

Installation
Instructions
& User Manual

Powerware TVSS

ZONEMASTER PLUS®

AC Panel Transient Voltage Surge Suppressors



INTRODUCTION

This document explains how to install the *Powerware TVSS ZoneMaster PLUS*® AC Panel Surge Protection Devices.

INSTALLATION INSTRUCTIONS

Warning: Terminals marked L1, L2, L3, N, GND (where relevant) must be connected respectively to phase(s) neutral and ground. Failure to comply may result in danger or damage. See corresponding diagrams for proper connections.

INSTALLATION DESCRIPTION

Powerware TVSS ZoneMaster PLUS® units are connected in parallel (or in "shunt" across) the supply to be protected. The connecting cable does not carry the supply current, only the current associated with suppressing the transient overvoltage.

MOUNTING

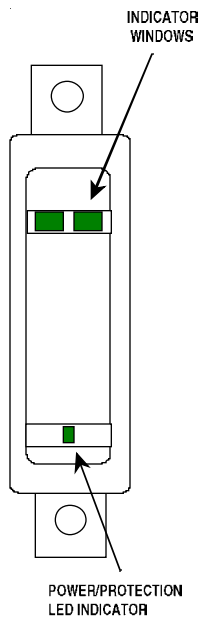
The units should be mounted **as close as possible** to the panel to be protected. See (page 4) on Connecting Lead lengths. Conduit, preferably metallic, is to be installed from the suppressor to the panel. Drill holes in the *Powerware TVSS ZoneMaster PLUS*® enclosure only in the designated areas as shown in recommended cable dressing illustrations (page 5). Mount the unit in the appropriate location using the mounting holes provided on the enclosure.

INCORRECT INSTALLATION WILL IMPAIR THE EFFECTIVENESS OF THE AC PANEL PROTECTORS.

Particularly important is the length of the connecting leads (see pages 4 & 5).

STATUS INDICATORS

The **Powerware TVSS ZoneMaster® PLUS** units have comprehensive, continuous visual status monitoring present on each module.



Status Indicated	Full Protection Present	Reduced (Standby) Protection	No Protection	No Power To Protector
Indication Windows	Both Windows Show Green	One Window Shows Black	Both Windows Show Black	Both Windows Show Green
LED Indicator	Green LED Lit	Green LED Lit	Green LED Out	Green LED Out

NOTE: Line-ground modules DO NOT have "Power/Protection" LED

REMOTE INDICATORS

A remote indication of the reduced protection state is available as a normally open or normally closed dry contact.

WARNING: OF HIGH NEUTRAL TO GROUND VOLTAGE

On certain models, a RED warning light is provided. Should this light glow RED at any time, consult a qualified electrical contractor to check the integrity of the building wiring. This RED light does not indicate suppressor failure, however a RED glowing light is indicative of potentially hazardous site wiring.

CONNECTING LEADS

Connect the suppressor as shown in the installation diagram. Refer to page 5 for recommended cable dressing. The recommended installation is to connect the terminals within the suppressor to the load side of 60A breakers or fuses within the panel. See specific connection diagrams for more details and markings on unit if provided.

RECOMMENDED WIRE GAUGE

Minimum of 8 AWG

Maximum of 4 AWG (for ease of dressing)

LENGTH OF CONNECTING LEADS

The longer the connecting leads between the the *ZoneMaster® PLUS* and power panel, the higher the residual transient voltage.

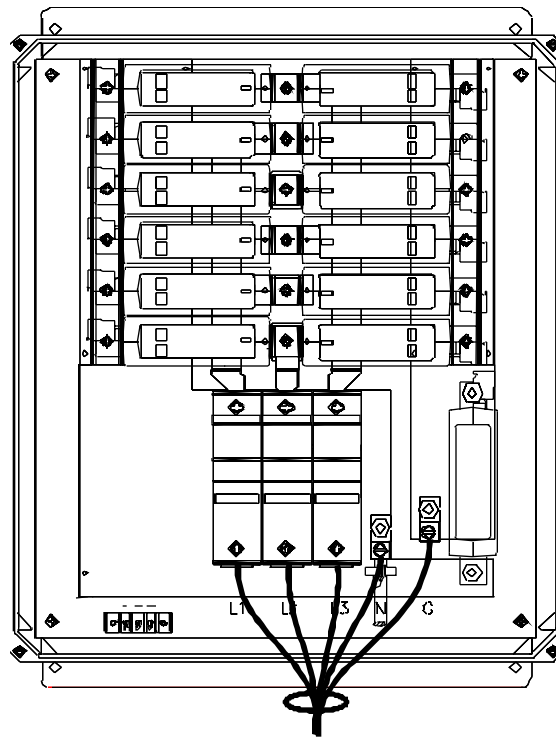
RECOMMENDED MAXIMUM: 500mm (19")

IDEALLY: 250mm (10")

Each 250mm increase in cable length; increases clamping voltage by 25V per 1000A surge current discharged.

- **BIND THE PHASE NEUTRAL AND GROUND CONDUCTORS TIGHTLY, OVER THE ENTIRE RUN FROM THE SUPPRESSOR TO THE SERVICE PANEL.**
- **ALWAYS USE THE SHORTEST LENGTH OF CONNECTING CABLE POSSIBLE.**

RECOMMENDED CABLE DRESSING

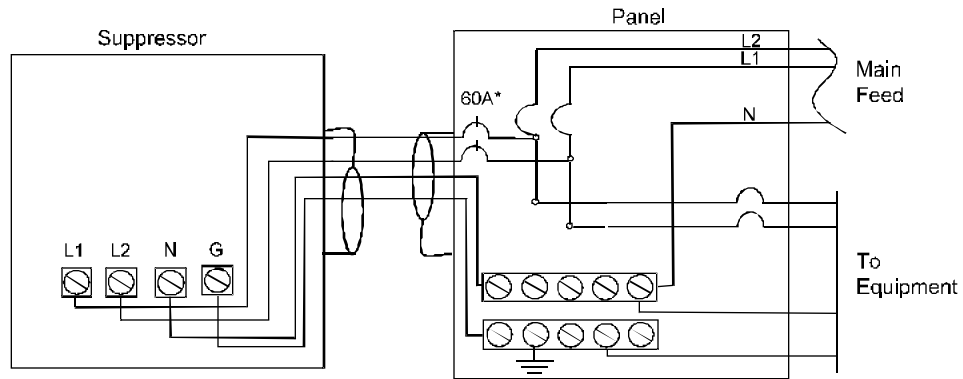


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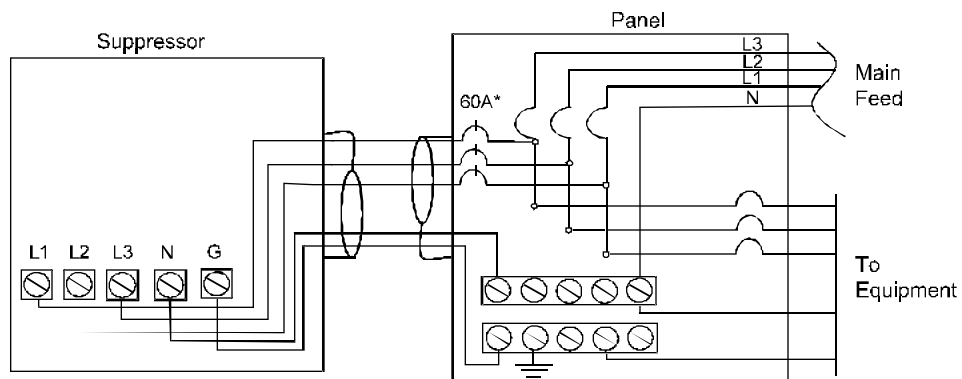
ZONEMASTER PLUS®

Schematic Connection Diagrams

120/240V SPLIT PHASE 3 W



THREE PHASE 4W WYE THREE PHASE HIGH LEG DELTA



NOTE: L2 is designated as the "HIGH LEG"

* An optional breaker or disconnect may be used for overcurrent protection of the interconnecting wires.

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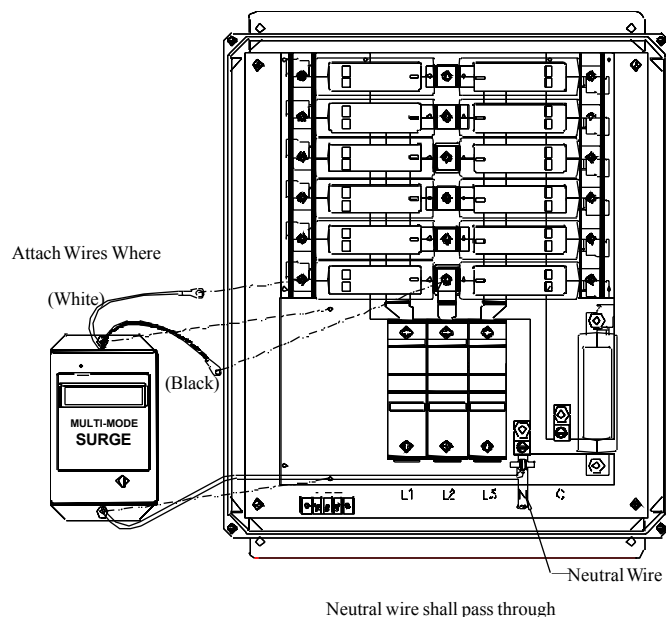
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Optional Surge Counter

INSTALLATION/OPERATING INSTRUCTIONS

1. Disconnect power to **ZoneMaster PLUS®** by pulling on disconnect.
2. Attach the black and white pair wire across the surge module by removing the screws and attaching the lugs from the counter. The white wire connects to the left side of the module and the black wire connects to the right side of the module.
3. The neutral or ground wire connected to the **ZoneMaster PLUS®** should be removed and inserted through the toroid from the counter and reinstalled to the **ZoneMaster PLUS®** wire lug.
Note: If it is desired to measure surge currents on only a single individual phase, insert selected phase connection wire through the toroid instead of the neutral or ground wire as indicated below.
4. Secure the counter to the **ZoneMaster PLUS®** by removing the extra nuts located on the screw studs to which the counter is to be attached.
5. **Resetting the surge counter back to zero.** The counter can be reset back to zero by simply locating the button on the face of the counter and holding it down for a period of five seconds.

****SEE DRAWING BELOW FOR REFERENCE.***



MAINTENANCE

At intervals not exceeding two months, check:

1. Status indication lights
2. Conditions of connecting cables and terminals

Module Replacement

WARNING: Before opening the access panel, ensure that the AC supply has been disconnected.

Unplug the remote contact connector at the side of the module. Remove the mounting screws on the module. The protection module can now be removed.

WARNING: Replace the defective module with a module having the **same color label and voltage rating.**

Installation of the replacement module is the reverse of the above procedure. Final step, check that **all** cable connections are secure and screws are tightened. Do not overtighten.

NOTE: No customer serviceable parts inside. Opening module **WILL** void Warranty

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