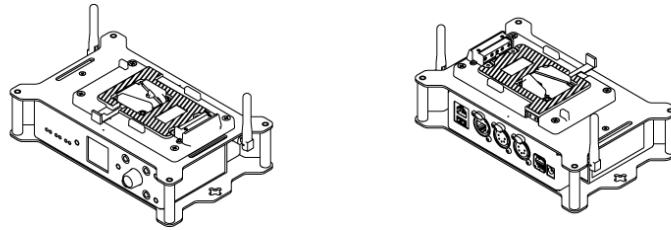


exalux CONNECT+

USER MANUAL



1 GENERAL INFORMATION

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

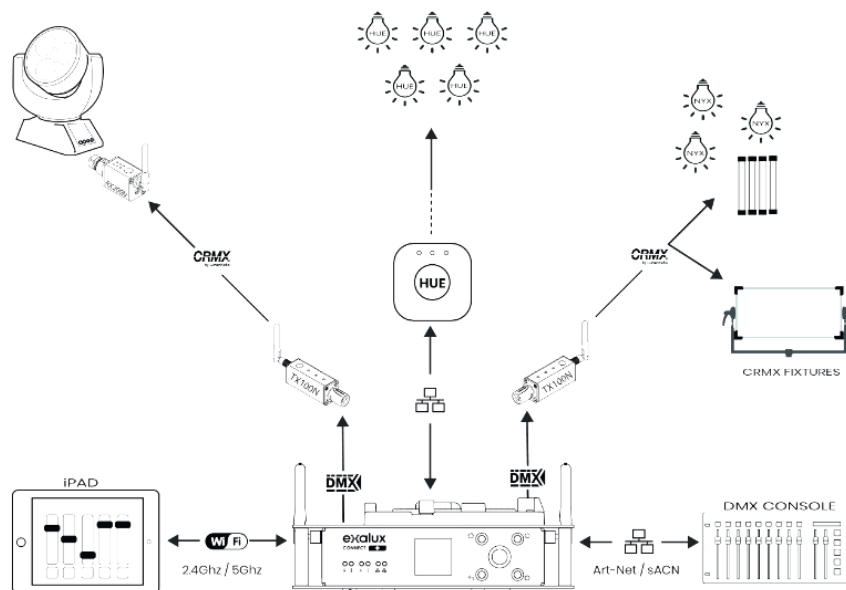
EXALUX™ reserves the right to modify and upgrade its range of products, with no obligation to integrate these changes into products already sold. Therefore, all the information found in this manual is subject to change without notice.

2 OVERVIEW

EXALUX™ CONNECT+ is a dual band 2.4/5GHz Wi-Fi to DMX gateway that allows wireless lighting control from Art-Net compatible Apps (Luminair, BlackOut, DMX Connect+, ...). It embeds a MiMo Wi-Fi technology that improves data rate and signal quality allowing to be used close to CRMX™ transmitters. Wired communication with computer or advanced controllers, is also possible using the RJ45 connectors.

It integrates two DMX outputs (XLR5) for dual universe operation and an Ethernet switch split on two RJ45 ports. An expansion port is located on the bottom side for additional interfaces. The main USB port allows easy firmware upgrade, and two USB ports are available for external devices powering.

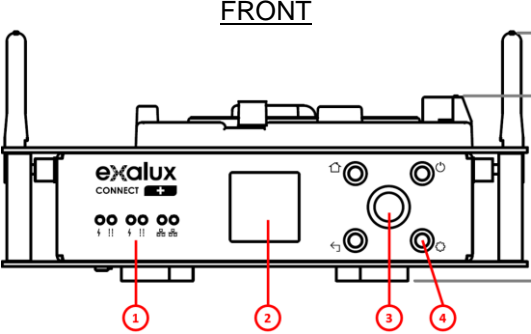
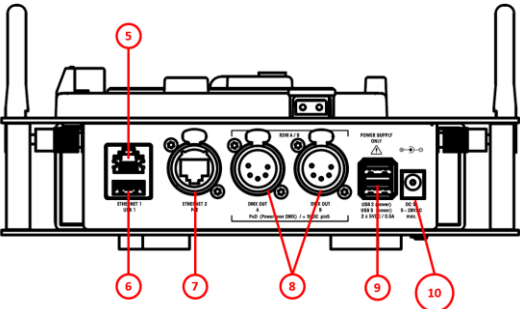

The unit can be powered either from a V-LOCK battery, an external DC power supply or via the PoE-compliant RJ45 port from a PoE sourcing equipment (PSE). CONNECT+ also features the new PoD technology (Power over DMX) that allows to power PoD-compliant equipment from XLR5 connectors, such as EXALUX™ TX100N CRMX™ transmitters.

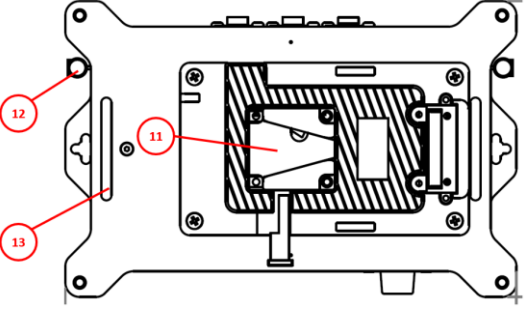
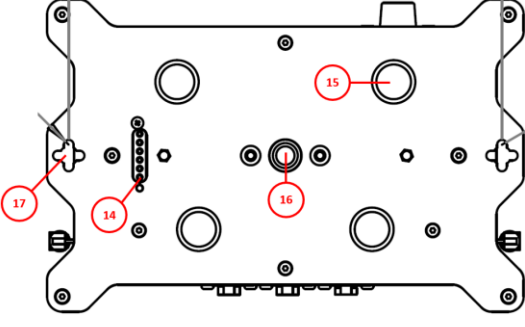


3 FEATURES


- Built-in dual band 2.4 & 5GHz Wi-Fi access point,
- Reliable MiMo Wi-Fi with band & channel selection,
- Long range whip, hinged and removable antenna,
- Built-in dual universe DMX/RDM node,
- Built-in DMX recorder & DMX gateway,
- Expandable via the Connect Extension Port,
- Firmware upgrade through USB port,
- Multiple power supply possibilities,
- Long time running on a standard V-LOCK battery,
- Remotely powered thanks to the PoE-PD port,
- Power over DMX (PoD) capability on DMX outputs,
- HUE ready thanks to the Ethernet ports,
- Allows to manage up to 1024 DMX channels,
- 1,54" TFT display interface, rotary encoder with push, LED indicators, illuminated pushbuttons,
- Compact and rugged design with metal housing.

4 INPUTS/OUTPUTS

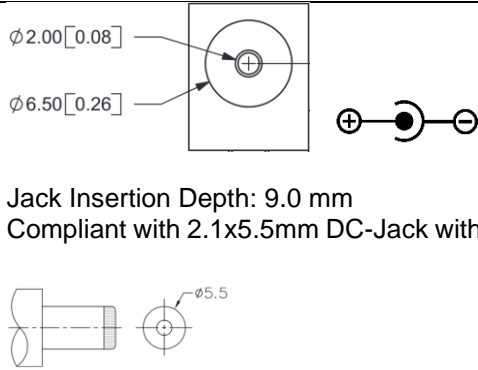
 <p style="text-align: center;">FRONT</p>	<ol style="list-style-type: none"> LED indicators <ul style="list-style-type: none"> DMX A/B signal activity <ul style="list-style-type: none"> Blinking: no data Constant: data valid DMX A/B PoD <ul style="list-style-type: none"> Off: PoD disabled Slow blinking: PoD enabled, no device detected Fast blinking: PoD enabled, error (shunt) Constant: PoD enabled, compatible device connected Ethernet 1/2 Signal activity <ul style="list-style-type: none"> Off: No link On: Link up TFT display Rotary encoder with push: turn to navigate/scroll, push to select/valid. Illuminated pushbuttons (*) <ul style="list-style-type: none"> ON/OFF: Press 2sec to turn On/Off the device HOME: Press to go back to the HOME page BACK: Press to return or to cancel the current action SETTING: Press to enter to the setting menu <p>(*) Buttons are illuminated according to the available options in the current menu.</p>
	<ol style="list-style-type: none"> Ethernet 1 (RJ45 8P/8C): Ethernet Port 1 USB 1: USB-A host (config & recorder files import/export, firmware update) Ethernet 2 (Neutrik® EtherCON): Ethernet Port 2, PoE-PD compliant DMX OUT A/B (2x Neutrik® XLR5 Male): DMX512/RDM compliant, Power Over DMX(PoD) outputs (2x 5V/500mA max) USB 2/3: 2x USB-A CDP (Charging downstream port), power outputs only (2x 5Vdc/500mA, total 1,2Amax). DC IN: DC power jack input (5-28Vdc), positive polarity 

<p style="text-align: center;">TOP</p> 	<ul style="list-style-type: none"> 11. V-mount adapter for 14.8V & 26V batteries 12. 2x dual-band Wi-Fi antenna 13. 2x oblong slots for strap mount (5x50mm)
<p style="text-align: center;">BOTTOM</p> 	<ul style="list-style-type: none"> 14. 6 pins extension port for additional interfaces 15. 4x magnetic feet for metal panels/plates mounting. Holding strength: approx. 4x3,2 kg Specified adhesive force applies to a holding strength vertical to the contact surface. If the holding strength acts parallel to the contact surface (shear direction), its maximum value is much smaller (approx. 15-25% of the specified adhesive force). 16. M10 spigot mounting + 1/4" adapter 17. 2x multidirectional mounting holes

5 GENERAL SPECIFICATIONS

Local controls	Rotary encoder with push & illuminated pushbuttons
Display	1,54" TFT display, RGB, 240x240p LED indicators
Power consumption	Normal mode (with factory settings): <4W typ. Standby mode: <0.5W typ. Specified consumption without extension & PoD devices connected
Firmware Update	Bootloader via USB 1 port
Housing	Aluminium, Epoxy black painting RAL9005 + Plastic (PC/ABS)
Protection, IP rating	IP4X Protected against solid particles >1mm Not protected against liquid ingress, indoor use only
Certifications	 RoHS
Dimensions	220mm(L) x 144mm (l) x 77mm(H) (*) (*) dimensions specified with the antennas positioned horizontally (not deployed).
Weight	895g
Storage T°	Min : -30°C Typ : 25°C Max : +70°C
Operating T°	Min : 0°C Typ : 25°C Max : +50°C

6 POWER SUPPLY

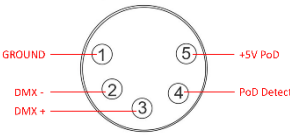
Input	V _{min}	V _{typ}	V _{max}	Details
DC-Jack	5V _{DC}	24V _{DC}	28V _{DC}	 <p>Jack Insertion Depth: 9.0 mm Compliant with 2.1x5.5mm DC-Jack with positive polarity</p>
V-MOUNT adapter	10V _{DC}	14.8V _{DC} & 26V _{DC}	28V _{DC}	Standard V-Mount Battery Plate with one D-Tap Output. Dimensions: 141mmx100mm release lever included)
PoE-PD (Powered Device)	37V _{DC}	48V _{DC}	57V _{DC}	IEEE802.3af, Class 0 (0.44 Watts to 12.95 Watts) Mode A & B compliant: Mode A: DC+ on pair 1-2 / DC- on pair 3-6 Mode B: DC+ on pins 4- 5 / DC- on pins 7-8.

7 RADIO INTERFACE

Standard / Technology	Dual-band Multiple-Input Multiple-Output (MIMO) Wi-Fi (802.11 a/b/g/n) Bluetooth 4.2 & BLE (only for -BT version) Up to 5 clients can be connected to the Wi-Fi access point.
Frequency bands	2.412 to 2.484 GHz (20MHz channels) 5.18 to 5.845 GHz (20MHz channels) Channels dependent on assigned country code. See channel list below.
Antenna	2x dual-band swivel whip omnidirectional & removable antennas Linear polarization, 1/2 wave, 50-ohms RP-SMA Male Connector mount on enclosure RP-SMA Female Connector mount on antennas <ul style="list-style-type: none"> - 2.4-2.5GHz; 2.8bBi - 5.125-5.725GHz: 4.5bBi - 5.725-5.875GHz : 2.95bBi
RF Output	20 dBm (100mW) - ETSI compliant Note : Specified RF output with original antennas provided with the CONNECT+. Before changing antennas, check with your local regulatory authorities for ETSI or FCC compliance. 2.4GHz : 15 (+/-2) dBm (RF module) + 2.8dBi (antenna @2.4GHz) = 19.8dBm max 5GHz : 13 (+/-2) dBm (RF module) + 4.5dBi (antenna @5GHz) = 19.5dBm max
RF Modulation	OFDM (BPSK, QPSK, 16-QAM, 64-QAM)

Bands	Frequency	Channel	Europe	FCC/USA	Canada	Japan	China	Australia	New Zealand
2.4 GHz Band	2412	1	✓	✓	✓	✓	✓	✓	✓
	2417	2	✓	✓	✓	✓	✓	✓	✓
	2422	3	✓	✓	✓	✓	✓	✓	✓
	2427	4	✓	✓	✓	✓	✓	✓	✓
	2432	5	✓	✓	✓	✓	✓	✓	✓
	2437	6	✓	✓	✓	✓	✓	✓	✓
	2442	7	✓	✓	✓	✓	✓	✓	✓
	2447	8	✓	✓	✓	✓	✓	✓	✓
	2452	9	✓	✓	✓	✓	✓	✓	✓
	2457	10	✓	✓	✓	✓	✓	✓	✓
	2462	11	✓	✓	✓	✓	✓	✓	✓
	2467	12	✓			✓	✓	✓	✓
	2472	13	✓			✓	✓	✓	✓
5 GHz Band	5180	36	✓	✓	✓	✓	✓	✓	✓
	5190	38	✓	✓	✓	✓	✓	✓	✓
	5200	40	✓	✓	✓	✓	✓	✓	✓
	5210	44	✓	✓	✓	✓	✓	✓	✓
	5220	46	✓	✓	✓	✓	✓	✓	✓
	5230	48	✓	✓	✓	✓	✓	✓	✓
	5745	149		✓	✓		✓	✓	✓
	5755	151		✓	✓		✓	✓	✓
	5765	153		✓	✓		✓	✓	✓
	5785	157		✓	✓		✓	✓	✓
	5795	159		✓	✓		✓	✓	✓
	5805	161		✓	✓		✓	✓	✓
5825	165		✓	✓		✓	✓	✓	

8 DMX/RDM/ETHERNET INTERFACE (POD)

Supported protocol	DMX512-A & RDM (ANSI E.1.20) compliant – 2 universes Art-Net 4, HUE ready
DMX frame rate	0,8-830Hz
Ethernet	10/100 Mbps (IEEE 802.3)
PoD-PSE (Power Over DMX)	<p>CONNECT+ is a PoD-PSE system (Power Sourcing Equipment). Both XLR5 outputs are PoD compliant:</p> <ul style="list-style-type: none"> - Maximum output current: 2x 500mA - Security: PoD compliance detection, current limit & thermal shutdown <p>Note: The PoD technology enables to power device from its XLR5 connector (+5Vdc on pin N°5, Detect signal on pin N°4). The DMX signal and the PoD power supply have a common ground (Ground on pin N°1).</p> <ul style="list-style-type: none"> - Always check the compatibility between devices before powering. - When using a DMX cable, check that the 5 pins of the XLR connectors are electrically connected (on most DMX cables, only pins 1, 2 and 3 are connected). - Do not exceed a length of 2 meters. 

9 SETTINGS

HOME PAGE:

Menu	Details	Default value
INPUT	Select your input port (Wi-Fi, Ethernet)	« Wi-Fi »
BAND	Select your Wi-Fi frequency band (2,4GHz, 5GHz)	« 5GHz »
CHANNEL	Selection your channel (available channels dependent on assigned country code)	« Automatic »
PROTOCOL	Select the protocol	« Art-Net »
UNIVERSE A/B	Select the universe for port A & B (0-15)	« 0/1 »

SETTING PAGE:

Menu	Details	Default value
BACKLIGHT	LEVEL: Display brightness adjustment (HIGH, MEDIUM, LOW).	« HIGH »
	MODE AUTO: If ENABLED, decrease backlight brightness 30 seconds after the last user operation.	« ENABLED »
HAPTIC	STRENGTH: Vibration feedback strength adjustment (LOW, NORMAL, OFF)	« LOW »
WI-FI NETWORK	SSID: Display the name of your CONNECT+ on the network. This field cannot be changed.	« CONNECT+_*** »
	PASSWORD: Enable to customize/rename your Wi-Fi password (8 characters max)	« PASSWORD »
MAC ADDRESS	Display your unique identifier MAC assigned to the WIFI and the ETHERNET network	N/A
LOCALISATION	REGION CODE: Selection your localisation for (Europe, United States, Canada, Japan, China, Australia, New Zealand)	« Europe »
ARTNET NODE	ART-NET NODE NAME: Enable to customize/rename your Art-Net node name (12 characters max)	« CONNECT_PLUS »
ARTNET PORT ADDR.	NET: Select the Art-Net net to use (0-127)	« 0 »
	SUBNET: Select the Art-Net subnet to use (0-15)	« 0 »
WIFI IP MODE	Select your WIFI IP mode between Static, Primary IP and Secondary IP. When using "Static", enter the IP address in the IP MODE page.	« Static »
WIFI USER IP	Enter your custom WIFI IP address. Enable only in STATIC IP mode.	« 192.168.1.1 »
	Enter your custom WIFI IP mask. Enable only in STATIC IP mode.	« 255.255.255.0 »
ETH. IP MODE	Select your ETHERNET IP mode between Static, Primary IP and Secondary IP. When using "Static", enter the IP address in the IP MODE page.	« Static »
ETH. USER IP	Enter your custom ETHERNET IP address. Enable only in STATIC IP mode.	« 192.168.1.1 »
	Enter your custom ETHERNET IP mask. Enable only in STATIC IP mode.	« 255.255.255.0 »
RDM	Enable/Disable the RDM function of port A & B	« Disabled »
FAIL OVER	Select the behaviour of the DMX outputs if network data is lost (Hold last, Blackout, Full on)	« Hold last »
DMX RATES	Display the DMX rate of port A & B	N/A
DMX POWER	Enable/Disable the PoD function of port A & B	« Enabled » (A&B)
SECURITY	Enable/Disable advanced settings access ("No Restriction" or "Restricted" access). - In "No Restriction" mode, enable to customize your pin code (4 digits max). - In "Restricted" mode, enter the correct pin code to unlock access.	« No Restriction »
	PIN CODE: set/enter to access to advanced settings	« 0000 »

DMX RECORDER	Record the DMX data received over network. ➤ MEMORY: Push the encoder to start/stop recording ➤ INFO: display the recording progression (300 seconds max) Only one memory can be store on the CONNECT+.	N/A
DMX PLAYER	Play the recorded memory: ➤ MEMORY: Push the encoder to play/stop playing ➤ INFO: display the playing progression	N/A
CONFIG BACKUP	Save/Restore config & recorder files to/from the USB flash drive plugged on port USB1 host	N/A
REBOOT	Restart and Factory reset	N/A
ABOUT	Display firmware & bootloader version, Wi-Fi module version and Qrcode link (exalux.eu)	N/A

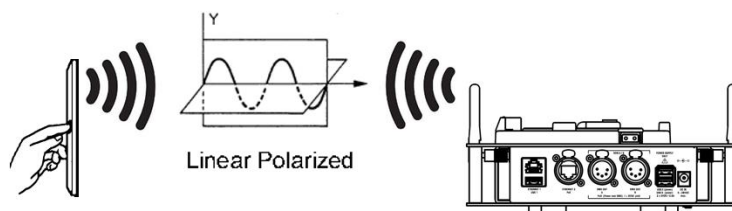
10 INSTALLATION & CABLING

10.1 Wi-Fi environment

To maximise the Wi-Fi efficiency, it is recommended to install the device in an open space, without any structure or metal objects. It is recommended to keep the Wi-Fi channel assignment to “Automatic”. In this mode, the CONNECT+ scans the Wi-Fi network and selects the least occupied channel. This operation is performed at start up or reboot.

In case of interference, reboot the CONNECT+ to run a network scan again. If the problem persists, you can use an external application, such as Wi-Fi analyzer, to check the network and select a channel manually.

The best radio reception is achieved when the client (tablet) and the access point (CONNECT+) have a matching polarisation, i.e. when antennas are oriented along the same electric field plane. To do this, unfold the CONNECT+ antennas vertically and orient the tablet as shown in the illustration below.



10.2 Lumenradio CRMX™ operating recommendation

It is recommended to take certain precautions when using Lumenradio CRMX™ with Wi-Fi in proximity. If you're using a CRMX™ transmitter and a Wi-Fi in the same product, you should consider blocking out the frequencies used by the Wi-Fi to avoid interference. This will therefore limit the performance of the Wi-Fi, especially when it is necessary to change the frequency depending on the environment. However, there is no guarantee that interference will not occur in a particular installation.

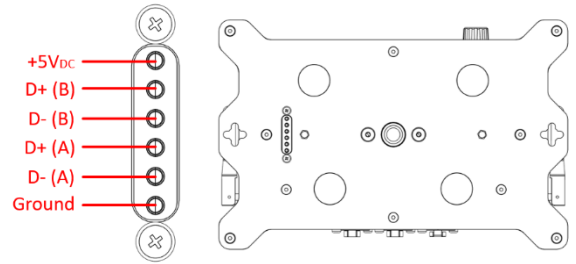
To solve interferences problems between WiFi-2.4GHz and CRMX :

1. **Reorient or relocate Wi-Fi and CRMX™ antennas so that they are not oriented in the same field. If necessary, use directional antennas for CRMX™ emitters, not pointing towards the CONNECT+.**
2. **Increase the separation between the CONNECT+ and the CRMX™ emitter (1 meter minimum).**
3. **Set the Wi-Fi on a different channel.**
4. **Set the Wi-Fi to 5GHz mode (CRMX™ uses 2.4GHz).**

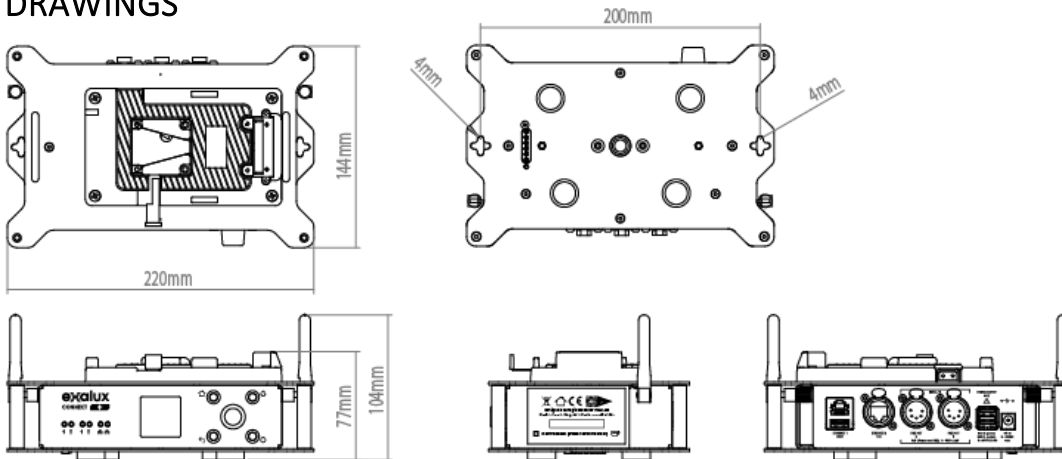
10.3 Extension port

The CONNECT+ features an extension port for additional interfaces operation. The built-in 6-pins target connector is especially designed for plug'n play connection with 4mm spring-loaded connectors.

Do not apply any voltage on these pins. The maximum power load is 10W (2A @5V). If the power consumption exceeds this limit, the CONNECT+ will automatically switch off the power supply to the extension connector. For extensions exceeding 10W, it is therefore necessary to use an external power supply.



11 DRAWINGS



12 SAFETY INSTRUCTIONS

Proper use:

This unit is designed to control lighting equipment using DMX/RDM/Art-Net/HUE commands. Use the device only in its intended use as described in this manual. 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 system requires DC voltage up to 48V, which can result in an electrical shock. Do not remove cover when powered. 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 and swallow small parts of the unit (e.g. knobs, screws or similar). 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 noncompliance, there is a risk of electric shock and fire hazard. If in doubt, contact a certified technician.

Risk of fire

Never cover the device. Do not install the device close to a source of heat. Keep the device away from flames. It is recommended to unplug the power plug and remove the battery from the device when not in use for a long period of time.

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.

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.

Care

- Unplug the unit when cleaning it and during all maintenance operations
- Do not remove the serial number sticker.
- 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.