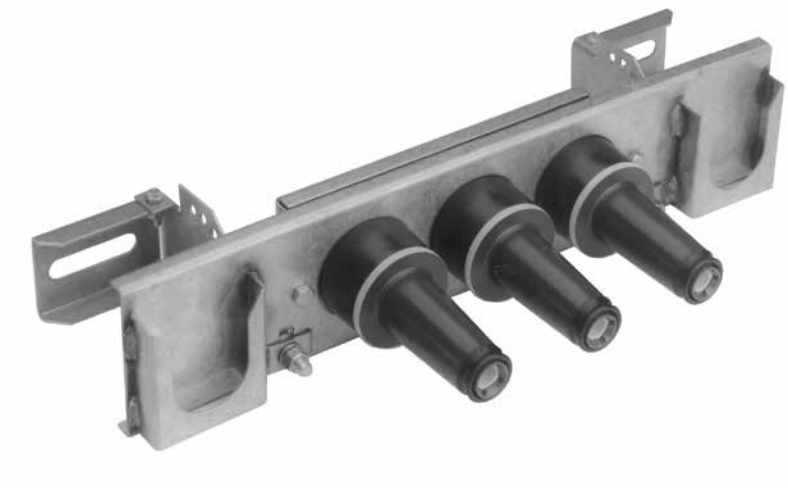
200 A loadbreak junction 15 and 25 kV class installation instructions



Cooper
Power Systems
by EATON

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Safety for life

Eaton's Cooper Power Systems products meet or exceed all applicable industry standards relating to product safety. 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's Cooper Power Systems 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 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 a hazardous situation which, if not avoided, will result in death or serious injury.

WARNING

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

CAUTION

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

CAUTION: Indicates a hazardous situation which, if not avoided, could 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

The 200 A, 15 and 25 kV Class loadbreak junction from Eaton's Cooper Power Systems provides two, three, or four 8.3/14.4 kV loadbreak interfaces that are internally bused together and meet all requirements of IEEE Std 386™ standard — Separable Insulated Connector Systems. Loadbreak junctions are used in pad-mounted apparatus, underground vaults, and other apparatus to sectionalize, establish loops, taps, or splices, and to facilitate apparatus changeouts.

⚠ WARNING

High voltage. All associated apparatus must be de-energized during any hands-on installation or maintenance. Failure to comply may result in death, severe personal injury and equipment damage.

⚠ CAUTION

High voltage. The 200 A Loadbreak Junction is designed to be operated in accordance with normal safe operating procedures. These instructions are not intended to supersede or replace existing safety and operating procedures. The loadbreak junction should be installed and serviced only by personnel familiar with good safety practices and the handling of high-voltage electrical equipment.

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. For additional information, contact your representative.

Acceptance and initial inspection

Each loadbreak junction is in good condition when accepted by the carrier for shipment. Upon receipt, inspect the shipping container for signs of damage. Unpack the loadbreak junction and inspect it thoroughly for damage incurred during shipment. If damage is discovered, file a claim with the carrier immediately.

Handling and storage

Be careful during handling and storage of the loadbreak junction to minimize the possibility of damage. If the loadbreak junction is to be stored for any length of time prior to installation, provide a clean, dry storage area.

Quality standards

ISO 9001 Certified Quality Management System

Equipment required

200 A loadbreak junction only kit includes

- Loadbreak Junction
- Silicone Grease
- Instruction Sheet

200 A loadbreak junction with stainless steel bracket kit includes

- Loadbreak Junction with Frontplate (assembled). See Figure 1.
- Stainless Steel Pivot Support Legs and Assembly Hardware. See Figure 2.
- Stainless Steel Mounting Feet and Assembly hardware. See Figure 3.
- Silicone Grease
- Instruction Sheet

200 A loadbreak junction with U-straps

- Loadbreak Junction
- U-straps with Assembly Hardware
- Silicone Grease
- Instruction Sheet

Tools required

- 5/16" Wrench

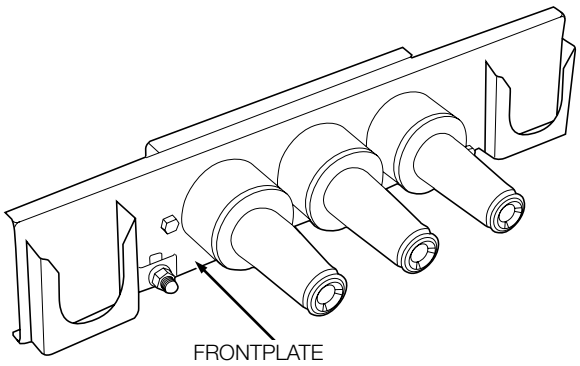


Figure 1. Loadbreak junction assembled to frontplate.

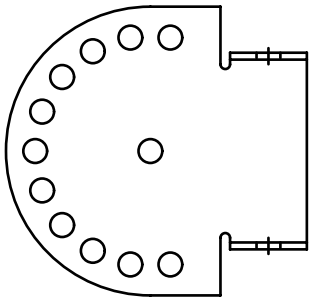


Figure 2. Pivot support leg.

Figure 3. Mounting feet.

Installation instructions

Loadbreak junction with stainless steel bracket

Step 1.

- Using supplied 5/16" hardware, attach mounting feet to pivot support legs.

Note: Refer to mounting configurations and dimensions on page 5.

Step 2.

- Using supplied 5/16" hardware, loosely attach pivot support/mounting feet assembly to back of frontplate and place assembly against the mounting surface (Figure 4).

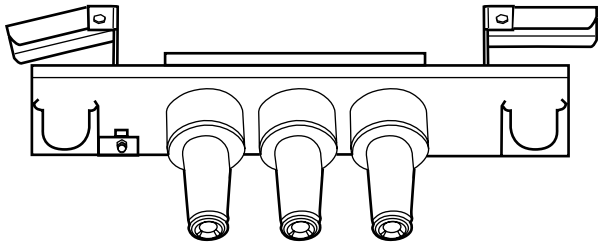


Figure 4. **Pivot support/mounting feet assembled to frontplate.**

- Adjust the brackets for proper alignment and mark their location on the mounting surface.

Step 3.

- After mounting location has been marked, detach pivot support/mounting feet assembly from frontplate. Using 1/2" hardware (not supplied), mount pivot support/mounting feet assembly on mounting surface according to location marks made in Step 2.

Step 4.

- With pivot support/mounting feet assembly secure, using supplied 5/16" hardware, mount frontplate with junction to pivot support/mounting feet.

Step 5.

- Adjust frontplate to desired angle. Tighten all bolts securely (Figure 5).

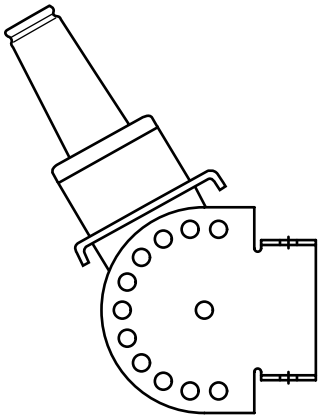


Figure 5. **Frontplate angle adjustment.**

Step 6.

- Using supplied drain wire clamps, connect bracket to ground. (Drain wire clamps accommodate two wires up to 1/0 stranded [3/8" dia.].)

Step 7.

- Remove protective shipping caps from junction interfaces. Clean and using supplied silicone grease, apply a thin layer of lubricant to the junction interfaces and mating accessory.

Loadbreak junction with U-straps

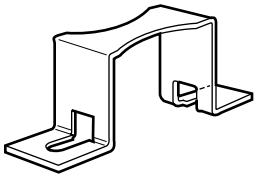


Figure 6. Stainless steel U-strap.

Step 1.

- Position loadbreak junction against mounting plate of apparatus and hold in place.

Step 2.

- Place one supplied U-strap (Figure 6) between each post of the loadbreak junction and using the supplied 5/16" hardware attach U-straps to apparatus mounting plate, securing the loadbreak junction in place.

⚠ IMPORTANT

In applications where the junction is mounted without a stainless steel bracket, the mounting U-straps or the semi-conductive jacket of the junction must be grounded by an alternate means.

Step 3.

- Tighten bolts securely.

Step 4.

- Remove protective shipping caps from junction interfaces. Clean and using supplied silicone grease, apply a thin layer of lubricant to the junction interfaces and mating accessory.

⚠ WARNING

High Voltage. All unused junction interfaces must be covered with a insulated protective cap before energization.

Do not use plastic shipping caps for this purpose. Failure to comply may result in death, severe personal injury and equipment damage.

⚠ CAUTION

The operator should always use personal protective equipment (insulated gloves, clampstick and eye protection) whenever operating the elbow. The operator should always be in the best possible operating position, providing firm footing and enabling a secure grasp of the clampstick, while maintaining positive control of the elbow before, during and immediately after operation. If there is any question regarding the operator's operating position, de-energize the elbow before operation. The operator should not be looking directly at the connector during the moment of circuit interruption or connection.

Operating instructions

Do not connect two different phases of a multiple-phase system. Before closing a single-phase loop, make certain both ends of the loop are the same phase.

Loadmake operation

1. Area must be clear of obstructions or contaminants that would interfere with the operation of the loadbreak elbow.
2. Securely fasten a clampstick to the pulling eye.
3. Place the loadbreak elbow over the bushing, inserting the white arc follower of the probe into the bushing until a slight resistance is felt.
4. Immediately thrust the elbow onto the bushing with a fast, firm, straight motion, with sufficient force to latch the elbow to the bushing.
5. Push again on the elbow with the clampstick, and then pull gently to make sure that it is secure.

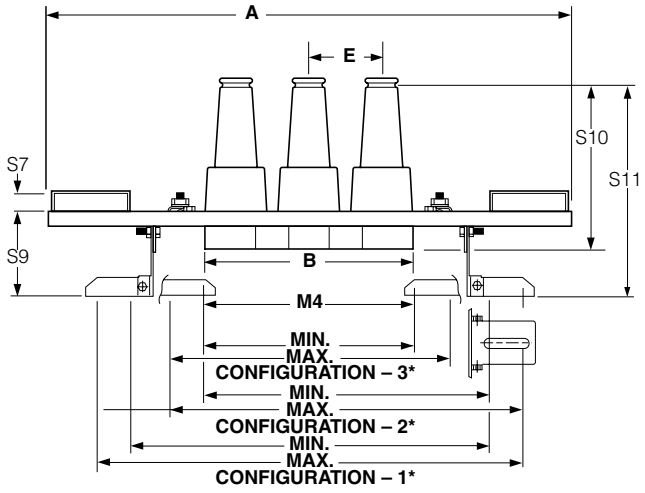
Fault close

1. It is not recommended that operations be made on known faults.
2. If a fault is experienced, both the elbow connector and the bushing must be replaced.

Loadbreak operation

1. Securely fasten a clampstick to the pulling eye.
2. Without exerting any pulling force, slightly rotate the connector clockwise to break surface friction between the elbow and bushing.
3. Withdraw the connector from the bushing with a fast, firm, straight motion, being careful not to place the connector near a ground plane.
4. Place connector on an appropriate accessory device, following the operating instructions for that accessory.
5. Place an insulated protective cap with drain wire attached to system ground on any exposed energized bushing using a clampstick.

Mounting configurations



Dim.	15 kV	25 kV
E	3.25" (83 mm)	4.0" (102 mm)
S7	0.75" (19 mm)	0.75" (19 mm)
S9	4.38" (111 mm)	4.38" (111 mm)
S10	6.77" (172 mm)	8.34" (212 mm)
S11	9.20" (234 mm)	10.77" (274 mm)
M4	See Table 15 kV	See Table 25 kV

Figure 7. Dimensional drawing (15 kV shown) shows mounting configurations.

Table 1. 15 kV Dimensional Information

Number of Interfaces	Physical Dimensions in./mm		M4 Mounting Dimensions in./mm					
			Configuration 1		Configuration 2		Configuration 3	
	A	B	Min.	Max.	Min.	Max.	Min.	Max.
2	12.5	6.0	10.8	14.4	7.2	10.8	3.6	7.2
	(318)	(152)	(275)	(366)	(183)	(275)	(92)	(183)
3	19.6	9.2	14.7	18.3	11.1	14.7	7.4	11.1
	(498)	(230)	(374)	(465)	(282)	(374)	(188)	(282)
4	22.9	12.4	17.9	21.5	14.3	17.9	10.7	14.3
	(582)	(315)	(455)	(547)	(364)	(455)	(272)	(364)

Configuration 1. Both feet turned out.
Configuration 2. One foot turned out, one in.
Configuration 3. Both feet turned in.

Table 2. 25 kV Dimensional Information

Number of Interfaces	Physical Dimensions in./mm		M4 Mounting Dimensions in./mm					
			Configuration 1		Configuration 2		Configuration 3	
	A	B	Min.	Max.	Min.	Max.	Min.	Max.
2	14.2	6.7	11.9	15.6	8.0	11.7	4.2	7.8
	(361)	(170)	(302)	(396)	(203)	(297)	(107)	(198)
3	23.0	10.7	16.8	20.4	12.9	16.5	9.0	12.6
	(584)	(272)	(427)	(518)	(328)	(419)	(229)	(320)
4	27.0	14.7	20.8	24.4	16.9	20.5	13.0	16.6
	(686)	(373)	(528)	(620)	(429)	(521)	(330)	(422)

Configuration 1. Both feet turned out.
Configuration 2. One foot turned out, one in.
Configuration 3. Both feet turned in.

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