Modular Point Source Arrays & Subwoofers

User's Manual

CFX101LA - CFX101LA-8
Externally Powered

CF101LA-5 - CF101LA-5R - CF101LA-52R
Self-Powered - RHAON Empowered

CFX15S - CFX15S-8
Externally Powered

CF15S-5 - CF15S-5R
Self-Powered - RHAON Empowered

rh RENKUS-HEINZ

Introduction

Congratulations on your purchase of a Renkus-Heinz CF/CFX101LA series point source line array loudspeaker system. Your CF/CFX series loudspeaker has been designed to provide you years of trouble-free high performance listening pleasure. We hope you enjoy it.

Your CF/CFX101LA series loudspeaker was carefully tested and fully inspected before leaving our factory and should have arrived in perfect condition. Please carefully inspect your loudspeaker and its shipping carton for any noticeable damage and if any damage is found, immediately notify the shipping company.

Only the consignee may institute a claim with the carrier for any damage incurred during shipping. Be sure to save the carton and all packing materials for the carrier's inspection.

It is also a good idea to save the carton and packing material even though the loudspeaker arrived in good condition. If shipping the loudspeaker should ever be required, it should be shipped only in its original factory packing.

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Technical Support

If you run into any problems or have any questions about these products, please call our technical support staff at +1 949 588 9997 and ask the operator for technical support Call Monday through Friday from 8:30 AM to 5:00 PM Pacific time.

Modular Point Source Line Arrays

Designed for power, portability and versatility, CF101LA and CFX101LA modular point source line array systems from Renkus-Heinz are the ideal solution for today's small and mid-sized venues, including auditoriums, night clubs, theaters and houses of worship.

Individual full range cabinets can be used as a standalone system, either with or without an associated subwoofer. They can be flown or pole mounted on a matching subwoofer or standard loudspeaker tripod stand.

Each cabinet is provided with a multi-angle 35 mm pole socket that allows the cabinet's output to be aimed up or down or straight ahead.

The matching CF/CFX15S subwoofers are provided with a threaded pole socket to assure reliability. The length of the associated POLE-CF101 is easily adustable.

Suited equally to fixed installation or portable applications the full range cabinets offer consistent 90° horizontal and tight 15° vertical coverage. Individual full range cabinets can be stacked or arrayed with each cabinet increasing the vertical coverage by 15° degrees. Up to four full-range modules can be arrayed to provide a 90° by 60° coverage pattern, delivering more output and tighter vertical pattern control than a conventional single cabinet.

Every cabinet is equipped with rugged stacking / flying hardware that is easy to use; heavy duty metal joining bars provides metal-to-metal reliability.

To join two cabinets together, place one on top of the other and align the metal hardware channels. Remove the quick disconnect pins on the top cabinet and use the knurled knobs on the joining bars to slide them into the channels on the lower cabinet. (See Step 1)
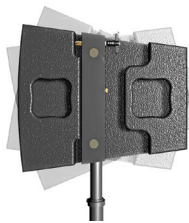
Then lock the cabinets together by reinserting the quick disconnect pins into the lower cabinet. (See Step 2). For more information on joining cabinets, please refer to page 5.

CF101LA/CFX101LA Array Module

CF15S/CFX15S Subwoofer

Multi Angle Pole Socket   POLE-CF101 Pole

RHANG101LA Flybar

Step 1   Step 2

Floor Mounted Systems

Cf101LA and CFX101LA point source line array modules and their matching CF15S and CFX15S subwoofers were designed for maximum flexibility. They can be used as a single cabinet or in muli-cabinet arrays and can be ground stacked, pole mounted or flown.

Each module adds 15 degrees of vertical coverage and additional level to the array.

Several typical arrangements are shown here.

As a general rule, pole mounted arrays should be limited to two CF/CFX101LA modules while ground stacks can include as many as 3 modules plus one or two matching subwoofers.

Safety considerations are always a factor in any venue and consideration must be given to the stability of any ground stack.

Ground Stack
with dual array modules and single subwoofer

Floor System
with single array module and subwoofer

Floor System
With dual array modules and dual subwoofers.

Flying Arrays

CF101LA and CFX101LA arrays fly as easily as they ground stack.
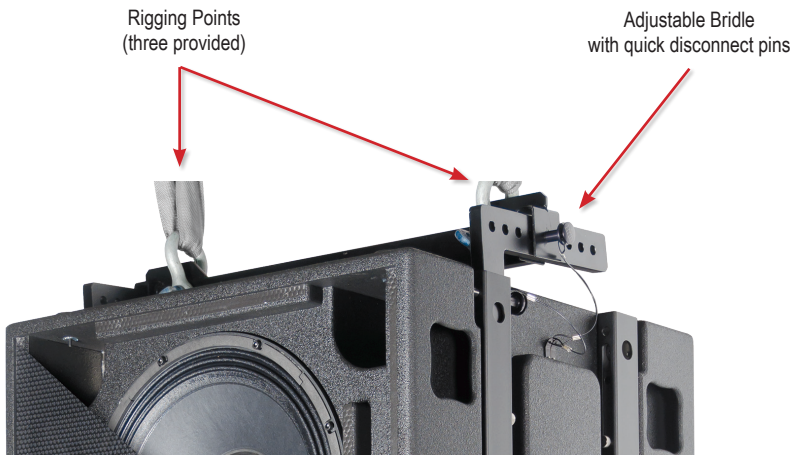
The heavy duty RHANG101LA Flybar supports arrays of up to 6 cabinets (4 array modules and 2 subwoofers). It attaches easily to the top cabinet using quick disconnect pins, whether the top cabinet is a line array module or a matching sub-woofer. The bridle design of the flybar allows easy adjustment of the arrays tilt allowing the array's sonic output to be directed onto the audience. See below for details.

Metric M10 attachment points are also provided on both the array modules and the subwoofer for use in permanent installations.

Arrays with 3 modules provide 45° vertical cover-age and 4 module arrays 60°. Horizontal cover-age remains constant at 90°.

Typical Array
With two array modules and one subwoofer

Rigging Points
(three provided)

Adjustable Bridle
with quick disconnect pins

Warning: Rigging loudspeakers is a serious undertaking that should be done only by qualified and experienced professionals. Check with an architect or structural engineer to verify any building attachment points. Renkus-Heinz is not responsible for any non Renkus-Heinz products or for any misuse of Renkus-Heinz products.

CF15S and CFX15S Subwoofer Assembly

CF15S and CFX15S Subwoofers are equipped with rubber feet that fit into matching cups in the top of the lower subwoofer when two units are stacked together. As a result when the subwoofers are flown in an array such as the one shown above, the subwoofer has to turned upside down. Otherwise the feet prevent the subwoofer and array module from being joined together. In these assemblies the subwoofer's lower joining bars are used to join the cabinets together. The top bars are not used.

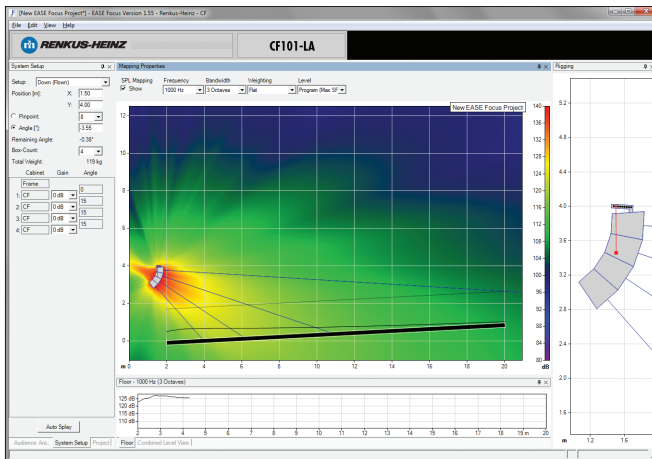

CF15S & CFX15s subwoofers
Must be flipped when flown

When subwoofers are ground stacked as shown on the previous page there is no need to turn one or both subwoofers upside down. In these assemblies the subwoofer's upper joining bars are used to join the subwoofer and array module together.

Note that the array modules are always attached to the front of the Subwoofers and not to the rear.

Important Mounting Instructions

To ensure proper air movement for the cooling of self-powered loudspeakers, we recommend a minimum of 2 to 3 feet of clearance in front of the loudspeaker and at least 3 to 4 inches of clearance from the sides and the rear cabinet surfaces.

EASE FOCUS

EASE FOCUS allows you to quickly and accurately determine the size of the array needed to cover the audience and its proper location and aiming angle.
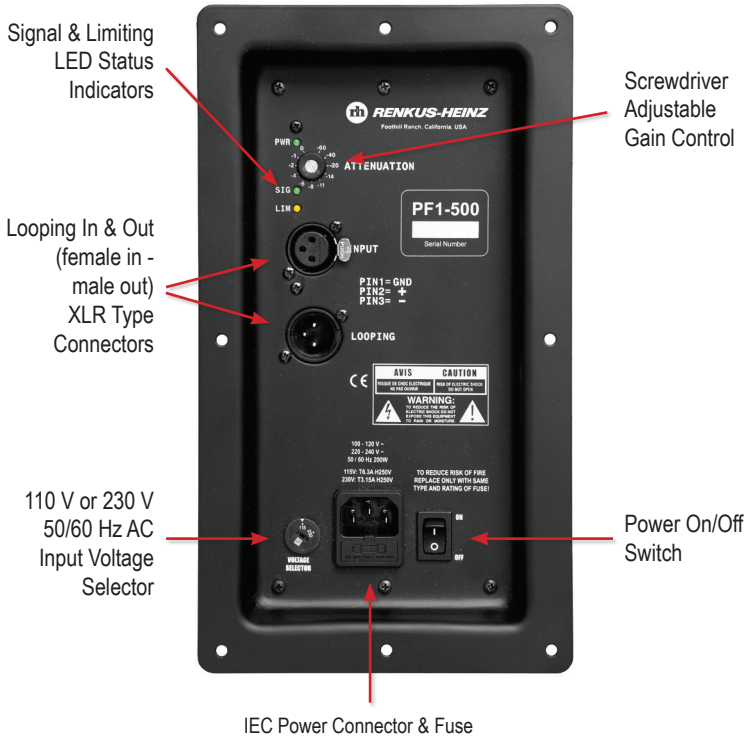
CFX101LA AND CF 101LA Connections

Screw Terminal Strip
Inputs

Looping In & Out
Neutrik 4-Pin Speakon Connectors

Your CFX101LA loudspeaker was shipped to you wired for fully passive operation using the internal crossover. It can be converted to bi-amplified operation by removing the connector plate from the cabinet and changing several internal connections. For detailed instructions, please refer to the Renkus-Heinz Loudspeaker User's manual, form RH508.

Signal & Limiting
LED Status
Indicators

Screwdriver
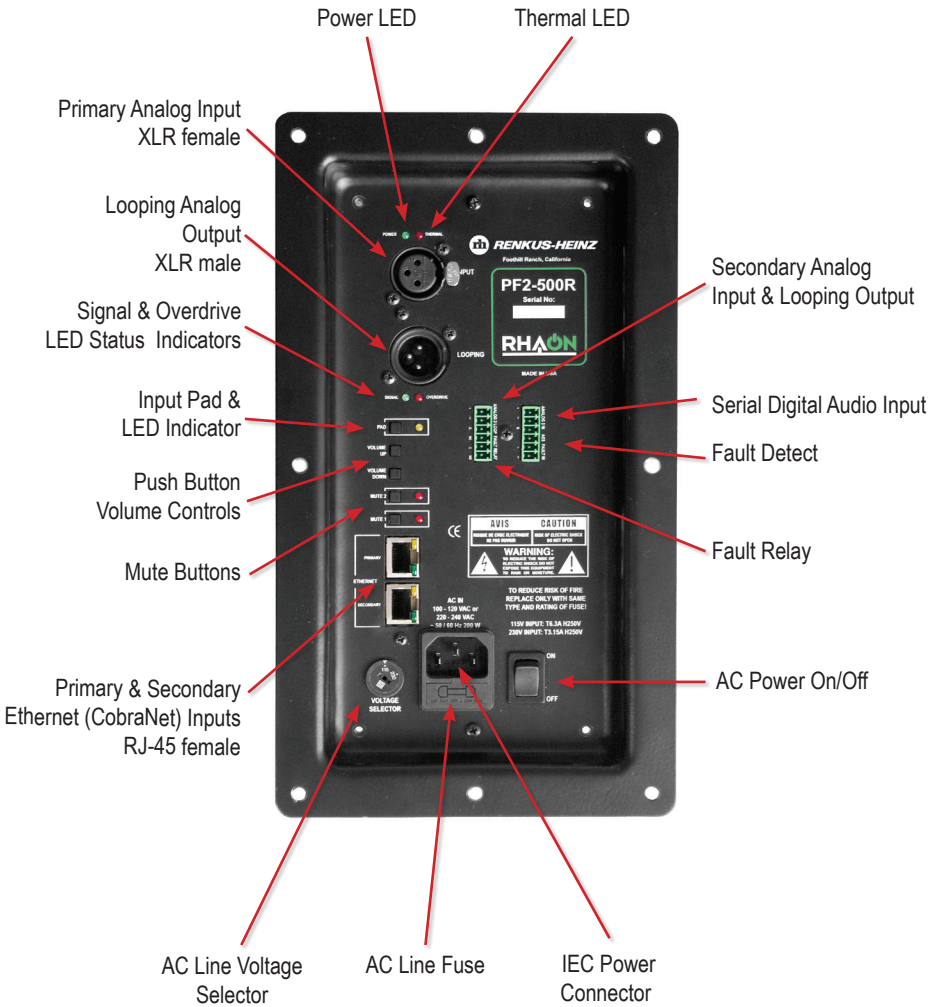Adjustable
Gain Control

Looping In & Out
(female in -
male out)
XLR Type
Connectors

110 V or 230 V
50/60 Hz AC
Input Voltage
Selector

Power On/Off
Switch

IEC Power Connector & Fuse

CF101LA-5R & C F101LA-52R RHAON Empowered Array Module Connections

Power LED

Thermal LED

Primary Analog Input
XLR female

Looping Analog
Output
XLR male

Signal & Overdrive
LED Status Indicators

Input Pad &
LED Indicator

Push Button
Volume Controls

Mute Buttons

Primary & Secondary
Ethernet (CobraNet) Inputs
RJ-45 female

Secondary Analog
Input & Looping Output

Serial Digital Audio Input

Fault Detect

Fault Relay

AC Power On/Off

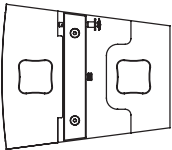AC Line Voltage
Selector

AC Line Fuse

IEC Power
Connector

The input panel shown below is for the PF2-500R digital bi-amplifier used in the CF101LA-52R
The input panel of the PF1-500R amplifier used in the CF101LA-5R is identical, except for having
only a single Mute button. For more detailed information, please refer to the Renkus-Heinz RHAON
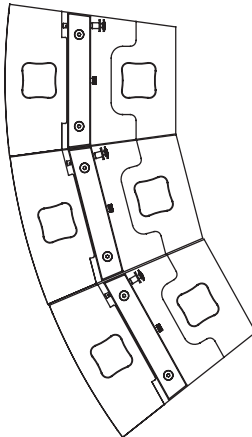User's Manual.

High Frequency Control Settings

Not all setups are identical and neither are all rooms. The high frequency level controls on the rear of each CF101LA and CFX101LA point source array module allow you to adjust the high frequency output of each module to compensate for the increased loss of high frequency energy from air loss over distance, for increased coupling between array modules at low frequencies and for varying room sizes and acoustics. They allow you to maintain the proper High/Mid/Low frequency balance throughout the listening area.
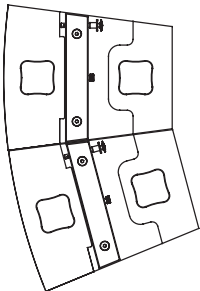

The control settings shown below are provided as guide lines to assist you in setup. They are not "hard and fast" settings that apply to every setup as no two setups are alike.
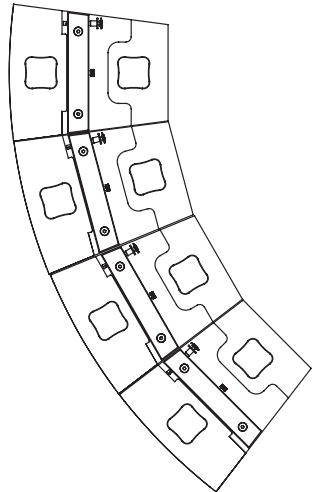

Set controls to Flat

Set all controls to + 9 dB

Set all controls to + 9 dB

Set all controls to + 6 dB

CFX101LA & CFX15S DSP Settings

Suggested DSP settings for various CFX101LA line array modules and CFX15S subwoofer combinations appear below and on the next page.

Note that these would not apply to the CF101LA-5R and CF101LA-52R which include built-in DSP.

ITEM	CFX101LA-8 WIRED AS PASSIVE *	CFX15SS-8 WIRED AS PASSIVE **
AMP GAIN FOR 1PC CFX101LA	0 dB	0 dB
AMP GAIN FOR 2PCS CFX101LA	0 dB	+6 dB
AMP GAIN FOR 3PCS CFX101LA	0 dB	+9 dB
OUTPUT DELAY	NONE	NONE
POLARITY	NORMAL	NORMAL
CROSSOVER		
CENTER FREQUENCY	50 Hz HP	120 Hz LP
TYPE	BUTTERWORTH	BUTTERWORTH
SLOPE	24 dB/ Oct	12 dB/ Oct
EQ #1		
CENTER FREQUENCY	1.5 kHz	NONE
BW	1.50	NONE
BOOST/CUT	-5 dB	NONE
EQ #2		
CENTER FREQUENCY	8.5 kHz	NONE
BW	0.4	NONE
BOOST/CUT	-3.0 dB	NONE
EQ #3		
CENTER FREQUENCY	16.0 kHz	NONE
BW	0.4	NONE
BOOST/CUT	+6 dB	NONE

* When the CFX101LA is being used with a CFX15S-8 subwoofer, delay the CFX101LA 2.7 ms.

** Do not bypass the passive crossover in the CFX15S-8, even when an external electronic crossover is used.

CFX101LA & CFX15S DSP Settings (Continued)

ITEM	CFX101LA-8 WIRED AS BI-AMP *		CFX15S-8 WIRED AS ACTIVE **	
	LF	HF		
AMP GAIN FOR 1PC CFX101LA	0 dB	-18 dB	0 dB	
AMP GAIN FOR 2PCS CFX101LA	0 dB	-12 dB	+6 dB	
AMP GAIN FOR 3PCS CFX101LA	0 dB	-9 dB	+9 dB	
OUTPUT DELAY	0.530mS	NONE	NONE	
POLARITY	NORMAL	NORMAL	INVERTED	
CROSSOVER				
CENTER FREQUENCY	50 Hz HP / 1.6 kHz LP	1.7 kHz HP	40 Hz HP	80 Hz LP
TYPE	BUTTERWORTH / LINKWITZ-RILEY	LINKWITZ-RILEY	BUTTERWORTH	BUTTERWORTH
SLOPE	24 dB/Oct	24 dB/Oct	24 dB/Oct	18 dB/Oct
EQ#1				
CENTER FREQUENCY	240 Hz	2.5 kHz	NONE	
BW	0.4	.35	NONE	
BOOST/CUT	-3.0 dB	-4 dB	NONE	
EQ#2				
CENTER FREQUENCY	570 Hz	3.5 kHz	NONE	
BW	0.4	.35	NONE	
BOOST/CUT	-3.0 dB	-4 dB	NONE	
EQ#3				
CENTER FREQUENCY	NONE	12 kHz	NONE	
BW	NONE	.3	NONE	
BOOST/CUT	NONE	+6 dB	NONE	
EQ#4				
CENTER FREQUENCY	NONE	16 kHz	NONE	
BW	NONE	.5	NONE	
BOOST/CUT	NONE	+9 dB	NONE	

* When the CFX101LA is being used with a CFX15S-8 subwoofer, delay the CFX101LA, 2.17 ms.

** When the CFX15S-8 is used in this fashion, its passive crossover needs to be bypassed.

Technical Specifications

CF/CFX101-LA

Sensitivity
CF101LA: 1.0 V for rated power output
CFX101LA & -8: 96 dB (1W/1m)

Max SPL: 126 dB peak

Dispersion: 90° Horizontal,15° Vertical

Freq. Resp: 60 Hz to 20 kHz

HF Drivers: Two 1" SSDCDXI-1730-8 HF
Neodymium drivers;
75 W RMS @ 8 Ohms,
150 W pgm each

LF Drivers:
CF101LA & 10" SSL10-10,
CFX101LA: Neodymium woofer,
250 W RMS @ 4 Ohms,
500 W pgm
CFX101LA-8 CFX101LA-8: 10" SSL10-8,
250 W RMS @ 8 Ohm,
500 W pgm

Crossover: 1700 Hz

Enclosure: Multi-ply hardwood,
perforated metal grille
Power
CF101LA: 115 V AC or 230 V AC
50/60 Hz
CFX101LA: 500 W pgm at 4 Ohms
CFX101LA-8: 500 W pgm at 8 Ohms

Finish: Black or white; custom color
optional

Hardware Four M10 attachment points
: Multi-angle pole socket
Integral flying hardware

Dimensions: 13" H x 23 3/4" W x 15" D
(33 cm x 60.3 cm x 38.1cm)
Weight
CF101LA-5 & -5R: 47.5 Lbs. (20.7 Kg) net
CF101LA-52R: 48.5 Lbs (22 Kg) net
CFX101LA & -8: 42 1/2 Lbs (19.3 Kg) net

CF/CFX15S

Sensitivity
CF15S-5 & -5R: 1.0 V for RPO
CFX15S & -8: 97 dB (1W/1m)

Max SPL
CF15S-5 & -5R: 127 dB peak
CFX15S & -8: 129 dB peak

Freq. Resp: 40 Hz to 120 Hz

LF Driver: RH model SSL15-20
CF15S: 15" Neodymium woofer,
400 W RMS @ 4 Ohms,
800 W pgm
CFX15S-8 RH model SSL15-17,
15" Neodymium woofer
400 W RMS @ 8 Ohms,
800 W pgm

Enclosure: 13-ply hardwood,
perforated metal grille

Finish: Black or white; custom color
optional
Power
CF15S-5 & -5R: 115 V AC or 230V AC
CFX15S: 800 W pgm at 4 Ohms
CFX15S-8: 800 W pgm at 8 Ohms

Hardware: 8-point univ. mtg. hdw.
(Metric M10 threads)
Threaded pole socket,
Integral flying hardware
Optional - heavy duty wheels

Dimensions: 19" H x 23 3/4" W x 22 1/2" D
(48.3 cm x 60.3 cm x 56.5 cm)

Weight
CF15S-5 & -5R: 97 Lbs (44 Kg) net
CFX15S: 92 Lbs (41.7 Kg) net

Associated Items: RHANG101LA Flybar
POLE-CF101 Mounting Pole

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