











# SolBank

## Energy Storage System

### S-2967-2h | S-2967-4h

Canadian Solar SolBank is a modular, flexible, and cost-effective MWh-scale battery energy storage system. Multiple SolBanks could be connected in parallel. This product is designed to meet energy storage needs for today and for the future.

#### KEY FEATURES

- 
 Cost-effective and long service life
- 
 280Ah LFP cell leads to high energy density
- 
 Active balancing BMS on pack and rack level, releases more energy and extends the life of the system
- 
 Liquid cooling technology with cell temperatures being controlled within the optimal operating range
- 
 Battery pack IP65 seal grade, avoid dust, moisture, and water condensation
- 
 Multi-stage thermal spread technology, effectively prevents battery heat spread and improves safety
- 
 Multi-level fire detection, monitor early thermal runaway of cells
- 
 All internal components including battery packs assembled in factory, reducing on-site installation costs

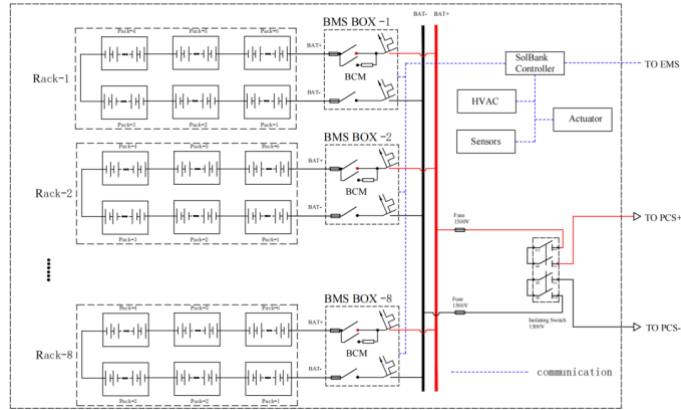
#### PRODUCT CERTIFICATES\*

UL1973, UL9540, UL9540A, UN38.3 / UN3536

\*The specific certificates applicable to each market, and not all certifications listed herein will simultaneously apply to the products you order or use. Please contact your local Canadian Solar sales representative to confirm the specific certificates applicable in the regions in which the products will be used.

**CSI Solar Co., Ltd.** is committed to providing high quality solar photovoltaic modules, solar energy and battery storage solutions to customers. The company was recognized as the No. 1 module supplier for quality and performance/price ratio in the IHS Module Customer Insight Survey. Over the past 20 years, it has successfully delivered over 67 GW of premium-quality solar modules across the world.

## CIRCUIT DIAGRAM



## SYSTEM PARAMETER

	S1K51K3A01 ( CSI-SolBank-S-2967-2h-US )	S1K5650A01 ( CSI-SolBank-S-2967-4h-US )
Battery Chemistry	Lithium Iron Phosphate (LFP)	
Pack Configuration	1P69S (69 Cells)	
Rack Configuration	1P414S (6 Packs)	
System Configuration	8P414S (8 Racks)	
DC Voltage (Nominal)	1324.8 V	
DC Voltage Range <sup>1</sup>	1159.2 V ~ 1490.4 V	
Rated DC Power <sup>2</sup>	1375 kW	700 kW
Usable Energy Capacity (FAT) <sup>3</sup>	2750 kWh	2800 kWh
Max. Short Circuit Current	75 kA	70 kA
Charging/Discharging Mode	0.5 P / 0.5 P	0.25 P / 0.25 P
Duration @Rated Power	2 hrs	4 hrs
DC Round Trip Efficiency (RTE) <sup>4</sup>	≥ 92%	≥ 94%
Aux Load (Standby/Peak)	1.25 kVA / 30 kVA	1.25 kVA / 20 kVA
Auxiliary Power Interface	AC480 V / 60 Hz, 3P5W	
Thermal Management System	Liquid cooling/heating for battery system, air cooling for electrical components and humidity control	
Control Backup	2-hrs UPS for control system including BMS, installed in the container	
Operating Temperature (Ambient)	-30 °C to 55 °C	
Relative Humidity	≤95% (non-condensing)	
Communication Interface	Ethernet / RS485 / CAN	
Communication Protocol	Modbus TCP / Modbus RTU / CAN 2.0	
Certifications	UL1973, UL9540, UL9540A, UN38.3 / UN3536	
Design Standards/Codes	NFPA69, NFPA70, NFPA855,, IEC62619	
Enclosure	20ft. high-cube container	
Dimensions (L*W*H)	6058*2438*2896 mm (238.50*95.98*114.02 in)	
Weight (Battery Included)	29,800 kg (65,700 lbs)	
Altitude	< 2000 m (derating between 2000 m ~ 4000 m)	
Enclosure Ingress Rating	IP55 / NEMA 3R	
Painting/Coating	RAL9003	
Seismic Parameter	Zone 4	
Noise @1m distance	≤ 75 dB	
Fire Detection and Alarm	Heat and smoke detection, alarm panel, bell and strobe with up to 24 hours UPS backup	
Explosion Prevention	Gas detection with active ventilation	
Fire Suppression	Aerosol-based fire suppression system option available	
Emergency Stop/Shut-off	Local and remote	

1. Unit is rated at 1159.2V~1490.4V for optimized product performance, maximum voltage range value for battery system is 1055.7V~1490.4V

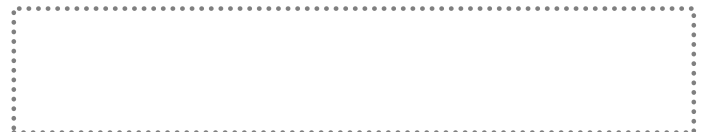
2. The rated operating power of a single unit subject to a maximum of 3 units connected in parallel

3. Usable Energy Capacity is measured at FAT, Contact CSI for an estimate of Usable Energy Capacity at COD

4. RTE is measured with rated DC Power for full cycle at BOL, refer to the warranty document for complete procedure

\* The technical parameters contained in this technical data document may deviate slightly, and Canadian Solar does not guarantee that they are completely accurate. Due to continuous innovation, research and development and product improvement, Canadian Solar reserves the right to adjust the information in this technical parameter document at any time without prior notice. The customer should obtain the latest version of the technical parameter document when signing the contract and make it an integral part of the binding contract signed by both parties.

## PARTNER SECTION



**CSI Energy Storage Co., Ltd.**

545 Speedvale Avenue West, Guelph, Ontario, N1K 1E6348, www.csisolar.com, support@csisolar.com

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MODEL	50-100181					CAB1000/AC-3L2
AC	AC configuration   max. cables per phase (1)	3-wire (3P3W)   6 x 600 kcmil or 6 x 300 mm <sup>2</sup>				
	Nominal AC voltage (+/- 10%) (2)	480 VRMS	600 VRMS	630 VRMS	660 VRMS	690 VRMS
	Nominal AC current (export/import)	1255 ARMS				
	AC export/import capacity @ 40°C (3)	1043 kW	1304 kW	1369 kW	1435 kW	1500 kW
	Export power overload capacity @ 40°C, starting from 66% full load.	120 % for 3 sec and 116 % for 5 min				
	Reactive power capacity (4), (5)	Power Factor 0.8...1 leading/lagging				
	Allowed grid short ckt. current ratios	Current mode: >4   Voltage mode: all				
	Max. fault current allowed from AC source	100 kA (AC RMS) throated version   180 kA (AC RMS) non-throated version				
	Nominal frequency range	50 / 60 Hz (configurable)				
	Harmonic distortion	UL1741 / IEEE 1547, <2% TDDi at rated power per IEEE 519 <3% according to VDE-AR-N 4110/4120				
Efficiency (@ 690 VAC): Peak   CEC   Euro	98.8%   98.4%   98.5%					
DC	DC voltage range, maximum (6)	720 - 1500 VDC	900 - 1500 VDC	945 - 1500 VDC	990 - 1500 VDC	1035 - 1500 VDC
	DC voltage range, at nominal power (6)	761 - 1200 VDC	951 - 1500 VDC	999 - 1500 VDC	1046 - 1500 VDC	1094 - 1500 VDC
	Recommended minimum battery voltage	1,65 x nominal AC voltage				
	Maximum DC current	1400 ADC				
	Max. fault current allowed from DC source	180 kA (with internal DC fuses, per input)				
	Number of DC inputs   max. cables per pole	1   8 x 600 kcmil or 8 x 300 mm <sup>2</sup>				
	Max. deviation of DC voltage between parallel units	150 VDC				
Environmental	Ambient temperature (operation)	-20°C to 60°C (-40°C as option)				
	Ambient temperature (storage)	-40°C to 60°C				
	Relative humidity	5 to 100% non-condensing				
	Protection degree	Outdoor: IP54 / NEMA 3R. Salt fog kit available for coastal sites.				
	Max elevation	3,000m+ [9,842 ft.+] (Consult EPC for any higher elevation)				
	Airborne noise	<75 dBA @ 3m				
	Seismic	ICC-ES AC 156 Sds @ 1.35 G				
	Altitude derating (current)	10% per 1,000m above 1000m elevation				
Cabinet	Temperature de-rating	1.7% per degree °C from 40-55 °C				
	Maximum dimensions (H x W x D)	mm: [2281 x 1000 x 1636] in.: [89.8 x 39.4 x 64.4]				
	Weight	1370 kg [3020 lb.]				
	Mounting	Pad mount / skid mount				
Certifications	Cooling	Hybrid liquid / air, temperature controlled				
	Safety	UL 1741   C22.2 No. 107.1-16   IEC 62477-1, IEC 62909-1				
	EMC	FCC Part 15 subpart B   IEC/EN 61000-6-2, 6-4   EN 55011   CISPR 32; CISPR 11   IEEE C37.90.2				
Protections	Utility interconnect	UL 1741 (SA)   IEEE 1547-2003   CA Rule 21   Hawaii Rule 14   AS4777.2   VDE-AR-N 4110/4120   EN 50549-2				
	AC disconnection	Contactor				
	DC disconnection	Motorized disconnect				
	AC fuses   DC fuses (7)	2 x 1000 A, 200 kAlc (24kA SC min)		3 x 750 A, 210 kAlc (20kA SC min)		
	AC   DC surge protection (SPD)	Type 2 (Optionally Type 1-heavy duty)		Type 1-heavy duty		
	Safety features	F-stop, AC / DC overvoltage, AC timed overvoltage, inst. & timed overcurrent, overtemperature (both instantaneous and time-overload), condensation, etc.				
	Ground fault detection (optional)	IMD				
Control	Control interface	CAN, Modbus TCP/IP				
	Command latency	1 ms (CAN), 3 ms (Modbus TCP/IP)				
	Response time; (time to accomplish full power step)	2 ms; adjustable longer via parameters				
	On-off grid transitions (optional)	Yes   UPS mode available				
	Black-start capable (optional)	Yes; requires external control power				
	Grid-tied control modes	Voltage mode   PQ (power)   DQ (current)   cos φ (pf)   STATCOM				
	Grid-support functions	Active/Reactive control   Volt/VAR   Hz/Watt   Volt/Watt   L/HVRT   L/HFRT   Inertia   ramp rate, etc.				
	Islanded control modes	V&f   droop control   VSG   Ok to parallel with other sources				
	Island overload avoidance	active inrush limiting for starting large loads				
	Control power voltage	208 V 1-ph 60 Hz or 240 V 1-ph 50 Hz				
Self-consumption:						
Abs. Max.   Typ. 100% load, 30C   50% load, 30C [standby]	2400 W   1500 W   1200 W [160 W]					

(1) Throat connection available as an option. Max 4 unit parallel connection allowed with throat connection due to current limit. Up to 6 inverters parallel connection allowed when using cable connection for AC.

(2) Nominal voltage 480-690 VAC +/- 10%. Consult EPC Power for ratings of alternative AC voltages.

(3) Power ratings at nominal AC voltage and at cos φ = 1. Available power reduced in proportion to any AC voltage reduction from nominal.

(4) With nominal DC and nominal AC voltage. Reactive power capability will vary depending on DC and AC voltage range requirements at inverter terminals. Additional reactive power capability available as option.

(5) Overexcited (leading) is reactive power that increases AC voltage at inverter terminals. Underexcited (lagging) is reactive power that decreases the reactive power at inverter terminals.

(6) DC voltage range at nominal AC voltage and at cos φ = 1. Minimum DC voltage increases with higher AC voltage and if reactive power is required. See manual for details.

(7) Consult EPC Power for higher interrupt current requirements. Minimum available grid fault currents must be observed for proper operation of AC fuses.