

Installing and Programming Axia LCD SmartSwitch and FilmCap Button Panels using PathfinderPC or PathfinderPRO

For PathfinderPC/PathfinderPRO v4.21 or later

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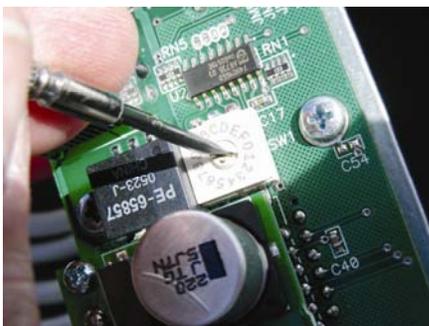
Introduction

This document describes programming for Axia SmartSwitch LCD button modules and Film-Cap button modules using CANBus connections. This process relies on PathfinderPC or PathfinderPRO software, and assumes that the reader has at least intermediate-level working knowledge of the Pathfinder product.

Note: The method used to program the button modules requires mapping the hardware buttons to the onscreen “soft” button controls of Pathfinder User Panels created using the Pathfinder Panel Designer. Portions of the following text are reprinted from the Panel Designer section of the [PathfinderPC Router Control Software User’s Guide](#), which may be downloaded in PDF format from www.PathfinderPC.com.

Module Installation

Button panels that connect via CANBus are like other Element modules, in that they require a unique ID setting in order for the system to recognize them correctly. Each Element module (and each CANBus accessory panel) has a multi-position rotary switch located on its circuit board; each device attached to an Element’s CANBus must have this switch set to a unique position.



To find out what ID assignments are free, log into the Element Control Center by entering the console’s IP address into a Web browser on any PC connected to the Axia network, and choosing the “Module Information Screen” menu item. (Alternatively, if your Element has a Standard Monitor Module installed, you can enter Test Mode by pressing and holding the Help and Right Arrow keys on the Monitor Module for five seconds.) You’ll see a description of each installed module and accessory panel device; look for the column titled “address [type:id]”. The number *after the colon* in this column is the ID setting for each Element module (corresponding to the setting of the module’s rotary switch).

Set the rotary switch on your new module to an open ID number using a small screwdriver. Connect it to the open RJ-45 jack on an adjacent module using the supplied Ethernet cable. Don’t forget to “capture” your console configuration to alert Element to the presence of the new module.

For complete instructions on module installation, including Capture Mode and installing the overbridge display (if your module is so equipped), please refer to the section entitled “Installing A New Module” found in Appendix C of the [Element v.2.0 User’s Manual](#), available for download in PDF format at www.AxiaAudio.com/manuals.

connected to a PathfinderPro server. Each Panel gets stored to a unique file and becomes a single user panel available to the PathfinderPC Client and Server. Buttons and Labels may be added to the panel by dragging the control from the top right hand control pad to the user panel being created.

Arranging controls on the form

Once a control is dropped into the panel, it becomes fixed on the form. In order to move a control, click the control to select it and then right click on the handle around the control. The mouse pointer icon will switch to the move pointer and allow you to drag the control around the screen. Using the shift and/or control keys, you can select multiple controls and then right click the handle of any one of them to move all of them as a group. In order to resize the control, click on it to select it and then left click and drag the handles. Again if you select multiple controls, you can resize all of them simultaneously.

The designer can select multiple controls using the shift and/or control keys and then use the Cut, copy, and paste functions from the menu or quick keys, to duplicate controls. The edit menu also provides automatic alignment tools. By selecting multiple controls and then selecting the Align Left, Right, Top, or Bottom, all of the selected controls can be aligned. The software will pick the farthest current edge to the selected direction out of the selected controls and align all of them to that edge. So if the designer selects several controls and then selects align left, the software will find the control which currently has the left most edge, and it will align all of the selected controls to that edge. The spread vertically and horizontally menu item will spread the selected controls out evenly over the space occupied by the selected controls.

Setting Control Properties

Each object within a User Panel including the main form itself has a unique set of Properties that can be manipulated to define the look and behavior of the object when it gets used within the system. These are shown in the bottom of the Right hand panel. Whenever you click on an object in the User Panel the appropriate set of properties for that control will display. It is these properties that must be set to make the control do anything in the PathfinderPC System when the panel is opened and run using either PathfinderPC Client or PathfinderPC Mini.

For example, if you click on the main form of the newly created user panel you will see a list of 10 properties in the right hand column. If you grab the corner of the new user panel and drag to adjust the height and width of the form, you will notice that the height and width properties change to show the size of the form. Also if you double click in the caption property field and change the caption, it will change the caption at the top of the form.

Each object has its own set of properties that do things within the system. The last part of this section will list all of their properties and their uses within the system To continue with our first panel example drag and drop a button control onto the panel. Next Right click on the button and resize it to the desired size. Once you have gotten the button to the correct size, click somewhere else on the user panel to exit the resizing and moving mode. Then click on the button again to select it.

Next, with the button selected, double click on the caption property, and change the caption for the button. This will alter what the button says. You can also click in the BackColorOn and BackColorOff properties and then click on the button that appears in the property bar to open a color palette. This will allow you to define the colors to be used when the button is on or off. The button will change colors to the new color if you are changing the backcolor that matches the State drop-down for the control. You can change the state drop down to on and off to view in the designer how the button will look when it is on or off. After changing the state drop-down you have to click on another property (leave the state property) before the change will appear. Make sure you leave the state property in the state you wish it to default to when the form is loaded. The state is usually used in routing panels to show whether a route exists, but when paired with stacking events can be used to show any condition in the system you want. Finally double-click in the name property and create a name for the button. If you are



going to define custom roles for the user panel button through stack events, the button will be identified in the stack event by `PanelName.ButtonName`.

You could also drag and drop labels onto the panel. Labels are simply textual information that will be displayed in any color you like on the panel.

So at this point we have a panel that has a named button with a nice caption, but the button does not do anything in the system. Find the three properties `MapRouter`, `MapSource`, and `MapDestination`. If you enter numbers into these three properties that match the number of a router within Pathfinder, as well as the number of a source and destination within that router this button will activate that route when pushed from within PathfinderPC Client and/or PathfinderPC Mini. To determine what numbers to use in these properties, look at the main PathfinderPC Server window and select the Routers Tab. Find the number of the router that has the source and destination to be used. Enter this number into the `MapRouter` property. Then select that router in the list and click on the Route Names button. This will list all of the sources and destinations in the router. Find the numbers of the source and destination to be activated as a route when the button is pushed and enter those numbers into the `MapSource` and `MapDestination` properties.

Remember that pushing the button from within the Panel Designer will do nothing as it is just the designer program. The panel must first be saved into the correct folder on the server, and then the panel should be opened using either PathfinderPC Client or PathfinderPC Mini. So assuming that our Audio Router is router 1 and our button is going to route Source 1 to Destination 1, make `MapRouter`, `MapSource`, and `MapDestination` all 1.

Before we try to use this new panel, add one more button. Create a caption and name for this button as well, and set `MapRouter` and `MapDestination` also to 1 (or whatever number router your audio router is), but set the Source to 2. This will mean that when we run the panel clicking the top button will route 1 to 1 and clicking the second button will route 2 to 1. Furthermore, the Mapping process will automatically change the state of either button if the route for that button is active so that it will toggle the backcolor colors. Now save the Panel, giving it a name, and making sure it is being saved to the `PFSPanels` folder within the PathfinderPC Server folder.

Now launch the PathfinderPC Client application. If it is already started, you may have to restart it before the panel will be available. You will notice that there should now be a menu in PathfinderPC Client called User Panels. Under that menu item you will find your newly created user panel. If you create additional panels and save them to the `PFSPanels` folder on the server, they also will appear under this menu item. Click on the name of the panel to open the panel. If the `MapRouter`, `MapSource`, and `MapDestination` fields have valid entries, clicking the buttons should now cause the routes to be made and the button colors to change accordingly.

To use this panel within PathfinderPC Mini, edit the configuration file and be sure the server IP addresses are defined, and enter the `PanelName` to open in the configuration file. See the section on PathfinderPC Mini for details. Then launching PathfinderPC Mini will run this panel as its own application.

If you close and reopen the panel designer, you can use the File menu to open and edit the Panel if you want to change it later. Once you resave the changes you must close and open the panel again within PathfinderPC Client to get the changes to display. In Mini, just close and re-launch the application to view your changes. You can also create additional panels and save them to the folder, and they will be available to these applications.

Remember that the `MapRouter/Source/Destination` is only one thing you can do with the panels. You could also leave these fields blank and use Stack Event qualifiers to determine the button functions. The



section on latching buttons in the Stack Event part of this document is a good example. In addition the detailed property descriptions below will provide more insight on the huge variety of functions these controls can perform.

To continue our example, open the Panel you were just designing in Panel Designer again. One of the other powerful features of these panels is that once created, their button functions can be mapped to actual hardware controls as well using either GPIO circuits or Axia Element User Panel buttons. To accomplish this, select the button you wish to map to a hardware control, and then find the `HWMapType` property and select the Button, Label, or GPIO button option. You then must select a different property for the change to update. Essentially you must leave the property for the change to get written into the panel definition. This is true of most of the properties. The Button option means that this button will get mapped to an Axia User Panel button. The Label property means that this button will be mapped to the LCD display of an Axia User Panel. The GPIOButton option means that it will map to a GPIO Circuit. You will notice that once you make your selection and then leave the selection field the options in the `HWMap` section will change depending on whether a GPIO option or User Panel option was selected.

Next under `HWMapHostIP` enter the IP address of the Element CPU or GPIO box that hosts the hardware device to be used. The `HWMapHostPort` will have already been selected when the `HWMapType` was selected and should not be casually changed. The `HWMapInternalName` Property is also automatically defined and matches the software `PanelName.ControlName` to which you are mapping. The `HWMapAxiaSysName` is automatically defined by the last two properties on the list, and cannot be manually set. If you have selected a GPIO type map then these last two properties will be GPIO Port and GPIO Circuit. Enter the number of the port on the device defined by the `HWMapHostIP`, and the GPI/GPO pin to use.

If the `HWMapType` is a UserPanel Button or Label (LCD Display) then these properties will be `UserPanelModule` and `UserPanelButton`. The module number is related to the dip switch setting on the bottom of the module in the console. However there is a much simpler method for obtaining the module number if you don't know it. From the PathfinderPC Server PC open a command prompt and type:

```
telnet ipaddress 4010
```

Example: Telnet 172.16.1.3 4010

For the IP address use the ipaddress of the Element CPU that hosts the user module. Then press a few buttons on the module. You should see commands coming back that look like:

```
EVENT MOD_USER#3.BUT#6 KEY=DOWN  
EVENT MOD_USER#3.BUT#6 KEY=UP
```

The module number you are looking for is the number after `MOD_USER#`. In this case it would be 3. The button numbers start from 1 at the bottom of the button panel strip and count up to the top of the strip. So enter the module number and the button number that should be mapped to the software button. Then save the panel.

When you save the panel it will also create a `HardwareMap` file in the `PFSPanels` folder. This file at the time of this writing is only read when the server starts, so to get your hardware maps to work restart the PathfinderPC Server application. Now if you have entered the Host IP and additional settings correctly, those hardware controls should do exactly the same thing as the software buttons. This is true whether or not the Client application has the panel open or is even running. As long as the server is running those hardware controls will function. In the case of the GPIO control, whenever the route is active the



GPO will be low causing the GPIO button to be lit. Also pushing the button and closing the GPI will cause the route to be activated. The same is true for the user panel buttons, except that in that case the button's captions and colors will also match the software panel color and caption selections. However, if you are using certain custom colors, it may take some tweaking to make the software panel color and hardware panel button color look the way you want them to.

Because of the button backlighting, the same RGB color settings do not always look exactly the same between the hardware and software button.

Again remember that we could also leave all of the hardware map and MapRouter, Source, Destination fields blank and instead use stack events to define the button behavior. In that case create a stack event group and stack event (or series of stack events). Fill in the UserPanelButton qualifier entering the PanelName.ButtonName for the button name and the properties of the button that will trigger the event such as MouseDown (equivalent to pressing the button). Then in the Action section we could create a route action, and a user panel action that would change the route and change the color and caption of the button on the fly. Or we could do both. We could define mapped routes, but also use stack events on the same buttons to change its captions or flashing state.

In this manner the user panels can be designed to accomplish an infinite array of custom tasks in a button package that is simple for the end user to use and understand.

Note: See the "Stack Event" section of the [PathfinderPC Router Control Software User's Guide](#) for more details on using Panel Controls with Stack Events.

For Further Assistance

If you have questions or need further assistance, please email Axia Support at Inquiry@AxiaAudio.com.