

GEH-6253 Installation Instructions

Power Supply Assembly

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

For Catalog Number SPSAA
UL LISTED Circuit Breaker Accessory



Overview

The General Electric Power Supply Assembly 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 Assembly also provides power to the Voltage Conditioner Assembly or Voltage Conditioner Plate. Spectra® RMS Molded-Case Circuit Breakers with *microEntelliGuard*™ (with advanced metering) and *MicroVersaTrip*® PM Trip Units require connection to a Voltage Conditioner Assembly or Voltage Conditioner Plate to function properly.

The Power Supply Assembly 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 assembly requires a minimum input voltage of 85Vac @ 60 Hz to operate properly (the maximum voltage rating is 240Vac @ 60 Hz). **This input must be fused with 2-amp class CC fuses (not included).** The Power Supply Assembly is designed to operate in temperatures between 0°C and 70°C.

Figure 1 shows how the Power Supply Assembly is used in a typical MicroVersaTrip® PM system. Figure 2 shows how the Power Supply Assembly 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.

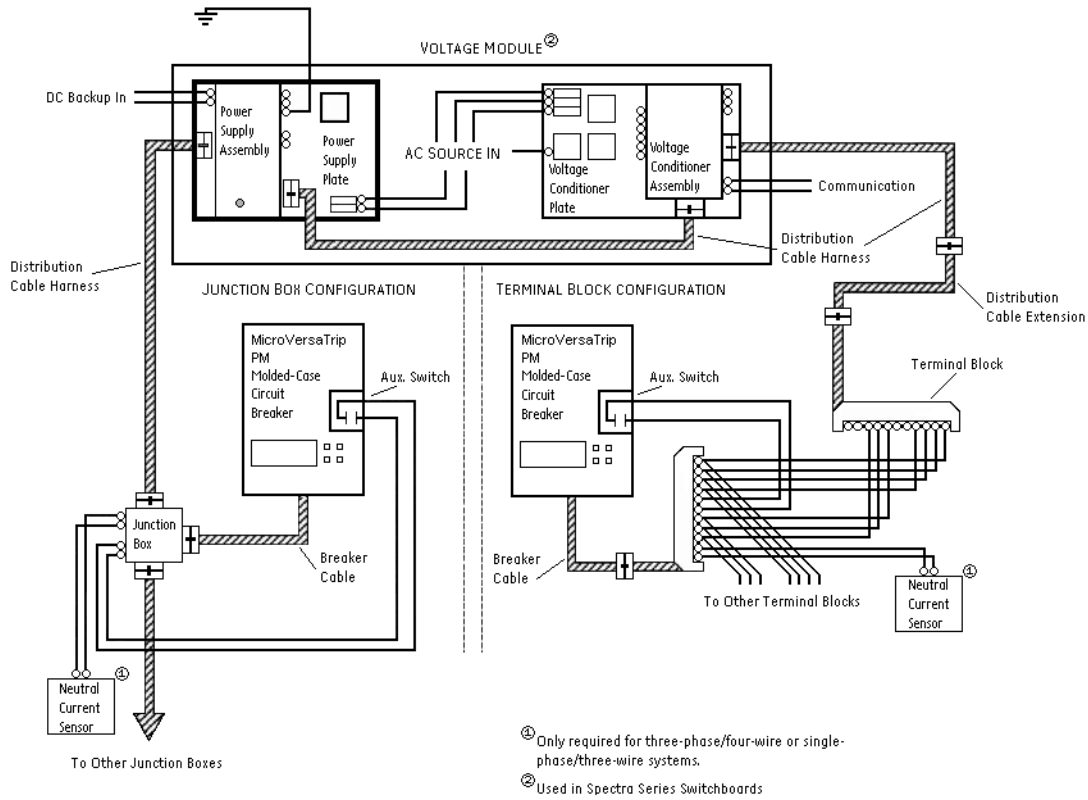


Figure 1. Typical MicroVersaTrip® PM Trip Unit System detailing the Power Supply Assembly.

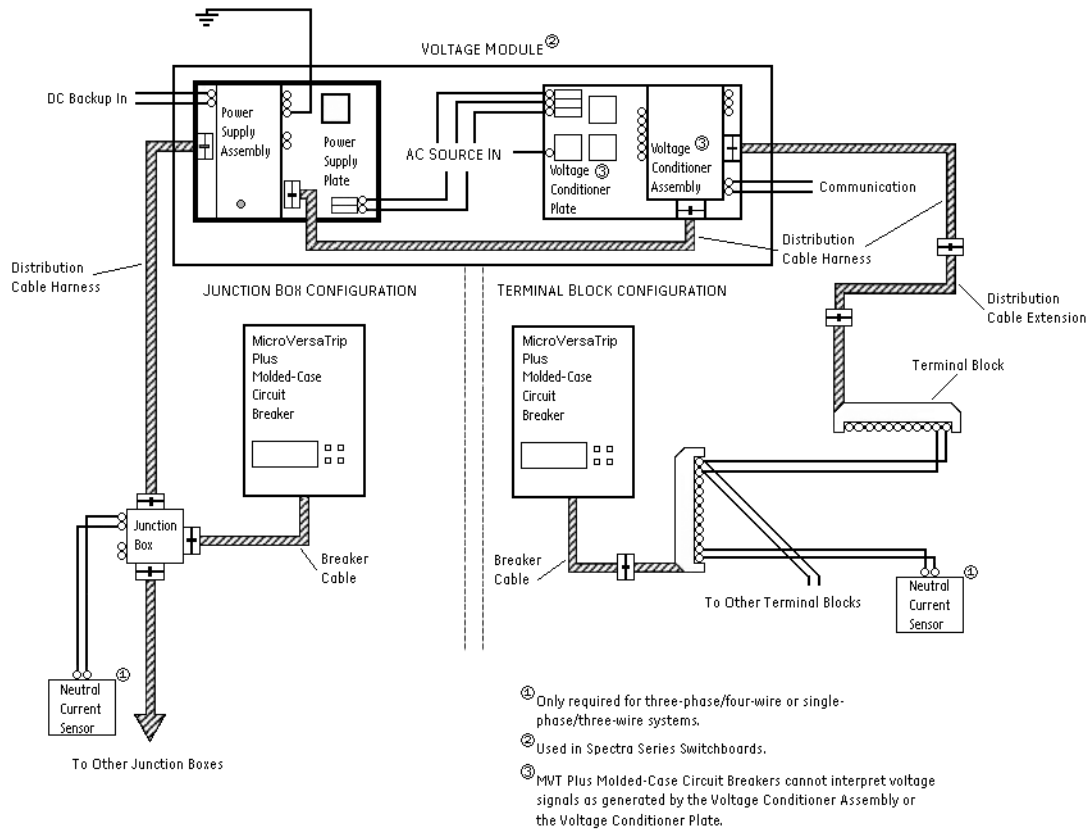


Figure 2. Typical MicroVersaTrip® Plus Trip Unit System detailing the Power Supply Assembly.

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 85Vac minimum requirement. This backup input must meet ANSI C37.90.1 for oscillatory and fast transient surges (the Power Supply Assembly 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 a MicroVersaTrip® PM/Plus or EntelliGuard™ TU Trip Unit).

NOTE: THE POWER SUPPLY ASSEMBLY IS SIZED FOR A MAXIMUM OF 20 BREAKERS. Use of the Power Supply Assembly 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.

The Power Supply Assembly contains five connection points. The following list contains a description and type of 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 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”
 - Three-screw terminal block for connection of the primary AC source (85Vac to 240Vac @ 50/60 Hz) AND a ground connection.

- “Output to 24Vdc”
 - Two-screw terminal block for optional RMS 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 Assembly 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 2.

Table 2. Signals Available on the Distribution Cable System by connection of the Power Supply Assembly.

Spectra® RMS™ Breaker with <i>microEntelliGuard™</i> or MicroVersaTrip® PM Trip Unit	Spectra® RMS Breaker with MicroVersaTrip® Plus or <i>microEntelliGuard™</i> with Basic Metering Trip Unit
Control Power (+24Vdc)	Control Power (+24Vdc)
Control Power (-common)	Control Power (-common)

Dimensions, Weights and Wiring Diagrams

A Power Supply Assembly dimensioned drawing is provided in Figure 3 to assist in mounting the assembly. The maximum unit weight is two and a half pounds.

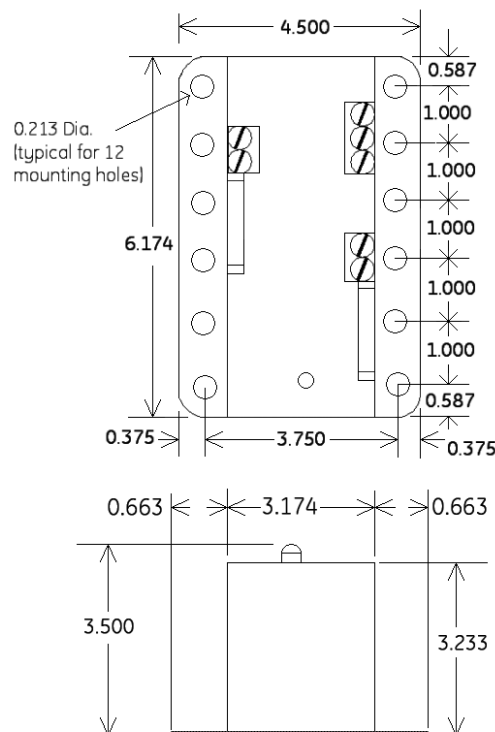
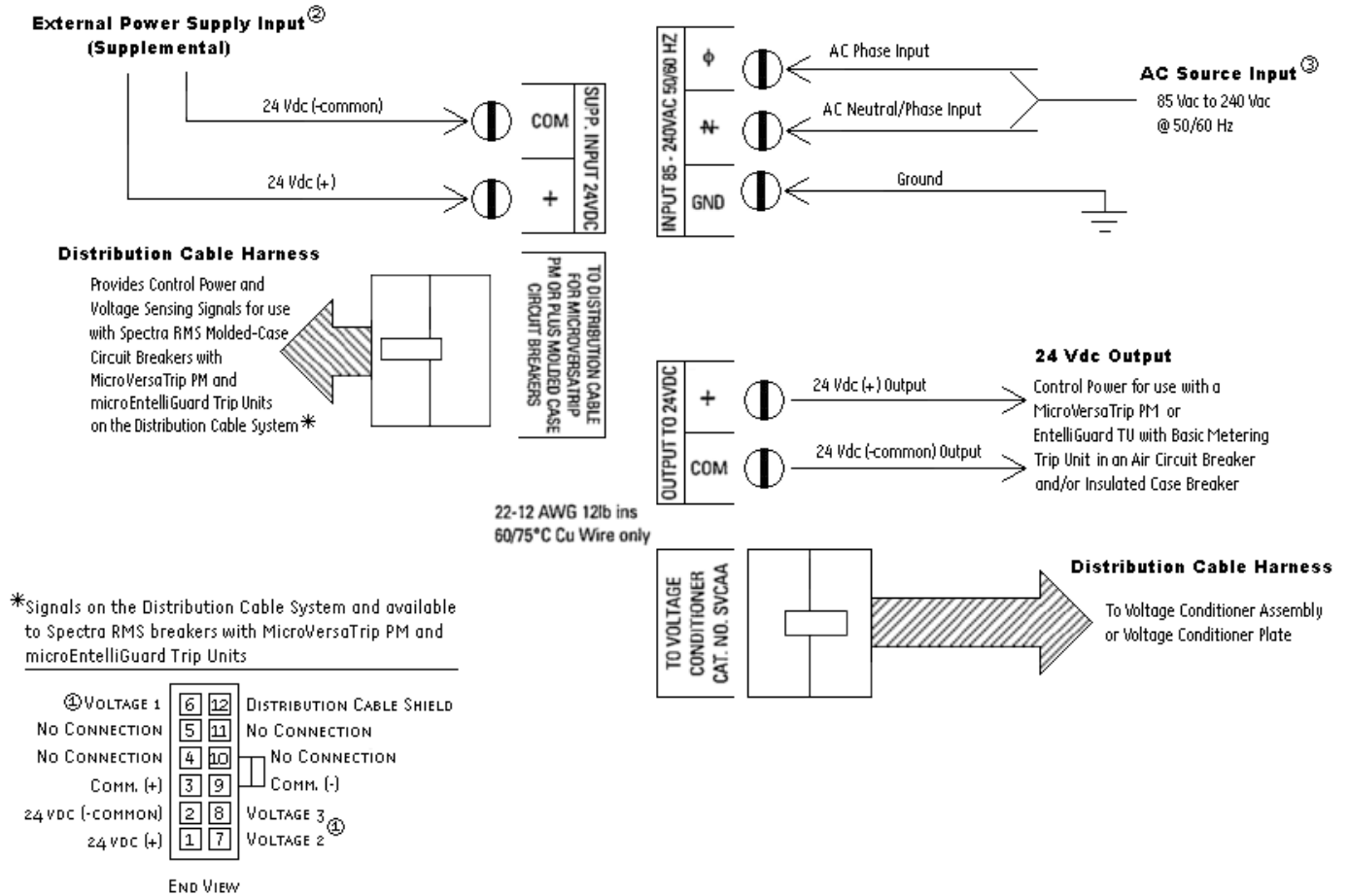


Figure 3. Dimensioned drawing of the Power Supply Assembly (dimensions shown in inches).

Figure 4 shows how the Power Supply Assembly is used in a typical MicroVersaTrip® PM system. Figure 5 shows how the Power Supply Assembly is used in a typical MicroVersaTrip® Plus system. The *microEntelliGuard*™ Trip Unit can be used with either configuration, i.e. Figure 4 or Figure 5. The connection diagram shown in Figure 5 applies to *microEntelliGuard*™ Trip Units with Basic Metering.



① Voltage Signal depends on source & connection to the source

VOLTAGE REFERENCE	φ to N	φ to φ
VOLTAGE 1	Aφ to N	Cφ - Aφ
VOLTAGE 2	Bφ to N	Bφ - Cφ
VOLTAGE 3	Cφ to N	Aφ - Bφ

② Caution- Input must meet ANSI C37.90.1 for oscillatory and fast transient surges

③ Input signal must be fused with 1/2 amp class CC fuses

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

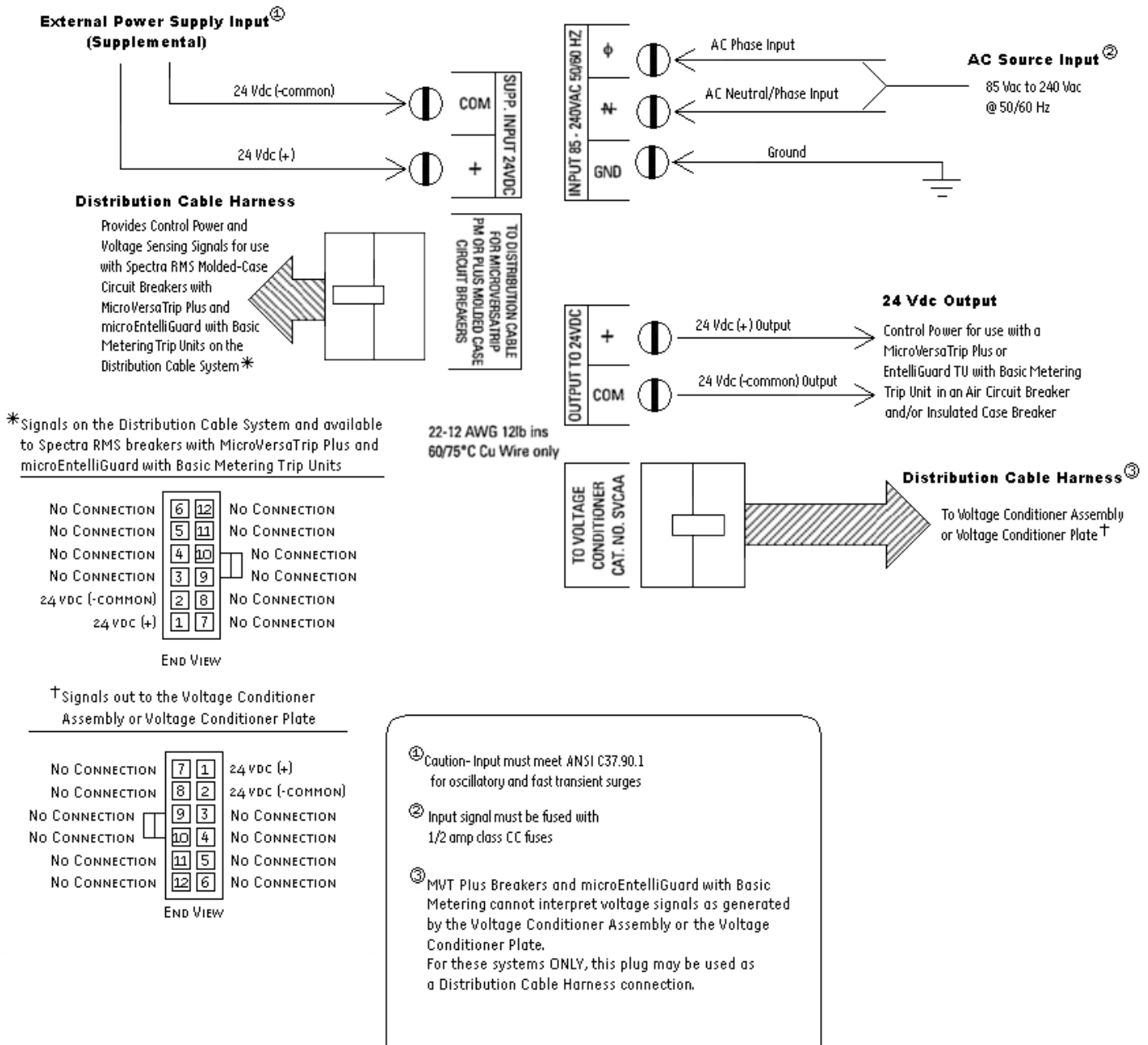


Figure 5. Wiring connections to the Power Supply Plate for a typical MicroVersaTrip® Plus System

Connections

The screw terminals on the Power Supply Assembly are labeled by function for clarity. The terminal strip pocket 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 Assembly 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 Assembly plugs, align the receptacle interlock connector of a Distribution Cable Harness with the plug hook connector of the Power Supply Assembly. Insert the receptacle until the interlock and hook catch (see Figure 6). To disconnect from the Power Supply Assembly, press down at the rear of the receptacle interlock until the interlock clears the plug hook and withdraw the receptacle interlock (see Figure 7).

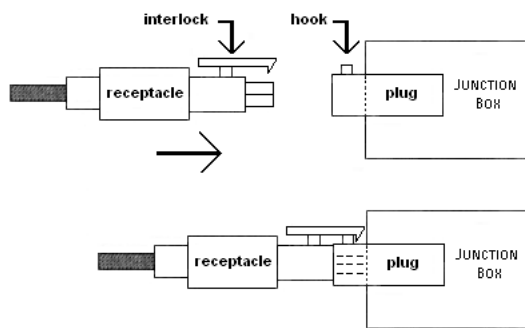


Figure 6. Side view of receptacle-plug insertion into the Power Supply Assembly.

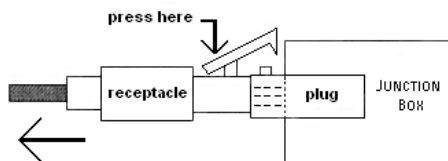


Figure 7. Side view of receptacle-plug removal from the Power Supply Assembly.

PARTS AND OPTIONS

There are no user-serviceable components or parts within the Power Supply Assembly; however, in order for the unit to be properly protected the 85Vac to 240Vac 60Hz INPUT *must be* fused. Table 3 lists the fuses and fuse holders that are recommended for use with the Power Supply Assembly.

Table 3. Recommended replacement fuses for use with the Power Supply Assembly.

Class CC Current limiting Fuse	Fuse Holder
Gould-Shawmut ATMR 2	Gould-Shawmut 3012R & DFC3M

If the incoming AC power supply is greater than the 240 Vac @ 60 Hz maximum rating of the Power Supply Assembly, then refer to Table 4 for a listing of GE control power transformers that are recommended for use with the Power Supply Assembly. The INPUT to the Power Supply Assembly *must always be protected*. It is recommended that the primary side of the control power transformer be fused with the fuses previously described.

If there is a preference to purchase a +24Vdc Power Supply that has factory-mounted AC line fuses and/ or a higher AC voltage rating, Table 5 contains a listing of GE Power Supply Plates. These Power Supply Plates contain the Power Supply Assembly as an integral part of the plate and are factory-wired from the Power Supply Assembly to the control power transformer (where required) and to the fuse holders (one set of fuses is included).

Table 4. Recommended GE Control Power Transformers for use with the Power Supply Assembly.

Input Rating	Pri / Sec Rating	Catalog Number
480Vac @ 50/60 Hz	480Vac / 120Vac	9T58K2802
600Vac @ 50/60 Hz	600Vac / 120Vac	9T58K2824

Table 5. Available GE Power Supply Plates.

Voltage Rating	Catalog Number	AC line Fuses	Comments
120 Vac	SPSA120	1,2 amp	larger mounting plate with fuse holder
208 Vac	SPSA208	2,2 amp	larger mounting plate with fuse holder
240 Vac	SPSA240	2,2 amp	larger mounting plate with fuse holder
480 Vac	SPSA480	2,2 amp	larger mounting plate with fuse holders and 480Vac to 120Vac transformer
600 Vac	SPSA600	2,2 amp	larger mounting plate with fuse holders and 600Vac to 120Vac transformer

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	DEH-006	Distribution Cable Junction Box
GEH-700	Spectra® G Breaker w/ <i>microEntelliGuard</i> ™ Trip Unit	GEH-705	MET Distribution Cable Extension (20-pin)
GEH-701	Spectra® K Breaker w/ <i>microEntelliGuard</i> ™ Trip Unit	GEH-6256	Distribution Cable Extension (12-pin)
GEH-702	<i>microEntelliGuard</i> ™ Trip Unit Users Manual	GEH-6255	Distribution Cable Harness (12-pin)
DEH-41318	Universal Rating Plug	GEH-706	MET Distribution Cable Terminal Blocks (11 point & 22 point)
GEH-6250	Voltage Module	GEH-6257	Distribution Cable Terminal Block (11 point)
GEH-6251	Power Supply Plate	GEH-6491	POWER LEADER™ Modbus Concentrator
GEH-6252	Voltage Conditioner Plate	GEH-6502	POWER LEADER™ PMCS 5.0 Network Architecture Guide
GEH-6254	Voltage Conditioner Assembly	GEH-707	MET Sealable Cover kits
GEH-703	MET Battery Pack Adapter	DEH-4568	GTU digital test kit (GTUTK20)
GEH-704	MET Advanced Distribution Cable Junction Box	GEH-5551	Shunt Trip and UVR instructions
		GEH-5593	Aux switch and bell alarm
		GEK-64467	TIM-1 Zone Selective Interlock Module

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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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