DMX MODES (continued)

MASTER + RGBW 8 bits

Mode Master+RGBW 8 bits

DMX channel	Function	Value	
1	MASTER DIMMER	0 - 3	0%
		4	0,4%
		5	0,8%
		.	.
		253 - 255	100%
2	Intensity CH1	0 - 3	0%
		4	0,4%
		5	0,8%
		.	.
		253 - 255	100%
3	Intensity CH2	0 - 3	0%
		4	0,4%
		5	0,8%
		.	.
		253 - 255	100%
4	Intensity CH3	0 - 3	0%
		4	0,4%
		5	0,8%
		.	.
		253 - 255	100%
5	Intensity CH4	0 - 3	0%
		4	0,4%
		5	0,8%
		.	.
		253 - 255	100%
6	Fade (if enabled)	0	OFF
		1	10 ms
		.	.
		.	.
		255	2,55s

MASTER + RGBW 16 bits

Mode Master+RGBW 16 bits

DMX channel	Function	Value		
1 (Coarse) 2 (Fine)	MASTER DIMMER	0	0	0%
		.	.	
		0	255	0,3984%
		.	.	.
		255	0	99,99%
		.	.	.
		255	255	100%
3 (Coarse) 4 (Fine)	Intensity CH1	0	0	0%
		.	.	
		0	255	0,3984%
		.	.	.
		255	0	99,99%
		.	.	.
		255	255	100%
5 (Coarse) 6 (Fine)	Intensity CH2	0	0	0%
		.	.	
		0	255	0,3984%
		.	.	.
		255	0	99,99%
		.	.	.
		255	255	100%
7 (Coarse) 8 (Fin)	Intensity CH3	0	0	0%
		.	.	
		0	255	0,3984%
		.	.	.
		255	0	99,99%
		.	.	.
		255	255	100%
9 (Coarse) 10 (Fine)	Intensity CH4	0	0	0%
		.	.	
		0	255	0,3984%
		.	.	.
		255	0	99,99%
		.	.	.
		255	255	100%
11	Fade (if enabled)	0		OFF
		1		10 ms
		.		.
		.		.
		255		2,55s

SINGLE 8 bits

Mode Single 8 bits

DMX channel	Function	Value	
1	Intensity CH1, CH2, CH3, CH4	0 - 3	0%
		4	0,4%
		5	0,8%
		.	.
		253 - 255	100%
2	Fade (if enabled)	0	OFF
		1	10 ms
		.	.
		.	.
		255	2,55s

SINGLE 16 bits

Mode Single 16 bits

DMX channel	Function	Value		
1 (Coarse) 2 (Fine)	Intensity CH1, CH2, CH3, CH4	0	0	0%
		.	.	
		0	255	0,3984%
		.	.	.
		255	0	99,99%
		.	.	.
		255	255	100%
3	Fade (if enabled)	0		OFF
		1		10 ms
		.		.
		.		.
		255		2.55s

TUNABLE WHITE 8 bits

Mode Tunable White 8 bits

DMX channel	Function	Value	
1	Dimmer	0 - 3	0%
		4	0,4%
		5	0,8%
		.	.
		253 - 255	100%
2	Balance	0 - 3	CH1,CH3 : 100% CH2,CH4 : 0%
		4	CH1,CH3 : 99,6% CH2,CH4 : 0,4%
		.	.
		253-255	CH1,CH3 : 0% CH2,CH4 : 100%
3	Fade (if enabled)	0	OFF
		1	10 ms
		.	.
		.	.
		255	2,55s

TUNABLE WHITE 16 bits

Mode Tunable White 16 bits

DMX channel	Function	Value		
1 (Coarse) 2 (Fine)	Dimmer	0	0	0%
		.	.	
		0	255	0,3984%
		.	.	.
		255	0	99,99%
		.	.	.
		255	255	100%
3 (Coarse) 4 (Fine)	Balance	0	0	CH1,CH3 : 100% CH2,CH4 : 0%
		.	.	.
		.	.	.
		255	255	CH1,CH3 : 0% CH2,CH4 : 100%
5	Fade (if enabled)	0		OFF
		1		10 ms
		.		.
		.		.
		255		2,55s

SAFETY INSTRUCTIONS

Proper use:

This unit is designed to control lighting sources using PWM commands. Use the device only in its intended use as described in this manual. Any other use, as well as use in other conditions, will be considered non-compliant and can cause injury and damage. No liability will be assumed for damages resulting from improper use.

The device should only be used by people in full possession of their physical, sensory and mental abilities who must have the knowledge and experience required. All the other persons are only allowed to use the device under the supervision or direction of a person responsible for their safety.

Safety:

Risk of electric shock

This lighting system requires high voltage, which can result in an electrical shock. Never remove covers. The parts inside the device are maintenance free.

Dangers for children

Ensure a proper disposal of plastic envelopes and packaging. They should not be near babies nor young children: suffocation danger. Make sure that children do not remove small parts of the unit (e.g. knobs, screws or similar). Children could swallow the pieces and choke.
Never leave unattended children use electrical devices.

Electric shock caused by a short circuit

Do not modify the power cord nor the plug. In case of non-compliance, there is a risk of electric shock and fire hazard and death. If in doubt, contact a certified technician.

Eye injuries due to a high light intensity

Do not look at the beam light directly to avoid any visual problems.

Risk of fire

Never cover the device nor its ventilation slots. Do not install the device close to a source of heat. Keep the device away from flames.

Terms of use

The device is designed for indoor use. To prevent damage, do not expose the product to liquid or moisture. Avoid direct sunlight, clogging and strong vibrations.

Power supply

Check the operation of the power supply before connecting to the system.
Before connecting the appliance, check if the voltage indicated on the device matches the voltage on the local supply network and if the socket is fitted with a differential circuit breaker. In case of non-compliance, the device could be damaged and the user might be injured.
When a storm is announced or the unit must not be used for an long time, unplug it to reduce the risk of electric shock or fire.

CARE

- Unplug the unit when cleaning it and during all maintenance operations.
- Do not use cleaning product: use a dry cloth and rub gently.
- Store the device in a clean, dry place, away from direct exposure from sunlight and dust.

GENERAL INFORMATION

This instruction manual contains important notifications regarding the safe use of the *LEDMASTER Studio 4 Master*.

Please take the time to read this manual carefully and thoroughly before installing and operating the system.

We recommend you keep a copy for future use and you transfer it to the buyer if you resell the lighting system.

EXALUX reserves the right to modify and upgrade its range of products, with no obligation to integrate these changes into products already sold. Therefore, all the information found in this manual is subject to change without notice.

TECHNICAL SPECIFICATIONS

Power supply	5VDC to 24VDC
Number of outputs	4 independant outputs
Maximum input current	20A
Maximum output current	Up to 7,5A/output. MAXIMUM 20A TOTAL
Frequency	Selectable : 4kHz, 8kHz, 16kHz, 32kHz
Interface	DMX 512
Modes	RGBW (4 independant outputs) Master + RGBW Single (4 identical outputs) Tunable White (Warm White / Cool White)
Fading	0 à 2,55 seconds
Outputs driving	PWM Low Side Switching
Connectors	Terminal block 5,08mm
Size	87 x 90 x 32 mm
Weight	100g
Master/Slave	Synchronization with *Studio 4 Slave* up to 100m

EXALUX is a registered trademark of the French Tech company LEDIXIS
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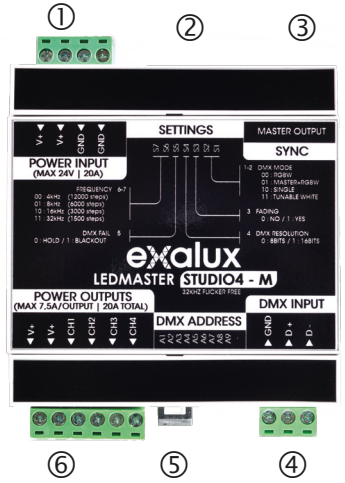
exalux LEDMASTER

STUDIO 4 Master

OVERVIEW



SETUP

Power supply ①

The electrical power supply should be plugged in the 4 way connector ①. The acceptable input voltage is **5VDC – 24VDC**. The current should not exceed **20A**.
Make sure to use a power supply compatible with the light sources connected to the outputs.

The four pins of the connector (V+, V+, GND, GND) must be used. Check the compatibility of the female connector (maximum current) before using the device.

Outputs ⑥

The four outputs are located on the 6 way connector ⑥. The light sources to control must be attached to this connector.

The two pins (V+, V+) of the connector must be used. Check the compatibility of the female connector (maximum current) before using the device.

DMX ④

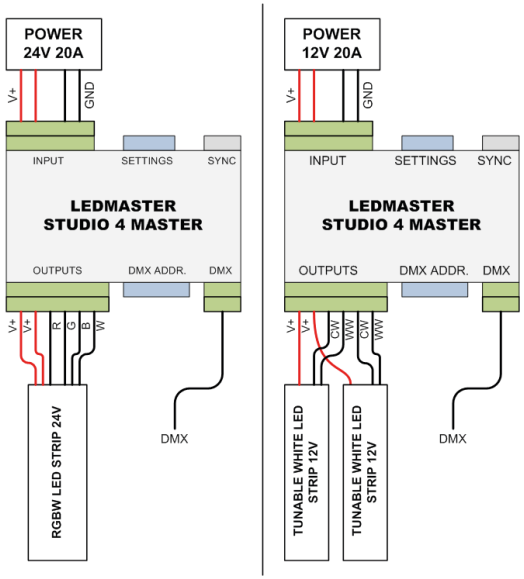
The DMX input is located on the 3 way connector ④: DMX+, DMX-, GND.
The connector can be used as an input/output: it is possible to daisy chain other DMX devices by connecting several cables to the same connector pin.

Synchronization ③

The synchronization output allows to drive one (or several) *LEDMASTER STUDIO 4 Slave*, using the SYNC. connector ③. Use a straight RJ45 cable (8 ways) to connect a *STUDIO 4 Slave* to a *STUDIO 4 Master*: the outputs (CH1 to CH4) of the *STUDIO 4 Master* will be copied on the *STUDIO 4 Slave*.

Do not connect another device than a *STUDIO 4 Slave*.

Examples:

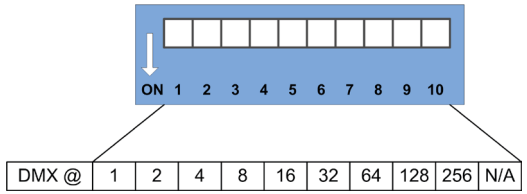


Setup for a 24V RGBW LED-Strip (Red/Green/Blue/White)

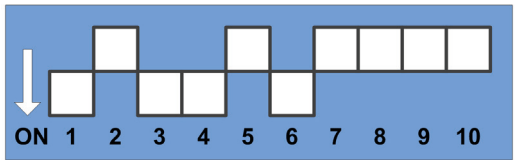
Setup for a 12V Tunable White LED-Strip (Cold White/Warm White)

DMX ADDRESS SELECTION ⑤

The DMX address of the *STUDIO 4 Master* is selected using the 10 way DIP-switch ⑤, located next to the DMX input.



Example: DMX address set to 45 (32 + 8 + 4 + 1)



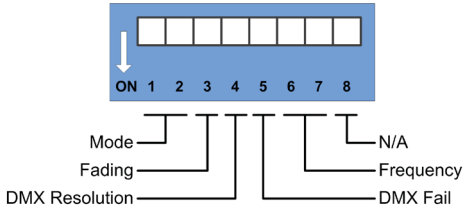
In case the address 0 is set, the device will use address 1.

In case the selected address is higher than the maximum address, the value is truncated.
The maximum address allowed depends on the mode and the settings:

- RGBW Mode, 8 bits, Without Fading:
  4 DMX channels used, Max. address: 509
- RGBW Mode, 8 bits, With Fading:
  5 DMX channels used, Max. address: 508
- RGBW Mode, 16 bits, Without Fading:
  8 DMX channels used, Max. address: 505
- RGBW Mode, 16 bits, With Fading:
  9 DMX channels used, Max. address: 504
- Master+RGBW Mode, 8 bits, Without Fading:
  5 DMX channels used, Max. address: 508
- Master+RGBW Mode, 8 bits, With Fading:
  6 DMX channels used, Max. address: 507
- Master+RGBW, 16 bits, Without Fading:
  10 DMX channels used, Max. address: 503
- Mode Master+RGBW Mode, 16 bits, With Fading:
  10 DMX channels used, Max. address: 502
- Tunable White Mode, 8 bits, Without Fading:
  2 DMX channels used, Max. address: 511
- Tunable White Mode, 8 bits, With Fading:
  3 DMX channels used, Max. address: 510
- Tunable White Mode, 16 bits, Without Fading:
  4 DMX channels used, Max. address: 509
- Tunable White Mode, 16 bits, With Fading:
  5 DMX channels used, Max. address: 508
- Single Mode, 8 bits, Without Fading:
  1 DMX channels used, Max. address: 511
- Single Mode, 8 bits, With Fading:
  2 DMX channels used, Max. address: 511
- Single Mode, 16 bits, Without Fading:
  2 DMX channels used, Max. address: 511
- Single Mode, 16 bits, With Fading:
  3 DMX channels used, Max. address: 510

SETTINGS ②

The configuration of the *STUDIO 4 Master* is adjusted using the 8 way DIP-switch ②, located next to the power supply input.



Mode: Selection of the operation behavior

- **00: RGBW** : The four outputs are driven independently. This mode is typically designed to drive four different light sources, or a single source RGBW (Red/Green/Blue/White).
- **01: Master + RGBW** : Similar to RGBW, with the addition of a Master Dimmer channel. This mode is used to get a color from an RGBW source. The intensity can then be dimmed (with no alteration of the mixing), using the Master Dimmer channel.
- **10: Single** : The four outputs are driven in the same way.
- **11: Tunable White** : Output are driven by pairs (CH1/CH2 & CH3/CH4). This mode is designed to control Tunable White light sources (Cold White/Warm White).

Fading: Apply a smooth transition when the settings are changed

- **0**: Disabled
- **1**: Enabled. Duration is adjusted between 0 and 2,55 seconds, using the last DMX channel. No matter if the DMX resolution is 8 bits or 16 bits, the fading duration is always adjusted on a single DMX channel.

DMX Resolution: Selection of the DMX accuracy

Enabling the 16bit mode provides a better accuracy in dimming, espacially notable in low levels (<1%).

- **0**: 8 bits (Standard) – Each value is adjusted using a single DMX channel (0-255), providing steps of 0,4%.
- **1**: 16 bits – Each value (except Fading) is adjusted using two DMX channels. The first channel provides a coarse resolution of 0,4%. The second channel provides a finer resolution. The resolution depends on the frequency selected:
  - At 4 kHz, the Fine channel is divided into 46 steps (Min. Level, 6/255, i.e. 0,0083%)
  - At 8 kHz, the Fine channel is divided into 23 steps (Min. Level, 10/255, i.e. 0,016%)
  - At 16 kHz, the Fine channel is divided into 11 steps (Min. Level, 21/255, i.e. 0,033%)
  - At 32 kHz, the Fine channel is divided into 5 steps (Min. Level, 43/255, i.e. 0,066%)

DMX Fail: Behavior of the device in case of DMX signal loss

- **0**: HOLD. The outputs remain in the same state.
- **1**: BLACKOUT. The four outputs are turned off.

Frequency: Selection of the PWM frequency

The frequency affects the output resolution.

- **00**: 4kHz | 12000 output steps, i.e. 1 step = 0,0083%.
- **01**: 8kHz | 6,000 output steps, i.e. 1 step = 0,0166%
- **10**: 16kHz | 3,000 output steps, i.e. 1 step = 0,033%
- **11**: 32kHz | 1,500 output steps, i.e. 1 step = 0,066%

DMX MODES

RGBW 8 bits

	DMX channel	Function	Value	
Mode RGBW 8 bits	1	Intensity CH1	0 - 3	0%
			4	0,4%
			5	0,8%
			.	.
			253 - 255	100%
	2	Intensity CH2	0 - 3	0%
			4	0,4%
			5	0,8%
			.	.
			253 - 255	100%
	3	Intensity CH3	0 - 3	0%
			4	0,4%
			5	0,8%
			.	.
			253 - 255	100%
	4	Intensity CH4	0 - 3	0%
			4	0,4%
			5	0,8%
			.	.
			253 - 255	100%
	5	Fade (if enabled)	0	OFF
			1	10 ms
			.	.
			.	.
			255	2,55s

RGBW 16 bits

	DMX channel	Function	Value		
Mode RGBW 16 bits	1 (Coarse) 2 (Fine)	Intensity CH1	0	0	0%
			.	.	
			0	255	0,3984%
			.	.	.
			255	0	99,99%
			.	.	.
			255	255	100%
	3 (Coarse) 4 (Fine)	Intensity CH2	0	0	0%
			.	.	
			0	255	0,3984%
			.	.	.
			255	0	99,99%
			.	.	.
			255	255	100%
	5 (Coarse) 6 (Fine)	Intensity CH3	0	0	0%
			.	.	
			0	255	0,3984%
			.	.	.
			255	0	99,99%
			.	.	.
			255	255	100%
	7 (Coarse) 8 (Fine)	Intensity CH4	0	0	0%
			.	.	
			0	255	0,3984%
			.	.	.
			255	0	99,99%
			.	.	.
			255	255	100%
	9	Fade (if enabled)	0		OFF
			1		10 ms
			.		.
			.		.
			255		2,55s