

ELL 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	Make sure you are using a correct power supply before connecting the device
Avoid any contact with the LED or with the projection lens	Do not inverse the electrical polarity. Check your connections before turning on the power supply
IP54 version: Limited dust ingress protection, protection against water spray from any direction	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 try to fix any damages to the product by yourself	

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 40°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

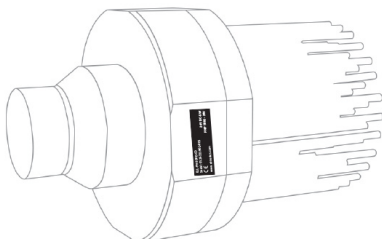
- When changing the optical configuration of the ELL Series, please exercise caution. Wearing gloves is strongly recommended.
- When cleaning the optical components, use compressed air if there is any dust.
- To remove marks on the lens or diffuser plate, please use lens clearing fluids.
- Two drops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

2 Confirming Product Information

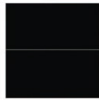
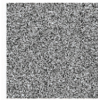
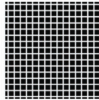
The following sticker is attached to the light unit. The sticker indicates the color of the light, model number, power consumption unit, and serial number. Be sure to check the contents before using the light units and handle the sticker with care. If the label is missing or damaged and the contents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

Example image

ELL-PV-30RD-CD
Serial: 0126331902-001
24V DC-5W
PNP TRIG - 24V
www.el-series.com

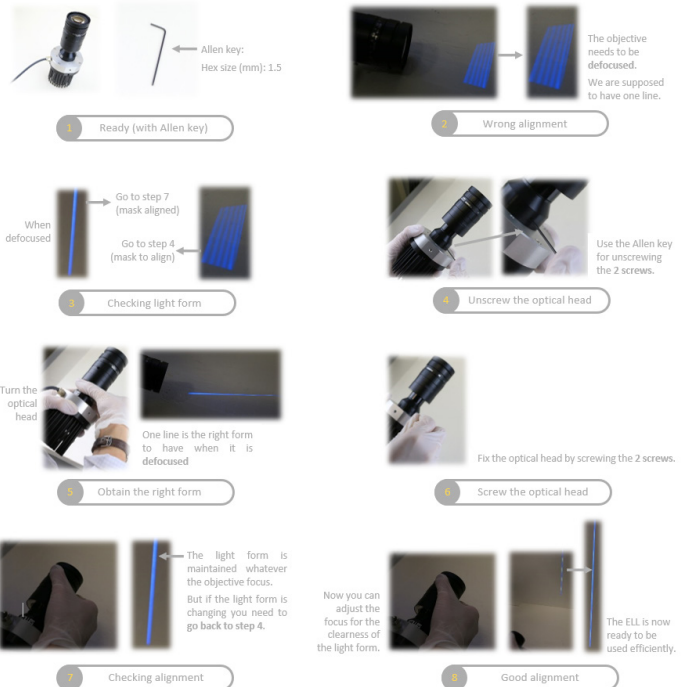


3 Optical flexibility

LINE (-LN)	CLOUD OF DOTS (-CD)	GRID (-GD)
1 line: 10µm line length : 13mm 	Cloud of dots density 50% Surface 12.8x9.6 mm² 	Grid 40x40 lines 50µm Surface 10x10 mm² 

Objective	Line width Mask dimensions : 13mm x 10µm (-LN)			
	WD = 30 cm	WD = 50 cm	WD = 80 cm	WD = 100 cm
f = 12.5 mm	0.25 mm	0.40 mm	0.64 mm	0.80 mm
f = 16 mm	0.20 mm	0.32 mm	0.48 mm	0.60 mm
f = 35 mm	0.08 mm	0.14 mm	0.23 mm	0.28 mm
f = 50 mm	0.06 mm	0.10 mm	0.16 mm	0.20 mm
f = 75 mm	n.a.	n.a.	0.10 mm	0.13 mm

Objective	Pattern dimensions HxW Mask dimensions: 12.8mm x 9.6mm (-CD)			
	WD = 30 cm	WD = 50 cm	WD = 80 cm	WD = 100 cm
f = 12.5 mm	32cm x 23cm	51cm x 37cm	82cm x 59cm	102cm x 73cm
f = 16 mm	25cm x 19cm	41cm x 31cm	66cm x 49cm	82cm x 61cm
f = 35 mm	11cm x 8cm	18cm x 14cm	29cm x 22cm	36cm x 27cm
f = 50 mm	n.a.	12cm x 9cm	20cm x 15cm	25cm x 19cm
f = 75 mm	n.a.	n.a.	13cm x 10cm	16cm x 12cm



4 Main Specifications

ELL-CP : Compact version

Series	Part Number	Color	Wavelength / Color temperature	Connector	Weight	Pattern
ELL	ELL-CP-30SW-LN	White	5500 K ± 500 K	M8	200 g	Line
ELL	ELL-CP-30BL-LN	Blue	465 nm			
ELL	ELL-CP-30GR-LN	Green	525 nm			
ELL	ELL-CP-30RD-LN	Red	625 nm			
ELL	ELL-CP-30IR-LN	Infrared	850 nm	M8	200 g	Clouds of dots
ELL	ELL-CP-30SW-CD	White	5500 K ± 500 K			
ELL	ELL-CP-30BL-CD	Blue	465 nm			
ELL	ELL-CP-30GR-CD	Green	525 nm			
ELL	ELL-CP-30RD-CD	Red	625 nm	M8	200 g	Grid
ELL	ELL-CP-30IR-CD	Infrared	850 nm			
ELL	ELL-CP-30SW-GD	White	5500 K ± 500 K			
ELL	ELL-CP-30BL-GD	Blue	465 nm			
ELL	ELL-CP-30GR-GD	Green	525 nm	M8	200 g	Grid
ELL	ELL-CP-30RD-GD	Red	625 nm			
ELL	ELL-CP-30IR-GD	Infrared	850 nm			

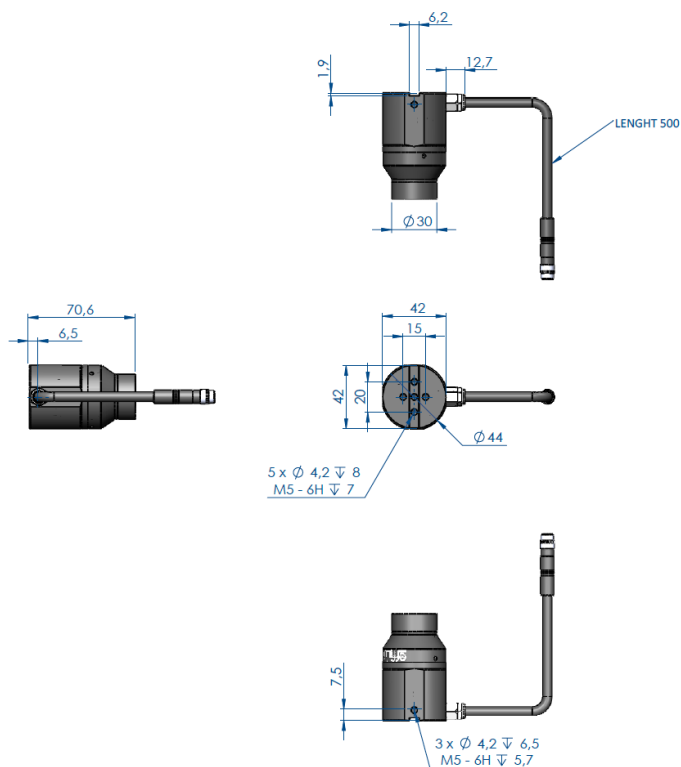
ELL-PV : Passive cooling version

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

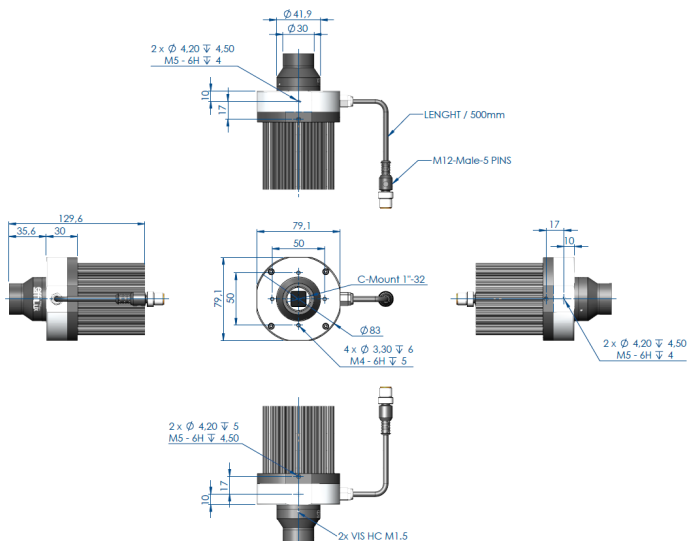
Series	Part Number	Color	Wave-length / Color temperature	Max Power Consumption		Connector	Weight	Pattern
				Strobe	Continuous			
ELL	ELL-PV-30SW-LN	White	5500 K \pm 500 K	45 W	15 W	M12	200 g	Line
ELL	ELL-PV-30BL-LN	Blue	465 nm					
ELL	ELL-PV-30GR-LN	Green	525 nm					
ELL	ELL-PV-30RD-LN	Red	625 nm					
ELL	ELL-PV-30IR-LN	Infrared	850 nm					
ELL	ELL-PV-30SW-CD	White	5500 K \pm 500 K	45 W	15 W	M12	200 g	Clouds of dots
ELL	ELL-PV-30BL-CD	Blue	465 nm					
ELL	ELL-PV-30GR-CD	Green	525 nm					
ELL	ELL-PV-30RD-CD	Red	625 nm					
ELL	ELL-PV-30IR-CD	Infrared	850 nm					
ELL	ELL-PV-30SW-GD	White	5500 K \pm 500 K	45 W	15 W	M12	200 g	Grid
ELL	ELL-PV-30BL-GD	Blue	465 nm					
ELL	ELL-PV-30GR-GD	Green	525 nm					
ELL	ELL-PV-30RD-GD	Red	625 nm					
ELL	ELL-PV-30IR-GD	Infrared	850 nm					

5 Dimensions Diagram (mm)

ELL-CP : Compact version

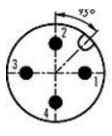


ELL-PV : Passive cooling version



6 Electronical consideration

All ELL light units should be supplied with 24VDC.

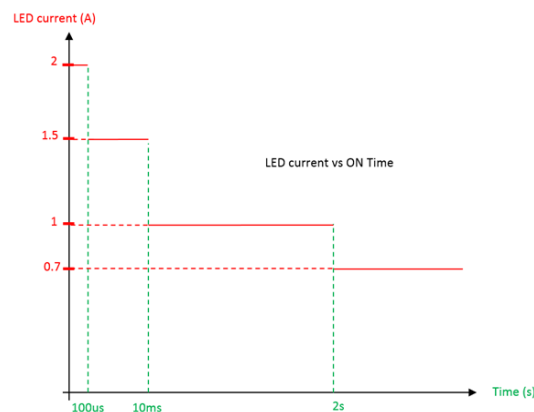
Contact arrangement	Number	Color contact	Designation
 <p>M12 Male connector</p>	1	Brown	+24V
	2	White	NPN TRIGGER (trigger on falling edge) for Auto-strobe Light ON if $V_{NPN} < 1.5V$ DC max 24V - Analog Voltage
	3	Blue	GND
	4	Black	PNP TRIGGER [trigger for rising edge] for Auto-strobe Light ON if $V_{PNP} > 3V$ DC max 24V DC - Analog Voltage
	5	Grey	AIC: Analog Intensity Control for Dimming Control (If AIC is not connected, the light will light on at 100% as if VAIC = 24V. If you do not need to adjust light level, do not connect/use this PIN) - Suggested dimming range: min 5V - max 24V

Autostrobe feature and continuous mode

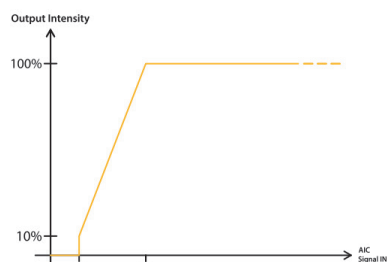
The autostrobe integrated controller in the ELL Series is set to automatically strobe the LED. When the ELL Series is trigger shorter than 100 μ s, the LED is automatically overdriven at 2A. When the trigger is longer than 100 μ s, the ELL Series will automatically decrease the current to protect the LED.

If a duty cycle is larger than 0.3, the ELL Series will enter a protection mode to protect the LED and will stay off for 2 seconds. The ELL Series will check every 2 seconds if this duty cycle is maintained.

When using the ELL Series in continuous mode (set trigger continuously), the LED will be driven at 700mA.



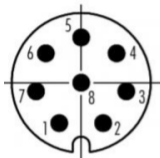
Dimming control



By adjusting the analog tension, light intensity can be controlled from 10% to 100%. If the Input AIC is not connected, the ELL will act as if AIC was set at 24V.

Contact arrangement

The ELL-CP is supplied with a direct current through the M8-8 contacts (male).

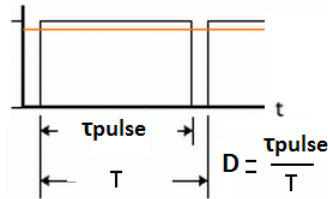
Contact arrangement	Number	Color Contact	Designation
	1	White	-V _{LED}
	2	Brown	+V _{LED}
	3	Green	n.a.
	4	Yellow	n.a.
	5	Grey	n.a.
	6	Pink	n.a.
	7	Blue	-TH (Thermistor)
	8	Red	+TH (Thermistor)

M8 8 contacts male connector

Direct current mode

You can see below 5 possible configurations depending on the current that you provide to the ELL-CP.

Configuration	Current	Max pulse duration (μs) / τ _{pulse}	D
1	1.2A	50 000	0.5
2	1.5A	10 000	0.1
3	2A	1 000	0.01
4	2.5A	100	0.001
5	3.5A	40	0.0004



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.)

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.

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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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➡ <http://www.ccs-grp.com/mvad>