# alula™ Z-Wave® User Guide

Connect+ Z-Wave Controller is a Z-Wave Plus® Product using the latest Security S2 Encryption. This product can be operated in any Z-Wave network with other Z-Wave certified devices from other manufacturers. All non-battery operated nodes within the network will act as repeaters regardless of vendor to increase reliability of the network.

Adding a Z-Wave Device

Follow these steps to add a new Z-Wave device:

> Note: if the device to be added was previously enrolled, or from another network, it will need to be removed to clear any prior network settings before it can be added to the Connect+ network. If device failed to add, it must go through the removal process before attempting to add again.
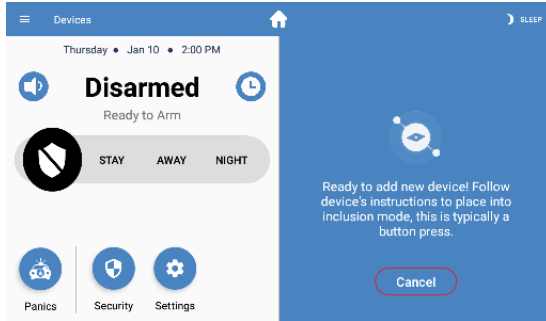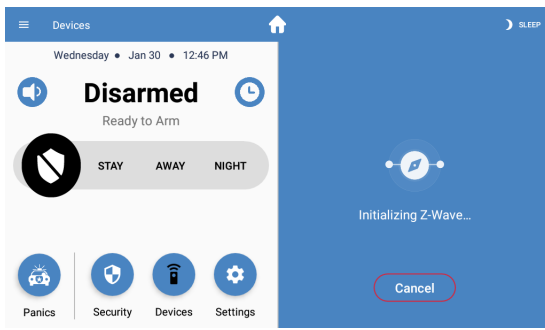
1. Navigate to the Devices screen using the left side menu on the Touchpad.
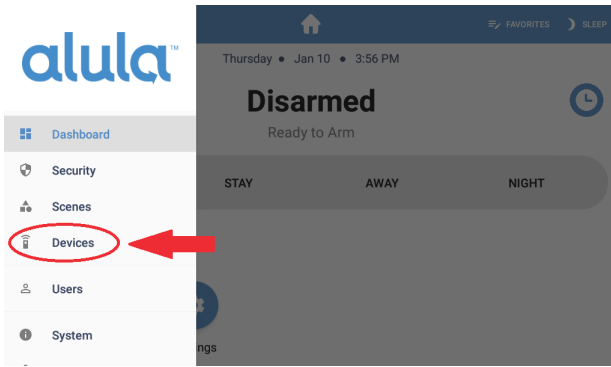
2. Touch the "+ Add" icon on the top right corner to start adding Z-Wave.
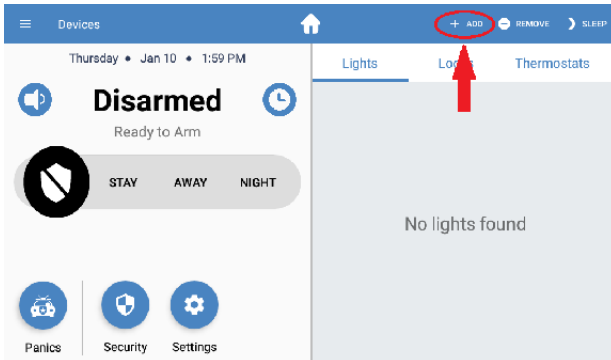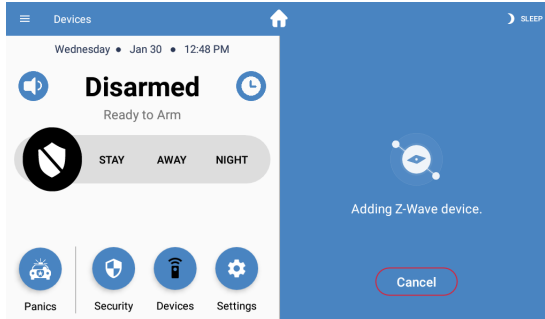

3. Connect+ will start the addition process and the following messages will display on the right side of the screen. This may take only a few seconds, or up to a minute to complete if the Connect+ controller is busy.

4. When the second message above is displayed, Connect+ is now ready to add the new device. Follow the new device's instructions to place it into inclusion mode. This is typically a button press.

5. After putting the device into inclusion mode, the following message will display on the screen.

6. If the device being added supports Security S2, then you will be prompted on the screen to enter that device's 5 digit DSK pin to complete the enrollment
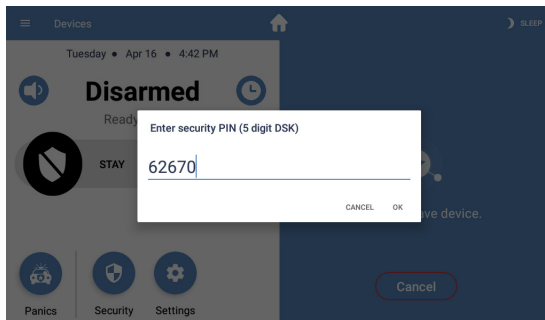
7. Depending on the device and number of supported command classes, this may take only a few seconds or up to a minute to complete.
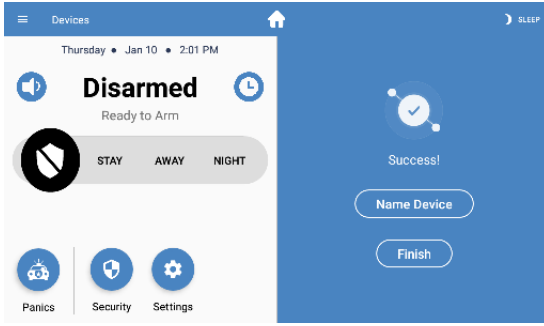

Removing a Z-Wave Device

1. On the Z-Wave device page on the Touchpad, touch the "- Remove" icon in the top right corner.
2. Connect+ will start the removal process. Status messages will display on the right side of the screen, and follow similar steps to the Add process. You will be prompted to place the device into exclusion mode, which is typically a button press. Follow the device's instructions to place it into exclusion mode.
3. If removal fails, try again until successful.

Z-Wave Factory Reset

Two types of Z-Wave reset are supported: soft reset and hard reset. Soft reset will only reboot the Z-Wave controller and will retain all your devices. Use this if you are experiencing persistent network issues to attempt to correct them. A hard reset will set the Z-Wave controller in Connect+ back to its factory default and all network devices will be cleared. Perform a hard reset only when the network primary controller is missing or otherwise inoperable.

> Note: Performing a hard reset will only factory default Connect+. Each device must also be factory defaulted, or go through the removal process before they can be re-added to a network.

1. Navigate to the Settings screen from the left side menu, or the Settings icon on the home screen on the Touchpad.
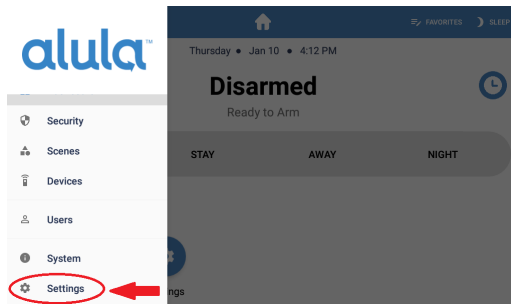
2. In the Settings menu, touch the last item "Panel" and enter your 4-digit security system PIN when prompted.
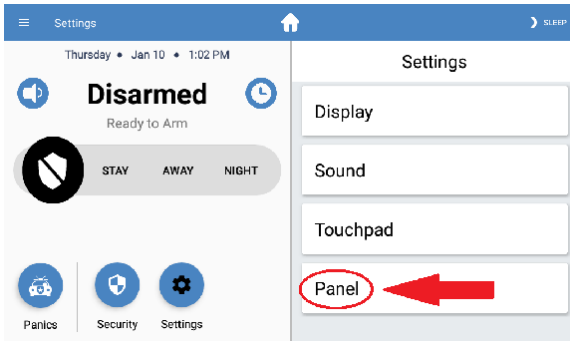
3. In the next sub-menu, scroll down and select the "Z-Wave" menu item.
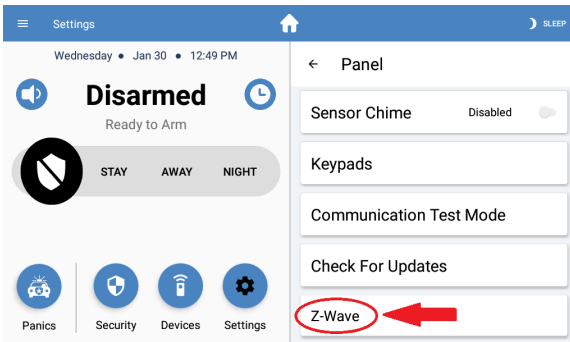
4. Select either "Soft Reset" or "Hard Reset". You will see a confirmation message on the screen before performing the reset action.
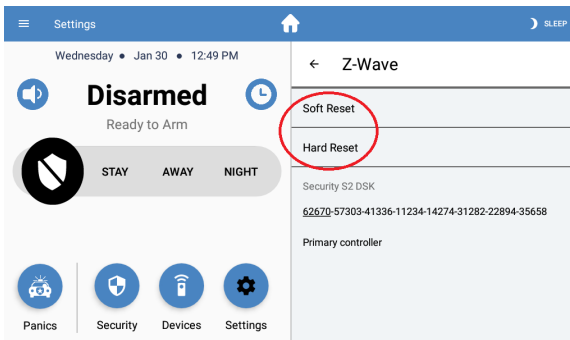
5. A hard reset typically takes 5-10 seconds to complete. A soft reset will take additional time to complete refreshing all devices on the network, approximately 30 seconds per enrolled device. On large networks this may take several minutes to complete before normal operation is expected to resume.

Remove or Replace a failed Z-Wave Device

Use these steps if a Z-Wave device becomes unresponsive, lost, or defective and you are unable to remove the device through the normal removal process.

> Note: Before these options become available in the Touchpad, the Connect+ controller must place the device in a "Not Responding" st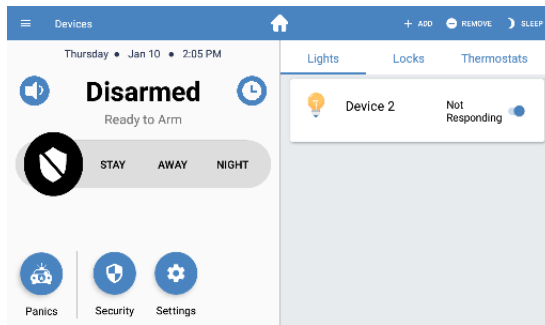ate. If the device does not show either of these two messages on the display, then you must first attempt to send a command to the device, knowing it will fail. After the failure to send the command, the UI should now show the correct "Not Responding" state.

1. Once the device is in the Not Responding state, select the device in the list to display the device sub-display.

2. Both options "Delete" and "Replace" will be located on the top right of the screen. If these options are not present, then the device is either still operational, or you must perform the steps in the note above.
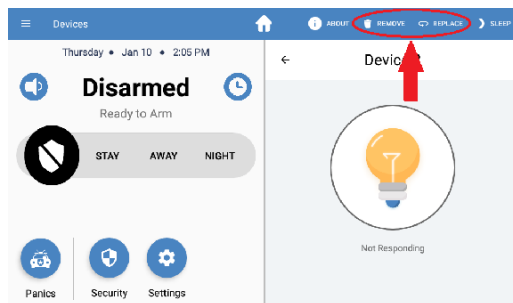
- The "Delete" option will remove this device from the network.
- The "Replace" option will remove the device, and enroll a new device in its place using the same node number. It will follow the same enrollment flow as adding a new device.

Z-Wave Learn Modes and including Connect+ into an existing network

Connect+ has the ability to be included into another existing network started by another controller. This is useful if a network already exists using a third party controller and you wish to view and control that network with Connect+ at the same time. These command options are ONLY visible in the settings menu when they are supported and correct network conditions are met: inclusion modes are only allowed if Connect+ does not have its own network (no devices), and is not part of another network already. Exclusion modes are only allowed if Connect+ is already part of another network.

There are three "Learn Mode" commands available. First is Classic Learn Mode, used for both inclusion and exclusion to and from an existing network. This is an old style command used for direct line

of site with a legacy controller that may not support the new learn modes. This mode is also used for controller replication, described in the Network Copy section of this manual.

The next two learn modes are Network Wide Inclusion Learn Mode (NWI), named just "Inclusion Mode" on the Touchpad, and Network Wide Exclusion Learn Mode (NWE), named "Exclusion Mode" on the Touchpad. These commands do not require direct line of site to the third party controller; however, it is recommended if possible.

1. Navigate to the Z-Wave sub-menu as described in the Factory Reset section of this manual.
2. If network requirements are met as explained above, then the "Join/Leave Another Z-Wave Network" option will be visible in the menu, otherwise it will not be present.
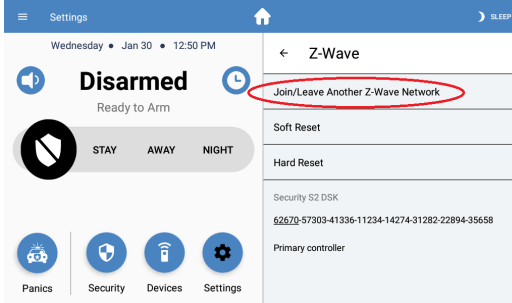
3. BEFORE selecting a Learn Mode from the sub menu, place the primary controller on the other network into Add or Remove mode.
4. From the sub menu, select the Learn Mode to join the other existing network. The learn mode is only active for roughly 10 seconds. If another primary network is found in that time frame, it will attempt a connection. The join process may take a few seconds to several minutes to complete.
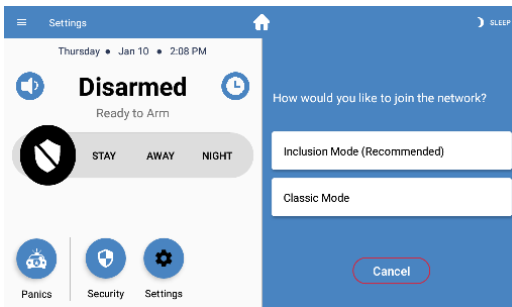
5. If the including controller supports Security S2, at this point Connect+'s own 5 digit DSK pin will be displayed on the screen. You will need to input this pin on the other including controller to complete the learn mode. Connect+ does not have a DSK sticker like other products, instead it will only be displayed when needed during this mode. The entire Connect+ DSK is located in the Z-Wave settings menu for reference if needed
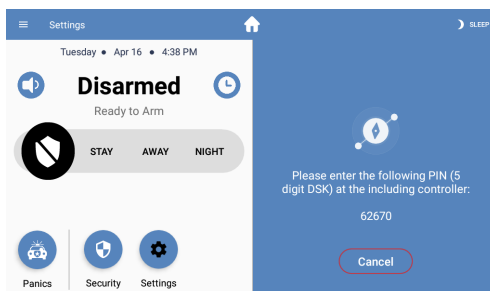
6. After the Touchpad shows a successful learn mode completion, wait at least 30-45 ADDITIONAL seconds to allow new network initialization and device discovery to complete. The above message will be displayed on the Touchpad as a reminder.

Z-Wave Network Copy (Z-Wave Replication)

Replication is the process of updating network information from a primary controller to secondary controllers, such as node list and routing information. These steps are usually not required unless you have a multiple controller network.

If Connect+ is the primary controller, and secondary controllers don't automatically update:
1. Put Connect+ into Add mode, as described in that section.
2. Put the secondary controller into one of the two Inclusion Learn Modes. See instruction manual for that 3rd party secondary controller.
3. Allow add mode to complete.
4. This re-inclusion process will replicate new network information to the secondary controller.

If Connect+ is a secondary/inclusion controller and the network contains a SIS controller (typical), then Connect+ will automatically perform network replication/updates in the background and no manual process is required. Additionally if Connect+ is included into a network without an SIS, it will automatically attempt to acquire this role so manual replication is not required. However, if you suspect network changes have occurred and network information is out of date/sync, and you need to force the network to update, perform the following steps:
1. Reference the primary controller's manual for instructions to put it into replication mode.
2. When primary controller is ready, follow the steps to put Connect+ into "Classic Learn Mode" as described in the Learn Modes section of this manual.
3. This will re-include Connect+ and force update the network information.

Z-Wave Inclusion Controller

Connect+ can operate as an Inclusion Controller when enrolled into another network where the primary controller is a SIS. In this role, Connect+ is able to add and remove devices on the primary controller's behalf.

> Note: If a security Z-Wave device is added by Connect+, Security S2 setup MUST be performed by the primary controller to complete the enrollment, which includes optional granting of security keys and entering the DSK 5 digit code if required. The primary controller must be available to perform these requirements to complete the enrollment.

> Note: Because both controllers have to pass the new device enrollment back and forth, it may take additional time before the device shows up correctly, and status is shown in the Touchpad.

1. Add a device as specified in the Add Z-Wave Device section of this manual.
2. If S2 security is required, perform those steps using the other controller's interface.
3. The remainder of the enrollment will automatically complete. No further action is required.

If Connect+ is the primary controller, and another controller on the network includes a new Security S2 device, similarly the Touchpad must be ready to perform the DSK 5 digit code entry if required to complete the enrollment.
1. Before adding a new device using the other controller, make sure to have the Touchpad ready.
2. If S2 security is required, the other controller will hand over the enrollment to Connect+, and a DSK 5 digit code entry window will automatically appear on the Touchpad.
3. After entering the DSK if required, the remainder of the enrollment will automatically complete.

Z-Wave Network Maintenance

Connect+ strives to make the Z-Wave user experience as easy and hassle free as possible. To that end, Connect+ handles any network maintenance and optimization automatically, and most functions are not user accessible. Some of the things done automatically are:

1. Polling of device state information to keep UI up to date. Note on a large network it will take time to query each device.
2. Periodically check and attempt to locate missing or out of range devices.

3. Once or twice a day, Connect+ will perform a network maintenance routine, which includes checking and repairing node return routes and checking node neighbors. This operation will also be performed roughly 10 minutes after any new devices are added to the Connect+ network, to correct any routing problems after a device may be moved around the house after installation.
4. When Connect+ is enrolled onto another network, it will automatically attempt to query the primary controller for network updates, so a manual network copy (replication) is not required.

Z-Wave Basic Command Class

Connect+ can control, but does NOT support the Z-Wave Basic Command Class. Any received BASIC_GET or BASIC_SET commands are ignored. Connect+ is able to send BASIC_SET commands to any unknown or unsupported devices through the Touchpad. Note: Sending basic commands to a battery powered sleeping device will enter a queue or "mailbox", and will be sent to the device when it awakes.

Z-Wave Association

The Z-Wave Association Command Class is supported by the Connect+.
Group1: Lifeline group
Number of nodes supported: 4
Reports sent via the Lifeline group: Device Reset Locally Notification

Z-Wave Supported Command Classes

When Connect+ is the primary controller (typical), secure command classes are only supported using the S2 Access Control Security Class. If Connect+ is included into another network, then secure command classes are supported using the highest security level granted on enrollment into that network.

Command Class	Not-added	Non-securely added	Securely Added	
			Non-secure	Secure CC
COMMAND_CLASS_ZWAVEPLUS_INFO	Support	Support	Support	
COMMAND_CLASS_SECURITY	Support	Support	Support	
COMMAND_CLASS_SECURITY_2	Support	Support	Support	
COMMAND_CLASS_INCLUSION_CONTROLLER	Support	Support	Support	
COMMAND_CLASS_TRANSPORT_SERVICE	Support	Support	Support	
COMMAND_CLASS_ASSOCIATION		Support		Support
COMMAND_CLASS_ASSOCIATION_GRP_INFO		Support		Support
COMMAND_CLASS_POWERLEVEL		Support		Support
COMMAND_CLASS_MANUFACTURER_SPECIFIC		Support		Support
COMMAND_CLASS_VERSION		Support		Support
COMMAND_CLASS_CRC_16_ENCAP	Support	Support	Support	
COMMAND_CLASS_SUPERVISION	Support	Support	Support	
COMMAND_CLASS_DEVICE_RESET_LOCALLY		Support		Support

Z-Wave Manufacturer Specific Information

Manufacturer ID: 0x0353
Product Type ID: 0x0001
Product ID: 0x0001

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