

ELB Series Instruction Guide



Thank you for purchasing a CCS product. To ensure proper use of the product, please read this instruction guide before use and keep it for your reference.

1 Important Information for Equipment Safety

This product has been designed with full consideration of safety. However, incorrect usage of the product may result in fire, electric shock, or other serious damages. Please ensure to follow the conditions below.

Warning

Do not look directly or with any optical instrument into the light beam	Do not try to fix any damages to the product by yourself
Avoid any contact with the LED or with the projection lens	Make sure you are using a correct power supply before connecting the device
IP50 version: Limited dust ingress protection, no protection from liquids	Do not inverse the electrical polarity. Check your connections before turning on the power supply
IP67 version: Total dust protection, do not immerse the product deeper than 1 meter into water	Do not use user-made cables, only dedicated EL Series cables
Do not use the device in an environment with oil fumes and steam	Do not touch the light unit and cables with wet hands
Make sure that the light unit is free of moisture or any liquid. Exposure to water may result in fire or electric shock	Do not drop the light unit or subject it to impact

Do not use the light in the following situations:

- Under no conditions or in an environment not described in this instruction guide
- In applications involving serious risk to life or property, particularly application demanding a high level of safety.
- Do not use this device outside an environment temperature of 0°C to 50°C with no excessive moisture levels. High humidity and high temperature could damage the device. Just check with the temperature on the datasheet.

Always observe the following precautions when performing maintenance.

- Before performing maintenance, always turn off the power. Otherwise, burn injuries or electric shock may occur.
- Wipe the light unit with a dry cloth. Do not wipe the light unit with a cloth that contains water or volatile agents, such as thinner or benzene, or spray the light units with insecticide. Doing so may result in discoloration or damage.
- Periodically clean the light unit so that dust does not collect on it.

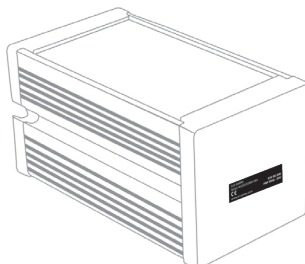
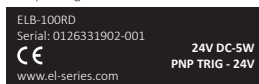
Cleaning

- When changing the optical configuration of the ELB Series, please exercise caution. Wearing gloves is strongly recommended.
- When cleaning the optical components, use compressed air if there is any dust.
- To remove marks on the lens or diffuser plate, please use lens clearing fluids.
- Two drops on a cleaning tissue will suffice. Please use a gentle circular motion when clearing.
- Disconnect the light

2 Confirming Product Information

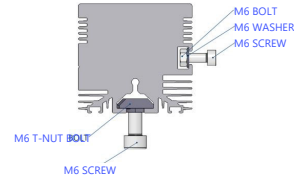
The following sticker is attached to the light unit. The sticker indicates the color of the light, model number, power consumption unit, and serial number. Be sure to check the contents before using the light units and handle the sticker with care. If the label is missing or damaged and the contents cannot be checked, please contact your CCS representative.

Example image



3 Installation

This product has been designed with full consideration of safety. However, incorrect usage of the product may result in fire, electric shock, or other serious damages. Please ensure to follow the conditions below.



4 Optical flexibility

All standard ELB Series products come with three different diffusers and the lenses on position P2.

To change the diffuser or the lens position, you must open the light unit. Top open the light unit, unscrew the M4 screws on the side of the light unit. After removing the side part:

- Gently slide out the diffuser and replace it with one of the other supplied diffusers.
- Slide out the lens array and position it to your preferred lens position.



5 Main Specifications

■ELB : Standard version

Power consumption is given for white products. Power consumption for other wavelengths may differ. The power consumption will be specified on the products.

Series	Part Number	Color	Wavelength / Color temperature	Max Power Consumption		Connector	Weight	Optical Length (Lop)
				Strobe	Continuous			
ELB	ELB-100SW	White	5500 K ± 500 K	20 W	8 W	M12	400 g	100 mm
ELB	ELB-100UV	Ultraviolet	405 nm					
ELB	ELB-100BL	Blue	465 nm					
ELB	ELB-100GR	Green	525 nm					
ELB	ELB-100RD	Red	625 nm					
ELB	ELB-100IR	Infrared	850 nm	40 W	15 W	M12	700 g	200 mm
ELB	ELB-200SW	White	5500 K ± 500 K					
ELB	ELB-200UV	Ultraviolet	405 nm					
ELB	ELB-200BL	Blue	465 nm					
ELB	ELB-200GR	Green	525 nm					
ELB	ELB-200RD	Red	625 nm	60 W	20 W	M12	1000 g	300 mm
ELB	ELB-200IR	Infrared	850 nm					
ELB	ELB-300SW	White	5500 K ± 500 K					
ELB	ELB-300UV	Ultraviolet	405 nm					
ELB	ELB-300BL	Blue	465 nm					
ELB	ELB-300GR	Green	525 nm	80 W	30 W	M12	1300 g	400 mm
ELB	ELB-300RD	Red	625 nm					
ELB	ELB-300IR	Infrared	850 nm					
ELB	ELB-400SW	White	5500 K ± 500 K					
ELB	ELB-400UV	Ultraviolet	405 nm					
ELB	ELB-400BL	Blue	465 nm	95 W	35 W	M12	1600 g	500 mm
ELB	ELB-400GR	Green	525 nm					
ELB	ELB-400RD	Red	625 nm					
ELB	ELB-400IR	Infrared	850 nm					
ELB	ELB-500SW	White	5500 K ± 500 K					
ELB	ELB-500UV	Ultraviolet	405 nm					
ELB	ELB-500BL	Blue	465 nm					
ELB	ELB-500GR	Green	525 nm					
ELB	ELB-500RD	Red	625 nm					
ELB	ELB-500IR	Infrared	850 nm					

ELB	ELB-600SW	White	5500 K ± 500 K	115 W	45 W	M12	1900 g	600 mm
ELB	ELB-600UV	Ultraviolet	405 nm					
ELB	ELB-600BL	Blue	465 nm					
ELB	ELB-600GR	Green	525 nm					
ELB	ELB-600RD	Red	625 nm					
ELB	ELB-600IR	Infrared	850 nm	135 W	50 W	M12	2200 g	700 mm
ELB	ELB-700SW	White	5500 K ± 500 K					
ELB	ELB-700UV	Ultraviolet	405 nm					
ELB	ELB-700BL	Blue	465 nm					
ELB	ELB-700GR	Green	525 nm					
ELB	ELB-700RD	Red	625 nm					
ELB	ELB-700IR	Infrared	850 nm	155 W	55 W	M12	2500 g	800 mm
ELB	ELB-800SW	White	5500 K ± 500 K					
ELB	ELB-800UV	Ultraviolet	405 nm					
ELB	ELB-800BL	Blue	465 nm					
ELB	ELB-800GR	Green	525 nm					
ELB	ELB-800RD	Red	625 nm					
ELB	ELB-800IR	Infrared	850 nm	175 W	60 W	M12P	2800 g	900 mm
ELB	ELB-900SW	White	5500 K ± 500 K					
ELB	ELB-900UV	Ultraviolet	405 nm					
ELB	ELB-900BL	Blue	465 nm					
ELB	ELB-900GR	Green	525 nm					
ELB	ELB-900RD	Red	625 nm					
ELB	ELB-900IR	Infrared	850 nm	190 W	65 W	M12P	3100 g	1000 mm
ELB	ELB-1000SW	White	5500 K ± 500 K					
ELB	ELB-1000UV	Ultraviolet	405 nm					
ELB	ELB-1000BL	Blue	465 nm					
ELB	ELB-1000GR	Green	525 nm					
ELB	ELB-1000RD	Red	625 nm					
ELB	ELB-1000IR	Infrared	850 nm	210 W	70 W	M12P	3400 g	1100 mm
ELB	ELB-1100SW	White	5500 K ± 500 K					
ELB	ELB-1100UV	Ultraviolet	405 nm					
ELB	ELB-1100BL	Blue	465 nm					
ELB	ELB-1100GR	Green	525 nm					
ELB	ELB-1100RD	Red	625 nm					
ELB	ELB-1100IR	Infrared	850 nm	210 W	75 W	M12P	3400 g	1200 mm
ELB	ELB-1200SW	White	5500 K ± 500 K					
ELB	ELB-1200UV	Ultraviolet	405 nm					
ELB	ELB-1200BL	Blue	465 nm					
ELB	ELB-1200GR	Green	525 nm					
ELB	ELB-1200RD	Red	625 nm					
ELB	ELB-1200IR	Infrared	850 nm	250 W	85 W	M12P	4000 g	1300 mm
ELB	ELB-1300SW	White	5500 K ± 500 K					
ELB	ELB-1300UV	Ultraviolet	405 nm					
ELB	ELB-1300BL	Blue	465 nm					
ELB	ELB-1300GR	Green	525 nm					
ELB	ELB-1300RD	Red	625 nm					
ELB	ELB-1300IR	Infrared	850 nm	270 W	90 W	M12P	4300 g	1400 mm
ELB	ELB-1400SW	White	5500 K ± 500 K					
ELB	ELB-1400UV	Ultraviolet	405 nm					
ELB	ELB-1400BL	Blue	465 nm					
ELB	ELB-1400GR	Green	525 nm					
ELB	ELB-1400RD	Red	625 nm					
ELB	ELB-1400IR	Infrared	850 nm	290 W	65 W	M12P	4600 g	1500 mm
ELB	ELB-1500SW	White	5500 K ± 500 K					
ELB	ELB-1500UV	Ultraviolet	405 nm					
ELB	ELB-1500BL	Blue	465 nm					
ELB	ELB-1500GR	Green	525 nm					
ELB	ELB-1500RD	Red	625 nm					
ELB	ELB-1500IR	Infrared	850 nm	310 W	100 W	M12P	4900 g	1600 mm
ELB	ELB-1600SW	White	5500 K ± 500 K					
ELB	ELB-1600UV	Ultraviolet	405 nm					
ELB	ELB-1600BL	Blue	465 nm					
ELB	ELB-1600GR	Green	525 nm					
ELB	ELB-1600RD	Red	625 nm					
ELB	ELB-1600IR	Infrared	850 nm					

■ ELB-L2 : 1 LED on 2 positions version

Series	Part Number	Color	Wave-length / Color temperature	Max Power Consumption		Con-connector	Weight	Optical Length (Lop)
				Strobe	Continuous			
ELB-L2	ELB-L2-200SW	White	5500 K ± 500 K	40 W	15 W	M12	700 g	200 mm
ELB-L2	ELB-L2-200UV	Ultraviolet	405 nm					
ELB-L2	ELB-L2-200BL	Blue	465 nm					
ELB-L2	ELB-L2-200GR	Green	525 nm					
ELB-L2	ELB-L2-200RD	Red	625 nm					
ELB-L2	ELB-L2-200IR	Infrared	850 nm					
ELB-L2	ELB-L2-400SW	White	5500 K ± 500 K	80 W	30 W	M12	1300 g	400 mm
ELB-L2	ELB-L2-400UV	Ultraviolet	405 nm					
ELB-L2	ELB-L2-400BL	Blue	465 nm					
ELB-L2	ELB-L2-400GR	Green	525 nm					
ELB-L2	ELB-L2-400RD	Red	625 nm					
ELB-L2	ELB-L2-400IR	Infrared	850 nm					
ELB-L2	ELB-L2-600SW	White	5500 K ± 500 K	115 W	45 W	M12	1900 g	600 mm
ELB-L2	ELB-L2-600UV	Ultraviolet	405 nm					
ELB-L2	ELB-L2-600BL	Blue	465 nm					
ELB-L2	ELB-L2-600GR	Green	525 nm					
ELB-L2	ELB-L2-600RD	Red	625 nm					
ELB-L2	ELB-L2-600IR	Infrared	850 nm					
ELB-L2	ELB-L2-800SW	White	5500 K ± 500 K	155 W	55 W	M12	2500 g	800 mm
ELB-L2	ELB-L2-800UV	Ultraviolet	405 nm					
ELB-L2	ELB-L2-800BL	Blue	465 nm					
ELB-L2	ELB-L2-800GR	Green	525 nm					
ELB-L2	ELB-L2-800RD	Red	625 nm					
ELB-L2	ELB-L2-800IR	Infrared	850 nm					
ELB-L2	ELB-L2-1000SW	White	5500 K ± 500 K	190 W	65 W	M12P	3100 g	1000 mm
ELB-L2	ELB-L2-1000UV	Ultraviolet	405 nm					
ELB-L2	ELB-L2-1000BL	Blue	465 nm					
ELB-L2	ELB-L2-1000GR	Green	525 nm					
ELB-L2	ELB-L2-1000RD	Red	625 nm					
ELB-L2	ELB-L2-1000IR	Infrared	850 nm					
ELB-L2	ELB-L2-1200SW	White	5500 K ± 500 K	210 W	75 W	M12P	3400 g	1200 mm
ELB-L2	ELB-L2-1200UV	Ultraviolet	405 nm					
ELB-L2	ELB-L2-1200BL	Blue	465 nm					
ELB-L2	ELB-L2-1200GR	Green	525 nm					
ELB-L2	ELB-L2-1200RD	Red	625 nm					
ELB-L2	ELB-L2-1200IR	Infrared	850 nm					
ELB-L2	ELB-L2-1400SW	White	5500 K ± 500 K	270 W	90 W	M12P	4300 g	1400 mm
ELB-L2	ELB-L2-1400UV	Ultraviolet	405 nm					
ELB-L2	ELB-L2-1400BL	Blue	465 nm					
ELB-L2	ELB-L2-1400GR	Green	525 nm					
ELB-L2	ELB-L2-1400RD	Red	625 nm					
ELB-L2	ELB-L2-1400IR	Infrared	850 nm					
ELB-L2	ELB-L2-1600SW	White	5500 K ± 500 K	270 W	90 W	M12P	4300 g	1400 mm
ELB-L2	ELB-L2-1600UV	Ultraviolet	405 nm					
ELB-L2	ELB-L2-1600BL	Blue	465 nm					
ELB-L2	ELB-L2-1600GR	Green	525 nm					
ELB-L2	ELB-L2-1600RD	Red	625 nm					
ELB-L2	ELB-L2-1600IR	Infrared	850 nm					

■ Optical Accessories

Polarizer

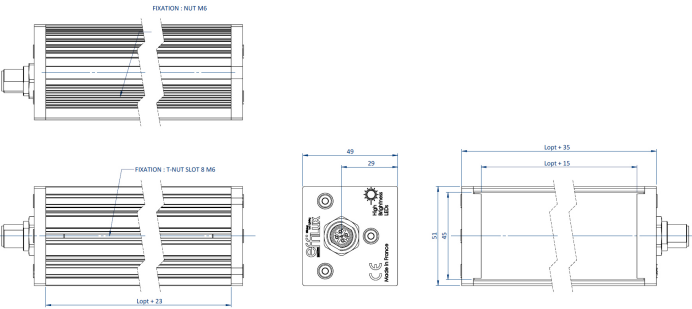
Part Number	Applicable Led Unit
PL-ELB-100	ELB-100
PL-ELB-200	ELB-200 / ELB-L2-200
PL-ELB-300	ELB-300
PL-ELB-400	ELB-400 / ELB-L2-400
PL-ELB-500	ELB-500
PL-ELB-600	ELB-600 / ELB-L2-600
PL-ELB-700	ELB-700
PL-ELB-800	ELB-800 / ELB-L2-800
PL-ELB-900	ELB-900

PL-ELB-1000	ELB-1000 / ELB-L2-1000
PL-ELB-1100	ELB-1100
PL-ELB-1200	ELB-1200 / ELB-L2-1200
PL-ELB-1300	ELB-1300
PL-ELB-1400	ELB-1400 / ELB-L2-1400
PL-ELB-1500	ELB-1500
PL-ELB-1600	ELB-1600 / ELB-L2-1600

Linescan (linear lighting or darkfield lighting)

Part Number	Applicable Led Unit
LS-ELB-100	ELB-100
LS-ELB-200	ELB-200 / ELB-L2-200
LS-ELB-300	ELB-300
LS-ELB-400	ELB-400 / ELB-L2-400
LS-ELB-500	ELB-500
LS-ELB-600	ELB-600 / ELB-L2-600
LS-ELB-700	ELB-700
LS-ELB-800	ELB-800 / ELB-L2-800
LS-ELB-900	ELB-900
LS-ELB-1000	ELB-1000 / ELB-L2-1000
LS-ELB-1100	ELB-1100
LS-ELB-1200	ELB-1200 / ELB-L2-1200
LS-ELB-1300	ELB-1300
LS-ELB-1400	ELB-1400 / ELB-L2-1400
LS-ELB-1500	ELB-1500
LS-ELB-1600	ELB-1600 / ELB-L2-1600

6 Dimensions Diagram (mm)



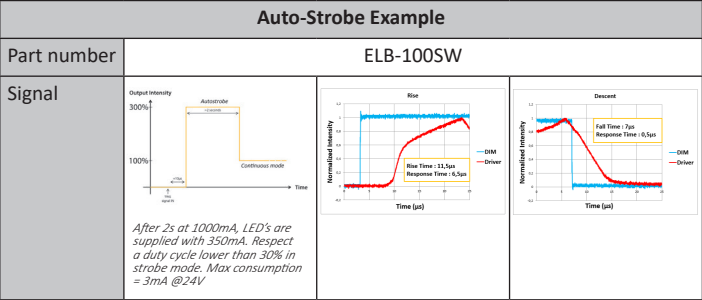
7 Electronical consideration

All ELB light units should be supplied with 24VDC. To use the ELB Series, the trigger pin must be connected.

Connector

Contact arrangement	Number	Color contact	Designation
<p>M12 Male connector M12 Power Male connector</p> <p>Connector depends on electrical power consumption</p>	1	Brown	+24V
	2	White	n.a.
	3	Blue	GND
	4	Black	PNP TRIGGER [trigger for rising edge] for Auto-strobe Light ON if V _{PNP} > 3V DC Suggested dimming range: min 5V - max 24V

Strobe control



8 Environmental Regulation

EU RoHS Directive

The RoHS Directive is short for the “Restriction of use of certain Hazardous Substances in electrical and electronic equipment.” As a directive, it restricts the use of specific hazardous substances for new electrical and electronic equipment marketed in the EU on or after July 1, 2006, and restricts the use of six substances, which are (1) lead, (2) mercury, (3) cadmium, (4) hexavalent chromium, (5) polybrominated biphenyl (PBB), and (6) polybrominated diphenyl ether (PBDE).

*Standards for “RoHS Directive-Compliant Products”

Lead	Mercury	Cadmium	Hexavalent chromium	PBB	PBDE
1000ppm max.	1000ppm max.	1000ppm max.	1000ppm max.	1000ppm max.	1000ppm max.

(Items that are exempted in the RoHS Directive are excluded from these standards.)

Warranty Information

EXCEPT FOR THE EXPRESS WARRANTIES STATED IN THIS DOCUMENT, CCS MAKES NO ADDITIONAL WARRANTIES, EXPRESS, IMPLIED, OR STATUTORY, AS TO ANY MATTER WHATSOEVER. IN PARTICULAR, ANY AND ALL WARRANTIES OF MERCHANTABILITY OR FITNESS FOR PARTICULAR PURPOSE ARE EXPRESSLY EXCLUDED. EXCEPT AS EXPRESSLY SET FORTH HEREIN, CCS MAKES NO WARRANTIES WITH RESPECT TO THE PRODUCTS.

WARRANTY PERIOD: EL SERIES PRODUCTS HAVE A WARRANTY OF 2 YEARS (ONE YEAR FOR RADIANT QUANTITY) FROM THE DATE THE PRODUCT IS SHIPPED FROM THE MANUFACTURER. EXCEPTIONS ARE UV PRODUCTS (WAVELENGTH UNDER 420NM) WHICH HAVE A WARRANTY OF 1 YEAR, AND POLARIZERS WHICH HAVE NO WARRANTY.

CCS Inc. WILL REPAIR OR REPLACE THE PRODUCT FREE OF CHARGE IF IT SHOULD FAIL TO FUNCTION OR IF THE RADIANT QUANTITY OF THE PRODUCT SHOULD DROP TO 50% OR LESS OF ITS INITIAL RADIANT QUANTITY WITHIN THE SPECIFIED WARRANTY PERIOD. IF EITHER OF THESE CONDITIONS OCCURS, PLEASE TAKE THE PRODUCT TO YOUR CCS SALES REPRESENTATIVE.

WARRANTY TERMS

- CCS Inc. WILL REPAIR OR REPLACE THE PRODUCT FREE OF CHARGE IF IT SHOULD FAIL TO FUNCTION UNDER USE ON OUR SPECIFIED CONDITION IN ACCORDANCE WITH THE INSTRUCTION GUIDE AND OTHER WRITTEN CAUTIONS DURING THE INDICATED WARRANTY PERIOD OF TWO YEARS.
- CCS Inc. WILL REPAIR OR REPLACE THE PRODUCT FREE OF CHARGE IF ITS RADIANT QUANTITY SHOULD DROP TO 50% OR LESS OF ITS INITIAL RADIANT QUANTITY UNDER USE ON OUR SPECIFIED CONDITION IN ACCORDANCE WITH THE INSTRUCTION GUIDE AND OTHER WRITTEN CAUTIONS DURING THE INDICATED WARRANTY PERIOD OF ONE YEAR.
- CCS Inc. WILL CHARGE A REPAIR FEE UNDER THE FOLLOWING CONDITIONS:
 - IF THE PRODUCT HAS BEEN SUBJECTED TO MISUSE, UNAUTHORIZED REPAIRS, OR MODIFICATION FROM ITS ORIGINAL DESIGN.
 - IF THE PRODUCT HAS BEEN DAMAGED FROM IMPACTS DUE TO INAPPROPRIATE HANDLING.
 - IF DAMAGE TO THE PRODUCT RESULTS FROM EXTERNAL CAUSES INCLUDING ACCIDENTS, FIRE, POLLUTION, RIOTS, COMMUNICATION FAILURES, EARTHQUAKES, THUNDERSTORMS, WIND AND FLOOD DAMAGE, OR ANY OTHER ACT OF PROVIDENCE, OR FROM ANY EXTRAORDINARY CONDITIONS SUCH AS ELECTRICAL SURGES, WATER LEAKAGE, CONDENSATION, OR THE USE OF CHEMICALS.
 - IF THE DAMAGE RESULTS FROM CONNECTION TO ANY POWER SUPPLY OR TO ANY EQUIPMENT WHICH CCS Inc. DOES NOT MANUFACTURE OR DOES NOT SPECIFY FOR USE.
- CCS ASSUMES NO LIABILITY FOR ANY PURCHASER'S SECONDARY DAMAGE (DAMAGE OF EQUIPMENT, LOSS OF OPPORTUNITIES, LOSS OF PROFITS, ETC.) OR ANY OTHER DAMAGE RESULTING FROM A FAILURE OF OUR PRODUCT.

THIS WARRANTY INFORMATION PROVIDES THE SCOPE OF CCS'S PRODUCT WARRANTY WITHIN THE SPECIFIED PERIOD, AND DOES NOT INDICATE OR IMPLY ANY FURTHER GUARANTEE BEYOND THE WARRANTY TERMS.

CONTACT CCS FOR INQUIRIES OR INFORMATION ON REPAIRS TO THE PRODUCT AFTER THE EXPIRATION OF THE WARRANTY.

NOTE: THE RADIANT QUANTITY REFERS TO THE WATTAGE OF PHYSICAL ENERGY RADIATED FROM AN LED. IT REFERS TO THE RADIATION LUMINOSITY OF THE LED MEASURED UNDER CONDITIONS SPECIFIED BY CCS OR THE RADIATION ILLUMINATION OF THE LED UNDER SPECIFIED IRRADIATION CONDITIONS. CCS SPECIFIES THE RADIANT QUANTITY FOR EACH LED LIGHT BECAUSE THE MEASUREMENT AND IRRADIATION CONDITIONS VARY FROM THE FORM, THE APPLICATION AND THE IRRADIATION WAVELENGTH.

- Contents of this Instruction Guide may be changed without prior notice.
- Illustrations used in this Instruction Guide may differ from actual products.
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Instruction Guide and Dimensional Diagrams in PDF or CAD can be downloaded from the CCS website.
<http://www.el-series.com>

Ask any product queries to the following address or to your nearest CCS representative.

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