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

Certificate No.: **IECEx CML 14.0001**

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Status: **Current**

Issue No: 14

Date of Issue: 2022-09-02

Applicant: **Raytec Ltd**
Unit 15 Wansbeck Business Park
Rotary Parkway
Ashington
Northumberland
NE63 8QW
United Kingdom

Equipment: **Spartan SPX Luminaires**

Optional accessory:

Type of Protection: **Flameproof Ex "db", Increased Safety Ex "eb", Encapsulated Ex "mb", Dust Enclosure Ex "tb",**

Marking: Ex eb mb IIC T6 Gb or
Ex eb mb IIC T5 Gb or
Ex eb mb IIC T5/T4 Gb
Ex tb III C T82°C Db

Up to -52°C to +55°C (dependant on model)

See Annex for full marking and temperature ranges.

Certificate history:

Issue 13 (2020-10-09)
Issue 12 (2020-02-06)
Issue 11 (2018-02-20)
Issue 10 (2017-10-12)
Issue 9 (2017-09-22)
Issue 8 (2017-04-04)
Issue 7 (2016-09-02)
Issue 6 (2016-07-13)
Issue 5 (2016-04-01)
Issue 4 (2015-08-21)

Approved for issue on behalf of the IECEx Certification Body: **L A Brisk**

Position: **Certification Officer**

Signature: (for printed version)

Date: 2022-09-02
(for printed version)

1. This certificate and schedule may only be reproduced in full.
2. This certificate is not transferable and remains the property of the issuing body.
3. The Status and authenticity of this certificate may be verified by visiting www.iecex.com or use of this QR Code.

Certificate issued by:

Eurofins E&E CML Limited
Unit 1, Newport Business Park
New Port Road
Ellesmere Port, CH65 4LZ
United Kingdom

IECEx Certificate of Conformity

Certificate No.: **IECEx CML 14.0001**

Date of issue: 2022-09-02 Issue No: 14

Manufacturer: **Raytec**
Unit 15 Wansbeck Business Park
Rotary Parkway
Ashington
Northumberland
NE63 8QW
United Kingdom

Manufacturing locations:

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 60079-1:2014-06 Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures "d"
Edition:7.0

IEC 60079-18:2017 Explosive atmospheres - Part 18: Protection by encapsulation "m"
Edition:4.1

IEC 60079-31:2013 Explosive atmospheres - Part 31: Equipment dust ignition protection by enclosure "t"
Edition:2

IEC 60079-7:2017 Explosive atmospheres - Part 7: Equipment protection by increased safety "e"
Edition:5.1

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 Reports:

GB/CML/ExTR14.0001/00
GB/CML/ExTR14.0006/00
GB/CML/ExTR17.0160/00
GB/CML/ExTR17.0163/00
GB/CML/ExTR17.0178/00
GB/CML/ExTR20.0007/00
GB/CML/ExTR22.0196/00

Quality Assessment Report:

GB/SIR/QAR13.0018/09

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EQUIPMENT:
Equipment and systems covered by this Certificate are as follows:

The SpartanSPX FL** luminaire is a range of LED luminaires. There are three sizes available in therange FL12 (Small) FL24 (Medium) and FL48 (Large). All size enclosures are offered as LV (Low Voltage); rated at 18V -48V AC / 18V –68V DC or HV (High Voltage); rated at 110V – 280V AC orELV (Extra Low Voltage); rated at 12V AC or DC. The HV luminaires may be supplied with a batterypack and inverter to enable operation in ‘emergency’ mode.

See Annex for full description and Conditions of Manufacture

SPECIFIC CONDITIONS OF USE: NO
See certificate Annex for specific condition of safe use.

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DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)
Issue 1

This issue introduces the following changes:

1. To allow a Low Voltage Power Supply option and subsequent amendment to the condition of manufacture for electric strength testing.
2. To include a cable lengthening and repair procedure to the constructional drawings.
3. To include clarification notes to the constructional drawings.
4. To include change to conductors of cables entering the encapsulant for PSU's and LED's.

Issue 2

This issue introduces the following changes:

1. The introduction of an alternative bulkhead luminaire version, housed in a modified enclosure. The battery pack and inverter modules have been changed as part of this addition.

Issue 3

This issue introduces the following change:

1. To permit the use of alternative terminal blocks.

Issue 4

This issue introduces the following change:

1. To allow an additional larger FL72 (X Large) version to be included for use in the Spartan SPX FL** Luminaire range

Issue 5

This issue introduces the following change:

1. To allow transparent antistatic film to be fitted to the outer lens cover.
2. To allow separately certified panel mounted socket connectors to be fitted.
3. To allow a portable range of luminaires to be included.
4. The description was amended to reflect the modifications above and to correct a reference typographical error.

Issue 6

This issue introduces the following change:

1. To increase the voltage range for the low voltage options. The product description was updated to reflect the changes made by this variation.

Issue 7

This issue introduces the following changes:

1. To allow an alternative label to be fitted.
2. To allow the use of alternative model names

Issue 8

This issue introduces the following changes:

1. To assess product against EN 60079-28:2015.
2. To include Ex op is marking in line with EN 60079-28:2015.
3. To update EN/IEC 60079-18:2009 to EN 60079-18:2015.
4. To update the conditions

Issue 9

This issue introduces the following changes:

1. To introduce a new ELV variant which contains a new encapsulated power supply operating at nominal 12V.
2. To allow the use of additional alternative certified sockets
3. The description is modified in accordance with the modifications above.
4. To allow an alternative label to be fitted.
5. To allow the use of alternative model names (description updated)

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Issue 10

This issue introduces the following changes:

1. Replace discrete logic components with microprocessor system.
2. Addition of 3 indication LEDS.

Issue 11

This issue introduces the following change:

1. Reintroduction of the alternative labels for WADCO BOSSE LED.

Issue 12

This issue introduces the following changes:

1. To implement minor changes to the PSU electronic circuit
2. To remove IEC 60079 28:2015 from scope
3. To update the address on certificate
4. To update the marking on certificates
5. To reintroduce the standard IEC 60079-1

Issue 13

This issue introduces the following changes:

1. To review and update the certification against the latest Version/Editionof standards as listed in section 1.4 of this evaluation report.
2. To assess and permit the introduction of an alternative toughened glass window assemblyfor the portable/transportable luminaire variant.
3. To assess and permit an additional silicone gasket for the glass cover.
4. To amend the high voltage variant upper limit from 280V AC to 254V AC.
5. To assess and permit a non-metallic paint layer (applied externally to the equipment)

Issue 14

This issue introduces the following changes:

1. To introduce a Universal Power Supply.

Annex:

IECEx CML 14.0001 Issue 14 Annex_1.pdf

Annexe to: IECEx CML 14.0001 Issue 14

Applicant: Raytec Ltd.

Apparatus: Spartan SPX FL** Luminaire

Marking

Spartan Power Supply

FL Versions**

II 2 G D

Ex eb mb IIC T5/T4 Gb
Ta = -52 ºC to +55 ºC
Ex eb mb IIC T6 Gb
Ta = -52°C to 48°C
Ex tb IIIC T82 ºC Db
IP66 IP67
Ta = Up to -52 ºC to +55 ºC

BL Versions**

II 2 G D

Ex eb mb IIC T4 Gb
Ta = -52 ºC to +55 ºC
Ex eb mb IIC T5 Gb
Ta = -52°C to +48°C
Ex tb IIIC T98 ºC Db
IP66 & IP67
Ta = -52 ºC to +55 ºC

BL Emergency Version**

II 2 G D

Ex eb mb IIC T5/T4 Gb
Ex tb IIIC T98 ºC Db
IP66 IP67
Ta = -20ºC to +46 ºC

All Emergency variants have a lower ambient of -20°C only

Marking continued:

Sockets Fitted:

II 2 G D
Ex db eb mb IIC T6 Gb
Ex tb IIIC T82°C Db
Ta= Up to -20°C to +40°C

Socket GHG 54** Fitted:

II 2 G
Ex db eb mb IIC T6 Gb
Ta= Up to -20°C to +40°C

When latest version of GHG 5118*** socket is fitted lower ambient may be marked -55°C.

Universal Power Supply

FL Versions**

II 2 G D
Ex e mb IIC T4 Gb
Ex tb IIIC T82 ºC Db
Ta = Up to -52 ºC to +55 ºC
IP66 IP67

BL Versions**

II 2 G D
Ex e mb IIC T4 Gb
Ex tb IIIC T98 ºC Db
Ta = Up to -52 ºC to +55 ºC
IP66 IP67

BL Emergency Version**

II 2 G D
Ex e mb IIC T4 Gb
Ex tb IIIC T98 ºC Db
Ta = -20ºC to +46 ºC
IP66 IP67

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Description

The Spartan SPX FL** luminaire is a range of LED luminaires. There are three sizes available in the range FL12 (Small) FL24 (Medium) and FL48 (Large). All size enclosures are offered as LV (Low Voltage); rated at 18V - 48V AC / 18V – 68V DC or HV (High Voltage); rated at 110V – 280V AC or ELV (Extra Low Voltage); rated at 12V AC or DC. The HV luminaires may be supplied with a battery pack and inverter to enable operation in 'emergency' mode.

The luminaire enclosure comprises, front, centre, and rear cast aluminium housings that are fixed together with bolts. There are fixing points for a mounting bracket that enable the luminaire to be fixed in any orientation, alternative fixing points are also provided for additional mounting accessories.

Inside the centre housing there are two independent encapsulated power supplies (electronic control gear) and supply /connection terminal blocks, cable entries are also present for the connection of mains electrical supply. Internal and external earth points are available.

The front housing has a soda lime toughened glass lens that is available in clear or coloured options. Internally the LED's are mounted onto two independent IMS PCBs which are attached to the rear heat sink, each PCB utilises twelve LED's which can be white, infra-red, coloured or a combination. The LED's must be fitted with individual optics, these optics are available in a range of beam patterns to suit the end user application. The LED's/optics are positioned in groups of four, each group of four is in turn covered with an individual clear polycarbonate cover which is then partially encapsulated.

The emergency version utilises a modified rear housing which incorporates a rechargeable battery pack, connection terminal block and encapsulated fuse. An optional encapsulated single green LED can be fitted to the wall of the centre housing which provides the end user with an indication that the emergency system is healthy.

The luminaire is available in three sizes, small, medium, and large. The medium variant as described above, the small variant which only utilises one power supply/LED board and the larger variants which consist of a number of medium luminaires fixed together with unions and alternative mounting brackets.

The small, medium, and large variants may all be fitted with an optional encapsulated photocell which is located in the wall of the centre housing positioned to suit the customer's application. Also on all variants a 'Vario' holographic diffuser film may be fitted behind the glass to give alternative light patterns. The front and middle/rear housing of the luminaires may be split to allow the LED assembly to be mounted remotely from the power supply/emergency enclosure.

An EMC filter module may be fitted as an optional extra, this is an additional encapsulated board, located in place of the terminal block bracket (when fitted). A Spartan SPX FLT** transportable variant of luminaire is available which consists of one of the luminaires above mounted in a sturdy frame and supplied with suitable cable and certified ATEX
plugs and sockets.

A Bulkhead variant of the luminaire is available, the Spartan SPX BL24. Based on the FL24 floodlight it is modified to utilise a narrower enclosure and run at half of the power. It is offered as standard with the LV version, HV version or as HV emergency where it is supplied with a battery pack and inverter.

The BL24 is designed for wall mounting in any orientation using steel brackets at the back of the luminaire. The enclosure consists of a front cover and rear body and utilises the power supply, inverter, control board and modified light engine from the FL24. The BL luminaire can be offered as transportable and with an optional photocell.

The FL 12, FL 24 and BL 24 are offered as portable variants FLP 12, FLP 24 and BLP 24.

The SPX range may be fitted with a selection of separately certified sockets mounted onto the back of the existing luminaire enclosures. When sockets are mounted onto the portable variants they are fitted with an essential carrying frame.

An optional replaceable antistatic lens film is available across the range.

The equipment may be fitted with alternative labels, when fitted with these labels, the equipment is marketed under the product range name HAZX Nero or WADCO BOSSE LED, carrying the following
alternative model names:

Original Model Name	Alternative Model Name	Alternative Model Name
FL12	HAZ-NER-M	WBF34S
FL24	HAZ-NER-S	WBF68S
FL48	HAZ-NER-D	WBF136S
FL72	HAZ-NER-T	WBF204S
BL24	HAZ-NEB-S	WBF34S
FLP12	HAZ-NEP-M	
FLP24	HAZ-NEP-S	
BLP24	HAZ-NEP-B	
FLT24	HAZ-NET-S	

Variants of the standard mains voltage luminaires can be supplied to deliver an increased light output, these are designated WL84-HO and WL168-HO and can have a maximum power of 46W and 92W respectively

Conditions of Manufacture

The following conditions are required of the manufacturing process for compliance with the certification.

i. Where the product incorporates certified parts or safety critical components, the manufacturer of the product defined on this certificate shall continually monitor these parts/components for any modifications introduced by the manufacturer(s) of these constituent parts. If the manufacturer of any constituent part introduces any changes which affect the compliance of the certified product that is the subject of this certificate, the manufacturer is required to have this certificate updated.

ii. A dielectric strength test shall be carried out on all units manufactured in accordance with IEC 60079-7, clause 7.1 and IEC 60079-18, clause 9.2, at 1560 VAC for 1 minute, or alternatively at 1.2 times this test voltage for 100ms. Alternatively, a 1.4 times d.c. voltage dielectric strength test may be carried out. No breakdown shall occur. Tests shall be carried out between each circuit and earth and between each circuit and the surface of the encapsulated parts.

iii. A visual inspection shall be carried out on the encapsulated parts to check for damage, in accordance with IEC 60079-18, clause 9.1.

iv. When fitted with universal PSU module, equipment shall only be marked T4 for Gb applications.

Specific Conditions of Use

None

Components covered by Ex Certificates issued to older editions of Standards

None