WPL

Optimised Line Array – Three-way, bi-amp line array element

WAVEFRONT PRECISION

Features

THE QUEEN'S AWARDS FOR ENTERPRISE: INNOVATION 2021

- High-performance large format line array
- All-horn, maximum-efficiency design
- Exceptional signature sonic performance
- Exemplary 90° horizontal constant directivity pattern control.
- External, dedicated, multi-channel Class D amplification
- Scalable resolution for flexible optimisation of coverage, consistency and control
- Industry-leading DISPLAY software interacts with DSP for highly-accurate array optimisation
- Fast, integral 3-point rigging for up to 24 enclosures
- Compact and light weight design with discreet side handles for ease of handling

Applications

- Touring sound reinforcement for festivals, stadiums and arenas
- Sports stadium and arena installations
- Concert hall and HoW installations

Updated Q2 2026

Wavefront Precision systems deliver unmatched sound quality, coverage consistency and control in an affordable package. Wavefront Precision Longbow (WPL) brings this high performance and control to large-scale touring and install applications from stadium concert and outdoor festivals, to high-specification arena and House of Worship installations.

WPL is designed as a complete system with external iKON® multichannel amplifiers, automated DISPLAY™ optimisation software and VU-NET™ control platform. This guarantees that WPL arrays perform predictably and effortlessly to their design maximum, as well as ensuring that they are compatible with other WPL systems throughout the world.

WPL is a full-scale line array which is capable of exceptionally high output for its modest size and weight. A three-way, bi-amped system, its very high output is achieved by utilising Martin Audio's trademark horn-loading technology across all frequency bands — increasing the acoustic output of the low frequency section, as well as the midrange and HF.

It incorporates 2 x 12" (300mm) drivers with Hybrid® horn/reflex loading, 2 x 6.5" (165mm) cone drivers on a midrange horn which covers the vocal frequency range from 300Hz to over 4kHz, and 3 x 1" (25mm) exit HF drivers operating from 4kHz upwards. Each section features innovative horn-loading techniques and refinements which raise the acoustic performance of WPL to a superior level — both in terms of output and smooth 90° horizontal coverage patterns of the mid and HF horns. Sonically, WPL's exemplary horizontal dispersion pattern translates to an incredibly consistent frequency response off-axis, with minimal variation from the on-axis response.

The maximum peak outputs of the LF, Mid and HF sections are 139dB, 140dB and 145dB per enclosure @ 1metre respectively — ensuring that a WPL array will meet the most demanding requirements for throw and clarity in the largest venues and outdoor events.

From Q2 2026, Wavefront Precision enclosures have an IP54 rating and feature improved construction methods, paint and metalwork to make them more hardwearing. They also feature an LED indicator that can be illuminated via VU-NET software to identify each enclosure location on the circuit.

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Technical Specifications From Q2 2026

TYPE	Three-way, bi-amp line array element
FREQUENCY RESPONSE (5)	52Hz-18kHz ± 3dB
DRIVERS	LF: 2 x 12" (300mm)/3" (75mm) voice coil, ultra-long excursion, neodymium magnet drivers, Hybrid® bass horn loaded MF: 2 x 6.5" (165mm)/2" (50mm) coil, neodymium magnet drivers, horn loaded HF: 3 x 1" (25mm) exit neodymium magnet compression drivers, horn loaded
SYSTEM AMPLIFIER	iKON iK42
SYSTEM RESOLUTION	1 or 2 enclosures per pair of amplifier channels (Bi-amp)
RATED POWER (2)	LF: 800 W AES, 3200 W peak MF/HF: 500 W AES, 2000 W peak
MAXIMUM SPL (9)	LF: 139dB MF: 140dB HF: 145dB
NOMINAL IMPEDANCE	LF: 8 ohms, MF + HF: 8 ohms
DISPERSION	90º horizontal (-6dB), 120º horizontal (-10dB) 7.5° vertical
CROSSOVER	320Hz active, 4kHz internal passive
ENCLOSURE	Vertical trapezoid with 3.75º wall angle, multi-laminate birch and poplar-ply construction
FINISH	Black or white hardwearing paint
PROTECTIVE GRILLE	Black or white HEX perforated steel with network LED
ENVIRONMENTAL TESTING (11)	IP 54 MIL-STD-810H ISO 4892-2 Solar Radiation ISO 12944-6 Category C3 Corrosion resistance
CONNECTORS	2 x NL4 type
PIN CONNECTIONS	LF: 1+/1-, MF + HF: 2+/2-
FITTINGS	3-point rigging system 4 x side pocket handles
FLOWN ARRAY MAXIMUM	24 enclosures in single array
DIMENSIONS (ex. pins)	(W) 1136mm x (H) 371mm x (D) 526mm (W) 44.7in x (H) 14.6in x (D) 20.7in
WEIGHT	64kg (141lbs)
ACCESSORIES	Touring flying frame Install flying frame Dolly for 4 enclosures Ground stack outrigger Flying Pin

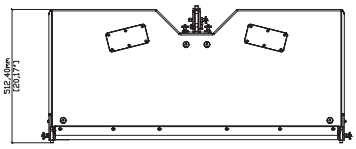
Benefits

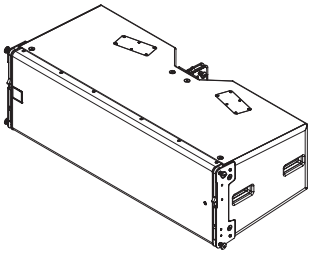
- Consistent coverage achieved 'straight-out-of-the-box'
- DISPLAY intelligent software reduces set-up time and eliminates trial-and-error
- Improved audience coverage with reduced sound-spill

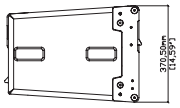
Notes

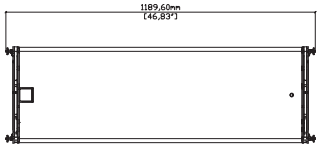
(1) Measured on-axis in half (2pi) space at 2 metres, then referred to 1 metre.
(2) AES Standard ANSI S4.26-1984.
(3) Measured in half (2pi) space at 2 metres with 1 watt input, using band limited pink noise, then referred to 1 metre.
(4) Measured in half (2pi) space at 2 metres using band limited pink noise, then referred to 1 metre.
(5) Measured on-axis in open (4pi) space at 2 metres, then referred to 1 metre.
(6) Measured in open (4pi) space at 2 metres with 1 watt input, using band limited pink noise, then referred to 1 metre.
(7) Measured in open (4pi) space at 2 metres using band limited pink noise, then referred to 1 metre.
(8) Measured in open (4pi) space at 2 metres with 2.83v input, using band limited pink noise, then referred to 1 metre.
(9) Calculated at 1 metre with 6dB crest factor.
(10) Measured in half (2pi) space at 2 metres with 2.83V input, using band limited pink noise, then referred to 1 metre.
(11) Please refer to dedicated Environmental Testing page within datasheet or martin-audio.com/environmentaltesting

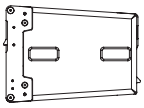
THE QUEEN'S AWARDS FOR ENTERPRISE: INNOVATION 2021

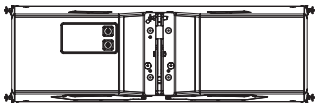


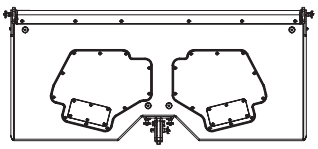












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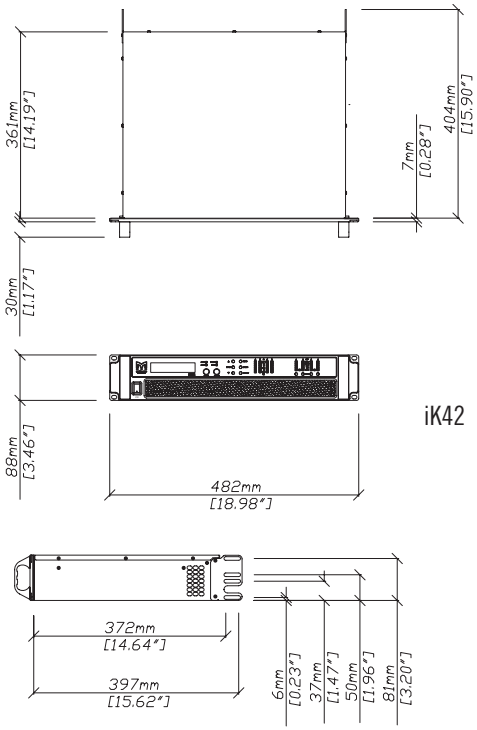
Technical Specifications

iK42 Amplifier

General	
TYPE	Four-channel Class D amplifier
POWER OUTPUT	4 x 5000W into 2 ohms, all channels driven
	4 x 3000W into 4 ohms, all channels driven
	4 x 1500W into 8 ohms, all channels driven
DIGITAL SIGNAL PROCESSING	96kHz DSP on all inputs and outputs
COOLING	Dual vari-speed fans, front-to-back airflow
MAXIMUM AMBIENT TEMPERATURE	40°C (104°F)
Audio Inputs/Outputs	
ANALOGUE IN/LINK (4 CHANNELS)	4 x female, 4 x male Neutrik™ XLR
ANALOGUE INPUT IMPEDANCE	20kΩ balanced to ground
MAXIMUM ANALOGUE INPUT LEVEL	+20dBu
NOMINAL SYSTEM GAIN	32dB
AES3 IN/LINK (2 CHANNELS)	1 x female, 1 x male Neutrik™ XLR, balanced
DANTE™ (4 CHANNELS)	2 x shielded RJ45, primary and secondary
AMPLIFIER OUTPUTS	4 x Neutrik Speakon™ NL4
Control and Monitoring Network	
PROTOCOL	Ethernet
CONTROL APPLICATION	Martin Audio VU-NET™
Power Supply	
TYPE	High performance Series Resonant
AC INPUT OPERATING RANGE	85 – 240V ~ AC, 47 - 63Hz
MAINS INRUSH CURRENT	6A at 115V, 12A at 230V (max for <10ms)
MAINS CONNECTOR	Neutrik 32A Powercon™
Physical	
DIMENSIONS	(W) 483 x (H) 2U/89mm x (D) 357mm
	(W) 19in x (H) 2U/3.5in x (D) 14.1in
	incl handles and optional rear support
WEIGHT	12.5kg (27.5lbs)



iKON

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SPL Comparisons Vs Competitors

- The core measurement of SPL is measured differently by manufacturers
- Simply put, many competitors now quote figures based upon a crest factor of 4 (12dB peak vs continuous) and often use the highest sensitivity frequency band (typically HF) to derive their figures given that at LF, where the most power is required, even large amplifiers can't swing twice the peak output volts demanded by a doubling in crest factor from 2 to 4.
- Martin Audio quotes the AES industry standard crest factor of 2 (6dB peak vs continuous) and we ensure our partnering amplifiers are capable of delivering the volts and power to achieve our specs.
- If you don't understand how SPL is measured, you might wrongly assume that some competitors' loudspeakers have significantly higher SPL.
- While absolute comparable data is not available, some element of logic can be applied for the following products to bring a more realistic comparison.

Product	Peak at Crest factor 2 (6dB)	Peak at Crest factor 4 (12dB)
Martin Audio WPL broadband	139 dB*	145 dB**
Martin Audio WPL HF band	145dB*	151 dB**
d&B KSL12	138 dB**	144dB*
Adamson E12	139 dB**	145dB*
JBL VTXA12	140 dB**	146 dB*
L-Acoustics K2	141 dB**	147 dB*

*Manufacturer quoted

**calculated

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Environmental Testing

IEC 60529 Ingress Protection

This standard defines the IP rating system, which classifies the degree of protection an enclosure provides against the ingress of solid objects (dust) and liquids (water).

Rating Scale

FIRST DIGIT (Solid Object Protection): Scale 0-6
0 No protection
1 Objects >50mm (hands)
2 Objects >12.5mm (fingers)
3 Objects >2.5mm (tools, wires)
4 Objects >1mm (small wires)
5 Dust protected (limited ingress)
6 Dust-tight (no ingress)
SECOND DIGIT (Liquid Protection): Scale 0-8
0 No protection
1 Dripping water (vertical)
2 Dripping water (15° tilt)
3 Spraying water (60° angle)
4 Splashing water (all directions)
5 Water jets (low pressure)
6 Powerful water jets
7 Temporary immersion (1m, 30 min)
8 Continuous immersion (depth specified)

MIL-STD-810H

This U.S. Department of Defense standard specifies environmental tests to evaluate the ability of equipment to withstand harsh environmental conditions.

What it Tests

Temperature:
- Low temperature (storage and operation)
- High temperature (storage and operation)
- Temperature shock

Humidity:
- Constant and cyclic humidity testing

Solar Radiation:
- UV exposure testing at high intensity

Salt Fog/Salt Spray:
- Corrosion resistance testing

Rain & Water:
- Rain (blowing and dripping)

Dust & Sand:
- Particle resistance

Vibration & Shock:
- Mechanical stress testing

ISO 4892-2 Solar Radiation

This standard defines laboratory methods for exposing plastics and other materials to xenon arc lamps to simulate the effects of natural sunlight (UV radiation and visible light).

What it Tests

Colour fading/change
Gloss loss
Surface cracking
Material degradation
Physical property changes

ISO 12944-6 Corrosion Resistance

This standard outlines laboratory test methods for assessing the performance of protective paint systems against corrosion in various atmospheric environments.

Category	Exterior Environment	Interior Environment
C1 (Very Low)	Not Applicable	Heated buildings with clean atmospheres (e.g. offices, shops, schools, hotels)
C2 (Low)	Atmospheres with low pollution (mostly rural areas)	Unheated buildings where condensation can occur (e.g. depots, sports halls)
C3 (Medium)	Urban/industrial atmospheres with moderate SO_2 pollution; coastal areas with low salinity	Production rooms with high humidity and some pollution (e.g. food plants, laundries)
C4 (High)	Industrial/coastal areas with moderate salinity	Chemical plants, swimming pools, coastal shipyards

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