



DOMOSAPIENS KEYPAD AUDIO CONTROL DRIVER

This driver enables you to fully control the Audio in a room with only two button slots used on your Control4 Configurable Keypad. The remaining slots (up to four) may still be used for lighting or other purposes and the driver provides full Up/Down tracking abilities.

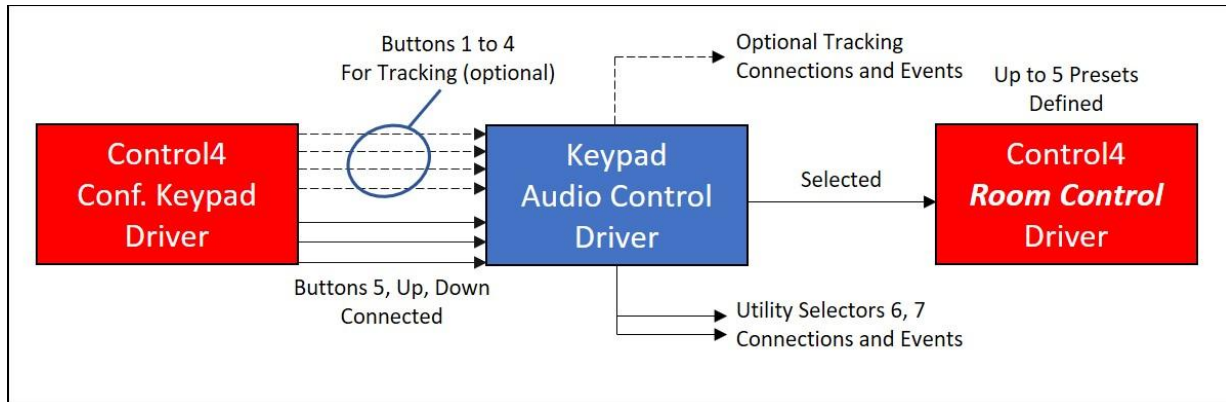
Specifically, when used jointly with the free Control4 **Room Control** driver, the following functions are available:

- Select any of the defined Presets. The room is turned On automatically and the Preset is activated.
- Capture audio from up to two other rooms in the project.
- Increase/decrease the volume, including ramping when the Up or Down button is held.
- Ability to support volume ramping even if the audio system does not natively support it.
- Mute and unmute the audio.
- Turn the room Off.
- Select and operate up to two Utility devices (such as shades, etc.) using the Up/Down buttons.
- Button 5, the Selector button, provides LED feedback on the current selection, including blinking when the room is muted.
- Selection sequences are fully customizable.
- Programming command to turn Room(s) Off in other instances of the driver.
- Operation without a Selector button is also supported with some limitations (only Up/Down are used), thus freeing one more keypad button for lighting or other uses.
- ****NEW**** Ability to enforce a maximum room volume through various actions.
- ****NEW**** Optionally, keypad Buttons 1 to 4 may be connected for Up/Down tracking to the most recently pressed button. Tracking feedback may optionally be selected.

OVERALL DESCRIPTION AND CAPABILITIES

When connected to Control4 keypad buttons 5/Up/Down and used jointly with the free Control4 **Room Control** driver in a given room, this driver allows you to very effectively control audio in the room. In addition, up to two other Utility devices may be controlled. Using proprietary Domosapiens technology, the driver is able to simulate an 8th key, achieved when both Up and Down are pressed simultaneously.

The driver links up with a designated **Room Control** driver and controls it via internal commands. All that is required is to set the **Room Control** driver's Presets (up to five are available).



Button 5 of the Control4 keypad is used as a Selector button with LED feedback. The user simply presses the Selector until the desired selection is reached (corresponding LED color). If the selection is an audio Preset, the driver will turn the room On, if required, and select the Preset. Capturing audio from another room has the same effect. The Up/Down buttons are then available to pulse the volume Up or Down or ramp the volume when held. If the Up and Down buttons are tapped simultaneously, the room is muted (unmute by pulsing the Up or Down button). If both Up and Down buttons are pulsed simultaneously again (when the room is muted) or when they are held for more than 2 seconds, the room is turned Off.

Following the Preset/Capture selections, button 5 may also select one or two Utility devices (with specific LED colors). In this case, the Up/Down buttons (including simultaneous pressing of both) may be used to control a device such as a shade, for example, or a garage door. For shades, Up and Down are obvious, but simultaneous Up/Down may issue a Stop command, which could be quite handy for the user.

****NEW**** Some installations need to have the Up/Down buttons track the last button used, usually to dim Lights and/or Advanced Lighting Scenes. The driver supports this by simply connecting one or more of the physical keypad buttons 1 to 4. Direct passthrough connections are available for other uses and Up/Down tracking connections are automatically created. See the section **KEYPAD TRACKING** below.

A set of programming events are provided as well as variables containing the status of the selection.

Since many instances of this driver may be installed in a project (typically one per physical Control4 keypad), the driver provides Actions to broadcast selected colors to other instances as well as stopping blinking across all instances. This can simplify installation and programming.

INSTRUCTIONS

- Use the free trial period or activate the driver at any time by assigning to this project the license you purchased from the DriverCentral website (requires the DriverCentral cloud driver). You may use multiple copies of this driver in your project, in fact as many as you have physical keypads.
- In any room with a Control4 Configurable Keypad, configure that keypad with a button in the 5th slot (this will become the Selector button) as well as Up/Down in the 6th slot. Then, install this driver (Keypad Audio Control) as well as the free Control4 **Room Control** driver, preferably in the same room.

- **VERY IMPORTANT:** set the Control4 **Room Control** driver's '*Reset Cyclor Position*' property to '*On Source Change Or Room Off*'. All other values will cause issues.
- Connect this (Keypad Audio Control) driver's Control Outputs to the corresponding binding of the physical Control4 keypad. Connect any required (but entirely optional) Control Input as appropriate. Optionally connecting keypad keys 1 to 4 activates the Keypad Tracking feature of this driver and automatically creates Up/Down tracking connections for each connected key (see the section **KEYPAD TRACKING** below).

IT IS STRONGLY RECOMMENDED TO USE THIS DRIVER'S UP/DOWN LAST BUTTON TRACKING AND TO SET THE UP AND DOWN BUTTON BEHAVIOR TO 'REGULAR BUTTON' ON THE CONTROL4 KEYPAD DRIVER.

- Set up to five Presets using the **Room Control** driver's properties. Then configure this (Keypad Audio Control) driver as follows:
 - Select the appropriate **Room Control** driver.
 - Select the number of Room Control Presets to be used (the same as defined above).
 - Select the number of Rooms to be Captured. This is entirely optional.
 - Select the number of Utility Selections to be used (if any). This is entirely optional.
 - Determine how volume ramping will be done, if any, with '*Presets Up/Down Hold Pulsing*'.
 - Other options are available, as explained below.
 - Run the Action '*Calibrate Room Control*'.
- When you are done, it is always wise to Refresh Navigators.

PROPERTIES

Please note that some properties may not be shown, depending on specific selections.

- **Cloud Status** displays the status of the DriverCentral license or trial.
- **Automatic Updates** may be set to On to allow for DriverCentral updates.
- **Driver Version** displays the version of this driver.
- **Debug Mode** turns Debug Mode Off or On (with output to the Lua Output window).
- **Debug Duration in Minutes** sets the duration of Debug On.
- **Driver Information** displays various status messages about the driver.
- **Select Room Control Driver** allows you to select which instance of the Control4 **Room Control** driver this driver will be associated with. More than one instances of this driver may be associated with a given instance of the **Room Control** driver. When all the properties are set on both drivers, remember to run the Action '*Calibrate Room Control*'.
- **Room Control Calibration** informs you on the status of the calibration process.

- **Selector Button** allows you to specify whether the Selector button (keypad button 5) will use the normal sequence (Off, then the defined Presets, then the defined Utility Selections, then back to the beginning). This is the default. Optionally, you may omit the Off selection, or even the Selector button itself (button 5) altogether. In this latter case, Preset 1 is always selected.

Optionally, you may select a Custom Sequence where you may specify any sequence you wish, with up to 16 steps. Values of 0 (for Off), 1 to 5 (for Presets 1 to 5), 6/7 for Utility Selectors 6 and 7 and A/B for Capture Selectors A and B may be used. For example, the following are all valid (at least **one** Preset is **required**):

- | | |
|-----------------------|--|
| – 0,1,2,3,4,5,6,7,A,B | Default sequence with Off, 5 Presets, 2 Utility and 2 Capture |
| – B,A,7,6,5,4,3,2,1,0 | The same in reverse order (not sure why you would use this) |
| – 0,1,2,3 | Off with Presets 1 to 3, no Utility/Capture Selections |
| – 1,2,3,4,5 | All possible Presets, no Off |
| – 4,5,6 | No Off, Presets 4 and 5, Utility 6 (Presets 1 to 3 are not used) |
| – 0,1,0,2,0,3,0,4,0,5 | Off available between each 5 Presets |
| – 0,1,0,4,0,5 | Off between Presets 1, 4 and 5 (Presets 2 and 3 are not used) |
| – 0,3 | Preset 3 is the only choice, but Off is available |
| – 0,1,2,3,A,B | Off with 3 Presets and 2 Capture Selections |
| – 6,A | Is invalid as no Preset is specified (1 to 5) |

There are some benefits in having Off (0) as part of the sequence as it may be used to turn the room Off. However, if the room is turned Off by another means (holding both Up/Down buttons or using another Control4 device), the selector will always move to the next available 0 in the sequence, except if the Selector is currently on a Utility Selection (it will stay selected, even if the room is turned Off). Experiment with and without Off and possibly some alternate sequences to see which your client prefers.

- ****NEW** Holding Selector Button** specifies if Alternate Transport commands are available when holding the Selector button. Normally, the Up and Down buttons control volume. When Alternate Transport is activated (by holding the Selector button for 1 second or more), the Up and Down keys become 'Skip Fwd' and 'Skip Back'. This mode is automatically ended after 10 seconds of inactivity on the Up/Down keys or by holding the Selector button again for 1 second or more. When Alternate Transport is active, the Selector button LED blinks White repeatedly.
- ****NEW** Suspended State Timeout in Seconds** determines if Suspended State (when tracking buttons 1 to 4) is available and if it will automatically time out after the specified delay. If no timeout is specified, Audio Control may only be restored by pressing the selector button (button 5) or by programming. **IMPORTANT:** Tracking-related events will not be triggered if Suspended state is not selected.
- ****NEW** Tracking LED Feedback** allows you to specify if feedback will be provided for the tracked ('active') keypad button 1-4. In addition, you may specify is the first press after a change of buttons will be ignore to allow for a change in tracking without operating the button. See the section **KEYPAD TRACKING** below.

- **Number of Room Control Presets Used** specifies how many (up to five) Presets have been defined in the **Room Control** driver and are available for access by the user using this driver. Each Preset is represented by a different color as the user runs through the sequence by pressing button 5. Be aware that as the user rotates through the sequence and stops on the selected Preset, it will take 2 seconds for the driver to confirm the choice. Then, if that Preset is mapped to a TuneIn radio station in the **Room Control** driver, for example, it may take another 2-3 seconds to hear the audio. Patience and some training are required.
- **Number of Utility Selectors Used** specifies the number of additional selections available for Utility devices where Up/Down buttons may make sense. Although this driver is primarily an audio control driver, it gives the user the ability to control up to two additional devices such as motorized window shades, for example, or garage doors. When selected, these become Selector 6 and Selector 7. When their assigned color is displayed by the button 5 LED, the Up/Down buttons are no longer assigned to audio, but to the available Connections and Programming Events. The only exception is the simultaneous holding of the Up *and* Down buttons (more than 2 seconds) to turn the room Off. This is always available.
- **Number of Capture Selectors Used** specifies the number of additional selections available for capturing audio from other rooms. When selected, these become Selector A and Selector B. When their assigned color is displayed by the button 5 LED, the driver requests a connection between the captured rooms and the current room so that the audio from the other room may be heard. Volume, Mute and Power Off are of course available as with Presets.

A special setting for Capture Selector (prioritized rooms) exposes three new properties allowing you to specify up to three different rooms for capturing: the first one which is ON will be captured, starting with Room 1, then Room 2 and Room 3. If none of the three rooms is ON, then of course capture will not occur. This allows you some flexibility in capturing rooms, as the user may not always know which one of his/her favorite rooms is ON at a given time.

- **Enter Custom Sequence** allows you specify a custom sequence as described above under **Selector Button**. At least one Preset (1 to 5) must be included in the sequence. Off (0) and Utility Selectors (6 and 7) are optional. Separate the list with commas and spaces may be used but are ignored.
- **Select Room for Capture Selector x** specifies which room in the project will have its audio captured and feed to the primary room controlled by the selected **Room Control** driver. This will of course work only if Control4 can establish an audio path.
- ****NEW** Maximum Room Volume or 0 to Disable** activates a 'watchdog' to limit the maximum room volume. Although this may not cover all possibilities, it can help prevent speaker/amplifier damage.
- **Presets/Capture Up/Down Hold Pulsing in msec** is used when the audio system does not natively support volume ramping. The driver offers the possibility to repeatedly send 'PULSE' volume commands to the Room Control driver. This property defines the interval between the successive pulses. As a rule, always try to use the audio system's native volume ramping (which is the default), but this feature provides a very workable alternative. While you could use a starting point of 300 milliseconds, you may need to experiment with the value to avoid overflowing your audio device driver with commands.

- **Up/Down Volume Steps** allows you to specify how many volume Up or Down commands will be sent to the audio system driver each time you tap the Up or Down buttons or for each Hold Pulse as defined above. Normally, this would be 1 (the default), but you may find that this is not enough to vary the volume significantly in a reasonable amount of time (it may take too long). Increasing the steps to 2 or 3 may help solve this issue. Again, do experiment to avoid overflowing your audio device driver with volume commands.
- **Utility Selector x Up/Down Hold Pulsing in msec**s is used to cause pulsing for the Utility Selectors (6 and/or 7), in a similar fashion to the Preset pulsing described above. An example could be a motorized awning where each press of Up or Down moves it slightly. This pulsing facility could move it smoothly and continuously while the Up or Down button is held.
- **This Keypad Part of Group:** you may assign this keypad to one of 10 groups, arbitrarily. This is used when you broadcast colors to other (“peer”) instances of this driver. This allows you to limit which keypads will respond to the broadcasted commands.
- **Color for Preset x** allows you to assign a specific color to each of the Preset Selectors (up to five Presets). You should consider using the defaults, as they have been carefully calibrated. Be aware that the colors shown in Composer may not exactly match what will be displayed by the actual keypad. Experimentation may be necessary. Off, when used, will always be Black (LED unlit).

IMPORTANT FACT: as this driver was developed during the COVID-19 pandemic, the five colors selected for the Presets represent a subset of the rainbow colors. Stay safe.

The following colors have been found to display adequately on the Control4 Configurable Keypad:

- (Default for Preset 1) **Red:** 255, 0, 0
- (Default for Preset 2) **Orange:** 255, 86, 0
- (Default for Preset 3) **Matched Green:** 0, 120, 0 (too bright otherwise)
- (Default for Preset 4) **Blue:** 0, 0, 255
- (Default for Preset 5) **Purple:** 255, 0, 255

- **Color for Utility Selector x** allows you to assign a specific color to each of the Utility Selectors, when used (up to two). You should consider using the defaults, as they have been carefully calibrated. Be aware that the colors shown in Composer may not exactly match what will be displayed by the actual keypad. Experimentation may be necessary.

The following colors have been found to display adequately on the Control4 Configurable Keypad:

- (Default for Selector 6) **Yellow:** 255, 120, 0
- (Default for Selector 7) **Turquoise/Cyan:** 0, 102, 188

- **Color for Capture Selector x** allows you to assign a specific color to each of the Capture Selectors, when used (up to two). You should consider using the defaults, as they have been carefully calibrated. Be aware that the colors shown in Composer may not exactly match what will be displayed by the actual keypad. Experimentation may be necessary.

The following colors have been found to display adequately on the Control4 Configurable Keypad:

- (Default for Selector A) **Dark Green:** 0, 16, 0

- (Default for Selector B) **Dark Purple**: 32, 0, 32

- ****NEW** Color for Off State** allows you to assign a specific color to the Off State, which is Black by default.

OPERATION

IMPORTANT BASIC PRINCIPLE: BE CONSISTENT. Your clients would likely be confused if you have several instances of this driver in the same house and each has a different color scheme or widely different sequences, or even different Presets defined in their associated **Room Control** driver. This could lead to confusion, possibly frustration, and eventually cause your clients to stop using these functions. While some customization may be quite acceptable in given rooms, under the right circumstances, give this all the required consideration and planning, together with the client.

Operation of the **Selector button** (keypad button 5) is straightforward: simply press it until the desired LED color is shown, including black for Off (LED Off). When you reach the end of the sequence, it starts again at the beginning. When you have reached the desired selection, you have two choices:

1. Pause for 2 seconds for the driver to confirm your selection. If this is a Preset, it will then be activated.
2. If this is a Preset, you may immediately press the Up or Down button to activate the Preset (this will effectively confirm your selection). If this is a Utility Selection (such as a Shade or other), you may also immediately use the Up and/or Down buttons.

When the driver decides to turn the room On, the LED briefly flashes white. At any time, you may press button 5 to select another Preset or Utility. There is always a 2-second delay to allow you to select another preset by pressing button 5 again. If you 'land' on a Utility Selection, any currently-playing audio will stay On.

If Off is part of the sequence, you may cycle to Off and the driver will turn the Room Off after 2 seconds (when your choice is confirmed). If you have selected to exclude Off from the sequence, turn the room Off by holding the Up and Down buttons simultaneously for 2 seconds.

When the selection is on a Preset, The Up and Down buttons are used to pulse or ramp the volume Up or Down. To pulse, tap the desired button. To ramp, simply hold the desired button. Similarly, you may mute the room by simultaneously tapping the Up and Down button. When the room is muted, the Selector LED (button 5) will blink continuously. When the room is muted, you may either unmute it by tapping either the Up or Down button or you may turn the room Off by pressing again the Up and Down buttons simultaneously. In addition, holding the Up and Down buttons simultaneously for 2 seconds will always turn the room Off, even when the selector is on a Utility Selection (in this case, the selector will remain on the Utility Selection).

If a room is turned On by another Control4 method, this driver will still control volume (pulse/ramp), muting On and Off, and room Off, as long as its Selector (button 5) is **not** on a Utility Selection. If the Selector happens to be on a Utility Selection and you wish to control the TV, for example, which you just turned On, simply press button 5 repeatedly until you reach a Preset. The driver has a special function to unlock the Up and Down buttons without actually activating the Preset in this situation.

In summary, here is how you turn the **audio On** (to a Preset pre-configured in the **Room Control** driver):

- Press button 5 until the LED color for the desired Preset is shown and wait for 2 seconds to confirm, or
- Press button 5 until the LED color for the desired Preset is shown and immediately press the Up or Down button to confirm.

Here is how you turn the **room Off**:

- At any time, hold the Up and Down buttons simultaneously for more than 2 seconds, or
- Press the Selector button (button 5) until the LED shows Selection 'Off' (black), if you have enabled this, and pause for 2 seconds until the room turns Off or
- When a Preset is selected, mute the room by simultaneously tapping both the Up and Down buttons. Then, tap them both simultaneously again, which turns the room Off when muted, or
- Use any other Control4 method to turn the room Off.

Do not be shy to show your client how this is best used.

KEYPAD TRACKING

****NEW**** Some installations also like to use the Up/Down keys for other purposes such as acting on the most recently pressed key (other than the Selector button) on the same keypad. To achieve this, the driver can temporarily 'Suspend' the Audio Control function of the Up/Down keys and assign the Up/Down keys to the most recently pressed keypad button 1 to 4. This is similar to specifying 'Track Last Button' in the keypad driver. To restore Audio Control, you may specify a timeout value in Seconds or simply press the Selector button once (it will not change its current selection) or use the programming command provided to do so. When the Audio Control function is suspended and Button 1-4 tracking is active, several events as well as specific connections are available for this purpose.

IT IS STRONGLY RECOMMENDED TO USE THIS DRIVER'S UP/DOWN "LAST BUTTON TRACKING" AND TO SET THE UP AND DOWN BUTTON BEHAVIOR TO 'REGULAR BUTTON' ON THE CONTROL4 KEYPAD DRIVER.

To use tracking for keypad buttons 1-4, simply do the following:

1. Connect the driver's Control Outputs to one or more Real Keypad Buttons 1 to 4 (make at least one connection).
2. Connect each corresponding Button Direct Passthrough connection to the usual device (a light or an Advanced Lighting Scene Toggle, for example).
3. Select any option for the Suspended State Timeout property other than the default '*Up/Down tracking for buttons 1-4 not used*'. This will cause the creation of additional connections for Up/Down tracking. You would usually connect the Up connection to a light's Top binding and the Down connection to a light's Bottom binding for proper dimming. To see the newly-created

connections, you may need to refresh your driver's connection by selecting another driver in Composer and re-selecting the Keypad Audio Control driver.

4. If you press a connected keypad button (button 1, for example), the Audio Control is suspended and the Up/Down keys are linked with that button. You may use these to dim a light up or down, for example. Similarly, if you have connected button 2 and you press it, the Up/Down keys are then linked to button 2, which is considered the 'active' button.
5. You may optionally activate Tracking LED Feedback. This allows the user to have a better view of which button (1 to 4) is currently tied to the Up/Down buttons. The 'active' button may be the only one lit or it may be blinking. In addition, you may specify that the first press of a new button is ignored in order to change the 'active' button without operating it (and turning a connected light On or Off, for example). Experiment and see which approach your user is most comfortable with.
6. The Up/Down keys will automatically be reconnected to Audio Control (restored) when you press the selector button (button 5) or when the timeout value you have selected (if any) expires. It is also possible to restore Audio Control via a programming command.

SUPPORT

For support on this driver please go to <https://help.drivercentral.io/>. Give a detailed description of the problem and also include the version number of the driver and the version of Control4 OS that you are using.

AUTO UPDATE

This driver is updated with fixes and new features from time to time. To ensure your project uses the latest version, set the Automatic Updates property of the driver to On.

CHANGELOG

10.0.0	May 20, 2020	Initial Release
10.1.0	May 27, 2020	Added ability to capture audio from another room, issues fixed
10.2.0	May 29, 2020	Added ability to broadcast ROOM_OFF
10.2.1	June 5, 2020	Driver was not finding the Cloud Driver
11.0.0	October 27, 2021	Added alternate transport controls, color for Off, ability to suspend/restore audio control with optional timeout, maximum room volume, Up/Down tracking and feedback for buttons 1-4, issues fixed
11.0.1	February 14, 2022	Minor issues fixed
11.0.2	January 18, 2023	Minor issues fixed
11.0.3	May 26, 2023	Volume up/down issues fixed
11.0.4	August 11, 2023	Issues with tracking fixed
11.0.5	January 19, 2025	Minor issues fixed