

Adamson PLM & Lake Handbook

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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 is reduced when using Adamson Linear Phase presets (FIR3), which combines two 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.

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 might 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.

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.

Select PLM product type:										
lake	10000Q	14000	20000Q	PLM+ D-Series	OEM		Exit			

2. In the left hand window, navigate to the Frame Presets folder contained in the load library. Double click to open the Frame Preset bank file and select all desired presets. You can select multiple using Ctrl-A, shift or the Select Multiple button.

aw Project Manager		-	×
F:\ LoadLibrary V4\Suitable for E-Series\FRAME PRESET\	Online Frames		
Computer Online Frames ADAMSON_E-Series_V4.4 PLI ADAMSON_E-Series_V4.4 PLI	Computer Conline Frames 20K44 20K44 20K44 20K44	01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 20 21	
FI F2 F3 F4 Fame	Select Set Frame Multiple re Password	F9	xit ≢10

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 **Prame**.

Ida Preset Manager			- • ×				
F:\ LoadLibrary V4\Suitable fo	r E-Series\FRAME PRESET\	Online Frames					
Computer Com	01 E15 V4.4 32dB	Computer Online Frames 20K44 20K44	01 E15 V4.4 32dB				
Plea 20K	se enter a new name for the frame	Ok Can	K UH E-Series V3%				
	15 E119 Xo60 V1.0 32d 16 E119 Xo80 V1.0 32d 17 E119 EF66 Xo60 V1.0 18 E119 EF66 Xo60 V1.0 19 E119 FBF Xo60 V1.0 20 E119 FBF Xo80 V1.0 21 E119 EB Xo60 V1.0 21 E119 E119 E119 EB Xo60 V1.0 21 E119 E119 E119 E119 E119 E119 E119 E1		15 E119 X060 V1.0 324 16 E119 X060 V1.0 324 17 E119 EF66 X060 V1.4 18 E119 EF66 X060 V1.4 19 E119 EF66 X060 V1.0 20 E119 FBF X060 V1.0 21 E119 FBF X060 V1.0 21 E119 FB X060 V1.0 21 F119 F119 F119 F119 F119 F119 F119 F1				
F2	Rename Frame Frame	Select Multiple PE Password	Exit				

2.3 Recalling Frame Presets

Recalling frame presets from PresetManager

1. Select the amplifier frame(s) and the preset you want to load.



To complete the process, press to load the selected preset on all selected frames.
 You can store complete frame settings by pressing . When multiple frames are selected these frame presets are stored per amplifier and might be different per amplifier while having the same name.

🔅 Loading frame presets only works on frames connected to your computer.

2.3 Recalling Frame Presets

Recalling 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 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

Recalling frame presets from Lake[™] Controller:

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



2. Select store/Recail then Presets. Select destination module, choose desired frame preset and either double click or select Recail 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 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 then then then the transmission. To label your page, click on the transmission click on the transmission of tra



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 and select your active network adapter. Place all online frames you wish to load in your workspace area.

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





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

Output Confi	guratior						
Source:	iule Outri	uts	Desti	nation:		- 0	Down Outputs
Via 🔽 (via	Power Out	outs Only)	λ	77	4	-2	Power Outputs
			Bri	dge	Bri	dge	
		- 1 🗖	1	2	3	4	
		- 2	1	2	3	4	
		- 3	1	2	3	4	
		—	1	2	3	4	
		_	1	2	3	4	
		_	1	2	3	4	
0/D: E15.V5 V		7 —		2	3	4	
OD. EIS VOX				2			
C/D: E15 V5.X	- MH	- 8		É		-	
		- 9		2	3	4	
		_	1	2	3	4	
		_	1	2	3	4	
		_	1	2	3	4	
Show Out	out Routir	ig on M <u>oc</u>	lule Re	call			

E-Series Routing

Source:		Desti	nation	_	_	
(via Power Outp	uts Only)		⇒≻	4	\Rightarrow	Power Outputs
		Bri	dge	Bri	dge	
	-	1	2	3	4	
	- 2 -	1	2	3	4	
	- 3 -	1	2	3	4	
	—	1	2	3	4	
	_	1	2	3	4	
	_	1	2	3	4	
	—	1	2	3	4	
C/D: S10 ARRA LF	- 8 -	1	2	3	4	
	- 9 -	1	2	3	4	
	_	1	2	3	4	
	_	1	2	3	4	
	_	1	2	3	4	
_						



2.4 Recalling Module Presets

4. Make sure the correct input source is applied to the module, in the levels page use the **Note** and select the input source.



5. To define each input type in the module page select and in the left hand column choose input cofiguration.



2.4 Recalling Module Presets



The * next to 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 band in the loudspeaker; For E-Series fullrange there will be 3 verification sweep for the LF, MF and HF. (I)S-Series fullrange will have two sweeps for LF and HF and 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 and select the LoadSmart tab.

	Config							lake
2	Primary Digital	Status	History	Events		rt Cont		
	SRC Digital Clo	MODULE					A- 3- 20K44 - E15 ND LF+0	
	Internal - 88.2kHz			LF-1 20K44:1	LF-1 20K44:2	MF 20K44:3		idout Ordout
Q	Input Configura # Auto Type 1 Auto Analog	No. of cabinets in parallel	3	3	3	3		liXvr ELevels
	2 Auto Analog 3 Auto Analog 4 Auto Analog	Total cable resistance (ohm)	0.36	0.36	0.36	0.36		artput Cutput Levels
Q	Dante Configur PLM20K44-a28d(Ambient temperature	20*C					
	Dante Disabled Receiver Subs(# Channel nam	Fingerprint label	E15				x	
	1 2	LoadSmart ca	able resistance o	alculator				
	3 4 5	Cable length (H)	Cable area (AVG)	Cable contact resistance (ohm)	Cable resistivity (nano ohm m)	Total cable resistance (ohm)		
	6 7 8	·			·			utput Cutput Dixvr Levels
Q	Breaker Emulal	LoadSmart						
	Nominal Current 32.0 A	Verify the loa	d Verify				*C *7 Meters Feet AWO mm*	utput Cutput
	Analog Iso-Floa Inputs 1-4 发							utput Cutput DXvr Levels
Sele	ct or adjust Mot							TILT V3.0
1	**	Home F1	Match F2	•	EXIT	E4	na re Mutes ré Events à Control de Reset re	Ft0

☆ In Lake™ Controller only 1 module or the entire system can be verified at once. To verify the entire system go to global control in the "All" page.

2.6 Preset Notes

In each frame preset folder of the Adamson load library you can find a spreadsheet containing info on the included frame presets. Below is a list of descriptions for abbreviations contained in the Preset List:

Abbreviation	Description
SPK	SpekTrix
UH	Underhang
Хо	Crossover
EF66(40)	End Fire at a spacing of 66"(40"), 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	175	139	115						
E15	175	277	175						
E218	160								
E219	190								
T21	120								
S10(n) / IS10(n)	196		136						
S119 / IS119	170								
S7	126		88						
IS7	179		124						
S118 /IS118	124								

(I)S119, (I)S118 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 8 S7 to 4 S118). 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 intended for use with other product families. Recommended ratio for E119 is 1:1.

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





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.

Levels E15 - PEQ1	E15 - GEQ3		lake
EO OVERLAY BYPASSED			[GROUP]
15dB —			
12dB -			
9dB			
- 6dB			
-			
3dB — -			
0dB		×	
-3dB	× ×		
- 648			
-			
-9dB			
-12dB			
-15dB 20Hz 31Hz 62Hz	125Hz 250Hz 500Hz 11Hz	' I I I I I 2kHz 4kHz	1 1 1 1 1 1 1 8kHz 16kHz 32kHz
	/		
(F)	5 IN 502		
Designer Mode: Select the EQ Overlav t	voe vou wish to add to a new tab		Network Offine
1 Home	F2 F3 F4 F6	EQ Ovly New Parametric EXIT EQ EQ	Graphic Band Level EQ EQ EQ EQ

Each filter added can be bypassed with the same technique. Filters can be deleted by dragging them up. 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 compensate 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 **Store Receil** button.

Levels	Group 1 - PEQ1									Prio U.s.
Frequency Lock	A/B Filter Edit									[GROUP] Group 1
12	12									
1648										
1248-										
948										
648 -										
249										
0:8										
-										
-348										
-6d8										
-948										
1040										
-1668										
C.WserstMari	olOneOrive - Adamson Systems Eng	ineering/Documents/Lake/LakeCor	ntroller_v7.0.6Modules and EQ C	verlays)Lake LoadLibrary 6.3	Suitable for ADAMSON lou	dspeakerslEQ OVERLAY	S V6.01			
		s IS-Series	S-Series		TILT -1 dB	TILT -2 0B				
Designer M	ode: WARNINGI There are no n	nodules assigned to this group	- tap Home>Groups to assig	n modules						Network Offine
1	Home Home	Recall As New	Recal	Store	New Store	Store/Recall EXIT			File Utilities	- Undo

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

Levels Group 1 - PEQ1 Group	1 - E15-Large Arra	٧\								Prio Usa
										[GROUP] Group 1
15dB										
1248 -										
-										
948 -										
348										
-			Gr	oup 1 - E15-	l arge Arra	/				
048				A ativ		/				
				Activ	/e					
-34B										
-										
-948-										
-12dB - Default low frequency compensation for 15 to 17	ADAMSON E15									
This EQ overlay must be recalled in a group as	igned to all Modules of the	a Array								
- 15dB C-WserstMariolOneDrive - Adamson Systems EngineeringU	Documents'iLake\LakeCont	oller_v7.0.5Modules and	EO Overlays/Lake LoadLibra	y 5.3/Suitable for ADAMSON lo	udspeakers\E0 OVERLWS\	5.0E-Series WRRAY SHAPIN	: : : 3E1ภ		1.1.1.1	1.1
	E15 - Medum Array V5.0	5 - ShortArray V5.0 A	···S-Large vayV5.0							
Designer Mode: WARNING! There are no modules	assigned to this group - Recal As	tap Home>Groups to a	issign modules	New	Store/Recall			Ein	1	Network Office
Home Home	New	Recal	Store	Store	EXIT			Utilities	·	Undo

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





3.2 Array Shaping



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

The standard E15 preset is the E15 Array preset and shall be loaded without Array Shaping Overlays when used with a 12-15 enclosure array.

Array Shaping Overlays - E12



E12 - Short Array (6-8 enclosures)





3.2 Array Shaping





- The standard E12 preset is the E12 Array preset and shall be loaded without Array Shaping Overlays when used with a 12-15 enclosure array.
- 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.

Array Shaping Overlays - S10



S10 - Compact Array(4 S10 stacked on 2 S119)



S10 - Short Array (4-6 enclosures)

3.2 Array Shaping



S10 - Large Array (More than 11 enclosures)

The standard S10 preset is the S10 Array preset and shall be loaded without Array Shaping Overlays when used with a 7-11 enclosure array.

Array Shaping Overlays - S7





- The standard S7 preset is the S7 Array preset and shall be used without Array Shaping Overlays when used with a 7 and more enclosure array.
- When using module or frame presets including the array shaping overlay for S7 or S10 the array shaping should not be loaded in a group. If loading the array shaping in a group please use the array preset to avoid loading the overlay two times.
- The Array Shaping Overlays for S10 can also be used for S10n, IS10 and IS10n. The array Shaping overlays for S7 can also be used for IS7.

3.3 Tilt Overlays

The 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 Tilt Array Shaping folder are labeled as 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 Tilt Array Shaping Overlays, follow the same instructions found in Section 3.2.

☆ The red line illustrates how the Tilt group affects modules assigned to the Tilt group. The 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

3.4 Overlay Store & Recall

In Lake[™] Controller *you* have 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 and navigate to where the overlay will be stored then press enter a name and save.

Select a group to recall the EQ overlay, press stores , 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 Store Recall



Storing a system file with online frames will remember which frame was used in your system at which position through MAC-Address. If recalling the file with different amps or amps on different positions you should recall the system file as a virtual system. This is described in section 4.2. Normal loading of the system file might lead to wrong data on amps.

File Management

4.2 System Files & Batch Replace

Loading system files allows you to prepare a system file including frame presets offline and loading it on your amps later with batch replace.

1. Store/Recall Navigate to Adamson system files folder in the Adamson load library.





Choose desired preset for the appropriate amplifier **Recall As** (repeat recall until virtual modules match desired amount of live modules)

You will be prompted to either recall on the same page, or a new page. Select same page.

2. Modules select a module, CopyPaste then Replace Assign ID# in the # column of live modules to match virtual modules then start the replace process (Start Replace)

Mair	n . (7																		lake
				intual PL	M.On MING		00000												
				-	Offline / Virtual Frames (Source)				Online Frames (Destination)										
				E15 LF	(#	Frame II	D	Frame Typ	pe	Frame Name		Frame ID	Frame Typ	pe	Frame Name				
				intual Pl		Virtual		PLM 20000	0 Q	E15)(24000016:ac6fe20	1 PLM 2000	00	E15				
				E	2	Virtual		PLM 20000	00	E15	2	bf000016:a561300	1 PLM 20000	00	E15				
				EISLE															
				NUT															
														K					
					Clear Dest	¥									Start Replace				
				ł	Enter the	destinati	tion frame r	iumber to i	match t	he offline fram	e(s) v	ou would like to repl	ice. Online fram	nes w	ithout a 🔊 🗊	1			
				l	destinati	on numb	er will be ig	nored dur	ring the	batch replace.					P				
Decigns																			
	a woue.	Copy) gets	eata h	an eren en e	oop - 193	orell with	tes uata I	Ormodul		ab filsebigor		Copy/Paste	Replace.		Complete		CT0 V2.6 NUF	0200 FLIX	200000
	and the	Home	FI	52	L ¢	opy	ES I	Paste F	-4	E		EXIT	Frame		Replace	Replace	F		Undo

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

Main	lake
20K44 A - EIS ND L 20K44 B - EIS ND H MOD. IN MUTE MOD. IN MUTE	

2. At the bottom of this page choose **Exercise** to launch the Events and Control page. Choose the Control tab.

Events Control Array Op	t.	
Global Power Control On Standby On: 0 Standby: 0	Global Dual Redundancy Control On Off On: 0 Off. 0 Offline: 1	Global Auto Power Down Control On Off On: 0 Off 1 n/a: 0 Timeout (minutes
Global Mute Control Module Inputs Muted: 0 Unmuted: 3 Module Outputs Muted: 0 UNMUTED UNMUTED Unmuted: 4 Power Channels Muted: 0 Unmuted: 4 Power Channels Muted: 0 Unmuted: 4	Global Dante Enabled Control On Off Off 1 48kHz 96kHz 96kHz 1 48kHz 0 Dante Device Name Copy Frame Label Frame Labels to Dante Device Name	Show Global Input Router Priority Control
Global Temperature Ambient temperature C F	Global Dante Transmit Enabled Control	Global Status Indicator
Global LoadSmart Verify the load	Global AES67 Enabled Control On: 0 Off: 1 Pending: 0 n/a: 0	Global IP Configuration Auto: All DHCP Auto: All DHCP: None Fixed: None
		<u>ب</u>

This tab allows you to control global settings for all frames connected to your Lake™ Controller.

Final 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.

 \therefore You can access the global controll page by using the shortcut CTRL + F9.