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EU-TYPE EXAMINATION CERTIFICATE

[2] **Equipment intended for use in potentially explosive atmospheres Directive 2014/34/EU – Annex III**

[3] Certificate Number: **EPT 18 ATEX 2977 X** **issue 2**

[4] Equipment: **Explosion Proof Lighting**

Ex-KFF series

[5] Manufacturer: **Shenzhen KHJ Semiconductor Lighting Co., Ltd**

[6] Address: 4-5 Floor Building 1,Chuangxin Industrial Park, Xintian community Guanlan, Longhua new district, Shenzhen ,China

[7] This equipment and its accepted variations are specified in the annex to this Certificate.

[8] Eurofins Product Testing Italy S.r.l., Notified Body n. 0477 in accordance with Article 21 of the Directive 2014/34/EU of the European Parliament and of the Council of 26th February 2014, certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment intended for use in potentially explosive atmospheres given in Annex II of the Directive. The examination and test results are recorded in the confidential Report N°EPT.22.REL.01/2213031

[9] Compliance with the essential health and safety requirements is assured through the verification of them and by compliance with the following harmonized standards:

EN IEC 60079-0:2018, EN 60079-1:2014, EN IEC 60079-7:2015+A1:2018; EN 60079-31:2014

[10] If the sign "X" is placed after the Certificate number, it indicates that the equipment is subject to the special conditions for safe use specified in the annex to this Certificate.

[11] This EU-TYPE EXAMINATION CERTIFICATE relates only to the design, the exam and the tests of the specified equipment.
Further requirements of the Directive 2014/34/EU apply to the manufacture and supply of this equipment.
These requirements are not object of this Certificate.

[12] The equipment shall include the sign Ex and the following strings:

II 2G Ex db IIC T6...T4 Gb
II 2D Ex tb IIIC T80°C...T130°C Db
Applicable to all models except Ex-KFFXP

or

II 2G Ex db eb IIC T6...T4 Gb
II 2D Ex tb IIIC T80°C...T130°C Db
Applicable only to model Ex-KFFXP

**Refer to the equipment description for the temperature limits details*

Place and date of issue:
(DD-MM-YYYY)

Torino, 27-10-2022

Dionisio Bucchieri
Directive Responsible

Paolo Trisoglio
Managing Director

Eurofins Product Testing Italy S.r.l. eurofins Notified Body N. 0477

ACCREDIA L'ENTE ITALIANO DI ACCREDITAMENTO
PRD N° 119B
Signatory of EA, IAF and ILAC Mutual Recognition Agreements

This Certificate has 9 pages and it is reproducible only in its entirety. Conditions of validity are reported below.

CP-ATEX-MOD-26-00

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[15] **Equipment description**

Explosion proof lighting Ex-KFF series include fixed and portable luminaires. Explosion proof lighting models Ex-KFFX(X=10W,15W) are portable luminaires and are composed of one Ex db/ Ex tb chamber; Explosion proof lighting Ex-KFFXY (X=30W, 45W, 60W; Y=blank, J or P) are fixed luminaires; Ex-KFFXY (Y=blank) are composed of one Ex db/ Ex tb chamber; Ex-KFFXY (Y=J) are composed of two Ex db/ Ex tb chambers while Ex-KFFXY (Y= P) are composed of one Ex db/ Ex tb light source chamber and one Ex eb/ Ex tb terminal chamber.

For fixed lighting model, the light source compartment is mainly for the LEDs and LED driver; the terminal compartment is for wiring connection. The light source compartment is mainly made of light-transmitting glass, metal enclosure and wire-through bushing; the terminal compartment is mainly made of metal enclosure.

For portable lighting model, the light source compartment is mainly for the LEDs, LED driver, battery and charging port. The light source compartment is mainly made of light-transmitting glass, metal enclosure and charging port.

The metal enclosure material is made in alluminium alloy. The wire-through part between light source compartment and terminal compartment of fixed lighting model and charging port are encapsulated forming a cemented flameproof joint.

The degree of protection of the enclosure is IP66, according to EN 60079-0 and EN 60529.

Catalogue Number Logic:

Ex-	KFF	X	Y
1	2	3	4

Number	Description
1	EX-: Explosion Proof
2	KFF: KForestFrog
3	Rated power: 10W, 15W, 30W, 45W, 60W
4	When the rated power is 30W, 45W or 60W
	Lack(one Ex d chamber): Blank
	J: Two Ex db chambers light.
	P: One Ex db chamber and one Ex eb chamber light

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Relationships between rated power values, ambient temperature ranges and temperature limits:

Explosion Proof fixed Lighting Ex-KFFXY (X=30W, 45W, 60W; Y=blank, J, P)					
Rated voltage (V)	Rated power (W)	Temperature class			
		-40°C ≤ Ta ≤ +40°C		-40°C ≤ Ta ≤ +55°C	
		Gas	Dust	Gas	Dust
100-277 VAC or 24-48 VDC/VAC or 10-30 VDC	30	T6	T80°C	T5	T95°C
	45	T6	T80°C	T5	T95°C
	60	T5	T95°C	T4	T130°C

Explosion Proof portable Lighting Ex-KFFX (X=10W, 15W)					
Rated voltage/ current (V/A)	Battery Capacity	Rated power (W)	Tamb	Temperature class	
				Gas	Dust
26.0VDC/2.0A	22.2V/4.4Ah	10	-20°C ≤ Ta ≤ +55°C	T6	T80°C
26.0VDC/2.0A	22.2V/4.4Ah	15	-20°C ≤ Ta ≤ +55°C	T6	T80°C

Warning label

Applicable to all models:

WARNING - DO NOT OPEN WHEN ENERGISED

WARNING - AFTER DE-ENERGISING, DELAY 10 MINUTES BEFORE OPENING

CAUTION - USE FASTENERS WITH YIELD STRESS ⩾ 450MPa

WARNING - POTENTIAL ELECTROSTATIC CHARGING HAZARD – SEE INSTRUCTIONS

WARNING - DO NOT OPEN WHEN AN EXPLOSIVE GAS ATMOSPHERE IS PRESENT

Applicable to all models except for portable lighting:

CAUTION - ONLY USE CABLES SUITABLE FOR 90°C

Routine tests

Applicable to all models:

- For Ex db chamber(s), overpressure test should be carried out according to the first method at a minimum pressure of 15,5 bar for at least 10 s to light source compartment, at a minimum pressure of 11 bar for at least 10 s to terminal compartment, according to clause 16.1 of EN 60079-1:2014.

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Applicable to Ex-KFFXP only:

-For Ex eb chamber, dielectric strength test should be carried out at a test voltage 1554 Vr.m.s or 2642 Vdc and maintained at least 1 min or be carried out at 1865 Vr.m.s or 3171 Vdc and maintained at least 100ms according to clause 7.1 of EN IEC 60079-7:2015+A1:2018.

[16] **Assessment Report n° EPT.22.REL.01/2213031**

This EU-Type Examination Certificate is released after the positive result of the conformity assessment of the Council Directive 2014/34/EU and to harmonized technical standards listed in this certificate performed by the Notified Body Eurofins Product Testing Italy S.r.l., and reported in the Assessment Report above cited.

[17] **Special condition for a safe use**

Applicable to all versions

- Potential electrostatic charging hazard – See instructions
- The flameproof joints are not intended to be repaired.

Applicable to portable version only

- Charge the battery in non-hazardous location only.

[18] **Essential Health and Safety Requirements**

Assured by compliance with harmonized standards.

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[19] **Descriptive documents**

The equipment object of this Certificate are described by the following documents that are scheduled documents and therefore they cannot be modified without the explicit authorization of the Notified Body.

Type of document	Document identification	Rev.	Date
Explosion Proof fixed Lighting Ex-KFFXY (X=30W, 45W, 60W; Y=blank)			
*Assembly Drawing of ForestFrog	130402-00-ATEX	B	2022.07.02
Housing	130402-01	B	2014.04.29
Cover	130402-02	C	2018.05.31
Clear Parts	130402-04	A	2014.04.29
Tabletting	110602-04	A	2014.04.29
Rubber Pad	110601-13	A	2014.04.29
Bottom cover（M25）	130402-03-05	A	2014.04.29
Bottom cover（NPT3/4）	130402-03-06	A	2014.04.29
Pressuring Nut(M25)	111003-26	A	2014.06.30
Pressuring Nut(NPT3/4)	111003-29	A	2014.06.30
Φ8 Plate Washer(M25)	111005-13	A	2014.04.29
Φ8 Plate Washer(NPT3/4)	111005-24	A	2014.04.29
Φ8 Block Rubber(M25)	111005-18	A	2014.04.29
Φ8 Block Rubber(NPT3/4)	111005-29	A	2014.04.29
Pipe connector (M25-M25)	130402-76	A	2018.05.31
Pipe connector (NPT3/4-NPT3/4)	130402-72	A	2018.05.31
Pipe connector (NPT3/4-M25)	130402-72-01	A	2018.05.31
Pipe connector (M25-NPT3/4)	130402-72-02	A	2018.05.31
Retro reflector	130402-13	A	2014.04.29
Trim Cover 1	130402-14	A	2014.04.29
Φ6 Washer	110601-40	A	2014.04.29
*Operation & Maintenance manual	KForestFrog Series-NV1.0	1.0	2022.09.09
*ATEX Marking	130402-M03	F	2022.07.02
Explosion Proof fixed Lighting Ex-KFFXY (X=30W, 45W, 60W;Y=J)			
*LED Explosion Proof Light	130402-01-ATEX	B	2022.07.02

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Housing	130402-01	B	2014.04.29
Cover	130402-02	C	2018.05.31
Clear Parts	130402-04	A	2014.04.29
Tabletting	110602-04	A	2014.04.29
Rubber Pad	110601-13	A	2014.04.29
Postoperculum	130402-61	C	2018.05.31
Top Cover(NPT3/4)	130402-62	C	2018.05.31
Top Cover(M25)	130402-64	B	2018.05.31
Pressuring Nut(M25)	111003-26	A	2014.06.30
Pressuring Nut(NPT3/4)	111003-29	A	2014.06.30
Φ8 Plate Washer(M25)	111005-13	A	2014.04.29
Φ8 Plate Washer(NPT3/4)	111005-24	A	2014.04.29
Φ8 Block Rubber(M25)	111005-18	A	2014.04.29
Φ8 Block Rubber(NPT3/4)	111005-29	A	2014.04.29
Pipe connector (M25-M25)	130402-76	A	2018.05.31
Pipe connector (NPT3/4-NPT3/4)	130402-72	A	2018.05.31
Pipe connector (NPT3/4-M25)	130402-72-01	A	2018.05.31
Pipe connector (M25-NPT3/4)	130402-72-02	A	2018.05.31
Terminal block assembly	130402-45	A	2018.05.31
Φ6 Washer	110601-40	A	2014.04.29
Retro reflector	130402-13	A	2014.04.29
Trim Cover 1	130402-14	A	2014.04.29
*ATEX Marking	130402-M16	F	2022.03.26
*Operation & Maintenance manual	KForestFrog Series-J-NV1.0	1.0	2022.09.09
Explosion Proof fixed Lighting Ex-KFFXY (X=30W, 45W, 60W;Y=P)			
LED Explosion Proof Light	130402-02-ATEX	A	2019.01.25
Housing	130402-01	B	2014.04.29
Cover	130402-02	C	2018.05.31
Clear Parts	130402-04	A	2014.04.29
Tabletting	110602-04	A	2014.04.29

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Rubber Pad	110601-13	A	2014.04.29
Postoperculum	130402-61	C	2018.05.31
Pole 0 degree mount	180601-03-04	A	2019-01-25
Pole 25 degree mount	180601-01-04	A	2019-01-25
Top Cover	180601-02-01	A	2019-01-25
Terminal block assembly	130402-45	A	2018.05.31
Φ6 Washer	110601-40	A	2014.04.29
Retro reflector	130402-13	A	2014.04.29
Trim Cover 1	130402-14	A	2018.05.31
*ATEX Marking	160201-M63	A	2022.03.26
*Operation & Maintenance manual	KForestFrog Series-P-NV1.0	01	2021.12.23
Explosion Proof portable Lighting Ex-KFFX (X=10W, 15W)			
Assembly drawing	160201-00	A	2017.12.12
Housing	130402-28-02	A	2017.12.12
Cover	130402-02	C	2018.05.31
Clear Parts	130402-04	A	2014.04.29
Tabletting	110602-04	A	2014.04.29
Rubber Pad	110601-13	A	2014.04.29
Rear cover	160201-02	C	2018.05.31
Switch housing	160201-01	C	2018.05.31
Switch cap	160201-03	C	2018.05.31
Switch plate	160201-04	B	2018.05.31
Connector	160201-07	A	2017.12.12
Φ6 Washer	110601-40	A	2014.04.29
Joystick	160201-08	A	2018.05.31
Handle	120901-36	A	2017.12.12
Trim Cover 2	130402-15	A	2017.12.12
Trim Cover II	150303-18	A	2017.12.12
Chassis	120901-35	C	2017.12.12
Support plate	130402-10	D	2018.05.31

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Support	160201-06	C	2018.05.31
Magnets	120901-39	A	2017.12.12
*Nameplate	160201-M04	E	2022.03.26
*Operation & Maintenance manual	KForestFrog Series-T-NV1.0	01	2021.12.23
Circuit diagram	160201-SCH01	B	2018.05.22
Protection circuit	P10 protection circuit	V1.0	2014.12.17
INR21700M05T CB certification	DK-76274-UL	--	2018.09.05
Battery Specification of 6S-21700 cell	6S2P-18650-22.2V-4400mAh	00/00	2019.07.26
PCB	160201-PCB03	/	/

*Note: An * is included before the title of documents that are new or revised.*

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[20] **Terms and conditions**

The product liability rests with the Manufacturer, his representative or, in the absence of a representative, with the importer, in accordance with the General Product Safety Directive 2001/95/EC.

The following conditions may render this certificate invalid:

- changes in the design or construction of the product;
- changes or amendments to the Directive;
- changes or amendments in the standards which form the basis for documenting compliance with the essential requirements of the 2014/34/EU Directive.

[21] **History**

Issue	Description	Date
0	First Emission.	29-06-2018
1	Added new types Ex-KFFXY (X=30W,45W,60W; Y=P) with Ex db lighting source chamber and Ex eb terminal box. Changed battery.	18-09-2019
2	Updated the standards EN60079-0:2012+A11:2013 and EN60079-7:2015 to EN IEC 60079-0:2018 and EN IEC 60079-7:2015+A1:2018; Removed the standard EN60079-28:2015 and "op is"; Modified the description for fixed version J (definition of Catalogue Number Logic).	27-10-2022

Dionisio Bucchieri
Directive Responsible

End of Certificate