DPS Telecom

"Your Partners in Network Alarm Monitoring"

RAB 176N G2

USER MANUAL

D-PK-RABLK

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Revision History

August 20, 2013	Updated Images & Misc. Details
August 15, 2013	Updated Specifications and Images
August 14, 2013	Initial Release

Notice

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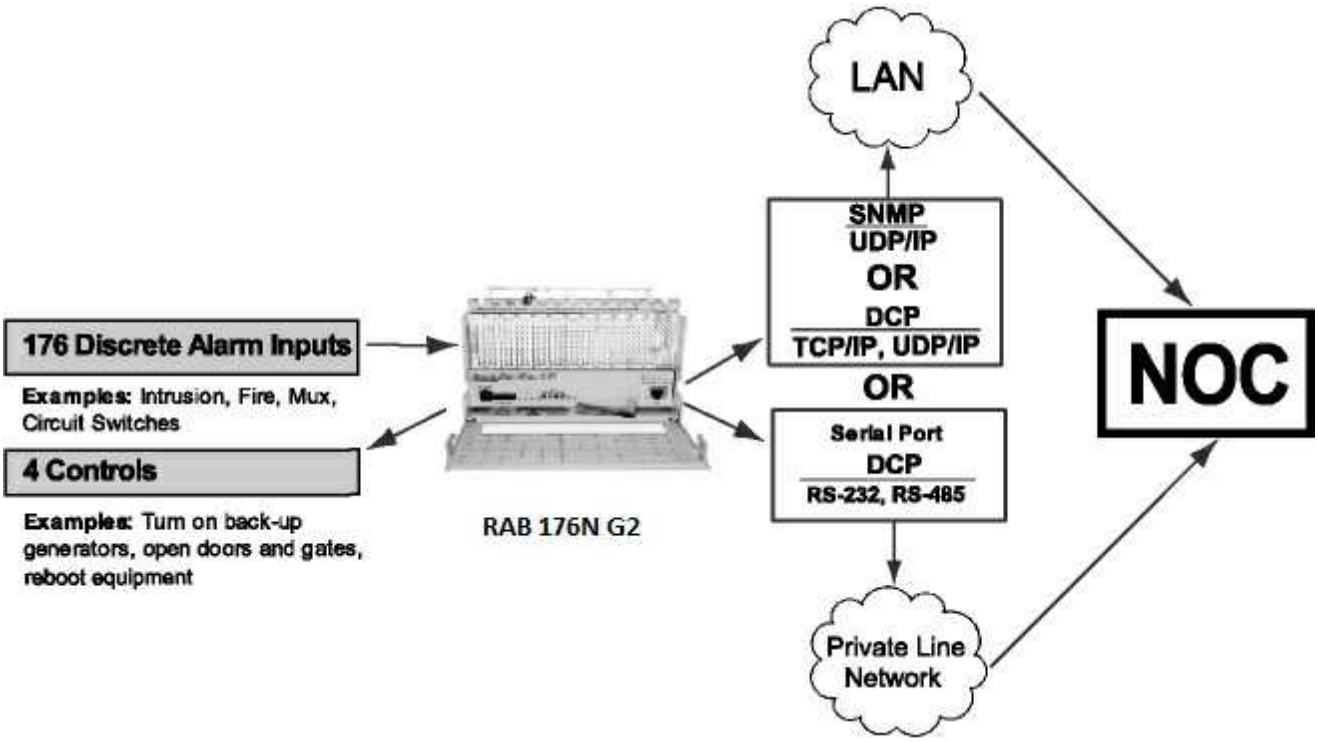
1 Remote Alarm Block 176N G2 Overview

The Remote Alarm Block 176N G2

The DPS Telecom Remote Alarm Block 176N G2 (RAB) is a compact, multi-protocol alarm collection remote with 176 discrete inputs. The RAB combines standard wire-wrap terminals for alarm inputs with LAN connectivity and SNMP trap alarm reporting. It is the ideal alarm block for any site with many alarm points and limited rack space. The RAB will provide complete network visibility while retaining valuable rack space for revenue-generating equipment.



Common Applications for the RAB

The RAB reports alarms as SNMP traps over LAN and supports DCP polling over RS-232, RS-485 or LAN. The RAB supports simultaneous SNMP and DCP operation.

The RAB supports both LAN and serial port connectivity. The LAN connection and serial port can be used at the same time to support simultaneous SNMP and DCP alarm reporting. However, only one DCP channel can be used, therefore the RAB cannot simultaneously report DCP over LAN and DCP over serial port connection.

In addition to its 176 discrete input points, the RAB has 4 control relays, 2 Form A and 2 Form C. The control relays allow network administrators to respond remotely to threats to system integrity. Using the control relays, network administrators can turn on backup generators, open doors and gates for emergency access, reboot equipment, or perform other functions. The RAB also allows you to reverse the logic state of the alarm on a point by point basis for discrete alarms.

Another feature of the RAB is user-defined alarm qualification times. This will allow you to clearly distinguish momentary status changes from serious problems.

If the hardware module of the RAB ever needs to be replaced, you can easily remove the card as well. The hardware module can be replaced without disconnecting wiring for alarms or control relays.

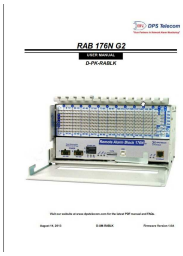
2 Specifications

Discrete Alarm Inputs:	176
Control Relays:	4 (2 Form A, 2 Form C)
Ping Targets:	16
Protocols:	SNMPv1, SNMPv2c, SNMPv3, DCPx, TELNET, HTTP, HTTPS, Email
Dimensions:	4.437"H x 6.433"D x 9.230"W
Weight:	3.5 lbs (1.56 kg)
Mounting:	19" or 23" rack or wall mount
Power Input:	-48VDC (-36 to -72 VDC)
Current Draw:	450mA @ 48 VDC 900mA @ 24 VDC
Fuse:	3/4 Amp GMT Fuse
Interfaces:	1 RJ45 10/100BaseT full-duplex Ethernet port 1 USB front-panel craft port 1 RJ11 connector for D-Wire sensor network (Optional) 1 Serial port: RS232 or RS485 (Optional)
Visual Interface:	13 Front Panel LEDs
Operating Temperature:	32° - 140° F (0° - 60° C)
Industrial Temperature Option:	-22° to 158° F (-30° to 70° C)
Operating Humidity:	0% - 95% non-condensing
MTBF:	60 years
Windows Compatibility:	XP, Vista, 7 (32 or 64 bit)
RoHS	5/6

3 Shipping List

Please make sure all of the following items are included with your Remote Alarm Block 176N G2. If parts are missing, or if you ever need to order new parts, please refer to the part numbers listed and call DPS Telecom at **1-800-622-3314**.

Remote Alarm Block 176N G2
D-PK-RABLK



RAB 176N G2 User Manual and Resource Disk
D-UM-RABLK

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

6 ft. USB Download Cable
D-PR-046-10A-06

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

x 2
Two Locking 2-pin Power Connectors
2-820-35102-00

x 2
3/8" Locking Ear Screws
2-000-60375-05

Two Wood Screws
1-000-80750-50

x 4
Cable Ties
1-012-00106-00

Mounting Bracket Screws
1-000-80750-03

3.1 Optional Shipping Items - Available by Request

Mounting Bar Kit
D-PK-MNTBR-12002.00001
Includes: Mounting Bar, Screws, and Ears

If you wish to mount your RAB on a 19" or 23" equipment rack, a mounting bar and accessories kit (part number D-PK-MNTBR-12002.00001) is available. To order a mounting bar kit, please call DPS Telecom at **(800) 622-3314**.

D-Wire Temperature Sensor
D-PK-DSNSR-12001.00002

D-Wire Temperature/Humidity Sensor
D-PK-DSNSR-12002.00002

4 Installation

4.1 Tools Needed

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

Phillips No. 2 Screwdriver

Small Standard No. 2 Screwdriver

Wire Strippers/Cutter

Wire Wrap Gun

PC with terminal emulator, such as HyperTerminal

4.2 Mounting

The RAB can be mounted on a wall or, with a mounting bar, on an equipment rack.

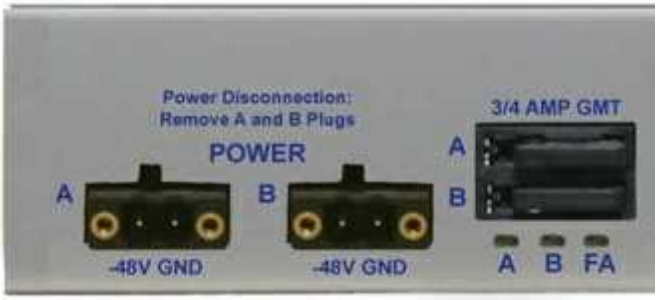
1. Remove the mounting bracket from the back of the RAB unit and mount the bracket on a wall or rack with the included mounting bracket screws.

   Note: You must leave at least two inches of clearance above the mounting bracket.
2. Gently slide the unit onto the bracket so that the bracket hooks engage the holes in the back of the RAB case.
3. In order to secure the RAB to the mounting bracket, lock it in place it with a locking screw.
4. You are now ready to insert the card module. (See topic: "Removing the RAB Module from the Case")

Mounting the RAB G2 on the mounting bracket

4.3 Power Connection

The RAB uses dual power inputs, powered through two barrier plug power connectors.



RAB G2 Power Terminals and Fuses

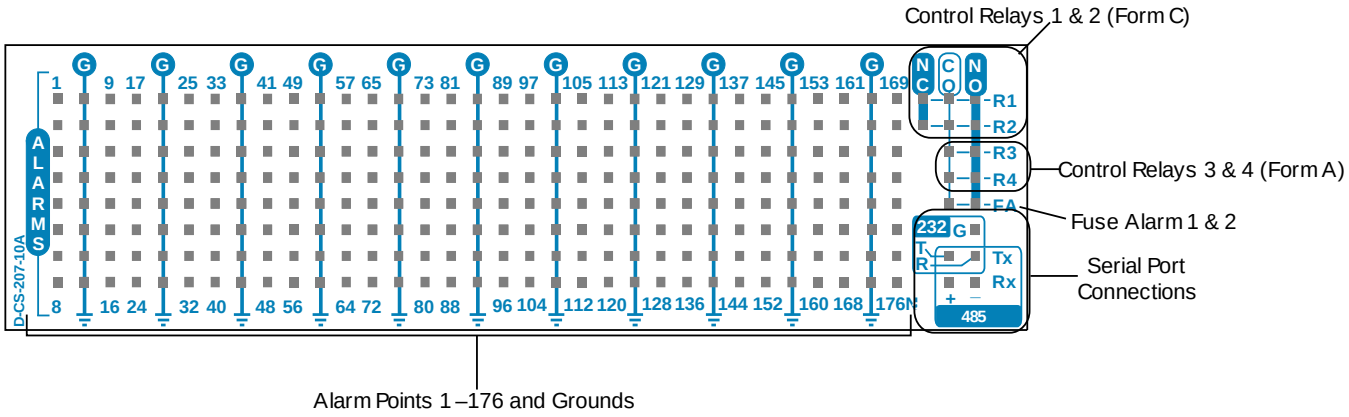
To connect the RAB to a power supply:

1. Locate the metal grounding lug next to the symbol ⏚. Use the grounding lug to connect the unit to earth ground.
2. Insert the eyelet of the earth ground cable between the two nuts on the grounding lug (Ground cable not included).
3. Choose a barrier plug power connector to attach your power cable to. One plug is used for main power and the other is used for backup power. Both plugs are interchangeable so it does not matter which plug you select. Each plug's right terminal is Ground and its left terminal is Battery Lead.
4. Insert a battery ground into the power connector plug's right terminal (GND) and tighten the screw.
5. Insert a battery lead to the plug's left terminal and tighten its screw.
6. Insert fuse into the fuse distribution panel.
7. Check the power status LED for polarity.
8. Measure voltage. Connect the black cable onto the ground connector of your Digital Voltage Meter (DVM) and red cable onto the other connector of your DVM. The voltmeter should read between the values listed on the silk screen next to the power connector.
9. Insert the local fuse into the power fuse slot. The power plug can be inserted into the power connector only one way to ensure the correct polarity.

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

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

4.4 Alarm, Relay, and Serial Port Connections



Connections on the wire-wrap terminal block

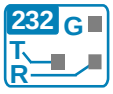
Alarm points, control relays, and serial ports are connected to the wire-wrap terminals on the upper front panel of the Remote Alarm Block. Refer to the diagram printed on the terminal block (shown above) when making connections.

Alarm Points and Grounds: The first 33 columns of wire-wrap terminals are used to connect alarm points and grounds. Each terminal column holds eight alarm points, as shown in the terminal block diagram. For example, Column 1 connects alarm points 1–8, Column 3 connects alarm points 9–16, and so on. Columns 2, 5, 8, 11, 14, 17, 20, 23, 26, 29, and 32 are used to connect grounds; each column of ground terminals is indicated by the letter "G."

Control Relays: Connections for control relays are in the upper right-hand corner of the terminal block. Relays 1 and 2 are Form C controls, which have three connections each: Normally Closed (NC), Common (CO), and Normally Open (NO). Relays 3 and 4 are Form A controls, have two connections each: Common (CO) and Normally Open (NO).

Fuse Alarms: The connections for the fuse alarms are below the connections for Relay 4. Fuse Alarm 1 is on the left, and Fuse Alarm 2 is on the right.

Serial Ports: Serial port connections are in the lower right-hand corner of the terminal block. The correct serial port connections to use depends on which serial interface you are using.



RS-232

RS-485

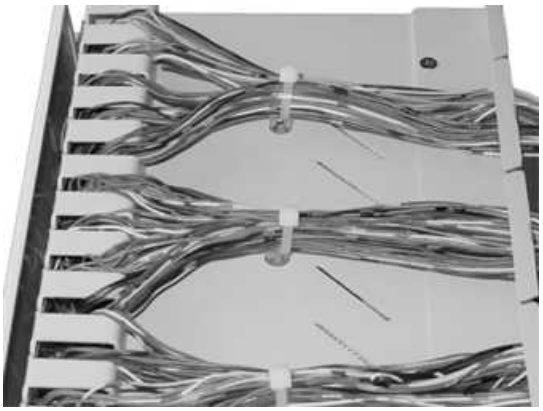
RS-232: For RS-232, you must make three connections: Ground (G), Transmit (T), and Receive (R). Note that **T** refers to transmissions **from the RAB** and **R** refers to transmissions **to the RAB**.

RS-485: For RS-485 you must make four connections: TX+, TX–, RX+, and RX–. Note that **TX** refers to transmissions **from the RAB** and **RX** refers to transmissions **to the RAB**.

NOTE: Transmission problems can occur with the RS-485 serial interface if the port connections are inverted.

4.5 Bundling Connection Wires

If the wires attached to the wire-wrap terminals become difficult to manage, they can be tied into more convenient bundles using the included cable ties. Insert the cable ties through the plastic loops in the top of the case and collect the wires into bundles, then seal the cable ties.

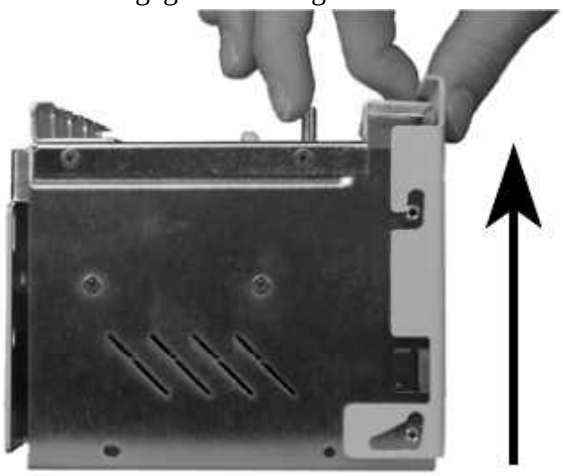


Bundling wires with cable ties

4.6 Closing and Opening the Case

The RAB case protects the wire-wraps from damage while still allowing access to the front panel connections and LEDs.

To open the RAB case, lift up the lid to disengage the locking screws.



4.7 Removing the RAB Module from the Case

To remove the RAB Module from the case:

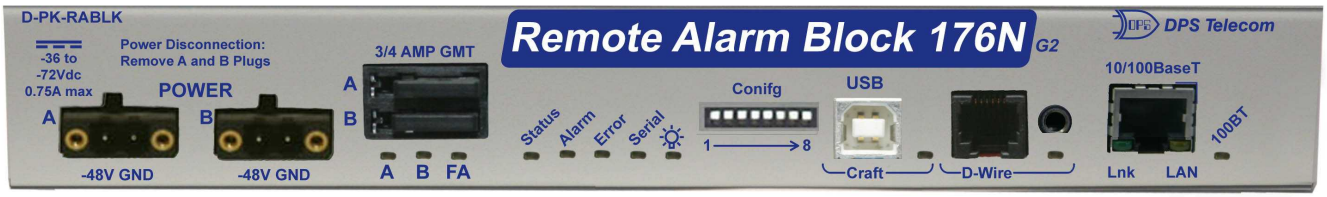
1. Disconnect all cables from the module.
2. Remove the rubber grommet.
3. Pull on the pull tabs and rock from side to side.
4. Slide the module out using both hands.

To insert the RAB Module into the case:

1. Hold the module with both hands and slide it onto the card slots inside the case.
2. Carefully push the module back until it locks in place.

Note: Metal tray (module) goes into the card guides, not the PCB board that is contained inside the module.

5 Remote Alarm Block 176N G2 Front Panel



Remote Alarm Block 176N G2 Front Panel

LED	Status	Description
A	Solid Green	Power Supply A OK
	Off	No Voltage (or) Power Leads Reversed
B	Solid Green	Power Supply B OK
	Off	No Voltage (or) Power Leads Reversed
FA	Solid Red	Blown Fuse
	Off	Fuse OK
Status	Flashing Green	Application Running
	Flashing Red	Bootloader Running
Alarm	Flashing Red	New Alarm
	Solid Red	Standing Alarm Acknowledged via DCP poll
Error		Reserved for future use
Serial	Flashing Green	Data Transmitted on Serial Connection
	Flashing Red	Data Received on Serial Connection
Power (Lamp)	Solid Green	Processor has power
	Off	Processor does not have power
USB	Flashing Green	Data Transmitted over USB
	Flashing Red	Data Received over USB
D-Wire	Flashing Green	Data Transmitted over D-Wire
	Flashing Red	Data Received over D-Wire
Lnk	Solid Green	LAN Connected
	Off	LAN Not Connected
LAN	Flashing Yellow	Activity over Ethernet Connection
	Off	No Activity
100BT	Solid Green	LAN Connection Speed is 100BaseT
	Off	LAN Connection Speed is 10BaseT

Front Panel LED Descriptions

6 Quick Start: How to Connect to the RAB

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

Alternative option: You can skip the TTY interface by using a LAN crossover cable directly from your PC to the RAB and access its Web Browser.

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

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

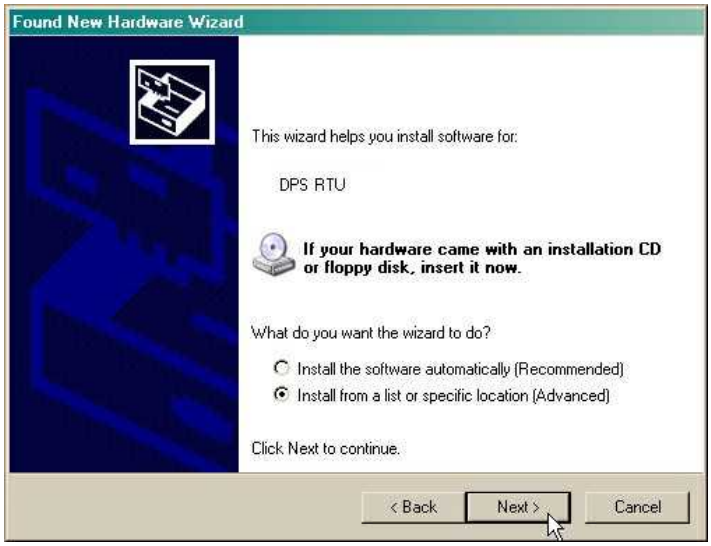
RAB G2 Craft Port

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

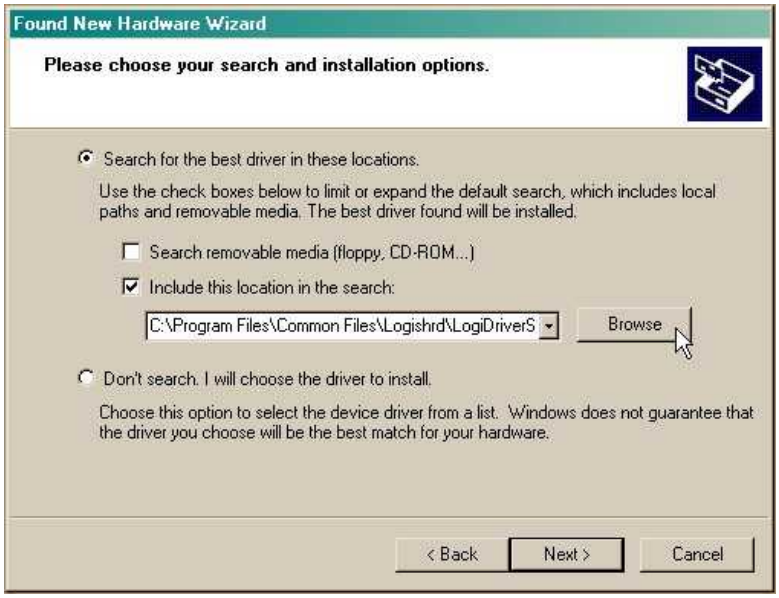
The following steps will occur the first time any DPS USB equipment is used on this PC. If you've used a different DPS USB device before and have installed the DPS USB drivers, then **skip to Step 9**.

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

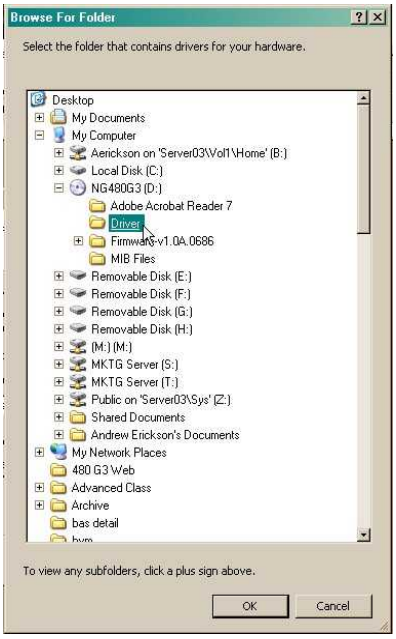
1. Click the "Found New Hardware" message/icon to launch the "Found New Hardware Wizard".



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



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

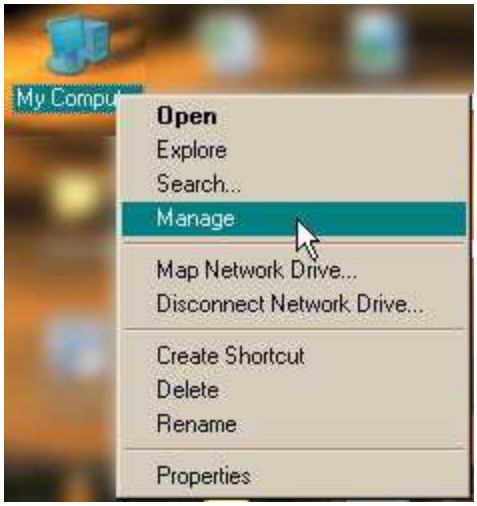


7. Select the "Driver" folder of your RAB Resource Disc Disc (CD) and click "OK"

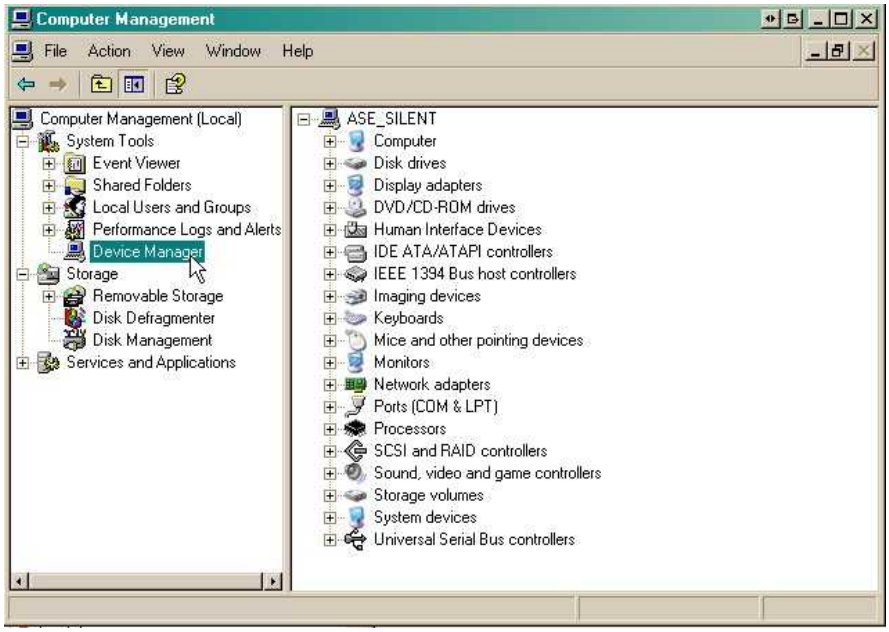
The following message will confirm installation of a new "USB Communications Port"

8. Click "Finish" to close the Wizard.

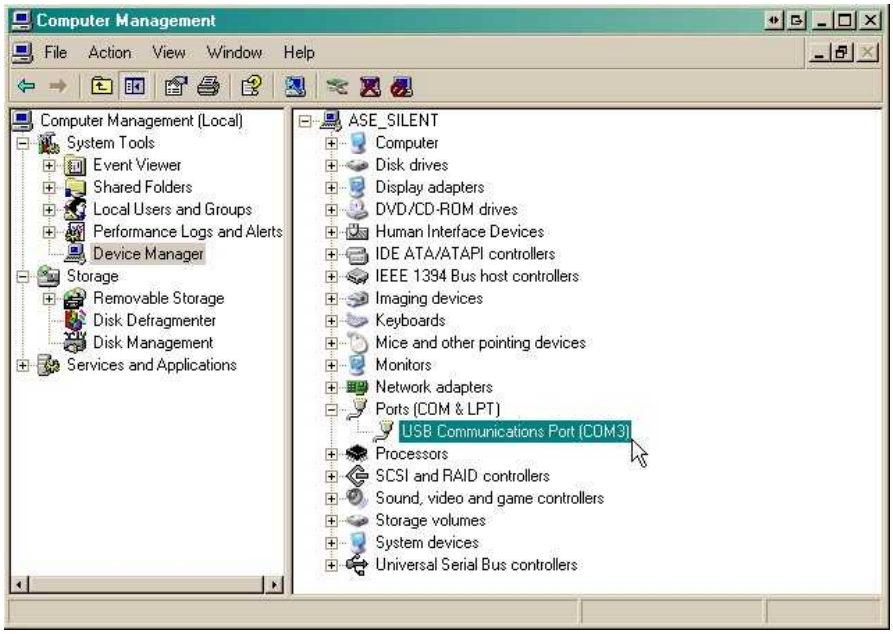
Now that the driver has been installed, a new COM port is being emulated on your PC. Before using hyperterminal, you must confirm the identity of that new COM port (COM1, COM2, COM3...) in the Windows Device Manager.



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



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



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

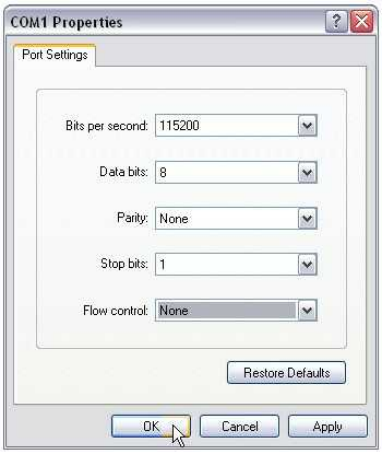
12. Click on the **Start** menu **>** select **Programs** > **Accessories** > **Communications** > **HyperTerminal.**

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

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

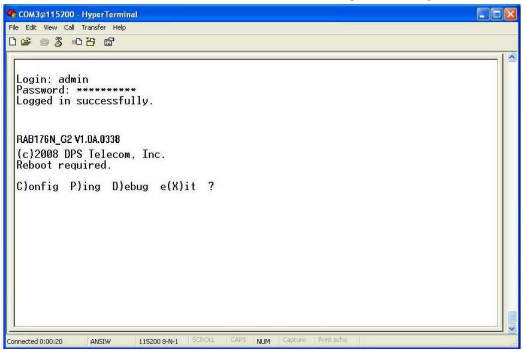
15. Select the following COM port options:
    - Bits per second: 9600
    - Data bits: 8
    - Parity: None
    - Stop bits: 1
    - Flow control: **None**

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

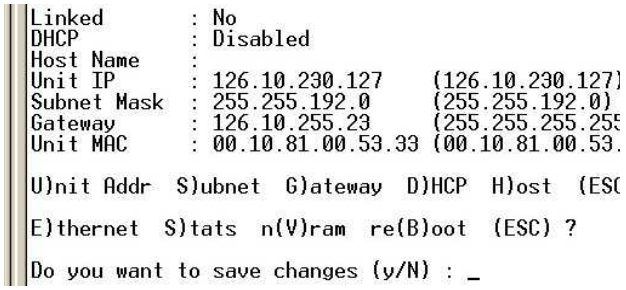


16. When prompted, enter the default user name **admin** and password **dpstelecom**. NOTE**:** If you don't receive a prompt for your user name and password, check the Com port you are using on your PC and make sure you are using the cable provided. Additional cables can be ordered from DPS Telecom.

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



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



Now you're ready to do the rest of your configuration via LAN. Please refer to the next section "...via LAN" for instructions on setting up your LAN connection.

6.2 ...via LAN

RAB G2 Ethernet Port

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

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

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

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

7 TTY Interface

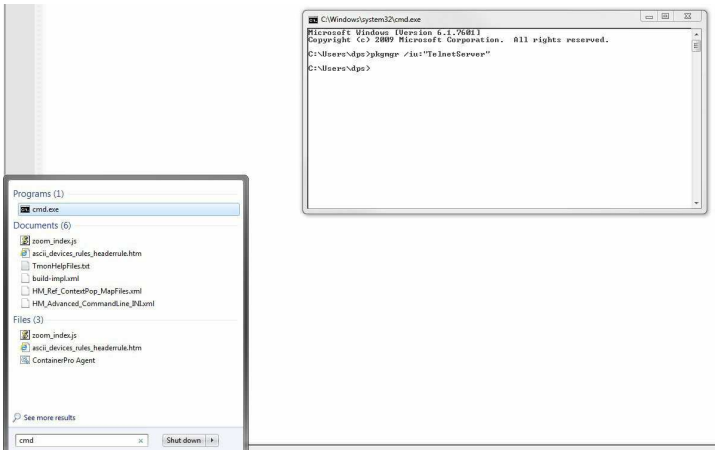
The TTY interface is the RAB's built-in interface for basic configuration. From the TTY interface, you can:

- Edit the IPA, subnet, and gateway
- Configure primary port
- Set unit back to factory defaults
- Set DCP info for T/Mon polling
- Ping other devices on the network
- Debug and troubleshoot

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

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

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

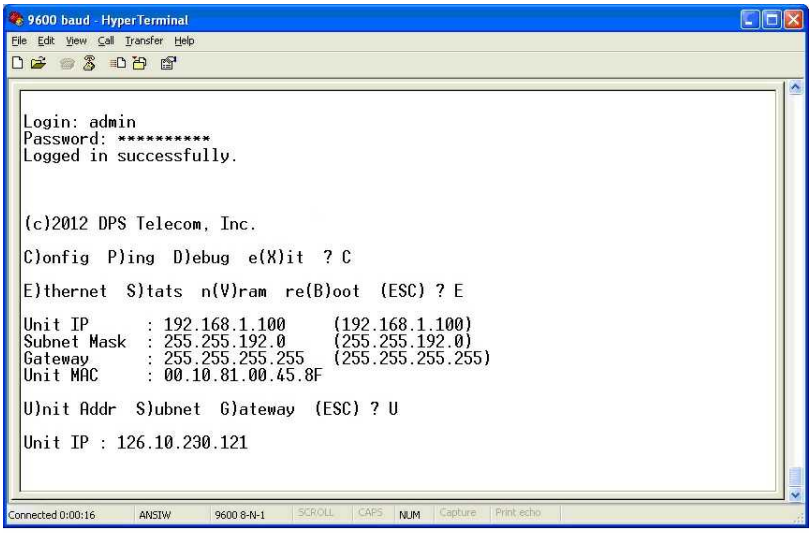


From the command line, type in **pkgmgr /iu:"TelnetClient"** then press **enter**. When the command prompt appears again, the installation is complete.

Menu Shortcut Keys

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

7.1 Configure Serial Port via TTY



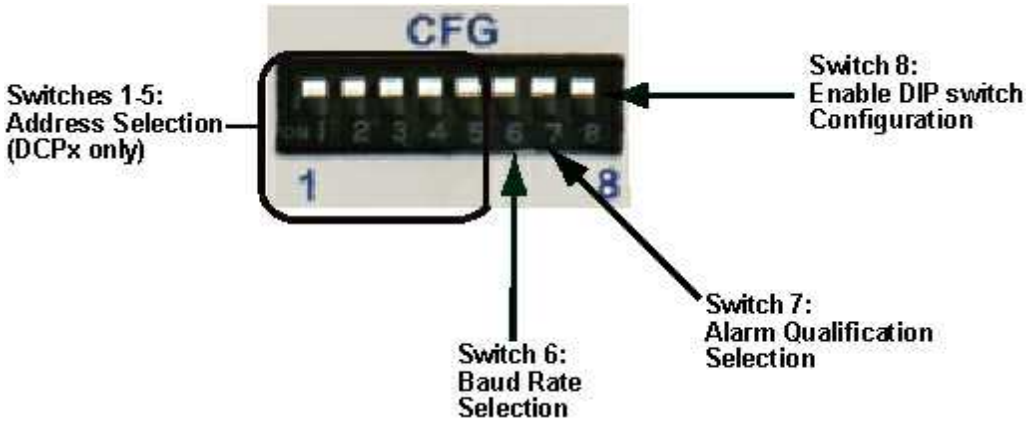
Serial port configuration

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

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

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

7.2 DIP switches



Configuration DIP switches

The DIP switches are numbered 1 to 8 from left to right. When angled **UP**, a DIP switch is **OFF** (0). When angled **DOWN**, the DIP switch is **ON** (1). The default setting is all switches **OFF** (NVRAM mode), which allows for T/RAB configuration.

7.3 DCPx Mode

The DCPx word format is always 8,N,1.

7.3.1 Address Selection

DCPx Addresses 1–16					
Switches					
1	2	3	4	5	
Switch Positions					Address
0	0	0	0	0	1
1	0	0	0	0	2
0	1	0	0	0	3
1	1	0	0	0	4
0	0	1	0	0	5
1	0	1	0	0	6
0	1	1	0	0	7
1	1	1	0	0	8
0	0	0	1	0	9
1	0	0	1	0	10
0	1	0	1	0	11
1	1	0	1	0	12
0	0	1	1	0	13
1	0	1	1	0	14
0	1	1	1	0	15
1	1	1	1	0	16

DCPx Addresses 129–144					
Switches					
1	2	3	4	5	
Switch Positions					Address
0	0	0	0	1	129
1	0	0	0	1	130
0	1	0	0	1	131
1	1	0	0	1	132
0	0	1	0	1	133
1	0	1	0	1	134
0	1	1	0	1	135
1	1	1	0	1	136
0	0	0	1	1	137
1	0	0	1	1	138
0	1	0	1	1	139
1	1	0	1	1	140
0	0	1	1	1	141
1	0	1	1	1	142
0	1	1	1	1	143
1	1	1	1	1	144

DIP switch settings for selecting DCPx addresses

DIP switches 1 through 5 are used to select the unit's responder address. Turn DIP switch 5 **OFF** to select addresses 1 through 16. Turn DIP switch 5 **ON** to select addresses 129 through 144.

7.3.2 Baud Rate Selection

The baud rate is selected using DIP switch 6:

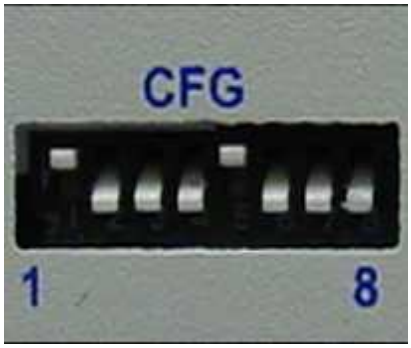
0 = 1200
1 = 9600

7.3.3 Alarm Qualification Selection

The alarm qualification time is selected using DIP switch 7:

0 = 500 msec
1 = 2000 msec (2 sec)

7.3.4 Example Configuration



Example configuration

In this example configuration, the DIP switches, when read left to right, show:

DCPx Responder Address: DIP switches 1–5 are **UP-DOWN-DOWN-DOWN-UP** (01110), which corresponds to DCPx responder address 15.

Baud Rate Selection: DIP switch 6 is **DOWN** (1), which corresponds to a baud rate selection of 9600 baud.

Alarm Qualification Selection: DIP switch 7 is **DOWN** (1), which corresponds to an alarm qualification setting of 2000 msec.

DIP switch configuration selection: DIP switch 8 is **DOWN** (1), which corresponds to a protocol selection of DCPx. *

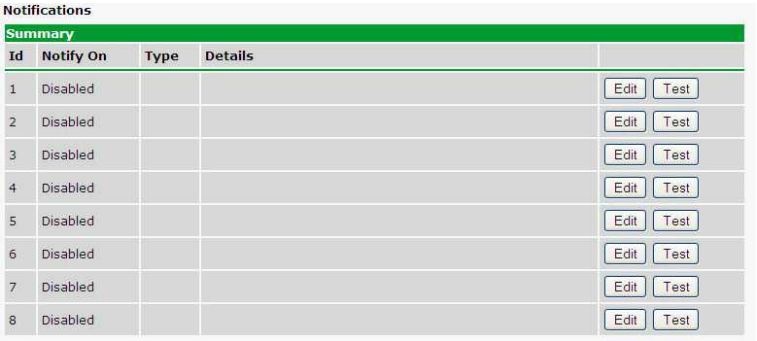
* The down angle for DIP switch 8 allows the unit to act as a DCPx serial remote which disables the LAN connection. DIP switch 8 in the up angle requires the RAB to be configured using T/RAB.

8 Quick Turn Up

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

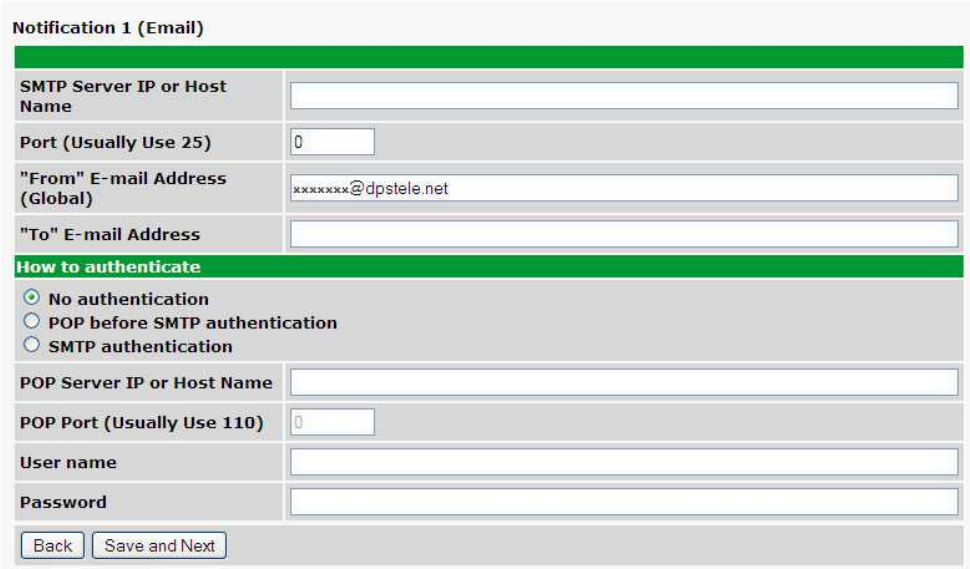
8.1 How to Send Email Notifications

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



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

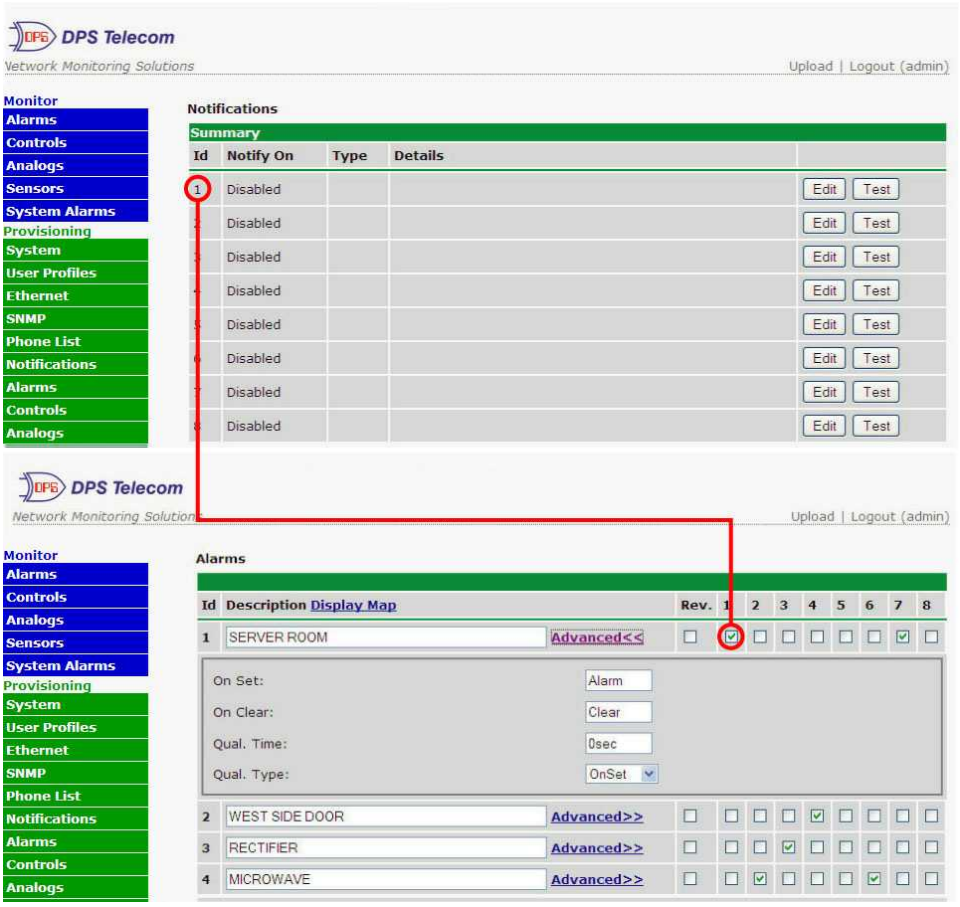
3. At the **Email Notification** screen, you'll enter your email server settings. Enter the **IP address** or **Host Name** of your email server. Enter the **Port Number** (usually 25) and the **"To" Email Address** of the technician that will receive these emails. If authentication is required, chose the type and fill in the necessary fields. Click **Next**.



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

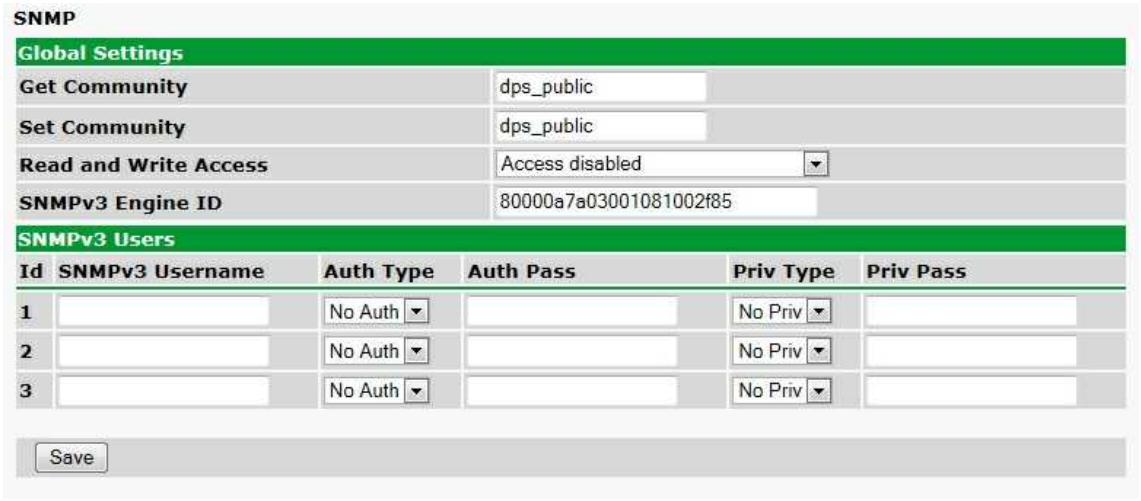
5. If you chose to test the email notification you've just setup, you will prompted with a pop up . Click **OK** to send a test email alarm notification. Confirm all your settings by checking your email to see if you've received it. **NOTE:** This test only means that your notification settings are correct,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

6. Now you will associate this notification to an alarm (system, base, analog, etc.) You have 8 notification devices available to use. In the image below, you might assign **Notification Device 1** to **Alarm 1**. This means that you would receive an email notification when an alarm for **Alarm 1** (SERVER ROOM**)** occurs.



8.2 How to Send SNMP Traps

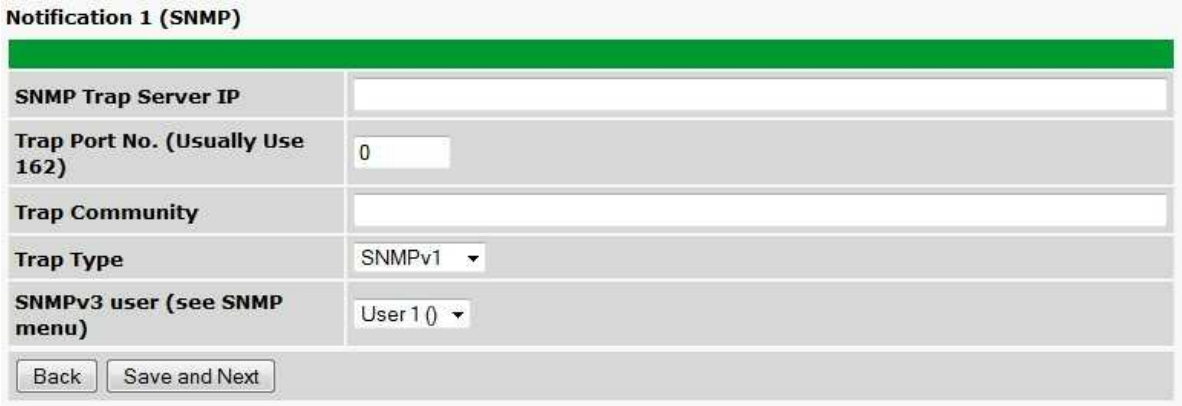
1. Click on the **SNMP** button in the **Provisioning** menu. Enter the **SNMP GET** and **SNMP SET** community strings for your network, then click **Save**. The typical SNMP SET and GET community strings for network devices is "public". As an added security measure, we've made our default "dps_public".



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

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

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



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

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

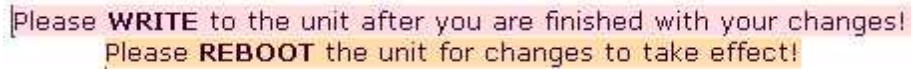
NOTE: This test only means that your notification settings are correct, but you still need to assign the notification to an alarm point. See Step 6 in "How to Send Email Notifications" for more detail.

9 Provisioning Menu Field Descriptions

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

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

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



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

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

9.1 System

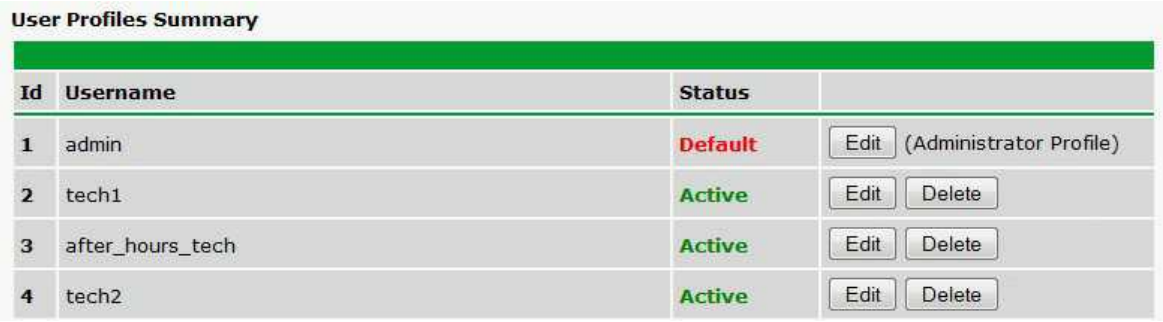
From the **Provisioning** > **System** menu, you will configure and edit the global system, call, T/Mon and control settings for the RAB.

The Provisioning > System menu

Global System Settings	
Name	A name for this RAB unit. {Optional field)
Location	The location of this RAB unit. {Optional field)
Contact	Contact telephone number for the person responsible for this RAB unit. {Optional field)
DCP Responder Settings *(For use with T/Mon)*	
DCP Unit ID	User-definable ID number for the target unit (DCP Address)
DCP Unit Protocol	Drop-down menu of available protocols for use with DCP Address
DCP over LAN port	Enter the DCP port for the target unit (UDP/TCP port)
LAN Protocol	Drop-down menu of available protocols for use over LAN
Sensors History	
Get History	Download a log of all configured analog and sensor values.
Erase History	Erase the log of all configured analog and sensor values.

9.2 User Profiles

Clicking **User Profiles** gives you access to modify the default username and password, and to edit the administrator profile and create up to 9 additional unique user profiles, each with different access rights to the RAB's web interface.



Configure access privileges for users in the User Profile screen

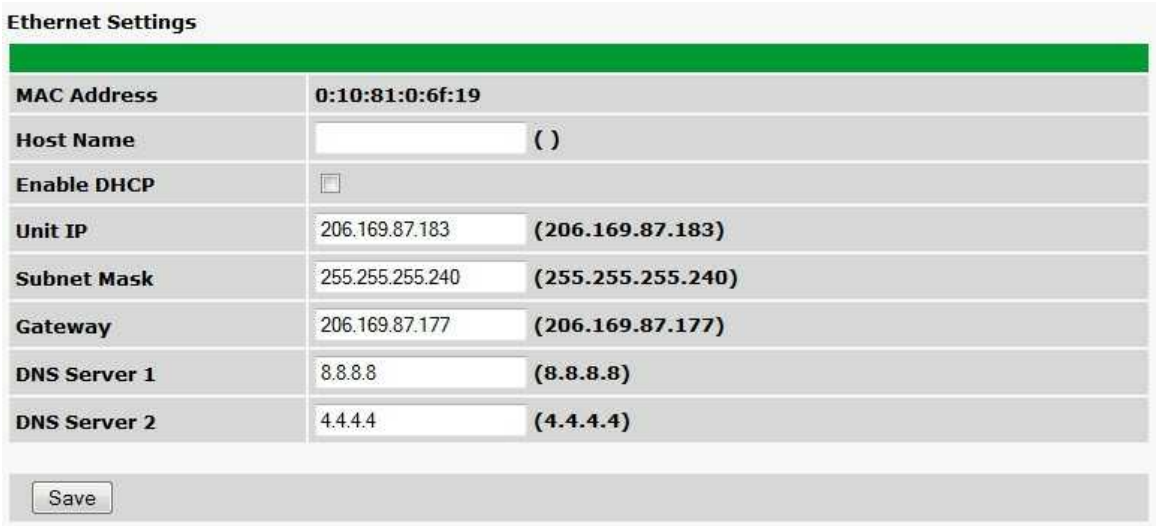
To create or edit any of the 10 user profiles (including the Admin), click the **Edit** button. From there, you can change all configurable settings for a user profile.

	User Profile
Suspend this Profile	If this box is checked, the profile will not be able to access the RAB.
Username	Enter a username or a user description
Password	Enter a unique user password **Note:** All passwords are AES 128 encrypted.
Confirm Password	Re-enter the password.
Access Rights	
Check all	Enables all Access Rights
Edit logon profiles	Enables the user to add/modify user profiles and password information.
Write Config (change unit configuration)	Enables the user to change the unit config by accessing the **Write** feature in the control menu.
View monitor pages	Allows the user to access Monitor menu options.
Send relay commands	Allows the user to send commands to operate the device's control relays.
TTY access (access via Craft port or via Telnet)	Grants the user access to the unit via TTY interface (via craft or telnet).
Initialize config to factory defaults	Allows the user to use the **Initialize** option in the **Device Access** menu, resetting the RAB Voice 16 G2 to factory default settings. All user settings will be lost.
Upload new firmware, description recordings, or config	Allows the user to upload firmware or backed-up configuration files.
Get audit log	Allows the user to access the Audit Log (**Get Log** command).
Purge (delete) audit log	Allows the user to deletes the existing audit log.
Get (backup) config	Backs-up all user profile configuration settings.
Get and delete analog history	Allows the user to access and delete the analog and sensor history.

User profile field descriptions

9.3 Ethernet

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



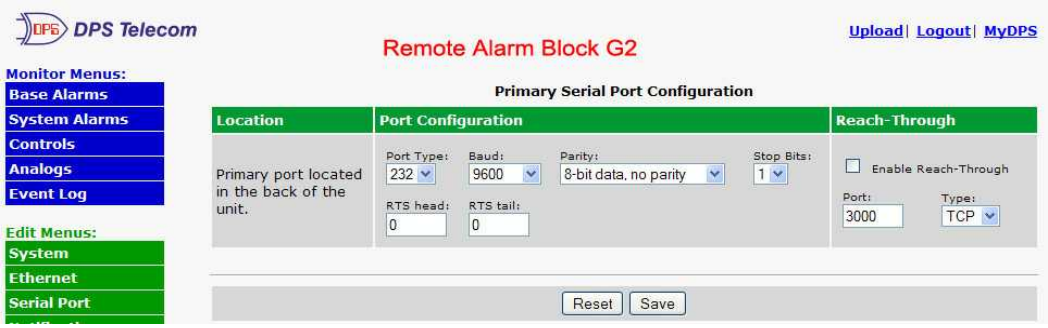
The Provisioning > Ethernet menu

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

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

9.4 Serial Port

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



The Provisioning > Serial Ports menu

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

9.5 SNMP

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

SNMP Menu

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

Fields in the Provisioning > SNMP settings

9.6 Notifications

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

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

9.6.1 Notification Settings

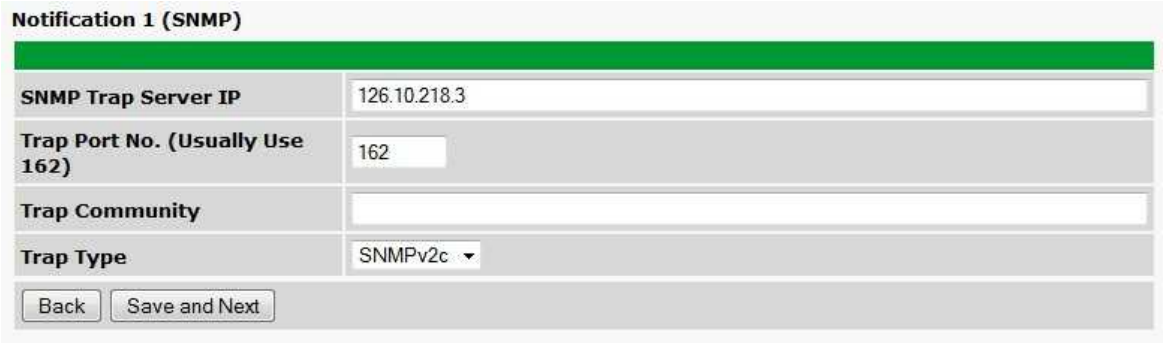
Email Notification Fields

Editing Email Notification Settings

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

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

SNMP Notification Fields



Editing SNMP notification settings

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

9.6.2 Schedule

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

The Schedule creation screen

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

9.7 Alarms

Discrete alarms are configured from the **Provisioning** > **Alarms** menu. Descriptions for the alarm points, polarity (normal or reversed) and notification type(s) are defined from this menu. You also have the option to use **Basic** or **Advanced** configuration methods, explained in this section.

The Provisioning > Alarms menu

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

9.8 Controls

The RAB's 2-18 control relays can be configured in the **Provisioning** > **Controls** menu. You can enter your own description for these relays and designate them to a notification device(s).

The Provisioning > Controls screen

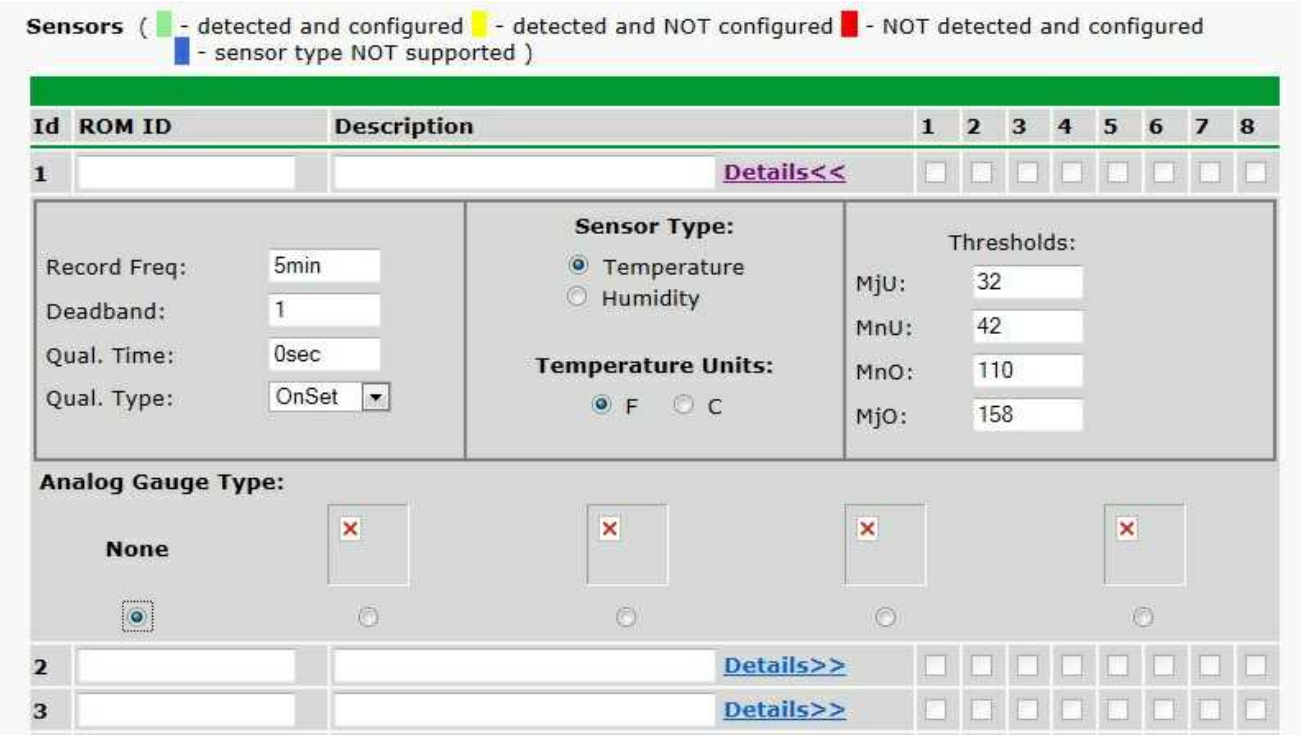
Basic Controls Configuration	
ID	ID number for the control relay.
Description	User-definable description for the RAB's control relay.
Momentary Time	Control on time (in milliseconds) when you execute the MOM command. Max limit of 600 seconds.
Notification Devices	Check which notification device(s), 1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

9.9 Sensors

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

Also the RAB's first D-Wire sensor used to monitor the internal temperature. The internal temperature sensor measures a range of -40° F to 180° F (-40° C to 82.2° C) within an accuracy of about ± 2°.

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



The Provisioning > Sensors menu

Basic Sensor Configuration	
ID	Sensor ID number.
ROM ID	The ID number found on the sticker of the temperature sensor node. Your RAB will automatically detect the sensor ID when you plug a sensor into the unit. The color of the sensor ID field will tell you the status of the connected sensor. **Green** - The sensor is connected and properly configured. **Yellow** - The sensor is connected but has not yet been configured (fill in your configuration fields and click **Save** to configure the sensor). **Red** - The sensor is not detected and configured (i.e. a previous configured sensor is no longer connected). **Blue** - The sensor is not supported by the RAB. To reconfigure or disable the Sensor ID, simply delete any data in this field and click **Save**. The unit will refresh the sensor ID on that channel.
Description	User-definable description for the sensor channel.
Notification Devices	Check which notification device(s), 1 through 8, you want to send alarm notifications for that alarm point.
Advanced Sensor Configuration (Details>>)	
Record Freq	The amount of time, in minutes (min) or seconds (s), between each recorded sensor value.
Deadband	The amount (in native units) that the channel needs to go above or below a threshold in order to cause an alarm.
Qual Time (Qualification Time)	The length of time that must pass, without interruption, in order for the condition to be considered an Alarm or a Clear.
Qual. Type (Qualification Type)	Allows you to choose whether you want to apply the Qualification Time to the alarm Set, Clear, or Both.
Thresholds	These settings are set to indicate the severity of the alarm depending on which threshold values have been passed. Enter values for Major Under (MjU), Minor Under (MnU), Minor Over (MnO), and Major Over (MjO).
Analog Gauge Type	Select the color-coded gauge that best represents your data. Selecting **None** will disable the analog gauge and only a numerical representation of the value will be displayed under **Monitor** > **Sensors**.

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

9.10 Ping Targets

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

The Provisioning > Ping Targets menu

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

9.11 System Alarms

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

System Alarms

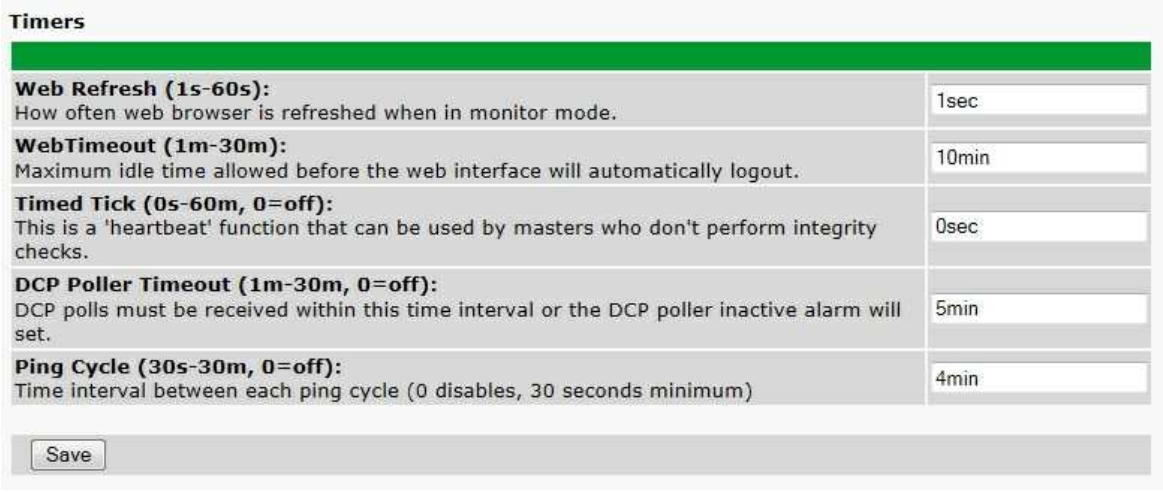
Pnt	Description Display Map	Silence	1	2	3	4	5	6	7	8
33	Default configuration	☐	☐	☐	☐	☐	☐	☐	☐	☐
34	DCP poller inactive	☐	☐	☐	☐	☐	☐	☐	☐	☐
39	SNMP community error	☐	☐	☐	☐	☐	☐	☐	☐	☐
41	Notification 1 failed	☐	☐	☐	☐	☐	☐	☐	☐	☐
42	Notification 2 failed	☐	☐	☐	☐	☐	☐	☐	☐	☐
43	Notification 3 failed	☐	☐	☐	☐	☐	☐	☐	☐	☐
44	Notification 4 failed	☐	☐	☐	☐	☐	☐	☐	☐	☐

The Provisioning > System Alarms menu

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

9.12 Timers

The **Timers** are user-definable, and allow you to choose the intervals between automatic refreshing of the unit's web browser interface. Enter the amount of time, in seconds (sec) or minutes (m), in the value field and click **Save**.



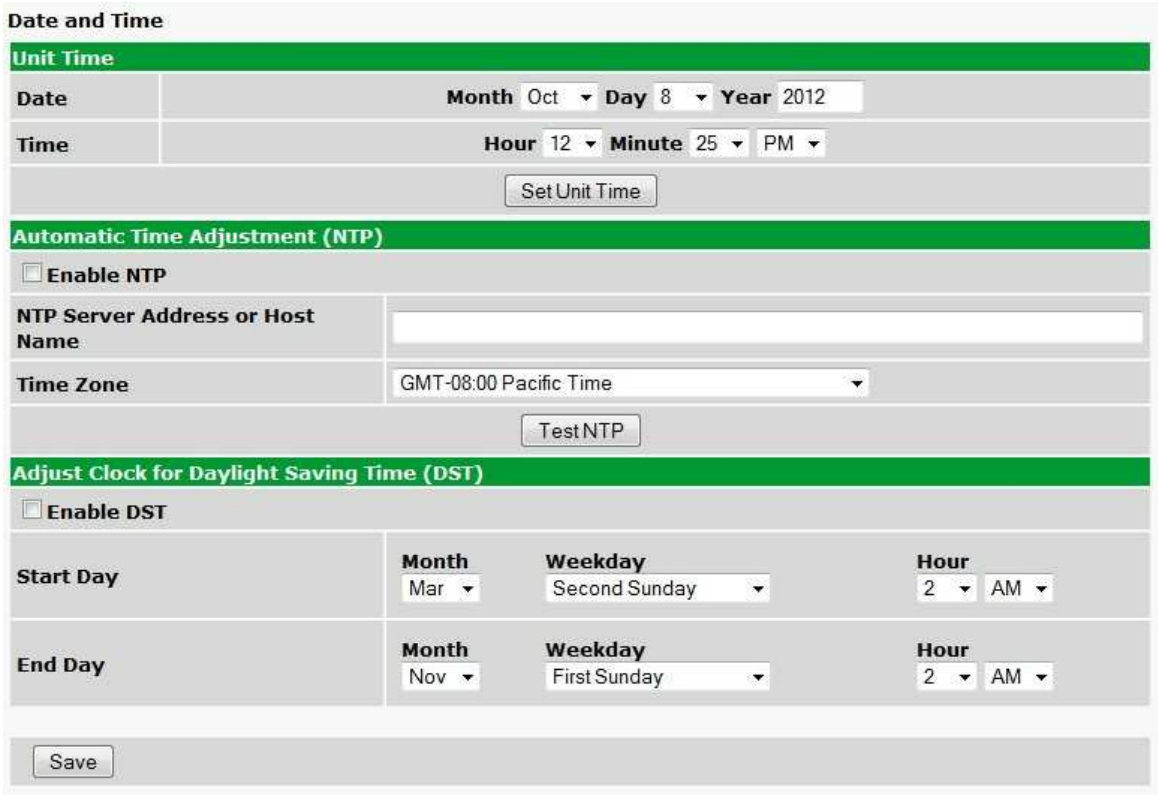
Timers

Web Refresh (1s-60s): How often web browser is refreshed when in monitor mode.	1sec
WebTimeout (1m-30m): Maximum idle time allowed before the web interface will automatically logout.	10min
Timed Tick (0s-60m, 0=off): This is a 'heartbeat' function that can be used by masters who don't perform integrity checks.	0sec
DCP Poller Timeout (1m-30m, 0=off): DCP polls must be received within this time interval or the DCP poller inactive alarm will set.	5min
Ping Cycle (30s-30m, 0=off): Time interval between each ping cycle (0 disables, 30 seconds minimum)	4min

Save

The Provisioning > Timers menu

9.13 Date and Time



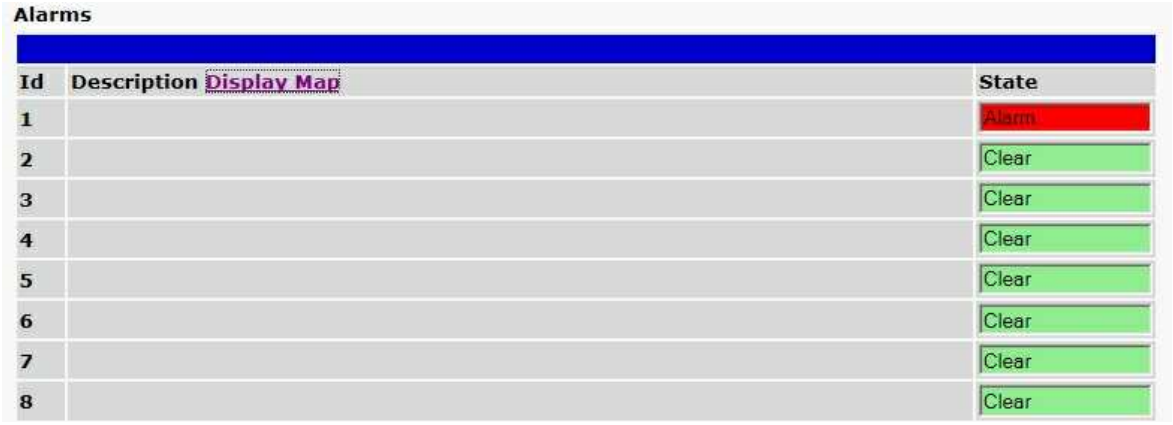
The Provisioning > Date and Time menu

Unit Time	
Date	Set today's date.
Time	Set the current time.
Automatic Time Adjustment (NTP)	
Enable NTP	Check this box to enable Network Time Protocol.
NTP Server Address or Host Name	Enter the NTP server's IP address or host name, then click **Sync**. Example: us.pool.ntp.org. **Note**: Make sure to configure DNS before using host name instead of IP address.
Time Zone	Select your time zone from the drop-down menu.
Adjust Clock for Daylight Savings Time (DST)	
Enable DST	Check this box to have the RAB Voice 16 G2 observe Daylight Savings.
Start Day	Select the month, weekday, and time when Daylight Savings will begin.
End Day	Select the month, weekday, and time when Daylight Savings will end.

10 Monitoring via the Web Browser

10.1 Alarms

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

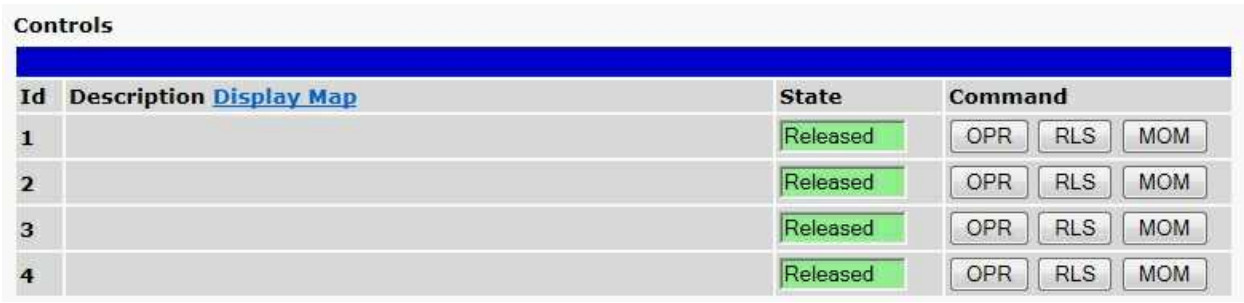


Click on Alarms in the Monitor menu to see if any base alarms (1-176) have been triggered.

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

10.2 Controls

Use the following rules to operate the RAB's control:
1. Select **Controls** from the **Monitor** menu.
2. Under the **State** field, you can see the current condition of the control.
3. To issue the control, click on a command (**OPR** - operate, **RLS** - release, or **MOM** - momentary)

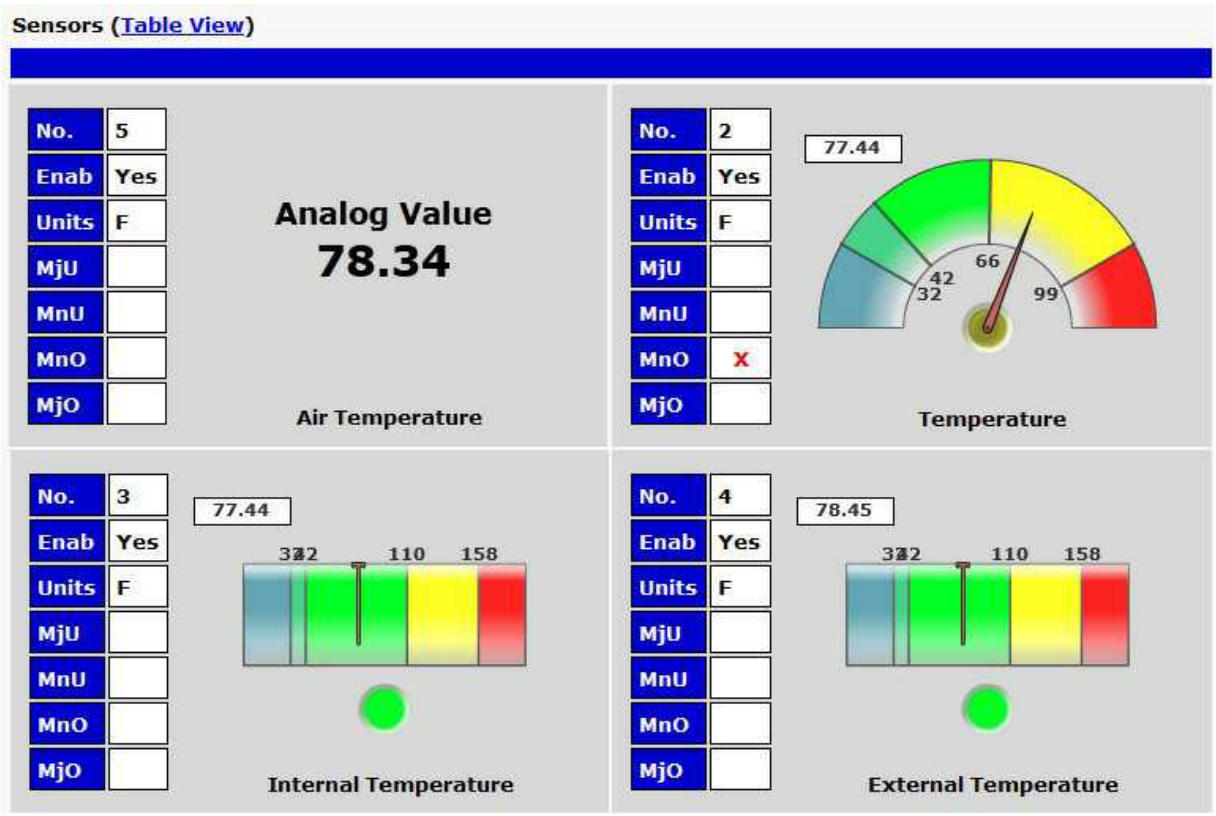


View and operate control relays from the Monitor > Controls menu

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

10.3 Sensors

This selection provides the status of the system's analog channels by indicating if an alarm has been triggered. The **Monitor** > **Sensors** screen provides a description of each analog channel, the current reading, the units being read, and alarm conditions (major under, minor under, major over, minor over) according to your temperature settings. If configured under **Provisioning** > **Sensors**, your analog values will be displayed as a graphical gauge. Selecting **Table View** will display a non-graphical interface of your values.



The Monitor > Sensors menu

10.4 Ping Targets

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

Ping Targets

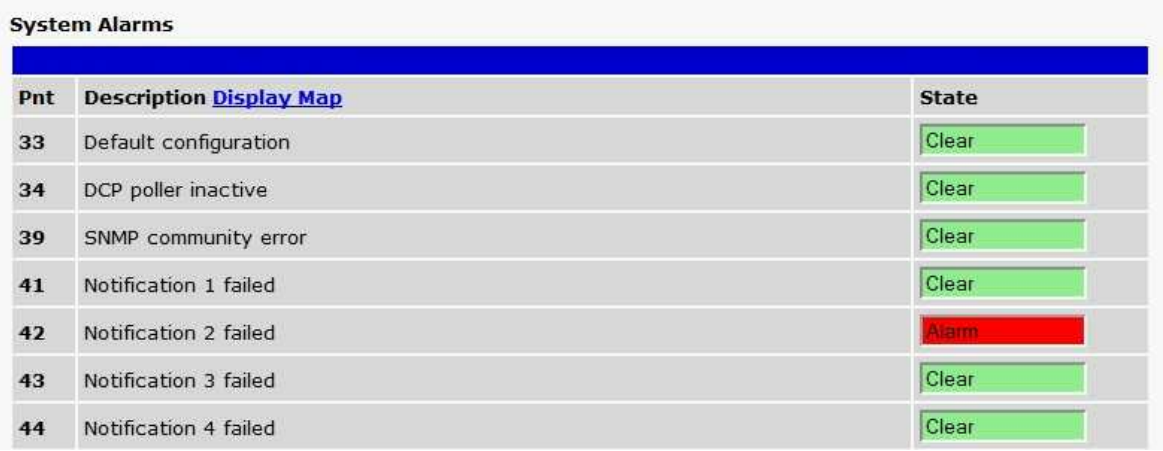
Id	Description Display Map	State
1	Cisco Router	Clear
2	Ethernet Switch 1	Clear
3	Ethernet Switch 2	Clear
4	Ethernet Switch 2	Clear
5	Router 2	Clear
6	Media Converter	Clear
7	Microwave Transmitter	Clear
8	Cisco 15454	Clear
9	Calix	Clear
10	Modem	Clear
11	PBX	Clear
12	Proxy Server	Clear

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

10.5 System Alarms

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

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



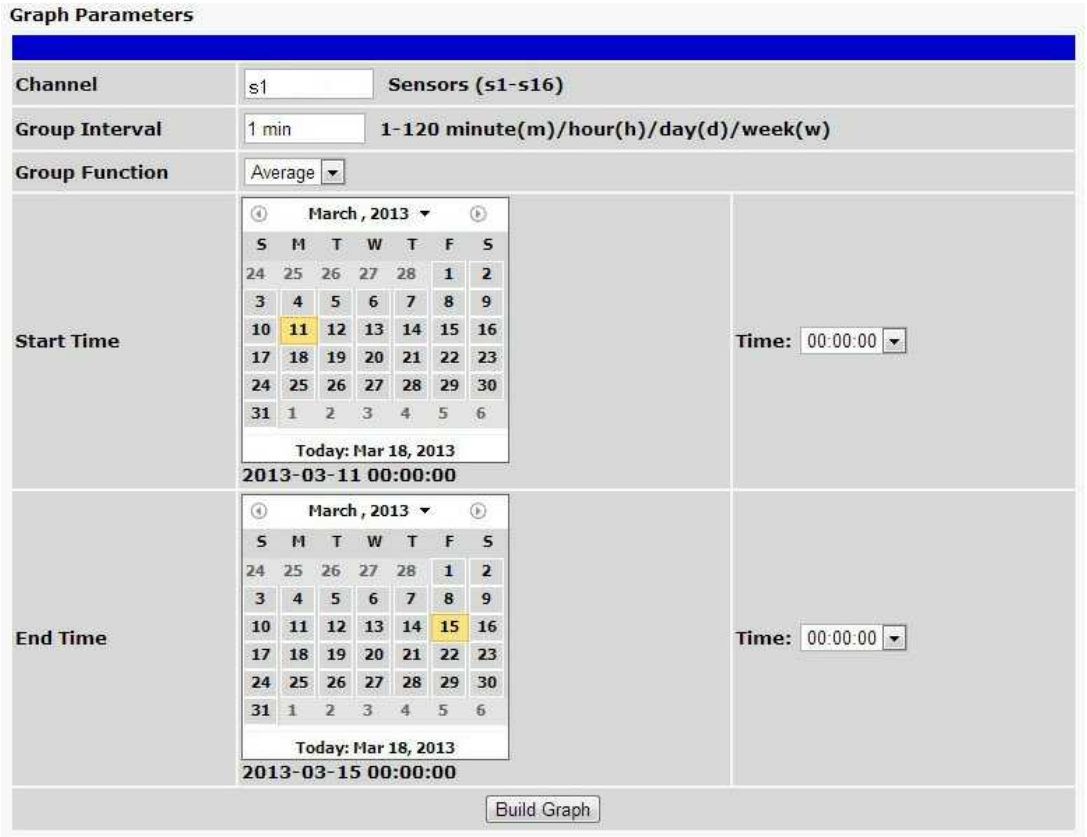
System Alarms

Pnt	Description Display Map	State
33	Default configuration	Clear
34	DCP poller inactive	Clear
39	SNMP community error	Clear
41	Notification 1 failed	Clear
42	Notification 2 failed	Alarm
43	Notification 3 failed	Clear
44	Notification 4 failed	Clear

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

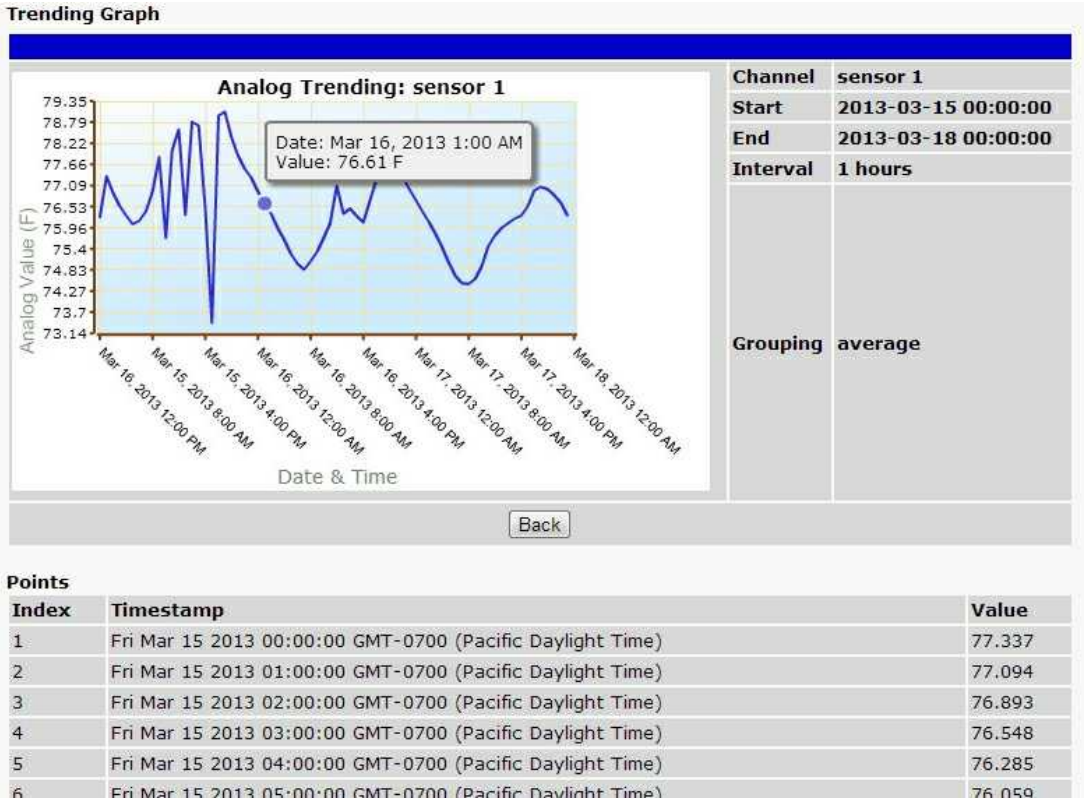
10.6 Graph

The Graph section of the monitor menu lets you build a graph of past sensor measurements, which gives you a visual indication of data over time and points out trending values. To create your Graph, specify the Channel (Analogs 1-6 or Sensors 1-16), Group Interval (1-120 minutes, hours, days, or weeks), the Group Function (Average, Min, Max), and Start & End Times. Once you have entered all of the desired values, click "Build Graph."



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

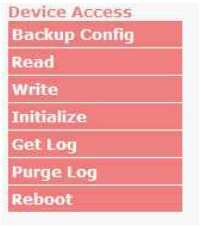
Your graph will appear on the next screen. This graph is Adobe Flash-based and allows you to mouse over the lines to quickly view measurements (date, time, and value) within their context of the overall graphing trend. Below the graph is a full textual list of all indexed points with their dates and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



Specify your parameter values and build an interactive graph based on the alarm point history.

11 Device Access Descriptions

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



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

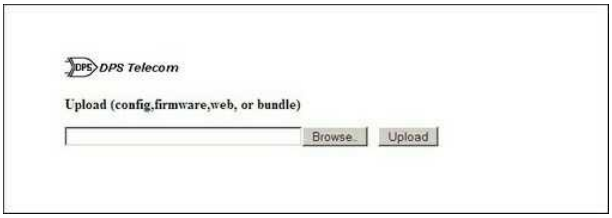
Device Access Option	Description
Backup Config	Backs up the units configuration settings
Read	Reads a configuration file from the unit
Write	Commits all changes made in the web interface to the RAB's non-volatile memory
Initialize	Sets the unit's configuration to factory default values
Get Log	Opens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

12 Firmware Upgrade

To access the **Firmware Load** screen, click on the **Provisioning** > **System** menu. At the bottom of this screen, click the **Restore Configuration** link located in the **System Controls** section.

*To upload firmware, click on **Upload** on the top right corner of the web interface*

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



Browse for downloaded firmware upgrade

13 Reference Section

13.1 Display Mapping & System Alarms

	Description	Port	Address	Point
Display 1	Discrete Alarms 1-64	99	1	1-64
Display 2	Discrete Alarms 65-128	99	1	1-64
Display 3	Discrete Alarms 129-176	99	1	1-48
	Controls 1-4	99	1	49-52
	Undefined	99	1	53-56
	Default Configuration	99	1	57
	DIP Switch Configuration	99	1	58
	MAC Address Not Set	99	1	59
	IP Address Not Set	99	1	60
	Net Hardware Error	99	1	61
	SNMP Processing Error	99	1	62
	SNMP Community Error	99	1	63
	IP Address Not Set	99	1	64
Display 4	Notification Failed 1-8	99	1	1-8
	NTP Failed	99	1	9
	Timed Tick	99	1	10
	Dynamic Memory Full	99	1	11
	Unit Reset	99	1	12
	Undefined	99	1	13-32
	Ping Targets	99	1	33-48
	Undefined	99	1	49-64
Display 5	Digital Sensor 1 - Minor Under	99	1	1
	Digital Sensor 1 - Minor Over	99	1	2
	Digital Sensor 1 - Major Under	99	1	3
	Digital Sensor 1 - Major Over	99	1	4
	Digital Sensor 1 - Not Detected	99	1	5
	Undefined	99	1	6-8
	Control	99	1	9-16
	Value	99	1	17-32
	Digital Sensor 2 - Minor Under	99	1	33
	Digital Sensor 2 - Minor Over	99	1	34
	Digital Sensor 2 - Major Under	99	1	35
	Digital Sensor 2 - Major Over	99	1	36
	Digital Sensor 2 - Not Detected	99	1	37
	Undefined	99	1	38-40
	Control	99	1	41-48
	Value	99	1	49-64

Display Mapping

	Description	Port	Address	Point
Display 6	Digital Sensor 3 - Minor Under	99	1	1
	Digital Sensor 3 - Minor Over	99	1	2
	Digital Sensor 3 - Major Under	99	1	3
	Digital Sensor 3 - Major Over	99	1	4
	Digital Sensor 3 - Not Detected	99	1	5
	Undefined	99	1	6-8
	Control	99	1	9-16
	Value	99	1	17-32
	Digital Sensor 4 - Minor Under	99	1	33
	Digital Sensor 4 - Minor Over	99	1	34
	Digital Sensor 4 - Major Under	99	1	35
	Digital Sensor 4 - Major Over	99	1	36
	Digital Sensor 4 - Not Detected	99	1	37
	Undefined	99	1	38-40
	Control	99	1	41-48
	Value	99	1	49-64
Display 7	Digital Sensor 5 - Minor Under	99	1	1
	Digital Sensor 5 - Minor Over	99	1	2
	Digital Sensor 5 - Major Under	99	1	3
	Digital Sensor 5 - Major Over	99	1	4
	Digital Sensor 5 - Not Detected	99	1	5
	Undefined	99	1	6-8
	Control	99	1	9-16
	Value	99	1	17-32
	Digital Sensor 6 - Minor Under	99	1	33
	Digital Sensor 6 - Minor Over	99	1	34
	Digital Sensor 6 - Major Under	99	1	35
	Digital Sensor 6 - Major Over	99	1	36
	Digital Sensor 6 - Not Detected	99	1	37
	Undefined	99	1	38-40
	Control	99	1	41-48
	Value	99	1	49-64
Display 8	Digital Sensor 7 - Minor Under	99	1	1
	Digital Sensor 7 - Minor Over	99	1	2
	Digital Sensor 7 - Major Under	99	1	3
	Digital Sensor 7 - Major Over	99	1	4
	Digital Sensor 7 - Not Detected	99	1	5
	Undefined	99	1	6-8
	Control	99	1	9-16
	Value	99	1	17-32
	Digital Sensor 8 - Minor Under	99	1	33
	Digital Sensor 8 - Minor Over	99	1	34
	Digital Sensor 8 - Major Under	99	1	35
	Digital Sensor 8 - Major Over	99	1	36
	Digital Sensor 8 - Not Detected	99	1	37
	Undefined	99	1	38-40
	Control	99	1	41-48
	Value	99	1	49-64

Display Mapping

	Description	Port	Address	Point
Display 9	Digital Sensor 9 - Minor Under	99	1	1
	Digital Sensor 9 - Minor Over	99	1	2
	Digital Sensor 9 - Major Under	99	1	3
	Digital Sensor 9 - Major Over	99	1	4
	Digital Sensor 9 - Not Detected	99	1	5
	Undefined	99	1	6-8
	Control	99	1	9-16
	Value	99	1	17-32
	Digital Sensor 10 - Minor Under	99	1	33
	Digital Sensor 10 - Minor Over	99	1	34
	Digital Sensor 10 - Major Under	99	1	35
	Digital Sensor 10 - Major Over	99	1	36
	Digital Sensor 10 - Not Detected	99	1	37
	Undefined	99	1	38-40
	Control	99	1	41-48
	Value	99	1	49-64
Display 10	Digital Sensor 11 - Minor Under	99	1	1
	Digital Sensor 11 - Minor Over	99	1	2
	Digital Sensor 11 - Major Under	99	1	3
	Digital Sensor 11 - Major Over	99	1	4
	Digital Sensor 11 - Not Detected	99	1	5
	Undefined	99	1	6-8
	Control	99	1	9-16
	Value	99	1	17-32
	Digital Sensor 12 - Minor Under	99	1	33
	Digital Sensor 12 - Minor Over	99	1	34
	Digital Sensor 12 - Major Under	99	1	35
	Digital Sensor 12 - Major Over	99	1	36
	Digital Sensor 12 - Not Detected	99	1	37
	Undefined	99	1	38-40
	Control	99	1	41-48
	Value	99	1	49-64
Display 11	Digital Sensor 13 - Minor Under	99	1	1
	Digital Sensor 13 - Minor Over	99	1	2
	Digital Sensor 13 - Major Under	99	1	3
	Digital Sensor 13 - Major Over	99	1	4
	Digital Sensor 13 - Not Detected	99	1	5
	Undefined	99	1	6-8
	Control	99	1	9-16
	Value	99	1	17-32
	Digital Sensor 14 - Minor Under	99	1	33
	Digital Sensor 14 - Minor Over	99	1	34
	Digital Sensor 14 - Major Under	99	1	35
	Digital Sensor 14 - Major Over	99	1	36
	Digital Sensor 14 - Not Detected	99	1	37
	Undefined	99	1	38-40
	Control	99	1	41-48
	Value	99	1	49-64

Display Mapping

	Description	Port	Address	Point
Display 12	Digital Sensor 15 - Minor Under	99	1	1
	Digital Sensor 15 - Minor Over	99	1	2
	Digital Sensor 15 - Major Under	99	1	3
	Digital Sensor 15 - Major Over	99	1	4
	Digital Sensor 15 - Not Detected	99	1	5
	Undefined	99	1	6-8
	Control	99	1	9-16
	Value	99	1	17-32
	Digital Sensor 16 - Minor Under	99	1	33
	Digital Sensor 16 - Minor Over	99	1	34
	Digital Sensor 16 - Major Under	99	1	35
	Digital Sensor 16 - Major Over	99	1	36
	Digital Sensor 16 - Not Detected	99	1	37
	Undefined	99	1	38-40
	Control	99	1	41-48
	Value	99	1	49-64

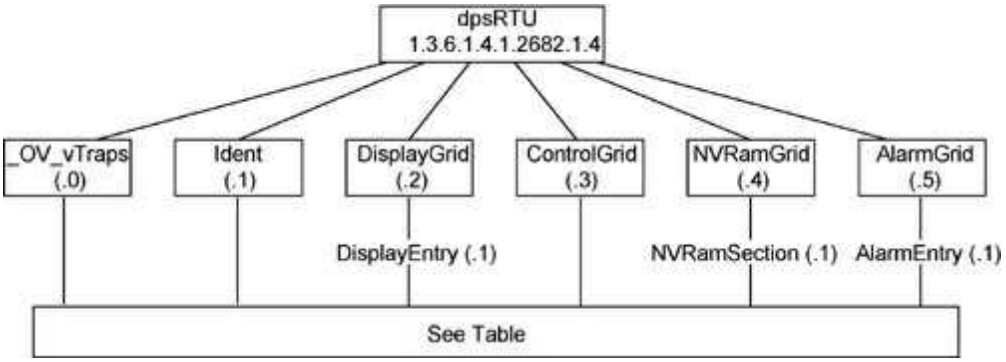
Display Mapping

Display	Points	Alarm Point	Description	Solution
3	57	Default Configuration	The internal NVRAM may be damaged. The unit is using default configuration settings.	Login to the RAB's web browser and configure the unit. Power cycle to see is the alarm clears.
	58	DIP Switch Configuration	Dipswitch 8 is flipped down to enable DIP switch configuration mode.	Flip DIP switch 8 and wait for reboot.
	59	MAC Address Not Set	The RAB network connectivity is deactivated.	Contact DPS for possible RMA.
	60	IP Address Not Set	The IP address is incorrect.	Verify that the IP address is provisioned correctly.
	61	Network Hardware Error	An error has occurred that will deactivate RAB network connectivity.	Contact DPS for possible RMA.
	62	SNMP Process Error	The SNMP request could not be processed.	Contact DPS
	63	SNMP Community Error	Community string does not match your SNMP master's community string.	Verify both community strings to make sure that they match.
	64	IP Address Not Set	SNMP request error due to a community string mismatch.	Contact DPS for possible RMA.
4	1	Notification 1 Failed	A notification event, such as a page or email, was unsuccessful.	Verify that you can ping both devices.
	2	Notification 2 Failed	A notification event, such as a page or email, was unsuccessful.	Use RPT filter debug to help diagnose notification problems.
	3	Notification 3 Failed	A notification event, such as a page or email, was unsuccessful.	Use RPT filter debug to help diagnose notification problems.
	4	Notification 4 Failed	A notification event, such as a page or email, was unsuccessful.	Use RPT filter debug to help diagnose notification problems.
	5	Notification 5 Failed	A notification event, such as a page or email, was unsuccessful.	Use RPT filter debug to help diagnose notification problems.
	6	Notification 6 Failed	A notification event, such as a page or email, was unsuccessful.	Use RPT filter debug to help diagnose notification problems.
	7	Notification 7 Failed	A notification event, such as a page or email, was unsuccessful.	Use RPT filter debug to help diagnose notification problems.
	8	Notification 8 failed	A notification event, such as a page or email, was unsuccessful.	Use RPT filter debug to help diagnose notification problems.
	9	NTP Failed	Communication with Network Time Server has failed.	Ping the Network Time Server's IP Address. If the test is successful, check the port setting and verify the port is not blocked on your network.
	10	Timed Tick	Toggles state at constant rate as configured by the Timed Tick timer variable.	To turn the feature off, set the Timed Tick timer to 0.
	11	Dynamic Memory Full	Not expected to occur.	Call DPS Tech Support (559) 454-1600.
	12	Unit Reset	Unit has rebooted.	If unintentional, call DPS Tech Support: (559) 454-1600.

System Alarms

13.2 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. The table below begins with dpsRTU; however, the MIB object identifier tree has several levels above it. The full English name is as follows: root.iso.org.dod.internet.private. enterprises.dps-Inc.dpsAlarmControl.dpsRTU. Therefore, dpsRTU's full object identifier is 1.3.6.1.4.1.2682.1.2. Each level beyond dpsRTU adds another object identifying number. For example, the object identifier of the Display portion of the Control Grid is 1.3.6.1.4.1.2682.1.2.3.3 because the object identifier of dpsRTU is 1.3.6.1.4.1.2682.1.4 + the Control Grid (.3) + the Display (.3).



Tbl. B1 (O.)_OV_Traps points
_OV_vTraps (1.3.6.1.4.1.2682.1.2.0)
PointSet (.20)
PointClr (.21)
SumPSet (.101)
SumPClr (.102)
ComFailed (.103)
ComRestored (.014)
P0001Set (.10001) through P0064Set (.10064)
P0001Clr (.20001) through P0064Clr (.20064)

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

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

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

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

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

13.3 SNMP Granular Trap Packets

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

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

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

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

UDP Headers and descriptions

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

SNMP Headers and descriptions

14 Frequently Asked Questions

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

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

14.1 General FAQs

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

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

Q. When I connect to the RAB 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 RAB.

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

14.2 SNMP FAQs

Q. Which version of SNMP is supported by the SNMP agent on the RAB?
A. SNMP v1, SNMPv2 and SNMPv3.

Q. How do I configure the RAB to send traps to an SNMP manager? Is there a separate MIB for the RAB? 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 RAB begins sending traps as soon as the SNMP notification type is set up. The RAB MIB can be found on the DPS Telecom website. The MIB should be compiled on your SNMP manager. (**Note:** MIB versions may change in the future.) For step-by-step instructions, refer back to the "How to Send SNMP Traps" section of the user manual.

Q. Does the RAB support MIB-2 and/or any other standard MIBs?
A. The RAB supports the bulk of MIB-2.

Q. Does the RAB SNMP agent support both RAB and T/MonXM variables?
A. The RAB SNMP agent manages an embedded MIB that supports only the RAB's RTU variables. The T/MonXM variables are included in the distributed MIB only to provide SNMP managers with a single MIB for all DPS Telecom products.

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

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

Q. The RAB manual talks about control relay outputs. How do I control these from my SNMP manager?
A. The control relays are operated by issuing the appropriate set commands, which are contained in the DPS Telecom MIB.

Q. How can I associate descriptive information with a point for the RTU granular traps?
A. The RAB alarm point descriptions are individually defined using the Web Browser.

Q. My SNMP traps aren't getting through. What should I try?
A. Try these three steps:

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

15 Technical Support

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

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

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

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

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

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

16 End User License Agreement

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

The Software may not be copied or modified, in whole or in part, for any purpose whatsoever. The Software may not be reverse engineered, compiled, or disassembled. No title to or ownership of the Software or any of its parts is transferred to the End User. Title to all patents, copyrights, trade secrets, and any other applicable rights shall remain with the DPS Telecom.

DPS Telecom's warranty and limitation on its liability for the Software is as described in the warranty information provided to End User in the Product Manual.

End User shall indemnify DPS Telecom and hold it harmless for and against any and all claims, damages, losses, costs, expenses, obligations, liabilities, fees and costs and all amounts paid in settlement of any claim, action or suit which may be asserted against DPS Telecom which arise out of or are related to the non-fulfillment of any covenant or obligation of End User in connection with this Agreement.

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

Warranty

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

THE FOREGOING WARRANTIES ARE IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

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

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

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

Technical Support

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

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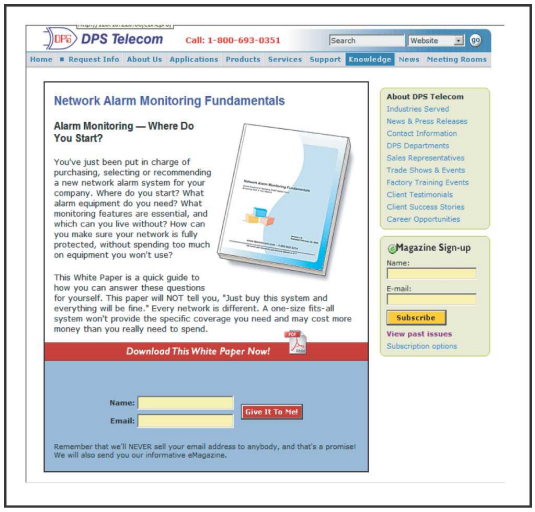

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