

LL137

Medium Intensity Line Lights Product Datasheet

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 embedded 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			
	Compliance	CE, RoHS, IEC 62471			
Certification	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

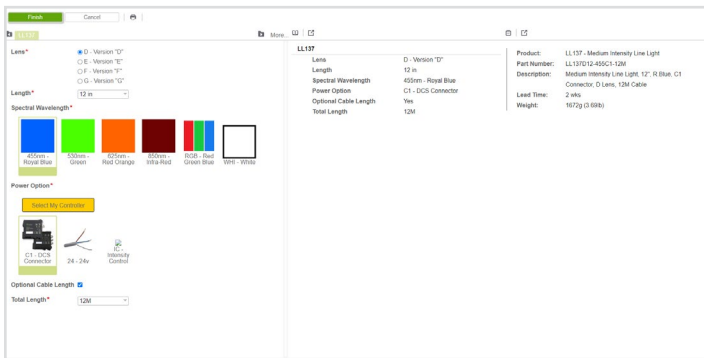
In Stock

Lead Times

LL137E12-WHI24

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

Configurator

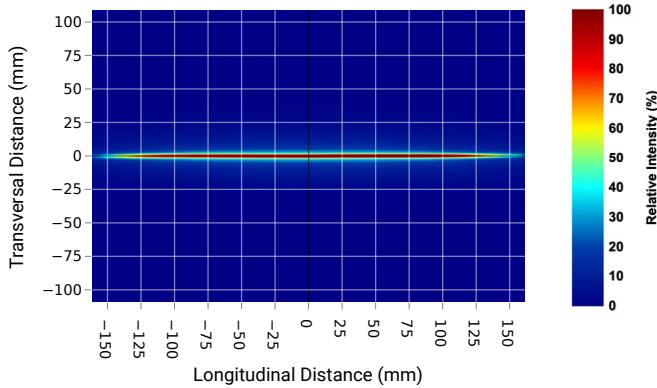


Need a build-to-order custom lighting solution in 2 weeks or less? Advanced Illumination's online configurator helps you tailor our LL137 Medium Intensity White Line Lights to your specific needs. For a guided configuration, [visit our online configurator](#).

Optical Information

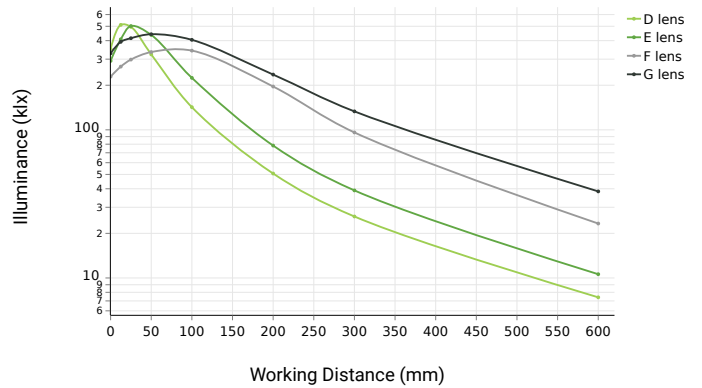
Intensity Characteristics

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.

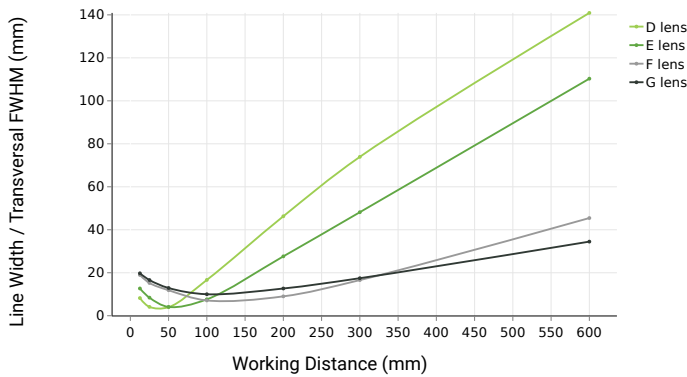
Illuminance vs Working Distance



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

Line Width

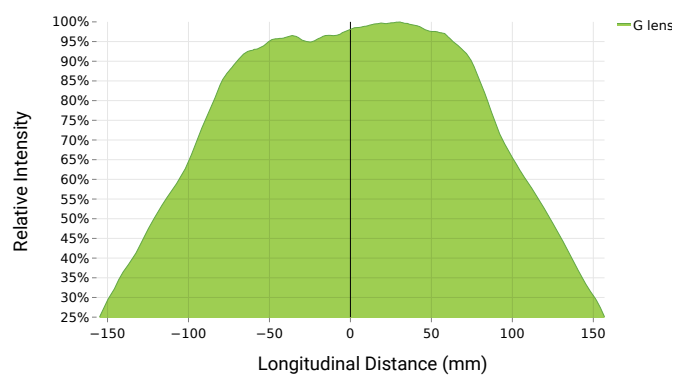
Line Width vs Working Distance



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

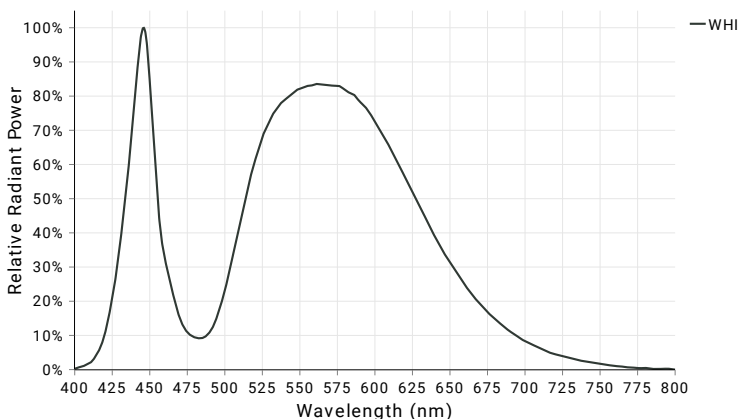
Uniformity

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



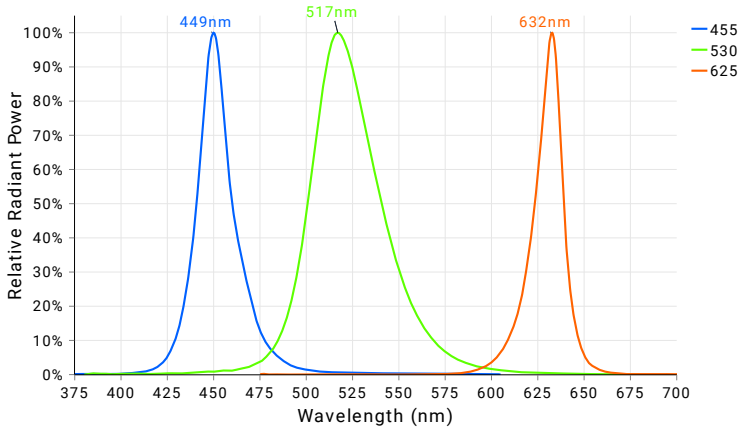
White LED illumination is the most commonly used machine vision lighting configuration. It is often the default choice when specific features of interest do not require color-based highlighting. However, [white LEDs can vary in color temperature between different lighting families, which can impact machine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

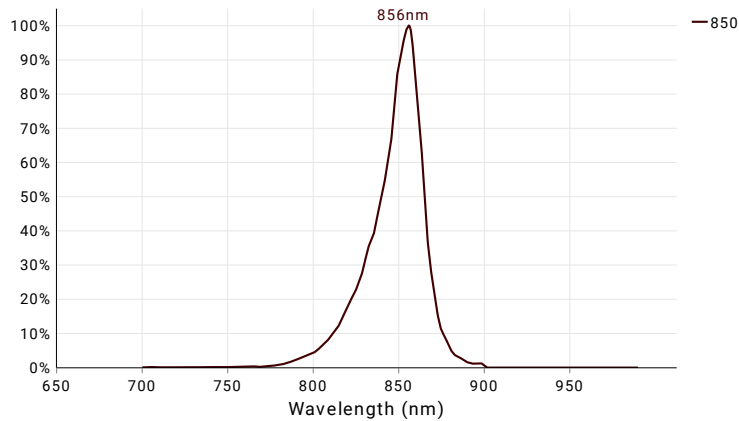


Visible color illumination consists of using wavelengths between 400-700 nm to either create or eliminate contrast on an inspection subject based on differences in a materials color hue. When referring to a color wheel, simply remember the following: like colors reflect and brighten surfaces; conversely,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

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.

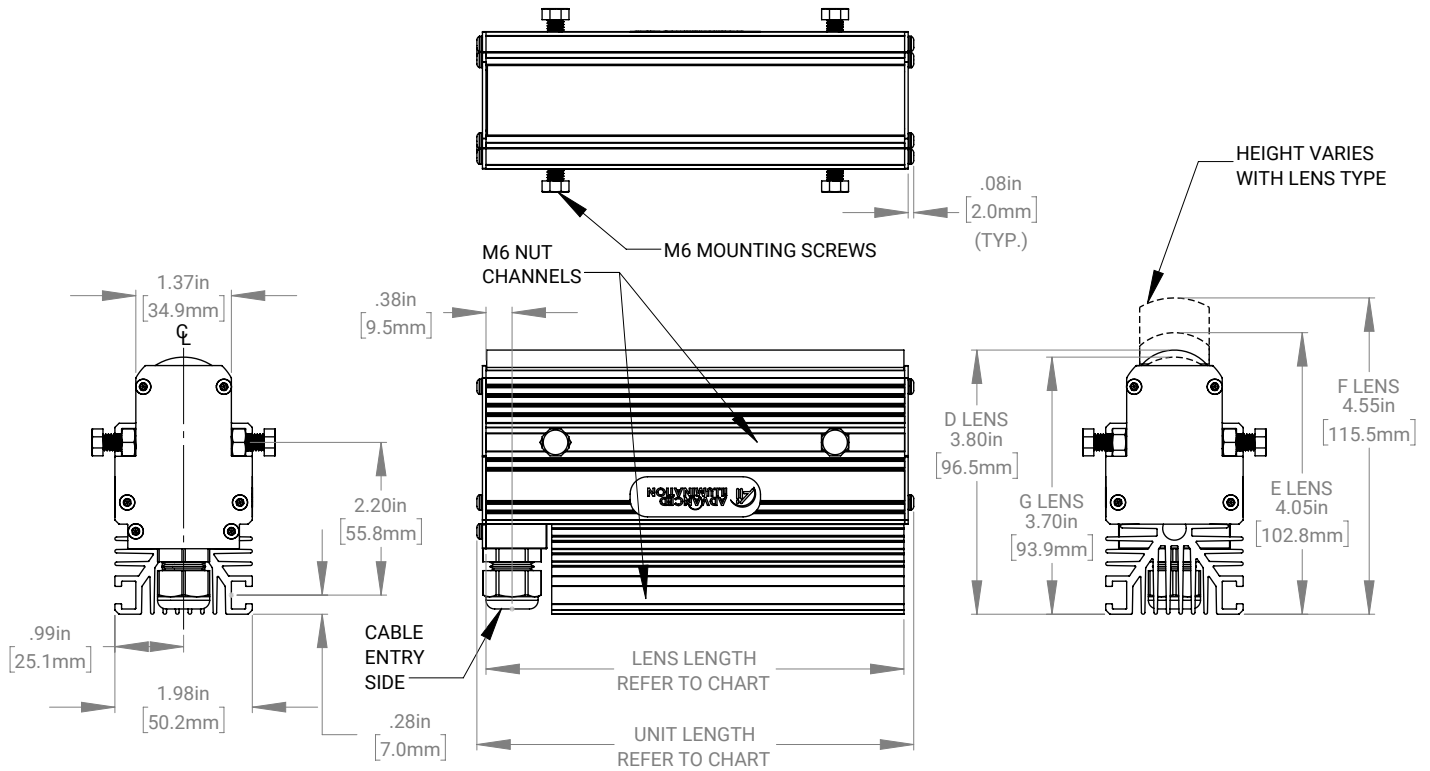
If dusting did not clean the lens or the lens has stains, use only de-ionized water and mild dish soap with a low lint cloth designed for optics to avoid damage to the optic by any harsh chemicals.

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.

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


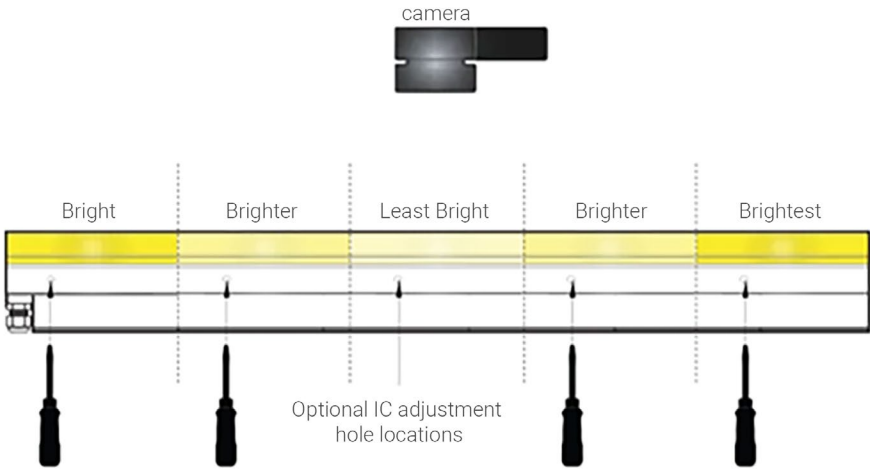
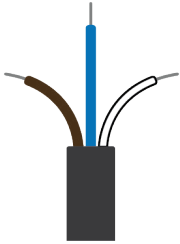

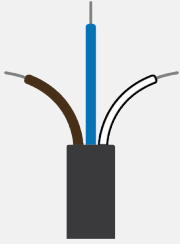
Note: All Advanced Illumination lights and controllers are nominally powered by 24V DC unless otherwise noted. Strobe overdriving with controller based models may require more current and voltage overhead. The values above do not include background current draw from the controller (~100 mA total).

Control Options

Controller Image	Controller Details	Connector Image
	<p>DCS Single Output Controller - Compatible with C1 Configurations PN: DCS-100E</p> <p>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.</p> <p>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.</p> <p>For more information about our DCS-100E, please visit the controller product page.</p>	
	<p>DCS Triple Output Controller - Compatible with C1 Configurations PN: DCS-103E</p> <p>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.</p> <p>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.</p> <p>For more information about our DCS-103E, please visit the controller product page.</p>	

Electrical Information - Continued

Control Options - Continued

Controller Image	Controller Details	Connector Image
	<p>LL137 Embedded Controller - Continuous Only - IC Configurations <i>PN: N/A</i></p> <p>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:</p>  <p>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.</p> <p>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.</p> <p>We recommend using this control option for LL137 lights over 24" (610mm) in length.</p>	
	<p>24V Driver - Continuous Only - 24 Configurations <i>PN: N/A</i></p> <p>24V option allows lights to operate continuous output with 24V connection and no additional controllers.</p> <p>Modes: Continuous, can be wired to some 3rd party controllers or external relays for gated operation Interface: Direct cable (flying leads or connector options)</p>	

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		<p>24 Volt DC Power Supply PN: PS24-TL</p> <p>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.</p> <p>For more information about our 24 Volt DC Power Supply, please visit this webpage.</p>
Dimmer		<p>Manual Dimming Accessory for the IC, I3 and I3s PN: DCS-MP</p> <p>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.</p> <p>For more information about our Manual Dimming Accessory please visit this webpage.</p>
Extension Cable		<p>DCS-100E/103E Extension Cable, Single Light Power Cable - C1 Configuration PN: LC-XX-S</p> <p>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.</p> <p>For more information about our DCS-100E/103E Extension Cable, Single Output, please visit this webpage.</p>
Extension Cable		<p>DCS-100E/103E Extension Cable, Dual Light Power Cable - C1 Configuration PN: LC-XX-Y</p> <p>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.</p> <p>For more information about our DCS-100E/103E Extension Cable, Split Output, please visit this webpage.</p>
Filters		<p>Camera Lens Band Pass Filters PN: BPXXX-YYY</p> <p>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.</p> <p>For more information about our Camera Lens Band Pass Filters, please visit this webpage.</p>

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.

Compliance

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

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