Type Examination Certificate CML 17ATEX4231 Issue 0

1 Equipment intended for use in Potentially Explosive Atmospheres Directive 2014/34/EU

2 Equipment Spartan SPZ Floodlight/Bulkhead Luminaire

3 Manufacturer Raytec Ltd

4 Address Unit 15 Wansbeck Business Park,
Rotary Parkway,
Ashington Northumberland
NE63 8QW
UK

5 The equipment is specified in the description 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, certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design of equipment intended for use in potentially explosive atmospheres given in Annex II of Directive 2014/34/EU.

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 certification (affecting correct installation or safe use). These are specified in Section 14.

8 This Type Examination certificate relates only to the design and construction of the specified equipment or component. Further requirements of Directive 2014/34/EU Annex VIII apply to the manufacture of the equipment or component.

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+A11:2013	EN 60079-1:2014
EN 60079-7:2015	EN 60079-18:2015
EN 60079-28:2015	EN 60079-31:2014

10 The equipment shall be marked with the following:

FL (No Sockets)**	**FL** Emergency**	**Note:**
Ex II 3 G D	Ex II 3 G D	'op is' marking– see note in the description
Ex ec mc op is IIC T4 Gc	Ex ec mc op is IIC T4 Gc	
Ex tc op is IIIC T82°C Dc	Ex tc op is IIIC T82°C Dc	
Ta = -50 °C to +55 °C	Ta = -20 °C to +55 °C	

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Technical Manager

BL**	BL** Emergency	Note:
 II 3 G D	 II 3 G D	'op is' marking– see note in the description
Ex ec mc op is IIC T4 Gc	Ex ec mc op is IIC T4 Gc	
Ex tc op is IIIC T98°C Dc	Ex tc op is IIIC T98°C Dc	
Ta = - 50 °C to +55 °C	Ta = -20 °C to +55 °C	

Certified Sockets Fitted (except type GHG 54):**

FL** and FL** Emergency	BL** and BL** Emergency	Note:
 II 3 G D	 II 3 G D	'op is' marking– see note in the description
Ex dc ec mc op is IIC T4 Gc	Ex dc ec mc op is IIC T4 Gc	
Ex tb op is IIIC T82°C Db	Ex tb op is IIIC T98°C Db	
Ta = See below	Ta = See below	

Certified Socket type GHG 54 fitted:**

FL** and FL** Emergency	BL** and BL** Emergency	Note:
 II 3 G	 II 3 G	'op is' marking– see note in the description
Ex dc ec mc op is IIC T4 Gc	Ex dc ec mc op is IIC T4 Gc	
Ta = See below	Ta = See below	

A certified socket may be fitted as an option. The upper and lower ambient temperature ranges will be limited by the type of certified socket fitted as shown below and within the ambient temperature range of the equipment shown above.

FL or BL** (excluding FL** Emergency or BL** Emergency**

Sockets type fitted:

PCX/EN 16A	Ta = -20 °C to +40 °C
GHG 54*** 16A	Ta = -20 °C to +40 °C
GHG 5118*** 16A (Latest)	Ta = -50 °C to +40 °C
GHG 5118*** 16A	Ta = -20 °C to +40 °C
8572/15-***-*	Ta = -50 °C to +40 °C
8573/15-***-*	Ta = -50 °C to +45 °C

FL ** Emergency or BL ** Emergency

Any socket type fitted	Ta = -20 °C to +40 °C

11 Description

The Spartan SPZ Floodlight/Bulkhead Luminaire is a range of LED lighting.

The enclosures are constructed using front, centre, and rear cast aluminium housings fixed using bolts. The front housing has a soda lime toughened glass lens available in clear or coloured options. A 'Vario' holographic diffuser film may be fitted behind the glass to give alternative light patterns. An optional replaceable antistatic lens film may be fitted.

The centre housing has either 1 or 2 independent encapsulated power supplies (electronic control gear) and terminal blocks for supply and internal connections. LED's are mounted on one or two independent Insulated Metal Substrate (IMS) PCBs attached to rear heat sink. Each PCB has 12 LED's that are either white, infra-red, coloured or a combination. 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).

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. There are internal and external earth points.

The following variant types are available:

Fixed (FL)	Fixed installation with above construction for use with mounting bracket. Fixing points are used for mounting bracket for fixing in any orientation and for additional mounting accessories.
Bulkhead (BL)	Wall mounting in any orientation using rear mounted steel brackets. The enclosure uses a modified FL variant light engine and has reduced height enclosure that houses a single power supply.
Transportable (FLT and BLT)	Fixed (FL) or Bulkhead (BL) luminaires mounted in tubular frame with suitable cable and separately certified gland, plugs and sockets.
Portable (FLP and BLP)	Fixed (FL) or Bulkhead (BL) luminaires mounted in tubular frame with suitable cable and separately certified glands and, plugs and sockets.
Fixed Emergency (FL ..-EM)	Medium Fixed (FL) Floodlight with extended rear housing incorporating an additional rechargeable battery pack, connection terminal block and encapsulated fuse
Bulkead Emergency (BL ..-EM)	Medium Bulkhead (BL) incorporating a rechargeable battery pack, connection terminal block and encapsulated fuse.

The variants are available in the following configurations:

***12	Small Floodlight
***24	Medium Floodlight
***48	Large Floodlight (2 x Medium FL24 fitted together horizontally or vertically with unions and alternative support brackets).
***72	Extra Large Floodlight (3 x Medium FL24 fitted together horizontally or vertically with unions and alternative support brackets).
Where *** = FL, BL, FLT, BLT, FLP or BLP variant and 12, 24, 48 and 72 are total the number of LED's	

All variants may be fitted with an optional encapsulated photocell. The EM variants may be fitted with a battery indicator LED.

Cable entries are provided for connection of the electrical supply for use with suitably certified cable glands. Alternatively, optional separately certified sockets of the following types may be mounted onto the back of an alternate luminaire enclosure and the certified ambient range of the equipment is limited to that of the type of socket fitted. When sockets are mounted onto the portable variants they are fitted with an essential carrying frame.

Description	Ambient Range	Certification Code		Socket Certificate Numbers	
		Gas	Dust	ATEX	IECEx
ATX Appleton PC//EN Socket	-20ºC to +40ºC	II 2 G Ex db e mb IIC	II 2 D Ex tD A21 IP66	LCIE 02ATEX0001U	IECEx LCI 07.0012U
Cooper CH GHG 54** Socket	-20ºC to +40ºC	II 2 G Ex db eb IIC	N/A	BVS 14ATEXE131U	IECEx BVS 14.0089U
Cooper CH GHG 5118	-50ºC to +40ºC	II 2 G Ex db eb IIC	II 2 D Ex tb IIIC Db	BVS 15ATEXE101U	IECEx BVS 15.0088U
Cooper CH GHG 5118	-20ºC to +40ºC	II 2 G Ex db e mb IIC	N/A	PTB 99ATEX1040U	IECEx BKI 04.0002
Stahl 8572/15-***-*	-50ºC to +45ºC	II 2 G Ex db eb IIC Gb	II 2 D Ex tb IIIC Db	PTB 16ATEX1016U	IECEx PTB 16.0028U
Stahl 8573/15-***-*	-50ºC to +40ºC	II 2 G Ex db eb IIC Gb	II 2 D Ex tb IIIC Db	PTB 16ATEX1018U	IECEx PTB 16.0030U

When used, the equipment ambient temperature range will be limited to the type of socket fitted.

The enclosures are available with the following power supply:

HV (High Voltage);	110 to 254 Vac / 154 to 355 Vdc

The following power supplies are available as options:

LV (Low Voltage);	18 to 48 Vac / 18 to 69 Vdc
ELV (Extra Low Voltage) rated	12 Vac/ Vdc

The following certification codes are used for the different power supply options:

Code	Description	Ambient Range (No Certified Sockets fitted)	Certification Code		
			FL ** and BL **	FL **	BL **
HV	High Voltage 110 to 254 Vac 154 to 355 Vdc	-50 ºC to +55 ºC	II 3 G Ex ec mc op is IIC T4	II 3 D Ex tc op is IIIC T82ºC	II 3 D Ex tc op is IIIC T98ºC

Code	Description	Ambient Range (No Certified Sockets fitted)	Certification Code		
			FL ** and BL **	FL **	BL **
LV	Low Voltage 18 to 48 Vac, 18 to 69 Vdc	-50 ºC to +55 ºC	II 3 G Ex ec mc op is IIC T4	II 3 D Ex tc op is IIIC T82ºC	II 3 D Ex tc op is IIIC T98ºC
ELV	Extra Low Voltage 12 Vac/ 12 Vdc	-50 ºC to +55 ºC	II 3 G Ex ec mc op is IIC T4	II 3 D Ex tc op is IIIC T82ºC	II 3 D Ex tc op is IIIC T98ºC
HV- ...-EM	High Voltage 110 to 254 Vac 154 to 355 Vdc Emergency Variants with Battery Pack	-20 ºC to +55 ºC	II 3 G Ex ec mc op is IIC T4	II 3 D Ex tc op is IIIC T82ºC	II 3 D Ex tc op is IIIC T98ºC

The following variant are covered by this certification

Code	Description	Ambient Range (No Certified Sockets fitted)	Certification Code		Mounting Frame Required
FL12	Fixed Lighting - Small Floodlight	-50 ºC to +55 ºC	II 3 G Ex ec mc op is IIC T4 Gc	II 3 D Ex tc op is IIIC T82°C Dc	NO
FL24	Fixed Lighting - Medium Floodlight	-50 ºC to +55 ºC	II 3 G Ex ec mc op is IIC T4 Gc	II 3 D Ex tc op is IIIC T82°C Dc	NO
FL48	Fixed Lighting - Large Floodlight	-50 ºC to +55 ºC	II 3 G Ex ec mc op is IIC T4 Gc	II 3 D Ex tc op is IIIC T82°C Dc	NO
FL72	Fixed Lighting - Extra Large Floodlight	-50 ºC to +55 ºC	II 3 G Ex ec mc op is IIC T4 Gc	II 3 D Ex tc op is IIIC T82°C Dc	NO
BL24	Fixed Lighting - Small Bulkhead	-50 ºC to +55 ºC	II 3 G Ex ec mc op is IIC T4 Gc	II 3 D Ex tc op is IIIC T98°C Dc	NO
FLT12	Transportable Lighting - Small Floodlight	-50 ºC to +55 ºC	II 3 G Ex ec mc op is IIC T4 Gc	II 3 D Ex tc op is IIIC T82°C Dc	NO
FLT24	Transportable Lighting - Medium Floodlight	-50 ºC to +55 ºC	II 3 G Ex ec mc op is IIC T4 Gc	II 3 D Ex tc op is IIIC T82°C Dc	NO
FLT48	Transportable Lighting - Large Floodlight	-50 ºC to +55 ºC	II 3 G Ex ec mc op is IIC T4 Gc	II 3 D Ex tc op is IIIC T82°C Dc	YES
FLT72	Transportable Lighting - Extra Large Floodlight	-50ºC to +55ºC	II 3 G Ex ec mc op is IIC T4 Gc	II 3 D Ex tc op is IIIC T82°C Dc	YES
BLT24	Transportable Lighting - Small Bulkhead	-50 ºC to +55 ºC	II 3 G Ex ec mc op is IIC T4 Gc	II 3 D Ex tc op is IIIC T98°C Dc	NO
FLP12	Portable Lighting Small Floodlight	-50 ºC to +55 ºC	II 3 G Ex ec mc op is IIC T4 Gc	II 3 D Ex tc op is IIIC T82°C Dc	NO

Code	Description	Ambient Range (No Certified Sockets fitted)	Certification Code		Mounting Frame Required
FLP24	Portable Lighting - Medium Floodlight	-50 ºC to +55 ºC	II 3 G Ex ec mc op is IIC T4 Gc	II 3 D Ex tc op is IIIC T82°C Dc	NO
BLP24	Portable Lighting - Small Bulkhead	-50 ºC to +55 ºC	II 3 G Ex ec mc op is IIC T4 Gc	II 3 D Ex tc op is IIIC T98°C Dc	NO
FL24- ..-EM	Fixed Lighting - Emergency Floodlight	-20 ºC to +55 ºC	II 3 G Ex ec mc op is IIC T4 Gc	II 3 D Ex tc op is IIIC T82°C Dc	YES
BL24- ..-EM	Fixed Lighting - Bulkhead Emergency	-20 ºC to +55 ºC	II 3 G Ex ec mc op is IIC T4 Gc	II 3 D Ex tc op is IIIC T98°C Dc	YES
FL24- ..-LV	Fixed Lighting - Low Voltage	-20 ºC to +55 ºC	II 3 G Ex ec mc op is IIC T4 Gc	II 3 D Ex tc op is IIIC T98°C Dc	YES
BL24- ..-LV	Fixed Lighting - Bulkhead Low Voltage	-20 ºC to +55 ºC	II 3 G Ex ec mc op is IIC T4 Gc	II 3 D Ex tc op is IIIC T98°C Dc	YES
FL24- ..-ELV	Fixed Lighting - Extra Low Voltage	-20 ºC to +55 ºC	II 3 G Ex ec mc op is IIC T4 Gc	II 3 D Ex tc op is IIIC T98°C Dc	YES
BL24- ..-ELV	Fixed Lighting - Bulkhead Extra Low Voltage	-20 ºC to +55 ºC	II 3 G Ex ec mc op is IIC T4 Gc	II 3 D Ex tc op is IIIC T98°C Dc	YES

Note: The equipment is marked ‘op is’ for EPL Gc and Dc applications. However, the equipment construction is considered to satisfy the requirements of ‘Gb and Db’ applications and has been marked in line with other associated equipment.

12 Certificate history and evaluation Reports

Issue	Date	Associated report	Notes
0	13/12/2017	R11269A/00	Initial Release

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 parts or safety critical components the manufacturer shall ensure that any changes to those parts or components do not affect the compliance of the certified product that is the subject of this certificate. A copy of the certificate and instructions for each separately certified part installed within the equipment shall be provided as part of the document pack with each arrangement supplied.

13.2 The manufacturer shall fit only the certified Ex Components listed in the Equipment Description in accordance with the certification documentation and the manufacturer's ratings and instructions. All Special Conditions of Certification/ Special Conditions for Safe Use/ Schedule of Limitations must be satisfied for each part fitted.

13.3 A dielectric strength test shall be carried out on all units manufactured in accordance with IEC 60079-7:2015 clause 7.1 and IEC 60079-18:2014, 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.

13.4 A visual inspection shall be carried out on the encapsulated parts to check for damage, in accordance with IEC 60079-18:2014, clause 9.1.

14 Special Conditions for Safe Use (Conditions of Certification)

None

Certificate Annex

Certificate Number CML 17ATEX4231
Equipment Spartan SPZ Floodlight/Bulkhead Luminaire
Manufacturer Raytec Ltd

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

Issue 0

Drawing No	Sheets	Rev	Approved date	Title
1180-SD-0001	1 of 6	A	13/12/2017	Spartan LED Floodlight Zone 2 GENERAL CONSTRUCTION DETAILS
1180-SD-0001	2 of 6	A	13/12/2017	Spartan LED Floodlight Zone 2 POWER SUPPLY AND LIGHT ENGINE DETAILS
1180-SD-0001	3 of 6	A	13/12/2017	Spartan LED Floodlight Zone 2 EMERGENCY, SMALL AND LARGE VARIANTS
1180-SD-0001	4 of 6	A	13/12/2017	Spartan LED Floodlight Zone 2 WIRING DIAGRAMS, PHOTOCELL/LED INDICATION AND TRANSPORTABLE
1180-SD-0001	5 of 6	A	13/12/2017	Spartan LED Floodlight Zone 2 ADDITION OF SOCKETS AND ANTI STATIC FILM
1180-SD-0001	6 of 6	A	13/12/2017	Spartan LED Floodlight Zone 2 Notes
910-SD-0002	1 of 2	B	13/12/2017	Standard and Emergency PCB Schematic Diagram
910-SD-0002	2 of 2	B	13/12/2017	Standard and Emergency PCB Schematic Diagram
910-SD-0003	1 of 5	A	13/12/2017	Parts List FMEA Spartan Floodlight Main Power Supply
910-SD-0003	2 of 5	A	13/12/2017	Parts List FMEA Spartan Floodlight Main Power Supply
910-SD-0003	3 of 5	A	13/12/2017	Parts List FMEA Spartan Floodlight Main Power Supply
910-SD-0003	4 of 5	A	13/12/2017	Parts List FMEA Spartan Floodlight Main Power Supply
910-SD-0003	5 of 5	A	13/12/2017	Parts List FMEA Spartan Floodlight Main Power Supply
910-SD-0004	1 of 5	B	13/12/2017	Parts List FMEA Spartan Floodlight Emergency Power Supply
910-SD-0004	2 of 5	A	13/12/2017	Parts List FMEA Spartan Floodlight Emergency Power Supply
910-SD-0004	3 of 5	B	13/12/2017	Parts List FMEA Spartan Floodlight Emergency Power Supply

Certificate Annex

Certificate Number CML 17ATEX4231
Equipment Spartan SPZ Floodlight/Bulkhead Luminaire
Manufacturer Raytec Ltd

Drawing No	Sheets	Rev	Approved date	Title
910-SD-0004	4 of 5	A	13/12/2017	Parts List FMEA Spartan Floodlight Emergency Power Supply
910-SD-0004	5 of 5	A	13/12/2017	Parts List FMEA Spartan Floodlight Emergency Power Supply
910-SD-0005	1 to 2	A	13/12/2017	Component tolerance driver circuit
910-SD-0005	2 of 2	B	13/12/2017	Component Tolerance Emergency PCB
910-SD-0012	1 of 1	A	13/12/2017	Alternative Mains Terminal Block for Spartan Product Range of LED Luminaires
920-SD-0030	1 of 2	A	13/12/2017	18-48 AC/18-68V DC PSU Circuit diagram/ Thermal Fuse Position
920-SD-0030	2 of 2	A	13/12/2017	18-48 AC/18-68V DC PSU Circuit diagram/ Thermal Fuse Position
920-SD-0031	1 of 1	A	13/12/2017	Component Tolerances LV
920-SD-0032	1 of 4	A	13/12/2017	LV PSU Parts List/FMEA
920-SD-0032	2 of 4	A	13/12/2017	LV PSU Parts List/FMEA
920-SD-0032	3 of 4	A	13/12/2017	LV PSU Parts List/FMEA
920-SD-0032	4 of 4	A	13/12/2017	LV PSU Parts List/FMEA
1180-SD-0002	1 of 3	A	13/12/2017	SPARTAN BULKHEAD - ZONE 2 GENERAL CONSTRUCTION DETAILS
1180-SD-0002	2 of 3	A	13/12/2017	SPARTAN BULKHEAD - ZONE 2 EMERGENCY VARIANT AND LIGHT ENGINE DETAILS
1180-SD-0002	3 of 3	A	13/12/2017	SPARTAN BULKHEAD - ZONE 2 TRANSPORTABLE BULKHEAD DETAILS
910-SD-0047	1 of 1	A	13/12/2017	SPARTAN INTELLIGENT EMERGENCY PCB SCHEMATIC
910-SD-0048	1 of 1	A	13/12/2017	PARTS LIST SPARTAN INTELLIGENT EMERGENCY POWER SUPPLY
910-SD-0049	1 to 8	A	13/12/2017	FMEA SPARTAN INTELLIGENT EMERGENCY POWER SUPPLY
910-SD-0044	1 of 1	A	13/12/2017	12V low voltage PCB schematic
910-SD-0046	1 to 5	A	13/12/2017	FMEA Spartan floodlight 12V low voltage supply
910-SD- 0045	1 of 1	A	13/12/2017	Parts List Spartan Floodlight 12V Low Voltage Power Supply