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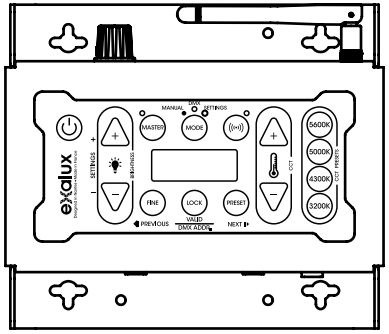
# exalux LEDMASTER NEO

**DUAL OUTPUT CONSTANT VOLTAGE DIMMER**



## 1 - GENERAL INFORMATION

This instruction manual contains important notifications regarding the safe use of the EXALUX LEDMASTER NEO. Please take the time to read this manual carefully and thoroughly before installing and operating the device. We recommend you to keep a copy for future use and transfer it to the buyer if you resell the device. 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.

## 2 - OVERVIEW

EXALUX LEDMASTER NEO is a dual high output capability constant voltage dimmer. LEDMASTER NEO has been designed to dim up to 480W LED fixtures via XLR4 PWM outputs, operating in tunable white mode (with correct balance between warm white 'tungsten' and cold white 'daylight') or in dual channel mode. LEDMASTER NEO integrates innovative technologies such as patented CCT synthesizer, CRMX receiver and RDM decoder.


*Refer to page 4 of this manual for different use cases.*


## 3 - FEATURES

- 1 DC power input, 2 PWM outputs
- 2 channels per output (Daylight / Tungsten)
- Patented CCT synthesizer, with adjustable ends and presets
- Tunable white, dual-channels and built-in special effects
- Manual and DMX modes
- Wired DMX input/output
- RDM compliant (wired and wireless)
- Wireless CRMX by Lumenradio
- Synchronized master/slave mode
- Trigger input
- Rugged control panel with alphanumeric LED display, encoder, pushbuttons and LED indicators

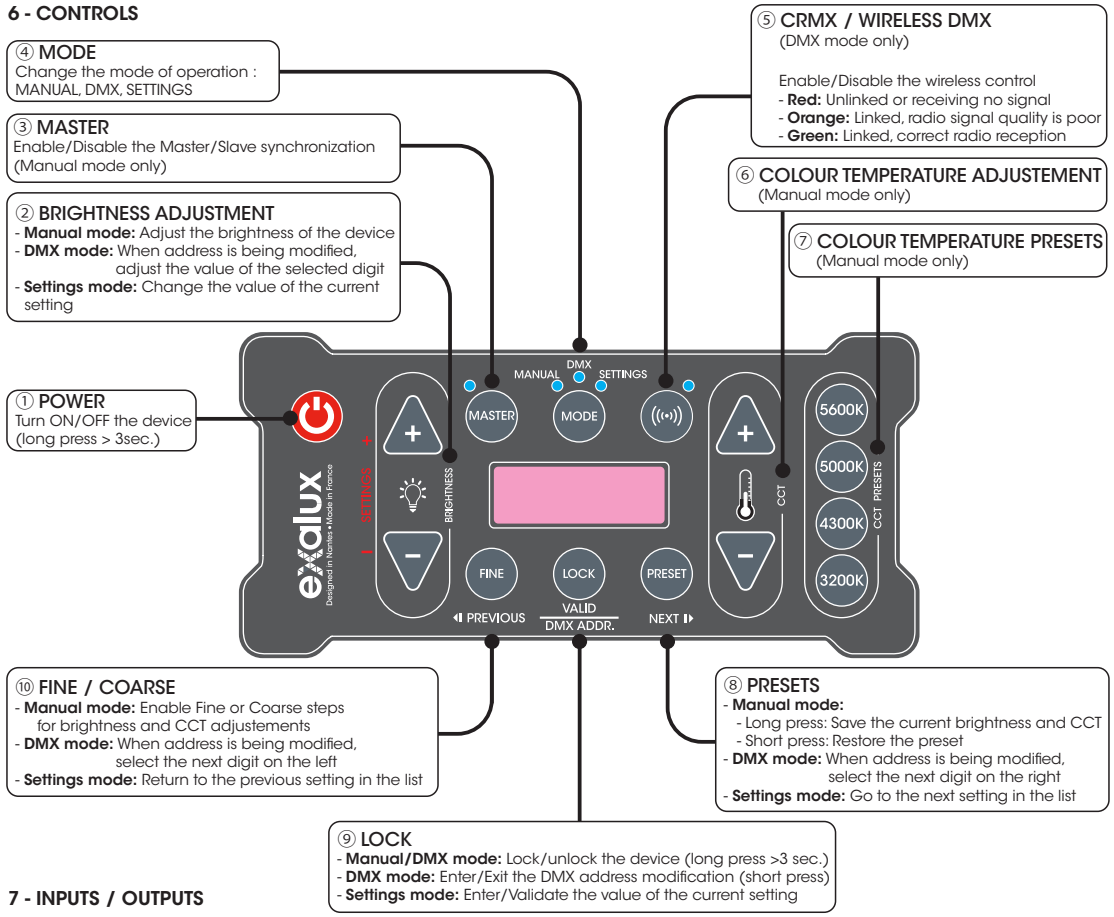
## 4 - TECHNICAL SPECIFICATIONS

| | |
|---|---|
| Dimming | 0 to 100%, low side PWM technology, with phase shift and adjustable frequency (4, 8, 16 or 32kHz) |
| CCT | 2000K to 7000K range, adjustable min and max, [3200K, 4300K, 5000K, 5600K] presets |
| Modes | Balanced tunable white, dual-channels & effects (Television, Storm, Paparazzi, Strobe, Tunnel, Fire) |
| Control | Rugged membrane switch, digital brightness control, Radio unlink, Effect/Output selection |
| Power rating | Up to 480W @24V (dimmer own consumption < 3W) |
| Voltage input | +12Vdc to +24Vdc |
| Current | Up to 20A (up to 10A per channel) |
| DC input | Neutrik XLR4 male |
| PWM outputs | 2 x Neutrik XLR4 female |
| DMX interface | DMX512-A (ANSI E1.11), 1 input (Neutrik XLR5 male), 1 output (Neutrik XLR5 female) |
| Radio | CRMX receiver, 2.402 - 2.480GHz, GFSK Cognitive Coexistence, up to 1000m range, whip antenna *(*free field line of sight - depending on the transmitter and the environment)* |
| RDM | Compliant with wired & wireless DMX, ANSI E.1.20 |
| Trigger input | Stereo Jack 2.5mm |
| Display | 4 Digits, based on 14-segment Red LED alphanumeric |
| Firmware update | Bootloader, via specific cable on XLR5 input |
| Housing | Aluminium, Epoxy black painting |
| Protection | IP30 |
| Certification | CE, RoHS |
| Dimensions | 210 x 154 x 50 mm |
| Weight | 670g |
| Storage T° | -40 to +85°C |
| Operating T° | -20 to +60°C |

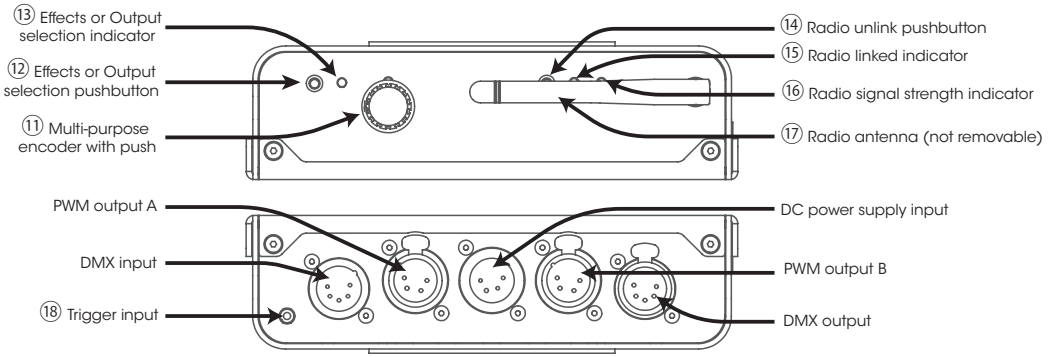
## 5 - WARRANTY

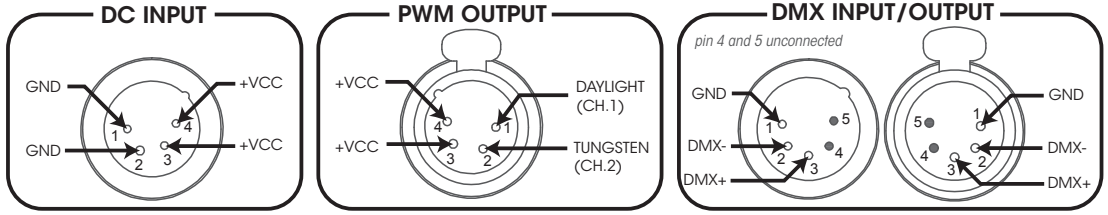
EXALUX cannot be responsible for material or personal damage resulting from improper use of the product or non-compliance to the instructions. The warranty will not be applied in these cases.

## 6 - CONTROLS




## 7 - INPUTS / OUTPUTS



## 8 - POWER

- The typical input voltage of LEDMASTER NEO is +12 to +24VDC.
- Static DC input voltage & PWM output voltage are the same.
- Input is protected against polarity inversion. Maximum current should not exceed **10A per contact** on XLR4 connectors and cables.

⚠ *Using the dimmer out of this range can cause malfunctions and even destruction of the device.*

Input and output voltages are monitored in case of over voltage detection (device shutdown) or fuse default (error message). Each output is protected against short-circuits by an internal 25A fuse. If one output exhibits a fuse default, user is still able to use the other output.

⚠ *In case of fuse default, do not open the dimmer and contact your support or reseller.*

## 9 - CCT SYNTHETIZER

LEDMASTER NEO includes a Correlated Colour Temperature synthesizer, ranging from 2000K to 7000K.
User can setup the CCT min («tungsten» CCT) and CCT max («daylight» CCT) to ensure correct white balance, depending on the LED lighting fixture to be controlled (Settings ④, then CCT.D & CCT.T).
The CCT range is reminded on the screen at startup.

## 10 - MODES

LEDMASTER NEO offers 3 control modes (Mode ④):
- **MANUAL**: Control from local interface
- **DMX**: Control from DMX/RDM controller (wired or wireless CRMX)
- **SETTINGS**: Parameter settings

### 10.1 - MANUAL MODE

This mode allows user to control the device from the interface.

**- BRIGHTNESS «+/-» buttons ② :** Adjust the brightness

**- CCT «+/-» button ⑥ :** Adjust the CCT

**- FINE button ⑩ :** Change the tuning accuracy
> Fine tuning (0,5% step / 50K step)
> Coarse tuning (1% step / 100K step)

**- PRESET button ⑧ :** Save/Restore the user preset
> Long push (>3s, «SAVE» is displayed): saves the current settings
> Short push : restores the preset

**- CCT buttons 3200K/4300K/5000K/5600K ⑦:** Quick CCT presets

**- LOCK button ⑨ :** Lock/Unlock the interface
> Long push (>3s, «LOCK» is displayed): Lock
> Short push («UNLOCK» is displayed): Unlock

This feature is also available in DMX mode.

**- MASTER button ③ :** Enable/Disable the Master/Slave function
In applications where two or more dimmers need to be synchronized, the **Master/Slave mode** allows that any adjustement (brightness & CCT) made on the MASTER dimmer will be automatically copied on the SLAVE dimmers.
> Master : manual Mode ④, enable Master ③, master LED ON
> Slave : manual Mode ④, disable Master ③, master LED OFF

This synchronization mechanism is based on a wired DMX daisy chain connection, using a proprietary protocol carried by the DMX serial bus.

**Sub-modes:**

LEDMASTER NEO can work in 5 different operating sub-modes:
- **CCT:** Control the two outputs the same way (tunable white fashion)
- **CCT.2:** Control outputs A&B separately (tunable white fashion)
- **FX (Effects):** Generate special effects
- **2ch.A:** Individual control of the 2 channels of output A (CH1=Daylight & TCH2=Tungsten). Output B is disabled.
- **2ch.B:** Same as 2ch.A, for output B

To change the operating sub-mode:
- Enter Settings mode by pressing Mode ④
- Select MODE, using the Next ⑧ & Previous ⑩ buttons
- Enter MODE by pressing Valid ⑨
- Go through the sub-modes using the +/- ②
- Press Valid ⑨ to validate
- Exit Settings by pressing Mode ④

**CCT**
This mode allows to control the two outputs the same way, in a tunable white fashion: Brightness and CCT adjustment are made using the buttons of the interface and/or the encoder.
Rotate the encoder ⑪ to adjust the brightness and CCT. Push on the encoder ⑪ to toggle from brightness to CCT control.
After 5s of non-usage the encoder function goes back to brightness adjustment.

**CCT.2**
This mode allows to control separately Brightness and CCT of output A & B in a tunable white fashion. Use the button ⑫ to toggle the output selection. Brightness and CCT adjustment are made the same way as CCT mode.

**FX (Effects)**
This mode should be used to generate special effects. Both outputs are driven the same way. Use the button ⑫ to change the effect. LEDMASTER NEO embeds a built-in effect generator, with the following effects:

**Variable random frequency**
Candle/Fire
Television
Lightning/Storm
Paparazzi

**Adjustable frequency**
Strobe
Tunnel

Brightness and CCT adjustments are made using the buttons and/or the encoder ⑪ which allows to adjust the brightness, CCT and speed of the effect. Push on the encoder ⑪ to toggle between each parameter.
After 5s of non usage, the function goes back to brightness adjustment.

**2ch.A**
This mode allows the individual control of the 2 channels of output A (CH1=Daylight & CH2=Tungsten). Only Out A is enabled, Out B is disabled (for power limitation purpose). The brightness of each channel can be adjusted using the buttons and/or the encoder ⑪. Push on the encoder ⑪ to toggle from Daylight to Tungsten control. After 5s of non usage the encoder function goes back to CH1 adjustment.

**2ch.B**
Same as 2ch.A, for output B

### 10.2 - DMX

DMX mode is used for DMX/RDM (XLR5) and CRMX reception.
- DMX received from XLR5 : an «X» is displayed on the screen
- DMX received from CRMX : a «W» is displayed on the screen

**Priority is given to the wireless data.** When DMX signal is received, the dot next to the first is blinking.

**DMX address adjustment** (Default address : «001»):
#1 - Using the encoder ⑪:
- Long press : the last digit starts blinking (units)
- Rotate to adjust the units/tens/hundreds
- Short press to move-on to the next digit
- Long press to validate the address

#2 - Using the interface:
- Press the DMX ADDR ⑨ button: The last digit starts blinking (units)
- Adjust using the Brightness +/- ② buttons.
- Use PREVIOUS ⑩ and NEXT ⑧ buttons to navigate through units/tens/hundreds.
- Press the VALID ⑨ button to validate the address

In case an out of range address is entered, the device will automatically assign the highest DMX address usable.

DMX address mapping:
**- CCT: Tunable white mode (common control)**
- DMX address: Brightness for Out A & B
- DMX address + 1: CCT for Out A & B

**- CCT.2: Tunable white mode (separate control)**
- DMX address: Brightness for Out A
- DMX address + 1: CCT for Out A
- DMX address + 2: Brightness for Out B
- DMX address + 3: CCT for Out B

**- FX: Special effect mode**
- DMX address: General brightness
- DMX address + 1: General CCT
- DMX address + 2: Effect speed
- DMX address + 3: Effect type (0=no effect)

**- 2ch.A: Dual-channel mode on Out A**
- DMX address: Brightness for daylight channel of Out A
- DMX address + 1: Brightness for tungsten channel of Out A

**- 2ch.B: Dual-channel mode on Out B**
- DMX address: Brightness for daylight channel of Out B
- DMX address + 1: Brightness for tungsten channel of Out B

⚠ *Since the CCT range can be adjusted by the user, the DMX channel corresponding to the CCT cannot be detailed in the tables.*

*Please refer to the DMX tables at the end of the manual for more details*

- Wired DMX input and output are carried by XLR5 connectors. The LEDMASTER NEO is pass-through DMX.
- The device does not carry any internal impedance adaptation (no line termination inside) which should be managed externally.

### RDM

LEDMASTER NEO complies with RDM ANSI E1.20 standard. LEDIXIS/EXALUX assigned RDM manufacturer identifier is **«0084h»**. The RDM features can be used on both wired DMX (XLR5) and wireless CRMX.
The device supports the following RDM PIDs:

| | | |
|---|---|---|
| DISC_UNIQUE_BRANCH | SOFTWARE_VERSION_LABEL | DEVICE_LABEL |
| DISC_MUTE | DMX_START_ADDRESS | DMX_PERSONALITY |
| DISC_UN_MUTE | IDENTIFY_DEVICE | DMX_PERSONALITY_DESCRIPTION |
| SUPPORTED_PARAMETERS | DEVICE_MODEL_DESCRIPTION | SLOT_INFO |
| DEVICE_INFO | MANUFACTURER_LABEL | SLOT_DESCRIPTION |
| FACTORY_DEFAULTS | SENSOR_DEFINITION | SENSOR_VALUE |

### CRMX / Wireless DMX

LEDMASTER NEO embeds a radio CRMX receiver, RDM compliant, based on LumenRadio™ technology, enabling to receive a single wireless DMX universe. To enable the CRMX feature, the device must be set in DMX mode. Use the wireless button ⑤ to enable/disable the radio. When the radio is ON, the corresponding indicator is turned on.

**Link procedure:**
- Make sure that both devices are powered, and dimmer is unlinked.
- Start the linking procedure on the transmitter.
- During the linking period (~10s), any unlinked receiver in range will automatically link to the transmitter. If LEDMASTER NEO is linked to a transmitter, the blue Linked LED indicator ⑮ turns ON (even if the transmitter is off). During the linking period, the DMX signal is not transmitted.

**Unlink procedure:**
- Long press (>3s) on the pushbutton ⑭: «UNLINK» is displayed, the blue Linked indicator ⑮ turns off.

**Signal level indicator ⑯:**
- **Red**: Device is either unlinked or receiving no signal
- **Orange**: Device is linked, but the radio signal quality is poor. The device is still working, but it is recommended to try improving the reception.
- **Green**: Device is linked and signal strength is good.

Once everything is set up, the LEDMASTER NEO works the same way as it does for wired DMX: the address and mode are the same. Refer to DMX section for more details.

### TRIGGER (stereo jack 2.5mm connector ⑱):

Allows to turn On/Off quickly the outputs from a remote shutter.
- Release: Normal operation
- Push: Turn off the outputs

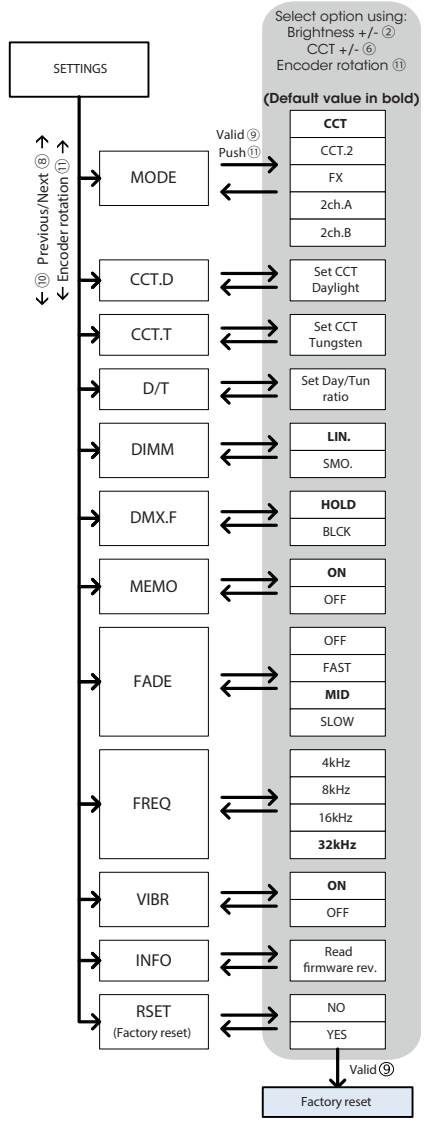
Recommended remote switch: RS-60E3 (Canon).

⚠ *Do not apply any voltage on this trigger input*

### 10.3 - SETTINGS

The parameters of the LEDMASTER NEO can be changed in the SETTINGS. After entering Settings mode by pressing Mode ④, several buttons (+/- ②, Preset ⑧, Lock ⑨ & Fine ⑩) switch from their default function (white label) to their alternative function (red label : Next ⑧, Valid ⑨ & Previous ⑩).
The following parameters can be adjusted:

| | |
|---|---|
| Mode | Setup operating sub-mode: CCT, CCT.2, FX, 2ch.A, |
| CCT.D | Daylight CCT: Adjust Daylight (cold white) CCT in the 3500K-7000K range (default 6500K) |
| CCT.T | Tungsten CCT: Adjust Tungsten (warm white) CCT in the 2000K-3500K range (default 2700K) |
| D/T | Daylight/Tungsten Balance: Adjust the daylight to tungsten brightness ratio, in order to optimize the CCT synthesizer. If daylight LEDs are 1000lm, and tungsten LEDs are 900lm, set this parameter to 1000/900 = 0.9. Default value is 1.0, meaning that the brightness of Daylight and Tungsten LEDs are equal. |
| DIMM | Dimming Curve: Select between linear (LIN.) and smooth (SMO.) dimming curve. Linear function provides constant 1% increments (0.5% with FINE ⑩ option) across the whole range. Smooth provides small increments (down to 0.1%) in low brightness levels and bigger increments in higher levels (up to 5% from 70% brightness). |
| DMX.F | DMX Fail: On DMX stream interruption (lost signal, DMX cable issue, controller Off …), either HOLD the current settings or force blackout (BLCK). |
| MEMO | Memorization: When memo is ON, the device will restore the previously used setting at the next start-up. When OFF, the device will start at 0%. |
| FADE | Fading speed: Setup the fading speed used in manual mode, when brightness/CCT are being adjusted: OFF (fastest, no fading), FAST, MID, SLOW (slowest fading) |
| FREQ | PWM Frequency: Setup PWM frequency: 4kHz, 8kHz, 16kHz or 32kHz. It is recommended to always use the highest value, to prevent flicker. |
| VIBR | Vibration Motor: Turn ON/OFF the vibration motor feedback. |
| INFO | Information: Display software version |
| RSET | Reset to Default: Reset flash memory to default factory settings (including DMX Address = 001, CRMX OFF, slave mode, user preset to CCT 100%/5600K, FX Fire/100%/50/2700K, 2ch 100%/100%, default RDM label).<br>Reset to default factory settings can also be performed by a long push on Mode ④ (6 seconds), RSET starts blinking for 5 seconds: during this period of time, press LOCK/VALID/DMX ADDR. ⑨ to perform the reset. If no button was pressed during this interval, the RSET message disappears and the device turns back to normal behavior. |



## 11 - 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 required knowledge and experience. 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 device requires DC voltage, which can result in an electrical shock. Never remove covers. The parts inside the device are maintenance free.

**Dangers for children**

Ensure proper disposal of plastic bags and packaging. They should not be near babies nor young children, because of 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 cables nor the plugs. In case of non-compliance, there is a risk of electric shock and fire hazard. If in doubt, contact a certified technician.

**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**

This device is designed for indoor use. To prevent damage, do not expose it to liquid or moisture. Avoid clogging and strong vibrations.

**Power supply**

Check the feature compliancy and correct operation of the power supply before connecting it to the device. Before connecting the appliance, check if the voltage indicated on the appliance corresponds to the voltage of your local power network and if the socket is equipped with a GFCI. In case of non-compliance, the device may be damaged and the user may be injured. When a storm is announced or the unit is not to be used for a long time, unplug it from the mains to reduce the risk of electric shock or fire.

**Cables**

The section of power cables on DC IN (between power supply and dimmer) and PWM OUT (between dimmer and LED fixture) should match the power requirements. The cable length should be minimized as much as possible, reduced to a few meters if possible. User is strongly advised to use only the cables delivered with the device. Maximum power can only be reached by using XLR4 cables with 4x 1.5mm2 wires (AWG16). If those instructions are not complied, the system may exhibit inconsistent or non-linear optical behavior.

### Care & Maintenance

Unplug the unit before 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 and dry place, away from exposure to direct sunlight and dust.

**MODE : CCT - 2 Slots**

| Value | Addr<br>Brightness | Addr +1<br>CCT |
|---|---|---|
| 0 | 0% | min (Tungsten) |
| . | Step: 0,05% | |
| . | | |
| . | | |
| 20 | 1% | |
| . | Step: 0,1% | |
| . | | |
| . | | |
| 50 | 4% | |
| . | Step: 0,2% | |
| . | | |
| . | | |
| 75 | 9% | |
| . | Step: 0,505%<br><br>128 = 35%<br>156 = 50%<br>206 = 75% | |
| . | | |
| . | | |
| . | | |
| . | | |
| . | | |
| . | | |
| . | | |
| . | | |
| . | | |
| . | | |
| 255 | 100% | max (Daylight) |

**MODE : CCT.2 - 4 Slots**

| Value | Addr<br>Brightness A | Addr +1<br>CCT A | Addr +2<br>Brightness B | Addr +3<br>CCT B |
|---|---|---|---|---|
| 0 | 0% | min (Tungsten) | 0% | min (Tungsten) |
| . | Step: 0,05% | | Step: 0,05% | |
| . | | | | |
| . | | | | |
| 20 | 1% | | 1% | |
| . | Step: 0,1% | | Step: 0,1% | |
| . | | | | |
| . | | | | |
| 50 | 4% | | 4% | |
| . | Step: 0,2% | | Step: 0,2% | |
| . | | | | |
| . | | | | |
| 75 | 9% | | 9% | |
| . | Step: 0,505%<br><br>128 = 35%<br>156 = 50%<br>206 = 75% | | Step: 0,505%<br><br>128 = 35%<br>156 = 50%<br>206 = 75% | |
| . | | | | |
| . | | | | |
| . | | | | |
| . | | | | |
| . | | | | |
| . | | | | |
| . | | | | |
| . | | | | |
| . | | | | |
| . | | | | |
| 255 | 100% | max (Daylight) | 100% | max (Daylight) |

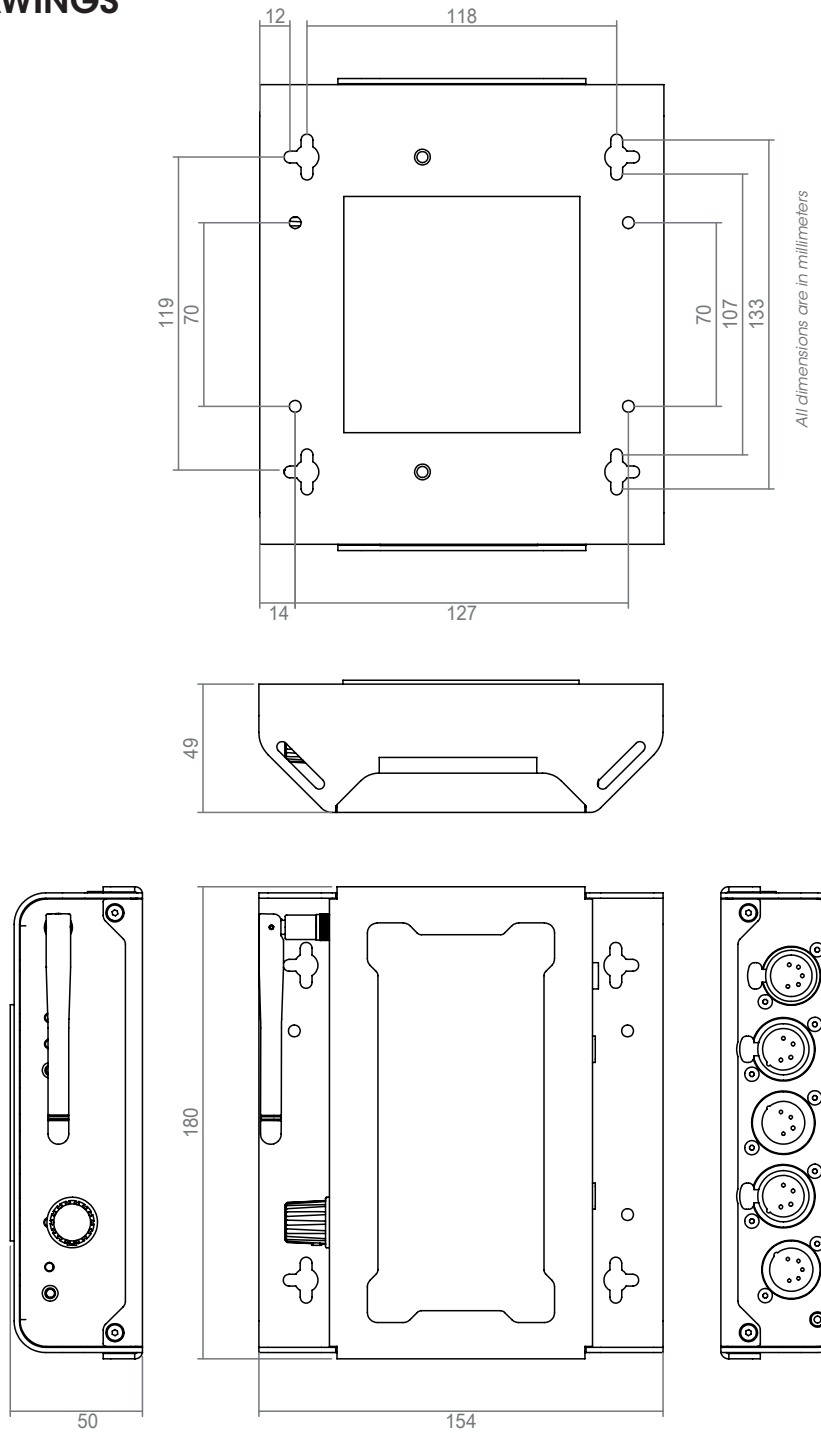
**MODE : 2ch.A / 2ch.B - 2 Slots**

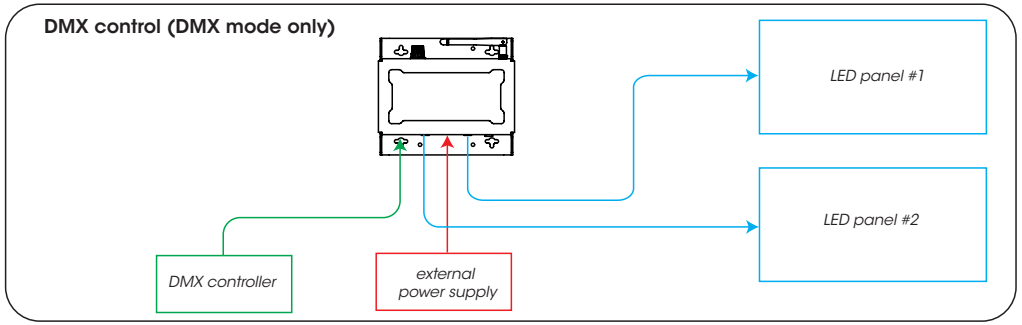
| Value | Addr<br>Brightness DAY. | Addr +1<br>Brightness TUNG. |
|---|---|---|
| 0 | 0% | 0% |
| . | Step: 0,5% | Step: 0,5% |
| 3 | | |
| . | | |
| . | | |
| 20 | 1% | 1% |
| . | Step: 0,1% | Step: 0,1% |
| . | | |
| 35 | | |
| 36 | | |
| . | | |
| . | | |
| 50 | 4% | 4% |
| . | Step: 0,2% | Step: 0,2% |
| . | | |
| 71 | | |
| 72 | | |
| . | | |
| . | | |
| 75 | 9% | 9% |
| . | Step: 0,505%<br><br>128 = 35%<br>156 = 50%<br>206 = 75% | Step: 0,505%<br><br>128 = 35%<br>156 = 50%<br>206 = 75% |
| . | | |
| 108 | | |
| 109 | | |
| . | | |
| . | | |
| 144 | | |
| 145 | | |
| . | | |
| . | | |
| 173 | | |
| 174 | | |
| . | | |
| . | | |
| 217 | | |
| 218 | | |
| . | | |
| 253 | | |
| 254 | | |
| 255 | 100% | 100% |

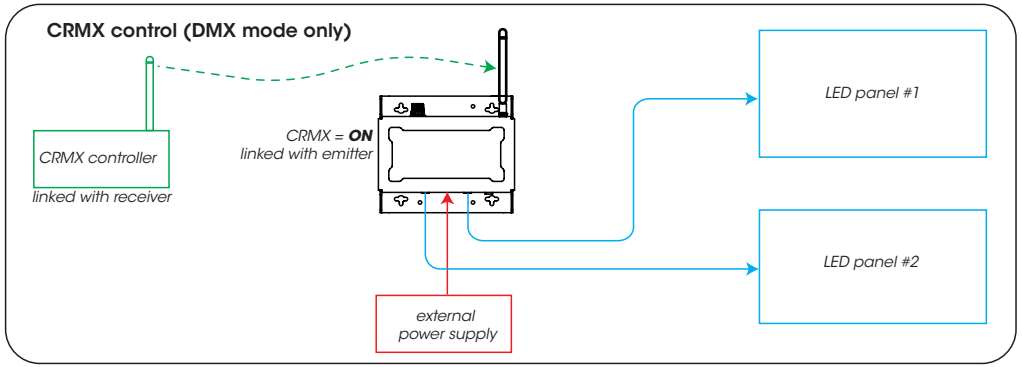
**MODE : Effects FX - 4 Slots**

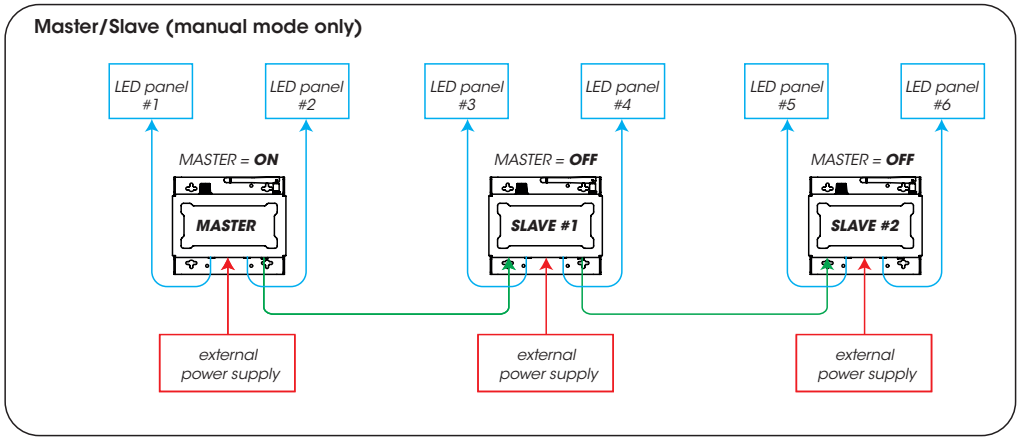
| Value | Addr<br>Brightness | Addr +1<br>CCT | Addr +2<br>FX Speed | Addr +3<br>FX Type |
|---|---|---|---|---|
| 0 | 0% | min (Tungsten) | 0% (SLOW) | NO FX<br>(0 ≤ DMX ≤ 35) |
| . | Step: 0,5% | | | |
| 3 | | | | |
| . | | | | |
| . | | | | |
| 20 | 1% | | | |
| . | Step: 0,1% | | | |
| . | | | | |
| 35 | | | | |
| 36 | | | | FX = FIRE<br>(36 ≤ DMX ≤ 71) |
| . | | | | |
| . | | | | |
| 50 | 4% | | | |
| . | Step: 0,2% | | | |
| . | | | | |
| 71 | | | | |
| 72 | | | | FX = TV<br>(72 ≤ DMX ≤ 108) |
| . | | | | |
| . | | | | |
| 75 | 9% | | Step: 0,4% | |
| . | Step: 0,505%<br><br>128 = 35%<br>156 = 50%<br>206 = 75% | | | |
| . | | | | |
| 108 | | | | |
| 109 | | | | FX = LIGHTNING<br>(109 ≤ DMX ≤ 144) |
| . | | | | |
| . | | | | |
| 144 | | | | |
| 145 | | | | FX = PAPARAZZI<br>(145 ≤ DMX ≤ 173) |
| . | | | | |
| . | | | | |
| 173 | | | | |
| 174 | | | | FX = STROBE<br>(174 ≤ DMX ≤ 217) |
| . | | | | |
| . | | | | |
| 217 | | | | |
| 218 | | | | |
| . | | | | FX = TUNNEL<br>(DMX ≥ 218) |
| 253 | | | | |
| 254 | | | 100% (FAST) | |
| 255 | 100% | max (Daylight) | | |

# DRAWINGS


12
118
119
70
70
107
133
All dimensions are in millimeters
14
127
49
50
180
154


DMX control (DMX mode only)
LED panel #1
LED panel #2
DMX controller
external
power supply


CRMX control (DMX mode only)
CRMX controller
linked with receiver
CRMX = ON
linked with emitter
LED panel #1
LED panel #2
external
power supply


Master/Slave (manual mode only)
LED panel #1
LED panel #2
LED panel #3
LED panel #4
LED panel #5
LED panel #6
MASTER = ON
MASTER
MASTER = OFF
SLAVE #1
MASTER = OFF
SLAVE #2
external
power supply
external
power supply
external
power supply