PCS-9538-2500

10 kV to 800 V DC Solid State Transformer for AI Data Centers



Features

High efficiency and low losses

- Full-SiC power devices, max. efficiency 98.6%
- HF transformer with partial-discharge control
- Intelligent dynamic power allocation among modules
- High efficiency across the whole load range

Safe and reliable

- Designed for 99.999% power supply availability
- Control & protection platform from UHV flexible DC
- Fully redundant control, protection & communication
- N+x module redundancy, no outage on module fault

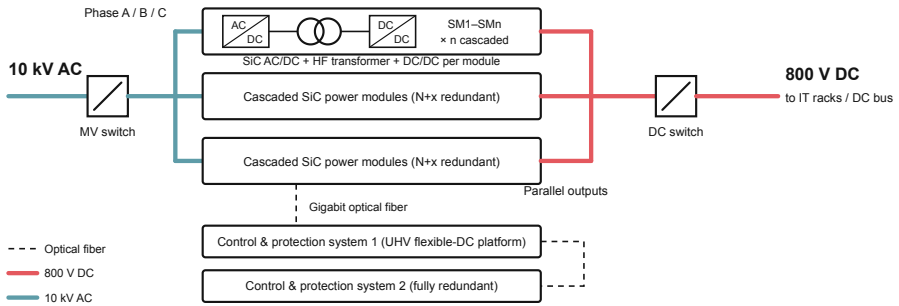
Compact and easy maintenance

- Power density 0.2 MW/m³ (0.47 MW/m²)
- Footprint reduced by > 90% vs. transformer + UPS
- Deep integration with full-chain thermal management
- Single module replacement in < 5 minutes

Grid friendly

- Direct 10 kV AC to 800 V DC conversion
- Wide input voltage range, multi-port energy routing
- SVG mode reactive support, harmonic mitigation
- Wide-band oscillation suppression capability

Schematic diagram



Technical specifications

Model	PCS-9538-2500
AC input	
Nominal input voltage （kV）	10
Input voltage range	±10% *
Nominal grid frequency （Hz）	50 / 60
Grid frequency range （Hz）	45~55 / 55~65
Current THD	< 3%
Power factor	> 0.99 (rated power)
Adjustable reactive power	-100%~100% (SVG mode)
DC output	
Nominal output voltage （V）	800
Nominal output power （kW）	2500
Max. output current （A）	3125
DC voltage ripple	< 1%
Performance	
Maximum efficiency	98.6% (field-measured)
Power density	0.2 MW/m³ / 0.47 MW/m²
Redundancy	N+x power module redundancy
Module replacement time	< 5 min
System	
Power devices	Full SiC
Isolation method	High-frequency transformer, galvanic isolation
Topology	Cascaded three-level modules, ISOP
Dimension (W×H×D) （mm）	3800*2400*1400 *
Cooling method	Forced air cooled *
Operating temperature range （°C）	0~45 (no derating) *
Max. operating altitude （m）	2000 (> 2000 derating) *
Protection level	IP20 (indoor) *
Communication ports	Optical fiber / RJ45
Support protocols	IEC 61850 / Modbus / IEC 60870-5-103, etc

* Preliminary values, subject to confirmation in the final product release.

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