

# SMF Series

## High-Precision Intelligent MPPT Solar Charge Controller

CE FC RoHS



### Product Introduction

- Based on the MPPT control algorithm, the SMF series supports charging both lead-acid and lithium batteries. Equipped with an RS485 waterproof communication interface, it allows users to check and modify the controller's working status. The SMF series can be connected to an external dedicated IoT module and coordinated with cloud server monitoring software to achieve remote, centralized monitoring of multiple machines. It is widely used in fields such as IoT, field monitoring, and solar lighting systems.

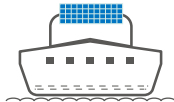


### Product Features

- Adopts MPPT (Maximum Power Point Tracking) technology, with an MPPT efficiency of 99.9% and a conversion efficiency of no less than 98%;
- Supports charging of lead-acid batteries, lithium batteries, and other custom batteries.
- Supports 0V activation function for lithium batteries;
- Low power consumption (static power dissipation below 20mA);
- High-precision digital boost constant current control algorithm, providing high efficiency and precision in boost constant current;
- Multiple intelligent load modes available, supporting dual 12V and 24V load outputs;
- Multiple protection features, including batteries/ PV reverse polarity protection, and power limiting protection;
- Extendable IoT remote communication and monitoring capabilities;
- All-aluminum metal shell with IP65 ingress protection, capable of operating in harsh environments.



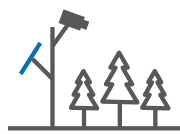
Solar RV



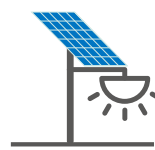
Solar Yacht



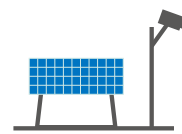
Solar Meteorological  
Monitoring



Forest Fire  
Prevention



Solar-Powered  
Streetlight



Solar-Powered  
Monitoring

| SMF24 Series                        |            | SMF2420                                                                                                                                                                                              |  | SMF2430          |  |
|-------------------------------------|------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|------------------|--|
| Controller Type                     |            | MPPT Controller                                                                                                                                                                                      |  |                  |  |
| MPPT Efficiency                     |            | ≥99%                                                                                                                                                                                                 |  |                  |  |
| Peak Conversion Efficiency          |            | ≥98%                                                                                                                                                                                                 |  |                  |  |
| Standby Consumption                 |            | Around 1W                                                                                                                                                                                            |  |                  |  |
| Heat-Dissipation Method             |            | Self-Cooling                                                                                                                                                                                         |  |                  |  |
| Input Parameters                    |            |                                                                                                                                                                                                      |  |                  |  |
| Maximum PV Open Circuit Voltage     |            | 60VDC                                                                                                                                                                                                |  |                  |  |
| Start Charging $V_{start-pv}$       |            | Vbat+3V                                                                                                                                                                                              |  |                  |  |
| Low Voltage Protection $V_{low-pv}$ |            | Vbat+2V                                                                                                                                                                                              |  |                  |  |
| Maximum PV Open Circuit Voltage     |            | 60Vdc                                                                                                                                                                                                |  |                  |  |
| Input Protection Recovery Voltage   |            | 55Vdc                                                                                                                                                                                                |  |                  |  |
| Rated Input                         | 12V System | 260W                                                                                                                                                                                                 |  | 390W             |  |
| Power                               | 24V System | 520W                                                                                                                                                                                                 |  | 780W             |  |
| Charging Parameters                 |            |                                                                                                                                                                                                      |  |                  |  |
| Output DC Voltage Range             |            | Output Range:9V~30VDC                                                                                                                                                                                |  |                  |  |
| Battery Type                        |            | Lead-Acid Battery / Li-ion Battery                                                                                                                                                                   |  |                  |  |
| Battery Management                  |            | Variable Output Charging Parameters and Protection Parameters                                                                                                                                        |  |                  |  |
| Lithium Battery Activation          |            | Equipped                                                                                                                                                                                             |  |                  |  |
| Output DC Current                   |            | 0~20A (Variable)                                                                                                                                                                                     |  | 0~30A (Variable) |  |
| Charging Mode                       |            | Lead-Acid Battery: Fast, Equalized, Float; Lithium Battery: Fast, Equalized                                                                                                                          |  |                  |  |
| Fault Parameters                    |            | Lead-Acid Battery (GEL/AUTO)                                                                                                                                                                         |  |                  |  |
| Load Parameters                     |            |                                                                                                                                                                                                      |  |                  |  |
| Load Voltage                        |            | Load 1: Same as Battery Voltage Load 2: 12V                                                                                                                                                          |  |                  |  |
| Rated Load Current                  |            | Load 1: 20A; Load 2: 2.0A (Continuous), 2.5A (3S)                                                                                                                                                    |  |                  |  |
| Load Control Mode                   |            | Allows to operate in 5 timed periods (the main switch can be enabled via instructions), with time range variable as needed. Unused time slots are set to 0:00-0:00 by default, meaning no operation. |  |                  |  |
| Load Protection                     |            | Over Current Protection                                                                                                                                                                              |  |                  |  |
| Display&Communication               |            |                                                                                                                                                                                                      |  |                  |  |
| Communication                       |            | RS485 Bus/ Standard Modbus Protocol                                                                                                                                                                  |  |                  |  |
| Monitoring                          |            | PC, Wi-Fi Module, 4G Module, Ethernet                                                                                                                                                                |  |                  |  |
| Protection                          |            |                                                                                                                                                                                                      |  |                  |  |
| PV Input Protection                 |            | PV Input Overvoltage Protection, Reverse Polarity Protection, Surge Protection, Lightning Protection                                                                                                 |  |                  |  |
| Output Protection                   |            | Voltage Stabilization/ Reverse Polarity Protection/ Battery Detachment Protection/ Overcharge Protection                                                                                             |  |                  |  |
| Normal Protection                   |            | Heat Dissipation Over-temperature Protection/ Load Reduction Operation under Over-Temperature / Ambient Over-Temperature Protection                                                                  |  |                  |  |
| Other Parameters                    |            |                                                                                                                                                                                                      |  |                  |  |
| Installation                        |            | Wall-Mounted Type                                                                                                                                                                                    |  |                  |  |
| Product Dimensions                  |            | 160*115*40mm                                                                                                                                                                                         |  |                  |  |
| Product Weight (kg)                 |            | 0.99                                                                                                                                                                                                 |  |                  |  |
| Operating Ambient Temp.             |            | -20°C~+50°C                                                                                                                                                                                          |  |                  |  |
| IP Rating                           |            | IP67                                                                                                                                                                                                 |  |                  |  |
| Operating Altitude                  |            | ≤3000M                                                                                                                                                                                               |  |                  |  |