DPS Telecom

"Your Partners in Network Alarm Monitoring"

HVAC Controller G6

USER MANUAL

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November 1, 2021 **D-UM-HVACI**

Revision History

Nov 1, 2021	Updated control circuit diagram
Sept 13, 2021	Initial Release

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1 Specifications

Hardware

Dimensions:	14.58" H x 10.13" W x 3.47" D	**Modem:**	N/A
Weight:	5.95 lbs. (2.70 kg)		
Mounting:	Wall Mounted	**Discrete Alarm Inputs:**	12
		[2] Discrete Alarm Length:	2000Ft. (609.6 m) per Alarm
Power Input:	–48 VDC nominal (–36 to –60 VDC w/+24 VDC sensor out) (Optional) –48 VDC nominal (–18 to –60 VDC w/+12VDC sensor out)	**Serial Ports:**	7 RS232 (optional 7 RS485)
[3] Current Draw:	750mA max @ 48VDC	**Control Outputs:**	12 (Form A/B, field selectable)
Fuse:	0.75A GMT Fuse	**Max Voltage:**	60 VDC/120 VAC
		Max Current:	1A AC/DC
[1] Power Outputs:	2		
Voltage Output Options:	+24 VDC (optional +12VDC)	**Operating Temp:**	32° to 140°F (0° to 60°C)
Output Current:	0.5A max total	**[1] Industrial Operating Temp:**	-22° to 158°F (-30° to 70°C)
Output Fuse:	0.5A Glass Fuse	**Storage Temp:**	-40° to 185°F (-40° to 85°C)
		Operating Humidity:	95% non-condensing
Audible Interfaces:	N/A		
Visual Interfaces:	Touch LCD Screen	**MTBF:**	60 Years
		RoHS:	RoHS 5 Approved
[1] Hardware Interfaces:	2 RJ45 10/100BaseT full-duplex Ethernet port 1 USB front-panel craft port 4 RJ11 connector for D-Wire sensor network (Optional)	**Ordering Options:**	plug-able connectors or screw-down terminals 4 HVAC units or 6 HVAC units for 6 HVAC units: +16 Alarms(28 total), +8 Relays(20 total)

Software

Downloadable Firmware:	Yes	**[1] D-Wire Sensor Support:**	Temp, Temp/Humidity sensor
Built-in Web Interface:	Yes		1 built-in temp sensor
Browser Support:	Edge, Firefox, Chrome		
		Ping Alarms:	32
Protocols:	DCPx, TELNET, SSH V2, HTTP, HTTPS (TLS 1.2), Email		
SNMP Support:	V1, V2c, V3	**OS Support:**	Vista, 7, 10 (32 or 64 bit)

Note:

[1] Valid if hardware option is included.

[2] Minimum lengths determined with TTL voltage level alarms. Actual distance may vary.

[3] Current measured at rated voltage with all controls latched and all alarms triggered.

[4] See analog section in manual for detailed analog accuracy breakdown.

* 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.

2 Shipping List

Please make sure that you received all parts.
If you are missing a part, or need a replacement part, please call DPS Telecom at **1-559-454-1600**.

HVAC Controller G6
D-PK-HVACI

HVAC Controller G6
D-UM-HVACI

HVAC Controller G6 Resource Disk

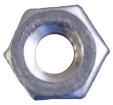
6 ft. USB Download Cable
D-PR-046-10A-06

1/2 - Amp 5x20mm Glass Fuse (x3)
2-740-00500-00

14 ft. Ethernet Cable (x2)
D-PR-932-10B-14

3/4 - Amp GMT Fuse (x3)
2-741-00750-00

RJ11 Connector (x2)
1-820-00016-00



Hex Nut (x8)
2-002-01024-00

Mounting Screw (x3)
1-000-80750-50

2.1 Optional Accessories (Sold Separately)

To order additional accessories, please call DPS Telecom at **1-559-454-1600**.

Hydrogen Sensor
D-PK-SENSR-12041.00001

Temp Sensor
D-PK-DSNSR-12001.00101

Temperature/Humidity Sensor
D-PK-SENSR-12002.00101

3 Hardware Installation

3.1 Site Preparation

For optimal control of the site and maximum performance of your HVAC system, the site should be "sealed". Open vents, un-dampered exhaust or free air systems and other unrestricted openings to outside air can significantly increase the runtime HVAC costs.

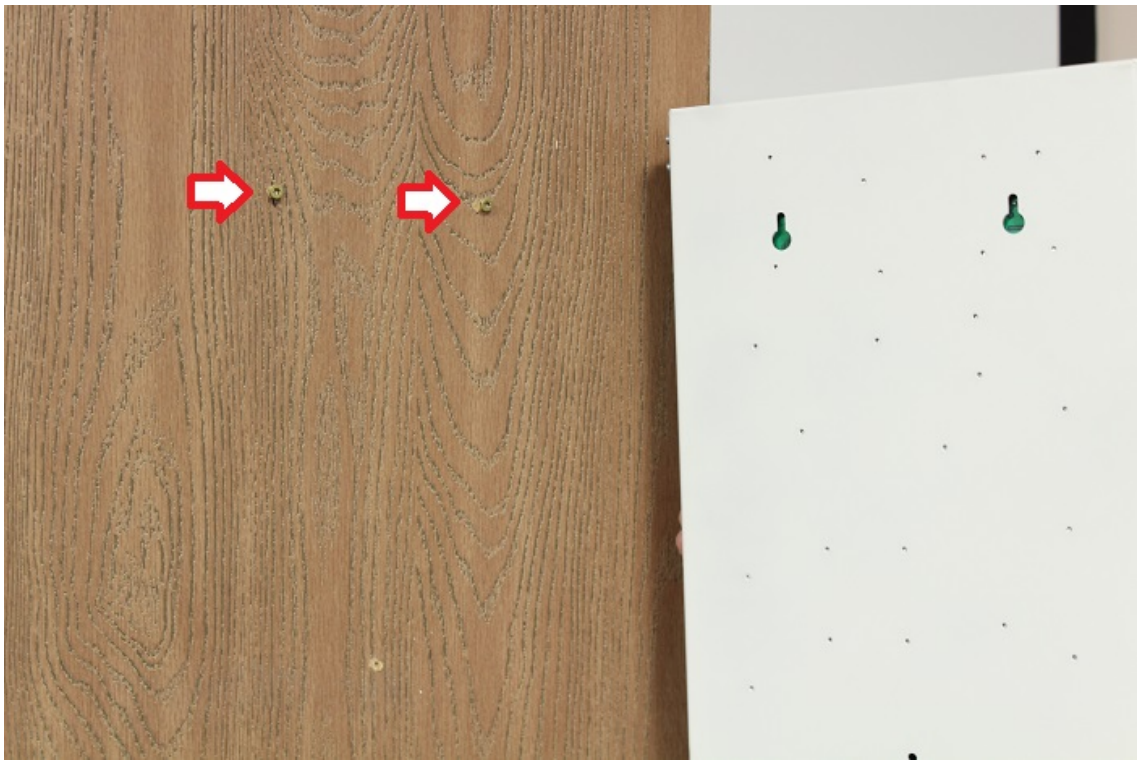
3.2 Mount the unit

Remove Desired Knock-Outs

1. Choose convenient knock-outs for this install placement.
2. Stand unit on edge with chosen knock-outs on top.
3. Open lid 90-degrees to protect circuit board.

NOTE: To unlock latch, turn the dial 90º to the left until the lever is visible in the "View Latch" window (as shown above). To lock the unit, shut the lid and turn the knob 90º to the right.

4. Use screwdriver to remove chosen knock-outs.



Mount the Unit

1. Determine the desired location for unit.
2. Measure distance between two top screw holes on back panel.
3. Mark the 2 holes on the wall at desired location.
4. Install 2 screws (provided) at marked locations.
   a. Leave 1/4” gap between wall and screw head, verify screws are secure.

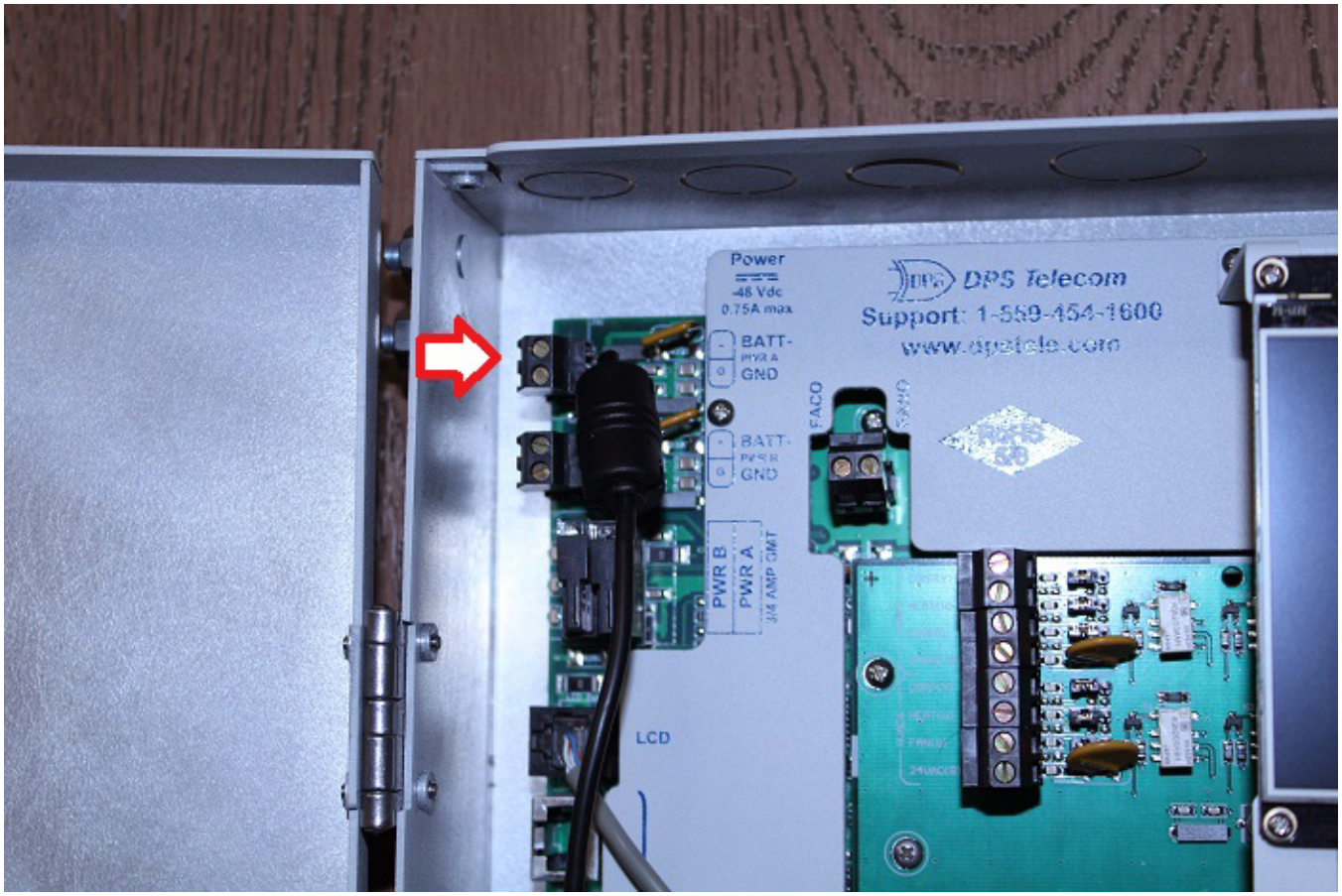
5. Hang unit from the two screws.
6. Use a third screw (provided) in bottom hole to secure unit to wall.
7. Verify unit is securely mounted before proceeding.

3.3 Attach Grounding Lug(s)

1. Attach grounding wire(s) to grounding lug(s) on side of unit.
   NOTE: There are two sets of grounding lugs on the unit, but only one set generally needs to be wired. Choose the most convenient for the site layout.

3.4 Connect Power

1. Disconnect your power supply cable from its power source before continuing (for both safety and equipment protection).
2. Feed power cable through a chassis opening (so that the door may freely close).
3. Plug in -48V power connectors as shown.

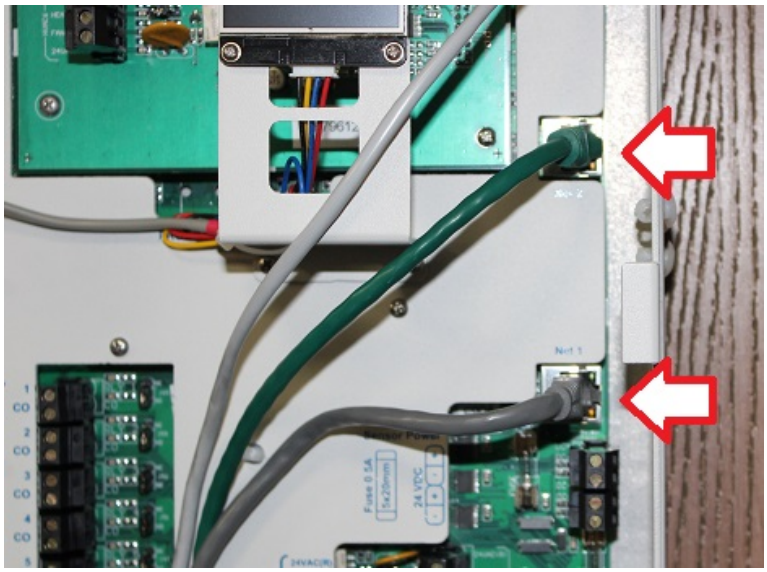


4. Physically secure the power cable with zipties (or similar).

3.5 Connect LAN

NOTE: This step is required to access the web interface for provisioning and monitoring.

1. There are two Ethernet ports on the G6. Feed the LAN cable(s) through top. If using steel/small conduit, you may need to feed each cable in individually (or, in extreme cases, crimp ends on a bare cable after feeding through the conduit).



2. Connect the LAN cable(s) to the ports on the right side (labeled "Net 1" and "Net 2").
3. Physical secure the cables.

3.6 Connect Temperature Sensor

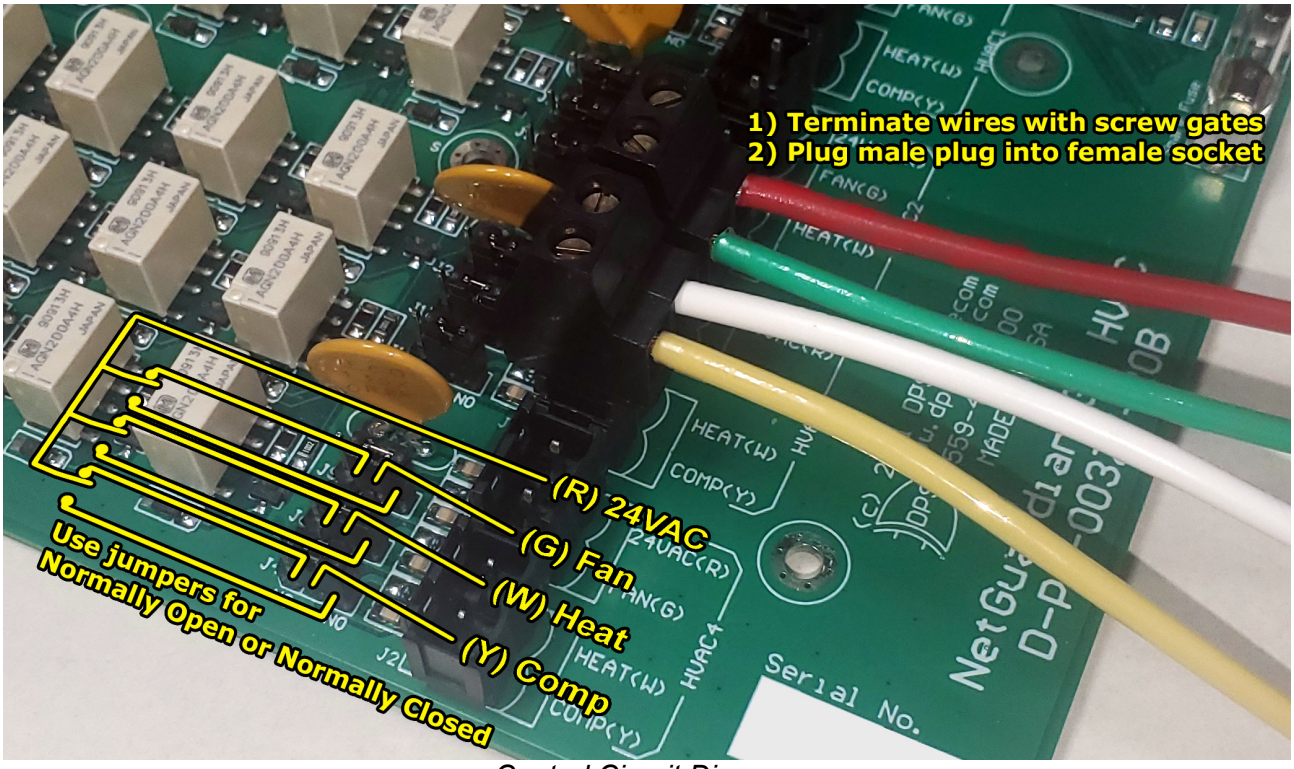
1. Feed RJ12 sensor cable through desired opening.
2. Connect the RJ12 cable as shown above.
3. Connect loose end of RJ12 cable to the "IN" port of the temperature sensor.
4. Secure the cable.
5. Mount the temperature sensor in a central location.

6. Note the ROM ID on the side of each temperature sensor. Record the ROM ID and location of each sensor here. This will be useful when configuring sensors in the Provisioning Section.

Sensor	ROM ID	Location
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		
17.		
18.		
19.		
20.		
21.		
22.		
23.		
24.		
25.		
26.		
27.		
28.		
29.		
30.		
31.		
32.		

3.7 Connect HVACs

1. Feed HVAC unit 1 cable through desired top opening.
   -Additional units will be wired later in this procedure.
2. Strip the cable jacket 6 inches from the ends inside the unit.



Control Circuit Diagram

3. Wire the leads to HVAC 1 section of the board, according to the diagram above.
   a. **DO NOT** connect the black HVAC wire to the HVAC Controller. It is not needed and may damage the unit. Physically secure and insulate this loose wire to protect against any shorts later.
4. Cut/insulate any unused leads.
5. Secure the cable.
6. Repeat for each additional HVAC unit

3.8 Connect Modbus HVACs

1. Feed HVAC unit 1 serial cable (RS-485) through desired chassis opening.
   -Additional units will be wired later in this procedure.
2. Plug the cable into the first Modbus (RS-485) port.
3. Secure the cable.
4. Repeat for each additional HVAC unit

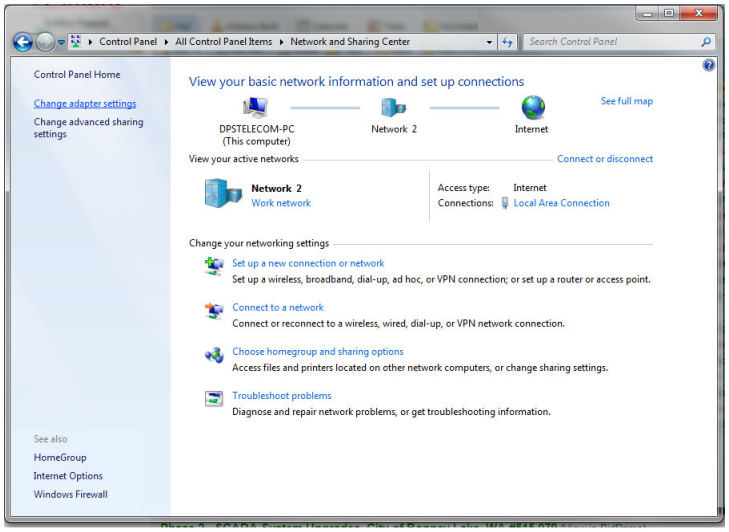
4 Connect to Network

This section provides step-by-step instructions on how to connect your HVAC Controller to your network.

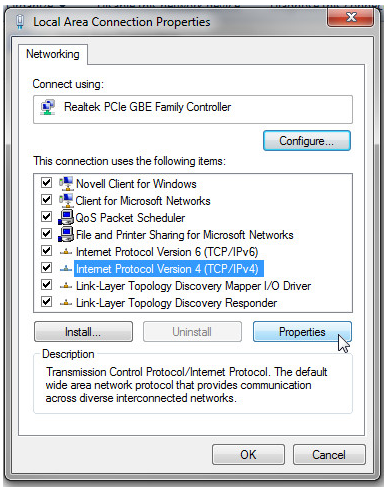
The following pictures and instructions depict either Windows 7 or Windows 10. Other operating systems will likely be similar.

4.1 Change your PC's IP

1. Plug LAN cable into PC.
2. Click **START**.
3. Select **CONTROL PANEL**.
4. Select **NETWORK AND INTERNET**.
5. Select **NETWORK AND SHARING CENTER**.
6. Click **CHANGE ADAPTER SETTINGS** in the left menu.

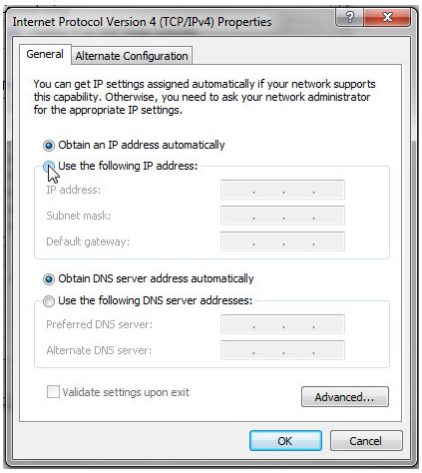


7. Find the appropriate adapter (most likely, this will not be a wireless connection).
8. Right-click the adapter.
9. Select **PROPERTIES** from the drop-down menu.
10. Click **INTERNET PROTOCOL VERSION 4** from the menu.



11. Click the **PROPERTIES** button.
12.Click the radio button for the option that states "Use the following IP address:"

- If this button is already selected, record information before changing it so that you can set it back later.
- If "Obtain an IP address automatically" is an option, you don't have to record the IP address information.



13.Enter in an IP address that is within your HVAC Controller's Subnet (see defaults below). When installing a new HVAC Controller that has factory default settings, your PC's new IP should be 192.168.1.XXX (replace the XXX with any number from 1-255, excluding the IP used by the unit (see defaults below).

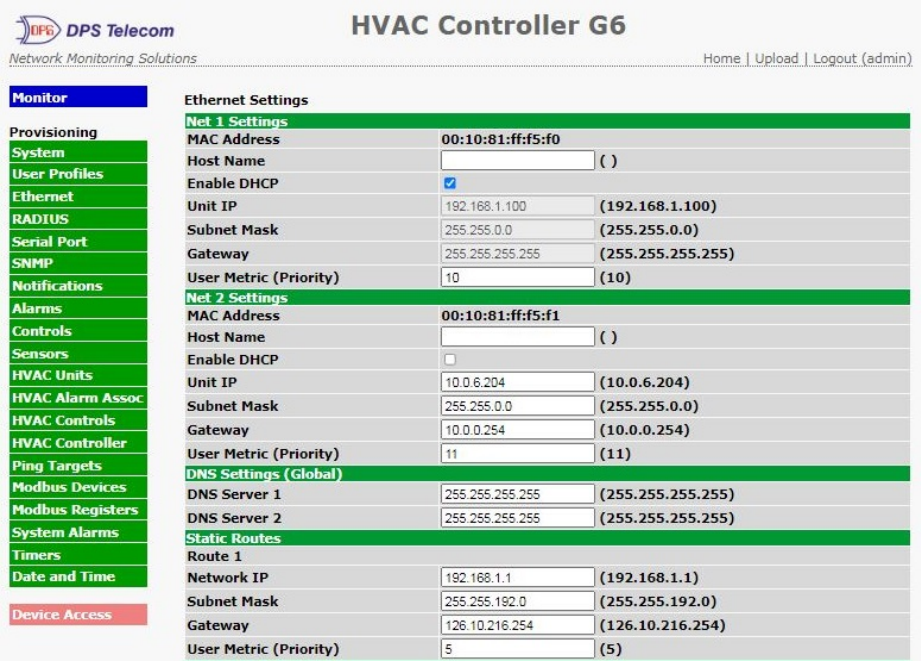
- **Default HVAC Controller IP (Net 1): 192.168.1.100**
- **Default HVAC Controller IP (Net 2): 192.168.1.101**
- **Default HVAC Controller Subnet Mask: 255.255.255.0**

14.Click *OK and close the window*.

4.2 Browse to the web interface

1. Using the web browser of your choice, browse to the HVAC unit's IP address.
2. The login form should appear. Enter the admin login information provided below and click *Login*.
   - Username: admin
   - Password: dpstelecom

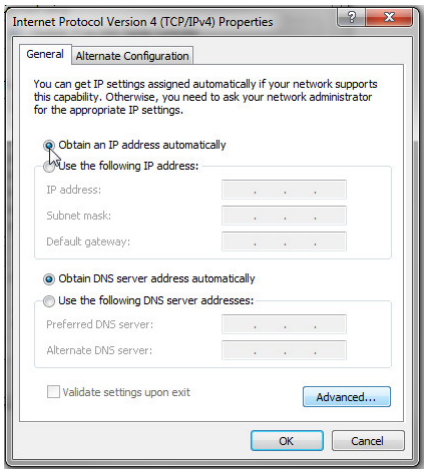
3. Expand the Provisioning menu.
4. Click **Ethernet**.
5. Change the HVAC's default IP address, subnet mask, and default gateway to be compatible with your network.



6. Click **Save** at the bottom of the page to cache your changes. To commit changes to the unit, click **Device Access** On the bottom left, then **Write** *and* **Reboot**.

4.3 Restore and Reconnect

1. Return to the Internet Protocol Version 4 page on your PC.
2. Reset the IP address by typing in the numbers you recorded previously or by clicking the "Obtain an IP address automatically" button.



3. Click **OK**.
4. Log back onto the unit as described previously.
5. Click **Provisioning**.
6. On the System Settings screen, change your default user and password.
7. Save your changes.

5 Quick Turn Up

The next sections of this manual will walk you through some of the most common tasks for using the G6. 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.

5.1 How to Send Email Notifications

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

Notifications

Summary

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

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

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

Port Number (usually 25) and the **"To" Email Address** of the technician that will receive these emails. If authentication is required, chose the type and fill in the necessary fields. Click **Next**.

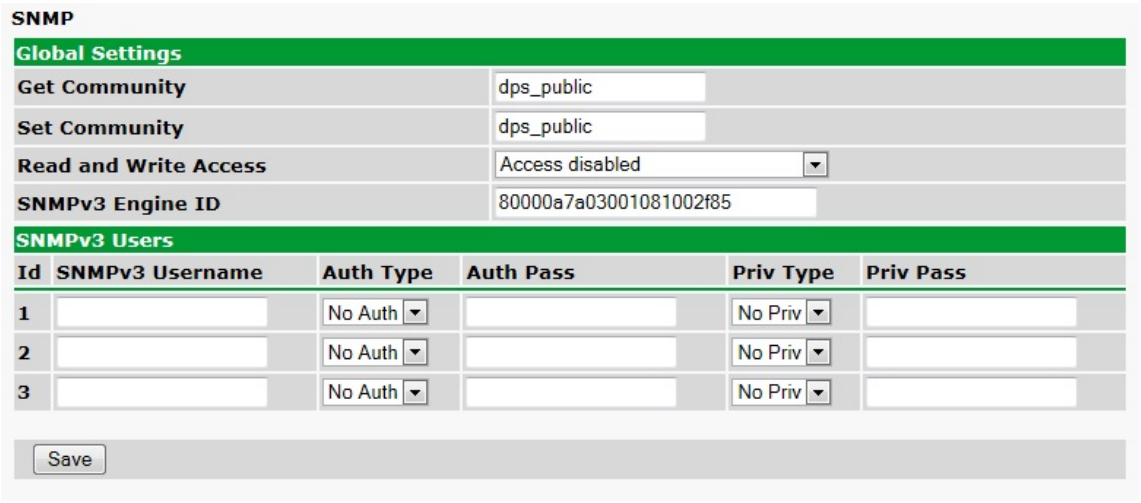
4. At the **Schedule** screen, you'll select the exact days/times you want to receive email notifications. You can set two schedules per notification. For example, you may want to receive notifications at certain times during the week, and at different hours on the weekend. Use the check boxes to select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

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

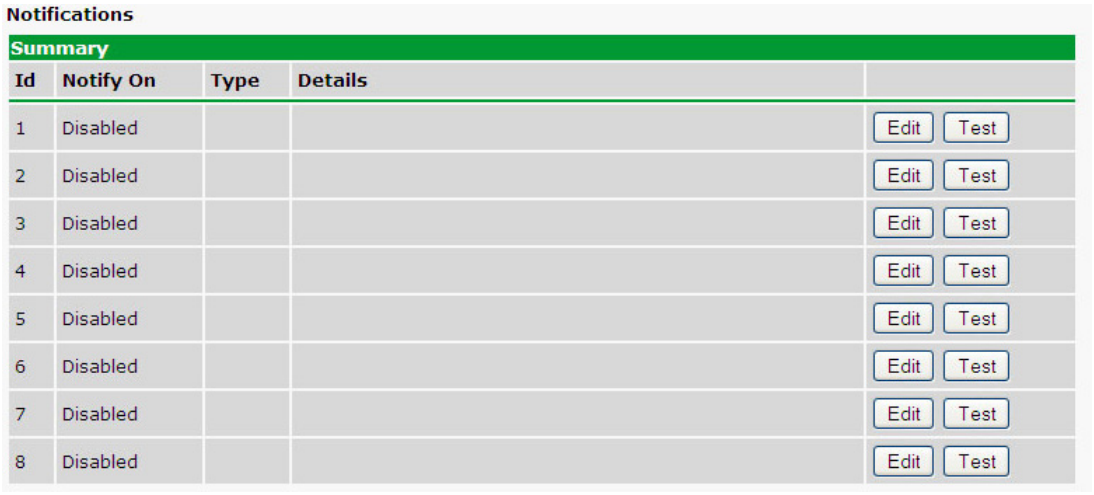
6. Now you will associate this notification to an alarm (system, base, analog, etc.) You have 8 notification devices available to use. Remember that Notification #1 in the Notifications menu corresponds to the first "Notifications" column of check boxes "N1". (Notification #2 "N2" is the second column, and so on until Notification #8 "N8")

5.2 How to Send SNMP Traps

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



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



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

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

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

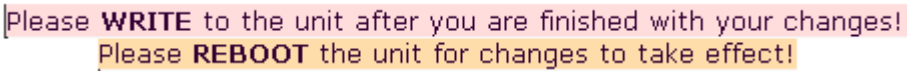
NOTE: This test only means that your notification settings are correct, but you still need to assign the notification to an alarm point. See Step 6 in "How to Send Email Notifications" for more detail.

6 Provisioning Menu Field Descriptions

G6 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 G6:
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.

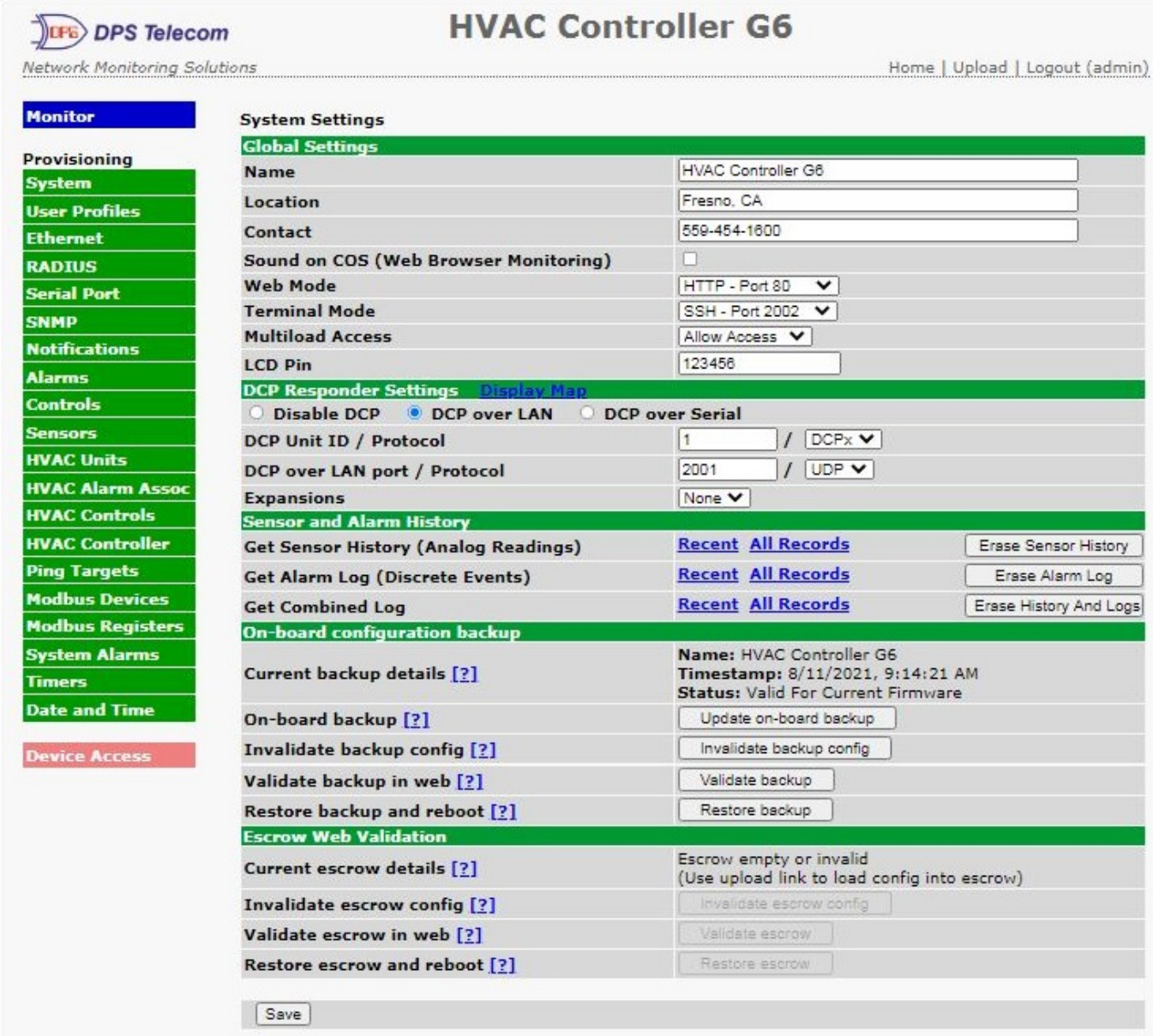


Status messages on the G6 Device Access menu, inform you how to implement your changes

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

6.1 System

From the **Provisioning** > **System** menu, you will configure and edit various global settings that apply widely. You can also save/erase logs and backup/restore device configurations.



The Provisioning > System menu

Global System Settings	
Name	A name for this unit. (Optional, useful for coordination & notifications)
Location	The location of this unit. (Optional, useful for coordination & notifications)
Contact	Contact telephone number for the person responsible for this unit. {Optional field)
Sound on COS	Checking this box enables Sound on COS when viewing the Alarms, Sensors, Ping Targets, or System Alarms page under the Monitor menu.
Web Mode	HTTP on port 80 or HTTPS on port 443. Changes will only go active after reboot. (Default HTTPS - Port 443)
Redirect HTTP to HTTPS	Only available when web mode is HTTPS - Port 443. When enabled, opens port 80 for sole purpose of redirecting to landing page of HTTPS server. When disabled, leaves port 80 closed and browsing to http://<ip address of unit> will yield a connection refused message. (Default = Enabled)
Terminal Mode	Telnet on port 2002 or SSH on port 2002. (Default - Telnet on port 2002).
Multiload Access	"Allow Access" or "Require Login". When set to "Allow Access", unit will allow direct navigation to the Upload page (for updating firmware, web image, or config) without needing to authorize for user access. This can help with recovery of unit, but may not be desired in secure deployments.
LCD PIN	Passcode used to unlock Device Setup on the Touchscreen (Default: 123456)

DCP Responder Settings *(For use with T/Mon)*	
Disable DCP, DCP over LAN / Serial	Select one of these 3 options to send DCP protocol over LAN, serial, or disable DCP completely.
DCP Unit ID	User-definable ID number for the target unit (DCP Address).
DCP Unit Protocol	Drop-down menu of available protocols for use with DCP Address.
DCP over LAN port	Enter the DCP port for the target unit. (UDP/TCP port)
LAN Protocol	Drop-down menu of available protocols for use over LAN.
Expansions	Select the number of expansion units connected to the unit.
Sensor and Alarm History	
Get Sensor History	Download a log of all configured analog and sensor values. Also, "Erase" button to clear the history.
Get Alarm Log	Download a log of the device's recent alarm history. Also, "Erase" button to clear the log.

On-board Configuration Backup	
Current backup details	If backup has been created, displays the Name, Timestamp, and Status of the on-board backup. • Name: System Name of the stored backup configuration. • Timestamp: Unit time when backup configuration was created. Note that this time may be before the time when the on-board backup was last updated, particularly in cases where the configuration had been live for some time before later updating the on-board backup. • Status: Indicates whether backup configuration is valid for current firmware, or gives additional instruction when the backup is not valid for current firmware. Usual causes of an invalid backup result from a firmware version change without subsequently updating the on-board backup.
On-board backup	Creates a backup of the current written and active configuration.
Invalidate backup config	Erases the saved backup configuration from the unit.
Validate backup in web	Exercises a "Device Access > Read" operation, except that the unit will read in the values from the backup configuration rather than the active configuration. The values read into the web interface can be validated in the edit interface and written back to the unit as an active configuration. When doing this, the current local user profiles will be applied to the backup configuration instead of restoring the backup configuration's local user profiles.
Restore backup and reboot	Reboots the unit and restores the onboard backup configuration - rather than the active configuration. This will restore the local user profiles from the backup configuration.

Escrow Web Validation	
Current escrow details	On power up, will show escrow empty or invalid. By using the multiload interface, a backup configuration (previously downloaded from "Device Access > Backup Config") can be uploaded to the escrow location for web validation before going active. When a config has been uploaded to escrow, this will show the Name, Timestamp, and Status, similar to the on-board configuration above.
Invalidate escrow config	Explicitly erases the escrow configuration from the unit. NOTE: Uploading a new configuration will overwrite the previous escrow configuration. NOTE: Rebooting the unit without restoring a configuration from escrow will erase the escrow configuration.
Validate escrow in web	Exercises a "Device Access > Read" operation, except will read in the values from the escrow configuration rather than the active configuration. Works similarly to on-board configuration backup validation.
Restore escrow and reboot	Reboots the unit with a message to the bootloader that it should attempt to boot using the escrow configuration rather than the active configuration. This will restore the local user profiles from the escrow configuration.

6.2 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 7 additional unique user profiles, each with different access rights to the NetGuardian's web interface.

Configure access privileges for users in the User Profile screen

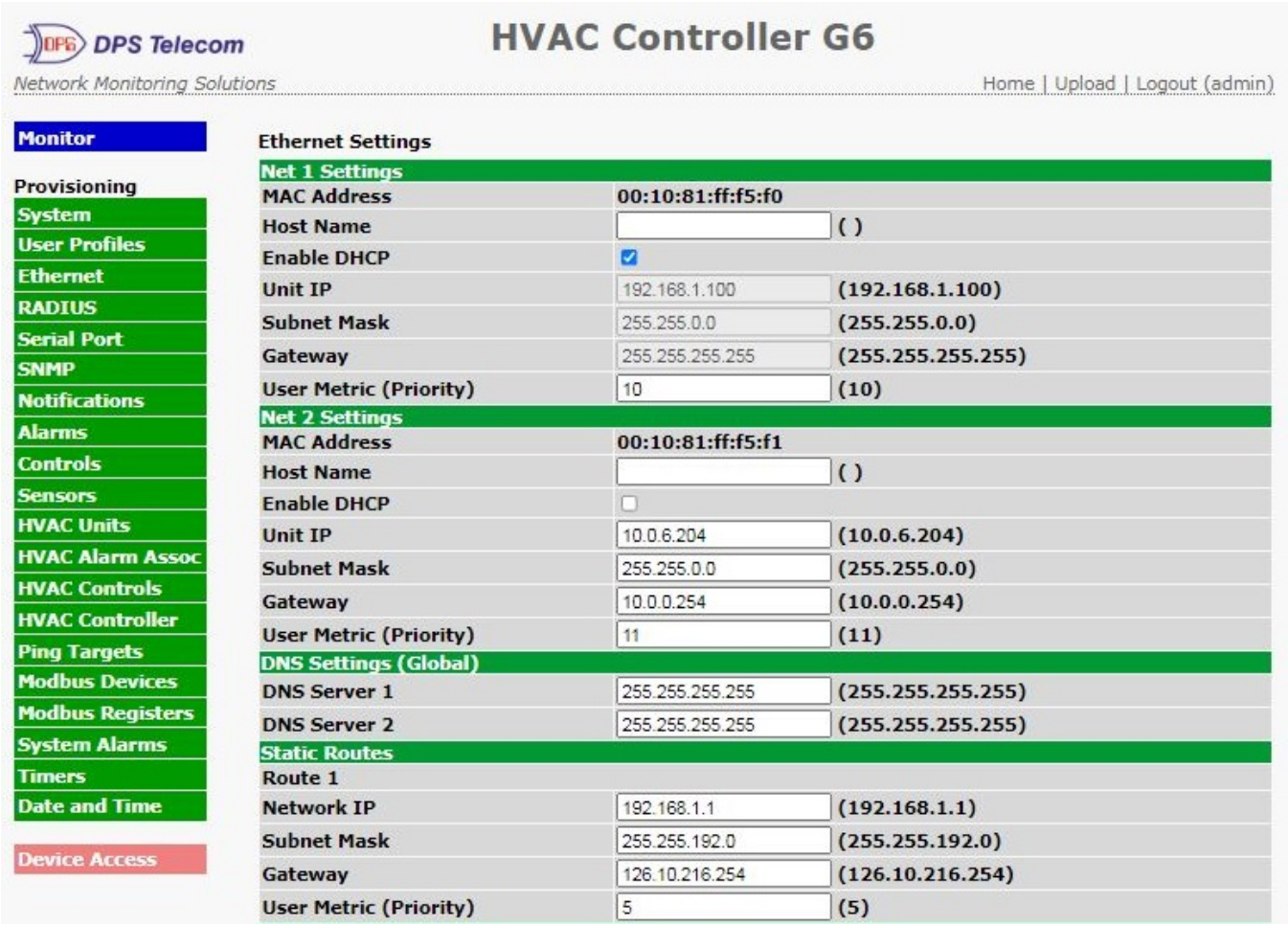
To create or edit any of the 8 user profiles (including the Admin), click the **Edit** button. From there, you can change all configurable settings for a user profile.

User Profile	
Suspend this Profile	If this box is checked, the profile will not be able to access the unit.
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 unit to factory default settings. All user settings will be lost.
Upload new firmware, or config	Allows the user to upload firmware or backed-up configuration files.
Get audit log	Allows the user to access the Audit Log (**Get Log** command).
Purge (delete) audit log	Allows the user to deletes the existing audit log.
Get (backup) config	Backs-up all user profile configuration settings.
Get and delete analog history	Allows the user to access and delete the analog and sensor history.

User profile field descriptions

6.3 Ethernet

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



The Provisioning > Ethernet menu

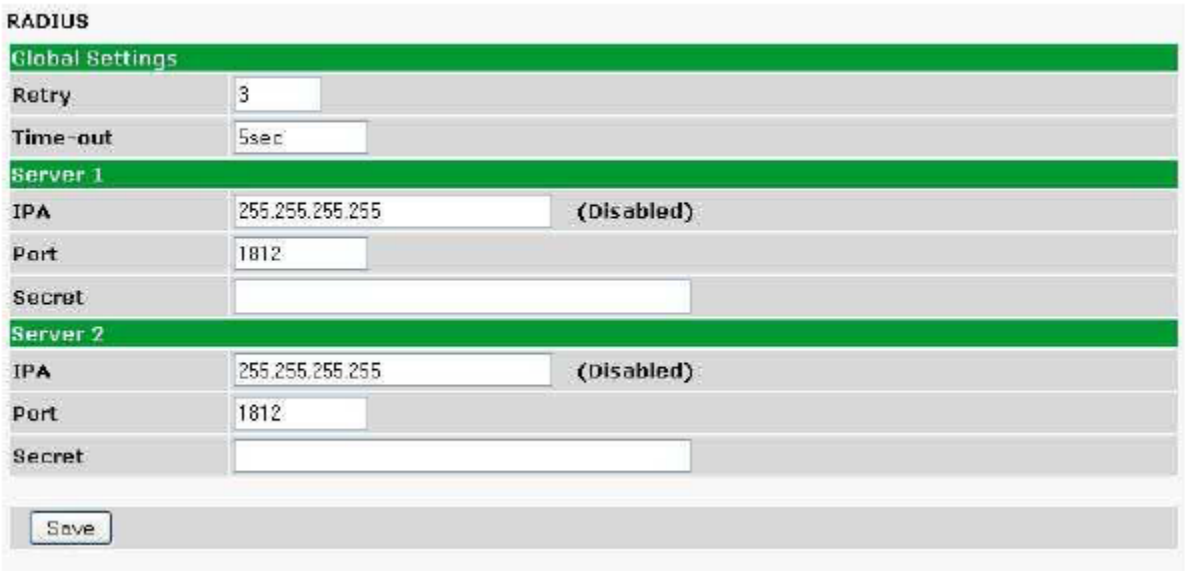
Ethernet Settings (Many are separate for Net 1 & Net 2)	
MAC Address	Hardware address of the NetGuardian. (Not editable - For reference only.)
Host Name	Used only for web browsing. Example: If you don't want to remember this NetGuardian's IP address, you can type in a name is this field, such as "MyNetGuardian". Once you save and reboot the unit, you can now browse to it locally by simply typing in "MyNetGuardian" in the address bar. (no "http://" needed).
Enable DHCP	Used to turn on Dynamic Host Connection Protocol. NOT recommended, because the unit is assigned an IP address from your DHCP server. The IP you've already assigned to the unit becomes inactive. Using DHCP means the unit will NOT operate in a T/Mon environment.
Unit IP	IP address of the NetGuardian.
Subnet Mask	A road sign to the NetGuardian, telling it whether your packets should stay on your local network or be forwarded somewhere else on a wide-area network.
Gateway	An important parameter if you are connected to a wide-area network. It tells the NetGuardian which machine is the gateway out of your local network. Set to 255.255.255.255 if not using. Contact your network administrator for this info.
User Metric (Priority)	Used to prioritize one network over another (Net 1 vs. Net 2) when making an outbound connection. The network gateway with the lower metric is the default gateway; the network gateway with the higher metric is a fallback gateway.
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.
[Static Routes]	Options for creating a static route to a designated subnet through a specified gateway. The "User Metric (Priority)" is used for prioritization similar to network behavior; any matching static routes with a lower metric will be attempted before those with higher metrics.

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

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

6.4 RADIUS

RADIUS (Remote Authentication Dial In User Service) is an industry-standard way to manage logins to many different types of equipment in one central location. The G6 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.



Provisioning > RADIUS

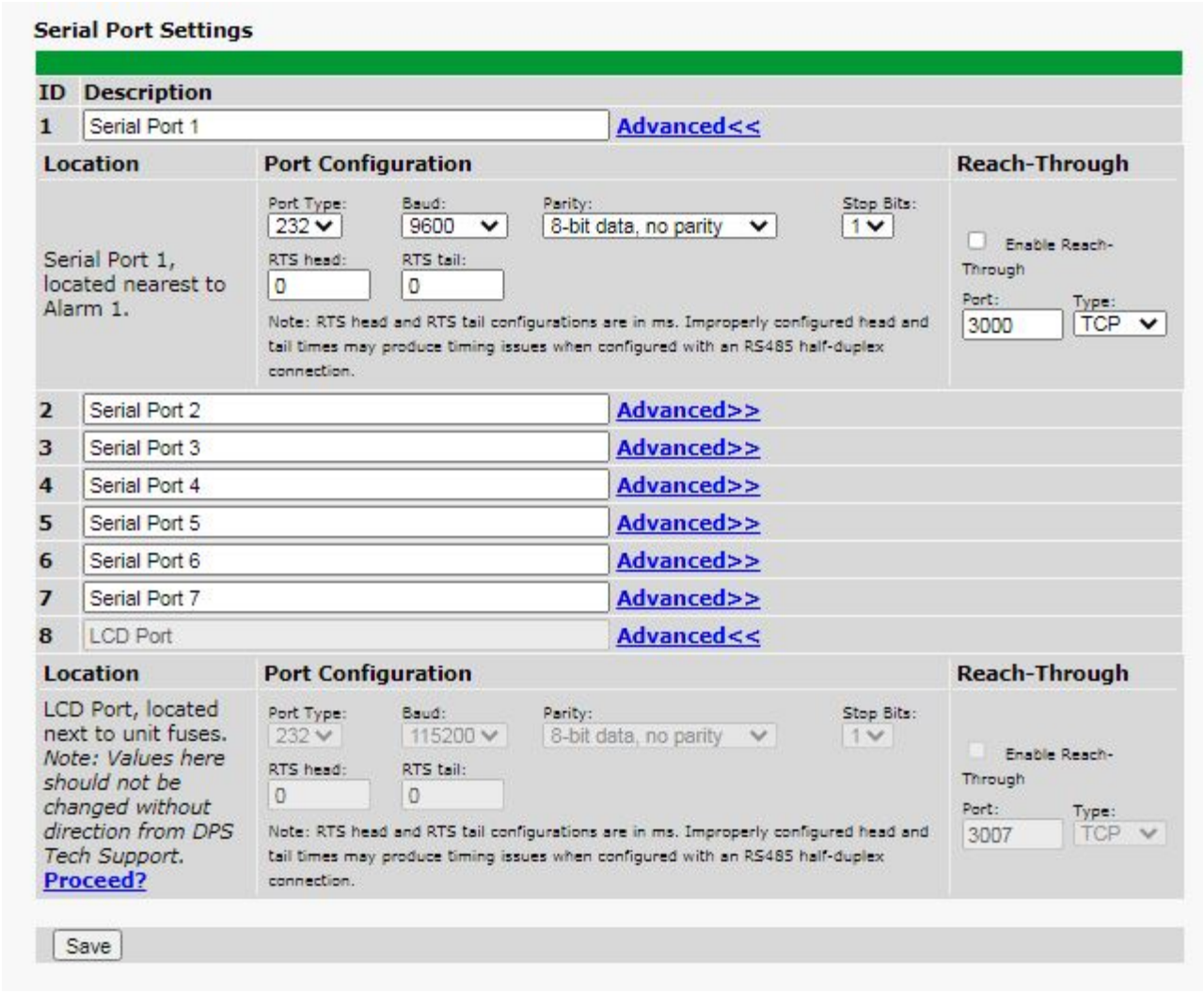
Global Settings	
Retry	Enter the number of times the RADIUS server should retry a logon attempt
Time-out	Enter in the number of seconds before a logon request is timed out
Server 1 & Server 2	
IPA	Enter the IP address of the RADIUS server
Port	Port 1812 is an industry-standard port for using RADIUS
Secret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

After successfully entering the settings for the RADIUS server, the G6 Web Browser will prompt users for both a Username and Password, which will be verified using the information and access rights stored in the RADIUS database.

RADIUS logons **are** case-sensitive. If the RADIUS server is unavailable or access is denied, the master password will work for craft port access only. Also, the "dictionary.dps" files (included on the Resource Disk) needs to be loaded on the RADIUS server for access-right definition. If RADIUS is enabled on the G6, the local authentication will not be valid.

6.5 Serial Port

The **Provisioning > Serial Port** menu allows you to change settings depending on the port type of your G6. From this menu, you can select a mode of operation and enable reach-through serial port functionality.

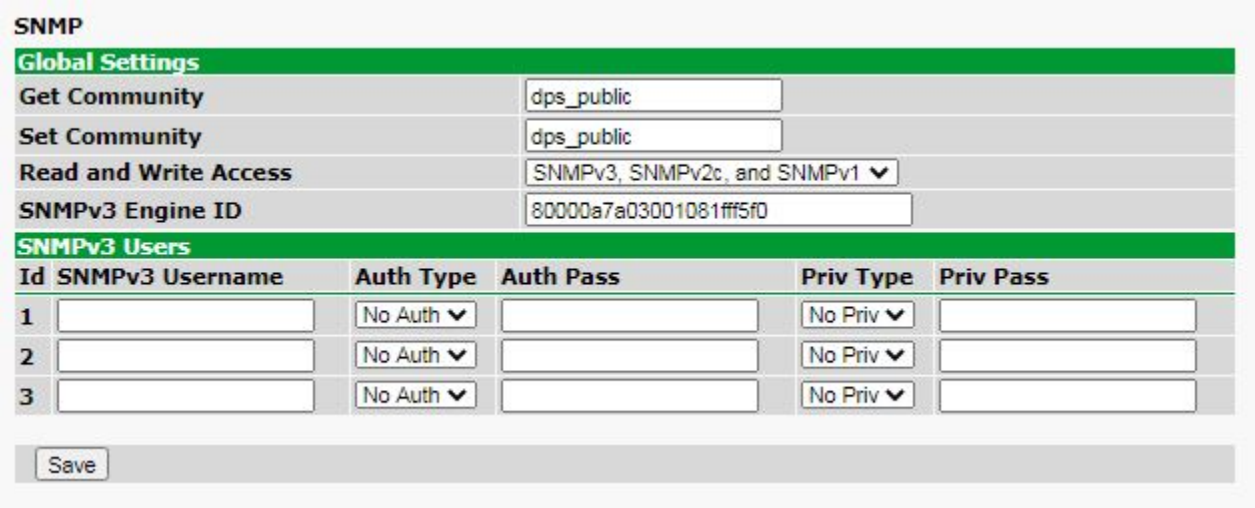


The Provisioning > Serial Ports menu

Location	
Reminder that the primary serial port is located on the back of the unit chassis.	
Port Configuration	
Port Type	Select the serial port for your build of the unit. Choose from 232, 485...
Baud, Parity, and Stop Bits	Select the appropriate settings from the drop-down menu.
RTS Head	Useful for RS485 serial connections, and especially necessary when configuring 485 half-duplex.
RTS Tail	Useful for RS485 serial connections, and especially necessary when configuring 485 half-duplex.
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. Can also be set to "proxy" for establishing proxy reach-through from a TTY interface.

6.6 SNMP

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



SNMP Menu

Global Settings	
Get Community	Community name for SNMP requests.
Set Community	Community name for SNMP SET requests.
Read and Write Access	This field defines how the G6 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

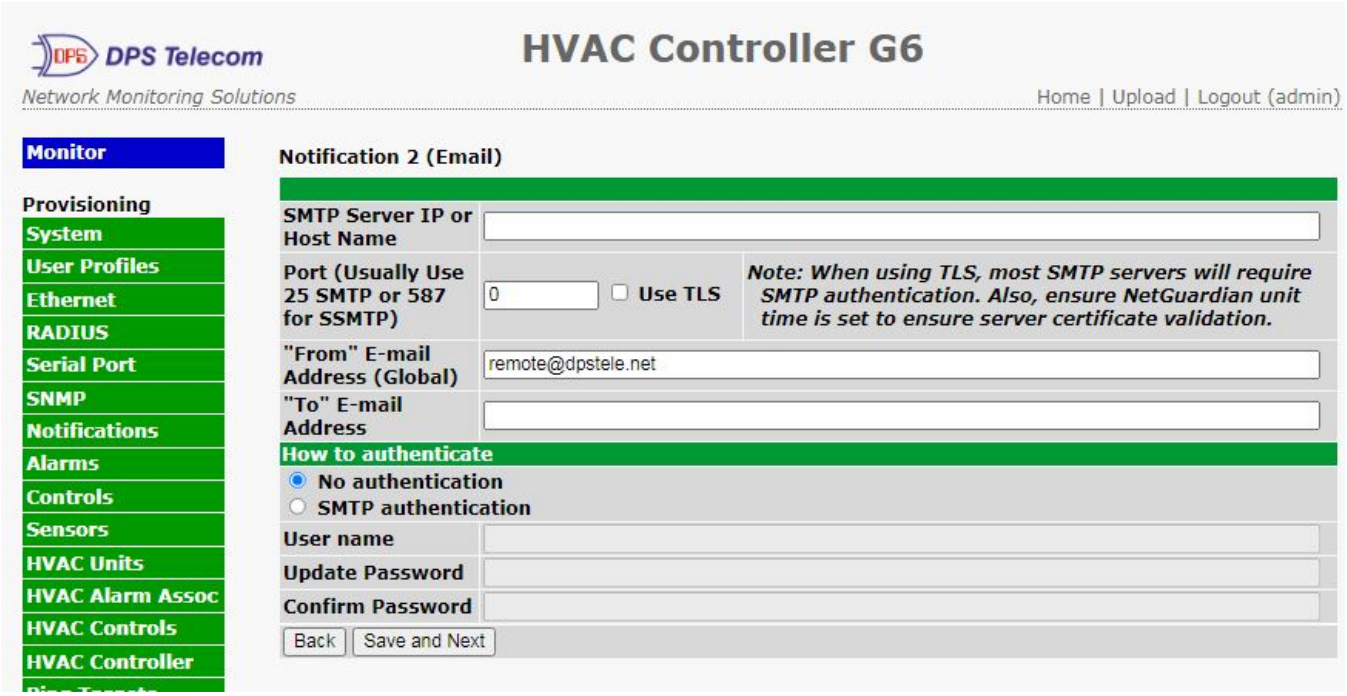
6.7 Notifications

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

Once you've chosen which notification you want to setup, check the **Enable Notification** to turn it "on." Then choose a notification method, either email, SNMP, or relay groups.

6.7.1 Notification Settings

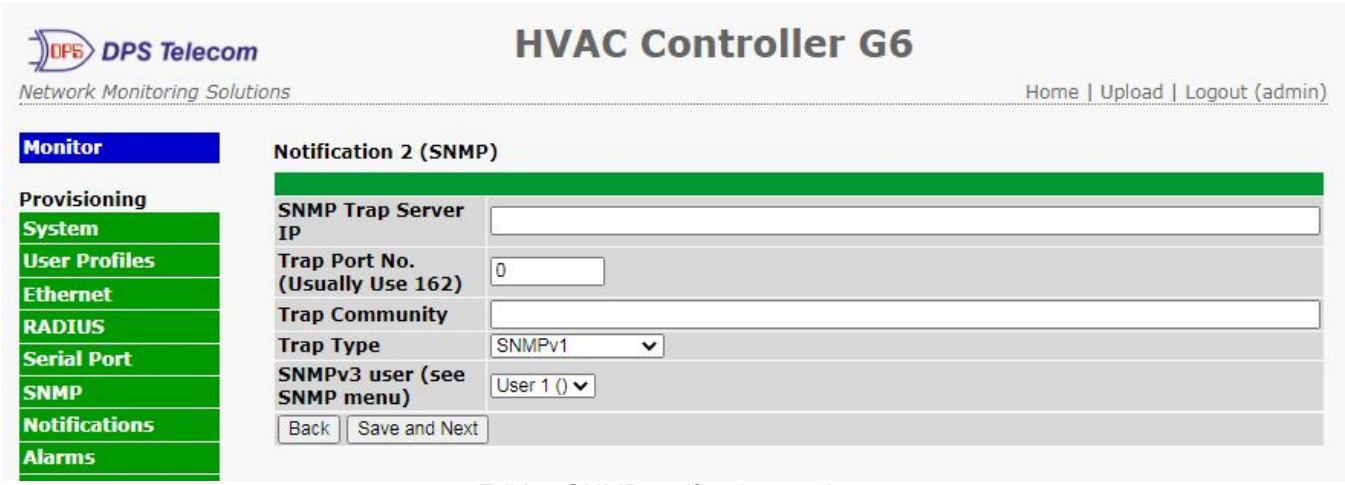
Email Notification Fields



Editing Email Notification Settings

Email Notification	
SMTP Server IP or Host Name	The IP address of your email server.
Port Number	The port used by your email server to receive emails, usually set to 25.
Use TLS	Check this box to use TLS encryption. Currently, this feature has been tested with common email providers, like Gmail, Yahoo!, and others. As an example, to send via 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 587. • SMTP authentication radio button must be selected. • User name and password (below under "How to Authenticate") are the user name and password for the Gmail account in use.
"From" E-mail Address	Displays the email address (defined in the Edit menu > System) that the NetGuardian will send emails from. Not editable from this screen. For interoperability with SMTP servers, this defaults to the authentication username.
"To" E-mail Address	The email address of the person responsible for this NetGuardian, who will receive email alarm notifications.
User Name	Full email address for the Gmail account being used.
Password	Password will be updated if the "Update Password" and "Confirm Password" fields contain an identical new password. If these are blank, the password will not change. If the two fields do not contain the same new password, an alert message will appear when you attempt to save.

SNMP Notification Fields



Editing SNMP notification settings

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

6.7.2 Schedule

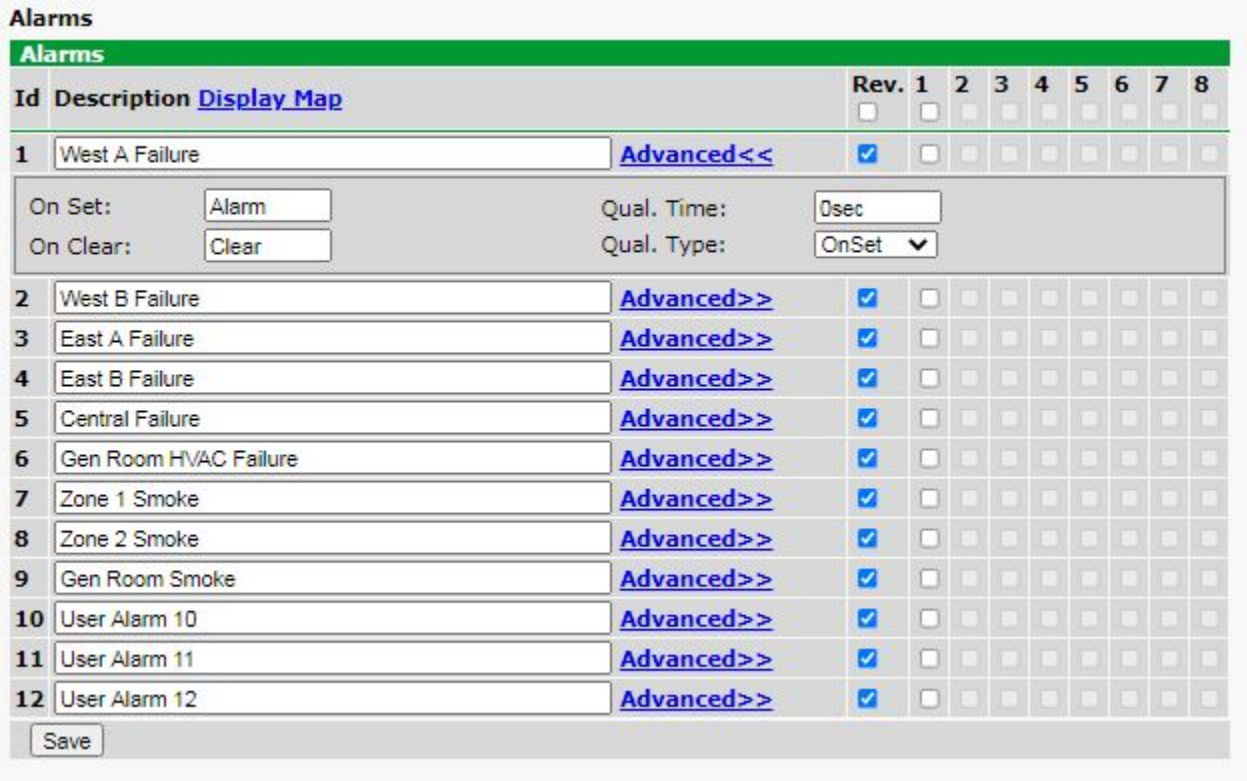
The notifications scheduling menu is where you will tell the G6 exactly which days and times you want to receive alarm notifications. You set 2 different schedules for each.

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.

6.8 Alarms

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

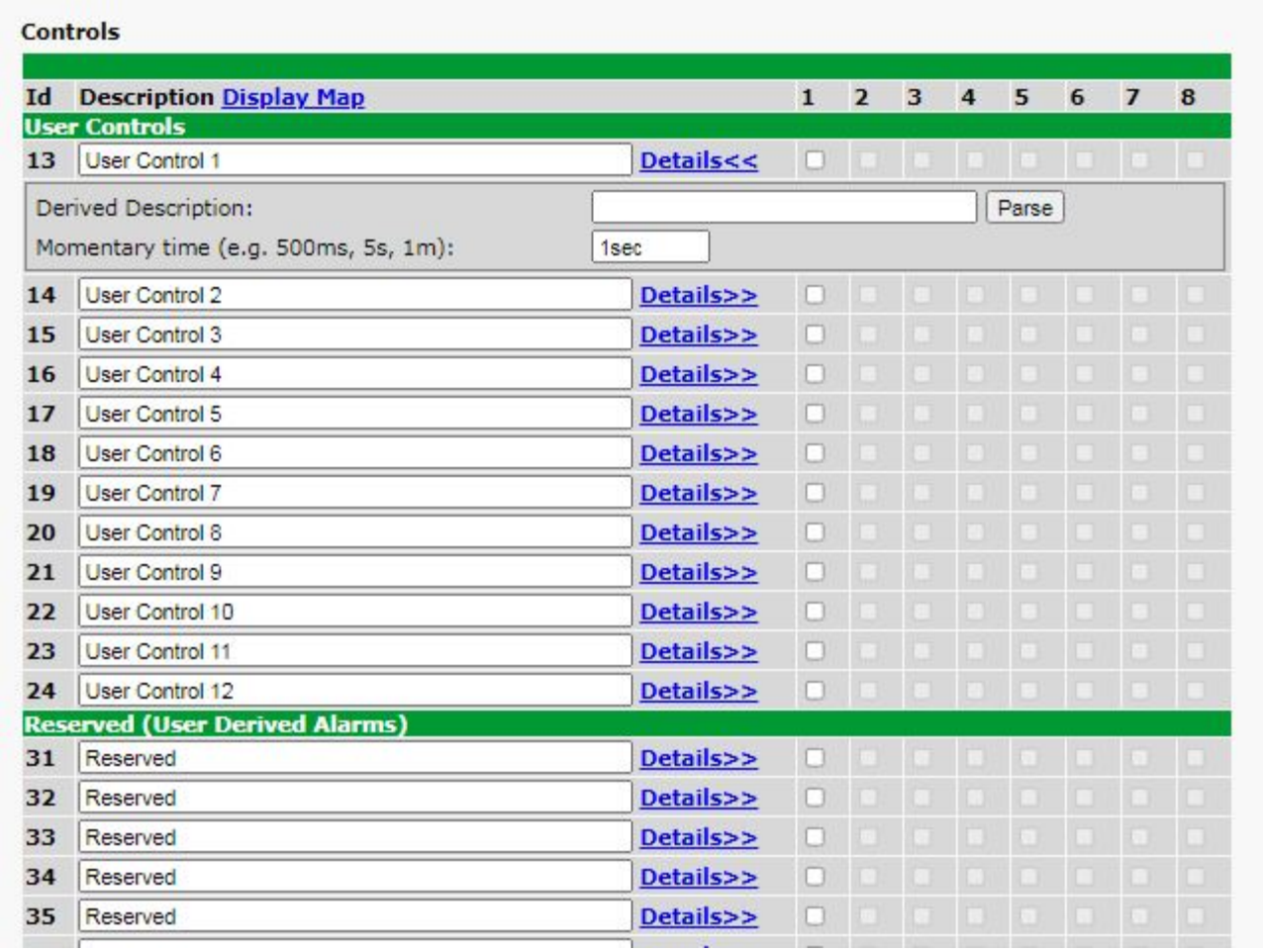


The Provisioning > Alarms menu

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. Unchecked (Normally Open): Alarm is clear when contact is open and set when contact is closed. Checked (Normally Closed): Alarm is clear when contact is closed and set when contact is open.
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.

6.9 Controls

The G6 control relays can be configured in the **Provisioning** > **Controls** and **Provisioning Exp. Controls** menus. You can enter your own description for these relays and designate them to a notification device(s).

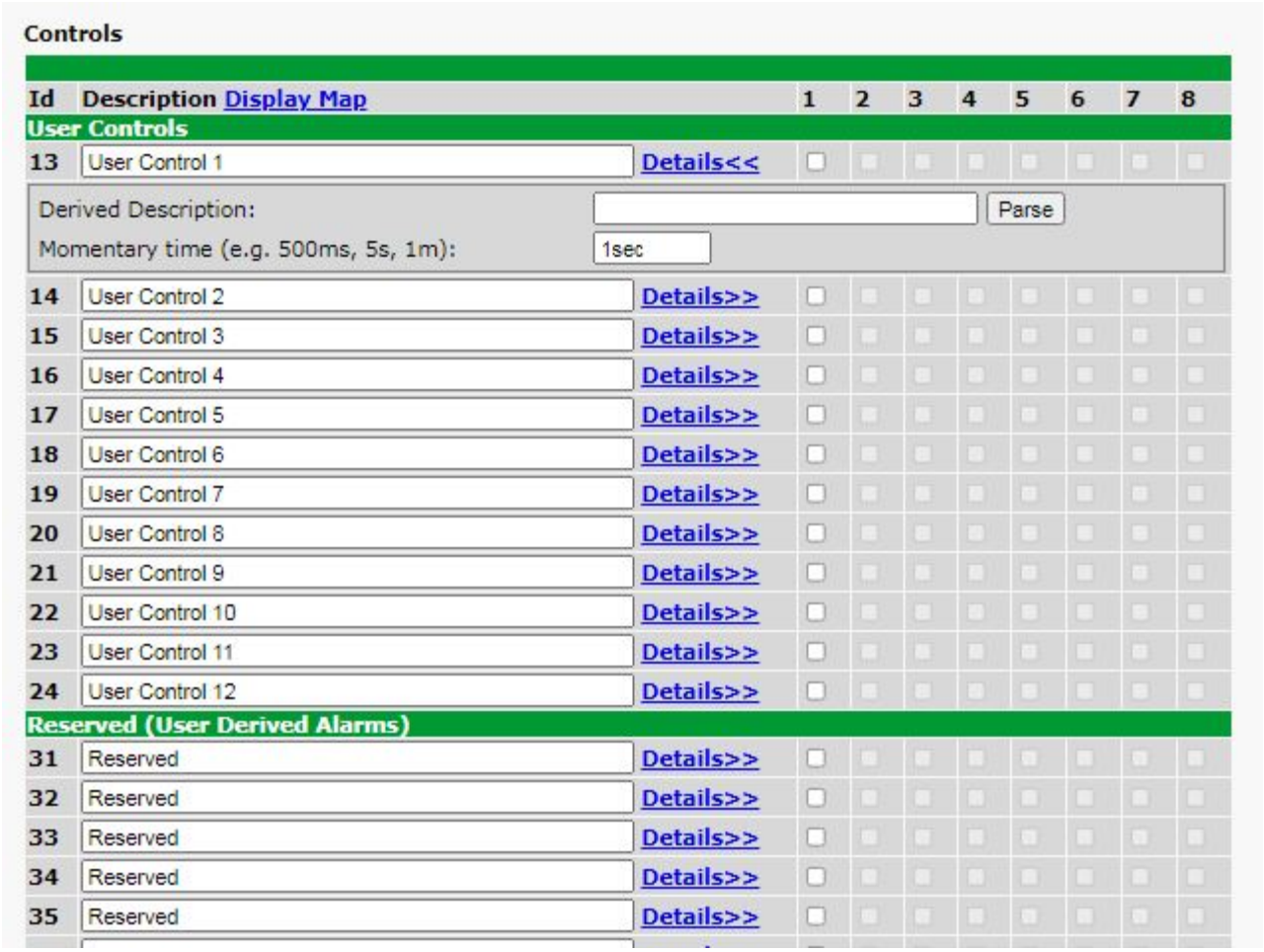


The Provisioning > Controls screen

Basic Controls Configuration	
ID	ID number for the control relay.
Description	User-definable description for the NetGuardian's control relay.
Details: Derived Description	Define simple if-then automation for this relay. Leave blank for pure manual operation. (see "Derived Controls" section for details and syntax)
Details: 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.

6.9.1 Derived Controls

The G6's derived controls can be configured in the **Edit > Controls** screen. Each control can be configured for derived control. Click on Detail to show the derived controls setting. Enter in a derived control equation into the Derived Description field. Click on Parse to issue a parse command. The parse command is a test that will attempt to parse the derived control equation. It will return with a "Parse Successful!" or "Parse FAILED!" message. If "Parse FAILED!" is returned, there is an error in the syntax of the equation.



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

Virtual alarms and control relays can be created from derived formulas using the following operations:
_OR : Set the current operation to OR.
_AN : Set the current operation to AND.
_NO : Set the current operation to NOT
_XR : Set the current operation to XOR.
D : Tag to change the active display number.
C# : Used as a constant where # is either a 1 or a 0.
. : Used like a comma to delimit numbers.
- : Used to specify a range of points.
S : Used like an open parentheses.
F : Used to end or close parentheses (All open parentheses must have a matching close parentheses).

(Spaces included here are for readability purposes only.)

- Precedence of the operations are always left to right unless using **S and F** for parentheses.

- All number references can either be one or two digits.

_OR D1.3-5 is logically equivalent to (1.3 || 1.4 || 1.5)
_AN D 1.3-5 D2.6 _OR D3.7 is logically equivalent to ((1.3 && 1.4 && 1.5 && 2.6) || 3.7)
_OR D01.03-05 D02.06 _AN D02.07 D03.10.-12 is logically equivalent to ((1.3 || 1.4 || 1.5 || 2.6)&& (2.7 && 3.10 && 3.12))
_AN D1.3-5D2.6_OR.7D3.10.12 is logically equivalent to ((1.3 && 1.4 && 1.5 && 2.6) || 2.7 || 3.10 || 3.12))
_AN D1-2 : Control will parse
_OR S_AND1.1-2FS_AND1.3-4F is logically equivalent to (1.1 && 1.2) || (1.3 && 1.4)
_OR C1 D1.1 is logically equivalent to (1 || 1.1)

6.9.2 Derived Expansion Controls

NOTE: This menu option does not appear unless an expansion unit has been connected to your base G6.

Derived Expansion Controls have the same functionality as Derived Controls. They are added as part of an expansion unit, such as the NetGuardian E16 DX G2, which extends your available quantity of control relays. When available, they will appear on this additional page of control relays.

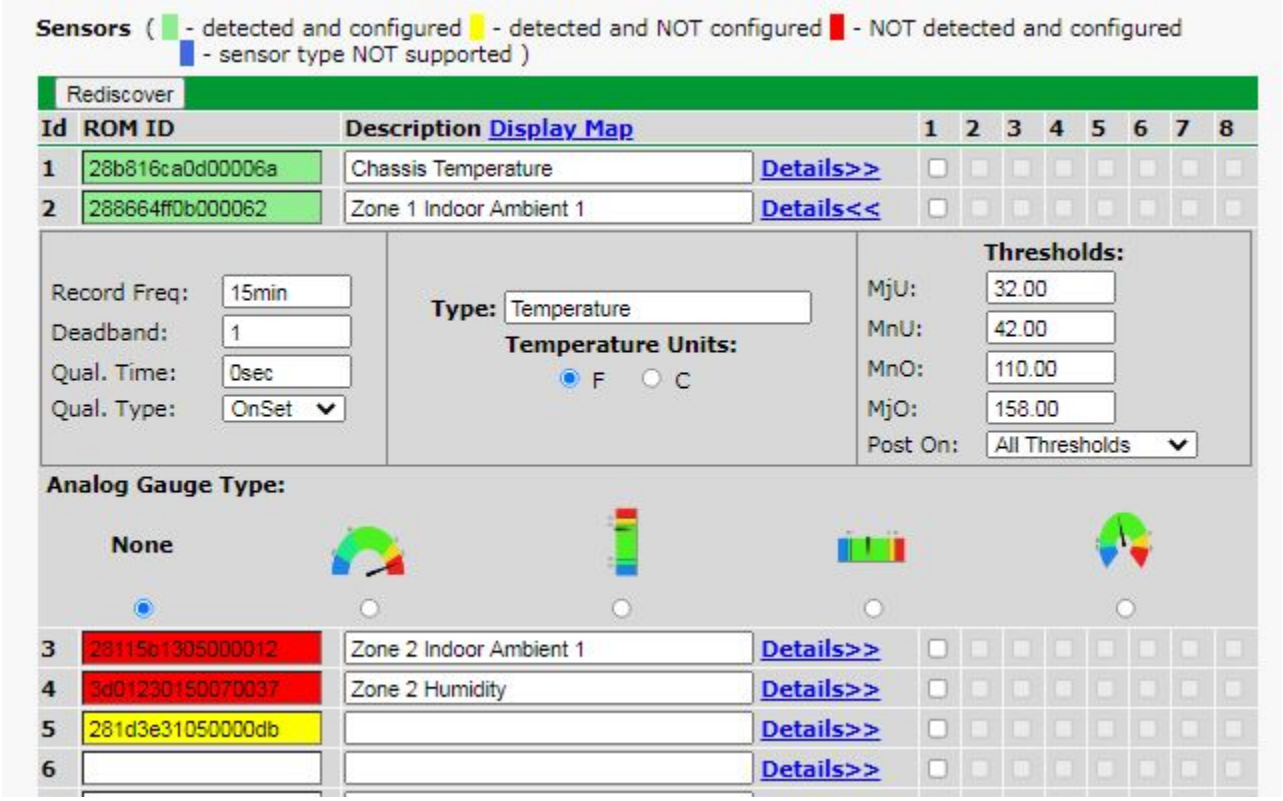
6.10 Sensors

In this section, you can find the settings for your D-Wire Sensors. Most DPS sensors are automatically detected and NOT configured (highlighted yellow in the web browser) when plugged into your DPS remote. Once your sensor is plugged in, you will need to configure it using the ROM ID and sensor description you wrote down earlier when plugging the sensor in (section *Installing Your Sensors*).

D-Wire Sensors

- The HVAC Controller supports up to 32 daisy-chained D-Wire sensors via its D-Wire input. Sensors connected to the HVAC Controller will appear on the web interface. The background color of the ROM field informs the user of the sensor's configuration state.
- One of the HVAC Controller's D-Wire sensor IDs is reserved for 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 HVAC Controller'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.

Note: HVAC Fail alarms are associated with the thresholds of the vent sensors. To avoid getting HVAC Fail alarms, when you configure the vent sensors, be sure to also configure their thresholds. The thresholds should be set to be the Max (Minor Under for cool mode and/or Major Over for heat mode) and Min (Major Under for cool mode and/or Minor Over for heat mode) accepted temp range.

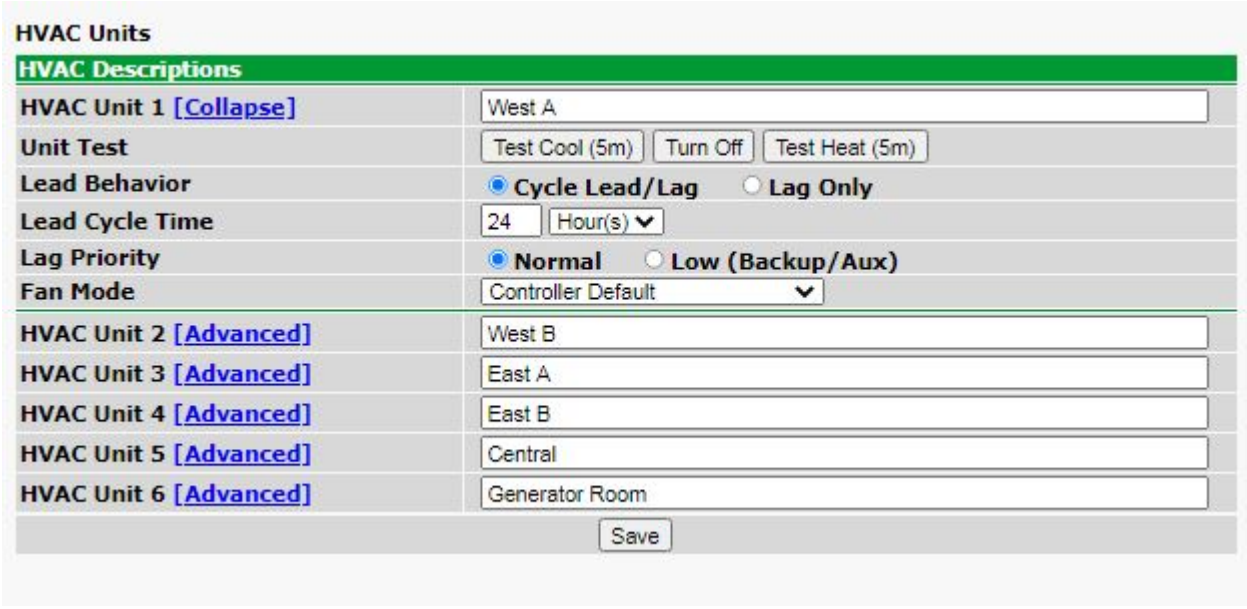


Sensors	
ID	The sensor point number
ROM ID	The ID number found on the sticker of the temperature sensor node. Your HVAC Controller will automatically detect the sensor ID when you plug a sensor into the unit. The color of the sensor ID field will tell you the status of the connected sensor. **Green** - 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 HVAC Controller. 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, 1 through 8, you want to send alarm notifications for that alarm point.
Details	
Record Frequency	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.
Qualification Time	The length of time that must pass, without interruption, in order for the condition to be considered an Alarm or a Clear.
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).
Post On	Select the threshold alarms to post: All thresholds, Major Only, Minor Only, Major Over Only, Major Under Only.

6.11 HVAC Units

Provisioning > HVAC Units

The G6 can configure 6 different HVAC units into 4 HVAC zones where they can be assigned. Each unit can be assigned in multiple zones. When configuring the HVAC units, it is recommended to use central units that occupy multiple zones as "Lag Only" and assign HVAC units that only occupy a single Zone as Cycle Lead. At all times, it is best to maintain at least one Lead HVAC unit in each Zone.



HVAC Units	
HVAC Unit #	User defined name of HVAC unit.
Unit Test	5 minute tests of Cool/Heat will override the zone behavior and any "warm-up" or "cool-down" periods. "Turn off" is an option to force off a specified unit; this results in the unit having to wait for the configured cool-down time before being allowed to cool or heat again.
Lead Behavior	Cycle Lead/Lag = Can be assigned Lead if available Lag Only = Will never be assigned as Lead
Lead Cycle Time	Amount of time before lead HVAC is tagged out for a new unit
Lag Priority	If Low is selected, then this HVAC will only be activated once all other HVACs of normal priority have been chosen and there is still a need to activate another unit.
Fan Mode	Fan Mode relates to an HVAC units blower behavior: "Controller default" means that the blower will be on only if cooling or heating. "Always on while lead" will keep blower on if the unit is a lead unit, even when cooling or heating is not enabled. "Always on" will turn the blower on permanently, unless some other error condition forces the blower off (e.g. presence of smoke, HVAC unit reports a fault).

6.12 HVAC Alarm Association

The alarm impulses from the HVAC Zones are abstracted from physical inputs, through virtual controls 49-64 ("Controller Special Function Inputs").

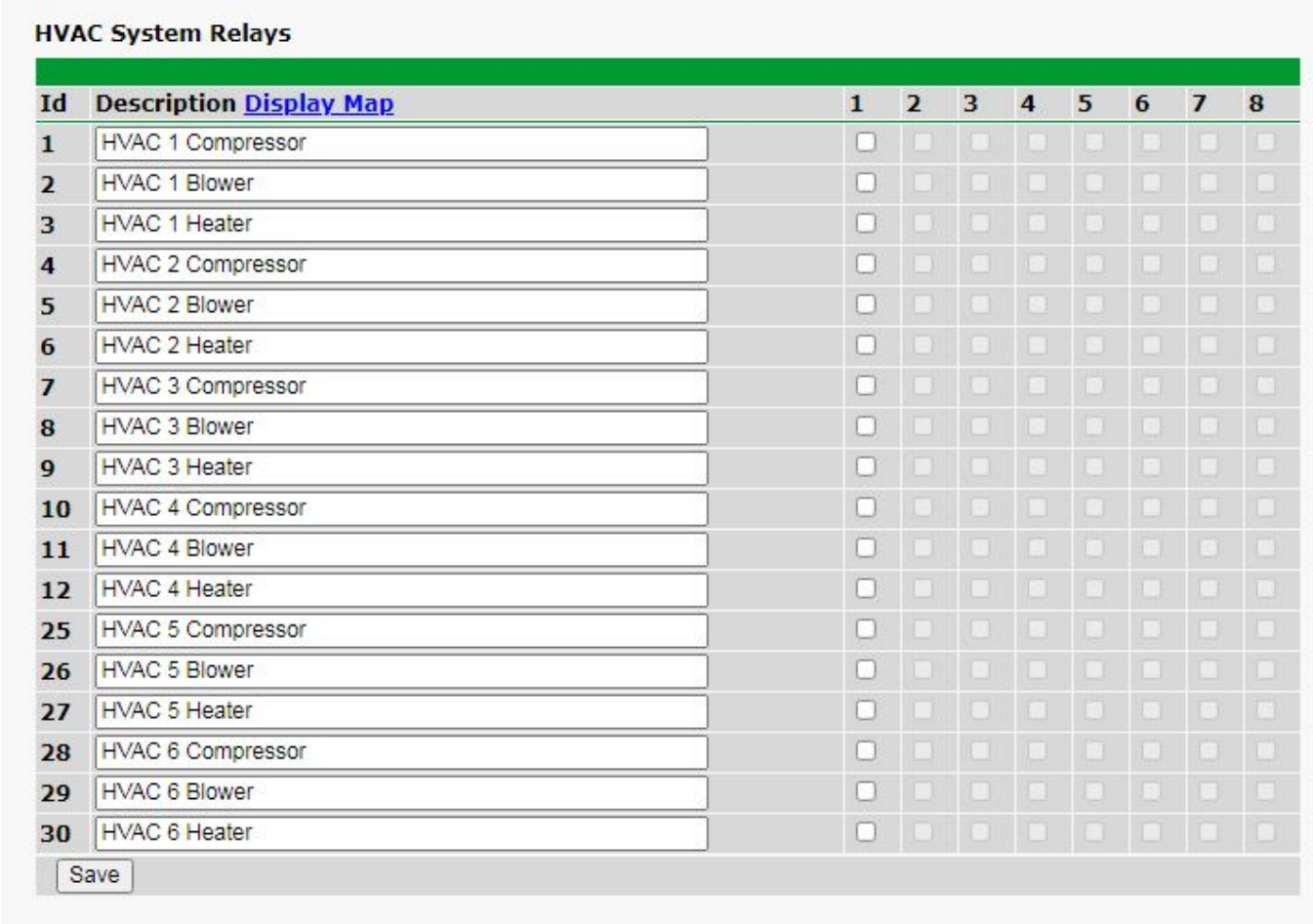
This allows us to create combinations of different alarm points through the derived control interface, allowing more complex alarm input behavior if needed.

Auto Association will automatically populate a simple derived control based on a discrete alarm input. Select the desired discrete alarm input(s) for the HVAC function(s) and click 'Associate' to generate the appropriate derived control to link a discrete alarm to the HVAC Controller.

Manual Association allows you to manually parse a derived control for the indicated HVAC function, and allows you to notify on these virtual points as well.

6.13 HVAC Controls

This section contains the set of control relays that are dedicated to HVAC unit control relays. This are separate from the general-purpose controls.

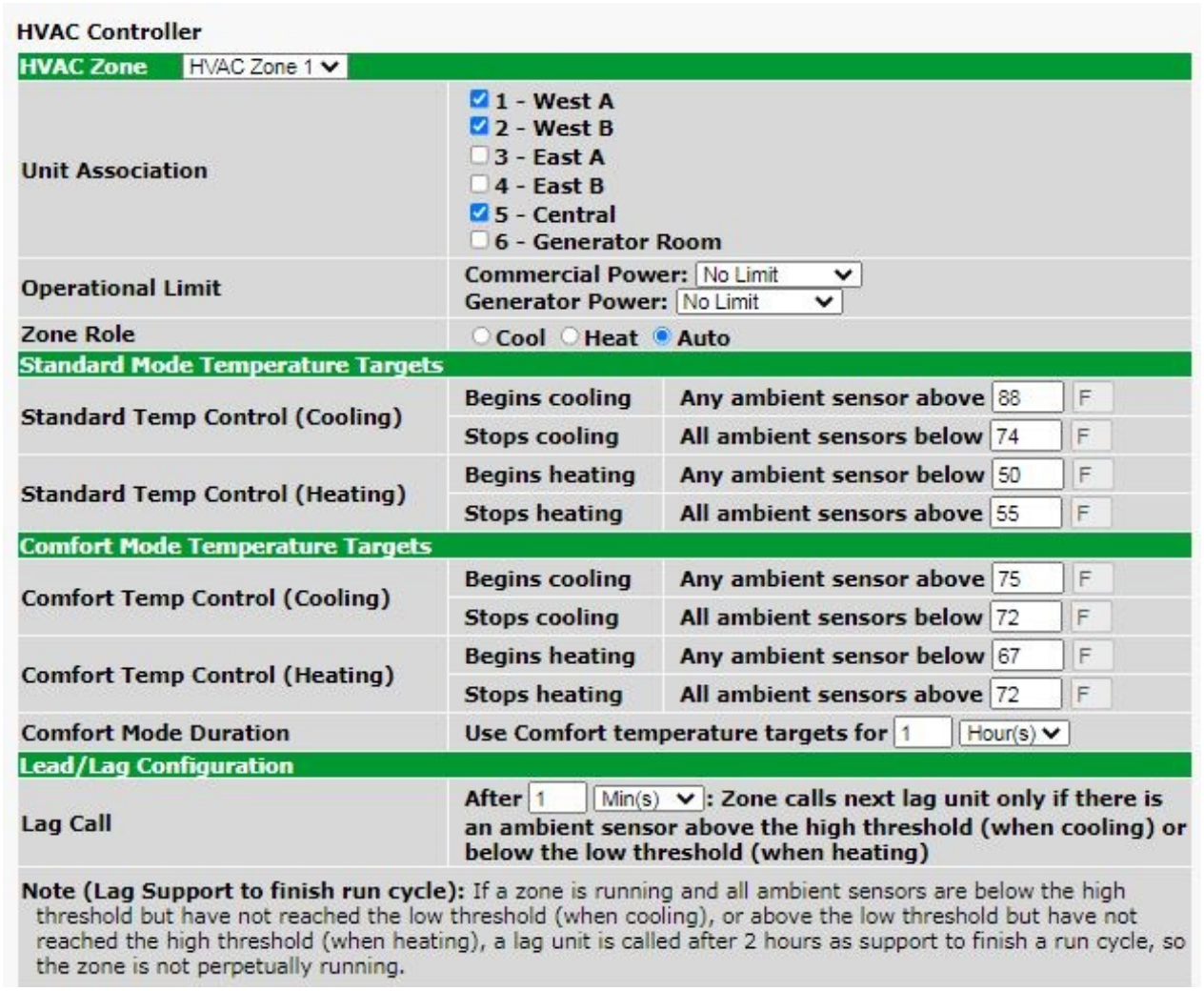


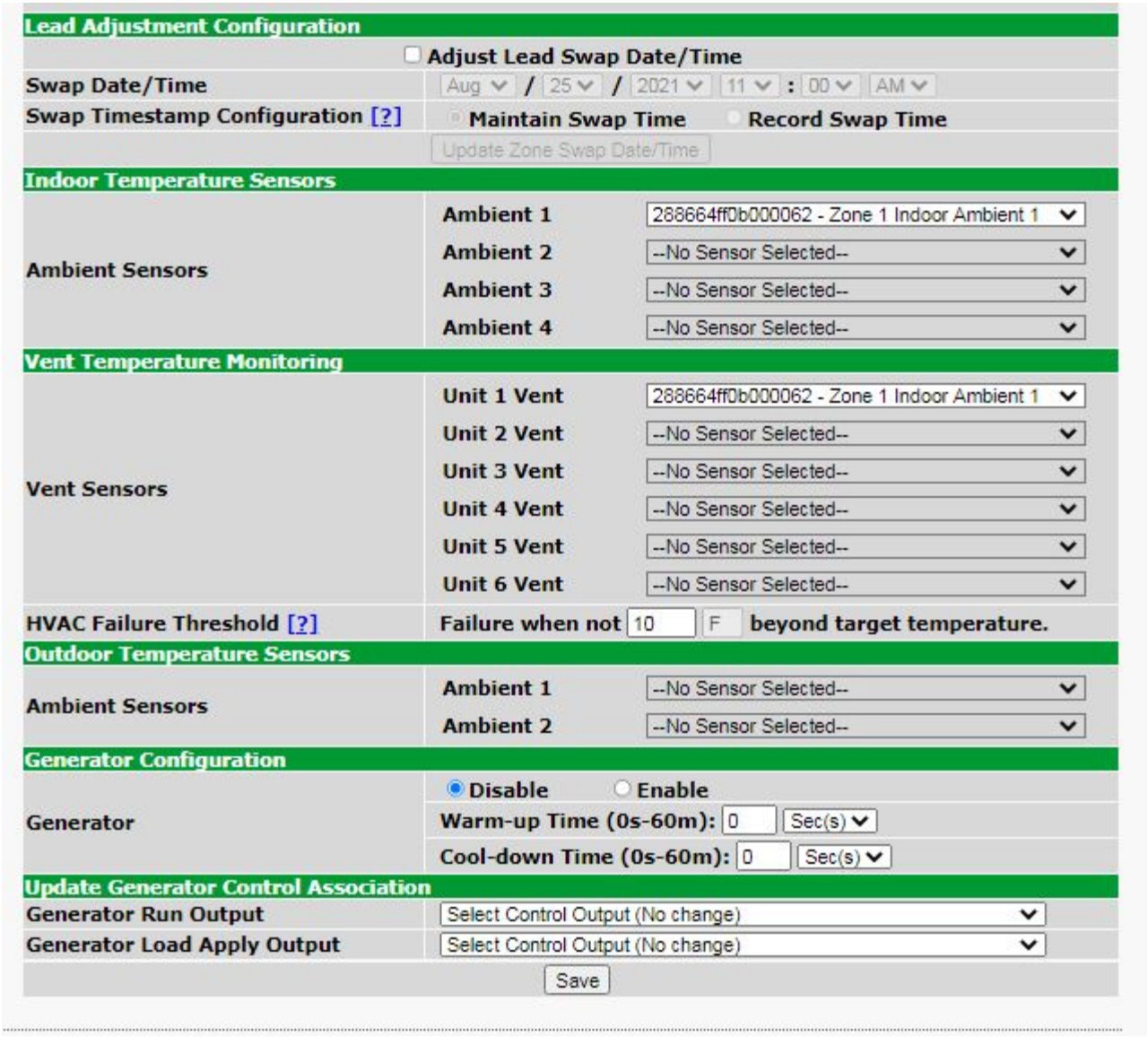
Provisioning > HVAC Controls

HVAC/Base Controls	
Num	ID number for the control relay.
Description	Description for the HVAC Controller's control relay.
Notification Devices	Check which notification device(s), 1 through 8, you want to send alarm notifications for the control relay.

6.14 HVAC Controller

See the Lead/Lag Behavior section for information on the HVAC's cooling and heating logic.

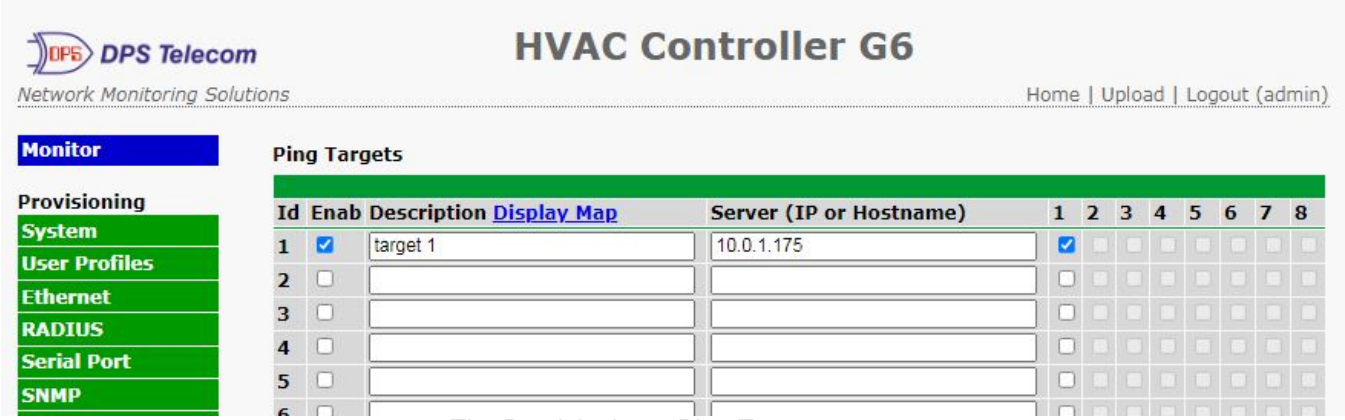



Lead Adjustment Configuration
Adjust Lead Swap Date/Time
Swap Date/Time
Aug / 25 / 2021 11 : 00 AM
Swap Timestamp Configuration [?]
Maintain Swap Time
Record Swap Time
Update Zone Swap Date/Time
Indoor Temperature Sensors
Ambient Sensors
Ambient 1
288664ff0b000062 - Zone 1 Indoor Ambient 1
Ambient 2
--No Sensor Selected--
Ambient 3
--No Sensor Selected--
Ambient 4
--No Sensor Selected--
Vent Temperature Monitoring
Vent Sensors
Unit 1 Vent
288664ff0b000062 - Zone 1 Indoor Ambient 1
Unit 2 Vent
--No Sensor Selected--
Unit 3 Vent
--No Sensor Selected--
Unit 4 Vent
--No Sensor Selected--
Unit 5 Vent
--No Sensor Selected--
Unit 6 Vent
--No Sensor Selected--
HVAC Failure Threshold [?]
Failure when not 10 F beyond target temperature.
Outdoor Temperature Sensors
Ambient Sensors
Ambient 1
--No Sensor Selected--
Ambient 2
--No Sensor Selected--
Generator Configuration
Generator
Disable
Enable
Warm-up Time (0s-60m): 0 Sec(s)
Cool-down Time (0s-60m): 0 Sec(s)
Update Generator Control Association
Generator Run Output
Select Control Output (No change)
Generator Load Apply Output
Select Control Output (No change)
Save

HVAC Zone	
HVAC Zone	Select which zone to configure.
Unit Association	Assign HVAC units to the selected zone. Units can be assigned to multiple zones. A zone with no assigned units will appear as "Not Configured" or "Suspended" in monitor interfaces.
Operational Limit	Restricts the number of HVACs that can be active under commercial or generator power.
Standard Mode Temperature Targets	
Standard Temp Controller (Cooling)	Set the temperature thresholds at which HVACs will begin and end cooling
Standard Temp Controller (Heating)	Set the temperature thresholds at which HVACs will begin and end heating
Comfort Mode	
Comfort Mode	Similar to Standard cooling, comfort mode is designed to hold ranges more comfortable for people when they are within the HVAC Zone.
Comfort Mode Duration	Time Comfort Mode will be active before switching to Standard Mode.
Lead Adjustment Configuration	
Adjust Lead Swap Date/Time	Select this to change the timestamp of last swap. Useful for testing purposes: by setting timestamp to 24 hours before the current timestamp, you can trigger the lead swap.
Swap Date/Time	Timestamp of the last HVAC lead swap.
Maintain Unit Swap Time	When updating lead unit, swap time will be updated by adding the previous lead unit's cycle time. This mode is better for scheduling lead cycles at a fixed time; this mode prevents an expected forward drift in swap date/time that accumulates when lead swap is delayed due to HVAC zone activity at time of swap.
Record Unit Swap Time	When updating lead unit, swap time is set to the current unit time.
Indoor Temperature Sensors	
Ambient Sensors	Sensors used to monitor temperature within the HVAC Zone.
Vent Temperature Monitoring	
Vent Sensors	Sensors used to monitor how effective the HVAC is at reaching target temperatures.
HVAC Failure Threshold	Triggers a failure alarm when the vent sensors are not within the threshold.
Outdoor Temperature	
External Sensors	Optional sensors to monitor temperatures outside of the HVAC Zone.
Generator Configuration	
Generator	Enable if your HVAC environment will rely on generator power, otherwise disable.
Warm-up Time	The length of buffer time between when the generator starts running and when the the generator is ready to handle the power load.
Cool-down Time	The length of buffer time between when the generator load apply is switched off and when the generator stops running.
Update Generator Control Association	
Generator Run Output	Assign the control you want to use to turn on and off the generator.
Generator Load Apply Output	Assign the control you want to use to turn on and off generator load apply.

6.15 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

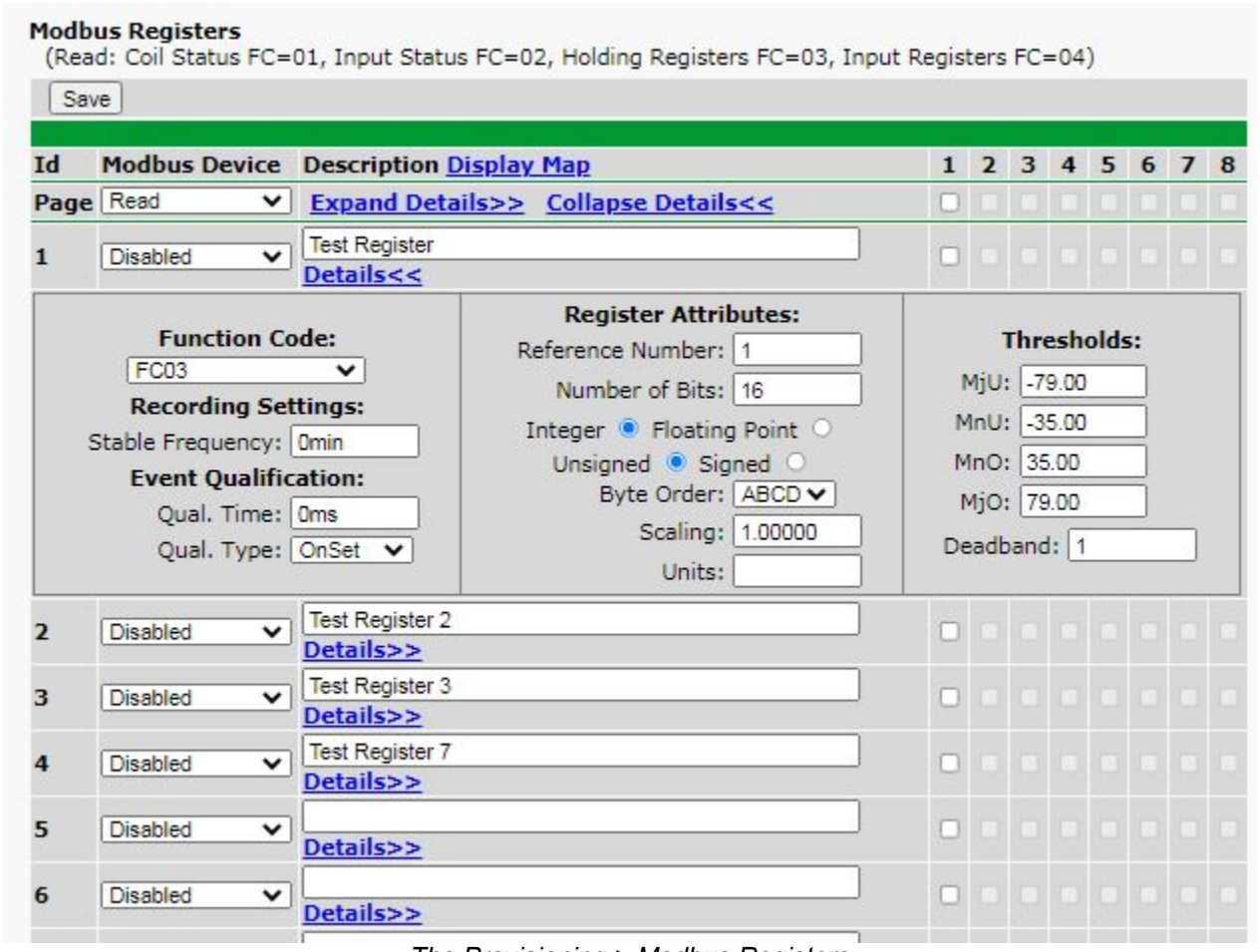
Provisioning Ping Targets	
ID	ID number for the ping target.
Enab	Check this box to enable the ping target.
Description	User-definable description for the ping target.
Server (IP or Hostname)	IP address or hostname of the device you would like to ping.
Notification Devices	Check which notification device(s),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

6.16 Modbus Devices

The Provisioning > Modbus Devices

Global Settings	
Modbus Poll Delay	Delay between Modbus polls in milliseconds.
Modbus Poll Timeout	Time duration before the Modbus repsonse time fails in seconds.
Send Notification of every register update	This option is used to send a notification whenever a Modbus register is polled. If the poll delay is too low this may cause some notifications to be lost.
Device Settings	
ID	Modbus device ID.
Device Type	Modbus device type.
Connection	TCP or Serial connection.
Host Name or IP	IP used for polling when using TCP Modbus. Unused otherwise.
TCP Port or Serial Port	TCP or physical serial port used when performing Modbus polling.
Modbus Address	Address of Modbus device.
Device Register Offset	Amount to offset "Modbus Address" by.
Threshold Mode	This will configure different threshold values based on Modbus register values. Threshold mode options: 1) "standard thresholds" - default threshold setting. Only one value of thresholds will be used 2) "Idle/Running Thresholds: Status Register" - device idle thresholds will be triggered based on the value of a status register. 3) "Idle/Running Thresholds: Point Reference" - device idle thresholds will be triggered based on the value of a point reference.

6.17 Modbus Registers



The Provisioning > Modbus Registers

Basic Configuration	
ID	Modbus register ID
Modbus Device	Modbus device settings used when polling.
Description	User-definable description for the Modbus register.
Notifications	Check which notification device(s), 1 through 8, you want to send alarm notifications for that Modbus register.
Details	
Function Code	
Modbus function code to use when polling device	
Event Qualification	
Qual. Time	Threshold must be crossed for this length of time before alarms is triggered. (set to 0 to deactivate)
Qual. Type	Determines which actions Qual Time applies to.
Recording Settings	
Stable Frequency	Frequency used when logging response history.
Register Attributes	
Register Number	Register to be polled.
Number of Bits	Number of bits used to mask the response value.
Integer/Float	Interpret response value as an integer for a float.
Unsigned/Signed	Interpret the response value as signed or unsigned.
Byte Order	Byte ordering of response from Modbus device.
Scaling	Scaling factor that the response value is multiplied by.
Units	Units displayed with the response value.
Thresholds	
MjU (Major Under) MnU (Minor Under) MnO (Minor Over) MjO (Major Over)	Threshold settings that, when crossed, will prompt the unit to set an alarm. Recorded values less than an under value or greater than an over value will cause alarms. NOTE: If the user has one of the Idle/Running threshold modes selected in Device settings then there will be two sets of thresholds displayed here. If Standard Thresholds is selected there will only be one.
Deadband	The additional qualifying value the G6 requires above/below your alarm thresholds in order to set an alarm.

6.18 System Alarms

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

System Alarms

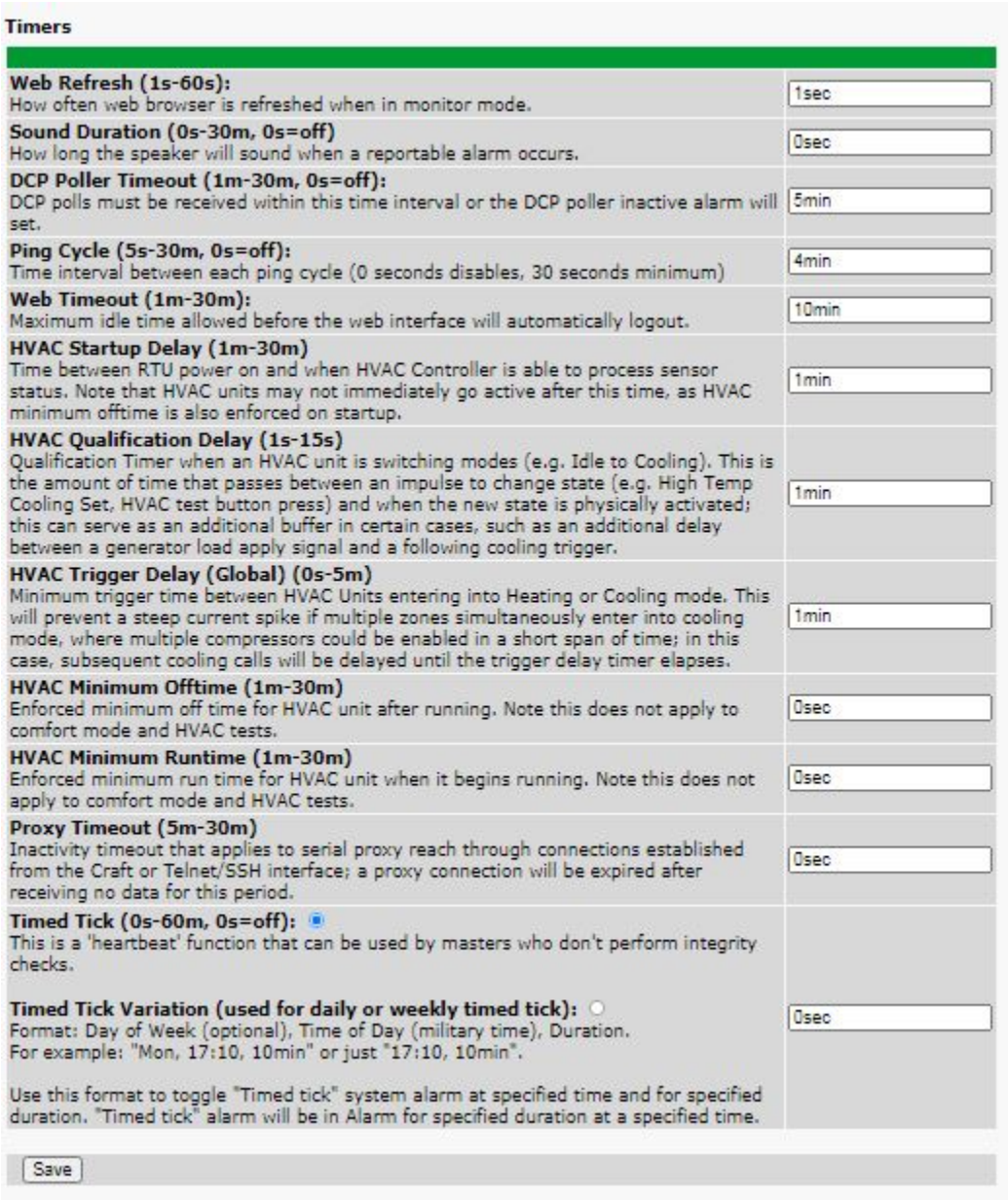
Pnt	Description Display Map	State
33	Unit reset	Clear
34	NTP failed	Clear
35	Timed tick	Clear
36	Serial RcvQ full	Clear
37	Dynamic memory full	Clear
38	Notification 1 failed	Clear
39	Notification 2 failed	Clear
40	Notification 3 failed	Clear
41	Notification 4 failed	Clear
42	Notification 5 failed	Clear
43	Notification 6 failed	Clear
44	Notification 7 failed	Clear
45	Notification 8 failed	Clear
46	HVAC Zone 1 Total Failure	Clear
47	HVAC Zone 2 Total Failure	Clear
48	HVAC Zone 3 Total Failure	Clear
49	HVAC Zone 4 Total Failure	Clear
51	Expansion 1 failed	Clear
54	DCP poller inactive	Alarm
57	Default configuration	Clear
58	Dipswitch Configuration	Clear
59	MAC address not set	Clear
60	IP address not set	Clear
61	LAN hardware error	Clear
62	SNMP processing error	Clear
63	SNMP community error	Clear
64	LAN TX packet drop	Clear

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.

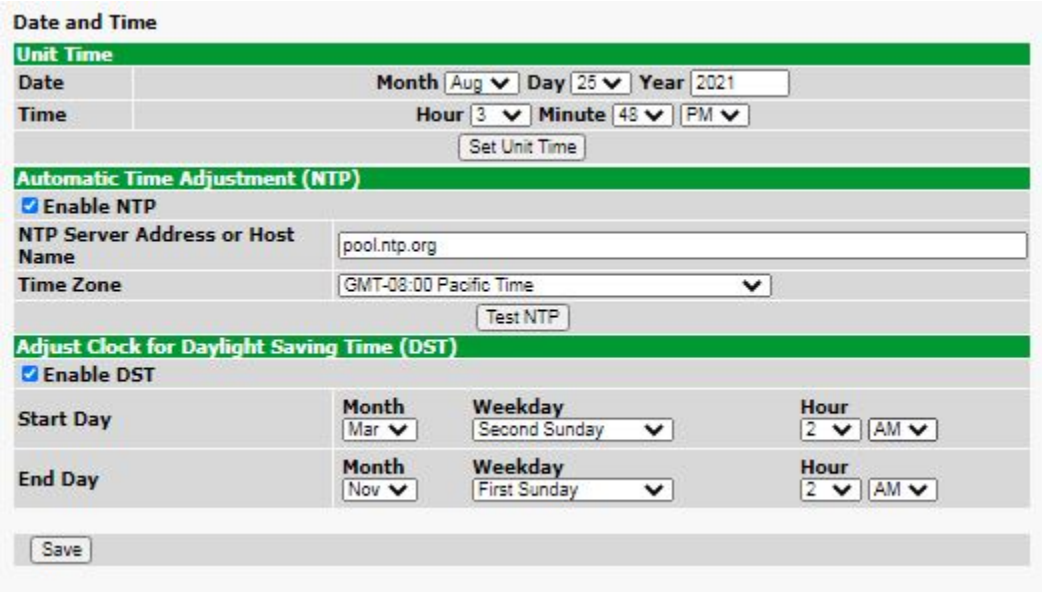
6.19 Timers

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



The Provisioning > Timers menu

6.20 Date and Time



The Provisioning > Date and Time menu

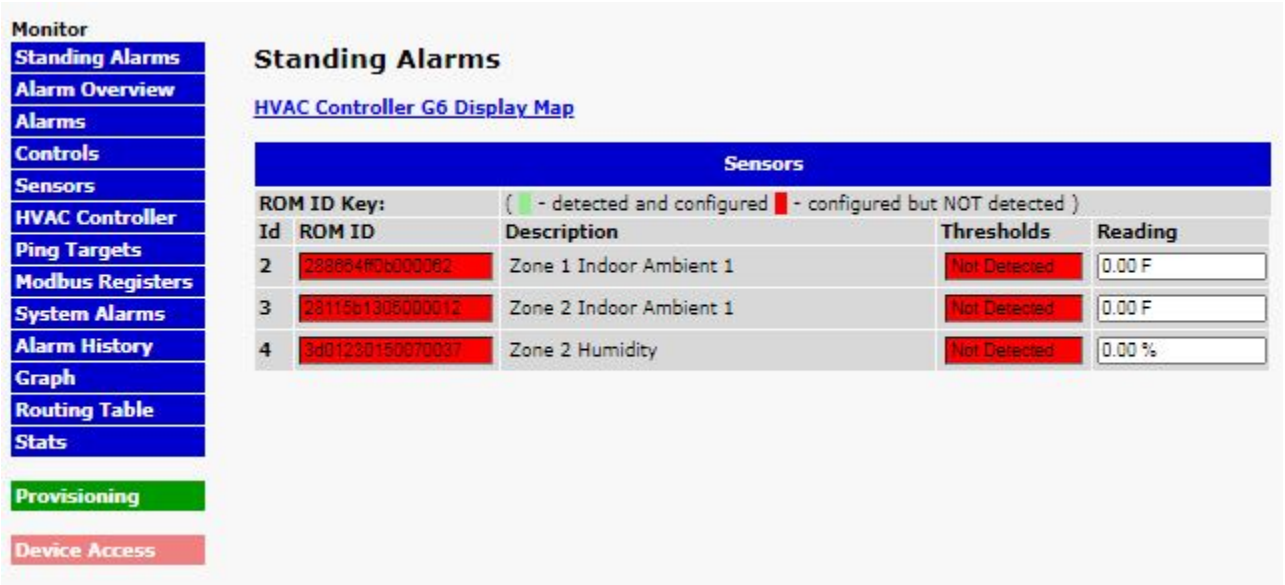
Unit Time	
Date	Set today's date.
Time	Set the current time.
Automatic Time Adjustment (NTP)	
Enable NTP	Check this box to enable Network Time Protocol.
NTP Server Address or Host Name	Enter the NTP server's IP address or host name, then click **Sync**. Example: us.pool.ntp.org. **Note**: Make sure to 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 Saving Time (DST)	
Enable DST	Check this box to have the NetGuardian observe Daylight Saving.
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.

7 Monitoring via the Web Browser

Monitoring mode provides an interactive look at the status of the HVAC Controller. Click on the blue **Monitor** button on the left to expand the Monitoring list.

7.1 Standing Alarms

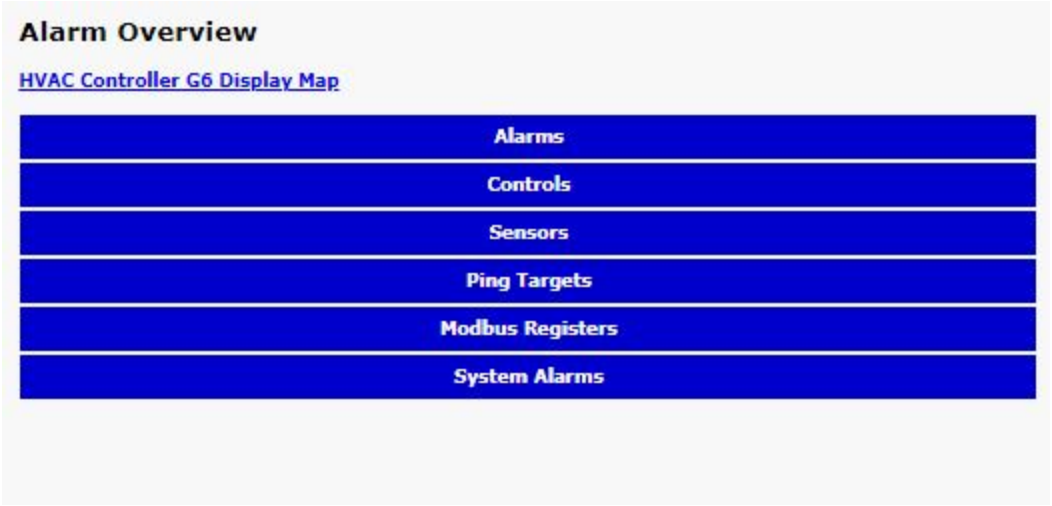
This selection provides an top-level summary of the unit and any detected problems. It's an excellent place to start when accessing the web interface to monitor your systems.



Click "Standing Alarms" to view a summary of active alarms and important analog values.

7.2 Alarm Overview

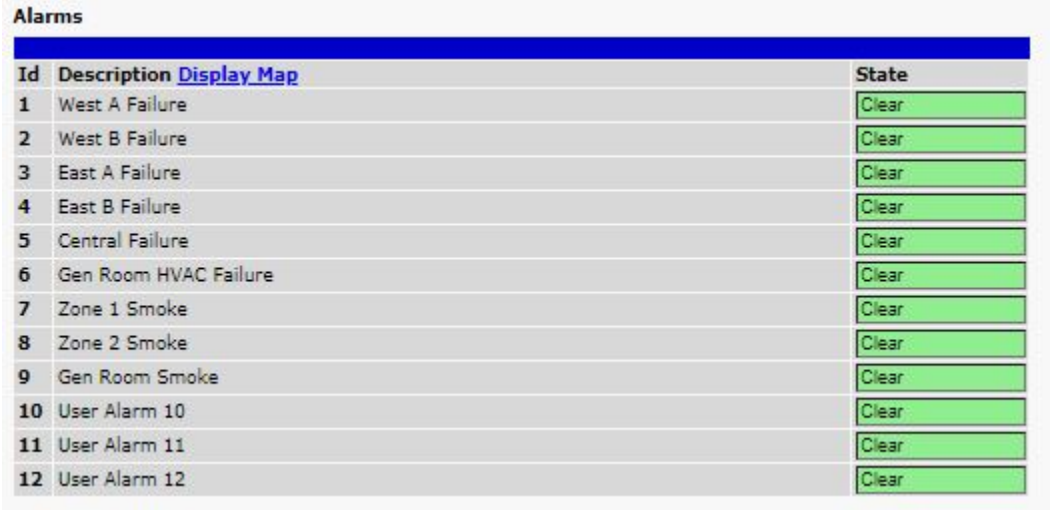
This screen provides an expanding/contracting "accordion-style" view of your alarms, controls, sensors, and more. This is handy when you want to see multiple items at once, such as the immediate effect of alarm states on your automatic Derived Control outputs.



Click "Alarm Overview" to access this list of alarms, controls, and other status information. More information is available here in one glance than in the more detailed sections of the left-pane menu.

7.3 Alarms

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



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

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

7.4 Controls

Use the following rules to operate the G6's control:
1. Select **Controls** (or **Exp. Controls**) from the **Monitor** menu.
2. Under the **State** field, you can see the current condition of the control.
3. To issue the control, click on a command (**OPR** - operate, **RLS** - release, or **MOM** - momentary)

Controls

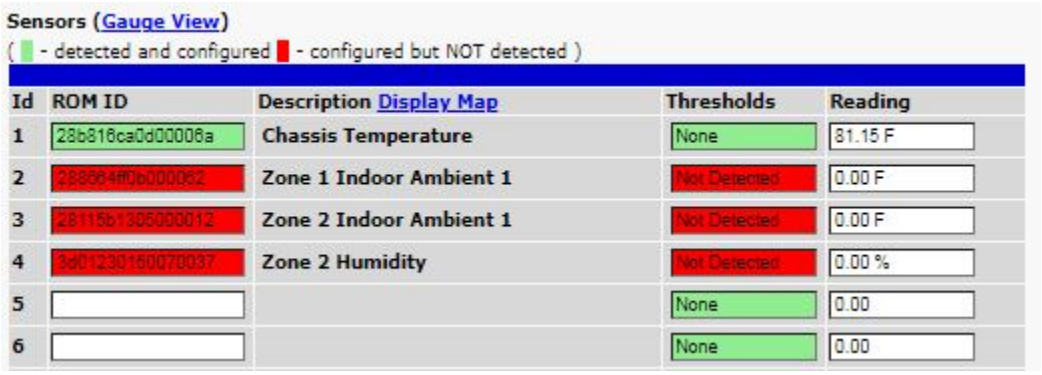
Id	Description Display Map	State	Command
	HVAC Unit Outputs		
1	HVAC 1 Compressor	Released	OPR RLS MOM
2	HVAC 1 Blower	Released	OPR RLS MOM
3	HVAC 1 Heater	Released	OPR RLS MOM
4	HVAC 2 Compressor	Released	OPR RLS MOM
5	HVAC 2 Blower	Released	OPR RLS MOM
6	HVAC 2 Heater	Released	OPR RLS MOM
7	HVAC 3 Compressor	Released	OPR RLS MOM
8	HVAC 3 Blower	Released	OPR RLS MOM
9	HVAC 3 Heater	Released	OPR RLS MOM
10	HVAC 4 Compressor	Released	OPR RLS MOM
11	HVAC 4 Blower	Released	OPR RLS MOM
12	HVAC 4 Heater	Released	OPR RLS MOM
	User Controls		
13	User Control 1	Released	OPR RLS MOM
14	User Control 2	Released	OPR RLS MOM
15	User Control 3	Released	OPR RLS MOM
16	User Control 4	Released	OPR RLS MOM
17	User Control 5	Released	OPR RLS MOM
18	User Control 6	Released	OPR RLS MOM
19	User Control 7	Released	OPR RLS MOM
20	User Control 8	Released	OPR RLS MOM
21	User Control 9	Released	OPR RLS MOM
22	User Control 10	Released	OPR RLS MOM
23	User Control 11	Released	OPR RLS MOM
24	User Control 12	Released	OPR RLS MOM
	Expansion HVAC Unit Outputs		
25	HVAC 5 Compressor	Released	OPR RLS MOM
26	HVAC 5 Blower	Released	OPR RLS MOM
27	HVAC 5 Heater	Released	OPR RLS MOM
28	HVAC 6 Compressor	Released	OPR RLS MOM
29	HVAC 6 Blower	Released	OPR RLS MOM
30	HVAC 6 Heater	Released	OPR RLS MOM
	Reserved (User Derived Alarms)		
31	Reserved	Released	OPR RLS MOM

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

Expansion Control Relay Operation	
ID	ID number for the control relay.
Description	Description for the unit'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.

7.5 Sensors

This selection provides the status of the system's sensors by indicating if an alarm has been triggered. The **Monitor** > **Sensors** screen provides a description of each sensor, 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 sensor values will be displayed as a graphical gauge. Selecting **Table View** will display a non-graphical interface of your values.

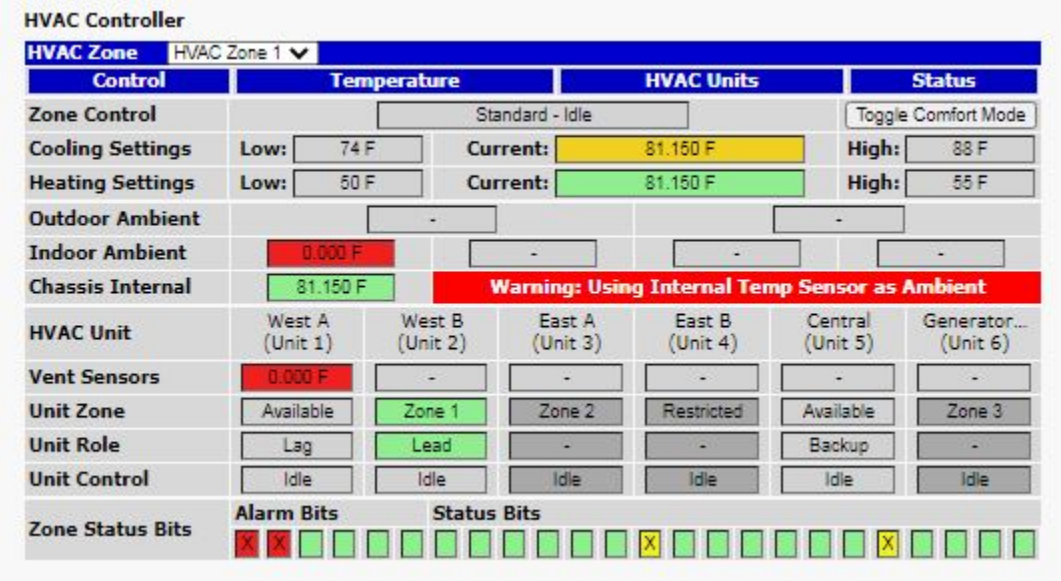


The Monitor > Sensors menu

7.6 HVAC Controller

The **HVAC Controller** in the Monitoring menu gives you a quick overview of the status of your HVAC Controller. The Control, Temperature, HVAC Units, and Status views can be toggled between show or hide.

In the event that your HVAC Controller is unable to read the temperature sensors, a warning message "Using Internal Temp Sensor as Ambient" will appear.

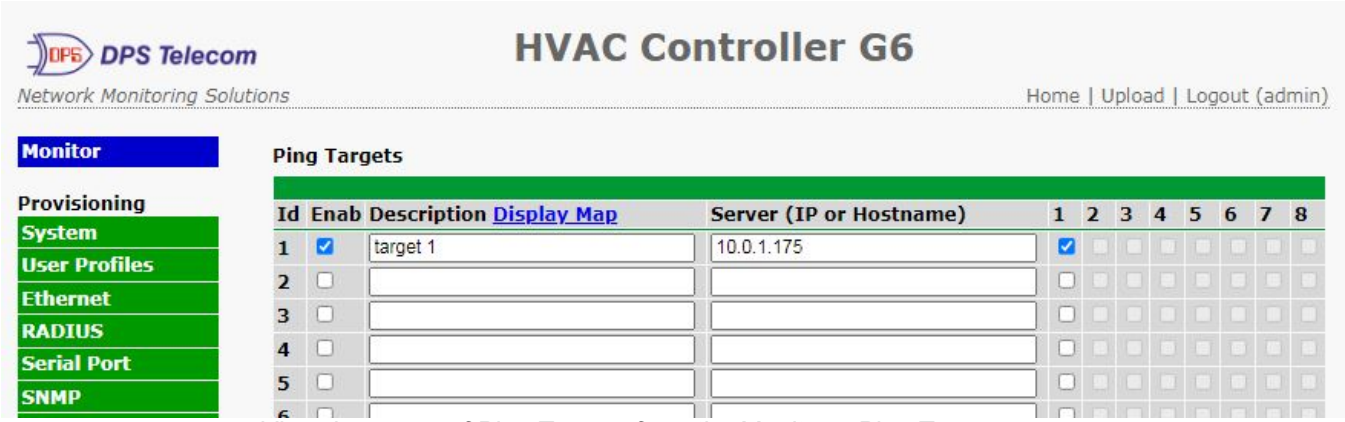


The Monitor > HVAC Controller menu

Note: Zone Status Bits will reveal context information when you mouse over them!

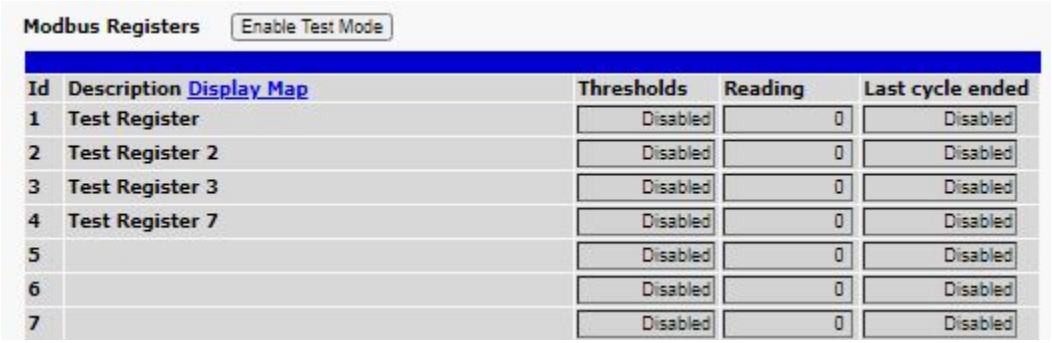
7.7 Ping Targets

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.



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

7.8 Modbus Registers



Modbus Registers | Enable Test Mode

Id	Description Display Map	Thresholds	Reading	Last cycle ended
1	Test Register	Disabled	0	Disabled
2	Test Register 2	Disabled	0	Disabled
3	Test Register 3	Disabled	0	Disabled
4	Test Register 7	Disabled	0	Disabled
5		Disabled	0	Disabled
6		Disabled	0	Disabled
7		Disabled	0	Disabled

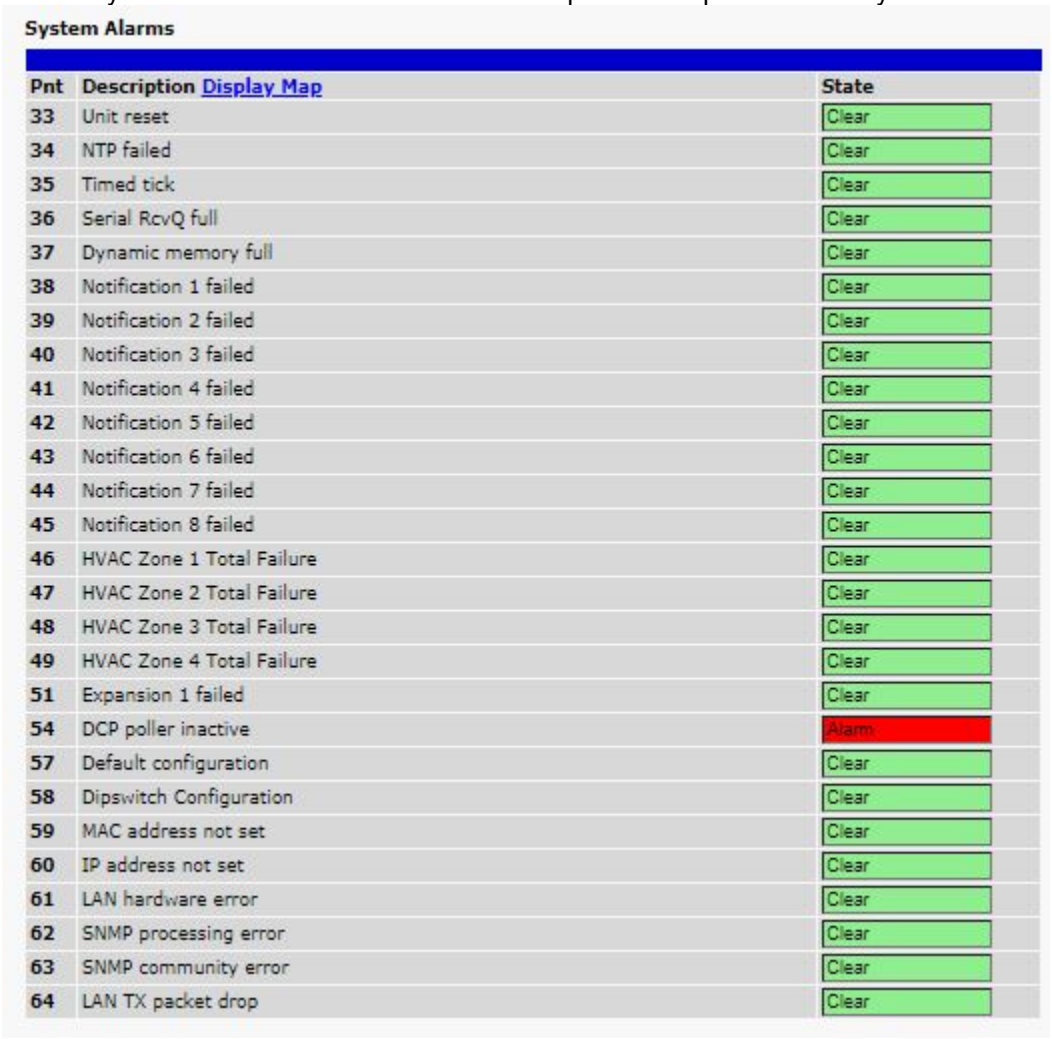
Monitor > Modbus Registers

This selection provides the status of the Modbus registers being polled by the unit. The Monitor > Modbus Registers screen provides a description of each Modbus register, the current response value along with the units, and alarm conditions (major under, minor under, minor over, major over) according to your settings.

7.9 System Alarms

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

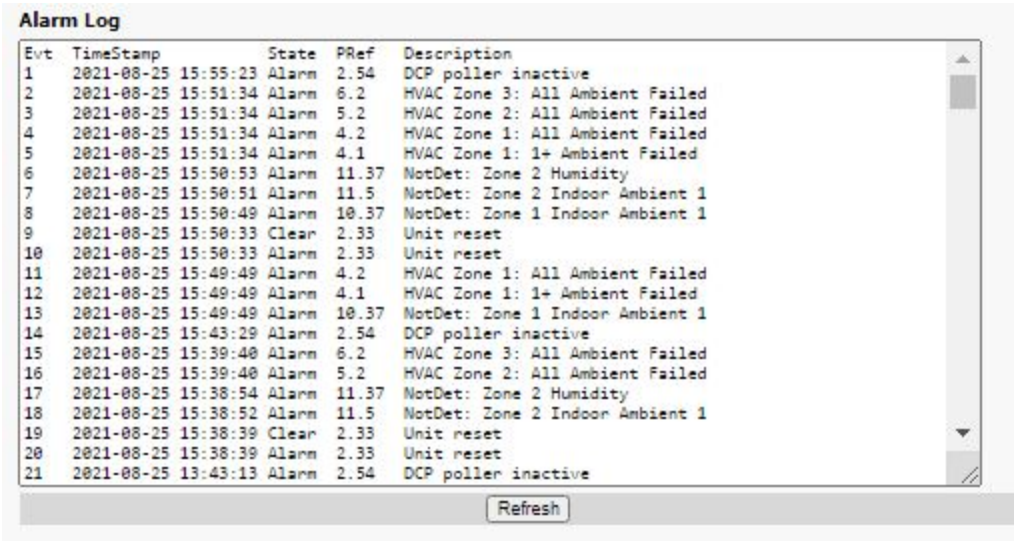
See "Reference" > "System Alarms" in this manual for a complete description of each system alarm.



System Alarms

Pnt	Description Display Map	State
33	Unit reset	Clear
34	NTP failed	Clear
35	Timed tick	Clear
36	Serial RcvQ full	Clear
37	Dynamic memory full	Clear
38	Notification 1 failed	Clear
39	Notification 2 failed	Clear
40	Notification 3 failed	Clear
41	Notification 4 failed	Clear
42	Notification 5 failed	Clear
43	Notification 6 failed	Clear
44	Notification 7 failed	Clear
45	Notification 8 failed	Clear
46	HVAC Zone 1 Total Failure	Clear
47	HVAC Zone 2 Total Failure	Clear
48	HVAC Zone 3 Total Failure	Clear
49	HVAC Zone 4 Total Failure	Clear
51	Expansion 1 failed	Clear
54	DCP poller inactive	Alarm
57	Default configuration	Clear
58	Dipswitch Configuration	Clear
59	MAC address not set	Clear
60	IP address not set	Clear
61	LAN hardware error	Clear
62	SNMP processing error	Clear
63	SNMP community error	Clear
64	LAN TX packet drop	Clear

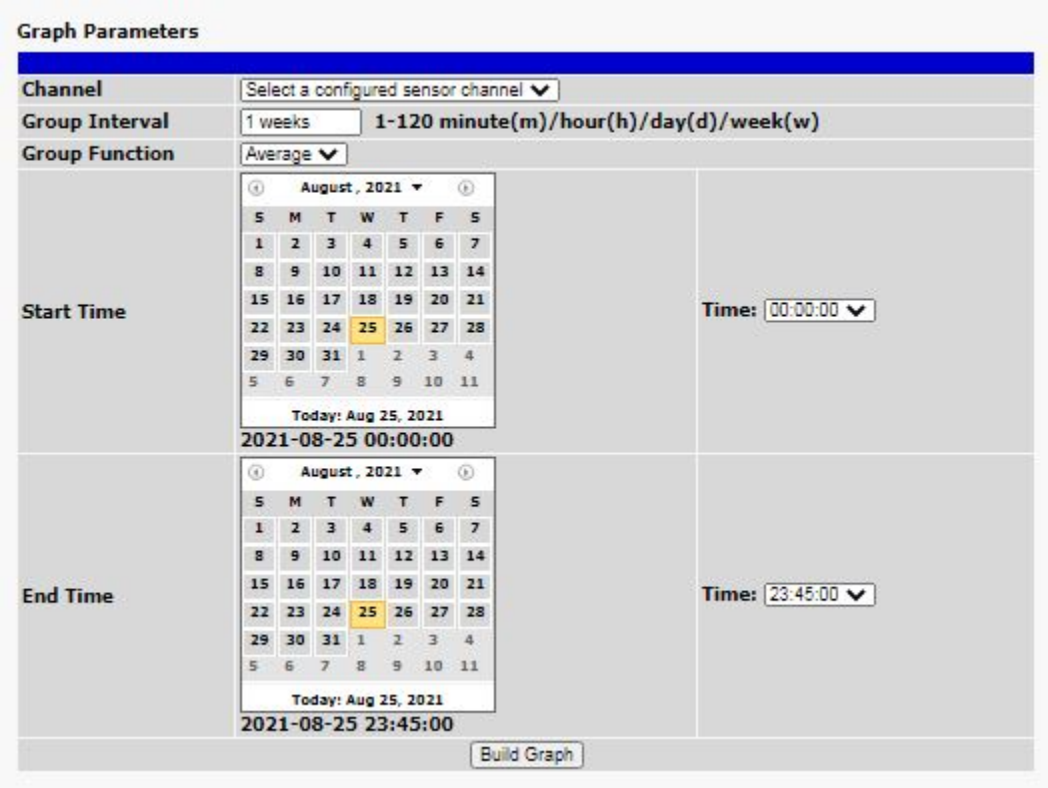
View the status of System Alarms from the Monitor > System Alarms menu.



Monitor > Alarm History menu

7.10 Graph

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



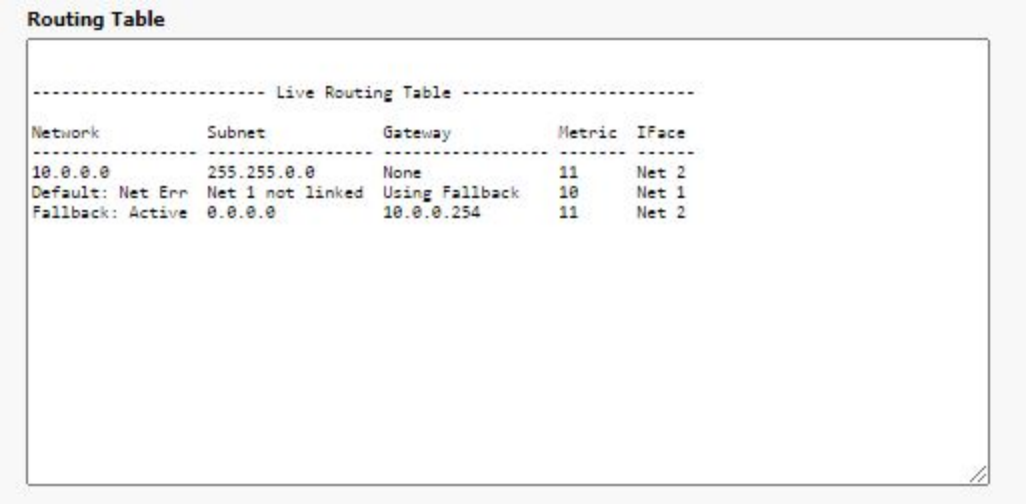
Provision the Channels, Group Interval, Group Function and more - all from the Graph Parameters section of the web browser interface.

Your graph will appear on the next screen. This graph is dynamic 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.

7.11 Routing Table

Monitor > Routing Table

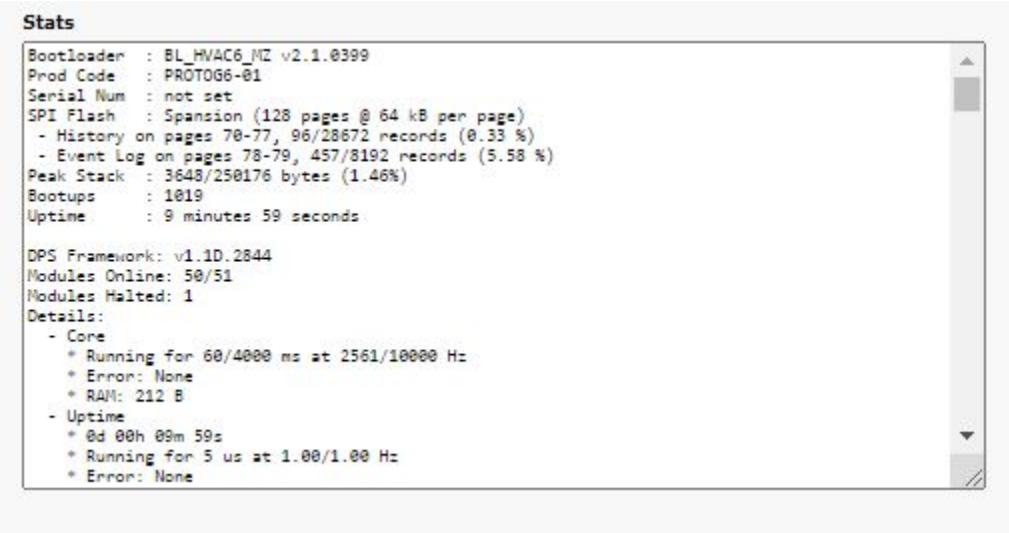
The routing table shows which route the G6 is connected to based on the ethernet settings, static routes, and user metrics assigned within the Provisioning > Ethernet menu.



View the G6's routing table from the Monitor > Routing Table menu.

7.12 Stats

View detailed hardware information about your HVAC unit.



Monitor > Stats menu.

8 LCD Touchscreen

The HVAC G6 Controller comes equipped with a new LCD touchscreen as a means of testing and provisioning your unit without the need for the Web Interface. This section includes procedures for testing your HVAC controller via the touchscreen.

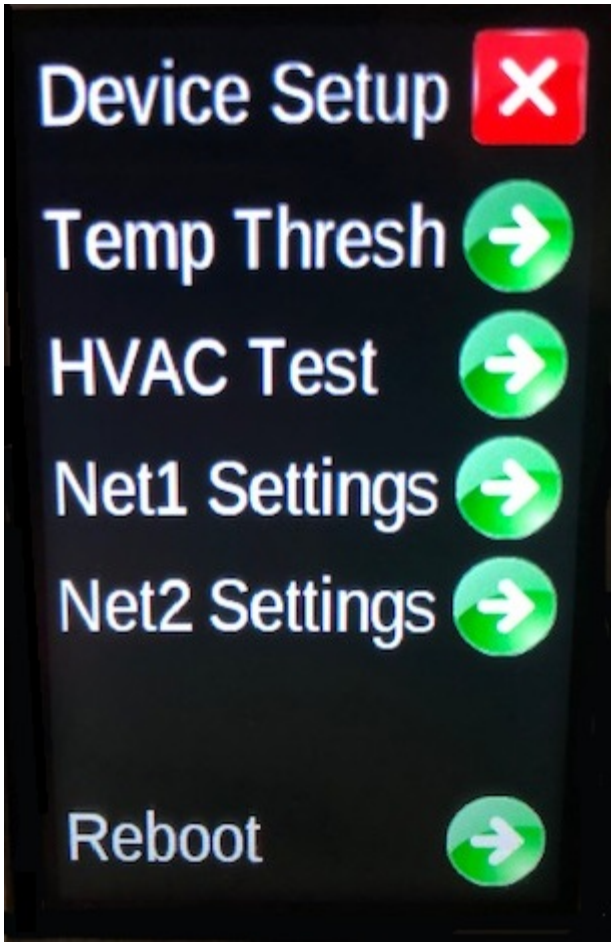
Note: A stylus or the top of a pen work well with the touchscreen.

8.1 Testing with LCD

The unit tests can be done using the touchscreen.

1. Power up the unit.
2. After start up, the Operating menu should appear, click on the blue gear in the top right corner.
3. Click on **Device Setup.**
4. Enter the pin (Default: 123456; The PIN can be set in the "Provisioning > System" section of the web interface)

On the Device Setup Screen, you will be able to configure Temp Thresholds, run HVAC Tests, configure Network Settings, and Reboot the unit.



8.2 Test Temperature Sensor(s)

There is one sensor included with the unit.
The menu supports up to 4 sensors.

To Test the temp sensor:
1. On the touchscreen, click on the blue gear in the top right. Select **Zones**, then **Sensors**.
2. By default, the first temperature sensor is configured and should be found under **Ambient**. Verify that there is a reading and it is close to room temperature.

Note: If you have more than one sensor, then they will need to be configured. See Provisioning: Program D-Wire Sensors.

8.3 HVAC 1-6 Test

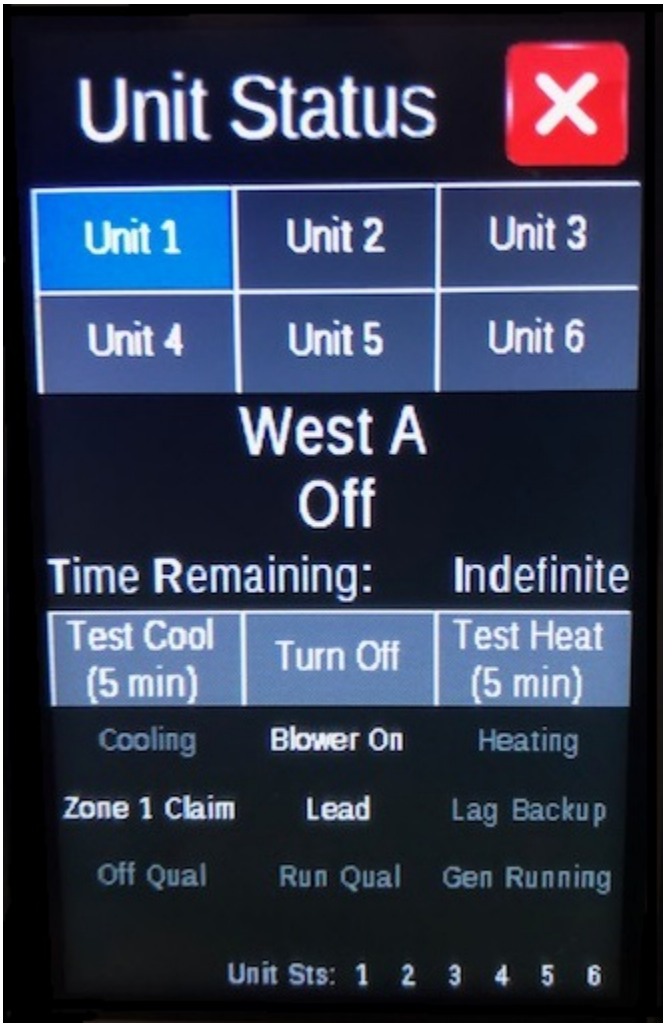
To verify that each HVAC Unit can run Cool and Heat, use this test procedure.

1. On the touchscreen, navigate to the Device Setup Menu (see Testing with LCD).
2. Select **HVAC Test**.
3. Select **Unit 1** and Click **Test Cool (5 min)** to begin the Cool test.

Verify that the HVAC is blowing cool. The unit's status should be in blue at the bottom of the screen.

4. Once the **Cool** test is complete, begin the **Heat** test.
5. Verify the HVAC is blowing heat, the unit's status should now be in red.

Once the **Heat** test is complete, the Unit 1 Test will be complete. Repeat as needed for each additional HVAC unit.



8.4 IP Configuration

For convenience during install and maintenance, the IP address may be set from the touchscreen. As a reference for setting these fields, refer to "Provisioning" > "Ethernet".

8.5 Temperature Range Settings

For convenience during install and maintenance, the cooling/heating temperature settings may be set from the touchscreen. As a reference for setting these fields, refer to "Provisioning" > "HVAC Controller".

9 Reference Section

9.1 Lead/Lag Behavior

Any time that the temperature reaches 88 degrees F or warmer, the Lead HVAC will activate.

After the Lead HVAC runs for a minimum of 5 minutes, the system will evaluate whether it should activate a Lag HVAC or shut down all HVACs:

-If the temperature is 88 degrees F or warmer, the first Lag HVAC will activate. This starts a new minimum run-time of 5 minutes before either

A) The temperature reaches below 74 degrees and the HVACs can shutdown.

B) The temperature is still above 74 degrees and an additional LAG HVAC will activate if available.

Additional external temperature sensors (if available) will alter the Lead/Lag behavior to increase efficiency. Disregard if only one temperature sensor is used:

-A cooling cycle will begin (Lead HVAC activates) if **ANY** sensor is 88 degrees F or warmer. This ensures prompt cooling when a heat spike is detected anywhere in the facility.

-A Lag HVAC will activate (after any 5-minute delay has ended) if the AVERAGE of all sensors is 88 degrees F or warmer. This prevents wasteful Lag activations if the running HVAC(s) are generally keeping up with the facility's heat load.

-A cooling cycle will end (all HVACs shut down) if **ALL** sensors are 74 degrees F or colder. This ensures complete cooling in all areas of the facility, limiting HVAC activation cycles over time.

Note: These temperature target thresholds can be adjusted as needed under Provisioning > HVAC Controller or on the touchscreen under Device Setup.

10 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.

11 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.

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