Modular Energy Storage System

Stem's Modular Energy Storage System (ESS) integrates state-of-the-art battery modules and Power Conversion Systems (PCS) from top-tier Original Equipment Manufacturers (OEMs). These components are unified within a scalable product architecture aimed at enhancing operations through advanced thermal management and State of Charge control. The Athena® Energy Management System (EMS) ensures high availability of the ESS by enabling proactive evaluation of the operational condition and effective control of the equipment. Stem's 24/7 Remote Operations Center (ROC) ensures increased uptime and minimizes risk through effective warranty management.

Improve Performance

Improve asset performance from grid edge to cloud with Athena EMS.

Athena Edge Platform

Stem's site control and onsite SCADA solution.

Athena Cloud Platform

Stem's remote monitoring solution, providing seamless integration to our bidding and asset management applications.

Reliable: Reduce complexity and increase uptime

Scalable: Deliver responsive services that adapt swiftly to evolving grid conditions

User-friendly: Simplify operation and enhance fleet visibility

Gain Modularity

Stem offers a procurement advantage with OEM relationships, Athena-certified hardware technology, and support throughout the Bid-to-Operate project lifecycle. Additionally, Stem's Modular ESS solution offers the below benefits for you:

Flexibility

Use the best-fit procurement model: self-procure inverter and DC-blocks from Stem to get competitive pricing due to our bulk buying ability or vice versa.

Lead Time

Minimize procurement lead times with Stem's experienced supply chain team, and reduce commissioning time with Athena-certified OEMs for more predictable operation dates.

Bankability

Get access to lab- as well as field-tested components from fully qualified, credible OEMs to ensure that the deployed ESS will perform safely and correctly from day one.

Diversification

Reduce concentration risk and increase benefits of a diversified supply chain.

Configurability

Select the components from various battery OEMs and PCS suppliers to size the system effectively to meet project needs and grid connection options.

Cost

Benefit from favorable pricing as Stem aggregates hardware volume with a primary OEM.

For more information contact sales@stem.com

Operational Services

System Level

- High availability guarantees

Power Conversion System

- 5-year standard, 15-year extended warranty for inverters and 10-year extended for transformers
- Preventative maintenance plans

DC Blocks

- 3-year standard, 17-year extended warranty
- Capacity guarantees
- Preventative maintenance plans

CATL DC – Block

DC Side Data

C-Rate	0.5C

Cell

Cell Type	LFP
Cell Capacity	306Ah

System

Rated Energy	4073.47kWh
Rated Voltage	1331.2VDC
Voltage Range	1040 ~ 1500VDC
Rated Charging Power	2036.73kW
Rated Discharging Power	2036.73kW

Auxiliary Power & Communication

	P-Rate	0.5P
Auxiliary Power 1	Voltage Range	3AC+N+PE 380V~480V ±10%, 50/60HZ
	Power	Max. 37.5kW
	Inrush Current	≤67.5A, <5S
Auxiliary Power 2	Voltage Range	1AC230(L+N) or 2AC(380-480)
	Power	Max. 0.8kW (Continuous)
	Inrush Current	5A
UPS	Capacity	DC24V, 7Ah capacity @ 25°C
	Communication Protocol	CAN, Modbus/TCP

Mechanical Data

Size (mm)	2896H / 2438D / 6058W
Weight	~36.0t
Color	RAL7042 (Optional RAL 9003)
IP Level	IP55 (Battery Room) IP67 (Electric control box of Chiller) IP55 (Electrical Room)

Standards & Certificates

Cell	UN38.3; UL1973; IEC62619; UL9540A
Container	UL1973; NFPA855; UL9540A; IEC 62477; IEC 62619; IEC 62933-5-2; IEC 61000-6-2; IEC61000-6-2/4

SMA Medium Voltage Power Station

Input (DC)

Max. input voltage	1500V

Output (AC) on the medium-voltage side

Nominal AC voltages	12kV to 34.5kV
AC power frequency	50Hz / 60Hz
SCS-UP-US	960kVA at -25°C to +25°C

Inverter efficiency

Max. efficiency	98.7%

General Data

Size (mm)	6058W / 2896H / 2438D
Weight	< 18 t

Standards & Certificates

IEC 60076, IEC 62271-200, IEC 62271-202, EN50588-1 IEEE 1547-20185), IEEE C37.100.1, IEEE C57.12, C37.20.9, UL 1741 listed, CSC Certificate, UL 347

Operational Services

System Level

- High availability guarantees

Power Conversion System

- 5-year standard, 15-year extended warranty for inverters and 10-year extended for transformers
- Preventative maintenance plans

DC Blocks

- 3-year standard, 17-year extended warranty
- Capacity guarantees
- Preventative maintenance plans

CATL DC – Block

DC Side Data

P-Rate	0.5P

Cell

Cell Type	LFP
Cell Capacity	306Ah

System

Rated Energy	407.34kWh
Rated Voltage	1331.2VDC
Voltage Range	1040 ~ 1500VDC
Rated Charging Power	203.67kW
Rated Discharging Power	203.67kW

Mechanical Data

Size (mm)	2438H / 1390W / 1344.1D
Weight	3650kg +/- 100kg
Color	RAL 7035
IP Level	IP 56 Battery Room IP 23 Electrical Room IP 66 Control Box & Battery Modules IP 26 Chiller Unit

Auxiliary Power & Communication

	P-Rate	0.5P
Auxiliary Power 1	Voltage Range	L+N+PE/220V/110V ±10%, 50/60 HZ
	Power	Max. 135W
	Inrush Current	≤6A,<1S
Auxiliary Power 2	Voltage Range	L+N+PE /220V ±20%, 50/60HZ
	Power	Max. 3.3kW (Continuous)
	Inrush Current	≤12.5A,<1ms
Auxiliary Power 3	Voltage Range	24VDC
	Power	0.003W (Standby state) 27.3W (Alarm status)
	Current	0.125mA (Standby state) 1.1375A (Alarm status)
	Communication Protocol	CAN, Modbus/TCP

Standards & Certificates

Rack	UL1973; NFPA855; UL9540A; IEC 62477; IEC 62619; IEC 62933-5-2; IEC 61000-6-2/4; UN38.3; NEMA 3R; REACH 1907/2006 EC;

SMA DPS-500 DC-DC Converter

Mechanical Data

Size (mm)	850.9W / 2044.7H / 1000.8D
Weight	590kg / 1300lb
Operating temp	–25°C to 55°C / –13°F to 131°F
Storage temp	–40°C to 70°C / –40°F to 158°F
Cooling method	Forced air-cooling

Electrical Data

Max. continuous power (at 30°C)	500kW at 1000VDC 600kW at 1200VDC to 1500VDC
Battery input voltage range	550V to 1500V
PV input voltage range	550V to 1500V
Max. continuous current (at 30°C)	+/– 500A

Efficiency

Avg. Efficiency	98.2%

About Stem, Inc.

Stem is a global leader in AI-driven clean energy solutions and services.

Stem (NYSE: STEM) provides clean energy solutions and services that maximize the economic, environmental, and resiliency value of energy assets and portfolios. Stem's leading AI-driven enterprise software platform, Athena® enables organizations to deploy and unlock value from clean energy assets at scale. Powerful applications, including AlsoEnergy's PowerTrack, simplify and optimize asset management and connect an ecosystem of owners, developers, assets, and markets. Stem also offers integrated partner solutions that improve returns across energy projects, including storage, solar, and EV fleet charging.

For more information, visit www.stem.com.

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