

SPECTRUM ILLUMINATION

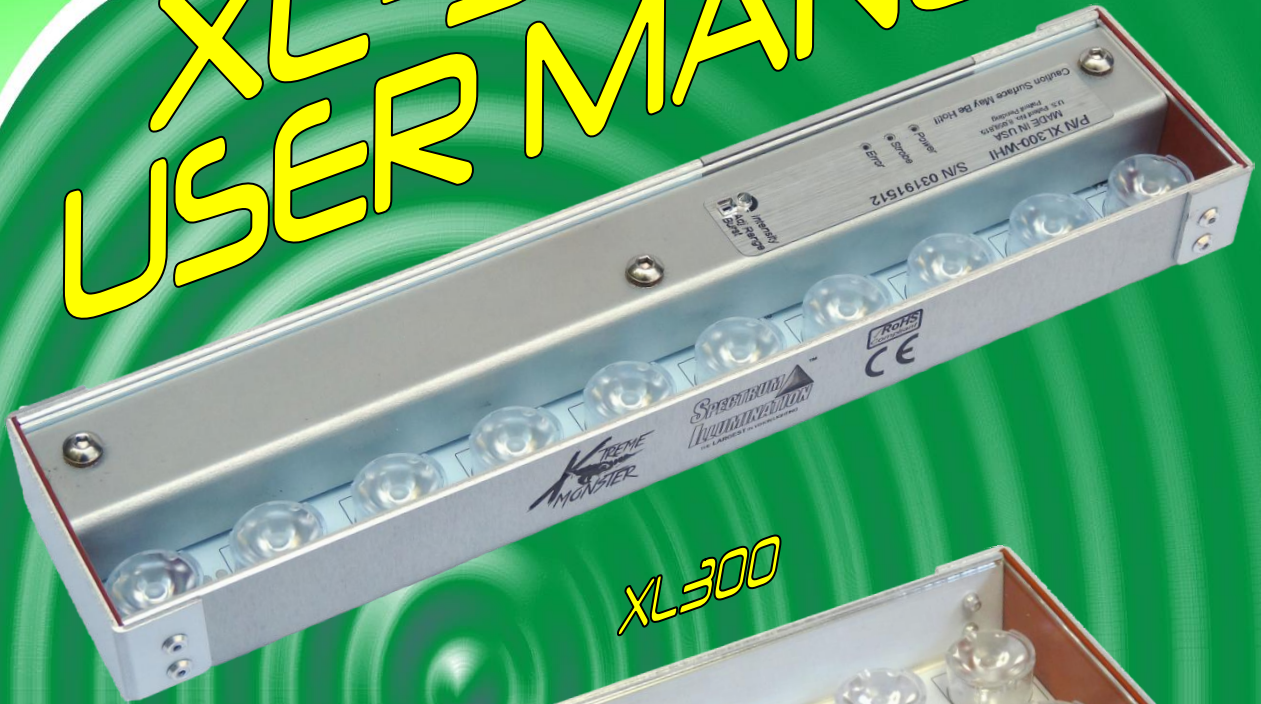


THE LARGEST IN VISION LIGHTING

XL-SERIES USER MANUAL

5114 Industrial Park Road
Montague, MI 49437
Phone: (231) 894-4590
Fax: (231) 894-4582

www.spectrumillumination.com



XL300



XL250

- BUILT-IN DRIVER
- POWERED BY 24VDC
- PNP AND NPN INPUTS
- ANALOG 0-10VDC INPUT
- POTENTIOMETER ADJUSTMENT
- INTERNAL THERMAL PROTECTION
- HIGH OUTPUT
- 500 MICROSECOND BURST MODE
- ALL ALUMINUM HOUSING

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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 Xtreme Series is our latest top of the line vision product to make vision applications requiring very intense light possible.

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 sixteenth 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 10-32 or M5 screws.

Dimensions:

Model	Length	Width	Height	Mounting Holes
XL2150	5.89" (149.5mm)	3.913" (99.4mm)	1.264" (32.1mm)	5.118" (130mm)
XL300	11.79" (299.5mm)	2.728" (69.3mm)	1.264" (32.1mm)	11.024" (280mm)

*Note: For additional dimensional information, see model web page or contact us.

Wiring:

	Pin #	Function
	1	+23.5 to +28VDC
	2	0VDC (DC GND)
	3	PNP Strobe Input: < 1 VDC for "OFF", >3 ≤30 VDC for "ON" PNP Strobe Input: 3/24V switch OFF, >18 ≤30 VDC for "ON"
	4	NPN Strobe Input: GND for "ON", Open or >Vin-1V for "OFF"
	5	0-10VDC analog intensity control – 0V = 100%, 10V = <5%
	6	Error out - Activates when light operating temperature of 70 ± 5°C has been exceeded. NPN (pull down) on error, 1.2KΩ impedance

Wires for power should be ≥16 AWG wire and other wires can be ≥24AWG wire, this is necessary for burst to drive to max current. If burst is disabled, wires for power should be ≥18 AWG wire and other wires can be ≥24AWG wire.

Location:

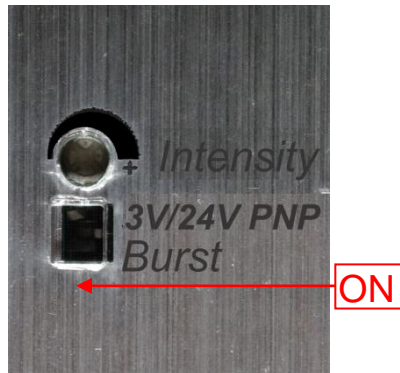
Install where at least two metal sides are exposed to adequate airflow. Internal thermal shutdown will occur at 70° ± 5°C housing temperature and will illuminate "Error" LED and Error Out will pull to ground.

Section 3 - Configuration

The Xtreme Series can be configured for burst mode or disabled via dip switch. Two switches can be changed to control the behavior of burst and PNP input sensitivity.

- “Burst” switch enables/disables the burst feature.
- “3V/24V” switch sets the PNP input sensitivity.

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



Switch Settings	Result
Burst ON <i>Default setting</i>	500 μ s enabled
Burst OFF	500 μ s disabled
3V/24V PNP ON <i>Default setting</i>	PNP input accepts 3V to 30V strobe signal
3V/24V PNP OFF	PNP input accepts 18V to 30V strobe signal – useful for electrically noisy environments

The potentiometer for LED intensity control is a 1-turn potentiometer for adjustment. Fully counter clockwise (CCW) sets the LED current to <5% 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 to 28VDC (21.6 to 28VDC burst disabled)

Input Current: 2.1A typical (10A max for burst) @24VDC

Note: Power supply must be capable of 10.0A per light for burst feature to work correctly

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


Strobe Timing: <15 microseconds from strobe to LED on

0-10V Input Impedance: 10K Ω typical

0-10V Input Control: 0V = 100%, 10V = <5% LED current. (Can be left disconnected for 100% LED intensity)

Variable Intensity: Adjustable via trim potentiometer from <5% (CCW) to 100% (CW).

Over-temperature LED: 70 \pm 5 $^{\circ}$ C strobe disable / “Error” LED on; 5 $^{\circ}$ C hyst. for strobe enable / “Error” LED off

	Pin #	Function
	1	+23.5 to +28VDC
	2	0VDC (DC GND)
	3	PNP Strobe Input: < 1 VDC for “OFF”, >3 \leq 30 VDC for “ON” PNP Strobe Input: 3/24V switch OFF , >18 \leq 30 VDC for “ON”
	4	NPN Strobe Input: GND for “ON”, Open or >Vin-1V for “OFF”
	5	0-10VDC analog intensity control – 0V = 100%, 10V = <5%
1 2 3 4 5 6	6	Error out - Activates when light operating temperature of 70 \pm 5 $^{\circ}$ C has been exceeded. NPN (pull down) on error, 1.2K Ω impedance

ENVIRONMENTAL:

Operating Temperature: 0 to 50 $^{\circ}$ C

Relative Humidity: 5 to 85% non-condensing

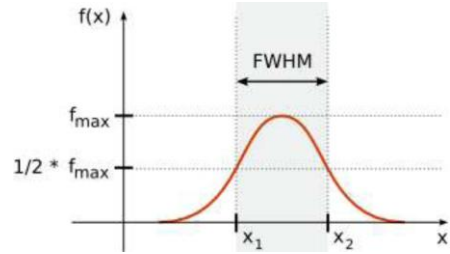
Ingress Protection Rating: IP50

MECHANICAL:

Model	Lighted Area	Weight
XL300	300mm x 37mm	17 oz (470g)
XL2150	150mm x 70mm	12 oz (340g)

ILLUMINATION:

Light Source: LED – White, Neutral White and Warm White
Quantity HB LED's: 10
LED Life: 50,000 hours*.
*Contact us for LED life information
LED Lens: 18° FWHM Standard
23° FWHM Optional
30° FWHM Optional



INDICATOR LEDs:

Red = Strobe – This illuminates when a strobe input is present
Green = Power – This illuminates when power is connected
Yellow = Error – This illuminates when light operating temperature of $70 \pm 5^{\circ}\text{C}$ has been exceeded

TIMING:

Strobe Frequency: DC (continuous on) to 100 μs period (10KHz Pulse Rate Frequency) Max
Strobe to LED ON: 15 μs typical

Burst enabled:

Duty Cycle: On time $\geq 500\mu\text{s}$, Off time must be 4.5ms minimum
On time $< 500\mu\text{s}$, Off time must be 9x On time minimum

- *This is to guarantee following burst pulse the same as previous.*

Burst Duration: 500 μs typical

Burst Current: 5.0A per LED 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 on pin 1 and 24V rtn (0V) pin 2
	Is "Strobe" indicator LED on	<ul style="list-style-type: none"> • Verify correct signal on strobe input – see section 2 - Wiring
	Is "Error" indicator LED on	<ul style="list-style-type: none"> • Maximum operating temperature has been reached – provide additional heat sink / cooling
LED's are dimly lit	When "Power" and "Strobe" indicator LEDs on	<ul style="list-style-type: none"> • Potentiometer turned CCW to <5% intensity, turn CW • 0-10V input at $\geq 9.5\text{VDC}$, reduce 0-10V input voltage
Intensity changing between inspections	<ul style="list-style-type: none"> • 24V power supply insufficient • Maximum duty cycle exceeded 	<ul style="list-style-type: none"> • Verify 24V PS output capable of current listed in Section 4 - Electrical per light connected • Verify duty cycle is not being exceeded – see Section 4 - Timing