INSTRUCTION MANUAL IM0513 Rev.4

CROUSE-HINDS SERIES

HPLN Series
LED Explosion-protected Luminaire

Powering Business Worldwide

1. Fields of Application

The Luminaire utilizes Ex dem protection and IP66 sealing making it suitable for use for potentially explosive atmospheres including ignitable gas and dust applications. The luminaire is designed for use in Zone1/Zone21 and Zone2/Zone22 hazardous areas in indoors and outdoors in Marine and Wet locations, where moisture, dirt, corrosion, vibration and rough usage may be present. Application ambient temperature is -40ºC/-50ºC~+55ºC for different version. Refer to the luminaire nameplate, For specific information, corresponding operating temperature(T-Code). The enclosure materials used, including any external metal parts, are High quality materials that ensure a corrosion resistance and resistance to chemical substances according to the requirements for use in a "normal" industrial atmosphere. In case of use in an extremely aggressive atmospheres, please refer to manufacture.

2. Conformity with standards

This explosion protection floodlight meet the requirements of IEC 60079-0, IEC 60079-1, IEC 60079-7, IEC 60079-18, IEC 60079-31. It also complies with the EC Directives for "Apparatus and protective system for use in explosion atmospheres" (2014/34/EU). It has been designed, manufactured and tested in accordance to the state of the art and according to ISO 9001:2000. The luminaires are suitable for use in explosive atmospheres, Zone1,Zone2 according to IEC60079-10-1 and dust area Zone21 and Zone22 according to IEC60079-10-2.

3. Safety Instructions

This product should be installed, inspected, and maintained by a qualified electrician only, in accordance with national regulation, including the relevant standard and, where applicable, in acc. With IEC 60079-17 on electrical apparatus for explosive atmospheres. The national safety rules and regulations for prevention of accidents and the following safety instructions in these operating instructions, will have to be observed!

- ***The luminaire must not be operated in Zone0 and in Zone20!***
- ***When using in Zone21,Zone22, the requirements of IEC 60079-14 relating to temperature must be observed. The indicated surface temperatures in table 7 are not related to a layers above 5 mm thickness.***
- ***Do not install where the marked operating temperature exceed the ignition temperature of the hazardous atmosphere.***
- ***Do not operate in ambient temperatures above those indicated on the luminaire nameplate and the technical data indicated on the luminaire are to be observed!***
- ***The luminaires shall be operated as intended and only in undamaged and perfect conditions and Keep tightly closed when in operation!***
- ***Change of the design and modifications to the luminaire are not permitted!***
- ***Multiple, short-term switching must be observed!***
- ***Only genuine Eaton Crouse-Hinds spare parts may be used for replacement!***
- ***Repairs that affect the explosion protection, may only be carried out by Eaton Crouse-Hinds or qualified electrician!***

4. Technical data

Hazardous area specification	
Type of protection:	Ex db eb mb Dust protected enclosure
Certification Marking:	II2 G Ex db eb mb op is IIC T4/T5 Gb II2 D Ex tb op is IIIC T95℃ Db IP66
Ambient temperature:	-40℃~+55℃/-50~+55℃(see nameplate)
Temperature class:	Refer to Type configuration
Certificate No.:	IECEx PRE 19.0058X Presafe 19 ATEX 09286X
Degree of protection:	IP 66 acc. to IEC60529
Approval of the production Quality assurance:	Baseefa ATEX 5952
Enclosure specification	
Material of enclosure:	Casting aluminum alloy
Finish:	Painted polyester power coating
Material of globe:	Tempered glass
Fasteners:	All external fasteners stainless steel
Weight:	Refer to Type Configuration.
Entry specification	
Entry: refer to the different mounting module. M20×1.5 ,M25×1.5, NPT ½, NPT ¾, NPT 1. Unused entry is fitted with an Exe stopping plug.	
Electrical specification	
Wattage:	25W~205W(Max.)
Voltage:	AC: 100V-240V 50/60Hz, DC: 125~250V
Lamp:	LED Arrays
CRI:	>=70
Insulation class:	I acc. to IEC60598
Terminals capacity:	**Connecting capacity**: 1-6mm2 **Type of connected conductor**: rigid with cable lug, flexible with ferule, pin cable lug or cable lug. **Number of conductors per terminal connection**: 2 conductors per clamping unit max. 6mm2+1 up to 4x cable lug max. 2.5mm2. 4 conductors per clamping unit max. 6mm2+2x cable lug max. 0.5mm thick.

5. Type configuration and Temperature Rating

Fixture Cat.No.	Temperature Rating					Weight (Kg)
	Eaton driver installed				INVENTRONICS driver installed	
	40 ℃	45 ℃	50 ℃	55 ℃	55 ℃	
HPLN-3L-*-*-*-*-*	-	-	-	T5	T4	11
HPLN-5L-*-*-*-*-*	-	-	-	T5	T4	
HPLN-7L-*-*-*-*-*	-	-	-	T5	T4	
HPLN-9L-*-*-*-*-*	-	-	T5	T4	T4	
HPLN-11L-*-*-*-*-*	-	-	T5	T4	T4	
HPLN-15L-*-*-*-*-*	-	-	T5	T4	T4	14
HPLN-21L-*-*-*-*-*	-	T5	-	T4	T4	15
HPLN-25L-*-*-*-*-*	T5	-	-	T4	T4	

6. Catalog No. definition

HPLN	-3L	-W1	-2A	-W	-F	-G	-812	-S	-BV	-LT
1	2	3	4	5	6	7	8	9	10	11

1. HPLN=Indicates basic catalogue series
2. Indicates total Luminous Flux.
   3L=3000Lm, 5L=5000Lm, 7L=7000Lm,
   9L=9000Lm, 11L=11000Lm, 15L=15000Lm
   21L=21000Lm, 25L=25000Lm
3. Indicates LED CCT: W1=2700K, W2=3000K,
   C1=4000K, C2=5000K, C3=5700K;
4. Indicates Mounting type: Blank=no cover;
   J=1-½" Stanchion, 25° , 2TW=¾" Wall;
   3TW=1" Wall; 20TW=20mm Wall,
   25TW=25mm Wall; P=1-½" Stanchion, Straight;
   2A=¾" Pendant, 3A=1" Pendant;
   20A=20mm Pendant, 25A=25mm Pendant;
   2B=¾" Cone Pendant, 3B=1" Cone Pendant;
   2C=¾" Ceiling, 3C=1" Ceiling; 20C=20mm Ceiling,
   25C=25mm Ceiling; 2HA=¾" Flexible Pendant,
5. Indicates Beam angle.
   Default=without lens. W=Wide angle (120°)
   M=Medium angle (60°). N=Narrow angle(25°)
6. Indicates Glass: Default=Clear glass, F=Foggy glass
7. Indicates Guard.
   Default=without guard, G=with guard
8. Indicates Suffixes: S812=Trunnion Mount Kit
   S831=Safety Cable, S890=Quick Clip
9. Indicates SPD.
   Default=Standard version, S=high version
10. Indicates breather: Default=without breather
    BV=with breather valve
11. Indicates Ta.
    Default=-40℃-+55℃, LT=-50℃-+55℃

7. Installation

7.1 General

The respective national regulations IEC 60079-14 as well as the general rules of engineering which apply to the installation and operation of explosion protected apparatus will have to be observed!

Improper installation and operation may result in invalidation of explosion protection and guarantee.

7.2 Mounting luminaire

7.2.1 Mounting the bracket

Only use the accompanying mounting bracket! Securely fasten the mounting bracket to a suitable base with sufficient load-bearing capacity using M8-M12 bolts and lock washers, nuts should be used.

7.2.2 Adjustment of floodlight

The luminaire can be adjusted and lock the luminaire. Loosen the set screw and fixing bolts to rotate the bracket to set the required angle. Re-tighten the set screw and fixing bolts. **The small size use M6*20&M8*25, the large heatsink use M6*20&M12*30.**
See Fig.6 and outline for details.

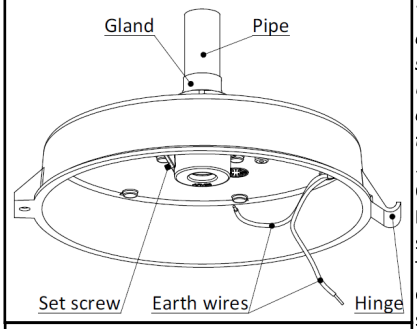
7.2.3 Install the cover module

Mount the cover module in its support position. **See Fig.1.**
Ceiling(*C) and wall mount(*TW): mark and drill desired location on mounting surface. Secure with M8 min. bolts (not provided).
Pendant(*A/*B/*HA) mount: securely thread onto the appropriate Metric/NPT size gland. Tighten set screw located in the conduit hub. **See Fig.1.**
Stanchion(J/P) mount: **See Fig.2**
Before screw the Gland adapter, Cable gland. Eaton's Crouse-Hinds series HTL thread lubricant must be used on the threads. Screw Gland adapter into Stanchion cover(**Torque: 100Nm**). Hang luminaire on the cover module hinge hook. Tighten all electrical connections after connecting supply wires to luminaire wire leads or terminal block per the attached wiring diagrams using methods that comply with all applicable codes. Check all screws to ensure a secure fit during operation. Close driver housing onto cover module, make sure that all the wires are safely inside driver housing. Tighten captive closing screw to 30 in.lbs(3.4N-m). Ensure two(2) bosses on driver housing are in contact with cover module. **See Fig. 3&4&5.**

7.2.4 Exd chamber

Unscrew the frame and open the Exd housing to change LED PCB. And carry out the steps in reverse order to close the luminaire. The gap of Frame and heatsink is not more than 1mm and check all screws and thread to ensure a secure fit during operation.

Fig.1 Pendant Cover installation



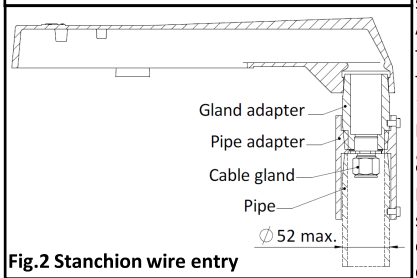


Fig.2 Stanchion wire entry

Fig.3 Cover module installation

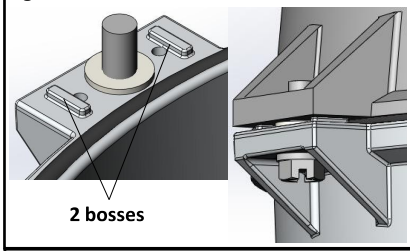


Fig.4 Electrical connection

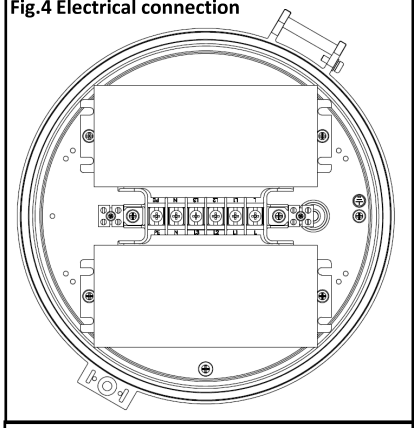


Fig.5 Electrical connection

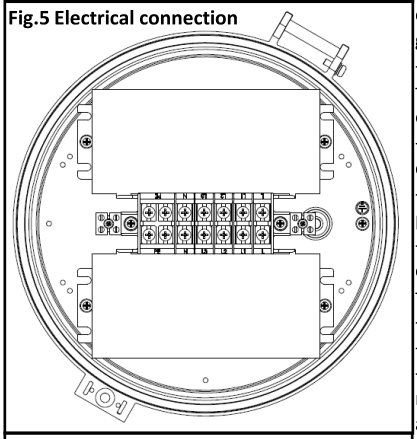
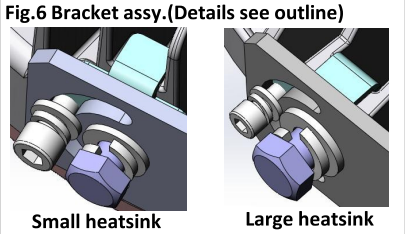


Fig.6 Bracket assy.(Details see outline)



7.3 Electrical connection

The electrical connection of the lamp must only be established by qualified electricians. Make sure the supply voltage is the same as the luminaire voltage! Use proper supply wiring as specified on the nameplate of the luminaire and in this instructions! Excessive tightening may affect or damage the connection.

7.3.1 Wire connection

Open the Exe driver cover for wiring connection. **See Figure 3&4&5.** The conductors shall be connected with special care in order to maintain the explosion category. The conductor itself shall not be damaged. The connectible min. and max. conductor cross-sections shall be observed as main terminals(see technical data). All terminals, used and unused, shall be fully tightened to prevent incorrect connection between 0.4~0.45Nm for MK/3(connect LED PCB and driver output) and 1.5~2.0Nm for 2410-4 and 2410-6(main terminals). Main connection: **See wiring diagram Fig.7 to Fig.12.**

8. Putting into operation

Prior to putting the apparatus into operation, the tests specified in the relevant national regulations shall be carried out. The luminaire may only be operated when closed. It is generally recommended (see IEC/EN 60079-14) that you ensure the type of protection of the construction is not impaired during installation.

9. Maintenance/Servicing

9.1 General

The relevant national regulations which apply to the maintenance/servicing of electrical apparatus in explosive atmospheres, shall be observed (IEC 60079-17). The interval between maintenance depends upon the ambient conditions and the hours of operation. The recommendations given within IEC 60079-17 for recurring checks must be observed.

9.2 Checks

The equipment must be de-energised before opening

Visual inspection should be carried out at a minimum of 12 monthly intervals and more frequently if conditions are severe, refer to IEC 60079-17. The time between lamp changes could be very infrequent and this is too long a period without inspection.

9.3 Routine Examination

During maintenance, the parts affecting the level of protection must be checked in particular:

- Ensure the LED is lit when energised and examine the enclosure and glass for any signs of cracks and damage.
- When de-energised and left to cool, there should be no significant sign of internal moisture. If there are signs of water ingress, the luminaire should be opened, dried out, and any likely ingress points eliminated by re-gasketing, re-greasing or other replacement.
- Check the gasket of driver chamber and LED housing for any damage or permanent set, cracks or lack of elasticity and replace as required.
- The driver chamber should be opened periodically and checked for moisture and dirt ingress.
- To maintain the light output, clean the protective glass periodically with a damp cloth or a mild cleaning fluid.
- If this product is used in the combustible dust area, outside of enclosure must be cleaned on a regular basis to prevent accumulation of dust.
- Terminals, glands and blanking plugs for secure fitting.
- The cable connections should be checked for tightness.
- The flameproof path can not be readily checked; it will not go out of shape. Check that mountings are secure, and the adjusting bolts are tight.
- If it has been suspected that the luminaire has mechanical damage, a stringent workshop overhaul will be required. Where spares are needed, these must be replaced with factory specified parts. No modifications should be made without the knowledge and approval of the manufacturer.

Cleaning the rests of grease and corrosion do not use sharp metallic devices that can damage the threads of the joint, and greasing them using appropriate grease terminally and chemically stable with a drop point≥200℃ like e.g.: HTL lubricant from Eaton Crouse-Hinds! When the housing need to be repainted, pay attention that the flameproof joints test without any part with coating!

10. Repair/Overhaul/Modifications

10.1 General

The national regulations EN/IEC60079-19 must be observed! Repairs and overhaul may only be carried out with genuine Cooper Crouse-Hinds spare parts.

Before replacing or disassembling individual parts, observe the following:

Disconnect the power supply to the equipment before maintenance/repair.

Make sure that there is no explosive atmosphere when opening the equipment. See section 7.3 for notes on opening and closing the lamp.

Driver/LED PCB replacement:

In the case of driver failure, the driver must be replaced as a complete unit from the manufacturer. See section 7.3 for opening and closing the lamp.

Only use original spare parts. If the luminaire was previously in operation, then wait to cool enough before opening. Repairs that affect the explosion protection, may only be carried out by Eaton Crouse-Hinds or a qualified electrician in compliance with the applicable national rules. Modifications to the device or changes to its design are not permitted. After carrying out repair or overhaul work, ensure that the "Exdem" properties have not been affected. Assistance: Cooper Electronic Technologies (Shanghai) Co., Ltd. Sales Service department, 955 ShengLi Road, Pudong Shanghai 201201, Phone (86) 21-28993943.

11. Disposal/Recycling

When the apparatus is disposed of, the respective national regulations on waste disposal will have to be observed.

12. Specific Conditions of Use

- The products must be connected to electricity supplies with a prospective short-circuit current of max.1500A. Repairs of the flameproof joints must be made in compliance with the structural specifications provided by the manufacturer. Repairs must not be made on the basis of values specified in table 4 of EN 60079-1. Before application, separated ATEX certified Ex eb IIC Gb or/and Ex tb IIIC Db IP66 plug or breather/drains should be incorporated in the Exe chamber. Before application, separated ATEX certified Ex tb IIIC Db IP66 plug or breather/drains should be incorporated in the heatsink.

Fig.7

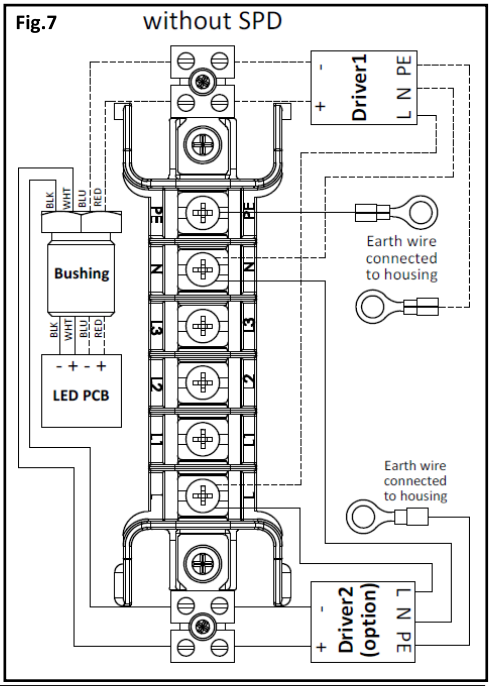


Fig.8 1 pcs Driver with SPD

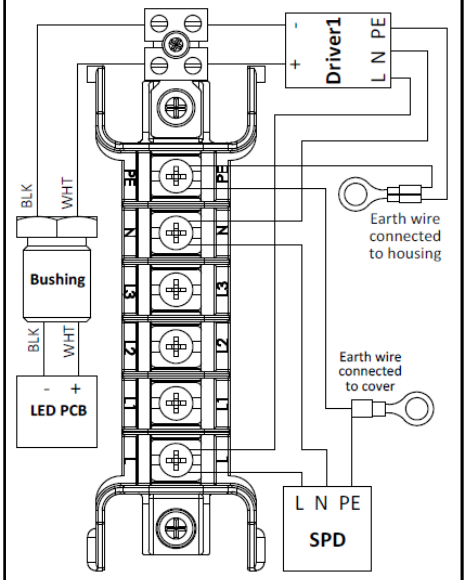


Fig.9 2 pcs Drivers with SPD

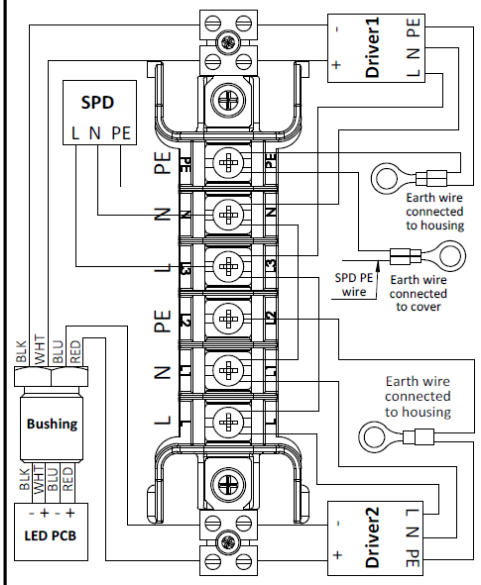


Fig.10 1 pcs Driver with SPD

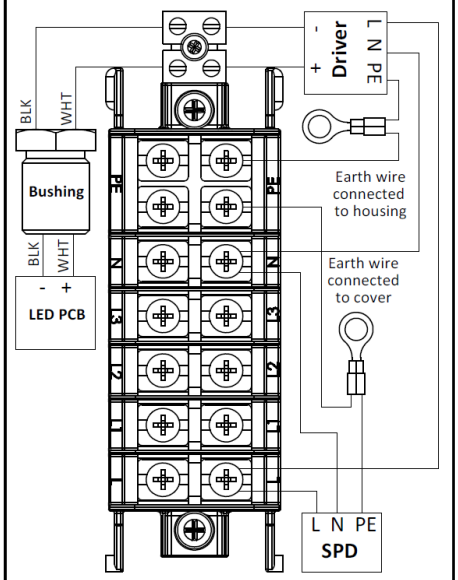


Fig.12 2 pcs drivers without SPD

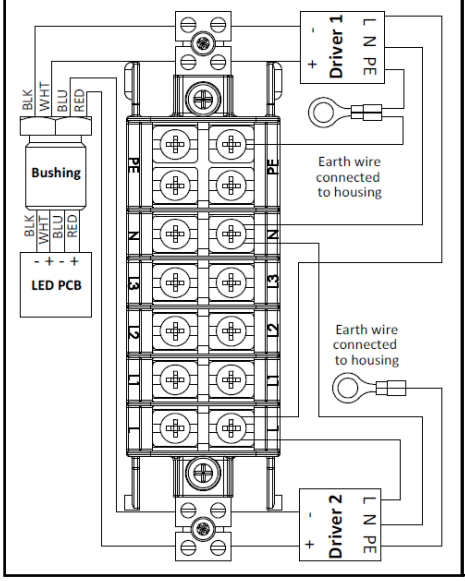
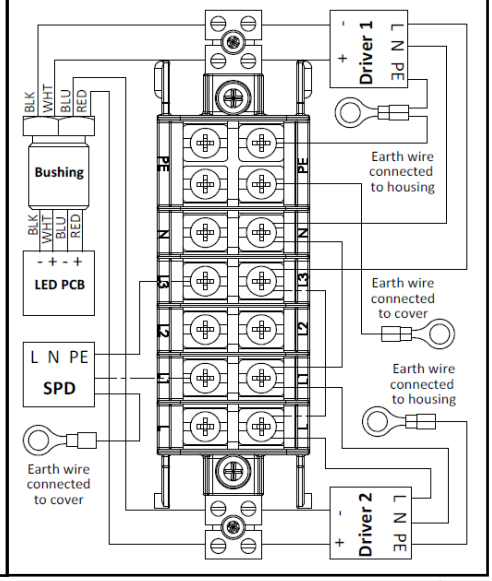
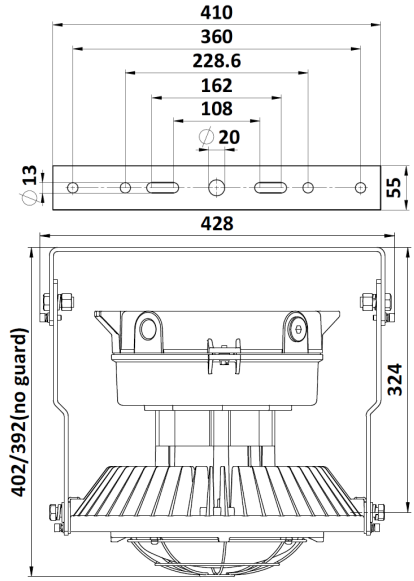
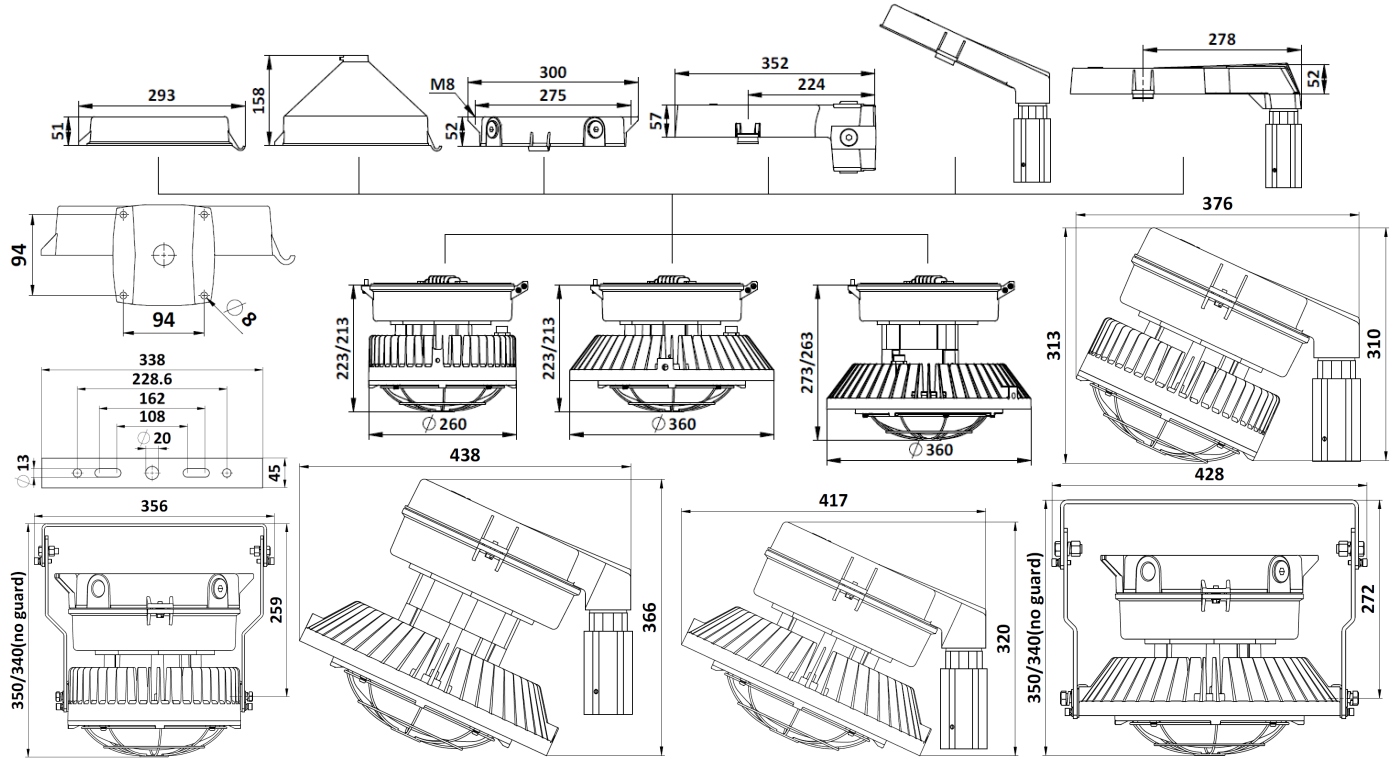


Fig.11 2 pcs drivers with SPD



13. Outline and Dimensions





EU-Konformitätserklärung
EU-Declaration of conformity
UE-Déclaration

Presafe 19 ATEX 09286X

Wir / *We* / *Nous*

Cooper Electric (Changzhou) Co., Ltd.
No. 189, Liuyanghe Road, Xinbei District,
Changzhou, Jiangsu, 213031
China

erklären in alleiniger Verantwortung, dass das Produkt
hereby declare in our sole responsibility, that the product
déclarons de notre seule responsabilité, que le produit

LED Explosion protected luminaire

HPLN Series

II 2 G Ex db eb mb op is IIC T4 Gb
II 2 D Ex tb op is IIIC T95°C Db IP66

den folgenden EU-Richtlinien, den entsprechenden harmonisierten Normen, und weiteren normativen Dokumenten entspricht.
complies with the following EU directives, their corresponding harmonised standards, and other normative documents.
correspond aux directives européennes suivantes, à leurs normes harmonisées, et aux autres documents normatifs suivants.

Bestimmungen der Richtlinie *Terms of the directive* *Prescription de la directive*		Titel und / oder Nr. sowie Ausgabedatum der Norm *Title and / or No. and date of issue of the standard* *Titre et / ou No. ainsi que date d'émission des normes:*
2014/34/EU: 2014/34/EU: 2014/34/UE:	Geräte und Schutzsysteme zur bestimmungsgemäßen Verwendung in explosionsgefährdeten Bereichen. *Equipment and protective systems intended for use in potentially explosive atmospheres.* *Appareils et systèmes de protection destinés à être utilisés en atmosphères explosibles.*	**EN 60079-0:2018** **EN 60079-1:2014** **EN 60079-7:2015** **EN60079-18:2015** **EN60079-31:2014** **EN60079-28:2015**
2014/30/EU: 2014/30/EU: 2014/30/UE:	Elektromagnetische Verträglichkeit *Electromagnetic compatibility* *Compatibilité électromagnétique*	**EN 55015:2013** **EN 61547:2009** **EN 61000-3-2:2014** **EN 61000-3-3:2013** **EN 61000-6-4:2007+A1:2011** **EN 61000-6-2:2005**
2011/65/EU: 2011/65/EU: 2011/65/UE:	RoHS –Richtlinie *RoHS – directive* *Directive RoHS*	**EN 50 581: 2012**

Shanghai, 2018.10.20

Ort und Datum *Place and date* *Lieu et date*	*Head of quality department* Franklin Xu	*Head of approval office* Joyce ZHANG

(1) Benannte Stelle (EG-Baumusterprüfbescheinigung)
Notified body (EC-type examination certificate)
Organisme notifié (Examen CE de type)

DNV GL Presafe AS (2460)
Veritasveien 3, 1363 Hovik, Norway

QAN: Baseefa ATEX 5952

(2) Benannte Stelle (Qualitätssicherung Produktion)
Notified body (Production Quality Assurance)
Organisme notifié (Assurance Qualité de Production)

Baseefa LTD (1180)
Rockhead Business Park, Staden Lane,
Buxton, Derbyshire SK17 9RZ

Für den sicheren Betrieb des Betriebsmittels sind die Angaben der zugehörigen Betriebsanleitung zu beachten.
For the safe use of this apparatus, the information given in the accompanying operating instructions must be followed.
Afin d'assurer le bon fonctionnement de nos appareils, prière de respecter les directives du mode d'emploi correspondant à ceux-ci.