Installation Instructions

Titan 160P

INSTALLATION

This EFI Surge Protection Device (SPD) is a high-performance surge protection device, designed to provide protection for sensitive electronic loads connected to service panels, load centers or where the SPD is directly connected to the electronic device. Maximum protection will only be achieved if the SPD is properly installed. Please read the installation instructions carefully and follow the instructions.

NOTICE: For installation by a qualified electrician in accordance with National and Local Electrical Codes and the following instructions.

WARNING: Risk of Electrical Shock. Disconnect power before installing or servicing. Service to be performed by qualified personnel only. Never wire energized electrical components. Do not cut wires until SPD is mounted and wire lengths have been verified. *(Note: On these SPD units the installing electrician supplies the wires. Improved performance can be achieved by using larger gauge wire.)*

INSTALLATION INSTRUCTIONS

1 **Verify line voltage** by measuring L-N and L-L in your system. Confirm that the SPD is rated for your system by comparing it to the table shown below or on the product label. The (MCOV) maximum continuous operating voltage specifications must not be exceeded. See Figure 1 for wiring diagrams.

2 **Identify proper location for SPD**. Locate as close as physically possible to panel being protected. Mount securely. Mount as close to the electrical connection as possible avoiding excess distance and sharp bends in the wires. Wire length should not exceed 18". *(Note: Refer to Figure 1 for appropriate wire entry points.*)

3 **Connect proper ground**. Units with metal housings must be grounded via the conduit. All units must be grounded via a ground wire from the suppressor to the nearest ground lug. In isolated ground systems remove the bond to the housing ground from the suppression element and connect the isolated ground to the suppressor ground terminal on the bus bar.

4 **Connect neutral conductor**. Measure and trim the neutral conductor to be as straight and short as possible. Connect the neutral conductor from the suppressor to the neutral lug in the panel on WYE systems.

5 **Connect phase conductors**. With the electrical power OFF, measure and trim the phase conductors to be as straight and short as possible, twist the phase conductors together $^1/_2$ turn for every 12 inches of conductor length. Never coil or push aside excess wire length.

(Note: On 240/120 High Leg Delta system the High Leg Lugs are painted orange.)

Connect phase conductors from the suppressor to a properly rated overcurrent device according to the wire size being used. Overcurrent devices are rated as follows:

#10 Wire = 30 Amps	#4 Wire = 95 Amps
#8 Wire = 55 Amps	#2 Wire = 130 Amps

Note: Optional fused safety disconnect switch accepts up to #4 AWG conductors.

6 **Activate unit**. When power is applied, diagnostic lights will indicate that each phase is protected. If lights do not illuminate, recheck the phase, neutral and ground connections and fuses.

7 **Remote monitoring**. Form C Dry Contacts (N/O, N/C & common) are located in the SPD. Contact ratings are:

.3 Amps @ 125 VAC
.3 Amps @ 110 VDC
1 Amps @ 30 VDC

8 **Audible Alarm**. The alarm will sound if circuit damage has occurred, if product has been installed incorrectly, or if power is lost to any one phase. Check power connections and fuses if alarm sounds.

9 **Online diagnostic test**. To test the integrity of the diagnostics, push the button below the LED's. The green light should go out and the red light illuminate, release of the test switch completes the self-diagnosis; the red light will turn off and the green light will illuminate.

System Voltage (L-N and L-L)	MCOV* (L-N/L-L if applicable)	SCCR†
120/240 Vac Grounded Neutral	150/300 Vac	200 kA, 600 V Maximum
120/208 Vac Grounded Wye	150/300 Vac	200 kA, 600 V Maximum
240/120 Vac High Leg/Grounded Neutral	250/150 Vac, 400/300 Vac	200 kA, 600 V Maximum
220/380 Vac Grounded Wye	320/640 Vac	200 kA, 600 V Maximum
240 Vac Delta (Grounded)	300 Vac	200 kA, 600 V Maximum
277/480 Vac Grounded Wye	320/640 Vac	200 kA, 600 V Maximum
480 Vac Delta (Grounded)	640 Vac	200 kA, 600 V Maximum
347/600 Vac Grounded Wye	390/780 Vac	200 kA, 600 V Maximum
600 Vac Delta (Grounded)	780 Vac	200 kA, 600 V Maximum

*MCOV = Maximum Continuous Operating Voltage
†SCCR = Short Circuit Current Rating

efi ELECTRONICS
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7/02 8285-0118B

10 Year Limited Warranty

EFI Electronics

EFI Electronics will, at its option, repair or replace any EFI Electronics product that is defective or is damaged by an electrical surge (including those caused by lightning) for a period of ten (10) years from date of purchase.

The above coverage applies to the original end user purchaser only and is the exclusive remedy under this warranty, whether based on contract, tort, including negligence, or otherwise. Claims must be made within 30 days of damage. This warranty does not cover damage associated with sustained overvoltages, vandalism, theft, normal wear and tear, obsolescence, abuse, nonauthorized modification or alteration, misuse, improper installation or catastrophic events. Except as expressly provided by this warranty, EFI Electronics disclaims liability for any incidental, indirect, special or consequential damages arising out of the sale or use of any EFI Electronics product (including without limitation lost business profits, loss of data and all freight, mileage, travel time and insurance charges associated with warranty coverage claims). Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you. This warranty gives you specific legal rights and you may have other rights which vary from state to state. This warranty is valid in the United States and Canada only.

Claim Procedure:

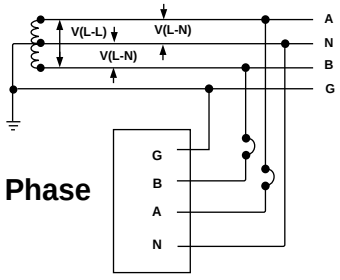
1. Contact EFI Electronics at the number below to obtain a return authorization number.
2. Return EFI Electronics device to EFI Electronics Inc, freight prepaid.
3. EFI Electronics returns working device, freight prepaid.

Caution: Effective surge suppression requires correct wiring.
Warranty Assistance: Call **1-800-877-1174**

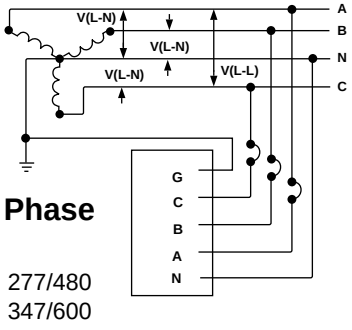
WC#EF09A

Figure 1

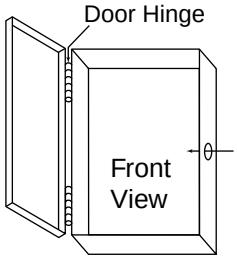
160P WIRING DIAGRAMS

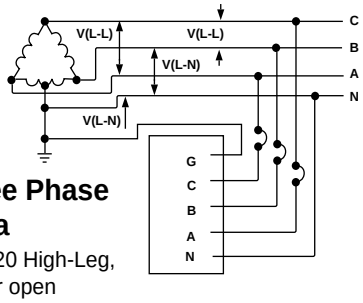


Single Phase
120/240

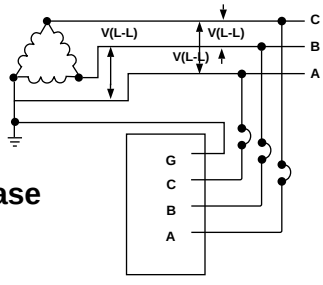


Three Phase WYE
120/208, 277/480
220/380, 347/600





Three Phase Delta
240/120 High-Leg, split or open



Three Phase Delta
240, 480, 600