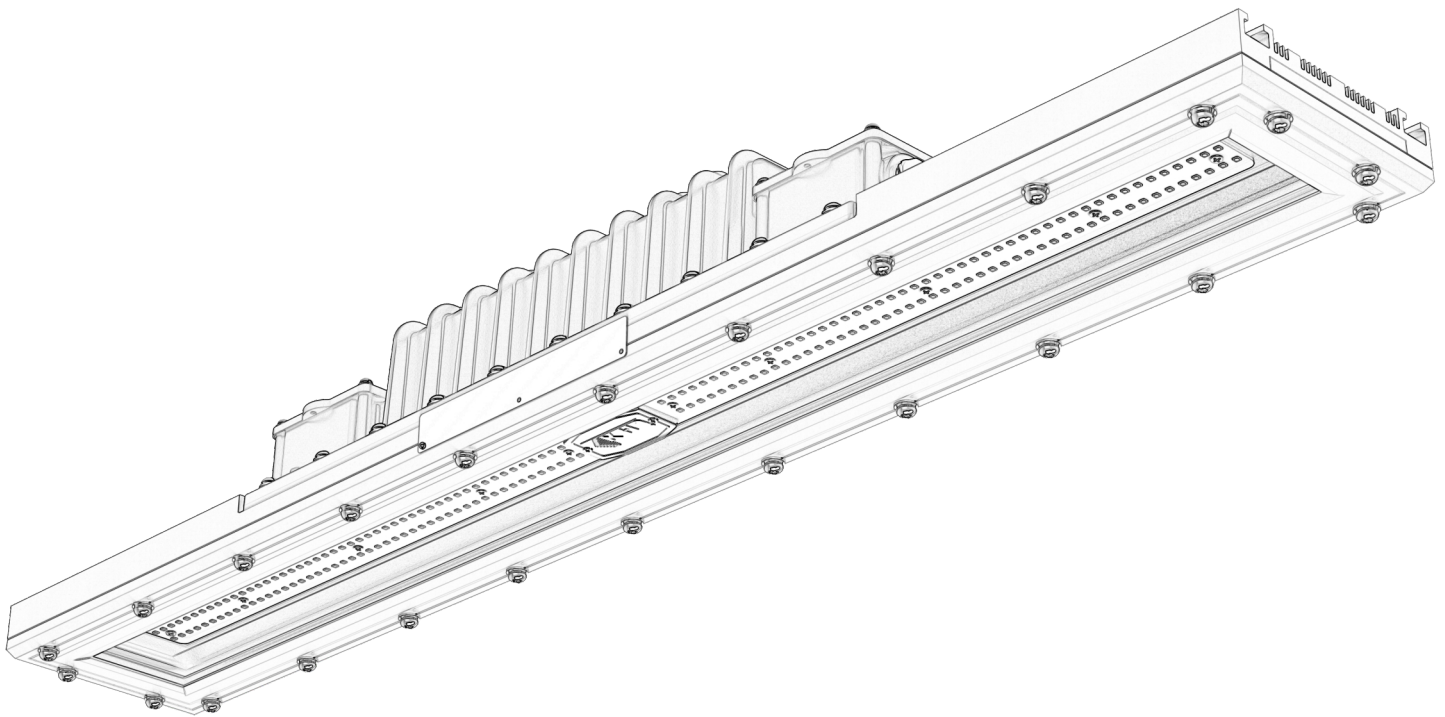



Operation & Maintenance Manual Kswordfish Series-NV4.0



Important information:

These instructions contain safety information, read and follow them carefully. KHJ will not accept any responsibility for injury, damage or loss which may occur due to incorrect installation, operation or maintenance

Product Important Information

Type Of Protection	Ex d eb ,Ex tb		
Protection Standards	(IEC)EN 60079-0, (IEC)EN 60079-1, (IEC)EN 60079-7, (IEC)EN 60079-28, (IEC)EN 60079-31 EN 55015, EN 61547, EN 61000-3-2, EN 61000-3-3, EN 60598-1, EN 60598-2-5, EN 62031, EN 62493, IEC 62321-4, IEC 62321-5, IEC 62321-6, IEC 62321-7-1, IEC 62321-7-2, IEC 62321-8		
Area Classficion	Zone 1 and Zone 2 Areas to (IEC)EN 60079-10-1,Zone 21 and Zone 22 Areas to (IEC)EN 60079-10-2		
Installation	(IEC)EN 60079-14		
Certificate	TÜV 15 ATEX 7673 X/IECEx TUR 16.0028X		
Equipment Coding	<input type="checkbox"/> II 2 G Ex d eb op is IIB T6 Gb, II 2 D Ex tb op is IIIC T80°C Db <input type="checkbox"/> II 2 G Ex db eb IIC T6 Gb, II 2 D Ex tb IIIC T80°C Db IP66		
Temperature Class	Rated power (W)	-20°C ≤ Ta ≤ +55°C	
		Gas	Dust
	18~72	T6	T80°C
ATEX Coding	 II 2 G / II 2 D		
Ingress Protection	IP66 (IEC)EN 60529		
Cable Entry	M20*1.5,M25*1.5,NPT3/4		
CE Mark	The CE marking of this product applies to EU directives 2014/35/EU, 2014/30/EU, 2012/19/EU , 2011/65/EU and 2014/34/EU respectively. The Equipment is declared to meet the provisions of the ATEX directive(2014/34/EU)by reason of the EU Type Examination and compliance with the Essential Health and Safety Requirements		

01.Introduction-SwordFish series LED light ATEX and IECEx

- This user manual covers the range of ATEX and IECEx Swordfish series LED normal/emergency luminaire.
These luminaires are constructed with corrosion resistant epoxy coated copper free aluminum alloy body and high impact resistance tempered glass diffuser.
- Swordfish series LED are available from 18W to 72W, providing ideal solutions for a wide range of harsh and hazardous applications.

02.Electrical Supplies

Size:600mm			
Voltage Range(AC)	100~277VAC		
Frequency Range(Hz)	50/60Hz		
Power Watts(W)	18W	36W	48W
Standard Current Range(A)	0.07~0.18	0.12~0.36	0.17~0.48

Size:900mm				
Voltage Range(AC)	100~277VAC			
Frequency Range(Hz)	50/60Hz			
Power Watts(W)	36W	48W	56W	72W
Standard Current Range(A)	0.12~0.36	0.17~0.48	0.2~0.56	0.25~0.72

Emergency parameters	
Voltage Range (AC)	220~240VAC
Battery	9.6V 2.2Ah, Ni-Cd
Emergency Duration	≥180 minutes
Emergency power	5W
Charge time	>24hours
Power Factor	≥0.89

03.General

- These instructions should be read fully and carefully before attempting to install the luminaire.
For details of servicing operations, opening etc. see section 6.
- Copies of these instructions should be held in a safe place for future reference.
It is the responsibility of the installer to ensure that the apparatus selected is fit for its intended purpose and that the installation, operation and maintenance of the apparatus complies with applicable regulations, standards or codes of practice. Installation should be carried out in accordance with (IEC)EN60079-14 or with a local hazardous area code of practice, whichever is appropriate.
- Risk of electrostatic discharge:
 - a.Avoid mounting near fast moving streams of air
- Any specific installation instructions must be referred to The luminaire should be considered Class I to EN 60598 and effectively earthed.
Certification details on the nameplate must be verified against the application requirements before installation.
- The information in this leaflet is correct at the time of publication.
The company reserves the right to make specifications changes as required without notice.
The luminaire are shipped with the battery pack disconnected, connection must be made on the initial insulation.
- Use in Combustible Dust Atmospheres.
 - a.De-rating of the surface temperature will be required where dust clouds may be present
 - b.Do not allow dust to accumulate in layers
 - c.Dust in layers has the potential to form ignitable clouds and to burn at lower temperatures
- Refer to (IEC)EN60079-10-1,(IEC)EN60079-10-2&(IEC)EN60079-14 for additional details of selection and installation.

3.1 Tools

- 4 mm and 5 mm flat blade screwdriver, large cross head screwdriver and inner hexagon counter wrench, suitable spanners for installing cable gland, pliers, knife, wire stripper and cutter.

3.2 Mounting

- Luminaire should be installed where access for maintenance is practical and in accordance with lighting design information.
Refer to the note in 3. concerning electrostatic charge.
- See 6.1 for installation mode and method.

3.3 Cabling and Cable Gland

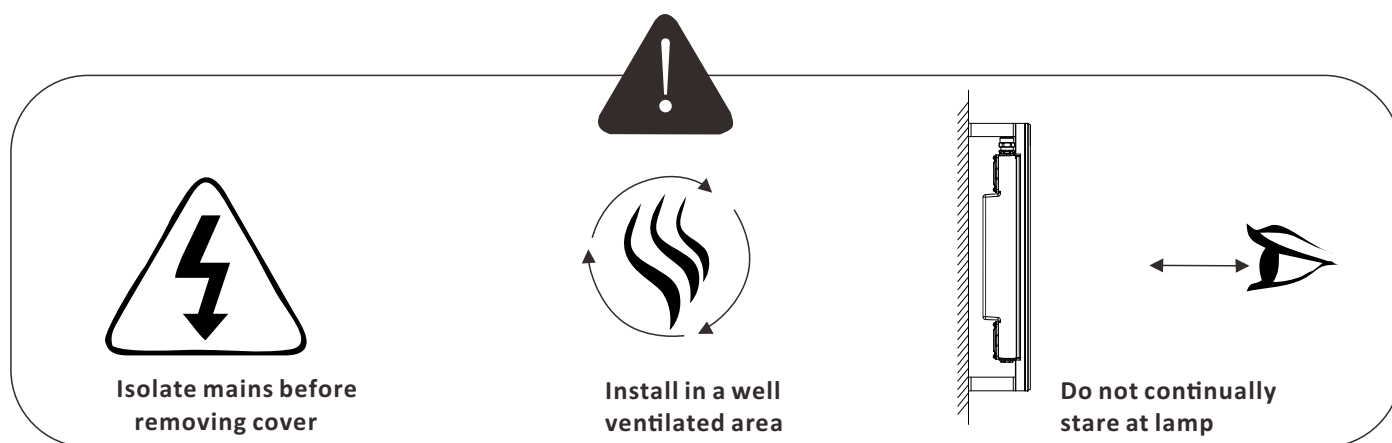
- The temperature conditions at the supply cable entry point are such that 90°C(ordinary PVC) cable can be used.
- Equipment certified cable gland and sealing plugs must have suitable IECEx / ATEX approval. When installed the cable gland or sealing plug should maintain the IP rating of the enclosure IP66.
- Installation requirements are detailed in the "remarks" part of Clause 6.

3.4 Electrical Connections and Testing

- If any operation is to be done on any luminaire already connected to the electrical system, the luminaire must be isolated from the system.
- To access the mains terminals ,loosen the fixing screws, remove the power cover.
- The wiring diagram is detailed in 6.2.1,6.2.2 and 6.2.3.
The maximum amount of insulation allowed beyond the throat of the terminal is 4mm².
- The normal method of insulation testing is to connect Live and Neutral together and test between this point.
However,if this is not possible luminaire can be tested with an insulation tester that complies with IEC 364 with a maximum output current of 1mA and output voltage of 500V dc.(Units damaged by incorrect insulation testing can be detected).
Before completing the wiring, ensure that all the connections are correctly introduced into place before reassembling the luminaire.

04.Safety instruction

- Read this leaflet carefully before commencing to install the luminaire unit and retain it for future use.
Installation can only be carried out by suitably qualified personnel.
- Check the certification to ensure that the Zone, mains supply, ambient temperature present and "T" rating are suitable for the environment the unit is being installed in.
- Check Product Important Information in this user manual to ascertain type of threaded cable entry on the luminaire.
Select suitably certified ATEX/IECEx cable glands and stopper plugs with a minimum of 5 full thread engagement and be of a medium/fine tolerance to ISO965-1 and ISO965-3.
The cable entry devices selected must maintain the IP rating of the luminaire.
- The incoming mains cable should not exceed a temperature rise of 20°C above the ambient conditions, select suitable cable.
- To ensure the safety of the equipment, ensure that the 'flame-path' on Zone 1 variants are free from any corrosion.
No repairs are possible to flameproof joints if in doubt please consult the manufacturer.
- External fasteners must have a yield strength of at least 450MPa.
- On Zone 1 variants the LED assembly contains no user service able parts, the luminaire must not be operated without all the individual LED covers in position, the IP66 rating must be maintained.



05.Emergency Operation

5.1 General description of operation

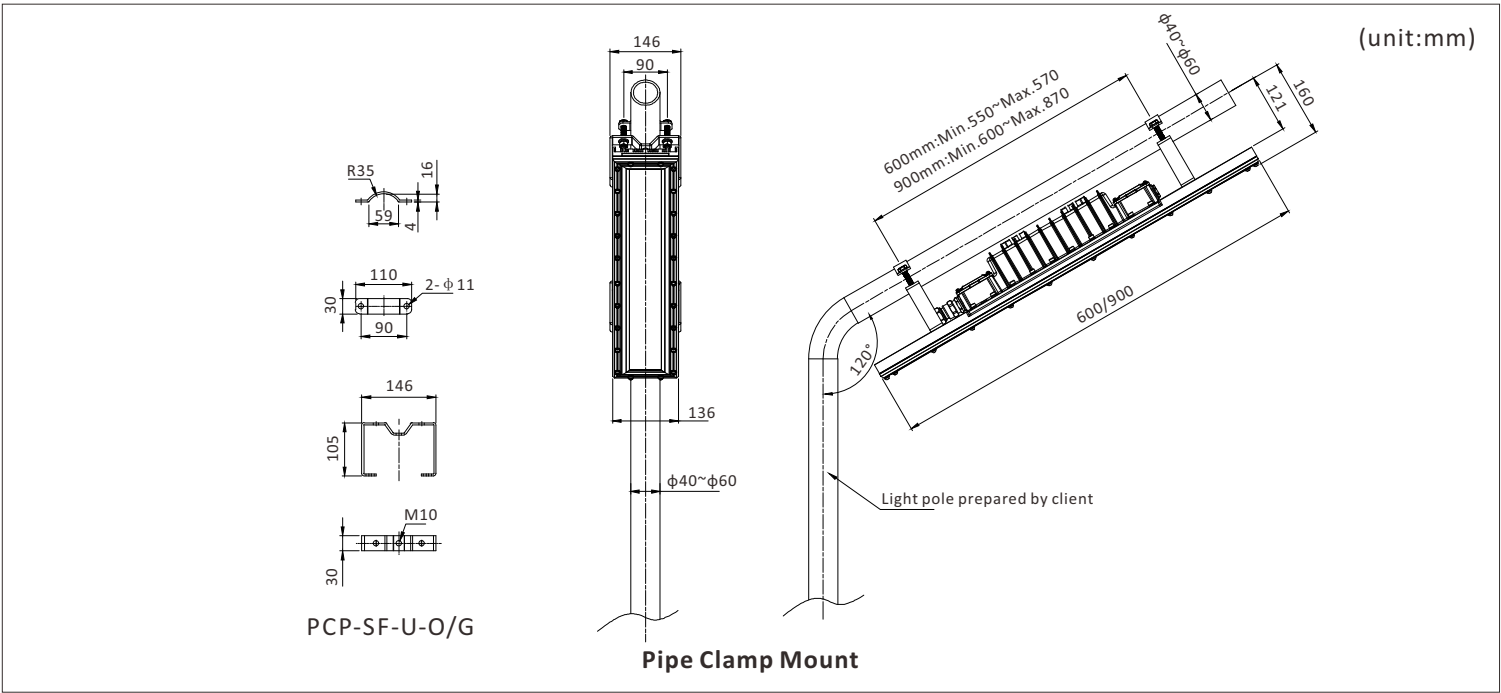
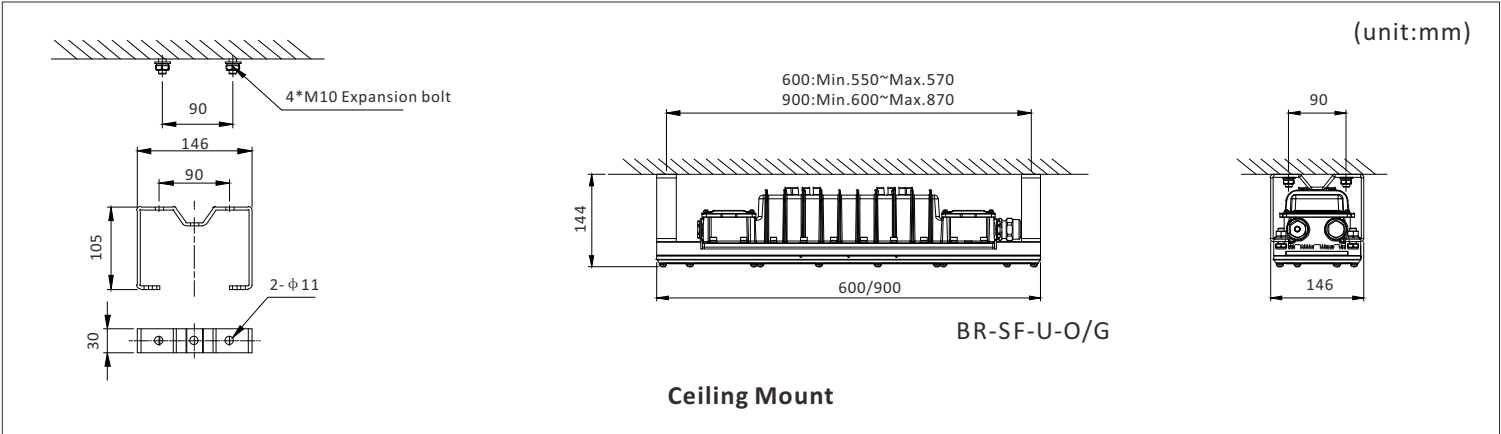
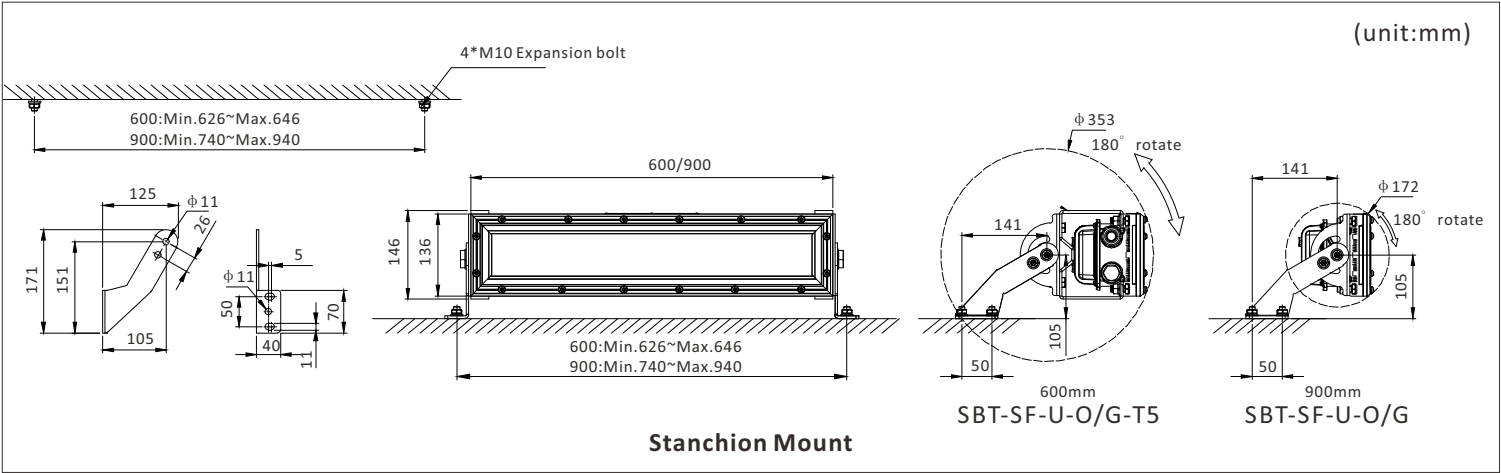
- Connect the lead wire of B in the terminal box and then connect to AC power supply to start emergency function.
- Luminaire faults are shown by a flashing red LED.
- Charging is indicated by flashing green LED.
- The luminaire will go seamlessly into emergency mode at not less than 60% rated supply voltage and will remain in mains mode above 85% of rated supply voltage.
- The charging function is monitored continuously, there is a check for over charging and no charging.
In case of a control gear error, red LED flashes .
Batteries will be fully charged more than 24hrs.
After a complete battery discharge, the unit will switch over to a low discharge current mode.

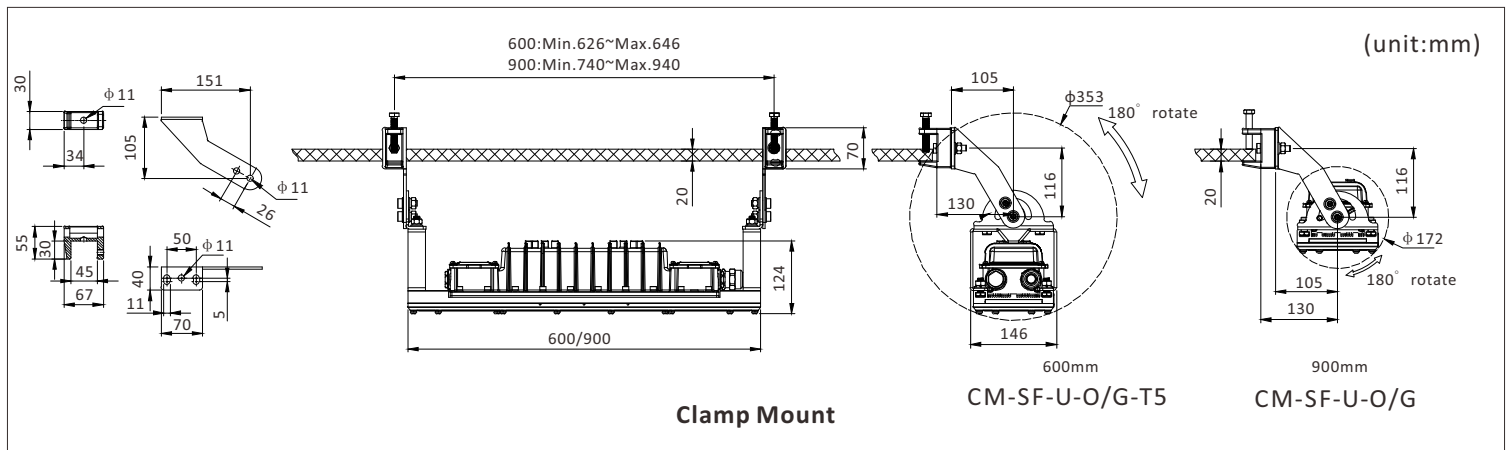
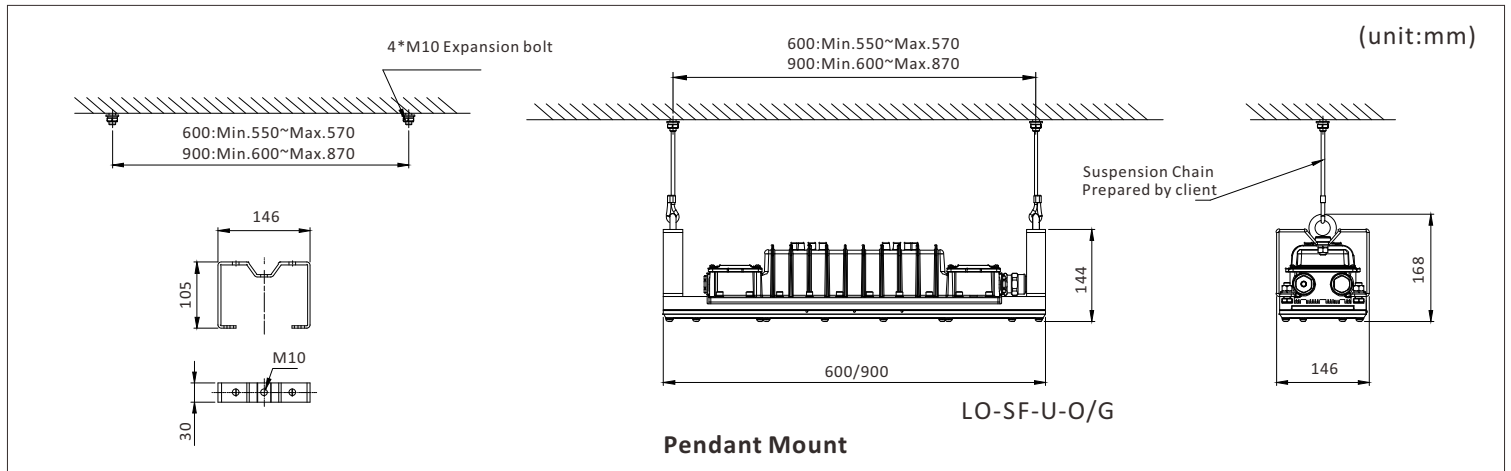
5.2 Emergency indicator status

- The green LED will flash slowly, if the batteries are being charged.
- The green LED will be steady at full charge.
- The red LED will flash quickly if there is a fault or a warning.
- The green LED will be off during emergency mode.
- The red LED and green LED will flash alternately if the battery voltage is less than 8.5V.

06.Installation method

Based on the use of the scene and actual requirements, we have designed the following installation methods for customers to choose from (including but not limited to):





Remarks:

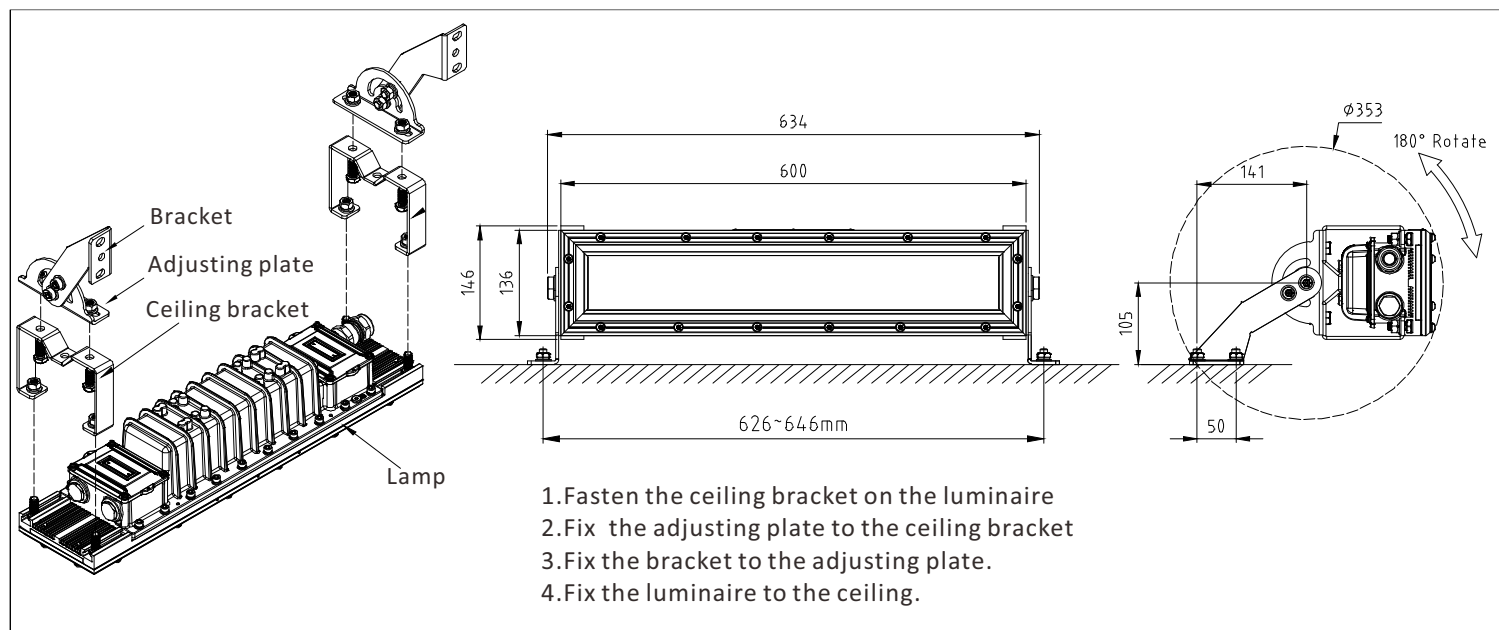
- External grounding cable cross-sectional area is not less than 4mm².
- Entries into enclosures torque of locking cable introduction device 35 N.M~40 N.M.
- Select the cable glands or plug that meets the requirements in the IEC(EN)60079-0 and IEC(EN)60079-1 and the relevant requirements in the IEC(EN)60079-14.

6.1 Installation decomposition

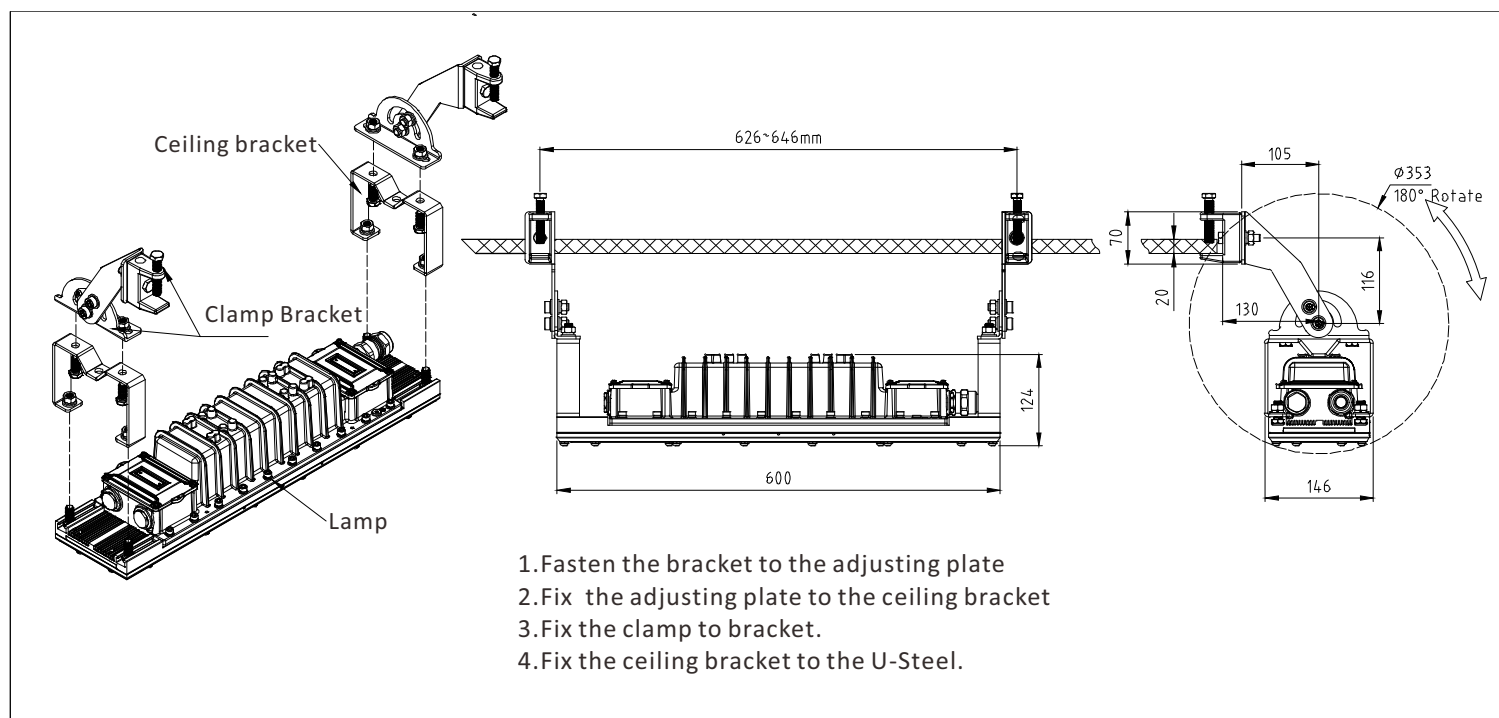
It is the responsibility of the installer to ensure that the apparatus selected is fit for it is intended purpose and that the installation,operation and maintenance of the apparatus complies with applicable regulations, standards or codes of practice. Installation should be carried out in accordance with (IEC)EN60079-14 or with local hazardous area code of practice, whichever is appropriate.

Please refer to the following installation drawing for different installation methods.

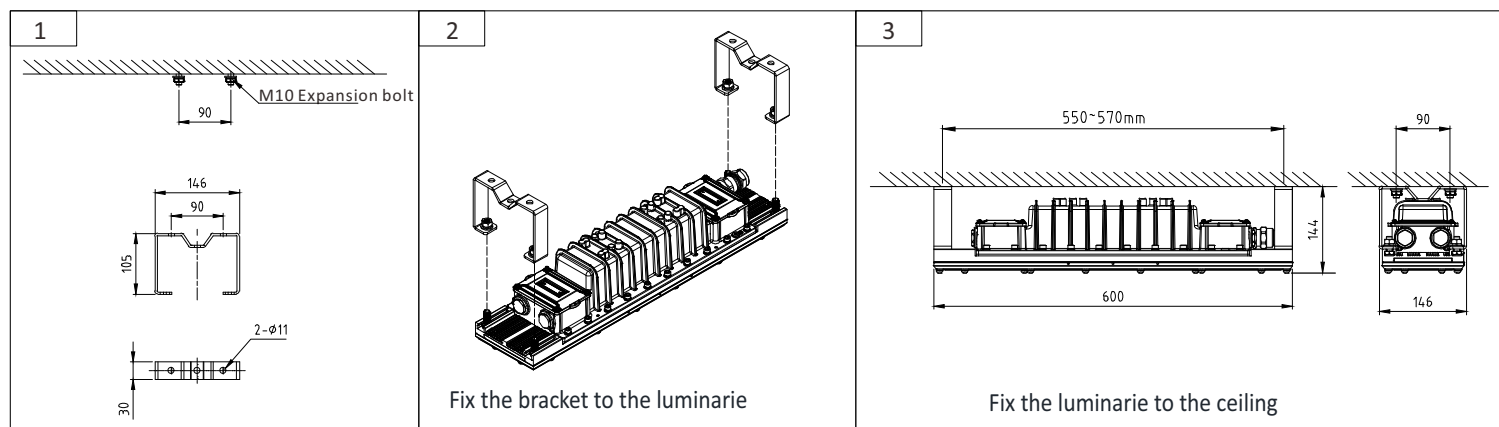
• 6.1.1 Wall mount/Stanchion mount(unit:mm)



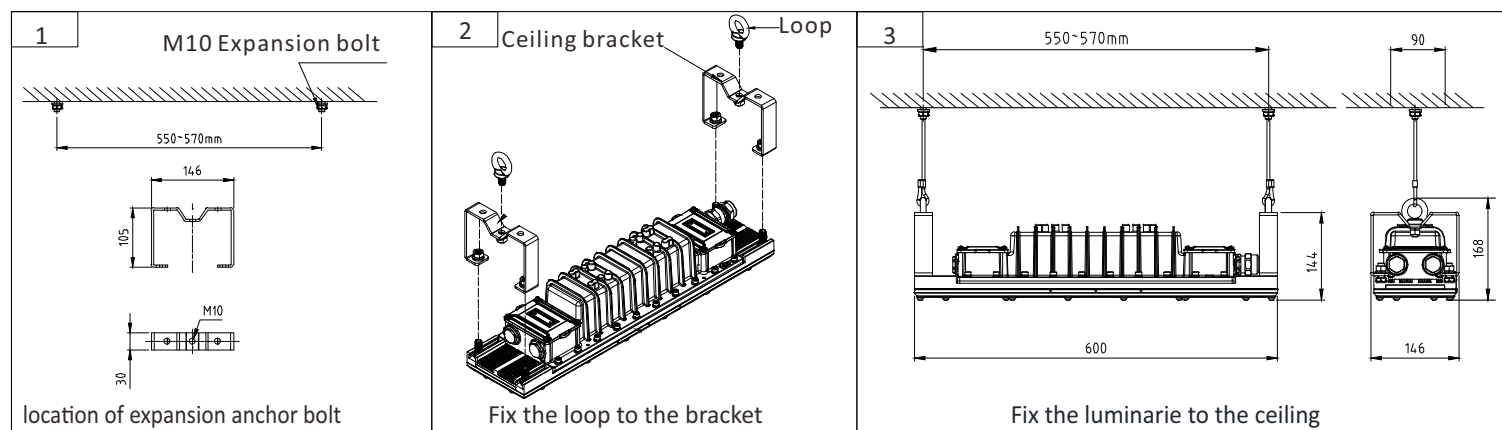
• 6.1.2 Clamp mount(unit:mm)



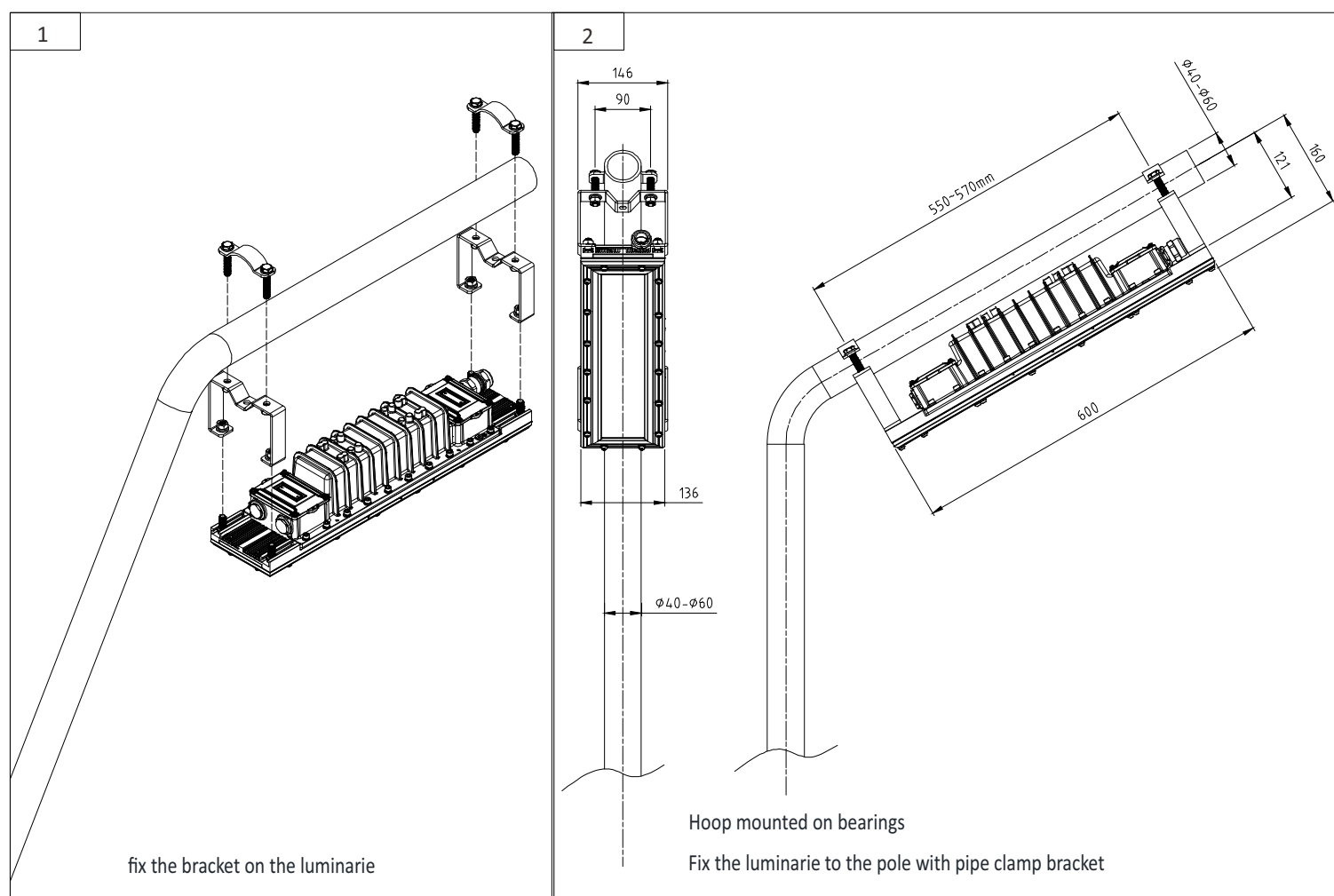
• 6.1.3 Ceiling mount(unit:mm)



• 6.1.4 Pendant mount(unit:mm)



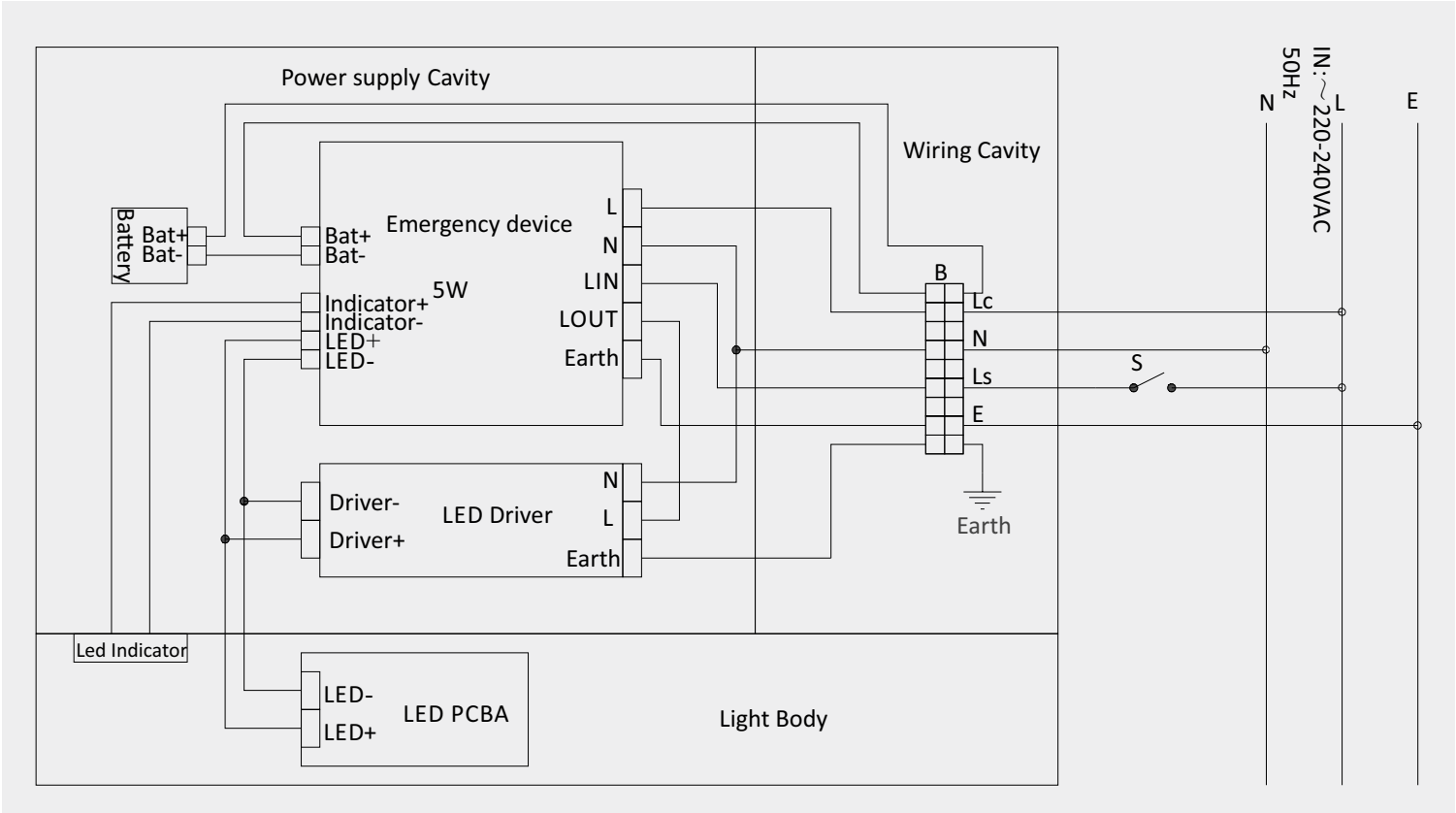
• 6.1.5 Pipe mount(unit:mm)



6.2 Electrical Principles and Connections

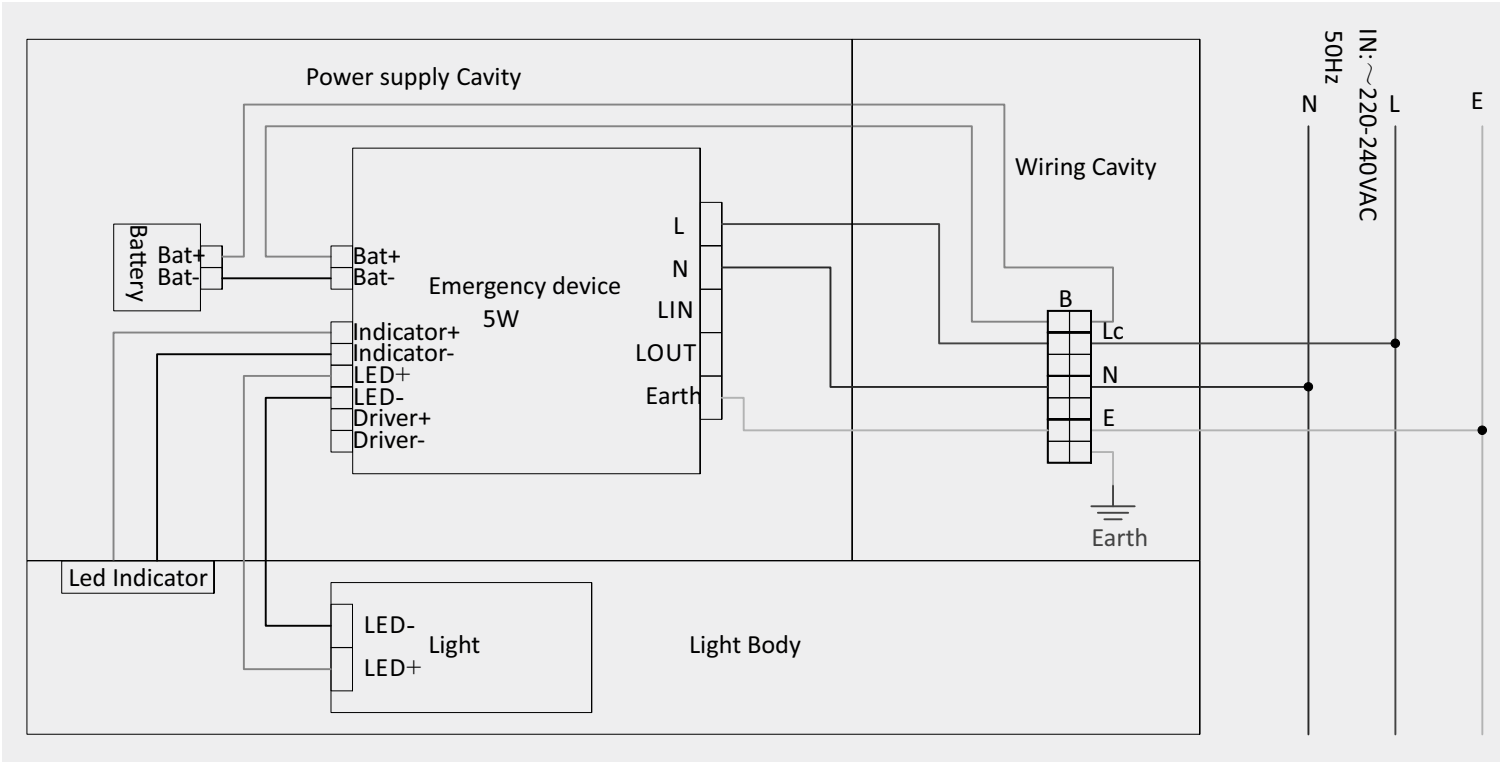
In addition to referring to the relevant contents of this manual, the certified personnel who have obtained the corresponding certificate according to IEC(EN)60079-14 shall strictly comply with the requirements of IEC(EN)60079-14 when installing luminaire. When installed, ensure that the luminaire is effectively grounded (internal or external).

• 6.2.1 Electrical Principles (Emergency ON type)



B	Lc、N	S	LED Light
ON	ON	ON	ON
ON	ON	OFF	OFF
ON	OFF	ON\OFF	ON(Back up by battery)

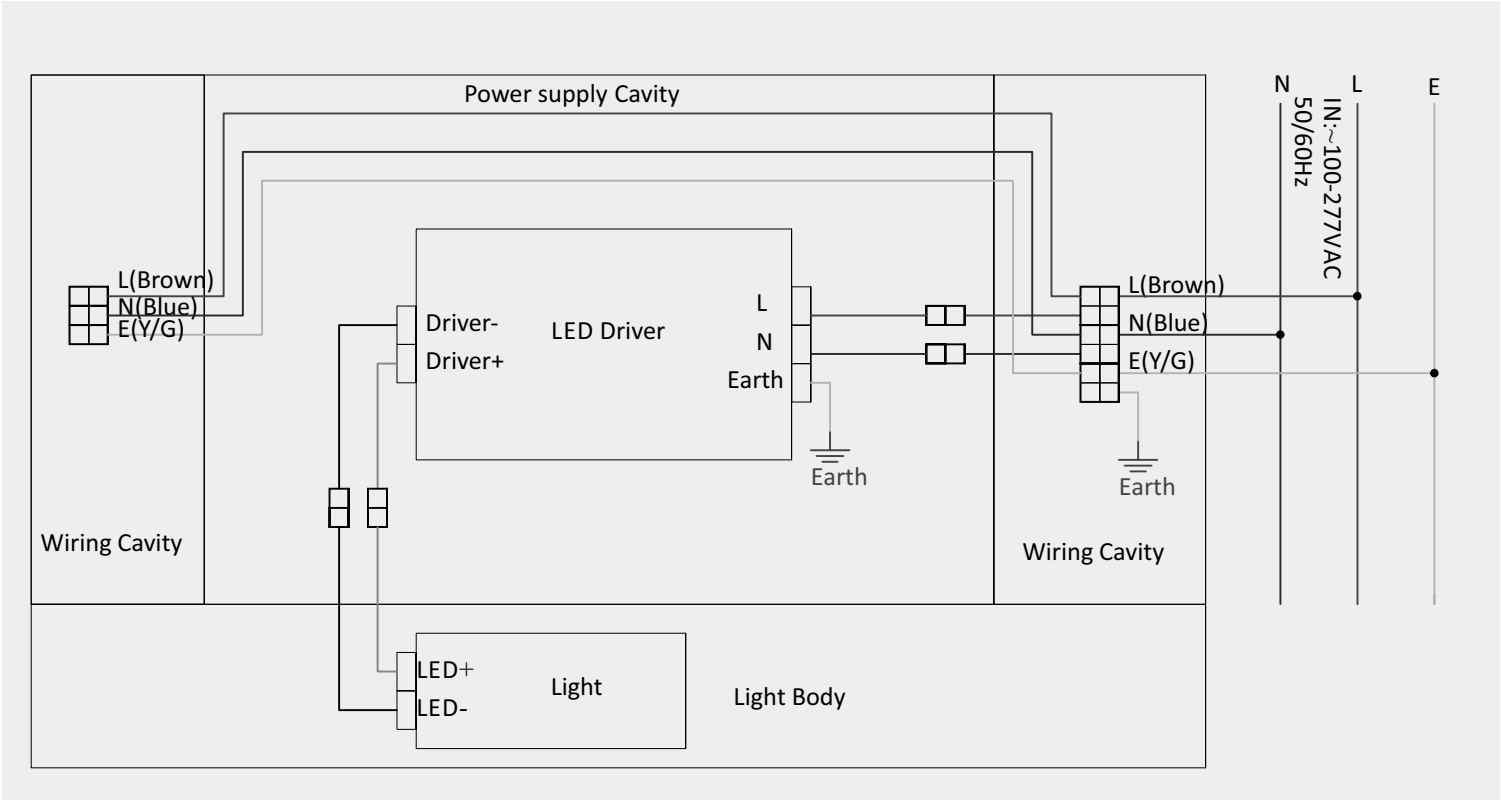
• 6.2.2 Electrical Principles (Emergency OFF type)



B	Lc、 N	LED Light
ON	ON	OFF
ON	OFF	ON(Back up by battery)

Remark:
In order to protect battery, the "B" was turned off after finished production. Turn on "B" during installation, start the emergency function.

• 6.2.3 Electrical Principles(Non Emergency type)



• 6.2.4 Cascade

MCB Type	Rating	18W	36W	48W	56W	72W
B	16A	5	5	5	5	9
C	16A	8	8	8	8	14

According to MCB data sheet, the qty of luminaires in one Parallel connection is calculated at 230VAC

07.Repairs Maintenance

Visual tests and checks should be carried out at intervals described by the appropriate regulations, IEC(EN) 60079-17,and should include the following(including but not limited to).

- Check for mechanical damage/corrosion.
- Check connections, fixings, glands and plugs.
- Check for undue accumulations of dust, dirt or moisture.
- Check for unauthorized modifications.

Periodic inspection of the enclosure seal should be checked out to ensure that the seal is sound.

If the luminaire has been subject to abnormal conditions, for example, severe mechanical impact or chemical spillage, it must be de-energised until it has been inspected by an authorized and competent person.

08.Cleaning of luminaire

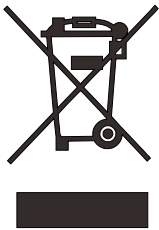
- The complete luminaire (without disassemble) can be cleaned with neutral water solution.
After cleaning, rinse with clean water and wipe dry.
- It is forbidden to use any chemical or hydrocarbon solvent cleaner to clean the diffuser, otherwise serious damage may be caused.
- Please clean the luminaire regularly if it is used under dust environment.

09.Disposal of Material

General
Disposal of the luminaire as waste should be carried out in accordance with national regulations.
Any disposal must satisfy the requirements of the WEEE directive [2012/19/EU] and therefore must not be treated as commercial waste.
The unit is mainly made from incombustible materials.
The control gear contains plastic, resin and electronic components.
All electrical components may give off noxious fumes if incinerated.

9.1 .Battery Disposal

NI-Cd batteries are defined as 'controlled waste' under the hazardous waste regulations and the person disposing needs to observe a 'duty of care'.
They must be stored and transported safely and any necessary pollution control forms completed prior to transportation.
Take care to fully discharge batteries before transporting, or otherwise ensure that there can be no release of stored energy in transit.
For further details refer to our technical department.



To comply with the Waste Electrical and Electronic Equipment directive 2012/19/EU the apparatus cannot be classified as commercial waste and as such must be disposed of or recycled in such a manner as to reduce the environmental impact.

10.Transportation

Weatherproof measures should be taken during transportation.
It is strictly forbidden to load and unload violently, and it is strictly forbidden to drop and roll from high altitude, so as to prevent mechanical damage.



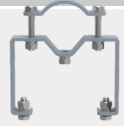




11.Storage

The luminaire should be stored in ventilated, non-dropping and non-liquid warehouse at the temperature of -20°C to +40°C and relative humidity ≤95%RH.
The surroundings should be kept from corrosive gases which may damage metal and insulation.
The battery should be fully charged and discharged at least once every 6 months.

12.Warning

- Do not open when energized.
- The end user shall use more than a 4mm² wire for external earthing purpose.
- End user shall use certified cable glands with suitable type of protection for installation purpose.
- Minimum IP66 for chosen cable glands.
- Clearances and creepage distances should be considered when installing the power cables.
- The specification and installation of power cables must be in accordance with user manual.
The power cable shall be fixed as close as possible to the enclosure of the lamp after installation.
- Clean the luminaire regularly to prevent dust accumulation.
- POTENTIAL ELECTROSTATIC CHARGING HAZARD. Clean only with a damp cloth.

12.Optional Parts

No.	Installation accessories	Part No.	Picture	Material	Weight(Kg)	QTY	Remark
1	Bracket	BR-SF-U-O/G		Q235	0.8	2	Ceiling Mount
2	Loop	LO-SF-U-O/G		Q235	1.2	2	Pendant Mount
3	Pipe Clamp	PCP-SF-U-O/G		Q235	1.8	2	Pipe clamp
4	Stanchion bracket	SBT-SF-U-O/G		Q235	2.6	2	Stanchion mount Wall mount (900mm)
5	Clamp mount	CM-SF-U-O/G		Q235	3	2	Clamp mount (900mm)
6	Stanchion bracket	SBT-SF-U-O/G-T5		Q235	3.4	2	Stanchion mount Wall mount (600mm)
7	Clamp mount	CM-SF-U-O/G-T5		Q235	3.8	2	Clamp mount (600mm)



Contact

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