat, rubber gloves, clampstick, hotstick, etc.

Following is important safety information. For safe installation and operation of this equipment, be sure to read and understand all cautions and warnings.

Hazard Statement Definitions

This manual may contain four types of hazard statements:

DANGER

Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

WARNING

Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION

Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.

CAUTION

Indicates a potentially hazardous situation which, if not avoided, may result in equipment damage only.

Safety instructions

Following are general caution and warning statements that apply to this equipment. Additional statements, related to specific tasks and procedures, are located throughout the manual.

DANGER

Hazardous voltage. Contact with hazardous voltage will cause death or severe personal injury. Follow all locally approved safety procedures when working around high- and low-voltage lines and equipment.

G103.3

WARNING

Before installing, operating, maintaining, or testing this equipment, carefully read and understand the contents of this manual. Improper operation, handling or maintenance can result in death, severe personal injury, and equipment damage.

G101.0

WARNING

This equipment is not intended to protect human life. Follow all locally approved procedures and safety practices when installing or operating this equipment. Failure to comply can result in death, severe personal injury and equipment damage.

G102.1

WARNING

Power distribution and transmission equipment must be properly selected for the intended application. It must be installed and serviced by competent personnel who have been trained and understand proper safety procedures. These instructions are written for such personnel and are not a substitute for adequate training and experience in safety procedures. Failure to properly select, install or maintain power distribution and transmission equipment can result in death, severe personal injury, and equipment damage.

G122.3

Product Information

Introduction

Eaton's Cooper Power series MOV Storm Trapper surge arrester is designed to provide lightning surge protection for low voltage equipment and distribution circuits. Storm Trapper surge arresters are CSA® listed for safety and meet the requirements of IEEE Std C62.11™-1993 standard.

Read this manual first

Read and understand the contents of this manual and follow all locally approved procedures and safety practices before installing or operating this equipment

Additional information

These instructions cannot cover all details or variations in the equipment, procedures, or process described nor provide directions for meeting every possible contingency during installation, operation, or maintenance. When additional information is desired to satisfy a problem not covered sufficiently for the user's purpose, please contact your Eaton representative.

Acceptance and initial inspection

Each Storm Trapper surge arrester is completely assembled, inspected, and tested at the factory. It is in good condition when accepted by the carrier, or shipment. Upon receipt of a Storm Trapper surge arrester, inspect it thoroughly for damage and loss of parts incurred during shipment. If damage or loss is discovered, file a claim with the carrier immediately.

Handling and storage

If the Storm Trapper surge arrester is to be stored for an appreciable time before installation, provide a clean, dry storage area.

Quality standards

ISO 9001 Certified Quality Management System

Applications

Storm Trapper surge arresters are available in three voltage ratings; 175, 350, and 650 volts.

175-Volt Arresters

The 175-volt Storm Trapper arrester is designed for single-phase 120-volt applications. It is available as a single-, double-, or triple-pole device so that it may be used on two-, three-, or four-wire systems.

350-Volt Arresters

The 350-volt Storm Trapper single-pole arrester is designed for individual application at single voltage source installations with line-to-ground voltages greater than 175 volts and less than 350 volts.

The 350-volt two-pole device is designed for common three-wire 480/240 volt applications. This is the standard secondary system voltage for industrial use.

The 350-volt three-pole unit protects motors and other equipment on three-phase systems which can have a number of system voltages between 175 and 350 volts.

650-Volt Arresters

The 650-volt MOV Storm Trapper arrester is designed for commercial/industrial applications to safeguard power circuits where the line-to-ground system voltage is greater than 350 volts, but not more than 650 volts.

Installation procedure

The Storm Trapper surge arrester is completely moisture proof.

Before installing a Storm Trapper surge arrester:

1. Check Table 1 to make sure the arrester is correct for the particular source voltage.
2. Refer to the appropriate wiring diagram in Figure 2 for the proper connections.

Knockout installation

The Storm Trapper surge arrester is equipped with a 1/2-in. locknut for attaching it to a standard fuse/breaker box knockout hole.

Surface-mounting installation

The Storm Trapper surge arrester is housed in a weatherproof, molded case with built-in slots that accommodate two mounting screws. The arrester can be mounted vertically or horizontally. The ultrasonically sealed case and moisture-proof seal assure long life.

Lead-suspension installation

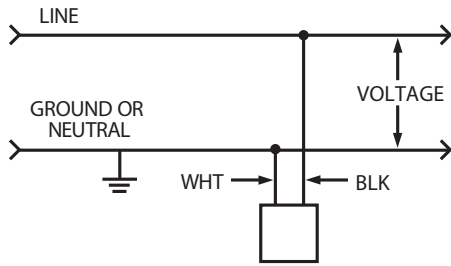
The Storm Trapper surge arrester is light enough to be suspended by its own leads. Since lead length affects discharge voltage, Eaton recommends that the leads be trimmed to the minimum required length.

WARNING

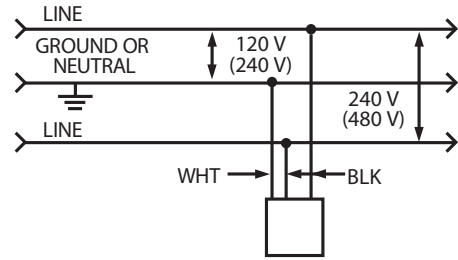
As with any electrical device, precautions must be observed to prevent injury due to electrical shock. Be sure all electricity is shut off before installing an arrester. It is recommended that installation be made only by an authorized technician.

System	Voltage (Volts)	Storm Trapper Arrester			Catalog Number
		Maximum Voltage Rating* (Volts)	Pole(s)	See Wiring Diagram	
Single-Phase/Two-Wire	120	175	1	1	ASZ175B1
	240	350	1	1	ASZ350B1
	480	650	1	1	ASZ650B1
	600	650	1	1	ASZ650B1
Single-Phase/Three-Wire	240-120	175	2	2	ASZ175B2
	480/240	350	2	2	ASZ350B2
Three-Phase (ungrounded)/Three-Wire	240	350	3	3	ASZ350B3
	480	650	3	3	ASZ650B3
Three-Phase (one-phase grounded)/Three-Wire	240	350	2	4	ASZ350B2
	480	650	2	4	ASZ650B2
Three-Phase (one-phase center-tap grounded)/Four-Wire	240/120	350	3	5	ASZ350B3
	480/240	650	3	5	ASZ650B3
Three-Phase/Four-Wire	208Y/120	175	3	6	ASZ175B3
	480Y/277	350	3	6	ASZ350B3

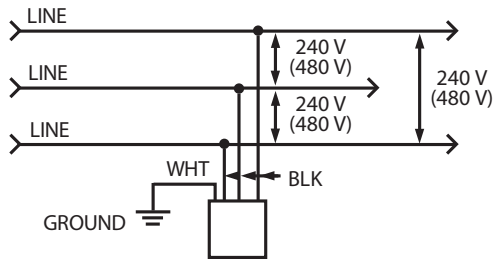
* An arrester rating represents the maximum line-to-ground voltage to which the arrester should be subjected. Since surge arresters are inherently sensitive to overvoltages, they should never be subjected to 60-Hz voltages above their rated voltages even during momentary abnormal conditions.



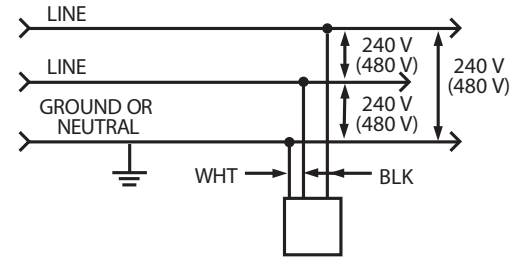
Wiring Diagram 1:
Single-Phase two-wire system.



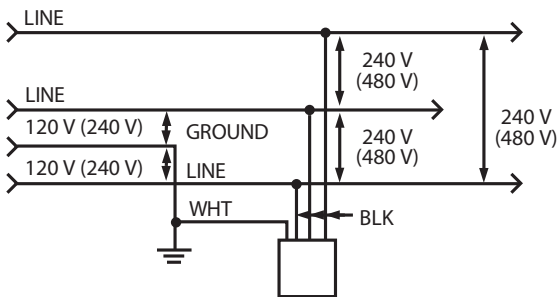
Wiring Diagram 2:
Single-Phase three-wire system.



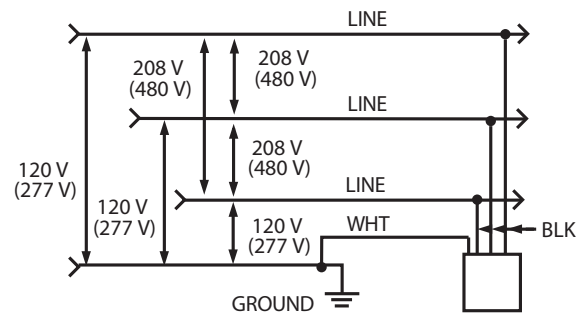
Wiring Diagram 3:
Three-Phase (ungrounded)/three-wire system.



Wiring Diagram 4:
Three-Phase (one-phase grounded)/three-wire system.



Wiring Diagram 5:
Three-Phase (one-phase center-tap grounded)/four-wire system.



Wiring Diagram 6:
Three-Phase/four-wire system.

Figure 1. Wiring diagrams.

Note: Black leads to line; white leads to ground.

Voltage between a white lead and any black lead should not exceed maximum rated voltage.

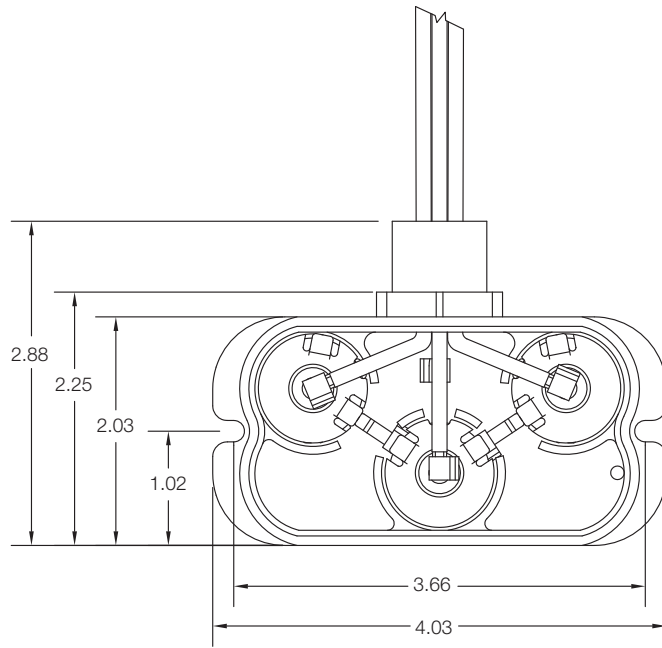


Figure 2. MOV Storm Trapper surge arrester top view cutaway with dimensions.

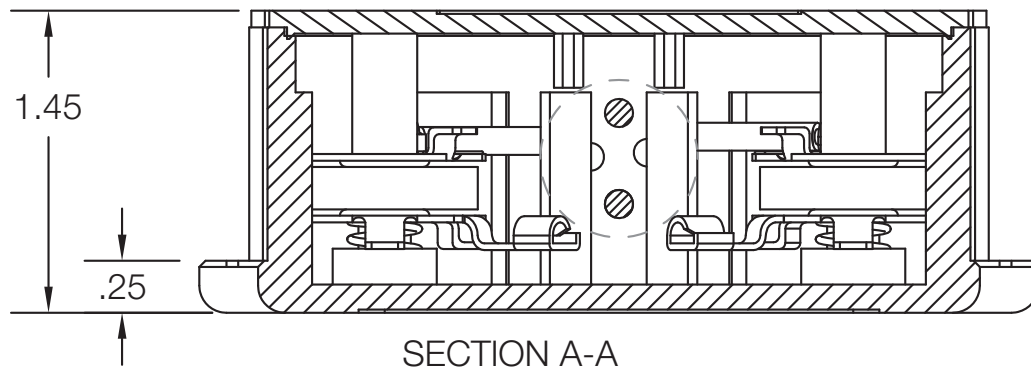


Figure 3. MOV Storm Trapper surge arrester sideview cutaway with dimensions.

Note: Dimensions are given for reference only.



Eaton
 1000 Eaton Boulevard
 Cleveland, OH 44122
 United States
 Eaton.com

Eaton's Power Systems Division
 2300 Badger Drive
 Waukesha, WI 53188
 United States
 Eaton.com/cooperpowerseries



© 2016 Eaton
 All Rights Reserved
 Printed in USA
 Publication No. MN235015EN
 October 2016

Eaton is a registered trademark.

All trademarks are property of their respective owners.

For Eaton's Cooper Power series product information call 1-877-277-4636 or visit: www.eaton.com/cooperpowerseries.