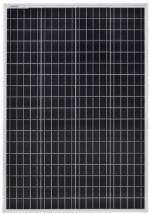

anslut 013669 Solar Cell Package Instruction Manual

Contents

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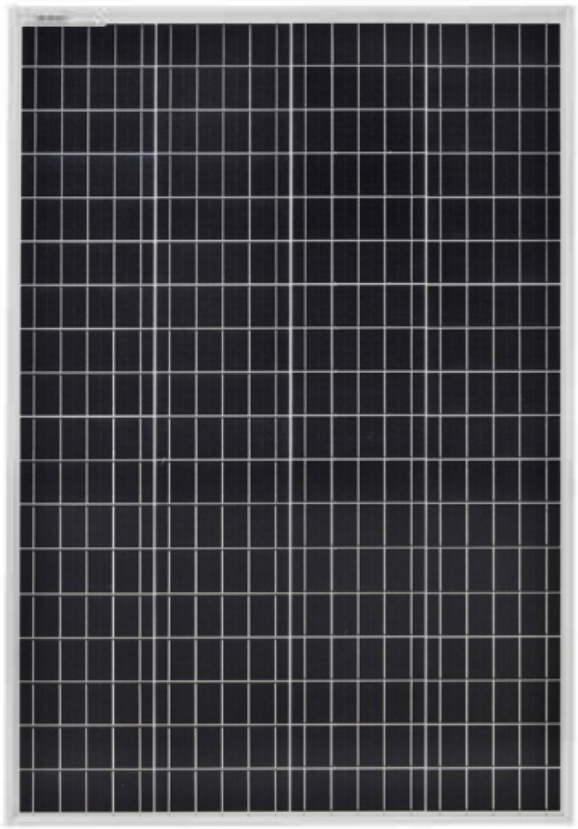


SAFETY INSTRUCTIONS

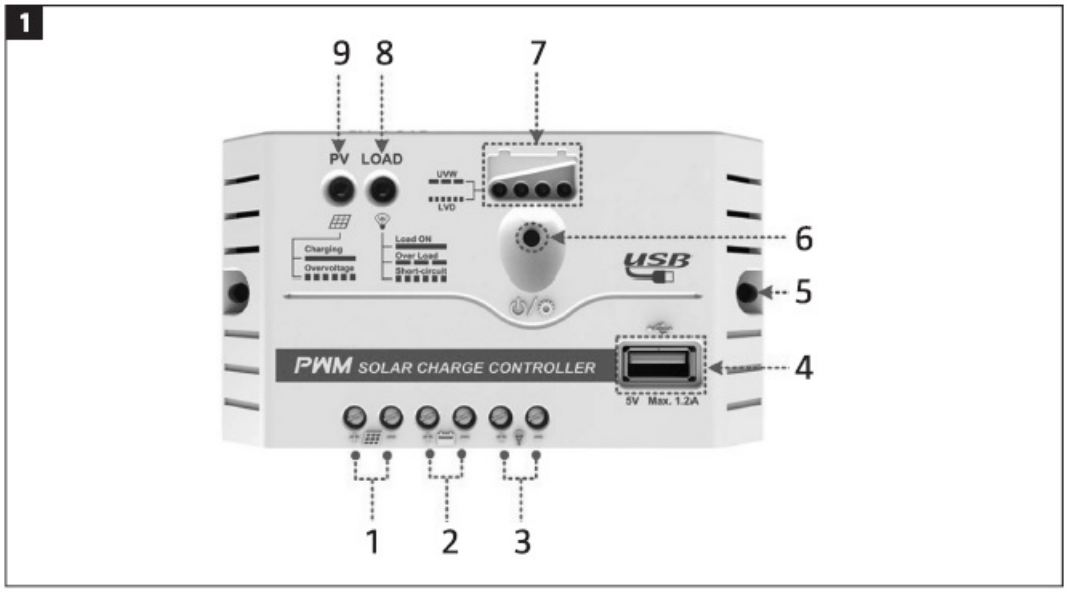
- Connect with correct polarity, red lead to positive terminal(+), black lead to negative terminal (-). Incorrect connection can damage the product.
- Never short-circuit the leads.
- Always connect in the following order: battery ➔ charge controller ➔ load ➔ solar panel.
- Always disconnect in the following order: solar panel ➔ load ➔ battery.
- The output current from the charge controller must not exceed 10 A.
- The only waterproof component on the product is the solar panel.
- Allow the solar panel to charge the battery for 3 days before using the product.
- The product is not intended to be used by persons (children or adults) with any form of functional disorder, unless they are supervised or have received instructions concerning the use of the product by someone who is responsible for their safety.
- Do not expose the battery to naked flames or high temperatures: risk of explosion.
- Recycle the product at the end of its useful life in accordance with local regulations.
- Do not dismantle the product or attempt to modify, or repair it
- Disconnect the solar panel before connecting or moving the charging regulator.
- Check that the power connections are firmly tightened to minimise loss of power and the risk of overheating.
- Only charge batteries with rated data that matches the rated data of the charge controller.
- One or more batteries can be connected.
- Risk of electric shock- both the solar panel and the connected electrical equipment can generate high voltages when the charge controller is working.

SYMBOLS	
	Read the instructions.
	Approved in accordance with the relevant directives.
–	Recycle discarded product in accordance with local regulations.

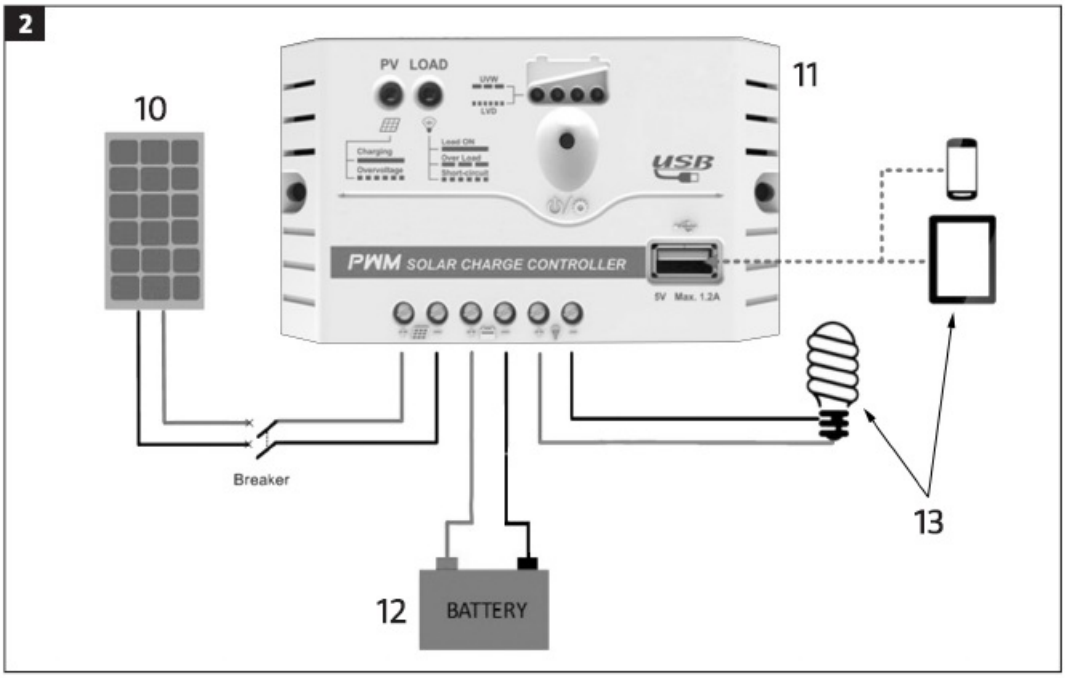
TECHNICAL DATA

- Rated voltage/12 VDC
- Output/013669: 110 W /013670: 160 W
- Regulator/013669: 10 A /013670: 20 A
- Solar panel type/Polycrystalline

DESCRIPTION



1. Solor panel terminals
2. Battery terminals
3. Load terminals
4. USB port
5. Mounting hole
6. Load switch
7. Battery status indicator
8. Charge status indicator
9. Load status indicator



10. Solar panel
11. Charge controller 12 VI 10 A
12. Battery
13. Example of consumer

COMPONENT PARTS

- Solar panel
- Charge controller 12 V / 10 A
- Brackets for solar panel
- Connecting cable charge controllerbattery

INSTALLATION

Connect in the following order: battery ➔ charge controller ➔ load ➔ solar panel. Disconnect in the reverse order.

NOTE:

- The switch must be in the OFF position when connecting the charging regulator. Connect the positive and negative leads with the correct polarity.
- If an inverter is used it should be connected directly to the battery, not to the load terminals on the charge controller.

USE

INTENDED USE
This product is a solar energy system that converts solar energy to electrical energy, and stores it in a rechargeable battery. The battery can then supply DC equipment with power. The product enables the use of electrical equipment at places without a mains supply, such as at remote cottages, orfor camping and outdoor life.

HOW TO USE

1. Place the solar panel so that it is exposed to direct sunlight and not in the shadow. The solar cell side should be turned to the sun.
2. Connect the supplied connecting cable from the rechargeable battery to the battery terminal on the charge controller (marked with battery symbol), with the correct polarity.
3. Connect the electrical equipment to be supplied with power to the load terminal (marked with bulb symbol) on the charge controller.
4. Connect the cable from the solar panel to the solar panel terminal (marked with solar panel symbol) on the charge controller with the correct polarity.
5. Mobile phones, radios etc. can be connected to the USB port on the charge controller.
6. The switch on the charge controller should be in the ON position when supplying power to electrical equipment.

CHARGE CONTROLLER
This is a digital charge controller with pulse width modulation (PWM). It is cost-efficient and easy to use, with functions such as:

- 3-stage intelligent PWM charging
- boost charging, equalisation charging and float charging.
- 3 battery alternative – sealed, gel and wet-cell battery
- status lights for battery status
- battery temperature compensation
- USB port for charging electronic equipment
- button setting of battery type and load output
- electronic safety functions.

SETTINGS

Output (load) ON/OFF
When the charge controller is supplied with voltage, press the button (6) to connect and disconnect the voltage to the output/load.

1. Switch to settings mode by pressing the button (6) for 5 seconds until the battery status light starts flashing.
2. Select the required type of battery by pressing the button (6).
3. The set type of battery is saved automatically if the button is not pressed for 5 seconds, and the status light stops flashing.

Battery type indicator

Indicator 7	Indicator 2	Indicator 3	Battery type
			Sealed
	l:t		Gel
	l:t	l:t	Wet cell

- LED indicator on
- LED indicator off

PROTECTIVE FEATURES

Battery overvoltage, disconnection
When the battery voltage reaches the overvoltage limit the charge controller stops the charging to protect the battery from damage.
Battery undervoltage, over-discharge protection
When the battery voltage reaches the undervoltage limit for over-discharging the charge controller stops the discharging of the battery to protect the battery from overdischarge damage.
Overcurrent protection
The power supply to the connected load is switched off when the current exceeds the rated current 1.25 times. The user must then reduce the connected total load and press the load switch button to reconnect the load.
Short-circuit protection
The power supply to the connected load is switched off if there is a short circuit in the connected load (a short circuit is considered to have occurred if the current is 3 times more than the rated current). The user must then rectify the short circuit and press the load switch button to reconnect the load.
Transient voltage suppression
The charge controller is protected from moderate transient overvoltages. This is only a basic protection – if powerful transient overvoltages are expected, for example in areas subject to frequent thunder storms, the protector should be supplemented with an external transient voltage protector.

CHARGING AND LOAD STATUS

STATUS LAMP	**COLOUR**	**INDICATION I SIGNIFICANCE**	
Charge status indicator	Green	On	Charging in progress
	Green	Off	No charging
	Green	Flashing rapidly	Overvoltage, battery
Load status indicator	Green	On	Load connected and switch ed on
	Green	Off	Load disconnected/not con nected
	Green	Flashing slowly	Overload
	Green	Flashing rapidly I Short circuit	

BATTERY STATUS INDICATOR

INDICATOR1	**INDICATOR2**	**INDICATOR3**	**INDICATOR4**	**BATTERY STATUS**
Flashing slowly				Undervoltage
Flashing rapidly				Over-discharge
Battery status for increasing voltage (charging)				
):/	):/			12.8 V < Ubat < 13.4 V
):/	):/	):/		13.4 V < Ubat < 14.1 V
):/	):/	):/	):/	14.1 V < Ubat
Battery status for decreasing voltage (discharging)				
):/	):/	):/		12.8 V < Ubat < 13.4 V
):/	):/			12.4 V < Ubat < 12.8 V
):/				Ubat < 12.4 V

NOTE: Voltage for 12 V system at 25°C, multiply by 2 for 24 V system.

BATTERY VOLTAGE LIMITS AND CHARGING TIMES

BATTERY TYPE	**SEALED**	**GEL**	**WET CELL**
Ove rvoltage, disconnect ion	16.0 V	16.0 V	16.0 V

Charg ing vol tage, charging stopped	15.0 V	15.0 V	15.0 V
Ove rvoltage, reconnect ion	15.0 V	15.0 V	15.0 V
Charg ing voltage, equa lisat ion charging	14.6 V		14.8 V
Charg ing vol tage, boost charging	14.4 V	14.2 V	14.6 V
Charging voltage, float charging	13.8 V	13.8V	13.8V
Charging voltage, retu rn to boost charging	13.2 V	13.2 V	13.2 V
Undervoltage, reconnection	12.6 V	12.6 V	12.6 V
Undervoltage warn ing stops	12.2 V	12.2 V	12.2 V
Und ervoltage warning	12.0 V	12.0 V	12.0 V
Undervoltage, discon nect ion	lll V	lll V	lll V

Und ervoltage, over-discharge limit	10.6 V	10.6 V	10.6 V
Equalisat ion charging time I 120 min **1–** I 120 min			
Boost charg ing t ime I 120 min I 120 min i 120 min			

MAINTENANCE

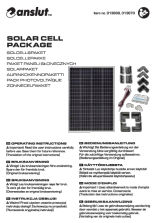
Clean the surface of the solar panel at regular intervals with a soft cloth.

TROUBLESHOOTING

The charge controller goes off durin g the day in sunlight.	Solar panel connections loose or br oken.	Check that the solar panel and batt ery leads are correctly connected t o their respective terminals and that they are firmly tightened.
All the status lights are off.	Very low battery voltage, probably l ess than 8 V.	Measure the battery voltage with a multimeter. The charge controller n eeds at least 8 V to start.
The charge status indicator is flashi ng rapidly.	Overvoltage, battery.	Check if the battery voltage exceed s the disconnection limit, and disco nnect from the solar panel.
Status light 1 flashing rapidly.	Undervoltage, battery.	The battery voltage has dropped be low the disconnection limit and the over-dis charge protector has disconnected the load from the battery. When the battery voltage is restored to at lea st the reconnection limit, the load is reconnected.
The load status indicator is flashing slowly.	Overload.*	Disconnect one or more connected loads to reduce the power output.

When the output current (power consumption of load) reaches 1.25, 1.5 and 2 times the rated current, the charge controller switches off the current automatically after 60 s, 5 s, and 1 s, respectively.

Documents / Resources

	anslut 013669 Solar Cell Package [pdf] Instruction Manual 013669, 013670, Solar Cell Package

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