BSPA Type 1 and Type 2 surge protective devices

1. Introduction

This quick start guide is for the installation, wiring and operation of the Bussmann™ series BSPA surge protective device (SPD). Only qualified personnel should perform this installation. For additional information regarding installation, wiring and operation of this device, refer to the installation manual (Publication No. 10679). If you require further information regarding a particular installation, application or maintenance activity, please contact Application Engineering at FuseTech@eaton.com or 1-855-287-7626 between 7:00 a.m. and 5:00 p.m. Central time, Monday-Friday. This quick start guide is not intended to cover all details, variations or combinations of the device's storage, delivery, installation, operation or maintenance.

1.1 Safety precautions

WARNING

WARNING – SHOCK HAZARD – DO NOT OPEN

AVERTISSEMENT – RISQUE DE CHOC – NE PAS OUVRIR

WARNING NO SERVICEABLE PARTS

ATTENTION: AUCUNE PIÈCE REMPLACABLE OU RÉPARABLE

A LICENSED/QUALIFIED ELECTRICIAN MUST COMPLETE ALL INSTRUCTIONS IN THIS GUIDE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE (NEC®), CANADIAN ELECTRICAL CODE (CEC), STATE, COUNTY AND LOCAL SAFETY RATINGS, OR OTHER APPLICABLE COUNTRY CODES. ALL APPLICABLE LOCAL ELECTRICAL CODES SUPERSEDE THESE INSTRUCTIONS.

IMPROPER WIRING COULD CAUSE DEATH, INJURY AND/OR EQUIPMENT DAMAGE. ONLY LICENSED/QUALIFIED ELECTRICIANS WHO ARE TRAINED IN THE INSTALLATION AND SERVICE OF ELECTRICAL SERVICES ARE TO INSTALL AND SERVICE THIS EQUIPMENT.

CHECK THE VOLTAGE-RATING LABEL LOCATED ON THE SIDE OF THE SPD TO VERIFY THAT THE ELECTRICAL SYSTEM'S VOLTAGE AND WIRING CONFIGURATION ARE THE SAME AS THE SPD.

CONDUCTING DIELECTRIC, MEGGAR, OR HI-POTENTIAL TESTING WITH THE SPD INSTALLED WILL CAUSE INTERNAL DAMAGE TO THE SPD. THE SPD WILL CAUSE THE TEST TO FAIL.

IMPROPER INSTALLATION COULD CAUSE DEATH, INJURY AND EQUIPMENT DAMAGE. FOLLOW ALL WARNINGS AND CAUTIONS. COMPLETELY READ AND UNDERSTAND THE INFORMATION IN THIS GUIDE BEFORE ATTEMPTING TO INSTALL OR OPERATE THIS EQUIPMENT.

ARC FLASH DURING INSTALLATION COULD CAUSE INJURY OR DEATH. USE APPROPRIATE SAFETY PRECAUTIONS AND PERSONAL PROTECTION EQUIPMENT FOR ARC FLASH PROTECTION.

CHECK THE FACILITY'S GROUNDING SYSTEM. ALL GROUNDING, BONDING AND EARTHING PRACTICES MUST MEET NEC, CEC AND LOCAL APPROVED PRACTICES. A POOR GROUND, OR A GROUNDING / BONDING VIOLATION WILL SERIOUSLY AFFECT THE SPD'S ABILITY TO FUNCTION AS SPECIFIED.

INSTALLING AN SPD THAT IS IMPROPERLY RATED FOR THE ELECTRICAL SYSTEM VOLTAGE COULD CREATE A POTENTIALLY HAZARDOUS CONDITION, RESULTING IN INJURY OR EQUIPMENT DAMAGE.

WHEN MOUNTING THE SPD OUTDOORS, USE WEATHERPROOF CONDUIT AND FITTINGS TO MAINTAIN THE ENCLOSURE'S NEMA RATING.

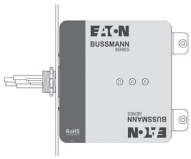
FOR USE ON CIRCUITS DELIVERING UP TO 5000 RMS AMPS.

CONVIENT Á DES CIRCUITS PRODUCISANT AU PLUS 5000 A EFF.

1.2 Enclosure dimensions

Refer to the installation manual (Publication No. 10679) for unit size and dimensions.

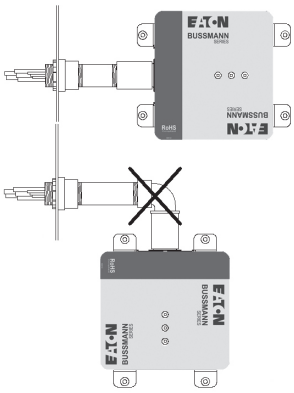
1.3 Directly mounted to electrical panel – preferred method



The preferred installation is to mount the SPD directly to the electrical panel. For Type 4X applications, use the supplied mounting feet to secure the device.

Figure 1. Preferred installation.

1.4 Mounted to electrical panel with conduit – alternate method



An alternate installation method is to install the SPD with a short piece straight conduit. Avoid using 90° conduit elbows and keep the conduit run as short and straight as possible. In this application, install the SPD as close as possible to the electrical panel. For Type 4X applications, use weatherproof conduit and fittings along with the supplied mounting feet to secure the device.

Figure 2. Alternate installation.

2. Wiring installation

Locate the electrical system's applicable wiring schematic from section **3. Wiring diagrams** and refer to it while wiring the SPD.

TURN OFF power to the electrical equipment being connected to the SPD in accordance with NEC, CEC, state, county and local codes for all safety ratings. Bussmann series SPDs covered in this guide are designed with internal overcurrent protection and do not require an external overcurrent protective device (OCPD) unless otherwise required by NEC, UL and local electrical requirements to protect electrical conductors. NEC Article 310.15 (B) (16) defines the maximum rating of the OCPD required to protect the electrical conductors. NEC shows #10 AWG conductors at 60°C typically requiring a 1-pole (for single-phase systems), 2-pole (for split-phase systems) or 3-pole (for 3-phase systems) 30 A branch circuit breaker to protect SPD conductors.

Twist and bind the SPD wires tightly together. Minimize overall lead length to optimize SPD performance. To maximize the SPD's performance, phase wire length should be less than 14" (35cm) twisted and bound together. To maximize performance for wire lengths longer than four inches, phase wires should be twisted once for each four inches of wire length.

If the SPD is configured for remote monitoring (not available on all models), connect the Form C relay contact wiring to an alarm or building monitoring system. Refer to the installation manual (Publication No. 10679) for Form C relay ratings.

Note: Utilization of Form C contacts is optional. Connecting Form C wires is not required for the SPD to operate.

Tighten and recheck all connections and mounting before proceeding to section **4. Operation**.

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3. Wiring diagrams

Phase wire	Color code
L1 (Phase A)	Black
L2 (Phase B)	Black
L3 (Phase C)	Black
Neutral	White
Ground / protected earth	Green with yellow stripe

Table 1. BSPA phase wire color codes.

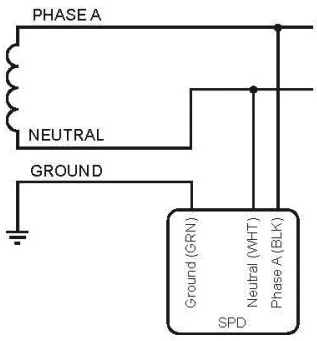

Figure 3. Single-phase (2W+G)

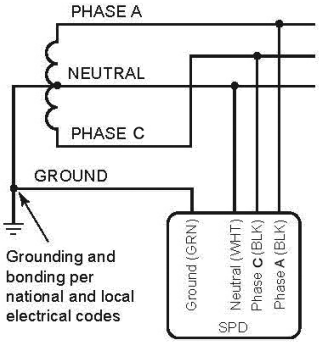

Figure 4. Split-phase (3W+G)

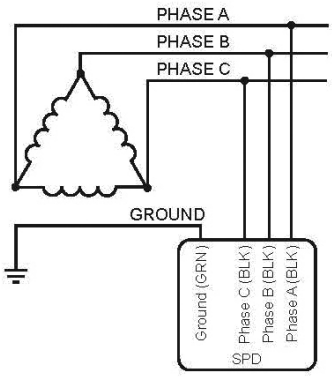

Figure 5. Three-phase Delta (3W+G)

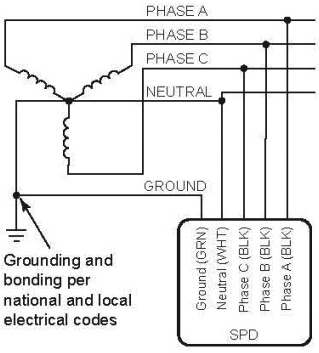

Figure 6. Three-phase Wye (4W+G)

4. Operation

4.1 Power up and system checkout

Tighten and recheck all connections and mounting before proceeding. Switch main panel power to **ON** and, if applicable, then switch SPD branch circuit breaker(s) to **ON**. One LED should light for each phase voltage being protected. Single-phase electrical systems will light only one LED, split-phase systems light two LEDs, and three-phase systems will light all three LEDs.

If the connected LEDs do not light, remove power, re-check connections, and test again. If the LEDs still do not light, contact your local authorized Bussmann series product distributor or Bussmann series product representative, as the SPD may be damaged.

4.2 LED color states

When properly installed, only green status LEDs should be illuminated. Refer to the installation manual (Publication No. 10679) for more information regarding BSPA LED color states.

5. Maintenance

The Bussmann series BSPA SPD devices covered in this guide are self-contained devices that do not require maintenance or contain serviceable parts. If any LED changes state, the unit has lost surge protection and must be replaced. Please contact your local authorized Bussmann series product distributor or Bussmann series product representative, as the SPD may be under warranty.

6. Liability

This guide is published solely for information purposes and should not be considered all-inclusive. If further information is required, you should consult the installation manual (Publication No. 10679) or Application Engineering. Sale of the product shown in this guide is subject to terms and conditions outlined in appropriate Bussmann Division selling policies or other contractual agreements between the parties. This guide is not intended to and does not enlarge or add to any such contract. The sole source governing the rights and remedies of any purchaser of this equipment is the contract between the purchaser and the Bussmann Division.

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7. Warranty

Refer to the Bussmann series warranty statement 3A1502 at Eaton.com/bussmannseries.

8. Supplementary manuals

For additional information regarding installation, wiring and operation of this device, refer to installation manual 10679 at Eaton.com/bussmannseries.

If you have any questions or need additional information, please contact the Application Engineering at FuseTech@eaton.com or 1-855-287-7626 between 7:00 a.m. and 5:00 p.m., Monday-Friday.

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