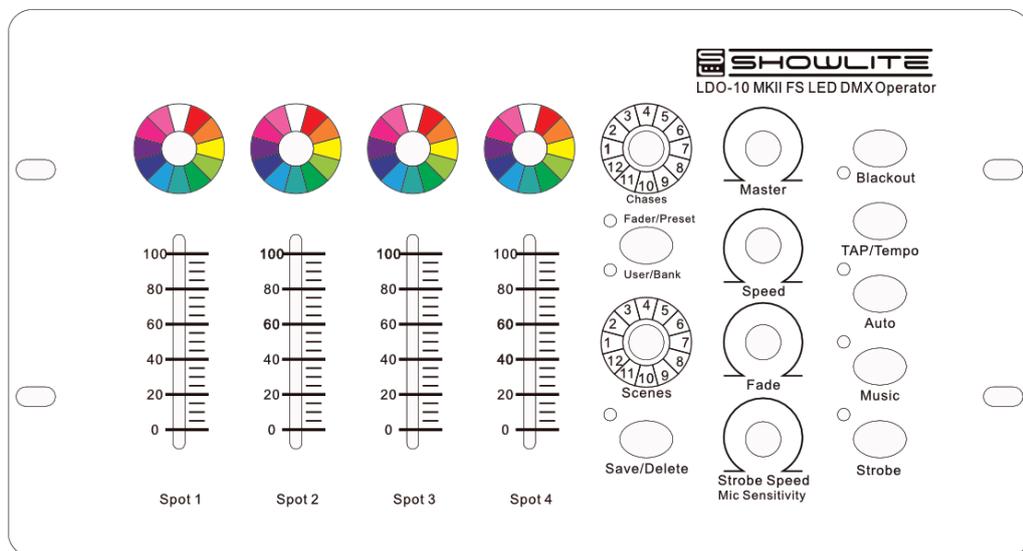




# LDO-10 MKII FS



## User Manual

Version: 08/2020

Thank you for choosing this product. To ensure that you are completely satisfied with this product, please read and understand this manual carefully.



## PLEASE READ CAREFULLY

Please keep this manual in a safe place for future reference. Hand over all documents when passing on the product to third parties. Never leave children unattended with the packaging material. For products packed in plastic bags, there is a risk of suffocation from packaging materials. The product should only be used under adult supervision. Only use the product if it is in perfect condition. Do not use the product if damage is visible or suspected. We are not liable for any damage that occurs as a result of non-observance of the safety instructions or incorrect or improper handling.



Follow the operating instructions!



The **WARNING** signal word identifies hazards that, without precautions, could result in serious injury.



The signal word **NOTE** indicates general precautions that should be observed when handling the product



Images and screen images in this manual may differ slightly from the actual product's appearance, as long as it does not adversely affect the technical characteristics and safety of the product.



All personal phrasing in this manual should be considered gender neutral.

This operating manual applies to responsible users and to persons who have been supervised or instructed in the operation of the device by a person responsible for their safety and who have proven that they are capable of handling the device.



**Children should be supervised to ensure that they do not use this device as a toy.  
Never allow children to play unattended with the packaging material.**



**Risk of damage to property! We are not liable for accidents that occur as a result of non-observance of the safety instructions or incorrect handling.**

All information in this operating manual has been checked to the best of our knowledge and belief. However, neither the author nor the publisher can be held liable for any damages related to the use of this manual.

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 **WARNING**

**Caution**

Please observe the following basic instructions in order not to endanger yourself or others and to avoid damage to external devices.

 **NOTE**

**Warnings**

Do not disassemble or modify the product. This could result in injury from electric shock. If you notice that the power cord shows obvious signs of wear, the appliance is malfunctioning, smells burnt or smokes, immediately unplug the appliance from the wall outlet and refer servicing, maintenance or repair to an authorised service centre or your dealer.

Before cleaning the product, you should turn it off and disconnect it from the power supply. Always place the product on a flat, stable surface to ensure a secure stand.

Do not use the product in a damp or wet environment.

Do not place containers filled with liquids, such as vases, glasses or bottles, on the product.

Do not place small objects on top of it that could slide in, such as hairpins, sewing needles or coins.

 **NOTE**

**Precautions**

To avoid damage to the product, do not place it in places with high temperatures or a lot of dust, do not place it directly next to an air conditioner and avoid direct sunlight.

Do not place the article near other electrical equipment to avoid interference.

Do not use force when handling the product or place heavy objects on it.

Disconnect the power supply if you are not going to use the device for a longer period of time. To disconnect the power, pull the plug, not the cable.

Please handle the power cable with care. It should not be near radiators, do not place heavy objects on it and lay it in such a way that no persons can step on it or fall over it.

 **WARNING**

**Mains voltage**

If an external power supply unit is required for use, connect it to an outlet with the correct voltage.

Do not connect the device to a different mains voltage than that for which your product is intended.

Unplug the power cord from the wall outlet when not using the product or when there is a thunderstorm.

 **NOTE**

**Place**

Do not expose the product to the following conditions to avoid deformation, discoloration or major damage:

Direct sunlight, extreme temperature or humidity, excessively dusty or dirty place, strong vibrations or shocks, strong magnetic fields

 **NOTE**

**Cleaning**

Clean the product only with a soft, dry cloth. Do not use paint thinner, solvents, cleaning fluids or chemically impregnated wipes.

 **NOTE**

**Handling**

Do not exert excessive force on operating elements such as switches, knobs, buttons, and fastening screws.

Do not insert any paper, metal or other objects inside. If this happens, unplug the AC adapter/power cord from the wall outlet. Have the product checked by qualified service personnel.

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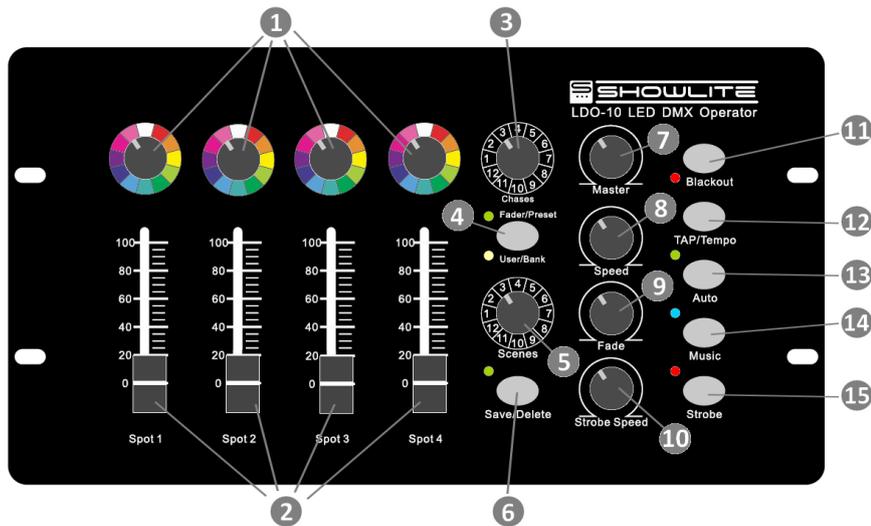
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## Content

<b>1. Connections and operating elements .....</b>	<b>6</b>
1.1 Front panel controls.....	6
1.2 Rear connections .....	6
1.3 Power supply and DMX cabling.....	7
<b>2. DMX addressing.....</b>	<b>7</b>
2.1 DMX-Test- / Simple-Mode .....	7
2.2 DMX addressing for the operation of single spotlights: .....	7
2.3 DMX addressing for the operation of RGB compact systems: .....	8
<b>3. Operation.....</b>	<b>10</b>
3.1 Manual operating mode.....	10
3.2 Automatic operating mode.....	10
3.3 Music control .....	11
<b>4. Special function Strobe .....</b>	<b>11</b>
<b>5. Foot switch (optionally available).....</b>	<b>11</b>
<b>Appendix: Technical Data .....</b>	<b>12</b>

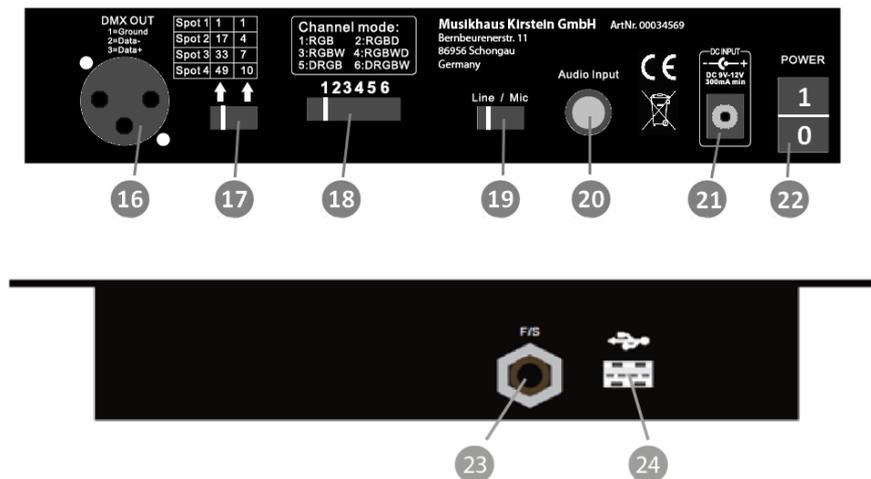
# 1. Connections and operating elements

## 1.1 Front panel controls



1. Colour selector switch spot 1-4 12-step
2. Fader brightness spot 1-4 / 0...100%
3. Selection chaser/bank 12-step
4. Preset/User Bank selection button
5. Selector switch for scenes 12-step
6. Function button Save/Delete
7. Master brightness
8. Speed control Chaser
9. Fading speed (fade time)
10. Stroboscope speed
11. Blackout/standby (all LEDs off)
12. Function key TAP/tempo
13. Function key Automatic
14. Music control function key
15. Function key Stroboscope

## 1.2 Rear connections



16. XLR connector for DMX
17. Selection of DMX start addresses
18. Selection of DMX channel assignment
19. Selection internal MIC / external audio
20. Jack socket external audio signal
21. Connection external power supply 9V/DC
22. ON/OFF switch
23. Foot switch input
24. USB-connector (FAT16; FAT32)

## 1.3 Power supply and DMX cabling

Connect the supplied power supply unit to the input socket (21) on the back of the unit. Only use the mains voltage specified for the fixture as per Appendix. Connect the DMX control line via the output socket (16) to the LED spotlights to be controlled. If you want to control several fixtures, loop the DMX signal through the DMX output of the first fixture to the input of the next.

**DMX-Ausgang**  
**XLR-Einbaubuchse**

1: Masse  
2: Signal (-)  
3: Signal (+)



If you have a simple installation with few fixtures, you can also use microphone cables for the DMX connection. If you have several fixtures, make sure to use high quality DMX cables and a DMX terminator at the last fixture to avoid transmission problems.

## 2. DMX addressing

### 2.1 DMX-Test- / Simple-Mode

The four sliders and the Strobe/Speed knob of the controller always send DMX values 0-255 on channels 71 to 75 in addition (depending on the position of the controller), independent of all other settings. This allows you to test the response or channel assignment of any DMX device without the need for its manual. Simply select the start address 71 on the DMX device and then move the four sliders and the Strobe/Speed knob.

This mode can also be used to control any DMX fixture where you want to use five consecutive channels.

### 2.2 DMX addressing for the operation of single spotlights:

Set the selection switch for the DMX start addresses (17) to position (1/17/33/49).

The device is suitable for controlling several LED spotlights with the same DMX channel assignment. Select the desired DMX channel assignment at the selection switch (18) (see below for coding) and switch on the DMX controller with the ON/OFF switch (22). Switch on the connected LED spotlights as well. For Showlite DRGB LED fixtures, which all have the same DMX channel assignment, use standard switch position 5. For fixtures of other brands, please activate the channel assignment according to their user manual. The spotlights are addressed in steps of 16 as follows: A001 / A017 / A033 / A049. The fixtures are then automatically assigned to the controls for spot 1-4.

#### **Coding Channel assignment:**

R = Red / G = Green / B = Blue / W = White / D = Dimmer (brightness)

Spotlights with the same DMX channel assignment and the same addressing behave identically to achieve the same lighting effects, e.g. for symmetrical stage setups. If you want to use eight fixtures (4 LED fixtures left and 4 LED fixtures right) and you want the four on the right side to do the same as the four on the left side mirrored, the fixtures 5 to 8 are addressed backwards:

#### **Left side of the stage:**

Fixture 1: A001  
Fixture 2: A017  
Fixture 3: A033  
Fixture 4: A049

#### **Right side of the stage:**

Fixture 5: A049  
Fixture 6: A033  
Fixture 7: A017  
Fixture 8: A001

## 2.3 DMX addressing for the operation of RGB compact systems:

Set the selector switch for the DMX start addresses (17) to position (1/4/7/10).

The unit is also suitable for controlling compact systems with four built-in RGB (RGBD/DRGB) or RGBW (RGBWD/DRGBW) fixtures. Select the appropriate switch position on the selection switch (18). Switch on the DMX controller with the ON/OFF switch (22). Address the compact system to the Startaddress 001. The operation and all functions of the DMX controller now affect the internal spotlights 1-4 of the compact system.

Switch Chanel-Mode	DMX-Chanel (Startaddress 001)	Description	Fixture	Brightness Fader/Control	Color Color-Selector
1RGB	CH 1	Red Dimmer	1	Spot 1	1
	CH 2	Green Dimmer			
	CH 3	Blue Dimmer			
	CH 4	Red Dimmer	2	Spot 2	2
	CH 5	Green Dimmer			
	CH 6	Blue Dimmer			
	CH 7	Red Dimmer	3	Spot 3	3
	CH 8	Green Dimmer			
	CH 9	Blue Dimmer			
	CH 10	Red Dimmer	4	Spot 4	4
	CH 11	Green Dimmer			
	CH 12	Blue Dimmer			

Switch Chanel-Mode	DMX-Chanel (Startaddress 001)	Description	Fixture	Brightness Fader/Control	Color Color-Selector
2RGBD	CH 1	Red Dimmer	1	Spot 1	1
	CH 2	Green Dimmer			
	CH 3	Blue Dimmer			
	CH 4	Red Dimmer	2	Spot 2	2
	CH 5	Green Dimmer			
	CH 6	Blue Dimmer			
	CH 7	Red Dimmer	3	Spot 3	3
	CH 8	Green Dimmer			
	CH 9	Blue Dimmer			
	CH 10	Red Dimmer	4	Spot 4	4
	CH 11	Green Dimmer			
	CH 12	Blue Dimmer			
	CH 13	Master Strobe	1-4	Strobe Speed	-
	CH 14	Master Dimmer	1-4	Master	-

Switch Chanel-Mode	DMX-Chanel (Startaddress 001)	Description	Fixture	Brightness Fader/Control	Color Color-Selector
3RGBW	CH 1	Red Dimmer	1	Spot 1	1
	CH 2	Green Dimmer			
	CH 3	Blue Dimmer			
	CH 4	White Dimmer			
	CH 5	Red Dimmer	2	Spot 2	2
	CH 6	Green Dimmer			
	CH 7	Blue Dimmer			
	CH 8	White Dimmer			
	CH 9	Red Dimmer	3	Spot 3	3
	CH 10	Green Dimmer			
	CH 11	Blue Dimmer			
	CH 12	White Dimmer			
	CH 13	Red Dimmer	4	Spot 4	4
	CH 14	Green Dimmer			
	CH 15	Blue Dimmer			
	CH 16	White Dimmer			

Switch Chanel-Mode	DMX-Chanel (Startaddress 001)	Description	Fixture	Brightness Fader/Control	Color Color-Selector
4RGBWD	CH 1	Red Dimmer	1	Spot 1	1
	CH 2	Green Dimmer			
	CH 3	Blue Dimmer			
	CH 4	White Dimmer			
	CH 5	Red Dimmer	2	Spot 2	2
	CH 6	Green Dimmer			
	CH 7	Blue Dimmer			
	CH 8	White Dimmer			
	CH 9	Red Dimmer	3	Spot 3	3
	CH 10	Green Dimmer			
	CH 11	Blue Dimmer			
	CH 12	White Dimmer			
	CH 13	Red Dimmer	4	Spot 4	4
	CH 14	Green Dimmer			
	CH 15	Blue Dimmer			
	CH 16	White Dimmer			
	CH 17	Master Strobe	1-4	Strobe Speed	-
	CH 18	Master Dimmer	1-4	Master	-

Switch Chanel-Mode	DMX-Chanel (Startaddress 001)	Description	Fixture	Brightness Fader/Control	Color Color-Selector
5DRGB	CH 1	X	-	not assigned	-
	CH 2	Master Dimmer	1-4	Master	-
	CH 3	Master Strobe	1-4	Strobe Speed	-
	CH 4	Red Dimmer	1	Spot 1	1
	CH 5	Green Dimmer			
	CH 6	Blue Dimmer			
	CH 7	Red Dimmer			
	CH 8	Green Dimmer	2	Spot 2	2
	CH 9	Blue Dimmer			
	CH 10	Red Dimmer			
	CH 11	Green Dimmer	3	Spot 3	3
	CH 12	Blue Dimmer			
	CH 13	Red Dimmer			
	CH 14	Green Dimmer	4	Spot 4	4
	CH 15	Blue Dimmer			

Switch Chanel-Mode	DMX-Chanel (Startaddress 001)	Description	Fixture	Brightness Fader/Control	Color Color-Selector
6DRGBW	CH 1	X	-	not assigned	-
	CH 2	Master Dimmer	1-4	Master	-
	CH 3	Master Strobe	1-4	Strobe Speed	-
	CH 4	Red Dimmer	1	Spot 1	1
	CH 5	Green Dimmer			
	CH 6	Blue Dimmer			
	CH 7	White Dimmer			
	CH 8	Red Dimmer			
	CH 9	Green Dimmer	2	Spot 2	2
	CH 10	Blue Dimmer			
	CH 11	White Dimmer			
	CH 12	Red Dimmer			
	CH 13	Green Dimmer	3	Spot 3	3
	CH 14	Blue Dimmer			
	CH 15	White Dimmer			
	CH 16	Red Dimmer	4	Spot 4	4
	CH 17	Green Dimmer			
	CH 18	Blue Dimmer			
	CH 19	White Dimmer			

### 3. Operation

The Showlite LDO-10 Led Operator works in manual, automatic and music control modes. After switching on, the last operating mode is active (which was activated for at least 10sec before switching off). You select the operating mode by pressing the button Automatic (13) or Music control (14). The corresponding LED displays (green / blue) light up. If the operating mode Automatic (green LED lights up) or Music control (blue LED lights up) is active, press the corresponding button again to switch to Manual operating mode. The status LED goes out.



The blackout button (11) is active in all operating modes. When it is pressed, all LED fixtures go out (standby) and the LED next to the button flashes red. Pressing it again restores the last status. The master dimmer (brightness control) is also active in all operating modes (7), it acts on all spots with 0..100% brightness.

#### 3.1 Manual operating mode

The **Manual** mode is primarily used to create and save your own scenes. These are then "played" one after the other in automatic mode or under music control as chases.

Switch the controller to manual mode (see above). Press the key (4) to select the Preset mode. The green LED lights up.



##### Important:

- The master controller (7) is permanently active. Therefore, if the master controller is low, you may not see any reaction from the fixtures that are activated.
- The controller (9) for the fade time is also already active. Turn it to the left stop so that changes (e.g. colour changes) are accepted without delay. Turn the fader control (9) further to the right to increase the fade time and thus achieve a crossfade.
- Use the color selection switches (1) for spot 1-4 to select the color setting
- Use the faders (slider) (2) to set the brightness of spots 1-4

**Saving your setting as a scene:** You have 12 memory locations in 12 chases (chase banks) available for saving your scene. Press the button (4) fader/preset. The green LED lights up. Select a scene number with the switch (5). Select a chaser bank with selector switch (3) and press the Save/Delete button (6) briefly. The green LED lights up briefly. The scene is saved now.

**To recall / edit / delete a scene:** Press the button (4) User/Bank, the yellow LED lights up. Select a scene number with switch (5) and a chaser bank with selector switch (3). You will see the current scene. You can now make changes in the settings and save them as described above. To delete the scene, press the Save/Delete button (6) for approx. 2 seconds. All LEDs light up briefly. The scene is deleted now.

#### 3.2 Automatic operating mode

The **automatic** mode is used to play back scenes one after the other as chases. The controller has fixed preset chases (with scenes) and if created, your own edited user chases.

**Preset Chases:** By pressing button (13) you set the controller to automatic mode (green LED lights up). Press button Fader/Presets (4) until the LED lights up green. Select a chase bank with selector switch (3). The chase (running light) is played back time-controlled. After scene 12 it is restarted with scene 1. Use knob (7) to set the master brightness. Knob (8) controls the running speed and knob (9) controls the fade time.

**User Chases:** Proceed in the same way as for preset chases. Press the button (4) to enter the User / Bank mode. The orange LED lights up. The controller will now play your saved scenes. If you have not used a scene in a chase or have not saved all 12 possible scenes, these are simply skipped. For functions of controls (7) to (9) see above.

**Special function Tap/Tempo:** The running speed, normally controlled by the controller (8), can also be defined by briefly tapping the Tap / Tempo button (12) twice.

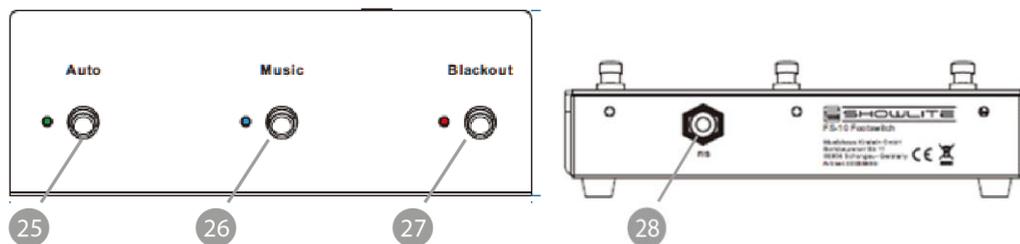
### 3.3 Music control

In **music control** mode, the scenes are played back one after the other as chases, controlled by music impulses. Select the chase as above. The music is played via a built-in microphone or an external audio signal at the rear 6.35mm jack socket (20). Select the source using the slide switch (19). To adjust the internal MIC sensitivity, press and hold the Music button (14) for about 3 seconds until the blue LED starts flashing rapidly. Use the Strobe Speed control (10) to adjust the sensitivity of the internal MIC from 0% to 100%. Then press and hold the Music button (14) again for about 3 seconds until the blue LED goes out. This setting will be stored in memory.

## 4. Special function Strobe

By pressing the button (15) you activate the strobe function (LED lights up red). This is superimposed on all operating modes and creates a stroboscopic effect (all fixtures flash). The strobe speed is adjusted with the controller (10).

## 5. Foot switch (optionally available)



- 25. button: Auto
- 26. button: Music (music control)
- 27. button: blackout (standby, all LEDs off)
- 28. connection socket

Press the Auto (25) or Music (26) button on the foot control to remotely control the corresponding functions of the DMX operator. The corresponding LEDs on the footswitch and the LDO-10 MKII FS will light up simultaneously.

Press the Blackout button (27) to switch off all connected fixtures simultaneously. The red LED on the footswitch lights up and the red LED (Blackout) in the control panel of the LDO 10 MKII FS starts flashing. Press the button again to return to the previous setting.

## Appendix: Technical Data

Power Supply	DC 9V 800mA
Music control	MIC int. / Audio external 6.35mm
User Chases	12 chasers of 12 scenes
Preset Chases	12 chasers of 12 scenes
DMX 512	DMX Output 3pin
Colors	12
Dimensions [mm]	240 x 140 x 70
Weight	1.2 kg

## **WEEE declaration**

**(Waste of Electrical and Electronic Equipment)**

Your product has been designed and manufactured with high quality materials and components that are recyclable and can be reused.

This symbol means that electrical and electronic devices must be disposed of separately from household waste at the end of their useful life.

Please dispose of this device at your local municipal collection point or at the recycling center.

Please help preserve the environment we live in.



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 **KIRSTEIN.de**

**Musikhaus Kirstein GmbH**

**Bernbeurener Str. 11**

**86956 Schongau – Germany**

**Telefon/Phone: 0049-8861-909494-0**

**Telefax/Fax: 0049-8861-909494-19**

