TRC Series

Solar Charge Controller



Overview

The TRC series adopts a new-generation MPPT control algorithm, significantly improving tracking accuracy and response speed, reducing power loss, and enhancing DC/DC conversion efficiency. It supports a no-battery mode, enabling direct load supply when PV power is sufficient. Its low-power consumption design greatly reduces standby power and extends standby time.

Flexible communication configurations are available, including three optional interface combinations: 2×RS485, RS485+CAN (RV-C), and RS485+LIN (CI-BUS). It also features an isolated RS485 interface* and short-circuit protection for improved system reliability. Optional 4G/WiFi modules enable remote monitoring, and the communication port can be enabled or disabled as needed.

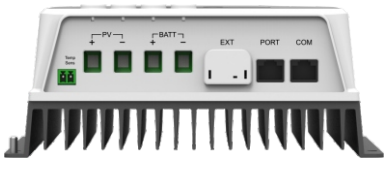
*Communication isolation is not supported on models below 60V.

Features

- Low power consumption, lower than 10mA
- Max. MPPT tracking efficiency ≥ 99.5%; Max. conversion efficiency: 98.5%
- No battery mode: Direct load supply via controller's battery port (PV sufficient)
- Compatible with LiFePO4, AGM, Gel, Flooded batteries, etc.
- Stable lithium battery self-activation
- Dedicated BMS Port: Charge/discharge control & status display (Optional)
- Dedicated CAN Port: RV-C support & parallel operation
- Communication interface options:
  - 2×RS485
  - RS485 + CAN (RV-C)
  - RS485 + LIN (CI-BUS)







Technical Specifications

Model	TRC 3106	TRC 5106	TRC 1206	TRC 2206	TRC 3210	TRC 4210	TRC 5215	TRC 4215	TRC 4415
PV Input (DC)									
Maximum Open-circuit Voltage	60V (@lowest temperature); 46V (@25°C)				100V (@lowest temperature); 92V (@25°C)		150V (@lowest temperature); 138V (@25°C)		
MPPT Voltage Range	(Battery voltage plus 2V) to 36V				(Battery voltage plus 2V) to 72V		(Battery voltage plus 2V) to 108V		
Battery									
Rated Voltage	12V		12/24VDC Auto						12/24/48 VDC Auto
Rated Charging Current	30A	50A	10A	20A	30A	40A	50A	40A	40A
Rated Discharging Current	30A	50A	10A	20A	30A	40A	50A	40A	40A
Maximum Charging Power	390W/12V	650W/12V	130W/12V 260W/24V	260W/12V 520W/24V	390W/12V 780W/24V	520W/12V 1,040W/24V	650W/12V 1,300W/24V	520W/12V 1,040W/24V	520W/12V 1,040W/24V 2,080/48V
Controller									
Output Voltage Range	8–16V		8–31V						8–62V
Static Loss (Enabled Communication)	12V/16mA		12V/14mA 24V/8mA		12V/21mA 24V/12mA		12V/23mA 24V/13mA		12V/22mA 24V/13mA 48V/11mA
Static Loss (Disabled Communication)	12V/7mA		12V/7mA 24V/5mA	12V/8mA 24V/5mA	12V/7mA 24V/4mA		12V/7mA 24V/5mA		12V/7mA 24V/5mA 48V/5mA
Communication Method	CAN (RV-C Protocol)/RS485 (5VDC/200mA)/LIN (CI-BUS COM Protocol)[1]								
Efficiency									
Maximum Conversion Efficiency	96.1%	96.2%	98.1%	98.6%	98.4%		98.2%	98.5%	
Environmental Parameters									
Operating Temperature	-30°C to +60°C (No Derating Required When Temperature Is Within 40°C)								
Storage Temperature	-40°C to +70°C								
Relative Humidity	≤ 95% (N.C.)								
Altitude	< 5,000m (> 2,000m derating)								
Ingress Protection	IP32		IP20		IP32				
Mechanical Parameters									
Dimensions (L × W × H)(mm)	176×120 ×73	191×181 ×76.5	135×104 ×39.4	144×115.8 ×64.2	178×168 ×71.5	191×181 ×76.5	195×211 ×96.5	193×211×88mm	
Weight(kg)	0.75	1.5	0.31	0.59	1.2	1.5	2.5	2.15	2.25

(1)Model description: I indicates communication port isolation; RR indicates two 485 ports; RC indicates one 485 port and one CAN port; RL indicates one 485 port and one LIN port. Six communication modes are available for selection: IRR, IRC, IRL, RR, RC, and RL.