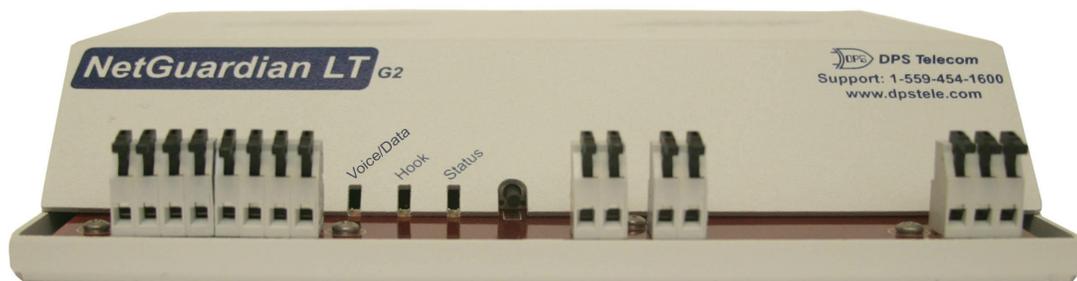


# NetGuardian LT G2

## USER MANUAL



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## Revision History

April 13, 2020	Minor Updates
January 28, 2019	Updated Voice Notification Flow Chart
June 28, 2018	Added Ping Target Support
February 7, 2018	Added SNMP Alarms
December 21, 2017	Added Isolated Voltage Monitor Option
August 21, 2015	Added Derived Alarms/Controls
March 13, 2015	Minor Updates / Fixes
November 13, 2013	Added SSL checkbox & instructions
September 18, 2012	Added new firmware controlled LEDs and DTMF commands
July 17, 2012	Added voice notification flow chart
June 5, 2012	Updated notification to clarify no SNMP v3
April 30, 2012	Updated web interface information
April 23, 2012	Initial Release

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# Contents

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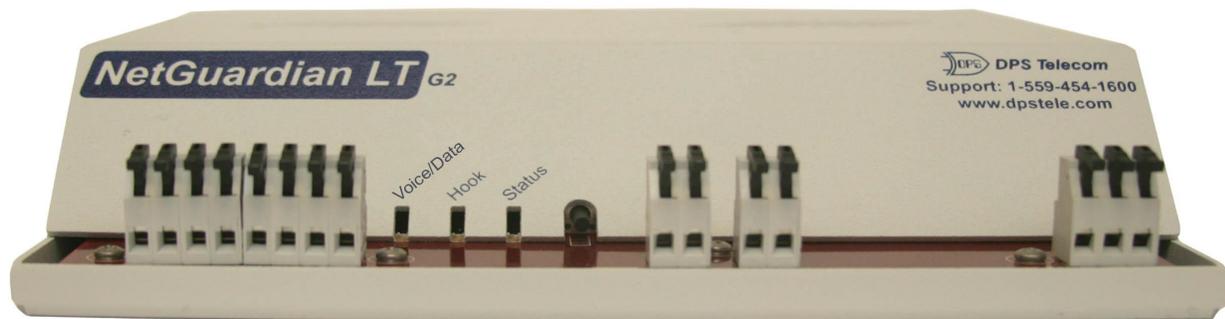
<b>1</b>	<b>NetGuardian LT G2 Overview</b>	<b>1</b>
<b>2</b>	<b>Specifications</b>	<b>3</b>
<b>3</b>	<b>Shipping List</b>	<b>4</b>
3.1	Optional Accessories	5
<b>4</b>	<b>Tools Needed</b>	<b>6</b>
<b>5</b>	<b>Installation</b>	<b>6</b>
5.1	Mounting	6
5.2	NetGuardian LT G2 Back Panel	7
5.2.1	Power Connection	8
5.2.1.1	NetGuardian LT G2 Isolated Voltage Monitor	9
5.2.2	Craft Port	10
5.2.3	LAN Connection	10
5.2.4	Modem Connection	10
5.2.5	Temperature Sensor	10
5.2.6	D-Wire Sensor Inputs	11
5.3	NetGuardian LT G2 Front Panel	12
5.3.1	Discrete Alarms and Relay Connection	12
<b>6</b>	<b>TTY Interface</b>	<b>14</b>
<b>7</b>	<b>Quick Start: How to Connect to the NetGuardian LT G2</b>	<b>15</b>
7.1	...via Craft Port	15
7.2	...via LAN	22
<b>8</b>	<b>NetGuardian LT G2 Web Browser</b>	<b>23</b>
<b>9</b>	<b>Logging on to the NetGuardian LT G2</b>	<b>23</b>
9.1	Changing the Default Password	24
<b>10</b>	<b>NetGuardian LT G2 - Most Important How-Tos</b>	<b>25</b>
10.1	How to Send Email Notifications	25
10.2	How to Send SNMP Traps	28
10.3	How to Send Call (Voice) Notifications	30
10.4	How to Send TRIP Notifications	31
<b>11</b>	<b>Monitoring via the Web Browser</b>	<b>33</b>
11.1	Monitor Alarms	33
11.2	Monitor Derived Alarms	33
11.3	Monitor Controls	33
11.4	Monitor Analogs	34
11.5	Monitor Sensors	34
11.6	Monitor SNMP Alarms	35

11.7 Monitor Ping Targets	35
11.8 Monitor System Alarms	35
<b>12 Provisioning Field Descriptions</b>	<b>37</b>
12.1 System	38
12.2 User Profiles	39
12.3 Ethernet	41
12.4 SNMP	42
12.5 Phone List	42
12.6 Notifications	43
12.6.1 Notification Settings	44
12.6.2 Schedule	47
12.7 Alarms	47
12.7.1 Basic Configuration	48
12.7.2 Advanced Configuration	49
12.8 Derived Alarms	50
12.9 Controls	51
12.10 Analogs	53
12.10.1 Basic Configuration	53
12.10.2 Advanced Configuration	54
12.11 Sensors	55
12.11.1 Basic Configuration	55
12.11.2 Advanced Configuration	56
12.12 Variable Bindings	57
12.13 SNMP Alarms	57
12.14 Ping Targets	59
12.15 System Alarms	60
12.16 Timers	61
12.17 Date and Time	61
<b>13 Device Access Descriptions</b>	<b>62</b>
<b>14 Firmware Upgrade</b>	<b>62</b>
<b>15 Reference Section</b>	<b>63</b>
15.1 LED Functionality	63
15.2 Display Mapping	64
15.3 System Alarms	68
15.4 Voice Notification Flow Chart	69
15.5 Derived Alarm and Control Equations	69
15.6 SNMP Manager Functions	71
15.7 SNMP Granular Trap Packets	72
<b>16 Frequently Asked Questions</b>	<b>73</b>

16.1 General FAQs	73
16.2 SNMP FAQs	74
<b>17 Technical Support</b>	<b>75</b>
<b>18 End User Licence Agreement</b>	<b>76</b>



# 1 NetGuardian LT G2 Overview



*Fig 1.1 Compact, easy-to-install, right-size capacity — the NetGuardian LT G2 ("Lite") offers a low-cost way of effectively monitoring smaller sites.*

## **Effective, easy-to-install, light-capacity alarm monitoring**

The NetGuardian LT G2 is a compact, LAN-based, light-capacity remote telemetry unit. The NetGuardian LT G2 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 LT G2 is based on the time-tested NetGuardian 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.

- **Custom Voice Dial-In and Out with DTMF Acknowledge**
- **Data Dial-In and Out for TTY and T/Mon Alternate Path Reporting**
- **Up to 4 Discrete Alarm Inputs**
- **1 Integrated Temperature Sensor**
- **32 ping targets to monitor other devices**
- **1 Control Relay (Optional)**
- **Optional D-Wire Sensor Network**

## **Easy Alerts via Phone or SNMP**

When alarms occur, custom voice alerts will be sent to your phone. SNMP traps will also be sent to your SNMP manager. Dial right into the NetGuardian LT G2 and request a verbal report using custom Voice Dial-Out technology with DTMF acknowledge.

## **SNMP or T/Mon LNX**

The NetGuardian LT G2 can report alarms to any SNMP manager or to the DPS Telecom T/Mon LNX Remote Alarm Monitoring System using either SNMP or DCPx. The NetGuardian LT G2 can also report via SNMP and DCPx.

## **Easy installation and configuration**

Since it's LAN-based, the NetGuardian LT G2 installs quickly and easily, without the expense of laying dedicated lines. The unit mounts in any 19" or 23" rack and occupies only 1 RU. The unit has spring-clamp terminal connectors to make wiring alarms fast and easy. The front-panel LEDs show you the status for each alarm input

and other summary status.

## 2 Specifications

### Hardware

<b>Dimensions:</b>	1.720" H x 8.126" W x 7.146" D	<b>Modem:</b>	33.6 K Internal
<b>Mounting:</b>	19" or 23" Rack	<b>Discrete Alarm Inputs:</b>	Up to 4
<b>Weight:</b>	1 lb. 5 oz.	<b><sup>2</sup> Discrete Alarm Length:</b>	200Ft. per Alarm
<b>Power Input:</b>	Wide Range -24/-48VDC (-20 to -56 VDC) +24 VDC nominal via 110VAC wall transformer (20 to 36 VDC) -48VDC nominal (-36 to -72 VDC)	<b>Analogs:</b>	2
<b><sup>3</sup> Current Draw:</b>	100mA max @ 48VDC	<b>Input Range:</b>	0V - 4.5V or 4 to 20mA
<b>Fuse:</b>	Internal Resetable or GMT (depends on voltage)	<b><sup>4</sup> Analog Accuracy:</b>	± 1% of Analog Range
<b><sup>1</sup> Power Outputs:</b>	6w (12v), 12w (24v)	<b>Control Outputs:</b>	1 Form C
<b>Voltage Output Options:</b>	+12 VDC, +24 VDC	<b>Max Voltage:</b>	110 VDC
<b>Output Current:</b>	500mA total	<b>Max Current:</b>	1A AC/DC
<b>Output Fuse:</b>	500mA 5x20mm glass fuse	<b>Operating Temp:</b>	32° to 140°F (0° to 60°C)
<b>Audible Interfaces:</b>	N/A	<b><sup>1</sup> Industrial Operating Temp:</b>	-22° to 158°F (-30° to 70°C)
<b>Visual Interfaces:</b>	10 Firmware-Controlled LEDs 2 Hardware-Controlled LEDs 3 LAN Connector Hardware LEDs	<b>Storage Temp:</b>	
<b><sup>1</sup> Hardware Interfaces:</b>	1 RJ45 10/100BaseT full-duplex Ethernet port  1 USB <sup>5</sup> rear-panel craft port 1 RJ11 telco jack Up to 4 Alarm input connectors (2 inputs per alarm) 1 Relay output connector (NO, NC, CO)  1 Push button switch	<b>Operating Humidity:</b>	95% non-condensing
		<b>MTBF:</b>	60 Years
		<b>RoHS:</b>	RoHS 5 Approved
		<b>Ordering Options:</b>	Battery input voltage monitoring (Optional) 1 4-20 mA Sensor  (Optional) 1 12/24VDC Sensor power output up to 1/2A

### Software

<b>Downloadable Firmware:</b>	Yes	<b><sup>1</sup> D-Wire Sensor Support:</b>	(Optional) 1 RJ11 up to 16 D-Wire Sensors
<b>Built-in Web Interface:</b>	Yes		
<b>Browser Support:</b>	IE9, IE10, Firefox	<b>Ping Alarms:</b>	32
<b>Protocols:</b>	DCPx, TELNET, HTTP, HTTPS, TRIP	<b>OS Support:</b>	XP, Vista, 7 (32 or 64 bit)
<b>SNMP Support:</b>	V1, V2c, V3		

#### Note:

<sup>1</sup> Valid if hardware option is included.

<sup>2</sup> Minimum lengths determined with TTL voltage level alarms. Actual distance may vary.

<sup>3</sup> Current measured at rated voltage with all controls latched and all alarms triggered.

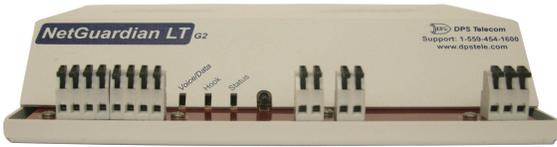
<sup>4</sup> See analog section in manual for detailed analog accuracy breakdown.

<sup>5</sup> We always recommend checking for ground potentials before using the USB port and suggest using a USB isolation device for additional protection. Without USB isolation, ground potentials can damage your computer and/or equipment and adversely impact warranty coverage.

\* This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

### 3 Shipping List

Please make sure all of the following items are included with your NetGuardian LT G2. 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 LT G2  
D-PK-NGDLT**



**NetGuardian LTG2 Resource Disk**



**NetGuardian LT G2 User Manual  
D-UM-NGLT2**



**Locking Power Connector  
2-820-35102-00** x 1



**6 ft. USB Craft Port Cable  
D-PR-046-10A-06** x 1



**14 ft. Ethernet Cable  
D-PR-923-10B-14** x 1



**Telephone Cable 6 ft  
D-PR-045-10A-01** x 1



**Short Rack Ear  
D-CS-325-10A-00** x 1



**Wall Mount Bracket  
D-CS-532-10A-05** x 2



**Two wall mount bracket chassis screws  
2-000-60250-01** x 2



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



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



x 2

Two Metric Rack Screws  
2-000-80750-03



Pads  
2-015-00030-00

### 3.1 Optional Accessories



Power plug to open end  
D-PR-1047-10A-10



+24V Wall Transformer  
D-PR-105-10A-02 OR  
(D-PR-105-10A-09 for right-angle)



Long ear, 19" rack  
D-CS-325-10A-08



x 4

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



x 2

1/2 Amp GMT fuses  
2-741-00500-00



Small WAGO connector  
2-802-01020-00



#### RJ-11 Cable for D-Wire Sensors

Cable Ordering Options		
D-PR-901-10A	-	"Desired Length In ft"
Straight-Through RJ-11 Cable		Overall Length
		01 = 1ft
		⋮
		99 = 99ft

**Example:** For a 25ft. cable, the part number would be D-PR-901-10A-25

## 4 Tools Needed

To install the NetGuardian, you'll need the following tools. **NOTE:** To install the NetGuardian LT G2 in one of the wall-mount configurations, you will also require a wrench or driver capable of tightening 3/8" hex nuts.



Wire Strippers



Phillips No. 2 Screwdriver (For rack mounting)

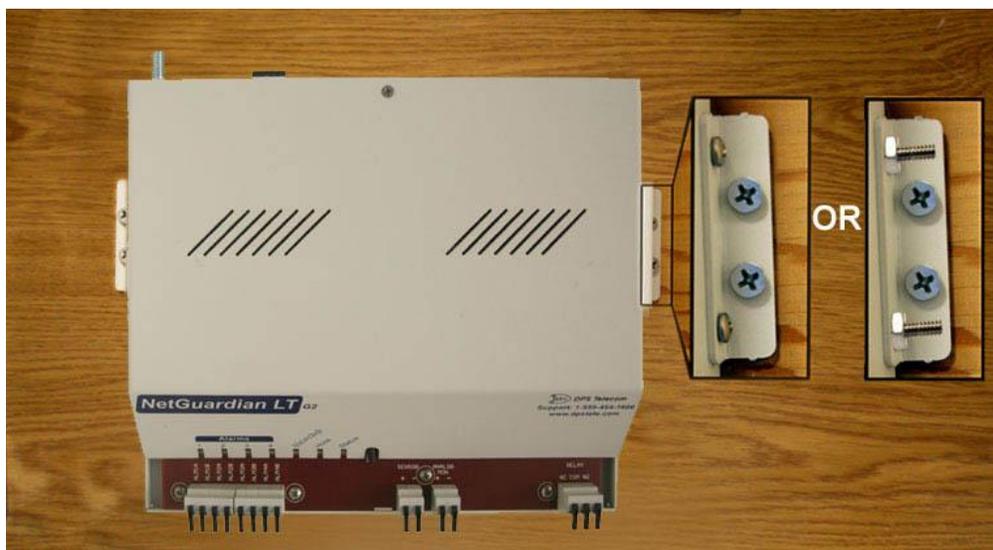
## 5 Installation

### 5.1 Mounting



*Fig. 5.1 The NetGuardian LT can be front or rear-mounted*

The compact NetGuardian LT occupies only half the width of a standard rack unit. 19" rack ears are supplied with the NetGuardian LT. The NetGuardian LT mounts in a 19" or 23" rack, and can be mounted on the right or left, or rear mount locations, as shown below.



*Fig 5.2 Use the included wall mount bracket to mount the NetGuardian LT vertically on the wall.*

#### Wall-Mounting Instructions

The rack ears can be rotated 90° for wall mounting or 180° for other mounting options (not shown).

1. Depending on your order options, you will can attach wall-mount flanges to both sides of the unit in one of two ways:
  - a. Place the flange over the protruding screws and fasten it to the 3/8" hex nuts provided.
  - b. OR Fasten the flange to the NetGuardian LT with two of the 6/32 screws provided. (**NOTE:** Screws longer than those provided may contact the internal components of the unit, adversely affecting its normal operation.)
2. After flanges have been attached to the NetGuardian LT, mount the unit in the desired location with two screws through each flange.

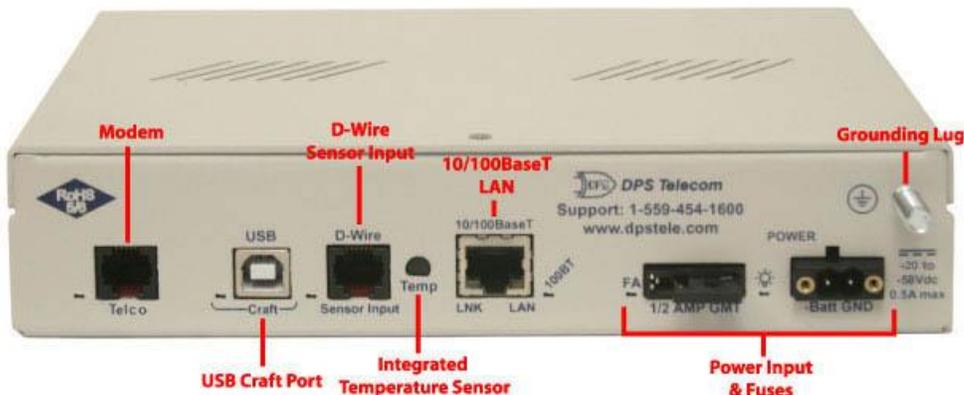


*Fig. 5.3 The NetGuardian LT also mounts on your 19" or 23" equipment racks.*

### Rack-Mounting Instructions

The NetGuardian LT mounts onto one side of a 19" or 23" rack using the provided rack ear for either size. The ear can be rotated 180 degrees during installation to adjust the position of the unit relative to the rack. Attach the appropriate ear to the rack in the desired location.

## 5.2 NetGuardian LT G2 Back Panel



*Fig. 5.2.1 NetGuardian LT G2 back panel connections*

## 5.2.1 Power Connection

The NetGuardian LT G2 is typically powered by a screw terminal barrier plug connector, but other options exist.



*Fig. 5.2.2 Screw terminal barrier plug connector*

**Note:** 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 LT G2, before making your power connections.

### To connect the NetGuardian LT G2 to a power supply:

1. Use the grounding lug to connect the unit to earth ground. The grounding lug is next to the symbol .
2. 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.
4. Insert a battery lead to the plug's left terminal and tighten its screw.
5. Insert fuse into the fuse distribution panel.
6. Check the power status LED for polarity.
7. Measure voltage. Connect the black cable onto the ground connector of your DVM.
8. Red cable onto the other connector of your DVM.
9. The voltmeter should read between -36 VDC and -72 VDC.

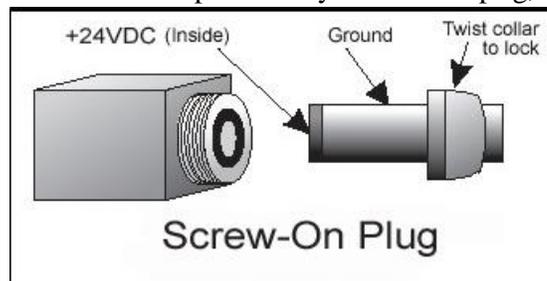
**Note:** If the voltage does not read between -36 VDC and -72 VDC, stop immediately.

10. Insert the local fuse into the power fuse slot. The power plug can be inserted into the power connector only one way to ensure the correct polarity.

**Note:** The negative voltage terminal is on the left and the GND terminal is on the right.

11. Verify that the  LED is lit. To confirm that power is correctly connected, the front panel status LED will flash RED and GREEN, indicating that the firmware is booting up.

An optional version of the NetGuardian LT G2 is powered by a screw-on plug, as seen in the image below.



*Fig. 5.2.3 Close-up view of NetGuardian's screw-on power connector.*

To connect the NetGuardian LT G2's power supply with a screw on plug, follow these steps:

1. Plug in the power connector to the rear panel of the NetGuardian LT G2.
2. Twist the collar of the plug to lock in place.
3. Plug in the wall transformer to a power outlet.

### 5.2.1.1 NetGuardian LT G2 Isolated Voltage Monitor

The Isolated Voltage Monitor is an optional feature that allows you to monitor the voltage of the unit while being separate from GND. This is Isolated Bonding Network (IBN) standard.

For calibration and other information regarding this feature, see the sections below.

#### Calibration:

While your Isolated Voltage Monitor will be calibrated before leaving the factory, it might be necessary to do further calibrations once the device is deployed. To calibrate your unit, follow the steps below:

- Establish a TTY interface connection with the unit you wish to calibrate.
- Once logged in, enter 'C' for config.
- Enter 'H'.
  - **NOTE:** 'H' is a hidden option. It will not be present in the list of available options.
- Enter 'C' for calibrate.
- Using a multimeter, take a reading from the Power B input of the device.
- Enter the voltage reading from the multimeter in the TTY interface and press 'Enter'.
- To verify that the calibration has taken affect, you can view Power Input B voltage in the Monitor > Analogs page of the device's web browser interface.

#### View Enabled/Disabled Calibration Feature Status:

When your device arrives from the factory, the Isolated Voltage Monitor Calibration feature should be automatically enabled. To double-check that it is enabled, use the following steps:

- Establish a TTY interface connection with the desired unit.
- Enter 'S' for stats.
- There will be a line item for 'IVM VDC adjust: Enabled' if the device has the calibration feature enabled. Otherwise, this line item will not be visible.

#### Enabling the Isolated Voltage Monitoring Calibration Feature:

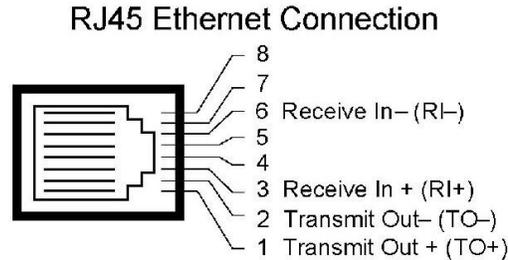
If for some reason the Isolated Voltage Monitor Feature is disabled, use the following steps to enable it *before* calibration:

- Establish a TTY interface connection with the unit you wish to calibrate.
- Once logged in, enter 'C' for config.
- Enter 'H'.
  - **NOTE:** 'H' is a hidden option. It will not be present in the list of available options.
- Enter 'E' for enable.
- Enter 'Y' to confirm you wish to enable the calibration feature.
- Once enabled, you may calibrate the voltage reading if necessary.

## 5.2.2 Craft Port

The back panel craft port is primarily used to give the NetGuardian LT G2 an IP address so you can continue the rest of your database configuration over LAN. Use a terminal emulating software program like HyperTerminal to enter the NetGuardian LT G2's TTY interface. Please see the Quick Start section for instructions.

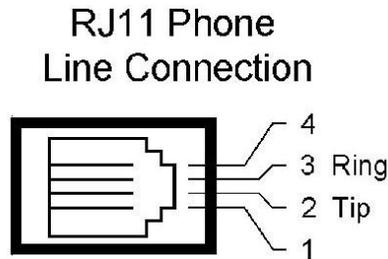
## 5.2.3 LAN Connection



*Fig. 5.2.3 LAN Connection Pinnout*

LAN is used for web browsing to the NetGuardian LT G2. You can also do your databasing over LAN, as well as sending email notifications and SNMP traps. To connect the NetGuardian LT G2 to the LAN, insert a standard RJ45 Ethernet cable into the 10/100BaseT Ethernet port on the back of the unit. If the LAN connection is OK, the LNK LED will light **SOLID GREEN**.

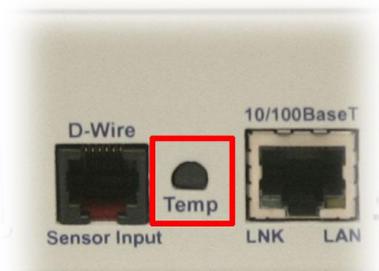
## 5.2.4 Modem Connection



*Fig. 5.2.4 Modem Connection Pinnout*

The NetGuardian LT G2's Modem connection is used for voice or TRIP notifications. The rear panel modem jack connects the NetGuardian LT G2 to a standard telephone line. This will allow you to dial in / dial out from the unit.

## 5.2.5 Temperature Sensor



*Fig. 5.2.5 Temperature sensor*

## 1 Integrated Temperature Sensor

The NetGuardian LT G2 features one internal temperature sensor, used to monitor the ambient temperature. The internal temperature sensor measures a range of -40° F to 180° F (-40° C to 82.2° C) within an accuracy of about  $\pm 2^\circ$ .

## 5.2.6 D-Wire Sensor Inputs

The ports on your NetGuardian LT G2 labeled **Sensor Input** support up to 16 **D-Wire sensors**. Your NetGuardian LT G2 powers and communicates with your D-Wire sensors via simple RJ-11 connections. You can chain your 16 sensors to the D-Wire port on the back of the NetGuardian LT G2 in any order or combination.

The max cable length depends on the number of sensors daisy chained together. The cable lengths and corresponding number of sensors can be seen in the table below.

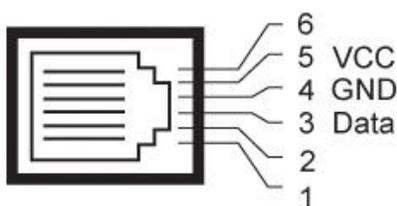
Maximum Cable Lengths							
Number of Nodes	Spec'd Max (ft)	Number of Nodes	Spec'd Max (ft)	Number of Nodes	Spec'd Max (ft)	Number of Nodes	Spec'd Max (ft)
1	800	9	150	17	75	25	50
2	700	10	125	18	75	26	50
3	475	11	125	19	50	27	50
4	350	12	100	20	50	28	50
5	275	13	100	21	50	29	50
6	225	14	100	22	50	30	40
7	200	15	75	23	50	31	40
8	175	16	75	24	50	32	40

**Table 5.2.6** Maximum Cable Lengths

**Note:** Some sensors may consume 2 analog channels (the combined temp/humidity sensor, D-PK-DSNSR-12002, for example).

### Connecting D-Wire Sensors

Using a **standard 6P4C, straight-through RJ-11 cable** (part #D-PR-045-10A-01, pinout below), connect any digital sensor port on the NetGuardian LT G2 to the **In** jack on a D-Wire sensor. Chain additional sensors to the D-Wire sensor (using the same straight-through cables) from the **Out** jack on the previous sensor to the **In** jack on the next (i.e. Out on sensor 4 to In on sensor 5).



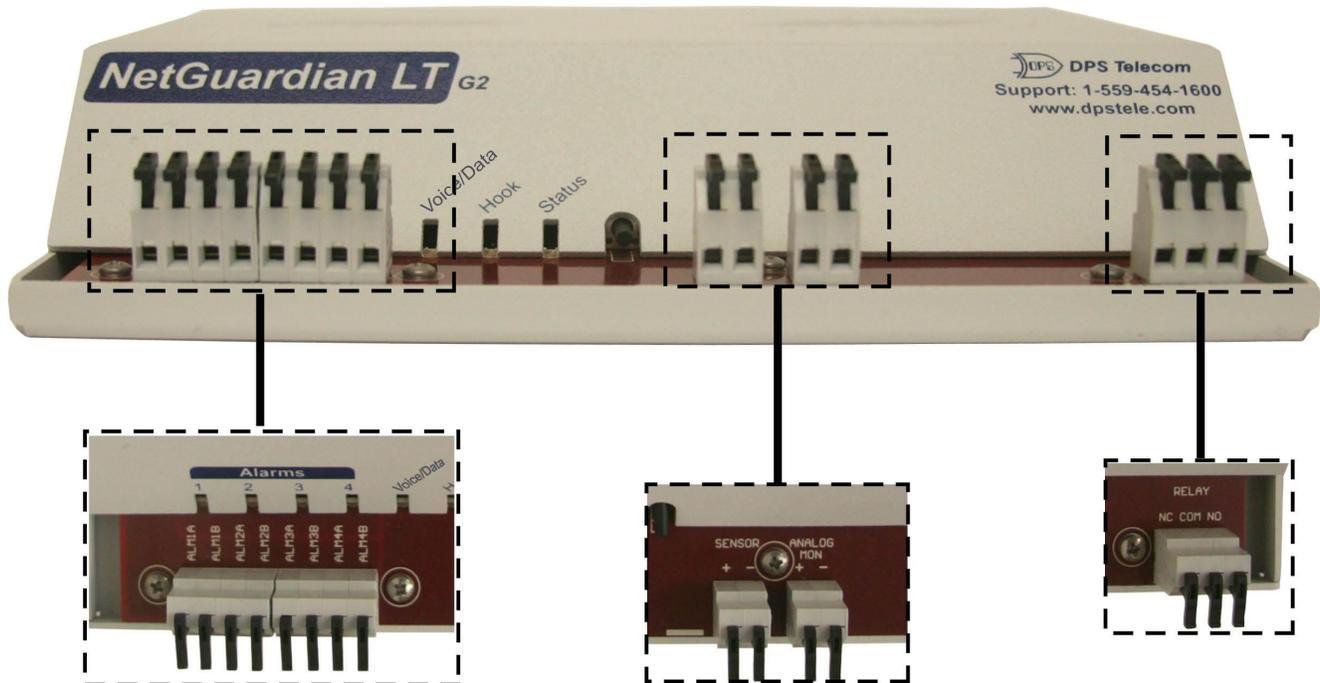
*Pinout for the NetGuardian LT G2 and D-Wire Sensor RJ-11 jacks*

The D-Wire line of sensors includes temp/humidity, additional analogs, discretives, and more. Contact DPS at 1-800-693-0351 for information about available D-Wire sensors.

For details about configuring your sensors through the web interface, see the **Sensors** section of this manual.

## 5.3 NetGuardian LT G2 Front Panel

### 5.3.1 Discrete Alarms and Relay Connection

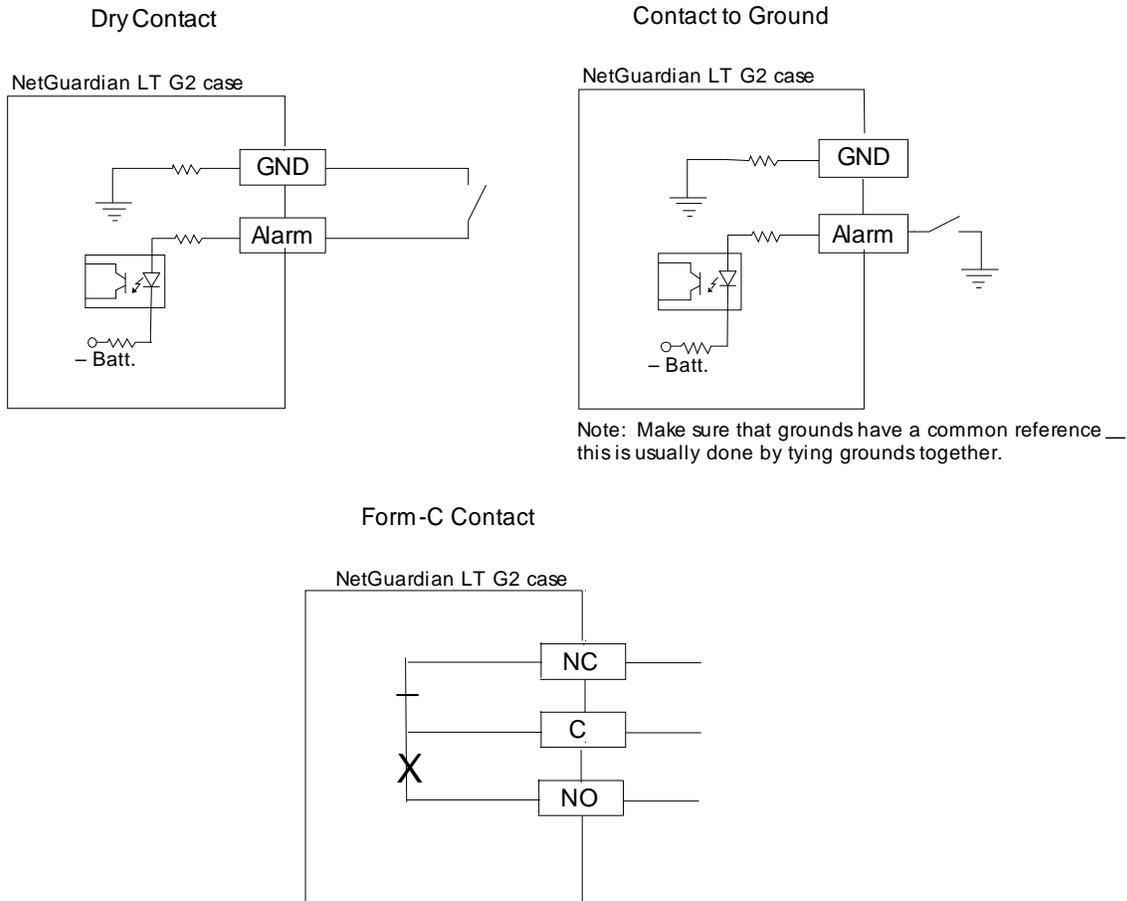


*Fig. 5.3.1 Discrete alarm inputs, analogs and control relays are wired using the spring-clamp terminal block connectors.*

#### Convenient Latching Terminations - No Screwdriver Necessary

The spring-clamp terminal block connectors make wiring alarms fast and easy. The NetGuardian LT G2 features up to 4 discrete alarm inputs (depending on your build option.) There are 2 input poles per alarm. The analog (depending on your build option) is intended for monitoring a single 4-20mA sensor. Your option may also include either 12 or 24VDC power output for power a sensor up to 1/2 AMP. The unit's relay connector has 3 outputs for Normally Open (NO), Normally Closed (NC), and Common (CO).

1. Strip a small piece off the end of the wire.
2. Flip open the connector for the desired alarm input. Lock it down over the wire.
3. Indicator LEDs on the front panel show you the summary status. Check for solid green light to see if power is connected.



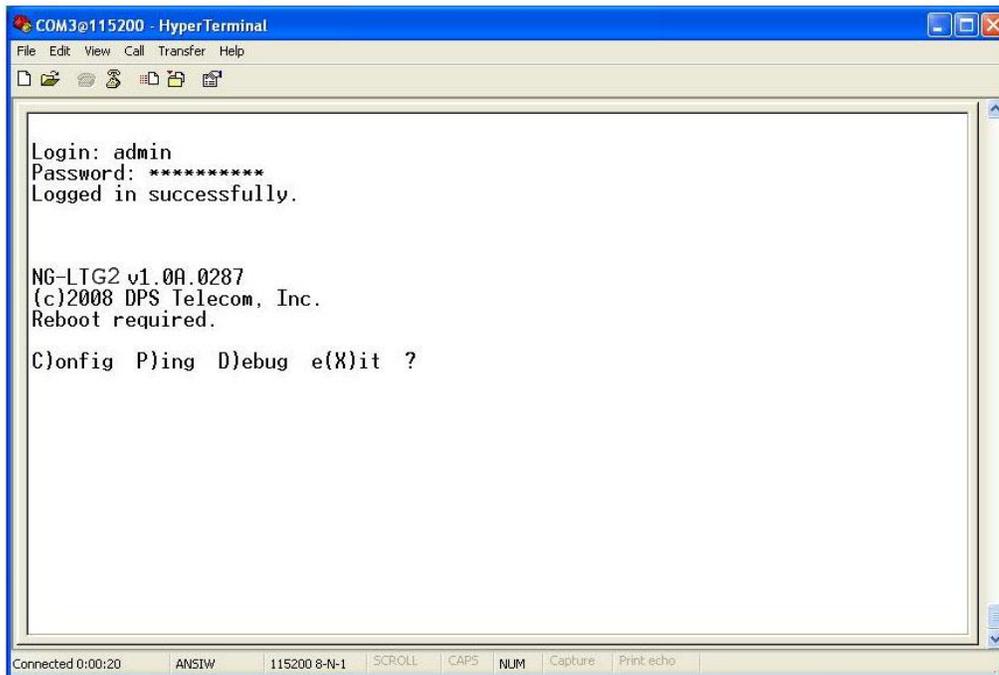
**Fig. 5.3.2** Discrete alarm points can connect as a dry contact, a contact to ground, or a Form-C contact

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

The unit'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.

## 6 TTY Interface



*Fig. 6.1 The TTY interface initial configuration screen*

The TTY interface is the NetGuardian's built-in interface for basic configuration. You can configure unit's Ethernet port settings, view debug, and monitor alarms. For more advanced configuration tools, please use the Web Browser Interface.

Some initial software configuration must be performed before you can use a remote connection to the NetGuardian LT G2. For Telnet, connect to the IP address at port 2002 to access the configuration menus after initial LAN/WAN setup. The same TTY interface is available through the front craft port. **Telnet sessions are established at port 2002, not the standard Telnet port** as an added security measure.

**NOTE:** The default TTY username is "admin" and the password is "dpstelecom".

### 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.

## 7 Quick Start: How to Connect to the NetGuardian LT G2

Most NetGuardian users find it easiest to give the unit an IP address, subnet and gateway through the 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. *Another option:* You can skip the TTY interface by using a LAN crossover cable directly from your PC to the NetGuardian LT G2 and access its Web Browser. See Section 7.2 .

### 7.1 ...via Craft Port

1. The simplest way to connect to the NetGuardian LT G2 is over a physical cable connection between your PC's USB port and the unit's USB craft port. **Note:** You must be connected via craft port or Telnet to use the TTY interface. Make sure you are using a standard A-B USB cable (this same cable is commonly used for USB printers) to make a USB craft port connection. We'll be using HyperTerminal to connect to the unit in the following example - however, most terminal-emulating programs are also compatible.



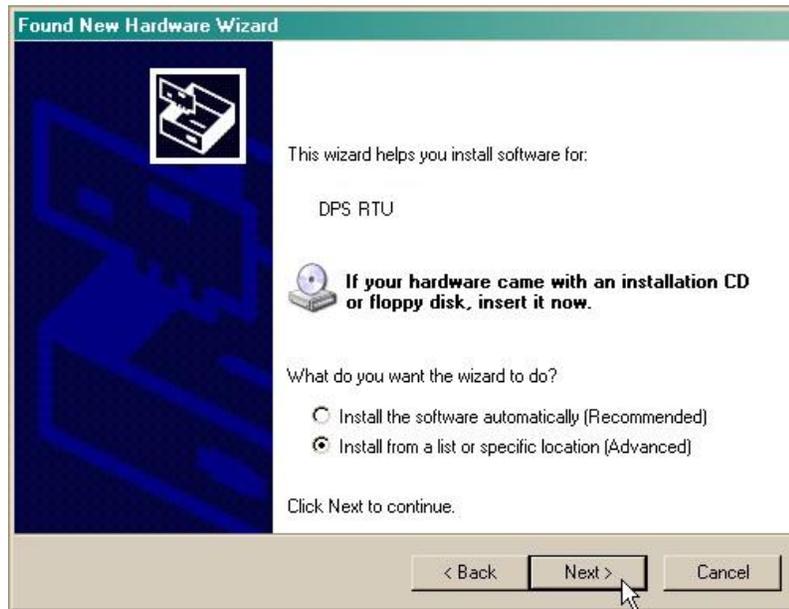
**Note:** The following images display the setup process done in Windows XP.

The following steps will occur the first time any DPS USB equipment is used on this PC. If you've used a different DPS USB device before and have installed the DPS USB drivers, then **skip to Step 9**.

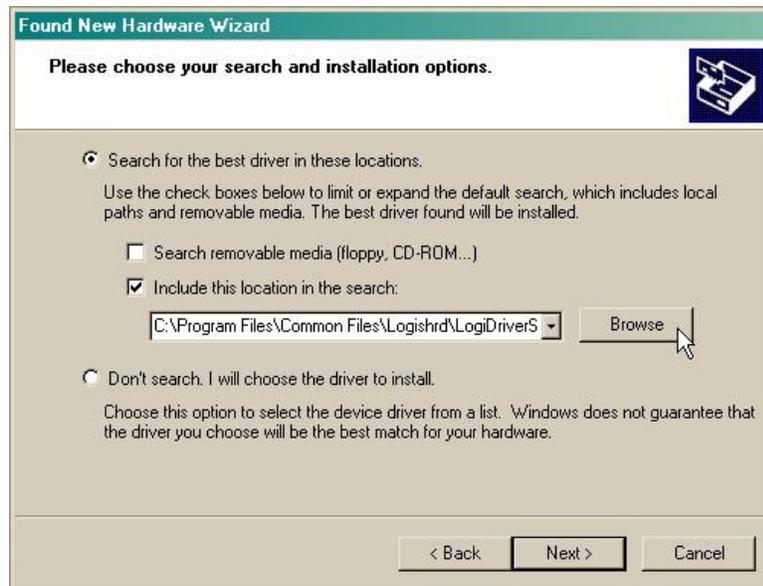
When you first connect the NetGuardian to your PC via USB, a "Found New Hardware" message will appear:



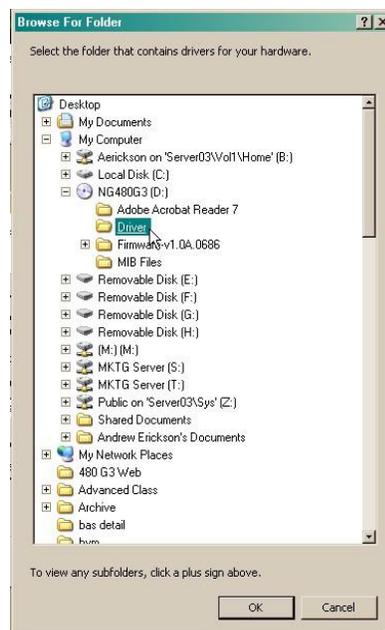
1. Click the "Found New Hardware" message/icon to launch the "Found New Hardware Wizard".



2. Select "Install from a list or specific location (Advanced)"
3. Click "Next >"



4. Select "Search for the best driver in these locations."
5. Insert NetGuardian LT G2 Resource Disc (CD) into your PC.
6. Click "Browse"



7. Select the "Driver" folder of your NetGuardian LT G2 Resource Disc (CD) and click "OK"

The following message will confirm installation of a new "USB Communications Port"

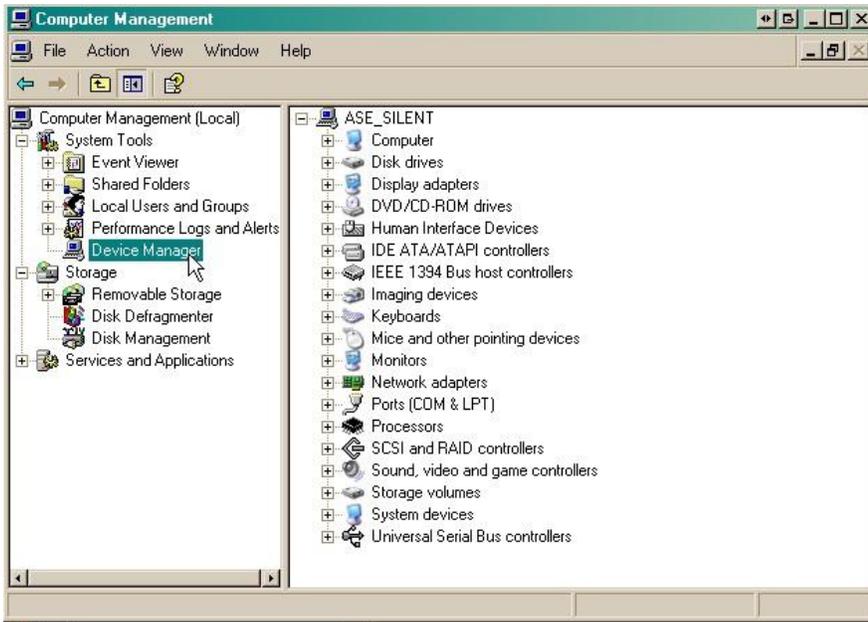


8. Click "Finish" to close the Wizard.

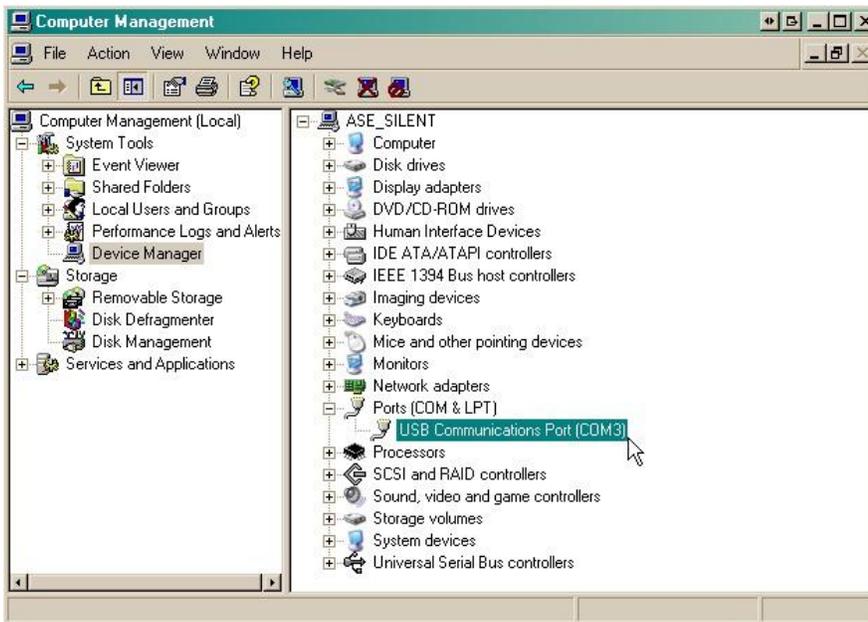
Now that the driver has been installed, a new COM port is being emulated on your PC. Before using hyperterminal, you must confirm the identity of that new COM port (COM1, COM2, COM3...) in the Windows Device Manager.



9. Right-click the "My Computer" icon on your desktop, then click "Manage"



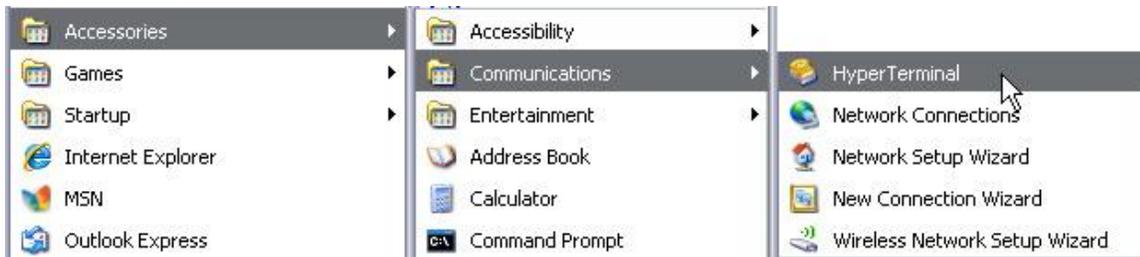
10. Click "Device Manager" in the left pane.



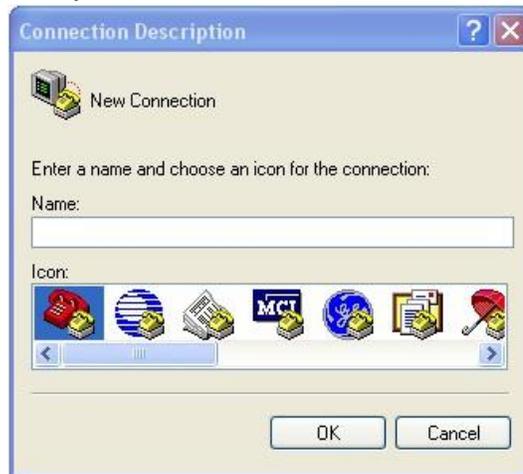
11. Expand the "Ports (COM & LPT)" section in the right pane. Look for "USB Communications Port (COMx)". Note the number of the COM port ("COM3" in the example above).

Now that you know which COM port to use, it's time to launch HyperTerminal (or other terminal software):

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



13. 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.



14. At the Connect To screen, use the drop-down menu to select the COM port you found earlier in the Device Manager.



15. Select the following COM port options:

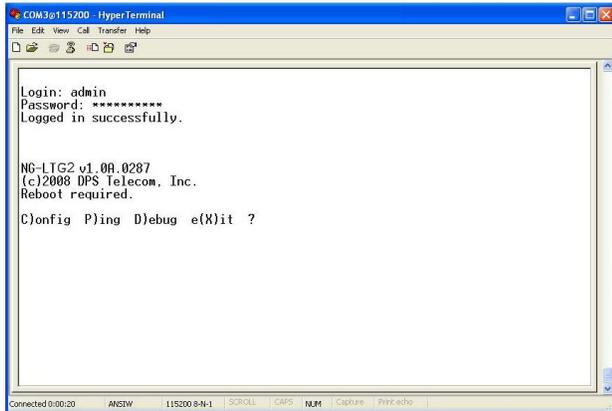
- Bits per second: 9600
- Data bits: 8
- Parity: None
- Stop bits: 1
- Flow control: **None**

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

16. When prompted, enter the default user name **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.



17. The NetGuardian LT G2's 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.



18. ESC to the main menu. When asked if you'd like to save your changes, type Y for Y)es. Reboot the NetGuardian LT G2 to save its new configuration.

```

Linked      : No
DHCP       : Disabled
Host Name   :
Unit IP    : 126.10.230.127 (126.10.230.127)
Subnet Mask : 255.255.192.0 (255.255.192.0)
Gateway    : 126.10.255.23 (255.255.255.255)
Unit MAC   : 00.10.81.00.53.33 (00.10.81.00.53)

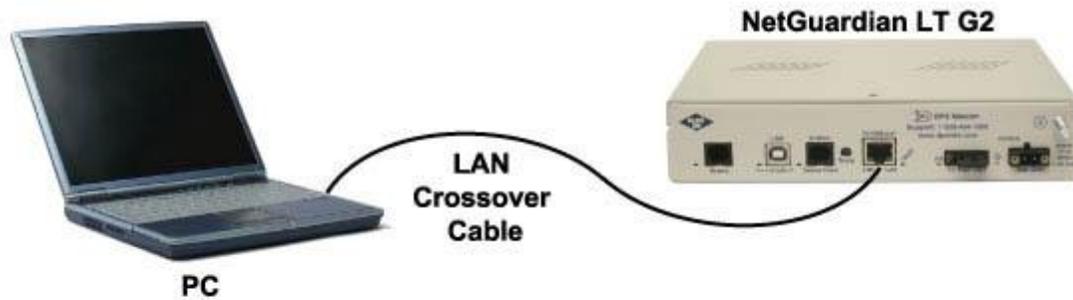
U)nit Addr S)ubnet G)ateway D)HCP H)ost (ESC
E)thernet S)tats n(V)ram re(B)oot (ESC) ?
Do you want to save changes (y/N) : _

```

**Now you're ready** to do the rest of your configuration via LAN. Plug the NetGuardian LT G2 into your LAN and see the "Logging On to the NetGuardian LT G2" section to continue databasing using the Web Browser.

**NOTE:** Hold down push button for 20 seconds to bypass TTY login.

## 7.2 ...via LAN



*Fig. 7.2.1 Connection through Ethernet port*

To connect to the NetGuardian LT G2 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 LT G2, 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 LT G2'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**.
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 LT G2 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 LT G2 with the appropriate information, then change your computer's IP address and subnet mask back to their original settings

## 8 NetGuardian LT G2 Web Browser

System Settings	
<b>Global Settings</b>	
Name	NetGuardian LT G2
Location	Fresno, CA
Contact	559-454-1600
DTMF Pass Code	(Used when user first dials into the unit)
DTMF Record Pass Code	1234 (Used when user wants to record a description)
Rings Before Pickup	3
TRIP Unit ID	1 (0 = disabled)
<b>DCP Responder Settings</b>	
<input type="radio"/> Disable DCP <input type="radio"/> DCP over LAN	
DCP Unit ID / Protocol	1 / DCPx
DCP over LAN port / Protocol	2001 / UDP
<b>Analog and Sensors History</b>	
Get history	history.csv <input type="button" value="Get"/>
Erase history	<input type="button" value="Erase"/>

The NetGuardian LT G2 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 LT G2 via the Web is 1.

## 9 Logging on to the NetGuardian LT G2

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 LT G2" for instructions on initial configuration setup.

1. To connect to the NetGuardian LT G2 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 **Operation** menu (blue) and **Provisioning** menu (green) The Monitor menu links are used to view the current status of alarms. The Edit menu is used to change the unit's configuration settings. Most of 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 LT G2 Web Browser Interface*



**Hot Tip!**

The max. # of users allowed to simultaneously access the NetGuardian LT G2 via the Web is 1.

## 9.1 Changing the Default Password

The password can be configured from the **Provisioning > User Profiles** 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 **User Profiles**.
2. Enter the new user name in the **User** field.
3. Enter the new password in the **Password** field.
4. Click the **Save** button.

The screenshot shows the NetGuardian LT G2 web interface. The top navigation bar includes the DPS Telecom logo, the product name 'NetGuardian LT G2', and links for 'Upload' and 'Logout (admin)'. A left-hand menu lists various system settings, with 'Provisioning' and 'System' highlighted in green. The main content area is titled 'User Profile 1 (Administrator Profile)' and contains a form with the following fields and options:

User Profile 1 (Administrator Profile)	
Suspend this Profile	<input type="checkbox"/>
Username	<input type="text" value="admin"/>
Password	<input type="password" value="••••••••"/>
Confirm Password	<input type="password" value="••••••••"/>
Access Rights	
Check all	<input type="checkbox"/>
Edit logon profiles	<input checked="" type="checkbox"/>
Write config (change unit configuration)	<input checked="" type="checkbox"/>
View monitor pages	<input checked="" type="checkbox"/>
TTY access (access via Craft port or via Telnet)	<input checked="" type="checkbox"/>
Initialize config to factory defaults	<input checked="" type="checkbox"/>
Upload new firmware or new config	<input checked="" type="checkbox"/>
Get audit log	<input checked="" type="checkbox"/>
Purge (delete) audit log	<input checked="" type="checkbox"/>
Get (backup) config	<input checked="" type="checkbox"/>

*Fig. 9.1.1 Global System Settings section of the Provisioning > System menu*

## 10 NetGuardian LT G2 - Most Important How-Tos

The next 4 sections of this manual will walk you through some of the most common tasks for using the NetGuardian LT G2. You will learn how to send email notifications, send SNMP traps to your alarm master, and setup the unit to send voice notifications and TRIP - 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 **Notifications** button in the **Provisioning** menu. You can setup as many as 8 different notifications. Begin the setup "wizard" by clicking on the edit button for the notification you want to edit. In this example, we'll setup Notification 1 to send emails.

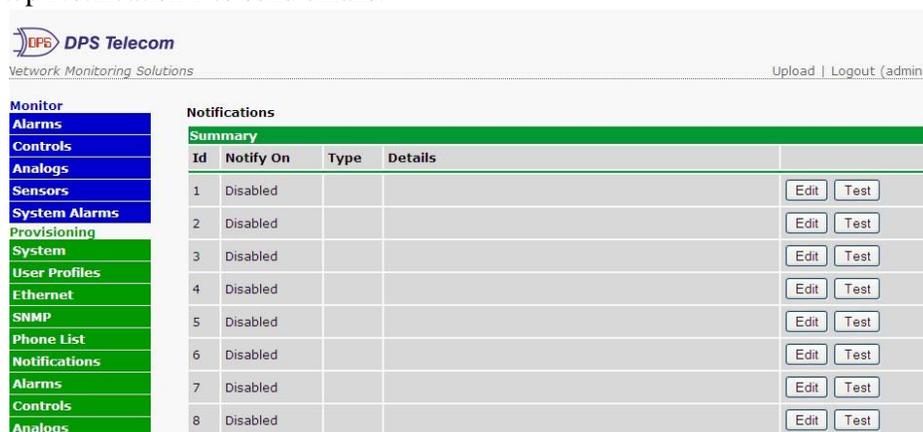


Fig.10.1.2

2. At the **Notification Setting** screen, use the drop down box to set what events to use for this notification. Now, select the **Send Email Notification** button and click Next.



Fig.10.1.3

3. 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. If authentication is required, chose the type and fill in the necessary fields. Click **Next**.

**Note:** When using TLS most SMTP serveres will require SMTP authentication. Also, ensure your NetGuardian's clock is correct, as a wrong time can cause your server certificate validation to fail.

*Fig.10.1.4*

4. At the **Schedule** screen, you'll select the exact days/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.)

Notification 1 (Schedule)								
Id	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Notification Time
1	<input checked="" type="checkbox"/>	Any Time						
2	<input checked="" type="checkbox"/>	Any Time						

*Fig.10.1.5*

5. If you chose to test the email notification you've just setup, you will see the popup below. 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.10.1.6*

6. 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 **Alarm 1**. This means that you would receive an email notification when an alarm for SERVER ROOM occurs.

The screenshot displays the DPS Telecom Network Monitoring Solutions web interface. It is divided into two main sections: 'Notifications' and 'Alarms'. Both sections feature a left-hand navigation menu with categories like Monitor, Alarms, Controls, and Sensors. The 'Notifications' section contains a table with columns for Id, Notify On, Type, and Details. The first row, with Id '1', is circled in red. The 'Alarms' section contains a table with columns for Id, Description, Display Map, and a grid of checkboxes for Rev. 1 through 8. The first row, with Id '1' and Description 'SERVER ROOM', has its checkbox in the Rev. 1 column circled in red. A red line connects the circled '1' in the Notifications table to the circled checkbox in the Alarms table, indicating the assignment of Notification Device 1 to Alarm 1.

Notifications			
Summary			
Id	Notify On	Type	Details
1	Disabled		Edit Test
	Disabled		Edit Test

Alarms										
Id	Description	Display Map	Rev. 1	2	3	4	5	6	7	8
1	SERVER ROOM	Advanced<<	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	WEST SIDE DOOR	Advanced>>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	RECTIFIER	Advanced>>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	MICROWAVE	Advanced>>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Fig.10.1.7

## 10.2 How to Send SNMP Traps

1. Click on the **SNMP** button in the **Provisioning** menu. Enter the **SNMP GET** and **SNMP SET** 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, we've made our default "dps\_public".

*Fig.10.2.1*

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 SNMP traps to your alarm master.

Summary			
Id	Notify On	Type	Details
1	Disabled		<input type="button" value="Edit"/> <input type="button" value="Test"/>
2	Disabled		<input type="button" value="Edit"/> <input type="button" value="Test"/>
3	Disabled		<input type="button" value="Edit"/> <input type="button" value="Test"/>
4	Disabled		<input type="button" value="Edit"/> <input type="button" value="Test"/>
5	Disabled		<input type="button" value="Edit"/> <input type="button" value="Test"/>
6	Disabled		<input type="button" value="Edit"/> <input type="button" value="Test"/>
7	Disabled		<input type="button" value="Edit"/> <input type="button" value="Test"/>
8	Disabled		<input type="button" value="Edit"/> <input type="button" value="Test"/>

*Fig.10.2.2*

3. At the **Notification Setting** screen, use the drop down box to set what events to use for this notification. Now, select the **Send SNMP Notification** button and click Next.

**Notification 1**

Status: Notify on Alarms only

Type:
 

- Send Email
- Send SNMP
- Voice Call
- TRIP Dialup (T/Mon)

Fig.10.2.3

4. At the **SNMP Notification** screen, you'll enter your network's SNMP settings. Enter the **IP address** of your SNMP Trap Server. Enter the **Trap Port Number** (usually 162) and the **Trap Community** password. Click **Next**.

**Notification 1 (SNMP)**

SNMP Trap Server IP:

Trap Port No. (Usually Use 162): 25

Trap Community:

Trap Type: SNMPv1

Buttons: Back, Save and Next

Fig.10.2.4

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.)

**Notification 1 (Schedule)**

Id	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Notification Time
1	<input checked="" type="checkbox"/>	Any Time 12 h 0 min AM to 11 h 59 min PM						
2	<input checked="" type="checkbox"/>	Any Time 12 h 0 min AM to 11 h 59 min PM						

Buttons: Back, Save and Finish

Fig.10.2.5

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.10.2.6

**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 Send Call (Voice) Notifications

The following instructions will guide you through the process of setting up the unit to call your phone when alarms are triggered. Using your custom call list, the NetGuardian LT G2 will begin the calling tree to notify the correct personnel, according to their schedules.

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 voice alert.

2. At the **Notification Setting** screen, select the conditions you want to be notified of from the drop down: **Notify on both Alarms and Clears, Notify on Alarms only, Notify on Clears only.** (Selecting Notification Disabled means you will not receive any type of alerts.) Select **Voice Call** and click Next.

**Notification 1**

Status	Notification Disabled
Type	<input type="radio"/> Send Email <input type="radio"/> Send SNMP <input checked="" type="radio"/> Voice Call <input type="radio"/> T/Mon

*Fig.10.3.1*

3. At the next screen, you'll select the phone numbers the NetGuardian should call when this particular alarm is triggered. Make your selections, in order, using the drop down lists. These are the phone numbers you entered in the **Provisioning > Phone List** menu. To jump to this menu and add more numbers, click the **Add Phones** link in the title bar. In the **Delay** field, enter the amount of time that should pass before the NetGuardian attempts to call the next person on the phone tree. (s = seconds; m = minutes)

**Notification 1 (Voice Call)**

Id	Phone Number to Call (Add Phone Numbers)	Delay
1	Phone List slot 1 has no number!	1s
2	Phone List slot 2 has no number!	1min
3	Phone List slot 3 has no number!	5min
4	Phone List slot 3 has no number!	25min

*Fig.10.3.2*

Call all numbers in this list. Ack logic is disabled.  
 Extend Call Loop.

*Fig.10.3.3*

**NOTE:** At the bottom of this screen, you may choose the "Call all numbers" box to disable acking. When checked, the unit will call all numbers in the list, instead of stopping when the alarm or clear is acknowledged.

5. At the **Schedule** screen, you'll select the exact days/times you want to receive notifications. You can set 2 schedules per notification. For example, you may want to send 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.)

**Notification 1 (Schedule)**

Id	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Notification Time
1	<input checked="" type="checkbox"/>	Any Time <input type="radio"/> 12 h 0 min AM to 11 h 59 min PM						
2	<input checked="" type="checkbox"/>	Any Time <input type="radio"/> 12 h 0 min AM to 11 h 59 min PM						

Back Save and Finish

Fig.10.3.4

6. If you chose to test the notification, a box will pop up. Click **OK** to test a voice notification. **NOTE:** This test only means that your notification settings are correct, but you still need to assign the notification to an alarm point.

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 **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.

The screenshot shows the DPS Telecom Network Monitoring Solutions interface. On the left is a navigation menu with options like Monitor, Alarms, Controls, etc. The main area is split into two sections: 'Notifications' and 'Alarms'. The 'Notifications' section shows a table with 8 entries, all marked as 'Disabled'. A red circle highlights the 'Test' button for the first notification. The 'Alarms' section shows a table with 4 entries: 'SERVER ROOM', 'WEST SIDE DOOR', 'RECTIFIER', and 'MICROWAVE'. A red arrow points from the 'Test' button in the Notifications section to the 'Test' button in the 'SERVER ROOM' alarm configuration.

## 10.4 How to Send TRIP Notifications

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 voice alert.

2. At the **Notification Setting** screen, select the conditions you want to be notified of from the drop down: **Notify on both Alarms and Clears, Notify on Alarms only, Notify on Clears only.** (Selecting Notification Disabled means you will not receive any type of alerts.) Select **Trip Dialup (T/Mon)** and click Next.

**Notification 1**

<b>Status</b>	Notify on both Alarms and Clears ▾
<b>Type</b>	<input type="radio"/> Send Email <input type="radio"/> Send SNMP <input type="radio"/> Voice Call <input checked="" type="radio"/> TRIP Dialup (T/Mon)
<input type="button" value="Back"/> <input type="button" value="Save and Next"/>	

Fig.10.4.1

3. At the next screen, you'll select the phone numbers the NetGuardian should call when this particular alarm is triggered. Enter the T/Mon's phone number and chose if you want the NetGuardian to dial only if the DCP poller inactive is selected. Then click Next.

**Notification 1 (TRIP Dialup)**

<b>T/Mon Phone Number</b>	<input type="text"/>
<input type="checkbox"/> Only dial if DCP poller inactive alarm is set.	
<input type="button" value="Back"/> <input type="button" value="Save and Next"/>	

Fig.10.4.2

5. At the **Schedule** screen, you'll select the exact days/times you want to receive notifications. You can set 2 schedules per notification. For example, you may want to send 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.)

**Notification 1 (Schedule)**

Id	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Notification Time
1	<input checked="" type="checkbox"/>	<input type="radio"/> Any Time <input checked="" type="radio"/> 12 ▾ h 0 ▾ min AM ▾ to 11 ▾ h 59 ▾ min PM ▾						
2	<input checked="" type="checkbox"/>	<input type="radio"/> Any Time <input checked="" type="radio"/> 12 ▾ h 0 ▾ min AM ▾ to 11 ▾ h 59 ▾ min PM ▾						
<input type="button" value="Back"/> <input type="button" value="Save and Finish"/>								

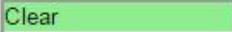
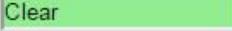
Fig.10.4.3

6. If you chose to test the notification, a box will pop up. Click **OK** to test a voice notification. **NOTE:** This test only means that your notification settings are correct, but you still need to assign the notification to an alarm point.

# 11 Monitoring via the Web Browser

## 11.1 Monitor Alarms

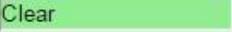
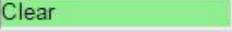
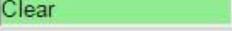
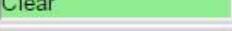
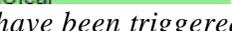
This selection provides the status of the base alarms by indicating if an alarm has been triggered. Under the **State** column, the status will appear in red if an alarm has been activated. The status will be displayed in green when the alarm condition is not present.

Alarms		
Id	Description <a href="#">Display Map</a>	State
1	alarm1	Clear 
2		Clear 
3		Clear 
4		Alarm 

*Fig. 11.1.1 Click on Alarms in the Monitor menu to see if any base alarms have been triggered.*

## 11.2 Monitor Derived Alarms

This selection provides the status of the derived 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.

Derived Alarms		
Id	Description <a href="#">Display Map</a>	State
1	DAlm1	Clear 
2	DAlm2	Clear 
3	DAlm3	Clear 
4	DAlm4	Alarm 
5	DAlm5	Clear 
6	DAlm6	Clear 
7	DAlm7	Clear 
8	DAlm8	Clear 
9	DAlm9	Clear 

*Fig. 11.2.1 Click on Derived Alarms in the Monitor menu to see if any derived alarms have been triggered.*

## 11.3 Monitor Controls

Use the following rules to operate the NetGuardian LT G2'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)

## Controls

Id	Description <a href="#">Display Map</a>	State	Command
1	ctl1	Released	OPR RLS MOM

*Fig. 11.3.1 Operate the control relay by clicking on one of the actions in the Commands field.*

**Note:** If the control is configured as a derived control, the command buttons will be disabled.

## 11.4 Monitor Analogs

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.

NetGuardian LT G2

Network Monitoring Solutions Upload | Logout (Admin)

Monitor  
Alarms  
Controls  
**Analogs**  
Sensors

User Analogs

Id	Description <a href="#">Display Map</a>	Thresholds	Reading
1	ANALOG 1	None	0.00

*Fig. 11.4.1 Click on Analogs in the Monitor menu to view the current channel readings.*

## 11.5 Monitor Sensors

In the **Monitor** > **Sensors** menu, you can monitor all configured digital "D-wire" sensors (including the Internal Temperature sensor if your NetGuardian has this option). The most recent sensor measurement will be shown, and any alarm thresholds crossed will be shown in either orange for minor alarms, red for major alarms or red for not detected.

## Sensors

( ■ - detected and configured ■ - configured but NOT detected )

Id	ROM ID	Description <a href="#">Display Map</a>	Thresholds	Reading
1	<span style="background-color: green; color: white;">28aa6427040000eb</span>	On Board	None	80.80 F
2	<span style="background-color: red; color: white;">3d5f7a015007006c</span>		Not Detected	0.00 F
3			None	0.00
4	<span style="background-color: red; color: white;">3d01230150070037</span>		Not Detected	0.00 F
5			None	0.00

*Fig. 11.5.1 View the current status of all attached sensors in the Monitor>Sensors menu.*

## 11.6 Monitor SNMP Alarms

Monitor	
<b>Alarms</b>	
Derived Alarms	
Controls	
Analogs	
Sensors	
<b>SNMP Alarms</b>	
System Alarms	
Stats	

SNMP Alarms		
Id	Description <a href="#">Display Map</a>	State
1	Camera Motion Detected	Clear
2	UPS Low Battery	Clear
3		Clear
4		Clear
5		Clear

*Fig. 11.6.1 View the status of SNMP Alarms from the Monitor > SNMP Alarms menu.*

The NetGuardian can act as a small-scale SNMP manager by receiving, interpreting, and reacting to inbound traps. Based on the rules you specify, 32 virtual "SNMP Alarms" within the NetGuardian's alarm space will be controlled by the receipt of traps. The current Alarm/Clear state of each SNMP alarm is visible on this screen with red/green indicators.

## 11.7 Monitor Ping Targets

In the **Monitor > Ping Targets** menu, you can view each of your configured ping targets, and the current state (**Clear** or **Alarm**) of each one.

Ping Targets		
Id	Description <a href="#">Display Map</a>	State
1	TEST_OUTPUT	Clear
2	Test2	Alarm
3		Clear
4		Clear

*Fig. 11.7.1 View the status of Ping Alarms*

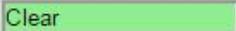
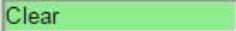
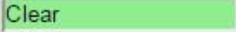
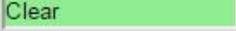
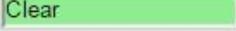
*from the Monitor > Ping Targets menu.*

## 11.8 Monitor System Alarms

System alarms are housekeeping alarms that are programmed into NetGuardian LT G2 and therefore not editable. 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 <a href="#">Display Map</a>	State
33	Default configuration	Clear 
34	DCP poller inactive	Clear 
35	Undefined	Clear 
36	Undefined	Clear 
37	Undefined	Clear 
38	Undefined	Clear 

*Fig. 11.8.1 View the status of System Alarms from the Monitor > System Alarms menu.*

## 12 Provisioning Field Descriptions

NetGuardian LT G2 configuration is performed from the **Provisioning** menus, the menu options in green on the left-side of the web interface. The following pages provide a brief description of the options available in each menu.

### Saving Configuration Changes to the NetGuardian LT G2:

At the bottom of each screen you access from the **Provisioning** Menu, you will see a **Save** button. Clicking Save will cache your changes locally. The web interface will then prompt you to either **Write** your changes to the unit or **Reboot** the unit for changes to take effect in the top-left corner of your browser. The relevant options will be highlighted in the **Device Access** options.

**Note:** If the unit prompts you to both Write changes to the unit **and** Reboot, you will Write your changes first. Rebooting before without writing to the unit (if a Write is required) will cause you to lose your configuration changes.

Please **WRITE** to the unit after you are finished with your changes!

Please **REBOOT** the unit for changes to take effect!

*Fig. 12.1 Status messages on the NetGuardian LT G2, inform you how to implement your changes*



*Fig. 12.2 The control menu highlights items that must be completed for your changes to take effect*

## 12.1 System

From the **Provisioning > System** menu, you will configure and edit the global system, call, T/Mon and control settings for the NetGuardian LT G2.

The screenshot shows the DPS Telecom Network Monitoring Solutions web interface. The left sidebar contains a navigation menu with the following items: Monitor, Alarms, Controls, Analogs, Sensors, System Alarms, Provisioning (highlighted), System, User Profiles, Ethernet, SNMP, Phone List, Notifications, Alarms, Controls, Analogs, Sensors, System Alarms, Timers, Date Time, Device Access, Backup Config, Read, Write, Initialize, Get Log, and Purge Log. The main content area is titled 'System Settings' and is divided into several sections:

- Global Settings:** Includes fields for Name (NetGuardian LT G2), Location (Fresno, CA), Contact (559-454-1600), DTMF Pass Code (with a note: '(Used when user first dials into the unit)'), DTMF Record Pass Code (1234, with a note: '(Used when user wants to record a description)'), Rings Before Pickup (3), Announce Alarms/Clears During Call (checkbox), Only Allow Momentary Relay Operation During Call (checkbox checked), and TRIP Unit ID (0, with a note: '(0 = disabled)').
- DCP Responder Settings:** Includes radio buttons for 'Disable DCP' (selected) and 'DCP over LAN', a 'Display Map' link, and fields for DCP Unit ID / Protocol (1 / DCPx) and DCP over LAN port / Protocol (2001 / UDP).
- Analogs and Sensors History:** Includes a 'Get history' button with a text input field containing 'history.csv' and a 'Get' button, and an 'Erase history' button with an 'Erase' button.

A 'Save' button is located at the bottom of the form.

Fig.12.1.1 The Provisioning > System menu

Global System Settings	
<b>Name</b>	A name for this NetGuardian LT G2.
<b>Location</b>	The location of this NetGuardian LT G2.
<b>Contact</b>	Contact telephone number for the person responsible for this NetGuardian LT G2.
<b>"From" Email Address</b>	A valid email address used by the NetGuardian LT G2 for sending email alarm notifications.
<b>DTMF Pass Code</b>	Used to login to the unit via telephone to hear alarm notifications. Only number entries are valid.
<b>DTMF Record Pass Code</b>	Needed to access rights to record or re-record the custom (voice) alarm detail. Only number entries are valid.
<b>Rings Before Pickup</b>	Used to change the number of rings before the unit picks up when dialing into it.
<b>Announce Alarms/ Clears during call</b>	Check this box to receive an audible notification if the alarm state changes during a call.
<b>Only Allow Momentary Relay Operation During Call</b>	While in the <b>Operate Relays</b> voice menu, you will not be prompted for voice DTMF commands for latching or releasing relays, and only a voice command to <b>Momentarily Operate Relay</b> will be given.
<b>TRIP Unit ID</b>	The site number to use when communicating over dialup to T/Mon
DCP Responder Settings (For use with T/Mon)	
<b>DCP Unit ID / Protocol</b>	User-definable ID number for this NetGuardian LT G2 (DCP Address) and desired protocol.
<b>DCP over LAN Port / Protocol</b>	Enter the DCP port for this NetGuardian LT G2 (UDP/TCP port) and desired protocol.
Analogs and Sensors History	

<b>Get History</b>	Download a log of all configured analog and sensor values
<b>Erase History</b>	Erase the log of all configured analog and sensor values

## 12.2 User Profiles

Clicking **User Profiles** gives you access to modify the default username and password, and to edit the administrator profile and create up to 9 additional unique user profiles, each with different access rights to the NetGuardian LT G2.

The screenshot shows the NetGuardian LT G2 interface. On the left is a navigation menu with items: Monitor, Alarms, Controls, Analogs, Sensors, System Alarms, Provisioning, System, User Profiles (highlighted), Ethernet, SNMP, Phone List, Notifications, Alarms, Controls, Analogs, Sensors, System Alarms, Timers, Date Time, Device Access, and Backup Config. The main content area is titled 'User Profiles Summary' and contains a table:

Id	Username	Status
1	admin	Default

An 'Edit' button is located to the right of the 'Default' status in the first row.

*Fig.12.2.1 The User Profiles screen shows you at a glance whether a profile is active, suspended, or not yet configured*

To create or edit any the 10 user profiles (including the default), click the **Edit** button.

### The Administrator Profile:

The first user profile in the User Profiles menu is the Administrator's Profile. Access rights for the administrator's profile are all enabled and may not be disabled, nor can the profile be deleted or suspended. This is a precaution to prevent a situation in which an access right is disabled for all users. You may still edit the **Username**, **Password**, and **Active Days** fields for the Administrator Profile.

The screenshot shows the NetGuardian LT G2 interface for editing the Administrator Profile. The navigation menu on the left has 'User Profiles' highlighted. The main content area is titled 'User Profile 1 (Administrator Profile)' and contains the following configuration options:

- Suspend this Profile:**
- Username:** admin
- Password:** [masked]
- Confirm Password:** [masked]
- Access Rights:**
  - Check all:
  - Edit logon profiles:
  - Write config (change unit configuration):
  - View monitor pages:
  - TTY access (access via Craft port or via Telnet):
  - Initialize config to factory defaults:
  - Upload new firmware or new config:
  - Get audit log:
  - Purge (delete) audit log:
  - Get (backup) config:

*Fig.12.2.2 Configure access privileges for users in the User Profile screen*

From here, you can change all configurable settings for a user profile.

Profile Field	Description
<b>Suspend this Profile</b>	If this box is checked, the profile will not be able to access the NetGuardian LT G2
<b>Username</b>	Enter a username or a user description
<b>Password</b>	Enter a unique user password <b>Note:</b> All passwords are AES 128 encrypted.
<b>Confirm Password</b>	Re-enter the password.
Access Privileges	
<b>Check all</b>	Enables all Access Rights
<b>Edit logon profiles</b>	Enables the user to add/modify user profiles and password information.
<b>Write Config (Change Unit Configuration)</b>	Enables the user to change the unit config by accessing the <b>Write</b> feature in the control menu.
<b>View Monitor Pages</b>	Allows the user to access Monitor menu options.
<b>TTY Access (access via Craft port or via Telnet)</b>	Grants the user access to the unit via TTY interface (via craft or telnet)
<b>Initialize config to factory defaults</b>	Allows the user to use the <b>Initialize</b> option in the <b>Device Access</b> menu, resetting the NetGuardian LT G2 to factory default settings. (All user settings will be lost.)
<b>Upload new firmware or new config</b>	Allows the user to upload firmware or backed-up configuration files
<b>Get audit Log</b>	Allows the user to access the Audit Log ( <b>Get Log</b> command)
<b>Purge audit log</b>	Allows the user to delete the existing audit log
<b>Get config</b>	Backs-up all user profile configuration settings

*User profile field descriptions*

Once you've finished configuring a profile, click **Save** to store your changes locally.

To access another profile, simply click **Go to profiles summary** at the bottom of the page. You may also navigate away from the user profiles screen at any time by clicking any of the menu options on the left side of the screen.

## 12.3 Ethernet

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

**NetGuardian LT G2**

Network Monitoring Solutions Upload | Logout (admin)

**Monitor**

- Alarms
- Controls
- Analogs
- Sensors
- System Alarms
- Provisioning
- System
- User Profiles
- Ethernet
- SNMP
- Phone List
- Notifications
- Alarms

**Ethernet Settings**

MAC Address	0:10:81:0:6b:5e	
Host Name	<input type="text"/>	( )
Enable DHCP	<input type="checkbox"/>	
Unit IP	<input type="text" value="126.10.230.123"/>	(126.10.230.123)
Subnet Mask	<input type="text" value="255.255.0.0"/>	(255.255.0.0)
Gateway	<input type="text" value="126.10.230.254"/>	(126.10.230.254)
DNS Server 1	<input type="text" value="255.255.255.255"/>	(255.255.255.255)
DNS Server 2	<input type="text" value="255.255.255.255"/>	(255.255.255.255)

*Fig. 12.3.1 The Provisioning > Ethernet menu*

Ethernet Settings	
<b>MAC Address</b>	Hardware address of the NetGuardian LT G2. (Not editable - For reference only.)
<b>Host Name</b>	Used for local subnet access.
<b>Enable DHCP</b>	Used to turn on Dynamic Host Connection Protocol.
<b>Unit IP</b>	IP address of the NetGuardian LT G2.
<b>Subnet Mask</b>	A road sign to the NetGuardian LT G2, telling it whether your packets should stay on your local network or be forwarded somewhere else on a wide-area network.
<b>Gate way</b>	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.
Ethernet Settings	
<b>DNS Server 1</b>	Primary IP address of the domain name server. Set to 255.255.255.255 if not using.
<b>DNS Server 2</b>	Secondary IP address of the domain name server. Set to 255.255.255.255 is not using.

**Note:** DNS Server settings are required if a hostname is being used for ping targets.

## 12.4 SNMP

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

The screenshot shows the SNMP configuration interface. It is divided into two main sections: 'Global Settings' and 'SNMPv3 Users'.

**Global Settings:**

- Get Community:** dps\_public
- Set Community:** dps\_public
- Read and Write Access:** SNMPv3, SNMPv2c, and SNMPv1 (selected)
- SNMPv3 Engine ID:** 80000a7a0300108100693a

**SNMPv3 Users:**

Id	SNMPv3 Username	Auth Type	Auth Pass	Priv Type	Priv Pass
1	<input type="text"/>	No Auth	<input type="text"/>	No Priv	<input type="text"/>
2	<input type="text"/>	No Auth	<input type="text"/>	No Priv	<input type="text"/>
3	<input type="text"/>	No Auth	<input type="text"/>	No Priv	<input type="text"/>

A 'Save' button is located at the bottom left of the form.

*Fig.12.4.1 SNMP Menu*

Global Settings	
<b>Get Community</b>	Community name for SNMP requests.
<b>Set Community</b>	Community name for SNMP SET requests.
<b>Read and Write Access</b>	This field defines how the NetGuardian unit may be accessed via SNMP. This can be set to the following: <ul style="list-style-type: none"> <li>• Access Disabled- Restricts all access to unit via SNMP</li> <li>• SNMPv3 Only- Allows SNMPv3 access only</li> <li>• SNMPv3 and SNMPv2c Only- Allows SNMPv1 and SNMPv2c access</li> <li>• SNMPv3, SNMPv2c, and SNMPv1 - Allows access to all 3 versions of SNMP</li> </ul>

*Fields in the Edit > SNMP settings*

## 12.5 Phone List

Up to 32 phone numbers can be stored for the NetGuardian LT G2 to call with alarm information. This list is unsorted and should include all phone numbers for those that need to know and/or respond to alarms. When setting up a voice call notification later, you can designate which of these individuals to call about which alarms, in your desired order.

The screenshot shows the 'Phone List' configuration page in the NetGuardian LT G2 interface. The page header includes the DPS Telecom logo and 'Network Monitoring Solutions'. The main content area is titled 'Phone List' and contains a table with the following data:

Slot	Enab	Description	Phone Number
1	<input checked="" type="checkbox"/>	Cell 1	555-5555
2	<input checked="" type="checkbox"/>	Cell 2	555-5555
3	<input type="checkbox"/>	Cell 3	555-5555
4	<input checked="" type="checkbox"/>	Cell 4	555-5555

On the left side, there is a navigation menu with the following items: Monitor, Alarms, Controls, Analogs, Sensors, System Alarms, Provisioning (highlighted), System, User Profiles, and Ethernet. The top right corner has links for 'Upload' and 'Logout (admin)'.

*Fig. 12.5.1 Provisioning > Phone List*

## 12.6 Notifications

From the initial **Provisioning > Notifications** menu, you will see which of the 8 notifications are enabled, their server, and schedule. Click on edit for one of the notifications to begin configuration.

The screenshot shows the DPS Telecom web interface. The top left features the logo and the text "DPS Telecom Network Monitoring Solutions". The top right has "Upload | Logout (admin)". A sidebar on the left lists navigation options: Monitor, Alarms, Controls, Analogs, Sensors, System Alarms, Provisioning (highlighted), System, User Profiles, Ethernet, SNMP, Phone List, Notifications, Alarms, Controls, and Analogs. The main content area is titled "Notifications" and contains a "Summary" table with 8 rows. Each row has columns for "Id", "Notify On", "Type", and "Details", and "Edit" and "Test" buttons.

Summary			
Id	Notify On	Type	Details
1	Disabled		
2	Disabled		
3	Disabled		
4	Disabled		
5	Disabled		
6	Disabled		
7	Disabled		
8	Disabled		

*Fig.12.6.1 The Edit > Notifications menu*

Once you've chosen which notification you want to setup, change the status to turn it "on." Then choose a notification method, either email, SNMP, voice call or TRIP Dialup (T/Mon).

The screenshot shows the "Notification 1" configuration page. It has a "Status" dropdown menu set to "Notify on Alarms only". Below that, the "Type" section has four radio button options: "Send Email" (which is selected), "Send SNMP", "Voice Call", and "TRIP Dialup (T/Mon)".

*Fig.12.6.2 The Notification Setting menu*

## 12.6.1 Notification Settings

### Email Notification Fields

**Notification 1 (Email)**

<b>SMTP Server IP or Host Name</b>	smtp.gmail.com
<b>Port (Usually Use 25)</b>	465 <input checked="" type="checkbox"/> <b>Use SSL</b>
<b>"From" E-mail Address (Global)</b>	ng16g2@dpstele.net
<b>"To" E-mail Address</b>	user123@gmail.com
<b>How to authenticate</b>	
<input type="radio"/> <b>No authentication</b> <input type="radio"/> <b>POP before SMTP authentication</b> <input checked="" type="radio"/> <b>SMTP authentication</b>	
<b>POP Server IP or Host Name</b>	
<b>POP Port (Usually Use 110)</b>	0
<b>User name</b>	user123
<b>Password</b>	pass123
<input type="button" value="Back"/> <input type="button" value="Save and Next"/>	

*Fig.12.6.1.1*

Email Notification	
<b>SMTP Server IP or Host Name</b>	The IP address of your email server.
<b>Port Number</b>	The port used by your email server to receive emails, usually set to 25.
<b>Use SSL</b>	<p>Check this box to use SSL encryption. Currently this feature has been tested with Gmail. To send with Gmail SMTP server, do the following:</p> <ul style="list-style-type: none"> <li>• SMTP Server IP or Host Name should be set to "smtp.gmail.com"</li> <li>• Port number must be set to 465</li> <li>• SMTP authentication radio button must be selected.</li> <li>• User name and password (below "How to Authenticate") are the user name and password for the Gmail account in use.</li> </ul>
<b>"From" E-mail Address (Global)</b>	The email address that the Remote Power Switch will send all email notifications from. The address in this field applies to all email notifications. Changing the "From email address" for any one email notification type will automatically apply to all email notifications for the Remote Power Switch.
<b>"To" E-mail Address</b>	The email address of the person responsible for this Remote Power Switch, who will receive email alarm notifications.

If you want to send authenticated emails, click the appropriate radio button. If you enable POP authentication, you will have to enter the relevant authentication information the fields below.

## SNMP Notification Fields

### Notification 1 (SNMP)

<b>SNMP Trap Server IP</b>	10.0.50.29
<b>Trap Port No. (Usually Use 162)</b>	162
<b>Trap Community</b>	dps_public
<b>Trap Type</b>	SNMPv1 ▾
<b>SNMPv3 user (see SNMP menu)</b>	User 1 () ▾
<input type="button" value="Back"/> <input type="button" value="Save and Next"/>	

*Fig. 12.6.1.2 - Editing SNMP notification settings*

SNMP Notification	
<b>SNMP Trap Server IP</b>	The SNMP trap manager's IP address.
<b>Trap Port No.</b>	The SNMP port (UDP port) set by the SNMP trap manager to receive traps, usually set to 162.
<b>Trap Community</b>	Community name for SNMP TRAP requests.
<b>Trap Type</b>	Indicate whether you would like to send SNMPv1, v2c, or v3 traps.
<b>SNMPv3 user</b>	Assign user.

## Call Notification Fields

**Notification 1 (Voice Call)**

Id	Phone Number to Call (Add Phone Numbers)	Delay
1	Phone List slot 1 has no number! ▾	1s
2	Phone List slot 2 has no number! ▾	1min
3	Phone List slot 3 has no number! ▾	5min
4	Phone List slot 3 has no number! ▾	25min

⋮

<input type="checkbox"/> Call all numbers in this list. Ack logic is disabled.
<input type="checkbox"/> Extend Call Loop.
<input type="button" value="Back"/> <input type="button" value="Save and Next"/>

*Fig. 12.6.1.3 Editing Call notification settings*

Call Notification	
<b>Phone Number to Call</b>	The phone number the NetGuardian LT G2 should call when sending call (voice) notifications.
<b>Delay</b>	The amount of time that will pass before the NetGuardian LT G2 will call the next person on the assigned call list. Enter s for seconds or m for minutes. <i>Example:</i> 45s = 45 seconds.
<b>Call all numbers in this list. Ack logic is disabled.</b>	Forces the NetGuardian to call everyone on the assigned call list, disabling their ability to ack the alarm and stop the phone tree process.
<b>Extended call loop.</b>	If checked, all configured phone numbers will be dialed (in the order entered) five times or until the alarm is acknowledged.

### TRIP Dialup(T/Mon) Notification Fields

Notification 1 (TRIP Dialup)

**T/Mon Phone Number**

Only dial if DCP poller inactive alarm is set.

*Fig. 12.6.1.4 Editing Call notification settings*

Call Notification	
<b>T/Mon Phone Number</b>	Enter the phone number for your T/Mon unit
<b>Only dial if DCP poller inactive alarm is set</b>	Check this box if you want the Netguardian to only dial if the DCP poller inactive alarm is set

**Note:** T/Mon will need to have a "^" at the beginning of the dialing string for data calls to function properly (I.e. ^9,15594541600).

## 12.6.2 Schedule

The **Provisioning > Schedule** menu is where you will tell the NetGuardian LT G2 exactly which days and times you want to receive alarm notifications. You set 2 different schedules for each discrete base alarm.

**Notification 1 (Schedule)**

Id	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Notification Time
1	<input checked="" type="checkbox"/>	<input type="radio"/> Any Time <input type="radio"/> 12 h 0 min AM to 11 h 59 min PM						
2	<input checked="" type="checkbox"/>	<input type="radio"/> Any Time <input type="radio"/> 12 h 0 min AM to 11 h 59 min PM						

Back Save and Finish

*Fig. 12.6.2.1 The Schedule creation screen*

Notification Schedule	
<b>Days of the week</b>	From either Schedule 1 or 2, check which days you want to receive notifications.
<b>Any Time</b>	Select to tell the NetGuardian LT G2 you want to receive alarm notifications at any time for the day(s) you've selected.
<b>Notification Time</b>	Used to tell the NetGuardian to only send alarm notifications during certain hours on the day(s) you've selected.

## 12.7 Alarms

The NetGuardian LT G2's 4 discrete base alarms are configured from the **Provisioning > 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 in the following 2 sections.

**NetGuardian LT G2**

Network Monitoring Solutions Upload | Logout (admin)

**Monitor**

- Alarms
- Controls
- Analogs
- Sensors
- System Alarms
- Provisioning
- System
- User Profiles
- Ethernet
- SNMP
- Phone List
- Notifications
- Alarms
- Controls
- Analogs
- Sensors

**Alarms**

Id	Description	Display Map	Rev.	1	2	3	4	5	6	7	8
1	SERVER ROOM	Advanced<<	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
On Set: Alarm On Clear: Clear Qual. Time: 0sec Qual. Type: OnSet											
2	WEST SIDE DOOR	Advanced>>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	RECTIFIER	Advanced>>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	MICROWAVE	Advanced>>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

*Fig. 12.7.1 The Advanced Config button on the Provisioning > Alarms screen*

## 12.7.1 Basic Configuration

**Monitor**

- Alarms
- Controls
- Analog
- Sensors
- System Alarms
- Provisioning
- System
- User Profiles
- Ethernet
- SNMP

**Alarms**

Id	Description	Display Map	Rev.	1	2	3	4	5	6	7	8
1	SERVER ROOM	<a href="#">Advanced&gt;&gt;</a>	<input type="checkbox"/>								
2	WEST SIDE DOOR	<a href="#">Advanced&gt;&gt;</a>	<input type="checkbox"/>								
3	RECTIFIER	<a href="#">Advanced&gt;&gt;</a>	<input type="checkbox"/>								
4	MICROWAVE	<a href="#">Advanced&gt;&gt;</a>	<input type="checkbox"/>								

Save

*Fig. 12.7.1.1 The Provisioning > Alarms menu*

Alarms	
<b>Id</b>	Alarm Id number
<b>Description</b>	User-definable description for the discrete alarm input.
<b>Rev (Reverse)</b>	Reverse: Check this box to reverse the polarity of the alarm point. Left un-checked, this means a normally-open contact closure is an alarm. When polarity is reversed, a normally-closed alarm point is clear when closed.
<b>Notification Devices</b>	Check which notification device(s), 1 through 8, you want to send alarm notifications for that alarm point.

## 12.7.2 Advanced Configuration

The screenshot shows the 'Alarms' configuration page in the NetGuardian LT G2 interface. On the left is a navigation menu with 'Alarms' selected. The main area displays a table of four alarms. Each alarm row includes an ID, a description, a 'Rev.' column, and eight qualification checkboxes. Alarm 1, 'SERVER ROOM', has a checked box in column 2 and column 7, and an 'Advanced<<' link. Alarm 2, 'WEST SIDE DOOR', has a checked box in column 4 and an 'Advanced>>' link. Alarm 3, 'RECTIFIER', has a checked box in column 3 and an 'Advanced>>' link. Alarm 4, 'MICROWAVE', has checked boxes in column 2 and column 6, and an 'Advanced>>' link. Below the table, there are input fields for 'On Set' (set to 'Alarm'), 'On Clear' (set to 'Clear'), 'Qual. Time' (set to '0sec'), and 'Qual. Type' (set to 'OnSet').

Fig.12.7.2.1 The Advanced Alarms sub-menu

Alarms (Advanced>>)	
<b>Description</b>	User-definable description for the discrete alarm input.
<b>On Set</b>	User-definable description (condition) that will appear for the discrete alarm input on Set. Example: "Alarm"
<b>On Clear</b>	User-definable description (condition) that will appear for the discrete alarm input on Clear. Example: "Clear"
<b>Qual. Time (Qualification Time)</b>	The length of time that must pass, without interruption, in order for the condition to be considered an Alarm or a Clear.
<b>Qual. Type (Qualification Type)</b>	Allows you to choose whether you want to apply the Qualification Time to the alarm Set, Clear, or Both.

## 12.8 Derived Alarms

The NetGuardian LT G2's 16 discrete derived alarms are configured from the **Provisioning > Derived 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.

The screenshot shows the 'Derived Alarms' configuration interface. At the top, there's a green header bar. Below it is a table with columns: 'Id', 'Description', 'Display Map', 'Rev.', and eight columns numbered 1 through 8. Row 1 is selected, showing 'DAlm1' in the 'Id' column and a 'Details<<' button. Below the table, a detailed configuration form is visible for the selected alarm. It includes a 'Derived Description' field with the value '\_ORD1.1' and a 'Parse' button. Other fields include 'On Set' (Alarm), 'On Clear' (Clear), 'Qual. Time' (31sec), and 'Qual. Type' (OnSet).

Fig. 12.8.1 The Details button on the Provisioning > Derived Alarms screen

Derived Alarms Configuration	
<b>ID</b>	ID number for the alarm.
<b>Description</b>	User-definable description for the NetGuardian's alarm.
<b>Notification Devices</b>	Check which notification device(s), 1 through 8, you want to send alarm notifications to.
Details<<	
<b>Derived Description</b>	Derived alarms can be created with a derived formula and tested with the Parse button. See below for more information.
<b>On Set</b>	User-definable description (condition) that will appear for the discrete alarm input on Set. Example: "Alarm".
<b>On Clear</b>	User-definable description (condition) that will appear for the discrete alarm input on Clear. Example: "Alarm Cleared".
<b>Qual. Time (Qualification Time)</b>	The length of time that must pass, without interruption, in order for the condition to be considered an Alarm or a Clear.
<b>Qual. Type (Qualification Type)</b>	Allows you to choose whether you want to apply the Qualification Time to the alarm Set, Clear, or Both.

Derived alarms can be created from derived formulas using the following operations:

- \_OR : Set the current operation to OR.
- \_AN : Set the current operation to AND.
- \_XR : Set the current operation to XOR.
- D : Tag to change the active display number .
- . : Used like a comma to delimit numbers.
- : Used to specify a range of points.

Spaces included here are for readability purposes only.

### ! Hot Tip!

- Precedence of the operations are always left to right.
- All number references can either be one or two digits.

**\_OR D1.3-5** is logically equivalent to (1.3 || 1.4 || 1.5)

**\_AN D 1.3-5 D2.6 \_OR D3.7** is logically equivalent to ((1.3 && 1.4 && 1.5 && 2.6) || 3.7)

**\_OR D01.03-05 D02.06 \_AN D02.07 D03.10.-12** is logically equivalent to ((1.3 || 1.4 || 1.5 || 2.6&&(2.7 && 3.10 && 3.12))

**\_AN D1.3-5D2.6 \_OR.7D3.10.12** is logically equivalent to ((1.3 && 1.4 && 1.5 && 2.6 ) || 2.7 || 3.10 ||3.12))

## 12.9 Controls

The NetGuardian LT G2's relay can be configured in the **Provisioning > Controls** menu. You can enter your own description for this relay and assign notification device(s).

The screenshot shows the 'Controls' configuration page. At the top, there's a green header with the word 'Controls'. Below it is a table with columns: 'Id', 'Description', 'Display', and 'Map' (with sub-columns 1 through 8). The first row shows '1' in the 'Id' column, 'ctl1' in the 'Description' column, and a 'Details<<' link. Below the table, there's a form for editing the control. It includes a 'Derived Description' field with the value '\_ORD1.1\_AND1.2' and a 'Parse' button. There's also a 'Momentary time (e.g. 500ms, 5s, 1m):' field with the value '1sec'. At the bottom left of the form is a 'Save' button.

*Fig. 12.9.1 The Provisioning > Controls menu*

Controls	
<b>Description</b>	User-definable description for the NetGuardian LT G2's control.
<b>Derived Description</b>	Control relays and virtual alarms can be created with a derived formula and tested with the Parse button. See below for more information.
<b>Mom. Time</b>	Control on time (in milli-seconds) when you execute the MOM command. Max limit of 600 seconds.
<b>Notification Devices</b>	Check which notification device(s), 1 through 8, you want to send alarm notifications for the control.

Derived controls can be created from derived formulas using the following operations:

- \_OR** : Set the current operation to OR.
- \_AN** : Set the current operation to AND.
- \_XR** : Set the current operation to XOR.

**D** : Tag to change the active display number .

. : Used like a comma to delimit numbers.

- : Used to specify a range of points.

Spaces included here are for readability purposes only.

**! Hot Tip!**

- Precedence of the operations are always left to right.
- All number references can either be one or two digits.

**\_OR D1.3-5** is logically equivalent to (1.3 || 1.4 || 1.5)

**\_AN D 1.3-5 D2.6 \_OR D3.7** is logically equivalent to ((1.3 && 1.4 && 1.5 && 2.6) || 3.7)

**\_OR D01.03-05 D02.06 \_AN D02.07 D03.10.-12** is logically equivalent to ((1.3 || 1.4 || 1.5 || 2.6&&(2.7 && 3.10 && 3.12))

**\_AN D1.3-5D2.6\_OR.7D3.10.12** is logically equivalent to ((1.3 && 1.4 && 1.5 && 2.6 ) || 2.7 || 3.10 ||3.12))

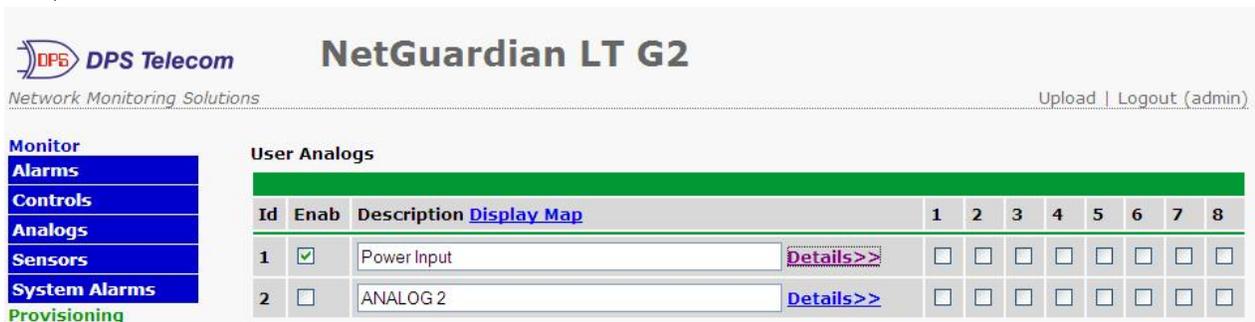
## 12.10 Analogs

The NetGuardian LT G2 can have up to 2 analog channels. The first channel is dedicated to monitoring the power input (channel is not used if build option was not selected). This channel supports the entire range of power inputs that the NetGuardian LT G2 can support. The second channel is user defineable. It can monitor analog inputs from 0V-4.5V (or can be shunted in hardware to measure current from 4-20mA). Each channel must be individually configured to monitor data.

**Note:** Only analogs supported by the units hardware will appear in the NetGuardian LT G2's web browser interface.

### 12.10.1 Basic Configuration

Basic configuration for the NetGuardian LT G2's analog temperature sensors 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.12.10.1.1 The basic Provisioning > Analogs menu*

Analogs	
<b>Id</b>	Analog Id number
<b>Enab</b>	Check this box to enable the analog
<b>Description</b>	User-definable description for the analog channel.
<b>Notification devices</b>	Check which notification device(s), 1 through 8, you want to send alarm notifications for that analog alarm.

## 12.10.2 Advanced Configuration

To access the **Details** configuration screen, click the **Details>>** on the right of the **Description** cell.

The screenshot shows the NetGuardian LT G2 configuration interface. On the left is a sidebar menu with categories: Monitor (Alarms, Controls, Analogs, Sensors, System Alarms), Provisioning (System, User Profiles, Ethernet, SNMP, Phone List, Notifications), and Alarms (Alarms, Controls, Analogs). The main content area is titled 'User Analogs' and contains a table with columns: Id, Enab, Description, Display Map, and eight checkboxes (1-8). The first row shows 'Power Input' with 'Details<<' link. Below the table, the configuration for 'Power Input' is displayed in a form with sections: Record Freq (5min), Deadband (1), On Set (Alarm), On Clear (Clear), Qual. Time (0sec), Qual. Type (OnSet), Scaling (Actual to Display), Units (VDC to VDC), Low ref (-35 to -35), High ref (35 to 35), and Thresholds (MjU: -79, MnU: -35, MnO: 35, MjO: 79). The second row shows 'ANALOG 2' with 'Details>>' link.

*Fig.12.10.2.1 The Advanced Provisioning > Analogs menu*

From the **Details** configuration screen, you can now select which temperature units you want to use, define alarm "set" and "clear" descriptions, and define Qualification settings.

Aanalogs (Details>>)	
<b>Record Freq</b>	The amount of time, in minutes(min) or seconds (s), between each log of each analog value to history.
<b>Deadband</b>	The amount (in volts) that the channel needs to go above or below a threshold in order to cause an alarm.
<b>On set</b>	User-definable description (condition) that will appear for the temperature alarm on Set. Example: "Alarm"
<b>On clear</b>	User-definable description (condition) that will appear for the temperature alarm Clear. Example: "Clear"
<b>Qual. Time (Qualification Time)</b>	The length of time that must pass, without interruption, in order for the condition to be considered an Alarm or a Clear.
<b>Qual. Type (Qualification Type)</b>	Allows you to choose whether you want to apply the Qualification Time to the alarm Set, Clear, or Both.
<b>Units</b>	User-definable display units or optional choice between Fahrenheit and Celsius temperatures. The most common are: VDC = Voltage %H = Humidity F = Fahrenheit C = Celsius
<b>Low ref</b>	User-definable lower threshold settings
<b>High ref</b>	User-definable upper threshold settings
<b>Thresholds</b>	These settings are set to indicate the severity of the alarm depending on which threshold values have been passed. Enter values for Major Under (MjU0), Minor Under (MnU), Minor Over (MnO) and Major Over (MjO).

\* 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.

## 12.11 Sensors

The NetGuardian LT G2 supports up to 16 daisy-chained D-Wire sensors via its D-Wire input. Sensors connected to the NetGuardian will appear on the NetGuardian's web interface. The background color of the ROM field informs the user of the sensor's configuration state.

Also the NetGuardian LT G2's internal temperature sensor is used to monitor the ambient temperature. The internal temperature sensor measures a range of -40° F to 180° F (-40° C to 82.2° C) within an accuracy of about  $\pm 2^\circ$ .

### 12.11.1 Basic Configuration

Basic configuration for the NetGuardian LT G2's D-Wire temperature sensors can be accomplished from the **Provisioning > Sensors** menu. From this screen, you enable or disable the analog channels, select notification devices, and set thresholds.

**NetGuardian LT G2**

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**Sensors** ( ■ - detected and configured ■ - detected and NOT configured ■ - NOT detected and configured )

Id	ROM ID	Description	1	2	3	4	5	6	7	8
1	2063591400000025	Sensor 1 <a href="#">Details&gt;&gt;</a>	<input type="checkbox"/>							
2	207b4914000000a3	Sensor 2 <a href="#">Details&gt;&gt;</a>	<input type="checkbox"/>							
3	2882b9dc030000d1	Internal <a href="#">Details&gt;&gt;</a>	<input type="checkbox"/>							

*Fig.12.11.1.1 The Provisioning > Sensors menu*

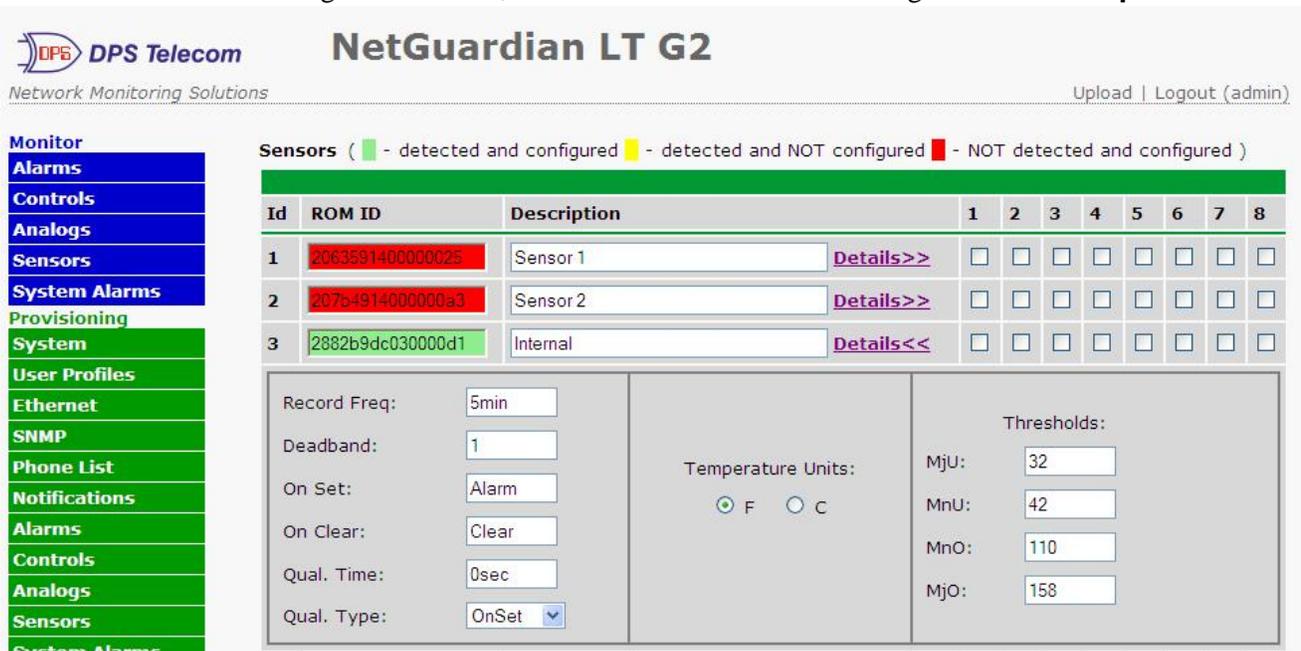
Sensors	
<b>Id</b>	Sensor Id number
<b>ROM ID</b>	The ID number found on the sticker on the temperature sensor node. Your NetGuardian will automatically detect the sensor ID when you plug a sensor into the unit. The color of the sensor ID field will tell you the status of the connected sensor. <b>Green</b> - The sensor is connected and properly configured <b>Yellow</b> - The sensor is connected but has not yet been configured (fill in your configuration fields and click <b>Save</b> to configure the sensor). <b>Red</b> - The sensor is not detected/configured (i.e. a previously configured sensor is no longer connected) To reconfigure the Sensor ID, simply delete any data in this field and click <b>Save</b> . The unit will refresh the sensor ID on that channel.
<b>Description</b>	User-definable description for the sensor channel.
<b>Notification devices</b>	Check which notification device(s), 1 through 8, you want to send alarm notifications for that sensor alarm. Check the box in the green bar (top) to have a notification device send an alarm for the sensor channels.

**Note:** Before plugging in any

additional D-Wire Sensors, set up the internal sensor.

## 12.11.2 Advanced Configuration

To access the **Details** configuration screen, click the **Details>>** text on the right of the **Description** cell.



**NetGuardian LT G2**

Network Monitoring Solutions Upload | Logout (admin)

**Sensors** ( ■ - detected and configured ■ - detected and NOT configured ■ - NOT detected and configured )

Id	ROM ID	Description	1	2	3	4	5	6	7	8
1	2063591400000025	Sensor 1 <a href="#">Details&gt;&gt;</a>	<input type="checkbox"/>							
2	207b4914000000a3	Sensor 2 <a href="#">Details&gt;&gt;</a>	<input type="checkbox"/>							
3	2882b9dc030000d1	Internal <a href="#">Details&lt;&lt;</a>	<input type="checkbox"/>							

Record Freq:       Temperature Units:  F  C      Thresholds:

Deadband:       MjU:

On Set:       MnU:

On Clear:       MnO:

Qual. Time:       MjO:

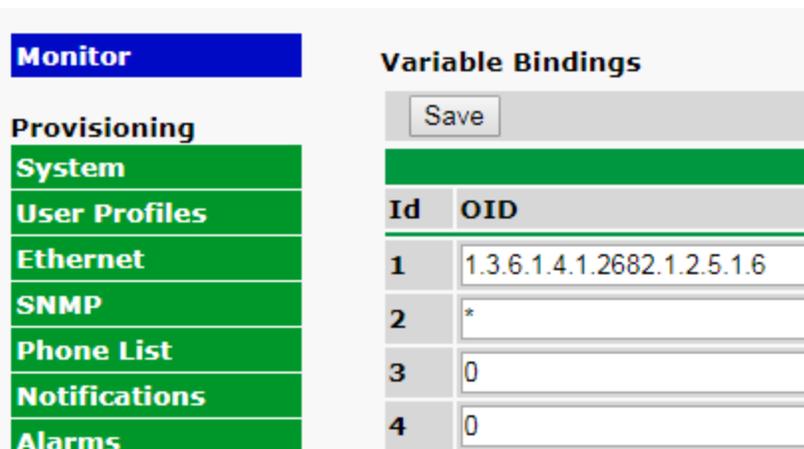
Qual. Type:

*Fig.12.11.2.1 The Provisioning > Sensors menu after clicking Details>> on Sensor 3*

From the **Details** configuration screen, you can now select which temperature units you want to use, define alarm "set" and "clear" descriptions, and define Qualification settings.

Sensors (Details>>)	
<b>Record Freq</b>	The amount of time, in minutes(min) or seconds (s), between each recorded sensor value.
<b>Deadband</b>	The amount (in native units) that the channel needs to go above or below a threshold in order to cause an alarm.
<b>On set</b>	User-definable description (condition) that will appear for the temperature alarm on Set. Example: "Alarm"
<b>On clear</b>	User-definable description (condition) that will appear for the temperature alarm Clear. Example: "Clear"
<b>Qual. Time (Qualification Time)</b>	The length of time that must pass, without interruption, in order for the condition to be considered an Alarm or a Clear.
<b>Qual. Type (Qualification Type)</b>	Allows you to choose whether you want to apply the Qualification Time to the alarm Set, Clear, or Both.
<b>Units</b>	User-definable display units between Fahrenheit and Celsius temperatures. F = Fahrenheit C = Celsius
<b>Thresholds</b>	These settings are used to indicate the severity of the alarm depending on which threshold values have been passed. Enter values for Major Under (MjU), Minor Under (MnU), Minor Over (MnO) and Major Over (MjO).

## 12.12 Variable Bindings



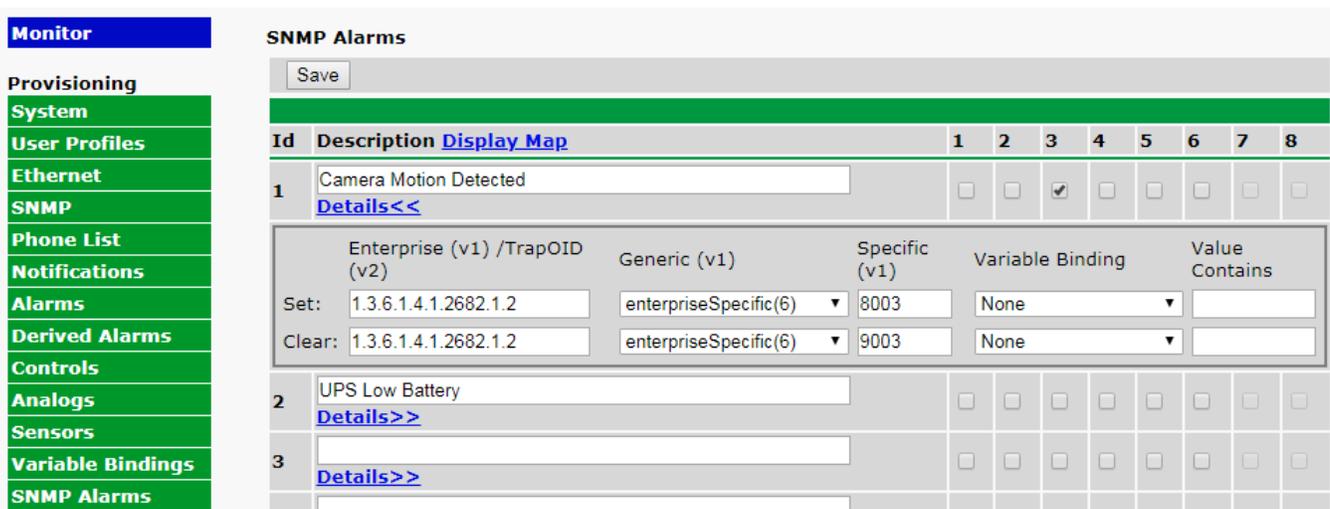
*Fig. 12.12.1 The Provisioning > Variable Bindings menu*

This simple menu allows you to specify variable bindings (up to 32) to be used by the SNMP Alarms function. Any variable binding OID that you specify here will be available in the SNMP Alarms provisioning menu.

Maintaining your bindings in this separate Variable Bindings menu allows for fast repeated use of the same variable binding on multiple SNMP Alarms. To learn more about SNMP Alarms, proceed to the Provisioning > SNMP Alarms section of this manual for a full introduction.

Variable Bindings	
<b>Id</b>	The Variable Binding number (1-32)
<b>OID</b>	The full SNMP OID for your chosen variable binding

## 12.13 SNMP Alarms



*Fig. 12.13.1 The Provisioning > SNMP Alarms menu*

The NetGuardian can act as a small-scale SNMP manager (v1 & v2) by receiving, interpreting, and reacting to

inbound traps.

### How traps Set and Clear each of the 32 SNMP Alarm states

Based on the rules you specify here, 32 virtual "SNMP Alarms" within the NetGuardian's alarm space will be controlled by the receipt of traps that match OIDs and (optional) Variable Bindings that you specify. Each of the 32 SNMP alarms monitors for two different inbound traps: Set and Clear. When either of these is received, the alarm state is set/cleared accordingly.

### How to handle traps from devices that Set but never Clear

Some SNMP devices may not report Clear conditions with traps. They merely send a Set trap, then send that same Set trap again later if the condition occurs again. This would ordinarily present a problem for your NetGuardian. The SNMP Alarm would Set after the first trap was received, but then would remain Set forever. You would constantly see an Alarm state, and future Set traps would not trigger notifications because the state would not be changing from Clear to Alarm.

Fortunately, your NetGuardian was designed with this common problem in mind. For devices that send Set traps but never send Clear traps, simply specify exactly the same values for the Clear trap as you did for the Set trap. When the Set trap is received, it will match both the Set condition and the Clear condition. Because of the order in which the conditions are evaluated, this will cause your SNMP Alarm to Set for a split-second before Clearing. This is long enough to trigger any applicable Notifications for this alarm event.

Because the alarm state is immediately Cleared, this SNMP Alarm point is once again ready to receive another Set trap in the future.

SNMP Alarms Settings	
<b>Id</b>	The SNMP Alarm point number
<b>Description</b>	User-editable description for this SNMP Alarm
<b>1-8 (Notifications)</b>	Check these boxes to send alert notifications for this alarm point using Notification Device(s) 1-8.

Advanced SNMP Alarms Settings (Click "Details>>")	
<b>Enterprise (v1) / TrapOID (v2)</b>	Enterprise OID (if receiving SNMPv1 trap) or Trap OID (if receiving SNMPv2c trap)
<b>Generic (v1)</b>	Generic Trap number for <b>SNMP v1 traps only</b> (ignored if v2 trap received)
<b>Specific (v1)</b>	Specific Trap number for <b>SNMPv1 traps only</b> (ignored if v2 trap received)
<b>Variable Binding</b>	(optional) Additional OID to uniquely identify a particular variable binding that will be required within this SNMP trap. A trap that is lacking the specified variable binding will not match and will not trigger Alarm/Clear. The variable bindings available in the dropdown menu are specified in Provisioning > Variable Bindings, allowing you to conveniently reuse common variable bindings without typing them in each time.
<b>Value Contains</b>	(required when Variable Binding is used) Value that must be contained within the variable binding value. Must be an integer or a string. To require that the specified variable binding exists in the trap but to match on any value, use "*" in this field.

## 12.14 Ping Targets

The **Provisioning > Ping Targets** menu allows you to configure the Description, IP Address, and Notification Devices for each of your ping targets.

Ping Targets												
<b>Id</b>	<b>Enab</b>	<b>Description</b>	<a href="#">Display Map</a>	<b>Server (IP or Hostname)</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>
1	<input checked="" type="checkbox"/>	TEST_OUTPUT		facebook.com	<input type="checkbox"/>							
2	<input checked="" type="checkbox"/>	Test2		10.0.200.109	<input type="checkbox"/>							
3	<input type="checkbox"/>				<input type="checkbox"/>							
4	<input type="checkbox"/>				<input type="checkbox"/>							

*Fig. 12.14.1 The Provisioning > Ping Targets menu*

Provisioning Ping Targets	
<b>ID</b>	ID number for the ping target.
<b>Enab</b>	Check this box to enable the ping target.
<b>Description</b>	User-definable description for the ping target.
<b>Server (IP or Hostname)</b>	IP address or hostname of the device you would like to ping.
<b>Notification Devices</b>	Check which notification device(s), 1 through 8, you want to send alarm notifications for ping target.

## 12.15 System Alarms

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

The screenshot shows the NetGuardian LT G2 web interface. The top left features the DPS Telecom logo and the text "network Monitoring Solutions". The top right has "Upload | Logout (admin)". A sidebar on the left contains a menu with items: Monitor, Alarms, Controls, Analogs, Sensors, System Alarms, Provisioning, and System. The main content area is titled "System Alarms" and contains a table with the following structure:

Pnt	Description	Display Map	Silence	1	2	3	4	5	6	7	8
33	Default configuration		<input type="checkbox"/>								
34	DCP poller inactive		<input type="checkbox"/>								
39	SNMP community error		<input type="checkbox"/>								

*Fig. 12.15.1 The Provisioning > System Alarms menu*

System Alarms	
<b>Pnt</b>	The system alarm point number
<b>Description</b>	Non-editable description for this System (housekeeping) Alarm.
<b>Silence</b>	Check this box to choose to silence this alarm.
<b>Notification devices</b>	Check which notification device(s), 1 through 8, you want to send alarm notifications for that alarm point.

## 12.16 Timers

The **Timers** are user-definable, and allow you to choose the intervals between automatic refreshing of the NetGuardian LT G2 Web Browser. Enter the amount of time, in seconds (sec) or minutes (m), in the value field and click **Save**.

Fig. 12.16.1 The Provisioning > Timers menu

## 12.17 Date and Time

Fig. 12.17.1 The Provisioning > Date and Time menu

Time Settings	
<b>Date</b>	Select the current month, day, and year from the drop-down menus.
<b>Time</b>	Select the current hour, minutes, and time of day fro the drop-down menus.
Automatic Time Adjustment (NTP)	
<b>Enable NTP</b>	Check this box to enable Network Time Protocol.
<b>NTP Server Address or Host Name</b>	Enter the NTP server's IP address or host name, then click Sync. Example: north-america.pool.ntp.org
<b>Time Zone</b>	Select your time zone from the drop-down menu.
Adjust Clock for Daylight Savings Time (DST)	
<b>Enable DST</b>	Check this box to have the NetGuardian LT G2 observe Daylight Savings.
<b>Start Day</b>	Select the month, weekday, and time when Daylight Savings will begin.
<b>End Day</b>	Select the month, weekday, and time when Daylight Savings will end.

## 13 Device Access Descriptions

The **Device Access** options, listed in pink on the left side of the web interface, provide options for generating reports, updating the NetGuardian LT G2's firmware, and rebooting the unit. Click any of the options under **Device Access** to perform the desired action.



*Fig. 13.1 The control menu is located in the bottom left of the web interface*

Device Access Option	Description
<b>Backup Config</b>	Backs up the units configuration settings
<b>Read</b>	Reads a configuration file from the unit
<b>Write</b>	Commits all changes made in the web interface to the NetGuardian LT G2's non-volatile memory
<b>Initialize</b>	Sets the unit's configuration to factory default values
<b>Get Log</b>	Opens the NetGuardian LT G2's event log in Notepad (or another plain text editor).
<b>Purge Log</b>	Deletes the NetGuardian LT G2's event log history
<b>Reboot</b>	Reboots the NetGuardian LT G2

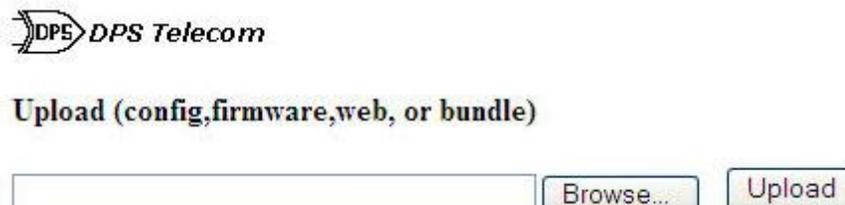
## 14 Firmware Upgrade

To access the **Firmware Upload** screen, click on the **Upload** text in the top right corner of any page.



*Fig. 14.1 The clickable link to upgrade firmware located at the top right of the screen.*

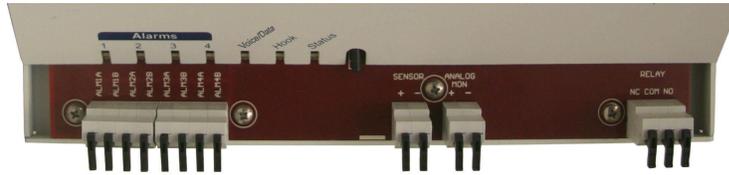
At the **Firmware Upload** screen, simply browse for the firmware update you've downloaded from [www.dpstele.com](http://www.dpstele.com) and click **Upload**.



*Fig. 14.2 Browse for downloaded firmware upgrade*

## 15 Reference Section

### 15.1 LED Funtionality



Front Panel LEDs

LED	Status	Description
Alarms 1 - 4	Solid Red	Alarm active
	Off	No alarm
Status	Blink Green	NetGuardian application is running
	Blink Red	Boot loader is running
Voice/Data	Blink Green	Playing Voice (Voice Mode)/ Transmitting data through the Modem (Data Mode)
	Blink Red	Receiving DTMF commands (Voice Mode)/Receiving data through the Modem (Data Mode)
Hook	Solid Green	Modem is off hook for voice
	Solid Red	Modem is off hook for data



Back Panel LEDs

LED	Status	Description
Craft	Blink Green	Transmit over craft.
	Blink Red	Receive over craft.
LAN	Blink Yellow	Transmit and receive activity over Ethernet port.
LNK	Solid Green	Ethernet is connected.
	Solid Green	Power is connected to the NetGuardian LT G2.
	Off	Power is disconnected from the NetGuardian LT G2.
100BT	Solid Green	LAN connection speed is 100BaseT
	Off	LAN connection speed is 10BaseT
FA	Solid Red	Blown Fuse
Telco	Blink Green	Transmitting data through the Modem
	Blink Red	Receiving data through the Modem
D-Wire Sensor Input	Blink Green	Transmitting over D-Wire
	Blink Red	Receive over D-Wire

## 15.2 Display Mapping

Display	Description	Port	Address	Point
Display 1	Discrete Alarms 1-4	99	1	1-4
	Control 1	99	1	17
	Default Configuration	99	1	33
	DCP channel is inactive	99	1	34
	SNMP community error	99	1	39
	Notification 1 Failed	99	1	41
	Notification 2 Failed	99	1	42
	Notification 3 Failed	99	1	43
	Notification 4 Failed	99	1	44
	Notification 5 Failed	99	1	45
	Notification 6 Failed	99	1	46
	Notification 7 Failed	99	1	47
	Notification 8 Failed	99	1	48
	NTP failed	99	1	49
	Timed Tick	99	1	50
	Dynamic memory full	99	1	51
	Unit Reset	99	1	52
	Trip error	99	1	55
	No dialtone	99	1	56
	Modem failed	99	1	57
Display 2	Ping Targets	99	1	1-32
	Derived Alarms	99	1	33-48
	Undefined	99	1	49-64
Display 3	Power input Minor Under	99	1	1
	Power input Minor Over	99	1	2
	Power input Major Under	99	1	3
	Power input Major Over	99	1	4
	Control	99	1	9-16
	Value	99	1	17-32
	User analog Minor Under	99	1	33
	User analog Minor Over	99	1	34
	User analog Major Under	99	1	35
	User analog Major Over	99	1	36
	Control	99	1	41-48
	Value	99	1	49-64
Display 4	Digital sensor 1 Minor Under	99	1	1
	Digital sensor 1 Minor Over	99	1	2
	Digital sensor 1 Major Under	99	1	3
	Digital sensor 1 Major Over	99	1	4
	Digital sensor 1 Sensor not detected	99	1	5
	Control	99	1	9-16
	Value	99	1	17-32
	Digital sensor 2 Minor Under	99	1	33
	Digital sensor 2 Minor Over	99	1	34
	Digital sensor 2 Major Under	99	1	35
	Digital sensor 2 Major Over	99	1	36
	Digital sensor 2 Sensor not detected	99	1	37
	Control	99	1	41-48
	Value	99	1	49-64

*Table 15.1 Display Mapping*

Display	Description	Port	Address	Point
Display 5	Digital sensor 3 Minor Under	99	1	1
	Digital sensor 3 Minor Over	99	1	2
	Digital sensor 3 Major Under	99	1	3
	Digital sensor 3 Major Over	99	1	4
	Digital sensor 3 Sensor not detected	99	1	5
	Control	99	1	9-16
	Value	99	1	17-32
	Digital sensor 4 Minor Under	99	1	33
	Digital sensor 4 Minor Over	99	1	34
	Digital sensor 4 Major Under	99	1	35
	Digital sensor 4 Major Over	99	1	36
	Digital sensor 4 Sensor not detected	99	1	37
	Control	99	1	41-48
	Value	99	1	49-64
Display 6	Digital sensor 5 Minor Under	99	1	1
	Digital sensor 5 Minor Over	99	1	2
	Digital sensor 5 Major Under	99	1	3
	Digital sensor 5 Major Over	99	1	4
	Digital sensor 5 Sensor not detected	99	1	5
	Control	99	1	9-16
	Value	99	1	17-32
	Digital sensor 6 Minor Under	99	1	33
	Digital sensor 6 Minor Over	99	1	34
	Digital sensor 6 Major Under	99	1	35
	Digital sensor 6 Major Over	99	1	36
	Digital sensor 6 Sensor not detected	99	1	37
	Control	99	1	41-48
	Value	99	1	49-64
Display 7	Digital sensor 7 Minor Under	99	1	1
	Digital sensor 7 Minor Over	99	1	2
	Digital sensor 7 Major Under	99	1	3
	Digital sensor 7 Major Over	99	1	4
	Digital sensor 7 Sensor not detected	99	1	5
	Control	99	1	9-16
	Value	99	1	17-32
	Digital sensor 8 Minor Under	99	1	33
	Digital sensor 8 Minor Over	99	1	34
	Digital sensor 8 Major Under	99	1	35
	Digital sensor 8 Major Over	99	1	36
	Digital sensor 8 Sensor not detected	99	1	37
	Control	99	1	41-48
	Value	99	1	49-64

*Table 15.1 Display Mapping*

Display	Description	Port	Address	Point
Display 8	Digital sensor 9 Minor Under	99	1	1
	Digital sensor 9 Minor Over	99	1	2
	Digital sensor 9 Major Under	99	1	3
	Digital sensor 9 Major Over	99	1	4
	Digital sensor 9 Sensor not detected	99	1	5
	Control	99	1	9-16
	Value	99	1	17-32
	Digital sensor 10 Minor Under	99	1	33
	Digital sensor 10 Minor Over	99	1	34
	Digital sensor 10 Major Under	99	1	35
	Digital sensor 10 Major Over	99	1	36
	Digital sensor 10 Sensor not detected	99	1	37
	Control	99	1	41-48
	Value	99	1	49-64
Display 9	Digital sensor 11 Minor Under	99	1	1
	Digital sensor 11 Minor Over	99	1	2
	Digital sensor 11 Major Under	99	1	3
	Digital sensor 11 Major Over	99	1	4
	Digital sensor 11 Sensor not detected	99	1	5
	Control	99	1	9-16
	Value	99	1	17-32
	Digital sensor 12 Minor Under	99	1	33
	Digital sensor 12 Minor Over	99	1	34
	Digital sensor 12 Major Under	99	1	35
	Digital sensor 12 Major Over	99	1	36
	Digital sensor 12 Sensor not detected	99	1	37
	Control	99	1	41-48
	Value	99	1	49-64
Display 10	Digital sensor 13 Minor Under	99	1	1
	Digital sensor 13 Minor Over	99	1	2
	Digital sensor 13 Major Under	99	1	3
	Digital sensor 13 Major Over	99	1	4
	Digital sensor 13 Sensor not detected	99	1	5
	Control	99	1	9-16
	Value	99	1	17-32
	Digital sensor 14 Minor Under	99	1	33
	Digital sensor 14 Minor Over	99	1	34
	Digital sensor 14 Major Under	99	1	35
	Digital sensor 14 Major Over	99	1	36
	Digital sensor 14 Sensor not detected	99	1	37
	Control	99	1	41-48
	Value	99	1	49-64

*Table 15.1 Display Mapping*

Display	Description	Port	Address	Point
Display 11	Digital sensor 15 Minor Under	99	1	1
	Digital sensor 15 Minor Over	99	1	2
	Digital sensor 1 Major Under	99	1	3
	Digital sensor 15 Major Over	99	1	4
	Digital sensor 15 Sensor not detected	99	1	5
	Control	99	1	9-16
	Value	99	1	17-32
	Digital sensor 16 Minor Under	99	1	33
	Digital sensor 16 Minor Over	99	1	34
	Digital sensor 16 Major Under	99	1	35
	Digital sensor 16 Major Over	99	1	36
	Digital sensor 16 Sensor not detected	99	1	37
	Control	99	1	41-48
	Value	99	1	49-64
Display 12	SNMP Alarms	99	1	1-32
	Undefined	99	1	33-64

*Table 15.1 Display Mapping*

## 15.3 System Alarms

Display	Points	Alarm Point	Description	Solution
1	33	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 if the alarm clears.
	34	DCP poller inactive	The NetGuardian is configured to listen for DCP polls but has not received a poll in over 5 minutes.	Check if unit can ping T/Mon or disable if not in use.
	39	SNMP community error	Community string does not match your SNMP master's community string.	Verify both community strings to make sure they match.
	41	Notification 1 failed	A notification 1 event, such as a page or email, was unsuccessful.	Verify that you can ping both devices.
	42	Notification 2 failed	A notification 2 event, such as a page or email, was unsuccessful.	Use RPT filter debug to help diagnose notification problems.
	43	Notification 3 failed	A notification 3 event, such as a page or email, was unsuccessful.	Use RPT filter debug to help diagnose notification problems.
	44	Notification 4 failed	A notification 4 event, such as a page or email, was unsuccessful.	Use RPT filter debug to help diagnose notification problems.
	45	Notification 5 failed	A notification 5 event, such as a page or email, was unsuccessful.	Use RPT filter debug to help diagnose notification problems.
	46	Notification 6 failed	A notification 6 event, such as a page or email, was unsuccessful.	Use RPT filter debug to help diagnose notification problems.
	47	Notification 7 failed	A notification 7 event, such as a page or email, was unsuccessful.	Use RPT filter debug to help diagnose notification problems.
	48	Notification 8 failed	A notification 8 event, such as a page or email, was unsuccessful.	Use RPT filter debug to help diagnose notification problems.
	49	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.
	50	Timed Tick	Toggles state at constant rate as configured by the Timed Tick timer variable. Useful in testing integrity of SNMP trap alarm reporting.	To turn the feature off, set the Timed Tick timer to 0.
	51	Dynamic memory full	Not expected to occur.	Call DPS Tech Support (559) 454-1600.
	52	Unit reset	Unit has rebooted.	If unintentional, call DPS Tech Support: (559) 454-1600.
	55	TRIP error	Not expected to occur.	Make sure Trip ID on the NetGuardian unit matches the Trip ID on T/Mon for the unit. If they match, call DPS Tech Support (559) 454-1600.
56	No dial tone	Issue with connectivity.	Check cable. If cable is securely attached, call DPS Tech Support (559) 454-1600.	
57	Modem failed	Indicates an error has occurred during Modem initialization.	Attempt to reboot the unit. If the problem persists, call DPS Tech Support (559) 454-1600.	

*System Alarms Display Map*

## 15.4 Voice Notification Flow Chart

	Press 1	Press 2	Press 3	Press 4	Press 5	Press 6	Press 7	Press 8	Press 9	Press 0	Press *	Press #
<b>Main Menu</b>	List Events	Ack all Events	List Standing Alarms	Go to <b>Operate Relays</b>	-	-	-	-	-	-	Go to <b>More Options</b>	-
<b>More Options</b>	Record Descriptions, go to <b>Select Descriptions</b>	Report Analog Values	-	-	-	-	-	-	-	-	-	Return to <b>Main Menu</b>
<b>Select Description</b>	Select alarm description, go to <b>Record Description</b>	Select Analog description, go to <b>Record Description</b>	Select sensor description, go to <b>Record Description</b>	Select relay descriptions, go to <b>Record Description</b>	Select other descriptions, go to <b>Record Description</b>	Select alarm set description, go to <b>Record Description</b>	Select alarm clear description, go to <b>Record Description</b>	Select derived alarms description, go to <b>Record Description</b>	Select SNMP alarms description, go to <b>Record Description</b>	Select ping target description, go to <b>Record Description</b>	-	Return to <b>Main Menu</b>
<b>Record Description</b>	Play user description	Record user description	Delete user description	-	-	-	-	-	-	-	-	Return to <b>Select Description</b>
<b>Operate Relays</b>	*Operate Relay	*Release Relay	Momentary operate Relay	-	-	-	-	-	-	-	-	Return to <b>More Options</b>

\*Note: When the **Only Allow Momentary Relay Operation Option During Call** option is selected (in the **System > Provisioning** window on the web interface), you will not be prompted with voice DTMF commands for latching and releasing relays, and only a voice command to **Momentarily Operate Relay** will be given.

## 15.5 Derived Alarm and Control Equations

Virtual alarms and control relays can be created from derived formulas using the following operations:

**\_OR** : Set the current operation to OR.

**\_AN** : Set the current operation to AND.

**\_NO** : Set the current operation to NOT

**\_XR** : Set the current operation to XOR.

**D** : Tag to change the active display number.

**C#** : Used as a constant where # is either a 1 or a 0.

**.** : Used like a comma to delimit numbers.

**-** : Used to specify a range of points.

**S** : Used like an open parentheses.

**F** : Used to end or close parentheses (All open parentheses must have a matching close parentheses).



Spaces included here are for readability purposes only.



*Hot Tip!*

- Precedence of the operations are always left to right unless using **S and F** for parentheses.
- All number references can either be one or two digits.

**\_OR D1.3-5** is logically equivalent to  $(1.3 \parallel 1.4 \parallel 1.5)$

**\_AN D 1.3-5 D2.6 \_OR D3.7** is logically equivalent to  $((1.3 \&\& 1.4 \&\& 1.5 \&\& 2.6) \parallel 3.7)$

**\_OR D01.03-05 D02.06 \_AN D02.07 D03.10.-12** is logically equivalent to  $((1.3 \parallel 1.4 \parallel 1.5 \parallel 2.6)\&\& (2.7 \&\& 3.10 \&\& 3.12))$

**\_AN D1.3-5D2.6\_OR.7D3.10.12** is logically equivalent to  $((1.3 \&\& 1.4 \&\& 1.5 \&\& 2.6) \parallel 2.7 \parallel 3.10 \parallel 3.12))$

**\_AN D1-2** : Control will parse

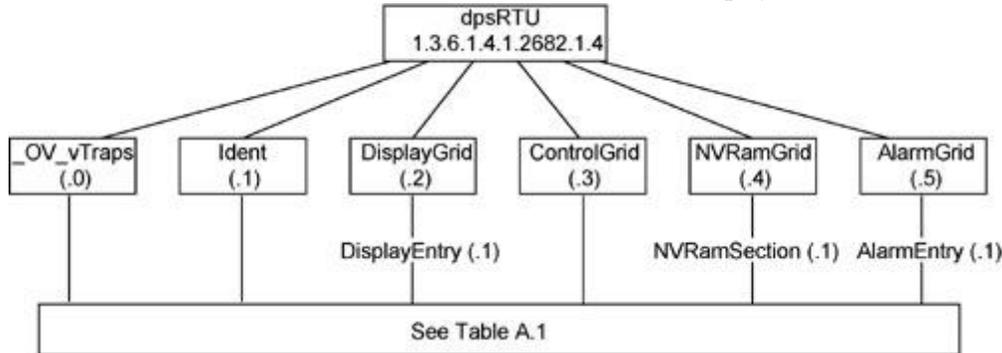
**\_OR S\_AND1.1-2FS\_AND1.3-4F** is logically equivalent to  $(1.1 \&\& 1.2) \parallel (1.3 \&\& 1.4)$

**\_OR C1 D1.1** is logically equivalent to  $(1 \parallel 1.1)$

## 15.6 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 B.1 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).



<b>Tbl. B1 (0.)_OV_Traps points</b>
<b>_OV_vTraps (1.3.6.1.4.1.2682.1.4.0)</b>
PointSet (.20)
PointClr (.21)
SumPSet (.101)
SumPClr (.102)
ComFailed (.103)
ComRestored (.014)
P0001Set (.10001) through P0064Set (.10064)
P0001Clr (.20001) through P0064Clr (.20064)

<b>Tbl. B2 (.1) Identity points</b>
<b>Ident (1.3.6.1.4.1.2682.1.4.1)</b>
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.

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

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

<b>Tbl. B5 (.5) AlarmEntry points</b>
<b>AlarmEntry (1.3.6.4.1.2682.1.4.5.1)</b>
Aport (.1)
AAddress (.2)
ADisplay (.3)
APoint (.4)
APntDesc (.5)*
AState (.6)

\* For specific alarm points, see Table B6



**Hot Tip!**

The NetGuardian LT 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.

## 15.7 SNMP Granular Trap Packets

Tables 15.7.1 and 15.7.2 provide a list of the information contained in the SNMP Trap packets sent by the NetGuardian LT G2

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 LT G2)

**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 15.7.1 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 15.7.2. SNMP Headers and descriptions*

## 16 Frequently Asked Questions

Here are answers to some common questions from NetGuardian LT G2 users. The latest FAQs can be found on the NetGuardian LT G2 support web page, <http://www.dpstele.com.com>.

If you have a question about the NetGuardian LT G2, please call us at **(559) 454-1600** or e-mail us at [support@dpstele.com](mailto:support@dpstele.com)

### 16.1 General FAQs

**Q. How do I telnet to the NetGuardian LT G2?**

**A.** You must use **Port 2002** to connect to the NetGuardian LT G2. 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 LT G2 and Port 2002. For example, to connect to the NetGuardian LT G2 using the standard Windows Telnet client, click Start, click Run, and type "telnet <NetGuardian LT G2 IP address> 2002."

**Q. How do I connect my NetGuardian LT G2 to the LAN?**

**A.** To connect your NetGuardian LT G2 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 LT G2 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 LT G2.

**Q. The LAN link LED is green on my NetGuardian LT G2, 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 LT G2. Ordering TTL points for your NetGuardian LT G2 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 LT G2 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 LT G2 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.

## 16.2 SNMP FAQs

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

A. SNMPv1, SNMPv2c and v3.

**Q. How do I configure the NetGuardian LT G2 to send traps to an SNMP manager? Is there a separate MIB for the NetGuardian LT G2? 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 begins sending traps as soon as the SNMP managers are defined. The NetGuardian MIB is included on the NetGuardian 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. You can also configure up to eight secondary SNMP managers, which is configured by selecting the secondary SNMP managers as pager recipients. Community strings are configured globally for all SNMP managers. To configure the community strings, choose System from the Edit menu, and enter appropriate values in the Get, Set, and Trap fields.

**Q. Does the NetGuardian LT G2 support MIB-2 and/or any other standard MIBs?**

A. The NetGuardian LT G2 supports the bulk of MIB-2.

**Q. Does the NetGuardian LT G2 SNMP agent support both NetGuardian LT G2 and T/MonXM variables?**

A. The NetGuardian LT G2 SNMP agent manages an embedded MIB that supports only the NetGuardian LT G2'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 LT G2 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 LT G2 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 LT G2 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.dpstelecom.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.*

## 18 End User License Agreement

All Software and firmware used in, for, or in connection with the Product, parts, subsystems, or derivatives thereof, in whatever form, including, without limitation, source code, object code and microcode, including any computer programs and any documentation relating to or describing such Software is furnished to the End User only under a non-exclusive perpetual license solely for End User's use with the Product.

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This Agreement shall be construed and enforced in accordance with the laws of the State of California, without regard to choice of law principles and excluding the provisions of the UN Convention on Contracts for the International Sale of Goods. Any dispute arising out of the Agreement shall be commenced and maintained only in Fresno County, California. In the event suit is brought or an attorney is retained by any party to this Agreement to seek interpretation or construction of any term or provision of this Agreement, to enforce the terms of this Agreement, to collect any money due, or to obtain any money damages or equitable relief for breach, the prevailing party shall be entitled to recover, in addition to any other available remedy, reimbursement for reasonable attorneys' fees, court costs, costs of investigation, and other related expenses.





# Warranty

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DPS Telecom warrants, to the original purchaser only, that its products a) substantially conform to DPS' published specifications and b) are substantially free from defects in material and workmanship. This warranty expires two years from the date of product delivery with respect to hardware and ninety days from the date of product delivery with respect to software. If the purchaser discovers within these periods a failure of the product to substantially conform to the specifications or that the product is not substantially free from defects in material and workmanship, the purchaser must promptly notify DPS. Within reasonable time after notification, DPS will endeavor to correct any substantial non-conformance with the specifications or substantial defects in material and workmanship, with new or used replacement parts. All warranty service will be performed at the company's office in Fresno, California, at no charge to the purchaser, other than the cost of shipping to and from DPS, which shall be the responsibility of the purchaser. If DPS is unable to repair the product to conform to the warranty, DPS will provide at its option one of the following: a replacement product or a refund of the purchase price for the non-conforming product. These remedies are the purchaser's only remedies for breach of warranty. Prior to initial use the purchaser shall have determined the suitability of the product for its intended use. DPS does not warrant a) any product, components or parts not manufactured by DPS, b) defects caused by the purchaser's failure to provide a suitable installation environment for the product, c) damage caused by use of the product for purposes other than those for which it was designed, d) damage caused by disasters such as fire, flood, wind or lightning unless and to the extent that the product specification provides for resistance to a defined disaster, e) damage caused by unauthorized attachments or modifications, f) damage during shipment from the purchaser to DPS, or g) any abuse or misuse by the purchaser.

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In no event will DPS be liable for any special, incidental, or consequential damages based on breach of warranty, breach of contract, negligence, strict tort, or any other legal theory. Damages that DPS will not be responsible for include but are not limited to, loss of profits; loss of savings or revenue; loss of use of the product or any associated equipment; cost of capital; cost of any substitute equipment, facilities or services; downtime; claims of third parties including customers; and injury to property.

The purchaser shall fill out the requested information on the Product Warranty Card and mail the card to DPS. This card provides information that helps DPS make product improvements and develop new products.

For an additional fee DPS may, at its option, make available by written agreement only an extended warranty providing an additional period of time for the applicability of the standard warranty.

## 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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