PULSESTAR

rayTEC

Installation Guide

This installation guide provides instructions for installing the PULSESTAR illuminators & Controller

Installation Steps

1. Mount Illuminator(s) adjacent to camera
2. Mount PSU/ Controller Unit
3. Connect Illuminator(s) to Controller
4. Connect input trigger to controller

⚠️ **(UNIT WILL NOT FUNCTION WITHOUT APPROPRIATE INPUT TRIGGER)**

5. Connect Controller to power
6. Optional network connectivity for trouble shoot or use by experienced and expert users

Set Up Steps

1. Align illuminator towards scene
2. Adjust vertical angle
3a. Adjust horizontal angle via Adaptive Illumination (AI) (if required)
3b. Change angle of diffuser if required
4. Tighten all fixings

⚠️ Eye Safety

EN62471 Risk Group 2: Do NOT stare at the lamps. Use appropriate protection. Hazardous distance is 1,840mm. Max. Exposure Hazardous Value : 68% of Risk Group 2 Limit at 200mm from the lamp.
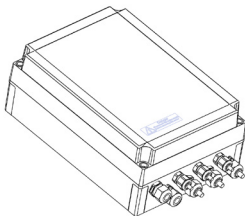

Golden Rules:

1. Ensure Controller orientation has the cable glands at the bottom underneath the enclosure
2. Do not input Mains Voltage into Low Voltage versions
3. Enclosure is fully water tight
4. Ensure there is a trigger input to the controller

Package Contents

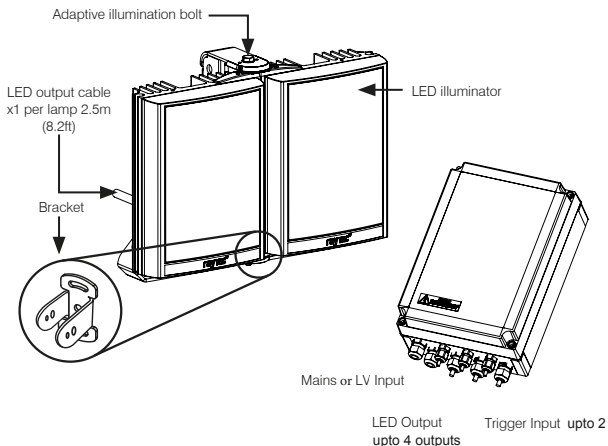### PULSESTAR illuminator
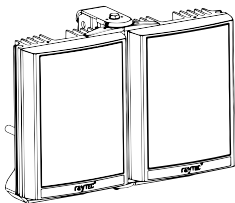
PSU/ Controller

Spare Lamp Diffuser

This basic installation guide is for users who don't want to adjust the performance of the product. Experienced and expert users may request the Engineering Guide which provides information on changing the set up and operation of the unit.

Pulsestar illuminators deliver powerful pulsed lighting for transport and machine vision applications including ANPR/ LPR applications. With high intensity lighting drive power, Platinum Elite twin-core SMT LEDs and illumination designed to be pulsed in sychronisation with the camera shutter, they deliver high intensity lighting on-demand to illuminate fast moving objects. All models feature an interchangeable lens system with Hot-Spot Reduction Technology for perfect even illumination. Pulsestar illuminators are long life and low maintenance.

Adaptive illumination bolt

LED output cable x1 per lamp 2.5m (8.2ft)

Bracket

LED illuminator

Mains or LV Input

LED Output upto 4 outputs

Trigger Input upto 2

Isolate mains before removing cover

Mount PSU to flat surface

Install in a well ventilated area

1.84m

Do not continually stare at lamp

Specifications subject to change without notice. Installation to be carried out by suitable trained and qualified personnel.

Inter-Changeable Lens System

PULSESTAR is factory set and delivered with a 35° x 10° Beam Angle interchangeable lenses (ILS) are also supplied.

To alter to 10° x 10°, simply remove interchangeable lens (ILS).

To alter to 20° x 10°, replace with other ILS lens supplied.

Other angle ILS lenses are available to order, please contact Raytec.

All ILS lenses will be clearly marked with the angle which they will produce when inserted into PULSESTAR.

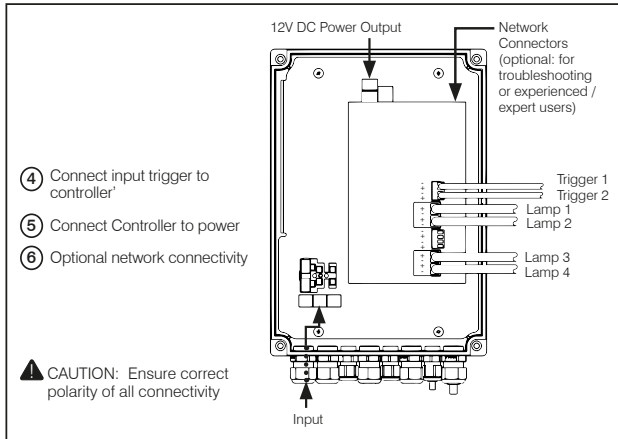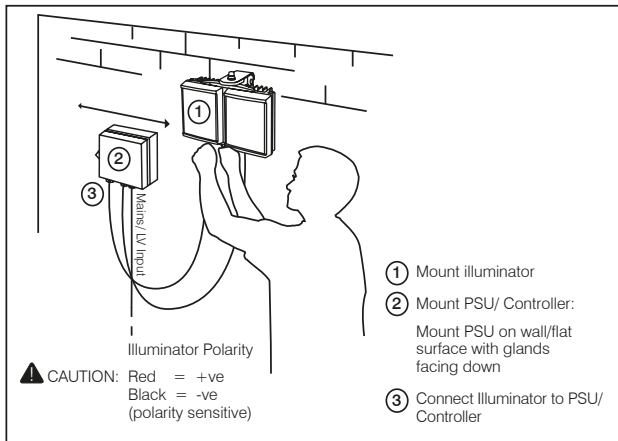Please handle ILS lenses with care - and do not touch the optical film.

Only 1 ILS lens can be inserted into the product at anytime. The product cannot accommodate multiple ILS lenses at the same time.

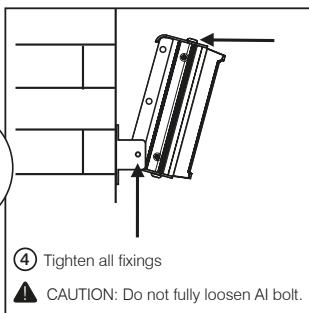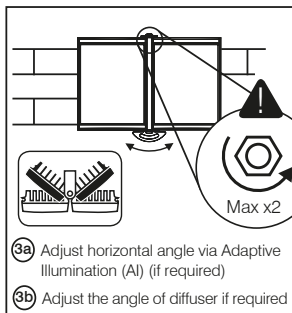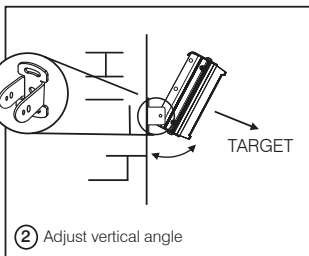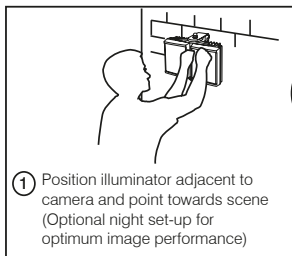We would recommend that power is turned off when replacing ILS lenses.
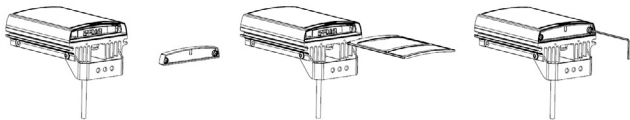
IMPORTANT NOTE: Ensure base plater is securely located, the gasket is correctly located and the screws correctly fastened to ensure and maintain IP66 rating of the product.

Installation

Mains/ LV Input

① Mount illuminator

② Mount PSU/ Controller:

Mount PSU on wall/flat surface with glands facing down

③ Connect Illuminator to PSU/ Controller

Illuminator Polarity

⚠ CAUTION: Red = +ve
Black = -ve
(polarity sensitive)

12V DC Power Output

Network Connectors (optional: for troubleshooting or experienced / expert users)

④ Connect input trigger to controller'

⑤ Connect Controller to power

⑥ Optional network connectivity

Trigger 1
Trigger 2
Lamp 1
Lamp 2

Lamp 3
Lamp 4

⚠ CAUTION: Ensure correct polarity of all connectivity

Input

Set Up

① Position illuminator adjacent to camera and point towards scene (Optional night set-up for optimum image performance)

② Adjust vertical angle

TARGET

③a Adjust horizontal angle via Adaptive Illumination (AI) (if required)

③b Adjust the angle of diffuser if required

Max x2

④ Tighten all fixings

⚠ CAUTION: Do not fully loosen AI bolt.

Match illumination to camera field of view

Camera
Light
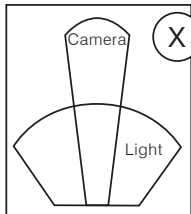
Reduces performance ✗
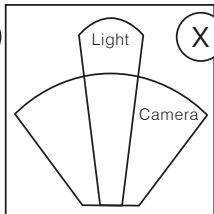
Light
Camera

May cause hot spots ✗
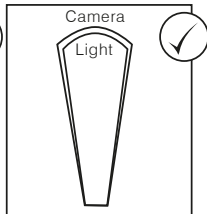
Camera
Light

Best performance ✓

For ANPR applications we recommend locating the illuminator as closely as possible to the camera for retroreflective plates, to ensure maximum amount of light is used. The angle of camera/light should also be less that 35° in all axes

Specifications

Model	Pulsestar x24	Pulsestar x32	Pulsestar x48	Pulsestar x72	Pulsestar x96
Lighting Drive Power (pulsed)*					
White-Light	110W	150W	220W	330W	440W
Infra-Red	220W	295W	440W	660W	880W
Consumption					
White-Light	11W	15W	22W	33W	44W
Infra-Red	22W	30W	44W	66W	88W
Number of LEDs	24	32	48	72	96
Input Versions			Universal 100 230V AC or 24V-48V DC		
LED type			Platinum Elite twin-core SMT LEDs		
Illumination Angle		Standard pack contains 35x10 (pre-fitted), 10x10 (no lens fitted), 20x10 lenses			
Beam Shape			Elliptical with HRT (Hot-Spot Reduction Technology)		
Beam Angle System			VARIO Interchangeable Lens System		
Output Channels			Constant current outputs with overdrive protection		
Trigger Input		Opto-isolated digital inputs. Require 3v to 24v DC operation rising edge +ve= pulse on			
Timing repeatability			100µS – minimum subject to other operating parameters		
Typical Pulse Width			2ms, up to 50hz max (other options available)		
12V DC Power Output			1A		
Control/ Communication		Ethernet – optional connection for troubleshooting or experienced/ expert users			
Wavelength			850nm (940nm and 730nm available) White-Light ~6000K		
IP Rating			IP66		
Temperature Rating			-20 to +45C (-4° to 113°F)		
Colour			Black illuminator, light grey PSU / controller		
Weight (illuminator)	1.65kg (3.6lbs)	2.25kg (5lbs)	4.5kg (9.9lbs)	6kg (13.2lbs)	2 x 4.5kg (9.9lbs)

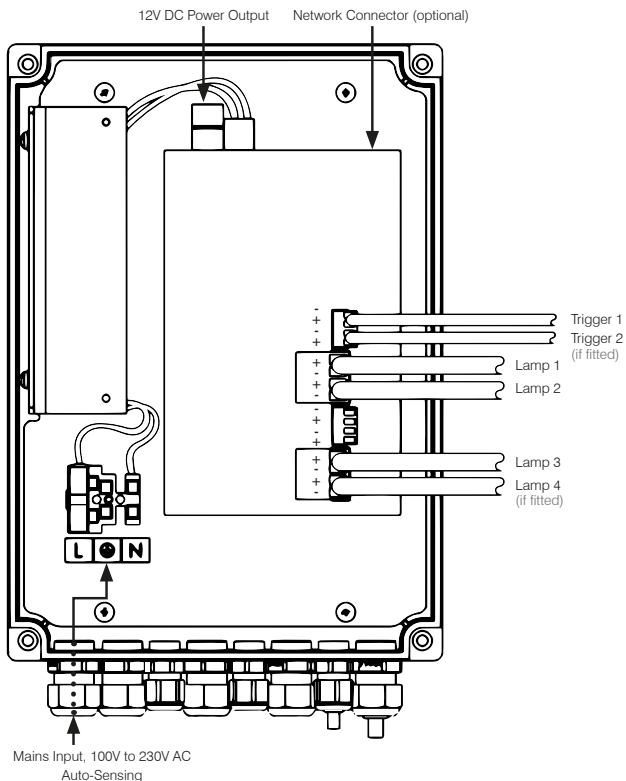| Model	Pulsestar x24	Pulsestar x32	Pulsestar x48	Pulsestar x72	Pulsestar x96
Dimensions (illuminator)	135 x 180 x 68.2mm (5" x 7" x 2.6" approx.)	209 x 178 x 67mm (8" x 7" x 3" approx.)	279 x 223 x 68mm (11" x 9" x 3" approx.)	423 x 226 x 68mm (17" x 9" x 3" approx.)	2 off 279 x 223 x 68mm (11" x 9" x 3" approx.)
Weight (controller)	1.7kg (3.75lbs)	1.7kg (3.75lbs)	2.0kg (4.4lbs)	2.3kg (5.1lbs)	2.3kg (5.1lbs)
Dimensions (controller)		181 x 287 x 107mm (8" x 12" x 4" approx.)			
Bracketry	U Bracket included	Adaptive Illumination mounting bracket included			
Country of Manufacture		United Kingdom			
Standard Setup	The PULSESTAR unit is configured in the following way: x24,x48,x72 units LED outputs 1, 2 and 3 (where applicable) are simultaneously triggered by a positive going input on "trig 1" x96 units: LED outputs 1 and 2 are triggered simultaneously by a positive going input on "trig 1" LED outputs 3 and 4 are triggered simultaneously by a positive going input on "trig 2" Trig 1 and Trig 2 can be commoned together so that all LED outputs can be triggered from a single input trigger. All variants are configured with a 2ms pulse width and a 20ms retrigger delay. This configuration is suitable for connection to a camera with a shutter speed of 1/500s or shorter and a maximum frame rate of 50fps. For other configuration please contact Raytec.			

⚠ NOTE: Ensure operating voltage is correct for unit being installed.
DO NOT INPUT MAINS VOLTAGE INTO LOW VOLTAGE CONTROLLERS.

Controller Diagrams (Not to scale)

High Voltage - x72 and x96
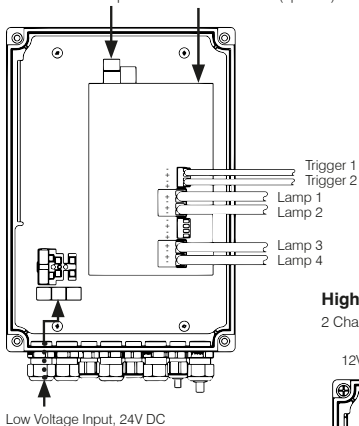
4 Channel Controller: up to 4 lamps, 2 triggers

12V DC Power Output

Network Connector (optional)

Trigger 1
Trigger 2
(if fitted)
Lamp 1
Lamp 2
Lamp 3
Lamp 4
(if fitted)

L   N

Mains Input, 100V to 230V AC
Auto-Sensing

NOTE: Trigger Input - 3.3V to 24V DC. LED Output - Polarity Sensitive

Rising edge +ve = pulse

Controller Diagrams

Low Voltage - x72 and x96
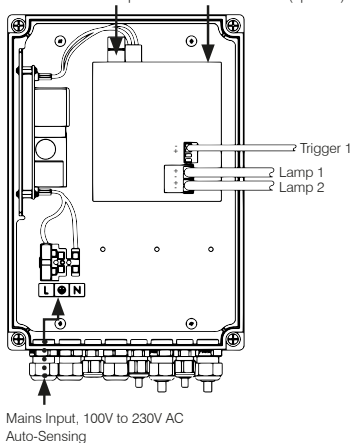
4 Channel Controller: 4 lamps, 2 triggers

12V DC Power Output   Network Connector (optional)

Trigger 1
Trigger 2
Lamp 1
Lamp 2
Lamp 3
Lamp 4

Low Voltage Input, 24V DC

High Voltage - x24 and x32

2 Channel Controller: 2 lamps, 1 triggers

12V DC Power Output   Network Connector (optional)

Trigger 1
Lamp 1
Lamp 2

L ● N

Mains Input, 100V to 230V AC
Auto-Sensing

NOTE: Trigger Input - 3.3V to 24V DC. LED Output - Polarity Sensitive

Troubleshooting

Ensure all tests are undertaken by a qualified, trained engineer

Ensure safe working practices are followed at all times

PLEASE NOTE: If the external flexible cable or cord is damaged, it shall be exclusively replaced by manufacturer, service agent or similarly qualified person to avoid a hazard.

Step 1: Lamp and Controller

Check polarity of lamp connection : RED = +ve, BLACK = -ve

Check supply input

Check fuse is intact

Check trigger polarity is correct, 3V-24V DC rising edge **+ve** = pulse on

Check trigger source

Step 2: Set-up camera, lens and illumination

Check alignment of lamp

Check camera / lens are set correctly

Check specification of lamp

Check diffuser angle

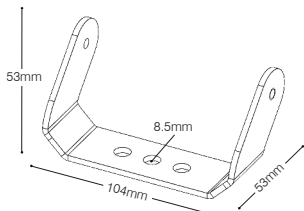### Step 3: Call Raytec for further assistance

Note down:

- Model and serial number of illuminator

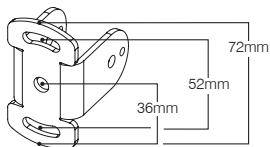- Camera make and model

- Lens make and model

If the Raytec lamp is still not delivering the required performance, please contact us for further assistance.
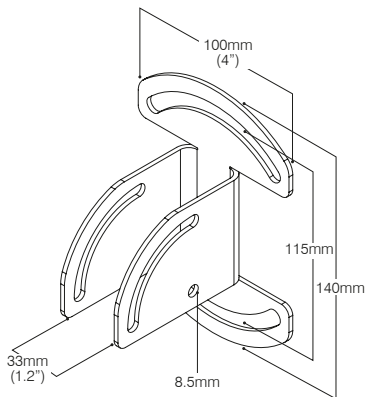
Technical Drawings

Standard Bracketry

53mm

8.5mm

104mm

53mm

PulseStar x24

100mm
(4")

115mm

140mm

33mm
(1.2")

8.5mm
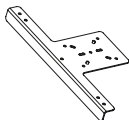
PulseStar x72

72mm

52mm

36mm

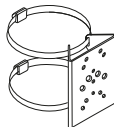PulseStar x32, 48, 96

Optional Bracketry

Wall Mount

Ptz Mount

Pole Mount

VUB Universal Bracket

Additional Information

This product must be installed by a person familiar with the construction and operation of the product and the hazards involved, in accordance with the applicable installation code.

Raytec Warranty

Please register your Raytec LED Illuminator(s) for its 5 year warranty by visiting www.rayteccctv.com/products/warranty-card

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