Integration Note

Manufacturer:	Leviton Vizia Lighting System with Wayne Dalton Thermostats
Model Number(s):	**See table below**
Minimum Core Module Version:	4.0 1620
Document Revision Date:	2/11/2012

OVERVIEW AND SUPPORTED FEATURES.

Leviton Vizia Lighting is a ZWave based RF (wireless) communicating lighting system that can connect to the **g!** software using the RZC0P RS-232 interface to provide reliable two-way control. A customizable interface can also be configured to control and track Leviton keypad buttons and individual devices.

The Wayne Dalton WDTC-20 thermostats are wireless Z-Wave thermostats capable of controlling 1 or 2 stage heat pump or conventional heating systems, and a 1-stage cooling system. The WDTC-20 thermostats may be included as part of a Vizia Lighting network as additional devices, and controlled over a single Z-Wave RS-232 adapter.

Note: The Leviton Vizia ZWave RF operates at 900MHz. Any other devices operating on the same frequency may cause interference and need to be removed. Leviton recommends the system in installations of 7500 square feet or less and installing devices typically no more than 30 feet apart. A maximum of 128 devices can be included in a Vizia network. Please refer to the Leviton **Vizia RF Systems Guide** (www.ViziaRF.com) for other installation considerations and details on proper setup of the lighting system.

> **Important Note: This Integration Note should be used for all new integrations of Leviton Vizia Lighting systems, with or without climate attached.**

LEVITON VIZIA LIGHTING SYSTEMS SUPPORT THE FOLLOWING FEATURES:

Vizia Devices: A Device is a switch, dimmer, lamp module or appliance module, and provides power to one circuit. Up to 128 devices can be installed on a single Vizia Network. Devices are supported, and can be controlled and monitored from the **g!** interface.

Vizia Areas: A Vizia Area is a groups of devices (up to 32) that can be controlled as a group. Areas can be "Associated" with keypad buttons to either toggle on and off, or respond to one of 255 scene commands.

Area Toggle Control: When a keypad button is setup to toggle an Area, then a single button press from a controller or button configured will turn on all the devices in that Area to their last on level. Any LEDs configured for that Area will turn on and any **g!** Interface control configured for the Area will indicate on and stay on until either the Area is turned off or **all** of the devices in the Area are individually turned off.

Area Control without Keypads: For installations that use Areas but don't have keypad buttons configured to control those Areas, the g! Configurator allows you to manually setup Areas to control these devices as a group.

Area Scene Control: When a keypad button is setup to set a scenes for an Area, then the Devices in that Area all go to the preset at the same time. When a scene button is pressed, the LEDs configured for that Scene will turn on, and any **g!** controls configured for the Scene will indicate on as well. Turning a scene off turns off all the Devices in the Area for that scene.

Schedule Control: Lighting schedules can be set using the Viewer software relative to sunrise, sunset, or time of day. These schedules are tied to the house mode, such as Home and Away.

Auto Detection: The **g!** system will automatically detect dimmers, switches, controllers (keypads), button associations and scenes in the system.

<u>THE **WDTC-20** THERMOSTATS SUPPORT THE FOLLOWING FEATURES:</u>

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, or **Off**.

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

Schedule Control: Scheduling is supported from the Viewer.

Auto Discovery: Thermostats may be auto-detected and added into g!.

Shared Z-Wave Network: Wayne Dalton TStat's may be added to a Leviton Vizia RF Z-Wave lighting network, and both lighting and climate may be controlled over a single RS-232 Z-Wave adapter.

<u>THE **WDTC-20** THERMOSTATS **DO NOT** SUPPORT THE FOLLOWING FEATURES:</u>

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

Mode Control: The WDTC-20 thermostats do not support an Auto Heat Cool mode.

Fan Control: The WDTC-20 thermostats actuate fan control from continuous or auto only via a physical switch on the front of the unit. Control, status and history for fans is not available.

Name Detection: All thermostats will populate during auto-discovery with their Z-Wave node number as their name. Named devices will not read into g! at this time.

Note: The "Save Energy" button on the face of the WDTC-20 effectively enables the WDTC-20's internal "away schedule". Activation of this mode will set the thermostat into a Permanent Hold Mode in g!. Since g! maintains its own schedule tab with support for multiple modes, use of this mode at the TStat is not required, but may be used if desired as a hard-button setback.

Devices Supported: The following table lists the devices that are currently supported:

Model Number	Description
RZCPG	Vizia RF Remote Control
RZP03-1LW	Scene Capable Plug-in Lamp Dimming Module (60W Minimum, 300W Max)
RZP15	Scene Capable Plug-in Appliance Module (1800W of 15A)
RZCS4	4-Scene Controller (toggle buttons)
RZCZ4	4-Scene Controller (rocker buttons)
RZS15-1L	Scene Capable Electronic Switch (1800W Max)
RZI06-1L	Scene Capable Incandescent Dimmer (40W Min, 600W Max)
RZC0P	Vizia ZWave RS-232 Interface Module
RZCS1	Remote dimmer
RZCZ1	Remote switch
WDTC-20	Wayne Dalton Z-Wave Thermostat
Important:	The RZC0P is the only supported Z-Wave/RS-232 adapter. The newer VRC0P is <u>not compatible</u>.

INSTALLATION OVERVIEW

Once the system has been designed, the following steps are needed for installation and configuration.

1. Rough in the house for a normal Vizia Lighting system installation, refer to the Leviton documentation for proper installation practices.

2. Install the WDTC-20 thermostats and wire HVAC according to standard Wayne Dalton documentation. If using Celsius mode, note you must set a Jumper on JP1.

   Note: The Wayne Dalton Thermostats do not run off battery power, and may need additional wire(s) run for power. See Wayne Dalton documentation for details.

3. Install a Leviton RS-232 Z-Wave adapter in a location convenient for both a serial run to the g! controller and within range of other Z-Wave devices.

4. Run a Cat5 cable from the Vizia RS-232 interface module to the g! system.

5. Install, program and test the Vizia Lighting System as a stand-alone system, see **Vizia Programming Overview** below and refer to the Leviton documentation for details.

6. 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.

7. Terminate and test the Cat5 cable from the Vizia system and the g! system. Connect the cable.

8. Configure the g! system for the Vizia Lighting, see **g! Configuration Details** below.

9. 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 respond as expected. Test lighting by turning on devices and checking for proper 2-way feedback when lights are activated from the physical dimmer/keypads.

CONNECTION DIAGRAM
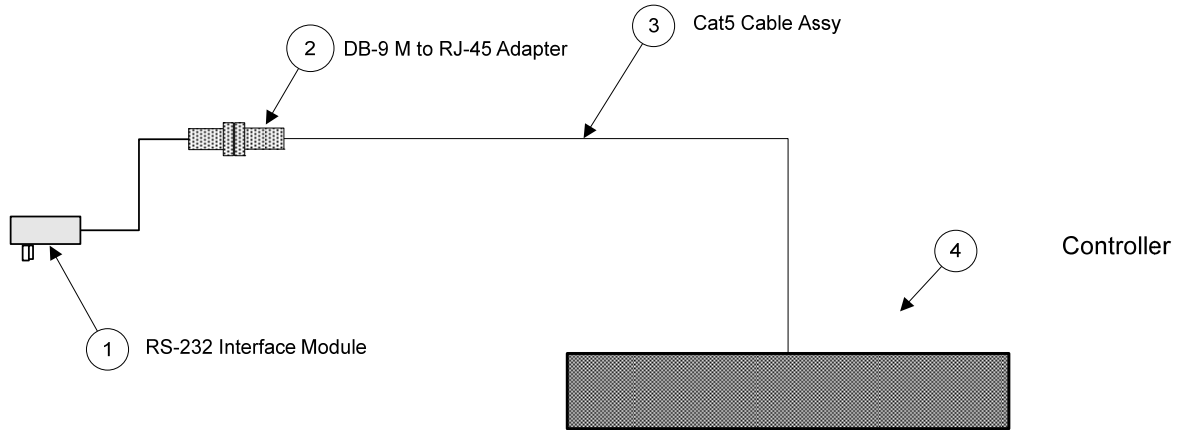
BILL OF MATERIALS

#	Device	Manufacturer	Part Number	Protocol	Connector Type
1	RS-232 Interface Module	Leviton	RZC0P	RS-232	DB-9 FEMALE
2	DB-9M to R-J45 Adapter	Elan	HA-CB-307	RS-232	DB-9 Male X RJ-45 Female
3	Cat5 Cable Assy.	Installer	N/A	RS-232	RJ-45 Male X RJ-45 Male
4	Controller	Elan	Various (ex. HC-12)	RS-232	RJ-45 Female

Z-WAVE NETWORK PROGRAMMING

Program the Z-Wave according to standard procedures. Regardless of device function, the basic setup of Z-Wave networks is the same.

Typically a Z-Wave network is programmed using its Programmer/Remote Control (such as the Leviton VRZCPG) to enroll and devices into the Z-Wave Network. The method for using the VRZCPG is detailed below. Note that these instructions assume you are familiar with z-wave programming concepts. If you require further detail or clarification, you may wish to see Leviton Vizia RF (www.ViziaRF.com), or Wayne Dalton documentation/technical support for assistance.

PROGRAMMING USING THE LEVITON VRZCPG REMOTE:
Setup steps below are created using a VRCPG-BSG remote with firmware: Z-Wave 2.06, Vizia RF+ A2.4.2. Your steps may vary somewhat if version/remote model differ, but the basic process should be the same.

1. **Confirm all devices are at factory default and have not been setup in any Z-Wave Network**.

2. Start up the Leviton Remote and begin the **Install Checklist**.

3. Perform **Step 1** of the Install Checklist, **Include Dim/Switch**, and enroll (include) all thermostats into the network. Wayne Dalton TStat's are included by pressing the **BIND** button on the top of the TStat when the VRZCPG prompts to press a key on the dimmer. Dimmers and switches may be included in this step pressing the button on the unit. The VRZCPG will automatically assign a node ID to each thermostat/dimmer/switch during this process.

> *It is best practice to give the thermostat/lighting device a descriptive name when prompted, like Master Bedroom, for future reference. Note that this name is not saved in the device and will not be automatically read into g!. You may wish to keep notes of the location of each device and their Node ID, as the only identification available to g! is the Node ID.*

4. Perform **Step 2** of the Install Checklist, **Include Controller**, to enroll (include) all Controllers into the network. Controllers include the RS-232 interface module (VRC0P-1LW), and any keypads. Note that to include Controllers, they must be in Program Mode. To set the VRC0P-1LW into programming mode, press and hold the button (clear tab on face of unit) until the light blinks amber. To set keypads into program mode, typically button 1 and 3 are pressed and held until the LED's blink amber. For more details, see Leviton documentation.

5. Perform **Step 3** of the Install Checklist, **Update Controller**, to update all of the controllers following the inclusion of all devices. This will create the proper mapping between devices.

6. Perform Step 4 of the Install Checklist, **Create Areas**, to create groups of devices to control with one toggle or dimmer switch. To create groups, select the **<<NEW>>** line item and then choose a name for the area. Finally, add any desired devices by using the **+** key to put a check mark on desired devices. Note that you will not associate the Area's with keypad buttons in this step. You also may create areas you do not plan on associating with keypad buttons, and still control these areas through g! or the remote.

7. Perform Step 5 of the Install Checklist, **Set Associations**, to associate areas with keypad buttons. Note that keypad buttons may be associated with only one area, and the area may be set to either a scene mode, for area activation with configurable dim rates, or to a area toggle, with on/off function. To scroll through available scenes, modes and areas, use the arrows.

8. Perform Step 6, **Install Complete**. When Install is finished, you will be able to move on the main screen of the remote.

9. Test all devices for proper operation. Using the 1,2,3,4 On/OFF keys you may test the first 4 areas for control. From the **Main Menu** of the VRZCPG remote you should be able to select

Thermostats and get current temperature data and change modes (heat, cool etc) for each thermostat on your network.

10. To enable 2-way feedback with g!, enter the **Main Menu**, then **System**, then **Advanced**. Finally, enter **RS232 Setup** (called HAI Setup in earlier versions) and select the RS-232 Controller. Press the **4 ON** button to check mark all devices, and then press the **center** button to enable feedback. After a moment of processing, the remote will turn to the RS232 setup screen. Press the **Left Bumper Dot button** to **Finalize**. The remote will do some additional processing to enable RS-232 feedback. **If you do not complete these steps correctly, you will have control, but no 2-way feedback in g!.**

IMPORTANT NOTE – Regarding changes to associations

When you configure the g! system for Vizia, you "discover devices" to read the data from the Vizia system. This read process allows the g! system to learn the devices, controllers, and button settings.

As a result, if you make any changes to any Device associations on any Controller in the system, you MUST "discover devices" again so that the g! system has the correct information.

NOTES REGARDING THE TRACKING OF VIZIA RF DEVICES, AREAS, ZONES, AND SCENES:

In general **g!** will keep track of the states of all of the Vizia Network Devices, however there is latency in the reporting back of the devices from the Vizia RF network. The result is that g! will update its states as the devices report back. This is evident when watching the viewer interface after a Scene command or device is activated locally. The viewer controls will update sequentially over a few seconds (or more on larger systems) as the devices report their state.

Vizia Areas: The Area will indicate **ON** if **any** of the devices assigned to the Area are **On**. It will only indicate **OFF** when **all** of the devices in the Area are **Off.** Areas are useful if you want to know when there are any devices in a part of the house that are on.

Vizia Scenes: The Scenes will indicate **ON** only if **every** device in the scene is set to the **exact** level that they are programmed to go to for that scene.

g! CONFIGURATION DETAILS

The following table provides settings used in the **g!** Configurator when connecting to a Vizia Lighting network. Please refer to the *Configurator Reference Guide* for more details.

In the table below:

- o "<Select from list>"   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
Lighting Tab			
Communication Devices	**Name**	<User Defined> (Default: **Lighting**)	
	Type	**Serial Port**	
	Communication Type	**Leviton ZWave RS-232 Network**	
	Location	<User Defined> (Not Required)	
	Com Port	<Select from list>	COM1, 2, 3 etc.
Lighting Interface	**Name**	<User Defined> (Default: Leviton **Zwave RS-232 Lighting Controller**)	
	Device Type	**Leviton Zwave RS-232 Lighting Controller**	
	Location	<User Defined> (Not Required)	
	COM Device	<Select from list> (Default: **Lighting**)	
<Discover Devices>		Click the **Discover Devices** button on the COMMUNICATION DEVICE, see Note 1	
Lighting Devices	**Name**	<Auto Detect>	
	Model	<Auto Detect>	
	Interface Device	<Auto Detect>	
	Location	<Select from list> (Not Required)	
	Node Number	<Auto Detect>	
Keypads	**Name**	<Auto Detect>	Or Create as desired
	Type	<Auto Detect>	
	Interface Device	<Auto Detect>	
	Location	<Select from list> (Not Required)	

Climate Tab			
HVAC Units	**Name**	\<User Defined>	
	Model	**Generic HVAC Unit**	
	Controls Heat	\<Select from list>	**Set to Yes if controlling Heat**
	Controls Cooling	\<Select from list>	**Set to Yes if controlling Cooling**
	Controls Fan	\<Select from list>	**Set to No. Fans are not supported.**
Thermostats	**Name**	\<User Defined>	Discover Devices will set a default name of "Z-Wave Thermostat #2", etc.
	Location	\<User Defined> (Not Required)	
	Com Device	\<Auto Detect>	
	Thermostat #	\<Auto Detect>	
	Heating Unit	\<Select from list>	
	Cooling Unit	\<Select from list>	
Schedules	**Setup HVAC Schedules Under each Tstat**		
Global Options	**Units**	\<Select from list>	Fahrenheit or Celsius
	Temporary Hold Mode	\<Select from list>	Timed Hold or Hold until next period (in schedule)
	Temporary Hold Default Time	\<Select>	
	Outside Temperature Sensor	\<Select from list>	
	Outside Humidity Sensor	\<Select from list>	

Notes:			
1. The information line at the bottom of Configurator will indicate if Discovery process is successful. If a message states "completed with errors", press the Discover Devices button again.			
1. Discover Devices on the COMMUNICATION DEVICE will discover both lighting and climate devices. Discover Devices on the LIGHTING INTERFACE will only discover the Lighting devices.			
1. Note: If Discover Devices is clicked on the Communication Device of the Climate Tab, and a Lighting Interface has not been added to the Lighting Tab, it will only add Thermostats to Configurator.			

Note: There is a new driver selection for Levition Z-Wave Lighting with Z-Wave Thermostats, **Leviton ZWave RS232 Network**. The old driver, Z-Wave RS-232 Controller, will still work for lighting only installs. If you have designed an install using the old driver, you are not required to recreate you install with the new driver unless you will be adding z-wave thermostats. **New installs typically should use the new driver even if thermostats are not used, as this will allow you to add thermostats later.**

COMMON MISTAKES:

1. 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.

2. Wiring the Cat5 cable assembly incorrectly. Test the cable with a LAN tester.

3. Configuring 2 subsystems with the same serial port.

4. Not having the minimum load on Vizia 2 wire dimmers. The Dimmer RZI06 and Lamp Module RZP03 have minimum load requirements as shown on the table of supported devices above. If the minimum load is not met then the devices will be unreliable.

5. Not completing or following the proper ViziaRF installation guidelines. Please refer to www.ViziaRF.com and download the ViziaRF systems guide for details on installation of the system.

6. Placing the Z-Wave RS-232 Adapter out of range of other Z-Wave devices. Z-Wave devices create a wireless, self-healing mesh network, and should be placed where they are in range to communicate with multiple other devices for best results.

7. Failing to enable RS232 Setup (older versions call it HAI Setup). If you do not enable RS-232/HAI Setup for all devices on the RS-232 Controller you will have control, but no 2-way feedback from Lighting Devices.