

# OVRHTE

## Surge protective devices

### Installation, operation and maintenance manual



## Product features

- Listed to UL 1449 4th edition for Type 2 SPD applications.
- Protects facilities and equipment against the harmful effects of lightning strikes and internally generated electrical transients.
- Includes pre-wired pigtail conductors to streamline installation.
- Features internal copper bus conduction path to minimize system impedances, lowering clamping voltage and increasing protection.

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## Guide to installation and assistance

Thank you for choosing the ABB OVRHTE 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 OVRHTE 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 OVRHTE series may become damaged or may not provide adequate protection. It is extremely important to follow these installation procedures carefully.

### △ WARNING!:

THE OVRHTE 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 Delta or 2-phase OVRHTE 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 OVRHTE series and void the warranty.

### △ WARNING!:

Do not HIPOT the OVRHTE series units or the electrical system to which the OVRHTE series unit is connected without disconnecting the OVRHTE 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 personnes qualifiées électrotechnique.

#### ¡Advertencia!

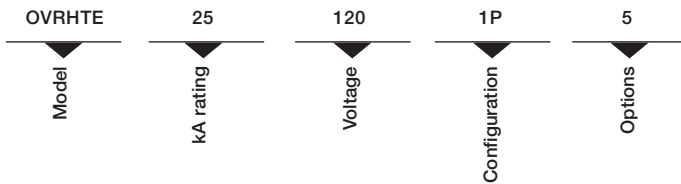
La instalación deberá ser realizada únicamente por electricistas especializados.

# Pre-installation checklist

Confirm that the voltage(s) and service configuration shown on the OVRHTE series product label are consistent with the voltage and service configuration of the facility. A model number is on the right side of the OVRHTE series unit. Each model number corresponds to the configurations printed in Table 1:

Example of a SPD model number: OVRHTE251201P5

Sample model number scheme



**Table 1: Configuration table**

Model number	Voltage	Configuration
OVRHTExx1201P	120V	1-phase, 2-wire + ground
OVRHTExx2401P	240V	1-phase, 2-wire + ground
OVRHTExx1202S	120/240V	2-phase, 3-wire + ground
OVRHTExx1203Y	120/208V	3-phase Wye, 4-wire + ground
OVRHTExx2203Y	220/380V	3-phase Wye, 4-wire + ground
OVRHTExx2403Y	240/415V	3-phase Wye, 4-wire + ground
OVRHTExx2773Y	277/480V	3-phase Wye, 4-wire + ground
OVRHTExx3473Y	347/600V	3-phase Wye, 4-wire + ground
OVRHTExx2403H	120/240V	3-phase Hi-Leg Delta, 4-wire + ground
OVRHTExx2403D	240V	3-phase Delta, 3-wire + ground
OVRHTExx3803D	380V	3-phase Delta, 3-wire + ground
OVRHTExx4803D	480V	3-phase Delta, 3-wire + ground

Where "xx" = 25, 50, 80, 100 kA per mode

### OVRHTE series option

Dry Form "C" relay contacts add suffix 5

Check to ensure that a proper Xo bond is installed between the neutral and ground terminals at the transformer upstream from all 3-phase High-Leg Delta, 1-phase split phase, or 1-phase single phase OVRHTE devices. Lack of a proper bond will damage the OVRHTE and void the warranty.

Confirm that the environmental conditions are consistent with these ranges:

**Ambient temperature:** The OVRHTE must be installed in an area with a temperature between -40° and +60°C. (-40° and +140°F).

**Humidity:** The OVRHTE must be installed in an area with relative humidity between 5% and 95%, noncondensing.

### **WARNING!:**

**Discontinue installation if (1) your conditions are inconsistent with the guidelines above or (2) your conditions cannot be verified.**

# Service configurations

OVRHTE is to be connected in parallel with the electrical system and must be fed by an overcurrent protection device (20A circuit breaker or fuse) in a power distribution panel.

Figures 1–5 show the electrical relationship between OVRHTE series unit and these five basic service configurations:  
 1-phase, 2-wire; 2-phase, 3-wire; 3-phase Wye, 4-wire;  
 3-phase Delta, 3-wire and 3-phase High-Leg Delta, 4-wire.

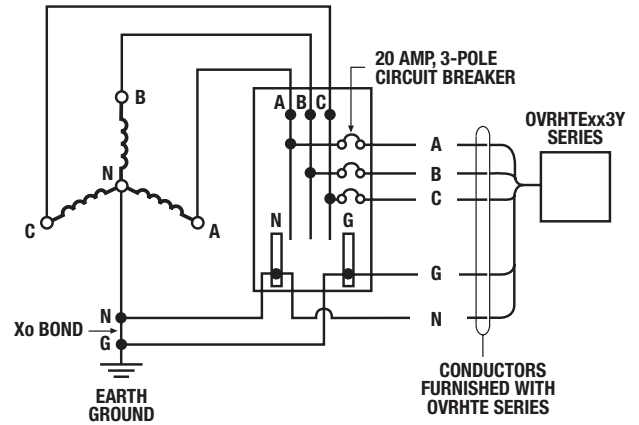


Figure 3: 3-phase Wye, 4-wire

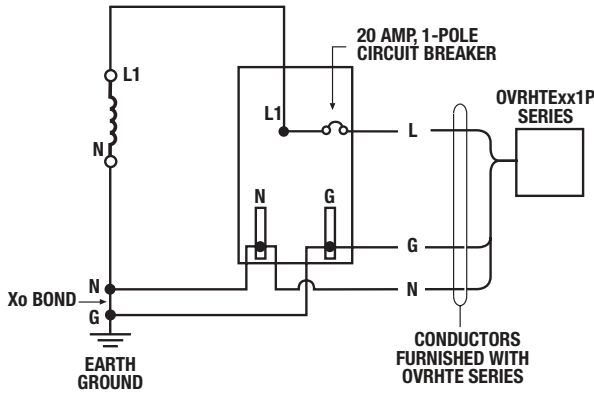


Figure 1: 1-phase, 2-wire

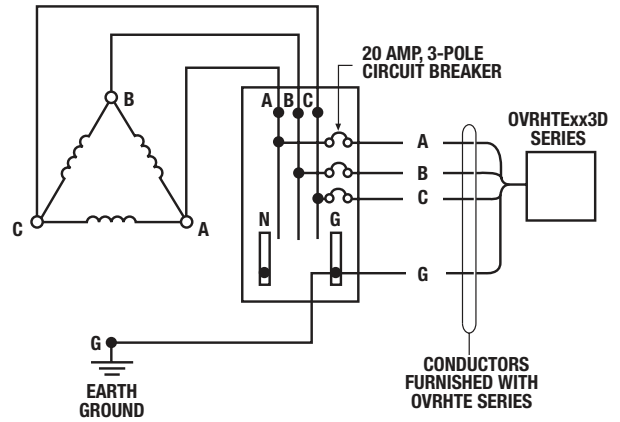


Figure 4: 3-phase Delta, 3-wire

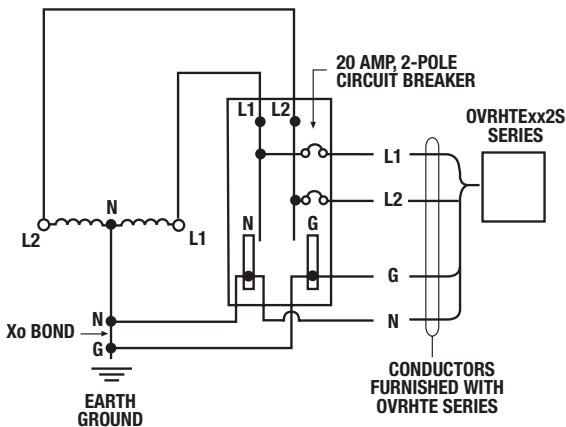


Figure 2: 2-phase, 3-wire

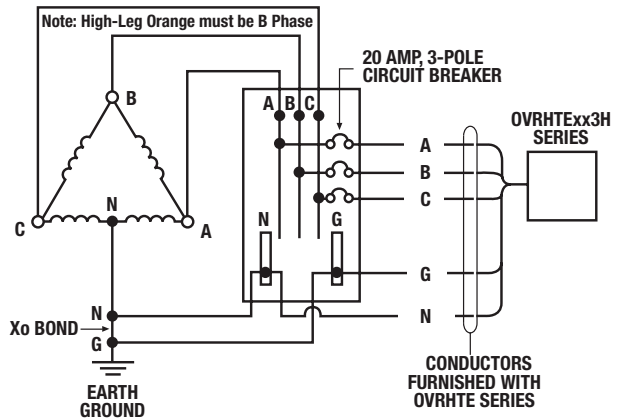
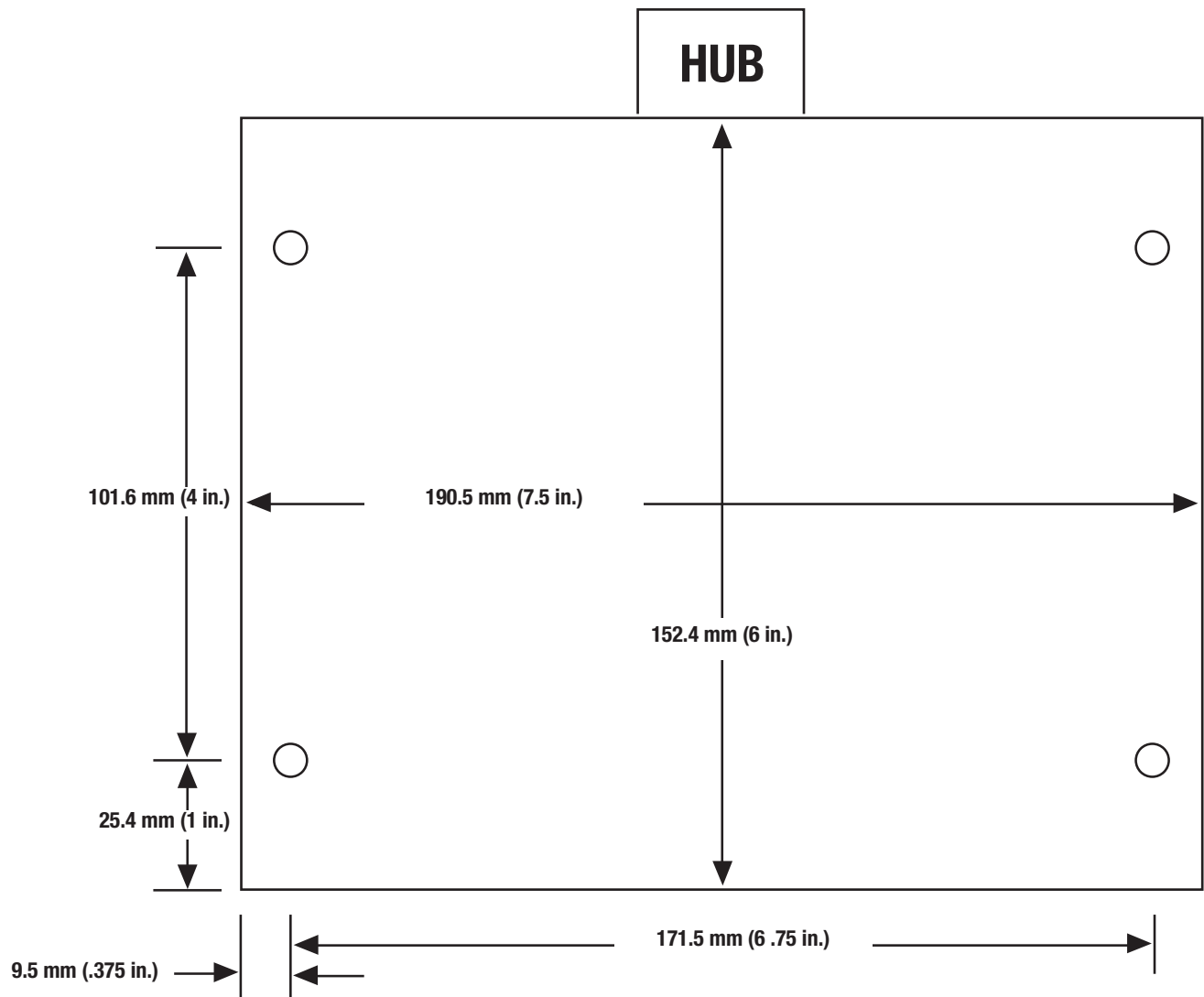


Figure 5: 3-phase High-Leg Delta, 4-wire

# Mounting

**Figure 6**  
**Mounting hole detail**

Four 7.9 mm (.3125 in.) holes are provided for mounting the OVRHTE



# Electrical connections

## △ WARNING!:

Be sure power is off before terminating the OVRHTE leads.

**Raceway:** To route OVRHTE conductors to the panel being protected, choose from any of these materials: (1) non-metallic flexible conduit, (2) metallic flexible conduit, (3) rigid conduit or (4) a nipple. The OVRHTE enclosure is provided standard with a 19.1 mm (.75 in.) hub which will accept rigid or IMC conduit. A plastic flexible conduit with fitting and a 76.2 mm (3 in.) nipple are available as options.

**Wire length:** Use the supplied 609.0 mm (24 in.), 5.26 mm<sup>2</sup> (#10 AWG) leads. Trim leads to suit the application but do NOT splice to add length to the leads. Refer to Figures 1–4 for the color code of the OVRHTE leads. Terminate the leads as shown. (Note: For optimum performance, keep leads as short as possible and avoid sharp bends.)

**Overcurrent protection:** OVRHTE leads must be protected with an overcurrent protection device (circuit breaker or fuse) rated at 20 amps. Use a 3-pole breaker for 3-phase units or a 2-pole breaker for single-phase units.

**Dry Contacts:** For OVRHTE units with optional dry contacts, use butt splices within the panelboard to connect the dry contacts leads to the user's monitoring circuits. Alternatively, install a junction box between the OVRHTE and the panelboard to connect dry contacts leads to user's monitoring circuits. (See Figure 6). Consult applicable local codes to ensure proper installation.

## Before applying power

- Measure the line to line voltage at the panel to be protected and be sure it is within  $\pm 10\%$  of rated line to line voltage of the OVRHTE. Use the following table to determine the range of acceptable voltage for each model of OVRHTE.

### Acceptable voltage ranges for All OVRHTE models

OVRHTE model number	Nominal voltage	L-L voltage range
OVRHTE <sub>xx</sub> 1201P	120V	N/A
OVRHTE <sub>xx</sub> 2401P	240V	N/A
OVRHTE <sub>xx</sub> 1202S	120/240V	216 to 264
OVRHTE <sub>xx</sub> 1203Y	120/208V	188 to 228
OVRHTE <sub>xx</sub> 2203Y	220/380V	342 to 418
OVRHTE <sub>xx</sub> 2403Y	240/415V	374 to 457
OVRHTE <sub>xx</sub> 2773Y	277/480V	432 to 528
OVRHTE <sub>xx</sub> 3473Y	347/600V	540 to 660
OVRHTE <sub>xx</sub> 2403H	120/240V	216 to 264
OVRHTE <sub>xx</sub> 2403D	240V	216 to 264
OVRHTE <sub>xx</sub> 3803D	380V	342 to 418
OVRHTE <sub>xx</sub> 4803D	480V	432 to 528

Where "xx" = 25, 50, 80, 100 kA per mode

## △ WARNING!:

Do not apply power if the measured voltage is not within the range specified for the OVRHTE model being installed.

## Applying power

- Apply power to unit by closing the circuit breaker.
- Check OVRHTE lights. Protection is active when all lights are illuminated.

## Troubleshooting

Unit should be replaced if:

- Circuit breaker trips and cannot be reset
- One or more lights on OVRHTE are not illuminated

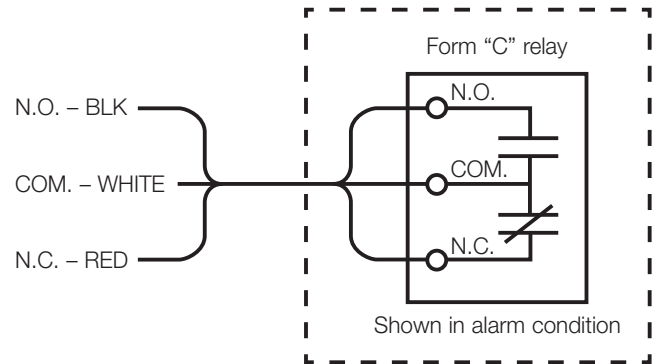
## Options

The OVRHTE is available with these options:

- Dry relay contacts for remote monitoring. Upon failure of any phase, the relay's N.O. and N.C. contacts will change state. The contacts are rated at 110VDC/125VAC with maximum switching power of 30W DC/62.5VA AC.
- 457.0 mm (18 in.) of 19.1 mm (.75 in.) nonmetallic flexible conduit and a fitting that connects to the provided 19.1 mm (.75 in.) hub.
- 19.1 mm (.75 in.) x 76.2 mm (3 in.) nipple that connects to the provided 19.1 mm (.75 in.) hub.

## Standards/Compliance

- Listed by UL to UL 1449 4th Edition for Type 2 SPD application, cUL, and UL1283
- Compliant to IEEE C62.41.1-2002, C62.41.2-2002, and C62.45-2002
- NFPA 70 [NEC], Article 285
- RoHS compliant



**Figure 6**  
Detail of optional dry relay contacts

## Operation/Maintenance

The only operational verification necessary on the OVRHTE is to observe that the lights are illuminated. There is no maintenance to be performed on the OVRHTE nor does the OVRHTE contain any user-serviceable parts.

# Contact us

[www.abb.com](http://www.abb.com)

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**Model #**

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**Date of purchase**

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**Date installed**

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**Installer**

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