

# LX109

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MATRIX PANEL 4X4 WITH HIGH OUTPUT TRI-COLOUR LEDS



USER MANUAL



## 1. Introduction

To all residents of the European Union

### Important environmental information about this product



This symbol on the device or the package indicates that disposal of the device after its lifecycle could harm the environment. Do not dispose of the unit (or batteries) as unsorted municipal waste; it should be taken to a specialized company for recycling. This device should be returned to your distributor or to a local recycling service. Respect the local environmental rules.

**■ If in doubt, contact your local waste disposal authorities.**

Thank you for choosing Luxibel®! Please read the manual thoroughly before bringing this device into service. If the device was damaged in transit, don't install or use it and contact your dealer.

## 2. Safety Instructions

	Be very careful during the installation: touching live wires can cause life-threatening electroshocks.
	Always disconnect mains power when device not in use or when servicing or maintenance activities are performed. Handle the power cord by the plug only.
	<b>Indoor use only.</b> Keep this device away from rain, moisture, splashing and dripping liquids. Never put objects filled with liquids on top of or close to the device.
	Keep this device away from children and unauthorized users.
	<b>Caution:</b> device heats up during use.
	<b>Do not stare directly at the light source</b> , as this may cause <ul style="list-style-type: none"> <li>• epileptic seizure in sensitive people</li> <li>• temporarily loss of sight (flash blindness)</li> <li>• permanent (irreversible) eye damage.</li> </ul>
	There are no user-serviceable parts inside the device. Refer to an authorized dealer for service and/or spare parts.

- This device falls under protection class I. It is therefore essential that the device be earthed. Have a qualified person carry out the electric connection.
- Make sure that the available voltage does not exceed the voltage stated in the specifications of this manual.
- Do not crimp the power cord and protect it against damage. Have an authorised dealer replace it if necessary.
- Use an appropriate safety cable to fix the device (e.g. VDLSC7N or VDLSC8N).
- Install the LX109 at a minimal distance of 0.5 m from flammable and explosive objects or substances.
- Respect a minimum distance of 0.5 m between the device's light output and any illuminated surface.
- The maximum ambient temperature is 40 °C. Do not operate the device at higher temperatures.

## 3. General Guidelines

Refer to the **Velleman® Service and Quality Warranty** on the last pages of this manual.

	Keep this device away from dust and extreme temperatures. Make sure the ventilation openings are clear at all times. For sufficient air circulation, leave at least 1" (± 2.5 cm) in front of the openings.
	Protect this device from shocks and abuse. Avoid brute force when operating the device.

- Familiarise yourself with the functions of the device before actually using it. Do not allow operation by unqualified people. Any damage that may occur will most probably be due to unprofessional use of the device.
- All modifications of the device are forbidden for safety reasons. Damage caused by user modifications to the device is not covered by the warranty.

- Only use the device for its intended purpose. All other uses may lead to short circuits, burns, electroshocks, lamp explosion, crash, etc. Using the device in an unauthorised way will void the warranty.
- Damage caused by disregard of certain guidelines in this manual is not covered by the warranty and the dealer will not accept responsibility for any ensuing defects or problems.
- Mechanical wear and LEDs are not covered by warranty.
- A qualified technician should install and service this device.
- Do not switch the device on immediately after it has been exposed to changes in temperature. Protect the device against damage by leaving it switched off until it has reached room temperature.
- This device is designed for professional use on stage, in discos, theatres, etc. The device should only be used indoors with an alternating current of 100 to 240 VAC – 50/60 Hz.
- This device is designed for professional use on stage, in discos, theatres, etc. The LX109 should only be used indoors.
- Lighting effects are not designed for permanent operation: regular operation breaks will prolong their lives.
- There may be some smoke or a particular smell when the device is activated for the first time. This is normal and any smoke or smell will gradually disappear.
- Use the original packaging if the device is to be transported.
- Keep this manual for future reference.

#### 4. Features

- high power tri-colour LED panel for eye-candy effects, wash light or blinder effect
- Kling-Net supported, to allow auto-configuration over Ethernet
- each LED controllable for pixel mapping
- DMX controlled via 3, 5, 7, or 48 channels
- built-in automatic programs via master/slave or DMX with variable speed
- 2 x 8 digit LCD display for easy menu setting
- COB LED for superior RGB colour mixing
- additional power output
- bracket for multiple unit connection, to create a wall
- heavy duty bracket for truss rigging
- equipped with Neutrik powerCON in/out

#### 5. Overview



#### 6. About the Kling-Net protocol

- ArKaos has designed the Kling-Net protocol to allow the distribution of real-time video data to remote display devices, such as LEDs or LED panels, over Ethernet.
- Kling-Net allows auto configuration of display devices using an etherCON® RJ 45 Ethernet connection.
- The LX150 works best with the Arkaos Mediamaster™ Pro software and its Video Mapper extension (Mac and Windows).

- Refer to the ArKaos MediaMaster software manual for detailed instructions on programming this product ([www.arkaospro.com](http://www.arkaospro.com)).

## 7. Installation

Choose a suitable mounting spot. Mount the device in the desired angle using the included bracket. Connect the power cord to the mains. Disconnect after use.

### Mounting the Device

- Have the device installed by a qualified person, respecting EN 60598-2-17 and all other applicable norms.
- The carrying construction must be able to support 10 times the weight of the device for 1 hour without deforming.
- The installation must always be secured with a secondary attachment e.g. a safety cable.
- Never stand directly below the device when it is being mounted, removed or serviced. Have a qualified technician check the device once a year and once before you bring it into service.
- Install the device in a location with few passers-by that is inaccessible to unauthorised persons.
- Overhead mounting requires extensive experience: calculating workload limits, determining the installation material to be used... Have the material and the device itself checked regularly. Do not attempt to install the device yourself if you lack these qualifications as improper installation may result in injuries.
- For truss mounting, use an appropriate clamp (not incl.) and fit an M10 bolt through the centre of the (folded) bracket.
- Adjust the desired inclination angle via the mounting bracket and tighten the bracket screws.
- Make sure there is no flammable material within a 0.5 m radius of the device.
- Have a qualified electrician carry out the electric connection.
- Connect the device to the mains with the power plug. All devices must be powered directly off a grounded switched circuit and cannot be run off a rheostat or dimmer circuit, even if the rheostat or dimmer channel is used solely for 0 % to 100 % switching.
- The LX109 has a power output to supply power to another LX109. When connecting several LX109s in a daisy chain via this output, make sure that the total current does not exceed the power line's nominal current. Use power cables with an adequate section
- The installation has to be approved by an expert before the device is taken into service.

### DMX-512 Connection

- When applicable, connect an XLR cable to the female XLR output of a controller (not incl.) and the other side to the male XLR input of the LX109. Multiple LX109s can be linked through serial linking. The linking cable should be a dual core, screened cable with XLR input and output connectors.
- Maximum recommended serial data link distance is 500 meters (1640 ft). Maximum recommended number of devices on a serial data link is 32 devices.
- A DMX terminator is recommended for installations where the DMX cable has to run a long distance or is in an electrically noisy environment (e.g. discos). The terminator prevents corruption of the digital control signal by electrical noise. The DMX terminator is simply an XLR plug with a 120  $\Omega$  resistor between pins 2 and 3, which is then plugged into the XLR output socket of the last device in the chain.

## 8. Operation

The LX109 can be used in the following modes:

- stand-alone mode: automatic
- master/slave
- with a DMX512 controller.

### 8.1 Using the Control Panel



Access the control panel functions using the four panel buttons located near the display:

Button	Function
<MENU>	used to access the menu or to return to a previous menu option

<UP>	scrolls through the menu options in ascending order
<DOWN>	scrolls through the menu options in descending order
<ENTER>	used to select and store the current menu or option within the menu

- The control panel display shows the menu items you select from the menu map. When a menu function is selected, the display will show immediately the first available option for the selected menu function. To select a menu item, press <ENTER>.
- Use the <UP> and <DOWN> buttons to navigate the menu map and menu options. Press <ENTER> to access the menu function currently displayed or to enable a menu option. To return to the previous option or menu without changing the value, press the <MENU> button.

#### The menu contains the following items:

- Auto Show
- Static
- Dimmer Mode
- Back Lite
- Info
- DMX Address
- DMX Channel
- Master/Slave
- White Balance
- Fan Speed
- Temperature

## 8.2 Stand-Alone Mode

In stand-alone mode, the device runs one of the built-in programs: automatic or.

To set the device to stand-alone mode:

1. Connect nothing to the DMX input of the device.
2. Press <MENU> until <Auto Show> is displayed and press <ENTER>.
3. Use <UP> and <DOWN> to select a built-in program:

## 8.3 Master/Slave Mode

The master/slave mode allows connecting several devices to a single master device. All slave devices will then work synchronously with the master device.

You need to set one device to master mode and all other devices to slave mode.

1. Connect all devices in series with DMX cables.
2. The first unit in the chain functions as the master device. Set up the unit as described above.
3. On the master device, press <MENU> until <Master/Slave> is displayed and press <ENTER>.
4. Use <UP> and <DOWN> to select <Master> and press <ENTER>.
5. On each slave device, press <MENU> until <Master/Slave> is displayed and press <ENTER>.
6. Use <UP> and <DOWN> to select <Slave> and press <ENTER>.

## 8.4 DMX Mode

The DMX mode allows you to control the device with any universal DMX controller.

All DMX-controlled devices need a digital start address so that the correct device responds to the signals. This digital start address is the channel number from which the device starts to "listen" to the DMX controller. The same starting address can be used for a whole group of devices or an individual address can be set for every device.

Use the table below to define the correct address. The table shows the settings for units 1 to 3. Apply the same principle for the other units.

Channel mode		Start addresses			Highest start address
		First unit	Second unit	Third unit	
3	Start address	1	4 (1 + 3)	7 (4 + 3)	510
	Channel	1 - 3	4 - 6	7 - 9	
5	Start address	1	6 (1 + 5)	11 (6 + 5)	508
	Channel	1 - 5	6 - 10	11 - 15	

7	Start address	1	8 (1 + 7)	15 (8 + 7)	506
	Channel	1 - 7	8 - 14	15 - 21	
48	Start address	1	49 (1 + 48)	97 (49 + 48)	465
	Channel	1 - 48	49 - 96	97 - 144	

- When all devices have the same address, all the units will “listen” to the control signal on one particular channel. In other words: changing the settings of one channel will affect all devices simultaneously. If you set individual addresses, each device will “listen” to a separate channel number. Changing the settings of one channel will only affect the device in question.

To set the device to work with a DMX controller:

1. Press <MENU> until <DMX Channel> is displayed and press <ENTER>.
2. Use <UP> and <DOWN> to select the appropriate channel DMX mode and press <ENTER>.
3. Press <MENU> until <DMX Address> is displayed and press <ENTER>.
4. Use <UP> and <DOWN> to set the DMX starting address (A001 ~ A512) and press <ENTER>.

**DMX channel values**

**3 channel mode**

Channel	From	to	Description
1	000	255	Red
2	000	255	Green
3	000	255	Blue

**5 channel mode**

Channel	From	to	Description
1	0	255	Red
2	0	255	Green
3	0	255	Blue
4	0	255	Dimmer
5	0	0	Shutter - No Function
	1	5	Shutter - Random Auto Show
	6	10	Shutter - Open
	11	255	Shutter - Strobe Slow to Fast

**7 channel mode**

Channel	From	to	Description
1	000	255	Red
2	000	255	Green
3	000	255	Blue
4	000	010	No Function
	011	255	Strobe Slow to Fast
5	000	010	No Function
	011	030	Chase 1
	031	050	Chase 2
	051	070	Chase 3
	071	090	Chase 4
	091	110	Chase 5
	111	130	Chase 6
	131	150	Chase 7
	151	170	Chase 8
	171	190	Chase 9
	191	210	Chase 10
	211	230	Chase 11
231	250	Chase 12	

Channel	From	to	Description
	251	255	Random Auto Show (chase 1-12)
6	000	255	Speed Slow to Fast
7	000	255	Dimmer 0%-100%

**48 channel mode**

Channel	From	To	Description
1	000	255	Red 1
2	000	255	Green 1
3	000	255	Blue 1
4	000	255	Red 2
5	000	255	Green 2
6	000	255	Blue 2
7	000	255	Red 3
8	000	255	Green 3
9	000	255	Blue 3
10	000	255	Red 4
11	000	255	Green 4
12	000	255	Blue 4
13	000	255	Red 5
14	000	255	Green 5
15	000	255	Blue 5
16	000	255	Red 6
17	000	255	Green 6
18	000	255	Blue 6
19	000	255	Red 7
20	000	255	Green 7
21	000	255	Blue 7
22	000	255	Red 8
23	000	255	Green8
24	000	255	Blue 8
25	000	255	Red 9
26	000	255	Green 9
27	000	255	Blue 9
28	000	255	Red 10
29	000	255	Green 10
30	000	255	Blue 10
31	000	255	Red 11
32	000	255	Green 11
33	000	255	Blue 11
34	000	255	Red 12
35	000	255	Green 12
36	000	255	Blue 12
37	000	255	Red 13
38	000	255	Green 13
39	000	255	Blue 13
40	000	255	Red 14
41	000	255	Green 14
42	000	255	Blue 14
43	000	255	Red 15
44	000	255	Green 15
45	000	255	Blue 15

Channel	From	To	Description
46	000	255	Red 16
47	000	255	Green 16
48	000	255	Blue 16

## 9. Cleaning and Maintenance

Before starting any cleaning or maintenance activities:

1. Unplug the device's power cord from the outlet.
2. Let the device cool down.

### Cleaning

- Clean the external optics with a soft cloth.
- Always be sure to dry all parts completely before plugging the unit back in.
- Cleaning frequency depends on the environment in which the unit operates (i.e. smoke, fog residue, dust, dew).
- Do not immerse the device in any liquid.

### Maintenance

- All screws should be tightened and free of corrosion.
- The housing, the lenses, the mounting supports and the installation location (e.g. ceiling, suspension, trussing) should not be deformed, modified or tampered with; e.g. do not drill extra holes in mounting supports, do not change the location of the connections...
- Mechanically moving parts must not show any signs of wear and tear.
- The electric power supply cables must not show any damage. Have a qualified technician maintain the device.
- There are no user-serviceable parts, apart from the fuse.
- Refer to an authorized dealer for service and/or spare parts.

### Replacing the fuse

Only replace the fuse by a fuse of the same type and rating.

1. Unplug the device's power cord from the outlet.
2. Use a flat-head screwdriver to remove the fuse holder.
3. Remove the damaged fuse and replace with the same type of fuse.
4. Insert the fuse holder back in its place and reconnect power.

## 10. Technical Specifications

power supply	100-240 VAC 50/60 Hz
power consumption	390 W
LED source	16 high power tri-colour COB LEDs, 10 W
beam angle	63°
pitch	115 mm
DMX in- and output	3-pin XLR
dimensions	459 x 459 x 97 mm (205.2 mm with bracket)
weight	8 kg

**Use this device with original accessories only. Velleman nv cannot be held responsible in the event of damage or injury resulting from (incorrect) use of this device.**

**For more info concerning this product and the latest version of this manual, please visit our website [www.luxibel.com](http://www.luxibel.com).**

**The information in this manual is subject to change without prior notice.**

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## **Velleman® Service and Quality Warranty**

Since its foundation in 1972, Velleman® acquired extensive experience in the electronics world and currently distributes its products in over 85 countries.

All our products fulfil strict quality requirements and legal stipulations in the EU. In order to ensure the quality, our products regularly go through an extra quality check, both by an internal quality department and by specialized external organisations. If, all precautionary measures notwithstanding, problems should occur, please make appeal to our warranty (see guarantee conditions).

### **General Warranty Conditions Concerning Consumer Products (for EU):**

- All consumer products are subject to a 24-month warranty on production flaws and defective material as from the original date of purchase.
- Velleman® can decide to replace an article with an equivalent article, or to refund the retail value totally or partially when the complaint is valid and a free repair or replacement of the article is impossible, or if the expenses are out of proportion.

You will be delivered a replacing article or a refund at the value of 100% of the purchase price in case of a flaw occurred in the first year after the date of purchase and delivery, or a replacing article at 50% of the purchase price or a refund at the value of 50% of the retail value in case of a flaw occurred in the second year after the date of purchase and delivery.

#### **• Not covered by warranty:**

- all direct or indirect damage caused after delivery to the article (e.g. by oxidation, shocks, falls, dust, dirt, humidity...), and by the article, as well as its contents (e.g. data loss), compensation for loss of profits;
  - consumable goods, parts or accessories that are subject to an aging process during normal use, such as batteries (rechargeable, non-rechargeable, built-in or replaceable), lamps, rubber parts, drive belts... (unlimited list);
  - flaws resulting from fire, water damage, lightning, accident, natural disaster, etc....;
  - flaws caused deliberately, negligently or resulting from improper handling, negligent maintenance, abusive use or use contrary to the manufacturer's instructions;
  - damage caused by a commercial, professional or collective use of the article (the warranty validity will be reduced to six (6) months when the article is used professionally);
  - damage resulting from an inappropriate packing and shipping of the article;
  - all damage caused by modification, repair or alteration performed by a third party without written permission by Velleman®.
- Articles to be repaired must be delivered to your Velleman® dealer, solidly packed (preferably in the original packaging), and be completed with the original receipt of purchase and a clear flaw description.
  - Hint: In order to save on cost and time, please reread the manual and check if the flaw is caused by obvious causes prior to presenting the article for repair. Note that returning a non-defective article can also involve handling costs.
  - Repairs occurring after warranty expiration are subject to shipping costs.
  - The above conditions are without prejudice to all commercial warranties.

**The above enumeration is subject to modification according to the article (see article's manual).**

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