

SPECTRUM ILLUMINATION



THE LARGEST IN VISION LIGHTING

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EL300 LINEAR BAR LIGHT



SERIES CON

*Built-in Driver
Powered by 24VDC
PNP and NPN Inputs
Analog 0-10VDC Input
High Output / Low Cost
Potentiometer Adjustment
Internal Thermal Protection
500 Microsecond Burst Mode
Robot Friendly 12.8 oz. (363 g)
Aluminum Single Interface Housing
(Patent Pending Design)*

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Section 1 - Thanks

First, thank you for your interest in our product. Here at Spectrum Illumination, we are always striving to bring you the best Vision Lighting products on the market at the best price. The EL300 is our latest top of the line vision product to make vision integration easier and less expensive for everyone.

We always knew that if we wanted to succeed in the Vision Lighting business, we needed to be different. Not only different, we needed to be better than everyone else. We needed to offer better lighting products, for more applications, at lower prices. We now are going into our eleventh year of operation, and getting better and more enthusiastic everyday. We are coming out with new products all the time and are designing custom lighting fixtures whenever we can.

We hope this manual helps with any questions you might have about this product. If you have any further questions that are not covered, or you can't find the answers, please call us at our main office.

Section 2 - Installation

Mounting:

Mounting holes can accept 8-32 or M4 screw sizes or 10-32 or M5 tap may be used to thread mounting holes. Mounting hole dimensions are 360.5mm (14.193") x 22mm (0.866") \pm 0.5mm (0.02").

Dimensions:

The EL300 outside dimensions are 14.705" (373.5mm) x 1.925" (48.9mm) x 1.20" (30.5mm) tall.

Wiring:

Pin #	Wire Color	Function
1	Brown	+23.5 to +26.4VDC
2	White	NPN STROBE INPUT: GND for "ON", Open or $>V_{in}-1V$ for "OFF"
3	Blue	0VDC (DC GND)
4	Black	PNP STROBE INPUT: < 1 VDC for "OFF", $>3 \leq 30$ VDC for "ON"
5	Grey	0-10VDC analog intensity control – 0V = 100%, 10V = 0%

Standard cable length is 3m with 18AWG wires. It may be extended but blue and brown wires should be ≥ 16 AWG wire other wires can be extended with ≥ 22 AWG wire, this is necessary for burst to drive to max current. If burst is disabled any 5 wire M12 cable up to 30m may be used.

Location:

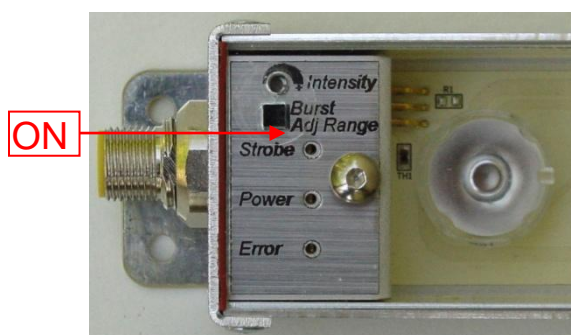
Install where at least two metal sides are exposed to adequate airflow. Internal thermal shutdown will occur at $65^{\circ} \pm 5^{\circ}C$ housing temperature and will illuminate "Error" LED.

Section 3 - Configuration

The EL300 can be configured for burst mode or disabled via dip switch. Two switches can be changed to control the behavior of burst and LED intensity dimming.

- “Burst” switch enables/disables the burst feature.
- “Adj. Range” switch sets the adjustment range of the potentiometer and 0-10VDC input.

These switches can be set using a small jeweler’s screwdrivers or toothpick. *Units are shipped with a default of both switches “on” (both to right in image below).*



Switch Settings	Result
Adj.Range OFF Burst OFF	0-10VDC input (or potentiometer has 1 turn of adjustment) adjusts LED intensity from 100 - 0% with burst disabled
Adj.Range ON Burst OFF	0-4.5VDC input (or potentiometer has ~1/2 turn of adjustment) adjusts LED intensity from 100 - 0% with burst disabled
Adj.Range OFF Burst ON	0-10VDC input (or potentiometer has 1 turn of adjustment) adjusts LED burst intensity from 100 - ~50% with burst enabled
Adj.Range ON Burst ON <i>Default setting</i>	0-10VDC input (or potentiometer has 1 turn of adjustment) adjusts LED burst intensity from 100 - 0% with burst enabled

The potentiometer for LED intensity control is a 1-turn potentiometer for adjustment. Fully counter clockwise (CCW) sets the LED current to 0% and fully clockwise (CW) sets the LED current to 100%. Units are shipped in the fully CW position.

Section 4 - Specifications

ELECTRICAL:

Input Voltage: 23.5-26.4VDC (24VDC \pm 10% burst disabled)

Input Current: 350 to 650mA typical (3.0A max for burst) @24VDC

Note: Power supply must be capable of 3.0A per light for burst feature to work correctly with supplied cable.

Strobe Input Impedance: 10K Ω – PNP typical, 9.1K Ω – NPN typical

Strobe Timing: <20 microseconds from strobe to LED on

0-10V Input Impedance: 15K Ω typical

0-10V Input Control: 0V = 100%, 10V = 0% LED current. (Can be left disconnected for 100% LED intensity)

Variable Intensity: Adjustable via trim potentiometer from 0% (CCW) to 100% (CW).

Over-temperature LED: 65 \pm 5°C strobe disable / "Error" LED on; 5°C hyst. for strobe enable / "Error" LED off

Wiring:

Pin #	Wire Color	Function
1	Brown	+23.5 to +26.4VDC
2	White	NPN STROBE INPUT: GND for "ON", Open or >Vin-1V for "OFF"
3	Blue	0VDC (DC GND)
4	Black	PNP STROBE INPUT: < 1 VDC for "OFF", >3 \leq 30 VDC for "ON"
5	Grey	0-10VDC analog intensity control – 0V = 100%, 10V = 0%

ENVIRONMENTAL:

Operating Temperature: 0 to 50°C

Relative Humidity: 5 to 85% non-condensing

MECHANICAL:

Lighted Area: 300mm

Connector: M12 - 5 pin

Weight: 12.8 oz (363g)

ILLUMINATION:

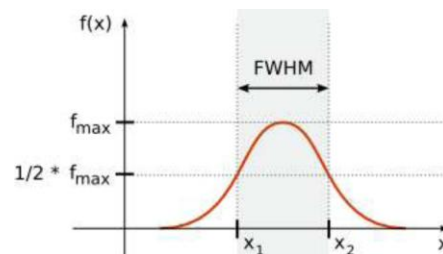
Light Source: LED – currently available in Red, Green, Blue, White or IR Colors. Other colors available on request, contact us for further information.

Quantity HB LED's: 10

LED Life: up to 50,000 hours*.

*Contact us for LED life information

LED Lens: 15° FWHM Standard
24° FWHM Optional
43° FWHM Optional
44x15° FWHM Line Optional



INDICATOR LEDs:

- Red = Strobe – This lights when a strobe input is present
- Green = Power – Power is connected
- Yellow = Error – This will illuminate when light operating temperature of $65 \pm 5^{\circ}\text{C}$ has been exceeded

TIMING:

Strobe Frequency: DC (continuous on) to $100\mu\text{s}$ PRF (10KHz) max (PRF = Pulse Rate Frequency)

Strobe to LED ON: $20\mu\text{s}$ typical

Burst enabled:

Duty Cycle: 33% max $\leq 10\text{ms}$ PRF / $\geq 100\text{Hz}$

Duty Cycle: $\geq 10\text{ms}$ PRF / $\leq 100\text{Hz}$ minimum off time of 1ms to guarantee following burst pulse the same as previous.

Burst Duration: $500\mu\text{s}$ typical

Burst Current: 2.6A typical (variable with trim pot and/or 0-10VDC input)

Burst disabled:

Duty Cycle: 0% to 100%



Section 5 - Troubleshooting

Problem	Possible Cause	Possible Solution
Light doesn't turn on	Is "Power" indicator LED on	<ul style="list-style-type: none"> • Ensure a +24 VDC signal on brown wire in reference to blue wire.
	Is "Strobe" indicator LED on	<ul style="list-style-type: none"> • Verify correct signal on strobe input – see section 2 - Wiring
	Are "Power" and "Strobe" indicator LEDs on	<ul style="list-style-type: none"> • Potentiometer turned CCW to 0% intensity, turn CW • 0-10V input at $\geq 9.5\text{VDC}$, reduce 0-10V input voltage
	Is "Error" indicator LED on	<ul style="list-style-type: none"> • Maximum operating temperature has been reached – provide additional heat sink / cooling
Intensity changing between inspections	<ul style="list-style-type: none"> • 24V power supply insufficient • Maximum duty cycle exceeded 	<ul style="list-style-type: none"> • 24V PS needs to be capable of 3A per light connected • Verify duty cycle is not being exceeded – see section 4 - Timing