KW8

USER GUIDE
English

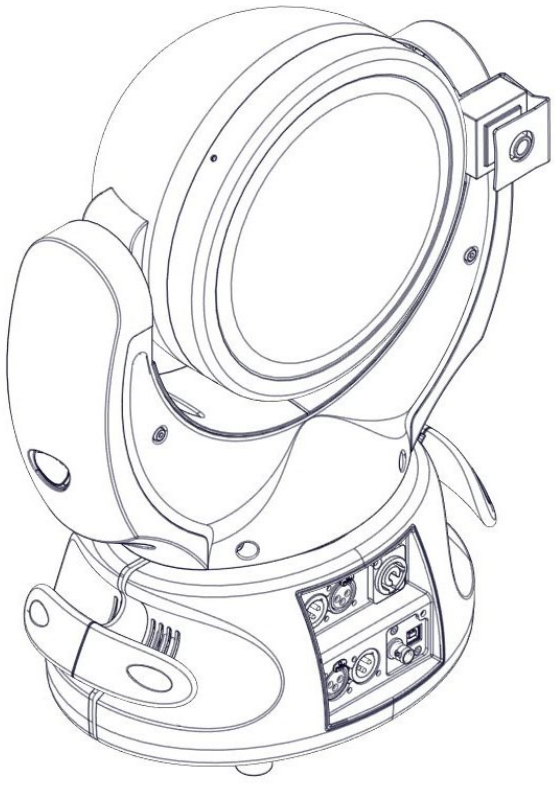


TABLE OF CONTENTS

SYMBOLS

K-array declares that this device is in compliance with applicable CE standards and regulations. Before putting the device into operation, please observe the respective country-specific regulations!

Waste Electrical and Electronic Equipment (WEEE)
Please dispose of this product at the end of its operational lifetime by bringing it to your local collection point or recycling center for such equipment.

This symbol alerts the user to the presence of recommendations about the product's use and maintenance.

Warning: DANGEROUS VOLTAGE.
Terminals marked with this symbol carry a risk of electric shock, therefore external wiring connected to these terminals requires installation by a qualified professional or the use of ready-made leads or cords.

This symbol alerts the user to the presence of recommendations about product's use and maintenance.

This device complies with the Restriction of Hazardous Substances Directive.

1. INTRODUCTION

The Owl KW8 is a self powered audio moving head including a coaxial 8" transducer and a newly built-in camera to allow users to accurately direct sound. This feature bridges the gap between AV in a revolutionary concept. The Owl provides up to 500 W of power, 120 dB of SPL (continuos) and a frequency range from 60 Hz to 19 kHz.

It is a perfect solution for a range of applications including live on-stage monitoring, theme park installations, airports, train stations, DJ effects and theatre installations. However, the flexibility of the Owl will offer an almost limitless number of solutions and, in some cases, reduce the amount of speakers required for an installation.

The Owl is part of K-array's portfolio of concert systems but was designed as an alternative solution for the most ambitious projects. Its dedicated software gives you the ability to control the settings, movement, sound and video together allowing you to create scenes and setups via DMX, audio balanced signal and the HD-SDI onboard camera.

2. KEY FEATURES

- Coaxial 8" transducer
- High performance 126 dB SPL (Peak)
- Self-powered
- Onboard camera
- Dedicated software to create scenes and fully control the speaker or speakers.

3. APPLICATIONS

- Theme parks
- Public announcement speakers
- Installed AV yystems
- Special effects
- Stage and AV studio monitoring

4. SAFETY INFORMATION

Warning: failure to follow these safety instructions could result in fire, shock or other injury or damage to the device or other property.

This symbol alerts the user to the presence of recommendations about the product's use and maintenance.	This symbol is intended to alert the user to the presence of not isolated, dangerous voltage within the product enclosure that may be of magnitude to constitute a risk of electrical shock.

IMPORTANT SAFETY INSTRUCTIONS

- Read these instructions.
- Keep these instructions.
- Heed all warnings.
- Follow all instructions.
- Do not use this apparatus near water.
- Clean only with dry cloth.
- Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
- Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
- Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding-type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
- Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
- Only use attachments/accessories specified by the manufacturer.

- Use only the cart, stand, tripod, bracket or table specified by the manufacturer or sold with the apparatus.
- Use caution when moving the apparatus with the assistance of a cart to avoid injury from tip-over.

- Unplug this apparatus during lightning storms or when unused for long periods of time.

WARNING

- Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, has been exposed to rain or moisture, does not operate normally, or has been dropped.
- Since the device is a CLASS I apparatus, it must be connected only using an AC three-wire grouding outlet. If your outlet isn't grouded, contact a liscensed electrician to replace it with a property grounded outlet.
- To reduce the risk of electric shock, unplug the AC mains connector before installing audio cable. Reconnect the power cord only after making all signal connections. Do not use the product if the power cord is broken or frayed. Protect the power cord from being walked upon or pinched.
- To completely disconnect this apparatus from the AC mains, disconnect the power supply cord plug from the AC receptacle.
- Avoiding hearing damage. Professional loudspeakers are capable of producing extremely high sound levels and should be used carefully. Never stand close to loudspeakers driven at high volume. Set the volume to a safe level. You can adapt to a higher volume of sound that over time may sound normal but can be damaging to your hearing. Hearing loss worsens after exposure to a sound level of 90 dB or over for an extended period of time. If you experience ringing in your ears or muffled speech, stop listening and have your hearing checked. The louder the volume, the less time is required before your hearing could be affected.
- Voltage requirement. Make sure that the supplied voltage stays within the specified range. Verify that your mains power connection satisfies the power ratings of the device.
- Only connect the power supply to an appropriate power outlet.
- Do not install the device in wet or humid locations without using weather protection.
- TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, do not expose this apparatus to rain or moisture and objects filled with liquids, such as vases, should not be placed on this apparatus.
- The main plug of the power supply cord shall remain readily accessible.

CAUTION

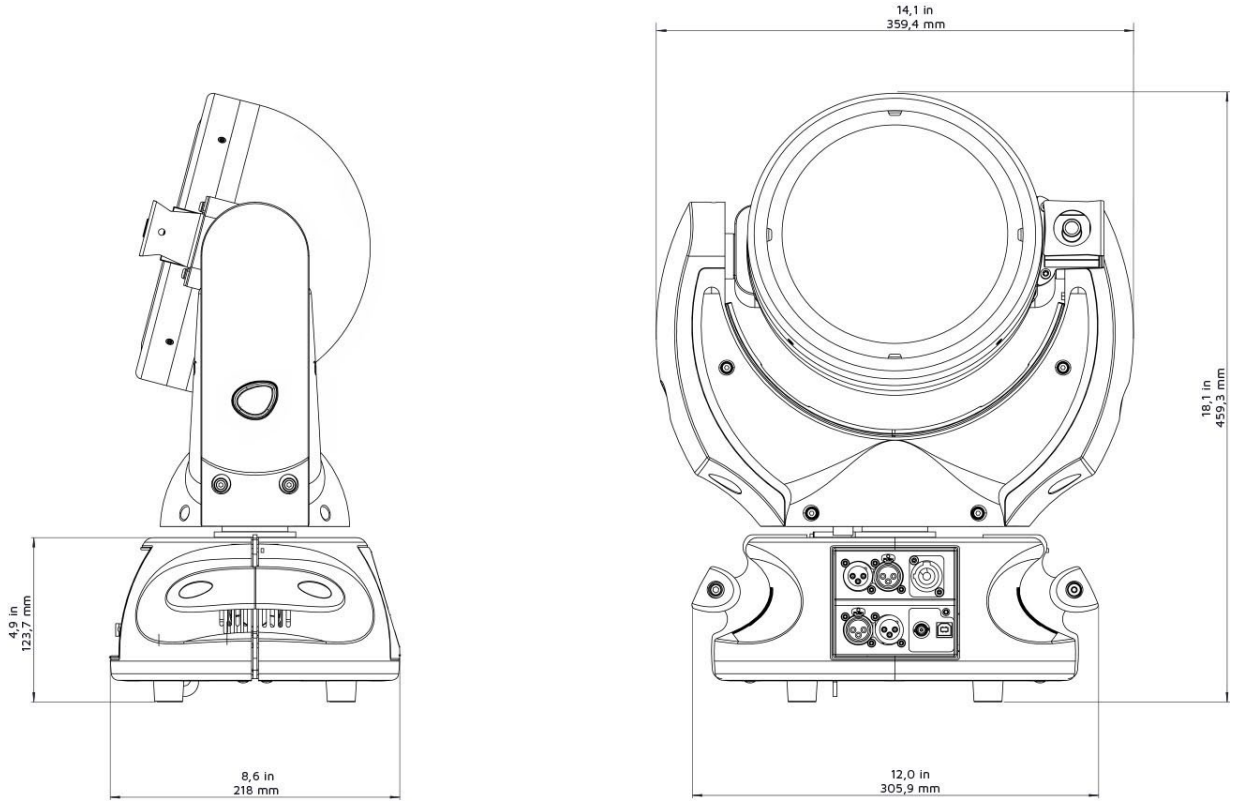
- Choking Hazards. This device contains small parts, which may present a choking hazard to small children. Keep the device and its accessories away from small children.
- It is important that loudspeaker systems are used in a safe manner.
- Do not make repairs yourself. Do not open the device, it contains potentially hazardous voltage and there is risk of electrical shock. Never attempt to disassemble, repair or modify the system yourself. Disassembling the unit may cause damage that is not covered under the warranty. The device contains no user-serviceable parts. Repairs should only be performed by factory-trained service personnel. Do not plug the power cord in if you suspect that your device needs service or repair.

- Sound distortion. Do not operate speakers for an extended period of time with sound distortion. This is an indication of malfunction, which in turn can generate heat and result in a fire.
- Cooling. During use, it is normal for the device to get warm. The exterior of the device functions as a cooling surface that transfers heat from inside the unit to the cooler air outside. The device should be placed in a location that allows proper cooling. For example, the device shouldn't be placed near surfaces that can obstruct with the cooling of the rear panel's radiators. When operating, the device should not be cover with additional protections.
- Temperature. Operate the device in a place where the temperature is between -20°C and 35°C (-4°F to 95°F). Avoid dramatic changes in temperature or humidity when using it, as condensation may form on or within the device.
- Take care not to spill any food or liquid through the device's grill. Do not attempt to dry the device with an external heat source, such as a hair dryer.
- Carrying, handling and installing the device. The device contains sensitive components. Do not drop, disassemble, open, crush, bend, deform, puncture, shred, incinerate, paint, or insert foreign objects into it. If your device has been dropped or damaged unplug the power cable immediately.
- Set up. Set up your device on a stable retaining horizontal surface. If combined or mechanically connected with other products, always verify the stability of the resulted system. Install the unit only in a location that can structurally support the weight of the unit, far away from people who can interfere with the stability of the system. In case of outdoor installation, protect the device from rain and moisture. Assure that the wind does not interfere with the system's stability, taking extra securities like chains, weights, ropes or any other certified anchoring systems. Doing otherwise may result in the unit falling down, causing personal injury or property damage or even death. The system should only be suspended by qualified personnel following safe rigging practices. Secure fixings to the building structure are vital. To clarify any doubt you may have, seek help from architects, structural engineers or other specialists.
- This audio system is not intended for use in the operation of nuclear facilities, aircraft navigation or communication systems, air traffic control systems,or for any other uses where the failure of the audio system could lead to death, personal injury, or sever environmental damage.

5. UNPACKING

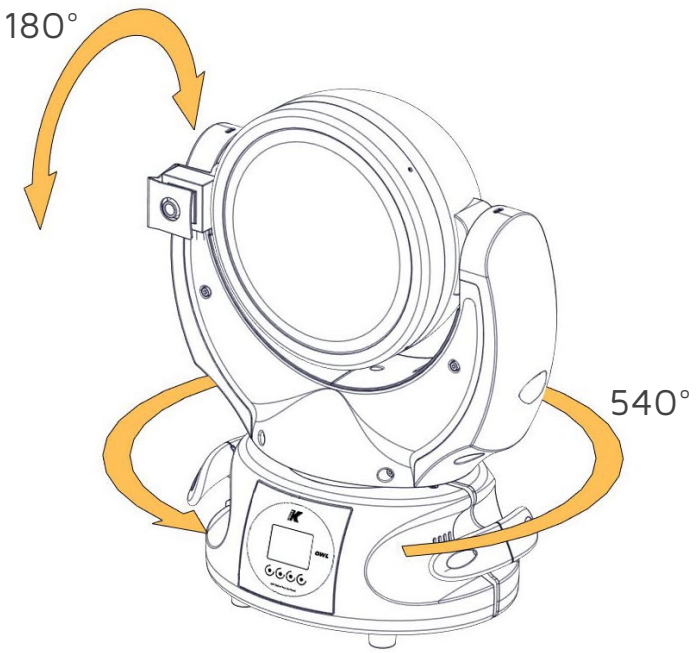
Each K-array speaker is built to the highest standard and thoroughly inspected before leaving the factory. Upon arrival, carefully inspect the shipping carton, then examine and test your new product. If you find any damage, immediately notify the shipping company. Only the consignee may file a claim regarding the system's electronic equipment.

6. PRODUCT OVERVIEW



Weight
10 kg (22.1 lbs)

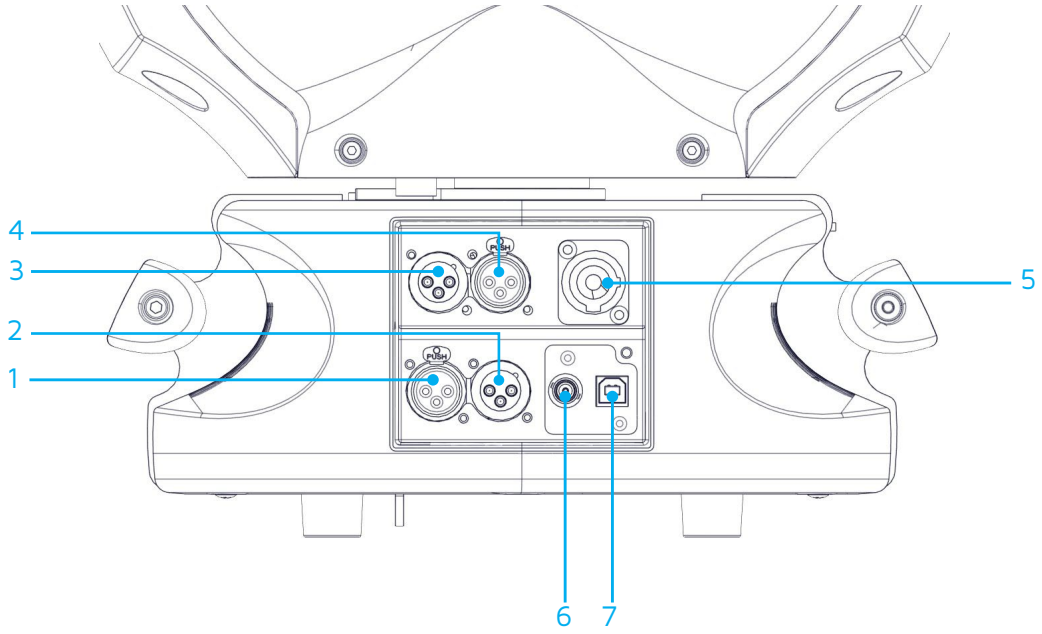
6.1 MOVEMENT



WARNING. Do not obstruct the path of the speaker's movement!

7. CONNECTING THE UNIT

7.1 BACK PANEL CONNECTORS



1) AUDIO INPUT. Female XLR for analog signal input.
2) AUDIO LINK. Male XLR parallel output providing a direct signal from the Audio Input.
3) DMX INPUT. Male XLR for DMX signal.
4) DMX LINK. Female XLR for DMX signal.
5) AC MAINS. PowerCon input for AC power.
6) VIDEO OUT. BNC connector for video signal output.

7.2 MAINS POWER CONNECTION - VOLTAGE SELECTOR

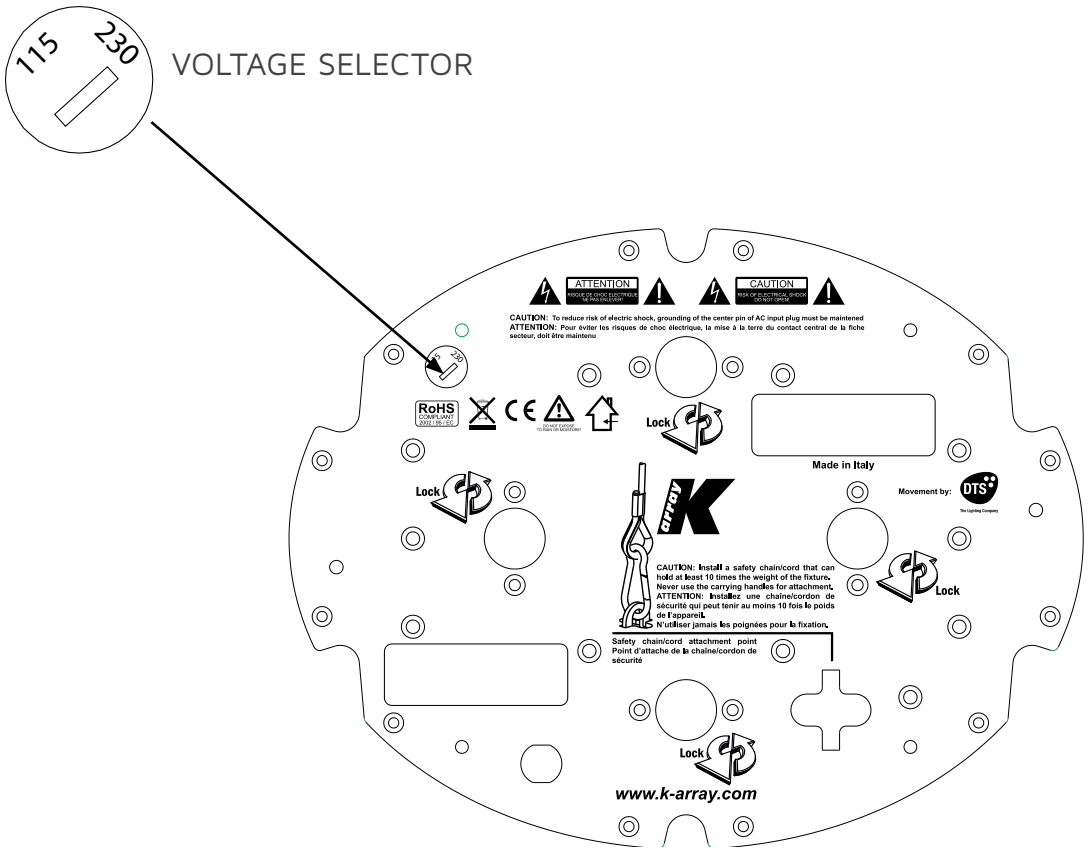
All speakers and the connected audio equipment (mixing consoles, processors, etc.) must be connected to the AC power distribution in a proper way, preserving AC line polarity and ground connection such that all grounding points are connected to a single node or common point using the same cable gauge as the neutral and line(s) cables. Bad grounding connections between speakers and the rest of the audio system may produce noise, hum and/or serious damage to the input/output stages in the system's electronic equipment.

CAUTION. Before applying AC to any K-array self-powered speaker, be sure that the voltage potential difference between neutral and ground is less than 5 VAC.

The KW8 operates safely and without audio discontinuity if the AC voltage stays within either of two operating windows:

- 95-125 (voltage selector on 115 V)
- 195-250 V (voltage selector on 230 V), at 50 to 60Hz

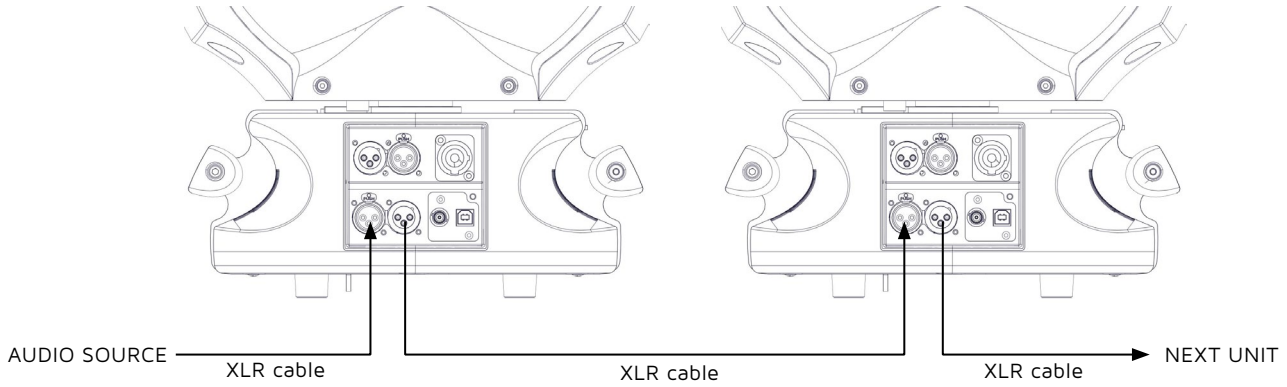
The device is default set to be connected to 230 VAC mains power. To use the device on 115 VAC of mains power you will need to move the voltage selector to the correct value before connecting. The voltage selector is located at the bottom of the unit and can be switched using a flathead screwdriver.



CAUTION. Do not connect the system to AC mains power exceeding 265 V. Doing so will cause significant damage to the device and create serious risk for users!

7.3 AUDIO CONNECTION

The KW8 features a 3 pins XLR line input and a 3 pins XLR parallel output providing a direct signal from the input. To form a daisy chain with multiple units, connect the mixer signal to the AUDIO IN plug and connect the next unit by connecting the AUDIO OUT plug on the first unit to the AUDIO IN plug of the second one.

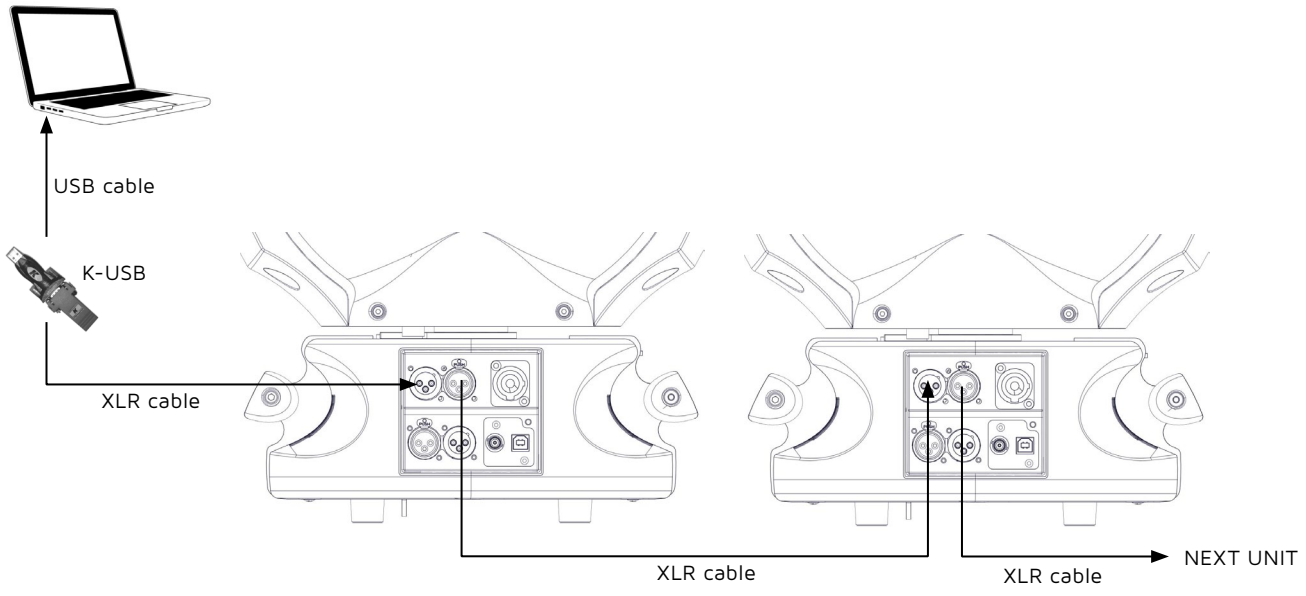


Linking the audio signal between the speakers

7.4 DMX CONNECTION

The unit operates using the digital DMX 512 (1990) signal. Connection between the computer and the speaker or between speakers must be carried out using a two pair screened ø 0.5 mm cable with XLR 3 pins connectors (same kind of cable used to connect the audio signal).

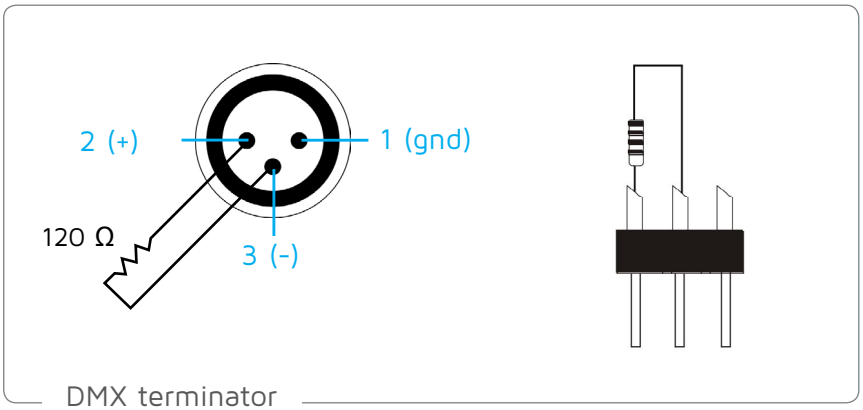
To connect the first unit to the computer over USB, you need the K-USB accessory (USB to Serial Adapter). Connect the first unit to the next one by connecting the DMX OUT plug on the first unit to the DMX IN plug of the second. This way, the units will form a cascade connection.



PC connected via XLR cable + K-USB accessory

For installations where long distance DMX cable connections are needed, we suggest using a DMX terminator. Please note:

- The DMX terminator is a male XLR 3 pins connector with a 120 ohm resistor between pin 2 and 3.
- The DMX terminator must be plugged into the last unit (DMX OUT panel connector) of the DMX. line.

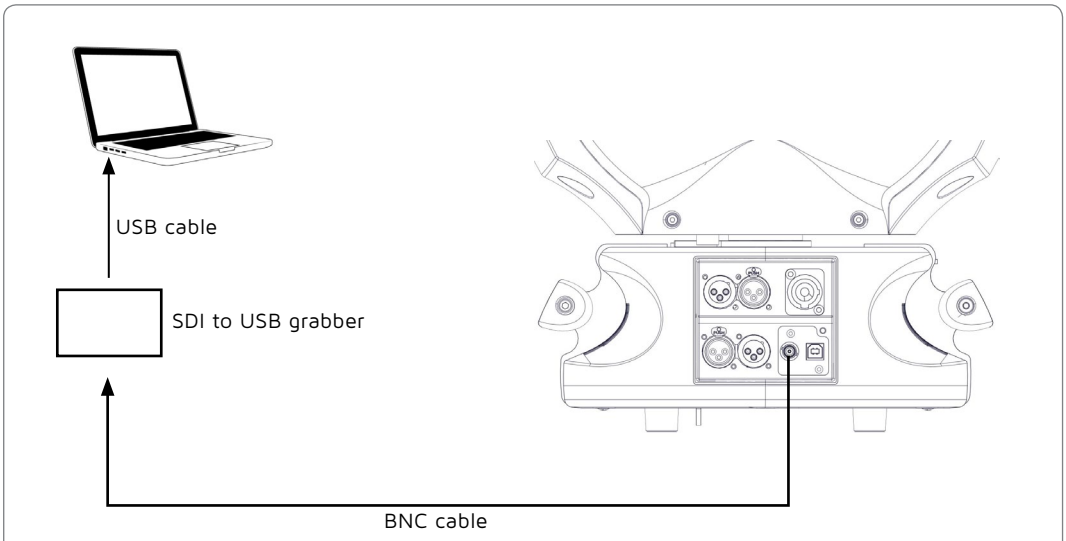


DMX terminator

7.5 VIDEO CONNECTION

The K-OWL features a HD-SDI camera supporting multiple output formats. As default, the camera outputs a digital HD-SDI signal at 1080 Progressive (25 fps). If an analog signal or a different resolution of the camera is desired, please contact the official K-array distributor in your country.

To connect the camera to your computer running the OWL-Manager software, you need a SDI to USB grabber, as shown in the scheme below. We recommend using the K-USB/SDI accessory.



Camera connected via BNC cable + K-USB/SDI adapter

8. DMX CHANNELS

The unit operates using the digital DMX 512 (1990) signal. Both movement and some audio parameters can be controlled by the 11 channels available.

8.1 DMX ADDRESSES

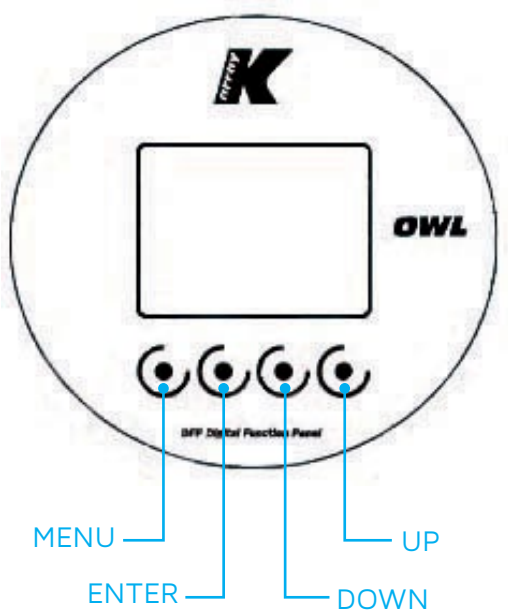
In order to use the unit in 11 channels, set the following addresses on the speakers connected in the same DMX network:

K-OWL 1	A001	
K-OWL 2	A012	
K-OWL 3	A023	
K-OWL 4	A034	
K-OWL ...	A...	just add 11 to the previous address

To select the addresses, proceed as follow:

1. Press the UP-DOWN key until you reach the required DMX channel. The numbers on the display will begin to flash (but the new DMX address hasn't been set yet).

2. Press ENTER to confirm your selection. The numbers on the display will stop flashing and the speaker will be set to the new DMX address.



Note: If the display showing the DMX address flashes, then one of the following errors has occurred:

- DMX signal not present
- DMX address not valid
- DMX reception problem

8.2 DMX PROTOCOL SHEET

DMX channel	Parameter	DMX range value	Function
1	Pan coarse (msb)	0-255	Pan value (0° to 540°)
2	Pan fine (lsb)	0-255	Fine adjustment of pan value
3	Tilt coarse (msb)	0-255	Tilt value (0° to 180°)
4	Tilt fine (lsb)	0-255	Fine adjustment of tilt value
5	Speed	0-10	Standard speed movement
		11-25	Fast speed movement
		26-127	Vector mode from fast to slow
		128-247	Variable time reaction to DMX signal (fast to slow)
		248-255	Slow reaction time to DMX signal
6	Volume	0 -255	Volume (0 dB to -∞)
7	Coverage	0	Wide coverage
		255	Narrow coverage
8	Delay	0	Delay = 0 ms
		13	Delay ≈ 1 ms
		24	Delay ≈ 2 ms
		36	Delay ≈ 3 ms
		48	Delay ≈ 4 ms
		61	Delay ≈ 5 ms
		73	Delay ≈ 6 ms
		85	Delay ≈ 7 ms
		96	Delay ≈ 8 ms
		108	Delay ≈ 9 ms
		121	Delay ≈ 10 ms
		132	Delay ≈ 11 ms
		143	Delay ≈ 12 ms
		157	Delay ≈ 13 ms
		168	Delay ≈ 14 ms
		179	Delay ≈ 15 ms
		193	Delay ≈ 16 ms
		203	Delay ≈ 17 ms
		215	Delay ≈ 18 ms
		227	Delay ≈ 19 ms
		240	Delay ≈ 20 ms
		251	Delay ≈ 21 ms
9	HP Filter	0	High Pass filter active (150 Hz)
		255	Full Range
10	Reserved	---	---
11	Reserved	---	---

9. INSTALLATION

KW8 may be either floor or ceiling mounted.

For floor-mounted installations, the KW8 is supplied with four rubber mounting feet on the base. Install the unit only on flat surfaces. Do not install the unit on uneven ground or platforms.

For ceiling-mounted installations, four quarter-turn Fast Lock connections,located on the base of the unit, allow the KW8 to hang by the Fast Lock "C" clamps provided with the product. As shown in the picture below, two different orientations are available.

The supporting structure from which the unit is hung must be capable of bearing the weight of the unit and must be sufficiently rigid so that it doesn't move or shake while the KW8 is moving.

Safety cable

For ceiling-mounted installations, we recommend the use of a safety cable or chain to connect the KW8 and the suspension truss to avoid an accident should the main fixing point fail and the fixture fall. Ensure the iron cable or chain can bear the weight of the entire unit. You may attach the safety cable/chain to the attachment point located on the base of the fixture, as shown in the picture above.

10. SERVICE

To obtain service:

- Contact the official K-array distributor in your country. Your local distributor will direct you to the appropriate service center.
- If you are calling for service, please have the serial number(s) of the unit(s) available for reference. Ask for Customer Service and be prepared to describe the problem clearly and completely.
- If the problem cannot be resolved over the phone, you may be required to send the unit in for service. In this instance, you will be provided with an RA (Return Authorization) number which should be included on all shipping documents and correspondence regarding the repair. Shipping charges are the responsibility of the purchaser.

Any attempt to modify or replace components of the device will invalidate your warranty. Service must be performed by an authorized K-array service center.

Cleaning:
Use only a soft, dry cloth to clean the apparatus. Do not use any solvents, chemicals, or cleaning solutions containing alcohol, ammonia, or abrasives. Do not use any sprays near the product or allow liquids to spill into any openings.

11. TECHNICAL SPECIFICATIONS

	ACOUSTICS
Power handling	300 + 50 W
Max power	500 [1]
Frequency range (-10 dB)	70 Hz – 19 KHz [2]
SPL 1W/1mt	96 dB [3]
Maximum SPL	120 dB (cont.) – 126 dB (peak) [4]
	COVERAGE
Horizontal	70°
Vertical	70°
	CROSSOVER
Type	DSP Controlled
Frequency	1200 Hz
	TRANSDUCERS
Type	8" Neodymiun magnet Woofer with 2.5" voice coil Neodymium magnet Compression Driver with 1" Voice Coil
	AUDIO IN/OUT
Analog connectors	1 male + 1 female 3-pin balanced XLR
	REMOTE CONTROL INPUT
Connectors	1 USB
	VIDEO
Connectors	1 x BNC output
Camera	HD-SDI Mini Camera Wide angle lens Full HD Sensor: Sony Exmor CMOS 2.1 Megapixel

	DMX
Connector	1 male + 1 female 3-pin balanced XLR
Channels	11
	AMPLIFIER
Type	1 module class D - DSP controlled
Nominal Power Output	1 X 450 W @ 4 Ω 1% THD + NOISE [5]
Protections	Dynamic Limiter , Over Current , Over Temp. Short Circuit
Frequency response	10 Hz – 25 kHz (+/- 3 dB) for 1W @ 8 Ω
Damping factor @ 100 Hz	>500
THD+N 1kHz,1 W	0.010%
	AC POWER
Connector	1 x PowerCon
Nominal voltage	115 / 230 Vac
Operating Range	85 - 130 Vac 60Hz / 190 - 240 Vac 50Hz
I. Nom	2 A at 115 Vac / 1 A at 230 Vac
	CONSUMPTION
Efficiency	>80% (typical)
1/8 rated power (pink noise)@ 4Ω	110 W
	CERTIFICATION
IP	20
	PHYSICAL
Dimensions	35.9 cm x 45.9 cm x 21.8 cm (14.1" x 18.1" x 8.6")
Weight	10 kg (22.05 lb)

Notes for data

1. Maximum RMS applicable power for a musical signal. The reference signal is the one proposed by EIAJ standard
2. With dedicated preset;
3. Measured @4 mt then scaled @1 mt;
4. Measured with musical signal
5. EIAJ Test Standard, 1KHz, 1%THD

New materials and design are introduced into existing products without previous notice. Present systems may differ in some respects from those presented in this catalogue.