JetStream PC Programming

User's Guide

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Introduction

Congratulations on your purchase of the CentraLite® JetStream® lighting control system! This guide will show you how to configure your JetStream System using the JetStream PC programming software.

Programming the JetStream system through a PC is simple and can be easily mastered. In order to successfully program the JetStream system the following items are necessary:

- PC with Windows® XP Home/Professional or Windows Vista Operating System
- A computer with a free USB port.
- The latest version of the programming software which can be downloaded at www.centralite.com. Please be sure to download the latest updates as features are added regularly.
- Finally, you will need a JetStream USB programming bridge.

The JetStream device network can support up to 200 devices. Devices include one (1) and three (3) button dimmers and remote keypads as well as optional accessory devices. The accessory devices include the car remote, RS-232 bridges, Lamp module, Car remote and Tabletop remote as well as table top keypads. For clarity Loads are defined as any set of lights, fans, or devices controlled by one dimmer. Inputs are defined as keypad buttons.

Scenes are lighting scenarios that create moods around the home. Scenes are programmed from the Scenes Configuration Tab. Scenes should only be programmed after the devices have been named, verified, and configured.

The JetStream system features an optional astronomical real-time clock that can keep track of sunrise and sunset. The clock is used to trigger events that can activate or deactivate scenes at certain times of the day and certain days of the week. The clock option is available with the optional RS-232 Bridge.

Remember, if you have any trouble please call us toll free at at 877-466-5483 or visit our Helpdesk at www.centralite.com/helpdesk with any questions.

Warnings and Regulatory Compliance

Caution: Using this product in any manner other than outlined in this document voids your warranty. CentraLite is not responsible for any damage incurred as a result of misuse or abuse of this product. For more details see the "Limited 5 Year Warranty" conditions on page 6.

Warning: This device must be installed by a competent licensed electrician, according to the regulations of the National Electric Code (NEC) and applicable local codes.

Warning: To reduce the risk of serious injury or death, turn power OFF before installing this product.

FCC Compliance Statement
FCC ID: T3L-JS001 (Dimmer/Keypad)

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on. The user is encouraged to try to correct the interference by one or more of the following measures:

• Reorient or relocate the receiving antenna.
• Increase the separation between the equipment and receiver.
• Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
• Consult the dealer or an experienced radio/TV technician for help.

Caution: Changes or modifications not expressly approved by CentraLite Systems, Inc. could void the user's authority to operate this equipment.

Product Overview

JetStream is a retrofit radio frequency (RF) solution for lighting control. The system consists of a network of dimmers, and remote keypads. Dimmers and remote keypads communicate with each other via Radio Frequency (RF) signals, creating the JetStream Device Network.

The JetStream system utilizes mesh network architecture and therefore, each device acts as a repeater. This built in repeating architecture adds robustness to the signal strength as the system grows in size.

Full Function Device
(performs network routing functions i.e. dimmers, keypads, bridges, etc.)

End Device (i.e Car Remote)
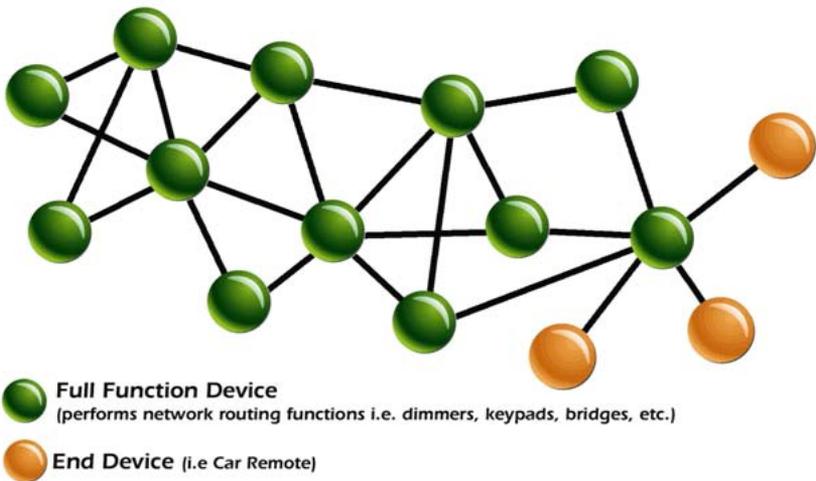
Each wall mounted dimmer follows traditional residential and commercial high voltage wiring practices. The dimmers and keypads do not require any additional control wiring to communicate with each other.

Dimmers will continue to operate in "Local" mode if the JetStream network has not been established. "Local" operation allows the dimmer to control the load just as if the dimmer was a traditional hard wired dimmer switch.

Components

Dimmers

One (1) button neutral dimmers (800W)	product number: 3385001-(W,I,LA,B)
Three (3) button neutral dimmers (800W)	product number: 3385003-(W,I,LA,B)
Lamp module (300W)	product number: 4255050

Keypads

One (1) button keypad	product number: 3385001-K-(W,I,LA,B)
Three (3) button keypad	product number: 3385003-K-(W,I,LA,B)
Eight (8) button table top keypad	product number: 4255008
Car remote	product number: 4255003

Accessories

USB Programming Bride	product number: 3155002
RS-232 Bridge with Astronomical Clock*	product number: 3155000
JetPak Automation System	product number: 5454000-S
IR/RS-232 Receiver	product number: 4160003

*Available March 2008

Notes:

Air Gap Switch
All dimmers and wall mounted keypads are equipped with an air gap switch which is used to isolate the device completely from the feeding circuit breaker. The air gap switch is to be used when changing light bulbs. The air gap switch prevents possible injury that may occur due to the inherent leakage current that is present in all solid state dimmer controls. When the air gap switch is in the out position the device is "OFF". The air gap switch is located on the front of the device at the bottom of the button section.
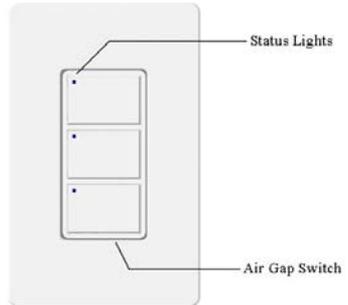
Keypads
Remote keypads do not control loads directly. Their buttons can be programmed to remotely control the load of a dimmer device, or to activate/deactivate a scene. Wall mounted keypads require 120VAC, Neutral, and Ground to operate. The car visor remote is battery operated.

Detailed Description of Components

USB Programming Bridge

The USB programming bridge is a simple USB 2.0 device that is used to connect the programmer's PC to the JetStream Device Network.

Wall Mounted Dimmer

The wall mounted dimmers are the devices that replace traditional dimmers and flip switches. These devices can be programmed to act as dimmers for dimmable loads, or as non-dimmers for loads such as fluorescent or ceiling fans. Wall mounted dimmers are available in One (1) and Three (3) button versions.

|	
Acceptable Loads:	Incandescent, Fluorescent, Magnetic Low-Voltage, Halogen applications.
Maximum Load:	800W or 800VA in single gang locations 600W or 600VA in multiple gang applications.
Input Voltage:	120VAC 60Hz
Buttons:	One (1) or Three (3) buttons available for local control, scenes, remote buttons, and configuration
Colors:	White, Light Almond, Ivory, Black
Repeating Device:	Yes
Face Plate:	Sold separately. The wall mount dimmer fits in a standard Decora® style wall plate.

Lamp Module

The lamp module allows the user to add lamps to the JetStream system. The lamp module plugs into a standard US wall socket and allows the user to plug in one lamp per lamp module.

Repeating Device:	Yes
Acceptable Loads:	Incandescent, Fluorescent, Magnetic Low-Voltage, Halogen
Maximum Load:	300 W or 300VA
Input Voltage:	120VAC 60Hz
Buttons:	One (1) for local control/configuration
Colors:	White

Wall Mounted Keypad

Unlike the wall mounted dimmer or relay, the keypad is not directly connected to a load. The red wire needs to be capped off. The buttons on the keypad are programmed to remotely control loads or scenes. Wall mounted dimmers are converted into keypads in the JetStream PC software.

Acceptable Loads:	NO LOAD CONTROL
Input Voltage:	120VAC 60Hz
Buttons:	One (1) or Three (3) available for local control, scenes, remote buttons, and configuration
Colors:	White, Light Almond, Ivory, Black
Repeating Device:	Yes
Face Plate:	Sold separately. The wall mount dimmer fits in a standard Decora® style wall plate.

Table Top Keypad

The Table Top Remote has eight (8) remote buttons that can control scenes or loads connected to the JetStream network.

Acceptable Loads:	NO LOAD CONTROL
Input Voltage:	9VDC 900mA plug in transformer
Buttons:	Eight (8) buttons for scene or remote load operation and configuration
Colors:	White
Repeating Device:	Yes

Car Keypad

The Car Visor Remote has three (3) buttons that can activate scenes in the JetStream network.

Acceptable Loads:	NO LOAD CONTROL
Input Voltage:	3VDC CR2032 Battery (2)
Buttons:	Three (3) buttons for scene activation.
Colors:	White
Repeating Device:	No

Accessory Keypad

The accessory keypad is used in conjunction with a Wall Mount Dimmer. It provides a cost effective solution to terminating three and four way switch locations. The accessory keypad connects to the blue accessory wire on a dimmer control and an available neutral connection. The accessory keypad does not have a JetStream processor and simply mimics the action of the top button of the connected dimmer. This device has no LED status indication.

Note: This is not a high voltage device.

Acceptable Loads:	NO LOAD CONTROL
Input Voltage:	N/A
Buttons:	One (1) for remote load on the attached wall-mounted dimmer.
Colors:	White, Light Almond, Ivory, Black
Repeating Device:	No
Face Plate	Sold separately. The wall mount dimmer fits in a standard Decora® style wall plate.

Third Party RS-232 Bridge/Astronomical Time Clock

The RS-232 Bridge adds one (1) third-party RS-232 port to the JetStream network. The network supports up to three (3) RS-232 bridges. The bridge also has a built in astronomical time clock that adds the ability to activate scenes based upon absolute time of day or offset from sunrise/sunset.

Acceptable Loads:	NO LOAD CONTROL
Input Voltage:	9VDC 900mA plug in transformer
Buttons:	One (1) for configuration only
Colors:	One (1) female DB9 connector One (1) power barrel style connector
Repeating Device:	Yes

Ordering Checklist

✔ **Neutral required in switch location:** When retrofitting, you need to know the wiring scheme of the house. Most locations have a neutral present at the switch, some do not. JetStream will not work without a neutral wire in the switch location. Ask your electrician to make sure before ordering.

✔ **Gang configurations:** Multi-gang locations require you to de-rate the dimmers to 600W, and also require multiple gang faceplates. When sharing a box with a low voltage device, a barrier is usually required for the electrical inspection in new construction.

✔ **Number of 3-ways in house:** Each 3-way requires a one or three button keypad at the remote end of the switch leg. Add one Wall Mount Keypad for each additional remote location.

✔ **Custom engraving:** CentraLite offers custom button engraving. Visit www.centralite.com/engraving for more information.

✔ **Dimming Receptacles:** Most codes and/or inspectors will not allow a dimmer of any sort to control a receptacle, since non-lighting loads may be incompatible with a dimmed output. You can use a wall mounted dimmer that is programmed to operate as a non-dimmer to control these receptacles.

✔ **Third Party Control:** If the system requires third party control via RS-232, include the optional RS-232 Bridge.

✔ **Time Clock:** If the system requires a time clock for timed events based on time of day or sunrise/sunset, you must include a RS-232 Bridge with Astronomical Time Clock.

Hardware Installation

The following steps are common to all wall mounted dimmer/keypad installations:

1. Identify all switches that will be replaced with JetStream devices.

2. Locate the circuit breaker or fuse controlling the switch that will be replaced and turn off the circuit breaker or remove the fuse.

3. Remove the faceplate of the existing switch.

4. Use circuit tester or volt-meter to verify that power is off.

5. Remove the old switch and identify the following wires:
    120V feed from circuit breaker, Load (switch leg), Neutral, Ground, Travelers (3 and 4-way switches only)

6. Remove any dust or debris from the wall box.

7. Using wire nuts connect the switch according to the following color code.

Existing Wires	JetStream Dimmer
120V Feed from Circuit Breaker	Black
Load (Switch Leg)	Red (capped off on Keypads)
Neutral (if present)	White
Ground	Green

8. Verify that all connections are tight and secure.

Warning: Use extreme caution when connecting the dimmer. This is when you are most likely to damage the JetStream device. DO NOT WORK ON THE DIMMER WHILE THE CIRCUIT IS ENERGIZED. A short circuit between the Red Load wire and Green Ground or White Neutral will destroy the internal fuse making the device inoperable. The limited warranty does not cover damage caused by installing devices with the circuit energized.

9. Place the dimmer in the wall box and use the provided screws to secure dimmer.

10. Replace the dimmer's faceplate.

11. Turn the circuit breaker on or replace the fuse. The device's top LED will be blinking at a slow interval if the device is not part of a JetStream network. If the device is a dimmer with a load connected, the top button will operate the load as a dimmer unless the device is programmed as a non-dimmer. If the device is a keypad then the device's top LED will toggle states with every button press.

Note: When connecting to a 3 or 4 way circuit; connect the load to only one dimmer. Use remote keypads for the rest of the switch locations. Use the existing "traveler" wires to provide a Neutral, Hot, and Ground connection at each of the remote keypad locations.

Warning: This product must be grounded in accordance to the NEC and Local requirements.

**Warning:**   This product must be installed by a qualified licensed electrician.

Use the following diagrams to install the wall mount dimmers. Note that wire colors may vary by installation and local codes.

Wall Mounted Dimmer Standard Installation
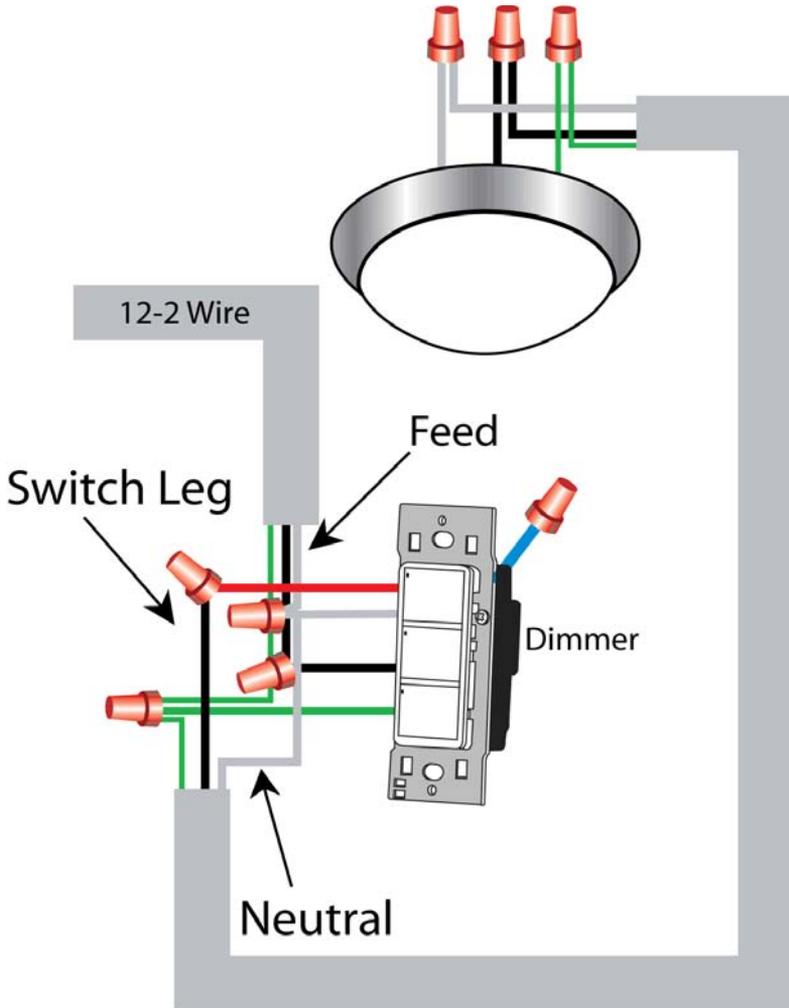
Three-Way with load in the middle of circuit

Requires one (1) remote keypad and one (1) dimmer
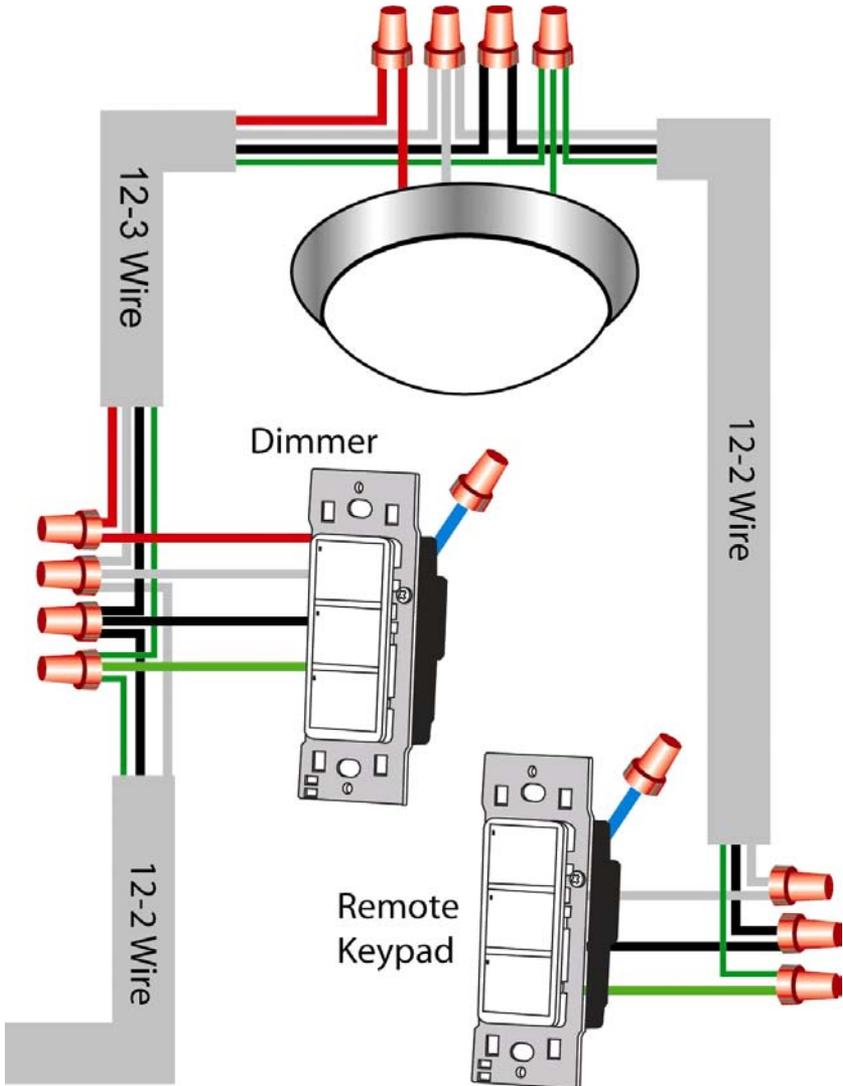
Three-Way with load at beginning of circuit

Requires one (1) remote keypad and one (1) dimmer
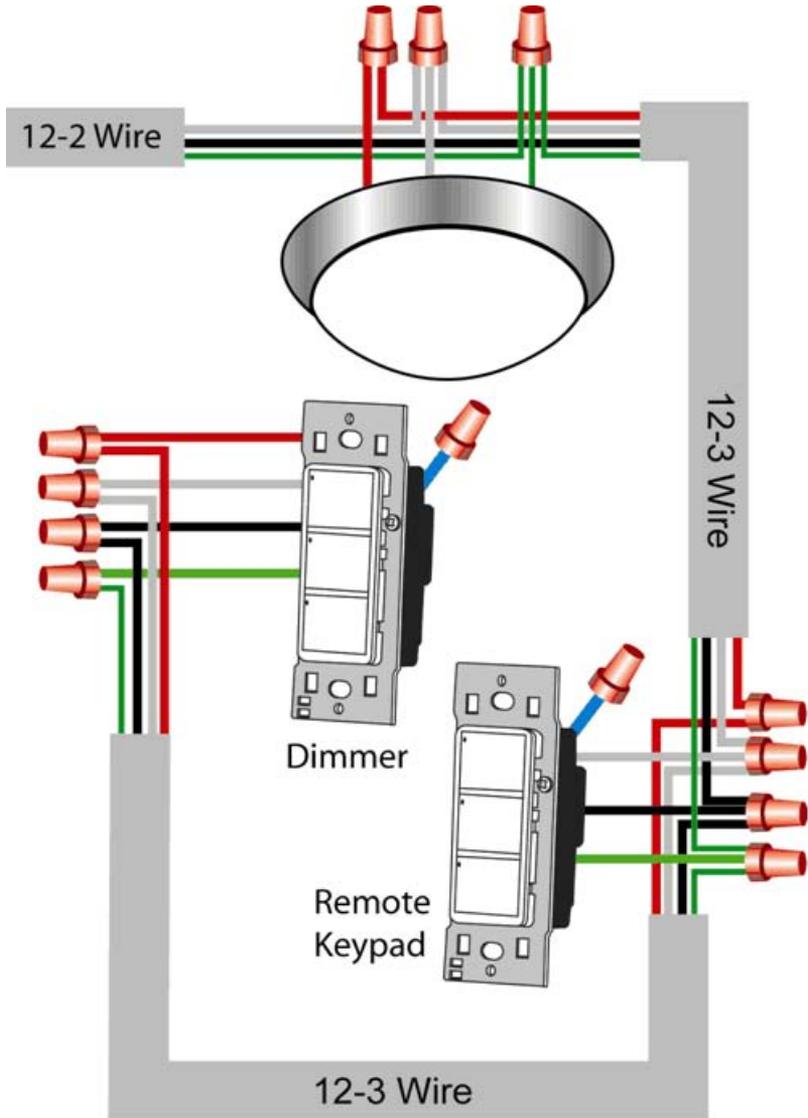
Three-Way with load at end of circuit

Requires one (1) remote keypad and one (1) dimmer
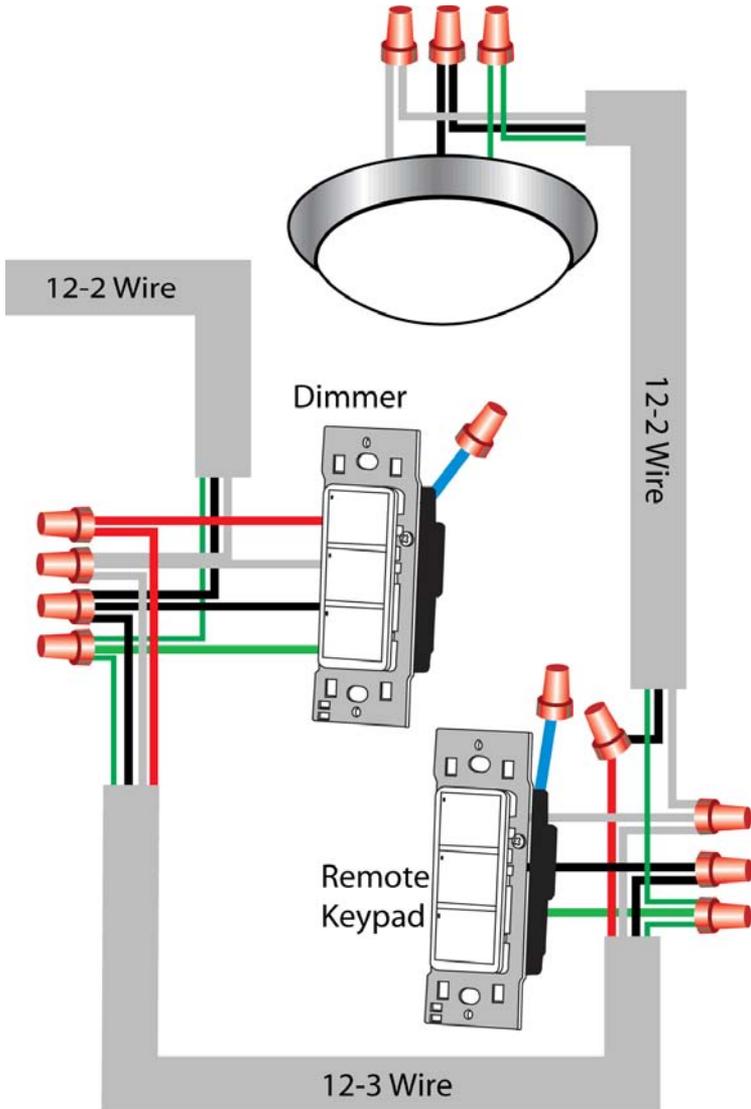
System Programming

Introduction to the JetStream Network

The JetStream Network is a Zigbee based mesh style network. This means the network utilizes self-healing technology to ensure the best possible quality and robustness. Every device in the network that is always powered either by a plug in transformer or a hard wired connection acts as a network repeater. (Repeating devices must be within 40 feet of another repeating device) This means that as the system grows the network becomes stronger and gives more possible routing options in the event of an environmental change that necessitates a network change.

The network resides on one 2.4GHz channel. The 2.4GHz spectrum is divided into sixteen (16) channels. The system automatically chooses the best available channel when forming the
network. However, in the event that the channel must be changed, the network allows manual configuration.

Note: The 2.4 GHz spectrum is populated by consumer electronics such as cordless telephones, Wi-Fi, microwave ovens, Bluetooth®, and other devices. It is important to note that Wi-Fi is a high power network. Three (3) of the channels used in Wi-Fi overlap thirteen (13) of those used by JetStream. JetStream includes the functionality to determine what the least active channel is when forming the network. However, in a highly dense radio environment we recommend using a Spectrum analyzer tool to identify the cleanest channel. Wi-Spy www.wi-spy.co.uk/ is a recommended open-source vendor for spectrum analyzers.

The following graphs illustrate that Wi-Fi channels overlap Zigbee channels. It is advised that the JetStream and Wi-Fi be separated as much as possible. If the installation uses a Wi-Fi router that is set to channel 6 (the default value for most consumer wireless routers), it is advised that the JetStream not be configured on channels 16 through 20. Problems may occur in a high traffic Wi-Fi environment when streaming media servers are include in the network. These types of devices tend to cause large amounts of wireless traffic.
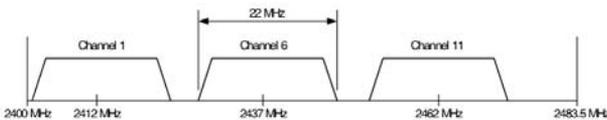
Figure 1
802.11 (Wi-Fi) 2.4Gz
Spectrum Channels
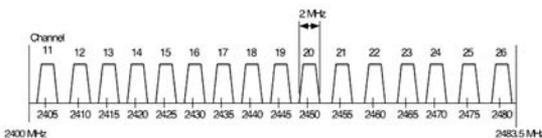
Figure 2
802.15.4 (ZigBee) 2.4Gz
Spectrum Channels

Creating a Network

A JetStream network is formed using the PC programming software in conjunction with the USB Bridge. When the software is connected to a programming bridge (USB Bridge) a command is issued to form a network on the best possible channel. When the network is formed initially the only device on the network is the programming bridge. The next step is to "Capture" devices. Devices are captured by entering "Discovery" mode then pressing a configuration button on the "Discovered" devices. The configuration button is the number 1 button on all keypads and dimmers. During the "Discovery" process, each JetStream device, that is in range of the network and is not associated with an existing network, will be available for capture. After the device is captured it can be configured with the appropriate functions for its type. Once all of the devices are captured each device can be configured with advanced settings and scenes can be programmed.

Definitions

There are some terms that are unique to the JetStream Network. Their definitions follow.

|	
Pan ID	Personal Area Network ID. This UNIQUE value is the identification number for a JetStream network.
Extended Pan ID	This value is a user defined value used to identify a specific network. Extended Pan ID can be used in a multi-unit situation to identify JetStream units based on apartment or condo unit.
Channel	A 2MHz section of the 2.4GHz Zigbee frequency range.
Wi-Fi	A 2.4GHz communication protocol.
Discovery	Process used to identify devices that are available to join the JetStream network.
Device	Any CentraLite JetStream product that can communicate on the JetStream network
Capture	The process of joining a defaulted JetStream device to a JetStream network by pressing and holding the configuration button.
Factory Default	Restoring a device to the factory conditions and erasing all existing user settings.
Refresh	Receive all device information.
Configuration Button	Button on Device used for the Capture process.

Software Installation

The JetStream software installation is very user intuitive. Follow the next steps for quick installation of the software.

- Supported Microsoft Windows Versions:
- Windows XP Home/Professional
- Windows Vista (any version)

Note Regarding Microsoft Vista™: For computers that are running Windows Vista it is strongly advised that the program is installed by a user with Administrative rights.

Locate and double click on the Setup. exe file. The following screen will appear. Click the "Next" button to proceed.
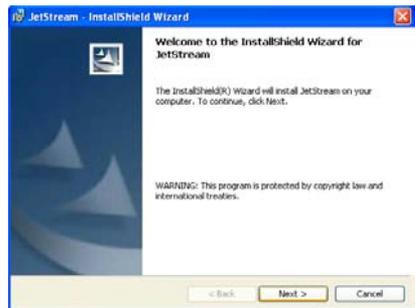
The JetStream Software REQUIRES the Microsoft .NET 2.0 Framework to operate. If the framework is missing, the wizard will give options to download or install the framework. Follow all instructions regarding the Framework installation before continuing installation. If the framework is already installed continue to Step 2.
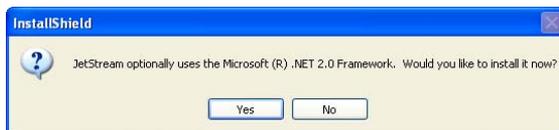
The following screen will be displayed as the framework is downloaded (Internet Connection Required).

When the framework download
is complete click "Run" to
begin installation.

Click "Next" on the following screen
to begin the framework installation.
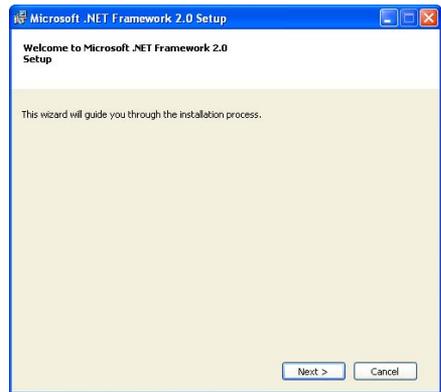
Accept the Microsoft License
Agreement and click "Install"
to continue.
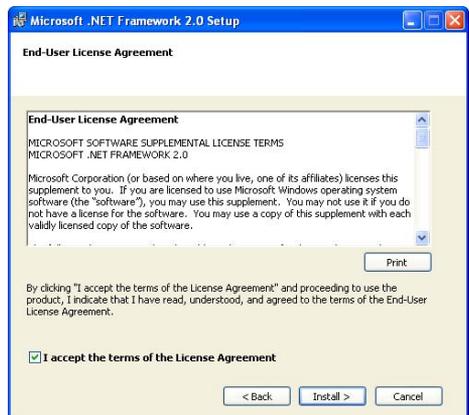
The framework installation is complete. Click "Finish" to rejoin the JetStream installation.
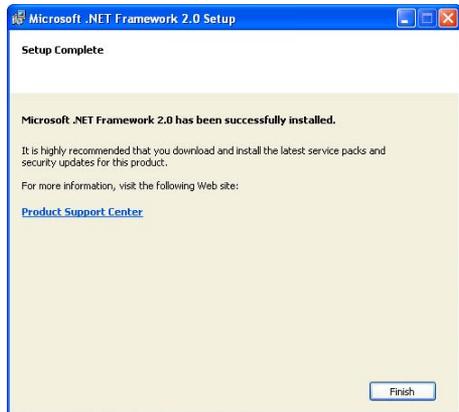
Update the User Name and Organization information and click "Next".

Click "Install" to begin installation of the files.
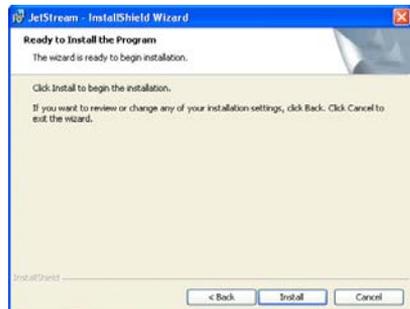
The screen to the right will be installed during the installation.
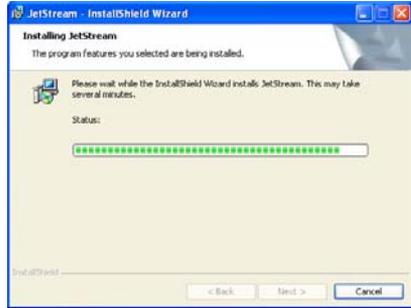
Installing USB Programming Bridge Driver

The USB Programming Bridge requires two (2) device drivers to operate. When the Programming software is installed these drivers are stored on the computer. The first time the USB Bridge is plugged into the computer, the Found New Hardware wizard will appear with instructions on installing the device. Follow the instructions below.

The drivers can be found under:
C:\Program Files\CentraLite Systems, Inc\JetStream\USB Driver for manual driver installation.

When the USB Bridge is connected to the PC the following screen will appear. Click "Next" to continue.

Windows will try to locate the drivers automatically.
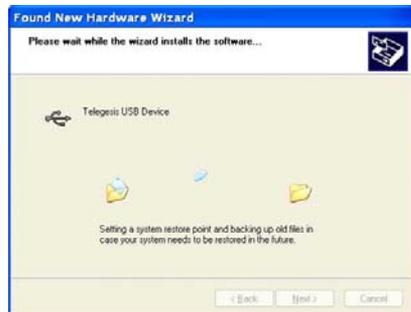
Once the drivers are located, click "Continue Anyway" to install the first driver.

Click "Finish" to complete the first
driver installation.

The second USB driver will automatically install
itself. Click "Next" to search for the driver.

When the driver is found click "Continue
Anyway" to continue.

Click "Finish" to complete the second
driver installation.

JetStream Programming Software Overview

The JetStream programming software allows the installer to configure all aspects of the JetStream network. When connected to a Programming Bridge, the software can automatically connect to and receive all device settings in a JetStream network. The software can also be used to store a backup image of the network for archiving purposes. JetStream systems can be quickly and easily configured using the workflow that is found in the next section. The software is divided into several pages that logically group devices, scenes, timed-events, and system parameters. You can navigate through the program by using the navigational window located on the left of the screen.

Programming Workflow
1. Open the JetStream application.
2. Create a network or join an existing network..
3. Create rooms and floors. (optional).
4. Initiate device discovery.
5. Capture devices by holding the configuration button until the flashing indicator led turns off. Note: Discovered devices can be identified by the rapidly blinking indicator led.
6. Provide device information on the Device Captured Page. (optional)
7. Repeat until finished
8. Click "End Discovery"
9. Drag devices to Rooms/Floors using the device tree.
10. Program device buttons to control remote loads or scenes.
11. Develop scenes and assign to device buttons.

Configuration
Button

Configuration
Button
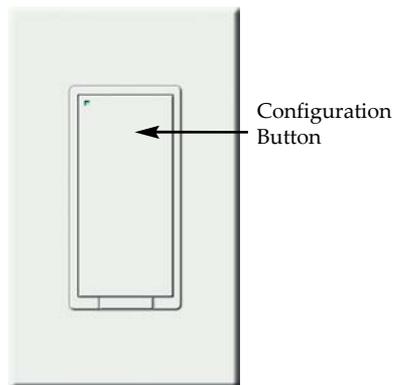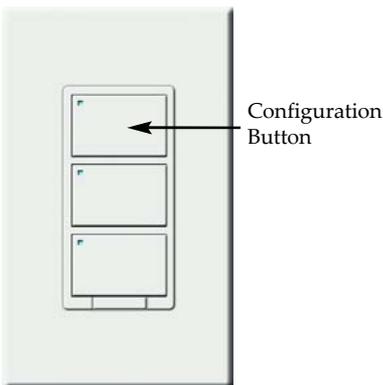
Using Software for the First Time

The JetStream application can be opened by clicking on the desktop icon or through the Start Menu by clicking Start >> All Programs >> CentraLite Systems, Inc >> JetStream >>JetStream.exe. The application will automatically attempt to connect to a USB Programming Bridge.

If a USB Bridge is found, the application will display the available networks tool if the Bridge is not already a member of an existing network. The available networks tool shows all JetStream networks that are in range of the USB Bridge. At this point you can either join an existing network or create a new network.

For detailed instructions on creating a new network see section "Creating a New Network" on page 26.

For detailed instruction on joining an existing network see section "Joining an Existing Network" on page 27.

Once the application displays confirmation about the network creation or joining, click "Close" to return to the main application.

The JetStream application is divided into three major sections.

Main Toolbar

Contains menus for file operations, USB Bridge Connections, Network Configuration, Report Viewing, and Getting Help

Navigation Panel

Allows the user to select Devices or Scenes manipulation

Selected Item Window

Area where the selected item's properties can be manipulated via a friendly graphical user interface. The items are selected using the Navigation Panel
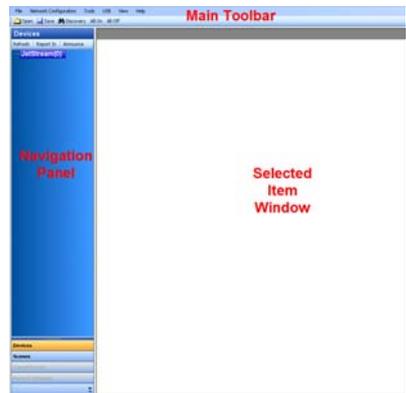
Creating a New Network

When installing a new JetStream system, a new network must be created. To create a new network click on the "Network Configuration" toolbar item on the main toolbar.
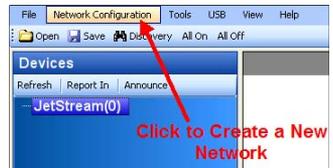
On the Available Network screen choose the "Set up a new network" task.

The system will scan the 2.4GHz spectrum for the best channel.
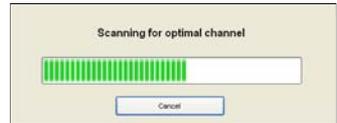
Once the network is created, the following screen will pop up. The Network ID and Extended Network ID are shown. If the system is installed in a multi-unit development such as a condo/apartment building or hotel, it is wise to enter a descriptive label in the Extended Network. Using a custom Extended Network ID makes it easier to identify networks when multiple networks are available. The Extended Network ID can be up to eight (8) characters in length. Click "Submit" to complete the process.
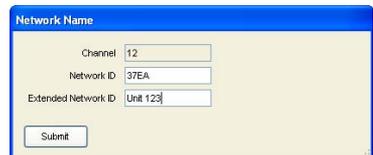
Next click the "Close" button to return to the main page of the application.
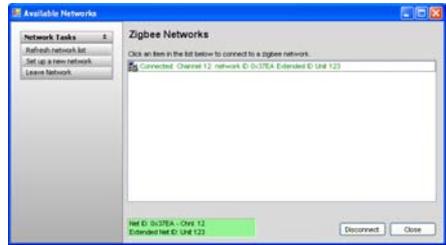
Joining an Existing Network

1. To join an existing network, the network must be open for joining. To allow joining on the existing network, press and hold a button on a device that is part of the network, for at least 1 second.

2. Click the "Refresh Network List" button.

3. Click on the green available network then click "Connect"

4. When the network is joined, a dialogue box will confirm that the bridge is now part of the network.

5. Click the "Close" button to exit the network configuration screen.
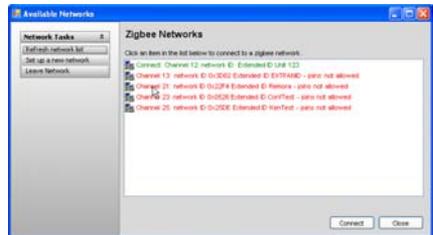
Note: If devices do not automatically start downloading, click "Refresh" in the navigation panel.

Discovery Process

In order to add devices to a JetStream network, you must first discover devices. To enable discovery click the "Discovery" button on the main toolbar.
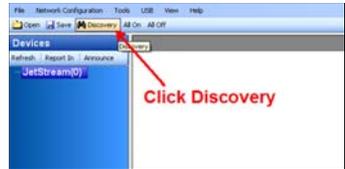
You will then see that the discovery process is active by the following progress indicator.

If any devices are found within range of the network, the top led will begin to quickly flash. To "Capture" the device and attach it to the network, press and hold the configuration button until the led stops flashing. This is the top button on three button dimmers/keypads or the single button on a one button dimmer/keypad.

When the led stops flashing, a new window will appear with options that can be applied to the new device. Changes can be made to the device on this screen. Click "Close" (Optional) on the window, and move on to the next device.
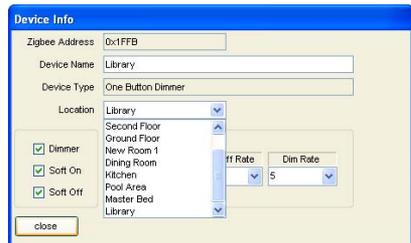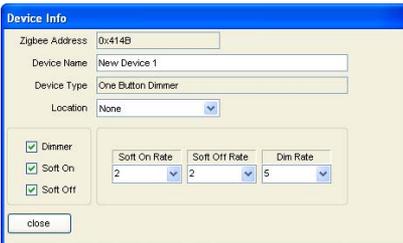
When finished with the discovery process, click the "End Discovery" button.

Device Screen

The device screen can be accessed by clicking the "Devices" button on the Navigational Panel. This display will show all the devices on the network. The devices can be selected individually or by room or floor. As shown, the Devices view can either show an overview of all devices the system or detailed configuration settings for an individual device. By selecting a Room/Floor in the device tree, all devices contained in that Room/Floor will be displayed as an overview. Details about a device can be displayed by clicking the "Details" button in the device overview or by clicking on a device name in the device tree.
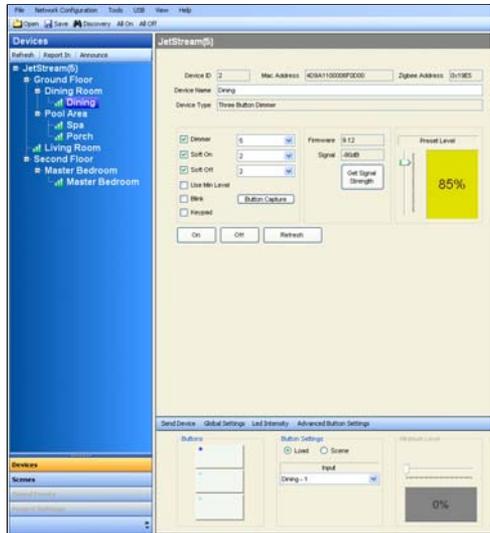
Organization with Rooms and Floors

JetStream allows devices to be organized by Room and Floor. This organizational ability allows the programmer to easily create scenes and include or exclude every device in a room or floor. Each device stores the information for its room and floor. If a room or floor does not contain any devices, it will not remain in the system if you perform a "Refresh" or re-open the application.

Adding a Room or Floor

To add a room or floor, right-click on the device tree and select Add Room or Add Floor from the resulting menu.

Removing a Room or Floor

Rooms and floors can be deleted by right clicking on the selected object and choosing "Remove Floor" or "Remove Room". This action only deletes the room or floor and does not delete the devices included in the room or floor.

Note: Room and Floor information is stored in each device that is a member of that room or floor. If a Room or Floor does not have any members, it will not persist in the Device Tree if the Refresh button is pressed or if the program is restarted.

Creating a Room or Floor Scene

Scenes are programmed lighting macros. A scene gives the programmer the ability to activate many lights from one button. For more information on scenes refer to the section Scenes Page on page 38. The device page provides the option to create a scene that contains every light in a given room or floor. To create a Room/Floor scene right-click on the desired Room/Floor and choose the "Create Scene" option. When this menu item is clicked, a new scene containing every device in the room or floor is created.

Figure 1

The resulting scene can be found by selecting "Scenes" on the navigational panel. The resulting scene's name is formatted as Room/Floor Name + Scene. The scene will include every load in that Room/Floor. The scene can be renamed or changed to meet the needs of the installation on the scene page.

Figure 2

Device Settings

The devices tab allows the programmer to see details for each JetStream device. Clicking on a Room or Floor in the Navigational Panel shows an overview of each device contained in that room or floor. A specific device can be selected by clicking on its name on the Device Tree or the "Details" button on the overview page.

Figure 3
Overview of Devices in a Room or Floor
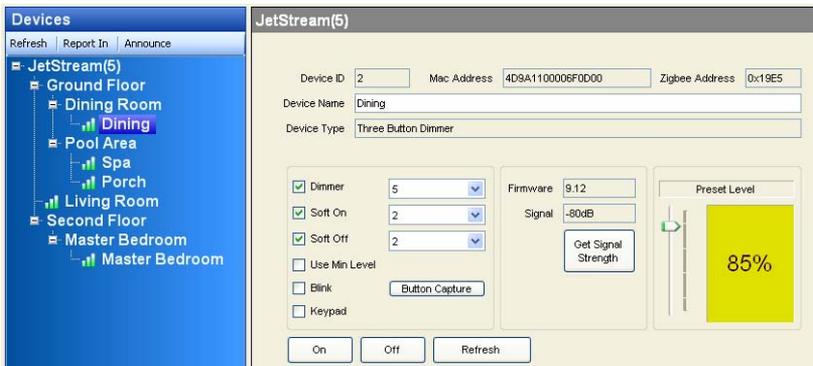
Figure 4
Details for a Specific Device

Dimmers and Keypads

Load Settings

The device details load section is shown in Figure 5. The parameters for the device's load can be manipulated using this screen. Refer to the following parameter descriptions:

Figure 5

Settings	Functions
Device ID	The ID used to control this device using the JetStream Third Party Protocol
Mac Address	The 64 bit unique address assigned to the device from the factory. This is NOT a TCP/IP Mac Address.
Zigbee Address	The 16 bit address assigned to the device during the discover process.
Device Name	The name of the device. This value can be updated at any time. It is recommended to name the device by location then function. The name is limited to 32 characters.
Device Type	The type of device currently selected.
Preset Level	The preset level is the default level for the load. When any button assigned to this load is tapped, the load will turn on at this level. Manipulating the preset level will change the load's level in real time.
Dimmer	Enables the dimmer option for the device. If the Load is not dimmable the box should be unchecked. Non-dimmable loads include fluorescent and metal-halide fixtures
Dim Rate	The amount of time required for the light to go from 0-100 % or 100% to 0% while pressing and holding the button assigned to the load.
Soft On	Enables/Disables the Soft On function for dimmers.
Soft On Rate	The time in seconds required for the light to go from 0% to 100% when a button controlling the load is tapped. The Soft On Rate is typically shorter than the DimRate. Using the SoftRate allows the light to ramp on smoothly saving bulb life while giving nice lighting transitions.
Soft Off	Enables/Disables the Soft Off function for dimmers.

Settings	Functions
Soft Off Rate	The time in seconds required for the light to go from 100% to 0% when a button controlling the load is tapped. The Soft Off Rate is typically shorter than the DimRate. Using the SoftRate allows the light to ramp down smoothly saving bulb life while giving nice lighting transitions.
Use Min Level	Enable/Disable the use of a device's minimum level for dimmers. The device will not operate between 0% and the specified minimum level when this option is enabled. Certain loads such as dimmable fluorescent ballast cannot operate below certain levels.
Minimum Level	Found in the button section. The slider allows the programmer to adjust the Minimum level for the selected load.
Blink	Enable/Disable blinking of the dimmer's load. This feature is useful when identifying the device. If the device is a keypad, the LED on the top button will blink.
Keypad	Enable/Disable keypad emulation. Dimmers can emulate keypads with the same number of buttons. When changing this option make sure to reassign all buttons to the proper function. Note: When a dimmer is programmed to operate as a keypad, the load can not be activated, even when controlling the load from a remote keypad. The load will be unavailable for scenes or remote button assignment.
On/Off Buttons	Clicking these buttons turns the load on to the Preset Level. This is useful when testing the load to make sure it is working properly.
Firmware Version	The firmware version of the current device.
Get Signal Strength Button	This button refreshes the signal strength value to the current settings. This tool is useful when experimenting with changes in device placement to determine best signal strength.
Send T-Party	This option is only available when a third party module is captured on the network. This will enable the device to send activity to the third party module.
Load Timeout	The time in seconds that the load will remain active before the load will turn off. A setting of 0 seconds will disable this feature
Button Capture	This button activates button capture mode. After button capture mode is activated, each device will report that its button has been pressed for 30 seconds. This tool is useful to identify a device if the name is not known.

Button Settings

The button section of the device detail screen is shown in Figure 6. The screen will show a button for each button on the device. Click on the desired button to manipulate the function of the button.
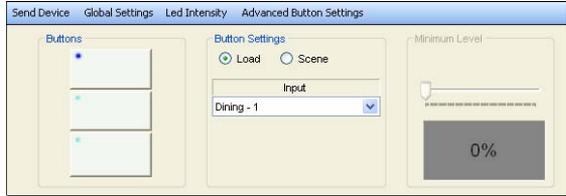
Figure 6

Hint: You can right click on a button and the device will perform the action just as if you pressed the actual button.

Button Controlling a Scene

To program a button to control a scene, click the button that you wish to program. Then select "Scene" from the Button Settings section. Next use the drop down menu to select the correct scene. The button action can be changed by selecting Toggle or Activate Only.

Figure 7

Action	Tap Behavior	Press and Hold Behavior	Indicator LED
Toggle	The button will toggle the state of the assigned scene.	The button will cause the scene to ramp up or down depending on the scene's previous ramp direction	Shows the active status of the selected scene.
Activate Only	The button will activate the selected scene.	The button will activate the selected scene.	LED flashes to show the scene was activated

Button Controlling a Load

To program a button to control a load, click the button that you wish to program. Then select "Load" from the Button Settings section. Next use the drop down menu to select the correct load.

Figure 8

Action	Tap Behavior	Press and Hold Behavior	Indicator LED
Default	The button will toggle the state of the assigned load.	The button will cause the load to ramp up or down depending on the load's previous ramp direction	Shows the active status of the selected load.

Advanced Functions

The device details page has a toolbar located just above the button section with advanced tools. The following sections outline the functions of each of these toolbar buttons.

Send Device

The "Send Device" button sends all of the device details to the device. As changes are made to the device they are sent to the device. However if a device is turned off while changes are made, it may be necessary to manually send the settings after power is restored to the device.

Global Settings

The "Global Settings" button launches a tool that can be used to set the same options for every similar device in the network. Options such as Dimmer, Soft On/Off, Soft Rates, Enable Third Party Reporting, Preset and LED levels can be set can be set using this tool.

To change an option check the box next to the option to enable a global change, then set the new global value using the tool to the right. To apply the changes to the network click "Submit".
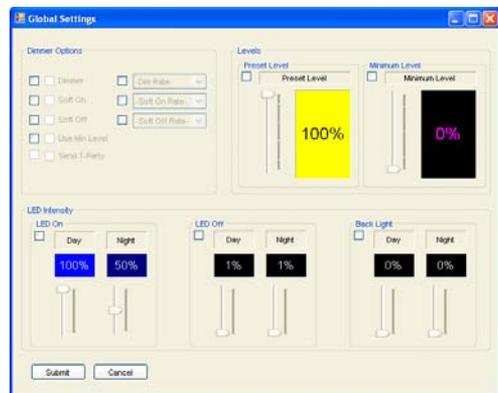
LED Intensity

The LED intensity button found on the toolbar above the button section will display a tool used to adjust the led brightness levels for the specified device. The brightness can be changed for the On/Off level for day and night as well as the button backlight intensity.
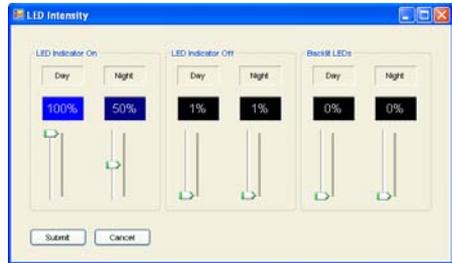
Advanced Button Settings

Clicking the "Advanced Button Settings" toolbar button launches the Advanced Button Settings wizard. This tool is used to configure the button actions for the device. Button can have distinct functions for tap and double tap. To apply the settings choose the correct button in the "Buttons" section. Then modify the button's tap and double tap function. When finished altering settings click "Close".
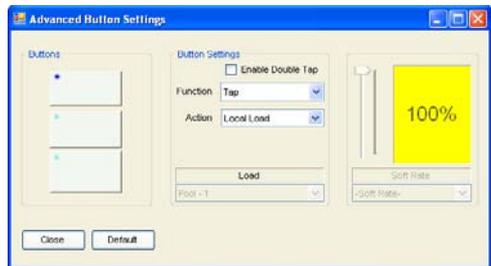
Day/Night Mode can be activated through a Scene. In order to setup this feature, set the button tap action to "Scene Activate" and check either the "Act Night" for night mode or "Act Day" for day mode. When this button is tapped, the corresponding mode will be activated.

While in the Advanced Button Setting page, double and single taps can be tested. While the "Tap" function is selected, right click on the desired button to simulate a button tap. To test the "Double Tap" feature, change the function to double tap and right click on the desired button.

Action	Tap Behavior	Press and Hold Behavior	Indicator LED
Local Load	Controls the local load. Tap toggles and Hold dims the load	The button will cause the scene to ramp up or down depending on the scene's previous ramp direction	None
Local Load Level	Sets the Local Load to the specified level with the specified rate.	The button will activate the selected scene.	Level, Rate

Action	Behavior	Parameters
Remote Toggle	Toggles the state of a remote load.	Remote load to toggle
Remote Level	Set the Remote Load to the specified level with specified rate.	Remote Load, Level, Rate
Scene Toggle	Toggles the specified scene's state	Scene to toggle (Optional Activate Day/Night Mode)
Scene Activate	Activates the specified scene.	Scene to activate (Optional Activate
Scene Level	Sets the specified scene to the level supplied over the rate specified	Scene, Level, Rate
Timeout	Time in Seconds that the scene will stay active before it turns the scene off	Time in Seconds
Soft Rate	Time it takes for load or scene to go from 0%-100% in seconds.	Time in Seconds
Enable Double Tap	Enable or Disables the double tap feature for that device	None

Scenes Page

A scene is a pre-programmed lighting scheme that when executed activates desired loads and sets them to predetermined levels. For example, a "Good Morning" scene can be programmed to turn on the Master Bedroom lights, the Hallway lights, and the Kitchen Lights. This is easily achieved in the "Scenes" tab. The Scenes tab is accessible by clicking on the "Scenes" button on the "Navigational Panel"
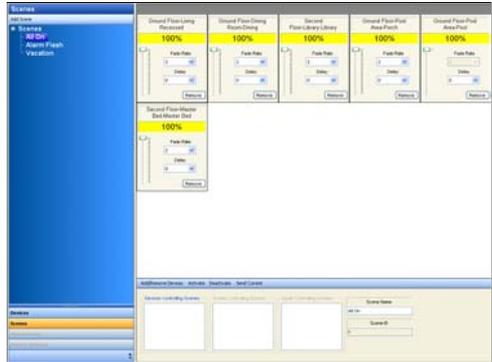
Creating a Scene

1. To create a scene click the "Add Scene" button located at the top of the Navigational Panel.

2. Next rename the scene by single clicking on the scene name in the tree. The scene can also be renamed using the "Scene Name" text box located at the bottom left of the scene detail window.

3. Add devices to the scene. Click the "Add/Remove Devices" button on the scene toolbar. Then use the tool to choose which devices should be members of the scene.
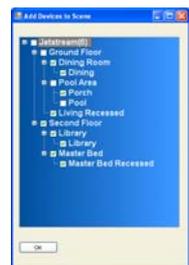
4. Modify the level and rate for each device using the sliders for rates and drop down boxes for rate and delay. When you move the slider the load will immediately assume the new level. This behavior makes it very easy to see what a scene will look like when activated.

Note: The SCENE ID located at the bottom of the scene page. The Scene ID is used to activate the scene via the third party protocol.
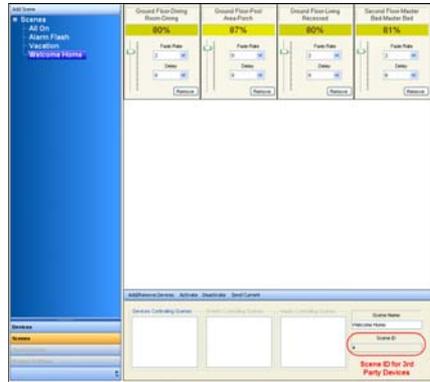
Tip: Holding CTRL while changing a value applies the value to all devices.

5. Test the scene behavior by clicking the "Activate" and "Deactivate" buttons.

6. Assign the scene to device buttons using the "Device" page. All assigned buttons and timed events will be shown in the boxes just under the scene toolbar.

ASCII Scene

All scenes have the ability to send out a twenty (20) character string on the activation of a scene and a different ASCII string on the deactivation of a scene. In order for this option to appear, a RS232 Bridge must be present in the current JetStream network. The ASCII button will appear on the scene toolbar.

Copy Scene

Scenes can be copied. This saves programming time when several scenes will have similar behavior. To copy a scene, right click on the scene to copy and choose the "Copy Scene" option. A new scene will be created with the name "xxx Copy" where xxx is the previous scene name.

Remove a Scene

To delete a scene remove all devices from the scene using the Add/Remove Devices tool. When the system's network data is refreshed the scene will not return because there are no devices with information regarding that scene.

One and Three Button Dimmers

Defaulting One and Three Button Dimmers
Follow the list of instructions to reset a device to the factory presets.

1. Pull out the air gap switch or turn off the breaker supplying power to the device.

2. Press and hold the top button on a three (3) button device or the single button of a 1 button device.

3. Restore power to the device by pressing in the air gap switch or turning on the power supply breaker while still holding the button.

4. When the power is restored the top indicator light will begin to flash, keep the button pressed until the indicator light turns off. This usually takes around four (4) seconds.

5. The device is now restored to factory preset values and is now available to join a JetStream network.

Third Party Command Structure

Bringing the RS-232 Bridge into the Network

Discovery

Out of the box, the RS-232 Bridge is not part of any JetStream Networks. The first step in bringing the device into the network is discovery. For discovery, plug in your USB Bridge to your PC and begin the JetStream programming software. Next, find a good spot for the RS-232 Bridge to live. Preferably it needs to reside in an open area at within 40' of a nearby device. After plugging in the RS-232 Bridge, the "Discovery" LED will slowly blink. Once the software has read all the current devices, click on the Discovery button at the top of the page. The system will now go into "Discovery" mode. Once the RS-232 Bridge has been discovered, its discovery LED will begin flashing repidly and is ready to be captured.

Capture

The Capture process will enroll the RS-232 Bridge into your specific JetStream Network. To accomplish this, tap the button on the front right side of the device after the LED is fast blinking. Once captured, the LED on the right now becomes an activity LED. You will see it flicker every once and a while. This is a normal behavior.

In the software, a dialog box will appear in which, you can name your device and place it in its correct room/floor location. Click "Close" and the device will now show up in the device list on the left-hand side of the page.

Configuring the RS-232 Bridge for Your Area

Since the RS-232 Bridge contains an astronomical clock that tracks sunrise and sunset, the location (latitude/longitude) of the device must be provided. For US residence, a zip code can be provided and the location will automatically be determined. For non-US customers, latitude and longitude must be known prior to setting up events.

Setting the Location

In order to setup timed events, the location of the RS-232 Bridge must be programmed. In order to do this, please follow these steps.

1. Select the RS-232 Bridge in the Device List on the left hand side of the JetStream Software.
2. Click on the "Location" button in the middle of the page.
3. For US residents simply enter your zip code and the latitude/longitude will be filled in automatically. For non-US customers, leave the Zip code field blank and manually enter your latitude/longitude and time zone.
4. By default, Daylight Savings is in used. If you are in a city that does not use Daylight Savings, uncheck the "use Daylight Savings" box
5. When all is correct, click the "Submit" button.

Setting the Baud Rate

By default the RS-232 Bridge's baud rate is set to 19200. If you need to change this please follow these steps.

1. Select the RS-232 Bridge in the Device List on the left hand side of the JetStream Software.
2. Click on the "Settings" button in the middle of the page.
3. Click on the Drop down arrow next to Baud Rate and select your desired baud rate.
4. When all is correct, click the "Submit" button.

Setting Daylight Savings Parameters

By default the RS-232 Bridge's DST is set to begin on the 2nd Sunday of March and end on the 1st Sunday of November. If you need to change this please follow these steps.

1. Select the RS-232 Bridge in the Device List on the left hand side of the JetStream Software.
2. Click on the "Settings" button in the middle of the page.
3. Click on the Drop down arrow next to Begin Sunday and select your desired Sunday.
4. Click on the Drop down arrow next to Begin Month and select your desired Month.
5. Click on the Drop down arrow next to End Sunday and select your desired Sunday.
6. Click on the Drop down arrow next to End Month and select your desired Month.
7. When all is correct, click the "Submit" button.

Setting the Date and Time

Before any Events can occur, the correct Date and Time need to be set on the RS-232 Bridge. To do this, please follow these steps:

1. Select the RS-232 Bridge in the Device List on the left hand side of the JetStream Software.
2. If your PC clock is correct, click on the "Clock-PC Sync" button. This will send the date and time your PC thinks it is to the RS-232 Bridge.
3. You can also set it manually by entering in the correct time and date and clicking the "Set Time" button. To check this, click the "Get Time" Button and you will see the time that is currently in the RS-232 Bridge.

Hint: Pay attention to the AM/PM values. It is important that this is correct. Or else all events will be 12 hours off.

Setting up a Timed Event

Each RS-232 Bridge allows for 50 timed events. All events will be displayed under the RS-232 Bridge in the device list in the software. To view these events, click on the "plus" sign next to the RS-232 Bridge on your device list. A timed event can either activate or deactivate a programmed scene on your JetStream system at an absolute time (9:00am) or a relative time to sunrise/sunset (10 minutes before/after sunrise/sunset).

Absolute Timed Event

A timed event can be set up to occur at a specified time of day. This is called an Absolute Timed Event. To setup an Absolute Timed Event please follow these steps:

1. Select the RS-232 Bridge in the Device List on the left hand side of the JetStream software.
2. Expand the events by clicking on the "plus" sign next to your RS-232 Bridge.
3. Click on the event you wish to modify.
4. Name the Event (10 characters max).
5. Check the active box to set the event as being used.
6. Select the scene you wish to control from the drop down list. If you have not created the scene yet, please see the programming manual to create a scene.
7. Select whether you want the scene to be activated or deactivated. For example. You might want your outside lights scene to be activated at 7:00pm as an event and then for another event, you can have your outside lights scene be deactivated at 11:00pm.
8. Click the "Scheduling" Tab.
9. Select the Hour and Minute you would like this event to occur.
10. Select all Days of the week and Months of the year you would like this event to occur.
11. When all is correct, click the "Submit" button.

Relative Timed Event (Sunrise/Sunset)

A timed event can be set up to occur at a time of day relative to sunrise or sunset. This is called a Relative Timed Event. It is important to know that the location parameters must be setup prior to these steps. To setup a Relative Timed Event please follow these steps:

1. Select the RS-232 Bridge in the Device List on the left hand side of the JetStream Software.
2. Expand the events by clicking on the "plus" sign next to your RS-232 Bridge.
3. Click on the event you wish to modify.
4. Name the Event (10 characters max).
5. Check the active box to set the event as being used.
6. Select the scene you wish to control from the drop down list. If you have not created the scene yet, please see the programming manual to create a scene.
7. Select whether you want the scene to be activated or deactivated. For example. You might want your outside lights scene to be activated at 7:00pm as an event and then for another event, you can have your outside lights scene be deactivated at 11:00pm.
8. Click the "Scheduling" Tab.

9. Check the Box next to "Sunrise/Sunset"
10. Select the Hours and Minutes you would like this event to occur relative to sunrise/sunset.
11. Select the options for this event. This can be "Before Sunrise", "Before Sunset", "After 12. Sunrise" or "After Sunset".
12. Select all Days of the week and Months of the year you would like this event to occur.
13. When all is correct, click the "Submit" button.

Testing a Timed Event

A nice feature of the RS-232 Bridge is the ability to test timed events with the click of one button. This feature will roll the clock back to 5 seconds prior to the event occurring. This will work with Absolute or Relative Timed Events. To test an event, please follow these steps:

1. Select the RS-232 Bridge in the Device List on the left hand side of the JetStream Software.
2. Expand the events by clicking on the "plus" sign next to your RS-232 Bridge.
3. Click on the event you wish to test.
4. Make sure you can physically see the lights in the event and that they are off if the event is supposed to turn them on and on if the event is supposed to turn them off.
5. Click the "Test" button on the event page.
6. A box will appear with the time showing 5 seconds prior to the event. At the minute rollover, the event should fire. If successful, click "Finished" This will roll the clock back to your PC time.

Third Party Control

The RS-232 Bridge is used to bridge JetStream's Network to another third party application (i.e. touch screens, security systems, home automation controllers). There can be a total of three RS-232 Bridges attached to the JetStream network. These systems can then control any of the JetStream devices with a simple ASCII protocol. This section will explain the third p3arty protocol.

Third Party Command Structure

If using a RS-232 Bridge, the default RS-232 connection settings for the system are:

Baud Rate:	19,200
Data Bits:	8
Parity:	None
Stop Bits:	1
Flow Control:	None

The default baud rate of each RS-232 Bridge can be changed on the "Device Details" page. Select the correct baud rate via the drop down menu on the details page. The RS-232 connectors offer a traditional three wire connection using DB9 connector. The control wire pin-out is as follows.

Description	Pin
Transmit	2
Receive	3
Ground	5

Third Party Command Control Structure

Command	Format	Description	Returns
Activate Load	^Addd	Activates device "ddd" to its preset level	Device levels in the format "DEVdddll"
Deactivate Load	^Bddd	Deactivates device "ddd"	Device levels in the format "DEVdddll"
Activate Scene	^Cnnn	Activates the scene numbered "nnn".	Device levels in the format "DEVdddll"
Deactivate Scene	^Dnnn	Deactivates the scene numbered "nnn".	Device levels in the format "DEVdddll"
Set Load to Level	^Edddllrr	Sets the load of device "ddd" to level "ll" at rate "rr".	Device levels in the format "DEVdddll"
Ask for Load Level	^Fddd	Query JetStream for the load level for device "ddd".	Device levels in the format "DEVdddll"
Ask for Device Name	^Nddd	Query JetStream for the name of device "nnn"	Device name in the format "NAMxxx"
Simulate Button Tap	^Tdddbb	Simulates a button tap of device "ddd" button bb	Device button activity in the form "ACTdddbbT"
Simulate Button Press	^Pdddbb	Simulates a button tap of device "ddd" button bb.	Device button activity in the form "ACTdddbbP"
Simulate Button Release	^Rdddbb	Simulates a button release of device "ddd" button bb.	Device button activity in the form "ACTdddbbR"
Ping	Ping(CR)	Test to see if 232 Connection is good.	Response will return "Hello(CRLF)
Increment Load	inc d v r	Increments a specified load (d) by a value of v at a rate of r seconds	Device levels in the format "DEVdddll"
Decrement Load	dec d v r	Decrements a specified load (d) by a value of v at a rate of r seconds	Device levels in the format "DEVdddll"

- "nnn" is the scene number value between 001 and 100.
- "ddd" is the device number value between 001 and 096..
- "ll" is a load dim level between 00 and 99 where 00 corresponds to 0% and 99 corresponds to 100%.
- "bb" is a device button number with values between 01 and 03
- "CR" is a carriage return.
- "LF" is a line feed
- "xxx" is the third party id

Third Party Spontaneous Output
The JetStream system has been designed to spontaneously output status for load levels and button activity. As loads change dim level, they will automatically report the current dim level via the RS-232 ports. When buttons are tapped, pressed, or released their status will be reported. The following table lists the spontaneous output data.

Output	Description	Format
Device Level	Returns Current Device Level	DEVdddll
Button Tap	Returns Button Tap Event	ACTdddbbT
Button Press	Returns Button Press Event	ACTdddbbP
Button Release	Returns Button Release Event	ACTdddbbR
Scene Activated	Returns When Scene (sss) has been Activated	SCNsss1
Scene Deactivated	Returns When Scene (sss) has been Deactivated	SCNsss0

Note: All spontaneous output strings are followed by a carriage return and line feed.

Setting Load Output Mode
Before any RS-232 Bridge will output activity in the system, it must be setup in the software. To accomplish this, you must follow these steps:

1. Select the RS-232 Bridge in the Device List on the left hand side of the JetStream Software.
2. Check the box that says "Update Third Party"
3. Once that is checked you will see a new option available on the device page.
4. Each device will now have a "Send T-Party" checkbox.
5. If you would like to see activity for that device, check the "Send T-Party" box.
6. Repeat these steps for each device you need to see activity from.

Factory Defaulting

To bring the RS-232 Bridge back to factory settings and to leave the current network it is attached to, you must factory default all settings. If you would like to factory default the RS-232 Bridge, please follow these steps.

1. Pull power from the RS-232 Bridge.
2. Push and hold the button on the front right.
3. While holding down the button, supply power back to the RS-232 Bridge.
4. If button is depressed while powering up, you will see the Discovery LED rapidly flashing.
5. When the LED stops flashing, release the button.
6. The Discovery LED will turn on for about 5 seconds (DO NOT PULL POWER UNTIL LED STARTS SLOW BLINKING!!!)
7. When Discovery LED starts slow blinking, the RS-232 Bridge is back to factory settings.

Car Visor

The Car Visor Remote has three (3) buttons that can be programmed to activate a scene. This is a low power device and can't be used as a repeating device in a JetStream network.

Capturing a Car Visor

In order to capture a remote, it must not be part of any network. To verify that it is factory defaulted, tap one button. If it is not part of a network, the LED will blink six (6) times. To capture a car Visor the JetStream programming software must be in the "Discovery Mode". Once in this mode, simultaneously press the outer two buttons. If the capture process is successfully started, the LED will blink three (3) times then continually flash until the network is found. Once captured, a screen will appear in your JetStream programming software. From this screen, you can configure your car visor.

Configuring a Car Visor

Set the function of each button by selecting the Scene that they're to activate in the drop down box. Buttons can only be assigned to scenes that have already been created in the JetStream network. To change the name of the remote type the new name in the Device Name text box. When configuration changes are complete, simultaneously press the two outer buttons on the remote. The configuration box will disappear when all data is received.
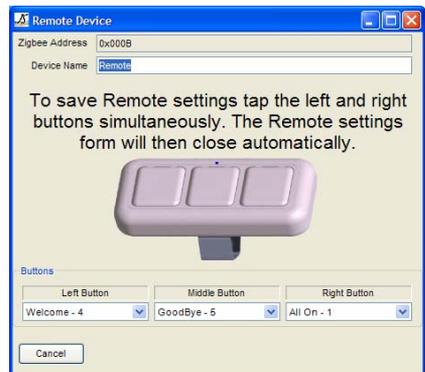
Factory Defaulting a Car Visor

The Car Visor can be factory defaulted in one of two ways. If the device is part of a JetStream network that your USB Bridge is connected to, you can default the car visor by naming it "DEFAULT DEVICE". The second way to default a car visor is to unscrew the base and remove the battery(s). With the battery(s) removed, press and hold any button on the device and replace the battery. When the LED stops blinking, release the button.

Table Top Keypad

Table Top Remotes have eight (8) buttons that may be programmed to control loads and scenes. Table Top Remotes are high power devices that may be used as repeaters on a JetStream network.

Capturing a Table Top Kaypad

First, verify that the Table Top Kaypad is in its factory default state. This can be done by removing and applying power to the device; if the device is defaulted the upper left LED will begin slow blinking. To capture a Table Top Keypad, JetStream programming software must be in "Discovery Mode". Once the software is in this mode, and the Table Top Keypad has detected the network, the upper left LED will start fast blinking. Press and hold the upper left button until the LED quits blinking to capture the device. When the device attaches to the network, the following form will open which will allow you to configure the settings for the Table Top Keypad.

Configuring a Table Top Keypad

Table Top Remote buttons may be configured to control remote loads and scenes in many ways. See the Button Settings section for more details about configuring buttons.

Factory Defaulting a Table Top Keypad

To factory default a Table Top Keypad, unplug the unit. Then, hold down the upper left button and plug in the unit. The upper left LED will begin fast blinking. After five (5) seconds the LED will stop blinking, release the upper left button at this time. If successful, the device should begin slow blinking within a few seconds.

Lamp Module

Lamp modules behave like dimmer devices, with the exception that lamp modules may not be configured as a keypad. See the documentation on device settings for more information.

Keypad Engraving

JetStream was designed with customized engraving in mind. You can order replacement button covers that have custom engraving. The original buttons are replaced by removing the button using a small flat-head screwdriver. The new custom buttons simply pop into place on the button guard.   You can visit www.centralite.com/engraving to order engraved buttons and visualize the final product.