

# 40A MPPT Solar Charge Controller

MODEL: RS-MPPT40FM



## FEATURE

- PV open circuit voltage up to 100V.
- The latest Maximum Power Point Tracking (MPPT) algorithm.
- Unique multiple peaks detected technology for Maximum Power Point Tracking.
- MPPT tracking efficiency above 99.5%.
- Wider MPP operating voltage range.
- Common negative grounding connection.
- Suit for most rechargeable batteries, up to 9 battery types preset plus custom setting.
- Extensive internal electronics in-circuit protection.
- Reliable operating safety protection: overcharging or undercharging protection, short circuit protection, reverse polarity protection, thermal protection.
- Automatically detect 12V or 24V DC system voltages.
- Unique and concise LED bar to indicate the solar status and battery charging condition.
- Large and informative display interface to show Solar parameter, battery charging parameter, battery type, battery temperature, custom presetting and faulty codes, etc.
- Provides plug-in remote digital display meter (Optional).
- Provides external battery temperature sensor (Optional).
- Splash proof IP43.
- Rubber mask for connecting terminal's protection.
- Conformal coating for internal boards.
- Designed according to UL1741, EN/IEC 62109-1; EMI standard: EN61000-6-1/EN61000-6-3 and FCC standard: 47 CFR Part 15, Subpart B.

## Specification

ELECTRICAL PARAMETERS			
Maximum PV open circuit voltage at -20°C	100	VDC	
Maximum Normal input PV voltage at 25°C	92	VDC	
Maximum PV input current	40	AMP	
Maximum PV short circuit current	45	AMP	
Maximum Rated charging current	40	AMP	
Maximum Conversion efficiency	98	%	
Minimum Tracking efficiency	99.5	%	
Nominal PV power	600@12V/1200@24V	Watt	
Self-consumption from battery when PV is disconnected	10±0.5	mA	
Maximum Output open circuit voltage when battery is disconnected	0.5	VDC	
MPP voltage range	15~72±0.5	VDC	
CHARGING CHARACTERISTICS			
Minimum battery start charging voltage	5	VDC	
Soft start charging voltage	5~10±0.2	VDC	
Soft start charging current	20	AMP	
Maximum Bulk charge	40	AMP	

**CHARGING CHARACTERISTICS**

Absorption charging voltage at 25°C		
-- LCO battery	12.6±0.2	VDC
-- LTO battery	14.0±0.2	VDC
-- LFP battery	14.2±0.2	VDC
-- Gel type battery	14.1±0.2	VDC
-- AGM type battery (default setting)	14.4±0.2	VDC
-- WET type battery	14.7±0.2	VDC
-- Lead Crystal battery	14.7±0.2	VDC
-- Calcium battery	14.9±0.2	VDC
-- Custom setting range	13.2~15.5±0.2	VDC
Absorption transits to Equalizing or Float / Stop condition		
-- Charging current drops to	2.0+0.1	AMP
-- or Absorption charging timer timed out	4	Hour
Equalization charging activation		
-- Only for WET or Calcium battery		
-- Battery voltage discharged less than	10±0.2	VDC
-- Automatic equalizing charging periodical	28	Day
Equalization charging voltage at 25°C	15.5±0.2	VDC
Equalization charging timer timed out	2	Hour
Equalization charging voltage for CUSTOM setting	13.2~16.2±0.2	VDC
Float voltage (for Crystal, GEL, WET, AGM and Calcium battery) at 25°C	13.6±0.2	VDC
Restart voltage		
-- for Crystal, GEL, WET, AGM and Calcium battery)	12.7±0.2	VDC
-- for LCO battery	12.0±0.2	VDC
-- LTO battery	13.0±0.2	VDC
-- LFP	13.3±0.2	VDC
-- for CUSTOM setting range	12.5~13.5±0.2	VDC
Voltage control accuracy	± 1%	
Battery temperature compensation coefficient	-24	mV/°C
Temperature compensation range	-20~+50	°C

**ELECTRICAL PARTS**

Input output terminal	Rated 50A connector
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**PHYSICAL PARAMETERS**

Controller material	Plastic, PC
Mounting	Surface mounting
IP grade	IP43
Net weight	Approx. 0.8KG

**ENVIRONMENTAL CHARACTERISTICS**

Operating temperature	-25 ~ 50°C / -13 ~ 122 °F
Storage temperature	-40 ~ 85°C / -40 ~ 185 °F
Operating Humidity range	0-85% RH

**Remarks:** Battery Voltage settings for 12V mode, x2 for 24V mode.