# DuoRacer Series

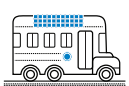
Dual battery MPPT solar controller

## Overview

DuoRacer series is perfect for off-grid solar system such as motorhome, RVs, campers, boats, and so on. It charges the main battery (BATT1)for living, and supports trickle charging(max. 1A) to the start battery(BATT2) of vehicles at the same time.

## Features

- Maximum Power Point Tracking technology with ultra-fast tracking speed and the tracking efficiency is no less than 99.5%
- Advanced MPPT control algorithm to minimize the MPPlost rate and lost time
- The wider range of the MPP operation voltage to improve the PV module utilization
- Charging power & charging current limit function(BATT1)
- High quality and low failure rate components
- Digital circuit control of adaptive three-stage charging mode
- BATT1 type can be set via LED/LCD
- Product runs into the low self-consumption mode if PV voltage is lower than 5V and there is no manual operation for some time.
- 100% charging and discharging in operating environmental temperature range
- LED and LCD display units optional
- AES control signal for car refrigerator to avoid energy waste
- Standard Modbus protocol and RS485 (5V/200mA) communication port for the customer to expand the application area



Solar Car

Solar Backpack

Solar Boat

# Technical Specifications

| Model | DR1106N-DDB/DDS | DR2106N-DDB/DDS | DR3106N-DDB/DDS | DR1206N-DDB/DDS | DR2206N-DDB/DDS | DR3206N-DDB/DDS | DR2210N-DDB/DDS | DR3210N-DDB/DDS |
|---|---|---|---|---|---|---|---|---|
| BATT1 rated voltage | 12VDC | 12VDC | 12VDC | 12/24VDC | 12/24VDC | 12/24VDC | 12/24VDC | 12/24VDC |
| BATT2 rated voltage | 12VDC | 12VDC | 12VDC | 12/24VDC/Auto | 12/24VDC/Auto | 12/24VDC/Auto | 12/24VDC/Auto | 12/24VDC/Auto |
| BATT1 rated charge current | 10A | 20A | 30A | 10A | 20A | 30A | 20A | 30A |
| BATT2 rated charge current | 1A | 1A | 1A | 1A | 1A | 1A | 1A | 1A |
| Battery input voltage range | 8.5～16V | 8.5～16V | 8.5～16V | 8.5～32V | 8.5～32V | 8.5～32V | 8.5～32V | 8.5～32V |
| Max. PV open circuit voltage | 60V（At minimum operating environment temperature） 46V（At 25℃ environment temperature ） | | | | | | 100V（At minimum operating environment temperature） 92V （At 25℃ environment temperature ） | |
| MPP voltage range | (Battery Voltage+2V)～36V | | | | | | (Battery Voltage+2V)～72V | |
| Rated charge power | 130W/12V | 260W/12V | 390W/12V | 130W/12V 260W/24V | 260W/12V 520W/24V | 390W/12V 780W/24V | 260W/12V 520W/24V | 390W/12V 780W/24V |
| Max. conversion efficiency | 96.30% | 96.90% | 97.40% | 97.40% | 97.50% | 98% | 97.50% | 98% |
| Full load efficiency | 95.50% | 94.60% | 94.20% | 97% | 96% | 96% | 96% | 96% |
| Self-consumption | 12mA/12V; 6mA/12V (Low-power mode) | 12mA/12V; 6mA/12V (Low-power mode) | 12mA/12V; 6mA/12V (Low-power mode) | 12mA/12V; 8mA/24V 4mA/12V; 3mA/24V (Low-power mode) | 12mA/12V; 8mA/24V 4mA/12V; 3mA/24V (Low-power mode) | 12mA/12V; 8mA/24V 4mA/12V; 3mA/24V (Low-power mode) | 26mA/12V; 15mA/24V 19mA/12V; 10mA/24V (Low-power mode) | 26mA/12V; 15mA/24V 19mA/12V; 10mA/24V (Low-power mode) |
| Temperature compensation | —3mV/℃/2V(default) | | | | | | | |
| Grounding | Common negative | | | | | | | |
| BATT2 full voltage | 13.8V/12V | 13.8V/12V | 13.8V/12V | 13.8V/12V; 27.6V/24V (default) | 13.8V/12V; 27.6V/24V (default) | 13.8V/12V; 27.6V/24V (default) | 13.8V/12V; 27.6V/24V (default) | 13.8V/12V; 27.6V/24V (default) |
| BATT2 charge return voltage | 13V/12V | 13V/12V | 13V/12V | 13V/12V; 26V/24V (default) | 13V/12V; 26V/24V (default) | 13V/12V; 26V/24V (default) | 13V/12V; 26V/24V (default) | 13V/12V; 26V/24V (default) |
| Operating temperature range | -20℃～+50℃ (DDS) -30℃～+50℃ (DDB) | -20℃～+50℃ (DDS) -30℃～+50℃ (DDB) | -20℃～+50℃ (DDS) -30℃～+50℃ (DDB) | -20℃～+50℃ (DDS) -30℃～+50℃ (DDB) | -20℃～+50℃ (DDS) -30℃～+50℃ (DDB) | -20℃～+45℃ (DDS) -30℃～+45℃ (DDB) | -20℃～+50℃ (DDS) -30℃～+50℃ (DDB) | -20℃～+45℃ (DDS) -30℃～+45℃ (DDB) |
| Enclosure | IP33 | | | | | | | |
| Dimension(LxWxH)(mm) | 227.2×143×58 | 243.7×158×63 | 247.2×165×68.5 | 227.2×143×58 | 243.7×158×63 | 247.2×165×68.5 | 243.7×158×63 | 247.2×165×68.5 |
| Net weight | 0.8kg | 1.1kg | 1.4kg | 0.8kg | 1.1kg | 1.4kg | 1.1kg | 1.4kg |

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