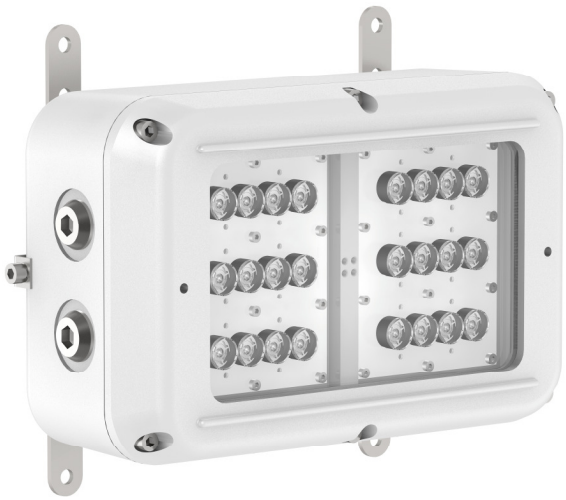
SPZ SPARTAN
Bulkhead Range–Installation Guide

This installation guide provides instructions for installing the Infra-Red and White-Light SPARTAN series of explosion protected bulkheads.



1. **Safety Instructions**
2. **Installation**
3. **Maintenance**
4. **Technical Specification**
5. **Trouble Shooting**

IMPORTANT INFORMATION

The SPARTAN series of explosion protected bulkheads 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.

Emergency bulkheads will require the fuse to be reconnected upon installation

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

INSTALLATION REQUIRMENTS

Installation shall be in accordance with the Canadian Electrical Code, Part 1, Clause J18-152 wiring methods Class I, Div 2, Clause 18.202 wiring method Class II, Div 1 or, National Electric Code (NEC) Article 501.130 (B), Article 502.130 for product install in USA.

a) Only threaded rigid metal conduit should be used

b) Only mains cables approved for hazardous areas should be used

c) Armoured cable with overall non-metallic jacket , such as TECK90

d) Use ¾" NPT cable gland certified for use in suitable hazardous locations

Floodlights are designed for use in the following locations –

LOC-2, LOC-4 and LOC-6

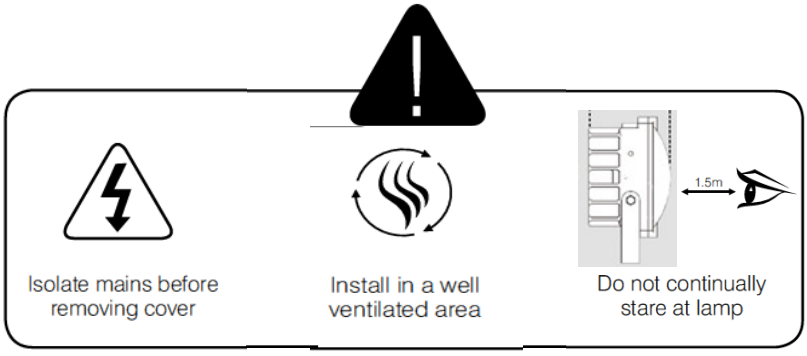
WARNING - EXPLOSION HAZARD- DO NOT DISCONNECT WHEN CIRCUIT IS LIVE UNLESS AREA IS KNOWN TO BE NON HAZARDOUS

AVERTISSEMENT - RISQUE D'EXPLOSION. NE PAS DEBRANCHER TANT QUE LE CIRCUIT EST SOUS TENSION, A MOINS QU'IL NE S'AGISSE D'UN EMPLACEMENT NON DANGEREUX.

THIS EQUIPMENT IS SUITABLE FOR USE IN CLASS I DIVISION 2, GROUPS A B C D OR NON HAZARDOUS LOCATIONS ONLY

1. SAFETY INSTRUCTIONS

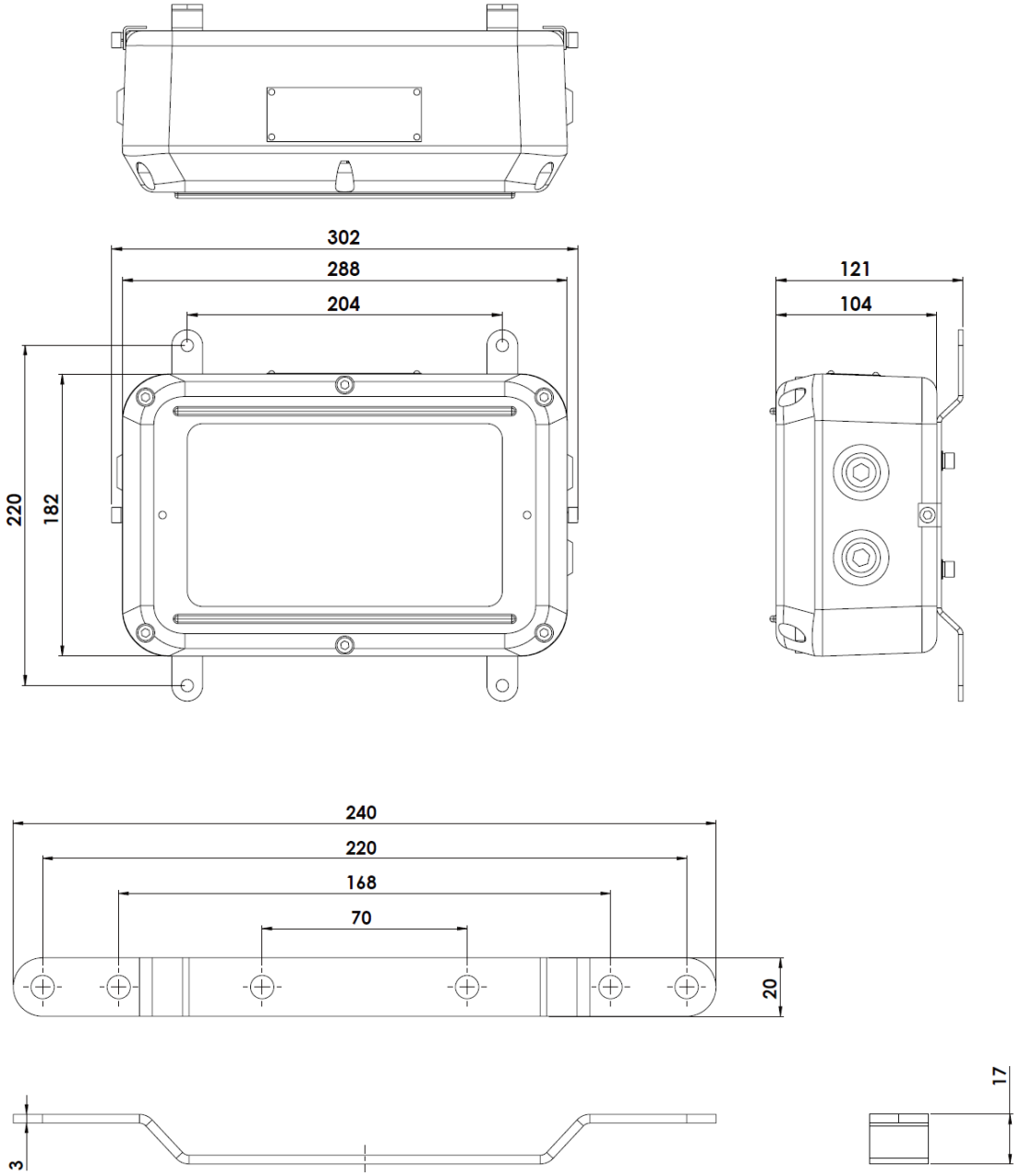
1. Read this leaflet carefully before commencing to install the SPARTAN unit and retain it for future use. Installation can only be carried out by suitably qualified personnel.
2. Check the certification to ensure that the mains supply, ambient temperature present and 'T' rating are is suitable for the environment the unit is being installed in.
3. If the SPARTAN unit is to be installed in areas of high vibration, please consult with Raytec.
4. The SPARTAN unit housing is constructed from marine grade aluminium and toughened glass. The end user must ensure that these materials are suitable for the environment the SPARTAN unit will be installed in.
5. Check certification nameplate on side of floodlight to ascertain type of threaded cable entry on the luminaire. Select suitably certified
6. The incoming mains cable should not exceed a temperature rise of 20°C above the ambient conditions; select suitable cable.



2. INSTALLATION

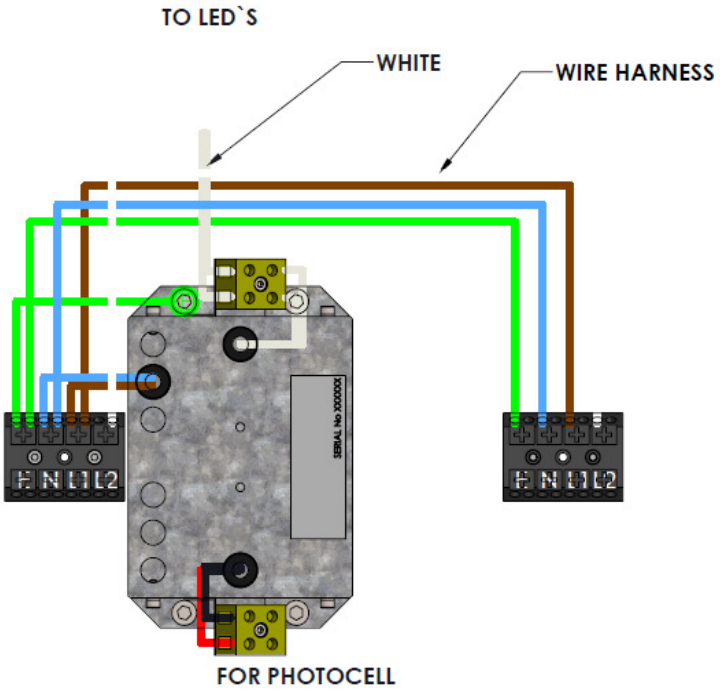
Mounting SPARTAN Unit

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.

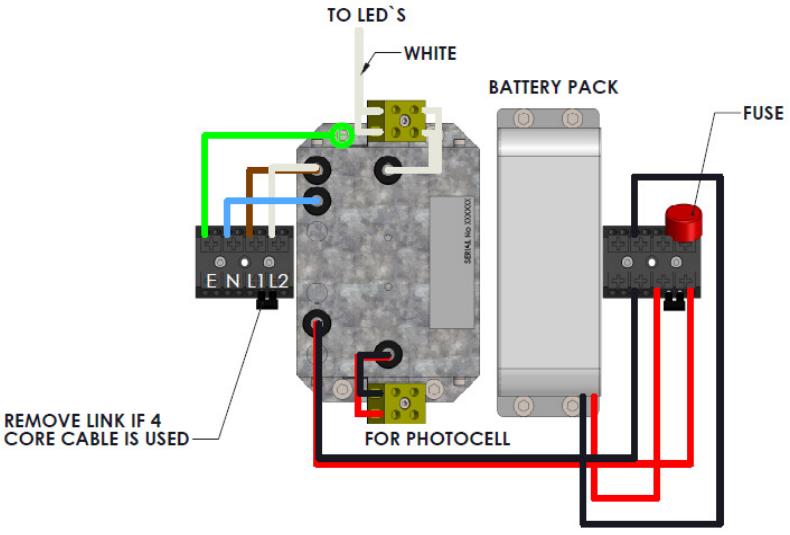


2. The unit may have been supplied with an integrated photocell. Care should be taken when positioning the unit to ensure the sensor is not shielded, is not pointing directly at another light source and is monitoring the general, prevailing light conditions.
3. The SPARTAN bulkhead and the mounting bracket is supplied together as a unit. The bolts in the side of the housing shall be removed and used to secure the bracket to the SPARTAN housing, the bracket can be attached in the top or bottom position depending on the mounting application. When mounted vertically the ¾" NPT cable glands should be kept to the bottom of the bulkhead , where applicable raceway sealing material may need to be applied. The bolts securing the power supply cover and the front glass cover should be tightened back down to 5Nm after installation and maintenance services

Typical wiring diagram – standard luminaires



Typical wiring diagram – emergency luminaires



Wire the Mains cable into the terminal block. Provision has been made for this and identified as the E (Earth), L (Live), Ls (Live switched) 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 Ls terminals on a standard unit are not electrically connected but allows them to be used on the same circuits as emergency bulkheads. Emergency luminaires are supplied with additional terminals to allow an external test switch (not supplied) to be installed by the customer

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 – on emergency luminaires there may be more than one mains supply.
7. All SPARTAN bulkheads have terminal blocks suitable for looping 12 AWG cable, only one cable should be connected to each terminal block connection
8. ¾" NPT cable gland suitable for hazardous areas to be used
9. The battery fuse located within the Bulkhead housing on emergency variants is disconnected after final manufacturing testing. When installing the bulkhead the battery fuse will need to be reconnected
10. If a 4 core cable is used on emergency luminaires – L, Ls, N and E the link cable at the front of the terminal block between L and Ls should be removed
11. During emergency operation the light output and duration will be determined by the variant purchased

Spartan Intelligent Emergency Operation Guide

Operation

The light fitting will carry out the following function **automatically** after installation:

- Commissioning Cycle
- Function test
- Self-test

A tri-colour LED indicator displays the light fitting status. The indication colours are shown in table 1.

a. Commissioning Cycle

- Starts automatically 24 hours after installation.
- 3 charge/discharge cycles to maintain 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 7 days.
- Checks the function of the battery, lamp and power supply.
- Lasts for few minutes only.

c. Self-test

- Carried out at a random time every 3 month.
- 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
- Discharges only 2/3 of the battery's capacity.

LED indication

LED Indication		Condition
	Blinking amber	Commissioning
	Static Amber	Function Test
		Self-test
	Blinking 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

Table 1. LED indication colours

Notes

- The luminaire will switch off momentarily (<0.5sec) during the transition between a test and normal operation.
- If a test was interrupted by a mains failure, the test will be halted, and the unit will enter emergency mode. Once the mains supply is back, the unit will allow 24 hours to recharge the battery before continuing the tests.
- The self-test is carried out at a random time to eliminate the possibility of having more than one unit undergoing the test at the same time.

3. MAINTENANCE

1. It is essential that all SPARTAN units are maintained in accordance with the requirements of the Canadian Electrical Code and National Electric Code (USA) Article 505
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. In the unlikely event of a number of LED's failing, the light engine assembly must be replaced. This is achieved by tilting the luminaire so that the LEDs are pointing upwards, removing the power supply cover, disconnect the white and violet cable to each power supply, remove the two M8 bolts at the rear of the casting, release the safety cable and pull the light engine assembly clear. Re fitting a light engine is a reversal of the above procedure.
5. The unit has one power supplies, in the event that a power supply needs to be replaced the cables to the LED and mains terminal block will need to be disconnected, the four M6 bolts released the power supply can then be removed. Fitting a new power supply is a reversal of the above procedure, please note that the power supplies are left handed or right handed and the correct variant will need to be ordered/fitted
6. Disposal of packaging, SPARTAN unit and old LED assemblies should be carried out in accordance with national regulations.

WARNING- EXPLOSION HAZARD – SUBSTITUTION OF COMPONENTS MAY IMPAIR SUITABILITY FOR CLASS I DIVISION 2.
AVERTISSEMENT - RISQUE D'EXPLOSION – LA SUBSTITUTION DE COMPOSANTS PEUT RENDRE CE MATERIEL INACCEPTANCE POUR LES EMPLACEMENTS DE CLASSE I, DIVISION 2

WARNING- EXPLOSION HAZARD - DO NOT REPLACE PARTS UNLESS POWER HAS BEEN SWITCHED OFF AND THE AREA IS KNOWN TO BE NON HAZARDOUS.
AVERTISSEMENT - RISQUE D'EXPLOSION - COUPER LE COURANT OU S'ASSURER QUE L'EMPLACEMENT EST DESIGNE NON DANGEREUX AVANT DE REPLACER LE

WARNING - EXPLOSION HAZARD - DO NOT DISCONNECT EQUIPMENT UNLESS POWER HAS BEEN SWITCHED OFF OR THE AREA IS KNOWN TO BE NON-HAZARDOUS.
AVERTISSEMENT - RISQUE D'EXPLOSION – AVANT DE DECONNECTOR L'EQUIPMENT, COUPER LE COURANT OU S'ASSURERN QUE L'EMPLACEMENTS EST DESIGNE NON DANGEREUX.

DO NOT REMOVE OR REPLACE WHILE CIRCUIT IS LIVE UNLESS THE AREA IS KNOWN TO BE FREE OF IGNITABLE CONCENTRATIONS OF FLAMMABLE SUBSTANCES.

WARNING : EXPOSURE TO SOME CHEMICALS MAY DEGRADE THE SEALING PROPERTIES OF MATERIALS USED IN THE FOLLOWING DEVICES

WARNING : EXPLOSION HAZARD. DO NOT REMOVE OR REPLACE LAMPS, FUSES OR PLUG IN MODULES (AS APPLICABLE) UNLESS POWER HAS BEEN DISCONNECTED OR THE AREA IS KNOWN TO BE FREE OF CONCENTRATIONS OF FLAMMABLE GASES OR VAPORS.

4.TECHNICAL SPECIFICATION

	SPARTAN Bulkhead 24 (Standard)
Input Voltage	110-254V AC/DC or 18-48V AC/18-69V DC see certification nameplate on product
Consumption	34W max
Power Factor	>0.95
Mains Frequency	50/60Hz
IP Rating	IP66/67
Weight (std)	5Kg
Dimensions	See previous pages for line diagrams
Certifications	See below

PROTECTION/CERTIFICATION

CLASS I DIV 2 Gr A B C D T5
CLASS II DIV 1 AND DIV 2 Gr E F G
IP66 & IP67 and 4X – WATERTIGHT AND CORROSION RESISTANT
Ta = -52°C to +55°C
110V to 254V AC ONLY STANDARD AND EMERGENCY
18-48V AC/18-69V DC STANDARD VARIANTS ONLY

5.TROUBLE SHOOTING

1. Ensure the two LED boards are correctly wired to terminal block.
   White to White : red marker to red marker

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 problems