

Quick Start Guide

NERLITE Smart Series



83-200047-04 Rev B

Continuous Operation

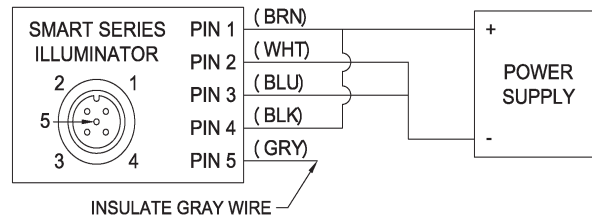
1. Connect Pin 1 (Brown Wire) and Pin 4 (Black Wire) to the positive terminal of the power supply
Voltage: 24VDC (20.2 to 28.8VDC)
Current: See Product Label, Specification Sheet, or Configuration Guide
2. Connect Pin 2 (White Wire) and Pin 3 (Blue Wire) to the negative terminal of the power supply.
3. Insulate Pin 5 (Gray Wire)

ATTENTION!

Contact between Pin 5 (Gray Wire) and any ground or voltage source less than or equal to 3.5VDC may cause erratic operation in this configuration.

Contact between Pin 5 (Gray Wire) and any voltage source greater than 3.5VDC will damage the illuminator.

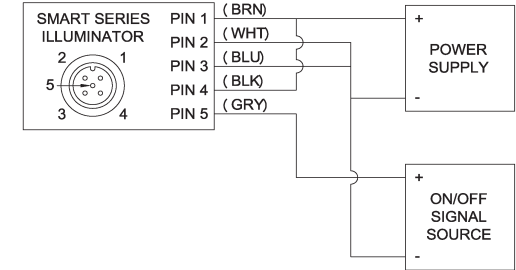
4. Apply Power



Continuous Operation With On/Off Control

1. Connect Pin 1 (Brown Wire) and Pin 4 (Black Wire) to the positive terminal of the power supply.
Voltage: 24VDC (20.2 to 28.8VDC)
Current: See Product Label, Specification Sheet, or Configuration Guide
2. Connect Pin 2 (White Wire) and Pin 3 (Blue Wire) to the negative terminal of the power supply and to the negative terminal of the On/Off signal source.

3. Connect Pin 5 (Gray Wire) to the positive terminal of the On/Off control signal source.
Voltage: 0VDC = LEDs Off, 3.3VDC (3.1 to 3.5VDC) = LEDs On
Current: <1mA
ATTENTION!
Applying a voltage greater than 3.5VDC to Pin 5 (Gray Wire) will damage the illuminator.
4. Apply Power & On/Off Control Signal



Continuous Operation With Dimming

1. Connect Pin 1 (Brown Wire) and Pin 4 (Black Wire) to the positive terminal of the power supply.
Voltage: 24VDC (20.2 to 28.8VDC)
Current: See Product Label, Specification Sheet, or Configuration Guide
2. Connect Pin 2 (White Wire) and Pin 3 (Blue Wire) to the negative terminal of the power supply and to the negative terminal of the PWM (Pulse Width Modulated) Dimming signal source.
3. Connect Pin 5 (Gray Wire) to the positive terminal of the PWM Dimming signal source.
Voltage: 0VDC = LEDs Off, 3.3VDC (3.1 to 3.5VDC) = LEDs On
Current: <1mA
Modulation Frequency: 2KHz +/- 100Hz
Duty Cycle: LED Duty Cycle (Intensity) = Dimming Signal Duty Cycle

ATTENTION!

Applying a voltage greater than 3.5VDC to Pin 5 (Gray Wire) will damage the illuminator.



Caution: Be sure that all connections are secure BEFORE applying power. Power down BEFORE disconnecting cables.

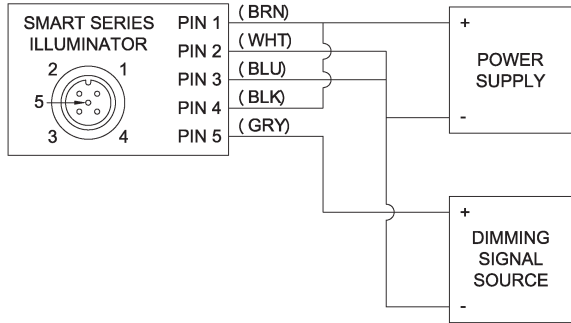


Important: All specified wire colors apply to Microscan Cables. If non-Microscan cables are used, it is the customer's responsibility to make sure the illuminator is connected per the specified connector pin numbers.

MICROSCAN

NOTE: Microscan offers an Analog to PWM Converter as an accessory. This unit enables the user to control the intensity of any Smart Series light with a variety of analog inputs (0 - 20 mA, 4 - 20 mA, 0 - 10 mA, 2 - 10 mA, 0 - 10 V, 2 - 10 V, 0 - 5 V, or 1 - 5 V.) Go to www.microscan.com and select your illuminator for details.

4. Apply Power & Dimming Signal



Strobe Operation

- Connect Pin 1 (Brown Wire) to positive terminal of the power supply.
Voltage: 24VDC (20.2 to 28.8VDC)
Current: See Product Label, Specification Sheet, or Configuration Guide
- Connect Pin 2 (White Wire) to the negative terminal of the strobe trigger source.
- Connect Pin 3 (Blue Wire) to the negative terminal of the power supply.
- Connect Pin 4 (Black Wire) to the positive terminal of the strobe trigger source.
Voltage: 0VDC = LEDs Off, 3.1 to 28.8VDC = LEDs On
Current: 10mA Maximum
Pulse Width: 20uS Minimum
LED pulse width will follow trigger signal pulse width from 20uS to 1mS.
LED frequency and pulse width are internally limited to 90Hz and 1mS
- Insulate Pin 5 (Gray Wire)

ATTENTION!

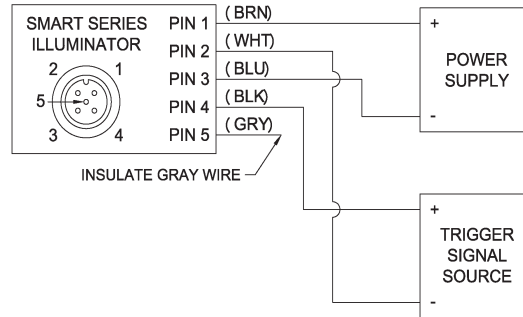
Contact between Pin 5 (Gray Wire) and any ground or voltage source less than or equal to 3.5VDC may cause erratic operation in this configuration.

Contact between Pin 5 (Gray Wire) and any voltage source greater than 3.5VDC will damage the illuminator.

6. Apply Power

Important: The trigger signal must be low (0VDC) when power is first applied. If the trigger signal is high (3.1-28.8VDC) when power is first applied, the illuminator will enter continuous mode.

7. Begin Triggering



Eye Safety

Affix peel and stick eye safety label to a system location visible to system operators and supporting personnel

WARNINGS: For safe use of this product, observe the following warnings.

- Handling:** Surface hot during and after operation, avoid contact.
- Services:** No user serviceable parts inside, contact supplier for services.
- Eye safety:** Products containing LEDs fall under the IEC standard for laser product safety (IEC 60825-1). Please refer to the IEC classification and categorization of NERLITE products below for safe operation.
 - IEC Laser Safety Class Definitions pertinent to NERLITE LED products: IEC Class Code 1 Definition**
Considered as safe to eye and skin under all reasonable foreseeable conditions of operation.
 - IEC Laser Safety Class Definitions pertinent to NERLITE LED products: IEC Class Code 2 Definition**
Will not cause permanent eye damage under all reasonable foreseeable conditions of operation, provided that any exposure may be terminated by the blink reflex of the eye. Since this assumes the eye can detect this radiation, the wavelength range is limited to visible light (400nm to 700nm).

IEC Laser Safety Class Definitions pertinent to NERLITE LED products: IEC Class Code 1M Definition

Considered as safe eye and skin damage under all reasonable foreseeable conditions of operation, provided they are not viewed with magnifying optics of any kind.

IEC Laser Safety Class Definitions pertinent to NERLITE LED products: IEC Class Code 2M Definition

LEDs that emit visible radiation in the wavelength range from 400nm to 700nm where eye protection is normally afforded by aversion responses including the blink reflex. However, viewing of the output may be more hazardous if the user employs optics within the beam

Training: Customers are encouraged to document their unique application and instruct employees to limit exposure to LED radiations. The documentation and instruction should include but not necessarily be limited to:

- Operations are overview of equipment including LED lighting.
- Need for personal protection (e.g. protective eye wear)
- Understanding hazard controls (e.g. warning signs)
- Bio-effects of LED Radiations upon the eyes and skin (refer to <http://www.icnirp.de/documents/led.pdf> for the International Commission on Non-Ionizing Radiations Protection's statements on "LEDS and Laser Diodes: Implications for Hazard Assessment"

General LED Precautions: These devices contains visible and non-visible LEDS- Light Emitting Diodes.

WARNING – RISK OF DISCOMFORT:
Observation of the Class 1,2 ,1M and 2M code definitions are substantial for eye protection.

Flashing LED Precautions: This device contains LEDs – Light Emitting Diodes – that are flashing (aka strobing or pulsing) during operation.

WARNING – RISK OF DISCOMFORT:
Flashing (aka strobing or pulsing) lights have been known to cause discomfort in people; you can prevent this by taking precautions during use.

Blue LED Precautions: This device contains Blue LEDs – Blue Light Emitting Diodes.

WARNING – RISK OF RETINAL DAMAGE:
During operation, these LEDs radiate blue light, requiring that precautions must be taken to prevent looking directly at the blue light with unprotected eyes. Eye protection from visible "blue light" LED radiation can be provided by normal aversion responses (e.g. looking away from light source, blink reflex).

Infra Red (IR) LED Precautions: This device contains IR LEDs – IR Light Emitting Diodes.

WARNING – THERMAL HAZARD: RISK OF LENS DAMAGE:
During operation, these LEDs radiate non-visible thermal energy. Eye hazards are dependant upon brightness of the sources and since IR LED output is non-visible, precautions must be taken to prevent looking toward the output of the LED assembly.

Ultra Violet LED Precautions: This device contains Ultra Violet (UV) LEDs – UV Light Emitting Diodes.

WARNING – RISK OF CORNEA AND LENS DAMAGE: Viewing the LED output with certain optical instruments (for example: eye loupes, magnifiers and microscopes) within a distance of 100 mm may pose an eye hazard. During operation, these LEDs radiate UV light, requiring that precautions must be taken to prevent looking directly at the UV light with unprotected eyes. Do not look directly, or through an optical system, into the UV light. When there is a possibility to receive a reflection of light, protect your eyes by using UV light protective glasses so that light will not reach eyes directly.