Technaxx® * User Manual

50W Solar Charger Set TX-214
Foldable 100W Solar Suitcase TX-215

Before using the appliance for the first time, please read the instructions for use and safety information carefully.

TX-214

TX-215

This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capacities, or by persons lacking in experience or knowledge, unless they are supervised or instructed on the use of this device by a person responsible for their safety. Children should be supervised to ensure they do not play with this device.

Keep this user manual for future reference or product sharing carefully. Do the same with the original accessories for this product. In case of warranty, please contact the dealer or the store where you bought this product.

Enjoy your product. * Share your experience and opinion on one of the well-known internet portals.

Specifications subject to change without notice - please make sure you are using the latest manual available on the manufacturer's website.

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Important notes at the start

Safety instructions

● Read the user manual carefully. They contain important information on the use, safety and maintenance of the device. Keep the user manual in a safe place and pass them on to subsequent users if necessary.
● The device may only be used for its intended purpose in accordance with this user manual.
● Installation and commissioning may only be carried out by authorized electricians.
● Before commissioning, check the device and its connecting cable as well as accessories for damage. Do not use the device if it shows visible damage.
● The modules of the system may only be used in accordance with their suitability.
● During installation, ensure that the locally applicable building regulations, standards and accident prevention regulations are observed.
● Ensure that the necessary safety instructions for the installation and operation of other components are also followed.
● Solar modules generate electricity. If they are exposed to light exposed to light, they become live and can be a pose a hazard.
● Never disconnect the DC lines from the charge controller.
● Do not squeeze the power cord, do not pull it over sharp edges or hot surfaces; do not use the power cord for carrying.
● If the power cord of this device is damaged, it must be replaced.
● The appliance is intended for household or similar use only. It must not be used for commercial purposes!
● Make sure that the device is well secured during operation and cannot be tripped over by cables.
● Never use the device after a malfunction, e.g. if the device has been dropped into water or damaged in any other way.
● The manufacturer assumes no responsibility in the event of incorrect use resulting from failure to follow the instructions for use.
● Modification or alteration of the product will affect the product safety. Caution: Risk of injury!
● Never open the product without authorization. Never carry out repairs yourself!
● Handle the product with care. It can be damaged by shocks, impacts or falling from even a low height.
● Keep the product away from extreme heat.
● Never immerse the product in water or other liquids.
● Technical changes and errors excepted!

Warning!

● Do not install the device if the DC cable of the solar panel or the charge controller is damaged or broken.
● Before installing or using the charge controller, read carefully all the instructions and safety notes in the user manual and on the device and other solar equipment.
● Do not connect the charge controller to the operator grid.

● Do not tamper with or manipulate the charge controller or other parts of the equipment under any circumstances.
● Risk of damage due to improper modifications!
● Keep all contacts dry and clean!

Caution Risk of electric shock!

● When operating this device, certain parts of the device are under dangerous voltage, which can lead to serious physical injuries or death. Therefore, follow the following instructions to minimize the risk of injury.
● Disconnect the plug connection only in a de-energized state!
● Before carrying out visual inspections and maintenance work, check that the solar panel is covered.
● Proceed with extreme caution and care! Carry out all work on the lines only with insulated tools and also and wear additional insulating gloves!
● Even with low solar radiation / low light, the series connection of solar modules generates very high DC voltages, which are life-threatening when touched! In particular, the possibility of secondary damage (e.g. falling off the roof) must be taken into account in the event of electric shocks!
● Never touch the positive and negative terminals at the same time or short circuit them!

Caution, hot surface!

● The surface of the solar panel can become very hot. Touching the surface can cause burns.
● Do not touch hot surfaces. Wait until the surface has cooled down sufficiently.

Intended use

The charge controller may only be operated with a fixed connection to the power storage, e.g. DC12V battery. The charge controller is not intended for mobile use. Modifications to the charge controller are generally prohibited.

Assembly, installation and electrical connection

Warning!

● Do not connect the charge controller to the operator grid.
● If you mount the solar panel at a great height, avoid possible fall risks.
● Do not insert electrically conductive parts into the plugs, sockets and terminals! Tools must be dry.
● Never touch the positive and negative terminals at the same time. connection.

Disclaimer

● In no event shall Technaxx Deutschland be liable/responsible for any direct, indirect punitive, incidental, special consequential danger, to property or life, improper

storage, whatsoever arising out of or connected with the use or misuse of their products. ● Error messages may appear depending on the environment it is used in.

Features

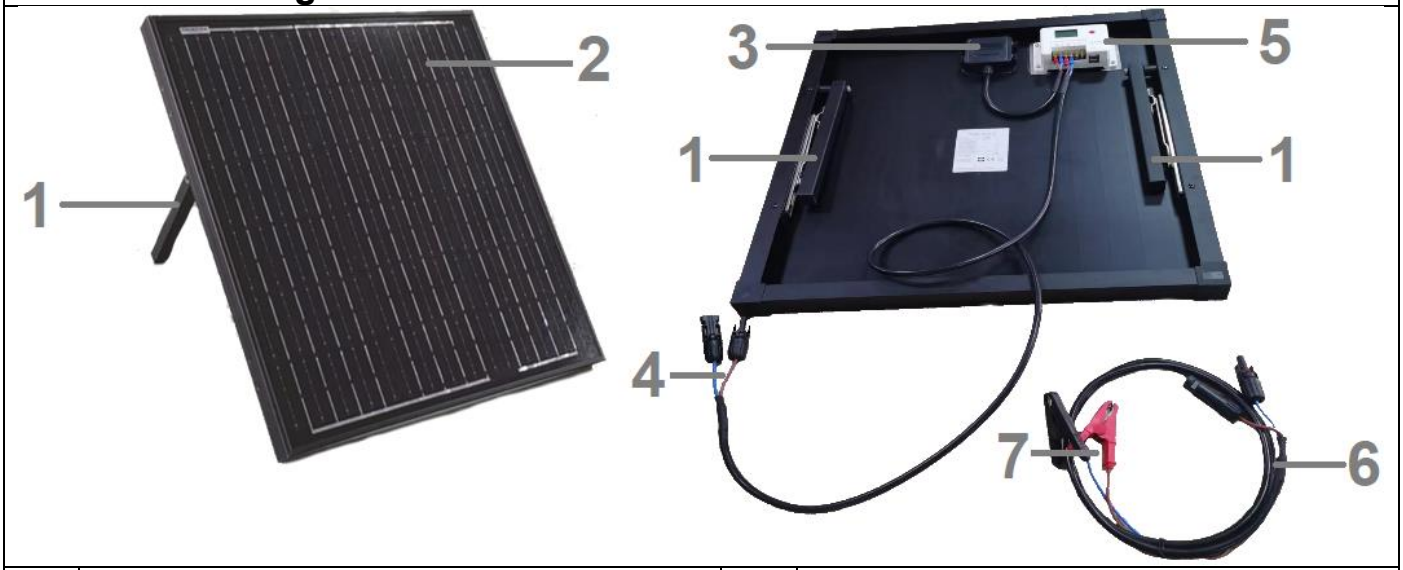
- Erectable solar panel, easy to carry - island solution (TX-214)
- Collapsible solar panel, easy to carry - island solution (TX-215)
- Ideal for garden, camping, etc. and charges e.g. car or camper battery
- Excellent for charging DC12V utility batteries
- Suitable for lead-acid and lithium batteries
- Charge controller with LCD display, pre-mounted on the back (removable)
- 4-stage PWM charging management
- 2 USB outputs, ideal for charging e.g. smartphone, tablet, etc.
- Efficient solar panel with an efficiency of up to 16.69%
- Excellent performance in low irradiance environments
- Convenient to set up thanks to fold-out support feet

Product details

Package content:	Product variants:
1x 50W (100W) solar panel, 1x charge controller 10A, 1.5m adapter cable (MC4 to terminals), user manual	- TX-214: 50W, 10A - TX-215: 100W, 10A

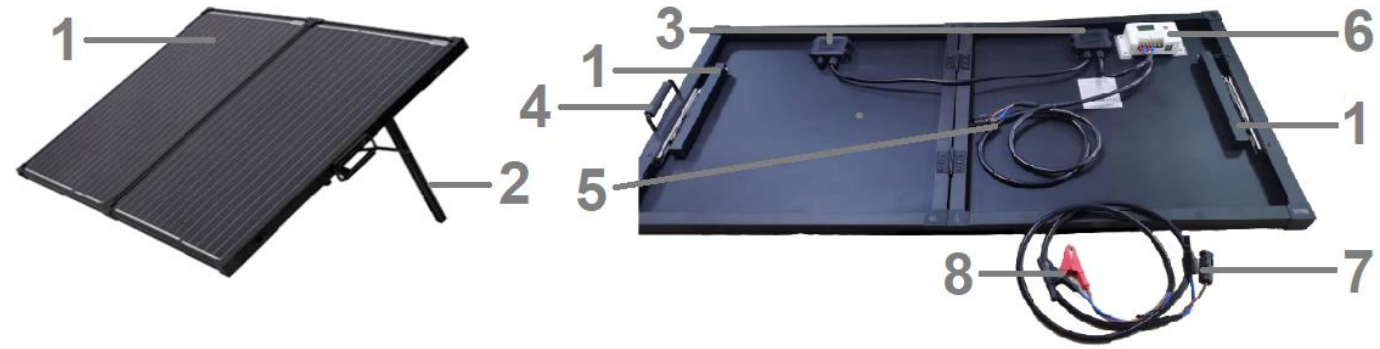
Prduct overview

50W Solar Charger Set TX-214



1	Hinged adjustable stand	5	Charge controller
2	Solar panel	6	MC4 connector, extension cable
3	Junction box	7	Terminals (+,-) for power storage
4	DC12V output (MC4)		

Foldable 100W Solar Suitcase TX-215



1	Hinged adjustable stand	5	DC12V output (MC4)
2	Solar panel	6	Charge controller
3	Junction box	7	MC4 connector, extension cable
4	Handle	8	Terminals (+,-) for power storage

Commissioning

Positioning

● Position the solar panel in a location with the strongest possible strong and long-lasting solar radiation.

● Align the panel so that it is exposed to direct sunlight for the longest possible time. Usually, depending on local conditions, a higher position with an orientation to the south is suitable for this.

Use

● Using a charge controller, connect the solar panel to a power storage device, such as a DC12V battery, or to a load.

NOTE:

The charge controller controls the current flow and charging process and prevents current backflow from the battery to the solar panel. From the battery to the solar panel. In addition, on cloudy days, only a fraction of the nominal rated power is achieved.

CAUTION!

If you use the solar panel on or in the car or in the car, do not use it in traffic!

Solar panel

TX-214

The solar panel is from factory connect with the charge controller. The solar panel delivers about max.18V and max. 2.78A. Which the charge controller switches to the optimal charging current.

NOTE: You need to set the charge controller to the correct parameter for optimized charging of your used power storage.

TX-215

The solar panel is from factory connect with the charge controller. The Solar panel delivers about max.18V and max. 5.56A. Which the charge controller switches to the optimal charging current. Further are the both solar panels each 50W are connected in series for the optimizes voltage input for the charge controller.

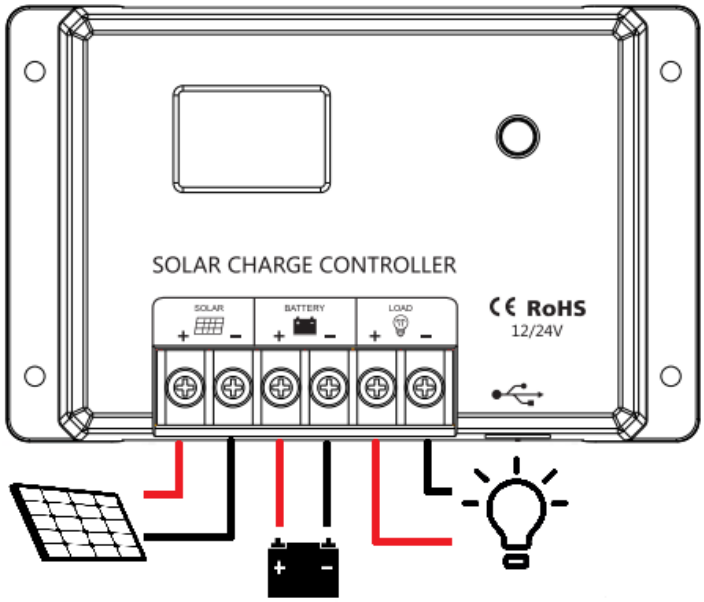
NOTE: You need to set the charge controller to the correct parameter for optimized charging of your used power storage.

Charge controller

Recommendations for Safe Use

1. The controller is a 12V controller. When installing it for the first time, make sure the battery has enough voltage so that the controller can recognize it as the correct type of battery.
2. Install the controller as close to the battery as possible to avoid voltage drop caused by too long wire, which may affect the normal determination of voltage.
3. The controller is suitable for DC12V lead-acid batteries, ternary lithium batteries and lithium iron phosphate batteries. Select the appropriate battery type in the menu.
4. The controller can only use PV panel as a charge source. Do not use DC power supply as a charge source.
5. The controller will generate heat when running. Install the controller on a flat, well-ventilated surface.

System Wiring



1. Connect the anode (+) and cathode (-) of the battery to the controller according to the diagram and take care to avoid reverse connection.
2. Connect the anode (+) and cathode (-) of the load to the controller according to the diagram and take care to avoid reverse connection.
3. Connect the solar panel to the controller according to the diagram and take care to avoid reverse connection.

NOTE: Strictly follow the above sequence for connection otherwise the controller may be damaged. Disassembly sequence is opposite to the wiring one.

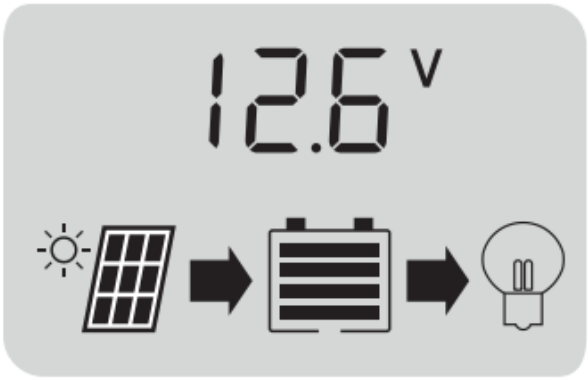
Button Functions

Function 1: When the battery voltage is normal, press the button to turn on or off the load.

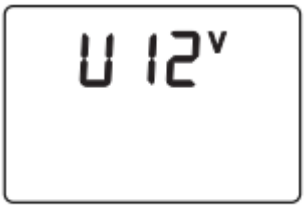
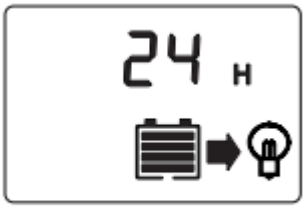
Function 2: Press and hold the button for 2s to enter the menu. On the menu where you need to change the settings, press and hold the button for 2s to make the number blinking, and then click to adjust the set value. Then, press and hold the button for 2s

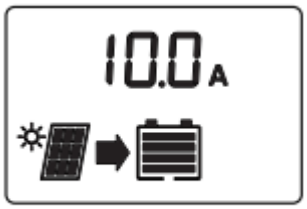
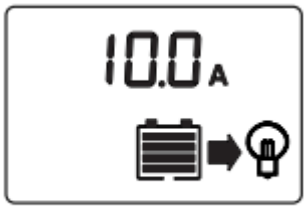
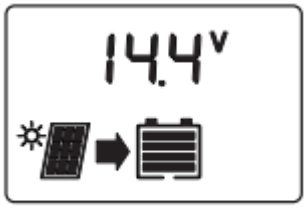
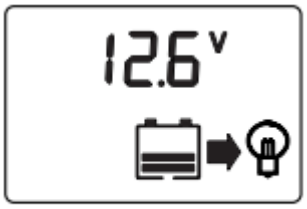
to make the number stop blinking to complete the setting.
Function 3: Press and hold the button for more than 10s until the screen shows F01. At this point, you can restart the controller.
Function 4: Press and hold the button for more than 20s until the screen shows F02. At this point, you can restore the controller to default settings.

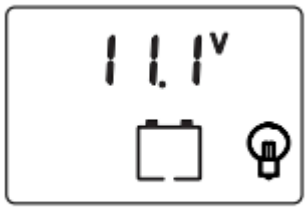
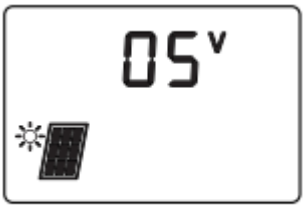
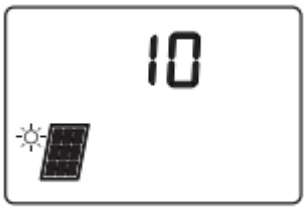
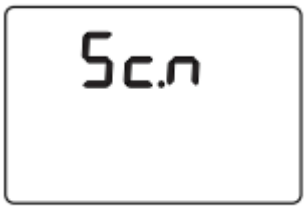
Display Interface/Parameter Settings

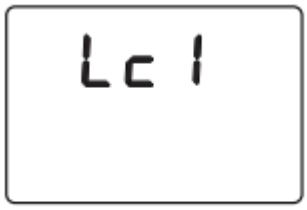


Main display interface

 Menu 1	**System voltage type selection interface** The default battery voltage is 12V, i.e. the interface shows U12V. If 24V is required, it should be set to U24V. *Setting method:* Press and hold for more than 2s until the number flashes. Then, press to adjust. After adjustment, press and hold for 2s again until the number no longer flashes. At this point, the setting is complete.
 Menu 2	**Battery type settings** b01=Sealed lead acid battery (default) b02=Gel battery b03=Flooded lead acid battery b04=Ternary lithium battery b07=Lithium iron phosphate battery (LiFePo4) **b01 - b03 are multi-stage charging method** **b04/b07 are two-stage charging method** *Setting method:* same as above.
 Menu 3	**Load operating mode adjustment interface** [24H] - continuously power the load for 24. [00H] - light control mode. The load is turned on or off by the light control signal. [1~23H] - time control mode. The load is turned on by the light control signal and then turned off after a delay. [C2A] - the load will work for 2 hours a day, stop for 15 minutes, and keep cycling. [C2d] - the load will work for 2 hours during the day, stop for

	15 minutes, and keep cycling. [C2n] - the load will work for 2 hours at night, stop for 15 minutes, and keep cycling. Setting method: same as above. **NOTE:** 1. No matter what kind of load operating mode is set, when the battery is discharged to as low as the cut-off voltage, the controller will force to shut down the load. 2. When the controller is in an activated condition, the load will remain off.
 Menu 4	**Display current controller temperature**
 Menu 5	**Display the charge current**
 Menu 6	**Display the load current**
 Menu 7	**Boost charge voltage** - regulation interface (only valid for b04, b07) When the battery voltage rises to this set voltage, PWM charging is enabled. During normal charging, the arrow indicator is always on, and after entering float charging, the arrow indicator is slowly flashing. Setting recommendation: It is recommended to keep the default value. *Setting method:* same as above.
 Menu 8	**Over discharge recovery voltage** - regulation interface (LVR) When the controller turns off the load due to low voltage, the load will not be turned on until the battery voltage rises to the set voltage again. Setting recommendation: It is recommended to keep the default value. *Setting method:* same as above.

 **Menu 9**	**Over discharge voltage** - regulation interface (LVD) The controller will automatically cut off the load output when the battery voltage drops below this voltage. Setting recommendation: It is recommended to keep the default value. *Setting method:* same as above.
 **Menu 10**	**Light control ON/OFF threshold** (PV panel voltage) In light control or time control mode, when the controller detects that the voltage of the PV panel is less than this set value, it will turn on the load after a delay and otherwise turn off the load. At night, if the ambient light around the solar panel is too bright, the solar panel output voltage will become higher, which will cause the controller to automatically turn off the load. At this point, it can be adjusted somewhat by this value. Setting recommendation: It is recommended to keep the default value. *Setting method:* same as above.
 **Menu 11**	**Light control ON/OFF delay threshold** (in seconds) When the controller detects that the PV panel voltage is lower than the set threshold, it will delay to turn on the load. Such time value can be used to prevent turning off the lamp due to erroneous judgment caused by the interference of car lights or lightning at night. Setting recommendation: It is recommended to keep the default value. *Setting method:* same as above.
 **Menu 12**	**Short-circuit protection setting** Some inductive or capacitive loads may draw a large current at the moment of start-up, which may trigger the short circuit protection of the controller and cause the output to shut down. In this case, the user can turn off the short-circuit protection. SC.F is Off, SC.n is On, and the default is On. *Setting method:* same as above.
 **Menu 13**	**PWM charge settings (**only valid for b04, b07) PWM is likely to cause the system to produce noise and interference. Especially when a lithium battery with BMS is used, PWM charging may trigger BMS protection and cause system failure. Therefore, the customer has the option to turn PWM off. In this mode, once the battery is charged to the preset voltage (interface 7), the controller will stop charging immediately, and restart charging after the battery voltage returns. PoF is Off, Pon is On, and the default is On. Setting recommendation: It is recommended to keep the default value. *Setting method:* same as above.

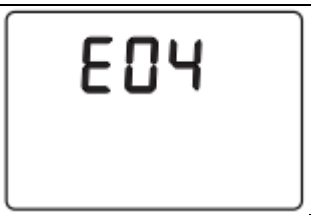
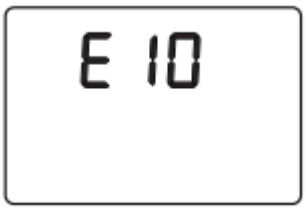
 **Menu 14**	**Load light control mode settings** Lc1 indicates that the load is working at night, Lc2 indicates that the load is working during the day, and the light control has priority over the time control to turn off the load. Lc3 indicates that the load is working at night, Lc4 indicates that the load is working during the day, and the time control has priority over the light control to turn off the load. Example: If it is set to 16H, since the night/day length is only 12 hours, Lc1/2 will run for 12 hours only, and Lc3/4 will run for 16 hours. The default is Lc1. *Setting method:* same as above.

Charge and Discharge Parameters

Battery type	b01(SLD)	b02(GEL)	b03(FLD)	b04 **(Ternary lithium)**	b07 **(Lithium iron phosphate)**
High voltage protection HVD	16.0V	16.0V	16.0V	16.0V	16.0V
High voltage recovery HVR	15.0V	15.0V	15.0V	15.0V	15.0V
Boost charge voltage	14.4V	14.2V	14.6V	12.5V	14.4V
Equalizing charge - voltage	14.6V	-	14.8V	-	-
Floating charge voltage	13.8V	13.8V	13.8V	12.5V	14.4V
Boost charge return voltage	13.2V	13.2V	13.2V	12.0V	13.2V
Over discharge recovery voltage	12.6V	12.6V	12.6V	10.5V	12.6V
Over discharge voltage	11.1V	11.1V	11.1V	9.5V	11.1V
Boost charge time	2hrs				
Equalizing charge time	2hrs	-	2hrs	-	-

1. The above voltage corresponds to 12V system only. If a 24V system is used, multiply by 2.
2. b01-b03 will go into equalizing charge when and only when LVD occurs. After equalizing charge, it goes directly into floating charge.
3. The corresponding parameters in grey font in the table can be modified by the buttons, and the other parameters cannot be modified.

Error Code

	**Battery low voltage state** When the battery voltage is lower than LVD, the controller will cut off the load, and when the battery voltage returns to LVR, the controller will automatically turn on the load. Press the button to forcibly recover
	**Battery high voltage state** When the battery voltage exceeds HVD for some reasons, the controller will cut off the load output, and after the battery voltage is returns to HVR, the controller will automatically turn on the load. Press the button to forcibly recover.
	**Load short circuit state** If short-circuit protection is triggered at the load side, the load will be turned off immediately. After 10s, the controller will automatically turn the load on again.
	**Load over current state** When the load current exceeds the rated value, if the current does not recover to the safe value within 60s, the load will turn into short circuit protection state. Press the button to forcibly recover.
	**High temperature exception interface** When the controller temperature exceeds 80°C, it will shut down. At this point, neither charge nor discharge works. It will recover as the temperature falls back to 70°C.
	**Solar panel over-voltage protection** When the solar panel voltage exceeds 50V, the controller will stop charging to protect the internal circuitry. When the voltage is below 45V, charging resumes.

FAQ

Q1: Why isn’t charging displayed after my PV panel is connected?
A1: Check if the PV panel wiring is correct, and if the connection is reversed or false; check if the PV panel voltage is too high; check if the PV panel is blocked and the voltage drops consequently.

Q2: Why is the charge current so small?
A2: The higher the PV panel power, and the stronger the sunlight, the larger the charge current, and conversely, incorrect PV panel voltage, and blocking by foreign object, shadow, etc. will cause the current to decrease. In addition, when the battery voltage is high, it will enter a floating charge state, at which point the charge current will also become smaller and smaller.

Q3: Why won't my load light up?
A3: The causes that the load is not turned on may include, the load operating mode is not set correctly. For example, the light control is set up but the load is not turned on during the day. In this case, battery is low, resulting in the controller to cut off the load, or the load is not properly connected, disconnected, burned out or the like.

Q4: What if I don’t need to use electricity for an appropriately long period of time?
A4: If the daily power generation of the PV panels is less than the amount of electricity used by the load, it will result in a situation where the generation does not cover the consumption. In this case, it is recommended to increase the number of PV panels. In addition, you can increase the battery capacity, as well as reduce the wattage of the load or working hours to balance the whole system.

Q5: Why does a fully charged battery run out of power after a short use?
A5: The battery is close to the end of life. You can do a simple test. For example, after discharge, charge the battery by PV panel or mains. The voltage will rise very soon. Then, stop charging and turn on the load. The voltage drops very soon. This indicates that the battery performance has degraded. You should replace a battery.

Technical specifications

Modell		TX-214	TX-215
Solar Panel			
Max. power (Pmax)		50W	100W (2x50W)
Max. voltage (Vmp)		18V	
Max. current (Imp)		2.78A	5.56A
Open circuit voltage (Voc)		21.78V	
Short circuit current (Isc)		2.95A	5.89A
Operating temperature		-40°C ~ +85°C	
Output power tolerance		±5%	
Module Efficiency		16.69%	
Maximum System Voltage		500Vdc	
NMOT		46°C±2°C	
Temperature Co-efficient of Pmax		-0.39%/°C	
Temperature Co-efficient of Voc		-0.30%/°C	
Temperature Co-efficient of Isc		0.06%/°C	
Front Cover		3.2mm tempered glass	
Junction Box		IP65 rated	

Charge controller		
System voltage		12V
Battery operating voltage range		8-32V
Rated current	Charge	10A
	Load	10A
Maximum PV input voltage		50V, enable protection and stop charging. Below 45V, charge resumes
Charging mode		The default is PWM charging, b04/b07 can be set to intermittent charging
USB output		5V/2A
Static power consumption		≤10mA
Operating temperature		-35 ~ +60°C
Altitude		⩽3000m
IP rating		IP32
Product size		120x75x34mm
Installation size		108.5x58.5mm
Weight		130g

General		
Cable connection	MC4 / terminals	
Cable length (total)	3m	
Weight (total)	4.1kg	8.2kg
Dimensions (total)	57x53.5x4.0cm	57x 53.5x6.6cm (folded); 107x 57x4.0cm (unfolded)

Support

Service phone No. for technical support: **01805 012643** (14 cent/minute from German fixed-line and 42 cent/minute from mobile networks). Free Email: **support@technaxx.de**
The support hotline is available Mon-Fri from 9am to 1pm & 2pm to 5pm

Care and maintenance

Clean the device only with a dry or slightly damp, lint-free cloth.
Do not use abrasive cleaners to clean the device.

Declaration of Conformity

CE

The EU Declaration of Conformity can be requested at the following address: www.technaxx.de/ (in the lower bar "Declaration of Conformity").

Disposal

Disposal of the packaging. Sort packaging materials by type upon disposal.

Dispose of cardboard and paperboard in the waste paper. Foils should be submitted for recyclables collection.

Disposing of old equipment (Applies in the European Union and other European countries with separate collection (collection of recyclable materials) Old equipment must not be disposed of with household waste! Every consumer is required by law to dispose of old devices that can no longer be used separately from household waste, e.g. at a collection point in his or her municipality or district. This ensures that the old devices are properly recycled and that negative effects on the environment are avoided. For this reason, electrical devices are marked with the symbol shown here.

Made in China

Distributed by:
Technaxx Deutschland GmbH & Co. KG
Konrad-Zuse-Ring 16-18,
61137 Schöneck, Germany

50W Solar Charger Set TX-214
Foldable 100W Solar Suitcase TX-215