ion

Compact Switcher Control Surface

Users Manual

Firmware 2.03
September 6, 2017

JLCooper ELECTRONICS

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Welcome

Thanks for choosing the *JLCooper ION Compact Switcher Control Surface* to use with your switcher. Out of the box, this unit is designed to work with the Blackmagic Design *ATEM Live Production Switchers*. The *ION Compact Switcher Control Surface* can work concurrently with the *ATEM Software Control*, the *Broadcast Panel* and even other *ION Compact Switcher Control Surfaces* on the same network.

If you are using another switcher system, please refer to the section *Configuring Your ION Compact Switcher Control Surface For Other Systems*.

Introduction

The *ION Compact Switcher Control Surface* is a control panel that allows essential control of the Blackmagic Design *ATEM Live Production Switchers* in a compact, desktop package.

Supported Systems

The *ION Compact Switcher Control Surface* works with the following Blackmagic Design *ATEM Live Production Switchers* using the *ATEM Switchers 7.2 Update*:

- *ATEM 2 M/E Broadcast Studio 4K*
- *ATEM 2 M/E Production Studio 4K*
- *ATEM 1 M/E Production Studio 4K*

- *ATEM 1 M/E Production Switcher*
- *ATEM Production Studio 4K*
- *ATEM Television Studio*

The *ION Compact Switcher Control Surface* has not been tested with the following Blackmagic Design *ATEM Live Production Switchers*:

- *ATEM 2 M/E Production Switcher*
- *ATEM Television Studio HD*

- *ATEM Television Studio HD Pro*

Features

- Standalone control of supported Blackmagic Design *ATEM Live Production Switchers* without the need for a separate computer.

- Can work concurrently with the *ATEM Software Control*, the *Broadcast Panel* and even other ION *Compact Switcher Control Surfaces* on the same network.

- ***New*** Source Button Mapping allows you to rearrange the Program and Preview source buttons to suit your needs.

- Allows Program and Preview selection of external and internal sources.

- Controls Cut, Mix, Dip,Wipe, DVE* and Stinger* transitions.
  (In ATEM Live Production Switchers that are capable of DVE and Stinger transitions)

- Controls Mix Effects Bus 2.
  (In ATEM Live Production Switchers that have two Mix/Effects busses)

- Allows automatic and manual control of transitions using the dedicated hardware Transition Bar.
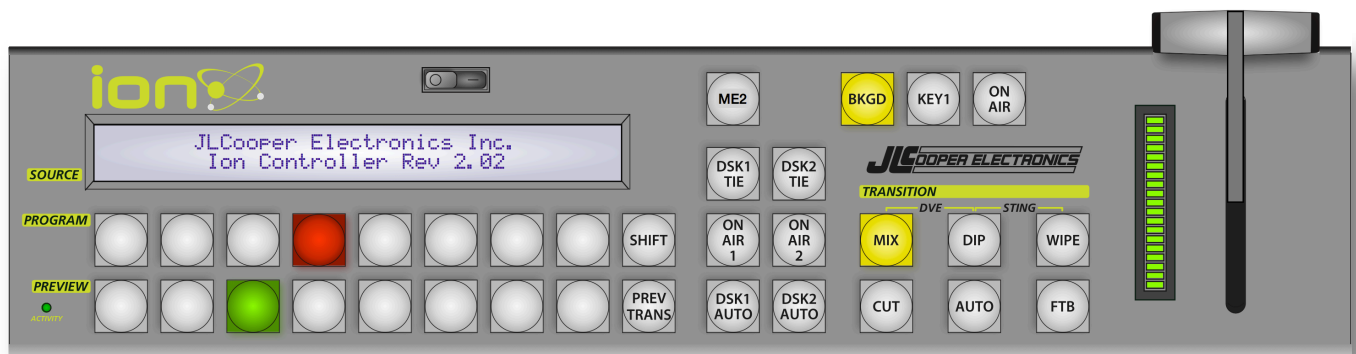
ION Compact Switcher Control Surface

Getting Started

Connecting your *ION Compact Switcher Control Surface* to your *ATEM Live Production Switcher* is rather straightforward. The following two diagrams show the two most common scenarios.

Direct Connection

In this scenario, your *ION Compact Switcher Control Surface* is connected directly to your *ATEM Live Production Switcher* with a standard Ethernet cable. This usually referred to as a "*Cat5*" cable. This can be either a straight through cable or a crossover cable.

Connecting Through A Network

In this scenario, your *ION Compact Switcher Control Surface* is connected to your *ATEM Live Production Switcher* through an Ethernet Switch or Hub with a standard Ethernet cable. This usually referred to as a "*Cat5*" cable. This can be either a straight through cable or a crossover cable.

This may be a small isolated network or, it may be part of a larger network with other devices. This is also how the system is connected if you are also using the *ATEM Software Control* running on a computer or a *Broadcast Panel*.

(Optional)
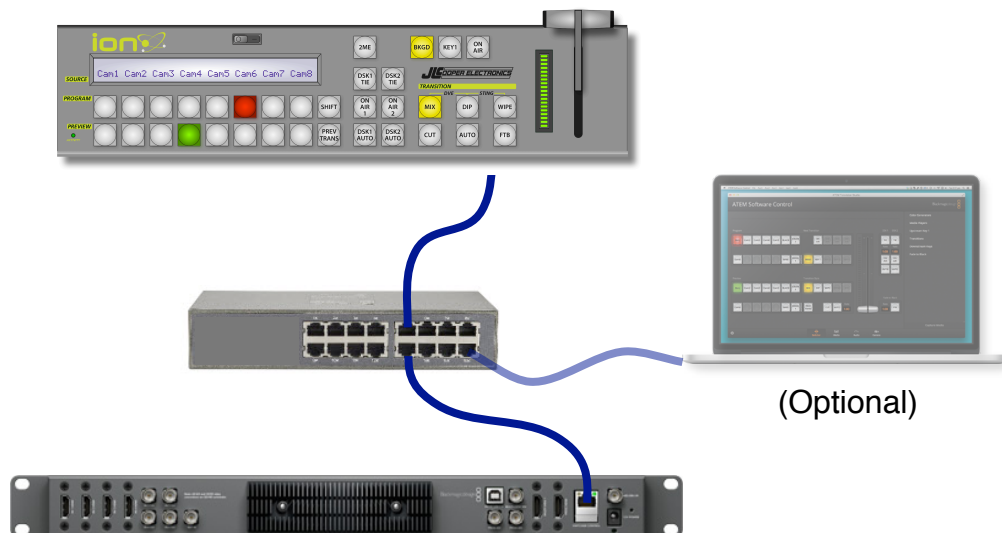
ION Basic Setup

Your *ION Compact Switcher Control Surface* has an Ethernet port for communications. To use your *ION Compact Switcher Control Surface* with your *ATEM Live Production Switcher*, you will need to configure the IP Address of your *ION Compact Switcher Control Surface*.

Recommended Settings For A Single Controller

Here is the recommended IP setting of a simple system with an *ATEM Live Production Switcher*, a single *ION Compact Switcher Control Surface* and a computer running the *ATEM Software Control* application.

Device	Device IP Address	Destination IP Address	Port
ATEM Switcher	192.168.10.240	-	-
ION	192.168.10.11	192.168.10.240	9910
Computer running ATEM Software Control	192.168.10.12	192.168.10.240	-

Recommended Network Settings for a Simple System

Connecting the ION for Configuration

To configure your *ION Compact Switcher Control Surface*, simply connect your *ION* directly to your computer. You can also connect your *ION Compact Switcher Control Surface* to your computer through your network.

| Device	Device IP Address
ION	192.168.10.249
Computer running ION Configuration Utility	192.168.10.1

Recommended Network Settings for a Simple System

You will need to configure the network settings on your computer as follows:
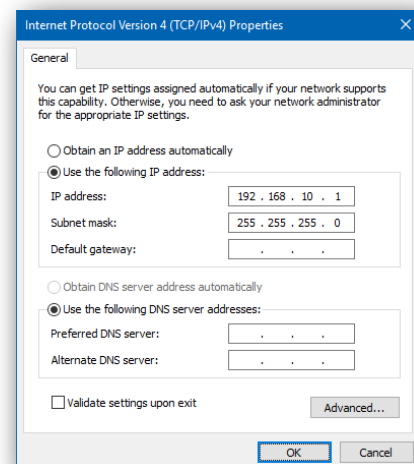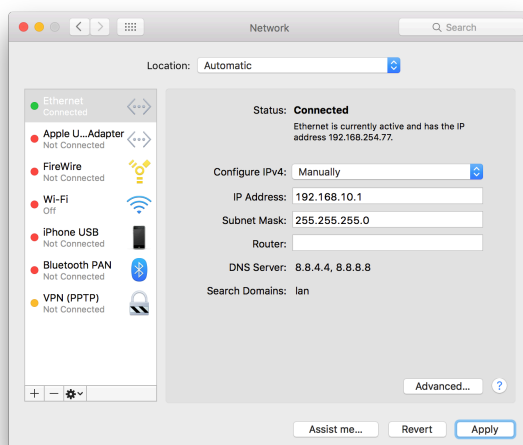
Entering Setup Mode

To place the *ION Compact Switcher Control Surface* in configuration mode, press and hold the **SHIFT** button during power up. Continue holding the **SHIFT** button until the display shows `Waiting for External IP Data`.
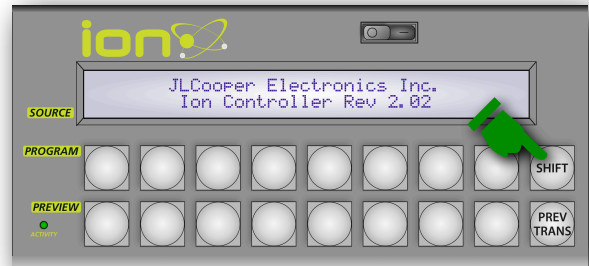
Using The Configuration Utility For Windows

Configuring the *ION Compact Switcher Control Surface* is done with the *ION Configuration Utility For Windows*. Simply download the utility from the Downloads section of the JLCooper website, install it and launch it.
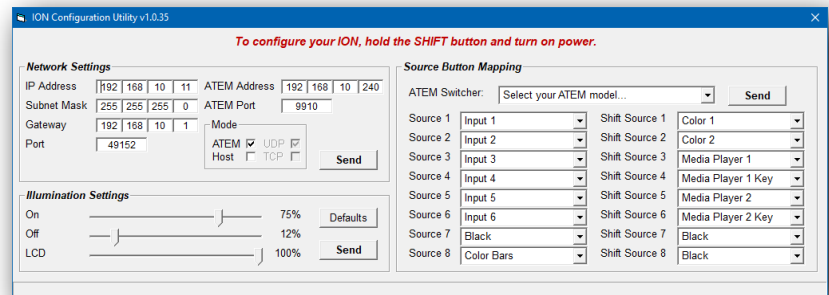
Configuring the ION

To configure your *ION Compact Switcher Control Surface*, launch the *ION Configuration Utility For Windows* and enter the following information:

1. In the source *Network Settings* section, enter the desired IP address and port number you wish to set for your ION *Compact Switcher Control Surface*.
2. Enter the IP address and port number of your ATEM Switcher. *Note: normally, the port is 9910.*
3. Enter the subnet mask of your network.
4. If necessary, enter the gateway address of your network.
5. Make sure the Mode is set to ATEM.
6. Click **SEND** in the source *Network Settings* section.
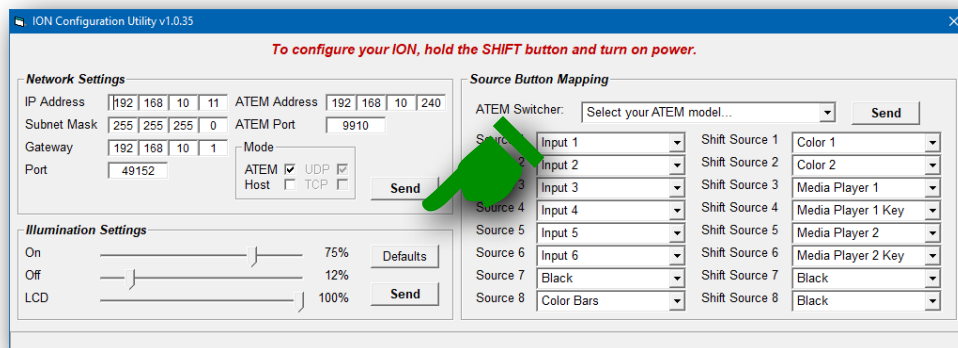
The *ION Configuration Utility For Windows* will connect to the *ION Compact Switcher Control Surface*, upload the network configuration and reboot the *ION Compact Switcher Control Surface* with the new settings. If everything is configured correctly, the *ION Compact Switcher*

Control Surface will establish communications with the ATEM Switcher.

Using The Configuration Utility For MacOS

Configuration

Before configuring your ION, you may need to make a temporary change to your Mac's Network Settings. This is only necessary if your are configuring the ION. It is not required if you are updating the firmware.

Open System Preferences and go to the Network panel. In the sidebar, choose Ethernet. If the IP Address does not start with 192.168.10 you will have to edit it.

First write down the current settings so that you can restore them later. Next set the Configure IPv4 popup to **Manually**. Change the IP Address to 192.168.10.xxx where xxx is a three digit number between 1 to 255. It should not be 249 and it should not match any other addresses of devices attached to your system.

The Subnet Mask should be 255.255.255.0. The Router may be left blank. Click on **Apply**.

After you have made changes to the configuration and sent those changes to the ION, you can restore your Mac's Network Settings. Go back to System Preferences > Network, and re-enter the settings you wrote down earlier. Then click on **Apply**.

The ION must be placed into Configuration mode by pressing and holding the SHIFT button during power up. Continue holding the SHIFT button until the display shows *Waiting For External IP Data*.

The Configuration Window is the first thing you will see after launching the application. It has three sections: Network Settings, Illumination Settings and Source Button Mapping.
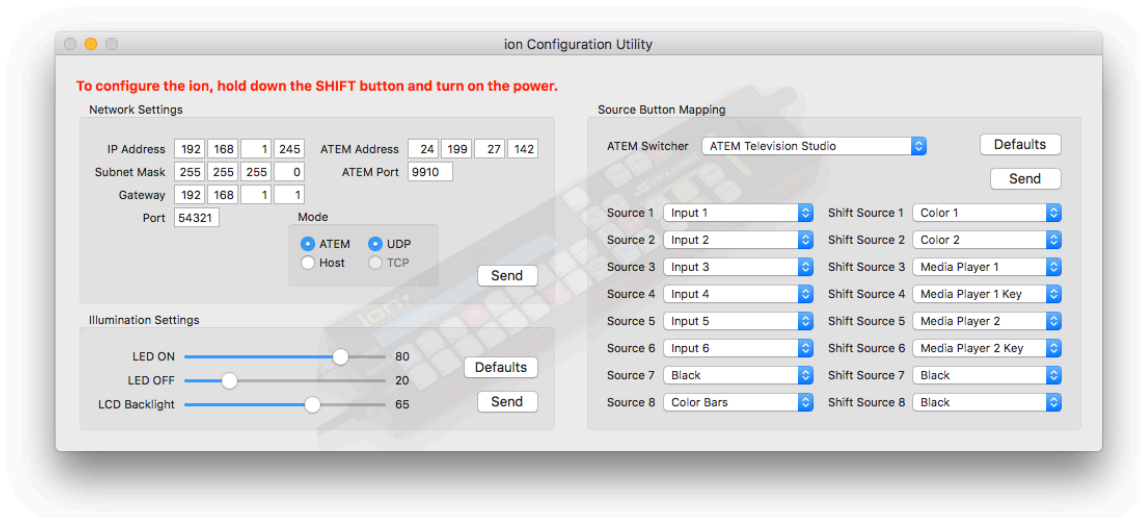
Network Settings

Here you enter the address and port information for both the ION and the ATEM. Normally the ATEM port is 9910. Make sure Mode is set to ATEM. Click on SEND. The ION will power down and restart with the new settings.

> NOTE: Every time you hit SEND in the Configuration window, you must put the ION back into Configuration Mode (hold SHIFT while powering up) if you want to make further settings changes.
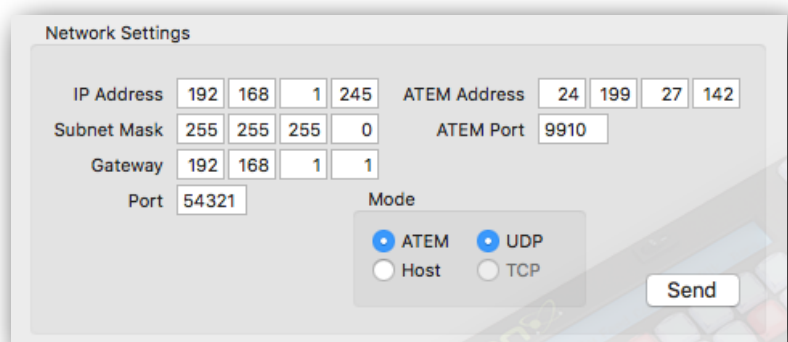
Using Your ION

Your *ION Compact Switcher Control Surface* duplicates many of the basic features of the *ATEM Software Control* and *Broadcast Panel*. This manual assumes that you are familiar with using the ATEM Television Studio or ATEM 1 M/E Production Studio 4K with the *ATEM Software Control* and/or *Broadcast Panel*. It also assumes that you have ATEM Television Studio or ATEM 1 M/E Production Studio 4K connected to your video sources and outputs.

For greater detail and the latest information, please consult the *ATEM Live Production Switchers Installation And Operation Manual*.

This manual was developed for the ATEM Television Studio and ATEM 1 M/E Production Studio 4K with ATEM firmware version 7.2. If you are using a different firmware/hardware version in your ATEM Television Studio or ATEM 1 M/E Production Studio 4K, some features covered in this manual may be different or not be available in your system.

Mix Effects

The Source Names Display, Program buttons, Preview buttons and Shift button allow you to select the sources that are switched to the Program and Preview Buses.

The *ION Compact Switcher Control Surface* controls the sources for Mix Effects Bus 1 and Mix Effects Bus 2. This is selected by pressing the ME2 button.

Note: Mix Effects Bus 2 of the ATEM switchers does not have downstream keyers. Because of this, when the ME2 button is selected, the DSK buttons on the ION Compact Switcher Control Surface have no effect.

Source Names Display

The Source Names Displays shows a short description of the Program and Preview buttons below it. These can be the ATEM switchers external inputs or internal sources (such as Black, Color Bars, Media Players) or. These labels can be modified in the Settings menu of the ATEM Software Control application.

When the SHIFT button is pressed, the sources associated of the Program and Preview buttons will change to another set of sources. These are called Shifted Sources. The Source Names Displays will change to display the current set of sources.

Beginning with v2.03 firmware, sources assigned to the Program and Preview buttons can be changed. To do this, refer to the section on Input Source Assignments.

Program Bus

The Program buttons are used to switch sources to the Program Bus. The source on the Program Bus is shown by a red illuminated button.
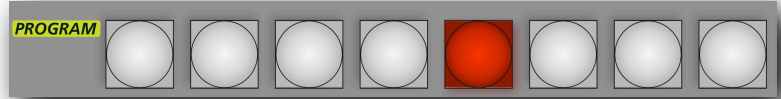
Beginning with v2.03 firmware, sources assigned to the Program and Preview buttons can be changed. To do this, refer to the section on Input Source Assignments.

Preview Bus

The Preview buttons are used to switch sources to the Preview Bus. The source on the Preview Bus is shown by a green illuminated button. During a transition, the Preview button illuminate red to show that it is mixed into the Program Bus.
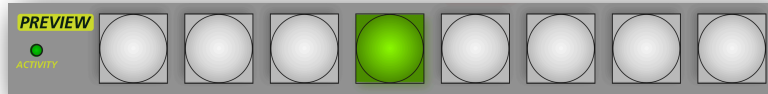
Beginning with v2.03 firmware, sources assigned to the Program and Preview buttons can be changed. To do this, refer to the section on Input Source Assignments.

SHIFT

The SHIFT button allows you to change the sources associated with the Program and Preview buttons.

With the ATEM Television Studio, when the Shift button is off, the Program and Preview buttons allow you to select external sources 1 - 6, Black and Color Bars. When the SHIFT button is illuminated, the Program and Preview buttons allow you to select Shifted Sources such as the Color Generators, Media Players and Downstream Keys.

With the ATEM 1 M/E Production Studio 4K, when the SHIFT button is off, the Program and Preview buttons allow you to select external sources 1 - 8. When the SHIFT button is illuminated, the Program and Preview buttons allow you to select Shifted Sources such as Black, Color Bars, the Color Generators, and the Media Players.

With other ATEM switchers, the assignments of the Program and Preview buttons are listed in the tables on the next page.

Default Program/Preview Button Assignments

Here are the default Program/Preview button assignments in the ION for various ATEM switchers. Beginning with v2.03 firmware, sources assigned to the Program and Preview buttons can be changed. To do this, refer to the section on Input Source Assignments.

Default Program/Preview Button Assignments For Units With 16 And 20 Inputs

	1	2	3	4	5	6	7	8
Shift	Cam9	Cam10	MP1	MP2	Col1	Black	SSrc	(Pgm2)
	Cam1	Cam2	Cam3	Cam4	Cam5	Cam6	Cam7	Cam8

**ATEM 2 M/E Broadcast Studio 4K / ATEM 2 M/E Production Studio 4K
ATEM 2 M/E Production Switcher**

Note: SSrc is Supersource. Pgm2 is the output of Mix/Effects Bus 2.
Pgm2 is only available to Mix/Effects Bus 1.

Default Program/Preview Button Assignments For Unit With 10 Inputs

	1	2	3	4	5	6	7	8
Shift	Cam9	Cam10	MP1	MP2	Col1	Col2	Black	Bars
	Cam1	Cam2	Cam3	Cam4	Cam5	Cam6	Cam7	Cam8

ATEM 1 M/E Production Studio 4K

Default Program/Preview Button Assignments For Units With 8 Inputs

	1	2	3	4	5	6	7	8
Shift	MP1	MP2	Col1	Col2	Black	Bars		
	Cam1	Cam2	Cam3	Cam4	Cam5	Cam6	Cam7	Cam8

**ATEM Television Studio HD / ATEM Production Studio 4K
ATEM 1 M/E Production Switcher**

Default Program/Preview Button Assignments For Unit With 6 Inputs

|	1	2	3	4	5	6	7	8
Shift	Col1	Col2	Black	Bars				
	Cam1	Cam2	Cam3	Cam4	Cam5	Cam6	MP1	MP2

ATEM Television Studio

Transition Control And Upstream Keyers

The ATEM switchers allow various ways to switch between sources. Your *ION Compact Switcher Control Surface* allows you to quickly select the transition appropriate for the situation.

CUT

The CUT button allows you to perform an immediate transition between the sources on the Program and Preview Busses. It does this irrespective of the Transition Type selected.
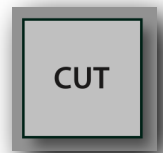
AUTO

The AUTO button allows to perform an automatic, timed transition between the sources on the Program and Preview Busses. It uses the selected transition (Mix, Dip or Wipe) at the rate specified in the RATES menu. When the *ION Compact Switcher Control Surface* is used with an ATEM switcher that supports DVE transitions, the *ION Compact Switcher Control Surface* can also perform automatic, timed Stinger or DVE transitions.

During the Auto Transition, the AUTO button will illuminate red to indicate that a transition is in process. The bargraph next to the T-Bar will show the progress of the transition.

T-Bar and T-Bar Indicator

The Transition Bar or T-Bar allows the operator to manually control a transition. During a manual transition, the AUTO button will illuminate red to indicate that a transition is in process. The bargraph next to the T-Bar will show the progress of the transition.

When the *ION Compact Switcher Control Surface* is used with an ATEM switcher that supports DVE transitions, the T-Bar can manually control the DVE transition.

Note: The ATEM switchers do not allow manual control of Stinger transitions.
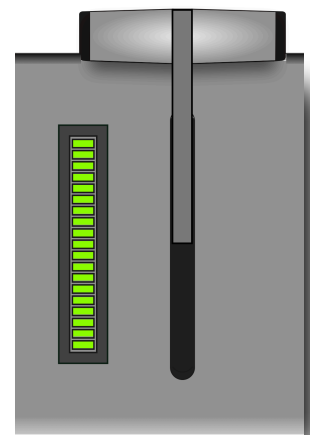
Transition Type buttons

The MIX, DIP and WIPE buttons allow you to specify the style of transition that takes place. The button of the selected transition type will be illuminated. The graphic below shows the Mix transition selected.

When the *ION Compact Switcher Control Surface* is used with an ATEM switcher that supports DVE transitions, the *ION Compact Switcher Control Surface* can select the DVE transition style. To select the DVE transition style, press the MIX and DIP buttons simultaneously. When the DVE transition style is selected, the MIX and DIP buttons are illuminated.
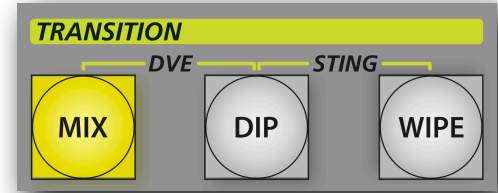
When the *ION Compact Switcher Control Surface* is used with an ATEM switcher that supports Stinger transitions, the *ION Compact Switcher Control Surface* can select the Stinger transition style. To select the Stinger transition style, press the DIP and WIPE buttons simultaneously. When the Stinger transition style is selected, the DIP and WIPE buttons are illuminated.

PREV TRANS

The PREV TRANS button allows you to preview a transition on the Preview Bus while leaving the Program Bus unaffected. The ATEM Television Studio does not support previewing a Fade To Black transition.

Next Transition

The BKGD and KEY1 buttons allow you to select sources that will transition to the Program Bus with the next transition.

ON AIR

The ON AIR button allows to immediately place or remove the Upstream Keyer on the Program Bus. This button illuminates red when the Upstream Keyer is shown on the Program Bus.

Downstream Keyers

DSK1 TIE, DSK2 TIE

The DSK1 TIE and DSK2 TIE buttons allow you to place Downstream Key 1 and/or Downstream Key 2 on the Preview output. When a transition occurs, the selected source with Downstream Key 1 and/or Downstream Key 2 will be shown on the Program Bus. The transition style and rate is the same as a normal transition.

> *Note: Mix Effects Bus 2 of the ATEM switchers does not have downstream keyers. Because of this, when the ME2 button is selected, the DSK buttons on the ION Compact Switcher Control Surface have no effect.*

ON AIR 1, ON AIR 2

The ON AIR 1 and ON AIR 2 buttons allow you to immediately add or remove Downstream Key 1 or Downstream Key 2 video to/from the Program Bus. The ON AIR 1 and ON AIR 2 buttons illuminate red when the Downstream Key is being displayed on the Program Bus.

> *Note: Mix Effects Bus 2 of the ATEM switchers does not have downstream keyers. Because of this, when the ME2 button is selected, the DSK buttons on the ION Compact Switcher Control Surface have no effect.*
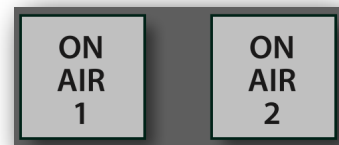
DSK AUTO

The DSK1 AUTO and DSK2 AUTO buttons allow you to add or remove Downstream Key 1 or Downstream Key 2 video to/from the Program Bus at a preset rate. The transition rate can be changed in RATES menu under Transition Rates. The buttons illuminate red when the Downstream Key is being displayed on the Program Bus The DSK1 AUTO and DSK2 AUTO buttons illuminate red when the Downstream Key is in the process of being added to or removed from the Program Bus. The ON AIR 1 and ON AIR 2 buttons illuminate red when the Downstream Key is being displayed on the Program Bus.

> *Note: Mix Effects Bus 2 of the ATEM switchers does not have downstream keyers. Because of this, when the ME2 button is selected, the DSK buttons on the ION Compact Switcher Control Surface have no effect.*
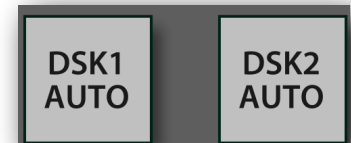
Fade To Black

FTB

The FTB button allows to perform an automatic, timed transition on the Program to and from Black. It uses the selected transition (Mix, Dip or Wipe) at the rate specified in the RATES menu.

During the transition, the FTB button will illuminate red to indicate that a transition is in process. The bargraph next to the T-Bar will show the progress of the transition.

After the transition the FTB button will flash red to indicate that the Program Bus is showing a Black screen. The Program button will turn off to show that that source is no longer shown on the Program Bus.

The FTB button will flash red until it is pressed again to perform a transition from Black. The ATEM Television Studio does not support previewing a Fade To Black transition.
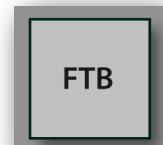
Input Source Assignments

Note: The Input Source Assignments feature requires v2.03 or later firmware.

The *ION Compact Switcher Control Surface* allows you to change which ATEM sources are assigned to the Program and Preview buttons of the ION. This is done using the the ION Configuration Utility.
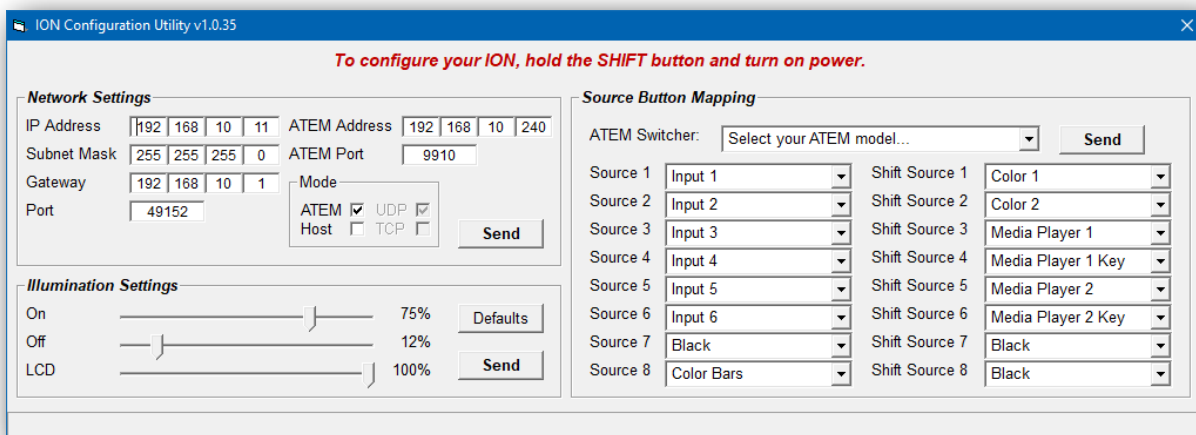
Entering Setup Mode

To place the *ION Compact Switcher Control Surface* in configuration mode, press and hold the SHIFT button during power up. Continue holding the SHIFT button until the display shows `Waiting for External IP Data.`
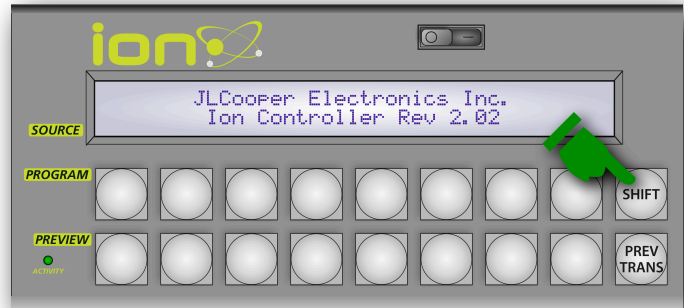
Using The Configuration Utility For Windows

Configuring the *ION Compact Switcher Control Surface* is done with the *ION Configuration Utility For Windows*. Simply download the utility from the Downloads section of the JLCooper website, install it and launch it.
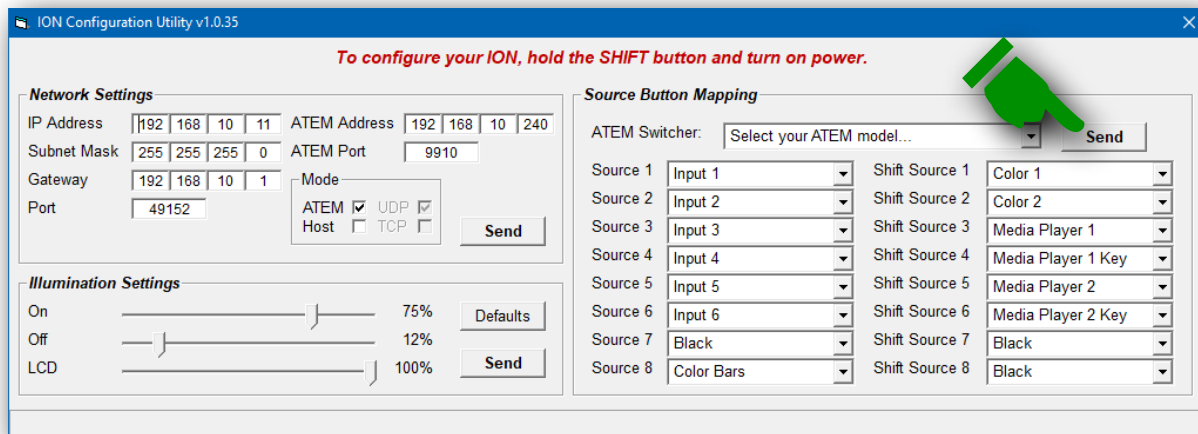
Connecting the ION for Configuration

To configure your *ION Compact Switcher Control Surface*, simply connect your *ION* directly to your computer. You can also connect your *ION Compact Switcher Control Surface* to your computer through your network. For more information, see the section *ION Compact Switcher Control Surface Basic Setup*.

Configuring The Input Source Assignments

To configure the Input Source Assignments in your *ION Compact Switcher Control Surface*, launch the *ION Configuration Utility For Windows* and enter the following information:

1. In the Source Button Mapping section, select the model of ATEM switcher you are using.
   Note: This simply removes sources that are not available in your switcher and sets the Source Buttons to a default state.
2. For each Source Button, select the source that you want to assign to that button.
3. When you are done assigning the Source Buttons, click **SEND** in the source Button Mapping section.

The *ION Configuration Utility For Windows* will connect to the *ION Compact Switcher Control Surface*, upload the network configuration and reboot the *ION Compact Switcher Control Surface* with the new settings. If everything is configured correctly, the *ION Compact Switcher Control Surface* will establish communications with the ATEM Switcher.

Using The Configuration Utility For MacOS

Connecting the ION for Configuration

To configure your *ION Compact Switcher Control Surface*, simply connect your *ION* directly to your computer. You can also connect your *ION Compact Switcher Control Surface* to your computer through your network. For more information, see the section *ION Compact Switcher Control Surface Basic Setup*.

Source Button Mapping

In this section you can choose which inputs are assigned to the Program and Preview buttons. There are eight PROGRAM/PREVIEW buttons. Another eight can be obtained by holding down the SHIFT button.

At the top is a popup for choosing which ATEM Switcher you are connected to. Below it are popups for selecting from available sources. There is a popup for each button and each SHIFT'ed button. Different switchers have different inputs available. When you select a different switcher from the top popup, the source popups will be repopulated with the ION's defaults for the chosen switcher.
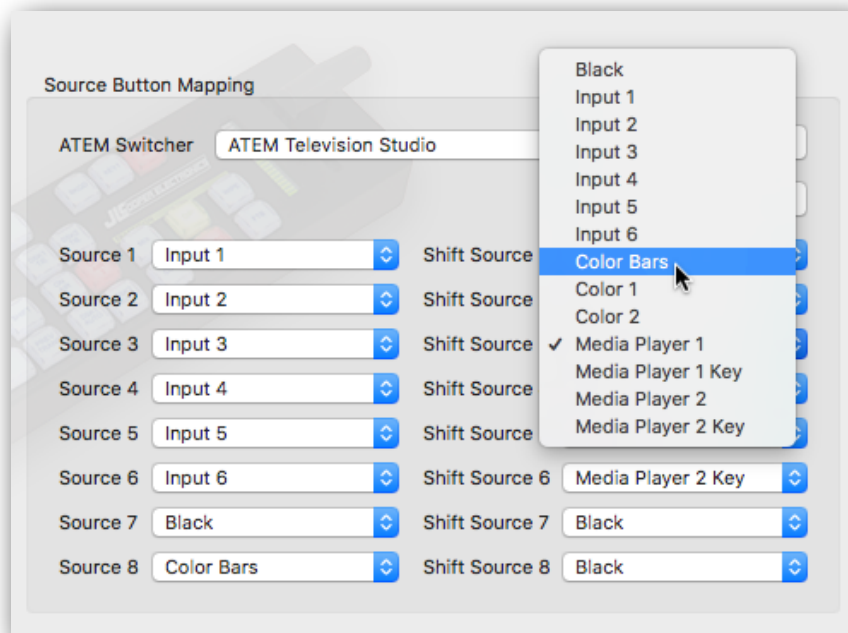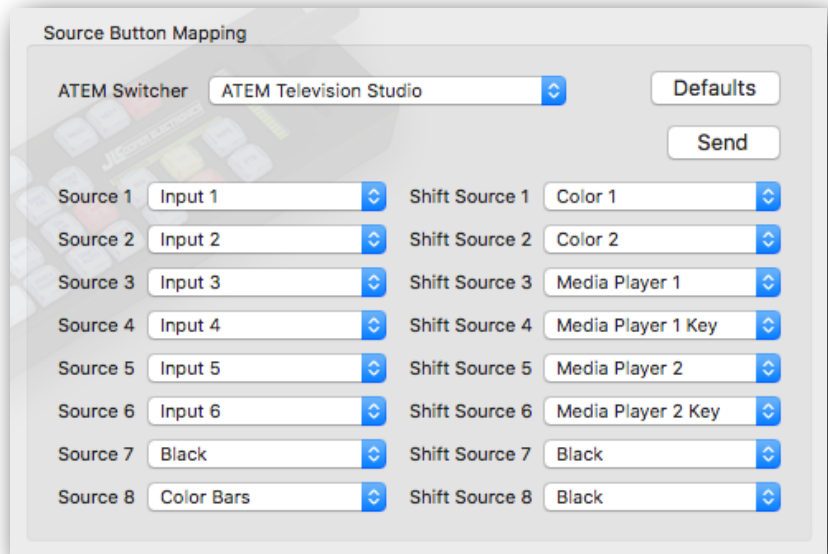
At any time, you can click the **Defaults** button to get back to the ION's factory settings.

Once you have chosen the desired inputs, make sure the ION is in Configuration Mode, the click SEND. The ION will power down and restart with the new settings.

Updating Firmware In Your Ion

Firmware Update Mode

Before updating the firmware in your *ION Compact Switcher Control Surface*, you will need to place in in the firmware update mode. To do that, simply perform the following:

1. Turn off the ION *Compact Switcher Control Surface*.

2. Press and hold the PREVIEW 4 button.

3. Turn on the ION *Compact Switcher Control Surface*.

4. Continue holding the PREVIEW 4 button until the display shows `Firmware Update in Progress.`

Using The Firmware Uploader For Windows

To use the *Proton/ION Firmware Uploader*, simply launch the software. After the utility launches, you will see the following screen:

Before you can upload firmware to your *ION Compact Switcher Control Surface,* you will need to select the firmware file that you wish to upload to the unit. To do that, click on **File** and **Open**. This will cause the following *File Open Dialog Box* to appear:
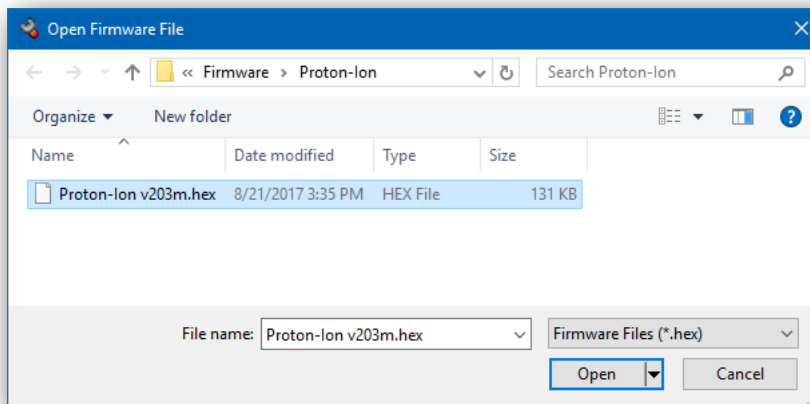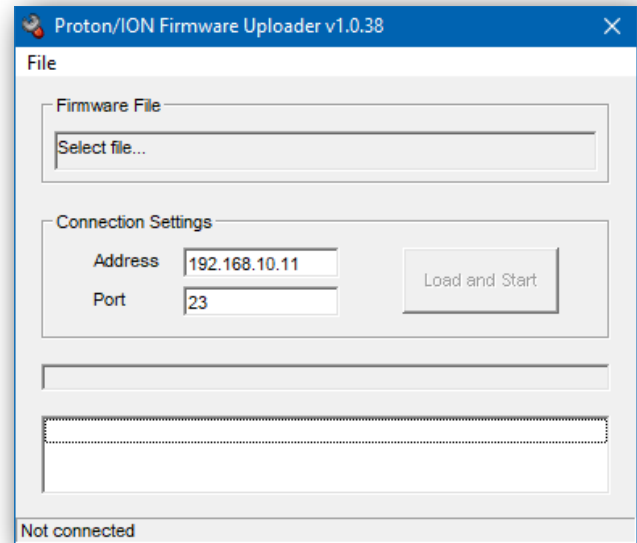
Simply select the appropriate firmware file you wish to upload to the unit and click on **Open**. The *Proton/ION Firmware Uploader* will now show the firmware file in the Firmware File box as shown at left:

To begin uploading the firmware file to the unit, click on the **Load and Start** button. The *Proton/ION Firmware Uploader* will now establish a connection to the unit and start to upload the firmware data to the unit.
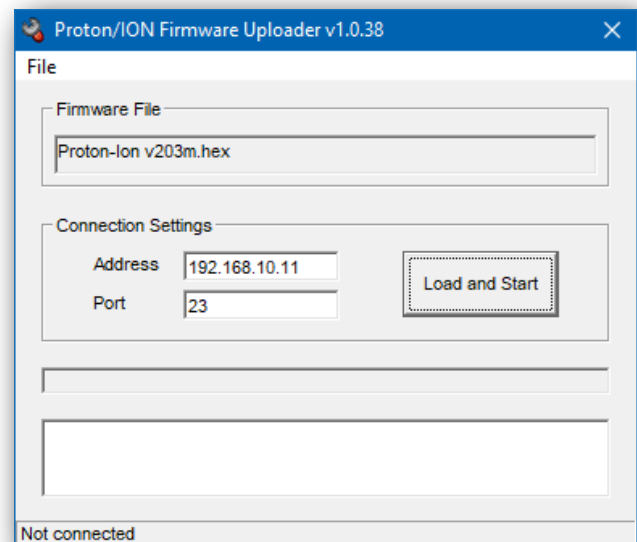
You will see a visual confirmation on the unit that the unit is in the process of updating the firmware.

- The unit will display **Firmware Update Taking Place**.

You will also see the following activity in the *Proton/ ION Firmware Uploader* window:

- Progress will be shown on the progress bar.

- Data being sent to the unit is shown in the white list box.

- The connection status will be shown at the bottom of the window.
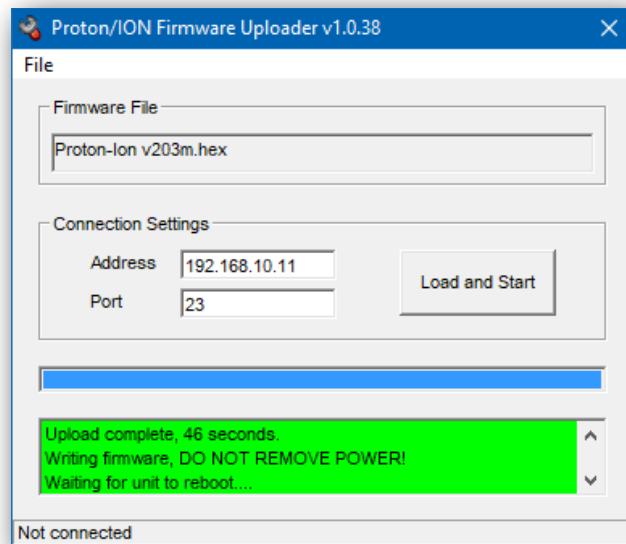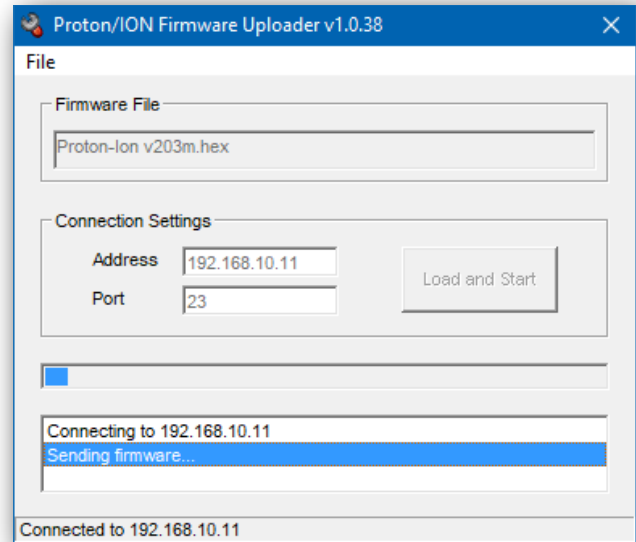
When the *Proton/ION Firmware Uploader* has completed transferring the firmware data, the utility will disconnect from the unit.

You will see the following status in the *Proton/ION Firmware Uploader* window:

- The progress bar will be all the way to the right.

- The list box will have the entry **Done! Unit is ready to use**.

- The connection status will change to **Not Connected**.

The unit will begin updating the firmware in the unit. This will only take a second or two but it's important that the unit not be disturbed of powered down during this time.

After the unit has completed updating the firmware, the unit will reboot and display the normal power up message with the new firmware version.
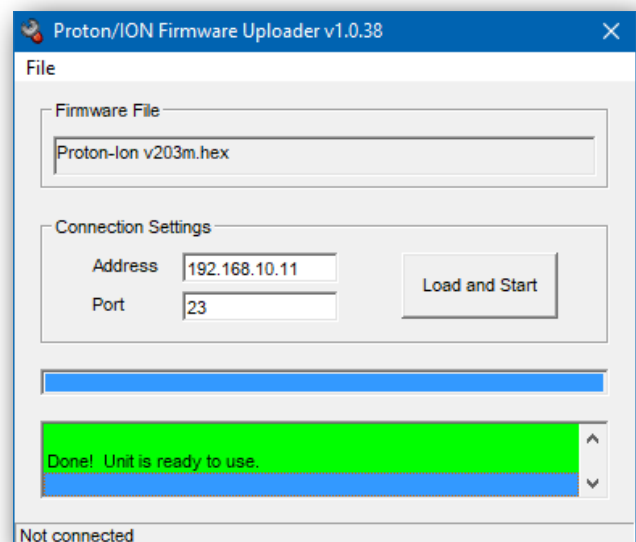
Using The Firmware Uploader For MacOS

The firmware for the *JLCooper ION Compact Switcher Control Surface* can be updated from your Macintosh™ computer. You will need a firmware file, supplied by JLCooper and the *Proton/ION Firmware Updater* application which can be downloaded from the JLCooper website.

**Connecting the ION for Configuration**

To configure your *ION Compact Switcher Control Surface*, simply connect your *ION* directly to your computer. You can also connect your *ION Compact Switcher Control Surface* to your computer through your network. For more information, see the section *ION Compact Switcher Control Surface Basic Setup*.

Firmware Update

To update your ION's firmware, first make sure that the ION is in Firmware Update mode. Hold down the Preview 4 button while powering up the ION. Continue holding the Preview 4 button until the display shows Firmware Update in Progress.

You will also need to download the latest firmware from the JLCooper website.

Next go to the Windows menu and choose Firmware Updater. In the window that appears, enter the ION's IP Address. This should be the same as the address set in the Configuration Window.
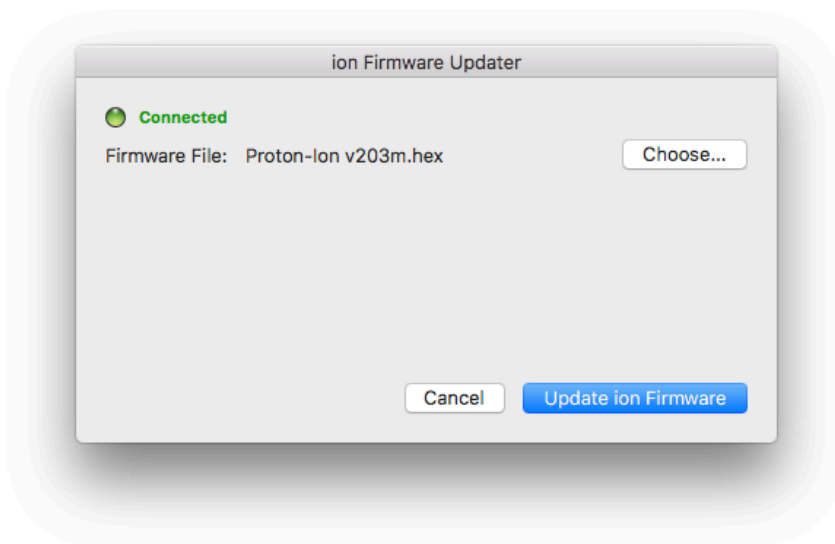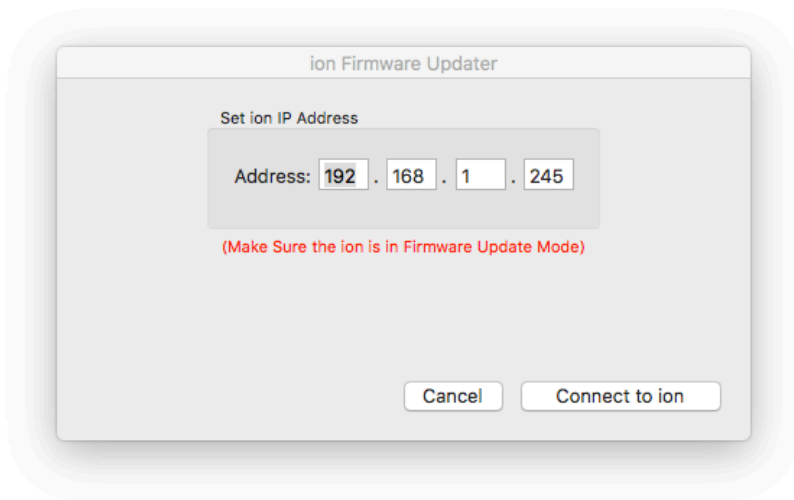
Click on **Connect to ION**. The software will attempt to establish a connection. If it is successful, you will see the following screen.

Click on **Choose**… and navigate to the location where you stored the downloaded firmware file. The filename will be similar to "Proton-ion v203m.hex". Click OPEN and you will return to the Updater screen. Click on Update ION Firmware to begin transferring data to the ION.

A progress bar will show the status of the transfer. Don't remove power from the ION during this operation.
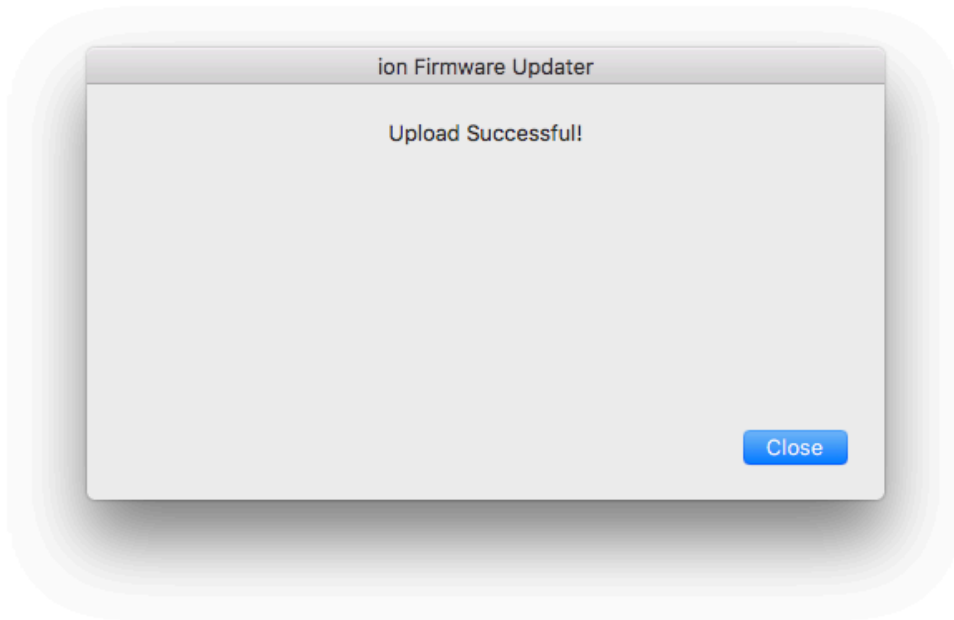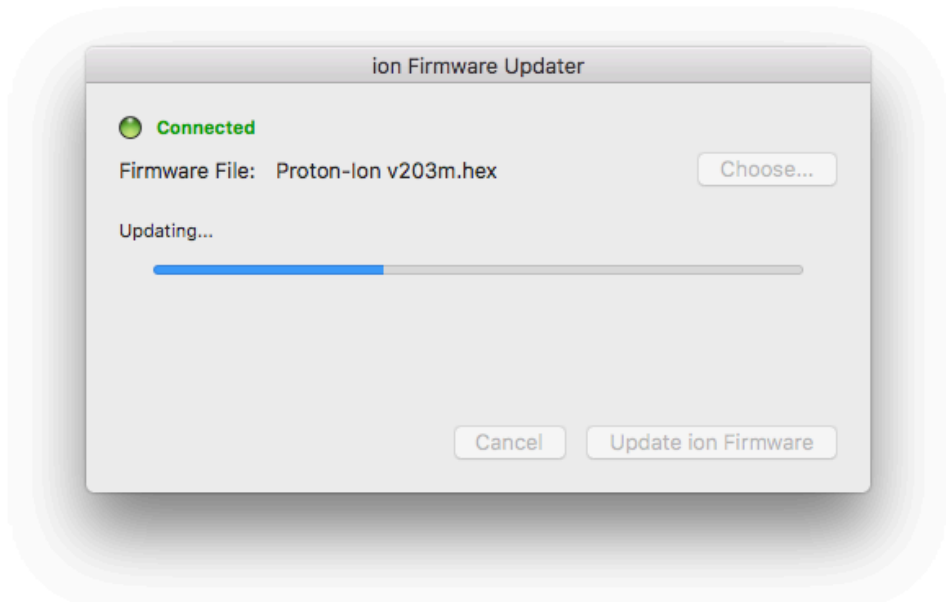
If the update was successful, you will see this screen. Click on Close to return to the Configuration Window.

If the software was not able to establish a connection with the ION, you will have the chance to go back and try again. Possible reasons for a failed connection include: The ION was disconnected or powered down, the ION was not in Firmware Update mode, or the IP Address was incorrect.

ion Firmware Updater

● **Failed to Connect to ION**

Cancel   Try Again

ion Firmware Updater

Firmware Update Failed

Timeout Error

Toggle the Proton's Power Switch

Cancel   Try Again
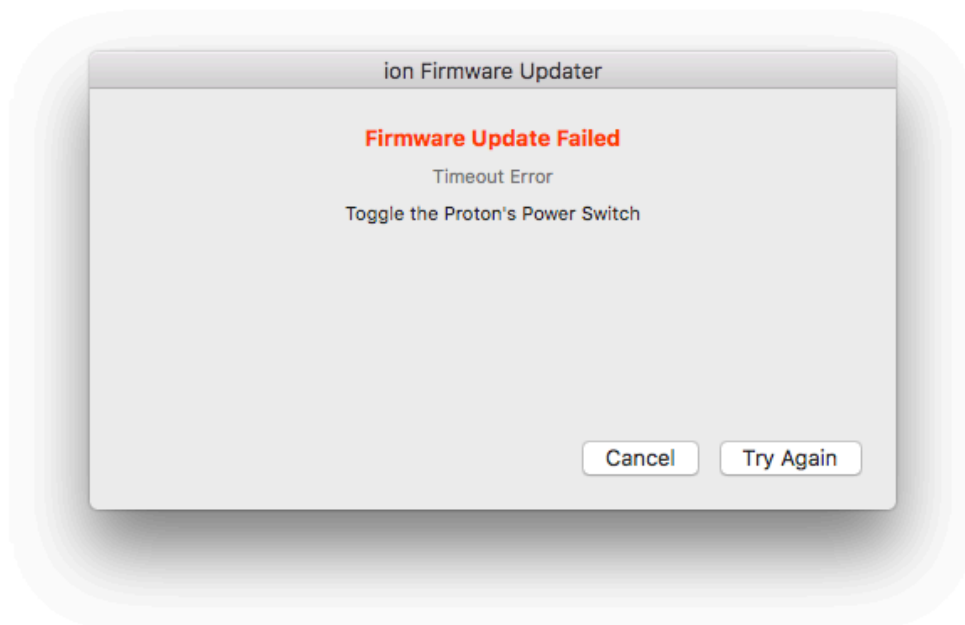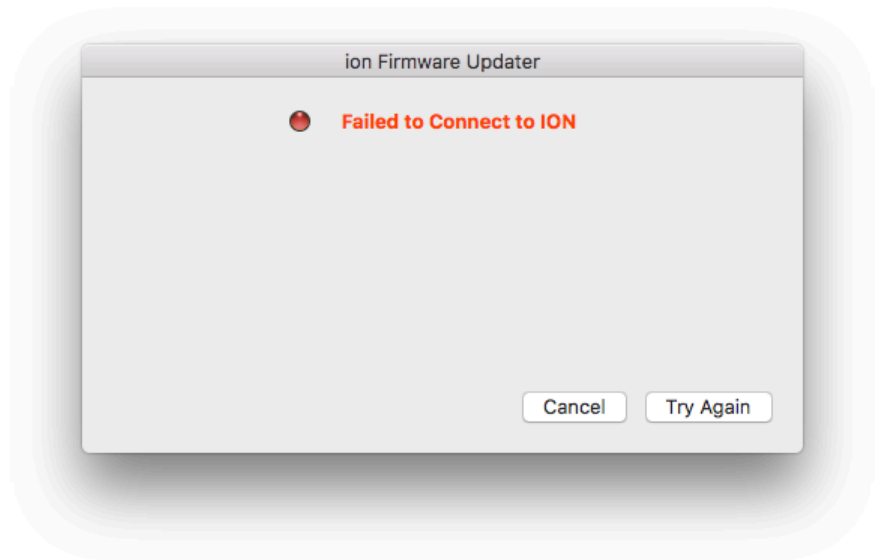
If the update failed you will have the chance to return to the original screen and start over. The possible reasons for a failure are the ION becoming disconnected or powered down during the transfer, or a corrupted firmware file. If you suspect the firmware file, download it again from JLCooper.com.

Troubleshooting

If the *ION Compact Switcher Control Surface* does not perform as expected, there are a few steps you can perform to narrow down the cause of the issue in an attempt to correct the cause.

Issue	Resolution
The ION *Compact Switcher Control Surface* **does not power up.**	• Make sure power cord is fully inserted into power receptacle on rear of unit. • Make sure power cord is fully inserted into power outlet.
The ION *Compact Switcher Control Surface* **powers up but display are blank.**	• Unit may be in Host Mode. See the section *Setting The ION Compact Switcher Control Surface To ATEM Mode* near the from of this manual.
The ION *Compact Switcher Control Surface* **does not connect to ATEM switcher.**	• Unit may be in Host Mode. See the section *Setting The ION Compact Switcher Control Surface To ATEM Mode* near the front of this manual. • Make sure an Ethernet cable is connected to the ION *Compact Switcher Control Surface* and the Link indicator is illuminated. • Make sure the Destination IP Address and subnet mask matches your ATEM switcher. • Make sure the IP Address and subnet mask of your ATEM switcher matches your ION *Compact Switcher Control Surface*. • Try connecting your ION *Compact Switcher Control Surface* directly to your ATEM switcher. • Try pinging your ION *Compact Switcher Control Surface* with a computer.
The T-Bar does not work properly.	• The T-Bar may need to be calibrated. See the next section of this manual.
The DSK buttons do nothing.	• DSK is not available on Mix Effects bus 2.
The LCD appears to have smudges, shadows or 'burn in'.	• Refer to the section *A Note About The LCD Display*. Simply turn the unit off for a few hours.
The Auxiliary Sources do not appear.	• The ATEM Television Studio does not have Auxiliary Sources.
The ME2 button does not function.	• The ME2 button only works with units that have the Mix Effects 2 bus.
The Pgm2 button does not work.	• The Pgm2 (Program 2) button is only available when the Mix Effects 1 bus is selected.
I can't select the DVE or Stinger transition.	• The ION *Compact Switcher Control Surface* can only can select the DVE or Stinger transition in ATEM switchers that have the DVE and Stinger capability.
The T-Bar does not control the Stinger transition.	• The Stinger transition cannot be controlled manually. Use the AUTO button.

Troubleshooting Steps

Unit Initialization

The network parameters in the ION *Compact Switcher Control Surface* can be reset. To do that, simply perform the following:

1. Turn off your ION *Compact Switcher Control Surface*.
2. Press and hold the Preview 1 button.
3. Continue holding the button until the unit displays `Power off and back on to continue.`

The network parameters of the ION will be set as follows:

IP Address = 192.168.10.11

Subnet Mask = 255.255.255.0

ATEM IP Address = 192.168.10.240

T-Bar Calibration

Occasionally, the T-Bar may act strangely. To correct this, you can recalibrate the T-Bar. To recalibrate the T-Bar, simply perform the following:

1. Turn off your ION *Compact Switcher Control Surface*.
2. Press and hold the Preview 2 button.
3. Continue holding the button until the unit displays `Move T-Bar to bottom And press shift.`
4. Follow the instructions in the display.

Button And Display Brightness

To set the brightness of the buttons and display, simply perform the following:
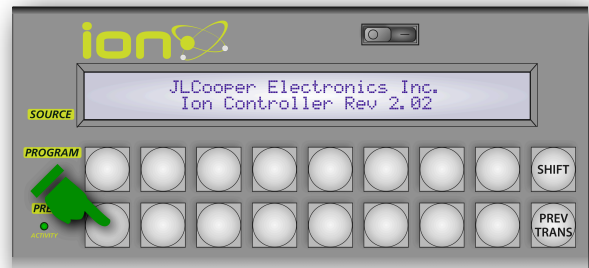
1. Turn off your ION *Compact Switcher Control Surface*.
2. Press and hold the Preview 3 button.
3. Continue holding the button until the unit displays `Move T-Bar to set On brightness Then press shift to proceed.`
4. Follow the instructions in the display.

Self Test Mode

To verify the operation of the various buttons and display, your *ION Compact Switcher Control Surface* has a built in Test Mode. To enter this Test Mode, simply press and hold the **ME2** button immediately to the left of the **BKGD** button while powering on the unit.
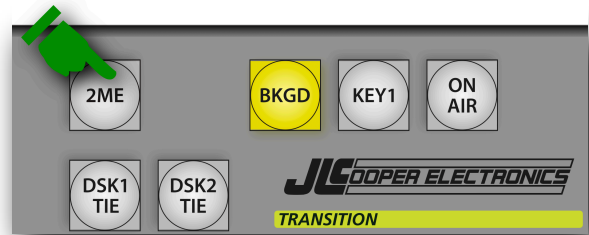
When the unit is in the Test Mode, the following will occur:

- The display will show the power up text including the firmware version.
- The buttons will illuminate white at approximately 10% brightness.
- Pressing a button will cause it to illuminate at 100% brightness.
- Releasing a button will cause it to fully extinguish

You can exit the Test Mode by simply power cycling the unit.

A Note About The LCD Display

The graphic display in this unit use a liquid crystal technology. Because of this fact, the display are susceptible to a phenomenon known by a few terms: Image Persistence, Image Retention or Image Sticking. This is also inaccurately referred to as Image Burn In.

This occurs when a static image is displayed over a prolonged period of time. All LCDs are susceptible to Image Persistence to varying degrees. The degree of this behavior depends on the image pattern, the duration of the fixed image, the internal temperature and natural liquid crystal material production variations.

This phenomenon is due to electrically charged particles (ions) that are normally present in the liquid crystal material. These ions can collect at the LCD panel electrodes. These ions cause a parasitic electric field which prevents the liquid crystal molecules from returning to their normal relaxed state. The result is observed when the screen image is changed and an inverted residual image of the previous image can be seen. This is known as Image Retention.

This phenomenon is purely cosmetic and does not affect the performance characteristics of the display or unit as a whole. Luckily, this phenomenon is temporary and reversible in most cases. Usually, Image Persistence can be removed by simply turning the unit off periodically for a period of time.

JLCooper Limited Factory Warranty

JLCooper Electronics ("JLCooper") warrants this product to be free of defects in materials or workmanship for a period of 12 months from the date of purchase. This warranty is non-transferable and the benefits apply only to the original owner. Proof of purchase in the form of an itemized sales receipt is required for warranty coverage. To receive service under warranty, it is recommended that customers first submit a support request at:

http://jlcooper.com/_php/support_request.php

Customers can also email JLCooper factory service (service@jlcooper.com) or call 310-322-9990 to obtain service instructions. Details, including specific model, serial number, date and place of purchase and a complete description of the problem will be required. If it is determined that the product needs to be returned to the factory for service, a Return Form will need to be completed and an RMA number will be issued. Please do not return products without first receiving an RMA number.

Upon issuance of return authorization, the product should be packed in the original shipping materials and shipped prepaid and insured to: Service Department, JLCooper Electronics, 142 Arena Street, El Segundo, CA 90245. Please include the following: copy of the sales receipt, your name and address (no P.O. Boxes, please), a brief description of the problem, and any other related items discussed with the service department and considered necessary to evaluate the product or effect a repair.

The return authorization number must be clearly written on the outside of the package. JLCooper will at its option, without charge for parts or labor, either repair or replace the defective part(s) or unit. Carriage, insurance, customs duties, impounds, tariffs, taxes, surcharges, brokerage fees and other shipping costs are not covered by this warranty. JLCooper's normal repair turn around time at the factory is approximately 7 business days from receipt of product to return shipping. Your actual turn around time will also include return transit time. Actual turn around time will vary depending upon many factors including the repeatability of the reported complaint, the availability of parts required for repair, the availability of related products needed to evaluate the product, etc. Priority services are available at additional cost. These should be discussed with the service technician at the time the return authorization is issued.

This warranty provides only the benefits specified and does not cover defects or repairs needed as result of acts beyond the control of JLCooper including but not limited to; abuse, failure to operate in accordance with the procedures outlined in this owner's manual; nor does it cover damage from accident, negligence, using incorrect power supply, modification, alteration, improper use, unauthorized servicing, tampering, ingress of foreign matter; nor for damage from natural or man-made events such as, but not limited to flooding, lightning, electrostatic discharge, tornadoes, earthquake, fire, etc.

THE DURATION OF ANY OTHER WARRANTIES, WHETHER IMPLIED OR EXPRESS, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTY OF MERCHANTABILITY, IS LIMITED TO THE DURATION OF THE EXPRESS WARRANTY HEREIN. JLCOOPER HEREBY EXCLUDES INCIDENTAL AND CONSEQUENTIAL DAMAGES, INCLUDING BUT NOT LIMITED TO: LOSS OF TIME, INCONVENIENCE, DELAY IN PERFORMANCE OF THIS WARRANTY, THE LOSS OF USE OF THE PRODUCT OR COMMERCIAL LOSS, AND FOR BREACH OF ANY EXPRESS OR IMPLIED WARRANTY OF MERCHANTABILITY APPLICABLE TO THIS PRODUCT. JLCOOPER SHALL NOT BE LIABLE FOR DAMAGES OR LOSS RESULTING FROM THE NEGLIGENT OR INTENTIONAL ACTS OF THE SHIPPER OR HIS CONTRACT AFFILIATES. THE CUSTOMER SHOULD CONTACT THE SHIPPER FOR PROPER CLAIMS PROCEDURES IN THE EVENT OF DAMAGE OR LOSS RESULTING FROM SHIPMENT. THIS WARRANTY SHALL BE GOVERNED BY THE LAWS OF THE STATE OF CALIFORNIA.