

The Core of Independence



Phocos CIS-CU

Control Unit

遥控器



User Manual (1-11)

用户说明书 (12-22)

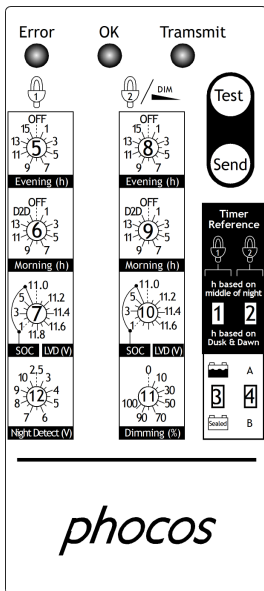
CID:181812511

Dear Client,

Thank you very much for buying a Phocos product. With your new CIS-CU remote controller you own a state-of-the-art device which was developed according to the latest available technical standards. This manual gives important recommendations for installing, using and programming as so on. Read it carefully in your own interest please.

General Product Description

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



How to use CU

To configure CIS by 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	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 the same time.

Load Control Function (Dual Load Controller)

	Load 1	Load 2	
Timer Reference	1	2	Hours base 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):

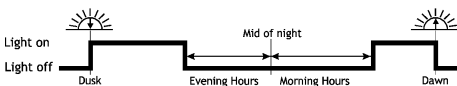
Disconnect at a fixed voltage between 11.0/22.0V and 11.9/23.8V (Step 0.1V).

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).

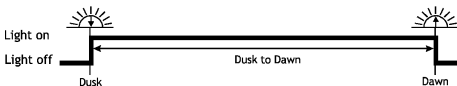


Hours based on Dusk & Dawn (toggle switch down).



■ Dusk to Dawn mode

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



■ Standard Controller Mode (Morning h and Evening h OFF)

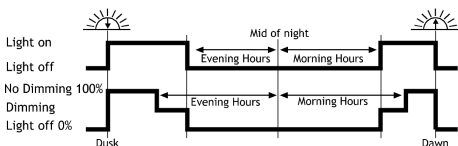
Switch off both morning and evening hours to active standard controller mode. Loads are always on if no load disconnect event (LVD/SOC, over current) happens.

Load Control Function (Single Load Controller)

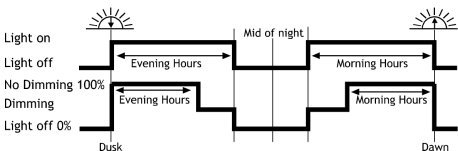
	Load	Dimming	
Timer Reference	1	2	Hours base on middle of night or dusk and dawn
Evening (h)	5	8	1-15 hours
Morning (h)	6	9	1-14 hours and D2D (Dusk to Dawn) mode
SOC LVD (V)	7	10	State of charge (SOC) and Voltage controlled (LVD)
Dimming (%)	N/A	11	Dimming values (0-100%, step 10%)

■ Evening/Morning modes

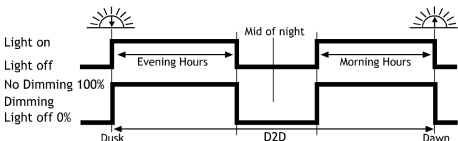
1. Hours based on middle of night (toggle switch up).



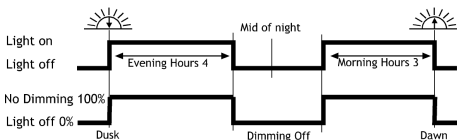
2. Hours based on Dusk & Dawn (toggle switch down).



3. Load Evening/Morning, Dimming D2D (Dusk to Dawn) (rotary switch 9).



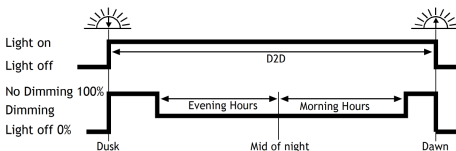
4. Load Evening/Morning, Dimming Off¹ Mode.



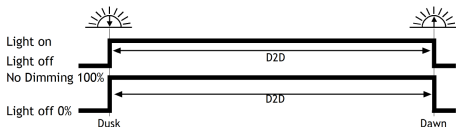
¹⁾ Switch off both morning and evening hours to active Dimming off mode. Loads are always on if no load disconnect event happens (LVD/SOC, over current) .

■ Dusk to Dawn mode

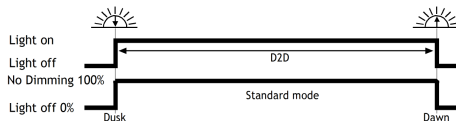
1. Load D2D mode, Dimming Evening/Morning mode



2. Load D2D mode, Dimming D2D mode



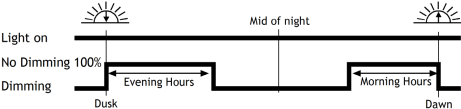
3. Load D2D mode, Dimming OFF Mode



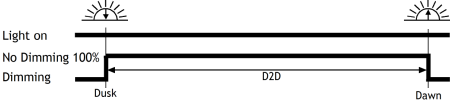
■ Standard Controller Mode (Morning h and Evening h OFF)

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

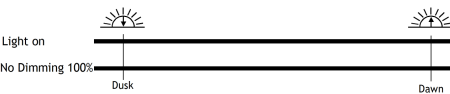
1. Load Standard, Dimming Evening/Morning mode



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 Detect Function

Night detect (V)(Rotary switch 12) is used to set the Night Detect Voltage. For the controller, dusk starts when the panel voltage falls to this value. Dawn starts when voltage rises to the Day Detect Voltage, which equals Night Detect + 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 8V.

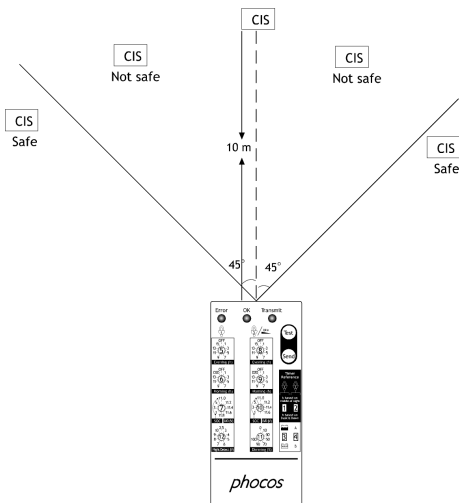
NOTE: Toggle Switch 4 is reserved for future use.

CU Working Range

The CU can operate at up to 10 m distance from the CIS provided you are positioned and 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.



Example Configurations

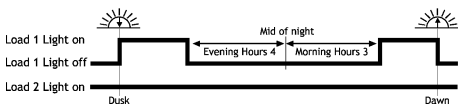
■ CIS05/10/20-2L (Dual Load)

Load 1: Dual Timer (Load on till 4 hours to Mid of Night, from 3 hours after Mid of Night), LVD: 11.4 V.

Load 2: Standard controller, LVD: 11.9V.

Battery type: Flooded, night detect: 8.0 V.

Load Control Function:



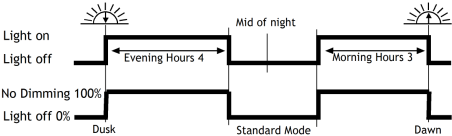
Night and Day detect voltage (Solar open circuit voltage):



Evening (h) Load 1 (Rotary Switch 5)		Evening (h) Load 2 (Rotary Switch 8)	
Morning (h) Load 1 (Rotary Switch 6)		Morning (h) Load 2 (Rotary Switch 9)	
SOC LVD (V) Load 1 (Rotary Switch 7)		SOC LVD (V) Load 2 (Rotary Switch 10)	
Night Detect (V) Load 1 and Load 2 (Rotary Switch 12)		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 detect voltage (Solar open circuit voltage):



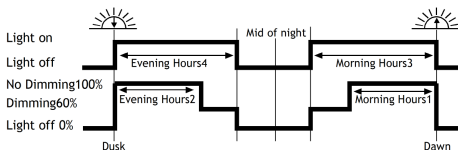
Evening (h) Load (Rotary Switch 5)		Evening (h) Dimming (Rotary Switch 8)	
Morning (h) Load (Rotary Switch 6)		Morning (h) Dimming (Rotary Switch 9)	
SOC LVD (V) Load (Rotary Switch 7)		SOC LVD (V) Dimming (Rotary Switch 10)	Don't Care
Night Detect (V) Load and Dimming (Rotary Switch 12)		Dimming (%) (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 detect: 5.5 V.

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

Load Control Function:



Night and Day detect voltage (Solar open circuit voltage):



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)	
Night Detect (V) Load and Dimming (Rotary Switch 12)		Dimming (%) (Rotary Switch 11)	
Timer Reference Load (Toggle Switch 1)	Down	Timer Reference Dimming (Toggle Switch 2)	Down
Battery Type (Toggle Switch 3)	Down		

Power Consumption	Max. 100 mA
Run-time	Up to 20 k programmings with 2000mAh batteries
Dimensions	70 mm x 135 mm x 24 mm
Weight	150 g (without batteries)
Case Protection	IP22
Ambient Temperature Range	-40 to +60 °C

Subject to change without notice.
 Version: 20090902
 Made in one of the following countries:
 Germany - China - Bolivia - India
 Phocos AG - Germany
www.phocos.com

ISO9001:2000

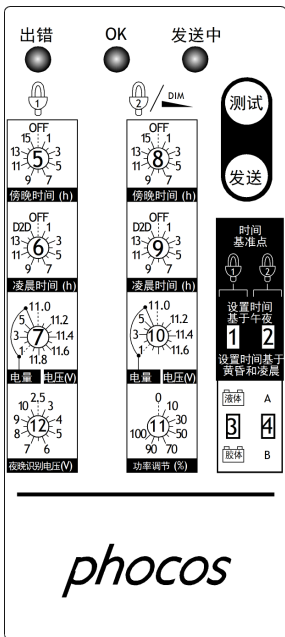
 RoHS

亲爱的用户：

非常感谢您选择 Phocos 产品。新一代的 CIS-CU 遥控器，是一款根据最新的技术标准开发的，代表最新工业技术发展水平的产品。此产品说明书提供一些与控制器有关的重要建议，包括安装、使用、编程等。使用产品前请仔细阅读此说明书。

产品描述

- 设置 CIS 系列控制器的专用红外线遥控器
- 界面设计简单清晰易懂
- 用户界面包括: LEDs, 旋转开关, 拨码开关, 按键
- 电源: 2 X AA 电池



通过 CU 遥控器可以很方便的设置 CIS 控制器。
把所用的开关拨到合适的位置 ---> 按“Send”键 ---> 等待响应。

蜂鸣器响应

■■■■■ “Transmit” 灯亮后	设置失败
■ ■ ■ ■ ■ “Transmit” 灯亮后	设置成功
■ 按“Test”键后	测试命令发送成功
■■■■■ 按键后	CU 电池没电

LED 响应

“Transmit” 灯亮后 “Error” 灯亮	设置失败
“Transmit” 和 “Error” 同时亮	电池电量低
“Error” 灯亮	电池没电
“Transmit” 灯亮后 “OK” 灯亮	设置成功
“Transmit” 灯亮	正在发送设置到 CIS 控制器

按键功能

Test	测试功能，打开负载 2 分钟 ¹
Send	发送所有设置 ²

- 1) 如果按编程按钮打开负载后，导致系统进入 LVD(放电保护)、过流保护等状态，负载会自动关闭。当系统处于 LVD 状态时，测试功能不可用。
- 2) 按“Send”键会发送所有设置到 CIS 控制器。请确定同时只设置一台 CIS 控制器。

负载控制功能 (双负载 CIS 控制器)

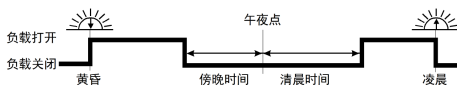
遥控器上标识	负载 1	负载 2	
Timer Reference	1	2	设置时间基于午夜或黄昏和凌晨
Evening (h)	5	8	夜晚时间 1-15 小时
Morning (h)	6	9	清晨时间 1-14 小时和 D2D(黄昏到凌晨)模式
SOC LVD (V)	7	10	低压保护模式为电池电量控制(SOC)或电压控制(LVD)

- 1) 蓄电池电量方式(SOC)控制：断开负载在 11.00 V/22.00 V 至 11.70/23.40 V(SOC1), 11.12 V/22.24 V 至 11.76/23.52 V (SOC2), 11.25 V/22.50 V 至 11.83/23.63 V (SOC3), 11.38 V/ 22.72 V 至 11.89/23.78 V (SOC4), 11.51 V/23.02 V 至 11.96 / 23.92 V (SOC5), 11.64 V/23.28 V 至 12.02/24.04 V (SOC6)。
- 2) 蓄电池电压(LVD)控制：切断负载电压固定值，11.0 / 22.0 V 至 11.9 / 23.8 V。(精度 0.1 V)

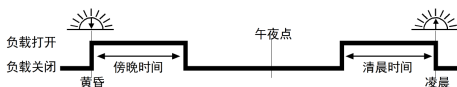
注释：斜线前后的数值分别代表在 12 V 和 24 V 系统中的电压值。

■ 夜晚/清晨两段式

设置时间基于午夜(拨码开关位于上方)

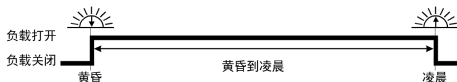


设置时间基于黄昏和凌晨(拨码开关位于下方)



■ 黄昏到凌晨模式

在遥控器上用 D2D 表示黄昏到凌晨模式。(旋转开关 6 和 9)



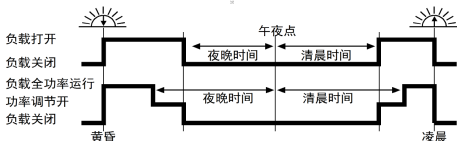
■ 通用控制器模式, Morning (h) 和 Evening (h) 都在 OFF 位置

Morning (h) 和 Evening (h) 都在 OFF 的位置时, 控制器的负载控制模式是通用控制器模式。在这种模式下, 如果没有负载切断的事件发生(LVD/SOC, 过流), 负载一直有输出。

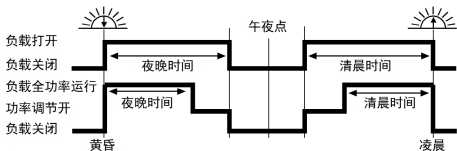
遥控器上标识	负载	功率调节	
Timer Reference	1	2	设置时间基于午夜或黄昏和凌晨
Evening (h)	5	8	夜晚时间 1-15 小时
Morning (h)	6	9	清晨时间 1-14 小时和 D2D(黄昏到凌晨)模式
SOC LVD (V)	7	10	低压保护模式为电池电量控制 (SOC)或电压控制(LVD)
Dimming (%)	N/A	11	功率调节百分比(0-100%, 精度 10%)

■ 夜晚/清晨两段式

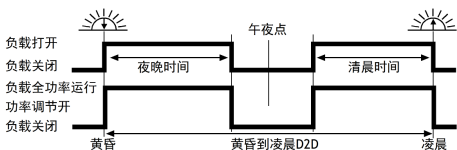
1. 设置时间基于午夜 (拨码开关位于上方)

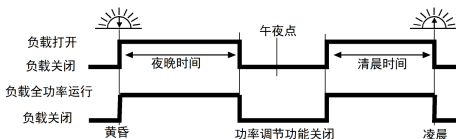


2. 设置时间基于黄昏和凌晨 (拨码开关位于下方)



3. 负载夜晚/清晨两段式, 功率调节功能黄昏到凌晨 (旋转开关 9).

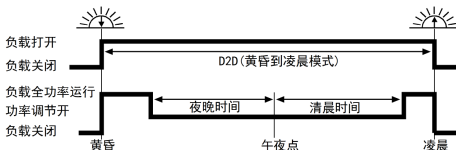


4. 负载夜晚/清晨两段式, 功率调节功能关闭¹⁾

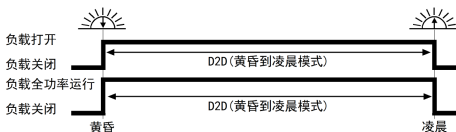
¹⁾ 旋转开关 8 (Evening (h)) 和 9 (Morning (h)) 都拨到 OFF 的位置, 关闭功率调节功能。

■ 黄昏到凌晨模式

1. 负载黄昏到凌晨模式, 功率调节功能夜晚/清晨两段式



2. 负载黄昏到凌晨模式, 功率调节功能黄昏到凌晨模式



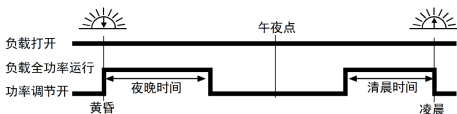
3. 负载黄昏到凌晨模式, 功率调节功能关闭



■ 通用控制器模式 (Morning (h) 和 Evening (h) 都拨到 OFF)

Morning (h) 和 Evening (h) 都在 OFF 的位置时, 控制器的负载控制模式是通用控制器模式。在这种模式下, 如果没有负载切断的事件发生(LVD/SOC, 过流), 负载一直有输出。

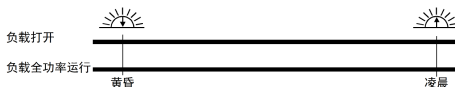
1. 负载通用控制器模式, 功率调节功能傍晚/清晨两段式



2. 负载通用控制器模式, 功率调节功能黄昏到凌晨模式



3. 负载通用控制器模式, 功率调节功能关闭



注释: 功率调节功能也有低压保护功能 (SOC/LVD), 旋转开关 10 用于设置其数值。如果蓄电池电压低于设定值, 负载调节功能开。

夜晚识别功能

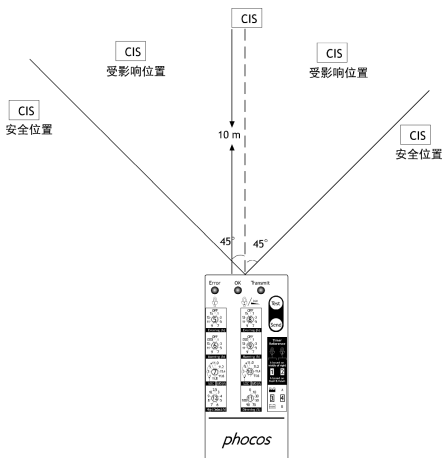
CIS 控制器通过测量太阳能电池板的开路电压识别 (Night detect (V) 旋转开关 12)。当太阳能电池板电压降到设定值时, 控制器认为傍晚开始。太阳能电池板电压升到白天识别电压时, 控制器认为白天开始, 白天识别电压=夜晚识别电压+1.5 V。我们推荐, 用户在黄昏来临或凌晨来临时 (在用户需要控制器打开或关闭负载端时), 测量太阳能电池板的开路电压。根据这个数值可以设置你想要的白天夜晚识别电压。

CIS 夜晚识别电压出厂设置值为 8 V。

注释: 拨码开关 4 预留, 供将来使用。

CU 的最长有效距离是 10 m。在这种情况下，CU 方向必须要对准 CIS 控制器才能有效传输。

如果在很小的范围内有多个 CIS 控制器，进行设置时就很有可能影响到其他控制器。为了避免这一情况的发生，在设置 CIS 时，请保证其他的控制器在下图所示的范围(角度和距离)之外。



设置实例

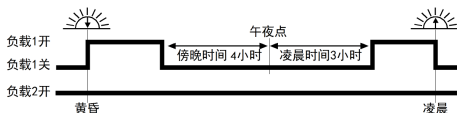
■ CIS05/10/20-2L (双负载控制器)

负载 1: 夜晚/清晨两段式 (负载在午夜前 4 小时关闭，午夜后 3 小时打开，直到凌晨关闭)，低压保护电压(LVD): 11.4 V。

负载 2: 通用控制器模式，低压保护电压(LVD): 11.9V。

蓄电池类型: 液体蓄电池，夜晚识别电压: 8.0 V。

负载运行图解:



夜晚和白天识别电压(太阳能端开路电压):



Evening (h) 傍晚时间 负载 1 (旋转开关 5)	OFF 15 1 13 3 11 5	Evening (h) 傍晚时间 负载 2 (旋转开关 8)	OFF 15 1 13 3 11 5
Morning (h) 凌晨时间 负载 1 (旋转开关 6)	OFF D2D 1 13 3 11 5	Morning (h) 凌晨时间 负载 2 (旋转开关 9)	OFF D2D 1 13 3 11 5
SOC LVD (V) 低压保护 负载 1 (旋转开关 7)	11.0 11.2 5 3 1 11.6	SOC LVD (V) 低压保护 负载 2 (旋转开关 10)	11.0 11.2 5 3 1 11.6
Night Detect (V) 夜晚识别电压 负载 1 和负载 2 (旋转开关 12)	2.5 3 10 4 9 5 8	Dimming (%) 功率调节 (旋转开关 11)	不起作用
Timer Reference 负载 1 时间基准 (拨码开关 1)	上	Timer Reference 负载 2 时间基准 (拨码开关 2)	不起作用
蓄电池类型 (拨码开关 3)	上		

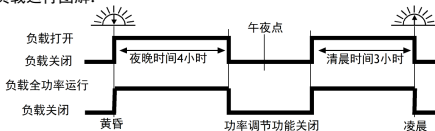
■ CIS05/10/20 (单负载, 功率调节功能关)

负载: 夜晚/清晨两段式 (负载傍晚开启 4 小时, 凌晨开启 3 小时),

低压保护电压(LVD): 11.4 V, 胶体蓄电池, 夜晚识别电压: 5.5 V。

功率调节功能关闭。

负载运行图解:



夜晚和白天识别电压(太阳能端开路电压):



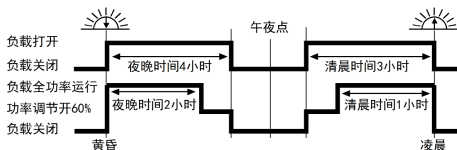
Evening (h) 傍晚时间 负载 (旋转开关 5)	OFF 15 1 13 3 11 5	Evening (h) 傍晚时间 功率调节功能 (旋转开关 8)	OFF 15 1 13 3 11 5
Morning (h) 凌晨时间 负载 (旋转开关 6)	OFF D2D 1 13 3 11 5	Morning (h) 凌晨时间 功率调节功能 (旋转开关 9)	OFF D2D 1 13 3 11 5
SOC LVD (V) 低压保护 负载 (旋转开关 7)	11.0 5 11.2 3 11.4 1 11.6	SOC LVD (V) 低压保护 功率调节功能 (旋转开关 10)	不起作用
Night Detect (V) 夜晚识别电压 负载和功率调节 (旋转开关 12)	2.5 3 10 4 9 5 8 6 7	Dimming (%) 功率调节功能 (旋转开关 11)	0 10 30 50 100 70 90
Timer Reference 负载时间基准 (拨码开关 1)	下	Timer Reference 功率调节时间基 准 (拨码开关 2)	不起作用
蓄电池类型 (拨码开关 3)	下		

■ CIS05/10/20 (单负载, 功率调节开)

负载: 夜晚/清晨两段式 (负载傍晚开启 4 小时, 凌晨开启 3 小时),
 低压保护电压 (LVD): 11.4 V, 胶体蓄电池, 夜晚识别电压: 5.5 V。
 功率调节功能: 夜晚时间 2 小时, 清晨时间 1 小时, 功率调节低压保护电压 11.9 V, 功率调节值 60%。

注释: 如果蓄电池电压低于 11.9 V, 功率调节功能也会开启。

负载运行图解:



夜晚和白天识别电压(太阳能端开路电压):



Evening (h) 傍晚时间 负载 (旋转开关 5)	OFF 15 1 13 3 11 5	Evening (h) 傍晚时间 功率调节功能 (旋转开关 8)	OFF 15 1 13 3 11 5
Morning (h) 凌晨时间 负载 (旋转开关 6)	OFF D2D 1 13 3 11 5	Morning (h) 凌晨时间 功率调节功能 (旋转开关 9)	OFF D2D 1 13 3 11 5
SOC LVD (V) 低压保护 负载 (旋转开关 7)	11.0 5 11.2 3 11.4 1 11.6	SOC LVD (V) 低压保护 功率调节功能 (旋转开关 10)	11.0 5 11.2 3 11.4 1 11.6
Night Detect (V) 夜晚识别电压 负载和功率调节 (旋转开关 12)	2.5 10 3 9 4 8 5 7 6	Dimming (%) 功率调节功能 (旋转开关 11)	0 10 30 100 50 90 70
Timer Reference 负载时间基准 (拨码开关 1)	下	Timer Reference 功率调节时间基 准 (拨码开关 2)	下
蓄电池类型 (拨码开关 3)	下		

遥控器自消耗电流	最大 100 mA
2000 mAh 电池使用寿命	可成功设置高于 20000 次 CIS 控制器
尺寸	70 mm x 135 mm x 24 mm
重量	150 g (除去电池重量)
防护等级	IP22
环境温度范围	-40 to +60 °C

如有更改，恕不另行通知。

版本: 20090902

在以下国家制造:

德国 - 中国 - 玻利维亚 - 印度

Phocos AG - Germany

www.phocos.com

ISO9001:2000

 RoHS