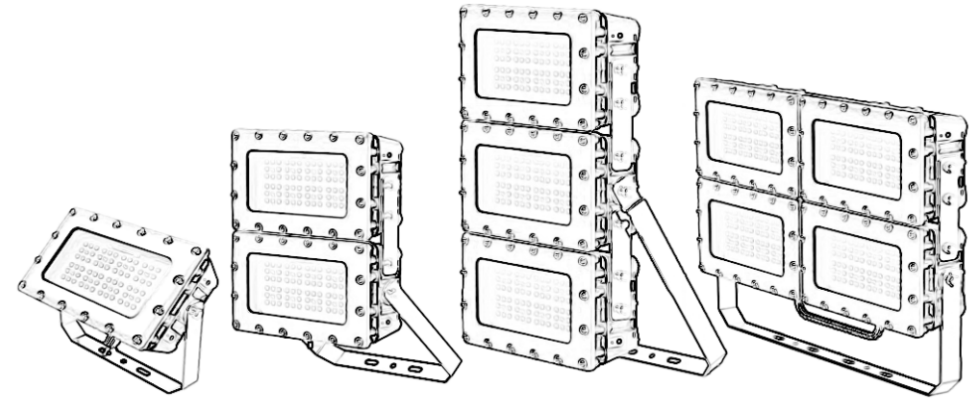




Operation & Maintenance Manual Tank Series-NV2.0



Rev: 02 / 09.05.2023

Contact

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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 db, Ex tb			
Protection Standards	(IEC)EN 60079-0, (IEC)EN 60079-1, (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 Classification	Zone 2 Areas to (IEC)EN 60079-10-1, Zone 22 Areas to (IEC)EN 60079-10-2			
Installation	(IEC)EN 60079-14			
Certificate	TÜV 21 ATEX 8775 X, IECEx TUR 21.0070X			
Equipment Coding	II 2 G Ex db IIC T* Gb II 2 D Ex tb IIIC T* Db IP66			
Temperature Class	Moldes	Ta	T class(Gas)	Dust(°C)
	Basic Unit	-40°C ≤ Ta ≤ +55°C	T5	T85C
		-40°C ≤ Ta ≤ +65°C	T5	T95C
	2 Unit Setup	-40°C ≤ Ta ≤ +55°C	T5	T95C
		-40°C ≤ Ta ≤ +65°C	T4	T105C
	3 Unit Setup	-40°C ≤ Ta ≤ +55°C	T4	T100C
		-40°C ≤ Ta ≤ +65°C	T4	T110C
	4 Unit Setup	-40°C ≤ Ta ≤ +55°C	T5	T95C
		-40°C ≤ Ta ≤ +65°C	T4	T105C
	2 Unit Setup with battery	-40°C ≤ Ta ≤ +43°C	T6	T80C
-40°C ≤ Ta ≤ +55°C		T5	T95C	
ATEX Coding	II 2 G / II 2 D			
Ingress Protection	IP66 (IEC)EN 60529			
Cable Entry	M20*1.5, M25*1.5, NPT1/2, NPT3/4"			
CE Mark	The CE marking of this product applies to EU directives 2014/35/EU, 2014/30/EU, 2012/19/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-Tank Series LED light ATEX and IECEx

- This user manual covers the range of ATEX and IECEx Tank 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.
- Tank Series LED are available from 80W to 480W, providing ideal solutions for a wide range of harsh and hazardous applications.

02.Electrical Supplies

2.1 Single Luminaires

Size:332*212*145mm			
Voltage Range(AC)	100-277VAC (standard) ,20-30VAC/DC, 347-480VAC		
Frequency Range(Hz)	50/60Hz		
Power Watts(W)	80W	100W	120W
Standard Current Range(A)	0.28~0.8	0.36~1.0	0.43~1.2

2.2 Two Luminaires assembly

Size:426*348*145mm			
Voltage Range(AC)	100-277VAC (standard),20-30VAC/DC, 347-480VAC		
Frequency Range(Hz)	50/60Hz		
Power Watts(W)	160W	200W	240W
Standard Current Range(A)	0.57~1.6	0.72~2.0	0.86~2.4

Emergency parameters	
Voltage Range(AC)	100-277VAC
Battery	9.6V 4.0Ah, Ni-MH
Emergency Duration	≥180minute
Emergency power	10W
Charge time	>24hours
Power Factor	≥0.89

2.3 Three Luminaires assembly

size:640*348*145mm			
Voltage Range(AC)	100-277VAC (standard),347-480VAC		
Frequency Range(Hz)	50/60Hz		
Power Watts(W)	240W	300W	360W
Standard Current Range(A)	0.86~2.4	1.08~3.0	1.3~3.6

2.4 Four Luminaires assembly

Size:687*426*145mm			
Voltage Range(AC)	100-277VAC (standard) ,347-480VAC		
Frequency Range(Hz)	50/60Hz		
Power Watts(W)	320W	400W	480W
Standard Current Range(A)	1.15~3.2	1.44~4.0	1.73~4.8

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 5.
- 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:
 - Clean diffuser only with damp cloth
 - 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.
 - De-rating of the surface temperature will be required where dust clouds may be present
 - Do not allow dust to accumulate in layers
 - 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. 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.



Isolate mains before removing cover



Install in a well ventilated area



Do not continually stare at lamp

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.

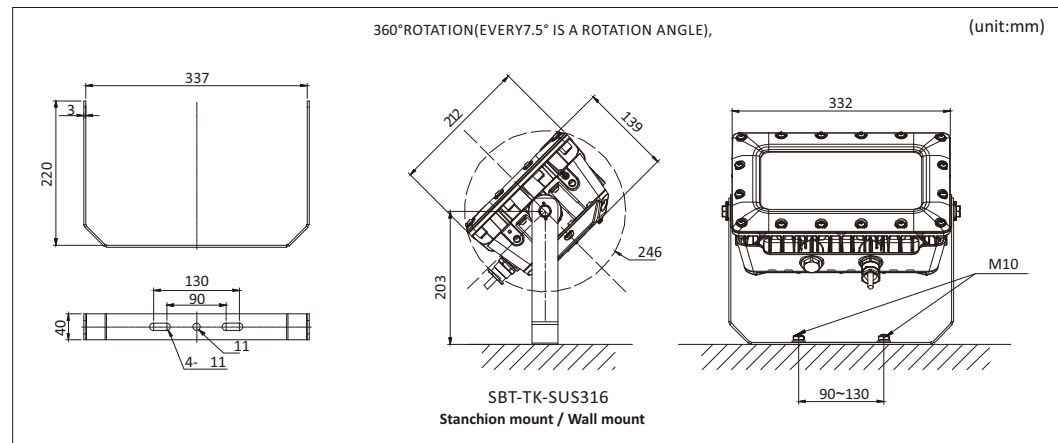
5.2 LED display

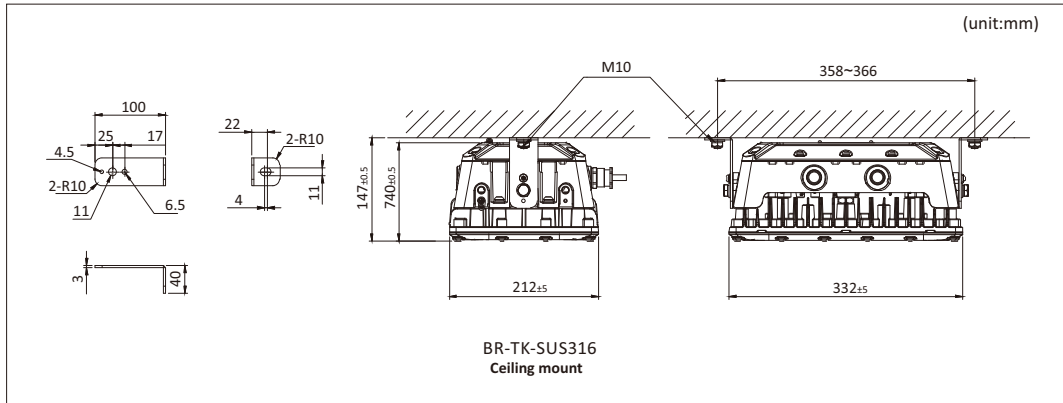
- The green LED will flash slowly, if the batteries are being charged.
- The green LED will be steady at full charge.
- The red LED will flash quickly if there is a fault or a warning.
- The green LED will be off during emergency mode.
- The red LED and green LED will flash alternately if the battery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

06.Installation Method

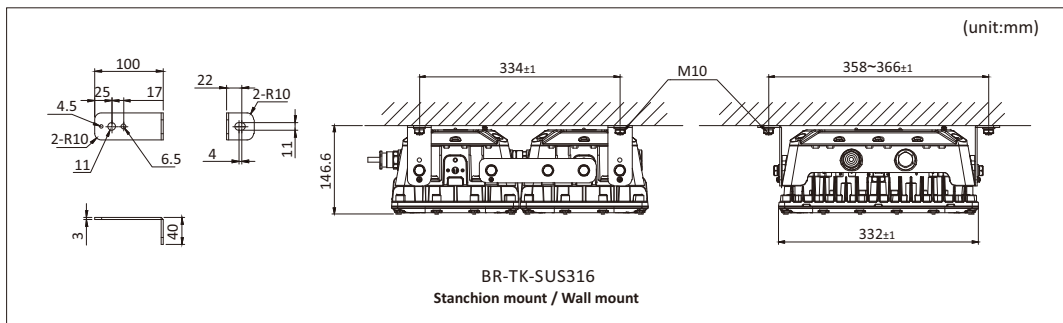
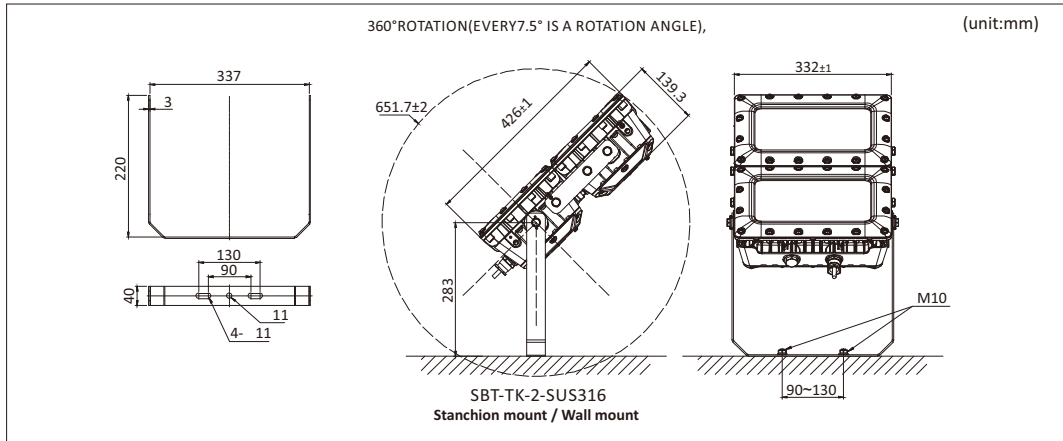
Based on the use of the scene and actual requirements, we have designed the following installation methods for customers to choose from (including but not limited to) :

6.0.1 Single lamp

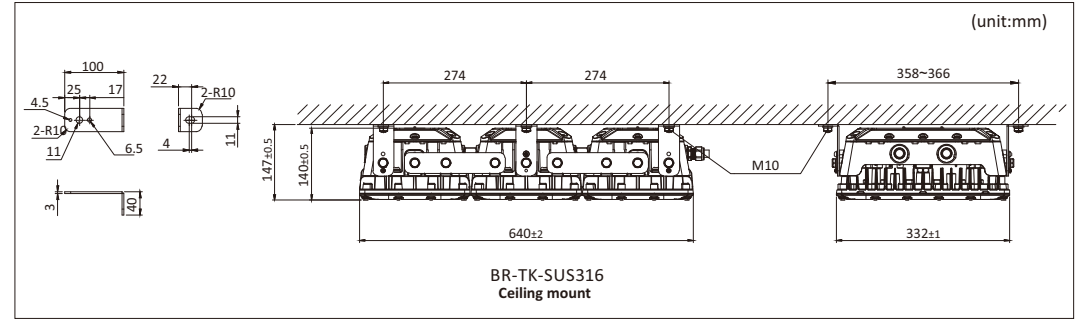
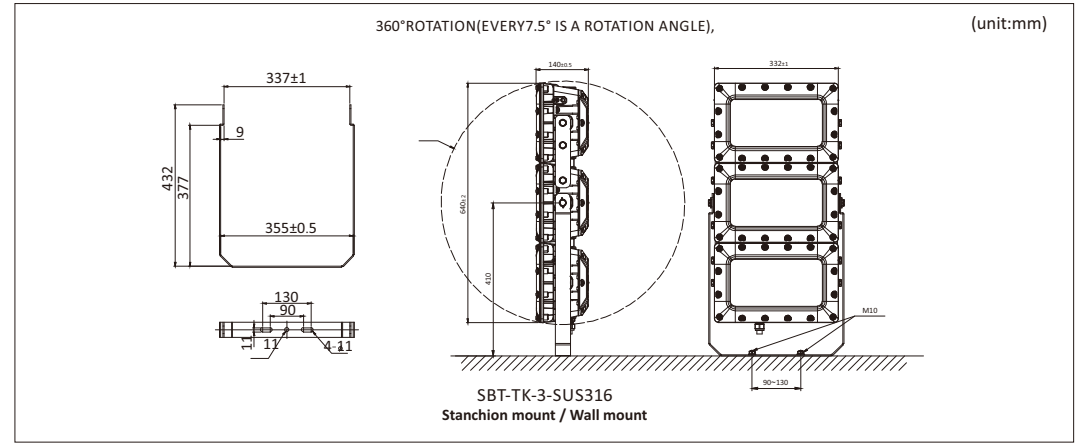




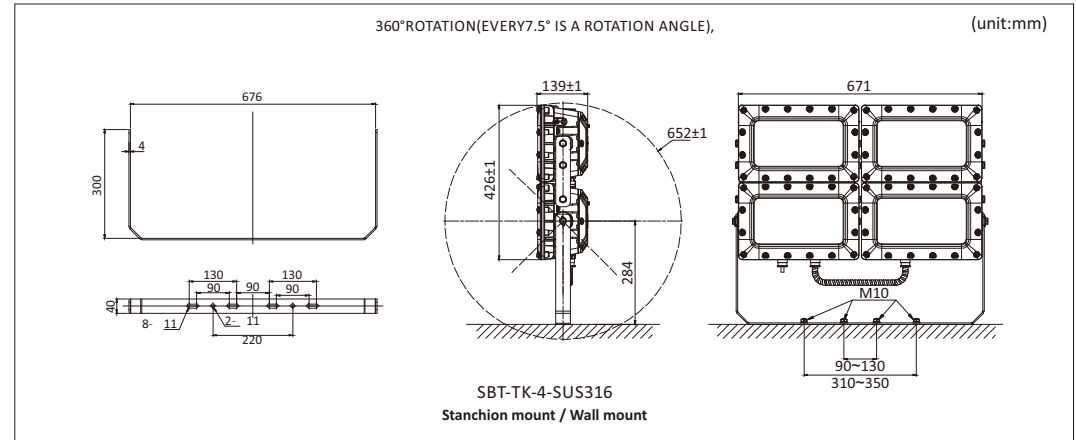
6.0.2 Two lamp

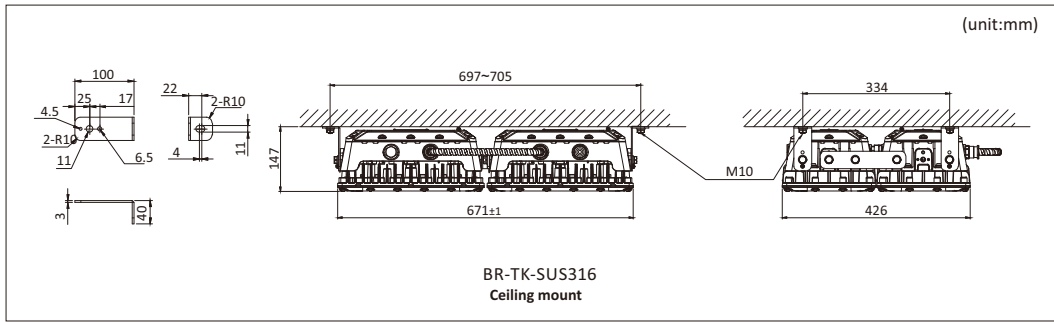


6.0.3 Three lamp



6.0.2 Four lamp





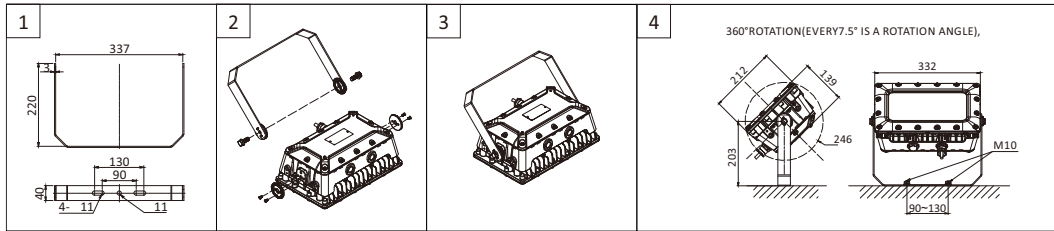
- Remarks:
- External grounding cable cross-sectional area is not less than 4mm².
 - Entries into enclosures torque of locking cable introduction device 35 N.M~40 N.M.
 - Select the cable glands or plug that meets the requirements in the (IEC)EN60079-0 and (IEC)EN60079-1 and the relevant requirements in the (IEC)EN60079-14.

6.1 Installation Decomposition

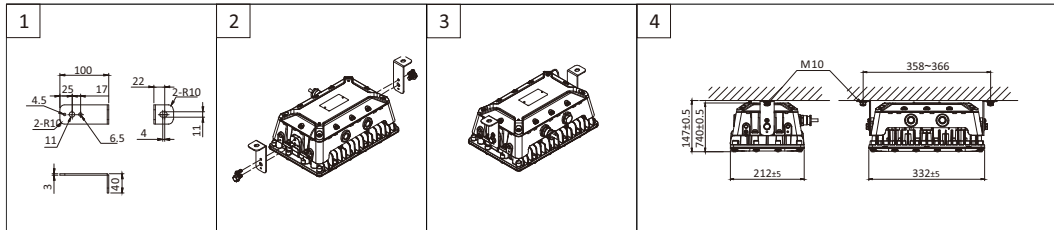
It is the responsibility of the installer to ensure that the apparatus selected is fit for its intended purpose and that the installation, operation and maintenance of the apparatus complies with applicable regulations, standards or codes of practice. Installation should be carried out in accordance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

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

6.1.1 Stanchion mount / Wall mount (unit:mm)



6.1.2 Ceiling mount (unit:mm)

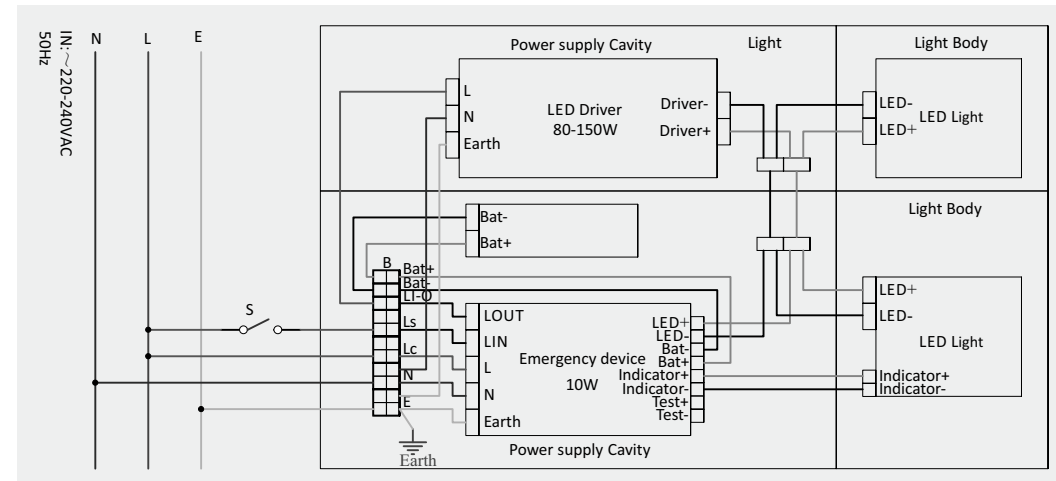


6.2 Electrical Principles and Connections

In addition to referring to the relevant contents of this manual, the certified personnel who have obtained the corresponding certificate according to (IEC)EN60079-14 shall strictly comply with the requirements of (IEC)EN60079-14 when installing luminaire.

When installed, ensure that the luminaire is effectively grounded (internal or external).

6.2.1 Electrical Principles for emergency luminaires

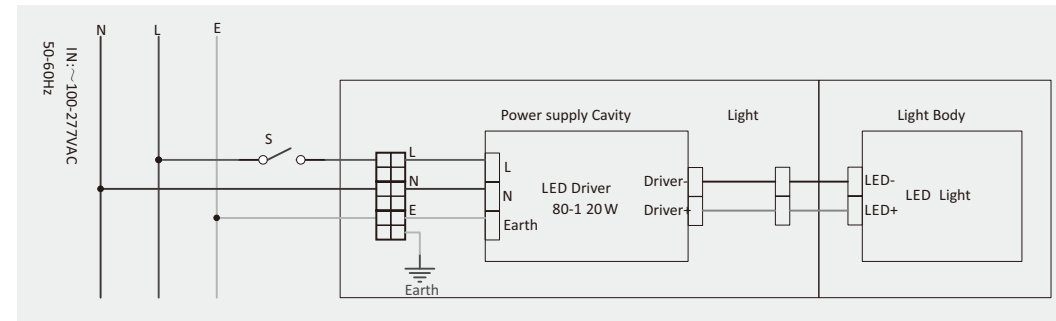


- Remark:
In order to protect battery, the "B" was turned off after finished production. Turn on "B" during installation, start the emergency function.

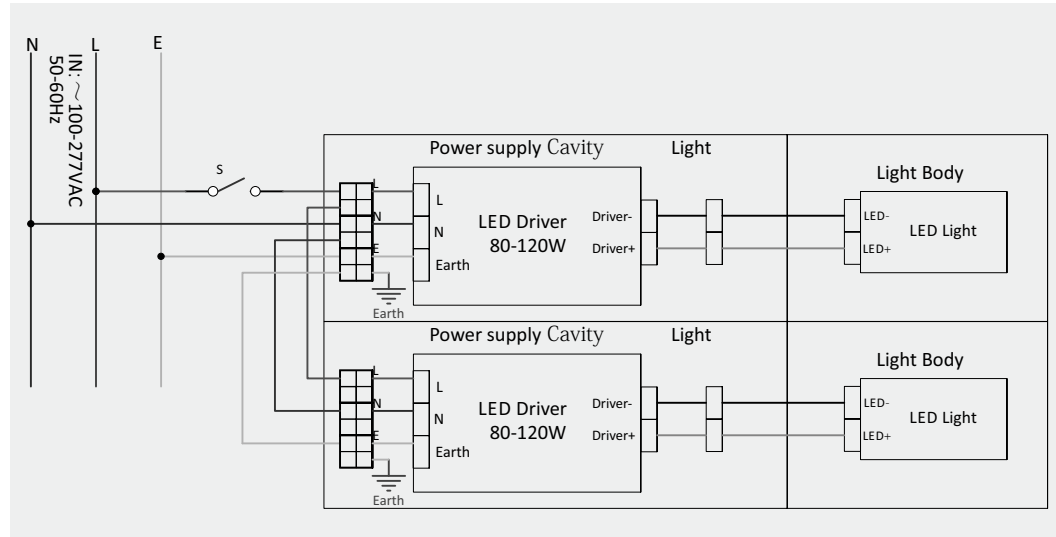
B	Lc,N	S	Light
ON	ON	ON	ON
ON	ON	OFF	OFF
ON	OFF	ON/OFF	ON(Back up by battery)

6.2.2 Electrical Principles for normal luminaires

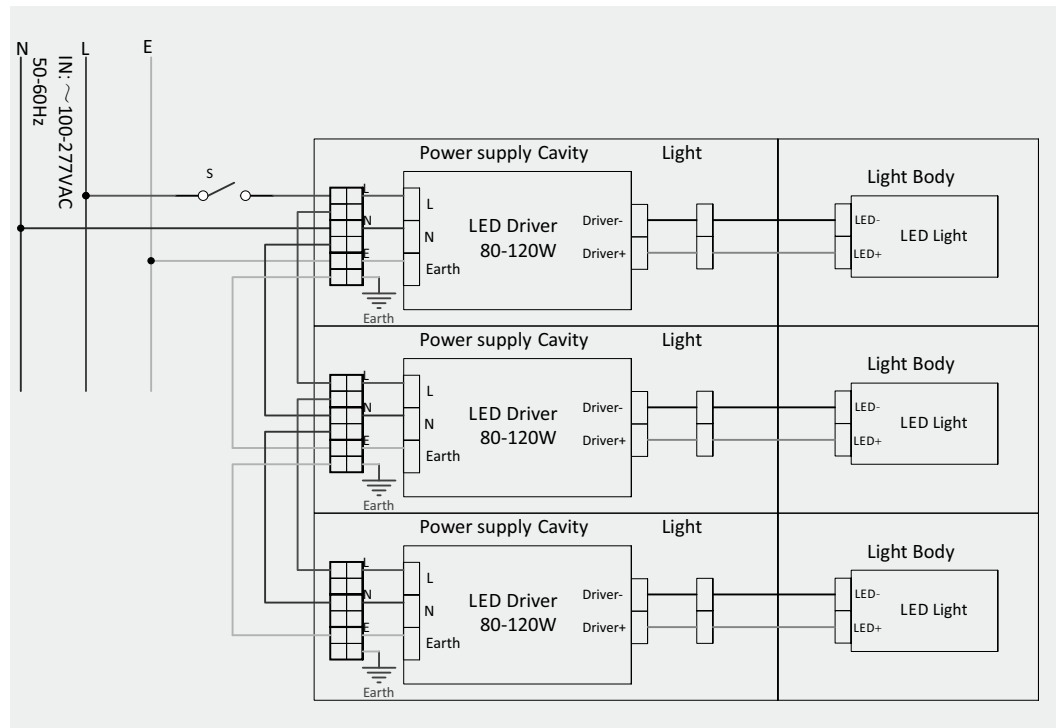
Single lamp



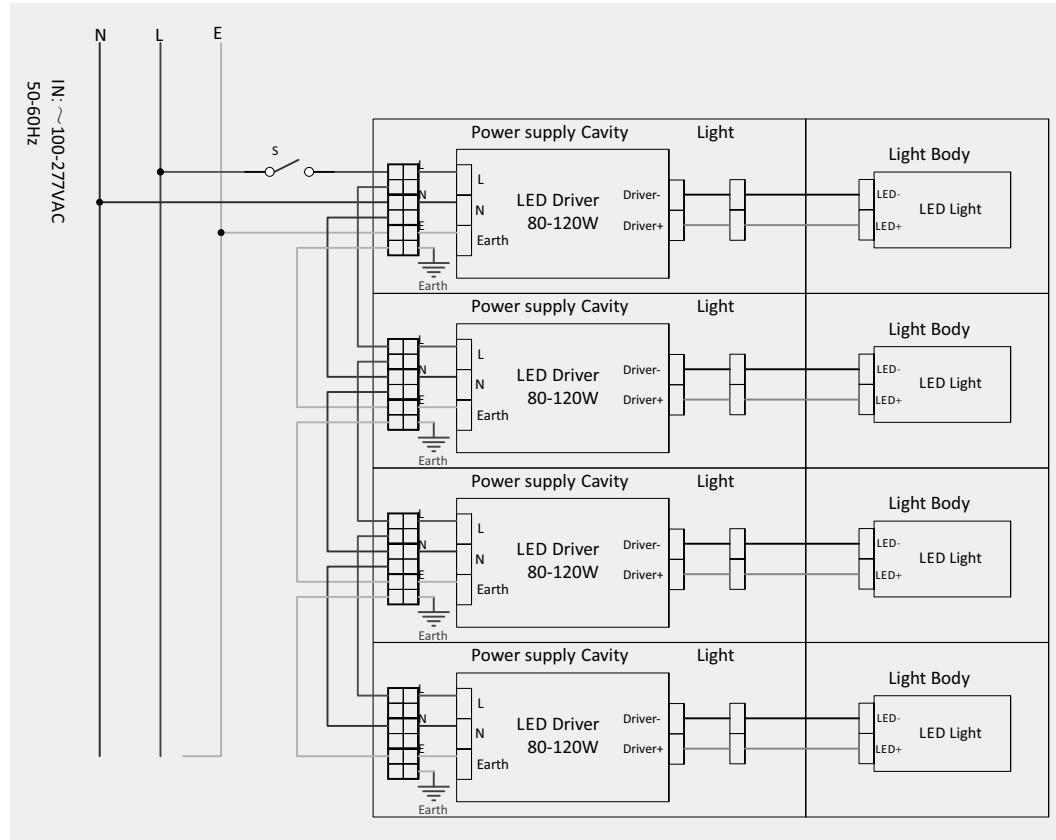
Two lamp



Three lamp



Four lamp



6.3 Cascade

MCB Type	Rating	80W	100W	120W
B	16A	3	4	4
C	16A	6	7	7

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.
- Clean the luminaire regularly to prevent dust accumulation.

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

- 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.
- Use only replaceable battery pack of HRH26/51(C) 4000TX8 9.6V.
- Clean the luminaire regularly to prevent dust accumulation.
- All maintaining and repairing must be carried out by the qualified staff recognized by the manufacturer.
- POTENTIAL ELECTROSTATIC CHARGING HAZARD.

13.Optional Parts

No.	Installation accessories	Part No.	Picture	Material	Weight(Kg)	QTY		Remark
1	Ceiling bracket	BR-TK-SUS316		SUS316	0.4	Single lamp	1	
						Two lamp	2	
						Three lamp	2	
						Four lamp	2	
2	Stanchion bracket	SBT-TK-SUS316		SUS316	0.8	1		
3	Stanchion bracket	SBT-TK-2-SUS316		SUS316	1	1		
4	Stanchion bracket	SBT-TK-3-SUS316		SUS316	1.6	1		
5	Stanchion bracket	SBT-TK-4-SUS316		SUS316	2	1		