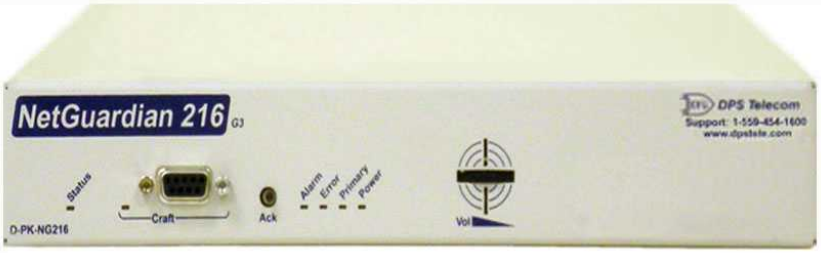
DPS Telecom

"Your Partners in Network Alarm Monitoring"

NetGuardian 216 G3

USER MANUAL



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July 5, 2018 **D-UM-NG216-12001** **Firmware Version 2.1L**

Revision History

July 5, 2018	Updated firmware of screenshots, descriptions, and tables to v2.1L
November 4, 2015	Update to firmware download section
July 26, 2013	AddedWireless Modem Activation process
July 3, 2013	Added Push-To-Talk Feature
April 4, 2013	Added SMS Limit feature
January 31, 2013	Added HTTP Port
September 28, 2012	Updated SMS Notifications
May 30, 2012	Updated email notifications information
February 24, 2012	Added Verizon CDMA modem activation information
January 13, 2012	Updated E-mail Notification settings
November 18, 2011	Updated CDMA modem installation information
October 5, 2011	Added support for Wireless GPRS or CDMA modems & SMS alarm notifications
August 23, 2011	Added the "associate enable/disable" analog option
May 23, 2011	Misc changes to enabling/monitoring analogs in gauge view
January 12, 2011	Added instructions for attaching pluggable back panel accessory
June 23, 2010	Minor corrections to Reference Section
Nov. 25, 2010	Added info on SNMPv2c support and event logging
Oct. 23, 2009	General user manual improvements
Oct. 2, 2009	Additions to TTY/Web browser for serial port configuration
June 15, 2009	Revisions for Optional Builds

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1 NetGuardian 216 G3 Overview

Fig. 1.1 *Compact, easy-to-install, right-size capacity — the NetGuardian 216 G3 effectively monitors smaller sites.*

Effective, easy-to-install, light-capacity alarm monitoring
The NetGuardian 216 G3 is a compact, LAN-based, light-capacity remote telemetry unit. The NetGuardian 216 G3 is designed for easy installation at small remote sites, making it cost-effective to deploy alarm monitoring throughout your entire telecom network.

Powerful monitoring for smaller sites
The NetGuardian 216 G3 is based on the time-tested NetGuardian 832A design used in high-capacity models. This telco-grade remote is housed in a durable aluminum case that can be rack or wall-mounted. This SNMP remote is scaled to the needs of small sites, such as remote huts, collocation racks, and enclosed cabinets - perfect for any site where a large capacity RTU would be more than you need.

- **16 Discrete Alarm Inputs**
- **8 Analog Alarm Inputs**
- **2 Control Relay Outputs**
- **1 Reach-through serial port (terminal server)**

Reach-through serial port gives LAN access to on-site equipment
The NG216 G3 also features a reach-through serial port. This port provides remote users with LAN-based Telnet access to a variety of on-site telecom equipment, including switches, radios, PBXs and many other devices.

SNMP or T/Mon NOC
The NetGuardian 216 G3 can report alarms to any SNMP manager or to the DPS Telecom T/Mon NOC Remote Alarm Monitoring System. The NetGuardian 216 G3 can also report via SNMP and DCPx concurrently to the T/Mon NOC.

Easy Alerts via Email or SNMP
Email notification reports alarm events to the e-mail addresses of specified personnel and creates a supplemental record of alarm events in addition to your master via SNMP traps.

Paging Notification Support
The optional paging functionality includes a 33.6K internal modem that provides full support for alphanumeric paging, so you can automatically send detailed notifications and instructions to alphanumeric pagers, cell phones, and PDAs.

Upgraded Web Browser
The overhauled web interface that boasts several time-saving new tools, including new analog gauges. You'll also notice the impressive speed boost. Menus load very quickly, and the alarm status updates automatically without requiring a page refresh.

2 Specifications

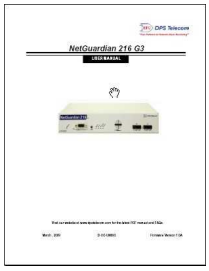
Discrete Alarm Inputs:	16
Temperature Sensors:	1 Integrated Analog Sensor
	Support for 1 External Analog Sensor
Temperature Thresholds:	4
Analog Alarm Inputs:	8
Analog Input Range:	–90 to 90 VDC or 4 to 20 mA
Analog Thresholds:	4
Analog Accuracy	+/- 1%
Control Relays:	2
Protocols:	SNMPv1 & v2c, DCPx, TELNET, HTTP, TAP, Email
Dimensions:	1.720" H x 8.126" W x 7.146" D
	(4.369 cm x 20.641 cm x 18.152 cm)
Weight:	1 lb. 5 oz.
Mounting:	19" or 23" rack or wall mount
Power Input:	+24 VDC via 110VAC wall transformer (12 V to 30 VDC)
	(Optional)-48VDC (-36V to -72VDC)
	(Optional)-24VDC (-18V to -36VDC)
Current Draw:	100 mA @ -24VDC
	50mA @ -48VDC
Fuse:	Resettable Fuse (Internal), if +24V Power Input
	1/2 Amp GMT Fuse, if -48V or -24V Power Input
Interfaces:	1 RJ45 10BaseT half-duplex Ethernet port
	1 DB9 front-panel craft port
	1 - 1/8 Stereo connector for external temperature probe
	1 Push button switch
	(Optional) 33.6 K internal dialup modem
	(Optional) Wireless GPRS/GSM **or** CDMA Modem
	Supported Wireless Modems:
	-MTSMC-H5
	-MTSMC-LVW2-SP
	-MTSMC-G2-V
	-MTSMC-C1
	Serial port options: RS232, RS485, or 202
Visual Interface:	6 Front Panel LEDs
	2 Back Panel LED
Audible Notification:	Alarm speaker with volume control
Operating Temperature:	32°–140° F (0°–60° C)

Operating Humidity:	0%–95% non-condensing
MTBF:	60 years
Windows Compatibility:	XP, Vista, 7 32/64 bit
RoHS:	5/6

3 Shipping List

Please make sure all of the following items are included with your NetGuardian 216 G3. If parts are missing, or if you ever need to order new parts, please refer to the part numbers listed and call DPS Telecom at **1-800-622-3314**.

NetGuardian 216 G3
D-PK-NG216



NetGuardian 216 G3 User Manual
D-UM-NG216-12001

NetGuardian 216 G3 Resource CD

6 ft. DB9M-DB9F Download Cable
D-PR-045-10A-04

14 ft. Ethernet Cable
D-PR-923-10B-14

X 1
19" Rack Ear
D-CS-325-10A-00

X 2
Wall Mount Bracket
D-CS-532-10A-05

x 2
Two wall mount bracket screws
2-000-6250-01

x 2
Two Standard Rack Screws
1-000-12500-06

x 4
Four 3/8" Ear Screws
1-000-60375-05

x 2
Two Metric Rack Screws
2-000-80750-03

Pads
2-015-00030-00

4-Pin Analog Connector
(See Section 5.8)
2-820-00814-02

x 2
Two ½-Amp GMT Fuses
2-741-00500-00

x 2
Two Lg. Power Connectors
2-820-00862-02

Wireless Antenna (GPRS or CDMA models only)
2-901-00802-01

3.1 Optional Shipping Items - Available by Request

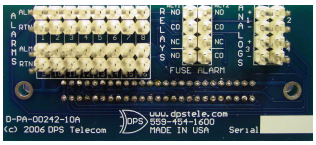
+24V Wall Transformer
D-PR-105-10A-02
(110VAC to +24VDC converter)

Telephone Cable 6 ft
D-PR-045-10A-01
(For Optional Modem Build Only)

Long ear, 19" rack
D-CS-325-10A-05

3.2 Optional NetGuardian Accessories

If you would like to order any of these accessories, or if you would like more information about them, call DPS Telecom at **(800) 622-3314**.



Wire-Wrap Back Panel
D-PK-WWADP-12001.00001
The NetGuardian 216's Wire-Wrap back panel allows for wire-wrap connections for the discrete alarms, analog alarms, and control relays.

Pluggable Back Panel
D-PK-16PAN
The NetGuardian 216's pluggable back panel allows for screw-in barrier plug connections for the NetGuardian's alarms and control relays. Comes with an additional 10 4-pin barrier connectors (**2-820-00814-02),** 2 3-pin connectors (**2-820-00814-02**), and 1 2-pin connector (**2-820-00814-03).**

NetGuardian SiteMON IP
D-PK-CAMRA
The NetGuardian SiteMON provides security surveillance of remote sites. The SiteMON connects to either the NetGuardian's integrated 10/100BaseT switch or a separate 10/100/1000 switch. SiteMON images can be accessed directly from the SiteMON's Web Browser Interface or T/GFX. You can also mount the camera at harsh weather sites with the wide-temp chassis design.

4 Installation

4.1 Tools Needed

To install the NetGuardian, you'll need the following tools:

Phillips No. 2 Screwdriver

Small Standard No. 2 Screwdriver

PC with terminal emulator, such as HyperTerminal

4.2 Mounting

Fig. 4.1 *The NetGuardian 216 G3 can be flush or rear-mounted*

The compact NetGuardian 216 G3 occupies only half the width of a standard rack unit. Only one rack ear is supplied with the NetGuardian 216 G3, and the rack ear can be mounted on the left or right side of the unit. The NetGuardian 216 G3 mounts in a 19" or 23" rack, and can be mounted on the right or left, in the flush-mount or rear mount locations, as shown in Fig. 4.1.

The rack ears can be rotated 90° for wall mounting or 180º for other mounting options.

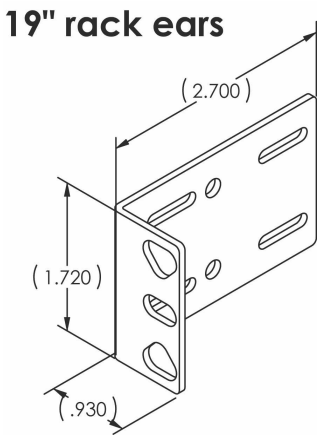


Fig. 4.2

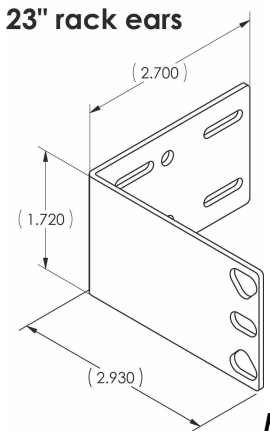
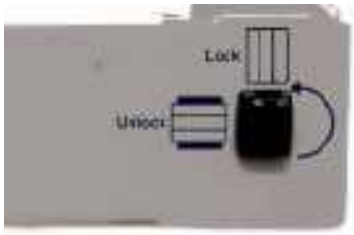


Fig. 4.3

Use the included wall mount bracket to mount the NetGuardian 216 G3 vertically on the wall.

4.3 Optional Pluggable Back Panel



Silk screen on the Hinged Pluggable Back Panel indicates which way to turn the black swivel to lock and unlock the gate.

Note: Your NetGuardian may differ from the model shown in the following section. The panel installs in the same fashion for all NetGuardian units compatible with the pluggable back panel.

Instructions for installing the Hinged Pluggable Back Panel:

Rear View

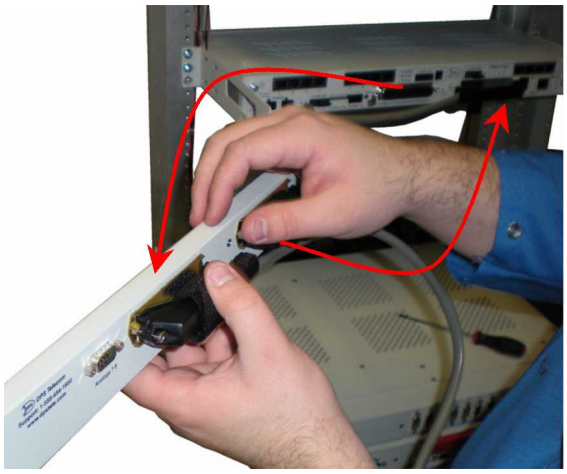
1. To begin installing the hinged pluggable back panel, the NetGuardian G5 should be rack mounted. **Suggestion:** Mount the unit in the flush, rack-mount position. This means the front of the NetGuardian is flush with the front of the rack post.

2. Facing the back of the NetGuardian, install the right side of the hinged pluggable back panel. Used the screws provided to secure the right mounting arm to the rack.

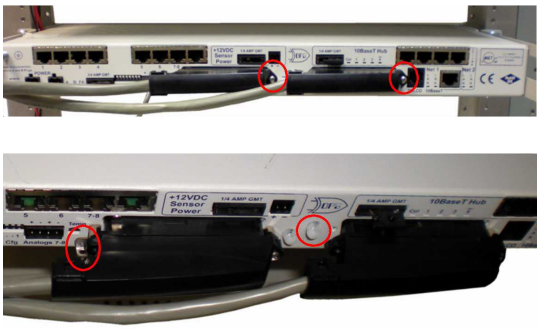
3. The rack should appear as shown above.

4. Close the back panel gate and lock it in place by turning the black swivel to the vertical, locked position as indicated on the silk screen (See Figure 6.12.1).

5. Attached the left side of the hinged panel to the rack with the screws provided.

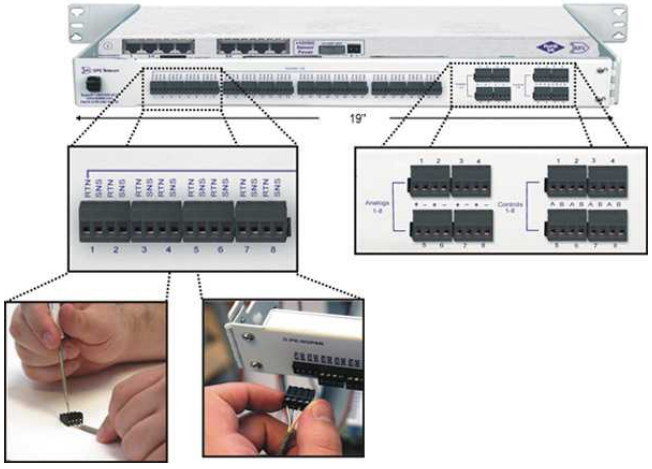


6. Unlock the back panel by turning the black swivel to the horizontal position. (See Figure 6.12.1) Plug the amphenol cables in to the hinged back panel and secure them with the Velcro straps. Make sure the NetGuardian's silk screen matches the hinged panel where the amphenols are connected.



7. Tighten the 2 screws located to the right of the amphenol cables. Use the plastic zip ties provided to secure both cables to the NetGuardian where shown (bottom image). **Note:** A zip tie will be used on the NetGuardian's small metal tab to secure the left amphenol cable. If your remote is equipped with the 4-pin analog connector, connect it to the NetGuardian **and** to the DB9 on the hinged panel.

8. Use the remaining zip ties to keep the amphenol cords tied together. Trim the excess plastic off the zip ties with scissors.



9. Close the back panel and lock it by turning the black swivel to the vertical position. **NOTE: The connectors on the Hinged Pluggable Back Panel support 18 - 26 AWG wire (stranded or solid). DPS recommends using 24 AWG wire (stranded).**

5 NetGuardian 216 G3 Back Panel

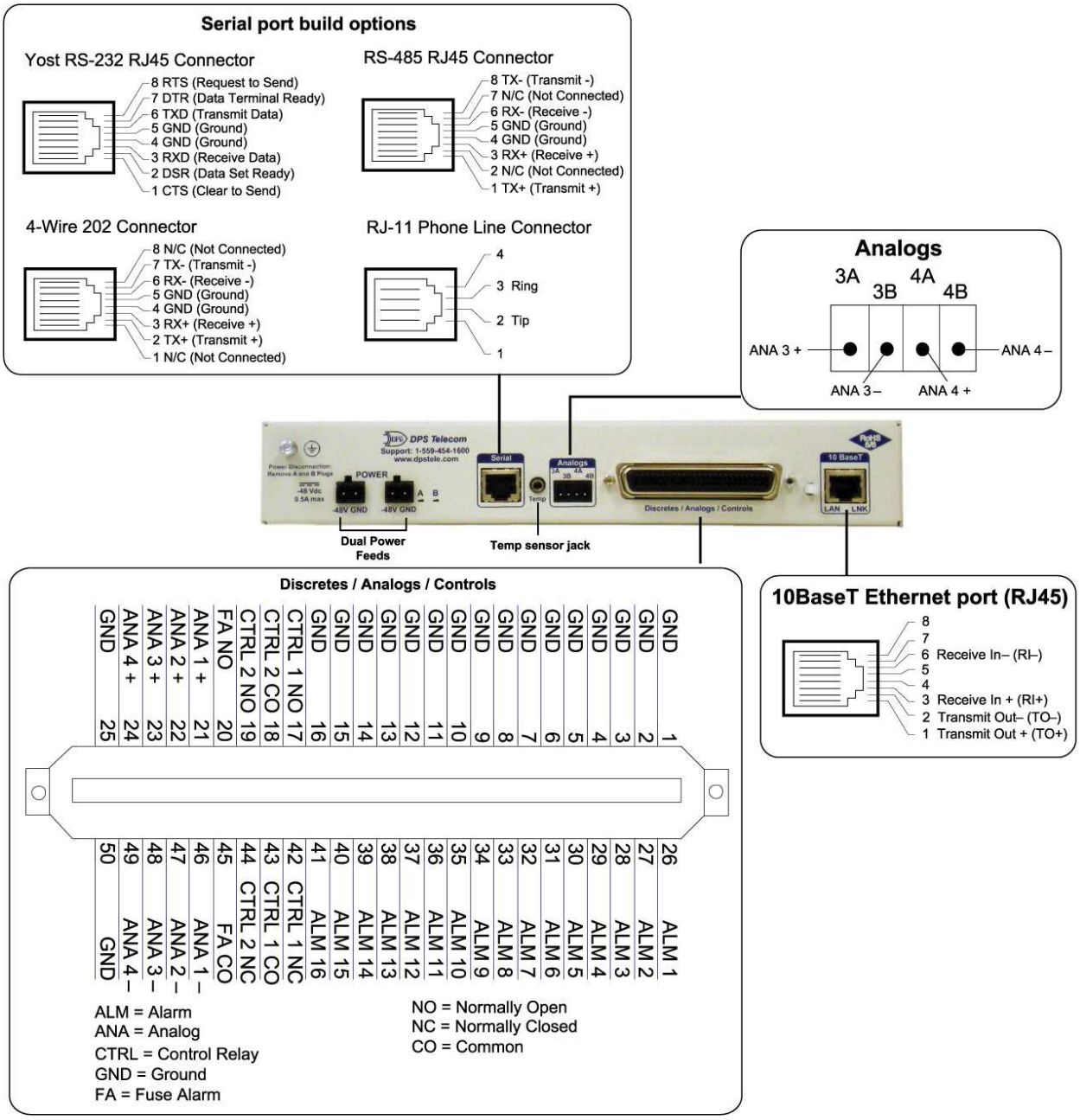


Fig. 5.1 *NetGuardian 216 G3 back panel connections*

5.1 Power Connection (-48 or -24VDC Build Option)

The NetGuardian 216 G3 is powered by two screw terminal barrier plug power connectors.

Fig. 5.2 *Screw terminal barrier plugs*

To connect the NetGuardian to a power supply:

1. Always use safe power practices when making power connections. Be sure to remove fuses from the fuse distribution panel, as well as the back of the NetGuardian, before making your power connections.
2. Use the grounding lug to connect the unit to earth ground. The grounding lug is next to the symbol ⏚. Insert the eyelet of the earth ground cable between the two bolts on the grounding lug (Ground cable not included).
3. Insert a battery ground into the power connector plug's right terminal and tighten the screw; then insert a battery line to the plug's left terminal and tighten its screw.
4. Insert a fuse into the fuse distribution panel and measure voltage. The voltmeter should read between –40 and –70VDC (for -48VDC build option) or -18 and -36VDC (-24VDC build option).
5. The power plug can be inserted into the power connector only one way to ensure the correct polarity. Note that the negative voltage terminal is on the left and the GND terminal is on the right.
6. Insert fuse into the Power A fuse slot. The power LED should be lit green. If the LED is red, the power connection is reversed. To confirm that power is correctly connected, the front panel LEDs will flash RED and GREEN, indicating that the firmware is booting up.
7. Repeat steps 1 -6 for Power B connector.

5.2 Power Connection (+24VDC Build Option)

The NetGuardian 216 G3 is powered by a screw-on plug, located on the right side of the back panel.

Fig. 5.3 *Close-up view of NetGuardian's screw-on power connector.*

Before you connect a power supply to the NetGuardian 216 G3:

1. Always use safe power practices when making power connections. Be sure to remove fuses from the back of the NetGuardian before making your power connections.

2. Use the grounding lug to connect the unit to earth ground. The grounding lug is next to the symbol . Insert the eyelet of the earth ground cable between the two bolts on the grounding lug (Ground cable not included.)
3. Plug in the power connector to the rear panel of the NetGuardian. Twist the collar of the plug to lock in place.
4. Insert fuse into the Power A fuse slot.
5. Plug in the wall transformer to a power outlet. The power LED should be lit green. To confirm that power is correctly connected, the front panel LEDs will flash RED and GREEN, indicating that the firmware is booting up.

5.3 LAN Connection

To connect the NetGuardian 216 G3 to the LAN, insert a standard RJ45 Ethernet cable into the 10BaseT Ethernet port on the back of the unit. If the LAN connection is OK, the LNK LED will light **SOLID GREEN**.

5.4 Serial Connection

The NetGuardian 216 G3 has 4 build options for it's serial / dialup port. You can order your port as a **Yost RS-232, RS-485, 4-wire 202 RJ45**, or with a **dial-up modem**. The serial port is located on the back panel, where it is labeled "Primary."

Hot Tip! If you are unsure of the serial port type on your NetGuardian, login to MyDPS and click on the Product Information Search link. Type in the full part number of your unit and click the Submit button to access the specifications.

The serial port can be used for three different functions:

- Reach-through proxy connection for LAN-based Telnet access to switches, radios, PBXs and other equipment.
- Alarm reporting to the T/Mon NOC Remote Alarm Monitoring System over an RS-232, 485, 202, or dial-up modem.
- Dial-up notifications via your cell phone and alphanumeric pager.

Note: If the serial port is configured for alarm reporting to T/Mon NOC, the port is **not** available for use as a reach-through proxy port.

The pinouts are shown in ***Fig. 5.1 .***

5.5 Optional GPRS or CDMA Wireless Modem

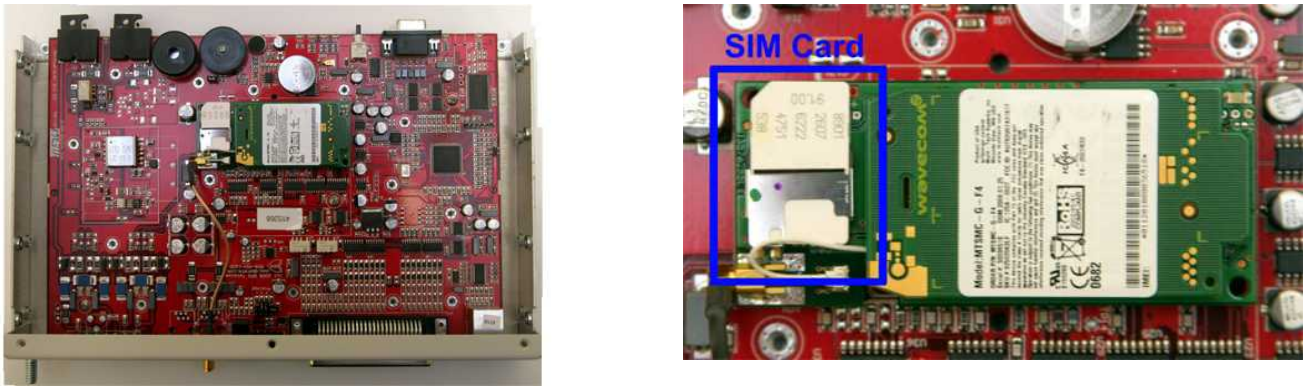
The NetGuardian 216 is available with an optional GPRS/GSM or CDMA wireless modem, allowing you to report alarms from your remote sites without LAN or dialup connections via SMS notifications over a cellular band.

If you ordered your NetGuardian 216 G3 with a wireless modem, you'll see the antenna node protrude from the back panel of the unit and a label above the node indicating the type of modem - GPRS/GSM or CDMA - installed in your NetGuardian.

Note: You cannot access to your NetGuardian's web or TTY interfaces over cellular connection. You must configure the unit via the front-side craft connection or over LAN.

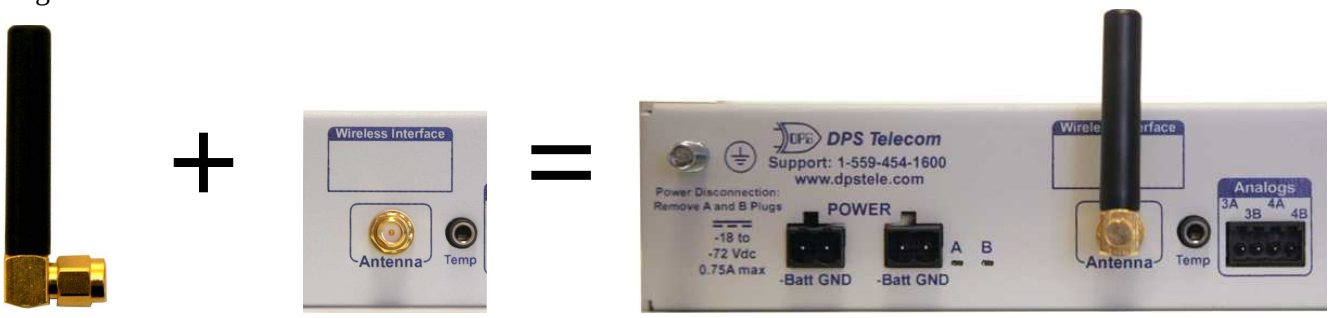
To Enable Wireless Alarm Reporting:

1. Disconnect power connections to the NetGuardian
2. Remove the 3 screws on the bottom of the NetGuardian near the front panel.
3. Remove the 3 screws on the top of the NetGuardian near the back panel.
4. Remove the NetGuardian's cover.
5. **If** your NetGuardian model is **GPRS/GSM** enabled**:** Insert a SIM card in the available modem slot.
5. **If** your NetGuardian model is **CDMA** enabled: Record the Electronic Serial Number (ESN). Your cellular carrier will need this number to enable your NetGuardian's wireless modem.



Open your NetGuardian to insert your SIM card or take down your ESN

6. Replace the NetGuardian's top-cover and fasten it to the NetGuardian with the 6 screws you removed in steps 1 and 2.
7. Attach the antenna that came with your NetGuardian (2-901-00802-01) to the node labeled **Antenna**, and tighten the nut to fasten it to the NetGuardian.



The Antenna attaches to the NetGuardian's back panel to facilitate cellular signal reception

Note: Your NetGuardian cannot have both wireless and dialup modems. If you ordered your NetGuardian with the wireless modem, it will not have a dialup modem or the ability to send alphanumeric pager notifications.

5.5.1 Wireless Modem Activation

WARNING: Do not reset or power off the modem during activation.

1. Set up your wireless data account through Multi-Tech or your preferred service provider.

2. Verify that the antenna is screwed onto the back panel of the unit.

3. Locate the **Model #** and **ESN/MEID**. These can be found on the *Read Me First* page that is included with your unit, or on the back panel of your device.

4. Go to the Multi-Tech Support page and open the link for 'Cellular Modem Activation'
www.multitech.com

5. Follow the instructions that are associated with your modem model and service provider.

Important: If you are having trouble finding your modem's model number, please contact DPS support at 559-454-1600.

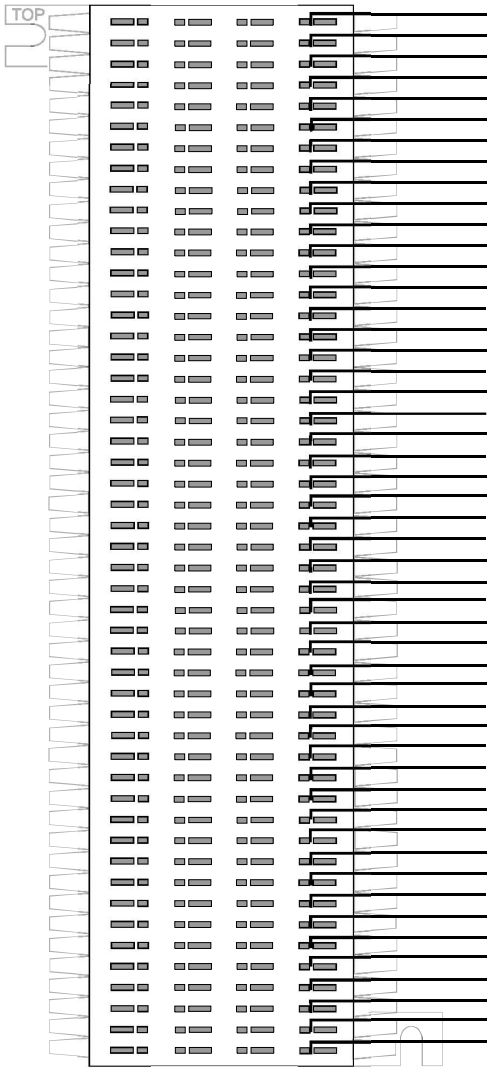
5.6 50-Pin Alarm and Control Relay Connector

The primary connector for discrete alarms, analog alarms and control relays is the 50-pin connector on the NetGuardian 216 G3's back panel.

Note: You can optionally connect analog inputs through the 4-pin barrier plug connector, instead of the 50-pin connector. Only 2 analog channels (3, 4) can be accessed this way.

Note: The maximum switching capacity is 30W. At 60V the relay switches at 0.5A and at 30V the relay switches at 1A.

5.7 Optional 66 Block Connector



Wire color (wire/stripe)	Connection	66 Block Pair #	Corresponding 50-Pin Connector Pin #
WHT/BLU	ALM 1	1	26
BLU/WHT	GND 1		1
WHT/ORG	ALM 2	2	27
ORG/WHT	GND 2		2
WHT/GRN	ALM 3	3	28
GRN/WHT	GND 3		3
WHT/BRN	ALM 4	4	29
BRN/WHT	GND 4		4
WHT/GRY	ALM 5	5	30
GRY/WHT	GND 5		5
RED/BLU	ALM 6	6	31
BLU/RED	GND 6		6
RED/ORG	ALM 7	7	32
ORG/RED	GND 7		7
RED/GRN	ALM 8	8	33
GRN/RED	GND 8		8
RED/BRN	ALM 9	9	34
BRN/RED	GND 9		9
RED/GRY	ALM 10	10	35
GRY/RED	GND 10		10
BLK/BLU	ALM 11	11	36
BLU/BLK	GND 11		11
BLK/ORG	ALM 12	12	37
ORG/BLK	GND 12		12
BLK/GRN	ALM 13	13	38
GRN/BLK	GND 13		13
BLK/BRN	ALM 14	14	39
BRN/BLK	GND 14		14
BLK/GRY	ALM 15	15	40
GRY/BLK	GND 15		15
YEL/BLU	ALM 16	16	41
BLU/YEL	GND 16		16
YEL/ORG	CTRL 1 NC	17	42
ORG/YEL	CTRL 1 NO		17
YEL/GRN	CTRL 1 CO	18	43
GRN/YEL	CTRL 2 CO		18
YEL/BRN	CTRL 2 NC	19	44
BRN/YEL	CTRL 2 NO		19
YEL/GRY	FA CO	20	45
GRY/YEL	FA NO		20
VIO/BLU	ANA 1 –	21	46
BLU/VIO	ANA 1 +		21
VIO/ORG	ANA 2 –	22	47
ORG/VIO	ANA 2 +		22
VIO/GRN	ANA 3 –	23	48
GRN/VIO	ANA 3 +		23
VIO/BRN	ANA 4 –	24	49
BRN/VIO	ANA 4 +		24
VIO/GRY	GND	25	50
GRY/VIO	GND		25

Fig. 5.4 *Optional 66 block connector pinout*

The NetGuardian 216 G3 is also available with an optional 66 Block Connector for connecting discrete alarms, analog alarms and control relays. Pinout and wire color coding for the 66 Block are shown above.

5.8 Discrete Alarms

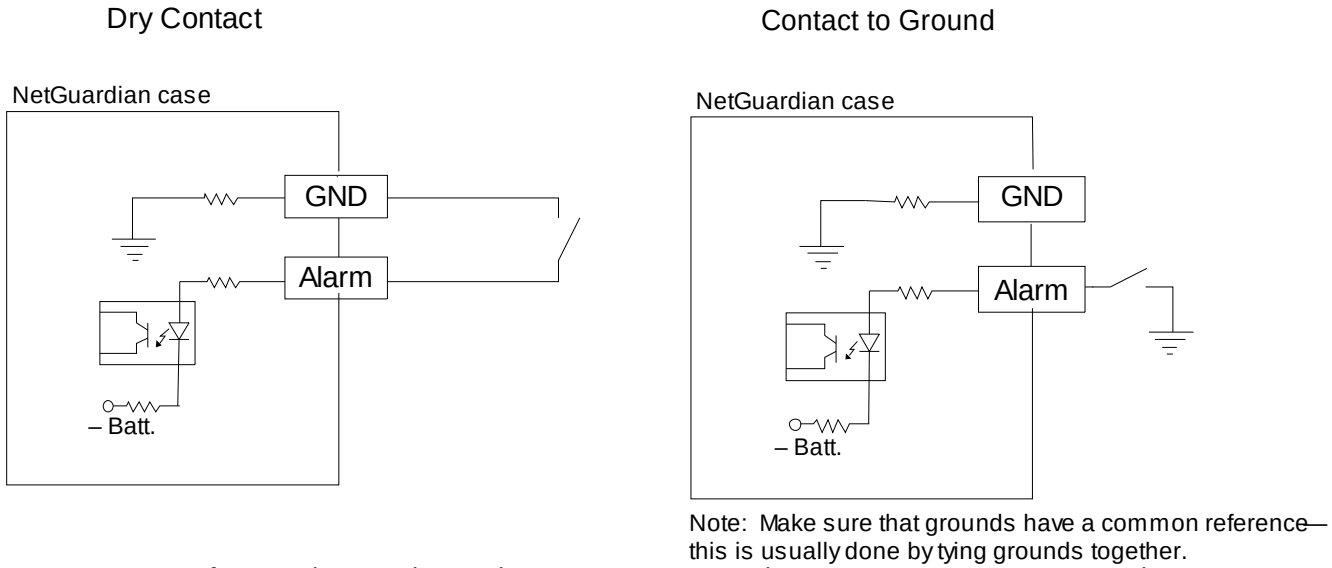


Fig. 5.5 *Discrete alarm points can connect as a dry contact or a contact to ground*

The NetGuardian 216 G3 features 16 discrete alarm inputs — also called digital inputs or contact closures. Discrete alarms are either active or inactive, so they're typically used to monitor on/off conditions like power outages, equipment failures, door alarms and so on.

The NetGuardian's discrete alarm points are single-lead signals referenced to ground. The ground side of each alarm point is internally wired to ground, so alarm points can connect either as a dry contact or a contact to ground.

In a dry contact alarm: The alarm lead brings a contact to the ground lead, activating the alarm.

In a contact to ground alarm: A single wire brings a contact to an external ground, activating the alarm.

You can reverse the polarity of each individual discrete alarm point, so that the alarm is activated when the contact is open. This is done with a software configuration change.

5.9 Analog Alarms

The NetGuardian 216 G3's 8 analog alarm inputs measure continuous ranges of voltage or current. Analog alarms are typically used to monitor battery voltage, charging current, temperature, humidity, wind speed, or other continuously changing conditions. The measurement range of the analog channels is –90 to +90 VDC or 4 to 20 mA. To configure the analogs for current sensing (4 - 20mA) please review the next section for jumper position.

You can use analogs 1 through 4 to monitor whatever you like. Analogs 5 through 8 are pre-configured to monitor Battery A and B, Internal Temperature, and External Temperature. Read the following table to see where to connect the analogs.

Analog #	Connection
ANA 1	User-definable; connects to the 50-pin amphenol.
ANA 2	User-definable; connects to the 50-pin amphenol.
ANA 3	User-definable; connects to the 50-pin amphenol **OR** use the optional 4-pin analog connector.
ANA 4	User-definable; connects to the 50-pin amphenol **OR** use the optional 4-pin analog connector.
ANA 5	Pre-configured to monitor Battery A.
ANA 6	Pre-configured to monitor Battery B.
ANA 7	Pre-configured to monitor Internal Temperature. Located in the center or edge of PCB.
ANA 8	Pre-configured to monitor External Temperature via jack to external temperature probe.

You can connect analog 3 and 4 to either the primary 50-pin amphenol on the back of the NetGuardian, or to the 4-pin connector, **but not both** at the same time. If your NetGuardian was ordered with 2 analogs, the 4-pin connector can be used for wiring. Keep in mind that the 4-pin connector is labeled "Analogs 3 & 4". ***Warning: Having analogs connected to both the 50-pin Amphenol and 4-pin connector at the same time could cause damage to the unit or the source devices.***

The 4-pin connector is a screw terminal barrier plug, similar to the power connector. To connect analog inputs, remove the connector plug, connect the leads to the appropriate terminals and reinsert the barrier plug. Note that the plug can be inserted into its socket only one way, so make sure it can only be reinserted with the alarm inputs aligned correctly.

By default, the analog inputs are configured to measure voltage. You can switch the analog inputs to measure current by resetting jumpers on the NetGuardian 216 G3's circuit board.

Analog Step Sizes and Accuracy		
Input Voltage Range	**Resolution (Step Size)**	**Accuracy**
0-5 V	.0015 V	+/- .05V
5-14 V	.0038 V	+/- .14V
14-30 V	.0081 V	+/- .30V
30-70 V	.0182 V	+/-.70V
70-90 V	.0231 V	+/-.90V

Analog step sizes and accuracy

5.9.1 Switching Analog Alarms to Current Operation

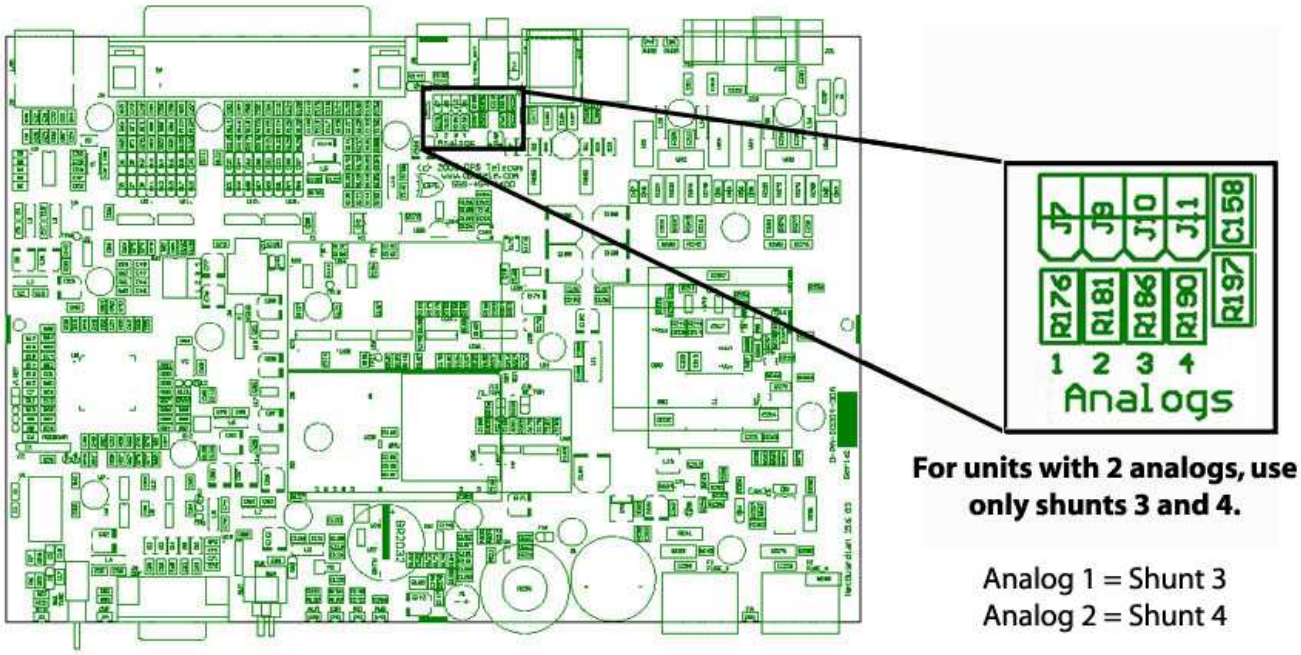
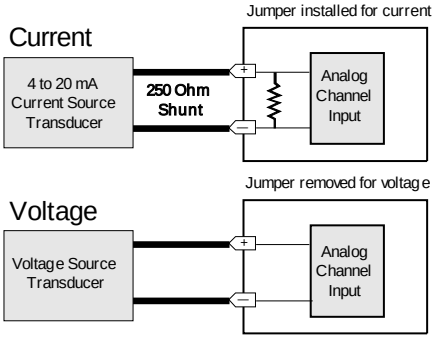


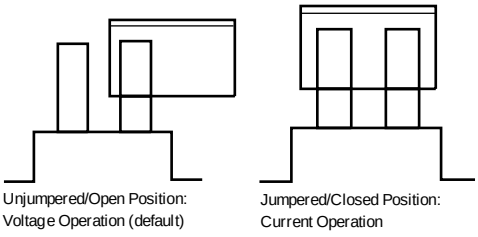
Fig. 5.6. *Adjustable jumpers on the NetGuardian 216 circuit board*

By default, the analog inputs are configured to measure voltage. You can switch the analog inputs to measure current by resetting jumpers on the NetGuardian 216 G3's circuit board.

To test the analog alarm voltage/current jumpers, follow these steps:

1. Make sure the NetGuardian 216 G3 is depowered and disconnected from all network connections.
2. Remove the screws from the sides of the NetGuardian 216 G3 case.
3. Slide the top cover of the case off to expose the circuit board.
4. The adjustable jumpers are shown in ***Fig. 5.6***. All alarm inputs can be individually configured for current or voltage operation. Remember that the default jumper position is OPEN for measuring voltage. **Note:** Each jumper inserts a 250-ohm shunt resistor across the input. This must be taken into account when defining the analog input reference scale.





Jumper	Analog
J7	ANA 1
J9	ANA 2
J10	ANA 3
J11	ANA 4

Fig. 5.7. *Jumper settings for analog alarms inputs.*

5. Slide the top cover of the case back into position and replace the screws.
6. Reconnect and power up the NetGuardian 216 G3.

6 NetGuardian 216 G3 Front Panel

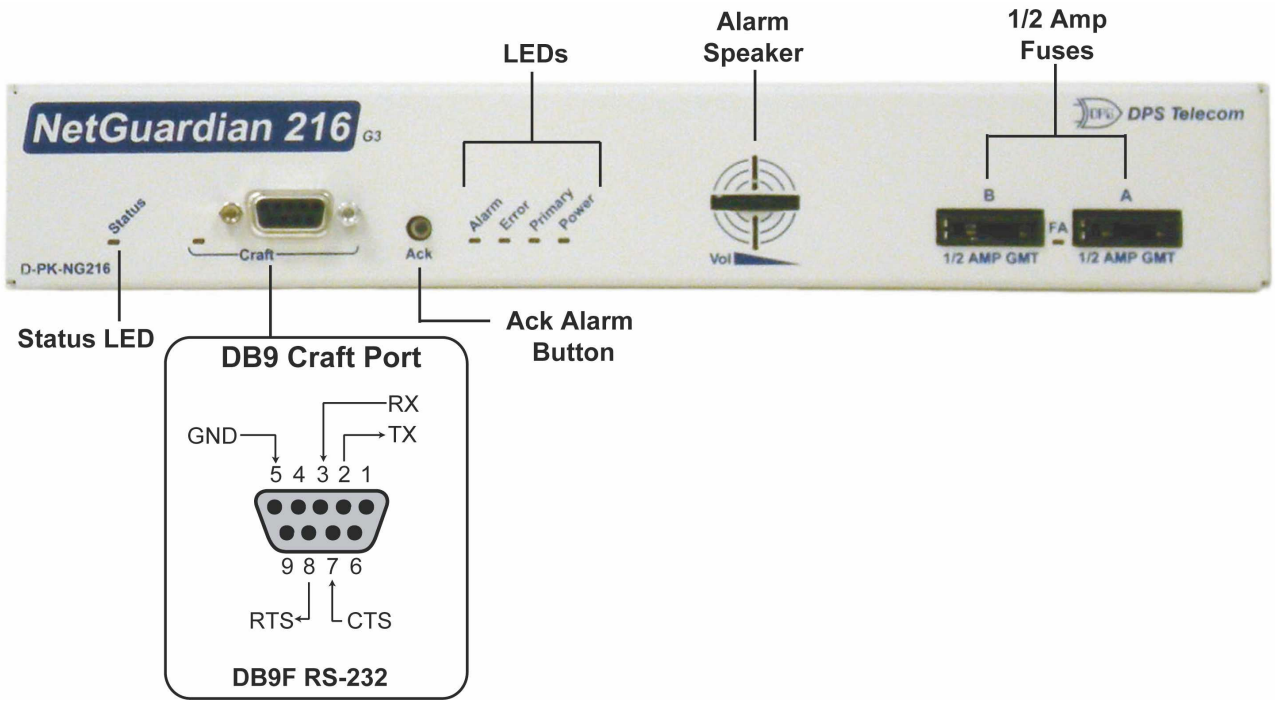


***Fig. 6.1**. NetGuardian 216 G3 Front panel connections*

6.1 Craft Port

Use the front panel craft port to connect the NetGuardian 216 G3 to a PC for onsite unit configuration. To use the craft port, connect the included DB9 download cable from your PC's COM port to the craft port. Pinout is shown above for reference, but this is a standard DB9 to DB9.

6.2 Alarm Speaker

The NetGuardian 216 G3 has a built-in speaker for local audible alarm notification. The NetGuardian 216 G3 ships with the speaker turned off. When enabled, the speaker will beep repeatedly when new alarms happen.

To enable the speaker:

1. Log-in to Web Interface
2. Go to Edit Menu and select Timers
3. Change **Sound on time** setting to something other than zero.
4. Click Save

To adjust the speaker volume, use the volume control thumb wheel on the NetGuardian's front panel.

7 Quick Start: How to Connect to the NetGuardian 216 G3

Most NetGuardian users find it easiest to give the unit an IP address, subnet and gateway through the front craft port (TTY interface) to start. Once these settings are saved and you reboot the unit, you can access it over LAN to do the rest of your databasing via the Web Browser interface.

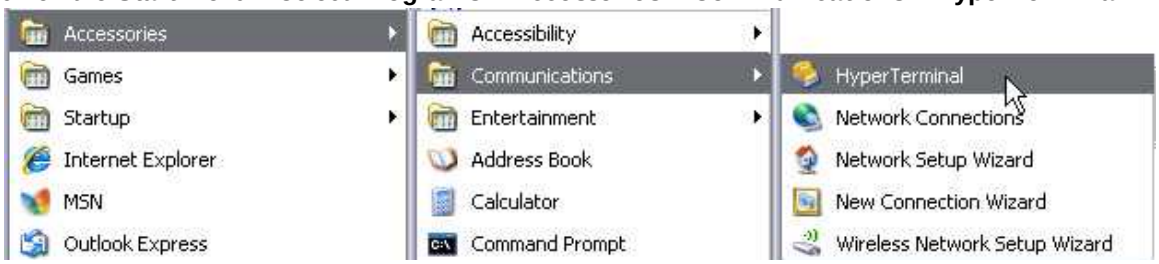
Alternative option: You can skip the TTY interface by using a LAN crossover cable directly from your PC to the NetGuardian 216 G3 and access its Web Browser. See Section 7.2.

7.1 ...via Craft Port (using TTY Interface)

1. The simplest way to connect to the NetGuardian 216 G3 is over a physical cable connection between your PC's COM port and the unit's craft port. **Note:** You must be connected via craft port or Telnet to use the TTY interface. Make sure you are using the straight through (1 to 1) Male to Female DB9-DB9 download cable provided with your NetGuardian 216 G3 to make a craft port connection. We'll be using HyperTerminal to connect to the unit in the following example - however, most terminal-emulating programs should work.

sTo access HyperTerminal using Windows:

2. Click on the **Start** menu **>** select **Programs** > **Accessories** > **Communications** > **HyperTerminal.**



3. At the Connection Description screen, enter a name for this connection. You may also select an icon. The name and icon do not affect your ability to connect to the unit.

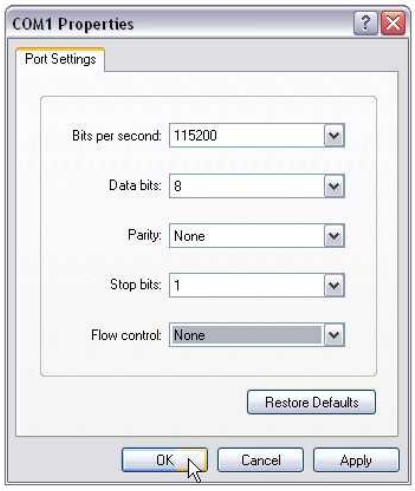
4. At the Connect To screen, select Com port you'll be using from the drop down and click OK. (COM1 is the most commonly used.)

5. Select the following COM port options:

6. When prompted, enter the default user name

- Bits per second: 9600
- Data bits: 8
- Parity: None
- Stop bits: 1
- Flow control: **None**

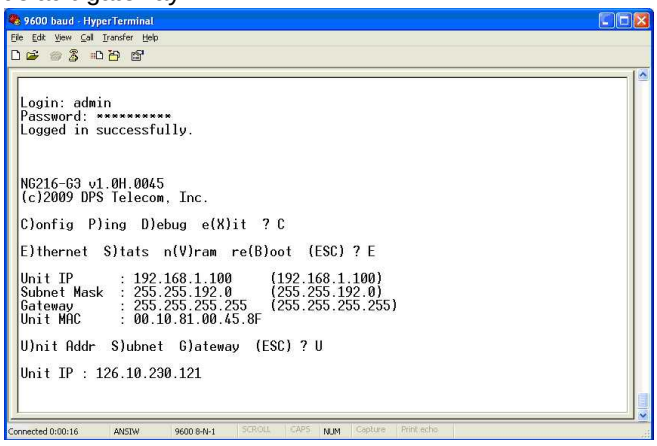
Once connected, you will see a blank, white HyperTerminal screen. Press Enter to activate the configuration menu.



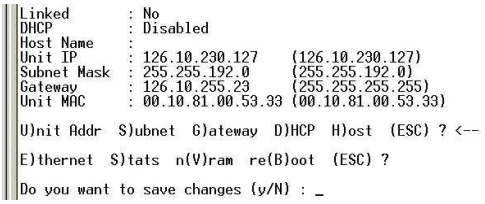
admin and password **dpstelecom**. NOTE**:** If you don't receive a prompt for your user name and password, check the Com port you are using on your PC and make sure you are using the cable provided.

Additional cables can be ordered from DPS Telecom:
Part number D-PR-045-10A-04

7. The NetGuardian 216 G3's main main menu will appear. Type C for C)onfig, then E for E)thernet. Configure the unit's IP address, subnet mask, and default gateway.

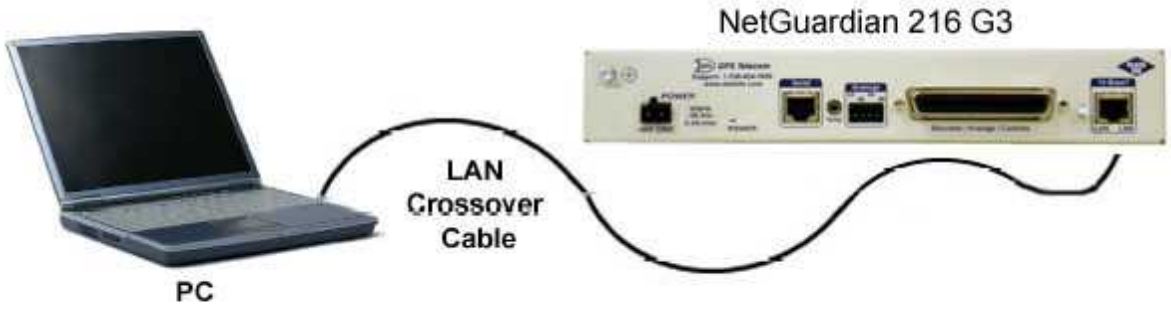


8. ESC to the main menu. When asked if you'd like to save your changes, type Y for Y)es. Reboot the NetGuardian 216 G3 to save its new configuration.



Be sure to change the IP of your computer back to one that operates on your network. ***Now you're ready*** to do the rest of your configuration via LAN. Plug your LAN cable into the NetGuardian 216 G3 and see Section 9, "Logging On to the NetGuardian 216 G3" to continue databasing using the Web Browser.

7.2 ...via LAN



Connection through Ethernet port

To connect to the NetGuardian 216 G3 via LAN, all you need is the unit's IP address (Default IP address is 192.168.1.100).

If you DON'T have LAN, but DO have physical access to the NetGuardian 216 G3, connect using a LAN crossover cable. **NOTE:** Newer PCs should be able to use a standard straight-through LAN cable and handle the crossover for you. To do this, you will temporarily change your PC's IP address and subnet mask to match the NetGuardian's factory default IP settings. Follow these steps:

1. Get a LAN crossover cable and plug it directly into the NetGuardian 216 G3's LAN port.
2. Look up your PC's current IP address and subnet mask, and write this information down.
3. Reset your PC's IP address to **192.168.1.200**. Contact your IT department if you are unsure how to do this.
4. Reset your PC's subnet mask to **255.255.0.0**. You may have to reboot your PC to apply your changes.
5. Once the IP address and subnet mask of your computer coincide with the unit, you can access the NetGuardian 216 G3 via a Telnet session or via Web browser by using the unit's default IP address of **192.168.1.100**.
6. Provision the NetGuardian 216 G3 with the appropriate information, then **change your computer's IP address and subnet mask back to their original settings.**

Now you're ready to do the rest of your configuration via LAN. Plug your LAN cable into the NetGuardian 216 G3 and see Section 9, "Logging On to the NetGuardian 216 G3" to continue databasing using the Web Browser.

8 TTY Interface

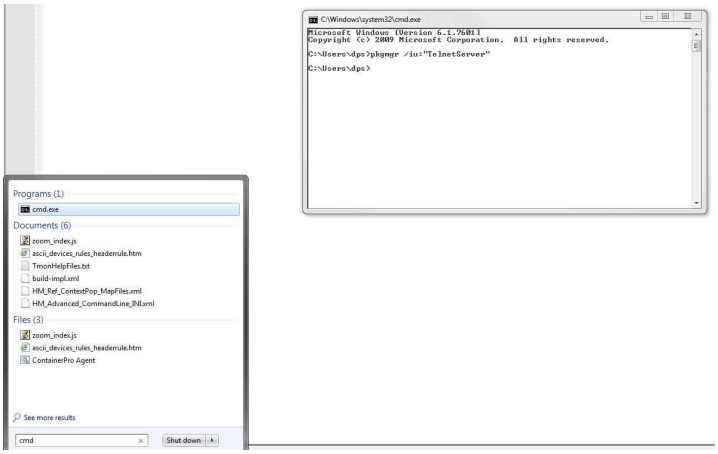
The TTY interface is the NetGuardian's built-in interface for basic configuration. From the TTY interface, you can:

- Edit the IPA, subnet, and gateway
- Tune the 202 modem
- Set unit back to factory defaults
- Configure data ports
- Set DCP info for T/Mon polling
- Ping other devices on the network
- Debug and troubleshoot
- HTTP Port

For more advanced configuration tools, please use the Web Browser Interface.

For Telnet, connect to the IP address at port 2002 to access the configuration menus after initial LAN/WAN setup. **Telnet sessions are established at port 2002, not the standard Telnet port** as an added security measure.

If you're using Windows 7, then you'll need to install telnet before you can use the TTY interface. To install telnet, open up your command line (type "cmd" into the search bar in the **Start Menu**). Select **cmd.exe** to run the command line.



From the command line, type in "pkgmgr /iu:"TelnetServer" then press **enter**. When the command prompt appears again, the installation is complete.

Menu Shortcut Keys

The letters before or enclosed in parentheses () are menu shortcut keys. Press the shortcut key to access that option. Pressing the ESC key will always bring you back to the previous level. Entries are not case sensitive.

8.1 Configure Serial Port via TTY

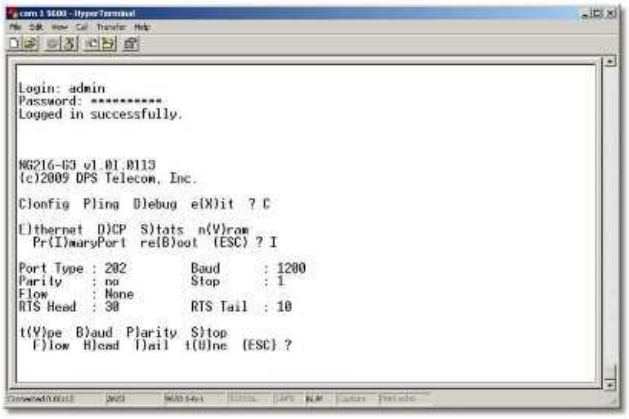


Fig. 8.1 - *Serial port configuration*

1. To enter configuration setting for the Serial Port, login to the TTY interface and press **C)onfig** > **pr(I)maryPort**.

2. Press the hot keys to toggle through the following options. (* Indicates default settings:)
   NOTE: Default settings may not reflect the primary interface that shipped in the unit.
   - **Port Type**: 232*, 485, 202
   - **Baud**: 115200*, 57600, 19200, 9600, 4800, 2400, 1200
   - **Parity**: None*, even, odd
   - **Flow control**: None*, hardware
   - **Stop bits**: 1*, 2

3. Set the RTS head / tail is using 202. (Carrier time) Suggested settings are: head=60; tail=40; 0,0 if using RS232.

8.2 Tune 202 Modem (Set Transmit Level)

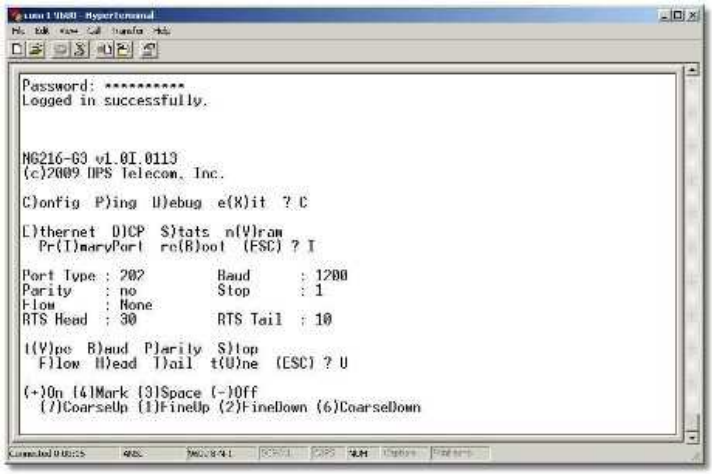


Fig. 8.2 - *Tuning the 202 modem.*

1. Login to the TTY interface and press **C)onfig > pr(I)maryPort > t(U)ne**.
2. Press the hot keys to turn on, then mark or space. Set the desired level (factory default is -13dBm)

8.3 Set DCP Parameters

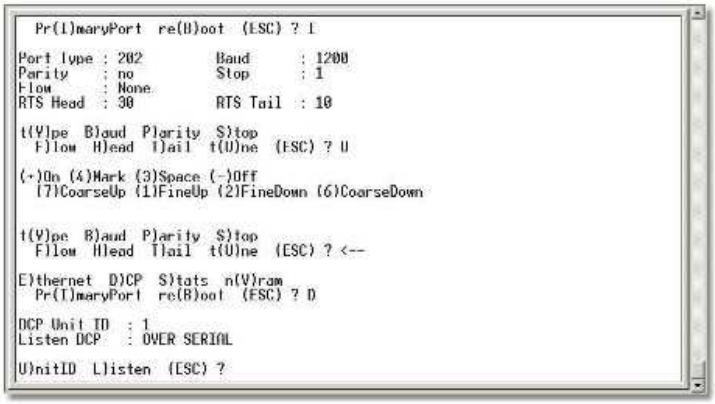
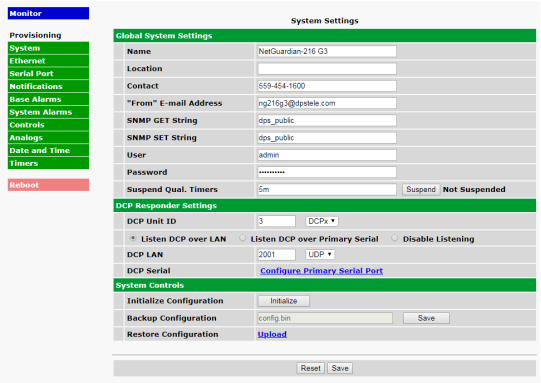


Fig. 8.3 - *Setting DCP Parameters*

1. Login to the TTY interface and press C)onfig > D)CP.
2. Set the DCP Address (Unit ID).
3. Set the DCP listening type (toggle through the options). Choose over serial, over LAN*, or disabled.

Note: If not using DCP to communicate with a DPS master, set the address to 0 and disable listening.

9 NetGuardian 216 G3 Web Browser



The NetGuardian 216 G3 features a built-in Web Browser Interface that allows you to manage alarms and configure the unit through the Internet or your Intranet. You can quickly set up alarm point descriptions, view alarm status, issue controls, and configure paging information, and more using most commonly used browsers.

NOTE: Max # of users allowed to simultaneously access the NetGuardian 216 via the Web is 4.

9.1 Logging on to the NetGuardian 216 G3

For Web Interface functionality, the unit must first be configured with some basic network information. If this step has not been done, refer to the section "Quick Start: How to Connect to the NetGuardian 216 G3" for instructions on initial configuration setup.

1. To connect to the NetGuardian 216 G3 from your Web browser, enter its IP address in the address bar of your web browser. It may be helpful to bookmark the logon page to avoid entering this each time.

2. After connecting to the unit's IP address, enter your login information and click OK. **NOTE:** The factory default username is "***admin***" and the password is "***dpstelecom***".

3. In the left frame you will see the **Monitor** menu (blue) and **Provisioning** menu (green) The Monitor menu links are used to view the current status of alarms. The Provisioning menu is used to change the unit's configuration settings. All the software configuration will occur in the **Provisioning** menu. The following sections provide detailed information regarding these functions.

Fig. 9.1. *Enter your password to enter the NetGuardian 216 G3 Web Browser Interface*

9.1.1 Changing the Default Password

The password can be configured from the **Provisioning** > **System** screen. The minimum password length is four characters; however, DPS recommends setting the minimum password length to at least five characters.

Use the following steps to change the logon password:

1. From the **Provisioning** menu select **System**.
2. Enter the new user name in the **User** field.
3. Enter the new password in the **Password** field.
4. Click the **Save** button.

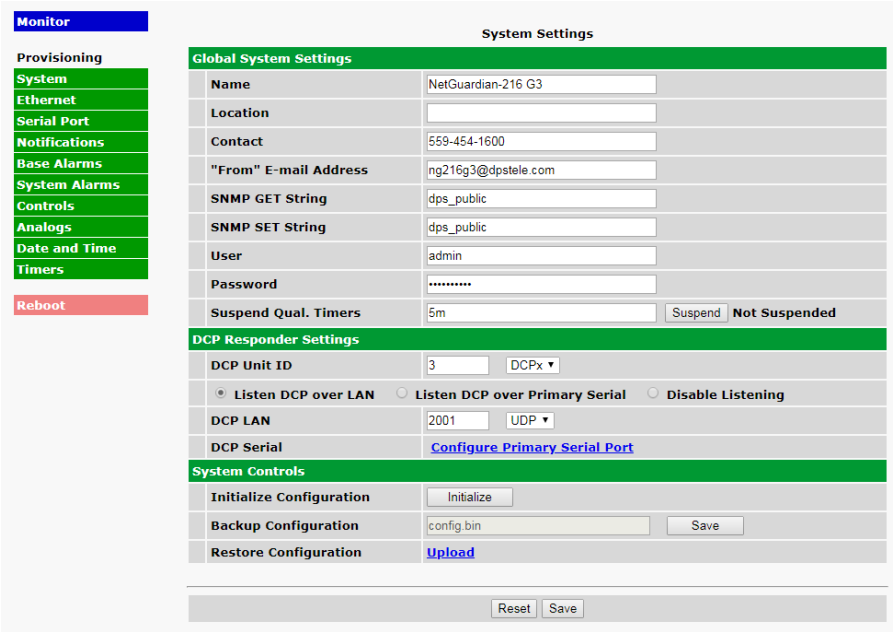


Fig. 9.2 *- Global System Settings section of the Provisioning > System menu*

NOTE: You will see the following popup when making changes to the NetGuardian 216 G3 from the **Provisioning** menu. It will appear when confirming your changes to the database, either by clicking **Next** in the setup wizards or

the **Save** button.

Fig. 9.3 *- Commit to NVRAM popup*

10 NetGuardian 216 G3 - Most Important How-Tos

The next 3 sections of this manual will walk you through some of the most common tasks for using the NetGuardian 216 G3. You will learn how to send email notifications, and send SNMP traps to your alarm master- all using the Web browser. For details on entering your settings into each Web browser menu, the section "Provisioning Menu Field Descriptions."

10.1 How to Send Email Notifications

1. Click on the **System** button in the **Provisioning** menu and enter a valid email address in the **"From" Email Address** field. (You may need to check with your IT department to have one created for the unit.) This is the address that will appear in your email as the sender.

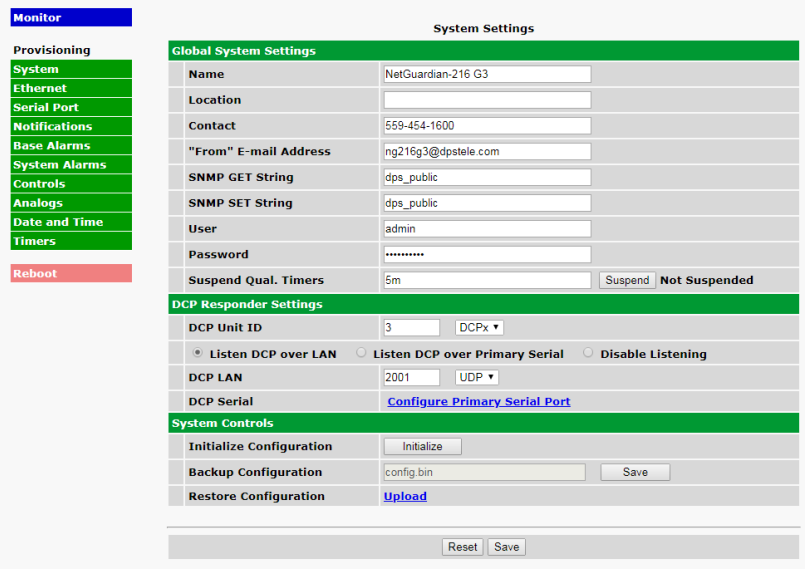


Fig. 10.1

2. Click on the **Notifications** button in the **Provisioning** menu. You can setup as many as 8 different notifications. Begin the setup "wizard" by clicking on a notification number. In this example, we'll setup Notification 1 to send emails.

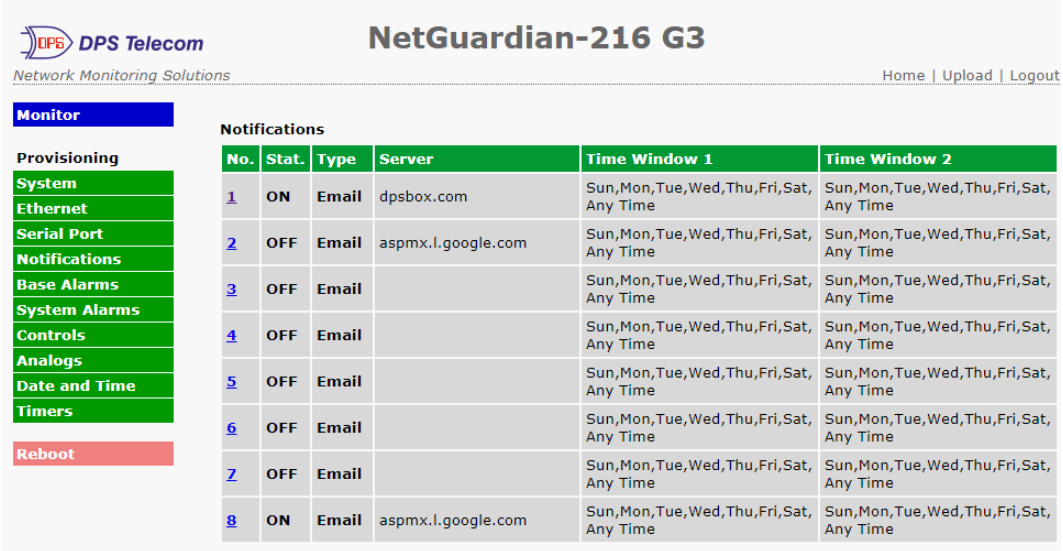


Fig. 10.2

3. At the **Notification Setting** screen, click the scroll down menu and select **Notify on both Alarms and Clears** box to turn "on" Notification 1. Now, select the **Send Email Notification** button and click Next.

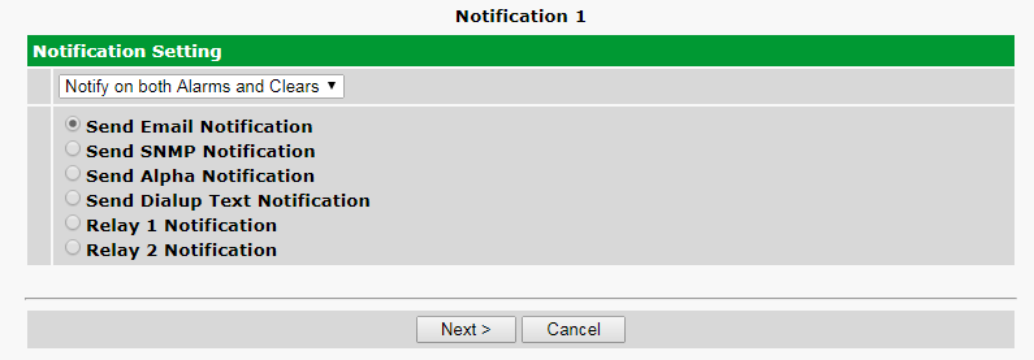


Fig. 10.3

4. At the **Email Notification** screen, you'll enter your email server settings. Enter the **IP address** or **Host Name** of your email server. Enter the **Port Number** (usually 25) and the **"To" Email Address** of the technician that will receive these emails. Click **Next**.

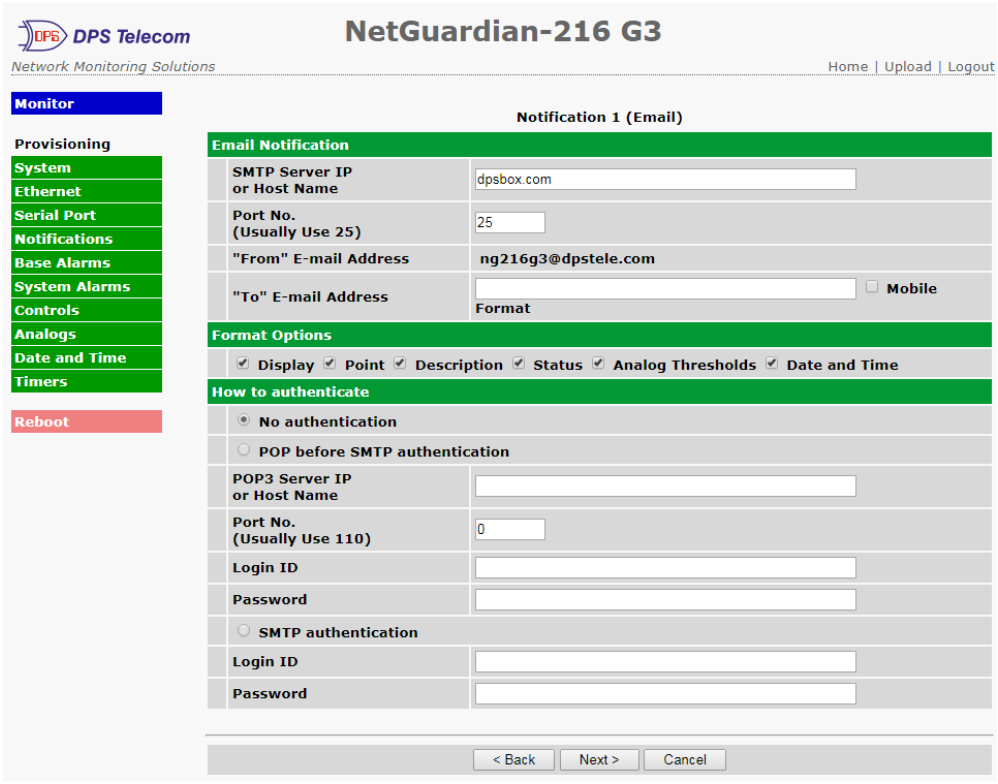


Fig. 10.4

For email notifications, under 'Format Options', you can select or deselect each checkbox to specify which fields you want visible in your email notifications. By default, all the boxes are checked.

NOTE: When 'Analog Threshold' is checked, your notification will send the threshold value and the current value that is being read. The threshold value will no longer be a part of the 'Desc' field.

5. At the **Schedule** screen, you'll select the exact days and times you want to receive email notifications. You can set 2 schedules per notification. For example, you may want to receive notifications at certain times during the week, and at different hours on the weekend. Use the check boxes to select the days of the week, and select the time from the drop down menus. Click **Finish.** To try a test notification, click the **Test** button (See next step.)

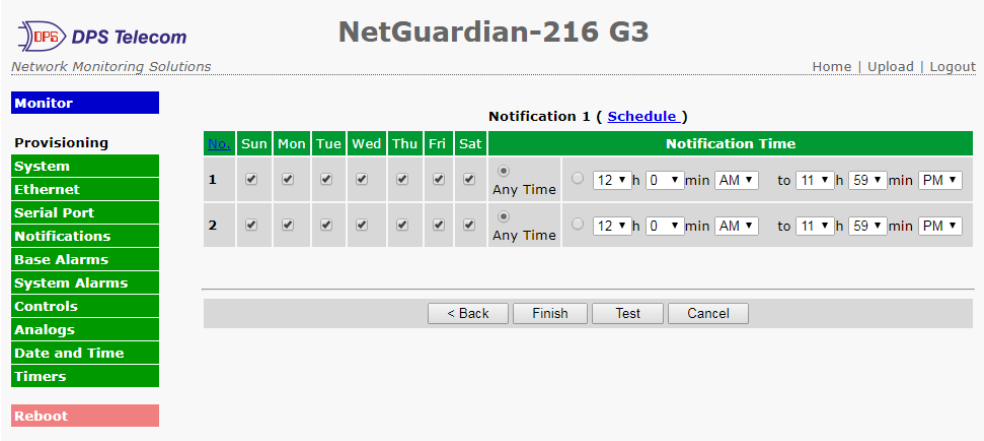


Fig. 10.5

6. If you chose to test the email notification you've just setup, you will see a popup. Click **OK** to send a test email alarm notification. Confirm all your settings by checking your email to see if you've received it. **NOTE:** This test only means that your notification settings are correct, but you still need to assign the notification to an alarm point. See the next step.

Fig. 10.6

7. Now you will associate this notification to an alarm (system, base, analog, etc.) You have 8 notification devices available to use. In the image below, you might assign **Notification Device 1** to **Base Alarm 1**. This means that you would receive an email notification when an alarm for SERVER ROOM occurs. Remember that Notification #1 in the Notifications menu is the same as N1 on the alarms page.

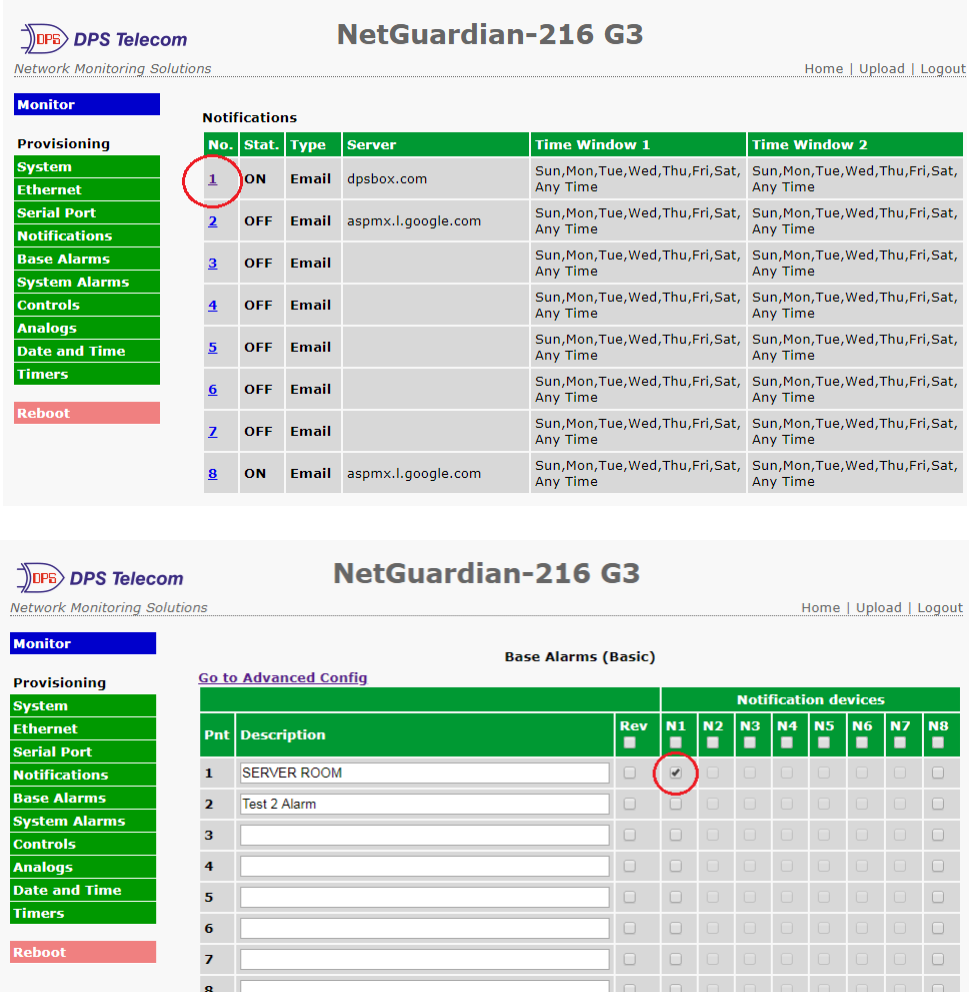


Fig. 10.7

10.2 How to Send SNMP Traps

1. Click on the **System** button in the **Provisioning** menu. Enter the **SNMP GET** and **SNMP SET** community strings for your network, then click **Save**. The typical SNMP SET and GET community strings for network devices is "public". As an added security measure, our default is "dps_public".

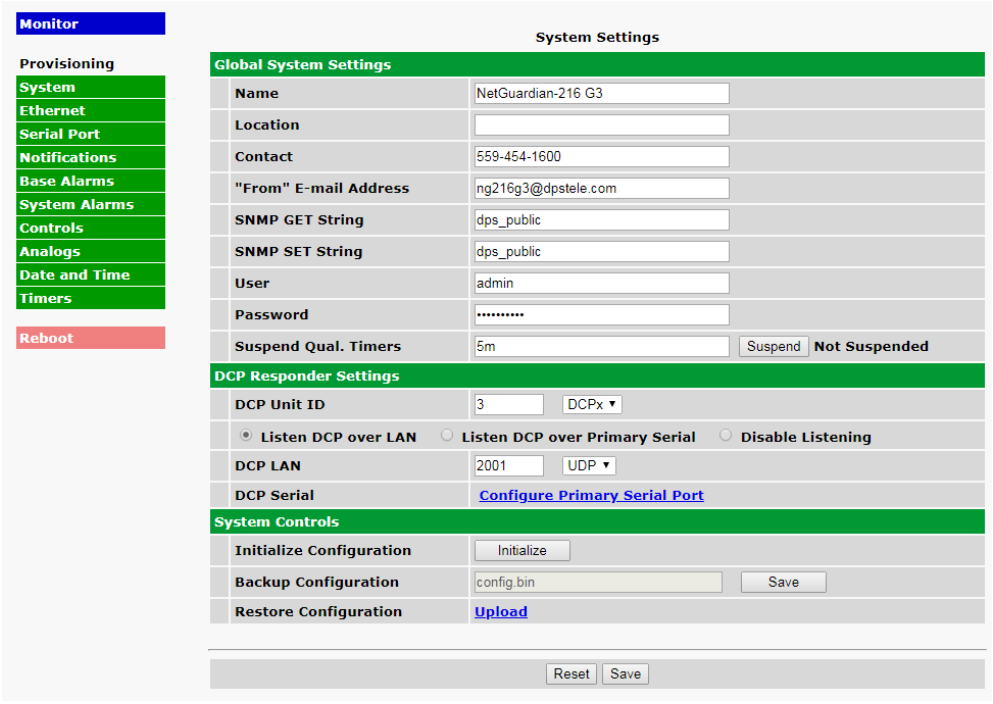


Fig. 10.8

2. Click on the **Notifications** button in the **Provisioning** menu. You can setup as many as 8 different notifications. Begin the setup "wizard" by clicking on a notification number. In this example, we'll setup Notification 4 to send SNMP traps to your alarm master.

Notifications

No.	Stat.	Type	Server	Time Window 1	Time Window 2
1	OFF	Email		No days selected Any Time	No days selected Any Time
2	ON	Email	123.456.789.00	Mon,Tue,Wed,Thu,Fri, 06:00AM to 06:00PM	Sun,Sat, Any Time
3	OFF	Email		Sun,Mon,Tue,Wed,Thu,Fri,Sat, Any Time	Sun,Mon,Tue,Wed,Thu,Fri,Sat, Any Time
4	OFF	Email		Sun,Mon,Tue,Wed,Thu,Fri,Sat, Any Time	Sun,Mon,Tue,Wed,Thu,Fri,Sat, Any Time
5	OFF	Email		Sun,Mon,Tue,Wed,Thu,Fri,Sat, Any Time	Sun,Mon,Tue,Wed,Thu,Fri,Sat, Any Time
6	OFF	Email		Sun,Mon,Tue,Wed,Thu,Fri,Sat, Any Time	Sun,Mon,Tue,Wed,Thu,Fri,Sat, Any Time
7	OFF	Email		Sun,Mon,Tue,Wed,Thu,Fri,Sat, Any Time	Sun,Mon,Tue,Wed,Thu,Fri,Sat, Any Time
8	OFF	Email		Sun,Mon,Tue,Wed,Thu,Fri,Sat, Any Time	Sun,Mon,Tue,Wed,Thu,Fri,Sat, Any Time

Fig. 10.9

3. At the **Notification Setting** screen, click the scroll down menu and select **Notify on both Alarms and Clears** to turn "on" Notification 4. Now, select the **Send SNMP Notification** button and click Next.

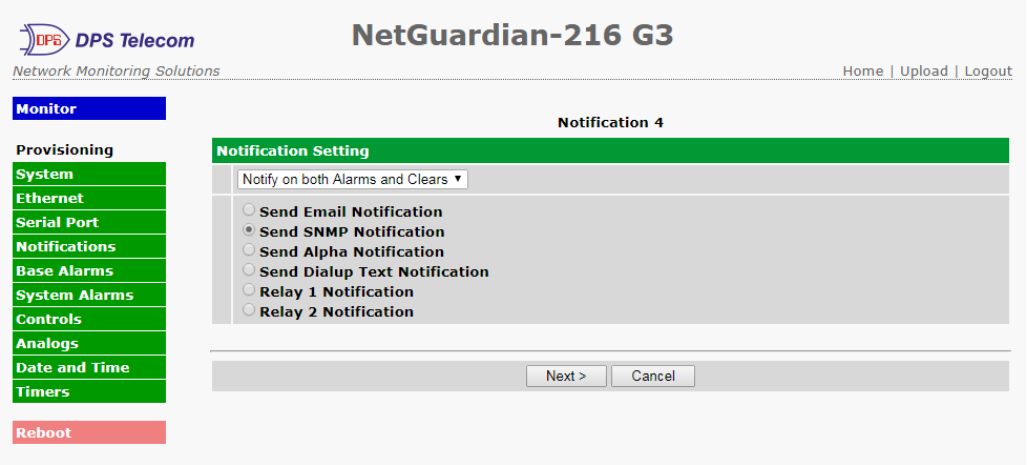


Fig. 10.10

4. At the **SNMP Notification** screen, you'll enter your network's SNMP settings. Enter the **IP address** of your SNMP Trap Server, the **Trap Port Number** (usually 162) and the **Trap Community** password. Choose from SNMPv1 or v2c traps, then click **Next**.

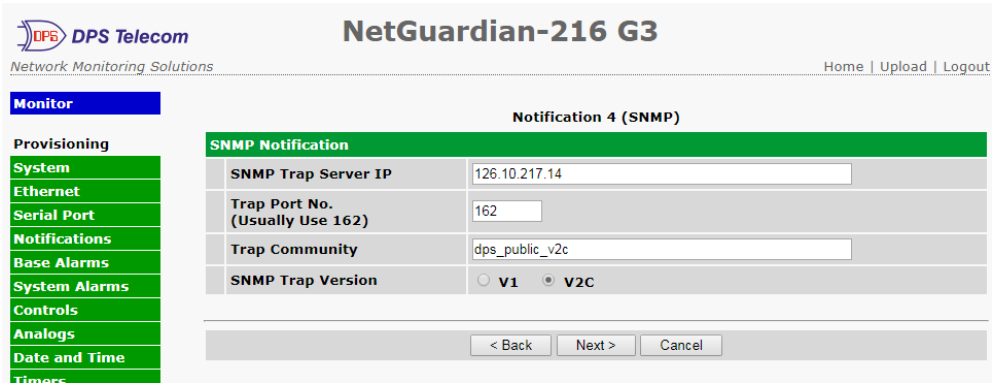


Fig. 10.11

5. At the **Schedule** screen, you'll select the exact days/times you want to receive SNMP notifications. You can set 2 schedules per notification. For example, you may want to receive notifications at certain times during the week, and at different hours on the weekend. Use the check boxes to select the days of the week, and select the time from the drop down menus. Click **Finish.** To try a test notification, click the **Test** button (See next step.)

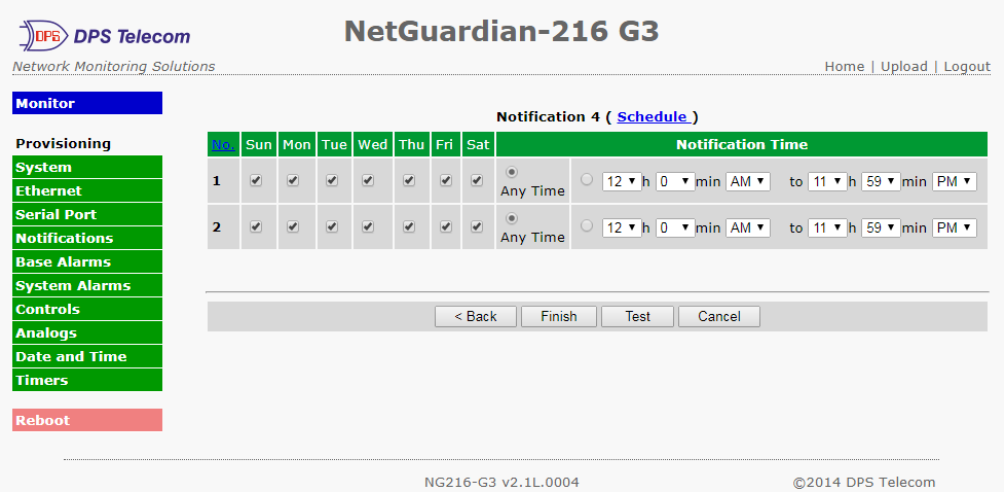


Fig. 10.12

6. If you chose to test the SNMP notification, you will see the popup below. Click **OK** to send a test SNMP alarm notification. Confirm your settings by checking your alarm master to see if the SNMP trap was received.

Fig. 10.13

NOTE: This test only means that your notification settings are correct, but you still need to assign the notification to an alarm point. See Step 7 in "How to Send Email Notifications" for more detail.

10.2.1 How to Send Text Messages to Your Cellphone

The optional 33.6K internal modem provides full support for alphanumeric paging, so you can automatically send detailed notifications and instructions to alphanumeric pagers, cell phones, and PDAs.

1. Click on the **Notifications** button in the **Provisioning** menu. You can setup as many as 8 different notifications. Begin the setup "wizard" by clicking on a notification number. In this example, we'll setup Notification 1 to send an alphanumeric page.

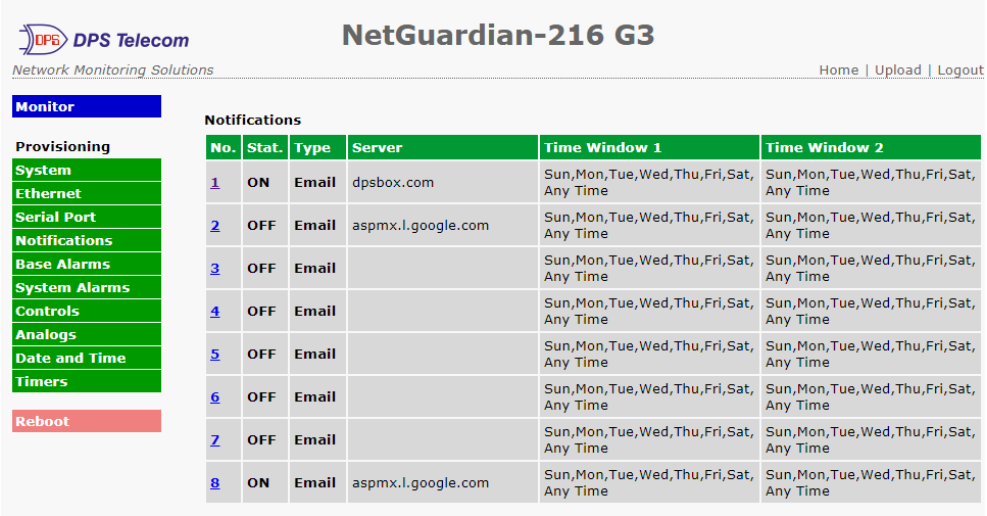


Fig. 10.14

2. At the **Notification Setting** screen, click the scroll down menu and select **Notify on both Alarms and Clears** to turn "on" Notification 1. Now, select the **Send Alpha Notification** button and click Next.

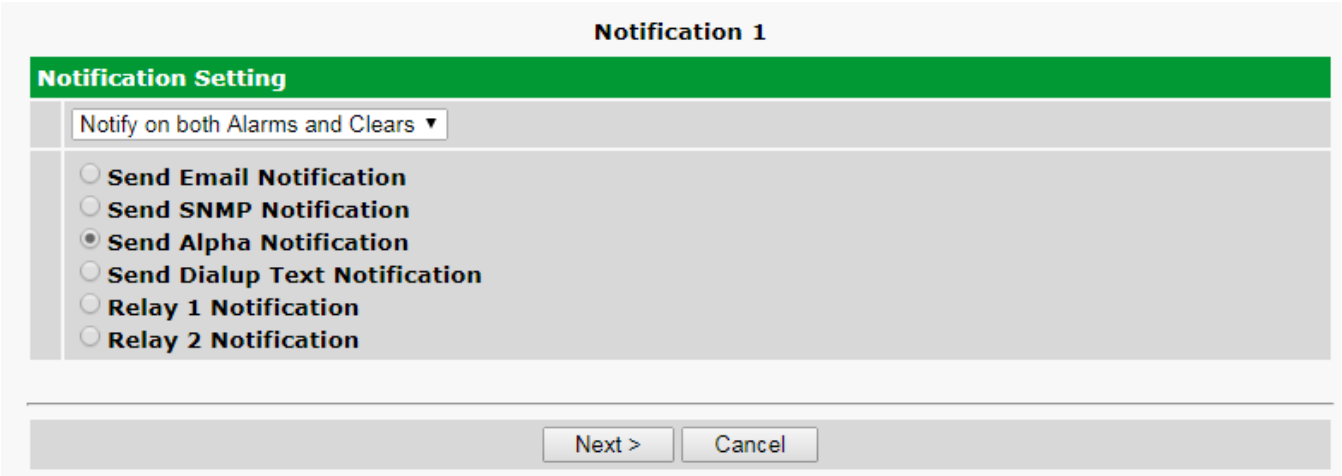


Fig. 10.15

3. At the **Alpha Notification** screen, you'll enter your notification settings. Enter the **Phone number to call** for your alphanumeric pager. For **Dial Init String:** Do not enter initialization strings unless directed by your network administrator or DPS Tech Support staff. The dial initialization string is sent to the modem before making the call. Enter a **PIN** (Personal Identification Number) for TAP terminal Authentication. Click **Next**.

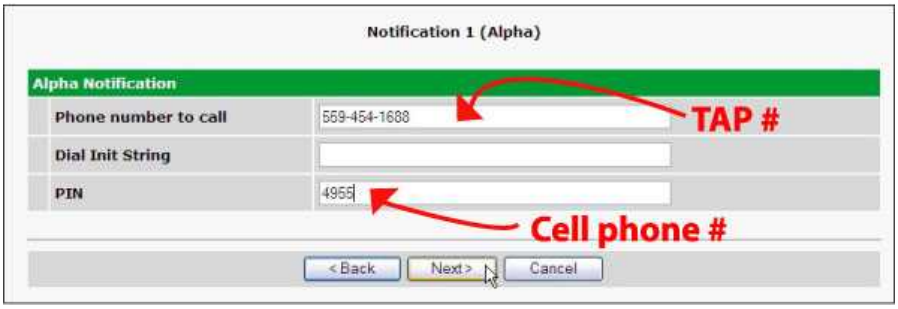


Fig. 10.16

Carrier	TAP #
Verizon	866-823-0501
AT&T	800-909-4602
Sprint PCS	1-888-866-1727

Note: *These TAP numbers may change or become discontinued by the issuer.*

5. At the **Schedule** screen, you'll select the exact days/times you want to receive Alpha notifications. You can set 2 schedules per notification. For example, you may want to send alpha pages after hours or at certain times during the week, and at different hours on the weekend. Use the check boxes to select the days of the week, and select the time from the drop down menus. Click **Finish.** To try a test notification, click the **Test** button (See next step.)

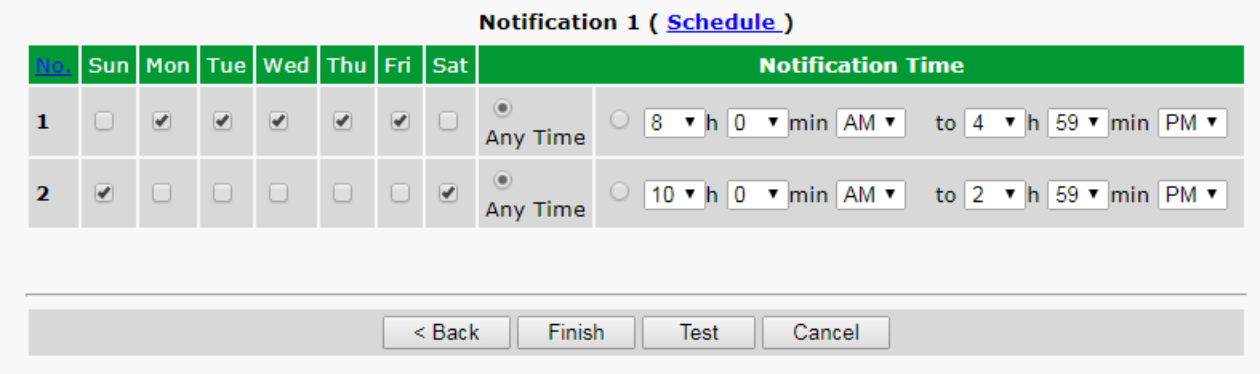


Fig. 10.17

6. If you chose to test the Alpha notification, you will see the popup below. Click **OK** to send a test Alpha notification.

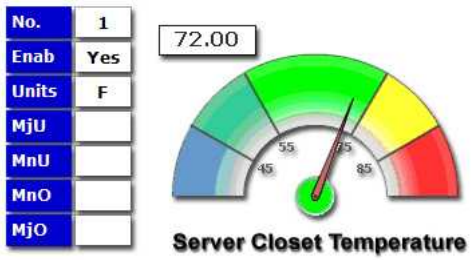
Fig. 10.18

NOTE: This test only means that your notification settings are correct, but you still need to assign the notification to an alarm point. See Step 7 in "How to Send Email Notifications" for more detail.

10.3 How to Setup Analog Alarms

This section explains how to setup a user-definable analog alarm. The table in NetGuardian 216 G3 Back Panel > Analog Alarms shows which analog alarms on the NetGuardian 216 are user-definable and which are pre-defined.

The following example shows how to setup analog # 1 as a temperature alarm in a Server Closet.



1. Login to the NetGuardian web browser and click the **Provisioning > Analogs** menu. Click the **Enable** checkbox next to the analog number to turn the analog alarm ON.

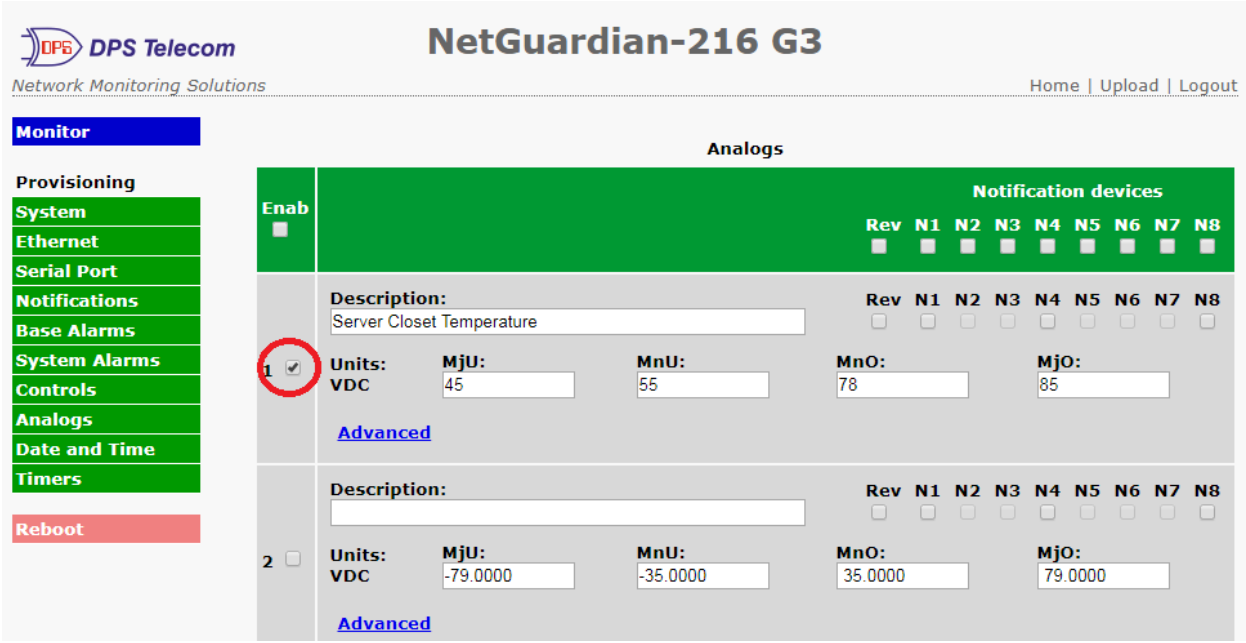


Fig. 10.19

2. Next, give this analog alarm a **Description**, then click the **Save** button at the bottom of the page. You will also need to **Reboot** after you finish setting up your analog sensor.

3. Click the **Advanced** link at the top of the **Provisioning > Analogs** menu to edit more specific information. Start by selecting thresholds. The threshold values in this example will be temperatures values. These thresholds tell the NetGuardian that I want be notified of when the temperature rises above or drops below these set levels. In this example, we are selecting:

Major Under Temp:	45º F
Minor Under Temp:	55º F
Minor Over Temp:	78º F
Major Over Temp:	85º F

3. **On Set and Clear**: Here there are fields labeled “On Set” and “On Clear”. These allow you to customize the description of an alarm fail and clear. For example, if you’re monitoring a Propane tank, it might make more sense

to see the word “Empty” instead of “Alarm”.

4. **QTime**: Stands for Qualification time. Here, the qualification time is set for 1 minute. By clicking this link, the help text will explain that 1S=1 second, 1M=1 Minute, and 1H=1hour. Typically, when an analog sensor crosses a threshold, it does not stay there – It usually waivers across the threshold value. This may cause many alarms, and possible many nuisance emails. Here, we will set the qualification time for I minute, meaning we will only see this alarm if the value is across the threshold for 1 minute or longer. The same is true for the clear condition – We only want to know it has cleared if it stays clear for longer than 1 minute.

5. **Display Units**: This is the 3 unit value the NetGuardian will display as the label for the units you want to measure. This field is only used for readability - It does not affect how the NetGuardian works with your analog sensor. For this example, we want to show “F” for Fahrenheit. Other entries you might want to use for analog measurements are “%H” for Percent Humidity, “Knt” for Knots (wind speed), “LBS” pounds of pressure, etc.

6. **High/Low Reference**: The Low and High Reference values are how the NetGuardian will determine the temperature based off the input voltage. You will find these values in the documentation that came with the sensor you are using. The NetGuardian is trying to build a linear equation to give you the most accurate results. For example, if you are measuring battery voltage, you’d want the NetGuardian to display -54VDC when the input voltage is in fact -54VDC. However, if you’re measuring temperature instead, this relationship won’t always be a 1:1 ratio.

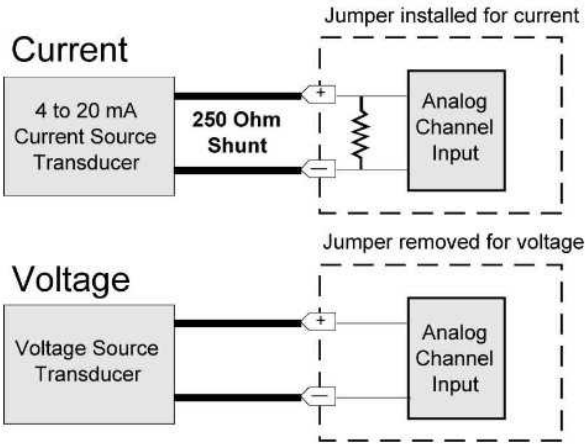


Fig. 10.20

Example, this temperature sensor is a current loop sensor that outputs 4-20mA. The NetGuardian uses a 250 Ohm resistor to convert current to voltage measurement. **Ohms law says:**

4mA X 250 Ohms = (0.004 X 250) = 1VDC
AND
20mA X 250 Ohms = (0.020 X 250) = 5VDC

The documentation that came with this sensor explains how 4 - 20 mA translates temperature. In this case:

4mA (or 1VDC) = 32º F
AND
20mA (or 5VDC) = 131º F

Therefore, my reference values are 1 = 32 and 5 = 131.

9. Lastly, pick an **analog gauge** that best fits this sensor. Before you save, review the **Threshold Values** you entered earlier. These might have been recalculated based off the newly entered reference points. **Reboot the NetGuardian to save your changes.**

10. Log back into the unit and click **Analogs** from the (blue) **Monitor menu**. Now you should be able to view your new analog gauge and its current value.

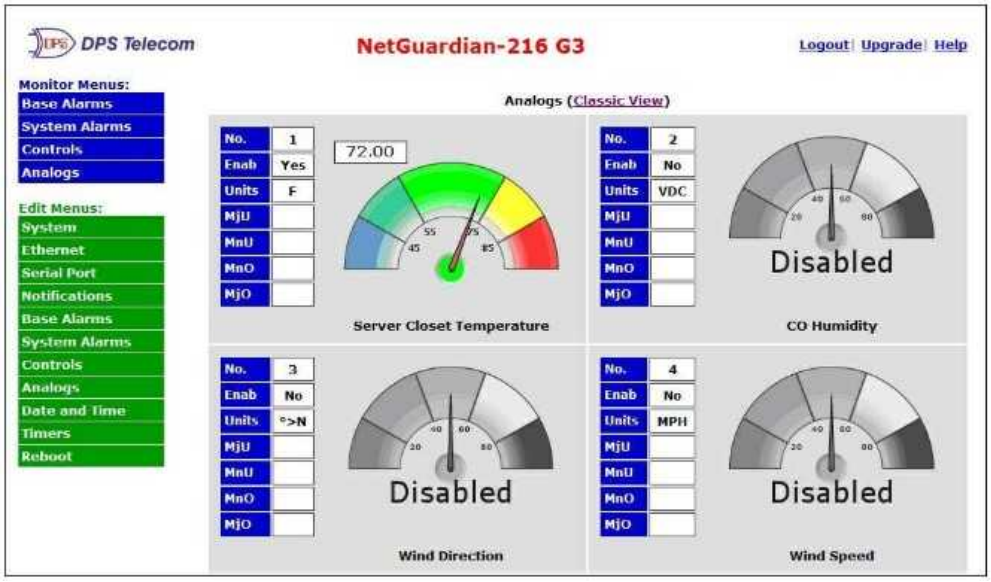


Fig. 10.20

11. Click the **Classic View** link at the top of the page to switch from **Gauge View**. Classic view shows just the raw values of your analog sensor.

10.4 How to Tune the 202 Modem

The following steps are only used if your NetGuardian build includes a 202 modem.

1. Click on the **Provisioning > Serial Port**.
2. When "202' is chosen at the **Port Type**, the "**Tune 202" link** will appear at top of the screen. Click the link.

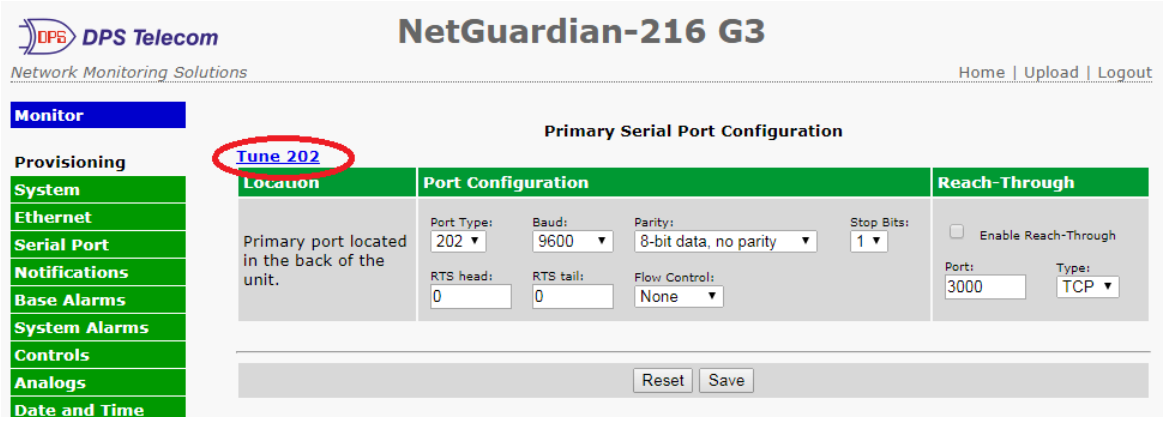


Fig. 10.21

3. Click the buttons to adjust the **Signal** and **Level**.

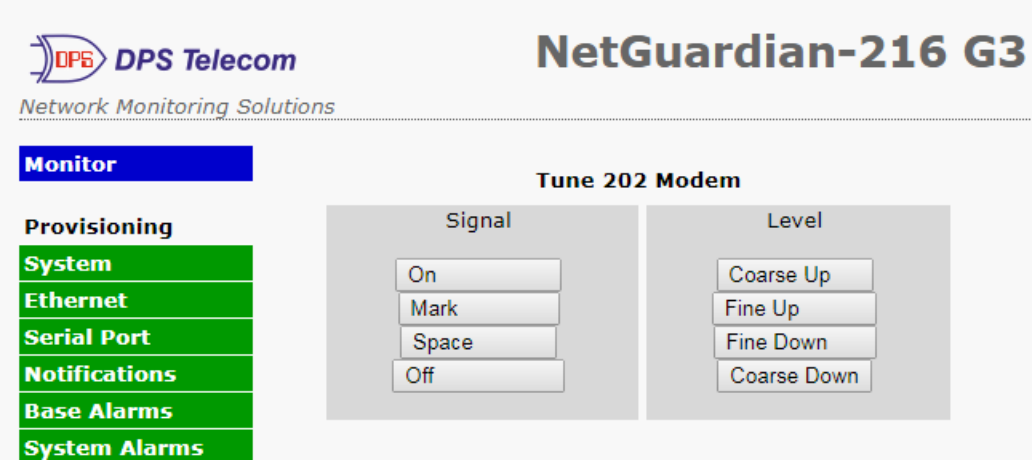


Fig. 10.22

11 Provisioning Menu Field Descriptions

11.1 System

From the **Provisioning** > **System** menu, you will configure and edit the global system, T/Mon and control settings for the NetGuardian 216 G3.

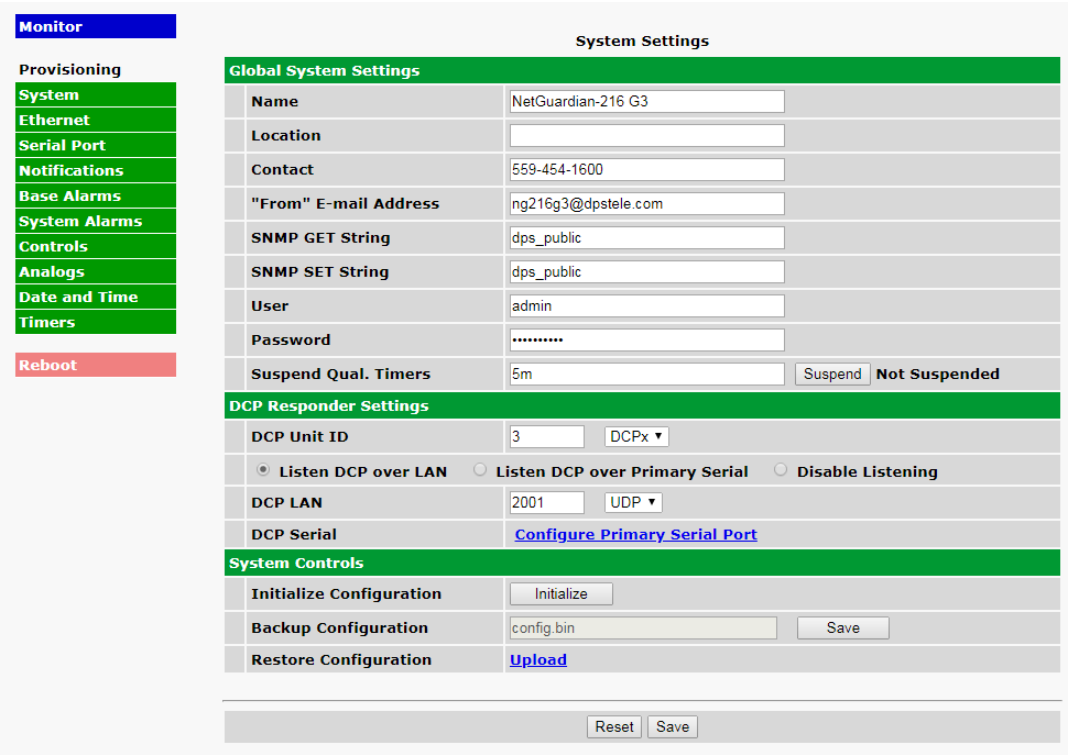


Fig. 11.1 *- The Provisioning > System menu*

Global System Settings	
Name	A name for this NetGuardian 216 G3. (Optional field)
Location	The location of this NetGuardian 216 G3. (Optional field)
Contact	Contact telephone number for the person responsible for this NetGuardian 216 G3. (Optional field)
"From" Email Address	A valid email address used by the NetGuardian 216 G3 for sending email alarm notifications.
SNMP GET String	Community name for SNMP requests. (case-sensitive).
SNMP SET String	Community name for SNMP SET requests. (case-sensitive).
User	Used to change the username for logging into the unit.
Password	Used to change the password for logging into the unit (case-sensitive).
DCP Responder Settings *(For use with T/Mon NOC)*	
DCP Unit ID	User-definable ID number for this NetGuardian 216 G3 (DCP Address).
Listen DCP	Choose to listen DCP over LAN or serial. May also be disabled.
DCP LAN	Enter the DCP port for this NetGuardian 216 G3 (UDP/TCP port).
DCP Serial	Clickable link to configure serial port settings.
System Controls	
Initialize Configuration	Used to restore all factory default settings to the NetGuardian 216 G3. Do not initialize the non-volatile RAM (NVRAM) unless you want to re-enter all of your configuration settings again.
Upgrade Firmware	Clickable link that takes you to the Firmware Load screen, where you'll browse to the downloaded firmware update saved on your PC.

SMS Configuration (NetGuardian 216 G3 SMS only)	
Enable SMS Limit	Enable the SMS Limit feature.
Reset Date	Day of month (1-28) that the SMS counter will reset.
SMS Limit	Limit of how many SMS messages that can send each month (1-10,000).
Current SMS Count	The total amount of SMS messages that have been sent in the given month.
Reset SMS Count	Reset the current SMS Count back to 0.

11.2 Ethernet

The **Provisioning** > **Ethernet** menu allows you to define and configure Ethernet settings.

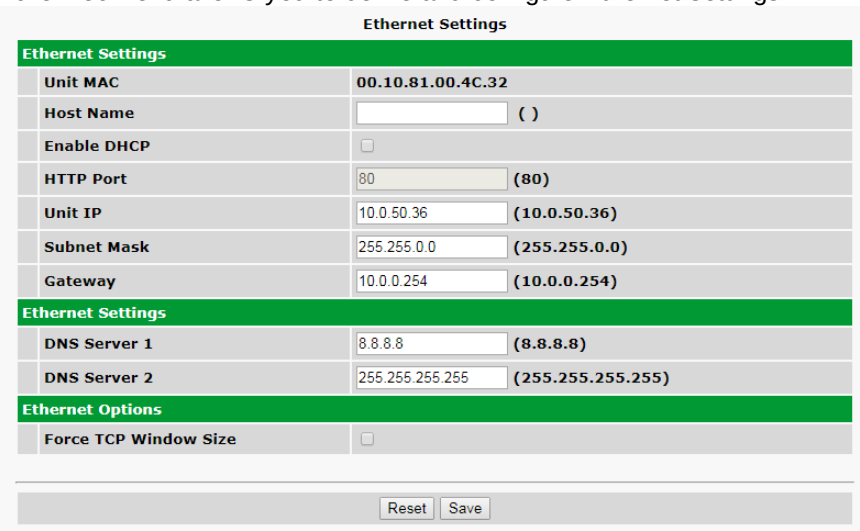


Fig. 11.2 *- The Provisioning > Ethernet menu*

Ethernet Settings	
Unit MAC	Hardware address of the NetGuardian 216 G3. (Not editable - For reference only.)
Host Name	Used only for web browsing. Example: If you don't want to remember this NetGuardian's IP address, you can type in a name is this field, such as NG216G3. Once you save and reboot the unit, you can now browse to it locally by simply typing in "NG216G3" in the address bar. (no "http://" needed).
Enable DHCP	Used to turn on Dynamic Host Connection Protocol. NOT recommended, because the unit is assigned an IP address from your DHCP server. The IP you've already assigned to the unit becomes inactive. Using DHCP means the unit will NOT operate in a T/Mon environment.
HTTP Port	Shows the NetGuardian's active HTTP Port (set to 80 by default). You can change the HTTP Port through the TTY interface.
Unit IP	IP address of the NetGuardian 216 G3.
Subnet Mask	A road sign to the NetGuardian 216 G3, telling it whether your packets should stay on your local network or be forwarded somewhere else on a wide-area network.
Gateway	An important parameter if you are connected to a wide-area network. It tells the NetGuardian which machine is

	the gateway out of your local network. Set to 255.255.255.255 if not using. Contact your network administrator for this info.
Ethernet Settings	
DNS Server 1	Primary IP address of the domain name server. Set to 255.255.255.255 if not using.
DNS Server 2	Secondary IP address of the domain name server. Set to 255.255.255.255 is not using.
Ethernet Options (Advanced)	
Force TCP Window Size	For low-bandwidth networks. Checking this box changes the size of the TCP window, as a simplified alternative to TCP congestion control.

11.3 Serial Ports

The **Provisioning > Serial Port** menu allows you to change settings depending on the port type of your NetGuardian. From this menu, you can select a mode of operation, tune the 202 modem, and enable reach-through serial port functionality.

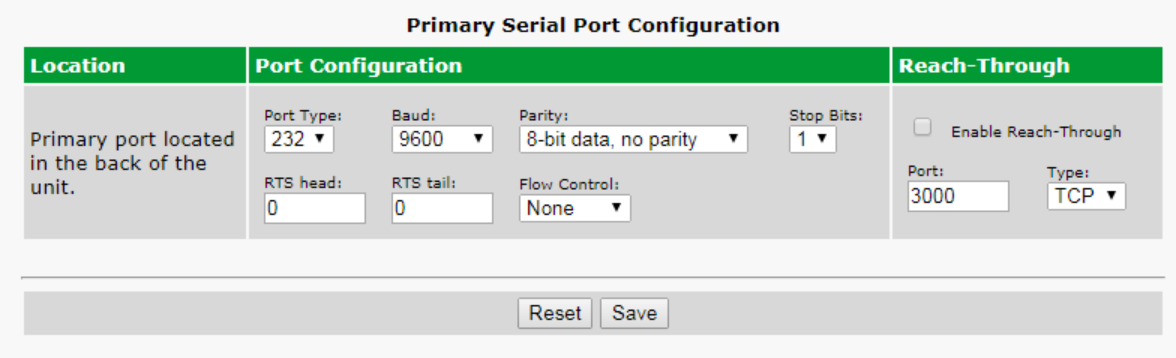


Fig. 11.3 *- The Provisioning > Serial Ports menu*

Location	
A reminder that your primary serial port is located on the back of the NetGuardian 216 G3 chassis.	
Port Configuration	
Port Type	Select the serial port for your build of the NetGuardian. Choose from 202, 232, 485...
Baud, Parity, Stop Bits, and Flow Control	Select the appropriate settings from the drop-down menu.
RTS Head	Only used if your NetGuardian was built with a 202 modem. The most commonly used value is 30.
RTS Tail	Only used if your NetGuardian was built with a 202 modem. The most commonly used value is 10.
Flow Control	
Reach-Through	
Enable Reach-through	Checking this box enables the port to be used as a terminal server. Most commonly used to Telnet through the port over LAN to a hub, switch, or router. From a command prompt, type the following *(note the spaces between each entry)*: telnet [IP address] [port] **Example**: telnet 192.168.1.100 3000
Port	Port number used for reach-through to a serial device.
Type	Select TCP or UDP traffic to be passed through to a serial device.

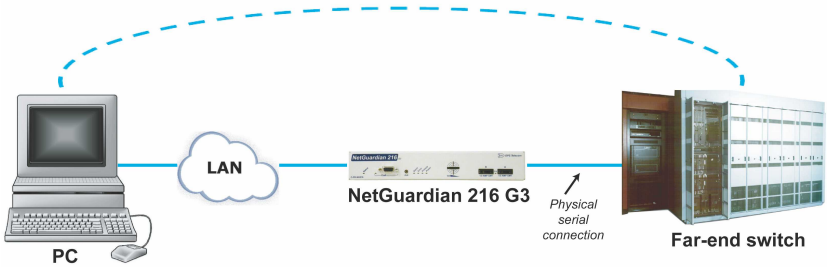
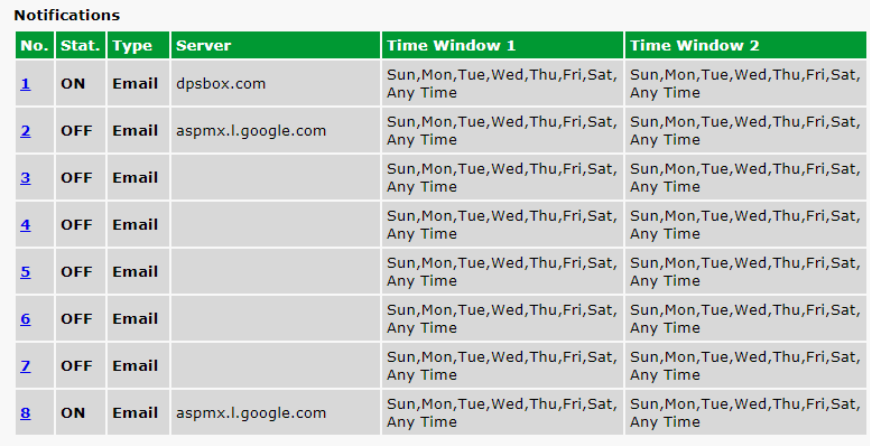


Fig. 11.4 *- Topology of using the serial port for reach-through*

11.4 Notifications

From the initial **Provisioning** > **Notifications** menu, you can enable or disable your NetGuardian's alarm notifications and alter schedules during which each notification is active. Click any of the **No.** links to begin configuring notifications.



Notifications

No.	Stat.	Type	Server	Time Window 1	Time Window 2
1	ON	Email	dpsbox.com	Sun,Mon,Tue,Wed,Thu,Fri,Sat, Any Time	Sun,Mon,Tue,Wed,Thu,Fri,Sat, Any Time
2	OFF	Email	aspmx.l.google.com	Sun,Mon,Tue,Wed,Thu,Fri,Sat, Any Time	Sun,Mon,Tue,Wed,Thu,Fri,Sat, Any Time
3	OFF	Email		Sun,Mon,Tue,Wed,Thu,Fri,Sat, Any Time	Sun,Mon,Tue,Wed,Thu,Fri,Sat, Any Time
4	OFF	Email		Sun,Mon,Tue,Wed,Thu,Fri,Sat, Any Time	Sun,Mon,Tue,Wed,Thu,Fri,Sat, Any Time
5	OFF	Email		Sun,Mon,Tue,Wed,Thu,Fri,Sat, Any Time	Sun,Mon,Tue,Wed,Thu,Fri,Sat, Any Time
6	OFF	Email		Sun,Mon,Tue,Wed,Thu,Fri,Sat, Any Time	Sun,Mon,Tue,Wed,Thu,Fri,Sat, Any Time
7	OFF	Email		Sun,Mon,Tue,Wed,Thu,Fri,Sat, Any Time	Sun,Mon,Tue,Wed,Thu,Fri,Sat, Any Time
8	ON	Email	aspmx.l.google.com	Sun,Mon,Tue,Wed,Thu,Fri,Sat, Any Time	Sun,Mon,Tue,Wed,Thu,Fri,Sat, Any Time

Fig. 11.5 *- The Provisioning > Notifications menu*

Once you've chosen which notification you want to setup, click on the scroll down menu and select **Notify on both Alarms and Clears** to turn it "on." Then choose a notification method: **Email, SNMP** (traps)**, Alpha,** or **SMS**.

Notification Options:
Your NetGuardian 216 will only display Alpha or SMS notification options if appropriate for your NetGuardian model. If you ordered your NetGuardian with a dialup modem, you will be able to send alpha notifications and dialup text notifications. If you ordered your NetGuardian with a wireless modem, you will be able to send SMS notifications. You cannot order a NetGuardian 216 with both dialup and wireless modems, therefore, you will not be able to setup both Alpha and SMS notifications on the same NetGuardian unit.

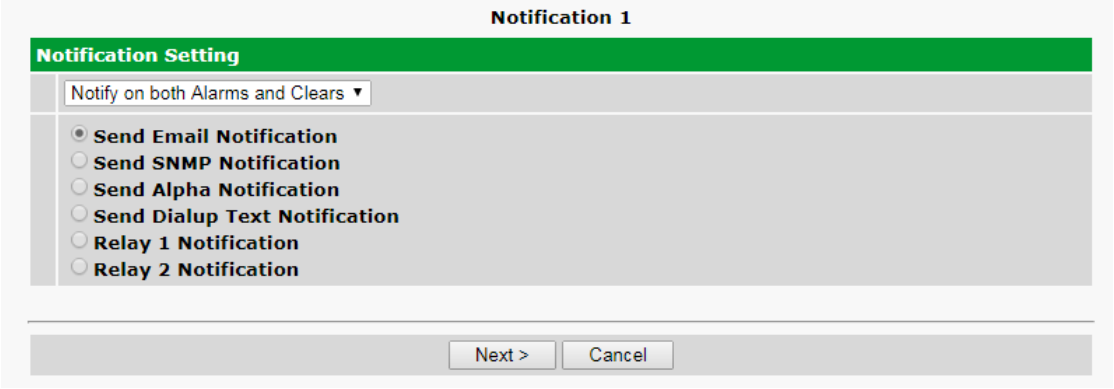


Fig. 11.6 *- The Notification Setting menu*

11.4.1 Notification Settings

To configure alarm notifications, simply fill in **all** fields for the chosen notification type. See the tables in the following sections for information on available fields for each notification type.

11.4.1.1 Email Notifications

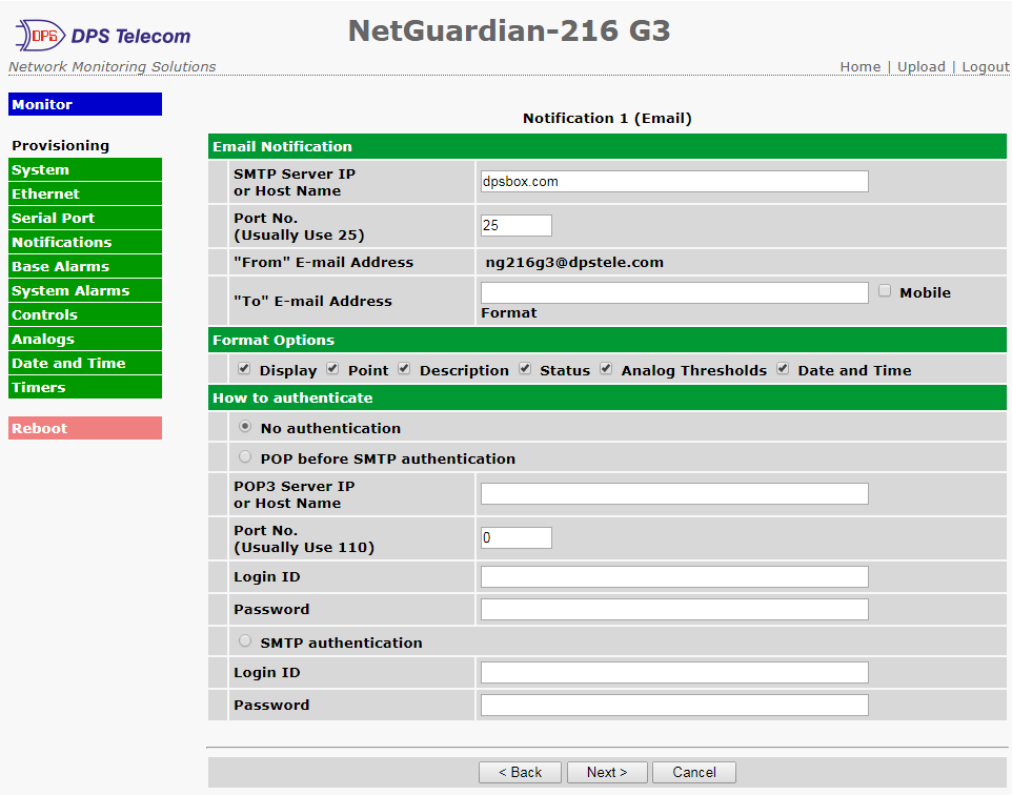


***Fig. 11.7** - Editing Email Notification Settings*

Email Notification	
SMTP Server IP or Host Name	The IP address of your email server.
Port Number	The port used by your email server to receive emails (usually port 25).
"From" E-mail Address	Displays the email address (defined in the **Provisioning > System** menu) that the NetGuardian 216 G3 will send email from. Not editable from this menu.
"To" E-mail Address	The email address of the person who will receive email alarm notifications.
Mobile Format	If this box is checked the message will be received in the following order "Description" "Status" "Date" "Time" (Example: Alarm 1 Clear YYYY-MM-DD HH:MM:SS)
Format Options	Customize what is displayed in your email notifications. By default, Mobile is deselected and the rest are selected.
How to authenticate	By default, no authentication is required to receive email notifications.

11.4.1.2 SNMP Traps

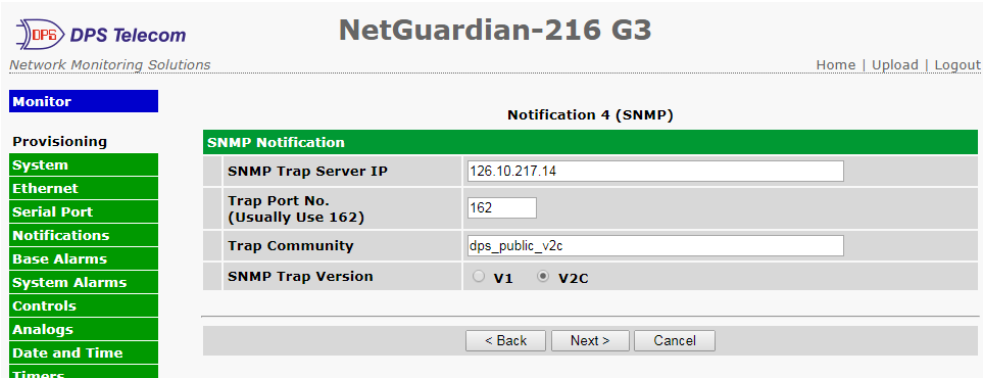


Fig. 11.8 *- Editing SNMP notification settings*

SNMP Notification	
SNMP Trap Server IP	The SNMP trap manager's IP address.
Trap Port No.	The SNMP port (UDP port) set by the SNMP trap manager to receive traps, usually set to 162.
Trap Community	Community name for SNMP TRAP requests.

11.4.1.3 Alpha Pager Notifications

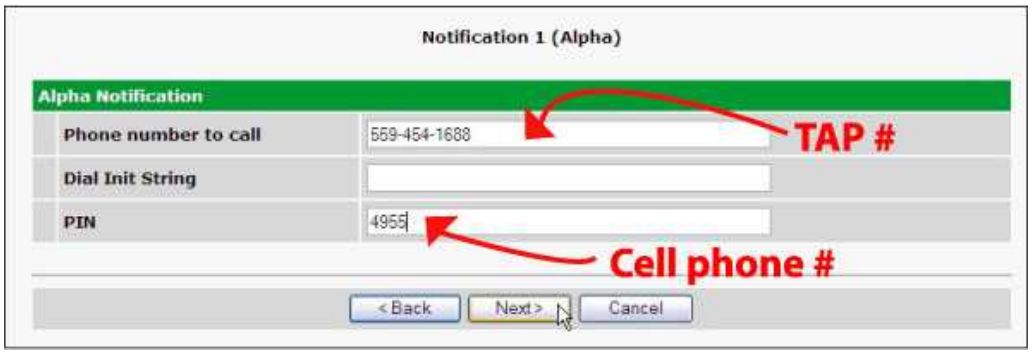


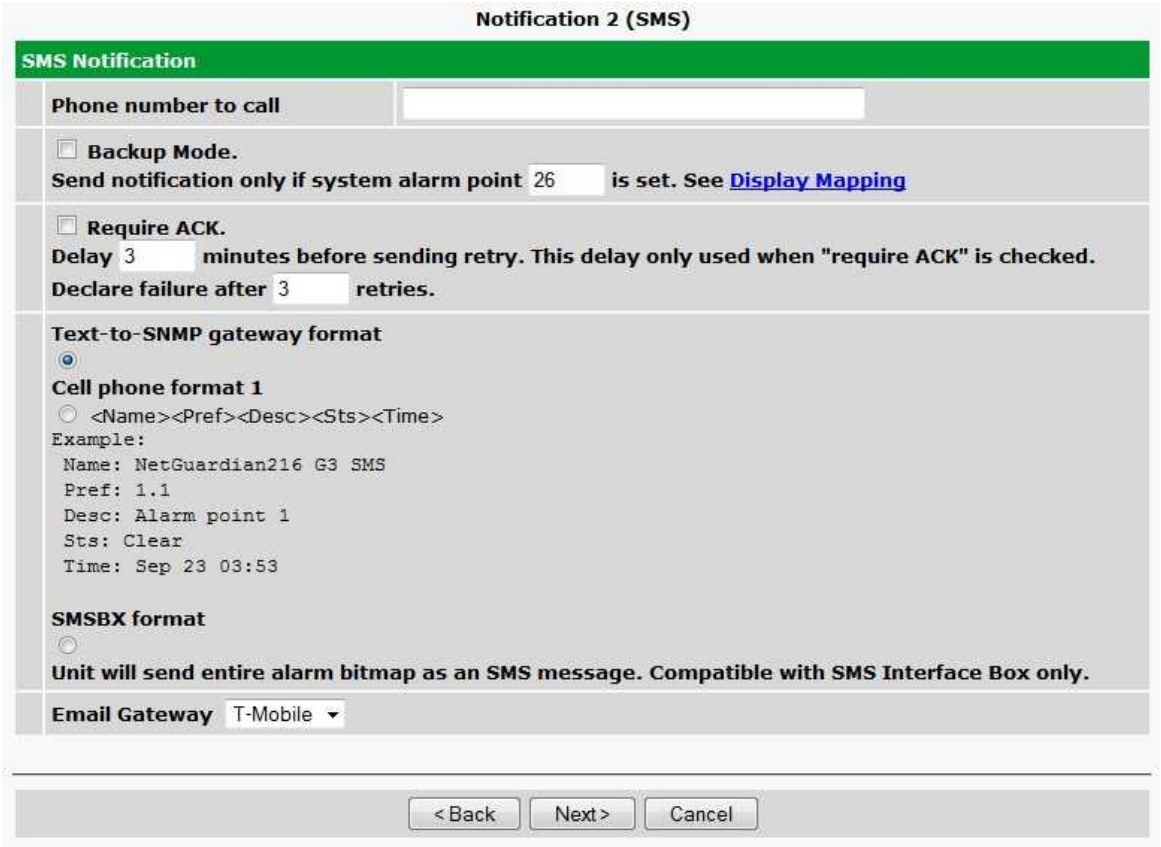
Fig. 11.9 *- Editing Alpha notification settings*

Alpha Notification	
Phone number to call	Phone number to send the notification.
Dial Init String	Sent to the modem before making the call. Do NOT enter initialization strings unless directed by a network administrator or DPS Tech Support staff.
PIN	Personal Identification Number for TAP terminal Authentication.

11.4.1.4 SMS Notifications

If you have a Netguardian 216 G3 SMS, you can send SMS notifications either direct to a cellular phone or to your SNMP manager with the SMS Receiver accessory.

Note: The NetGuardian 216 G3 can only accurately report SMS messages to a single SMS Interface Box at a time (applicable to only those using their NetGuardian 216 G3 with an SMS Interface Box).



SMS Notification	
Phone number to call	The Phone Number of the person or device that will receive SMS alarm notifications. **Verizon and Sprint CDMA modems only:** If attempting to send an SMS notification to a phone that is not the same carrier as the modem, an email to SMS gateway will need to be added to the end of the phone number in this field. Examples (for USA): **AT&T:** 5594541600@txt.att.net **Verizon:** 5594541600@vtext.com **Sprint (PCS):** 5594541600@messaging.sprintpcs.com **T-Mobile:** 5594541600@tmomail.net **Nextel:** 5594541600@messaging.nextel.com **Cingular:** 5594541600@cingular.com

	For a full list of SMS gateways, visit the following Wikipedia page: http://en.wikipedia.org/wiki/List_of_SMS_gateways
Backup Mode	Configures the NetGuardian to send SMS alarm notifications **only** if a specific system alarm point is set. By default system alarm 26, the DCP inactive alarm (indicating that the NetGuardian has lost its connection to T/Mon) triggers Backup Mode. You may wish to use other system alarms indicating connection or notification failures to trigger backup mode. For more information on System Alarms, see the Reference Section of this manual.
Require Ack	Indicates that the notification recipient must acknowledge the alarm for the NetGuardian to cease sending the SMS notification. When "Require Ack" is checked, a line "Ack:#" will be added to each message.
Text-to-SNMP gateway format	Configures the NetGuardian to send notifications to an SMS receiver. The SMS receiver parses SMS messages sent by the NetGuardian and forwards SNMP traps to your master station. It will only parse and forward correctly formatted SMS messages.
Cell phone format 1	Indicates a standard SMS alarm notification.
SMSBX format	Unit will send entire alarm bitmap as an SMS message. Compatible with SMS Interface Box only.
Email Gateway	Used for sending SMS notifications to other mobile devices. Options include T-Mobile, Verizon, Sprint, AT&T, and Cingular.

11.4.2 Schedule

The **Provisioning** > **Schedule** menu is where you will tell the NetGuardian 216 G3 exactly which days and times you want to receive alarm notifications. You set 2 different schedules for each discrete base alarm.

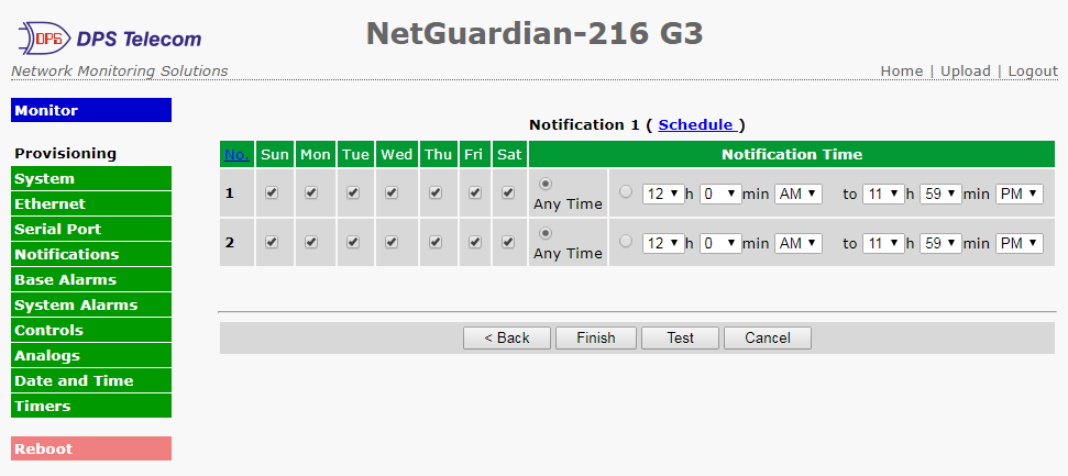


Fig. 11.10 *- The Schedule creation screen*

Notification Scheduling	
Days of the week	From either Schedule 1 or 2, check which days you want to receive notifications.
Any Time	Select to tell the NetGuardian 216 G3 you want to receive alarm notifications at any time for the day(s) you've selected.
Notification Time	Used to tell the NetGuardian to only send alarm notifications during certain hours on the day(s) you've selected.

11.5 Base Alarms

The NetGuardian 216 G3's discrete base alarms are configured from the **Provisioning** > **Base Alarms** menu. Descriptions for the alarm points, polarity (normal or reversed) and notification type(s) are defined from this menu. You also have the option to use a **Basic** or **Advanced** configuration methods, explained the the following 2 sections.

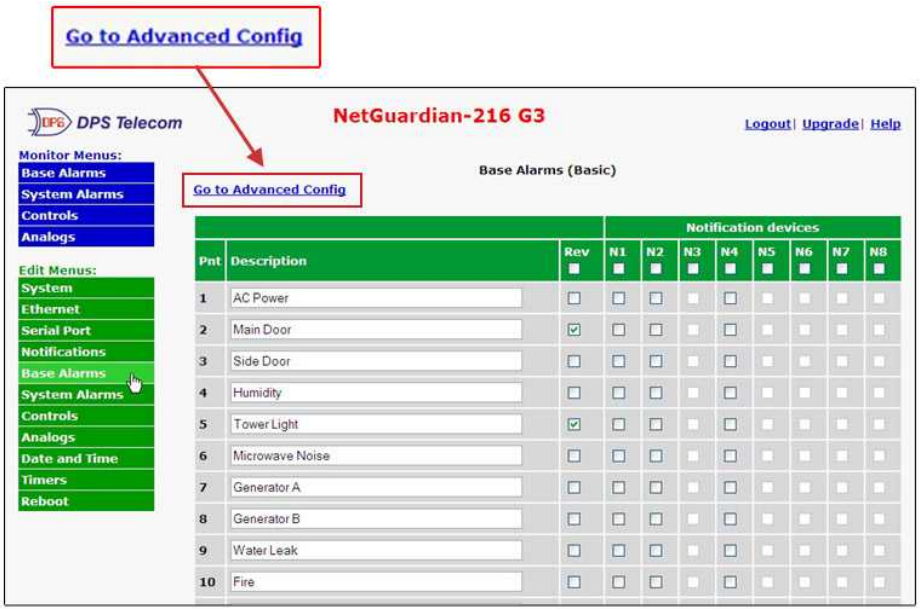


Fig. 11.11 *- The Advanced Config button on the Edit > Base Alarms screen*

11.5.1 Basic Configuration

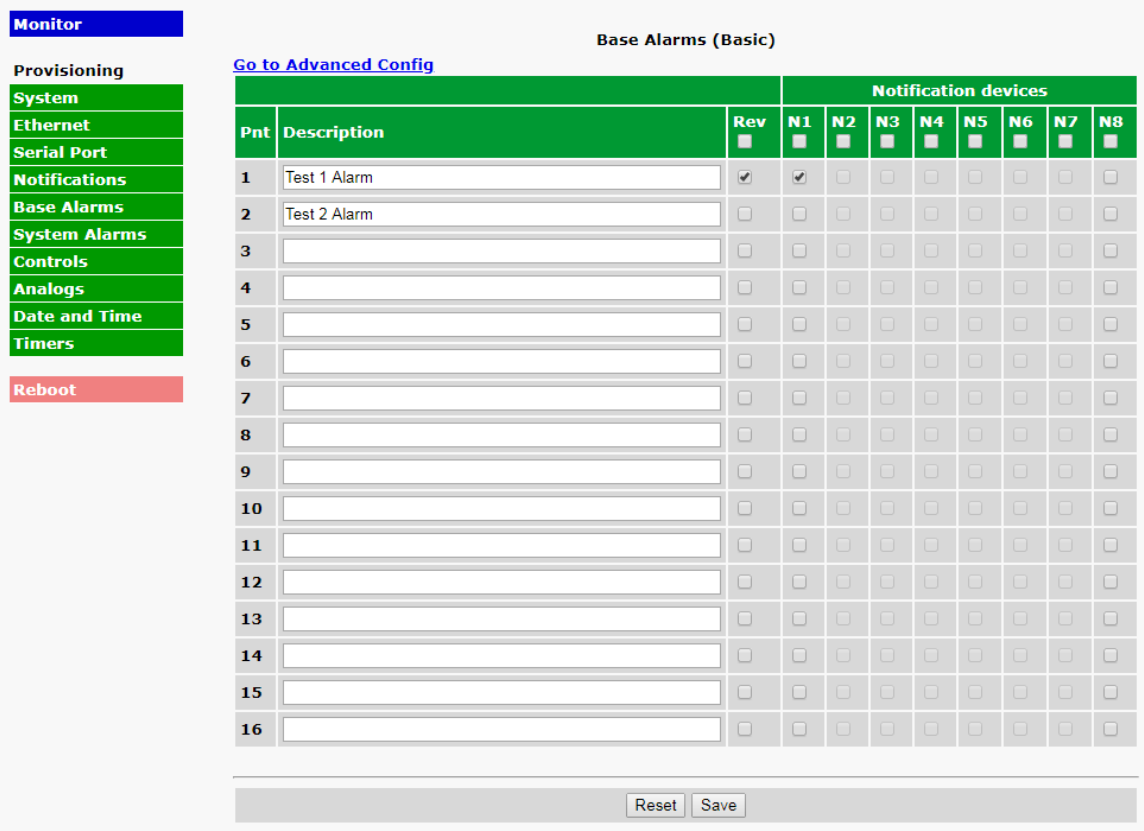
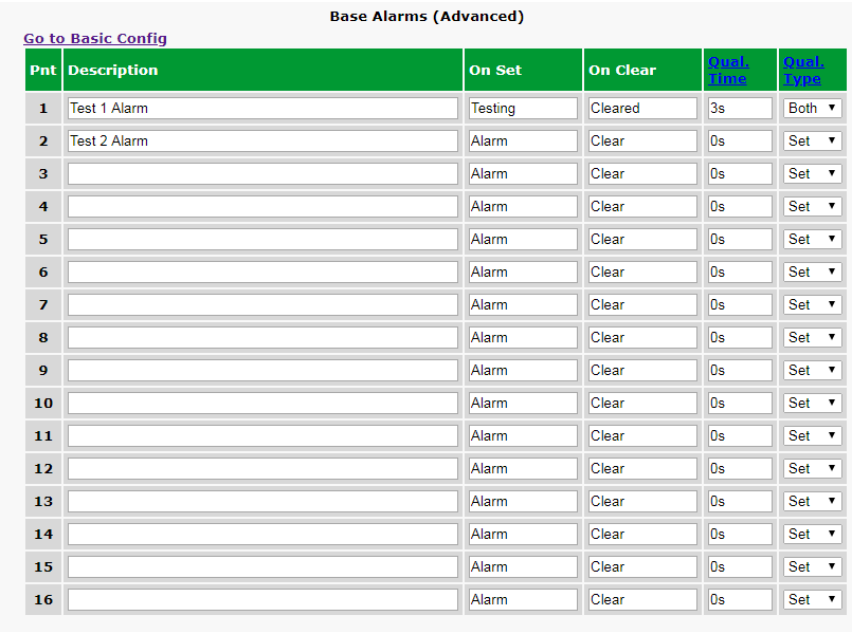


***Fig. 11.12**- The Provisioning > Base Alarms menu*

Editing Base Alarms - Basic	
Pnt (Point)	Alarm point number.
Description	User-definable description for the discrete alarm input.
Rev (Reverse)	Reverse: Check this box to reverse the polarity of the alarm point. Left un-checked, this means a normally-open contact closure is a clear condition. When polarity is reversed, a normally-closed alarm point is clear when closed. *Example*: Door with a magnetic door sensor. When the door is closed, the magnetic sensor acts like a closed relay. However, you know this should not trigger an alarm condition. This means you'd want the door alarm reversed in the NetGuardian because we are looking for a normally closed condition.
Notification devices	Check which notification device(s), 1 through 8, you want to send alarm notifications for that alarm point. These notification devices correlate to one of the 8 devices you setup for notification (email, SNMP trap, etc.) Check the box in the green bar (top) to have a notification device send an alarm for all alarm points.

11.5.2 Advanced Configuration



Base Alarms (Advanced)

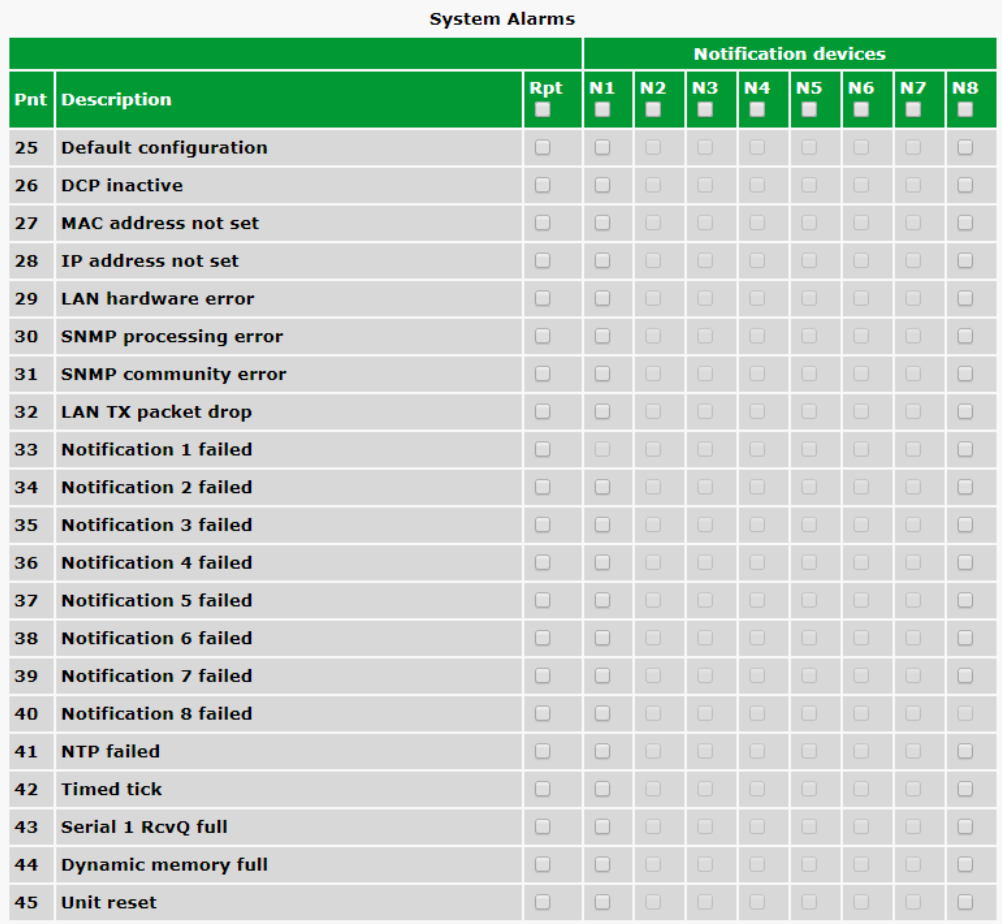
Go to Basic Config

Pnt	Description	On Set	On Clear	Qual. Time	Qual. Type
1	Test 1 Alarm	Testing	Cleared	3s	Both
2	Test 2 Alarm	Alarm	Clear	0s	Set
3		Alarm	Clear	0s	Set
4		Alarm	Clear	0s	Set
5		Alarm	Clear	0s	Set
6		Alarm	Clear	0s	Set
7		Alarm	Clear	0s	Set
8		Alarm	Clear	0s	Set
9		Alarm	Clear	0s	Set
10		Alarm	Clear	0s	Set
11		Alarm	Clear	0s	Set
12		Alarm	Clear	0s	Set
13		Alarm	Clear	0s	Set
14		Alarm	Clear	0s	Set
15		Alarm	Clear	0s	Set
16		Alarm	Clear	0s	Set

Fig. 11.13 *- The Advanced Base Alarms Config screen*

Editing Base Alarms - Advanced	
Pnt (Point)	Point: Alarm point number.
Description	User-definable description for the discrete alarm input.
On Set	User-definable description (condition) that will appear for the discrete alarm input on Set. Example: "Alarm"
On Clear	User-definable description (condition) that will appear for the discrete alarm input on Clear. Example: "Clear"
Qual. Time (Qualification Time)	The length of time that must pass, without interruption, in order for the condition to be considered an Alarm or a Clear. *Example*: If you have a loose door contact and you receive a false alarm every time the wind blows, you might want to set a 3-second qualification time. This means the door would have to be in the Alarm state for at least 3 seconds before the alarm is triggered and a notification is sent.
Qual. Type (Qualification Type)	Allows you to choose whether you want to apply the Qualification Time to the alarm Set, Clear, or Both. (Most people use only Set.)

11.6 System Alarms



System Alarms

			Notification devices							
Pnt	Description	Rpt	N1	N2	N3	N4	N5	N6	N7	N8
25	Default configuration									
26	DCP inactive									
27	MAC address not set									
28	IP address not set									
29	LAN hardware error									
30	SNMP processing error									
31	SNMP community error									
32	LAN TX packet drop									
33	Notification 1 failed									
34	Notification 2 failed									
35	Notification 3 failed									
36	Notification 4 failed									
37	Notification 5 failed									
38	Notification 6 failed									
39	Notification 7 failed									
40	Notification 8 failed									
41	NTP failed									
42	Timed tick									
43	Serial 1 RcvQ full									
44	Dynamic memory full									
45	Unit reset									

Fig. 11.14 *- The Provisioning > System Alarms menu*

Editing System Alarms	
Pnt (Point)	Alarm point number
Description	Non-editable description for this System (housekeeping) Alarm.
Rpt (Report)	Check this box to choose to report this alarm.Check the box in the green bar (top) to have all System Alarms reported. Leave unchecked to ignore.
Notification devices	Check which notification device(s), 1 through 8, you want to send alarm notifications for that alarm point. Check the box in the green bar (top) to have that notification device send a notification for all the System Alarms.

11.7 Controls

The NetGuardian 216 G3's relay can be configured in the **Provisioning** > **Controls** menu. You can enter your own description for this relay and designate it to a notification device(s).

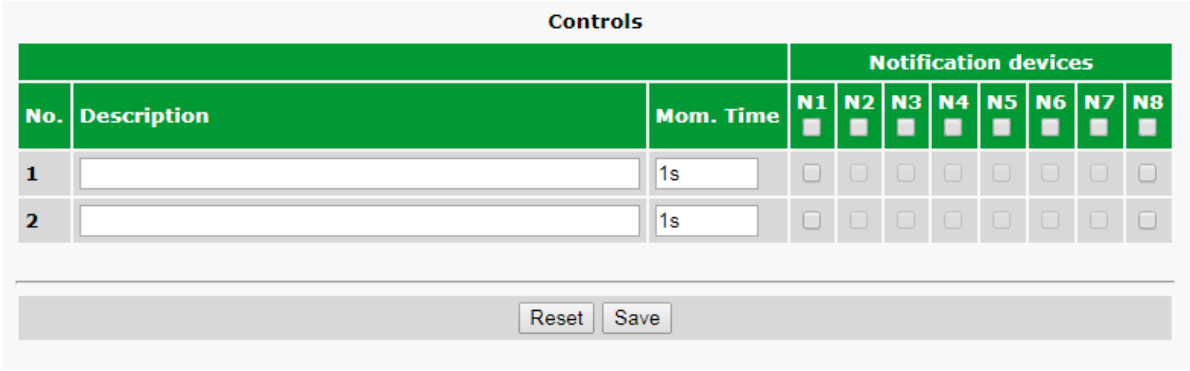


Fig. 11.15 *- The Provisioning > Controls menu*

Editing Control Relays	
Description	User-definable description for the NetGuardian 216 G3's control.
Mom. Time	Stands for "Momentary Time," which is the amount of time the relay will stay latched when you quick-latch from Monitor Mode (**Mom** command), T/Mon or other SNMP manager. You can specify units after the number with an "s" for seconds, "m" for minutes, or "h" for hours. Ex. "90s" or "2h".
Notification devices	Check which notification device(s), 1 through 8, you want to send alarm notifications for the control.

11.8 Analogs

Each of the NetGuardian 216 G3's analog channels may be individually configured to monitor analog changes in your environment. The analog inputs natively measures voltage on a range of -90 to +90 VDC. By removing the lid of the unit, you can move a jumper to set the point to monitor 4 - 20mA. (Please see Section 5.8 for more info.)

Internal and external temperature sensors monitor the ambient temperature. Both sensors measure a range of 32° F to 140° F (0° C to 60° C) within an accuracy of ± 1°. The external temperature sensor provides external temperature readings by plugging the optional probe into the temperature port on the NetGuardian 216 G3's back panel.

You also have the option to use a Basic or Advanced configuration methods, explained the the following 2 sections.

11.8.1 Basic Configuration

Basic configuration for the NetGuardian 216 G3's analog channels can be accomplished from the **Provisioning** > **Analogs** menu. From this screen, you enable or disable the analog channels, select notification devices, and set thresholds.

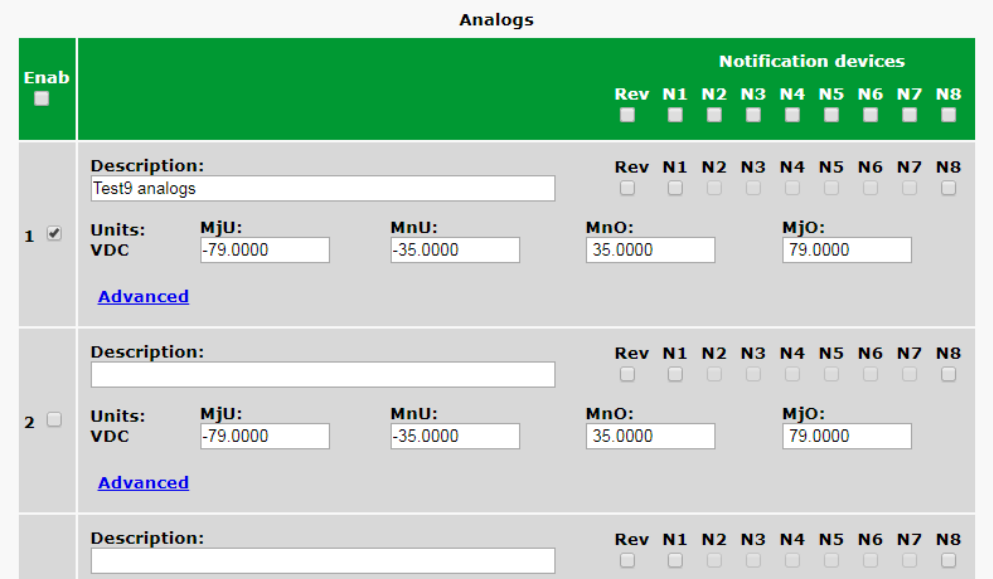


***Fig. 11.16**- The basic Provisioning > Analogs menu*

Editing Analogs - Basic	
Enab (Enable)	Checking the box in the **Enab** column enables monitoring of the analog channel. Analog channels that are not enabled will not show in the **Monitor > Analogs** screen.
Description	User-definable description for the analog channel
Rev (Reverse)	Check this box to reverse the polarity. *(This is not typically used. Reversing polarity is the same as reversing your wiring. Example: -54VDC becomes +54VDC)*
Notification devices	Check which notification device(s), 1 through 8, you want to send alarm notifications for that analog alarm. Check the box in the green bar (top) to have a notification device send an alarm for all analog channels.
MjU (Major Under) MnU (Minor Under)MnO (Minor Over) MjO (Major Over)	Threshold settings. These user-defined value are used to indicate the severity of the alarm by indicating when the threshold values you've set have been passed.

11.8.2 Advanced Configuration

To access the **Advanced** configuration screen, click the **Advanced Config** link near the Description. From the **Advanced** configuration screen, you can now select which analog gauges you want to represent the changing values.

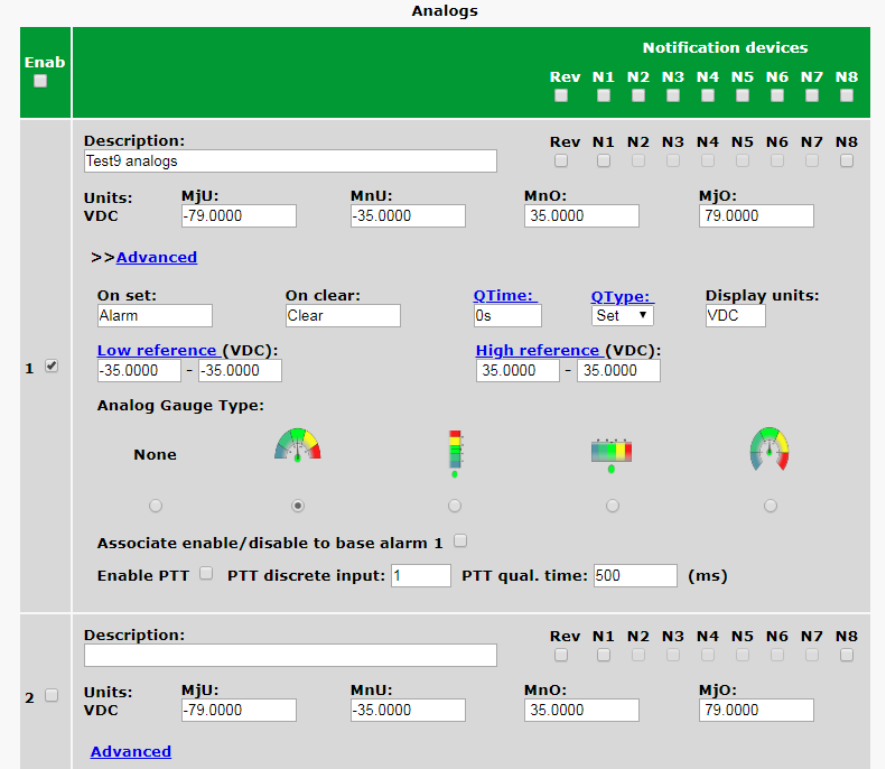


***Fig. 11.17**- The Advanced Provisioning > Analogs menu*

Editing Analogs - Advanced	
On set	User-definable description (condition) that will appear for the alarm on Set. Example: "Alarm"
On clear	User-definable description (condition) that will appear for the alarm Clear. Example: "Clear"
QTime (Qualification Time)	The length of time that must pass, without interruption, in order for the condition to be considered an Alarm or a Clear.
QType (Qualification Type)	Allows you to choose whether you want to apply the Qualification Time to the alarm Set, Clear, or Both.
Display Units	User-definable display units or optional choice between Fahrenheit and Celsius temperatures. The most common are: VDC = Voltage %H = Humidity F = Fahrenheit C = Celsius
Low Reference *	User-definable lower threshold settings (see below)
High Reference *	User-definable upper threshold settings (see below)
Analog Gauge Type	Select the color-coded gauge that best represents your data.
Associate enable/disable to base alarm 1	Check this box to tie the analog channel to the base discrete point of the same number (i.e. channel 1 with alarm 1). Checking this box disables the analog channel until NetGuardian reports an alarm on the associated discrete point. When the alarm sets, the NetGuardian will automatically re-enable and monitor the analog channel. Associates this analog to base/discrete alarm 1. (**Note:** Analog 2 will be associated with base/discrete alarm 2, analog 3 will be associated with base/discrete alarm 3 and so forth.)
Enable Push-To-Talk (PTT)	Allows you to associate this analog with any user-defined base/discrete alarm.
PTT Discrete Input	Assign the discrete input number that you want to associate with this analog.
PTT Qual. Time	The length of time, in milliseconds, that a discrete alarm point must be set before this analog will post.

***** These values are gathered from your sensor. Keep in mind that the NetGuardian is trying to build a linear equation to give the most accurate results. See examples below.

Example 1: If you are measuring battery voltage, we want the NetGuardian to show that the input is -54.2 VDC if -54.2 VDC is really being measured. However, if you are measuring temperature, the values are typically not a 1 : 1 ratio.

Example 2: Your X-Type sensor outputs 4 - 20mA. (We use a 250 ohm resistor to convert current to voltage measurement. Ohms Law tells us that 4mA x 250 ohms = 1 VDC. The sensor should tell us what the output current references. In this example, 4mA = 23º F and 20mA = 131º F **OR** 1V = 23º F and 5V = 131º F.

11.9 Date and Time

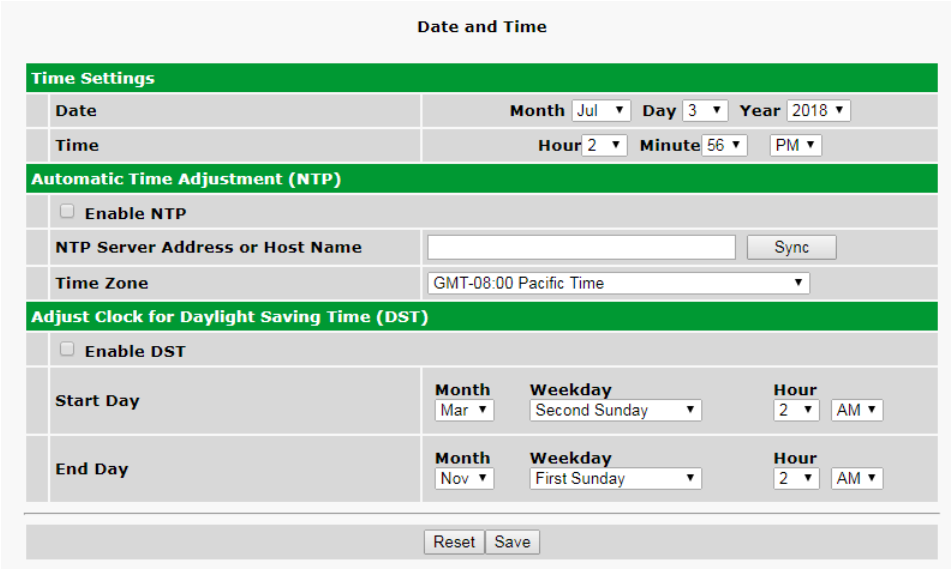


Fig. 11.18 *- The Provisioning > Date and Time menu*

Time Settings	
Date	Select the current month, day, and year from the drop-down menus.
Time	Select the current hour, minutes, and time of day fro the drop-down menus.
Automatic Time Adjustment (NTP)	
Enable NTP	Check this box to enable Network Time Protocol.
NTP Server Address or Host Name	Enter the NTP server's IP address or host name, then click Sync. Example: north-america.pool.ntp.org
Time Zone	Select your time zone from the drop-down menu.
Adjust Clock for Daylight Savings Time (DST)	
Enable DST	Check this box to have the NetGuardian 216 G3 observe Daylight Savings.
Start Day	Select the month, weekday, and time when Daylight Savings will begin.
End Day	Select the month, weekday, and time when Daylight Savings will end.

11.10 Timers

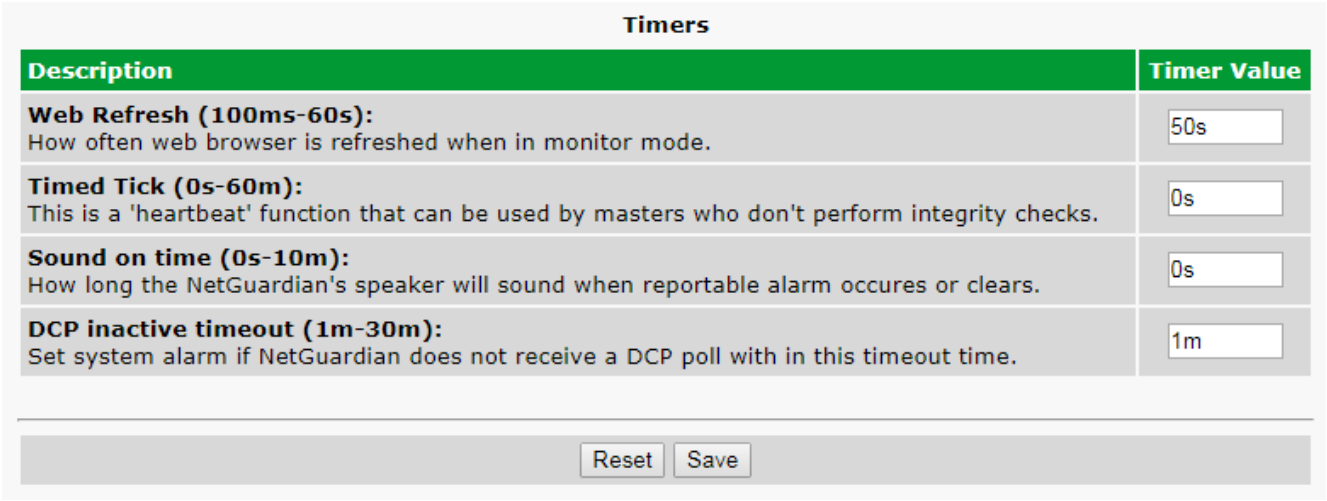


***Fig. 11.19**- The Provisioning > Timers menu*

11.11 Reboot

Click on the **Reboot** link from the **Provisioning** menu will reboot the NetGuardian 216 G3 after writing all changes to NVRAM.

***Fig. 11.20**- The Provisioning > Reboot confirmation popup*

12 Monitoring via the Web Browser

12.1 Monitoring Base Alarms

This selection provides the status of the base alarms by indicating if an alarm has been triggered. Under the **State** column, the status will appear in red if an alarm has been activated. The status will be displayed in green when the alarm condition is not present.

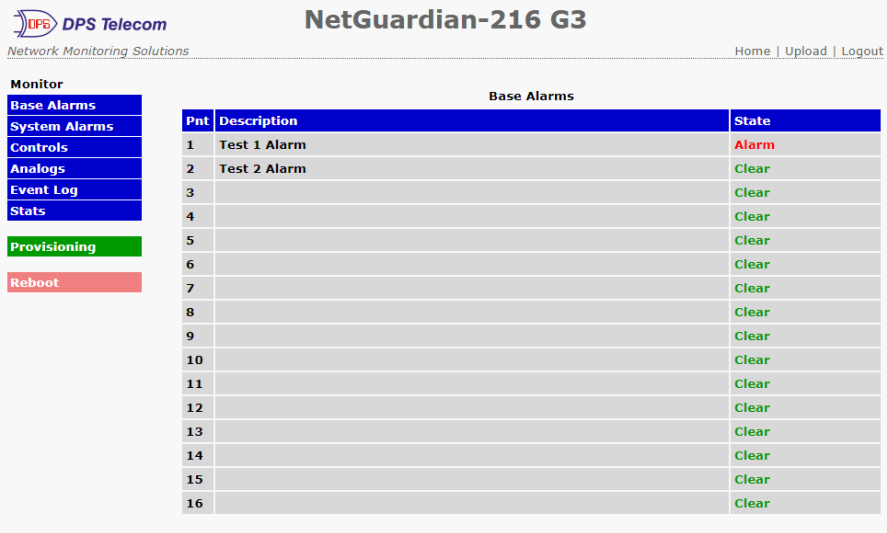
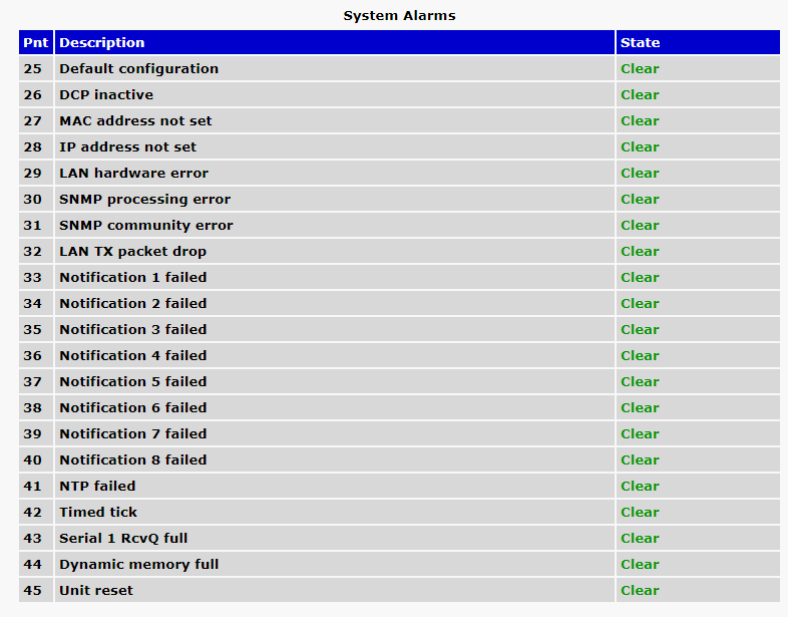


***Fig. 11.22**. Click on Base Alarms in the Monitor menu to see if any base alarms have been triggered.*

12.2 Monitoring System Alarms

System alarms are not-editable, housekeeping alarms that are programmed into NetGuardian 216 G3. The **Monitor** > **System Alarms** screen provides the status of the system alarms by indicating if an alarm has been triggered. Under the **State** column, the status will appear in red if an alarm has been activated. The status will be displayed in green when the alarm condition is not present.

See "Display Mapping" in the Reference Section for a complete description of system alarms.



System Alarms

Pnt	Description	State
25	Default configuration	Clear
26	DCP inactive	Clear
27	MAC address not set	Clear
28	IP address not set	Clear
29	LAN hardware error	Clear
30	SNMP processing error	Clear
31	SNMP community error	Clear
32	LAN TX packet drop	Clear
33	Notification 1 failed	Clear
34	Notification 2 failed	Clear
35	Notification 3 failed	Clear
36	Notification 4 failed	Clear
37	Notification 5 failed	Clear
38	Notification 6 failed	Clear
39	Notification 7 failed	Clear
40	Notification 8 failed	Clear
41	NTP failed	Clear
42	Timed tick	Clear
43	Serial 1 RcvQ full	Clear
44	Dynamic memory full	Clear
45	Unit reset	Clear

Fig. 11.22 *View the status of System Alarms from the Monitor > System Alarms menu.*

12.3 Operating Controls

Use the following rules to operate the NetGuardian 216 G3's control:

1. Select **Controls** from the **Monitor** menu.
2. Under the **State** field, you can see the current condition of the control.
3. To issue the control, click on a command (**Opr** - operate, **Rls** - release, or **Mom** - momentary)

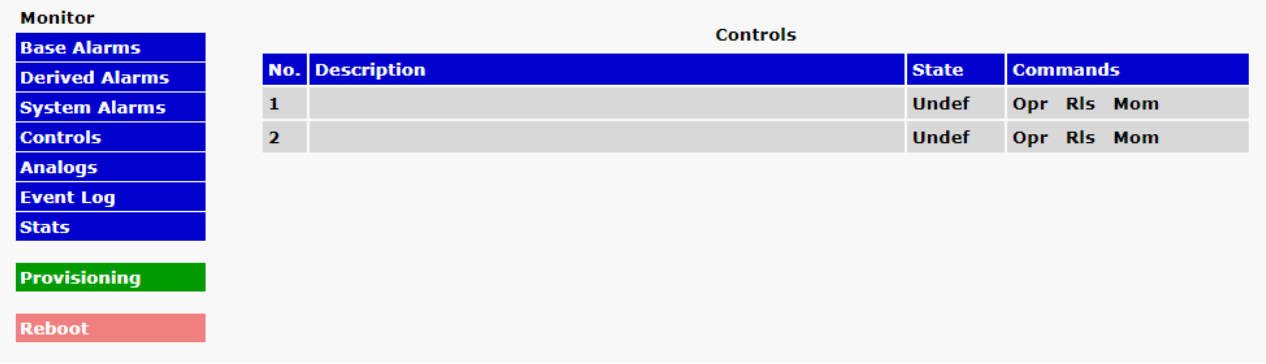


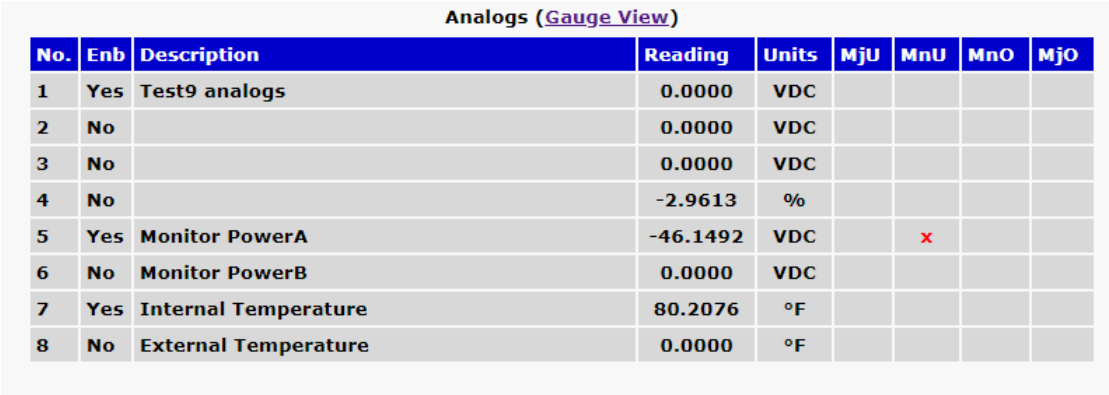
Fig. 11.23 *Operate the control relay by clicking on one of the actions in the Commands field.*

12.4 Monitoring Analogs

This selection provides the status of the system's analog channels by indicating if an alarm has been triggered. The **Monitor** menu > **Analogs** screen provides a description of each analog channel, the current reading, the units being read, and alarm conditions (major under, minor under, major over, minor over) according to your temperature settings.

Classic View

Watch the Reading column to see your analog values changes as the information is updated, all without a page refresh. Red Xs indicate when a threshold has been crossed.



No.	Enb	Description	Reading	Units	MjU	MnU	MnO	MjO
1	Yes	Test9 analogs	0.0000	VDC				
2	No		0.0000	VDC				
3	No		0.0000	VDC				
4	No		-2.9613	%				
5	Yes	Monitor PowerA	-46.1492	VDC		x		
6	No	Monitor PowerB	0.0000	VDC				
7	Yes	Internal Temperature	80.2076	°F				
8	No	External Temperature	0.0000	°F				

Fig. 11.24 - *Monitoring analogs in Classic View allows you to see live unit readings, and see which ones have crossed your thresholds..*

Gauge View
The gauge types you chose appear on this screen, along with the changing analog values. The circles under each of the gauges flash when thresholds have been crossed.

Note: Only enabled analog channels (analogs for which the **Enab** box is checked on the **Monitor Menus > Analogs** screen) will display in gauge view. Enabled analogs will display in numerical order in rows of 2 (ex. Channel's 1, 3, and 4 are enabled but 2 is not. Channels 1 and 3 will be displayed next to each other, and 4 will begin a new row).

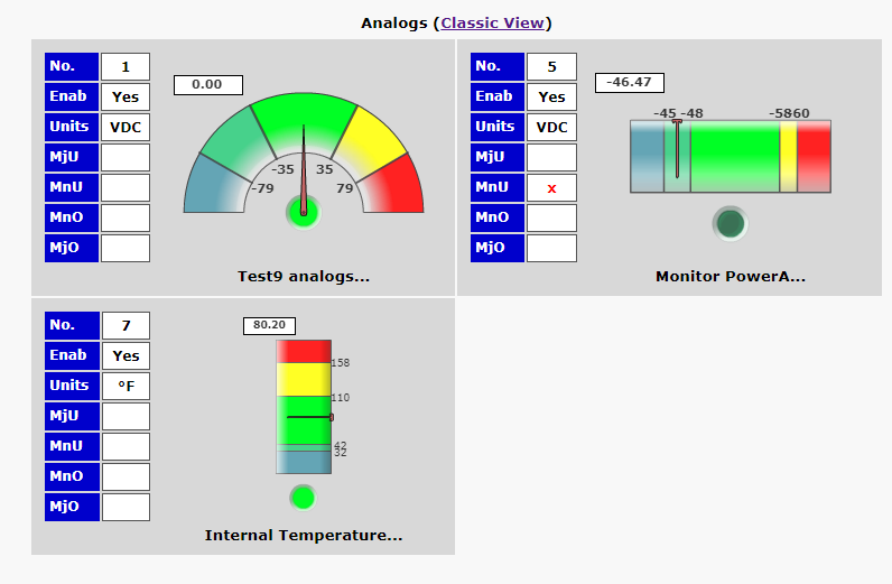


Fig. 11.25 - *Monitoring analogs in Gauge View offers you a visual representation of where all your analogs stand.*

12.5 Viewing the Event Log

The NetGuardian 216 G3 features an internal Event Log, which displays the last 100 even since the unit was powered up. ***NOTE***: This information is stored in "first in, first out" order in the NetGuardian's volatile memory. **Events will reset when the unit has been rebooted.**

To view the Event Log, click on **Monitor > Event Log**.

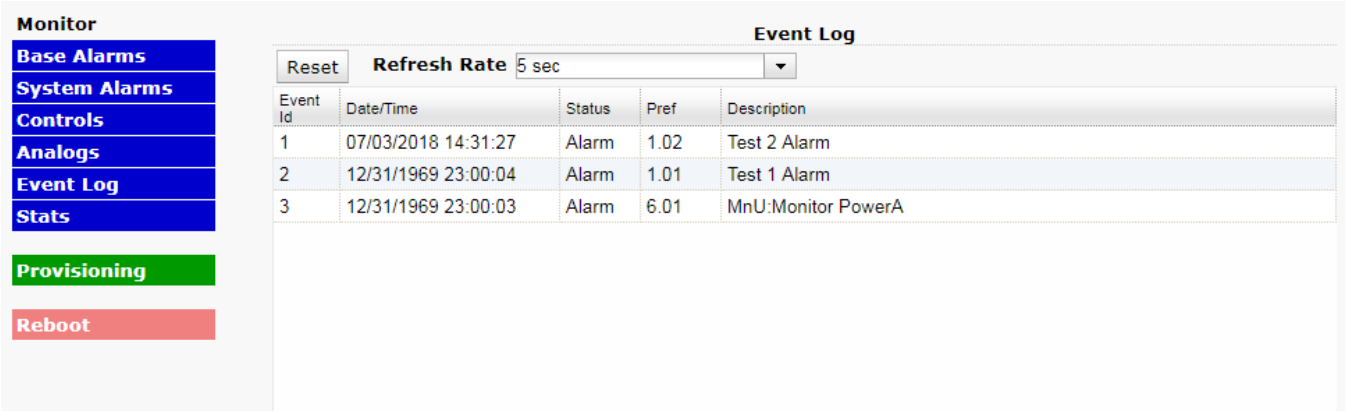


Fig. 11.26 - *Viewing the Event Log from the web browser.*

13 Firmware Upgrade

To access the **Firmware Load** screen, click the upload link at the top of the screen.

Fig. 13.1 *- The clickable link to upgrade firmware*

At the **Firmware Load** screen, simply browse for the firmware update you've downloaded from www.dpstele.com and click **Load**.

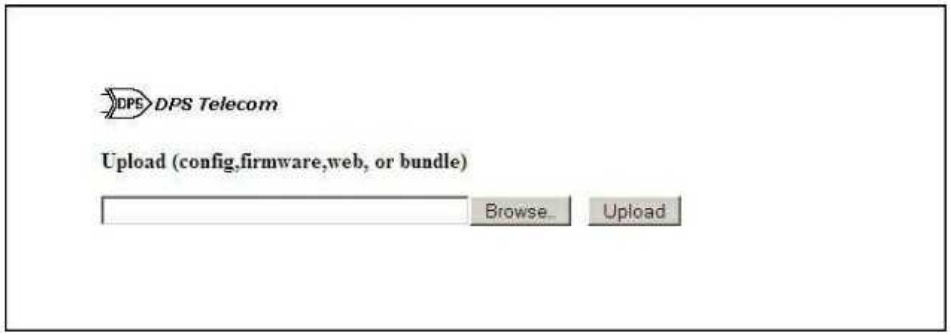


Fig. 13.2 - *Browse for downloaded firmware upgrade*

14 Front and Back Panel LED

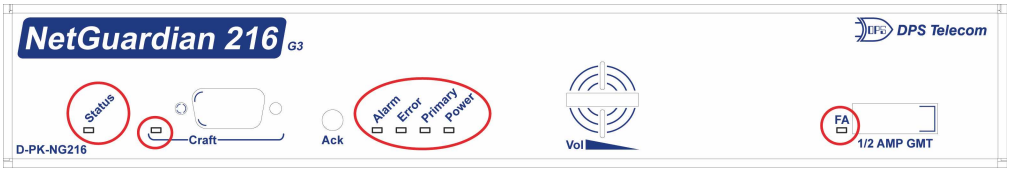
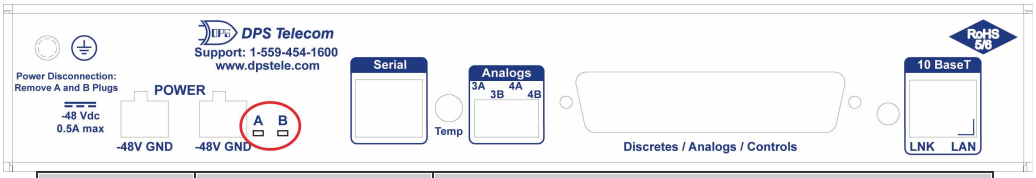


Fig. 12.1. *Front panel LEDs*

LED	Status	Description
Alarm	Flashing Red	New alarm
	Solid Red	Standing alarm acknowledged
Error		No Function: Reserved for future use
Primary	Flashing Green	Data transmitted on PRI Serial
	Flashing Red	Data received on PRI Serial
Power	Solid Green	Power supply OK
	Off	No voltage or +24V and GND leads reversed
Craft	Flashing Green	NG 216 G3 data transmit over craft port
	Flashing Red	NG 216 G3 data receive over craft port
Status	Flashing Green	Application is running
	Flashing Red	Boot Loader is running
(Optional) Wireless	Flashing Green	Data transmitted from modem
	Flashing Red	Data received by modem

Table 12.1. *Front Panel LED Descriptions*



LED	Status	Description
PWR	Solid Green	Power supply OK
	Off	No voltage or +24V and GND leads reversed

Table 12.2. *Back Panel LED Descriptions*

15 Reference Section

15.1 Display Mapping

	Description	Port	Address	Point	Set	Clear
Display 1	Discrete Alarms	99	1	1-16	8001-8016	9001-9016
	Control Relays	99	1	17-18	8017-8018	9017-9018
	System Alarms	99	1	25-45	8025-8064	9025-9064
Display 2	Analog 1 Minor Under	99	1	1	8129	9129
	Analog 1 Minor Over	99	1	2	8130	9130
	Analog 1 Major Under	99	1	3	8131	9131
	Analog 1 Major Over	99	1	4	8132	9132
	Analog Value	99	1	5-64	8133-8192	9133-9192
Display 3	Analog 2 Minor Under	99	1	1	8193	9193
	Analog 2 Minor Over	99	1	2	8194	9194
	Analog 2 Major Under	99	1	3	8195	9195
	Analog 2 Major Over	99	1	4	8196	9196
	Analog Value	99	1	5-64	8197-8256	9197-9156
Display 4	Analog 3 Minor Under	99	1	1	8257	9257
	Analog 3 Minor Over	99	1	2	8258	9258
	Analog 3 Major Under	99	1	3	8259	9259
	Analog 3 Major Over	99	1	4	8260	9260
	Analog Value	99	1	5-64	8261-8320	9261-9320
Display 5	Analog 4 Minor Under	99	1	1	8321	9321
	Analog 4 Minor Over	99	1	2	8322	9322
	Analog 4 Major Under	99	1	3	8323	9323
	Analog 4 Major Over	99	1	4	8324	9324
	Analog Value	99	1	5-64	8325-8384	9325-9384
Display 6	Analog 5 Minor Under	99	1	1	8385	9385
	Analog 5 Minor Over	99	1	2	8386	9386
	Analog 5 Major Under	99	1	3	8387	9387
	Analog 5 Major Over	99	1	4	8388	9388
	Analog Value	99	1	5-64	8389-8448	9389-9448
Display 7	Analog 6 Minor Under	99	1	1	8449	9449
	Analog 6 Minor Over	99	1	2	8450	9450
	Analog 6 Major Under	99	1	3	8451	9451
	Analog 6 Major Over	99	1	4	8452	9452
	Analog Value	99	1	5-64	8453-8512	9453-9512
Display 8	Analog 7 Minor Under	99	1	1	8513	9513
	Analog 7 Minor Over	99	1	2	8514	9514
	Analog 7 Major Under	99	1	3	8515	9515
	Analog 7 Major Over	99	1	4	8516	9516
	Analog Value	99	1	5-64	8517-8576	9517-9576
Display 9	Analog 8 Minor Under	99	1	1	8577	9577
	Analog 8 Minor Over	99	1	2	8578	9578
	Analog 8 Major Under	99	1	3	8579	9579
	Analog 8 Major Over	99	1	4	8580	9580
	Analog Value	99	1	5-64	8581-8640	9581-9640

Table 14.1

15.2 System Alarms Display Map

Display	Points	Alarm Point	Description	Solution
1	25	Default configuration	The internal NVRAM may be damaged. The unit is using default configuration settings.	Login to the NetGuardian's web browser and configure the unit. Power cycle to see is the alarm clears.
	26	DCP Poller Inactive	The NetGuardian is configured to listen for DCP polls but has not received a poll in over 5 minutes	- - - - -
	27	MAC Address not set	The MAC Address is not set.	Call DPS Tech Support: (559) 454-1600
	28	IP Address not set	The IP is not set.	See Section "Quick Start: How to Connect to the NetGuardian 216 G3 via Craft Port." If not using the NetGuardian over LAN, set the IP address to 255.255.255.255
	29	LAN hardware error	The unit does not have a solid LAN link to the hub, switch, or router.	If connecting to a hub you might require a LAN crossover cable.
	30	SNMP processing error	SNMP trap address is not defined and an SNMP trap event occurred.	Define the IP Address where you would like to send SNMP trap events, or configure the event not to trap.
	31	SNMP community error	Community string does not match your SNMP master's community string.	Verify both community strings to make sure they match.
	32	LAN TX packet drop	An error occurred transmitting data over LAN.	Verify that you can ping both devices.
	33	Notification 1 failed	A notification 1 event, such as a page or email, was unsuccessful.	Use RPT filter debug to help diagnose notification problems.
	34	Notification 2 failed	A notification 2 event, such as a page or email, was unsuccessful.	Use RPT filter debug to help diagnose notification problems.
	35	Notification 3 failed	A notification 3 event, such as a page or email, was unsuccessful.	Use RPT filter debug to help diagnose notification problems.
	36	Notification 4 failed	A notification 4 event, such as a page or email, was unsuccessful.	Use RPT filter debug to help diagnose notification problems.
	37	Notification 5 failed	A notification 5 event, such as a page or email, was unsuccessful.	Use RPT filter debug to help diagnose notification problems.
	38	Notification 6 failed	A notification 6 event, such as a page or email, was unsuccessful.	Use RPT filter debug to help diagnose notification problems.
	39	Notification 7 failed	A notification 7 event, such as a page or email, was unsuccessful.	Use RPT filter debug to help diagnose notification problems.
	40	Notification 8 failed	A notification 8 event, such as a page or email, was unsuccessful.	Use RPT filter debug to help diagnose notification problems.
	41	NTP failed	Communication with Network Time Server has failed.	Try pinging the Network Time Server's IP Address as it is configured. If the ping test is successful, then check the port setting and verify the port is not being blocked on your network.
	42	Timed Tick	Toggles state at constant rate as configured by the Timed Tick timer variable. Useful in testing integrity of	To turn the feature off, set the Timed Tick timer to 0.

			SNMP trap alarm reporting.	
	43	Serial 1 RcvQ full	Serial port 1 (or appropriate serial port number) receiver filled with 8 K of data (4 K if BAC active).	Check proxy connection. The serial port data may not be getting collected as expected.
	44	Dynamic memory full	Not expected to occur.	Call DPS Tech Support (559) 454-1600
	45	Unit reset	Unit has rebooted.	If unintentional, call DPS Tech Support: (559) 454-1600.
	46	Wireless Modem is Not Responding	The Wireless Modem component to the NetGuardian has stopped responding.	Contact DPS Tech Support (559) 454-1600
	47	Wireless Signal Not Detected	The Wireless Modem does not detect a cellular signal.	Ensure that the cellular antenna is properly connected to the NetGuardian. If possible, reposition the NetGuardian to find a cellular signal. If unsuccessful, contact DPS.

15.3 SNMP Manager Functions

The SNMP Manager allows the user to view alarm status, set date/time, issue controls, and perform a resync. The display and tables below outline the MIB object identifiers. Table 14.2 begins with dpsRTU; however, the MIB object identifier tree has several levels above it. The full English name is as follows: root.iso.org.dod.internet.private.enterprises.dps-Inc.dpsAlarmControl.dpsRTU. Therefore, dpsRTU's full object identifier is 1.3.6.1.4.1.2682.1.4. Each level beyond dpsRTU adds another object identifying number. For example, the object identifier of the Display portion of the Control Grid is 1.3.6.1.4.1.2682.1.4.3.3 because the object identifier of dpsRTU is 1.3.6.1.4.1.2682.1.4 + the Control Grid (.3) + the Display (.3).

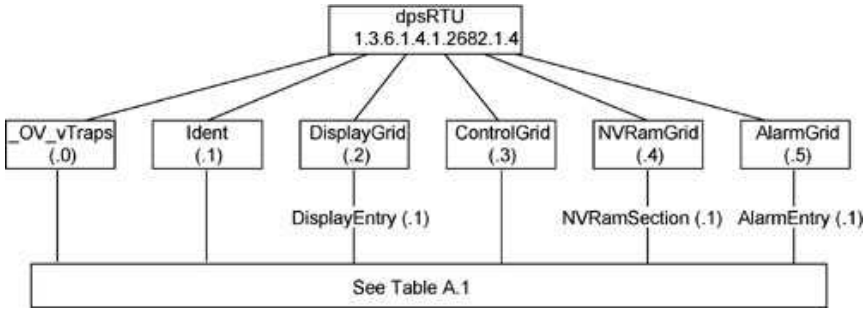


Table 14.2

Tbl. B1 (O.)_OV_Traps points
_OV_vTraps (1.3.6.1.4.1.2682.1.4.0)
PointSet (.20)
PointClr (.21)
SumPSet (.101)
SumPClr (.102)
ComFailed (.103)
ComRestored (.014)
P0001Set (.10001) through P0064Set (.10064)
P0001Clr (.20001) through P0064Clr (.20064)

Tbl. B2 (.1) Identity points
Ident (1.3.6.1.4.1.2682.1.4.1)
Manufacturer (.1)
Model (.2)
Firmware Version (.3)
DateTime (.4)
ResyncReq (.5)*
* Must be set to "1" to perform the resync request which will resend TRAPs for any standing alarm.

Tbl. B3 (.2) DisplayGrid points
DisplayEntry (1.3.6.1.4.1.2682.1.4.2.1)
Port (.1)
Address (.2)
Display (.3)
DispDesc (.4)*
PntMap (.5)*

Tbl. B3 (.3) ControlGrid points
ControlGrid (1.3.6.1.4.1.2682.1.4.3)
Port (.1)
Address (.2)
Display (.3)
Point (.4)
Action (.5)

Tbl. B5 (.5) AlarmEntry points
AlarmEntry (1.3.6.4.1.2682.1.4.5.1)
Aport (.1)
AAddress (.2)
ADisplay (.3)
APoint (.4)
APntDesc (.5)*
AState (.6)
* For specific alarm points, see Table B6

Table 14.3

The NetGuardian 216 G3 82IP G2 OID has changed from 1.3.6.1.4.1.2682.1.2 to 1.3.6.1.4.1.2682.1.4 Updated MIB files are available on the Resource CD or upon request.

15.4 SNMP Granular Trap Packets

Tables Table 14.4 and Table 14.1.5 provide a list of the information contained in the SNMP Trap packets sent by the NetGuardian 216 G3

SNMP Trap managers can use one of two methods to get alarm information:

1. Granular traps (not necessary to define point descriptions for the NetGuardian 216 G3) **OR**
2. The SNMP manager reads the description from the Trap.

UDP Header	Description
1238	Source port
162	Destination port
303	Length
0xBAB0	Checksum

Table 14.4 *UDP Headers and descriptions*

SNMP Header	Description
0	Version
Public	Request
Trap	Request
1.3.6.1.4.1.2682.1.4	Enterprise
126.10.230.181	Agent address
Enterprise Specific	Generic Trap
8001	Specific Trap
617077	Time stamp
1.3.7.1.2.1.1.1.0	Object
NetGuardian v1.0K	Value
1.3.6.1.2.1.1.6.0	Object
1-800-622-3314	Value
1.3.6.1.4.1.2682.1.4.4.1.0	Object
01-02-1995 05:08:27.760	Value
1.3.6.1.4.1.2682.1.4.5.1.1.99.1.1.1	Object
99	Value
1.3.6.1.4.1.2682.1.4.5.1.2.99.1.1.1	Object
1	Value
1.3.6.1.4.1.2682.1.4.5.1.3.99.1.1.1	Object
1	Value
1.3.6.1.4.1.2682.1.4.5.1.4.99.1.1.1	Object
1	Value
1.3.6.1.4.1.2682.1.4.5.1.5.99.1.1.1	Object
Rectifier Failure	Value
1.3.6.1.4.1.2682.1.4.5.1.6.99.1.1.1	Object
Alarm	Value

Table 14.5. *SNMP Headers and descriptions*

16 Frequently Asked Questions

Here are answers to some common questions from NetGuardian 216 G3 users. The latest FAQs can be found on the NetGuardian 216 G3 support web page, **http://www.dpstele.com.**

If you have a question about the NetGuardian 216 G3, please call us at **(559) 454-1600** or e-mail us at **support@dpstele.com**

16.1 General FAQs

Q. How do I telnet to the NetGuardian 216 G3?

A. You must use **Port 2002** to connect to the NetGuardian 216 G3. Configure your Telnet client to connect using TCP/IP (**not** "Telnet," or any other port options). For connection information, enter the IP address of the NetGuardian 216 G3 and Port 2002. For example, to connect to the NetGuardian 216 G3 using the standard Windows Telnet client, click Start, click Run, and type "telnet <NetGuardian 216 G3 IP address> 2002."

Q. How do I connect my NetGuardian 216 G3 to the LAN?

A. To connect your NetGuardian 216 G3 to your LAN, you need to configure the unit IP address, the subnet mask and the default gateway. A sample configuration could look like this:
Unit Address: 192.168.1.100
subnet mask: 255.255.255.0
Default Gateway: 192.168.1.1
Save your changes by writing to NVRAM and reboot. Any change to the unit's IP configuration requires a reboot.

Q. When I connect to the NetGuardian 216 G3 through the craft port on the front panel it either doesn't work right or it doesn't work at all. What's going on?

A. Make sure your using the right COM port settings. Your COM port settings should read:
Bits per second: 9600 (9600 baud)
Data bits: 8
Parity: None
Stop bits: 1
Flow control: None
Important! Flow control **must** be set to **none**. Flow control normally defaults to hardware in most terminal programs, and this will not work correctly with the NetGuardian 216 G3.

Q. The LAN link LED is green on my NetGuardian 216 G3, but I can't poll it from my T/Mon.

A. Some routers will not forward packets to an IP address until the MAC address of the destination device has been registered on the router's Address Resolution Protocol (ARP) table. Enter the IP address of your gateway and your T/Mon system to the ARP table.

Q. What characteristics of an alarm point can be configured through software? For instance, can point 4 be used to sense an active-low signal, or point 5 to sense a level or an edge?

A. The unit's standard configuration is for all alarm points to be level-sensed. You **cannot** use configuration software to convert alarm points to TTL (edge-sensed) operation. TTL alarm points are a hardware option that must be specified when you order your NetGuardian 216 G3. Ordering TTL points for your NetGuardian 216 G3 does not add to the cost of the unit What you can do with the configuration software is change any alarm point from "Normal" to "Reversed" operation. Switching to Reversed operation has different effects, depending on the kind of input connected to the alarm point:

· **If the alarm input generates an active-high signal,** switching to Reversed operation means the NetGuardian 216 G3 will declare an alarm in the absence of the active-high signal, creating the practical equivalent of an active-low alarm.

- **If the alarm input generates an active-low signal,** switching to Reversed operation means the NetGuardian 216 G3 will declare an alarm in the absence of the active-low signal, creating the practical equivalent of an active-high alarm.
- **If the alarm input is normally open,** switching to Reversed operation converts it to a normally closed alarm point.
- **If the alarm input is normally closed,** switching to Reversed operation converts it to a normally open alarm point.

Q. I'm unsure if the voltage of my power supply is within the specified range. How to I test the voltage?

A. Connect the black common lead of a voltmeter to the ground terminal of the battery. Connect the red lead of the voltmeter to the batter's VCD terminal. The voltmeter should read between +12 and +30VDC.

16.2 SNMP FAQs

Q. Which versions of SNMP is supported by the SNMP agent on the NetGuardian?

A. SNMP v1, v2c

Q. How do I configure the NetGuardian 216 G3 to send traps to an SNMP manager? Is there a separate MIB for the NetGuardian 216 G3? How many SNMP managers can the agent send traps to? And how do I set the IP address of the SNMP manager and the community string to be used when sending traps?

A. The NetGuardian 216 G3 begins sending traps as soon as the SNMP managers are defined. The NetGuardian 216 G3 MIB is included on the NetGuardian 216 G3 Resource CD. The MIB should be compiled on your SNMP manager. (**Note:** MIB versions may change in the future.) The unit supports 2 SNMP managers, which are configured by entering its IP address in the Trap Address field of Ethernet Port Setup. To configure the community strings, choose SNMP from the Edit menu, and enter appropriate values in the Get, Set, and Trap fields.

Q. Does the NetGuardian 216 G3 support MIB-2 and/or any other standard MIBs?

A. The NetGuardian 216 G3 supports the bulk of MIB-2.

Q. Does the NetGuardian 216 G3 SNMP agent support both NetGuardian 216 G3 and T/MonXM variables?

A. The NetGuardian 216 G3 SNMP agent manages an embedded MIB that supports only the NetGuardian 216 G3's RTU variables. The T/MonXM variables are included in the distributed MIB only to provide SNMP managers with a single MIB for all DPS Telecom products.

Q. How many traps are triggered when a single point is set or cleared? The MIB defines traps like "major alarm set/cleared," "RTU point set," and a lot of granular traps, which could imply that more than one trap is sent when a change of state occurs on one point.

A. Generally, a single change of state generates a single trap.

Q. What does "point map" mean?

A. A point map is a single MIB leaf that presents the current status of a 64-alarm-point display in an ASCII-readable form, where a "." represents a clear and an "x" represents an alarm.

Q. The NetGuardian 216 G3 manual talks about control relay outputs. How do I control these

from my SNMP manager?

A. The control relays are operated by issuing the appropriate set commands, which are contained in the DPS Telecom MIB.

Q. How can I associate descriptive information with a point for the RTU granular traps?

A. The NetGuardian 216 G3 alarm point descriptions are individually defined using the Web Browser.

Q. My SNMP traps aren't getting through. What should I try?

A. Try these three steps:

1. Make sure that the Trap Address (IP address of the SNMP manager) is defined. (If you changed the Trap Address, make sure you saved the change to NVRAM and rebooted.)
2. Make sure all alarm points are configured to send SNMP traps.
3. Make sure the NetGuardian 216 G3 and the SNMP manager are both on the network. Use the unit's ping command to ping the SNMP manager.

17 Technical Support

DPS Telecom products are backed by our courteous, friendly Technical Support representatives, who will give you the best in fast and accurate customer service. To help us help you better, please take the following steps before calling Technical Support:

1. Check the DPS Telecom website.
You will find answers to many common questions on the DPS Telecom website, at **http://www.dpstele.com/support/**. Look here first for a fast solution to your problem.

2. Prepare relevant information.
Having important information about your DPS Telecom product in hand when you call will greatly reduce the time it takes to answer your questions. If you do not have all of the information when you call, our Technical Support representatives can assist you in gathering it. Please write the information down for easy access. Please have your user manual and hardware serial number ready.

3. Have access to troubled equipment.
Please be at or near your equipment when you call DPS Telecom Technical Support. This will help us solve your problem more efficiently.

4. Call during Customer Support hours.
Customer support hours are Monday through Friday, from 7 A.M. to 6 P.M., Pacific time. The DPS Telecom Technical Support phone number is **(559) 454-1600**.

Emergency Assistance: *Emergency assistance is available 24 hours a day, 7 days a week. For emergency assistance after hours, allow the phone to ring until it is answered with a paging message. You will be asked to enter your phone number. An on-call technical support representative will return your call as soon as possible.*

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Technical Support

If a purchaser believes that a product is not operating in substantial conformance with DPS' published specifications or there appear to be defects in material and workmanship, the purchaser should contact our technical support representatives. If the problem cannot be corrected over the telephone and the product and problem are covered by the warranty, the technical support representative will authorize the return of the product for service and provide shipping information. If the product is out of warranty, repair charges will be quoted. All non-warranty repairs receive a 90-day warranty.

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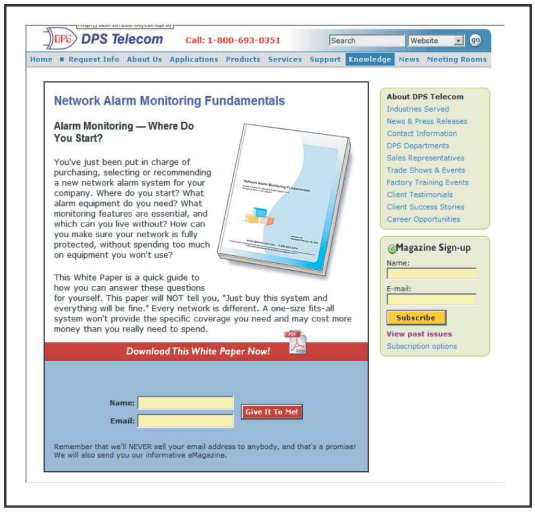

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