

OVRHT3 series and OVRHS3U series Surge protective devices

Installation, operation and maintenance manual



OVRHT3B

OVRHT3C

OVRHS3U

Thank you for choosing the ABB OVRHT3 series and OVRHS3U series Surge Protective Device (SPD). We look forward to fulfilling your facilitywide surge protection needs.

This manual provides guidelines for the proper installation of the OVRHT3 series and OVRHS3U series of devices. Proper product selection and compliance with these guidelines will help your new suppression system provide years of reliable service. If installers are unsure about the facility electrical configuration or have other installation-related questions, it is recommended they consult with a qualified electrical professional.

When shortcuts are taken or installation procedures are not followed, the OVRHT3 series and OVRHS3U series may become damaged or may not provide adequate protection. It is extremely important to follow these installation procedures carefully.

△ WARNING!

THE OVRHT3 SERIES AND OVRHS3U SERIES WARRANTY IS VOIDED if the unit is damaged as a result of improper installation or the installer's failure to verify the following conditions prior to installation.

△ WARNING!

HAZARDOUS VOLTAGES PRESENT: Improper installation or misapplication may result in serious personal injury or damage to the electrical system. Read the complete installation instructions before proceeding with installation. Remove all power to the electrical panel before installing or servicing the SPD.

△ WARNING!

IMPORTANT SAFETY INSTRUCTIONS: All work must be performed by licensed and qualified personnel. Follow applicable electrical specifications for the country the unit is being used in.

△ WARNING!

Check to ensure that a proper bond is installed between neutral and ground at the transformer upstream from all 3-phase Wye, 3-phase High-leg, 2-phase, or 1-phase, OVRHT3 series and OVRHS3U series device. If the transformer is not accessible, check the main service disconnect/panel for the NG bond. Lack of a proper bond will damage OVRHT3 series and OVRHS3U series and void the warranty.

△ WARNING!

Do not HIPOT the OVRHT3 series and OVRHS3U series units or the electrical system to which the OVRHT3 series and OVRHS3U series unit is connected without disconnecting the OVRHT3 series and OVRHS3U series units conductors including phases, neutral and ground.

Warning! Installation by person with electrotechnical expertise only.

Warnung! Installation nur durch elektrotechnische Fachkraft.

Avertissement! Installation uniquement par des personned qualifiées électrotechnique.

¡Advertencia! La instalación deberá ser realizada únicamente por electricistas especializados.



Important safety instructions

Installation

For the OVRHS3U series units refer to Table 1 to see if an upstream overcurrent protection device is required. All OVRHT3 series units are Type 1 and do not require upstream overcurrent protection for safe operation; however, the design may require or the installer may choose to connect the OVRHT3 series to a circuit breaker, molded case switch or fused disconnect. If a breaker or molded case switch is used for connecting the phase conductors, a 30 amp rating is recommended. The unit must be installed in parallel to the electrical distribution system. Careful consideration should be made in selecting the knockout location because excess lead length and sharp bends in the wire drastically decrease the effectiveness of the SPD. The SPD may also be mounted by its metal bracket within the equipment enclosure.

1. Disconnect all power supplying the electrical panel.
2. Remove the panel screws and cover. Retain these parts for re-installation.
3. Either remove a knockout 13mm (0.5 inches) or install provided metal bracket.
4. Remove lock washer from the SPDs threaded nipple. Carefully feed the wires through the knockout to avoid cutting wire insulation. Slide lock washer over the wires to anchor the threaded nipple. Rotate the SPD so that the function status LED indicators can be easily viewed. Tighten the lock washer to secure the SPD.
5. If this to be a NEMA 4X enclosure, then all conduits and fitting must be rated and properly installed such that the final installation maintains the NEMA 4X rating.
6. Locate the neutral bar inside the electrical panel. Connect the white or blue wire to the neutral bar and tighten to torque specified on inside of panel. Keep conductor length as short as possible and avoid sharp bends in the wire.
7. Locate the ground bar inside the electrical panel. Connect the green/yellow wire to the ground bar and tighten the terminal to the torque specified on the panel. Keep conductor length as short as possible and avoid sharp bends. If neutral is bonded to ground, green wire may be terminated to neutral.
8. Black or brown wires (model dependent) should be connected to either the breaker or the bus of the panel, as long as the short circuit current rating does not exceed 65, 100, or 200 kAIC (please see Table 1 for kAIC rating). On High-Leg Delta units connect the orange wire to phase B (the high-leg). If you would like to be able to turn the unit off, then you may consider connecting it to a breaker (# of breaker pole positions determined by the # of black or brown wires provided with the unit). Tighten terminals to torque specified on inside of panel. Keep lead lengths as short as possible and avoid sharp bends.
9. Re-install panel cover.

Operation

1. Apply power to the panel. If the phase, neutral and grounding wirings are done correctly, the green function status LEDs will illuminate. If the LEDs do not turn on, remove the power and review all of the previous installation procedures.
2. If the LED light (s) is extinguished, reset the breaker if the SPD is tied to a breaker. If the LED light(s) come(s) back on then the protector is fine. If the LEDs are still out, or you can not reset the breaker, the protector must be replaced. This unit contains no user serviceable parts.

Model **OVRHT3B(C)502301PI** is suitable for use on TN-C and TN-C-S power systems (see EN60950).

Model **OVRHT3B(C)502301PJ** is intended for TNS power systems, but it may be used on TN-C-S and U.S. 120/240V (without neutral) services as well.

Model **OVRHT3B(C)502301PK** is intended for IT systems, but with caution may be used on the above other power systems as well.

Model **OVRHT3B(C)502301PL** is intended for TT systems, but it may be used on TNS, TN-C-S, and U.S. (without neutral) services.

Table 1: Upstream overcurrent protective device requirements

Model number	SPD type	kAIC rating	Upstream breaker	Wire gauge
OVRHS3U series				
OVRHS3U401201P	1, 2	100	Not required	14 AWG
OVRHS3U402401P	2	100	30A	14 AWG
OVRHS3U401202S	1, 2	100	Not required	14 AWG
OVRHS3U802402SR	2	100	30A	14 AWG
OVRHS3U402403D	1, 2	100	Not required	14 AWG
OVRHS3U404803D	2	65	20A	14 AWG
OVRHS3U401202S	2	65	20A	14 AWG
OVRHS3U402083Y	1, 2	100	Not required	14 AWG
OVRHS3U402773Y	2	65	20A	14 AWG
OVRHS3U402303Y	2	65	20A	14 AWG
OVRHT3B(C) series				
OVRHT3B(C)50XXXXX	1	100	Not required	12 AWG
OVRHT3B(C)502301P (I,J,K,L)	1	200	Not required	12 AWG

All units are furnished with 36" leads.

Electrical connections

Please see Table 1 for circuit breaker requirements

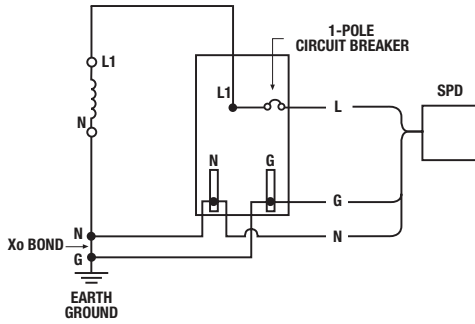


Figure 1: 1-phase, 2-wire

- OVRHS3U401201P OVRHT3B(C)502401P
- OVRHS3U402401P OVRHT3B(C)502771P
- OVRHT3B(C)501201P OVRHT3B(C)504801P

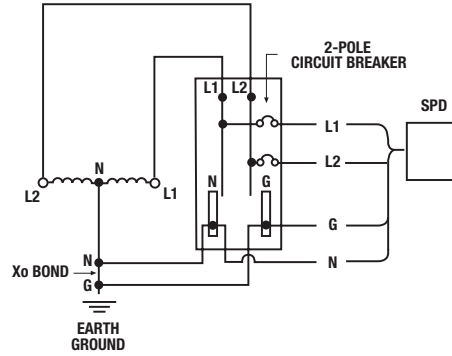


Figure 2: 2-phase, 3-wire

- OVRHS3U401202S
- OVRHT3B(C)501202S
- OVRHT3B(C)502402S

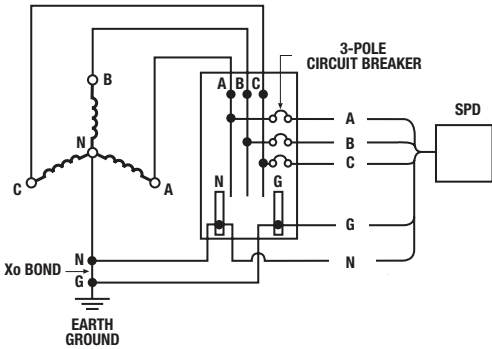


Figure 3: 3-phase Wye, 4-wire

- OVRHS3U402083Y OVRHT3B(C)502303Y
- OVRHS3U402773Y OVRHT3B(C)502403Y
- OVRHS3U402303Y OVRHT3B(C)502773Y
- OVRHT3B(C)501203Y OVRHT3B(C)503473Y
- OVRHT3B(C)502203Y

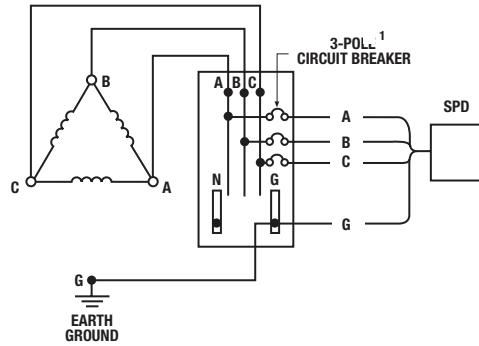


Figure 4: 3-phase Delta, 3-wire

- OVRHS3U402403D OVRHT3B(C)504003D
- OVRHS3U404803D OVRHT3B(C)504153D
- OVRHT3B(C)502403D OVRHT3B(C)504803D
- OVRHT3B(C)503803D OVRHT3B(C)506003D

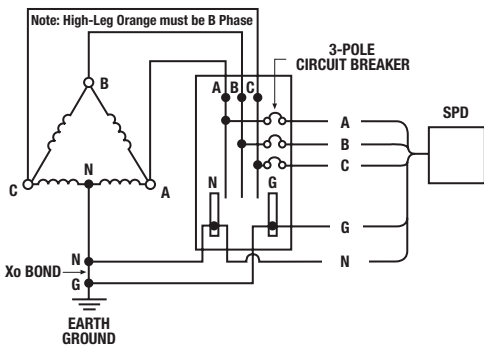


Figure 5: 3-phase High-Leg Delta, 4-wire

- OVRHT3B(C)502403H

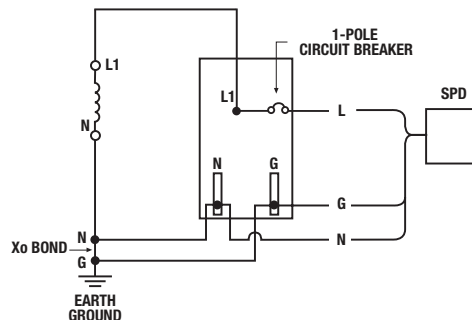


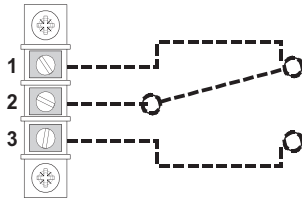
Figure 6: 1-phase, 2-wire (Earthing System)

- OVRHT3B(C)502301PI OVRHT3B(C)502301PK
- OVRHT3B(C)502301PJ OVRHT3B(C)502301PL



Connecting the remote contacts to an alarm
(If option chosen on the OVRHS3U)

For “fail-safe” Form “C” monitoring, use the labeled Form “C” wire outputs to the alarm detection wires. Both outputs NO or NC are available and either can be used dependent upon Negative or positive logic choice. Relay contacts are rated for 1A, at 150Vac or 60Vdc maximum.



Relay contacts shown in the relaxed position (protector alarm or loss of power).

Note: Maximum torque on terminals is 10 in-lbs.

⚠ CAUTION:
Do not assume the circuit is de-energized! Remove power before performing any maintenance to these devices.

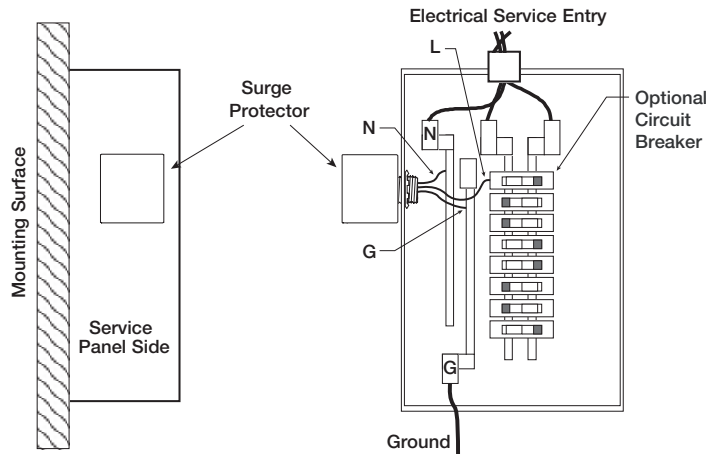
⚠ CAUTION:
Do not splice SPD conductors within the unit’s enclosure or manufacturer’s warranty will be void. SPD’s performance will be limited severely if the conductors are A) too long B) are of too small a wire gauge C) have too many bends or D) have sharp bends.

⚠ CAUTION:
Prior to installation, confirm and ensure the system configuration and voltage rating of the surge protector being installed.

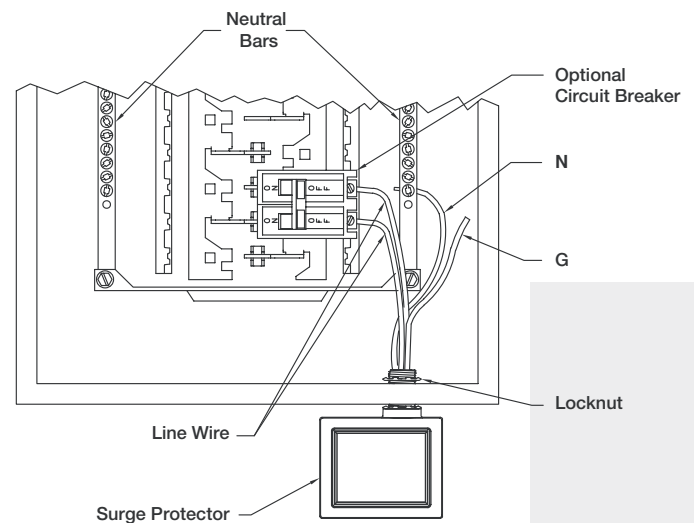
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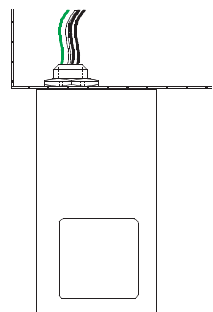
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OVRHT3B mounting



OVRHT3C mounting



OVRHS3U mounting