

SOLAR CHARGE CONTROLLER

Fangpusun solar charge controller

MPPT100/15D



Ultra-fast Maximum Power Point Tracking (MPPT)

Especially in case of a clouded sky, when light intensity is changing continuously, an ultra fast MPPT controller will improve energy harvest by up to

30%

compared to PWM charge controllers and by up to 10% compared to slower MPPT controllers.

Load output

Over-discharge of the battery can be prevented by connecting all loads to the load output. The load output will disconnect the load when the battery has been discharged to a pre-set voltage.

Alternatively, an intelligent battery management algorithm can be chosen: see Battery Life. The load output is short circuit proof.

Some loads (especially inverters) can best be connected directly to the battery, and the inverter remote control connected to the load output. A special interface cable may be needed, please see the manual.

Battery Life: intelligent battery management

When a solar charge controller is not able to recharge the battery to its full capacity within one day, the result is often that the battery will continually be cycled between a 'partially charged' state and the 'end of discharge' state. This mode of operation (no regular full recharge) will destroy a lead-acid battery within weeks or months.

The Battery Life algorithm will monitor the state of charge of the battery and, if needed, day by day slightly increase the load disconnect level (i.e. disconnect the load earlier) until the harvested solar energy is sufficient to recharge the battery to nearly the full 100%. From that point onwards the load disconnect level will be modulated so that a nearly 100% recharge is achieved about once every week.

Programmable battery charge algorithm Day/night timing and light dimming option

Only factory setting

Display

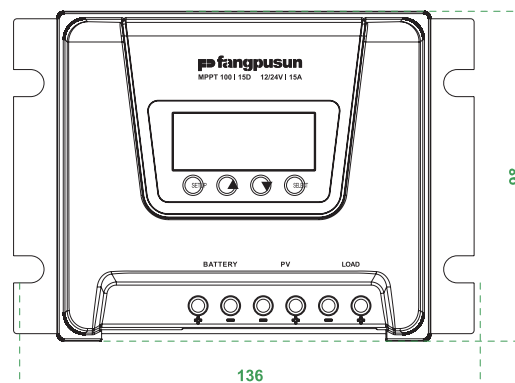
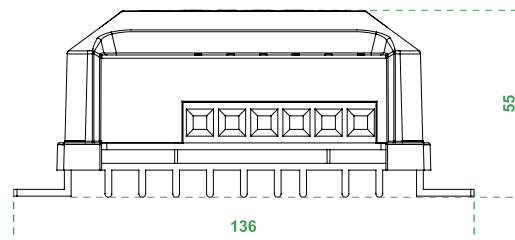
Graphical LCD display

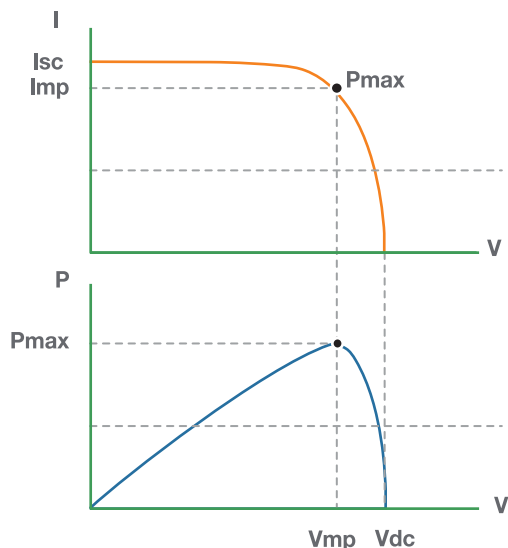
Operation

Simple menu-driven operation
Programming by buttons

Certificates

- Compliant with European Standards (CE)
- RoHS compliant
- SGS
- ISO 9001
- Made in China





Maximum Power Point Tracking

Upper curve:

Output current (I) of a solar panel as function of output voltage (V).

- The maximum power point (MPP) is the point P_{max} along the curve where the product $I \times V$ reaches its peak.

Lower curve:

- Output power $P = I \times V$ as function of output voltage.

When using a PWM (not MPPT) controller the output voltage of the solar panel will be nearly equal to the voltage of the battery, and will be lower than V_{mp} .

Solar Charge Controller

MPPT 100/15D

System voltage	12/24 V Auto Select
Maximum output current	15A
Maximum PV power, 12V 1a,b)	200W
Maximum PV power, 24V 1a,b)	400W
Maximum PV open circuit voltage	100V
Maximum efficiency	98%
Self-consumption	20 mA
Charge voltage 'absorption '	Default setting:14,4 V / 28,8 V (adjustable)
Charge voltage 'float '	Default setting:13,8 V / 27,6 V(adjustable)
Charge algorithm	multi-stage adaptive
Temperature compensation	-16 mV / °C resp.-32 mV / °C
Continuous/peak load current	15A/50A
Low voltage load disconnect	11,1V / 22,2V or 11,8V / 23,6V or Battery Life algorithm
Low voltage load reconnect	13,1V / 26,2V or 14V / 28V or Battery Life algorithm
Protection	Battery reverse polarity (fuse)/Output short circuit / Over temperature
Operating temperature	30 to +60°C (full rated output up to 40°C)
Humidity	95%,non-condensing
ENCLOSURE	
Terminals(fine / single wire)	6mm² / AWG10
Protection category	IIP22 (connection area)
Weight	0.5kg
Dimensions (X x Y x Z)	136 x 98 x 55 mm
STANDARDS	
Safety	EN/IEC 62109

1a) If more PV power is connected, the controller will limit input power to the stated maximum.

1b) PV voltage must exceed $V_{bat} + 5V$ for the controller to start. Thereafter minimum PV voltage is $V_{bat} + 1V$

Fangpusun solar charge controller

MPPT 100/30D, 100/50D



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Especially in case of a clouded sky, when light intensity is changing continuously, an ultra fast MPPT controller will improve energy harvest by up to

30%

compared to PWM charge controllers and by up to 10% compared to slower MPPT controllers.

Advanced Maximum Power Point Detection in case of partial shading conditions

If partial shading occurs, two or more maximum power points may be present on the power-voltage curve. Conventional MPPT's tend to lock to a local MPP, which may not be the optimum MPP. The innovative Fangpusun algorithm will always maximize energy harvest by locking to the optimum MPP.

Outstanding conversion efficiency

No cooling fan. Maximum efficiency exceeds 98%. Full output current up to 40°C (104°F).

Flexible charge algorithm

Fully programmable charge algorithm (see the software page on our website), and eight preprogrammed algorithms, selectable with a rotary switch (see manual for details).

Extensive electronic protection

- Over-temperature protection and power derating when temperature is high.
- PV short circuit and PV reverse polarity protection.
- PV reverse current protection.

Internal temperature sensor

Compensates absorption and float charge voltage for temperature.

Display

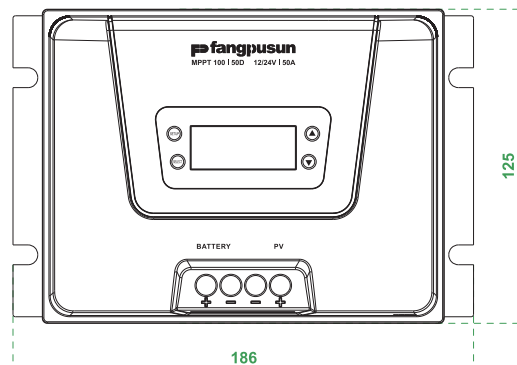
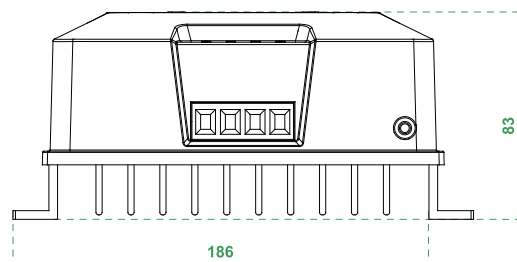
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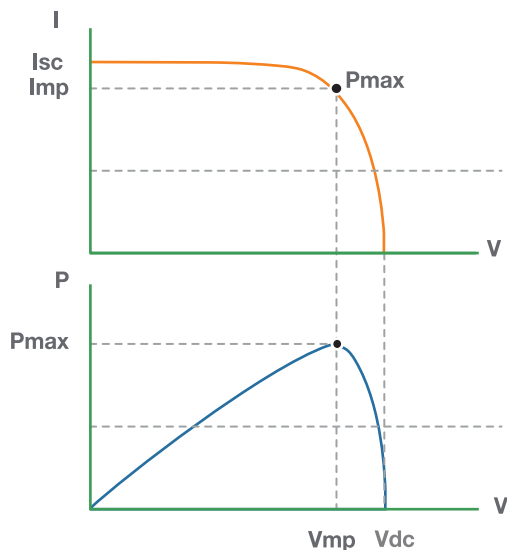
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Maximum Power Point Tracking

Upper curve:

Output current (I) of a solar panel as function of output voltage (V).

- The maximum power point (MPP) is the point P_{max} along the curve where the product $I \times V$ reaches its peak.

Lower curve:

- Output power $P = I \times V$ as function of output voltage.

When using a PWM (not MPPT) controller the output voltage of the solar panel will be nearly equal to the voltage of the battery, and will be lower than V_{mp} .

Solar Charge Controller

MPPT 100/30D

MPPT 100/50D

System voltage	12/24 V Auto Select	
Maximum output current	30A	50A
Maximum PV power, 12V 1a,b)	440 W (MPPT range 15 V to 80 V)	700 W (MPPT range 15 V to 70 V resp.95V)
Maximum PV power, 24V 1a,b)	880 W (MPPT range 30 V to 80 V)	1400 W (MPPT range 30 V to 70 V resp.95V)
Maximum PV open circuit voltage	100V	
Maximum efficiency	98%	
Self-consumption	20 mA	
Charge voltage 'absorption '	Default setting:14,4 V / 28.8 V (adjustable)	
Charge voltage 'float '	Default setting:13,8 V / 27,6 V(adjustable)	
Charge algorithm	multi-stage adaptive	
Temperature compensation	-16 mV / °C resp.-32 mV / °C	
Protection	Battery reverse polarity (fuse, not user accessible) Output short circuit Over temperature (MPPT 100/50□:PV reverse polarity)	
Operating temperature	30 to +60°C (full rated output up to 40°C)	
Humidity	95%,non-condensing	
ENCLOSURE		
Terminals(fine / single wire)	13 mm ² / AWG 6	
Protection category	IP43 (electronic components), IP22 (connection area)	
Weight	1,25 kg	1,60kg
Dimensions (X x Y x Z)	186 x 125 x 83 mm	
STANDARDS		
Safety	EN/IEC 62109	

1a) If more PV power is connected, the controller will limit input power to 440W resp. 880 W(MPPT 100/50:700W resp. 1400W)

1b) PV voltage must exceed $V_{bat} + 5V$ for the controller to start. Thereafter minimum PV voltage is $V_{bat} + 1V$

Fangpusun solar charge controller

MPPT 150/45D, 150/60D, 150/70D



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Extensive electronic protection

- Over-temperature protection and power derating when temperature is high.
- PV short circuit and PV reverse polarity protection.
- PV reverse current protection.

Internal temperature sensor

Compensates absorption and float charge voltage for temperature.

Display

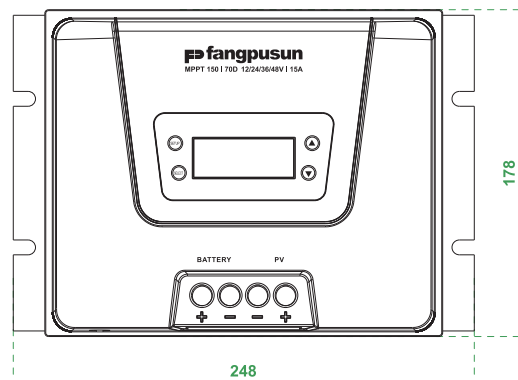
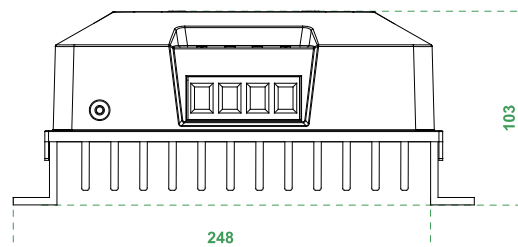
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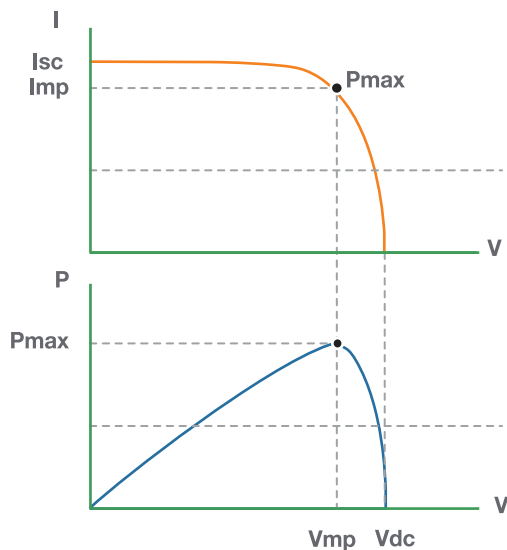
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Lower curve:

■ Output power $P = I \times V$ as function of output voltage.

When using a PWM (not MPPT) controller the output voltage of the solar panel will be nearly equal to the voltage of the battery, and will be lower than V_{mp} .

Solar Charge Controller

	MPPT 150/45D	MPPT 150/60D	MPPT 150/70D
Battery voltage	12 / 24 / 48 V Auto Select (Only Factory setting 36V)		
Rated charge current	45A	60A	70A
Maximum PV power, 12V 1a,b)	650 W	860W	1000W
Maximum PV power, 24V 1a,b)	1300W	1720W	2000W
Maximum PV power, 48V 1a,b)	2600W	3440W	4000W
Maximum PV open circuit voltage	150V absolute maximum coldest conditions, 145V start-up and operating maximum		
Maximum efficiency	98%		
Self-consumption	20 mA		
Charge voltage 'absorption'	Default setting: 14,4 / 28,8 / 43,2 / 57,6 V (adjustable)		
Charge voltage 'float'	Default setting: 13,8 / 27,6 / 41,4 / 55,2 V (adjustable)		
Charge algorithm	multi-stage adaptive		
Temperature compensation	-16 mV / °C resp. -32 mV / °C		
Protection	Battery reverse polarity (fuse, not user accessible) PV reverse polarity / Output short circuit / Over temperature		
Operating temperature	-30 to +60°C (full rated output up to 40°C)		
Humidity	95%, non-condensing		
Parallel operation	Yes (not synchronized)		
ENCLOSURE			
PV terminals 2)	35 mm ² / AWG2 (Tr models)		
Battery terminals	35 mm ² / AWG2		
Protection category	IP43 (electronic components), IP22 (connection area)		
Weight	3 kg		
Dimensions (h x w x d)	Tr models: 248 x 178 x 103 mm		
STANDARDS			
Safety	IEC 62109-1-2010		

1a) If more PV power is connected, the controller will limit input power to the stated maximum.

1b) PV voltage must exceed $V_{bat} + 5V$ for the controller to start. Thereafter minimum PV voltage is $V_{bat} + 1V$



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