

## CIS series (5 – 20 A)

Solar Charge Controller



- Can be ordered with one output as on-off switch and another as output with dimmer function (CIS) or two on-off switches (CIS-2L)
- Corrosion-proof epoxy-encapsulated PCB (IP68)
- Compact size
- Infrared remote control programming accessory (CU)
- Intelligent timer functions available for lighting control
- Four-stage battery charging (main, float, boost, equalization), temperature compensated
- Automatic system voltage recognition (12/24 V)

Isolated PV systems exposed to extreme weather/environmental conditions (streetlights, navigation buoys, etc.) have increased risk for damage to the power electronics. In order to assure reliable battery protection under such conditions, Phocos developed a fully encapsulated charge controller to prevent corrosion: CIS.

CIS is an industrial-grade charge controller that is suitable for all practical PV applications. It conforms to the IP68 protection system. Four-stage PWM-charging is combined with low-voltage disconnect, flexible load timer functions, and a multi-LED system status display. CIS is available in two versions:

**SingleLoad version with dimming output (CIS):** The CIS comes with a charge output and a control output for dimmable ballasted lamps.

**DualLoad version with two load outputs (CIS-2L):** The CIS-2L comes with two charge outputs to independently control two loads.

The CIS has no moving parts, switches, or buttons. Settings such as battery type, deep discharge thresholds, timers, and other configuration items are made quick and easy by infrared remote control.



Datasheet\_CIS series\_1/2\_e\_2012-04-04\_Subject to change without notice

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| Type                                 | CIS 05   | CIS 10              | CIS 20              |
|--------------------------------------|--|---------------------|---------------------|
|                                      | CIS-2L 05  | CIS-2L 10           | CIS-2L 20           |
| System voltage                       | 12/24 V auto recognition   |                     |                     |
| Max. charge/load current             | 5 A  | 10 A                | 20 A                |
| Float charge                         | 13.8/27.6 V (25 °C)  |                     |                     |
| Main charge                          | 14.4/28.8 V (25 °C), 30 min. (daily)   |                     |                     |
| Boost charge                         | 14.4/28.8 V (25 °C), 2 h<br>Activation: battery voltage < 12.3/24.6 V                          |                     |                     |
| Equalization                         | 14.8/29.6 V (25 °C), 2 h<br>Activation: battery voltage < 12.1/24.2 V (at least every 30 days) |                     |                     |
| Deep discharge protection:           |  |                     |                     |
| Cut-off voltage                      | 11 – 12 V / 22 – 24 V  |                     |                     |
| Reconnect level                      | 12.8/25.6 V  |                     |                     |
| Overvoltage protection               | 15.5/31.0 V  |                     |                     |
| Undervoltage protection              | 10.5/21 V  |                     |                     |
| Max. panel voltage                   | $U_{BATmin} + 30 V$ (if module and battery are connected with correct polarity)                |                     |                     |
| Overvoltage protection by varistor   | 55 V   |                     |                     |
| Temperature compensation             | –25 mV/K at 12 V   |                     |                     |
| (Charge voltage)                     | –50 mV/K at 24 V   |                     |                     |
| Max. own consumption                 | 5 – 8 mA at 12 V<br>6 – 10 mA at 24 V  |                     |                     |
| Grounding                            | Positive grounding possible  |                     |                     |
| 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                | 0 – 15 h / 0 – 14 h  |                     |                     |
| Night/day detection                  | 2.5 – 10 V   |                     |                     |
| 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)   |                     |                     |
| <b>Technical data dimming output</b> | <b>CIS 05</b>  | <b>CIS 10</b>       | <b>CIS 20</b>       |
| Dimming value                        | 0 – 100% output power  |                     |                     |
| Dimming output voltage               | 0 – 10 V (max. 1 mA)   |                     |                     |