

DSD50 Series



1. Preparation

DANGER:

Electrical shock or burn hazard. Qualified personnel should only install this product. Failure to lockout electrical power during installation or maintenance can result in fatal electrocution or severe burns. Before making any connections to this electrical panel please ensure that power has been removed from all associated wiring, electrical panels, and other electrical equipment.



Caution Notes:

1. The installation of this Surge Diverter should follow all applicable national electrical codes.
2. Check to ensure that the power frequency line voltage does not exceed the maximum continuous operating voltage (U_c) of the product.
3. Prior to installation, ensure that the product is of the correct voltage, current, and frequency.
4. The ground (earth) terminal must be connected to a low impedance earth (<10 ohms) for correct operation.
5. Do not perform a "Flash Test" or use a Megger to test circuits that are protected with these units. This may damage the product and affect the insulation readings being performed.
6. Follow all instructions to ensure correct and safe operation and observe nationally recognized codes or authorities having jurisdiction.
7. Do not attempt to open or tamper with the unit in any way as this may compromise performance and will void warranty.
8. This device features an internal protection that will disconnect the surge protective component at the end of its useful life but will maintain power to the load - now unprotected.

2. Introduction

The DSD50 series has been designed to provide protection to DC power distribution systems type of power distribution system.

3. Quick Installation Overview

Please follow the sequence indicated:

1. First, ensure that power is removed from the area and the circuits to be connected.
2. Install earth leakage protection (Residual Current Device or Ground Fault Circuit Interrupter) if appropriate or where required by national codes and authorities having jurisdiction.
3. Connect wiring to the primary terminals indicated.
4. Connect the alarm terminals if remote monitoring as required.
5. Apply power and observe correct operation of the surge protection device (SPD) and status indication is not tripped.

4. Mounting

These products are designed to clip to 35mm (top hat) DIN rails (standard EN50022) set in the horizontal position with the SPD securing clips towards the bottom of the rail and the label text facing the correct way up.

Note: Modules must be installed in an enclosure or switch board panel in such a way that:

- The location of this enclosure prevents the temperature of the units from exceeding its maximum specified rating.
- Adequate electrical and safety protection is provided by the enclosure to all exposed terminals.
- The location and type of enclosure meets the specified environmental requirements and prevents the ingress of moisture and water.
- The indicator status of the unit can be readily inspected.

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.

1. The power supply to the SPD should always be turned (and locked) OFF before the unit is accessed for any reason.
2. Prior to installation, ensure that the SPD is of the correct voltage, current, phasing, and frequency for the applicable rating of the power distribution system.
3. All instructions must be followed to ensure proper and safe operation of the SPD.
4. Failure to follow instructions or warnings may result in bodily injury, property damage, equipment damage, or ineffective protection.

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, severe burns, or other injuries. Before working with or making any connections to this electrical panel, be sure that power has been removed from all associated wiring, electrical panels, and other electrical equipment.

CAUTION: Check to make sure line voltage does not exceed SPD voltage requirement.

CAUTION: This unit must be installed in conformance with all governing codes and instructions, and must be installed on the load side of the main over-current protection.

Diagrams are for reference only. Schematics are representative of typical applications and are only to be used for reference.

WARNING:

1. Pentair products shall be installed and used only as indicated in Pentair product instruction sheets and training materials. Instruction sheets are available at www.erico.pentair.com and from your Pentair customer service representative.
2. Pentair 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.
4. Improper installation, misuse, misapplication or other failure to completely follow Pentair's instructions and warnings may cause product malfunction, property damage, serious bodily injury and/or death, and void your warranty.

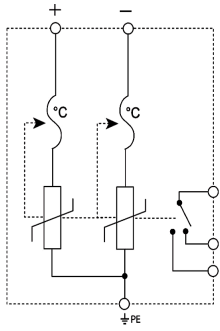
SAFETY INSTRUCTIONS:

All governing codes and regulations and those required by the job site must be observed. Always use appropriate safety equipment such as eye protection, hard hat, and gloves as appropriate to the application.

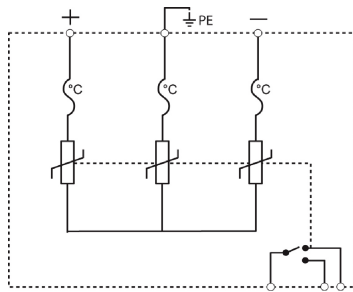
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6. Wiring



**DSD50R300DC
DSD50R600DC
DSD50R1000DC**



DSD501000DCSP1

The interconnecting wiring should:

- Be as short as possible - not exceeding 300mm (12").
- Avoid sharp bends >100mm radius is recommended.
- Have the conductors twisted together where possible.
- Terminals will allow connection of 25mm² (#4AWG) multi-strand wiring or 35mm² (#2AWG) solid - ref. Table 1. The wire insulation should be stripped back 8mm (5/16").

7. Residual Current Detectors (RCD)

When a Residual Current Device (RCD) or Ground Fault Circuit Interrupter (GFCI) is used, it is preferable that the DSD modules be installed prior to (upstream of) this device to avoid nuisance tripping which may occur during transient activity.

8. Fusing and Isolation

See Table 1 for suitable fuse ratings.

Note: Operation of this over-current protection under excessive surge conditions may occur removing protection from the circuit. The Remote Status contacts should be monitored for this possibility.

9. Status Indication

Modules incorporate an internal thermal disconnect element, which automatically disconnects the varistor from the network in the event of a thermal overload. Should the internal disconnect operate, a red flag appears in the transparent window of the Status Indicator(s) on the front of the module.

10. Maintenance and Testing

Before removing a module from service, ensure that the power has been removed and if possible "locked out". Qualified personnel should only undertake replacement of modules. Replacement plug-in modules are available for sale and the part number is on the face of the module.

Note: It is very important to ensure that the new module is of the same type and voltage as that being replaced.

Note: DSD units should be inspected periodically, and also following any periods of lightning or transient voltage activity. Check the Status Indicator and replace the module if required.

11. Remote Status

The DSD provides remote status monitoring via voltage-free contacts. Failure of the module(s) is signified by the N/O contacts (11,14) opening and the N/C contacts (11,12) closing. Ensure that the voltage and current ratings of the contacts are not exceeded.

Note: Depending how the remote contacts are used, loss of power to the unit may be incorrectly interpreted as a failure of the module itself. Visual inspection of the Status Indicator flag(s) is required to clarify this situation.

Table 1. DSD operating specifications

| | |
|------------------------------------|--|
| Main terminal - wire cross section | Multi-strand 25 mm ² (#4AWG) (single-strand 35 mm ² (#2AWG)) |
| Fuse selection | Photovoltaic source circuit fuses are selected in accordance with the available short circuit current of the PV module (or parallel connected modules or strings of modules), multiplied by 1.4. For systems installed in the US in accordance with the NEC®, the available short circuit current is multiplied by 1.56). These requirements should be verified with local code requirements or authorities having jurisdiction. |
| Remote status contacts | 0.5 A / 250 VAC 1.5 mm ² wire cross section |