

Narada

SMART ENERGY BETTER LIFE

Energy Storage System Solutions

Zhejiang Narada Power Source Co., Ltd

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Narada

Leader of global energy storage industry

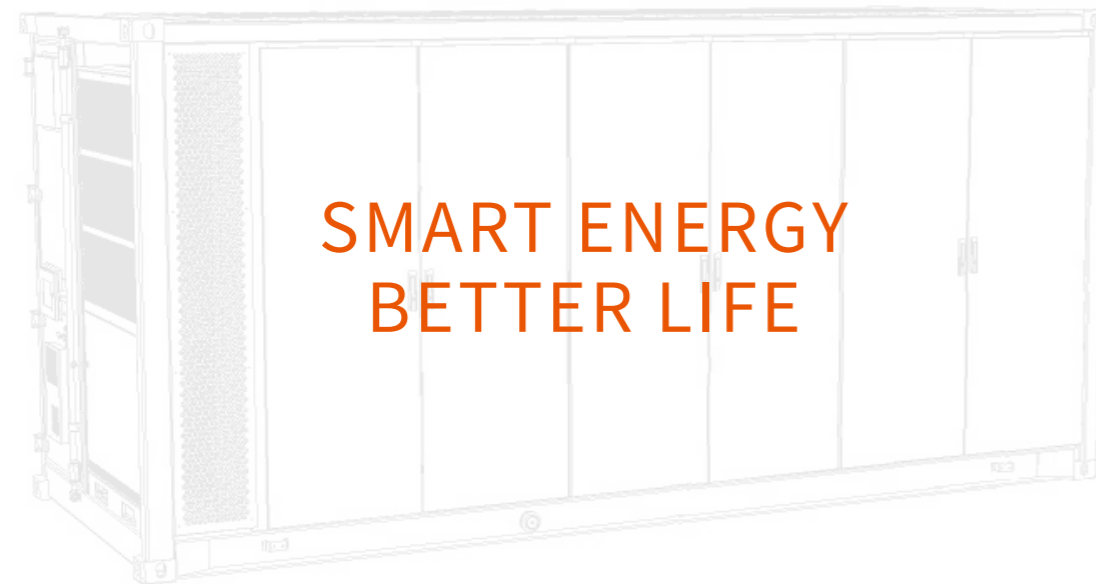
Founder of energy storage whole industry chain

Pioneer of industry innovation

Practitioner of social responsibility

Smart Energy Better Life

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BETTER LIFE**

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ABOUT NARADA

INTRODUCTION

Zhejiang Narada Power Source Co.,Ltd. (stock code: 300068), which has long been dedicated to the development and application of energy storage technology and products, provides products, system integration and services based on lithium battery and lead battery in the field of energy storage , and has created the whole industrial chain from lithium battery manufacturing, system integration, operation services to lithium resource recycling, forming an integrated and energy storage centered landscape and constructing the whole energy storage industry ecosystem.

**SMART ENERGY
BETTER LIFE**

1994
Narada founded

2010
Narada listed

30
years in the energy
storage industry

1200+
patents

160+
countries and regions
of sales net covering

Global Locations



Headquarters

Hangzhou, China

15 Branches & Offices

California, USA / MA, USA / Dallas, USA / Dusseldorf, Germany / London, UK / Melbourne, Australia / Dubai, UAE / Pretoria, South Africa / Gurgaon, India / Jakarta, Indonesia / Hanoi, Vietnam / Tokyo, Japan / Seoul, South Korea / Hong Kong, China

Utility Energy Storage System

Center Series



Center 20 1500-280/314/320-3727/5016/5112L

Center L Plus- 20ft Liquid Cooling Energy Storage System



PRODUCT FEATURES



More Secure

Detects slight leakage of electrolyte and coolant within.
Automatic fire suppression triggered at PACK level



Ultra Long Life

System cycles more than 10,000 times
Intelligent liquid cooling ensures the system temperature varies between 5°C



More Reliable

Reliable dual liquid cooling system that backups each other



Intelligent Operation

Modular design, convenient operation & flexible maintenance
Digital technology, remote collaboration & intelligent monitoring



Flexible Deployment

Factory preassembly, short lead time
Low installation and commissioning cost

PRODUCT PARAMETERS

Battery Rated Capacity	280Ah	280Ah	314Ah	320Ah	
Electrical	DC Rated Voltage	1331.2V			
	Maximum Charge/Discharge Rate	1CC/1CD	0.5CC/0.5CD	0.5CC/0.5CD	0.25CC/0.25CD
	DC Rated Energy	3.72MWh	3.72MWh	5.01MWh	5.11MWh
Performance & Safety	DC Round Trip Efficiency @ Rated Power	92%	≥94%		
	Battery Chemistry	LFP			
	Calendar Life	20 years			
	Fire Suppression	Gas+ water			
	Cooling Concept of Battery Chamber	Liquid cooling			
General Data (Combined BESS)	Codes & Compliance	UL9540/UL9540A/CE/IEC/KC/KBIA			
	Weight (Approximate)	36T	35T	45T	45T
	Enclosure Dimensions (W*H*D)	6058*2896*2438mm			
	Enclosure Rating	IP54			
Software	Operating Temperature Range	-30°C~55°C			
	Communication Interfaces	CAN,RS485,Ethernet			
	Communication Protocols	CAN,Modbus RTU,Modbus TCP/IP			

*The data in this table is for reference only, and the actual product shipped shall prevail

Center20J 1500-160/250-2949/4608F

Center F- 20ft Preassembled Joint Energy Storage System



PRODUCT FEATURES



1500V High Voltage System

High energy density, low auxiliary consumption
Efficient cost control, low comprehensive cost



100% Preassembled Shipping

Factory preassembly & testing,
Plug-and-Play
Short lead time, low installation
& commissioning cost



Non-walk-in Design

High space utilization, zone 4 aseismic design
Comply with NFPA standard



Safe and Reliable

Lithium-iron battery with Long cycle life
High system safety with UL9540 & 9540A
certificates



Intelligent Operation

Modular design, convenient operation & flexible maintenance
Digital technology, remote collaboration
& intelligent monitoring

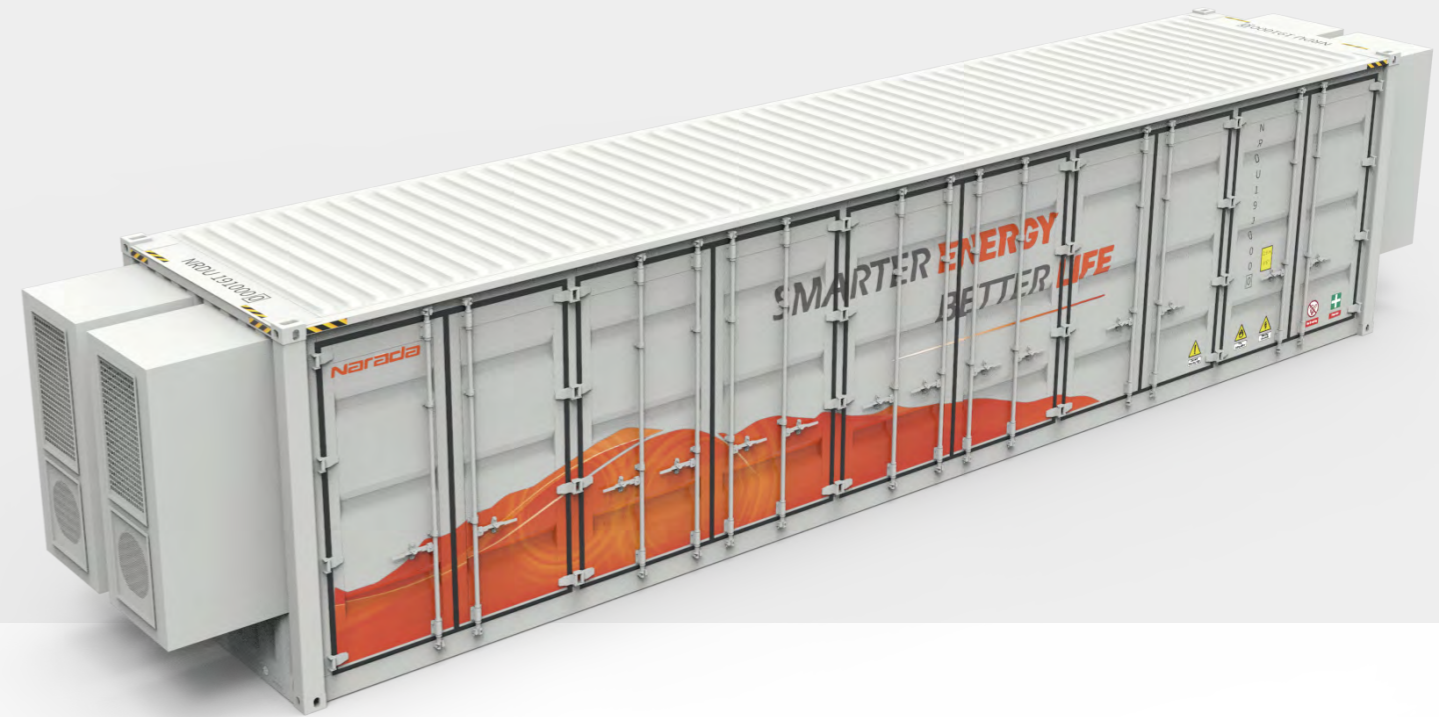
PRODUCT PARAMETERS

Battery Rated Capacity	160Ah	200Ah	250Ah	
Electrical	DC Rated Voltage	1152V	1152V	1152V
	Maximum Charge/Discharge Rate	2C	1C	0.5C/1C
	DC Rated Energy	3.0MWh	3.6MWh	4.6MWh
Performance & Safety	DC Round Trip Efficiency @ Rated Power	≥93%		
	Battery Chemistry	LFP		
	Calendar Life	20 years		
	Fire Suppression	Gas+Water Pipe		
General Data (Combined BESS)	Cooling Concept of Battery Chamber	Air cooling		
	Codes & Compliance	UL9540/UL9540A/CE/IEC/KC/KBIA		
	Weight (Approximate)	46T	48T	50T
Software	Enclosure Dimensions (W*H*D)	12192*2896*2438 mm		
	Enclosure Rating	IP54		
	Operating Temperature Range	-20~55°C		
Software	Communication Interfaces	CAN,RS485,Ethernet		
	Communication Protocols	CAN,Modbus RTU,Modbus TCP/IP		

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Center40 1500-250-5184F

Center F- 40ft Non-Walk-In Energy Storage System



PRODUCT FEATURES



1500V High Voltage System
High energy density, low auxiliary consumption
Efficient cost control, low comprehensive cost



100% Preassembled Shipping
Plug-and-Play, short lead time
Factory testing, low commissioning cost



Non-walk-in Design
High space utilization, zone 4 aseismic design
Comply with NFPA standard



Safe and Reliable
Lithium-iron battery with Long cycle life
High system safety with UL9540 & 9540A certificates



Flexible Deployment
Factory preassembly, short lead time, low commissioning cost



Intelligent Operation
Modular design, convenient operation & flexible maintenance
Digital technology, remote collaboration & intelligent monitoring

PRODUCT PARAMETERS

Battery Rated Capacity		250Ah
Electrical	DC Rated Voltage	1152V
	Maximum Charge/Discharge Rate	0.5C/1C
	DC Rated Energy	5.18MWh
Performance & Safety	DC Round Trip Efficiency @ Rated Power	≥93%
	Battery Chemistry	LFP
	Calendar Life	20 years
	Fire Suppression	Gas + (water options)
	Cooling Concept of Battery Chamber	Air cooling
General Data (Combined BESS)	Codes & Compliance	UL9540/UL9540A/CE/IEC/KC/KBIA
	Weight (Approximate)	63T
	Enclosure Dimensions (W*H*D)	12192*2896*2438mm
	Enclosure Rating	IP54
Software	Operating Temperature Range	-20~55°C
	Communication Interfaces	CAN,RS485,Ethernet
	Communication Protocols	CAN,Modbus RTU,Modbus TCP/IP

*The data in this table is for reference only, and the actual product shipped shall prevail

Center40 1000-250-3456F

Center F- 40ft Energy Storage System



PRODUCT FEATURES



1000V High Voltage System

High energy density, low auxiliary consumption
Efficient cost control, low comprehensive cost



High-efficient Integration

Standardized design, high reliability
Constantly upgrading system, efficient integration



100% Preassembled Shipping

Factory preassembly, low transportation costs
Modular assembly, short commissioning cycles



Safe and Reliable

Lithium-iron battery with Long cycle life
High system safety with UL9540 & 9540A certificates



Intelligent Operation

Modular design, convenient operation & flexible maintenance
Digital technology, remote collaboration & intelligent monitoring

PRODUCT PARAMETERS

Battery Rated Capacity		250Ah
Electrical	DC Rated Voltage	768V
	Maximum Charge/Discharge Rate	0.5C/1C
	DC Rated Energy	3.45MWh
Performance & Safety	DC Round Trip Efficiency @ Rated Power	≥93%
	Battery Chemistry	LFP
	Calendar Life	20 years
	Fire Suppression	Gas + (water options)
	Cooling Concept of Battery Chamber	Air cooling
General Data (Combined BESS)	Codes & Compliance	UL9540/UL9540A/CE/IEC/KC/KBIA
	Weight (Approximate)	43T
	Enclosure Dimensions (W*H*D)	12192*2896*2438mm
	Enclosure Rating	IP54
Software	Operating Temperature Range	-20~55°C
	Communication Interfaces	CAN,RS485,Ethernet
	Communication Protocols	CAN,Modbus RTU,Modbus TCP/IP

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C&I Energy Storage System

Edge Series



Edge 1000-280/314/320-373/418/426L

Edge L- Liquid Cooling Energy Storage Cabinet



PRODUCT FEATURES



Flexible Deployment

Modular energy cabinet, flexible expansion, IP55 to meet a variety of outdoor application scenarios



High Level of Safety

Multi-safety design & multi-protection assurance
Pre-alarm system, ensure system safety
Eligible for NFPA855, UL9540, UL9540A, GB standards



Ultra-long Life

High capacity and long battery cycle life, efficient active balancing system, 20 years of system designed life



Efficient Management

High-efficiency liquid cooling system, system temperature difference $\leq 3^{\circ}\text{C}$

PRODUCT PARAMETERS

Battery Rated Capacity	280Ah	314Ah	320Ah	
Electrical	DC Rated Voltage	1331.2V		
	Maximum Charge/Discharge Rate	0.5CC/0.5CD	0.5CC/0.5CD	0.25CC/0.25CD
	DC Rated Energy	372.7kWh	417.9kWh	425.9kWh
Performance & Safety	DC Round Trip Efficiency @ Rated Power	$\geq 94\%$		
	Battery Chemistry	LFP		
	Calendar Life	20 years		
	Fire Suppression	Aerosol + water		
	Cooling Concept of Battery Chamber	Liquid cooling		
General Data (Combined BESS)	Codes & Compliance	UL9540/CE/IEC		
	Weight (Approximate)	3.5T	3.7T	3.7T
	Enclosure Dimensions (W*H*D)	1350x2350x1400mm		
	Enclosure Rating	IP55		
Software	Operating Temperature Range	$-30^{\circ}\text{C} \sim 55^{\circ}\text{C}$		
	Communication Interfaces	RS485、CAN、LAN		
	Communication Protocols	ModBus TCP/ModBus RTU/CAN		

*The data in this table is for reference only, and the actual product shipped shall prevail

Edge 1000-280/314/320-233/261/266L

Edge L- Liquid Cooling All-in-one Cabinet



PRODUCT FEATURES



Flexible Deployment

Small footprint and flexible layout



Efficient Management

Refined thermal management, the system temperature difference $\leq 3^{\circ}\text{C}$
Refined thermal management, the system temperature difference $< 3^{\circ}\text{C}$
The overall system efficiency $> 88\%$



High Level of Safety

IP67 protection for PACK, IP55 protection for outdoor cabinet Excellent fire alarm, fire extinguishing and explosion control system



Intelligent management

Real-time status monitoring and fault recording to achieve fault warning and fault location



Ultimate Integration

Modular design, easy to transport and maintain Integrated system design, pre-installation and pre-commissioning, reducing on-site work

PRODUCT PARAMETERS

Electrical	Battery Rated Capacity	280Ah	314Ah	320Ah	AC	Rated Power	100kW
	DC Rated Voltage	832V				Max. Power	110kW
	Maximum Charge/Discharge Rate	0.5CC/0.5CD	0.5CC/0.5CD	0.25CC/0.25CD		Rated Voltage	400/480Vac
	DC Rated Energy	232.9kWh	261.2kWh	266.2kWh		Rate Frequency	50/60Hz
Performance & Safety	DC Round Trip Efficiency @ Rated Power	$\geq 94\%$			Power Factor	-1~1	
	Battery Chemistry	LFP			Output Mode	3W+N+PE	
	Calendar Life	20 years					
	Fire Suppression	Aerosol + water					
	Cooling Concept of Battery Chamber	Liquid cooling					
General Data (Combined BESS)	Codes & Compliance	UL9540/CE/IEC					
	Weight (Approximate)	2.9T	3T	3T			
	Enclosure Dimensions (W*H*D)	1000x2400x1350mm					
Soft ware	Enclosure Rating	IP55					
	Operating Temperature Range	$-30^{\circ}\text{C} \sim 55^{\circ}\text{C}$					
	Communication Interfaces	RS485, CAN, LAN					
	Communication Protocols	ModBus TCP/ModBus RTU/CAN					

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Edge 1000-250-211F

Edge F- Industrial And Commercial Outdoor Cabinet



PRODUCT FEATURES



Flexible Deployment

Modular structure, flexible combination, Plug-and-Play
Higher energy design, less space usage
IP54 protection level with flexible applications



High Level Of Safety

Multi-safety design & multi-protection assurance
Pre-alarm system, ensure system safety
Eligible for NFPA855, UL9540, UL9540A, GB standards



Intelligent Operation

Modular design, convenient operation & flexible maintenance
Digital technology, remote collaboration & intelligent monitoring



Ultimate Integration

3S combination and control integration
CTP technology, all in one integration
AC&DC temperature differentiated management



Ultra Long Life

High capacity and long battery cycle life, efficient active balancing system
15 years of system designed life



Emergency Standby

AB configuration optional, off-grid and grid-connected flexible
Emergency green power supply, improve power quality

PRODUCT PARAMETERS

Electrical	Battery Rated Capacity	250Ah	AC Grid-connected Parameters	Rated Output Power	100KVA
	DC Rated Voltage	739.2V~950.4V		Rated Current	150A
	Maximum Charge/Discharge Rate	0.5C		Maximum Current	160A
	DC Rated Energy	211kWh		Rated Grid Voltage	400Vac, 3W+N+PE
Performance & Safety	DC Round Trip Efficiency @ Rated Power	≥93%		Output Voltage Frequency	50Hz
	Battery Chemistry	LFP		Power Factor Range	-1~+1
	Calendar Life	20 years		Total Harmonic Distortion of Grid-connected Current	<3% (Rated Condition, Resistively Balanced Load)
	Fire Suppression	Gas			
	Cooling Concept of Battery Chamber	Air cooling			
General Data (Combined BESS)	Codes & Compliance	UL9540/UL9540A/CE/IEC/KC/KBIA			
	Weight (Approximate)	2.5T			
	Enclosure Dimensions (W*H*D)	1600*2330*1200mm			
Software	Enclosure Rating	IP54			
	Operating Temperature Range	-20°C~55°C			
	Communication Interfaces	RS485, CAN, LAN, 4G			
	Communication Protocols	ModBus TCP/ModBus RTU/CAN			

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Applications of Energy Storage Solutions



GLOBAL REFERENCE Power Generation Side



71MW/130MWh, wind+ ESS, Texas, USA



60MW/125MWh, PV+ESS, Xinjiang, China



71MW/129MWh, PV+ ESS, USA



47.5MW/95MWh, wind+ESS, China



71MW/129MWh, PV+ESS, USA



22MW/22MWh, thermal plant AGC frequency regulation, Italy

GLOBAL REFERENCE  Power Transmission & Distribution Side



200MW/400MWh, frequency regulation, Guangdong, China



70MW/340MWh, frequency regulation, Italy



100MW/200MWh, frequency regulation, Hunan, China



100MW/200MWh, frequency regulation, Henan, China



50MW/32.44MWh, frequency regulation, Ireland



10MW/20MWh, frequency regulation, Australia

GLOBAL REFERENCE  Power Consumption Side



7MW/30MWh, C&I ES project, Jiangsu, China



3.75MW/15MWh, C&I ES project, China



3MW/6MWh, C&I ES project, China