

INSTALLATION AND MAINTENANCE MANUAL

JOSLYN P/N 1265-85-P

AC SURGE PROTECTOR

120/240 VAC, 1 ϕ , 2 WIRE



**Danaher Power Solutions
5900 Eastport Blvd., Bldg. V
Richmond, VA 23231-4453
Telephone (804) 236-3300
Facsimile (804) 236-4040**

Excellence in Systems Protection

INSTALLATION AND MAINTENANCE INSTRUCTIONS

MODEL 1265-85-P AC SURGE PROTECTOR

I. INSTALLATION

The Joslyn AC Surge Protector 1265-85-P is intended for installation on a 240 Vac, 1 phase, 2 wire plus ground, 50-60 Hz power system. It should be observed that this power system should be created from a center-tapped 120/240 Vac secondary winding, but with no neutral carried to the disconnect from the transformer. See Figure 2.

Connections: The unit may be mounted in any position to facilitate installation. Secure via the four corner mounting holes. The protector is to be connected in parallel to the service. Keep the wires as short and as straight as possible. The wire size used can be in the range of 16-70 mm² (AWG 6 – 2/0). A size of 30 mm² is sufficient. The wires can be connected directly to the busses on the load side of the main service disconnect. If no tap is available on the bus, the wires can be connected to a 60 amp (minimum) circuit breaker or fuseless switch. If it is not desirable to turn off the service at the main disconnect and de-energize the facility in order to perform subsequent service or test on the protector, then employ a 60 amp fuseless disconnect connected between the mains and the protector.

First connect the ground wire to the “Ground” lug on the circuit plate followed by connection of the hot wires to “Line 1” and “Line 2” terminal lugs in any sequence.

Remote Sensing Circuit: The two terminal blocks on top of the relay board provide two independent form ‘C’ contact sets. If a closing of a contact is desired when an arrester module becomes defective or is no longer providing adequate protection, connect the alarm wires to terminals 1 and 2 of either set. If an opening of the relay contacts is desired instead, connect the wires to terminals 2 and 3. See Figure 2 for details.

II. THEORY OF OPERATION

The purpose of the Joslyn AC Surge Protector, Model 1265-85-P, is to provide voltage clamping line-to-ground and line-to-line whenever the instantaneous surge voltage exceeds a level of approximately 500 Vpk. The protector responds in nanoseconds and automatically restores itself to a normal condition after passage of the surge.

Each protector module consists of multiple metal oxide varistors (MOVs) connected in parallel. Each MOV is individually fused. The fuse will blow before the maximum surge current rating of the MOV element is exceeded. The fuses also help balance and evenly distribute the surge current among the parallel MOVs. Each module contains a monitor wire which connects between an internal MOV and its fuse. An intact fuse (thus supplying line voltage on the monitor wire), signifies that the module remains functional.

A replaceable 200 KAIC Class RK5 60 amp fuse is provided on each line of the protector to disconnect the modules from the power source in the event of a continued overvoltage condition. The fuse may blow from surge currents exceeding 28,000 amps (which is considered higher than all but some direct lightning strikes can deliver). The fuse can be removed to disconnect the protector from the service for test or simple examination without having to turn off the upstream source, however caution is advised as the input terminals themselves are still live.

Each line of the protector has a monitoring circuit, powered by the monitoring wires from the protector modules. For each line, the circuit consists of an LED on the protector’s cover and an internal relay. The open contacts of the DPDT relays (when protector is functional) are wired in parallel while the closed contacts are wired in series, resulting in two independent form C contact outputs which are presented on two terminal strips. The terminals are numbered 1,2,3. When all protector L-G modules are functional, both cover lights are lit, and relay Terminals 1 & 2 are open and Terminals 2 & 3 are shorted. When any module of the protector has reached end of life or is no longer providing adequate protection, the respective cover light will be out, and Terminals 1 & 2 will be shorted and 2 & 3 are open.

III. MAINTENANCE

The Joslyn 1265-85-P AC Surge Protector requires no scheduled maintenance. Except for the relays in the monitoring circuit, there are no moving parts. There are no adjustments to make and simple electrical tests will indicate the condition of the unit.

The lights on the cover and the remote alarm relay contact outputs are used to monitor the condition of the protector. Proper operating conditions of the protector result in both lights being lit and the relays energized. If one or more lights are off or a remote alarm signal is received, check to following to ascertain what element of the protector is not functioning properly:

- Check the cartridge fuse by measuring for presence of line voltage on the module-side of the fuse. Replace as necessary.
- To determine if a module has failed, check for presence of the nominal 240 Vac line voltage with respect to the opposite line (or approx 120 Vac with respect to ground) on the module monitor wires where they attach to the relay circuit board terminal strip. If line voltage is observed, the module is functional. If no voltage is measured, the module has failed and must be replaced. There are two modules and two monitor wires per line.
- If both the fuses and modules are functional but either a light is out or the relays are in an alarm condition: Check the LED circuit by measuring for drop across the current limiting resistor and approximately 2 Vdc across the LED terminals. If a fault is found, the resistor, rectifier diode or LED should be replaced as needed. Check the relay by replacing it with a known working relay. Replace if needed.

IV. TEST

In order to determine if a protector module has been exposed to significant surge duty and nears its end of life, it can be tested as follows.

CAUTION *It is desirable to test the protector with the power off. If this is not practical, the fuses may be removed instead but extreme caution must be observed. Hazardous voltages are present on the phase terminals.*

In order to test a protector module, a high voltage dc test circuit is needed that is able to measure the voltage drop across the module terminals when 1 mA of current is being conducted. Such a tester is offered by Joslyn, model no. 4010-01.

- Procedure:
- Disconnect the power (or remove fuses)
- Remove the relays
- To check the L-G modules, connect the positive (+) output of the tester to each of the Line terminals (module side, if the fuses are removed). Connect the negative (-) output to the Ground terminal.
- To test the L-L module, connect positive (+) to Line 1 and negative (-) to Line 2.
- Energize the test set and measure the 1 mA varistor voltage. The following values are considered acceptable:

- Factory specification for new protector modules	420 – 520 Vdc
- Specification for in-service modules	400 – 540 Vdc

To replace a L-G module

- Remove the monitor wire from the terminal block on the relay board (no wire on the L-L module).
- Loosen the 8-32 nuts on the top of the modules.
- Remove the 10-32 screw that secures the straps connected to the ground plate and remove the strap.
- Slide the module out from under the line terminal strap and remove it.
- Replace in reverse order.

To replace the L-L module:

- Remove the wire lugs from its two terminals and remove the two 10/32 screws holding it to the ground plate.

Replaceable Parts:

Line-Ground Module		Joslyn P/N 72116
Line-to-Line Module		Joslyn P/N 1262-30
LED Assembly		Joslyn P/N 72346-01
Fuse	Bussmann P/N FRN-R-60	Joslyn P/N 63569
Relay	Omron P/N MYS-AC120V	Joslyn P/N 51512
Optional, Surge Protector Test Set		Joslyn P/N 4010-01

FIGURE 1
DIMENSIONS

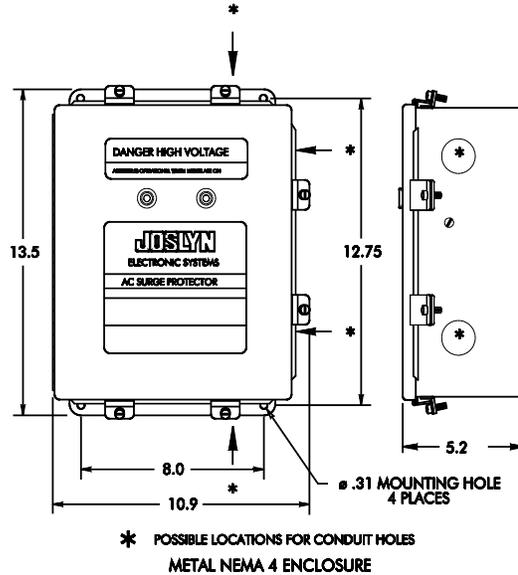


FIGURE 2
WIRING DIAGRAM

