

Delta Series

OPERATING MANUAL AND USER GUIDE

Delta-12 Delta-15 Delta-12M Delta-15M
Delta-215 Delta-15B Delta-18B Delta-218B

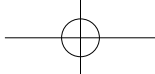


www.wharfedalepro.com

IMPORTANT WARNINGS & SAFETY INSTRUCTIONS

1. READ ALL INSTRUCTIONS – carefully and become familiar with the features and functions of these products before operating them.
2. RETAIN THESE INSTRUCTIONS – for future reference.
3. COMPLY WITH ALL WARNINGS – All warnings and instructions for this product should be adhered to.
4. USE WITH AMPLIFIERS – In order to avoid damage to drivers and other equipment, it is advisable to establish and follow a routine for powering up and powering down a sound system. With all system components connected, turn on source equipment (mixers, signal processors, record and playback units, etc.) BEFORE powering up amplifiers. Transient voltages from powering up source equipment can damage speakers if amplifiers are already turned on. Make sure that amplifier volumes are set to their minimum settings and power up any system amplifiers LAST. It is recommended that all system components be allowed to stabilize for several seconds before any source signals are introduced or level setting adjustments are made. Similarly, when shutting systems down, turn all amplifiers off first, before powering down any other system components.
5. CABLES – Do not use shielded or microphone cables for connection between amplifiers and speakers. Use only approved speaker cables with proper connectors.
6. CAUTION – These professional loudspeaker systems are capable of generating very high sound pressure levels. Use care with placement and operation to avoid exposure to excessive volume levels. Permanent hearing damage can result when operated to extreme levels.
7. SERVICE – There are no user serviceable parts inside this product. Users should not attempt to service this product. Warranty nullification could result if this is attempted.
8. RIGGING - SUSPENDING - MOUNTING - Rigging suspending or mounting of speaker systems can expose members of the public to serious health risks and even death.

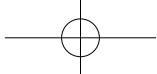
UNDER NO CIRCUMSTANCES ATTEMPT TO RIG, SUSPEND OR OTHERWISE MOUNT THESE SPEAKERS UNLESS YOU ARE FULLY QUALIFIED AND CERTIFIED TO DO SO BY RELEVANT LOCAL, STATE AND NATIONAL AUTHORITIES. ALL RELEVANT SAFETY REGULATIONS MUST BE FOLLOWED. IF YOU ARE NOT PROPERLY QUALIFIED OR DO NOT KNOW OF PERTINENT REGULATIONS, CONSULT QUALIFIED PERSONNEL FOR ADVICE.



Delta Series

TABLE OF CONTENTS

Important Warnings & Safety Instructions.....	1
Introduction.....	3
Models/Features	4
Installation.....	5
Delta 12/12M/15/15M/215 Bi-Amp Wiring	6
Delta 12/12M/15/15M/215 Fullrange Wiring	7
Delta 15B/18B Fullrange Wiring	8
Delta 15B/18B Bi-Amp Wiring.....	9
Delta Series Suggested Network Settings	10
Rigging/Suspending	11
Block/Wiring Diagrams	12
Dimensonal Drawings	19
Specifications	23
Warranty	26



INTRODUCTION

Wharfedale Pro Delta Series loudspeakers are the result of many years of experience in the use, design and manufacture of professional loudspeaker products. We take great pride in engineering and building every Wharfedale Pro loudspeaker and would like to thank you for entrusting us with your sound.

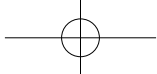
The new Delta Series builds on the solid reputation of its predecessors the LX and DLX Series, both huge successes on a global scale.

The Delta Series has been designed to deliver excellent performance, build quality and reliability in a format that is suitable for both fixed installations and touring applications.

High output, low distortion cast frame woofers with 3" voice coils are used in all full-range models; 2" titanium compression drivers are coupled to 90°x45° elliptical waveguides for smooth dispersion. All subwoofers use 4" voice coils.

Comprehensive rigging points are provided for use in flown applications, so Delta is equally at home in a wide variety of fixed installation and touring applications. Rhino Rock™, our new texturised composite finish is used in all models. This new finish combines the great look of a painted finish with the durability of a carpet covered enclosure, giving you the best of both worlds. In addition Rhino Rock™ helps to reduce cabinet resonances and improve sound quality. The Delta Series is constructed with internally braced plywood and features dual angle pole mounts to ensure that your sound is aimed directly at the audience.

All components are designed in house and built from the ground up in Wharfedale's own vertically integrated factory, providing the consumer with world class performance and unparalleled value.



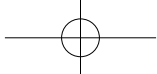
Delta Series

MODELS

- ◆ Delta 12 - Passive Loudspeaker
- ◆ Delta 12M - Passive Stage Monitor
- ◆ Delta 15 - Passive Loudspeaker
- ◆ Delta 15M - Passive Stage Monitor
- ◆ Delta 215 - Passive Loudspeaker
- ◆ Delta 15B - Passive Subwoofer
- ◆ Delta 18B - Passive Subwoofer
- ◆ Delta 218B - Passive Dual Chamber Subwoofer

FEATURES

- ◆ High power, low distortion cast frame woofers
- ◆ 1.4" exit, 2" titanium diaphragm compression drivers
- ◆ Externally switchable fullrange/bi-amp operation
- ◆ Externally switchable discrete/parallel operation (218B only)
- ◆ 90°x45° elliptical waveguides
- ◆ Dual angle pole mount receptacles
- ◆ Plywood construction with internal bracing
- ◆ 4-way high impact plastic carry handles
- ◆ Rhino Rock™ texturised composite finish
- ◆ Parallel Speakon inputs
- ◆ Through outputs on "M" models
- ◆ High-pass outputs on 15B and 18B

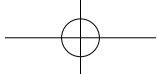


INSTALLATION

- Before attempting to install a Delta Series loudspeaker system please refer to the important warnings and safety instructions. Only qualified personnel should install a loudspeaker system.

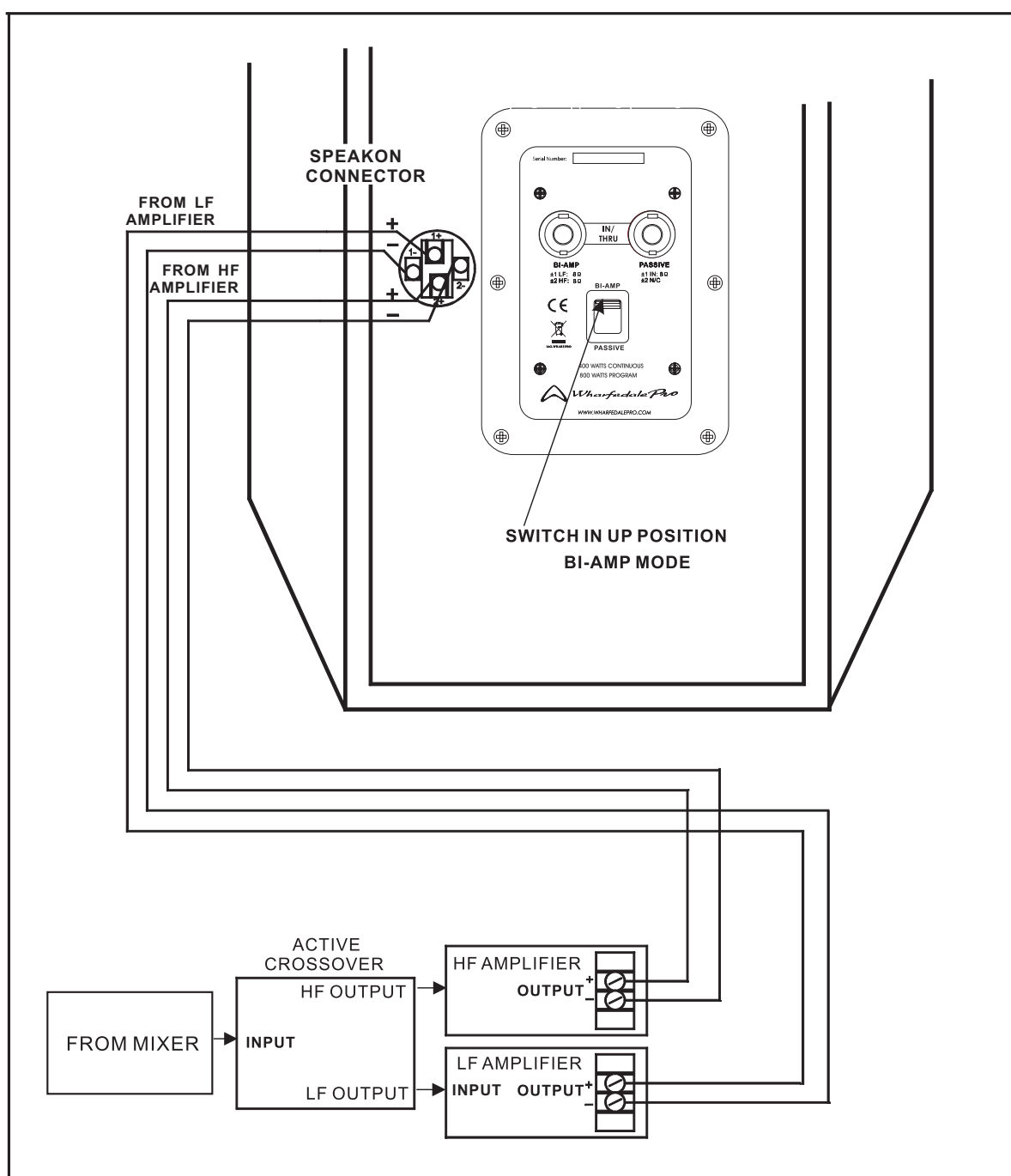
Improper installation of a loudspeaker system can cause serious harm and even death if correct procedure is not followed. Anyone attempting installation assumes all liability arising from such use.

- Bi-amp switching - ensure that the internal passive network selector is in the correct position. When using an external active network select the bi-amp setting. Failure to do this can result in damage to the drivers of your Delta Series loudspeakers.
- Models with dual angle pole mount sockets (Delta 12 and Delta 15) have an angled socket that angles the cabinet down by 10°. This allows more sound to be aimed directly at the audience and less at the ceiling, reducing early reflections. Please ensure that the correct socket is used for each speaker.

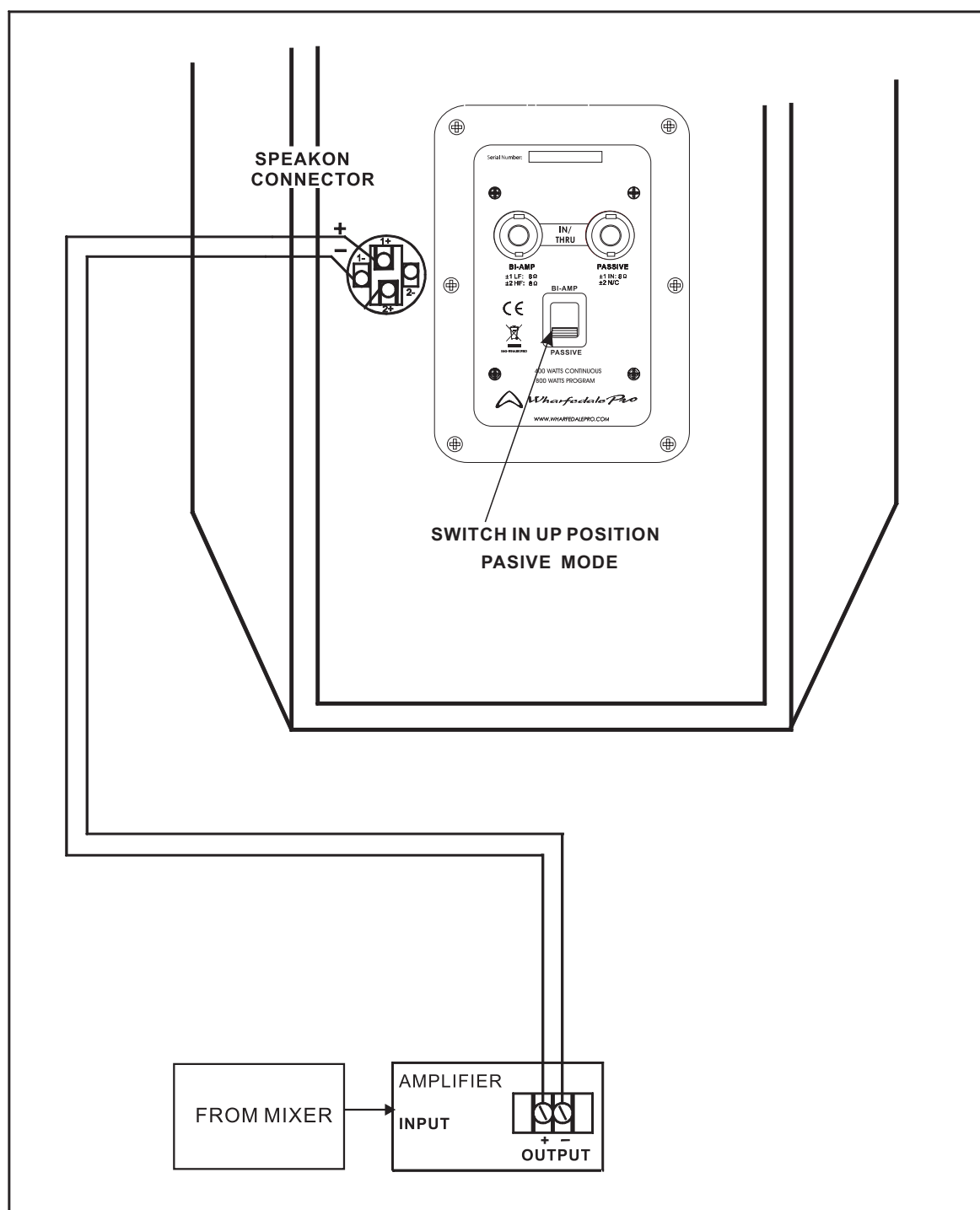


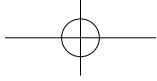
Delta Series

DELTA 12/12M/15/15M/215 BI-AMP WIRING



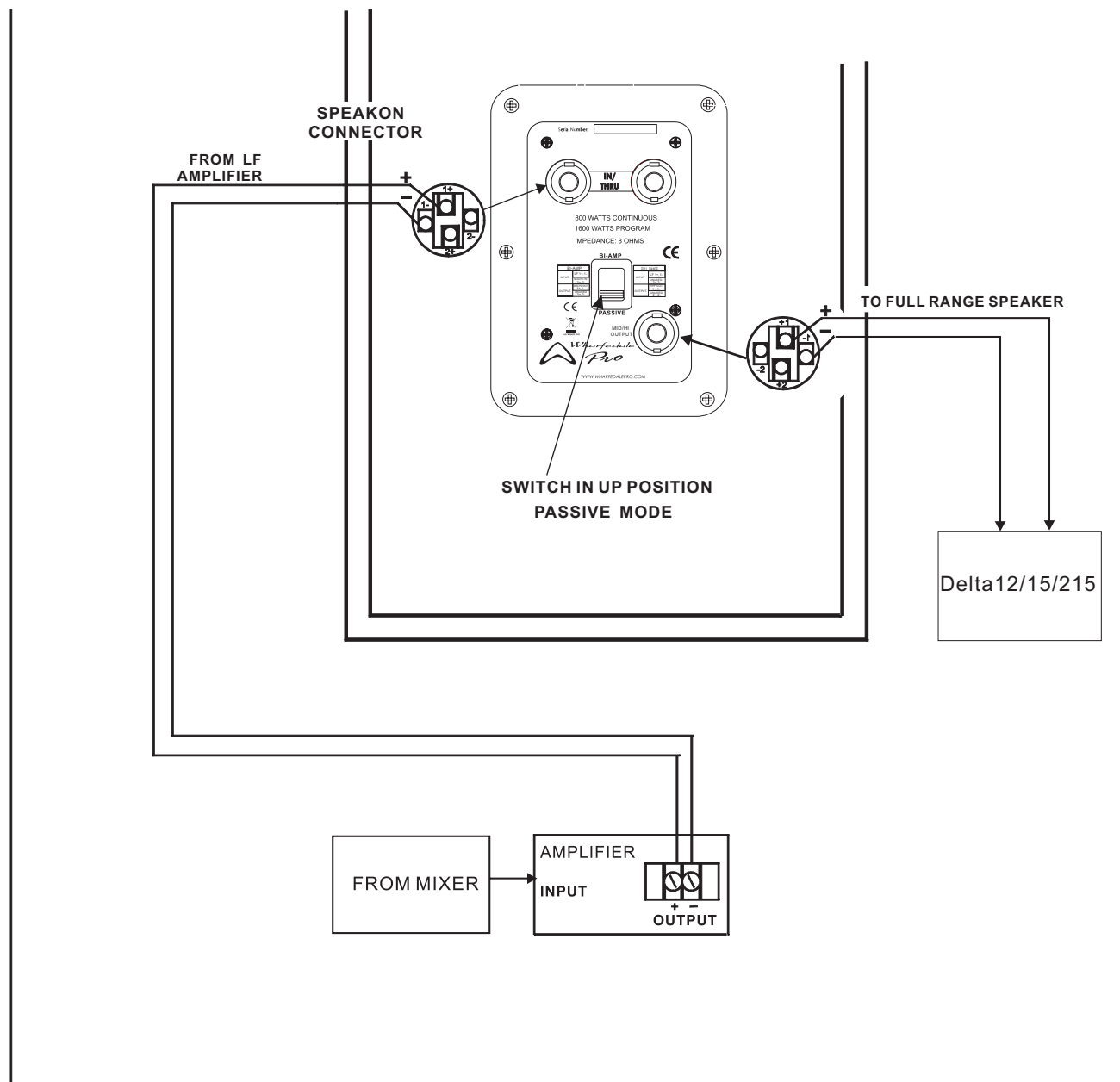
DELTA 12/12M/15/15M/215 FULLRANGE WIRING



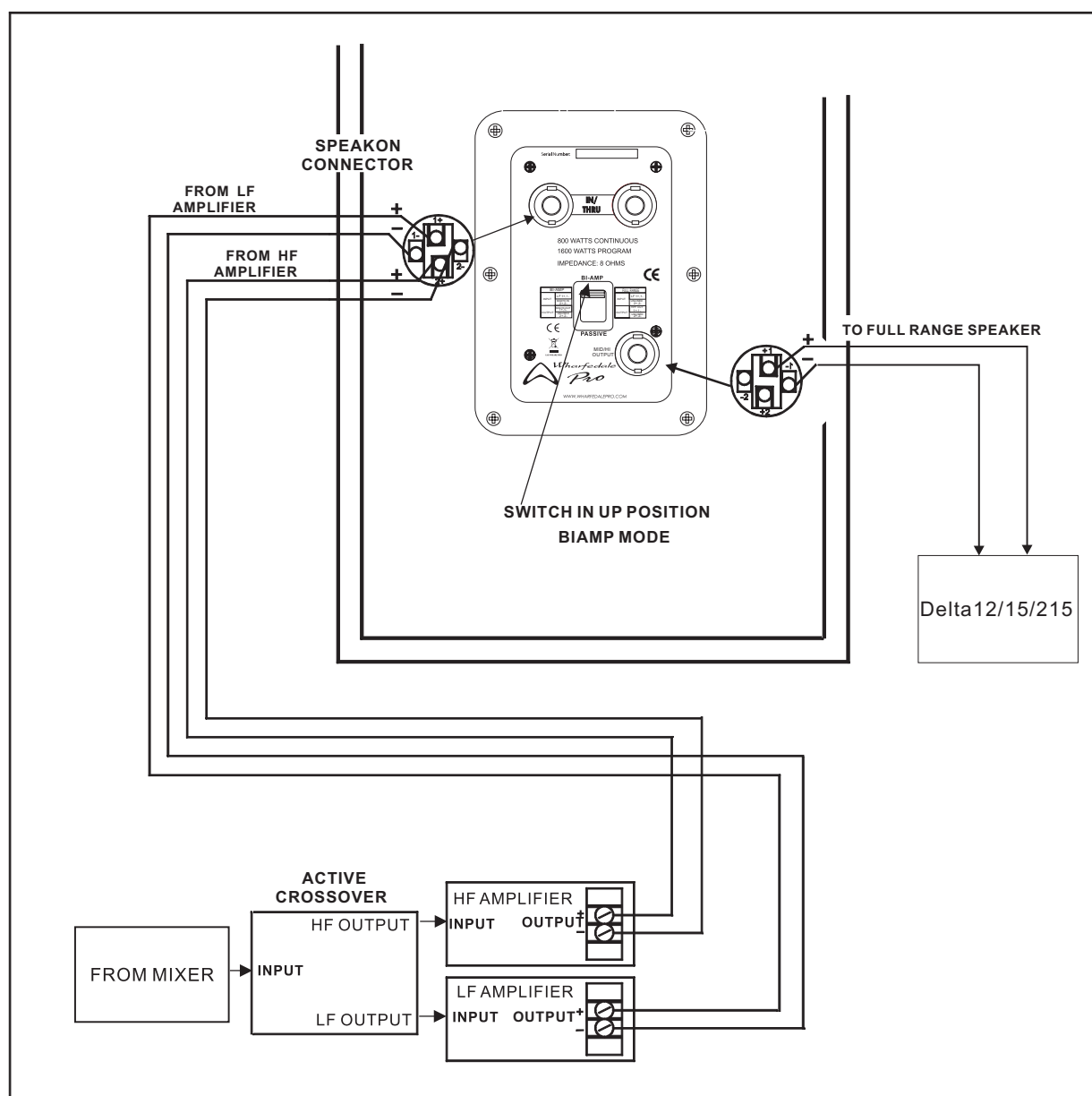


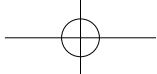
Delta Series

DELTA 15B/18B FULLRANGE WIRING



DELTA 15B/18B BI-AMP WIRING

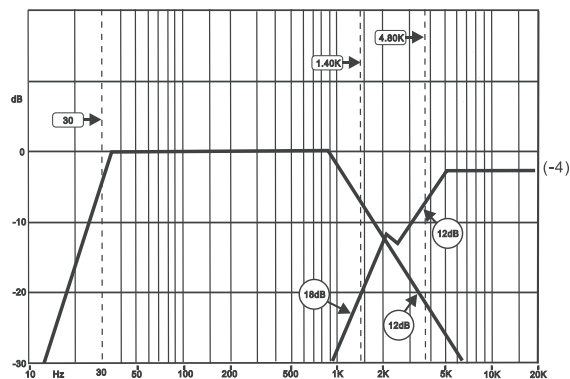




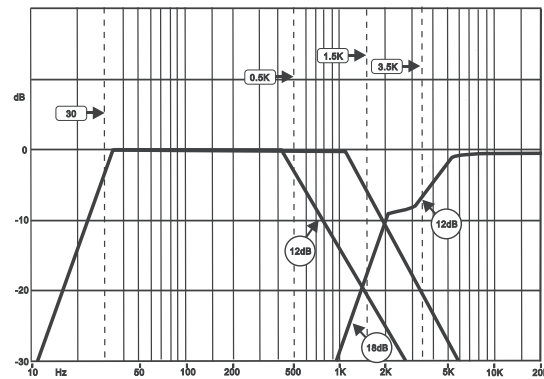
Delta Series

DELTA SERIES SUGGESTED NETWORK SETTINGS

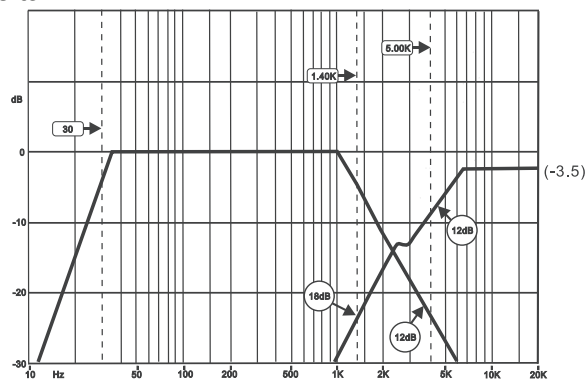
Delta-12



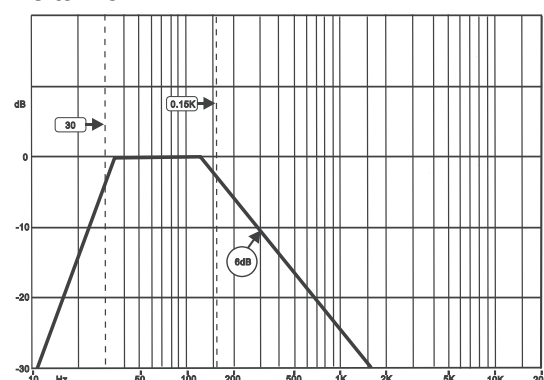
Delta-215



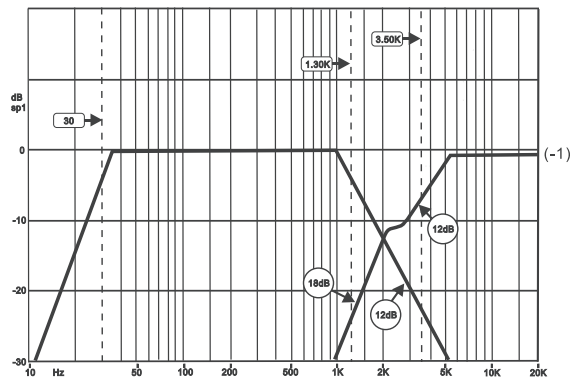
Delta-12M



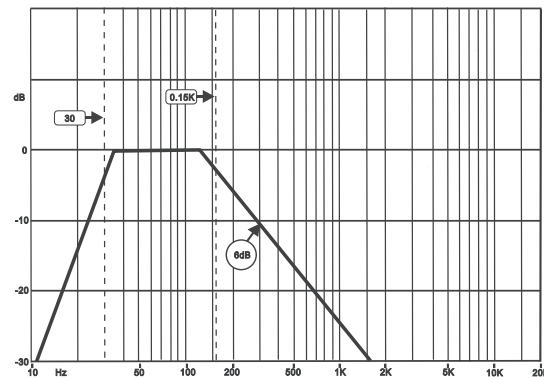
Delta-15B



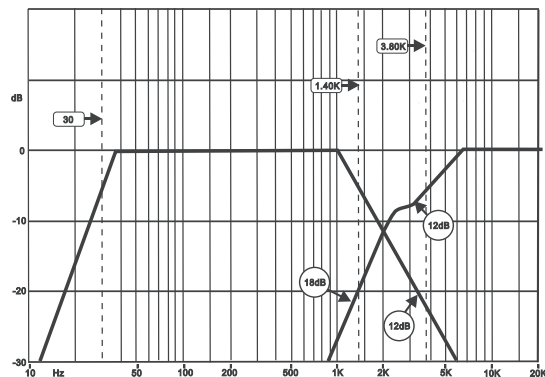
Delta-15



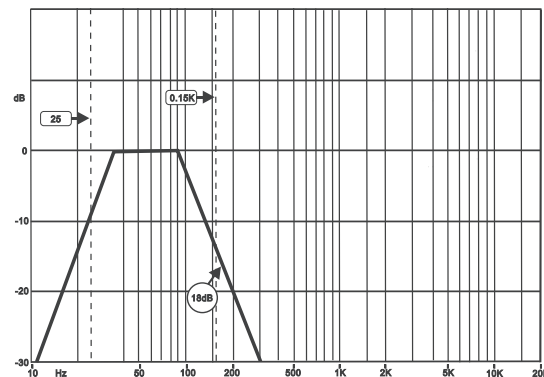
Delta-18B



Delta-15M



Delta-218B



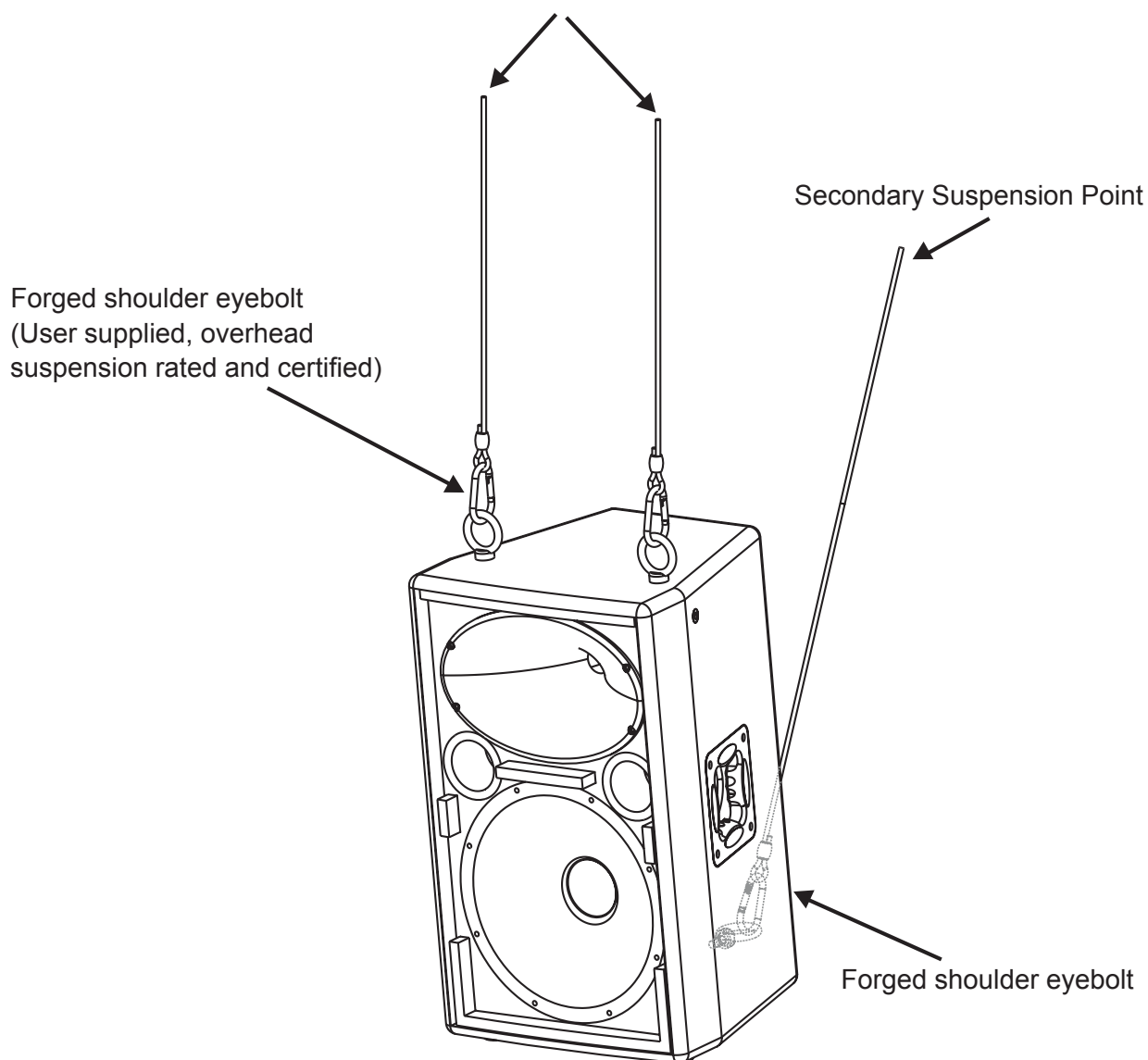
RIGGING/SUSPENDING

Using Shoulder Eyebolts

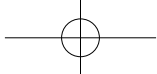
Always apply the load to the bolt along the plane of the eye. For long term installation use a thread-locking compound. Do not attempt to bend or otherwise deform any rigging hardware.

Please refer to the important safety warnings before you consider suspending any loudspeakers.

Each primary load bearing suspension point shall be rated for the total load.
(A minimum 5:1 Design Factor or Local Standard should be observed, whichever is greater)



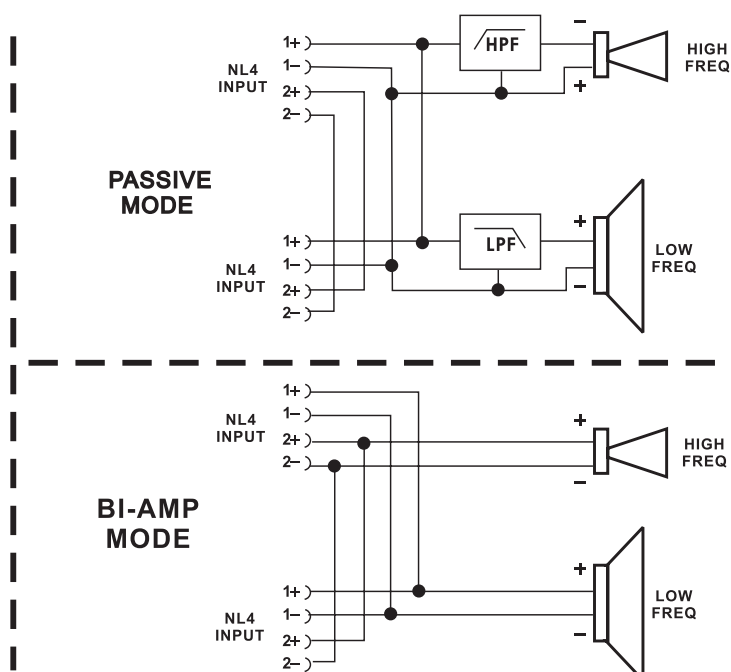
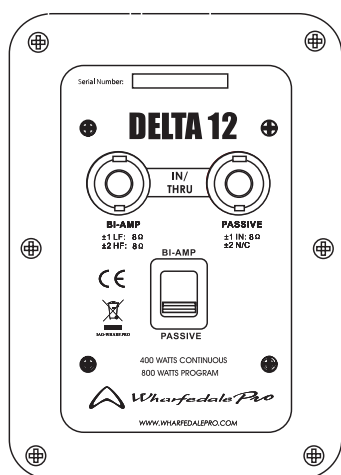
Working load limits: No more than four (4) high (vertical)
The four (4) high vertical specification represents a static ratio of 7:1



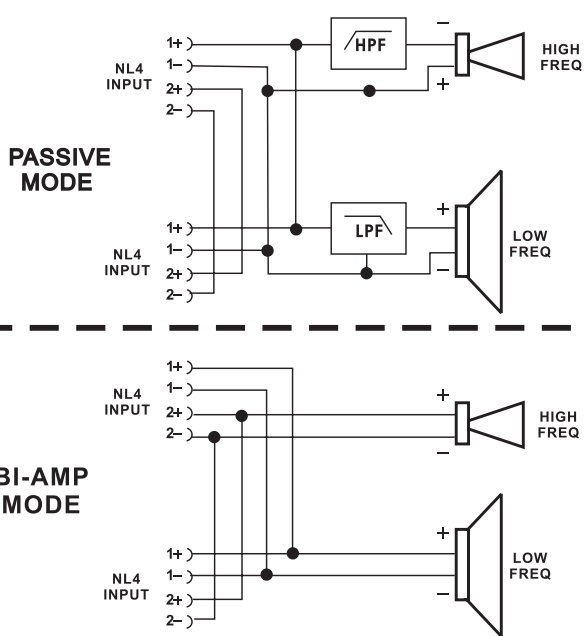
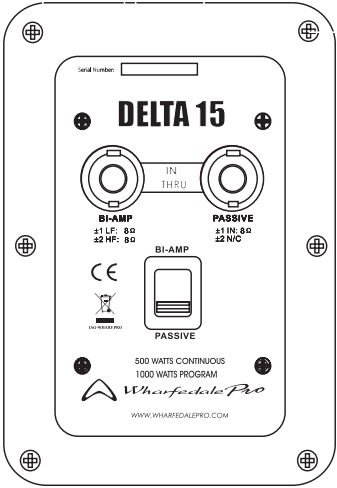
Delta Series

BLOCK/WIRING DIAGRAMS

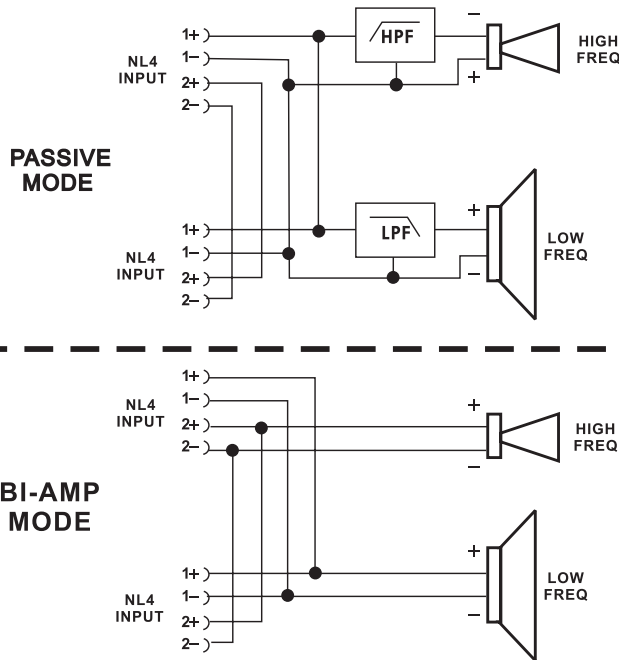
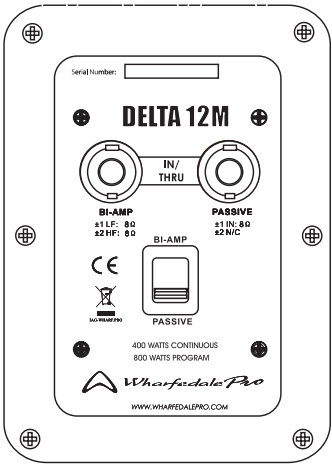
DELTA-12
Crossover Block Diagram

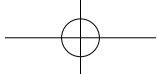


DELTA-15
Crossover Block Diagram



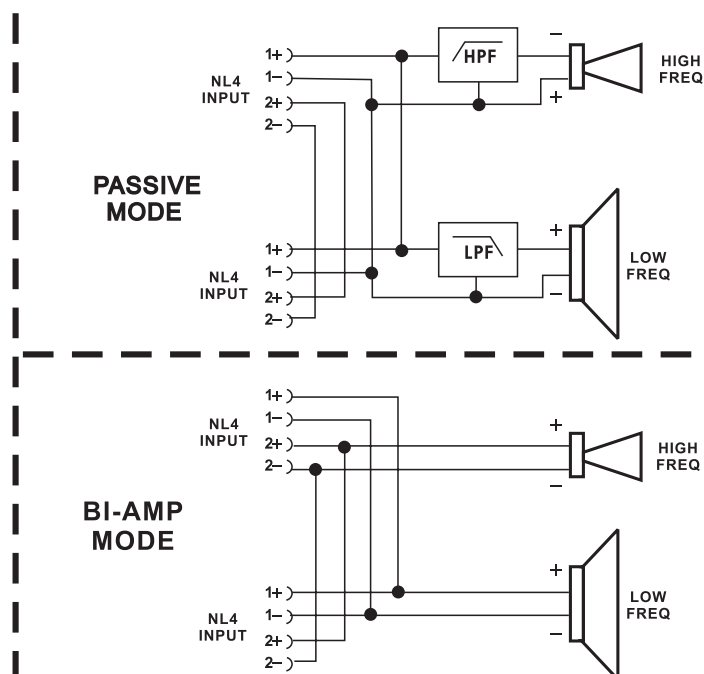
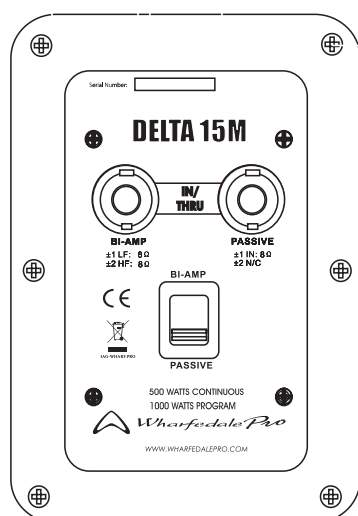
DELTA-12M
Crossover Block Diagram



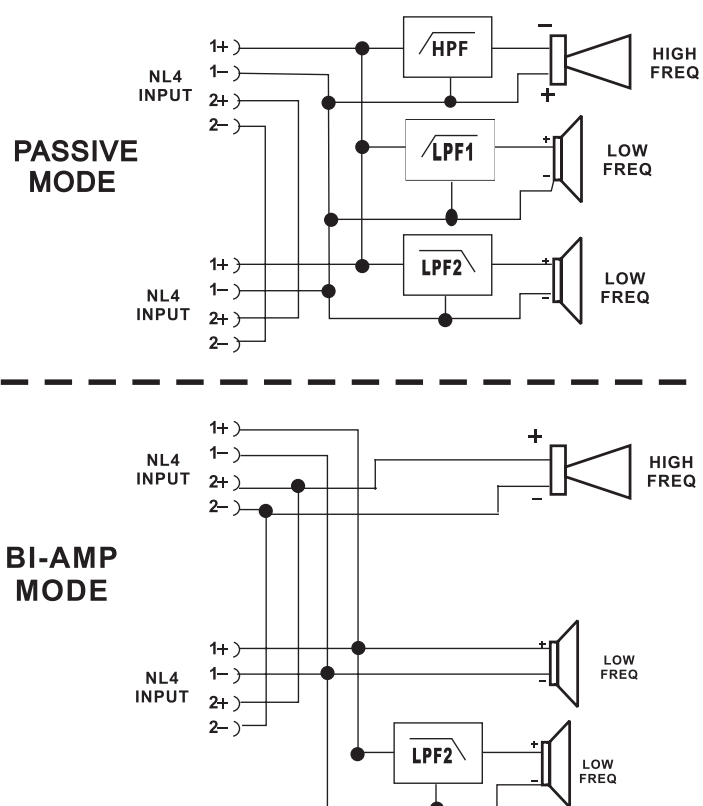


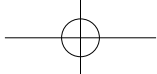
Delta Series

DELTA-15M Crossover Block Diagram



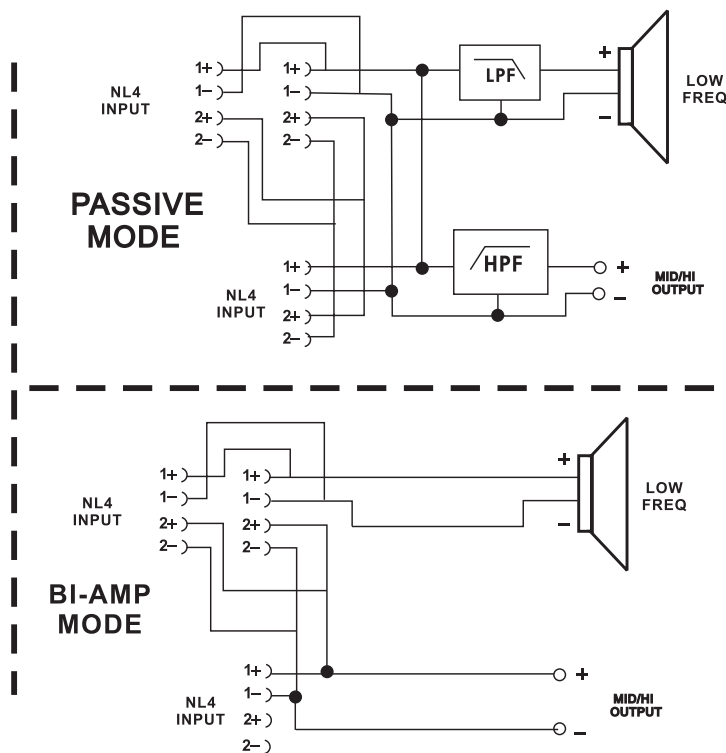
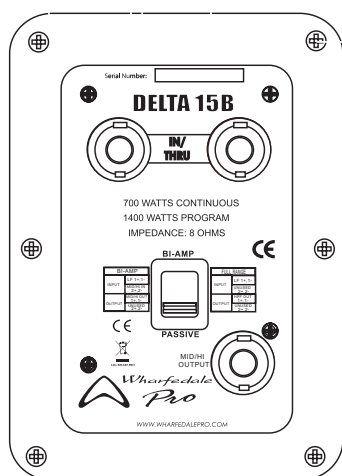
DELTA-215 Crossover Block Diagram



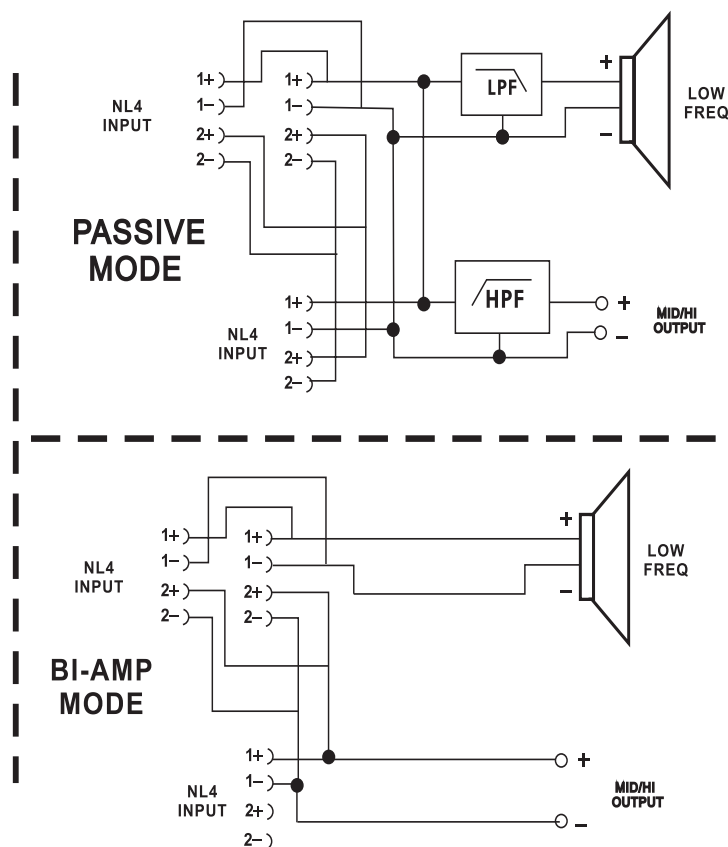
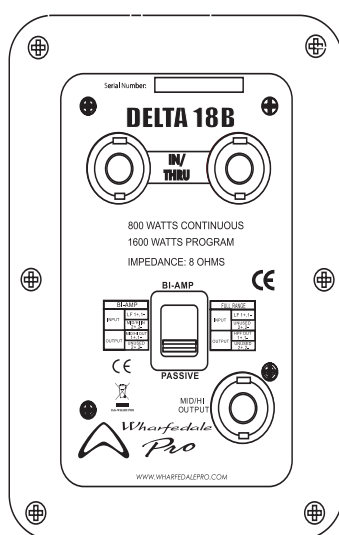


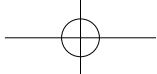
Delta Series

DELTA-15B Crossover Block Diagram



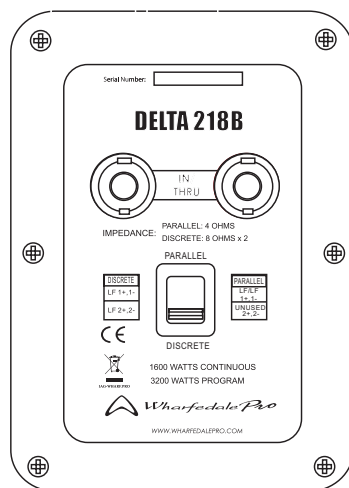
DELTA-18B Crossover Block Diagram



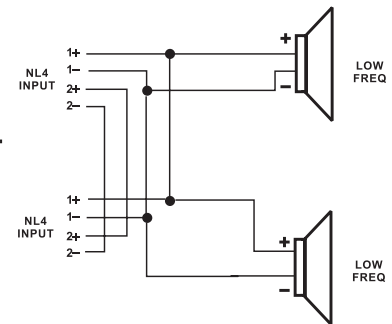


Delta Series

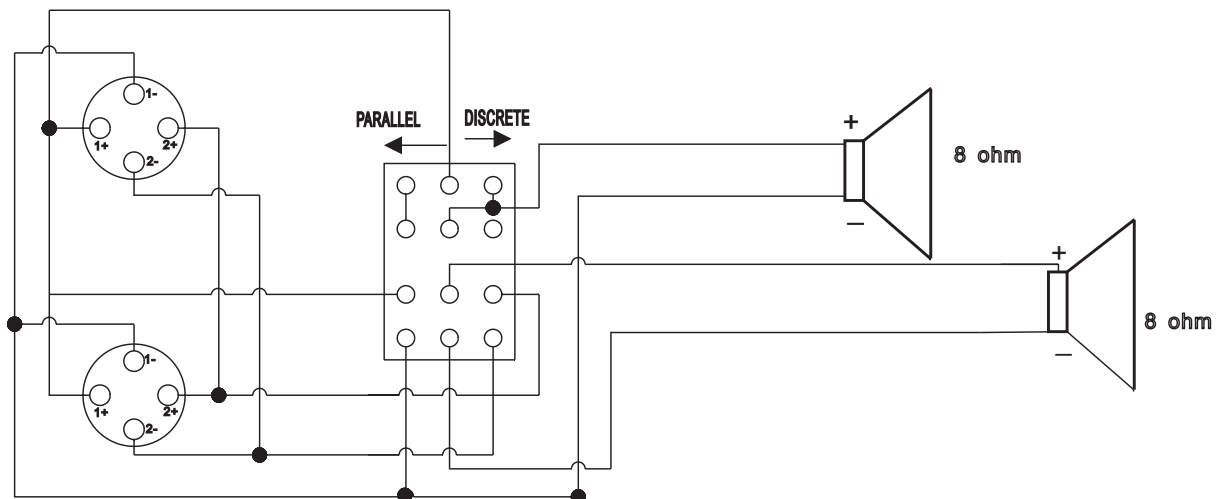
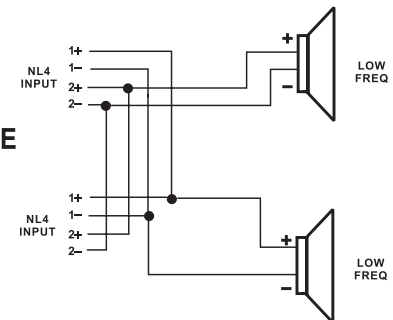
DELTA-218B Crossover Block Diagram



PARALLEL MODE

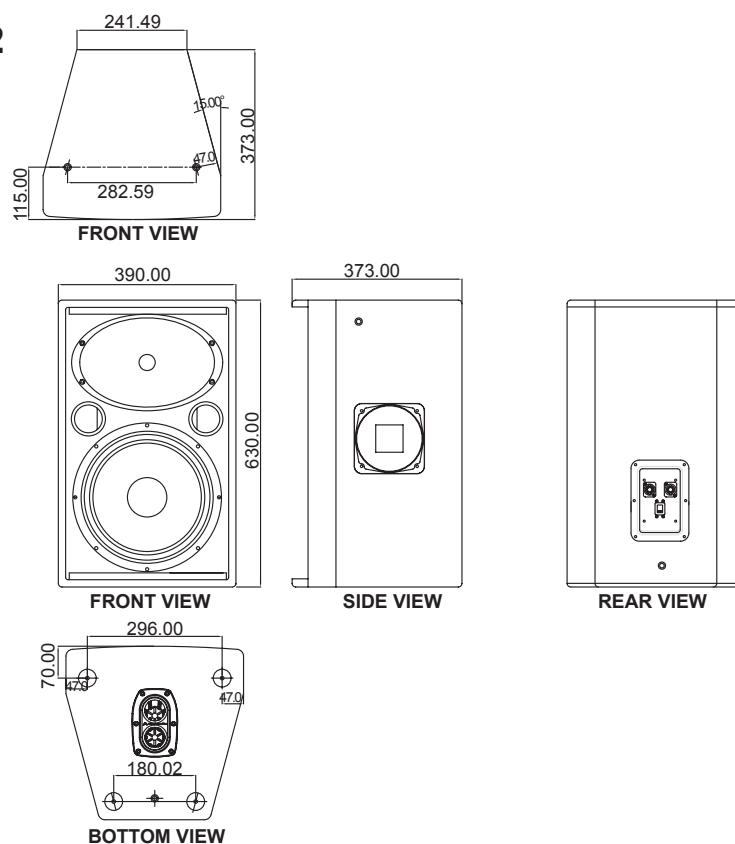


DISCRETE MODE

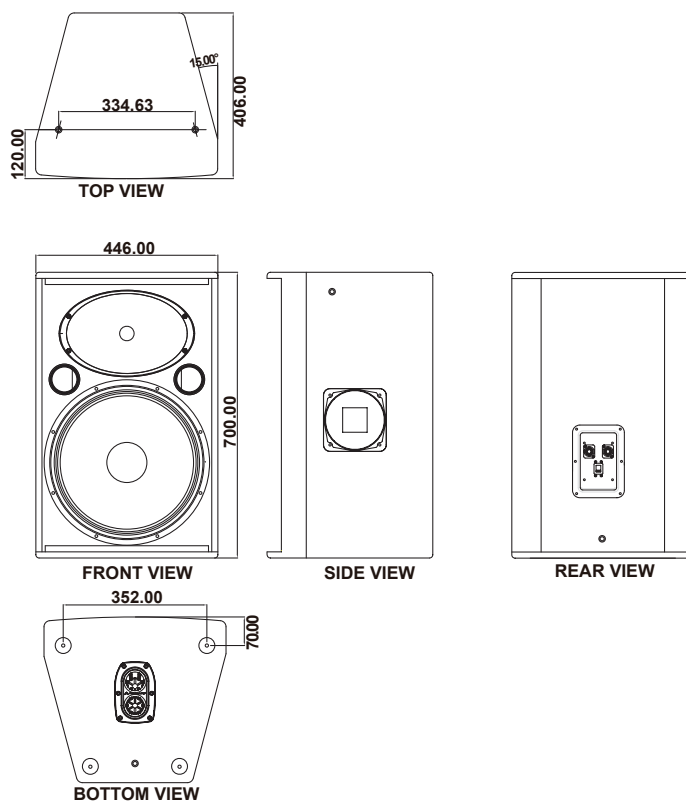


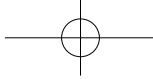
DIMENSIONAL DRAWINGS

DELTA-12



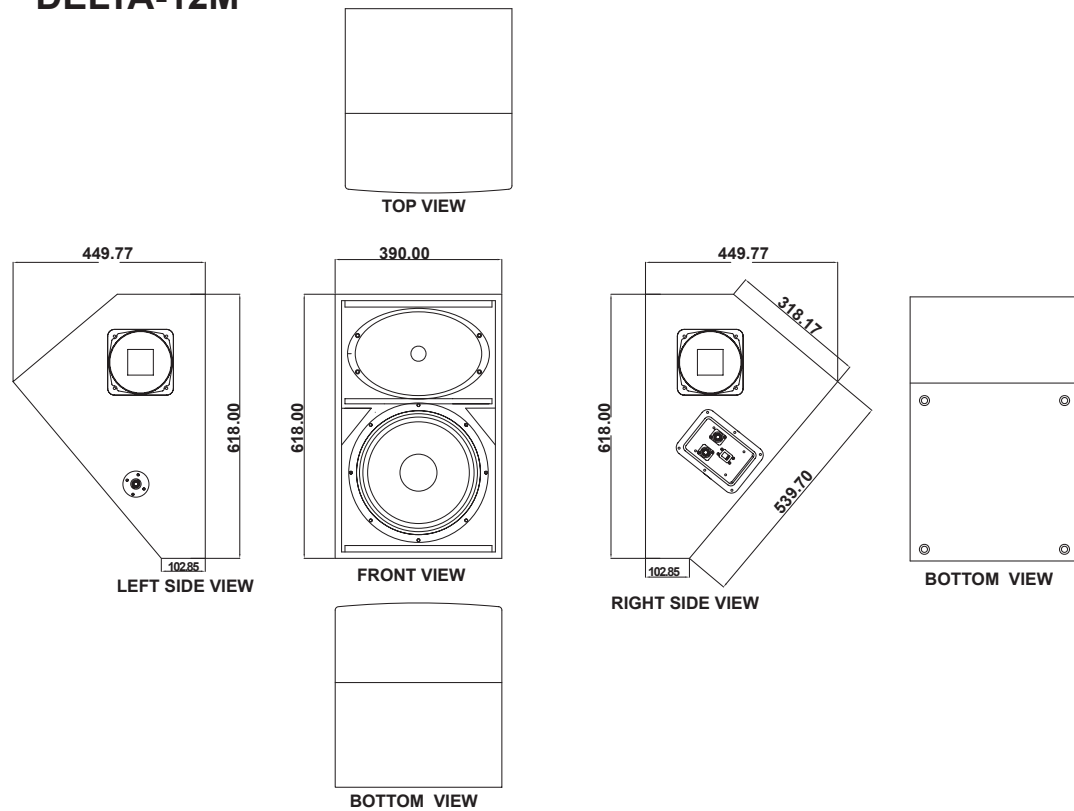
DELTA-15



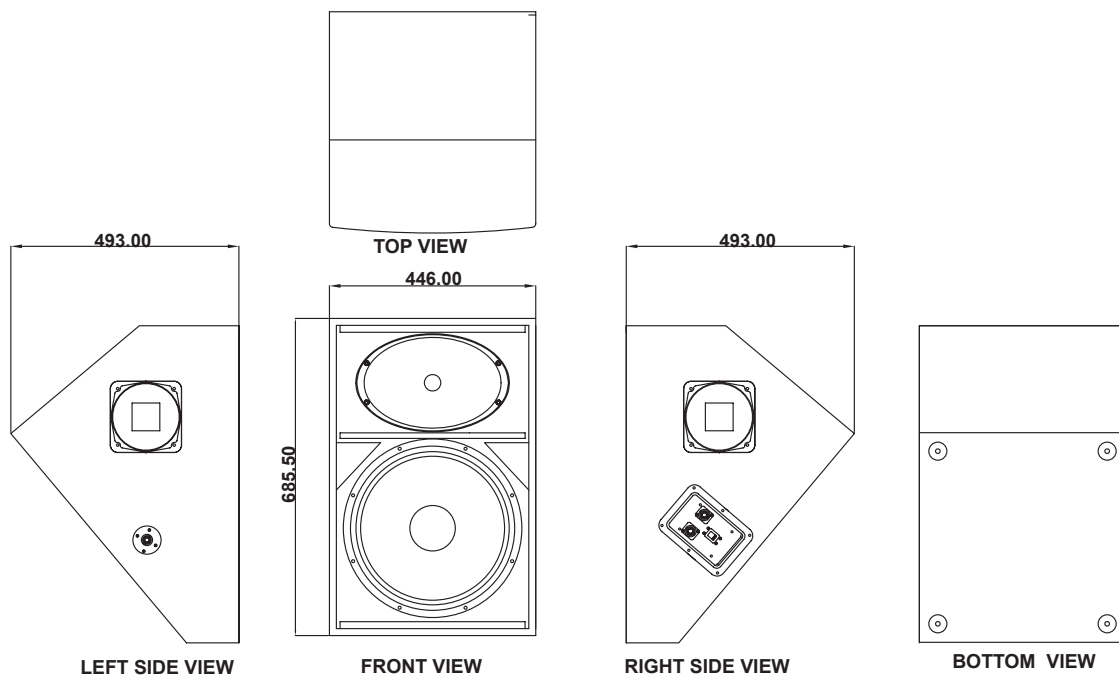


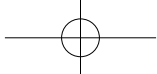
Delta Series

DELTA-12M



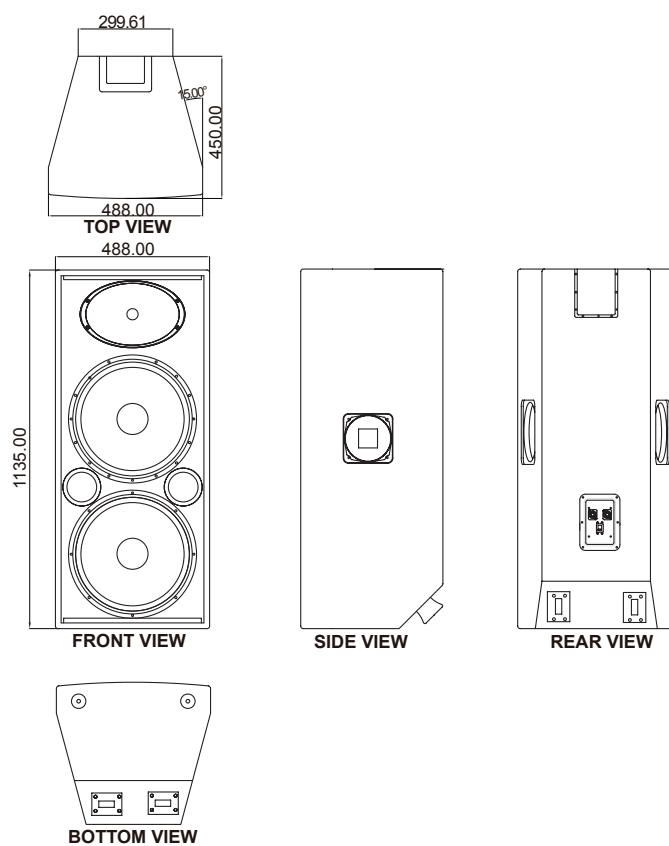
DELTA-15M



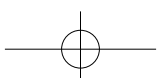
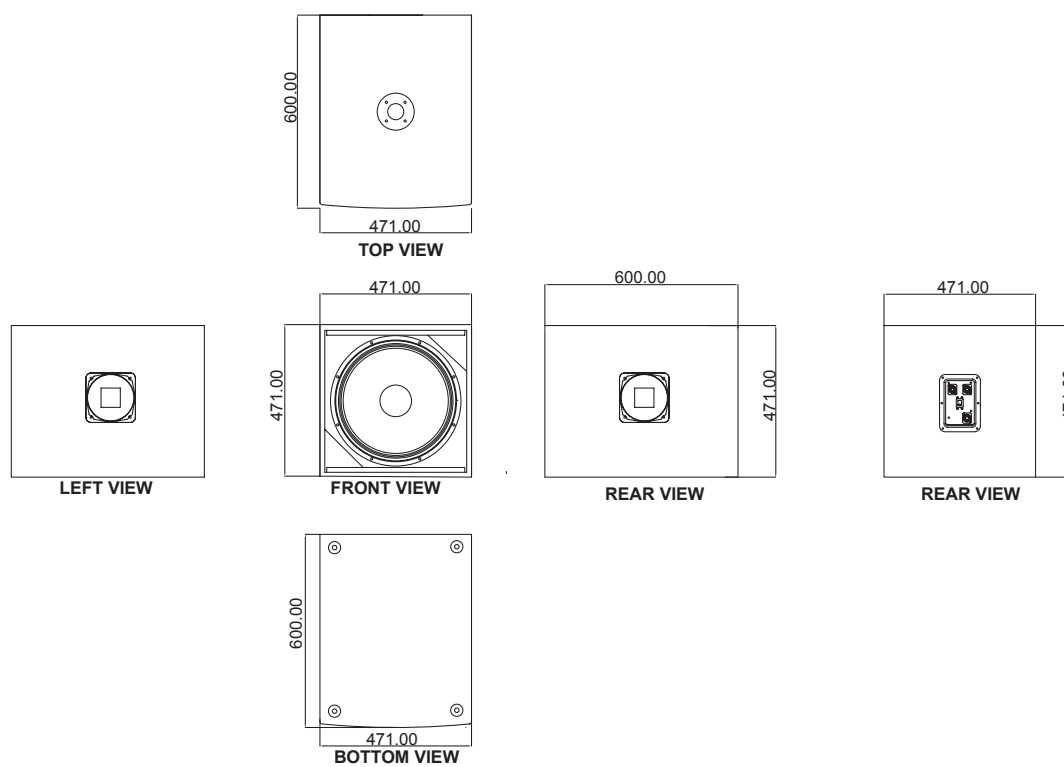


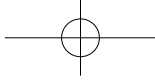
OPERATING MANUAL AND USER GUIDE

DELTA-215



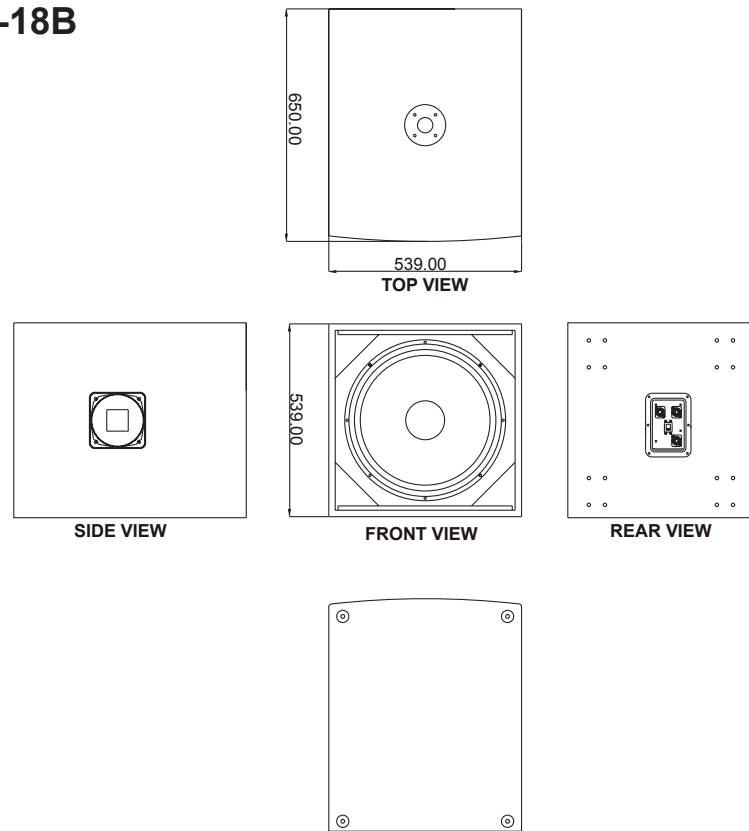
DELTA-15B



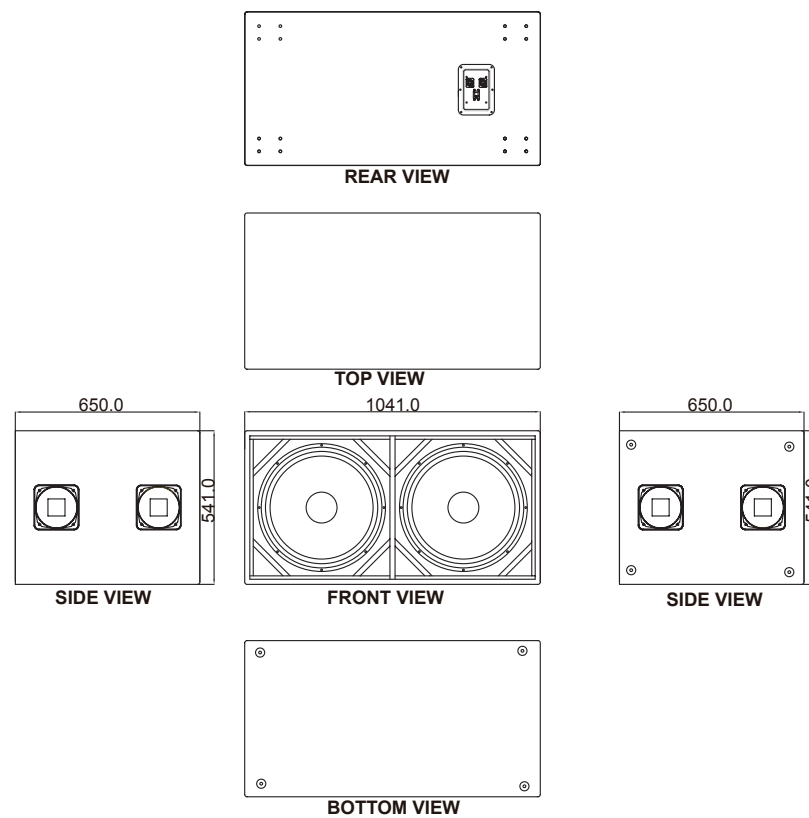


Delta Series

DELTA-18B

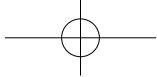


DELTA-218B



SPECIFICATIONS

Model		DELTA-12	DELTA-15	DELTA-215
General Parameters				
System Type		2-Way	2-Way	Quasi 3-Way
Frequency Response	+/- 3dB	60-20KHz	50-20KHz	45-20KHz
Power Handling	Continuous	400W	500W	1000W
	Programme	800W	1000W	2000W
	Peak	1600W	2000W	4000W
Nominal Impedance	Ohms	8Ω	8Ω	4Ω
Sensitivity	dB (1W @ 1M)	97dB	98dB	101dB
Max SPL (Calculated)	dB SPL @ Peak Rated Power	129dB	131dB	137dB
Nominal Coverage	(H @1KHz)	90°	90°	90°
	(V @1KHz)	45°	45°	45°
Recommended High Pass Frequency	Hz	1.5KHz / 1.8KHz	1.5KHz / 1.8KHz	1.5kHz / 1.8KHz
Recommended High Pass Slope	dB / Oct	18dB/Oct	18dB/Oct	18dB/Oct
Crossover Frequency	Hz	1.8KHz	1.8KHz	1.8KHz
Bi-Amp Mode Switch		Yes	Yes	Yes
LF Size	(mm / inches)	332mm / 12"	404mm / 15"	2x 404mm / 15"
LF Power (Continuous RMS)	W	400w	500w	500w
LF Sensitivity (Free Field 1W @ 1M)	dB	97dB	98dB	98dB
LF Voice Coil	(mm / inches)	76.2mm / 3"	76.2mm / 3"	76.2mm / 3"
LF Cone Material		Paper	Paper	Paper
LF Voice Coil Material		Copper	Copper	Copper
LF Voice Coil Former Material		Fibre Glass	Fibre Glass	Fibre Glass
LF Basket Material		Aluminium	Aluminium	Aluminium
LF Basket Type		Die-Cast	Die-Cast	Die-Cast
LF Magnet Structure Mass	Kg / lbs	2.467Kg / 5.412lbs	2.467Kg / 5.412lbs	2.467Kg / 5.412lbs
LF Magnet Structure Material		Ferrite	Ferrite	Ferrite
HF Size	(mm / inch)	50.8mm / 2" Titanium	50.8mm / 2" Titanium	50.8mm / 2" Titanium
HF Power (Continuous RMS)	W	50W	50W	50W
HF Sensitivity (Free Field 1W @ 1M)	dB	104dB	104dB	104dB
HF Voice Coil	(mm / inch)	50.8mm / 2"	50.8mm / 2"	50.8mm / 2"
HF Waveguide Type		Elliptical	Elliptical	Elliptical
HF Waveguide Exit	(mm / inch)	35.6mm / 1.4"	35.6mm / 1.4"	35.6mm / 1.4"
HF Diaphragm Material		Titanium	Titanium	Titanium
HF Voice Coil Former Material		Kapton	Kapton	Kapton
HF Magnet Structure Mass	Kg/lbs	1.197Kg / 2.63lbs	1.197Kg / 2.63lbs	1.197Kg / 2.63lbs
HF Magnet Structure Material		Ferrite	Ferrite	Ferrite
HF Protection		SK3	SK3	SK3
Enclosure Material & Thickness		15mm Plywood	15mm Plywood	15mm Plywood
Enclosure Finish		RHINO ROCK™	RHINO ROCK™	RHINO ROCK™
Grille Material & Finish		1.5mm Steel	1.5mm Steel	1.5mm Steel
Colour		Black	Black	Black
Rigging Points		M10 X 6	M10 X 6	
Rigging Point Max Rated Weight	Kg / lbs	450kg / 992lbs	450kg / 992lbs	
Pole Mount		Dual-Angle (0° or -10°)	Dual-Angle (0° or -10°)	
		35 mm Pole Socket	35 mm Pole Socket	
Handles		2 On Sides	2 On Sides	2 on Sides 1 On Back
Input Connector Type		2x Speakon	2x Speakon	2x Speakon
Net Weight	Kg	24.7Kg	29.9Kg	52.9Kg
	lbs	54.5lbs	65.9lbs	116.6lbs
Gross Weight	Kg	29.0Kg	35.5Kg	59.0Kg
	lbs	63.8lbs	78.1lbs	130.0lbs
Dimensions (Unpacked)	H	630mm / 24.8"	700mm / 27.6"	1135mm / 44.7"
	W FRONT/REAR	390/241.2mm / 15.3/9.5"	446/281.4mm / 17.6/11.1"	488/299.6mm / 19.2/11.8"
	D	373mm / 14.7"	406mm / 16"	450mm / 17.7"
Dimensions (Packed)	H	733mm / 28.9"	803mm / 31.6"	1218mm / 48.0"
	W FRONT/REAR	566mm / 22.3"	622mm / 24.5"	558mm / 22.0"
	D	464mm / 18.3"	498mm / 19.6"	522mm / 20.6"
	CBM	0.193	0.25	0.355

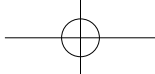


Delta Series

Model		DELTA-12M	DELTA-15M
General Parameters			
System Type		2-Way	2-Way
Frequency Response	+/- 3dB	60-20KHz	55-20KHz
Power Handling	Continuous	400W	500W
	Programme	800W	1000W
	Peak	1600W	2000W
Nominal Impedance	Ohms	8Ω	8Ω
Sensitivity	dB SPL (1W @ 1M)	97dB	98dB
Max SPL (Calculated)	dB SPL @ Peak Rated Power	129dB	131dB
Nominal Coverage	(H @1KHz)	90°	90°
	(V @1KHz)	45°	45°
Recommended High Pass Frequency	Hz	1.5KHz / 1.8KHz	1.5KHz / 1.8KHz
Recommended High Pass Slope	dB / Oct	18dB/Oct	18dB/Oct
Crossover Frequency	Hz	1.8KHz	1.8KHz
Bi-Amp Mode Switch		Yes	Yes
LF Size	(mm / inches)	332mm / 12"	404mm / 15"
LF Power (Continuous RMS)	W	400w	500w
LF Sensitivity (Free Field 1W @ 1M)	dB	97dB	98dB
LF Voice Coil	(mm / inches)	76.2mm / 3"	76.2mm / 3"
LF Cone Material		Paper	Paper
LF Voice Coil Material		Copper	Copper
LF Voice Coil Former Material		Fibre Glass	Fibre Glass
LF Basket Material		Aluminium	Aluminium
LF Basket Type		Die-Cast	Die-Cast
LF Magnet Structure Mass	Kg / lbs	2.467Kg / 5.412lbs	2.467Kg / 5.412lbs
LF Magnet Structure Material		Ferrite	Ferrite
HF Size	(mm / inch)	50.8mm / 2" Titanium	50.8mm / 2" Titanium
HF Power (Continuous RMS)	W	50W	50W
HF Sensitivity (Free Field 1W @ 1M)	dB	104dB	104dB
HF Voice Coil	(mm / inch)	50.8mm / 2"	50.8mm / 2"
HF Waveguide Type		Elliptical	Elliptical
HF Waveguide Exit	(mm / inch)	35.6mm / 1.4"	35.6mm / 1.4"
HF Diaphragm Material		Titanium	Titanium
HF Voice Coil Former Material		Kapton	Kapton
HF Magnet Structure Mass	Kg/lbs	1.197Kg / 2.63lbs	1.197Kg / 2.63lbs
HF Magnet Structure Material		Ferrite	Ferrite
HF Protection		SK3	SK3
Enclosure Material & Thickness		15mm Plywood	15mm Plywood
Enclosure Finish		RHINO ROCK™	RHINO ROCK™
Grille Material & Finish		1.5mm Steel	1.5mm Steel
Colour		Black	Black
Pole Mount		No	No
Handles		2 On Sides	2 On Sides
Input Connector Type		3x Speakon	3x Speakon
Net Weight	Kg	23.18Kg	27.24Kg
	lbs	50.9lbs	59.9lbs
Gross Weight	Kg	28.5Kg	33.96Kg
	lbs	62.8lbs	74.7lbs
Dimensions (Unpacked)	H	449mm / 17.7" (SITU)	493mm / 19.4" (SITU)
	W FRONT/REAR	390mm / 15.3"	446mm / 17.6"
	D	618mm / 24.3"	685mm / 27"
Dimensions (Packed)	H	462mm / 18.2"	518mm / 20.4"
	W FRONT/REAR	690mm / 27.2"	757mm / 29.8"
	D	522mm / 20.6"	565mm / 22.2"
	CBM	0.17	0.22

OPERATING MANUAL AND USER GUIDE

Model		DELTA-15B	DELTA-18B	DELTA-218B
General Parameters				
System Type		Subwoofer	Subwoofer	Dual Chamber Subwoofer
Frequency Response (Bi-Amp)	+/- 3dB	42-2KHz	38-1.5KHz	30-1.5KHz
Frequency Response (Passive)	+/- 3dB	42-150Hz	38-150Hz	
Power Handling	Continuous	700W	800W	Parallel: 1600W Discrete: 800W
	Programme	1400W	1600W	3200W 1600W
	Peak	2800W	3200W	6400W 3200W
Nominal Impedance	Ohms	8Ω	8Ω	4Ω 8Ω x2
Sensitivity	dB SPL (1W @ 1M)	98dB	99dB	100dB
Max SPL (Calculated)	dB SPL @ Peak Rated Power	132dB	134dB	138dB
Bi Amp Mode Switch		YES	YES	
Subwoofer High Pass Output Frequency	Hz	120Hz	120Hz	
Subwoofer High Pass Filter Slope	dB / Oct	6dB/Oct	6dB/Oct	
LF Size	(mm / inches)	404mm / 15"	470mm / 18"	470mm / 18"
LF Power (Continuous RMS)	W	700w	800w	800w
LF Sensitivity (Free Field 1W @ 1M)	dB	98dB	99dB	99dB
LF Voice Coil	(mm / inches)	101.6mm / 4"	101.6mm / 4"	101.6mm / 4"
LF Cone Material		Paper	Paper	Paper
LF Voice Coil Material		Copper	Copper	Copper
LF Voice Coil Former Material		Fibre Glass	Fibre Glass	Fibre Glass
LF Basket Material		Aluminium	Aluminium	Aluminium
LF Basket Type		Die-Cast	Die-Cast	Die-Cast
LF Magnet Structure Mass	Kg / lbs	2.69Kg / 5.918lbs	2.69Kg / 5.918lbs	2.69Kg / 5.918lbs
LF Magnet Structure Material		Ferrite	Ferrite	Ferrite
Enclosure Material & Thickness		15mm Plywood	15mm Plywood	18mm Plywood
Enclosure Finish		RHINO ROCK™	RHINO ROCK™	RHINO ROCK™
Grille Material & Finish		1.5mm Steel	1.5mm Steel	1.5mm Steel
Colour		Black	Black	Black
Pole Mount		35mm	35mm	No
Handles		2 On Sides	2 On Sides	4 On Sides
Input Connector Type		2x Speakon	2x Speakon	2x Speakon
HPF Output Connector Type		1x Speakon	1x Speakon	N/A
Net Weight	Kg	31.5Kg	37.3Kg	78.9Kg
	lbs	69.4lbs	82.06lbs	173.9lbs
Gross Weight	Kg	35.12Kg	43.2Kg	86.0Kg
	lbs	77.4lbs	95.04lbs	189.6lbs
Dimensions (Unpacked)	H	471mm / 18.5"	539mm / 21.2"	541mm / 21.3"
	W FRONT/REAR	471mm / 18.5"	539mm / 21.2"	1041mm / 41"
	D	600mm / 23.6"	650mm / 25.6"	650mm / 25.6"
Dimensions (Packed)	H	556mm / 21.9"	624mm / 24.6"	626mm / 24.6"
	W FRONT/REAR	672mm / 26.5"	722mm / 28.4"	1126mm / 44.3"
	D	543mm / 21.4"	611mm / 24.1"	722mm / 28.4"
	CBM	0.21	0.28	0.51

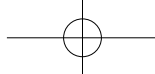


Delta Series

WHARFEDALE PRO LIMITED WARRANTY

Wharfedale Pro products are warranted of manufacturing or material defects for a period of one year from the original date of purchase. In the event of malfunction, contact your authorized Wharfedale Pro dealer or distributor for information.

*Be aware that warranty details may differ from country to country. Contact your dealers or distributor for information. These terms do not infringe your statutory rights.



Wharfedale Professional

IAG HOUSE, Sovereign Court, Ermine Business Park Huntingdon, Cambs, PE29 6XU, England

www.wharfedalepro.com

Wharfedale Professional reserves the right to alter or improve specifications without notice.

All rights reserved © 2010 Wharfedale Pro. Wharfedale Pro is a member of the IAG Group.

