



Site Power Monitor

Installation/Operation Manual

Model: SPM-200



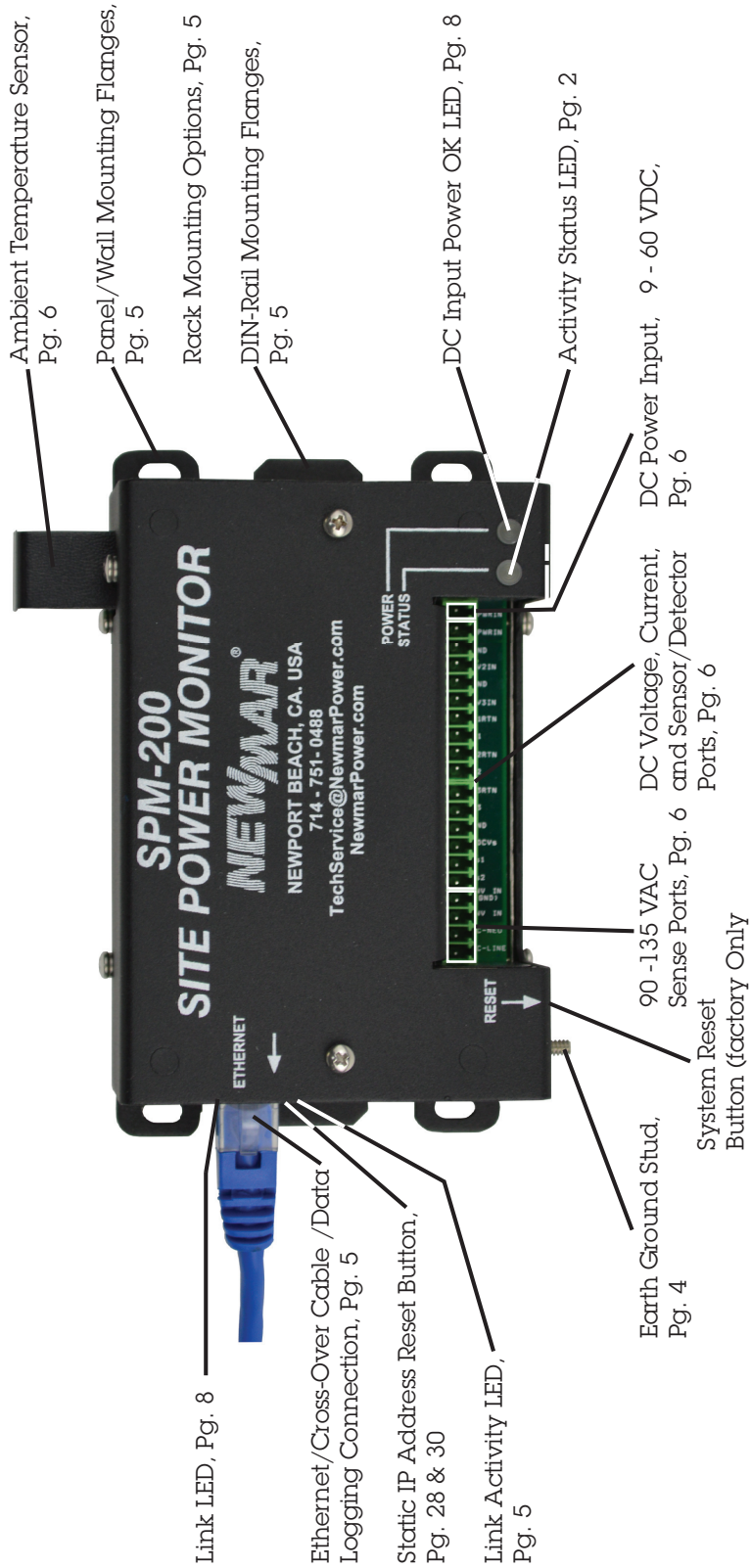
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1.0 Quick Reference Guide

Firmware Update Access: Check www.newmarpower.com/Site_Power_Monitor/Rev_C_Firmware_Update/Firmware.html for firmware updates. See page 19 for details.



2.0 Overview

2.1 General Description

Your NEWMAR Site Power Monitor, model SPM-200, web-enables and integrates intelligence to any site's AC and DC power system for 24/7 monitoring, alarm condition notification, and data logging of vital electrical functions. All sensor inputs are programmable, accessible, and managed via the Internet: TCP/IP or SNMP. View current conditions and log 30 day history of DC and AC power status at remote sites before dispatching personnel.

The SPM-200 is designed specifically for monitoring power supplies, rectifiers, batteries, converters, inverters, UPS, power distribution panels, and AC power at communication sites, base stations, outdoor enclosures and command vehicles via Ethernet or Wireless connection. The unit can be rack, DIN-rail, or wall mounted and is easily adapted to virtually any make of power system via nine sensor input ports which capture and stream critical data via the internet for analysis and logging of site history. Web page based programs are easily user configured for site parameters with up to 50 desired alarm conditions settings and multiple automatic notification options by e-mail, PDA, and mobile phone via text messaging.

Sites without internet access can use the monitor solely as a data logging instrument that captures and retains a 30 day history file, ready for download to a spread sheet on a lap top computer during maintenance visits for recording site history and analysis of component performance and failure conditions.

2.15 Front Panel LED Indicators

Status: Flashes on when polling sensor inputs. Approximated once every 5 seconds.

Power: Illuminates when DC input power is present

2.2 Sensor Inputs

In addition to a built-in temperature sensor, the SPM offers the following 9 sensor ports:

2.2.1 Voltage

DC: 3 Ports:

- 2 each 0 to +40 VDC (Negative Ground), typically +6, +12, +24V systems
- 1 each 30-60 VDC (Positive Ground), typically -48V systems

CAUTION: If you intend to power -48 VDC **AND** monitor -48 VDC, input power **must** come from an isolated DC converter. If you need one, we will provide it free of charge. Contact NEWMAR: 800-854-3906 or E-Mail: Techservice@newmarpower.com and request model: **48-12-1i Kit**

- Accuracy \pm 3%

AC: 2 Ports:

- 90-264 VAC utility power (L-N Single Phase) Floating
- 90-135 VAC inverter output, Single Phase

Note: This input can be used to monitor a second utility or generator source providing it's a Line to Neutral source with grounded Neutral which must be connected to "INV IN (GND)" Terminal # 4

WARNING! Inverter GND terminal 4 is common to all SPM grounds and returns.

- Accuracy \pm 5%

DC: 1 Port:

- 100 amp/100mV differential shunt voltage (shunt included)
- Accuracy \pm 5% (offset available)

2.2.2 Current & Switch Inputs

DC: 1 Port:

- 100 amp/100mV differential shunt voltage (shunt included)
- Read battery charge/discharge (-) current, or load current

Dry Contact Switch Inputs: 3 ports

- Possible uses: voltage loss, door open, water leak detection, smoke alarm, component failure, breaker trip, high temperature, etc.



2.2.3 Ambient Temperature Sensor

This sensor is located on the top right hand side corner of the SPM-200 when vertically mounted and senses ambient temperature. A protective guard prevents damage to the exposed sensor.

Sensor Range: -20° C to +60° C / -4° F to +140° F

Accuracy: +/- 0.5° C

See section 5.1 SPM-200 Web page overview pages 17 and 18 for more information on setting Temperature unit (°C or °F) and Internal Temperature offset.

2.3 System Requirements

To enable the full remote access feature requires:

- Ethernet connectivity via RJ-45 plug, 100 BaseT
- Static IP address
- SNMP manager software. SPM-200 supports V2c

2.4 Materials Provided

The following items are provided with the SPM-200:

Qty (1) Screwdriver

(1) Installation/Operation Manual (CD-ROM) and short form.

(4) 1 Amp In-Line Fuse Assembly, P/N: 563-0498-0

(4) ACG-1 Fuse, P/N: 554-0100-0

(1) 100A/100mV shunt, P/N: 575-2000-0

(6) # 8 Sheet Metal, SS, Pan Head Screws, 1". Phillips, P/N: 730-0816-2 (Mount SPM and Shunt)

(2) DIN-rail (35mm) End Clamps, P/N: 701-0040-0

(1) CAT .5 Cross-Over Cable, P/N: 873-0048-0 (use with laptop or PC for set-up)

(2) 10 Position Pluggable Terminal Blocks (color coded)

2.5 Optional Accessories

The following materials are optional (not provided) and are available through NEWMAR. Please reference part number when ordering.

- Rack Mounting Kit, model: RM-SPM – 19 or 23", P/N: 020-5091-0
- 48 VDC to 12 VDC Isolated DC Converter, model: 48-12-li

3.0 Installation

3.1 Mechanical

There are 3 methods of mounting: Wall, DIN-rail, and Rack. Regardless of method, please observe the following: free air flow (away from other equipments' hot air exhaust so that the temperature sensor reads accurately). Indoor installation only! No exposure to rain, spray, or moisture. Plan your wire routing when considering location.

Option A: Wall, Panel, or Inside Enclosure Mounting

The SPM can be mounted on any flat secure surface (wall or tray) using screws through the four holes on the mounting tabs (#8 screws recommended). Orientation should provide access to the front panel terminal block.

Option B: DIN-rail Mounting

The chassis supports DIN mounting via a 35mm rail at least 8 inches long. Installer needs to provide DIN-rail. Two DIN-rail end clamps, P/N: 701-0040-0 provided.

Option C: Rack Mounting

The unit can be rack mounted with Newmar optional 19" or 23" rack mounting kit, 2 RU (3.5 inches) tall, model RM-SPM, P/N: 020-5091-0.


3.2 Wiring

Connections for both power and sensor inputs are made to the pluggable terminal block which can be found in the accessory bag (qty. 2, 10 positions). Each terminal block is color coded and labeled with the terminal positions, and a matching colored label with terminal positions can be found on the mating connector on the front panel of the SPM-200 to simplify wiring. The pluggable terminal block will accommodate 14-28 AWG wire size:

ORANGE: Pos. # 1-10

BLUE: Pos. # 11-20

Make your wire connections to the pluggable terminal block first and then plug it into the mating connector on the SPM-200 being careful to match the terminal numbers on the terminal block with the mating connector. A small insulated screw driver has been provided to ease the connection process. Do not over-tighten screws. Be sure to strip at least 1/4" of the insulation off the wires and fully insert them before tightening screws. Tinning the wire strands before inserting into the terminal block is recommended for larger wire.

 **WARNING:** All un-grounded voltage inputs to the SPM must be fused with 1 amp in-line fuses, except for the A1, A2, and A3 switch inputs (floating contact), and the Is1 and Is2 shunt input (terminals 5 & 6). All returns and GROUND on the SPM are common with the -V DC input terminal.

 **CAUTION:** Do not make connections to the SPM with the power on, or with any live AC or DC sources!

Refer to FIGURE 1 and 2 for details on the following steps. Each terminal block position has a reference number 9 abbreviated ID, and full description (see TABLE 1).

 **CAUTION: Chassis Ground Stud:** Connect to earth ground first! Stud size: #6-32

 **CAUTION:** If you intend to power -48 VDC **AND** monitor -48 VDC, input power **must** come from an isolated DC converter. If you need one, we will provide it free of charge. Contact Newmar: 800-854-3906 or E-mail: techservice@newmarpower.com and request model: **48-12-1i**

3.2.1 DC Operating Power Input 9 - 60 VDC

Connect using 14-24 AWG wire. Connect your main DC power source to the -V and +V terminals being careful to observe proper polarity. A 1 amp fast blow fuse on the +V input is recommended for protection. The SPM draws approximately 100 mA max.

3.2.2 DC Voltage Monitor Ports

There are three ports total that monitor DC voltage. Two are rated for 0-40 VDC input, (terminals 15-16 and 17-18) and a third, (terminals 7-8) with inverse ground reference rated for 30-60 VDC input, intended primarily for neg. 48 volt telecom system use. Note all DC sense voltage ties to the SPM must share a common ground with the DC power source. CAUTION: If you intend to power -48 VDC AND monitor -48 VDC, input power must come from an isolated DC converter. If you need one, we will provide it free of charge. Contact Newmar 800-854-3906 or E-mail: techservice@newmarpower.com and request model: 48-12-1i

3.2.3 DC Current

Terminals 5 & 6 (Is1 and Is2) A 0-100mV DC shunt input and shunt are provided for measuring DC current (not provided) Shunt can measure load current, rectifier current, battery current (charge and discharge), depending on where the shunt is installed in the power distribution system. Use twisted pair wires for best results and steady noise free readings. Install shunt in positive or negative lead. Polarity of the shunt output can be swapped to achieve desired positive or negative current flow indication.

3.2.4 Dry Contact Switch Sensors

Terminals 9-10, 11-12, 13-14. Connect up to three devices with switched alarm contacts (N/C or N/O) between A1 and A1 RTN. Assign user-friendly names on Display Tab on monitor that describe the specific functions of each circuit. Some examples include: Magnetic Door Switch, Rectifier Alarms, Smoke Alarms, Battery Temp Alarms, loss of voltage, contact relay closure, etc. Multiple switches can be installed in series, or paralleled in a string to a single input to the SPM.

3.2.5 AC Voltage Monitoring

Two ports are available for monitoring AC voltage sources: One for Utility line power, and a second for an auxiliary/back up source such as generator or inverter with floating output.

Utility power: Connect AC voltage Line and Neutral to these input terminals 1 & 2. To measure and log AC voltages from 90-264 VAC, 47-63Hz. Fuse the Line side (hot) with a 1 amp fast blow fuse (provided).

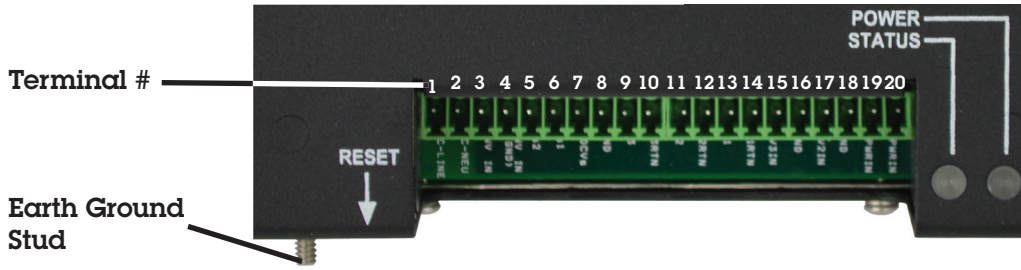
Auxiliary power: Connect to inverter output to measure a secondary AC source of 90-135 VAC, terminals 3 & 4. Fuse the line side (Hot) with a 1 amp fast blow fuse. Note: This input can be used to monitor a second utility or generator source providing it's a Line to Neutral source with grounded Neutral which must be connected to "INV IN (GND)", Terminal #4

CAUTION: Never connect the line side (Hot) of an AC source to INV IN (GND) or any RTN terminal on the SPM.

3.2.6 Ethernet Connection

Remote monitoring requires Ethernet connection via RJ 45 jack. If using SPM-200 as a data logger only, this is also where the CSV file is extracted. Plug into the port on left side of unit. The right hand side LED on jack will illuminate GREEN and then start flashing to indicate good connection and activity. The left hand side LED will only illuminate (AMBER/YELLOW) to indicate the RJ45 reset button has been held in long enough to cause a 'reset IP to Factory' settings. The SPM-200 requires a 100BaseT connection.

FIGURE and TABLE 1: Input Terminal Block Assignments



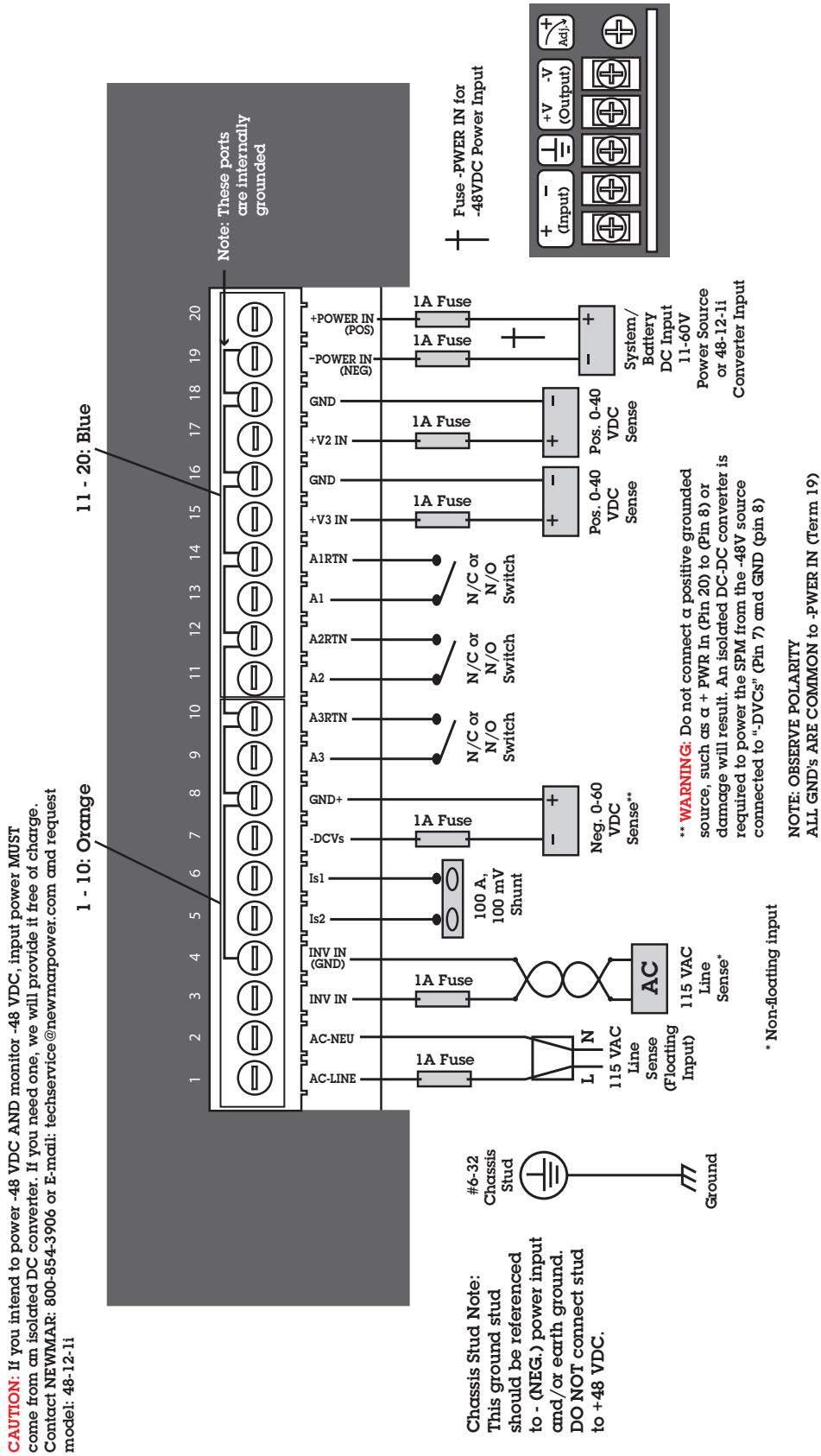
Terminal#	Board ID	Function/Description	Default Webpage ID
1	AC-LINE	Measure AC utility power, 90 to 264 VAC. This input is isolated from all other inputs.	Line Voltage
2	AC-NEU		
3	INVIN	Measures a floating AC sources like an inverter, 90 to 135 VAC. INV IN (GND) is common to all GND and RTN and -PWR IN.	Inverter Voltage
4	INVIN(GND)*		
5	Is 2	Measures DC voltages across a 100mV/100A current shunt. Is1 and Is2 inputs may be referenced to either (+) or (-) and/or RTN/GND. 60 volt max common mode and 100mV differential input	Shunt Current
6	Is 1		
7	-DCVs	Measures a negative voltage with reference to GND/RTN. -30 to -60 VDC.***	- Volts DC 3
8	GND*		
9	A3	Measures a relay or switch contact closure. Short across inputs will indicate CLOSE. Open circuit is OPEN.	Contact 3
10	A3RTN*		
11	A2	Measures a relay or switch contact closure. Short across inputs will indicate CLOSE. Open circuit is OPEN.	Contact 2
12	A2RTN*		
13	A1	Measures a relay or switch contact closure. Short across inputs will indicate CLOSE. Open circuit is OPEN.	Contact 1
14	A1RTN*		
15	+V3IN	Measures a positive DC voltage, 0 to 40 volts with reference to GND/RTN.	Volts DC 2
16	GND*		
17	+V2IN	Measures a positive DC voltage, 0 to 40 volts with reference to GND/RTN.	Volts DC 1
18	GND*		
19	-PWRIN*	SPM-200 input power, 9 to 60 VDC, maybe powered directly from "Negative Ground" system only.**	(N/A)
20	+PWRIN		

*** CAUTION: Common to all input grounds and returns.**

**** Neg. DCV is not compatible with input voltages that are positive with respect to pin 8 GROUND. CAUTION: If you intend to power from -48 VDC AND monitor -48 VDC, input power must come from an isolated DC converter. If you need one, we will provide it free of charge. Contact NEWMAR: 800-854-3906 or E-mail: techservice@newmarpower.com and request model: 48-12-1i**

***** Positive ground inputs only (-48VDC)**

FIGURE 2: Simplified Install Wiring Guide



4.0 SET-UP MONITORING & DATA LOGGING

The SPM-200 Power Monitor does the following:

- Displays the current values of the temperature, 3 DC voltages and 2 AC voltages, 1 DC current value and 3 contact closures. The temperature can be displayed in Celsius or Fahrenheit.
- Allows the user to set multiple alarms on each of the measurements above. The alarms can be set to go off if the voltage or current exceeds some value or falls below some other values. Alarms can be set to go off if one of the contact closures goes from closed to open or vice versa. Multiple alarm thresholds can be set on each measurement
- Sends email(s) to one or more address(es) if an alarm is tripped. Text messages can also be generated. Emails can be sent to different addresses depending on which threshold has been crossed. For example, an email can be sent to the first responder's address when the voltage falls below 100V. If the voltage drops below 90V an email can be sent to the second level responder. Additionally SNMP traps can be generated when an alarm is triggered.
- Logs data from all the inputs. The log holds data from all the inputs for the last thirty days. The user can request that one or more inputs be graphed over a certain time period. The user can request the entire log be downloaded in CSV format, which can be read by Microsoft Excel or similar analysis software.

4.1 Basic Software Setup

4.1.1 Initial Setup

This section will show how to do an initial setup of a new SPM-200. The easiest way to do this is to connect a laptop or some other PC directly to the unit to set the basic parameters.

As shipped from the Factory the SPM's network interface is configured as follows:

- IP Address: 192.168.1.123
- Netmask: 255.255.255.0
- Default gateway: 192.168.1.1

To do the initial setup you must connect a laptop or a PC to the SPM using the Ethernet crossover cable supplied with the SPM, and configure the PC's network card to match the SPM's settings. The following steps will guide you through the process. (Note: you **must** use the supplied crossover cable, a regular Ethernet cable **will not work**).

- 1) Power the SPM with a DC 12, 24 or -48V source "wall wart" or other power supply. CAUTION: if you intend to power the SPM from -48VDC power AND monitor a -48VDC supply the input power **MUST** come from an isolated DC-DC converter. Newmar will supply a suitable converter free of charge – contact Newmar at 800-854-3906 or e-mail techservice@newmarpower.com and request model: 48-12-li.
- 2) The green power indicator should illuminate. Soon after powering the green status indicator will began blinking periodically.
- 3) Connect the SPM to a PC or laptop using the Ethernet crossover cable provided with the unit (P/N 873-0048-0.)
- 4) The unit has now been connected to the PC – the next step is to configure the PC's network interface card (NIC) to talk to the SPM.

4.1.2 NIC Setup

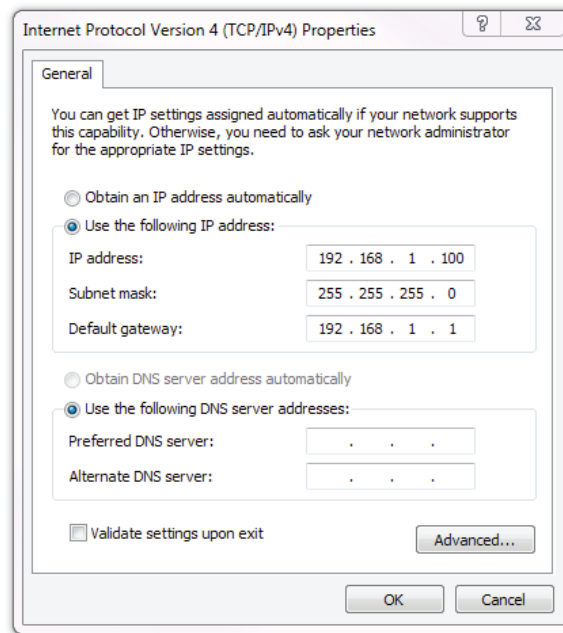
The following instructions describe the process in Windows XP. Earlier versions of Windows and Windows 7 follow a similar procedure. If you are using some other operating system please consult your users' manual for instructions on how to set up the network interface card.

1. Click on the Start button.
2. Select the Control Panel. If the control panel is not an option you may need to choose Settings → Control Panel.
3. Click on the Network Connections icon.
4. You should now see one or more icons that represent network cards/net adapters installed on your system. Choose the network card that you connected to the SPM and right click it, and select Properties.
5. Find and double-click Internet Protocol (TCP/IP) version 4 icon. This opens a window that shows your current network card settings. It should be similar to the window shown in figure 3. Make a note of the current settings, so that they can be restored later.
6. Ensure that "Use the following IP address" is selected and enter the following settings in the appropriate fields.

IP Address: 192.168.1.100
Subnet Mask: 255.255.255.0
Gateway: 192.168.1.1

7. Leave the DNS fields blank for now. Click the OK button on the TCP/IP window to save the changes. Then click OK on the Local Area Connection window to finalize the process.

FIGURE 3: NIC Settings for Unit at Default IP



Once you have configured your network card to access the SPM, open your web browser and type <http://192.168.1.123> into the address bar. You should get a page which looks similar to this, see FIGURE 4:

FIGURE 4: SPM-200 Homepage (Un-Configured Unit) Using Chrome Browser



Newmar SPM200 Home

Sensors

Alarms

Cameras

Display

Config

Help

NEWMAR
Monitoring the Network

SPM200 NWS-V1.04b
25-Nov-2014 12:17:42
192.168.1.175

2 ALARMS TRIPPED

NewMar™ Web Server for SPM200

Info

Welcome to the Newmar Site Power Monitor.

Access to the pages on this site is protected by three levels of password protection; Administrator, Control, and View Only. The Sensors and Camera pages are View Only protected, and the Alarms and Display pages require Control level access. All site pages are accessible with Administrator privileges.

All usernames and passwords changes require Administrator access. Please contact the site administrator below if access is required and denied.

Admin Name: Site Admin

Admin Email: tech@newmarpower.com

Admin Phone: 714-751-0488

Device ID: 28CA3474060000A2

If you don't see the above webpage, check to make sure

- the green power light is lit
- the Link indicator on the Ethernet jack is lit
- the PC and the SPM are connected with the crossover cable
- You have correctly set the NIC in the PC

The unit name in the upper right hand side: "Newmar SPM" is also a default and can be replaced with whatever you choose.

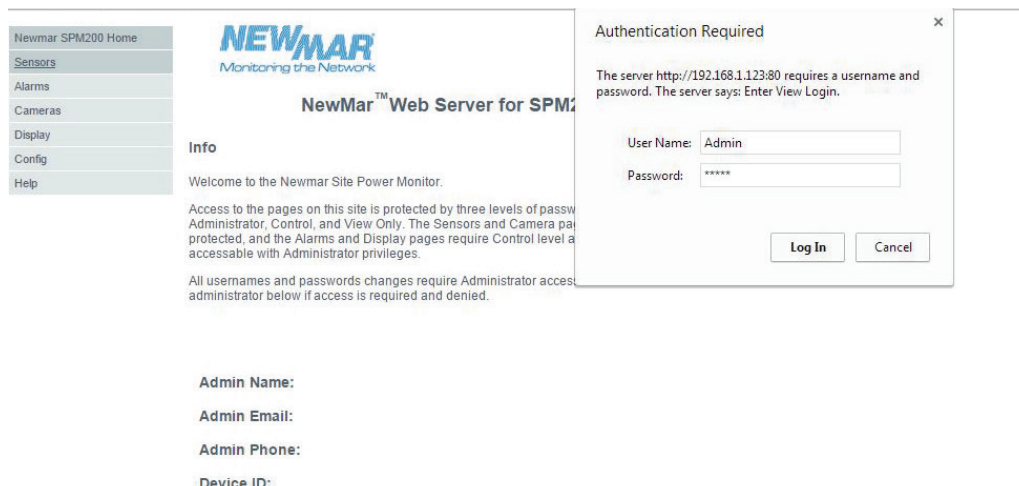
You have now successfully connected a local PC to the SPM and displayed the initial home web page. You have proved that your SPM-200 is functional and that you can connect to it with a web browser. The next parts of the manual will cover how to set up the SPM so it can be accessed over the Internet, and how to further configure the SPM. Multiple unit tip: if configuring multiple SPM-200s with the same settings, we recommend downloading a macro application that auto fills the web browser fields automatically like iMacros from Chrome. To download application, here is the Google shortened URL goo.gl/Vfq3lv (type URL exactly as shown).

Factory Default User Name & Password:

User Name: Admin, **Password:** admin

See Section 5.4 'Setting Account Name & Passwords' for information on account settings.

Figure 5: Factory Default User and Password



Newmar SPM200 Home

Sensors

Alarms

Cameras

Display

Config

Help

NEWMAR
Monitoring the Network

NewMar™ Web Server for SPM200

Info

Welcome to the Newmar Site Power Monitor.

Access to the pages on this site is protected by three levels of password protection; Administrator, Control, and View Only. The Sensors and Camera pages are View Only protected, and the Alarms and Display pages require Control level access. All site pages are accessible with Administrator privileges.

All usernames and passwords changes require Administrator access. Please contact the site administrator below if access is required and denied.

Admin Name:

Admin Email:

Admin Phone:

Device ID:

Authentication Required

The server http://192.168.1.123:80 requires a username and password. The server says: Enter View Login.

User Name: Admin

Password: *****

Log In Cancel

4.1.3 Setting the Clock

This section covers setting the clock and configuring your SPM to connect over a network. NOTE: If you don't have a network to connect to, the SPM-200 can be used as a simple data logger with a Web interface. The only item that you must set is the clock, as described below. To set the clock, place cursor over 'config' and select 'System Clocks' from the drop down menu.

FIGURE 6: Setting the Clock

The screenshot shows the Newmar SPM200 web interface. On the left is a navigation menu with items: Newmar SPM200 Home, Sensors, Alarms, Cameras, Display, Config (highlighted), and Help. The main content area is titled 'Configuration' and contains a section for 'System Clocks'. The settings are as follows:

Set Clock Method	Manual Local ▼
GMT offset (+/-)hh:mm	-00:00
Current Time (mm/dd/yy hh:mm:ss)	11/25/14 12:26:10
NTP Primary Server	192.43.244.18
NTP Secondary Server	129.6.15.28
Sync to NTP period (sec)	21600

Below the settings, there is a warning: 'Saving this page will force any logged data to be cleared. Download the logs on the Logging page to save any current data.' At the bottom of the configuration area is a 'Save' button.

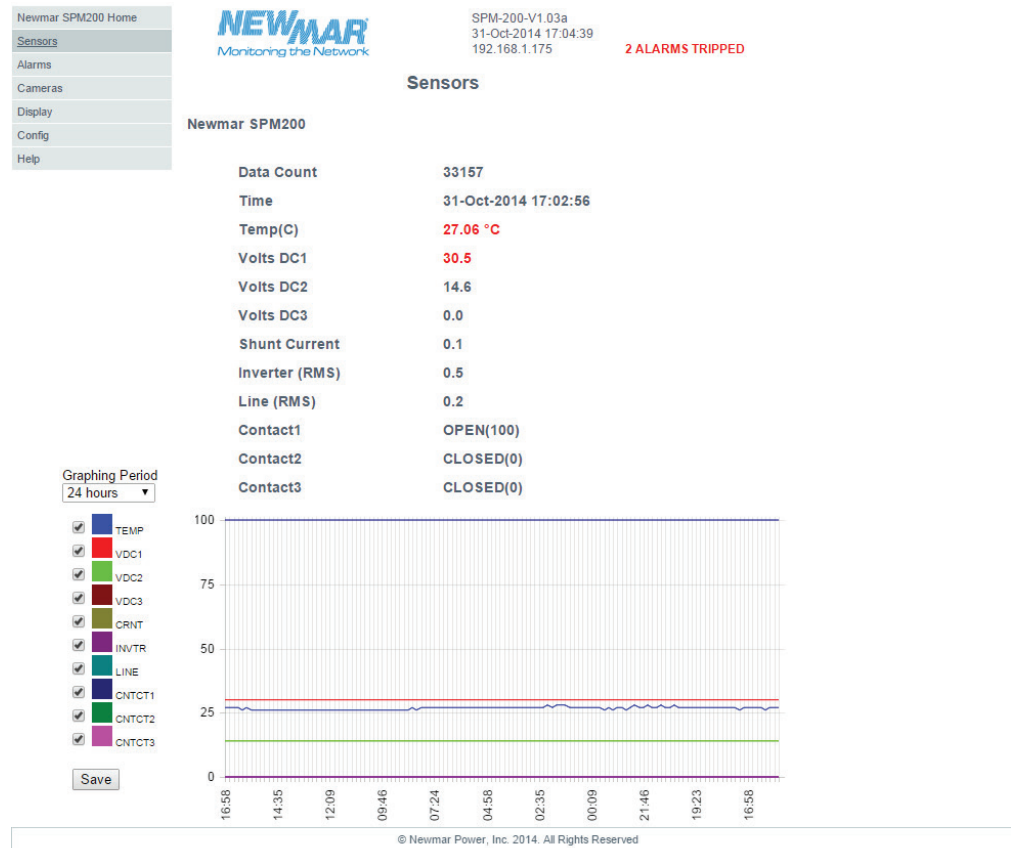
Select "Manual -GMT" in the "Set Clock Method" pulldown. Enter the date and time in the appropriate boxes. The box asks for the time in GMT, and the offset from GMT for your local area. That is not necessary if you are setting the clock manually. Just set the local date and time and put "0:00" as the GMT to local offset. Be sure to click "Save" when you are done. The date and time should then be displayed at the top of each page, and the SPM will begin logging data.

Note: The SPM will not adjust for Daylight Savings Time; you have to do that manually. It is also possible for the SPM to determine the correct time from an NTP server if one is available. Since the SPM is not connected to a real network that won't work now.

5.0 SPM-200 Web Page Overview

The **Sensors** Page shows the current value of all the inputs to the SPM. A Sensors Page from an SPM that has been running a while is shown on the following page, see FIGURE 8:

FIGURE 7: SPM-200 Sensors (Unconfigured Unit)



This page allows the user to select data inputs and graph them over a chosen time period. The graph can show data over ranges in time from the last 10 minutes to the last 30 days. The user can select any combination of the inputs to be graphed. At the bottom of the page is shown the maximum length of the log, in this case 30.3 days. That means if the SPM-200 has enough room in its memory to store data over that time. The memory is set up as a circular buffer - if the SPM-200 has run for more than that time, new data will replace the old on a first in - first out (FIFO) basis.

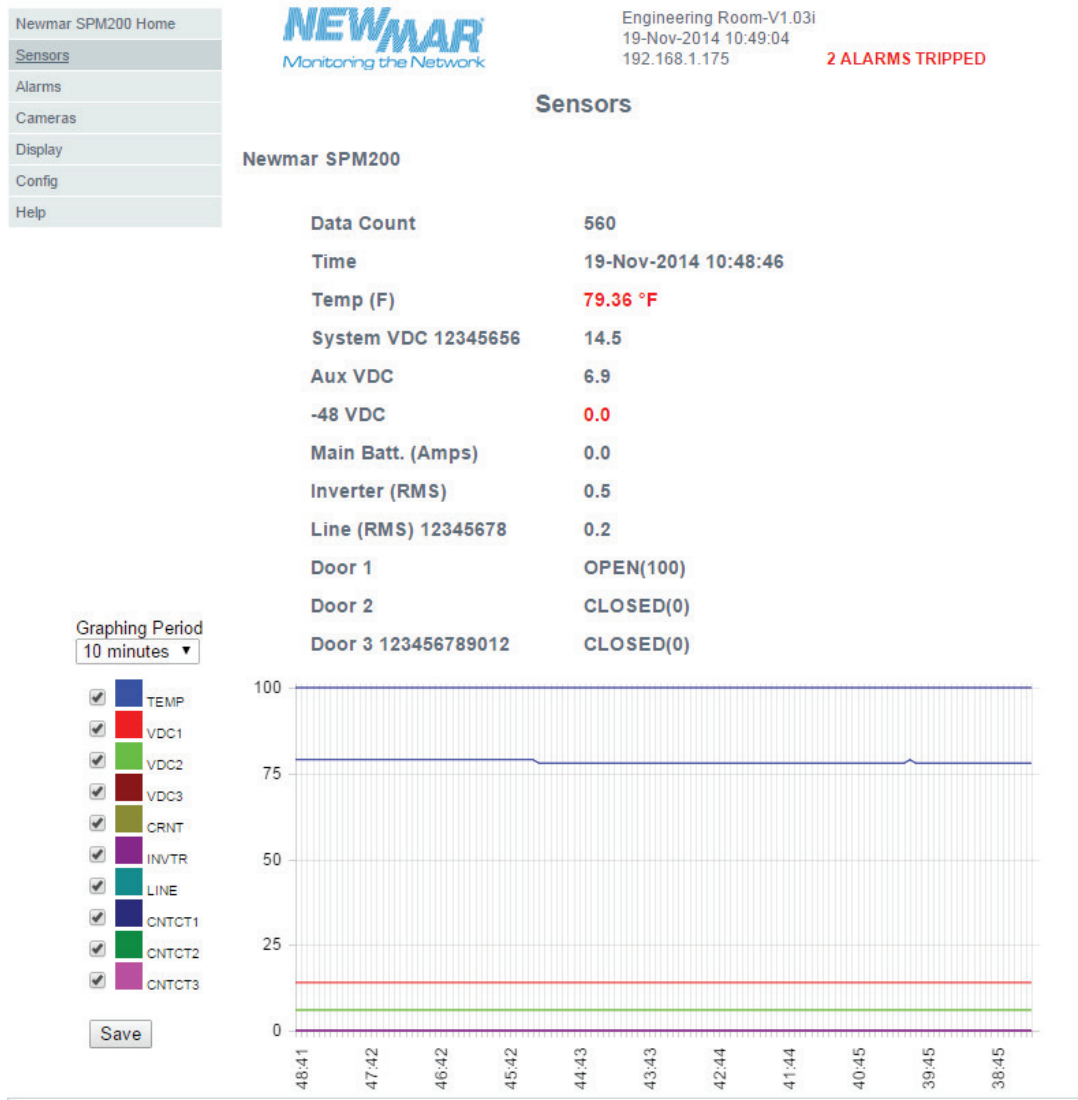
When you change the graphing periods, it will automatically update the graph.

If for some reason you want to delete all the data that is in memory, check the **"Reset Logs"** box. Caution - there is no way to recover the data after the reset button is checked.

The check boxes only control what data is being graphed, not what is being logged. The SPM-200 always logs the data from all the inputs. The data can be downloaded to a PC or a similar machine in Comma Separated Value (CSV) format. CSV is a very simple and general way to store data in a file. Most analysis programs, such as Microsoft Excel®, can read CSV data. So you can download all the data in memory and analyze it with Excel®.

Again, don't forget to click the "Save" button.

FIGURE 8: SPM-200 Sensors (Configured Unit)



Note that the default names on the previous illustration have been replaced by names that are more meaningful in this installation. Some other configuration variables have been changed, such as the temperature units. Temperature can be displayed in Fahrenheit or Celsius, whichever you choose. The clock has been set.

This unit has been running for a while, so it displays a graph of all the data. This graph is configurable; it always shows all the data.

Note that '2 Alarms Tripped' appears at the top of the page. The values for "System VDC 12345656" and "Temp (F)" are red instead of black, indicating that these are the values that tripped the alarms.

This page is automatically scanned and refreshed once every 5 seconds. You can force the page to show the newest data immediately by clicking the "refresh" button on your browser.

5.1 Setting Low & High Alarm Trips

The **Alarms** web page is where you configure the alarms for the unit.

FIGURE 9: Alarms Page

Alarm Configuration	Alarm Email Select	Trap Select
Alarm#01 Volts DC1 High Trip 30.0	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
Alarm#02 Volts DC1 Low Trip 22.0	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input checked="" type="checkbox"/> <input type="checkbox"/>
Alarm#03 -48V VDC Unassigned Temp(C) Temp(F) Volts DC1 AUX VDC -48V VDC -20.0	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input checked="" type="checkbox"/> <input type="checkbox"/>
Alarm#04 -48V VDC Main Batt. (Amps) Inverter (RMS) Line (RMS) 0	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
Alarm#05 Door Main Cabinet Door Battery Room Floor Sensor Low Trip 50	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>

The user selects which data item each alarm covers. In the example above, Alarm #01 is set to trip if the ("Volts DC 1" input goes above 30.0V). We know it will trip if the value goes above the set point because "High Trip" has been selected. Note Alarm #02 is set to trip if the (same input goes below 22.0V ("Low Trip")). Any number of alarms can be set on each input value, as long as the total number of alarms is less than 20.

Note how Input Select is pulled down for Alarm #03. This illustrates how the user can select any input for any given alarm.

When Alarm #01 is tripped it will send emails to the first two email addresses, and both SNMP traps will be triggered. (We'll see how to set the email addresses and SNMP traps on the Configuration Page later). Each alarm can send emails to any combination of the 5 email addresses and 2 SNMP traps. It is common to set one alarm to send an email to one or more email addresses if an input value exceeds a first threshold, and set a second alarm to send emails to different address(es) if the same input value exceeds a second threshold. This allows an escalation procedure to be set up.

If you make changes to this (and any other web page on the SPM-200) don't forget to click "Save" when you're finished. If you don't, your changes will be lost.

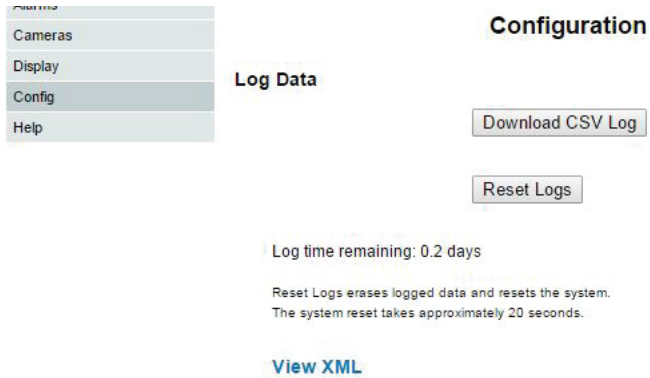
The **Logging** page graphs selected data over a selected time range, and controls data logging in general.

- VOLTS DC 3 Note: Alarm Low & High Trip are opposite of conventional thinking. For example, when setting a 'Low Trip' on a 48 volt battery, select 'High Trip' for -42.0 trip point.

5.2 Cameras Page

This is the web page that displays the camera images which can be set up by going to the 'Config' > 'Cameras'. Click on 'Update Cameras' button to refresh images.

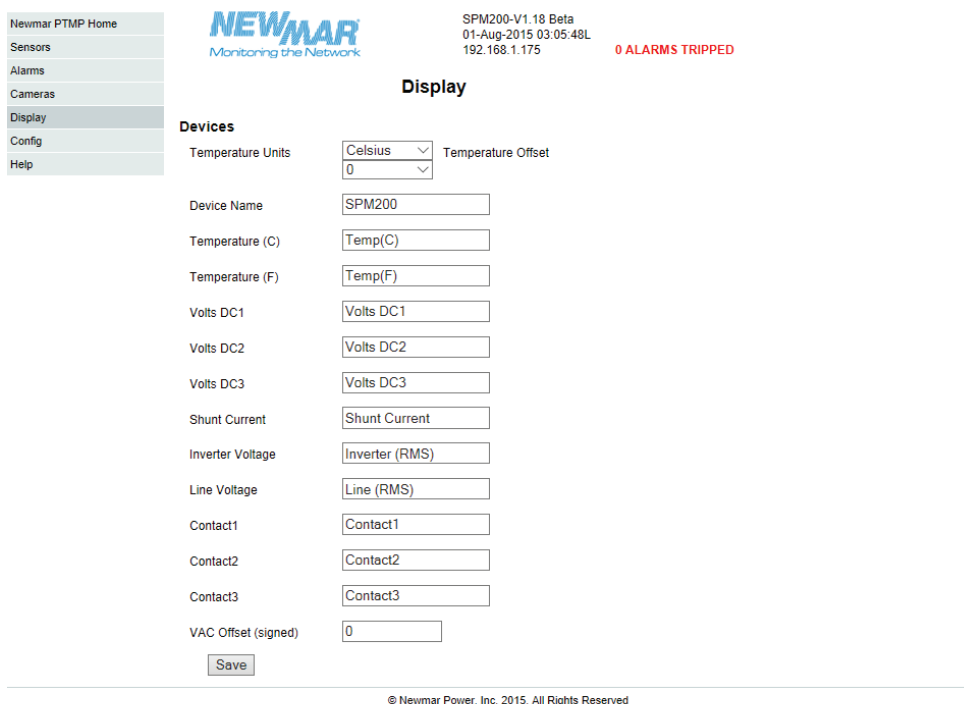
FIGURE 10: Logging Page



If for some reason you want to delete all the data that is in memory, click on the “**Reset Logs**”. Caution, there is no way to recover the data after the reset button is checked.

The check boxes sensors (Sensors page) only control what data is being graphed, not what is being logged. The SPM-200 always logs the data from all the inputs. The data can be downloaded to a PC or a similar machine in Comma Separated Value (CSV) format. CSV is a very simple and general way to store data in a file. Most analysis programs, such as Microsoft Excel®, can read CSV data. So you can download all the data in memory and analyze it with Excel®.

FIGURE 11: Display Page



The **Display** page is where you set the “friendly names” of the device and all the inputs, and set the units that you want temperature displayed in. The friendly name must be no more than 19 characters.

At the top of the page select whether you want the temperature displayed in Celsius or Fahrenheit degrees. You also have the option of entering an offset for the temperature display. As is explained on the page, you should not change the factory setting unless your SPM-200 is mounted somewhere with very little airflow. In that case the heat generated by the SPM-200 itself might cause the display to read a bit high.

The most important thing to do on this page is to set the name of this SPM-200, and more meaningful names for all of the inputs.

As always, remember to select "Save" or your changes will not take effect.

5.3 Configuration Page

FIGURE 12: Top of Configuration Page

The screenshot shows the top of the Configuration page. On the left is a navigation menu with items: Newmar SPM200 Home, Sensors, Alarms, Logging, Display, Config (highlighted), and Help. The main content area features the Newmar logo (Monitoring the Network) and system information: SPM-200-V1.03a, 31-Oct-2014 17:09:30, and IP 192.168.1.175. A red status indicator shows "2 ALARMS TRIPPED". Below this is a "Configuration" heading and a link for "All Parameters". At the bottom are two buttons: "Reset ALL to Default Values" and "Zero Current Channel".

5.3.1 Reset All to Default Values

The first entry allows you to reset the configuration settings to the defaults. It will restore all the friendly names to the defaults, as well as other configuration settings including account names and passwords you may have made. However, it will not change the IP address.

Caution: When using the "Reset All to Default Values" button, remember to re-enter your account names and passwords.

5.3.1.1 AC Voltage Offset

The Line Voltage input allows you add on offset voltage to compensate for inaccuracy. For example, if line voltage measurement is low by 10 volts, add '10' to this box and click SAVE. A positive 10 volts will be added and displayed to what this input is sensing.

5.3.2 Zero Current Channel (Shunt)

"Zero Current Channel" allows you to zero out any offset in the Shunt Current Channel. This channel measures a DC current by reading the (very small) voltage across the (very small value) shunt resistor that the current to be measured is flowing through. It is possible that there might be a constant offset on the reading that causes the displayed value of the current to be wrong. Clicking the "Zero Current Channel" button zeros out this error. **CAUTION:** be sure that there is no current flowing through the shunt before clicking this button. If there is some current flowing then clicking the button will introduce a constant error into the current reading.

5.3.3 Configuring Email Setting

FIGURE 13: Email Settings

The screenshot shows the "Email Setup" configuration page. The navigation menu on the left includes: Newmar PTMP Home, Sensors, Alarms, Cameras, Display, Config (highlighted), and Help. The main content area shows the Newmar logo and system information: SPM200-V1.18 Beta, 01-Aug-2015 02:20:23L, and IP 192.168.1.175. A red status indicator shows "0 ALARMS TRIPPED". Below this is a "Configuration" heading and a link for "Email Setup". The form contains the following fields: SMTP Server (smtp.gmail.com), SMTP Port (587), "From" Email Address, To Email Address1-5 (each with a checkbox), SMTP Username, SMTP Password, and Enable TLS (checkbox). At the bottom are "Save" and "Save and Test" buttons. A footnote at the bottom left reads: "* Use this e-mail for power interruption notification."

The SPM-200 can be configured to send emails when alarms are raised. Emails can be sent to any combination of five addresses. Clicking a checkbox next to the right of an email address will send a notification to this recipient in the event of a power interruption. Refer back to FIGURE 9 – there we determined which alarms will cause emails to go to which of the five addresses. Here is where we set those addresses.

The SPM-200 uses the standard SMTP email services. Contact Newmar support for information on using other email systems such as Gmail or AOL. Contact your system administrator or ISP for the SMTP addresses for your system. The emails that are sent will have the return address that is entered in the "From" Email Address field, and they will contain information about which alarm has been tripped and why.

Again, the figure above is for illustration purposes only. It doesn't make much sense to have the "From" and "To" addresses be the same, but there's no reason you can't set it that way.

Again, don't forget to click the "Save" button.

To verify email has been set-up properly, click on 'Save and Test' to receive a test email.

5.3.4 Sending Text Messages

The SPM can send text messages by sending emails to a special address at the cell phone provider. Below is a list of addresses for some popular providers. For example, if you have cell service with AT& T, you can send a test message by sending an email to xxxxxxxxxxx@txt.att.net, where xxxxxxxxxxx is your cell phone number.

Simply enter this data in "To Email address 1-5", and save. Note: you will need to select under the ALARMS tab which alarms are to be routed to this email to receive a text message.

SMA Thru Email Paths:

- T-Mobile: phonenumber@tmomail.net
- Virgin Mobile: phonenumber@vmobl.com
- Cingular: phonenumber@cingularme.com
- Sprint: phonenumber@messaging.sprintpcs.com
- Verizon: phonenumber@vtext.com
- US Cellular: phonenumber@email.uscc.net
- SunCom: phonenumber@tms.suncom.com
- Powertel: phonenumber@ptel.net
- AT&T: phonenumber@txt.att.net
- Alltel: phonenumber@message.alltel.com
- Metro PCS: phonenumber@MyMetroPcs.com
- Nextel: phonenumber@messaging.nextel.com
- Universal Format: phonenumber@teleflip.com

5.3.5 Configuring SNMP Settings

FIGURE 14: SNMP Settings

The screenshot shows the Newmar SPM200 web interface. At the top, there is a navigation menu with 'Newmar SPM200 Home', 'Sensors', 'Alarms', 'Cameras', 'Display', 'Config', and 'Help'. The 'Config' menu item is selected. The main content area is titled 'Configuration' and contains the 'SNMP Setup' section. The settings are as follows:

- Read Community: public
- GET Listen Port **: 161
- Trap Community: SPMTrip
- Trap1 IP Address:Port *: 192.168.1.143
- Trap2 IP Address:Port *: 0

Below the input fields, there are two buttons: 'Save' and 'Save and Test Traps'. At the bottom left of the configuration area, there is a link for 'Download MIB'. In the top right corner of the interface, there is a status indicator that says '3 ALARMS TRIPPED'.

SNMP ("System Network Management Protocol") is an Internet Standard way to monitor the elements in a network. The SPM-200 software includes what is called an SNMP "Agent". SNMP agents send information to an "SNMP Management System", which is running somewhere on the network. Management Systems can poll Agents, or an Agent can send information to the Management System using something called a "Trap". The SPM-200 sends traps to either or both of the Trap addresses selected here for any alarm which has the "Trap" boxes checked.

Your SNMP Management System requires MIB files which can be downloaded from the "SNMP Set-up" page under "Configuration", see Fig. 14. It can also be found on the CD Rom provided with the SPM-200 or at www.newmar telecom.com/Site Power Monitor/Firmware Update/Firmware.html

If an SNMP Management System is running on your network, contact your system administrator for information regarding the parameters above.

To verify SNMP has been set-up properly, click on 'Save and Test Traps' to send a test trap.

5.3.6 Camera (IP) Configurations

FIGURE 15: Camera Configuration

The screenshot shows the 'Configuration' page for 'Cameras'. The left sidebar has 'Config' highlighted. The main area shows two camera configuration sections. Camera 3 has a URL field with the value 'http://24.227.115.122/axis-log/image.cgi?camera=1'. Camera 4 has a URL field with the value 'http://50.73.56.89/axis-log/image.cgi'. A 'Save' button is at the bottom. The top right corner of the page indicates '2 ALARMS TRIPPED'.

The SPM-200 can display thumbnail images from up to four Internet Cameras on the Logging Page. Note that these cannot be simple "Webcams"; they must be cameras that have their own Internet interfaces. Note also that the SPM-200 does not monitor or do anything with the images from the cameras except display the thumbnails on the "cameras" page. You must enter the IP address of each camera, and select the model from the drop down menu. Only certain cameras are supported. This is necessary because every Camera has its own method of retrieving thumbnail images from it. Contact Newmar for information about what models are currently supported.

5.3.7 Admin Information

FIGURE 16: Admin Information

Newmar SPM200 Home
Sensors
Alarms
Logging
Display
Config
Help

NEWMAR
Monitoring the Network

SPM-200-V1.03a
31-Oct-2014 17:17:26
192.168.1.175

2 ALARMS TRIPPED

Configuration

Admin Info

Contact Name:

Contact Email:

Contact Phone:

Device Location:

Device Description:

This is where you enter the information that will be printed at the bottom of every web page. Enter the information that is appropriate for your installation. Again, don't forget to click the "Save" button.

5.3.8 Firmware Download & Upload

FIGURE 17: Upload System Firmware

Newmar SPM200 Home
Sensors
Alarms
Cameras
Display
Config
Help

NEWMAR
Monitoring the Network

SPM200 NWS-V1.04b
25-Nov-2014 14:29:19
192.168.1.175

2 ALARMS TRIPPED

Configuration

Firmware Update

Upload File

File Size:

File to upload: No file chosen

Header[0..32]:

Select a file for upload

From time to time Newmar may issue new firmware for the SPM-200. This will usually come as a "zip" file. Download the zip file from www.newmartelecom.com/site_power_monitor/site_power_monitor.html to your computer and "unzip" it. Then navigate to the 'Firmware Update' section of the Config page, and click the "Choose File" button. Navigate to the directory that you unzipped the package into, and double click on the file with the ".PKG" extension".

Click the "Upload" button, and wait. The upload process may take a few minutes, depending on the size of the update file and network traffic. (Note that due to the various differences between browsers, you may or may not see an in-progress report as each block of data is uploaded.) During this time, the green **ACTIVITY** LED should blink and yellow LED should illuminate then extinguish on the SPM-200.

Once the download is complete, an "Upload Succeeded" message will be displayed, with a 60 second countdown while the unit validates and installs the new software. Once it has completed, it will reboot the SPM-200. Once it has rebooted it will again display the "Sensors" page.

Should you run into any trouble while updating, please DO NOT reset your SPM and contact us at:
Phone: 800-354-3906 ■ Email: techservice@newmarpower.com

This next section is fairly self-explanatory:

5.3.9 Test SNMP Trap & Email

FIGURE 18: Test Buttons

The screenshot shows the 'Configuration' page for 'SPM200-V1.07g'. The top right corner displays the date and time '06-Apr-2015 19:22:00' and the IP address '192.168.1.175', along with a red alert '3 ALARMS TRIPPED'. On the left is a navigation menu with 'Config' selected. The main content area is titled 'SNMP Setup' and contains the following fields:

- Read Community: public
- GET Listen Port **: 161
- Trap Community: SPMTrap
- Trap1 IP Address:Port *: 192.168.1.143
- Trap2 IP Address:Port *: 0

Below the fields are two buttons: 'Save' and 'Save and Test Traps'. At the bottom left is a link for 'Download MIB'. Small text at the bottom provides instructions: '** Enter 0 for GET Listen Port to disable SNMP (typically port 161 is used)' and '* Format (aaa.bbb.ccc.ddd.ppppp) Port is optional and defaults to port 162'.

Clicking on these buttons allows you to test if you have set up your email and SNMP traps properly.

5.4 Setting Account Names & Passwords

FIGURE 19: Account Settings

The screenshot shows the 'Configuration' page for 'SPM200 NWS-V1.04b'. The top right corner displays the date and time '25-Nov-2014 14:29:47' and the IP address '192.168.1.175', along with a red alert '2 ALARMS TRIPPED'. On the left is a navigation menu with 'Config' selected. The main content area is titled 'Names and Passwords Setup' and contains the following fields:

- Admin Account Name: Admin
- Current Password: [empty]
- New Password: [empty]
- New Password Again: [empty]
- Control Account Name: User
- Current Password:
- New Password: [empty]
- New Password Again: [empty]
- View Only Account Name: [empty]
- Current Password: [empty]
- New Password: [empty]
- New Password Again: [empty]

At the bottom is a 'Save' button. Small text at the bottom provides instructions: 'The current Admin password field must be filled in to change any usernames or passwords. The Admin username and password must be at least 5 characters. To change a username the password must also be changed.'

Select **Names and Passwords** from the "configuration" drop down menu. Here, you can set up to three levels of password protection for the SPM-200, allowing you to restrict which user(s) in your organization are able to view or change the unit's settings. Although these settings are optional, Newmar Power highly recommends that you at least set up the Administrator account to prevent unauthorized changes to the network and administrative settings. Note, factory defaults, **User Name:** Admin and **Password:** admin

If a given account's username and password fields are left blank, then the level(s) of access controlled by that account are available to anyone who connects to the unit. Accounts are listed in order of privilege, from highest to lowest, and lower-privilege accounts cannot be set unless the higher-privilege accounts above them are set as well; i.e. you cannot have a Control account without an Administrator account, and you cannot have a View-Only account without both a Control and Administrator account.

Administrator: this account has complete access to the SPM-200; all pages are viewable, and any setting can be changed – including the ability to change any other account's passwords. Note that this account is the only account which can access the **Config** page, and that you must configure this account before you can configure the **Control** or **View-Only** accounts.

Control: this account is able to view all of the web pages except for the **Config** page, and is able to change alarm settings on the **Alarms** page.

View-Only: this account is able to view only the sensor and camera pages.

Once you have configured these accounts the way you want them, click the "Save" button. If you have configured an Administrator account, the unit will now ask you to log in with that username and password before you can continue.

As always, don't forget to click the "Save" button when you're done.

At this point you have two options:

- 1) Continue using the PC and the crossover cable to finish configuring the SPM-200, and later connecting it to the network it will really use. If you want to choose this option, skip over the section "Setting the Internet Address" for now, and come back to it later.
- 2) Connect the SPM to the real network now. To do this, complete the next section now and connect the SPM to the real network as soon as you've set the Internet Address

5.4.1 Setting the Internet Address

The next step is to set the "IP" or Internet address of the SPM. Each SPM is initially set to 192.168.1.123 when it is built so the user can do the initial configuration, but that will probably need to be changed when a unit is installed.

There are a couple of ways to get an internet address:

- The simplest way is to use what's called a "Static" IP Address. A static address is just what it sounds like, an address that never changes. If the SPM will be part of a local network, the network administrator may be able to assign an address.
- If you intend to connect your SPM to the public Internet through an ISP, you will have to have a public static IP address so that it can be reached from a browser. It may not be possible to get a static address – your ISP may only be able to assign a dynamic address. If this is the case, see Appendix A for a solution.

Scroll down on the "Config" page until you see the network settings:

5.5 DNS Servers

The "DNS" or "Domain Name Servers" section lists the addresses of the Internet servers that the SPM-200 will call to resolve Web names like "mail.xyzco.com" to their actual IP addresses. The values shown are for demonstration purposes only – consult your system administrator or Internet Provider to get the values for your network.

Password Configuration was previously mentioned in "Setting Account Names and Passwords" in Setup Section



FIGURE 20: Networking Section of the Config Webpage

Enter the appropriate IP address, Subnet Mask and Gateway address. **CAUTION:** once you click "Save", the SPM will **IMMEDIATELY** switch to the IP address you just entered. It will **NOT** respond at 192.168.1.123 anymore. See 8.0 Appendix A: Troubleshooting #13 which describes the "Reset" button to function and use.

If you are sure you have the correct settings, go ahead and click the "Save Changes" button. Now you will have to disconnect the SPM from the PC and the crossover cable, and connect it to your real network. You should be able to access it by opening a browser window and entering the new address that you just set.

Note: Cross over cable cannot be used to connect to routers.

FIGURE 20: Syslog Configuration

ProcessID	Severity							
	Emergency	Alert	Critical	Error	Warning	Notice	Inform	Debug
flash	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
alarms	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
device	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
email	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
datalog	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
rtc	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

6.0 Specifications

Inputs

Power Source Voltage: 11 - 60 negative / positive ground*

*CAUTION: If you intend to power -48 VDC AND monitor -48 VDC, input power must come from an isolated DC converter. If you need one, we will provide it free of charge. Contact NEWMAR: 800-854-3906 or E-mail: techservice@newmarpower.com and request model 48-12-1i Kit

Input Current:

100 mA max.

Monitor Inputs: 9 total

DC Voltage: 3 ports:

1. 2 each 0-40 VDC, Negative Ground
2. 1 each 30-60 VDC, Positive Ground
3. Accuracy +/- 3%

AC Voltage: 2 ports:

4. 90-264 VAC utility power (L-N or L-L)
5. 90-135 VAC inverter output (floating)
6. Accuracy +/- 5%

- DC Current: 1 port:
 - +/- 100mv, 100 amp differential shunt voltage,
 - Read battery charge/discharge (-) current, or load current.
 - Accuracy: +/- 5%
- Dry Contact Switch Sensors: 3 ports:
 - Possible uses: include: door open, water leak detection, smoke alarm, component fail, breaker trip, etc.
- Temperature Sensor
 - Located outside case of unit
 - Range: -20 to +60° C, -4 to +140° F
 - Accuracy: +/-0.5° C

Reporting

- Ethernet Port connection: RJ-45
- HTTP: Web Access, Self-generated Web-page
- SNMP requires SNMP manager software. SPM-200 supports SNMP V2c
- SNMP: MIB with Gets, Traps, and Clears
- Alarms: HIGH and LOW trip, 50 max, user-programmable
- Logging: Excel logs created, time stamped, continuous graphing
- SMTP: email alerts,
- Data Formats: XML, PDA, WAP (cell phone)
- Remote Firmware upgrades: no need to visit the site.
- Local Data downloading and programming require and RJ-45 crossover cable (included)

Data Screens

- Sensors
- Alarm settings (customized web page)
- Data logging
- Camera feeds (4 max.)

Data logging: remote or down load locally:

- 30 day+ rolling history with 5 second interval refresh
- CSV file compatible



Images: Ethernet IP Camera enabled

Alarms:

- 20 user configurable all with separate high/low trip settings
- Notification by Via Internet, e-mail or mobile phone
- User-programmable notification to 5 different e-mails addresses

Diagnostics / Indicators/ Controls:

Front panel LED's

- Input Power ON/OK
- System OK
- Flashing Activity Indicator Ethernet port
- System reset button

Protections

- Reverse Polarity
- Input overvoltage
- External 1A fast-blow fuse required for DC power input (provided)

Mechanical

Case: Aluminum, black powder coat

Size: 2.18" x 3.27" x 4.66"

Weight: 1 lb

Mounting options:

- Wall mount
- Din rail
- 19 or 23 inch rack mount (via optional kit)

Input Ports:

- Screw terminals
- 14-28 AWG wire

Environmental:

Operating Temperature range: -20° C to +60° C / -4 to +140° F

7.0 Warranty

NEWMAR warrants that your Site Power Monitor be free from defects in material and workmanship for two years from date of purchase. If you have any questions about your SPM-200, please contact NEWMAR's Technical Service:

Phone: 1-800-241-3897 – From the hours of 7:30 A.M. to 4:30 P.M. weekdays, P.S.T.

Fax: 714-372-7930 – Anytime

E-Mail: techservice@newmarpower.com – Anytime

We are happy to consult with you to resolve any problems or questions you may have. If, during consultation, it appears the SPM-200 must be returned to the factory for repair, we will issue a Return Materials Authorization (RMA) number at that time.

9.0 Appendix A: Troubleshooting

- 1) Nothing happens when I power up the SPM - Neither the Power Indicator nor the Status Indicator light up.
 - Check to make sure that DC power is connected. Pin 19 is ground and Pin 20 is +6 to +60 VDC.
- 2) The Power and Status Indicators light up, but I do not see any lights on the Ethernet Connector
 - Check to make sure that the SPM is connected either to an Ethernet switch or directly to a laptop computer. If it is directly connected to a laptop, be sure you are using a "crossover" cable like the one supplied with the SPM. If the SPM is connected to a Switch do NOT use the crossover cable, use a regular Ethernet cable.
- 3) I am trying to do the initial setup, but my browser will not bring up the SPM's home page.
 - Make sure that the SPM is connected directly to a laptop using the crossover cable supplied.
 - Check to make sure that the IP address of the laptop is set to 192.168.1.100 and Subnet Mask 255.255.255.0 as described in the "NIC Setup" section 4.1.2.
 - Make sure that you entered the correct IP address 192.168.1.123 into the Browser
 - Try to contact the SPM using the ping utility from a command line prompt. If this does not work, then try resetting the SPM using the procedure described below to make sure that it is really set to the default address. If you've tried this and you still cannot "ping" the SPM then you probably have a networking issue that is beyond the scope of this document.
- 4) Our SPM is in service, but we have lost its IP address. How can we find it?
 - The simplest thing to do is to reset the SPM. The IP Reset Button is located directly under the RJ45 Ethernet connector on the side of the SPM. To perform a "simple" reset, use a paperclip or jeweler's screwdriver (using pens or pencils is not recommended, since ink or graphite particles could rub off and get into the unit) to press and hold the switch for about 15-20 seconds, or until the left hand side LED (amber/yellow) starts flashing. Release the switch and wait for the LED (amber/yellow) to stop flashing and the right hand side LED (green) to resume its normal pattern. After a "simple" reset, the following settings will be reset to factory default:
 - **Name and Password Settings:** all three accounts (Administrator, Control, and View-Only) will be cleared.
 - Network Settings: will be reset to the factory default of:
 - **IP Address: 192.168.1.123**
 - **Subnet Mask: 255.255.255.0**
- 5) We need to get make changes to the configuration of our SPM, but the guy who knew the passwords is no longer with the company.
 - Again, the simplest thing is to reset the SPM as described in Question 4.
- 6) How do I get an IP address? I cannot get a static IP address for the unit.
 - See Appendix A for a suggested solution.
- 7) The graphs do not look right. They show dots, gaps, or appear blank.
 - The first thing to realize is that the unit cannot graph data it does not have. If the unit has only been in service for 3 days, then the maximum length of the graph is 3 days. However, it is possible that the log has been corrupted. To fix this, you will need to delete the log history as described below:
 1. Click on the Logs tab.
 2. Download the logs by clicking on the appropriate link on this page. Skip this step if you do not need a backup of the log data.
 3. Check the Delete Log History checkbox. If this box is grayed out, refer to the troubleshooting section on a

grayed out logging frequency/delete logs checkbox.

4. Select Save Changes to delete the log history.

In a few seconds the graphs should go blank. Depending on the logging frequency, the graphing should begin in a few minutes.

8) I cannot get email from the unit

- Below are some common solutions to email problems.
 1. Make sure a numeric IP address is used for the SMTP Server IP address
 2. The unit needs a 'From' address to send an email.
 3. There should only be one email address in each 'To' field.

If an Exchange server is being used, then it needs to be configured to allow 3rd party emails. There is a checkbox for this purpose in the Exchange server.

9) How do I get the SNMP MIB for the unit?

- The MIB for the unit can be found in two places. On the CD ROM included with the SPM-200 and a copy of the MIB is also located at www.newmartelecom.com/Site_Power_Monitor/XXXXXXXXXXXXXXXXXXXX

10) I need the SNMP OID's for the unit. (What's an OID?)

- An OID is an Object Identifier used with MIB's for SNMP.
- In the zip file for firmware versions 1.06 or higher there is a CSV file that contains the list of OID's for the unit. This zip file is included on the CD Rom included with the SPM-200

11) I have not been able to get a SNMP trap from the unit.

- A SNMP manager must be configured to receive traps from the unit. Most SNMP programs have a database of traps they are monitoring for. The possible traps that can be sent by the unit must be added to this database. Some programs can take the unit MIB and extract the trap information. With other programs the trap data has to be entered manually. A CSV file is included in the firmware zip file of version 2.53 and higher. The CSV includes the OID's for the unit as well as the information for each trap. Below is a list of issues that might stop you from getting traps from the unit:
 1. Not all SNMP software is able to receive traps. Check if the software can receive version 1 traps.
 2. Make sure the IP address configured on the unit, matches the IP address of the SNMP manager.
 3. Ensure that the Trap Community String on the unit corresponds to the community string expected by the manager.
 4. On some SNMP software, you have to enable trap monitoring and SNMP requests.

12) The internal temperature on my unit seems to be reading high.

- The internal temperature can read 2-3° F higher than an external sensor, because of the heat generated by the circuits in the unit. The following steps can help minimize internal heating.
 - Go to DISPLAY, and set the desired temperature offset, and SAVE.
 - Make sure there is good airflow to the unit.
- Heat can be transferred to the unit from other sources and through the rack. If possible mount the unit away from heat sources.

13) How do you reset the SPM-200?

- The IP Reset Button, located under the RJ45 connector, has two functions:
 - 1) If you hold it down while you power up the unit, all of the user-configurable parameters are reset to the factory defaults.
 - 2) If you hold it down for 20 seconds while the power is on, it resets the IP address to 192.168.1.123 and the subnet mask to 255.255.255.0, and clears out any user IDs and Passwords that you have set. This is useful if you have forgotten the IP address you set. See Troubleshooting 4 for more information.

14) Information not saved

- "Form data not saved" will be visible at the top of the page, this indicates that information was not formatted correctly or missing. Verify that all information is inputted and formatted correctly and click save.

15) Cannot change passwords

- Admin user name and password must be entered to change any user name and password.

16) Admin information will not save

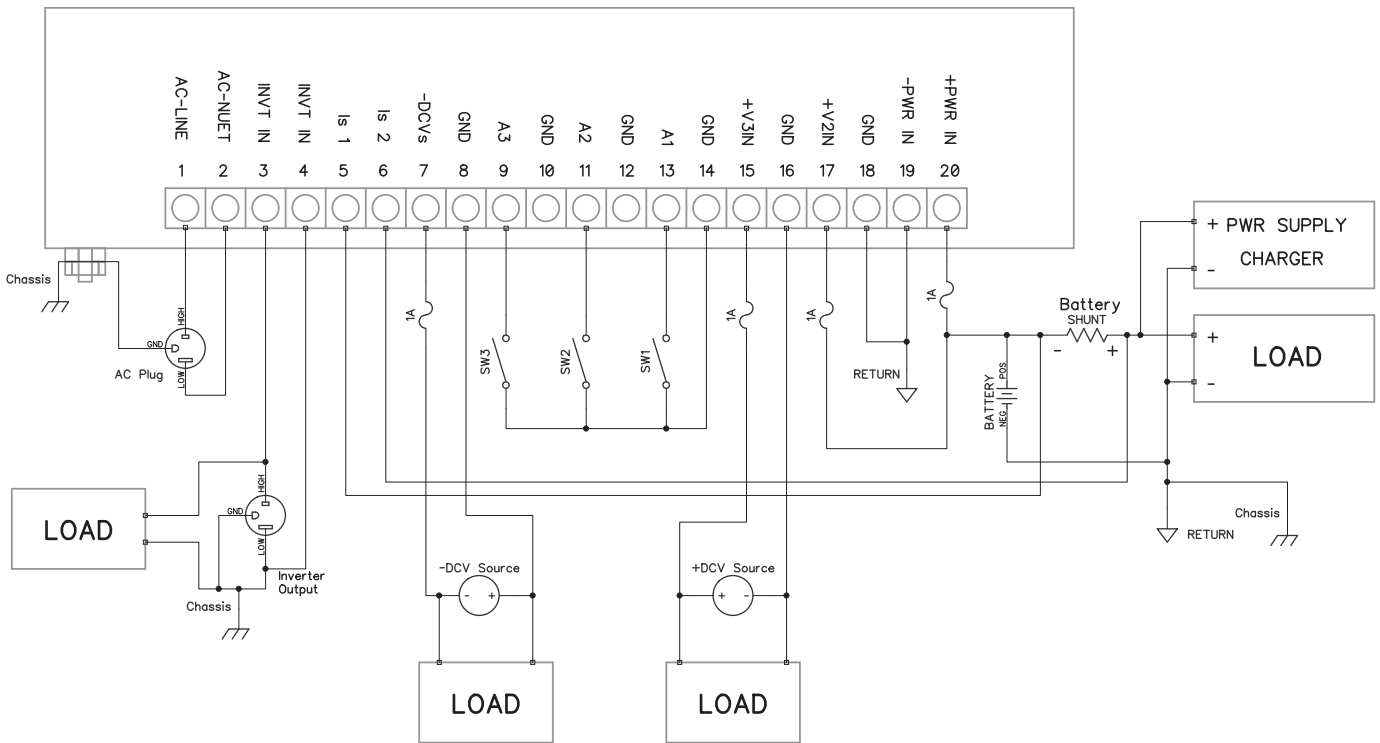
- Both e-mail and phone number must be valid and entered. (me@spm.com, 123-456-7890). Phone number can only contain numbers and dashes.

17) Friendly names do not show up in drop down list

- Incompatible browser. Use different browser or use default alarm names in drop down list.

10.0 Appendix B1: Typical System Wiring: Negative Ground, Floating Sources

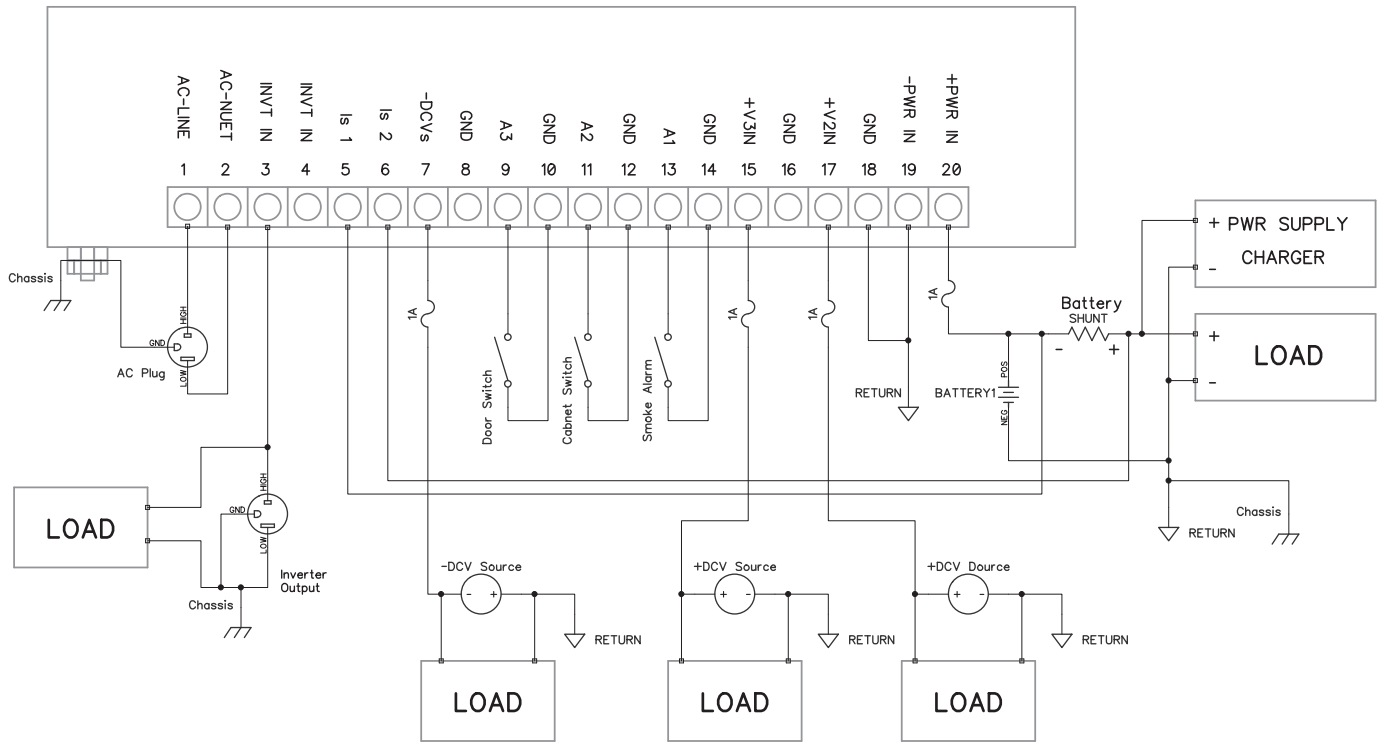
Negative Ground (RETURN) System with Auxillary Floating DCV Sources



(Floating DC Sources and Loads not common to RETURN bus)

11.0 Appendix B2: Typical System Wiring: Negative Ground, Common Returns

Negative Ground (RETURN) System



12.0 Appendix B3: Typical System Wiring: Positive Ground, Common Returns

Positive Ground (RETURN) Systems

