GE VERNOVA

DATA SHEET

RESTORE DC Block

Compact, modular, and scalable energy storage system for multi-megawatt hour utility-scale energy storage projects.

RESTORE is a core component of the GE VERNOVA **FLEX**RESERVOIR solution, an integrated battery energy storage, power electronics and control system, for multiple configurations and market applications. RESTORE deploys 5MWhr of liquid cooled energy storage in a convenient 20ft containerized solution.

SPECIFICATION	UNITS	2H50/4H50
PERFORMANCE		
Electrical configuration		12P416S/314 Ah LFP (6P Strings/8S Modules)
Nameplate energy [1]	kWh	5016
Discharge power [1]	kW	2508 (at CP/2) / 1254 (at CP/4)
Auxiliary power		3-phase + Neutral, 50Hz @ 380V+/10%, 60Hz @ 480V +/- 10%
Low Voltage & Zero Voltage Ride Through (LVRT / ZVRT)		Included
Maximum DC voltage [1]	Vdc	1500
Maximum DC current [1]	Adc	2340
Short-circuit current contribution	kA	89
EFFICIENCY AND AUXILIARY POWER		
Container RTE without aux [2]	%	93.0% (CP/2) / 94.0% (CP/4)
System RTE with aux [3]	%	88% (CP/2) / 89% (CP/4)
Auxiliary power consumption [2]	kW	40 Peak (44KVA) /Average: 18.6 (CP/2)/9.3 (CP/4)
Idle Auxiliary power consumption [4]	kW	1.9
MECHANICAL		
Dimensions (L x W x H)	mm	6058 x 2438 x 2896 (ISO 20' high-cube container)
Weight - Total / Batteries	Kg	Approx. 43,000 / Approx. 31,680
Installation		Pad / Pile
Cable entry location		Bottom (DC, AC aux, Communications)
Power cables per DC terminal		Up to 6 x 240 mm^2 Copper
Cooling type		Liquid cooled (50/50 Water/glycol)
Chiller capacity / heating capacity (35C/<1000m)	kW	60 / 24
Noise	dBA	≤85 at 1m (75dBA with noise reduced operating modes)
Grounding		2 pads (1 front long side, 1 rear long side) / 4 x M12 tapped holes per pad
Paint color		RAL 6036 (Dark Teal)/White Optionally Available
ENVIRONMENT		
External ambient operating temperature range up to 1000 m	˚C	-30 to +50
Maximum ambient operating temperature at 1000 m	˚C	+45
Maximum ambient operating temperature at 3000m	˚C	+35
Storage temperature range[5]	˚C	-40°C to 60°C without battery module -35°C to 60°C with battery module
External Relative Humidity	%	100% Operating / 80% Storage
Seismic rating		IBC 2018 / ASCE 7-10 Ss=2g for 0.2 Sec
Ingress Protection		IP55 (IEC 60259) / TYPE 3R
Corrosion rating		Standard: C3 / Option: C4
Snow load		100 psf as per ASCE 7-10
SAFETY		
Pad-lockable DC switch for LOTO		Motorized DC Switch
Fire Suppression System (FSS) panel		Honeywell Notifier FSS panel
Optional clean agent system		1 x 38L FK 5-1-12 cylinder with discharge nozzles and abort switch
Smoke and heat detectors		6
Additional FSS equipment		1 internal Horn/Strobe, 1 external Horn/Strobe, 2 manual pull stations
Explosion prevention system: automatic purge ventilation		Standard
Explosion protection system		Optional
Emergency Shutdown Input		Standard
Low voltage electrical panel separate from DC power high voltage section		Standard

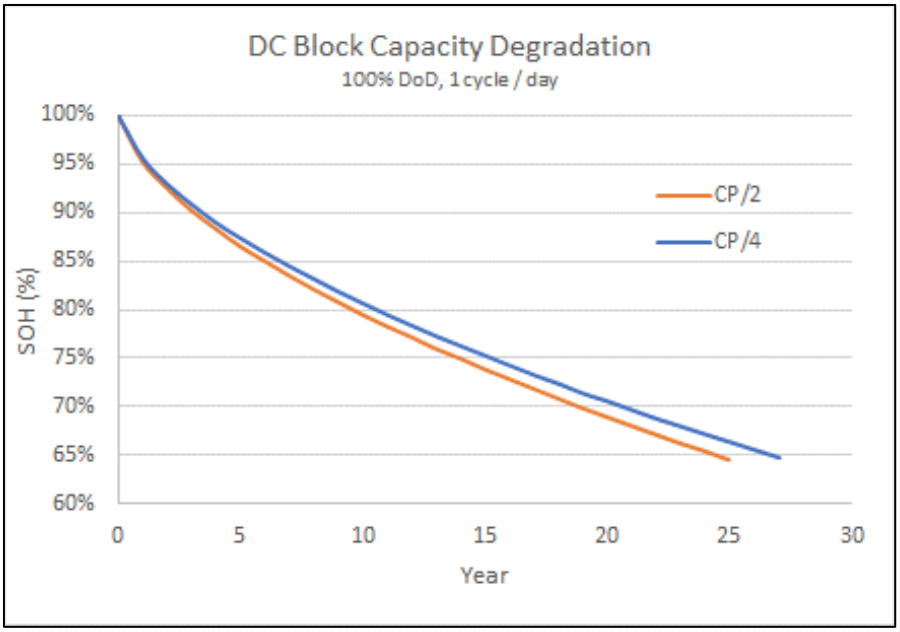
CERTIFICATIONS & COMPLIANCE		
Certifications		UL 9540, IEC 62933, IEC 61000-6-2/-4 (EMC)
Compliance		CE, NFPA 68, NFPA 69, NFPA 70, NFPA 855

COMMUNICATIONS		
BMS to rack BMS		isoSPI / CAN (Copper)
Rack BMS to Unit Controller		MODBUS (Copper)
Chiller		MODBUS (Copper)
Industrial PC (Data acquisition & analytics)		Ethernet

1) At DC container terminals, BOL, STC
2) @STC, BOL, charge-no rest-discharge cycle at rated power
3) When paired with GE Vernova FlexInverter. @STC, BOL, charge-no rest-discharge cycle at rated power. LV Transformer Terminals
4) AT STC, BOL, 24-hr idle state
5) With aux power. Storage limited to < 48hr for Ambient <-20°C and > 45°C without auxiliary power.

Capacity Degradation

NOMINAL SYSTEM CAPACITY DEGRADATION		
100% DOD, Resting SOC < 50%, 1 cycle/day		
Years	CP/4 SOH (%)	CP/2 SOH(%)
0	100.0%	100.0%
1	95.6%	95.2%
2	92.9%	92.5%
3	90.8%	90.2%
4	88.9%	88.3%
5	87.3%	86.5%
6	85.8%	85.0%
7	84.4%	83.5%
8	83.1%	82.1%
9	81.8%	80.8%
10	80.6%	79.5%
11	79.4%	78.3%
12	78.3%	77.2%
13	77.2%	76.0%
14	76.2%	75.0%
15	75.2%	73.9%
16	74.2%	72.9%
17	73.2%	71.9%
18	72.3%	70.9%
19	71.3%	69.9%
20	70.5%	69.0%
21	69.6%	68.1%
22	68.7%	67.2%
23	67.9%	66.3%
24	67.1%	65.5%
25	66.3%	64.6%
26	65.5%	
27	64.7%	



Capacity degradation data represents performance under nominal design and operating conditions and may vary under alternative or extreme usage profiles.

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