



# NetGuardian 832A / 864A G5



October 21, 2019

D-UM-NETG5

Firmware Version 5.3L

**Sales: (800) 622-3314    Support: (559) 454-1600**

**www.dpstele.com**

## Revision History

October 21, 2019	Added support for Air Flow D-wire Sensor
August 21, 2019	Updated Current Draw
August 26, 2016	Wireless Receiver section updated
January 21, 2016	Product dimension correction
January 26, 2015	Updated System Alarms Display
November 24, 2014	Added UnitKal Section
November 11, 2013	Added instructions on sending Ctrl-Break in TTY Monitoring Proxy Menu.
August 2, 2013	Updated DSCP Configuration and Monitoring sections
July 26, 2013	Updated Wireless Modem Activation process
March 28, 2013	Added instructions for Verizon & Sprint modem activation
February 12, 2013	Updated SNMP Manager Functions
September 21, 2012	Added +12 VDC power option
August 28, 2012	Updated part number for new RoHS ethernet cables
June 6, 2012	Updated Shipping List, 16S Option, and Power Inputs
May 21, 2012	Updated Shipping List with 20 ft External Temperature Sensor
May 10, 2012	Added Hardware Options section for 16S build option
March 9, 2012	Added Hinged Amphenol Panel Installation Instructions
February 24, 2012	Updated D-wire sensor info
January 31, 2012	Updated Specification section
January 18, 2012	Updated system alarms display map
January 9, 2012	Updated shipping list
October 17, 2011	Added D-Wire sensor information
October 6, 2011	Added SiteMON Camera to accessories
March 23, 2011	Added information about T1/E1 port & WAN configuration
January 20, 2011	Updated instructions for configuring optional internal analogs
December 7, 2010	Added analog entries to SNMP Display Manager
November 17, 2010	Updated display mapping and added FCC compliance notice
July 21, 2010	Updated Specifications.
May 4, 2010	Added info on Backup Mode.
March 26, 2010	Added description and instructions for using LCD Point Mode.

February 26, 2010 Added details on analog parameters from web UM

July 13, 2009 Added info for NetGuardian G5 with GigE Fiber top board option

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# 1 NetGuardian G5 Overview



*Fig. 1.1. The NetGuardian has all the tools you need to manage your remote site.*

## The NetGuardian G5 — The Intelligent RTU for Complete Site Management

The NetGuardian G5 is a RoHS 5/6-compliant, LAN-based, SNMP/DCPx remote telemetry unit. The NetGuardian has all the tools you need to manage your remote sites, including built-in alarm monitoring, paging and email capabilities that can eliminate the need for an alarm master.

### *With the NetGuardian, you can:*

- Monitor 32 discrete alarms, 32 ping alarms, and 8 analog alarms
- Control remote site equipment via 8 terminal server ports and 8 control relays
- Monitor your remote site from anywhere using the NetGuardian's built-in Web Browser Interface.
- Report alarms to multiple SNMP managers or the T/Mon NOC Alarm Monitoring System.
- Report alarms via LAN or dial-up connection.
- Automatically send pager and email alarm notifications 24/7.
- Connect multiple concurrent users via Telnet over LAN to telecom switches, servers, radios, PBXs and other equipment.
- Monitor discrete and analog threshold alarms.
- Ping IP network devices and verify that they're online and operating.
- NEW! Backup Mode: Redundant LAN connectivity.

**New:** The NetGuardian G5 supports serial baud rates up to 115,200, additional RS485 for GLD/ECU expansion polling port, triple CPU speed for faster processing, **optional** built-in 4-port switch (tied to NET2), **optional** external temperature sensor, analog readings accurate to within +/- 1%, dual 10/100 NICs (isolated) replacing the 10BaseT NICs, SNMPv2c, SNMPv2c Inform trap, and SNMPv3.

**TIP:** This is the basic installation (hardware) manual. For software and web configuration manuals, please refer to appropriate manual on the Resource CD provided with your unit, visit [www.dpstele.com/pdfs/op\\_guides](http://www.dpstele.com/pdfs/op_guides)

### **Stand-alone local visibility**

You don't need an alarm master unit to monitor your site with the NetGuardian. With the NetGuardian's built-in Web Browser Interface, you can access the NetGuardian, view alarms and control remote site devices from any computer anywhere in your network.

### **24/7 pager and email alerts - no master needed**

Out of the box, the NetGuardian supports 24/7 pager and email reporting. Send alarms directly to maintenance technicians in the field, even when no one's in the office.

### **Connect via LAN to telecom switches, servers, radios and more**

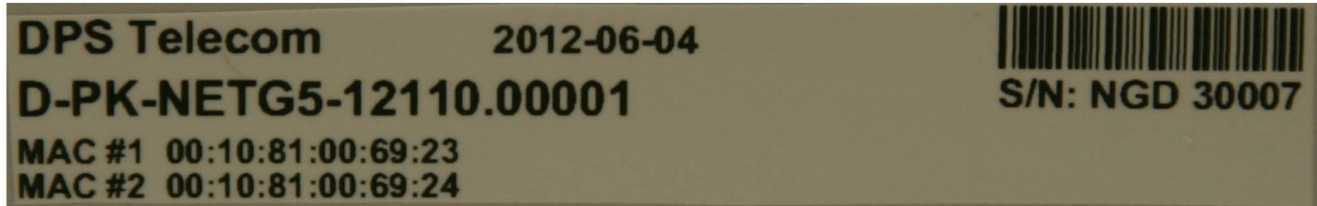
Each of the NetGuardian's eight serial ports can be individually configured to serve as a craft port, a channel port or a TCP or UDP reach-through port, giving you LAN-based terminal server access to up to eight serial devices.

## NEW - RADIUS Authentication (As of firmware v5.0I)

Take the security of your alarm remotes to the next level with RADIUS authentication. Now the NetGuardian G5 can interact with your RADIUS server, integrating it as part of your enterprise management.

## Reports to multiple SNMP managers and T/Mon NOC simultaneously

The NetGuardian reports to both the T/Mon NOC Alarm Monitoring System and any SNMP manager. You can simultaneously forward alarms from the NetGuardian to T/Mon NOC and multiple SNMP managers at multiple IP addresses. Alarms can also be configured to dispatch to one, some, or all SNMP managers.



**Fig. 1.2.** Your NetGuardian will come with a label on the front panel that will include the Product Number, Serial Number, and MAC Addresses. This will help you if you ever need to contact DPS about your device. The barcode and serial number can be used to facilitate your internal tracking.

## 2 About This Manual

There are three separate user manuals for the NetGuardian G5: the Hardware Manual (which you're reading now), the NGEEditG5 User Manual, and the NetGuardian G5 Web Interface User Manual.

This Hardware Manual provides instructions for hardware installation and using the TTY interface. The NGEEditG5 and Web Interface User Manuals, included on the NetGuardian Resource CD, provide instructions for configuring the NetGuardian using the Windows-based NGEEditG5 utility software or the Web Interface.

## 3 Shipping List

While unpacking the NetGuardian, please make sure that all of the following items are included. If some parts are missing, or if you ever need to order new parts, please refer to the part numbers listed and call DPS Telecom at (800) 622-3314.



**NetGuardian 832A G5: D-PK-NETG5-12001**  
**NetGuardian 864A G5: D-PK-NG864-12001**



**NetGuardian G5 Hardware Manual D-UM-NETG5**



**NetGuardian G5 Resource CD  
(includes manuals, MIBs, and software)**



**Two Ethernet Cables 14 ft.  
D-PR-923-10B-14**



**23" Rack Ears  
D-CS-325-10A-01**



**Eight 3/8" Ear Screws (F)  
2-000-60375-05**



**Four Metric Rack Screws (G)  
2-000-80750-03**



**Two Large Power Connector Plugs for Main Power (C)  
2-820-00862-02**



**4 Pin Analog Connector (D)  
2-820-00814-02**

**A B C D E F G H**



**Screws and connectors are packaged in a sealed hardware kit, shown above**



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



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



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



**Four Standard Rack Screws (H)  
1-000-12500-06**



**Three 3/4-Amp GMT Fuses (B)  
2-741-00750-00**



**Four Cable Ties  
(Sixteen with hinged panel)**



**Pads (E)  
2-015-00030-00**

**Optional**

**+**



**+**





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**(Hardware kit containing a WAGO connector)**

## Optional Items



**Two 3/4-Amp GMT Accessory Fuses (A)**  
**2-741-00250-00**



**One Small Connector for Sensor Output**  
**2-820-00812-02**



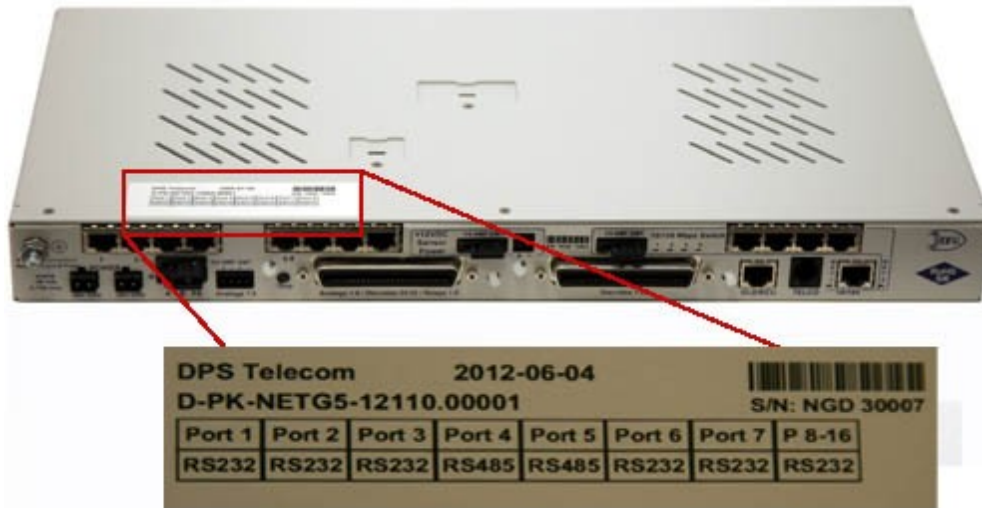
**External Temperature Sensor**  
**D-PR-991-10A-07**



**20 ft. External Temperature Sensor**  
**D-PK-SENSR-12037**

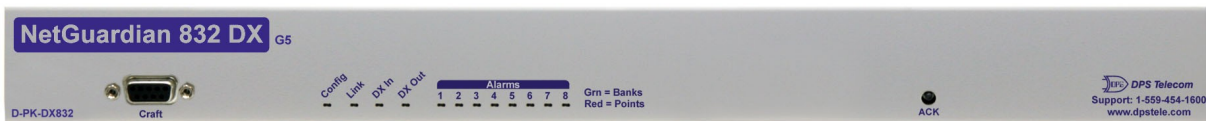
### 3.1 Port Allocation

Located on the top of the unit in the back left corner is the Port Allocation Sticker. This sticker includes your part number (D-PK-NETG5-#####.#####), which specifies your build option. The table below it lists your port allocation. This label displays serial electrical information about each of the ports, for example if the port hardware is configured for RS232, RS485, 202, etc.



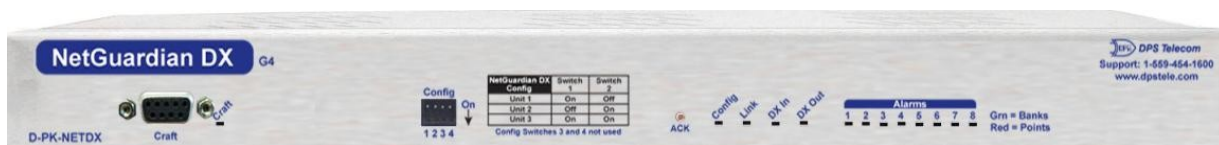
## 4 Optional Accessories

You can extend the capabilities of the NetGuardian through accessory units that provide greater discrete alarm capacity, remote audiovisual alarm notification, visual surveillance of remote sites, and other options. If you would like to order any of these accessories, or if you would like more information about them, call DPS Telecom at **(800) 622-3314**.



### NetGuardian Expansion (NetGuardian 832A/864A DX G5) D-PK-DX832/D-PK-DX864

The NetGuardian G5 expansions provide an additional 32 alarms for your NetGuardian 832A model or 64 points for your 864A, providing a total of 128 or 256 alarms with 3 expansion units. Each expansion comes standard with an additional 8 control relays and 8 analog inputs, and is available with an optional 8 port hub. (Optional builds are also available without controls, analogs, or both.)



### NetGuardian Expansion (NetGuardian DX G4) D-PK-NETDX-12022.00001

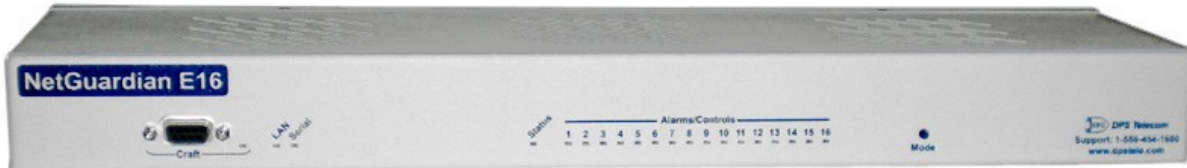
The NetGuardian Expansion G4 provides an additional 48 discrete and 8 relay controls. Up to three NetGuardian Expansions can be daisy-chained off one NetGuardian, providing a total of 176 discrete

and 32 analog alarm points.



### NetGuardian Expansion

The NetGuardian 480 (NG480) Expansion provides an additional 80 alarms and 4 relays. With 80 discrete alarm inputs, you can easily forward all the alarms of a small to medium-sized site.



### NetGuardian E16

#### D-PK-DXE16

Adding the NetGuardian E16 provides an additional 16 alarm points and 16 controls. One NetGuardian E16 unit may be used per NetGuardian 832A/864A G5 remote. In this configuration, the E16 must be the last unit in the chain. Having only 1 serial port, it cannot forward traffic to a subsequent RTU.



### General LCD Display (GLD)

#### D-PK-GLDRJ-12001.00001

The General LCD Display (GLD) is a small wall-mounted remote terminal for the NetGuardian. The LCD display shows system status and alarm messages, and the built-in speaker gives an audible notice of alarms. Up to 12 GLDs can be daisy-chained off the NetGuardian.



### NetGuardian SiteMON IP

#### D-PK-CAMRA

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

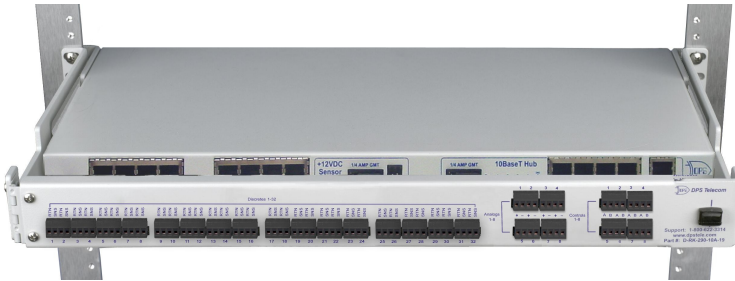


### Hinged Wire-Wrap Back Panel

For 19" rack: D-PK-NGPAN-12002

For 23" rack: D-PK-NGPAN-12006

The hinged wire-wrap back panel provides wire-wrap connections for the NetGuardian's alarms and control relays.



### Pluggable Barrier Panel

For 19" rack: D-PK-NGPAN-12021

For 23" rack: D-PK-NGPAN-12007

The pluggable barrier panel provides screw-lug barrier plug connections for the NetGuardian's alarms and control relays.



### Hinged Amphenol Back Panel

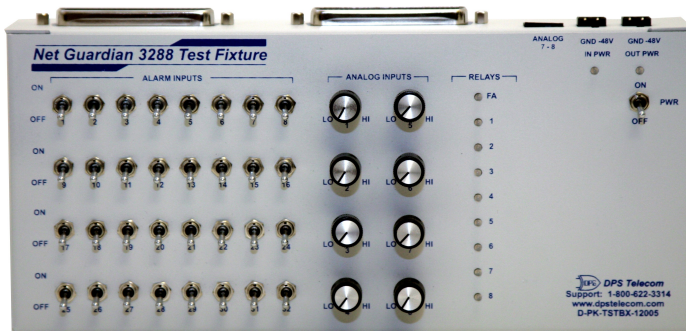
For 19" rack: D-PK-NGPAN-12027

D-PK-NGPAN-12047

For a KDA864 GOB option

For a KDA 864 with GOB-L option

The Hinged Amphenol Back Panel easily allows for Upgrades from a KDA864 to a NetGuardian 864.



### NetGuardian 3288 Test Fixture

**D-PK-TSTBX-12005.00001**

Every DPS product is rigorously tested before shipping, and the NetGuardian Test Box allows technicians to verify every discrete alarm input, control relay, and voltage-based analog alarm input on a NetGuardian G5. This time-tested tool is now available to you as the NetGuardian 3288 Test Fixture (known casually as the "NetGuardian Test Box"). With 32 discrete alarm toggles, 8 analog knobs, and 8 control relay LEDs, you can verify every alarm input and control output on your NetGuardians in a controlled way.

## 5 Specifications

<b>Discrete Alarm Inputs:</b>	32 (expandable to 80, 128, or 176 in G5 model) 64 (expandable to 112, 160, or 208 in 864A model)
<b>Analog Alarms:</b>	8
<b>Analog Input Range:</b>	(–94 to 94 VDC or 4 to 20 mA)
<b>Analog Accuracy:</b>	+/- 1% of Analog Range (See <b>Analog Step Sizes</b> )
<b>Control Relays:</b>	8 Form C (expandable to 16, 24, 32)
<b>Maximum Voltage:</b>	60 VDC/120 VAC
<b>Maximum Current:</b>	1 Amp, AC/DC
<b>Ping Alarms:</b>	32
<b>Protocols:</b>	SNMPv1, SNMPv2c, SNMPv3, DCPx, DCPf, TRIP, SNPP SMTP, TAP, HTTP, FTP, TELNET, ICMP, RADIUS, (SSH, HTTPS with Hardware Acceleration build option).
<b>Interfaces:</b>	9 RJ45 Yost serial ports (17 RJ45 ports with the 16S top board option)
switch	2 RJ45 10/100 full-duplex Ethernet ports (1 port tied internally to - if switch option is purchased) 1 RJ11 telco jack 2 50-pin amphenol connectors (discretes, controls, and analogs) 1 4-pin screw connector (analog) <i>With Fiber top-board build option:</i> 4 10/100/1000 copper Ethernet ports <b>AND</b> 2- 1000 Base-X SFP Fiber ports <i>With D-Wire top-board build option:</i> 1 RJ11 D-Wire port <i>With WAN top-board build option:</i> 1 Rj45 WAN port
<b>Physical Dimensions:</b>	1.720"H x 17.026"W x 8.136"D (NetGuardian 832A) (11.250"D with hinged Wire Wrap Adapter) 1.720"H x 17.026"W x 9.636"D (NetGuardian 864A) (12.750"D with hinged Wire Wrap Adapter)
<b>Weight:</b>	4 lbs. 3 oz. (1.9 kg)
<b>Mounting:</b>	19" or 23" rack
<b>Power Input</b>	
<b>Voltage Options Include:</b>	–48 VDC nominal (–36 to –72 VDC) (Optional) –24 VDC nominal (–18 to –36 VDC) (Optional) Wide Range –24/–48 VDC (–18 to –58 VDC) (Optional) +24VDC (+18 to +36 VDC) (Optional) +12VDC (+11 to +18 VDC)
<b>Current Draw:</b>	300 mA at 48 VDC (600 mA at 24 VDC)
<b>GMT Fuse:</b>	3/4 amp recommended
<b>Sensor Power Output</b>	
<b>Voltage Output Options:</b>	+12 VDC

	+24 VDC
<b>Output Current:</b>	Up to 250 mA at either +12 or +24 VDC
<b>Input Current Draw:</b>	May increase by 150 mA at 48 VDC
<b>GMT Fuse:</b>	3/4 amp recommended
<b>Modem:</b>	33.6 K internal
<b>Visual Interface:</b>	LCD display 16 bicolor LEDs 5 unicolor LEDs (10 with Switch Option)
<b>Audible Notification:</b>	Alarm speaker
<b>Operating Temperature:</b>	32° to 140° F (0° to 60° C)
<b>Storage Temperature:</b>	-22° to 176° F (-30° to 80° C)
<b>Industrial Temperature Option:</b>	-22° to 158° F (-30° to 70° C)
<b>Operating Humidity:</b>	0%–95% noncondensing
<b>MTBF:</b>	60 years
<b>Windows Compatibility:</b>	Windows 95, 98, NT, ME, XP, 2000, Vista, 7 32/64 bit
<b>*RoHS 5 Approved</b>	

**Note:** 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.



## 6 Hardware Installation

### 6.1 Tools Needed

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



Phillips No. 2 Screwdriver



Small Standard No. 2 Screwdriver



Wire Strippers/Cutter  
(used)



Wire Wrap Gun (if hinged wire wrap panel is used)



Punch Down Tool (if 66 blocks are used)



PC with NGEEditG5 software

### 6.2 Mounting



**Fig. 6.2.1.** The NetGuardian can be flush or rear-mounted

The NetGuardian 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 180° for other mounting options (not shown).

## 6.3 Power Connection



*Fig. 6.3.1. Power connectors and fuse.*

The NetGuardian has two screw terminal barrier plug power connectors, located on the left side of the back panel. (See Figure 6.3.1.)



**The Grounding Lug on the back of the unit provides a permanent connection to earth ground when connected. The Grounding Lug must be used in order to comply with CE standards.**



**Grounding Lug and Symbol**


**Before you connect a power supply to the NetGuardian, test the voltage of your power supply:**

- Connect the black common lead of a voltmeter to the ground terminal of the battery, and connect the red lead of the voltmeter to the battery's **-48 VDC** terminal. The voltmeter should read **between -36 and -72 VDC**. If the reading is outside this range, test the power supply.
- If your NetGuardian has the **-24 VDC** power connection option, then the voltmeter should read **between -18 and -36 VDC**.
- If your NetGuardian has the **+12 VDC** power connection option, then the voltmeter should read **between +11 and +18 VDC**.

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

1. Remove the fuse from the back panel of the NetGuardian. **Do not reinsert the fuse until all connections to the unit have been made.**
2. Remove the power connector plug from Power Connector A. Note that the plug can be inserted into the power connector only one way - this ensures that the barrier plug can only be reinserted with the correct polarity.

**Note:** that the **-48V terminal is on the left** and the **GND terminal is on the right**.

3. 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).
4. Insert a **battery ground** into the power connector plug's **right terminal** and tighten the screw
5. Insert a **-48 VDC** line to the plug's **left terminal** and tighten its screw.

6. Push the power connector plug firmly back into the power connector. If the power feed is connected correctly, the LED by the connector will light **GREEN**. If the polarity of the power feed is reversed, the LED will not illuminate.
7. Repeat Steps 2–4 for Power Connector B.
8. Reinsert the fuse to power the NetGuardian. The front panel LEDs will flash **RED** and **GREEN**.


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

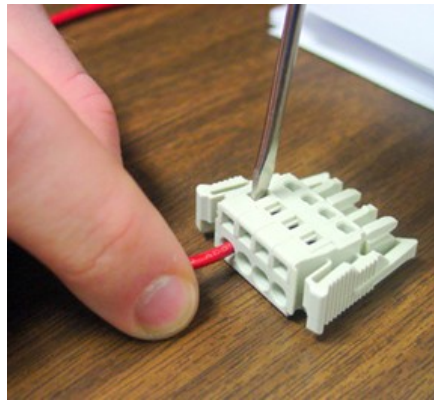


The **Grounding Lug** on the back of the unit provides a permanent connection to earth ground when connected. The **Grounding Lug** must be used in order to comply with CE standards.



**Grounding Lug and Symbol**

1. Remove the 2 fuses (**A & B**) from the back panel of the NetGuardian. **Do not reinsert the fuses until all connections to the unit have been made.**
2. Remove the WAGO power connector. Note that the plug can be inserted into the power connector only one way — this ensures that the barrier plug can only be reinserted with the correct polarity. Note that the **-48V terminal is on Slots 1 and 3** and the **GND terminal is on Slots 2 and 4** when counting from left to right.
3. 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).
4. Insert a **battery ground** into the power connector plug's **slots 2 and 4** by pushing down on top of the appropriate slot of the WAGO connector with a screwdriver and inserting the wire into the slot, then releasing the screwdriver. Insert a **-48 VDC** line to the plug's **slots 1 and 3** using the same method as before.

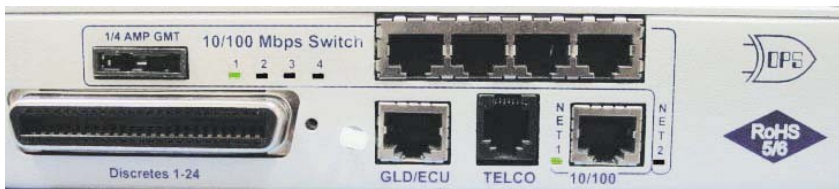


**Inserting a -48 VDC Line into Slot  
1 of WAGO Connector**

5. Push the power connector plug firmly back into the power connector. If the power feed is connected correctly, the LED by the connector will light **GREEN**. If the polarity of the power feed is reversed, the LED will not illuminate.

6. Reinsert the fuses to power the NetGuardian. The front panel LEDs will flash **RED** and **GREEN**.

## 6.4 LAN Connection

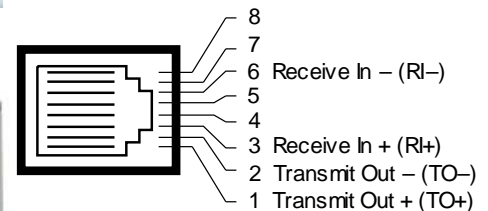


**Fig. 6.4.1. Two 10/100 Ethernet ports (With Switch)**



**Fig. 6.4.2. Two 10/100 Ethernet ports (Without Switch)**

### RJ45 Ethernet Connection



**Fig. 6.4.3 Ethernet port pinout**

For enhanced security, the NetGuardian G5 has two 10/100 Ethernet ports. Each port has its own separate IP address and subnet, so you can safely connect one port to your private company LAN and the other to the public Internet.

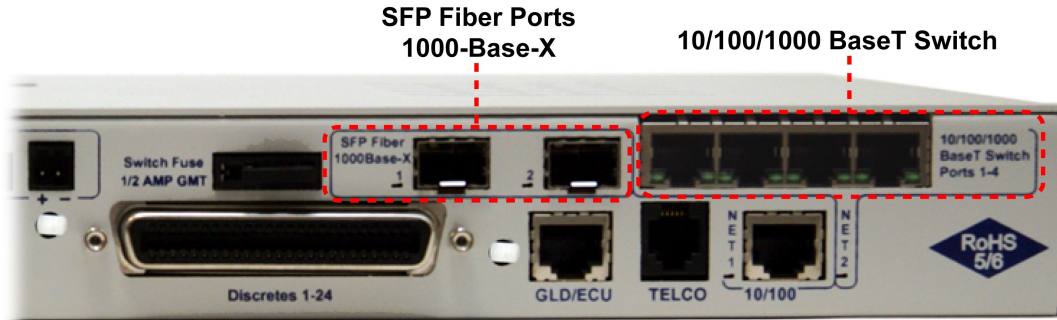
There is no routing between Net 1 and Net 2, this ensures that both connections are independent of each other. By default, outbound data traffic from the NetGuardian 832A will be sent over Net 2. Only outbound data that is specifically directed to Net 1, usually the Company's LAN, will be sent to Net 1. To use both network interfaces, be sure Net1 and Net2 are on separate Subnet Masks.

To use only one of the network interfaces, set either Net1 or Net2 to IP address being used and set the unused network IP subnet and gateway to 255.255.255.0. If your NetGuardian has the 4-port hub build option, use Net2, which is connected to the Hub. Both ports are standard RJ45 ports that take standard RJ45 Ethernet cables. If the IP connection is OK, the LNK LED will light **SOLID GREEN** when the cable is connected.

The NetGuardian G5 unit with the integrated switch comes with two physical 10/100 Ethernet ports. The standard G5 unit without the switch comes equipped with two physical Ethernet ports. The switch is internally tied to NET2 and any one of its four ports can be used for uplink.

### Build Option: NetGuardian G5 with GigE Fiber Top Board

If your NetGuardian G5 was ordered with the GigE Fiber top board, 1000Base SFP interface must be used. The SFP ports are internally connected to the 4 port switch and NET 2.



**Fig. 6.4.4.** Back panel of NetGuardian G5 with fiber

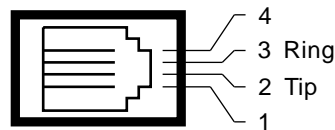
## 6.5 Telco Connection



**Fig. 6.5.1.** Telco jack

The rear panel telco jack (see Figure 6.5.1) connects the NetGuardian internal modem to a standard phone line for dial-up access and pager alarm notification.

### RJ11 Phone Line Connection



**Fig. 6.5.2** Telco jack pinout

The pinout for the Telco jack is shown in Figure 6.5.2, above.

## 6.6 Alarm and Control Relay Connections



**Fig. 6.6.1.** Alarm and control relay connectors

The NetGuardian G5's discrete alarm inputs, control relay outputs, and first six analog alarm inputs are connected through the two 50-pin connectors labeled "Discret 1–24" and "Analog 1–6/Discret 25–32/Relays 1–8" on the back panel. Analog alarm inputs 7 and 8 are connected through the four-pin connector labeled "Analog 7–8." (See Figure 6.6.1.)

**Note:** The NetGuardian's 864A's discrete alarm inputs, control relay outputs, and first six analog alarm inputs are connected through the two 50-pin connectors labeled "Discret 1–48" and "Analog 1–6/Discret 49–64/Relays 1–8" on the back panel. Analog alarm inputs 7 and 8 are connected through the four-pin connector labeled "Analog 7–8."

## 6.6.1 Alarm and Control Relay Connector Pinout Table (832A)

Discretes 1–25						Discretes 25–32			Control Relays 1–8		
	RTN	ALM		RTN	ALM		RTN	ALM		NO/NC	CO
<b>ALM 1</b>	1	26	<b>ALM 13</b>	13	38	<b>ALM 25</b>	1	26	<b>CTRL 1</b>	9	34
<b>ALM 2</b>	2	27	<b>ALM 14</b>	14	39	<b>ALM 26</b>	2	27	<b>CTRL 2</b>	10	35
<b>ALM 3</b>	3	28	<b>ALM 15</b>	15	40	<b>ALM 27</b>	3	28	<b>CTRL 3</b>	11	36
<b>ALM 4</b>	4	29	<b>ALM 16</b>	16	41	<b>ALM 28</b>	4	29	<b>CTRL 4</b>	12	37
<b>ALM 5</b>	5	30	<b>ALM 17</b>	17	42	<b>ALM 29</b>	5	30	<b>CTRL 5</b>	13	38
<b>ALM 6</b>	6	31	<b>ALM 18</b>	18	43	<b>ALM 30</b>	6	31	<b>CTRL 6</b>	14	39
<b>ALM 7</b>	7	32	<b>ALM 19</b>	19	44	<b>ALM 31</b>	7	32	<b>CTRL 7</b>	15	40
<b>ALM 8</b>	8	33	<b>ALM 20</b>	20	45	<b>ALM 32</b>	8	33	<b>CTRL 8</b>	16	41
<b>ALM 9</b>	9	34	<b>ALM 21</b>	21	46				<b>FUSE</b>	17	42
<b>ALM 10</b>	10	35	<b>ALM 22</b>	22	47						
<b>ALM 11</b>	11	36	<b>ALM 23</b>	23	48						
<b>ALM 12</b>	12	37	<b>ALM 24</b>	24	49						
			<b>GND</b>	25	50						

Analog 1–6			Analog 7–8		
ADC	+	-	ADC	-	+
<b>ADC 1</b>	19	44	<b>7</b>	7-	7+
<b>ADC 2</b>	20	45	<b>8**</b>	8-	8+
<b>ADC 3</b>	21	46			
<b>ADC 4**</b>	22	47			
<b>ADC 5**</b>	23	48			
<b>ADC 6**</b>	24	49			
<b>GND</b>	25	50			

**Table 6.6.1.A.** Alarm and control relay connector pinout for G5

Table 6.6.1.A shows the pinouts for the 50-pin connectors "Discretes 1–24" and "Analog 1–6/Discretes 25–32/Relays 1–8," and the pinout for the four-pin connector "Analog 7–8."

Note that the NetGuardian's control relays can be set for either Normally Open or Normally Closed operation. By factory default, all control relays are set to Normally Open. You can reset all relays for Normally Closed operation at the hardware level by resetting a jumper on the NetGuardian circuit board. You can also configure the control relays individually, using either the Web interface or the NGEEditG5 software utility.

For instructions on resetting control relays for Normally Closed operation, see the section titled "Controls."

**ADC\*\*** channels 4, 5, 6, and 8 may be unavailable for external use. These analog channels are sometimes configured in hardware for monitoring A and B power feeds, internal temperature, and external temperature. For details regarding your unit's hardware, please reference the product description appendix.

## 6.6.2 Alarm and Control Relay Connector Pinout Table (864A)

Discretes 1–48				Discretes 49-64, Relays 1-8, Analogs 1-6				Analogs 7-8		
ALM	PIN		ALM	PIN	ALM	PIN	Relays 1-8			
1	26		26	13	49	26	RLY 1	9	34	
2	1		27	39	50	1	RLY 2	10	35	
3	27		28	14	51	27	RLY 3	11	36	
4	2		29	40	52	2	RLY 4	12	37	
5	28		30	15	53	28	RLY 5	13	38	
6	3		31	41	54	3	RLY 6	14	39	
7	29		32	16	55	29	RLY 7	15	40	
8	4		33	42	56	4	RLY 8	16	41	
9	30		34	17	57	30	FUSE	17	42	
10	5		35	43	58	5	ADC	+	-	
11	31		36	18	59	31	ADC 1	19	44	
12	6		37	44	60	6	ADC 2	20	45	
13	32		38	19	61	32	ADC 3	21	46	
14	7		39	45	62	7	ADC 4**	22	47	
15	33		40	20	63	33	ADC 5**	23	48	
16	8		41	46	64	8	ADC 6**	24	49	
17	34		42	21			GND	25		
18	9		43	47			GND/RTN*	50		
19	35		44	22						
20	10		45	48						
21	36		46	23						
22	11		47	49						
23	37		48	24						
24	12		GND	25						

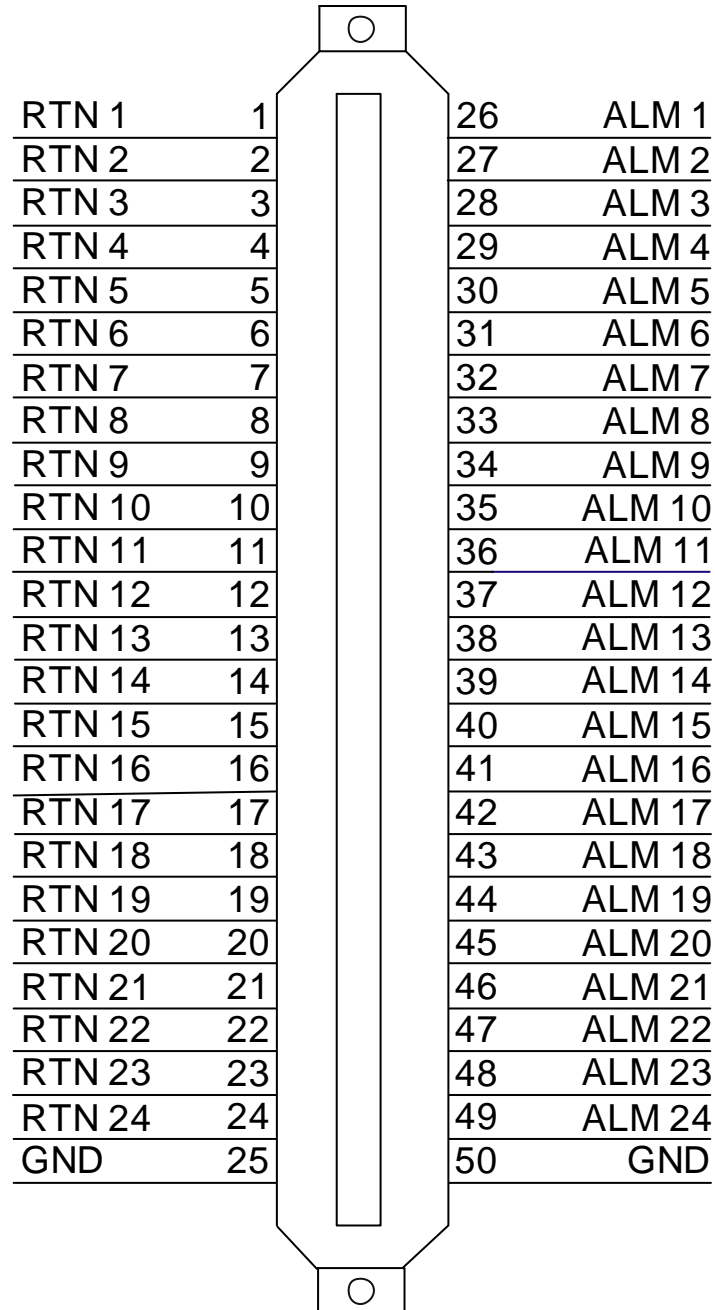
**Table 7.B.** Alarm and relay connection pinouts for NetGuardian G5 864

RTN\* is the alarm return pin. Alarms on standard units are dry closure or ground closure. Most units will have RTN internally tied to GND. However, special hardware assemblies may have RTN isolated from GND. For details regarding your unit's hardware, please reference the product description appendix.

ADC\*\* channels 4, 5, 6, and 8 may be unavailable for external use. These analog channels are sometimes configured in hardware for monitoring A and B power feeds, internal temperature, and external temperature. For details regarding your unit's hardware, please reference the product description appendix.

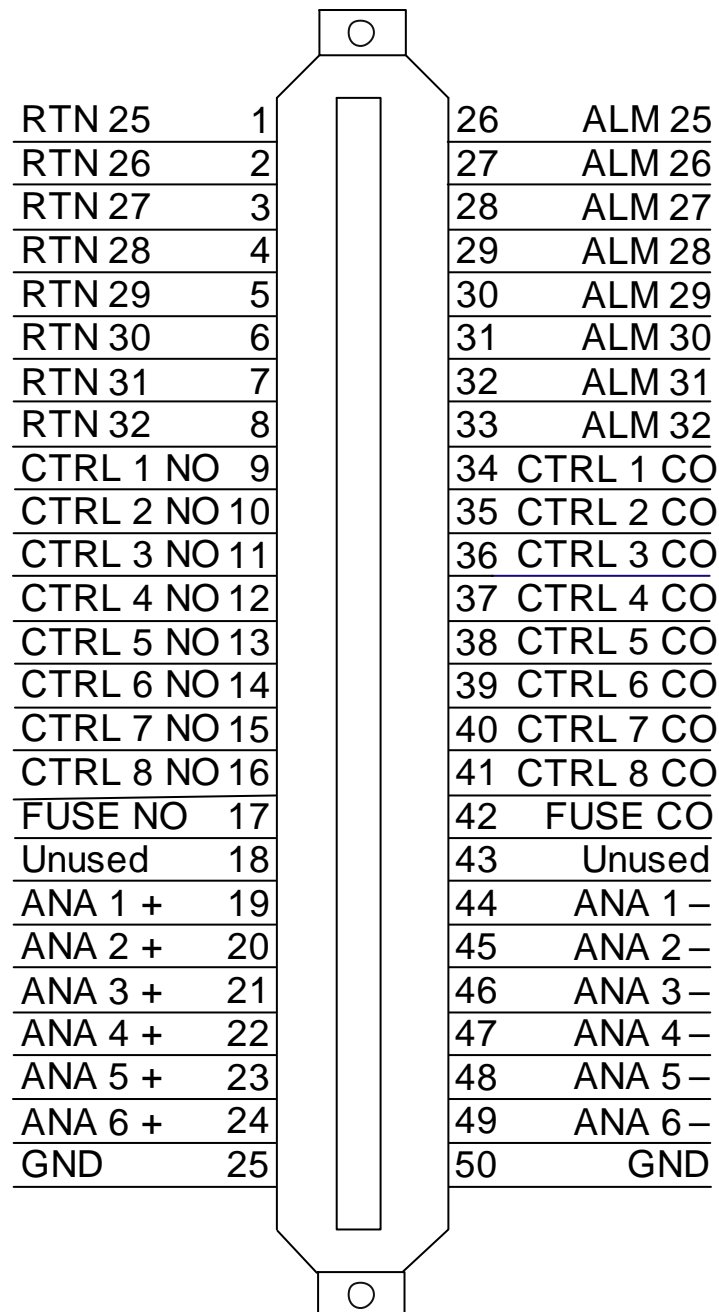


### 6.6.3 Discretes 1–24 Connector Pinout Diagram (832A)



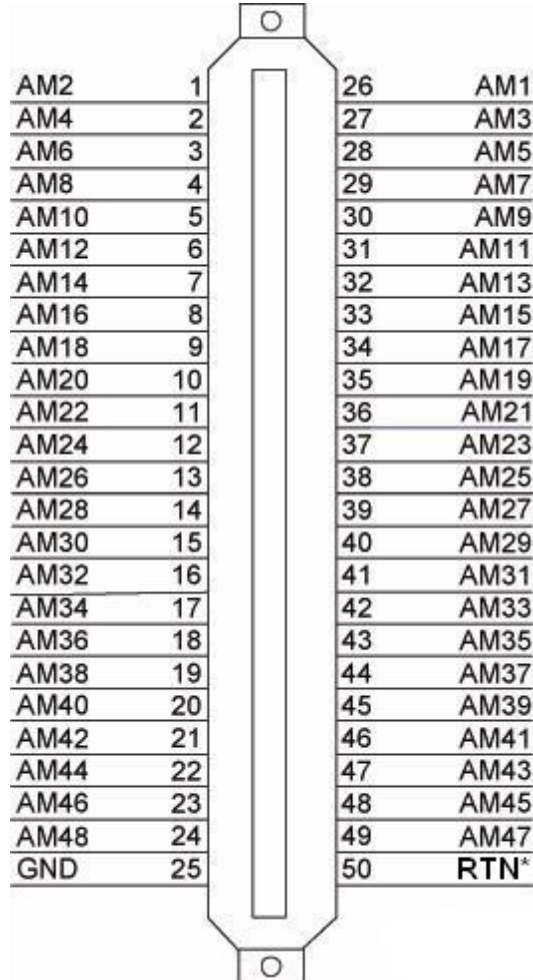
**Fig. 6.6.2.1.** Pinout Diagram for Discretes 1–24 connector

### 6.6.4 Analogs 1–6/Discretes 25–32/Relays 1–8 Connector Pinout Diagram (832A)



**Fig. 6.6.3.1.** Pinout Diagram for Discretes 25–32/Relays 1–8 connector

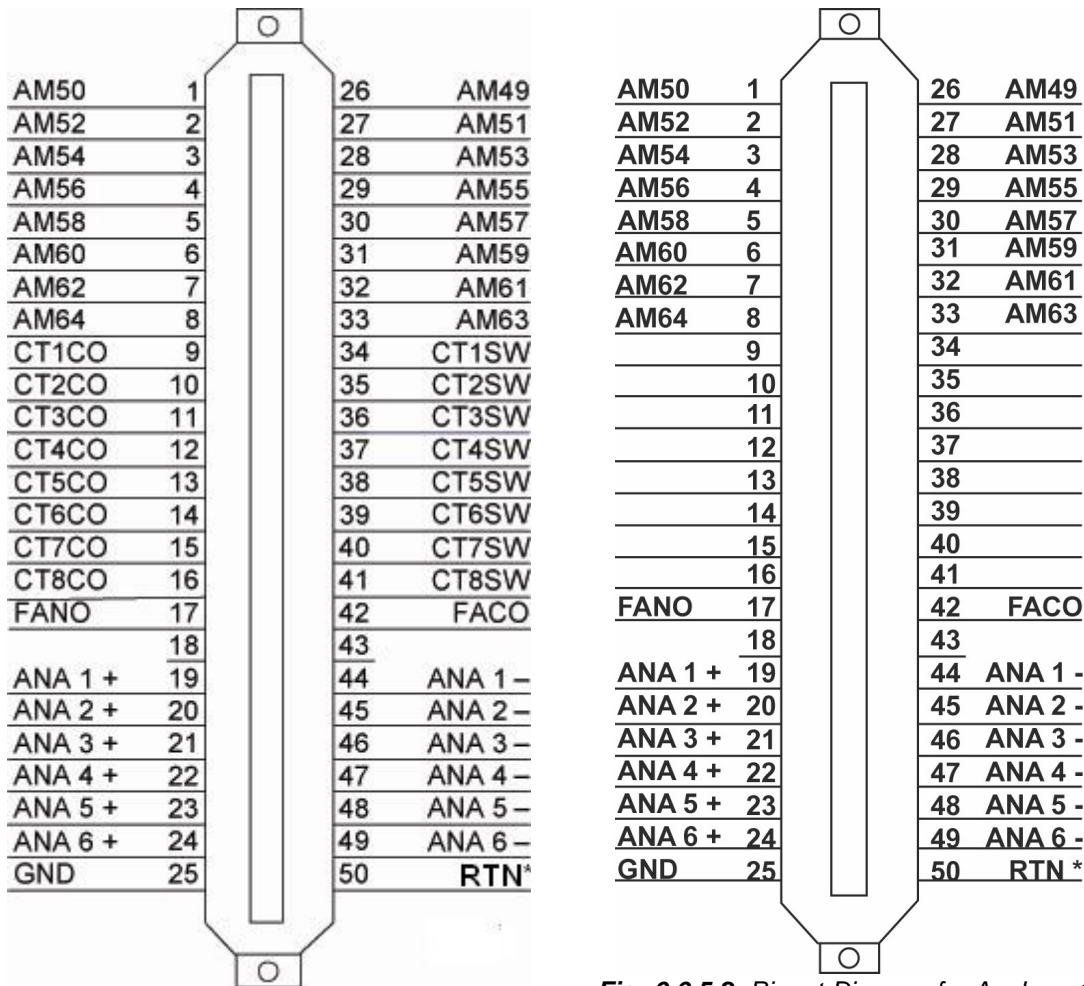
## 6.6.5 Discretes 1- 48 Connector Pinout Diagram (864A)



*Fig. 6.6.5.1- Pinout Diagram for Discretes 1-48 Connector*

**RTN\*** is the alarm return pin. Standard configurations have this pin tied to GND. While it is possible to change this configuration to utilize different types of alarms (i.e. TTL, Open Collector, Battery Closure), the hardware must be ordered in that configuration. It is **NOT** field-adjustable.

## 6.6.6 Analogs 1-6/Discretes 49-64/Relays 1-8 Connector Pinout Diagram (864A)



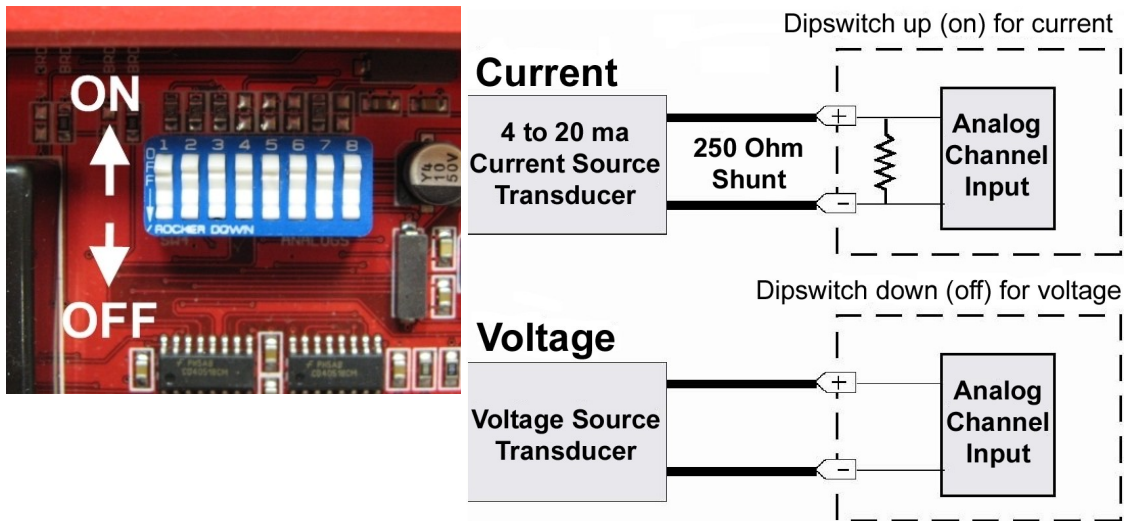
**Fig. 6.6.5.2-** Pinout Diagram for Analogs 1-6/Discretes 49-64/Relays 1-8 Connector

**Fig. 6.6.5.2-** Pinout Diagram for Analogs 1-6/Discretes 49-64. This pinout only applies to the NetGuardian 864A G5 without relays. See note below.

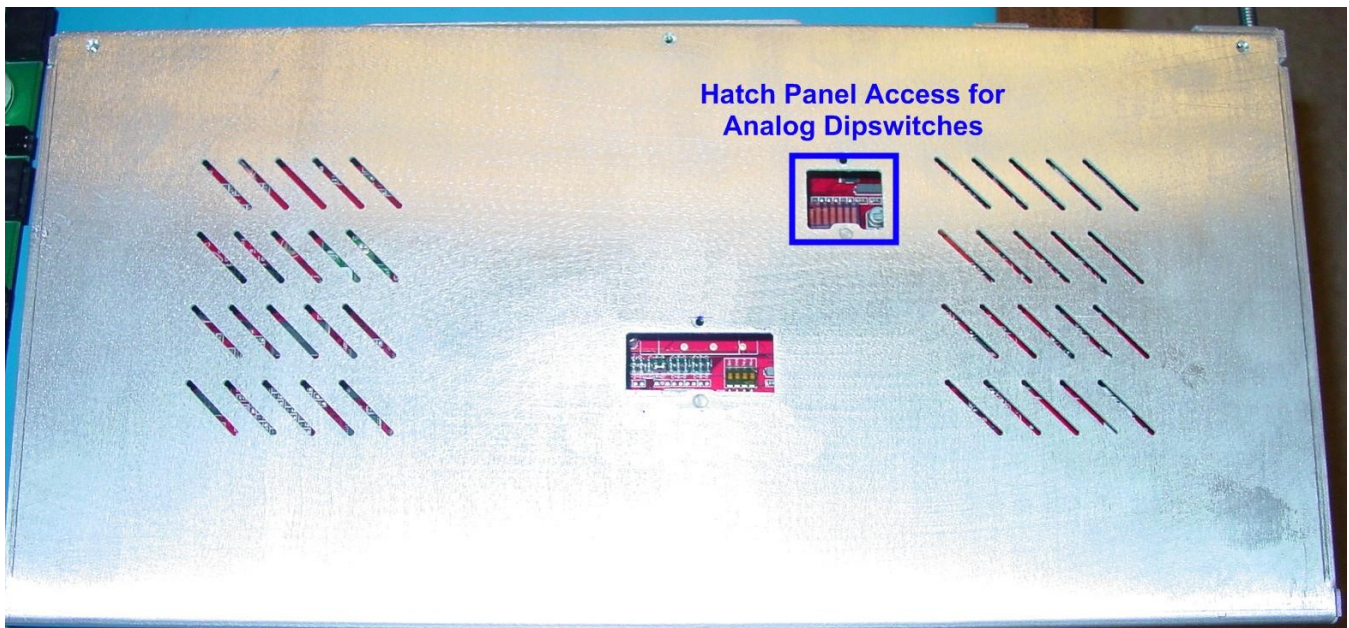
**RTN\*** is the alarm return pin. Standard configurations have this pin tied to GND. While it is possible to change this configuration to utilize different types of alarms (i.e. TTL, Open Collector, Battery Closure), the hardware must be ordered in that configuration. It is **NOT** field-adjustable.

**Note:** Figure 6.6.5.2 is a special pinout for a particular build of the NetGuardian 864A G5 without control relays. It only applies to the following part number: **D-PK-NG864-12022.00001**

## 6.6.7 Analog Dipswitches



The analogs are controlled by the dipswitches accessible via the top sliding panel. For milliamp sensor operation (current loop), turn the dipswitch on by placing it in the up (ON) position. For voltage operation, place the dipswitch in the down (OFF) position.



*You can access the analog dipswitches via the sliding hatch panel on top of the unit*



**WARNING:** Do not put the dipswitches in the upward, ON position (current loop mode) unless you are sure of the analog setting. Having the dipswitch on puts a 250 ohm resistor across the input lines. Any voltage beyond 5V or 20 mA will damage components.

## 6.6.8 Integrated Temperature and Battery Sensor (Optional)



**Fig. 6.6.6.1.** The external temperature sensor

The optional integrated temperature and battery sensor monitors the ambient temperature and the NetGuardian's power inputs. This option is available only if it was ordered with your NetGuardian. The integrated temperature sensor measures a range of 32° F to 140° F (0° C to 60° C) within an accuracy of  $\pm 1^\circ$ .

Sensor Function	Analog Input
Internal Temperature	analog input 4
Power Feed A	analog input 5
Power Feed B	analog input 6
External Temperature	analog input 8

**Table 6.6.6.A.** Integrated sensor analog channels

Your integrated sensors each occupy one of the unit's 8 analog channels. Table 6.6.6.A lists the analog channels used for the integrated temperature and battery sensor. Note that these options are factory pre-set, based on your build options and cannot be adjusted.

### 6.6.8.1 Analog Step Sizes

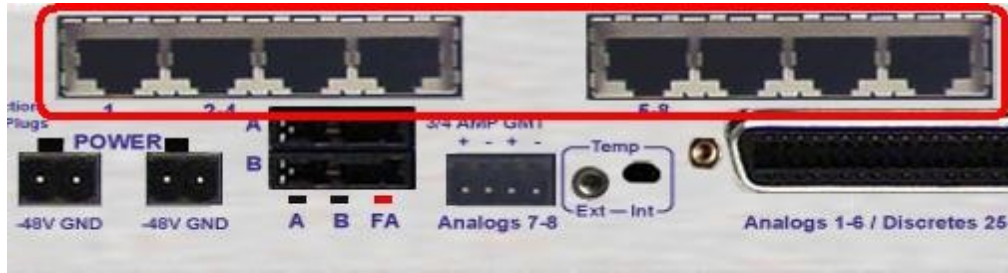
#### Analog Step Sizes:

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

**Table 2.J.** Analog step sizes and accuracy

## 6.7 Data Ports

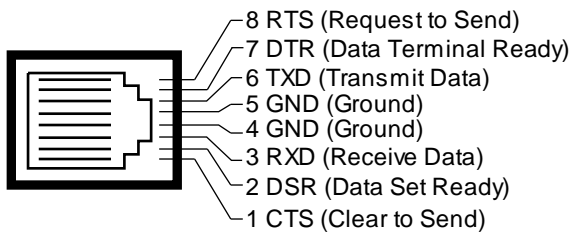


**Fig. 6.7.1.** Data ports 1–8

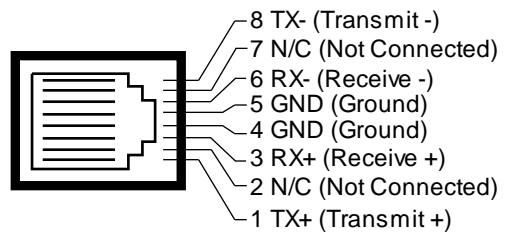
The NetGuardian's eight data ports provide reach-through terminal server functionality for connecting multiple simultaneous users to external equipment via Telnet over LAN. Each port can function as a proxy connection to an external device, a craft port, a channel port, a TCP or UDP reach-through port. The NetGuardian can support simultaneous proxy connections for up to eight users.

**NOTE:** See Section 6.8.6 if you have the 16S serial port build option

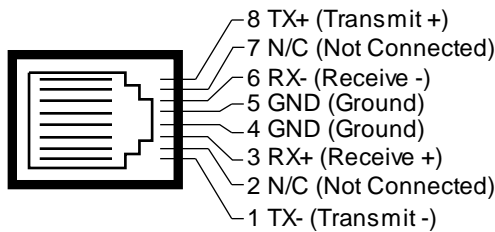
### Yost RS-232 RJ45 Connector



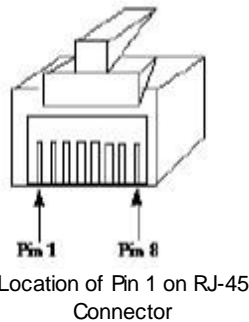
### Yost RS-485 RJ45 Connector



### Yost 4-Wire 202 Connector

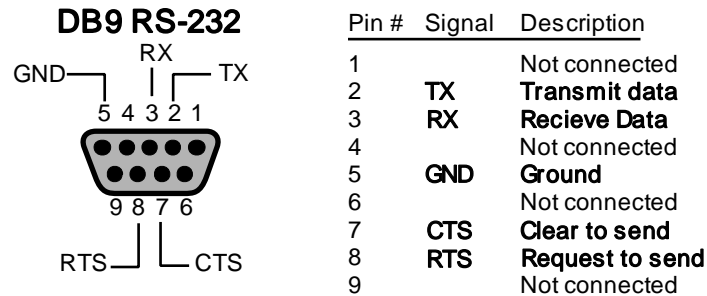


**Fig. 6.7.2** Data port pinouts



NetGuardian data ports can be configured for Yost RS-232, RS-485, and 4-wire 202 RJ45 connects. These data ports are available as optional builds on NetGuardian hardware units (Call DPS Sales for

more information @ 1-800-693-0351). The pinouts for Data Ports 1–8 are shown in Figure 6.7.2, above.



**Fig. 6.7.2 DB9 RS-232 Pinouts (Craft Port Only)**

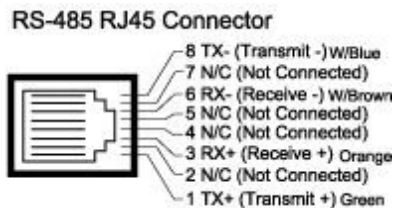
### 6.7.1 Connecting NetGuardian Accessories

Some NetGuardian accessories must be connected to particular data ports. However, if you don't use these accessories, the data ports are available for other uses.

If you are using a NetGuardian Expansion, connect it to Port 7.

### 6.7.2 GLD/ECU Expansion Port (RS-485)

If you are using a General LCD Display (GLD) unit, connect it to the GLD/ECU port.



*Data Port Pinout*

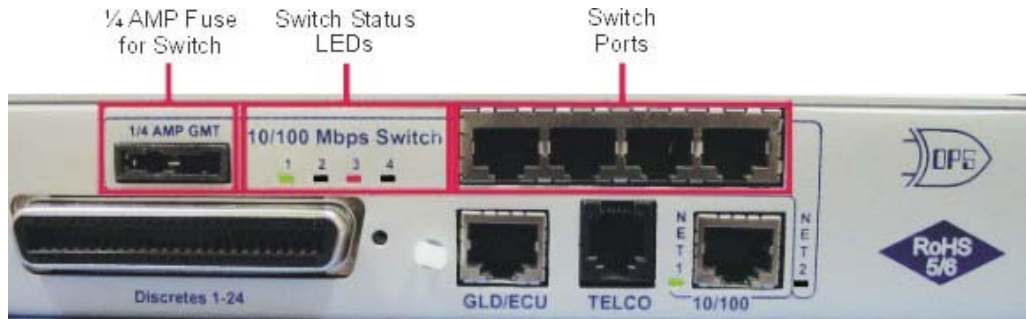
## 6.8 Hardware Options

The NetGuardian G5 series has a number of additional hardware options that you may have specified when you ordered your RTU. For more information about NetGuardian hardware options that you may have ordered with your NetGuardian, see the subsections of this chapter.

**Note:** You must order your NetGuardian with the options contained in this chapter. You cannot add them to your NetGuardian after it has been built and shipped.



## 6.8.1 Integrated 10/100BaseT Ethernet Switch (Optional)

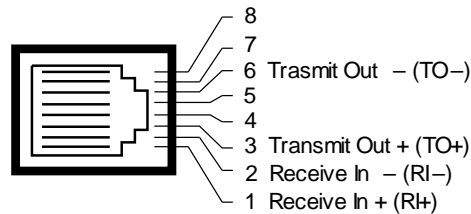


**Fig. 6.8.1.1** NetGuardian integrated Ethernet Switch

You can order your NetGuardian G5 with an optional integrated Ethernet switch, which provides four regular Ethernet ports. (See Figure 6.8.1.1). The integrated Ethernet switch is powered by the same –48 VDC power as the NetGuardian, which provides more secure, more robust operation than switches that run off commercial power. The integrated switch also frees valuable rack space by eliminating an unnecessary extra unit.

**To power and activate the integrated Ethernet switch**, insert the provided 1/4 amp fuse in the switches fuse socket. (See Figure 6.8.1.1) If you ever want to turn off power to the integrated switch, just remove the fuse.

### RJ45 Ethernet Connection

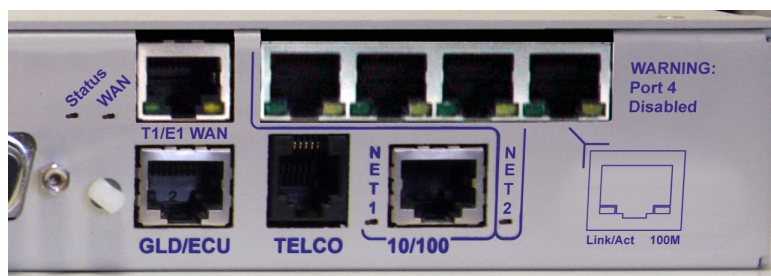


**Fig. 6.8.1.2.** Regular Ethernet port pinout

The four Ethernet ports of the switch are regular straight-through Ethernet ports. (See Figure 6.8.1.1) The pinout for the regular Ethernet ports is shown in Figure 6.8.1.2, above.

## 6.8.2 Integrated T1/E1 Port

If you ordered your NetGuardian with a T1 or E1 port, you can connect to your NetGuardian via T1 or E1 and pass LAN traffic over T1/E1 or vice versa through the NetGuardian's internal switch.



**Fig. 6.8.2.1** A NetGuardian with integrated E1/T1 WAN port.

**Note:** Both the T1/E1 port and the 4th port on the integrated switch are tied internally to Net2. If using the integrated T1/E1 connection, you can convert traffic to LAN **only** on switch ports 1-3 (from left to


right).

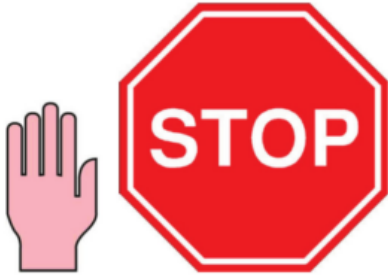
## 6.8.3 GSM/GPRS or CDMA Wireless Modem Top Board (Optional)

### 6.8.3.1 Wireless Modem Activation

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

1. Set up your wireless data account through Multi-Tech or your preferred service provider.
2. Verify that the antenna is screwed onto the back panel of the unit.
3. Locate the **Model #** and **ESN/MEID**. These can be found on the *Read Me First* page that is included with your unit, or on the back panel of your device.





## Read Me First

Wireless Modem Model: \_\_\_\_\_

ESN/MEID: \_\_\_\_\_

**GPRS:** The wireless modem included in this product does not have a SIM card. You will need to populate the SIM card provided by the wireless carrier you have chosen.

**CDMA:** This modem has not been activated. You will need to provide the ESN to the wireless carrier you have chosen.

*See your user manual for Modem Activation Procedure*

**www.dpstele.com**

July 25, 2013
"We protect your network like your business depends on it"™
D-OC-A0104.15100

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

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

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

## 6.8.4 +12 or +24 VDC Sensor Power Supply



*Fig. 6.8.4.1. +12 VDC sensor power supply*

You can order your NetGuardian G5 with an optional +12 VDC or +24 VDC sensor power supply. (See Figure 6.8.4.1.) This provides a convenient way to connect an auxiliary sensor to a robust battery power supply, so if AC power goes down your sensor will still be powered.. Just plug the sensor into the back panel to use the sensor power supply.

The two-pin connector for the sensor power supply is a barrier plug connector similar to the main power connector.

### To power an external sensor, follow these steps:

1. Remove the 1/4 amp fuse from the sensor power supply on the back panel of the NetGuardian. (See Figure 6.8.4.1.) **Do not reinsert the fuse until all power connections to the external sensor have been made.**
2. Remove the power connector plug from the sensor power supply. Note that the plug can be inserted into the power connector only one way — this ensures that the barrier plug can only be reinserted with the correct polarity. Note that the **positive terminal is on the left** and the **negative terminal is on the right.**
3. Connect the appropriate leads to each of the plug's screw terminals and tighten the screws.
4. Push the power connector plug firmly back into the sensor power supply connector.
5. Reinsert the fuse to power the external sensor.

## 6.8.5 Hardware Acceleration (SSL/SSH)

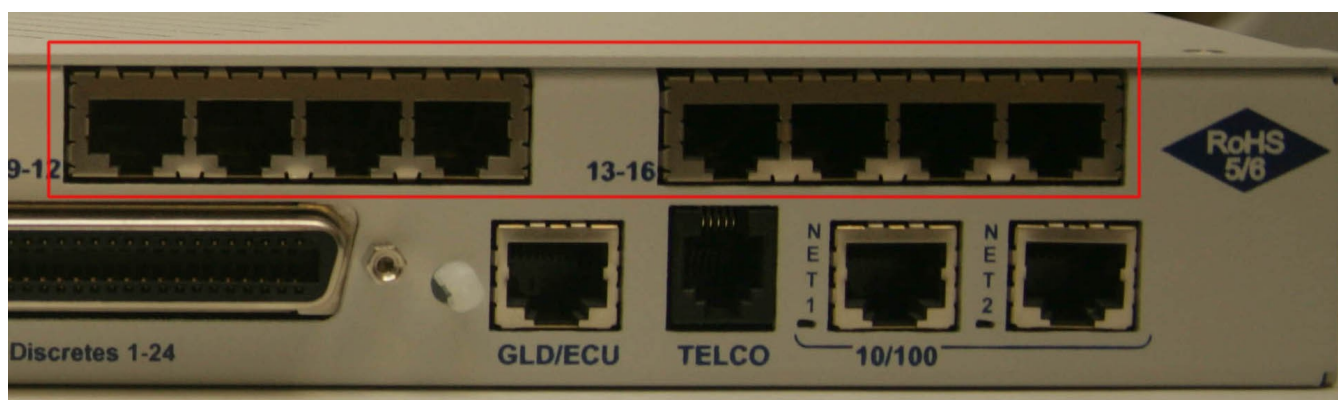
If you ordered your NetGuardian with hardware acceleration, then your NetGuardian is capable of SSL/SSH connections.

For help accessing your NetGuardian's TTY interface via SSH, see **Establishing an SSH Session**.

For help configuring your NetGuardian's web interface for SSL (HTTPS) connections, see the **Ethernet Ports** section of the NetGuardian Web Interface manual.

## 6.8.6 Integrated 8 Additional Serial Data Ports

You can order your NetGuardian 832A G5 with the 16S build option. This option gives you 8 extra serial data ports (for a total of 16 serial data ports total) to provide extra reach-through capacity to control your external serial devices.



**Figure 6.8.6.1** Serial Server Ports.

**NOTE:** Uses same pinout as ports in 6.7

The first 7 serial ports can be used concurrently, while the remaining 9 are pooled together and can be accessed 1 at a time through the TTY interface or by proxy connection to the 8th serial port. Connect your serial devices via RS232 or RS485 and access the devices through either through direct or indirect proxy.

The 16S option can be ordered with the +12/+24 VDC Sensor Power Supply, which provides a convenient way to connect an auxiliary sensor to a battery power supply, so if AC power goes down your sensor will still be powered.. Just plug the sensor into the back panel to use the sensor power supply. See Section 6.8.4 for more information about the Sensor Power build option.

The 16S option also includes hardware acceleration (SSL/SSH). For help accessing your NetGuardian's TTY interface via SSH, see **Establishing an SSH Session**.

## 6.8.7 D-Wire Sensor Inputs

The port on your NetGuardian labeled **D-Wire** supports up to 16 **D-Wire sensors**. Your NetGuardian powers and communicates with your D-Wire sensors via simple RJ-11 connection.

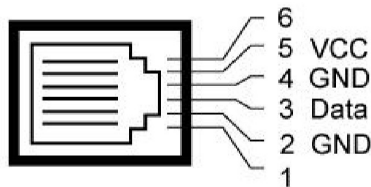
**Note:** The DPS Temperature and Humidity Sensor, DPS part number D-PK-DSNSR-12002, occupies two nodes.

Currently, the G5 supports the following D-Wire sensors:

Humidity	5V Analog
Temp/Humidity	12V Analog
Temperature	16V Analog
1 Alarm	60V Analog
3 Alarm	4-20mA
AL Fail	Vibration
Air Flow (New!)	

### 6.8.7.1 Connecting D-Wire Sensors

Using a **standard 6P4C, straight-through RJ-11 cable** (part number D-PR-045-10A-01, pinout below), connect the D-Wire port on the NetGuardian to the **In** jack on the 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).



**Fig. 6.8.6.1.1** Pinout for the NetGuardian and D-Wire Sensor RJ-11 jacks

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

## 6.9 Optional 66 Block Connector (832A)

Both of the 50-pin connectors on the back panel of the NetGuardian can be connected to the optional 25-pair 66 Block Connector (part number D-PR-966-10A-00). For 66 block pinout and color code information, see Figure 6.9.1 for Discretes 1–24 and Figure 6.9.2. for Analogs 1–6/Discretes 25–32/ Relays 1–8.

**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).

**Note:** If connecting to a 50-pair split block, all connections should be made on the two pin columns closest to the right-hand side of the block or bridge clips should be installed.

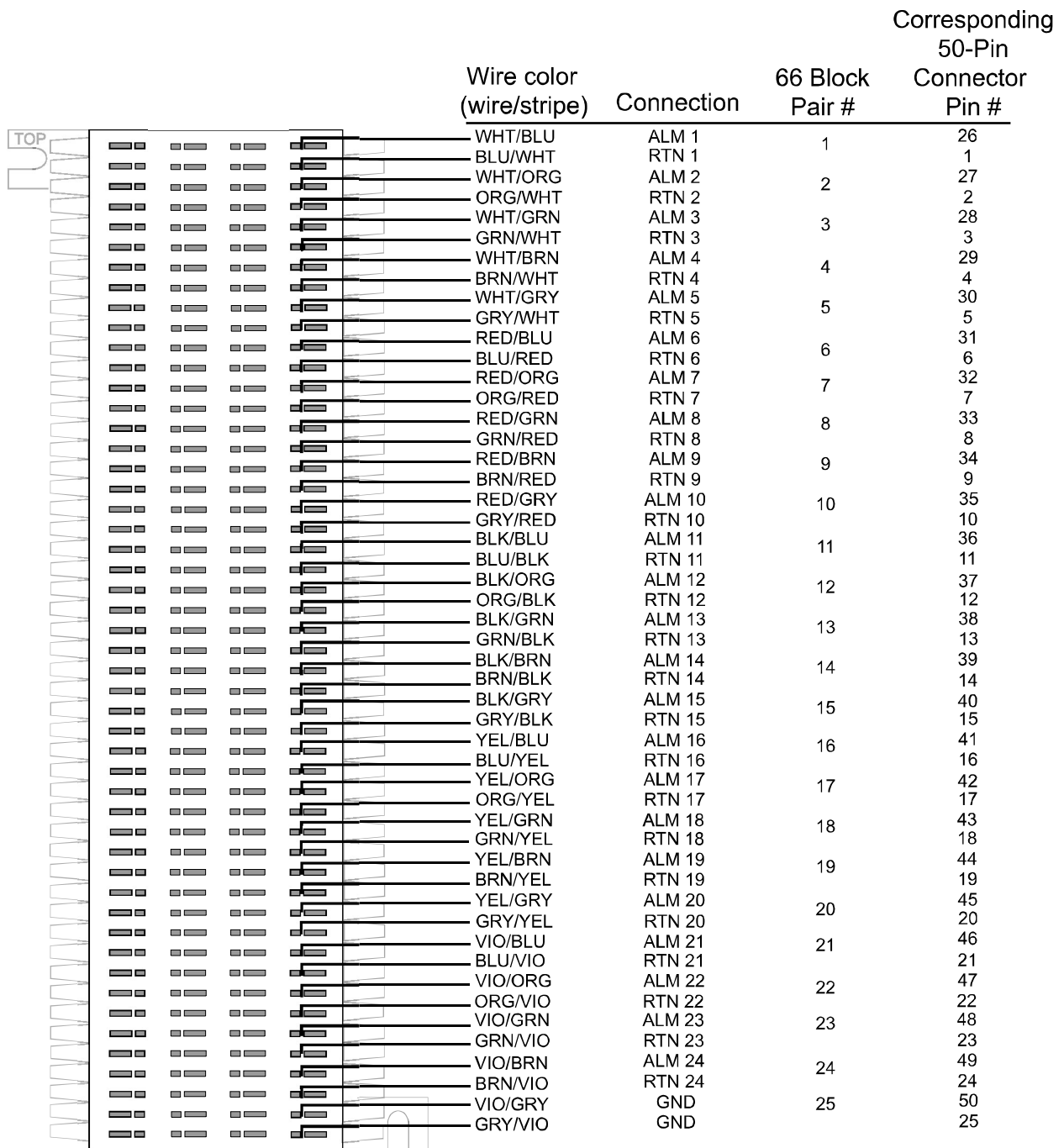


Fig 6.9.1. Optional 66 block pinout for Discretes 1-24

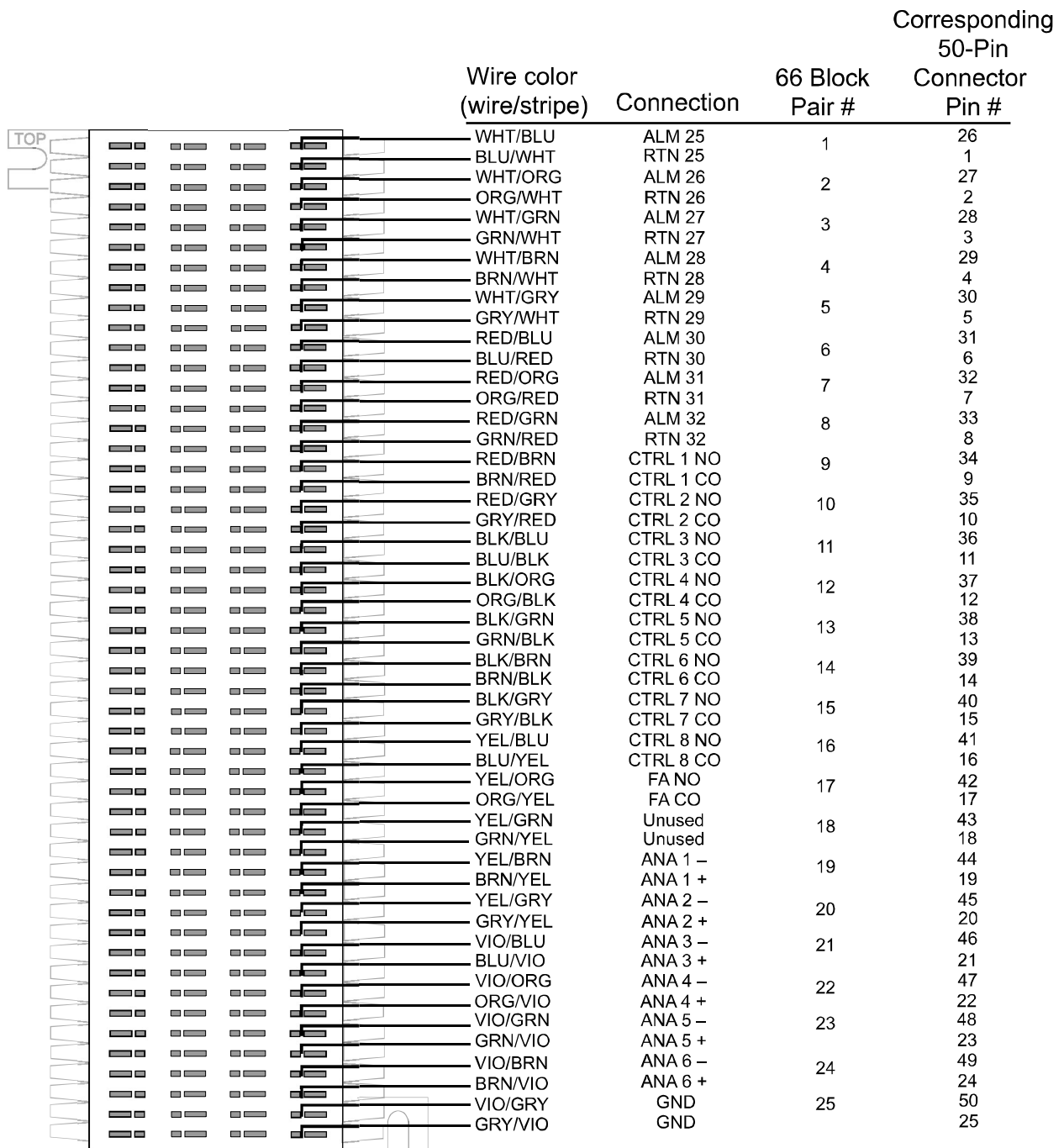


Fig. 6.9.2. Optional 66 block pinout for Analogs 1–8/Discretes 25–32/Relays 1–8



## 6.10 Optional 66 Block Connector (864A)

Both of the 50-pin connectors on the back panel of the NetGuardian can be connected to the optional 66 block, 25 pair block (part number D-PR-966-10A-00). See Figure 6.10.1 for pinout and color code information for Discretets 1–48 and Figure 6.10.2 for pinouts and color code information for Discretets 49–64, Relays 1–8, and Analogs 1–6.

**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).

**Note:** If connecting to a 50-pair split block, all connections should be made on the two pin columns closest to the right-hand side of the block.

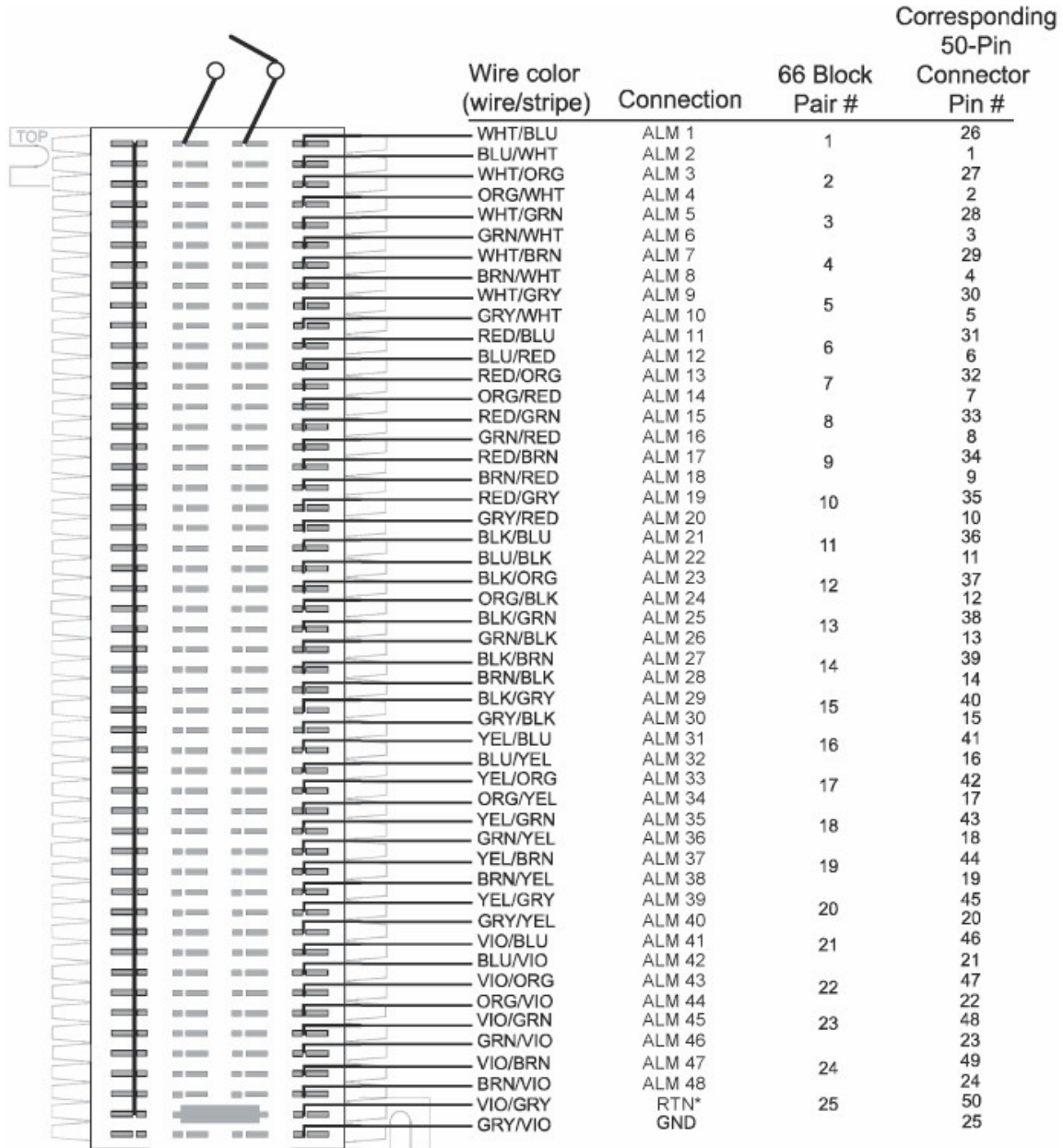
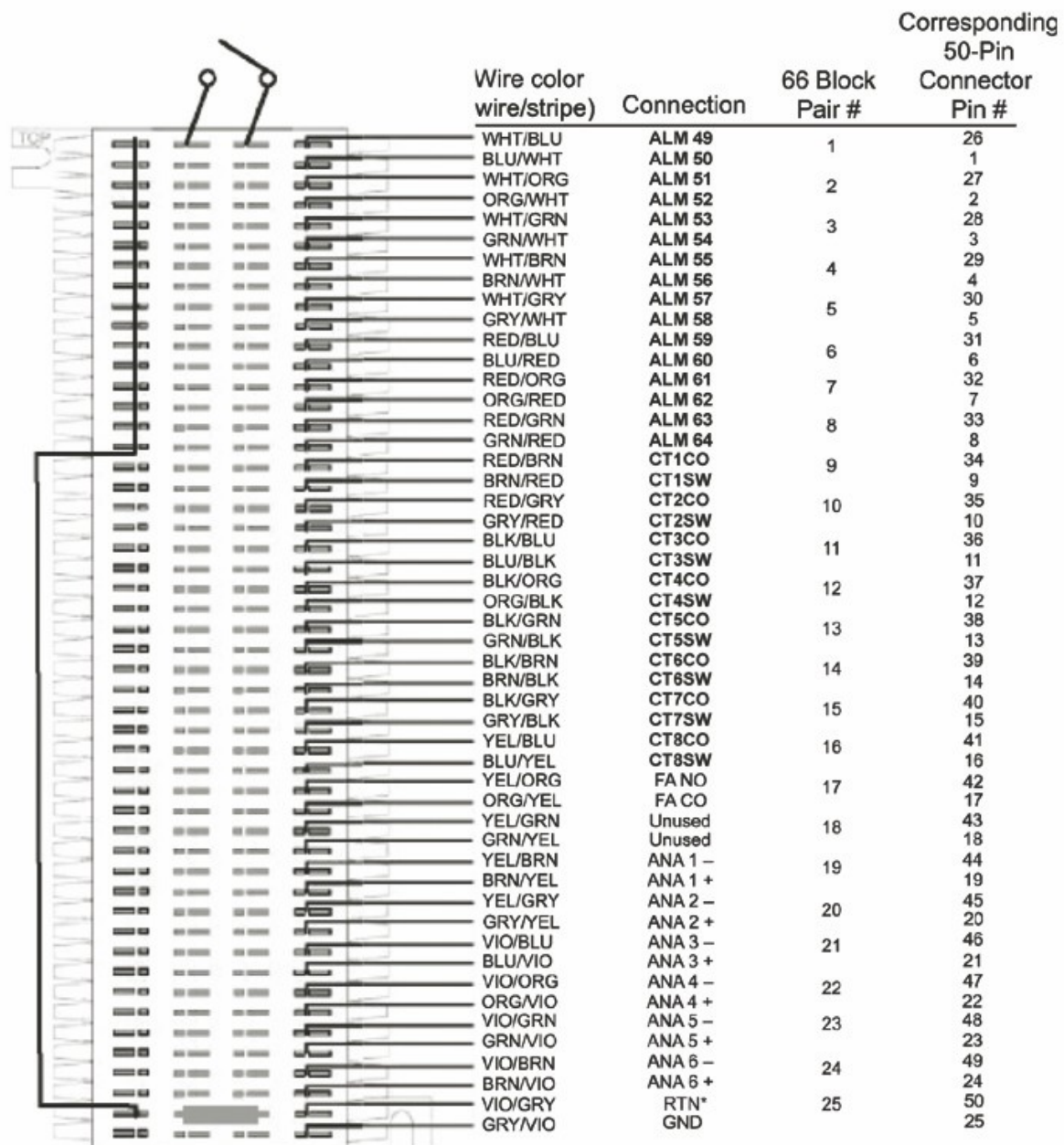


Fig. 6.10.1 66 Block connections for Discretets 1–48

RTN\* is the alarm return pin. Alarms on standard units are dry closure or ground closure. Most units will have RTN internally tied to GND. However, special hardware assemblies may have RTN isolated from

GND. For details regarding your unit's hardware, please reference the product description appendix.

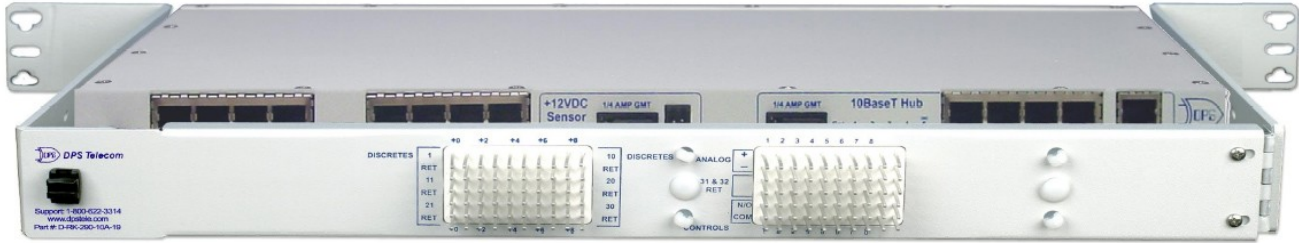


**Fig. 6.10.2.** 66 Block connections for Discretives 49–64, Relays 1–8, and Analogs 1–6

RTN\* is the alarm return pin. Alarms on standard units are dry closure or ground closure. Most units will have RTN internally tied to GND. However, special hardware assemblies may have RTN isolated from GND. For details regarding your unit's hardware, please reference the product description appendix.

## 6.11 Optional Hinged Wire-Wrap Back Panel

### NetGuardian 832A G5



### NetGuardian 864A G5

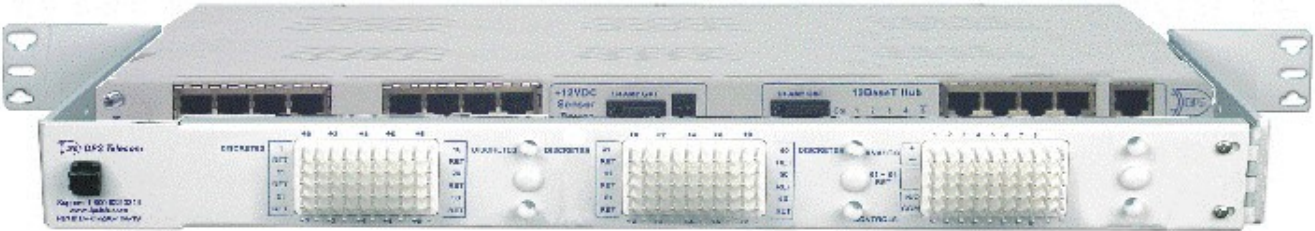


Fig. 6.11.1. The hinged wire-wrap back panel is mounted on the mounting rack of the NetGuardian



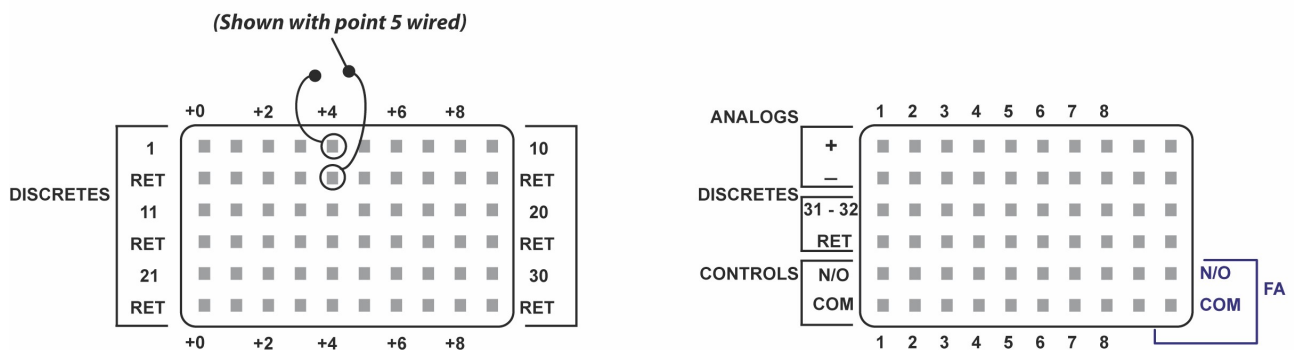
**Alarm Pinout for NG864 is different than the NG832 and is not compatible with NG832 WARNING hinged panel termination units**

**Note:** The hinged wire-wrap back panel supports 18-26 AWG wire (solid). DPS Telecom recommends using 24 AWG wire (solid).

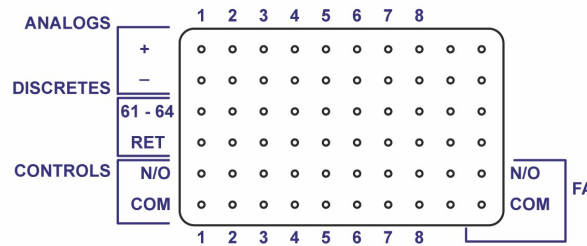
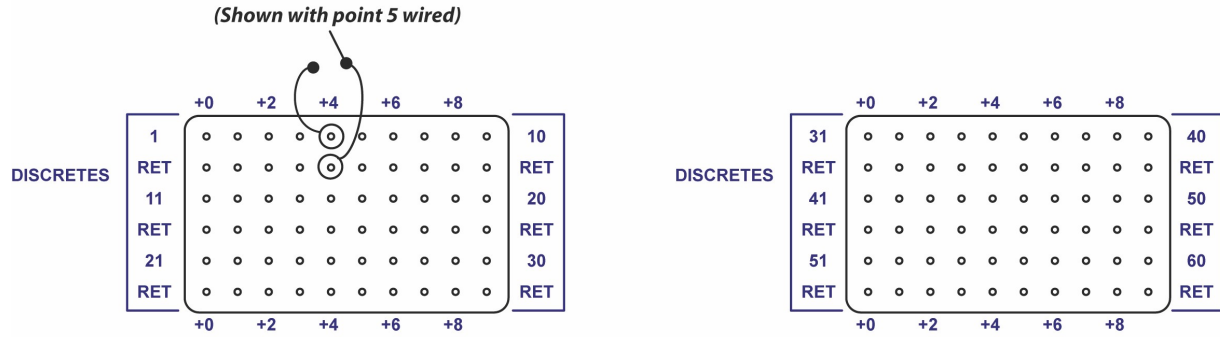
The optional hinged wire-wrap back panel provides wire-wrap connections for the NetGuardian's alarms and control relays. To connect alarms and control relays to the wire-wrap panel, follow these steps:

1. Mount the hinged wire-wrap back panel on the mounting rack of the NetGuardian.
2. Close the hinged back panel and lock in place by turning the black plastic locking swivel to the vertical position.
3. Connect discrete alarms, analog alarms, and control relays to the two pin blocks.

### For the NetGuardian 832A G5



## For the NetGuardian 864A G5



### Suggested Wire Wrapping Tools



Hand Wrap Tool



Wire Wrap Gun



Electrical Wire Wrap Gun

### 6.11.1 Lexan Wire-Wrap Cover

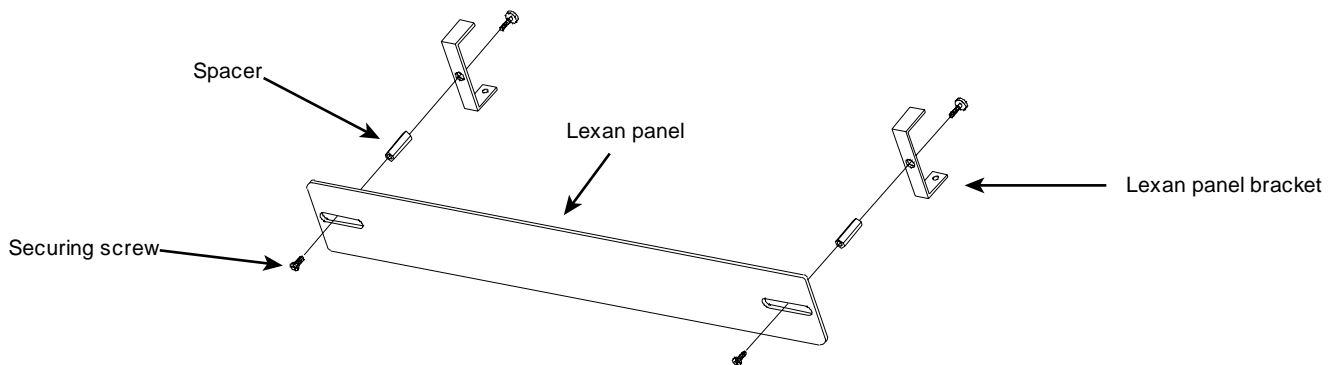
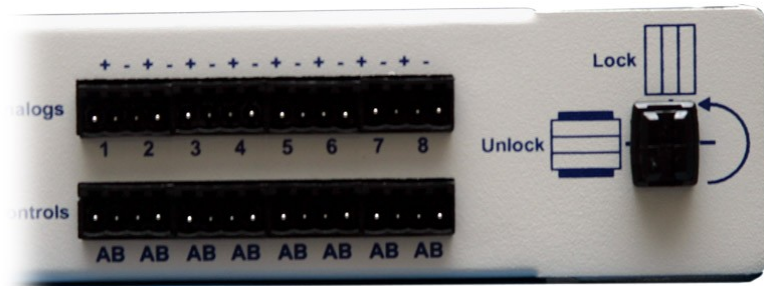


Fig. 6.11.1.1. Lexan panel assembly

To attach the Lexan cover to the hinged wire-wrap panel, follow these steps:

1. Attach communication lines to the wire-wrap pins before connecting the Lexan cover
2. Attach the Lexan cover to the mounting clips and connect to the hinged panel. (See Figure 6.11.1.1.)

## 6.12 Optional Hinged Pluggable Back Panel



**Fig.6.12.1** - Silk screen on the Hinged Pluggable Back Panel indicates which way to turn the black swivel to lock and unlock the gate.

### Instructions for installing the Hinged Pluggable Back Panel:

#### Rear View

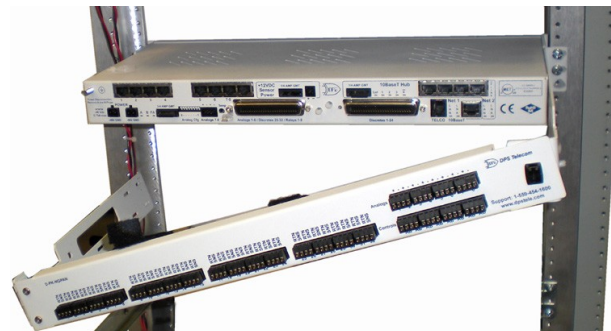


1. To begin installing the hinged pluggable back panel, the NetGuardian G5 should be rack mounted.  
**Suggestion:** Mount the unit in the flush, rack-mount position. This means the front of the NetGuardian is flush with the front of the rack post.

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



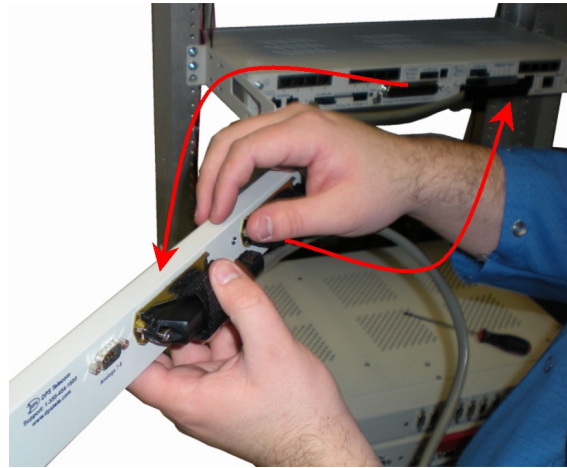
3. The rack should appear as shown above.



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



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



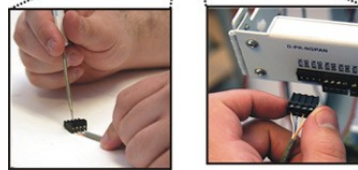
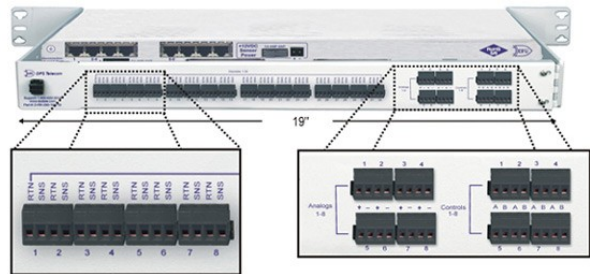
6. Unlock the back panel by turning the black swivel to the horizontal position. (See Figure 6.12.1) Plug the amphenol cables in to the hinged back panel and secure them with the Velcro straps. Make sure the NetGuardian's silk screen matches the hinged panel where the amphenols are connected.



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



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



9. Close the back panel and lock it by turning the black swivel to the vertical position. **NOTE:** The

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**connectors on the Hinged Pluggable Back Panel support 18 - 26 AWG wire (stranded or solid). DPS recommends using 24 AWG wire (stranded).**

## 6.13 Optional Hinged Amphenol Back Panel

The Hinged Amphenol Back Panel allows for upgrades from a KDA 864 without having to change out the existing wiring. The original amphenol cables from the KDA 864 are now connected to the back of the Hinged Amphenol Panel. Internal wiring converts KDA 864 amphenol pinout (3 amphenols total) into NetGuardian 864A pinouts.

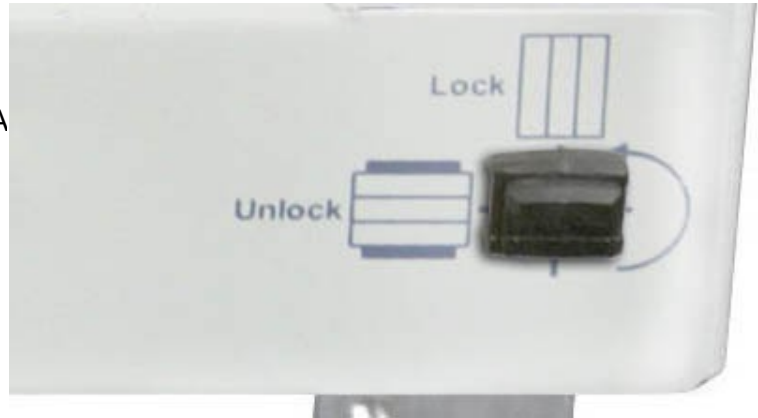


Fig.6.12.1 - Silk screen on the Hinged Pluggable Back Panel indicates which way to turn the black swivel to lock and unlock the gate.

### Instructions for installing the Hinged Pluggable Back Panel:

#### Rear View



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

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

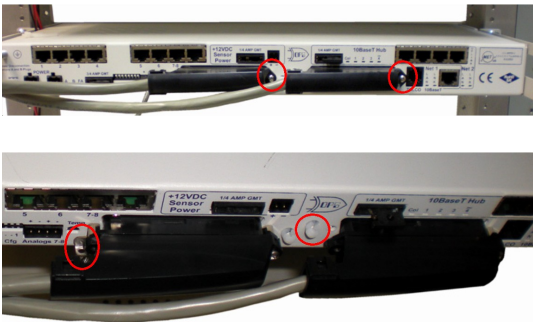




3. The rack should appear as shown above.

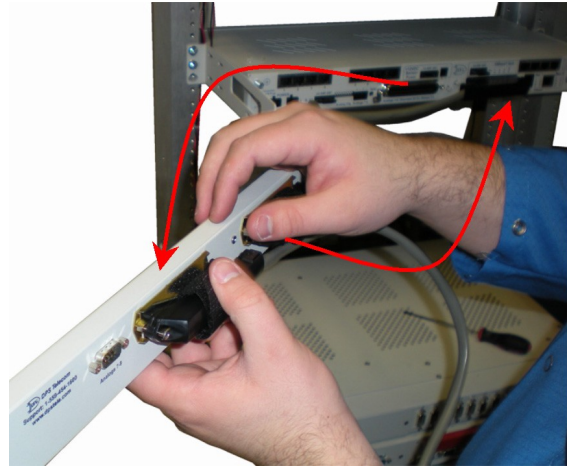


5. Attached the left side of the hinged panel to the rack with the screws provided.



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

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



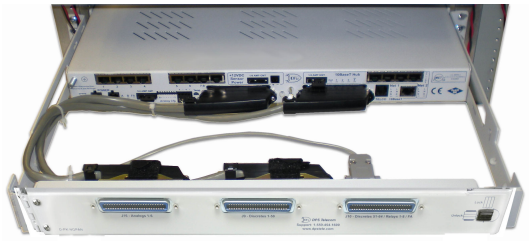
6. Unlock the back panel by turning the black swivel to the horizontal position. (See Figure 6.12.1) Plug the amphenol cables in to the hinged back panel and secure them with the Velcro straps. Make sure the NetGuardian's silk screen matches the hinged panel where the amphenols are connected.



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

9. Close the back panel and lock it by turning the black swivel to the vertical position. **Refer to KDA 864 Alarm and Control Relay Connector Pinout Table in the next section for more detail.**

10. Now you're ready to connect your 3 amphenol cables that were connected to your KDA 864 into the Hinged Amphenol Back Panel.



### 6.13.1 Alarm and Control Relay Connector Pinout Tables (KDA 864)

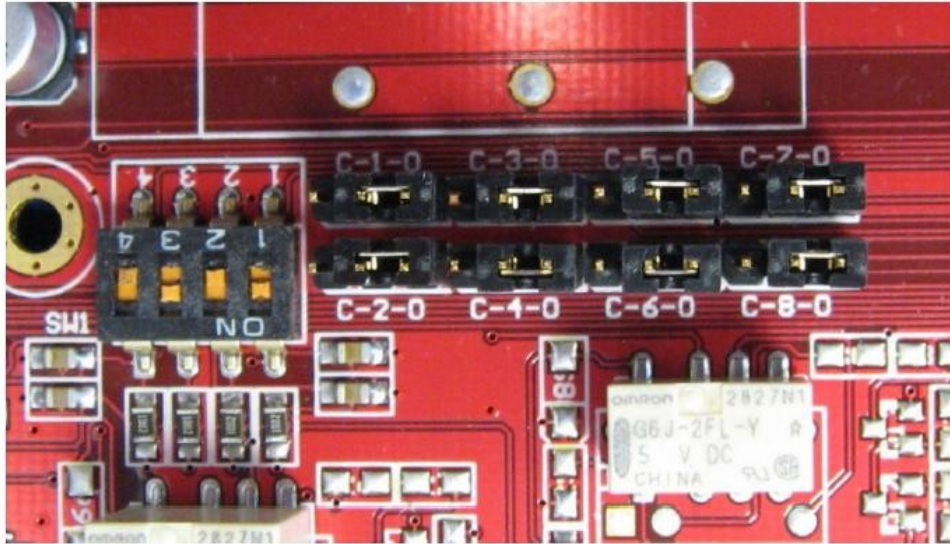
J9							
Function	Pin #	Function	Pin #	Function	Pin #	Function	Pin #
ALM 2	1	ALM 1	26	ALM 28	14	ALM 27	39
ALM 4	2	ALM 3	27	ALM 30	15	ALM 29	40
ALM 6	3	ALM 5	28	ALM 32	16	ALM 31	41
ALM 8	4	ALM 7	29	ALM 34	17	ALM 33	42
ALM 10	5	ALM 9	30	ALM 36	18	ALM 35	43
ALM 12	6	ALM 11	31	ALM 38	19	ALM 37	44
ALM 14	7	ALM 13	32	ALM 40	20	ALM 39	45
ALM 16	8	ALM 15	33	ALM 42	21	ALM 41	46
ALM 18	9	ALM 17	34	ALM 44	22	ALM 43	47
ALM 20	10	ALM 19	35	ALM 46	23	ALM 45	48
ALM 22	11	ALM 21	36	ALM 48	24	ALM 47	49
ALM 24	12	ALM 23	37	ALM 50	25	ALM 49	50
ALM 26	13	ALM 25	38				

J16	
Function	Pin #
CH 1 +	1
CH 2 +	2
CH 3 +	3
CH 4 +	4
CH 5 +	5
CH 6 +	6

J10							
Function	Pin #	Function	Pin #	Function	Pin #	Function	Pin #
ALM 52	1	ALM 51	26	CTRL 3B	14	CTRL 3A	39
ALM 54	2	ALM 53	27	CTRL 4B	15	CTRL 4A	40
ALM 56	3	ALM 55	28	CTRL 5B	16	CTRL 5A	41
ALM 57B-	4	ALM 57A+	29	CTRL 6B	17	CTRL 6A	42
ALM 58B-	5	ALM 58A+	30	CTRL 7B	18	CTRL 7A	43
ALM 59B-	6	ALM 59A+	31	CTRL 8B	19	CTRL 8A	44
ALM 60B-	7	ALM 60A+	32	FUSE	20	GND	45
ALM 61B-	8	ALM 61A+	33	GND	21	GND	46
ALM 62B-	9	ALM 62A+	34	GND	22	GND	47
ALM 63B-	10	ALM 63A+	35	GND	23	GND	48
ALM 64B-	11	ALM 64A+	36	GND	24	GND	49
CTRL 1B	12	CTRL 1A	37	GND	25	GND	50
CTRL 2B	13	CTRL 2A	38				

*Alarm and control relay connector pinouts for KDA 864*

## 6.14 Controls



**Fig. 6.13.1.** Adjustable jumpers on the NetGuardian circuit board

The following options are adjusted by resetting jumpers on the NetGuardian's circuit board:

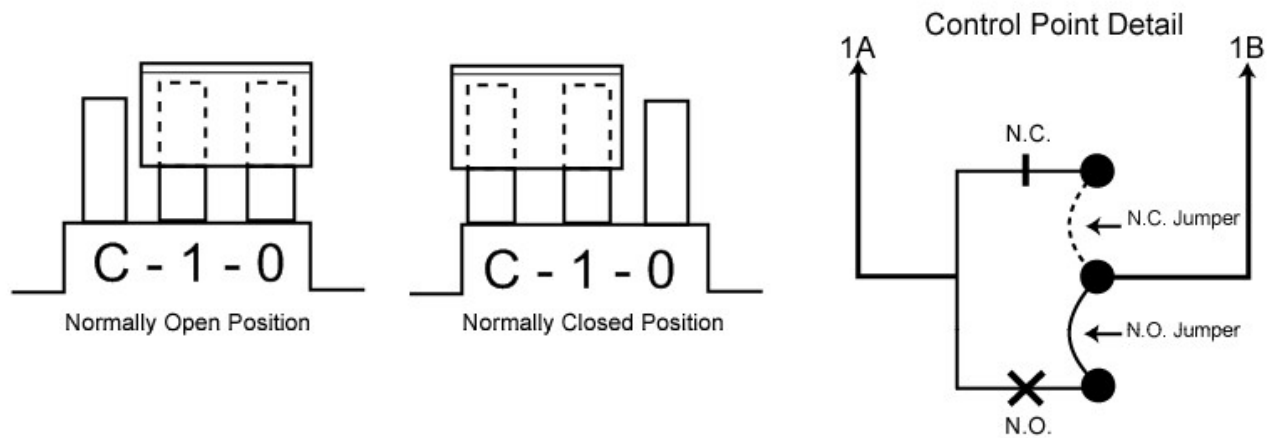
- Control relays can be switched from normally open (N/O) to normally closed (N/C)

To simply configure the jumpers, use the hatch panel access on the top of the NetGuardian chassis. This allows for easy access and configuration of jumpers without having to open the entire case. Remove top screw on hatch panel and rotate hatch cover until you can easily reach the jumpers. Figure 6.13.1 shows the circuit board and the location of the adjustable jumpers.



Hatch Panel Access on Top of NetGuardian G5 Chassis

**WARNING:** Always observe anti-static precautions whenever opening the unit.



**Fig. 6.13.2.** Jumper settings for analog alarm inputs and control relays

For control relay jumpers, the open position corresponds to normally open operation, and the closed position corresponds to normally closed operation. See Figure 6.13.2.

**Note:** Default settings may be different if you ordered a special configuration NetGuardian.

## 6.15 Bypassing Password

1. Power down the unit by removing the power cable or fuse
2. Remove screw from the top access panel (The same panel that is used to access the controls. See picture in previous section)
3. Rotate the panel to expose the Dip switches
4. Set dip switch 1 of the 4 position dip switches to the ON position. Refer to fig 6.13.1.
5. Power up the unit
6. The default password "dpstelecom" will now be accepted by the unit
7. In the Edit->Logon page, change the logon password to "dpstelecom" or another desired password
8. Power down the unit and set dip switch 1 to the OFF position
9. Reapply power to the unit

## 7 LCD Display



**Fig. 7.1.** NetGuardian Front Panel LCD

The front panel LCD displays the current alarm and control status and provides a command menu for controlling the NetGuardian's basic functions.

### Using the LCD command menu

The four buttons surrounding the front panel LCD are used to access the LCD Command Menu. To access the menu, press the Menu button. To scroll the menu, use the q and p buttons. To select a menu command, press the Sel (Select) button.

### Standard Prompt

When no Command Menu item is selected and no alarms or relays are active, the LCD displays the firmware version and the standard prompt, Press MENU for front panel options.

### Controlling Display Speed

The scroll speed can be temporarily increased by pressing and holding the p button while the message is active.

## 7.1 Alarm and Control Status Messages

If an alarm or control relay is active, the LCD will display the following messages to indicate alarm and control status. The LCD panel will display the following messages to indicate alarm and control status:

<i>Discrete Alarms:</i>	If there are any standing discrete alarms, the display will read "Discrete Alarms:", followed by the user-defined descriptions of the standing alarm points.
<i>Relays:</i>	If there are any latched relays, the display will read "Relays:", followed by the user-defined descriptions of the latched relays.
<i>Ping Alarms:</i>	If any ping targets have failed to respond within the specified time, the display will read "Ping Alarms:", followed by the user-defined descriptions of the ping targets.
<i>Analogs:</i>	If any analog channels have crossed a threshold value, the display will read "Analogs", followed by the user-defined description of the analog channel, the channel's last voltage reading, and a letter indicating which threshold the channel has crossed.

Analog thresholds are represented by the following characters:

Major Over:	a capital <b>O</b>
Minor Over:	a lower-case <b>o</b>
Minor Under:	a lower-case <b>u</b>

Major Under: a capital U

### New LCD Function - "Point Mode"

This new feature allows you to change the way active alarms are displayed on the NetGuardian's front panel LCD screen. When the LCD is in "Point Mode," only the display points in alarm are displayed on the screen, instead of the full alarm descriptions. Point numbers for discrete alarms, analog threshold crossings, and latched relays will appear on the LCD. "Point Mode" is configurable from the TTY command line interface, the web browser, and NGEEditG5.

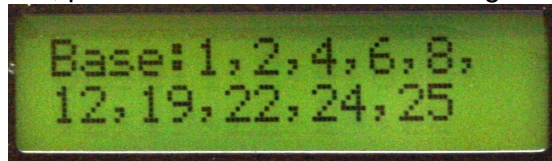
***The following windows are supported and are processed in this order:***

1. Base Alarms
2. Expansion 1 Alarms
3. Expansion 2 Alarms
4. Expansion 3 Alarms
5. Ping Alarms
6. Base Relays
7. Expansion 1 Relays
8. Expansion 2 Relays
9. Expansion 3 Relays
10. Base Analogs
11. Expansion 1 Analogs
12. Expansion 2 Analogs
13. Expansion 3 Analogs
14. Network Link Down

Only windows with alarms will appear on the LCD. If no alarms are active, a "no alarms active" message will appear. The LCD Delay Time is how long you want the points to show on the screen. You can set the delay time from 1-60 sec (default is 2 sec.) This is configurable from the TTY command line interface, web, and NGEEditG5.

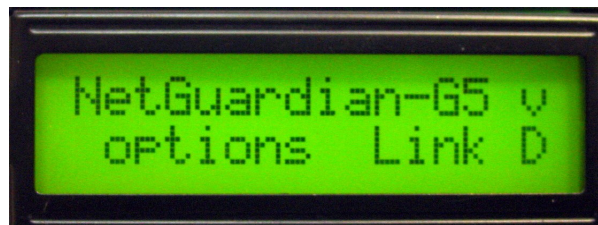
#### Using the Front Panel LCD buttons for Point Mode

Pressing the SEL, p, or q buttons will force the NetGuardian back into Scroll Mode for 3 minutes. This is particularly useful for viewing the configured descriptions or analog values associated with the active alarms. When Point Mode is enabled, but you chose to go into Scroll Mode, press the MENU button twice to go back.



See section "New! TTY Command Mode" for instructions on enabling / disabling Point Mode.

## 7.2 LCD Command Menu

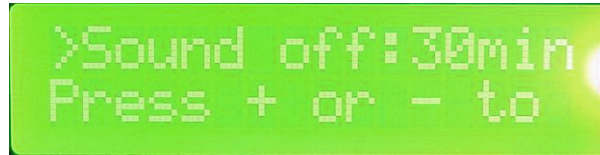


**Fig. 7.3.1.** LCD display

The LCD Command Menu provides commands for controlling some of the NetGuardian's basic functions: temporarily silencing the alarm speaker, rebooting the unit, and running the TTY configuration utility.

When no Command Menu item is selected and no alarms or relays are active, the LCD displays the firmware version and the Standard Prompt, Press MENU for front panel options. (See Figure 7.3.1, above.) To access the Command Menu, press the Menu button.

## 7.2.1 Sound off



*Fig. 7.3.1.1. Sound Off command*

### Sound off

The Sound off command suppresses sounds from the alarm speaker for a user-defined period of 10, 20, or 30 minutes. **To scroll to the next menu command**, press the q button.

**To change the Sound off setting**, press Sel to select the command. The arrow cursor (>) will move to the right of the colon (:) in **Sound off**: to indicate that the command submenu is selected. Press the q and p buttons to scroll through the Sound off time period options. Select 0 minutes to allow all sounds. When the time period you want is displayed, press Sel to make your selection. **To exit the Command Menu** without changing the Sound off setting, press Menu.

## 7.2.2 Reboot



*Fig. 7.3.2.1. Reboot command*

### Reboot

The Reboot command reboots the NetGuardian. Press Sel. The LCD will briefly display the message Rebooting ..., and the normal boot sequence will begin. **To exit the Command Menu** without rebooting, press Menu.

## 7.2.3 Run Config



*Fig. 7.3.3.1. Run Config command*

### Run Config

The Run Config command forces the TTY configuration interface to run over the craft port at the user defined baud rate (default is 9600 baud).

**To run the TTY configuration utility**, press Sel. **To exit the Command Menu** without running the TTY interface, press Menu.



---

## 7.2.4 Contrast

### Contrast

The **Contrast** command provides controls for adjusting the contrast of the LCD.

**To adjust the contrast**, press Sel to select the command. The arrow cursor (>) will move to the right of the colon (:) in Contrast: to indicate that the command submenu is selected. Press the q or p button until you're satisfied with the contrast setting, then press Sel to make your selection. **To exit** the Command Menu and **revert to the default contrast setting**, press Menu.

## 8 Alarm Speaker

The NetGuardian's alarm speaker emits distinctive tones under two conditions

1. **If there is an Ethernet connection failure**, the speaker will emit a **high-low warbling tone**. Press any front panel button to silence the speaker.
2. **If an alarm occurs**, the speaker will emit an **intermittent beep**. Press any front panel button to silence the speaker. If you do not silence the speaker, the beep will continue for the user defined duration (default is a 6 second duration). Silencing the speaker will allow the next alarm, if any, to sound.

## 9 Front Panel LEDs



**Fig. 9.1.** Front panel LEDs

The NetGuardian's front panel LEDs indicate communication and alarm reporting status. LED status messages are described below in Table 9.A.

LED	Status	Description
Config	Blink Green	Valid Configuration
	Blink Red	Invalid Configuration
Alarm	Blink Red	New COS alarm*
	Solid Red	One or more standing alarms*
Expansion	Blink Green	Transmit over expansion port
	Blink Red	Receive over expansion port
Net 1	Blink Green	Transmit over Ethernet port 1
	Blink Red	Receive over Ethernet port 1
Net 2	Blink Green	Transmit over Ethernet port 2
	Blink Red	Receive over Ethernet port 2
LNK Alarm	Solid Red	No Ethernet link detected (for configured Net1 or Net2)
Craft	Blink Green	Transmit over craft port
	Blink Red	Receive over craft port
Modem	Blink Green	Transmit over Modem port
	Blink Red	Receive over Modem port
Data Ports 1-8	Blink Green	Transmit over indicated data port
	Blink Red	Receive over indicated data port

\*NOTE: Alarm must be configured for notification to be reflected in LED

**Table 9.A.** Front panel LED Status message descriptions

## 10 Back Panel LEDs



**Fig. 10.1.** Back panel LEDs for Power (left) and Ethernet connections

The back panel LEDs indicate the status of power and Ethernet connections. LED status messages are described below in Table 10.A.

	LED	Status	Description
<b>Power</b>	Power A and/or B	Solid Green	Polarity is correct on power feed A
		Off	No Power or Polarity Reverse
	FA	Solid Red	Fuse failure
<b>10/100 Net</b>	Net1	Blink Green	Activity over indicated integrated Ethernet port
	Net2	Solid Green	Link detected
<b>10/100 BaseT Switch</b>	Col	Blink Green	One or more of the Ethernet Switch ports are active.
	1-4	Blink Green	Activity over indicated integrated Ethernet Switch port
		Solid Green	Link detected
<b>SFP Fiber 1000Base-X</b> (Fiber build option only)	1-2	Solid Red	SFP detected, no link.
		Solid Green	SFP detected, link is up.
<b>10/100/1000 BaseT Switch</b> (Fiber build option only)	1-4	Flashing Green	Activity on port detected.
		Solid Greenok	Link detected.

**Table 10.A.** Back panel LED Status message descriptions

## 11 Configuring the NetGuardian

The NetGuardian must be provisioned with log-on passwords, alarm descriptions, port parameters, ping targets, control descriptions, and other system information. You can provision the NetGuardian using either the NGEEditG5 software or the Web interface. The NetGuardian also supports a limited TTY interface for configuring some basic options. (For full instructions on configuring the NetGuardian, see the software configuration guides on the NetGuardian Resource CD.)

You can provision the NetGuardian either locally through the craft port or remotely through a LAN connection. However, to access the NetGuardian via LAN you must first make a temporary connection to the NetGuardian and assign it an IP address on your network. For more information, see Section 12, "Connecting to the NetGuardian."

### 11.1 RADIUS Authentication (Available as of Firmware 5.0I)

RADIUS authentication is now supported by any NetGuardian G5 platform (832A or 864A, with or without hardware acceleration).

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 832A / 864A G5 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.

Also included in the reply are the user's individual access rights, so different users can be granted different privilege levels. If the user's login attempt is not found, a rejection is returned instead. RADIUS configuration for the NetGuardian will be achieved via the web browser interface, NGEEditG5 software utility, and/or TTY interface. For details, see the separate user manuals for the NetGuardian G5 web browser and NGEEditG5.

## 12 Connecting to the NetGuardian

### 12.1 ... via Craft Port



*Fig. 12.1.1. NetGuardian Craft Port*

The simplest way to connect to the NetGuardian is over a physical cable connection between your PC's COM port and the NetGuardian's craft port.

**Note:** You must be connected via craft port to use the TTY interface, but you don't have to be connected to a NetGuardian unit to use NGEEditG5. You only need a connection to the unit to read or write configuration files to its NVRAM. You can use NGEEditG5 on an unconnected PC to create and store

---

NetGuardian configuration files.

Use the DB9M-DB9F download cable provided with your NetGuardian to make a craft port connection.

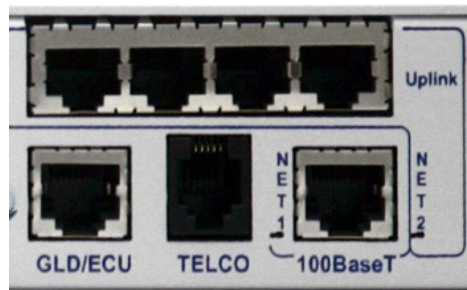
**Select the following COM port options:**

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

When a connection is established (sometimes accompanied by receipt of a hex byte), type **DPSCFG**, press Enter to activate the configuration menu. The default password is 'dpstelecom' ***RADIUS: As of firmware 5.0l, typing <CR> will prompt for a username and password.***

You can perform basic configuration via the craft port — but if you like, you can connect via the craft port just to configure the NetGuardian's Private LAN IP address, and then do the rest of your configuration via a LAN connection.

## 12.2 ... via LAN



**Fig. 3.2.1. Ethernet port 1**

You can also connect to the NetGuardian over a LAN connection. This is a very convenient way to provision multiple NetGuardian units at multiple locations. **Note:** You don't have to be connected to a NetGuardian unit to use NGEeditG5. You only need a connection to the unit to read or write configuration files to its NVRAM. You can use NGEeditG5 on an unconnected PC to create and store NetGuardian configuration files.

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

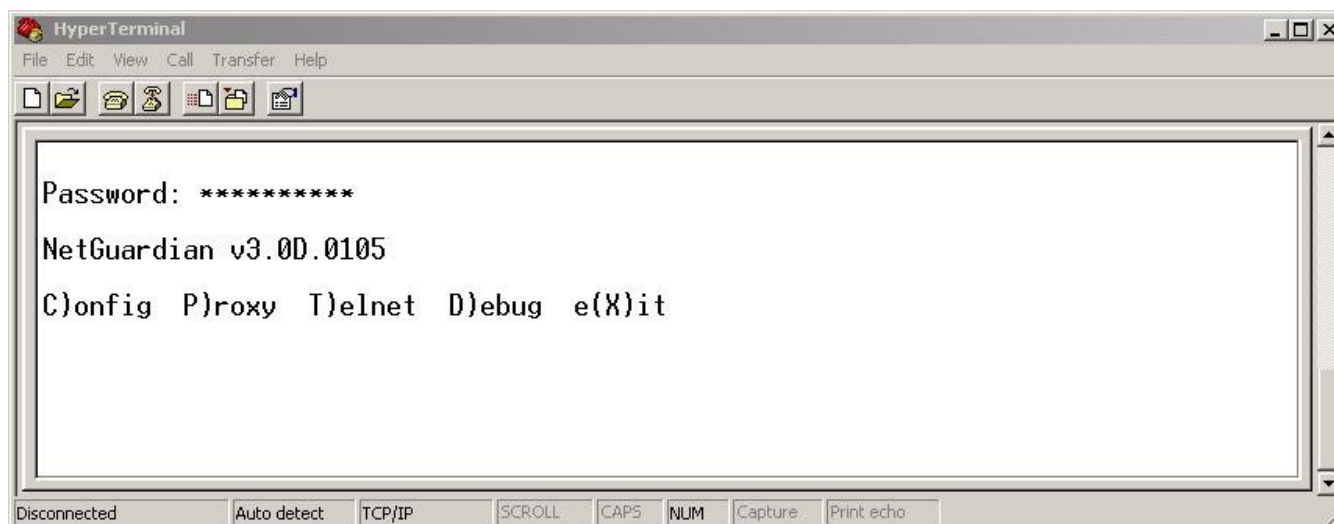
**Note:** NET1 is defaulted to 192.168.1.100

**If you have physical access to the NetGuardian**, the easiest thing to do is connect to the unit through the craft port and then assign it an IP address. Then you can complete the rest of the unit configuration over a remote LAN connection, if you want. For instructions, see Section 12.1, "Connecting to the NetGuardian via Craft Port."

**If you DON'T have physical access to the NetGuardian**, you can make a LAN connection to the unit by temporarily changing your PC's IP address and subnet mask to match the NetGuardian's factory default IP settings. Follow these steps:

1. Look up your PC's current IP address and subnet mask, and write this information down.
2. Reset your PC's IP address to **192.168.1.200**.
3. Reset your PC's subnet mask to **255.255.0.0**. You may have to reboot your PC to apply your changes.
4. Once the IP address and subnet mask of your computer coincide with the NetGuardian's, you can access the NetGuardian via a Telnet session or via Web browser by using the NetGuardian's default IP address of **192.168.1.100**.
5. Provision the NetGuardian with the appropriate information, then change your computer's IP address and subnet mask back to their original settings.

## 13 TTY Interface



*Fig. 13.1. The TTY interface initial configuration screen*

The TTY interface is the NetGuardian's built-in provision controls for basic configuration of the NetGuardian. Configure the NetGuardian's ethernet port settings, monitor the status of base and system alarms, operate control relays, view live ping targets, view debug or create proxy connections to other ports. For more advanced configuration tools, please use the Web Browser Interface or the NGEeditG5 utility.

To use the TTY interface with the NetGuardian, all you need is any PC with terminal emulation software (i.e. Hyperterminal) and a connection to the NetGuardian. This connection can be a direct connection to the NetGuardian's front panel craft port or a remote connection via Telnet or dial-up.

Some initial software configuration must be performed before you can use a remote connection to the NetGuardian. For Telnet, connect to the NetGuardian's 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.

The TTY interface is primarily used for configuring and provisioning the NetGuardian, but you can also use it to ping IP targets, view system statistics, and data port activity.

**NOTE:** The TTY default 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.

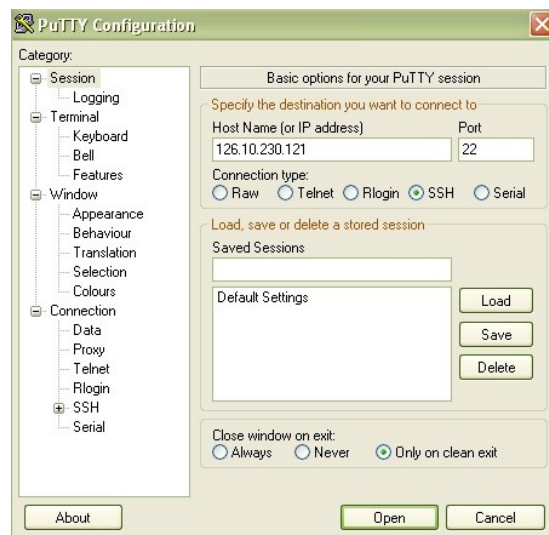
## 13.1 Establishing an SSH Session

If your NetGuardian was purchased with the hardware acceleration option, you may connect to your NetGuardian's TTY interface via SSH session. If you are unsure as to whether or not your NetGuardian is equipped with hardware acceleration, reference your NetGuardian's model number (D-PK-NETG5-...) and contact [support@dpstele.com](mailto:support@dpstele.com).

DPS Telecom recommends using PuTTY to access the TTY interface via SSH session.

### To establish an SSH session with your NetGuardian using PuTTY:

- Open Putty
- Click **Session**
- In the **Host Name (or IP address)** field, input the IP of your NetGuardian.
- To enable backspacing within the TTY interface, click **Keyboard** on the left pane, underneath Terminal. In that tab, select **Control H** under The Backspace Key option.
- Click **Open**
- When prompted, enter your username and password (as with a standard TTY session)



*Use PuTTY to establish an SSH session with your NetGuardian*

## 13.2 Unit Configuration

### 13.2.1 Ethernet Port Setup

You must assign your NetGuardian's IP address before you can connect via LAN/WAN using a Telnet client or a Web browser. To connect via LAN, the minimum configuration requires setup of the IP address and subnet mask. Minimum WAN configuration requires that you set the default gateway as well.



```

asdas - HyperTerminal
File Edit View Call Transfer Help
Password: *****
NetGuardian-G5 v5.0B.3145
NetGuardianG5 @ dpstele.com
C)onfig P)roxy T)elnet D)ebug e(X)it
E)dit M)onitor P)ing S)tats T)une Modem R)eset Port (ESC) ? E
NET(1) NET(2) n(V)ram P)PP D)ate/time R)ebboot s(Y)stem (ESC) ? 1
Net 1 Interface
Unit Address      : 126.010.220.197 (126.010.220.197)
Subnet Mask       : 255.255.192.000 (255.255.192.000)
Default Gateway   : 126.010.220.254 (126.010.220.254)
Link Status       : Detected
IP Filter         : Disabled
MAC Address       : 00.10.81.00.18.BA
Features          : 8AA5-D5-B995
U)nit Address S)ubnet Mask G)ateway
I)P Filter F)eatures (ESC) ?
Connected 0:00:34 Auto detect TCP/IP SCROLL CAPS NUM Capture Print echo

```

**Fig. 13.1.1.** Configure the Ethernet port parameters

### To assign the NetGuardian's Ethernet Settings

5. Type C for the C)onfig menu.
6. Type E for E)dit menu.
7. Type E for port settings, 1 for Net 1, 2 for Net 2.
8. Configure the unit address, subnet mask, and default gateway.
9. ESC to the main menu.
10. When asked if you would like to save changes, type Y (yes).
11. Reboot to save the new configuration to the NetGuardian.
12. Now you can connect to the NetGuardian via LAN and use either NGEedit software over LAN or the Web Browser to complete the configuration.

### 13.2.1.1 T1/E1 WAN Settings

#### E1/T1 WAN Settings

If using the NetGuardian in an E1/T1 WAN network with DPS Telecom's WAN MUX and VLAN Router accessories, you must also assign the NetGuardian a WAN ID. The WAN ID corresponds to the ID number of the WAN MUX port (1-16) to which you connect the NetGuardian.

#### To assign a WAN ID

1. From the **E)thernet** menu, select the **G)lobal** option
2. Select the **t(1)e1**, option.
3. Assign a WAN ID, 1-16, corresponding to the WAN MUX port to which you will connect the NetGuardian.

**Note:** If your NetGuardian has a T1/E1 port, but you are not using the WAN MUX and VLAN Router accessories, do not assign a WAN ID.

### 13.2.1.2 New! Backup Mode

```

c:\ Telnet 126.10.241.146
NetGuardian864-G5 v5.2G.0425
NG864Test © dpstele.com

C)onfig P)roxy T)elnet D)ebg e<X>it
E)dit M)onitor P)ing S)tats T)une Modem R)eset Port <ESC> ? E
E)thernet n<U>ram P)PP D)ate/time R<A>DIUS R)ebboot <ESC> ? E
G)lobal NET<1> NET<2> <ESC> ? 2

Net 2 Interface
Unit Address      : 126.010.200.114 <126.010.241.146>
Subnet Mask       : 255.255.192.000 <255.255.192.000>
Default Gateway   : 255.255.255.255 <126.010.220.192>
Link Status       : Detected <not in use>
Backup Mode       : Enabled
Autoswitch        : Disabled

MAC Address       : 00.10.81.00.15.D8

U)nit Address S)ubnet Mask G)ateway B)ackup Mode
A)utoSwitch s<W>itchToNet1 <ESC> ?

```

*Enable "Backup Mode" to automatically switch between Net1 and Net2.*

Backup Mode allows the NetGuardian to automatically switch between Net1 and Net2 should LAN connectivity fail. When used in Backup Mode, the NetGuardian has 2 network connections attached, but uses only the primary LAN (Net1). When a LAN failure occurs, the unit makes the switch to the secondary LAN connection (Net 2) to maintain visibility. With the "Autoswitch" feature enabled, the NetGuardian will revert back to the primary LAN connection when the uplink is re-established.

1. Login to the TTY interface and go to C)onfig > E)dit.
2. Go to E)thernet > NET(2) to configure the Net 2 Interface.
3. Go to B)ackup Mode to enable/disable this mode, then A)utoswitch to use the automatic network switching feature.

### 13.2.2 SFP Fiber Connection (For Fiber Build Option)

For NetGuardian G5 units with GigE Fiber top board, you also can view and edit switch and SFP fiber connections in the TTY interface. After logging in, select M)onitor > sW)itch to view details for the 10/100/1000BaseT switch and Fiber interface.

```

c:\ Telnet 126.10.218.251.
Password: *****
NetGuardian864-G5 v5.2D.0032

C)onfig P)roxy T)elnet D)ebg e<X>it
E)dit M)onitor P)ing S)tats T)une Modem R)eset Port <ESC> ? M
A)larms re<L>ays a<N>alogs E)vent log a<C>cum.Timer
B)AC P)ing targets p<O>rts s<W>itch S)ystem a<R>p D)bg <ESC> ? W

Ethernet
ID   Link      Speed      RX_Pkts    TX_Pkts
1   Active    100MFULL   5917       1134
2   Down      --         0           0
3   Down      --         0           0
4   Active    10MHALF   40         4813
Net2 Active    100MFULL   1094       5863

SFP Fiber
ID   Link      Speed      RX_Pkts    TX_Pkts
1   Down      --         0           0
2   Active    1000MFULL 0           4760

A)larms re<L>ays a<N>alogs E)vent log a<C>cum.Timer
B)AC P)ing targets p<O>rts s<W>itch S)ystem a<R>p D)bg <ESC> ? _

```

*Fig. 13.1.2 SFP fiber connection detail in the TTY interface*

### 13.2.3 Edit PPP Port

Choose P)PP to edit your baud rate, depending on what device has been chose for the PPP port.

```

C)onfig P)roxy T)elnet D)ebug e(X)it
E)dit M)onitor P)ing S)tats T)une Modem R)eset Port (ESC) ? E
E)thernet n(V)ram P)PP R)ebboot s(Y)stem (ESC) ? P
Configuration
  Port      : Data1
  Baud      : 9600
  Compression : Yes
Client
  Mode      : onDemand
  Phone     :
  Username  :
  Password  :
Server
  Server    : Disabled
  Address   : 255.255.255.255 (Client Specified)
P)ort B)aud mo(D)em C)ompression M)ode
p(H)one U)sername pass(W)ord S)erver A)ddress B)aud mo(D)em (ESC) ?

```

*Fig. 13.1.3 Edit your PPP port*

If you are using a modem for the PPP port, then choose mo(D)em to define the modem initialization strings.

Choose B)aud to define the baud rate for that port.

```

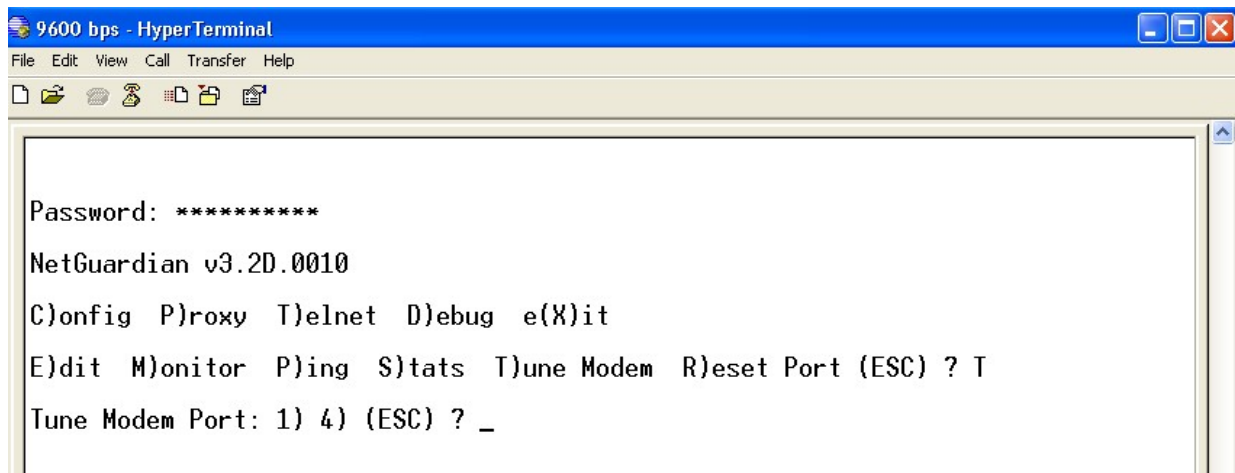
Client
  Mode      : onDemand
  Phone     :
  Username  :
  Password  :
Server
  Server    : Disabled
  Address   : 255.255.255.255 (Client Specified)
P)ort B)aud mo(D)em C)ompression M)ode
p(H)one U)sername pass(W)ord S)erver A)ddress B)aud mo(D)em (ESC) ? B
3)00 6)00 1)200 2)400 4)800 9)600 a)19200 b)38400 (ESC) ?

```

*Fig. 13.1.4. Select the baud rate for your PPP port*

## 13.2.4 Tune 202 Modem

Tuning the 202 modem on a NetGuardian G5 can only be done from the TTY interface (using either HyperTerminal through the front craft port or by telnet over LAN on port 2002).



**Fig. 13.1.4.** Press 'T' to tune the 202 Modem with the TTY interface

Though no menu options will appear, use the following commands to tune the 202 modem. Each menu option, when chosen, will output the character "A" on screen:

- 1) Minor Adjust DB+
- 2) Minor Adjust DB-
- 3) High Frequency
- 4) Low Frequency
- 5) Off
- 6) Major Adjust DB-
- 7) Major Adjust DB+
- 8) Median Frequency (Average of high and low frequency)

After selecting an option (like #1 in this example) for Minor Adjust the DB+ level, the NetGuardian will return a '+' command to inform you the task is completed. Each time you hit a number key (1-8), the NetGuardian will a '+' on your screen.

## 13.2.5 RADIUS Configuration

The TTY interface can also be used to configure RADIUS settings. After entering the IPA for the RADIUS server, users will be prompted for both a username **and** password to logon to the unit. This username and password combination will be verified against the RADIUS database, and not the local database. The local password database will only be used for front panel craft port access in the event the RADIUS configuration is making the unit otherwise inaccessible.

```

E)thernet n(V)ram P)PP D)ate/time R(A)DIUS R)eboot (ESC) ? A
Global Settings
  Retry : 1
  Timeout: 10 seconds
Server 1
  IPA : 126.010.220.194
  Port : 1812
  IFace : NET2
  Secret : thisisanewsecret
Server 2
  IPA : 255.255.255.255 (Disabled)
  Port : 1812
  IFace : NET2
  Secret : default_secret
R)etry T)imout a)IPA1 b)IPA2 c)Port1 d)Port2
e)Iface1 f)Iface2 g)Secret1 h)Secret2 (ESC) ? _

```

**Fig. 13.1.5.** The RADIUS configuration menu using the TTY interface.

Global Settings	
<b>Retry</b>	How many times the RADIUS server will retry a logon attempt
<b>Time-out</b>	Enter in the number of seconds before a logon request is timed out
Servers 1 / 2	
<b>IPA</b>	Enter the IP address of the RADIUS server
<b>Port</b>	Port 1812 is an industry-standard port for using RADIUS
<b>Interface</b>	Use the drop-down menu to choose between NET1 and NET2
<b>Secret</b>	Enter the RADIUS secret in this field

```

Username: dps_user
Password: *****_

```

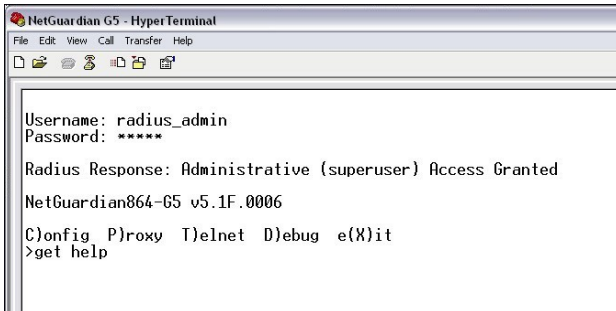
**Fig. 13.1.5.2** RADIUS logon screen prompts for a Username and Password.

## 13.2.6 UnitKal

UnitKal settings are configurable from the TTY interface only. When used along with the UnitKal system, the NetGuardian has the ability to remotely calibrate sensors at user definable time intervals. This system removes the chances of human error when calibrating sensors. It helps to reduce the waste of Calibration gas, and will offer better results when a sensor is in need of replacement. For more information, view the TKP that is distributed with Sensor (D-PK-SENSR-12106.00001).

## 13.2.7 New! - TTY Command Mode

This command line mode offers an alternate way of configuring the NetGuardian G5. This interface is scriptable, and is recommended for advanced users. Entries are NOT case sensitive.



```

NetGuardian G5 - HyperTerminal
File Edit View Call Transfer Help
-----
Username: radius_admin
Password: *****
Radius Response: Administrative (superuser) Access Granted
NetGuardian864-G5 v5.1F.0006
C)onfig P)roxy T)elnet D)ebug e(X)it
>get help
  
```

**Fig. 13.1.6** To enter Command Line mode, login to the TTY, then press Ctrl+C.

### Tips for using TTY Command Mode

- To enter command mode, login to the TTY interface and press Ctrl + C.
- To view all acceptable operations, type **get help**, then press Enter.
- Invalid commands will return "Error" as the response.
- A **CRLF** is sent by the RTU following all responses from the RTU.

- Limited data validation is in place using this method. Use caution when setting variable values.
- In some cases, you need to reboot the NetGuardian for new variable values to take effect.
- Changing **REF1**, **REF2**, **DISP1**, or **DISP2** affects the **MAJOR**, **MINOR**, **OVER**, and **UNDER** alarm thresholds. Changing any of these settings should be checked and re-established as required.
- In the table below, variables (params) are noted in brackets.

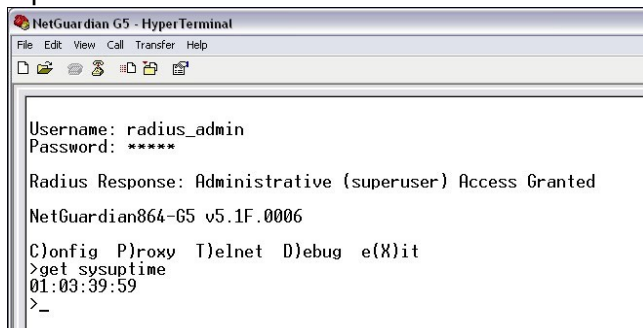
Operation	Command	Params
<b>Help</b>	get help	None
<b>Initialize NVRAM</b>	init nvram {g2}	None
<b>Write NVRAM</b>	set nvram	None
<b>Read NVRAM</b>	get nvram	None
<b>View System Up Time</b>	get sysuptime	None
<b>View Firmware Version</b>	get prodid	None
<b>Data Port Description</b>	{get,set} dataport {1...9} desc	string {0...15} chars
<b>Data Port Baud</b>	{get,set} dataport {1...9} baud	{1200,300,600,1200,2400,4800,9600,19200,38400,57600,115200}
<b>Data Port Format</b>	{get,set} dataport {1...9} wfmt	{8n1,8n2,7n1,7e1,7o1,8o2,8o1}
<b>Data Port RTS Head (msec)</b>	{get,set} dataport {1...9} rtshead	{0..255}
<b>Data Port RTS Tail (msec)</b>	{get,set} dataport {1...9} rtstail	{0..255}
<b>Data Port Type</b>	{get,set} dataport {1...9} type	{off,tcp,ptcp,htcp,rtcp,udp,chan, crft,cap,ecu,sps8}

<b># of NetGuardian Expanders</b>	{get,set} ngddx	{0...3}
<b># of GLD or BSU</b>	{get,set} gld	{0...16}
<b>Timed Tick Period</b>	{get,set} timed tick	{0..60} {min}
<b>System Name</b>	{get,set} name	string {0..31} chars
<b>System Location</b>	{get,set} location	string {0..31} chars
<b>System Contact</b>	{get,set} contact	string {0..31} chars
<b>System Phone</b>	{get,set} phone	string {0..20} chars
<b>Reboot</b>	set reboot	None
<b>DCP Unit ID</b>	{get,set} dcpaddr	{0...255}
<b>DCP Port Number</b>	{get,set} dcpport	{1..32767}
<b>DCP Port Type</b>	{get,set} dcptype	{udp,tcp,serial}
<b>DCP Protocol</b>	{get,set} dcpprot	{dcp,x,dcpf,dcpe}
<b>DCP Autonomous Time</b>	{get,set} dcpautotm	{0..120} {sec,min}
<b>Network Time IPA</b>	{get,set} ntpipa	IP Address
<b>Username</b>	{get,set} username {1...16}	string {0...18} chars
<b>Password</b>	set password {master, 1...16}	string {0..15} chars
<b>Access Rights</b>	{get,set} access {1...16}	{0000..01ff} where Bit.0 – 1=admin Bit.1 – 1=database Bit.2 – 1=monitor Bit.3 – 1=rly control Bit.4 – 1=reachthru Bit.5 – 1=modem Bit.6 – 1=telnet Bit.7 – 1=sd_monitor Bit.8 – 1=ppp
<b>Network IPA</b>	{get,set} net {1,2} ipa	IP Address
<b>Subnet Mask</b>	{get,set} net {1,2} subnet	Subnet
<b>Gateway IPA</b>	{get,set} net {1,2} gateway	Gateway
<b>Proxy Base</b>	{get,set} proxybase	{1..32767}
<b>Analog Description</b>	{get,set} alg {1...8} desc	string {0..48} chars
<b>Analog Display Unit</b>	{get,set} alg {1...8} unit	string {0..3} chars
<b>Analog Major Under Threshold</b>	{get,set} alg {1...8} thres mju	{-94.0000...94.0000}
<b>Analog Minor Under Threshold</b>	{get,set} alg {1...8} thres mnu	{-94.0000...94.0000}
<b>Analog Minor Over Threshold</b>	{get,set} alg {1...8} thres mno	{-94.0000...94.0000}
<b>Analog Major Over Threshold</b>	{get,set} alg {1...8} thres mjo	{-94.0000...94.0000}
<b>Analog Trap</b>	{get,set} alg {1...8} trap	0=trap disabled 1=trap enabled
<b>Analog Primary Notification</b>	{get,set} alg {1...8} pri	{0...8}
<b>Analog Secondary Location</b>	{get,set} alg {1...8} sec	{0...8}

<b>Analog Polarity</b>	{get,set} alg {1...8} polarity	0=Normal 1=Reversed
<b>Analog Group Number</b>	{get,set} alg {1...8} group {mju,mnu, mno,mjo}	{1...8}
<b>Analog Reference 1 VDC</b>	{get,set} alg {1...8} ref1	Number
<b>Analog Reference 1 Display</b>	{get,set} alg {1...8} disp1	Number
<b>Analog Reference 2 VDC</b>	{get,set} alg {1...8} ref2	Number
<b>Analog Reference 2 Display</b>	{get,set} alg {1...8} disp2	Number
<b>Analog Deadband</b>	{get,set} alg {1...8} deadband	{0.1...9.9}
<b>Alarm Description</b>	{get,set} alm {base,exp1,exp2,exp3} {1...64} desc	string {0...48} chars
<b>Alarm Polarity</b>	{get,set} alm {base,exp1,exp2,exp3} {1...64} polarity	0=Normal 1=Reversed
<b>Alarm Trap</b>	{get,set} alm {base,exp1,exp2,exp3} {1...64} trap	0=trap disabled 1=trap enabled
<b>Alarm Primary Notification</b>	{get,set} alm {base,exp1,exp2,exp3} {1...64} pri	{0...8}
<b>Alarm Secondary Notification</b>	{get,set} alm {base,exp1,exp2,exp3} {1...64} sec	{0...8}
<b>Alarm Group</b>	{get,set} alm {base,exp1,exp2,exp3} {1...64} group	{1...8}
<b>Global Trap IP Address</b>	{get,set} trap {1,2} ipa	IP Address
<b>Global Trap Format</b>	{get,set} trap {1,2} format	{v1, v2c, v2cinf,v3}
<b>LCD Display Mode</b>	{get,set} lcdmode	{scroll,point}
<b>LCD Delay Time (for Point Mode)</b>	{get,set} lcddelay	{1..60} {sec}

## Examples

- You want to find out how long this NetGuardian has been running (since last rebooted.) Get system uptime by typing **get sysuptime**, then press Enter.
- You want to see the alarm description for Base Alarm 1. To see the description, type **get alm base 1 desc**

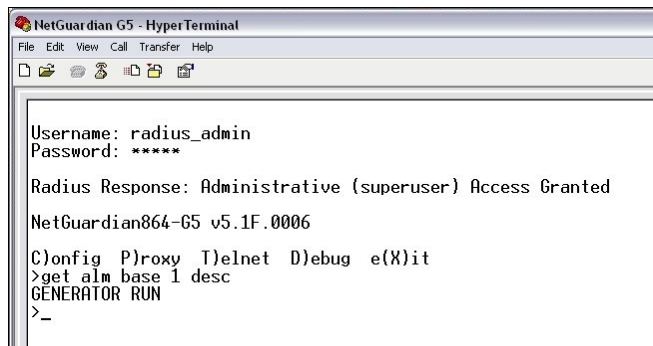


```

NetGuardian G5 - HyperTerminal
File Edit View Call Transfer Help

Username: radius_admin
Password: *****
Radius Response: Administrative (superuser) Access Granted
NetGuardian864-65 v5.1F.0006
C)onfig P)roxy T)elnet D)ebug e(X)it
>get sysuptime
01:03:39:59
>_

```



```

NetGuardian G5 - HyperTerminal
File Edit View Call Transfer Help

Username: radius_admin
Password: *****
Radius Response: Administrative (superuser) Access Granted
NetGuardian864-65 v5.1F.0006
C)onfig P)roxy T)elnet D)ebug e(X)it
>get alm base 1 desc
GENERATOR RUN
>_

```

- You want to set the Global Trap IP Address to 126.10.230.133. To enter this, type **set trap 1 ipa = 126.10.230.133**
- You want to change the LCD mode from Scroll (default) to Point Mode. To change this, type **set lcdmode = point**



```

NetGuardian G5 - HyperTerminal
File Edit View Call Transfer Help
[Icons]

Username: radius_admin
Password: *****

Radius Response: Administrative (superuser) Access Granted
NetGuardian864-G5 v5.1F.0006

C)onfig P)roxy T)elnet D)ebug e(X)it
>set trap 1 ipa = 126.10.230.133
ok
>_

```

```

File Edit View Call Transfer Help
[Icons]

Password: *****

NetGuardian832-G5 v5.2F.0119
NetGuardian-G5 @ dps telecom

C)onfig P)roxy T)elnet D)ebug e(X)it
>set lcdmode = point
ok
>_

```

## 13.2.8 DSCP Configuration

Ports									
<b>Craft</b>									
Baud	9600								
WFmt	8.N.1								
<b>Modem</b>									
Ring Count	1								
Answer Init									
Dial Init									
<b>Data Ports</b>									
ID	Description	Baud	WFmt	CR/LF Mode		RTS Times		Type	Pool
				In	Out	Head	Tail		
1		115200	8.N.1	Ignore	Ignore	0	0	OFF	N
2		115200	8.N.1	Ignore	Ignore	0	0	OFF	N
3		115200	8.N.1	Ignore	Ignore	0	0	OFF	N
4		115200	8.N.1	Ignore	Ignore	0	0	OFF	N
5		115200	8.N.1	Ignore	Ignore	0	0	OFF	N
6		115200	8.N.1	Ignore	Ignore	0	0	OFF	N
7	NGDdx Net	2400	8.N.1	Ignore	Ignore	0	0	OFF	N
8	ECU Net	9600	8.N.1	Ignore	Ignore	0	0	ECU	N
EXP		115200	8.N.1	Ignore	Ignore	0	0	OFF	N
<b>Options</b>									
NGDdx	1-DX unit								
GLD or BSU	0 (Disabled)								
Submit Data									

Configure your Serial/Data Ports through the Edit > Ports screen

Data Ports									
ID	Description	Baud	WFmt	CR/LF Mode		RTS Times		Type	Pool
				In	Out	Head	Tail		
1		115200	8,N,1	Ignore	Ignore	0	0	OFF	<input type="checkbox"/>
2		115200	8,N,1	Ignore	Ignore	0	0	OFF	<input type="checkbox"/>
3		115200	8,N,1	Ignore	Ignore	0	0	OFF	<input type="checkbox"/>
4		115200	8,N,1	Ignore	Ignore	0	0	OFF	<input type="checkbox"/>
5		115200	8,N,1	Ignore	Ignore	0	0	OFF	<input type="checkbox"/>
6		115200	8,N,1	Ignore	Ignore	0	0	OFF	<input type="checkbox"/>
7		115200	8,N,1	Ignore	Ignore	0	0	OFF	<input type="checkbox"/>
8		115200	8,N,1	Ignore	Ignore	0	0	OFF	<input type="checkbox"/>
EXP		115200	8,N,1	Ignore	Ignore	0	0	OFF	<input type="checkbox"/>

Nailed-Up TCP Connection Configuration			
ID	Address	Port	Connection Retry Interval
1	255.255.255.255	3000	5
2	255.255.255.255	3000	5

**Note:** If your unit has an internal wireless radio, you will use port 1 for DSCP communication.

Use the following steps to configure your DSCP device settings:

1. Locate the RS232 data port to be used (ie: data port 3) located on the back of the NetGuardian.
2. Connect a RS232 serial cable between the RS232 data port and the serial port of Wireless Receiver. For pinout, refer to section 6.7 Data Ports.
3. Log into the NetGuardian's Web interface.
4. Click Edit > Ports. This opens the Ports screen.
5. Click on the type (default: "OFF") located in the Type column for the data port ID (ie: data port 3) row. This opens the Data Ports screen.
6. Select DSCP using the dropdown located in the Type column for the data port ID row.
7. Click the Submit Data button. The fields: Description, Baud, etc, will be automatically populated.
8. Verify Description is set to "DSCP port".
9. Verify Baud is set to 9600.
10. Click on Edit > DSCP (Wireless Sensor)
11. Select the type of DSCP device. For example, if you have purchased the wireless propane monitor, you would select "Propane Monitor".
12. Clear the Module Address High and Low fields. After submitting, they should both read all zeros.
13. Click 'Submit Data' to save your settings.
14. Reboot the NetGuardian G5.
15. Once the NetGuardian comes back online, give it a few moments to initialize the wireless radio. You will then press and hold the sync button on the wireless transmitter until you see the LED become lit. Once this is done, the NetGuardian and Wireless Transmitter will become synchronized. If you refresh the DSCP page, you should now see an address value in the "Module Address" fields.
16. Now configure the Analog Channels: For Propane Mon, channel 1 is Propane QTY in units Percent, with range 0 - 100. Channel 2 is battery power. Since battery is 3.6V, Minor over and Major over should be 3.7 and 3.8. Minor Under = 3.2, Major Under = 3.0

Data Ports									
ID	Description	Baud	WFmt	CR/LF Mode		RTS Times		Type	Pool
				In	Out	Head	Tail		
1		115200	8,N,1	Ignore	Ignore	0	0	OFF	<input type="checkbox"/>
2		115200	8,N,1	Ignore	Ignore	0	0	OFF	<input type="checkbox"/>
3	DSCP port	9600	8,N,1	Ignore	Ignore	0	0	DSCP	<input type="checkbox"/>
4		115200	8,N,1	Ignore	Ignore	0	0	OFF	<input type="checkbox"/>
5		115200	8,N,1	Ignore	Ignore	0	0	OFF	<input type="checkbox"/>
6		115200	8,N,1	Ignore	Ignore	0	0	OFF	<input type="checkbox"/>
7		115200	8,N,1	Ignore	Ignore	0	0	OFF	<input type="checkbox"/>
8		115200	8,N,1	Ignore	Ignore	0	0	OFF	<input type="checkbox"/>
EXP		115200	8,N,1	Ignore	Ignore	0	0	OFF	<input type="checkbox"/>

DSCP (Wireless Sensor)									
<b>Module Configuration</b>									
Module Address High	<input type="text" value="00000000"/>								
Module Address Low	<input type="text" value="00000000"/>	<input type="button" value="Reset High &amp; Low Addresses"/>							
Update Frequency (6-720)	<input type="text" value="24"/>	hours							
Type	<input type="text" value="Disabled"/>								
<b>Fuel Level Change Detection</b>									
Read Frequency	<input type="text" value="0"/>	hours (0 to disable)							
Level Threshold	<input type="text" value="2"/>	%							
<b>Generator Running Detection</b>									
Gen. Running Frequency	<input type="text" value="1"/>	hours							
Generator Point Reference	Display: <input type="text" value="0"/>	Point: <input type="text" value="0"/>	(0, 0 to disable)						
<b>Analog Configuration</b>									
								Paggers	
ID	Description	Unit	Major Under	Minor Under	Minor Over	Major Over	Trap	Pri	Sec
1	PROPANE	%	<input type="text" value="30.0000"/>	<input type="text" value="40.0000"/>	<input type="text" value="80.0000"/>	<input type="text" value="90.0000"/>	<input checked="" type="checkbox"/>	<input type="text" value="0"/>	<input type="text" value="0"/>
2	BATTERY	VDC	<input type="text" value="3.0000"/>	<input type="text" value="3.3000"/>	<input type="text" value="4.0000"/>	<input type="text" value="4.0000"/>	<input checked="" type="checkbox"/>	<input type="text" value="0"/>	<input type="text" value="0"/>

Configure your external DSCP devices through the Edit > DSCP screen

#### Advanced Configuration and Details:

Module Configuration	
<b>Module Address High</b>	4-byte identification address that is automatically acquired when the DSCP device is synced with the NetGuardian.
<b>Module Address Low</b>	4-byte identification address that is automatically acquired when the DSCP device is synced with the NetGuardian.
<b>Update Frequency</b>	How often the wireless transmitter will wake from low-power mode and send a measurement reading to the NetGuardian.
<b>Type</b>	The specific type of DSCP device (Propane Monitor, Track Monitor, etc...).
Level Detection (Propane Sensor Type Only)*	
<b>Read Frequency</b>	This value determines how often the wireless transmitter will wake up and take a measurement. If the value has dropped more than the Level Threshold, the unit will exit low-power mode and send a reading to the NetGuardian. Otherwise, it will send a reading only when the Update Frequency time has passed. This allows you to acquire readings more often when the tank is being actively emptied, at the expense of the higher battery usage. Input '0' to disable this feature. This value must be smaller than the "Update Frequency" value.
<b>Level Threshold</b>	This is the percentage that the propane reading must drop between readings to exit low-power mode and send the reading to the NetGuardian. (See above)
Generator Running Detection (Propane Sensor Type Only)*	
<b>Gen. Running Frequency</b>	When the specified alarm point (from Generator Point Reference) is set, the timer value for Generator Running Frequency will override the timer value for Update Frequency (under Module Configuration). This takes effect after the next update.
<b>Generator Point Reference</b>	Specify the Display and Point attached to Gen. Running Frequency. Input '0' to disable this feature.

**\*Note:** Generator Run and Level Detection features are designed to detect changes faster while maximizing battery life. They are entirely optional to use.

## 13.3 Monitoring

### 13.3.1 Monitoring the NetGuardian

Connect a PC running VT100 terminal emulation software to the craft port or connect via LAN using a Telnet client with VT100 emulation to port 2002 to reach the monitor menu selection. This section allows you to do full system monitoring of the NetGuardian including: all alarms, ping information, relays, analogs, and system status.

```
C)onfig P)roxy T)elnet D)ebug e(X)it
E)dit M)onitor P)ing S)tats T)une Modem R)eset Port (ESC) ? M
A)larms R)elays a(N)alogs E)vent log a(C)cum. Timer
  B)AC P)ing targets p(O)rts S)ystem (ESC) ?
```

*Fig. 13.3.1.1. The monitor menu allows status checking on all elements*

#### 13.3.1.1 Monitoring Base Alarms

View the status of the device connected to the discrete alarms from the M)onitor menu > A)larms option. Under **Status**, the word **Alarm** will appear if an alarm has been activated and **Clear** will appear if an alarm condition is not present. If groups are used the user defined status will be displayed.

```
A)larms R)elays a(N)alogs E)vent log a(C)cum. Timer
  B)AC P)ing targets p(O)rts S)ystem (ESC) ? A
B)ase E)xpansions (ESC) ? B

ID Description                               Status
 1                               Clear
 2                               Clear
 3                               Clear
 4                               Clear
 5                               Clear
 6                               Clear
 7                               Clear
 8                               Clear
 9                               Clear
10                               Clear
11                               Clear
12                               Clear
13                               Clear
14                               Clear
15                               Clear
16                               Clear
ESC to exit Any key to continue
```

*Fig. 13.3.1.1.1. This example shows page two of the discrete alarms*

### 13.3.1.2 Monitoring Ping Targets

View the status of all your ping targets from the M)onitor menu > P)ing targets option. This screen displays the ping target ID, description, and IP address. Under **Status** the word **Alarm** will appear if an alarm has been activated and **Clear** will appear if an alarm condition is not present.

```

B)ase E)xpansions (ESC) ? <--
A)larms R)elays a(N)alogs E)vent log a(C)cum. Timer
  B)AC P)ing targets p(O)rts S)ystem (ESC) ? P

ID Description                IP Address      Status
1                            255.255.255.255 Clear
2                            255.255.255.255 Clear
3                            255.255.255.255 Clear
4                            255.255.255.255 Clear
5                            255.255.255.255 Clear
6                            255.255.255.255 Clear
7                            255.255.255.255 Clear
8                            255.255.255.255 Clear
9                            255.255.255.255 Clear
10                           255.255.255.255 Clear
11                           255.255.255.255 Clear
12                           255.255.255.255 Clear
13                           255.255.255.255 Clear
14                           255.255.255.255 Clear
15                           255.255.255.255 Clear
16                           255.255.255.255 Clear
ESC to exit Any key to continue

```

*Fig. 13.3.1.2.1. The Ping info submenu allows you to change ping targets*

### 13.3.1.3 Monitoring and Operating Relays (Controls)

The NetGuardian comes equipped with 8 relays that can be used to control external devices. Monitor the status of your relays from the M)onitor menu > R)elays option.

Relays are set to normally open (N/O) as the factory default, but each or all of them can be changed to normally closed (N/C) by changing their respective jumper (see the section titled "Controls").

```

A)larms R)elays a(N)alogs E)vent log a(C)cum. Timer
  B)AC P)ing targets p(O)rts S)ystem (ESC) ? R

B)ase E)xpansions (ESC) ? B

Base Relays

ID Description                Mode   Status
1                            Normal Rls
2                            Normal Rls
3                            Normal Rls
4                            Normal Rls
5                            Normal Rls
6                            Normal Rls
7                            Normal Rls
8                            Normal Rls

S)tatus      O)pr R)ls M)om (ESC) ?

```

*Fig. 13.3.1.3.1 The eight relays can be operated from this screen*

### 13.3.1.4 Monitoring Analogs

View the current reading and the alarm status of your analog devices from the M)onitor menu > a(N)alogs option. The value shown is a snapshot of the channels measurement, not a real-time reading. Refresh the readings by re-selecting the analogs option. Alarm status indicates that a preset threshold has been crossed and is designated by an **x**.

The eight analog measuring inputs are set to measure voltage as the factory default. If your sensors output is current, change the appropriate analog dip switch, to the current measuring position. The scaling worksheet in the provisioning section converts all readings shown here into native units, such as degrees Celsius or percent relative humidity.

```

Password: *****
NetGuardian864-G5 v5.2G.0579
C)onfig P)roxy T)elnet D)ebug e(X)it
E)dit M)onitor P)ing S)tats T)une Modem R)eset Port (ESC) ? M
A)larms re(L)ays a(N)alogs E)vent log a(C)cum.Timer
  B)AC P)ing targets p(O)rts s(W)itch S)ystem a(R)p D)bg (ESC) ? N
B)ase E)xpansions (ESC) ? B

Chn Description          Reading Units MjU MnU Mn0 Mj0 Err
 1 EXT TEMPERATURE     -33.7500 F      X   X   -   -   -
 2 CHANNEL 2            0.0000 VDC     -   -   -   -   -
 3 CHANNEL 3            0.0000 VDC     -   -   -   -   -
 4 CHANNEL 4            18.5534 VDC     -   -   -   -   -
 5 CHANNEL 5            -47.9872 VDC    -   X   -   -   -
 6 CHANNEL 6            0.0000 VDC     -   -   -   -   -
 7 CHANNEL 7            0.0000 VDC     -   -   -   -   -
 8 CHANNEL 8            -4.9857 VDC     -   -   -   -   -

B)ase E)xpansions (ESC) ?

```

*Fig. 13.3.1.4.1. This display allows you to monitor your eight analog inputs*

### 13.3.1.5 Monitoring System Alarms

View the status of the NetGuardian's system alarms from the M)onitor menu > S)ystem option. Under **Status**, the word **Alarm** will appear if an alarm has been activated and **Clear** will appear if an alarm condition is not present. See Appendix, "System Alarm Descriptions," for more information. If groups are used the user defined status will be displayed.

```

A)larms R)elays a(N)alogs E)vent log a(C)cum.Timer
B)AC P)ing targets p(O)rts S)ystem (ESC) ? S
ID Description Status
17 Timed Tick Clear
18 Exp.Module Callout Clear
19 Network Time Server Clear
20 Accumulation Event Clear
33 Unit Reset Clear
36 Lost Provisioning Clear
37 DCP Poller Inactive Clear
38 LAN not Active Clear
41 Modem not Responding Clear
42 No Dialtone Clear
43 SNMP Trap not Sent Clear
44 Pager Que Overflow Clear
45 Notification Failed Clear
46 Craft RcvQ Full Clear
47 Modem RcvQ Full Clear
48 Data 1 RcvQ Full Clear
ESC to exit Any key to continue_

```

**Fig. 13.3.1.5.1.** System Alarms can be viewed from the M)onitor menu > S)ystem option

### 13.3.1.6 Monitoring Data Port Activity

View the status of the NetGuardian's 8 data ports from the M)onitor menu > p(O)rts option. Enter the number of the port you wish to view and press Enter.

The NetGuardian provides an ASCII description under *Transmit* and *Receive*. Choose a) Transmit to view data transmitted to another device. Choose b) Receive to view data received from another device. See Appendix, "ASCII Conversion," for specific ASCII symbol conversion.

```

A)larms re(L)ays a(N)alogs E)vent log a(C)cum.Timer
B)AC P)ing targets p(O)rts s(W)itch S)ystem a(R)p D)bg (ESC) ? 0
Data Port ID (1-9): 1
a)Transmit b)Receive c)Transmit-HEX d)Receive-HEX (ESC) ?

```

**Fig. 13.3.1.6.1.** Data port activity can be viewed from the M)onitor menu > p(O)rts option

### 13.3.1.7 Monitoring the Accumulation Timer

The Accumulation Timer keeps a running total of the amount of time a point is in an alarm state. An alarm point that exceeds a user defined threshold will trigger a Accumulation Event system alarm. Refer to Figure 13.3.1.7.1. and Table 13.3.1.7.A to define the accumulation timer.



```

C)onfig P)roxy T)elnet D)ebug e(X)it
E)dit M)onitor P)ing S)tats T)une Modem R)eset Port (ESC) ? M
A)larms R)elays a(N)alogs E)vent log a(C)cum. Timer
  B)AC P)ing targets p(O)rts S)ystem (ESC) ? C

Accumulation Timer: enabled
  Display Reference: 1
    Point Reference: 11
  Point Description:
    Point Status: Clear
    Event Threshold: 00:01:01 (dd:hh:mm)
    Accumulated Time: 00:00:00 (dd:hh:mm)
    Accumulated Since: 22-July-2001 03:16

R)eset AccTmr (ESC) ?

```

*Fig. 13.3.1.7.1. Monitor and reset the Accumulator Timer*

Field	Description
<b>Display and Point Reference</b>	Indicates which alarm point is to be monitored.
<b>Point Description</b>	The user-defined description of the monitored alarm point.
<b>Point Status</b>	The current status of the monitored point.
<b>Event Threshold</b>	Amount of time allowed to accumulate before the system alarm, "Accumulation Event" is triggered. <b>Note:</b> Maximum is 45 days.
<b>Accumulated Time</b>	The total time the monitored point has been in an ALARM state.
<b>Accumulated Since</b>	Indicates the last time the accumulation timer was reset.
<b>Reset Accumulation Timer</b>	Selecting this option will reset the timer.

### 13.3.1.8 Monitoring DSCP Devices

DSCP (Wireless Sensor)							
ID	Description	Reading	Units	MjU	MnU	MnO	MjO
1	BATTERY	10.7981	VDC				
2	SOLAR	1.7230	VDC				
3	PROPANE	83.4570	%			x	
<b>Last Update:</b>		11/19/2013 10:38:00					

*View the status of the DSCP Analogs from the Monitor > DSCP screen*

This Monitor > DSCP screen provides a description of each DSCP device alarm point state and each DSCP device analog channel, the current reading, the units being read, alarm conditions (major under, minor under, major over, and minor over), and the last instance of data transfer (Last Update) according to your analog settings.

### 13.3.2 Viewing Live Target Pings

Choose P)ing to ping any of the NetGuardian's user defined IP addresses. Then enter the ID number (1-32) of the IP address or enter any IP address to ping.

```
E)dit M)onitor P)ing S)tats T)une Modem R)eset Port (ESC) ? P
Ping Address / ID (1-32) :
```

**Fig. 13.3.2.1.** Continuously ping an IP address that has been defined in the NetGuardian's ping table

### 13.3.3 Proxy Menu

You can create proxy connections to reach-through to the craft port, modem port or any of the other eight serial ports from the P)roxy menu. You'll be able to monitor and control additional devices via proxy connection to the NetGuardian. Data presented and handshaking will be specified by the connected device.

To cancel the proxy connection wait a half second, then quickly type @@@ and press ENTER. To send a Ctrl-Break to a terminal server, type \brk and press ENTER.

```

C)onfig P)roxy T)elnet D)ebug e(X)it

Available Data Ports:

C) Craft                (In use)
M) Modem
1)
2)
3)
4)
5)
6)
7)
8) 8

Proxy to : M)odem 1) 2) 3) 4) 5) 6) 7) 8) (ESC) ?

```

*Fig. 13.3.3.1. Access devices connected to the eight data ports on the back panel through M)onitor menu > P)roxy option*

### 13.3.4 Event Logging

Choose E)vent log to view the up to 100 events posted to the NetGuardian; including power up, base and system alarms, ping alarms, analog alarms, and controls. Posted events for the various alarms include both alarm and clear status. Refer to Table 13.3.4.A for event log field descriptions.

**Note:** All information in the event log will be erased upon reboot or a power failure.

```

Password: *****
NetGuardian-G5 v5.0A
C)onfig P)roxy T)elnet D)ebug e(X)it
E)dit M)onitor P)ing S)tats T)une Modem R)eset Port (ESC) ? M
A)larms R)elays a(N)alogs E)vent log a(C)cum. Timer
  B)AC P)ing targets p(O)rts S)ystem (ESC) ? E

Evt Date      Time      Grp State  PRef  Description
  1 04-20-2006  10:02:10  1  setgrp1  11.59  GLD/BSU 1 Fail
  2 01-01-2045  12:00:00  1  clrgrp1  11.33  Unit Reset
  3 01-01-2045  12:00:00  1  setgrp1  11.33  Unit Reset
  4 01-01-2001  12:00:06  1  setgrp1  9.3    MjU:7
  5 01-01-2001  12:00:06  1  setgrp1  9.1    MnU:7
  6 01-01-2001  12:00:04  1  setgrp1  11.39  NET 2 is not Active

Would you like to Reset the Event Log? (y/N)

```

*Fig. 13.3.4.1. Monitor the last 100 events recorded by the NetGuardian from the M)onitor menu > E)*

*vent log option*

Event Log Field	Description
Ev	Event number (1–100)
Date	Date the event occurred
Time	Time the event occurred
Grp	Alarm Group
State	State of the event (A=alarm, C=clear)
PRef	Point reference (See Appendix A for display descriptions).
Description	User defined description of the event as entered in the alarm point and relay description fields.

**Table 13.3.4.A.** *Event Log field descriptions***13.3.5 Backing Up NetGuardian Configuration Data via FTP**

1. From the Start menu on your PC, select RUN.
2. Type "ftp" followed by the IP address of the NetGuardian you are backing up (e.g. ftp 126.10.120.199).
3. After the connection is made press Enter.
4. Enter the password of the NetGuardian (default password is dpstelecom), then press Enter.
5. Type "binary" and press Enter (necessary for NetGuardian file transfer).
6. Type "lcd" and press Enter (this allows you to change the directory of your local machine).
7. Type "get" followed by the name you wish to define for the NetGuardian backup file. Add the extension ".bin" to the file name (e.g. get ngdbkup.bin) and press Enter.
8. After reloading, type "bye" and press Enter to exit.

**Note:** The backup file name can have a maximum of eight characters before the file extension.

**13.3.5.1 Reloading NetGuardian Configuration Data**

1. From the Start menu on your PC, select RUN.
2. Type "ftp" followed by the IP address of the NetGuardian you are backing up (e.g. ftp 126.10.120.199).
3. After the connection is made press Enter.
4. Enter the password of the NetGuardian (default password is dpstelecom), then press ENTER.
5. Type "binary" and press Enter (necessary for NetGuardian file transfer).
6. Type "lcd" and press Enter (this allows you to change the directory of your local machine).
7. Type "put" followed by the name you defined for the NetGuardian backup file and press Enter (e.g. put ngdbkup.bin).
8. Type "literal REBT" to reboot the NetGuardian.
9. After reloading, type "bye" and press Enter to exit.

### 13.3.6 Debug Input and Filter Options

Debug Input Options	
ESC	Exit Debug
B	Show BAC status points
T	Show task status
U	Show DUART information
R	Show network routing table
X	Clear debug enable bitmap. Turn all debug filters OFF
?	Display Options
Debug Filter Options:	
a	(1) Alarm toggle switch. Shows posting of alarm data
A	(2) Analog toggle switch. Shows TTY interface debug
c	(3) Config toggle switch. Shows TTY interface debug
C	(4) Control relay toggle switch. Shows relay operation
d	(5) DCP responder toggle switch. Shows DCP protocol
D	(6) Device toggle switch. Shows telnet and proxy information and NGEEditG5 serial communication.
e	(7) Expansion poller toggle switch. Shows NGDdx polling
E	(8) ECU Interrogator toggle switch. Shows BAC processing
f	(9) FTP Command toggle switch. Shows command string parsing
F	(10) FTP Data toggle switch. Shows FTP Read / Write
G	(11) GLD poller toggle switch. Shows GLD polling
h	(12) HTML debug switch. Shows Web Browser processing
H	(13) HWACS debug switch. Shows hardware access operation
i	(14) PING toggle switch
k	(15) Socket toggle switch. Shows current dcu resources
l	(16) LED toggle switch. Shows current LED state
L	(17) LCD display toggle switch. Shows LCD control and text
m	(18) Modem toggle switch. Shows modem vectored initialization
M	(19) Undefined
o	(20) Osstart toggle switch. Miscellaneous application debug, including NVRAM read and write operation, and event posting
O	(21) Undefined
p	(22) SPORT toggle switch. Port init debug and channeled port debug
P	(23) PPP toggle switch. Shows PPP functioning
q	(24) QAccess toggle switch. Reserved for future use
Q	(25) Undefined
r	(26) Report toggle switch. Shows reporting event activity, including SNMP, pagers, email, etc. Also shows PPP negotiation for NG client PPP mode.
s	(27) SNMP toggle switch. Reserved for future use
S	(28) STAK toggle switch. Shows network processing and IPA of arp requests. Also shows packets discarded by Filter IPA.
t	(29) TERM toggle switch. Shows UDP/TCP port handling. The camera and network time (NTP) jobs also use the TERM toggle switch
V	(30) Undefined
w	(31) HTTP toggle switch. Shows handling of web browser packets
W	(32) WEB toggle switch 2. Dump HTML text from web browser

## 14 Reference Section

### 14.1 Display Mapping

Port	Address	Display	Description	Set	Clear
99	1	1	Discrete Alarms 1-32 For NetGuardian 864 Alarms 1-64	8001-8032 8001-8064	9001-9032 9001-9064
99	1	2	Ping Table	8065-8096	9065-9096
99	1	3	Analog Channel 1**	8129-8133	9129-9133
99	1	4	Analog Channel 2**	8193-8197	9193-9197
99	1	5	Analog Channel 3**	8257-8261	9257-9261
99	1	6	Analog Channel 4**	8321-8325	9321-9325
99	1	7	Analog Channel 5**	8385-8389	9385-9389
99	1	8	Analog Channel 6**	8449-8453	9449-9453
99	1	9	Analog Channel 7**	8513-8517	9513-9517
99	1	10	Analog Channel 8**	8577-8581	9577-9581
99	1	11	Relays/System Alarms (See table below)	8641-8676	9641-9676

**Table 14.1.A.** Display descriptions and SNMP Trap numbers for the NetGuardian

\* The TRAP number ranges shown correspond to the point range of each display. For example, the SNMP Trap "Set" number for alarm 1 (in Display 1) is 8001, "Set" for alarm 2 is 8002, "Set" for alarm 3 is 8003, etc.

\*\* The TRAP number descriptions for the Analog channels (1-8) are in the following order: minor under, minor over, major under, and major over. For example, for Analog channel 1, the "Set" number for minor under is 8129, minor over is 8130, major under is 8131, and major over is 8132.

#### Expansion Unit Display Maps

Port	Address	Display	Description	Set	Clear
99	1	12	NetGuardian 480 (as DX) Alarms 1-64	6001-6064	7001-7064
99	1	13	NetGuardian 480 (as DX) Relays 1-4 / 832A/ 864A	6065-6072	7065-7072
99	1	13	NetGuardian 480 (as DX) Alarms 65-80	6081-6096	7081-7096

*Display descriptions and SNMP Trap numbers for the NetGuardian 480 as an Expansion*

Port	Address	Display	Description	Set	Clear
99	1	12	NetGuardian DX48 Expansion 1 Alarms 1-48	6001-6048	7001-7048
99	1	13	NetGuardian DX48 Expansion 1 Relays 1-8	6065-6072	7065-7072
99	1	14	NetGuardian DX48 Expansion 2 Alarms 1-48	6129-6177	7129-7177
99	1	15	NetGuardian DX48 Expansion 2 Relays 1-8	6193-6200	7193-7200
99	1	16	NetGuardian DX48 Expansion 3 Alarms 1-48	6257-6305	7257-7305
99	1	17	NetGuardian DX48 Expansion 3 Relays 1-8	6321-6328	7321-7328

*Display descriptions and SNMP Trap numbers for the NetGuardian DX48 Expansion*

Port	Address	Display	Description	Set	Clear
99	1	12	NetGuardian 832A Expansion 1 (as DX) Alarms 1-32	6001-6032	7001-7032
99	1	13	NetGuardian 832A Expansion 1 (as DX) Relays 1-8	6065-6072	7065-7072
99	1	14	NetGuardian 832A Expansion 2 (as DX) Alarms 1-32	6129-6161	7129-7161
99	1	15	NetGuardian 832A Expansion 2 (as DX) Relays 1-8	6193-6200	7193-7200
99	1	16	NetGuardian 832A Expansion 3 (as DX) Alarms 1-32	6257-6289	7257-7289
99	1	17	NetGuardian 832A Expansion 3 (as DX) Relays 1-8	6321-6328	7321-7328

*Display descriptions and SNMP Trap numbers for the NetGuardian DX G5 (832A model)*

Port	Addresses	Display	Description	Set	Clear
99	1	12	NetGuardian 864A Expansion 1 (as DX) Alarms 1-64	6001-6064	7001-7064
99	1	13	NetGuardian 864A Expansion 1 (as DX) Relays 1-8	6065-6072	7065-7072
99	1	14	NetGuardian 864A Expansion 2 (as DX) Alarms 1-64	6129-6192	7129-7192
99	1	15	NetGuardian 864A Expansion 2 (as DX) Relays 1-8	6193-2000	7193-7200
99	1	16	NetGuardian 864A Expansion 3 (as DX) Alarms 1-64	6257-6320	7257-7320
99	1	17	NetGuardian 864A Expansion 3 (as DX) Relays 1-8	6321-6328	7321-7328

*Display descriptions and SNMP Trap numbers for the NetGuardian DX G5 (864A model)*

Port	Addresses	Display	Description		Set	Clear
99	1	18	NetGuardian G5 (832A/864A) Expansion 1 (as DX) Analog Channels	Channel 1	6385-6388	7385-7388
				Channel 2	6389-6392	7389-7392
99	1	19	NetGuardian G5 (832A/864A) Expansion 1 (as DX) Analog Channels	Channel 3	6393-6396	7393-7396
				Channel 4	6397-6400	7397-7400
99	1	20	NetGuardian G5 (832A/864A) Expansion 1 (as DX) Analog Channels	Channel 5	6401-6404	7401-7404
				Channel 6	6405-6408	7405-7408
99	1	21	NetGuardian G5 (832A/864A) Expansion 1 (as DX) Analog Channels	Channel 7	6409-6412	7409-7412
				Channel 8	6413-6416	7413-7416
99	1	22	NetGuardian G5 (832A/864A) Expansion 2 (as DX) Analog Channels	Channel 1	6417-6420	7417-7420
				Channel 2	6421-6424	7421-7424
99	1	23	NetGuardian G5 (832A/864A) Expansion 2 (as DX)	Channel 3	6425-6428	7425-

Port	Addresses	Display	Description		Set	Clear
			Analog Channels			7428
				Channel 4	6429-6432	7429-7432
99	1	24	NetGuardian G5 (832A/864A) Expansion 2 (as DX) Analog Channels	Channel 5	6433-6436	7433-7436
				Channel 6	6437-6440	7437-7440
99	1	25	NetGuardian G5 (832A/864A) Expansion 2 (as DX) Analog Channels	Channel 7	6441-6444	7441-7444
				Channel 8	6445-6448	7445-7448
99	1	26	NetGuardian G5 (832A/864A) Expansion 3 (as DX) Analog Channels	Channel 1	6449-6452	7449-7452
				Channel 2	6453-6456	7453-7456
99	1	27	NetGuardian G5 (832A/864A) Expansion 3 (as DX) Analog Channels	Channel 3	6457-6460	7457-7460
				Channel 4	6461-6464	7461-7464
99	1	28	NetGuardian G5 (832A/864A) Expansion 3 (as DX) Analog Channels	Channel 5	6465-6468	7465-7468
				Channel 6	6469-6472	7469-7472
99	1	29	NetGuardian G5 (832A/864A) Expansion 3 (as DX) Analog Channels	Channel 7	6473-6476	7473-7476
				Channel 8	6477-6480	7477-7480

*Display descriptions and SNMP Trap numbers for the NetGuardian DX G5 (832A/864A) Analog Channels*

**Note:** If D-Wire top is present, sensors 1 - 16 replace Expansion 2 and Expansion 3 analog channels.



### 14.1.1 System Alarms Display Map

Display	Points	Alarm Point	Description	Solution
11	1-16	Control Relays	Reserved by system for control relays.	Reserved by system for control relays.
	17	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.
	18	Exp. Module Callout	Alarm is triggered whenever an alarm point from an Entry Control Unit (ECU) is collected. A notification event may be associated with the alarm to force a call out or trap.	Disable Building Access Control (BAC) by setting the BAC Unit ID to 0. If Building Access is being used, then investigate the ECU alarm source or don't associate notification with the alarm event.
	19	Network Time Server	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.
	20	Accumulation Event	An alarm has been standing for the time configured under Accum. Timer. The Accumulation timer enables you to monitor how long an alarm has been standing despite system reboots. Only the user may reset the accumulated time, a reboot will not.	To turn off the feature, under Accum.Timer, set the display and point reference to 0.
	21	Duplicate IP Address	The unit has detected another node with the same IP Address.	Unplug the LAN cable and contact your network administrator. Your network and the unit will most likely behave incorrectly. After assigning a correct IP Address, reboot the unit to clear the System alarm.
	22	WAN Disconnected	WAN Top Board is present but the WAN connection is not detected.	Check the back of the unit and confirm WAN cable is connected and WAN LED is solid green.
	23	ECU Emergency Unlock	Set when both user-defined fire and gas alarms occur.	Will clear when fire and gas alarms clear. Feature can also be disabled if "Emergency Unlock Enabled" is unchecked from the web or NGEEdit G5 interfaces.
	24	D-Wire Sensor Not Detected	A configured D-Wire Sensor is not detected.	Check G5 D-Wire port and D-Wire Sensor and confirm cable is plugged in. Also make sure that configured ROM ID's match the D-Wire Sensors plugged in.
	25	ECU Door Violation	Door sensor has detected unauthorized entry.	Verify integrity of door sensor. This alarm is to alert of unauthorized access.
	26	Maintenance Mode	Maintenance mode is currently active for the server shutdown feature	Maintenance mode will timeout according to the amount specified by the user in the NGEEdit "Server Shutdown" tab.
27	DSCP Timeout	The unit has not received a signal from	Check configuration of DSCP Poller.	

			the DSCP Poller after a certain period of time.	Check battery power. Make sure signal is not physically obstructed.
28	Wireless Sensor Power Fault		Power to DSCP unit is shorting or cannot provide enough current causing a fault with the sensor power.	Check sensor wiring for any faulty connections or shortened cables.
29	Wireless Sensor Power Low		DSCP unit is not providing enough power to the sensors.	Check sensor wiring for any faulty connections or shortened cables.
30	Wireless Sensor Update		This unit has received a sensor reading update from a wireless device.	This alarm is normal and is used to log wireless activity.
33	Power Up		The unit has just come-online. The set alarm condition is followed immediately by a clear alarm condition.	Seeing this alarm is normal if the unit is powering up.
34	PPP Backup Mode		The unit's Backup PPP mode is currently in use.	PPP Backup mode comes on when the ethernet link goes down. Check the ethernet for connectivity.
35	Server Restore		Manual Server Shutdown/Restore process is in progress.	Server shutdown is active when Manual Shutdown/Restore is in progress. Wait for shutdown/restore process to finish.
36	Lost Provisioning		The internal NVRAM may be damaged. The unit is using default configuration settings.	Use Web or latest version of NGEeditG5 to configure unit. Power cycle to see if alarm goes away. May require RMA.

**Table 14.1.1.A. System Alarms Descriptions**

**Note:** Table 14.1.1.A. continues on following pages.

Display	Points	Alarm Point	Description	Solution
11	37	DCP Poller Inactive	The unit has not seen a poll from the Master for the time specified by the DCP Timer setting.	If DCP responder is not being used, then set the DCP Unit ID to 0. Otherwise, try increasing the DCP timer setting under timers, or check how long it takes to cycle through the current polling chain on the Master system.
	38	NET1 not active	The Net1 LAN port is down.	Check LAN cable. Ping to and from the unit. (If not using Net1 or Net2, set IP, Subnet and Gateway to 255's)
	39	NET2 not active	The Net2 LAN port is down.	
	40	LNK Alarm	No network connection detected	
	41	Modem not responding	An error has been detected during modem initialization. The modem did not respond to the initialization string.	Remove configured modem initialization string, then power cycle the unit. If alarm persists, try resetting the Modem port from the TTY interface, or contact DPS for possible RMA.
	42	No Dial Tone	During dial-out attempt, the unit did not detect a dial tone.	Check the integrity of the phone line and cable.
	43	SNMP Trap not Sent	SNMP trap address is not defined and an SNMP trap event occurred.	Define the IP Address where you would like to send SNMP trap events, or configure the event not to trap.
	44	Pager Queue Overflow	Over 250 events are currently queued in the pager queued and are still trying to report.	Check for failed notification events that may be filling up the pager queue. There may be a configuration or communication problem with the notification events.
	45	Notification failed	A notification event, like a page or email, was unsuccessful.	Use RPT filter debug to help diagnose notification problems.
	46	Craft RcvQ full	The Craft port received more data than it was able to process.	Disconnect whatever device is connected to the craft serial port. This alarm should not occur.
	47	Modem RcvQ full	The modem port received more data than it was able to process.	Check what is connecting to the NetGuardian. This alarm should not occur.
	48	Serial 1 RcvQ full	Serial port 1 (or appropriate serial port number) receiver filled with 8 K of data (4 K if BAC active).	Check proxy connection. The serial port data may not be getting collected as expected.
	49	Serial 2 RcvQ full		
	50	Serial 3 RcvQ full		
	51	Serial 4 RcvQ full		
	52	Serial 5 RcvQ full		
	53	Serial 6 RcvQ full		
54	Serial 7 RcvQ full			
55	Serial 8 RcvQ full			

**Table 14.1.1.A System Alarms Descriptions (continued)**

Display	Points	Alarm Point	Description	Solution
11	56	NetGuardian DX 1 fail	NGDdx 1 Fail (Expansion shelf 1 communication link failure)	Under Ports > Options, verify the number of configured NGDdx units. Use EXP filter debug and port LEDs to help diagnose the problem. Use DB9M to DB9M with null crossover for cabling. Verify the DIP addressing on the back of the NGDdx unit.
	57	NetGuardian DX 2 fail	NGDdx 2 Fail (Expansion shelf 2 communication link failure)	
	58	NetGuardian DX 3 fail	NGDdx 3 Fail (Expansion shelf 3 communication link failure)	
	59	GLD 1 fail	GLD address 1 is failed.	Connect just GLD unit 1 and attempt to poll. Verify GLD is connected to data port 8 and the hardware is RS485, not RS232.
	60	GLD 2 fail	GLD address 2 is failed.	Verify the GLD unit addressing, and test GLD units individually on the GLD communication bus.
	61	GLD 3+ fail	One or more GLD units addressed 3 through 12 may be failed.	Reduce the number of connected GLD units to determine which unit may be causing the link to fail.
	62	Chan. Port Timeout	Chan. Port has not forwarded any traffic in the time specified by the Channel Timeout Timer. The channel feature forwards data between two ports so the NG may be used to analyze serial traffic using CHAN filter debug.	Change the data port type to OFF, or set the Channel Timer to a different setting.
	63	Craft Timeout	The Craft Timeout Timer has not been reset in the specified time. This feature is designed so other machines may keep the TTY link active. If the TTY interface becomes unavailable to the machine, then the Craft Timeout alarm is set.	Change the Craft Timeout Timer to 0 to disable the feature.
64	Event Que Full	The Event Que is filled with more than 500 uncollected events.	Enable DCP timestamp polling on the master so events are collected, or reboot the system to clear the alarm.	

**Table 14.1.1.A System Alarms Descriptions (continued)**

## 14.1.2 D-Wire Display Map

Display	Address	Point	Description
18	1	1	NGDx1 Analog 1 - D-Wire 1 Minor Under
	1	2	NGDx1 Analog 1 - D-Wire 1 Minor Over
	1	3	NGDx1 Analog 1 - D-Wire 1 Major Under
	1	4	NGDx1 Analog 1 - D-Wire 1 Major Over
	1	5	D-Wire 1 Sensor Not Detected
	1	33	NGDx1 Analog 2 - D-Wire 2 Minor Under
	1	34	NGDx1 Analog 2 - D-Wire 2 Minor Over
	1	35	NGDx1 Analog 2 - D-Wire 2 Major Under
	1	36	NGDx1 Analog 2 - D-Wire 2 Major Over
1	37	D-Wire 2 Sensor Not Detected	

Display	Address	Point	Description
19	1	1	NGDx1 Analog 3 - D-Wire 3 Minor Under
	1	2	NGDx1 Analog 3 - D-Wire 3 Minor Over
	1	3	NGDx1 Analog 3 - D-Wire 3 Major Under
	1	4	NGDx1 Analog 3 - D-Wire 3 Major Over
	1	5	D-Wire 3 Sensor Not Detected
	1	33	NGDx1 Analog 4 - D-Wire 4 Minor Under
	1	34	NGDx1 Analog 4 - D-Wire 4 Minor Over
	1	35	NGDx1 Analog 4 - D-Wire 4 Major Under
	1	36	NGDx1 Analog 4 - D-Wire 4 Major Over
1	37	D-Wire 4 Sensor Not Detected	

Display	Address	Point	Description
20	1	1	NGDx1 Analog 5 - D-Wire 5 Minor Under
	1	2	NGDx1 Analog 5 - D-Wire 5 Minor Over
	1	3	NGDx1 Analog 5 - D-Wire 5 Major Under
	1	4	NGDx1 Analog 5 - D-Wire 5 Major Over
	1	5	D-Wire 5 Sensor Not Detected
	1	33	NGDx1 Analog 6 - D-Wire 6 Minor Under
	1	34	NGDx1 Analog 6 - D-Wire 6 Minor Over
	1	35	NGDx1 Analog 6 - D-Wire 6 Major Under
	1	36	NGDx1 Analog 6 - D-Wire 6 Major Over
1	37	D-Wire 6 Sensor Not Detected	

Display	Address	Point	Description
21	1	1	NGDx1 Analog 7 - D-Wire 7 Minor Under
	1	2	NGDx1 Analog 7 - D-Wire 7 Minor Over
	1	3	NGDx1 Analog 7 - D-Wire 7 Major Under
	1	4	NGDx1 Analog 7 - D-Wire 7 Major Over
	1	5	D-Wire 7 Sensor Not Detected
	1	33	NGDx1 Analog 8 - D-Wire 8 Minor Under
	1	34	NGDx1 Analog 8 - D-Wire 8 Minor Over

Display	Address	Point	Description
	1	35	NGDx1 Analog 8 - D-Wire 8 Major Under
	1	36	NGDx1 Analog 8 - D-Wire 8 Major Over
	1	37	D-Wire 8 Sensor Not Detected

Display	Address	Point	Description
22	1	1	NGDx1 Analog 9 - D-Wire 9 Minor Under
	1	2	NGDx1 Analog 9 - D-Wire 9 Minor Over
	1	3	NGDx1 Analog 9 - D-Wire 9 Major Under
	1	4	NGDx1 Analog 9 - D-Wire 9 Major Over
	1	5	D-Wire 9 Sensor Not Detected
	1	33	NGDx1 Analog 10 - D-Wire 10 Minor Under
	1	34	NGDx1 Analog 10 - D-Wire 10 Minor Over
	1	35	NGDx1 Analog 10 - D-Wire 10 Major Under
	1	36	NGDx1 Analog 10 - D-Wire 10 Major Over
1	37	D-Wire 10 Sensor Not Detected	

Display	Address	Point	Description
23	1	1	NGDx1 Analog 11 - D-Wire 11 Minor Under
	1	2	NGDx1 Analog 11 - D-Wire 11 Minor Over
	1	3	NGDx1 Analog 11 - D-Wire 11 Major Under
	1	4	NGDx1 Analog 11 - D-Wire 11 Major Over
	1	5	D-Wire 11 Sensor Not Detected
	1	33	NGDx1 Analog 12 - D-Wire 12 Minor Under
	1	34	NGDx1 Analog 12 - D-Wire 12 Minor Over
	1	35	NGDx1 Analog 12 - D-Wire 12 Major Under
	1	36	NGDx1 Analog 12 - D-Wire 12 Major Over
1	37	D-Wire 12 Sensor Not Detected	

Display	Address	Point	Description
24	1	1	NGDx1 Analog 13 - D-Wire 13 Minor Under
	1	2	NGDx1 Analog 13 - D-Wire 13 Minor Over
	1	3	NGDx1 Analog 13 - D-Wire 13 Major Under
	1	4	NGDx1 Analog 13 - D-Wire 13 Major Over
	1	5	D-Wire 13 Sensor Not Detected
	1	33	NGDx1 Analog 14 - D-Wire 14 Minor Under
	1	34	NGDx1 Analog 14 - D-Wire 14 Minor Over
	1	35	NGDx1 Analog 14 - D-Wire 14 Major Under
	1	36	NGDx1 Analog 14 - D-Wire 14 Major Over
1	37	D-Wire 14 Sensor Not Detected	

Display	Address	Point	Description
25	1	1	NGDx1 Analog 15 - D-Wire 15 Minor Under
	1	2	NGDx1 Analog 15 - D-Wire 15 Minor Over

Display	Address	Point	Description
	1	3	NGDx1 Analog 15 - D-Wire 15 Major Under
	1	4	NGDx1 Analog 15 - D-Wire 15 Major Over
	1	5	D-Wire 15 Sensor Not Detected
	1	33	NGDx1 Analog 16 - D-Wire 16 Minor Under
	1	34	NGDx1 Analog 16 - D-Wire 16 Minor Over
	1	35	NGDx1 Analog 16 - D-Wire 16 Major Under
	1	36	NGDx1 Analog 16 - D-Wire 16 Major Over
	1	37	D-Wire 16 Sensor Not Detected

Display	Address	Point	Description
26	1	1	NGDx1 Analog 17 - D-Wire 17 Minor Under
	1	2	NGDx1 Analog 17 - D-Wire 17 Minor Over
	1	3	NGDx1 Analog 17 - D-Wire 17 Major Under
	1	4	NGDx1 Analog 17 - D-Wire 17 Major Over
	1	5	D-Wire 17 Sensor Not Detected
	1	33	NGDx1 Analog 18 - D-Wire 18 Minor Under
	1	34	NGDx1 Analog 18 - D-Wire 18 Minor Over
	1	35	NGDx1 Analog 18 - D-Wire 18 Major Under
	1	36	NGDx1 Analog 18 - D-Wire 18 Major Over
	1	37	D-Wire 18 Sensor Not Detected

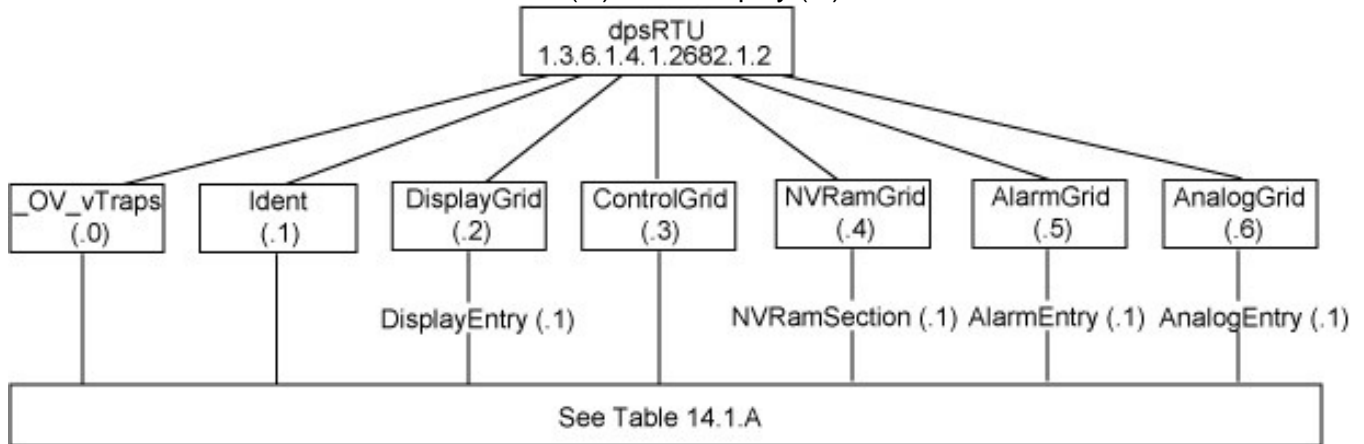
Display	Address	Point	Description
27	1	1	NGDx1 Analog 19 - D-Wire 19 Minor Under
	1	2	NGDx1 Analog 19 - D-Wire 19 Minor Over
	1	3	NGDx1 Analog 19 - D-Wire 19 Major Under
	1	4	NGDx1 Analog 19 - D-Wire 19 Major Over
	1	5	D-Wire 19 Sensor Not Detected
	1	33	NGDx1 Analog 20 - D-Wire 20 Minor Under
	1	34	NGDx1 Analog 20 - D-Wire 20 Minor Over
	1	35	NGDx1 Analog 20 - D-Wire 20 Major Under
	1	36	NGDx1 Analog 20 - D-Wire 20 Major Over
	1	37	D-Wire 20 Sensor Not Detected

Display	Address	Point	Description
28	1	1	NGDx1 Analog 21 - D-Wire 21 Minor Under
	1	2	NGDx1 Analog 21 - D-Wire 21 Minor Over
	1	3	NGDx1 Analog 21 - D-Wire 21 Major Under
	1	4	NGDx1 Analog 21 - D-Wire 21 Major Over
	1	5	D-Wire 21 Sensor Not Detected
	1	33	NGDx1 Analog 22 - D-Wire 22 Minor Under
	1	34	NGDx1 Analog 22 - D-Wire 22 Minor Over
	1	35	NGDx1 Analog 22 - D-Wire 22 Major Under
	1	36	NGDx1 Analog 22 - D-Wire 22 Major Over
	1	37	D-Wire 22 Sensor Not Detected

Display	Address	Point	Description
29	1	1	NGDx1 Analog 23 - D-Wire 23 Minor Under
	1	2	NGDx1 Analog 23 - D-Wire 23 Minor Over
	1	3	NGDx1 Analog 23 - D-Wire 23 Major Under
	1	4	NGDx1 Analog 23 - D-Wire 23 Major Over
	1	5	D-Wire 23 Sensor Not Detected
	1	33	NGDx1 Analog 24 - D-Wire 24 Minor Under
	1	34	NGDx1 Analog 24 - D-Wire 24 Minor Over
	1	35	NGDx1 Analog 24 - D-Wire 24 Major Under
	1	36	NGDx1 Analog 24 - D-Wire 24 Major Over
	1	37	D-Wire 24 Sensor Not Detected

## 14.2 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-lnc.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).



Tbl. B1 (0.)_OV_Traps points
<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)

Tbl. B2 (.1) Identity points
<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.

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



Tbl. B3 (.3) ControlGrid points	Tbl. B5 (.5) AlarmEntry points	Tbl. B6 (.6) Analog Channels
<b>ControlGrid (1.3.6.1.4.1.2682.1.4.3)</b>	<b>AlarmEntry (1.3.6.4.1.2682.1.4.5.1)</b>	<b>Channel Entry (1.3.6.1.4.1.2682.1.4.6.1)</b>
Port (.1)	Aport (.1)	Channel Number (.1)
Address (.2)	AAddress (.2)	Enabled (.2)
Display (.3)	ADisplay (.3)	Description (.3)
Point (.4)	APoint (.4)	Value (.4)
Action (.5)	APntDesc (.5)*	Thresholds (.5)*
	AState (.6)	*If Mi, Mn is assumed

\*\*Only supported on some older DPS devices.



**Hot Tip!**

The NetGuardian G5 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.

## 14.3 SNMP Granular Trap Packets

Tables 14.3.A and 14.3.B 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)
- or
2. The SNMP manager reads the description from the Trap.

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

*Table 14.3.A 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 216 v1.0K	Value
1.3.6.1.2.1.1.6.0	Object
1-800-622-3314	Value
1.3.6.1.4.1.2682.1.4.4.1.0	Object
01-02-1995 05:08:27.760	Value
1.3.6.1.4.1.2682.1.4.5.1.1.99.1.1.1	Object
99	Value
1.3.6.1.4.1.2682.1.4.5.1.2.99.1.1.1	Object
1	Value
1.3.6.1.4.1.2682.1.4.5.1.3.99.1.1.1	Object
1	Value
1.3.6.1.4.1.2682.1.4.5.1.4.99.1.1.1	Object
1	Value
1.3.6.1.4.1.2682.1.4.5.1.5.99.1.1.1	Object
Rectifier Failure	Value
1.3.6.1.4.1.2682.1.4.5.1.6.99.1.1.1	Object
Alarm	Value

**Table 14.3.B.** SNMP Headers and descriptions

## 14.4 Trap SNMP Logic

NET1	NET2	Trap Dest.	Result
Subnet 1 & Gateway	Not Defined	Subnet 3	Trap goes out NET1's Gateway
Subnet 1 & Gateway	Subnet 2, No Gateway	Subnet 3	Trap goes out NET1's Gateway
Subnet 1 & Gateway	Subnet 2 & Gateway	Subnet 3	Trap goes out NET2's Gateway
Subnet 1 & Gateway	Subnet 2 & Gateway	Subnet 2	Trap goes out NET2
Subnet 1 & Gateway	Subnet 2 & Gateway	Subnet 1	Trap goes out NET1
Subnet 1, No Gateway	Subnet 2 & Gateway	Subnet 1	Trap goes out NET1
Subnet 1, No Gateway	Subnet 2 & Gateway	Subnet 2	Trap goes out NET2
Subnet 1, No Gateway	Subnet 2 & Gateway	Subnet 3	Trap goes out NET2

**Table 14.3.C.** Trap SNMP Logic

## 14.5 ASCII Conversion

The information contained in Table D.1 is a list of ASCII symbols and their meanings. Refer to the bulleted list below to interpret the ASCII data transmitted or received through the data ports. Port transmit and receive activity can be viewed from the Web Browser Interface.

- Printable ASCII characters will appear as ASCII.
- Non-printable ASCII characters will appear as labels surrounded by { } brackets (e.g. {NUL}).
- Non-ASCII characters will appear as hexadecimal surrounded by [ ] brackets (e.g. [IF]).
- A received BREAK will appear as <BRK>.

Abbreviation	Description	Abbreviation	Description
NUL	Null	DLE	Data Link Escape
SOH	Start of Heading	DC	Device Control
STX	Start of Text	NAK	Negative Acknowledge
ETX	End of Text	SYN	Synchronous Idle
EOT	End of Transmission	ETB	End of Transmission Block
ENQ	Enquiry	CAN	Cancel
ACK	Acknowledge	EM	End of Medium
BEL	Bell	SUB	Substitute
BS	Backspace	ESC	Escape
HT	Horizontal Tabulation	FS	File Separator
LF	Line Feed	GS	Group Separator
VT	Vertical Tabulation	RS	Record Separator
FF	Form Feed	US	Unit Separator
CR	Carriage Return	SP	Space (blank)
SO	Shift Out	DEL	Delete
SI	Shift In	BRK	Break Received

**Table 14.4.A.** ASCII symbols

## 14.6 RADIUS Dictionary File (Available on Resource Disk)

```

# -*- text -*-
#
# dictionary.dps
#
#     DPS Telecom, Inc
#     For assistance or support, please contact support@dpstele.com
#     v1.0 Released - 1/23/09 (CBH/DPS)

VENDOR          DPS          2682

#
# Standard attribute for NetGuardian RTU.
# All values are integer with 1 = True, 0 = False.
# If attribute does not exist in Access-Accept packet, default value will be 0.
#
BEGIN-VENDOR    DPS

ATTRIBUTE      dps-admin          1      integer
ATTRIBUTE      dps-edit          2      integer
ATTRIBUTE      dps-monitor       3      integer
ATTRIBUTE      dps-SD-monitor    4      integer
#To allow monitor of data port buffer/activity
ATTRIBUTE      dps-reach-through  5      integer
#To allow proxy to serial ports via TTY interface
ATTRIBUTE      dps-telnet        6      integer
#To allow telnet in and out of NetGuardian
ATTRIBUTE      dps-control       7      integer
#To allow manipulation of dry contact relay outputs
ATTRIBUTE      dps-modem         8      integer
#To allow dial in and out of NetGuardian
ATTRIBUTE      dps-ppp           9      integer
#To allow this user PPP (inbound) access to the NetGuardian

END-VENDOR      DPS

```

## 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.dpstelecom.com>.

If you have a question about the NetGuardian, please call us at **(559) 454-1600** or e-mail us at [support@dpstele.com](mailto: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 NetGuardian'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. I can't change the craft port baud rate.**

**A.** If you select a higher baud rate, you must set your terminal emulator program to the new baud rate and then type DPSCFG and press Enter. If your terminal emulator is set to a slower baud rate than the craft port, normal keys can appear as a break key — and the craft port interprets a break key as an override that resets the baud rate to the standard 9600 baud.

**Q. How do I use the NetGuardian to access TTY interfaces on remote site equipment?**

**A.** If your remote site device supports RS-232, you can connect it to one of the eight data ports located on the NetGuardian back panel. To make the data port accessible via LAN, configure the port for TCP/IP operation. You now have a LAN-based proxy port connection that lets you access your device's TTY interface through a Telnet session.

**Q. I just changed the port settings for one of my data ports, but the changes did not seem to take effect even after I wrote the NVRAM.**

**A.** In order for data port and craft port changes (including changes to the baud rate and word format) to take effect, the NetGuardian must be rebooted. Whenever you make changes, remember to write them to the NetGuardian's NVRAM so they will be saved when the unit is rebooted.

**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.

**Q. What do the terms "port," "address," "display" and "alarm point" mean?**

**A.** These terms refer to numbers that designate the location of a network alarm, from the most general (a port to which several devices are connected) to the most specific (an individual alarm sensor).

**Port:** A number designating a serial port through which a monitoring device collects data.

**Address:** A number designating a device connected to a port.

**Display:** A number designating a logical group of 64 alarm points.

**Alarm Point:** A number designating a contact closure that is activated when an alarm condition occurs. For example, an alarm point might represent a low oil sensor in a generator or an open/close sensor in a door.

These terms originally referred only to physical things: actual ports, devices, and contact closures. For the sake of consistency, port-address-display-alarm point terminology has been extended to include purely logical elements: for example, the NetGuardian reports internal alarms on Port 99, Address 1.

**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 NetGuardian'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. Ordering TTL points for your NetGuardian 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 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 will declare an alarm in the absence of the active-low signal, creating the practical equivalent of an active-high alarm.
- **If the alarm input is normally open**, switching to Reversed operation converts it to a normally closed alarm point.
- **If the alarm input is normally closed**, switching to Reversed operation converts it to a normally open alarm point.

**Q. Every time my NetGuardian starts up, I have to reenter the date and time. How can I get the NetGuardian to automatically maintain the date and time setting?**

**A.** You have three options for keeping the correct time on your NetGuardian:

**Real Time Clock Option:** You can order your NetGuardian with the Real Time Clock hardware option. Once it's set, the Real Time Clock will keep the correct date and time, regardless of reboots.

**Network Time Protocol Synchronization:** If your NetGuardian has Firmware Version 2.9F or later, you can configure the unit to automatically synchronize to a Network Time Protocol (NTP) server.

- To get the latest NetGuardian firmware, sign in to MyDPS at [www.dpstelecom.com/mydps](http://www.dpstelecom.com/mydps).
- For instructions on configuring your NetGuardian to use NTP synchronization, see your NGEEditG5 or NetGuardian Web Browser Interface user manual.

**T/Mon RTU Time Sync Signal:** You can configure your T/Mon NOC to send an RTU Time Sync signal at a regular interval, which you can set to any time period between 10 and 10,080 minutes. The Time Sync will automatically synchronize the NetGuardian's clock to the T/Mon's clock. And if you set your T/Mon to NTP synchronization, you'll make sure you have consistent, accurate time stamps throughout your monitoring network.

**Q. How do I back up my NetGuardian configuration?**

**A.** There are two ways to back up NetGuardian configuration files:

**Use NGEEditG5**

NGEEditG5 can read the configuration of a NetGuardian unit connected to your PC via LAN, modem or COM port. You can then use NGEEditG5 to save a NetGuardian configuration file on your PC's hard disk or on a floppy disk. With NGEEditG5 you can also make changes to the configuration file and write the changed configuration to the NetGuardian's NVRAM.

**Use FTP**

You can use File Transfer Protocol (FTP) to read and write configuration files to the NetGuardian's NVRAM, but you can't use FTP to edit configuration files.

## 15.2 SNMP FAQs

**Q. How do I configure the NetGuardian to send traps to an SNMP manager? Is there a separate MIB for the NetGuardian? 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 support MIB-2 and/or any other standard MIBs?**

**A.** The NetGuardian supports the bulk of MIB-2.

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

**A.** The NetGuardian SNMP agent manages an embedded MIB that supports only the NetGuardian'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, but there are two exceptions to this rule. Exception 1: the first alarm in an "all clear" condition generates an additional "summary point set" trap. Exception 2: the final clear alarm that triggers an "all clear" condition generates an additional "summary point clear" 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 manual talks about eight 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 control grid. For more information about the set commands, see Appendix, "Display Mapping," in any of the NetGuardian software configuration guides.

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

**A.** The NetGuardian alarm point descriptions are individually defined using the Web Browser, TTY, or NGEEditG5 configuration interfaces.

**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 and the SNMP manager are both on the network. Use the NetGuardian's ping command to ping the SNMP manager.

## 15.3 Pager FAQs

**Q. Why won't my alpha pager work?**

**A.** To configure the NetGuardian to send alarm notifications to an alpha pager, enter the **data** phone number for your pager in the Phone Number field. This phone number should connect to your pager service's modem. Then enter the PIN for your pager in the PIN/Rcpt/Port field. You don't need to enter anything in any of the other fields. If you still don't receive pages, try setting the Dial Modem Init string to AT537=9. This will limit the NetGuardian's connection speed. Be sure to use the rpt debug feature, if needed.

**Q. Numeric pages don't come in or are cut off in the middle of the message. What's wrong?**

**A.** You need to set a delay between the time the NetGuardian dials your pager number and the time the NetGuardian begins sending the page message. You can set the delay in the Pager Number field, where you enter your pager number. First enter the pager number, then enter some commas directly after the number. Each comma represents a two-second delay. So, for example, if you wanted an eight-second delay, you would enter "555-1212,,," in the Pager Number field.

**Q. What do I need to do to set up e-mail notifications?**

**A.** You need to assign the NetGuardian an e-mail address and list the addresses of e-mail recipients. Let's explain some terminology. An e-mail address consists of two parts, the user name (everything before the "@" sign) and the domain (everything after the "@" sign). To assign the NetGuardian an e-mail address, choose System from the Edit menu. Enter the NetGuardian's user name in the Name field (it can't include any spaces) and the domain in the Location field. For example, if the system configuration reads:

Name: netguardian

Location: proactive.com

Then e-mail notifications from the NetGuardian will be sent from the address "netguardian@proactive.com."

The next step is to list the e-mail recipients. Choose Pagers from the Edit menu. For each e-mail recipient, enter his or her e-mail domain in the Phone/Domain field and his or her user name in the PIN/Rcpt/Port field. You must also enter the IP address of an SMTP server in the IPA field and configure the alarm point to use the pager you setup as email.



## 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.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.*

## 17 End User License Agreement

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