



IECEX Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification Scheme for Explosive Atmospheres

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

Certificate No.: IECEx CML 17.0074

Issue No: 0

Certificate history:

Issue No. 0 (2017-07-24)

Status: **Current**

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Date of Issue: **2017-07-24**

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

Equipment: **Spartan High Power LED Floodlight/Highbay**

Optional accessory:

Type of Protection: **d e m o p i s t nR**

Marking:

Zone 1 version
Ex db eb mb op is IIB+H2 T4 Gb
Ex db eb mb op is IIB T4 Gb
Ex tb op is IIIC T104°C Db

Zone 2 version
Ex ec nR op is IIC T4 Gc
Ex tc op is IIIC T104°C Dc

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

D R Stubbings MIET

Position:

Technical Director

*Signature:
(for printed version)*

Date:

2017-07-24

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 the [Official IECEx Website](http://www.iecex.com).

Certificate issued by:

Certification Management Limited
Unit 1, Newport Business Park
New Port Road
Ellesmere Port, CH65 4LZ
United Kingdom





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Manufacturer: **Raytec Ltd.**
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Additional Manufacturing location(s):

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 electrical apparatus 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 : 2011 Edition:6.0 | Explosive atmospheres - Part 0: General requirements |
| IEC 60079-1 : 2014-06 Edition:7.0 | Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures "d" |
| IEC 60079-15 : 2010 Edition:4 | Explosive atmospheres - Part 15: Equipment protection by type of protection "n" |
| IEC 60079-18 : 2014 Edition:4.0 | Explosive atmospheres – Part 18: Equipment protection by encapsulation "m" |
| IEC 60079-28 : 2015 Edition:2 | Explosive atmospheres - Part 28: Protection of equipment and transmission systems using optical radiation |
| IEC 60079-31 : 2013 Edition:2 | Explosive atmospheres - Part 31: Equipment dust ignition protection by enclosure "t" |
| IEC 60079-7 : 2015 Edition:5.0 | Explosive atmospheres – Part 7: Equipment protection by increased safety "e" |

*This Certificate **does not** indicate compliance with electrical 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:

[GB/CML/ExTR17.0109/00](#)

Quality Assessment Report:

[GB/SIR/QAR13.0018/03](#)



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Schedule

EQUIPMENT:

Equipment and systems covered by this certificate are as follows:

The HP Spartan LED Luminaire are a Floodlight and Highbay luminaire that are suitable for installation in either Gas or Dust environments with different mounting arrangements and orientations.

The encapsulated LED Head assembly contains upto 2 x 12 LED circuits protected by encapsulation, located behind a glass window.

Refer to Annex.

SPECIFIC CONDITIONS OF USE: NO

Annex:

[IECEX CML 17.0074 Annex.pdf](#)

Annexe to: IECEx CML 17.0074 Issue 0
Applicant: Raytec Ltd
Apparatus: HP Spartan LED Luminaire



1 Product Description

1.1 Zone 1 version

The HP Spartan LED Luminaire are a Floodlight and Highbay luminaire that are suitable for installation in either Gas or Dust environments with different mounting arrangements and orientations.

The encapsulated LED Head assembly contains upto 2 x 12 LED circuits protected by encapsulation, located behind a glass window. The LED Head connects to either:

- A combined flameproof PSU and increased safety JB assembly, or
- An increased safety JB assembly;

The combined flameproof PSU and increased safety JB assembly, consists of separate enclosures containing LED Driver circuits and suitably certified Ex Component terminals for connection of internal and field wiring using suitably certified cable glands. The two enclosures are separated using a suitably certified bushing.

The increased safety JB assembly consisting a single enclosure containing suitably certified Ex Component terminals for connection of internal and field wiring using suitably certified cable glands. The combined assembly is used with a separately mounted combined flameproof PSU and increased safety JB assembly, connected using suitably certified cable glands.

The combined or separate assemblies have an environmental rating of IP 66.

Nomenclature:

SP (1) - HP (22) (33) K - W - xxyy

Where:

| | | |
|------|----|--|
| SP | | SPARTAN High Power Flood, |
| (1) | X | Zone 1 /Zone 21 |
| (22) | FL | Floodlight |
| | BY | Highbay |
| (33) | ** | Lumens (x 1,000) up to a maximum of 25 |
| K | | Lumens (x 1,000) |
| W | | White Light |
| xxyy | | Circular beam pattern, xx° x yy° beam |

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Applicant: Raytec Ltd
Apparatus: HP Spartan LED Luminaire



1.2 Zone 2 version

The HP Spartan LED Luminaire are a Floodlight and Highbay luminaire that are suitable for installation in either Gas or Dust environments with different mounting arrangements and orientations.

The LED Head assembly contains upto 2 x 12 LED circuits, located behind a glass window. The LED Head connects to either:

- A combined flameproof PSU and increased safety JB assembly, or
- An increased safety JB assembly;

The combined restrictive breathing PSU and increased safety JB assembly, consists of separate enclosures containing LED Driver circuits and suitably certified Ex component terminals for connection of internal and field wiring using suitably certified cable glands. The two enclosures are separated using a suitably certified bushing.

The increased safety JB assembly consisting a single enclosure containing suitably certified Ex Component terminals for connection of internal and field wiring using suitably certified cable glands. The combined assembly is used with a separately mounted combined restrictive breathing PSU and increased safety JB assembly, connected using suitably certified cable glands.

The combined or separate assemblies have an environmental rating of IP 66.

Nomenclature:

SP (1) - HP (22) (33) K - W - xxyy

Where:

| | | |
|------|----|--|
| SP | | SPARTAN High Power Flood, |
| (1) | Z | Zone 2 / Zone 22 |
| (22) | FL | Floodlight |
| | BY | Highbay |
| (33) | ** | Lumens (x 1,000) up to a maximum of 25 |
| K | | Lumens (x 1,000) |
| W | | White Light |
| xxyy | | Circular beam pattern, xx° x yy° beam |

Annexe to: IECEx CML 17.0074 Issue 0
Applicant: Raytec Ltd
Apparatus: HP Spartan LED Luminaire



2 Conditions of manufacture

2.1 Zone 1 version

- i. 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.
- ii. The manufacturer shall fit only the certified Ex Components listed in the certification documentation and the manufacturer's instructions. All Special Conditions of Certification/ Special Conditions for Safe Use/ Schedule of Limitations must be satisfied for each part fitted.
- iii. If the terminals or components are fitted with cables/wiring by the manufacturer; all cables/wires shall be suitable for rated voltage and current of each separate circuits and Ex Components to which they are connected.
- iv. All creepage and clearance distances as defined in IEC 60079-7 Table 2 shall be observed for the voltage rating marking.
- v. The routine overpressure test shall be carried out in accordance with the static method (IEC 60079-1, clause 15.1.3.1) at the following pressures:

| Type | Test Pressure |
|--|----------------------------|
| SPX-HP (Zone 1/ 21 Group IIB + H2 Version) | 7.61bar x 1.5 = 11.42 bar |
| SPX-HP (Zone 1/ 21 Group IIB Version) | 6.73 bar x 1.5 = 10.10 bar |

- vi. All "m" equipment shall be subjected to a visual inspection. No damage shall be evident, such as cracks in the compound, exposure of the encapsulated parts, flaking, inadmissible shrinkage, swelling, decomposition, failure of adhesion (separation of any adhered parts) or softening.
- vii. A dielectric strength test shall be carried out on all units manufactured in accordance with IEC 60079-7:2015 clause 7.1 at 1508 V for 1 minute, or alternatively at 1.2 times this test voltage for 100 ms. No breakdown shall occur. Tests shall be carried out between each circuit and earth.
- viii. The Line Bushing shall be suitable for an upper ambient temperature of at least 85 °C.

2.2 Zone 2 version

- i. 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.
- ii. The manufacturer shall fit only the certified Ex Components listed in the certification documentation and the manufacturer's instructions. All Special Conditions of Certification/ Special Conditions for Safe Use/ Schedule of Limitations must be satisfied for each part fitted.

Annexe to: IECEx CML 17.0074 Issue 0
Applicant: Raytec Ltd
Apparatus: HP Spartan LED Luminaire



- iii. If the terminals or components are fitted with cables/wiring by the manufacturer; all cables/wires shall be suitable for rated voltage and current of each separate circuits and Ex Components to which they are connected.
- iv. All creepage and clearance distances as defined in IEC 60079-7 Table 2 shall be observed for the voltage rating marking.
- v. The equipment shall be subjected to a dielectric strength test in accordance with IEC 60079-7 clause 7 using a test voltage of 1,500 Vac applied between the encapsulated circuit and earth for 60 s. Alternatively, the test voltage shall be 2,100 Vdc. There shall be no evidence of flashover or breakdown and the maximum current flowing shall not exceed 5 mA.
- vi. The Line Bushing shall be suitable for an upper ambient temperature of at least 85 °C.