

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 (600-800V)
- Output Battery Voltage (300-500V)
- Output Power up to 50kW
- No Double Conversion (AC)
- Input & Output protection
- Electronic Current Limiting
- Peak efficiency greater than 97%
- Advanced Constant 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	50 kW
	PV Input Voltage Range	600 – 800 V DC		
	PV Open Circuit Max Voltage	850 V DC		
	EV Battery Voltage Range	300 - 500 V DC		
	Max Input per String	10kW		
	Max Power Per MPPT	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	4	8
	Output Voltage	Up to 500 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	68kg	68kg
	Cooling	Fan Cooled		
INTERFACE & CONNECTIVITY	Communication Port	Ethernet		
	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		
	Remote Access	OCPP 1.6J		
	Operating Temperature	0°C to +62°C		
WARRANTY	Carry-In	5 years		