Phocos CIS-CU

Control Unit
User Manual

Dear Client,

Thank you very much for buying a Phocos product. With your new CIS-CU remote control you own a state-of-the art device which was developed according to the latest technical standards available.

This manual gives important recommendations for installing, using and programming etc. In your own interest, please read it carefully.

General Product Description

- Configures CIS charge controllers via infrared data link
- Simple and clear configuration interface
- User interface: LEDs, rotary switches, toggle switches, buttons
- Power supply: 2 X AA battery

REMARK: For further information regarding the configuration of the CIS-CU remote control please download for free the CISCOM software from our website http://www.phocos.com/downloads/software. The CISCOM software is helpful for simulation and programming of the timer settings of the CIS charge controller series.

Error OK Transmit

1 2 / DIM

Test

Send

OFF
15 1
13 3
5
11 5
9 7
Evening (h)

OFF
15 1
13 3
8
11 5
9 7
Evening (h)

OFF
D2D 1
13 3
6
11 5
9 7
Morning (h)

OFF
D2D 1
13 3
9
11 5
9 7
Morning (h)

11.0
5 11.2
3 **7** 11.4
1 11.6
11.8
SOC LVD (V)

11.0
5 11.2
3 **10** 11.4
1 11.6
SOC LVD (V)

10 2.5 3
9 **12** 4
8 5
7 6
Night Detect (V)

0
10
100 **11** 30
90 50
70
Dimming (%)

Timer Reference

1 2
h based on
middle of night
1 **2**

h based on
Dusk & Dawn

3 **4**
Sealed A B

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How to use CIS-CU

Configuring your CIS using the CIS-CU is very easy.
Set all switches to desired settings ---> Press "Send" button ---> Wait for response.

Buzzer Response

▬▬▬▬▬ After transmitting	Programming error
▬ ▬ ▬ After transmitting	Programming successful
▬ After pressing test button	Test command transmitted
▬▬▬▬ After pressing button	CIS-CU battery empty

LED Response

"Error" after "Transmit"	Programing error
"Error" while "Transmit"	Low battery
"Error"	Battery empty
"OK" after "Transmit"	Programming successful
"Transmit"	Transmitting

Push Buttons

Test	Load(s) on for 2 minutes [1]
Send	Transmit all settings [2]

[1] If pressing the button causes a load disconnect event (LVD/SOC, over current) the load will be switched off.
[2] This action will send all the settings to the CIS controller. Be sure to program only one CIS at a time.

|	Load 1	Load 2	
Timer Reference	1	2	Hours based on middle of night or dusk and dawn
Evening (h)	5	8	1-15 hours
Morning (h)	6	9	1-14 hours and D2D (Dusk to Dawn) mode
SOC LVD (V)	7	10	State of charge (SOC) and voltage controlled (LVD)

[1] Voltage controlled (LVD):
Disconnect at a fixed voltage between 11.0/22.0V and 11.9/23.8V (step 0.1V).
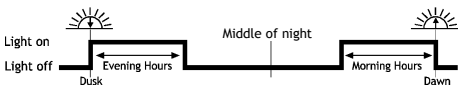
[2] State of charge (SOC) controlled:
Disconnect at 11.00 V/22.00 V to 11.70 V/23.40 V (SOC1), 11.12 V/22.24 V to 11.76 V/23.52 V (SOC2), 11.25 V/22.50 V to 11.83 V/23.63 V (SOC3), 11.38 V/22.72 V to 11.89 V/23.78 V (SOC4), 11.51 V/23.02 V to 11.96 V/23.92 V (SOC5), 11.64 V/23.28 V to 12.02 V/24.04V (SOC6).

■ Evening/Morning modes
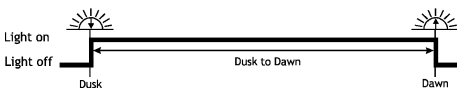
Hours based on middle of night (toggle switch up).
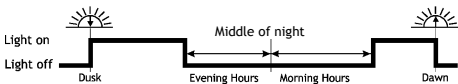
Hours based on Dusk & Dawn (toggle switch down).

■ Dusk to Dawn mode

D2D means Dusk to Dawn mode. (Rotary switch 6 and 9)

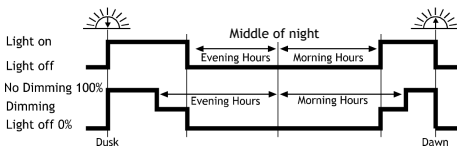■ Standard controller mode (Morning h and Evening h OFF)

Switch off both morning and evening hours to activate standard controller mode. Loads are always on if no load disconnect event (LVD/SOC, over current) happens.

## Load Control Function (Single Load Controller)

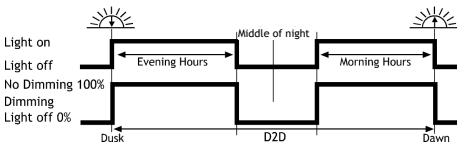|	Load	Dimming	
Timer Reference	1	2	Hours based on middle of night or dusk and dawn
Evening (h)	5	8	1-15 hours
Morning (h)	6	9	1-14 hours and D2D (Dusk to Dawn) mode
SOC LVD (V)	7	10	State of charge (SOC) and voltage controlled (LVD)
Dimming (%)	N/A	11	Dimming values (0-100%, step 10%)

■ Evening/Morning modes

1. Hours based on middle of night (toggle switch up).
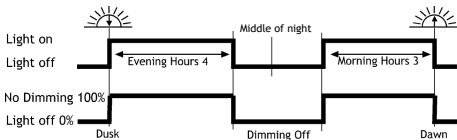

2. Hours based on Dusk & Dawn (toggle switch down).
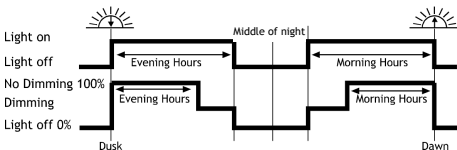
3. Load Evening/Morning, Dimming D2D (Dusk to Dawn) (rotary switch 9).
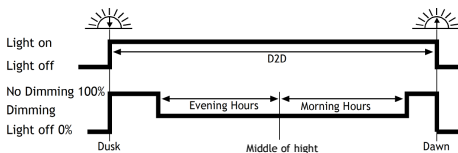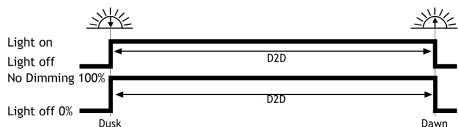

4. Load Evening/Morning, Dimming Off[1] Mode.

[1] Switch off both morning and evening hours to activate dimming off mode. Loads are always on if no load disconnect event happens (LVD/SOC, over current).
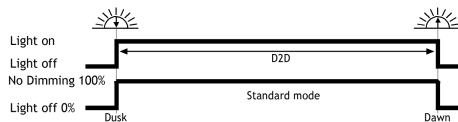
■ Dusk to Dawn mode

1. Load D2D mode, dimming evening/morning mode

Light on
Light off
D2D
No Dimming 100%
Dimming
Evening Hours   Morning Hours
Light off 0%
Dusk   Middle of hight   Dawn

2. Load D2D mode, dimming D2D mode

Light on
Light off
D2D
No Dimming 100%
D2D
Light off 0%
Dusk   Dawn

3. Load D2D mode, dimming off mode

Light on
Light off
D2D
No Dimming 100%
Standard mode
Light off 0%
Dusk   Dawn

■ Standard controller mode (Morning h and Evening h OFF)

Switch off both morning and evening hours to activite standard controller mode. Loads are always on if no load disconnect event (LVD/SOC, over current) happens.
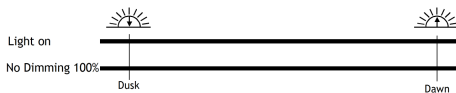
1. Load standard, dimming Evening/Morning mode
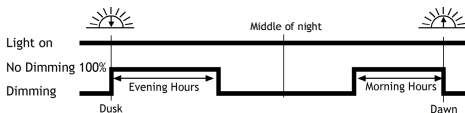
2. Load standard, dimming D2D mode

3. Load standard, dimming off mode

NOTE: Dimming can also be activated based on battery SOC/LVD. Set a value using rotary switch 10; if the battery voltage falls below the value, the dimming function is activated.

Night Detection Function

Night detect (V) (rotary switch 12) is used to set the night detection voltage. For the controller, dusk starts when the panel voltage falls to this value. Dawn starts when voltage rises to the day detection voltage, which equals night detection + 1.5 V. To find the appropriate value, we recommend measuring the solar array open circuit voltage at the time when twilight has reached the level when the controller should assume night has begun.
CIS factory default is 8 V.

NOTE: Toggle Switch 4 is reserved for future use.

CIS-CU Working Range

The CIS-CU can operate at up to 10 m distance from the CIS provided you are positioned and the CIS-CU is pointed directly in front of the CIS unit.
If you would like to configure more than one CIS, be sure to have visual proximity/contact to only one CIS unit at a time. To assure this, keep a minimum angle and distance to the others as shown below.
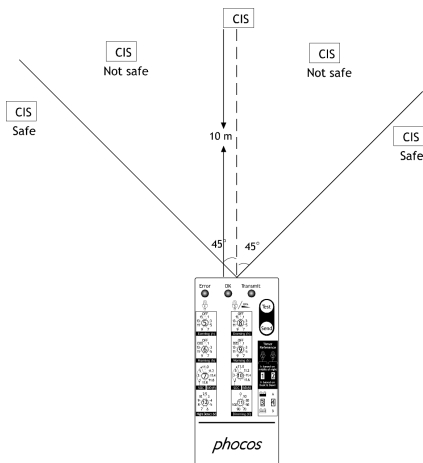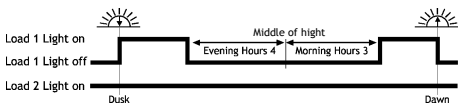
Configuration Examples

■ CIS05/10/20-2L (Dual Load)
Load 1: Dual timer (Load on till 4 hours to middle of night, from 3 hours after middle of night), LVD: 11.4 V.
Load 2: Standard controller, LVD: 11.9 V.
Battery type: flooded, night detection: 5.5 V.

Load control function:

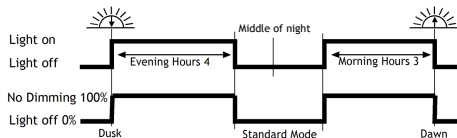Night and day detection voltage (solar open circuit voltage):

Evening (h) Load 1 (Rotary Switch 5)	OFF 15·1 13–3 11·5	Evening (h) Load 2 (Rotary Switch 8)	OFF 15·1 13–3 11·5
Morning (h) Load 1 (Rotary Switch 6)	OFF D2D·1 13–3 11·5	Morning (h) Load 2 (Rotary Switch 9)	OFF D2D·1 13–3 11·5
SOC LVD (V) Load 1 (Rotary Switch 7)	11.0 5·11.2 3–11.4 1·11.6	SOC LVD (V) Load 2 (Rotary Switch 10)	11.0 5·11.2 3–11.4 1·11.6
Night Detection (V) Load 1 and Load 2 (Rotary Switch 12)	2,5 10·3 9–4 8·5 7·6	Dimming (%) (Rotary Switch 11)	Don't Care
Timer Reference Load 1 (Toggle Switch 1)	UP	Timer Reference Load 2 (Toggle Switch 2)	Don't Care
Battery Type (Toggle Switch 3)	UP		

■ CIS05/10/20 (Single Load, No Dimming)

1. Dual timer (load on for 4 hours after dusk, 3 hours before dawn), LVD: 11.4 V, no dimming, sealed battery, night detect: 5.5 V.
Load control function:

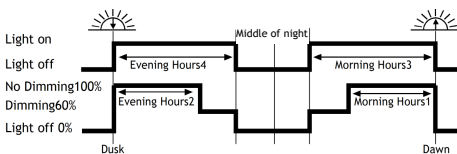Night and day detection voltage (solar open circuit voltage):

5.5/11.0 V   7.0/12.5 V
    Dusk   Dawn

Evening (h) Load (Rotary Switch 5)		Evening (h) Dimming (Rotary Switch 8)	
Morning (h) Load (Rotary Switch 6)		Morning (h) Dimming (Rotary Switch 9)	
SOC LVD (V) Load (Rotary Switch 7)		SOC LVD (V) Dimming (Rotary Switch 10)	Don't Care
Night Detection (V) Load and Dimming (Rotary Switch 12)		Dimming (%) (Rotary Switch 11)	
Timer Reference Load (Toggle Switch 1)	Down	Timer Reference Dimming (Toggle Switch 2)	Don't Care
Battery Type (Toggle Switch 3)	Down		

■ CIS05/10/20 (Single Load, Dimming)

Dual timer (load on for 4 hours after dusk, 3 hours before dawn), LVD: 11.4 V, dimming (evening h 2, morning h 1, dimming LVD 11.9 V), sealed battery, dimming value: 60%, night detection: 5.5 V.

NOTE: Dimming will also be activated if battery falls below 11.9 V.

Load control function:

Night and day detection voltage (solar open circuit voltage):

Evening (h) Load (Rotary Switch 5)	OFF / 1 / 3 / 5 (15, 13, 11)	Evening (h) Dimming (Rotary Switch 8)	OFF / 1 / 3 / 5 (15, 13, 11)
Morning (h) Load (Rotary Switch 6)	D2D / 1 / 3 / 5 (13, 11)	Morning (h) Dimming (Rotary Switch 9)	D2D / 1 / 3 / 5 (13, 11)
SOC LVD (V) Load (Rotary Switch 7)	11.0 / 11.2 / 11.4 / 11.6 (3)	SOC LVD (V) Dimming (Rotary Switch 10)	11.0 / 11.2 / 11.4 / 11.6 (5, 3)
Night Detection (V) Load and Dimming (Rotary Switch 12)	2.5 / 3 / 4 / 5 / 6 / 7 / 8 / 9 / 10	Dimming (%) (Rotary Switch 11)	0 / 10 / 30 / 50 / 70 / 90 / 100
Timer Reference Load (Toggle Switch 1)	Down	Timer Reference Dimming (Toggle Switch 2)	Down
Battery Type (Toggle Switch 3)	Down		

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Technical Data

Power consumption	Max. 100 mA
Run-time	Up to 20 k programmings with 2000 mAh batteries
Dimensions	70 mm x 135 mm x 24 mm
Weight	150 g (without batteries)
Type of protection	IP22
Ambient temperature	-40 to +60 °C

Liability Exclusion

The manufacturer shall not be liable for damages, especially on the battery, caused by use other than as intended or as mentioned in this manual or if the recommendations of the battery manufacturer are neglected. The manufacturer shall not be liable if there has been service or repair carried out by any unauthorized person, or for unusual use, wrong installation, or bad system design.