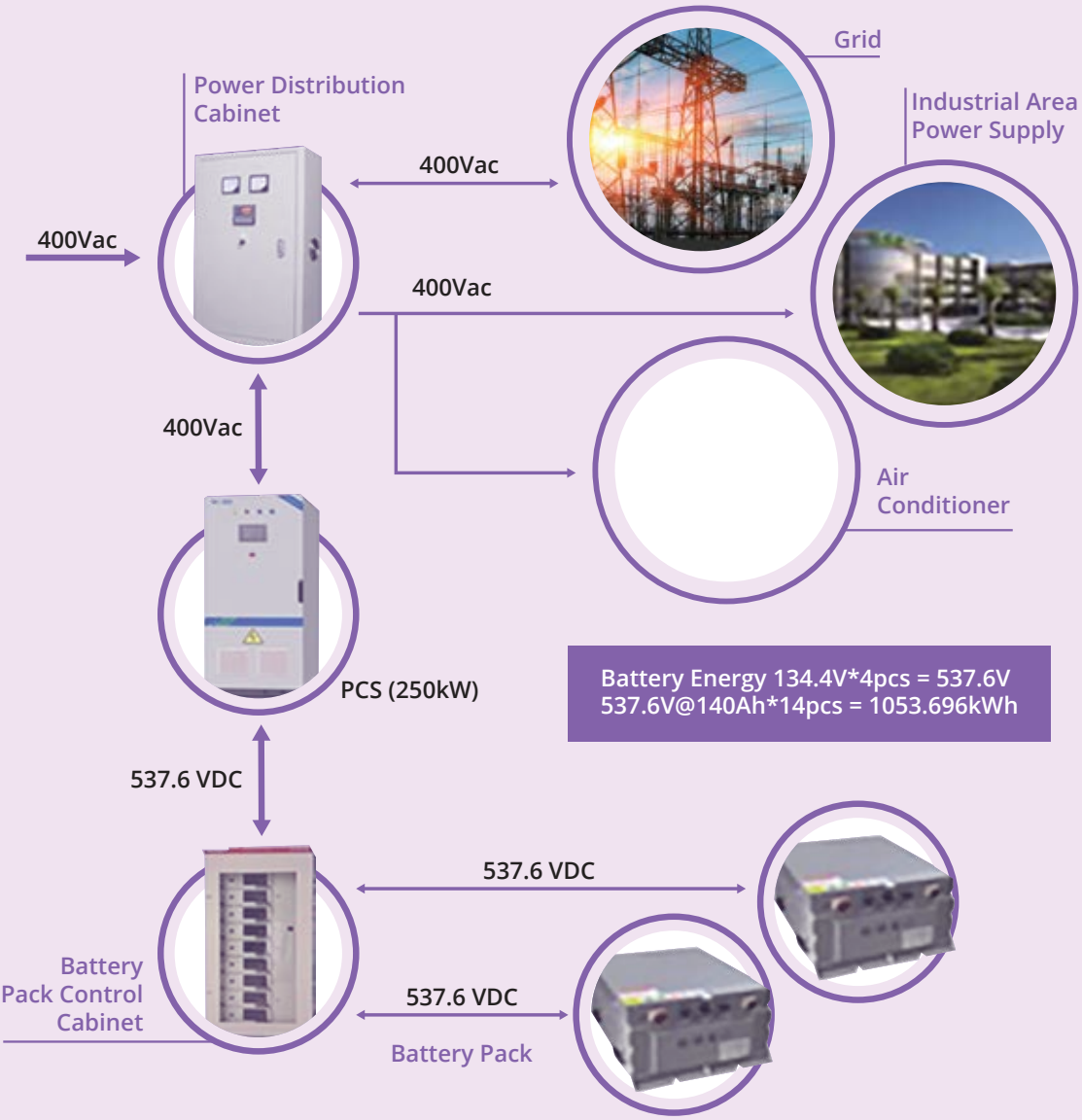
CONTAINER 1MWh

Electrocell presents the INNOVA 1MWh on/off-grid energy storage system.

Installed inside a 40 ft container includes 14 units of 540V@140Ah battery packs, system control cabinet, 250kW PCS and air conditioning system.



Picture 1 - Schematic diagram / system power circuit

WORKING MODES

• When the AC grid is normal, the battery packs is loaded over the converter through the control cabinet. The system works on grid.

• When the AC grid is unstable, the system works off-grid with the battery pack.

• During off-peak period the battery system is recharged through the PCS.

SYSTEM COMPONENTS

Name		Quantity	Specs
1MWh INNOVA Energy Storage System	Container	1	40 ft
	LiFePO4	56	134.4V@140Ah
	Busbar	2	1 for each 28 batteries pack
	Control Cabinet	1	14 units
	PCS	1	250kW
	Distribution Cabinet	1	AC380V 800A
	Air Conditioner	1	2.4KW

POWER CIRCUIT DESIGN

The battery pack can be charged by the two-way inverter during off-peak time, battery pack supplies electricity to the factory through the two-way inverter during peak time, the two-way inverter can work collaborating with grid during peak time.

EMERGENCY POWER SUPPLY MODE

The power grid is cut off, and the two- way inverter operates in the off grid mode and the battery pack is discharged to supply the plant.

1MWh ENERGY STORAGE SYSTEM PARAMETERS

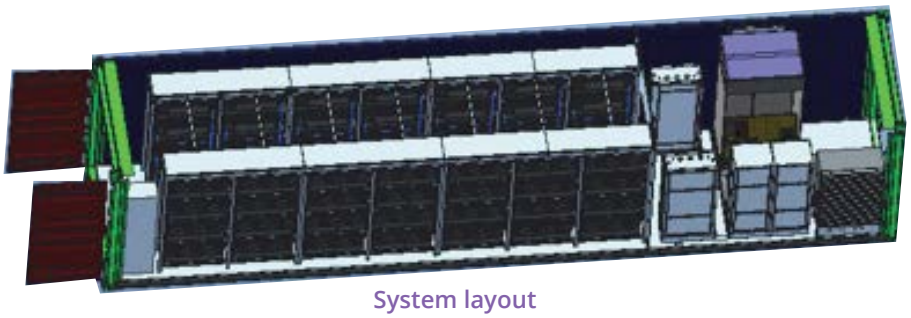
Cell	Overcharge cut-off voltage: 3.85V
	Rated voltage: 3.2V
	Low voltage cutoff voltage: 2.5V
Battery Pack	3.85V*42PCS = 161.7V
	3.2V*42PCS = 134.4V
	2.5V*42PCS = 105V
Battery System	161.7V*4PCS = 646.8V
	134.4V*4PCS = 537.6V
	105V*4PCS = 420.0V
Total battery capacity: 537.6V*140Ah*14 = 1053.696 kWh	

HUMAN-MACHINE INTERFACE (HMI)

HMI includes data load interface, battery data interface, communication signals and multi-alarms. Convenient user cable connection.

STRUCTURAL SCHEME DESIGN

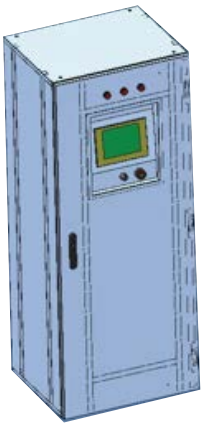
1MWh Battery Energy Storage Layout



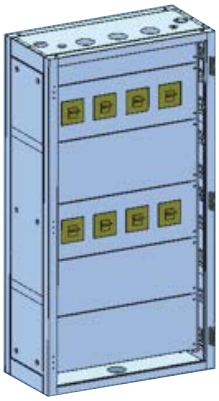
System layout

GABINETS

Switch Cabinet



Control Cabinet



Confluence Cabinet

134.4V@140Ah BATTERY SPEC

Specification	
Rated Voltage (VDC)	134.4
Rated Capacity (Ah)	140
State of Charge SOC Range	20% -100%
Charge/Discharge efficiency	96%
IP Level	IP67
Dimension (W/H/D mm)	480/385/940
Weight (kg)	225
Working Temperature (°C)	-30°～+55°
Storage Temperature (°C)	-40°～+60°

CONFLUENCE CABINET SPEC

Specification	
Maximum DC input voltage (VDC)	750
Maximum DC input current (A)	1400
DC input voltage (VDC)	540
Dimension (W/H/D mm)	800/1500/400
Weight (kg)	150
Working Temperature (°C)	30°～+55°
Storage Temperature (°C)	-40° / +60°
IP level	IP23

CONTROL CABINET SPEC

One host computer controls the whole system.

Specification	
DC/DC Maximum DC input voltage (VDC)	750
Maximum DC input current (A)	100
DC rated input voltage (VDC)	540
System Rated working voltage (VDC)	24
Dimension (W/H/D mm)	500/1500/600
Weight (kg)	100
Working Temperature (°C)	-30°～+55°
Storage Temperature (°C)	-40°～+60°
IP Level	IP23

TWO-WAY INVERTER SPEC

250kW Inverter Specification	
DC parameter	
Maximum DC power kW	250
Maximum DC voltage V	750
Working Voltage Range V	400-650
Minimum DC voltage V	400
Maximum DC current A	600
System Data	
Maximal efficiency	97%
IP level	IP21
Allowed temperature	-30 °C ~＋55 °C
Cooling method	Forced air cooling
Allowed relative humidity	<95% (no dew)
Display and communication	
Display	LCD display screen
Communication mode	CAN、RS485、Ethernet, Remote monitoring
Others	
DC side circuit breaker	Circuit breaker
AC side circuit breaker	Circuit breaker
DC overvoltage protection	Included
AC overvoltage protection	Included
Polarity reverse protection	Included
Module temperature protection	Included

AC parameter	
Working Mode	24h continuous work
Rated Output Power KVA	250
Output overload capability KVA	275 (1.1 times overload even during longer periods)
AC Current A	400
The maximum total harmonic distortion	<3% (Rated Power)
Rated grid voltage V	400
Adjustable voltage range V	310-450
Rated power frequency Hz	50 or 60Hz
Acceptable frequency range	47-52Hz/57-62Hz
Power factor under rated power	>0.96
Isolation Transformer	included
Independent inverter voltage setting range V	370-410 inverter output
Voltage distortion	<3% (linear load independent inverter
Unbalanced load capacity	100%
Independent inverter with load power factor	0.6 to -0.6
Grid/off-grid automatic switch	Included
Dimension (W×H×D mm)	2100*1200*955
Weight kg	1400

NET DISTRIBUTION CABINET SPEC

Grid side：NDM3E-800 800A/3P*1
User side：NDM3L-400 400A/3P*1

NDM1-125 125A/3P*2, NDM1-63 63A/1P*3, NDM1-63 32A/1P*6

16A maintenance jack*1PCS

Specification	
Rated Voltage (VAC)	400
Dimension (W/H/D mm)	500/1500/600
Weight (kg)	100
Working temperature (°C)	-30°～+55°
Storage temperature (°C)	-40°～+60°
IP level	IP23

EMC PROTECTION AND RELIABILITY DESIGN

This product satisfies EMC requirements

PROTECTION AND RELIABILITY DESIGN

Lightning protection

The whole system is designed with complete lightning protection.

Environmental Protection Requirements

All materials can satisfy ROHS and REACH standards.
The key materials also satisfy UL and CE standards.

Risk analysis and evaluation

Available upon request

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