

Technical Specifications

Gen 3 SST

The Amperesand Gen 3 SST converts Medium Voltage AC (MVAC) to regulated Low Voltage DC (LVDC) for AI factory power, with a battery interface to facilitate compute backup, ride-through, and AI load smoothing.

General Characteristics	
Style	Outdoor rated with integrated liquid cooling
Rated Power	5MW, 10MW
Output Voltage	800V DC/ 1500V DC/ ±750V DC
Noise Level	<65dBA (measured at 3m, rated power)
Converter Design	Galvanically isolated converter
Overload Capability	1.2 p.u. rated power for 5s
Auxiliary Power	Self-derived power supply

MVAC Ratings	
AC Grid Configuration	3P3W + PE
Input Voltage	6.6 – 34.5kV _{LL}
Input Frequency	50/60 Hz (±3Hz)
Input Power Factor	>0.99 (at rated power)
Input THD	≤5% THD at the point of common coupling (at rated power)
Rated Basic Impulse Level (BIL)	150kV (at 34.5kV)

LVDC Ratings	
Voltage Regulation	±1% under steady-state ±3% under load-step transient
Voltage Ripple	±0.5%
Nominal Output Current	12,700A DC (V _{OUT} = 800V DC at 10MW) 6,800A DC (V _{OUT} = 1500V DC, ±750V DC at 10MW)
Output DC Terminations	Side entry busbar Bottom entry cable termination

Battery Interfaces	
Battery Output Voltage	1000-1500V DC
Maximum Continuous Current	10,500A DC (Battery <> SST)
Battery Connections	Up to 2 independent battery ports
Terminations	Bottom entry cable terminations

Communications	
Protocols	IEC 61850 MMS, Modbus TCP/IP
Network Redundancy	HSR/ PRP available
Interface	2x SFP 1000BASE-LX (fiber, LC, SM OS2)(site connections) 1x 1000BASE-T (RJ45) (service/commissioning) 1x 1000BASE-T (RJ45) (battery interface)
Hardwired I/O	Upstream breaker: open, close, trip; Close permissive (spare I/O available upon request)

Enclosure	
Maximum Dimensions (L x W x H)	20'x 8'x 8.5' (6,096mm x 2,438mm x 2,591mm) for 10MW
Maximum Weight	16,000kg
Cooling Method	Integrated liquid cooling (non-toxic, biodegradable)

Protection & Reliability	
Safety	E-stop, over-current protection, over-voltage protection, over-temperature protection, trapped key interlocks for enclosure access
Surge Protection	Included on AC/ DC terminations
Short-circuit Withstand - MVAC	40kA peak
Short-circuit Withstand - LVDC	1.5 p.u. of nominal current for 150ms
Redundancy	N+2
Design Life	15-years

Environment	
Operating Temperature	-40°C to 55°C in direct sunlight (Available power derates from 100% to 0% between 50°C to 55°C)
MV Electronics Enclosure	IP65
System Enclosure	IP55
Thermal Bay Enclosure	IP2X
Relative Humidity	0-100% (Including condensing)
Altitude	<2,000m (No derating)
Seismic	Design category D, risk category II, SDS = 1.193g (per IBC/ ASCE 7)

Compliance	
Certification standards	UL 1741, UL 2877, IEC 62477 (pending)

Factory pre-integrated solutions from grid to rack

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sales@amperesand.io

MVAC Protection	MV switchgear
LVDC Protection & Distribution	LV switchgear, solid-state circuit breakers, busway, cabling
LVAC Output	Customer-defined LVAC output (415/ 480V AC)
Energy Storage	Customer-defined ride-through and back-up