



Solar Power Bank MODULAR 5



Product picture similar



Display detail showing all displayed elements (above)
External socket interface (below)

The solar charger **MODULAR 5** is an universal energy storage and charging device which is designed to recharge a multiplicity of mobile devices up to 5 Wh capacity like mobile phones, MP3-players, digital cameras, mobile navigators and many more.

It may be loaded either at the power socket using the included power supply as well as at the 12 V car plug or, alternatively, at an external solar panel which ist available as an accessory. Thus it provides maximum independence, comfort and mobility for the user.

The **MODULAR 5** contains a top quality high power density rechargeable Li-Ion-battery combined with

an electronic control providing the following unique features:

- **MPP-Tracking** (Maximum Power Point Tracking) **optimizes solar energy yield** depending on operating condition
- Electronic battery management ensures **maximum battery lifetime** and **system safety**
- Electronic energy management reloads internal battery and charges mobile devices **simultaneously** if required
- Display makes solar energy generation and battery charge state and capacity **observable** and **quantifiable** to the user.



TECHNICAL DATA

Tab. 1: Socket Interface

Socket name	Unit	typical values	Description
DC IN	V (DC)	6...30	Suitable for solar panels up to 30 V open-circuit voltage or for 12 V electric power supply
	A (DC)	max. 0.5	
DC OUT	V (DC)	5	USB port for recharging of mobile end device (several adapters available)
	A (DC)	max. 0.5	
DISPLAY			3.5-phone-jack (4pol.) external display interface*

*External display available as accessory.

Tab. 2: Housing Dimensions and Weight

Weight	120 g
Dimensions	64 mm x 94 mm x 21.4 mm

Tab. 3: Accumulator

Type	Li-Ion (3.7 V / 1.8 Ah)
Capacity	6 Wh at delivery time
Lifetime	After a minimum of 500 cycles the capacity is reduced to 60% of the initial value.
Charging Time	When charged at the socket at room temperature (500 mA charge current at 12V) the battery reaches 80 % capacity after about 3 hours. Below 0°C the charge current is restricted to very low values in order to avoid an early degradation of the battery. For safety reasons the battery is not fully charged above 40°C.

OPERATING AND STORAGE CONDITIONS

Tab. 4: Operating Conditions

Ambient temperature*	-10..40°C
Environment conditions	<92% RH, non condensing, no corrosive atmosphere

*Above 60°C inside temperature the battery is switched off. A temperature error will be displayed. As soon as inside temperature drops again below 60°C the battery is reactivated.

Tab. 5: Recommended Storage Conditions

Short term storage temperature	-20..+50°C
Recommended long term storage temperature	-20..+20°C
Environment conditions	<92% RH, non condensing, no corrosive atmosphere.
Minimum required charge state for up to 3 month storage in off-state	Battery charge state 20..30% (2 segments visible)

USER INTERFACE

MODULAR 5



Tab. 6: Sliding Switch Settings

ON	DC IN input and DC OUT output are ready resp. in energy save mode
OFF	DC IN input and DC OUT output are off

Tab. 7: Pushbutton Functions

Pushbutton Action	Description
Press shortly	when device is in energy save mode: reactivate device scroll display modes
Press 2 seconds	when display is in Wh _{IN} mode: reset Wh _{IN}
Press 5 seconds	toggle between extended (ext) and reduced (red) display menu

Tab. 8: Display Settings and displayed Information

Display Modes			
Mode	Menu	Unit	Meaning of displayed numerical numbers
W _{IN}	red/ext	W	Input power at DC IN
Wh _{IN}	red/ext	Wh	Cumulated input power at DC IN
V _{IN}	ext	V	Voltage at DC IN
A _{IN}	ext	A	Current at DC IN
W _{OUT}	red/ext	W	Output power at DC OUT
A _{OUT}	ext	A	Output current at DC OUT
Additionally displayed information			
Sun symbol			Connected solar panel detected
Battery symbol			Battery charge state (0..5 squares)
+			Indicates that power flows into the battery
-			Indicates that power is extracted from the battery
DC OUT ON			Indicates that mobile end device is beeing charged
DC OUT SLEEP			Indicates that device is in energy save mode (interface to mobile end device is off)
DC OUT OFF			Indicates that DC OUT has been switched off due to low battery state
ERROR			See detailed error list in user manual

DISPOSAL

Please note that the solar power bank contains a lithium ion battery which may be harmful to the environment if not properly recycled or disposed of. Batteries may produce the following potential problems or hazards:

- Pollute the lakes and streams
- Contribute to heavy metals that potentially may leach from solid waste landfills
- Expose the environment and water to acid
- May cause burns or danger to eyes and skin
- Contain strong corrosive acids



The crossed waste container symbol on the product indicates that after usage the solar power bank must not be disposed of at the household garbage.

Instead, please act on the locally applicable legal regulations. In many places designated municipal collecting points are established for recycling and disposal of electronics and batteries.

As a matter of course we take the solar power bank back after usage and attend to proper disposal.

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