Adamson Systems Engineering

Adamson PLM & Lake Handbook - Version 5.0

PLM & Lake™ Handbook

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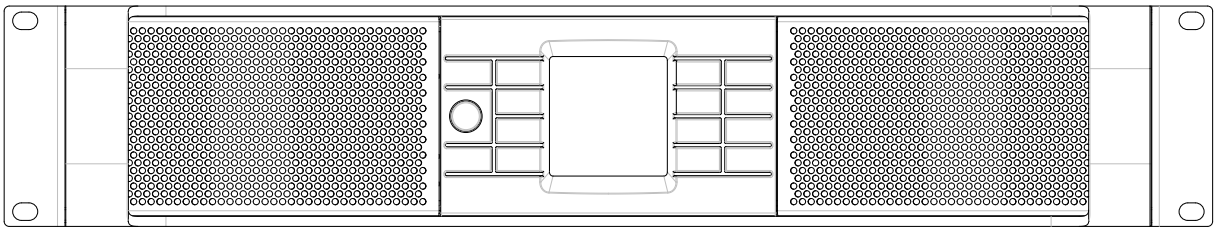
Lake™ System Overview

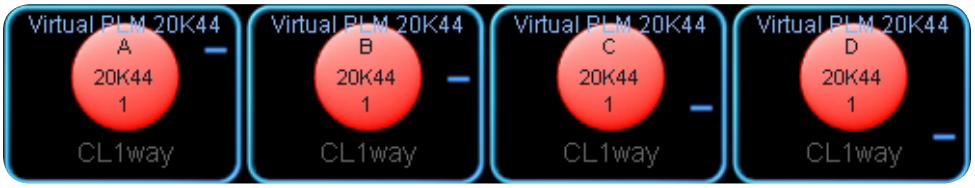
1.1 Lake™ Terminology

Lake™ Terminology:

Frame: All physical Lake™ enabled hardware eg; PLM+ or LM26



Module: Each piece of Lake™ enabled equipment contains DSP modules, example shown is a PLM 20K44 which contains 4 Modules. The Module count can be reduced when using Adamson Linear Phase presets, which combine modules in order to use their DSP.

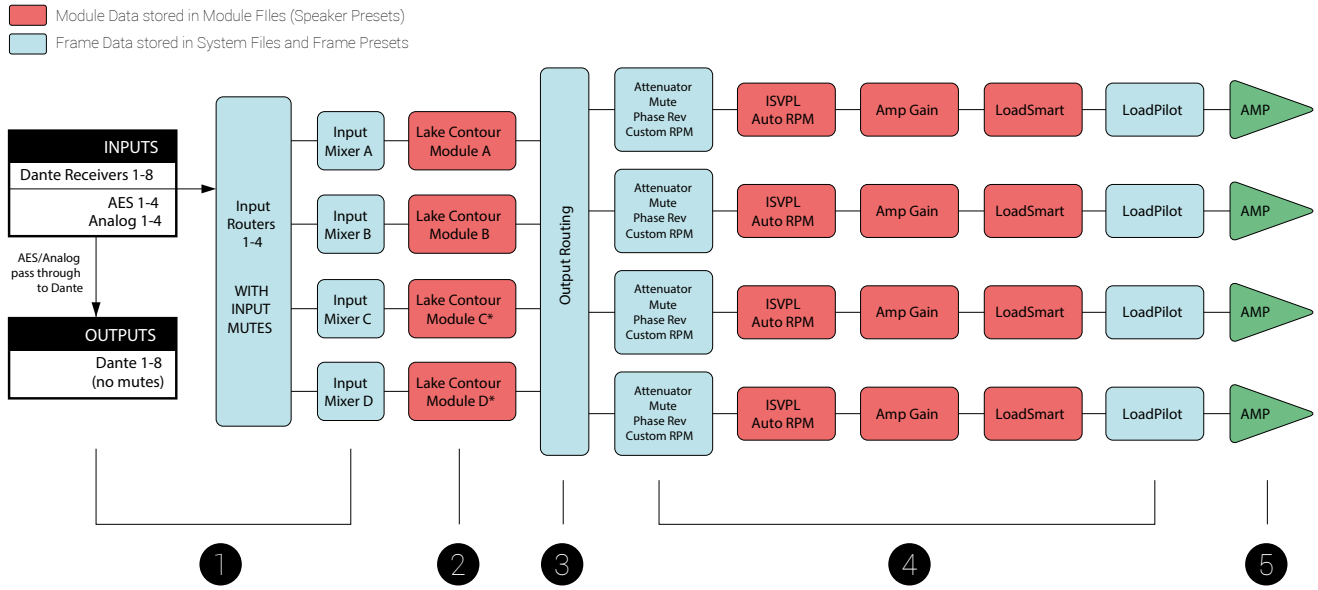


Groups: Within Lake™ controller, Modules can be grouped together to provide overall system changes to Level, EQ and Delay

Lake™ System Overview

1.2 PLM Signal Path

Lab.gruppen & Lake™ signal flow overview



1. The input section (input, input router and input mixer) allows for mixing capabilities as well as redundant and prioritized inputs with automatic switch-over in case of signal failure

2. Up to four Lake™ Processing modules provide user EQ and loudspeaker processing, including LimiterMax limiting

3. The output router allows free routing between module outputs and power output channels

4. Each power output channel provides individual channel processing, including ISVPL limiter, RPM and load monitoring.

5. Power Amplifier output stage.

Source: Lab.gruppen PLM+ Quick Start Guide page 15.

Firmware & Presets

2.1 Updating PLM+ Firmware

Before proceeding with Lake™ firmware updates, make sure your computer and all online frames are connected to a stable power supply and that the secondary network cable is disconnected.

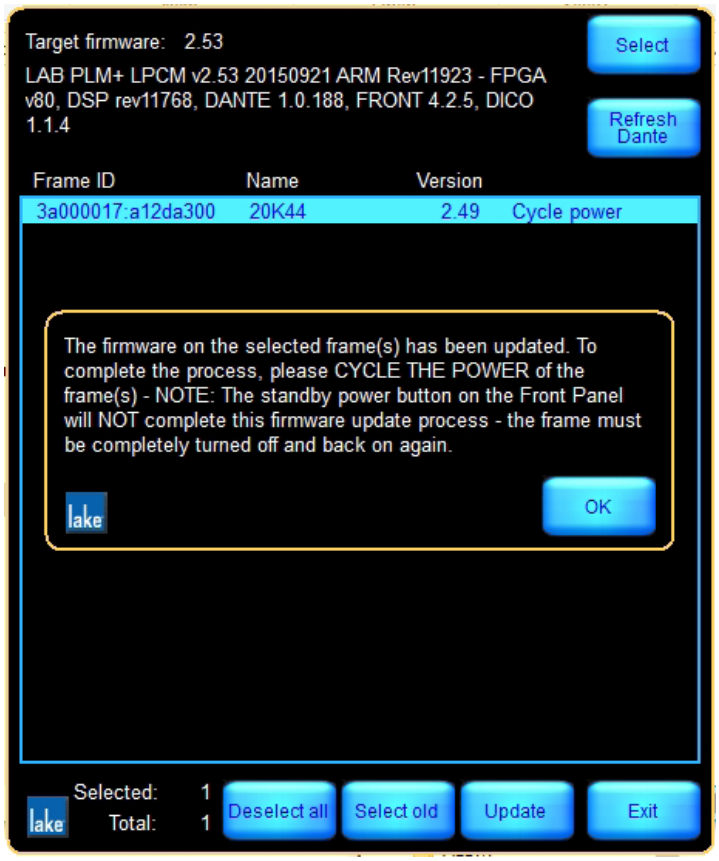
1. Open Lake™ Update and select the platform you wish to update

You will be prompted to select the network adaptor the device(s) is/are connected to

2. Lake™ Update will scan for devices. Any devices that need updating will show up with a red X. Select these devices, or press the select old button and update. A dialog box will appear confirming the procedure.

2.1 Updating PLM+ Firmware

3. Once the firmware has loaded onto the devices, a pop up window will prompt you to cycle power.



To correctly cycle power, disconnect devices from the mains power supply for at least 30 seconds. Powering off from the front panel will not complete the update.

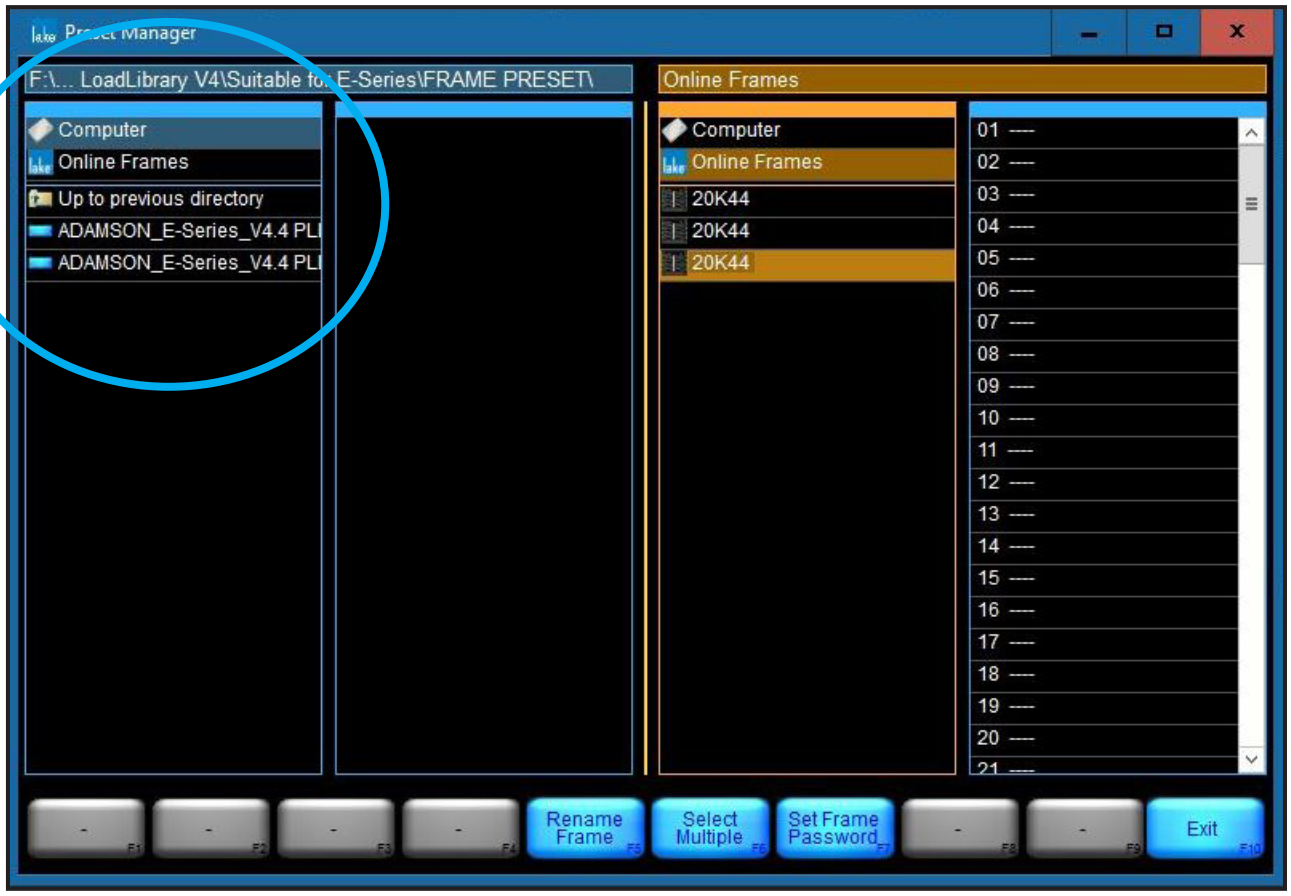
Once reconnected, the device will power on to finish the firmware update.

**Note: Adamson recommends performing a Soft Reset from the front panel of the amplifier after every firmware upgrade. MENU/FRAME/FRAME RST/SOFT RESET*

2.2 Loading Frame Presets

1. Open PresetManager, choose the correct product type and your network adaptor

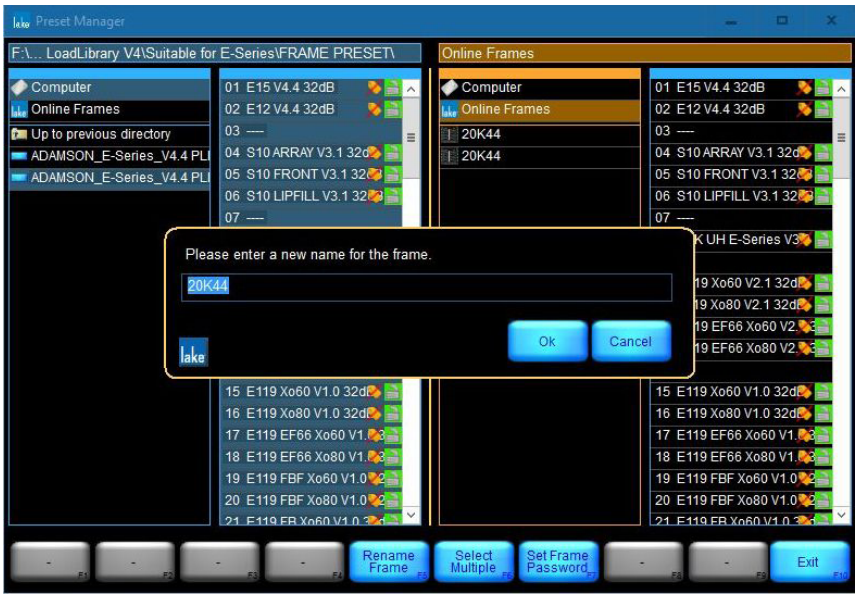
2. In the left hand window, navigate to the Frame Presets folder contained in the 3.XX preset library. Double click to open the Frame Preset library file and select all presets using either Ctrl-A or the Select Multiple button.



2.2 Loading Frame Presets

3. In the right hand window select the amplifier frame(s), then click and drag all frame presets to the online frame. Copying will take a moment, but you will then see the bank duplicated in your online frame.

4. All Frame Presets are now contained within the active frame. This is a good time to re-label each amplifier frame for easy identification when building your Lake show file. To do this select the frame you wish to re-label then press Rename Frame

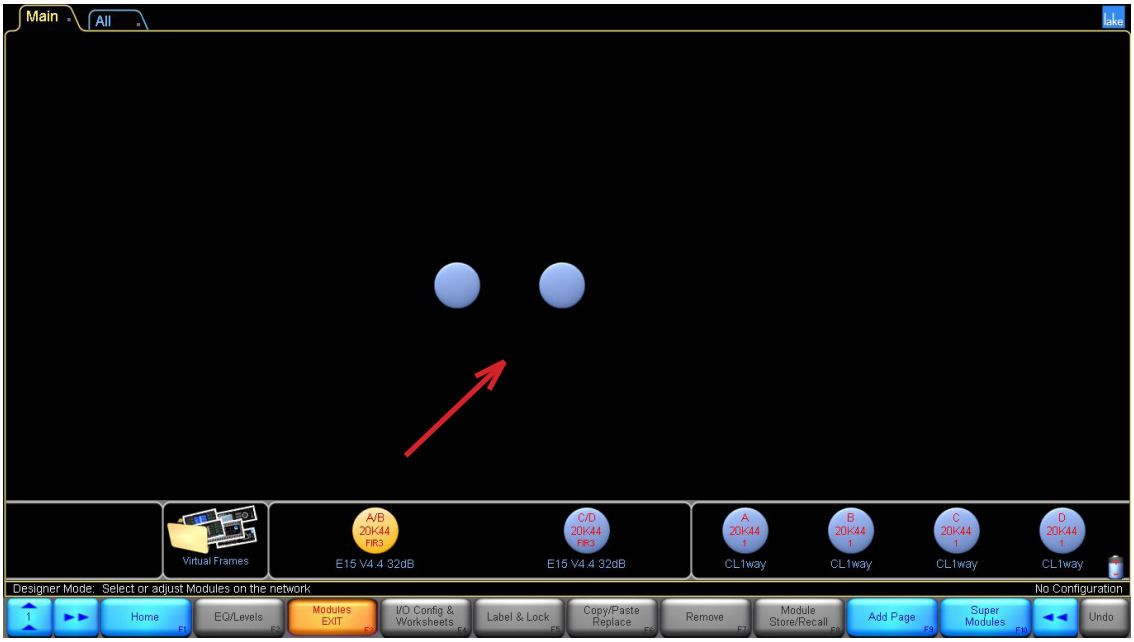


2.3 Recalling Frame Presets

Loading frame presets from PLM+ front panel

1. Menu --> Frame Prst --> Use cursor wheel to select Frame Preset --> Recall

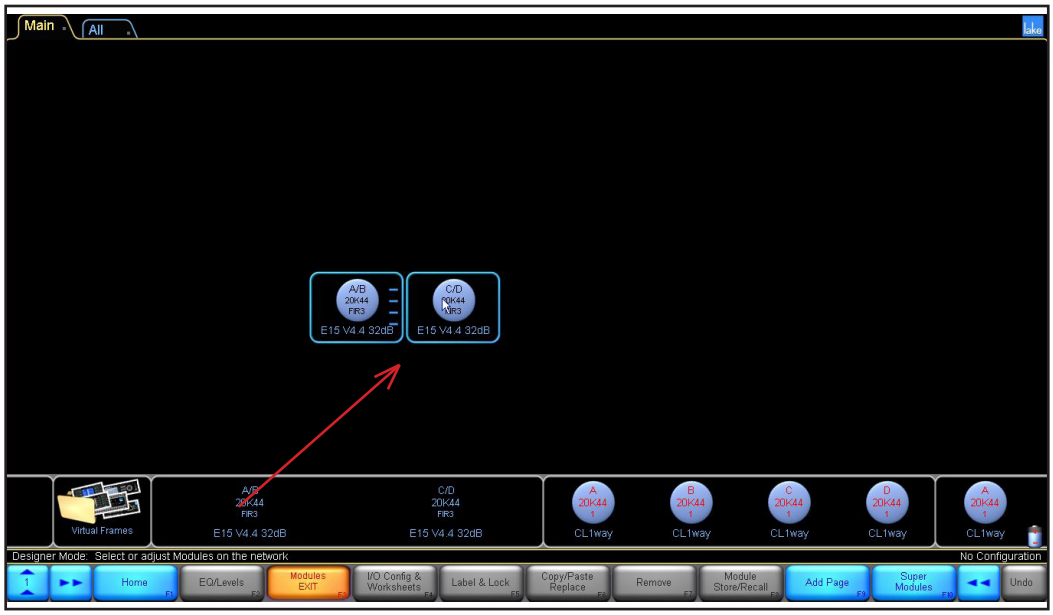
2. Connect the PLM+ to your control PC, open Lake™ Controller 6.xx and select your active network adapter. Navigate to the Modules tab and place all Online Frames you have recalled Frame Presets for in your workspace.



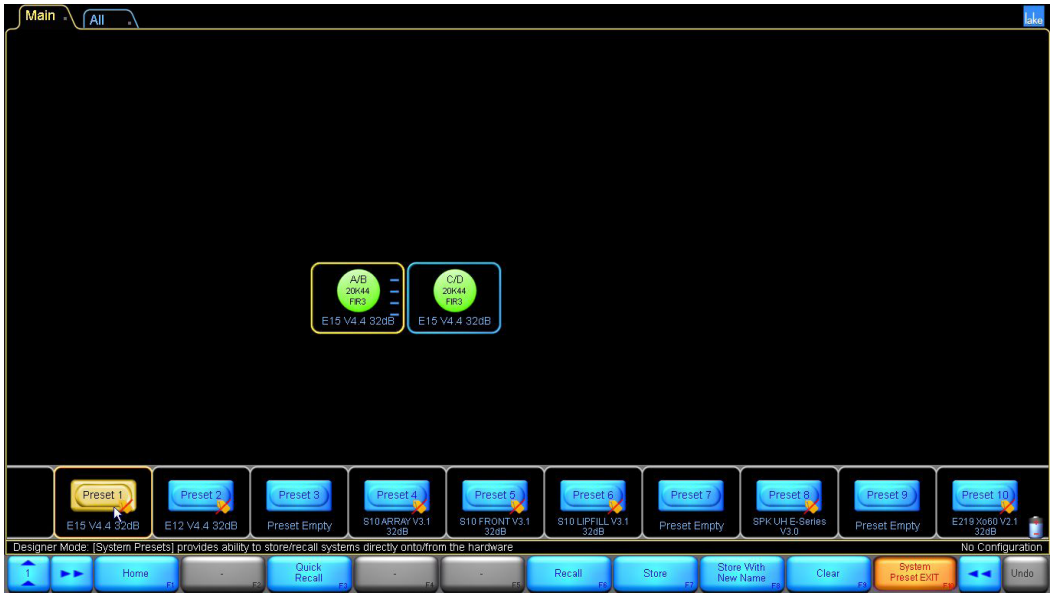
2.3 Recalling Frame Presets

Loading frame presets from Lake™ Controller:

1. Open Lake™ Controller 6.5.X and select your active network adapter. Select Modules then drag all online modules into the work space.

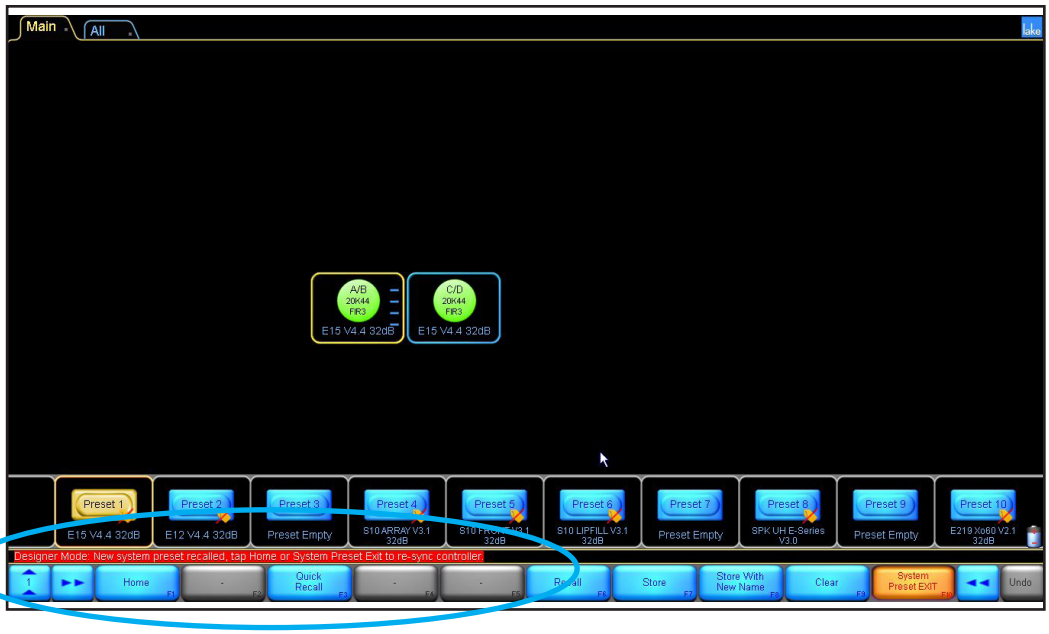


2. Select System Store/Recall then System Presets. Select destination module, choose desired frame preset and either double click or select Recall and confirm.

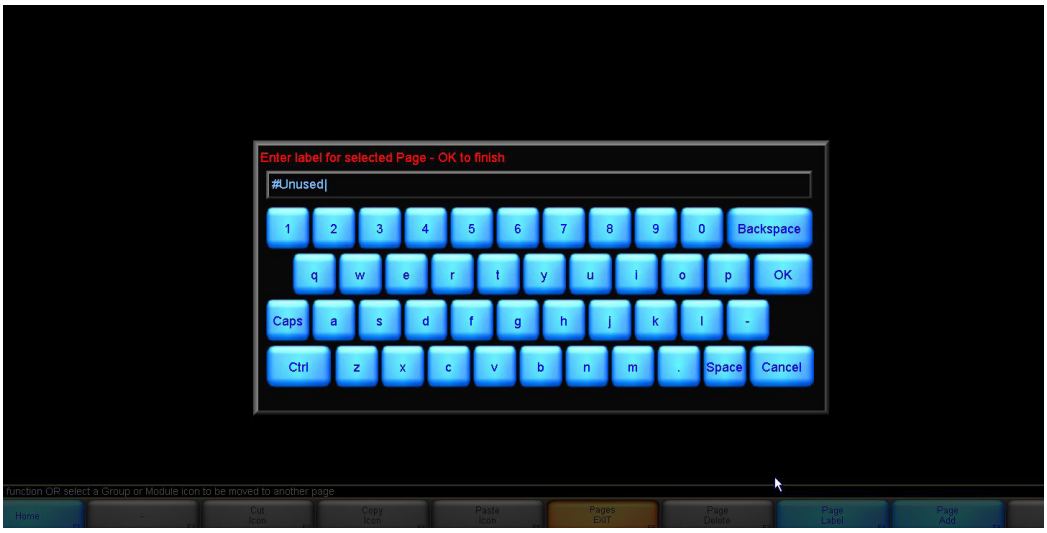


2.3 Recalling Frame Presets

3. You will be notified that to complete the recall, Lake™ Controller must be re-synced to the module by clicking Home or System Preset EXIT Once either is pressed the frame preset will be loaded.



4. Once all modules are loaded you can hide un-used modules or sort by location/ type. Create a new page by selecting Pages then Page Add . To label your page, click on Page Label Labeling the page #Unused will cause all modules placed on this page to disappear from the "All" page.



2.3 Recalling Frame Presets

5. Unused modules can be removed from the main page to save real estate. Create a new page and label it "#Unused" Select the unused modules and drag them all the way up into the #Unused page. Hovering over a page tab for 1 second will select that page.

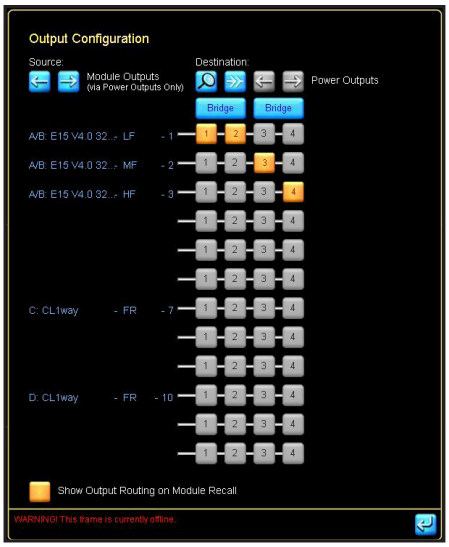
2.4 Recalling Module Presets

1. Open Lake™ Controller 6.5.X and select your active network adapter. Place all online frames you wish to load in your workspace area.

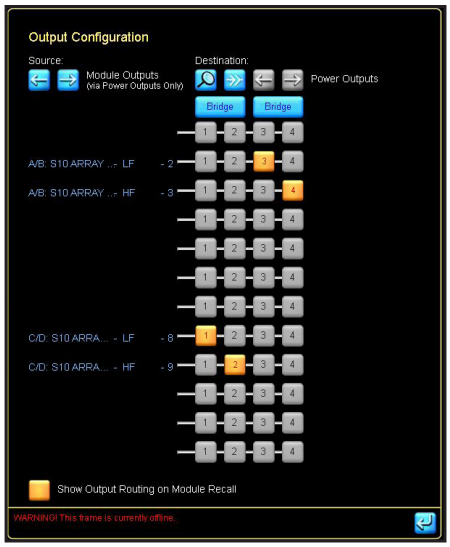
2. Choose Modules then Module Store/Recall and navigate to the folder containing the Adamson Load Library files, locate the correct module presets and load the applicable preset to your frame.

The newest Adamson Load Library eliminates the previous need for multiple module presets that used to exist with Linear Phase presets. Simply recall the single preset for the E or S-Series full range enclosure, and Lake will automatically merge modules into a single unit.

3. Each time you load a preset, you will be prompted to assign channel routing. The following is how channels are routed for all E and S-Series top cabinets.



E-Series Routing

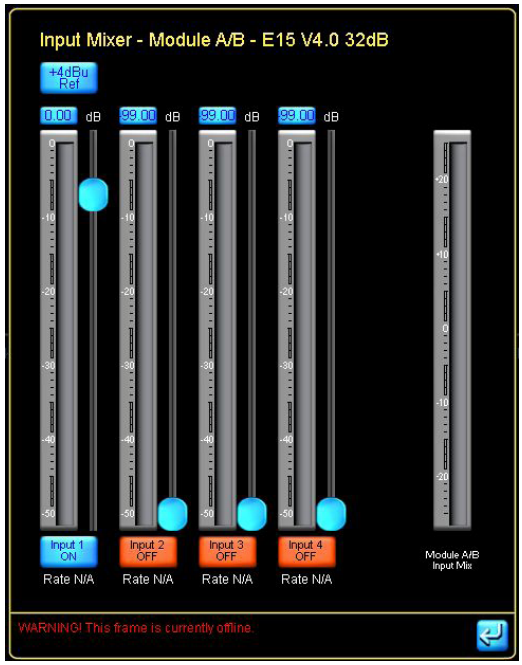


S-Series Routing

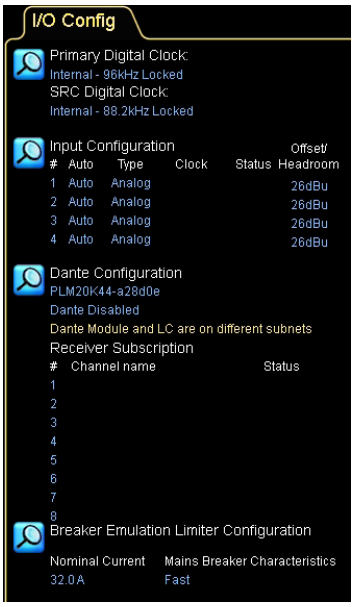
2.4 Recalling Module Presets

4. Make sure the correct input source is applied to the Module, in the levels page use the 

select input source.



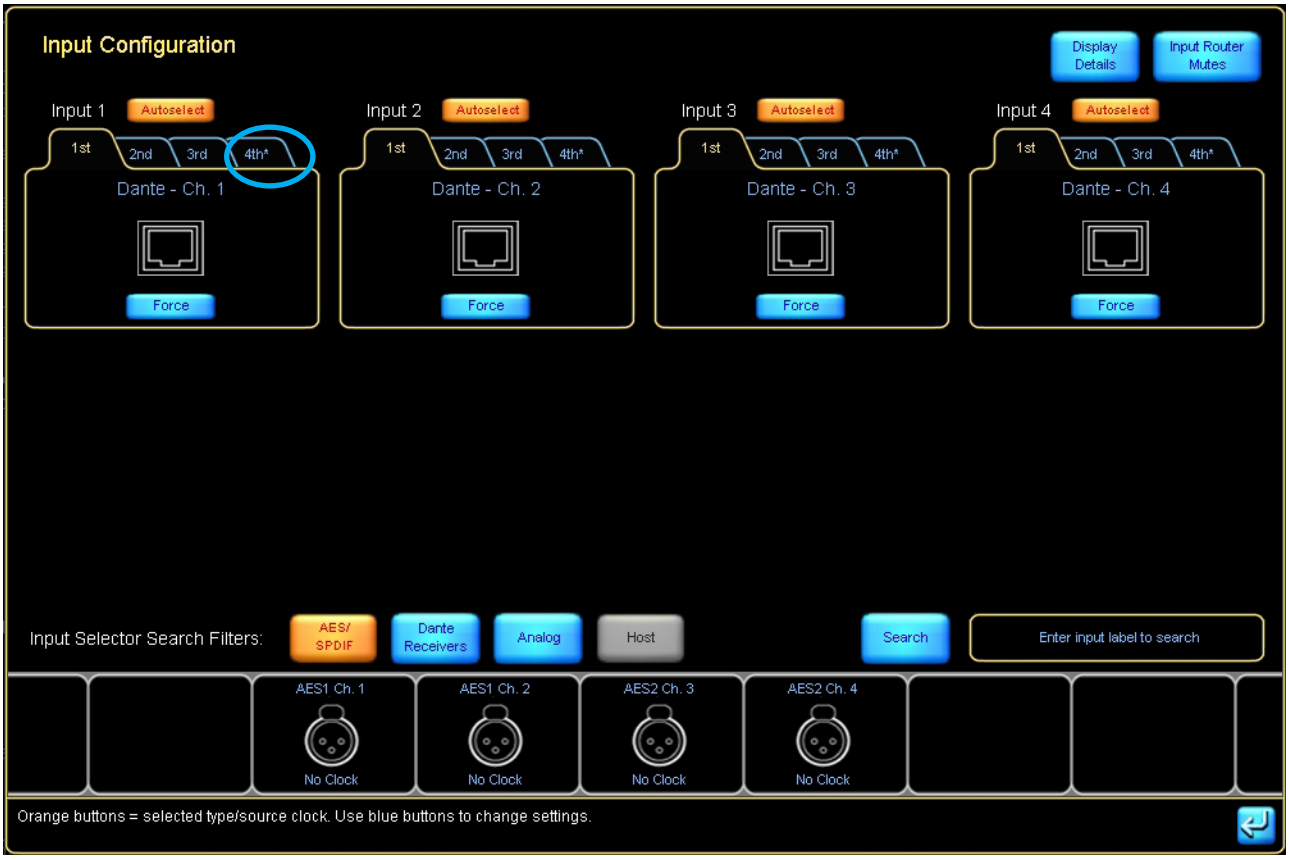
5. To define each input type in the Module page select I/O Config and in the left hand column choose input cofiguration.



2.4 Recalling Module Presets

Navigate to 

to configure input type and redundancy priority.



Note the * next the input type circled here shows the active input type for each input channel.

2.5 LoadSmart™

Lab.gruppen PLM+ amplifiers offer LoadSmart™ load verification, a file contained within the Adamson Load Library allows for each bank of cabinets in an array to be verified before being flown. This feature is accessible from the front panel of the PLM+ by first loading the correct Frame Preset for your loudspeaker.

1. Connect the cable between the amplifier and the loudspeaker(s),

2. From the front panel of the PLM select Menu --> Load Mon --> Configure # of Cabinets in Parallel. Make sure to enter the correct number of cabinets in each stack connected to the PLM, if there are 3 E15 select the 4 soft buttons on the right of the display and turn the scroll wheel until they all display 3.

3. EXIT --> LoadSmart™ Verification. You will hear the load verification tone sweep for each component in the loudspeaker; For E-Series fullrange there will be 3 verification sweep for the ND15, YX7 and the ND4TA2, Subwoofers will sweep once.

4. The PLM+ will collate a verification report, and a notification of any components that are reading results outside of the desired value will be displayed.

LoadSmart is also available in Lake™ Controller. In the Modules page select IO config --> Amplifier Events and Control. Select the LoadSmart tab.

Note: In Lake™ Controller only 1 module or the entire system can be verified at once. To verify entire system go Global events and control in the “All” page.

2.6 Preset Notes

E-Series Lake™ Load Library

Frame Preset #	Preset Name	1+/-	2+/-	3+/-	4+/-
1	E15 V4.XX 32dB	LF 1	LF 2	MF	HF
2	E12 V4.XX 32dB	LF 1	LF 2	MF	HF
3					
4	S10 ARRAY V3.XX 32dB	LF 5-8	HF 5-8	LF 1-4	HF 1-4
5	S10 FRONT V3.XX 32dB	LF R	HF R	LF L	HF L
6	S10 LIPFILL V3.XX 32dB	LF R	HF R	LF L	HF L
7					
8	SPK UH E-SERIES V3.XX 32dB	-	LF	MF	HF
9					
10	E219 Xo60 v2.XX 32dB	1	1	1	1
11	E219 Xo80 v2.XX 32dB	1	1	1	1
12	E219 EF66 Xo60 v2.XX 32dB	FRONT	FRONT	BACK	BACK
13	E219 EF66 Xo80 v2.XX 32dB	FRONT	FRONT	BACK	BACK
14					
15	E119 Xo60 V2.XX 32dB	1	1	1	1
16	E119 Xo80 V2.XX 32dB	1	1	1	1
17	E119 EF66 Xo60 V2.XX 32dB	FRONT	BACK	FRONT	BACK
18	E119 EF66 Xo80 V2.XX 32dB	FRONT	BACK	FRONT	BACK
19	E119 FBF Xo60 V2.XX 32dB	FRONT 1	BACK 1	FRONT 2	BACK 2
20	E119 FBF Xo80 V2.XX 32dB	FRONT 1	BACK 1	FRONT 2	BACK 2
22	E119 FB Xo60 V2.XX 32dB	FRONT 1	BACK 1	FRONT 2	BACK 2
23	E119 FB Xo80 V2.XX 32dB	FRONT 1	BACK 1	FRONT 2	BACK 2
24					
25	T21 Xo60 V2,0 32dB	1	1	1	1
22	T21 Xo80 V2,0 32dB	1	1	1	1
23	T21 FRONT EF66 Xo60 V2,0 32dB	FRONT	FRONT	FRONT	FRONT
24	T21 BACK EF66 Xo60 V2,0 32dB	BACK	BACK	BACK	BACK
21	T21 FRONT EF66 Xo80 V2,0 32dB	FRONT	FRONT	FRONT	FRONT
22	T21 BACK EF66 Xo80 V2,0 32dB	BACK	BACK	BACK	BACK
23					
24	E218 Xo60 v3.XX 32dB	1	1	1	1
25	E218 Xo80 v3.XX 32dB	1	1	1	1
26	E218 EF66 Xo60 v3.XX 32dB	FRONT	FRONT	BACK	BACK
27	E218 EF66 Xo80 v3.XX 32dB	FRONT	FRONT	BACK	BACK

2.6 Preset Notes

S-Series Lake™ Load library

Frame Preset #	Preset Name	1+ / 1-	2+ / 2-	3+ / 3-	4+ / 4-
1	S10 ARRAY V3.XX 32dB	LF 5-8	HF 5-8	LF 1-4	HF 1-4
2	S10 FRONT V3.XX 32dB	LF -R	HF - R	LF - L	HF - L
3	S10 LIPFILL V3.XX 32dB	LF -R	HF - R	LF - L	HF - L
4	S10 S119 COMPACT V3.XX 32dB	S119- 1	S119-2	LF 1-4	HF 1-4

2.6 Preset Notes

Below is a list of descriptions for abbreviations contained in the Preset List:

Abbreviation	Description
ND	New Dome (recent HF dome upgrade)
SPK	SpekTrix
UH	Underhang
Xo	Crossover
EF66	End Fire at a spacing of 66", grill to grill
FBF	Front-Back-Front cardioid configuration
FB	Front-Back cardioid configuration

The PLM series offers the ISVPL™ (Inter-Sample Voltage Peak Limiter) feature, which is a digitally implemented, zero overshoot peak limiter. Below is a reference list of ISVPL™ settings Adamson includes in its presets.

Model	ISVPL Limit Threshold		
	SUB/LF	MF	HF
E12 ND	175	139	136
E12	175	139	115
E15 ND	175	277	192
E15	175	277	175
E218	160	---	---
E219	190	---	---
T21	120	---	---
S10	196	---	136
SPK UH	179	179	119

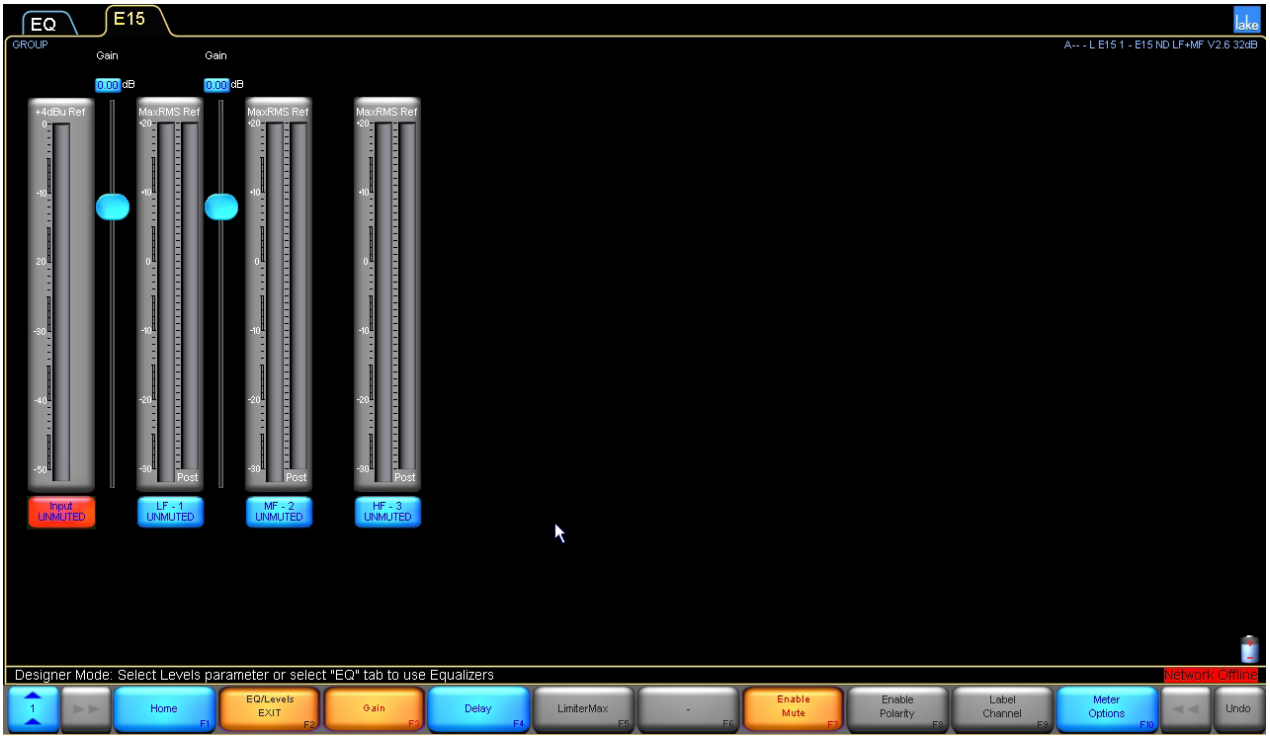
**NOTE: 1 Lab.gruppen PLM 20K44 can drive a maximum of 3 E15, 3 E12, 6 E218, 4 E219, 8 S10, 8 S119, 2 T21 and 4 SpekTrix*
**NOTE: S119, E119, E218 and E219 presets are gain-matched, assuming a ratio of 2 top cabinets to 1 sub cabinet (i.e. 12 E15 to 6 E219 and 12 E12 to 6 E218). If using a different ratio of tops to subs, gain changes may have to be applied to achieve the desired balance. T21 presets must have +1 dB added in order to achieve the same result at this ratio, as this preset is also intetnded for use with other product families.*
**NOTE: In warm environments, or with demanding audio material, we recommend only driving 6x E119, 6x S119 or 3x E219 per PLM 20K44*

3.1 Groups & Overlays

Groups perform many useful functions in Lake™ Controller, acting in a similar way to a VCA or Group on a mixing console. Within each group, users are able to EQ, Delay and perform other useful control functions to as many or as few modules assigned to it.

Shown here 4 modules in a frame all asigned to Group 1

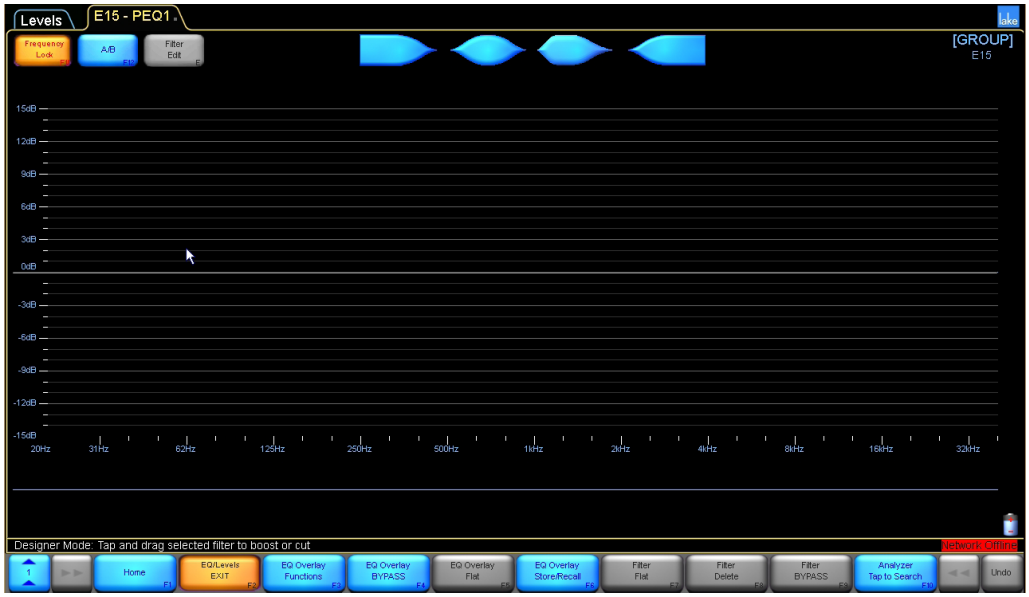
Groups are necessary for affecting several modules at once, which is the most efficient way of controlling large systems comprised of many Adamson line array enclosures. When opening a Group of E-Series modules you are presented with either a Level or EQ page

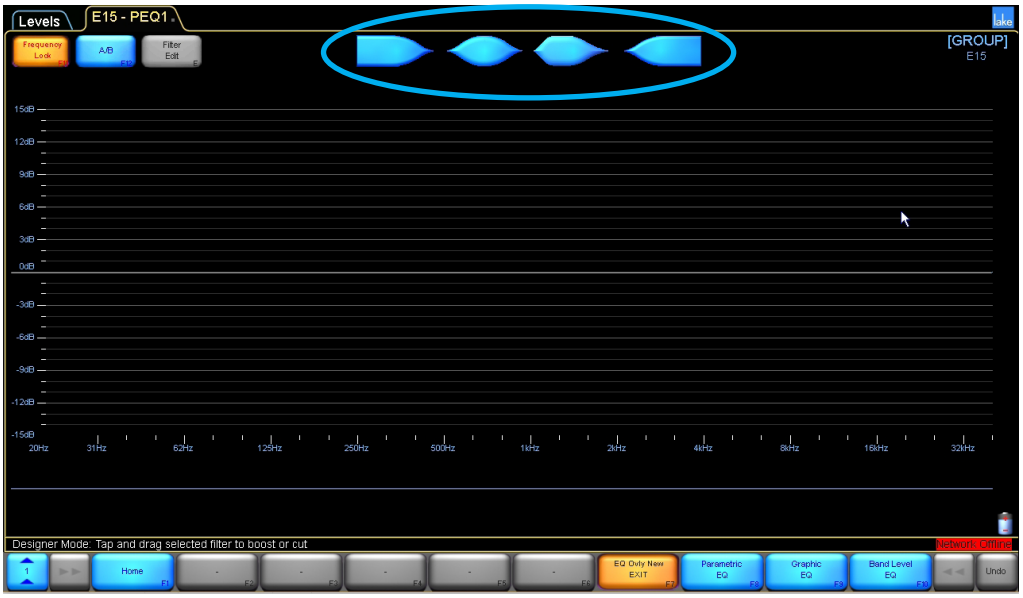


Groups & Overlays

3.1 Groups & Overlays

To add a new EQ overlay select EQ Overlay Functions then select an EQ Overlay type Parametric EQ Graphic EQ Band Level EQ

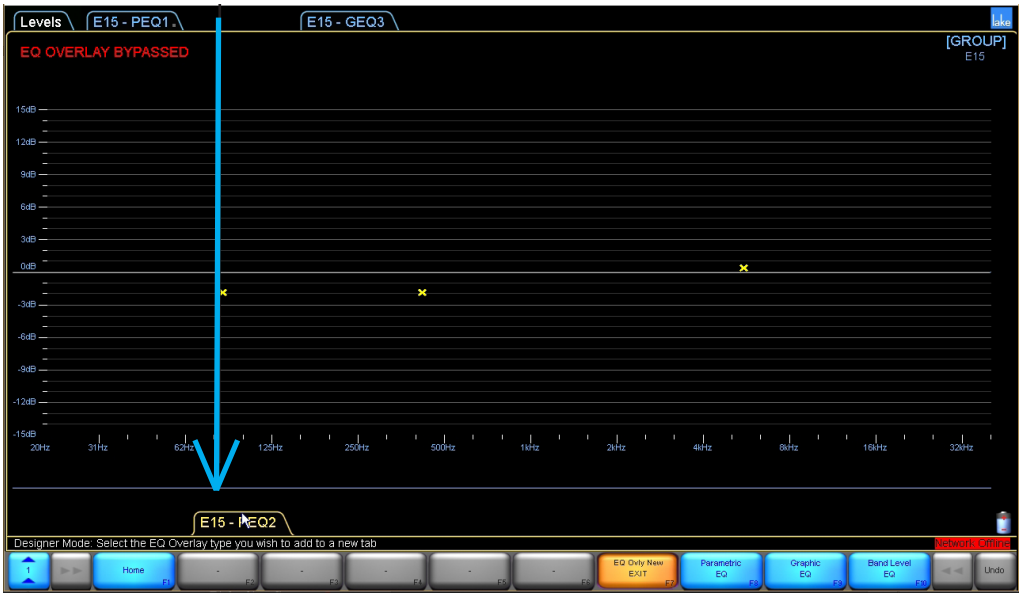




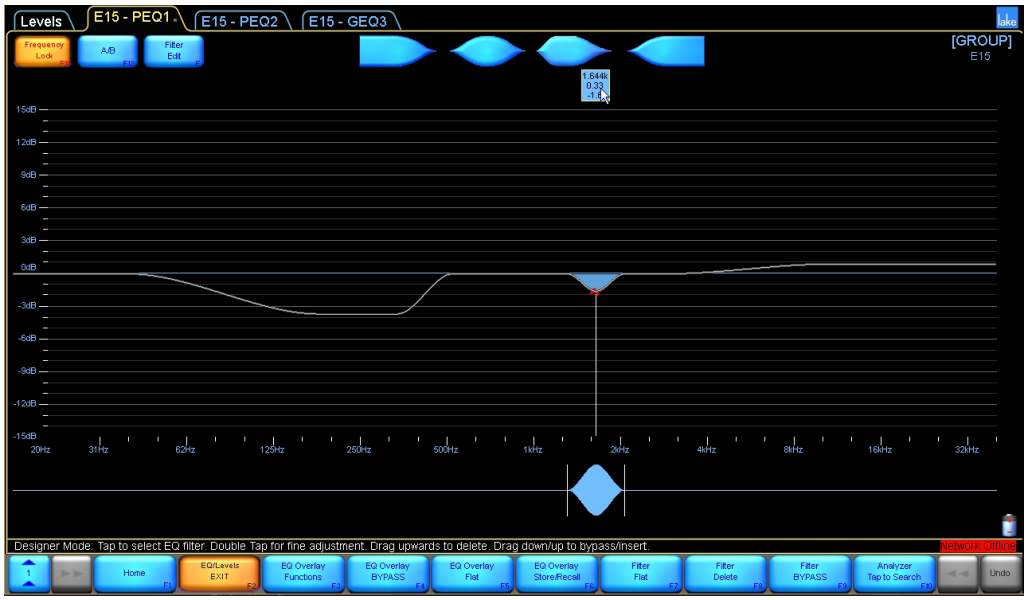
Select a filter type and add it to the work surface.

3.1 Groups & Overlays

Each overlay can be bypassed by selecting the overlay tab at the top of the page and dragging it down across the workspace.



Each filter added can be bypassed with the same technique. Each EQ page will show any user EQ applied in Overlays within that group, Each module within a group will show all EQ applied in any groups above it.

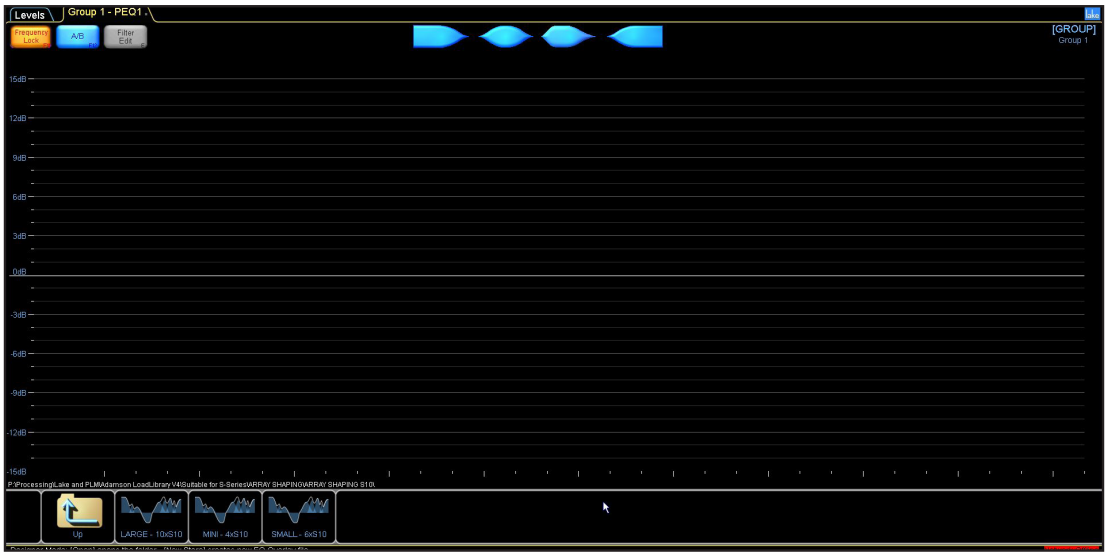


3.2 Array Shaping

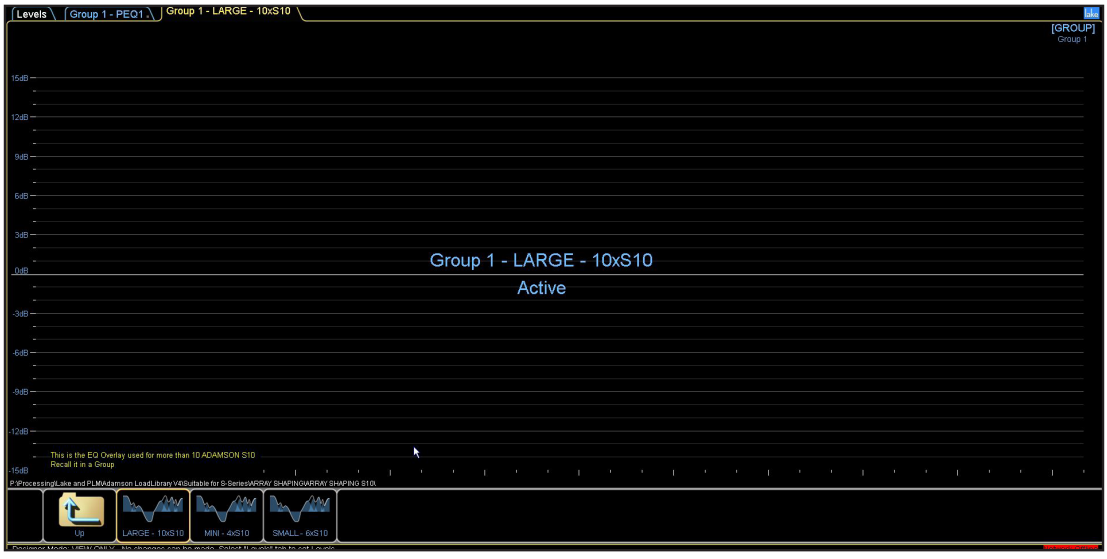
Array Shaping will fine-tune the E and S-Series presets based on the number of boxes flown or stacked. Adamson offers Array Shaping in the form of a recallable EQ Overlay.

Array Shaping Overlays

1. Once you have assigned all array modules to a group, return to the Home page and click the group you have just created in the workspace. Make sure you are on the EQ tab, and click the EQ Overlay Store/Recall button.



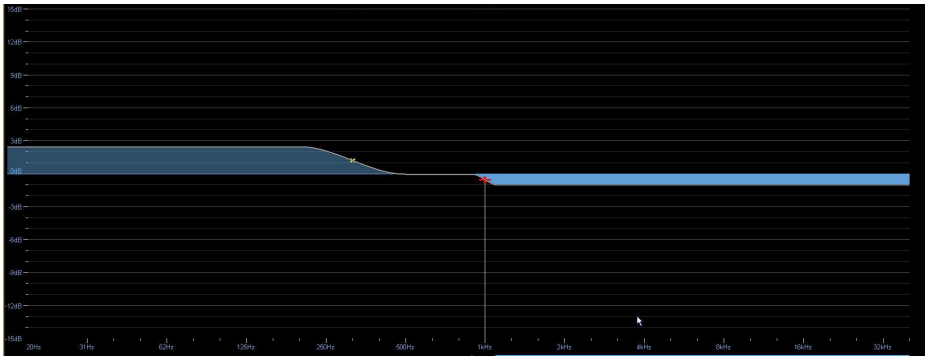
2. Navigate to the appropriate product family folder on your hard drive and select the "Array Shaping" folder. Select the appropriate overlay and press Recall As New, clicking yes when prompted to confirm. This will enable the correct EQ overlay on all modules assigned to the group.



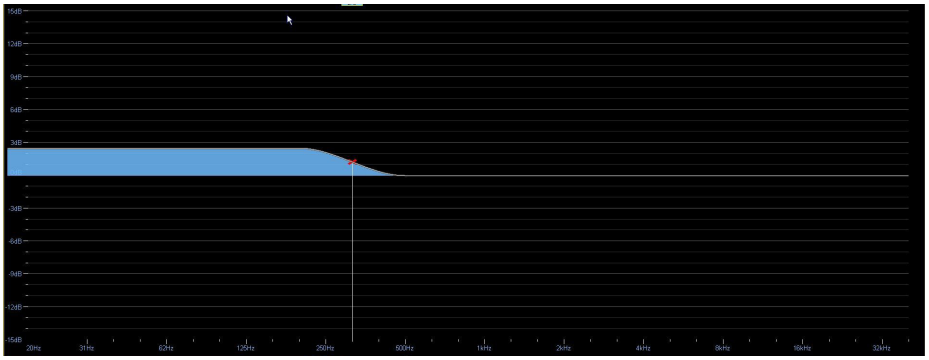
3.2 Array Shaping

Array Shaping Overlays are hidden from view when using the Adamson LoadLibrary. Below are the unlocked views for reference.

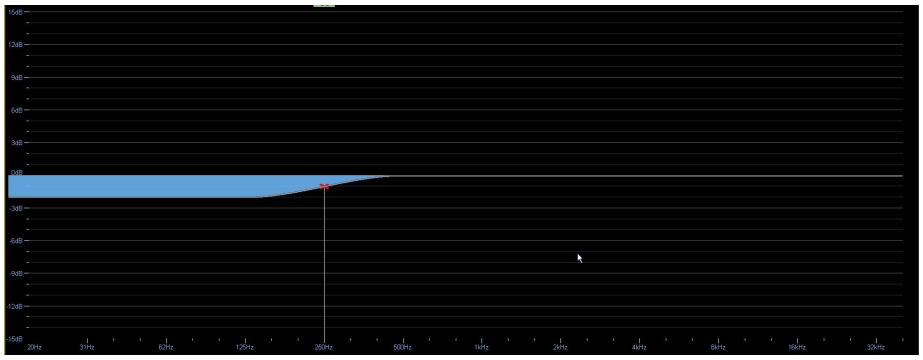
Array Shaping Overlays - E15



E15 - Short Array (6-8 enclosures)

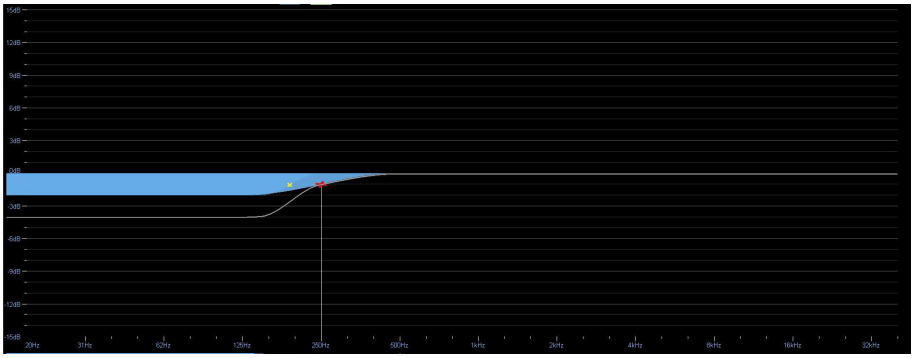


E15 - Medium Array (9-11 enclosures)



E15 - Large Array (15-17 enclosures)

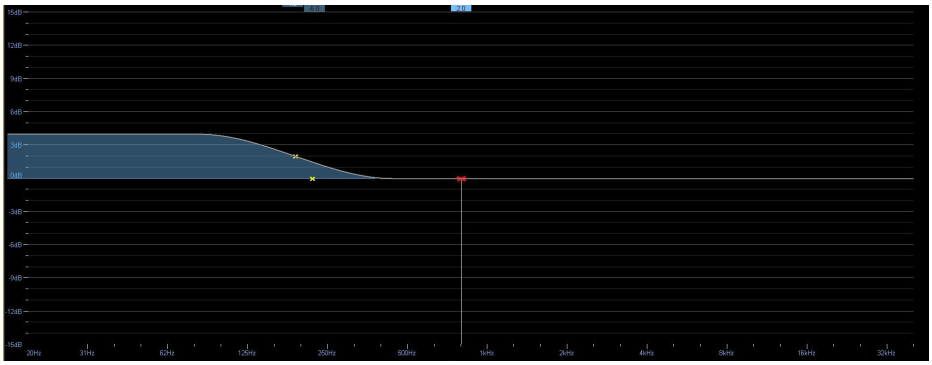
3.2 Array Shaping



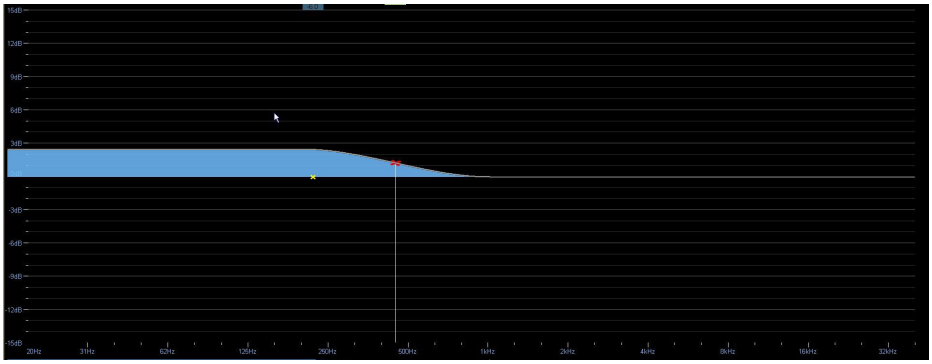
E15 - X-LG Array (18-20 enclosures)

**Note: The E15 preset does not require any Array Shaping Overlays when used with a 12-15 enclosure array.*

Array Shaping Overlays - E12

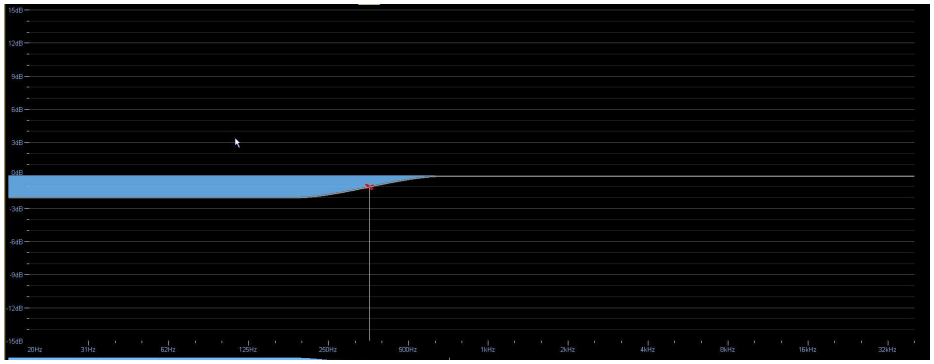


E12 - Short Array (6-8 enclosures)



E12 - Medium Array (9-11 enclosures)

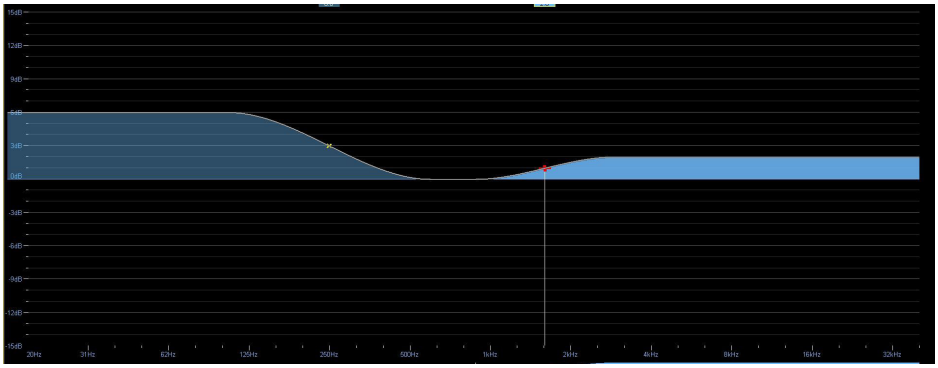
3.2 Array Shaping



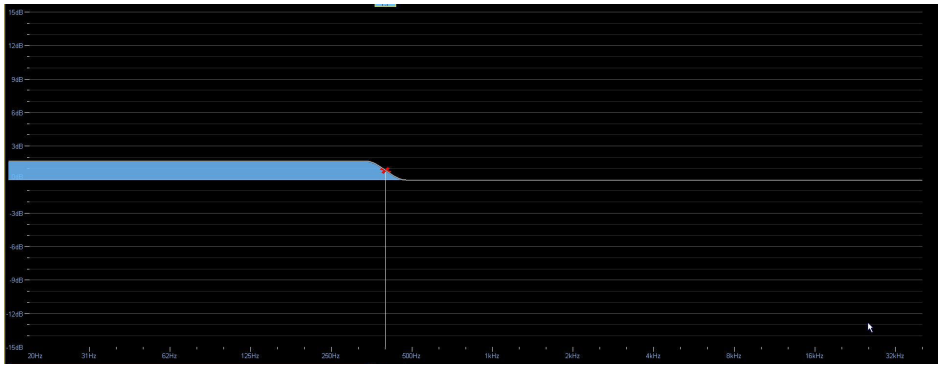
E12 - Large Array (15-17 enclosures)

**Note: The E12 preset does not require any Array Shaping Overlays when used with a 12-15 enclosure array.*

Array Shaping Overlays - S10

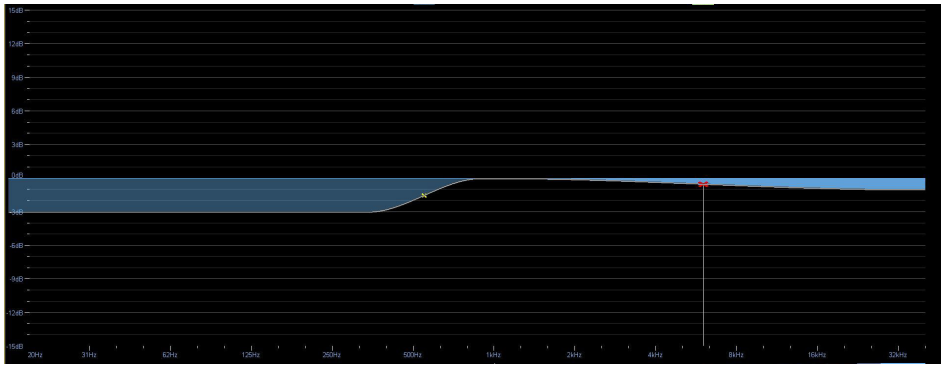


S10 - Mini Array (4-5 enclosures)



S10 - Short Array (6-7 enclosures)

3.2 Array Shaping



S10 - Large Array (More than 10 enclosures)

**Note: The S10 preset does not require any Array Shaping Overlays when used with an 8-10 enclosure array.*

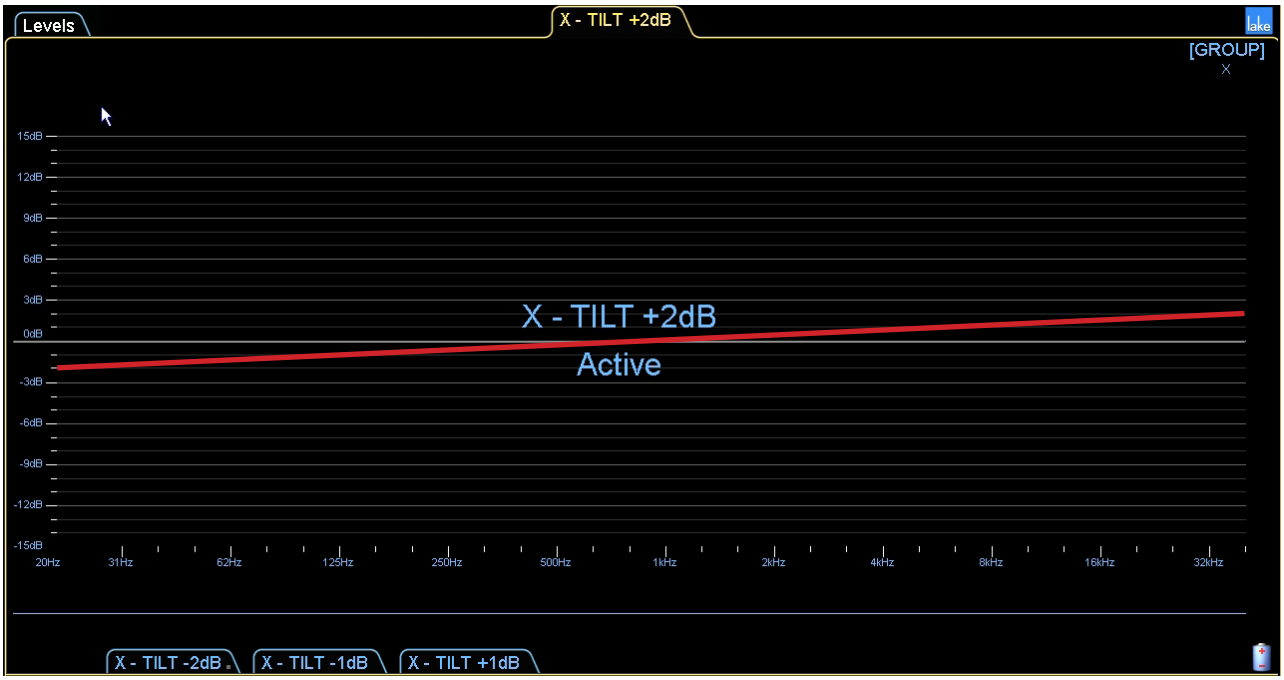
**Note: If hanging an array of mixed cabinet types, please use the Array Shaping overlay designed for the predominant box in that array. Example: A 15 box array contains 12x E15, 3x E12. In this instance, the E15 Large Array overlay would be implemented.*

Groups & Overlays

3.3 X-Tilt Overlays

The X-Tilt Array Shaping Overlays allow the user to apply a tilted EQ curve to their system in 1 dB steps, up to a maximum of +/- 3 dB. The four overlays contained in the X-Tilt Array Shaping folder are labeled as X - Tilt -2 dB, -1 dB, +1 dB and +2 dB. These values refer to the change in high frequency. For instance, if you wanted a very warm curve with 3 dB more in low frequency and 3 dB less in high frequency, you would add the -1 dB and -2 dB overlays. To achieve a very bright curve with 3 dB more in high frequency and 3 dB less in low frequency, you would add the +1 dB and +2 dB overlays.

To recall the X-Tilt Array Shaping Overlays, follow the same instructions found in Section 3.2, but make sure



**NOTE: The red line illustrates how the X-Tilt group affects modules assigned to the X-Tilt group. The X-Tilt Array Shaping Group allows the user to apply a tilted EQ curve to their system in 1 dB steps, up to a maximum of 3 dB. Equalization data will not be shown on Lake™ Controller*

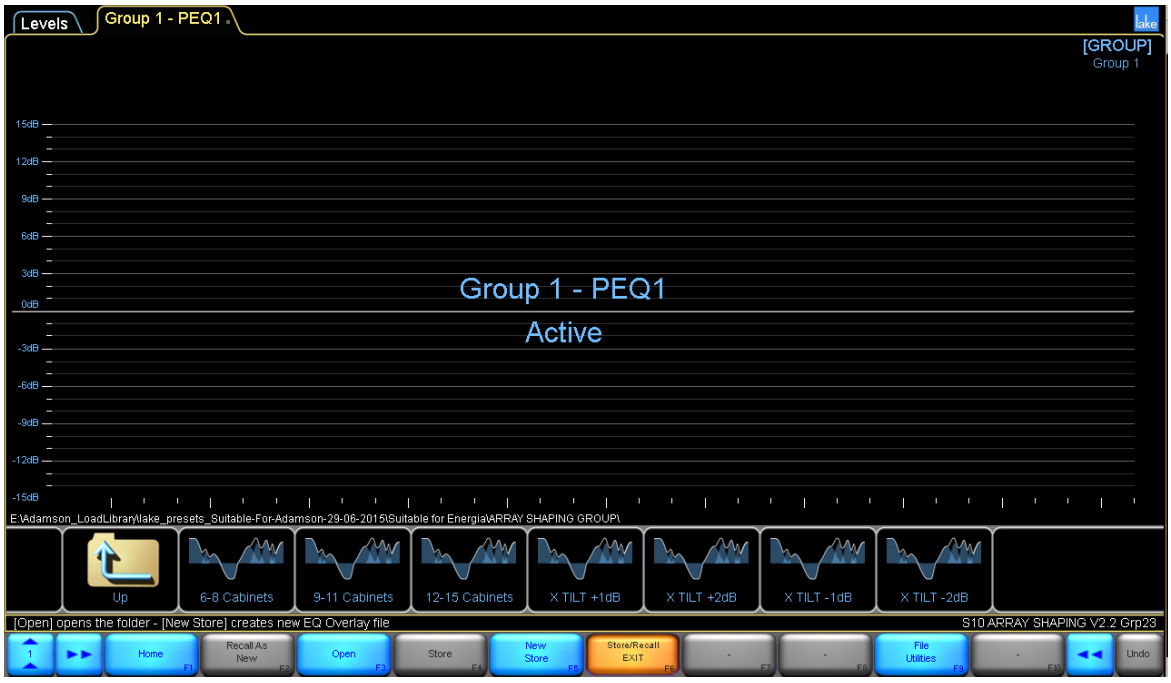
Groups & Overlays

3.4 Overlay Store & Recall

A new feature of Lake 6.5.X is the ability to store and recall EQ overlays between Groups.

If not stored already recall an Array shaping group as shown in chapter 3.2, activate the overlay to be recalled in another group. Press EQ Overlay Store/Recall and navigate to where the overlay will be stored then to name and New Store save.

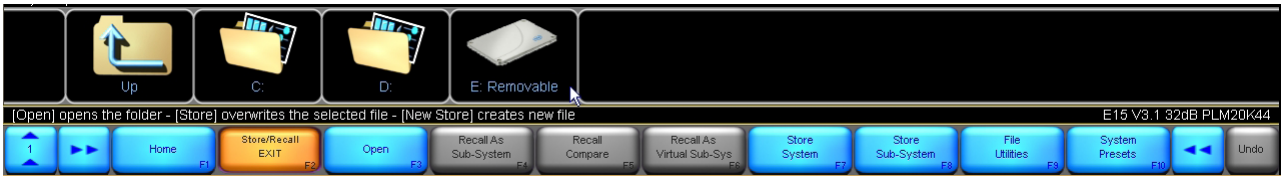
Select a group to recall the EQ overlay, press EQ Overlay Store/Recall, select the overlay and either recall into the existing Group EQ overlay or recall as new overlay.



File Management

4.1 File Management

1. Saving a System File allows you to restore to your last saved session and take your system file to other Lake computers. To save a System File System Store/Recall

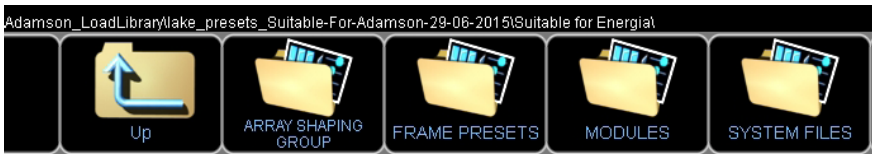


2. Navigate to where you wish to store your file. Then Store System and name your file.

File Management

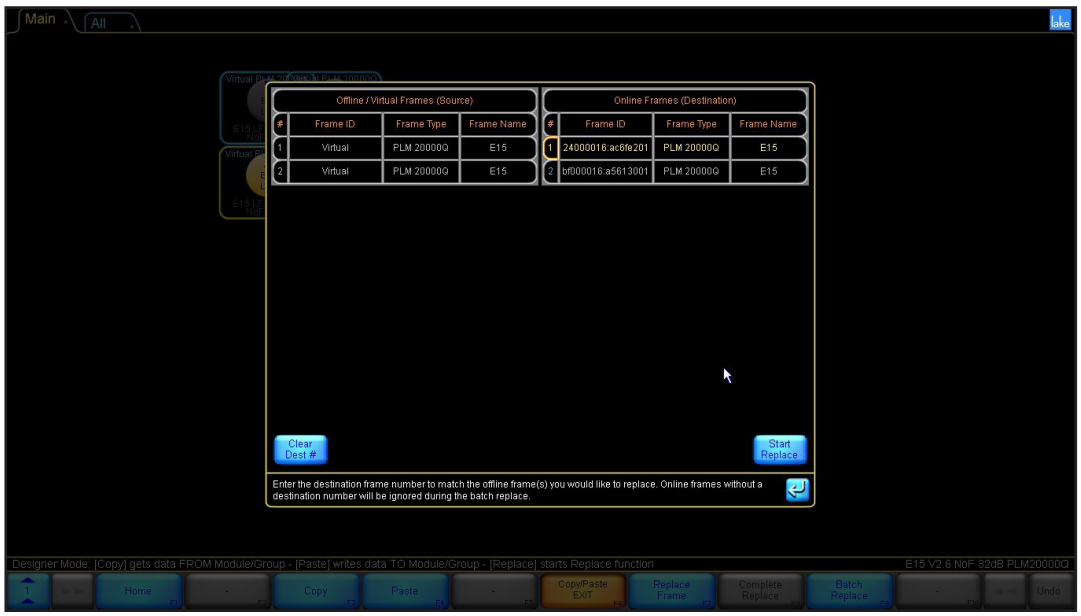
4.2 Batch Replace

1. System Store/Recall Navigate to Adamson preset folder



Choose desired preset for the appropriate amplifier Recall As Virtual Sub-Sys
(repeat recall until virtual modules match desired amount of live modules)
*Note, you will be prompted to either recall on the same page, or a new page. Select same page.

2. Modules select a module, Copy/Paste Replace then Batch Replace Assign ID# in the # column of live modules to match virtual modules then start the replace process Start Replace



3. Repeat steps 1 and 2 for every enclosure, preset and amplifier type you wish to recall in your system.

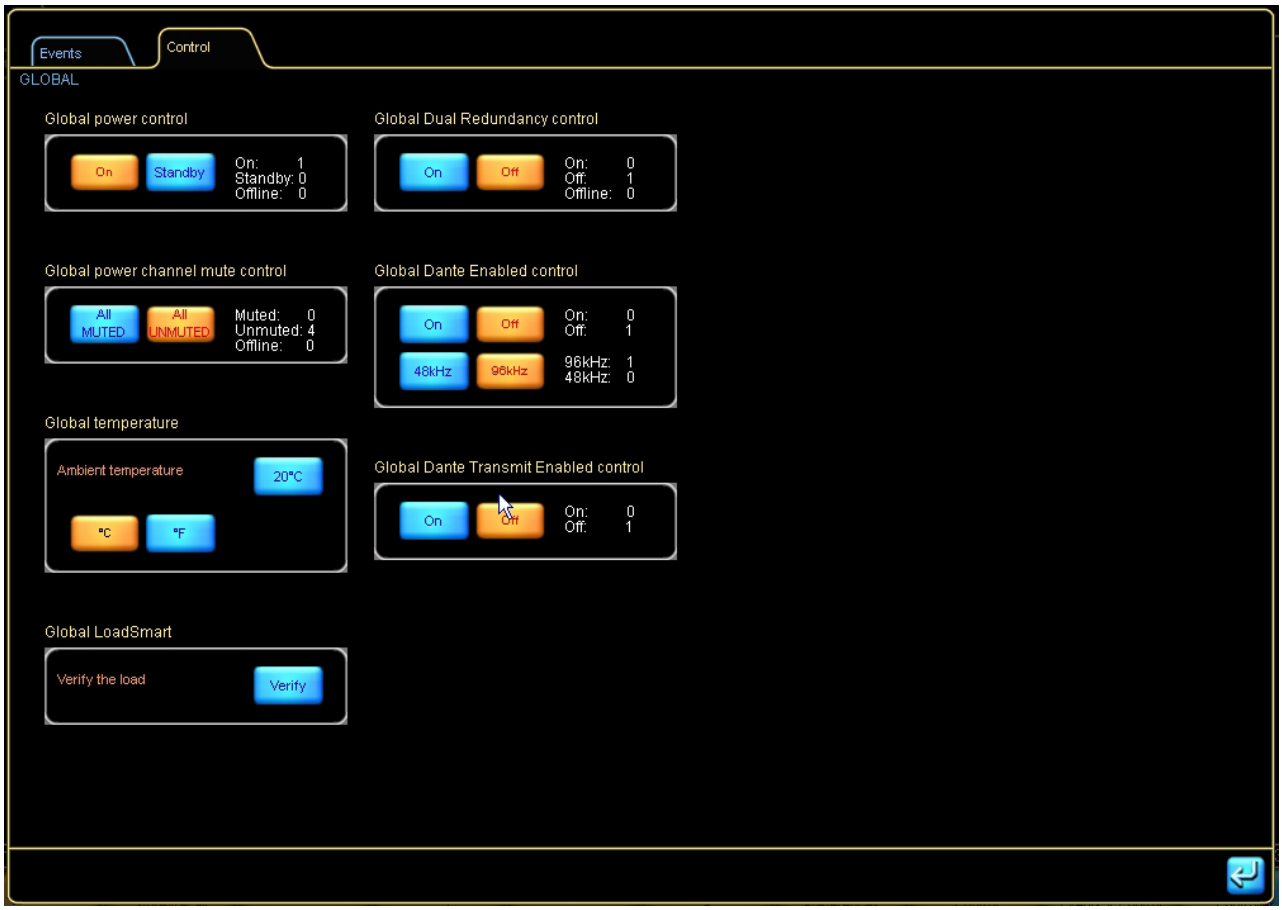
Global Events & Control

5.1 Global Events & Control

1. Once all modules are connected to Lake™ controller navigate to the ALL tab at the top of the workspace

2. At the bottom of this page choose 

to launch the Events and Control page. Choose the Control tab.



This tab allows you to activate DANTE, Dual redundancy*, Mute, Load Smart and Power On/Off** every Frame within your workspace. Some of these features are not available for LM Series processors

**Note: If dual redundancy DANTE is not enabled, make sure the secondary ethernet cable is unplugged for all DANTE enabled devices in your network. If not, you will have network errors.*

***Note: This places amplifiers in Standby and does not act as a hard power reset.*

Amplification

6.1 Maximum Enclosures per Amplifier

			PLM20K44/D200:4		PLM12K44/D120:4	
Family	Product	Channels Used	# Per Circuit	# Per Amp	# Per Circuit	# Per Amp
E-Series	E15	4	3	3	2	2
	E12	4	3	3	2	2
	E219	2	2	4(3)*	N/A	N/A
	E119	1	2	8(6)*	N/A	N/A
	E218	2	3	6(4)*	2	4
S-Series	S10/S10n	2	4	8	4	8
	S119	1	2	8	1(2)***	4
IS-Series	IS10	2	4	8	4	8
	IS119	1	2	8	1(2)***	4
	IS7	2	6	12	6	12
	IS118	1	3	12	2	8
Metrix & Spek-Trix	MTX/MTXW	2	8	16	8	16
	MTB	1	2	8	2	6
	SPK/SPKW	3	4	4	4	4
	SPB	1	2	8	2	6
M-Series	M15A	2	3	6	3	6
	M15P	1	3	12	3	12
	M12A	2	3	6	3	6
	M12P	1	3	12	3	12
	M215	2	2	4	2	4
	M212	2	2	4	2	4

** in brackets: Adamson recommends this cabinet count for maximum performance and in hot environments*
***: Only as mono hang (from one input)*
**** in brackets: used in FBF cardioid mode with 4x S10/IS10*

Amplification

6.1 Maximum Enclosures per Amplifier

			PLM20K44/D200:4		PLM12K44/D120:4	
Family	Product	Channels Used	# Per Circuit	# Per Amp	# Per Circuit	# Per Amp
Point Series	P8P	1	4	16	4	16
	P12A	2	3	6	3	6
	P12P	1	3	12	3	12
	P15A	2	3	6	3	6
	P15P	1	3	12	3	12
	P115P + P8P	1	1	4	1	4
	P115A	1	3	12	3	12
	P215	1	2	8	2	8
	A218	1	2	8	2	8
Point Concentric	PC5	1	3	12	3	12
	PC6	1	4	16	4	16
	PC8	1	3	12	3	12
	PC10	1	3	12	3	12
	PC12	1	3	12	3	12
Retired Products	Y18	4	3	3	3	3
	Y10(K)	4	4	4	4	4
	T21	2	1	2	1	2
	SX18A	3	4	4	4	4
	SX18P	2	4	8	4	8

** in brackets: Adamson recommends this cabinet count for maximum performance and in hot environments*
***: Only as mono hang (from one input)*
**** in brackets: used in FBF cardioid mode with 4x S10/IS10*

Amplification

6.1 Maximum Enclosures per Amplifier

			D80:4		D40:4		D20:4	
Family	Product	Channels Used	# Per Circuit	# Per Amp	# Per Circuit	# Per Amp	# Per Circuit	# Per Amp
E-Series	E15	4	N/A	N/A	N/A	N/A	N/A	N/A
	E12	4	N/A	N/A	N/A	N/A	N/A	N/A
	E219	2	N/A	N/A	N/A	N/A	N/A	N/A
	E119	1	N/A	N/A	N/A	N/A	N/A	N/A
	E218	2	N/A	N/A	N/A	N/A	N/A	N/A
S-Series	S10/ S10n	2	2	4	1	2	N/A	N/A
	S119	1	1	2	N/A	N/A	N/A	N/A
IS-Series	IS10	2	2	4	1	2	N/A	N/A
	IS119	1	1	2	N/A	N/A	N/A	N/A
	IS7	2	4	8	2	4	N/A	N/A
	IS118	1	1	4	1	2	N/A	N/A
Metrix & SpekTrix	MTX/ MTXW	2	4	8	3	6	N/A	N/A
	MTB	1	1	2	N/A	N/A	N/A	N/A
	SPK/ SPKW	3	4	4	2	2	N/A	N/A
	SPB	1	1	2	N/A	N/A	N/A	N/A
M-Series	M15A	2	2	4	1	2	N/A	N/A
	M15P	1	2	8	1	2	N/A	N/A
	M12A	2	2	4	1	2	N/A	N/A
	M12P	1	2	8	1	2	N/A	N/A
	M215	2	1	2	N/A	N/A	N/A	N/A
	M212	2	1	2	N/A	N/A	N/A	N/A

** in brackets: Adamson recommends this cabinet count for maximum performance and in hot environments*
***: Only as mono hang (from one input)*
**** in brackets: used in FBF cardioid mode with 4x S10/IS10*

Amplification

6.1 Maximum Enclosures per Amplifier

			D80:4		D40:4		D20:4	
Family	Product	Channels Used	# Per Circuit	# Per Amp	# Per Circuit	# Per Amp	# Per Circuit	# Per Amp
Point Series	P8P	1	4	16	2	8	1	2
	P12A	2	3	6	1	2	1	1
	P12P	1	3	12	1	4	1	2
	P15A	2	3	6	1	2	1	1
	P15P	1	3	12	1	4	1	2
	P115P + P8P	1	1	4	1	4	1	2
	P115A	1	3	12	1	4	1	2
	P215	1	2	8	N/A	N/A	N/A	N/A
	A218	1	2	8	N/A	N/A	N/A	N/A
Point Concentric	PC5	1	2	8	2	8	2	4
	PC6	1	3	12	3	12	3	6
	PC8	1	2	8	2	8	2	4
	PC10	1	2	8	2	8	2	4
	PC12	1	2	8	2	8	2	4
Retired Products	Y18	4	1	1	N/A	N/A	N/A	N/A
	Y10(K)	4	3	3	N/A	N/A	N/A	N/A
	T21	2	N/A	N/A	N/A	N/A	N/A	N/A
	SX18A	3	2	2	1	1	N/A	N/A
	SX18P	2	2	4	1	2	N/A	N/A

** in brackets: Adamson recommends this cabinet count for maximum performance and in hot environments*
***: Only as mono hang (from one input)*
**** in brackets: used in FBF cardioid mode with 4x S10/IS10*

Amplification

6.1 Maximum Enclosures per Amplifier

			IPD2400		PLM 20000Q		PLM 10000Q	
Family	Product	Channels Used	# Per Circuit	# Per Amp	# Per Circuit	# Per Amp	# Per Circuit	# Per Amp
E-Series	E15	4	N/A	N/A	3	3	2	2
	E12	4	N/A	N/A	3	3	2	2
	E219	2	N/A	N/A	2	4(3)*	N/A	N/A
	E119	1	N/A	N/A	2	8(6)*	N/A	N/A
	E218	2	N/A	N/A	3	6(4)*	N/A	N/A
S-Series	S10/ S10n	2	N/A	N/A	4	8**	3	6**
	S119	1	N/A	N/A	2	8	1	4
IS-Series	IS10	2	N/A	N/A	4	8**	3	6**
	IS119	1	N/A	N/A	2	8	1	4
	IS7	2	N/A	N/A	6	12**	6	12**
	IS118	1	N/A	N/A	2	8	1	4
Metrix & SpekTrix	MTX/ MTXW	2	N/A	N/A	8	16	6	12
	MTB	1	N/A	N/A	2	8	1	4
	SPK/ SPKW	3	N/A	N/A	4	4	4	4
	SPB	1	N/A	N/A	2	8	1	4
M-Series	M15A	2	N/A	N/A	3	6	2	4
	M15P	1	N/A	N/A	3	12	2	8
	M12A	2	N/A	N/A	3	6	2	4
	M12P	1	N/A	N/A	3	12	2	8
	M215	2	N/A	N/A	2	4	1	2
	M212	2	N/A	N/A	2	4	1	2

** in brackets: Adamson recommends this cabinet count for maximum performance and in hot environments*
***: Only as mono hang (from one input)*
**** in brackets: used in FBF cardioid mode with 4x S10/IS10*

6.1 Maximum Enclosures per Amplifier

			IPD2400		PLM 20000Q		PLM 10000Q	
Family	Product	Channels Used	# Per Circuit	# Per Amp	# Per Circuit	# Per Amp	# Per Circuit	# Per Amp
Point Series	P8P	1	1	2	4	16	4	16
	P12A	2	1	1	3	6	2	4
	P12P	1	1	2	3	12	2	8
	P15A	2	1	1	3	6	2	4
	P15P	1	1	2	3	12	2	8
	P115P + P8P	1	1	2	1	4	1	4
	P115A	1	1	2	3	12	2	8
	P215	1	N/A	N/A	2	8	1	4
	A218	1	N/A	N/A	2	8	1	4
Point Concentric	PC5	1	2	4	3	12	2	8
	PC6	1	3	6	4	16	3	12
	PC8	1	2	4	3	12	2	8
	PC10	1	2	4	3	12	2	8
	PC12	1	2	4	3	12	2	8
Retired Products	Y18	4	3	3	3	3	2	2
	Y10(K)	4	4	4	4	4	4	4
	T21	2	1	2	1	2	N/A	N/A
	SX18A	3	4	4	4	4	3	3
	SX18P	2	4	8	4	8	3	6

** in brackets: Adamson recommends this cabinet count for maximum performance and in hot environments*
***: Only as mono hang (from one input)*
**** in brackets: used in FBF cardioid mode with 4x S10/IS10*