EasyMix Series User Guide

Firmware version 1.16.01

DSP Fader Control Surface
Model FC4X
Model FC8X
Model FC12X

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1 Introduction

The EasyMix (EM) is a tactical remote control surface for the following digital signal processor (DSP) architectures: Biamp Tesira®, Symetrix SymNet®, and QSC Q-Sys®. There are two models. The FC8X with (8) faders and the FC12X with (12) faders. All communication and controls are bidirectional with touch sensitive motorized faders and backlit buttons. A color HD display is located above each fader to display channel names, live meters, and other custom control functions.

Function	Defintion	Example
Faders	Control faders in a DSP	
AltFaders 1-3	Control up to (3) alternate sets of fader for a given channel.	HI EQ, MID EQ, LO EQ, Compressor gain
AltToggles	Control an alternate toggle for a given channel.	Compressor, Automixer, or Auto Gain Control bypass
Meters 1-2	Simultaneously view up to (2) meters per channel.	Input meter and compressor applied gain
Controls	The top row buttons can be configures as controls to control DSP toggle functions.	Logic or button state to drive presets, snapshots, or other on/off functions.
Bank Switching	Add a second bank of faders and mutes to double the channel count of the EasyMix.	An FC8X can control up to 16 channels of audio while the FC12X can control up to 24 channels of audio.
Power Control	Powers the mixer on and off.	Connect the EasyMix power switch to a Control to remotely control the power state of the mixer from the DSP and / or trigger a power sequencer from the EasyMix.

2 Unpacking your EasyMix

Your EasyMix is designed to be used on a desk using the included end caps. Rack mounting hardware is available as an accessory.

3 How to connect to your EasyMix

Connect the Ethernet port to to an 802.3at compliant switch or POE injector using shielded Ethernet cable.

By default, EasyMix units are configured to utilize DHCP. The easiest method of locating EasyMix unit on a network is by connecting the unit to a LAN that has a DHCP server enabled.

If your LAN has a DHCP server enabled:

1) Connect EasyMix to preferred LAN.
2) View EasyMix IP address found in the right most display.
Note: If EasyMix IP address isn't visible, that indicates the EasyMix is connected to a DSP. In that case, temporarily remove the DSP from the network in order to force the EasyMix to display it's IP address. Alternately, download and run our EasyMix Discovery Tool for Windows found at www.mysteryelectronics.com/downloads.

If your LAN doesn't have a DHCP server enabled (using Auto IP address):
1) Connect EasyMix to preferred LAN.
2) The status window in the far right display of the EasyMix will indicate; DHCP: waiting.
3) After approximately two minutes, the EasyMix will assign itself a random IP address in the range of 169.254.x.x
4) Configure your computer to automatically obtain an IP address, then wait for it to assign itself a Class B (APIPA) address.
5) Connect to EasyMix at the IP address shown in the status window.

If your LAN doesn't have a DHCP server enabled (using Fallback IP address):
1) Connect EasyMix to preferred LAN.
2) Press reset button on the back of the EasyMix for one second. The status window should now indicate an IP address of 192.168.0.20.
3) Manually set your computer to use an IP address in the 192.168.0.1 subnet.
4) Connect to the EasyMix at the IP address 192.168.0.20.
5) Navigate to the EasyMix Network page and change the mode to Static and apply a static IP address.
Note: The fallback IP address will always revert to Auto IP address after a power cycle.

4 Obtaining Support

For assistance, please submit inquiry at www.mysteryelectronics.com/contact or call 615 643 8460 (Monday-Friday | 9am-5pm CST).

5 Hardware

5.1 Front Panel

The front panel consists of one touch sensitive motorized fader, HD LCD display, backlit mute button, and programmable backlit button per channel. The FC8X has (8) channels and the FC12X has (12) channels.

5.2 Rear Panel Connections

The Ethernet port uses an 802.3at compliant switch or POE injector to power the EasyMix and allow communication with a supported DSP.

The recessed reset pin allows you to perform two functions.

- Press the reset button momentarily to change the IP address to the fallback IP of 192.168.0.20
- Press and hold the reset button for 10 seconds to reset the Network settings, EM Setup, and Site Setup to defaults. The right display will indicate when you may release the button to reset the unit.

6 Settings

Open the EasyMix Settings in a web browser by using the actual IP address of the hardware. See the section How to connect to your EasyMix 2.

6.1 Status

You can view the current state of the EasyMix on the Status page.

EasyMix Details	
EasyMix Model	FC4X, FC8X, or FC12X
Serial	Serial number of the EasyMix
EasyMix IP	IP address of the EasyMix
EasyMix Time	Actual time shown only if SNTP and DNS enabled and has Internet access.

DSP Details	
Selected Type	Q-Sys, Symetrix, or Tesira
Status	Connected or Offline
Connection Info	

Other Details	
Firmware	Firmware version
Web version	Web UI version

6.2 Network

The Network page allows you to change the network settings for the EasyMix.

Property		Notes
EasyMix IP Address	Displays the current IP address	Fallback IP is 192.168.0.20
Netmask	Displays the current netmask	
Gateway	Displays the current gateway	
Mode	DHCP, Static	View the current IP address on the HD display on boot. It will also be visible if it the EM doesn't have an established connection with the DSP.
MAC Address	Displays the MAC address of the EasyMix	
SNTP		Enable SNTP to correctly time stamp the Wireshark captures. The DNS and Gateway must be configured for this to work.
Primary DNS		
Communication type	TCP, UDP	

DSP IP Address	Enter the IP address of the DSP	
DSP Port	Enter the Port used by the DSP	Use these default ports. Symetrix - [48631] Tesira - [23] Q-Sys - [48631] - adjustable in the plugin

6.3 EasyMix Setup

Configure basic EasyMix setup functions on the EM Setup page using the **EasyMix Setup** and **Top Row Buttons** tabs.

6.3.1 EasyMix Setup

Configure the fader and button timeouts on this tab as well as access Wireshark captures and device logs.

Property	Options
Alternate Toggle timeout	Amount of time before the lower row buttons revert back to mute when in the AltToggle mode. Default is 30 seconds

Alternate Fader timeout	Amount of time before the faders revert back to faders when in the AltFader mode. Default is 30 seconds
Log Level	Normal or Debug
Wireshark capture	Start a Wireshark capture.
Wireshark capture on boot	Start a Wireshark capture on the next boot.
Download Log	Downloads the device log.txt from the EasyMix
Wireshark capture download	Click the Download link to end a Wireshark capture and download to your computer.

6.3.2 Top Row Buttons

Configure the Top Row Buttons on this tab. Each button can be assigned a function from the Button column in the table below. Some functions have additional options that can be configured. Button LED color is dependent upon the configured function.

Button Configuration	**Function**	**Options**	**LED Color**
Control	Assign a Control to a specific button. Note: You have the option of assigning multiple Controls to each button if you configure one button as a Control Selector button.	Map the Control to a DSP toggle on the Site Setup page > Control Toggles tab. Tip, Name the desired controls on the Site Setup page > Control Toggles tab before assigning them here.	Light/ Dark Blue
Control Selector	Pressing the Control Selector button cycles through the list of Controls programmed into any buttons assigned the Control function.	Tip: The same Control can be added multiple times to a specific button to give the appearance of a static button rather cycling through multiple control options.	Dark Blue
Advanced	Changes the faders and / or lower row buttons to the alternate mode.	AltFader1 AltFader2 AltFader3 AltToggle	Purple
Bank Selector	Adds a second bank of controls. Multiple banks are then shown as A - B.	Assign up to one Control to control the bank from the DSP and to provide bank status to the DSP. Example: Reset the bank to "A" using an event scheduler.	Green

Power Button	Pressing for 1 second powers off the EM. Pressing when off instantly powers on the EM.	Assign up to one Control to allow the power to be remotely controlled from the DSP. This control is bidirectional so you can monitor the power from the DSP.	Blue
Unused	Button disabled	None	Gray

6.4 Site Setup

The Site Setup page allows you to link the EasyMix controls to the controls in your DSP configuration file.

Choose a DSP from the dropdown list to load the default configuration for that DSP.

Save a Site name for your reference.

The following controls are available for linking.
- Faders
- Alternate Faders 1
- Alternate Faders 2
- Alternate Faders 3
- Alternate Toggles
- Mutes
- Meters 1
- Meters 2
- Highest Gain
- Control Toggles

All controls use a Link indicator to display the status of the connection to the control in the DSP. A check mark indicates the item is present in the DSP and the EasyMix is able to establish communication. A question mark indicates the the item is not present in the DSP and additional DSP configuration is required before the item will function.

Edit - Allows you to edit the configution before saving it to the EasyMix.
Save - Saves the current configuration to the EasyMix. Specify a Site name to name the configuration.
Download Backup - Saves the current configuration stored in the EasyMix to a file for later import.
Import to page - Load a configuration file to the user interface for editing.

6.4.1 Faders

Faders are touch sensitive and motorized. The fader name will be visible in the center of the HD display.

Global Settings	
Type	Fader - Default scaling for the DSP faders Linear - Useful for lighting control or whenever a linear scaling is needed. Custom - Specific to the Q-Sys Plugin
Min Gain	Gain when the fader is at the minimum level.
Max Gain	Gain when the fader is at the maximum level.
Rate	Some DSP's require a subscription or data rate.
Fader Off = DSP Min Gain	Check this option if you want the fader to use the DSP Min Gain when the fader is at minimum. This option works well if you want to allow the fader to turn off the audio when at minimum but still operate within a limited range.
Use Plugin Names	Set channel names. Specific to the Q-Sys Plugin.
DSP Min Gain	Set the minimum gain used by the connected level controls in the DSP.

Channel Settings		
No.		Channel number - FC8X=16, FC12X=24
Bank		Channel bank. The first half of the items are bank A while the second half are bank B.
Link		Indicator to show status of the connection to the individual DSP control. - Not linked indicates the specified item or control is not found. - Index out of range indicates the specified channel or index is not found.
On		Enable / Disable the channel.
Name		Name will be visible in the center of the HD display. Limited to 8 characters.
Control No. Instance ID and Index	Symetrix Q-Sys Tesira	Enter the appropriate information to connect to the control within the DSP. Refer to the DSP Specific Settings 12 for information specific to your DSP.

6.4.2 Alternate Faders

The Alternate Fader names will be visible in the center of the HD display when in Alternate Fader mode.

Global Settings	
Type	Some DSP's have multiple types. EQ - EQ gain scaling BEQ - British EQ gain scaling

	Linear - Useful for lighting control or whenever a linear scaling is needed. Comp - Compressor gain scaling Custom - Specific to the Q-Sys Plugin
Min Gain	Gain when the fader is at the minimum level.
Max Gain	Gain when the fader is at the maximum level.
Rate	Some DSP's require a subscription or data rate.
Fader Off = DSP Min Gain	Check this option if you want the fader to use the DSP Min Gain when the fader is at minimum. This option works well if you want to allow the fader to turn off the audio when at minimum but still operate within a limited range.
DSP Min Gain	Set the minimum gain used by the connected level controls in the DSP.
Name	Name the fader type. i.e. "Hi EQ" This name will be visible in the top row buttons.

Channel Settings		
No.		Channel number - FC8X=16, FC12X=24
Bank		Channel bank. The first half of the items are bank A while the second half are bank B.
Link		Indicator to show status of the connection to the individual DSP control.
On		Enable / Disable the channel.
Control No. Instance ID and Index	Symetrix Q-Sys Tesira	Enter the appropriate information to connect to the control within the DSP. Refer to the DSP Specific Settings 12 for information specific to your DSP.

6.4.3 Alternate Toggles

The Alternate Toggle name is located in the upper right area of the HD display when in Alternate Toggle mode. Alternate Toggle status is displayed using LED backlight function of the button as well as at the bottom of the HD display when in Alternate Toggle mode.

Global Settings	
Type	Switch
Name	Name will be visible in the Advanced menu and in the upper right of the HD display when the AltToggle mode is selected.

Channel Settings		
No.		Channel number - FC8X=16, FC12X=24

Bank		Channel bank. The first half of the items are bank A while the second half are bank B.
Link		Indicator to show status of the connection to the individual DSP control.
On		Enable / Disable the channel.
Invert		Invert the toggle. This allows you to match the state of the control in the DSP.
Control No. Instance ID and Index	Symetrix Q-Sys Tesira	Enter the appropriate information to connect to the control within the DSP. Refer to the DSP Specific Settings 12 for information specific to your DSP.

6.4.4 Mutes

The Mute button is located right below the HD display. Mute status is displayed using the LED backlight in the button as well as in the bar at the bottom of the HD display.

Global Settings	
Type	Switch
Name	Name will be visible in the bottom row buttons in the HD display.

Channel Settings		
No.		Channel number - FC8X=16, FC12X=24
Bank		Channel bank. The first half of the items are bank A while the second half are bank B.
Link		Indicator to show status of the connection to the individual DSP control.
On		Enable / Disable the channel.
Invert		Invert the mute toggle. This allows you to match the state of the control in the DSP.
Control No. Instance ID and Index	Symetrix Q-Sys Tesira	Enter the appropriate information to connect to the control within the DSP. Refer to the DSP Specific Settings 12 for information specific to your DSP.

6.4.5 Meters

Meter 1 is displayed as a vertical meter on the left of the HD display.

Meter 2 is displayed as a vertical meter on the right of the HD display.

Global Settings	
Type	Meter

Name	Name will be visible next to the appropriate meter in the HD display. Limited to 8 characters.

Channel Settings		
No.		Channel number - FC8X=16, FC12X=24
Bank		Channel bank. The first half of the items are bank A while the second half are bank B.
Link		Indicator to show status of the connection to the individual DSP control.
On		Enable / Disable the channel.
Control No. Instance ID and Index	Symetrix Q-Sys Tesira	Enter the appropriate information to connect to the control within the DSP. Refer to the DSP Specific Settings 12 for information specific to your DSP.

6.4.6 Highest Gain

Highest Gain is displayed as an on/off status indicator in the lower left of the HD display, just above the Mute status indicator. The indicator will contain the Name.

Global Settings	
Type	Meter
Name	Name the indicator. This name will be visible as an text icon on the HD display just below and to the left of the the channel name. Limited to 4 characters.

Channel Settings		
No.		Channel number - FC8X=16, FC12X=24
Bank		Channel bank. The first half of the items are bank A while the second half are bank B.
Link		Indicator to show status of the connection to the individual DSP control.
On		Enable / Disable the channel.
Control No. Instance ID and Index	Symetrix Q-Sys Tesira	Enter the appropriate information to connect to the control within the DSP. Refer to the DSP Specific Settings 12 for information specific to your DSP.

6.4.7 Control Toggles

Control Toggles are assigned to the top row buttons on the Top Row Buttons 6 tab on the EM Setup page. Control Toggle status is displayed using the LED backlight in the button as well as in the bar at the top of the HD display.

Global Settings

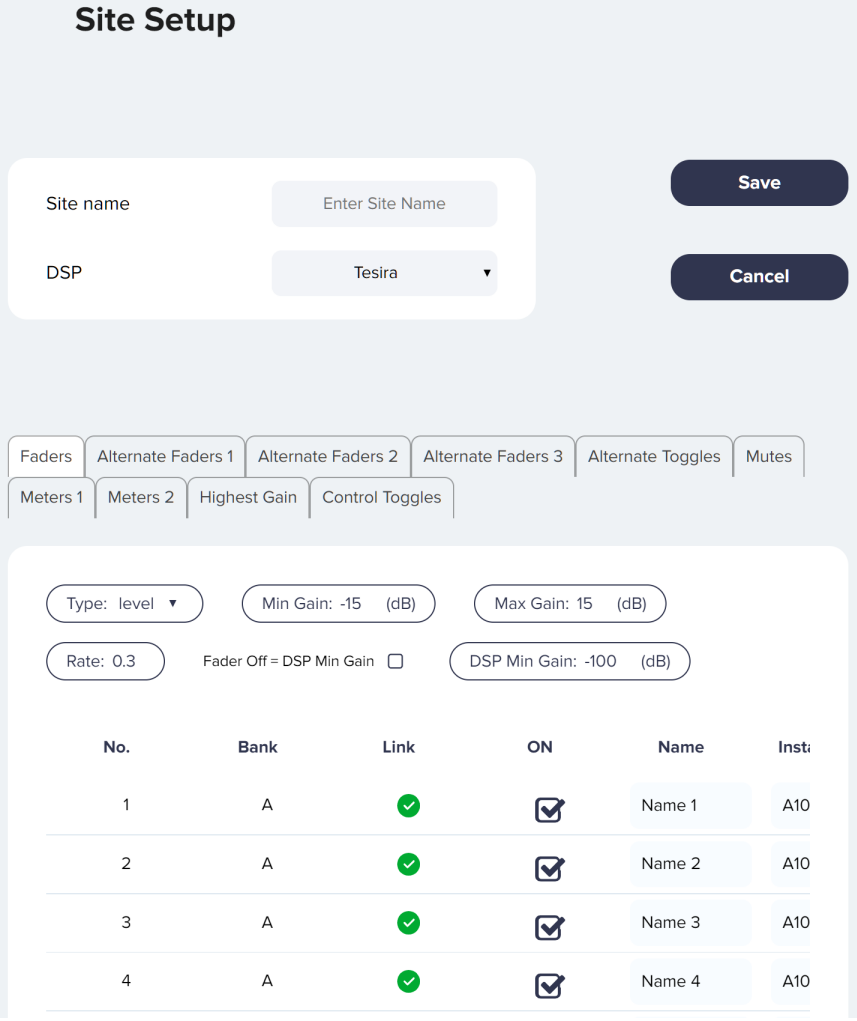
Use Plugin Names	Set channel names. Specific to the Q-Sys Plugin

Channel Settings		
No.		Channel number - FC8X=16, FC12X=24
Link		Indicator to show status of the connection to the individual DSP control.
On		Enable / Disable the channel.
Name		Name will appear in the upper row buttons on the HD display when programmed in the Top Row Buttons 6. See EM Setup > Top Row Buttons.
Control No. Instance ID and Index	Symetrix Q-Sys Tesira	Enter the appropriate information to connect to the control within the DSP. Refer to the DSP Specific Settings 12 for information specific to your DSP.
Read Only		Read only changes the button to an indicator only.
Scaling		Switch or Meter

6.4.8 DSP Specific Settings

This section addresses the specifics for applicable DSP OEM architecture.

6.4.8.1 Biamp Tesira



Prerequisite: You may need to enable Telnet communication within Tesira before the EasyMix will connect. Set the DSP IP on the Network page to match the IP address of the DSP. Set the DSP Port on the Network page to 23.

Choose Tesira to load the default settings for a Tesira DSP. The default settings set the DSP port and the Communication type (found on the Network page).
Note: The EasyMix uses the Tesira Text Protocol for control of Tesira. Refer to the Tesira help file or the Tesira Text Protocol for instructions on how to obtain the correct Instance ID's, Indexes, and control Type from your DSP layout file.

Enter the Instance ID for the processing block for which you would like to define control. The Instance ID is limited to 12 characters. Capitalization must match exactly.

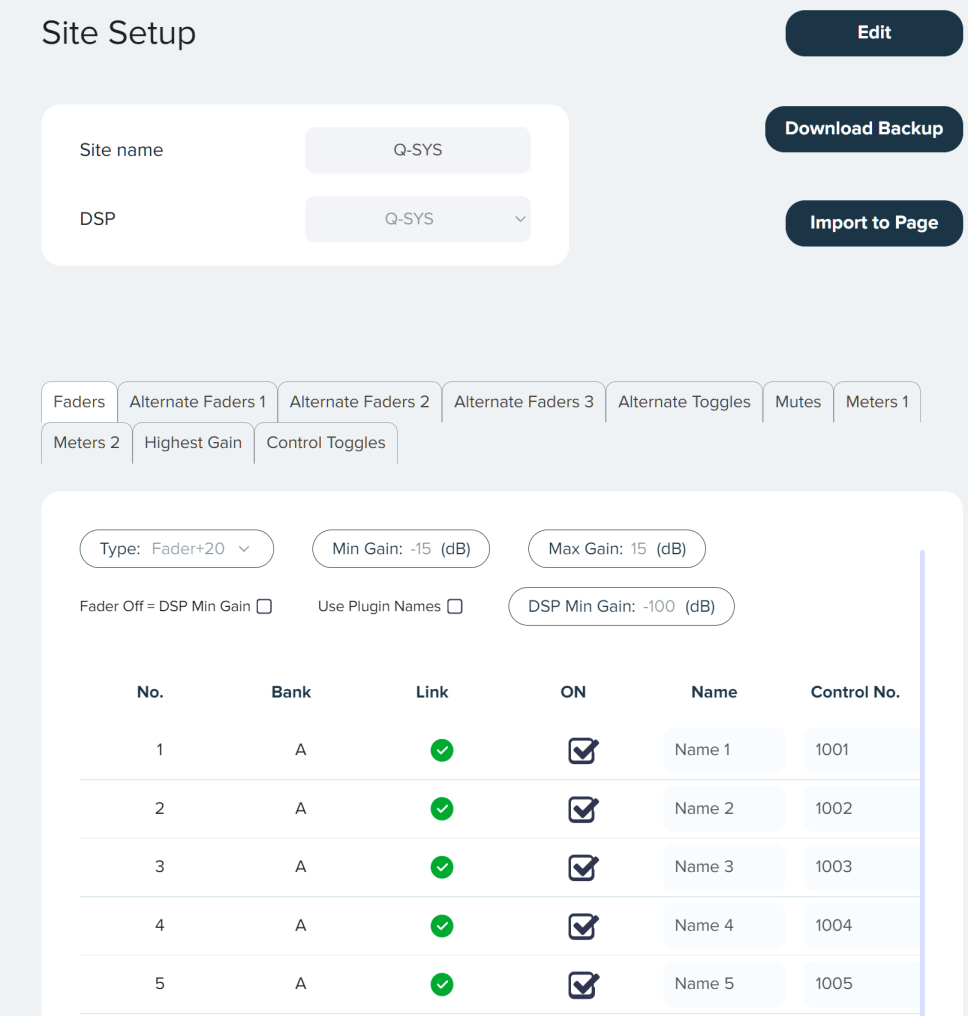
Enter the Index for the individual control within the processing block. A ganged level or mute control block will have an index of 0. For an un-ganged block, the index must align with the appropriate channel number.

Possible Index errors:
- Not linked indicates the specified item or control is not found.
- Index out of range indicates the specified channel or index is not found.

Set the control Rate as desired (seconds). It is recommended that the following control types have a polling rate of 3 seconds or more to reduce load on the DSP.
• Alternate Faders 1 - 3
• Alternate Toggles
• Control Toggles

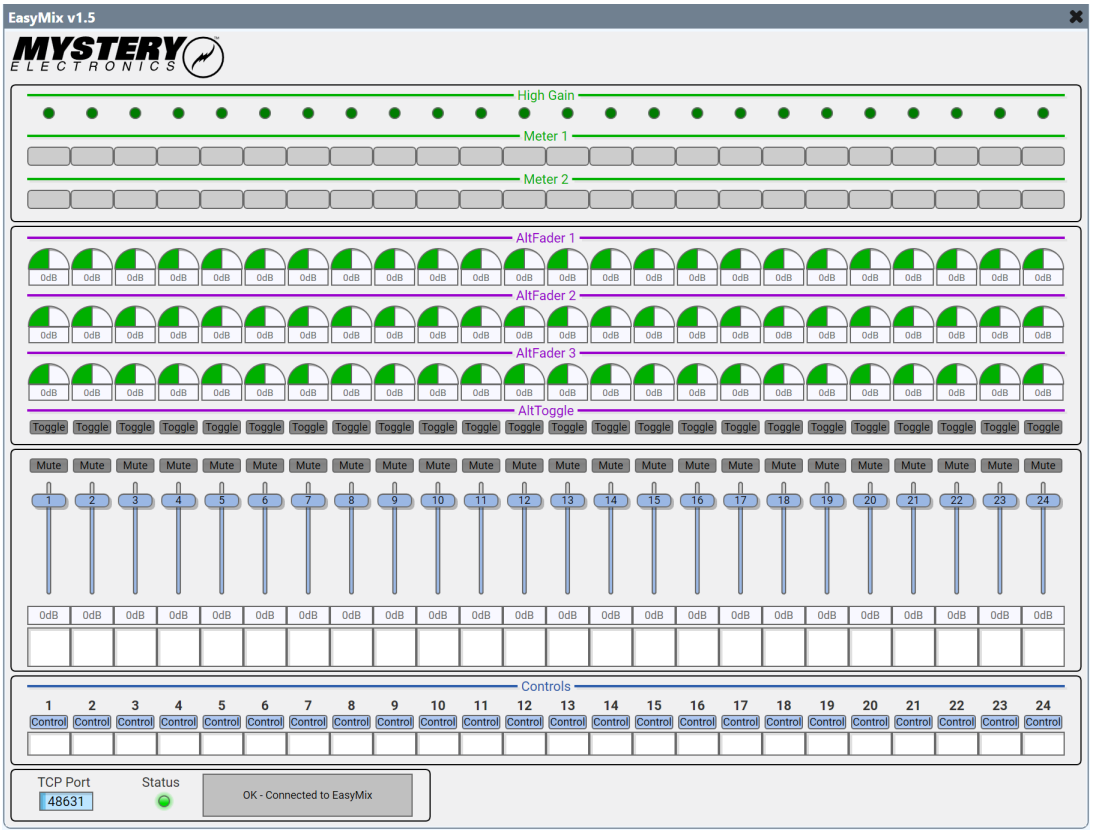
It is recommended that the following control types have a polling rate of .5 seconds or more to reduce load on the DSP.
• Meters 1 - 2

6.4.8.2 QSC Q-Sys



EasyMix Site Setup Page

Download the Q-Sys plugin from the Asset Manager in Q-Sys Designer.



Q-Sys Plugin User Interface

Properties

EasyMix Properties	
Model	FC12X
Banks	A + B
Custom Fader Scaling	Yes
Fader min (dB)	-100
Fader max (dB)	20
Alt 1 min (dB)	-15
Alt 1 max (dB)	15
Alt 2 min (dB)	-15
Alt 2 max (dB)	15
Alt 3 min (dB)	-15
Alt 3 max (dB)	15
Show Debug	No
Graphic Properties	
Label	EasyMix v1.5
Position	196,172
Fill	
Script Access	
Code Name	MysteryElectronicsEasyMix
Script Access	None

Q-Sys Plugin Properties

Setup:

1) Set the DSP IP Address on the Network page to match the IP address of the Q-Sys™ Core.
2) Go to the Site Setup page and verify that the DSP is set to Q-Sys.
3) Import the latest EasyMix plugin to Q-Sys Designer from the Q-Sys Designer Asset Manager or the example User Component which can be downoaded from here.
4) Go to the EasyMix plugin properties in Q-Sys Designer and set the following:
   a. Set the Model to match the model of your EasyMix
   b. Set Banks to match the number of banks that your EasyMix is configured for.
5) Emulate or save the file to the Core and open the plugin user interface and set the TCP Port to match the DSP Port used by the EasyMix on the Network page. Typical ports would be 48630 to 48640. You will need to restart the plugin if you change the port from the default of 48631.
6) The EasyMix should now be connected to the Core. You can verify connection by checking Status in the plugin as well as the EasyMix Status page.

Example User Component: Download an example User Component from here.

Properties		**Notes**
Model	Select the model of the EasyMix	
Banks	Select the number of banks	
Custom Fader Scaling	Select to use default fader scaling or custom scaling	
Fader min (dB)	Select the desired minimum fader scaling in dB	Change Type to Custom in the EasyMix at Site Setup > Faders to use Custom Fader Scaling.
Fader mix (dB)	Select the desired maximum fader scaling in dB	
Alt 1 Min	Select the desired alternate 1 minimum fader scaling in dB	Change Type to Custom in the EasyMix at Site Setup > Alternate Faders 1 to use Custom Fader Scaling.
Alt 1 max	Select the desired alternate 1 maximum fader scaling in dB	
Alt 2 Min	Select the desired alternate 2 minimum fader scaling in dB	Change Type to Custom in the EasyMix at Site Setup > Alternate Faders 2 to use Custom Fader Scaling.
Alt 2 max	Select the desired alternate 2 maximum fader scaling in dB	
Alt 3 Min	Select the desired alternate 3 minimum fader scaling in dB	Change Type to Custom in the EasyMix at Site Setup > Alternate Faders 3 to use Custom Fader Scaling.

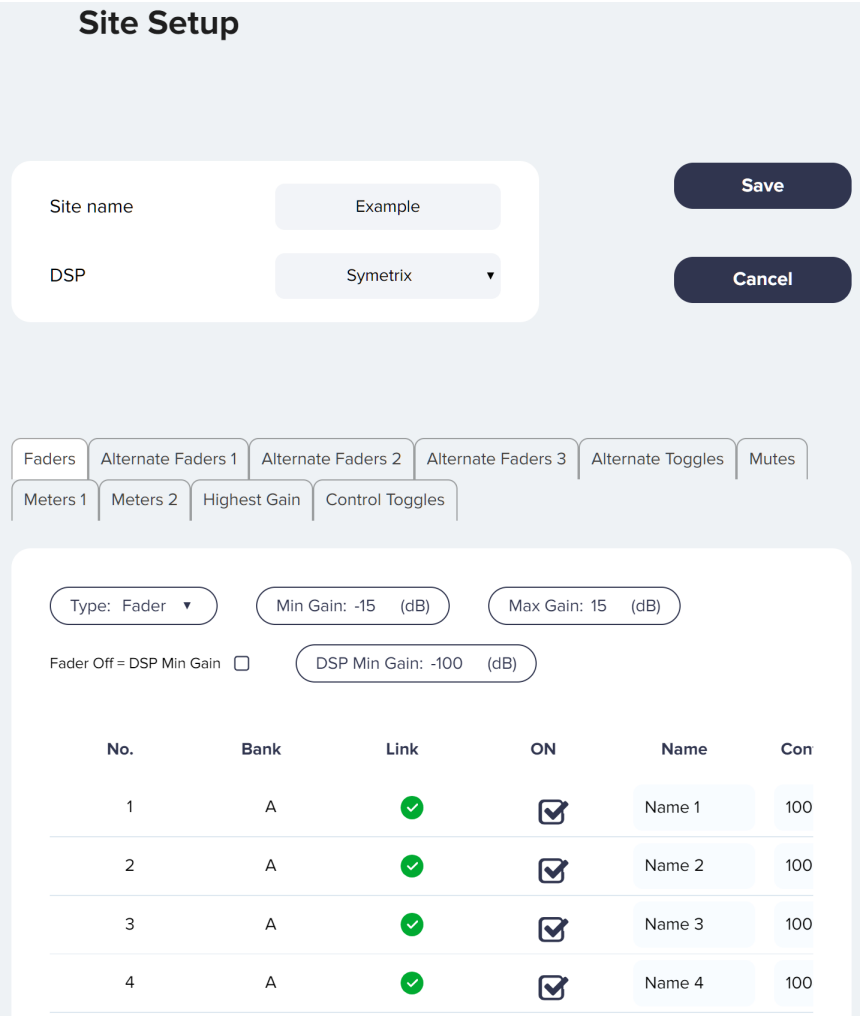
Alt 3 max	Select the desired alternate 3 maximum fader scaling in dB	
Show Debug	Enable plugin debugging	

Control Pins		**Notes**
AltFader1		
AltFader2		
AltFader3		
AltToggle		
Control		
Control Label	Send a text string to this control pin input to dynamically update Control Toggle labels on the EasyMix.	Enable "Use Plugin Names" in the EasyMix at Site Setup > Control Toggles.
Faders		
HighGain		
Label	Send a text string to this control pin input to dynamically update channel names on the EasyMix.	Enable "Use Plugin Names" in the EasyMix at Site Setup > Faders
Meter1		
Meter2		
Mute		
Disable		
Reachable	Indicates if the EasyMix is online or offline.	
Status	Control pin outputs the EasyMix status which can be wired to a status component, status combiner, or Monitoring Proxy.	

Troubleshooting:
If the EasyMix shows a message of DSP Error or DSP Connecting on the right display, that would indicate a network issue and the EasyMix is not able to establish communication with the Q-Sys Core.
1) Verify that you can ping both the EasyMix and the Core at the IP Addresses set in the EasyMix.
2) Verify that the TCP Port set in the plugin matches the EasyMix DSP Port.

3) Verify that the DSP on the Site Setup page is set to Q-Sys.
4) Check your network settings to make sure that TCP traffic on the specified port is allowed to pass through your network.

6.4.8.3 Symetrix SymNet



Prerequisite: Set the DSP IP on the Network page to match the IP address of the DSP. Set the DSP Port on the Network page to 48631.

Note: You must assign control numbers to all controls in SymNet that you want to control with the EasyMix. You must must enable push on all of those controls before the EasyMix will be able to receive feedback from the controls. A Supermodule is available for download from www.mysteryelectronics.com/downloads.

6.5 Utilities

Button Pressed	Displays the currently pressed button on the EasyMix.
Fader Pressed	Displays the currently touched fader.
Test Faders	Allows you to run a test of the fader motors.
Test Indicators	Allows you to run a test of the LEDs.
Move to upper	Moves faders to the upper fader label.
Move to center	Moves faders to the lower (center) fader label.

Press **Edit** to calibrate upper and center fader positions. **Save** when completed.

6.6 Update

View the Firmware Version, Build Date, and Bootloader Version on this page. Press **Choose file** to select a new firmware version. Once selected, press **Upload Firmware** to upload the new firmware. You can view the status of the update on the right HD display during the update process. The unit will restart once the firmware update is complete. A normal update takes approximately 30 seconds.

7 Warranty

For warranty information, please visit: www.mysteryelectronics.com/warranty

8 Declaration of Conformity

We, Mystery Electronics Group, LLC, 3439 Pinson School Rd, Springfield, Tenn. 37172, USA, declare under our sole responsibility that the product: EasyMix, to which this declaration relates, is in conformity with the following standards:

FCC Part 15, Class B

This device complies with part 15, Class B of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

EU Declaration of Conformity - In accordance with EN ISO/IEC 17050-1:2010

The technical construction file is maintained at:
Mystery Electronics
3439 Pinson School Rd.
Springfield, Tenn. 37172