

Figure 1

Split Phase  
3W+G  
&  
Single Phase  
2W+G  
\*L2 is not  
available in  
"S" system.

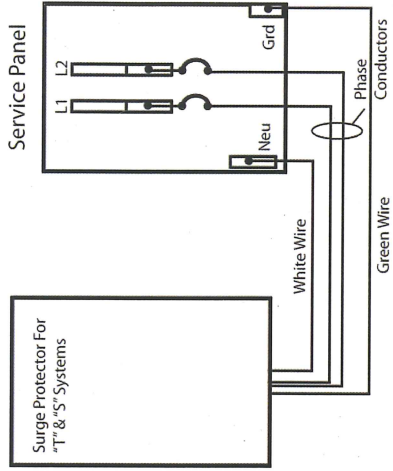


Figure 2

3 Phase  
Hi-Leg  
4W+G

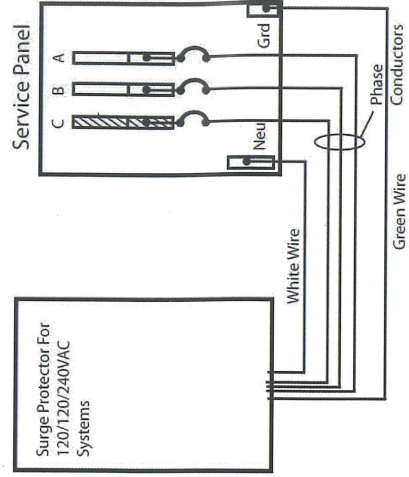


Figure 3

3 Phase  
4W+G, Wye

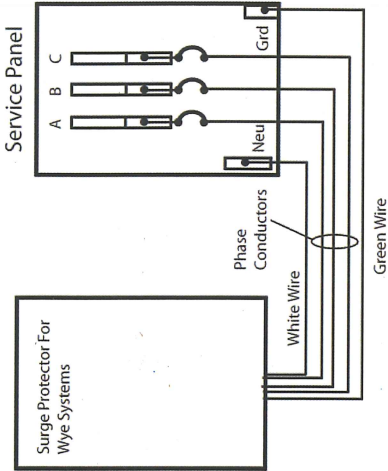
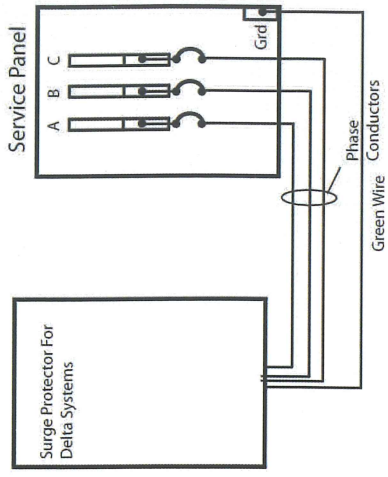
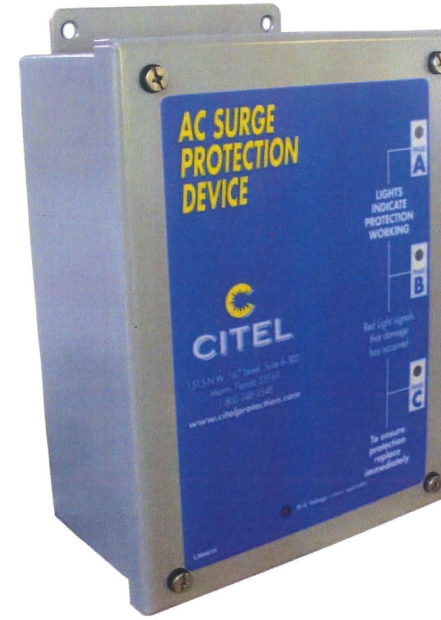


Figure 4

3 Phase  
3W+G, Delta



# Installation Instructions for Model M80/100/160/200 Surge Protectors



■■■ Reliability in Surge Protection ■■■

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**1. Preparation for Install of Surge Suppressor**

- A. Verify the system voltage and wiring configuration is the same as the enclosed surge suppressor by checking it against the product label located on the side wall of the enclosure.
- B. Review the installation area to ensure the proper space is available to properly mount and install the SPD. The enclosure should be mounted **no more than 3 feet away** from the distribution panel.
- C. Check that the buildings facility grounding system meets all NEC & CEC requirements as well as local codes. A low resistance ground system is essential to the proper functioning of any surge suppression device. The soil resistance level should be no more than 25 ohms. This can be verified by performing a soil resistivity test.

**2. Location of Surge Suppressor**

- A. For Service Entrance applications, install the Suppressor at the main distribution panel on the load side after the main disconnect.

**IMPORTANT! Remember to keep conductor lead length to a minimum; 3ft or less. The minimum length wire is defined by the limit of the enclosure. A minimum gage of 10AWG is to be used.**

- B. For Feeder/Sub-panel applications, install the Suppressor directly adjacent to the panel board.

**3. Wiring of Surge Suppressor**

- A. TURN OFF the power to the distribution panel where the SPD will be installed.
- B. Install a 30A time delay fuse (Ferraz AJT30, Littlefuse JTD30) or 30A circuit breaker to feed the model surge suppressor. This will allow safety personnel to remove power from the device in order to diagnose or service the unit. In addition, the device incorporates internal fusing, UL & CSA approved, that will protect against short circuit fault conditions within the unit.

**Warning - "For continued protection against risk of fire, replace only with the same type and rating fuse."**

Notes:

- a) Install either a rigid or flexible metal conduit between the surge suppressor and the distribution panel.
- b) Run wires of surge suppressor to distribution panel board, see section 5, wiring diagrams for details.
- c) Ensure proper color codes:

Wire	Color
Ground	Green or Green/Yellow
Neutral	White
Hot	Red, Blue, Black (Hi-Leg)

- D. Tighten and recheck all connections.
  - a) If remote monitoring is employed, connect the form "C" contacts to the building monitor system or independent alarm, i.e. addressable relay.
  - b) The torque to be use on Ground (in AL9CU), Neutral (AL9CU) and Phase (in Cu) terminals is 35 in-lb
- E. Switch MAIN power ON. Check all front panel indicator lamps for illumination.

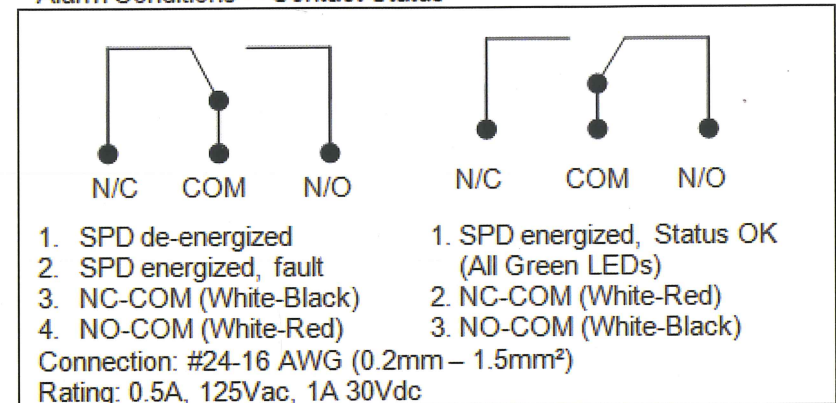
**4. Phase Connections**

- A. Wire SPD to Service Panel - Minimize conductor lead length by cutting back excess cabling. Recommended lead length is **less than 3 feet**. In addition, conductors should be tightly taped together for the entire run. Refer to figure 1, 2, 3, 4 for section 5, wiring diagrams for connecting surge suppressor to AC power network. Device intended to be used in network with a maximum ampacity of 30A.
- B. Overcurrent Protection - A circuit breaker or fuse should be coordinated with the wire size used to connect surge suppressor to AC power network. The primary function of this overcurrent device is to provide a means of removing power from the unit for maintenance. The overcurrent device will not trip during normal operation of the surge suppressor since the response time of the overcurrent device is much longer than the duration of a transient event.

**Recommended Circuit Breaker/Fuse**

Wire Size	Circuit Breaker/Fuse
#12 AWG	20A rms
#10 AWG	30A rms
# 8 AWG	50A rms
# 6 AWG	60A rms

**Alarm Conditions – Contact Status**



**5. Wiring Diagrams**

Voltage	# Ph	Wires	Neutral	
120Vac, 220Vac	1	2W+G	Yes	Fig. 1
120/240Vac	2	3W+G	Yes	Fig. 1
120/120/240Vac	3	4W+G	Yes	Fig. 2
120/208Vac	3	4W+G	Yes	Fig. 3
220/380, 240/415Vac	3	4W+G	Yes	Fig. 3
277/480, 347/600Vac	3	4W+G	Yes	Fig. 3
240Vac, 480Vac	3	3W+G	No	Fig. 4