



**User Manual**

**High Power Intelligent  
IR Illuminator**

ZEIM-4000643G 080 A.2

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# Safety Information

1. Before using the product, please carefully read through the safety information and operation instructions.
2. Take note of the "Caution" labels: Please follow the "Caution" labels on the product and User Manual to ensure operation safety.
3. Cleaning: Before cleaning the unit, please first unplug the power.
4. Peripheral/accessories: Do not place the unit on an unstable cart, tripod, or on a tabletop as personal injury and damage to the unit may occur due to a fall. Please use officially certified support, frames, and accessories included with the product. Follow the instructions in this Instruction Manual during installation to ensure the quality and maintain safety.
5. Power: Please follow the labeled specifications on the unit and supply with the correct power. If unsure of the actual power requirements, please contact the distributor and do not connect the power at will.
6. Power cable: The power cable must be properly secured as improper connections may cause a short circuit, fire hazards, or serious damage and hazards.
7. Lightning strike: During prolonged inactivity, please unplug the power cable and the video cable to avoid damage from lightning strike and power surges.
8. Foreign objects and fluids: Please do not insert any objects into the unit or spill liquids to avoid short circuits.
9. Warning: High voltage circuitry contained within the unit. Do not disassemble to avoid electric shock. All maintenance operations must be handled by qualified maintenance staff.
10. Maintenance: When the following occurs, please first power off the unit and then perform maintenance by qualified maintenance staff:
  - Damaged power cable or socket
  - Liquid spills or foreign objects in the unit
  - Inoperable unit when proper instructions are followed
  - Dropped unit or damaged shell
  - Other anomalies
11. Component replacement: Replaced components by the maintenance staff must be official certified parts of identical specifications. Using unauthorized components can cause fire hazards and electric shock damage.

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12. Safety inspection: After the unit maintenance has been completed, the maintenance staff must perform safety inspection to ensure proper operation.
  13. The IR illuminator contains ultra-intense LED emitters. DO NOT STARE AT THE LED SOURCE.
  14. Never open or remove the front cover while the IR illuminator is under operation. Qualified personnel must perform all maintenance.

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# CE Compliance

The IR illuminator has been tested for compliance with CE (Conformité Européenne) standards and guidelines, and has been found to conform to applicable CE standards, specifically

- EN61000-6-3 for generic emissions
- EN50130-4 for immunity,
- EN60598-1 for Luminaires
- EN60598-2-5 for flood lights
- EN62471 for LED modules lighting

# FCC

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

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# 1. Introduction

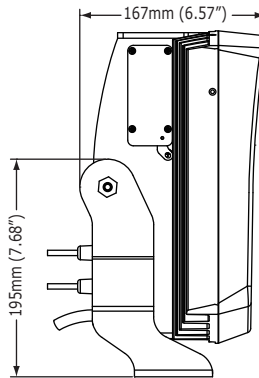
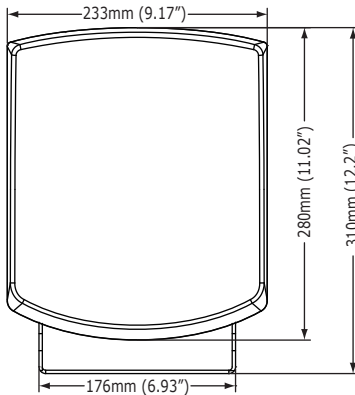
## 1.1 Package Contents

The package includes these items:

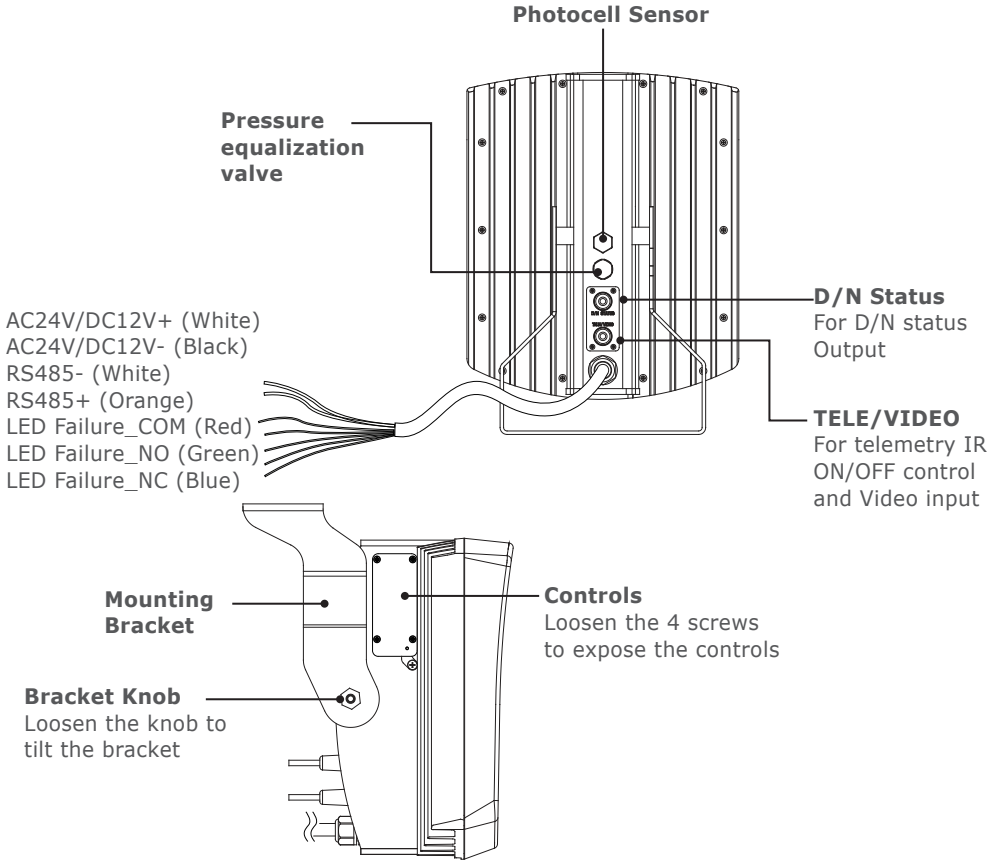
- High Power Intelligent IR Illuminator x1
- CD-ROM (Remote Control Utility and User Manual) x1
- User Manual x1
- Hexagonal Wrench x1
- 2-pin Screw Terminal Block x1
- Video Sync Link Cable (optional) x1
- D/N Status Cable (optional) x1
- Mains Input PSU x1

## 1.2 Hardware Overview

### 1.2.1 Dimensions



## 1.2.1 Part Names

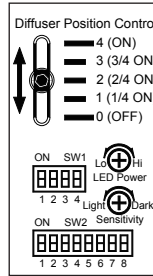


## Controls

Loosen the four screws securing the panel to expose the controls and make required adjustments.

**Important:** After setup, make sure to lock all four screws tightly in sequence as indicated in the caution label after setup to ensure waterproofing.

1. **Diffuser Position Control:** Use the provided hexagonal wrench to loosen the screw and move the screw to desired position to adjust the LED beam angles.



- **0:** No diffuser to occupy over the LED.
- **1~4:** Adjust the position of the diffuser - The higher the number, the greater the angle of illumination. Actual illumination angle depends on the model.

### 2. DIP SW1

- **Pin #1~3:** To sync with the shutter speed of the camera.

Pin #1	Pin #2	Pin #3	Shutter Speed
OFF	OFF	OFF	No allowed.
ON	OFF	OFF	1/250 (Default)
OFF	ON	OFF	1/500
OFF	OFF	ON	1/1K

- **PIN #4:** To turn on/off the RS-485 impedance. If you are chaining multiple illuminators, set the last one as "ON" and the rest as "OFF".

### 3. DIP SW2

- **Pin #1~7:** To set the ID of the illuminator when chaining multiple illuminators.

ID	Pin #1	Pin #2	Pin #3	Pin #4	Pin #5	Pin #6	Pin #7
000	OFF	OFF	OFF	OFF	OFF	OFF	OFF
001	ON	OFF	OFF	OFF	OFF	OFF	OFF
002	OFF	ON	OFF	OFF	OFF	OFF	OFF
~	~	~	~	~	~	~	~
127	ON	ON	ON	ON	ON	ON	ON

- **Pin #8:** Set #8 to be ON to enforce the telemetry ON/OFF function of the illuminator.



4. **LED Power:** Using a screwdriver, loosen the screw and turn it clockwise to increase the power or counter-clockwise to decrease the power.
5. **Sensitivity:** The illuminator will automatically turn on when lighting condition become dark and off when lighting conditions become light. To adjust the sensitivity, use a screwdriver to turn the clockwise to decrease the sensitivity or counter-clockwise to increase the sensitivity.



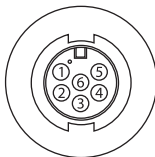
## 2. Installation

### 2.1 Making the Connection

It's suggested to set up the illuminator at night for optimized illumination results.

1. Attach the illuminator to desired location. Use appropriate mounting bracket as required.
2. Using a wrench, loosen the side bolts and then tilt the illuminator to desired angle. Carefully tilt the illuminator until the satisfied angle is achieved. When it's done, make sure to fasten the bolts .
3. Connect the illuminator to power supply. Ensure that the polarity is correct when using DC power.
4. To sync the D/N status, use the **video sync cable** (optional) to make the connection:

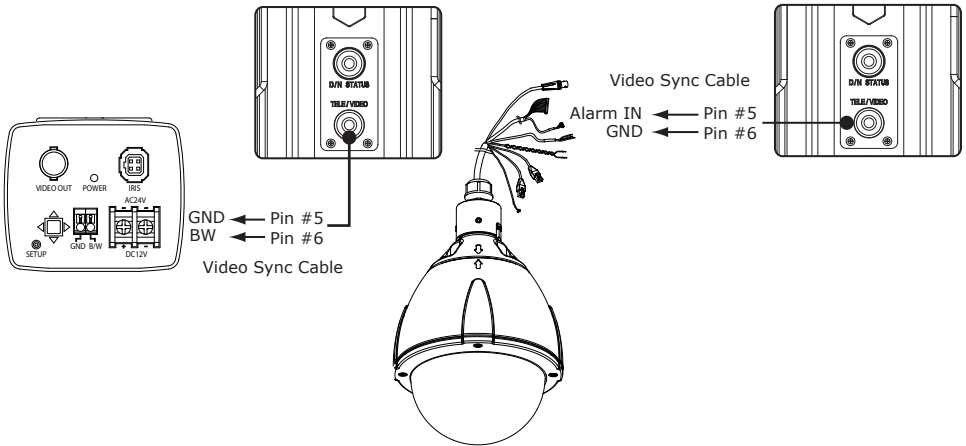
#### Video Sync Connector Pin Assignment



TELE/VIDEO

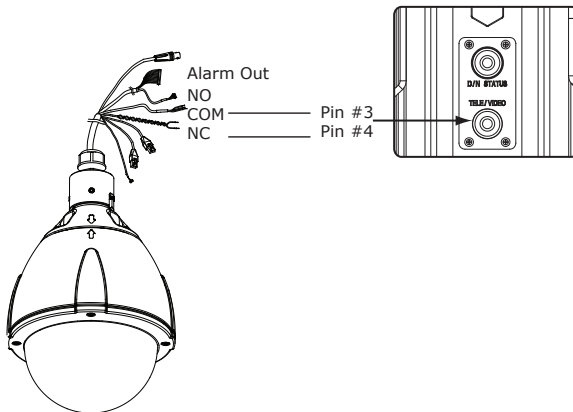
Pin	Name	Color	Remark
1	VIDEO	Brown	
2	GND	Blue	
3	TELE A	White	SHORT: IR OFF (SW2 PIN 8 ON)
4	TELE B	Green	OPEN: IR ON
5	NO	Yellow	
6	COM	Grey	

- Connect the gland side to the **TELE/VIDEO** port on the illuminator.
- **If using illuminator as the master:**  
Terminate the other end of the video sync cable (**Pin #5&6**) to the camera's connectors as shown below. Make sure to set the camera's related action to **D/N**.



- **If using the camera as the master:**

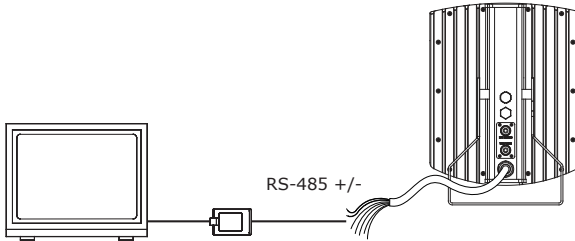
Terminate the other end of the video sync cable (**Pin #3&4**) to the camera's **Alarm Out** connectors.



5. Optionally connect the LED failure signals to an alarm device. When one of the LED fails, you will be automatically informed.

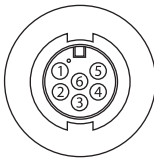
## 2. Installation

- Optionally connect the RS-485 signals to a computer for remote control.



- If you are going to chain multiple illuminators, use the **D/N status cable** to make the connection.

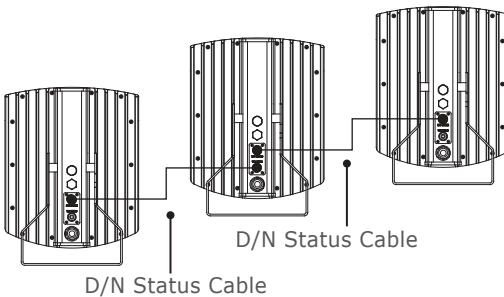
### D/N Status Connector Pin Assignment



D/N Status

Pin	Name
1	VIDEO
2	GND
3	NC
4	COM
5	NO
6	X

Please refer to the diagram below for connection and make required DIP Switch settings. Up to 127 illuminators can be chained.



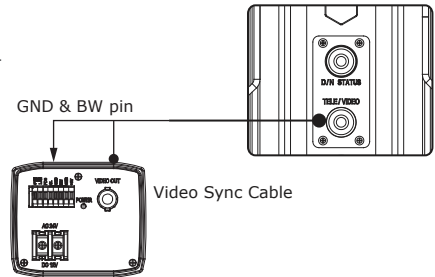
Item	DIP Switch	Settings		
Illuminator ID	SW2 Pin #1~7	1	2	3
RS-485	SW1 Pin #4	OFF	OFF	ON
Telemetry	SW2 Pin #8	OFF	ON	ON

## 2.2 Traffic Camera Application

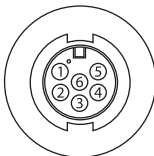
### Connection for D/N and Video Sync (Illuminator as master)

If you are going to connect the illuminator to a traffic camera, use a **video sync cable** (optional) to make the connection as below:

- Connect the gland side to the **TELE/ VIDEO** port on the illuminator.
- Terminate the other end of the cable (**Pin #5&6**) to the **GND & BW** pin of the camera.
- Terminate the video end of the cable (**Pin #1&2**) to the **VIDEO** port of the camera.



#### Video Sync Connector Pin Assignment



TELE/VIDEO

Pin	Name	Color	Remark
1	VIDEO	Brown	
2	GND	Blue	
3	TELE A	White	SHORT: IR OFF (SW2 PIN 8 ON)
4	TELE B	Green	OPEN: IR ON
5	NO	Yellow	
6	COM	Grey	

## Settings

**Camera side:** Set the camera's Day/Night mode to "D/N sync" so that the camera changes D/N mode as triggered by the illuminator.

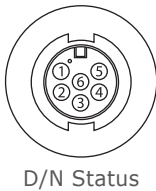
**Illuminator side:** Also make sure to set the illuminator's shutter speed as the same as the shutter speed of the camera.

## Chaining up to 3 illuminators with traffic camera

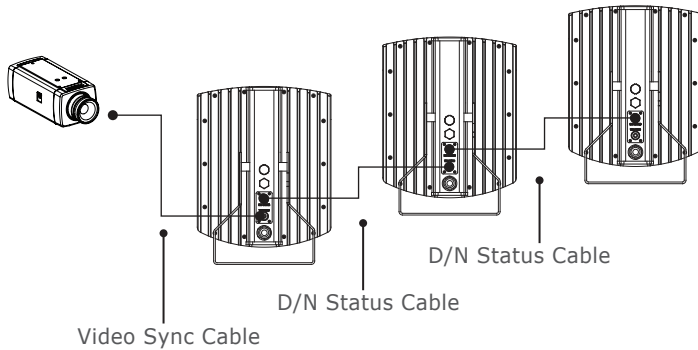
When connecting the illuminator to a traffic camera, it's allowed to chain up to 3 illuminators to sync the 3 illuminators' D/N status and shutter speed with the camera. Refer to the diagram below for connection and make required DIP Switch settings.

Example: Sync to a traffic camera with shutter speed of 1/1000.

### D/N Status Cable Pin Assignment



Pin	Name
1	VIDEO
2	GND
3	NC
4	COM
5	NO
6	X



Item	DIP Switch	Settings		
Illuminator ID	SW2 Pin #1~7	1	2	3
Telemetry	SW2 Pin #8	OFF	ON	ON
Shutter Speed	SW1 Pin #1~3	1/1000	1/1000	1/1000
RS-485	SW1 Pin #4	OFF	OFF	ON

## 3. Remote Control

1. The CD comes with a utility to remotely configure the illuminators. The utility required no installation. Simply copy the executable file to your computer and double-click the file to launch the utility.
2. From the menu bar, click **COM PORT** and select a com port number according to your connection.
3. Check the **Enable Remote Control** check box and select the ID of the illuminator you want to set up. Then make the configurations as required. In addition to the settings correspond to the hardware controls of the illuminators, you can also set these:

**Sync Delay:** Adjust the delay for a best illumination condition when video sync is connected. Usually the default settings 0ms is recommended. However, you can try to select the parameter that gives optimal lighting so that a best image is

**Enforce LED ON/OFF Externally:** Check this box to activate the telemetry LED ON/OFF function.

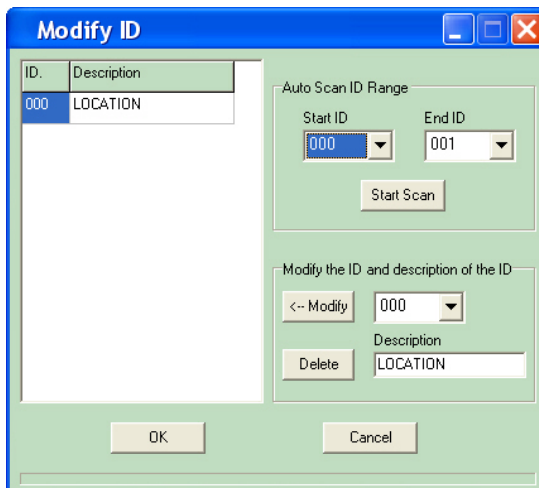


### 3. Remote Control

For your convenience, you can enter a descriptive name for each illuminator. To do so, click the **Modify ID List** to pop-up the dialog box.



Click **Start Scan** to search for the connected illuminators. Then select the ID of target illuminator to modify the location name. After entering the settings, click **OK**. Then wait a moment for the update to take effects.





# 4. Specification

<b>Electric</b>				
LED array	High efficiency surface mount power LED with advanced current limited integral control circuitry			
Beam Patterns	10°~50°	20°~60°	40°~80°	60°~100°
Max distance	300m (984 ft)	240m (787 ft)	170m (558 ft)	130m (427 ft)
Wavelength	850nm			
Even illumination	External adjustable by optical diffusion			
Guaranteed Lifetime	3 years			
Alarm Out 1	Day/Night Switching (Volt free contact)			
Alarm Out 2	LEDs failure detection (Volt free contact)			
Adjustable sensitivity	80 lux for IR ON			
Adjustable infrared power	20%-100%			
Telemetry Input	Enforced IR ON/OFF			
Power Saving	Save Power up to 80% by video sync.			
Automatic IR on / off	Controlled by photosensor			
<b>Power System</b>				
Input Voltage	12VDC/24VAC(50/60Hz) ±10%			
Consumption	55W(Max.)			
Power cable	3M waterproof cable for power input/RS485/LEDs failure status			
<b>Remote</b>				
Interface	RS-485			
PC Software	Windows Based PC Software			
Features	LED Power Control, Light Sensor Sensitivity, Video timing Control, Telemetry Enforced IR ON/OFF			
<b>Accessory(optional)</b>				
Video Sync. Cable	1M waterproof cable for telemetry IR ON/OFF control and Video input			
D/N Status Cable	1M waterproof cable for Day/Night status output			
Mains Input PSU	Mains Power Adaptor, AC100-240V to DC12V			
<b>Safety</b>				
Certification	CE: EN61000-6-3, EN50130-4, EN60598-1, EN60598-2-5, EN62471(LightSafety)			
	FCC ClassB			
	IP68, EN60529			
	UL1598 & UL8750 (Optional)			
<b>General Structure</b>				
Main Body	Robust high quality aluminum extrusion			
Front Cover	Highly IR transmitted polycarbonate with enhanced surface protection			

## 4. Specification

Color	Black
<b>Environment</b>	
Operating Temperature	-50 ~ +60°C (-58°F ~ 140 °F)
Operating Humidity	90% MAX
Storage Temperature	-50 ~ +60°C (-4°F ~ 140 °F)
Storage Humidity	70% MAX
Protection	IP68
<b>Mechanison</b>	
Dimension(W*L*H)	233 x 310 x 220 mm (9.17"x 12.2" x 8.66")
Weight (tentative)	5.6Kg (12.3lb)



