Installation Instructions for PSI Models: XNL, XNP, XNP4 & XNM

1. Preparation for Install of Power & Systems Innovations, Inc. Surge Protection Device (SPD)

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 outside cover of the SPD enclosure.

B. Review the installation area to ensure the proper space is available to properly mount and install the SPD. The PSI SPD enclosure should be mounted to minimize connected wire length. No sharp bends in the installation wire, Use only sweep bends. Conductors should be twisted together to lower wire impedance, 8-10 twists per foot is recommended.

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. PSI recommends the ground system resistance be 5-Ohms or less. This can be verified by performing a fall-of-potential ground test.

D. Verify the electrical system neutral/ground service entrance bond in electrical systems where neutral is installed.

2. Location of Surge Protection Device

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. The PSI SPD is to be installed with the wires supplied.

B. For Feeder, Distribution, Disconnects and Sub-panel applications, install the Suppressor directly adjacent to the panelboard. The breaker for fuses powering the PSI SPD should be on the feed end of the panel or load side of the disconnect.

3. Wiring of Surge Protection Device

A. TURN OFF the power to the disconnect, panel or device where the SPD will be installed. Verify the power is off.

B. If a circuit breaker cannot be used to power the PSI SPD as outlined in 4. B below. Install a 30A time delay fuse (Ferraz AJT30, Littlefuse JTD30) to feed the PSI SPD. 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) Where possible close nipple the PSI SPD to the panel, disconnect or device where it will be installed.
b) Where the PSI SPD cannot be installed using a close nipple install either a rigid or flexible metal conduit between the surge suppressor and the panel, disconnect or device as required. (Short wire length is critical for the PSI SPD to operate properly.
c) Run wires of surge suppressor to distribution panelboard, see section 5, wiring diagrams for details.

C. Ensure proper color codes:

Wire	Color
Ground	Green or Green/Yellow
Neutral	White
Hot	Black (Hi-Leg B phase tagged RED)

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.

E. Switch MAIN power ON. Check all front panel indicator lamps for illumination.

4. Phase Connections

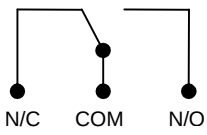
A. Wire SPD to Service Panel - Minimize conductor lead length by cutting back excess cabling. Recommended lead length is **less than 3 feet**. In addition, conductors should be tightly taped together for the entire run. Refer to figure 1, 2, 3, 4 for section 5, wiring diagrams for connecting surge suppressor to AC power network.

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.

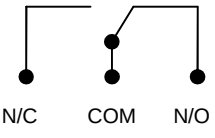
Recommended Circuit Breaker/Fuse

Wiire Size	Circuit Breaker/Fuse
#12 AWG	20A rms
#10 AWG	30A rms

Alarm Conditions – Contact Status



1. SPD de-energized
2. SPD energized, fault
3. NC-COM (Black)
4. NO-COM (Red)
5. COM (Yellow)

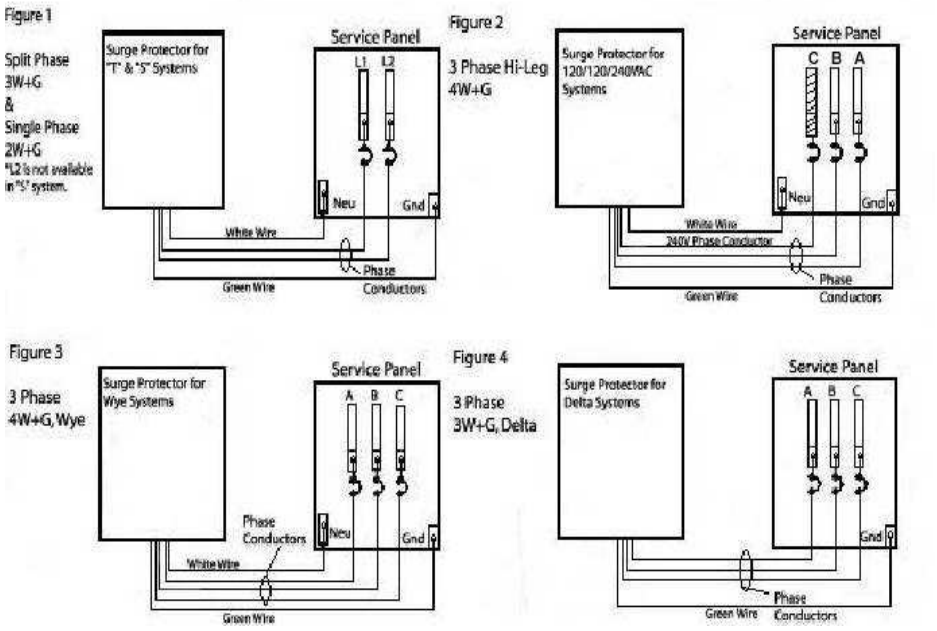


1. SPD energized, Status OK (All Green LEDs)
2. NC-COM (-Red)
3. NO-COM (Black)
4. COM (Yellow)

Connection: #24-16 AWG (0.2mm – 1.5mm²)
Rating: 0.5A, 125Vac, 1A 30Vdc

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



CAUTION: HIGH VOLTAGE INSIDE THIS PSI SPD UNIT. NO USER SERVICEABLE PARTS INSIDE THE PSI SPD UNIT.

For Technical Support of any Power & Systems Innovations, Inc. product including SPD:

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