

# *iluminar*

## Handbook

### 'Tools for CCTV Lighting'

*Ideal for Consultants, Distributors & Installers*



**Infrared illuminators**



**White-Light illuminators**



**Multiple illuminators**



**High PoE illuminators**

**Online Interactive Product Selector**  
<http://www.iluminarinc.com/ProductSelector1.html>


**Product Categories**

- > IR Illuminators
- > White Light Illuminators
- > Traffic Series - ANPR
- > Vision IR Cameras

**Accessories**

**Contact us**

**iluminar Inc.**  
 16107 Kensington Dr. #124  
 Sugar Land, Texas 77479  
 USA  
 Tel: +1-281-438-3500   
 Fax: +1-281-835-5777



Home / Product Selector

**Light Type** : 850nm Infra-Red

**Distance (Camera to Scene)** : 392 Metres

**Horizontal FOV** Angle : 10 °

**Input Voltage Type** : 12-36V DC or 24V AC

[Click Here For Result](#)

LED Light Product Code	IR919-A10-24
LED Light Quantity	x2
Bracket Product Code	DMB1
Bracket Quantity	x1
Horizontal FOV Distance	68.6 Metres
Horizontal FOV Angle	10 °
Total Power	104W

[Clear Result](#)


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Home / Product Selector

**Light Type** : White-Light

**Distance (Camera to Scene)** : 900 Feet

**Horizontal FOV** Distance : 157 Feet

**Input Voltage Type** : 12-36V DC or 24V AC

[Click Here For Result](#)

LED Light Product Code	WL643-10-24
LED Light Quantity	x2
Bracket Product Code	DMB1
Bracket Quantity	x1
Horizontal FOV Distance	157 Feet
Horizontal FOV Angle	10 °
Total Power	104W

[Clear Result](#)

# Optics Chart

Horizontal field of view (HFOV) angle based on the given camera chip size and lens configuration:

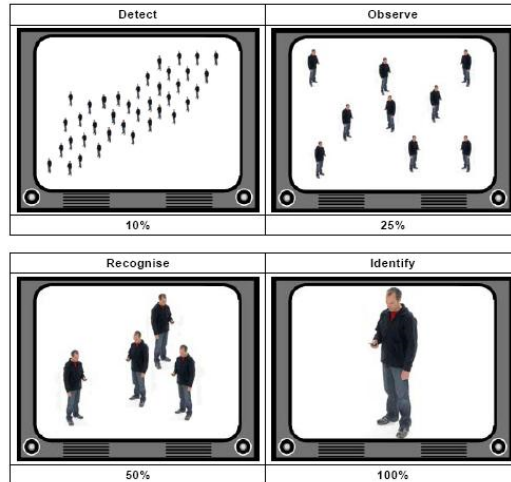
Camera Chip Size:				
Lens Size:	1/4"	1/3"	1/2"	2/3"
2.8mm	59°	92°	97°	115°
4mm	44°	64°	78°	95°
6mm	30°	44°	56°	73°
8mm	23°	38°	44°	58°
12.5mm	15°	22°	29°	39°
16mm	11°	17°	23°	30°
25mm	7°	11°	15°	20°
50mm	4°	6°	7°	10°

Recommended illuminator optics based on the given camera chip size and lens configuration:

Camera Chip Size:				
Lens Size:	1/4"	1/3"	1/2"	2/3"
2.8mm	60° Optics	100° Optics	100° Optics	120° Optics
4mm	60° Optics	100° Optics	100° Optics	100° Optics
6mm	30° Optics	60° Optics	60° Optics	100° Optics
8mm	30° Optics	60° Optics	60° Optics	60° Optics
12.5mm	30° Optics	30° Optics	30° Optics	60° Optics
16mm	10° Optics	30° Optics	30° Optics	30° Optics
25mm	10° Optics	10° Optics	30° Optics	30° Optics
50mm	10° Optics	10° Optics	10° Optics	10° Optics

# Online Interactive Detection Calculator

<http://www.iluminarinc.com/DetectionCalculator.html>



\*Home Office CCTV Operational Requirements Manual 2009

**Option 1 - Specify Detection Mode**

Camera CDD Size : 1/2"

Distance from Camera to Target : 100 Metres

Detection Mode : Identify @ 100%

Light Type : Infra-Red 850nm

Voltage Input Type : 12-36V DC or 24V AC

[Click Here For Result](#)

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**Option 2 - Find Your Detection Mode**

Camera CDD Size : 1/4"

Distance from Camera to Target : Metres

Focal Length : mm

Optical Zoom : x1 (Fixed Lens)

Light Type : Infra-Red 850nm

Voltage Input Type : 12-36V DC or 24V AC

[Click Here For Result](#)

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LED Light Product Code : IR623-A10-24

LED Light Quantity : x1

Bracket Product Code : Standard U Bracket

Bracket Quantity : x1 (Included)

Horizontal FOV Distance : 2.3 Metres

Horizontal FOV Angle : 1 °

Vertical FOV Distance : 1.7 Metres

Vertical FOV Angle : 1 °

Focal Length : 278 mm

Detection Mode : Identify

Detection Size (Vertically) : 100 %

Total Power : 39W

[Clear Result](#)

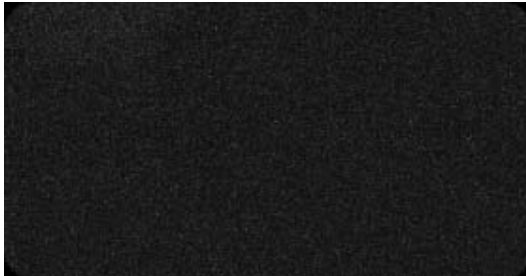
## Online Video Gallery

<http://www.iluminarinc.com/gallery.html>



**Even Illumination  
Foreground & Background**

**Infrared OFF**

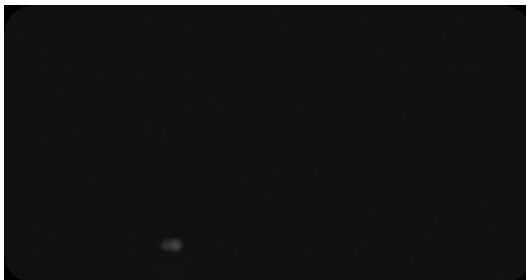


**Infrared OFF**

**Infrared ON**



**Infrared ON**



**White-Light OFF**



**White-Light ON**



## Applications

Iluminar's illuminators can be used to protect the following against crime:

Airports	Borders	Depots	Governments
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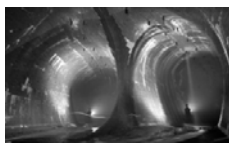
Highways	Military Bases	Offices	Parking
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Ports	Power Stations	Prisons	Railways
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Retail	Tunnels	Water	Wildlife
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## Specification & Installation

### 1. Description

A complete range of infra-red and white light illuminators for CCTV, the Visible and Invisible range feature state of the art technology and installation friendly design.

- Energy efficient, low voltage operation for quick and easy installation
- Latest high efficiency surface mount LEDs with advanced electronic control circuitry deliver improved thermal management, long life and low cost of ownership
- Semi covert, covert and visible white light versions
- Built in photo cell
- Easy integration with day/night cameras with relay contacts indicating if the built in photocell has activated the illuminator
- Remote telemetry input
- Easy access to power and photo cell adjust
- Pressure equalisation vent prevents thermal expansion and pressure cycling

### 2. Specification

#### Electronics:

High efficiency surface mount high power LED's with advanced current limited integral control circuitry

#### Beam Angles:

10, 30, 60, 100, 120 degree

#### Lens/Beam pattern:

The illuminator should be matched to the scene and the camera lens focal length

#### Wavelength:

850nm, 940nm and visible white light

#### Expected life:

10 years

#### Consumption:

IR148 / WL105 13W

IR312 / WL220 26W

IR623 / WL436 39W

IR919 / WL643 52W

#### Input Voltage:

12-32V DC or 24V AC

#### Operating Temp:

-58° to 140°F (-50° to 60°C)

#### Environmental:

IP67

#### Construction:

Robust high quality aluminium extrusion

#### Front Window:

Polycarbonate high transmittance protective  
(Vandal-proof) IR filter

#### Dimensions:

IR148 / WL105 2.68" x 4.33" x 3.07" (68 x 110 x 78mm)

IR312 / WL220 4.49" x 4.33" x 3.07" (114 x 110 x 78mm)

IR623 / WL436 6.34" x 4.33" x 3.07" (161 x 110 x 78mm)

IR919 / WL643 8.39" x 4.33" x 3.07" (213 x 110 x 78mm)

#### Weight

IR148 / WL105 1.65lbs (750g)

IR312 / WL220 2.3lbs (1.05Kg)

IR623 / WL436 3lbs (1.35Kg)

IR919 / WL643 3.9lbs (1.75Kg)

**Power cable** 9ft (3m). Other lengths available to order

**Mount** Black powder coated stainless steel wall  
mount. Adjustable via M6 Allen key  
(included)

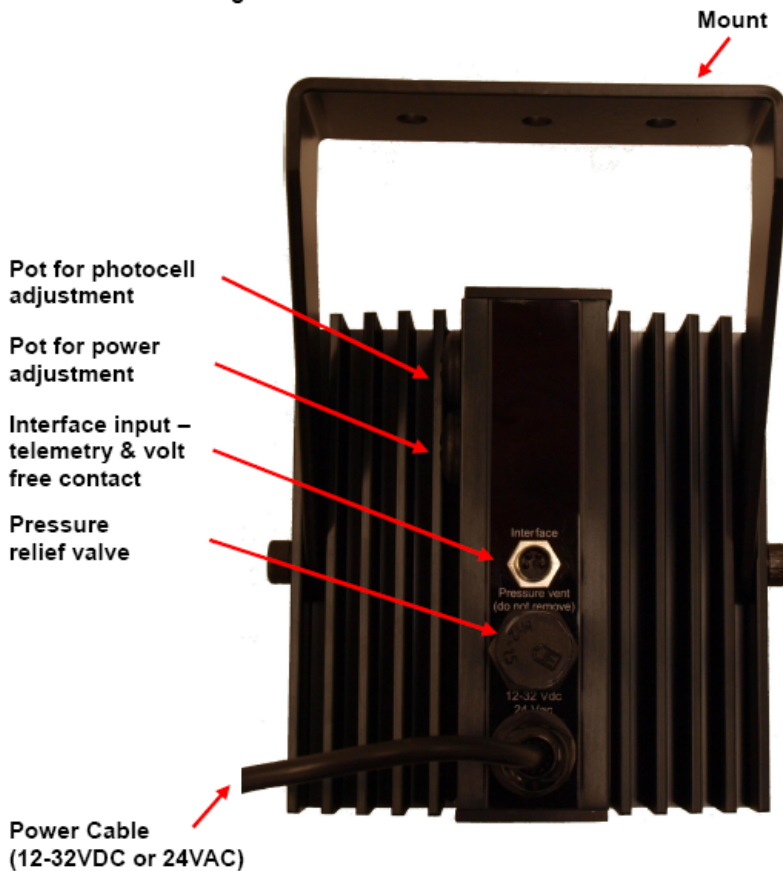
### 3. Installation

Note: The illuminator is low voltage 12-32V DC or 24VAC.

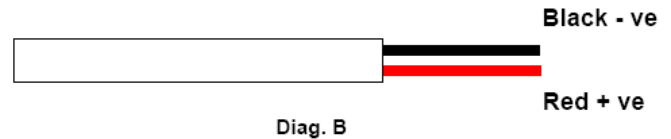
Optimum results are achieved by setting up at night and viewing the results on a monitor.

1. Attach the illuminator mount to pan/tilt unit, wall or camera housing
2. Connect the lamp to a suitable low voltage supply. Ensure that the polarity is correct (see Diag. B)
3. Commission the mains supply, camera and monitoring equipment
4. Adjust the pan angle of the illuminator to match the camera field of view
5. Adjust the vertical alignment by loosening the side bolts (one on each side of the main body) to maximise the results
6. Tilt the lamp downwards until the rear part of the required field of view is saturated with light, as viewed on the monitor
7. SLOWLY and GRADUALLY tilt the lamp upwards until the far part of the required field of view is illuminated correctly on the monitor

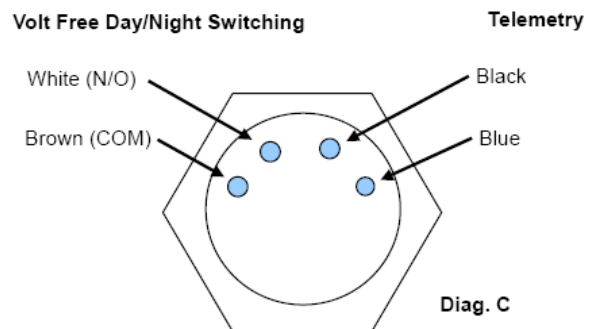
Diag. A – Back of Illuminator



Power Cable Connections



Interface Connector Pin-Out



#### Remote switching

The illuminator may be activated remotely by a volt-free contact latched across the telemetry pins (see Diag. C above)

#### Photocell following contact

Volt free relay contact - normally open (day) to normally closed (night). See Diag. C.

#### . Power adjust

To adjust the power first unscrew the sealing cap, and then adjust the power potentiometer clockwise to increase the power and counter clock wise to turn the down. The unit is factory set to maximum output.

#### Photocell

The photocell is designed to automatically switch the lamps on at dusk and turn off at dawn. A high degree of hysteresis is incorporated to avoid on/off switching in marginal conditions. The unit is factory set at approximately 30 Lux On and 70 Lux OFF but can be adjusted.

#### Photocell sensitivity

To adjust the photocell sensitivity first remove the sealing cap, then adjust the potentiometer to turn the lamp on when lighting conditions are lighter or darker. Adjust counter clockwise to make the lamp turn on when it's lighter and clockwise when it's darker.

#### Disabling the photocell

To disable the photocell adjust the sensitivity fully counter clockwise. This will make the lamp turn on all the time.

## Safety

WARNING: When the lamp is running it is hot to touch. Before touching switch off the illuminator and allow cooling for a minimum of 10 minutes. Do not stare directly into the lamp at a distance of less than 6' (1.8m).

## 4. Trouble Shooting

Ensure all tests are undertaken by a qualified, trained engineer.  
Ensure safe working practices are followed at all times.

### Step 1: Basics

- Check power connection
- Ensure power is 12-32V DC / 24V AC
- Check the photocell is working - cover photocell, light should turn on
- Ensure power supply is suitably rated to product – check specifications

### Step 2: Lamp Test

- Check current draw of lamp corresponds to specification
  - Check current of lamp – see instructions for correct current setting.
- To check lamp current remove +ve (red) lead from power supply and connect a multimeter (set to 10A) in line with the lamp. [One lead of multimeter in common (COM), other lead into 10A socket of multimeter; set multimeter to read Amps]. Refer to PSU Specifications for correct current settings.

### Step 3: Set-up Camera, Lens and Illumination

- Check alignment of lamp
- Check camera lens – fully open at night & set correctly
- Check model number to performance specification to ensure required distance is achievable

### Step 4: Call for Further Assistance

If the lamp is still not delivering the required performance, please contact Technical Support for further assistance

### Note down:

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

## 5. Certification



This product complies with the European Directive 89/336/EEC Electromagnetic Compatibility and 73/23/EEC Low Voltage Directive by meeting the following standards:

Safety: EN60598-1:2008 Electrical Safety  
EN60825-1:2007 LED/Laser Eye Safety  
EMC: EN 61000-6-1:2007  
EN 61000-6-3:2007  
EN 61000-3-2:2006  
EN 61000-3-3:1995 AMD1 & AMD2  
FCC: FCC CFR Part 15.107 and 15.109  
IP: IP67 in accordance with EN 60529:1992 AMD1 7643, 1993 AMD2 10931, 2000  
WEEE: Waste Electrical & Electronic Equipment European directive 202/96/EC  
RoHS: Restriction of Hazardous Substances European directive 202/95/EC



This symbol on the product means that the electrical and/or electronic equipment to which it relates should be disposed of at the end of life separately from domestic household waste. There are separate collection systems for recycling in the EU. For more information please contact the Local Authority or supplier of the product.

# Online Energy Saving Calculator

<http://www.iluminarinc.com/EnergySavingCalculator.html>

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- > IR Illuminators
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Home / Energy Saving Calculator

## Energy Saving Calculator

Number of New Illuminators to be Installed	<input type="text" value="100"/>	
Power of Old Illuminators	<input type="text" value="500"/>	Watts
Expected Bulb/Unit Life of Old Illuminator	<input type="text" value="4400"/>	Hours
Currency	<input type="text" value="£ Pound"/>	
Bulb Unit Cost of Old Illuminator	<input type="text" value="10"/>	£
Labour Cost Per Bulb Change	<input type="text" value="75"/>	£
Electricity Tariff per kWh	<input type="text" value="10"/>	Pence
New Illuminator	<input type="text" value="WL105"/>	
Power of New Illuminator	<input type="text" value="15"/>	Watts

**Calculate Saving**

Estimated Running Costs:

Annually	Old Illuminator	New Illuminator	Your Saving
Energy Cost per Illuminator	£ <input type="text" value="220"/>	£ <input type="text" value="7"/>	£ <input type="text" value="213"/>
Bulb Unit Cost per Illuminator	£ <input type="text" value="10"/>	£ <input type="text" value="0"/>	£ <input type="text" value="10"/>
Labour Cost per Illuminator	£ <input type="text" value="75"/>	£ <input type="text" value="0"/>	£ <input type="text" value="75"/>
<b>Total Cost per Illuminator</b>	<b>£ <input type="text" value="305"/></b>	<b>£ <input type="text" value="7"/></b>	<b>£ <input type="text" value="298"/></b>

Estimated Savings Summary:

Power kWh	CO2 Tonnes	New Illuminator	Total Saving
Annually	<input type="text" value="213,400"/>	<input type="text" value="116"/>	£ <input type="text" value="29,800"/>
5 Years	<input type="text" value="1,067,000"/>	<input type="text" value="581"/>	£ <input type="text" value="149,000"/>
10 Years	<input type="text" value="2,134,000"/>	<input type="text" value="1161"/>	£ <input type="text" value="298,000"/>

**Clear**

1) Calculations are based on 12 hours of usage a day.  
 2) Values generated from this calculator are approximated and therefore should only be used a guideline.

## Visible White-Light Technology Comparisons

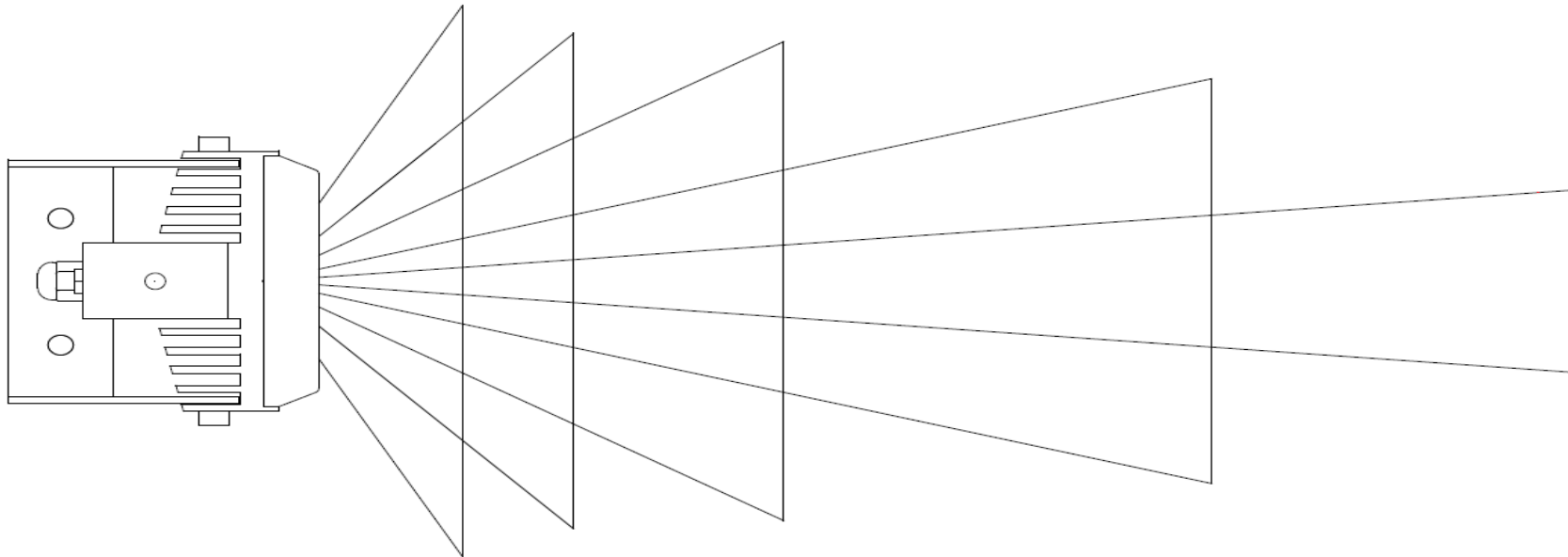
Key Parameters:	Tungsten	Halogen	Fluorescent	CFL	Low Pressure Sodium (SOX)	High Pressure Sodium (SON)	Metal Halide (HQI MBI)	iluminar White-Light Visible Range
Efficacy (lm/w)	10 - 12	15 - 25	60-95	65-70	180 - 200	90 - 120	70 -80	75 WL105: 928lm @ 13W WL220: 1,856lm @ 26W WL436: 2,784lm @ 39W WL643: 3,712lm @52W
Operational Life (Hours)	1000	2,000-4,000	8,000-20,000	8000-15,000	7,500	20,000-24,000	15,000-20,000	100,000
Instant Quick Start	✓	✓	✗	✗	✗	✗	✗	✓
No Environment Waste Concerns	✓	✓	✗	✗	✗	✗	✓	✓
Dimmable	✓	✓	✓	✓	✗	✗	✗	✓
Good Colour Rendering	✗	✗	✓	✓	✗	✗	✓	✓
No Flicker Issues	✓	✓	✗	✗	✗	✗	✗	✓
Not Sensitive To Cold Temperatures	✓	✓	✗	✗	✗	✓	✓	✓
Not Sensitive To High Temperatures	✗	✗	✗	✗	✓	✓	✓	✓
Beam Control Ability	✓	✓	✗	✗	✗	✗	✗	✓

iluminar inc. - 16107 Kensington Drive #124 - Sugar Land - TX 77479 - USA  
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[www.iluminarinc.com](http://www.iluminarinc.com)

## Technical Specifications (White-Light)

	WL105	WL220	WL436	WL643
<b>Model:</b>	<b>WL105</b>	<b>WL220</b>	<b>WL436</b>	<b>WL643</b>
<b>Power Consumption:</b>	<b>13W</b>	<b>26W</b>	<b>39W</b>	<b>52W</b>
<b>Lumen Output:</b>	<b>928lm</b>	<b>1856lm</b>	<b>2784lm</b>	<b>3712lm</b>
<b>Weight:</b>	0.75kg (1.65lbs)	1.05kg (2.3lbs)	1.35kg (3lbs)	1.75kg (3.9lbs)
<b>Dimensions:</b>	68x110x78mm (2.68x4.33x3.07")	114x110x78mm (4.49x4.33x3.07")	161x110x78mm (6.34x4.33x3.07")	213x110x78mm (8.39x4.33x3.07")
<b>Input Voltage:</b>	12-32V DC or 24V AC			
<b>Power Cable Length:</b>	3m (9ft)			
<b>Interface Connectivity:</b>	Photocell Following Contact & Remote Telemetry Input			
<b>HFOV Angle:</b>	10°, 30°, 50°, 100° or 120°			
<b>Light Source:</b>	High Efficiency Surface Mount High Power LEDs			
<b>Wavelength:</b>	Visible Spectrum (400-750nm)			
<b>Colour Rendering Index:</b>	74-80+			
<b>Colour Temperature:</b>	6500K			
<b>Operating Temperature:</b>	-50 to 60°C (-58 to 140°F)			
<b>Front Cover:</b>	Polycarbonate - Clear - High Transmittance - Vandal Proof			
<b>Extrusion:</b>	Robust High Quality Aluminium			
<b>Colour Finish:</b>	Silver Anodized			
<b>Bracket:</b>	Silver Powder Coated Stainless Steel Wall Mount. - Adjustable Via M6 Allen Key (Included)			
<b>Certifications:</b>	EN60598:2004 Electrical Safety EN60825-1 Laser Eye Safety IP67 in accordance with EN60529:1992 EN61000, FCC part 15.107 15.108 Class B Waste Electrical & Electronic Equipment European directive 202/96/EC Restriction of Hazardous Substances European Directive 202/95/EC			

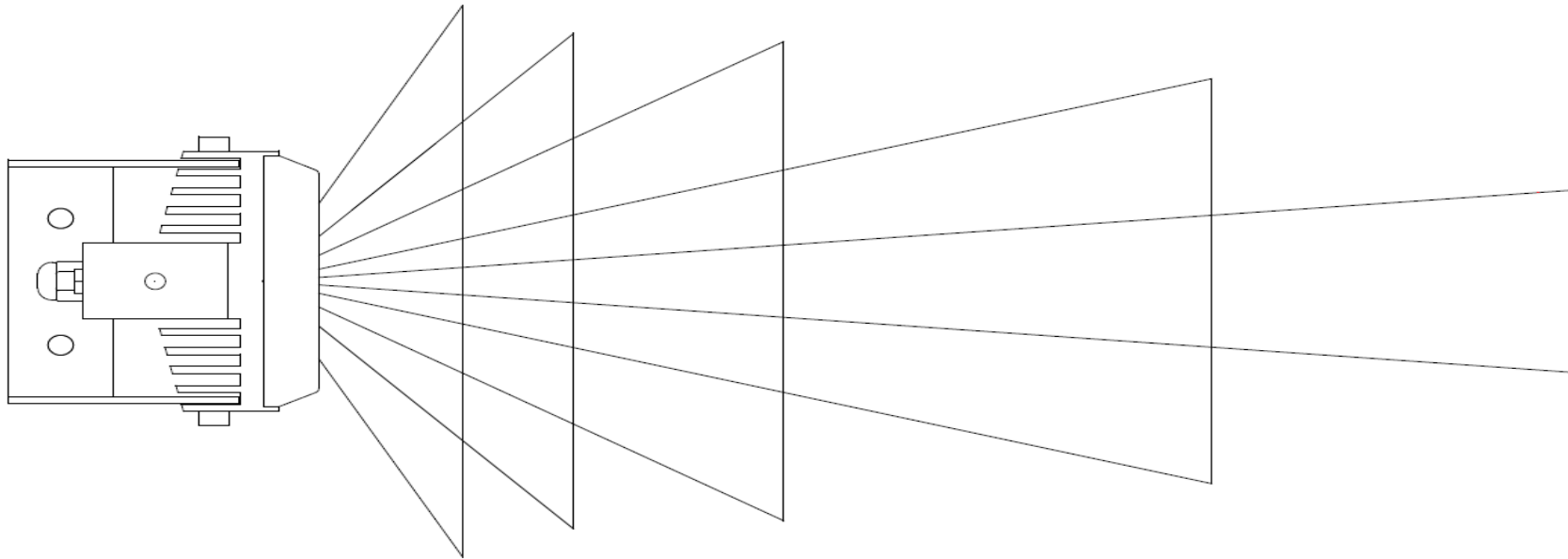
**Visible Range (White-Light)**



Model	Angle	120°	100°	60°	30°	10°
WL105		9m	11m	13m	18m	32m
		30ft	36ft	43ft	59ft	105ft
WL220		14m	17m	25m	35m	67m
		46ft	55ft	82ft	115ft	220ft
WL436		28m	33m	53m	70m	133m
		92ft	110ft	174ft	230ft	436ft
WL643		42m	50m	88m	133m	196m
		138ft	166ft	289ft	436ft	643ft

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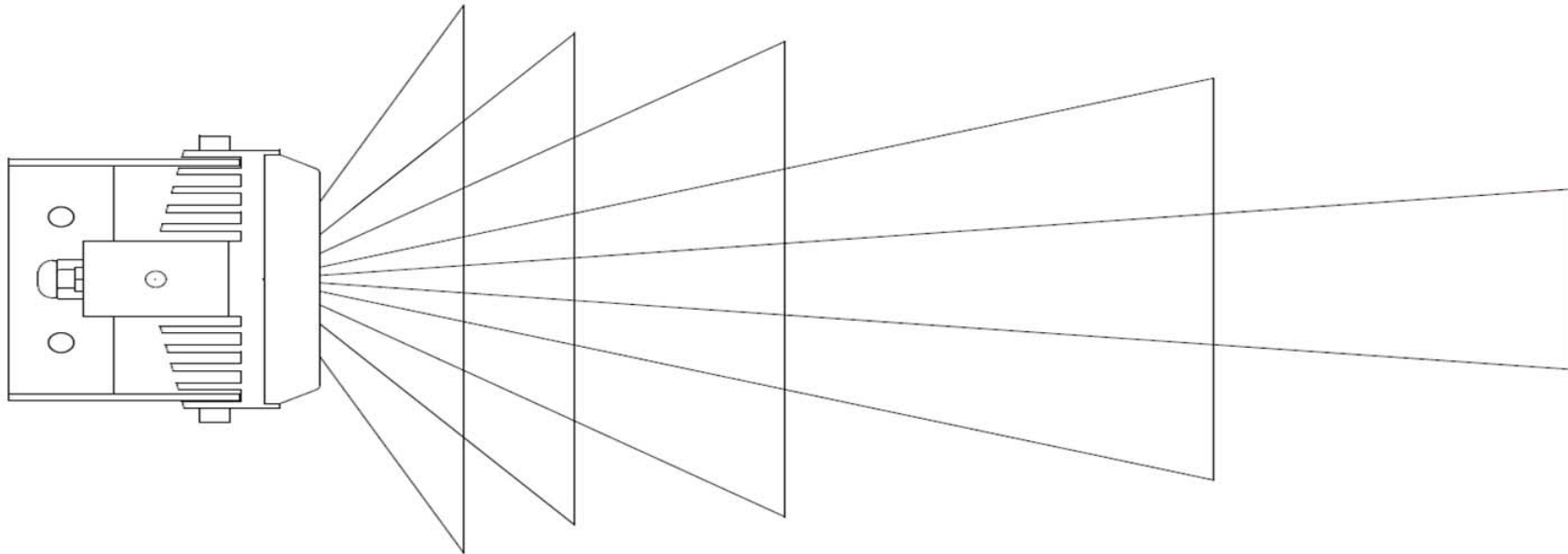
**Invisible Range 850nm (Infrared)**



Model	Angle	120°	100°	60°	30°	10°
IR148		13m	15m	19m	25m	45m
		43ft	51ft	62ft	82ft	148ft
IR312		20m	24m	35m	50m	95m
		66ft	80ft	115ft	164ft	312ft
IR623		40m	48m	75m	100m	190m
		131ft	160ft	246ft	328ft	623ft
IR919		60m	72m	125m	190m	280m
		197ft	236ft	410ft	623ft	919ft

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[www.iluminarinc.com](http://www.iluminarinc.com)

**Invisible Range 940nm (Infrared)**



Model	Angle	120°	100°	60°	30°	10°
IR148		6m	7m	9m	12m	21m
		20ft	24ft	30ft	39ft	69ft
IR312		10m	12m	17m	24m	45m
		33ft	40ft	56ft	79ft	148ft
IR623		19m	23m	36m	48m	90m
		62ft	75ft	118ft	157ft	295ft
IR919		29m	35m	60m	90m	135m
		95ft	114ft	197ft	295ft	443ft

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# iluminar

## Distance Chart



White-Light - Visible Range																			
HFOV Angle	9m (30ft)	11m (36ft)	13m (43ft)	14m (46ft)	17m (56ft)	18m (59ft)	25m (82ft)	28m (92ft)	32m (105ft)	35m (115ft)	39m (128ft)	42m (138ft)	51m (167ft)	53m (174ft)	67m (220ft)	70m (230ft)	88m (289ft)	133m (436ft)	196m (643ft)
10°	WL105-10-24								WL220-10-24				WL436-10-24			WL643-10-24			
30°	WL105-30-24					WL220-30-24				WL436-30-24			WL643-30-24						
60°	WL105-60-24			WL220-60-24				WL436-60-24				WL643-60-24							
100°	WL105-100-24		WL220-100-24			WL436-100-24				WL643-100-24			Distance of 2 Units = Distance x1.41 Distance of 3 Units = Distance x1.73						
120°	WL105-120-24		WL220-120-24			WL436-120-24				WL643-120-24									
Infrared 850nm - Invisible Range																			
HFOV Angle	13m (43ft)	16m (52ft)	19m (62ft)	20m (66ft)	24m (79ft)	25m (82ft)	35m (115ft)	40m (131ft)	45m (148ft)	48m (157ft)	50m (164ft)	60m (197ft)	72m (236ft)	75m (246ft)	95m (312ft)	100m (328ft)	125m (410ft)	190m (623ft)	280m (919ft)
10°	IR148-A10-24								IR312-A10-24				IR623-A10-24			IR919-A10-24			
30°	IR148-A30-24					IR312-A30-24				IR623-A30-24			IR919-A30-24						
60°	IR148-A60-24			IR312-A60-24				IR623-A60-24				IR919-A60-24							
100°	IR148-A100-24		IR312-A100-24			IR623-A100-24				IR919-A100-24			Distance of 4 Units = Distance x2.00 Distance of 6 Units = Distance x2.38						
120°	IR148-A120-24		IR312-A120-24			IR623-A120-24				IR919-A120-24									
Infrared 940nm - Invisible Range																			
HFOV Angle	6m (20ft)	7m (23ft)	9m (30ft)	10m (33ft)	11m (36ft)	12m (39ft)	17m (56ft)	19m (62ft)	21m (69ft)	23m (76ft)	24m (79ft)	29m (95ft)	35m (115ft)	36m (118ft)	45m (148ft)	48m (157ft)	60m (197ft)	90m (295ft)	135m (443ft)
10°	IR148-C10-24								IR312-C10-24				IR623-C10-24			IR919-C10-24			
30°	IR148-C30-24					IR312-C30-24				IR623-C30-24			IR919-C30-24						
60°	IR148-C60-24			IR312-C60-24				IR623-C60-24				IR919-C60-24							
100°	IR148-C100-24		IR312-C100-24			IR623-C100-24				IR919-C100-24									
120°	IR148-C120-24		IR312-C120-24			IR623-C120-24				IR919-C120-24									

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