



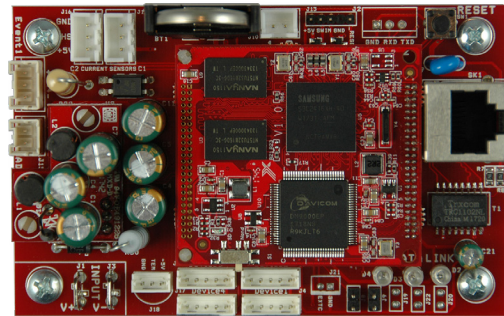
Power is knowledge.™

LifeSafety Power®

Netlink® Communication Modules Installation and Operation



FLEXPOWER®



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Manual covers Firmware Rev 8.07I-45

Older firmware revisions may not have all features described. See the latest firmware release notes at <http://www.lifesafe-typower.com/support/software-firmware-downloads>

Resetting the Netlink

If the user name or password is unknown for a Netlink board, press and hold the reset button located next to the backup battery for 10 seconds to return these values to default. Pressing the reset button for 30 seconds will also reset the IP address, certificate, and Cipher Suite to default. See section 2.2.1.1 for more information.

Upgrading Netlink Firmware

The browser history / cache should be cleared after performing the firmware upgrade and before accessing the Netlink again to prevent any cached pages from giving outdated information. See Section 3.3 for detailed steps for firmware upgrades.

Notes and Warnings

Symbol Definitions

The following symbols are used throughout this manual



This symbol is intended to alert the installer of shock hazards within the enclosure. Service should only be performed by qualified service personnel



This symbol is intended to alert the installer to important information or information intended to help the installer avoid personal injury or property damage

Warnings



Installation and service should be performed only by qualified service personnel and should conform to all local codes



To reduce the risk of electric shock or fire, do not expose this equipment to rain or moisture



This equipment shall be installed in a manner which prevents unintentional operation by employees, cleaning personnel, or others working in the premises, by falling objects, customers, building vibration, or similar causes



This equipment is not intended for use within the patient care areas of a Health Care Facility



Replace fuses only with the same type and rating as indicated in the specifications section of this manual.



To prevent impaired operation, ensure that all wiring is routed and secured to prevent accidental open or short circuit conditions



The system and any batteries (if used) should be tested at least once per year to ensure proper operation

Regulatory Information

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

- UL 294, UL 603, UL 1076
- ULC S318, ULC S319
- CSA C22.2 #205

Conventions Used Within this Manual

Positional information (e.g. top, bottom, up, down, left, right, etc.) is referenced with the board or enclosure in the orientation shown in the illustrations in this manual.

Introduction

Product Description

The Netlink NL2 and NL4 modules are network appliances which may be used with LSP power systems to provide remote monitoring and control of the power system and connected devices. The NL4 provides four ports for connection to LSP power supply boards and M8 managed output boards, while the NL2 provides two ports for connection to LSP power supply boards only.

The Netlink module monitors power supply system status over a local or wide area network and provides values such as output voltage, fault status, battery voltage, battery charging current, fire alarm status, and temperature. In addition, automated battery tests may be run manually, or scheduled to happen automatically. When used with an M8 managed output board (NL4 only), voltage and current for each individual output is provided, and each output may be individually power cycled.

Automated alerts may be sent via email or SNMP on any detected fault condition, service due date approaching, battery condition, fire alarm activation, or on a time basis for status updates on regular intervals. A time and date stamped log of the past 1000 events is kept and may be viewed on demand, or immediately on an alert occurrence. When all parameters are in range, the log is updated once per selected interval with a snapshot of current values.

All Netlink modules provide a voltmeter input, event input (for monitoring devices such as the enclosure tamper switch), and one or two current sensors. Internal temperature is also sensed, and the NL4 also includes a 6 foot external temperature probe for monitoring room temperature. Two outputs are also provided for controlling external equipment using LifeSafety Power's RB series of relays.

If using the NetLink in an FPA AC voltage system, an NS2 module must be used to provide DC power to the NetLink and may also be used to remotely switch the output power.

Specifications

| | | |
|-----------------|------------|----------------------------|
| Power Input | Voltage | 8–30VDC |
| | Current | 60mA Nominal |
| ADC Input | Voltage | 0–30VDC |
| | Resolution | 10 Bits |
| | Accuracy | ± 3% |
| Event1 Input | Voltage | 9–30VDC |
| | Current | 15mA Max. |
| Control Outputs | Current | 50mA Max. |
| Current Sensors | Current | 0–20A ±0.1A +5% of reading |

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.

All input/output wiring to the module shall be located within the same room (3 m. max.).

The remote control features have not been investigated by UL.



Section 1 – Installation

The following pages cover the installation of the Netlink Network Communication Module.

1.1 Mounting the Netlink Communication Module

Use the following procedure when mounting the Netlink module to a LifeSafety Power enclosure.

1. Locate the appropriate mounting holes in the enclosure and snap the four standoffs provided into the holes.
2. Align the board mounting holes (mounting hole locations are indicated in the drawing below) with the standoffs and snap the board onto the standoffs. Be sure the board is properly oriented before snapping the board onto the standoffs.

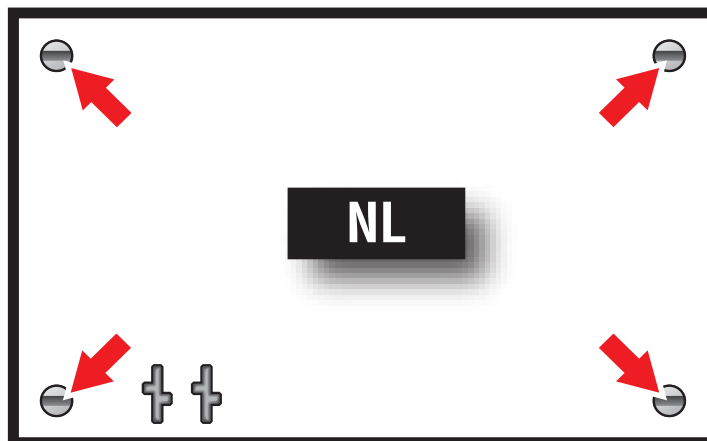
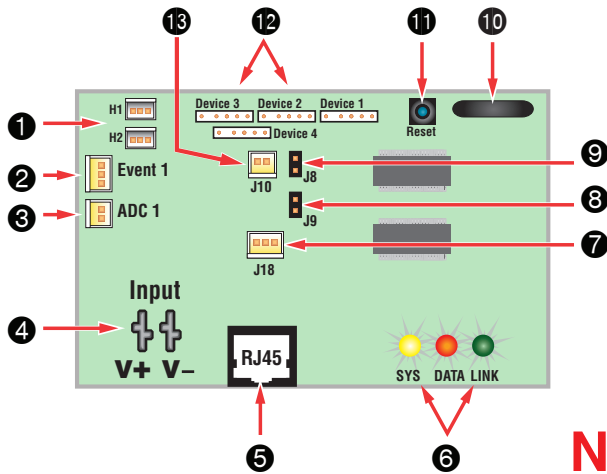


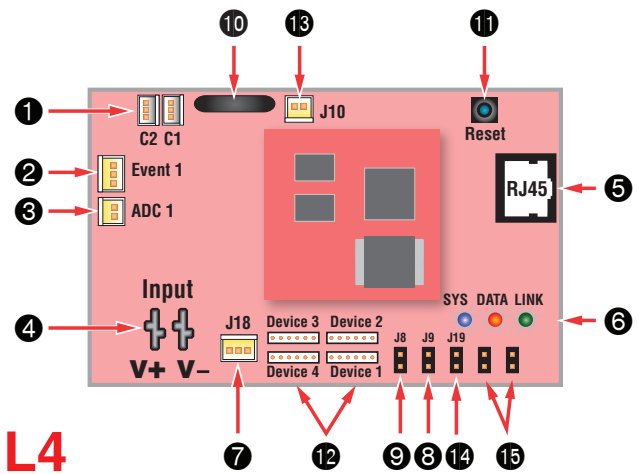
Figure 1.1

1.2 Netlink Network Communication Module Overview



Generation 1

NL2 / NL4



Generation 2

The following are basic Netlink board descriptions. Refer to the appropriate section for more detailed information.

NOTE - There are two generations of NetLink NL2/NL4 boards. Generation 2 can be identified by the red PCB color, while Generation 1 uses a green PCB. Use the appropriate illustration above.

1 C1 (H1) and C2 (H2) Inputs (J12 & J16)

These are the connectors for the current sensors. Only an NL2 or NL4 current sensor should be plugged into this connector. The sensors have a range of +/-20A and are typically used to monitor battery discharge current. See section 1.3.4

2 Event 1 Input (J14)

This is the connector for the Event1 input. This input will accept 9-30VDC to initiate an event alert. This input will only indicate an active or inactive condition and will not measure the voltage level. See section 1.3.5

3 ADC1 Input (J15)

This is the Analog to Digital Converter (ADC) input, which acts as a voltmeter. It accepts 0-30V and is used to measure positive or negative system voltages which are common grounded with the Netlink board. The ADC cable wiring must be routed away from high voltages. See section 1.3.7

4 Input V+ & V- (J1 & J3)

This is the power input for the Netlink board. This input accepts 8 to 30VDC ONLY from any power supply. If the Netlink is being used in an FPA series system, an NS2 board is *required* to convert the AC power to DC power. See Appendix 2. Note - The voltage input of the Netlink must be connected directly to the DC1 output or to the V+/V- fastons (if present) of the power supply.

5 Ethernet Connection (SK1)

This is the RJ45 jack for the network connection. The ethernet cable is plugged into this jack. See section 1.3.2

6 Status LED Indicators (D2, D3, D4)

These LEDs indicate the status of the Ethernet link to the Netlink board.

LED Indicator:

Green (LINK) Lights when Netlink is connected to a network

Red (DATA) Flashes during data transfer

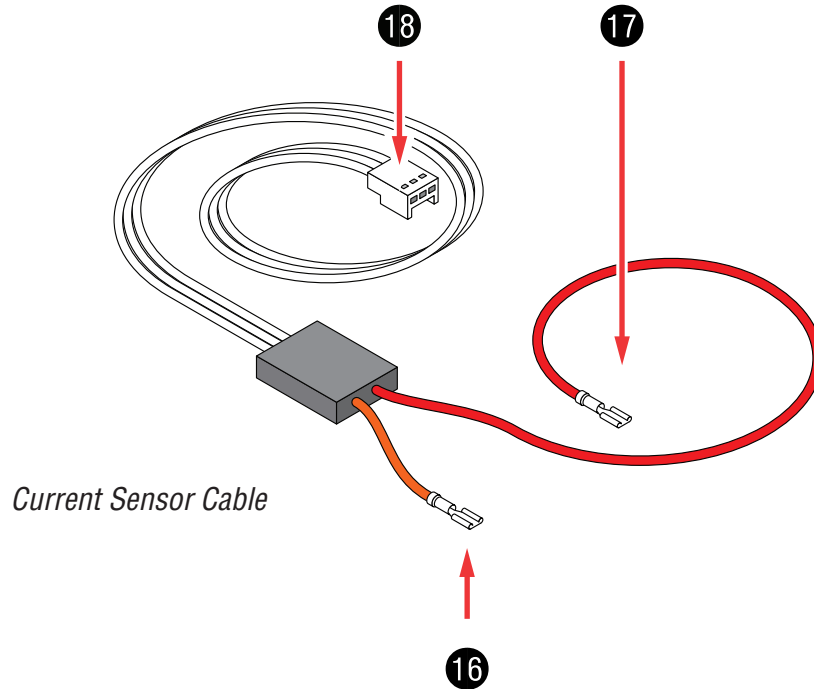
Blue (SYS) Lights when the Netlink is fully booted up and running. During the bootup process, this LED may flash on and off several times. The Netlink will not be able to be accessed until this LED lights steady. Older NetLink boards may have a Yellow SYS LED.

7 External Temperature Sensor

This connector is for the external temperature sensor and is only present on the NL4 board. See section 1.3.6

8 Dual ADC Jumper (J9)

This jumper enables "Dual ADC Mode" when using the Netlink with an NS2 board. If an NS2 board is not being used, leave this jumper OFF.



9 Event1 Input Invert Jumper (J8)

This jumper inverts the action of the Event 1 Input. See section 1.3.5

Jumper Position:

| | |
|-----|--|
| OFF | Event 1 active when voltage is applied |
| ON | Event 1 active when voltage is removed |

10 Backup Battery (BT1)

This is the coin cell battery for maintaining the clock when all power is removed from the Netlink. The battery type is CR2032.

11 Factory Reset Button (SW1)

This button resets the User Name, Password, and IP Address settings back to factory default. Typically used when IP and/or login information has been lost. See section 2.2.1.1 for more information.

12 Device 1 - Device xx (J4, J5, J11, J17)

Data is passed between the Netlink board and its connected devices through these Device serial port links. The NL2 has two serial links to monitor two FPO power supply boards. The NL4 has four serial links to monitor up to four devices (maximum combination of two FPO, three M8). FPO1 and FPO2 must connect to Device 1 and 2 respectively. See Section 1.3.3.

13 Control Outputs (J10)

This connector is for the two control outputs. These outputs are open collector (transistor) low-current outputs for use with RB Relay Boards or other low-current inputs. The Control Output cable wiring must be routed away from high voltages. See Section 1.3.8

14 Enable 100Mbps (J19)

If present, this jumper enables 100Mbps speed for the network connection.

15 Future Use (J20 & J22)

If present, these jumpers are reserved for future use and should be left OFF.

16 Current Sensor - Current Lead 1 (Short)

The short orange lead connects in-line with the current to be measured toward the more negative side of the current flow. Positive current is measured when current flows from Current Lead 2 (Long Lead) to Current Lead 1 (Short Lead). When using to measure battery discharge current, this lead goes to the positive battery terminal. See section 1.3.4

17 Current Sensor - Current Lead 2 (Long)

The long red lead connects in-line with the current to be measured toward the more positive side of the current flow. Positive current is measured when current flows from Current Lead 2 (Long Lead) to Current Lead 1 (Short Lead). When using to measure battery discharge current, this lead goes toward the BAT+ terminal on the power supply. See section 1.3.4

18 Current Sensor - Data Connector

This connector connects to the Netlink board's C1 or C2 input (H1 or H2 on Gen 1 boards) (J12 or J16) to provide the current reading to the Netlink. See section 1.3.4

1.3 Connecting the Netlink Network Communication Module

1.3.1 Making the Power Connections to the Netlink

DC Systems ONLY

In a DC system, the DC power source for the Netlink is connected to the INPUT (V+ & V-) fastons. The voltage of this source must be between 8 and 30VDC and should be backed up with a battery set or UPS to maintain communication during a loss of primary AC voltage.

The power connections for the Netlink must connect directly to the DC1 output or the V+/V- faston connectors (if present) of the FPO power supply. (Figure 1.4)

⚠ Note: Do not power the Netlink through another accessory board's output or from the B1/B2 connectors. (Figure 1.5)

AC Systems

⚠ WARNING - DO NOT CONNECT AC POWER TO THE Netlink BOARD'S INPUT (V+ & V-) TERMINALS OR DAMAGE TO THE Netlink WILL OCCUR.

In an AC system, power to the Netlink board MUST be supplied by an NS2 board, which is sold separately. See Appendix 2 for more information.

1.3.2 Making the Ethernet Connection to the Netlink

Plug the Ethernet cable into the RJ45 jack on the Netlink until the locking tab clicks. Connect the other end of the Ethernet cable to the network.

⚠ Note: The Netlink board should be configured via a direct connection to a laptop or PC before connecting to the network. See the Initial Configuration Section (Section 2) of this manual for more details.

1.3.3 Connecting Devices to be Monitored to the Netlink

Connect one end of the SPI cable to one of the "Device" connectors on the Netlink. Connect the other end to the Data-Link (DL) connector of the device to be monitored (such as an FPO - see the manual for the device being connected for the location of the DL connector). If monitoring more than one device, repeat this process for devices 2 through 4 as appropriate. Note that both ends of these cables are keyed and will only plug in one direction.

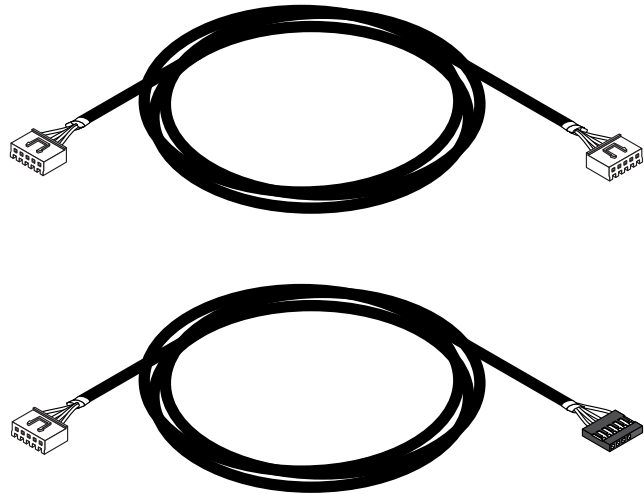


Figure 1.3 - The SPI Cable

There are two types of SPI connector which have been used. (Figure 1.3) The Netlink is supplied with two SPI cables for use with the new-style connector (top drawing in Figure 1.3, above). If the device being connected to the Netlink uses the old-style connector, contact LifeSafety Power for an adaptor cable (bottom drawing in Figure 1.3, above).

If monitoring the battery health of FPO power supplies using the Current Sensors, the Netlink will assign Current Sensor 1 to the FPO power supply connected to Device 1. Current Sensor 2 will be assigned to Device 2.

⚠ Note: The NL2 can accommodate any combination of a maximum of two power supply boards.

⚠ Note: The NL4 can accommodate any combination of a maximum of two power supply boards and three M8 boards.

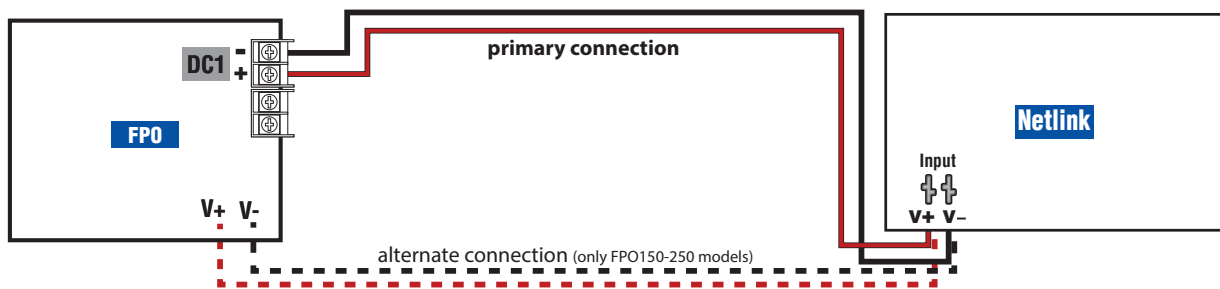


Figure 1.4 - Power the Netlink from the FPO V+/V- or DC1 terminals

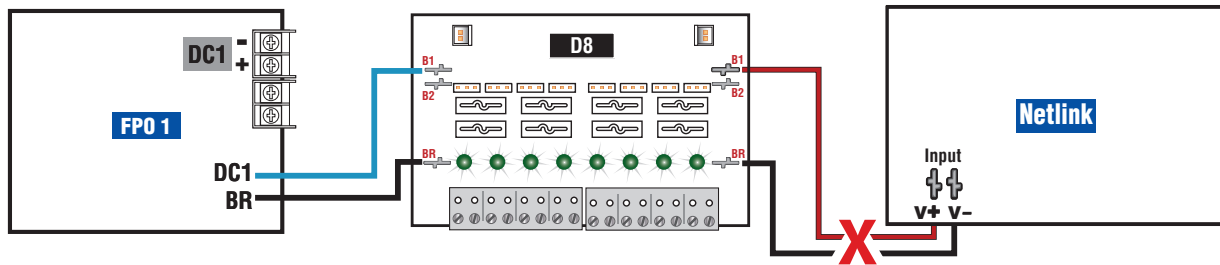


Figure 1.5 - Do not power from another accessory board's output

1.3.4 Connecting the Current Sensor(s)

Typically, the current sensor is used to measure battery discharge current to allow battery testing and utilization of the Battery Condition bar graph. In this application, the short orange lead connects toward the power supply and the long red lead connects toward the battery. See Figure 1.6 for wiring details.

If not using the current sensor for the battery, connect the Current Sensor in-line with the device(s) to be monitored. To read current in the correct polarity, the positive current should flow from the longer (red) lead to the shorter (orange) lead on the current sensor. If current is being displayed in the opposite polarity than expected, swap the short/orange and red/long leads.

After connecting the red and orange leads, connect the white cable to the "C1" or "C2" connector (H1 or H2 on Gen 1 boards) on the Netlink.

1.3.5 Connecting the Event Input

Connect one end of the Event cable to the Event1 connector on the Netlink board and cut off the connector at the other end of the Event cable. Connect the red and black wires to the voltage to be monitored. If monitoring a relay or switch contact (a common example would be the tamper switch of the enclosure), an external voltage must be run through the contact. Set the Event1 Input Invert Jumper as required.

Example:

To monitor the NC tamper switch in an LSP enclosure, connect a positive voltage (from the FPO power supply or distribution board) to one lead of the tamper switch. Connect the other lead of the tamper switch to the red (positive) lead of the Event cable. Connect the black (negative) lead of the Event cable to the negative (DC Common) of the voltage source. (Figure 1.7) Since we want to cause an alert on the removal of voltage, leave the Event1 Input Invert Jumper OFF.

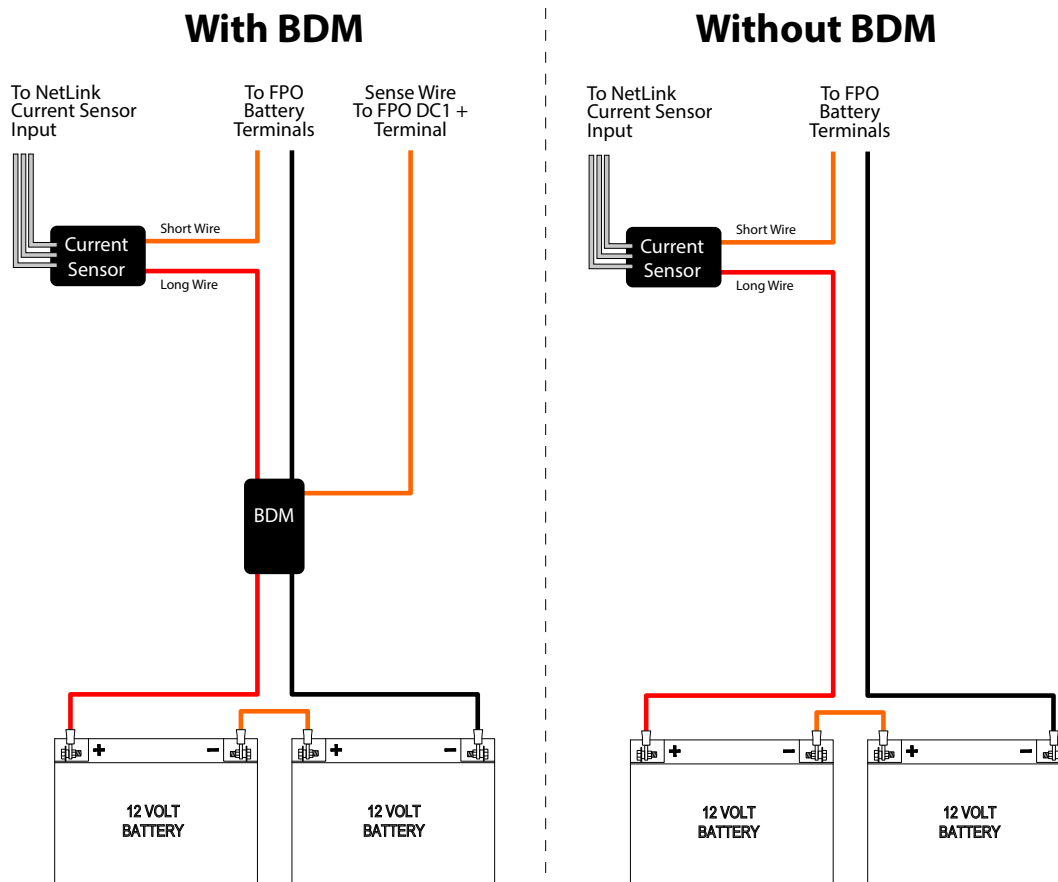


Figure 1.6 - Current Sensor Wiring (Battery Discharge Current)



1.3.6 Remote Temperature Sensor (NL4 board only)

The remote temperature sensor allows measuring a temperature up to 6 feet away from the NL4 board. Plug the sensor into J18 and run the sensor wire to the area or device to be monitored.

1.3.7 Connecting the ADC (Voltmeter) Input

When using the voltmeter input, connect one end of the ADC cable to the ADC1 input on the Netlink board. Cut off the other end of the ADC cable and connect it to the voltage source to be monitored, observing polarity. The red wire is the positive input and the black wire is the negative (DC Common) input. The ADC cable wiring must be routed away from high voltages and the wire used must be rated for the voltages and temperatures in the area in which it is installed.

⚠ Note: The voltage being measured by the ADC input MUST be common grounded with the voltage source of the Netlink board.

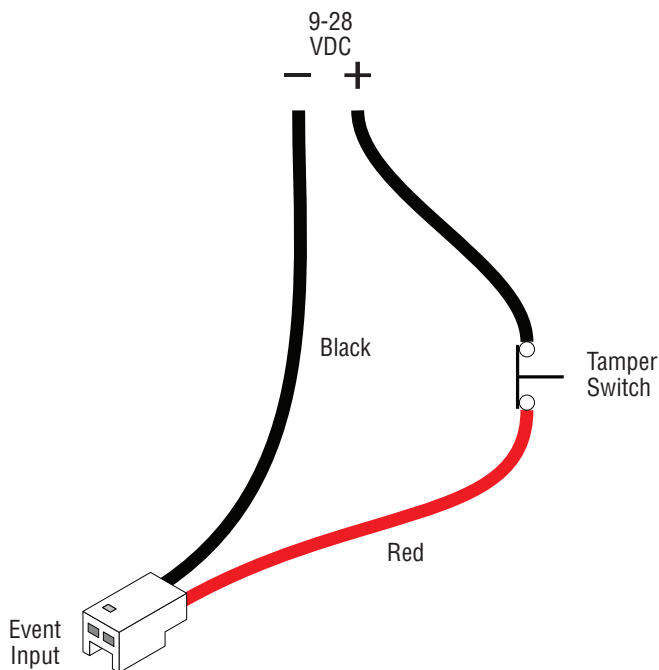


Figure 1.7 - Event1 Tamper Switch Wiring

1.3.8 Wiring the Control Outputs

When using the control outputs, connect one end of the Control Output cable to the Control Outputs connector on the Netlink. Cut off the other end of the control output cable. The wire going to the pin on the connector labeled "FLT" is Control Output # 1. The wire going to the pin labeled "EN_FAI" is Control Output #2.

The Control Outputs are low-current, open collector (transistor) outputs which pull to ground when activated. These outputs can be used to activate sensitive trip relays such as LifeSafety Power's RB Series, supply the ground side to an FAI Input, or other similar uses. See Figure 1.8 for an example using an RB relay.

⚠ Note: Do not connect these outputs directly to a voltage source or damage to the Netlink will occur. Also, ensure the wire used is rated for the voltages and temperatures in the area which it is installed.

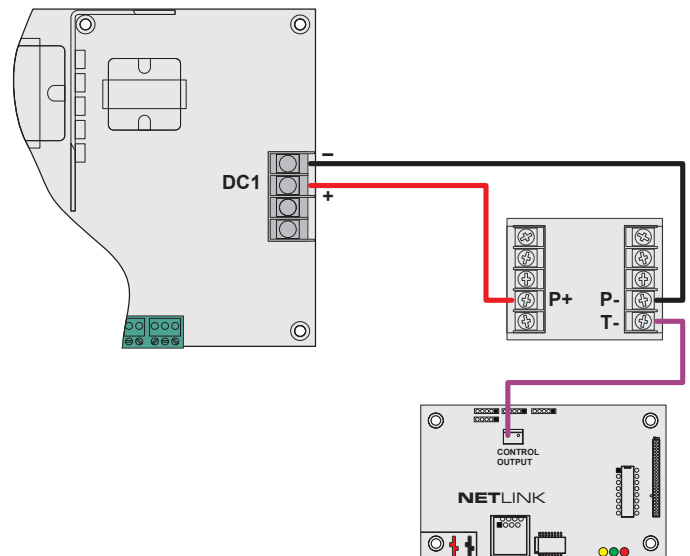


Figure 1.8 - Control Output Wiring Example

Section 2 – Initial Configuration

Before connecting the NetLink to a network for the first time, the board must be configured using a laptop.

⚠ All screens shown are of the NL4 GUI. NL2 screens are similar, with changes as noted in the text.

⚠ If using DHCP, a Network Scan Tool used for finding LSP devices is available at <http://www.lifesafetypower.com/support/software-firmware-downloads>.

2.1 Preparing to configure the Netlink board

In order to perform the initial configuration of the Netlink, you will need the following:

- A computer (PC or Mac) set to a static IP address in the subnet 192.168.1.xxx, where xxx is a subnet address (0 to 255) not being used by any other device on the network. Do not use 192.168.1.9 or the final IP address you will be using for the Netlink. Disable any active WiFi connections. See Figure 2.1.
- A web browser installed on the computer.
- A standard (not crossover) ethernet cable long enough to reach between the computer and the Netlink.
- The Netlink to be configured must be wired into the system and powered. After powering the Netlink, wait for it to initialize - when ready, the blue SYS LED will be lit steady.

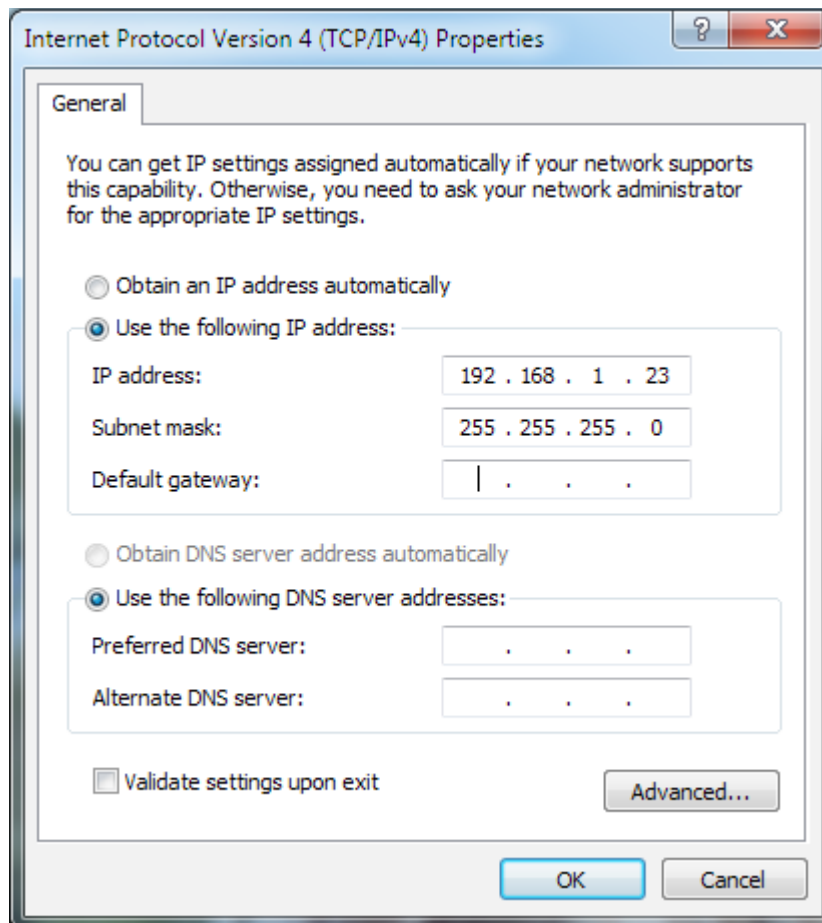


Figure 2.1 - Example of a PC Ethernet Port Settings Window

After the Netlink is powered within the system and initialized, connect the Ethernet cable between the Ethernet ports of the computer and the Netlink.



2.2 Configuring the Netlink board

2.2.1 Logging into the Netlink for the first time

From the factory, the Netlink is preset with the following settings:

- IP Address: 192.168.1.9
- Username: admin
- Password: admin

Open a browser on the computer and enter the IP address into the address bar. When prompted, enter the user name and password. Note that BOTH are case sensitive (See Figure 2.2). The Netlink License Agreement and one or more Cybersecurity windows will also appear. Read these and click OK (Figure 2.3). The home page for the Netlink should appear in the browser window (See Figure 2.4).

⚠ If the wrong password is entered three consecutive times, the user will be locked out of the device for the programmed lockout time (24 Hours by default). Enter the password carefully to avoid lockout. This time period may be changed on the configure page.

2.2.1.1 Resetting the Netlink

To reset the Netlink to factory default user name and password press and hold the reset button for 10 seconds.

To reset the Netlink to factory default user name, password, IP address, certificate, and Cipher Suite settings, press and hold the reset button for 30 seconds.

After releasing the button, the Netlink will reset and reboot.

Depending on the firmware revision, the Netlink may default to DHCP after reboot. If a DHCP server is found, an IP address will be assigned. The LifeSafety Power scan software, or a third party software must then be used to find the IP address of the Netlink.

| System Login | |
|--------------------------------------|--------------------------|
| User Info | |
| Username | <input type="text"/> |
| Password | <input type="password"/> |
| Remember Password | <input type="checkbox"/> |
| <input type="button" value="Login"/> | |

Figure 2.2 The Netlink Login Window (May appear different, depending on browser)

LifeSafety Power® PowerCom® POWER SYSTEM MANAGER

HOME Reporting Configure Tools msm Log Out Ver: 8.071-37

LIFESAFETY POWER INCORPORATED

LIFESAFETY POWER® WARRANTY STATEMENT AND SOFTWARE LICENSE AGREEMENT

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Figure 2.3 The Netlink License Agreement Window

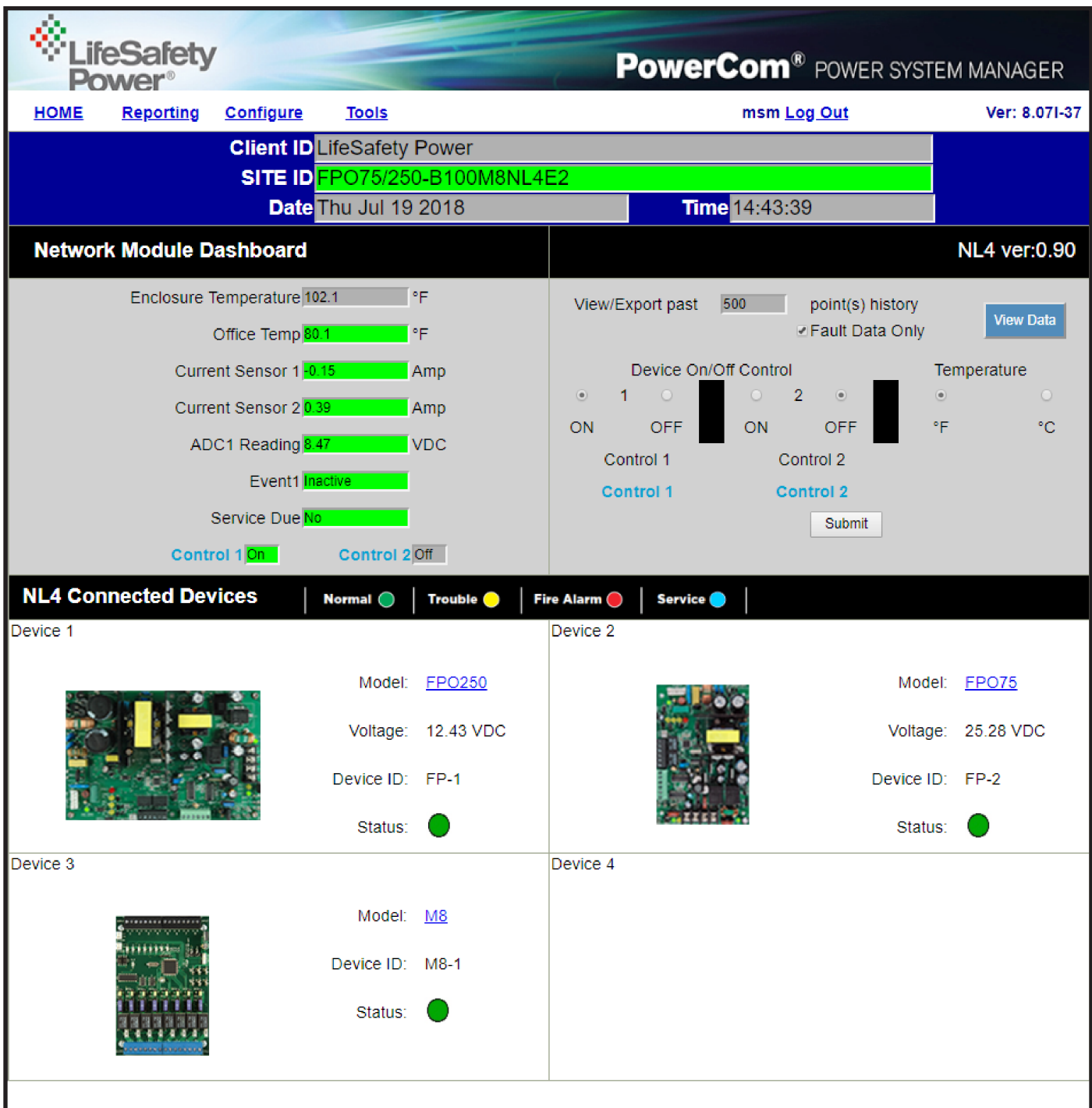


Figure 2.4 - Typical Netlink Home Page



2.2.2 Configuring the TCP/IP Settings

In the menu bar at the top of the browser screen (Figure 2.4), click the "Configure" link. In the TCP/IP Settings block of the Configuration screen (See Figure 2.5), set the TCP/IP settings to the desired values for the network to which the NetLink will be connected. Consult your IT department for information on these settings.

After completing the TCP/IP settings, click the "Submit" button in the bottom right corner of the TCP/IP Settings box. **Note that the new TCP/IP settings will not take effect until the Netlink is rebooted or power to the Netlink is cycled.**

If the Netlink is connected to a DHCP network and DHCP is enabled, the DHCP server will automatically configure the TCP/IP settings. **Note that you will need the Network Scan tool available at <http://www.lifesafetypower.com/support/software-firmware-downloads>** to locate the Netlink's IP address before logging into the Netlink board.

Note: The port number used by the Netlink can also be set in the Port# field. By default the Netlink is set to use port 80. To disable HTTP access and only allow access via HTTPS, check the "Disable HTTP" selection.

Note: To access the Netlink board from outside the installation site's firewall, the firewall must have the ports used by the Netlink for http/https, and SNMP (if used) open. See your IT department for firewall port opening details.

The screenshot displays the 'PowerCom POWER SYSTEM MANAGER' configuration interface. At the top, there is a navigation bar with links: HOME, Reporting, Configure, Tools, and a 'msm Log Out' button. The version 'Ver: 8.071-37' is shown in the top right. Below the navigation bar, a status bar displays 'Client ID: LifeSafety Power', 'SITE ID: FPO75/250-B100M8NL4E2' (highlighted in green), 'Date: Thu Jul 19 2018', and 'Time: 14:49:42'. The main configuration area is divided into four sections: 'TCP/IP Settings', 'Time Settings', 'IPv6 Settings', and 'MSM Settings'. The 'TCP/IP Settings' section includes fields for Name (LSP), IP Address (192.168.1.25), Net Mask (192.168.1.0), MAC Address (00:02:AC:55:B6:17), Gateway IP Address (192.168.1.1), DNS0 IP Address (75.75.75.75), DNS1 IP Address (75.75.76.76), HTTP Port # (80), HTTPS Port # (443), and checkboxes for 'Enable DHCP' and 'Disable HTTP'. The 'Time Settings' section includes a 'Select timezone:' dropdown (set to '(GMT-05:00)Eastern Time(US&Canada)'), 'Insert Date' fields (Year: 2018, Mon: 07, Day: 19), 'Insert Time' fields (Hour: 14, Min: 48, Sec: 58), an 'NTP Server' field (129.6.15.28), and a 'Get GMT Time' button. The 'IPv6 Settings' section includes fields for IPv6 Address, Prefix Lengths, Gateway IP Address, DNS0 IP Address, and DNS1 IP Address. The 'MSM Settings' section includes fields for IP Address and Port # (9888). Each section has a 'Submit' button at the bottom right.

Figure 2.5 - Typical Configure Page (top portion)

2.2.3 Time Settings

The Time Settings block (See Figure 2.5 previous page) is where the time and date are programmed into the Netlink. First, select the correct time zone from the drop down list and click Submit. After the time zone is set, the time and date can be set one of three ways:

Manual Entry

Enter the correct time and date in the following format and click the "Submit" button:

For Date: **YYYY MM DD**

For Time: **HH MM SS**

 ALWAYS enter two digits in time field.. ie., 7AM = 07, not 7

The new date and time will take effect immediately.

Sync With Computer

The "Sync Date/Time with computer" button will set the date and time of the Netlink to match the computer currently being used to access the Netlink. The new date and time will take effect immediately.

Using an NTP Server

The NTP Server fields allow you to enter one or two NTP servers for automatic setting of the time and date via the internet. The Netlink must be configured for internet access before this setting will work. Either the IP address of the server or the DNS name of the server may be entered. After entering at least one server, click the "Get GMT Time" button to set the Netlink time and date. Depending on server traffic, it could take several seconds for the time setting to complete.

2.2.4 MSM Settings

These settings are used when connecting the NetLink to an MSM Enterprise server. Enter the IP address of the MSM Server in the "IP Address" field. Set the Port number as appropriate (typically 9888). Click Submit when done to save the settings. Consult the MSM Enterprise manual for more information.



2.2.5 Configuring the SNMP Settings

Scrolling down in the Configure page reveals the "SNMP Settings" section (Figure 2.6).

The screenshot shows the 'PowerCom POWER SYSTEM MANAGER' interface. The top navigation bar includes 'HOME', 'Reporting', 'Configure', and 'Tools'. The 'Configure' section is active, showing 'msm Log Out' and 'Ver: 8.071-45'. The main content area is titled 'SNMP Settings' and is divided into several sections:

- Basic:** Includes fields for 'Read Community' (public), 'Write Community', 'Location' (LSP), 'Port #' (161), and 'Trap Type' (Trap). There are 'Submit' and 'Delete' buttons.
- Security Name:** Includes fields for 'Name' (mynetwork), 'Source Network' (192.168.1.0/24), 'User Name' (lsp), and 'Password' (12345678). There are 'Submit' and 'Delete' buttons.
- V3 User:** Includes fields for 'User Name' and 'Password'. There are 'Submit' and 'Delete' buttons.
- SNMP Trap Receiver:** Includes fields for 'IP' and 'Port', a 'Select Trap Version' dropdown (V1), and a 'Show Inform Log' button.
- Email Settings:** Includes fields for 'Receive Addresses' (E-Mail Address 1-4), 'Sender SMTP Server', 'Sender EMail', 'Sender EMail Password', 'TLS', 'SMTP Port #', 'Authentication', and 'Send Period'. There is a 'Submit' button.
- Email Test:** Includes 'Email Test' and 'Show email log' buttons.

Figure 2.6 - Typical Configure Page (upper-middle portion)

In the SNMP Setting block, under the "Basic" heading, set Read and Write Community to "public" and set Location to a meaningful name of your choice. This entry will help you identify the specific Netlink board when multiple Netlink boards are installed on the same subnet. This entry will be read by an SNMP system as "syslocation", OID .1.3.6.1.2.1.1.6. The port used for SNMP may also be changed in this section (161 Default). Be sure to open the SNMP port if accessing SNMP outside your firewall. Below the port number setting, select the trap type (Trap or Inform). Click the "Submit" button at the bottom of the "Basic" section to save the settings, otherwise you will lose the settings. These settings will take effect after a reboot of the Netlink.

The "Security Name" section of the SNMP Setting block allows you to grant only specified computers (by IP address) SNMP v1 and v2 access. Since v1 and v2 do not have password protection, the Security Name settings add security to v1 and v2 access. The web server is password protected and a user must have the web server password in order to setup a computer in the Security Name settings and gain v1 and v2 access. Multiple source networks can be added to the Security Name Setting block. Be sure to click the "Submit" button to save the settings. The settings will take effect after a reboot of the Netlink.

The "V3 User" section of the SNMP Setting block allows for a user to set up an SNMP v3 user name and password. With a user name and password, the Netlink board may be accessed from anywhere via the internet by using the SNMP v3 protocol. No security name setup is required for v3 users and multiple v3 users may be set up in the same table. Click the "Submit" button to save the settings, which will take effect after rebooting the Netlink.

The SNMP Trap Receiver IP and Port settings should be set to the proper address for the SNMP Trap receiver. Click the "Submit" button and reboot the Netlink for the settings to take effect. The SNMP Trap Version may be selected using "Select Trap Version". The SNMP Inform Log may be seen by clicking the "Show Inform Log" button. If the trap type is set to "Trap", no data will be displayed in this section. Click "Hide Inform Log" to hide the log window.


2.2.6 Configuring the Email Settings

The Netlink can be configured to send email alerts on user-specified conditions and periodic status reports. Underneath the SNMP Settings block on the Configure page is the Email Settings block (See Figure 2.6).

Under "Receive Addresses", the email address or addresses to receive the alerts and reports should be entered. Up to four recipient email addresses may be entered.

Under "Sender", the settings of the account to send the emails should be entered. These settings include:

| | |
|------------------------------|--|
| Sender SMTP Server | This is the address of the SMTP server for the email provider. Consult with your email provider for this address. |
| Sender's Email | This is the email address which the Netlink will use to send emails. |
| Sender Email Password | This is the password associated with the Sender's Email account |
| TLS | Check this box if your email provider requires TLS or SSL encryption |
| SMTP Port # | Enter the port number required by your email provider for sending email. Usually this is "25" |
| Authentication | Choose the proper authentication method for your email provider from the drop-down list. Usually, this is "login". Select "off" to completely disable authentication. |
| Send Period | Selects how often the Netlink sends a regular email status report. The period can vary from 1 hour to 6 months or, if you do not want the Netlink to send periodic reports, select "Never". Note that the "Send Period" setting does not affect the sending of email alerts generated on faults or events selected by the user, only the periodic status report. |

 **Note:** Regarding Microsoft Exchange – By Default, Microsoft Exchange will not accept SMTP connections. To use the Netlink's email functions through Microsoft Exchange, the Exchange service must be configured to allow SMTP connections. Consult with the administrator of your Microsoft Exchange Server.

 **Note:** Click the "Submit" button to save the settings, which will take effect after rebooting the Netlink.

TIP: Most mobile phone providers have an email address available which will convert an email into an SMS text message. This email address is usually in the form of: (the mobile phone number)@xxxxxx. Consult with your mobile provider for more information. The CSV attachment will be removed, since SMS text messages are not compatible with attachments. Because of this, it is recommended that the SMS email be entered as an ADDITIONAL "Receive Address" on the Netlink, so that the CSV file will still be available via regular email.

2.2.7 The Email Test Section

Below the Email Settings section is the Email Test section. (See Figure 2.6) After configuring the email settings, the Email Test button will send a test email to all Email Receive addresses. Please note that it could take an hour or more to receive the email, depending on the speed of your email server. Clicking the Show Email Log button will show the feedback from the email server. This can be useful for diagnosing email problems.

2.2.8 VPN Settings

The VPN Settings section is for the discontinued MSM-200 hardware VPN (See Figure 2.7). The MSM-200 has been replaced with MSM-Enterprise. If connecting to an existing MSM-200 system, see the MSM-200 manual for more information.



2.2.9 Configuring the Netlink Network Module Settings

Below the VPN Settings block is the Network Module Settings block, where application-specific parameters of the Netlink can be set (See Figure 2.7).

| | |
|---|---|
| Client ID | Enter any meaningful name to help identify the site or customer. The Client ID will appear at the top of the home page. |
| Site ID | Enter any meaningful name to help identify the installation site. The Site ID text will appear at the top of the Home page, as well as in the subject line of email alerts and reports. |
| Data Buffer Interval | This selects the time period between "snapshots" of the data for the email/csv reports. Typically, this value should be set to 24 hours |
| Password Lockout Delay | Selects the length of time to lock out a user after three consecutive incorrect password attempts. Selections range from 5 minutes to 24 hours. |
| External Event | Enter a name related to the usage of the Event1 input. In the example, this setting is labeled "Event1". |
| Current Sense 1 | Enter a name indicating the current being measured by the current sensor connected to the C1 or H1 connector of the Netlink. In the example, the label is "CurrentSensor1". |
| Current Sense 1 Lower Limit | This is the lower current limit for Current Sensor 1. If the measured current goes below this value, an alert will be generated. By default, this value is set to -3A to disable the limit. |
| Current Sense 1 Upper Limit | This is the upper current limit for Current Sensor 1. If the measured current goes above this value an alert will be generated. By default this value is set to 15A. |
| Current Sense 2 (NL4 only) | Enter a name indicating the current being measured by the current sensor connected to the C2 or H2 connector of the Netlink. In the example, the label is "CurrentSensor2". |
| Current Sense 2 Lower Limit (NL4 only) | This is the lower current limit for Current Sensor 2. If the measured current goes below this value, an alert will be generated. By default, this value is set to -3A to disable the limit. |
| Current Sense 2 Upper Limit (NL4 only) | This is the upper current limit for Current Sensor 2. If the measured current goes above this value an alert will be generated. By default this value is set to 15A. |
| Control 1 | Enter a name for the Control 1 output. This label will appear below the Netlink Control Setting 1 radio buttons on the home page. |
| Control 2 | Enter a name for the Control 2 output. This label will appear below the Netlink Control Setting 2 radio buttons on the home page. |
| ADC1 Reading | Enter a name indicating the voltage being measured by the ADC input of the Netlink. This reading is the voltage between the two ADC input pins. In the example, the label is "ADC1Reading". Note that if the Dual ADC jumper is in place (ONLY when using an NS2 board with the Netlink), a second setting, labeled ADC2 Reading, will appear under the ADC1 Reading setting. |
| ADC1 Lower Limit | This is the lower voltage limit for the ADC1 input. If the measured voltage goes below this value, an alert will be generated. By default, this value is set to -30V to disable the limit. |
| ADC1 Upper Limit | This is the upper voltage limit for the ADC1 input. If the measured voltage goes above this value, an alert will be generated. By default, this value is set to 30V. |
| External Temperature (NL4 only) | Enter a name for the external temperature measurement. |
| Temperature Lower Limit (NL4 only) | Enter a lower temperature limit for the external temperature sensor input. If the temperature measured by the sensor goes BELOW this value, an alert will be triggered. |
| Temperature Upper Limit (NL4 only) | Enter an upper temperature limit for the external temperature sensor input. If the temperature measured by the sensor goes ABOVE this value, an alert will be triggered. |
| Next Service Due | Enter a date indicating the next service due date. If "Service Due" is selected as an email alert condition, an alert email will be sent out to the specified email recipient(s) when the system time matches the due date time. |
| Reminder Message | Enter a brief message to indicate the type of service which is due in the email alert. This message will appear in the Subject line of the alert email. |

⚠ Note: After entering the above information into the Netlink Network Module Setting block, click the "Submit" button to save the settings. These settings will take effect immediately without rebooting the Netlink board.

2.2.10 User Settings

In the User Settings block of the Configure screen (bottom of Figure 2.7), you can enter the user names, passwords, access levels, and password complexity for the Netlink board.

The default user is "admin" and the password for this account is also "admin". It is highly recommended to change this user name and password for security reasons. Click Submit when done. Note that there must ALWAYS be at least one admin-level user.

Adding a New User

To add another user, first select the Authorization level desired for the user. Three authorization levels are available:

- Admin Admin-level users have full control over the Netlink. There are no restrictions.
- Manager Manager-level users have access to all areas of the Netlink except for the Configure page.
- Guest Guest-level users may only view information on the Netlink screens. No changes can be made and none of the control features are available.

After selecting the Authorization level, enter the new user name in the User Name column and enter the password into the Password column. Passwords must meet the complexity level setting requirements. Re-enter the password into the Verify Password column.

After clicking Submit, the new user will be active and another blank row will appear for entering the next user name.

The screenshot displays the 'Configure' page of the PowerCom POWER SYSTEM MANAGER. The top navigation bar includes links for HOME, Reporting, Configure, and Tools, along with a user login status (msm Log Out) and version information (Ver: 8.071-39). The main content area is divided into several sections:

- VPN Settings:** Includes fields for EnableRemoteVPNServer (checkbox), IP Address (50.244.17.222), User Name (masked), and Password (masked), with a Submit button.
- NL4 Network Module Settings:** A large section with multiple configuration options:
 - Client ID: (text field)
 - Site ID: ISCAN - RM 16
 - Data buffer interval: 1 Hour (dropdown)
 - Password Lockout Delay: 24 Hour (dropdown)
 - External Event: Event1 (text field)
 - Current Sense 1: Battery discharge current (text field)
 - Current Sense 1 Lower Limit: -3.00 Amp (text field)
 - Current Sense 1 Upper Limit: 15.00 Amp (text field)
 - Current Sense 2: N/A (text field)
 - Current Sense 2 Lower Limit: -3.00 Amp (text field)
 - Current Sense 2 Upper Limit: 15.00 Amp (text field)
 - Control 1: Control 1 (text field)
 - Control 2: Control 2 (text field)
 - ADC1 Reading: B100 output (text field)
 - ADC1 Lower Limit: 0.00 VDC (text field)
 - ADC1 Upper Limit: 30.00 VDC (text field)
 - External Temperature: Freezer Temperature (text field)
 - Temperature Lower Limit: -40.00 °F (text field)
 - Temperature Upper Limit: 90.00 °F (text field)
 - Next Service Due: Year 2020, Mon 03, Day 14, Hour 09, Min 00, Sec 00
 - Reminder Message: Reminder Message (text field)
- User Settings:** Includes a table for user management:

| Authorization | User Name | Password | Verify Password |
|---------------|-----------|----------|-----------------|
| admin | admin | | |
| admin | | | |

 Below the table are fields for Password Complexity (Normal) and buttons for Submit and Delete.
- Certificate Settings:** (Section header visible at the bottom).

Figure 2.7 - Typical Configure Page (lower-middle portion)



2.2.11 Select Certificate

The Netlink allows a user-supplied certificate to be used. Click the "Select Certificate" button (Figure 2.9) to enter the Import Certificate screen (Figure 2.8). Contact your IT department for more information.

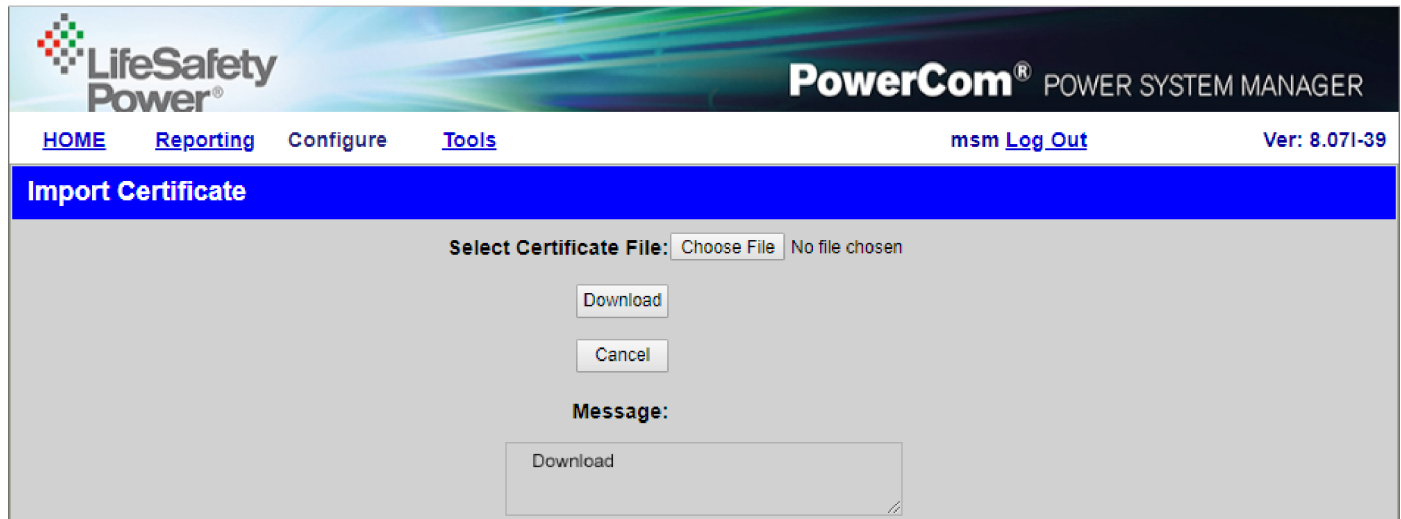


Figure 2.8 - Import Certificate Screen

Click the Choose File button to select the certificate to be used, then click Download, then Confirm to download the certificate. Click the Submit and Test button to use and test the certificate.

2.2.12 SSL Protocol and CipherSuite Settings

This section allows the user to select which SSL protocol to use. The default setting is Normal. See Figure 2.9

2.2.13 Certificate Log

Click Show Certificate Log to view the certificate activity log. Click Hide Certificate Log to hide the window. See Figure 2.9

2.2.14 Import and Export Configuration File

The Netlink allows the user to export the settings that are configured in the Netlink to a file. This file can be used as a backup or to transfer these settings to other Netlink devices that require similar settings. The settings exported include:

- From Configure Page: Time Settings (including NTP Server), MSM Settings, SNMP Settings, VPN Settings, Netlink Module Settings, User Settings
- From Reporting Page: Alert Enable On, Netlink Report, FPO1/2 Report, FPV1/2 Report
- Power Supply Settings (FPO/FPV) - for all connected power supplies
- M8 Programming - for all connected M8 boards (NL4 only)

To export the settings, click the Export Configuration File button (See Figures 2.9 and 2.10). The exported file saves to the default download location of the browser.

To import a configuration file, click the Import Configuration File button to open the Import Settings screen.

Click the Choose File button and select the configuration file to be imported. Click Download, then Confirm to import the settings.

2.2.15 User Login Record

Click the Show Login Log button to show the history of login information for the Netlink board. See Figure 2.9

LifeSafety Power® **PowerCom®** POWER SYSTEM MANAGER

HOME Reporting Configure Tools msm Log Out Ver: 8.071-39

Enhanced complexity: Password must have at least 1 uppercase letter, 1 lowercase letter, 1 special character, 1 number and total length at least 14 characters.

Certificate Settings

| PFX Certificate | Certificate Authority | Default Certificate |
|---|---|---------------------------------------|
| Certificate: <input type="button" value="Select Certificate"/> Password: <input type="password" value="....."/> <input type="button" value="Test"/> <input type="button" value="Submit"/> | Certificate: <input type="button" value="Select Certificate"/> <input type="button" value="Submit"/> | <input type="button" value="Submit"/> |

The current use of the certificate is a default certificate.

SSLProtocol and CipherSuite Settings

SSL Options:

SSLProtocol:

CipherSuite:

Certificate Log

Import and Export Configuration File

User Login Record

Figure 2.9 - Typical Configure Page (bottom portion)

LifeSafety Power® **PowerCom®** POWER SYSTEM MANAGER

HOME Reporting Configure Tools msm Log Out Ver: 8.071-39

Import Settings

Browse File Name: No file chosen

Message:

Figure 2.10 - Import Settings Page



2.2.16 Setting up the Parameters for the Email Reports

The Netlink can send email alerts based on selectable conditions. If enabled, when the selected conditions are met, the Netlink will send an email with an attached report file (in CSV format). To set up the email alert conditions, click the "Reporting" link in the top menu.

Select the Email Alert Triggers

The "Alert Enable On" block of the Reporting page contains checkboxes for the various conditions that can cause an email alert to be sent (See Figure 2.11).

| | |
|-----------------------------|--|
| System Fault | If checked, a System Fault condition on a connected device will generate an email alert. |
| AC Fault | If checked, an AC fault condition on a connected device will generate an email alert. |
| Battery Backup Time | If checked, an alert will be generated if the required standby time is not able to be met with the installed battery. |
| Current Sensor 1 | If checked, a current outside the range set for Current Sensor 1 will generate an email alert. |
| External Temperature | If checked, an external temperature outside of the range set will generate an email alert. (NL4 Only) |
| Event1 | If checked, a valid input on the Event1 Input will generate an email alert. |
| FAI Active | If checked, an active FAI Input on a connected device will cause an email alert. |
| Current Sensor 2 | If checked, a current outside the range set for Current Sensor 2 will generate an email report. (NL4 Only) |
| Battery End of Life | If checked, an email alert will be sent when the Battery Runtime of the connected device reaches the "Rated Battery Life" setting on the Configure page. When a new battery is installed, the "Reset Timer for New Battery Installation" box on the Programming page should be set to reset the Battery Runtime counter. |
| Battery Condition | An email alert will be sent when the battery charge is less than 20% (one yellow bar on the "Bat. Condition" display on the power supply page). |
| ADC1 Reading | If checked, a voltage outside the range set for ADC1 will generate an email report. |
| Service Reminder | An email alert will be sent when the "Next Service Due" date and time on the Configure page are reached. |
| Device Detect | An email alert will be sent when a device (FPO, M8) is connected or disconnected from the Netlink board. This will notify the email recipient if the Netlink loses communication with a connected device. |

After setting the email alert triggers, click the "Submit" button at the bottom of the "Alert Enable On" section for the settings to take effect.

Select the Occurrences to Report

The "Select Occurrences to Report" block of the Reporting page allows the setting of the number of history events to be included in the report file attached to the alert email (See Figure 2.11). The Netlink records a snapshot of device parameters at the time period selected on the Configure page. Up to 1000 history events can be recorded. The user can enter between 1 (the latest event only), up to 1000 (for all events). After entering the number of history events to email, click the "Submit" button to save this setting.

Select the Devices and Parameters to Report

The bottom section of the Reporting page contains the devices and parameters selection area (See Figure 2.11). Any connected devices will show here, along with a section for the Netlink itself.

The Netlink and each device also have selectable parameters listed below their headings. Checking these parameters will add them to the report attached to the email alert. These are the same parameters as seen on the Home page.

Available Netlink parameters include: enclosure temperature, external temperature, current sensor readings, the ADC1 reading, and the Event Status (these may appear as the labels set on the Configure page).

Available FPO parameters include: Model Number, System Fault Status, AC Fault Status, FAI Status, FAI Latch Status, FPO Output Voltage, Battery Voltage, Battery Charge Current, Total Power-up time, Battery Installed time, AC Fault Total, System Fault Total, Battery State Of Charge, Battery Runtime Test Total, Battery Runtime Test Failed Total, Required Standby, and Actual Standby.

M8 parameters are set on the M8's configure page (NL4 only - see the M8 Manual for more information).

After setting the devices and parameters to be reported, be sure to click the "Submit" button for each device.


PowerCom® POWER SYSTEM MANAGER

[HOME](#)
[Reporting](#)
[Configure](#)
[Tools](#)
msm [Log Out](#)
Ver: 8.071-39

Client ID

LifeSafety Power

SITE ID

FPO75/250-B100M8NL4E2

Send Email Report

Date

Thu Aug 09 2018

Time

13:49:18

Alert Enable On

| | | | |
|---------------------|--------------------|-----------------------|--------------------|
| System Fault ✓ | Event1 ✓ | Battery End of Life ✓ | Service Reminder ✓ |
| AC Fault ✓ | FAI Active ✓ | Battery Condition ✓ | Device Detect ✓ |
| Battery Backup Time | Current Sensor 1 ✓ | Current Sensor 2 ✓ | ADC1 Reading ✓ |
| Office Temp ✓ | | | |

Submit

Select Occurrences to Report

Select: Occurrence

Submit

NL4 Report

| | | |
|--|--|---|
| <input checked="" type="checkbox"/> Current Sensor 1 | <input checked="" type="checkbox"/> ADC1 Reading | <input checked="" type="checkbox"/> Enclosure Temperature |
| <input checked="" type="checkbox"/> Current Sensor 2 | <input checked="" type="checkbox"/> Event1 | <input checked="" type="checkbox"/> Office Temp |

Select All

Clear

Submit

| FP1 Report | FP2 Report |
|---|---|
| <input checked="" type="checkbox"/> Model Number | <input checked="" type="checkbox"/> Model Number |
| <input checked="" type="checkbox"/> System Fault Status | <input checked="" type="checkbox"/> System Fault Status |
| <input checked="" type="checkbox"/> AC Fault Status | <input checked="" type="checkbox"/> AC Fault Status |
| <input checked="" type="checkbox"/> FAI Status | <input checked="" type="checkbox"/> FAI Status |
| <input checked="" type="checkbox"/> FAI Latch Status | <input checked="" type="checkbox"/> FAI Latch Status |
| <input checked="" type="checkbox"/> FPO Output Voltage | <input checked="" type="checkbox"/> FPO Output Voltage |
| <input checked="" type="checkbox"/> Battery Voltage | <input checked="" type="checkbox"/> Battery Voltage |
| <input checked="" type="checkbox"/> Battery Charge Current | <input checked="" type="checkbox"/> Battery Charge Current |
| <input checked="" type="checkbox"/> Total Power-up Time | <input checked="" type="checkbox"/> Total Power-up Time |
| <input checked="" type="checkbox"/> Battery Installed Time | <input checked="" type="checkbox"/> Battery Installed Time |
| <input checked="" type="checkbox"/> AC Fault Total | <input checked="" type="checkbox"/> AC Fault Total |
| <input checked="" type="checkbox"/> System Fault Total | <input checked="" type="checkbox"/> System Fault Total |
| <input checked="" type="checkbox"/> Battery State of Charge | <input checked="" type="checkbox"/> Battery State of Charge |
| <input type="checkbox"/> Battery Runtime Test Total | <input type="checkbox"/> Battery Runtime Test Total |
| <input type="checkbox"/> Bat Runtime Test Failed Total | <input type="checkbox"/> Bat Runtime Test Failed Total |
| <input type="checkbox"/> Required Standby | <input type="checkbox"/> Required Standby |
| <input type="checkbox"/> Actual Standby | <input type="checkbox"/> Actual Standby |

Select All

Clear

Submit

Select All

Clear

Submit

Figure 2.11 - Typical Reporting Page

Section 3 – Using the NETLINK Board

Before system parameters can be viewed, you must be logged into the Netlink board using the proper IP address, user name, and password for the Netlink, as shown in Section 2 of this manual.

⚠ All screens shown are of the NL4. NL2 screens are similar, with changes as noted in the text.

3.1 Viewing System Parameters on the Netlink Home Page

The Home page contains all of the real-time parameters monitored directly by the Netlink as well as status of the connected devices. The Home page is broken into several sections as follows.

The screenshot displays the LifeSafety Power Netlink Home Page. The header includes the LifeSafety Power logo, the title "PowerCom® POWER SYSTEM MANAGER", and navigation links: HOME, Reporting, Configure, Tools, msm Log Out, and Ver: 8.071-39. The main content area is divided into several sections:

- Client Information:** Client ID: LifeSafety Power, SITE ID: FPO75/250-B100M8NL4E2, Date: Thu Aug 09 2018, Time: 15:01:59.
- Network Module Dashboard:**
 - Enclosure Temperature: 105.6 °F
 - Office Temp: 79.2 °F
 - Current Sensor 1: 0.10 Amp
 - Current Sensor 2: 0.39 Amp
 - ADC1 Reading: 8.47 VDC
 - Event1: Inactive
 - Service Due: No
 - Control 1: On, Control 2: Off
- Device Control and Monitoring:**
 - View/Export past: 500 point(s) history, View Data button
 - Device On/Off Control: Control 1 (ON/OFF), Control 2 (ON/OFF), Submit button
 - Temperature: °F/°C selection
- NL4 Connected Devices:**
 - Legend: Normal (Green), Trouble (Yellow), Fire Alarm (Red), Service (Blue)
 - Device 1: Model: FPO250, Voltage: 12.46 VDC, Device ID: FP-1, Status: Normal
 - Device 2: Model: FPO75, Voltage: 25.28 VDC, Device ID: FP-2, Status: Normal
 - Device 3: Model: M8, Device ID: M8-1, Status: Normal
 - Device 4: (Empty)

Figure 3.1 - Typical Netlink Home Page

3.1.1 Basic Site Information

The top portion of the Netlink Home page lists the Client ID and Site ID (as programmed on the Configure page) as well as the system time and date (Figure 3.1). The Site ID field will be green if there are no faults or service alerts detected. This field will turn yellow on any fault condition or blue on any service alert conditions.

3.1.2 Network Module Data, & History and Control Sections

Below the Basic Site Information are the parameters and settings related to the Netlink board and the Web Interface itself (See Figure 3.1).

| | |
|--|---|
| Enclosure Temperature | This is the temperature of the Netlink board. This temperature sensor is installed on the Netlink's PC board. |
| External Temperature (NL4 only) | If an external temperature sensor is connected to J18, this temperature display will display the external sensor's temperature. |
| Current Sensor Measurements | These will appear as the labels you set for the Current Sensors on the Configure page. These measurements are shown as a positive or negative current in Amps DC. A positive current measurement indicates current flow from the longer red lead of the current sensor to the shorter orange lead of the current sensor. If current is being displayed in the opposite polarity than expected, swap the short and long red leads. See section 1.3.4 for more information on the current sensor. |
| ADC Voltage Measurement | This is the voltage measured by the on-board Analog-to-Digital converter (ADC) and will appear as the label you set for the ADC input on the Configure page. This measurement is shown as a positive or negative voltage in Volts DC. |
| Event1 Indicator | This field shows the status of the Event1 input. It will appear as the label set for the Event1 input on the configure page. This field will show "Active" on a yellow background or "Inactive" on a green background to indicate the status of the Event1 input. |
| Service Due | This field will display "Yes" when the "Next Service Due" date programmed on the Configure page has been reached and will display "No" before the due date. If the "Service Due" checkbox is enabled on the Reporting page, the color of the "Service Due" field will be blue if service is required or green if not required. |
| Control 1 and Control 2 Status | These fields indicate the state of the two control outputs of the Netlink. These control outputs will be labeled with the names given on the Configure page and can be changed with the Output Control radio buttons to the right. The Control 1 and Control 2 fields will display "Off" with a gray background or "On" with a green background. |
| View/Export History | The Netlink saves a snapshot of data at the programmed interval. These snapshots can be reviewed by entering the number of events to view or export then clicking the View Data button. To view only the detected fault data, check the Fault Data Only box before clicking View Data. There are up to 1000 events available for review. To save the data, click the Export to CSV File button. Click the Return button at the top to return to the home page. |
| Device On/Off Control | These two pairs of radio buttons select the state of the two Control Outputs of the Netlink board. After changing the radio button, the "Submit" button must be clicked for the setting to take effect. The labels entered for these outputs on the Configure page appear below the radio buttons. |
| Temperature | This changes the display of the Netlink temperature between Celsius and Fahrenheit on the browser display. The "Submit" button must be clicked for this setting to take effect. |

3.1.3 Connected Devices Section

The bottom of the home page shows the devices connected to the Device connectors of the Netlink with a SPI cable. Each device will display a photo of the device and the model number. The Device ID is a unique number given by the Netlink to each device. The "Status" indicator shows the current status of the device. Green indicates a normal state, yellow indicates a fault, and blue indicates a service item. A red indicator shows that an FAI request has been received by the device. Power supplies will also display the measured output voltage. To access the page for a device, click either the photo of the device or the model number. See Section 3.2 of this manual for more information on connected devices.



3.2 Accessing and Programming Connected Devices

When devices are connected to the Netlink, detailed information relating to these devices may be viewed and various parameters can be programmed through the Netlink's interface. Note that programming these parameters changes the operation of the device itself. To access the page for a device, click on the photo of the device in the Netlink Connected Devices section of the home page. (See bottom of Figure 3.1).

3.2.1 FPO Power Supplies

The FPO Power Supply page (Figure 3.2) contains the same Client ID, Site ID, Time, and Date information as the Home page of the Netlink; below that are five main sections.

3.2.1.1 FPO Device Parameters & History

The section at the top left of the screen will show the available parameters of the FPO Power Supply.

| LifeSafety Power® | | PowerCom® POWER SYSTEM MANAGER | |
|--|--|---|--|
| HOME Reporting Configure Tools | | admin Log Out Ver: 8.071-3 | |
| Client ID LifeSafety Power | | Time 15:35:26 | |
| Site ID FPO75/250-B100M8NL4E2 | | Date Thu Aug 09 2018 | |
| Return | | | |
| Device ID: FP-1 FPO250 Ver:3.4 | | | |
| Power System Monitoring | | System History | |
| Output Voltage: 12.46 VDC AC Fault Status: No System Fault Status: No Battery Voltage: 13.49 VDC Battery Chg Current: 0.52 Amp FAI Status: Inactive FAI Latch: Inactive | | AC Fault Count: 58 System Fault Count: 137 Battery Installed Time: 12026 Hours Battery Tests Performed: 0 Battery Tests Failed: 0 System Installed Date: 2016/1/12 Total Power-up Time: 20886 Hours | |
| Battery Status Monitoring | | Battery Test Email Report Y • N • | |
| Charge State: <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Full Battery Status: Charging Required Standby: 0.00 Hours Actual Standby: 0.00 Hours Clear result Replace Battery By: 2019/08/05 <input type="button" value="Disable"/> Used to disable the State of Charge meter when no current sensor is connected to the battery. | | Schedule Test YYYY MM DD hh mm AM PM <input type="button" value="Schedule Test"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="radio"/> <input type="radio"/> Repeat Test Interval: 0 Days <input type="button" value="Start Manual Test"/> Last Test Date: 2017/03/31 Battery Run Time: 00:00:08 | |
| Power Supply Settings | | Battery Settings | |

Figure 3.2 - Typical Power Supply Page (top portion)

3.2.1.2 Power System Monitoring & System History

Any power supply connected to a device input will provide the following parameters (Figure 3.2):

| | |
|-------------------------------|--|
| Device ID | This is the identifying label for the device. The FP-1 or FP-2 label is given by the Netlink and is not user settable. Also displayed is the model number of the power supply. |
| Output Voltage | This is the measured system output voltage (in Volts DC) of the supply, as measured directly out of the power supply engine within the power supply board. This voltage is distributed to the outputs of the supply. |
| AC Fault Status | Indicates whether the supply is reporting a low or missing AC voltage. "No" on a green background indicates that no problem is being reported. "Yes" on a yellow background indicates an AC Fault condition. See the power supply manual to troubleshoot. |
| System Fault Status | Indicates whether the supply is reporting a System Fault condition. "No" on a green background indicates that no problem is being reported. "Yes" on a yellow background indicates a System Fault condition. See the power supply manual to troubleshoot. |
| Battery Voltage | Indicates the measured battery voltage in Volts DC. This field only indicates the terminal voltage of the battery set and does not necessarily indicate the condition or state of charge of the battery set. |
| Battery Chg Current | This field indicates the charge current being applied to the battery set (in Amps DC). This field only represents charge into the battery and does not show battery discharge current. Use the Netlink current sensor to measure both charge and discharge current (See Section 1.3.4). |
| FAI Status | This field indicates the status of the FAI Input of the supply. "Inactive" on a green background indicates that the FAI input is not activated. "Active" on a red background indicates that the FAI input is activated. |
| FAI Latch | This field indicates the status of the FAI Latch Input of the supply. If the Latch Input is being used and the FAI Input is active and latched, this field will show "Active" on a red background. If FAI Latch is not being used this field will show "Inactive" on a green background. |
| AC Fault Count | This field shows the number of AC Faults detected since the last fault counter reset. When new, a supply may contain a random number in this field and the counter should be reset (in the Power Supply Settings section) before being used. |
| System Fault Count | This field shows the number of System Faults detected since the last reset of the fault counter. A supply may contain random data in this field when new and the counter should be reset (in the Power Supply Settings section) before being used. |
| Battery Installed Time | This field displays the battery runtime in hours since the last reset of the battery runtime counter. The battery runtime field may display random data on a new supply and should be reset on the Power Supply Settings section before use. This Runtime is independent of the Battery End-of-Life / Bat. Replacement Date. |
| Batt Tests Performed | The total number of automated battery tests performed (See Section 3.2.1.4) |
| Battery Tests Failed | The number of failed battery tests that have occurred (See Section 3.2.1.4) |
| System Installed Date | This field allows the installer to enter the initial installation date for the power supply as a service record. |
| Total Power-up Time | This field displays the total power-up time in hours for the supply. This value cannot be reset. It is normal for several hours to show in this field on a new supply, due to burn-in testing at the factory. |

3.2.1.3 Battery Status

The section at the left of the middle section of the screen shows the current battery status. (Figure 3.3) This section will only be enabled if a current sensor is connected in line with the battery for the FPO (See Section 1.3.4).

Battery State of Charge

If enabled, a bar graph will display indicating the estimated condition of the battery connected to the supply. Once the battery is connected and the Netlink detects current flow, an enable/disable button will appear at the bottom of the Battery Status area. If the button is enabled, a four segment bar graph display will appear with one end labeled "Full". Note that it can take several minutes for an accurate indication of battery condition. The various possible states of the Bat Condition bar graph display are as follows:

| | |
|--------------|---|
| 4 Green Bars | Battery is at 80% to 100% charge |
| 3 Green Bars | Battery is at 60% to 79% charge |
| 2 Green Bars | Battery is at 40% to 59% charge |
| 1 Green Bar | Battery is at 20% to 39% charge |
| 1 Yellow Bar | Battery is at 6% to 19% charge (email alert will be sent, if enabled) |
| 1 Red Bar | Battery is at 5% or lower charge |

When the battery discharges to one yellow bar, an email alert will be sent if the Battery Condition checkbox on the Reporting page is enabled.

Note that if the current sensor is being used for another function other than monitoring battery current, the Battery Condition display will show invalid data and should be disabled to prevent confusion in the future. ONLY enable the Battery Condition display if the current sensor is in line with one of the battery leads.

Status

The Status field gives the state of the battery. Possible states are "Charging", "Charged", or "Discharging".

Required Standby

The required standby time as set in the Battery Settings section (See section 3.2.1.6)

Actual Standby

The measured battery standby time as recorded during the Battery Test (See section 3.2.1.4)

Replace Battery By

This displays the scheduled battery replacement date, which is calculated based on the current date and the "Rated Battery Life" setting entered on the Configure page. If the battery is within its calculated life, the field will be green. Once the due date has passed, this field will change to blue and an email alert will be sent if enabled on the Reporting page.

Enable/Disable Button

This button will enable or disable the Battery Status section. Disable the section to prevent confusion and erroneous email alerts if the current sensor is not connected in series with the battery (Figure 3.3).

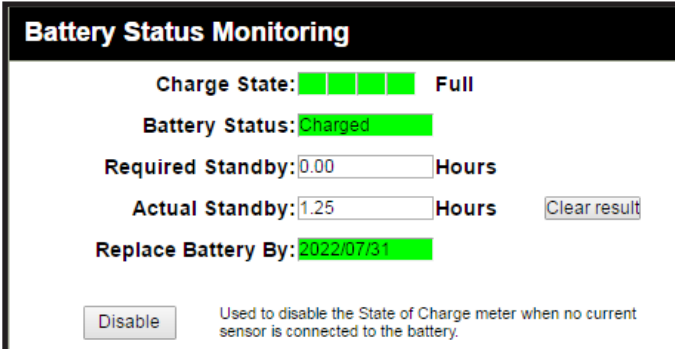


Figure 3.3 - Battery Enable / Disable Button (FPO main screen)

3.2.1.4 Battery Test

The Battery Test section allows the user to test the actual run-time of a system with the installed battery set. (Figure 3.2). This test may be run manually or may be scheduled for a one-time or repeating automated test. If email is configured on the Netlink, a report of the results can be emailed.

⚠ WARNING: During the Battery Run Time Test, the system battery will be discharged to 85% of the nominal voltage, leaving essentially 0% battery capacity should AC power be interrupted during or immediately after the test. Appropriate measures MUST be taken to ensure the security/safety of the building and its occupants during the Battery Run Time Test.

To run a test manually

- Ensure a battery set is connected to the power supply and that the Current Sensor is properly connected in line with the battery set. See Section 1.3.4 for more information on the Current Sensor. The "Enable/Disable" button in the Battery Status section must be ENABLED.
- Select whether or not you want a report emailed at the end of the test by selecting "Y" or "N" in the "Battery Test" header. Email parameters must be properly set up on the Configure page of the Netlink, or this selection will be unavailable.
- Click the "Start Manual Test" button. A warning message will appear (Figure 3.4). Click OK to begin the test.

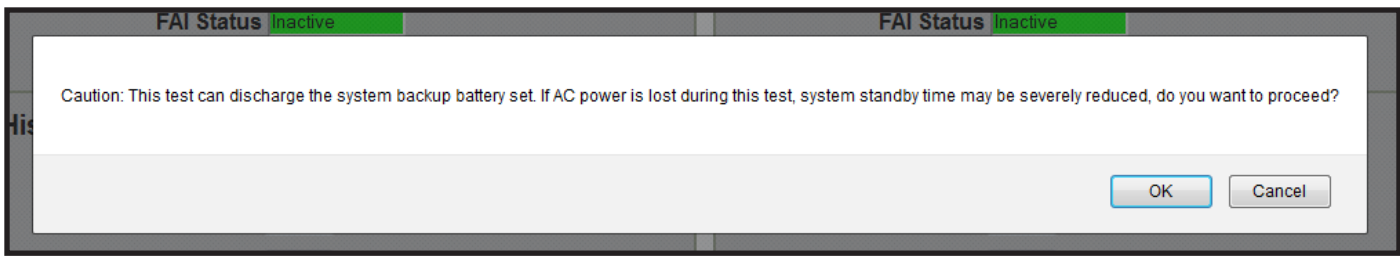


Figure 3.4 - Battery Run Time Test Warning

- While the test is in progress, there will be two messages on the page - one indicating "Battery discharging..." in the Battery Test section, and one indicating "Caution Battery test in progress. System powered by battery" in the Power System Monitoring section (See Figure 3.5)
- At the conclusion of the test, the measured battery runtime and last test date will be displayed in the Battery Test section (See Figure 3.6). The results will also be emailed if emailing is enabled.

To Schedule a Test

- Ensure a battery set is connected to the power supply and that the Current Sensor is properly connected in line with the battery set. See Section 1.3.4 for more information on the Current Sensor. The "Enable/Disable" button in the Battery Status section must be ENABLED.
- Select whether or not you want a report emailed at the end of the test by selecting "Y" or "N" in the "Battery Test" header. Email parameters must be properly set up on the Configure page of the Netlink, or this selection will be unavailable.
- Enter the Year, Month, Day, Hour, Minute, and am/pm for when you want the test to begin.
- Enter the test interval (in days) for repeating the battery test. For example, to run the test yearly, enter 365. Set to 0 for a one-time test.
- Click the "Schedule Test" Button - the Scheduled Start Time will appear.
- At the conclusion of the test, the measured battery runtime and last test date will be displayed in the Battery Test section (See Figure 3.6). The results will also be emailed if enabled.
- If the tested battery standby time is less than the Required Battery Standby entered in the Battery Settings section, an alert will be generated. (See section 3.2.1.5)

3.2.1.5 Battery Settings

The Battery Settings block is under the Battery Test block on the power supply page (See Figure 3.7). The available settings are as follows:

| | |
|---------------------------------|---|
| Required Battery Runtime | Enter the required standby time for the application. This number is only used for comparison to the measured standby time after the battery test. |
| Rated Battery Life | Enter the rated battery life or desired replacement period in years. This is used by the Netlink to calculate the Battery End-of-Life alert time. Note: The current time and date MUST be set BEFORE setting the rated battery life for proper Battery End-of-Life date calculation. |
| Rated Capacity | Enter the battery capacity of the battery connected to the FPO. This rating is used by the Netlink to approximate how much capacity is remaining in the battery (if using the current sensor to monitor battery health). |

Note: After setting the battery information, click the "Submit" button for the changes to take effect.

LifeSafety Power® **PowerCom® POWER SYSTEM MANAGER**

HOME Reporting Configure Tools admin Log Out Ver: 8.071-39

Client ID: LifeSafety Power
 SITE ID: FPO75/250-B100M8NL4E2
 Date: Fri Aug 10 2018 Time: 11:25:21

Device ID: FP-1 FPO250 Ver:3.4

| Power System Monitoring | System History |
|--------------------------------|-------------------------------------|
| Output Voltage: 13.34 VDC | AC Fault Count: 58 |
| AC Fault Status: No | System Fault Count: 137 |
| System Fault Status: No | Battery Installed Time: 12045 Hours |
| Battery Voltage: 13.28 VDC | Battery Tests Performed: 0 |
| Battery Chg Current: -0.00 Amp | Battery Tests Failed: 0 |
| FAI Status: inactive | System Installed Date: 2016/1/12 |
| FAI Latch: inactive | Total Power-up Time: 20906 Hours |

| Battery Status Monitoring | Battery Test | Email Report |
|---|------------------------|--------------|
| Charge State: Full | | |
| Battery Status: Discharging | | |
| Required Standby: 0.00 Hours | | |
| Actual Standby: 0.00 Hours | | |
| Replace Battery By: 2019/08/05 | | |
| Disable | Battery discharging... | |
| Used to disable the State of Charge meter when no current sensor is connected to the battery. | Stop Test | |

Figure 3.5 - Battery Test in Progress

Battery Test **Email Report** Y ● N ●

Schedule Test: YYYY MM DD hh mm AM PM

Repeat Test Interval: 2 Days

Start Manual Test

Last Test Date: 2017/01/11
 Low Battery

Battery Run Time: 00:51:53

Figure 3.6 - Battery Test Results

3.2.1.6 Power Supply Settings

The power supply section shows the programmable settings for the FPO power supply.

The following parameters are available:

| | |
|---|---|
| Battery Charge Selector | Select the proper battery size range for optimal charging rate. |
| AC Fault Reporting Delay | Select the desired delay for reporting an AC fault in hours, minutes, and seconds. Note that this delay will affect the AC Fault LED and relay as well as email reporting. Check your local codes regarding fault delays. |
| System Fault Reporting Delay | Select the desired delay for reporting System fault conditions in hours, minutes, and seconds. Note that this delay will affect the Sys Fault LED and relay as well as email reporting. This setting should be used with caution, as intermittent faults may be masked by a fault delay. System Fault delays should typically be kept to 5 seconds or less to prevent critical faults from being masked. Check your local codes regarding fault delays. |
| Reset Timer for New Battery Installation | Select this option after installing a new battery set in order to reset the battery replacement alert counter. The Netlink uses this counter along with the user-entered "Battery Rated Life" to calculate the next battery replacement date. See section 3.2.1.5. |
| Enter Installation Date | Enter the date the system was initially installed. This value is only for the user's information and is not used by the Netlink. |
| Reset AC and System Fault Counts | Selecting this option will reset the AC and System Fault counters. This is typically done after testing or servicing the system. |

After entering the values or selecting the appropriate options, click the "Apply" button at the bottom of the Power Supply Settings area. These settings will take effect immediately without rebooting the Netlink.

3.2.1.7 Current Sensor Calibration

The Current Sensor Calibration block is at the bottom of the power supply page (See Figure 3.7). This section allows the current sensor to be calibrated to allow the most accurate current readings.

To perform the calibration, first ensure the red and orange leads of the current sensor are disconnected and that the white cable on the current sensor is connected to the Netlink board. After the red and orange leads are disconnected, click the "Zeroing" button. A warning message will appear, reminding you to make sure the current through the sensor is zero (by disconnecting the red and orange leads on the current sensor). Click "OK", and the Netlink will self-calibrate to the current sensor. Ensure the current reading on the home page is zero (or very close to zero) before reconnecting the current sensor's red and orange leads. If the reading is not zero, repeat the calibration procedure.

| Power Supply Settings | Battery Settings |
|---|--|
| <input type="checkbox"/> Battery Charge Selector 18 to >80 Ah Battery ▾ | Required Battery Runtime: 0.00 Hours |
| <input type="checkbox"/> AC Fault Reporting Delay In 0 ▾ Hr 0 ▾ Min 0 ▾ Sec | Rated Battery Life: 3.0 Years |
| <input type="checkbox"/> System Fault Reporting Delay In 0 ▾ Hr 0 ▾ Min 0 ▾ Sec | Rated Capacity : 9.0 A-Hr |
| <input type="checkbox"/> Reset Timer for New Battery Installation | <p>"Required Battery Runtime" is only used for comparison to the battery test results and does not affect any operation of the NL/FPO. Entering battery life and battery capacity ratings allows the software to calculate the battery replacement date and create data for battery SoC meter.</p> <input type="button" value="Submit"/> |
| <input type="checkbox"/> Enter Installation Date (mm/dd/yyyy) 1 ▾ / 12 ▾ / 2016 ▾ | |
| <input type="checkbox"/> Reset AC and System Fault Counts | |
| <input type="button" value="Apply"/> <input type="button" value="Export"/> <input type="button" value="Import"/> | |
| Current Sensor Calibration | |
| Sensor Current: 0.63 Amp <input type="button" value="Zeroing"/> | |
| <p>Make sure there is no current flowing through the current sensor cable before zeroing the current sensor . Zero the sensor current after installation to calibrate sensing circuitry. See manual for proper use of current sensor.</p> | |

Figure 3.7 - Typical Power Supply Page (bottom portion)

3.3 Using the Tools Page

Clicking the Tools link at the top of the display will bring up the Tools page (See Figure 3.8). This page allows upgrading of the firmware and rebooting the Netlink board.

Figure 3.8 - The Tools Page

Upgrading Firmware

The Upgrade Firmware section is at the top left of the Tools page (See Figure 3.8). To upgrade the firmware, first ensure that the new firmware file is available on your computer, then click the "Upgrade" button and the Upgrade window will appear.

Click the "Browse..." button and locate the new firmware file with the file extension ".bin" on your computer. Once the file is selected, click the "Download" button to temporarily download the new firmware into the RAM of the Netlink board. This process will take from 30 seconds to three minutes depending on network speed and traffic, and the message box will display "Download...". Once the firmware is loaded into the Netlink's RAM, it can then be burned to the processor in the Netlink. Verify the correct file name and click the "Confirm" button to confirm the upgrade. Next click the "Burn" button to begin burning the firmware to the Netlink's processor.

⚠ Note: This process may take up to 12 minutes - **DO NOT REMOVE POWER TO THE Netlink DURING THIS PROCESS** or the Netlink will be rendered nonfunctional.

Once the update is complete, a message will appear in the message box indicating "Update Finished". The Netlink must be rebooted in order to start the new firmware.

⚠ Note: The browser history / cache should be cleared after performing the firmware upgrade and before accessing the Netlink again to prevent any cached pages from giving outdated information.

Rebooting the Netlink Board

The "Reboot" section is on the top right of the Tools page (See Figure 3.8). To reboot the Netlink, click the "Submit" button. Once the "Confirm Reboot" message appears in the Message window, click the OK button to Confirm the reboot. The rebooting process will take approximately 1-2 minutes, during which time you will lose communication with the Netlink. Communication will be restored once the blue LED lights steady.

User Notes

This section allows the user to enter notes such as service history, installation specifics, reminders, etc. Up to 1000 characters may be entered.



3.4 Understanding The Email Report

The report file sent by email by the Netlink is sent as an unformatted .CSV file. Many programs, such as Microsoft Excel, will import a .CSV file to allow viewing of the data (See Figure 3.9). Note that the fields included will vary depending on the specific system and which parameters are selected on the Reporting page.

The example in Figure 3.9 has been reformatted for better readability in Excel. The top three rows of data give the following basic information:

| | |
|-----------------------|--|
| Site ID | BGO Chicago Office - This is set in the "Site ID" setting on the Configure Page of the Netlink |
| Report Trigger | Report Period - this is a periodic status report. The frequency of the status reports is set by the "Send Period" setting in the Email Settings section of the Configure page. |
| Service Due | No - The "Next Service Due" date set on the Configure page has not been reached. |

Below the top three rows is data specific to the Netlink and any devices connected to it.

| | |
|-------------------------|--|
| Device Name | This column shows which device the associated parameter belongs to. In this example, the devices are the Netlink and FP1. |
| Device Parameter | This column shows the available parameters which are being monitored. These parameters vary depending on the device(s) connected to the Netlink. |
| Date/Time Stamp | To the right of the Parameter column are columns with date/time stamps. These columns are the data, measured hourly at the dates and times listed. The number of columns displayed is set by the "Select Occurrences to Report" setting on the Reporting page. |

| | A | B | C | D | E | F | G |
|----|-------------------------------|------------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 1 | Site ID | BGO Chicago Office | | | | | |
| 2 | | | | | | | |
| 3 | Report trigger: report period | | | | | | |
| 4 | | | | | | | |
| 5 | Service due | no | | | | | |
| 6 | | | | | | | |
| 7 | Device name | Device parameter | Wed Jul 10 2013 09:00:00 | Wed Jul 10 2013 08:00:00 | Wed Jul 10 2013 07:00:03 | Wed Jul 10 2013 06:00:02 | Wed Jul 10 2013 05:00:01 |
| 8 | | | | | | | |
| 9 | Netlink | Cabinet internal temperature | 87.83 Deg.F | 87.83 Deg.F | 87.83 Deg.F | 94.74 Deg.F | 96.46 Deg.F |
| 10 | | | | | | | |
| 11 | FP1 | Model number | FPO250-200 | FPO250-200 | FPO250-200 | FPO250-200 | FPO250-200 |
| 12 | | | | | | | |
| 13 | FP1 | System fault status | No | No | No | No | No |
| 14 | | | | | | | |
| 15 | FP1 | AC fault status | No | No | No | No | No |
| 16 | | | | | | | |
| 17 | FP1 | FAI status | Active | Active | Active | Active | Active |
| 18 | | | | | | | |
| 19 | FP1 | Output latching on FAI | Inactive | Inactive | Inactive | Inactive | Inactive |
| 20 | | | | | | | |
| 21 | FP1 | Output voltage | 12.46 Volts | 12.46 Volts | 12.46 Volts | 12.46 Volts | 12.46 Volts |
| 22 | | | | | | | |
| 23 | FP1 | Battery voltage | 13.84 Volts | 13.81 Volts | 13.81 Volts | 13.78 Volts | 13.81 Volts |
| 24 | | | | | | | |
| 25 | FP1 | Battery charger current | 0.00 Amps | -0.00 Amps | -0.00 Amps | -0.00 Amps | -0.00 Amps |
| 26 | | | | | | | |
| 27 | FP1 | Total power-up time | 12469 Hours | 12468 Hours | 12467 Hours | 12466 Hours | 12465 Hours |
| 28 | | | | | | | |
| 29 | FP1 | Battery installed time | 12263 Hours | 12262 Hours | 12261 Hours | 12260 Hours | 12259 Hours |
| 30 | | | | | | | |
| 31 | FP1 | # of AC faults detected | 133 | 133 | 133 | 133 | 133 |
| 32 | | | | | | | |
| 33 | FP1 | # of system faults detected | 106 | 106 | 106 | 106 | 106 |

Figure 3.9 - Example Email Report CSV File

Appendix 1 – Software Agreement

LIFESAFETY POWER INC. SOFTWARE LICENSE AGREEMENT AND WARRANTY STATEMENT

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Appendix 2 – NS2 Board

The following pages cover the NS2 for use with the NetLink module in FPA AC output systems.

A2.1 Mounting the NS2 Output Controller Accessory

Use the following procedure when mounting an NS2 Output Controller Accessory to a LifeSafety Power enclosure.

1. Locate the appropriate mounting holes in the enclosure and snap the four standoffs provided into the holes.
2. Align the board mounting holes (mounting hole locations are indicated in the drawing below) with the standoffs and snap the board onto the standoffs. Be sure the board is properly oriented before snapping the board onto the standoffs.

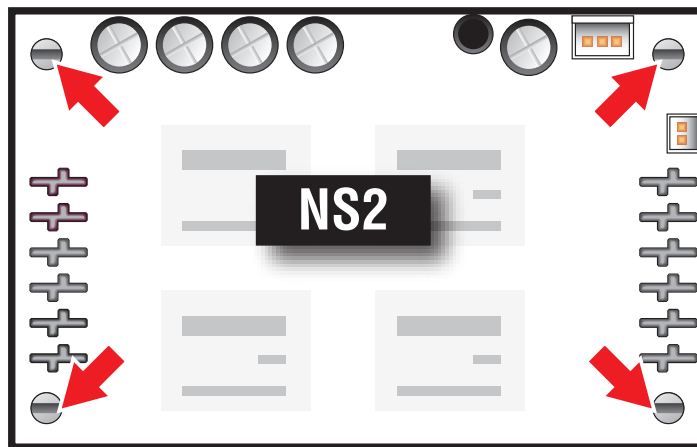
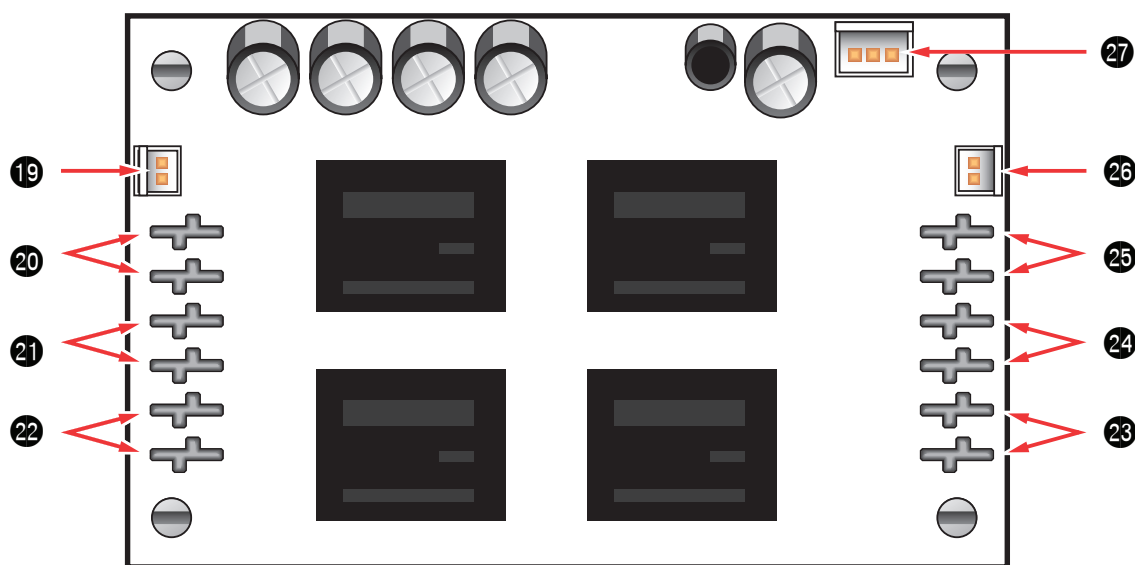


Figure A2.1



A2.2 NS2 Module Overview



19 NS2 - ADC Output (ADC1 & ADC2)

This connector provides voltage outputs for measurement by the Netlink board, indicating presence of voltage on SB1-1 and SB1-2. Using the supplied cable, this connects to the ADC Input of the Netlink board (J15). The voltages indicated are not accurate and are only for indication of presence of voltage. Place jumper J9 on the Netlink board ON when using this output.

20 NS2 - Buss Inputs - Power Source 1 (B1-1 & B2-1)

These faston connectors are the B1 and B2 power inputs to the NS2 for power source #1. Typically, in a LifeSafety Power FPA system, this would be the blue and orange wires from Transformer #1. The power return (brown wire in an FPA System) connects to the BR1 faston - See #20.

21 NS2 - Buss Inputs - Power Source 2 (B1-2 & B2-2)

These faston connectors are the B1 and B2 power inputs to the NS2 for power source #2. Typically, in a LifeSafety Power FPA system, this would be the blue and orange wires from Transformer #2. The power return (brown wire in an FPA System) connects to the BR2 faston - See #20.

22 NS2 - Buss Inputs - Power Returns (BR1 & BR 2)

These are the power returns for the Buss Inputs. See #18 and #19. Typically, in a LifeSafety Power FPA system, these would connect to the brown secondary wires of the transformers.

23 NS2 - Buss Outputs - Power Returns (SBR1 & SBR2)

These are the switched power returns out to the BR terminals of the A8 distribution boards in a LifeSafety Power FPA system.

24 NS2 - Buss Outputs - Power Source 2 (SB1-2 & SB2-2)

These are the switched B1 and B2 outputs from power source 2. When the control output #2 of the Netlink board is activated, power will be removed from these outputs. Typically, these are connected to the B1 and B2 inputs of the A8 distribution boards in a LifeSafety power FPA system. The BR of the A8 connects to the SBR2 faston - See #21.

25 NS2 - Buss Outputs - Power Source 1 (SB1-1 & SB2-1)

These are the switched B1 and B2 outputs from power source 1. When the control output #1 of the Netlink board is activated, power will be removed from these outputs. Typically, these are connected to the B1 and B2 inputs of the A8 distribution boards in a LifeSafety power FPA system. The BR of the A8 connects to the SBR1 faston - See #21.

26 NS2 - Control Inputs (J9)

This is the control input from the Netlink board, allowing control of the power to the outputs via the Netlink's web interface. Using the cable with two 2-pin plugs, connect between this connector and J10 on the Netlink board - See #13 in Section 1.2.

27 NS2 - Netlink Power Output (+12V-)

This is the power output for powering the Netlink board in an AC-only system. The NS2 converts AC power from the buss inputs to regulated DC power for the Netlink board. Using the supplied cable, connect this connector to the V+/V- input of the Netlink.

A2.3 Wiring the NS2

1.3.8 NetLink Power Connection

In an AC system, power to the Netlink board MUST be supplied by an NS2 board, which is sold separately. The NS2 board converts the AC power from the low voltage transformer to DC voltage for powering the Netlink board. (Figure A2.2)

Use the cable with the three pin connector at one end and two faston connectors at the other end to make the connection. The three-pin connector plugs into the "+12-" connector (J1) on the NS2 board. The female fastons at the other end of the cable plug into the INPUT (V+ & V-) male fastons on the Netlink board. (Figure A2.2)

1.3.8 Connecting the ADC (Voltmeter) Input

When using an NS2 board with the Netlink, connect one end of the ADC cable to the Netlink's ADC input and the other end of the ADC cable to the ADC1/ADC2 connector on the NS2 board.

1.3.8 Wiring the Control Outputs

When using an NS2 board with the Netlink, connect one end of the Control Output cable to the Netlink's control output and the other end of the Control output cable to the NS2's Control Input (J9).

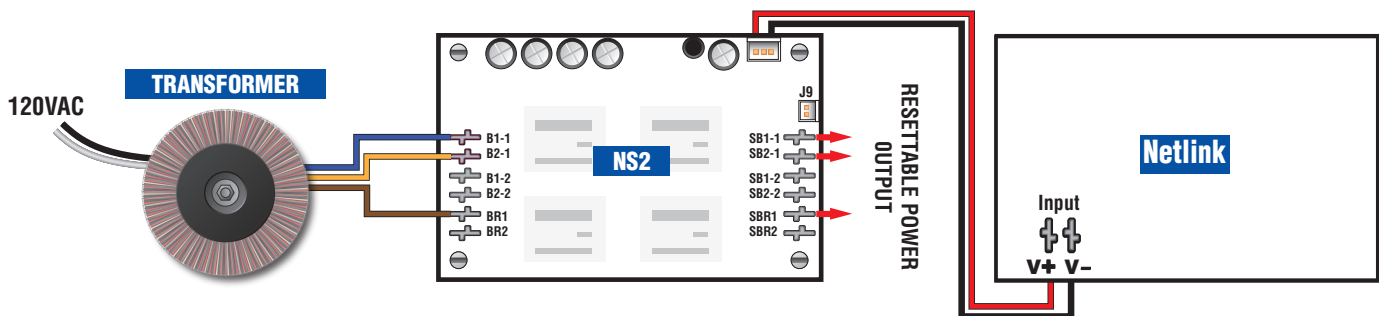


Figure A2.2 - Powering a Netlink in an AC System using an NS2 board



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