Integration Note

Manufacturer:	Carrier
Model Number(s):	**Comfort Zone II**
Minimum Core Module Version:	**5.1.277 (HC)** **5.0.681 (Legacy)**
Document Revision Date:	09/13/2016

OVERVIEW AND SUPPORTED FEATURES

The Carrier Comfort Zone II is a zoned HVAC system that allows control and scheduling from a single master "User Interface" with simple temperature sensors or basic zone user interfaces in additional zones. The Comfort Zone II has models that support from 2-8 zones.

THE CARRIER COMFORT ZONE II 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**. **Note:** All zones in a Carrier CZII System must be on the same 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: Multiple schedules may be set in the Viewer interface. The schedules are tied to the house mode and will automatically sync the Carrier schedule. **Note**: Once attached to **g!**, a default schedule will be written to the Carrier. Following this, schedules may be modified either in the Viewer or at the Carrier User Interface.

Note: In the Carrier 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.

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 COMFORT ZONE II DOES NOT SUPPORT THE FOLLOWING FEATURES:

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.

Humidity Control: Humidity control cannot be set from the Viewer interface.

Out Mode: The CZII cannot be placed in "Out" mode from the Viewer, however if Out is entered from the User interface, the Viewer should show that zone "off" until the next schedule change.

Scheduling Out mode: IMPORTANT! "Out" Mode cannot be scheduled from the Viewer, and "Out" mode should not be scheduled at the Carrier User Interface.

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

INSTALLATION OVERVIEW

1. Install the Carrier System and all control cables during the rough-in phase. See the Carrier documentation for control cabling requirements.

2. Run a Cat5 cable from the zone module back to the Network Assembly of the **g!** system. Terminate and test the cable.

3. Install and power up the Carrier System.   Program the Carrier System as required; refer to the Carrier documentation for details.

4. Test the Carrier 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.

5. Connect the **g!** system to the Carrier System. See the **Connection Diagrams** for more information.

6. Configure the **g!** software for the Carrier 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.

7. 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.

8. 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.

9. Setup the scheduling times and temperatures in the **g!** viewer interface as desired for the end users comfort.

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 HomeLogic 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.

Using Smart Recovery with g!: This Carrier feature is enabled by default. No special changes are required to the Carrier system. To work effectively with this setting, **g!** Climate Global Settings must be configured to Hold Until Next Period (default).

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 HomeLogic configuration changes required.

CONNECTION DIAGRAMS
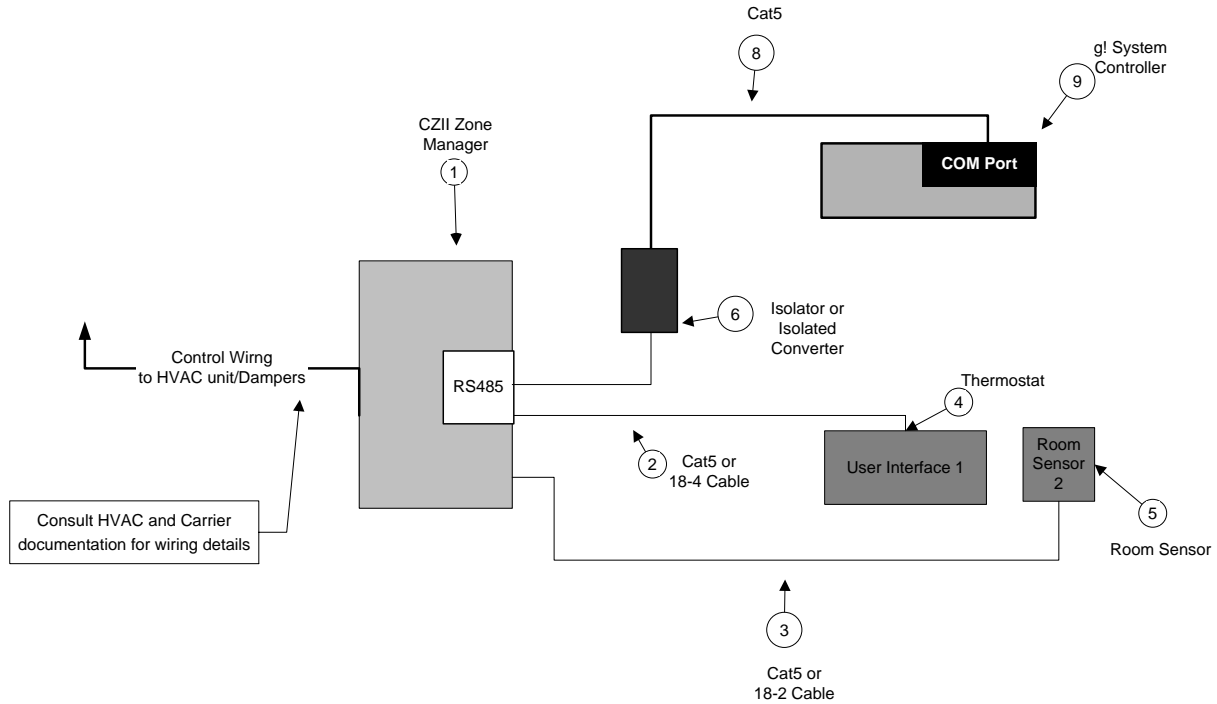
BILL OF MATERIALS

#	Device	Manufacturer	Part Number	Protocol	Connector Type	Notes
1	Comfort Zone II Zone Manager	Carrier	Various	RS-485	Screw Terminal	
2	Cat5 Cable Assy.	Various	N/A	RS-485	Screw Terminal	18-4 Cable may also be used
3	Cat5 Cable Assy.	Various	Various	RS-485	Screw Terminal	18-2 Cable may also be used
4	User Interface	Carrier	CZII User Interface	RS-485	Screw Terminal	
5	Remote Temperature Sensor	Carrier	Various	Analog	Screw Terminal	
6	RS485 Isolator	Various, (e.g. B&B Electronics)	Various, (e.g. 485OP)	RS-485	Screw Terminal	
	OR					
6	RS485 to 232 Isolated Converter	Various, (e.g. B&B Electronics)	Various, (e.g. 485OI9TB)	RS-485/RS-232	Screw Terminal X DB9	
7	DB9 Male x RJ45 adapter	ELAN	HA-CB-307	RS-232	DB9 Male x RJ45 Female	**Only if using RS232**
8	Cat5 Cable Assy.	Installer	N/A	RS-485/RS-232	RJ45 Male x RJ45 Male	
9	g! System Controller	ELAN	Various (e.g. HC12)	RS-485/RS-232	RJ-45 Female	

WIRING DETAIL 485 ISOLATION OVERVIEW

A 485 Isolator **must** be used between the Carrier Comfort Zone II and the **g!** controller for reliable communications. Detailed notes and wiring information is provided below for a sample RS485 Isolator in RS485 connections, or a RS485 to RS232 Isolated Convertor used in RS232 connections. Note that the sample wiring diagrams are based on documentation from a common supplier due to feedback from the field regarding the need of an isolator with these systems.

Note: EdgeBricks will always behave in RS485 mode in current builds.

IMPORTANT: Early 5.0 builds may only allow RS232 connections. If using a legacy controller (e.g. HomeBrick) please contact Technical Support for the latest build of software to enable RS485 connections.

RS485 Connection

|	CZII End	Isolator/Function	568 B Color	g! End (B)
	RS+	*B+*	*White/Green*	3
	RS-	*A-*	*Green*	6

RS-485 Isolator Wiring Detail
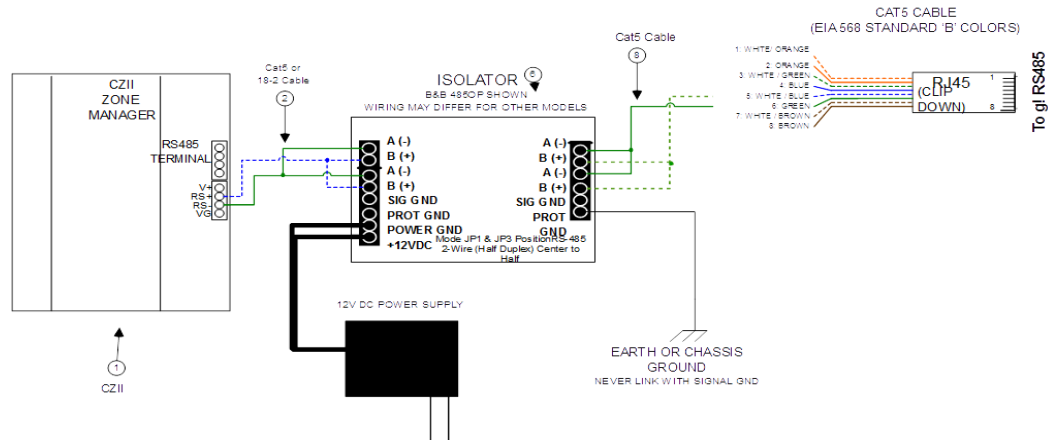
B&B 485OP
Recommendations:

A- In and Out should be jumpered
B+ In and Out should be jumpered
Mode JP1 & JP3 Position
RS-485 2-Wire (Half Duplex) Center to Half
12v PS Included

Right Side to Controller:		
Color	485OP Pin	Notes
Green	A-	Jump two A- pins
White/green	B+	Jump two B+ pins
White/brown	Signal GND	

Left Side to CZII:		
485OP Pin	CZII Pin	Notes
A-	RS-	Jump two A- pins
B+	RS+	Jump two B+ pins
Signal GND	VG	

RS-485 to RS232 Isolated Converter Wiring Detail
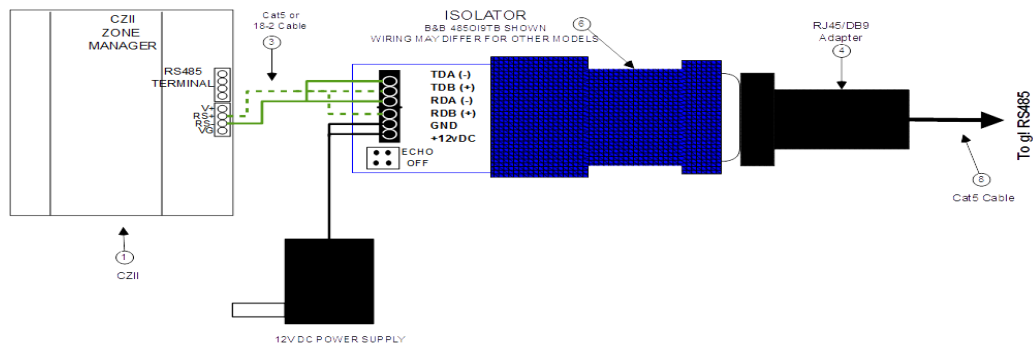
B&B 485OI9TB
Recommendations:

Order: US – 485PS2
EU – PS2EU-1000
UK – PS2UK-1000

12v PS Not Included
Position Jumper JP1 to OFF
A- In and Out should be jumpered
B+ In and Out should be jumpered

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> See Note 2	
	Type	**Serial Port**	
	Communication Type	**Carrier CZ II System**	
	Location	<User Defined> (Not Required)	
	Com Port	<Select>	RS485 or RS232 is automatically used based on Com Port selection.
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>	Zones will pull in labeled as Zone#1, Zone#2 etc.
	Com Device	<Auto Detect>	
	Thermostat ID	<Auto Detect>	Zone Number
	Heating Unit	<Select from list>	
	Cooling Unit	<Select from list>	
	Show Usage in History	<Select from list>	
Schedules	**HVAC Schedule**	<Select from list>	Select number of schedules
	Programs	<Select from list>	Must set 7 weekly programs (Defaults to 7)
	Monday - Sunday	<Select days>	Select days that go together
	Periods per Day	<Select from list>	Must be set to 4 periods per day (Defaults to 4)
Notes:			
1. If using the Carrier Smart Recovery feature the Temporary Hold Mode **MUST** be set to **Hold Until Next Period. (Default)**			
2. The **Communication Devices Name** is set to **New Device** by default. It is recommended to rename this item for clarity, (e.g. **Climate**)			

COMMON MISTAKES

1. **Failing to use an Isolator**: Due to ground differences, it is critical to use an isolator (RS485) or isolated converter (RS232) when wiring to the CZII from a **g!** system controller. System instability will result if isolation is not provided.

2. **Programming OUT mode**: Programming OUT will cause bad behavior and is not supported.