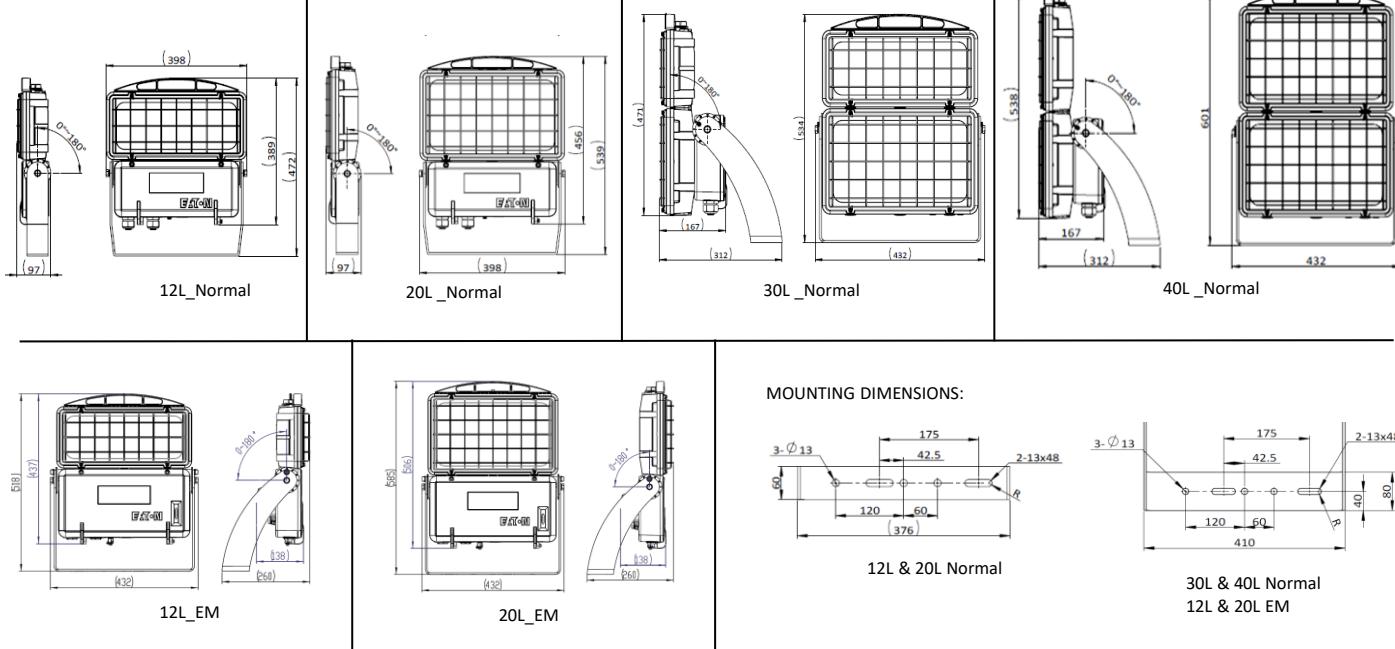


# HFL Series LED Explosion-protected Luminaire



## 1. Dimensions

BRACKET MOUNTING:



## 2. Technical data

### Hazardous area specification

Type of protection:	Ex db, eb, ib, mb, tb
IEC Certification Marking:	Ex db eb mb IIC T4/T3 Gb Ex db eb ib mb IIC T4/T3 Gb Ex eb mb IIC T4/T3 Gb Ex tb IIIC T80°C/ T85°C/ T90°C Db
ATEX Certification Marking:	II 2 G Ex db eb mb IIC T4...T3 Gb II 2 G Ex eb mb IIC T4...T3 Gb II 2 D Ex tb IIIC T80°C/ T85°C Db
Ambient temperature:	-40°C ~ +55°C; -25°C~+55 °C (EM)
Temperature class:	T4...T3
IECEx Certificate No.:	IECEx NEP 24.0045X
ATEX Certificate No.:	SGSNA25ATEX031301X
Degree of protection:	IP 66
Approval of the production:	
Quality assurance:	SGS ATEX 5952

### Enclosure specification

Material of enclosure:	AL
Finish:	Polyester
Material of cover:	Glass
Mounting bracket:	Stainless steel or Steel painted
Fasteners:	All external fasteners stainless steel
Installation:	Mounting bracket with Screw fixed
Weight:	Refer to Type Configuration.

### Entry specification

Indirect entry: M20 or M25 × 1.5 cable entry.

### Electrical specification

Wattage:	88W/135W/225W/265W; 92W/146W(EM)
Voltage:	100-277Vac 50/60Hz, 125-300Vdc (W/O safety switch) 100-250Vac 50/60Hz (With safety switch)
Power factor:	≥0.9
Anti surge voltage:	L-N 4KV;L/N-PE 6KV
Storage temperature:	-25°C~60°C
Lamp:	LED Arrays
Emergency:	12L:30% 1.5H / 15% 3H; 20L:20% 1.5H / 10% 3H
CRI:	70/80
Insulation class:	I acc. to IEC60598
Terminals capacity:	2.5mm <sup>2</sup> Terminal/6mm <sup>2</sup> Terminal Solid: 0.5~6mm <sup>2</sup> ; Flexible: 0.25~4mm <sup>2</sup>

## 6. Cable gland recommend

Entry size	Part No.	Cable size	Torque (Nm)	
			screw-in enclosure	For cable
M20	CAP846694V1L	8.5-16	20	20
M25	CAP846794V1L	12-21	30	30

Note: Mounting the selected cable glands acc. type and dimensions of the main connection cable. Following their manufacturer instructions.

## 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/EN 60079-14 relating to temperature must be observed. The indicated surface temperatures 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.
- The luminaires shall be operated as intended and only in undamaged and perfect conditions! And Keep tightly closed when in operation!
- The technical data indicated on the luminaire are to be observed!
- 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!
- Potential electrostatic risk clean only with a damp cloth
- Do not open when an explosive atmosphere is present
- Do not transport through a hazardous area.

## 4. Conformity with standards

This explosion protection floodlight meet the requirements of IEC/EN 60079-0, IEC/EN 60079-1, IEC/EN 60079-7, IEC 60079-11, IEC 60079-18, IEC/EN 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 9001:2008. 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. Proper separately certified plastic cable glands or plastic plugs or plastic breather complying with IEC 60079-0, IEC 60079-7, IEC 60079-31 should be applied during the installation.

## 5. Fields of Application

The Luminaire with Ex d e m 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 -40°C~+55°C or -25°C~+55 °C. 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 manufacturer.

## 7. Type configuration and Max. Ambient and Temperature Ratings

Std. Cat No.	Color	System	T Class	T °C	Voltage	Weight
			(Gas)	(Dust)		
Temp.	Power	(Normal: -40°C~+55°C) (EM: -25°C~+55°C)	55°C	(V)	(kg)	
HFL-12L-*-* <sup>*</sup>	3000K 4000K 5000K 5700K	88W	T4	T80	100-277Vac, 50/60Hz 125 - 300Vdc or 100-250Vac, 50/60Hz	10
HFL-20L-*-* <sup>*</sup>		135W	T3	T85		12
HFL-30L-*-* <sup>*</sup>		225W	T3	T85		19
HFL-40L-*-* <sup>*</sup>		265W	T3	T85		21
HFL-12L-*-*EM <sup>*</sup>		92W	T4	T85		16
HFL-20L-*-*EM <sup>*</sup>		148W	T3	T90		18

\* Tolerance +/-10%

## 8. Installation

### 8.1 General

The respective national regulations IEC/EN 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!

The improper installation and operation may result in the explosion protection and invalidation of the guarantee.

### 8.2 Mounting luminaire

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

**The minimum distance between the luminaire and illuminated surface, directly in front of the luminaire, is 0.5 meter. The lighting must not be illuminated when at a distance of less than 0.5m from inflammable material.**

### 8.3 Cable entries/Plugs

The "Increased safety (Exe)" properties must be preserved when select and mount cable entry/plug. Unused holes must be closed with certified plug to establish the Exe protection category. The cable glands/plugs and breathing valve should be Ex tb certified if the whole product is Ex tb certified also. **Cable entries sealing washer(if required by manual of cable gland/plug) must be used to obtain IP66.**

The authoritative mounting guidelines for the cable glands and breathing valve used must be observed. Mounting the selected cable entries acc. type and dimensions of the main connection cable following their manufacturer instructions. The cable temperatures are given as the rise over the max. rated ambient (Tamb). This allows the user to adjust the cable specification for actual maximum site ambient. Only heat resistant cable according to the data on the type label may be used! The max. conductor size is 6mm<sup>2</sup>. The standard looping cable size is 4mm<sup>2</sup>.

### 8.4 System modes

#### 8.4.1 Independent system mode:

8.4.1.1 In the event of a mains failure, an automatic changeover to emergency operation occurs.

8.4.1.2 Battery Indicator Matrix:

Charging	Fully Charged	Emergency	Damaged
Green light "blinking"	Green light "steady on"	Red light "blinking"	Red light "steady on"

8.4.1.3 Battery charging: After first mains connection, an uninterrupted charging time for 24 hours is strongly recommended. A charge-discharge activation cycle should be applied if stored for more than 6 months.

#### 8.4.2 Inhibit switch system mode:

8.4.2.1 The emergency light function can be separately switched on and off via an inhibit switch installed outside in the event of a mains failure.

8.4.2.2 If using the inhibit switch, remove the wire on the small terminal (refer wiring diagram).

### 8.5 Opening/closing the luminaire

#### 8.5.1 General

**The opening of luminaire always shall be without voltage! All gasket seals must be clean and undamaged before closing the luminaire. Make sure the luminaire is well closed before operation!**

#### 8.5.2 Exe chamber cover

Loose the screws and open the electrical enclosure cover. And carry out the steps in reverse order to close the luminaire. Check all screws to ensure a secure fit during operation .

### 8.6 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.**

#### 8.6.1 Wire connection

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 (see technical data). All terminals, used and unused, shall be fully tightened to prevent incorrect selection between 1.2Nm for Exe T6P and 0.6~0.8Nm for MK3/2/E.

#### 8.6.2 Dimming Option

The product with "DL" means a DALI dimmable driver is installed inside. Use DALI data cable to connect the DALI terminal, switch & PC with compatible software and hardware. The lighting can be operated & programmed via the DALI interface.

### 9. Putting into operation

Prior to putting the apparatus into operation, the tests specified in the relevant national regulations shall be carried out. Insulation measurements may only be carried out between PE and the external conductor L1 (L2, L3) as well as between PE and N.

- Measurement voltage: Max. 1.5 KV AC

- Measurement current: Max.5 mA

- 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.

## 10. Maintenance/Servicing

### 10.1 General

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

### 10.2 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 EN/IEC

60079-17. The time between lamp changes could be very infrequent and this is too long a period without inspection.

### 10.3 Routine Examination

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

- Ensure the lamp 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 up, dried out, and any likely ingress points eliminated by re-gasketing, re-greasing or other replacement.
- Check the gasket of electrical enclosure cover, the one used in LED enclosure or the gasket between enclosures for any damage or permanent set and replace as required.
- Terminal, screw glands and blanking plugs for secure fitting.
- To maintain the light output, clean the protective glass cover 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.

- The cable connections should be checked for tightness. The gasket should be checked for cracks or lack of elasticity, and if necessary, replaced.
- 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 joint of housing assy. and glass cover use a damp cloth or a mild cleaning fluid.**

## 11. Repair/Overhaul/Modifications

### 11.1 General

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

**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.**

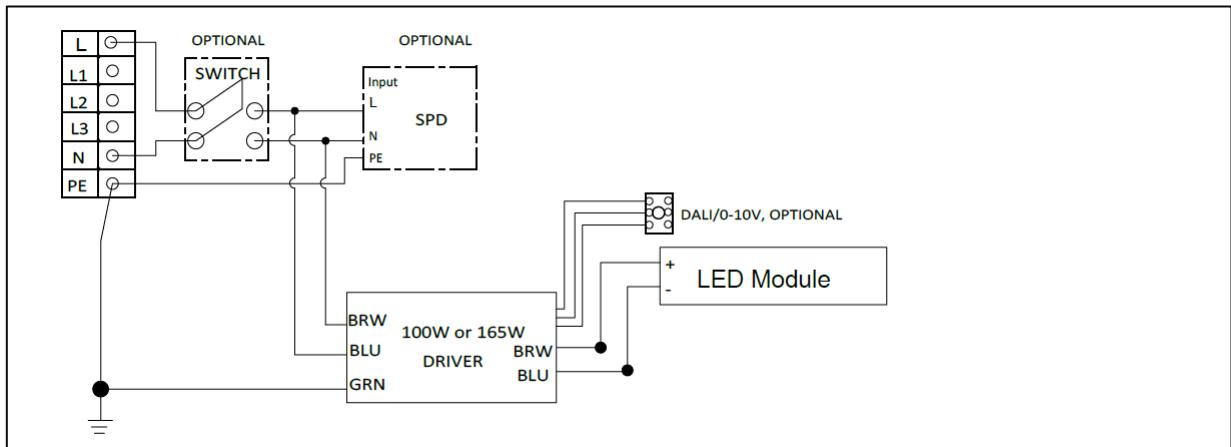
**After carrying out repair or overhaul work, ensure that the "Exde" properties have not been affected.**

**Assistance may also be obtained through Cooper Electronic Technologies (Shanghai) Co., Ltd. Sales Service department,  
955 ShengLi Road, Pudong Shanghai 201201  
Phone (86) 21-28993943**

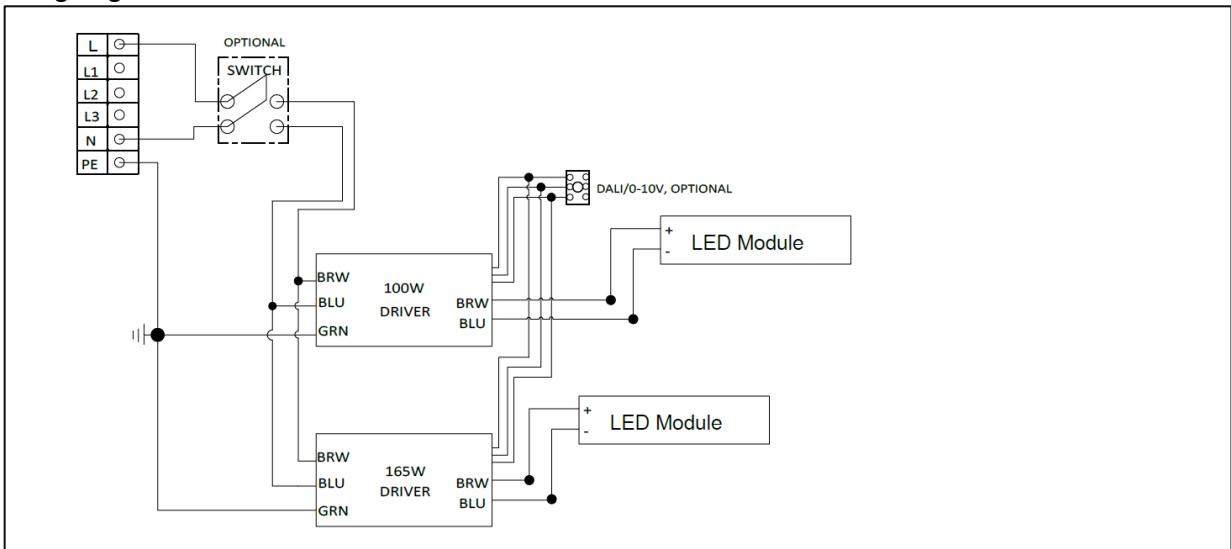
### 12. Disposal/Recycling

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

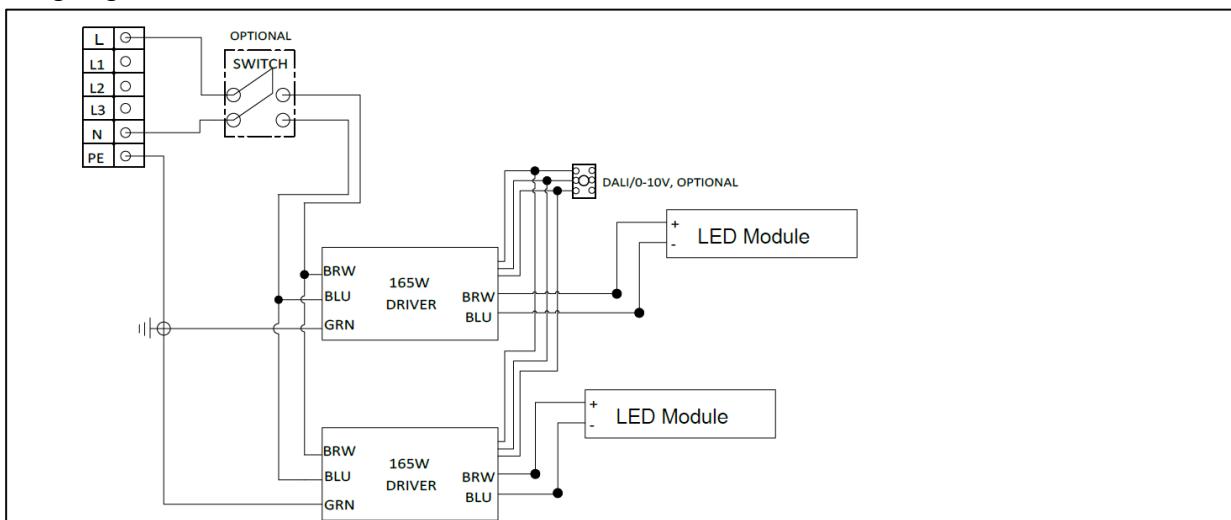
**Wiring diagram 1: 12L & 20L normal version**



**Wiring diagram 2: 30L normal version**

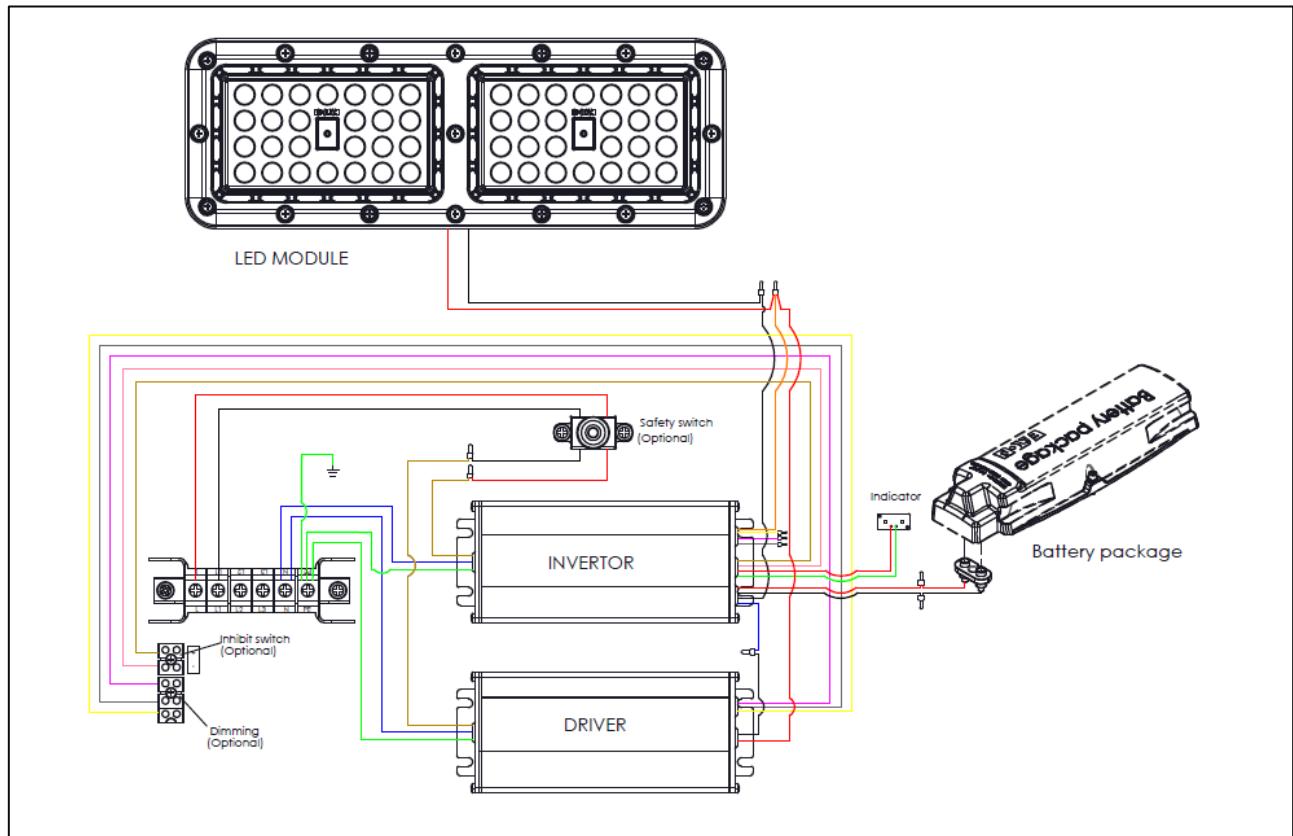


**Wiring diagram 3: 40L normal version**

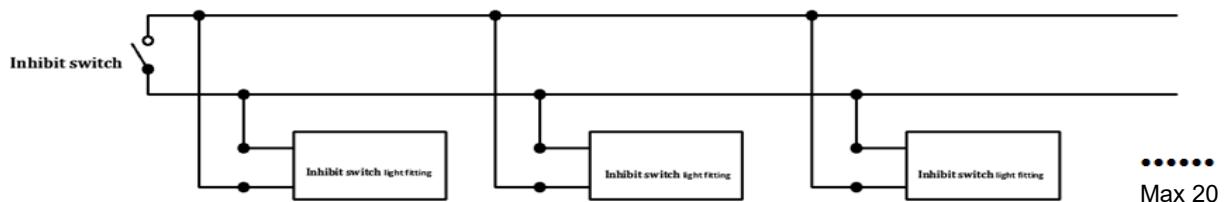


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**Wiring diagram 4: 12L & 20L EM version**



**Wiring diagram 5: Inhibit switch light fitting External connection**



**Eaton's Crouse-Hinds Division**

Cooper Electric (Changzhou) Co., Ltd.

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**Wir / We / Nous**

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

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

**Explosion-Protected Luminaire**

- ⊗ II 2 G Ex db eb mb IIC T4...T3 Gb
- ⊗ II 2 G Ex eb mb IIC T4...T3 Gb
- ⊗ II 2 D Ex tb IIIC T80° C / T85° C / T90° C / T95° C Db IP66

**HFL Series**

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 corresponds.  
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: Geräte und Schutzsysteme zur bestimmungsgemäßen Verwendung in explosionsgefährdeten Bereichen.  
2014/34/EU: Equipment and protective systems intended for use in potentially explosive atmospheres.  
2014/34/UE: Appareils et systèmes de protection destinés à être utilisés en atmosphères explosives.

EN IEC 60079-0:2018  
EN 60079-1:2014  
EN IEC 60079-7:2015+A1:2018  
EN 60079-18:2015+A1:2017  
EN 60079-31:2024

EN 60598-1:2021/A11:2022

2014/30/EU: Elektromagnetische Verträglichkeit  
2014/30/EU: Electromagnetic compatibility  
2014/30/UE: Compatibilité électromagnétique

EN IEC 55015:2019+A11:2020  
EN 61547:2023  
EN 61000-3-2:2019+A1:2021  
EN 61000-3-3:2013+A1:2019+A2:2021

2011/65/EU: RoHS –Richtlinie  
2011/65/EU: RoHS – directive  
2011/65/UE: Directive RoHS

EN IEC 63000-2018

Shanghai, 2025.02.08

Ort und Datum  
Place and date  
Lieu et date

Head of quality department  
Qian Jeffery

Head of approval office  
Frank Shen

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

**SGS NORTH AMERICA, INC. (3015)**

**QAN: Baseefa ATEX 5952**

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

SGS Fimko Oy (0598)  
Takomotie 8, FI-00380 Helsinki Finland

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.