

Power Vault 300

300 KWh

Distributed Energy Storage Unit

GS-TS-300-50: 50 KVA

GS-TS-300-75: 75 KVA

GS-TS-300-100: 100 KVA

Greensmith Battery Operating System III

Uniform battery operating environment, communication and control protocols across all Greensmith units

Power

AC Voltage Options	208 V _{AC}	183-229 V _{AC}
	240 V _{AC}	211-264 V _{AC}
	480 V _{AC}	422-528 V _{AC}
	600 V _{AC}	528-660 V _{AC}
Maximum Continuous Power Options	50 KW (50 KVA)	Charge or discharge
	75 KW (75KVA)	
	100 KW (100 KVA)	
Maximum Reactive Power Options	50 – 100 KVR	Capacitive or inductive
Maximum Power Ramp Time	< 5 Seconds	Ramp Rate Adjustable
Number of Phases	3	
Maximum Current per Phase (100 KVA Model)	278 A	208 V _{AC}
	242A	240 V _{AC}
	121 A	480 V _{AC}
	96 A	600 V _{AC}
Nominal Grid Frequency	60 Hz	Adjustable
Grid Frequency Range	59.3-60.5 Hz	Adjustable
Power Factor	> 0.99	At Full Load

Advanced BMS

- Real-time battery module measurement and report: voltage, current, temperature, Cell Capacity, SOC, Efficiency and SOH
- Active balancing that keeps all cells balanced at all times
- Battery module protections against under/over-voltage, temperature and over current
- In-field configurations: DOD, voltage protection ranges, power ramp rates and charge rates
- Dynamic, real-time power control. Switch between charge and discharge in less than 2 seconds
- Ethernet, serial and Web-based communication and control
- Peer-to-peer networking across multiple units to form larger, virtual unit
- Support drop-in custom modules
- Smart Grid ready

Energy

Energy Storage Capacity	300 KWh	80% DOD
Round Trip Efficiency	> 90%	At Rated Power
House Keeping Power	< 100 W	At Idle
Standby Energy Loss Rate	< 3% per month	Grid is Available

Battery Module

Type	lithium Iron Phosphate	
Nominal Capacity	400 Ah	
Cycle Life	>3,000	80% DOD
	>5,000	70% DOD

Battery Enclosure Options

NEMA1 Rack Only	82"(H)x102"(W)x52"(D)	11,000 lbs
NEMA3 Enclosure	92(H)"x108 (W)"x72"(D)	13,000 lbs
NEMA3 20 Foot Container	80" (H) x 57"(W) x 30.84"(D)	19,500 lbs

Inverter Cabinet

Enclosure Rating	NEMA 3R	
	74" (H) x 45"(W) x 26.875"(D)	50 KVA
	1,732 lbs	
	80"(H)x57"(W)x30.84"(D)	75/100 KVA
	2,350 lbs	

Thermal Management

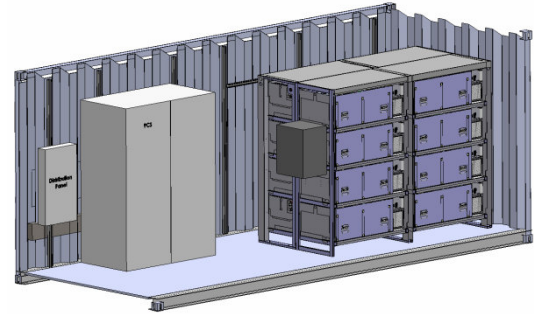
Operating Temperature	-20 - +50 °C (-4 - +122 °F)
System Idle Temperate	-30 - +70 °C (-22 - +158 °F)
Cooling	Forced Air or Air Conditioning
Fire Suppression System	For 20 Foot Container Only

Communication & Control

Connection Types	Ethernet, 3G Wireless Broadband, RS232, RS485	
Protocols	TCP, UDP, Modbus, HTTP, Web Services	
Data Formats	Binary Encoded Values, XML	
Network Security	SSL with X509 Certificate	Optional
System Response Time	< 1 Second	



Mobile Container Installation



Mobile Container Layout

Maintenance and Reliability

Swappable 48Vdc battery trays for easy replacement, storage, and maintenance to maximize shelf life.

Protection at cell, module, tray and system levels.

Redundant communication and control paths.

Remote, non-interruptive firmware update.

DESS Portal Integration

Application and Web Portal available from Greensmith to centrally manage a large number of storage units over the Internet

System-to-system integration for unit control and utility integration

Web browser-based graphical interface for operation, real-time monitoring and reporting

Central database archives all historical data for analysis

Supported Solutions

- Peak Shaving
- Renewable Integration
- Load Following
- Backup Power
- Voltage & Frequency Regulation

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Greensmith continually makes product changes to improve performance and enhance functionalities. Specifications are subject to change to reflect these improvements.