

Technical Data Sheet for NAS[®] Battery System NAS MODEL L24



Type of Battery	High temperature sodium-sulfur battery
Battery Name	NAS [®] Battery NAS Model L24
Manufacturer	NGK INSULATORS, LTD., Japan
Distributor	BASF Stationary Energy Storage GmbH, Germany
Website Link	www.nasbatteries.basf.com

Mechanical properties	Values	Units	Notes (optional)
Structure (unit)	20 ft container		
Number of units in one DC-string	1, 2, 3 or 4		
Site condition	outdoor		
Dimensions	approx. 6058 x 2438 x 2591	mm	
Total weight	approx. 21	tons	
Standard paint color	RAL 9010 (Pure white)		
Cooling method	forced air cooling		No air conditioning required for battery module. Air conditioning only for control cabinet (BMS)
Ambient temperature	-20 to +45	°C	optional: -40 to +55 °C
Relative humidity (annual average)	15-85	%	without dew condensation
Altitude	1000	m	maximum altitude*
Seismic	1.0	g	static horizontal acceleration
Water protection class	IP 54		
Fire protection class			Module withstand specified fire exposure test for 30 minutes

*For higher altitudes, please contact BASF

To find out more about NAS[®] Batteries, please contact us:

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NAS
Sodium Sulfur Battery

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Operational parameters	Values	Units	Notes (optional)
Maximum charge and discharge power (DC)	250	kW-dc	Duration at maximum power is restricted by the operating limits of the battery system
Useable discharge energy at DC terminal (BOL)	1450	kWh-dc	
Number of equivalent cycles*	7300	cycles	Depending on operation and load pattern. Please consult BASF for further details.
Battery design life	20	years	Depending on operation and load pattern. Please consult BASF for further details.
Useable discharge energy at DC terminal (EOL)**	1250	kWh-dc	@7300 equivalent cycles
Average capacity degradation per 365 equivalent cycles**	<1	%	
Depth of discharge	100	%	
Average auxiliary power consumption @operation with 1 cycle/day***	<3 kW	kW-ac	voltage range: 400 – 480 V-ac
Operating temperature (inside module)	305–340	°C	
Nominal voltage	192	V-dc	voltage range: 139–228 V-dc
Minimum state of charge	0	%	
Maximum state of charge	100	%	referred to the useable capacity
Maximum charge current	1200	A	
Maximum discharge current	1500	A	
Interface with PCS controller	Modbus TCP		

Footnotes: * Equivalent cycle is only defined by accumulated discharged energy and is independent from operating depth of discharge (DOD)

** Expected degradation

*** Reference to the standard load pattern

Standards & Norms

- NAS[®] Battery systems comply with CE marking requirement.
- NAS[®] Battery cell and module are certified by UL Solutions as recognized components to UL 1973, the Standard for Batteries for Use in Stationary and Motive Auxiliary Power Applications.
- Additionally, NAS[®] Battery cell and module have been evaluated using UL 9540A, the Standard for Test Method for Evaluating Thermal Runaway Fire Propagation in Battery Energy Storage Systems.