HR-Series

USER MANUAL

V.16.05

Lynx Pro Audio S.L.
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INTRODUCTION

To facilitate the correct and reliable use of the HR cabinets we have designed this instruction manual, please read it before proceeding to install the cabinet.

Please observe the technical data carefully and do not ignore the instructions included within this manual.

Manufacturer

LYNX Pro Audio S.L.
Calle 7 - Pol. Ind. Picassent
E-46220 Picassent (Valencia)

CE CERTIFICACTION, EUROPEAN PRODUCT

CONTENTS

1. SAFETY PRECAUTIONS

Please read the following information carefully and follow these safety precautions.

- Heavy equipment.
Apply back protection when using heavy cabinets. Avoid loading and unloading at heights.

- Hearing damage risk.
These systems can reproduce large quantities of sound pressure which can damage hearing. Take precautions if you are going to be near them for extended amounts of time and do not get too close.

- Hanging – Flying.
Do not hang the cabinets from the handles or any other part than the designated hanging point. When flying the cabinets never exceed the maximum safe working loads or ignore the instructions included within this manual. Rigging must be always carried out by professionals.

- Delicate Material.
Please ensure no foreign object or water enters the speaker. Only clean the unit with dry cloths. Do not use solvents.

- Fire risk.
Do not put naked flame, such as lighted candles, close or on top of the unit.

- Electromagnetic and interferente emissions.
Avoid placing objects which through electromagnetic waves can damage the unit, such as mobile phones, lap tops, magnetic strip cards etc.
This system complies with normatives EN 55103-1 (1)
EN 55103-2 (2)
(1) This device may not cause harmful interferences.
(2) This device may receive interference including interferences that may cause undesired working.

-IMPORTANT NOTE.
This Equipment must be used in accordance with these instructions and by trained professional personnel only. This equipment should not be used in places with extreme tropical climates. Don't expose this apparatus to extreme humidity and or temperature values.

2. CABINET CONECTIONS

2.1 Normative

The HR cabinets meet the following standards:

EN 55103-1:1996: Electromagnetic compatibility. Product family standard for audio, video, audio-visual and entertainment lighting control apparatus for professional use (-1 Emmision).

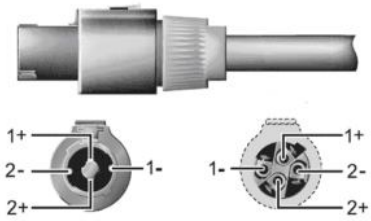
EN 55103-1:1996: Electromagnetic compatibility. Product family standard for audio, video, audio-visual and entertainment lighting control apparatus for professional use. (-2 Immunity)

EN 60065:2002: Audio, video and similar electronic apparatus. Safety requirements.

2.2 Connectors

The HR cabinets have a connection panel at the rear of the cabinet. This consists of 2 internally bridged Neutrik NL4-MP connectors which apply no process to the signal.

Note: If pins +-2 are not used they will still be internally bridged.



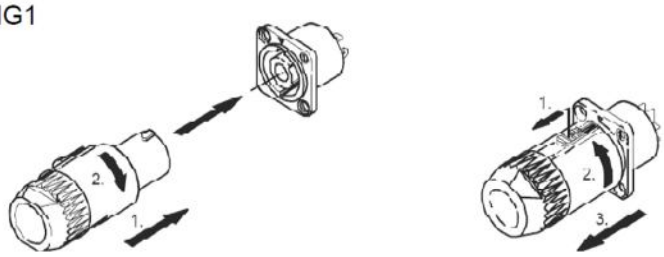
The following table indicates which pins are used for all the models, with passive and bi-amplified modes.

PASSIVE	Connector	Speakon connections	per box	Impedance	Rated Power	Program Power
HR-1564/7	NL4MP	± 1	2	8 ohms	700 W AES	1400 W AES
HR-1596/7	NL4MP	± 1	2	8 ohms	700 W AES	1400 W AES
HR-1264/7	NL4MP	± 1	2	8 ohms	700 W AES	1400 W AES
HR_1296/7	NL4MP	± 1	2	8 ohms	700 W AES	1400 W AES
HR-1564/5	NL4MP	± 1	2	8 ohms	500 W AES	1000 W AES
HR-1596/5	NL4MP	± 1	2	8 ohms	500 W AES	1000 W AES
HR-1264/5	NL4MP	± 1	2	8 ohms	500 W AES	1000 W AES
HR-1296/5	NL4MP	± 1	2	8 ohms	500 W AES	1000 W AES
HR-28	NL4MP	± 1	2	4 ohms	500 W AES	1000 W AES
HR-26	NL4MP	± 1	2	4 ohms	400 W AES	800 W AES
HR-218/36	NL4MP	± 1	2	4 ohms	3600 W AES	7200 W AES
HR-218/12	NL4MP	± 1	2	4 ohms	1200 W AES	2400 W AES
HR-215	NL4MP	± 1	2	4 ohms	2000 W AES	4000 W AES
HR-18/6	NL4MP	± 1	2	8 ohms	600 W AES	1200 W AES

BI-AMP	Connector	Speakon connections	per box	Impedance	Rated Power	Program Power
HR-1564/7	NL4MP	LF ± 1 / HF ± 2	2	8 ohms	700 W / 80 W	1400 W / 160 W
HR-1596/7	NL4MP	LF ± 1 / HF ± 2	2	8 ohms	700 W / 80 W	1400 W / 160 W
HR-1264/7	NL4MP	LF ± 1 / HF ± 2	2	8 ohms	700 W / 80 W	1400 W / 160 W
HR_1296/7	NL4MP	LF ± 1 / HF ± 2	2	8 ohms	700 W / 80 W	1400 W / 160 W
HR-1564/5	NL4MP	LF ± 1 / HF ± 2	2	8 ohms	500 W / 60 W	1000 W / 120 W
HR-1596/5	NL4MP	LF ± 1 / HF ± 2	2	8 ohms	500 W / 60 W	1000 W / 120 W
HR-1264/5	NL4MP	LF ± 1 / HF ± 2	2	8 ohms	500 W / 60 W	1000 W / 120 W
HR-1296/5	NL4MP	LF ± 1 / HF ± 2	2	8 ohms	500 W / 60 W	1000 W / 120 W
HR-28	NL4MP	LF ± 1 / HF ± 2	2	4 ohms	500 W / 70 W	1000 W / 140 W
HR-26	NL4MP	LF ± 1 / HF ± 2	2	4 ohms	400 W / 70 W	800 W / 140 W

To connect the speakon follow the instructions in fig. 1

FIG1



Insert the male speakon in its corresponding hole and turn right until it clicks. This fixes it safely and strongly and helps stop it being pulled out by mistake. At the other end of the cable connect in the same way to the amplifier channel.

2.3 Recommendations

Always ensure cables are in good condition. Know the recommended cable length and thickness according to the cabinet and quantity you are installing. An incorrect connection can affect the functioning of the system or even damage it. Cable thickness will vary according to cabinet impedance, quantity and distance. This is especially important when connecting Sub-bass cabinets.

As a guide, please see the following table which outlines the thickness depending on the power and length of cable.

Maximum recommended cable length for low impedance systems.						
Wire section	AWG number	Cable resistance in 100 meters	Maximum recommended length (in meters)			
			2Ω	4Ω	8Ω	16Ω
13.3 mm²	6	0.25 ohm	24	57	122	253
6.63 mm²	8	0.49 ohm	12	28	61	126
5.26 mm²	10	0.62 ohm	10	23	48	100
3.31 mm²	12	0.99 ohm	6	14	30	63
2.08 mm²	14	1.57 ohm	4	9	19	40
1.31 mm²	16	2.49 ohm	2	6	12	25
0.82 mm²	18	3.98 ohm	2	4	8	16
0.52 mm²	20	6.28 ohm	1	2	5	10
0.33 mm²	22	9.89 ohm	1	1	3	6

Bear in mind Ohm ratings on the amplifiers used to power the cabinets. For example, 2 ohm amplifier configurations are not recommended due to the excessive power from the amp output.

Never connect more cabinets than recommended in parallel. With parallel connections, the total impedance can be calculated by dividing the impedance of 1 cabinet by the number connected.

3. CABINET INSTALLATION

3.1 Mounting advices

The HR cabinets are designed to be used in all kind of fixed installations.

Cabinets must be installed and suspended by professional installers.

Never place the safety of personnel at risk. Always check the accessories, slings etc are in good condition and the suspension point is secure and free of excess weight, vibration, etc. Be careful where the cabinets are suspended from.

All responsibility lies with the installation company.

3.2 Coverage change with the rotatable Horn

Many HR cabinets enable the horn to be rotated offering further coverage options. The rotatable horn feature enables the installer to also set the cabinet up horizontally whilst maintaining the horn features such as horizontal and vertical coverage. This is helpful in installs with low ceilings or where esthetically the cabinet looks better horizontally.

The following HR cabinets have rotatable horns:

HR-1564/7 (60º x 40º)

HR-1596/7 (90º x 60º)

HR-1264/7 (60º x 40º)

HR-1296/7 (90º x 60º)

HR-1564/5 (60º x 40º)

HR-1596/5 (90º x 60º)

HR-1264/5 (60º X 40º)

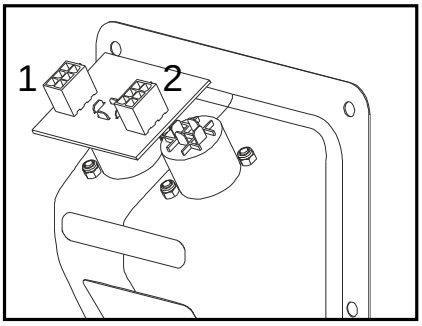
HR-1296/5 (90º x 60º)

HR-28 (90º x 60º)

To turn the horn the user must first remove the cabinet grill, unscrew the horn, rotate it 90º and screw it back in. Just be sure to maintain the connection and put the grill back on.

3.3 Mode passive or bi-amp

All the HR cabinets are supplied from the factory in passive mode. To change from passive to bi-amp mode is very simple, you only have to unscrew the connector pannel located at the rear of the cabinet and change the cable from the PASSIVE plug to the ACTIVE plug. These plugs are marked on the circuit board.



Change the cable from one plug to the other and screw the connector pannel again. That's all.

You will have the cabinet ready in bi-amp mode, with pin ± 1 connected to Low Frequencies and pin ± 2 connected to High Frequencies.

NOTE: The bi-amp mode works without the internal crossover so without its protection for the speakers.

3.4 Installation accessories

The HR cabinets are designed to be used in installations and the full range cabinets come with rigging points so that they can be easily installed. To fix the cabinets to a wall or to hold them from the ceiling is very easy using some simple accessories:

AGR-10
Eye bolt for all the full range HR cabinets:

SC-FC1
Install stud for HR-1564/7 , HR-1596/7 , HR-1264/7 and HR-1296/7

SC-FC2
Heavy duty stud for HR-1564/7 , HR-1596/7 , HR-1264/7 and HR-1296/7

HBR-28 and HBR-26
Horizontal bracket for HR-28 or HR-26

3.5 Acoustical Prediction software: Rainbow

To be able to view and design system set-ups Lynx Pro Audio offer Rainbow, a prediction software which can be downloaded free of charge from the Lynx Pro Audio website.

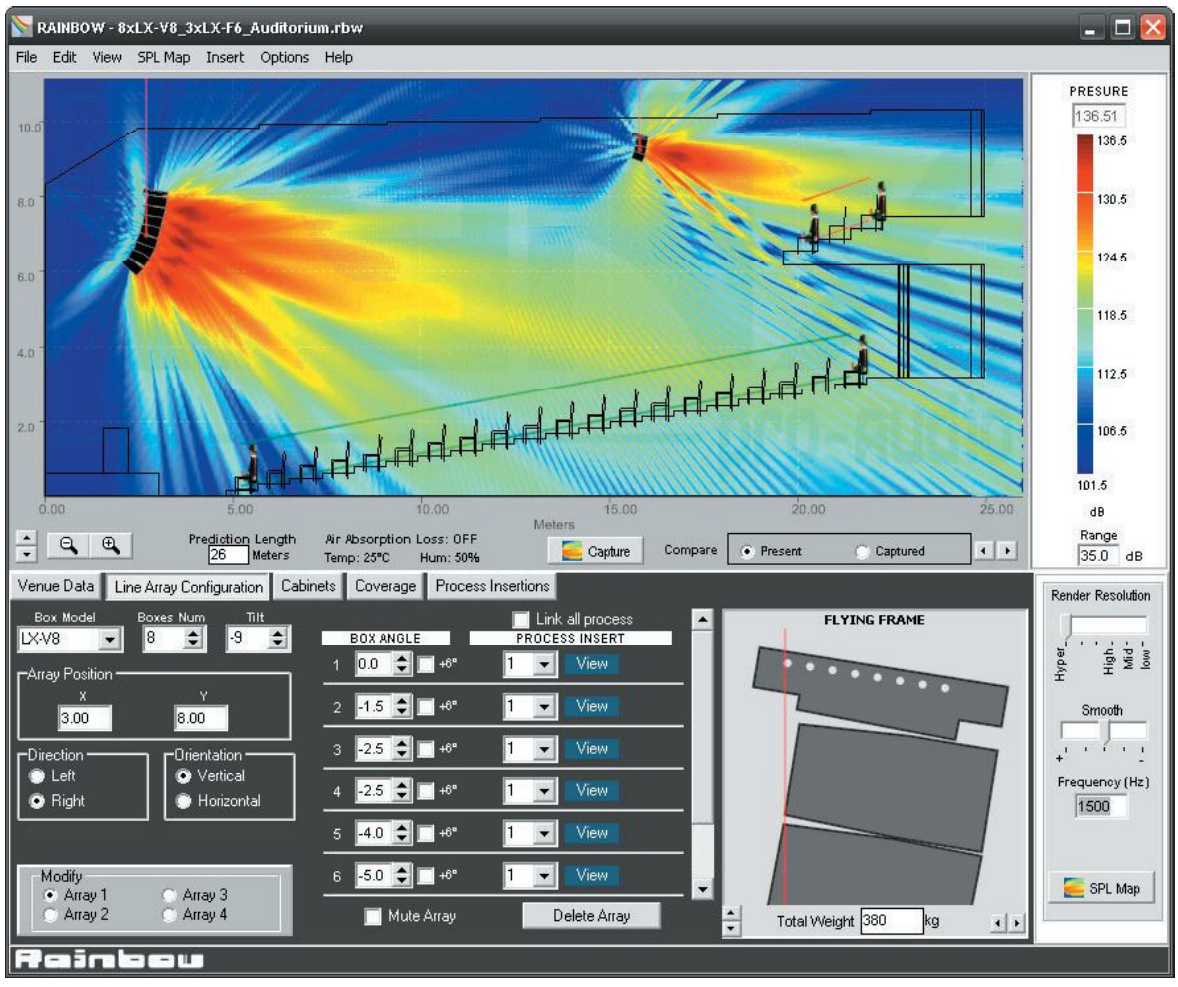
Just go to the support section and click on software: www.lynxproaudio.com/home/support/software

Thanks to the RAINBOW software, you will be able to “virtually” determine the acoustical response of one or various cabinets at the same time.

Based on polar response measurements, taken meticulously with a 360º coverage both in vertical and horizontal, the Rainbow software is able to calculate the SPL response including the interaction between them taking into account the magnitude and phase response, in order to enable the user to correct cancellations and even
to create them if the acoustical design so requires.

Rainbow is very easy to use and offers a very intuitive design, multitool interface and on-line updatable data base. The Rainbow software has been designed by and for sound technicians. Its aim is to help installers and users of LYNX products.

This software is able to import WMF Vector Files with technical drawings and insert them directly into the prediction window and thus enabling real measurement predictions. This also helps to determine dead zones and obtain the maximum performance from each of the cabinets installed.



4. TECHNICAL DATA

In the following pages you can see the technical specifications of all the HR cabinets, model per model.

HR-1564/7 and HR-1596/7

Components	LF: 15". 3.5" aluminium voice coil, waterproof front side cone treatment, neodymium magnet	Rated Power (AES)	Passive mode: 700 W (1400 W program, 2800 W peak) Bi- Amp LF: 700 W (1400 W program, 2800 W peak) Bi-Amp HF: 80 W (160 W program, 320W peak)
	HF: 1.4" Exit compression Driver, 2.5" aluminium voice coil, Titanium diaphragm	Crossover	Bi-Amp / Passive (Selectable)
		Nominal Impedance	8 Ohms Passive / Biamp LF 8 Ohms, HF 8 Ohms.
Frequency Range	58Hz – 20 KHz (-10dB)	Connectors	2 x Neutrik Speakon NL4MP
Frequency Response	64Hz – 18 KHz (± 3dB)	Finish	High resistant water-based black paint
Sensitivity	Passive Mode: 94 dB (1W@1m)	Material	15 mm Premium birch plywood
Max. SPL	Passive Mode: 123dB – 129dB Peak Bi-Amp LF: 126dB – 132dB Peak Bi-Amp HF: 127dB – 133dB Peak	Dimensions (H x W x D)	790 x 444,5 x 541 mm
Coverage	Constant directivity horn (Rotatable) 90º x 60º (HR-1596/7) , 60º x 40º (HR-1564/7)	Weight	32 Kg (70.5 lbs)

HR-1564/5 and HR-1596/5

Components	LF: 15", 2.5"voice coil, Malt Cross Cooling System	Rated Power (AES)	Passive mode: 500 W (1000 W program, 2000 W peak) Bi- Amp LF: 500 W (1000 W program, 2000 W peak) Bi-Amp HF: 60 W (120 W program, 240W peak)
	HF: 1" Exit compression Driver, 1.75"aluminium voice coil	Crossover	Bi-Amp / Passive (Selectable)
		Nominal Impedance	8 Ohms Passive / Biamp LF 8 Ohms, HF 8 Ohms.
Frequency Range	58Hz – 20 KHz (-10dB)	Connectors	2 x Neutrik Speakon NL4MP
Frequency Response	63Hz – 18 KHz (± 3dB)	Finish	High resistant water-based black paint
Sensitivity	Passive Mode: 96 dB (1W@1m)	Material	15 mm Premium birch plywood
Max. SPL	Passive Mode: 123dB – 129dB Peak Bi-Amp LF: 125dB – 131dB Peak Bi-Amp HF: 126dB – 132dB Peak	Dimensions (H x W x D)	790 x 444,5 x 541 mm
Coverage	Constant directivity horn (Rotatable) 90º x 60º (HR-1596/5) 60º x 40º (HR-1564/5)	Weight	30 Kg (66 lbs)

HR-1264/7 and HR-1296/7

Components	LF: 12". 3.5" aluminium voice coil, waterproof front side cone treatment, neodymium magnet	Rated Power (AES)	Passive mode: 700 W (1400 W program, 2800 W peak) Bi- Amp LF: 700 W (1400 W program, 2800 W peak) Bi-Amp HF: 80 W (160 W program, 320W peak)
	HF: 1.4" Exit compression Driver, 2.5" aluminium voice coil, Titanium diaphragm	Crossover	Bi-Amp / Passive (Selectable)
		Nominal Impedance	8 Ohms Passive / Biamp LF 8 Ohms, HF 8 Ohms.
Frequency Range	59Hz – 20 KHz (-10dB)	Connectors	2 x Neutrik Speakon NL4MP
Frequency Response	65Hz – 18 KHz (± 3dB)	Finish	High resistant water-based black paint
Sensitivity	Passive Mode: 94 dB (1W@1m)	Material	15 mm Premium birch plywood
Max. SPL	Passive Mode: 123dB – 129dB Peak Bi-Amp LF: 125dB – 131dB Peak Bi-Amp HF: 127dB – 133dB Peak	Dimensions (H x W x D)	705 x 377 x 495 mm
Coverage	Constant directivity horn (Rotatable) 90º x 60º (HR-1296/7) 60º x 40º (HR-1264/7)	Weight	26 Kg (57 lbs)

HR-1264/5 and HR-1296/5

Components	LF: 12", 2.5" voice coil, Malt Cross Cooling System	Rated Power (AES)	Passive mode: 500 W (1000 W program, 2000 W peak) Bi- Amp LF: 500 W (1000 W program, 2000 W peak) Bi-Amp HF: 60 W (120 W program, 240W peak)
	HF: 1" Exit compression Driver, 1.75" aluminium voice coil	Crossover	Bi-Amp / Passive (Selectable)
		Nominal Impedance	8 Ohms Passive / Biamp LF 8 Ohms, HF 8 Ohms.
Frequency Range	60Hz – 20 KHz (-10dB)	Connectors	2 x Neutrik Speakon NL4MP
Frequency Response	65Hz – 18 KHz (± 3dB)	Finish	High resistant water-based black paint
Sensitivity	Passive Mode: 94 dB (1W@1m)	Material	15 mm Premium birch plywood
Max. SPL	Passive Mode: 121dB – 127dB Peak Bi-Amp LF: 124dB – 130dB Peak Bi-Amp HF: 126dB – 132dB Peak	Dimensions (H x W x D)	705 x 377 x 495 mm
Coverage	Constant directivity horn (Rotatable) 90º x 60º (HR-1296/5) , 60º x 40º (HR-1264/5)	Weight	25 Kg (55 lbs)

HR-28

Components	LF: 2 x 8", 2" aluminium voice coil, hexacone cone	Rated Power (AES)	Passive mode: 500 W (1000 W program, 2000 W peak) Bi- Amp LF: 500 W (1000 W program, 2000 W peak) Bi-Amp HF: 70 W (140 W program, 280W peak)
	HF: 1" Exit compression Driver, 1.75" aluminium voice coil, Polyester diaphragm	Crossover	Bi-Amp / Passive (Selectable)
		Nominal Impedance	4 Ohms Passive / Biamp LF 4 Ohms, HF4 Ohms.
Frequency Range	54Hz – 20 KHz (-10dB)	Connectors	2 x Neutrik Speakon NL4MP
Frequency Response	60Hz – 18 KHz (± 3dB)	Finish	High resistant water-based black paint
Sensitivity	Passive Mode: 93 dB (1W@1m)	Material	15 mm Premium birch plywood
Max. SPL	Passive Mode: 120dB – 126dB Peak Bi-Amp LF: 120dB – 126dB Peak Bi-Amp HF: 125dB – 131dB Peak	Dimensions (H x W x D)	666 x 279.5 x 298 mm
Coverage	90º x 60º (Rotatable)	Weight	17 Kg (37 lbs)

HR-26

Components	LF: 2 x 6.5", 2" voice coil	Rated Power (AES)	Passive mode: 400 W (800 W program, 1600 W peak) Bi- Amp LF: 400 W (800 W program, 1600 W peak) Bi-Amp HF: 70 W (140 W program, 280W peak)
	HF: 1" Exit compression Driver , 1.75" aluminium voice coil, PM-4 polymer diaphragm	Crossover	Bi-Amp / Passive (Selectable)
		Nominal Impedance	4 Ohms
Frequency Range	72Hz – 20 KHz (-10dB)	Connectors	2 x Neutrik Speakon NL4MP
Frequency Response	78Hz – 18 KHz (± 3dB)	Finish	High resistant water-based black paint
Sensitivity	Passive Mode: 90 dB (1W@1m)	Material	15 mm Premium birch plywood
Max. SPL	Passive Mode: 117dB – 122dB Peak Bi-Amp LF: 119dB – 125dB Peak Bi-Amp HF: 125dB – 131dB Peak	Dimensions (H x W x D)	249 x 568 x 252 mm
Coverage	80º H x 60º V Constant directivity horn	Weight	15 Kg (33 lbs)

HR-218/36

Components	2 x 18", 4" tetracoil dual voice coil	Rated Power (AES)	3600 W (7200 W program, 14400 W peak)
		Crossover	Active
		Nominal Impedance	4 Ohms
Frequency Range	29Hz – 200Hz (-10dB)	Connectors	2 x Neutrik Speakon NL4MP
Frequency Response	34Hz – 200Hz (± 3dB)	Finish	High resistant water-based black paint
Sensitivity	103 dB (1W@1m) π	Material	18 mm Premium birch plywood
Max. SPL	139 dB / 145 dB Peak	Dimensions (H x W x D)	585 x 1080 x 781 mm
Coverage	Omnidirectional	Weight	82 Kg (180 lbs)

HR-218/12

Components	2 x 18", 3" copper voice coil	Rated Power (AES)	1200 W (2400 W program, 4800 W peak)
		Crossover	Active
		Nominal Impedance	4 Ohms
Frequency Range	40Hz – 200Hz (-10dB)	Connectors	2 x Neutrik Speakon NL4MP
Frequency Response	46Hz – 200Hz (± 3dB)	Finish	High resistant water-based black paint
Sensitivity	105 dB (1W@1m) π	Material	18 mm Premium birch plywood
Max. SPL	136 dB – 142 dB Peak	Dimensions (H x W x D)	585 x 1080 x 624 mm
Coverage	Omnidirectional	Weight	68 Kg (150 lbs)

HR-215S

Components	LF 2 x 15" transducers	Rated Power (AES)	2000 W (4000 W program, 8000 W peak)
		Crossover	Active
		Nominal Impedance	4 Ohms
Frequency Range	30 Hz – 160 Hz (-10dB)	Connectors	2 x Neutrik Speakon NL4MP
Frequency Response	35 Hz – 150 Hz (± 3dB)	Finish	High resistant water-based black paint
Sensitivity	100 dB (1W@1m) π	Material	18 mm Premium birch plywood
Max. SPL	133 dB – 139 dB Peak	Dimensions (H x W x D)	644 x 463 x 600 mm
Coverage	Quasi Omnidirectional	Weight	59 Kg (130 lbs)

HR-18/6

Components	1 x 18", 3" copper voice coil	Rated Power (AES)	600 W (1200 W program, 2400 W peak)
		Crossover	Active
		Impedance	8 Ohms
Frequency Range	40 Hz – 200 Hz (-10dB)	Connectors	2 x Neutrik Speakon NL4MP
Frequency Response	46 Hz – 200 Hz (± 3dB)	Finish	High resistant water-based black paint
Sensitivity	101 dB (1W@1m) π	Material	18 mm Premium birch plywood
Max. SPL	129 dB – 135 dB Peak	Dimensions (H x W x D)	585 x 540 x 624 mm
Coverage	Omnidirectional	Weight	32 Kg (70.5 lbs)

CE

DECLARATION OF CONFORMITY

LYNX Pro Audio S.L.
Calle 7 - Pol. Ind. Picassent
E-46220 Picassent (Valencia)

Lynx Pro Audio S.L. declares that HR series are in conformity with the following EC directives:

Low Voltage Directive	2006/95/EC
Electromagnetic Compatibility EMC	2004/108/EC
RoHS Directive	2002/95/EC

In accordance with Harmonized European Norms:

EN 60065:2002	Audio, video and similar electronic apparatus. Safety requirements
EN 55103-1:1996	Electromagnetic compatibility. Product family standard for audio, video, audiovisual and entertainment lighting control apparatus for professional use. Part 1: Emission.
EN 55103-2:1996	Electromagnetic compatibility. Product family standard for audio, video, audiovisual and entertainment lighting control apparatus for professional use. Part 2: Immunity.
ADP series models:	**HR-1564/7 HR-1596/7 HR-1264/7 HR-1296/7 HR-1564/5 HR-1596/5 HR-1264/5 HR-1296/5 HR-28 HR-26 HR-218/36 HR-218/12 HR-215S HR-18/6**

WEEE Declaration: Electrical and electronic equipment must be disposed of separately from normal waste at the end of its operational lifetime. Please dispose of this product according to the respective national regulations or contractual agreements. If there are any further questions concerning the disposal of this product please contact Lynx Pro Audio S.L.

LYNX PRO AUDIO GUARANTEE

Lynx products are guaranteed against every kind of manufacturing fault 2 year after the date of sale. When products are under guarantee, the repairing and the free supplying of the device parts in order to correct any kind of defect are guaranteed by Lynx Pro Audio S.L. In the case that the product could not be returned to the factory for checking and repairing, Lynx Pro Audio S.L. would supply all the necessary parts.

Lynx Pro Audio S.L. is not responsible for any damage or defect caused during the transport or caused by an undue or improper handling y a non-authorized person during the life of this guarantee.

All our products undergo rigorous tests and quality controls. We guarantee the characteristics described here within and their quality against any fabrication defect.

The user loses all warranty rights if he incorporates or carries out any modification to the product, if he uses it outside of the stated safe working loads or does not secure the system properly using all the pins in their corresponding holes.