YAMAHA

commercial audio

Yamaha Installation Series Loudspeakers

2006 BROCHURE

INSTALLATION SERIES

YAMAHA INSTALLATION SERIES SPEAKERS

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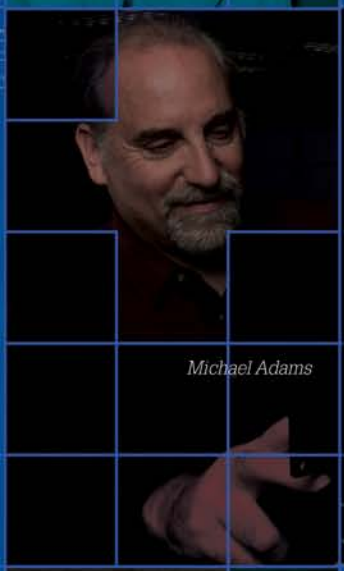

Michael Adams

Yamaha Technician assembling a speaker at the Thomaston factory

The Installation Series speaker line was conceived and produced through a unique and powerful collaboration of two companies and two engineers. Audio Composite Engineering, also known as ACE, and their gifted Acoustic Engineer Michael Adams were retained by Yamaha to realize the installation series concept of Yamaha's legendary speaker engineer Akira Nakamura. For over 4 decades Mr. Nakamura had developed a wide variety of musical instruments, as well as hi-fi and commercial speakers, the most famous speaker being the legendary NS-10M studio monitor.

With over 3 decades of experience as a speaker designer and front of house & monitor mixing engineer, for the likes of Jimmy Buffett, Jackson Browne, Warren Zevon, Emmylou Harris and others, Michael Adams has developed speakers for major manufacturers and installs.

By combining into a single team, a synergy was created to deliver the most natural and accurate sounding loudspeaker line.

Yamaha's Commitment

Built in the USA at Yamaha's Thomaston Georgia Factory, Yamaha applies the same precision and build quality as found in our fine pianos, which are also manufactured at the same facility.

We reinforce our consistent and outstanding build quality with a 5-year manufacturer's warranty. Our factory capacity and commitment to on time delivery means you wont be left hanging when your project is ready to go.

Yamaha's Installation Series

The Installation Series provides a wide range of models with seamlessly integrated hardware to meet the expectations of contractors and end-users for audio quality, ease of installation and system design.

The exceptional uniform phase response is key to the accurate sonic performance of the Installation Series.

Common phase response design throughout the line minimizes the reduction of sound level and unwanted coloration in the "overlapped" area when combining/arraying speakers.

The phase differential among all models is designed to be less than 90° at 2kHz.

This achieves a minimal variation in phase response in the off axis performance, and the over all effect on frequency response is held to a minimum, ensuring a consistent family sound of speakers.

GENERAL LOUDSPEAKER FEATURES

- Ideal for medium to large-scale installations.
- Uniform phase response throughout the entire series.
- A wide selection of dispersion characteristics for long-range, short range, and long/short range use.
- Standard U-bracket and array-frame hardware available for maximum installation convenience and efficiency.
- Switchable single-amp and bi-amp drive modes.
- Certified measurement and prediction EASE data. Including polar plots, CAD files, and DXF data.

Cabinet Construction

- High strength premium 11-ply / 5/8 inch-thick Finland Birch enclosures on most models.
- Full dado joint construction combined with high quality adhesives minimizes cabinet vibrations.
- Most models have a 30° trapezoidal cabinet shape.
- IF2112/AS, IF2115/AS, IF2108, and IF2208 models feature a multi-angle design that allows them to be utilized as mains and floor monitors.

Grille and Brand Logo

- Heavy 14 –gauge powder coated steel grilles.
- "Wrap-around" grille design minimizes cabinet edge refraction.
- 63% transparency for better clarity of sound.
- Aesthetically designed highly transparent foam for improved acoustic sound.
- Easy to rotate or remove Yamaha logo.

Rigging

- Speaker enclosures are pre-fitted with M10 threaded inserts and are supplied with 4 forged eyebolts. Multiple rigging points allow for flexible rigging horizontally and vertically with Yamaha and 3rd party hardware.
- Optional "U" brackets are available in black and white.
- Rigging frame options available for horizontal and vertical arraying in black and white.

Connectors and Mode Select Switch

- Speakers include a barrier-strip and NL4 Neutrik* with parallel connections.
- Multi-angle cabinet models, IF2112/AS, IF2115/AS, IF2108, and IF2208, have two NL4 connectors with a barrier-strip for floor monitor applications.
- The selector switch is located on the back panel and allows for selection of bi-amp or (passive) single-amp drive mode on all 12" and 15" 2-way models.
- The selector switch on the IF3115 3-way models allows for selection of tri-amp or bi-amp modes.
- On the dual driver subwoofer models, IS1215 and IS1218, the selector switch allows for parallel or discrete modes.

Horns

- Horns are manufactured from fiber-reinforced plastic to minimize unwanted resonance.
- The entire line of speakers incorporates rotatable horns, when space consideration dictates the speaker's orientation.
- 12" and 15" 2-way models are available with the following horn coverage patterns: 60° x 40°, 90° x 50°, 90° x 90°, and asymmetric 60°~100° H X 60°V.
- IF3115 3-way models and the IH2000 2-way Mid/High frequency loudspeakers will incorporate 60° x 40° and 90° x 50° horns.
- IF2205, IF2108, IF2208 designs feature 90° x 60° horns.

Networks

- Networks are made with high-quality components.
  - — Heavy-gauge wire inductors
  - — Large film capacitors
  - — 16-gauge internal wiring
- Advanced circuit board designs deliver unmatched sonic quality and reliability.

Drivers

- High frequency drivers feature one-piece titanium diaphragms formed to precision tolerances for high performance, endurance and superior sonic quality.
- Total Weather Proofing (TWP) coating on all 12", 15" and 18" woofers for improved durability and dampening.
- All 12" and 15" High-Power full range models utilize 4" voice coils in the woofers and 3" voice coils in the matching high frequency drivers.
- All 12" and 15" Mid-Power full range models utilize 3" voice coils in the woofers and 1.7" voice coils in the matching high frequency drivers.

Handles and Pole Mount Sockets

- Multi-angled models, IF2112/AS, IF2115/AS, IF2108, and IF2208, are equipped with side handles and pole-mount sockets for portability.

Finish

- All speakers are available in durable textured black and white paint. All speakers are "ready to paint" for custom colors.

** 3-way models utilize NL8 Neutrik connectors. IF2205 has barrier strip only.*

System Type	2-Way Full-Range Loudspeaker			2-Way Full-Range Loudspeaker		
Model	**IF2112/AS(W)**			**IF2115/AS(W)**		
Specifications/Drive Mode	**Passive**	**Bi-Amp**		**Passive**	**Bi-Amp**	
Frequency Response(±3dB) (4π)*	70 Hz-20k Hz (Bi-amp mode)			60 Hz-20k Hz (Bi-amp mode)		
Frequency Range(-10dB) (4π)*	50 Hz-20k Hz (Bi-amp mode)			45 Hz-20k Hz (Bi-amp mode)		
Nominal Coverage(H x V, -6dB)	60 - 100°x 60°			60 - 100°x 60°		
All horns can be rotated						
Power Rating	600 W(EIA)	LF : 700 W(AES)	HF : 80 W(AES)	600 W(EIA)	LF : 700 W(AES)	HF : 80 W(AES)
Nominal Impedance	8 ohms	LF : 8 ohms	HF : 8 ohms	8 ohms	LF : 8 ohms	HF : 8 ohms
Sensitivity(1W@1m)	96dB SPL	LF : 96dB SPL	HF : 108dB SPL	97dB SPL	LF : 98dB SPL	HF : 108dB SPL
Calculated Peak SPL	130dB SPL	LF : 130dB SPL	HF : 133dB SPL	131dB SPL	LF : 132dB SPL	HF : 133dB SPL
Calculated Continuous SPL	124dB SPL	LF : 124dB SPL	HF : 127dB SPL	125dB SPL	LF : 126dB SPL	HF : 127dB SPL
Components						
LF	12" Woofer, 4" Voice Coil			15" Woofer, 4" Voice Coil		
HF	Rotatable Constant Directivity Horn, 1.4" exit, 3" Voice Coil Compression Driver			Rotatable Constant Directivity Horn, 1.4"exit, 3" Voice Coil Compression Driver		
Enclosure						
Dimensions (H x W x D)	27.4 x 14.9 x 13.1 in (695 x 378 x 333 mm)			30.3 x 17.6 x 14.7 in (770 x 448 x 374 mm)		
Weight	61 lbs (28kg)			78 lbs (36 kg)		
Shape	Multi-Angle Wedge			Multi-Angle Wedge		
Material	5/8inch (16mm), 11-ply Finland Birch			5/8inch (16mm), 11-ply Finland Birch		
Finish	Textured Black (Textured White)			Textured Black (Textured White)		
Grill	14 gauge powder coated perforated steel grilles, backed with acoustically transparent reticulated foam			14 gauge powder coated perforated steel grilles, backed with acoustically transparent reticulated foam		
Connectors	2x Neutric NL4 and barrier strip, wired in parallel			2x Neutric NL4 and barrier strip, wired in parallel		
Suspension Points	16x M10			16x M10		
Pole Mounts	One			One		
Handle	Two			Two		
Optional Accessory						
U-bracket	UB2112(W)			UB2115(W)		
Array Frame **						

* With recommended YAMAHA DSP configuration. ** HAFX Horizontal Array Frame where X=Number of arrayed Loudspeakers. ** VAFX Vertical Array Frame where X=Number of arrayed Loudspeakers.

** HAF3-S18(W) Horizontal Array Frame for arraying, 2 x IF3115 and 1 x IS1218 or 2x IH2000 and 1 x IS1118. (W) denotes white version 2 hrs. IEC noise ⊙

System Type	2-Way Full-Range Loudspeaker			2-Way Full-Range Loudspeaker				
Model	IF2112(W)			IF2112M(W)				
Specifications/Drive Mode	Passive	Bi-Amp		Passive	Bi-Amp			
Frequency Response(±3dB) (4π)*	65 Hz-20k Hz (Bi-amp mode)			60 Hz-20k Hz (Bi-amp mode)				
Frequency Range(-10dB) (4π)*	50 Hz-20k Hz (Bi-amp mode)			55 Hz-20k Hz (Bi-amp mode)				
Nominal Coverage(H x V, -6dB)	IF2112/64(W): 60°x 40°			IF2112M/64(W): 60°x 40°				
All horns can be rotated	IF2112/95(W): 90°x 50°			IF2112M/95(W): 90°x 50°				
	IF2112/99(W): 90° x 90°			IF2112M/99(W): 90° x 90°				
					Common to all	*IF2112M/64(M)*	*IF2112M/95(M)*	*IF2112M/99(W)*
Power Rating	600 W(EIA)	LF : 700 W(AES)	HF : 80 W(AES)	350 W⊙	LF : 350 W(AES)	HF : 60 W(AES)	HF : 60 W(AES)	HF : 60 W(AES)
Nominal Impedance	8 ohms	LF : 8 ohms	HF : 8 ohms	8 ohms	LF : 8 ohms	HF : 8 ohms	HF : 8 ohms	HF : 8 ohms
Sensitivity(1W@1m)	96dB SPL	LF : 96dB SPL	HF : 110dB SPL	95dB SPL	LF : 96dB SPL	HF : 110dB SPL	HF : 108dB SPL	HF : 108dB SPL
Calculated Peak SPL	130dB SPL	LF : 130dB SPL	HF : 135dB SPL	126dB SPL	LF : 127dB SPL	HF : 134dB SPL	HF : 132dB SPL	HF : 132dB SPL
Calculated Continuous SPL	124dB SPL	LF : 124dB SPL	HF : 129dB SPL	120dB SPL	LF : 121dB SPL	HF : 128dB SPL	HF : 126dB SPL	HF : 126dB SPL
Components								
LF	12" Woofer, 4" Voice Coil			12" Woofer, 3" Voice Coil				
HF	Rotatable Constant Directivity Horn, 1.4" exit, 3" Voice Coil Compression Driver			Rotatable Constant Directivity Horn, 1.4" exit, 1.7" Voice Coil Compression Driver				
Enclosure								
Dimensions (H x W x D)	27.4 x 14.9 x 17.9 in (695 x 378 x 454 mm)			27.4 x 14.9 x 17.9 in (695 x 378 x 454 mm)				
Weight	61 lbs (28kg)			61 lbs (28kg)				
Shape	30°Trapozoidal			30°Trapozoidal				
Material	5/8inch (16mm), 11-ply Finland Birch			5/8inch (16mm), 11-ply Finland Birch				
Finish	Textured Black (Textured White)			Textured Black (Textured White)				
Grill	14 gauge powder coated perforated steel grilles, backed with acoustically transparent reticulated foam			14 gauge powder coated perforated steel grilles, backed with acoustically transparent reticulated foam				
Connectors	1x Neutric NL4 and barrier strip, wired in parallel			1x Neutric NL4 and barrier strip, wired in parallel				
Suspension Points	15x M10 4x M8			15x M10 4x M8				
Pole Mounts								
Handle								
Optional Accessory								
U-bracket	UB2112(W)			UB2112(W)				
Array Frame **	HAF2-2112(W), HAF3-2112(W), VAF2-2112(W)			HAF2-2112(W), HAF3-2112(W), VAF2-2112(W)				

* With recommended YAMAHA DSP configuration. ** HAFX Horizontal Array Frame where X=Number of arrayed Loudspeakers. ** VAFX Vertical Array Frame where X=Number of arrayed Loudspeakers.

** HAF3-S18(W) Horizontal Array Frame for arraying, 2 x IF3115 and 1 x IS1218 or 2x IH2000 and 1 x IS1118. (W) denotes white version 2 hrs. IEC noise ⊙

System Type	2-Way Full-Range Loudspeaker			2-Way Full-Range Loudspeaker				
Model	IF2115(W)			IF2115M(W)				
Specifications/Drive Mode	Passive	Bi-Amp		Passive	Bi-Amp			
Frequency Response(±3dB) (4π)*	60 Hz-20k Hz (Bi-amp mode)			55 Hz-20k Hz (Bi-amp mode)				
Frequency Range(-10dB) (4π)*	45 Hz-20k Hz (Bi-amp mode)			45 Hz-20k Hz (Bi-amp mode)				
Nominal Coverage(H x V, -6dB)	IF2115/64(W): 60°x 40°			IF2115/64(W): 60°x 40°				
All horns can be rotated	IF2115/95(W): 90°x 50°			IF2115/95(W): 90°x 50°				
	IF2115/99(W): 90° x 90°			IF2115/99(W): 90° x 90°				
					Common to all	*IF2115M/64(M)*	*IF2115M/95(M)*	*IF2115M/99(W)*
Power Rating	600 W(EIA)	LF : 700 W(AES)	HF : 80 W(AES)	350 W ⊙	LF : 400 W(AES)	HF : 60 W(AES)	HF : 60 W(AES)	HF : 60 W(AES)
Nominal Impedance	8 ohms	LF : 8 ohms	HF : 8 ohms	8 ohms	LF : 8 ohms	HF : 8 ohms	HF : 8 ohms	HF : 8 ohms
Sensitivity(1W@1m)	97dB SPL	LF : 98dB SPL	HF : 110dB SPL	97dB SPL	LF : 98dB SPL	HF : 110dB SPL	HF : 108dB SPL	HF : 108dB SPL
Calculated Peak SPL	131dB SPL	LF : 132dB SPL	HF : 135dB SPL	128dB SPL	LF : 130dB SPL	HF : 134dB SPL	HF : 132dB SPL	HF : 132dB SPL
Calculated Continuous SPL	125dB SPL	LF : 126dB SPL	HF : 129dB SPL	122dB SPL	LF : 124dB SPL	HF : 128dB SPL	HF : 126dB SPL	HF : 126dB SPL
Components								
LF	15" Woofer, 4" Voice Coil			15" Woofer, 3" Voice Coil				
HF	Rotatable Constant Directivity Horn, 1.4"exit, 3" Voice Coil Compression Driver			Rotatable Constant Directivity Horn, 1.4"exit, 1.7" Voice Coil Compression Driver				
Enclosure								
Dimensions (H x W x D)	30.3 x 17.6 x 21.0 in (770 x 448 x 534 mm)			30.3 x 17.6 x 21.0 in (770 x 448 x 534 mm)				
Weight	78 lbs (36 kg)			75 lbs (34 kg)				
Shape	30°Trapozoidal			30°Trapozoidal				
Material	5/8inch (16mm), 11-ply Finland Birch			5/8inch (16mm), 11-ply Finland Birch				
Finish	Textured Black (Textured White)			Textured Black (Textured White)				
Grill	14 gauge powder coated perforated steel grilles, backed with acoustically transparent reticulated foam			14 gauge powder coated perforated steel grilles, backed with acoustically transparent reticulated foam				
Connectors	1x Neutric NL4 and barrier strip, wired in parallel			1x Neutric NL4 and barrier strip, wired in parallel				
Suspension Points	15x M10 4x M8			15x M10 4x M8				
Pole Mounts								
Handle								
Optional Accessory								
U-bracket	UB2115(W)			UB2115(W)				
Array Frame **	HAF2-2115(W), HAF3-2115(W), VAF2-2115(W)			HAF2-2115(W), HAF3-2115(W), VAF2-2115(W)				

* With recommended YAMAHA DSP configuration. ** HAFX Horizontal Array Frame where X=Number of arrayed Loudspeakers. ** VAFX Vertical Array Frame where X=Number of arrayed Loudspeakers.

** HAF3-S18(W) Horizontal Array Frame for arraying, 2 x IF3115 and 1 x IS1218 or 2x IH2000 and 1 x IS1118. (W) denotes white version 2 hrs. IEC noise ⊙

System Type	3-Way Full-Range Loudspeaker				2-Way Mid-High Frequency Speaker			Low Frequency Speaker
Model	IF3115(W)				IH2000(W)			IL1115(W)
Specifications/Drive Mode	Bi-Amp Mode (MF/HF Passive)		Tri-Amp Mode		Passive Mode	Bi-Amp Mode		
Frequency Response(±3dB) (4π)*			45Hz-20KHz			250Hz-20KHz		70Hz-2KHz
Frequency Range(-10dB) (4π)*			70Hz-20KHz			200Hz-20KHz		45Hz-2.5KHz
Nominal Coverage(H x V, -6dB)	IF3115/64(W): 60°x 40°				IH2000/64(W):60°x 40°			n/a
All horns can be rotated	IF3115/95(W): 90°x 50°				IH2000/95(W):90°x 50°			
Power Rating	LF : 700W(AES)	MF/HF: 125W⊛	MF : 125W(AES)	HF : 80W(AES)	MF/HF: 125W⊛	MF : 125W(AES)	HF : 80W(AES)	700W(AES)
Nominal Impedance	LF : 8 ohms	MF/HF : 8 ohms	MF : 8 ohms	HF : 8 ohms	MF/HF : 8 ohms	MF : 8 ohms	HF : 8 ohms	8 ohms
Sensitivity(1W@1m)	LF : 97dB SPL	MF/HF : 106dB SPL	MF : 106dB SPL	HF : 110dB SPL	MF/HF : 106dB SPL	MF : 106dB SPL	HF : 108dB SPL	97dB SPL
Calculated Peak SPL	LF : 131dB SPL	MF/HF : 133dB SPL	MF : 133dB SPL	HF : 135dB SPL	MF/HF : 133dB SPL	MF : 133dB SPL	HF : 133dB SPL	131dB SPL
Calculated Continuous SPL	LF : 125dB SPL	MF/HF : 127dB SPL	MF : 127dB SPL	HF : 129dB SPL	MF/HF : 127dB SPL	MF : 127dB	HF : 127dB SPL	125dB SPL
Components								
LF	15" Woofer, 4" Voice Coil				n/a			15" Woofer, 4" Voice Coil
HF	Rotatable Constant Directivity Horn, 8" Woofer, 2" Voice Coil Rotatable Constant Directivity Horn, 1.4" exit, 3" Diaphram Compression Driver				Rotatable Constant Directivity Horn, 8" Woofer, 2" Voice Coil Rotatable Constant Directivity Horn, 1.4" exit, 3" Diaphram Compression Driver			n/a n/a
Enclosure								
Dimensions (H x W x D)	39.6 x 24.0 x 23.6" (1006 x 610 x 600mm)				23.3 x 24.0 x 23.6" (591 x 610 x 600mm)			23.3 x 24.0 x 23.6" (591 x 610 x 600mm)
Weight	140 lbs. (64 kg.)				72 lbs. (33 kg.)			84 lbs. (38 kg.)
Shape	30°Trapozoidal				30°Trapozoidal			30°Trapozoidal
Material	3/4" (19mm), 13 ply Finland Birch (Baffle and Divider Wall) 5/8" (16mm), 11 ply Finland Birch				3/4" (19mm), 13 ply Finland Birch (Baffle) 5/8" (16mm), 11 ply Finland Birch			3/4" (19mm), 13 ply Finland Birch (Baffle) 5/8" (16mm), 11 ply Finland Birch
Finish	Textured Black (Textured White)				Textured Black (Textured White)			Textured Black (Textured White)
Grill	14 gauge powder coated perforated steel backed with acoustically transparent reticulated foam				14 gauge powder coated perforated steel backed with acoustically transparent reticulated foam			14 gauge powder coated perforated steel backed with acoustically transparent reticulated foam
Connectors	1 x Neutric NL8, 1 x Neutric NL4 and barrier strip, wired in parallel				1 x Neutric NL4 and barrier strip, wired in parallel			1 x Neutric NL4 and barrier strip, wired in parallel
Suspension Points	13 x M10				15x M10			15x M10
Pole Mounts								
Handle								
Optional Accessory								
U-bracket					UB2000(W)			UB2000(W)
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)			HAF2-3115(W), HAF3-3115(W), VAF2-3115(W)

* With recommended YAMAHA DSP configuration. ** HAFX Horizontal Array Frame where X=Number of arrayed Loudspeakers. ** VAFX Vertical Array Frame where X=Number of arrayed Loudspeakers.
** HAF3-S18(W) Horizontal Array Frame for arraying, 2 x IF3115 and 1 x IS1218 or 2x IH2000 and 1 x IS1118. (W) denotes white version 2 hrs. IEC noise ⊛

System Type	Subwoofer		Subwoofer	Subwoofer	
Model	IS1218(W)		IS1118(W)	IS1215(W)	
Specifications/Drive Mode	Parallel	Discrete		Parallel	Discrete
Frequency Response(±3dB) (4π)*	40 Hz-2.3k Hz		40 Hz-2.5k Hz	50 Hz-2k Hz	
Frequency Range(-10dB) (4π)*	33 Hz-3k Hz		33 Hz-3k Hz	40 Hz-2.5k Hz	
Nominal Coverage(H x V, -6dB)	n/a		n/a	n/a	
All horns can be rotated					
Power Rating	1400 W(AES)	2x 700 W(AES)	700 W(AES)	1400 W(AES)	2x 700 W(AES)
Nominal Impedance	4 ohms	2x 8 ohms	8 ohms	4 ohms	2x 8 ohms
Sensitivity(1W@1m)	99dB SPL	102dB SPL	96dB SPL	97dB SPL	100dB SPL
Calculated Peak SPL	136dB SPL	136dB SPL	130dB SPL	134dB SPL	134dB SPL
Calculated Continuous SPL	130dB SPL	130dB SPL	124dB SPL	128dB SPL	128dB SPL
Components					
LF	2x 18" Woofer, 4" Voice Coil		18" Woofer, 4" Voice Coil	2x 15" Woofer, 4" Voice Coil	
HF	n/a		n/a	n/a	
Enclosure					
Dimensions (H x W x D)	39.6 x 24.0 x 27.9 in (1,006 x 610 x 709 mm)		23.3 x 24.0 x 27.9 in (591 x 610 x 709 mm)	34.8 x 17.6 x 24.0 in (883 x 448 x 610 mm)	
Weight	145 lbs (66 kg)		84 lbs (38 kg)	118 lbs (54 kg)	
Shape	Rectangular		Rectangular	Rectangular	
Material	3/4inch(19mm), 13-ply Finland Birch(Baffle and Divder Wall) 5/8inch(16mm), 11-ply Finland Birch		"3/4inch(19mm), 13 -ply Finland Birch(Baffle) 5/8inch(16mm), 11-ply Finland Birch"	3/4inch(19mm),13-ply Finland Birch(Baffle and Divider wall) 5/8inch(16mm), 11-ply Finland Birch	
Finish	Textured Black (Textured White)		Textured Black (Textured White)	Textured Black (Textured White)	
Grill	14 gauge power coated perforated steel backed with acoustically transparent reticulated foam		14 gauge power coated perforated steel backed with acoustically transparent reticulated foam	14 gauge power coated perforated steel backed with acoustically transparent reticulated foam	
Connectors	1x Neutric NL4 and barrier strip, wired in parallel		1x Neutric NL4 and barrier strip, wired in parallel	1x Neutric NL4 and barrier strip, wired in parallel	
Suspension Points	12x M10		12x M10	12x M10	
Pole Mounts					
Handle					
Optional Accessory					
U-bracket					
Array Frame **	HAF3-S18(W)		HAF3-S18(W)		

* With recommended YAMAHA DSP configuration. ** HAFX Horizontal Array Frame where X=Number of arrayed Loudspeakers. ** VAFX Vertical Array Frame where X=Number of arrayed Loudspeakers.

** HAF3-S18(W) Horizontal Array Frame for arraying, 2 x IF3115 and 1 x IS1218 or 2x IH2000 and 1 x IS1118. (W) denotes white version 2 hrs. IEC noise ⦿

System Type	2-Way Full-Range Loudspeaker	2-Way Full-Range Loudspeaker	2-Way Full-Range Loudspeaker
Model	IF2208(W)	IF2108(W)	IF2205(W)
Specifications/Drive Mode	**Passive**	**Passive**	**Passive**
Frequency Response(±3dB) (4π)*	75 Hz-18k Hz	75 Hz-18k Hz	85 Hz-18k Hz
Frequency Range(-10dB) (4π)*	55 Hz-19k Hz	55 Hz-19k Hz	65 Hz-19k Hz
Nominal Coverage(H x V, -6dB)	90° x 60°	90° x 60°	90° x 60°
All horns can be rotated			
Power Rating	200 W(EIA)	100 W(EIA)	100 W(EIA)
Nominal Impedance	8 ohms	8 ohms	8 ohms
Sensitivity(1W@1m)	95dB SPL	95dB SPL	91dB SPL
Calculated Peak SPL	124dB SPL	121dB SPL	115dB SPL
Calculated Continuous SPL	118dB SPL	115dB SPL	109dB SPL
Components			
LF	2x 8" Woofer, 2" Voice Coil	8" Woofer, 2" Voice Coil	2x 5" Woofer, 1" Voice Coil
HF	Rotatable Constant Directivity Horn, 1" exit, 1.7" Voice Coil Compression Driver	Rotatable Constant Directivity Horn, 1" exit, 1.7" Voice Coil Compression Driver	Rotatable Constant Directivity Horn, 1" exit, 1" Voice Coil Compression Driver
Enclosure			
Dimensions (H x W x D)	26.5 x 11.1 x 9.8 in (673 x 283 x 250 mm)	17.6 x 11.1 x 9.8 in (448 x 283 x 250 mm)	5.8 x 18.0 x 8.7 in (146 x 457 x 220 mm)
Weight	37 lbs (17 kg)	26 lbs (12 kg)	17 lbs (8 kg)
Shape	Multi-angle wedge	Multi-angle wedge	Rectangular
Material	5/8inch (16mm), 11-ply Finland Birch	5/8inch (16mm), 11-ply Finland Birch	1/2inch (12mm), 9-ply Finland Birch
Finish	Textured Black (Textured White)	Textured Black (Textured White)	Textured Black (Textured White)
Grill	14 gauge power coated perforated steel backed with acoustically transparent reticulated foam	14 gauge power coated perforated steel backed with acoustically transparent reticulated foam	14 gauge power coated perforated steel backed with acoustically transparent reticulated foam
Connectors	2x Neutric NL4 and barrier strip, wired in parallel	2x Neutric NL4 and barrier strip, wired in parallel	Barrier strip
Suspension Points	11x M10 6x M8	11x M10 6x M8	6x M8 2x M6
Pole Mounts	One	One	
Handle	One	One	
Optional Accessory			
U-bracket	UB2208(W)	UB2108(W)	UB2205(W)
Array Frame **			

* With recommended YAMAHA DSP configuration. ** HAFX Horizontal Array Frame where X=Number of arrayed Loudspeakers. ** VAFX Vertical Array Frame where X=Number of arrayed Loudspeakers.

** HAF3-S18(W) Horizontal Array Frame for arraying, 2 x IF3115 and 1 x IS1218 or 2x IH2000 and 1 x IS1118. (W) denotes white version 2 hrs. IEC noise ⊙

INSTALLATION SERIES

The new Yamaha SP2060 Speaker Processor

With decades of experience and innovation in digital signal processing Yamaha now introduces the SP2060 to compliment the Installation Series Loudspeakers. Designed specifically for the Yamaha Installation Series it is also ideal for use with other types of loudspeakers. All the parameters you need to optimize your Installation Series Loudspeaker and subwoofer performance are available with the unsurpassed audio quality, flexibility, ease of use and reliability that are typical for Yamaha signal processors.

Analog I/O Characteristics

Terminals	Actual Load Impedance	For Use With Nominal	Level		Connector
			Nominal	Max. before clip	
INPUT A,B	10kΩ	600Ω Lines	+4dBU (1.23 V)	+24dBU (12.28 V)	XLR-3-31 type (Balanced)
OUTPUT 1-6	75Ω	600Ω Lines	+4dBU (1.23 V)	+24dBU (12.28 V)	XLR-3-31 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		96kHz
	External Clock	Normal Rate	44.0559kHz - 48.048kHz
		Double Rate	88.1118kHz - 96.096kHz
Signal Delay	761usec INPUT to Output fs=96kHz		
Frequency Response	20Hz-40kHz (TYP 0dB, MAX +0.5dB, MIN -1.0dB) fs=96kHz RL=600Ω		
Total Harmonic Distortion	0.007 % (+22dBu@1kHz) 0.05% (+4dBu@20Hz-20kHz) fs=96kHz RL=600Ω measured with 18dB/octave filter @80kHz		
Hum & Noise	TYP -82dBu MAX -79dBu fs=96kHz RL=600? Rs=150Ω measured with 6dB/octave filter @12.7kHz; equivalent to a 20kHz filter with infinite dB/octave attenuation.		
Dynamic Range	106dB AD+DA fs=96kHz RL=600Ω measured with 6dB/octave filter @12.7kHz; equivalent to a 20kHz filter with infinite dB/octave attenuation.		
Crosstalk@1KHz	-80dB INPUT to Output fs=96kHz measured with 18dB/octave filter @80kHz		
Dimensions (WxHxD)	480 x 360.2 x 44 mm		
Net Weight	4.2 kg		

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

* All DA converters are 24 bit linear,128times oversampling.(Fs=48kHz)/64times oversampling.(Fs=96kHz)

YAMAHA
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