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SURGE PROTECTION

PORTABLE POWER DISTRIBUTION
SURGE PROTECTION DEVICE (SPD)

USER MANUAL

Surge Protection Device

B-01-156-9000

This Surge Protection Device is intended for professional use only
Read this entire document before installing operating or using this Surge Protection device
■ORIGINAL INSTRUCTIONS

Part Number: B-01-156-9000-UM
Release: April 2018

Original Instructions
Surge Protection Device
Rev A
Released 04-2018

We have checked that the contents of this document correspond to the device described.
There may be discrepancies nevertheless, and no guarantee can be given that they are completely identical.
The information contained in this document is reviewed regularly and any necessary changes will be included in the next edition.

We welcome suggestions for improvement.

Motion Laboratories Inc. intends this document, whether printed or electronic, to be provided in its entirety.

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- **USER DOCUMENTATION**

WARNING

Before using the Surge Suppression Device, you must read all safety instructions and warnings carefully including all the warning labels attached to the equipment. Make sure that the warning labels are kept in a legible condition and replace missing or damaged labels.

REGIONAL CONTACTS

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- **USE FOR INTENDED PURPOSE ONLY**

The equipment may be used only for the application stated in the manual and only in conjunction with devices and components recommended and authorized by Motion Laboratories Inc.

- **IDENTIFICATION**

This user manual pertains to the following Surge Protection Device (SPD) models:
B-01-156-9000

Table of Contents

- **SYMBOLS**

DANGER

Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

WARNING

Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION

Used with the safety alert symbol indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.
Used without a safety alert symbol indicates a potentially hazardous situation which, if not avoided may result in property damage.

- **DON'Ts**

Do NOT energize this equipment without verifying that the supplied voltage and the nameplate are the same.
Do NOT energize this equipment until it is effectively grounded per all applicable codes.
Do NOT energize this equipment unless supervised by qualified personnel

- **GENERAL SAFETY INFORMATION**

The manual must be kept by a person in charge in a suitable place and ready for consultation, in optimal conditions. Should it be lost or damaged, the manual can easily be retrieved on the manufacturers website: www.motionlabs.com.
The manufacturer retains all material and intellectual rights on the manual, and restricts its duplication, even partial, for any commercial use.

CAUTION

All marking data should not be removed by grinding, abrasion or peeling, whether accidental or not. Any unit that does not carry the proper identification references should be removed from service until those references can be replaced.

WARNING

This equipment contains dangerous voltages and controls potentially dangerous rotating mechanical parts. Non-compliance with or failure to follow the instructions contained in this manual can result loss of life, severe personal injury or serious damage to property.

- **ELECTRICAL SAFETY INFORMATION**

The SPD operates at high voltages. There are no user serviceable parts inside the enclosure.

DANGER

Risk of electric shock. Disconnect the power supply across all poles before opening the equipment for access. Repairs on equipment must only be carried out by trained service technicians familiar with technical specifications contained in this unit.

To ensure proper operation and dependability, any defective electrical component must be replaced using parts contained in the relevant spare parts list.

- **DEFINITIONS**

INTERNAL MODULAR ASSEMBLY (IMA)

SURGE PROTECTIVE DEVICE (SPD)

MODULAR ASSEMBLY (MA)

- **PRODUCT DEFINITION**

Transient voltage is defined as spikes and surges in voltage, and can cause damage and disruptions that are inconvenient, frustrating and costly. Sources for transient voltage can be external or internal to your job site.

External sources can be: lighting strikes, utility grid switching, electrical accidents and heavy motors or loads from nearby industry.

Internal sources could consist of; laser printers and copiers, generators, air conditioner motors and even lights being turned on and off.

To mitigate the risks of transient voltage spikes, Motion Laboratories incorporates the Schneider Surgelogic Modular Surge Protective Device (SPD) into its product line.

To provide the shortest connection lengths for the best performance, we chose the Internal Modular OEM Kit SPDs.

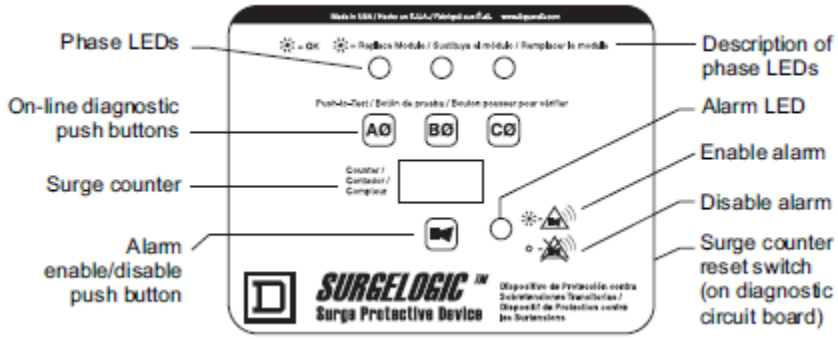
The SPD identified in this manual are comprised of three surge suppression modules (MA) mounted internally to the portable power distribution equipment with a remote front panel status indicator and circuit protection.

The SPD is designed to limit transient overvoltages of atmospheric origin and divert current waves to earth. The IMA has SPD elements connected from phase to ground. It is critical that there be a robust and effective connection to the building grounding structure.

DANGER

The grounding connection must utilize an equipment grounding conductor run with phase and neutral connection of the power system. Do not connect the SPD to a separate isolated ground.

- **THREE-PHASE DIAGNOSTIC DISPLAY WITH SURGE COUNTER**



Audible Alarm. Push the alarm enable/disable button to enable or disable the alarm. If the green alarm LED is lit the alarm is enabled. If the green alarm is not lit the alarm is disabled.

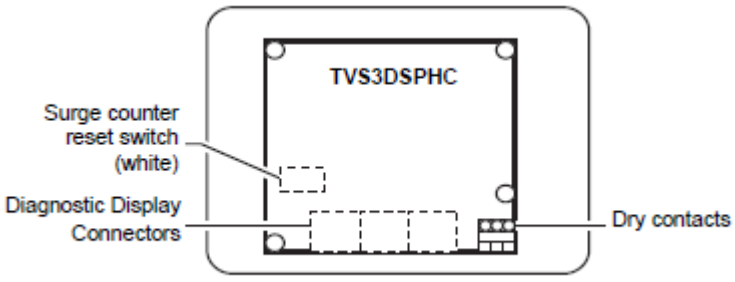
Surge Counter. The surge counter displays the number of transient voltage surges since the counter was last reset. The counter is battery powered to retain memory in the event of a power loss to the IMA module.

DANGER

Risk of electric shock. Disconnect the power supply across all poles before opening the equipment for access. Repairs on equipment must only be carried out by trained service technicians familiar with technical specifications contained in this unit.

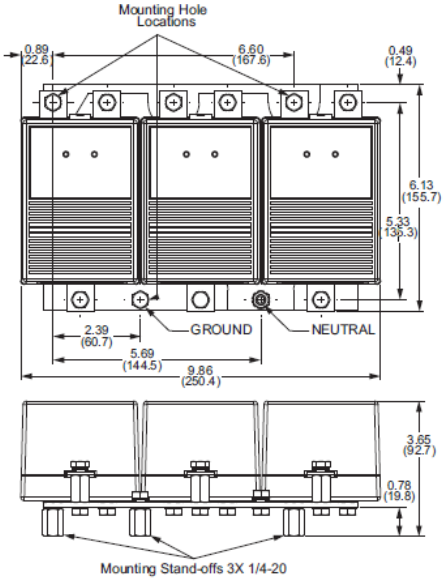
To reset the surge counter, remove all power and press the small switch located inside the unit on the underside of the diagnostic circuit board next the diagnostic display connectors (see below). This will reset the counter to zero.

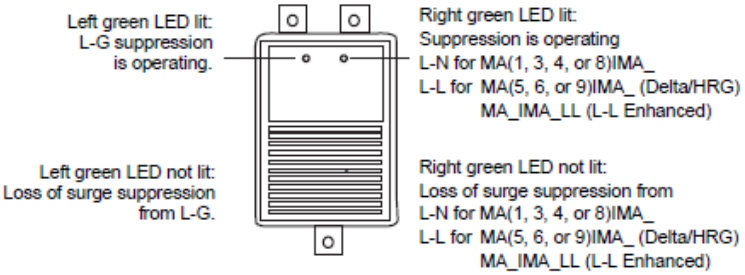
- **REAR OF DIAGNOSTIC CIRCUIT BOARD**



The SPD Diagnostic display shows the status of each IMA module with diagnostically controlled green/red LEDs. If a unit is operating correctly, all of the phase LEDs will be illuminated green. To test the integrity of the diagnostics for each phase, push the button below the phase LED on the display. The green LED will turn red and the alarm will sound (if enabled) Releasing the test button will complete the test; the red LED will turn green and the alarm will shut off.

- **IMA MODULE (INTERNAL TO UNIT)**





If an inoperable condition occurs on any phase, the audible alarm sounds and the corresponding phase LED on the diagnostic display is illuminated red. This indicates that the device needs service by a qualified electrical technician. The alarm can be silenced until a qualified person is able to evaluate and service the SPD by pressing the alarm enable/disable button. The alarm will silence, and the green alarm LED will not be lit. The red phase LED will continue to be illuminated until the inoperative condition has been cleared. The SPD disconnect may be shut off at any time to disconnect the device from power.

On any IMA module, if either LED is not lit, the module should be replaced. If both green LEDs are not lit and the diagnostic display has power, then power has been lost to that phase module or the module should be replaced.

- **PART NUMBERS**

The SPD specified in this manual is the Surelogic part number TVS2IMA160. This unit is available for installation in most portable power distribution units.

- **ELECTRICAL SPECIFICATIONS**

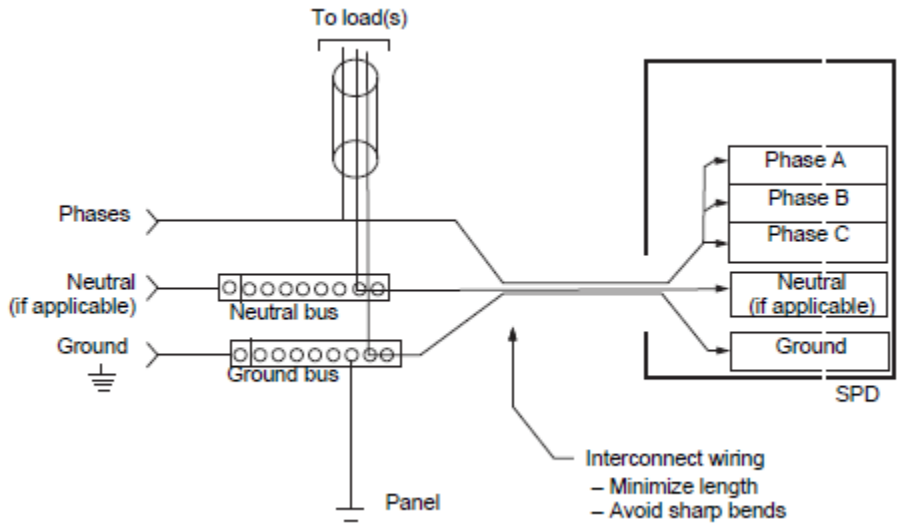
Voltage Rating……120/208VAC WYE 3 Phase, 4-wire + ground
Peak Surge Current Rating Per Phase……..160KVA

- **ENVIROMENTAL SPECIFICATIONS**

Indoor Use Only
Operating Temperature Range IMA modules……-4°F to 149°F (-20°C to 65°C)
Operating Temperature Range Display……14°F to 140°F (-10°C to 60°C)

- **POWER WIRING**

The SPD is mounted as close to the circuit input as possible to minimize wire length and optimize SPD performance.



An overcurrent protective device has been installed upstream of the SPD to provide a means of disconnect. Please reference power distribution system wiring schematics for details.

- **DATA WIRING**

Each IMA module connects to the remote display via an independent data cable.

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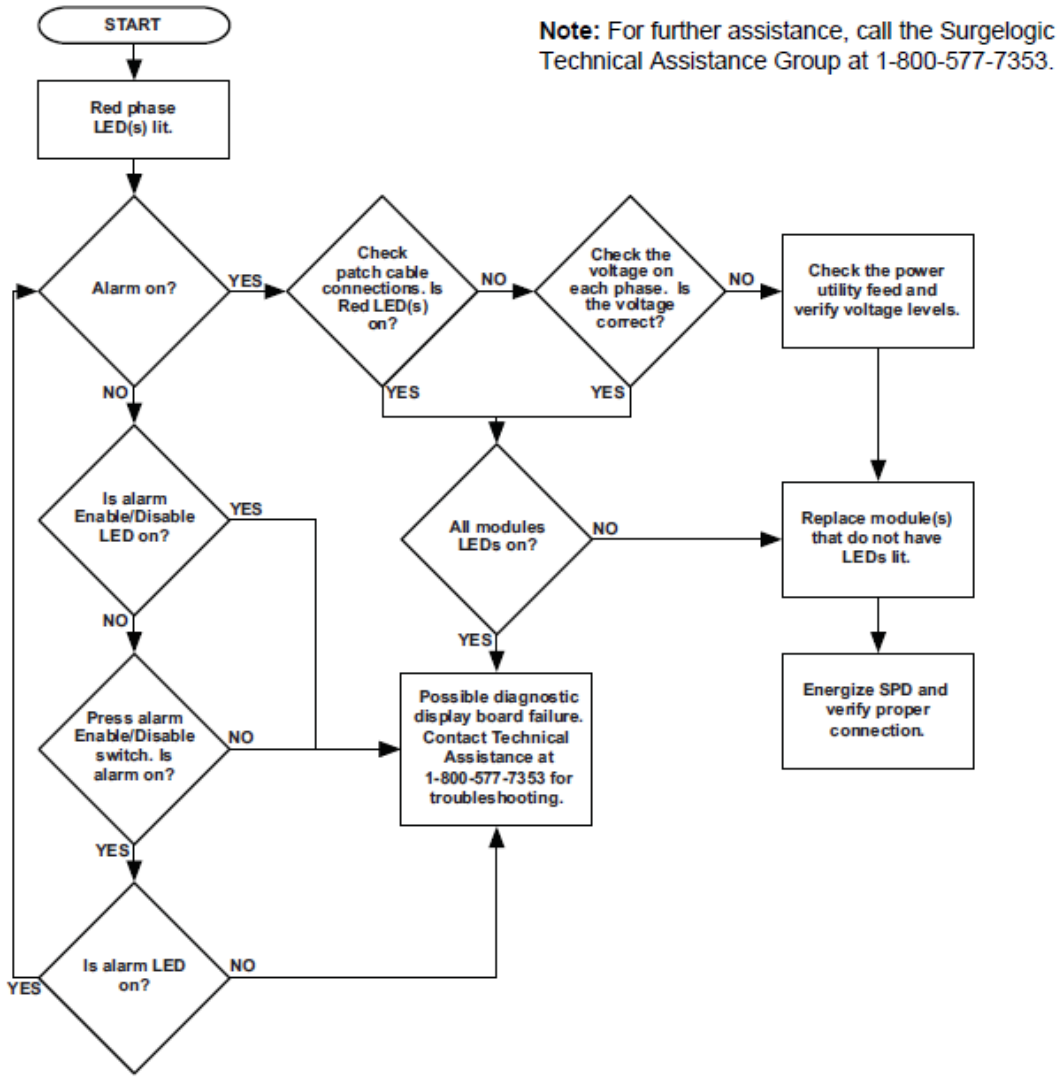
- **PREVENTATIVE MAINTENANCE**

Inspect the SPD display periodically to maintain reliable system performance and continued transient voltage surge suppression. Periodically check the state of the diagnostics display LED status indicators. Routinely use the built-in diagnostics to inspect for inoperative modules.



When power is applied to the SPD and one or more of the diagnostic display LEDs are red, and one or more IMA module LEDs are out, the appropriate MA module should be replaced.

- **END-OF-LIFE**

At end of life conditions, SPDs can lose their ability to block power system voltage and attempt to draw excessive current from the line. This SPD is equipped with overcurrent and over temperature components that disconnect the surge suppression elements from the electrical supply should the surge suppression reach end of life. Tripping of the branch circuit breaker feeding the SPD can occur when the surge suppression elements reach end of life.

- **SPARE PARTS**

Only original spare parts may be used. Motion Laboratories Inc. cannot be held responsible for failures and breakdowns caused by the use of non-OEM or incorrect spare parts.

The following replacement parts are available:

- MA Modules P/N MA1IMA16
- Diagnostic Display
- Diagnostic Cable P/N TVS36PCK

The above items are to be serviced only by MLI or an authorized representative. In case of necessity, please contact:

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- **UL CONDITIONS OF ACCEPTABILITY**

The SPD has been subjected to the following tests of UL 1449

- Surge Testing (VPR)
- Nominal Discharge Test (20 kA)
- Operational Voltage Test
- Dielectric Voltage Withstand
- Current Tests (Short Circuit Current, Intermediate Currents, Limited Currents)

The component SPD has been evaluated to Short Circuit Rating tests (SCCR), per UL 1449, Section 39 at 200 kA rms available fault current, without external Overcurrent Protective Devices (OCPD) or external enclosures.