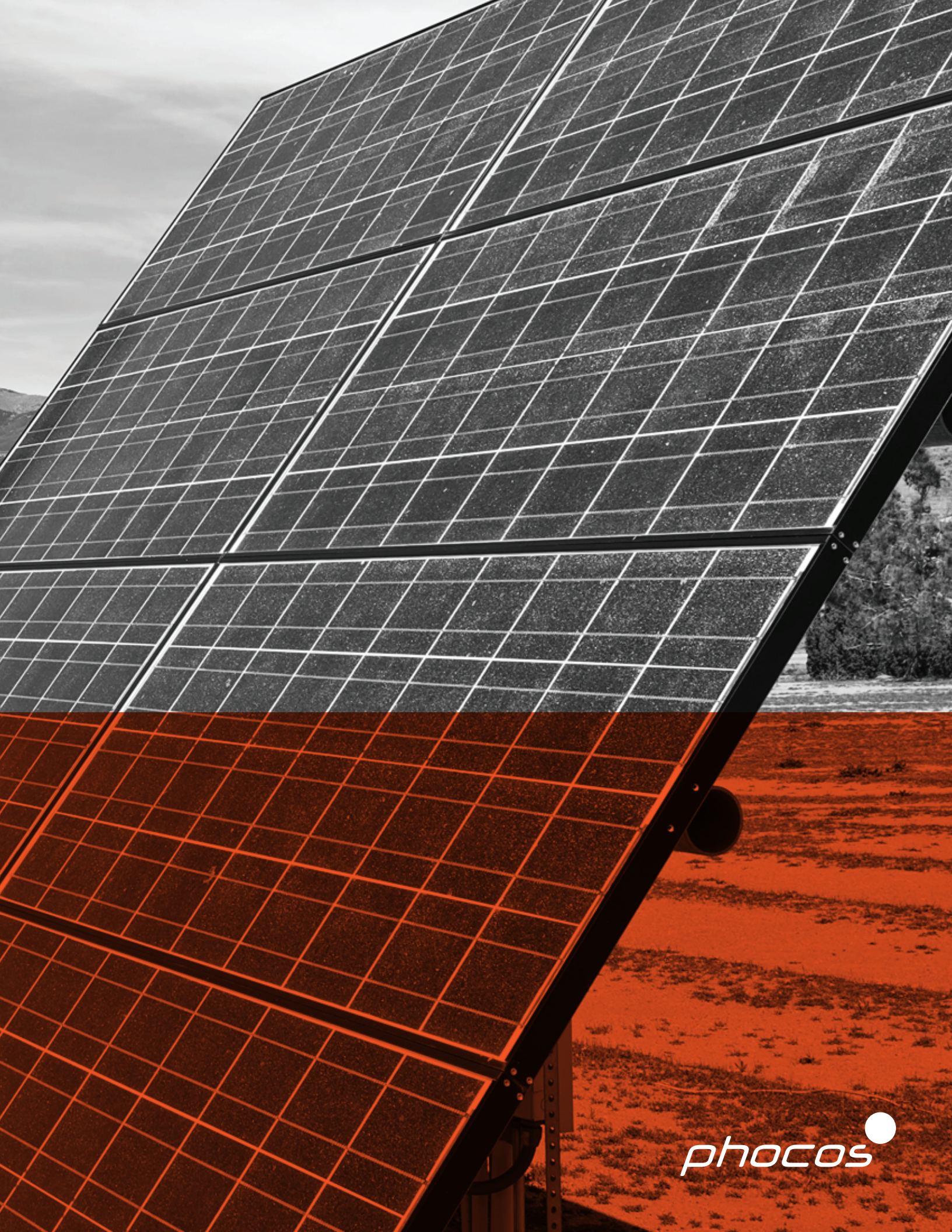




MPPT Charge Controllers 



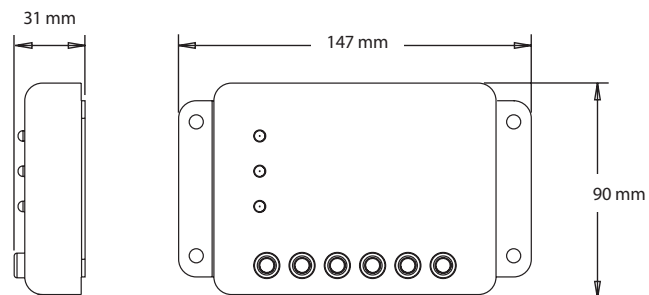


*phocos* 





### Technical Drawing



### Product Introduction

ECO-N-MPPT is the intelligent, cost-effective choice for low-power applications that require maximum charging efficiency. Phocos' high-performance maximum power point tracking (MPPT) algorithm ensures optimal charging current from your panel/array in all conditions. This results in up to 30% higher power yield than conventional PWM charge controllers. This added efficiency paired with Phocos' precision 4-stage, temperature-compensated charge regime significantly extends battery lifespan, reducing number of battery replacements over the useable life of the system.

The encapsulated housing and corrosion-resistant wire terminals protect the ECO-N-MPPT from the harshest environments. An intuitive, 3-LED interface display basic system status data including: charge on/off, low battery warning, high/low-voltage disconnect, and load over current/short circuit.

### Product Features

- Works in 12 or 24 V battery systems (auto recognition)
- Up to 98% power-conversion efficiency
- Compact footprint fits in tight spaces
- Rugged, potted design withstands vibration, dust, insects and water ingress
- Install requires only a flathead screwdriver
- Built-in low-voltage disconnect feature
- Four-stage charging ensures maximum battery lifespan
- User-selectable battery type
- LiFePO4 battery compatible
- Programmable night light, battery type, charging voltages and discharge voltage limit

### Optional Accessories



#### MXI and MXI-232

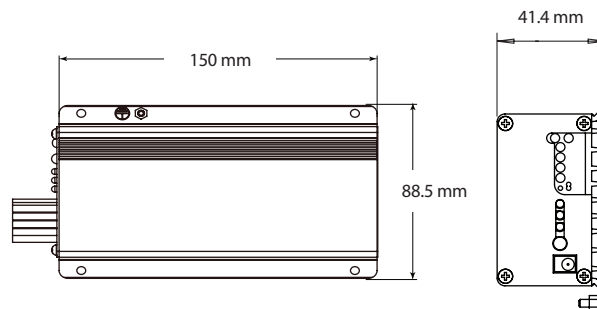
- Interface for CXNup controller communication with computer via USB or RS232 interface

### Technical Data

Type	ECO-N-MPPT-85/15
System Voltage	12 / 24 V auto recognition
Max. Charge/Load Current	15 A
Float Charge	13.8 / 27.6 V (25 °C)
Main Charge	14.4 / 28.8 V (25 °C), 0.5 h daily
Boost Charge	14.4 / 28.8 V (25 °C), 2 h; activation: battery voltage <12.3 / 24.6 V
Equalization Charge	14.8 / 29.6 V (25 °C), 2 h; activation: battery voltage <12.1 / 24.2 V (at least every 30 days)
Deep-Discharge Protection	11.00-12.00 / 22.00-24.04 V (by SOC) 11.0-11.9 / 22.0-23.8 V (by voltage)
Reconnect Level	12.8 / 25.6 V
Overvoltage Protection	15.5 / 31.0 V
Undervoltage Protection	10.5 / 21.0 V
Max. PV Panel Voltage	50 / 85 V
Max. Usable PV Power	225 W / 450 W
Max. PV Array Power	250 Wp / 500 Wp
Temperature Compensation	-25 mV/K (12V); -50 mV/K (24 V)
Idle Self-Consumption	10 mA / 8 mA
Grounding	Common Negative
Ambient Temperature	-40 to +60 °C
Max. Altitude	4,000 m above sea level
Battery Type	Lead acid (gel, AGM, flooded), LiFePO4 (selectable)
Datalogger	2 years
Max. Wire Cross Section	16 mm <sup>2</sup> (AWG 6)
Dimensions (WxHxD)	147 x 90 x 31 mm / 5.8 x 3.5 x 1.2 in
Weight	1.10 kg / 2.43 lbs
Ingress Protection	IP68 casing / IP21 terminals
Certificates	CE compliant, RoHS compliant
Warranty	5 years



### Technical Drawing



### Product Introduction

The CIS-N-MPPT-LED is a multi-functional solar charge controller with built-in LED boost driver for solar outdoor lighting systems. Equipped with a widely-adjustable automatic light timer that uses solar input voltage to determine day and night, the CIS-N-MPPT-LED adjusts to seasonal changes. In addition, the built-in LED driver features timed and low-voltage dimming of LED strings.

Like all CIS family products, CIS-N-MPPT-LED has been designed for the harshest industrial environments and features a rugged, fully potted (IP68) enclosure that prevents damage from dust, insect and water ingress. The infrared communication feature allows for full-control of light timer settings and LVD customization via remote control accessory (CIS-CU) and full adjustment of the battery charge regime and access to 2 years of system data via USB adaptor (MXI-IR) and our free PC software (CISCOM).

### Product Features

- Three functions in one: MPPT charge controller + light timer + LED driver
- Works in 12 or 24 V systems
- Up to 30% additional power yield compared to conventional PWM controllers
- IP68 ingress protection
- Input for motion detector (PIR)
- Infrared-programmable load timing feature with dimming, which is ideal for lighting systems
- 2 year datalogging memory
- Compatible with 60 cell PV modules

### Driver Data

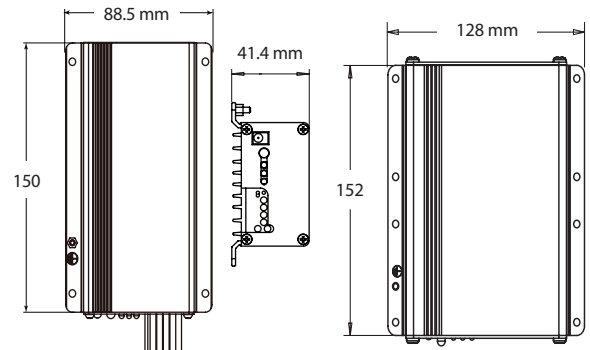
Type	CIS-N-MPPT-LED
Output Voltage	15-69 V (12 V), 30-69 V (24 V)
Nominal Output Current per String	350 - 3,500 mA
Max. Load Power	100 W / 200 W
Dimming Level	0-100 % (1.7 % steps)
PIR-Input	4-30 V with respect to battery negative, $\geq 0.7$ mA; limited protection up to 50 V

### Technical Data

Type	CIS-N-MPPT-LED
System Voltage	12 / 24 V auto recognition
Max. Charge Current	15 A
Float Charge	13.8 / 27.6 V (25 °C)
Main Charge	14.4 / 28.8 V (25 °C), 0.5 h daily
Boost Charge	14.4 / 28.8 V (25 °C), 2 h activation: battery voltage <12.3 / 24.6 V
Equalization Charge	14.8 / 29.6 V (25 °C), 2 h activation: battery voltage <12.1 / 24.2 V (at least every 30 days)
Deep-Discharge Protection	11.0-12.0 / 22.0-24.0 V (by SOC) 11.0-11.9 / 22.0-23.8 V (by voltage)
Reconnect Level	12.8 / 25.6 V
Overvoltage Protection	15.5 / 31.0 V
Undervoltage Protection	10.5 / 21.0 V
Max. PV Panel Voltage	50 V / 85 V
Max. Usable PV Power	225 W / 450 W
Max. PV Array Power	250 W <sub>p</sub> / 500 W <sub>p</sub>
Temperature Compensation	-25 mV/K (12 V); -50 mV/K (24 V)
Idle Self-Consumption	<10 mA
Grounding	Common Negative
Ambient Temperature	-40 to +60 °C
Max. Altitude	4,000 m above sea level
Battery Type	Lead acid (gel, AGM, flooded)
Datalogger	2 years
Wire Length	20 cm / 7.9 in
Wire Cross Section	2.5 mm <sup>2</sup> (AWG 13)
Dimensions (WxHxD)	88.5 x 150 x 41.4 mm / 3.5 x 6 x 1.6 in
Weight	0.78 kg / 1.72 lbs
Ingress Protection	IP68 (1.5 m, 72 h)
Certificates	CE compliant, RoHS compliant
Warranty	5 years



### Technical Drawing



CIS-N-MPPT 85/15

CIS-N-MPPT 100/30

### Product Introduction

Off-Grid PV systems exposed to extreme weather/environmental conditions impose increased risk of damage to the power electronics. In order to ensure reliable battery protection under such conditions, Phocos developed the CIS-N-MPPT charge controller family to prevent corrosion.

The CIS-N-MPPT series include convenient and advanced lighting control, which allows the user to decide whether they want the automatic lighting control with LED dimming to be either time or low-voltage activated.

### Product Features

- Infrared-programmable load timing feature with dimming ideal for lighting systems
- 2 years of system performance data accessible via MXI-IR interface, PC software (CISCOM)
- Up to 98% power conversion efficiency
- Up to 4-stage charging increases battery lifespan
- I/V or I/U curve sweep algorithm increases performance when panels are shaded
- Fully encapsulated anodized aluminum housing design prevents damage from corrosion, insects and dust
- 20 cm connection wire
- Compatible with 60 cell solar modules
- Compatible with Lithium batteries (no BMS communication)
- IP68 Ingress Protection

### Optional Accessories

#### CIS-CU

- Infrared remote control

#### MXI-IR

- Infrared to USB programming accessory and interface to CISCOM software

### Technical Data

Type	CIS-N-MPPT 85/15	CIS-N-MPPT 100/30
System Voltage	12 / 24 V auto recognition	
Max. Charge/Load Current	15 A	30 A
Float Charge	13.8 / 27.6 V (25 °C)	
Main Charge	14.4 / 28.8 V (25 °C), 0.5 h daily	
Boost Charge	14.4 / 28.8 V (25 °C), for 2 h activation: battery voltage < 12.3 / 24.6 V	
Equalization Charge	14.8 / 29.6 V (25 °C), for 2 h activation: battery voltage < 12.1 / 24.2 V (at least every 30 days)	
Deep-Discharge Protection	11-11.9 V / 22-23.8 V (by SOC) 11-12.02 V / 22-24.04 V (by voltage)	
Reconnect Level	12.8 V / 25.6 V	
Overvoltage Protection	15.5 V / 31.0 V	
Undervoltage Protection	10.5 V / 21.0 V	
Max. PV Panel Voltage	50 / 85 V	95 V
Max. Usable PV Power	225 W / 450 W	450 W / 900 W
Max. PV Array Power	250 Wp / 500 Wp	600 Wp / 1200 Wp
Temperature Compensation	-25 mV/K (12 V); -50 mV/K (24 V)	
Idle Self-Consumption	15 mA / 8 mA	
Dimming Value	0-100 % (0-10 V output)	
Grounding	Common Negative	
Ambient Temperature	-40 to +60 °C	
Battery Type	Lead acid (gel, AGM, flooded), adjustable	
Datalogger	2 years	
Wire Cross Section	2.5 mm <sup>2</sup> (AWG 13)	3.3 mm <sup>2</sup> (AWG 12)
Dimensions (WxHxD)	88.5 x 150 x 41.4 mm / 3.5 x 6 x 1.6 in	128 x 152 x 43 mm / 5.1 x 6 x 2 in
Weight	0.78 kg / 1.72 lbs	1.45 kg / 2.54 lbs
Ingress Protection	IP68 (1.5 m, 72 h)	
Certificates	CE compliant, RoHS compliant	
Warranty	5 years	