

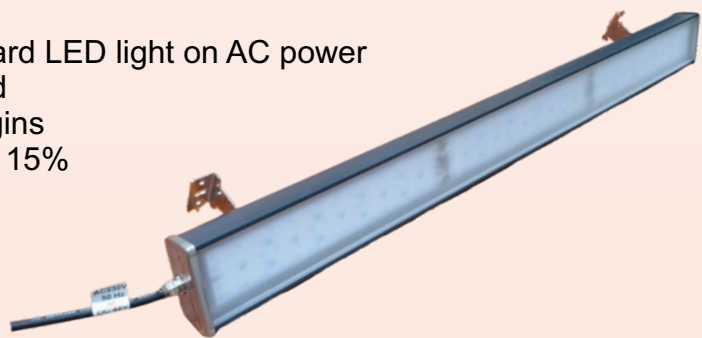
Radiation Resistant Emergency Lighting System For SHELTERS, BUNKERS and other

- LED Lighting / Emergency Controlling Box (LL - ECB),
- LiFePO4 Battery Pack - 100 Ah / 51 V,
- Any Kind Of Radiation Resistant
LED Lighting Luminosnuclear®



The same lighting fixture works both as a standard LED light on AC power 230V / 50Hz at 100% luminous flux intensity and in case of loss of power, the same LED light begins working as an emergency light at approximately 15% luminous flux intensity through the emergency controlling box and the LiFePO4 battery on DC 48V.

The emergency lighting set can provide up to **150 hours of lighting in case of emergencies** / loss of AC power. It is a product for challenging environments and is perfect for **shelters, bunkers and other**.



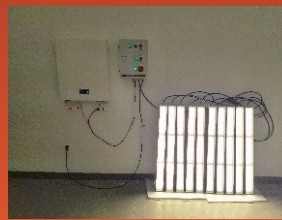
NANOCUT d.o.o. | LED LIGHTING

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EMERGENCY LIGHTING SYSTEM



GENERAL:

Luminosnuclear® LED Lighting / Emergency Controlling Box (LL - ECB) with LiFePO4 Battery Pack for radiation resistant emergency lighting is the first solution of its kind. It is a necessary product for any kind of environment with GAMMA radiation and ensures operation of LED lights in case of any kind of loss of power. The LED Lighting / Emergency Controlling Box and the LiFePO4 battery pack are coupled with any Luminosnuclear® LED lights, which are tested and certified up to a GAMMA dose of 150 kGy. The same light works both as a standard LED light and in the case of loss of power, the same light begins working as an emergency light. While all of our lights can be installed in places with GAMMA radiation, both the Controlling Box and the Battery Pack must be installed in places with no radiation.

GAMMA RADIATION TESTING

GAMMA dose speed	3,3 kGy/h
Total GAMMA dose	156 kGy

RESISTANCE ON GAMMA RADIATION:

The complete LED lights were tested up to a GAMMA dose of 156 kGy at GAMMA dose speed 3,3 kGy/h. At the end of testing, the LED lights were still working properly. Exposition to GAMMA radiation was tested in ENEA - Italian National Agency for New Tehnologies, Energy and Economic Development.

TECHNICAL DATA FOR LED LIGHTING / EMERGENCY CONTROLLING BOX

Type	LL - ECB
Maximum input current	AC 20A
Nominal AC voltage	AC 230V ^{+20%} / _{-10%} , 50Hz
EI. Consumption	Depending on power of lights
Housing	Carbon Steel Powder Coated
IP protection	IP 65
IK protection	IK 07
Ambient temperature	-20 to +50 °C
Weight	20 kg
Warranty	5 years
Certificate	CE

TECHNICAL DATA FOR BATTERY PACK

Type	LiFePO4
Charging current	DC 20A
Max discharging current	DC 16A
Number of cycles	6000
Voltage	46 - 53 V
Capacity	100 Ah
Weight	50 kg
Warranty	5 years

Operation of the system

This system operates in a way, that all installed LED lights will begin operating in emergency mode at any kind of loss of power. The power of the lights in emergency mode reduces to approximately 15% of their nominal power, as they switch from AC 230V to DC 48V through the emergency lighting box and draw power from the battery pack. The LED Lighting / Emergency Controlling Box must be connected to AC 230V / 50 Hz and the Battery Pack must be connected to the ECS. The standard Battery Pack is 51V / 100Ah.

The emergency lighting set can be used in:

- Military areas,
- Nuclear Power Plants,
- Containment building in Nuclear PP,
- Medical facilities,
- Nuclear testing facilities,
- WMB (waste management building),
- SFDS (spent fuel dry storage area),
- LILRW (low and intermediate level radioactive waste building),
- Fusion Reactors,
- NEUTRON and PROTON accelerators,
- INDUSTRIAL radiography detection areas.

Controls

The LED Lighting / Emergency Controlling Box features all the controls for standard operation of lights on AC 230 V (ON/OFF) and offers testing of emergency lighting through the battery pack with a switch. For a more detailed description of controls, please read the user manual.

OPTIONS ON CUSTOMERS REQUEST:

- NOMINAL AC VOLTAGE 120V 60Hz for US market,
- DIFFERENT NOMINAL AC OR DC VOLTAGE,
- CUSTOMISED MOUNTING SYSTEM ON REQUEST,

DEVELOPED AND MANUFACTURED BY:

NANOCUT d.o.o.
LED LIGHTING

ORDERING CODE

LN-LL-ECB/LiFePO4/51V / 100Ah



LUMINOS NUCLEAR

LED LIGHTING / EMERGENCY CONTROLLING BOX

LiFePO4 Battery Pack 51V / 100Ah

WARRANTY: 5 YEARS
LIFETIME : > 20 YEARS

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