



JunoScan MK-II LED scanner



user manual

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1 General notes

	This user manual contains important information on safe operation of the device. Read and follow all safety notes and all instructions. Save this manual for future reference. Make sure that it is available to all persons using this device. If you sell the device, include the manual for the next owner.
	Our products are subject to a process of continuous development. We therefore reserve the right to make changes without notice.
Symbols and signal words	This section provides an overview of the symbols and signal words used in this user manual.



Signal word	Meaning
DANGER!	This combination of symbol and signal word indicates an immediate dangerous situation that will result in death or serious injury if it is not avoided.
WARNING!	This combination of symbol and signal word indicates a possible dangerous situation that can result in death or serious injury if it is not avoided.
CAUTION!	This combination of symbol and signal word indicates a possible dangerous situation that can result in minor injury if it is not avoided.
NOTICE!	This combination of symbol and signal word indicates a possible dangerous situation that can result in material and environmental damage if it is not avoided.



Warning signs	Type of danger
	Warning – high-voltage.
	Warning – hot surface.
	Warning – dangerous optical radiation.
	Warning – suspended load.
	Warning – danger zone.

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2 Safety notes

Intended use

This device is intended for use as a multifunctional lighting instrument with movable mirror. Use the device only as described in this user manual. Any other use or use under other operating conditions is considered to be improper and may result in personal injury or property damage. No liability will be assumed for damages resulting from improper use.

This device may be used only by persons with sufficient physical, sensorial, and intellectual abilities and having corresponding knowledge and experience. Other persons may use this device only if they are supervised or instructed by a person who is responsible for their safety.

Safety



DANGER!

Danger for children

Ensure that plastic bags, packaging, etc. are disposed of properly and are not within reach of babies and young children. Choking hazard!

Ensure that children do not detach any small parts (e.g. knobs or the like) from the unit. They could swallow the pieces and choke!

Never let children unattended use electrical devices.

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DANGER! Electric sh

Electric shock caused by high voltages inside

Within the device there are areas where high voltages may be present. Never remove any covers.

There are no user-serviceable parts inside.



DANGER!

Electric shock caused by short-circuit

Always use proper ready-made insulated mains cabling (power cord) with a protective contact plug. Do not modify the mains cable or the plug. Failure to do so could result in electric shock/death or fire. If in doubt, seek advice from a registered electrician.





WARNING!

Eye damage caused by high light intensity

The lamp used in this device produces an intense beam of visible and invisible light radiation.

Do not start the operation of the device without completely fixed covers. Never look directly into the light source.



WARNING!

Risk of epileptic shock

Strobe lighting can trigger seizures in photosensitive epilepsy. Sensitive persons should avoid looking at strobe lights.





WARNING!

Risk of burns

The surface of the device can become very hot during operation.

Do not touch the device with bare hands during operation, and after switching off wait for at least 15 minutes.





CAUTION!

Risk of injury due to mirror movements

The mirror mounted at the device head may perform very fast movements (pan, tilt) and reflect very bright light. This is also the case immediately after switching on the device, with automatic or remote operation, and while a connected DMX controller is in off state. Persons who are in the immediate vicinity of the device may be injured or frightened by this.

Make sure that there are no obstacles within the movement range of the mirror, and that no persons are in the immediate vicinity of the device before switching it on and during its operation. If any work is to be carried out within the movement range or in the immediate vicinity of the mirror, the device must remain switched off.



NOTICE!

Risk of fire

Do not cover the device nor any ventilation slots. Do not place the device near any direct heat source. Keep the device away from naked flames.

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NOTICE!

Operating conditions

This device has been designed for indoor use only. To prevent damage, never expose the device to any liquid or moisture. Avoid direct sunlight, heavy dirt, and strong vibrations.



NOTICE!

Power supply

Before connecting the device, ensure that the input voltage (AC outlet) matches the voltage rating of the device and that the AC outlet is protected by a residual current circuit breaker. Failure to do so could result in damage to the device and possibly injure the user.

Unplug the device before electrical storms occur and when it is unused for long periods of time to reduce the risk of electric shock or fire.



3 Features

The LED scanner is especially suited for professional lighting tasks, e.g. during events, on rock music stages, in theatre and musical productions or in discotheques.

Special features of this device:

- White high-power LED (10 W)
- Control via DMX (5 or 8 channels) and buttons plus display on the unit itself.
- Built-in automatic show programmes
- Sound control
- Master/slave mode
- Colour wheel with 9 colours plus white, rainbow effect
- Gobo wheel: 9 gobos plus open
- Gobo shake function
- Shutter for strobe effect
- Electronic dimmer

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4 Installation

Unpack and check carefully there is no transportation damage before using the unit. Keep the equipment packaging. To fully protect the device against vibration, dust and moisture during transportation or storage use the original packaging or your own packaging material suitable for transport or storage, respectively.

You can install the device on the wall, the ceiling or the floor.





WARNING!

Risk of injury caused by falling objects

Make sure that the installation complies with the standards and regulations in your country. Always secure the unit by a second fastening, such as a retaining cable or safety chain.

The load capacity of trusses or other fixtures must be sufficient for the intended number of devices. Note that the movement of the head will cause additional loads to the load-bearing parts.



NOTICE!

Risk of overheating

The distance between the light output and the illuminated surface must be more than 0.5 m (19.7 in).

Always ensure sufficient ventilation.

The ambient temperature must always be below 40 °C (104 °F).

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NOTICE!

Possible data transmission errors

For error-free operation make use of dedicated DMX cables and do not use ordinary microphone cables.

Never connect the DMX output to audio devices such as mixers or amplifiers.

DMX connections



۲he unit offers a 3-pin XLR socket for DMX output and a 3-pin XLR plug for DMX input. Please	Ś
refer to the drawing and table below for pin assignment.	

1	Ground, shielding
2	DMX data (-)
3	DMX data (+)



5 Setup

Establish all connections as long as the unit is switched off. Use the shortest possible highquality cables for all connections.



Connections in DMX mode

Connect the DMX input of the device to the DMX output of a DMX controller or another DMX device. Connect the output of the first DMX device to the input of the second one, and so on to form a daisy chain. Always ensure that the output of the last DMX device in the daisy chain is terminated with a resistor (110 Ω , ¼ W).





DMX indicator	While the device and the DMX controller are in operation, a flashing white rectangle (DMX indicator) in the display shows that a DMX signal is present at the input.
Connections in master/slave mode	When you configure a group of devices in master/slave mode, the first unit will control the other units for an automatic, sound-activated, synchronized show. This function is ideal when you want to start a show immediately. Connect the DMX output of the master device to the DMX input of the first slave device. Then connect the DMX output of the first slave device to the DMX input of the second slave device and so on.



6 Connections and controls







1	Device head with movable mirror.
2	Lens, manual focussing.
3	Adjustable suspension.
4	Device body.
5	Control panel.
6	Connections.



Control panel



- 7 Display.
- 8 [MODE ESC] button

Activates the main menu and moves between menu items. Closes an open submenu without saving the changes.

9 [UP] button

Increments the displayed value by one.



10	[DOWN] button
	Decrements the displayed value by one.
11	[ENTER] button
	Selects an option in the corresponding mode, confirms the set value.



Connections



- 12 Plug for mains cable with fuse holder.
- 13 Eyelet for safety cable.
- 14 **OUTPUT**

DMX output.

15 **INPUT**

DMX input.



7.1 Starting up the device



CAUTION!

Risk of injury due to mirror movements

The mirror mounted at the device head may perform very fast movements (pan, tilt) and reflect very bright light. This is also the case immediately after switching on the device, with automatic or remote operation, and while a connected DMX controller is in off state. Persons who are in the immediate vicinity of the device may be injured or frightened by this.

Make sure that there are no obstacles within the movement range of the mirror, and that no persons are in the immediate vicinity of the device before switching it on and during its operation. If any work is to be carried out within the movement range or in the immediate vicinity of the mirror, the device must remain switched off.



To start up the device, connect it to the mains. After a few seconds, the fans start to work, the mirror at the device head moves to the pan and tilt home positions and the display indicates a system reset. After a few more seconds, the device starts to operate in the most recently set mode.

7.2 Main menu

Briefly press the [MODE ESC] button to activate the main menu. Use the [MODE ESC] button to move to the next menu item.

All previously made settings are saved, even if you disconnect the device from the power supply. To restart with the default values, use the '*Reset*' function (\bigotimes '*General reset*' on page 31).



Auto show mode

Press the [MODE ESC] button repeatedly until 'AutoMode' appears in the first line of the display. You may now choose an operating mode with the [UP] and [DOWN] buttons:

Displayed text when menu is open	Displayed text after con- firming with <i>[ENTER]</i>	Operating mode
'AutoMode' 'Mast_SR'	'AutoMode' 'SRUN'	Sound-controlled show in stand-alone mode or as a master in master/slave mode
'AutoMode' 'Mast_FA'	'AutoMode' 'FAST'	Automatic fast show in stand-alone mode or as a master in master/slave mode
'AutoMode' 'Mast_SL'	'AutoMode' 'SLOW'	Automatic slow show in stand-alone mode or as a master in master/slave mode
'AutoMode' 'SLAVE'	'AutoMode' 'SON'	The device works as a slave, following the sequence of actions on the master unit

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	Once the display shows the desired option, press the [ENTER] button to confirm your setting and to close the menu. To close the menu without saving the changes, press the [MODE ESC] button or wait one minute.
DMX mode, DMX address	Press the [MODE ESC] button repeatedly until 'DmxMode' appears in the first line of the dis- play. You can now set the number of the first DMX channel used by the device (DMX address). Use the [UP] and [DOWN] buttons to select a value between 1 and 512.
	Once the display shows the desired option, press the <i>[ENTER]</i> button to confirm your setting and to close the menu. To close the menu without saving the changes, press the <i>[MODE ESC]</i> button or wait one minute.
	Make sure that the DMX address matches the configuration of your DMX controller. The fol- lowing table shows the highest usable DMX address for the different DMX modes.

Mode	Highest usable DMX address
5 channels	508
8 channels	505



Reversal of pan direction	Press the [MODE ESC] button repeatedly until 'PanDirt' appears in the first line of the display. Use the [UP] and [DOWN] buttons to choose between 'forward' (normal pan direction) and 'reverse' (reverse pan direction).
	Press the [ENTER] button to confirm your setting and to close the menu. To close the menu without saving the changes, press the [MODE ESC] button or wait one minute.
Reversal of tilt direction	Press the [MODE ESC] button repeatedly until 'TilDirt' appears in the first line of the display. Use the [UP] and [DOWN] buttons to choose between 'forward' (normal tilt direction) and 'reverse' (reverse tilt direction).
	Press the <i>[ENTER]</i> button to confirm your setting and to close the menu. To close the menu without saving the changes, press the <i>[MODE ESC]</i> button or wait one minute.
DMX mode	Press the [MODE ESC] button repeatedly until 'Channel' appears in the first line of the display. Use the [UP] and [DOWN] buttons to select one of the following DMX modes: 5-channel or 8- channel mode. This setting takes effect only when the device is operated under DMX control.
	Press the <i>[ENTER]</i> button to confirm your setting and to close the menu. To close the menu without saving the changes, press the <i>[MODE ESC]</i> button or wait one minute.



Resetting the stepper motors	This function allows you to return the stepper motors to their home positions (mechanical reset).
	Press the [MODE ESC] button repeatedly until 'Rest' appears in the first line of the display.
	Press the [ENTER] button. The device performs a reset.
General reset	This function allows you to restore the factory settings of all parameters that can be changed in the main menu.
	Press the [MODE ESC] button repeatedly until 'Load' appears in the first line of the display.
	Press the [ENTER] button. The device performs a reset.



Overview (main menu)





7.3 Settings menu

Press and hold down the [MODE ESC] button for approx. five seconds to activate the settings menu. Use the [UP] and [DOWN] buttons to enter the device password 2323. The [UP] button modifies the digit at the cursor position, while the [DOWN] button moves the cursor to the next digit. Once you have entered all digits, press the [ENTER] button.

To close the settings menu and return to the main menu, press the [MODE ESC] button for approx. five seconds.

All previously made settings are saved, even if you disconnect the device from the power supply.



There is no reset function for the parameters that can be changed in the settings menu.



Op	ber	ati	ion
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Adjusting the gobo wheel starting position	Activate the settings menu. Press the <i>[MODE ESC]</i> button repeatedly until <i>'GOBO'</i> appears in the first line of the display. Use the <i>[UP]</i> and <i>[DOWN]</i> buttons to select a value between 0 and 255 until the gobo wheel is in the desired starting position.
	Press the <i>[ENTER]</i> button to confirm your setting and to move to the next menu option. To close the menu without saving the changes, press the <i>[MODE ESC]</i> button or wait one minute.
Adjusting the colour wheel starting position	Activate the settings menu. Press the [MODE ESC] button repeatedly until 'COLOR' appears in the first line of the display. Use the [UP] and [DOWN] buttons to select a value between 0 and 255 until the colour wheel is in the desired starting position.
	Press the <i>[ENTER]</i> button to confirm your setting and to move to the next menu option. To close the menu without saving the changes, press the <i>[MODE ESC]</i> button or wait one minute.
LED setting	This function is only needed for technical service and should not be used during normal opera- tion.
	Activate the settings menu. Press the [MODE ESC] button repeatedly until 'LED' appears in the first line of the display. Use the [UP] and [DOWN] buttons to select a value between 0 and 70.
	Press the <i>[ENTER]</i> button to confirm your setting and to move to the next menu option. To close the menu without saving the changes, press the <i>[MODE ESC]</i> button or wait one minute.



Overview (settings menu)







7.4 Gobos

The following figure shows the available gobos and their numbers.







7.5 Functions in 5-channel DMX mode

Channel	Value	Function
1	0255	Pan (0° to 180°)
2	0255	Tilt (0° to 60°)
3	Colour wheel	
	05	White
	611	Yellow
	1217	Pink
	1823	Green
	2429	Red
	3035	Blue
	3641	Orange
	4247	Dark blue



Channel	Value	Function
	4853	Kelly green
	5463	Orange red
	6473	White + yellow
	7479	Yellow + pink
	8085	Pink + green
	8691	Green + red
	9297	Red + blue
	98103	Blue + orange
	104109	Orange + dark blue
	110115	Ark blue + Kelly green
	116121	Kelly green + orange red
	122127	Orange red + white
	128191	Rainbow effect in positive rotation direction, with increasing speed



Channel	Value	Function
	192255	Rainbow effect in negative rotation direction, with increasing speed
4	Shutter	
	03	Closed (blackout)
	47	Open
	8215	Strobe effect with increasing speed
	216255	Open
5	Gobo wheel	
	05	Open
	611	Gobo 1
	1217	Gobo 2
	1823	Gobo 3
	2429	Gobo 4
	3035	Gobo 5



Channel	Value	Function
	3641	Gobo 6
	4247	Gobo 7
	4853	Gobo 8
	5463	Gobo 9
	6473	Gobo 9 shake with increasing speed
	7479	Gobo 8 shake with increasing speed
	8085	Gobo 7 shake with increasing speed
	8691	Gobo 6 shake with increasing speed
	9297	Gobo 5 shake with increasing speed
	98103	Gobo 4 shake with increasing speed
	104109	Gobo 3 shake with increasing speed
	110115	Gobo 2 shake with increasing speed
	116121	Gobo 1 shake with increasing speed



Channel	Value	Function
	122127	Open
	128191	Rainbow effect in positive rotation direction, with increasing speed
	192255	Rainbow effect in negative rotation direction, with increasing speed

7.6 Functions in 8-channel DMX mode

Channel	Value	Function
1	0255	Pan (0° to 180°)
2	0255	Tilt (0° to 60°)
3	Colour wheel	
	05	White
	611	Yellow



Channel	Value	Function
	1217	Pink
	1823	Green
	2429	Red
	3035	Blue
	3641	Orange
	4247	Dark blue
	4853	Kelly green
	5463	Orange red
	6473	White + yellow
	7479	Yellow + pink
	8085	Pink + green
	8691	Green + red
	9297	Red + blue



Channel	Value	Function
9 1 1 1 1 1 1 1	98103	Blue + orange
	104109	Orange + dark blue
	110115	Ark blue + Kelly green
	116121	Kelly green + orange red
	122127	Orange red + white
	128191	Rainbow effect in positive rotation direction, with increasing speed
	192255	Rainbow effect in negative rotation direction, with increasing speed
4	Shutter	
	03	Closed (blackout)
	47	Open
	8215	Strobe effect with increasing speed
	216255	Open
5	0255	Electronic dimmer (0 to 100 %)

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Channel	Value	Function
6	Gobo wheel	
	05	Open
	611	Gobo 1
	1217	Gobo 2
	1823	Gobo 3
	2429	Gobo 4
	3035	Gobo 5
	3641	Gobo 6
	4247	Gobo 7
	4853	Gobo 8
	5463	Gobo 9
	6473	Gobo 9 shake with increasing speed
	7479	Gobo 8 shake with increasing speed



Channel	Value	Function
84 92 94 10 11 11 11 12 12 12	8085	Gobo 7 shake with increasing speed
	8691	Gobo 6 shake with increasing speed
	9297	Gobo 5 shake with increasing speed
	98103	Gobo 4 shake with increasing speed
	104109	Gobo 3 shake with increasing speed
	110115	Gobo 2 shake with increasing speed
	116121	Gobo 1 shake with increasing speed
	122127	Open
	128191	Rainbow effect in positive rotation direction, with increasing speed
	192255	Rainbow effect in negative rotation direction, with increasing speed
7		
	07	Reserved
	815	Blackout during pan and tilt movement

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Channel	Value	Function
	1623	Blackout during colour wheel movement
	2431	Blackout during gobo wheel movement
	3239	No blackout during colour wheel movement nor during pan and tilt movement
	4047	No blackout during gobo wheel movement nor during pan and tilt movement
	4855	No blackout during colour wheel movement nor during gobo wheel movement nor during pan and tilt movement
	5695	Reserved
	96103	Reset pan angle
	104111	Reset tilt angle
	112119	Reset colour wheel
	120127	Reset gobo wheel
	128151	Reserved
	152159	Reset all channels



Channel	Value	Function
	160255	Reserved
8	Built-in programm	es
	07	Reserved
	823	Programme 1
	2439	Programme 2
	4055	Programme 3
	5671	Programme 4
	7287	Programme 5
	88103	Programme 6
	104119	Programme 7
	120135	Programme 8
	136151	Sound control 1
	152167	Sound control 2

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Channel	Value	Function
	168183	Sound control 3
	184199	Sound control 4
	200215	Sound control 5
	216231	Sound control 6
	232247	Sound control 7
	248255	Sound control 8



8 Troubleshooting



NOTICE!

Possible data transmission errors

For error-free operation make use of dedicated DMX cables and do not use ordinary microphone cables.

Never connect the DMX output to audio devices such as mixers or amplifiers.

In the following we list a few common problems that may occur during operation. We give you some suggestions for easy troubleshooting:



Symptom	Remedy
Device not working, no light, fan not working	Check mains connection and fuse.
Not responding to DMX controller	1. The DMX indicator in the display should flash during data transmission. If not, check DMX connectors and cables for proper matching and fit.
	2. If the DMX indicator in the display is lit and there is no response, check address settings and DMX polarity.
	3. Try using another DMX controller.
	4. Check whether the DMX cables run near or parallel to high-voltage cables that may cause damage or interference to the DMX interface circuit.

If the procedures recommended above do not succeed, please contact our Service Center. You can find the contact information at <u>www.thomann.de</u>.



9 Cleaning

Optical lenses and mirrors

Clean the optical lenses and mirrors which are accessible from the outside periodically to optimise light output. The cleaning frequency depends on the operating environment: damp, smoky or particularly dirty environments can cause greater accumulation of dirt on the unit's optics.

- Clean with soft cloth using normal glass cleaning fluid.
- Always wipe dry the parts carefully.



10 Technical data

Number of DMX channels	5 or 8 channels, depending on operating mode
Lamp	LED (1 \times 10 W, white)
Maximum pan angle	180°
Maximum tilt angle	60°
Dimmer	electronic, 0 100 %
Mains power supply	230 V ~ (AC), 50 Hz
Power consumption	57 W
Fuse	5 mm × 20 mm, 2.0 A, 250 V, fast-blow
Dimensions (W \times D \times H)	140 mm × 396 mm × 106 mm
Weight	4.3 kg



11 Protecting the environment

Disposal of the packaging material



Disposal of your old device



This device is subject to the European directive 2002/96/EC.

chosen that can be supplied to normal recycling.

Do not dispose of the device with your normal household waste.

Ensure that plastic bags, packaging, etc. are properly disposed of.

Dispose of this device through an approved waste disposal firm or through your local waste facility. When discarding the device, comply with the rules and regulations that apply in your country. If in doubt, consult your local waste disposal facility.

For the transport and protective packaging, environmentally friendly materials have been

Do not just dispose of these materials with your normal household waste, but make sure that they are collected for recycling. Please follow the notes and markings on the packaging.

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