

SPX/SPZ **SPARTAN**

High Power Luminaire Range - Installation Guide

Zone 1 and 21 Variant CML 25ATEX3449 & IEC Ex CML25.0115

Zone 2 and 22 Variant CML 25ATEX3450 & IEC Ex CML25.0115

Zone 21 Dust only Variant CML 25ATEX3451 & IEC Ex CML25.0116

This installation guide provides instructions for installing the SPARTAN HP Highbay/
Flood- light series of explosion protected floodlights.

Overview



- 1 Safety Instructions
- 2 Installation
- 3 Maintenance
- 4 Technical Specification
- 5 Trouble Shooting
- 6 Declaration of Conformity

Important information

The SPARTAN HP series of explosion protected floodlights/highbay are specialist devices, certified for use in specific operating environments.

The units must be installed in accordance with these instructions, must be correctly certified for the specific operating environment and must be installed by suitably qualified personnel.

If you have any queries about the installation or the certification of the unit – please contact Raytec for immediate assistance and advice.

1. Safety instructions

1. Read this leaflet carefully before commencing to install the SPARTAN unit and retain it for future use. Installation can only be carried out by suitably qualified personnel.
2. Check the certification to ensure that the Zone, mains supply, ambient temperature present and 'T' rating are suitable for the environment the unit is being installed in.
3. DO NOT open when energised.
4. If the SPARTAN unit is to be installed in areas of high vibration, please consult with Raytec.
5. SPARTAN units are designed to withstand marine environments and are tested in accordance with IEC60068-2-52. However, if the SPARTAN unit is to be installed in a very high corrosive environment such as **coastal** and **offshore** the following good practice should be followed:
During installing ensure there are no scratches, chips or defects in external paint surface that would allow ingress of water to bare aluminium. If so touch up with suitable paint.
During installation apply an anti corrosive jointing compound to screw threads such as PSU cover and external earth points.
During installation ensure exterior surface of the product is not in direct contact with a dissimilar metal such as galvanised steel. If so, fit a nylon barrier to prevent galvanic corrosion.
During maintenance regularly wash down external surface of fitting with clean, fresh water to remove any deposits of mineral salts on the exterior surface.
6. The SPARTAN unit housing is constructed from marine grade aluminium and toughened glass, gaskets are silicone sponge, black encapsulant and o rings are silicone rubber, internally some components are non-metallic. The end user must ensure that these materials are suitable for the environment the SPARTAN unit will be installed in; Zone 1 and Zone 2 Hazardous areas.
7. Check certification nameplate on side of floodlight/highbay to ascertain type of threaded cable entry on the luminaire. Select suitably certified ATEX/IEC Ex /UKEX cable glands and stopper plugs, these must be parallel thread, have a minimum of 5 full thread engagement and be of a medium/fine tolerance to ISO965-1 and ISO965-3. The cable entry devices selected must maintain the IP rating of the luminaire.
8. The incoming mains cable should not exceed a temperature rise of 16°C above the ambient conditions; select suitable cable.
9. When the unit is installed correctly and in accordance with these installation instructions it will not harm humans or animals.
10. Maximum effective projected area 0.2m²
11. Replace any cracked or broken protective shields

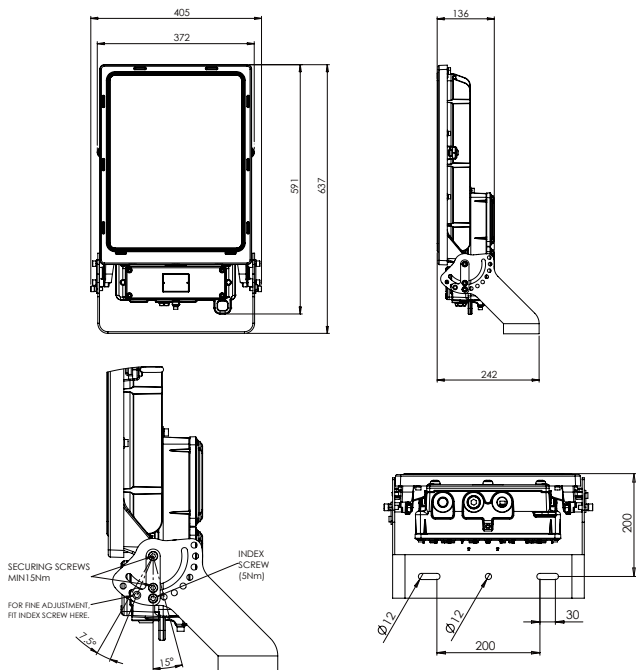


2. Installation

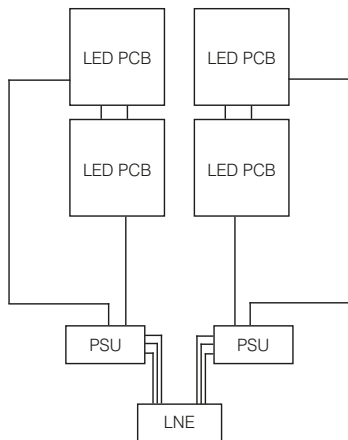
Mounting SPARTAN Unit

1. To meet the requirements of certification a **MINIMUM** of 2 fixing points must be used, the fixing points must be suitable for the conditions of use. Raytec recommend using M10 Marine Grade fixings (not supplied)
2. The line diagrams below are for guidance only – units may be mounted in any orientation

Mounting HP SPARTAN Unit – Floodlight Application



Typical wiring diagram



Wire the Mains cable into the terminal block. Provision has been made for this and identified as the E (Earth), L1 (Switched Live), L2 (permanent live) and N (Neutral) terminals. There are two pairs of contacts for each of these to facilitate a mains cable that can be looped in and out of the unit. The L2 terminals on a standard unit are not electrically connected but allows them to be used on the same circuits as *emergency bulkheads*.

3. Open terminal block enclosure
4. Installer should earth the unit separately – an internal and external earth point are provided as standard.
5. Connect wires to mains supply.
6. If the unit is opened for any reason, disconnect mains.
7. All SPARTAN floodlights/highbay have terminal blocks suitable for looping 4mm² cable, only one cable should be connected to each terminal block connection – when incoming cables are installed a creepage and clearance of 5mm and 4mm respectively.
8. To use DALI/Dimming interface, connect the DALI terminals on the terminal block. (Min conductor size 1.5mm²; min wiring insulation class: BASIC).
9. Ensure no cables are trapped and gasket is seated correctly and replace terminal block cover. Tighten to 4Nm.
10. If carrying out Insulation Resistance tests the normal method of insulation testing is to connect Live and Neutral together and test between this point and Earth to prevent the risk of damage to the electronic control gear.

3. Maintenance

1. It is essential that all SPARTAN units are maintained in accordance with the requirements of the EN60079-17 standard: (Electrical apparatus for explosive gas atmospheres – other than mines).
2. **IMPORTANT.** No modifications are permitted to the unit, all spare parts must be purchased from the manufacturer, unauthorized modifications or spare parts will invalidate certification and make the equipment dangerous.
3. Isolate the SPARTAN unit from the mains supply and allow to cool before carrying out any maintenance work.
4. The unit has 2 independent power supplies; in the event that a power supply needs to be replaced remove the 4 screws to gain access to the power supply. Remove the power supply from the mains terminals then remove LED red and black wires. Refitting is the reverse of removal.
5. Disposal of packaging, SPARTAN units and old LED assemblies/power supplies should be carried out in accordance with national regulations.

PROTECTION/CERTIFICATION

ZONE 1/21 VARIANTS

CML25ATEX3449 or IEC Ex CML25.0115

II 2 GD Ex eb mb IIC T4 Gb

Ta -40°C to +60°C or -40°C to +65°C or -40°C to +70°C

Ex tb IIIC T99°C Db

IP66/IP67 110-254V AC/DC or 110-277V AC/DC

ZONE 2/22 VARIANTS

CML25ATEX3450 or IEC Ex CML25.0115

II 3 GD Ex ec mc IIC T4 Gc

Ta -40°C to +60°C or -40°C to +65°C or -40°C to +70°C

Ex tc IIIC T99°C Dc

IP66/IP67 110-254V AC/DC or 110-277V AC/DC

ZONE 21 DUST ONLY VARIANTS

CML25ATEX3450 or IECEx CML25.0116

III 2 D Ex tb IIIC T99°C Db

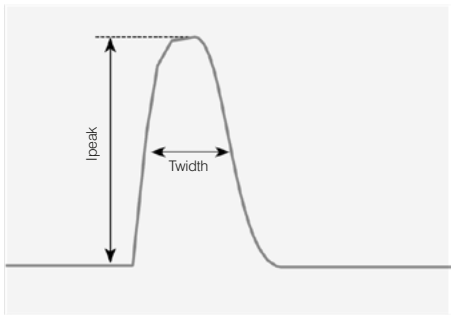
Ta -40°C to +60°C or -40°C to +65°C or -40°C to +70°C

IP66/IP67 110-254V AC/DC or 110-277V AC/DC

4. Technical Specification

Input Voltage	110-254V AC/DC or 110-277V AC/DC		
Variant	HP 300	HP 200	HP 100
Consumption	240W	200W	167W
Input Current (230Vac, full load)	1.04A	0.87A	0.72A
Temperature Range	-40°C to +60°C	-40°C to +65°C	-40°C to +70°C
Power Factor (230Vac, full load)	>0.97		
Mains Frequency	50/60Hz		
Inrush Current (I _{peak} @50%)	36.4A, $\Delta t < 108\mu s$		
Total Harmonic Distortion (230Vac, full load)	$\leq 10\%$		
IP Rating	IP66 / 67		
Weight (std)	18.5kg		
Dimensions	See previous pages for line diagrams		
ATEX and IECEx Rating	See page 5		

Inrush Current Typical Curve



Max number of fittings allowed per MCB / Max Loop In

MCB Type	Rating	SPZ/SPX-HP300 (240W Version)	SPZ/SPX-HP200 (200W Version)	SPZ/SPX-HP100 (167W Version)
B	10A	7	9	10
B	16A	12	14	18
B	20A	15	18	22
B	25A	19	23	27
C	10A	7	9	10
C	16A	12	14	18
C	20A	15	18	22
C	25A	19	23	27

4.1 DALI Wiring Instructions

Cross section in mm ²	Maximum cable length L in m		
	25°C	50°C	75°C
1.50	300	300	281
2.00	300	300	300
2.50	300	300	300

5. Troubleshooting

1. Ensure the 4 LED boards are correctly wired to terminal block. Red to Red : Black to Black – paired cables.
2. Ensure Mains input is correctly connected.
3. Ensure Mains Input is turned on at the source.
4. If LED panel fails to light is it possible to identify if problem is with LED panel or power supply by swapping LED cables to opposite power supply to help identify problem.

EU Declaration Of Conformity



This declaration is issued under the sole responsibility of the manufacturer
The object of the declaration is in conformity with the relevant Union harmonisation Legislation.

Manufacturer	Raytec Ltd Unit 15, Wansbeck Business Park Rotary Parkway Ashington Northumberland, NE63 8QW United Kingdom
Description of Equipment	SPARTAN range of High Power luminaires
Certification Body	Eurofins CML New Port Road Ellesmere Port, CH65 4LZ
Certificate numbers	CML 25ATEX3449 & IECEx CML 25.0115 CML 25ATEX3450 & IECEx CML 25.0115 CML 25ATEX3451 & IECEx CML 25.0116 ATEX Quality Assurance Notification CSA BV (2813)
Equipment Marking	CML25ATEX3449 or IEC Ex CML25.0115 II 2 GD Ex eb mb IIC T4 Gb Ta -40°C to +60°C (HP 300 variant) or -40°C to +65°C (HP 200 variant) or -40°C to +70°C (HP 100 variant) Ex tb IIIC T99°C Db CML25ATEX3450 or IEC Ex CML25.0115 II 3 GD Ex ec mc IIC T4 Gc Ta -40°C to +60°C (HP 300 variant) or -40°C to +65°C (HP 200 variant) or -40°C to +70°C (HP 100 variant) Ex tc IIIC T99°C Dc CML25ATEX3451 or IECEx CML25.0116 III 2 D Ex tb IIIC T99°C Db Ta -40°C to +60°C (HP 300 variant) or -40°C to +65°C (HP 200 variant) or -40°C to +70°C (HP 100 variant) IP66/IP67 110-254V AC/DC or 110-277V AC/DC

Compliance with the Essential Health and Safety Requirements has been assessed by reference to the following standards -

Product type: Luminaire (Floodlight)
is in conformity with the essential requirements and other relevant requirements of the following directives:

Directive 2014/34/EU (ATEX Directive)
Directive 2014/30/EU (EMC-Directive)
Directive 2011/65/EU (RoHS)
Directive 1907/2006 (REACH)
Directive 2009/125/EC (Eco Design Requirements for Energy Related Products)

Relevant Standards:

ATEX: EN IEC 60079-0:2018, EN IEC 60079-7:2015+A1:2018, EN IEC 60079-18:2025, EN IEC 60079-31:2014

EMC: EN 55015:2019+A11:2020 (Emissions) EN55032:2015+A1:2020 (Emissions);
EN 61547:2023 (Immunity); EN55035:2017+A11:2020 (Immunity) EN 61000-3-2:2019+A1:2021 (Harmonics) EN 61000-3-3:2013+A1:2019+A2:2021 (Flicker);

Other Safety: EN60598-1:2021+A11:2022 (Safety); EN60598-2-5:2015 (Safety),
EN60529:1991 + A2:2013 (Enclosure Protection – IP Code (IP66 and IP67)
EN62471:2008 (Photobiological – Eye Safety)

RoHS: EN IEC 63000:2018
Eco Design Reg: (EU) 2019/2020

Other Approvals:

EN62262:2002+A1:2021 (Impact Resistance (IK09 Rating))
FCC: CFR 47 Part 15B (15.107 and 15.109) Class B

Signed



Name
Position

Jonathan Sommersett
Technical Director

Dated

Serial number

DISCLAIMER: The information provided in this document was accurate at the time of its creation. However, due to the evolving nature of our products and continuous improvements, there may be changes or updates that occur after its publication. For the most current and detailed information about our products, please contact our sales team at sales@raytecled.com



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