

# SPECTRUM ILLUMINATION



THE LARGEST IN VISION LIGHTING

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## XS40 USER MANUAL



- BUILT-IN DRIVER
- POWERED BY 12 - 24VDC
- PNP AND NPN INPUTS
- ANALOG 0-10VDC INPUT
- HIGH OUTPUT
- POTENTIOMETER ADJUSTMENT
- INTERNAL THERMAL PROTECTION
- 500 MICROSECOND BURST MODE
- ALL ALUMINUM HOUSING



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## **Section 1 – Thank You**

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 have been in operation since 1999, 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:

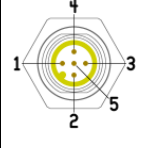
Mounting holes can accept 8-32 or M4 screw sizes, alternately 10-32 or M5 tap may be used to thread mounting holes.

### Dimensions:

Model	Length	Width	Height	Mounting Holes
XS40	3.31" (84.0mm)	1.925" (48.9mm)	1.21" (30.7mm)	0.866" (22.0mm)

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

### Wiring:

XS40	Pin #	Wire Color	Function
 M12	1	Brown	+12 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 ≤30 VDC for "ON"
	5	Grey or Green/Yellow	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 ≥24AWG 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:

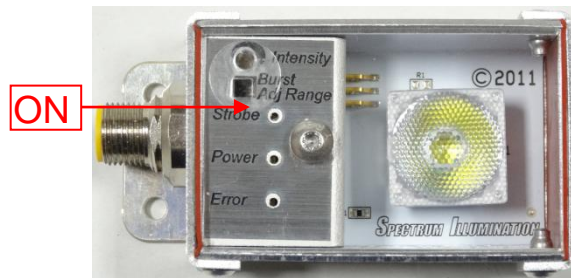
Install where at least two metal sides are exposed to adequate airflow. Internal thermal shutdown will occur at  $70^{\circ} \pm 5^{\circ}\text{C}$  housing temperature and will illuminate "Error" LED.

## Section 3 - Configuration

The XS40 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 screwdriver 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: 12.0 to 26.4VDC

Input Current: 260mA typical (1.2A max for burst) @24VDC  
460mA typical (2.5A max for burst) @12VDC

*Note: Power supply must be capable of current listed above per light for burst feature to work correctly with supplied cable.*

Strobe Input Impedance: 10K $\Omega$  – PNP typical, 9.1K $\Omega$  – NPN typical

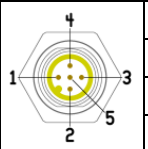
Strobe Timing: <5 microseconds from strobe to LED on

0-10V Input Impedance: 15K $\Omega$  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: 70  $\pm$  5 $^{\circ}$ C strobe disable / “Error” LED on; 5 $^{\circ}$ C hyst. for strobe enable / “Error” LED off

Wiring:	Pin #	Wire Color	Function
 M12	1	Brown	+12.0 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 or Green/Yellow	0-10VDC analog intensity control – 0V = 100%, 10V = 0%

## **ENVIRONMENTAL:**

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

Relative Humidity: 5 to 85% non-condensing

Ingress Protection Rating: IP50

## **MECHANICAL:**

Lighted Area	Length	Width	Height	Mounting Holes	Weight
40mm x 37mm	3.31” (84.0mm)	1.925” (48.9mm)	1.21” (30.7mm)	0.866” (22.0mm)	3.88 oz (110g)

**ILLUMINATION:**

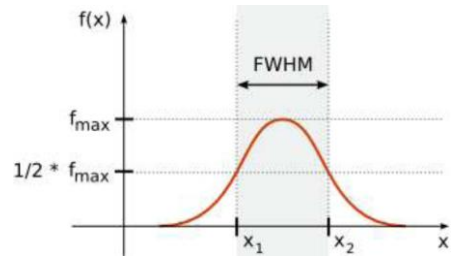
Light Source: LED – currently available in White or Infrared.

Quantity HB LED's: 1

LED Life: up to 100,000 hours\*.

\*Contact us for LED life information

LED Lens:	White	IR
	23° FWHM Standard	16° FWHM Standard
	32° FWHM Optional	23° FWHM Optional
	56° FWHM Optional	39° FWHM Optional
		44x15° FWHM Line 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 100µs period (10KHz Pulse Rate Frequency) Max

Strobe to LED ON: <5µs typical

**Burst enabled:**

Duty Cycle: On time  $\geq 500\mu\text{s}$ , Off time must be 2.0ms minimum

On time < 500µs, Off time must be 4 x On time minimum

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

Burst Duration: 500µs typical

Burst Current: -WHI 5.0A per LED typical (variable with trim pot and/or 0-10VDC input)

-850 2.8A per LED typical (variable with trim pot and/or 0-10VDC input)

**Burst disabled:**

Duty Cycle: 0% to 100%



## Section 5 - Troubleshooting

<b>Problem</b>	<b>Possible Cause</b>	<b>Possible Solution</b>
Light doesn't turn on	Is "Power" indicator LED on	<ul style="list-style-type: none"> <li>• Ensure a +24 VDC signal on brown wire in reference to blue wire.</li> </ul>
	Is "Strobe" indicator LED on	<ul style="list-style-type: none"> <li>• Verify correct signal on strobe input – see section 2 - Wiring</li> </ul>
	Are "Power" and "Strobe" indicator LEDs on	<ul style="list-style-type: none"> <li>• Potentiometer turned CCW to 0% intensity, turn CW</li> <li>• 0-10V input at <math>\geq 9.0</math>VDC, reduce 0-10V input voltage</li> </ul>
	Is "Error" indicator LED on	<ul style="list-style-type: none"> <li>• Maximum operating temperature has been reached – provide additional heat sink / cooling</li> </ul>
	Is light -850 infrared	<ul style="list-style-type: none"> <li>• Infrared is not visible to the human eye. Light may look slightly red when viewed straight on.</li> </ul>
Intensity changing between inspections	<ul style="list-style-type: none"> <li>• 24V power supply insufficient</li> <li>• Maximum duty cycle exceeded</li> </ul>	<ul style="list-style-type: none"> <li>• Verify 24V PS output capable of current listed in Section 4 - Electrical per light connected</li> <li>• Verify duty cycle is not being exceeded – see Section 4 - Timing</li> </ul>