Insulating bases and surge counter 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 ..................................................................................... iv

PRODUCT INFORMATION
Introduction ................................................................................................. 1
Acceptance and Initial Inspection .................................................................... 1
Handling and Storage ...................................................................................... 1
Standards ......................................................................................................... 1

INSULATING BASE MOUNTING DETAILS
AM26A1A Insulating Base Mounting Details ....................................................... 2
AZE or AZG Insulating Base Mounting Details .................................................. 2
AM23A1 Mounting Base Mounting Details ....................................................... 4

DISCHARGE COUNTER MOUNTING ARRANGEMENTS
AM26A1A Base ............................................................................................... 6
AM23A1A Base ............................................................................................... 7
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.

---

**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.

---

**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.

---

**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.
Introduction
Eaton offers Cooper Power™ series insulating bases and surge counters for use with its Cooper Power series surge arresters.

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 insulating base and surge counter is in good condition when accepted from the carrier for shipment. Upon receipt of an insulating base and surge counter, inspect 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 insulating base and surge counter is to be stored for an extended length of time before installation, provide a clean, dry storage area.

Quality standards
ISO 9001 Certified Quality Management System

### Catalog Number Description

<table>
<thead>
<tr>
<th>Catalog Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AM22A1</td>
<td>Counter without Leakage Current Meter</td>
</tr>
<tr>
<td>AM22A2</td>
<td>Counter with Leakage Current Meter (0-30 mA)</td>
</tr>
<tr>
<td>AM22A3</td>
<td>Counter with Leakage Current Meter (0-50 mA)</td>
</tr>
<tr>
<td>AM22A12</td>
<td>AM22A2 with Auxiliary Contact</td>
</tr>
</tbody>
</table>

### Catalog Number Description of Bases

<table>
<thead>
<tr>
<th>Catalog Number</th>
<th>Description of Bases</th>
</tr>
</thead>
<tbody>
<tr>
<td>AM26A1A</td>
<td>For all UXL (multi section), AZE and AZG arresters</td>
</tr>
<tr>
<td>AM23A1</td>
<td>For UI, US, UH, UX, U2, U3 and U4 arresters and AZE-AZG arresters rated 120 kV (single section) or below</td>
</tr>
</tbody>
</table>

---

**CAUTION**

If at any time the discharge counter is to be removed from service, care must be exercised to assure that the arrester base is firmly and effectively connected to the station ground prior to removal of the counter or its electrical connection.

**CAUTION**
The vent port in the arrester base must be directed away from adjacent equipment to prevent ionized gases from damaging equipment in the unlikely event of arrester failure.
Table 1. Insulating Base AM26A1A Parts List (Complete Assembly)

<table>
<thead>
<tr>
<th>Items</th>
<th>Description</th>
<th>Qty.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Base Supports</td>
<td>3</td>
</tr>
<tr>
<td>2</td>
<td>Ceramic Ring</td>
<td>6</td>
</tr>
<tr>
<td>3</td>
<td>Gasket</td>
<td>12</td>
</tr>
<tr>
<td>4</td>
<td>Slotted Washer</td>
<td>3</td>
</tr>
<tr>
<td>5</td>
<td>2.25&quot; Dia. Washer</td>
<td>3</td>
</tr>
<tr>
<td>6</td>
<td>PVC Tube</td>
<td>3</td>
</tr>
<tr>
<td>7</td>
<td>.50-13 UNC-2A x 1.75 Hex Bolt</td>
<td>3</td>
</tr>
<tr>
<td>8</td>
<td>.50&quot; Split Lock Washer</td>
<td>3</td>
</tr>
<tr>
<td>9</td>
<td>.53&quot; Regular Flat Washer</td>
<td>3</td>
</tr>
<tr>
<td>10</td>
<td>Support Hanger (Flat)</td>
<td>1</td>
</tr>
</tbody>
</table>

**CAUTION**

If at any time an arrester equipped with an insulating base is placed in service without a discharge counter, care must be exercised to see that the insulating base is effectively shorted and the arrester base is grounded.

**CAUTION**

The vent port in the arrester base must be directed away from adjacent equipment to prevent ionized gases from damaging equipment in the unlikely event of arrester failure.

AM26A1A insulating base mounting details

**Table 1. Insulating Base AM26A1A Parts List (Complete Assembly)**

**Note:** To develop rated cantilever strength use 10 inch (254 mm) bolt circle mounting diameter and washers with hardened bolts.

**Figure 1. Base mounting details.**

**Figure 2. Mounting base details.**
Figure 3. AM26A1A base mounting details.

- 4.80" (121.9 mm)
- 7.04" (178.8 mm)
- 4.64" (117.86 mm)
- .37" (9.5 mm) Min.

- REG. WASHER (SUPPLIED) OR ARRESTER GROUND CONNECTOR (USED ON ONE ASSEMBLY ONLY)
- GASKET
- CUSTOMER STRUCTURE 0.5" or 12 mm MOUNTING HARDWARE (HARDWARE NOT SUPPLIED)
- SPRING WASHER
- REGULAR WASHER 0.5" DIAMETER
- GROUND STRAP USED ON ONE ASSEMBLY ONLY (SUPPLIED WITH COUNTER)
- ARRESTER FOOT
- BASE SUPPORT
- WASHER 2.25" DIAMETER
- COUNTER SUPPORT HANGER (FLAT) (USED ON ONE ASSEMBLY ONLY)

Note: MUST NOT TOUCH INSULATOR BASE SUPPORT

- INSULATING TUBE
- CERAMIC RING
- GASKET
- SLOTTED WASHER (SLOT DOWN)

0.5" BOLT SUPPLIED RECOMMENDED TORQUE 30-35 ft-lbs or 41-48 Nm

0.5" or 12 mm MOUNTING HARDWARE NOT SUPPLIED

GROUND STRAP USED ON ONE ASSEMBLY ONLY (SUPPLIED WITH COUNTER)

COUNTER SUPPORT HANGER (FLAT) (USED ON ONE ASSEMBLY ONLY)

Note: MUST NOT TOUCH INSULATOR BASE SUPPORT
AM23A1 mounting arrangement – AZE and AZG

Part List

<table>
<thead>
<tr>
<th>Items</th>
<th>Qty.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>3</td>
<td>Polyfiber Molded Insulators</td>
</tr>
<tr>
<td>2</td>
<td>3</td>
<td>Flat Washer</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
<td>Split Lock Washer</td>
</tr>
<tr>
<td>4</td>
<td>3</td>
<td>Std. Hex Head Bolt</td>
</tr>
<tr>
<td>5</td>
<td>1</td>
<td>Supporting Hanger (&quot;Z&quot;) (Not Shown)</td>
</tr>
</tbody>
</table>

Figure 4. AM23A1 base mounting details for AZE and AZG.

Note: The longest AZE or AZG arrester recommended for use with the AM23A1 insulating base is a single section arrester through 120 kV.

CAUTION

If at any time an arrester equipped with an insulating base is placed in service without a discharge counter, care must be exercised to see that the insulating base is effectively shorted and the arrester base is grounded.

CAUTION

The vent port in the arrester base must be directed away from adjacent equipment to prevent ionized gases from damaging equipment in the unlikely event of arrester failure.

Figure 5. Base mounting details – AZE and AZG.

Note: To develop rated cantilever strength, use 10" (254 mm) bolt circle mounting diameter and washers with hardened bolts.

Note: Use of this AM23A1 insulating base limits the rated cantilever strength of the surge arrester/insulating base combination to 7795 Nm or 5749 ft-lbs.
AM23A1 mounting arrangement – US, UI, UH, UX, U2, U3, and U4

Part List

<table>
<thead>
<tr>
<th>Items</th>
<th>Qty.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>3</td>
<td>Polyfiber Molded Insulators</td>
</tr>
<tr>
<td>2</td>
<td>3</td>
<td>Flat Washer</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
<td>Split Lock Washer</td>
</tr>
<tr>
<td>4</td>
<td>3</td>
<td>M12 Hex Head Bolt</td>
</tr>
<tr>
<td>5</td>
<td>1</td>
<td>Supporting Hanger (“Z”) (Not Shown)</td>
</tr>
</tbody>
</table>

Figure 6. AM23A1 base mounting details for polymer arresters.
Discharge counter mounting arrangement with AM26A1A base

Figure 9. Structure mounting arrangement w/AM22A1 discharge counter.

Notes:
1. Dimension may vary, unit can be mounted at any height to permit easy reading of numbers.
2. Support hanger not used.
3. AM26A1A base shown.

Figure 8. Mounting arrangement w/AM22A1 discharge counter.

Note: Support hanger must not contact insulator base support.

Parts List

<table>
<thead>
<tr>
<th>Parts List</th>
<th>2 Used</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grounding Strap</td>
<td></td>
</tr>
<tr>
<td>Surge Counter</td>
<td>1 Used</td>
</tr>
</tbody>
</table>

Parts List

<table>
<thead>
<tr>
<th>Parts List</th>
<th>Used</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grounding Strap</td>
<td>Not Used</td>
</tr>
<tr>
<td>Surge Counter</td>
<td>1 Used</td>
</tr>
</tbody>
</table>

INSULATING BASES AND SURGE COUNTER INSTRUCTIONS MN235003EN July 2015
Discharge counter mounting arrangement with AM23A1 base

Figure 10. Mounting arrangement w/AM22A1 discharge counter.
© 2015 Eaton
All Rights Reserved
Printed in USA
Publication No. MN235003EN
July 2015

Eaton and Cooper Power are valuable trademarks of Eaton in the U.S. and other countries. You are not permitted to use these trademarks without the prior written consent of Eaton.

For Eaton’s Cooper Power series
insulating base and surge counter product information call 1-877-277-4636 or visit: www.eaton.com/cooperpowerseries.