

# PULSESTAR

## 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

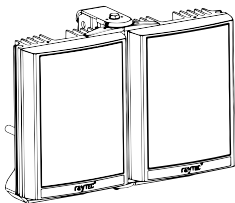
EN62471 Risk Group 2: Do NOT stare at the lamps. Use appropriate protection. Hazardous distance is 1,840mm. Max. Exposure Hazardous Value : 68% of Risk Group 2 Limit at 200mm from the lamp.

### Golden Rules:

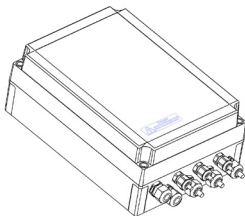
1. Ensure Controller orientation has the cable glands at the bottom underneath the enclosure
2. Do not input Mains Voltage into Low Voltage versions
3. Enclosure is fully water tight
4. Ensure there is a trigger input to the controller

### Package Contents

PULSESTAR illuminator



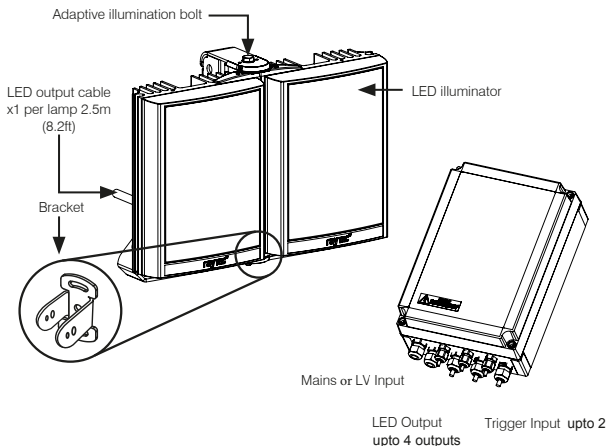
PSU/ Controller



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 synchronisation 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.



<p>Isolate mains before removing cover</p>	<p>Mount PSU to flat surface</p>	<p>Install in a well ventilated area</p>	<p>Do not continually stare at lamp</p>

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.

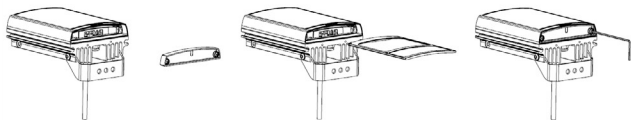
Other angle ILS lenses are available to order, please contact RayLED.

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.

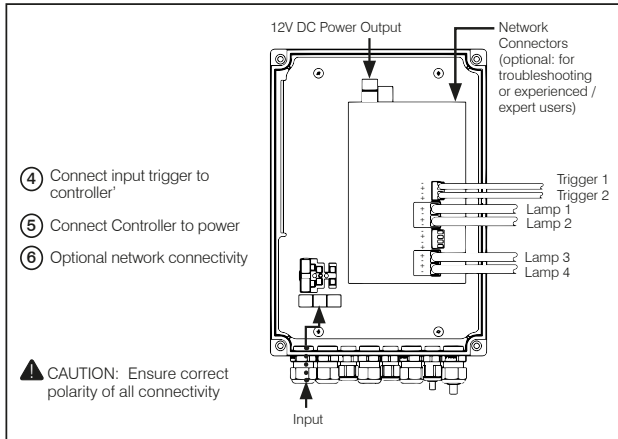
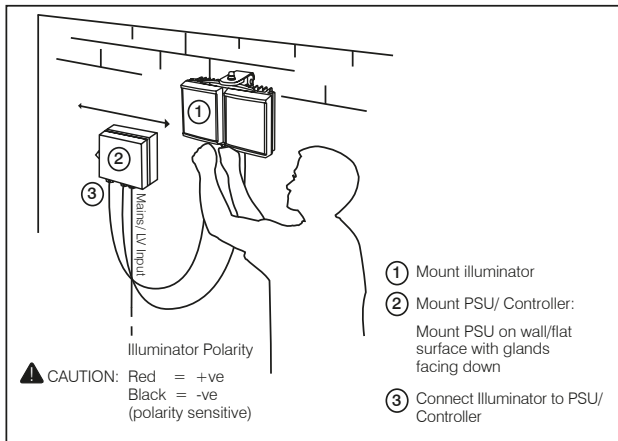
Only 1 ILS lens can be inserted into the product at anytime. The product cannot accommodate multiple ILS lenses at the same time.

We would recommend that power is turned off when replacing ILS lenses.



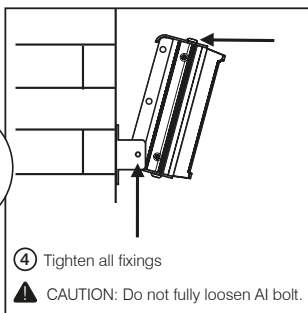
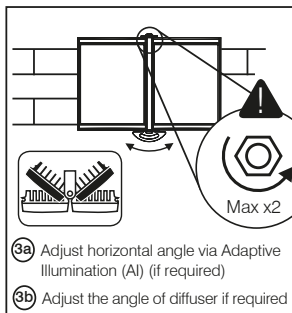
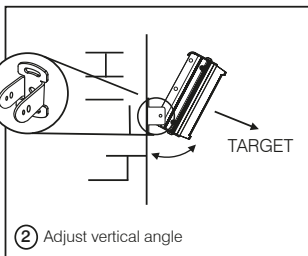
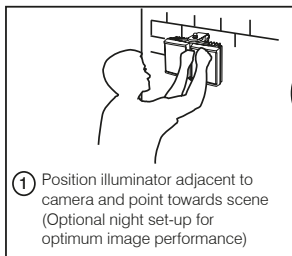
**IMPORTANT NOTE:** Ensure base plater is securely located, the gasket is correctly located and the screws correctly fastened to ensure and maintain IP66 rating of the product.

## Installation

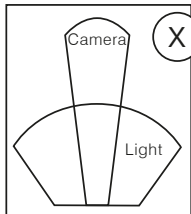


(see diagrams on page 8 for further detail)

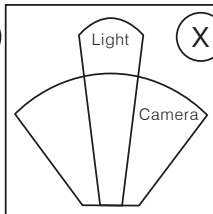
## Set Up



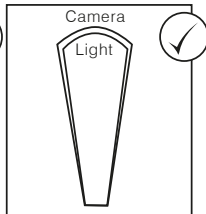
## Match illumination to camera field of view



Reduces performance



May cause hot spots



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 than  $35^\circ$  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	<p>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"</p> <p style="text-align: center;">x96 units:</p> <p>LED outputs 1 and 2 are triggered simultaneously by a positive going input on "trig 1"</p> <p>LED outputs 3 and 4 are triggered simultaneously by a positive going input on "trig 2"</p> <p>Trig 1 and Trig 2 can be commoned together so that all LED outputs can be triggered from a single input trigger.</p> <p>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.</p> <p>For other configuration please contact Raytek.</p>				

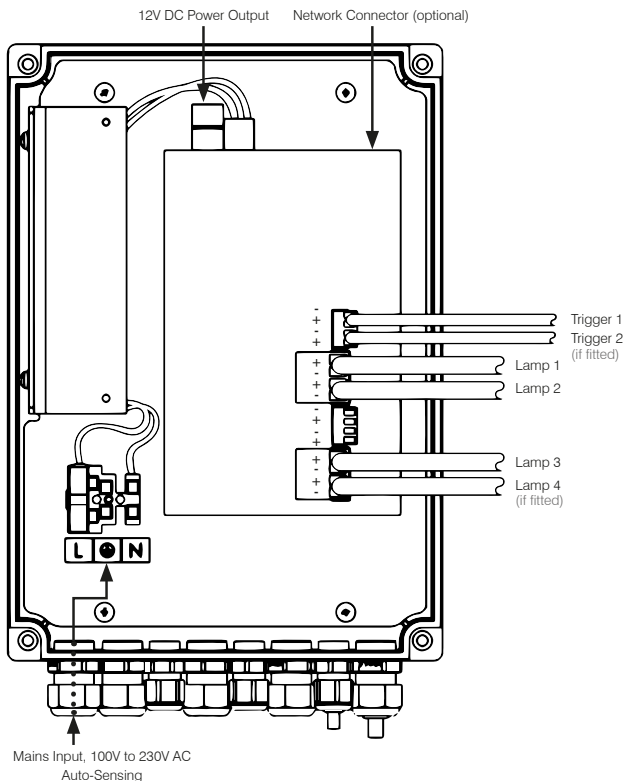


NOTE: Ensure operating voltage is correct for unit being installed.  
DO NOT INPUT MAINS VOLTAGE INTO LOW VOLTAGE CONTROLLERS.

## Controller Diagrams (Not to scale)

### High Voltage - x72 and x96

4 Channel Controller: up to 4 lamps, 2 triggers



NOTE: Trigger Input - 3.3V to 24V DC. LED Output - Polarity Sensitive  
Rising edge +ve = pulse

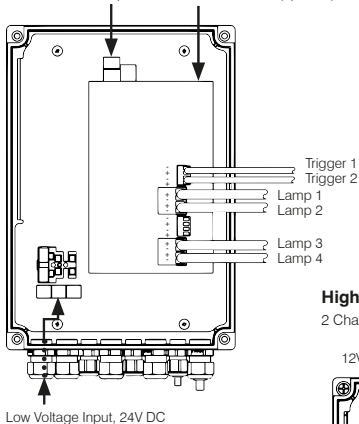


## Controller Diagrams

### Low Voltage - x72 and x96

4 Channel Controller: 4 lamps, 2 triggers

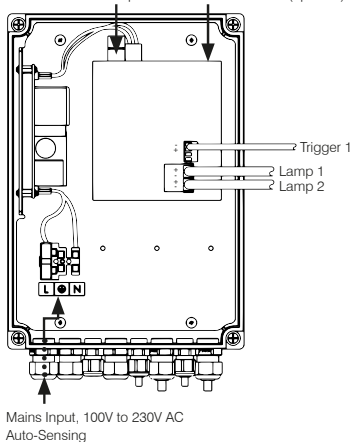
12V DC Power Output      Network Connector (optional)



### High Voltage - x24 and x32

2 Channel Controller: 2 lamps, 1 triggers

12V DC Power Output      Network Connector (optional)



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: Contact RayLED for further assistance

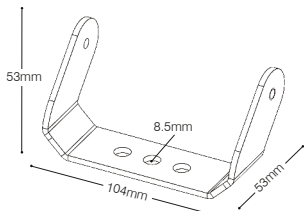
Note down:

- Model and serial number of illuminator
- Camera make and model
- Lens make and model

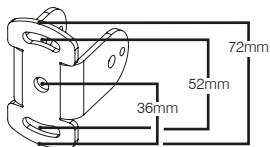
If the lamp is still not delivering the required performance, please contact us for further assistance.

## Technical Drawings

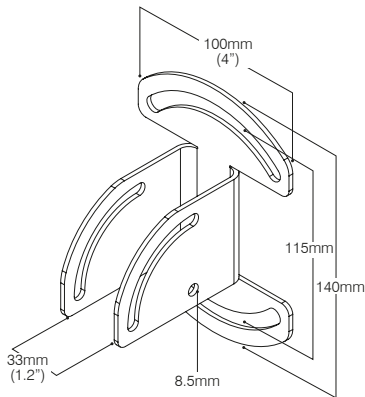
### Standard Bracketry



PulseStar x24



PulseStar x32, 48, 96



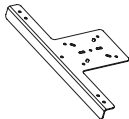
PulseStar x72

### Optional Bracketry

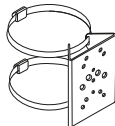
Wall Mount



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.