

Doorbell and Phone Event Package

Installation Guide



Package contents

Doorbell and Phone Event Package (ZCA-IDP10A)

- 2 Wireless Contact Sensors
- 1 North American External Power Supply (for optional DC powering of the Wireless Contact Sensor)
- 1 ELK-930 Doorbell and Telephone Ring Detector



Note: The package has been tested and designed to work with Control4 OS 1.3.2 and later. All necessary drivers for the package are included in these Control4 versions.

Introduction

The Doorbell and Phone Event Package is an all-in-one solution that makes it quick and easy to add doorbell- and phone-based automation events in a Control4 home. With everything you need in a single box, the package includes all the gear to create events for one or two doorbells and one phone line.

The Wireless Contact Sensor operates on either two AA batteries or a low-voltage power supply (included). This single, small device combines up to three contact switches, two temperature sensors, and—when line-powered—a ZigBee repeater.

The ELK-930 Doorbell and Telephone Ring Detector detects ring activation from one or two doorbell buttons and a single telephone line. It conveniently isolates the voltage and current and produces an open collector (pull to ground) output which can be used to trigger the Wireless Contact Sensor. The ELK-930's circuit board is pre-scored so that the three individual detectors may be snapped off (separated) from each other.

Installing the doorbell event detector

Also see “Creating doorbell ring detection-based events” on page 3.

To install the doorbell event detector:

- 1 Add one Wireless Contact Sensor to the Composer project and create the proper bindings. (Refer to the *Wireless Contact Sensor Installation Guide*.)
- 2 Using two jumper wires similar in gauge to the existing doorbell ringer circuit, connect the doorbell circuit's transformer and front door input to the two **INPUT** terminals on the ELK-930 Doorbell Ring Detector.
- 3 Using two jumper wires similar in gauge to the existing doorbell ringer circuit, connect pins **1** and **2** on the Wireless Contact Sensor to the **OUT** and **NEG** terminals on the ELK-930.
- 4 Using the included adhesive foam, mount the ELK-930 to a location near the doorbell ringer/transformer assembly.



Note: No enclosure is provided or required for the ELK-930. You should exercise caution and not place it in such a way as to short the ELK-930's printed circuit board (PCB).

- 5 Using the included mounting screws and wall anchors, mount the Wireless Contact Sensor to a location near the doorbell ringer/transformer assembly.
- 6 Using Composer Pro, you can now add events around the ringing of the doorbell, such as:
 - Mute all audio zones for five to 10 seconds to allow occupants to hear the doorbell ringing.
 - Flash the lights in rooms where it's difficult to hear the doorbell ringing.
 - Activate an IP camera (not included) located at the door and use a camera preset to see who's there.

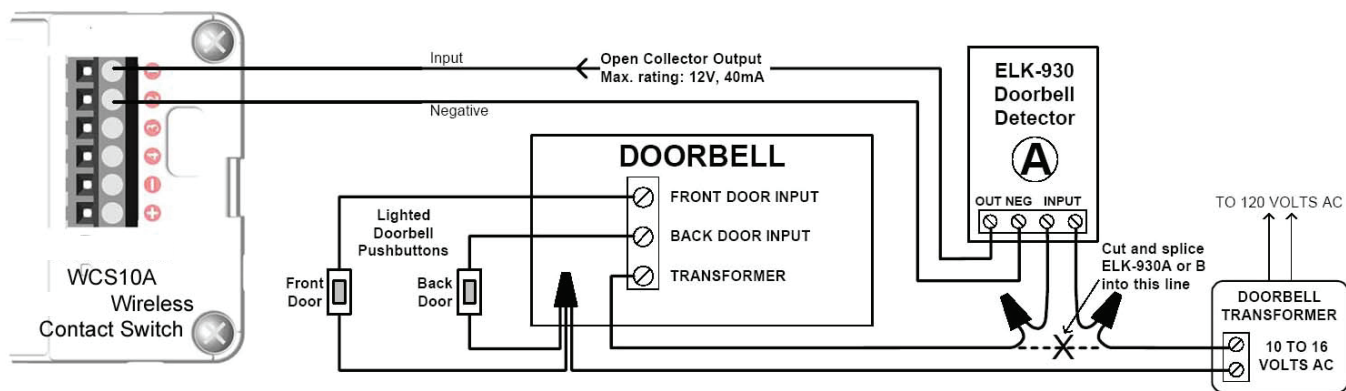


Figure 1: Doorbell Ring Detector wiring diagram

Installing the telephone ring event detector

Also see "7 In the Actions pane, select Programming Control. Then, in the Programming Control Actions pane, enter a delay time (for example, 500-1,500 milliseconds)." on page 6

To install the telephone ring event detector:

- 1 Add one Wireless Contact Sensor to the Composer project and create the proper bindings. (Refer to the *Wireless Contact Sensor Installation Guide*.)
- 2 Using two jumper wires similar in gauge to the existing telephone circuit, connect the telephone **TIP** and **RING** wires for one line to the **T** and **R** terminals on the ELK-930 Telephone Ring Detector.
- 3 Using two jumper wires similar in gauge to the existing telephone circuit, connect pins 1 and 2 on the Wireless Contact Sensor to the **OUT** and **NEG** terminals ELK-930.
- 4 Using the included adhesive foam, mount the ELK-930 to a location near the telephone line.



Note: No enclosure is provided or required for the ELK-930. You should exercise caution and not place it in such a way as to short the ELK-930's printed circuit board (PCB).

- 5 Using the included mounting screws and wall anchors, mount the Wireless Contact Sensor to a location near the telephone line.
- 6 Using Composer Pro, you can now add events around the ringing of the telephone, such as:
 - Mute all audio zones for five to 10 seconds to allow occupants to hear the telephone ringing.
 - Flash the lights in rooms where it's difficult to hear the telephone ringing.

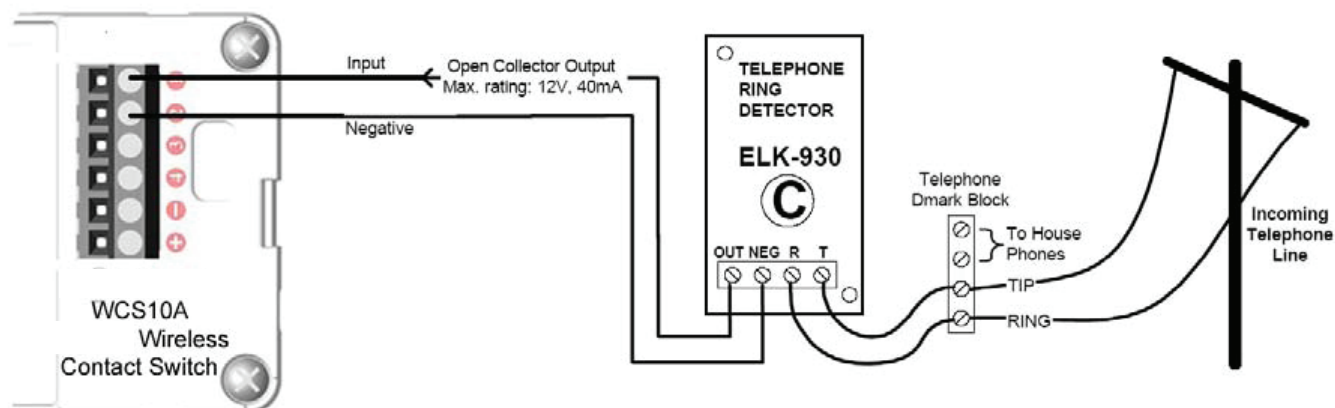


Figure 2: Telephone Ring Detector wiring diagram

Creating doorbell ring detection-based events

Knowing someone's at the door doesn't seem like a big deal. However, with doorbell chimes in random locations, usually away from central living areas, all it takes is some loud music or a family member with poor hearing to miss someone at the door. Using the Doorbell and Phone Event Package, you can create a home automation event that alerts the homeowner when the doorbell is pressed.

For example, the event can cause a room's lights to flash, mute an audio zone's speaker volume, or trigger an IP camera by the door. These instructions provide you with ideas for added capabilities you can provide to your customers and walk you through the setup process to implement these ideas.

The Doorbell and Phone Event Package easily integrates with Control4 and a homeowner's installed doorbell. It includes the ELK-930 that detects ring activation, isolates the voltage and current, and produces an open collector (pull-to-ground) output used to trigger a contact close event in the package's Wireless Contact Sensor.

Installing the hardware

Step one: Connect the ELK-930 Doorbell Detector and Wireless Contact Sensor to the doorbell circuit.

- 1 Using the **INPUT** terminals, wire the ELK-930 Doorbell Detector Module into the circuit path between the doorbell transformer and the doorbell.
- 2 Run one wire of similar gauge to the doorbell wire from the **OUT** terminal on the Doorbell Detector Module to the **SWITCH 1** terminal on the Wireless Contact Sensor's Tray Assembly.
- 3 Run another wire of similar gauge from the **NEG** terminal on the Doorbell Detector Module to the **COMMON 1** terminal on the Wireless Contact Sensor's Tray Assembly.

Step two: Place the Doorbell Detector Board and Wireless Contact Sensor.

- 1 After connecting the Wireless Contact Sensor to the ELK-930 Doorbell Detector Module, you can place it above the doorbell chime façade that covers the plunger/solenoid using the contact switch's enclosed molly anchors.
- 2 After making all the wire connections between the circuit path, the Wireless Contact Sensor, and the ELK-930 Doorbell Detector Module, you can secure the module to an appropriate surface using the two included adhesive pads.



Note: Often the façade covering the plunger/solenoid activating the doorbell chimes is large enough to conceal the Doorbell Detector Module.

Programming in Composer Pro

Step one: Add the Wireless Contact Sensor driver to the Composer project.

- 1 Open Composer Pro and the project, then select the **System Design** view.
- 2 Under *Search*, enter **Control4 Wireless Contact Sensor**.

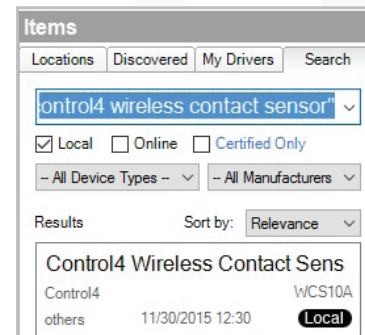


Figure 3: Wireless Contact Sensor driver search

- 3 Select the contact sensor to add it to the project.

Step two: Add lighting events to rooms.

- 1 In *System Design View*, add (if needed) the desired light switch to the event room.
- 2 Add a generic doorbell sensor driver to the room where the event will take place.
- 3 In *Connections View*, bind the Doorbell driver's *Contact Sensor* input to the appropriate contact output of WCS10A.

Control & Audio Video Connections				
Control4 Wireless Contact Sensor 2				
Name	Type	Connection	Input/Output	Connected To
Control Outputs				
Contact Input 1	Control	CONTACT_SENSOR	Output	Doorbell->Contact Sensor
Contact Input 2	Control	CONTACT_SENSOR	Output	
Internal Magnetic Contact	Control	CONTACT_SENSOR	Output	
CONTACT_SENSOR Input Devices				
Device	Name	Location	Connections	
Doorbell	Contact Sensor	Room	Control4 Wireless Conta	

Figure 4: Binding doorbell to Wireless Contact Sensor input

- 4 Go to the *Programming View*, and from the *Device Events* window in the upper left, select **Doorbell**.

- 5 In the *Doorbell Events* window immediately below, select **When the Doorbell is pressed**.

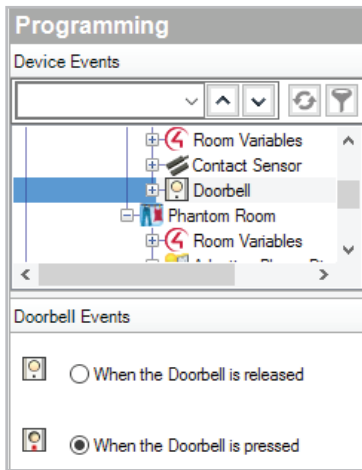


Figure 5: Setting the doorbell event

- 6 In the *Actions* pane in the upper-right, select the lighting device.
- 7 In the *Light Commands* pane, select **Toggle**, and drag the green arrow icon into the *Script* pane two times.
- 8 In the *Actions* pane, select **Programming Control**, then in the *Programming Control Actions* pane, enter a delay time (for example, 500-1,500 milliseconds).

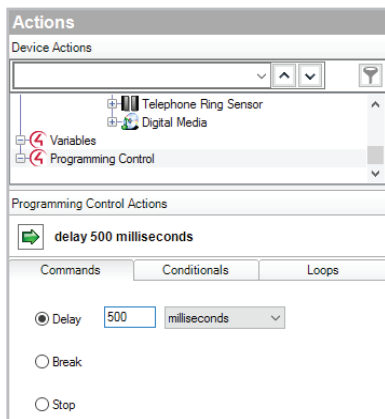


Figure 6: Adding delay

- 9 Drag the green arrow icon and drop it between the two *Toggle* actions.



Figure 7: Programming

Note: You can repeat the delay-and-toggle steps multiple times as desired. If the instructions above are used “as is,” the light will flash only once. The delay time can be varied depending on the installer and the homeowner’s preference. If the homeowner doesn’t like the abrupt flashes, the script can be modified to use a series of ramp-to-level actions instead.

Step three: Add audio events to rooms.

Note: Composer does not include an Announcement agent to support interrupting and resuming music sessions, so a workaround has been devised to enable this capability. To create audio events that interrupt and resume an existing music session in a room, you need to make use of unused audio out ports on other devices in the project. An unused audio out port is any physical audio out port not currently connected to some other device in the project. Some commonly unused audio out ports in projects are the RCA jacks in Speaker Points and any unused audio out ports on home controllers.

- 1 In Composer Pro, go to the *System Design View* and add a new room called “Phantom Room” for every room where you plan for the event to take place. (This room name will be used throughout these instructions. During actual installation, you should create your preferred room name such as *Phantom Family Room* and *Phantom Garage*.)
- 2 In the *Connections View*, select the “Phantom Room” and bind its audio end point to an unused audio out port.
- 3 Then, again using the *Connections View*, bind **Contact Input 1** to the Doorbell.

Name	Type	Connection	Input/Output	Connected To
IR Input Control	Control	IR_IN	Input	
Room Control				
Video End Point 1	RoomControl	VIDEO_SELECTION	Input	Speaker Point - Speaker Audio End Point
Video's Audio End Point 1	RoomControl	AUDIO_SELECTION	Input	
Video Volume 1	RoomControl	AUDIO_VOLUME	Input	
Audio Volume 1	RoomControl	AUDIO_VOLUME	Input	Speaker Point - Speaker Audio Volume
On Screen Device	RoomControl	ONSCREEN_SELECT	Input	Media Controller - Onscreen Navigator
Video Volume 2	RoomControl	AUDIO_VOLUME	Input	
Audio Volume 2	RoomControl	AUDIO_VOLUME	Input	
Temperature	RoomControl	TEMPERATURE	Input	
Temperature Control	RoomControl	TEMPERATURE_CON	Input	
Security System	RoomControl	SECURITY_SYSTEM	Input	
Audio End Point 2	RoomControl	AUDIO_SELECTION	Input	
Video's Audio End Point 2	RoomControl	AUDIO_SELECTION	Input	
AUDIO_SELECTION Output Devices				
Device	Name	Location	Connections	
Media Controller	Stereo 1 Audio En...	Card Access C...		
Media Controller	Stereo 2 Audio En...	Card Access C...		
Media Controller	Stereo 3 Audio En...	Card Access C...		
Speaker Point	Speaker Audio En...	Card Access C...	Card Access Command Center->Audio End Point 1	
Speaker Point	Stereo Audio End...	Card Access C...	phantom->Audio End Point 1	

Figure 8: Binding audio endpoint to audio out

- 4 Go to the *Programming View*, and from the *Device Events* window in the upper left, select **Doorbell**, and in the *Doorbell Events* pane immediately below, select **When the doorbell is Pressed**.
- 5 In the *Actions* pane in the upper right, select **Digital Media**.

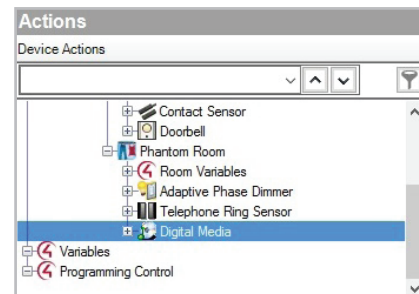


Figure 9: Select Digital Media

Step four: Select rooms and media for a doorbell event.

- 1 On the *Selected Room* menu, select the room in where you want the event to take place.
- 2 Click **Add Rooms**, select the **Phantom Room** box, and add this command to your script.

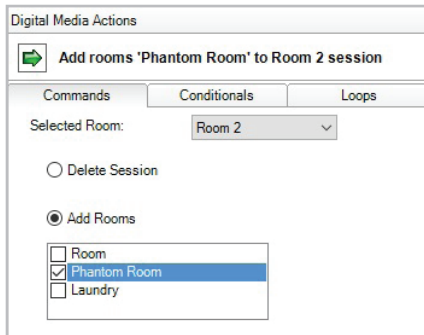


Figure 10: Adding the Phantom Room to the command

- 3 Go back to the *Selected Room* menu and select **Phantom Room**.
- 4 Click **Remove Rooms**, select the box with the name of the room where the event will take place, and add this command to your script.
- 5 In the *Actions* pane, select the room where the event will take place, click **Select Media**, and choose an MP3 file to play as your event.

Step five: Customize the doorbell event.

- 1 In the *Actions* pane, select **Programming Control**.
- 2 Click **Delay**, set it to about **10** seconds (this can be increased or decreased depending on the desired length of the doorbell event), and add this command to your script.
- 3 In the *Actions* pane, select **Digital Media**.
- 4 In the *Selected Room* menu, select **Phantom Room**, click **Add Rooms**, select the box with the name of the room where the event will take place, and add this to your script.
- 5 Return to the *Selected Room* menu, select the room where the action will take place, click **Remove Rooms**, then select the **Phantom Room** box.



Figure 11: Finishing the programming

The results

By following these installation steps, you can provide the homeowner with either lighting or audio events that let them know the doorbell is ringing. After the lighting event is configured, lights in the target room will flash to indicate the doorbell is ringing.

With the audio event configured, a ringing doorbell pauses any active audio stream in the target room(s) and plays the announcement message or music. Following the announcement, the original audio stream will resume.

Of course, you also have the option of combining these events into a single lighting and audio event for increased awareness. This level of customization allows you to create an individual installation that perfectly suits each homeowner.

Creating telephone ring detection-based events

Whether you're trying to make phone ringing more spectacular (to get children to answer) or more convenient for people away from the ringing phone, using the Doorbell and Phone Event Package you can create a home automation event that alerts the homeowner when the phone rings. For example, the event can cause a room's lights to flash, mute an audio zone's speaker volume, or trigger an audio event over multiple audio zones. These instructions provide you with ideas for added capabilities you can provide to your customers and walk you through the setup process to implement these ideas.

The Doorbell and Phone Event Package easily integrates with the Control4 system and a homeowner's installed analog (non IP-based) telephone system. It includes the ELK-930, which detects a telephone ring, isolates the voltage and current, and produces an open collector (pull-to-ground) output used to trigger a contact close event in the package's Wireless Contact Sensor.

Installing the hardware

Step one: Connect the ELK-930 Telephone Ring Detector module and Wireless Contact Sensor to the telephone line circuit.

- 1 Create a jumper to connect to the telephone line circuit with one end RJ-11 male-terminated and the other end with the **TIP** and **RING** wires stripped for connection to the Telephone Ring Detector Module.
- 2 Connect the jumper's stripped **TIP** and **RING** wires to the **T** and **R** terminals on the ELK-930 Telephone Ring Detector Module.
- 3 Connect the RJ-11 terminated end of the jumper into an available RJ-11 female socket that is already wired into the telephone line circuit. This inserts the Telephone Ring Detector Module into the telephone line circuit path.
- 4 Run one wire of similar gauge to the **TIP** and **RING** wires from the **OUT** terminal on the Telephone Ring Detector Module to the **SWITCH 1** terminal on the Wireless Contact Sensor's Tray Assembly.
- 5 Run another wire of similar gauge from the **NEG** terminal on the Telephone Ring Detector Module to the **COMMON 2** terminal on the Wireless Contact Sensor's Tray Assembly.

Step two: Place the Telephone Ring Detector Module and Wireless Contact Sensor.

- 1 After connecting the Wireless Contact Sensor to the ELK 930 Telephone Ring Detector Module, you can place the module out of sight and mount the Wireless Contact Sensor to a nearby wall or surface using the sensor's enclosed molly anchors.
- 2 After connecting the ELK-930 into the telephone line circuit path and to the Wireless Contact Sensor, secure the module to an appropriate and out-of-sight surface using the two included adhesive pads.
- 3 Mount the Wireless Contact Sensor to a nearby wall or surface using the Contact Sensor's enclosed molly anchors.



Note: Many times the junction box for the telephone line circuit is large enough to conceal the Telephone Ring Detector Module.

Programming in Composer Pro

Step one: Add the Wireless Contact Sensor driver to the Composer project.

- 1 Open Composer Pro and the project, then select the **System Design** view.
- 2 Under **Search**, enter **Control4 Wireless Contact Sensor**.

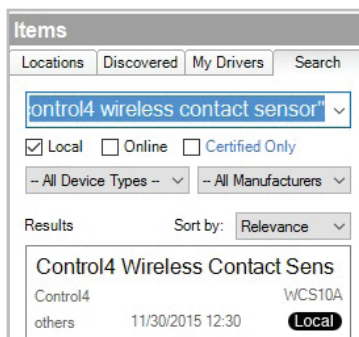


Figure 12: Wireless Contact Sensor driver search

- 3 Select the contact sensor to add it to the project.

Step two: Add lighting events to rooms.

- 1 In **System Design View**, add (if needed) the desired lighting device to the event room.
- 2 Add a generic Contact Switch driver to the room where the event will take place and rename it "Telephone Ring Sensor".
- 3 In **Connections View**, bind the Telephone Ring Sensor driver's Contact Sensor input to the appropriate contact output of the Contact Sensor.

Control & Audio Video Connections				
Telephone Ring Sensor				
Name	Type	Connection	Input/Output	Connected To
Control Inputs				
Ringed Sensor	Control	CONTACT_SENSOR	Input	Contact Sensor->Contact Input 2
CONTACT_SENSOR Output Devices				
Device	Name	Location	Connections	
<input checked="" type="checkbox"/> Contact Sensor	Contact Input 1	Room	Doorbell->Contact Sen	
<input checked="" type="checkbox"/> Contact Sensor	Contact Input 2	Room	Telephone Ring Sens	
<input checked="" type="checkbox"/> Contact Sensor	Internal Magnetic Contact	Room		

Figure 13: Binding the Telephone Ring Sensor to the Contact Sensor

- 4 In the **Programming View**, from the **Device Events** window in the upper left, select the **Telephone Ring Sensor**, and in the **Telephone Ring Sensor Events** pane immediately below, select **When the Telephone Ring Sensor closes**.
- 5 In the **Actions** pane in the upper right, select the lighting device.
- 6 In the **Light Actions** pane, select **Toggle**, and drag the green arrow icon into the **Script** pane two times.
- 7 In the **Actions** pane, select **Programming Control**. Then, in the **Programming Control Actions** pane, enter a delay time (for example, 500-1,500 milliseconds).
- 8 Drag the green arrow icon and drop it between the two Toggle actions.

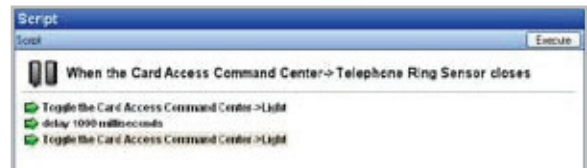


Figure 14: Programming



Note: You can repeat the delay-and-toggle steps multiple times as desired. If the instructions above are used "as is," the light will flash only once. The delay time can be varied depending on the installer's and the homeowner's preferences. If the homeowner doesn't like the abrupt flashes, the script can be modified to use a series of ramp-to-level actions instead.

Step three: Add audio events to rooms.



Note: Control4 does not include an Announcement agent to support interrupting and resuming music sessions, so a workaround has been devised to enable this capability. To create audio events that interrupt and resume an existing music session in a room, you need to make use of unused audio out ports on other devices in the project. An unused audio out port is any physical audio out port not currently connected to some other device in the project. Some commonly unused audio out ports in projects are the RCA jacks in Speaker Points and any unused audio out ports on home controllers.

- 1 In Composer, go to the **System Design View** and add a new room called "Phantom Room" for every room where you plan for the event to take place. (This room name will be used throughout these instructions. During actual installation, you should create your preferred room name such as "Phantom Family Room" or "Phantom Garage.")

- In the *Connections View*, select the “Phantom Room” and bind its audio end point to an unused audio out port.

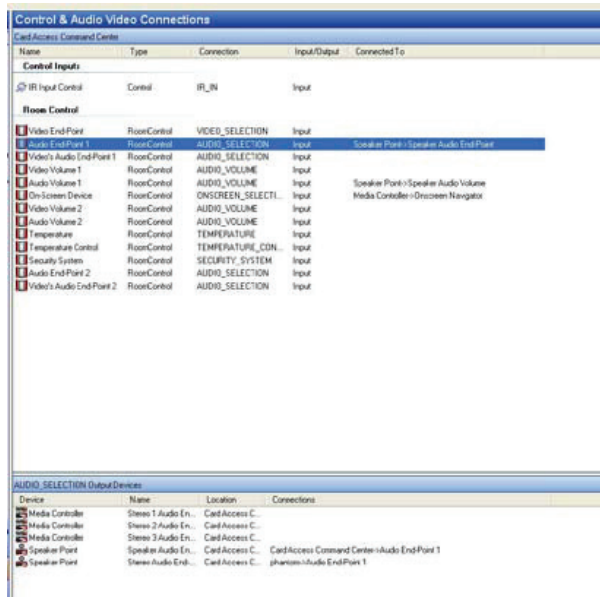


Figure 15: Binding endpoint to audio out

- Bind the **Contact Input 1** to the **Telephone Ring Sensor** driver
- Go to the *Programming View*, and from the *Device Events* window in the upper left, select the **Telephone Ring Sensor**, and in the *Telephone Ring Sensor Events* window immediately below, select **When the Telephone Ring Sensor opens**.
- In the *Actions* pane in the upper right, select **Digital Media**.

Step four: Select rooms and media for a telephone ring event.

- In the *Selected Room* menu, select the room where you want the event to take place.
- Click **Add Rooms**, select **Phantom Room**, and add this command to your script.
- In the *Selected Room* menu again, select **Phantom Room**.
- Select **Remove Rooms**, select the room where the event will take place, and add this command to your script.
- In the *Actions* pane, select the room where the event will take place, click **Select Media**, and choose an MP3 file to play as your event.

Step five: Customize the telephone ring event.

- In the *Actions* pane, select **Programming Control**.
- Select **Delay**, set it to about 10 seconds (this can be increased or decreased depending on the desired length of the telephone ring event), and add this command to your script.
- In the *Actions* window, select **Digital Media**.
- In the *Selected Room* menu, select **Phantom Room**, click **Add Rooms**, select the room where the event will take place, and add this to your script.

- In the *Selected Room* menu, select the room where the action will take place, select **Remove Rooms**, then select **Phantom Room**.



Figure 16: Finishing the programming

The results

By following these steps, you can provide the homeowner with either lighting or audio events that let them know the telephone is ringing.

Once the lighting event is configured, lights in the target room will flash to indicate the telephone is ringing.

With the audio event configured, a ringing telephone pauses any active audio stream in the target room(s) and plays the announcement message or music. Following the announcement, the original audio stream will resume.

Of course, you also have the option of combining these events into a single lighting and audio event for increased awareness. This level of customization allows you to create an individual installation that perfectly suits each homeowner.

Additional resources

The following resources are available for additional support:

- Control4 Knowledgebase and forums
- Control4 Technical Support
- Control4 website: www.control4.com
- Composer documentation available at ctrl4.co/docs.

For the latest version of this document, open this URL or scan the QR code on a device that can view PDFs.



Regulatory/Safety information

To review Regulatory information for your particular Control4 products, see the information located on the Control4 website at ctrl4.co/reg.

Patent information

Applicable patents are available at ctrl4.co/patents.

Warranty

Visit ctrl4.co/warranty for details.