

FDA, FDB & FDC Compact Series

The Omega Power® **FDA, FDB & FDC** Compact Series of Surge Protection Devices (SPD) are designed to provide protection to service panels, load centers or where the SPD is directly connected to the electronic device requiring protection. Maximum protection will only be achieved if the SPD is properly installed. Please read the following installation instructions carefully and follow the instructions.

⚠ DANGER **DANGER:** Electrical shock or burn hazard. Installation of this SPD should only be made by qualified personnel. Failure to lockout electrical power during installation or maintenance can result in fatal electrocution or severe burns.

⚠ CAUTION **CAUTION:** Check to make sure system voltages do not exceed the SPD voltage requirement and the correct SPD voltage/model has been selected.

⚠ CAUTION **CAUTION:** This unit must be installed in accordance with the National Electrical Code (ANSI/NFPA-70) and applicable local codes.

⚠ CAUTION **CAUTION:** Do not install on ungrounded electrical systems.

NOTICE: Do not cut wires until the SPD is mounted and minimum wire lengths have been verified. All connection leads should be cut to minimum possible length; never coil or push aside excess length.

INSTALLATION INSTRUCTIONS

- 1. Verify system voltage** by measuring L-N, L-G, L-L and N-G of the system. Confirm that the SPD is correctly rated for the system to which it is to be connected by comparing the measured voltages to the SPD voltage ratings shown on the product side rating label. The measured voltage should match the nominal operating voltage of the product, the maximum continuous operating voltage (MCOV) specifications must not be exceeded.
- 2. Identify proper location for the SPD.** Locate the unit as close as physically possible to the panel being protected and as close to the electrical connection as possible so as to avoid excess lead lengths and the need for sharp bends in the wires. Mount top and bottom SPD flanges securely. Use appropriate cable glands to preserve the SPD/panel NEMA enclosure rating.
- 3. Connect proper ground.** An insulated grounding conductor that is identical in size and insulating material and thickness to the grounded and ungrounded circuit supply conductors, except that it is green with or without one or more yellow stripes, is to be installed as part of the circuit that supplies the FD unit. The FD unit is supplied with 914mm (3ft) long of #10AWG, in accordance with Table 250-122 of the National Electrical Code, for this purpose. The housing of the FD unit is bonded to the grounding conductor for equipment safety ground purposes as per National Electrical Code. The grounding conductor is to be grounded to earth at the service equipment or other acceptable building ground such as the building frame in the case of a high-rise steel-frame structure. Attach the grounding conductor to the panel's ground bus for proper operation. Wire length should be minimized to improve performance. There is no minimum wire length requirement. Note: For isolated ground systems, bond the grounding conductor from the FD unit to the non-isolated equipment ground, not the isolated equipment ground.
- 4. Connect neutral conductor.** The FD units are supplied with #10AWG leads. The white Neutral conductor is 914mm (3ft) long. Wire length should be minimized to improve performance. There is no minimum wire length requirement. Measure and trim the neutral conductor to be as straight and short as possible. Connect the neutral conductor of the SPD to the neutral lug on the panel.
- 5. Connect phase conductors.** The phase wires are labeled L1, L2*, L3. While the orientation is not critical to the operation, it ensures the indication of the FD unit matches the relevant phase. With the POWER OFF, connect each black phase lead. Upstream over current protection is not required for the FD product, and over current protection is integral to the

DANGER
ELECTRICAL SHOCK OR BURN HAZARD. HAZARDOUS VOLTAGES EXIST INTERNAL TO THE SPD. THIS UNIT SHOULD BE INSTALLED AND SERVICED ONLY BY QUALIFIED PERSONNEL IN CONFORMANCE WITH ALL GOVERNING CODES AND INSTRUCTIONS. FAILURE TO LOCKOUT ELECTRICAL POWER DURING INSTALLATION OR MAINTENANCE CAN RESULT IN FATAL ELECTROCUTION, SEVERE BURNS, OR OTHER INJURIES. BEFORE WORKING WITH OR MAKING ANY CONNECTIONS TO THIS DEVICE, BE SURE THAT POWER HAS BEEN REMOVED FROM ALL ASSOCIATED WIRING, ELECTRICAL PANELS, AND OTHER ELECTRICAL EQUIPMENT.

1. The power supply to the FD unit should always be turned (and locked) OFF before the unit is accessed for any reason.
2. Prior to installation, ensure that the FD unit is of the correct voltage, current, phasing, and frequency for the applicable rating of the power distribution system.
3. This unit must be installed on the load side of the main over-current protection.
4. Diagrams are for reference only. Schematics are representative of typical applications and are only to be used for reference.

WARNING

1. OMEGA POWER products shall be installed and used only as indicated in OMEGA POWER product instruction sheets and training materials. Instruction sheets are available at www.omegap.com and from your OMEGA POWER customer service representative.
2. OMEGA POWER products must never be used for a purpose other than the purpose for which they were designed or in a manner that exceeds specified load ratings.
3. All instructions must be completely followed to ensure proper and safe installation and performance.

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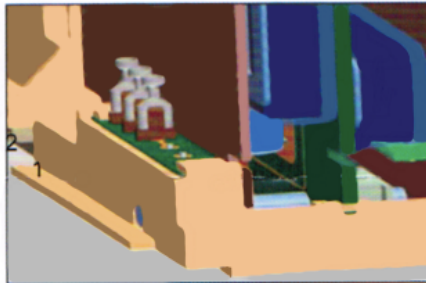
product**. It is required to install the FD unit downstream or on the load side of the main supply fuse.

* Note: SPDs connected to High Leg Delta systems have one of the phase wires identified by an orange marking. This lead must be connected to the high leg (normally Phase B) of the power system.

** Note: In Australia, New Zealand and some other countries it is not permitted to omit over-current protection.

The FD units are supplied with #10AWG leads. Phase conductors are 610mm (2ft) long. Wire length should be minimized to improve performance. There is no minimum wire length requirement.

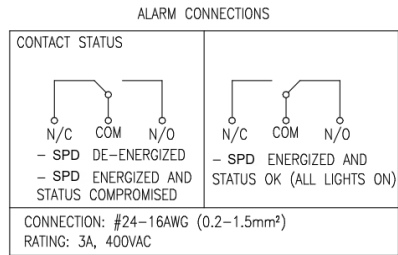
- 6. Connect Remote Monitoring.** Dry contacts (N/O, N/C & Common) are located behind the lower mounting plate (end opposite from AC connection gland). To make the actual connection onto the quick-connect remote terminals, temporarily remove the upper mounting plate the unit out of its enclosure, (the one through which the main AC conductors pass) by removing the four attachment screws. Slide the unit out of its enclosure, make the connections to the mating terminals with 2.79mm x 0.51mm (part number: Amp 62585-1) remote spade terminals. To make a connection to the terminals provided for this purpose, remove the metal grommet in the end plate, and install an insulated (nylon*) cable gland (1/2" / 12.7mm) that:
 - Preserves the SPD/panel NEMA enclosure rating*.
 - Does not foul the internal PCB or components.



The remote "spade" terminals are labeled as follows:
 Terminal 1 – COM
 Terminal 2 – NO
 Terminal 3 – NC

* cable gland must be watertight with UL 94-V2 rating.

NOTE: In the "Normal" state Terminal 1 and Terminal 3 are connected. In the event of operation of one of the disconnectors due to an internal fault condition Terminal 1 will be connected to Terminal 2.



Complete the installation of the remote indication circuit wiring by back feeding the alarm wiring out through the insulated (nylon) conduit gland in the lower mounting plate. Reassemble by reattaching both mounting plates.

Remote Status Indicator Dry Contacts are rated at a max 30V resistive load/1.0A, max 125VAC/ 0.3A general use.

Terminals marked "NO" (Normally Open) and "C" (Common) are switched together while the SPD is operating with full capacity. Terminals "NC" (Normally Closed) and "C" are switched together if the SPD displays reduced surge capacity.

- 7. Nearby Attachment-Plug Receptacles**
Any attachment-plug receptacles in the vicinity of the FD unit are to be of a grounding type, and the grounding conductors serving these receptacles are to be connected to earth ground at the service equipment or other acceptable building earth ground such as the building frame in the case of a high-rise steel-frame structure.
- 8. Connector and Lugs**
Pressure terminals or pressure splicing connectors and soldering lugs used in the installation of the FD unit shall be identified as being suitable for the material of the conductors. Conductors of dissimilar metals shall not be intermixed in a terminal or splicing connector where physical contact occurs between dissimilar conductors unless the device is identified for the purpose and conditions of use.
- 9. Activate unit.** When the power is applied, the RED diagnostic lights will indicate that the unit is operational and protection is being provided. If the status lights do not illuminate, please recheck any supply fuse as well as the phase, neutral and ground connections.
- 10. Flush Panel Mounting.** For flush panel mounting, please order the flush cover plate and follow the instructions supplied.
- 11. Alarm Conditions.** The RED diagnostic lights will extinguish and the Remote monitoring contacts will change state. Please check the power connections and supply fuses if this condition occurs. If power is being correctly supplied to all phases and the alarm condition remains, the unit requires prompt replacement.
- 12. Problem Diagnostics.** If problems continue after checking the electrical connections, contact your local OMEGA POWER representative.