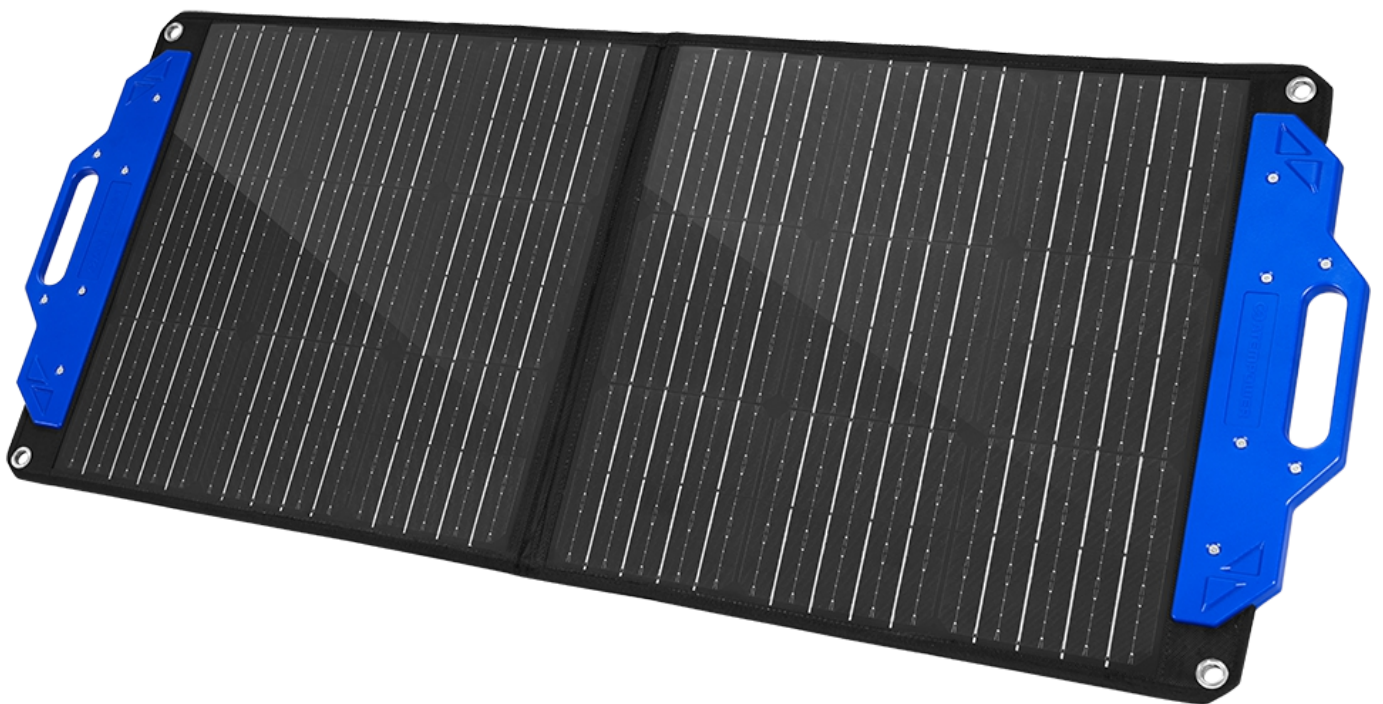




100W / 200W / 300W Foldable Solar Panel

AP100MS / AP200MS / AP300MS

USER MANUAL



Prior to installation and operation, it is essential to carefully read the manual and keep it for future reference.

V1.1

ABOUT US

ATEM POWER, born in June 2017, as a synonym for exciting outdoor experience, is an Australian company with dedication and passion for the R&D of high quality products in the field of renewable energy products, batteries and related accessories.

Since the company was founded, we have committed to innovation that aims to make your life infinitely more convenient. And the belief in our conviction for quality and commitment allows us to innovate in developing products that are optimally tailored to the needs of our amazing customers.

We engineer and supply solar products for homes, 4x4s, recreational vehicles and virtually any application you can think of. And we also develop reliable, high performing deep-cycled batteries and lithium batteries for standby or daily power needs. Accessories include battery chargers and inverters that are ideal for RV's, commercial vehicles, boats, yachts and many more applications!

At ATEM POWER, we stay true to our DNA by prioritizing technological innovation designed to improve our products and striving to provide excellent customer care. Because we are motivated to explore the limits of solar power!

WARNINGS & SAFETY INFORMATION

DO NOT operate the solar panels UNLESS YOU HAVE READ AND UNDERSTOOD THIS MANUAL and the panel should be installed as per these installation instructions. ATEM POWER recommends that the panel be installed by a suitably qualified person.

- To prevent damage, keep the solar panel away from liquids and chemical solvents. Do not place the solar panel near fire or flammable materials.
- Do not immerse the solar panel in water or wet it. Any modifications to the product will void the warranty.
- Handle and install the solar panel with care. Do not disassemble, bend, hit, or step on the solar panel. This could damage the cells and wiring, causing a short circuit, local overheating, and decreased efficiency.
- During transport or storage, ensure that nothing sharp or heavy could potentially break or damage the solar panel.
- Do not connect the solar panel directly to a battery. Do not touch the terminals when the panel is exposed to light or during installation. Use insulated gloves and properly isolated tools.
- Do not use mirrors or other devices to artificially concentrate sunlight on the panel. Remove any shades that cover the solar panel while it is working.
- Do not use fabrics or other materials to directly cover the entire or partial surface of the product while it is working.
- This product is not intended for use by children, adults with reduced physical or mental abilities, or those who are under the influence of drugs or alcohol.
- This solar panel is not intended to charge non-rechargeable batteries. Doing so could cause injury to the user or damage the panel and controller.
- Do not disassemble the unit or remove any attached components. Incorrect reassembly could result in a fire or electric shock hazard.
- Do not operate the unit if it has been damaged in any way.
- Clean the unit with a wet sponge or cloth as needed. A mild, non-abrasive cleaning agent can be used to remove grime and dirt.
- This unit is not intended for commercial use.

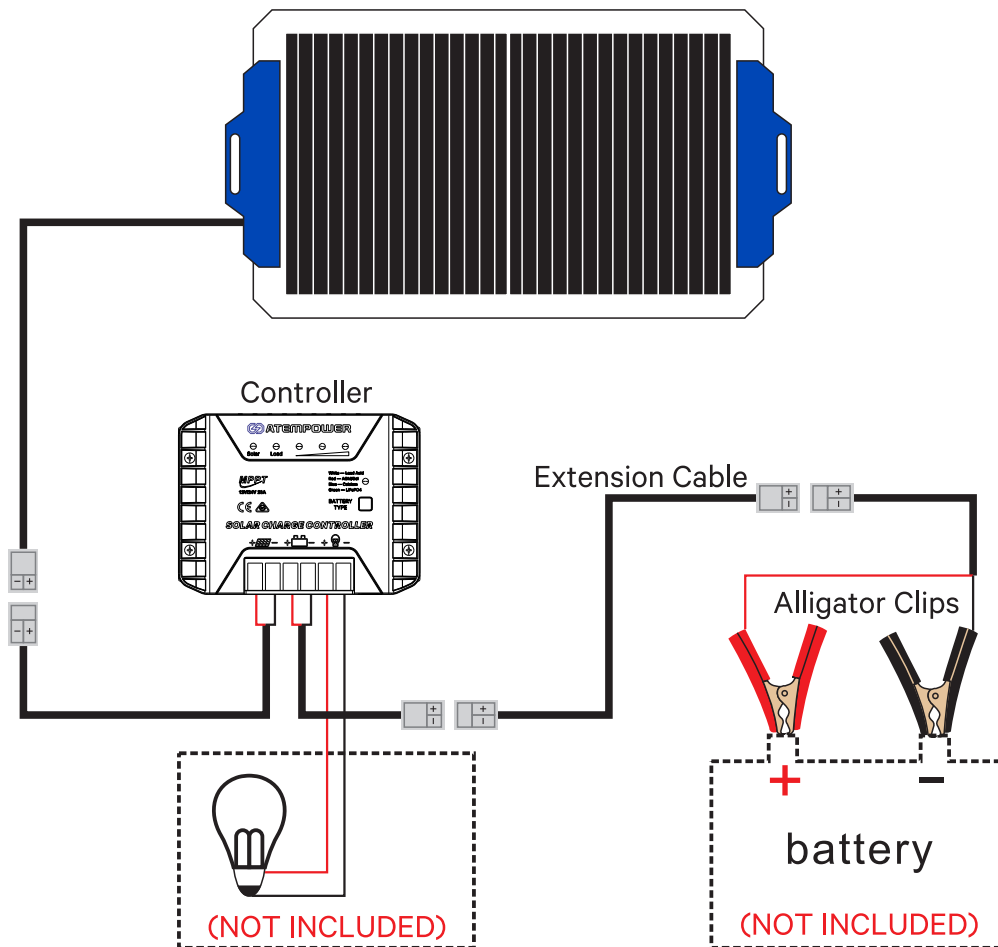
ROUTINE MAINTENANCE

- To ensure optimal performance, it is important to inspect your solar panels regularly.
- Check both the front and the back of the panel for dust, dirt, and other debris. If necessary, clean the panels with a damp cloth or glass cleaner.
- Ensure that all structural components and electrical connections are secure and in good condition.
- Inspect for damaged components and replace them as soon as possible.
- By following these simple maintenance steps, you can help to extend the lifespan of your solar panels and ensure that they continue to generate clean, renewable energy for years to come.

PACKAGE LIST

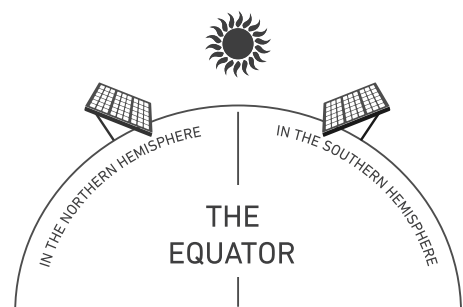
- 1 PC(s) ATEM POWER Foldable Monocrystalline Solar Panel
- 1 PC(s) ATEM POWER 20A MPPT Solar Charge Controller
- 1 PC(s) 4.5m Extension Cable with Anderson Style Plugs
- 1 PC(s) 0.5m Cable with Alligator Clips and Anderson Style Plug
- 1 PC(s) User Manual

WIRING DIAGRAM



TIPS

Solar panels are most effective when installed in a location with uninterrupted sunlight. In the Northern Hemisphere, it's optimal to orient the panels to face south, while in the Southern Hemisphere, they should ideally face north. This ensures the panels receive maximum exposure to the sun throughout the day, maximizing power generation.



SOLAR PANEL SPECIFICATION

MODEL NO.:	AP100MS	AP200MS	AP300MS
Cell Type:	Monocrystalline		
Cell Efficiency:	24%		
Film Material:	ETFE		
Maximum Power (PM):	100W	200W	300W
Open-Circuit Voltage (VOC):	22.6V	24.3V	25.87V
Short-Circuit Current (ISC):	5.83A	10.33A	15.49A
Maximum Power Voltage (VMP):	18.36V	20.7V	20.7V
Maximum Power Current (IMP):	5.45A	9.66A	14.49A
Maximum System Voltage:	60VDC		
Operating Temperature:	-30°C ~ 70°C		
Temperature Coefficient of Pmax:	-0.35%/°C		
Temperature Coefficient of Voc:	-1.84mV/°C		
Temperature Coefficient of Isc:	2.6mA/°C		
Junction Box:			
Wire Size:	1.5mm ² (5m)	2.5mm ² (5m)	

CONTROLLER SPECIFICATIONS

MODEL	AP20MT
Product Dimension	131*98*33mm
Battery Voltage Range	12V/24V
Max. PV Open Circuit Voltage	50V
Max. Solar Input Voltage	50V
Rated Charge Current	20A
Rated Discharge Current	20A
Max. PV Input Power	500W
Discharge Circuit Voltage Drop	≤0.3V
Self Consumption	≤8ma
No Load Current	<10ma
Standby Curret Draw	≤4ma
Nominal Current Draw	≤10ma
USB Output	Type A+Type C; 5V/2.4A
Operation Temperature	-20°C~50°C
Storage Temperature	-30°C~70°C
Relative humidity	≤90%

Battery Voltage Parameters

BATTERY TYPE	Lead Acid	AGM/GEL	Calcium	LiFePO4
Maximum Voltage	14.4V	14.7V	15.4V	14.3V
Reconnect Charging Voltage	13.2V	13.2V	13.2V	13.2V
Under Voltage Warning Voltage	10.5V	10.7V	11.4V	10.4V
Under Voltage Reconnect Voltage	11.5V	11.7V	12.4V	11.4V
Over Voltage Protection	16.5V	16.7V	17.4V	16.4V

TROUBLESHOOTING:

Solar Panel:

PROBLEM	CAUSE	SOLUTION
Solar panel doesn't work despite sufficient sunlight	Loose connection	Reconnect
	Bad soldering of wires inside the junction box	Contact us
	Solar panel malfunction (power station can be charged through wall outlet/from vehicle battery but cannot be charged with the solar panel)	Contact us
Low power output	Loose connection	Reconnect
	Wrong tilt angle	Adjust the angle to capture direct sunlight.
	Shadow	Remove any shadow covering the panel
	Accumulation of dust	Clean, best on a regular basis
	High operating temperature	Ensure sufficient air circulation beneath the panel

MPPT Controller:

PROBLEM	CAUSE	SOLUTION
Load indicator is off	Battery is low, the load indicator will be on when the battery voltage is higher than 12V	Charge the battery
The MPPT controller will not turn on	Battery is insufficiently charged	Charge the battery
	Battery has been connected improperly	Check, and if necessary alter the battery's connection to the MPPT controller
Solar panel doesn't work despite sufficient sunlight	Battery fault	Change the battery
	Reverse polarity	Reconnect
	Loose connection	Reconnect
	Bad soldering of wires inside the junction box	Contact us
Low power output	Solar panel malfunction	Contact us
	Loose connection	Reconnect
	Wrong tilt angle	Adjust the angle to capture direct sunlight
	Shadow	Remove any shadow covering the panel
	Accumulation of dust	Clean, best on a regular basis
	High operating temperature	Ensure sufficient air circulation beneath the panels; add more panels in series to increase the string voltage

INDICATOR INDICATION (MPPT CONTROLLER)

INDICATOR	STATUS	MEANING
SOLAR	Steady ON	Solar panel voltage is higher than 16V
	OFF	Solar panel voltage is less than battery voltage + 1V
BATTERY	Any status	Number of indicators steady on indicates battery power
	The left indicator is flashing	Battery is nearly or already empty.
LOAD	Steady ON	The battery voltage is higher than Under Voltage Reconnect Voltage
	OFF	The battery voltage is lower than Under Voltage Reconnect Voltage



WARRANTY



ATEM POWER ("Manufacturer") warrants to the original purchaser of its solar panel (the "User") that its foldable solar panel will be free from defects in materials and workmanship under normal use, installation, and maintenance conditions for a period of ONE (1) year from the date of purchase. At ATEM POWER's option, we will repair or replace the solar panel or issue a refund if the solar panel is determined to be defective in materials or workmanship within the warranty period. If we determine that the solar panel is not repairable, we will offer a new, similar panel or issue a refund. This limited warranty is not transferable and applies only to the original purchaser of the solar panel.

EXCLUSIONS:

This warranty does not cover defects that are caused by:

- normal wear and tear.
- inadequate maintenance.
- transportation, storage, or faulty repair.
- misuse, neglect, accident, or abuse.

It is recommended that the installation be performed by suitably qualified technicians. Failure to do so will void the warranty. For further clarity, this warranty is also void if the solar panel:

- is used for applications other than which it was designed and intended for.
- is not properly installed in accordance with the user manual.
- is damaged due to the non-observance of any of the instructions supplied by ATEM POWER.
- is disassembled, altered, or repaired by someone other than an authorized Manufacturer's agent.
- has been subject to adverse weather, extreme temperature, or physical damage.
- has been damaged by force majeure (e.g., flash of lightning, overvoltage, storm, fire).
- is not of the correct size or specification for the intended application.

CLAIMS:

To make a claim under this limited warranty, please contact ATEM POWER to request a return authorization. No returns will be credited without an authorization. In the event of a returned product, ATEM POWER's liability for breach of any warranty on the product is limited to the replacement of the solar panel within the warranty period in accordance with the terms of this limited warranty. ATEM POWER shall not be liable for any other loss or damages of any kind, whether direct, incidental, consequential, including lost profits, exemplary, special or otherwise, including any lost profits or removal, shipping, or installation expenses.