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LEOCH SMART ENERGY STORAGE SYSTEM

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LEOCH INTRODUCTION



Global Leader in
Battery Manufacturing

21

Production Bases

3000+

Products Categories

Founded in 1999, LEOCH BATTERY (stock code: 00842.HK) is a leading provider of advanced battery power & energy management solutions, delivering reliable & efficient energy to industries, data centers, cities and infrastructure across the world.

Headquartered in Singapore, we operate 21 state-of-the-art manufacturing facilities and maintain a global network of 80+ service companies, serving clients in over 150 countries. Our team of 15,000 professionals, including 1,500+ R&D and technical experts, drives innovation and ensures the highest standards of quality and reliability.

Expertise in Battery Power & Smart Energy Solutions

At LEOCH, we deliver quality power solutions built to perform across industrial and commercial applications. Our expertise includes:

Battery Energy Storage Systems (BESS): Industrial, commercial, residential, grid-side, and renewable energy solutions.

Telecom & Data Centre Backup Power Solutions: Reliable & quality power for mission-critical network power, UPS and AI data center power applications.

Automotive Power Solutions: Start-stop, lighting and ignition batteries for ICE & EV cars, motorcycles, etc.

Motive Power Solutions: Golf cart, bicycle & tricycle, material handling and forklifts.

Battery Recycling: Sustainable recycling solutions for a greener future.

At LEOCH BATTERY, we are committed to innovation, reliability, and sustainability, ensuring that our clients and partners across the globe receive reliable and efficient power and smart energy solutions.



CTALOGUE



Power Grid Auxiliary and
Industrial & Commercial
Industrial & Commercial

01



Household Energy
Storage System

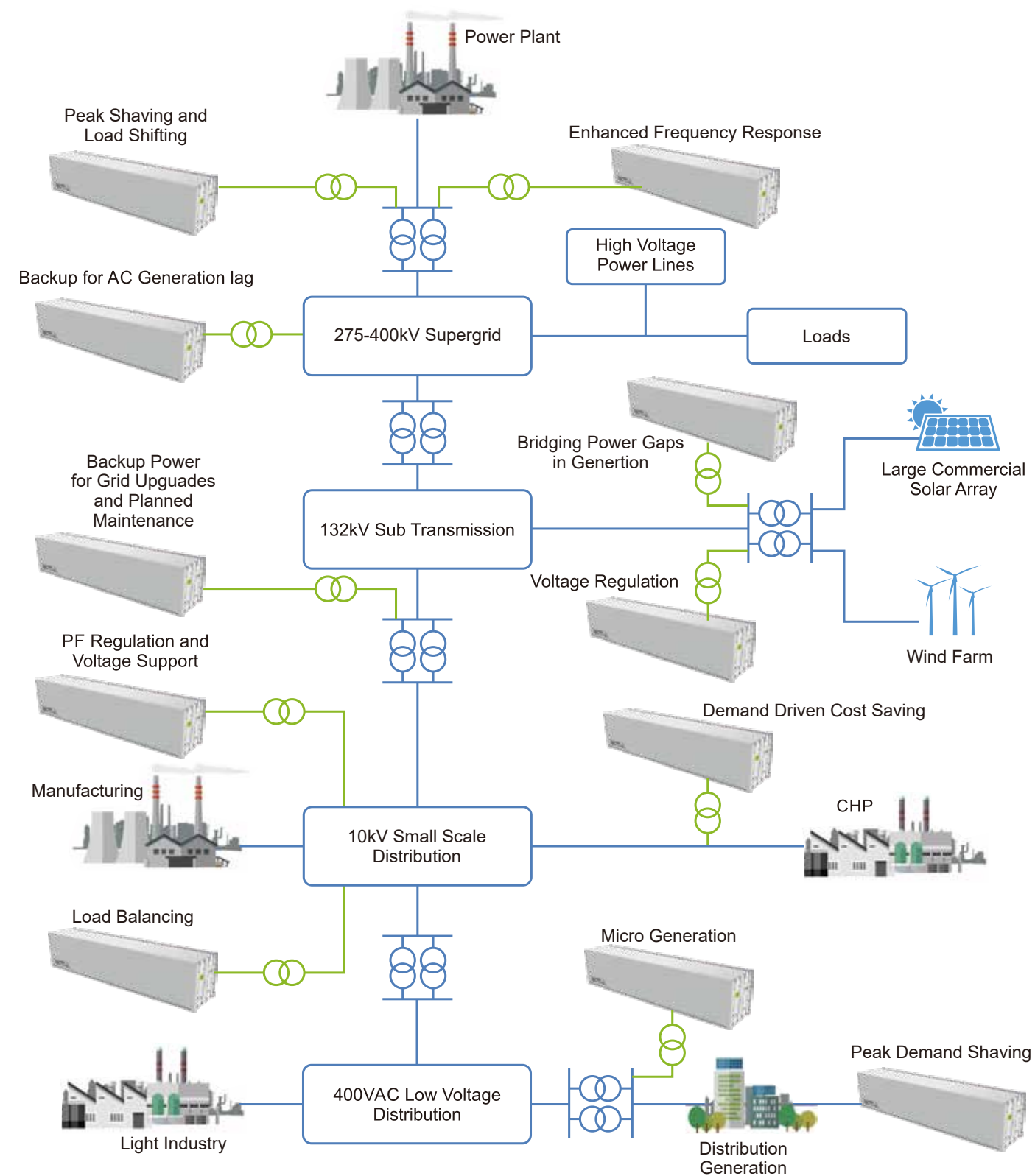
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Advantages of
ESS Battery Solution

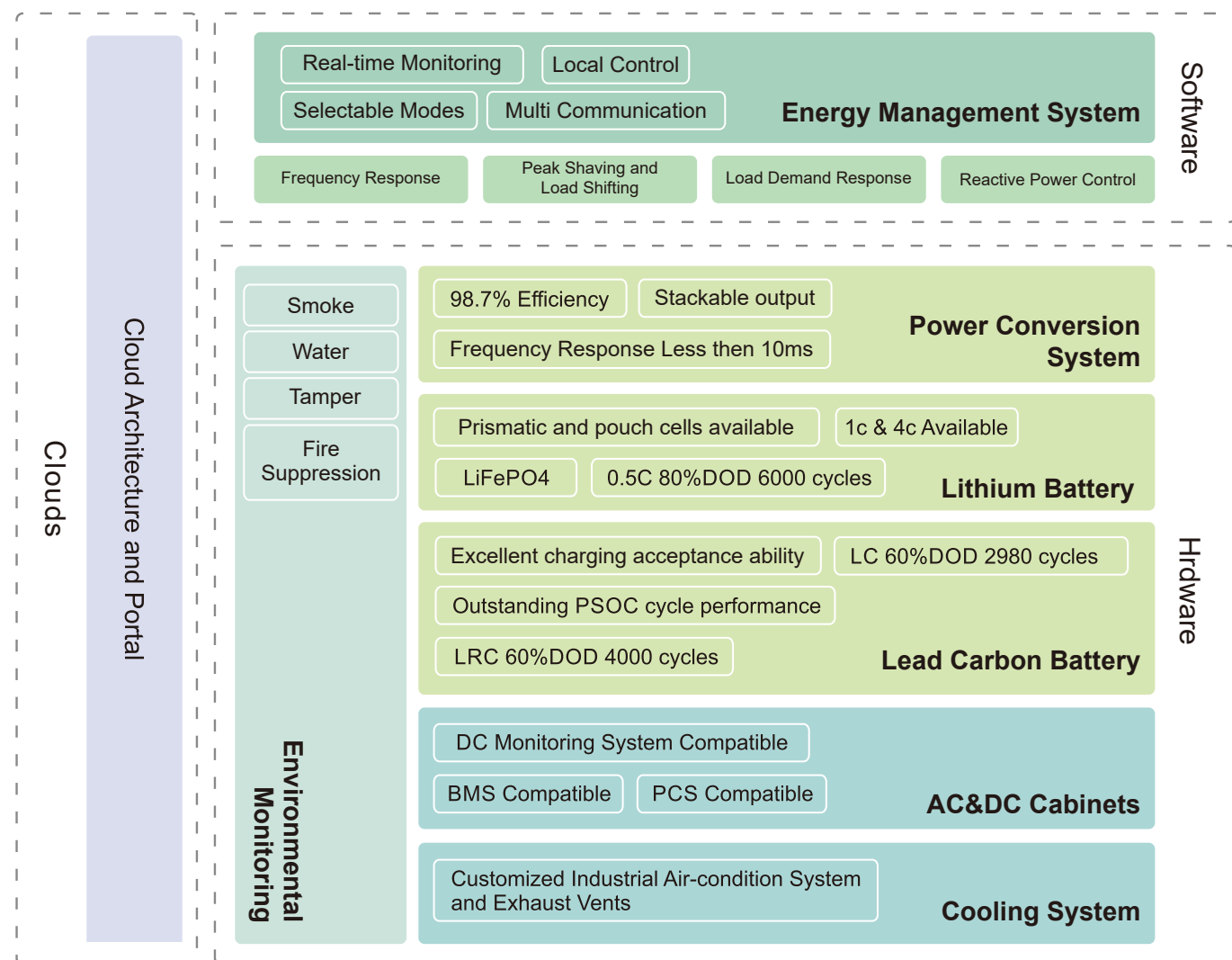
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GRID AUXILIARY POWER AND INDUSTRIAL & COMMERCIAL ENERGY STORAGE SYSTEM

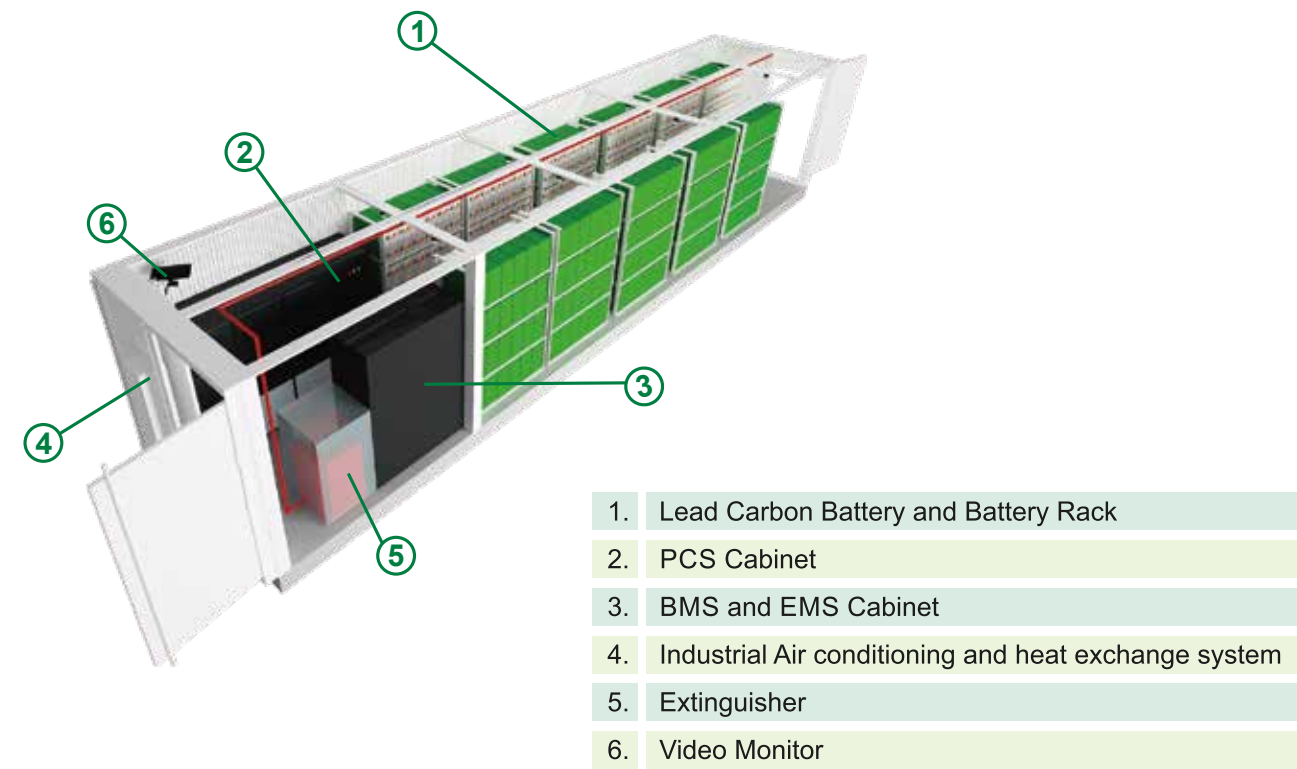


Energy Storage System seamless integration to assist grid response, frequency regulation, peak shaving.

Integration



Structure of Container Energy Storage System



Application Case

Project Name: LEOCH Jinhu factory Off&On-grid peak-shaving project

Application Scene: Peak shaving of power grid

Location: Jinhu in Jiangsu

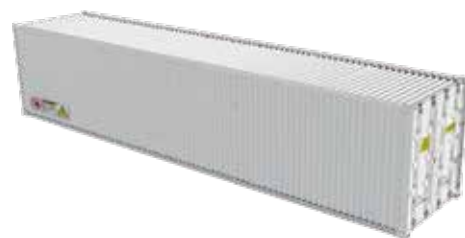
Container Energy Storage System



20 Foot Container
Around 500KWH Lead Carbon Battery



30 Foot Container
Around 1000KWH Lead Carbon Battery



40 Foot Container
Around 1200KWH Lead Carbon Battery



POWER GRID AUXILIARY SOLUTION

—FREQUENCY REGULATION

In order to ensure the stability and reliability of the power grid, it is necessary to maintain the frequency of the power grid at about 50 Hz ~ 60 Hz, in other words is to maintain the balance between generation and load demand in real time. The traditional mode of frequency modulation is to respond to the change of frequency by increasing or decreasing the power output of power grid. With the rapid progress of science and technology in the world, the scale of power system is expanded, the rate of load change is increased, the deepening of the electricity market and the large-scale grid-connected application and so on are all bring new requirements and challenges to the power system frequency regulation.

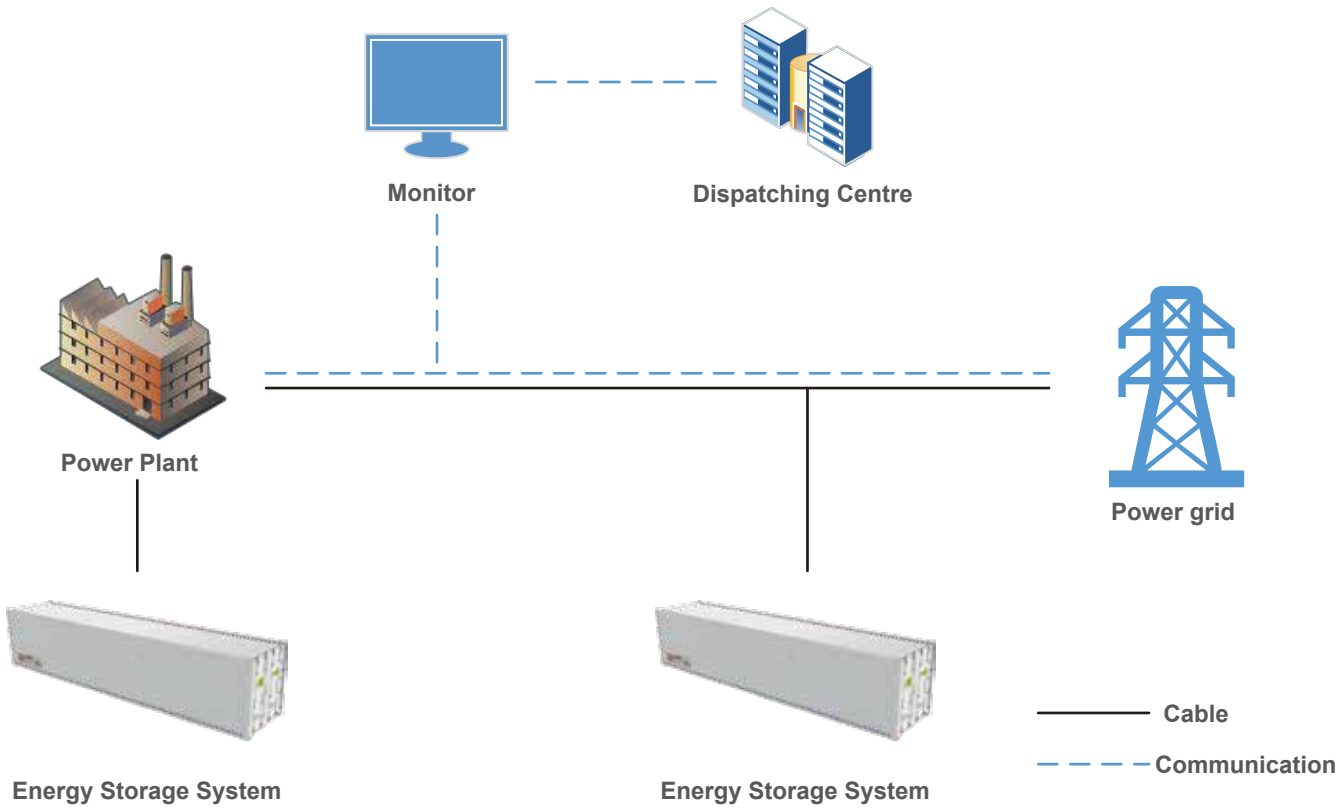
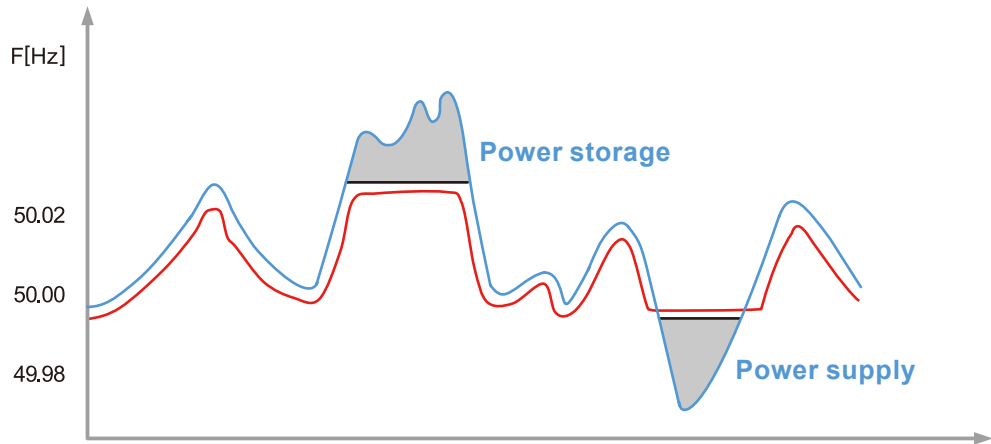
LEOCH Power Grid Auxiliary Service solution lead carbon battery energy storage system has the characteristics of rapid response and accurate tracking. Rapid change of output power supply, demand balance of power grid and improve the frequency stability to ensure the stable operation of the power grid

Program Characteristics

- Reduce the waste of wind and solar power, and then improve the efficiency of new energy
- Maintain active power balance
- Friendly grid connection and save the power grid renovation cost

Product Advantages

- LEOCH Power Grid Auxiliary Service solution can be used for Power Grid Frequency regulation and the speed of frequency regulation is greatly improved compared with traditional thermal power
- LEOCH energy storage series products with excellent charge acceptance, long life, rapid charge and discharge capacity, safe and reliable lead carbon battery and greatly improved the flexibility of Power Grid frequency regulation.



POWER GRID AUXILIARY SOLUTION

—PEAK SHAVING

Electric power has "peak, valley and level" different time period. It is easy to cause low utilization of energy, great difficulty in smooth operation and high maintenance cost in order to meet the balance of peak and valley in the current mode.

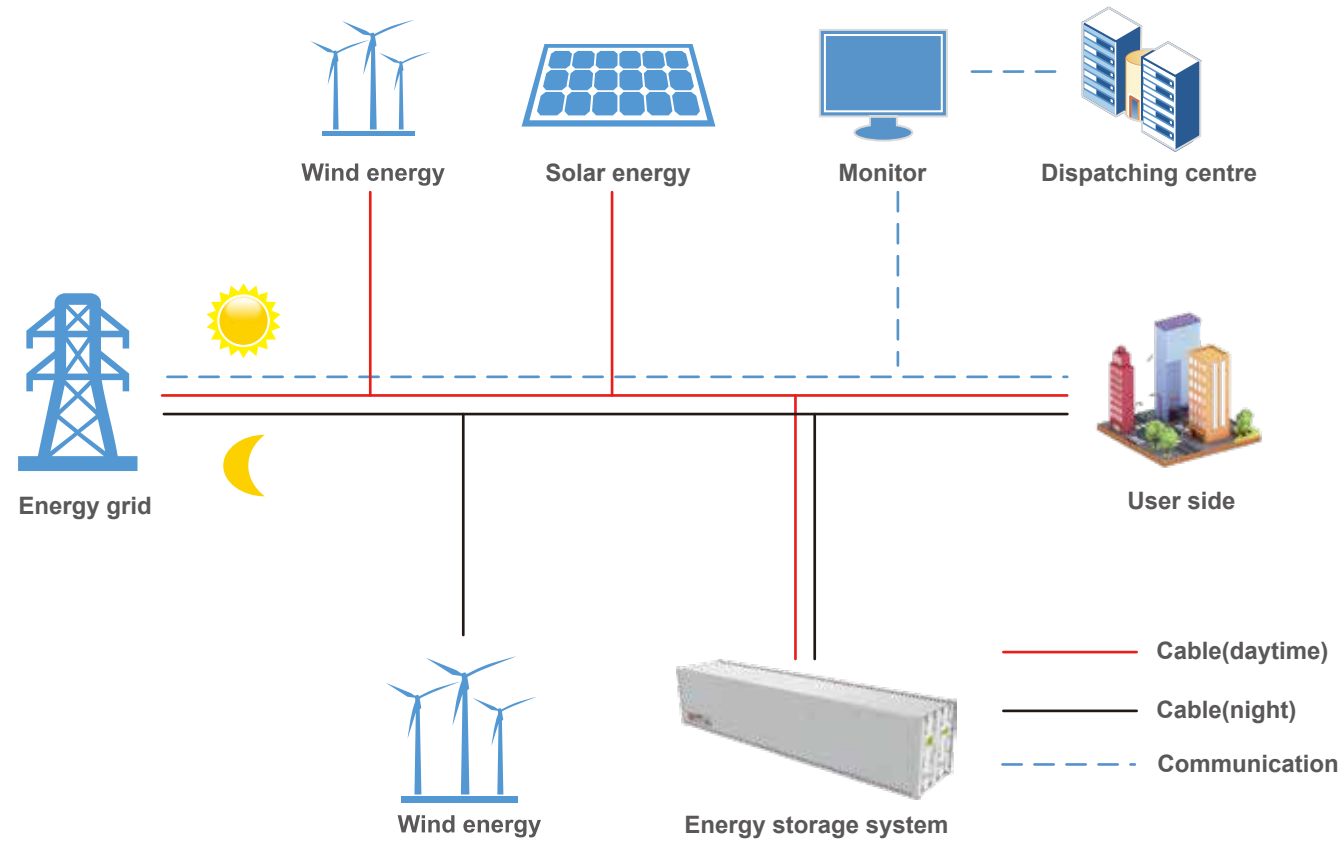
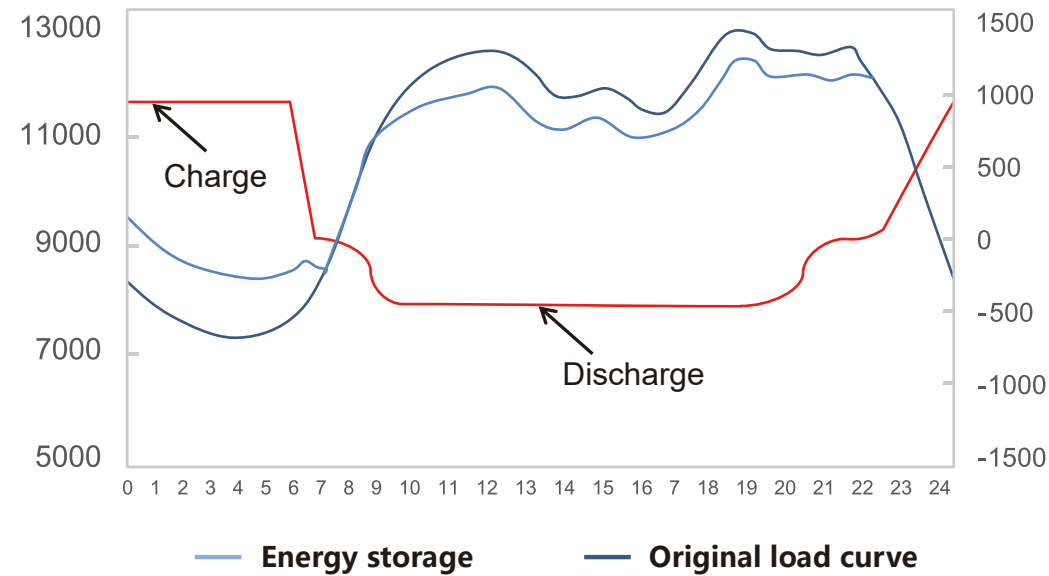
LEOCH Power Grid Auxiliary Service solution can be used to cut Peak and fill Valley through Energy Storage system. When the load is at a low point, convert part of the electric energy into storage. During the peak period of electricity consumption, the stored electric energy can be incorporated into the power grid for peak shaving. Then reduce maintenance costs while ensuring high efficiency and stability.

Program Characteristics

- Using Peak and Valley Voltage difference to reduce Economic cost
- Reduce the risk of transmission line congestion and ensure the safe operation of power network

Product Advantages

- Easy to operate, safe and efficient
- Modularization expansion can be realized and reduce the cost of renovation.
- Improve the climbing speed of power grid to ensure the stability of operation



INDUSTRIAL AND COMMERCIAL ENERGY STORAGE SYSTEM

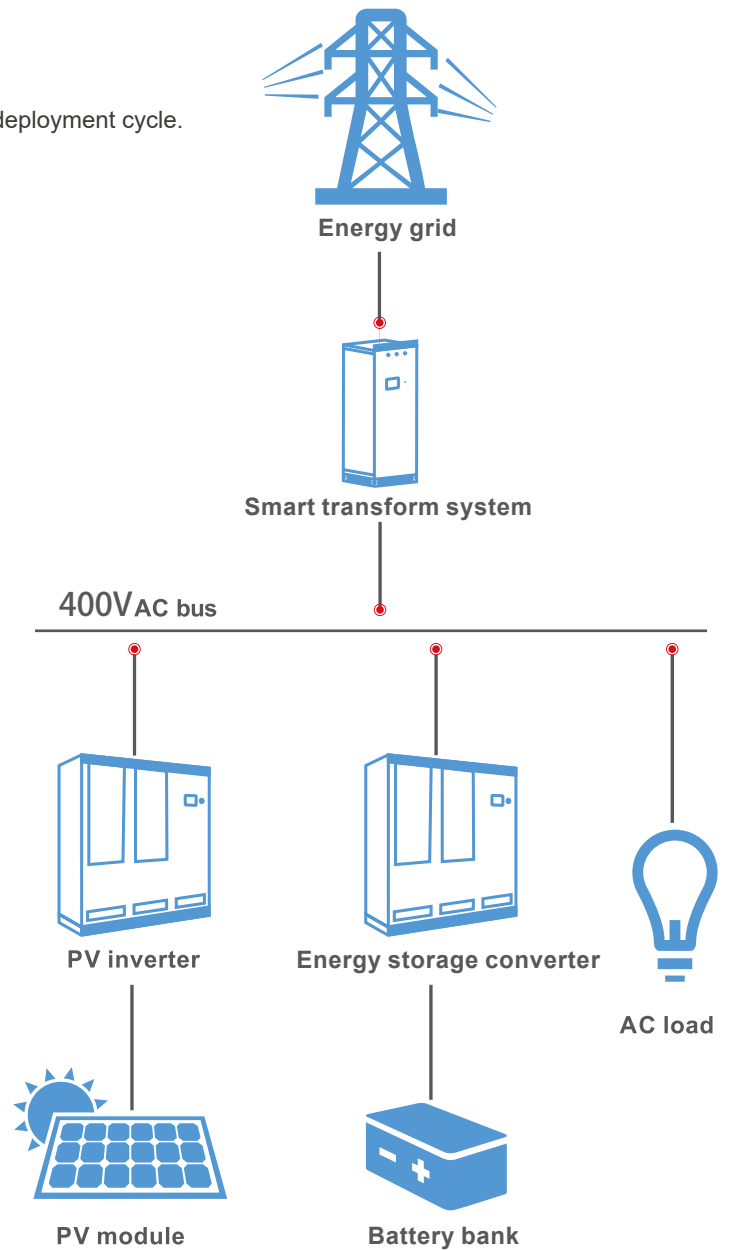
Highly integrated industrial and commercial energy storage system equipment of 30 KW、50 KW, 100 KW, 250 KW. Energy storage systems integrate inverter and battery systems and their wiring, fire protection, lightning protection, monitoring and other security, high energy, long life, high quality, rapid deployment and easy handling low cost and low energy consumption and other characteristics. Improving the stability of the power supply system, cutting the peak and filling the valley can meet the needs of most application scenarios.

Product Features

- **SIMPLE**
Installation and maintenance simple, shortening the 85% deployment cycle.
- **ENERGY CONSERVATION**
Saving electricity cost.
- **EFFICIENT**
System cycle efficiency more than 90%
- **RELIABLE**
Strong environmental adaptability, IP54 levels of protection.

Applications

- Community and building groups.
- Public car park.
- Hospital and shopping center.
- Governmental agencies.



LEOCH HOUSEHOLD ENERGY STORAGE SYSTEM

LEOCH Household Energy solution uses a high integrated design. Integrated cabinet, battery, control system and other subsystems, Standardized PACK design can select different battery solutions according to user investment or application scenarios, And flexible parallel connection deployment mode of multiple cabinets can be supported, which can fully meet the energy storage needs of industry and commerce.

Using photovoltaic, energy storage integrated design, which can be more economical, more effective realization of energy conservation, environmental protection and reduce consumer electricity costs.

Characteristics



Household energy solutions are greener and cleaner.



Easier to use, more efficient and economical

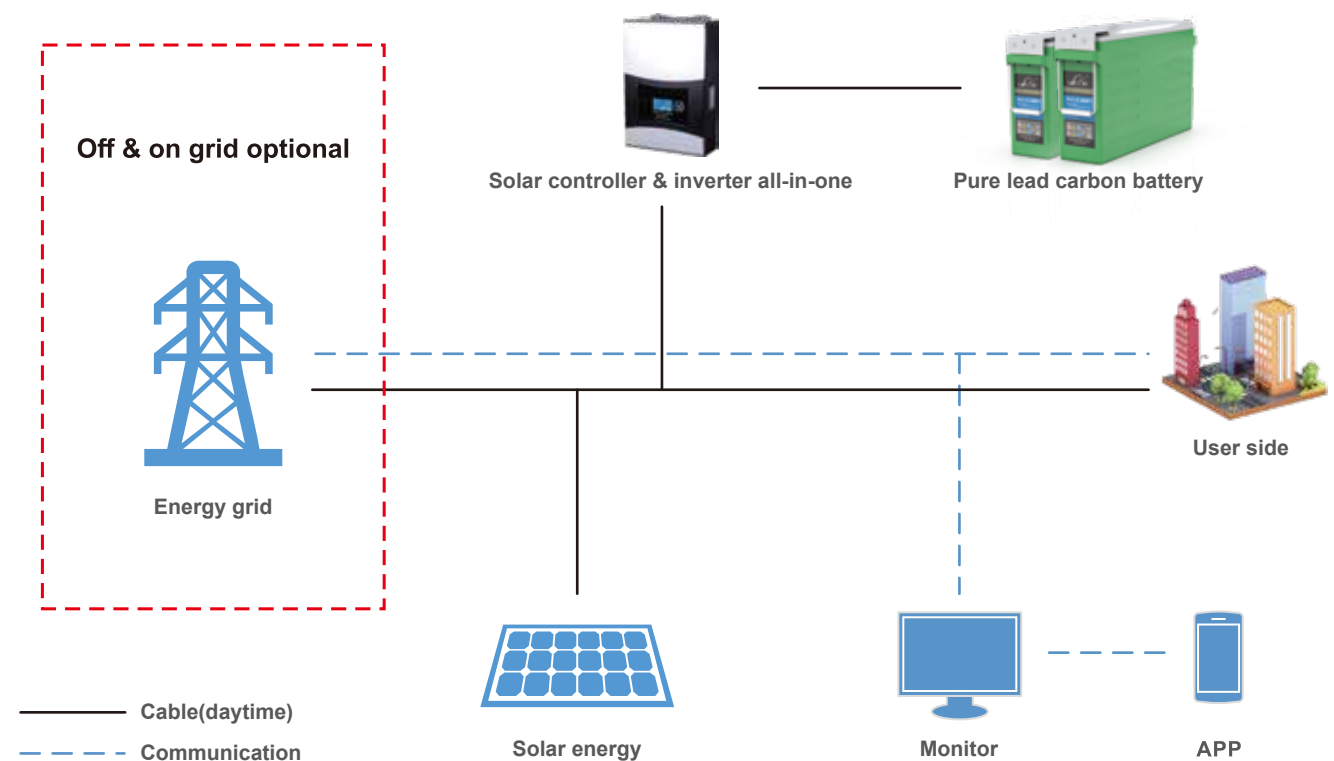
Product Advantages

LEOCH household energy solution is to use photovoltaic and energy storage integrated design. And off-grid mode free switching, through app to make home energy use more economical and convenient.

Household energy solution core products have four advantages:

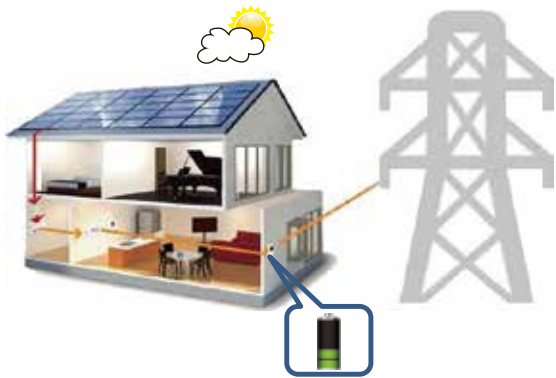
- Use one's own products and free Switch
- Automatic upgrade and simple expansion.
- Quality assurance, ease of mind and rest assured
- Lower consumption, energy saving and environmental protection.

EOCH household energy storage products in Austrlia, Europe and other markets have been widely recognized by customers.

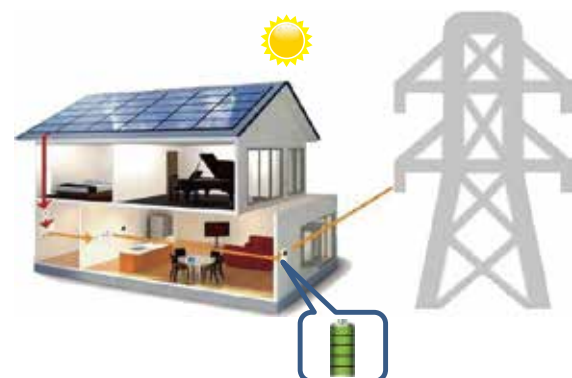


When the power of solar power system is not fully consumed (such as working or going out during the day), LEOCH household energy system can store the solar energy and electrical energy that cannot be consumed.

When the solar power system doesn't generate enough electricity to meet the household demand (such as peak household power or at night), LEOCH household energy releases stored solar energy for your household use. As an intelligent home energy storage system, you don't need to do anything will be able to maximize the clean power use of solar power system products. Preferential use of photovoltaic power, generate electricity by day and use it at night.



In the morning, the solar energy recharges the battery and supplies electricity to the household appliances.



At noon, the solar energy is full of electricity to the battery and is supplied to the household appliances. The surplus electricity can be fed back to the grid.

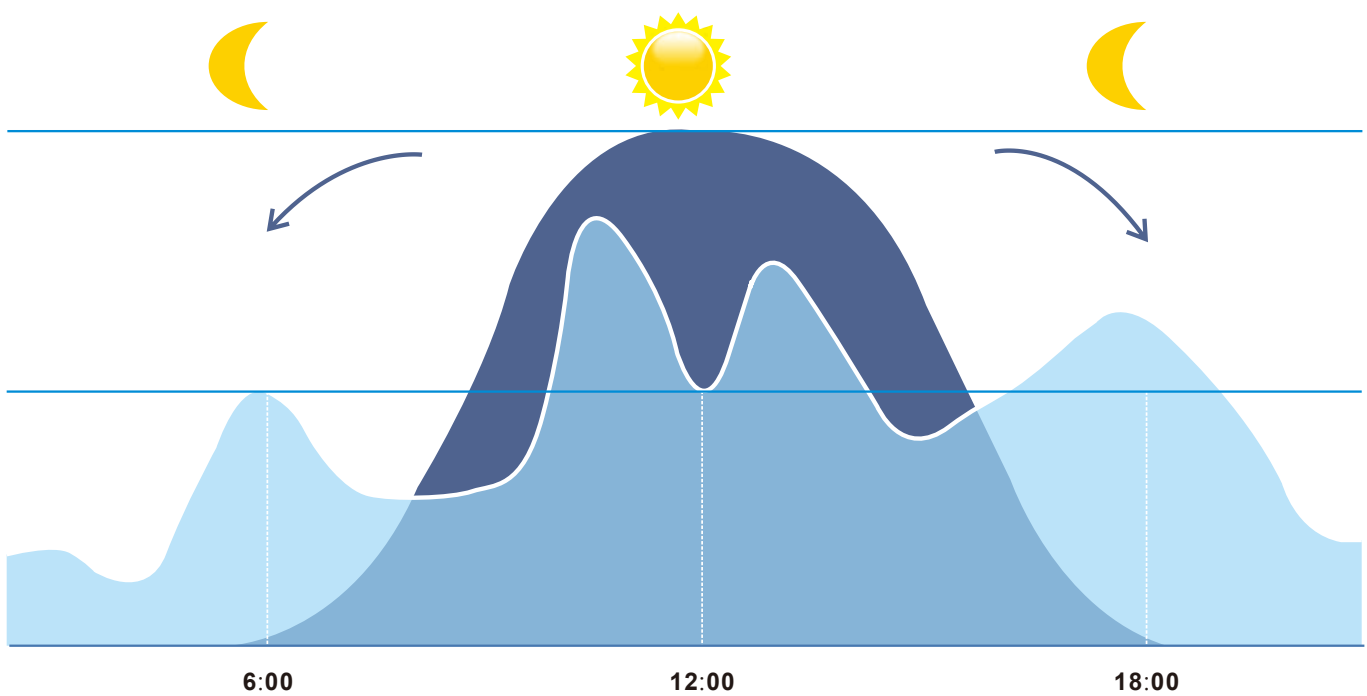


At night, batteries power household appliances.



Late at night, the battery is off and the power grid supplies household appliances.

LEOCH household energy maximizes the photovoltaic power producing. Preferential use of power for household appliances and the surplus electricity can be stored to the batteries. When the battery is fully charged, it can be sold to the power grid. When photovoltaic does not generate electricity, the battery stored energy is used by the appliances and the power grid is used only after the storage is exhausted.



Recommended Configuration

Solar Panel	System Load	Battery	Backup Time
6pcs*260W	3KW	4pcs*12V*150AH	120 minutes
12pcs*260W	5KW	8pcs*12V*150AH	80 minutes
24pcs*260W	10KW	24pcs*2V*500AH	40 minutes
36pcs*260W	15KW	24pcs*2V*800AH	40 minutes
48pcs*260W	20KW	24pcs*2V*1000AH	40 minutes
72pcs*260W	30KW	24pcs*2V*1500AH	40 minutes

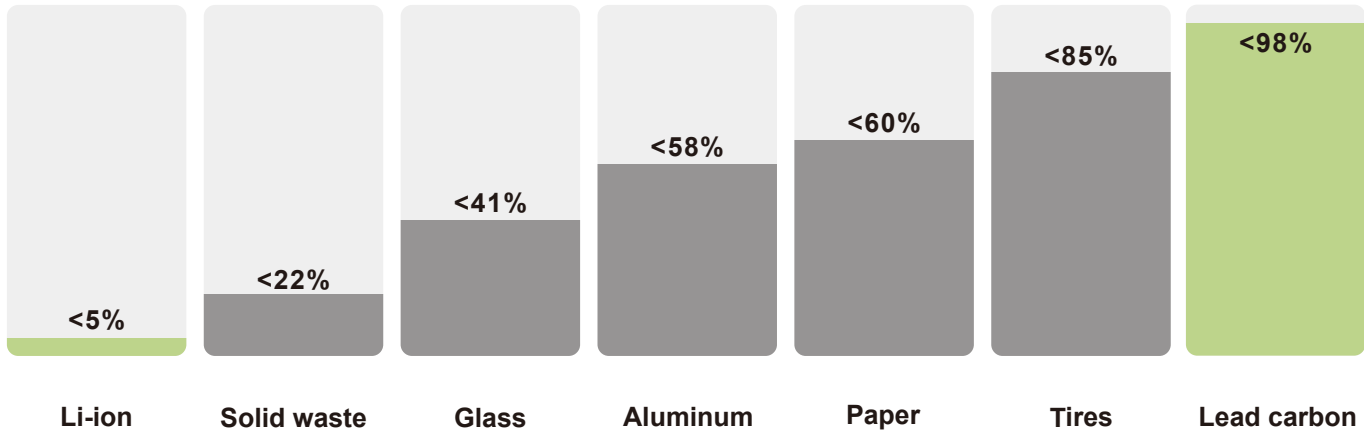


LEOCH ADVANTAGES OF ESS BATTERY SOLUTION

LEOCH ADVANTAGES OF LEAD CARBON BATTERY

Recycled Percentage

Lead carbon batteries are clean and safe



Total Cost of Ownership & Sustainability

Lead carbon batteries are the best solution for energy storage

-  Lower cost than competing technologies
-  Deficiencies in charge acceptance & cycle life have been overcome
-  Lead carbon batteries “industry sustainability” support leasing structure
-  Fully sustainable, “Cradle-to-Cradle” solution
-  Leverages worldwide, in-place infrastructure

LEAD-CARBON BATTERY (LRC SERIES)

Feature and Advantages

- Design Life: 15 Years @25°C
- Cycle Life: 12V 3500 cycles and 2V cells 4400 cycles @ 50%DOD
- Premium Flame Retardant ABSPC Jar - UL94V-0 & >28%LOI
- Safe and Convenient - Maintenance-Free,Spill-Proof Construction
- Integration of Advanced Carbon and Deep Cycle AGM Technology
- Carbon and other proprietary additives used to reduce the rate of sulfationthereby prolonging cycle life
- Outstanding PSOC Performance
- Sealed VRLA technology for easy horizontal or vertical installation
- Advanced Carbon and other proprietary additives used to prolong life



Applications

- Oil and electricity hybrid energy storage system
- Grid frequency adjustment energy storage system
- New energy communication base station, Core computer room, IDC ,UPS
- New energy generation (solar, wind, PV/wind hybrid) access to energy storage system

- Smart grid, micro-grid system
- Mobile container storage system
- Other energy Storage System
- Peak load shifting energy storage system
- Load tracking energy storage system

Specifications

Model	Rated Voltage	Rated Capacity (Ah)	Dimension(mm)				Weight(kg)	Terminal Type
	(V)		L	W	H	TH		
LRC12-80	12	80	330	173	212	218	33	T11(M8)
LRC12-100	12	100	408	177	225	225	39	T11(M8)
LRC12-150	12	150	532	207	214	220	59	T11(M8)
LRCF12-170	12	170	560	126	320	320	62	T11(M8)
LRC12-200	12	200	522	268	220	226	75.6	T11(M8)
LRC2-400	2	400	191	181	350	365	31.8	T11(M8)
LRC2-600	2	600	303	181	350	365	48.8	T11(M8)
LRC2-800	2	800	370	181	350	365	61.8	T11(M8)
LRC2-1000	2	1000	440	181	350	365	75.8	T11(M8)

Noted: Recommended for cyclic used

PURE LEAD CARBON BATTERY (PLC+C SERIES)

Feature and Advantages

- 3000 Cycles @50%DOD
- Super-Fast Charging: 1 hour to 90% SOC
- Excellent Charging Acceptance with High Charging Efficiency
- High Power Density and Energy Density with Small Footprint
- Long Deep Cycle Life
- Wide Operating Temperature Range(-40°C—+65°C)
- Doubled Shelf Life (2 years) with Low Self-discharging Rate
- Carbon and other proprietary additives used to reduce the rate of sulfationthereby
- Outstanding PSOC performance and over discharge recovery acceptance



Applications

- Outdoor cabinet
- High voltage power station
- New energy storage
- Base station with unstable power grid
- Mobile Power Supply for Vehicles

Specifications

Model	Rated Voltage	Rated Capacity (Ah)	Dimension(mm)				Weight(kg)	Terminal Type
	(V)		L	W	H	TH		
PLC+C 180FT	12	170	559	125	320	320	57.6	T8(M6)



TUBULAR GEL BATTERY(OPZV SERIES) FOR ENERGY STORAGE SYSTEM

Feature and Advantages

- Design Life: 12V series 16 years and 2V series 20 years @20°C
- Cycle Life: 12V 2500 cycles and 2V cells 3000 cycles @50% DOD
- Completely sealed throughout the life of the battery
- Low gassing-antimony-free alloy and internal oxygen recombination
- Minimum space and ventilation requirements
- Easy install using cable connectors with insulated terminal covers
- Can be supplied as a standard vertical installation or by specialrequest for a horizontal installation
- Low self discharge:≤3% per month at 25°C (77°F)
- Deep discharge protected, a load can be connected to the battery for up to 4 weeks



Main Applications

- Green energy systems (solar, wind, hydro, etc)
- Telecommunications installations
- Alarm installations
- Street lightening
- Solar power stations
- Signal station
- Traffic lights
- Railway crossing
- Pump systems
- Street signs
- Lawn lamp

Specifications

Model	Rated Voltage	Rated Capacity (Ah)	Dimension(mm)				Weight(kg)	Terminal Type
	(V)	C10@1.80V/cell	L	W	H	TH		
12V9OPzV200	12	200	521	268	220	226	70	T11(M8)
4OPzV200	2	200	103	206	355	390	18.8	T7-A(M8)
5OPzV250	2	250	124	206	355	390	22.4	T7-A(M8)
6OPzV300	2	300	145	206	355	390	26.4	T7-A(M8)
5OPzV350	2	350	124	206	471	506	28.5	T7-A(M8)
6OPzV420	2	420	145	206	471	506	33.5	T7-A(M8)
7OPzV490	2	490	166	206	471	506	38.7	T7-A(M8)
6OPzV600G	2	600	145	206	646	681	46.8	T7-A(M8)
8OPzV800	2	800	191	210	646	681	63.5	T7-A(M8)
10OPzV1000	2	1000	233	210	646	681	76.5	T7-A(M8)
12OPzV1200	2	1200	275	210	646	681	91.2	T7-A(M8)

Model	Rated Voltage	Rated Capacity (Ah)	Dimension(mm)				Weight(kg)	Terminal Type
	(V)	C10@1.80V/cell	L	W	H	TH		
12OPzV1500	2	1500	275	210	796	831	111.5	T7-A(M8)
16OPzV2000	2	2000	399	214	772	807	155.1	T7-A(M8)
20OPzV2500	2	2500	487	212	772	807	191	T7-A(M8)
24OPzV3000	2	3000	576	212	772	807	226.5	T7-A(M8)



LEOCH GEL BATTERY(LPG SERIES) FOR ENERGY STORAGE SYSTEM

Feature and Advantages

- Design Life:12V 6 years(17-31Ah), 12 years(38-240Ah) and 2V 16 years @25°C
- Cycle Life:12V 1100cycles(17-31Ah), 1200cycles(38-240)and 2V cells 1400 cycles @50%DOD
- Suitable for standby power and energy storage power use
- Using special lead-calcium alloy to boost up the grid anti-corrosive performance and extend the battery using lifetime
- Special separator to boost up the battery internal performance
- High thermal capacity, reduce the risk of thermal runaway and drying up, can be used in poor environment
- High gas recombination efficiency
- Little water losing, no electrolyte stratification phenomenon
- Long storage time
- Good deep discharge resilience performance
- Using nano-fumed silica,with small particle size,and big specific surface area.



Typical Applications

 Telecommunication backup	 Power plants	 Burglar alarms	 Medical equipments (stationary and portable i.e.X- ray)	 Computer back-up (high power)
 Communication systems	 Fire alarm systems	 Transmitter systems	 Cash register systems	 Emergency lights signal systems

Specifications

Model	Rated Voltage (V)	20hr@1.8 0V/cell	10hr@1.8 0V/cell	Dimension(mm)				Weight(kg)	Terminal Type
				L	W	H	TH		
LPG12-17	12	17	/	181.5	76.5	167.5	167.5	5.80	T12-I(M5)
LPG12-24	12	24	/	166	175	125	125	8.50	T12-I(M5)
LPG12-31	12	30	/	195	130	164	178	10.2	T5
LPG12-38	12	38	/	197	165	170	170	12.8	T6(M6)
LPG12-45	12	45	/	257	132	200	200	15.5	T6(M6)
LPG12-50	12	50	/	229	138	205	211	16.1	T6(M6)
LPG12-60	12	60	/	255	170	174.5	177.5	18.5	T6(M6)
LPG12-65	12	65	/	325	167	174	174	20.5	T6(M6)
LPG12-70H	12	70	/	260	168	208	214	22.9	T6(M6)
LPG12-85	12	85	/	306	168	208	214	27.5	T6(M6)
LPG12-100	12	100	/	330	173	212	218	31.2	T11(M8)
LPG12-110	12	110	/	408	177	225	225	34.5	T11(M8)
LPG12-125	12	130	/	345	172	274	280	40.0	T11(M8)
LPG12-140	12	140	/	483	170	238.5	238.5	43.8	T11(M8)
LPG12-160	12	160	/	522	240	218	224	57.5	T11(M8)
LPG12-200	12	200	/	522	240	218	224	62.3	T11(M8)
LPG12-240	12	240	/	522	268	220	226	73.3	T11(M8)
LPG2-100	2	/	100	170	72	205	214	6.00	T6(M6)
LPG2-200	2	/	200	170	110	328	337	14.1	T11(M8)
LPG2-300	2	/	300	170	150	330	339	19.5	T11(M8)
LPG2-400	2	/	400	210	175	330	339	27.0	T11(M8)
LPG2-500	2	/	500	240	175	327.5	338	31.8	T11(M8)
LPG2-600	2	/	600	300	175	330	340	40.0	T11(M8)
LPG2-800	2	/	800	410	175	330	340	54.0	T11(M8)
LPG2-1000	2	/	1000	475	175	328	338	64.1	T11(M8)
LPG2-1500	2	/	1500	403	354	339	349	102.0	T11(M8)
LPG2-2000	2	/	2000	490	350	339	349	130.0	T11(M8)
LPG2-3000	2	/	3000	709	350	337	347	190.0	T11(M8)



LITHIUM BATTERY SOLUTION FOR ENERGY STORAGE SYSTEM

Feature and Advantages

- Safety and environmental protection.
- Longer Cycle Life
- Lighter Weight, high energy density.
- Low self-discharge rate, no memory effect.
- Excellent fast charging performance
- Wide operating temperature range(-20~+60°C) and good high temperature performance.

Applications

- Electric vehicles,electric mobility
- Solar/wind energy storage system
- Telecommunication
- Medical equipment
- Lighting



Specifications

Model	Nominal Voltage (V)	Capacity (AH)	Energy	Dimensions(mm/inches)			Weight Kg,±3%	Terminal model
			Wh	Length	Width	Height		
LFP1204	12.8	4	51.2	90	70	101	0.5	T1
LFP1207	12.8	7	89.6	151	65	93.5	0.95	T2
LFP1209	12.8	9	115.2	151	65	93.5	1.1	T2
LFP1212	12.8	12	153.6	151	98	98	1.4	T2
LFP1218	12.8	18	230.4	181.5	77	167.5	2.6	T3
LFP1220	12.8	20	256	181.5	77	167.5	2.63	T3
LFP1233	12.8	33	422.4	175	166	125	4	M6
LFP1250	12.8	50	640	257	132	200	6.5	M6
LFP1275	12.8	75	960	260	168	214	8.1	M6
LFP1280	12.8	80	1024	260	168	214	8.1	M6
LFP12100	12.8	100	1280	330	173	212	10.5	M8
LFP12150	12.8	150	1920	483	170	240	16.3	M8
LFP12200	12.8	200	2560	522	240	218	20.8	M8
LFP2404	25.6	4	102.4	151	98	95	1.2	T2
LFP2433	25.6	33	844.8	260	168	208	7.8	M6
LFP2450	25.6	50	1280	330	170	212	12	M8
LFP24100	25.6	100	2560	522	240	218	20.6	M8
LFP24150	25.6	150	3840	520	240	218	28.9	M8

Applications

- Home energy storage
- PV off-grid backup power
- Off-island backup power



Model	Nominal Voltage	Capacity	Energy	Height	Dimensions	Weight
	(V)	(Ah)	KWh	(1U=44.45mm)	±2mm	Kg,±5%
LR24-100	25.6	100	2.56	4U	442*350*177	26
LR24-200	25.6	200	5.12	4U	442*450*177	43
LR48-50	48	50	2.4	3U	442*442*132	27
LR48-100	48	100	4.8	4U	442*431*177	40
LR48-150	48	150	7.2	4.5U	442*550*198	61
LR48-200	48	200	9.6	5.5U	442*550*244	82
LR51.2-50	51.2	50	2.56	3U	442*442*132	28
LR51.2-100	51.2	100	5.12	4U	442*431*177	43
LR51.2-150	51.2	150	7.68	4.5U	442*550*198	64
LR51.2-200	51.2	200	10.24	5.5U	442*550*244	82

Model	Nominal Voltage	Capacity	Energy	Dimensions	Weight
	(V)	(Ah)	KWh	±2mm	Kg,±5%
LW25.6-100	25.6	100	2.56	375*500*165	29
LW25.6-200	25.6	200	5.12	510*400*240	52
LW51.2-50	51.2	50	2.56	450*450*130	31
LW51.2-100	51.2	100	5.12	450*500*140	50
LW51.2-150	51.2	150	7.68	400*600*200	67
LW51.2-200	51.2	200	10.24	500*620*245	94

GLOBAL DEPLOYMENT

