PRO USER ELECTRONICS SCP30 Solar Panel Battery Controller Instruction Manual

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⚠ Read this manual before using this product.

Contents

IMPORTANT SAFETY INSTRUCTIONS & WARNINGS

⚠ **SAVE THESE INSTRUCTIONS:** This manual contains important safety and operating instructions for the Pro-User Electronics solar panel battery controller.

Pro-User Electronics accepts no liability for direct or indirect damage caused by faulty assembly or connection, a usage of damaged or altered products, a usage for purposes other than described and especially caused by failure to follow these instructions.

- Battery posts, terminals and related accessories contain lead and lead components, and other chemicals known to the State of European to cause cancer and birth defects or other reproductive harm. Always wash your hands after handling these devices.
- Do not operate the solar panel battery controller with damaged wiring. Replace wires immediately if damaged.
- All lead acid batteries have the potential to emit gasses that may combine into a combustible or explosive mixture. In many cases, it is possible that lead acid batteries will emit these gasses during normal discharge and charging operations. Because of this potential danger, it is important that you follow the precautions recommended by both the battery and battery charger manufacturers before using either one. For example, do not exceed the recommended maximum recharge rate (charger output current limit), or remove cell caps while charging flooded batteries.
- Install the solar panel battery controller as far away from the battery as possible and in a well ventilated area.
- Do not expose the Solar Charger Controller to any rain, snow, spray, or moisture of any kind.
  This device is not designed for outdoor use.
- Do not use attachments that are not recommended or sold by the charger manufacturer. To do otherwise may result in the risk of electric shock, fire, or possibly some other unforeseen potential personal injury situations.
- When leaving a battery charger connected to either a sealed (AGM or GEL) or non-sealed (flooded battery) for extended periods of time (weeks, months, etc.), periodically check the battery to see if it is unusually warm. This is an indication that the battery may have a weak cell and that it could go into a thermal runaway condition. If the battery releases an excessive amount of gas or if the battery gets hotter than 55 degrees during charging, disconnect the charger and allow the battery to cool. Overheating may result in plate distortion, internal shorting, drying out or other damage. For flooded batteries, also check individual cell fluid levels against manufacturer’s recommendations for safe operation.
- Never smoke or allow a source of electric spark or open flame in the vicinity of the battery or engine. (For

example: don’t charge the battery next to a gas water heater.)

- Do not operate the solar panel battery controller where ventilation is restricted. The intent here is to allow sufficient airflow to minimize and dissipate the heat generated by the Solar Charger Controller and to diffuse the gasses that may be emitted by the battery.
- Never disassemble or attempt to do internal repairs. This voids the warranty. Disassembling the Solar Charger Controller incorrectly may result in the risk of electric shock or create a fire hazard.
- Never charge a visibly damaged or frozen battery.
- After opening the package, examine all parts for visible damage. If you have found any damage, please contact the company you purchased this unit from.
- Electrical devices are not toys. Keep the product away from children.

Personal precautions when you work near lead-acid batteries:

- Someone should be within range of your voice or close enough to come to your aid if you have an accident.
- Have plenty of fresh water and soap nearby in case battery acid contacts skin, clothing, or eyes.
- Wear complete eye protection and protective clothing. Avoid touching your eyes while working near a battery. If battery acid contacts your skin or clothing, wash immediately with soap and water. If acid enters an eye, immediately flood the eye with running cold water for at least 10 minutes and get medical attention as soon as possible.
- Be extra cautious when handling metal tools around a battery. If you drop a metal tool near a battery it might spark or create a short circuit between the battery terminals and some other metal part. Either event may cause a dangerous electrical shock hazard, a fire, or even an explosion.
- Remove all personal metal items such as rings, bracelets, necklaces, and watches when working with a lead acid battery. A lead-acid battery can produce a short-circuited current high enough to weld a metal ring or other piece of jewelry, causing a severe burn.

PRODUCT SPECIFICATIONS

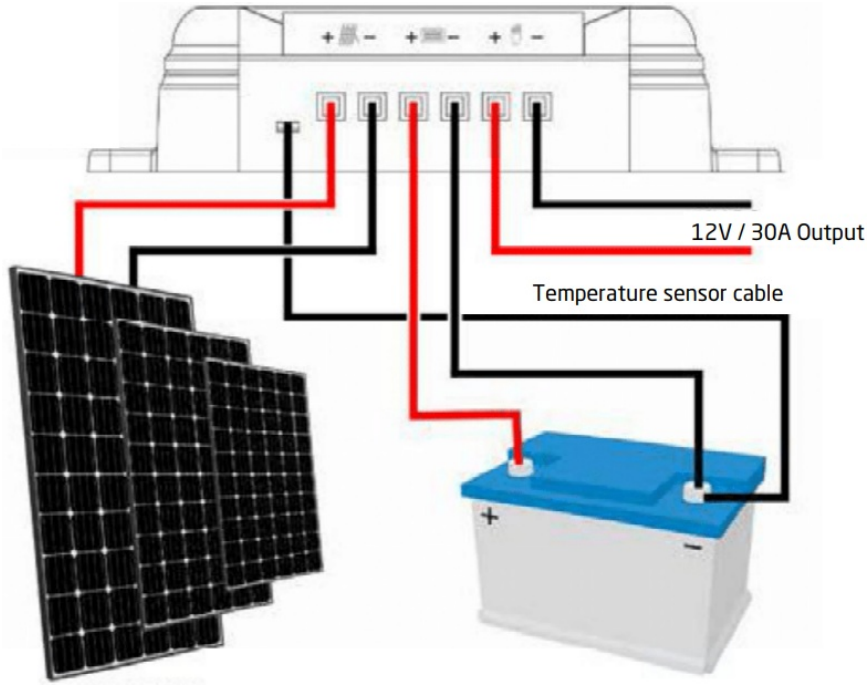
Solar Panel Battery Controller	SCP30
Art. No.	18281
EAN	8717809182814
Technology	PWM
Battery Types	SLA/AGM/LiFePO4(12V)
Max. Input Voltage	50V
Max. Input Power	12V / 450W – 24V / 900W
Max. Output	30A
USB Output (2x)	5V / 2.4A
Working Temperature	-10 – 50 degrees
Dimensions LxWxH	108x190x51 mm
Weight	560 gr.
Certification	CE
Warranty	2 Years

Package contents:

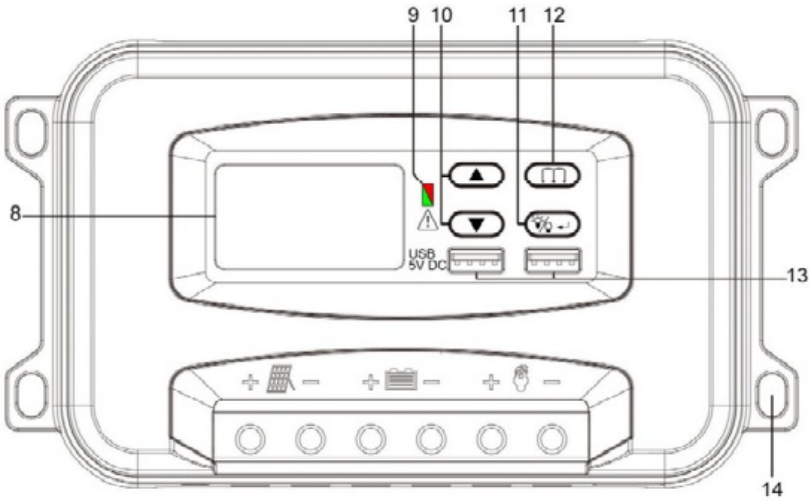
1. Solar panel battery controller SCP30 (PWM)
2. Temperature sensor cable
3. Instruction manual

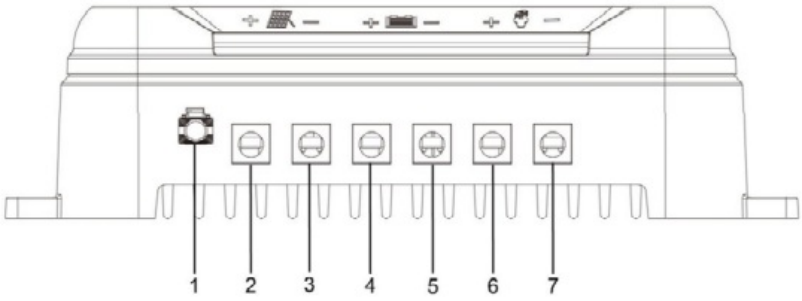
WIRING SCHEME

Note: Use only a minimum of 10AWG / 6mm2 wire for all connections.



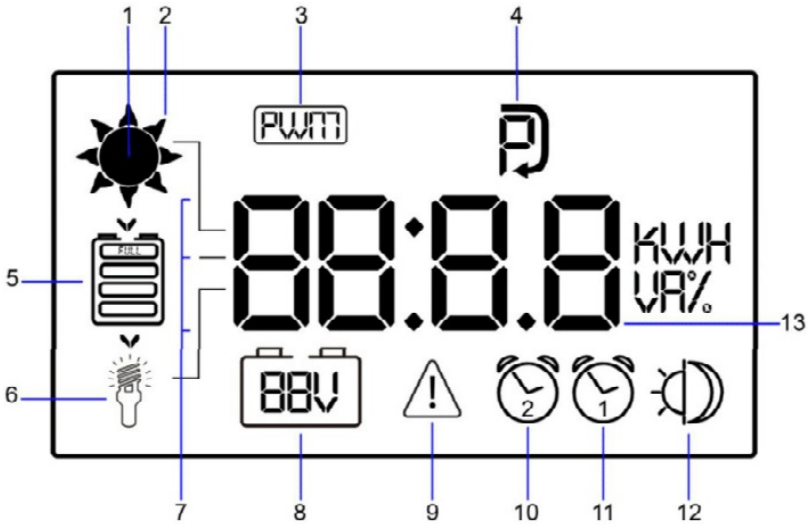
EXPLANATIONS FRONT





1. Temperature sensor input
2. Solar panel + positive input
3. Solar panel – negative input
4. Battery + positive output
5. Battery – negative output
6. Load + positive output
7. Load – negative output
8. LCD Screen (see next page for descriptions)
9. Solar panel charging LED – flashes during charging, turns solid when fully charged. If insufficent sun light the LED will not illiminate.
10. Scroll up and down menu buttons.
11. Enter/OK button
12. Menu button
13. USB output – 5VDC, 2.4Amp.
14. One of four mounting slots.

EXPLANATIONS LCD



1. Sun icon displayed when solar panel is connected.
2. Sunlight rays, 8 in total, shows the charging current rate. (1-8).
3. **PWM indication.** Pulse Width Modulation.
4. **Settings icon:** turn on when entering the setting parameters and turn offwhen exiting.
5. **Battery level icon;** displays icons according to the battery voltage.
6. **Load icon:** turns on when the load is turned on, synchronized with the load switch ON.
7. **Connections:** Three segments. Top corresponds to PV, middle corresponds to battery, bottom corresponds to load.
8. Currently identified battery type (12/24V).
9. Protection icon. When this icon appears, it indicates that the controller has some protection such as load overcurrent, short circuit protection, undervoltage protection, etc. (Refer to the failure code).
10. Load timing clock 2.
11. Load timing clock 1.
12. Daytime and nighttime Icons. When PV is > 12V the half sun icon will appear. When PV is <12V the half-moon icon will appear.
13. Numerical Display (8888 characters). Can be switched by the menu button to display Battery Voltage/Load Voltage/PV voltage/time.

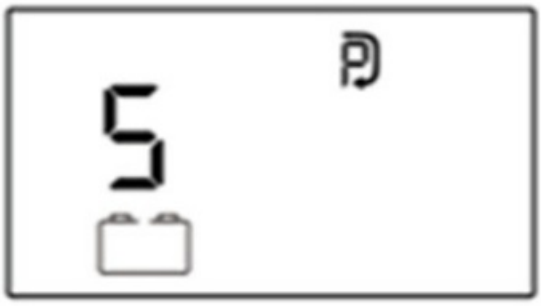
LCD MENU SETTING

Menu button

Enter button

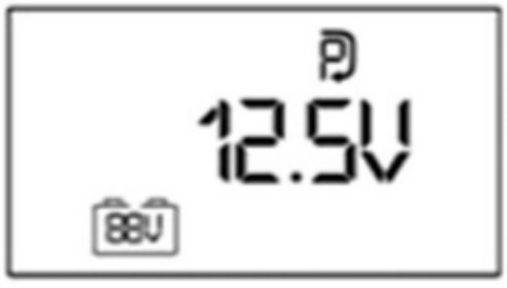
Settings icon (LCD)

1. To enter the menu screen press the menu button once, then press again and hold for two (2) seconds. The settings icon will then appear and the first LCD settings screen will also appear.
   To move to the next LCD settings screen press the menu button.
2. **Battery type selection:**
   There are three (3) battery chemistry types to chose from. S-Standard lead acid. L=Lithium. A=AGM. Press the enter button and the battery type will flash. Then use the up/down scroll button to change the battery type. Press enter button to set. Press menu button to move to the next LCD screen.



3. **Low voltage protection cut off value:**
   When your battery reaches this voltage the output load will be tur- ned off. Press the enter button and the voltage# will flash. Then use the up/down scroll button to change the voltage. Press enter button to set. Default is set at 10.0V. Press menu button to move to the next LCD screen.

4. **Low voltage recovery re-engage:**
   When your battery voltage has charged back up to this voltage the out load will reactivate Press the enter button and the voltage# will flash. Then use the up/down scroll button to change the voltage. Press enter button to set. Default is set at 12.5V. Press menu button to move to the next LCD screen.



5. **Time Setting (24hr):**
   Set the time in 24hr format. Press the enter button and the hour# will flash. Then use the up/down scroll button to change the hour. Press enter button to set. The minute# will then flash. Then use the up/down scroll button to change the minutes. Press enter button to set. Pressmen button to move to the next screen.

LdU MODE: Load on/off based on the PV input voltage (Day and night): (Day and night):
When the PV input voltage drops below 10V (during the night hours or cloud cover) you can set the regulator to activate the output load automatically. Press the enter button and the OFF/ON will flash.
Then use the up/down scroll button to change to ON. Press enter button to set. The clock 1 screen will then appear.

Clock 1 screen
Clock 1 symbol is on. The default is sixty (60) minutes. This means when the PV input voltage drops below 10V, sixty (60) minutes later the load output will be activated. Clock 1 is a power on timer and can be set from 0 to 120 minutes. Use the up/down scroll button to change the minutes. Press enter button to set. The clock screen will then appear.

Clock 2 screen
Clock 2 symbol is on. The default is thirty (30) minutes. This means when the PV input voltage rises to 12.5V (morning time) after thirty (30) minutes the output load will be shut off. Clock 2 is a power off timer and can be set from 0 to 120 minutes. Use the up/down scroll button to change the minutes. Press enter button to set . This will then take you back to the LdU screen, Press enter to move to the next screen.

Ld1 mode: Load on/off based on a set length of time:
This allows you to set the load output to be active for a set length of time. Press the enter button and the OFF/ON will flash. Then use the up/down scroll button to change to ON. Press enter button to set.

The clock 1 screen will then appear.

Clock 1 screen
Clock 1 symbol is on. The default is three (3) hours. This means when the PV input voltage drops below 10V, the output load will be active for 3 hours. This can be set from 0 to 12 hours. Use the up/down scroll button to change the minutes. Press enter button to set. The clock 2 screen will then appear.

Clock 2 Screen
Clock 2 symbol is on. This timer will begin after the clock 1 counting has finished. In this case, after the PV input voltage has dropped to 10V (night hours), the output load will power on for 3 hours, then switch off for 4 hours, then back on again until the PV input voltage has risen to 12.5V at witch time the load will be cut off. This can be set from 0 to 12 hours. Use the up/down scroll button to change the minutes. Press enter button to set. This will then take you back to the Ld1 screen, Press enter to move to the next screen.

LdS MODE: Load On/Off based on the real time LdS MODE: Load On/Off based on the real time
This allows you to set the output load based on 24 hour time (military time). Press the enter button and the OFF/ON will flash. Then use the up/down scroll button to change to ON. Press enter button to set. The clock 1 screen will then appear.

Clock 1 screen
Clock 1 symbol is on. This is a power on timer, and means the output load will be activated at 5.00. This can be set from 0 to 24 hours.

Use the up/down scroll button to change the hours minutes. Press enter button to set. The clock 2 screen will then appear.

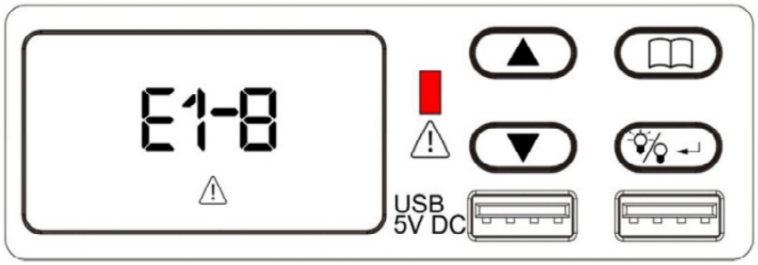
Clock 2 screen
Clock 2 symbol is on. This is a power off timer, and means the output load will will shut off at 6.00. This can be set from 0 to 24 hours. Use the up/down scroll button to change the hours minutes. Press enter button to set. This will then take you back to the LDs screen.

ADDITIONAL SOLAR PANEL BATTERY CONTROLLER INFORMATION/WARNINGS

- Wire the solar panels cables into the connector on the controller; make sure the solar panel input voltage DOES NOT exceed the max limit of the controller. Wire up the battery's positive and negative terminals to the correct connector on the controller (marked by the battery image). The controller will automatically detect the battery voltage scale it is connected to and charge. The switchable output is marked with a bulb. This output is designed to run a modest load(s), such as lights. Read the manual for the full workings of the controller as you can adjust time as to when the output switches on and off ideal for something like security lighting.
- Maximum 450W solar panel at 12V.
- Maximum 900W solar panel at 24V.
- The solar charger controller will automatically detect if you have connected up to a 12V or 24V battery. It will then charge appropriately.

FAILURES

THE RED ERROR LED ON THE FRONT PANEL WILL BE RED IF THERE IS A FAiLURE WITH THE OUTPUT REGULATOR.



E1 Battery reverse connection / reverse polarity (please correct).

E2 Battery open circuit protection / low DC voltage (battery not connected / or battery voltage too low.
E3 Battery over current protection (circuit has constant current function; the controller may be damaged if there is a problem).
E4 Load over current / short circuit protection (T E4 urn on the load after eliminating the error).
E5 Battery over voltage (battery damaged or battery voltage too high).
E6 PV (solar) input over voltage protection. (PV voltage has exceeded the limit).
E7 Over temperature protection, controller will automatically stop charging when the heat sink temperature is ≥ 90°C; and will resume when the temperature is ≤ 60°C.
E8 PV reverse connection (check the voltage and correct) – please ensure polarity is correct.
Note: Please eliminate the fault according to the error code. If the controller does not respond after the error is eliminated remove the power source (battery). If the error persists the controller may be damaged and may need servicing.

TEMPERATURE SENSOR (ONLY LEAD ACID/AGM BATTERIES)

- The system will automatically adjust the float voltage according to the ambient temperature.
  If the external temperature probe is not connected (or the external temperature is <40°C), it uses (temperature ≥ 20°C – 5°C) by default.
- The voltage may vary when the input energy is insufficient to stabilize the energy required for the float charging.
- For 12/24V batteries, when the external probe temperature ≤ 0°C, the float charging voltage is 14.1/28.2V.
- For 12/24V batteries, when the external probe temperature is 0°C~20°C, the float charging voltage is 13.8/27.6V.
- For 12/24V batteries, when the external probe temperature ≥ 20°C, the float charging voltage is 13.5/27V.

Note: If internal head sink temperature exceeds 80° Note: C, the device shall go into approximately half power mode. Shall resume normal operation when internal head sink drops below 75°C If internal head sink exceeds 90°C, the device shall turn off. It will resume charging again when temperature drops below 60°C.

WARRANTY

Pro-User Electronics warrants this product for a period of 2 years from the date of purchase to the original purchaser. Warranty is not transferable. Warranty covers defect against workmanship and materials only. To obtain warranty service, please return the unit to the place of purchase or authorized Pro-User Electronics dealer together with your proof of purchase. The warranty is void if the product has been damaged or not used as described in this manual. Warranty is void if a non-authorized repair has been performed. Pro-User Electronics makes no other warranty expressed or implied. Pro-User Electronics is only responsible for repair or replacement of the defective product and is not responsible for any consequential damage or inconvenience caused by the defect.

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Documents / Resources

	PRO USER ELECTRONICS SCP30 Solar Panel Battery Controller [pdf] Instruction Manual SCP30, SCP30 Solar Panel Battery Controller, Solar Panel Battery Controller, Panel Battery Controller, Battery Controller, Controller

References

- User.com - Marketing Automation Platform
- Pro-User Electronics
- User Manual