YAMAHA

Web site

Pro Audio web site

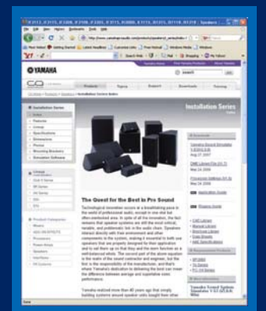
Further information about the Installation Series speakers, including 2D and 3D CAD data, CLF data, EASE data, white paper and other technical details, can be found on the Yamaha Pro Audio web page. System diagrams in which the speakers are combined with DME64N/DME24N devices, as well as DME Designer template files are also provided.

For details see the Yamaha Pro Audio web page at

http://www.yamahaproaudio.com



Top Page



Installation Series page

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For details please contact:

YAMAHA
YAMAHA CORPORATION
P.O.BOX 1, Hamamatsu Japan
www.yamahaproaudio.com

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YAMAHA



INSTALLATION SERIES

SPEAKER SYSTEMS

The Quest For the Best In Pro Sound

Technological innovation occurs at a breathtaking pace in the world of professional audio…except in one vital but often-overlooked area. In spite of all the innovation, the fact remains that speaker systems are still the most critical, variable, and problematic link in the audio chain. Speakers interact directly with their environment and other components in the system, making it essential to both use speakers that are properly designed for their application and to set them up so that they and the room function as a well-balanced whole. The second part of the above equation is the realm of the sound contractor and engineer, but the first is the responsibility of the manufacturer…and that's where Yamaha's dedication to delivering the best can mean the difference between average and superlative sonic performance.

Yamaha realized more than 40 years ago that simply building systems around speaker units bought from other manufacturers would not do, initiating a long, arduous, and fruitful quest for ideal speaker performance based on original technology. Along the way innovative Yamaha speaker technology has resulted in a number of breakthrough products that established new performance standards in a number of critical fields: The NS-1000M for home audio, the NS10M and NS10M STUDIO for professional near-field monitoring, and the Club Series for live sound.

The goal is simple: to provide sound reproduction that is totally faithful to the source. But as anyone involved in speaker design and manufacture will attest, achieving that simple goal is extremely difficult, and no speaker on earth can claim absolute perfection in this regard. The good news is that…now we've come closer than ever to achieving that elusive goal.

Yamaha's new Installation Series Speakers address a number of important issues that give them unprecedented performance and handling characteristics for live sound applications, including permanent installations. In particular, phase characteristics have been kept smooth and consistent throughout the entire series, so you can mix and match speakers to suit any system and venue without ending up with hot and dead spots due to phase interference. And of course sonic quality is superb throughout the entire reproduction range so the full impact of the source material reaches the audience undiluted.



This approach to speaker design is evident in every Yamaha Commercial Audio product.

The proof is in the enormous success of our groundbreaking PM1D and PM5D digital consoles, digital signal processing products, and industry-standard analog live consoles and related gear. Yamaha is simply dedicated to delivering the best sonic performance available anywhere, at any price, from system input to output. Our new Installation Series break new ground once again with performance and convenience that can take the sound at any venue to a higher level.

Some Important Installation Series Speaker Features

- Ideal for small to medium-scale installations.
- Uniform phase response throughout the entire series.
- Models include 3-way, 2-way, large, small, high-power, medium-power, and other variations.
- A wide selection of dispersion characteristics for long-range, short-range, and long/short-range use.
- A range of standard U-bracket and array-frame hardware available for maximum installation convenience and efficiency.
- Switchable passive and bi-amp drive modes (bi-amp and tri-amp modes for 3-way models).

Installation Series

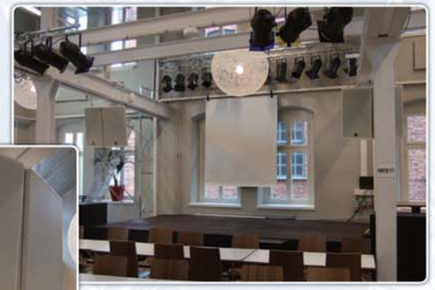
Hard at work in venues all over the world

Conference & Education Facilities



Trappan (Sweden)









Tean Power Station (Korea)



Carrefour des Communications (France)





Edit Macy Conference Center (USA)

Clubs & Bars



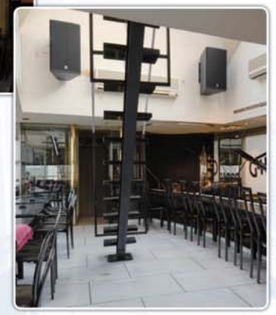
Blush Ultraclub (Canada)

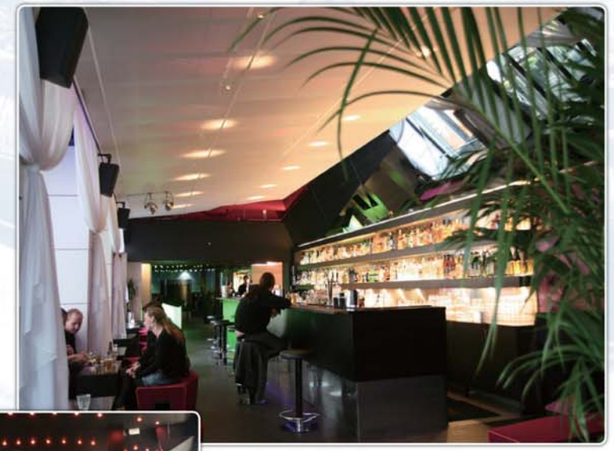


GHNine (Japan)



Max & Play (Italy)





Bersa Bar (Sweden)



Multipurpose Halls



The Stables (UK)





Montserrat Culture Centre (British Overseas Territory)

Sports Facilities





Sparkassen Arena (Germany)

Banquet Halls





Angel Parte (Japan)

Theaters & Halls





The Kurhaus (Italy)



Northampton's Royal Theatre (UK)

Houses of Worship





Ansan Guromoon Church (Korea)



St. Michael and St. George Church (USA)



Church at Rocky Peak (USA)



Youndong Church (Korea)

Creating the Ideal "White Canvas"

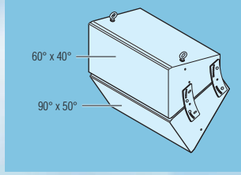
The ease with which a speaker system can be adjusted to match the characteristics of a facility is of the utmost importance to sound contactors and engineers. In the same way that a painter's canvas must be white in order to show the true colors of his paints, a speaker system must be a "white canvas" in the sense that it accurately reproduces the waveforms provided as input and responds in a linear fashion to equalization — in audio terms it needs to provide a "flat response".

One of the most common causes of uneven response in systems that use multiple speakers in arrays is the "comb filter" effect caused by differences between the phase characteristics of the speakers used. Eliminating comb filter effects can be extremely difficult, and this is a problem to which Yamaha has assigned the highest priority in the pursuit of speaker array performance that comes as close to the ideal "white canvas" as possible.

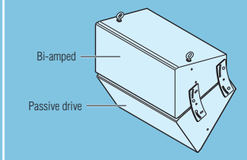
In any installation employing multi-speaker arrays, the phase characteristics of the speakers must be carefully considered. Most arrays set up for live concerts are composed of speakers of the same type, but a number a variations are often seen in installations.

1. Arrays using cabinets of the same type.

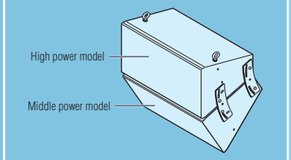
A) Speakers with different dispersion characteristics: 60° x 40° for distance and 90° x 50° for close range.



B) Different drive modes: distance speaker bi-amped to provide extra high-frequency power, combined with a passive speaker for close range.

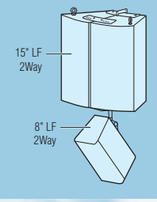


C) Different power: a high-power model used for distance, and a mid-power model for close range.



2. Arrays using different cabinet types.

Large cabinets for distance, combined with a small cabinet for close range.

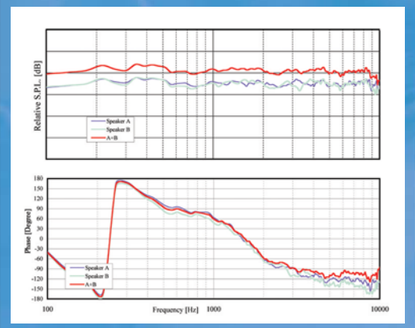


So, what kinds of problems are likely to be encountered with the various speaker combinations mentioned above? Can problems be avoided by using speakers having similar sonic characteristics, or even speakers of the same series from the same manufacturer? Regardless of the above considerations, if the phase characteristics of the speakers used differ the problems are likely to be insurmountable.

Graph 1 shows the phase characteristics for two speakers. The frequency response curves of both speakers are almost identical, and both have smooth, consistent phase response over their entire range indicating that they are both high-quality speakers. However, although the phase curves are essentially equal in the low-frequency range, we can see a significant difference from the mid to high range.

Graph 2 shows the response of the above speakers when both are combined as an array, measured on-axis at point "A" in the illustration. Severe cancellation can be seen at frequencies at which the phase of the speakers differs by 120° or more.

Graph 1



Graph 2

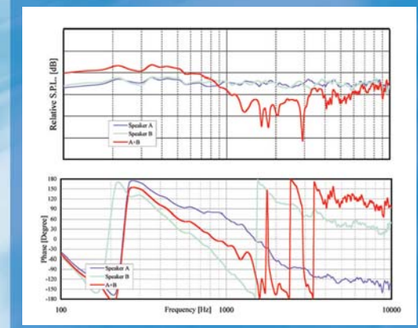
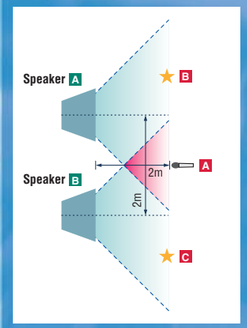


Figure 1



If an equalizer is employed to compensate for the dips measured at point "A", the same frequencies will appear as excessive peaks at points "B" and "C" at which the dispersion areas of the two speakers do not entirely overlap. This obviously makes it impossible to achieve smooth response throughout the entire area to be serviced by the array.

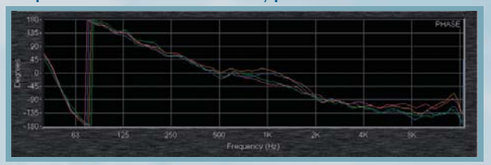
Equalization does not provide the answer, and it is therefore essential to carefully match the phase characteristics of multiple speakers used in an array in order to achieve optimum response.

All speakers in the same series will have uniform phase characteristics

- **Uniform phase characteristics from equivalent enclosures having different dispersion angles.**
- **Uniform phase characteristics whether driving the same model in bi-amped or passive mode.**
- **Uniform phase characteristics from high-power and mid-power models.**
- **Uniform phase characteristics from large and small-size enclosures.**
- **The phase difference between speakers will be maintained below 90° at 2 kHz.**

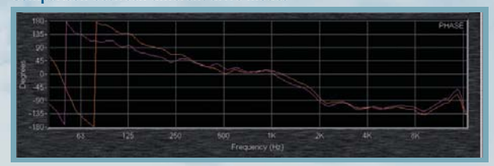
YAMAHA INSTALLATION SERIES

Comparison between different directivity patterns



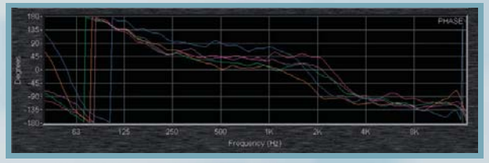
Orange : IF2115/64/bi-amp Blue : IF2115/95/bi-amp
Red : IF2115/99/bi-amp Green: IF2115/AS/bi-amp

Comparison between different drive modes



Orange : IF2115/64/bi-amp Purple: IF2115/64/passive

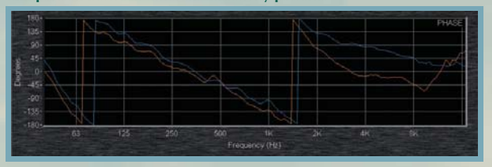
Comparison between models



Orange : IF2115/95 bi-amp Blue : IF2112/95 bi-amp
Green : IF2208 Purple : IF2108
Red : IF2205

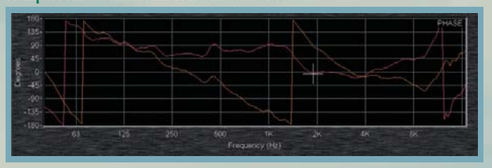
COMPETITION MODEL

Comparison between different directivity patterns



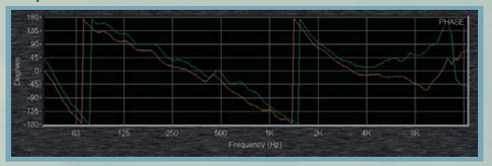
Orange : Competitor's 15" LF 2way 60x40 bi-amp
Blue : Competitor's 15" LF 2way 90x50 bi-amp

Comparison between different drive modes



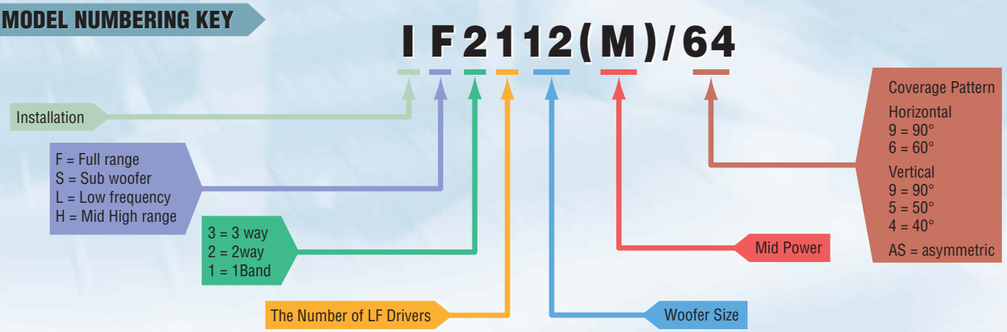
Orange : Competitor's 15" LF 2way 60x40 bi-amp
Red : Competitor's 15" LF 2way 60x40 passive

Comparison between models



Orange : Competitor's 15" LF 2way 60x40 bi-amp
Green : Competitor's 12" LF 2way 60x40 bi-amp

MODEL NUMBERING KEY



General Features



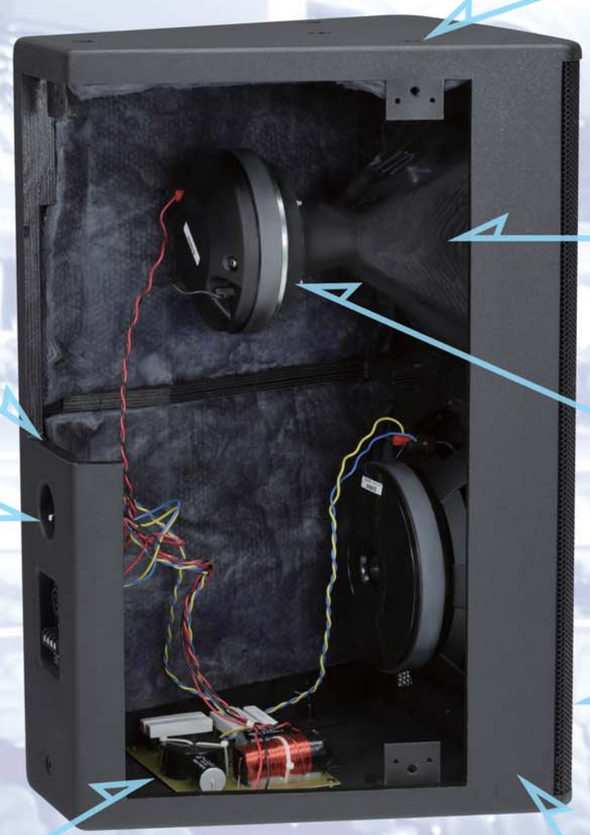
Shape

In addition to having a significant effect on a speaker's sound, the shape of it's cabinet is an important factor for handling and setup versatility. The IF2112/AS, IF2115/AS, IF2108, and IF2208 models feature a "multi-angle" design that allows them to be used as floor monitors as well as house sound. The IF2205 features a compact "stair-step" configuration. All other full-range cabs have a 30° trapezoidal shape that results in minimum interference when the speakers are combined in arrays.

Cabinets

Building a high-performance speaker cabinet is a lot more complex than simply building a solid box … although solidity and lack of resonance is important. The materials used, size, shape, bracing, porting, acoustic treatment and other factors all interact to determine the final performance of the design. A lot of this can be determined by good old science and engineering, but a lot also hinges on experience and exhaustive listening and field tests. Yamaha Installation Series Speakers feature cabinets constructed from high-quality 11-ply Finland birch, as 16 millimeters thick in most models. Solid gluing of all joints and critical placements of internal bracing results in cabinets that virtually indestructible as well as resonance-free. The cabinets also feature a wrap-around grille that, in addition to being aesthetically pleasing, minimize reflections from the cabinet frame.





Handles & Pole Mount Sockets

All models (expect for IF2205) include integral handles that contribute significantly to the ease of handling and safety, whether the speakers are installed as a part of a fixed system or used for live sound and touring applications. The IF2112/AS, IF2115/AS, IF2108, and IF2208 models feature pole sockets so they can be easily pole mounted. The IS1112 subwoofer is also equipped with a pole socket which allows mounting a IF2108 or IF2208 speaker on the subwoofer.

When pole mounting, please refer to the precautions on the product pages and Yamaha's website: http://www.yamahaproaudio.com





Rigging

Multiple M10 rigging points are provided for shoulder eye-bolts or optional U-brackets. Four eye-bolts are supplied with each speaker. All hardware is industry-standard, and is compatible with third-party mounting accessories. Horizontal and vertical array frames are available in black or white to match the standard speaker finishes.

Horns

To allow the system designer maximum freedom and flexibility, all Yamaha Installation Series Speakers feature rotatable horns in a variety of configurations. 60° x 40°, 90° x 50°, and 90° x 90° horns are available for the 12-inch and 15-inch models, while 60° x 40° and 90° x 50° horns are available for the 3-way designs. 8-inch and 5-inch models feature 90° x 60° horns. The 12inch and 15inch model horns are made from fiber-reinforced plastic to minimize unwanted resonance.



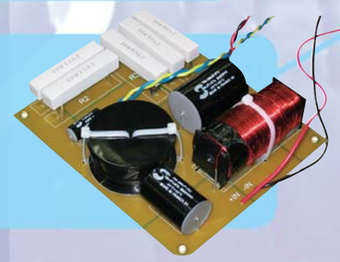
Connectors & Mode Selectors



To match the widest possible range of systems and wiring arrangements, Yamaha Installation Series Speakers feature parallel-connected barrier-strip and Neutrik NL4 connectors (NL8 on 3-way models). The IF2112/AS, IF2115/AS, IF2108, and IF2208 models feature an additional Neutrik NL4 connector — 1 barrier strip + 2 Neutrik NL4 connectors — to facilitate wiring in monitor applications. 12-inch and 15-inch 2-way models have a selector on the rear panel that allows easy switching between bi-amp and single-amplifier drive modes. The 8-inch and 5-inch models are designed for single-amp use only. 3-way models allow switching between tri-amp and bi-amp modes. Dual-woofer subwoofers also allow switching between parallel and discrete modes for maximum system compatibility and flexibility. All mode switches are recessed to prevent inadvertent operation.

Networks

Selected top-quality crossover network parts including heavy-gauge inductor wire, large film capacitors, and a painstakingly-designed circuit board deliver unmatched sonic quality and reliability. Heavy 16-gauge wire is used for all internal wiring.





Drivers

HF drivers feature one-piece titanium domes formed to precision tolerances for superior sound as well as long-term reliability. 12-inch, 15-inch and 18-inch woofer cones have been specially treated for water resistance, providing optimum durability in a widest range of operating environments.

Grille & Logo

Extremely rugged 14-gauge steel grills with a 63% aperture ratio protect your speakers without detracting from their sonic performance in any way. An acoustically-transparent foam is located behind the grilles for a smart, unobtrusive looks without degraded sound. The logo plate can easily be rotated to match the speaker's orientation, or removed completely.





Finish

The fact that speakers must sound good goes without saying, but in permanent installations they have to look good and match the interior of the venue, too. Yamaha Installation Series Speakers are available in black or white, featuring a durable textured paint. But if basic black or white doesn't suit your visual requirements, they can be easily repainted as required.

Three-way Full-range Speaker System

IF3115

IF3115/64(W) – Coverage 60° x 40°
IF3115/95(W) – Coverage 90° x 50°

Applications

- Performing Art Facilities/Theaters • Auditoriums
- Houses of Worship • Live Clubs
- Sports Facilities • Themed Entertainment Venues
- Delay/Fill Locations of Larger System

With an emphasis on superior sound quality and full-range reproduction, this high-quality 3-way speaker system delivers powerful, accurate sound for virtually any application. The system includes all the basic features common to the Installation Series lineup, such as horn dispersion selection, and rotatable horn. The IF3115 can be used to create any type of array, making it a versatile choice for any installation.

- **Two horn dispersion pattern models available: 60° x 40° and 90° x 50°.**
- **Horn can be rotated over 90-degree range, allowing vertical or horizontal mounting.**
- **15" low-frequency driver, 8" midrange driver, and 3" high-frequency compression driver with 1.4" exit.**
- **Switchable between bi-amp and tri-amp operation.**
- **Thirteen 10 mm-screw suspension points (M10) are provided, allowing flexible rigging.**
- **Durable black or white finish, which can be painted to match any interior.**
- **Optional matching array frame available.**
- **Four handles for carrying comfort.**
- **Parallel-wired Neutrik NL8 for tri-amp mode, NL4 for bi-amp mode and barrier strip connectors.**



IF3115/95

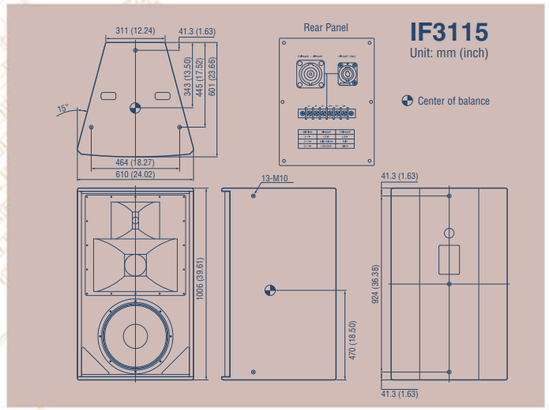
IF3115/64

Specifications

Model		IF3115/64(W)				IF3115/95(W)			
Drive Mode		**LF**	**Bi-amp**	**Tri-amp**		**LF**	**Bi-amp**	**Tri-amp**	
			MF/HF	**MF**	**HF**		**MF/HF**	**MF**	**HF**
Frequency Range (-10 dB) *1		45 Hz-20 kHz (Tri-amp mode)							
Frequency Range (±3 dB) *1		70 Hz-20 kHz (Tri-amp mode)							
Nominal Coverage (H x V, -6 dB)		60° x 40°, can be rotated to 40° x 60°				90° x 50°, can be rotated to 50° x 90°			
Power Rating *2	NOISE	700 W (AES)	125 W	125 W (AES)	110 W (AES)	700 W (AES)	125 W	125 W (AES)	110 W (AES)
	PGM	1400 W (AES)	250 W	250 W (AES)	220 W (AES)	1400 W (AES)	250 W	250 W (AES)	220 W (AES)
	MAX.	2800 W (AES)	500 W	500 W (AES)	440 W (AES)	2800 W (AES)	500 W	500 W (AES)	440 W (AES)
Nominal Impedance		8 ohms							
Sensitivity (1 W@1 m) SPL		97 dB	106 dB	106 dB	110 dB	97 dB	106 dB	106 dB	108 dB
Calculated Peak SPL		131 dB	133 dB	133 dB	136 dB	131 dB	133 dB	133 dB	134 dB
Calculated Continuous SPL		125 dB	127 dB	127 dB	130 dB	125 dB	127 dB	127 dB	128 dB
Components									
LF		15" (38 cm) Woofer, 4" (100 mm) Voice Coil							
MF		Rotatable Constant Directivity Horn, 8" (20 cm) Driver, 2" (50 mm) Voice Coil							
HF		Rotatable Constant Directivity Horn, 1.4" (36mm) exit, 3" (76mm) Voice Coil Compression Driver							
Enclosure									
Dimensions (W x H x D)		610 x 1,006 x 600 mm (24.0 x 39.6 x 23.6 in)							
Weight		64kg (140 lbs)							
Shape		30° Trapezoidal							
Material		3/4" (19 mm), 13 -ply Finnish Birch (Baffle, Partition), 5/8" (16 mm), 11-ply Finnish Birch							
Finish		Textured Black (Textured White)							
Grill		16 gauge powder coated perforated steel grilles, backed with acoustically transparent reticulated foam							
Connectors		1 x Neutrik NL8, 1x Neutrik NL4 and barrier strip, wired in parallel							
Flying Hardware		13 x M10 for shoulder eyebolts							
Pole Mounts		n/a							
Handle		Four							
Optional Accessory									
Array Frame		HAF2-3115 (W), HAF3-3115 (W), HAF3-S18 (W), VAF2-3115 (W)							
U-bracket		n/a							

* 1: With Recommended YAMAHA DSP configuration, full space.
* 2: 2 hrs. IEC noise.

Dimensions



2-way Mid/High-range Speaker System

IH2000

IH2000/64(W) – Coverage 60° x 40°
IH2000/95(W) – Coverage 90° x 50°

Applications

- Performing Art Facilities/Theaters
- Auditoriums • Houses of Worship • Live Clubs
- Sports Facilities • Themed Entertainment Venues
- Delay/Fill Locations of Larger System

Featuring an 8-inch midrange horn and a 3-inch high-frequency horn, the IH2000 covers the mid-to-high range with outstanding clarity. It is particularly useful for providing high frequency coverage in a variety of installations, and can be effectively used in combination with the IL1115 woofer (or other low-frequency systems) to add power to the low-end and expand the sound field. Two horn dispersion patterns are available to fit your particular requirements.

- **Two horn dispersion patterns models available: 60° x 40° and 90° x 50°.**
- **Horn can be rotated over 90-degree range, allowing vertical or horizontal mounting.**
- **8" midrange driver and 3" high-frequency compression driver with 1.4" exit.**
- **Switchable between single-amp and bi-amp operation.**
- **Fifteen 10mm-screw suspension points (M10) are provided, allowing flexible rigging.**
- **Durable black or white finish, which can be painted to match any interior.**
- **Optional matching array frame and U-bracket available.**
- **Two handles for carrying comfort.**
- **Parallel-wired Neutrik NL4 and barrier strip connectors.**



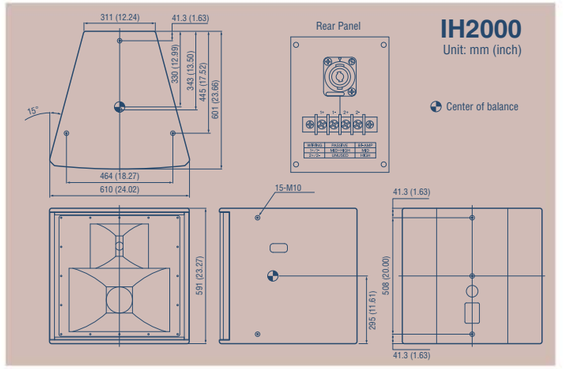
IH2000/64 IH2000/95

Specifications

Model		IH2000/64(W)			IH2000/95(W)			IL1115(W)
Drive Mode		**Passive**	**Bi-amp**		**Passive**	**Bi-amp**		**Passive**
			MF	**HF**		**MF**	**HF**	
Frequency Range (-10 dB) *1		200 Hz—20 kHz (Bi-amp mode)						45 Hz—2.5 kHz
Frequency Range (±3 dB) *1		250 Hz—20 kHz (Bi-amp mode)						70 Hz—2 kHz
Nominal Coverage (H x V, -6 dB)		60° x 40°, can be rotated to 40° x 60°			90° x 50°, can be rotated to 50° x 90°			n/a
Power Rating *2	NOISE	125 W	125 W (AES)	110 W (AES)	125 W	125 W (AES)	110 W (AES)	700 W (AES)
	PGM	250 W	250 W (AES)	220 W (AES)	250 W	250 W (AES)	220 W (AES)	1400 W (AES)
	MAX.	500 W	500 W (AES)	440 W (AES)	500 W	500 W (AES)	440 W (AES)	2800 W (AES)
Nominal Impedance		8 ohms						8 ohms
Sensitivity (1 W@1 m)SPL		106 dB	106 dB	110 dB	106 dB	106 dB	108 dB	97 dB
Calculated Peak SPL		133 dB	133 dB	136 dB	133 dB	133 dB	134 dB	131 dB
Calculated Continuous SPL		127 dB	127 dB	130 dB	127 dB	127 dB	128 dB	125 dB
Components								
LF		n/a						15" (38 cm) Woofer, 4" (100 mm) Voice Coil
MF		Rotatable Constant Directivity Horn, 8" (20 cm) Driver, 2" (50 mm) Voice Coil						n/a
HF		Rotatable Constant Directivity Horn, 1.4" (38 mm) exit, 3" (76mm) Voice Coil Compression Driver						n/a
Enclosure								
Dimensions (W x H x D)		610 x 591 x 600 mm (24.0 x 23.3 x 23.6 in)						610 x 591 x 600 mm (24.0 x 23.3 x 23.6 in)
Weight		33 kg (72 lbs)						38 kg (84 lbs)
Shape		30° Trapezoidal						30° Trapezoidal
Material		3/4" (19 mm), 13 -ply Finnish Birch (Baffle), 5/8" (16 mm), 11-ply Finnish Birch						3/4" (19 mm), 13 -ply Finnish Birch (Baffle), 5/8" (16 mm), 11-ply Finnish Birch
Finish		Textured Black (Textured White)						Textured Black (Textured White)
Grill		16 gauge powder coated perforated steel grilles, backed with acoustically transparent reticulated foam						16 gauge powder coated perforated steel grilles, backed with acoustically transparent reticulated foam
Connectors		1 x Neutrik NL4 and barrier strip, wired in parallel						1 x Neutrik NL4 and barrier strip, wired in parallel
Flying Hardware		15 x M10 for shoulder eyebolts and U-bracket						15 x M10 for shoulder eyebolts and U-bracket
Pole Mounts		n/a						n/a
Handle		Two						Two
Optional Accessory								
Array Frame		HAF2-3115 (W), HAF3-3115 (W), HAF3-S18 (W), VAF2-3115 (W)						HAF2-3115 (W), HAF3-3115 (W), HAF3-S18 (W), VAF2-3115 (W)
U-bracket		UB2000 (W)						UB2000 (W)

* 1: With Recommended YAMAHA DSP configuration, full space.
* 2: 2 hrs. IEC noise.

Dimensions



Low-frequency Speaker System

IL1115

Applications

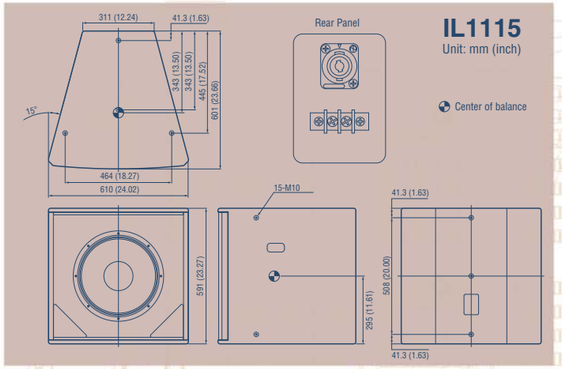
- Performing Art Facilities/Theaters
- Auditoriums • Houses of Worship
- Live Clubs • Sports Facilities
- Themed Entertainment Venues

This dedicated low-range speaker system is specifically designed to complement the mid/high-range IH2000.
Putting the two together gives you a powerful, high-quality 3-way system, for a variety of applications.

- **15" low-frequency driver.**
- **Fifteen 10mm-screw suspension points (M10) allows flexible rigging.**
- **Durable black or white finish, which can be painted to match any interior.**
- **Optional matching array frame and U-bracket available.**
- **Two handles for carrying comfort.**
- **Parallel-wired Neutrik NL4 and barrier strip connectors.**



IL1115



Two-way Full-range Speaker System

IF2112

IF2112/64 – Coverage 60° x 40°
IF2112/95 – Coverage 90° x 50°
IF2112/99 – Coverage 90° x 90°

IF2112M

IF2112M/64 – Coverage 60° x 40°
IF2112M/95 – Coverage 90° x 50°
IF2112M/99 – Coverage 90° x 90°

IF2115

IF2115/64 – Coverage 60° x 40°
IF2115/95 – Coverage 90° x 50°
IF2115/99 – Coverage 90° x 90°

IF2115M

IF2115M/64 – Coverage 60° x 40°
IF2115M/95 – Coverage 90° x 50°
IF2115M/99 – Coverage 90° x 90°

The IF2112 and IF2115 are multi-purpose high-power 2-way trapezoidal speaker systems. The IF2112M and IF2115M are the medium power versions of the IF2112 and IF2115 respectively. They are suitable for smaller venues or auxiliary speakers. The IF2112 series features a 12-inch woofer, while the IF2115 series features a 15-inch woofer. We've created three different horn dispersion patterns for this system, allowing optimum flexibility in cluster assemblies and effectively eliminating potential sound interference. Dispersion can be controlled by rotating the horn in 90-degree increments, allowing the speaker to easily be installed even in cramped locations with either vertical or horizontal mounting. Many eyebolt suspension points have been provided for different connections to the eyebolt, enabling flexible control over horn aiming. A single control allows you to easily switch the speaker between bi-amp mode, which provides greater sonic control and superior quality, than passive mode.

- **Linear phase design ensures constant group delay (correct timealignment).**
- **Uniform phase response throughout the entire Installation series minimizes destructive interference between speakers.**
- **Similar sound characteristics make using different models together easy.**
- **Three horn dispersion pattern models available: 60° x 40° (/64), 90° x 50° (/95), 90° x 90° (/99).**
- **Horn can be rotated in 90° increments to any of four positions.**
- **Medium-power models feature a 1.7" compression driver for wide listening areas.**
- **The largest size horn possible in an enclosure of this size, giving excellent pattern control with low distortion and good resolution.**
- **FRP horn construction minimizes unwanted resonance.**
- **Trapezoidal design eliminates interference in array use.**
- **Switchable between single-amp and bi-amp operation.**
- **Fifteen 10 mm (M10) threaded inserts.**
- **Four M10 shoulder eyebolts for flying are included as standard.**
- **Four 8 mm (M8) threaded inserts on rear panel for 3rd party wall/ceiling mounting brackets.**
- **Durable black or white finish, which can be painted to match any interior.**
- **Optional matching array frame and U-bracket available.**
- **Two handles for carrying comfort.**
- **Parallel-wired Neutrik NL4 and barrier strip connectors.**

Applications

- Performing Art Facilities/Theaters
- Auditoriums
- Houses of Worship
- Live Clubs
- Sports Facilities
- Themed Entertainment Venues
- Delay/Fill Locations of Larger System



Specifications

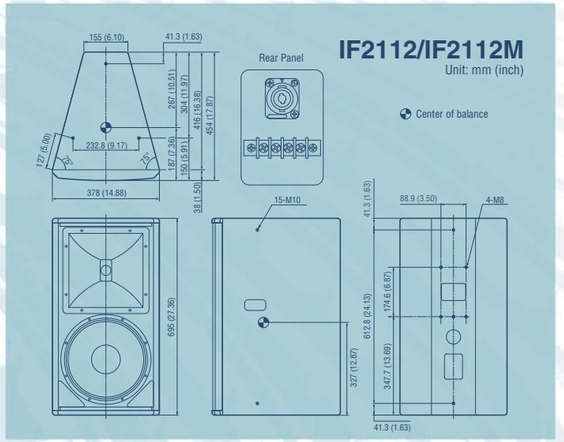
Model	IF2112/64(W)			IF2112/95(W)			IF2112/99(W)			IF2115/64(W)			IF2115/95(W)			IF2115/99(W)		
Drive Mode	Passive	Bi-amp		Passive	Bi-amp		Passive	Bi-amp		Passive	Bi-amp		Passive	Bi-amp		Passive	Bi-amp	
		LF	HF		LF	HF		LF	HF		LF	HF		LF	HF		LF	HF
Frequency Range (-10 dB) *1	50 Hz—20 kHz (Bi-amp mode)									45 Hz—20 kHz (Bi-amp mode)								
Frequency Range (±3 dB) *1	65 Hz—20 kHz (Bi-amp mode)									55 Hz—20 kHz (Bi-amp mode)								
Nominal Coverage (H x V, -6dB)	IF2112/64 (W): 60° x 40°, can be rotated to 40° x 60° IF2112/95 (W): 90° x 50°, can be rotated to 50° x 90° IF2112/99 (W): 90° x 90°									IF2115/64 (W): 60° x 40°, can be rotated to 40° x 60° IF2115/95 (W): 90° x 50°, can be rotated to 50° x 90° IF2115/99 (W): 90° x 90°								
Power Rating *2 NOISE	600 W	700 W (AES)	110 W (AES)	600 W	700 W (AES)	110 W (AES)	600 W	700 W (AES)	110 W (AES)	600 W	700 W (AES)	110 W (AES)	600 W	700 W (AES)	110 W (AES)	600 W	700 W (AES)	110 W (AES)
PGM	1200 W	1400 W (AES)	220 W (AES)	1200 W	1400 W (AES)	220 W (AES)	1200 W	1400 W (AES)	220 W (AES)	1200 W	1400 W (AES)	220 W (AES)	1200 W	1400 W (AES)	220 W (AES)	1200 W	1400 W (AES)	220 W (AES)
MAX.	2400 W	2800 W (AES)	440 W (AES)	2400 W	2800 W (AES)	440 W (AES)	2400 W	2800 W (AES)	440 W (AES)	2400 W	2800 W (AES)	440 W (AES)	2400 W	2800 W (AES)	440 W (AES)	2400 W	2800 W (AES)	440 W (AES)
Nominal Impedance	8 ohms									8 ohms								
Sensitivity (1 W@1 m) SPL	96 dB	96 dB	110 dB	96 dB	96 dB	108 dB	96 dB	96 dB	106 dB	97 dB	98 dB	110 dB	97 dB	98 dB	108 dB	97 dB	98 dB	106 dB
Calculated Peak SPL	130 dB	130 dB	136 dB	130 dB	130 dB	134 dB	130 dB	130 dB	132 dB	131 dB	132 dB	136 dB	131 dB	132 dB	134 dB	131 dB	132 dB	132 dB
Calculated Continuous SPL	124 dB	124 dB	130 dB	124 dB	124 dB	128 dB	124 dB	124 dB	126 dB	125 dB	126 dB	130 dB	125 dB	126 dB	128 dB	125 dB	126 dB	126 dB
Components																		
LF	12" (30 cm) Woofer, 4" (100 mm) Voice Coil									15" (38 cm) Woofer, 4" (100 mm) Voice Coil								
HF	Rotatable Constant Directivity Horn, 1.4" (38 mm) exit, 3" (76 mm) Voice Coil Compression Driver									Rotatable Constant Directivity Horn, 1.4" (38 mm) exit, 3" (76 mm) Voice Coil Compression Driver								

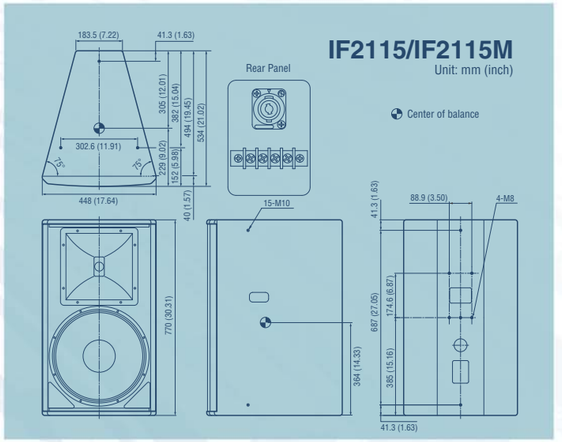
Model	IF2112M/64(W)			IF2112M/95(W)			IF2112M/99(W)			IF2115M/64(W)			IF2115M/95(W)			IF2115M/99(W)		
Drive Mode	Passive	Bi-amp		Passive	Bi-amp		Passive	Bi-amp		Passive	Bi-amp		Passive	Bi-amp		Passive	Bi-amp	
		LF	HF		LF	HF		LF	HF		LF	HF		LF	HF		LF	HF
Frequency Range (-10 dB) *1	55 Hz-20 kHz (Bi-amp mode)									45 Hz-20 kHz (Bi-amp mode)								
Frequency Range (±3 dB) *1	60 Hz-20 kHz (Bi-amp mode)									55 Hz-20 kHz (Bi-amp mode)								
Nominal Coverage (H x V, -6dB)	IF2112M/64 (W): 60° x 40°, can be rotated to 40° x 60° IF2112M/95 (W): 90° x 50°, can be rotated to 50° x 90° IF2112M/99 (W): 90° x 90°									IF2115M/64 (W): 60° x 40°, can be rotated to 40° x 60° IF2115M/95 (W): 90° x 50°, can be rotated to 50° x 90° IF2115M/99 (W): 90° x 90°								
Power Rating *2 NOISE	350 W	350 W (AES)	60 W (AES)	350 W	350 W (AES)	60 W (AES)	350 W	350 W (AES)	60 W (AES)	350 W	400 W (AES)	60 W (AES)	350 W	400 W (AES)	60 W (AES)	350 W	400 W (AES)	60 W (AES)
PGM	700 W	700 W (AES)	120 W (AES)	700 W	700 W (AES)	120 W (AES)	700 W	700 W (AES)	120 W (AES)	700 W	800 W (AES)	120 W (AES)	700 W	800 W (AES)	120 W (AES)	700 W	800 W (AES)	120 W (AES)
MAX.	1400 W	1400 W (AES)	240 W (AES)	1400 W	1400 W (AES)	240 W (AES)	1400 W	1400 W (AES)	240 W (AES)	1400 W	1600 W (AES)	240 W (AES)	1400 W	1600 W (AES)	240 W (AES)	1400 W	1600 W (AES)	240 W (AES)
Nominal Impedance	8 ohms									8 ohms								
Sensitivity (1 W@1 m) SPL	95 dB	96 dB	110 dB	95 dB	96 dB	108 dB	95 dB	96 dB	108 dB	97 dB	98 dB	110 dB	97 dB	98 dB	108 dB	97 dB	98 dB	108 dB
Calculated Peak SPL	126 dB	127 dB	134 dB	126 dB	127 dB	132 dB	126 dB	127 dB	132 dB	128 dB	130 dB	134 dB	128 dB	130 dB	132 dB	128 dB	130 dB	132 dB
Calculated Continuous SPL	120 dB	121 dB	128 dB	120 dB	121 dB	126 dB	120 dB	121 dB	126 dB	122 dB	124 dB	128 dB	122 dB	124 dB	126 dB	122 dB	124 dB	126 dB
Components																		
LF	12" (30 cm) Woofer, 3" (76 mm) Voice Coil									15" (38 cm) Woofer, 3" (76 mm) Voice Coil								
HF	Rotatable Constant Directivity Horn, 1.4" (36 mm) exit, 1.7" (44 mm) Voice Coil Compression Driver									Rotatable Constant Directivity Horn, 1.4" (36 mm) exit, 1.7" (44 mm) Voice Coil Compression Driver								

Enclosure		
Dimensions (W x H x D)	378 x 695 x 454 mm (14.9 x 27.4 x 17.9 in)	448 x 770 x 534 mm (17.6 x 30.3 x 21.0 in)
Weight	31 kg (68 lbs) IF2112 / 28 kg (61 lbs) IF2112M	39 kg (86 lbs) IF2115 / 34 kg (75 lbs) IF2115M
Shape	30° Trapezoidal	30° Trapezoidal
Material	5/8 inch (16 mm), 11-ply Finnish Birch	5/8 inch (16 mm), 11-ply Finnish Birch
Finish	Textured Black (Textured White)	Textured Black (Textured White)
Grill	16 gauge powder coated perforated steel grilles, backed with acoustically transparent reticulated foam	16 gauge powder coated perforated steel grilles, backed with acoustically transparent reticulated foam
Connectors	1 x Neutrik NL4 and barrier strip, wired in parallel*	1 x Neutrik NL4 and barrier strip, wired in parallel
Flying Hardware	15 x M10 for shoulder eyebolts and U-bracket, 4 x M8 for 3rd party speaker mount hardware	15 x M10 for shoulder eyebolts and U-bracket, 4 x M8 for 3rd party speaker mount hardware
Pole Mounts	n/a	n/a
Handle	Two	Two
Optional Accessory		
Array Frame	HAF2-2112 (W), HAF3-2112 (W), VAF2-2112 (W)	HAF2-2115 (W), HAF3-2115 (W), VAF2-2115 (W)
U-bracket	UB2112 (W)	UB2115 (W)
3rd Party Accessory		
OmniMount (US)	120.0 series	120.0 series
Multimount (US, Allen Products)	120 series	120 series
Powerdrive (UK)	120 series	120 series
OHASHI (Japan)	n/a	n/a

* 1: With Recommended YAMAHA DSP configuration, full space.
* 2: 2 hrs. IEC noise.

Dimensions





Asymmetrical 2-way Full-range Speaker System

IF2112/AS IF2115/AS

The IF2112/AS and IF2115/AS is multi-purpose high-power 2-way speaker systems. The IF2112/AS features a 12-inch woofer, the IF2115/AS features a 15-inch woofer, and an asymmetrical horn (hence the "AS" designation). The result is exceptionally clear and uniform high-frequency sound over a wide listening area. Dispersion can be controlled by rotating the horn in 90-degree increments, allowing the speaker to easily be installed even in cramped locations with either vertical or horizontal mounting.
The IF2115/AS is also extremely versatile, as they can be installed vertically, hung from ceilings, placed on the floor as stage foldback monitors, or mounted on pole stands. A single control allows you to easily switch the speaker between bi-amp mode, which provides greater sonic control and superior quality, than passive mode.

- **Linear phase design ensures constant group delay (correct timealignment).**
- **Uniform phase response throughout the entire Installation series minimizes destructive interference between speakers.**
- **Similar sound characteristics make using different models together easy.**
- **Asymmetrical horn (60°-100° x 60° dispersion pattern).**
- **Horn can be rotated in 90° increments to any of four positions.**
- **The largest size horn possible in an enclosure of this size, giving excellent pattern control with low distortion and good resolution.**
- **FRP horn construction minimizes unwanted resonance.**
- **Multi-angle cabinet design enables floor monitor applications.**
- **Switchable between single-amp and bi-amp operation.**
- **Sixteen 10 mm (M10) threaded inserts.**
- **Four M10 shoulder eyebolts for flying are included as standard.**
- **Durable black or white finish, which can be painted to match any interior.**
- **Optional matching U-bracket available.**
- **Pole mountable.**
- **Two handles for carrying comfort.**
- **Parallel-wired two Neutrik NL4 and barrier strip connectors.**

Applications

- Performing Art Facilities/Theaters
- Auditoriums
- Houses of Worship
- Live Clubs
- Sports Facilities
- Themed Entertainment Venues
- Stage Monitors
- Side Fill



Stand mountable*



Foldback



IF2115/AS



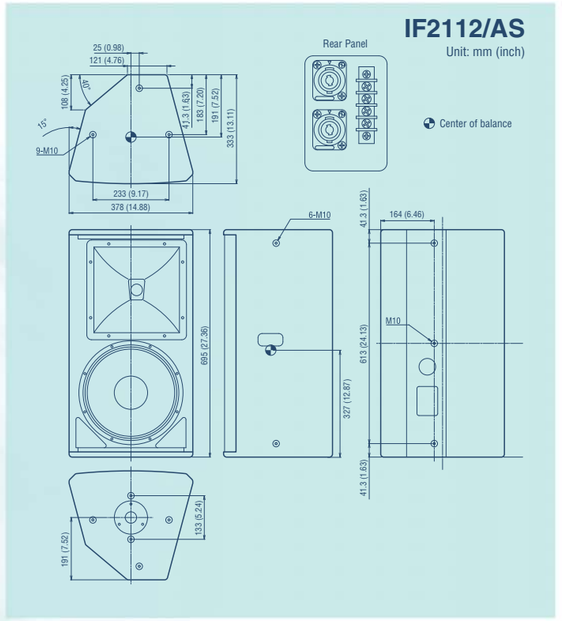
IF2112/AS

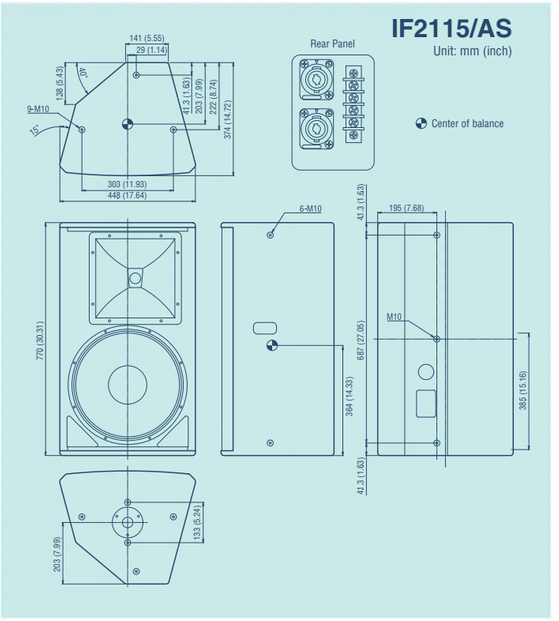
Specifications

Model		IF2112/AS(W)			IF2115/AS(W)		
Drive Mode		**Passive**	**Bi-amp**		**Passive**	**Bi-amp**	
			LF	**HF**		**LF**	**HF**
Frequency Range (-10 dB) *1		50 Hz—20 kHz (Bi-amp mode)			45 Hz—20 kHz (Bi-amp mode)		
Frequency Range (±3 dB) *1		70 Hz—20 kHz (Bi-amp mode)			60 Hz—20 kHz (Bi-amp mode)		
Nominal Coverage (H x V, -6 dB)		60—100° x 60°, can be rotated to 60° x 60—100°			60—100° x 60°, can be rotated to 60° x 60—100°		
Power Rating *2	NOISE	600 W	700 W (AES)	110 W (AES)	600 W	700 W (AES)	110 W (AES)
	PGM	1200 W	1400 W (AES)	220 W (AES)	1200 W	1400 W (AES)	220 W (AES)
	MAX.	2400 W	2800 W (AES)	440 W (AES)	2400 W	2800 W (AES)	440 W (AES)
Nominal Impedance		8 ohms			8 ohms		
Sensitivity (1 W@1 m) SPL		96 dB	96 dB	108 dB	97 dB	98 dB	108 dB
Calculated Peak SPL		130 dB	130 dB	134 dB	131 dB	132 dB	134 dB
Calculated Continuous SPL		124 dB	124 dB	128 dB	125 dB	126 dB	128 dB
Components							
LF		12" (30 cm) Woofer, 4" (100 mm) Voice Coil			15" (38 cm) Woofer, 4" (100 mm) Voice Coil		
HF		Rotatable Constant Directivity Horn, 1.4" (38 mm) exit, 3" (76 mm) Voice Coil Compression Driver			Rotatable Constant Directivity Horn, 1.4" (38 mm) exit, 3" (76 mm) Voice Coil Compression Driver		
Enclosure							
Dimensions (W x H x D)		695 x 378 x 333 mm (27.4 x 14.9 x 13.1 in)			770 x 448 x 374 mm (30.3 x 17.6 x 14.7 in)		
Weight		29 kg (64 lbs)			35 kg (77 lbs)		
Shape		Multi-angle wedge			Multi-angle wedge		
Material		5/8 inch (16 mm), 11-ply Finnish Birch			5/8 inch (16 mm), 11-ply Finnish Birch		
Finish		Textured Black (Textured White)			Textured Black (Textured White)		
Grill		16 gauge powder coated perforated steel grilles, backed with acoustically transparent reticulated foam			16 gauge powder coated perforated steel grilles, backed with acoustically transparent reticulated foam		
Connectors		2 x Neutrik NL4 and barrier strip, wired in parallel			2 x Neutrik NL4 and barrier strip, wired in parallel		
Flying Hardware		16 x M10 for shoulder eyebolts and U-bracket			16 x M10 for shoulder eyebolts and U-bracket		
Pole Mounts		One			One		
Handle		Two			Two		
Optional Accessory							
Array Frame		n/a			n/a		
U-bracket		UB2112 (W)			UB2115 (W)		
3rd Party Accessory							
OmniMount (US)		n/a			n/a		
Multimount (US, Allen Products)		n/a			n/a		
Powerdrive (UK)		n/a			n/a		
OHASHI (Japan)		n/a			n/a		

* 1: With Recommended YAMAHA DSP configuration, full space.
* 2: 2 hrs. IEC noise.

Dimensions





***Warning when using the pole socket**
Make sure that the pole is mounted vertically when you mount the speaker to the pole.
Mounting the pole at an angle puts excessive stress on the socket and may result in damage to the socket.
Please refer to the owner's manual and Yamaha Pro Audio website for details.

2-way Full-range Speaker System

IF2108 IF2208

The IF2208 and IF2108 are highly versatile, highly compact 2-way full-range speaker systems. The IF2208 features dual 8-inch woofers. The IF2108 features a single 8-inch woofer. The IF2108 is ideal for underbalcony use, pole-stand mounting or floor monitor applications. The rotatable horn design allows vertical or horizontal enclosure orientation. Multiple suspension points are provided for an exceptionally wide range of installation options.

- **Linear phase design ensures constant group delay (correct timealignment).**
- **Uniform phase response throughout the entire Installation series minimizes destructive interference between speakers.**
- **Similar sound characteristics make using different models together easy.**
- **90° x 60° dispersion pattern.**
- **Horn can be rotated in 90° increments to any of four positions.**
- **Multi-angle cabinet design enables floor monitor applications.**
- **Eleven 10 mm (M10) threaded inserts.**
- **Four M10 shoulder eyebolts for flying are included as standard.**
- **Six 8 mm (M8) threaded inserts on rear panel for 3rd party wall/ceiling mounting brackets.**
- **Durable black or white finish, which can be painted to match any interior.**
- **Optional matching U-bracket available.**
- **Pole mountable.**
- **One handle for carrying comfort.**
- **Parallel-wired 2 x Neutrik NL4 and barrier strip connectors.**

Applications

• Performing Art Facilities/Theaters • Auditoriums/Conference Rooms
• Houses of Worship • Live Clubs & Bars • Sports Facilities • Floor Monitors
• Themed Entertainment Venues • Delay/Fill, Under Balcony Locations



IF2108

IF2208



IF2108W

2-way Full-range Speaker System

IF2205

The IF2205 is the most compact unit in the Installation Series, and is ideal for small-to-medium sized concert halls and ballrooms. The stair-step design allows this versatile speaker to be inconspicuously mounted in stair treads, stage lips, or under balconies. The convenient U-bracket ensures secure wall mounting, while the rotatable horn enables either vertical or horizontal installation.

- **Linear phase design ensures constant group delay (correct timealignment).**
- **Uniform phase response throughout the entire Installation series minimizes destructive interference between speakers.**
- **Similar sound characteristics make using different models together easy.**
- **90° x 60° dispersion pattern.**
- **Horn can be rotated in 90° increments to any of four positions.**
- **Six 8 mm (M8) threaded inserts.**
- **Two 6 mm (M6) threaded inserts for 3rd party wall/ceiling mounting brackets.**
- **Stair-step design allows to be mounted in stair treads, stage lips, or under balconies.**
- **Durable black or white finish, which can be painted to match any interior.**
- **Optional matching U-bracket available.**
- **Barrier strip connectors.**

Applications

• Performing Art Facilities/Theaters • Auditoriums • Houses of Worship
• Live Clubs & Bars • Sport Facilities • Themed Entertainment Venue
• Delay/Fill, Under Balcony Locations • Stair Step



IF2205W

IF2205

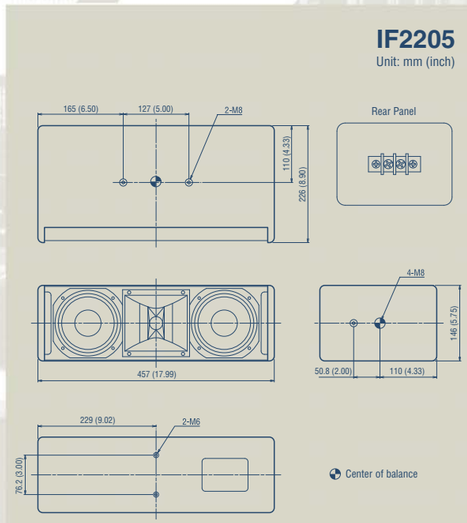
Specifications

Model		IF2205(W)	IF2108(W)	IF2208(W)
Drive Mode		**Passive**	**Passive**	**Passive**
Frequency Range (-10 dB) *1		65 Hz—19 kHz	55 Hz—19 kHz	55 Hz—19 kHz
Frequency Range (±3 dB) *1		85 Hz—18 kHz	75 Hz—18 kHz	75 Hz—18 kHz
Nominal Coverage (H x V, -6 dB)		90° x 60°, can be rotated to 60° x 90°	90° x 60°, can be rotated to 60° x 90°	90° x 60°, can be rotated to 60° x 90°
Power Rating *2	NOISE	100 W	100 W	200 W
	PGM	200 W	200 W	400 W
	MAX.	400 W	400 W	800 W
Nominal Impedance		8 ohms	8 ohms	8 ohms
Sensitivity (1 W@1 m) SPL		89 dB	95 dB	95 dB
Calculated Peak SPL		115 dB	121 dB	124 dB
Calculated Continuous SPL		109 dB	115 dB	118 dB
Components				
LF		2 x 5" (12.5 cm) Woofer, 1" (25 mm) Voice Coil	8" (20 cm) Woofer, 2" (50 mm) Voice Coil	2 x 8" (20 cm) Woofer, 2" (50 mm) Voice Coil
HF		Rotatable Constant Directivity Horn, 1" (25 mm) exit, 1" (25 mm) Voice Coil Compression Driver	Rotatable Constant Directivity Horn, 1" (25 mm) exit, 1.7" (44 mm) Voice Coil Compression Driver	Rotatable Constant Directivity Horn, 1" (25 mm) exit, 1.7" (44 mm) Voice Coil Compression Driver
Enclosure				
Dimensions (W x H x D)		146 x 457 x 226 mm (5.8 x 18.0 x 8.9 in)	448 x 283 x 250 mm (17.6 x 11.1 x 9.8 in)	673 x 283 x 250 mm (26.5 x 11.1 x 9.8 in)
Weight		7.5 kg (17 lbs)	14 kg (31 lbs)	19 kg (42 lbs)
Shape		Rectangular	Multi-angle wedge	Multi-angle wedge
Material		1/2 inch (12 mm), 9-ply Finnish Birch	5/8 inch (16 mm), 11-ply Finnish Birch	5/8 inch (16 mm), 11-ply Finnish Birch
Finish		Textured Black (Textured White)	Textured Black (Textured White)	Textured Black (Textured White)
Grill		16 gauge powder coated perforated steel grilles, backed with acoustically transparent reticulated foam	16 gauge powder coated perforated steel grilles, backed with acoustically transparent reticulated foam	16 gauge powder coated perforated steel grilles, backed with acoustically transparent reticulated foam
Connectors		Barrier strip	2 x Neutrik NL4 and barrier strip, wired in parallel	2 x Neutrik NL4 and barrier strip, wired in parallel
Flying Hardware		6 x M8 for shoulder eyebolts and U-bracket 2 x M6 for 3rd party speaker mount hardware	11 x M10 for shoulder eyebolts and U-bracket 6 x M8 for 3rd party speaker mount hardware	11 x M10 for shoulder eyebolts and U-bracket 6 x M8 for 3rd party speaker mount hardware
Pole Mounts		n/a	One	One
Handle		n/a	One	One
Optional Accessory				
Array Frame		n/a	n/a	n/a
U-bracket		UB2205 (W)	UB2108 (W)	UB2208 (W)
3rd Party Accessory				
OmniMount (US)		20.5 series	60.0 series	60.0 series
Multimount (US, Allen Products)		080 series	020, 022 series	020, 022 series
Powerdrive (UK)		75 series	100 series	100 series
OHASHI (Japan)		SPH-140, SPA-140, BCH-140 series	SPH-140, SPA-140, BCH-140 series	SPH-140, SPA-140, BCH-140 series

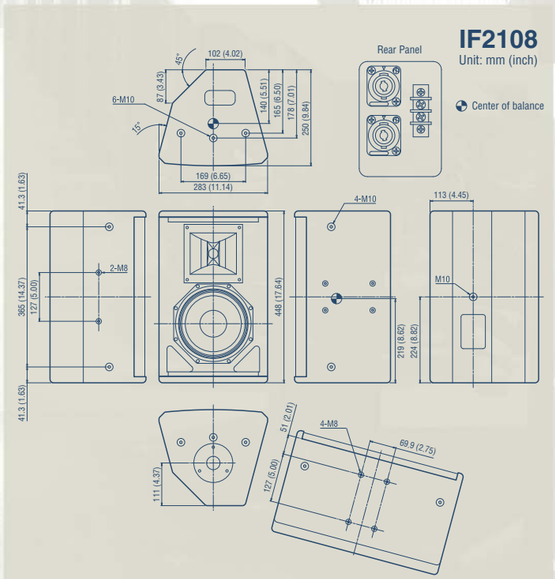
* 1: With Recommended YAMAHA DSP configuration, full space.
* 2: 2 hrs. IEC noise.

Dimensions

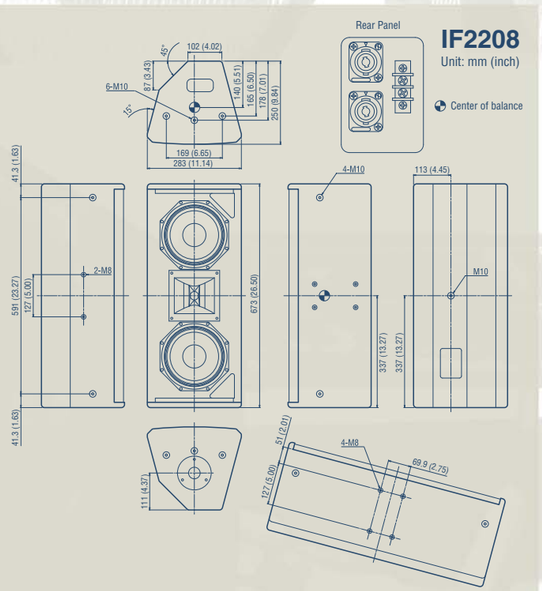
IF2205
Unit: mm (inch)



IF2108
Unit: mm (inch)



IF2208
Unit: mm (inch)



Warning when using the pole socket
Make sure that the pole is mounted vertically when you mount the speaker to the pole.
Mounting the pole at an angle puts excessive stress on the socket and may result in damage to the socket.
Please refer to the owner's manual and Yamaha Pro Audio website for details.

IS1112

Applications

- Performing Art Facilities/Theaters • Auditoriums
- Houses of Worship • Live Clubs & Bars
- Sports Facilities • Themed Entertainment Venues

The IS1112 is a 12" high power subwoofer.A range of different suspension points have been provided for convenient flying. Furthermore, high-quality, full-spectrum reproduction can be realized by combining a floor-mounted IS1112 with a pole-mounted IF2108 or IF2208 full-range speaker.

- **High power subwoofer.**
- **5/8 inch (16 mm), 11-ply Finnish Birch for Baffle.**
- **Internally braced construction.**
- **Twelve 10 mm (M10) threaded inserts.**
- **Four M10 shoulder eyebolts for flying are included as standard.**
- **Durable black or white finish, which can be painted to match any interior.**
- **Two handles for carrying comfort.**
- **Output connector provided for linking with full-range speakers without the need for special cables.**
- **Parallel-wired Neutrik NL4 and barrier strip connectors.**



IS1112

IS1215

Applications

- Performing Art Facilities/Theaters • Auditoriums
- Houses of Worship • Live Clubs
- Sports Facilities • Themed Entertainment Venues

The IS1215 is a high power subwoofer system comprised of dual 15-inch woofers. This IS1215 can be clustered in the same fashion as the 2-way models. Many eyebolt suspension points have been provided for easy flying. The IS1215 is an ideal match for full-range speakers such as IF2112/2115 - for maximum power and full-spectrum reproduction. A single control allows you to easily switch the speaker between discrete mode, which provides greater sonic control and superior quality, than parallel mode.

- **High power subwoofer.**
- **Dual woofers switchable between discrete drive and parallel drive.**
- **3/4 inch (19 mm), 13-ply Finnish Birch for Baffle and Inner Wall.**
- **Internally braced construction.**
- **Twelve 10 mm (M10) threaded inserts.**
- **Four M10 shoulder eyebolts for flying are included as standard.**
- **Durable black or white finish, which can be painted to match any interior.**
- **Four handles for carrying comfort.**
- **Parallel-wired Neutrik NL4 and barrier strip connectors.**



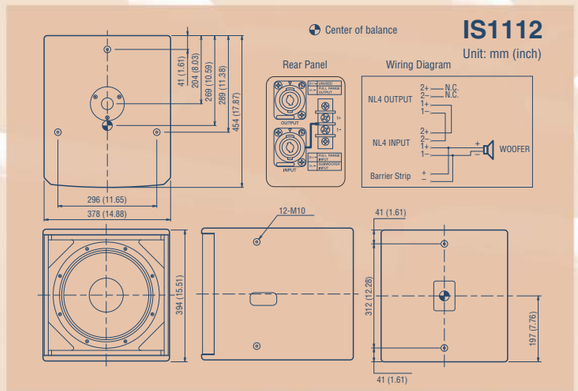
IS1215

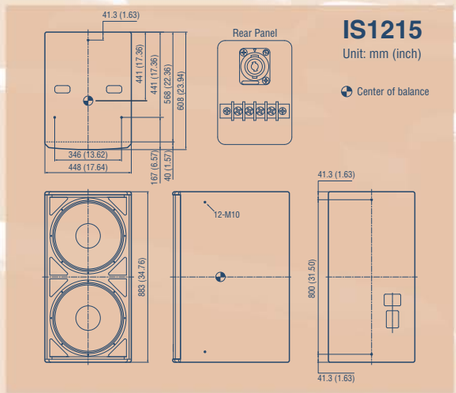
Specifications

Model		IS1112(W)	IS1215(W)	
Drive Mode		**Passive**	**Parallel**	**Discrete**
Frequency Range (-10 dB) *1		45Hz—2 kHz	40 Hz—2.5 kHz	
Frequency Range (±3 dB) *1		55Hz—500 Hz	50 Hz—2 kHz	
Nominal Coverage (H x V, -6 dB)		n/a	n/a	
Power Rating	NOISE	700 W (AES)	1400 W (AES)	2 x 700 W (AES)
	PGM	1400 W (AES)	2800 W (AES)	2 x 1400 W (AES)
	MAX.	2800 W (AES)	5600 W (AES)	2 x 2800 W (AES)
Nominal Impedance		8 ohms	4 ohms	2 x 8 ohms
Sensitivity (1 W@1 m) SPL		93 dB	97 dB	100 dB
Calculated Peak SPL		127 dB	134 dB	134 dB
Calculated Continuous SPL		121 dB	128 dB	128 dB
Components				
LF		12" (30 cm) Woofer, 4" (100 mm) Voice Coil	2 x 15" (38 cm) Woofer, 4" (100 mm) Voice Coil	
HF		n/a	n/a	
Enclosure				
Dimensions (W x H x D)		378 x 394 x 454 mm (14.9 x 15.5 x 17.9 in)	448 x 883 x 610 mm (17.6 x 34.8 x 24.0 in)	
Weight		24.0 kg (53 lbs)	63 kg (139 lbs)	
Shape		Rectangular	Rectangular	
Material		5/8 in (16 mm), 11-ply Finnish Birch	3/4 inch (19 mm), 13-ply Finnish Birch (Baffle and Inner Wall), 5/8 inch (16 mm), 11-ply Finnish Birch	
Finish		Textured Black (Textured White)	Textured Black (Textured White)	
Grill		16 gauge powder coated perforated steel grilles, backed with acoustically transparent reticulated foam	16 gauge powder coated perforated steel grilles, backed with acoustically transparent reticulated foam	
Connectors		Input: 1 x Neutrik NL4 and barrier strip, wired in parallel Output: 1 x Neutrik NL4	1 x Neutrik NL4 and barrier strip, wired in parallel	
Flying Hardware		12 x M10 for shoulder eyebolts	12 x M10 for shoulder eyebolts	
Pole Mounts		1 x ø35 mm (1-3/8 in) pole mount on the top *	n/a	
Handle		Two	Four	
Optional Accessory				
Array Frame		n/a	n/a	
U-bracket		n/a	n/a	

* 1: With Recommended YAMAHA DSP configuration, full space.

Dimensions





* Please refer to the precautions on the Owner's Manual and Yamaha Pro Audio website when using the pole socket.

IS1118

Applications

- Performing Art Facilities/Theaters • Auditoriums
- Houses of Worship • Live Clubs
- Sports Facilities • Themed Entertainment Venues

The IS1118 is a high power subwoofer system comprised of a single 18-inch woofer. This IS1118 can be clustered in the same fashion as the 2-way models. Many eyebolt suspension points have been provided for easy flying. The IS1118 is an ideal match for full-range speakers such as IF2112/2115 - for maximum power and full-spectrum reproduction.

- **High power subwoofer.**
- **3/4 inch (19 mm), 13-ply Finnish Birch for Baffle.**
- **Internally braced construction.**
- **Twelve 10 mm (M10) threaded inserts.**
- **Four M10 shoulder eyebolts for flying are included as standard.**
- **Durable black or white finish, which can be painted to match any interior.**
- **Optional matching Array frame available.**
- **Two handles for carrying comfort.**
- **Parallel-wired Neutrik NL4 and barrier strip connectors.**



IS1118

IS1218

Applications

- Performing Art Facilities/Theaters • Auditoriums
- Houses of Worship • Live Clubs
- Sports Facilities • Themed Entertainment Venues

The IS1218 is a high power subwoofer system comprised of dual 18-inch woofers. Multiple suspension points are provided. This IS1218 can be clustered in the same fashion as the 2-way models. Many eyebolt suspension points have been provided for easy flying. The IS1218 is an ideal match for full-range speakers such as IF2112/2115 - for maximum power and full-spectrum reproduction. A single control allows you to easily switch the speaker between discrete mode, which provides greater sonic control and superior quality, than parallel mode.

- **High power subwoofer.**
- **Dual woofers switchable between discrete drive and parallel drive.**
- **3/4 inch (19 mm), 13-ply Finnish Birch for Baffle and Inner Wall.**
- **Internally braced construction.**
- **Twelve 10 mm (M10) threaded inserts.**
- **Four M10 shoulder eyebolts for flying are included as standard.**
- **Durable black or white finish, which can be painted to match any interior.**
- **Optional matching Array frame available.**
- **Four handles for carrying comfort.**
- **Parallel-wired Neutrik NL4 and barrier strip connectors.**



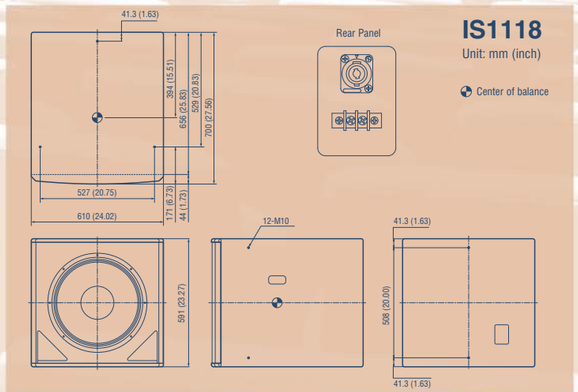
IS1218

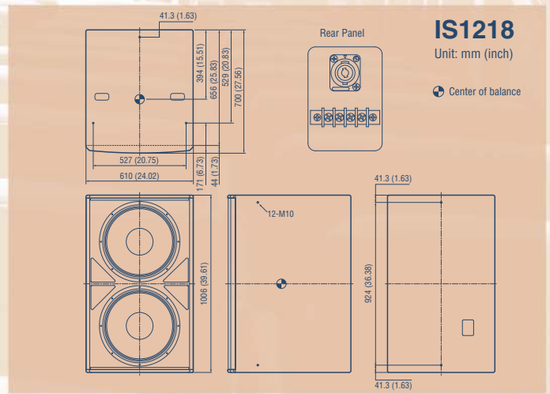
Specifications

Model		IS1118(W)	IS1218(W)	
Drive Mode		**Passive**	**Parallel**	**Discrete**
Frequency Range (-10 dB) *1		33 Hz—3 kHz	33 Hz—3 kHz	
Frequency Range (±3 dB) *1		40 Hz—2.5 kHz	40 Hz—2.3 kHz	
Nominal Coverage (H x V, -6 dB)		n/a	n/a	
Power Rating	NOISE	700 W (AES)	1400 W (AES)	2 x 700 W (AES)
	PGM	1400 W (AES)	2800 W (AES)	2 x 1400 W (AES)
	MAX.	2800 W (AES)	5600 W (AES)	2 x 2800 W (AES)
Nominal Impedance		8 ohms	4 ohms	2 x 8 ohms
Sensitivity (1 W@1 m) SPL		96 dB	99 dB	102 dB
Calculated Peak SPL		130 dB	136 dB	136 dB
Calculated Continuous SPL		124 dB	130 dB	130 dB
Components				
LF		18" (46 cm) Woofer, 4" (100 mm) Voice Coil	2 x 18" (46 cm) Woofer, 4" (100 mm) Voice Coil	
HF		n/a	n/a	
Enclosure				
Dimensions (W x H x D)		610 x 591 x 709 mm (24.0 x 23.3 x 27.9 in)	610 x 1,006 x 709 mm (24.0 x 39.6 x 27.9 in)	
Weight		44 kg (97 lbs)	76 kg (168 lbs)	
Shape		Rectangular	Rectangular	
Material		3/4 inch (19 mm), 13-ply Finnish Birch (Baffle), 5/8 inch (16 mm), 11-ply Finnish Birch	3/4 inch (19 mm), 13-ply Finnish Birch (Baffle and Inner Wall), 5/8 inch (16 mm), 11-ply Finnish Birch	
Finish		Textured Black (Textured White)	Textured Black (Textured White)	
Grill		16 gauge powder coated perforated steel grilles, backed with acoustically transparent reticulated foam	16 gauge powder coated perforated steel grilles, backed with acoustically transparent reticulated foam	
Connectors		1 x Neutrik NL4 and barrier strip, wired in parallel	1 x Neutrik NL4 and barrier strip, wired in parallel	
Flying Hardware		12 x M10 for shoulder eyebolts	12 x M10 for shoulder eyebolts	
Pole Mounts		n/a	n/a	
Handle		Two	Four	
Optional Accessory				
Array Frame		HAF3-S18 (W)	HAF3-S18 (W)	
U-bracket		n/a	n/a	

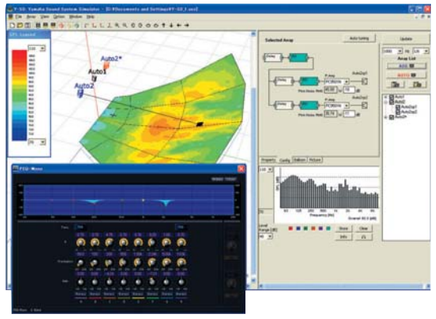
* 1: With Recommended YAMAHA DSP configuration, full space.

Dimensions





Y-S^3 Yamaha Sound System Simulator





V2.0 Features

Now allows simulation of distributed speaker systems.

- Distributed speakers mounted on ceilings and walls can now be simulated.

Advanced auto layout features.

- Automatically place speaker array(s) at optimal locations by choosing from various layout patterns.
- Automatically layout distributed speaker systems by choosing from a variety of layout patterns and configurations.

Improved simulation report feature.

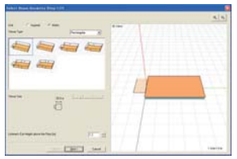
- New report feature gives comprehensive project information including venue geometry, product list, system diagram, contour/SPL color map, etc.
- Comprehensive project report is generated in HTML format.

Main Features

- This acoustic simulation software combines the essential elements of Yamaha Professional Audio acoustic technology for all sound handled from input to output, including DSP, amps, speakers, and even the venue's design.
- The software provides superb accuracy and reliability thanks to the knowledge and experience of the Yamaha Center for Advanced Sound Technologies, which is at the forefront of the world's acoustic technology with its Active Field Control and Acoustic Modeling, and has employed its advanced acoustic technology in the acoustic design of many concert halls.
- With sophisticated graphic user interface and user-friendly settings wizard, simulation can be performed precisely and easily.
- You can easily set and change the venue shape, conditions, and other aspects with the wizard, and make graphical visualizations of sound pressure level distribution at receiving points, frequency characteristics graphs, and contour figures. Plus it provides auralization, which lets you hear the sound with your ears using any sound source for even better monitoring.
- The built-in Yamaha Speaker "Installation Series" library makes it easy to use with the Yamaha Power Amplifier Tn series, PC-N series, XP series, DME64N, DME24N, DME8o, DME4io Digital Mixing Engines and the SP2060 Speaker Processor to facilitate total acoustic system planning.
- You can generate DDF and DAF data for exporting simulation results to DME64N, DME24N, DME8o, DME4io and SP2060. You can put the simulation result to use in your actual system setup quickly and with little effort.
- Convenient features such as the auto layout of array speakers and auto setting of speaker parameters are included to conduct the important tasks of speaker selection, positioning, and setting of speaker array.

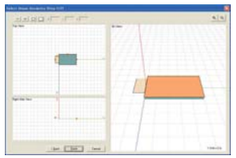
This section introduces the features in the order used with the software.

STEP 1



1) Select the Venue Geometry for Calculation.

Select from five Venue Templates: Rectangular, Fan, Circle, Cross, and Polygon. The chosen geometry is displayed in 3D. The receiving point is usually the height of the listeners' ears. Select the height from the floor to the receiving surface from the list box.



2) Use Floor Edit to better determine the shape of the simulation venue.

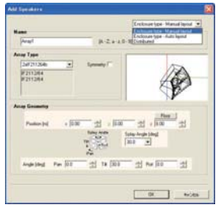
Floor Edit is performed for the horizontal floor plans and vertical cross sections with the mouse. Units for measurements can be selected from feet or meters.



3) Open "Project Properties" under the "file" menu.

Select the "Calculation" tab. Here, configure simulation settings such as "humidity, temperature, calculation precision, phase consideration, etc.Also select "system" and "others" tabs to configure further system settings and details.

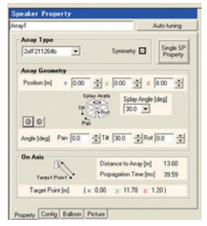
STEP 2



1) Set the speaker array.

You can choose manual or automatic layout of speaker array(s). You may also choose to add distributed speaker systems by clicking the menu on the upper right hand side.

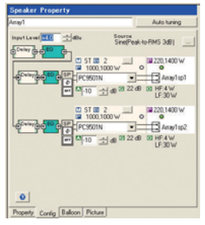
Choose the speaker array from the list and install the speakers in the desired positions. Yamaha Installation Series speakers are preset in the library and ca be selected easily. Then set position, tilt, pan, rotate, splay angle, and symmetry for the selected speaker array or system.



2) Set various conditions for the speaker array.

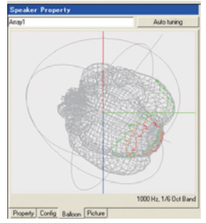
Simulation begins when you select the speaker array.
You can change several conditions for the speaker array in real-time as you view the simulation result to optimize the sound field design.
You can set array, position, tilt, pan, rotate, target point, distance, arrival time, SP properties, and other features.

STEP 3



1) Set output configuration.

The Y-S^3 automatically creates the output configurations based on the set speaker system. They are displayed on the speaker array property configuration screen. You may check/alter settings such as amplifier input level, delay, PEQ, gain, attenuation, amplifier drive mode, etc.



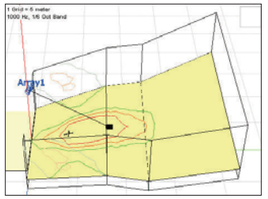
2) Check directivity of speaker array (balloon).

Balloon data (directivity data for each frequency) for the speaker array can be checked on the screen in 3D.
Balloon data is displayed for each frequency.

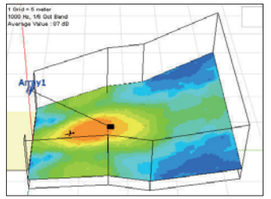
STEP 4

1) Simulation result is displayed with visualized diagrams.

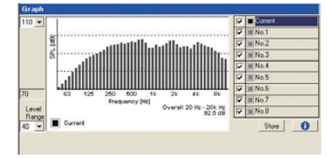
The Y-S^3 can visualize the simulation result with instantly understandable diagrams like those below.



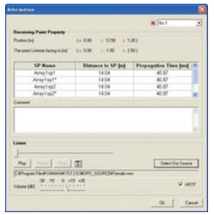
• Contour Figure:
A contour figure for -3dB, -6dB and -9dB of 1/1 octave band is displayed in the main window.



• Sound Pressure Level Distribution:
Choose SPL mode to display the sound pressure level distribution.The sound pressure level distribution for selected frequencies and bandwidths can be displayed.



• Frequency Characteristics Graph:
The bandwidth on the frequency characteristics graph can be changed to 1/1, 1/3, 1/6, or FFT.



2) Check simulation results with your ears through auralization.

Y-S^3 Not only provides visualization of simulation, but also lets you check the direct sound simulation result with your ears using a pre-recorded dry sound source. Comparative listening from multiple receiving points can also be performed.

Procedure: Save frequency response at current listening point by selecting memory slot ("No. 1 to 8") and then press "Store". Then press "Info" button.

STEP 5

1) Save the configuration in DME format.

Y-S^3 automatically generates an output configuration for all speaker systems that are installed, and saves it in the format of DME Designer, the application software for DME control.
If you use the Yamaha Digital Mixing Engine DME64N, DME24N, DME8o, DME4io or SP2060 as a speaker processor, you can efficiently construct a sound system with greater accuracy and minimal effort.

2) Generate a project report.

Y-S^3 can generate a complete report of simulatedresults and system configurations in one HTML file.

System Requirements

CPU:	Pentium processor 700MHz (1G Hz or higher recommended)
OS:	Windows XP professional
Hard Disk:	214MB
Memory:	256 MB (512 MB or higher recommended)
Display:	1024 x 768, 256 colors, DirectX 9.0C Supported PC
Sound Card:	16-bit 44.1kHz Stereo

SP2060 Speaker Processor



The Yamaha SP2060 is an advanced 2-in/6-out digital speaker processor that provides the full range of functions required for precision speaker system setup, and more: input equalization, zone delay, crossover, output equalization, alignment delay, and limiting. All of this is provided in a competitively priced 1U rack-mount unit with professional 24-bit 96-kHz performance that allows the full potential of Yamaha digital mixers, power amplifiers, and the Installation Series speakers to come through unimpeded. In fact, the SP2060 comes with internal presets that have been pre-programmed specifically for the Installation Series speakers. If the presets don't precisely meet your needs, you still have a head start that will significantly reduce setup time.

In addition to balanced analog inputs the SP2060 features a stereo AES/EBU digital input for direct connection to digital mixer outputs. Much of the technology used in the SP2060 is inherited from Yamaha's respected DME24N and DME64N Digital Mixing Engines, and like those units the SP2060 can be connected to a computer or controller vie Ethernet for remote parameter editing and control.

Components



Input Module



Speaker Processor

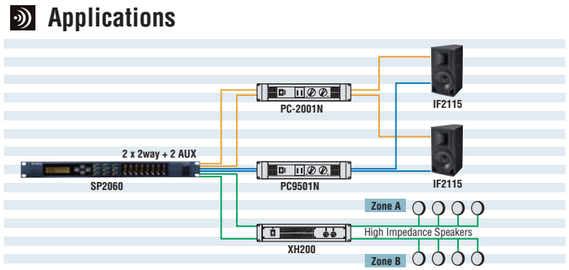


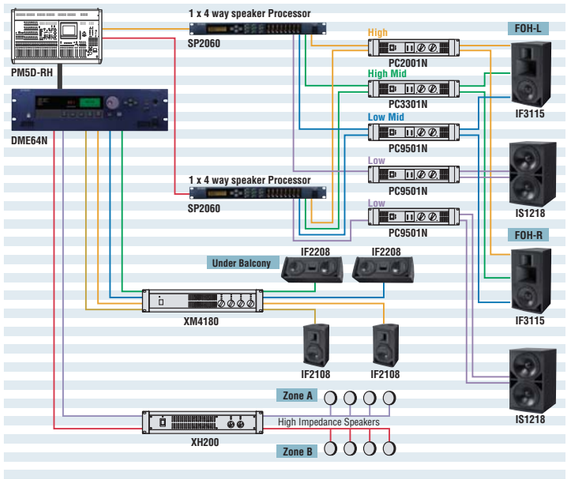
Input Delay



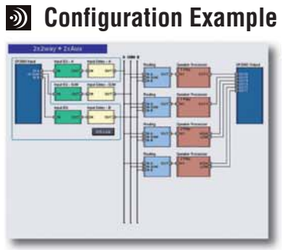
Routing

Applications

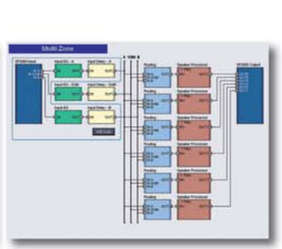




Configuration Example



2 x 2way + 2 x Aux



Multi Zone

Specifications

Analog I/O Characteristics

Terminals	Actual Load Impedance	For Use With Nominal	Level		Connector
			Nominal	Max. before clip	
INPUT A,B	10 k ohms	600 ohms Lines	+4 dBu (1.23 V)	+24 dBu (12.28 V)	XLR-3-31 type (Balanced)
OUTPUT 1-6	75 ohms	600 ohms Lines	+4 dBu (1.23 V)	+24 dBu (12.28V)	XLR-3-32 type (Balanced)

Digital Input Characteristics

Terminal	Format	Data length	Level	Connector
DIGITAL INPUT AES/EBU	AES/EBU	24bit	RS422	XLR-3-31 type (Balanced)

General Specifications

Sampling Frequency	Internal Clock		96 kHz	
	External Clock	Normal Rate	44.0559 kHz—48.048 kHz	
		Double Rate	88.1118 kHz—96.096 kHz	
Signal Delay	761µsec INPUT to Output		fs=96 kHz	
Frequency Response	20 Hz—40 kHz (TYP 0 dB, MAX +0.5 dB, MIN -1.0 dB)		fs=96 kHz	RL=600 ohms
Total Harmonic Distortion	0.007 % (+22 dBu@1kHz), 0.05% (+4 dBu@20 Hz—20 kHz) measured with 18 dB/octave filter @80 kHz		fs=96 kHz	RL=600 ohms
Ham & Noise	TYP -82 dBu MAX -79 dBu measured with 6 dB/octave filter @12.7 kHz; equivalent to a 20 kHz filter with infinite dB/octave attenuation.		fs=96 kHz	RL=600 ohms Rs=150 ohms
Dynamic Range	106 dB AD+DA measured with 6 dB/octave filter @12.7 kHz; equivalent to a 20 kHz filter with infinite dB/octave attenuation.		fs=96 kHz	RL=600 ohms
Crosstalk@1KHz	-80 dB INPUT to Output measured with 18 dB/octave filter @80 kHz		fs=96 kHz	
Dimensions (WxHxD)	480 x 360.2 x 44 mm			
Net Weight	4.2 kg			

* In these specifications, 0 dBu is referenced to 0.775 Vrms.
* All AD converters are 24 bit linear, 64 times oversampling. (Fs=96 kHz)
* All DA converters are 24 bit linear,128 times oversampling. (Fs=48 kHz) /64 times oversampling. (Fs=96 kHz)

Accessories

Durable black or white finish as well as Installation Series speaker, which can be painted to match any interior.

Array Frame

Horizontal Array Frame (3 speakers)



Model	Net weight	Available for
HAF3-2112	9kg	IF2112(M)/95/64/99 x 3
HAF3-2115	10kg	IF2115(M)/95/64/99 x 3
HAF3-3115	14kg	IF3115/95/64 x 3
		IH2000/95/64 x 3
		IH2000/95/64 x 2 and IL1115 x 1
		IH2000/95/64 x 1 and IL1115 x 2
		IL1115 x 3
HAF3-S18	29kg	IF3115/95/64 x 2 and IS1218 x 1
		IH2000/95/64 x 2 and IS1118 x 1

Horizontal Array Frame (2 speakers)



Model	Net weight	Available for
HAF2-2112	4kg	IF2112(M)/96/64/99 x 2
HAF2-2115	5kg	IF2115(M)/95/64/99 x 2
HAF2-3115	6kg	IF3115/95/64 x 2
		IH2000/95/64 x 1 and IL1115

Vertical Array Frame (2 speakers)



Model	Net weight	Available for
VAF2-2112	4kg	IF2112(M)/95/64/99 x 2
VAF2-2115	5kg	IF2115(M)/95/64/99 x 2
VAF2-3115	6kg	IF3115/95/64 x 2
		IH2000/95/64 x 2

Brackets

U-Brackets





Model	Net weight	Available for
UB2112	4kg	IF2112(M)/95/64/99/AS
UB2115	9kg	IF2115(M)/95/64/99/AS
UB2000	9kg	IH2000/95/64
		IL1115
UB2208	3kg	IF2208
UB2108	2kg	IF2108
UB2205	1kg	IF2205

Wall Brackets





Model	Net weight	Available for
BWS251-300	4.4kg	IF2208
		IF2108
		IF2205
BWS251-400	5.2kg	IF2208
		IF2108
		IF2205

Ceiling Brackets





Model	Net weight	Available for
BCS251	2.3kg	IF2208
		IF2108
		IF2205

Baton Brackets





Model	Net weight	Available for
BBS251	2.3kg	IF2208
		IF2108
		IF2205

* The bracket for the UB series is designed to be used horizontally. It cannot be used vertically.
* Download the Rigging Guide from Yamaha's website for rigging details; http://www.yamahaproaudio.com