

**Narada**

**SMART ENERGY  
BETTER LIFE**

**SMART ENERGY BETTER LIFE**

Energy Storage System Solutions

**Zhejiang Narada Power Source Co., Ltd**

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Official WeChat

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## ABOUT NARADA

### INTRODUCTION

Zhejiang Narada Power Source Co., Ltd. (stock code: 300660), 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

**29+**

years in the energy  
storage industry

**150+**

international safety  
standards for energy storage

# Utility Energy Storage System

Center Series

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Center 20J 1500-280/305-7454/8120L

## Center L Plus- 20ft Joint Liquid Cooling Energy Storage System



### PRODUCT FEATURES



#### More Secure

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



#### More Reliable

Reliable dual liquid cooling system that backups each other



#### More Compact

Less occupied area with fully preassembled 20ft liquid-cooling ESS



#### Ultra Long Life

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



#### Intelligent Operation

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

### PRODUCT PARAMETERS

Battery Rated Capacity	280Ah	305Ah	
Electrical	DC Rated Voltage	1331.2V	
	Maximum Charge/Discharge Rate	0.5CC/3CD	0.5CC/0.5CD
	DC Rated Energy	7.45MWh	8.1MWh
Performance & Safety	DC Round Trip Efficiency @ Rated Power	>95%	
	Battery Chemistry	LFP	
	Calendar Life	20 years	
	Fire Suppression	Gas + (water optional)	
	Cooling Concept of Battery Chamber	Liquid cooling	
General Data (Combined BESS)	Codes & Compliance	UL9540/UL9540A/CE/IEC/KC/KBA	
	Weight (Approximate)	70T	72T
	Enclosure Dimensions (W*H*D)	17197*2896*2438 mm	
	Enclosure Rating	IP54	
Software	Operating Temperature Range	-40~55°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.

Center 20 1500-280/305-3727/ 4060L

## 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	305Ah	
Electrical	DC Rated Voltage	1311.2V	
	Maximum Charge/Discharge Rate	0.5C/0.5C	
	DC Rated Energy	3.7MWh	4.06MWh
Performance & Safety	"DC Round Trip Efficiency @ Rated Power"	>95%	
	Battery Chemistry	LFP	
	Calendar Life	20 years	
	Fire Suppression	Gas + (water option)	
	Cooling Concept of Battery Chamber	Liquid cooling	
	Codes & Compliance	UL9540/UL9540A/CE/IEC/KC/KBIA	
General Data (Combined BESS)	Weight (Approximate)	35T	35.4T
	Enclosure Dimensions (W*H*D)	6058*2896*2438mm	
	Enclosure Rating	IP54	
Software	Operating Temperature Range	-40~55°C	
	Communication Interfaces	CAN,RS485,Ethernet	
	Communication Protocols	CAN,Modbus RTU,Modbus TCP/IP	

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Center20J 1500-160/250/280-2949F/4608F/4874F

## 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 seismic design  
Comply with NFPA standard



#### Safe and Reliable

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



#### Intelligent Operation

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

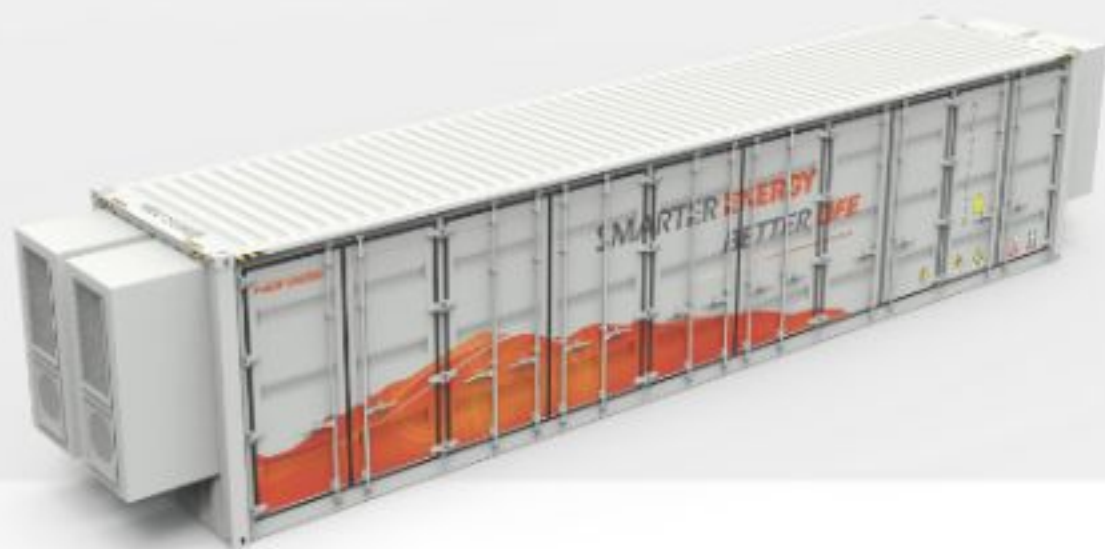
### PRODUCT PARAMETERS

Battery Rated Capacity	160Ah	200Ah	250Ah	280Ah	
Electrical	DC Rated Voltage	1152V	1152V	1152V	1088V
	Maximum Charge/Discharge Rate	2C	1C	0.5C/1C	0.5C/1C
	DC Rated Energy	3.08kWh	3.68kWh	4.68kWh	4.88kWh
Performance & Safety	DC Round Trip Efficiency @ Rated Power	93%	93%	93%-95%	93%-95%
	Battery Chemistry	LFP			
	Calendar Life	20 years			
	Fire Suppression	Gas + (water optional)			
	Cooling Concept of Battery Chamber	Air cooling			
General Data (Combined BESS)	Codes & Compliance	UL 9540/UL 9540A/C3 /B C/ KC/ K18A			
	Weight (Approximate)	461	481	501	551
	Enclosure Dimensions (W*H*D)	12152*2896*2438 mm			
Software	Enclosure Rating	IP54			
	Operating Temperature Range	-20~55°C			
	Communication Interfaces	CAN, RS485, J1939			
	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 1500-250/280-5184F/5483F

## 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



#### Non-walk-In Design

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



#### Flexible Deployment

Factory preassembly, short lead time, low  
commissioning cost



#### 100% Preassembled Shipping

Plug-and-Play, short lead time  
Factory testing, low commissioning cost



#### Safe and Reliable

Lithium-ion battery with Long cycle life  
High system safety with UL 9540 & 9540A certifi-  
cates



#### Intelligent Operation

Modular design, convenient operation & flex-  
ible maintenance  
Digital technology, remote collaboration  
& intelligent monitoring

### PRODUCT PARAMETERS

<b>Battery Rated Capacity</b>		250Ah	280Ah
<b>Electrical</b>	DC Rated Voltage	1152V	1088V
	Maximum Charge/Discharge Rate	0.5C/1C	0.5C/1C
	DC Rated Energy	5.18MWh	5.48MWh
<b>Performance &amp; Safety</b>	DC Round Trip Efficiency @ Rated Power	92%-95%	
	Battery Chemistry	LFP	
	Calendar Life	20 years	
	Fire Suppression	Gas + (water optional)	
	Cooling Concept of Battery Chamber	Air cooling	
	Codes & Compliance	UL 9540/UL 9540A/CE/IEC/ROHS	
<b>General Data (Combined BESS)</b>	Weight (Approximate)	63t	
	Enclosure Dimensions (W*H*D)	12192*2896*2438mm	
	Enclosure Rating	IP54	
<b>Software</b>	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



#### 100% Preassembled Shipping

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



#### Intelligent Operation

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



#### High-efficient Integration

Standardized design, high reliability  
Constantly upgrading system, efficient integration



#### Safe and Reliable

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

### PRODUCT PARAMETERS

<b>Battery Rated Capacity</b>		250Wh
<b>Electrical</b>	DC Rated Voltage	168V
	Maximum Charge/Discharge Rate	0.5C/1C
	DC Rated Energy	3.65MWh
<b>Performance &amp; Safety</b>	DC Round Trip Efficiency @ Rated Power	97%-95%
	Battery Chemistry	LFP
	Calendar Life	20 years
	Fire Suppression	Gas + (water options)
	Cooling Concept of Battery Chamber	Air cooling
	Codes & Compliance	UL9540/UL9540A/CE/IEC/NC/KIRA
<b>General Data (Combined BESS)</b>	Weight (Approximate)	43T
	Enclosure Dimensions (W*H*D)	12192*2896*2438mm
	Enclosure Rating	IP54
<b>Software</b>	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

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## Edge 1000-250/280-211/233F

## 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

Category	250Ah		280Ah	
	DC Rated Voltage	78.2V	85.6V	78V
Maximum Charge/Discharge Rate	0.5C			
DC Rated Energy	21kWh	23kWh		
DC Based Trip Efficiency @ Rated Power	95%	93%-95%		
Battery Chemistry	LFP			
Calendar Life	20 years			
Fire Suppression	Gas + (water optional)			
Cooling Concept of Battery Chamber	Air cooling			
Codes & Compliance	UL9540/UL9540A CE, FCC, RoHS			
Weight (Approximate)	2.5t	2.6t		
Enclosure Dimensions (W*H*D)	1080*1130*1200	1080*1615*1200		
Enclosure Rating	IP54			
Operating Temperature Range	-30°C ~ 55°C			
Communication Interfaces	RS485, CAN, LAN, 4G			
Communication Protocols	Modbus RTU/Modbus TCP/CAN			
AC Off-grid Parameters	Rated Output Power	100kW		
	Rated Current	250A		
	Maximum Current	300A		
	Rated Grid Voltage	400Vac, 3W-N-PE		
	Output Voltage Frequency	50Hz		
	Power Factor Range	1...1		
	Total Harmonic Distortion of Grid-connected Current	<3% (Rated Condition, Resistively Balanced Load)		
	Rated Output Voltage	400Vac, 3W-N-PE		
	Maximum Output Power	100kW		
	Maximum Unbalanced Output Power	50kW		
AC On-grid Parameters	Maximum AC Current	150A (Phase Equal) / 180A (Unbalanced Loads)		
	Output Voltage Frequency	50Hz		
	Maximum Allowable Grid Fault	2.5		
	Output Voltage Total Harmonic Distortion	<3% (Rated Condition, Resistively Balanced Load)		

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

## Edge10 1000-250-500F

## Edge F-

Integrated Standard 10ft  
Energy Storage System

## PRODUCT FEATURES

**Highly Integrated**

AC and DC all in one design, Plug-and-Play

**100% Preassembled Shipping**

Factory preassembly and pre-testing

**Convenient Transportation**

Less space usage, applicable to most vehicles

**Connect To Grid Simply**

400V low voltage grid-connected design, simple grid-connection &amp; acceptance process

**Flexible Application**

500kWh modular design, suitable for industrial and commercial power consumption

## PRODUCT PARAMETERS

Electrical	Battery Rated Capacity	250Ah	AC Grid-connected Parameters	Rated Output Power	250kW
	DC Rated Voltage	400V		Rated Current	300A
	Maximum Charge/Discharge Rate	0.5C		Rated Grid Voltage	400V
	DC Rated Energy	100kWh		Output Voltage Frequency	50/60Hz
Performance & Safety	DC Round Trip Efficiency @ Rated Power	92%-95%	AC Grid Parameters	Power Factor Range	0.99-1-1
	Battery Chemistry	LFP		Total Harmonic Distortion of Grid-connected Current	<3%
	Calendar Life	20 years		Rated Output Voltage	400V
	Life Suppression	Gas + water capture		Maximum Output Power	250kW
General Data (Combined/BSSE)	Cooling Concept of Battery Chamber	Air cooling	Maximum AC Current	300A	
	Codes & Compliance	UL 946/UL 940A/CE/IEC	Output Voltage Frequency	50/60Hz	
	Weight (Approximate)	9t	Output Voltage Total Harmonic Distortion	<3%	
	Enclosure Dimensions (W*H*D)	2000*2000*2400mm			
EIA EMC	Enclosure Rating	IP54			
	Operating Temperature Range	-20-55°C			
	Communication Interfaces	RS485, CAN, LAN			
	Communication Protocols	Modbus RTU/Modbus TCP/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, wind+ESS, USA



47.5MW/95MWh, wind+ESS, China



40MW/55MWh, 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



74MW/108MWh, frequency regulation, Hunan, China



50MW/32.44MWh, frequency regulation, Ireland



10MW/20MWh, frequency regulation, Australia

**GLOBAL REFERENCE**  Power Consumption Side


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



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



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



Outdoor Cabinet ES Project, Mexico