

GEH-6251 Installation Instructions

Power Supply Plate

For Spectra® RMS Molded-Case Circuit Breakers with *microEntelliGuard*™, MicroVersaTrip® PM or MicroVersaTrip® Plus Trip Units

For Catalog Numbers SPSA120, SPSA208, SPSA240, SPSA480, SPSA600
UL LISTED Circuit Breaker Accessory



Overview

The General Electric Power Supply Plate is used to provide +24Vdc Control Power to Spectra® RMS Molded-Case Circuit Breakers with *microEntelliGuard*™ or MicroVersaTrip® PM/Plus Trip Units via the Distribution Cable System. The Power Supply Plate also provides power to the Voltage Conditioner Assembly or Voltage Conditioner Plate (Spectra® RMS Molded-Case Circuit Breakers with *microEntelliGuard*™ or MicroVersaTrip® PM Trip Units require connection to a Voltage Conditioner Assembly or Voltage Conditioner Plate to function properly). The Power Supply Plate includes the Power Supply Assembly (catalog number SPSAA) as an

integral component and also includes fuse protection for the AC source input terminals.

The Power Supply Plate is rated 24 watts (+24Vdc @ 1.0 Amp) and has the maximum capacity to power a Distribution Cable System consisting of either a Voltage Conditioner Assembly or a Voltage Conditioner Plate AND 20 Spectra® RMS Molded-Case Circuit Breakers with *microEntelliGuard*™ or MicroVersaTrip® PM / Plus Trip Units with a maximum system cable length of 40 feet. The Power Supply Plate is designed to operate in temperatures between 0°C and 70°C.

Figure 1 shows how the Power Supply Plate is used in a typical MicroVersaTrip® PM system. Figure 2 shows how the Power Supply Plate is used in a typical MicroVersaTrip® Plus system. The *microEntelliGuard*™ Trip Unit can be used with either configuration, i.e. Figure 1 or Figure 2. The connection diagram shown in Figure 2 applies to *microEntelliGuard*™ Trip Units with Basic Metering.

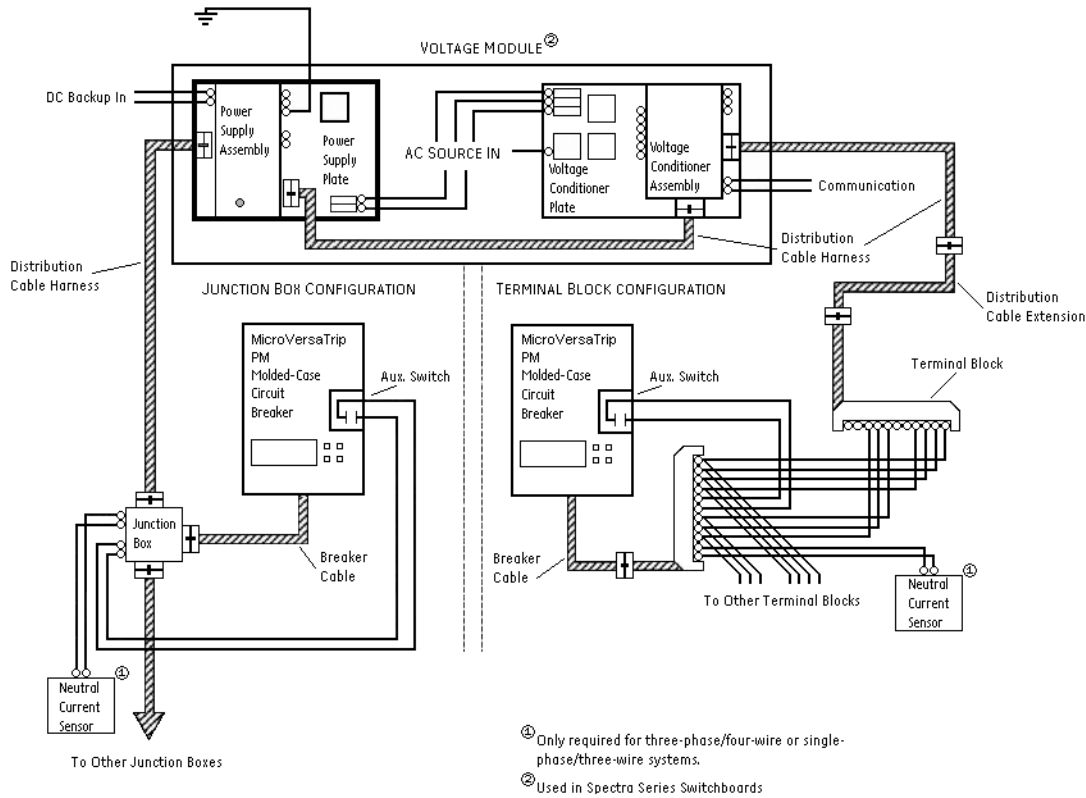


Figure 1. Typical *microEntelliGuard*™ or MicroVersaTrip® PM Trip Unit System detailing the Power Supply Plate.

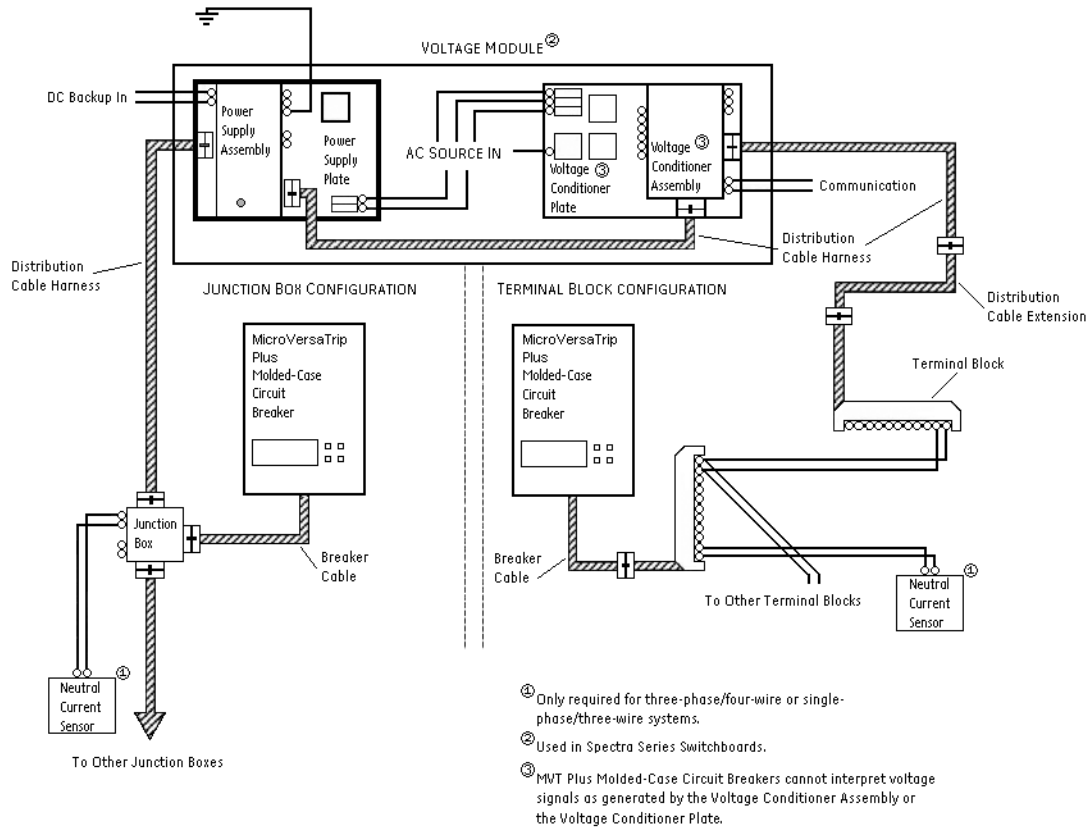


Figure 2. Typical *microEntelliGuard™* or *MicroVersaTrip®* Plus Trip Unit System detailing the Power Supply Plate.

The Power Supply Plate is available in five ratings. Table 1 contains a listing of all GE Power Supply Plates. All units are rated 60 Hz. Supplemental 24Vdc input terminals are provided for systems that have access to an external +24Vdc power supply. If this supplemental input is connected, the assembly will continue to pass the control power to breakers and accessories connected to the Distribution Cable System if the primary AC power is lost or drops below the minimum requirement. This backup input must meet ANSI C37.90.1 for oscillatory and fast transient surges (the Power Supply Plate provides this protection for the primary AC input). Additional 24Vdc output connections are supplied for applications where +24Vdc control power is required independent of the Distribution Cable System (i.e., feeding an Air Circuit Breaker or Insulated Case Breaker with microVersaTrip® PM/Plus or EntelliGuard™ TU Trip Unit).

NOTE: THE POWER SUPPLY PLATE IS SIZED FOR A MAXIMUM OF 20 BREAKERS. Use of the Power Supply Plate to provide voltage sensing signals and/or +24Vdc control power to a main Air Circuit Breaker or a main Insulated Case Breaker with a MicroVersaTrip® PM/Plus or EntelliGuard™ TU Trip Unit reduces the total quantity of 20 Spectra® RMS Molded-Case Circuit Breakers with microEntelliGuard™ or MicroVersaTrip® PM/Plus Trip Units by one. The overall maximum cabling length of the system remains 40 feet.

Table 1. Ge Power Supply Plates

Voltage Rating	Catalog Number	Class CC Line Fuses	#	Comments
120VAC	SPSA120 ¹	2amp	1	SPSAA on mounting plate with fuse holder
208VAC	SPSA208	2amp	2	SPSAA on mounting plate with fuse holder
240VAC	SPSA240	2amp	2	SPSAA on mounting plate with fuse holder
480VAC	SPSA480	2amp	2	SPSAA on mounting plate with fuse holder and 480 Vac transformer
600VAC	SPSA600	2amp	2	SPSAA on mounting plate with fuse holder and 480 Vac transformer

¹ Fuse protection only in one leg – this is a line-to-neutral connection. All other connections are line to line.

The Power Supply Plate contains six connection points. Refer to Figures 4 and 5 for connection details and location information. The following is a detailed list of the Power Supply Plate connection points:

- “To Distribution Cable”
 - 12-pin plug connector that mates with the 12-pin receptacle of a Distribution Cable Harness (catalog number SDCHA11 , SDCHA30 or SDCHA60).
- “To Voltage Conditioner”
 - 12-pin plug connector that mates with the 12-pin receptacle of a Distribution Cable Harness (catalog number SDCHA11, SDCHA30 or SDCHA60). For Spectra® RMS Molded-Case Circuit Breakers with microEntelliGuard™, MicroVersaTrip® PM Trip Units, the other end of the harness MUST connect to either a Voltage Conditioner Assembly (catalog number SVCAA) or a Voltage Conditioner Plate (catalog number SVCA120Y, SVCA208Y, SVCA240D, SVCA277Y, SVCA480Y, SVCA480D or SVCA600D) for the breaker to function properly.
- “Input Voltage”
 - Two-screw terminals on the fuse block for connection of the primary AC source.
- “Input”
 - Three-screw terminal block on the Power Supply Assembly. Use one-terminal screw for connection of the ground (the other two-terminal screws are factory wired to the load side of the fuse block).
- “Output to 24Vdc”
 - Two-screw terminal block for optional control power output (in lieu of using the Distribution Cable System).
- “Supplemental Input 24Vdc”
 - Two-screw terminal block for connection of an external +24Vdc power supply.

By plugging the Power Supply 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 Power Supply Plate

Spectra® RMS Breaker with MicroVersaTrip® PM Trip Unit	Spectra® RMS Breaker with MicroVersaTrip® Plus Trip Unit	Spectra® RMS Breaker with microEntelliGuard™ Trip Unit
control power (+24vdc)	control power (+24vdc)	control power (+24vdc)
control power (common)	control power (common)	control power (common)

Dimensions, Weights and Wiring Diagrams

A Power Supply Plate dimensioned drawing is provided in Figure 3 to assist in mounting the accessory. The maximum unit weight is eight pounds.

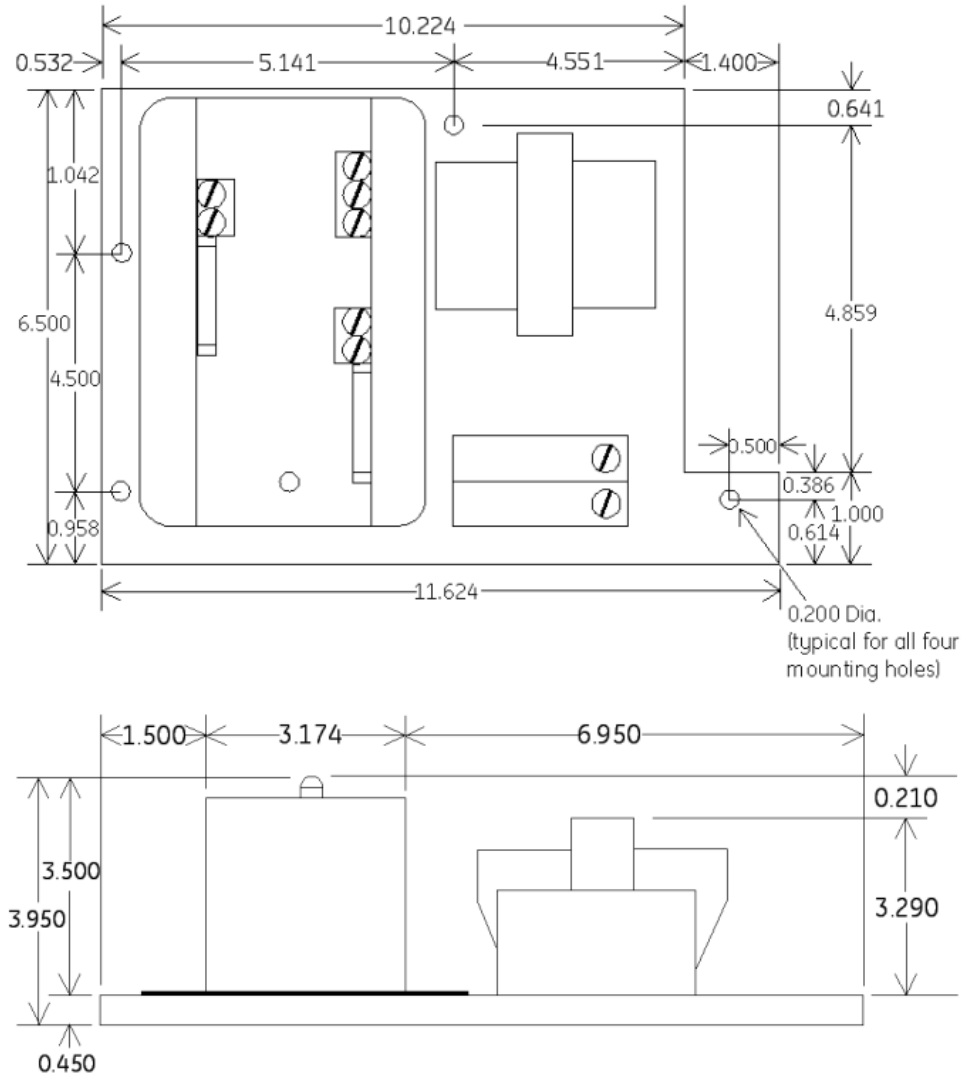


Figure 3. Dimensioned drawing of the Power Supply Plate (dimensions shown in inches).

Figures 4 and 5 contain point-to-point wiring diagrams for a Power Supply Plate as it integrates into a typical *microEntelliGuard™* or *MicroVersaTrip®* PM/Plus System.

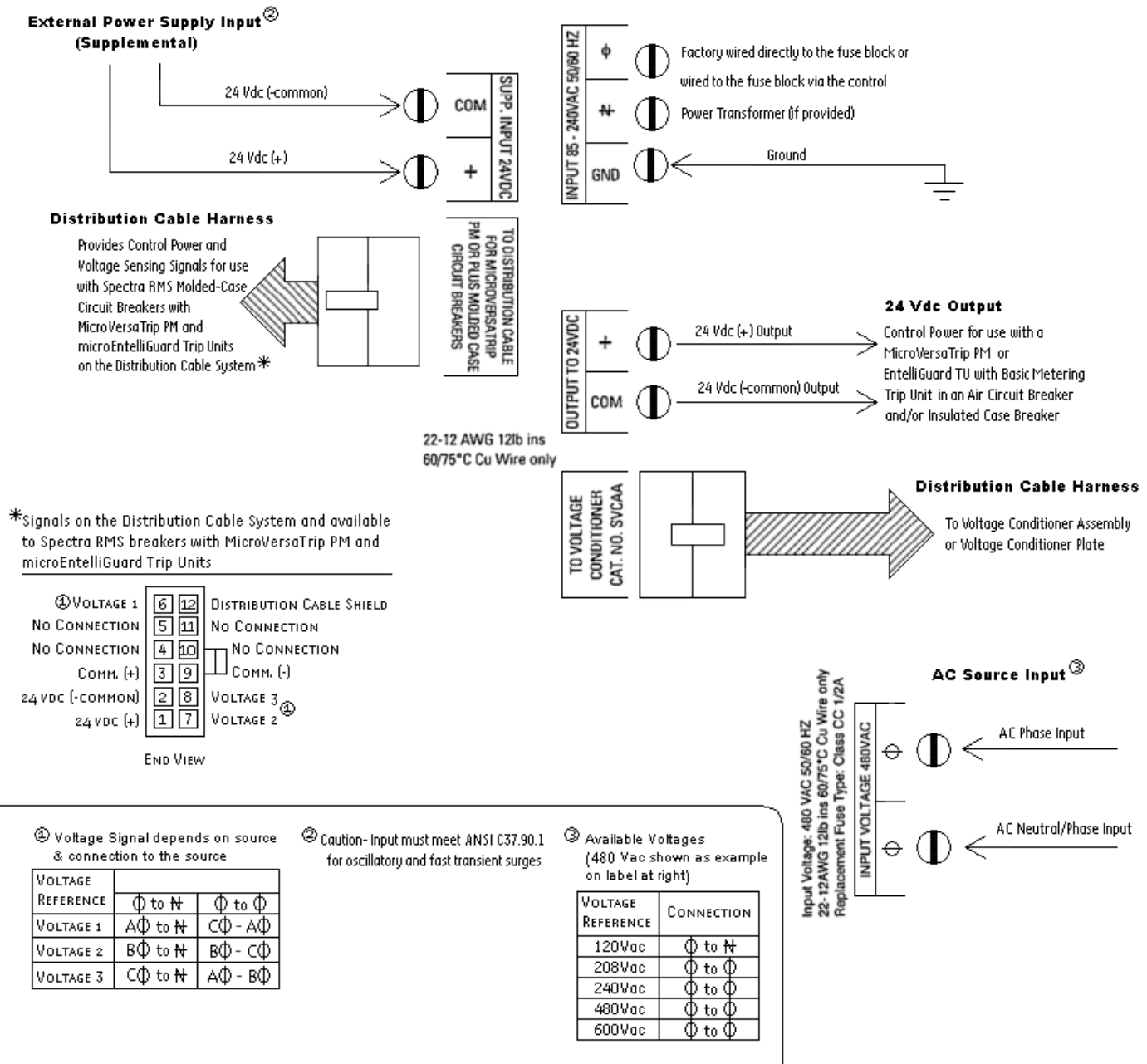
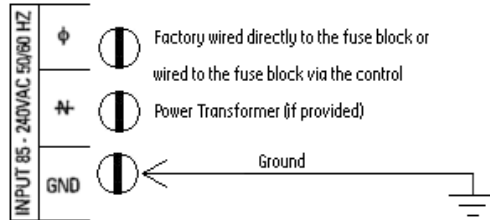
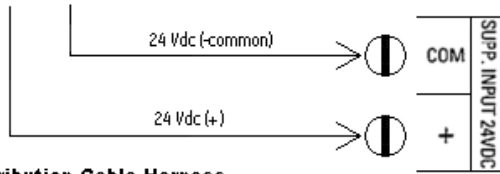


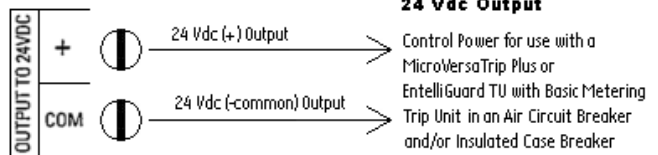
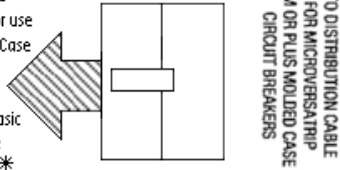
Figure 4. Wiring connections to the Power Supply Plate for a typical *microEntelliGuard™* or *MicroVersaTrip®* PM System.

**External Power Supply Input^①
(Supplemental)**



Distribution Cable Harness

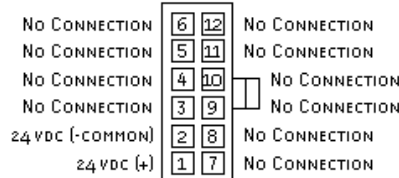
Provides Control Power and Voltage Sensing Signals for use with Spectra RMS Molded-Case Circuit Breakers with MicroVersaTrip Plus and microEntelliGuard with Basic Metering Trip Units on the Distribution Cable System*



24 Vdc Output

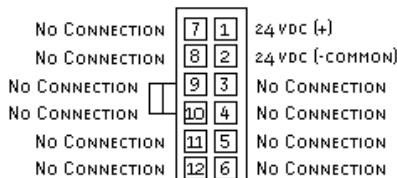
Control Power for use with a MicroVersaTrip Plus or EntelliGuard TU with Basic Metering Trip Unit in an Air Circuit Breaker and/or Insulated Case Breaker

*Signals on the Distribution Cable System and available to Spectra RMS breakers with MicroVersaTrip Plus and microEntelliGuard with Basic Metering Trip Units



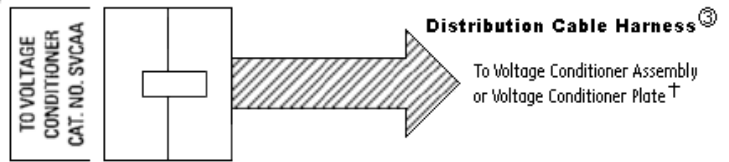
END VIEW

† Signals out to the Voltage Conditioner Assembly or Voltage Conditioner Plate



END VIEW

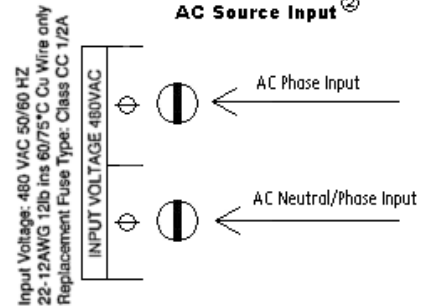
22-12 AWG 12lb ins 60/75°C Cu Wire only



Distribution Cable Harness^③

To Voltage Conditioner Assembly or Voltage Conditioner Plate †

AC Source Input^②



① Caution- Input must meet ANSI C37.90.1 for oscillatory and fast transient surges

② Available Voltages (480 Vac shown as example on label at right)

VOLTAGE REFERENCE	CONNECTION
120Vac	Φ to N
208Vac	Φ to Φ
240Vac	Φ to Φ
480Vac	Φ to Φ
600Vac	Φ to Φ

③ MVT Plus Breakers and microEntelliGuard with Basic Metering cannot interpret voltage signals as generated by the Voltage Conditioner Assembly or the Voltage Conditioner Plate. For these systems ONLY, this plug may be used as a Distribution Cable Harness connection.

Figure 5. Wiring connections to the Power Supply Plate for a typical microEntelliGuard™ or MicroVersaTrip® Plus System

Connections

The screw terminals on the Power Supply Plate are labeled by function for clarity. The terminal strip pockets on the AC INPUT fuse block will accommodate a spade lug or ring terminal with a tongue width up to 0.45 inches. The terminal screw size is 10-32. The terminal strip pockets on the Power Supply Assembly will accommodate a spade lug or ring terminal with a tongue width up to 0.320 inches. The terminal screw size is 10-32. To make the connection, attach an appropriate spade lug or ring terminal to the wire, then slip the fastener beneath the terminal screw and tighten. The Power Supply Plate also contains two 12-pin plug connectors. The connectors are keyed so they cannot be inserted incorrectly into a mating 12-pin receptacle connector. To connect to the Power Supply Plate plug(s), align the receptacle interlock connector of a Distribution Cable Harness with the plug hook connector of the Power. Supply Plate. Insert the receptacle until the interlock and hook catch (see Figure 6). To disconnect from the Power Supply Plate, press down at the rear of the receptacle interlock until the interlock clears the plug hook and withdraw the receptacle interlock (see Figure 7).

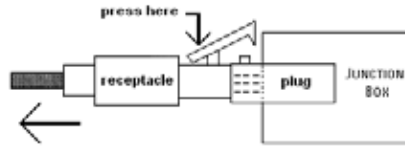


Figure 7. Side view of receptacle-plug removal from the Power Supply Plate

Parts And Options

The only user-serviceable components or parts 011 the Power Supply Plate are the fuses in the AC INPUT fuse block. The fuses listed in Table 4 are recommended as replacements for use with the Power Supply Plate. Failure to use the proper type of fuses can result in damage to the Power Supply Plate. Two fuses per Power Supply Plate are required. If you prefer to purchase a +24Vdc Power Supply without the factory mounted AC line fuses or a control power transformer, a Power Supply Assembly is available. This Power Supply Assembly *always* requires AC line fuse protection and in applications where the AC input voltage is greater than 240Vac @ 60 Hz, a control power transformer will always be required to step the voltage down to 85-240Vac @ 60 Hz. Table 5 lists the details on the GE Power Supply Assembly.

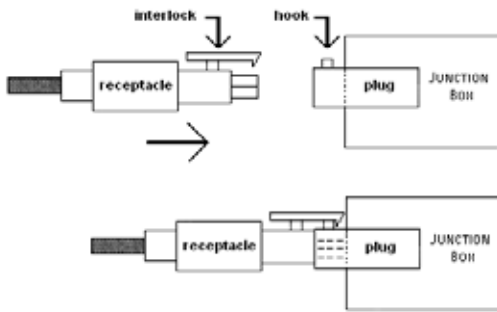


Figure 6. Slide view of receptacle-plug insertion into the Power Supply Plate.

Table 4. Recommended Replacement Fuses for use with the Power Supply Plate

Ampere Rating	Catalog Manufacturer	Number	Comments
2 amp	Gould-Shawmut	ATMR 2	Class CC current limiting fuse

Table 5. Available GE Power Supply Assembly

Catalog Number	Description	AC Line Fuses Requirement	Voltage Rating of Assembly
SPSAA	Power Supply Assembly	2 amp class CC	85Vac to 240Vac @50/60 Hz

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-700	Spectra® G Breaker w/ <i>microEntelliGuard™</i> Trip Unit
GEH-701	Spectra® K Breaker w/ <i>microEntelliGuard™</i> Trip Unit
GEH-702	<i>microEntelliGuard™</i> Trip Unit Users Manual
DEH-41318	Universal Rating Plug
GEH-6250	Voltage Module
GEH-6252	Voltage Conditioner 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

Notes

Notes

Spectra and MicroVersaTrip are registered trademarks and EntelliGuard and *microEntelliGuard* are trademarks of the General Electric Company.

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 GE Company.

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