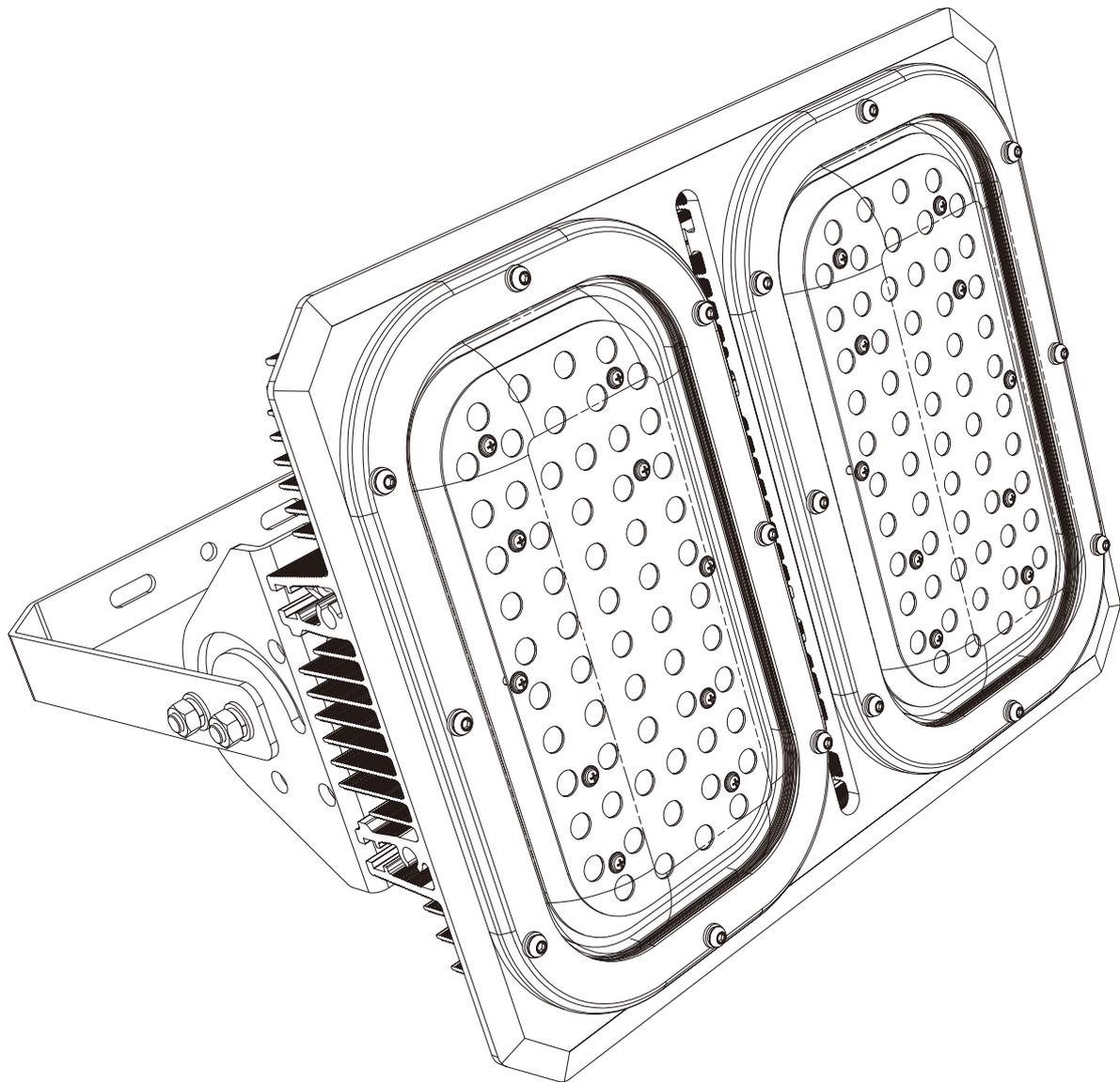


## Operation & Maintenance Manual K Polarbear Series-NV2.0



**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 nR,Ex tc					
Protection Standards	(IEC)EN 60079-0, (IEC)EN 60079-15,(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	LCIE 14 ATEX 1014 X, IECEx CQM 13.0044X					
Equipment Coding	Ex nR IIC T* Gc Ex tc IIIC T* Dc IP66					
Temperature Class	Rated power (W)	Rated Voltage	-40°C ≤ Ta ≤ +40°C		-40°C ≤ Ta ≤ +55°C	
			Gas	Dust	Gas	Dust
	80W	100~130VAC 220~240VAC 50/60Hz	T6	T80°C	T5	T95°C
	120W					
	160W					
200W						
240W	T5	T95°C	T4	T130°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 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-Polarbear series LED light ATEX and IECEx

- This user manual covers the range of ATEX and IECEx Polarbear series LED luminaire. These luminaires are constructed with corrosion resistant epoxy coated copper free aluminum alloy body and high impact resistance tempered glass diffuser.
- Polarbear series LED are available from 80W to 240W, providing ideal solutions for a wide range of harsh and hazardous applications.

## 02.Electrical Supplies

	Small size:400*210mm	Medium size:400*260mm		Large size:400*500mm	
Voltage Range(AC)	100~130VAC,220~240VAC				
Frequency Range(Hz)	50/60Hz				
Power Watts(W)	80W	120W	160W	200W	240W
Standard Current Range(A) 100~130VAC	0.62~0.8	0.92~1.2	1.23~1.6	1.54~2.0	1.85~2.4
Standard Current Range(A) 220~240VAC	0.33~0.36	0.5~0.55	0.67~0.73	0.83~0.91	1~1.1

## 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:
  - 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 specification changes as required without notice.
- 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 5 for installation mode and method.

### 3.3 Cabling and Cable Gland

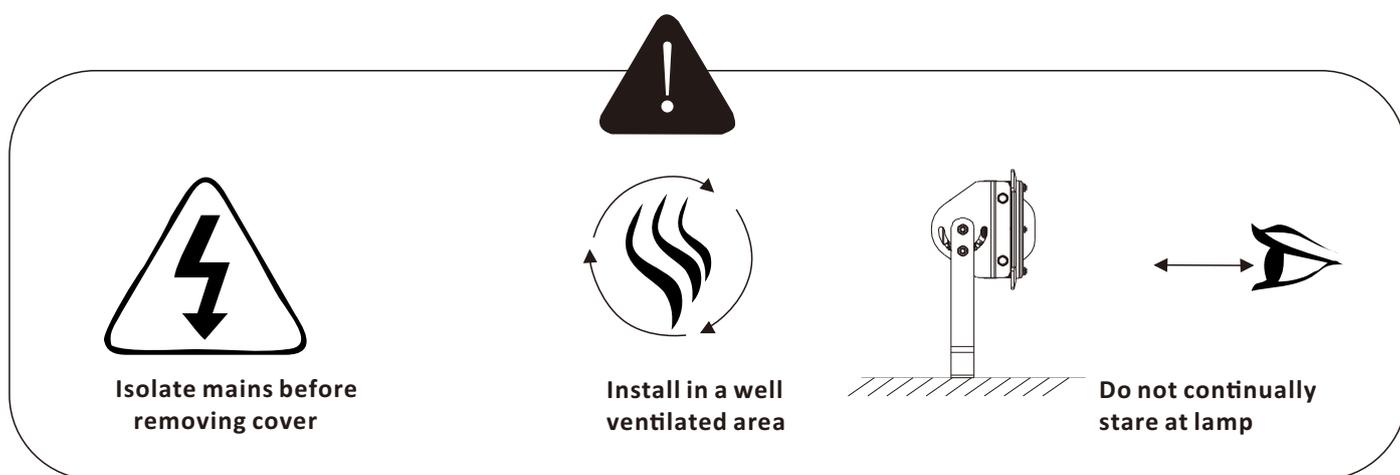
- The temperature conditions at the supply cable entry point are such that 90°C (ordinary PVC) cable can be used.
- Equipment certified cable gland and sealing plugs must have suitable IECEx / ATEX approval.  
When installed the cable gland or sealing plug should maintain the IP rating of the enclosure IP66.
- Installation requirements are detailed in the "remarks" part of Clause 5.

### 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 5.2.1 and 5.2.2.  
The maximum amount of insulation allowed beyond the throat of the terminal is 4mm<sup>2</sup>.
- The normal method of insulation testing is to connect Live and Neutral together and test between this point.  
However, if this is not possible, the 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.

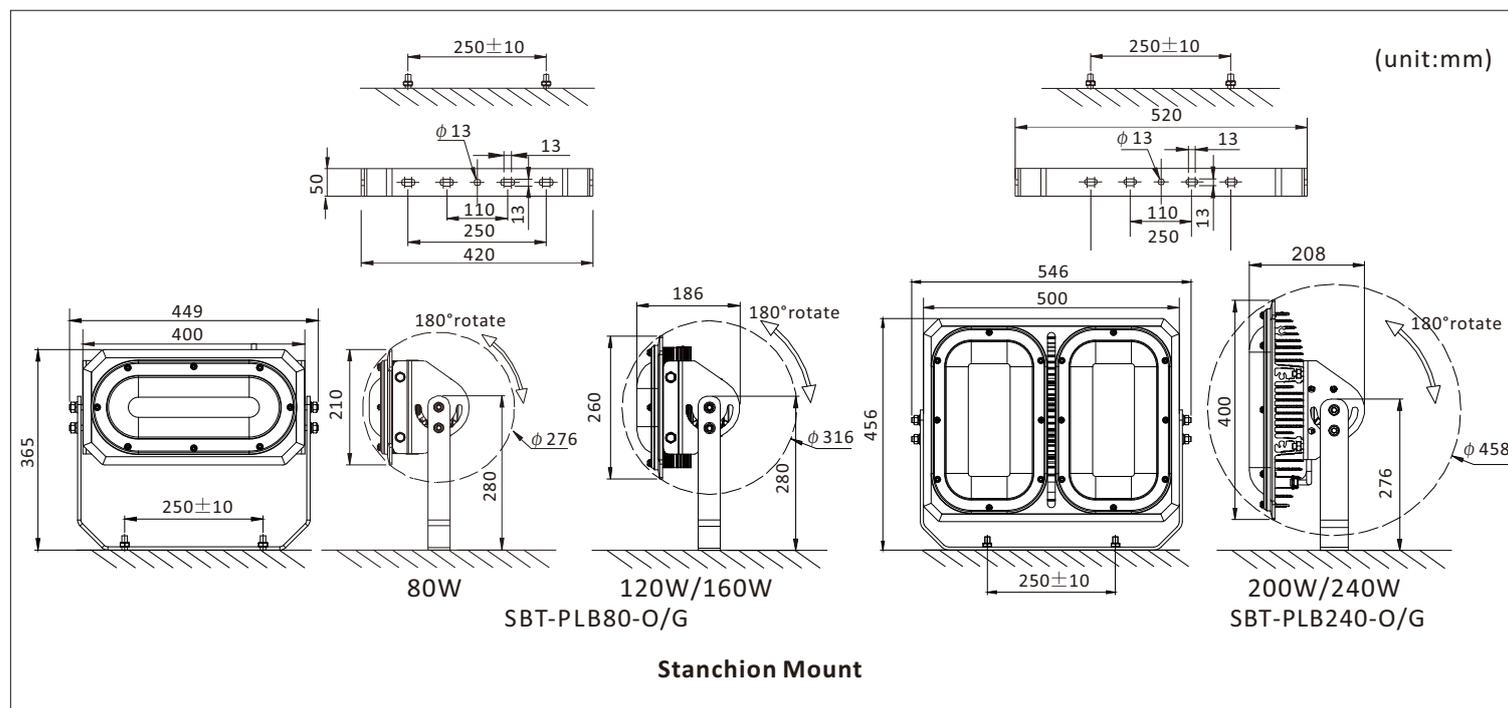
## 04.Safety instruction

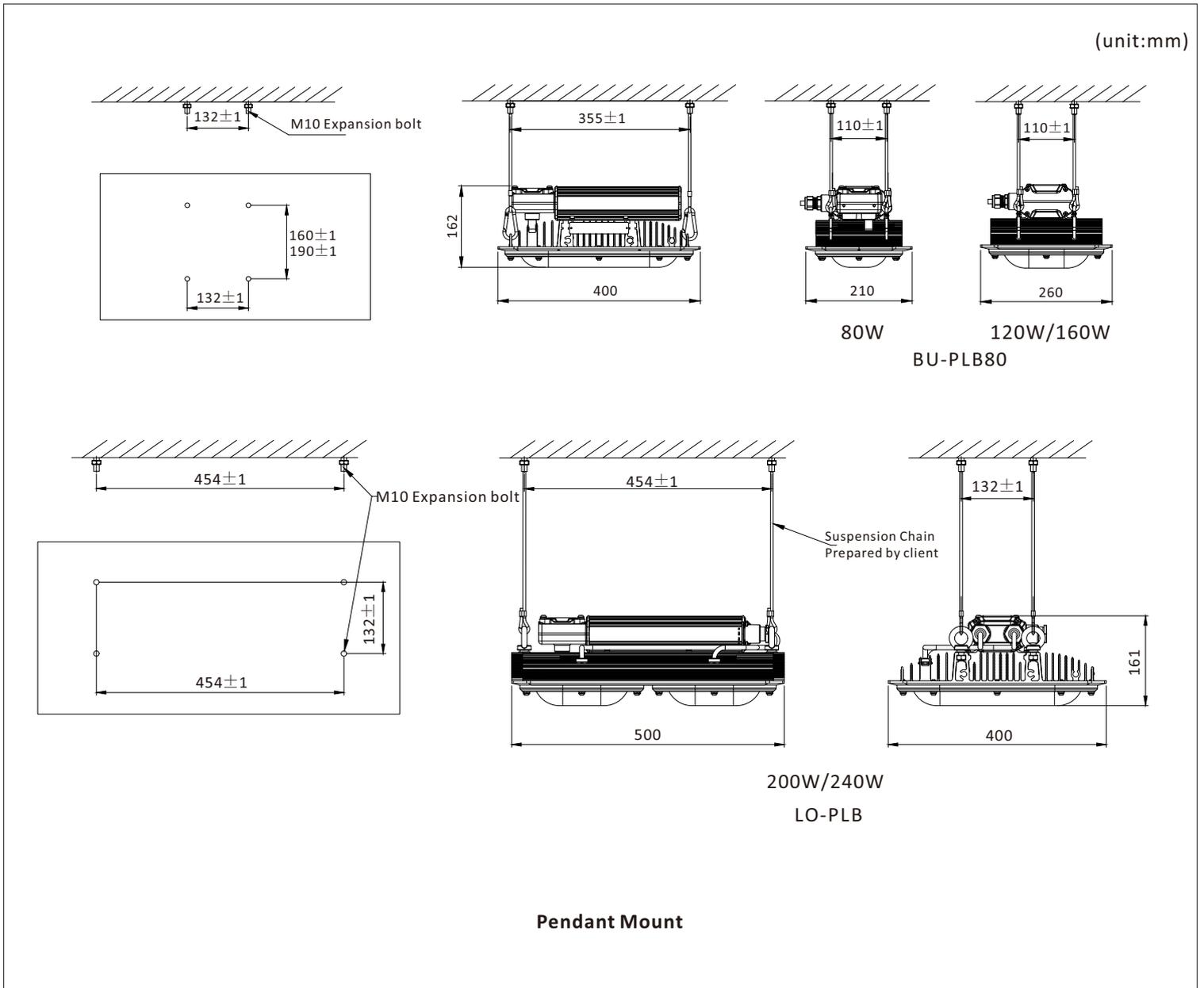
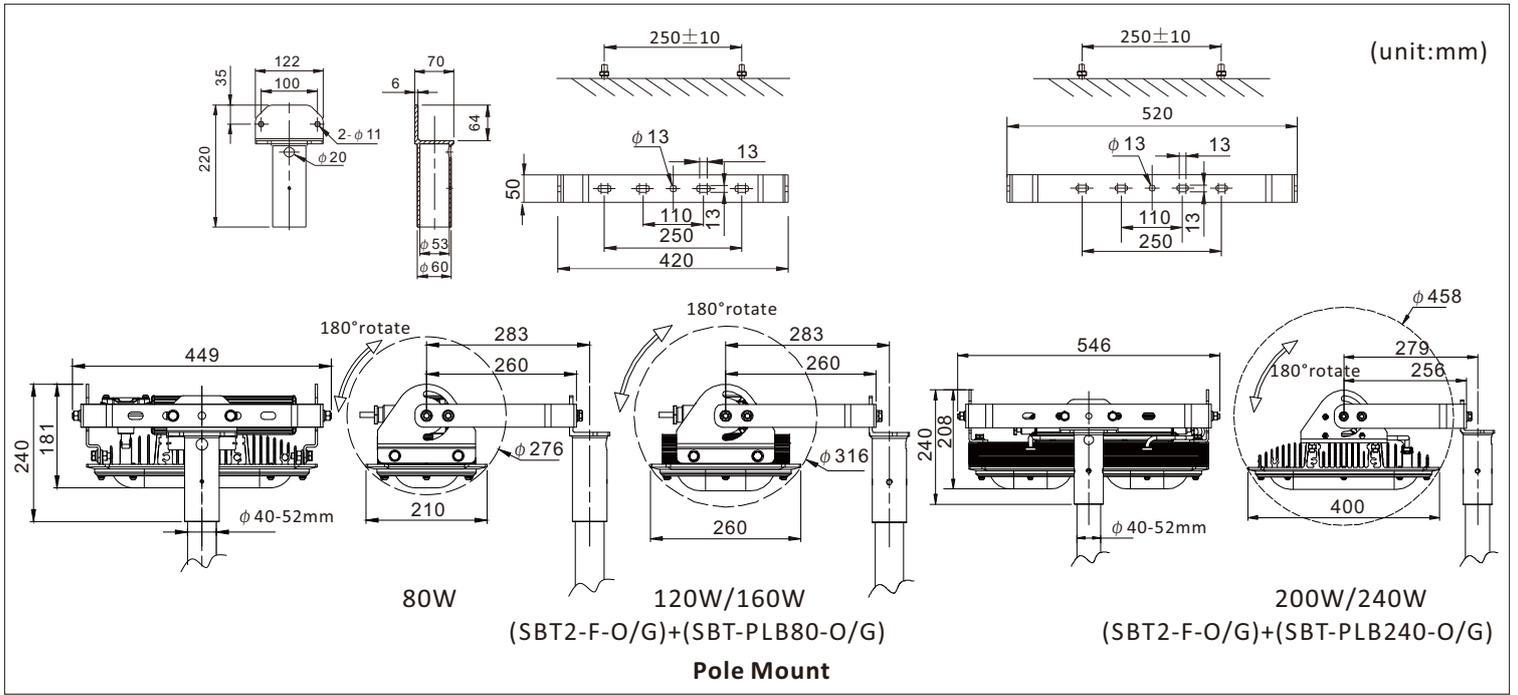
- Read this leaflet carefully before commencing to install the luminaire unit and retain it for future use. Installation can only be carried out by suitably qualified personnel.
- Check the certification to ensure that the Zone, mains supply, ambient temperature present and "T" rating are suitable for 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.
- External fasteners must have a yield strength of at least 450 MPa .
- On Zone 2 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.

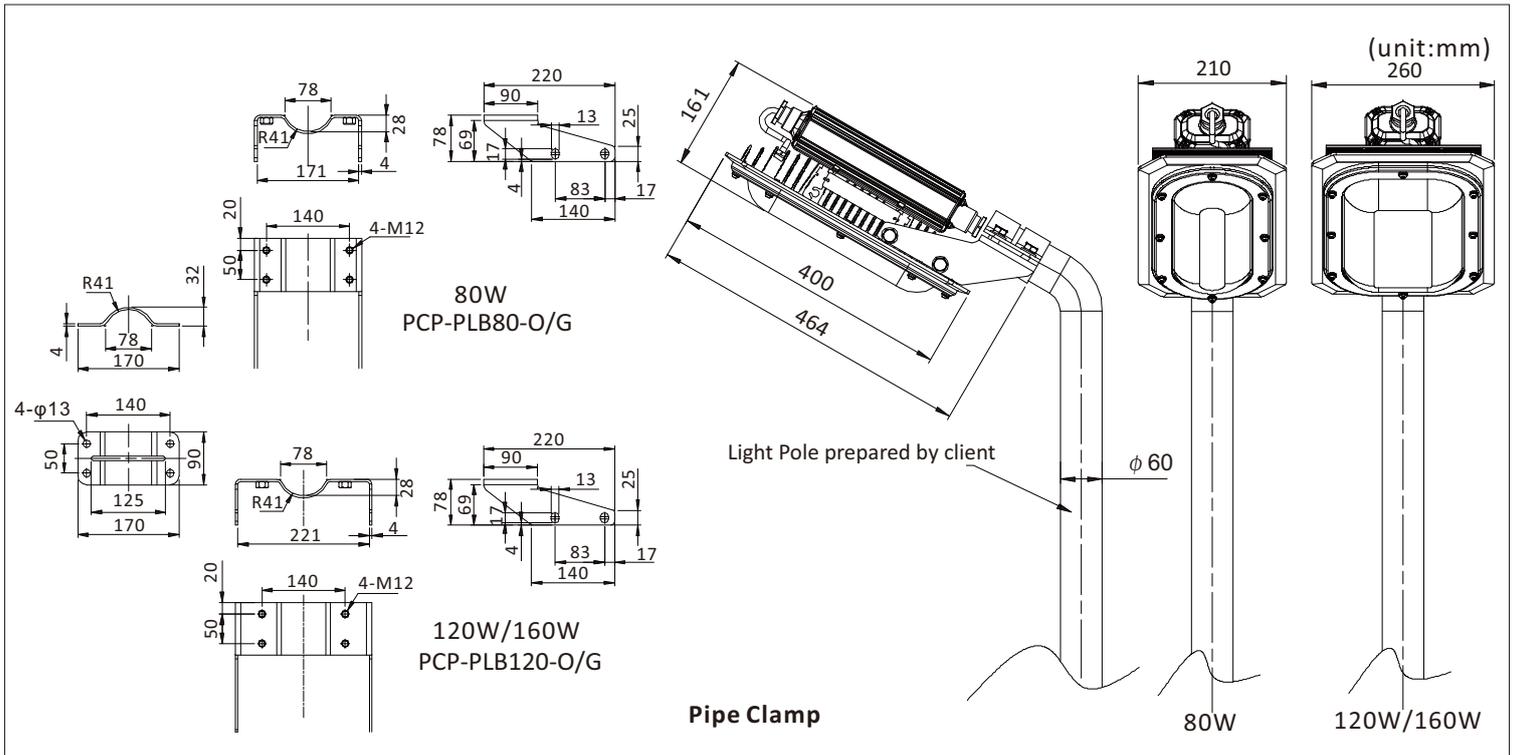


## 05.Installation method

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:**

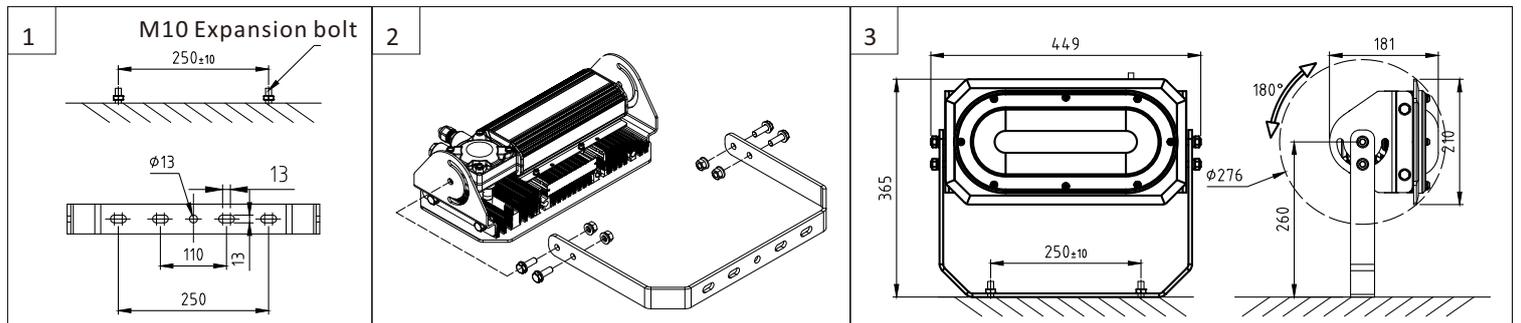
- External grounding cable cross-sectional area is not less than 4mm<sup>2</sup>.
- Entries into enclosures torque of locking cable introduction device 35 N.M~40 N.M.
- Select the cable glands or plug that meets the requirements in the IEC(EN)60079-0 and IEC(EN)60079-1 and the relevant requirements in the IEC(EN)60079-14.

**5.1 Installation decomposition**

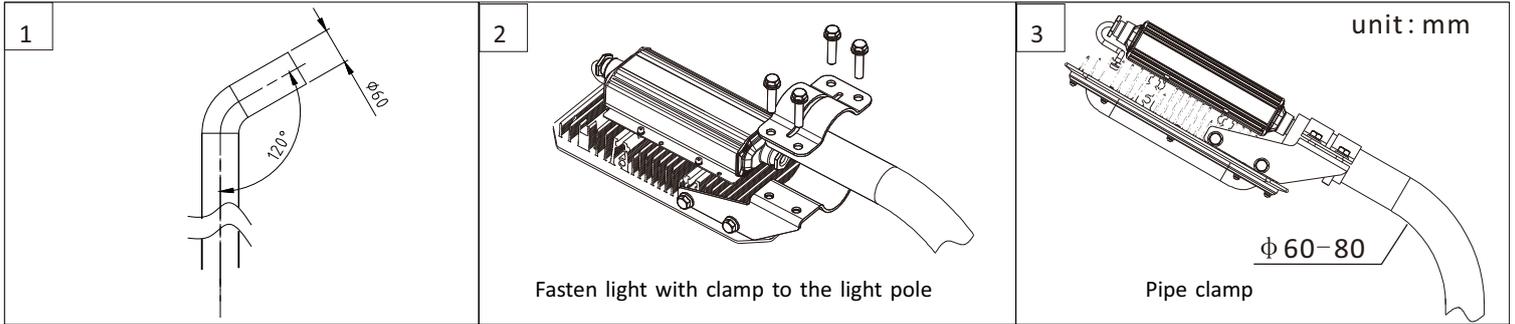
It is the responsibility of the installer to ensure that the apparatus selected is fit for its intended purpose and that the installation, operation and maintenance of the apparatus complies with applicable regulations, standards or codes of practice. Installation should be carried out in accordance 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.

- 5.1.1 Wall mount/Stanchion mount(unit:mm)

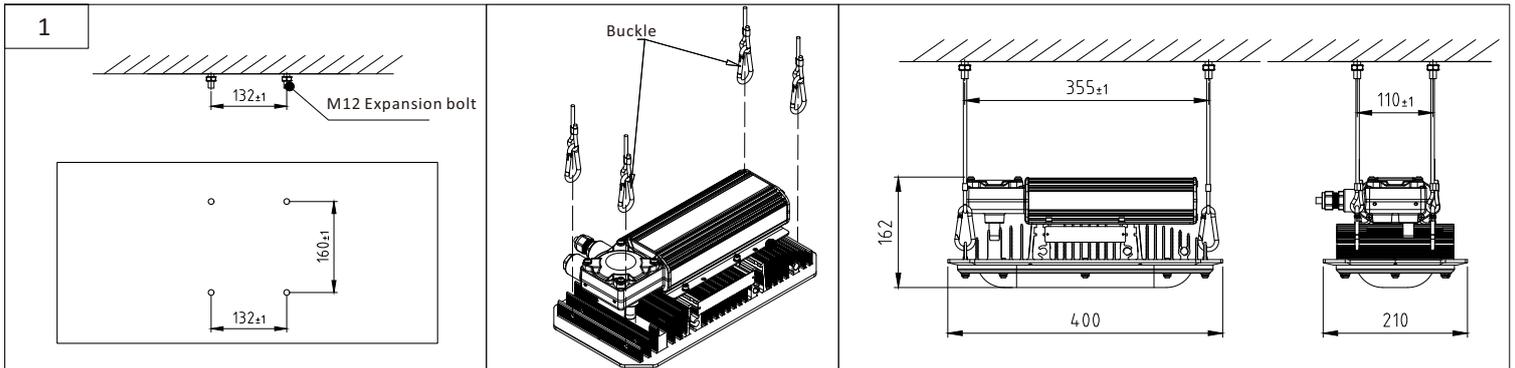


• 5.1.2 Pipe Clamp(unit:mm)

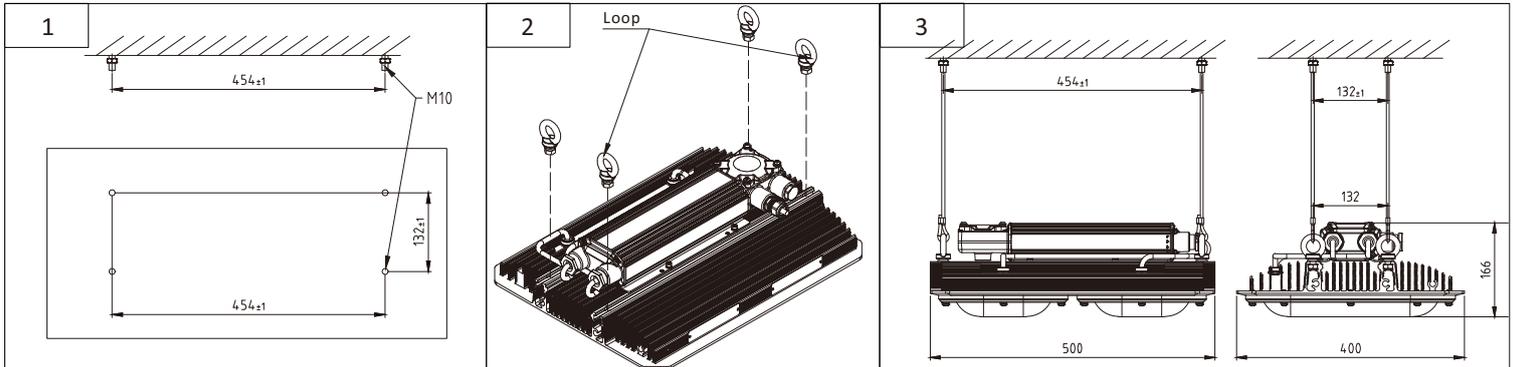


• 5.1.3 Pendant mount (unit:mm)

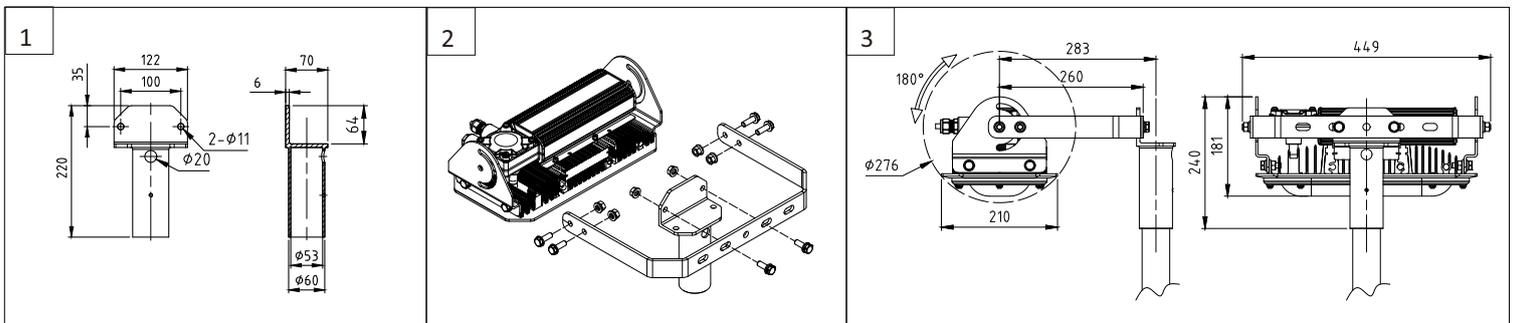
80W,120W,160W



200W,240W



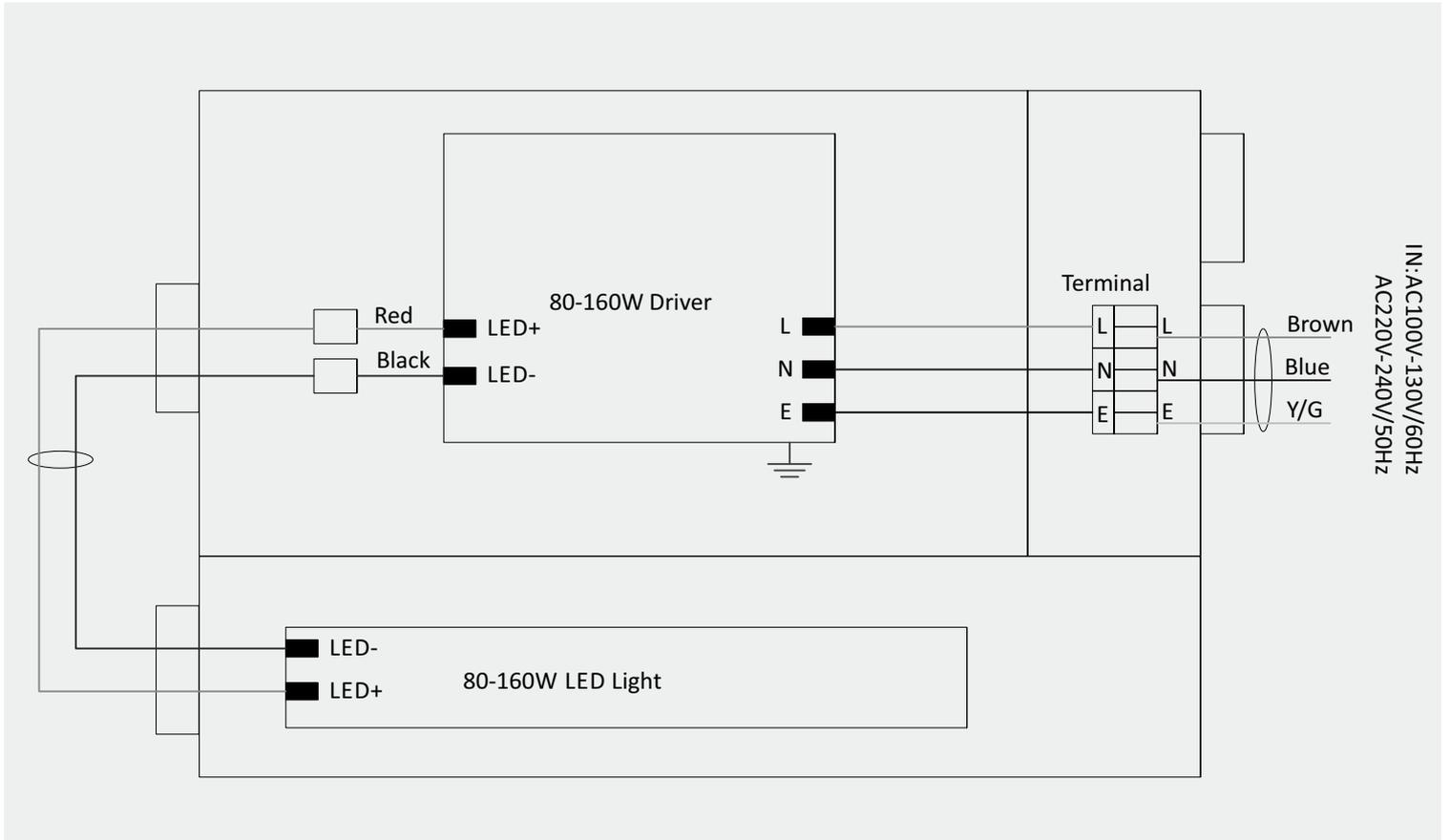
• 5.1.4 Pole mount(unit:mm)



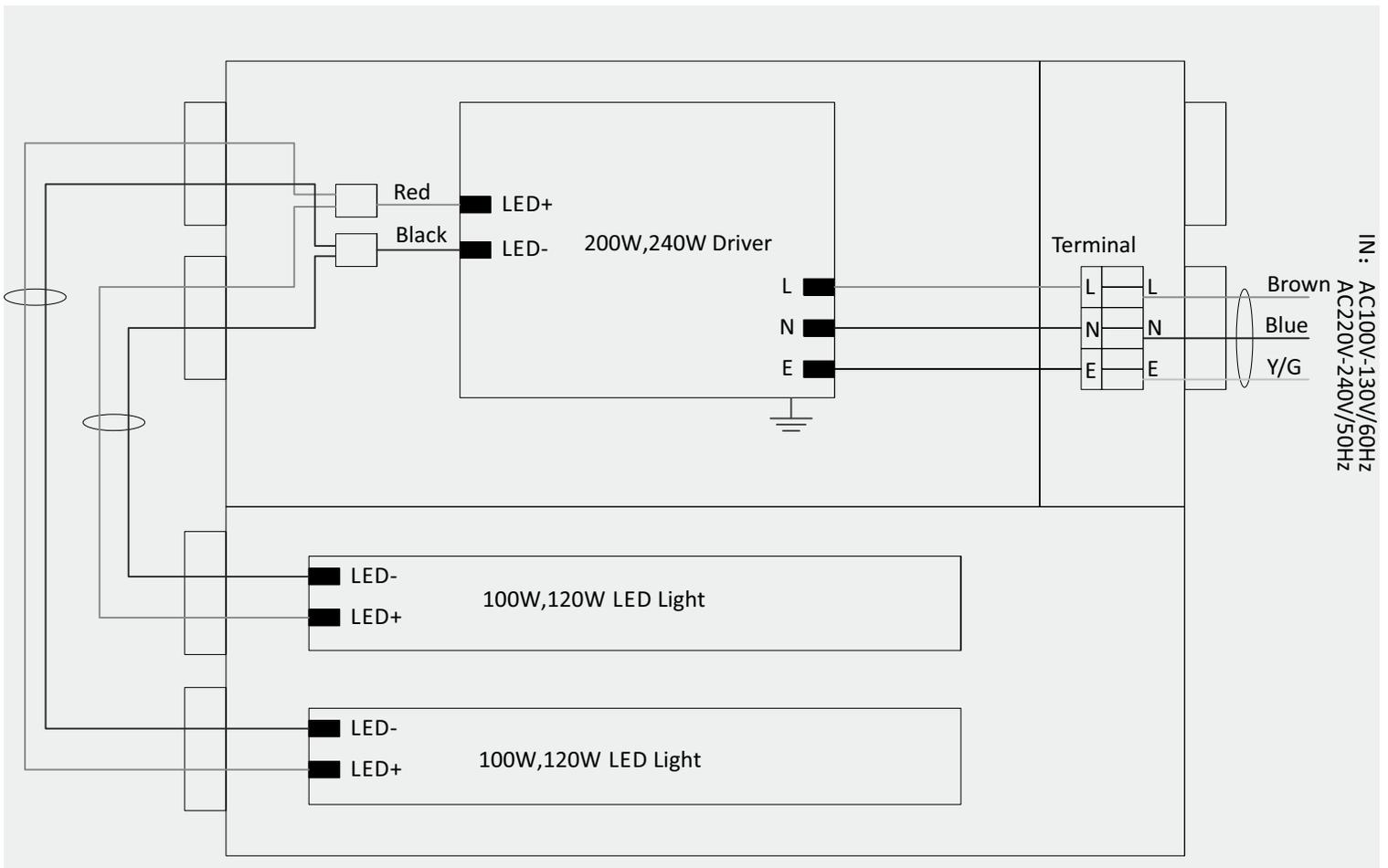
5.2 Electrical Principles and Connections

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).

• 5.2.1 Electrical Principles (80-160W type)



• 5.2.2 Electrical Principles (200-240W type)



### 5.3 Cascade

MCB Type	Rating	80W	120W	160W	200W	240W
B	16A	3	4	4	4	4
C	16A	6	7	7	6	6

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

## 06.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.

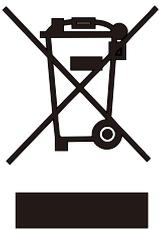
If the luminaire has been subject to abnormal conditions, for example, severe mechanical impact or chemical spillage, it must be de-energised until it has been inspected by an authorized and competent person.

## 07.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.

## 08.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.



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.

## 9.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.

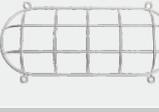
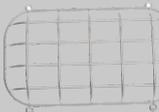
## 10.Storage

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  $\leq 95\%RH$ .  
The surroundings should be kept from corrosive gases which may damage metal and insulation.

# 11.Warning

- Do not open when energized.
- POTENTIAL ELECTROSTATIC CHARGING HAZARD. Clean only with a damp cloth.
- This equipment shall be installed and maintained by specialist personnel who familiar with nR equipment(EN60079-15) or qualified engineers.
- The power cable shall be fixed as close as the enclosure of the lamp after the equipment was installed.
- The end user must install external earthing wire according to Operation & Maintenance Manual before use.
- The restricted-breathing enclosure of the equipment shall be re-tested according to operation & maintenance manual after maintained or repaired. For example change O ring.
- If the O-ring was damaged or permanent deformation during maintenance or repaired, the end user needs to replace the O-ring immediately.  
Only O-rings of manufacturer can be used.
- The lamp can be used in Zone 2 and Zone 22 only.
- The cable itself shall be comply with the restricted-breathing test according to Annex E.1 in EN60079-14.

# 12.Optional Parts

No.	Installation accessories	Part No.	Picture	Material	Weight(Kg)	QTY	Remark
1	Pipe clamp	PCP-PLB80-O/G		Q235	2.1	1	Pipe clamp (80W)
2	Pipe clamp	PCP-PLB120-O/G		Q235	2.3	1	Pipe clamp (120W/160W)
3	Buckle	BU-PLB80		SUS316	0.1	4	Buckle mount (80W/120W/160W)
4	Loop	LO-PLB		SUS316	0.8	1	Pendant mount (200W/240W)
5	Stanchion Bracket	SBT-PLB80-O/G		Q235	4	1	Wall mount Stanchion mount (80W/120W/160W)
6	Stanchion Bracket	SBT-PLB240-O/G		Q235	4.3	1	Wall mount Stanchion mount (200W/240W)
7	Stanchion Bracket2	SBT2-F-O/G SBT-PLB80-O/G		Q235	5.63	1	Pole mount (80W/120W/160W)
8	Stanchion Bracket2	SBT2-F-O/G SBT-PLB240-O/G		Q235	5.83	1	Pole mount (200W/240W)
9	Guard-1	GU-PLB80-MC		SUS304	0.3	1	(80W)
10	Guard-2	GU-PLB120-MC		SUS304	0.35	1	(120W/160W)
		GU-PLB240-MC			0.7	1	(200W/240W)



**Contact**

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