

CardAccess

ZigBee PRO™

Wireless Contact Sensor / Wireless Contact Relay

Wireless Motion Sensor / Heavy-Duty Power Controller

Sensor Bridge / Mini Remote

Installation and Upgrade Guidelines

Supported Devices

Wireless Contact Sensor:

Model No. WCS10A-2-ZP / WCS10B-2-ZP

Wireless Contact Relay:

Model No. WCS10-R-ZP / WCS10-R-EXT-ZP

Wireless Motion Sensor:

Model No. WMS10-2-ZP / WMS10-2EXT-ZP

Heavy-Duty Power Controller:

Model No. HPC10A-ZP

Sensor Bridge:

Model No. ZGB10A-ZP

Mini Remote:

Model No. IMR10A-ZP

System Compatibility

Control4 Version 1.8.0 and greater.

Card Access recommends using the latest release of Control4 Version 2.0.0 or 1.8.2.

Installation

This portion of the guide assumes that you are installing devices pre-loaded with ZigBee PRO firmware. For information on upgrading EmberNet hardware for use in Control4 Version 1.8, see the section entitled "Upgrading Devices to ZigBee PRO."

Adding Drivers

Add a driver to your Composer project for the Card Access devices you wish to use. Note that **the same drivers are used for both Embernet and ZigBee PRO** projects. If a Card Access driver is already in your ZigBee PRO project, you may choose to simply identify the ZigBee PRO device in its place.

Joining the Mesh Network

To join a new device to the network, open the Identification Window for that device. Then use the following button-press sequence for all Card Access devices:

1. Click the identification button four (4) times.
2. If the MAC Address does not populate within 15 seconds, **DO NOT close the Identification Window. Perform the button sequence again until the MAC Address appears.**



PLEASE NOTE! If this device does not identify or respond normally after being added to a project:

1. Add a new instance of the device driver to your Composer project.
2. Reboot your Controller.
3. Identify the device and proceed normally. You will only have to do this once for each Controller.

Leaving the Mesh Network

After a device has successfully joined a ZigBee PRO mesh network, it will never attempt to join another network or communicate with devices on another network. Note that **disconnecting the device in Composer's identification**

window is not sufficient. If you ever need put a device in another project, you will first have to force the device to leave the current network.

To perform the leave sequence for a **Card Access Wireless Contact Sensor, Contact Relay, Motion Sensor, or Sensor Bridge:**

1. Remove power from the device by disconnecting the power supply or removing the batteries.
2. Hold down the identification button and return power to the device.
3. Continue to hold down the identification button while the device boots up. After about 10 seconds, the LED will turn amber, indicating that the device has left the network. It is now ready to be joined to a new network.

To perform the leave sequence for a **Card Access Heavy-Duty Power Controller:**

1. With the device powered, tap the ID button nine (9) times.
2. The LED near the identification button will rapidly flash red and green, indicating that the device has left the network. It is now ready to be joined to a new network.

To perform the leave sequence for a **Card Access Mini Remote:**

1. Remove power from the device by removing the batteries.
2. Hold down button 1 and re-insert batteries.
3. While continuing to hold button 1, wait for LED to turn from green to blue.
4. Release button 1 and press button 4 (bottom right). LED will turn red as factory defaults are loaded.
5. LED will blink green and device will reboot. It is now ready to be joined to a new network.

Upgrading Devices to ZigBee PRO

Follow the steps below to upgrade devices loaded with EmberNet firmware, which is the network protocol used on all Control4 1.7.3 and earlier versions.



PLEASE NOTE! When attempting to upgrade a **Card Access Contact Sensor or Motion Sensor**, some devices may require a hardware upgrade to be compatible with Control4 Version 1.8. Contact your Card Access Sales Rep for details.



PLEASE NOTE! The **Card Access Mini Remote cannot be upgraded to ZigBee PRO in any 1.8 release.** Support for upgrades is **ONLY** included in Control4 Version 2.0.

Adding a Node

If the device you are attempting to update is not already part of the current project, you will need to add it as a new EmberNet node in the Control4 network.

1. Ensure that the Controller you are using has been enabled for Embernet Upgrade, or use a ZSitch. See Control4 Installation Instructions for more information.
2. Go to Tools > Network Tools > Embernet Upgrade and click the “Add” button in the lower-right corner.
3. The “Add ZigBee Nodes” dialog will appear. Click the identification button four (4) times. The MAC Address will populate in the “Node Address” field.
 - a. If the MAC Address fails to populate, you can type it into the window.
4. Ensure that the Channel is set to 14 (or, if the device was used previously in another project, the channel of that project), and click “Add Node.”
5. You will see the device displayed as “-> Embernet Device” in the upgrade queue.

Initiating the Upgrade

In most cases, the upgrade process will begin automatically. However, in installations involving power-managed devices (including the **Wireless Contact Sensor**, **Wireless Motion Sensor**, and **Mini Remote**), it may be necessary to manually initiate the upgrade.

1. After the node has been added to the queue, reopen the “Add ZigBee Nodes” dialog by clicking the “Add” button in the lower-right corner of the Embernet Upgrade screen.
2. **Leave this dialog open throughout the rest of the process.** This will ensure that the Controller remains on the correct channel.
3. Click the identification button four (4) times.
4. The device should register as “Connected” and the upgrade will begin shortly.
5. If the upgrade does not begin, wait approximately 60 seconds and 4-click the identification button again.

Joining an Updated Device

Once the device has reached 100% in the upgrade queue, it can be added to the ZigBee PRO project.

1. Disable EmberNet Upgrade or remove ZStick if only one controller is being used.
2. Join the device to the mesh network.
 - a. If the device is already identified into the project, ensure that auto-join is enabled, and then join the device to the mesh by clicking the identification button four (4) times.
 - b. If the device is not already in the project, you will need to follow the steps listed in the “Installation” section above.
3. Once you have joined your devices, open the “ZigBee Network” tab of Network tools, and verify that they are listed as “Online.” Any Wireless Contact Relays you have will now begin the full upgrade from MiniApp.

LED Feedback

Device	LED	State	Action
Wireless Contact Sensor, Wireless Motion Sensor, or Mini Remote NOTE: For a Wireless Motion Sensor, the color “Amber” is represented as green and red LEDs blinking simultaneously.	Amber Flash (after 4-click)	Device is on ZigBee PRO and scanning for a network to join. The sequence will end with the LED lit solid amber for approximately 5 seconds.	If blink sequence does not end with a solid amber LED, the join was unsuccessful. Repeat the identification sequence, ensuring that auto-join is enabled and device is in range.
	Green Blink x 2 (after 4-click)	Device is joined to the mesh.	To remove the device, see the instructions in the “Leaving the Mesh Network” section above.
Wireless Contact Relay	Red Blink	Device is in MiniApp, not joined to mesh.	Join the device by clicking the identification button four (4) times.
	Green Blink	Device is in MiniApp, joined to mesh.	No action needed – wait for the upgrade to finish.
	Solid Red	Device is fully upgraded to ZigBee PRO, not joined to the mesh.	Join the device by clicking the identification button four (4) times.

	Amber Flash (after 4-click)	Device is on ZigBee PRO and scanning for a network to join. The sequence will end with the LED lit solid amber for approximately 5 seconds.	If blink sequence does not end with a solid amber LED, the join was unsuccessful. Repeat the identification sequence, ensuring that auto-join is enabled and device is in range.
	Green Blink x 2 (after 4-click)	Device is joined to a ZigBee PRO Network.	To remove the device, see the instructions in the “Leaving the Mesh Network” section above.
Heavy-Duty Power Controller or Sensor Bridge	Solid Red	Device is upgraded to ZigBee PRO, not joined to the mesh.	Join the device by clicking the identification button four (4) times.
	Amber Flash (after 4-click)	Device is on ZigBee PRO and scanning for a network to join. The sequence will end with the LED lit solid amber for approximately 5 seconds.	If blink sequence does not end with a solid amber LED, the join was unsuccessful. Repeat the identification sequence, ensuring that auto-join is enabled and device is in range.
	Green Blink x 2 (after 4-click)	Device is joined to the mesh.	To remove the device, see the instructions in the “Leaving the Mesh Network” section above.

Troubleshooting

When a Device Fails to ID

1. Add a new instance of the device driver to your Composer project.
2. Reboot your Controller.
3. Identify the device and proceed normally.



PLEASE NOTE! If the device still fails to ID after performing the steps above:

1. DO NOT close the identification window.
2. Wait 15 seconds.
3. Perform the button-press sequence for joining the device again.

Determining the Join Status of a Device

If you are having trouble getting a device to join the network, it may be because it is already joined to another network. In ZigBee PRO, no device can ever be part of two networks simultaneously.

To determine **the join status of a Card Access Wireless Contact Sensor, Motion Sensor, or Mini Remote:**

1. Ensure that auto-join mode is not enabled. This will avoid inadvertently joining the device to the network.
2. Click the identification button four (4) times
 - a. Two green flashes of the LED indicate that the device is currently joined to a network. You must perform the device’s leave sequence before you can join it to a network.
 - b. Rapid flashes of red, green, and yellow mean that the device is available to add to a new network.

To determine the join status of a **Card Access Wireless Contact Relay, Heavy-Duty Power Controller, or Sensor Bridge**:

1. Power the device and wait several seconds for the device to boot.
 - a. If the LED remains solid red, it is available to add to a network.
 - b. If the LED goes dark, the device is currently joined to a network.

Alternately, you can perform steps 1 and 2 for determining the join status of other Card Access devices (above). Both methods will yield the same result.

Button Tap Counts

With ZigBee PRO firmware, the tap counts are handled more precisely than in previous versions. Exactly four (4) button taps are required to identify a device. Note that **pressing the ID button five (5) or more times will NOT cause the device to identify**. See the “Known Limitations” section of Control4’s *Composer Pro Software Release Version 1.8.0 Release Notes* for more information.

Limitation on Number of Non-Routing Devices

This limitation is unlikely to affect most deployments; however, the maximum number of non-routing devices (including System Remotes, Wireless Contact Sensors, Wireless Motion Sensors, and Mini Remotes) that can be joined to the front panel of a Controller is six (6). To add more non-routing devices, add other routing nodes (Controllers, Dimmers, Switches, or Keypads) to the mesh.

While the maximum ratio of non-routing to routing devices is 6:1, Card Access recommends a more conservative ratio of 4:1. In other words, install one routing-node device each four (4) Card Access devices in the project. See the “Known Limitations” section of Control4’s *Composer Pro Software Release Version 1.8.0 Release Notes* for more information.

Mesh Stabilization

Due to the manner in which devices have to communicate with the controller as the mesh comes online, it may take some time before the mesh is stabilized and all devices are functional. Control4 states that it “can take up to 20 minutes for a 70-node mesh network to stabilize.” The mesh will need time to stabilize a) when a new mesh is created, and b) whenever the controller is rebooted. During this time, battery-powered devices such as the Card Access Wireless Contact Sensor and Motion Sensor in particular may not work properly. Card Access suggests that you wait until the mesh has stabilized and all other devices register online before attempting to identify or configure battery-powered devices. Please see the “Known Limitations” section of *Control4 Version 1.8.2 Release Notes* for more information.

Additional Resources

Detailed Installation Instructions, Programming, Wiring Diagrams, and Regulatory Compliance

Please see the Installation Guide included with your Card Access product for more information.

Control Release Upgrade Instructions, ZigBee PRO Concepts, and Network Configuration

Please see the latest Control4 Installation Instructions or contact Control4 technical support.

Contact Support

If you need further assistance, please contact Card Access technical support at 1.801.748.4900, ext. 2.

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