LL137

Medium Intensity Line Lights
Product Datasheet

ADVANCED ILLUMINATION
by Exaktera

Embedded Controller Option
Embedded controller for easy powering and control - no external or inline controller needed

High Power LEDs
Built with industrial grade LEDs capable of high output continuous operation, all while maintaining a long lifespan

Scalable Extrusion-Based Housing
Built with extrusion-based aluminum construction allowing for linear, one-dimensional scalability, while maintaining structural rigidity and durability

M6 Mounting Channel
Equipped with an M6 mounting channel on its base, allowing for highly adjustable positioning

LL137 Series Description

The LL137 is engineered to be a flexible, yet affordable high intensity linescan light. It offers a scalable length design and multiple lens and wavelength options including RGB.

An embedded driver is standard that allows for 0-10 volt DC analog dimming, on/off and analog control of the available RGB model. The "C1" light may be ordered for use with the DCS controllers; the optional "IC" model includes manual analog dimming potentiometers for individual control of each 6" segment in the light.

The LL137 differs from the LL232 in having an embeddeed driver standard, larger footprint, more versatile lens line focus options, and higher intensity on target.

- **High Intensity**
- **Scalable Linear Design**
- **Embedded Driver**
- **Multiple Focal Lengths**
- **1-2 Week BTO Lead Times Typical**

General Information

General Specifications

Certification	Specification			Detail	
Optical	Available Wavelengths			WHI, 455 nm, 530 nm, 625 nm, 850 nm, RGB	
	Available Lensing			4 Focal Lengths	
	Available Light Conditioning			None	
Electrical	Power Consumption Info			See Power Requirements on Page 8	
	Cable Info			80” -0/+6” Long (2 m -0/+150 mm), -105 °C Rated, Foil Shield w/ Drain	
Mechanical	Sizing Info	Standard	Length	3.24”(82.3mm) to 96.24”(2444.5mm)	See Page 7 for More Details
			Width	1.98”(50.2mm)	
			Height	3.70”(93.9mm) to 4.55”(115.5mm) G/D/E/F Lens	
	Weight Info (Standard)			~ 2.20 lbs (~997 g) per 6” Unit Length	
	Mounting Info			M6 Mounting Nut Channel	
	Material Info			Anodized Aluminum Housing, Acrylic Window, Nylon Strain Relief, PVC Cable Jacket, Steel Black Oxide & Zinc Plated Steel Fasteners	
Thermal	Operating Case Temperatures			25 °C to 60 °C	
	Operating Ambient Temperatures			0 °C to 35 °C	
Certification	Compliance			CE, RoHS, IEC 62471	
	IP Rating			IP50	
	Lumen Maintenance - White Only			L70 (50,000 Hours)	

General Information - Continued

Part Number Key

Model	Lens Focus	Emitting Length (in)	-	Peak Wavelength	Connector/Control
LL137	X	XX	-	XXX	XX
LL137	D (Converging)	06 to 96		455 (royal blue)	C1
	E (Converging)	(06" increments from 06" to 96")		530 (green)	IC[1]
	F (Converging)	*03" model available		625 (red)	24
	G (Collimating)			850 (IR)	
				WHI (white)	
				RGB (all colors)[2]	
more info on page	4	7		4	8

Example Part Numbers:
LL137D12-455C1
LL137G24-WHIIC

[1] See Electrical Specs for details on IC option with LL137; not available in 3"
[2] Not available in IC

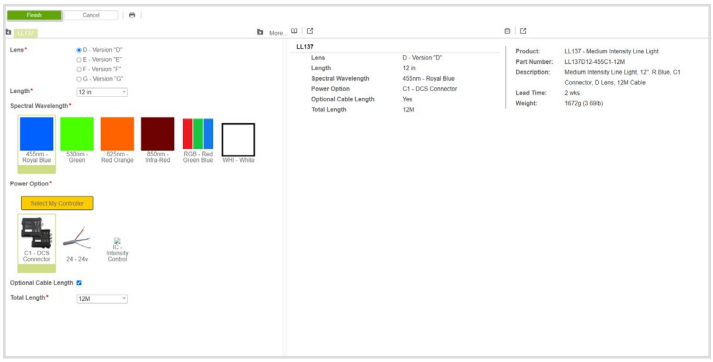
In Stock

LL137E12-WHI24

Lead Times

Stock products ship within three days.
Build-to-Order custom products ship within one to two weeks.

Configurator

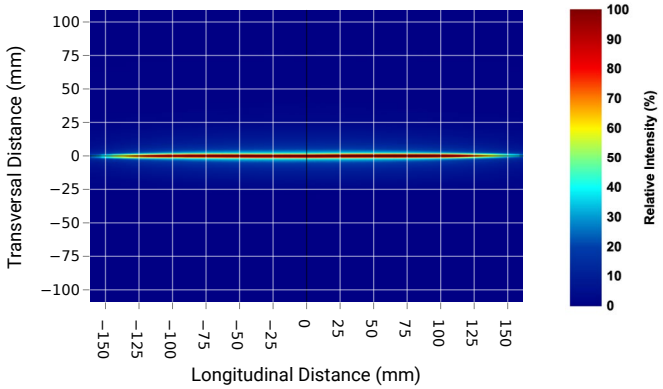


Need a build-to-order custom lighting solution in 2 weeks or less? Advanced Illumination's online configurator helps you tailor our LL137 Medium Intensity White Line Lights to your specific needs. For a guided configuration, visit our online configurator.

Optical Information

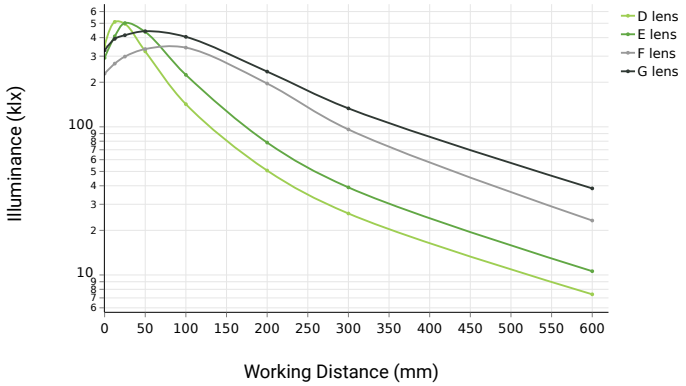
Intensity Characteristics

Intensity Distribution Image at 50 mm Working Distance



Intensity distribution sample image was taken with a 12-inch white LL137 unit with a D lens.

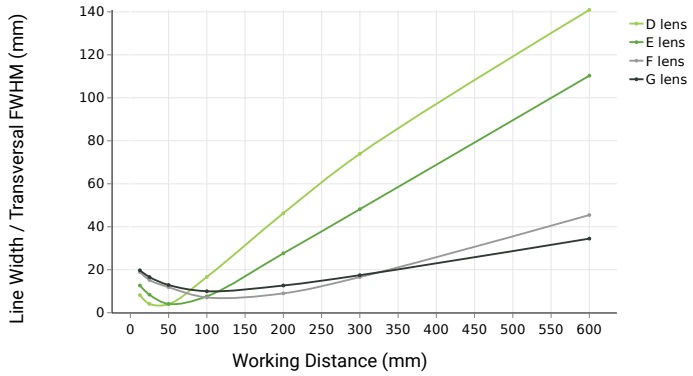
Illuminance vs Working Distance



Illuminance data was collected using a 12-inch white LL137 unit.

Line Width

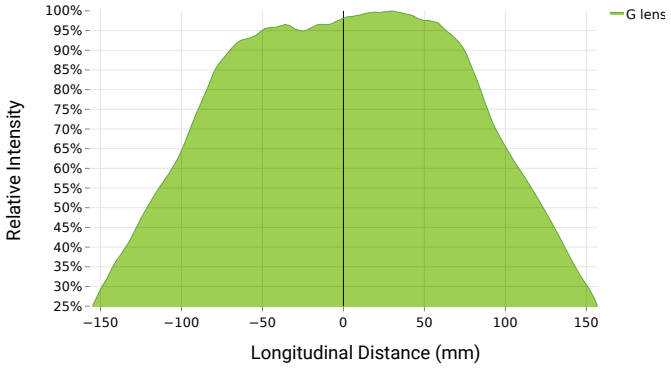
Line Width vs Working Distance



Line width data was collected using a 12-inch white LL137 unit.

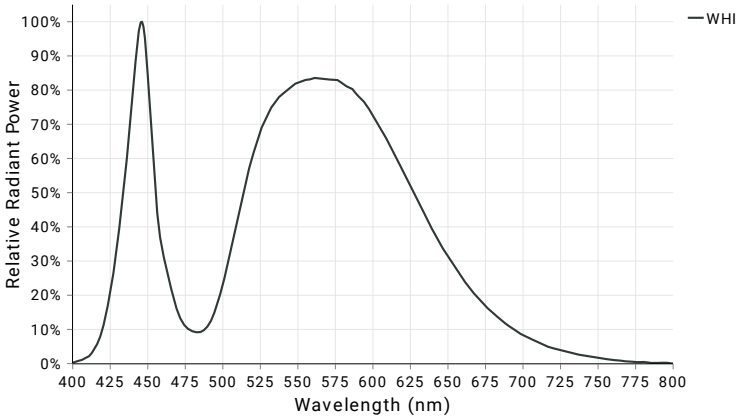
Uniformity

Longitudinal Intensity Distribution Profile at 50 mm Working Distance



Longitudinal intensity distribution data was collected using a 12-inch white LL137 unit with a G lens.

White Spectral Profile



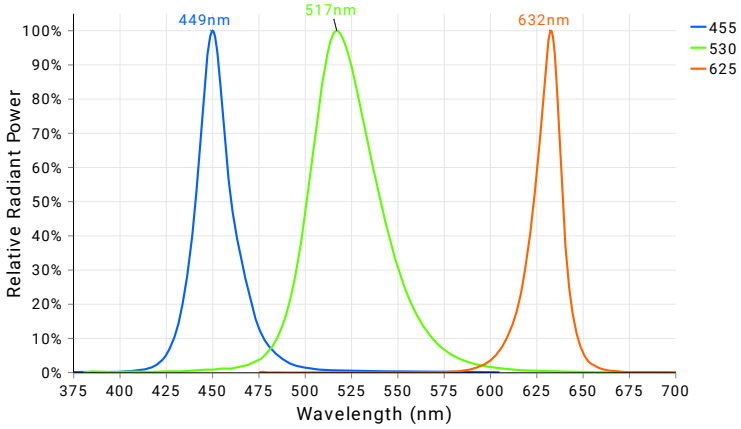
White LED illumination is the most commonly used machine vision lighting configuration. It is often the default choice when specific features of interest do not require color-based highlighting. However, white LEDs can vary in color temperature between different lighting families, which can impact machine vision systems, specifically when matching white light sources.

The LL137 Series white LEDs have a relatively neutral color correlated temperature (CCT) of **5500 K.**

For a more detailed look at the white spectral data, download the csv file of the raw spectral values and refer to our Product Spectra Distribution Charts PDF.

Optical Information - Continued

Visible Spectral Profiles

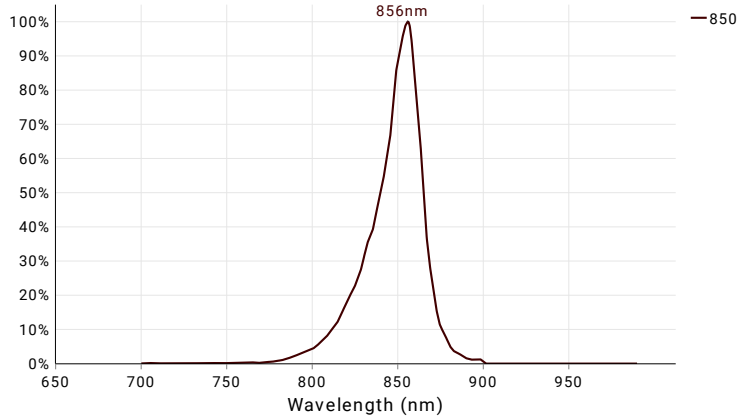


Visible color illumination consists of using wavelengths between 400-700 nm to either create or eliminate contrast on an inspection subject based on differences in a materials color hue. When referring to a color wheel, simply remember the following: like colors reflect and brighten surfaces; conversely, opposing colors absorb and darken surfaces.

The LL137 Series is available in **455 nm, 530 nm, and 625 nm** configurations.

For a more detailed look at the visible color spectral data, download the csv file of the raw spectral values and refer to our Product Spectra Distribution Charts PDF.

Non-Visible Spectral Profiles



Near-infrared (NIR) imaging is a machine vision technique using longer wavelengths of 700-1000 nm to penetrate specific materials that are otherwise opaque to under the visible spectrum.

The LL137 Series is available in an **850 nm** configuration.

For a more detailed look at the NIR spectral data, download the csv file of the raw spectral values and refer to our Product Spectra Distribution Charts PDF.

Disclaimer: The measurements provided above are for approximations only and may vary depending on the method of measurement and the specific configuration being measured.

Optical Information - Continued

Photobiological Risk Factors

Group	Description	Affected Wavelengths (nm)
Exempt	No Photobiological Hazard	850
Group 1	No Photobiological hazard under normal behavioral limitations	455, 530, 625, RGB, WHI
Group 2	Does not pose a hazard due to aversion response to bright light or thermal discomfort	N/A

Advanced Illumination's lighting products have been tested and classified to IEC standards by accredited testing services. For more information on photobiological risk factors, please view the following PDF: https://www.advancedillumination.com/wp-content/uploads/2019/04/IEC-040119.pdf

Cleaning Guidelines

To clean our light's optics, it is best to only clean when necessary. Dusting is always the first step in cleaning your optics. Wiping a dusty optic is like cleaning it with sandpaper. So always dust with a canned air duster or compressed and filtered air before wiping any optic. If the dusted optic has no visible stains after you dust it, then remember: "If it's not dirty, don't clean it." Avoid wiping optics when possible.

If dusting did not clean the lens or the lens has stains, use only de-ionized water and mild dish soap with a low lint cloth designed for optics to avoid damage to the optic by any harsh chemicals.

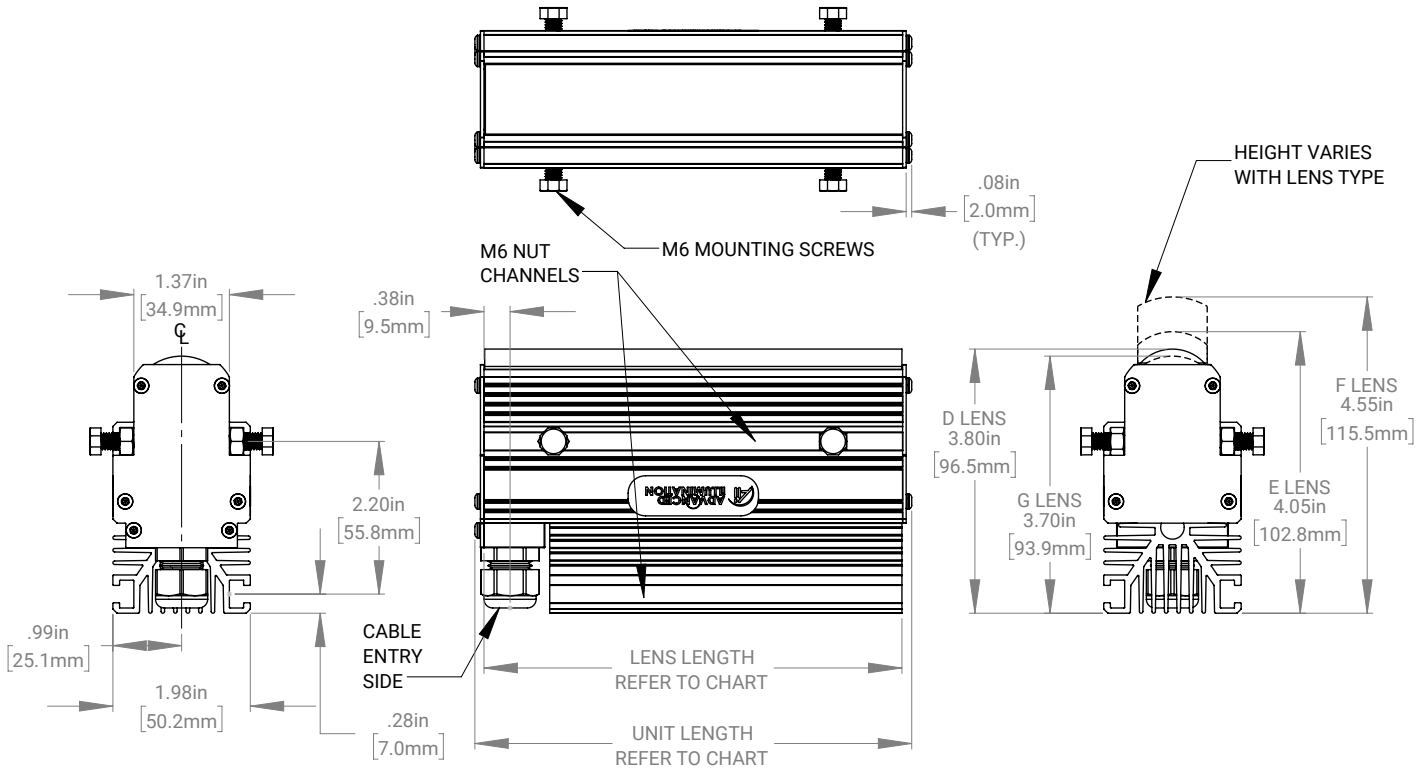
Polarizers, beam splitters and collimated films should never be wiped with any type of cloth or solvent, only use the air dusting method to clean these types of optics.

The aluminum housing can be wiped down when dusting is not a sufficient means to thoroughly clean.

Disclaimer: The measurements provided above are for approximations only and may vary depending on the method of measurement and the specific configuration being measured.

Mechanical Information

Installation Drawings



For full installation drawings and complete CAD models of this non-sealed configuration, please visit the downloads section of the product webpage.

Sizing Chart

Part Number	Length (Inches)			Length (Millimeters)			Power Options
	Unit	D/E/F Lens	G Lens	Unit	D/E/F Lens	G Lens	
LL137X03	3.24	3.040	3.000	82.296	77.216	76.200	C1 / 24 / IC
LL137X06	6.24	6.000	6.000	158.496	152.400	152.400	C1 / 24 / IC
LL137X12	12.24	12.000	12.000	310.896	304.800	304.800	C1 / 24 / IC
LL137X18	18.24	18.000	18.000	463.296	457.200	457.200	24 / IC
LL137X24	24.24	24.000	24.000	615.696	609.600	609.600	24 / IC
LL137X30	30.24	30.000	30.000	768.096	762.000	762.000	24 / IC
LL137X36	36.24	36.000	35.944	920.496	914.400	912.978	24 / IC
LL137X42	42.24	42.000	41.934	1072.896	1066.800	1065.124	24 / IC
LL137X48	48.24	48.000	47.589	1225.296	1219.200	1208.761	24 / IC
LL137X54	54.24	54.000	53.915	1377.696	1371.600	1369.441	24 / IC
LL137X60	60.24	60.000	59.906	1530.096	1524.000	1521.612	24 / IC
LL137X66	66.24	66.000	65.896	1682.496	1676.400	1673.758	24 / IC
LL137X72	72.24	72.000	71.887	1834.896	1828.800	1825.930	24 / IC
LL137X78	78.24	78.000	77.878	1987.296	1981.200	1978.101	24 / IC
LL137X84	84.24	84.000	83.868	2139.696	2133.600	2130.247	24 / IC
LL137X90	90.24	90.000	89.859	2292.096	2286.000	2282.419	24 / IC
LL137X96	96.24	96.000	95.849	2444.496	2438.400	2434.565	24 / IC

X refers to Lens Type: D, E, F, G

Electrical Information

Power Requirements

Current Required for Power Supply Sizing

Wavelengths (nm)	Configured w/ Voltage Drive (24)	Configured w/ Standard Controller (C1, C5, IC, I3, I3S)
WHI, 455, 530	0.750A per 6 inch increment	0.750A per 6 inch increment
625, 850, RGB	0.640A per 6 inch increment	0.640A per 6 inch increment

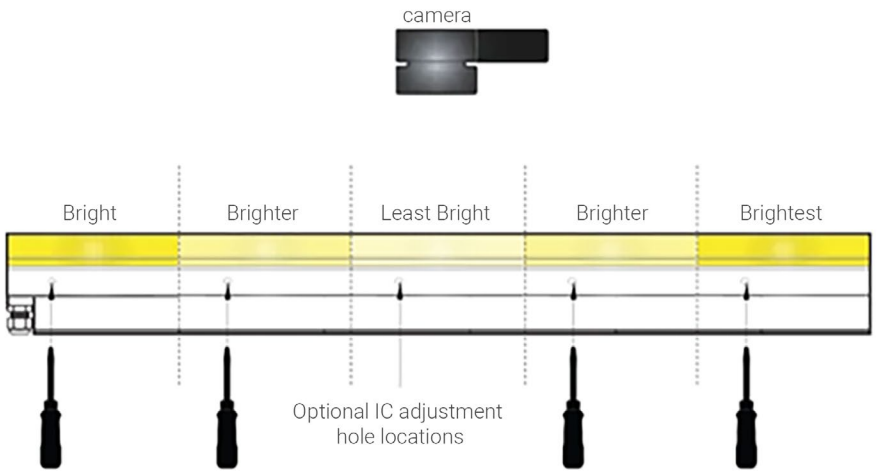
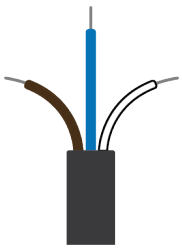
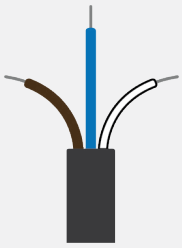
Note: All Advanced Illumination lights and controllers are nominally powered by 24V DC unless otherwise noted. Strobe overdriving with controller based models may require more current and voltage overhead. The values above do not include background current draw from the controller (~100 mA total).

Control Options

Controller Image	Controller Details	Connector Image
	**DCS Single Output Controller - Compatible with C1 Configurations** *PN: DCS-100E* The DCS-100E is a compact, din-rail mounted general-purpose external controller with one C1 output connector, wired with three channels. Capable of providing single channel control or multi-channel control for RGB compatible lights. **Output Power:** 90 W Max Continuous, 540 W Max Pulsed (Overdrive Strobe) **Output Current:** 4.5A Max Continuous, 15 A Max Pulsed **I/Os:** 3 External Trigger Inputs **Interface:** 10/100 Ethernet with Software and browser-based GUIs. SDKs are also available. For more information about our DCS-100E, please visit the controller product page.	
	**DCS Triple Output Controller - Compatible with C1 Configurations** *PN: DCS-103E* The DCS-103E is a din-rail mounted general-purpose multi-light controller with three C1 output connectors. Capable of driving three lights in sync or asynchronously. **Output Power:** 30 W Max Continuous / Output, 180 W Max Pulsed / Output **Output Current:** 1.5A Max Continuous / Output, 5 A Max Pulsed / Output **I/Os:** 3 External Trigger Inputs **Interface:** 10/100 Ethernet with Software and browser-based GUIs. SDKs are also available. For more information about our DCS-103E, please visit the controller product page.	

Electrical Information - Continued

Control Options - Continued

Controller Image	Controller Details	Connector Image
	**LL137 Embedded Controller - Continuous Only - IC Configurations** *PN: N/A* The IC on the LL167 is an embedded controller which allows for control of light intensity per 6" (152 mm) segment. Each segment is adjusted using a potentiometer located on each 6" segment. See the figure below for illustration:  Controlling each 6" (152mm) section independently and making the center of the line less bright and the outside of the immediate camera viewing radius brighter ultimately results in better imaging. Better imaging occurs because the camera can see very well in its area of focus, but outside that area the camera doesn't focus as well without brighter illumination. We recommend using this control option for LL137 lights over 24" (610mm) in length.	
	**24V Driver - Continuous Only - 24 Configurations** *PN: N/A* 24V option allows lights to operate continuous output with 24V connection and no additional controllers. **Modes:** Continuous, can be wired to some 3rd party controllers or external relays for gated operation **Interface:** Direct cable (flying leads or connector options)	

Electrical Information - Continued

24V Option Wiring Information

Flying Lead Functions

Wire Color	24V Functions
BROWN	24V DC
WHITE	0 - 10V Analog Control
BLUE	DC GND
BLACK	N/A
GRAY	N/A

The functions above are only applicable when ordering a 24V power configuration.

Accessories

Category	Accessory Image	Accessory Detail
Power Supply		**24 Volt DC Power Supply** *PN: PS24-TL* This convenient power source is a universal AC input switching power supply with a regulated output DC current. The power supply comes with an LED Power Indicator, tinned leads marked Positive (+) and Negative (-) and 2 WAGO connectors for simplified assembly. For more information about our 24 Volt DC Power Supply, please visit this webpage.
Dimmer		**Manual Dimming Accessory for the IC, I3 and I3s** *PN: DCS-MP* The DCS-MP is a 30-position potentiometer, detented for precision level control and provides repeatable dimming with cable inline controllers. Features include DIN-rail mountable, a flip up cover to prevent accidental adjustments, spring clamp wiring terminal for flying leads or an M12 connector for use with the IC or I3/I3S Inline Controllers. For more information about our Manual Dimming Accessory please visit this webpage.
Extension Cable		**DCS-100E/103E Extension Cable, Single Light Power Cable - C1 Configuration** *PN: LC-XX-S* This extension cable was designed for applications requiring power cables longer than the standard 2 meters provided with Ai lights. This single light cable features a single male and single female 7 pin locking connector (C1) and can be purchased in 3 - 15-meter lengths. For more information about our DCS-100E/103E Extension Cable, Single Output, please visit this webpage.
Extension Cable		**DCS-100E/103E Extension Cable, Dual Light Power Cable - C1 Configuration** *PN: LC-XX-Y* This extension cable was designed for applications requiring two identical lights to be powered through a single controller. These Y cables feature a single male and dual female 7 pin locking connectors (C1) and can be purchased in 3 - 15-meter lengths. See attached spec sheet for compatible light configuration. For more information about our DCS-100E/103E Extension Cable, Split Output, please visit this webpage.
Filters		**Camera Lens Band Pass FIlters** *PN: BPXXX-YYY* Eliminating all but a narrow band of light (+/- 40nm) centered on the specified wavelength, band pass filters are used to enhance colors, or to stop unwanted ambient light from reaching the camera. Filtering can replace existing shrouds, simplifying the physical set up of an inspection site. Ai offers 635nm and 660nm band pass filters to fit several different lens sizes. For more information about our Camera Lens Band Pass FIlters, please visit this webpage.

Additional Information

Warranty

Every Advanced illumination, Inc. (Ai) product is thoroughly inspected and tested before leaving the factory. Products are warranted to be free of defects in workmanship and materials for a period of FIVE YEARS from the original date of purchase. Should a defect develop during this period, customers may return the complete product, freight prepaid, to one of Ai's distributors or to the Ai factory. All product warranty returns require a Return Merchandise Authorization (RMA) number which is obtained from Customer Service. The RMA number must be clearly marked on the outside of the package. Ai will inspect the unit, and if a defect is found will, at our option, repair or replace the product without charge. Ai disclaims liability for any implied warranties, including implied warranties of "merchantability" and "fitness for a specific purpose." For products under warranty that have since been discontinued, Ai will make an effort to replace with equivalent parts; for circumstances that do not allow for equivalent replacement, Ai reserves the right to repair or replace these products with an updated version. Ai cannot be held responsible for the unauthorized or inappropriate use of its products. Any unauthorized repair or modifications will result in a voided warranty. No Liability for Consequential Damages: In no event shall Ai be liable for any consequential, special, incidental, or indirect damages of any kind arising from the sale or use of the products.

Compliancy

Our lighting products are designed and tested to meet CE, RoHS, and IEC standards. As a global ISO 9001 certified company, we understand the importance of compliance and perform accelerated testing on every product before shipment. For more information on our compliance standards, please see our compliancy documentation here: https://www.advancedillumination.com/services/compliance-statements/

Electromagnetic Compatibility

This product was tested and complies with the regulatory requirements and limits for electromagnetic compatibility (EMC) as stated in the product specifications. These requirements and limits are designed to provide reasonable protection against harmful interference only when the product is operated in its intended industrial electromagnetic environment. To minimize the potential for electromagnetic interference or unacceptable performance degradation, install and use this product in strict accordance with the instructions in the product documentation.

Customer Service

For information on existing orders, or to make an order adjustment, contact us Monday through Friday 8:00 am to 5:00 pm ET or send an email to orders@advancedillumination.com.

Company Information

Advanced Illumination
440 State Garage Road, Rochester, VT 05767
Phone: +1 (802) 767 3830
Fax: +1 (802) 767 2636
Email: info@advancedillumination.com
Web: advancedillumination.com

LL158

Oblique Line Lights | Product Datasheet

ADVANCED ILLUMINATION by Exaktera

Embedded Controller Option
Embedded controller for easy powering and control - no external or inline controller needed

High Power LEDs
Built with industrial grade LEDs capable of high output continuous operation, all while maintaining a long lifespan

Scalable Extrusion-Based Housing
Built with extrusion-based aluminum construction allowing for linear, one-dimensional scalability, while maintaining structural rigidity and durability

M6 Mounting Channel
Equipped with an M6 mounting channel on its base, allowing for highly adjustable positioning

LL158 Series Description

The LL158 is designed to be applied to oblique lighting applications. The unique 30 degree light angle of incidence, within the plane of the line light housing, creates contrast from surfaces running parallel to the line direction, such as scratches in sheet steel on continuous-feed conveyences, unlike standard linescan lights.

The LL158 is available from 6" to 90" lengths in 6" increments, and is offered in the same housing as the LL137 and LL167 standard high intensity line lights.

It differs from the LL137 and LL167 line lights in that 4 visible wavelengths are offered, including 470nm blue, 530nm green, 625nm red and WHI.

- **Oblique**
- **High Intensity**
- **Scalable Linear Design**
- **Embedded Driver**
- **1-2 Week BTO Lead Times Typical**

General Information

General Specifications

Category	Specification			Detail	
Optical	Available Wavelengths			White, 470nm, 530nm, 625nm	
	Available Lensing			Narrow (12°)	
	Available Light Conditioning			None	
Electrical	Power Consumption Info			See Power Requirements on Page 8	
	Cable Info			80" -0/+6" Long (2 m -0/+150 mm), 105 °C Rated, Foil Shield w/ Drain	
Mechanical	Sizing Info	Standard	Length	8.24"209.3mm) to 92.24"(2342.9mm)	See Page 7 for More Details
			Width	1.98"(50.2mm)	
			Height	3.61"(91.7mm)	
	Weight Info (Standard)			~ 1.98 lbs (~898 g) per 8" Unit Length	
	Mounting Info			M6 Mounting Nut Channel	
	Material Info			Anodized Aluminum Housing, Acrylic Window, Nylon Strain Relief, PVC Cable Jacket, Steel Black Oxide and Zinc Plated Steel Fasteners	
Thermal	Operating Case Temperatures			25 °C to 60 °C	
	Operating Ambient Temperatures			0 °C to 35 °C	
Certification	Compliance			CE, RoHS, IEC 62471	
	IP Rating			IP50	
	Lumen Maintenance - White Only			L70 (50,000 Hours)	

General Information - Continued

Part Number Key

Model	Emitting Length (in)	-	Peak Wavelength	Connector/Control
LL158	XX	-	XXX	XX
LL158	06 to 90		470 (blue)	C1
	(06" increments from 06" to 90")		530 (green)	24
			625 (red)	
			WHI (white)	
more info on page	7		3	8

Example Part Numbers:
LL15812-455C1
LL15824-WHI24

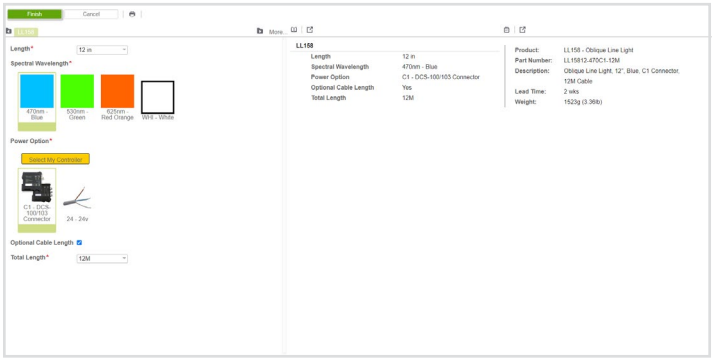
In Stock

N/A

Lead Times

Stock products ship within three days.
Build-to-Order custom products ship within one to two weeks.

Configurator

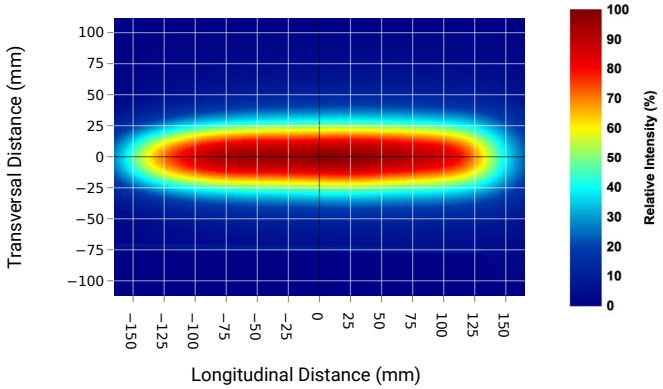


Need a build-to-order custom lighting solution in 2 weeks or less? Advanced Illumination's online configurator helps you tailor our LL158 Obique Line Lights to your specific needs. For a guided configuration, visit our online configurator.

Optical Information

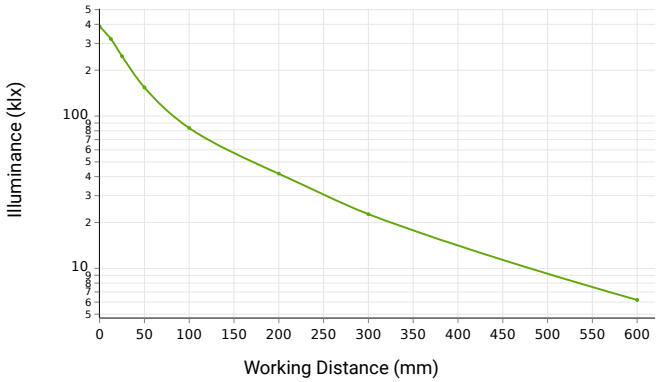
Intensity Characteristics

Intensity Distribution Image at 50 mm Working Distance



Intensity distribution sample image was taken with a 12-inch white LL158 unit.

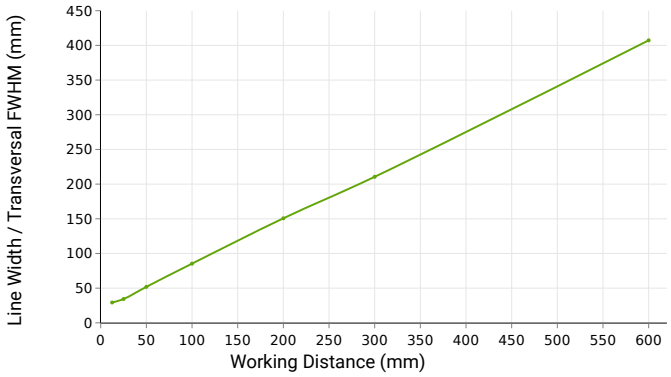
Illuminance vs Working Distance



Illuminance data was collected using a 12-inch white LL158 unit.

Line Width

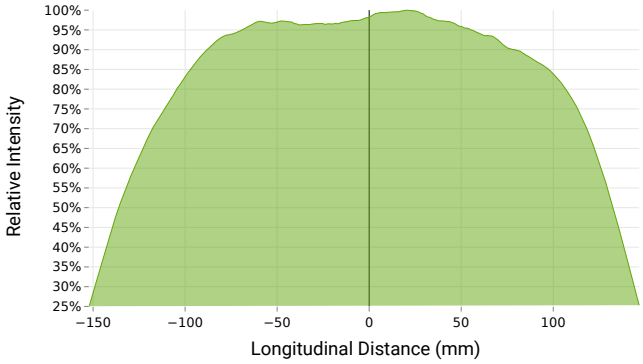
Line Width vs Working Distance



Line width data was collected using a 12-inch white LL158 unit.

Uniformity

Longitudinal Intensity Distribution Profile at 50 mm Working Distance



Longitudinal intensity distribution data was collected using a 12-inch white LL158 unit.

Oblique Application

This illustration shows the Advanced Illumination LL158 projecting its line at a 30° oblique angle. This grazing angle illumination technique dramatically enhances the contrast of subtle surface topography for line scan applications.

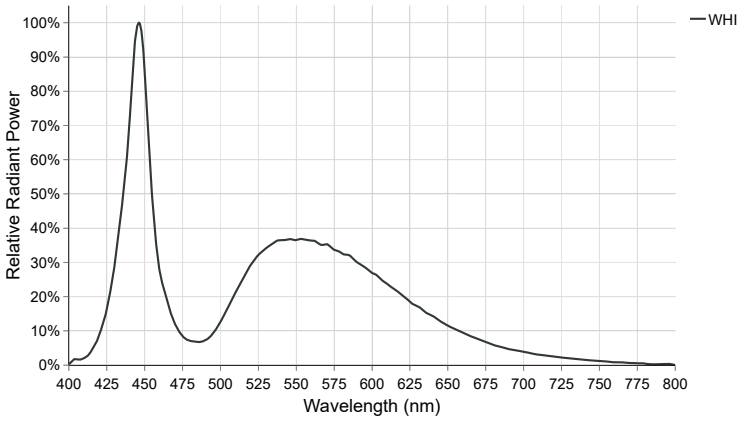
By striking the surface at an angle, the light creates distinct shadows behind raised elements and sharp highlights within indentations, such as engravings, scratches, or embossments. This makes features with height or depth variations significantly more visible.

This method is particularly effective for detecting features running parallel to the material's direction of travel, details often missed by standard perpendicular lighting. The LL158's oblique projection ensures these otherwise hidden surface characteristics are clearly revealed for reliable inspection.

Disclaimer: The measurements provided above are for approximations only and may vary depending on the method of measurement and the specific configuration being measured.

Optical Information - Continued

White Spectral Profile

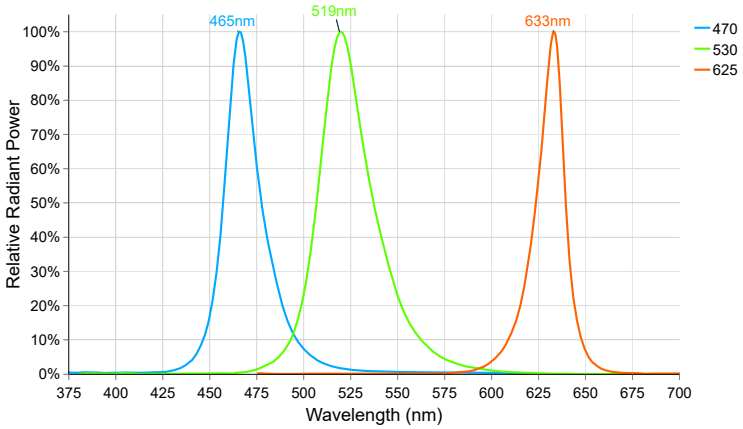


White LED illumination is the most commonly used machine vision lighting configuration. It is often the default choice when specific features of interest do not require color-based highlighting. However, white LEDs can vary in color temperature between different lighting families, which can impact machine vision systems, specifically when matching white light sources.

The LL158 Series white LEDs have a relatively neutral color correlated temperature (CCT) of **5700 K.**

For a more detailed look at the white spectral data, download the csv file of the raw spectral values and refer to our Product Spectra Distribution Charts PDF.

Visible Spectral Profiles



Visible color illumination consists of using wavelengths between 400-700 nm to either create or eliminate contrast on an inspection subject based on differences in a materials color hue. When referring to a color wheel, simply remember the following: like colors reflect and brighten surfaces; conversely, opposing colors absorb and darken surfaces.

The LL158 Series is available in **470 nm, 530 nm, and 625 nm** configurations.

For a more detailed look at the visible color spectral data, download the csv file of the raw spectral values and refer to our Product Spectra Distribution Charts PDF.

Disclaimer: The measurements provided above are for approximations only and may vary depending on the method of measurement and the specific configuration being measured.

Optical Information - Continued

Photobiological Risk Factors

Group	Description	Affected Wavelengths (nm)
Exempt	No Photobiological Hazard	N/A
Group 1	No Photobiological hazard under normal behavioral limitations	470, 530, 625, WHI
Group 2	Does not pose a hazard due to aversion response to bright light or thermal discomfort	N/A

Advanced Illumination's lighting products have been tested and classified to IEC standards by accredited testing services. For more information on photobiological risk factors, please view the following PDF: https://www.advancedillumination.com/wp-content/uploads/2019/04/IEC-040119.pdf

Cleaning Guidelines

To clean our light's optics, it is best to only clean when necessary. Dusting is always the first step in cleaning your optics. Wiping a dusty optic is like cleaning it with sandpaper. So always dust with a canned air duster or compressed and filtered air before wiping any optic. If the dusted optic has no visible stains after you dust it, then remember: "If it's not dirty, don't clean it." Avoid wiping optics when possible.

If dusting did not clean the lens or the lens has stains, use only de-ionized water and mild dish soap with a low lint cloth designed for optics to avoid damage to the optic by any harsh chemicals.

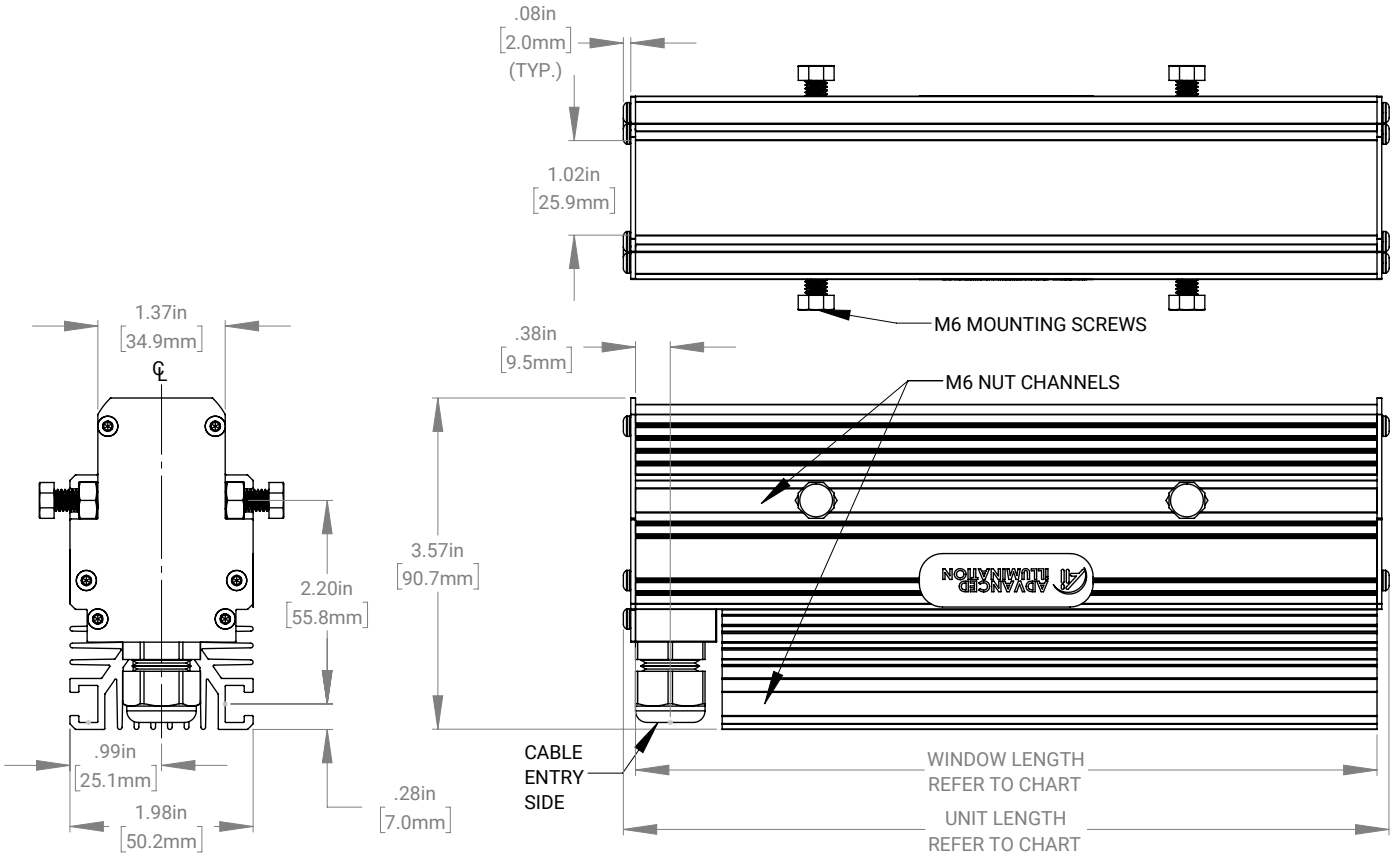
Polarizers, beam splitters and collimated films should never be wiped with any type of cloth or solvent, only use the air dusting method to clean these types of optics.

The aluminum housing can be wiped down when dusting is not a sufficient means to thoroughly clean.

Disclaimer: The measurements provided above are for approximations only and may vary depending on the method of measurement and the specific configuration being measured.

Mechanical Information

Installation Drawings



For full installation drawings and complete CAD models of this non-sealed configuration, please visit the downloads section of the product webpage.

Sizing Chart

Part Number	Length (Inches)		Length (Millimeters)		Power Options
	Unit	Window	Unit	Window	
LL15806	8.24	8.00	209.30	203.20	C1 / 24
LL15812	14.24	14.00	361.70	355.60	C1 / 24
LL15818	20.24	20.00	514.10	508.00	C1 / 24
LL15824	26.24	26.00	666.50	660.40	C1 / 24
LL15830	32.24	32.00	818.90	812.80	C1 / 24
LL15836	38.24	38.00	971.30	965.20	C1 / 24
LL15842	44.24	44.00	1123.70	1117.60	C1 / 24
LL15848	50.24	50.00	1276.10	1270.00	C1 / 24
LL15854	56.24	56.00	1428.50	1422.40	24
LL15860	62.24	62.00	1580.90	1574.80	24
LL15866	68.24	68.00	1733.30	1727.20	24
LL15872	74.24	74.00	1885.70	1879.60	24
LL15878	80.24	80.00	2038.10	2032.00	24
LL15884	86.24	86.00	2190.50	2184.40	24
LL15890	92.24	92.00	2342.90	2336.80	24

Electrical Information

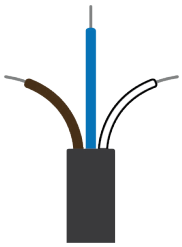
Power Requirements

Current Required for Power Supply Sizing

Wavelengths	Configured w/ Voltage Drive (24)	Configured w/ Standard Controller (C1, C5, IC, I3, I3S)
WHI, 470, 530, 625	0.760A per 6 inch increment	0.700A per 6 inch increment

Note: All Advanced Illumination lights and controllers are nominally powered by 24V DC unless otherwise noted. Strobe overdriving with controller based models may require more current and voltage overhead. The values above do not include background current draw from the controller (~100 mA total).

Control Options

Controller Image	Controller Details	Connector Image
	**DCS Single Output Controller - Compatible with C1 Configurations** *PN: DCS-100E* The DCS-100E is a compact, din-rail mounted general-purpose external controller with one C1 output connector, wired with three channels. Capable of providing single channel control or multi-channel control for RGB compatible lights. **Output Power:** 90 W Max Continuous, 540 W Max Pulsed (Overdrive Strobe) **Output Current:** 4.5A Max Continuous, 15 A Max Pulsed **I/Os:** 3 External Trigger Inputs **Interface:** 10/100 Ethernet with Software and browser-based GUIs. SDKs are also available. For more information about our DCS-100E, please visit the controller product page.	
	**DCS Triple Output Controller - Compatible with C1 Configurations** *PN: DCS-103E* The DCS-103E is a din-rail mounted general-purpose multi-light controller with three C1 output connectors. Capable of driving three lights in sync or asynchronously. **Output Power:** 30 W Max Continuous / Output, 180 W Max Pulsed / Output **Output Current:** 1.5A Max Continuous / Output, 5 A Max Pulsed / Output **I/Os:** 3 External Trigger Inputs **Interface:** 10/100 Ethernet with Software and browser-based GUIs. SDKs are also available. For more information about our DCS-103E, please visit the controller product page.	
	**24V Driver - Continuous Only - 24 Configurations** *PN: N/A* 24V option allows lights to operate continuous output with 24V connection and no additional controllers. **Modes:** Continuous, can be wired to some 3rd party controllers or external relays for gated operation **Interface:** Direct cable (flying leads or connector options)	

Electrical Information - Continued

24V Option Wiring Information

Flying Lead Functions

Wire Color	24V Functions
BROWN	24V DC
WHITE	0 - 10V Analog Control
BLUE	DC GND
BLACK	N/A
GRAY	N/A

The functions above are only applicable when ordering a 24V power configuration.

Accessories

Category	Accessory Image	Accessory Detail
Power Supply		**24 Volt DC Power Supply** *PN: PS24-TL* This convenient power source is a universal AC input switching power supply with a regulated output DC current. The power supply comes with an LED Power Indicator, tinned leads marked Positive (+) and Negative (-) and 2 WAGO connectors for simplified assembly. For more information about our 24 Volt DC Power Supply, please visit this webpage.
Dimmer		**Manual Dimming Accessory for the IC, I3 and I3s** *PN: DCS-MP* The DCS-MP is a 30-position potentiometer, detented for precision level control and provides repeatable dimming with cable inline controllers. Features include DIN-rail mountable, a flip up cover to prevent accidental adjustments, spring clamp wiring terminal for flying leads or an M12 connector for use with the IC or I3/I3S Inline Controllers. For more information about our Manual Dimming Accessory please visit this webpage.
Extension Cable		**DCS-100E/103E Extension Cable, Single Light Power Cable - C1 Configuration** *PN: LC-XX-S* This extension cable was designed for applications requiring power cables longer than the standard 2 meters provided with Ai lights. This single light cable features a single male and single female 7 pin locking connector (C1) and can be purchased in 3 - 15-meter lengths. For more information about our DCS-100E/103E Extension Cable, Single Output, please visit this webpage.
Extension Cable		**DCS-100E/103E Extension Cable, Dual Light Power Cable - C1 Configuration** *PN: LC-XX-Y* This extension cable was designed for applications requiring two identical lights to be powered through a single controller. These Y cables feature a single male and dual female 7 pin locking connectors (C1) and can be purchased in 3 - 15-meter lengths. See attached spec sheet for compatible light configuration. For more information about our DCS-100E/103E Extension Cable, Split Output, please visit this webpage.
Filters		**Camera Lens Band Pass FIlters** *PN: BPXXX-YYY* Eliminating all but a narrow band of light (+/- 40nm) centered on the specified wavelength, band pass filters are used to enhance colors, or to stop unwanted ambient light from reaching the camera. Filtering can replace existing shrouds, simplifying the physical set up of an inspection site. Ai offers 635nm and 660nm band pass filters to fit several different lens sizes. For more information about our Camera Lens Band Pass FIlters, please visit this webpage.

Additional Information

Warranty

Every Advanced illumination, Inc. (Ai) product is thoroughly inspected and tested before leaving the factory. Products are warranted to be free of defects in workmanship and materials for a period of FIVE YEARS from the original date of purchase. Should a defect develop during this period, customers may return the complete product, freight prepaid, to one of Ai's distributors or to the Ai factory. All product warranty returns require a Return Merchandise Authorization (RMA) number which is obtained from Customer Service. The RMA number must be clearly marked on the outside of the package. Ai will inspect the unit, and if a defect is found will, at our option, repair or replace the product without charge. Ai disclaims liability for any implied warranties, including implied warranties of "merchantability" and "fitness for a specific purpose." For products under warranty that have since been discontinued, Ai will make an effort to replace with equivalent parts; for circumstances that do not allow for equivalent replacement, Ai reserves the right to repair or replace these products with an updated version. Ai cannot be held responsible for the unauthorized or inappropriate use of its products. Any unauthorized repair or modifications will result in a voided warranty. No Liability for Consequential Damages: In no event shall Ai be liable for any consequential, special, incidental, or indirect damages of any kind arising from the sale or use of the products.

Compliancy

Our lighting products are designed and tested to meet CE, RoHS, and IEC standards. As a global ISO 9001 certified company, we understand the importance of compliance and perform accelerated testing on every product before shipment. For more information on our compliance standards, please see our compliancy documentation here: https://www.advancedillumination.com/services/compliance-statements/

Electromagnetic Compatibility

This product was tested and complies with the regulatory requirements and limits for electromagnetic compatibility (EMC) as stated in the product specifications. These requirements and limits are designed to provide reasonable protection against harmful interference only when the product is operated in its intended industrial electromagnetic environment. To minimize the potential for electromagnetic interference or unacceptable performance degradation, install and use this product in strict accordance with the instructions in the product documentation.

Customer Service

For information on existing orders, or to make an order adjustment, contact us Monday through Friday 8:00 am to 5:00 pm ET or send an email to orders@advancedillumination.com.

Company Information

Advanced Illumination
440 State Garage Road, Rochester, VT 05767
Phone: +1 (802) 767 3830
Fax: +1 (802) 767 2636
Email: info@advancedillumination.com
Web: advancedillumination.com

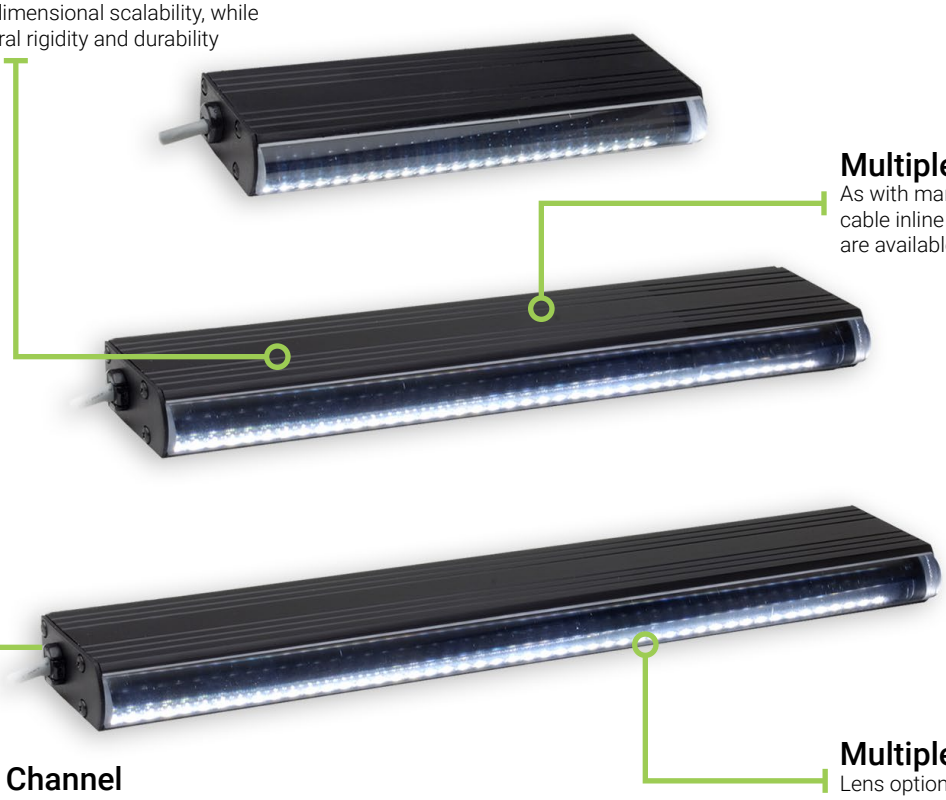
LL163

Classic Line Lights| Product Datasheet

ADVANCED ILLUMINATION by Exaktera

Scalable Extrusion-Based Housing

Built with extrusion-based aluminum construction allowing for linear, one-dimensional scalability, while maintaining structural rigidity and durability



Multiple Control Options

As with many Ai lighting products, cable inline and extrernal controllers are available

M6 Mounting Channel

Equipped with an M6 mounting channel on its base, allowing for highly adjustable positioning

Multiple Lens Options

Lens options available for a variety of line lengths and working distances

LL163 Series Description

The LL163 is a legacy linescan light that is best suited for use in low-speed linescan applications, such as unwrapping can label inspections.

The LL163 is available from 1.5" to 80" in length, in 1.5" increments, and legacy derivative lengths include: LL2912 (3"), LL3024 (6") and LL3148 (12").

As with most other Advanced illumination line lights, the LL163 is available with 4 different lens focus options and multiple wavelengths, including UV, visible and one NIR option.

The LL163 differs from the LL137/167/LL330 line lights in that its lower intensity output is suitable only for low-speed, unwrapping linescan applications and only cable inline or external controllers are available.

- **Legacy Product**
- **Scalable Linear Design**
- **Multiple Control Options**
- **Multiple Focal Lengths**
- **1-2 Week BTO Lead Times Typical**

General Information

General Specifications

Category	Specification			Detail	
Optical	Available Wavelengths			White, 395 nm, 470 nm, 530 nm, 625 nm, 880 nm	
	Available Lensing			4 Focal Lengths	
	Available Light Conditioning			None	
Electrical	Power Consumption Info			See Power Requirements on Page 8	
	Cable Info			80" -0/+6" Long (2 m -0/+150 mm), 105 °C Rated, Foil Shield w/ Drain	
Mechanical	Sizing Info	Standard	Length	2.19" (55.6mm) to 83.00" (2108.2mm)	See Page 7 for More Details
			Width	0.94"(23.8mm)	
			Height	2.39"(60.6mm) to 3.14"(79.6mm) A/B/D/E Lens	
	Weight Info (Standard)			~ 0.47 lbs (~213 g) per 2.2" Unit Length	
	Mounting Info			M6 Mounting Nut Channel	
	Material Info			Anodized Aluminum Housing, Acrylic Window, Nylon Strain Relief, PVC Cable Jacket, Steel Black Oxide & Zinc Plated Steel Fasteners	
Thermal	Operating Case Temperatures			25 °C to 60 °C	
	Operating Ambient Temperatures			0 °C to 35 °C	
Certification	Compliance			CE, RoHS, IEC 62471	
	IP Rating			IP50	
	Lumen Maintenance - White Only			L70 (50,000 Hours)	

General Information - Continued

Part Number Key

Model	Model Extension	Lens Focus	Number of LEDs	-	Peak Wavelength	Connector/ Control	-	Alternative Connector
LL163	XXXX	X	XXX	-	XXX	XX	-	XXX
LL163	163	A (Converging)	Refer to Sizing Chart		395 (UV)	C1		M8[1]
	2912	B (Converging)			470 (blue)	C5		M12[1]
	3024	D (Collimating)			520 (green)	IC		
	3148	E (Collimating)			625 (red orange)	I3		
					660 (red)	I3S		
					880 (IR)	24		
					WHI (white)			
more info on page			7		4	8		10

Example Part Numbers:
LL163A030-WHIIC
LL163B102-625IC-M12

[1] Available with IC, I3, I3S, and 24 V options only

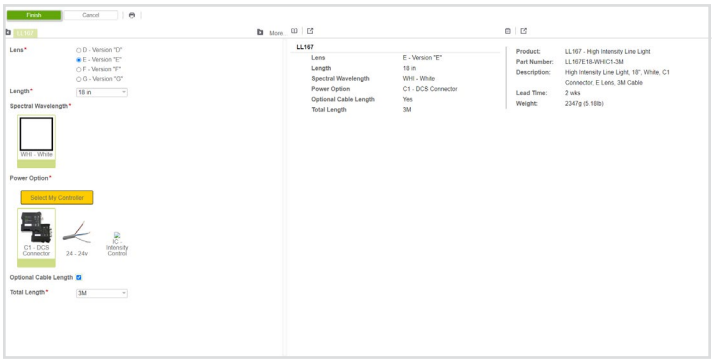
In Stock

Unavailable

Lead Times

Stock products ship within three days.
Build-to-Order custom products ship within one to two weeks.

Configurator

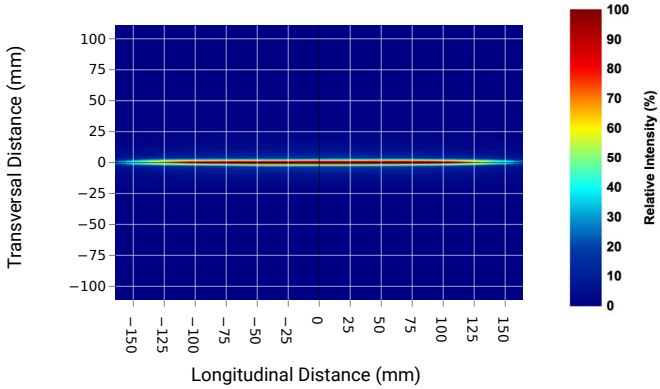


Need a build-to-order custom lighting solution in 2 weeks or less? Advanced Illumination's online configurator helps you tailor our LL163 Classic Line Lights to your specific needs. For a guided configuration, visit our online configurator.

Optical Information

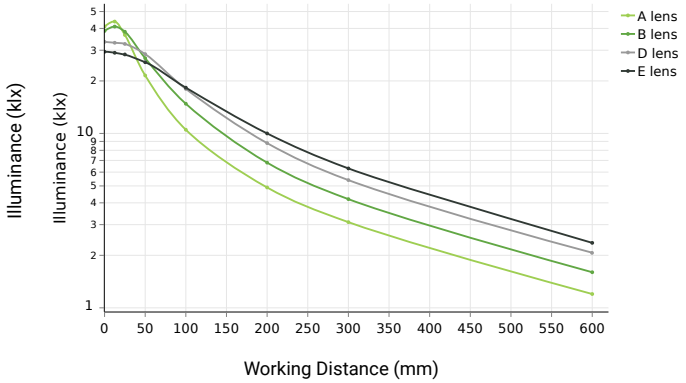
Intensity Characteristics

Intensity Distribution Image at 50 mm Working Distance



Intensity distribution sample image was taken with a 12-inch white LL163 unit with an E lens.

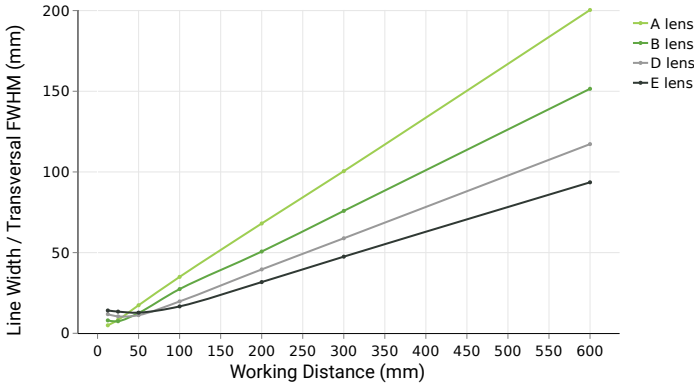
Illuminance vs Working Distance



Illuminance data was collected using a 12-inch white LL163 unit.

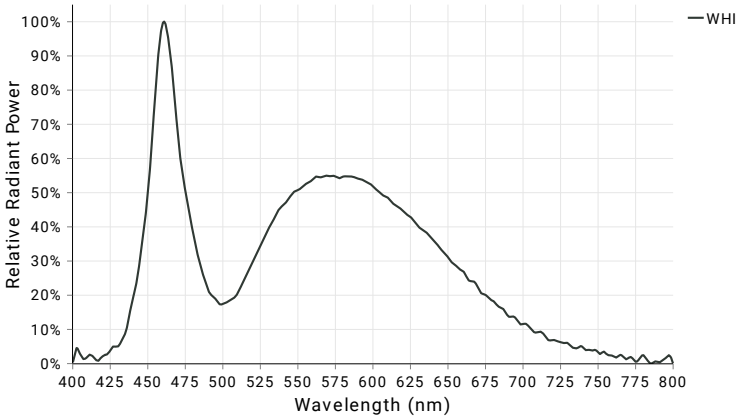
Line Width

Line Width vs Working Distance



Line width data was collected using a 12-inch white LL163 unit.

White Spectral Profile



White LED illumination is the most commonly used machine vision lighting configuration. It is often the default choice when specific features of interest do not require color-based highlighting. However, white LEDs can vary in color temperature between different lighting families, which can impact machine vision systems, specifically when matching white light sources.

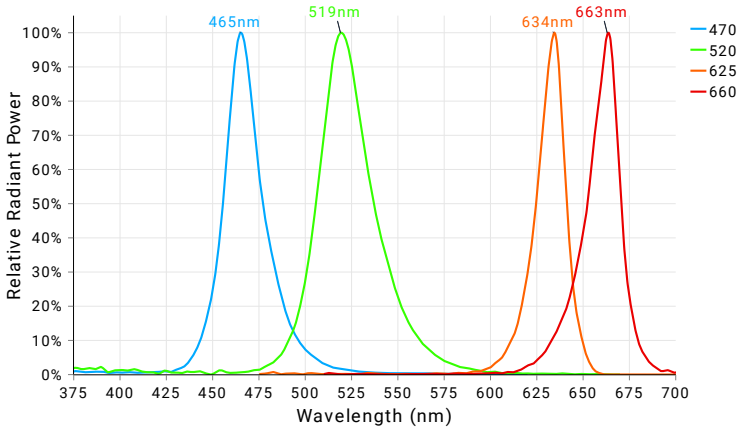
The LL163 Series white LEDs have a relatively neutral color correlated temperature (CCT) of **5500 K.**

For a more detailed look at the white spectral data, download the csv file of the raw spectral values and refer to our Product Spectra Distribution Charts PDF.

Disclaimer: The measurements provided above are for approximations only and may vary depending on the method of measurement and the specific configuration being measured.

Optical Information - Continued

Visible Spectral Profiles

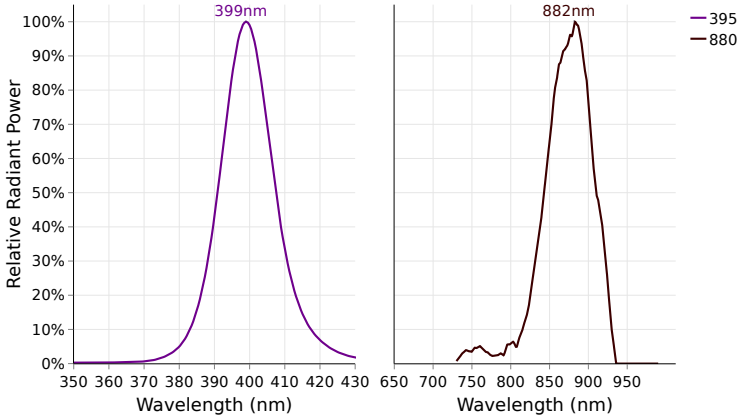


Visible color illumination consists of using wavelengths between 400-700 nm to either create or eliminate contrast on an inspection subject based on differences in a materials color hue. When referring to a color wheel, simply remember the following: like colors reflect and brighten surfaces; conversely, opposing colors absorb and darken surfaces.

The LL163 Series is available in **470 nm, 520 nm, 625 nm, and 660 nm** configurations.

For a more detailed look at the visible color spectral data, download the csv file of the raw spectral values and refer to our Product Spectra Distribution Charts PDF.

Non-Visible Spectral Profiles



Near-infrared (NIR) imaging is a machine vision technique using longer wavelengths of 700-1000 nm to penetrate specific materials that are otherwise opaque to under the visible spectrum.

The LL163 Series is available in **395nm, and 880 nm** configurations.

For a more detailed look at the NIR spectral data, download the csv file of the raw spectral values and refer to our Product Spectra Distribution Charts PDF.

Disclaimer: The measurements provided above are for approximations only and may vary depending on the method of measurement and the specific configuration being measured.

Optical Information - Continued

Photobiological Risk Factors

Group	Description	Affected Wavelengths (nm)
Exempt	No Photobiological Hazard	880
Group 1	No Photobiological hazard under normal behavioral limitations	470, 520, 625, 660, WHI
Group 2	Does not pose a hazard due to aversion response to bright light or thermal discomfort	395

Advanced Illumination's lighting products have been tested and classified to IEC standards by accredited testing services. For more information on photobiological risk factors, please view the following PDF: https://www.advancedillumination.com/wp-content/uploads/2019/04/IEC-040119.pdf

Cleaning Guidelines

To clean our light's optics, it is best to only clean when necessary. Dusting is always the first step in cleaning your optics. Wiping a dusty optic is like cleaning it with sandpaper. So always dust with a canned air duster or compressed and filtered air before wiping any optic. If the dusted optic has no visible stains after you dust it, then remember: "If it's not dirty, don't clean it." Avoid wiping optics when possible.

If dusting did not clean the lens or the lens has stains, use only de-ionized water and mild dish soap with a low lint cloth designed for optics to avoid damage to the optic by any harsh chemicals.

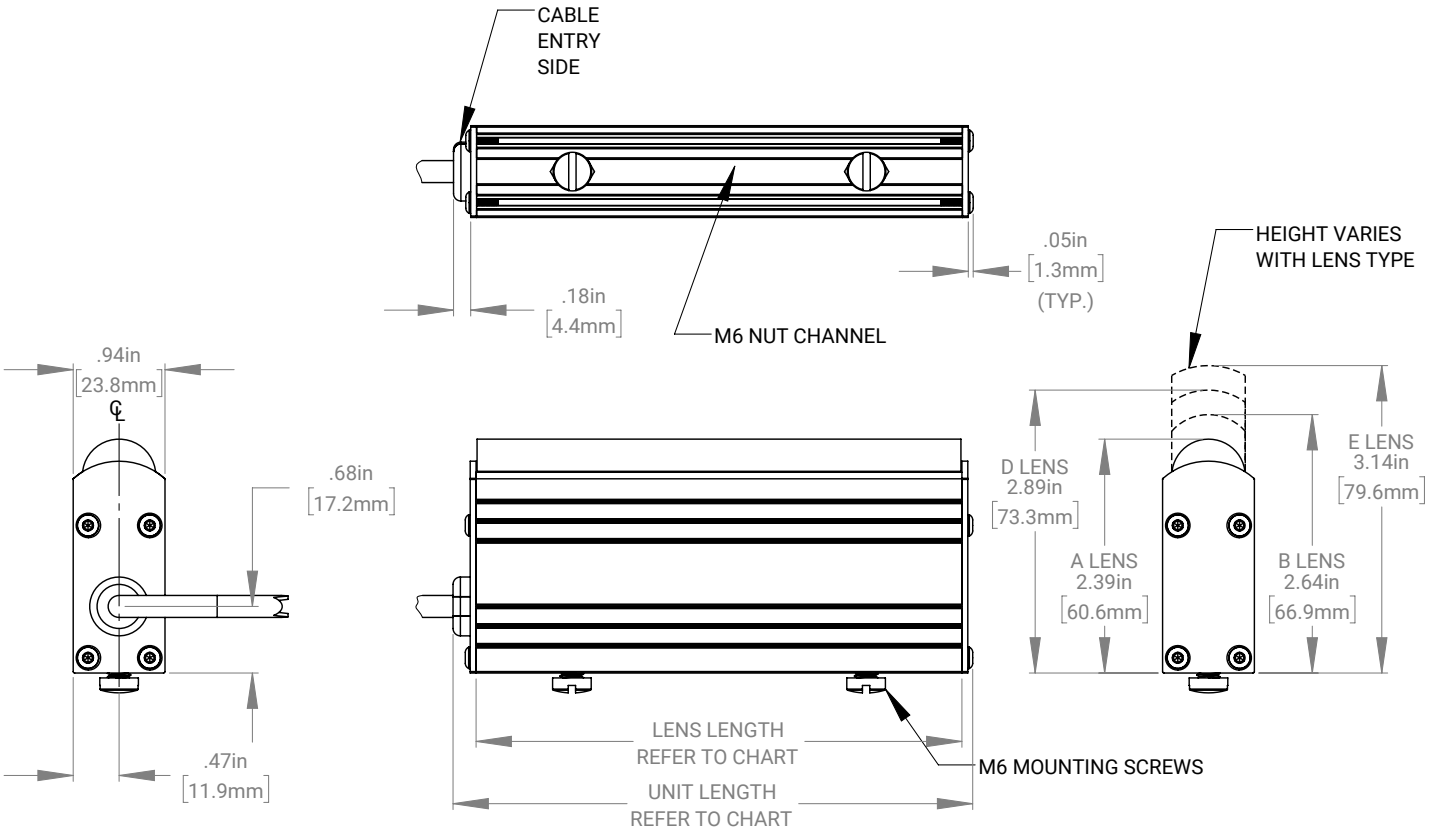
Polarizers, beam splitters and collimated films should never be wiped with any type of cloth or solvent, only use the air dusting method to clean these types of optics.

The aluminum housing can be wiped down when dusting is not a sufficient means to thoroughly clean.

Disclaimer: The measurements provided above are for approximations only and may vary depending on the method of measurement and the specific configuration being measured.

Mechanical Information

Installation Drawings



For full installation drawings and complete CAD models of this non-sealed configuration, please visit the downloads section of the product webpage.

Sizing Chart

Part Number	Length (Inches)		Length (Millimeters)		Power Options
	Unit	Lens	Unit	Lens	
LL163X006	2.48	1.826	62.992	46.380	C1 / C5/ 24 / IC / I3 / I3S
LL2912X	3.98	3.380	101.092	85.852	C1 /C5/ 24 / IC / I3 / I3S
LL163X018	5.48	4.934	139.192	125.324	C1 /C5/ 24 / IC / I3 / I3S
LL3024X	6.98	6.488	177.292	164.795	C1 /C5/ 24 / IC / I3 / I3S
LL163X030	8.48	8.042	215.392	204.267	C1 /C5/ 24 / IC / I3 / I3S
LL163X036	9.98	9.596	253.492	243.738	C1 /C5/ 24 / IC / I3 / I3S
LL163X042	11.48	11.150	291.592	283.210	C1 /C5/ 24 / IC / I3 / I3S
LL3148X	12.98	12.704	329.692	322.682	C1 /C5/ 24 / IC / I3 / I3S
LL163X054	14.48	14.258	367.792	362.153	C1 /C5/ 24 / IC / I3 / I3S
LL163X060	15.98	15.812	405.892	401.625	C1 /C5/ 24 / IC / I3 / I3S
LL163X066	17.48	17.366	443.992	441.096	C1 /C5/ 24 / IC / I3 / I3S
LL163X072	18.98	18.920	482.092	480.568	C1 /C5/ 24 / IC / I3 / I3S
LL163X078	20.48	20.474	520.192	520.040	C1 /C5/ 24 / IC / I3 / I3S
LL163X084	21.98	22.028	558.292	559.511	C1 /C5/ 24 / IC / I3 / I3S

Sizing Chart Continued

Part Number	Length (Inches)		Length (Millimeters)		Power Options
	Unit	Lens	Unit	Lens	
LL163X090	23.48	23.582	596.392	598.983	C1 /C5/ 24 / IC / I3 / I3S
LL163X096	24.98	25.136	634.492	638.454	C1 /C5/ 24 / IC / I3 / I3S
LL163X102	26.48	26.690	672.592	677.926	C1 /C5/ 24 / IC / I3 / I3S
LL163X108	27.98	28.244	710.692	717.398	C1 /C5/ 24 / IC / I3 / I3S
LL163X114	29.48	29.798	748.792	756.869	C1 /C5/ 24 / IC / I3 / I3S
LL163X120	30.98	31.352	786.892	796.341	C1 /C5/ 24 / IC / I3 / I3S
LL163X126	32.48	32.906	824.992	835.812	C1 /C5/ 24 / IC / I3 / I3S
LL163X132	33.98	34.460	863.092	875.284	C1 /C5/ 24 / IC / I3 / I3S
LL163X138	35.48	36.014	901.192	914.756	C1 /C5/ 24 / IC / I3 / I3S
LL163X144	36.98	37.568	939.292	954.227	C1 /C5/ 24 / IC / I3 / I3S
LL163X150	38.48	39.122	977.392	993.699	C1 /C5/ 24 / IC / I3 / I3S
LL163X156	39.98	40.676	1015.492	1033.170	C1 /C5/ 24 / IC / I3 / I3S
LL163X162	41.48	42.230	1053.592	1072.642	C1 /C5/ 24 / IC / I3 / I3S
LL163X168	42.98	43.784	1091.692	1112.114	C1 /C5/ 24 / IC / I3 / I3S
LL163X174	44.48	45.338	1129.792	1151.585	C1 /C5/ 24 / IC / I3 / I3S
LL163X180	45.98	46.892	1167.892	1191.057	C1 /C5/ 24 / IC / I3 / I3S
LL163X186	47.48	48.446	1205.992	1230.528	C1 /C5/ 24 / IC / I3 / I3S
LL163X192	48.98	50.000	1244.092	1270.000	C1 /C5/ 24 / IC / I3 / I3S
LL163X198	50.48	51.554	1282.192	1309.472	C1 /C5/ 24 / IC / I3 / I3S
LL163X204	51.98	53.108	1320.292	1348.943	C1 /C5/ 24 / IC / I3 / I3S
LL163X210	53.48	54.662	1358.392	1388.415	C1 /C5/ 24 / IC / I3 / I3S
LL163X216	54.98	56.216	1396.492	1427.886	C1 /C5/ 24 / IC / I3 / I3S
LL163X222	56.48	57.770	1434.592	1467.358	C1 /C5/ 24 / IC / I3 / I3S
LL163X228	57.98	59.324	1472.692	1506.830	C1 /C5/ 24 / IC / I3 / I3S
LL163X234	59.48	60.878	1510.792	1546.301	C1 /C5/ 24 / IC / I3 / I3S
LL163X240	60.98	62.432	1548.892	1585.773	C1 /C5/ 24 / IC / I3 / I3S
LL163X246	62.48	63.986	1586.992	1625.244	C1 /C5/ 24 / IC / I3 / I3S
LL163X252	63.98	65.540	1625.092	1664.716	C1 /C5/ 24 / IC / I3 / I3S
LL163X258	65.48	67.094	1663.192	1704.188	C1 /C5/ 24 / IC / I3 / I3S
LL163X264	66.98	68.648	1701.292	1743.659	C1 /C5/ 24 / IC / I3 / I3S
LL163X270	68.48	70.202	1739.392	1783.131	C1 /C5/ 24 / IC / I3 / I3S
LL163X276	69.98	71.756	1777.492	1822.602	C1 /C5/ 24 / IC / I3 / I3S
LL163X282	71.48	73.310	1815.592	1862.074	C1 /C5/ 24 / IC / I3 / I3S
LL163X288	72.98	74.864	1853.692	1901.546	C1 /C5/ 24 / IC / I3 / I3S
LL163X294	74.48	76.418	1891.792	1941.017	C1 /C5/ 24 / IC / I3 / I3S
LL163X300	75.98	77.972	1929.892	1980.489	C1 /C5/ 24 / IC / I3 / I3S
LL163X306	77.48	79.526	1967.992	2019.960	C1 /C5/ 24 / IC / I3 / I3S
LL163X312	78.98	81.080	2006.092	2059.432	C1 /C5/ 24 / IC / I3 / I3S
LL163X318	80.48	82.634	2044.192	2098.904	C1 /C5/ 24 / IC / I3 / I3S

X refers to Lens Type: A, B, D, E

Electrical Information

Power Requirements

Current Required for Power Supply Sizing

Wavelengths (nm)	Configured w/ Voltage Drive (24)	Configured w/ Standard Controller (C1, C5, IC, I3, I3S)
WHI, 395, 470, 520	0.020A per 6 inch increment	0.010A per 6 inch increment
625, 660, 880	0.030A per 6 inch increment	0.015A per 6 inch increment

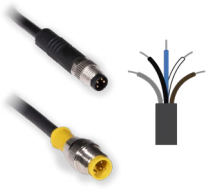
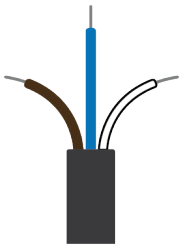
Note: All Advanced Illumination lights and controllers are nominally powered by 24V DC unless otherwise noted. Strobe overdriving with controller based models may require more current and voltage overhead. The values above do not include background current draw from the controller (~100 mA total).

Control Options

Controller Image	Controller Details	Connector Image
	**DCS Single Output Controller - Compatible with C1 Configurations** *PN: DCS-100E* The DCS-100E is a compact, din-rail mounted general-purpose external controller with one C1 output connector, wired with three channels. Capable of providing single channel control or multi-channel control for RGB compatible lights. **Output Power:** 90 W Max Continuous, 540 W Max Pulsed (Overdrive Strobe) **Output Current:** 4.5A Max Continuous, 15 A Max Pulsed **I/Os:** 3 External Trigger Inputs **Interface:** 10/100 Ethernet with Software and browser-based GUIs. SDKs are also available. For more information about our DCS-100E, please visit the controller product page.	
	**DCS Triple Output Controller - Compatible with C1 Configurations** *PN: DCS-103E* The DCS-103E is a din-rail mounted general-purpose multi-light controller with three C1 output connectors. Capable of driving three lights in sync or asynchronously. **Output Power:** 30 W Max Continuous / Output, 180 W Max Pulsed / Output **Output Current:** 1.5A Max Continuous / Output, 5 A Max Pulsed / Output **I/Os:** 3 External Trigger Inputs **Interface:** 10/100 Ethernet with Software and browser-based GUIs. SDKs are also available. For more information about our DCS-103E, please visit the controller product page.	
	**Pulsar 320E High Current Controller - Compatible with C5 Configuration** *PN: Pulsar 320E* The Pulsar 320E is a high-power, dual output, pulse-only controller geared for overdriving driving lights at very short flash durations with very high current. **Output Power:** 2500 W Max Pulsed / Output **Output Current:** 50 A Max Pulsed / Output **I/Os:** 2 External Trigger Inputs **Interface:** 10/100 Ethernet with Software GUI. SDKs are also available. For more information about our Pulsar 320E, please visit the controller product page.	

Electrical Information - Continued

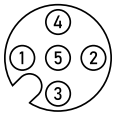
Control Options - Continued

Controller Image	Controller Details	Connector Image
	**Inline Controller - Continuous Only - IC Configurations** *PN: N/A* The IC is an inline, cable-mounted continuous-only controller configured/wired directly for the ordered light head. **Output Power:** 25 W Max Continuous **Output Current:** 1.25 A Max Continuous **I/O:** 1 0-10 V Analog Dimming Input **Interface:** Direct Cable (flying leads or optional connector) For more information about our IC Controller please visit the controller product page.	
	**Inline Controller - Strobe and Continuous - I3 & I3S Configurations** *PN: N/A* The I3 and I3S are inline, cable-mounted continuous and pulse (overdrive strobe) capable controllers configured/wired directly for the ordered light head. When operated in pulsed mode, the I3 is a default-on device on power up, whereas the I3S is default-off, requiring a trigger to illuminate. **Output Power:** 25 W Max Continuous, 125 W Max Pulsed **Output Current:** 1.25 A Max Continuous, 8 A Max Pulsed (Load Dependent) **I/Os:** 1 Gated Trigger Signal, 1 0-10 V Analog Dimming Input **Interface:** Direct Cable (flying leads or optional connector) For more information about our I3/I3S Controller, please visit the controller product page.	
	**24V Driver - Continuous Only - 24 Configurations** *PN: N/A* 24V option allows lights to operate continuous output with 24V connection and no additional controllers. **Modes:** Continuous, can be wired to some 3rd party controllers or external relays for gated operation **Interface:** Direct cable (flying leads or connector options)	

Electrical Information - Continued

Inline Control Option Wiring Information

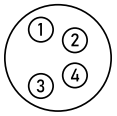
Standard Flying Lead and Optional M12 Connector Pinout Functions

Pin (M12)	Wire Color	24V Functions	IC Functions	I3/I3S Functions	M12 Pinout
1	BROWN	24V DC	24V DC	24V DC	
2	WHITE	N/A	0-10V Analog Control	Reserved	
3	BLUE	DC GND	DC GND	DC GND	
4	BLACK	N/A	Gate Low	PNP/Active High Trigger	
5	GRAY	N/A	N/A	0-10V Analog Control	

5-Position Male Connector

The functions above are only applicable when ordering a 24V, IC, I3, or I3s power configuration with our without an M12 connector. For more wiring information pertaining to strobing and dimming functionality, please download the controller manuals and datasheets.

Optional M8 Connector Pinout Functions

Pin (8)	Wire Color	24V Functions	IC Functions	I3/I3S Functions	M8 Pinout
1	BROWN	24V DC	24V DC	24V DC	
2	WHITE	N/A	0-10V Analog Control	Reserved	
3	BLUE	DC GND	DC GND	DC GND	
4	BLACK	N/A	Gate Low	Active High Trigger	

4-Position Male Connector

The functions above are only applicable when ordering a 24V, IC, I3, or I3s power configuration with our without an M8 connector. For more wiring information pertaining to strobing and dimming functionality, please download the controller manuals and datasheets.

Accessories

Category	Accessory Image	Accessory Detail
Power Supply		**24 Volt DC Power Supply** *PN: PS24-TL* This convenient power source is a universal AC input switching power supply with a regulated output DC current. The power supply comes with an LED Power Indicator, tinned leads marked Positive (+) and Negative (-) and 2 WAGO connectors for simplified assembly. For more information about our 24 Volt DC Power Supply, please visit this webpage.
Dimmer		**Manual Dimming Accessory for the IC, I3 and I3s** *PN: DCS-MP* The DCS-MP is a 30-position potentiometer, detented for precision level control and provides repeatable dimming with cable inline controllers. Features include DIN-rail mountable, a flip up cover to prevent accidental adjustments, spring clamp wiring terminal for flying leads or an M12 connector for use with the IC or I3/I3S Inline Controllers. For more information about our Manual Dimming Accessory please visit this webpage.
Dimmer		**Manual Dimming Accessory for the IC** *PN: MP-ICS* The MP-ICS is a dimmer which is designed for use on lights with the IC Inline Controller. This unit provides for 0 – 100% intensity control. It is NOT COMPATIBLE with LLI37, BLI38, LLI67, and BLI68 "IC" Lights or lights built with the "24v controller" option. For more information about our Manual Dimming Accessory, please visit this webpage.

Accessories - Continued

Category	Accessory Image	Accessory Detail
Extension Cable		**DCS-100E/103E Extension Cable, Single Light Power Cable - C1 Configuration** *PN: LC-XX-S* This extension cable was designed for applications requiring power cables longer than the standard 2 meters provided with Ai lights. This single light cable features a single male and single female 7 pin locking connector (C1) and can be purchased in 3 - 15-meter lengths. For more information about our DCS-100E/103E Extension Cable, Single Output, please visit this webpage.
Extension Cable		**DCS-100E/103E Extension Cable, Dual Light Power Cable - C1 Configuration** *PN: LC-XX-Y* This extension cable was designed for applications requiring two identical lights to be powered through a single controller. These Y cables feature a single male and dual female 7 pin locking connectors (C1) and can be purchased in 3 - 15-meter lengths. See attached spec sheet for compatible light configuration. For more information about our DCS-100E/103E Extension Cable, Split Output, please visit this webpage.
Extension Cable		**Pulsar 320E Extension Cable - C5 Configuration** *PN: LC-XX-S-C5* This extension cable was designed for applications requiring power cables longer than the standard 2 meters provided with Ai lights. This single light cable features a single male and single female Pulsar 320 connector (C5) and can be purchased in 3 - 15 meter lengths. For more information about our Pulsar 320E Extension Cable, please visit this webpage.
Adaptor Cable		**Cognex Gen2 Inline Controller Adaptor Cable** *PN: AD-I3-CGX2* This cable adaptor is for connecting I3/I3S configured lights with Cognex Gen2 Cameras, and comes with a male to female M12 connectors. For more information about our Cognex Gen2 Inline Controller Adaptor Cable, please visit this webpage.
Filters		**Camera Lens Band Pass FIlters** *PN: BPXXX-YYY* Eliminating all but a narrow band of light (+/- 40nm) centered on the specified wavelength, band pass filters are used to enhance colors, or to stop unwanted ambient light from reaching the camera. Filtering can replace existing shrouds, simplifying the physical set up of an inspection site. Ai offers 635nm and 660nm band pass filters to fit several different lens sizes. For more information about our Camera Lens Band Pass FIlters, please visit this webpage.

Additional Information

Warranty

Every Advanced illumination, Inc. (Ai) product is thoroughly inspected and tested before leaving the factory. Products are warranted to be free of defects in workmanship and materials for a period of FIVE YEARS from the original date of purchase. Should a defect develop during this period, customers may return the complete product, freight prepaid, to one of Ai's distributors or to the Ai factory. All product warranty returns require a Return Merchandise Authorization (RMA) number which is obtained from Customer Service. The RMA number must be clearly marked on the outside of the package. Ai will inspect the unit, and if a defect is found will, at our option, repair or replace the product without charge. Ai disclaims liability for any implied warranties, including implied warranties of "merchantability" and "fitness for a specific purpose." For products under warranty that have since been discontinued, Ai will make an effort to replace with equivalent parts; for circumstances that do not allow for equivalent replacement, Ai reserves the right to repair or replace these products with an updated version. Ai cannot be held responsible for the unauthorized or inappropriate use of its products. Any unauthorized repair or modifications will result in a voided warranty. No Liability for Consequential Damages: In no event shall Ai be liable for any consequential, special, incidental, or indirect damages of any kind arising from the sale or use of the products.

Compliancy

Our lighting products are designed and tested to meet CE, RoHS, and IEC standards. As a global ISO 9001 certified company, we understand the importance of compliance and perform accelerated testing on every product before shipment. For more information on our compliance standards, please see our compliancy documentation here: https://www.advancedillumination.com/services/compliance-statements/

Electromagnetic Compatibility

This product was tested and complies with the regulatory requirements and limits for electromagnetic compatibility (EMC) as stated in the product specifications. These requirements and limits are designed to provide reasonable protection against harmful interference only when the product is operated in its intended industrial electromagnetic environment. To minimize the potential for electromagnetic interference or unacceptable performance degradation, install and use this product in strict accordance with the instructions in the product documentation.

Customer Service

For information on existing orders, or to make an order adjustment, contact us Monday through Friday 8:00 am to 5:00 pm ET or send an email to orders@advancedillumination.com.

Company Information

Advanced Illumination
440 State Garage Road, Rochester, VT 05767
Phone: +1 (802) 767 3830
Fax: +1 (802) 767 2636
Email: info@advancedillumination.com
Web: advancedillumination.com

LL167

High intensity White Line Lights
Product Datasheet

ADVANCED ILLUMINATION
by Exaktera

Embedded Controller Option
Embedded controller for easy powering and control - no external or inline controller needed

High Power LEDs
Built with industrial grade LEDs capable of high output continuous operation, all while maintaining a long lifespan

Scalable Extrusion-Based Housing
Built with extrusion-based aluminum construction allowing for linear, one-dimensional scalability, while maintaining structural rigidity and durability

M6 Mounting Channel
Equipped with an M6 mounting channel on its base, allowing for highly adjustable positioning

LL167 Series Description

The LL167 is engineered to provide optimal power on target. As with the LL137, it offers a scalable length design, multiple lens options, and an embedded controller.

The LL167 housing is identical to that of the LL137 and it also deploys an embedded control circuit for 0-10 volt DC analog dimming and gating on/off. The "C1" light may be ordered for use with the DCS controllers; the optional "IC" model includes manual analog dimming potentiometers for individual control of each 6" segment in the light.

The LL167 differs from the LL137 in offering only a white version standard that offers more line intensity on target. It differs from the LL330 in IP50 only rating and less intensity on target.

- **High Intensity**
- **Scalable Linear Design**
- **Uniformity Control**
- **Multiple Focal Lengths**
- **1-2 Week BTO Lead Times Typical**

General Information

General Specifications

Category	Specification			Detail	
Optical	Available Wavelengths			White	
	Available Lensing			4 Focal Lengths	
	Available Light Conditioning			None	
Electrical	Power Consumption Info			See Power Requirements on Page 7	
	Cable Info			80" -0/+6" Long (2 m -0/+150 mm), 105 °C Rated, Foil Shield w/ Drain	
Mechanical	Sizing Info	Standard	Length	3.24"(82.3mm) to 96.24"(2444.5mm)	See Page 6 for More Details
			Width	1.98"(50.2mm)	
			Height	G lens: 3.70"(93.9mm); D lens: 3.80"(96.5mm); E lens: 4.05"(102.8mm); F lens: 4.55"(115.5mm)	
	Weight Info (Standard)			~ 2.20 lbs (~998 g) per 6" Unit Length	
	Mounting Info			M6 Mounting Nut Channel	
	Material Info			Anodized Aluminum Housing, Acrylic Window, Nylon Strain Relief, PVC Cable Jacket, Steel Black Oxide & Zinc Plated Steel Fasteners	
Thermal	Operating Case Temperatures			25 °C to 60 °C	
	Operating Ambient Temperatures			0 °C to 35 °C	
Certification	Compliance			CE, RoHS, IEC 62471	
	IP Rating			IP50	
	Lumen Maintenance - White Only			L70 (50,000 Hours)	

General Information - Continued

Part Number Key

Model	Lens Focus	Emitting Length (in)	-	Peak Wavelength	Connector/Control
LL167	X	XX	-	XXX	XX
LL167	D (Converging)	06 to 96		WHI (white)	C1[2]
	E (Converging)	(06" increments from 06" to 96")			IC[1]
	F (Converging)				24
	G (Collimating)				
more info on page	4	6		4	7

Example Part Numbers:
LL167D12-WHIC1
LL167G24-WHIIC

[1] See Electrical Specs for details on IC option with LL167
[2] Not available over 12" emitting length

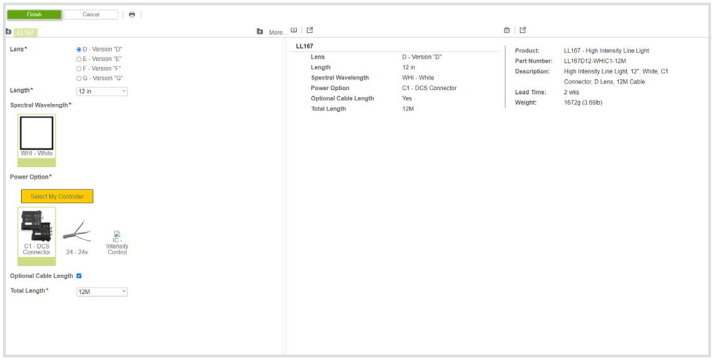
In Stock

Unavailable

Lead Times

Stock products ship within three days.
Build-to-Order custom products ship within one to two weeks.

Configurator

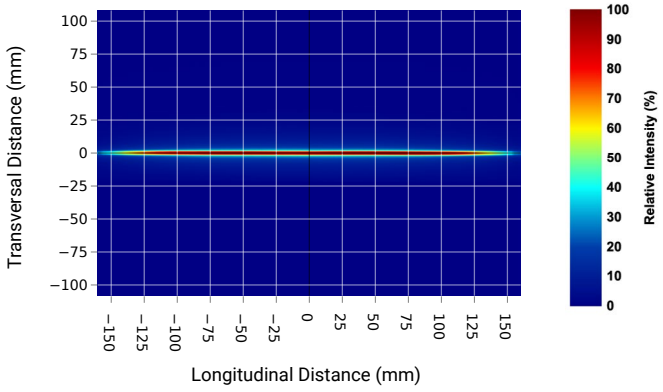


Need a build-to-order custom lighting solution in 2 weeks or less? Advanced Illumination's online configurator helps you tailor our LL167 High Intensity White Line Lights to your specific needs. For a guided configuration, visit our online configurator.

Optical Information

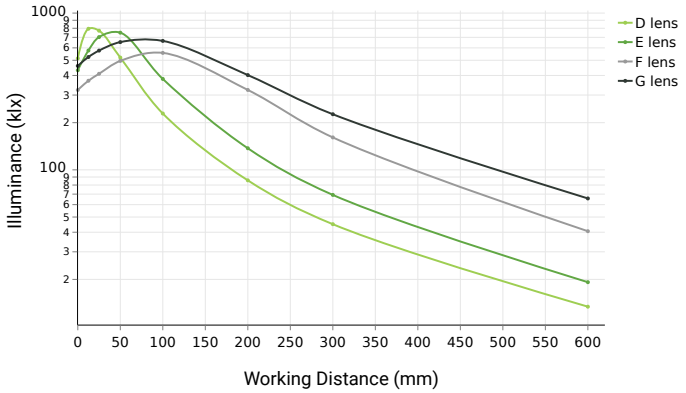
Intensity Characteristics

Intensity Distribution Image at 50 mm Working Distance



Intensity distribution sample image was taken with a 12-inch white LL167 unit with a D lens.

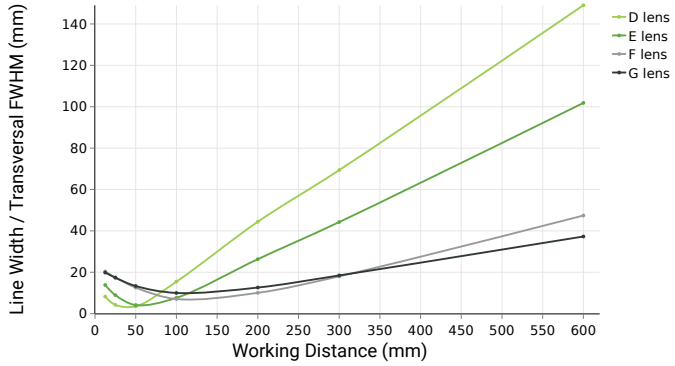
Illuminance vs Working Distance



Illuminance data was collected using a 12-inch white LL167 unit.

Line Width

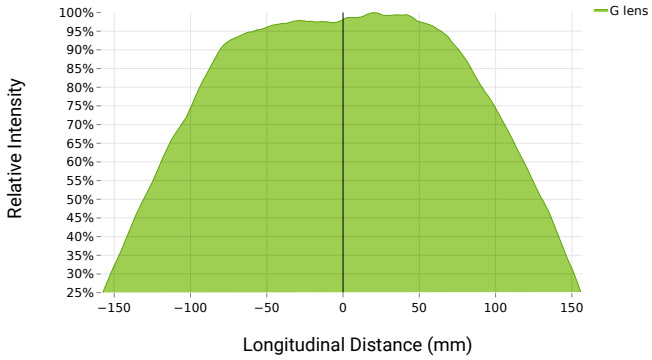
Line Width vs Working Distance



Line width data was collected using a 12-inch white LL167 unit.

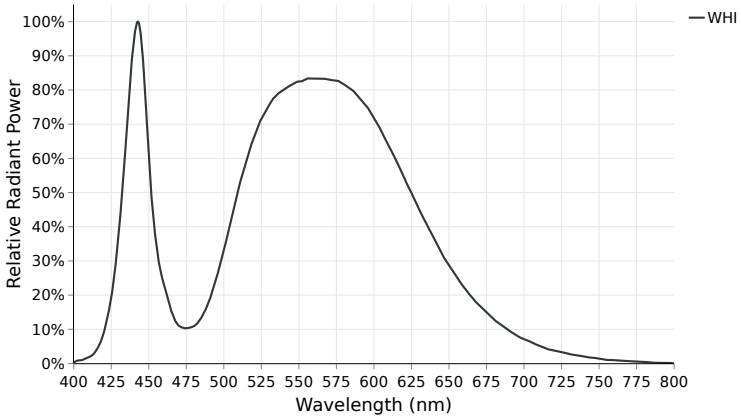
Uniformity

Longitudinal Intensity Distribution Profile at 50 mm Working Distance



Longitudinal intensity distribution data was collected using a 12-inch white LL167 unit with a G lens.

White Spectral Profile



White LED illumination is the most commonly used machine vision lighting configuration. It is often the default choice when specific features of interest do not require color-based highlighting. However, white LEDs can vary in color temperature between different lighting families, which can impact machine vision systems, specifically when matching white light sources.

The LL167 Series white LEDs have a relatively cool color correlated temperature (CCT) of **6500 K.**

For a more detailed look at the white spectral data, download the csv file of the raw spectral values and refer to our Product Spectra Distribution Charts PDF.

Disclaimer: The measurements provided above are for approximations only and may vary depending on the method of measurement and the specific configuration being measured.

Optical Information - Continued

Photobiological Risk Factors

Group	Description	Affected Wavelengths
Exempt	No Photobiological Hazard	N/A
Group 1	No Photobiological hazard under normal behavioral limitations	WHI
Group 2	Does not pose a hazard due to aversion response to bright light or thermal discomfort	N/A

Advanced Illumination's lighting products have been tested and classified to IEC standards by accredited testing services. For more information on photobiological risk factors, please view the following PDF: https://www.advancedillumination.com/wp-content/uploads/2019/04/IEC-040119.pdf

Cleaning Guidelines

To clean our light's optics, it is best to only clean when necessary. Dusting is always the first step in cleaning your optics. Wiping a dusty optic is like cleaning it with sandpaper. So always dust with a canned air duster or compressed and filtered air before wiping any optic. If the dusted optic has no visible stains after you dust it, then remember: "If it's not dirty, don't clean it." Avoid wiping optics when possible.

If dusting did not clean the lens or the lens has stains, use only de-ionized water and mild dish soap with a low lint cloth designed for optics to avoid damage to the optic by any harsh chemicals.

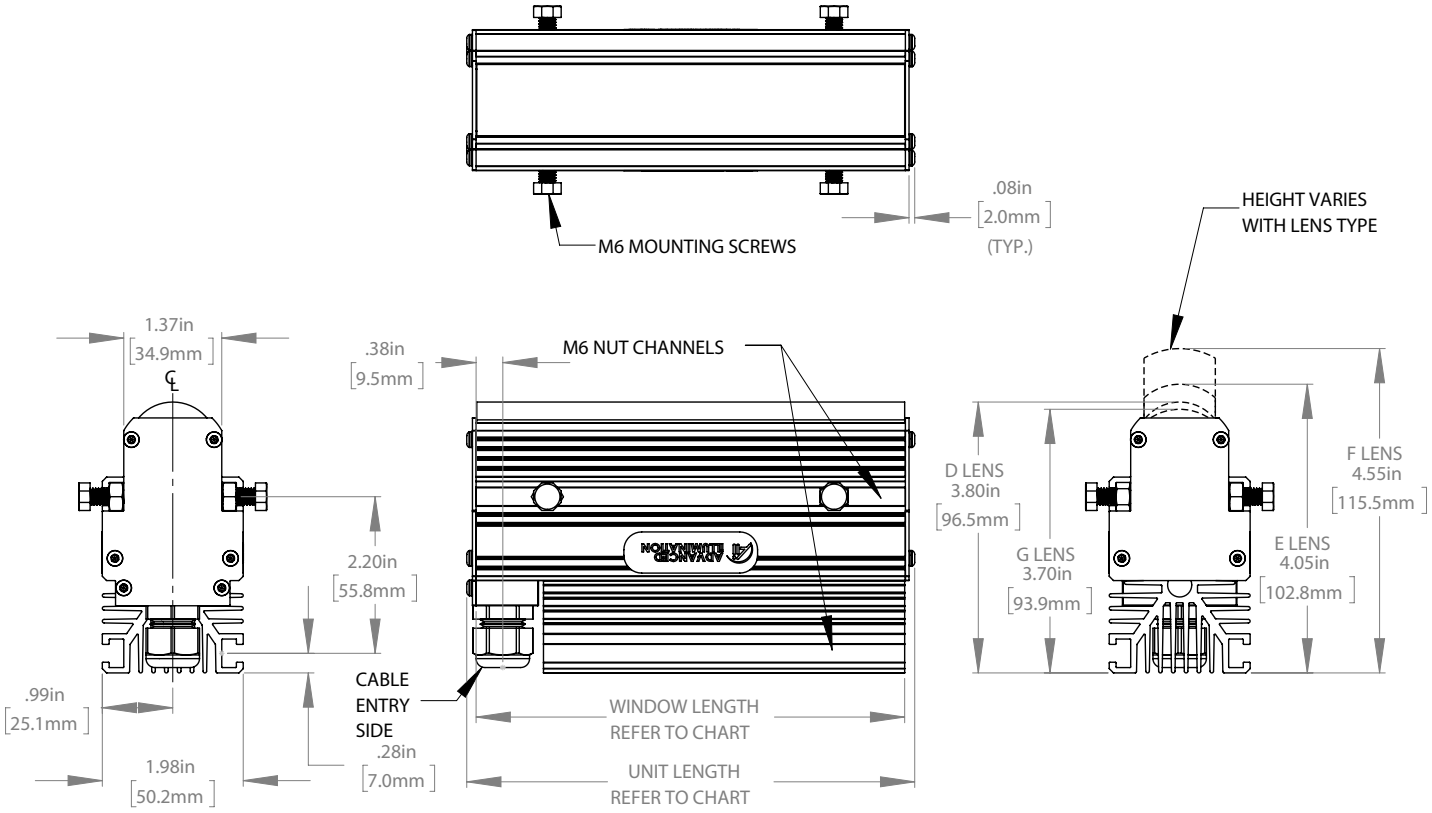
Polarizers, beam splitters and collimated films should never be wiped with any type of cloth or solvent, only use the air dusting method to clean these types of optics.

The aluminum housing can be wiped down when dusting is not a sufficient means to thoroughly clean.

Disclaimer: The measurements provided above are for approximations only and may vary depending on the method of measurement and the specific configuration being measured.

Mechanical Information

Installation Drawings



For full installation drawings and complete CAD models of this non-sealed configuration, please visit the downloads section of the product webpage.

Sizing Chart

Part Number	Length (Inches)			Length (Millimeters)			Power Options
	Unit	D/E/F Lens	G Lens	Unit	D/E/F Lens	G Lens	
LL167X03	3.24	3.040	3.000	82.296	77.216	76.200	C1 / 24 / IC
LL167X06	6.24	6.000	6.000	158.496	152.400	152.400	C1 / 24 / IC
LL167X12	12.24	12.000	12.000	310.896	304.800	304.800	C1 / 24 / IC
LL167X18	18.24	18.000	18.000	463.296	457.200	457.200	C1 / 24 / IC
LL167X24	24.24	24.000	24.000	615.696	609.600	609.600	24 / IC
LL167X30	30.24	30.000	30.000	768.096	762.000	762.000	24 / IC
LL167X36	36.24	36.000	35.944	920.496	914.400	912.978	24 / IC
LL167X42	42.24	42.000	41.934	1072.896	1066.800	1065.124	24 / IC
LL167X48	48.24	48.000	47.589	1225.296	1219.200	1208.761	24 / IC
LL167X54	54.24	54.000	53.915	1377.696	1371.600	1369.441	24 / IC
LL167X60	60.24	60.000	59.906	1530.096	1524.000	1521.612	24 / IC
LL167X66	66.24	66.000	65.896	1682.496	1676.400	1673.758	24 / IC
LL167X72	72.24	72.000	71.887	1834.896	1828.800	1825.930	24 / IC
LL167X78	78.24	78.000	77.878	1987.296	1981.200	1978.101	24 / IC
LL167X84	84.24	84.000	83.868	2139.696	2133.600	2130.247	24 / IC
LL167X90	90.24	90.000	89.859	2292.096	2286.000	2282.419	24 / IC
LL167X96	96.24	96.000	95.849	2444.496	2438.400	2434.565	24 / IC

X refers to Lens Type: D, E, F, G

Electrical Information

Power Requirements

Current Required for Power Supply Sizing

Wavelengths	Configured w/ Voltage Drive (24)	Configured w/ Standard Controller (C1, C5, IC, I3, I3S)
WHI	0.760A per 6 inch increment	0.760A per 6 inch increment

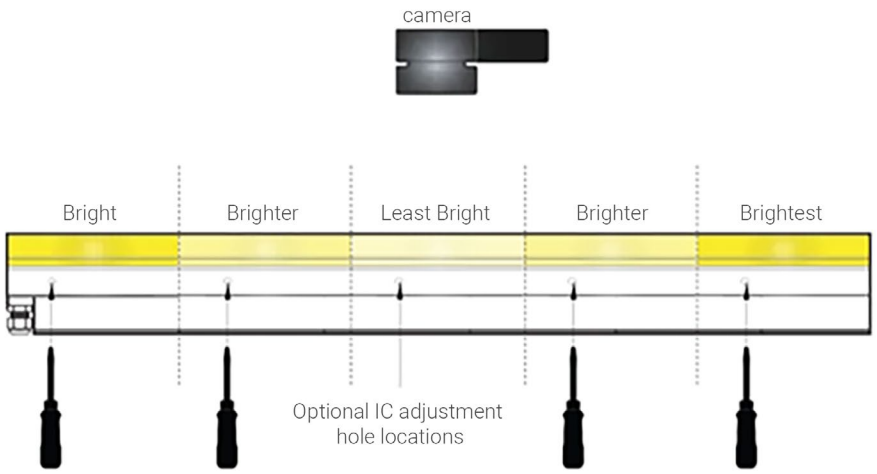
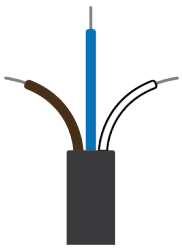
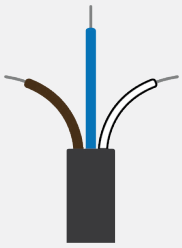
Note: All Advanced Illumination lights and controllers are nominally powered by 24V DC unless otherwise noted. Strobe overdriving with controller based models may require more current and voltage overhead. The values above do not include background current draw from the controller (~100 mA total).

Control Options

Controller Image	Controller Details	Connector Image
	**DCS Single Output Controller - Compatible with C1 Configurations** *PN: DCS-100E* The DCS-100E is a compact, din-rail mounted general-purpose external controller with one C1 output connector, wired with three channels. Capable of providing single channel control or multi-channel control for RGB compatible lights. **Output Power:** 90 W Max Continuous, 540 W Max Pulsed (Overdrive Strobe) **Output Current:** 4.5A Max Continuous, 15 A Max Pulsed **I/Os:** 3 External Trigger Inputs **Interface:** 10/100 Ethernet with Software and browser-based GUIs. SDKs are also available. For more information about our DCS-100E, please visit the controller product page.	
	**DCS Triple Output Controller - Compatible with C1 Configurations** *PN: DCS-103E* The DCS-103E is a din-rail mounted general-purpose multi-light controller with three C1 output connectors. Capable of driving three lights in sync or asynchronously. **Output Power:** 30 W Max Continuous / Output, 180 W Max Pulsed / Output **Output Current:** 1.5A Max Continuous / Output, 5 A Max Pulsed / Output **I/Os:** 3 External Trigger Inputs **Interface:** 10/100 Ethernet with Software and browser-based GUIs. SDKs are also available. For more information about our DCS-103E, please visit the controller product page.	

Electrical Information - Continued

Control Options - Continued

Controller Image	Controller Details	Connector Image
	**LL167 Embedded Controller - Continuous Only - IC Configurations** *PN: N/A* The IC on the LL167 is an embedded controller which allows for control of light intensity per 6" (152 mm) segment. Each segment is adjusted using a potentiometer located on each 6" segment. See the figure below for illustration:  Controlling each 6" (152mm) section independently and making the center of the line less bright and the outside of the immediate camera viewing radius brighter ultimately results in better imaging. Better imaging occurs because the camera can see very well in its area of focus, but outside that area the camera doesn't focus as well without brighter illumination. We recommend using this control option for LL167 lights over 24" (610mm) in length.	
	**24V Driver - Continuous Only - 24 Configurations** *PN: N/A* 24V option allows lights to operate continuous output with 24V connection and no additional controllers. **Modes:** Continuous, can be wired to some 3rd party controllers or external relays for gated operation **Interface:** Direct cable (flying leads or connector options)	

Electrical Information - Continued

24V Option Wiring Information

Flying Lead Functions

Wire Color	24V Functions
BROWN	24V DC
WHITE	0 - 10V Analog Control
BLUE	DC GND
BLACK	N/A
GRAY	N/A

The functions above are only applicable when ordering a 24V power configuration.

Accessories

Category	Accessory Image	Accessory Detail
Power Supply		**24 Volt DC Power Supply** *PN: PS24-TL* This convenient power source is a universal AC input switching power supply with a regulated output DC current. The power supply comes with an LED Power Indicator, tinned leads marked Positive (+) and Negative (-) and 2 WAGO connectors for simplified assembly. For more information about our 24 Volt DC Power Supply, please visit this webpage.
Dimmer		**Manual Dimming Accessory for the IC, I3 and I3s** *PN: DCS-MP* The DCS-MP is a 30-position potentiometer, detented for precision level control and provides repeatable dimming with cable inline controllers. Features include DIN-rail mountable, a flip up cover to prevent accidental adjustments, spring clamp wiring terminal for flying leads or an M12 connector for use with the IC or I3/I3S Inline Controllers. For more information about our Manual Dimming Accessory please visit this webpage.
Extension Cable		**DCS-100E/103E Extension Cable, Single Light Power Cable - C1 Configuration** *PN: LC-XX-S* This extension cable was designed for applications requiring power cables longer than the standard 2 meters provided with Ai lights. This single light cable features a single male and single female 7 pin locking connector (C1) and can be purchased in 3 - 15-meter lengths. For more information about our DCS-100E/103E Extension Cable, Single Output, please visit this webpage.
Extension Cable		**DCS-100E/103E Extension Cable, Dual Light Power Cable - C1 Configuration** *PN: LC-XX-Y* This extension cable was designed for applications requiring two identical lights to be powered through a single controller. These Y cables feature a single male and dual female 7 pin locking connectors (C1) and can be purchased in 3 - 15-meter lengths. See attached spec sheet for compatible light configuration. For more information about our DCS-100E/103E Extension Cable, Split Output, please visit this webpage.
Filters		**Camera Lens Band Pass FIlters** *PN: BPXXX-YYY* Eliminating all but a narrow band of light (+/- 40nm) centered on the specified wavelength, band pass filters are used to enhance colors, or to stop unwanted ambient light from reaching the camera. Filtering can replace existing shrouds, simplifying the physical set up of an inspection site. Ai offers 635nm and 660nm band pass filters to fit several different lens sizes. For more information about our Camera Lens Band Pass FIlters, please visit this webpage.

Additional Information

Warranty

Every Advanced illumination, Inc. (Ai) product is thoroughly inspected and tested before leaving the factory. Products are warranted to be free of defects in workmanship and materials for a period of FIVE YEARS from the original date of purchase. Should a defect develop during this period, customers may return the complete product, freight prepaid, to one of Ai's distributors or to the Ai factory. All product warranty returns require a Return Merchandise Authorization (RMA) number which is obtained from Customer Service. The RMA number must be clearly marked on the outside of the package. Ai will inspect the unit, and if a defect is found will, at our option, repair or replace the product without charge. Ai disclaims liability for any implied warranties, including implied warranties of "merchantability" and "fitness for a specific purpose." For products under warranty that have since been discontinued, Ai will make an effort to replace with equivalent parts; for circumstances that do not allow for equivalent replacement, Ai reserves the right to repair or replace these products with an updated version. Ai cannot be held responsible for the unauthorized or inappropriate use of its products. Any unauthorized repair or modifications will result in a voided warranty. No Liability for Consequential Damages: In no event shall Ai be liable for any consequential, special, incidental, or indirect damages of any kind arising from the sale or use of the products.

Compliancy

Our lighting products are designed and tested to meet CE, RoHS, and IEC standards. As a global ISO 9001 certified company, we understand the importance of compliance and perform accelerated testing on every product before shipment. For more information on our compliance standards, please see our compliancy documentation here: https://www.advancedillumination.com/services/compliance-statements/

Electromagnetic Compatibility

This product was tested and complies with the regulatory requirements and limits for electromagnetic compatibility (EMC) as stated in the product specifications. These requirements and limits are designed to provide reasonable protection against harmful interference only when the product is operated in its intended industrial electromagnetic environment. To minimize the potential for electromagnetic interference or unacceptable performance degradation, install and use this product in strict accordance with the instructions in the product documentation.

Customer Service

For information on existing orders, or to make an order adjustment, contact us Monday through Friday 8:00 am to 5:00 pm ET or send an email to orders@advancedillumination.com.

Company Information

Advanced Illumination
440 State Garage Road, Rochester, VT 05767
Phone: +1 (802) 767 3830
Fax: +1 (802) 767 2636
Email: info@advancedillumination.com
Web: advancedillumination.com

LL232

MicroBrite™ Line Lights
Product Datasheet

ADVANCED ILLUMINATION
by Exaktera

Compact, Space-Saving Design
Deisgned with a Fresnel lens for tight work spaces and relatively short working distance linescan applications

Scalable Extrusion-Based Housing
Built with extrusion-based aluminum construction allowing for linear, one-dimensional scalability, while maintaining structural rigidity and durability

High Power LEDs
Built with industrial grade LEDs capable of high output continuous operation, all while maintaining a long lifespan

M4 Mounting Channel
Equipped with an M4 mounting channel on its base, allowing for highly adjustable positioning

LL232 Series Description

Part of the MicroBrite Series of compact, yet powerful lights, the LL232 linelight is designed to be placed into smaller work spaces that will not accommodate standard high intensity line lights.

The LL232 utilizes a Fresnel focusing lens and high thermal efficiency that is a hallmark of the MicroBrite Series light heads.

Other than aforementioned smaller footprint, the LL232 differs from from the standard LL137/LL167/LL330 linescan lights in not having an embedded driver, limited lengths, offering 1 optimal line focus at 75mm working distance and less intensity.

- **High Intensity**
- **Scalable Linear Design**
- **6 Wavelengths Available**
- **Multiple Control Options**
- **1-2 Week BTO Lead Times Typical**

General Information

General Specifications

Certification	Specification			Detail	
Optical	Available Wavelengths			White, 455nm, 660nm, 730nm, 850nm, 940nm	
	Available Lensing			No Lenses	
	Available Light Conditioning			None	
Electrical	Power Consumption Info			See Power Requirements on Page 8	
	Cable Info			80" -0/+6" Long (2 m -0/+150 mm), 105 °C Rated, Foil Shield w/ Drain	
Mechanical	Sizing Info	Standard	Length	2.87"(72.9mm) to 30.87"(784.1mm)	See Page 7 for More Details
			Width	0.79"(20.0mm)	
			Height	0.79"(20.1mm)	
	Weight Info (Standard)			~ 1.68 lbs (~762 g) per 150mm Unit Length	
	Mounting Info			M4 Mounting Nut Channel	
	Material Info			Anodized Aluminum Housing, Acrylic Window, Nickel Plated Brass Strain Relief, PVC Cable Jacket, Steel Black Oxide Fasteners	
Thermal	Operating Case Temperatures			25 °C to 60 °C	
	Operating Ambient Temperatures			0 °C to 35 °C	
Certification	Compliance			CE, RoHS, IEC 62471	
	IP Rating			Not Rated	
	Lumen Maintenance - White Only			L70 (50,000 Hours)	

General Information - Continued

Part Number Key

Model	-	Emitting Length (mm)	Peak Wavelength	Connector/Control	-	Alternative Connector
LL232	-	XXX	XXX	X	-	XXX
LL232		050 to 750	455 (blue)	C1		M8[1]
		(50 mm increments from 50 to 750 mm)	660 (red)	C5		M12[1]
			730 (IR)	IC		
			850 (IR)	I3		
			940 (IR)	I3S		
			WHI (white)	24		
more info on page		7	4	8		10

Example Part Numbers:
LL232-050WHIC1
LL232-200660IC-M12

[1] Only available with IC, I3, I3S and 24 control options

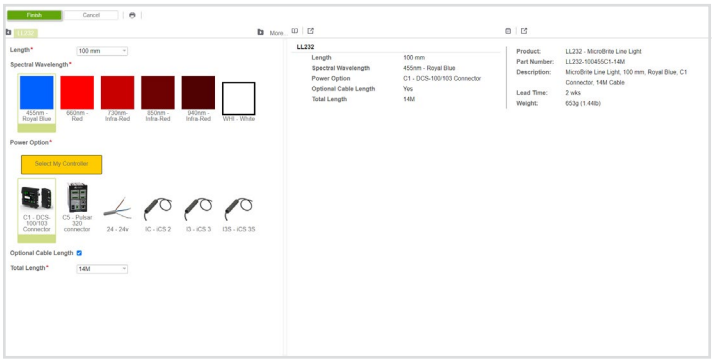
In Stock

N/A

Lead Times

Stock products ship within three days.
Build-to-Order custom products ship within one to two weeks.

Configurator

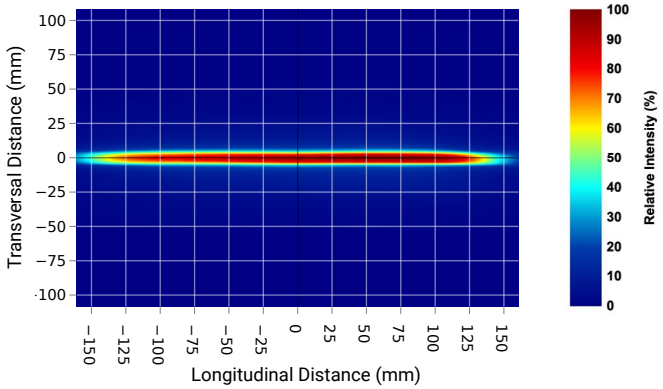


Need a build-to-order custom lighting solution in 2 weeks or less? Advanced Illumination's online configurator helps you tailor our LL232 MicroBrite™ Line Lights to your specific needs. For a guided configuration, visit our online configurator.

Optical Information

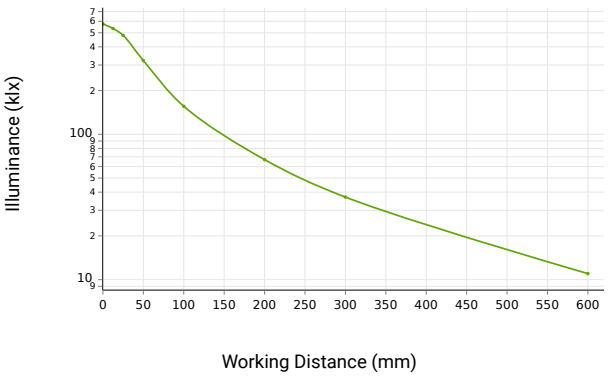
Intensity Characteristics

Intensity Distribution Image at 50 mm Working Distance



Intensity distribution sample image was taken with a 300 mm white LL232 unit.

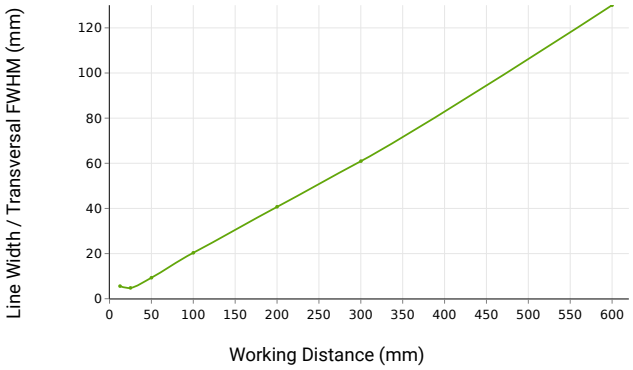
Illuminance vs Working Distance



Illuminance data was collected using a 300 mm white LL232 unit.

Line Width

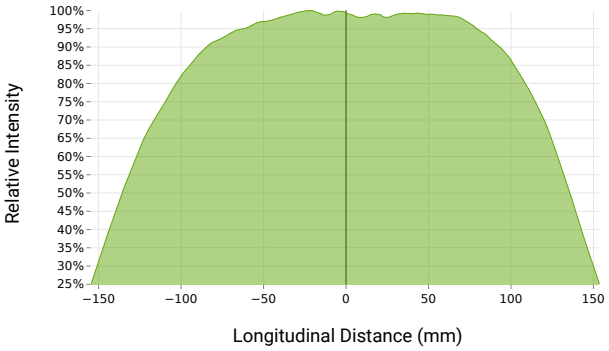
Line Width vs Working Distance



Line width data was collected using a 300 mm white LL232 unit.

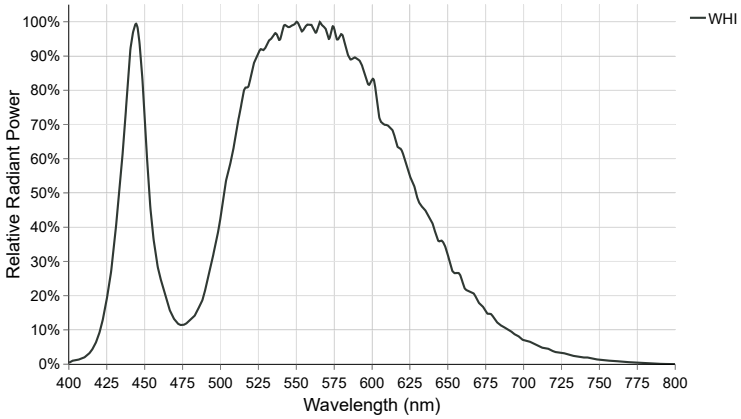
Uniformity

Longitudinal Intensity Distribution Profile at 100 mm Working Distance



Longitudinal intensity distribution data was collected using a 300 mm white LL232 unit.

White Spectral Profile



White LED illumination is the most commonly used machine vision lighting configuration. It is often the default choice when specific features of interest do not require color-based highlighting. However, white LEDs can vary in color temperature, which can impact machine vision systems, specifically when matching white light sources.

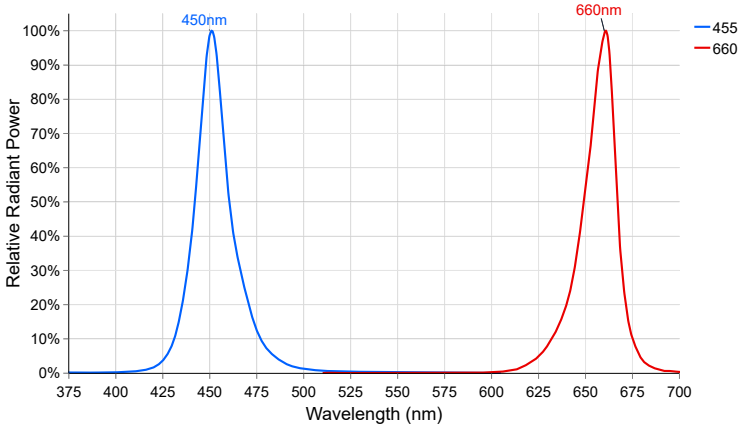
The LL232 Series white LEDs have a relatively neutral color correlated temperature (CCT) of **6500 K.**

For a more detailed look at the white spectral data, download the csv file of the raw spectral values and refer to our Product Spectra Distribution Charts PDF.

Disclaimer: The measurements provided above are for approximations only and may vary depending on the method of measurement and the specific configuration being measured.

Optical Information - Continued

Visible Spectral Profiles

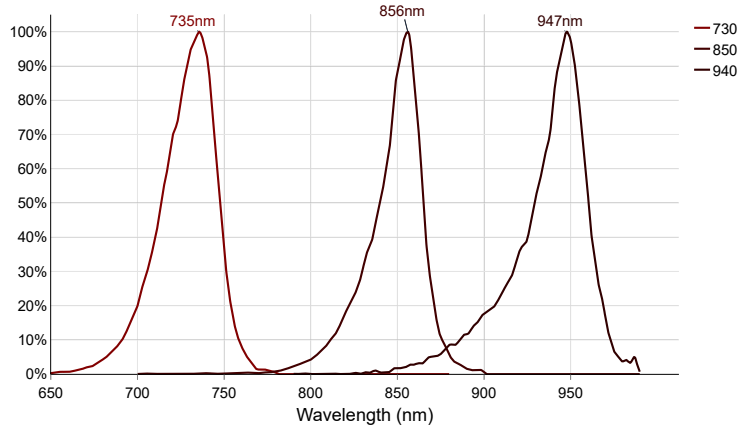


Visible color illumination consists of using wavelengths between 400-700 nm to either create or eliminate contrast on an inspection subject based on differences in a features color hue. When referring to a color wheel, simply remember the following: like colors reflect and brighten surfaces; conversely, opposing colors absorb and darken surfaces.

The LL232 Series is available in **455 nm and 660 nm** configurations.

For a more detailed look at the visible color spectral data, download the csv file of the raw spectral values and refer to our Product Spectra Distribution Charts PDF.

Non-Visible Spectral Profiles



Near-infrared (NIR) imaging is a machine vision technique using longer wavelengths of 700-1000 nm to penetrate specific materials that are otherwise opaque to under the visible spectrum.

The LL232 Series is available in **730 nm, 850 nm, and 940 nm** configurations.

For a more detailed look at the NIR spectral data, download the csv file of the raw spectral values and refer to our Product Spectra Distribution Charts PDF.

Disclaimer: The measurements provided above are for approximations only and may vary depending on the method of measurement and the specific configuration being measured.

Optical Information - Continued

Photobiological Risk Factors

Group	Description	Affected Wavelengths (nm)
Exempt	No Photobiological Hazard	730, 850, 940
Group 1	No Photobiological hazard under normal behavioral limitations	455, 660, WHI
Group 2	Does not pose a hazard due to aversion response to bright light or thermal discomfort	N/A

Advanced Illumination's lighting products have been tested and classified to IEC standards by accredited testing services. For more information on photobiological risk factors, please view the following PDF: https://www.advancedillumination.com/wp-content/uploads/2019/04/IEC-040119.pdf

Cleaning Guidelines

To clean our light's optics, it is best to only clean when necessary. Dusting is always the first step in cleaning your optics. Wiping a dusty optic is like cleaning it with sandpaper. So always dust with a canned air duster or compressed and filtered air before wiping any optic. If the dusted optic has no visible stains after you dust it, then remember: "If it's not dirty, don't clean it." Avoid wiping optics when possible.

If dusting did not clean the lens or the lens has stains, use only de-ionized water and mild dish soap with a low lint cloth designed for optics to avoid damage to the optic by any harsh chemicals.

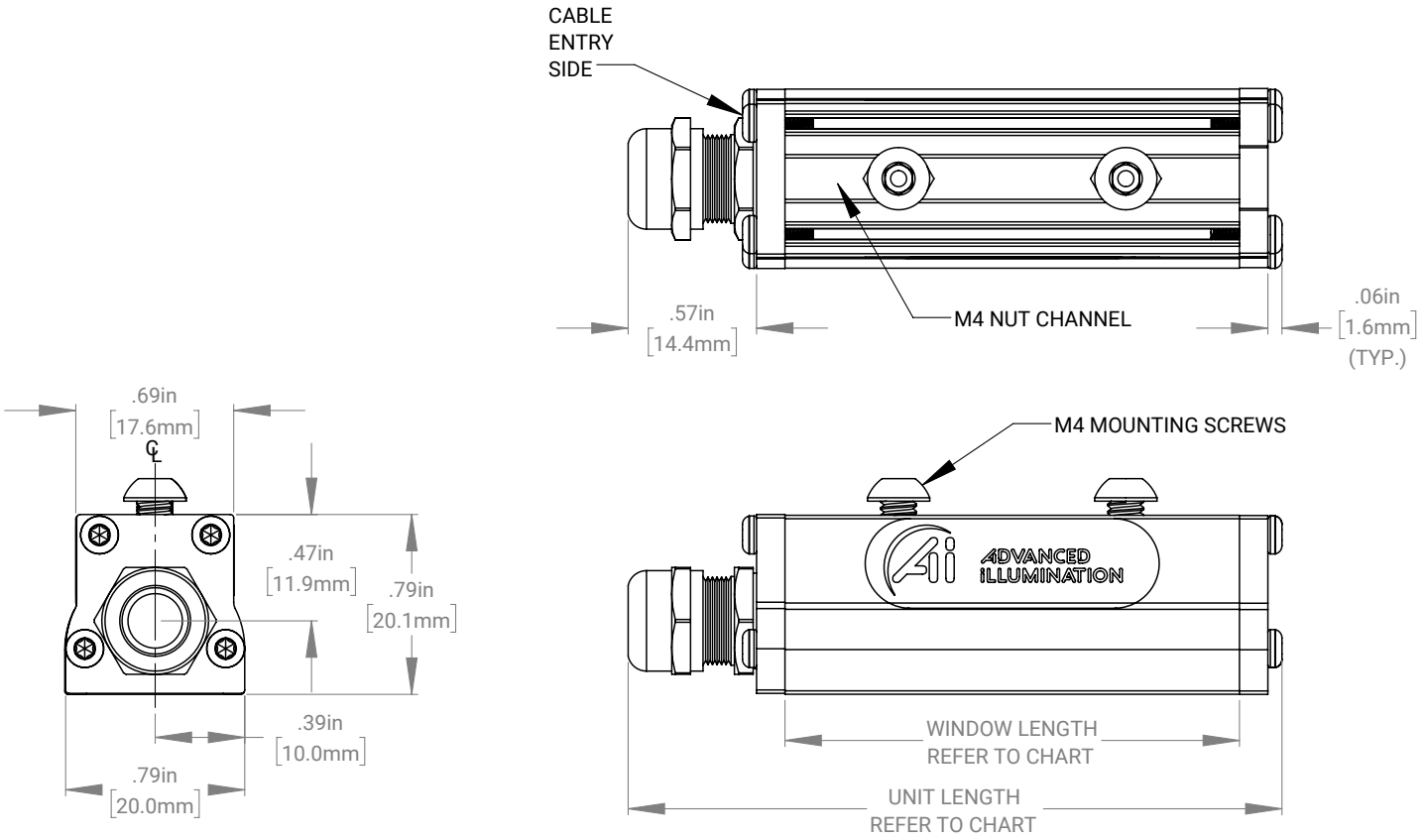
Polarizers, beam splitters and collimated films should never be wiped with any type of cloth or solvent, only use the air dusting method to clean these types of optics.

The aluminum housing can be wiped down when dusting is not a sufficient means to thoroughly clean.

Disclaimer: The measurements provided above are for approximations only and may vary depending on the method of measurement and the specific configuration being measured.

Mechanical Information

Installation Drawings



For full installation drawings and complete CAD models of this non-sealed configuration, please visit the downloads section of the product webpage.

Sizing Chart

Part Number	Length (Inches)		Length (Millimeters)		Power Options
	Unit	Window	Unit	Window	
LL232-050	2.87	2.00	72.90	50.80	C1 /C5/ 24 / IC / I3 / I3S
LL232-100	4.87	4.00	123.70	101.60	C1 /C5/ 24 / IC / I3 / I3S
LL232-150	6.87	6.00	174.50	152.40	C1 /C5/ 24 / IC / I3 / I3S
LL232-200	8.87	8.00	225.30	203.20	C1 /C5/ 24 / IC / I3 / I3S
LL232-250	10.87	10.00	276.10	254.00	C1 /C5/ 24 / IC / I3 / I3S
LL232-300	12.87	12.00	326.90	304.80	C1 /C5/ 24 / IC / I3 / I3S
LL232-350	14.87	14.00	377.70	355.60	C1 / C5 /24
LL232-400	16.87	16.00	428.50	406.40	C1 / C5 /24
LL232-450	18.87	18.00	479.30	457.20	C1 / C5 /24
LL232-500	20.87	20.00	530.10	508.00	C1 / C5 /24
LL232-550	22.87	22.00	580.90	558.80	C1 / C5 /24
LL232-600	24.87	24.00	631.70	609.60	C1 / C5 /24
LL232-650	26.87	26.00	682.50	660.40	C1 / C5 /24
LL232-700	28.87	28.00	733.30	711.20	C1 / C5 /24
LL232-750	30.87	30.00	784.10	762.00	C1 / C5 /24

Electrical Information

Power Requirements

Current Required for Power Supply Sizing

Wavelengths (nm)	Configured w/ Voltage Drive (24)	Configured w/ Standard Controller (C1, C5, IC, I3, I3S)
WHI, 455	0.120A per 50 mm increment	0.150A per 50 mm increment
660, 730	0.120A per 50 mm increment	0.130A per 50 mm increment
850, 940	0.120A per 50 mm increment	0.120A per 50 mm increment

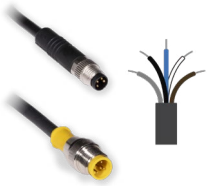
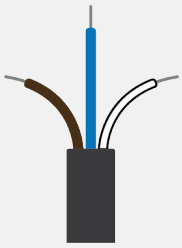
Note: All Advanced Illumination lights and controllers are nominally powered by 24V DC unless otherwise noted. Strobe overdriving with controller based models may require more current and voltage overhead. The values above do not include background current draw from the controller (~100 mA total).

Control Options

Controller Image	Controller Details	Connector Image
	**DCS Single Output Controller - Compatible with C1 Configurations** *PN: DCS-100E* The DCS100E is a compact, din-rail mounted general-purpose controller with (1) output, wired with (3) channels. **Power Output:** 100W Continuous, 525W pulsed **Channels:** (3), drives one lighthead with either monochrome or mixed-wavelengths (Ex. RGB) **Modes:** Continuous, Gated, Pulsed (with overdrive) **I/Os:** (3) External trigger inputs **Interface:** 10/100 Ethernet with SW GUI and browser-based GUI. SDK available. For more information about our DCS-100E, please visit the controller product page.	
	**DCS Triple Output Controller - Compatible with C1 Configurations** *PN: DCS103E* The DCS103E is a compact, din-rail mounted general-purpose controller with (3) outputs. **Power Output:** 100W Continuous, 525W pulsed **Outputs:** (3), drives up to three lights in sync or asyncronous **Modes:** Continuous, Gated, Pulsed (with overdrive) **I/Os:** (3) External trigger inputs **Interface:** 10/100 Ethernet with SW GUI and browser-based GUI. SDK available For more information about our DCS-103E, please visit the controller product page.	
	**Inline Controller - Continuous Only - IC Configurations** *PN: N/A* The IC is an inline, cable-mounted continuous-only controller configured/wired directly for the ordered light head. **Output Power:** 25 W Max Continuous **Output Current:** 1.25 A Max Continuous **I/O:** 1 0-10 V Analog Dimming Input **Interface:** Direct Cable (flying leads or optional connector) For more information about our IC Controller please visit the controller product page.	

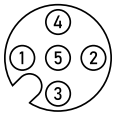
Electrical Information - Continued

Control Options - Continued

Controller Image	Controller Details	Connector Image
	**Inline Controller - Strobe and Continuous - I3 & I3S Configurations** *PN: N/A* The I3 and I3S are inline, cable-mounted continuous and pulse (overdrive strobe) capable controllers configured/wired directly for the ordered light head. When operated in pulsed mode, the I3 is a default-on device on power up, whereas the I3S is default-off, requiring a trigger to illuminate. **Output Power:** 25 W Max Continuous, 125 W Max Pulsed **Output Current:** 1.25 A Max Continuous, 8 A Max Pulsed (Load Dependent) **I/Os:** 1 Gated Trigger Signal, 1 0-10 V Analog Dimming Input **Interface:** Direct Cable (flying leads or optional connector) For more information about our I3/I3S Controller, please visit the controller product page.	
	**24V Driver - Continuous Only - 24 Configurations** *PN: N/A* 24V option allows lights to operate continuous output with 24V connection and no additional controllers. **Modes:** Continuous, can be wired to some 3rd party controllers or external relays for gated operation **Interface:** Direct cable (flying leads or connector options)	

Inline Control Option Wiring Information

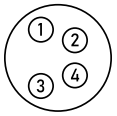
Standard Flying Lead and Optional M12 Connector Pinout Functions

Pin (M12)	Wire Color	24V Functions	IC Functions	I3/I3S Functions	M12 Pinout
1	BROWN	24V DC	24V DC	24V DC	
2	WHITE	N/A	0-10V Analog Control	Reserved	
3	BLUE	DC GND	DC GND	DC GND	
4	BLACK	N/A	Gate Low	PNP/Active High Trigger	
5	GRAY	N/A	N/A	0-10V Analog Control	

5-Position Male Connector

The functions above are only applicable when ordering a 24V, IC, I3, or I3s power configuration with our without an M12 connector. For more wiring information pertaining to strobing and dimming functionality, please download the controller manuals and datasheets.

Optional M8 Connector Pinout Functions

Pin (8)	Wire Color	24V Functions	IC Functions	I3/I3S Functions	M8 Pinout
1	BROWN	24V DC	24V DC	24V DC	
2	WHITE	N/A	0-10V Analog Control	Reserved	
3	BLUE	DC GND	DC GND	DC GND	
4	BLACK	N/A	Gate Low	Active High Trigger	

4-Position Male Connector

The functions above are only applicable when ordering a 24V, IC, I3, or I3s power configuration with our without an M8 connector. For more wiring information pertaining to strobing and dimming functionality, please download the controller manuals and datasheets.

Accessories

Category	Accessory Image	Accessory Detail
Power Supply		**24 Volt DC Power Supply** *PN: PS24-TL* This convenient power source is a universal AC input switching power supply with a regulated output DC current. The power supply comes with an LED Power Indicator, tinned leads marked Positive (+) and Negative (-) and 2 WAGO connectors for simplified assembly. For more information about our 24 Volt DC Power Supply, please visit this webpage.
Dimmer		**Manual Dimming Accessory for the IC, I3 and I3s** *PN: DCS-MP* The DCS-MP is a 30-position potentiometer, detented for precision level control and provides repeatable dimming with cable inline controllers. Features include DIN-rail mountable, a flip up cover to prevent accidental adjustments, spring clamp wiring terminal for flying leads or an M12 connector for use with the IC or I3/I3S Inline Controllers. For more information about our Manual Dimming Accessory please visit this webpage.
Dimmer		**Manual Dimming Accessory for the IC** *PN: MP-ICS* The MP-ICS is a dimmer which is designed for use on lights with the IC Inline Controller. This unit provides for 0 – 100% intensity control. It is NOT COMPATIBLE with LLI37, BLI38, LLI67, and BLI68 "IC" Lights or lights built with the "24v controller" option. For more information about our Manual Dimming Accessory, please visit this webpage.

Accessories - Continued

Category	Accessory Image	Accessory Detail
Extension Cable		**DCS-100E/103E Extension Cable, Single Light Power Cable - C1 Configuration** *PN: LC-XX-S* This extension cable was designed for applications requiring power cables longer than the standard 2 meters provided with Ai lights. This single light cable features a single male and single female 7 pin locking connector (C1) and can be purchased in 3 - 15-meter lengths. For more information about our DCS-100E/103E Extension Cable, Single Output, please visit this webpage.
Extension Cable		**DCS-100E/103E Extension Cable, Dual Light Power Cable - C1 Configuration** *PN: LC-XX-Y* This extension cable was designed for applications requiring two identical lights to be powered through a single controller. These Y cables feature a single male and dual female 7 pin locking connectors (C1) and can be purchased in 3 - 15-meter lengths. See attached spec sheet for compatible light configuration. For more information about our DCS-100E/103E Extension Cable, Split Output, please visit this webpage.
Extension Cable		**Pulsar 320E Extension Cable - C5 Configuration** *PN: LC-XX-S-C5* This extension cable was designed for applications requiring power cables longer than the standard 2 meters provided with Ai lights. This single light cable features a single male and single female Pulsar 320 connector (C5) and can be purchased in 3 - 15 meter lengths. For more information about our Pulsar 320E Extension Cable, please visit this webpage.
Adaptor Cable		**Cognex Gen2 Inline Controller Adaptor Cable** *PN: AD-I3-CGX2* This cable adaptor is for connecting I3/I3S configured lights with Cognex Gen2 Cameras, and comes with a male to female M12 connectors. For more information about our Cognex Gen2 Inline Controller Adaptor Cable, please visit this webpage.
Filters		**Camera Lens Band Pass FIlters** *PN: BPXXX-YYY* Eliminating all but a narrow band of light (+/- 40nm) centered on the specified wavelength, band pass filters are used to enhance colors, or to stop unwanted ambient light from reaching the camera. Filtering can replace existing shrouds, simplifying the physical set up of an inspection site. Ai offers 635nm and 660nm band pass filters to fit several different lens sizes. For more information about our Camera Lens Band Pass FIlters, please visit this webpage.

Additional Information

Warranty

Every Advanced illumination, Inc. (Ai) product is thoroughly inspected and tested before leaving the factory. Products are warranted to be free of defects in workmanship and materials for a period of FIVE YEARS from the original date of purchase. Should a defect develop during this period, customers may return the complete product, freight prepaid, to one of Ai's distributors or to the Ai factory. All product warranty returns require a Return Merchandise Authorization (RMA) number which is obtained from Customer Service. The RMA number must be clearly marked on the outside of the package. Ai will inspect the unit, and if a defect is found will, at our option, repair or replace the product without charge. Ai disclaims liability for any implied warranties, including implied warranties of "merchantability" and "fitness for a specific purpose." For products under warranty that have since been discontinued, Ai will make an effort to replace with equivalent parts; for circumstances that do not allow for equivalent replacement, Ai reserves the right to repair or replace these products with an updated version. Ai cannot be held responsible for the unauthorized or inappropriate use of its products. Any unauthorized repair or modifications will result in a voided warranty. No Liability for Consequential Damages: In no event shall Ai be liable for any consequential, special, incidental, or indirect damages of any kind arising from the sale or use of the products.

Compliancy

Our lighting products are designed and tested to meet CE, RoHS, and IEC standards. As a global ISO 9001 certified company, we understand the importance of compliance and perform accelerated testing on every product before shipment. For more information on our compliance standards, please see our compliancy documentation here: https://www.advancedillumination.com/services/compliance-statements/

Electromagnetic Compatibility

This product was tested and complies with the regulatory requirements and limits for electromagnetic compatibility (EMC) as stated in the product specifications. These requirements and limits are designed to provide reasonable protection against harmful interference only when the product is operated in its intended industrial electromagnetic environment. To minimize the potential for electromagnetic interference or unacceptable performance degradation, install and use this product in strict accordance with the instructions in the product documentation.

Customer Service

For information on existing orders, or to make an order adjustment, contact us Monday through Friday 8:00 am to 5:00 pm ET or send an email to orders@advancedillumination.com.

Company Information

Advanced Illumination
440 State Garage Road, Rochester, VT 05767
Phone: +1 (802) 767 3830
Fax: +1 (802) 767 2636
Email: info@advancedillumination.com
Web: advancedillumination.com

LL330 Series

Sealed High Intensity Line Lights

Product Datasheet

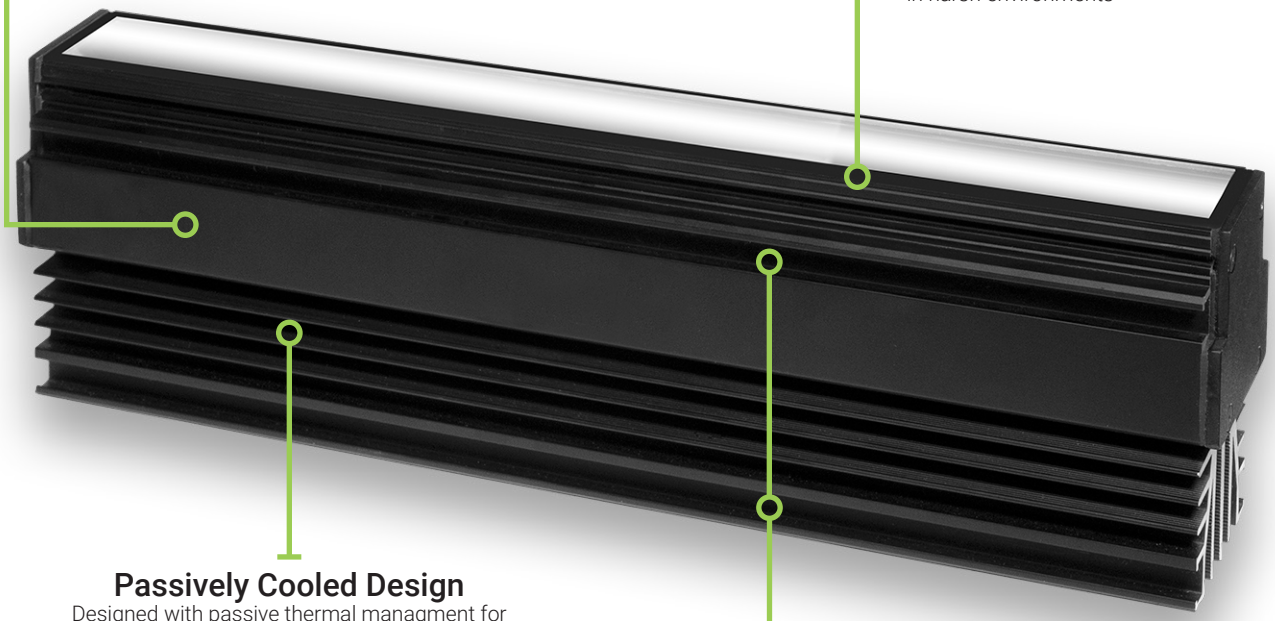
ADVANCED ILLUMINATION by Exaktera

Scalable and End-to-End Stackable Housing

Built with extrusion-based aluminum construction, the LL330 scales linearly in 150mm increments up to 1m. For lengths exceeding 1m, its end-to-end stackable design allows for longer configurations.

Dust and Debris Protected

Engineered to be completely sealed from dust and debris for reliable performance in harsh environments



Passively Cooled Design

Designed with passive thermal managment for reliable, minimal maintenence operation

M6 Mounting Channels

Equipped with two M6 mounting channels on each side, allowing for highly adjustable and stable positioning

LL330 Series Description

The LL330 Series provides a sealed high intensity line light solution for demanding industrial environments. Engineered to withstand harsh conditions, these line lights are completely protected from dust and debris, ensuring reliable performance where other lights fail. Their passive thermal management eliminates the need for active cooling fans, contributing to low-maintenance, long-term operation.

The LL330 is available with an embedded control option, designed for continuous operation and housed within the configured light head. With options for converging or collimating optics, this series is suited for a variety of application needs. The LL330 is ideal for sheetrock, lumber, ceramics, stone, and other industries utilizing line scan imaging where airborne particulate, dust, and debris are concerns.

- **High Intensity**
- **Dust Proof**
- **Passively Cooled**
- **Scalable Design**
- **1-3 Week BTO Lead Times**

General Information

General Specifications

Category	Specification			Detail	
Optical	Available Wavelengths			White, 365 nm, 375 nm, 385 nm, 395 nm, 405 nm, 455 nm, 470 nm, 530 nm, 625 nm, 660 nm, 850 nm, 940 nm	
	Available Lensing			D (Converging; Optimal WD at 25 mm) and G (Collimating)	
	Available Light Conditioning			None	
Electrical	Power Consumption Info			See Power Requirements on Page 7	
	Cable/Connector Info			C1 Option: 80" -0/+6" Long Cable (2 m -0/+150 mm), 105 °C Rated, Foil Shield w/ Drain EC Option: Male Bulkhead Connector, M12, 4-pos, T-Coded	
Mechanical	Sizing Info	Standard	Length	6.29” (159.8 mm) to 41.72” (1059.8 mm)	See Page 6 for More Details
			Width	2.70” (68.6 mm)	
			Height	3.66”(92.9 mm)	
	Weight Info (Standard)			~3.18 lbs (1442 g) per 300 mm unit	
	Mounting Info			M6 Mounting Nut Channel	
	Material Info			Anodized Aluminum Housing, Acrylic Window, Nickel Plated Brass Bulkhead Connector and Strain Relief, Steel Black Oxide and Zinc Plated Steel Fasteners, Neoprene Gasket, Rubberized Epoxy	
Thermal	Operating Case Temperatures			25 °C to 70 °C	
	Operating Ambient Temperatures			0 °C to 35 °C	
Certification	Compliance			CE, RoHS, IEC 62471	
	IP Rating			IP67	
	Lumen Maintenance - White Only			L70 (50,000 Hours)	

General Information - Continued

Part Number Key

Model	Lens Focus	Emitting Length (mm)	-	Peak Wavelength[3]	Connector/Control
LL330	D (Converging)[1]	0150	-	365	EC
	G (Collimating)	0300		375	C1
		0450		385	
		0600		395	
		0750		405	
		0900		455	
		1050[2]		470	
				530	
				625	
				660	
				850	
				940	
				WHI	
more information on page		7		4	8

Example Part Numbers:
LL330G0300-WHIEC
LL330D0600-625C1

[1]The D lens configuration has an optimal working distance of 25 mm
[2]This product is end-to-end stackable for applications requiring 1 m or longer line lengths
[3]More wavelengths available upon inquiry

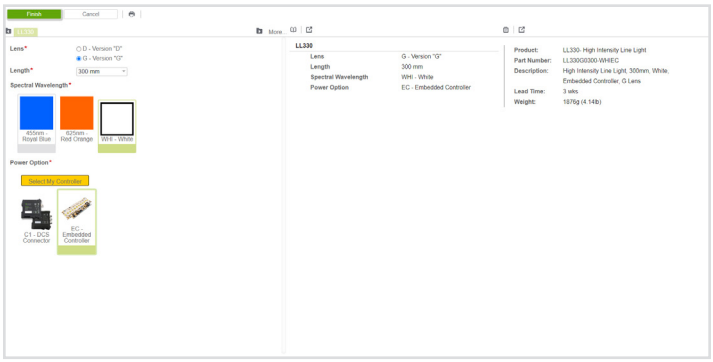
In Stock

Unavailable

Lead Times

Build-to-Order products ship within one to two weeks.

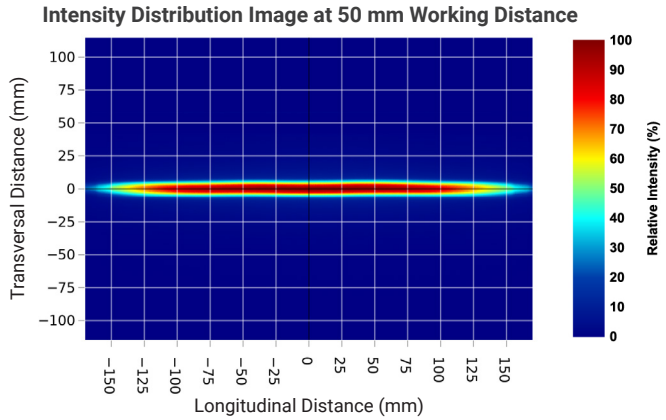
Online Configurator



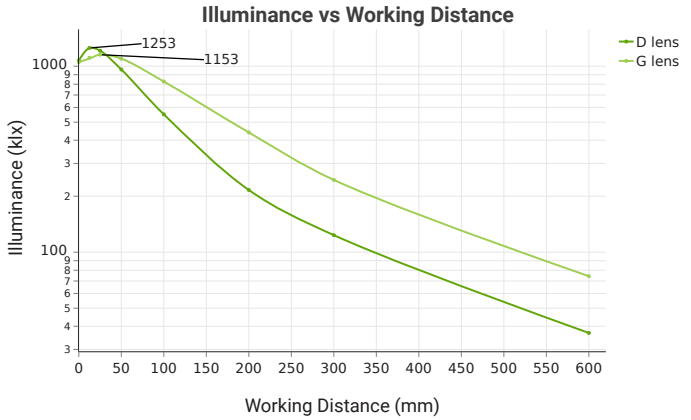
Need a build-to-order custom lighting solution in 2 weeks or less? Advanced Illumination's online configurator helps you tailor our LL330 Series to your specific needs. For a guided configuration, **visit our online configurator**.

Optical Information

Intensity Characteristics

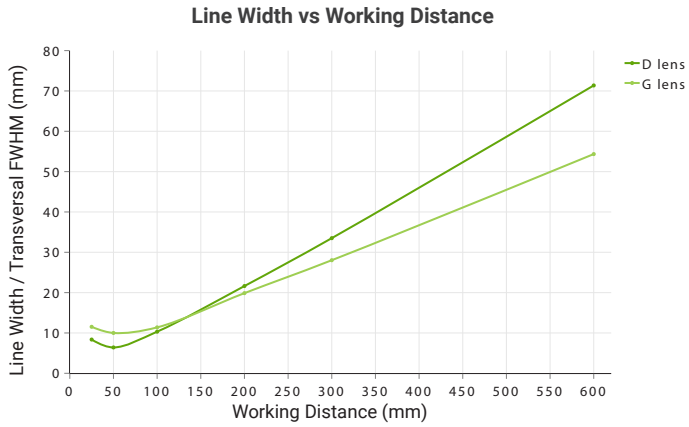


Intensity distribution sample image was taken with a 12-inch white LL330 unit with a G lens.



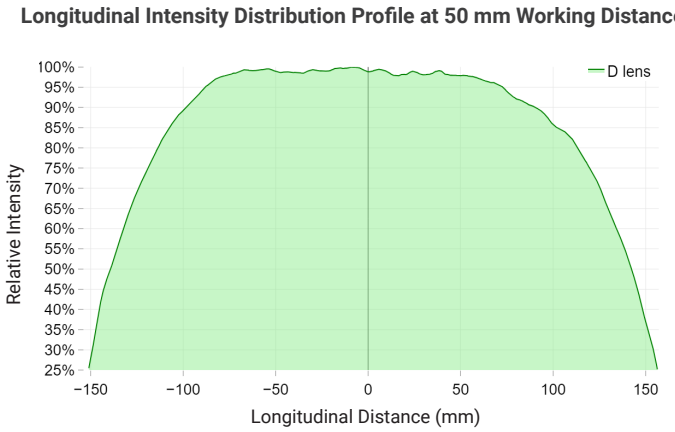
Illuminance data was collected using a 12-inch white LL330 unit.

Line Width



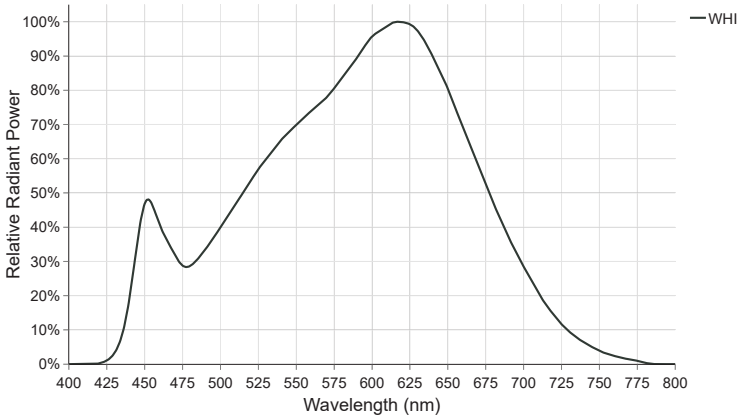
Line width data was collected using a 12-inch white LL330 unit.

Uniformity



Longitudinal intensity distribution data was collected using a 12-inch white LL330 unit with a D lens.

White Spectral Profile



White LED illumination is the most commonly used machine vision lighting configuration. It is often the default choice when specific features of interest do not require color-based highlighting. However, **white LEDs can vary in color temperature between different lighting famillies, which can impact machine vision systems**, specifically when matching white light sources.

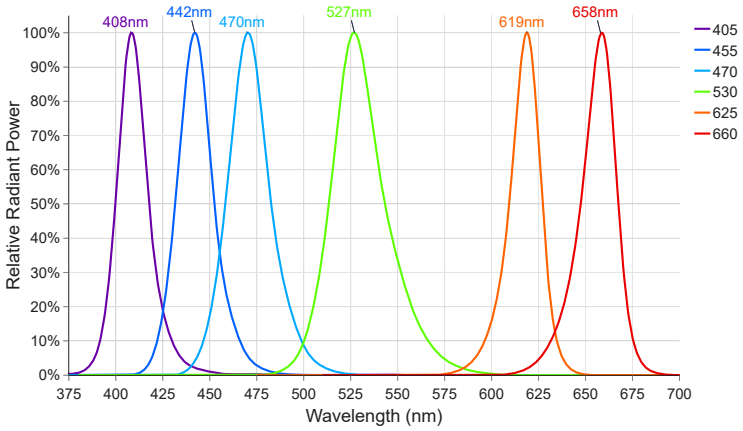
The LL330 Series white LEDs have a relatively neutral color correlated temperature (CCT) of **5700 K.**

For a more detailed look at the white spectral data, download the **csv file of the raw spectral values** and refer to our **Product Spectra Distribution Charts PDF**.

Disclaimer: The measurements provided above are for approximations only and may vary depending on the method of measurement and the specific configuration being measured.

Optical Information - Continued

Visible Spectral Profiles

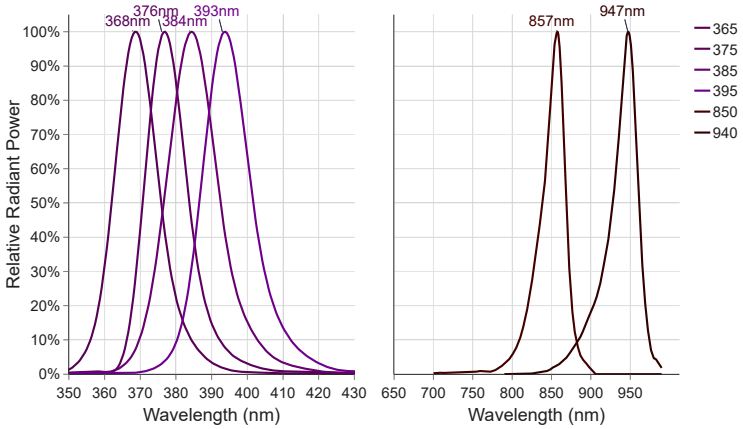


Visible color illumination consists of using wavelengths between 400-700 nm to either create or eliminate contrast on an inspection subject based on differences in a materials color hue. When referring to a color wheel, simply remember the following: like colors reflect and brighten surfaces; conversely, opposing colors absorb and darken surfaces.

The LL330 Series is available in **405 nm, 455 nm, 470 nm, 530 nm, 625 nm, and 660 nm** configurations.

For a more detailed look at the visible color spectral data, download the **csv file of the raw spectral values** and refer to our **Product Spectra Distribution Charts PDF**.

Non-Visible Spectral Profiles



Near-infrared (NIR) imaging is a machine vision technique using longer wavelengths of 700-1000 nm to penetrate specific materials that are otherwise opaque under the visible spectrum. Ultraviolate A (UVA) imaging uses shorter wavelengths of 315-400 nm, often used for flores-cence applications.

The LL330 Series is available in **365 nm, 375 nm, 385 nm, 395 nm, 850 nm, and 940 nm** configurations.

For a more detailed look at the NIR and UV spectral data, download the **csv file of the raw spectral values** and refer to our **Product Spectra Distribution Charts PDF**.

Optical Information - Continued

Photobiological Risk Factors

Group	Description	Affected Wavelengths (nm)
Exempt	No Photobiological Hazard	850, 940
Group 1	No Photobiological hazard under normal behavioral limitations	455, 470, 530, 625, 660, WHI
Group 2	Does not pose a hazard due to aversion response to bright light or thermal discomfort	365 nm, 375 nm, 385 nm, 395 nm, 405 nm

Advanced Illumination's lighting products have been tested and classified to IEC standards by accredited testing services. For more information on photobiological risk factors, please view the following PDF: **https://www.advancedillumination.com/wp-content/uploads/2019/04/IEC-040119.pdf**

Cleaning Guidelines

To clean our light's optics, it is best to only clean when necessary. Dusting is always the first step in cleaning your optics. Wiping a dusty optic is like cleaning it with sandpaper. So always dust with a canned air duster or compressed and filtered air before wiping any optic. If the dusted optic has no visible stains after you dust it, then remember: "If it's not dirty, don't clean it." Avoid wiping optics when possible.

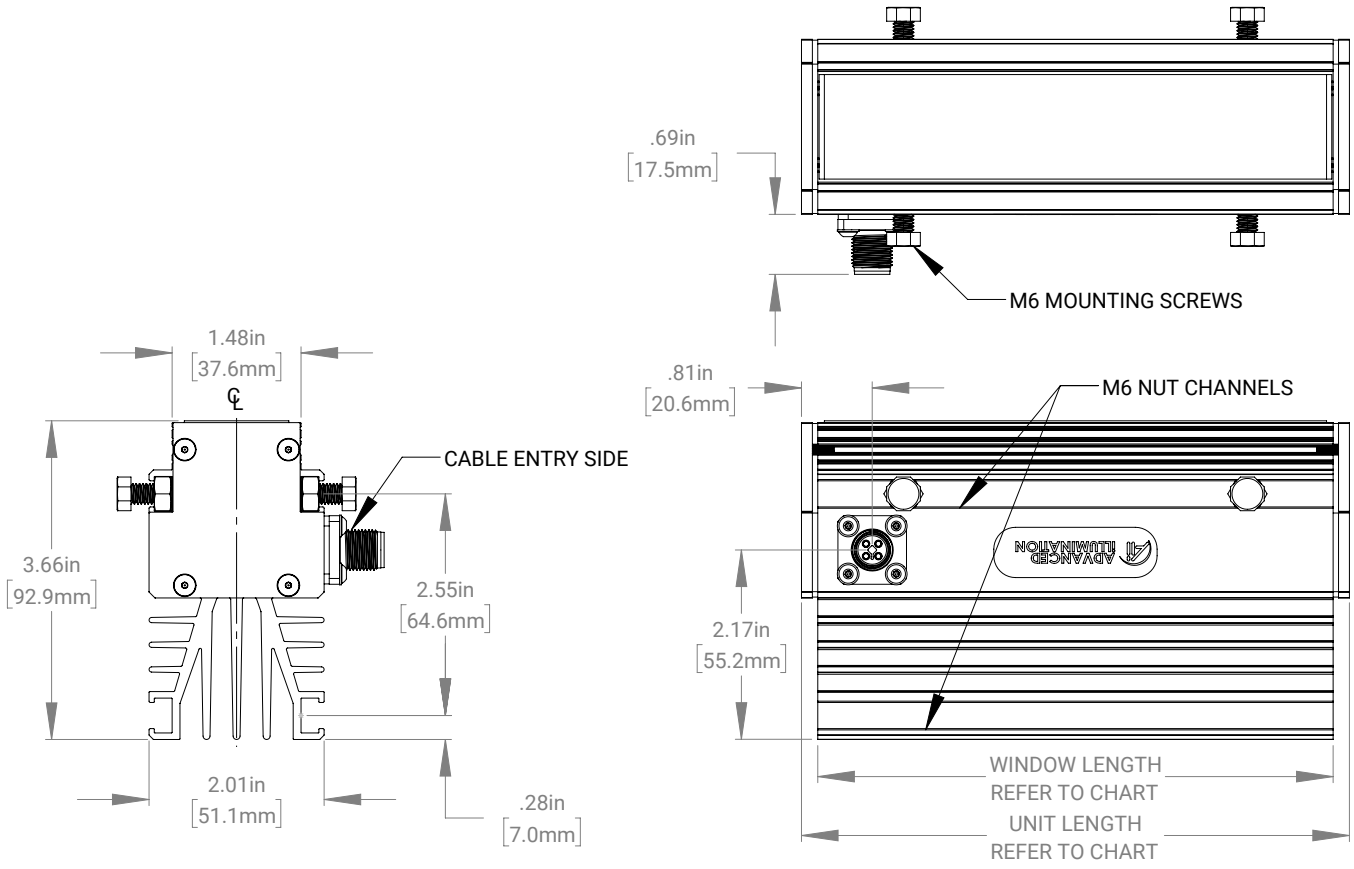
If dusting did not clean the lens or the lens has stains, use only de-ionized water and mild dish soap with a low lint cloth designed for optics to avoid damage to the optic by any harsh chemicals.

Polarizers, beam splitters and collimated films should never be wiped with any type of cloth or solvent, only use the air dusting method to clean these types of optics.

The aluminum housing can be wiped down when dusting is not a sufficient means to thoroughly clean.

Mechanical Information

Installation Drawings



For full installation drawings and complete CAD models of this configuration, please visit the downloads section of the product webpage.

Sizing Information

Part Number	Length (Inches)		Length (Millimeters)	
	Unit	Window	Unit	Window
LL330X-0150	6.29	5.92	159.8	150.3
LL330X-0300	12.20	11.82	309.8	300.3
LL330X-0450	18.10	17.73	459.8	450.3
LL330X-0600	24.01	23.63	609.8	600.3
LL330X-0750	29.91	29.54	759.8	750.3
LL330X-0900	35.82	35.44	909.8	900.3
LL330X-1050	41.72	41.35	1059.8	1050.3

Note: The LL330 Line Light Series is end-to-end stackable for line lengths longer than 1 m.

Disclaimer: The measurements provided above are for approximations only and may vary depending on the method of measurement and the specific configuration being measured.

Electrical Information

Power Requirements

Current Required for Power Supply Sizing

Wavelengths (nm)	Configured w/ Embedded Controller (EC)	Configured w/ External Controller (C1)
White, 365, 375, 385, 395, 405, 455, 470, 530, 625, 850, 940	1.5A per 150mm Unit	1.5A per 150mm Unit

Note: All Advanced Illumination lights and controllers are nominally powered by 24V DC unless otherwise noted. Strobe overdriving with controller based models may require more current and voltage overhead. The values above do not include background current draw from the controller (~100 mA total).

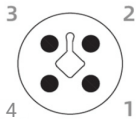
Control Options

Controller Image	Controller Details	Connector Image
	**DCS Single Output Controller - Compatible with C1 Configurations** *PN: DCS-100E* The DCS-100E is a compact, din-rail mounted general-purpose external controller with one C1 output connector, wired with three channels. Capable of providing single channel control or multi-channel control for RGB compatible lights. **Output Power:** 90 W Max Continuous, 540 W Max Pulsed (Overdrive Strobe) **Output Current:** 4.5A Max Continuous, 15 A Max Pulsed **I/Os:** 3 External Trigger Inputs **Interface:** 10/100 Ethernet with Software and browser-based GUIs. SDKs are also available. For more information about our DCS-100E, please **visit the controller product page**.	
	**DCS Triple Output Controller - Compatible with C1 Configurations** *PN: DCS-103E* The DCS-103E is a din-rail mounted general-purpose multi-light controller with three C1 output connectors. Capable of driving three lights in sync or asynchronously. **Output Power:** 30 W Max Continuous / Output, 180 W Max Pulsed / Output **Output Current:** 1.5A Max Continuous / Output, 5 A Max Pulsed / Output **I/Os:** 3 External Trigger Inputs **Interface:** 10/100 Ethernet with Software and browser-based GUIs. SDKs are also available. For more information about our DCS-103E, please **visit the controller product page**.	
	**Embedded Controller - Continuous Only - EC Configurations** *PN: N/A* The EC is an embedded controller engineered for continuous-only operation with the configured light head. **I/O:** 0 V - 10 V (10% to 100% intensity) Analog Dimming Input **Interface:** Bulkhead Connector (M12 4-pin T-Coded Male)	

Electrical Information - Continued

Embedded Control Option Wiring Information

M12 Bulkhead Connector Pinout Funtions and Optional Cable Flying Lead Funtions

Pin (M12)	Wire Color (Optional Cable)	EC Functions	M12 Pinout
1	BROWN	24V DC	
2	WHITE	0-10V Analog Control	
3	BLUE	DC GND	
4	BLACK	N/A	

4-Position Male Bulkhead Connector, T-CODE

The functions above are only applicable when ordering an EC power configuration.

Accessories

Advanced Illumination offers a variety of accessories designed to pair with our lighting and control products. Below you will find a table of accessories which are compatible with many configurations of the LL330 series.

Category	Accessory Image	Accessory Detail
Power Supply		**24 Volt DC Power Supply** *PN: PS24-TL* This convenient power source is a universal AC input switching power supply with a regulated output DC current. The power supply comes with an LED Power Indicator, tinned leads marked Positive (+) and Negative (-) and 2 WAGO connectors for simplified assembly. For more information about our 24 Volt DC Power Supply, please **visit this webpage**.
Cable		**Embedded Controller Bulkhead Connector Cable - EC Configuration** *PN: LC2-M12T-4-FX and LC5-M12T-4-FX* This cable connects directly to the bulkhead connector on any EC configured LL330 with it's M12, 4-pos, T-Coded, female connector on one end and four flying leads on it's opposite end. The cable comes in two sizes; LC2-M12T-4-FX at 2m in length and LC5-M12T-4-FX at 5m in length. Please note this is purchased separately. For wiring information on this cable, please see the funtion chart above on this page.
Extension Cable		**DCS-100E/103E Extension Cable, Single Light Power Cable - C1 Configuration** *PN: LC-XX-S* This extension cable was designed for applications requiring power cables longer than the standard 2 meters provided with Ai lights. This single light cable features a single male and single female 7 pin locking connector (C1) and can be purchased in 3 - 15 meter lengths. For more information about our DCS-100E/103E Extension Cable, Single Output, please **visit this webpage**.
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Compliancy

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Customer Service

For information on existing orders, or to make an order adjustment, contact us Monday through Friday 8:00 am to 5:00 pm ET or send an email to orders@advancedillumination.com.

Company Information

Advanced Illumination
440 State Garage Road, Rochester, VT 05767
Phone: +1 (802) 767 3830
Fax: +1 (802) 767 2636
Email: info@advancedillumination.com
Web: advancedillumination.com