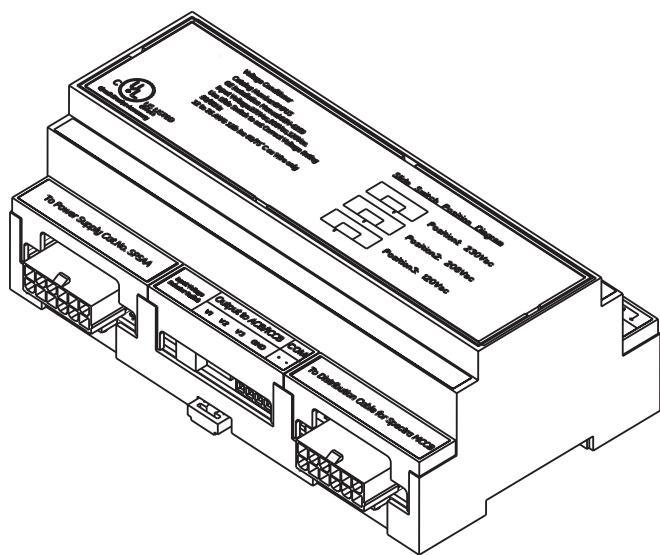


GEH-6259 Installation Instructions

Voltage Conditioner Assembly

For use with *micro*EntelliGuard*, EntelliGuard TU, MicroVersaTrip* PM or MicroVersaTrip* Plus Trip Units

For Catalog Number GMPU5, GMPU6, & GMPU7
UL Listed Circuit Breaker Accessory



The voltage conditioner assembly is designed to operate in temperatures between 0°C and 70°C. It requires a power supply source of +24Vdc to operate properly with the *micro*EntelliGuard, MicroVersaTrip PM or MicroVersaTrip Plus Trip Units in Spectra Molded Case Circuit Breakers. The power supply assembly (catalog number SPSAA) or power supply plate (catalog number SPSA120, SPSA208, SPSA240, SPSA480 or SPSA600) can provide this required input. This input is not required for operation with Insulated Case or Air Circuit Breakers.

The unit also requires direct AC voltage inputs from the AC source. The voltage conditioner assembly is available in three variations (shown in Table 1), each supporting three different voltages, for a total of 9 voltage ratings.

Overview

The voltage conditioner assembly is used to provide voltage-sensing signals to *micro*EntelliGuard, EntelliGuard TU, and MicroVersaTrip PM/Plus Trip Units.

The assembly has the maximum capacity to provide voltage-sensing signals to a Spectra Distribution Cable System consisting of 20 combined trip units with a maximum system cable length of 40 feet. When used with Insulated Case or Air Circuit breakers, the max is 15 trip units at a max distance of 20 feet.

Table 1. Voltage Conditioner Assemblies

Catalog Number	Source Voltage		
	Position 1	Position 2	Position 3
GMPU5	230	208	120
GMPU6	340	277	240
GMPU7	600	480	400

To switch between voltages in the system the user must use the selector switch to select the correct voltage. If the voltage switch is not correct it may result in incorrect metering and voltage reading of the trip unit. To remind the user of this, each unit comes with position indicators to show which position corresponds to which voltage. (See Figure 1.)

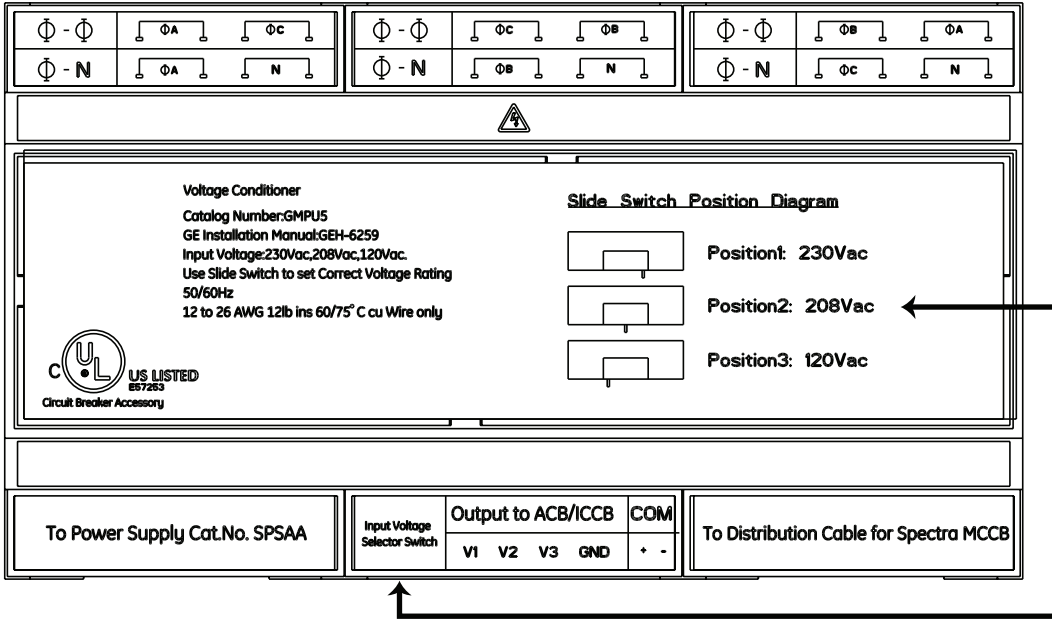


Figure 1. Voltage Selector Switch – slide switch to the correct position corresponding to the position diagram

Dimensions

A voltage conditioner assembly dimensioned drawing is provided in Figure 2 to assist in mounting the accessory. It is recommended that the accessory be mounted via 35mm DIN rail. The Din Rail slot is located on the back of the assembly. It runs directly through the center of the assembly horizontally. DIN rail clips are available on the top and bottom of the unit.

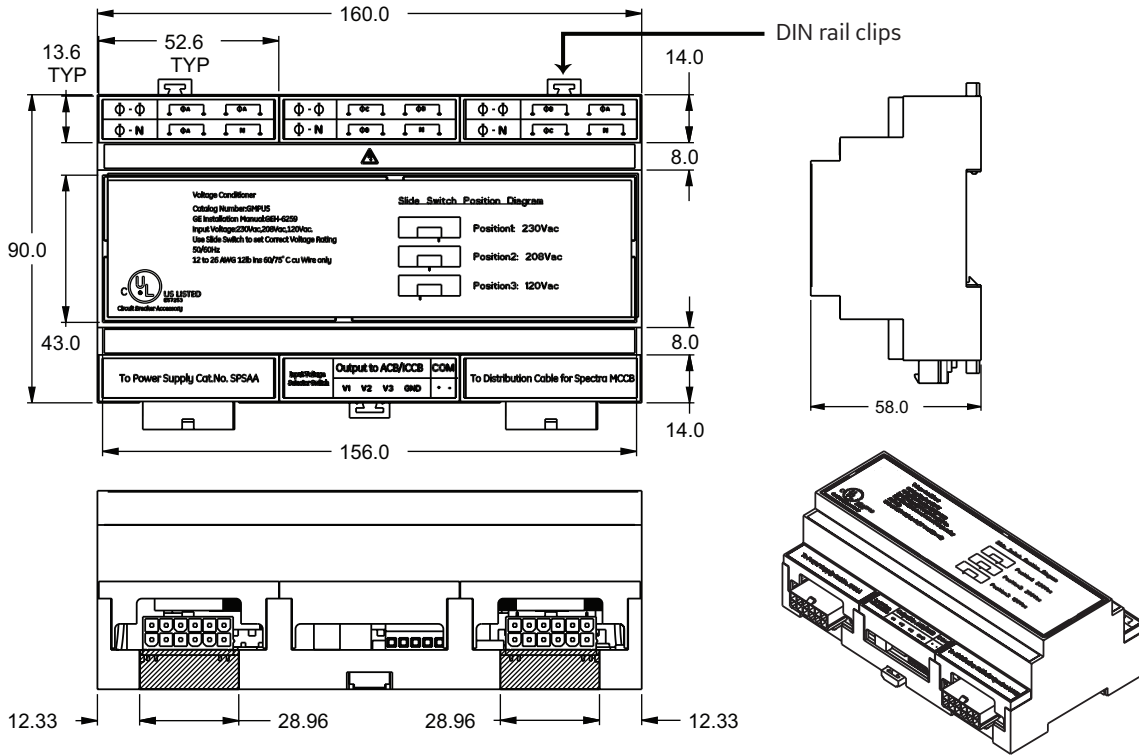


Figure 2. Voltage Conditioner Assembly Dimensions (mm)

Connections

The voltage conditioner assembly contains five connection points. The following list contains a description of each.

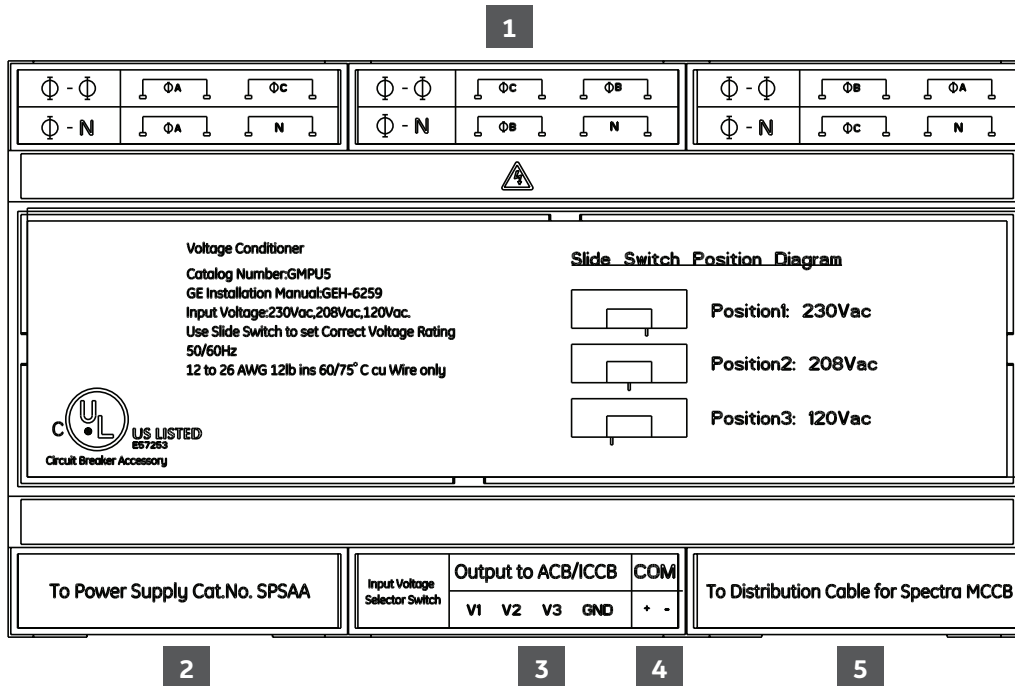


Figure 3. Voltage Conditioner Connections

1. AC Input Voltage Side

Six-screw terminals for connection of the primary AC source. The screw terminals are labeled by function for clarity. The terminal strip pockets on the AC input side accommodate wire up to 12 AWG. To make the connection simply strip the wire, leaving approximately 0.30 inches exposed, insert the wire into the connector and screw the terminal down.

The connection pattern depends on if the system is configured in either Wye or Delta. The two possible ways to connect the AC voltage input side are detailed below.

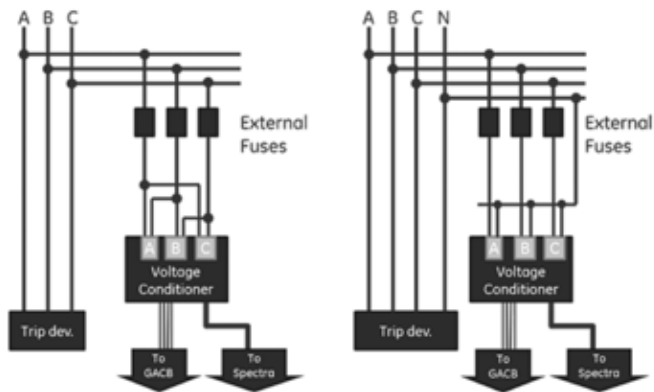


Figure 4. AC Voltage Wiring Configurations (Note: The voltage conditioner has internal fuses to protect itself, the external fuses shown here are for additional protection if desired)

2. To Power Supply Cat. No. SPSAA

12-pin plug connector that mates with the 12-pin connector of the distribution cable harness (catalog number SDCHA11, SDCHA30 or SDCHA60). The other end of the harness MUST mate to either a power supply assembly (catalog number SPSAA) or a power supply plate (catalog number SPSA120, SPSA208, SPSA240, SPSA480 OR SPSA600). Failure to do so will result in the absence of a voltage-sensing signal and inaccuracies in voltage dependent information / metering at Spectra RMS Molded-Case Circuit Breakers.

3. Output to ACB/ICCB

Four-screw terminal block for optional voltage-sensing signal output to MicroVersaTrip PM or EntelliGuard™ TU Trip Units in Air Circuit Breakers and/or Insulated Case Circuit Breakers. (Do not connect this voltage signal to a Spectra trip unit. The voltage signal structure is different between the MCCB and ACB/ICCB trip unit platforms.)

4. COM

Two-screw terminal block for connection to communications network. A communications connection is provided for applications where data is transmitted to an external intelligent device (see Table 2).

Table 2. Associated Software and Protocol for the different Spectra Series Breakers

Trip Unit Type	Protocol	Software
MicroVersaTrip PM	Commnet	POWER LEADER*
microEntelliGuard	Modbus	EnerVista Viewpoint

5. To Distribution Cable for Spectra MCCB

12-pin plug connector that mates with the 12-pin connector of a distribution cable harness (catalog number SDCHA11, SDCHA30 or SDCHA60). The distribution cable system is used to interconnect the voltage signal on the voltage conditioner plate and the Spectra RMS Molded-Case Circuit Breakers.

The 12-pin connectors are keyed so they cannot be inserted incorrectly into a mating 12-pin receptacle connector. To connect to the voltage conditioner plate plug(s), align the receptacle interlock connector of a distribution cable harness with the plug hook connector of the voltage conditioner plate. Insert the receptacle until the interlock and hook catch (see Figure 5). To disconnect from the voltage conditioner plate, press down at the rear of the receptacle interlock until the interlock clears the plug hook, and withdraw the receptacle interlock (see Figure 6).

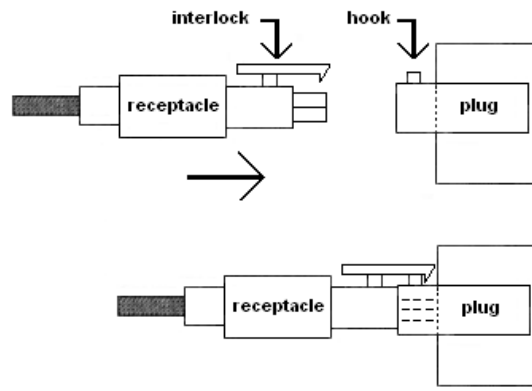


Figure 5. Side view of receptacle-plug insertion into voltage conditioner assembly

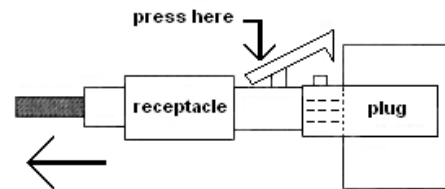


Figure 6. Side view of receptacle-plug removal from the voltage conditioner assembly

Spectra RMS Molded Case Circuit Breaker Connection System

Figure 7 shows how the voltage conditioner assembly is used in a typical system.

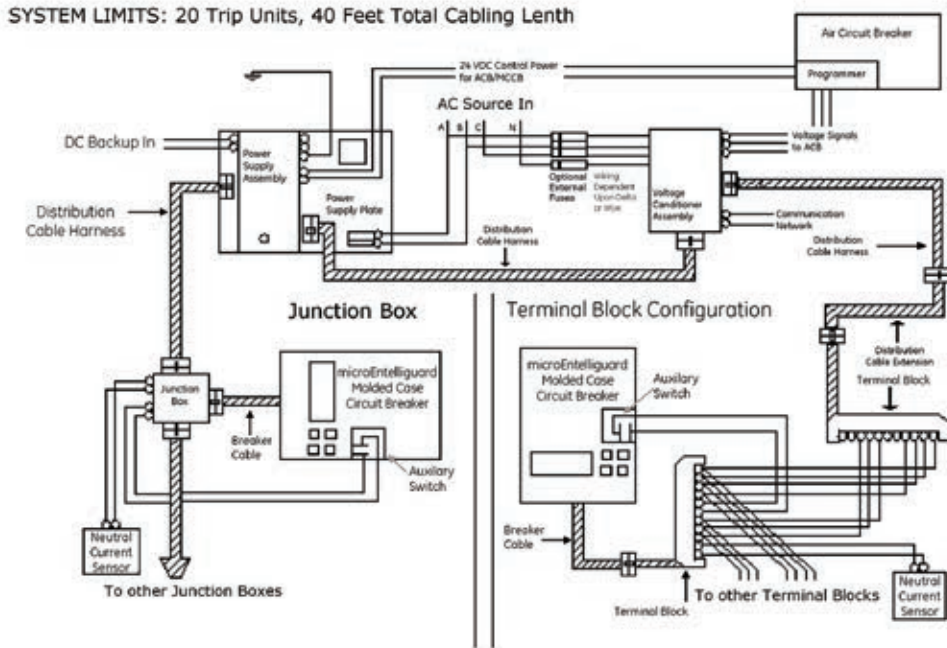


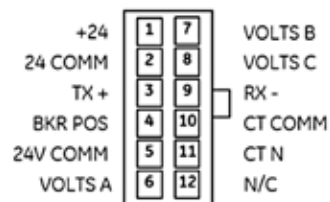
Figure 7. Typical system showing voltage conditioner assembly

By plugging the voltage conditioner plate into the distribution cable system you create system wide signals that are available to all breakers connected to the system; a list of those functions appears in Table 3.

Table 3. Signals available on the Distribution Cable System by connection of the Voltage Conditioner Assembly

Spectra RMS Breaker with <i>microEntelliGuard</i> or <i>MicroVersaTrip</i> PM Trip Unit	Spectra RMS Breaker with <i>MicroVersaTrip</i> Plus or <i>microEntelliGuard</i> with Basic Metering Trip Unit
System communications (Comm. +)	No signals available
System communications (Comm. -)	
Voltage 1 (defined as potential between A & N or between A & C)	
Voltage 2 (defined as potential between B & N or between C & B)	
Voltage 3 (defined as potential between C & N or between B & A)	
+24V Aux Power (not provided by the voltage conditioner assembly)	
24V Ground Line (not provided by the voltage conditioner assembly)	

A full breakout of the 12 pin connector can be viewed below.



Parts and Options

The only user-serviceable components or parts on the voltage conditioner assembly are fuses internal to the device. The recommended replacement internal fuse is: LittleFuse part number 508.500MXP. Failure to use the proper type of fuses can result in damage to the accessory. Three fuses per voltage conditioner assembly are required. This fuse should only need to be replaced in the event of a fault or incorrect usage, ensure the issue is fixed prior to fuse replacement.

To replace the fuses, first disconnect the primary voltage from the unit to eliminate any voltage potential on the unit (if this step is not completed the user can be exposed to live voltages), and then lift the plastic tabs on the housing. After removing the housing the fuses will be easily distinguishable and are easily replaced. (See Figure 8.)

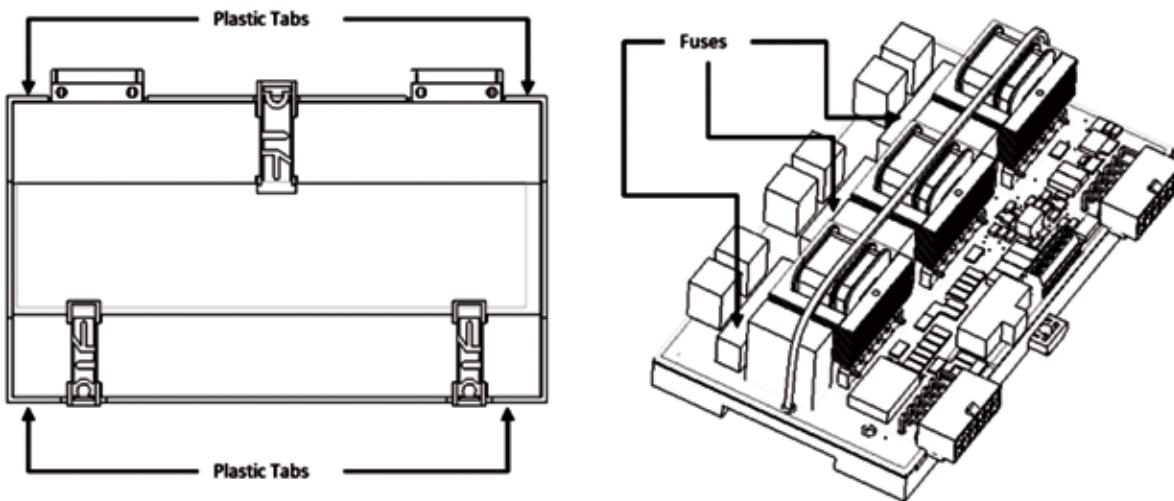


Figure 8. Voltage conditioner assembly fuses and housing

Additional Information

Refer to these other user's manuals for more details:

- GEH-5934 MicroVersaTrip Plus and MicroVersaTrip PM Trip Units in Spectra RMS Molded-Case Circuit Breakers
- GEH-5946 POWER LEADER Voltage Conditioner
- GEH-700 Spectra G Breaker w/ microEntelliGuard Trip Unit
- GEH-701 Spectra K Breaker w/ microEntelliGuard Trip Unit
- GEH-702 *microEntelliGuard Trip Unit Users Manual*
- DEH-41318 Universal Rating Plug
- GEH-6250 Voltage Module
- GEH-6251 Power Supply Plate
- GEH-6253 Power Supply Assembly
- GEH-6254 Voltage Conditioner Assembly
- GEH-703 MET Battery Pack Adapter
- GEH-704 MET Advanced Distribution Cable Junction Box
- DEH-006 Distribution Cable Junction Box
- GEH-705 MET Distribution Cable Extension (20-pin)
- GEH-6256 Distribution Cable Extension (12-pin)
- GEH-6255 Distribution Cable Harness (12-pin)
- GEH-706 MET Distribution Cable Terminal Blocks (11 point & 22 point)
- GEH-6257 Distribution Cable Terminal Block (11 point)
- GEH-6491 POWER LEADER Modbus Concentrator
- GEH-6502 POWER LEADER PMCS 5.0 Network Architecture Guide
- GEH-707 MET Sealable Cover kits
- DEH-4568 GTU digital test kit (GTUTK20)
- GEH-5551 Shunt Trip and UVR instructions
- GEH-5593 Aux switch and bell alarm
- GEK-64467 TIM-1 Zone Selective Interlock Module

These instructions do not cover all details or variations in equipment nor do they provide for every possible contingency that may be met in connection with installation, operation, or maintenance. Should further information be desired or should particular problems arise that are not covered sufficiently for the purchaser's purposes, the matter should be referred to the ABB Inc.

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