

# Tech Spotlight

## Installation Tips for CIS-N-LED Charge Controllers

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Phocos North America

The CIS-N-LED Charge Controller is ideal for solar lighting applications for streets, pathways, parking lots and bus shelters. It combines three functions in one unit: charge controller, timer and LED driver. Its timer capabilities regulate LED brightness to conserve energy.

Here are four tips from our technical support team to make sure your CIS-N-LED is installed properly for trouble-free operations.

### Tip #1: Identify if your LED fixture already has an LED driver

The CIS-N-LED includes a built-in LED driver. If the light fixture already has an LED driver, a charge controller with an LED driver is not needed (and won't work).

Before you select a charge controller confirm if your LED fixture already has an LED driver by reviewing the manufacturer's product specifications. Hint: A wide range of input voltage indicates that the fixture has an LED driver; a single input voltage indicates there is no LED driver. If you are unsure, contact the LED manufacturer.

If you contact Phocos Tech Support, it's helpful if you have your LED spec sheet handy so we can



Phocos CIS-N-LED Charge Controller

identify your LED and help you determine if it has an LED driver.

If your LED fixture has a driver, we recommend our CIS-N Series Charge Controllers to add charge and lighting control only.

### Tip #2: Use at least 5 LEDs in series for 12V systems and 10 LEDs in series for 24V systems

Groups of LEDs are prewired in series circuits, parallel circuits or combined series/parallel circuits. The output voltage range for CIS-N-LED requires specific numbers of LEDs in series for optimal operation:

- 12V system: Use 5-15 LEDs in series (output voltage 15-49V)
- 24V systems: Use 10-15 LED in series (output voltage 30-49V)

Sample wiring diagrams are on the next page, Figures 1 and 2.

For 12V systems, there should be at least 5 LEDs in series. For 24V

systems, the minimum is 10 LEDs in series. Users can calculate LED forward voltage to determine the exact number of LEDs needed to meet CIS-N-LED output voltage specifications. (Forward voltage equals the LED power divided by the LED current or  $V=W/A$ ).

Using improper series configuration leads to premature LED failure because CIS-N-LED cannot supply the proper voltage and current.

### Tip #3: Use CISCOM software for easier set up

CIS-N-LED offers flexibility with adjustable settings for programming timers and dimming to customize for your application. You can use either the CIS-CU or CIS-CU-LCD Remote Control Units for set up, but using our CISCOM software for step-by-step programming from your PC is even easier for optimizing configuration to extend life and save energy.

You can [download the CISCOM software](#) from our website. See Figure 3 for a set-up screen sample.

You'll need the MXI-IR programming accessory to interface the CIS-N-LED and CISCOM programming software on your PC.

**Tip #4: Use the PIR wire for dimming override when people are detected**

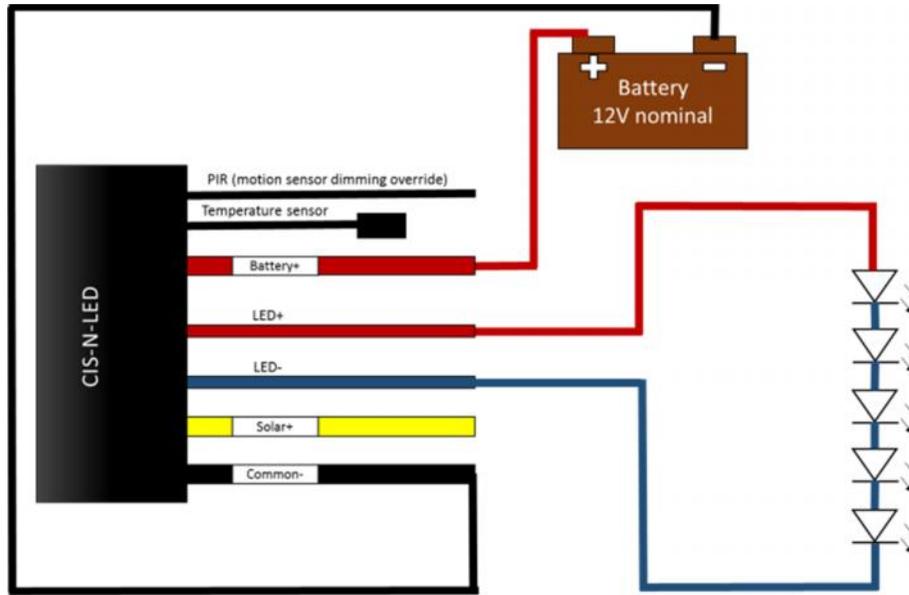
The dimming program can be overridden to set the light to 100% brightness when a person is detected by an external motion sensor. Correct wiring ensures

dimming override functionality, so be sure to match up the CIS-N-LED wiring diagram with the LED wiring diagram. You'll be using the PIR wire on the CIS-N-LED.

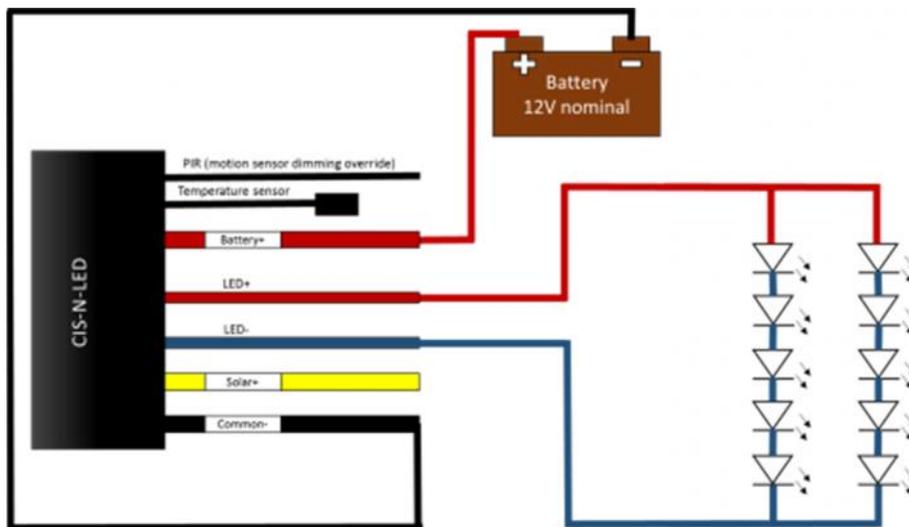
Dimmer level settings are important too: The dimmer override is on when dimming input voltage is set

at a minimum of 4V, and the dimmer override is off if the input voltage is set less than 4V.

If you have any questions, our technical support team is ready to assist. Call us at 520.777.7906 option 2 or email us at [tech.na@phocos.com](mailto:tech.na@phocos.com).



**Figure 1**  
**Tip #2: 5 LEDs in series**  
Sample wiring diagram; not to scale



**Figure 2**  
**Tip #2: 5 LEDs in series with 2 strings in parallel**  
Sample wiring diagram; not to scale

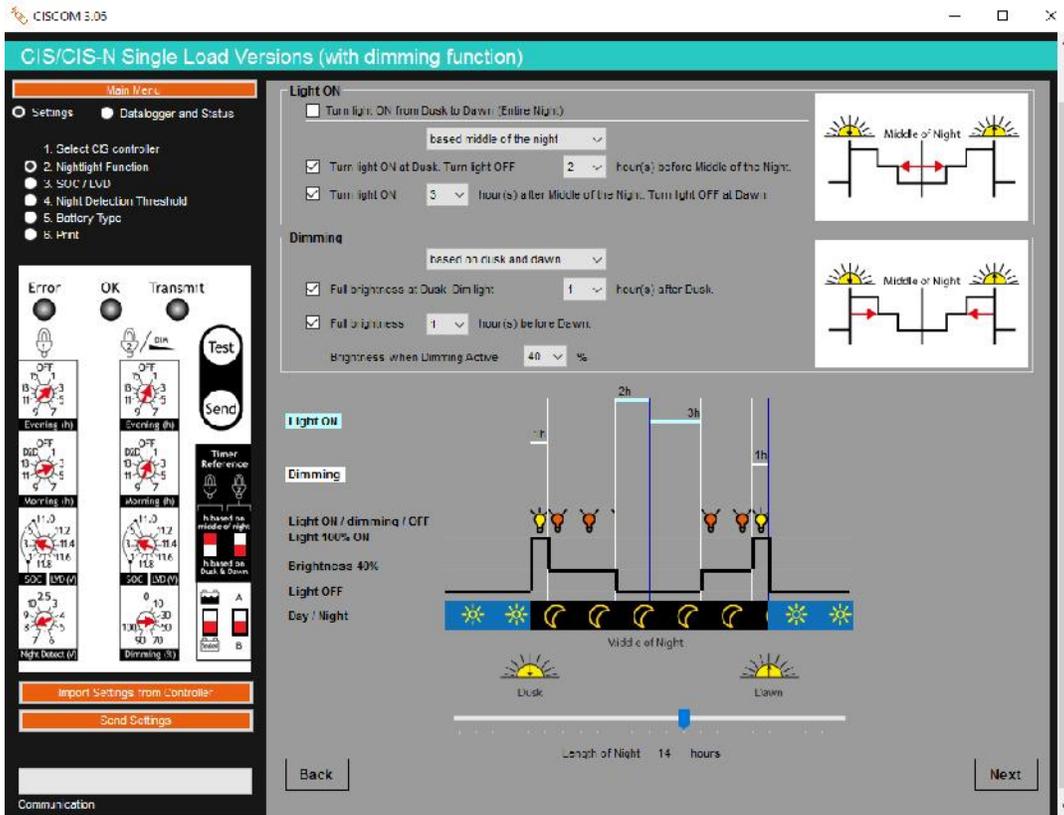


Figure 3  
Tip #3: Sample of step-by-step set up using CISCOM software