NetGuardian 480/432 G3 & G4

USER MANUAL

D-PK-NG480
D-PK-NG432

Visit our website at www.dpstelecom.com for the latest PDF manual and FAQs.

Revision History

April 22, 2019	Support for Modbus added
July 18, 2018	Merged with G3 manual, updated firmware
October 28, 2016	Added Derived Controls and Derived Expansion Controls sections.
October 16, 2014	Added Expansion Alarms and Controls section
March 4, 2014	Initial Release

Contents

1 NetGuardian 480/432 Overview

As an easy-to-install, high-density RTU, the NetGuardian effectively monitors sites with a lot of discrete alarm points.

Effective, easy-to-install, light-capacity alarm monitoring
The NetGuardian (NG) is a compact, LAN-based, high-density remote telemetry unit. The NetGuardian is designed for easy installation at remote sites with up to 80 discrete alarm points, making it cost-effective to deploy alarm monitoring at your larger facilities.

Powerful monitoring for high-density sites
The NetGuardian is based on the time-tested NetGuardian 832A design. This telco-grade remote is housed in a durable aluminum case. This SNMP remote is scaled to the needs of high-density sites that require a lot of discrete inputs.

- **32 (NetGuardian 432) or 80 (NetGuardian 480) Discrete Alarm Inputs**
- **4 Control Relay Outputs**
- **1 Reach-through serial port (terminal server)**

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

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

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

Upgraded Web 2.0 Interface
The overhauled web interface that boasts several time-saving new tools, including new analog gauges. You'll also notice the impressive speed boost. Menus load very quickly, and the alarm status updates automatically without requiring a page refresh.

Note: The NetGuardian 432 is a subset of the NetGuardian 480, so the content in this manual will be applicable to both units. Any differences between the units will be clearly identified.

2   Specifications

Discrete Alarm Inputs:	80 (NetGuardian 480) or 32 (NetGuardian 432)
Temperature Sensors:	Support for up to 32 D-Wire Sensors (see below)
Sensor Thresholds:	4 per sensor
Digital Sensor Inputs:	**1** (up to 16 total daisy-chained sensors)
Control Relays:	4 Form C
Maximum Voltage:	60 VDC / 120 VAC
Maximum Current:	1 Amp, AC / DC
Protocols:	SNMPv1, SNMPv2c, SNMPv3, DCPx, TELNET, HTTP, HTTPS, SMTP, ICMP, RADIUS
Dimensions:	1.72" H x 17" W x 5.14" D
	(4.4 cm x 43.18 cm x 13.1 cm)
Weight:	4 lbs. 3oz. (1.9 kg)
Mounting:	19" or 23" rack mount
Shipping Box Size:	22" x 6" x 16" and 8 lbs.
Power Input:	-48VDC (-36 to -72 VDC)
	(Optional) +24 VDC via 110VAC wall transformer (12 to 30 VDC)
	(Optional) -24VDC (-18 to -36 VDC)
Current Draw:	250 mA @ -24VDC
	125 mA @ -48VDC
Fuse:	Resettable Fuse (Internal), if +24V Power Input
	3/4 Amp GMT Fuse, if -48V or -24V Power Input
Interfaces:	1 RJ45 10/100BaseT full-duplex Ethernet port
	1 Push button switch
	Serial port options: RS232, RS485, 202, 33.6 K internal dialup modem
	Switch for 202 tuning
	USB connection for front panel craft port
Visual Interface:	6 Front Panel LEDs
	6 Back Panel LED
Audible Notification:	Alarm speaker with volume control (Optional)
Operating Temperature:	32°–140° F (0°–60° C)
Operating Humidity:	0%–95% non-condensing
MTBF:	60 years
Windows Compatibility:	Windows 2000, XP, Vista, 7 32/64 bit
RoHS:	5/6

3   Shipping List

Please make sure all of the following items are included with your NetGuardian. 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
D-PK-NG480, or D-PK-NG432

NetGuardian User Manual
D-UM-NG480/NG432

NetGuardian Resource CD

USB Cable
D-PR-046-10A-06

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

23'' Rack Ears
D-CS-325-10A-01

19" Rack Ears
D-CS-325-10A-00

x8

3/8" Ear Screws
and Lock Washers
2-000-60375-05

x4

Rack Screws
1-000-12500-06

Alternate Rack Screws
2-000-80750-03

Pads
2-015-00030-00

3/4-Amp GMT Fuses
2-741-00750-00

RIA Power Connectors
(Included on non-WAGO, RIA Builds)
2-820-00862-02
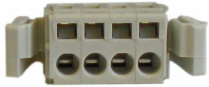
4-Pin Locking WAGO Connector
(Included on WAGO Builds)
2-802-04037-00

4-Pin Serial Connector (202 Option Only)
2-820-00814-02
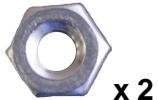
Hex Nut (Ships mounted on grounding lug)
2-002-01024-00

3.1   Optional Shipping Items - Available by Request

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

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

DPS D-Wire Sensors
D-PK-DSNSR-12XXX
(Multiple sensor options available)

4   Installation

4.1   Tools Needed

To install the NetGuardian 480, you'll need the following tools:

Phillips No. 2 Screwdriver

Small Standard No. 2 Screwdriver

**PC with terminal emulator,
such as HyperTerminal**

4.2   Mounting

The NetGuardian 480 can be flush or rear-mounted

The NetGuardian 480 mounts in a 19" rack or a 23" rack using the provided rack ears for each size. Two rack ear locations are provided. Attach the appropriate rack ears in the flush-mount or rear-mount locations shown in Figure 6.2.1.

Note: Rack ears can be rotated 90° for wall mounting or 180º for other mounting options (not shown).
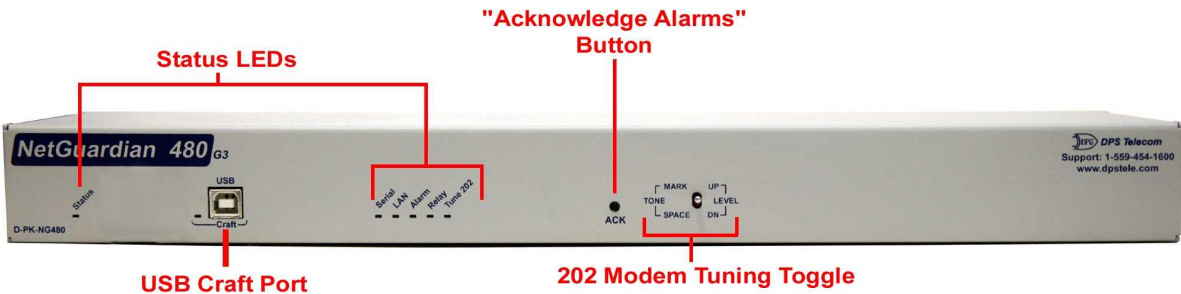
5   NetGuardian Front Panel

NetGuardian 432 G3

NetGuardian 432 G4

NetGuardian 480 G3

NetGuardian 480 G4

6   NetGuardian Back Panel

NetGuardian 432 G3 back panel connections

NetGuardian 432 G4 back panel connections

NetGuardian 480 G3 back panel connections

NetGuardian 480 G4 back panel connections

6.1   Power Connection

The NetGuardian uses single or dual (Optional) power inputs, powered through two barrier plug power connectors.

NetGuardian Power Terminals and Fuses

To connect the NetGuardian to a power supply, follow these steps:

1. Always use safe power practices when making power connections. Be sure to remove fuses from the fuse distribution panel, as well as the back of the NetGuardian, before making your power connections.

2. Use the grounding lug to connect the unit to earth ground. The grounding lug is next to the symbol . Insert the eyelet of the earth ground cable between the two bolts on the grounding lug (Ground cable not included).

3. Insert a battery ground into the power connector plug's right terminal and tighten the screw; then insert a battery line to the plug's left terminal and tighten its screw.

4. Insert a fuse into the fuse distribution panel and measure voltage. The voltmeter should read between –40 and –70VDC (for -48VDC build option), +18 and +36VDC (+24VDC build option) or -18 and -36VDC (-24VDC build option).

5. The power plug can be inserted into the power connector only one way to ensure the correct polarity. Note that the negative voltage terminal is on the left and the GND terminal is on the right.

6. Insert fuse into the Power A fuse slot. The power LED should be lit green. If the LED is red, the power connection is reversed. To confirm that power is correctly connected, the front panel LEDs will flash RED and GREEN, indicating that the firmware is booting up.

7. Repeat steps 1 -6 for Power B connector.
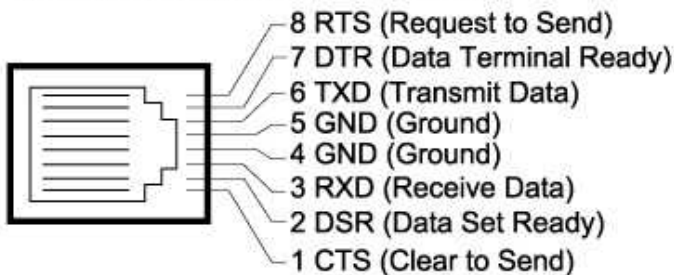
6.2 LAN Connection

To connect the NetGuardian 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**.
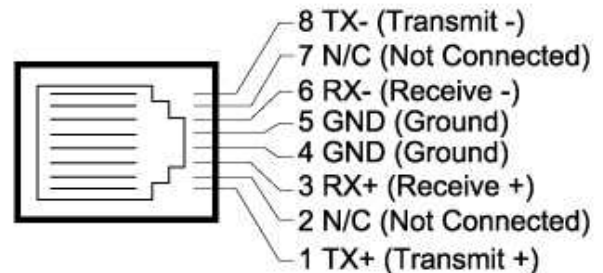
6.3 Serial Connection

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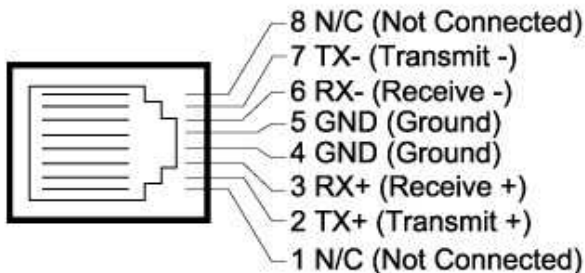
Serial port build options

Yost RS-232 RJ45 Connector

- 8 RTS (Request to Send)
- 7 DTR (Data Terminal Ready)
- 6 TXD (Transmit Data)
- 5 GND (Ground)
- 4 GND (Ground)
- 3 RXD (Receive Data)
- 2 DSR (Data Set Ready)
- 1 CTS (Clear to Send)

RS-485 RJ45 Connector

- 8 TX- (Transmit -)
- 7 N/C (Not Connected)
- 6 RX- (Receive -)
- 5 GND (Ground)
- 4 GND (Ground)
- 3 RX+ (Receive +)
- 2 N/C (Not Connected)
- 1 TX+ (Transmit +)

4-Wire 202 Connector

- 8 N/C (Not Connected)
- 7 TX- (Transmit -)
- 6 RX- (Receive -)
- 5 GND (Ground)
- 4 GND (Ground)
- 3 RX+ (Receive +)
- 2 TX+ (Transmit +)
- 1 N/C (Not Connected)

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

The serial port can be used for different functions:
- Reach-through proxy connection for LAN-based Telnet access to switches, radios, PBXs and other equipment.
- Alarm reporting to the T/Mon Remote Alarm Monitoring System over an RS-232, 485, 202, or dial-up modem.

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

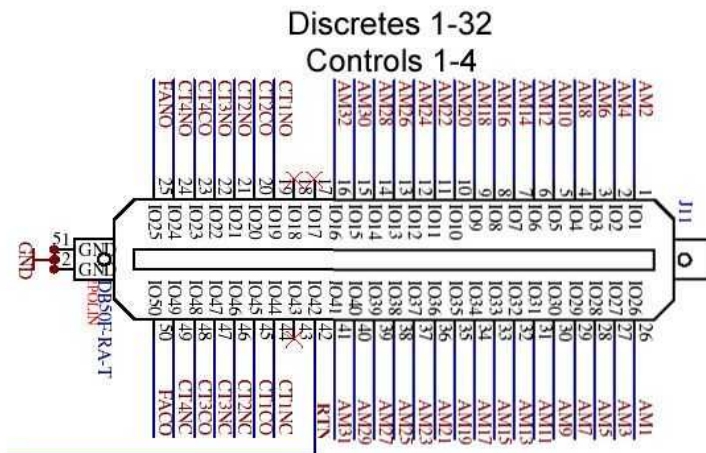# 6.4   Alarm and Control Relay Connectors

6.4.1   NetGuardian 432 G3 Pinouts

NetGuardian 432 G3 Alarm and Relay Connectors

The connectors for discrete alarms and control relays is the 50-pin connector on the NetGuardian 's back panel.

NetGuardian 432 G3 Amphenol pinout.

6.4.2 NetGuardian 432 G4 Pinouts

NetGuardian 432 G4 Alarm and Relay Connectors

NetGuardian 432 G4 Amphenol pinouts.
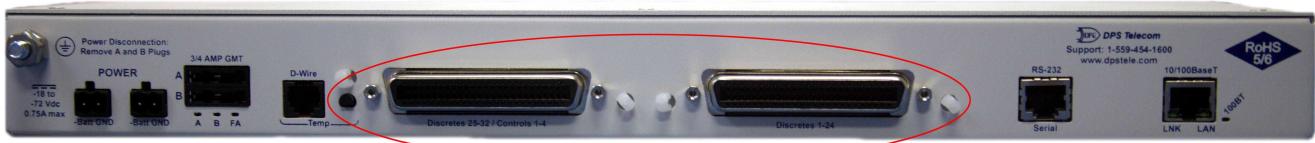
6.4.3 NetGuardian 480 G3 Pinouts

NetGuardian 480 G3 Alarm and Relay Connectors

The connectors for discrete alarms and control relays are the two 50-pin connectors on the NetGuardian 's back panel.

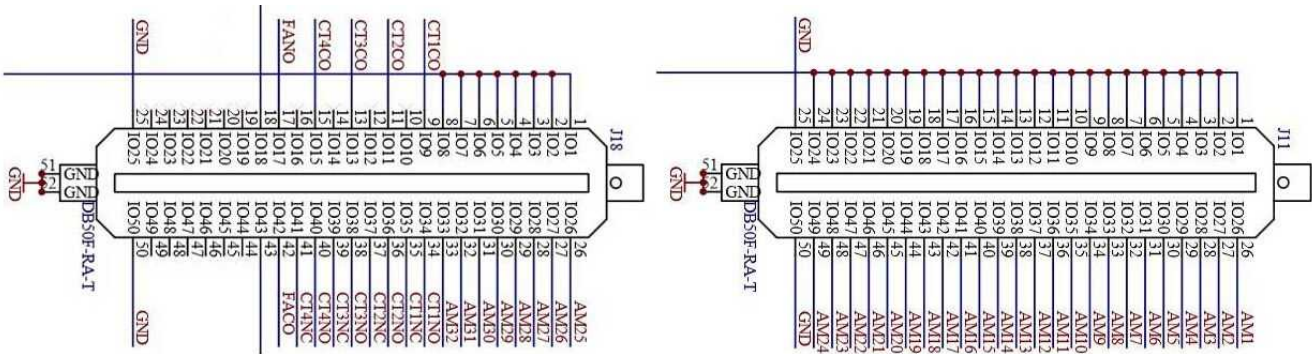*NetGuardian 480 G3 Amphenol pinout.*

6.4.4   NetGuardian 480 G4 Pinouts
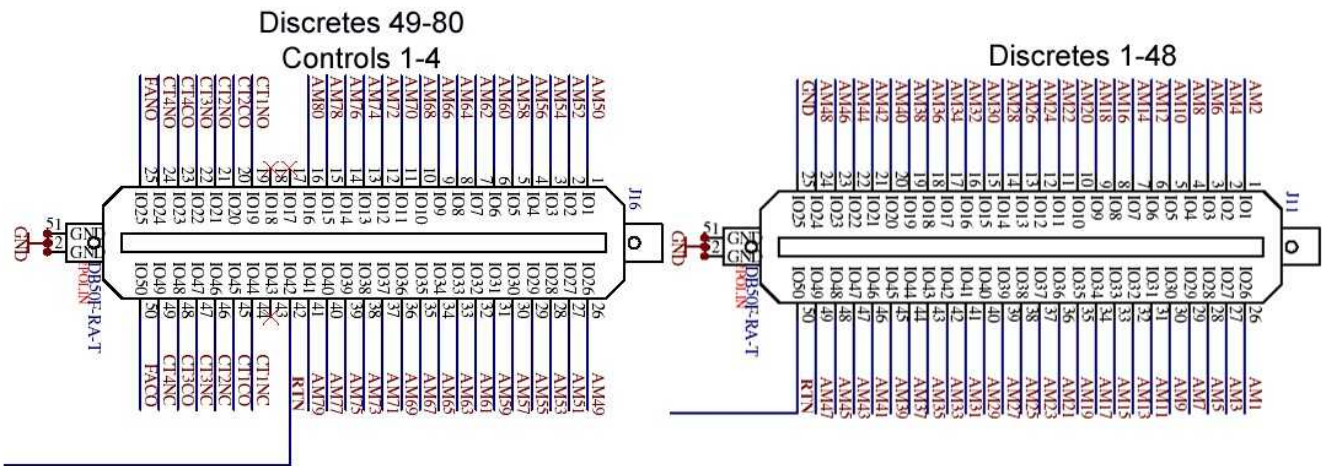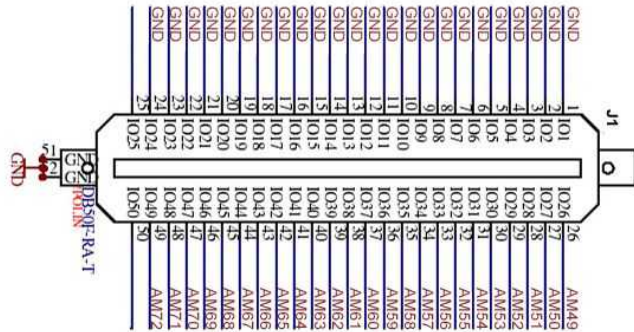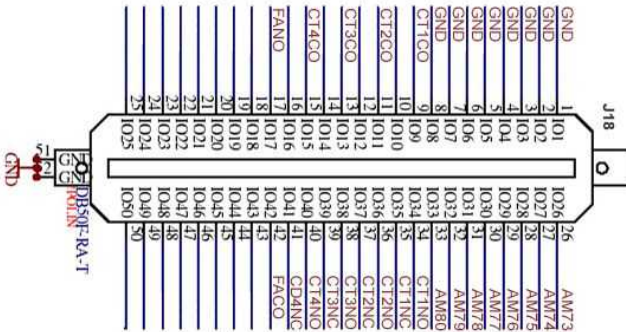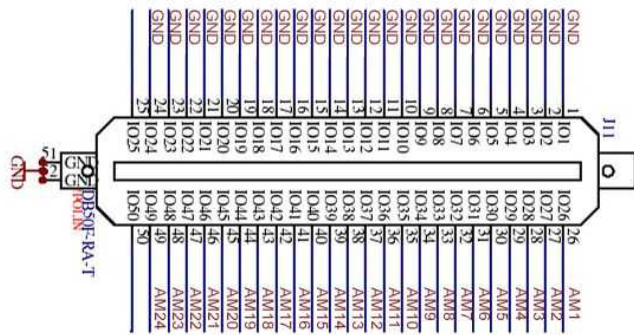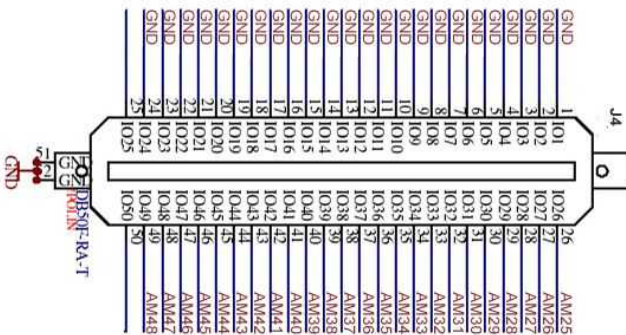

NetGuardian 480 G4 Alarm and Relay Connectors

NetGuardian 480 G4 Amphenol pinouts.
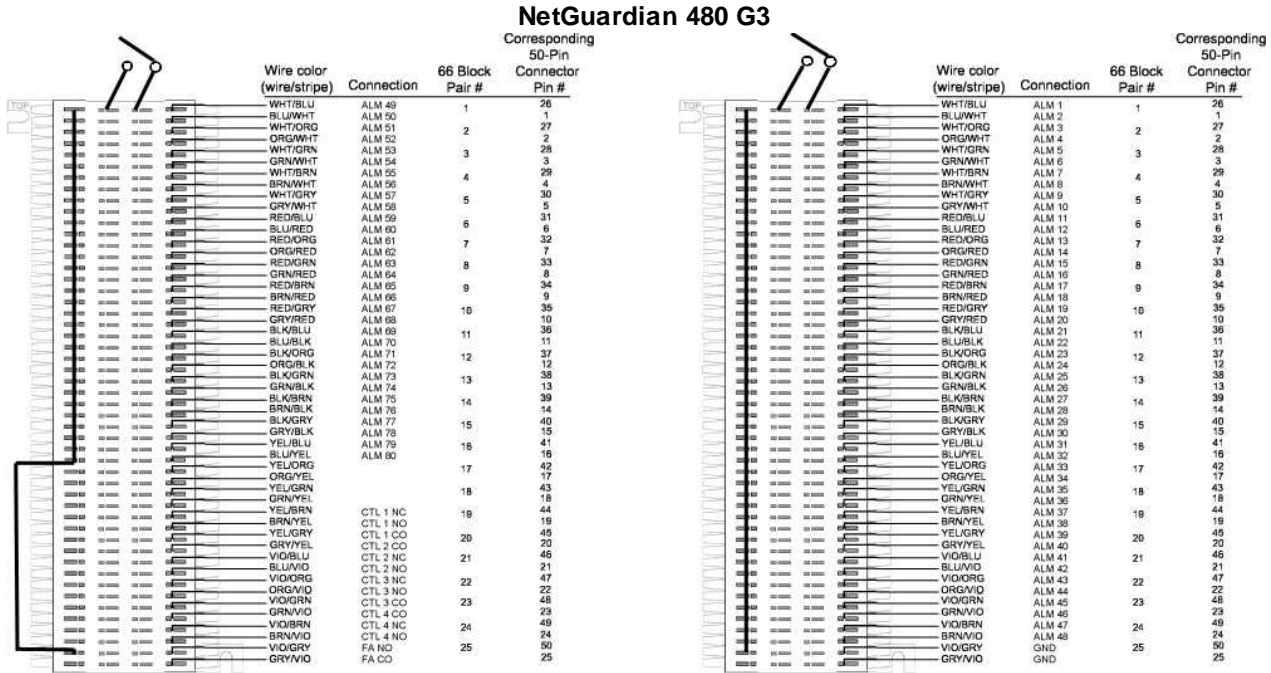
6.5   Discrete Alarms

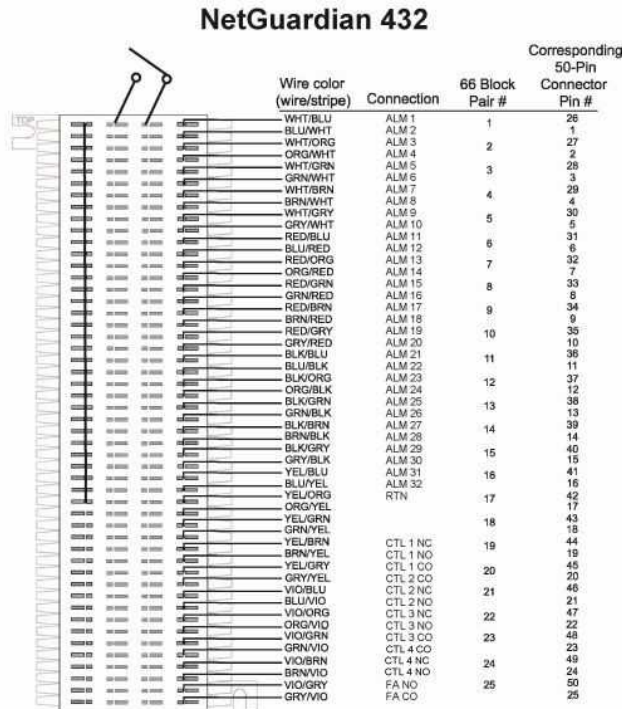To generate an alarm, tie the ALM pin to the RTN pin.

6.6   Optional 66 Block Connector

Both of the 50-pin connectors on the back panel of the NetGuardian can be connected to DPS Telecom's optional 66 block connector. For pinout and color-code information, see the diagrams below.

Note: The 66 Block supports termination of 22 - 26 AWG (0.81 - 0.41mm) solid insulated cable or 18-19 AWG (1.02 - 0.91mm) solid stripped cable. DPS recommends using 24 AWG wire (solid).

NetGuardian 480 G3

Wire color (wire/stripe)	Connection	66 Block Pair #	Corresponding 50-Pin Connector Pin #
WHT/BLU	ALM 49	1	26
BLU/WHT	ALM 50		1
WHT/ORG	ALM 51	2	27
ORG/WHT	ALM 52		2
WHT/GRN	ALM 53	3	28
GRN/WHT	ALM 54		3
WHT/BRN	ALM 55	4	29
BRN/WHT	ALM 56		4
WHT/GRY	ALM 57	5	30
GRY/WHT	ALM 58		5
RED/BLU	ALM 59	6	31
BLU/RED	ALM 60		6
RED/ORG	ALM 61	7	32
ORG/RED	ALM 62		7
RED/GRN	ALM 63	8	33
GRN/RED	ALM 64		8
RED/BRN	ALM 65	9	34
BRN/RED	ALM 66		9
RED/GRY	ALM 67	10	35
GRY/RED	ALM 68		10
BLK/BLU	ALM 69	11	36
BLU/BLK	ALM 70		11
BLK/ORG	ALM 71	12	37
ORG/BLK	ALM 72		12
BLK/GRN	ALM 73	13	38
GRN/BLK	ALM 74		13
BLK/BRN	ALM 75	14	39
BRN/BLK	ALM 76		14
BLK/GRY	ALM 77	15	40
GRY/BLK	ALM 78		15
YEL/BLU	ALM 79	16	41
BLU/YEL	ALM 80		16
YEL/ORG		17	42
ORG/YEL			17
YEL/GRN		18	43
GRN/YEL			18
YEL/BRN	CTL 1 NC	19	44
BRN/YEL	CTL 1 NO		19
YEL/GRY	CTL 1 CO	20	45
GRY/YEL	CTL 2 CO		20
VIO/BLU	CTL 2 NC	21	46
BLU/VIO	CTL 2 NO		21
VIO/ORG	CTL 3 NC	22	47
ORG/VIO	CTL 3 NO		22
VIO/GRN	CTL 3 CO	23	48
GRN/VIO	CTL 4 CO		23
VIO/BRN	CTL 4 NC	24	49
BRN/VIO	CTL 4 NO		24
VIO/GRY	FA NO	25	50
GRY/VIO	FA CO		25

66 block connections for discretes 49-80 and control relays 1-4 (left amphenol)

Wire color (wire/stripe)	Connection	66 Block Pair #	Corresponding 50-Pin Connector Pin #
WHT/BLU	ALM 1	1	26
BLU/WHT	ALM 2		1
WHT/ORG	ALM 3	2	27
ORG/WHT	ALM 4		2
WHT/GRN	ALM 5	3	28
GRN/WHT	ALM 6		3
WHT/BRN	ALM 7	4	29
BRN/WHT	ALM 8		4
WHT/GRY	ALM 9	5	30
GRY/WHT	ALM 10		5
RED/BLU	ALM 11	6	31
BLU/RED	ALM 12		6
RED/ORG	ALM 13	7	32
ORG/RED	ALM 14		7
RED/GRN	ALM 15	8	33
GRN/RED	ALM 16		8
RED/BRN	ALM 17	9	34
BRN/RED	ALM 18		9
RED/GRY	ALM 19	10	35
GRY/RED	ALM 20		10
BLK/BLU	ALM 21	11	36
BLU/BLK	ALM 22		11
BLK/ORG	ALM 23	12	37
ORG/BLK	ALM 24		12
BLK/GRN	ALM 25	13	38
GRN/BLK	ALM 26		13
BLK/BRN	ALM 27	14	39
BRN/BLK	ALM 28		14
BLK/GRY	ALM 29	15	40
GRY/BLK	ALM 30		15
YEL/BLU	ALM 31	16	41
BLU/YEL	ALM 32		16
YEL/ORG	ALM 33	17	42
ORG/YEL	ALM 34		17
YEL/GRN	ALM 35	18	43
GRN/YEL	ALM 36		18
YEL/BRN	ALM 37	19	44
BRN/YEL	ALM 38		19
YEL/GRY	ALM 39	20	45
GRY/YEL	ALM 40		20
VIO/BLU	ALM 41	21	46
BLU/VIO	ALM 42		21
VIO/ORG	ALM 43	22	47
ORG/VIO	ALM 44		22
VIO/GRN	ALM 45	23	48
GRN/VIO	ALM 46		23
VIO/BRN	ALM 47	24	49
BRN/VIO	ALM 48		24
VIO/GRY	GND	25	50
GRY/VIO	GND		25

66 block connections for discretes 1-48 (right amphenol)

NetGuardian 432

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

66 block connections for discretes 1-32 and control relays 1-4

6.7 D-Wire Sensor Input (analogs)

The port on your NetGuardian labeled "**D-Wire**" supports up the connection of up to 16 chained **D-Wire analog sensors**. The NetGuardian powers and communicates with your D-Wire sensors via straight-through RJ-11 cables.

Connecting D-Wire Sensors
Using a **6P4C, straight-through RJ-11 cable**, connect the D-Wire sensor port on the NetGuardian to the **In** jack on a D-Wire sensor. Chain additional sensors to the NetGuardian (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).
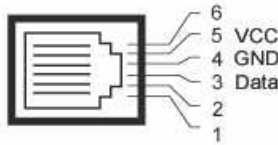
Pinout for D-Wire RJ-11 jacks

Note: Some sensors may consume 2 of your NetGuardian's 16 analog channels (the combined temp/humidity sensor, D-PK-DSNSR-12002, for example). Your NetGuardian can provide power to a sensor chain up to 800 feet long.

The Integrated temperature build option uses one of the maximum 16 sensors that are supported.

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

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

6.7.1 Analog Step Sizes

Analog Step Sizes:
Your Analogs are accurate to within +/- 1% of the analog range.

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

Analog step sizes and accuracy

7   Quick Start: How to Connect to the NetGuardian

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

Alternative option: You can skip the TTY interface by using a LAN crossover cable directly from your PC to the NetGuardian and access its Web Browser. See the "...via LAN" section of this chapter.

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

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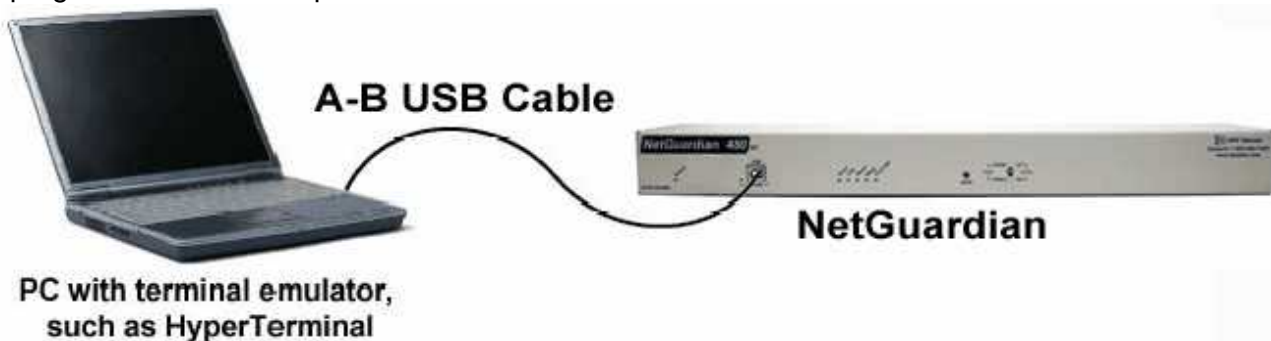
When you first connect the NetGuardian to your PC via USB, a "Found New Hardware" message will appear:

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 >"
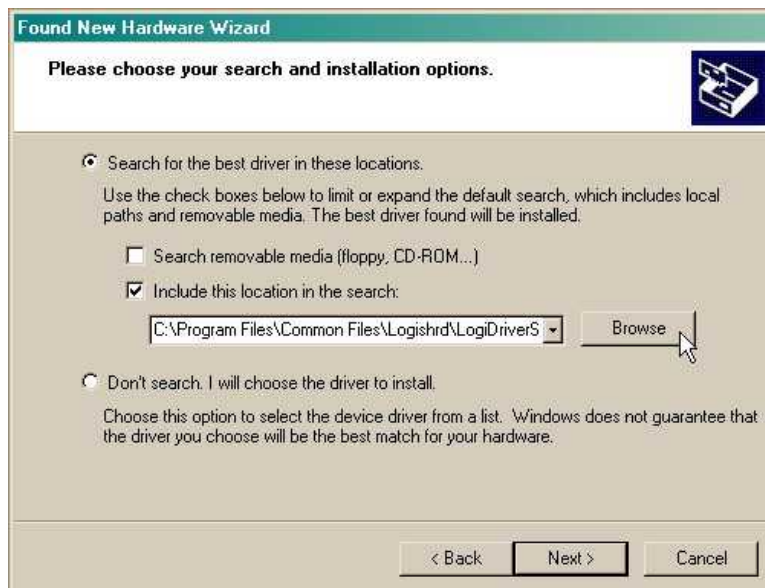
4. Select "Search for the best driver in these locations."
5. Insert NetGuardian Resource Disc (CD) into your PC.

6. Click "Browse"
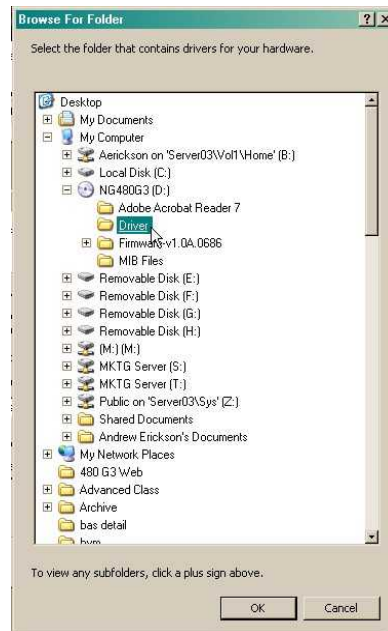
7. Select the "Driver" folder of your NetGuardian Resource Disc (CD) and click "OK"

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.
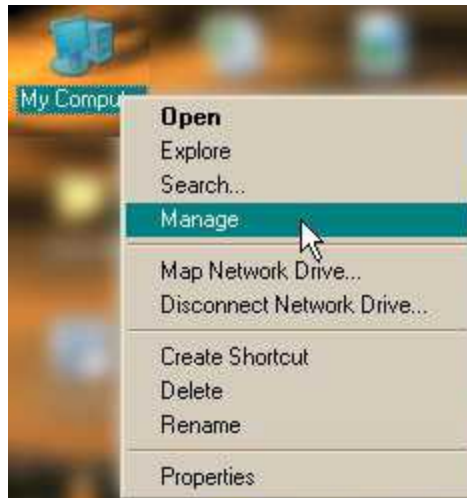
9. Right-click the "My Computer" icon on your desktop, then click "Manage"
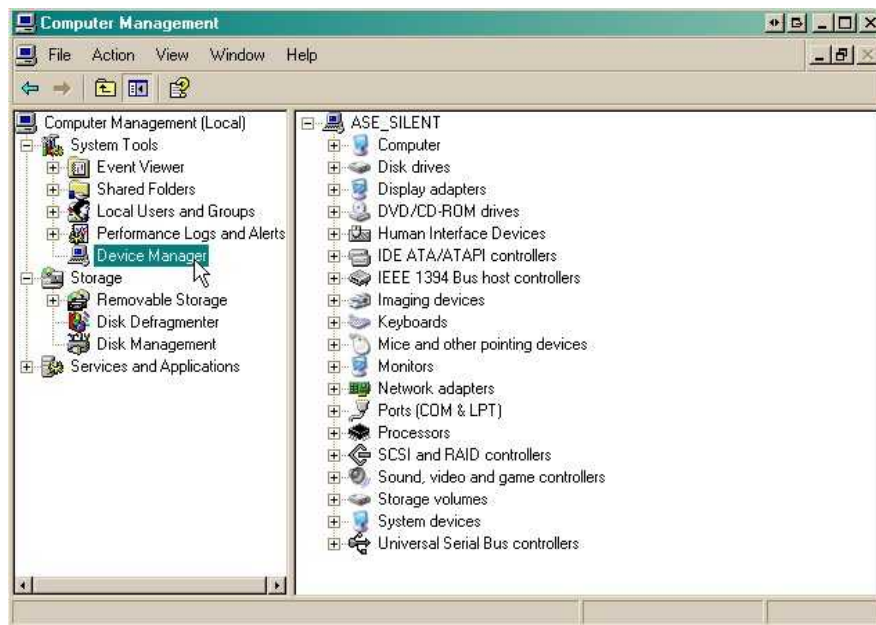
10. Click "Device Manager" in the left pane.
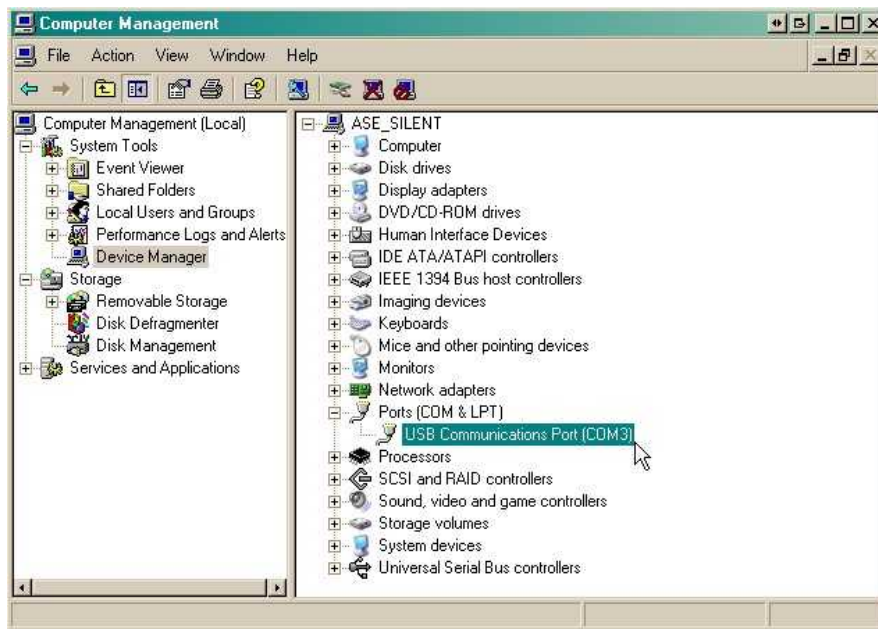
11. Expand the "Ports (COM & LPT)" section in the right pane. Look for "USB Communications Port (COMx)". Note the number of the COM port ("COM3" in the example above).

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 <u>not</u> 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.
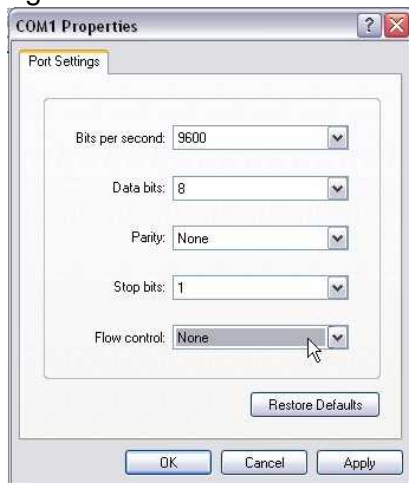
17. The NetGuardian 's main menu will appear. Type C for C)onfig, then E for E)thernet. Configure the unit's IP address, subnet mask, and default gateway.

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

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

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

7.2 ...via LAN
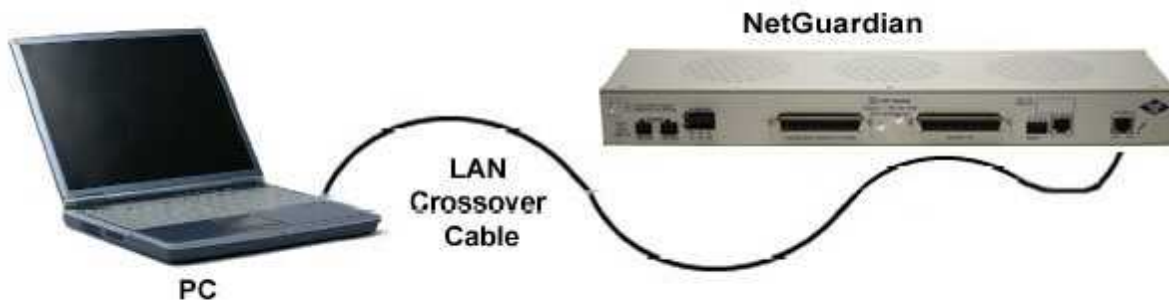
Connection through Ethernet port

To connect to the NetGuardian 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 , 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 's LAN port.
2. Look up your PC's current IP address and subnet mask, and write this information down.
3. Reset your PC's IP address to **192.168.1.200**. Contact your IT department if you are unsure how to do this.
4. Reset your PC's subnet mask to **255.255.0.0**. You may have to reboot your PC to apply your

changes.

5. Once the IP address and subnet mask of your computer coincide with the unit, you can access the NetGuardian 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 with the appropriate information, then **change your computer's IP address and subnet mask back to their original settings.**

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

8   TTY Interface

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

- Edit the IPA, subnet, and gateway
- Configure primary port
- Set unit back to factory defaults

- Set DCP info for T/Mon polling
- Ping other devices on the network
- Debug and troubleshoot

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

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

If you're using Windows 7, then you'll need to install telnet before you can use the TTY interface. To install telnet, open up your command line (type "cmd" into the search bar in the **Start Menu**). Select **cmd.exe** to run the command line.
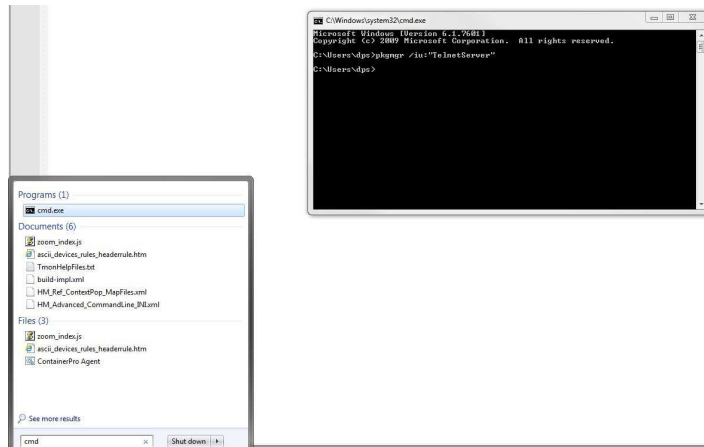
From the command line, type in **pkgmgr /iu:"TelnetClient"** then press **enter**. When the command prompt appears again, the installation is complete.

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

8.1   Configure Serial Port via TTY

1. To enter configuration setting for the Serial Port, login to the TTY interface and press **C)onfig** > **s(E)rial**.

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

3. Set the RTS head / tail (Carrier time) Suggested settings are: 0,0 if using RS232.

9 Quick Turn Up

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

9.1 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 **Edit** for a notification number. In this example, we'll setup Notification 1 to send emails.

Notifications					
Summary					
Id	**Notify On**	**Type**	**Details**		
1	Disabled			Edit	Test
2	Disabled			Edit	Test
3	Disabled			Edit	Test
4	Disabled			Edit	Test
5	Disabled			Edit	Test
6	Disabled			Edit	Test
7	Disabled			Edit	Test
8	Disabled			Edit	Test

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** button and click **Save and Next**.

3. At the **Email Notification** screen, you'll enter your email server settings. Enter the **IP address** or **Host Name** of your email server. **Note:** if using Host Name, make sure that DNS Servers settings are configured. 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**.

4. At the **Schedule** screen, you'll select the exact days/times you want to receive email notifications. You can set two 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.)

5. If you chose to test the email notification you've just setup, you will prompted with a pop up . 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.

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 "Temperature Threshold 1" (Alarm Point 1) occurs. Remember that Notification #1 in the Notifications menu corresponds to the first "Notifications" column of check boxes. (Notification #2 is the second column, and so on until Notification #8)

9.2　How to Send SNMP Traps

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

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 **Edit** for a notification number. In this example, we'll setup Notification 1 to send SNMP traps to your alarm master.

3. 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 **Save and Next**.

4. 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 **Save and Finish.** To try a test notification, click the **Test** button (See next step.)

5. If you chose to test the email notification you've just setup, you will prompted with a pop up . Click **OK** to send a test SNMP alarm notification. Confirm all your settings by checking your alarm master to see if the SNMP trap was received.

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 6 in "How to Send Email Notifications" for more detail.

10 Provisioning Menu Field Descriptions

NetGuardian 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:
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 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!

Status messages on the NetGuardian Device Access menu, inform you how to implement your changes

Device Access
Backup Config
Read
Write
Initialize
Get Log
Purge Log
Reboot

Device Access
Backup Config
Read
Write (required)
Initialize
Get Log
Purge Log
Reboot

The control menu highlights items that must be completed for your changes to take effect

10.1 System

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

The Provisioning > System menu

Global System Settings	
Name	A name for this NetGuardian unit. {Optional field}
Location	The location of this NetGuardian unit. {Optional field}
Contact	Contact telephone number for the person responsible for this NetGuardian unit. {Optional field}
Sound on COS	Checking this box enables Sound on COS when viewing the Alarms, Sensors, Ping Targets, or System Alarms page under the Monitor menu.
DCP Responder Settings *(For use with T/Mon)*	
Disable DCP, DCP over LAN / Serial	Select one of these 3 options to send DCP protocol over LAN, serial, or disable DCP completely.
DCP Unit ID	User-definable ID number for the target unit (DCP Address).
DCP Unit Protocol	Drop-down menu of available protocols for use with DCP Address.
DCP over LAN port	Enter the DCP port for the target unit. (UDP/TCP port)
LAN Protocol	Drop-down menu of available protocols for use over LAN.
Expansions	Select the number of expansion units connected to the NetGuardian.
System Controls	
Get History	Download a log of all configured analog and sensor values.
Get Alarm Log	Download a log of the device's recent alarm history.
Erase History	Erase the log of all configured analog and sensor values.

10.2 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 480's web interface.

Configure access privileges for users in the User Profile screen

To create or edit any of the 10 user profiles (including the Admin), click the **Edit** button. From there, you can change all configurable settings for a user profile.

User Profile	
Suspend this Profile	If this box is checked, the profile will not be able to access the NetGuardian.
Username	Enter a username or a user description
Password	Enter a unique user password **Note:** All passwords are AES 128 encrypted.
Confirm Password	Re-enter the password.
Access Rights	
Check all	Enables all Access Rights
Edit logon profiles	Enables the user to add/modify user profiles and password information.
Write Config (change unit configuration)	Enables the user to change the unit config by accessing the **Write** feature in the control menu.
View monitor pages	Allows the user to access Monitor menu options.
Send relay commands	Allows the user to send commands to operate the device's control relays.
TTY access (access via Craft port or via Telnet)	Grants the user access to the unit via TTY interface (via craft or telnet).
Initialize config to factory defaults	Allows the user to use the **Initialize** option in the **Device Access** menu, resetting the NetGuardian to factory default settings. All user settings will be lost.
Upload new firmware, or config	Allows the user to upload firmware or backed-up configuration files.
Get audit log	Allows the user to access the Audit Log (**Get Log** command).
Purge (delete) audit log	Allows the user to deletes the existing audit log.
Get (backup) config	Backs-up all user profile configuration settings.
Get and delete analog history	Allows the user to access and delete the analog and sensor history.

User profile field descriptions

10.3   Ethernet

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

Ethernet Settings

MAC Address	0:10:81:0:6f:19
Host Name	( )
Enable DHCP	☐
Unit IP	206.169.87.183 (206.169.87.183)
Subnet Mask	255.255.255.240 (255.255.255.240)
Gateway	206.169.87.177 (206.169.87.177)
DNS Server 1	8.8.8.8 (8.8.8.8)
DNS Server 2	4.4.4.4 (4.4.4.4)

Save

The Provisioning > Ethernet menu

Ethernet Settings	
MAC Address	Hardware address of the NetGuardian. (Not editable - For reference only.)
Host Name	Used only for web browsing. Example: If you don't want to remember this NetGuardian's IP address, you can type in a name is this field, such as "MyNetGuardian". Once you save and reboot the unit, you can now browse to it locally by simply typing in "MyNetGuardian" in the address bar. (no "http://" needed).
Enable DHCP	Used to turn on Dynamic Host Connection Protocol. NOT recommended, because the unit is assigned an IP address from your DHCP server. The IP you've already assigned to the unit becomes inactive. Using DHCP means the unit will NOT operate in a T/Mon environment.
Unit IP	IP address of the NetGuardian.
Subnet Mask	A road sign to the NetGuardian, telling it whether your packets should stay on your local network or be forwarded somewhere else on a wide-area network.
Gateway	An important parameter if you are connected to a wide-area network. It tells the NetGuardian which machine is the gateway out of your local network. Set to 255.255.255.255 if not using. Contact your network administrator for this info.
DNS Server 1	Primary IP address of the domain name server. Set to 255.255.255.255 if not using.
DNS Server 2	Secondary IP address of the domain name server. Set to 255.255.255.255 is not using.

Advanced TCP Settings	
Force Max TCP Window Size	The defined TCP window size is used. (For low-bandwidth networks)
Maximum TCP Window Size	Sets the TCP receive window size.

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

10.4 RADIUS

RADIUS (Remote Authentication Dial In User Service) is an industry-standard way to manage logins to many different types of equipment in one central location. The NetGuardian connects to your central RADIUS server. Every time a device receives a login attempt (usually a username & password), it requests an authentication from the RADIUS server. If the username & password combination is found in the server's database, an affirmative "access granted" reply is sent back to the unit device, allowing the user to connect.

Fig. 2.1. *RADIUS configuration screen*

Fig. 2.2. *RADIUS server prompt for Username and Password.*

Global Settings	
Retry	Enter the number of times the RADIUS server should retry a logon attempt
Time-out	Enter in the number of seconds before a logon request is timed out
Servers 1 / 2	
IPA	Enter the IP address of the RADIUS server
Port	Port 1812 is an industry-standard port for using RADIUS
Secret	Enter the RADIUS secret in this field

After successfully entering the settings for the RADIUS server, the NetGuardian Web Browser will prompt users for both a Username and Password, which will be verified using the information and access rights stored in the RADIUS database.

RADIUS logons **are** case-sensitive. If the RADIUS server is unavailable or access is denied, the master password will work for craft port access only. Also, the "dictionary.dps" files (included on the Resource Disk) needs to be loaded on the RADIUS server for access-right definition. If RADIUS is enabled on the NetGuardian, the local authentication will not be valid.

10.5   Serial Port

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

The Provisioning > Serial Ports menu

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

10.6 SNMP

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

SNMP Menu

Global Settings	
Get Community	Community name for SNMP requests.
Set Community	Community name for SNMP SET requests.
Read and Write Access	This field defines how the NetGuardian may be accessed via SNMP. This can be set to the following: • Access Disabled- Restricts all access to unit via SNMP • SNMPv2c only- Allows SNMPv2c access only • SNMPv2c and SNMPv1-Only- Allows SNMPv1 and SNMPv2c access • SNMPv3, SNMPv2c and SNMPv1- Allows SNMPv3, SNMPv2c and SNMPv1 access

Fields in the Provisioning > SNMP settings

10.7 Notifications

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

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

10.7.1 Notification Settings

Email Notification Fields

Editing Email Notification Settings

Email Notification	
SMTP Server IP or Host Name	The IP address of your email server.
Port Number	The port used by your email server to receive emails, usually set to 25.
Use SSL	Check this box to use SSL encryption. Currently this feature has been tested with Gmail. To send with Gmail SMTP server, do the following: • SMTP Server IP or Host Name should be set to "smtp.gmail.com" • Port number must be set to 465. • SMTP authentication radio button must be selected. • User name and password (below under "How to Authenticate") are the user name and password for the Gmail account in use.
"From" E-mail Address	Displays the email address (defined in the Edit menu > System) that the NetGuardian will send emails from. Not editable from this screen.
"To" E-mail Address	The email address of the person responsible for this NetGuardian, who will receive email alarm notifications.
User Name	User name for the Gmail account being used.
Password	Password for the Gmail account being used.

SNMP Notification Fields

Editing SNMP notification settings

SNMP Notification	
SNMP Trap Server IP	The SNMP trap manager's IP address.
Trap Port No.	The SNMP port (UDP port) set by the SNMP trap manager to receive traps, usually set to 162.
Trap Community	Community name for SNMP TRAP requests.
Trap Type	Indicate whether you would like to send SNMP v1, v2c, v2c inform, or v3 traps.

10.7.2 Schedule

The notifications scheduling menu is where you will tell the NetGuardian exactly which days and times you want to receive alarm notifications. You set 2 different schedules for each.

The Schedule creation screen

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

10.8   Alarms

Discrete alarms are configured from the **Provisioning** > **Alarms** and **Provisioning > Exp. Alarms** menus.
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 **Basic** or **Advanced** configuration methods, explained in this section.

Alarms

Id	Description Display Map		Rev.	1	2	3	4	5	6	7	8
1	Temperature Threshold 1	Advanced>>	☑	☑	☐	☐	☐	☐	☐	☐	☐
2	Temperature Threshold 2	Advanced>>	☐	☐	☐	☐	☐	☐	☐	☐	☐
3	Front Door Sensor	Advanced>>	☐	☐	☐	☐	☐	☐	☐	☐	☐
4	Back Door Sensor	Advanced>>	☐	☐	☐	☐	☐	☐	☐	☐	☐

The Provisioning > Alarms menu

Expansion Alarms

Id	Description Display Map		Rev.	1	2	3	4	5	6	7	8
1	Equip Major	Advanced>>	☐	☐	☐	☐	☐	☐	☐	☐	☐
2	Equip Minor	Advanced>>	☐	☐	☐	☐	☐	☐	☐	☐	☐
3	Intrusion	Advanced>>	☐	☐	☐	☐	☐	☐	☐	☐	☐
4	Beacon	Advanced>>	☐	☐	☐	☐	☐	☐	☐	☐	☐
5	Side Light	Advanced>>	☐	☐	☐	☐	☐	☐	☐	☐	☐

The Provisioning > Exp. Alarms menu (NetGuardian 480 only)

Basic Alarm Configuration	
ID	Alarm ID number.
Description	User-definable description for the discrete alarm point.
Rev (Reverse)	Reverse: Check this box to reverse the polarity of the alarm point. Leaving this option un-checked means a normally open contact closure is an alarm. When polarity is reversed, a normally closed alarm point is clear when closed.
Notification Devices	Check which notification device(s), 1 through 8, you want to send alarm notifications for that alarm point.
Advanced Alarm Configuration (Advanced>>)	
On Set	User-definable description (condition) that will appear for the discrete alarm input on Set. Example: "Alarm".
On Clear	User-definable description (condition) that will appear for the discrete alarm input on Clear: "Example: "Alarm Cleared".
Qual. Time (Qualification Time)	The length of time that must pass, without interruption, in order for the condition to be considered an Alarm or a Clear.
Qual. Type (Qualification Type)	Allows you to choose whether you want to apply the Qualification Time to the alarm Set, Clear, or Both.

10.9   Controls

The NetGuardian control relays can be configured in the **Provisioning** > **Controls** and **Provisioning Exp. Controls** menus. You can enter your own description for these relays and designate them to a notification device(s).

The Provisioning > Exp. Controls screen

Basic Controls Configuration	
ID	ID number for the control relay.
Description	User-definable description for the NetGuardian's control relay.
Momentary Time	Control on time (in milliseconds) when you execute the MOM command. Max limit of 600 seconds.
Notification Devices	Check which notification device(s), 1 through 8, you want to send alarm notifications for the control relay.

10.9.1 Derived Controls

The NetGuardian's derived controls can be configured in the **Edit > Controls** screen. Each control can be configured for derived control. Click on Detail to show the derived controls setting. Enter in a derived control equation into the Derived Description field. Click on Parse to issue a parse command. The parse command is a test that will attempt to parse the derived control equation. It will return with a "Parse Successful!" or "Parse FAILED!" message. If "Parse FAILED!" is returned, there is an error in the syntax of the equation.

Configure derive Controls in the Edit menu > Controls screen > Details > Derived Description

_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))

10.9.2 Derived Expansion Controls

Derived expansion controls have the same functionality as derived controls. They are used for the expansion unit such as the NetGuardian E16 DX G2.

Configure derive Controls in Provisioning > Expansion Controls

10.10 Sensors

D-Wire Sensors

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

Also the NetGuardian's first D-Wire sensor used to monitor the internal 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 ± 2°.

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

The Provisioning > Sensors menu

Basic Sensor Configuration	
ID	Sensor ID number.
ROM ID	The ID number found on the sticker of 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. **Green** - The sensor is connected and properly configured. **Yellow** - The sensor is connected but has not yet been configured (fill in your configuration fields and click **Save** to configure the sensor). **Red** - The sensor is not detected and configured (i.e. a previous configured sensor is no longer connected). **Blue** - The sensor is not supported by the NetGuardian. To reconfigure or disable the Sensor ID, simply delete any data in this field and click **Save**. The unit will refresh the sensor ID on that channel.
Description	User-definable description for the sensor channel.
Parse	Checks to see if the **Description** field contains a valid derived equation.
Notification Devices	Check which notification device(s), 1 through 8, you want to send alarm notifications for that alarm point.

Advanced Sensor Configuration (Details>>)	
Record Freq	The amount of time, in minutes (min) or seconds (s), between each recorded sensor value.
Deadband	The amount (in native units) that the channel needs to go above or below a threshold in order to cause an alarm.
Qual Time (Qualification Time)	The length of time that must pass, without interruption, in order for the condition to be considered an Alarm or a Clear.
Qual. Type (Qualification Type)	Allows you to choose whether you want to apply the Qualification Time to the alarm Set, Clear, or Both.
Thresholds	These settings are set 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).
Analog Gauge Type	Select the color-coded gauge that best represents your data. Selecting **None** will disable the analog gauge and only a numerical representation of the value will be displayed under **Monitor** > **Sensors**.

Note: Before plugging in any additional D-Wire Sensors, set up the internal sensor.

Script Sensors
A Script Sensor can be setup by entering a script type in the sensor ID field. The following types are currently supported:

~count - The equation will be evaluated continuously. If the evaluation changes at any point, the sensor's value increases by an increment of 1. This mode can be useful for counting the number of times a discrete input toggles.

Evaluation Sensor; every tenth of a minute (6 seconds).
~evalMt -   The equation is evaluated every 6 seconds and its result becomes the sensor's value.

Evaluation Sensor; every minute.
~evalMn -   The equation is evaluated every 60 seconds and its result becomes the sensor's value.
Interval counter.

Interval Sensor
~intCnt - Sensor value will increment when the associated input's pulse length (high or low) is within a set interval. Example: **D5 V1000>V60000<** means the sensor value will increment when a 1ms to 60ms pulse is detected on Discrete Input 5. This is useful for frequency detection/tracking.

A Script Sensor is configured to evaluate Reverse Polish Notation equations. A data token in an equation can represent a discrete alarm, analog reading, sensor reading, relay status, system alarm status, or a constant value. The format for a token in an equation must be a data type followed by an index (for example: Discrete Input 1 in an equation would be represented as "d1", Analog Channel 3 would be "a3", etc.). Each token is typically followed by another token or an operator. The equations are entered in the description field for the Script Sensor.

Valid data types:	
d	Discrete Input
a	Analog Channel
r	Relay State
n	Sensor
v	Positive Integer Constant
s	System Alarm

Valid operations:	
+	Addition
-	Subtraction
*****	Multiplication
/	Division[1]
>	Greater than
<	Less than
|	Conditional Halt[2]

1. Division is NOT executed if the denominator's absolute value is less than 1!

2. An equation is evaluated until it reaches the Conditional Halt. If the running value at that point is zero, then the evaluation stops, otherwise the evaluation continues as a new equation.

How equations are evaluated:

Calculations are performed from left-to-right until the end of the equation is reached. As the equation is parsed, each token's value is pushed onto a stack until an operator is found. When an operator is found, the previous 2 values are popped from the stack and are used to perform the operation (the first item popped is the SECOND operand). The result of the operation is then pushed onto the stack. This repeats until the end of the equation is reached. An equation is valid only if there is exactly ONE item left in the stack when the end of the equation is reached.

Example of how an equation is evaluated:

Equation: a8 a5 a6 + * a4 -

Input	Operation	Stack	Comment
a8	Push value	a8	
a5	Push value	a5 a8	
a6	Push value	a6 a5 a8	
+	Add	(a5+a6) a8	Pop a6 and a5, add them, push result to stack
*****	Multiply	a8*(a5+a6)	Pop (a5+a6) and a8, multiply them, push result to stack
a4	Push value	a4 a8*(a5+a6)	
-	Subtract	a8*(a5+a6) - a4	Pop a4 and a8*(a5+a6), subtract them, push result to stack

In this example, after the subtraction there is only ONE item left in the stack (which is the result of all of the previous computations), making this a valid equation.

10.11 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

Id	Enab	Description Display Map	Server (IP or Hostname)	1	2	3	4	5	6	7	8
1	☐	Cisco Router	126.102.218.3	☐	☐	☐	☐	☐	☐	☐	☐
2	☐	Ethernet Switch 1	126.102.218.24	☐	☐	☐	☐	☐	☐	☐	☐
3	☐	Ethernet Switch 2	126.102.218.12	☐	☐	☐	☐	☐	☐	☐	☐
4	☐	Ethernet Switch 2	126.102.218.14	☐	☐	☐	☐	☐	☐	☐	☐
5	☐	Router 2	126.102.218.67	☐	☐	☐	☐	☐	☐	☐	☐
6	☐	Media Converter	126.102.218.29	☐	☐	☐	☐	☐	☐	☐	☐
7	☐	Microwave Transmitter	126.102.218.90	☐	☐	☐	☐	☐	☐	☐	☐
8	☐	Cisco 15454	126.102.218.43	☐	☐	☐	☐	☐	☐	☐	☐
9	☐	Calix	126.102.218.31	☐	☐	☐	☐	☐	☐	☐	☐
10	☐	Modem	126.102.218.7	☐	☐	☐	☐	☐	☐	☐	☐
11	☐	PBX	126.102.218.15	☐	☐	☐	☐	☐	☐	☐	☐
12	☐	Proxy Server	126.102.218.39	☐	☐	☐	☐	☐	☐	☐	☐

The Provisioning > Ping Targets menu

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

10.12 Modbus Devices

Modbus Interrogator Global Settings

Modbus Poll Delay	600	ms (10 - 16000)
Modbus Poll Timeout	10	sec (1 - 255)
Send Notification on every register update	☐ Readme	

Device Settings Display Map

Id	Device Type	Description	
1	Modbus RTU ▼	Generac	Details>>
2	Modbus RTU ▼	PC	Details>>
3	Modbus RTU ▼	other	Details<<

Connection: TCP ▼

IP Address: 0.0.0.0

Port: 000

Modbus address: 1

Device Register Offset: 0

Threshold Mode: Idle/Running Thresholds: Status Register ▼

This modbus device will use a status register to determine whether the device is idle or running.
- It is recommended to set a qualification time of at least 1 minute when using this feature.
  This will ensure that the status register will be polled at least once before using new thresholds.

Device will use Device Idle Thresholds ▼ **when the status register does not match any conditions.**

Status Register: 2

	Enable	Match Type	Value
Running when:	☑	Value Equals ▼	5.00
or	☐	Value Equals ▼	0.00

| 4 | None ▼ | | Details>> |

[Save]

The Provisioning > Modbus Devices

Global Settings	
Modbus Poll Delay	Delay between Modbus polls in milliseconds.
Modbus Poll Timeout	Time duration before the Modbus repsonse time fails in seconds.
Send Notification of every register update	This option is used to send a notification whenever a Modbus register is polled. If the poll delay is too low this may cause some notifications to be lost.
Device Settings	
ID	Modbus device ID.
Device Type	Modbus device type.
Connection	TCP or Serial connection.
Host Name or IP	IP used for polling when using TCP Modbus. Unused otherwise.
TCP Port or Serial Port	TCP or physical serial port used when performing Modbus polling.
Modbus Address	Address of Modbus device.
Device Register Offset	Amount to offset "Modbus Address" by.

Threshold Mode	This will configure different threshold values based on Modbus register values. Threshold mode options:
	     1) "standard thresholds" - default threshold setting. Only one value of thresholds will be used
	     2) "Idle/Running Thresholds: Status Register" - device idle thresholds will be triggered based on the value of a status register.
	     3) "Idle/Running Thresholds: Point Reference" - device idle thresholds will be triggered based on the value of a point reference.

10.13 Modbus Registers

Id	Modbus Device	Description Display Map	1	2	3	4	5	6	7	8
Page	Read ▼	Expand Details>> Collapse Details<<	☐	☐	☐	☐	☐	☐	☐	☐
1	Disabled ▼	current total engine hours Details<<	☐	☐	☐	☐	☐	☐	☐	☐

Function Code:
FC03 ▼

Recording Settings:
Stable Frequency: 1sec

Event Qualification:
Qual. Time: 1sec
Qual. Type: OnSet ▼

Register Attributes:
Reference Number: 304
Number of Bits: 32
Integer ⦿ Floating Point ○
Unsigned ○ Signed ⦿
Byte Order: ABCD ▼
Scaling: 1.00000
Units: Hrs

Thresholds:
MjU: 0.00
MnU: 0.00
MnO: 1000000.00
MjO: 2000000.00
Deadband: 1

The Provisioning > Modbus Registers

Basic Configuration	
ID	Modbus register ID
Modbus Device	Modbus device settings used when polling.
Description	User0definable description for the Modbus register.
Notifications	Check which notification device(s), 1 through 8, you want to send alarm notifications for that Modbus register.
Details	
Function Code	
Modbus function code to use when polling device	
Event Qualification	
Qual. Time - Threshold must be crossede for this length of time before alarms is triggered. (set to 0 to deactivate)	
Qual. Type - Determines which actions Qual Time applies to.	
Recording Settings	
Stable Frequency	Frequency used when logging response history.
Register Attributes	
Register Number	Register to be polled.
Number of Bits	Number of bits used to mask the response value.
Integer/Float	Interpret response value as an integer for a float.
Unsigned/Signed	Interpret the response value as signed or unsigned.
Byte Order	Byte ordering of response from Modbus device.
Scaling	Scaling factor that the response value is multiplied by.
Units	Units displayed with the response value.
Thresholds	
MjU (Major Under) MnU (Minor Under) MnO (Minor Over) MjO (Major Over)	Threshold settings that, when crossed, will prompt the NetGuardian to set an alarm. Recorded values less than an under value or greater than an over value will cause alarms. NOTE: If the user has one of the Idle/Running threshold modes selected in Device settings then there will be two sets of thresholds displayed here. If Standard Thresholds is selected there will only be one.
Deadband	The additional qualifying calue the NetGuardian requires above/below your alarm thresholds in order to set an alarm.

10.14 System Alarms

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

The Provisioning > System Alarms menu

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

10.15 Timers

Enter the amount of time in seconds (sec) or minutes (m), in each value field and click **Save**.

The Provisioning > Timers menu

10.16 Date and Time

The Provisioning > Date and Time menu

Unit Time	
Date	Set today's date.
Time	Set the current time.
Automatic Time Adjustment (NTP)	
Enable NTP	Check this box to enable Network Time Protocol.
NTP Server Address or Host Name	Enter the NTP server's IP address or host name, then click **Sync**. Example: us.pool.ntp.org. **Note**: Make sure to configure DNS before using host name instead of IP address.
Time Zone	Select your time zone from the drop-down menu.
Adjust Clock for Daylight Savings Time (DST)	
Enable DST	Check this box to have the NetGuardian 480 observe Daylight Savings.
Start Day	Select the month, weekday, and time when Daylight Savings will begin.
End Day	Select the month, weekday, and time when Daylight Savings will end.

11 Monitoring via the Web Browser

11.1 Alarms

This selection provides the status of the base and expansion 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.

Expansion Alarms

Id	Description Display Map	State
1	Equip Major	Clear
2	Equip Minor	Clear
3	Intrusion	Clear
4	Beacon	Clear
5	Side Light	Clear
6	Fire	Clear
7		Clear
8		Clear

Click on Alarms or Exp. Alarms in the Monitor menu to see if any discrete alarms have been triggered.

Expansion Alarm Monitoring	
ID	Alarm ID number.
Description	User-definable description for the discrete alarm point.
State	The current state of the alarm. (Clear or Alarm)

11.2   Controls

Use the following rules to operate the NetGuardian's control:
1.   Select **Controls** (or **Exp. 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)

Expansion Controls

Id	Description Display Map	State	Command
1	Start Generator	Released	OPR RLS MOM
2		Released	OPR RLS MOM
3		Released	OPR RLS MOM

View and operate control relays from the Monitor > Exp. Controls menu

Expansion Control Relay Operation	
ID	ID number for the control relay.
Description	Description for the NetGuardian's control relay defined in the Provisioning > Controls menu.
State	Status of the control relay. Can either be **Released** or **Latched**.
Command	**OPR** - Latch the relay. **RLS** - Release the relay. **MOM** - Momentarily latch the relay, then automatically release the relay. The duration of the latch is defined in the Provisioning > Controls menu.

11.3   Sensors

This selection provides the status of the system's analog channels by indicating if an alarm has been triggered. The **Monitor** > **Sensors** 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. If configured under **Provisioning** > **Sensors**, your analog values will be displayed as a graphical gauge. Selecting **Table View** will display a non-graphical interface of your values.

The Monitor > Sensors menu

11.4   Ping Targets

Ping Targets can be viewed by going to **Monitor** > **Ping Targets**. Here you can view the state (either **Clear** or **Alarm**) for each of your configured Ping Targets.

Id	Description Display Map	State
1	Cisco Router	Clear
2	Ethernet Switch 1	Clear
3	Ethernet Switch 2	Clear
4	Ethernet Switch 2	Clear
5	Router 2	Clear
6	Media Converter	Clear
7	Microwave Transmitter	Clear
8	Cisco 15454	Clear
9	Calix	Clear
10	Modem	Clear
11	PBX	Clear
12	Proxy Server	Clear

View the status of Ping Targets from the Monitor > Ping Targets menu.

11.5 System Alarms

System alarms are not-editable, housekeeping alarms that are programmed into NetGuardian. 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.

View the status of System Alarms from the Monitor > System Alarms menu.

Monitor > Alarm History menu

11.6   Graph

The Graph section of the monitor menu lets you build a graph of past sensor measurements, which gives you a visual indication of data over time and points out trending values. To create your Graph, specify the Channel (Sensors 1-32), Group Interval (1-120 minutes, hours, days, or weeks), the Group Function (Average, Min, Max), and Start & End Times. Once you have entered all of the desired values, click "Build Graph."

Provision the Channels, Group Interval, Group Function and more - all from the Graph Parameters section of the web browser interface.

Your graph will appear on the next screen. This graph is Adobe Flash-based and allows you to mouse over the lines to quickly view measurements (date, time, and value) within their context of the overall graphing trend. Below the graph is a full textual list of all indexed points with their dates and values.
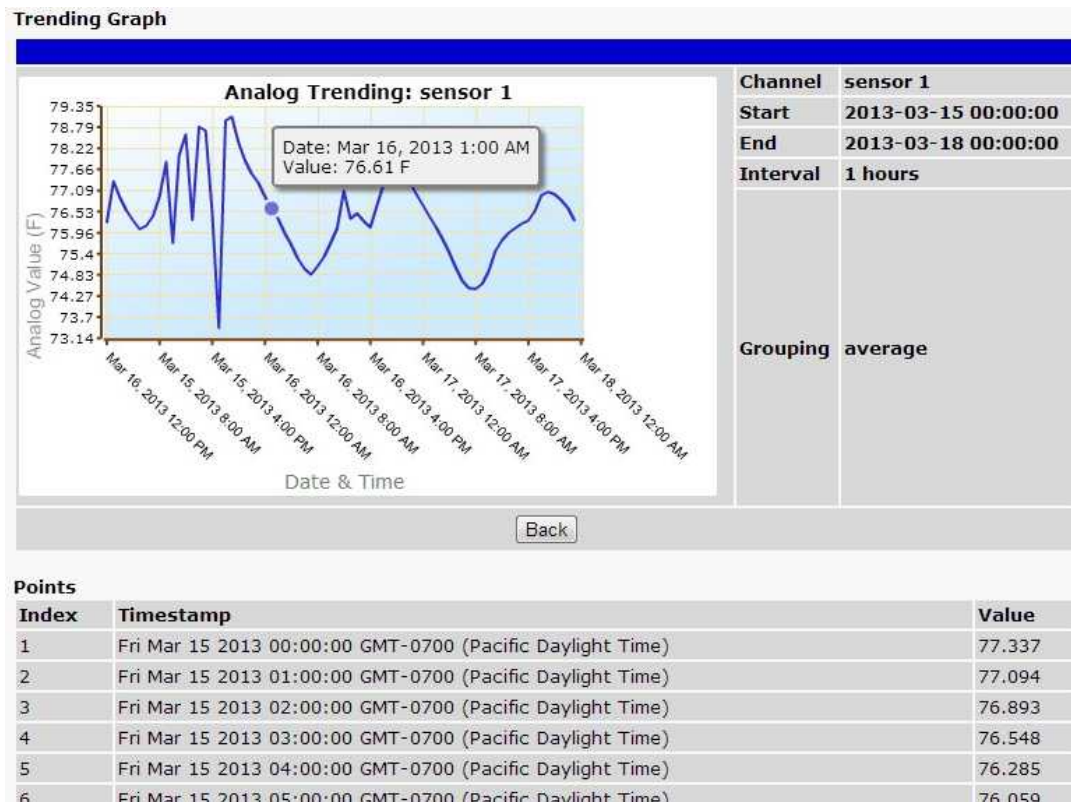
Specify your parameter values and build an interactive graph based on the alarm point history.

12 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's firmware, and rebooting the unit. Click any of the options under **Device Access** to perform the desired action.

The control menu is located in the bottom left of the web interface

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

13 Firmware Upgrade

To access the **Firmware Load** screen, click on the **Upload** link in the top right corner.

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

Browse for downloaded firmware upgrade

14 Reference Section

14.1 Front and Back Panel LEDs

Front panel LEDs

LED	Status	Description
Status	Blinking Green	NetGuardian application running
	Blinking Red	Boot Loader is running
Craft	Flashing Green	NG data transmit over craft port
	Flashing Red	NG data receive over craft port
Serial	Blinking Green	Back-panel serial port transmit
	Blinking Red	Back-panel serial port receive
LAN	Blinking Green	LAN activity
Alarm	Flashing Red	New alarm
	Solid Red	Standing alarm acknowledged
Relay	Solid Green	1 or more control relays latched
Tune 202	Solid Green	NG is in 202 modem Tuning Mode

Front Panel LED Descriptions

Back panel LEDs

LED	Status	Description
A	Solid Green	Power supply A OK
	Off	No voltage or +24V and GND leads reversed on Power supply A
B	Solid Green	Power supply B OK
	Off	No voltage or +24V and GND leads reversed on Power supply B
FA	Solid Red	Blown Fuse
LNK	Solid Green	LAN connected
LAN	Blinking Yellow	LAN Activity
100BT	Solid Green	LAN connection speed is 100BaseT
	Off	LAN connection speed is 10BaseT

Back Panel LED Descriptions

14.2 Display Mapping

Display	Description	Port	Address	Point
Display 1	Discrete Alarms	99	1	1-32
	Discrete Alarms for NetGuardian 480 G3/G4 Only	99	1	33-64
Display 2	Discrete Alarms 65-80 for NetGuardian 480 G3/G4 Only	99	1	1-16
	Controls 1-4	99	1	17-20
	System Alarms	99	1	33-45
	System Alarms	99	1	46-64
Display 3	Ping Targets	99	1	1-64
Display 4	Digital Temp Sensor 1 Minor Under	99	1	1
	Digital Temp Sensor 1 Minor Over	99	1	2
	Digital Temp Sensor 1 Major Under	99	1	3
	Digital Temp Sensor 1 Major Over	99	1	4
	Digital Temp Sensor 1 - Sensor not detected	99	1	5
	Control	99	1	9-16
	Value*	99	1	17-32
Display 5	Digital Temp Sensor 2 Minor Under	99	1	1
	Digital Temp Sensor 2 Minor Over	99	1	2
	Digital Temp Sensor 2 Major Under	99	1	3
	Digital Temp Sensor 2 Major Over	99	1	4
	Digital Temp Sensor 2 - Sensor not detected	99	1	5
	Control	99	1	9-16
	Value*	99	1	17-32
Display 6	Digital Temp Sensor 3 Minor Under	99	1	1
	Digital Temp Sensor 3 Minor Over	99	1	2
	Digital Temp Sensor 3 Major Under	99	1	3
	Digital Temp Sensor 3 Major Over	99	1	4
	Digital Temp Sensor 3 - Sensor not detected	99	1	5
	Control	99	1	9-16
	Value*	99	1	17-32
Display 7	Digital Temp Sensor 4 Minor Under	99	1	1
	Digital Temp Sensor 4 Minor Over	99	1	2
	Digital Temp Sensor 4 Major Under	99	1	3
	Digital Temp Sensor 4 Major Over	99	1	4
	Digital Temp Sensor 4 - Sensor not detected	99	1	5
	Control	99	1	9-16
	Value*	99	1	17-32
Display 8	Digital Temp Sensor 5 Minor Under	99	1	1
	Digital Temp Sensor 5 Minor Over	99	1	2
	Digital Temp Sensor 5 Major Under	99	1	3
	Digital Temp Sensor 5 Major Over	99	1	4
	Digital Temp Sensor 5 - Sensor not detected	99	1	5
	Control	99	1	9-16
	Value*	99	1	17-32
Display 9	Digital Temp Sensor 6 Minor Under	99	1	1
	Digital Temp Sensor 6 Minor Over	99	1	2
	Digital Temp Sensor 6 Major Under	99	1	3
	Digital Temp Sensor 6 Major Over	99	1	4
	Digital Temp Sensor 6 - Sensor not detected	99	1	5
	Control	99	1	9-16
	Value*	99	1	17-32
Display	Description	Port	Address	Point

Display 10	Digital Temp Sensor 7 Minor Under	99	1	1
	Digital Temp Sensor 7 Minor Over	99	1	2
	Digital Temp Sensor 7 Major Under	99	1	3
	Digital Temp Sensor 7 Major Over	99	1	4
	Digital Temp Sensor 7 - Sensor not detected	99	1	5
	Control	99	1	9-16
	Value*	99	1	17-32
Display 11	Digital Temp Sensor 8 Minor Under	99	1	1
	Digital Temp Sensor 8 Minor Over	99	1	2
	Digital Temp Sensor 8 Major Under	99	1	3
	Digital Temp Sensor 8 Major Over	99	1	4
	Digital Temp Sensor 8 - Sensor not detected	99	1	5
	Control	99	1	9-16
	Value*	99	1	17-32
Display 12	Digital Temp Sensor 9 Minor Under	99	1	1
	Digital Temp Sensor 9 Minor Over	99	1	2
	Digital Temp Sensor 9 Major Under	99	1	3
	Digital Temp Sensor 9 Major Over	99	1	4
	Digital Temp Sensor 9 - Sensor not detected	99	1	5
	Control	99	1	9-16
	Value*	99	1	17-32
Display 13	Digital Temp Sensor 10 Minor Under	99	1	1
	Digital Temp Sensor 10 Minor Over	99	1	2
	Digital Temp Sensor 10 Major Under	99	1	3
	Digital Temp Sensor 10 Major Over	99	1	4
	Digital Temp Sensor 10 - Sensor not detected	99	1	5
	Control	99	1	9-16
	Value*	99	1	17-32
Display 14	Digital Temp Sensor 11 Minor Under	99	1	1
	Digital Temp Sensor 11 Minor Over	99	1	2
	Digital Temp Sensor 11 Major Under	99	1	3
	Digital Temp Sensor 11 Major Over	99	1	4
	Digital Temp Sensor 11 - Sensor not detected	99	1	5
	Control	99	1	9-16
	Value*	99	1	17-32
Display 15	Digital Temp Sensor 12 Minor Under	99	1	1
	Digital Temp Sensor 12 Minor Over	99	1	2
	Digital Temp Sensor 12 Major Under	99	1	3
	Digital Temp Sensor 12 Major Over	99	1	4
	Digital Temp Sensor 12 - Sensor not detected	99	1	5
	Control	99	1	9-16
	Value*	99	1	17-32

Note: "Digital Temp Sensor Value" must be multiplied by the appropriate VBIT from table 14.2 in order to create a displayable Value*.*

Display Mapping

Display	Description	Port	Address	Point
Display 16	Digital Temp Sensor 13 Minor Under	99	1	1
	Digital Temp Sensor 13 Minor Over	99	1	2
	Digital Temp Sensor 13 Major Under	99	1	3
	Digital Temp Sensor 13 Major Over	99	1	4
	Digital Temp Sensor 13 - Sensor not detected	99	1	5
	Control	99	1	9-16
	Value*	99	1	17-32
Display 17	Digital Temp Sensor 14 Minor Under	99	1	1
	Digital Temp Sensor 14 Minor Over	99	1	2
	Digital Temp Sensor 14 Major Under	99	1	3
	Digital Temp Sensor 14 Major Over	99	1	4
	Digital Temp Sensor 14 - Sensor not detected	99	1	5
	Control	99	1	9-16
	Value*	99	1	17-32
Display 18	Digital Temp Sensor 15 Minor Under	99	1	1
	Digital Temp Sensor 15 Minor Over	99	1	2
	Digital Temp Sensor 15 Major Under	99	1	3
	Digital Temp Sensor 15 Major Over	99	1	4
	Digital Temp Sensor 15 - Sensor not detected	99	1	5
	Control	99	1	9-16
	Value*	99	1	17-32
Display 19	Digital Temp Sensor 16 Minor Under	99	1	1
	Digital Temp Sensor 16 Minor Over	99	1	2
	Digital Temp Sensor 16 Major Under	99	1	3
	Digital Temp Sensor 16 Major Over	99	1	4
	Digital Temp Sensor 16 - Sensor not detected	99	1	5
	Control	99	1	9-16
	Value*	99	1	17-32
Display 20	Expansion 1 Alarms 1-64	99	1	1-64
Display 21	Expansion 1 Controls 1-16	99	1	1-16
	Undefined	99	1	17-64

Note: "Digital Temp Sensor Value" must be multiplied by the appropriate VBIT from table 14.2 in order to create a displayable Value*.*
Display Mapping

14.3 System Alarms

Display	Points	Alarm Point	Description	Solution
2	33	Unit reset	Unit has rebooted.	If unintentional, call DPS Tech Support: (559) 454-1600.
	34	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.
	35	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.
	36	Serial 1 RcvQ full	Serial port 1 (or appropriate serial port number) receiver filled with 8 K of data (4	Check proxy connection. The serial port data may not be getting collected as

Display	Points	Alarm Point	Description	Solution
			K if BAC active)	expected.
	37	Dynamic memory full	Not expected to occur.	Call DPS Tech Support (559) 454-1600
	38	Notification 1 failed	A notification 1 event, such as a page or email, was unsuccessful.	Use RPT filter debug to help diagnose notification problems.
	39	Notification 2 failed	A notification 2 event, such as a page or email, was unsuccessful.	Use RPT filter debug to help diagnose notification problems.
	40	Notification 3 failed	A notification 3 event, such as a page or email, was unsuccessful.	Use RPT filter debug to help diagnose notification problems.
	41	Notification 4 failed	A notification 4 event, such as a page or email, was unsuccessful.	Use RPT filter debug to help diagnose notification problems.
	42	Notification 5 failed	A notification 5 event, such as a page or email, was unsuccessful.	Use RPT filter debug to help diagnose notification problems.
	43	Notification 6 failed	A notification 6 event, such as a page or email, was unsuccessful.	Use RPT filter debug to help diagnose notification problems.
	44	Notification 7 failed	A notification 7 event, such as a page or email, was unsuccessful.	Use RPT filter debug to help diagnose notification problems.
	45	Notification 8 failed	A notification 8 event, such as a page or email, was unsuccessful.	Use RPT filter debug to help diagnose notification problems.
	51	Expansion 1 Failed	Expansion shelf 1 communication link failure.	Verify the number of configured NGDdx units. Use EXP filter debug and port LEDs to help diagnose the problem. Verify the addressing on the NGDdx unit.
	57	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.
	58	Dip Switch Config	Reserved for future use to enable backwards compatibility with the NetGuardian G2.	
	59	MAC Address Not Set	The MAC Address is not set	Call DPS Tech Support - (559) - 454-1600
	60	IP Address Not Set	The IP Address is not set	See Section "Quick Start: How to Connect to the NetGuardian via Craft Port." If not using the NetGuardian over LAN, set the IP address to 255.255.255.255
	61	LAN hardware error	The unit does not have a solid LAN link to the hub, switch, or router	If connecting to a hub, you might require a LAN crossover cable
	62	SNMP processing error	SNMP trap address is not defined and an SNMP trap event occurred..	Check proxy connection. The serial port data may not be getting collected as expected.
	63	SNMP community error	Community string does not match your SNMP master's community string.	Verify both community strings to make sure they match.
	64	LAN TX packet drop	An error occurred transmitting data over LAN.	Verify that you can ping both devices.

System Alarms

14.4   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. The table below 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 1.3.6.1.4.1.2682.1.2. Each level beyond dpsRTU adds another object identifying number. For example, the object identifier of the Display portion of the Control Grid is 1.3.6.1.4.1.2682.1.2.3.3 because the object identifier of dpsRTU is 1.3.6.1.4.1.2682.1.4 + the Control Grid (.3) + the Display (.3).
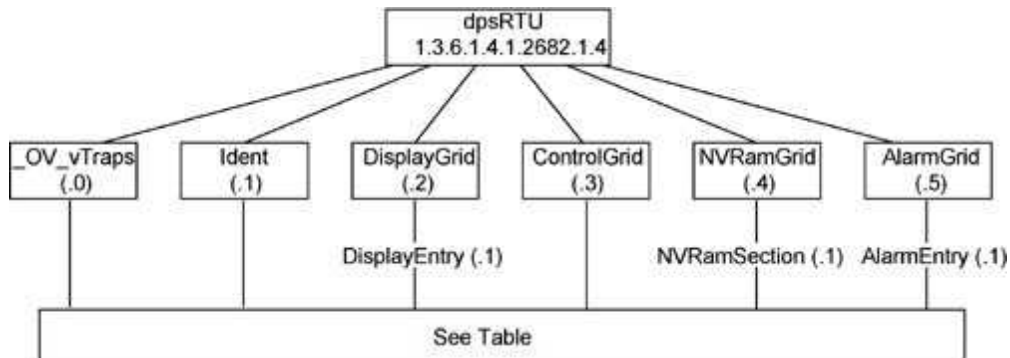
Tbl. B1 (O.)_OV_Traps points
_OV_vTraps (1.3.6.1.4.1.2682.1.2.0)
PointSet (.20)
PointClr (.21)
SumPSet (.101)
SumPClr (.102)
ComFailed (.103)
ComRestored (.014)
P0001Set (.10001) through P0064Set (.10064)
P0001Clr (.20001) through P0064Clr (.20064)

Tbl. B2 (.1) Identity points
Ident (1.3.6.1.4.1.2682.1.2.1)
Manufacturer (.1)
Model (.2)
Firmware Version (.3)
DateTime (.4)
ResyncReq (.5)*
* Must be set to "1" to perform the resync request which will resend TRAPs for any standing alarm.

Tbl. B3 (.2) DisplayGrid points
DisplayEntry (1.3.6.1.4.1.2682.1.2.2.1)
Port (.1)
Address (.2)
Display (.3)
DispDesc (.4)*
PntMap (.5)*

Tbl. B3 (.3) ControlGrid points
ControlGrid (1.3.6.1.4.1.2682.1.2.3)
Port (.1)
Address (.2)
Display (.3)
Point (.4)
Action (.5)

Tbl. B6 (.6) Analog Channels
Channel Entry (1.3.6.1.4.1.2682.1.4.6.1)
Channel Number (.1)
Enabled (.2)
Description (.3)
Value (.4)
Thresholds (.5)*
*If Mj, Mn is assumed

Tbl. B5 (.5) AlarmEntry points
AlarmEntry (1.3.6.4.1.2682.1.2.5.1)
Aport (.1)
AAddress (.2)
ADisplay (.3)
APoint (.4)
APntDesc (.5)*
AState (.6)
* For specific alarm points, see Table B6

14.5 SNMP Granular Trap Packets

The tables below provide a list of the information contained in the SNMP Trap packets sent by the NetGuardian.

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 480) **OR**
2. The SNMP manager reads the description from the Trap.

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

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 480 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

SNMP Headers and descriptions

15 Frequently Asked Questions

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

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

15.1 General FAQs

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

Q. How do I connect my NetGuardian to the LAN?
A. To connect your NetGuardian 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 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.

Q. The LAN link LED is green on my NetGuardian, 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.

16 Technical Support

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

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

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

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

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

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

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