

## CIS-LED series (5 – 20 A)

Solar Charge Controller



- Combines three functions in one: charge controller + flexible timer + LED drivers
- Developed especially for rough environments, solar LED lamps, and solar LED street lights
- Fully protected by the encapsulated case (protection class IP68): increased lifetime and reliability, reduced costs
- Flexible dimming functions: renders ambient, pleasant light and extends operation time
- Auto-protect function: two voltage disconnects extends system operation time and reliability
- Small size: fits everywhere

### CIS series:

Charge controllers are the core of every PV system, precisely controlling the energy flow, protecting the battery, and increasing system efficiency. Harsh weather conditions may damage the electronics. In order to protect these core elements, increase system operation time, reliability, and efficiency, Phocos has designed a product line with fully encapsulated housing (protection class IP68): the CIS series.

It is the first line of fully encapsulated 4-stage PWM-charge controllers that can withstand extreme temperature shocks, dust, and water.

CIS series charge controllers with temperature compensation are extremely robust, since there are no moving parts, switches, or buttons. All connections to other devices are made by conductors rather than wire terminals, eliminating risk of damage from external influences. Settings such as battery type, deep discharge disconnects, timers, and other configuration items are made quick and easily by an infrared remote control. The small size of the devices renders extra flexibility, as they fit into every application.

### CIS-LED series:

The Phocos CIS series has now has new members. Specifically developed for rough environments and especially for the requirements of users of solar LED lamps and solar LED

street lights: the CIS-LED series. The highlight of this series is that it combines three functions in one fully protected case: charge controller + flexible timer + LED drivers. The energy required to power LEDs is directly delivered by the charge controller. No other power source is required. Customers get three solutions included in one single product, with many advantages:

- The built-in LED drivers (for up to three LED strings), timer and charge controller are harmonically combined and protected in one fully encapsulated housing (IP68), increasing system reliability, lifetime and lowering investment costs.
- An on/off timer combined with an adjustable dimming function renders flexibility extending operation time and futuremore, saves energy.
- CIS-LED series also offers an auto-protect function: by means of its two low voltage disconnect levels, the LEDs light will automatically be dimmed when the charge of the battery is getting low. The levels can be programmed by means of remote control CIS-CU.

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# CIS-LED series (5 – 20 A)

Solar Charge Controller

Type	CIS-LED 05 1S	CIS-LED 10 2S	CIS-LED 20 3S
System voltage	12 V		
Max. charge/current	5 A	10 A	20 A
Float charge	13.8 V (25 °C)		
Main charge	14.4 V (25 °C), 30 min. (daily)		
Boost charge	14.4 V (25 °C), 2 h Activation: battery voltage < 12.3 V		
Equalization	14.8 V (25 °C), 2 h Activation: battery voltage < 12.1 V (at least every 30 days)		
Deep discharge protection:			
Cut-off voltage	11 – 12 V		
Reconnect level	12.8 V		
Overvoltage protection	15.5 V		
Undervoltage protection	10.5 V		
Max. panel voltage (Overvoltage protection by varistor)	30 V @ 12 V		
Temperature compensation (Charge voltage)	–25 mV/K at 12 V		
Max. self consumption	5 – 10 mA		
Grounding	Negative terminal grounded		
Ambient temperature	–40 to +60 °C		
Max. altitude	4,000 m above sea level		
Battery type	Lead acid (GEL, AGM, flooded)		
Adjustment range:			
Evening/morning hours timer	0 – 15 h / 0 – 14 h		
Night/day PV panel level detection	2.5 – 10 V		
Connection Wire length	10 cm		
Dimensions (W x H x D)	82 x 58 x 20 mm		
Weight	150 g		
Wire cross section	1.5 mm <sup>2</sup>	1.5 mm <sup>2</sup>	2.5 mm <sup>2</sup>
Type of protection	IP68 (1.5 m, 72 h)		

LED driver data	CIS-LED 05	CIS-LED 10	CIS-LED 20
Output voltage	15 V to 38 V (5 to 10 LEDs per string)		
Nominal output current per sting	300 mA		
Length of LED temperature sensor conductor	50 cm		
Dimming level	0 – 100% (adjust step 10%)		

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