# INSTALLATION INSTRUCTIONS/ USER MANUAL

# *Powerware TVSS*

# ZoneDefender

**AC Panel Transient Voltage Surge Suppressor**

**POWERWARE**

## Introduction

This document explains how to install the **Powerware TVSS ZoneDefender** AC Panel Surge Protective Devices.

## Installation Instructions

The suppressor should be mounted on or near the panel as close as possible to the wire connection point. The suppressor has three mounting possibilities: surface, flush or close nipple. In all three mounting possibilities connect the BLACK #12 AWG solid wires to the phase conductors, connect the WHITE #12 AWG solid wire to the neutral bus and connect the GREEN #12 AWG solid wire to the ground bus. At the installation stage, cut each conductor AS SHORT AS POSSIBLE. Avoid large loops of wire and sharp bends in the wires. Bind all connecting cables tightly together throughout the wire run from the **Powerware TVSS ZoneDefender** to the panel.

## Mounting

**Close Nipple Mounting:**
Choose a location on the panel that will give the most direct connection to the phase conductors and neutral-ground busses. Use a pre-existing ½" conduit knock-out  or drill a new ½" conduit hole in the panel. Remove the conduit nut from the **Powerware TVSS ZoneDefender** and slide the wires and conduit nipple into the panel. Reconnect the conduit nut to the **Powerware TVSS ZoneDefender**. **CAUTION:** the conduit connection is plastic, **DO NOT OVER-TIGHTEN**. Connect wires as described above.
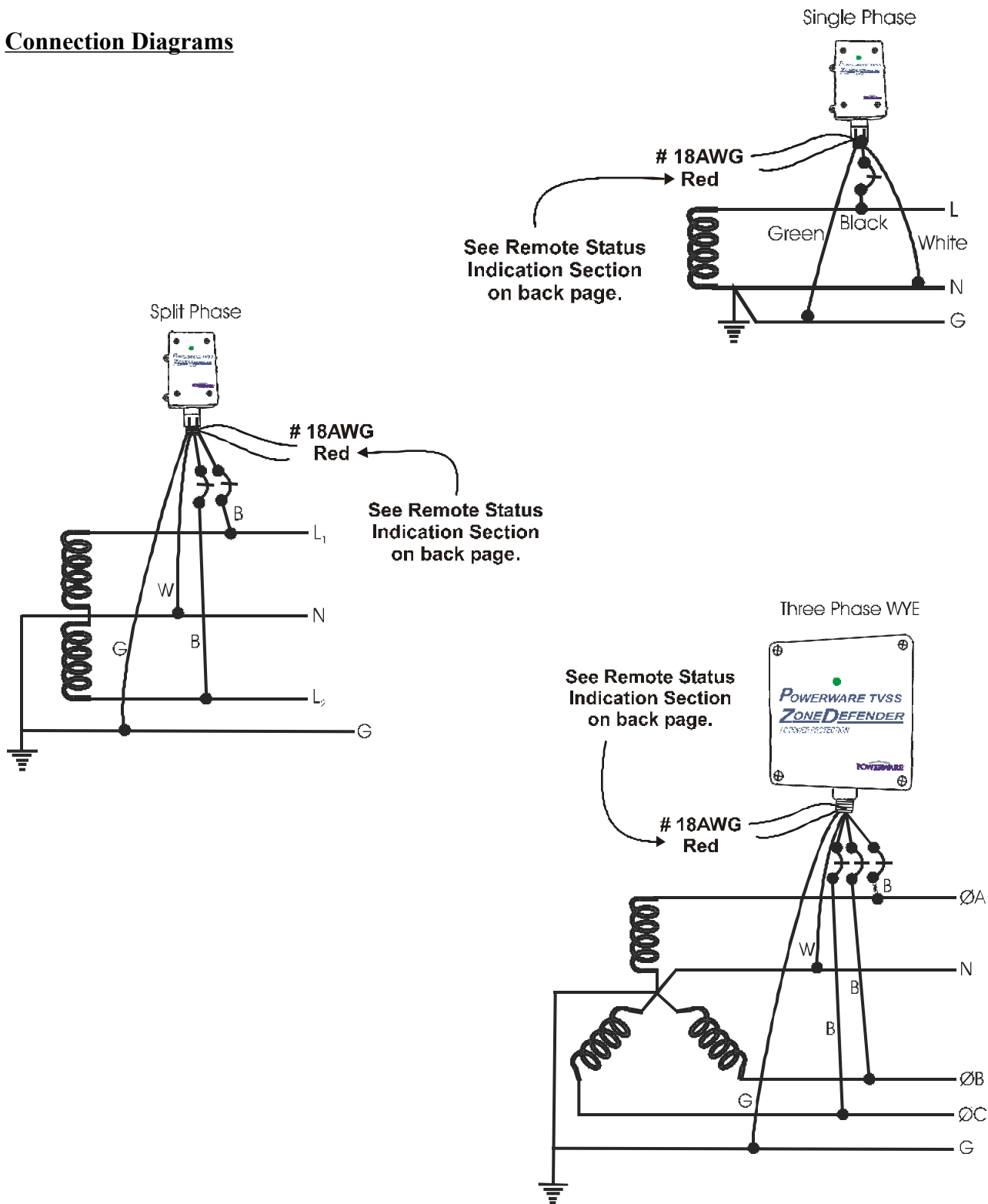
**Surface Mounting:**
Choose a location near the panel that will give the most direct connection to the phase        conductors and neutral-ground busses. Use a pre-existing ½" conduit knock-out  or drill a new ½" conduit hole in the panel. Remove the conduit nut from the **Powerware TVSS          ZoneDefender** and slide the wires and conduit nipple into the panel. A short piece (less than 3") of plastic conduit may have to be added to the **Powerware TVSS ZoneDefender**. Connect either the close nipple on the **Powerware TVSS ZoneDefender** or the short additional piece of conduit to the panel. Use the four 0.20" mounting holes on the **Powerware TVSS          ZoneDefender** and secure it to the wall using appropriate hardware (not supplied). Connect wires as described above.

**Flush Mounting:**
The flush mount **Powerware TVSS ZoneDefender** is installed into a suitably sized hole in the wall. This hole needs to be large enough for the body of the suppressor, yet not exceed the flush mount plate mounting holes. Choose a location near the panel that will give the most direct connection to the phase conductors and neutral-ground busses. Use a pre-existing ½" conduit knock-out  or drill a new ½" conduit hole in the panel. Remove the conduit nut from the **Powerware TVSS ZoneDefender** and slide the wires and conduit nipple into the panel. A short piece (less than 3") of plastic conduit may have to be added to the **Powerware TVSS          ZoneDefender**. Connect either the close nipple on the **Powerware TVSS ZoneDefender** or the short additional piece of conduit to the panel. Use the four mounting holes on the **Powerware TVSS ZoneDefender** flush plate and secure it to the wall using appropriate hardware (not supplied). Connect wires as described above.

**INCORRECT INSTALLATION WILL IMPAIR THE EFFECTIVENESS OF AC PANEL SURGE PROTECTORS**. Particularly important is the length and routing of the connecting leads.

**Connection Diagrams**

Single Phase

# 18AWG
→ Red

See Remote Status
Indication Section
on back page.

Green    Black    L
                 White

                 N

                 G

Split Phase

# 18AWG
Red ←

See Remote Status
Indication Section
on back page.

B

L₁

W

N

G        B

         L₂

         G

Three Phase WYE

See Remote Status
Indication Section
on back page.

POWERWARE TVSS
ZONEDEFENDER
*AC POWER PROTECTION*

POWERWARE

# 18AWG
→ Red

B

ØA

W

N

B

B

ØB

G        ØC

         G

*Note:* Circuit breaker (15 - 30A) is optional.

## Status Indicator

**NOTE:** ALL WIRES MUST BE CONNECTED AND POWER APPLIED *BEFORE* THE LED WILL ILLUMINATE.

The **Powerware TVSS ZoneDefender** suppressors have comprehensive, solid state, continuous visual status monitoring present in each unit. The GREEN indicator light will go out in the event the suppressor capability is exceeded or if there is an internal safety component failure. If the light goes out, call the factory for replacement instructions.

**Panel LED Mount Models only**: Specific **Powerware TVSS ZoneDefender** models have the capability of panel indication. Drill a 0.280" hole in the panel in the desired location. Maximum panel thickness is 0.125". Remove the lens from the LED holder and snap it into the panel. While holding the lens in place, snap the LED holder onto the lens. Use the supplied wire nut to connect the wires, matching the color codes on the suppressor to those on the LED holder.

## Remote Status Indication

Each **Powerware TVSS ZoneDefender** has remote indication of the protector status. This is available as a normally closed dry contact. To utilize this feature, connections are made to the pair of stranded RED #18AWG wires. If this loop opens, it indicates a failure of the **Powerware TVSS ZoneDefender**. Call the factory for replacement instructions. If remote indication is not used, RED wires can be cut and taped off.

## Maintenance

At intervals not exceeding two months, check:
1. Status indication light
2. Conditions of connecting cables

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

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