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SD40 40kA Surge Diverter

Installation and Operation Guide

IPN 997-00012-77D
March 2016

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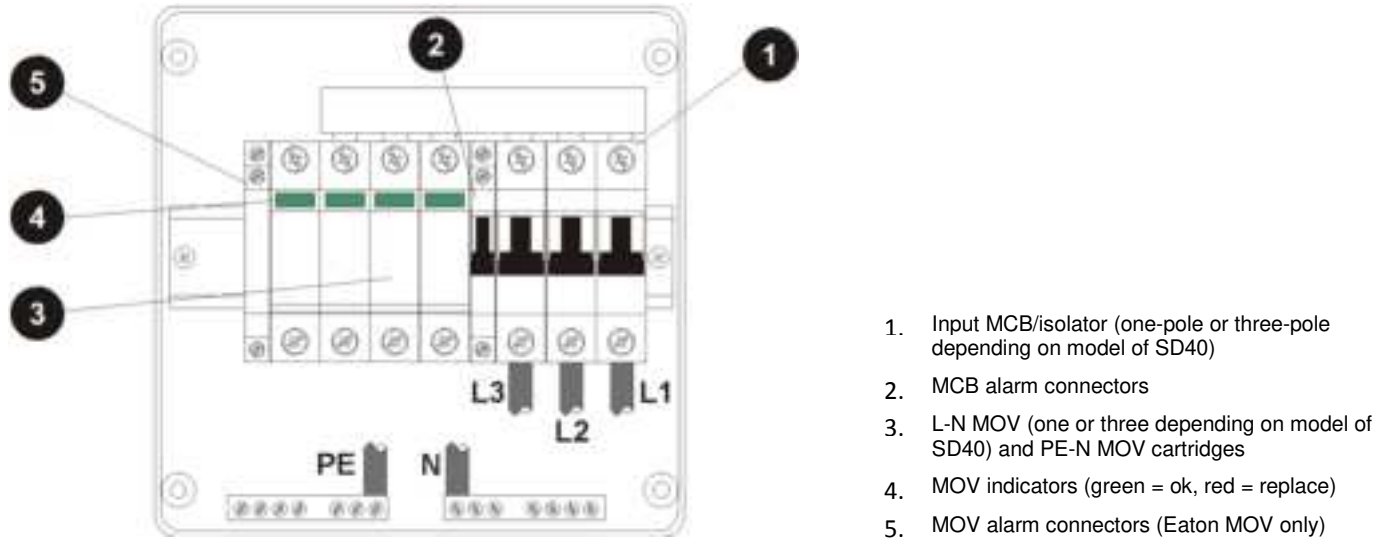
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The Eaton SD40 is a 40kA surge diverter designed to protect Eaton dc power systems at sites with low-medium risk of damage from voltage transients (surges). Two models are available for either single-phase or 3-phase.

The SD40 includes an input MCB/isolator and metal oxide varistor (MOV) surge diverters connected line-neutral and neutral-earth.

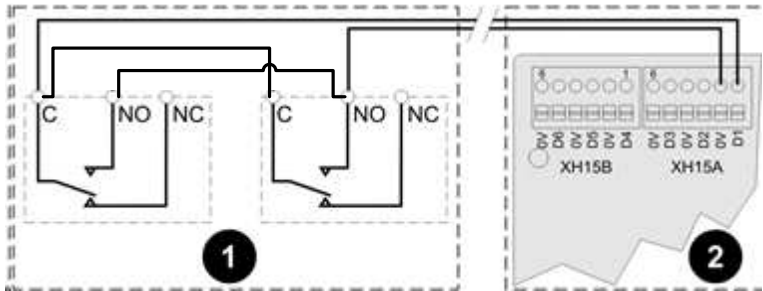
The SD40 can be fitted with either Eaton or Phoenix MOVs.



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- All work must comply with the applicable electrical wiring regulations and be carried out by a registered electrician or other suitably qualified person.
 - Isolate ac sources before making connections.
 - Check the ac supply voltage. The SD40 is designed for 220-240V ac (phase-neutral) supplies. Do not use with other voltages or with delta connected supplies. Contact the supplier for advice.

Installation

- Unpack and check the SD40. Check you have the correct model for either single-phase or 3-phase, as required.
 - Contact the product supplier if any item is damaged or missing. Do not use the SD40 if it is damaged.
- Mount the SD40 **as close as possible to the main switchboard or sub-distribution board.**
- If required, wire from the MOV and MCB alarm connectors to a digital input of the Eaton dc power system (Active State = Closed), or other alarm monitoring system.
 - The diagram shows the recommended connection method. For 3 phase versions, the MOV alarm contacts are wired in parallel.
 - The alarm circuit will be closed if a MOV cartridge fails, a MOV cartridge is removed (Phoenix MOV only) or, the MCB is off.
- Install 32A (or greater) HRC fuses (one per phase) in the main switchboard or sub-distribution board. **For the best transient protection the fuses must connect as close as possible to the main ac supply conductors.**
 - MCBs may be used, but must be rated 32A or greater.
- Wire (via the shortest route) from the HRC fuse(s) (or MCBs) to the MCB (L1, L2 and L3) in the SD40.
 - All wire sizes must suit the rating of the HRC fuses (or MCBs).
- Wire from the neutral bar in the main switchboard or sub-distribution board to the neutral (N) terminal in the SD40.
- Wire from the protective-earth bar in the main switchboard or sub-distribution board to the protective-earth (PE) terminal in the SD40.
- Check that all connections are tight.
- Insert the HRC fuse(s) (or switch on the MCBs) in the main switchboard or sub-distribution board. Switch on the MCB in the SD40. Check that supply voltage is present at the L-N connected MOVs.
- Replace the cover of the SD40.



Maintenance

Monitoring the MOVs

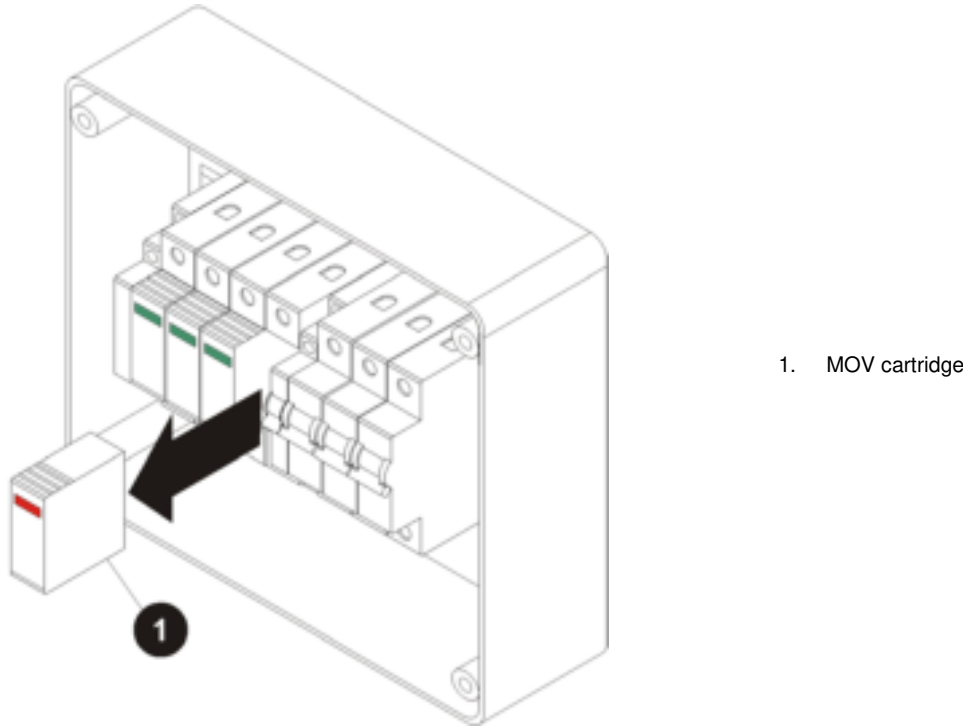
MOVs are fitted with alarm contacts and visual indicators. Connect these alarms to the dc power system and from there extended to the building or network management system. If the MOVs are not monitored automatically, then regular visual inspections must be carried out.

Replacing the MOVs

MOVs must be functional at all times. In practice, it is impossible to predict when a MOV will fail. That depends entirely on the number and magnitude of the transients sustained.

For that reason we recommend the following, depending on how accessible the site is.

- For easily accessible sites** – If a MOV has failed (as indicated by a MOV Fail alarm or the visual indicator), then replace all the MOVs as soon as possible.
- For remote sites with difficult access** – Replace all the MOVs during scheduled maintenance visits, whether they have failed or not.



Specifications

AC Voltage	Nominal	220 - 240V ac (P-N)
	Maximum Continuous	385V ac (P-N)/260V ac (N-PE)
Frequency	50/60Hz	
Responding Time	< 25ns (P-N)/< 100ns (N-PE)	
Voltage Protection Level	1.8kV (P-N)/1.0kV (N-PE)	
Nominal Discharge Current (8/20 μs)	20kA	
Maximum Discharge Current (8/20 μs)	40kA (P-N)/60kA (N-PE)	
Maximum back-up fuse	160Agl	
MCB Rating	32A (D-curve)	
Operating Temperature	-40°C to +70°C	
Degree of protection	IP41	
Dimensions	192mm W, 192mm H, 105mm D	