# Chapter 18
# HCA Keypads

Unlike physical keypads that you may have installed in your home, the "HCA Keypad" isn't a physical keypad but rather a way to create a user interface for controlling devices and programs.

## The Keypad Idea

The idea behind HCA keypads is that even with the client applications it is harder than it should be for the less technical users in a home to be able to control things.  Currently, they have to start the app and then find the device or program – and understand the differences - they want and act upon it.  That could be simpler.

The client applications work with these new keypads in the same manner as they already do with actual UPB and Insteon keypads. But there is no actual installed physical keypad in this case.

In the Control UI when you tap on the icon for a device that is a keypad, a popup window displays showing the buttons on the keypad.  You press the buttons and the buttons do things.

Buttons appear in the keypad popup with a label and a background color. There is a color for "ON" and for "OFF".  Buttons can either "toggle" or not. If the button toggles – it has two states - you can specify different actions – action "A" and action "B" - for if the button is ON when pressed and if it is OFF when pressed.

They <u>key</u> thing to know is that the color controls what action to execute when the button is pressed. If the button is configured as a toggle , action "A" is what happens when you press the button when it is showing the "Off" color and action "B" is what happens when you press the button when showing the "On" color.

For a button that isn't configured as a toggle, the action that happens is always the same regardless of the color of the button.

What can a button do? Start a program, stop a program, activate or deactivate a scene, or control a device, group, or room. In addition to saying what action the button press does, you also configure the effect that press has on the "ON" or "OFF" appearance of the other buttons on the keypad.

## Adding and configuring a keypad

You create a keypad using a "New Keypad" wizard.  A keypad is a bit like a device: it has a name, lives in a room, has an icon, can appear on multiple displays.  It has no triggers, can't be in a group, can't be scheduled, and has no power track or green settings.



The keypad wizard is like the program wizard. When you start the New Keypad Wizard (Button "Keypad" in the "New" panel of the "Design" category) you create the keypad object.  Then open its properties and you can configure what the keypad does.  The button actions are on the "Keypad" tab.

Here is the "Keypad" tab of the properties on an example keypad. The buttons show the label they will appear on the popup. The action they take when pressed is shown next to the button. If the button toggles then two actions show next to the button.
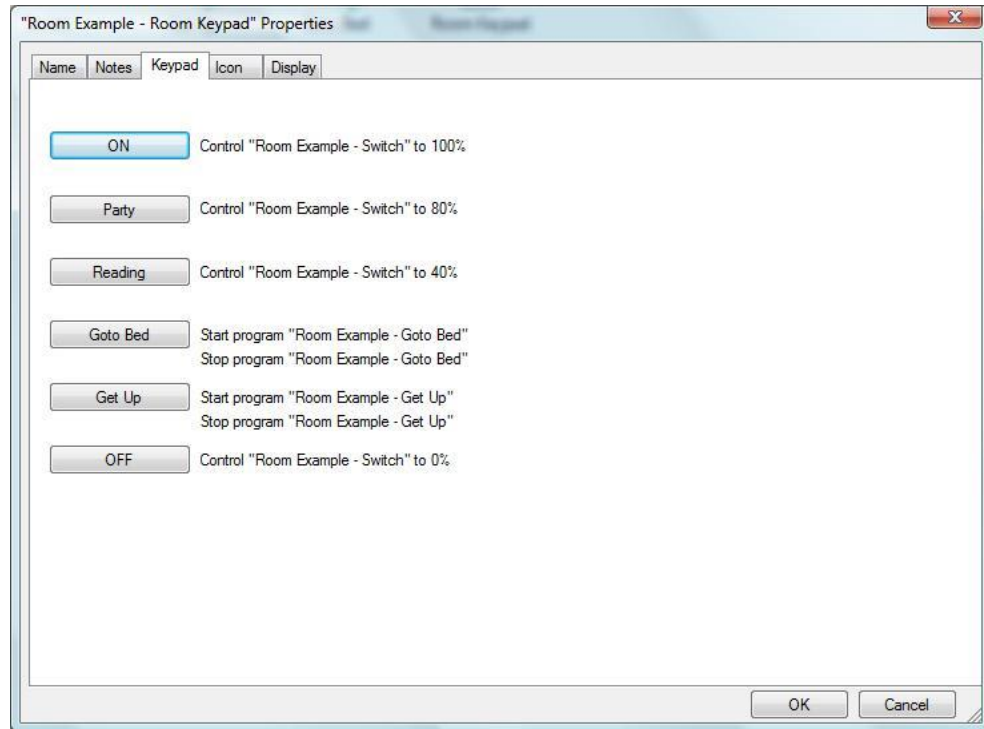


Note that keypads always have 6 buttons. In this example buttons 1, 2, 3, and 6 are not toggling buttons. Buttons that don't toggle perform the same action each time they are pressed. Buttons 4 and 5 are toggle buttons.

To configure a button press the button and a configuration dialog opens.



This dialog is a little complicated but here are the parts:

The "text" is the label on the button.  The "Toggle" checkbox says if the button toggles. For a non-toggle button there is a single action.

 The possible "actions" are:

- Nothing
- Start Program
- Stop Program
- Control
- Activate scene
- Deactivate scene

The dropdown to the right of the action is loaded with different objects depending upon the action selection:

- Start or stop program:  The dropdown is loaded with the programs in your design.
- Control: The dropdown contains all the devices, groups, and rooms in your design and the "Level" edit lets you enter the level to control the device/group to.
- Scene activate or deactivate: The dropdown shows all the UPB links and all Insteon scenes that you have created, named, and have HCA as the controller.

One important point when starting programs:  When using the "Start program" option, the started program is passed 4 arguments that, if the program has the parameter option enabled, can be examined within the program.  These parameters are:

- Keypad Room Name
- Keypad Device Name
- Button label
- Button state: "0" if the button is "Off" when pressed or "100" if the button is "On" when pressed.

In the "Response" section of the dialog you specify what happens after the button is pressed – how all the buttons on the keypad respond.  The options are On, Off, and No-Change.

A key point to know: A button doesn't automatically go ON when pressed. You get to decide if it does and what the other buttons do by choices made in the "response" section of the dialog.

The last part of the dialog configures how the button appears when the keypad popup first comes to the screen.  You can choose from these options:

- Always ON
- Always Off
- Same as when the keypad was closed
- ON if the selected program is running, OFF otherwise
- ON if the selected program is not running, OFF otherwise
- ON if the selected flag is YES, OFF otherwise
- ON if the selected flag is NO, OFF otherwise

An example might clarify this. Suppose that you have a keypad where the button starts a program. The program runs for some period of time and then terminates.  You would configure the button to show as ON when pressed.  That shows the user that they did indeed press the button.  When next the keypad popup appears it would be nice if the button showed if the program is currently running or not. That's what the configuration in the "Button appears" section is all about.

For a button that toggles the configuration is similar but there are now two actions.

In this example, the first press of the key turns the selected device ON – to 100% - and the second press turns it OFF – to 0%.

Note how the response section is configured. The button always shows if "Zone 2" is on or off. When pressed it turns off all the other buttons. In this example the device being controlled in the Insteon irrigation controller when only one zone can be on at a given time.  The keypad buttons reflect that – press a button to control a zone the other zones now show as off.

## Buttons that start programs

If in a HCA Keypad a button is used to start a program and that program supports parameters, you can specify the arguments to those parameters. For example:



Since the selected program has parameters the "Program args" button appears. Pressing it lets you enter the values and objects for that program's parameters.
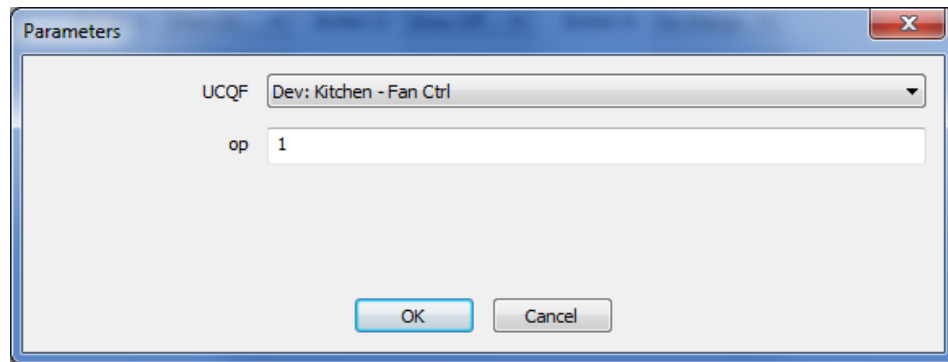
When the keypad button is pressed, the program is started using those argument values.

## Examples

Here are four examples that cover some of the common ways of using keypads.

<u>House controller</u>

In this keypad each button acts independently of the other buttons. Each button controls a device. Each button toggles controlling the device ON and OFF. The state of the button shows if the device is ON or OFF.

In this example some of the buttons control a single device and other buttons control a whole room using the HCA "room" operation.

The key feature of this use of a keypad is that more than one button can appear ON at any time.

**House Example House**

- Deck
- Outside
- Bedroom
- Front Entry
- Back Entry
- Circ Pump

☒ Close
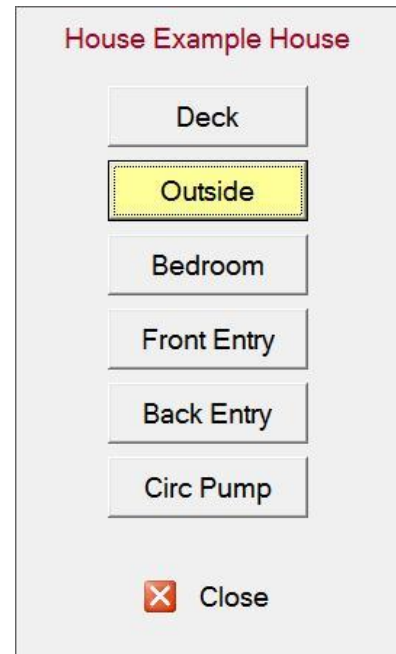
<u>Room or Scene controller</u>

In this keypad each button controls the same set of devices. At any given time the room reflects one scene or another so only one button is ever on at a time. The keypad button that is ON shows what scene is the current scene.

**Room Example Room**

- ON
- Party
- Reading
- Goto Bed
- Get Up
- OFF

☒ Close
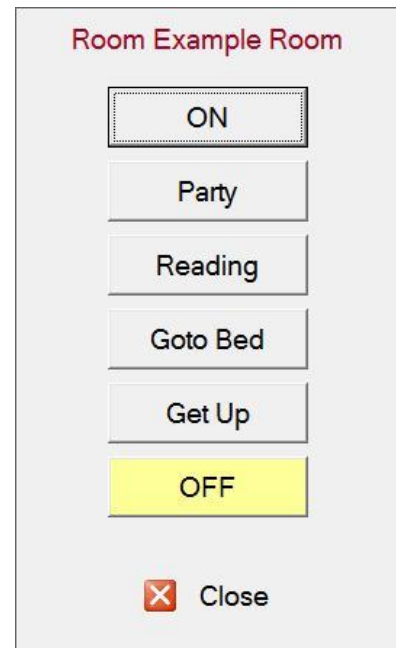
Special Device Control Keypad

The keypad created for the Irrigation device is an example of this. Each button is tried to one part of the same device. In this case the keypad controls 6 zones of the irrigation controller.

As explained above, since only one zone can be on at a time, only one button ever shows as ON.

**Garden Example Watering**

Zone 1

Zone 2

Zone 3

Zone 4

Zone 5

Zone 6

Close
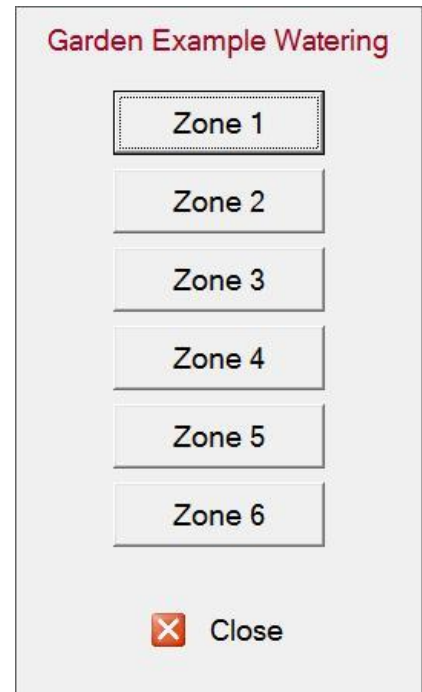
Special Use Keypad

In this example a keypad was created for a family member to use when returning home. When they determine which ferry they will be on, they start the HCA application on their mobile, and press the button for that ferry they will take. Each button starts the same program – the program knows what button was pressed from the arguments passed to it – and the program determines when best to turn on lights in the home based upon the ferry time and the known travel time.

Without this keypad they had to navigate to the "room" that holds the 4 possible programs and tap to start the right one. Not difficult for some people but too difficult for them.

**Ferry Example Mobile**

Ferry 7:20

Ferry 8:10

Ferry 9:00

Ferry 10:05

Close
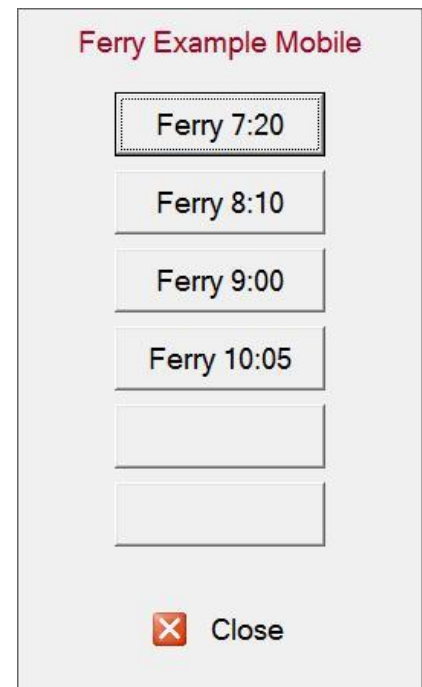
**The whole idea of keypads is to let technical HCA users craft a user interface for non-technical users that gives then a limited set of actions that they can EASILY use.**