

WHITE ACOUSTICS

WA 12F
WA 15F

Professional **loudspeaker**





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2. Introduction

Designed, engineered and built in the United Kingdom, the WA 12F and WA 15F from White Acoustics are passive loudspeakers for demanding professional and commercial sound applications. At the heart of the WA 12F and WA 15F loudspeakers is White Acoustics's acclaimed Dual Concentric™ driver technology. Unlike conventional drivers, Dual Concentric combines a high frequency driver and a low-mid driver on a common axis, creating a true point source for all reproduced sounds. Dual Concentric eliminates the time alignment problems inherent with all enclosures employing separated drivers, thus ensuring outstanding definition, detail and intelligibility at all points in the listening area.

All WA Series loudspeakers are designed to perform with very high efficiency and exceptionally low distortion, even when operating near peak output levels. All components are housed in rugged birch plywood enclosures, with larger models equipped with double-chamfered Integrip™ recessed handles for easy one- or two-handed carrying. Reflecting White Acoustics's reputation for reliability, all WA 12F and WA 15F loudspeakers are backed by a five-year loudspeaker warranty.

3. Unpacking

Each WA 12F and WA 15F loudspeaker is carefully tested and inspected prior to shipment. After unpacking, please inspect for any exterior physical damage, and save the carton and any relevant packaging materials in case the loudspeaker again requires packing and shipping. In the event that damage has been sustained in transit notify your dealer and the shipping carrier immediately.

4. Connectors / Cabling

On the WA 12F and WA 15F loudspeakers, connections to the amplifier are made using 4-pole Neutrik speakON® connectors. Two NL4MP connectors are mounted on the rear of the loudspeaker. The two connectors are wired in parallel to allow connection of a second loudspeaker. Positive is connected to pin 1+ and negative to pin 1-. (Pins 2+ and 2- are not used on the WA 12F and WA 15F.)

speakON Connector	Signal
Pin 1+	Passive Full Range +
Pin 1-	Passive Full Range -
Pin 2+	N/C
Pin 2-	N/C

When choosing cable type, it is important to select the correct cross sectional area in relation to the cable length and the load impedance. A small cross sectional area will increase the cable's series resistance, inducing power loss and response variations (damping factor). Connectors wired with 2.5 sq. mm (12 gauge) cable will be satisfactory under normal conditions; with very long cable runs, the wire size should be increased. Please refer to the following table for guidance:

Cable Run (m)	C.S.A. Of Each Conductor (mm)	Cable Resistance (ohms)	% Power Loss into 8 ohms load	% Power Loss into 4 ohms load
10	2.5	0.14	1.7	3.5
	4.0	0.09	1.1	2.2
	6.0	0.06	0.73	1.5
25	2.5	0.35	4.3	8.6
	4.0	0.22	2.7	5.4
	6.0	0.14	1.8	3.6
50	2.5	0.69	8.6	17.0
	4.0	0.43	5.4	11.0
	6.0	0.29	3.6	7.2
100	2.5	1.38	17.0	35.0
	4.0	0.86	11.0	22.0
	6.0	0.58	7.2	14.00

5. Polarity Checking

Checking the polarity of the wiring before the speaker system is mounted or flown will help ensure satisfactory performance. If you do not have a pulse based polarity checker, you may check LF units as follows: Connect two wires to the + and - terminals of a PP3 (9 V) battery. Apply the wire connected to the positive (+) terminal of the battery to the speaker cable leg which you believe to be connected to pin 1+ of the speaker connector; likewise connect the negative (-) terminal of the battery to pin 1-. If you have wired it correctly, the LF drive unit will move forward. At this point, connect the positive (+) speaker lead to the + terminal on the amplifier and the negative (-) lead to the - terminal on the amplifier. However, if the LF driver moves backwards with the battery test, the input connections need to be inverted before connecting the amplifier. If problems are encountered, inspect the cable wiring. Note that different amplifier manufacturers may utilise different pin configurations and polarity conventions; if you are using amplifiers from more than one manufacturer, check the polarity at the amplifiers as well as at the loudspeakers.

6. Amplification & Power Handling

As with all professional loudspeaker systems, the power handling is a function of voice coil thermal capacity. Care should be taken to avoid overdriving the amplifier into clipping. Damage to the loudspeaker will be sustained if the amplifier is driven into clipping for any extended period of time. Headroom of at least 3 dB should be allowed.

When evaluating an amplifier, it is important to take into account its behaviour under low impedance load conditions. A loudspeaker system is highly reactive, and with transient signals it can require more current than the nominal impedance would indicate. Generally a higher power amplifier running free of distortion will do less damage to the loudspeaker than a lower power amplifier that is continually clipping. A high powered amplifier running at less than 90% of output power generally sounds superior to a lower power amplifier running at 100%. An amplifier with insufficient drive capability will not allow the full performance of the loudspeaker to be realised. (See technical specifications section for recommended amplifier power.)

When using amplifiers from different manufacturers in a single installation, make certain that all have very closely matched gains. (Variation should be less than +/- 0.5 dB.) This precaution is important to the overall system balance when only a single active crossover is being used with multiple cabinets. When possible, it is recommended that the same amplifiers be used throughout.

7. Crossovers

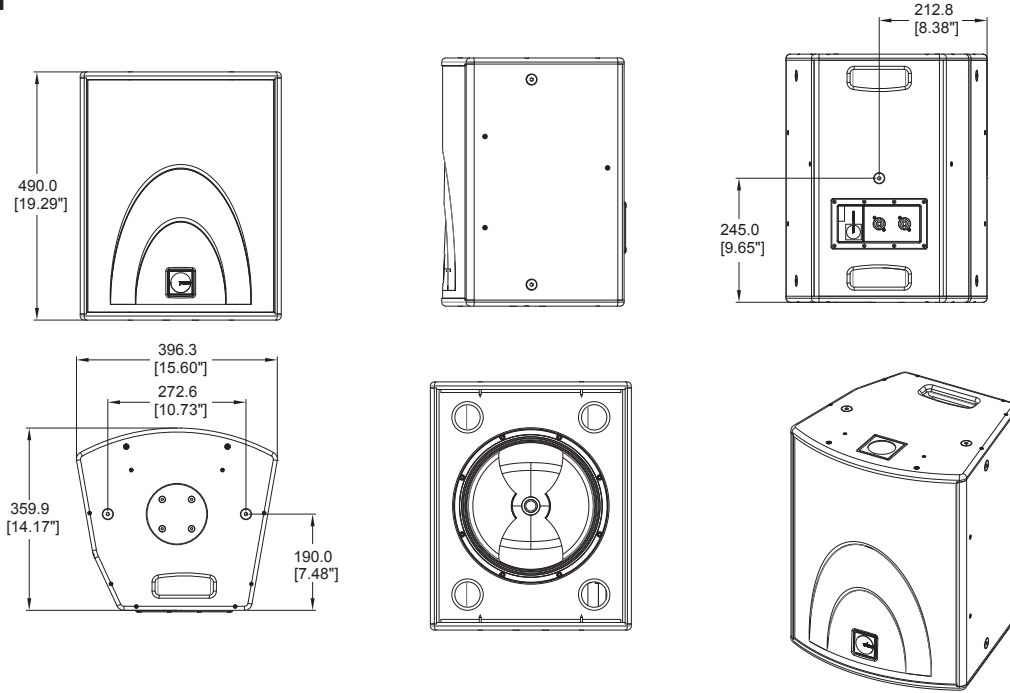
WA 12F and WA 15F loudspeakers are supplied as standard for passive operation via the internal crossover network. If higher peak outputs and additional low frequency output is required then the WA 12F and WA 15F can be used in conjunction with the WA 2.6X System Controller which provides high-pass filtering and a degree of parametric equalisation, as well as a fixed crossover point for use with sub-bass loudspeakers (See the WA 2.6X Operation Manual for further information.)

8. Equalisation

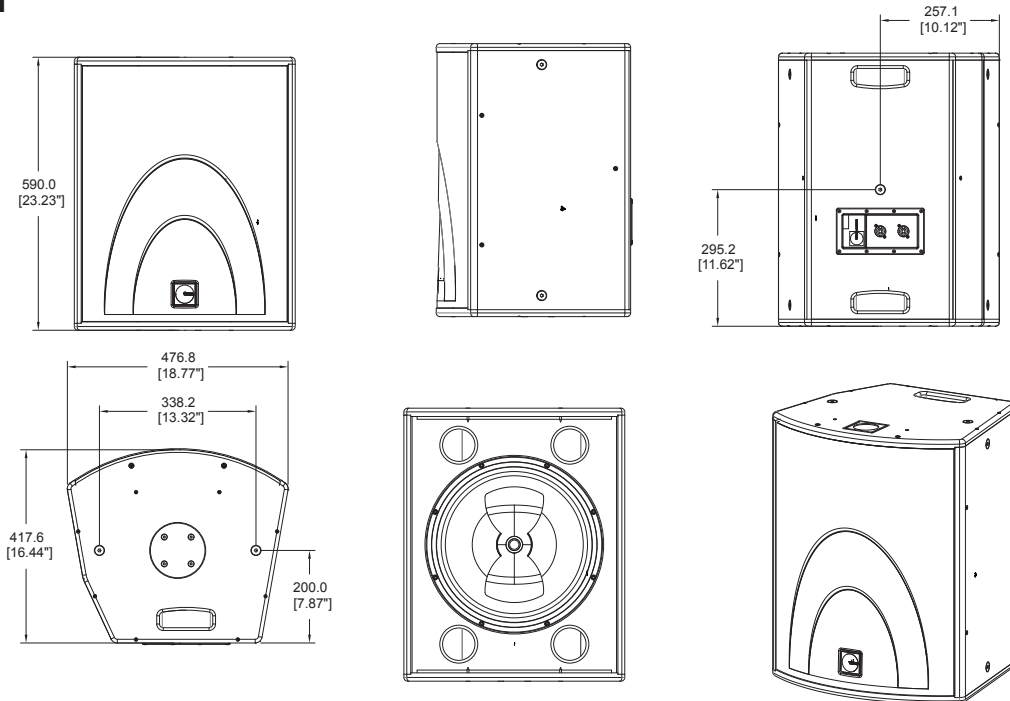
WA 12F and WA 15F loudspeakers require no equalisation or correction to overcome system limitations; equalisation is necessary only to compensate for difficult acoustic environments. Over-equalisation can reduce system headroom and introduce phase distortion, resulting in degraded sound. If equalisation is required, it should be applied gently and smoothly. Because WA 12F and WA 15F loudspeakers are point source, phase coherent designs, excessive equalization usually proves detrimental to the overall sound quality.

9. Dimensions

WA 12F



WA 15F



10. Technical Specifications

Following are the WA Series technical specifications. These figures are accurate at the time of printing but please note that all figures are subject to change without notice.

Model	WA 12F	WA 15F
System Type	Full Range - Vented	Full Range - Vented
Frequency Response (-3 dB) ¹⁾	80 Hz - 25 kHz	70 Hz - 25 kHz
Frequency Range (-10 dB) ¹⁾	160 Hz - 30 kHz	58 Hz - 30 kHz
System Sensitivity (1 W @1 m) ²⁾	97 dB (1 W = 2.83 V for 8 ohms)	99 dB (1 W = 2.83 V for 8 ohms)
Dispersion (-6 dB)	75 degrees (H) x 40 degrees (V)	75 degrees (H) x 40 degrees (V)
Driver Complement	1 x 300 mm (12") Dual Concentric with Q-Centric waveguide	1 x 380 mm (15") Dual Concentric with Q-Centric waveguide
Crossover	Passive 1.5 kHz	Passive 1.3 kHz
Directivity Factor (Q) ³⁾	11	11.4
Directivity Index (DI) ³⁾	10.4 dB	10.6 dB
Rated Maximum SPL ³⁾	123 dB (average) 129 dB (peak)	125 dB (average) 131 dB (peak)
Power Handling	350 W (average), 700 W (programme), 1400 W (peak)	400 W (average), 800 W (programme), 1600 W (peak)
Recommended Amplifier Power	700 W @ 8 ohms	800 W @ 8 ohms
Nominal Impedance	8 ohms	8 ohms
Construction		
Enclosure	34.7 litre vented, 15 mm (0.59") birch plywood. Vented and internally braced.	71.2 litre vented, 18 mm (0.71") birch plywood. Vented and internally braced.
Finish	Textured black paint. Powder coated perforated steel grille.	
Connectors	2 x Speakon NL4MP in/out	
Fittings	2 x integrated carrying handles. Blanking plate allows installation of a 35 mm pole-mounting socket. 8 x M10 bracket inserts allowing for landscape or portrait mounting 1 x M10 insert for pull-back	
Dimensions	W: 400 mm (13.75"), H: 490 mm (19.29"), D: 360 mm (14.77")	W: 480 mm (18.9"), H: 590 mm (23.23"), D: 420 mm (16.54")
Weight	TBA	TBA

Note 1): Average over stated bandwidth. Measured at 1 metre on axis.

Note 2): Unweighted pink noise input, measured at 1 metre in an anechoic chamber

Note 3): Averaged 1 kHz to 10 kHz.

All specifications are subject to change without notice.

11. Warranty

No maintenance of the WA Series loudspeakers is necessary.

All White Acoustics Professional loudspeaker products are covered by a 5 year warranty from the date of manufacture, subject to the absence of misuse, overload or accidental damage. Claims will not be considered if the serial number has been altered or removed. Work under warranty should only be carried out by a White Acoustics dealer or service agent. This warranty in no way affects your statutory rights.

If your White Acoustics product requires repair, please visit www.whiteacoustics.com to find your local dealer or distributor.

Do not ship any product to White Acoustics without previous authorisation.

Our policy commits us to incorporating improvements to our products through continuous research and development. Please confirm current specifications for critical applications with your supplier.

12. Declaration of Conformity

The following apparatus is/are manufactured in the United Kingdom by White Acoustics Ltd. of Rosehall Industrial Estate, Coatbridge, Scotland, ML5 4TF and conform(s) to the protection requirements of the European Electromagnetic Compatibility Standards and Directives relevant to Domestic Electrical Equipment. The apparatus is designed and constructed such that electromagnetic disturbances generated do not exceed levels allowing radio and telecommunications equipment and other apparatus to operate as intended, and, the apparatus has an adequate level of intrinsic immunity to electromagnetic disturbance to enable operation as specified and intended.

Details of the Apparatus:	White Acoustics Loudspeaker
Model Number:	WA 12F, WA 15F
Associated Technical File:	EMCWA SERIES
Applicable Standards:	EN 50081-1 Emission EN 50082-1 Immunity
Electrical Safety:	EN 60065



Engineering Director
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