

## SOLAR DC-DC FAST CHARGER

Conventional EV fast chargers depend on converting alternating current (AC) from the grid into direct current (DC) to charge vehicle batteries—an approach that adds strain to already constrained electrical networks. As demand for high-power EV charging grows, particularly in remote or high-traffic locations, the need for grid-independent, scalable alternatives becomes critical. The Microcare DC-DC Fast Charger addresses this by enabling direct solar-to-vehicle charging. This streamlined DC architecture reduces energy conversion losses and minimizes reliance on costly grid upgrades. By leveraging smart DC design and seamless solar microgrid integration, the charger represents a decisive step toward decentralized, resilient energy infrastructure—future-proofing EV charging networks while supporting sustainable, high-efficiency transport solutions.

The Microcare Solar DC-DC Fast Charger is designed to deliver high, consistent DC output at up to 485V, connecting directly to solar panel strings - eliminating the need for external inverters, converters, or an AC grid connection. With integrated MPPT (Maximum Power Point Tracking) technology, it maximizes energy extraction from solar arrays, ensuring high efficiency under varying conditions. Built-in output protection and a pre-charge circuit enhance safety and operational reliability. Engineered for true standalone performance, this fully self-contained DC power solution operates independently of external power infrastructure.

Designed with rugged, industrial-grade components, the charger offers plug-and-play DC coupling for rapid deployment in demanding environments such as mining operations, construction sites, transport hubs, and solar-powered EV stations—anywhere grid access is limited or non-existent. It is equally suitable for DC microgrid HV battery charging applications. Delivering conversion efficiencies of up to 97%, it significantly outperforms traditional AC-to-DC systems, which typically reach only around 80% efficiency.



### KEY FEATURES

- Input Panel Voltage (650-800V)
- Output Battery Voltage (330-485V)
- Output Power up to 50kW
- No Double Conversion (AC)
- Input & Output protection
- Electronic Current Limiting
- Peak efficiency greater than 97%
- Advanced Constam Power Point Tracking algorithm
- OCPP 1.6J Compliant
- CCS2 Fixed Charging Cable
- RGB Indication Light



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|                           | PARAMETER                   | VALUE                       |                     |                     |
|---------------------------|-----------------------------|-----------------------------|---------------------|---------------------|
| ELECTRICAL SPECIFICATIONS | Charger Output Power        | 12.5kW                      | 25kW                | 50kW                |
|                           | PV Input Voltage Range      | 650 – 800 V DC              |                     |                     |
|                           | PV Open Circuit Max Voltage | 850 V DC                    |                     |                     |
|                           | EV Battery Voltage Range    | 330 - 485 V DC              |                     |                     |
|                           | Max Input per String        | 10kW                        |                     |                     |
|                           | Max Total Input per Module  | 20kW                        |                     |                     |
|                           | Output Current              | 1 x 26A DC breakers         | 2 x 26A DC breakers | 4 x 26A DC breakers |
|                           | No. of MPPTs                | 1                           | 2                   | 4                   |
|                           | No. of PV String Inputs     | 2 x MC4 Inputs              | 4 x MC4 Inputs      | 8 x MC4 Inputs      |
|                           | Output Voltage              | Up to 485 V DC              |                     |                     |
|                           | Efficiency (DC-DC)          | >97%                        |                     |                     |
|                           | Power Conversion            | DC to DC only (solar to EV) |                     |                     |
| MECHANICAL SPECIFICATIONS | Dimensions (W×D×H)          | 405 x 280 x 605 mm          | 480 x 380 x 1400 mm | 480 x 380 x 1400 mm |
|                           | Weight                      | 35kg                        | 65kg                | 68kg                |
|                           | Cooling                     | Fan Cooled                  |                     |                     |
| INTERFACE & CONNECTIVITY  | Communication Protocols     | OCPP 1.6J                   |                     |                     |
|                           | Display                     | RGB Indication Light        |                     |                     |
|                           | Output Connection           | CCS2 DC Charging Cable      |                     |                     |
| PROTECTION & SAFETY       | Input Protection            | 1 x 40A DC breakers         | 2 x 40A DC breakers | 4 x 40A DC breakers |
|                           | Output Protection           | 1 x 50A DC breakers         | 2 x 50A DC breakers | 4 x 50A DC breakers |
|                           | Overcurrent Limiting        | Electronic                  |                     |                     |
|                           | Pre-charge Circuit          | Integrated                  |                     |                     |
|                           | Monitoring & Fault Logging  | OCPP 1.6J                   |                     |                     |
|                           | Operating Temperature       | 0°C to +62°C                |                     |                     |
| WARRANTY                  | Carry-In                    | 5 years                     |                     |                     |



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