



IECEX Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification System for Explosive Atmospheres

for rules and details of the IECEx Scheme visit www.iecex.com

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Issue 0 (2021-06-28)

Status: **Current** Issue No: 1

Date of Issue: 2023-06-19

Applicant: **ZALUX S.A**
Avenida Manuel Rodriguez Ayuso, 114
Centro Empresarial Miralbueno
Planta 1a, Local P-2
ZARAGOZA 50012
Spain

Equipment: **Led Lighting and Emergency Lighting range KRATEX-*****

Optional accessory:

Type of Protection: **db, tb**

Marking: Ex db IIC T6 Gb
Ex tb IIIC T85°C Db

The complete marking is detailed in Annex.

Approved for issue on behalf of the IECEx
Certification Body:

Thierry HOUEIX

Position:

Ex Certification Officer

Signature:
(for printed version)

Date:
(for printed version)

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Certificate issued by:

INERIS
Institut National de l'Environnement Industriel et des Risques
BP n2 / Parc Technologique ALATA
F-60550 Verneuil-en-Halatte
France





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Manufacturer: **ZALUX S.A**
Avenida Manuel Rodriguez Ayuso, 114
Centro Empresarial Miralbueno
Planta 1a, Local P-2
ZARAGOZA 50012
Spain

Manufacturing locations: **ZALUX S.A**
Avenida Manuel Rodriguez Ayuso, 114
Centro Empresarial Miralbueno
Planta 1a, Local P-2
ZARAGOZA 50012
Spain

ZALUX S.A
Avda De Aragón 54
Alhama de Aragón (Zaragoza) 50230
Spain

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEX Quality system requirements. This certificate is granted subject to the conditions as set out in IECEX Scheme Rules, IECEX 02 and Operational Documents as amended

STANDARDS :

The equipment and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards

[IEC 60079-0:2017](#) Explosive atmospheres - Part 0: Equipment - General requirements
Edition:7.0

[IEC 60079-1:2014](#) Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures "d"
Edition:7.0

[IEC 60079-31:2013](#) Explosive atmospheres - Part 31: Equipment dust ignition protection by enclosure "t"
Edition:2

This Certificate **does not** indicate compliance with safety and performance requirements other than those expressly included in the Standards listed above.

TEST & ASSESSMENT REPORTS:

A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in:

Test Report:

[FR/INE/ExTR20.0005/01](#)

Quality Assessment Report:

[FR/INE/QAR20.0006/02](#)



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EQUIPMENT:

Equipment and systems covered by this Certificate are as follows:

This range of lighting and emergency lighting are suitable for explosive gas atmospheres of group IIC protected by flameproof enclosure « Ex db » and for dust group IIIC protected by enclosure « Ex tb ».

The range covers 3 sizes of enclosures E1 (smaller), E2 (middle size) and E3 (bigger). The translucent tube could be made in borosilicate glass or in polycarbonate sealed on the body by means of two cemented joints. The body consists of two caps and a threaded cover made in Aluminum alloy. Two studs made of steel are mounted internally between the sealed caps to ensure the mechanical strength of the assembly. The threaded cover (M126) is installed on the body and can be opened for the access to the installation and maintenance. A hexagonal screw blocks the opening.

An O-ring is fixed on the cover to ensure the IP rating. There are two NPT 3/4 threaded holes on the body for power cable entry.

The luminaires are intended to receive different types of LED array, batteries (for emergency versions) and other electronic devices such as drivers, converter, monitoring modules : the different configurations are detailed in descriptive documents of the manufacturer.

The luminaire in emergency version can contain a battery pack that consists of 3, 4 or 5 cells type Ni-Cd or Ni-MH connected in series with the following options:

- Ni-Cd 1.2V 4.5Ah (D-D4500BT from BST)
- Ni-Cd 1,2V 4Ah (D-D000BT*4H from BST),
- Ni-Cd 1.2V 4,2Ah (VNT D U HC from ARTS)
- Ni-Cd 1.2V 1.6Ah (VNT Cs U from ARTS)
- Ni-MH 1.2V 2.2Ah (GP220SCHT from GP Batteries)
- Ni-MH 1.2V 4Ah (GP400LALHT from GP Batteries)
- Ni-Mh 1.2V 1.6Ah (HSC1600HT from GP Batteries)

Otherwise, the luminaire in emergency version can contain a battery pack LiFePO4 that consists of a single cell from the following list:

- LiFePO4 3.2V 3.0Ah (Model IFR-3.2V3Ah from THLB)
- LiFePO4 3.2V 6.0Ah (Model IFR-3.2V6Ah from THLB)
- LiFePO4 3.2V 9.0Ah (Model IFR-3.2V9Ah from THLB)

The luminaires get the degree of protection IP66 in accordance with IEC 60529.

SPECIFIC CONDITIONS OF USE: YES as shown below:

- During the installation, the user will take into consideration that the equipment underwent only a shock corresponding to an energy of a low risk.
- For the risk from electrostatic discharge, the user shall read the instructions.
- Two studs made of steel are mounted internally between the sealed cap and the body to ensure the mechanical strength of the assembly. The studs must be of quality higher or equal to 5.8.

The other conditions of use are stipulated in the instructions.



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DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)

For the Issue 01:

- Introduction new references including wireless communications
- Introduction of new references of emergency versions involving LiFePO4 batterie pack.
- Modification of the maximum ambient temperature for the versions made in polycarbonate.
- Introduction of alternative drivers and LED modules.
- Introduction of the references including a monitoring module.

Annex:

[IECEX INE 20.0005X-01_Annex.pdf](#)



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PARAMETERS RELATING TO THE SAFETY

The electrical parameters of luminaires and ambient temperatures depending on the different variations are specified in the Table 1 (standard version) and Table 2 (standard and/or emergency version) at the end of the certificate.

For standard version, the luminaires can be used in the following ambient temperature range:

- From -20°C to +50°C: Sizes E1, E2 and E3 made in polycarbonate
- From -20°C to +55°C: Sizes E1, E2, E3 made in glass.

For emergency version, the luminaires can be used in the following ambient temperature range:

- From 0°C to +50°C: Sizes E1, E2 and E3 made in polycarbonate
- From 0°C to +55°C: for Sizes E1, E2, E3 made in glass. When fitted with the battery pack LiFePO4, the maximum ambient temperature allowed is +50°C.

MARKING

Marking has to be readable and indelible; it has to include the following indications:

- ZALUX S.A
- 50012, ZARAGOZA – SPAIN
- KRATEX- ... (*)
- IECEx INE 20.0005X
- (Serial number)
- Ex db IIC T6 Gb
- Ex tb IIIC T85°C Db
- IP66
- T. Amb : (**)
- Cable entry: 3/4 NPT
- WARNINGS:
 - DO NOT OPEN WHEN AN EXPLOSIVE ATMOSPHERE IS PRESENT
 - POTENTIAL ELECTROSTATIC CHARGING HAZARD – SEE INSTRUCTIONS

(*) The dots are replaced by a codification according to the manufacturing variations as listed in Table 1 and Table 2 at the end of the certificate.

(**) Range of ambient temperature: See Table 1 and Table 2 at the end of the certificate.

ROUTINE EXAMINATIONS AND TESTS

In accordance with clause 16.1 of the IEC 60079-1 standard each piece of equipment has to have successfully passed, before delivery, an overpressure test during at least 10 seconds under:

- 13.4 bar for the Size E1
- 12.7 bar for the Size E2
- 12.8 bar for the Size E3



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TABLES

TABLE1:Standard luminaire version				
Description (*)	Rated supply voltage	Flux (lm)	Housing	Ambient Temperature
KRATEx HE 300 10-840 ET PC	220-240V 50-60Hz/ 220-240Vdc	1250	E1 PC (*)	-20°C +50°C
KRATEx HE 300 10-840 ET PC ML	AC 230V 50-60Hz/ DC 216 V	1250	E1 PC (*)	-20°C +50°C
KRATEx HE 300 20-840 ET PC	220-240V 50-60Hz / 220-240Vdc	2150	E1 PC (*)	-20°C +50°C
KRATEx HE 300 20-840 ET PC ML	AC 230V 50-60Hz / DC 216 V	2150	E1 PC (*)	-20°C +50°C
KRATEx HE 600 20-840 ET PC	220-240V 50-60Hz / 220-240Vdc	2500	E2 PC (*)	-20°C +50°C
KRATEx HE 600 47-840 ET PC	220-240V 50-60Hz / 220-240Vdc	4750	E2 PC (*)	-20°C +50°C
KRATEx HE 1200 100-840 ET PC	220-240V 50-60Hz / 220-240Vdc	11000	E3 PC (*)	-20°C +50°C
KRATEx HE 1200 40-840 ET PC	220-240V 50-60Hz / 220-240Vdc	4750	E3 PC (*)	-20°C +50°C
KRATEx HE 300 10-840 ET Glass	220-240V 50-60Hz/ 220-240Vdc	1300	E1 V (*)	-20°C +55°C
KRATEx HE 300 10-840 ET Glass ML	AC 230V 50-60Hz/ DC 216 V	1300	E1 V (*)	-20°C +55°C
KRATEx HE 300 20-840 ET Glass	220-240V 50-60Hz / 220-240Vdc	2500	E1 V (*)	-20°C +55°C
KRATEx HE 300 20-840 ET Glass ML	AC 230V 50-60Hz / DC 216 V	2500	E1 V (*)	-20°C +55°C
KRATEx HE 600 20-840 ET Glass	220-240V 50-60Hz / 220-240Vdc	2650	E2 V (*)	-20°C +55°C
KRATEx HE 600 50-840 ET Glass	220-240V 50-60Hz / 220-240Vdc	5000	E2 V (*)	-20°C +55°C
KRATEx HE 1200 100-840 ET Glass	220-240V 50-60Hz / 220-240Vdc	11750	E3 V (*)	-20°C +55°C
KRATEx HE 1200 50-840 ET Glass	220-240V 50-60Hz / 220-240Vdc	5000	E3 V (*)	-20°C +55°C

(*) : PC : Polycarbonate tube, V : Glass tube

(**): The type code of the luminaires specified in the table could be adjusted according to the manufacturing variations:

- The type code "840" is replaced by "865" when the luminaire is provided with LED colors 6500K.
For instance: KRATEx HE 300 10-**865** ET PC
- The type code "ET" is replaced by "ETDD" when the luminaire is provided with DALI controller
For instance: KRATEx HE 300 10-865 **ETDD** PC
- The type code "ET" is replaced by "ETWD" when the luminaire is provided with Wireless controller.
For instance: KRATEx HE 1200 110-840 **ETWD** PC
- The type code "CS" is added at the end when the luminaire is provided with CASAMBI controller.
For instance: KRATEx HE 1200 110-840 ET PC **CS**
- The type code "3x2,5" is added at the end when the luminaire is provided with 5 cables passthrough. Only for E2 and E3 size variant.
For instance: KRATEx HE 1200 110-840 ET PC **3x2,5**



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TABLE2: Emergency luminaire version

Description (**)	Rated supply voltage	Flux (lm)	Emergency Flux (lm)	Housing	Ambient Temperature
KRATEx NS HE 0.3 4-840 ET PC EB3	220-240V 50-60Hz / 220-240Vdc	--	350	E1 PC (*)	0°C-+50°C
KRATEx NS HE 0.3 8-840 ET PC EB3	220-240V 50-60Hz / 220-240Vdc	--	750	E1 PC (*)	0°C-+50°C
KRATEx NS HE 0.6 8-840 ET PC EB3	220-240V 50-60Hz / 220-240Vdc	--	750	E2 PC (*)	0°C-+50°C
KRATEx HE 600 20-840 ET PC EB3	220-240V 50-60Hz / 220-240Vdc	2500	750	E2 PC (*)	0°C-+50°C
KRATEx HE 600 47-840 ET PC EB3	220-240V 50-60Hz / 220-240Vdc	4750	750	E2 PC (*)	0°C-+50°C
KRATEx HE 1200 40-840 ET PC EB3	220-240V 50-60Hz / 220-240Vdc	4750	750	E3 PC (*)	0°C-+50°C
KRATEx NS HE 0.3 4-840 ET Glass EB3	220-240V 50-60Hz / 220-240Vdc	--	400	E1 V (*)	0°C-+55°C (***)
KRATEx NS HE 0.3 8-840 ET Glass EB3	220-240V 50-60Hz / 220-240Vdc	--	800	E1 V (*)	0°C-+55°C (***)
KRATEx NS HE 0.6 8-840 ET Glass EB3	220-240V 50-60Hz / 220-240Vdc	--	800	E2 V (*)	0°C-+55°C (***)
KRATEx HE 600 20-840 ET Glass EB3	220-240V 50-60Hz / 220-240Vdc	2650	800	E2 V (*)	0°C-+55°C (***)
KRATEx HE 600 50-840 ET Glass EB3	220-240V 50-60Hz / 220-240Vdc	5000	800	E2 V (*)	0°C-+55°C (***)
KRATEx HE 1200 50-840 ET Glass EB3	220-240V 50-60Hz / 220-240Vdc	5000	800	E3 V (*)	0°C-+55°C (***)

(*) : PC : Polycarbonate tube, V : Glass tube

(**): The type code of the luminaires specified in the table could be adjusted according to the manufacturing variations:

- The type code "840" is replaced by "865" when the luminaire is provided with LED colors 6500K.
For instance: KRATEx HE 300 10-**865** ET PC
- The type code "ET" is replaced by "ETDD" when the luminaire is provided with DALI controller.
For instance: KRATEx HE 300 10-865 **ETDD** PC
- The type code "ET" is replaced by "ETWD" when the luminaire is provided with Wireless controller.
For instance: KRATEx HE 1200 110-840 **ETWD** PC
- The type code "CS" is added at the end when the luminaire is provided with CASAMBI controller.
For instance: KRATEx HE 1200 110-840 ET PC **CS**
- The type code "EB3" is replaced by "EB1" when the luminaire is provided emergency battery for 1 hour.
For instance: KRATEx NS HE 0.3 8-840 ET PC **EB1**
- The type code "NM" is added after "EB1" when the luminaire is provided with Ni-Mh battery. Only for EB1 variant.
For instance: KRATEx HE 600 47-840 ET PC EB1 **NM**
- The type code "LFP" is added after "EB1" or "EB3" when the luminaire is provided with battery pack LiFePO4.
For instance: KRATEx NS HE 0.3 4-840 ET PC EB3 **LFP**

(***): Ambient temperatures should be reduced from +0°C to +50°C for the luminaires fitted with battery pack LiFePO4 (Type code "LFP")