EX SERIES LAMPS

User Manual

ENGLISH

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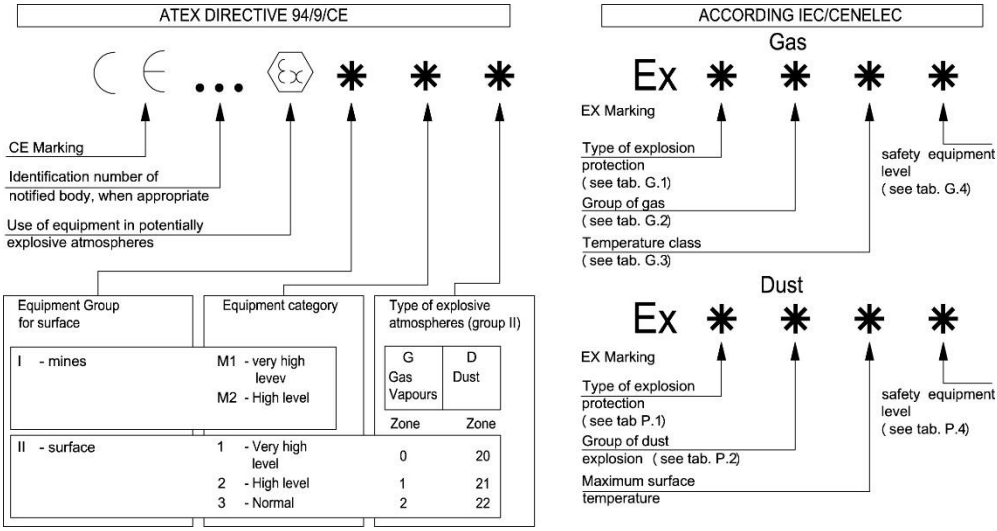
Index

1. General description of the product

- Lighting appliance for installation inside spray booths.
- Coated aluminium structure.
- Tempered glass with an anti-glare internal prismatic cone diffuser.
- Polycarbonate protective front.
- High luminous efficiency LED light source.
- Uniform white light.
- Exceptionally powerful flow of light.
- 24VDC direct power supply.
- Available in three lengths in a recessed version.
- Complete with fastening screws.

2. ATEX guide – equipment markings



G.1 STANDARD AND TYPE OF PROTECTION
Electrical equipment for gas (G)

	Code	EN Rule	Category
General requirements	/	60079-0	/
Oil immersion	o	60079-6	M2-2G
Pressurized apparatus	p	60079-2	M2-2G
Powder filling	q	60079-5	M2-2G
Flameproof enclosure	d	60079-1	M2-2G
Increased safety	e	60079-7	M2-2G
Intrinsic safety	ia	60079-11	M1-1G
Intrinsic safety	ib	60079-11	M2-2G
Intrinsic safety	ic	60079-11	M2-3G
Encapsulation	m	60079-18	M2-2G
Protection type "n"	nA-nC-nR	60079-15	3G
Category 1G	/	60079-26	1G
Category M1	/	50303	M1

G.2 GROUP OF GAS

I	Mines (methane)
II	Industry of superficie
IIA	Propane
IIB	Ethylene
IIC	Hydrogen Acetylene

G.3 TEMPERATURE CLASS (group II G)

Class	Maximum surface temperature °C
T1	450
T2	300
T3	200
T4	135
T5	100
T6	85

Reference ambient Temperature -20°C/+40°C

G.4 CLASSIFICATION AREAS / PROTECTION LEVELS (GAS)

Frequency and duration explosive mixture	Zon2	Equipment group	Category	Explosion group security level	Security level EPL device	Level of protection
The explosive atmosphere is continuously present	Zone 0	II	1G	II	Ga	Very high Level
The explosive atmosphere is often present	Zone 1	II	2G	II	Gb	High level
The explosive atmosphere may accidentally be present	Zone 2	II	3G	II	Gc	Normal

P.1 STANDARD AND TYPE OF PROTECTION
Electrical equipment for gas (D)

	Code	EN Rule	Category
Protection by enclosures	Ex tD	61241-1	1D
Protection by pressure	Ex pD	61241-4	2D
Protection by intrinsic safety	Ex iD	61241-11	1D
Protection by encapsulation	Ex mD	61241-18	2D

P.2 DUST EXPLOSION GROUP

IIIA	dust explosive
IIIB	non conductive dust
IIIC	conductive dust

P.3 TEMPERATURE CLASS (group II D)

For dust Class put the maximum surface temperature after the T example T100°C

P.4 CLASSIFICATION AREAS / PROTECTION LEVELS (DUST)

Frequency and duration explosive mixture	Zone	Equipment group	Category	Explosion group security level	Security level EPL device	Level of protection
The explosive atmosphere is continuously present	Zone 20	II	1D	II	Ga	Very high Level
The explosive atmosphere is often present	Zone 21	II	2D	II	Gb	High level
The explosive atmosphere may accidentally be present	Zone 22	II	3D	II	Gc	Normal

3. ATEX zone classification for spray booths

Spray booths (liquids)

Spray booths create demanding conditions due to the exposure to explosive atmospheres.

Standard UNI EN 12215 “Spray booths for the application of liquid coating materials – Safety requirements” lays down the protective measures to be adopted in order to prevent any risks of explosion.

This standard requires that concentrations of flammable substances are kept below the LEL through forced ventilation. In particular, 2 situations are planned:

• Concentration under 25% of the LEL (booth with operator present).

Zone 2: the internal volume of the booth (including the air recirculation ducts) and the external volume around the booth up to 1m from the permanent openings.

• Concentration under 50% of the LEL (booth without operator present).

The booth must be fitted with an LEL control system that cuts off the supply of flammable substances once 50% of the LEL is reached.

Zone 1: the internal volume of the booth (including the air recirculation ducts).

Zone 2: the external volume around the booth up to 1m from the permanent openings.

Spray booths (powders)

Standard UNI EN 12981 “Spray booths for the application of powder coating materials – Safety requirements” lays down the protective measures to be adopted in order to prevent any risks of explosion. This standard requires that concentrations of flammable substances are kept below 50% of the LEL for powders through forced ventilation; if the LEL value is not reliable, the average concentration must not exceed 10 g/m3.

In particular, the following classification is planned:

Zone 22: the internal volume of the booth (including the air recirculation ducts and the open powder recovery systems);

• **Zone 21**: the external volume around the booth up to 1m from the permanent openings;

• **Zone 20**: the closed powder recovery systems.

The properties of the powders used vary greatly and depend heavily on the type of product used.

The LEL is approximately 10÷100 g/m3, while the operating temperatures vary between 350÷400 °C (cloud) and 200÷250 °C (layer); we always recommend checking the

information on the product safety data sheets.
According to legal requirements, the explosion risk assessment (area classification, explosion protection document, choice of machinery and the relative equipment) must be carried out by staff with specific expertise in this subject.
The purpose of the classification is to identify places where potentially explosive atmospheres could form so that appropriate equipment for the environment (hazardous area) can be properly selected and installed.

4. Safety Instructions

Each lighting appliance in the **EX** series is designed and manufactured using state-of-the-art technology. They are made with select high-quality materials. They are carefully checked during every production phase, right through to packaging, using a technical manufacturing table which guarantees reliability and safety.

Nevertheless, material damage or personal injury can occur during use.

- This manual is an integral part of the device. It should be kept close to the appliance.
- Please read all the instructions and information inside.
- Follow the warnings in the instructions and on the appliance.
- Only use the appliance if it is in perfect technical condition, taking into account the hazards and safety warnings.
- This device complies with the ATEX Directive 94/9/EC for the class specified under paragraph 2.2. Therefore do not remove any identification labels or open the lamp.
- The manufacturer accepts no liability from any tampering and/or improper use of the device.

4.1 Proper use

This lighting appliance is designed for installation inside spray booths.

4.2 Product safety

4.2.1 Electrical hazards

Improper or incorrect use of the appliance can cause personal injury or material damage.

- It must be connected by a qualified electrician.
- Turn off the electricity before carrying out any installation, maintenance or repair work.
- Only connect to a 24VDC supply. Match the polarities of the electrical conductors.
- Make sure that the power supply is in line with the voltage indicated on the label.
- Maintenance and repair work must only be carried out by qualified staff.

4.2.2 Safe assembly

- Do not drop this lighting appliance, even if still in its packaging, and do not hit it aggressively. It can cause personal injury and/or material damage.
- Use the screws supplied with the appliance to fasten the lamp.

- Regularly check that the lamp is fastened to the structure.

4.2.3 Polycarbonate front panel

- The polycarbonate panel provided is an integral part of the lamp and must be installed with it.
- The polycarbonate panel guarantees IK08 shock protection.
- If the polycarbonate panel is not installed, it will void the ATEX certification of the product.

4.2.4 Hazardous glare caused by bright light sources

Staring directly at the light source can temporarily reduce your vision. It can cause irritation, discomfort, damage or accidents.

- Do not stare directly at the light source.
- Install the appliance so that the flow of light is not directly aimed at people's faces.

4.2.5 Hazardous laser beams

The EX series lighting appliance must **not** be used around high power lasers, such as cutting lasers, because the laser beam can destroy the LED lights.

4.2.6 Hazardous high temperatures

If you install and use the appliance in environments which exceed the permitted operating temperature, it will drastically reduce the life of the LEDs and will break the electronic components inside.

- **Do not** use the appliance in environments which exceed the maximum temperature permitted.
- Avoid direct sunlight.

4.2.7 Hazardous repairs

If you dismantle or repair the product without appropriate knowledge of the appliance, it can cause damage to persons or property.

- Do not attempt to dismantle or repair the lamp. Contact qualified staff if you have any technical problems.
- Any unauthorised modifications or tampering with the product will void all warranty conditions.

Do not open and/or dismantle the lamp

4.3 Installation in ATEX environments

ATEX EX lighting systems comply with the requirements laid down for Group II, categories 3G and 3D

of Directive 94/9/EC. They are therefore designed to function in conformity with the operational parameters established by the manufacturer and to ensure a normal level of protection.
The equipment in this category is intended for use in areas in which explosive atmospheres caused by gases, vapours, mists, or air/dust mixtures are unlikely to occur or, if they do occur, are likely to do so only infrequently and for a short period only.
The equipment in this category ensures the requisite level of protection during normal operation.
The equipment in this category complies with the supplementary requirements referred to in Annex II, 2. 3 of the ATEX Directive.
EX series lighting appliances may be installed in the following ATEX areas:

II3G Ex nA IIC T5 Gc

II3D Ex t IIIC T90°C Dc

4.4 Hazard levels

HAZARD

Hazards which, if ignored, **immediately** cause serious injury or even death.

WARNING

Hazards which, if ignored, **could** cause serious injury or even death.

ATTENTION

Hazards which, if ignored, could cause injury.

CAUTION

Hazards which, if ignored, could cause material damage.

5. Available versions

The following table is provided so you can properly and optimally install and use this lighting appliance. You can therefore identify your chosen model and check its properties.

NOTE: the product code can be found on the plate on the lighting appliance.

- Find the code on the plate on the lighting appliance;
- Find and compare the model type from the table below;
- The barcode on the code label identifies the week and year of production of the appliance.

N.B. keep the lamp's labels so you can make a claim if necessary.

Model	Power supply	Power	Fastening	Connection	Weight
EX68.I.P	24 Vdc	68 W	Recessed	3P Cab 0.75mm2 L1.5m	3.00 Kg ~
EX96.I.P	24 Vdc	96 W	Recessed	3P Cab 0.75mm2 L1.5m	4.50 Kg ~
EX110.I.P	24 Vdc	110 W	Recessed	3P Cab 0.75mm2 L1.5m	5.00 Kg ~

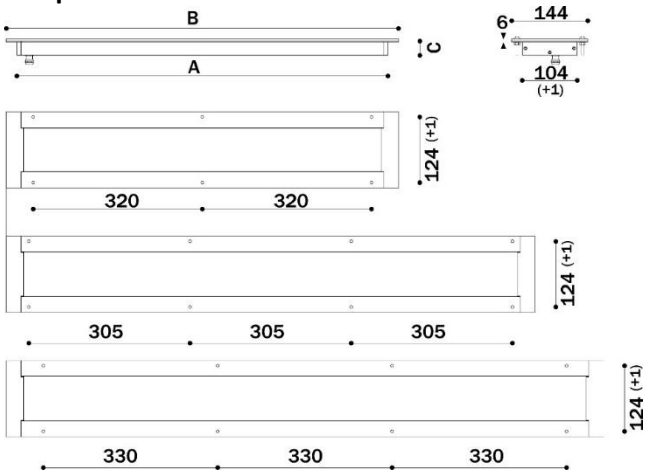
Cable length variations:

EXxx.I.P_____ .C3 lamp with a 3m cable
.C5 lamp with a 5m cable
.C10 lamp with a 10m cable

6. Installation guide

6.1 Lamp sizes

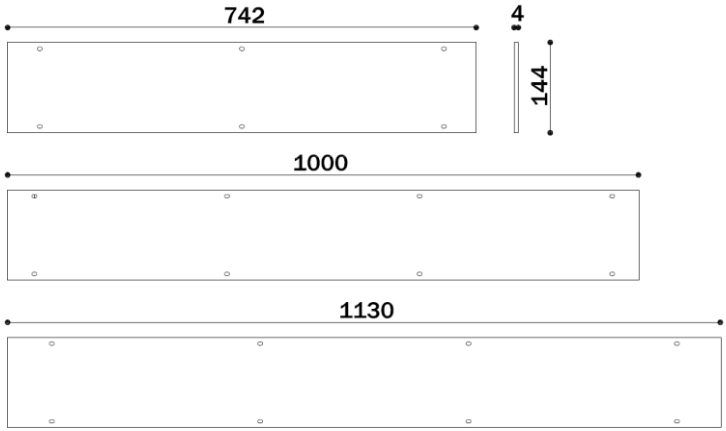
Lamp



Code	A (mm)	B (mm)	C (mm)	No. holes Ø5.5	Built-in window frame
EX68.I	702	742	320	6	106x706mm
EX96.I	960	1000	305	8	106x962mm
EX110.I	1090	1130	330	8	106x1092mm

Tab. 6.1.A Lamp body lengths. The tolerances depend on the working procedure of the raw materials. We recommend the installation of the lamp with passing screws.

Protective polycarbonate front



6.2 Installation

ATTENTION

If the lamp falls, it could cause personal or material damage.

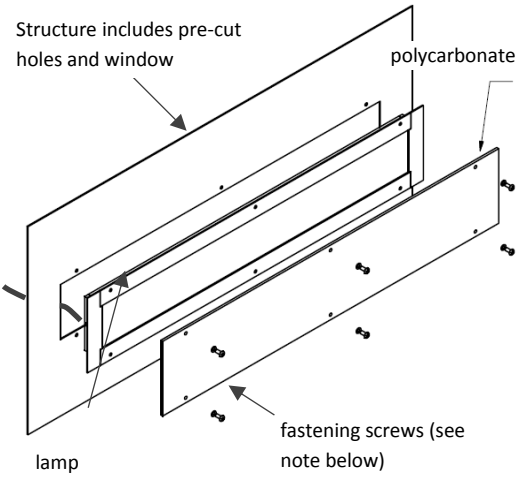
- Only use suitable fasteners to install the lamp.

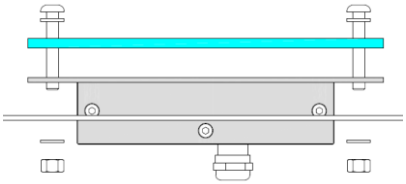
WARNING

Always switch off the electricity before proceeding with installation.

- Mark out the positions of the fastening holes on the installation surface. See the sizes table on page 8 for the drilling centre lines.
- Position the appropriately sized window frame so the body of the lamp can pass through (see table 6.1.A on page 12).
- Rest the lamp on the structure and then fasten it with the shockproof polycarbonate protective front, lining up the holes.
- Use the M5x30 screws with the relative washers and nuts provided with the lamp.

- **You must use the polycarbonate protective front (see paragraph 4.2.3 on page 9).**





The fastening screw kit includes:

		EX68	EX96/110
M5x30 button head screw	No	6	8
Washers for M5 screws	No	12	16
M5 threaded nuts	No	6	8

CAUTION

Regularly check the fastening systems of the lamp.

7. Electrical connection

WARNING

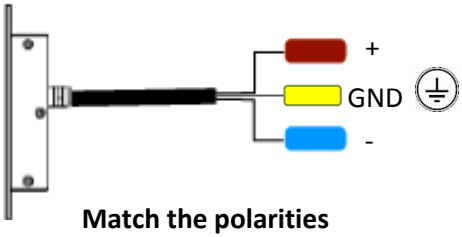
Always switch off the electricity before proceeding with the electrical wiring of the lamp.

Low-voltage 24VDC connection with cable

CAUTION

Any material damage caused by wiring errors will damage the lamp.

- The electrical connection must be carried out by qualified staff.
- Match the polarities of the conductors.
- Use power cables with sections of at least 0.50 mm2



Match the polarities
Brown/red 24VDC (+)
Blue/black 0VDC (-)
Yellow/green GND

N.B. The cable outlet is on the back of the lamp.
Cable type: PUR 3x0.75mm2

CAUTION

- Stay within the input voltage range for the lamp so you don't damage the LED drivers:

Range of permitted voltage values 23 ÷ 25.5VDC

- Use a constant voltage power supply suitable for LEDs

8. Switching on and off

- The lamp is not fitted with an independent system to switch it on and off.
- The lamp switches on when power is supplied and switches off when the power cuts off.

9. Troubleshooting

If the lamp does not switch on:

- Check whether the lighting system is connected to the power supply.
- Check that the connector pins are wired correctly.

If the lamp is faulty, please contact the CCEA technical support service.

CCEA technical support
Tel. +39 0444 572083
tecnico@ccealights.com
www.ccealights.com

WARNING

Do not attempt to dismantle or open the lamp, otherwise you might run the risk of an electric shock or jeopardise the lamp's airtight seal. The warranty will be void.

10. Replacing the light source

The exceptional duration of the LED light source, which lasts over 50,000 hours, means that you do not need to replace the LED circuits during the lamp's lifetime. If you need to replace the LED light source for reasons not covered by the warranty, please contact C.C.E.A. or see your authorised dealer.

11. Product maintenance and cleaning

WARNING

Always switch off the electricity before proceeding with any maintenance.

The lamp does not require any specific maintenance work.

- Switch the lamp off and wait for all parts to cool down before cleaning it.
- Use a soft cloth and mild detergents so you don't scratch the surface.

12.Repairs

CAUTION

Any material damage caused by faulty repairs will damage the lamp.

- Any repairs must be carried out by the manufacturer or by qualified staff.
- Do not open and/or dismantle the lamp.

13.Warranty

Warranty terms

CCEA guarantees to carry out any checks and repairs exclusively at the CCEA Technical Service or at an authorised official dealer throughout the product's lifetime. So please keep the lamp's labels and boxes for any potential repairs.

You will be notified of the costs of any repairs and spare parts once the faults have been analysed.

The warranty does not cover:

• Transport, packaging or shipping costs;

• Deterioration or damaged caused by:

- Installation and/or use other than the instructions indicated in the user manual;
- Repairs or attempted repairs by staff not authorised by CCEA Srl;
- Use of the equipment under environmental conditions other than those specified in the user manual;
- Penetration of liquids inside the lamp;
- Failure to comply with the recommended precautions for transporting and shipping any returns for repair (please use the original packaging).

14. Disposal

According to the provisions of Directive 2002/96/EC, electrical and electronic equipment must be recycled and may not be disposed of as urban waste. Therefore, when you decide to discard this piece of equipment and all its components, including the subsystems and consumables that form an integral part of the product, they must be taken to a local collection centre so they can be disposed of properly in accordance with existing legislation. Ask for information from your local municipal offices to find out where these centres are located.

15.Technical information

NOTE: the information shown on the lamp's label shall apply

Power supply	23-25.5VDC
Power	68-96-110W (see label)
Class IEC	III
Protection rating	IP67
LED driver	IDS system
Light colour	6500K
CRI	75
Operating Temperature	-20 + 55 °C

For other values see the table on page 7

16. Symbols

CE	CE conformity marking
Ex	Compliant with the ATEX Directive
IK08	Appliance protected against 5J impact energy (1.7Kg/30cm) with polycarbonate
IP67	IP67 protection
LED TEC	LED lamp
III	Class III insulation appliance
24VDC	24VDC lamp power supply
	Disposal according to Directive 2002/96/EC
	Do not open and/or dismantle the lamp

17. Declaration of conformity

C.C.E.A. SRL, Via Piave, 2 - 36077 Altavilla Vicentina (VI) - VAT No and Tax Code 02374040240, declares under its sole responsibility that the EX series lighting system covered by this declaration complies with Directive 2006/95/EEC on low voltage, with Directive 89/336/EEC on electromagnetic compatibility and, in particular, with the following regulations:

Directive	***Description***
ATEX 94/9/EC	Directive 94/9/EC of the European Parliament and of the Council of 23 March 1994. *Directive 94/9/CE of the European Parliament session of 23 March 1994.*
IEC EN 60598-1	Lighting equipment. Part 1: General requirements and tests. *Lighting equipment. Part 1: General instructions and tests.*
IEC EN 62471	Photobiological safety of lamps and lamp systems. *Photobiological safety of lamps and lamp systems.*
IEC EN 62031	LED modules for general lighting - Safety specifications. *LED modules for general lighting. Safety specifications.*
IEC EN 61347-2-13	Lamp control gear - Part 2-13: Particular requirements for D.C. or A.C. supplied electronic control gear for LED modules. *Part 2 Lamp control gear. Part 2-13 Particular requirements for DC or AC. Supplied electronic control gear for LED modules.*
IEC EN 62384	D.C. or A.C. electronic driver for LED modules - Performance requirements. *DC or AC supplied electronic control gear for LED modules. Performance requirements.*

This is a standard product and as such it has been made by the manufacturer according to a certain set of parameters, which guarantees trials and destructive tests to ensure it is safe, functional and durable.

C.C.E.A. SRL accepts no liability from any tampering and/or improper use of the device.

Date:

Week of production:

Item code:

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