



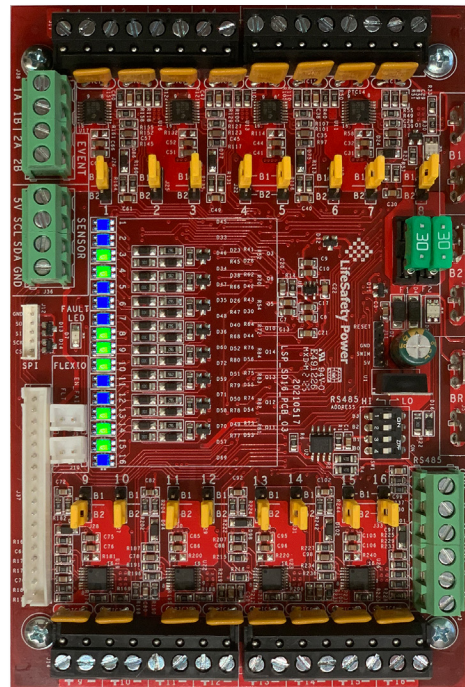
Power is knowledge.™

SD16 Installation Manual

LifeSafety Power®



FLEXPOWER®



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P03-100 Rev A01

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Description

The SD16 power control modules add 16 network managed zones to an LSP power supply system for powering and monitoring access control modules, readers, REX devices, or other critical items. The SD16 MUST be used with an NL4 or NLX network module. The SD16 accepts either one or two voltage sources, either of which are selectable for output on a zone-by-zone basis. Each output is selectable via software for FAI operation.

Power Input	Voltage	12 or 24VDC nominal
	Current	16A maximum
	Standby Current	100ma
Zone Output	Voltage	Same as input
	Current	1.0A resistive Class 2 Power Limited
Event Inputs*	Voltage	8-30VDC
	Current	15mA Maximum
Size	SD16	6.00" x 4.00" x 1.4" (152mm x 64mm x 36 mm)
Weight	SD16	0.35lb (0.16kg)

*Event Inputs not permitted to connect cables greater than 98.5 ft (30 m) long.

Regulatory Information

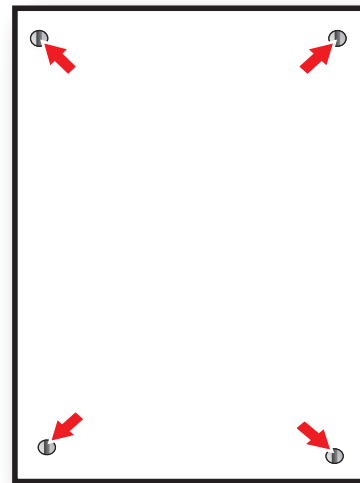
The equipment discussed within this manual has been tested to the following standards:

- UL294, UL2610
- ULC S318

Mounting the Managed Distribution Module

Mounting of the board to an enclosure is via the four snap-in standoffs supplied.

1. Locate the appropriate mounting holes in the enclosure and snap the standoffs into the holes.
2. Align the board mounting holes with the standoffs (be sure the PC board is properly oriented) and snap the board onto the standoffs.



Class 2 power limited wiring must be separated from non-power limited wiring by a minimum of 1/4 inch and must use separate knockouts.

The installation and all wiring methods shall be in accordance with ANSI/NFPA70 and all local codes.

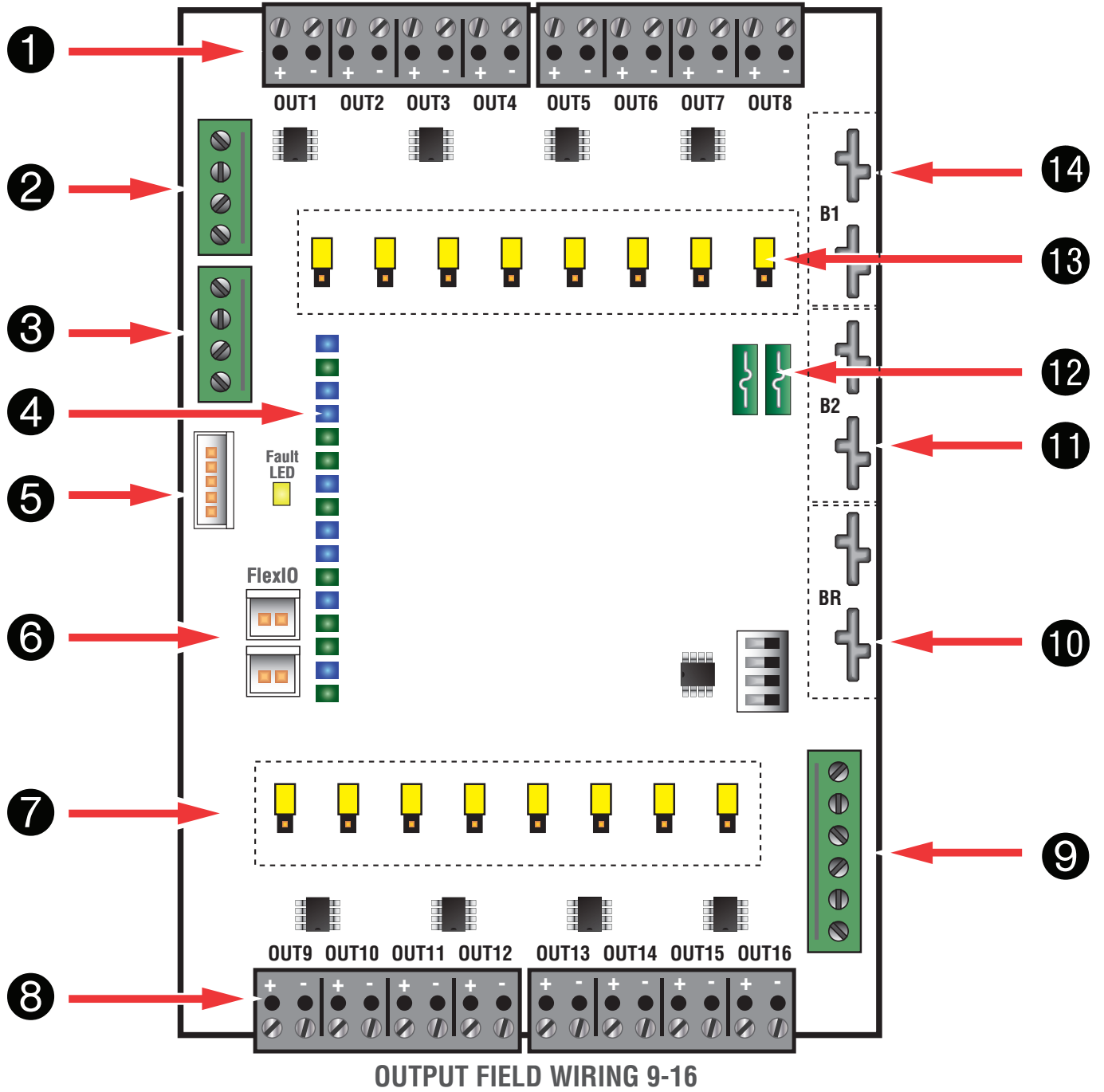
For ULC compliance, installation and all wiring methods shall be in accordance with the Canadian Electrical Code, C22.1, Part I, Section 32.



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Managed Distribution Module Overview

OUTPUT FIELD WIRING 1-8



Managed Distribution Module Overview

1 Zone Outputs 1-8

These are the output terminals for outputs 1 through 8. These terminal strips are removable and accept wire sizes from AWG12 – AWG22. The terminals are labeled on the PC board near the terminal strip.

2 Event Inputs

These inputs accept a voltage input to notify the system on an event change. Commonly used to monitor the enclosure tamper switch. Not permitted to connect cables greater than 98.5 ft (30 m) long.

3 Temperature / Humidity Sensor Input

The SD16 temperature/humidity sensor connects here. This sensor may be used to monitor the environmental conditions of the room housing the enclosure. Not evaluated by UL.

4 Status LEDs (1 – 16) – Green/Blue and Fault (Yellow)

The **Output Status LEDs** indicate the status of the outputs. LED numbers correspond with the zone number (e.g. LED 1 for Output 1).

- **On Steady** Output Powered
- **SLOW Flashing** (1 per second) Output Unpowered (Due to FAI)
- **FAST Flashing** (4 per second) Fault Detected on Zone
- **OFF** Output disabled in software

These LEDs are bi-color and indicate the output voltage for each output as follows:

- **Green** – 12V Output
- **Blue** – 24V Output

NOTE LED colors are range based. Voltage Less than 13V will show Green. Voltage above 20V will show Blue. Voltage between 13 and 20 may show either voltage or a combination Green & Blue. Always verify voltage with a voltmeter.

The yellow **Fault LED** lights when the SD16 detects a fault condition (including a tripped upper or lower limit - See the programming section for more information). This fault condition also transmits to the power supply through the FlexIO.

5 SPI Connector (J13)

This connector accepts the SPI cable which provides communication between the SD16 and a local Netlink board. Either this cable or an RS485 connection (#9) **MUST** be connected at all times for proper operation of the SD16. The SD16 must be connected to an NL4 or NLX board and will not function if connected to an NL2 board.

6 FlexIO Connectors

These connectors pass the FAI and Fault signals to and from the SD16 board and pass the FlexIO buss on to other accessory boards in the system.

7 Buss Selection Yellow Jumpers (9-16)

The SD16 can accept up to two power inputs connected to B1 and B2. These jumpers select which power supply input is used for outputs 9 through 16. If a single power supply is used, set this jumper for Position 1.

- B1** This position selects the power supply connected to B1
- B2** This position selects the power supply connected to B2

8 Zone Outputs 9-16

These are the output terminals for outputs 9 through 16. These terminal strips are removable and accept wire sizes from AWG12 – AWG22. The terminals are labeled on the PC board near the terminal strip.

9 RS485 Connections

These terminals provide the RS485 connection use with an NLX network board. See the NLX manual for connection information.

10 BR Connectors

These fastons are for connection to the BR buss in the system. BR acts as the Buss Return or negative connection to the power supply.

11 B2 Connectors

These fastons are for connection to the B2 buss in the system. The voltage on the B2 buss comes from a second power supply or a B100 secondary supply in dual voltage systems. This voltage will be directed to any outputs whose Buss Selection Jumper is set in the B2 position. If the SD16 is being used in a single voltage system, these fastons are left unused.

12 Input Protection Fuses

These fuses protect the SD16 board in the event of a catastrophic failure. Replace only with the same type and rating (ATM style, 30A).

13 Buss Selection Yellow Jumpers (1-8)

The SD16 can accept up to two power inputs connected to B1 and B2. These jumpers select which power supply input is used for outputs 1 through 8. If a single power supply is used, set this jumper for Position 1.

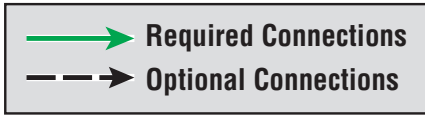
- B1** This position selects the power supply connected to B1
- B2** This position selects the power supply connected to B2

14 B1 Connectors

These fastons are for connection to the B1 buss in the system. The voltage on the B1 buss comes from the first power supply. This voltage will be directed to any outputs whose Buss Selection Jumper is set in the B1 position.

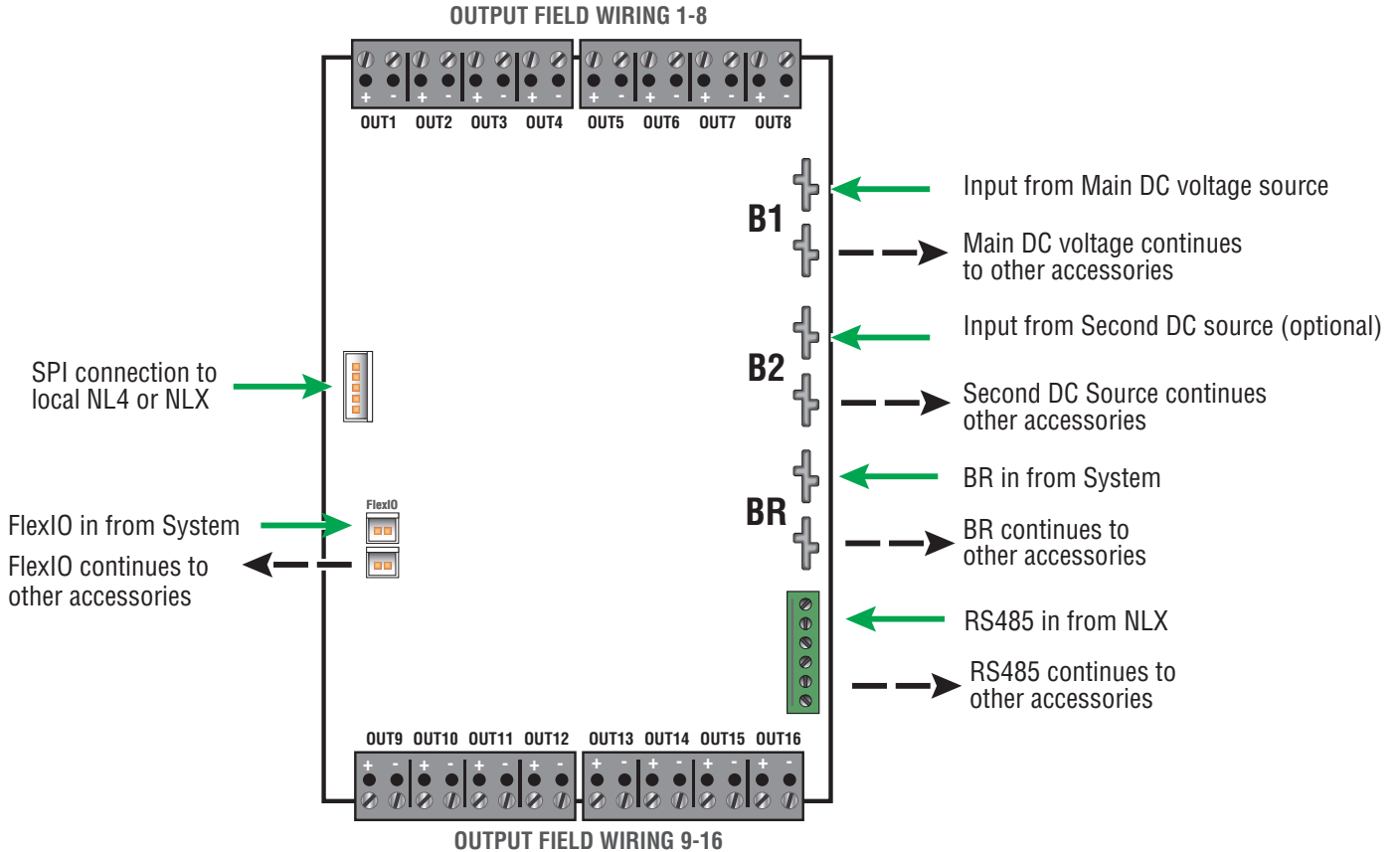
Connecting the Managed Distribution Module

⚠️ Remove all AC and battery power from the system before adding or replacing any accessory board.



Each of the **B1**, **B2**, **BR**, and **FlexIO** busses has *two connectors*. These connectors may be used interchangeably.

For example: **FlexIO** from the power supply may be connected to either of the SD16's FlexIO connectors, the Main DC voltage source may connect to either B1 terminal, etc.





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Using the SD16 Managed Distribution Module

This section discusses software programming of the SD16 board. It assumes a basic understanding of the NetLink software GUI interface. Consult the NetLink manual (P03-037) for more information on using the interface.

Accessing the SD16 from the NetLink interface

From the home page of the NetLink interface, click on the SD16 in the "Connected Devices" section near the bottom of the screen.

The SD16 Status Page

The status page of the SD16 gives an overview of the current state of the SD16 board and allows manual output control.

Return Button - This button returns to the NetLink Home page. *Any changes must be saved prior to clicking this button or the changes will be lost.*

Programming Button - This button opens the programming page for the SD16 module

Event1/Event2 Status - These fields indicate the status of the Event1 and Event2 inputs of the SD16.

Temperature - This field displays the temperature measured by the SD16's temperature/humidity sensor.

Humidity - This field displays the relative humidity measured by the SD16's temperature/humidity sensor.

Device ID - This field is the unique ID given to the SD16 by the NetLink.

Model - This is the model number of the board being monitored. In this case, "SD16".

SD16 Notes - This field allows the user to enter any notes regarding the SD16 board. Click the Save Settings button to save the notes.

Location - This field allows the user to enter the location of the SD16 board.

Output # - This column shows each zone number and provides a checkbox for selecting one or more zones.

Output Description - This column shows the programmable descriptive name given to the zone. It can be changed directly by clicking on the text field and typing the description for each zone. Example descriptions include "Access Control Panel", "Front Door Reader", or "Back Door Mag Lock". Click "Save Settings" to save the descriptions.

Voltage (V) - This column shows the measured voltage at the output terminals of the SD16 board for each zone. This is only the voltage at the output of the SD16 and does not indicate power at the field device.

Current (A) - This column shows the measured current being drawn from the output terminals of the SD16 for each zone.

Power (W) - This column shows the calculated power being supplied by the output terminals of the SD16 for each zone.

FAI State - This column shows the FAI status for each zone. If FAI control is disabled for the zone, the field will show "Disabled". If enabled, the field will show "Active" or "Inactive" to show the FAI status.

Cycle Count - This column shows the total number of cycles for each output since the count was last reset. Note that an activation must be present for at least 3 seconds to register.

Output Status - This column shows the status of each zone of the SD16. "Normal" indicates that the zone is working and configured correctly, and that there are no faults on that zone. "Fault" indicates a problem with that zone. Verify output current draw, jumper placement, and field wiring integrity.

Enable / Disable Selected Outputs - These buttons will manually enable or disable any outputs whose Output # checkbox is selected.

Enable / Disable All Outputs - These buttons will manually enable or disable all outputs on the SD16.

Reset Selected / All Outputs - These buttons will manually disable outputs for 5 seconds, then return to normal. This function is helpful for resetting devices such as routers which would cause network loss when powered down.

Reset Selected / All Cycle Counts - These buttons will reset the cycle counter for one or more outputs to zero.

Save Settings - This button saves the output descriptions and SD16 Notes fields when changed.

The NetLink's SD16 Status Page



**SYSTEM
MANAGER POWERCOM®**

HOME Reporting Configure Tools
msm Log_Out Firmware: 9.56.91

Client ID

 Site ID

 Date Time

Event1 Status: Inactive
Event2 Status: Inactive
Temperature: 37.50 °C
Humidity: 14.90 %RH

Device ID: Model:
SD16 Notes:
Location:
Ver: 1.2

Output #	Output Description	Voltage (V)	Current (A)	Power (W)	FAI State	Cycle Count	Output Status
<input type="checkbox"/> 1	<input type="text"/>	12.47	0.00	0.00	Inactive	4	Normal
<input type="checkbox"/> 2	<input type="text"/>	12.44	0.00	0.00	Inactive	4	Normal
<input type="checkbox"/> 3	<input type="text"/>	12.44	0.00	0.00	Inactive	4	Normal
<input type="checkbox"/> 4	<input type="text"/>	12.50	0.00	0.00	Inactive	4	Normal
<input type="checkbox"/> 5	<input type="text"/>	12.47	0.00	0.00	Inactive	4	Normal
<input type="checkbox"/> 6	<input type="text"/>	12.47	0.00	0.00	Inactive	4	Normal
<input type="checkbox"/> 7	<input type="text"/>	12.44	0.00	0.00	Inactive	4	Normal
<input type="checkbox"/> 8	<input type="text"/>	12.50	0.00	0.00	Inactive	4	Normal
<input type="checkbox"/> 9	<input type="text"/>	12.47	0.00	0.00	Inactive	4	Normal
<input type="checkbox"/> 10	<input type="text"/>	12.47	0.00	0.00	Inactive	4	Normal
<input type="checkbox"/> 11	<input type="text"/>	12.47	0.00	0.00	Inactive	4	Normal
<input type="checkbox"/> 12	<input type="text"/>	12.44	0.00	0.00	Inactive	4	Normal
<input type="checkbox"/> 13	<input type="text"/>	12.50	0.00	0.00	Inactive	4	Normal
<input type="checkbox"/> 14	<input type="text"/>	12.44	0.00	0.00	Inactive	4	Normal
<input type="checkbox"/> 15	<input type="text"/>	12.50	0.00	0.00	Inactive	4	Normal
<input type="checkbox"/> 16	<input type="text"/>	12.47	0.00	0.00	Inactive	4	Normal

The SD16 Status Page

Programming the SD16 Managed Distribution Module

From the Status page of the NetLink interface, click the "Programming" button near the top left corner. This will open the SD16's configuration page.

"Return" Button - This button returns to the SD16 Status page. *Any changes must be saved prior to clicking this button or the changes will be lost.*

"Save Settings" Button - This button will save all changes on the page.

"Fill All" Button (top) - This button will take all settings from Zone 1 and copy them to Zones 2 through 16.

"Export Settings" Button - This button saves the configuration of the SD16 zones to a file, which may be imported to other SD16 boards. If prompted after clicking, select "Save File". Check the "Include Output Descriptions" selection to include the output descriptions in the export file.

"Import Settings" Button - This button opens a page allowing you to select an SD16 Configuration file to import. Click the Browse button to select the file, then click open. After selecting the file, click "Download" then "Confirm".

Temperature Lower limit - This field allows the user to program a lower limit for the temperature sensor reading.

Temperature Upper limit - This field allows the user to program an upper limit for the temperature sensor reading.

Humidity Lower limit - This field allows the user to program a lower limit for the humidity sensor reading.

Humidity Upper limit - This field allows the user to program an upper limit for the humidity sensor reading.

"Fill All" Buttons (Column) - Each column has a "Fill All" button. This button takes the setting from Zone 1 of that column only and copies it to Zones 2 through 16.

Output # - This column shows each zone number

Output Description - This column shows the programmable descriptive name given to the zone.

Disable on FAI Activation - This column has a drop-down list to select whether an FAI condition will affect the output of each zone. Choices are "Yes" and "No"

Email Alert on Fault - This column has a drop-down list to select whether fault conditions on each zone will send an email alert when email is configured in the NetLink. Choices are "Yes" and "No".

Voltage Lower Limit (V) - This column allows setting a lower voltage limit to trigger a fault for each zone. For example, if the lower voltage limit is set for 23.5V, a fault will be triggered if the voltage on that zone goes below 23.5V. This limit will not be triggered when the zone is deactivated via the zone's input, FAI, or other intended deactivation.

Voltage Upper Limit (V) - This column allows setting an upper voltage limit to trigger a fault for each zone. For example, if the upper voltage limit is set for 26.0V, a fault will be triggered if the voltage on that zone goes above 26.0V.


Current Lower Limit (A) - This column allows setting a lower current limit to trigger a fault for each zone. For example, if the lower current limit is set for 0.25A, a fault will be triggered if the current on that zone falls below 0.25A. This limit will not be triggered when the zone is deactivated via the zone's input, FAI, or other intended deactivation.

Current Upper Limit (A) - This column allows setting an upper current limit to trigger a fault for each zone. For example, if the upper current limit is set for 0.75A, a fault will be triggered when the current on that zone goes above 0.75A.

Cycle Count Limit - This column allows setting a limit to trigger a fault when the zone is activated a certain number of total cycles.

Output Limit Setting Aid - This section allows automatic setting of the upper and lower voltage and current limits for each output. To utilize the automatic settings, all output field wiring must be completed to the output devices to be powered. Enter the desired percentage for each limit, and click the "Start Measurement" button. The SD16 will briefly cycle each output on and off and measure the voltage and current levels for each device. When complete, the upper and lower limits will be set based on the entered percentages.

The Programming Page



REMOTE REPORTING
LSP

**SYSTEM
MANAGER** POWERCOM®

HOME Reporting Configure Tools
msm Log Out
Firmware: 9.56.91

Client ID

Site ID

Date
 Time

Include Output Description

Temperature Lower Limit: °C

Temperature Upper Limit: °C

Humidity Lower Limit: %RH

Humidity Upper Limit: %RH

Output #	Output Description	Disable on FAI Activation	Email Alert on Fault	Voltage Lower Limit (V)	Voltage Upper Limit (V)	Current Lower Limit (A)	Current Upper Limit (A)	Cycle Count Limit
	<input type="button" value="Fill All"/>	<input type="button" value="Fill All"/>	<input type="button" value="Fill All"/>	<input type="button" value="Fill All"/>	<input type="button" value="Fill All"/>	<input type="button" value="Fill All"/>	<input type="button" value="Fill All"/>	<input type="button" value="Fill All"/>
1	<input type="text"/>	Yes ▾	No ▾	<input type="text" value="0.0"/>	<input type="text" value="30.3"/>	<input type="text" value="0.0"/>	<input type="text" value="1.0"/>	<input type="text" value="4294967295"/>
2	<input type="text"/>	Yes ▾	No ▾	<input type="text" value="0.0"/>	<input type="text" value="30.3"/>	<input type="text" value="0.0"/>	<input type="text" value="1.0"/>	<input type="text" value="4294967295"/>
3	<input type="text"/>	Yes ▾	No ▾	<input type="text" value="0.0"/>	<input type="text" value="30.3"/>	<input type="text" value="0.0"/>	<input type="text" value="1.0"/>	<input type="text" value="4294967295"/>
4	<input type="text"/>	Yes ▾	No ▾	<input type="text" value="0.0"/>	<input type="text" value="30.3"/>	<input type="text" value="0.0"/>	<input type="text" value="1.0"/>	<input type="text" value="4294967295"/>
5	<input type="text"/>	Yes ▾	No ▾	<input type="text" value="0.0"/>	<input type="text" value="30.3"/>	<input type="text" value="0.0"/>	<input type="text" value="1.0"/>	<input type="text" value="4294967295"/>
6	<input type="text"/>	Yes ▾	No ▾	<input type="text" value="0.0"/>	<input type="text" value="30.3"/>	<input type="text" value="0.0"/>	<input type="text" value="1.0"/>	<input type="text" value="4294967295"/>
7	<input type="text"/>	Yes ▾	No ▾	<input type="text" value="0.0"/>	<input type="text" value="30.3"/>	<input type="text" value="0.0"/>	<input type="text" value="1.0"/>	<input type="text" value="4294967295"/>
8	<input type="text"/>	Yes ▾	No ▾	<input type="text" value="0.0"/>	<input type="text" value="30.3"/>	<input type="text" value="0.0"/>	<input type="text" value="1.0"/>	<input type="text" value="4294967295"/>
9	<input type="text"/>	Yes ▾	No ▾	<input type="text" value="0.0"/>	<input type="text" value="30.3"/>	<input type="text" value="0.0"/>	<input type="text" value="1.0"/>	<input type="text" value="4294967295"/>
10	<input type="text"/>	Yes ▾	No ▾	<input type="text" value="0.0"/>	<input type="text" value="30.3"/>	<input type="text" value="0.0"/>	<input type="text" value="1.0"/>	<input type="text" value="4294967295"/>
11	<input type="text"/>	Yes ▾	No ▾	<input type="text" value="0.0"/>	<input type="text" value="30.3"/>	<input type="text" value="0.0"/>	<input type="text" value="1.0"/>	<input type="text" value="4294967295"/>
12	<input type="text"/>	Yes ▾	No ▾	<input type="text" value="0.0"/>	<input type="text" value="30.3"/>	<input type="text" value="0.0"/>	<input type="text" value="1.0"/>	<input type="text" value="4294967295"/>
13	<input type="text"/>	Yes ▾	No ▾	<input type="text" value="0.0"/>	<input type="text" value="30.3"/>	<input type="text" value="0.0"/>	<input type="text" value="1.0"/>	<input type="text" value="4294967295"/>
14	<input type="text"/>	Yes ▾	No ▾	<input type="text" value="0.0"/>	<input type="text" value="30.3"/>	<input type="text" value="0.0"/>	<input type="text" value="1.0"/>	<input type="text" value="4294967295"/>
15	<input type="text"/>	Yes ▾	No ▾	<input type="text" value="0.0"/>	<input type="text" value="30.3"/>	<input type="text" value="0.0"/>	<input type="text" value="1.0"/>	<input type="text" value="4294967295"/>
16	<input type="text"/>	Yes ▾	No ▾	<input type="text" value="0.0"/>	<input type="text" value="30.3"/>	<input type="text" value="0.0"/>	<input type="text" value="1.0"/>	<input type="text" value="4294967295"/>

Output Limit Setting Aid

Set voltage upper limits to % above the measured values Set current upper limits to % above the measured values

Set voltage lower limits to % above the measured values Set current lower limits to % above the measured values

Output Limit Setting Aid aids in setting the output voltage and current limits of all outputs to a certain percentage above and below the measured value. Verify that all outputs are connected to their normal operating load and be aware that during this process ALL outputs will be simultaneously powered. Enter the desired percentage values for upper and lower limits, then click the "Start Measurement" button. The process will take approximately 10 seconds, after which the upper and lower limits of all output voltages and currents will be set according to the entered percentages.

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IMPORTANT

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