SPD120i/A SURGE DIVERTER

(Single mode, 220-277V (380-480V), 100kA)

INSTALLATION INSTRUCTIONS

FEATURES

- 1 mode protection (L-N or L-E)
- Compact solution for primary protection
- DIN43880 case, 35 mm DIN-rail mountable
- All MOVs thermally protected
- Includes dry-contact alarm

Applications

- *Mains point-of-entry /Main SWB*
- *Telecommunication Systems / Rectifiers*
- *Process and Control Systems / Factories & Units*
- *Computer Systems / Medical Systems*
- *All sensitive Electronic Equipment*

SPECIFICATIONS	
Manufacturers name and model	**Eaton Powerware SPD120i/A**
Method of mounting	Fixed. DIN Rail mount
Input voltage	220-277VAC (380-480V) 40-70Hz
Maximum continuous operating voltage - MCOV	320VAC
Temporary over-voltage – TOV	350VAC, 15 mins
Service type	TN-C and TN C-S (3-phase with grounded neutral)
Test classification	Class II
Supply current	50mA
Initial clamp voltage	560V
Maximum rated surge current - Ismax 8/20us	100kA
Nominal surge current - In 8/20us	50kA
Residual voltage (Vpl) @ 3kA, 8/20uS	1.0kV
Residual voltage (Vpl) @ 40kA, 8/20uS	1.65kV
Residual voltage (Vpl) @ Ismax 100kA, 8/20uS	2.5KV
Energy absorbtion (2ms)	2130j
Nominal surge lifetime (In)	50kA (8/20uS), 20 times
Internal protection (fusing)	MOV thermal fuses 135°C
External disconnector requirements	Gg/Gl HRC fuses, 1 per phase, 125A maximum.
Terminations	Power terminals 16mm^2 , Alarm terminals 1.5mm^2
Alarms/indicators	5 indicators, dry contact alarm relay – 250VAC/32VDC, 5A
Location Category	Indoor
Enclosure rating	IP20
Applicable standards.	IEC61643-1, IEC610006, ANSI/IEEE C62.41, AS1768-2003, AS3100
Dimensions	DIN43880, 4 units (70mm)
Weight	200g
Environment	-10 to 60C, 0-90%RH
Warranty	12 months, workmanship and materials

FUNCTIONAL DESCRIPTION

The SPD120i is designed to protect single and 3-phase power systems against damage from surges and spikes caused by lightning and other electrical sources. The unit is intended for point-of-entry or main-board protection and is connected in parallel with the power system via HRC fuses. This unit is available in various models for different voltages and applications. Check that the model you have purchased is rated correctly for your power system.

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This model (SPD120i/A) is designed for single and 3-phase power systems, with a grounded neutral, in the range of 220-277V(380-480V). If your power system is "delta" (i.e. ungrounded), or of a different voltage, this model is <u>NOT</u> suitable.

Please contact your supplier for a suitable model to suit your application.

OPERATION

Two lamps on the front panel indicate the operation status of the unit. The 'OK' lamp indicates that power is applied to the unit and the 'FAULT' lamp indicates reduced protection. If the 'FAULT' lamp is lit it is likely that the unit is damaged and must be replaced. If the breaker/fuse is intact and power is definitely being supplied through the unit (check with meter) but the 'OK' lamp doesn't light then the unit is faulty and must be replaced.

WARRANTY

Eaton Power Quality warrants this unit against faulty parts and workmanship for a period of 12 months from the date of purchase. If this product fails to operate correctly, please contact your Eaton representative. This warranty doesn't cover neglect or intentional misuse. As this product is intended for use in electrically harsh environments no claim is made of suitability for purpose. This unit is designed to reduce the likelihood of damage, not prevent it. Please also note that an excessive surge, such as from a direct lightning strike to the site or a power system fault, may cause damage to the unit and render it inoperable. A unit that has been damaged in this way is not warrantable.

For installation details, see over page.

INSTALLATION
Refer to the procedure and diagram shown to connect the SPD120i/A.

PROCEDURE:

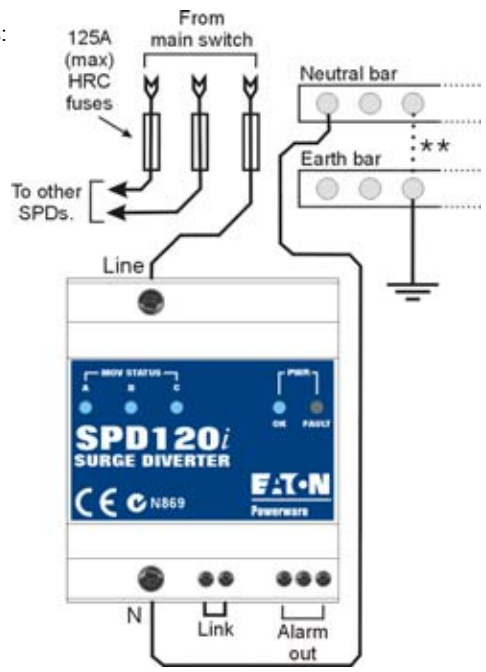
1. **CHECK**
   - Always work safely – disconnect power before making connections.
   - All wiring must be carried out by suitably qualified personnel according to the applicable standards.
   - Check for correct operating voltage and power system. This model (SPD120i/A) is designed for power systems in the range of 220-277V(380-480V). **If your power system is "delta" (i.e. ungrounded), or of a different voltage, this model is not suitable**. Please contact your supplier.
   - ** For installation adjacent to an M.E.N. link, use the L-N mode. Insert insulated link as shown.
   - ** For installations remote from the M.E.N., use the L-E mode. Remove link. A separate N-E protector is required Contact your distributor for information.
   - Always use the correct size HRC fuses.
   - For services >125A, use 125A fuses. For services <125A, use one step below service fuses (i.e. 80A service =63A fuses). DO NOT USE AN MCB.
   - Always use Gg or Gl-rated fuses. Do not use delay types or 'semiconductor' fuses.
   - Consider fitting a fuse-switch or a separate isolation switch to facilitate safe maintenance in the future.
2. **INSTALL**
   - Locate a fuse position as close as possible to the Main Switch.
   - Install fuseholders or fuse-switch.
   - Locate a suitable position for the SPD, ensuring adequate space for cables. Do not install above heat-generating objects or in any position that is exposed to weather.
   - Install unit to DIN-rail in switchboard or cabinet.
3. **CONNECT**
   - Connect wiring - refer to connection diagrams. If using stranded cable, always use wire ferrules for lowest resistance and to prevent damage to the wire.
   - Use a suitably-rated cable for power connections. Cable should be rated for operation at the system voltage and should be 4mm^2 to 16mm^2.
   - Use short cables for phase, neutral and earth connections or protection will be reduced.
   - Use a suitably-rated cable for alarm connections. Cable should be rated for operation at the system voltage and should be 0.5mm^2 to 1.5mm^2.
4. **NOTES:**
   - 125A fuses are rated such for maximum surge rating. On services below125A, use the correspondingly lower sized fuse (i.e.80A service = 63A fuse).
   - Wiring from fuse to SPD is carrying surge currents only, not load current. This means that smaller cables may be used than is normal for the current rating.
   - If using under-sized cables, some energy authorities require double insulation (i.e. sleeving) of the cables.
   - Maximum alarm relay resistive load is 5A.
   - It is recommended not to connect the alarm contacts to AC mains circuits if possible, to prevent flashover from surges on the AC line. Connect to a PLC or BMS if available.
   - Do not Megger test cabling with unit connected – unit may be damaged.

EARTHING
For proper operation, all surge diverters rely upon a good earth connection:

- The main earth wire (from earth link on switchboard to ground rod or system) MUST be at least 6mm diameter (preferably larger) and should be as short as possible.
- Earth connections from the unit to neutral or earth link **MUST** be as short as possible.

Failure to consider the above points can result in improper operation of the unit and possible damage to the installation.

L-N mode connections:



L-E mode connections: