Integration Note

Manufacturer:	HAI
Model Number(s):	**OMNISTAT 2 (RC-1000 and RC-2000) WIRED MODELS ONLY**
Minimum Core Module Version:	
Comments:	Firmware V. 1.03 Tested
Document Revision Date:	4/18/2013

OVERVIEW AND SUPPORTED FEATURES

This Integration Note describes the integration of HAI thermostats by connecting them directly to the g! system, instead of wiring them into HAI Security panel.

Refer to *HAI Security Integration Notes* for details on integrating HAI thermostats when they are wired into the Omni panel.

Supported models: Omnistat2 **WIRED Thermostats ONLY**.
Models that support Zigbee or other wireless formats are not compatible!

THE HAI OMNISTAT2 COMMUNICATING THERMOSTATS SUPPORT THE FOLLOWING FEATURES:

Temperature Control: Temperature control can be managed by schedules tied to house modes or by manual control based on time (Timed Temporary Hold, Temporary Hold and Permanent Hold).

Mode Control: The climate system can be set to run in the following heating and cooling modes: **Heat** only, **Cool** only, **Auto Heat/Cool** or **Off**. In addition, systems that have a fan can be set to run in **Automatic** mode or **Continuous** mode.

History View: The history view shows the inside temperature, outside temperature, unit run and fan run times, and cooling and heating setpoints.

Schedule Control: Up to three schedules can be set using the Viewer software. The schedules are tied to the house mode.

Auto Thermostat Detection: The **g!** system will automatically detect all the thermostats connected to system, along with each thermostat's ID (number).

Celsius and Fahrenheit: HAI Thermostats support displaying Temperatures in C or F both at the stat and in the **g!** system.

Remote Sensors that replace the internal sensor: HAI Thermostats may be capable of having a remote temperature sensor configured to replace the on-board room temperature thermistor. In this configuration ONLY remote sensors are supported.

THE FOLLOWING FEATURES ARE UNSUPPORTED:

Humidity Control: Humidifier/Dehumidifier control with RC-2000 thermostats is not currently supported.

Humidity Display: Humidity readings from the RC-2000 thermostat cannot be displayed in the viewer.

External Sensors: Additional Temperature sensor inputs are not supported at this time.

Decimal Temperature Control: g! Core module 5.5 added support for decimal/fractional temperature display. The HAI Thermostats are not compatible with control using fractional numbers.

Any feature not specifically noted as "supported" is not supported.

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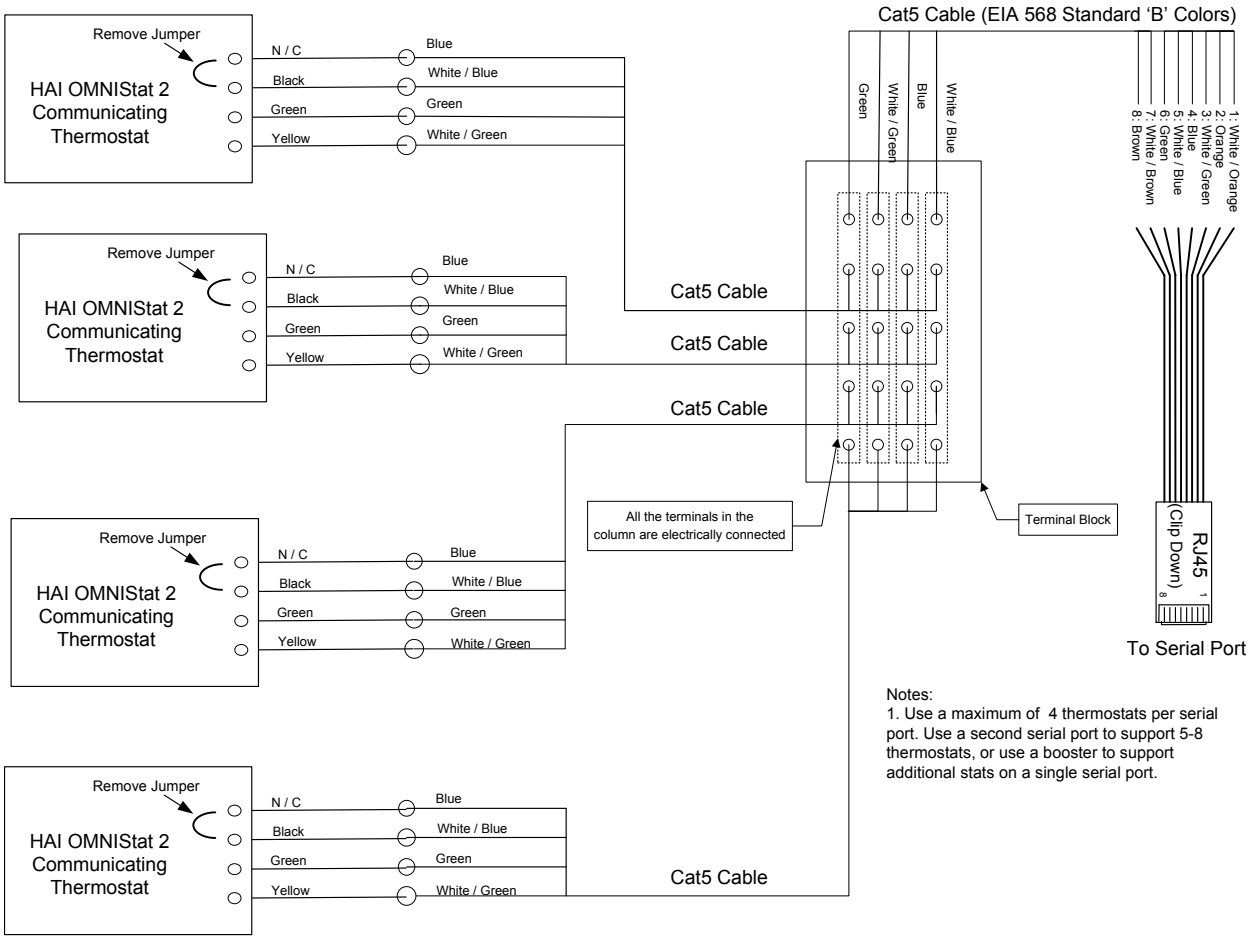
INSTALLATION OVERVIEW

1. Install the HAI RS-232 thermostat communication network and control cables during the rough-in phase. Consult the HVAC unit manual for control cabling requirements.
2. Each serial port can support up to 4 thermostats without a booster. Installation of the booster will allow up to 127 thermostats per serial port.
3. Mount the punch down block and terminate the wires, as per the diagram provided. Make sure that the serial port cable is not plugged in prior to wiring.
4. Run a Cat5 wire from the punch down block back to the Network Assembly of the **g!** system.
5. Mount and connect the thermostats bases electrically using the diagrams provided.
6. **Recheck the wiring on both at the thermostat and the punch down block.**
7. Install and power up the thermostats one at a time. Setup the thermostats as outlined in the thermostat setup section, noting the thermostat ID number for each zone.
8. Test the thermostat and climate system to ensure that the thermostats correctly turn on the appropriate heating or cooling equipment, and open or close the appropriate valves / dampers.
9. Connect the **g!** system to the HAI thermostats electrically. See the wiring diagrams for more information.
10. Configure the **g!** system for the thermostats and confirm communication between the thermostats and the **g!** system controller. Use the auto detect (Discover Devices) feature to find the thermostats on the network.
11. Test the system by changing the set points, modes and schedules on the viewer and various thermostats, confirming that the various components in the system are in communicating with each other.

CONNECTION DIAGRAMS

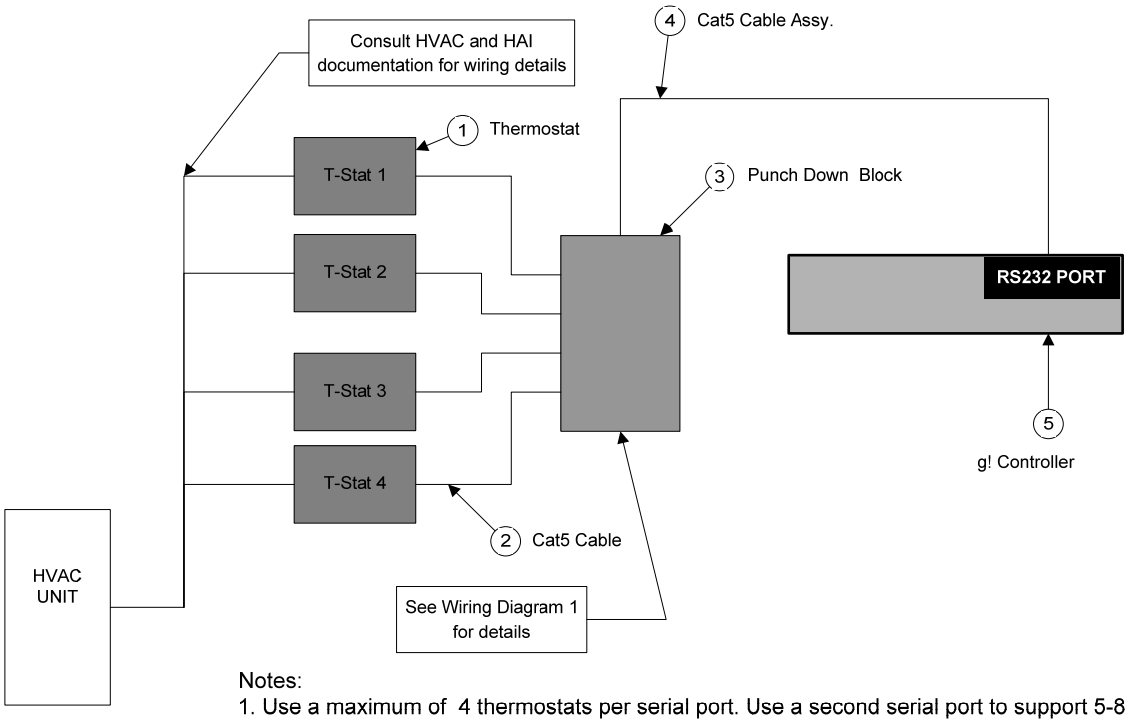
WIRING DIAGRAM 1

Wire the HAI OMNIStats for external control:



Notes:
1. Use a maximum of 4 thermostats per serial port. Use a second serial port to support 5-8 thermostats, or use a booster to support additional stats on a single serial port.

OPTION 1: CONNECT UP TO FOUR THERMOSTATS TO THE g! CONTROLLER

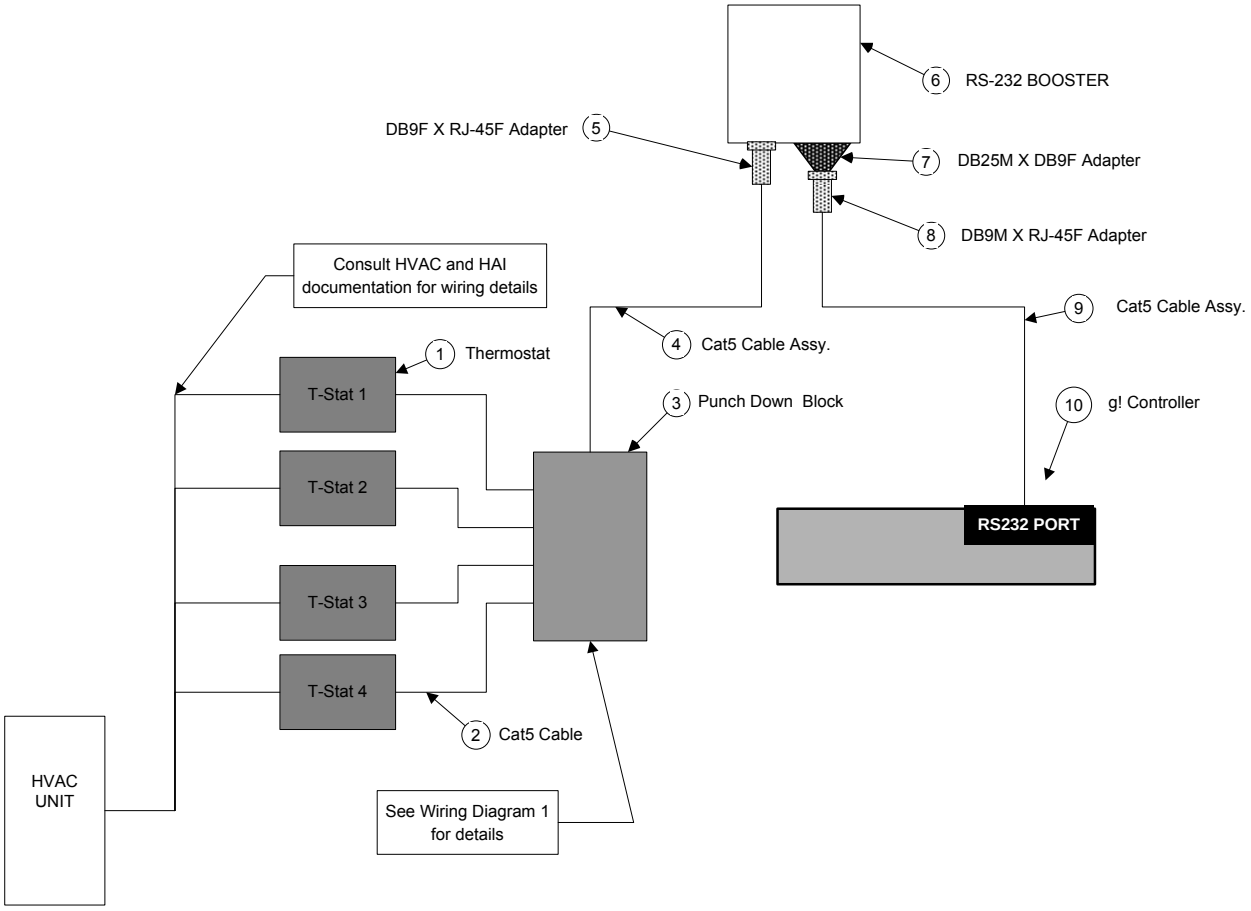


Notes:
1. Use a maximum of 4 thermostats per serial port. Use a second serial port to support 5-8 thermostats
2. Use of the RC-232 Booster will allow a maximum of 127 thermostats on one network (per HAI)

BILL OF MATERIALS

#	Device	Manufacturer	Part Number	Protocol	Connector Type	Notes
1	Thermostat	HAI	RC-1000/RC-2000	RS-232	None	
2	Cat5 Cable	Installer	N/A	RS-232	None	
3	Punch Down Block	ETCO	DD3C	RS-232	Insulation Displacement	
	or					
	Punch Down Block	Leviton	40066-M25	RS-232	Insulation Displacement	
4	Cat5 Cable Assy.	Installer	N/A	RS-232	RJ-45 Male X Wire	
5	g! Controller	Elan	Various (ex. HC-12)	RS-232	RJ-45 Female	Use COM 1, 2, 3, etc.

OPTION 2: CONNECT MORE THAN FOUR THERMOSTATS WITH THE BOOSTER



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3	Punch Down Block	ETCO	DD3C	RS-232	Insulation Displacement	
	or					
	Punch Down Block	Leviton	40066-M25	RS-232	Insulation Displacement	
4	Cat5 Cable Assy.	Installer	N/A	RS-232	RJ-45 Male X Wire	
5	DB9F to RJ45 Adapter	HomeLogic	HA-CB-308	RS-232	DB-9 Female X RJ-45 Female	
6	RS-232 BOOSTER	HAI	RC-202	RS-232	DB-25 Female X DB-9 Male	
7	DB25M X DB9F Adapter	Belkin	F2L088	RS-232	DB-25 Male X DB-9 Female	
8	DB9M to RJ45 Adapter	HomeLogic	HA-CB-307	RS-232	DB-9 Male X RJ-45 Female	
9	Cat5 Cable	Installer	N/A	RS-232	RJ-45 Male X RJ-45 Male	Must terminate all 8 conductors
10	g! Controller	Elan	Various (ex. HC-12)	RS-232	RJ-45 Female	Use COM 1, 2, 3, etc.

THERMOSTAT SETUP

Once the thermostats are powered up and running properly, you need to make a few changes to the thermostat to integrate with the **g!** system.

STANDARD THERMOSTAT SETUP

The changes outlined below in **Table 1** assume that you are starting with a factory default thermostat. These changes will then put the thermostat into a standard g! setup.

Step	Instructions	Comments
1	Remove the stat from the base then remove the Comm Jumper J8 if present.	On newer hardware versions of the stat there is a jumper on the back of the stat that needs to be removed in order to communicate with g!.
2	Re install stat on the base and press the Dial to enter the Main Menu	
3	Use the Dial to select and enter SETUP	Firmware version will appear at bottom of SETUP
3	Use the Dial to enter INSTALLATION SETTINGS	Press Continue on the warning message
4	Enter Thermostat Address	Each thermostat must be assigned a unique address
5	Press OK to accept changes	Returns you to INSTALLATION SETTINGS
6	Enter Communications Mode	Use the Dial to alter fields and Next to move between
7	Set Communications to Serial and System Baud to 300.	Expansion baud does not impact integration and can be set as needed or ignored.
8	Press OK to accept changes	Returns you to INSTALLATION SETTINGS
9	Enter Program Settings	
10	Set Program Mode to NONE	This will disable internal schedules
11	Press OK to accept changes	You may now BACK out of setup mode.

Table 1: Steps to setup a factory default OMNISTAT 2 with standard g! settings.

All other settings pertain to the stat itself or your HVAC system and may be set as desired.

FIRMWARE AND HARDWARE VERSION INFORMATION

g! requires each TStat to be using appropriate firmware. Please check and ensure your OMNISTAT 2 is using firmware version 1.03. Check your firmware by entering the SETUP menu as detailed in Step 2 above. If your version is not version 1.03, or no firmware appears listed in this area, contact HAI for assistance.

This firmware update is particularly important if you are running the OmniStat 2 in Celsius, as earlier firmware contained a bug which causes odd readings and bad behavior. Please update to 1.03 by contacting HAI if you are running in Celsius.

In newer hardware versions of the OmniStat2 have added a Comm Jumper J8 to the back of the stat. This jumper will need to be removed to communicate properly with g!.

g! CONFIGURATION DETAILS

The following table provides settings used in the g! Configurator when connecting to an HAI thermostat network. Please refer to the Configurator Reference Guide for more details.

In the table below:

- o "<Select>" Select the appropriate item from the list (or drop-down) in the Configurator.
- o "<User Defined>", etc. Type in the desired name for the item.
- o "<Auto Detect>", etc. The system will auto detect this variable.

Devices	Variable Name	Setting	Comments
Communication Devices	**Name**	<Auto Detect>	
	Type	**Serial Port**	
	Communication Type	**HAI Stand-Alone Thermostat Network**	
	Location	<User Defined> (Not Required)	
	Com Port	<Select>	COM1, 2, 3 etc.
HVAC Units	**Name**	<User Defined>	
	Model	**Generic HVAC Unit**	
	Controls Heat	<Select from list>	
	Controls Cooling	<Select from list>	
	Controls Fan	<Select from list>	
<Discover Devices>			Click the **Discover Devices** button on the Communication Device
Thermostats	**Name**	<User Defined>	Discover Devices will set a default name of "ThermostatID:1", etc.
	Location	<User Defined> (Not Required)	
	Com Device	<Auto Detect>	
	Thermostat #	<Auto Detect>	
	Heating Unit	<Select from list>	
	Cooling Unit	<Select from list>	
Schedules	**HVAC Schedule**	<Select from list>	0, 1, 2 or 3 schedules
	Programs	<Select from list>	1, 2, or 3 weekly programs
	Monday - Sunday	<Select days>	Select days that go together
	Periods per Day	<Select from list>	1, 2 or 4 periods per day
Global Options	**Units**	<Select from list>	Fahrenheit or Celsius
	Temporary Hold Mode	<Select from list>	Timed Hold or Hold until next period
	Temporary Hold Default Time	<Select>	
	Outside Temperature Sensor	<Select from list>	Choose optional sensor if installed or choose Internet
	Outside Humidity Sensor	<Select from list>	Choose optional sensor if installed or choose Internet

COMMON MISTAKES

1. Programming two thermostats with the same address.
2. Failing to plug the Cat5 cable assembly into the correct serial port. Make sure the RJ-45 connector is plugged into the correct serial port as specified in the Configurator.
3. Configuring 2 subsystems with the same serial port.
4. Miswiring the Cat5 cables for the RS-232 connection. Be sure that you are following the EIA568B protocol, or if using the EIA568A, make sure you pay careful attention to **Wiring Diagram 1**. Remember that the CAT5 cable must be wired pin to pin, regardless of your wiring standard.
5. Using stats with incorrect firmware version. g! has tested firmware version 1.02c, and suggests using this version of firmware or newer. To alter firmware on your Thermostats please contact HAI. **If you will be operating in Celsius your OmniStat 2 MUST be running version 1.03.**
6. Not removing the Comm Jumper J8 on the back of the stat. See step 1 of Thermostat setup above.

Note: Only newer model OmniStat 2 have this jumper