



Integration Note

Manufacturer:	Carrier, Bryant
Model Number(s):	Infinity System, Evolution System
Minimum Core Module Version:	4.0.1135 Schedule Sync Options: 6.4.200
Comments:	Carrier Infinity Software Version CESR131339-10 and newer User Interfaces version "-A" and newer
Document Revision Date:	8/5/2013

OVERVIEW AND SUPPORTED FEATURES

Integrating the Carrier Infinity System with **g!** requires the installation of the optional Carrier SAM (System Access Module). The RS-232 serial connection on the SAM provides reliable two-way communication with the **g!** Interface.

The word "System" in Carrier terminology refers to the air handler. In a Carrier Infinity installation, each System (air handler) can support up to eight zones. Each SAM can support up to two Systems, so that one serial connection from **g!** to the first SAM provides support for up to 16 zones.

For installations with more than 16 zones, a second SAM is needed for the optional third and fourth System, and so on. Keep in mind that each SAM requires its own RS-232 connection to **g!**.

IMPORTANT: The SAM module is highly susceptible to interference from outside noise, and must be connected through a SerialBrick. Ensure any distance between the SAM and **g!** controller is on the SerialBrick's Ethernet. The length of the serial cable should in all cases be less than 10 feet, and the serial cable used should be shielded, with the shield terminated at the SAM module end only.
The SAM unit must be connected via a SerialBrick.

THE CARRIER INFINITY SYSTEM SUPPORTS 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 **Low**, **Medium**, or **High** speed and can also be set to **Automatic** mode.

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

Schedule Control: Up to three schedules can be set using the Viewer software. The schedules are tied to the house mode and override any scheduling setup in the Infinity programming. **Note:** In the Infinity System all schedules must have 4 periods per day.

Auto Thermostat Detection: The **g!** software will automatically detect all the zones connected to the system, along with each zone's system number, zone number, and zone name.

Smart Recovery: Increases or decreases the setpoints incrementally in advance of a schedule change to ensure the zone reaches the selected temperature setting at the scheduled time. **Note:** See **Using Carrier Smart Recovery with g!** for configuration required to use this feature.

THE CARRIER INFINITY SYSTEM DOES NOT SUPPORT THE FOLLOWING FEATURES:

Unoccupied Mode: This Infinity System mode is not supported from the **g!** interface.

Vacation Mode: This Infinity System mode is not supported from the **g!** interface.

Humidity Control: The Infinity humidity control can not be set from the **g!** interface. However, it is possible to display the humidity value for each System – contact ELAN for more information.

Ventilator Control: The Infinity ventilator control can not be set from the **g!** interface.

History View: Since there is only one air handler in the system, all zones connected to the air handler will show system and fan run history whenever the system is activated – even though the zone itself may not be calling for heat or cool.

Any feature not specifically noted as “supported” is not supported.

INSTALLATION OVERVIEW

1. Confirm that all of the Carrier user interfaces are compatible. See **Checking User Interface Compatibility** below.
2. Install the Infinity System and all control cables during the rough-in phase. Consult the Carrier Infinity documentation for control cabling requirements.
3. Run a Cat5 cable from each SAM (System Access Module) back to the Network Assembly of the **g!** system. Terminate and test the cable.
4. Install and power up the Infinity System. Program the Infinity System as required, refer to the Carrier documentation for details.
5. Test the Infinity System as a stand-alone system to ensure that the zones correctly turn on the appropriate heating or cooling equipment, and open or close the appropriate valves / dampers.
6. Connect the **g!** system to the Infinity System. See the **Connection Diagrams** for more information.
7. Configure the **g!** software for the Infinity System and confirm communication between the system and the **g!** system controller. See **g! Configuration Details**. Use the auto detect (Discover Devices button) feature to find the zones in the system.
8. Test the system by changing the set points, modes and schedules on the viewer and various zones, confirming that the various components in the system are in communicating with each other.
9. Setup the scheduling format in the configurator as desired for the end users. Note: All schedules in the **g!** must have four periods per day to properly program the Carrier Scheduling.
10. Setup the scheduling times and temperatures in the **g!** viewer interface as desired for the end users comfort.

CHECKING USER INTERFACE COMPATIBILITY

Some of the older Carrier user interfaces are not compatible with the Carrier SAM module. The user interfaces are designated by a model# followed by a dash then version letter. The version letter needs to be “-A” or newer (-B, -C, etc.) to be compatible. For example, user interface SYSTXCCUID01-A is a compatible user interface. Older user interfaces did not have the “-A” at the end of the model # and are not compatible.

USING CARRIER SMART RECOVERY WITH g!

Carrier Smart Recovery is a feature that gradually increments the system temperature setpoints in advance of its schedule change to ensure that the system reaches the desired temperature at the scheduled time. During the Smart Recovery period, typically 90 min prior to schedule change, the g! climate interface will switch the thermostats into temporary hold mode to allow the setpoints to increment from the actual schedule setting in anticipation of the next schedule change.

Note: Smart Recovery is not useful if **Running schedules from g!** and should be disabled. See Schedule Sync Options below.

Using Smart Recovery with g!: This Carrier feature is enabled by default. No special changes are required to the Carrier system. There are some special changes to the g! default settings that are required in order for the system to function properly. See **Global Options** in the **g! Configuration Details** section below.

Disabling Smart Recovery: This feature can be turned off by accessing the Carrier thermostat setup screens, refer to the Carrier documentation for details. In this case there are no special g! configuration changes required.

SCHEDULE SYNC OPTIONS

Available in the version listed at the top of this document, g! supports the option of running with Carrier internal schedules enabled or disabled.

Synchronize Tstat Schedules with g! schedules: This is the legacy g! integration method with Carrier Infinity systems. In this installation type, Carrier and g! must synchronize schedules between them, and the Carrier actually makes thermostat changes including Smart Recovery feature. Due to the amount of communication and the sensitivity of the Carrier to serial noise, it is not recommended to use this method.

Run Schedules from g! : In this installation type, the Carrier must have internal schedules disabled, which requires a minimum firmware version. After disabling Carrier internal schedules and setting all thermostats in g! to utilize the “Run schedules from g!” option, the thermostats will run scheduling entirely from the g! system and no schedule synchronization occurs between g! and the Carrier Infinity system. This offers improved performance and reliable control from g!, but scheduling can no longer be changed from the physical Carrier thermostat. In addition, if communication would be lost for any reason, the Carrier would run indefinitely using the last known schedule. Smart Recovery is not available.

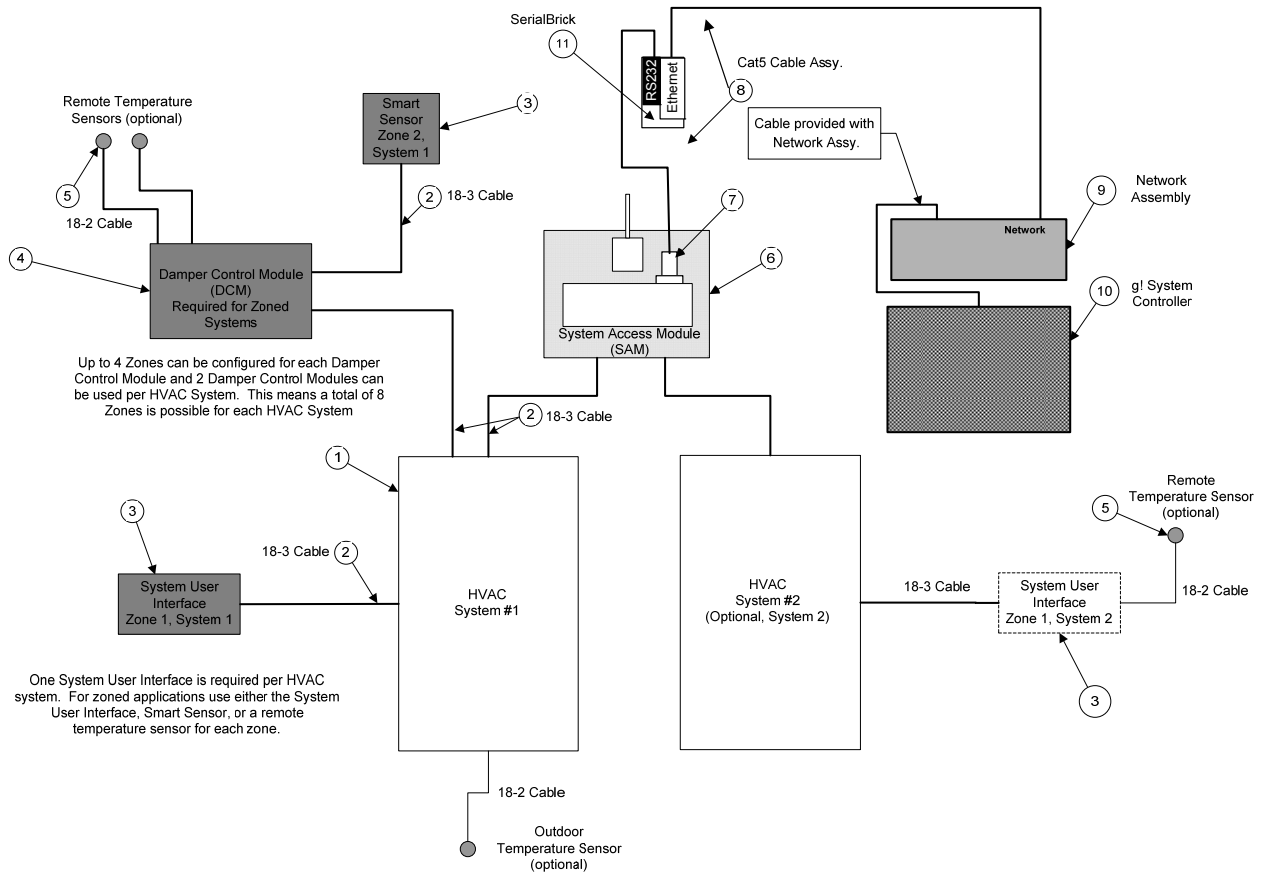
Note: See the top of this document for minimum g! software version.

Note: Minimum Carrier Firmware Revision is required. Version tested is listed below.

TO DISABLE CARRIER INTERNAL SCHEDULES:	
1. Hold down <ADVANCED> button for 10 seconds.	Enters Install/Service Menu.
2. Choose Setup .	Enters Setup Menu.
3. Choose Thermostat .	Enters Thermostat setup.
4. Choose Programming On/Off .	Enter Programming menu.

5. Select OFF .	Turns Programming Off.
6. Save changes YES on exit.	Saves changes.
FIRMWARE VERSION:	CESR131502-23

CONNECTION DIAGRAMS



BILL OF MATERIALS

#	Device	Manufacturer	Part Number	Protocol	Connector Type	Notes
1	HVAC System	Carrier	Various	RS-485	Screw Terminal	
2	18-3 Cable	Various	N/A	RS-485	None	
3	System User Interface	Carrier	Various	RS-485	Screw Terminal	
4	Damper Control Module	Carrier	Various	RS-485	Screw Terminal	
5	Remote Temperature Sensor	Carrier	Various	Analog	Screw Terminal	
6	System Access Module	Carrier	Various	RS-485/RS-232	Screw Terminal/DB9 Female	
7	DB9 Male x RJ45 adapter	ELAN	HA-CB-307	RS-232	DB9 Male x RJ45 Female	
8	Cat5 Cable Assy.	Installer	N/A	RS-232	RJ45 Male x RJ45 Male	
9	Network Assembly	ELAN	NWA 18	RS-232	RJ-45 Female X DB-9 Female / USB	Use COM 1,2,3, or 4
10	g! System Controller	ELAN	Various (e.g. HC 12)	RS-232	DB-9 Male / USB	
11	SerialBrick	ELAN	HW-EB-100	RS-232/Ethernet	RJ-45 Female	

g! CONFIGURATION DETAILS

The following table provides settings used in the g! Configurator. Please refer to the *Configurator Reference Guide* for more details.

In the table below:

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

Devices	Variable Name	Setting	Comments
Global Options	Units	<Select> Default: Fahrenheit	
	Temporary Hold Mode	<Select> Default: Timed Hold	See Note 1
	Temporary Hold Default Time	<Select> Default: 4 Hours	
	Outside Temperature Sensor	<Select> Default: Internet	
	Outside Humidity Sensor	<Select> Default: Internet	
Communication Devices	Name	<User Defined> (Default: Serial Brick SN#)	
	Type	IP-to-Serial (SerialBrick)	
	Communication Type	Carrier Infinity System	
	Location	<User Defined> (Not Required)	
	Device	<Select>	Choose correct Serial Brick
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	<Auto Detect>	Discover Devices will Read the Name as set up in the Infinity System
	Location	<User Defined> (Not Required)	
	Com Device	<Auto Detect>	
	System#/Zone#	<Auto Detect>	
	Settings	<Select from list>	Choose whether to sync schedules or not. See Note 2
	Heating Unit	<Select from list>	
	Cooling Unit	<Select from list>	
	Alarm Low Value	<Select from list>	Defaults to 40
	Alarm High Value	<Select from list>	Defaults to 90
	Show Usage in List	<Select from list>	Defaults to Yes
Schedules	HVAC Schedule	<Select from list>	0, 1, 2 or 3 schedules
	Programs	<Select from list>	Up to 7 weekly programs
	Monday - Sunday	<Select days>	Select days that go together
	Periods per Day	<Select from list>	Must be set to 4 periods per day
Notes:			
1. If using the Carrier Smart Recovery feature the Temporary Hold Mode MUST be set to Hold Until Next Period .			
2. Use "Run Schedules from g!" if Carrier internal scheduling is disabled (Preferred). Use "Synchronize Tstat schedules with g! Schedules" if Carrier internal scheduling enabled (legacy).			

COMMON MISTAKES

1. Using too long a serial connection. Any RS-232 connection **MUST** be less than 10 feet.
2. Not using a SerialBrick. The SAM unit is very susceptible to noise on the serial communication and must be connected through a SerialBrick.
3. Setting incorrect schedule sync type. See Schedule Sync Options section.