SPX/SPZ SPARTAN

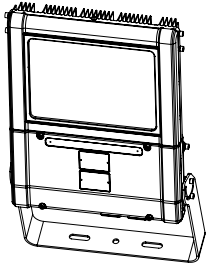
Mid Power Luminaire Range - Installation Guide

Zone 1 and 21 Variant CML21ATEX3317 & IEC Ex CML21.0037 or CML21UKEX3319
Zone 2 and 22 Variant CML21ATEX3320 & IEC Ex CML21.0038 or CML21UKEX3321

This installation guide provides instructions for installing the SPARTAN MP Highbay/ Floodlight series of explosion protected floodlights.

Text in Italics is specific for Emergency variants

Overview



Important information

The SPARTAN MP 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.

1250-D-00005-Rev3

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 and T rating to ensure that the mains supply and the ambient temperature present is suitable for the unit being installed.
3. If the SPARTAN unit is to be installed in areas of high vibration, please consult with Raytec.
4. Externally the SPARTAN unit housing is constructed from marine grade aluminium, and toughened glass, stainless steel brackets/fasteners and silicone gaskets, internally there are many non metallic components 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.
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

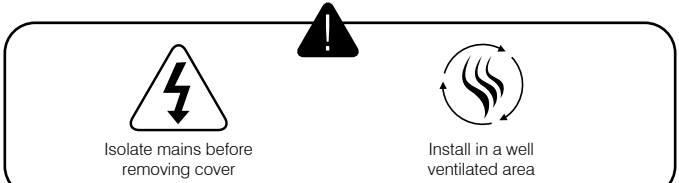
   During installation apply an anti corrosive jointing compound to screw threads such as PSU cover and external earth points.

   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. Check certification nameplate on front of floodlight 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 minium 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.
7. The incoming mains cable should not exceed a temperature rise of 27°C above the ambient conditions; select suitable cable.
8. When the unit is installed correctly and in accordance with these installation instructions it will not harm humans or animals.
9. Before installing emergency luminaires please check the last charge date of the battery. This is shown on the external product packaging and also on the battery label, alternatively consult date shown on the declaration at the back of this leaflet. If the last charge date was in excess of 3 months (if stored at 5°C to 25°C) or 1 month (if stored outside this range) from date of installation, please consult Raytec document 0010-D-00001 Battery Handling Guide

Eye Safety :

Caution – EN62471 Risk Group 2 Classification - The luminaire should be positioned so that prolonged staring into the luminaire at a distance closer than 0.230m is not expected

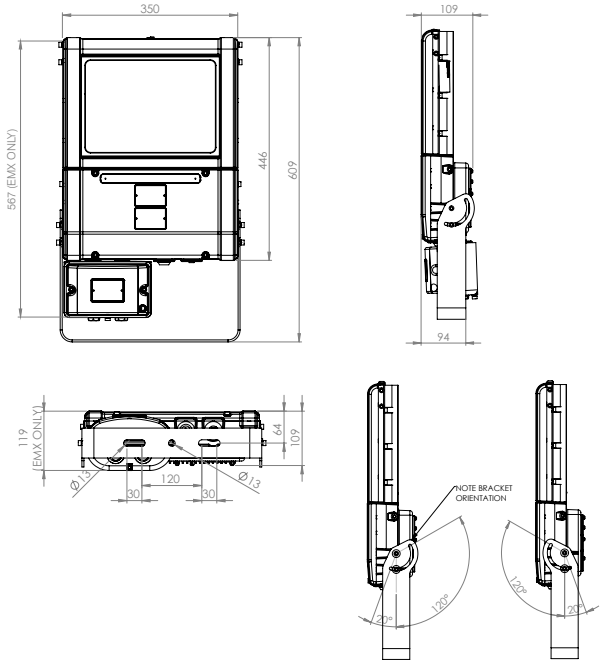


2. Installation

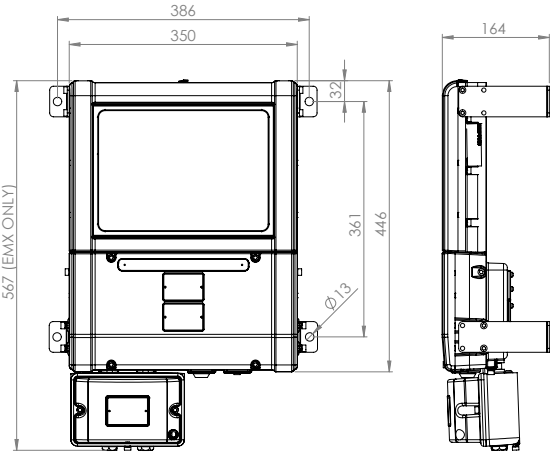
Mounting SPARTAN Unit

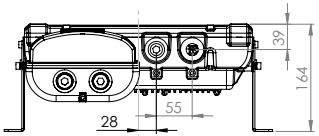
1. To meet the requirements of certification a **MINIMUM** of 2 fixing points must be used, the fixing points must be suitable for the conditions of use.
2. The line diagrams below are for guidance only – units may be mounted in any orientation

Mounting MP SPARTAN Unit – Floodlight Application



Mounting SPARTAN Unit – Highbay Application





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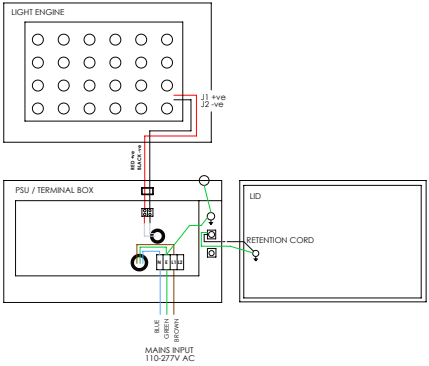
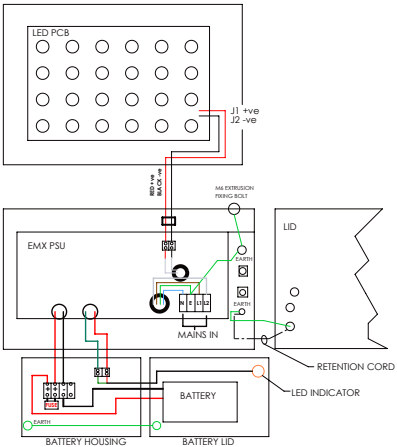
Thorne & Derrick
+44 (0) 191 410 4292
www.heatingandprocess.com

Typical wiring diagram

Standard Variants



Emergency Variants



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 units.*

3. Attach mounting brackets as required with M6 screws/washers provided. Tighten to 10Nm. (see Bracket Orientation Diagram)
4. Open terminal block enclosure.
5. Installer should earth the unit separately – an internal and external earth point are provided as standard.
6. Connect wires to mains supply.
7. If the unit is to be opened for any reason, disconnect mains.
8. 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. Variants with a Weidmuller MK6 terminal block may have been supplied to special order, these can accommodate cable up to 6mm2 size conductors.
9. *The battery fuse is located in the compartment that contains the battery, the battery positive lead is disconnected after final manufacturing testing. When installing the product the battery positive lead will need to be reconnected and the unit charged for 24 hours and then discharged (repeated 3 times) to bring the battery up to peak capacity. (Unless an 'EMX' intelligent emergency variant – see notes below.)*
10. *If a 4 core cable is used on emergency luminaires – L1, L2, N and E the link cable at the front of the terminal block between L1 and L2 should be removed.*
11. *During emergency operation the light output and duration will be determined by the variant purchased*
12. Ensure no cables are trapped and gasket is seated correctly and replace terminal cover, tighten to 4Nm
13. 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.

Description	Behaviour	Installation
Maintained Unswitched	The unit is on 100% undere normal conditions and is switched to emergency mode in the event of a mains failure	A single unswitched mains supply is provided the live line connected to L2. The link between L1 and L2 remains.
Maintained Switched	The unit is on or off depending on the switched line under normal operation and is switched to emergency mode in the event of a mains failure	An unswitched mains supply is provided with the live line connected to L2. A switched mains supply is also provided with the switched live connected to L1. The link between L1 and L2 should be removed
Non-maintained	The unit is off and only comes on in emergency mode in the event of failure in the mains supply	A single unswitched mains supply is provided to live line connected to L2. The link between L1 and L2 should be removed

Spartan Intelligent Emergency Operation Guide

When the battery is first connected the light engine will illuminate and the LED indicator will rapidly flash Green/Red alternately for 5 seconds. If no error is found the unit will enter “Sleep Mode” until mains power is connected.

The light fitting will carry out the following function automatically after mains power is applied:

- Commissioning Cycle
- Function test
- Self-test

A bi-colour LED indicator displays the light fitting status.
The indication colours are shown in the table

a. Commissioning Cycle

- Starts automatically after 24 hours of uninterrupted charging
- 3 charge/discharge cycles to optimise battery’s full capacity.
- Battery is charged for 24 hours before each discharge cycle.
- No need for manual commissioning

b. Function Test

- Carried out every 4 weeks.
- Checks the function of the battery, lamp and power supply.
- Lasts for few minutes only.

c. Self-test

- Carried out at a random time during a 12 month period.
- Checks the battery’s capacity and lamp’s condition.
- Performs self-recovery for the battery if not at peak capacity.
- Is carried out at 100% load

LED Indication

LED Indication	Condition
Flashing Green and Red together	Error in configuration – Contact Raytec
Flashing Green	Function Test
	Self-test
	Commissioning
Solid Red	Battery defective/Fuse blown
	PSU error
	Battery not at peak capacity
	Light engine failure
No Light	Emergency mode activated
Static Green	Battery charged and PSU OK

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 one power supply; in the event that a power supply needs to be replaced remove the terminal enclosure cover to get access to the power supply. Remove the power supply from the mains terminals then remove LED wires (white and white with red mark.)
5. In the event that a battery needs to be replaced in an emergency unit the battery chamber cover should be removed. The battery positive disconnected and safely terminated, followed by the battery negative. The cable ties securing the battery can then be cut and the battery removed. Fitting a new battery is the reverse of the above procedure. Replacement batteries must be obtained from Raytec.

Disposal of packaging, SPARTAN units and old LED assemblies/power supplies should be carried out in accordance with national regulations.

4. Troubleshooting

1. Ensure the two LED boards are correctly wired to terminal block. White/Red to White/Red : White to White – paired cables.
2. Ensure Mains input is correctly connected.
3. Ensure Mains Input is turned on at the source.

PROTECTION/CERTIFICATION

ZONE 1/21 VARIANTS CML21ATEX3317 or IEC Ex CML21.0037 or CML21UKEX3319

Standard Variants
II 2 GD Ex eb mb IIC T4 Gb
Ex tb IIIC T90°C Db
Ta -40°C to +60°C
IP66/IP67 110-277V AC
Emergency Variants
II 2 GD Ex eb mb IIC T4 Gb
Ex tb IIIC T90°C Db
Ta -20°C to +50°C
IP66/IP67 110-277V AC

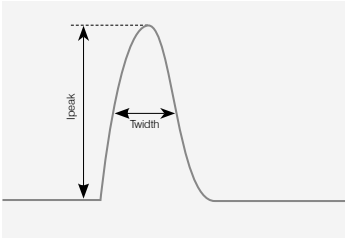
ZONE 2/22 VARIANTS CML21ATEX3320 or IEC Ex CML21.0038 or CML21UKEX3321

Standard Variants
II 3 GD Ex ec mc IIC T4 Gc
Ex tc IIIC T90°C Dc
Ta -40°C to +60°C IP66/IP67
110-277V AC
Emergency Variants
II 3 GD Ex ec mc IIC T4 Gc
Ex tc IIIC T90°C Dc
Ta -20°C to +50°C
IP66/IP67 110-277V AC

5. Technical Specification

	60W version	120W version
Input Voltage	110-277V AC	
Input Current (230Vac, full load)	0.26A	0.52A
Consumption	60W	120W
Power Factor (230Vac, full load)	>0.97	
Mains Frequency	50/60Hz	
Inrush Current (I_{peak} @50%)	53A, $\Delta t < 300\mu s$	
Total Harmonic Distortion (230Vac, full load)	≤10%	
IP Rating	IP66/67	
Weight (STD)	13.2Kg	13.2Kg
Weight (EM)	15.6Kg	15.6Kg
Dimensions	See previous pages for line diagrams	
ATEX and IECEx and UKEX Rating	See page 6	

Inrush Current Typical Curve



MCB Type	Rating	SPZ/SPX-MP15K (120W Version)
B	10A	4
B	16A	10
B	20A	12
B	25A	15
C	10A	8
C	16A	16
C	20A	20
C	25A	26

Declaration Of Conformity With The Atex Directive 2014/34/EU & UK Directive SI 2016 No. 1107 **(as amended)**

Raytec Ltd. declares under our sole responsibility that the product(s) listed below conform with the relevant provisions of directive 2014/34/EU of 20th April 2016 and UK Directive SI 2016 No. 1107 (as amended)

Manufacturer	Raytec Ltd Unit 15, Wansbeck Business Park Rotary Parkway Ashington Northumberland NE63 8QW United Kingdom
Description of Equipment	Spartan range of Mid Power Floodlights standard and emergency
Certification Body	CML New Port Road Ellesmere Port CH65 4LZ
Certificate numbers	CML21ATEX3317 or IEC Ex CML21.0037 or CML21UKEX3319 CML21ATEX3320 or IEC Ex CML21.0038 or CML21UKEX3321 ATEX Quality Assurance Notification CSA BV (2813) UKCA Quality Assurance Notification CSA UK (0518)
Equipment Marking	**Zone 1/21 Variants** II 2 GD Ex eb mb IIC T4 Gb Ta -40°C to +60°C (-20°C to +50°C for emergency variants) Ex tb IIIC T90°C Db Ta -40°C to +60°C (-20°C to +50°C for emergency variants) IP66/IP67 110-277V AC **Zone 2/22 Variants** II 3 GD Ex ec mc IIC T4 Gc Ta -40°C to +60°C (-20°C to +50°C for emergency variants) Ex tc IIIC T90°C Dc Ta -40°C to +60°C (-20°C to +50°C for emergency variants) IP66/IP67 110-277V AC

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

EN IEC 60079-0:2018 EN IEC 60079-7:2015 + A1:2018

EN 60079-18 : 2015 + A1 2017 EN60079-31 : 2014

And also 2014/35/EU - Low Voltage Directive, 2014/30/EU - EMC Directive

Signed

Name Jonathan Sommersett
Position 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

rayTEC

Raytec Global (excluding Americas)

Tel: +44 (0) 1670 520055
sales@raytecled.com

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

Raytec Americas

Tel: +1 613 270 9990
sales@raytecled.com

Raytec Systems Inc.
800-300 Terry Fox Drive, Ottawa, Ontario
2K 0E3, Canada

T&D THORNE & DERRICK INTERNATIONAL
Thorne & Derrick
+44 (0) 191 410 4292
www.heatingandprocess.com