


ZoneMaster All-Mode®

AC panel transient voltage surge suppressors

Introduction

This document explains how to install the TVSS ZoneMaster All-Mode® 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.
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Installation description

TVSS ZoneMaster All-Mode® 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

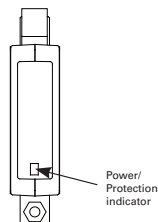
The units should be mounted **as close as possible** to the panel to be protected. See (page 4) on Connecting Lead lengths. Conduit, preferably metallic, is to be installed from the suppressor to the panel. Drill holes in the TVSS ZoneMaster All-Mode® enclosure only in the designated areas as shown in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

NOTE Incorrect installation will impair the effectiveness of the AC panel protectors. Particularly important is the length of the connecting leads (see pages 4 & 5).
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Status indicators

The TVSS ZoneMaster All-Mode® units have comprehensive, continuous visual status monitoring present on each module.


Status indicated	Full protection present	Reduced (Standby) protection	No protection	No power to protection	High N-G Voltage*
LED Indicator	Green LED Lit	Red LED Lit	Red LED Lit	Green LED Out	Red & Green LED Lit



Remote indicators

A remote indication of the reduced protection state is available as a normally open or normally closed dry contact “Form C”. Rated maximum 1A at 30Vdc resistive and maximum 0.3A at 125Vac general use. Suitable for connection of AVL/2 18AWG to 20AWG copper wire. Recommended tightening torque: 7 in-lbs.

Routing of these wires should be separate from the power with a minimum of spacing of two inches.

	*WARNING HIGH NEUTRAL TO GROUND VOLTAGE On certain models, if both Red and Green lights are on, consult a qualified electrical contractor to check the integrity of the building wiring.
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Connecting leads

Connect the suppressor as shown in the installation diagram. Refer to page 5 for recommended cable dressing. Connect the terminals within the suppressor to the load side of 60A breakers within the panel.

See specific connection diagrams for more details and markings on unit if provided.

Recommended wire gauge stranded copper

Minimum of 8 AWG

Maximum of 4 AWG (for ease of dressing)

Torque Rating: 35- 50 in- lbs.

Length of connecting leads

The longer the connecting leads between the the ZoneMaster All-Mode® and power panel, the higher the residual transient voltage.

RECOMMENDED MAXIMUM: 19" (500MM)

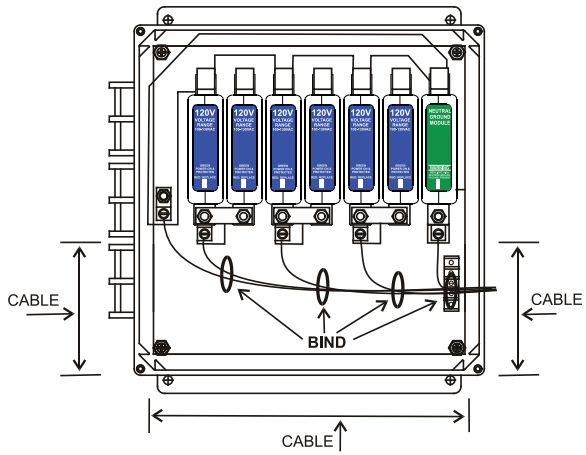
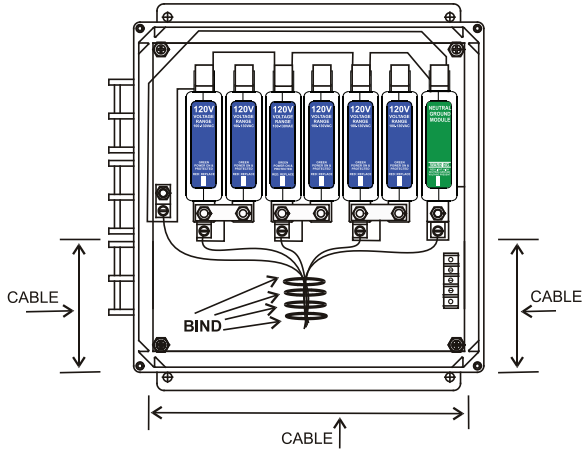
IDEALLY: 10" (250MM)

Each 10" (250mm) increase in cable length; increases clamping voltage by 25V per 1000A surge current discharged.

IMPORTANT

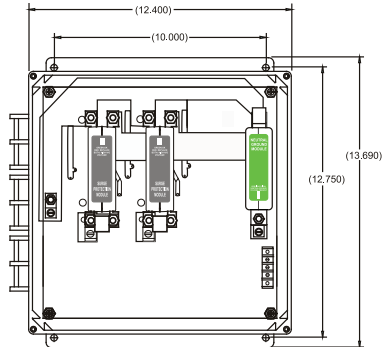
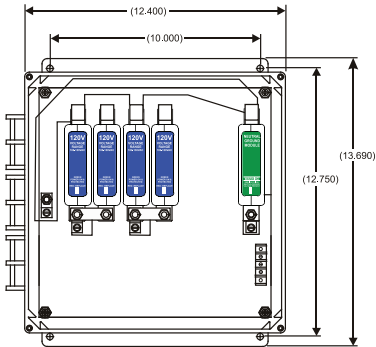
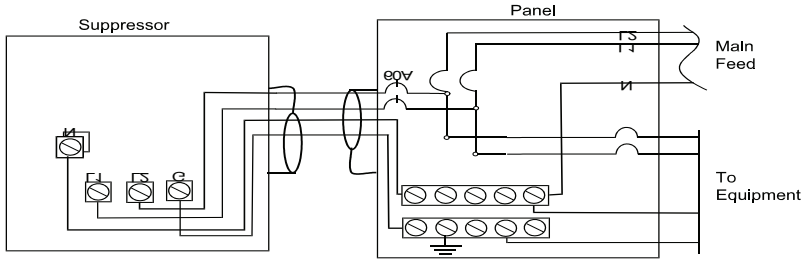
- Bind the phase neutral and ground conductors tightly, over the entire run from the suppressor to the service panel.
- Always use the shortest length of connecting cable possible.

Recommended cable dressing

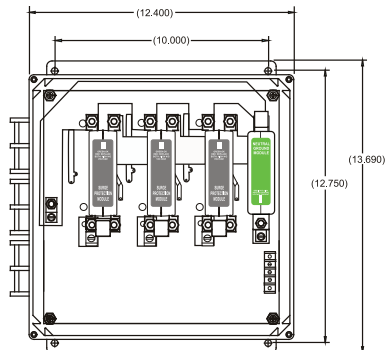
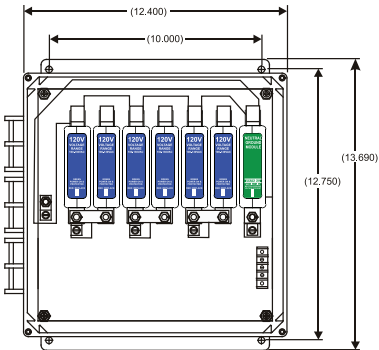
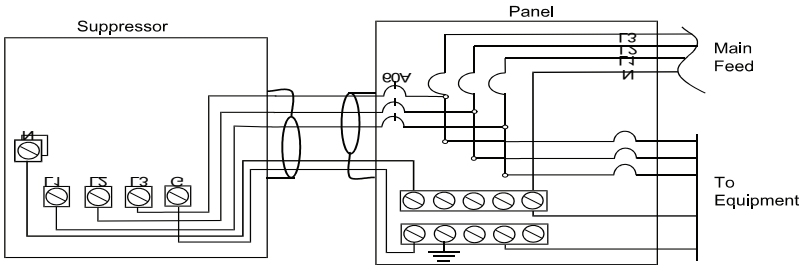


**ZoneMaster All-Mode® configuration
and schematic connection diagrams**

120/240V SPLIT PHASE 3W

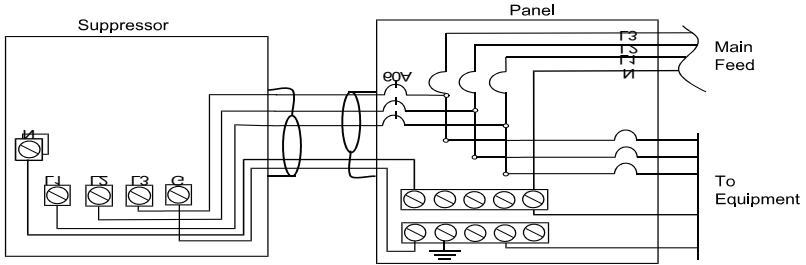


120/208V THREE PHASE 4W WYE

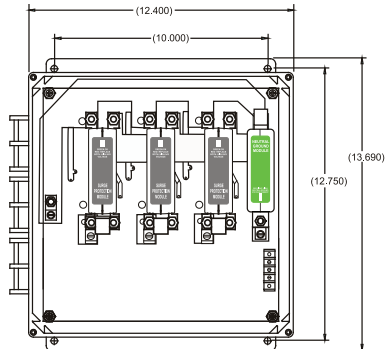
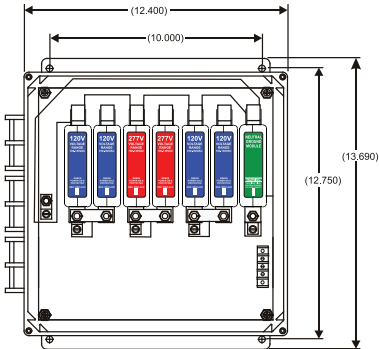


**ZoneMaster All-Mode® configuration
and schematic connection diagrams**

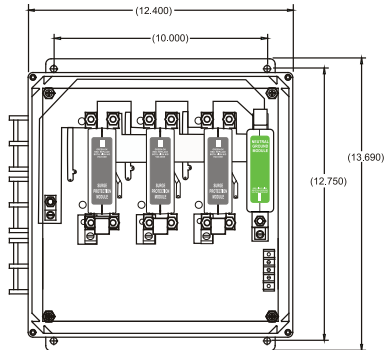
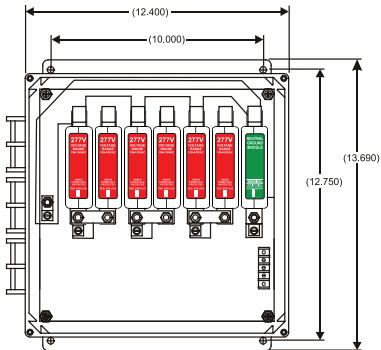
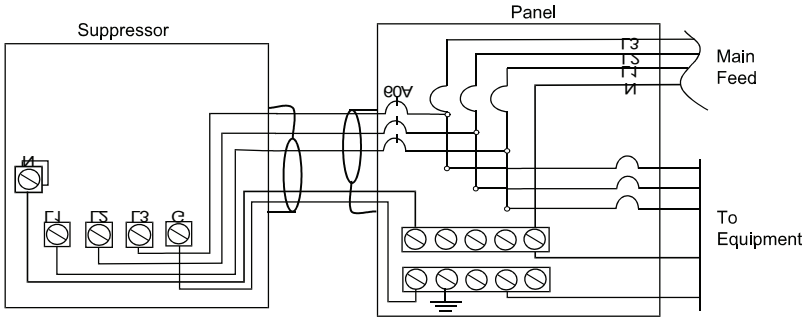
120/240V THREE PHASE 4W HIGH LEG DELTA



NOTE: L2 is designated as the "HIGH LEG"



277/480V THREE PHASE 4W WYE
240/415V THREE PHASE 4W WYE
220/380V THREE PHASE 4W WYE



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 top of the module.
Remove the mounting nuts at the top and bottom of 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 nuts are tightened. Do not overtighten.

NOTE:

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