



EC Type Examination Certificate CML 13ATEX3007 Issue 7

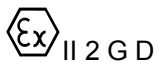
- 1 Equipment intended for use in Potentially Explosive Atmospheres Directive 94/9/EC
- 2 Equipment **Spartan SPX FL** Luminaire**
- 3 Manufacturer **Raytec Ltd**
- 4 Address Unit 3 Wansbeck Business
Park, Rotary Parkway,
Ashington Northumberland
NE63 8QW
UK
- 5 The equipment is specified in the schedule of this certificate and the documents to which it refers.
- 6 Certification Management Limited, Unit 1 Newport Business Park, New Port Road, Ellesmere Port CH65 4LZ, UK, Notified Body Number 2503, in accordance with Article 9 of Directive 94/9/EC, 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 to the Directive.

The examination and test results are recorded in the confidential reports listed in Section 12.
- 7 If an 'X' suffix appears after the certificate number, it indicates that the equipment is subject to conditions of safe use (affecting correct installation or safe use). These are specified in Section 14.
- 8 This EC Type Examination certificate relates only to the design and construction of the specified equipment or component. Further requirements of Directive 94/9/EC Article 8 apply to the manufacture of the equipment or component and are separately certified.
- 9 Compliance with the Essential Health and Safety Requirements, with the exception of those listed in the confidential report, has been demonstrated through compliance with the following documents:

EN 60079-0:2012	EN 60079-7:2007	EN 60079-18:2009	EN 60079-31:2009
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- 10 The equipment shall be marked with the following:

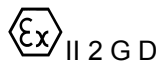
FL** Versions



II 2 G D

Ex e mb IIC T6 Gb
Ta= Up to -52°C to +48°C
Ex e mb IIC T5 or T4 Gb
Ex tb IIIC T82°C Db
Ta= Up to -52°C to +55°C
IP66

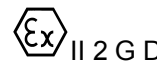
BL** Version



II 2 G D

Ex e mb IIC T5 Gb
Ta= Up to -52°C to +48°C
Ex e mb IIC T4 Gb
Ex tb IIIC T98°C Db
Ta= Up to -52°C to +55°C
IP66

BL** Emergency Version



II 2 G D

Ex e mb IIC T5 Gb
Ex tb IIIC T98°C Db
Ta= -20°C to +46°C
IP66

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



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11 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 - 30V AC / 18V – 40V DC or HV (High Voltage); rated at 110V – 254V AC. 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



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the HV version rated at 110v – 254v AC, or as 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 photo cell.

Variation 1

This variation introduces the following modifications:

- i. An additional designation reference has been added to the product name.
- ii. The option to include an additional EMC filter module.
- iii. The option to include an additional resistor (R4) in the emergency power supply module for EMC purposes.
- iv. To allow the use of an alternative separately certified terminal block.
- v. To allow minor enclosure modifications.
- vi. To allow the lower ambient range to be extended from -50°C to -52°C.
- vii. The 'conditions of manufacture' were clarified to allow alternative d.c. dielectric strength test to be conducted.

Variation 2

This variation introduces the following modifications:

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

Variation 3

This variation introduces the following modifications:

- i. 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. The description has changed to include the bulkhead version.



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12 Certificate history and evaluation reports

Issue	Date	Associated report	Notes
1	13 Dec 2013	R34A/00	The release of the prime certificate
2	03 Jan 2014	R34A/01	Re-issued to correct a typographical error to drawing 910-SD-001
3	05 Mar 2014	R114A/00	The issue of variation 1. Issue dates corrected.
4	26 Mar 2014	R114A/01	Re-issued to correct a typographical error to drawing 910-SD-001
5	24 Nov 2014	R328A/00	The issue of variation 2
6	09 Dec 2014	-	Minor edit to first paragraph of description
7	17 Feb 2015	R423A/00	The issue of variation 3

Note: Drawings that describe the equipment or component are listed in the Annex.

13 Conditions of manufacture

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

- 13.1 Where the product incorporates certified components the manufacturer shall ensure that any changes to those components do not affect the compliance of the certified product that is the subject of this certificate.
- 13.2 A dielectric strength test shall be carried out on all units manufactured in accordance with EN 60079-7:2007 clause 7.1 and EN 60079-18:2009, clause 9.2, at 1508 Vac for 1 minute, or alternatively at 1.2 times this test voltage for 100 ms. 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 encapsulated parts.
- 13.3 A visual inspection shall be carried out on the encapsulated parts to check for damage, in accordance with EN 60079-18:2009, clause 9.1.

14 Special Conditions for Safe Use (Conditions of Certification)

The following conditions relate to safe installation and/or use of the equipment.

None

Certificate Annex



Certificate Number CML 13ATEX3007
Equipment Spartan SPX FL** Luminaire
Manufacturer Raytec Ltd

The following documents describe the equipment or component defined in this certificate:

Issue 1

Drawing No	Sheets	Rev	Approved Date	Title
910-SD-0001	1 to 4	A	13 Dec 2013	Spartan LED Floodlight Ex em
910-SD-0002	1 to 2	A	13 Dec 2013	Standard and Emergency PCB Schematic Diagram
910-SD-0003	1 to 5	A	13 Dec 2013	Parts List FMEA Spartan Floodlight Main Power Supply
910-SD-0004	1 to 5	A	13 Dec 2013	Parts List FMEA Spartan Floodlight Emergency Power Supply

Issue 2

Drawing No	Sheets	Rev	Approved Date	Title
910-SD-0001	1 of 4	B	03 Jan 2014	Spartan LED Floodlight Ex em
910-SD-0005	1 to 2	A	16 Dec 2013	Component tolerance driver circuit

Issue 3

Drawing No	Sheets	Rev	Approved Date	Title
910-SD-0001	1 of 4	C	05 Mar 2014	Spartan LED Floodlight Ex em
910-SD-0001	2 of 4	B	05 Mar 2014	Spartan LED Floodlight Ex em
910-SD-0001	4 of 4	B	05 Mar 2014	Spartan LED Floodlight Ex em
910-SD-0002	1 to 2	B	05 Mar 2014	Standard and Emergency PCB Schematic Diagram
910-SD-0004	1 of 5	B	05 Mar 2014	Parts List FMEA Spartan Floodlight Emergency Power Supply
910-SD-0005	2 of 2	B	05 Mar 2014	Parts List Emergency PCB

Issue 4

Drawing No	Sheets	Rev	Approved Date	Title
910-SD-0001	1 of 4	D	26 Mar 2014	Spartan LED Floodlight Ex em

Certificate Annex



Certificate Number CML 13ATEX3007
Equipment Spartan SPX FL** Luminaire
Manufacturer Raytec Ltd

Issue 5

Drawing No	Sheets	Rev	Approved Date	Title
910-SD-0001	1 of 4	E	24 Nov 2014	Spartan SPX FL assy Dwg
910-SD-0001	2 of 4	C	24 Nov 2014	Spartan SPX FL assy Dwg
910-SD-0001	3 of 4	B	24 Nov 2014	Spartan SPX FL assy Dwg
910-SD-0009	1 of 1	A	24 Nov 2014	LV PSU Schematic
910-SD-0010	1 of 5	A	24 Nov 2014	LV PSU Parts List/FMEA
910-SD-0010	2 to 5	A	24 Nov 2014	LV PSU Parts List/FMEA
910-SD-0011	1 of 1	A	24 Nov 2014	LV Component Tolerances

Issue 6

No additional drawings.

Issue 7

Drawing No	Sheets	Rev	Approved Date	Title
940-SD-0001	1 to 3	A	17 Feb 15	Spartan Bulkhead
910-SD-0004	3 of 5	B	17 Feb 15	FMEA Emergency Power supply