ENNEAGON ENERGY

EPDD High-Efficiency Ultra-Fast Charging System

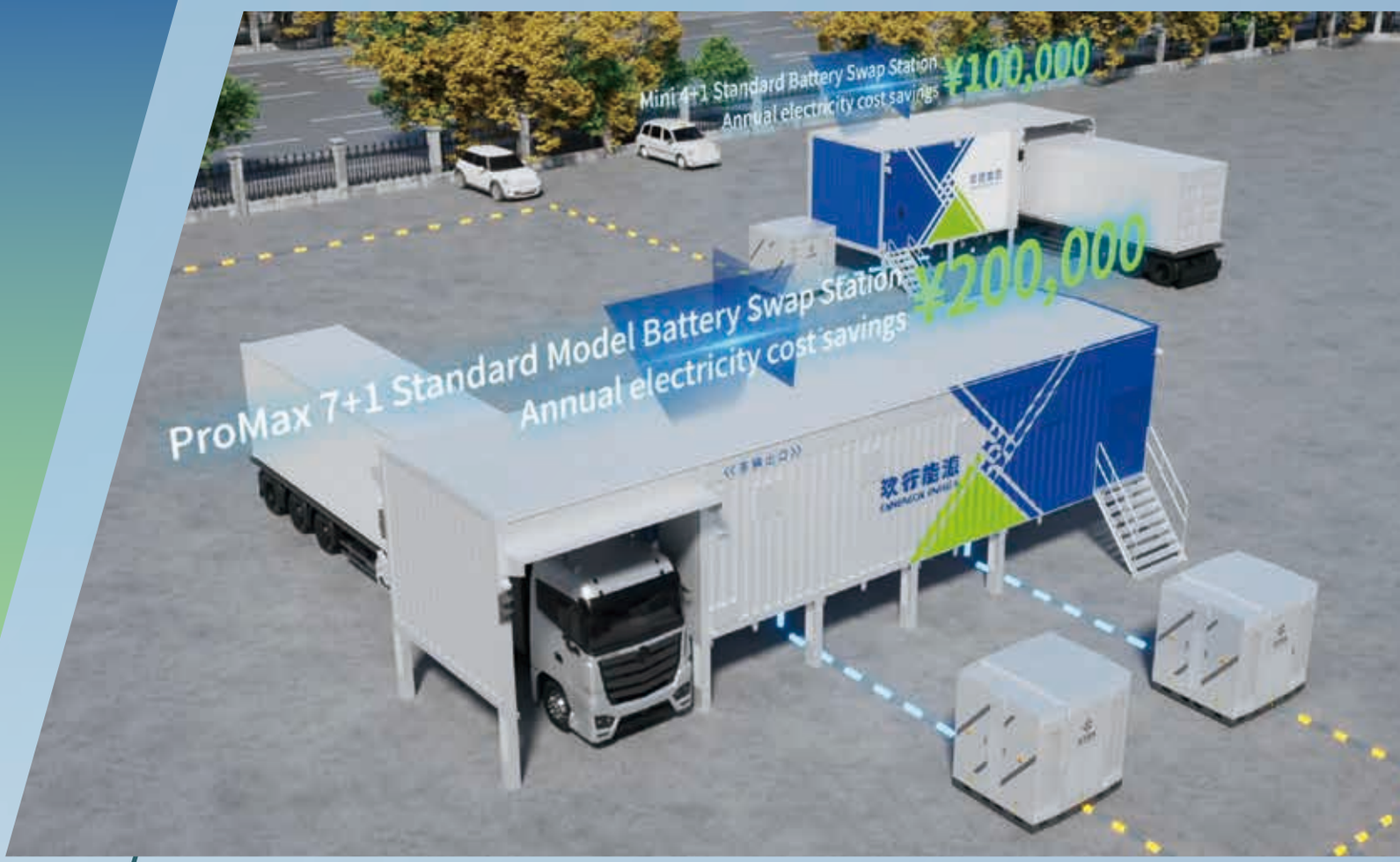
Direct High-Voltage Connection · Extreme Cost Reduction · Full-Scenario Empowerment

Enneagon Energy EPDD High-Efficiency Ultra-Fast Charging System employs a high-voltage direct-drop architecture combined with dynamic power distribution and high-protection integrated design. Through dynamic power distribution technology, it extends equipment lifespan to over 10 years, systematically resolving challenges such as high power loss, short equipment lifespan, and substantial investment costs.

Application Scenarios

• Urban Supercharger Network

• Heavy Truck Logistics Hub



• Electric Construction Machinery

• Green Port

EPDD Series Product Features

Ultra-Efficient Power Conversion

- **10kV High-Voltage Direct-Drop Technology**

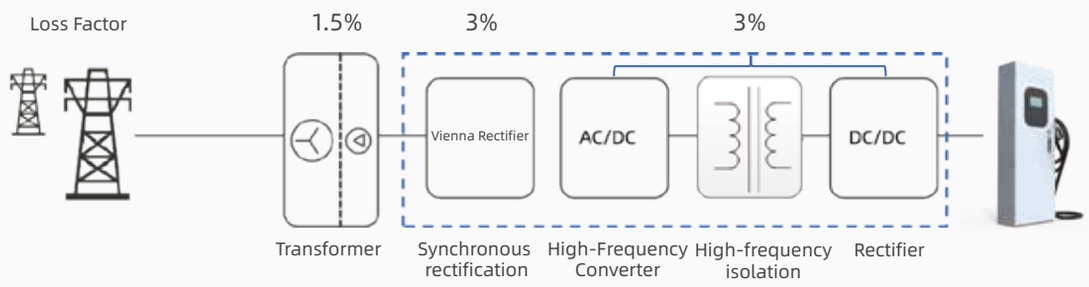
The system employs a 10kV→1000Vdc direct conversion topology, achieving an energy efficiency improvement of ≥4.5%. Each 2400kW system saves over 200,000 yuan in annual electricity costs (based on 10 hours of daily operation).

- **In-house developed high-efficiency modules**

Each module incorporates 4-channel 6-pulse rectifier inputs, featuring fewer conversion stages and significantly improved conversion efficiency compared to traditional charging modules.

The 24-pulse + 3-level chopper circuit achieves 98.5% efficiency at 50% load and 96.29% efficiency at 10% light load, delivering the industry's lowest power loss.

Traditional solution



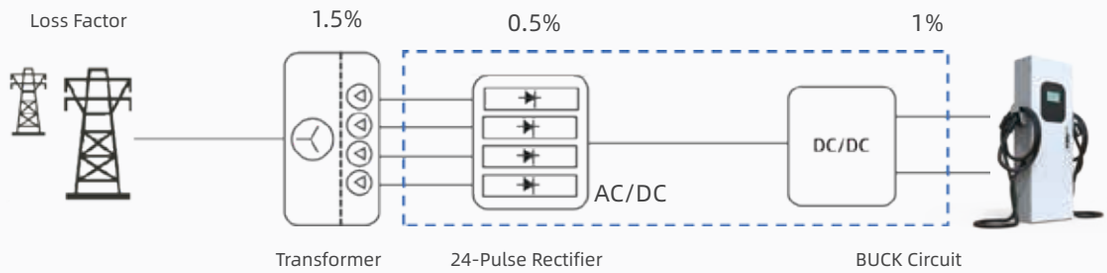
System Efficiency

92.5%

VS

Enneagon solution

Reduce two levels of electrical energy conversion



97%

Long Service Life

- IP65 High Protection Rating
- Engineered for harsh environments such as high rainfall and humidity, high salt spray, and high dust levels, ensuring long service life, maintenance-free operation, and low operational costs.

Reduce Cost and Increase Efficiency

- Independent Air Duct Design
- High-voltage direct connection eliminates the need for bulky power-frequency transformers, reducing the overall footprint by 30% and effectively lowering land rental and infrastructure costs.

Core Advantages of the EPDD High-Efficiency Ultra-Fast Charging System

- Higher reliability, lower energy consumption, and reduced electricity costs
- Less investment, smaller footprint, shorter construction period

High-voltage direct connection, efficiency leap

Features an innovative 10kV → 1000Vdc direct conversion topology. Compared to traditional "10kV/380V transformer + AC/DC" solutions, this design enhances overall site efficiency, delivering lower electricity costs and higher energy utilization. The pioneering power distribution technology supports multi-gun coordination, dynamically allocating up to 600kW per gun. This enables intelligent on-demand power dispatch, maximizing equipment utilization.

Earn more, save more–double the rewards

Taking a charging station with a capacity of 2000kW as an example, the daily electricity savings amount to 986.9 kWh. Assuming 300 operational days per year, the annual electricity cost savings can reach ¥207,200. [Average electricity cost calculated at ¥0.7 per kWh]
Additionally, the EPDD high-efficiency ultra-fast charging system features a low-noise mode (<60dB), ensuring environmental friendliness even when operating in urban communities or at night.

EPDD Selection and Configuration

The EPDD system features an IP65 protection rating and independent air duct cooling.
It is designed to meet the demands of high-humidity, high-salt-fog, and high-dust environments (such as coastal areas, mining zones, and industrial districts).

Product Line Configuration	600kW	1200kW	1800kW	2400kW
				
Number of Hosts & Terminals	1 host + air-cooled dual-gun terminals (4 sets)/ 1 host + liquid-cooled single-gun terminals (1 set)	1 host + air-cooled dual-gun terminals (4 sets)/ 1 host + liquid-cooled single-gun terminals (2 sets)	1 host + dual-gun fast-charging terminal (6 sets)/ 1 host + liquid-cooled single-gun terminal (3 sets)	1 host + dual-gun fast-charging terminal (8 sets)/ 1 host + liquid-cooled single-gun terminal (4 sets)
Station Type	Small-scale/Entry-level Station Supports 4-8 parking spaces; Suitable for initial investment or small-to-medium-sized facilities	Medium-sized/Standard Station Supports 8-12 parking spaces; Suitable for urban fast-charging stations, logistics parks, etc.	Medium-sized/Standard Station Supports 8-12 parking spaces; Suitable for urban fast-charging stations, logistics parks, etc.	Large-scale stations/hub stations support 16 parking spaces; Suitable for highway service areas, large bus stations, and battery swap station facilities
Power	600kW	1200kW	1800kW	2400kW
Current	1200A	2400A	3600A	4800A
Vehicle Type and Charging Speed	High-power charging demand (e.g., logistics vehicles, buses, heavy trucks): Recommend liquid-cooled terminals supporting 600kW per gun. Primarily fast charging (e.g., passenger vehicles, ride-hailing cars): Air-cooled terminals supporting 250kW per gun may be configured.			
Daily Service Vehicle Count* SOC 10%-80%	36-60 vehicles @30%-50% utilization rate Liquid-cooled single gun, 12 min (passenger vehicles)	20-30 vehicles @30%-50% utilization rate Liquid-cooled single-gun*2, 600kWh battery heavy-duty truck, 23 min	30-45 vehicles @30%-50% utilization rate Liquid-cooled single-gun*3, 600kWh battery heavy-duty truck, 23-minute full charge	40-60 vehicles @30%-50% utilization rate Liquid-cooled single-gun*4, 600kWh battery heavy-duty truck, 23-minute full charge
Optional Accessories	Metering Cabinet, Static Var Compensator (SVG), Liquid-Cooled Terminal, Air-Cooled Terminal			

*1. Daily Service Vehicle Capacity Calculation Formula:
(Number of terminals × 24 hours × utilization rate) / Time required to fully charge a single terminal = Daily service vehicle capacity
2. SOC 10%-80%

EPDD Series Product Technical Specifications

	Key Specifications of the 600kW High-Efficiency Charging System	Key Specifications of the 1200kW High-Efficiency Charging System
AC Input Voltage	10kVac	10kVac
AC Input Frequency	50Hz	50Hz
Incoming Cabinet Capacity	630A (Configurable)	630A (Configurable)
Transformer Capacity	630kVA	1250kVA
Power Factor (PF)	> 0.99	> 0.99
DC Output Voltage Range	200-1000Vdc	200-1000Vdc
Constant Power Range of Output Voltage	300-1000Vdc	500-1000Vdc
Number of DC Output Interfaces	8 Routes	8 Routes
Single-Channel Rated Output Power	75kW	150kW
Maximum Single-Channel Output Power	600kW (Configurable)	150kW (Expandable up to 180 kW)
Maximum Single-Channel Output Current	300A (600A Configurable)	300A (600A Configurable)
Working Temperature	-20℃-65℃ (55℃ Derating)	-20℃-65℃ (55℃ Derating)
Storage Temperature	-40℃-70℃	-40℃-70℃
Working Humidity	5% ~ 95%	5% ~ 95%
Measurement Accuracy	1.0 Class	1.0 Class
Power Distribution Method	75kW Granularity Ring Switching	Configurable (150kW switching granularity)
Cooling Method	Independent Air Duct System	Independent Air Duct System
Protection Rating	Host Power Cabinet: IP65	Host Power Cabinet: IP65
Structural Dimensions	3350mm*2400mm*2691mm	3633mm*2800mm*2691mm

EPDD is not merely an equipment upgrade, but a systemic innovation spanning from power architecture to operational models, enabling the ultra-fast charging network to achieve genuine profitability in complex scenarios.

	Key Specifications of the 1800kW High-Efficiency Charging System	Key Specifications of the 2400kW High-Efficiency Charging System
AC Input Voltage	10kVac	10kVac
AC Input Frequency	50Hz	50Hz
Incoming Cabinet Capacity	630A	630A
Transformer Capacity	2000kVA	2500kVA
Power Factor（PF）	> 0.99	> 0.99
DC Output Voltage Range	200-1000Vdc	200-1000Vdc
Constant Power Range of Output Voltage	500-1000Vdc	500-1000Vdc
Number of DC Output Interfaces	12 Routes	16 Routes
Single-Channel Rated Output Power	150kW	150kW
Maximum Single-Channel Output Power	150kW (Expandable up to 180 kW)	150kW (Expandable up to 180 kW)
Maximum Single-Channel Output Current	300A（600A Configurable）	300A（600A Configurable）
Working Temperature	-20℃-65℃ （55℃ Derating）	-20℃-65℃ （55℃ Derating）
Storage Temperature	-40℃-70℃	-40℃-70℃
Working Humidity	5% ~ 95%	5% ~ 95%
Measurement Accuracy	1.0 Class	1.0 Class
Power Distribution Method	Configurable (150kW switching granularity)	Configurable (150kW switching granularity)
Cooling Method	Independent Air Duct System	Independent Air Duct System
Protection Rating	Host Power Cabinet: IP65	Host Power Cabinet: IP65
Structural Dimensions	3583mm*2905mm*2629mm	3883mm*2905mm*2628.5mm





Title	Single-plug Terminal	Dual-plugs Terminal	Liquid-Cooled Single-plug Terminal	Liquid-Cooled Dual-plugs Terminal	Simple Terminal
Dimensions (Length x Width x Height)	500*250*1450mm	500*250*1450mm	500*492*1450mm	500*550*1750mm	300*200*1400mm
Output Power	250/300kW	250/300kW	600kW	600kW	250kW
Output Current	250A/300A	250A/300A	600A	600A	250A
Number of Plugs	1	2	1	2	2
Cooling Method	Air-cooled	Air-cooled	Liquid-cooled	Liquid-cooled	/
Basic Configuration	7-inch touchscreen, card reader, 4G+ Ethernet, etc.				

Shanghai Enneagon Energy Technology Co.,Ltd

Shanghai Enneagon Energy Technology Co., Ltd., established in Shanghai in 2014, is a high-tech enterprise and a nationally recognized “Little Giant” enterprise specializing in providing new energy electric vehicle charging and battery swapping technologies, products, and system solutions. The company's product portfolio encompasses power battery box assemblies, charging and battery swapping equipment, power electronic devices, and digital cloud platforms. Through the interconnection and interaction enabled by its IoT cloud platform, the company has positioned itself as a leading provider of integrated energy and transportation system solutions.

Headquartered in Xuhang Town, Jiading District, Shanghai, the company occupies over 55,000 square meters. It has developed comprehensive capabilities in the new energy electric vehicle sector, including system integration, equipment R&D and manufacturing, engineering survey and construction, solution design, and after-sales operations. The company delivers end-to-end charging and battery swapping services and has successfully undertaken and operated related projects across China. Committed to providing customers with safe, efficient, and reliable charging and battery swapping experiences, Shanghai Enneagon Energy Technology Co., Ltd. continues to advance its industry leadership.

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Committed to becoming a leading provider of integrated transportation and energy system solutions

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