

# LFP Battery Storage Assemblies & Containers

E24™

P372E



## Lithium Iron (LFP) Battery Storage Assemblies & Containers

E24 Offers modular lithium Iron (LFP) battery assemblies that can be installed indoor or containerized LFP battery containers for outdoor applications.

Indoor assemblies are modules ranging from 109 to 165KWh is various voltages that can be combined to reach the desired Energy Storage Capacity.

Containers are fitted with temperature isolation, temperature stabilization and air dehumidification and filtering to operate smoothly under harsh environmental conditions including high heat, freezing temperatures, saline air and high humidity.

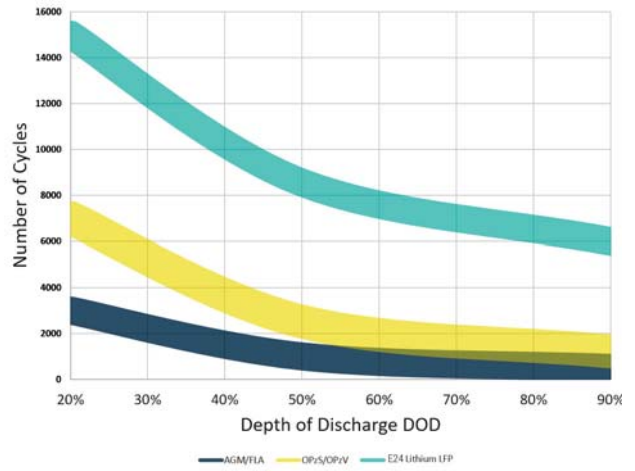
Both LFP Battery assemblies and containers operate very advance controls in order to offer the most reliable energy storage systems while guarantiing more than 10 years of battery life.



# Outstanding LFP Cells Quality

E24 collaborates with the worlds leading LFP cells manufacturers through a proven screening and quality control process to offer the highest quality LFP batteries possible.

E24 batteries deliver more than 9,000 cycles at 50%DOD and well beyond 6000 cycles at 90% DOD under a 10 Year warranty program.



## E24 LFP Products:

E24 offers 3 ranges of LFP products:

- Low-voltage rack-mount modular batteries, 24 and 48V modules (refer to brochure # P35DE).
- High Voltage modular battery assemblies from 96 to 1228V.
- High Voltage modular containerized LFP batteries from 736 to 1228Vdc.

## International Quality Certifications

E24 lithium Iron (LFP) battery assemblies and containers follow stringent quality control and have obtained the needed certifications to be installed on international markets.



UL 1973

IEC 62619

UL 9540A



IEC 63056

VDE





# High Voltage Modular LFP Battery Assemblies from 76 to 1229Vdc

Typical residential energy storage systems operate in 24 or 48Vdc. When scaling up to higher powers, it becomes mandatory to increase the battery voltage.

Standard 24V or 48V LFP batteries can only be connected in parallel. Connecting standard low voltage lithium batteries in series will result in system failure. Special high voltage LFP batteries are required when series connections are required.

E24 offers modular High Voltage LFP battery assemblies that can be configured to the desired voltage by simply connecting high voltage (HV LFP) battery modules in series in order to reach the desired voltage.

Up to 32 HV LFP Battery Modules can be connected in Series through an HV Battery Controller to form a battery assembly.

Up to 32 HV Battery assemblies can then be connected in parallel through an HV Battery Hub in order to reach the desired energy Storage capacity.

It is possible to connect multiple HV Battery Hubs to further expand the above 32 x 32 Battery Modules configuration (contact us for details).

- All accessories and cables are provided as a kit
- Easy onsite assembly
- CANBUS, Modbus RTU, TCP/IP communication
- Factory configurable (client may order the assembly with the desired number of battery modules)



HV LFP Battery Module: LIT38H-5K68



HV LFP Battery Controller: LIT-38H-CNT2



HV LFP Battery HUB: LIT38H-HUB

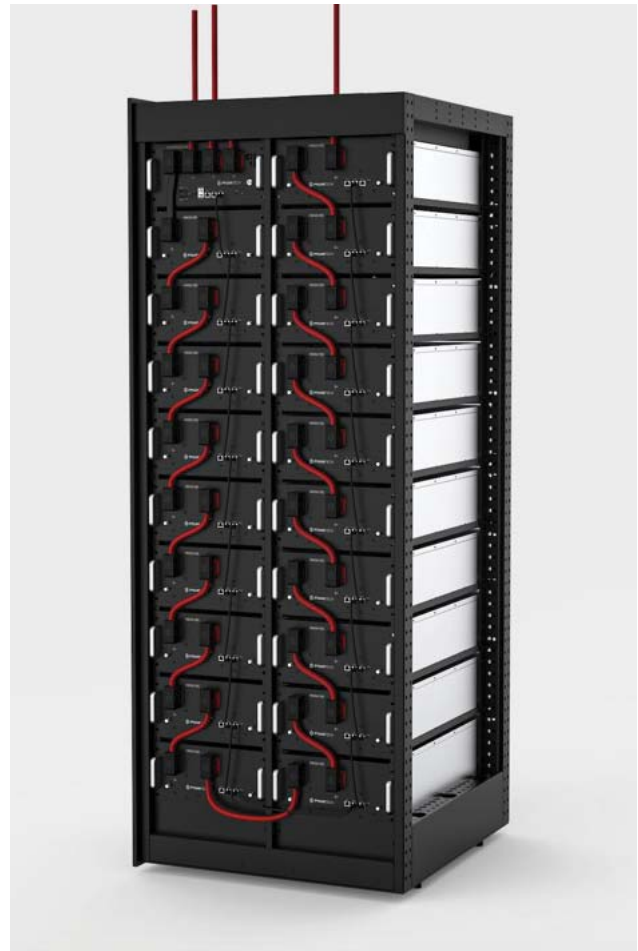
# Technical Specifications

E24 Offers two standard assemblies fitted in racks that can contain 19, 21, 23, 29 and 32 HV Battery Modules.

## Assembly 1: 730V, 108KWh

Assembly 1 (Fully Configured)	
Reference:	LITA1-730-108K
Battery Module Used	LIT38H-5K68
Number of Modules	19
Assembly Capacity (KWh)	108
Assembly Voltage (Vdc)	730
Voltage Range (Vdc)	616-821
Design number of Cycles	10,000 @ 50% DOD 6,000 @ 90% DOD
Communication	RS485 Modbus, CAN, TCP/IP
Efficiency at 0.5C Rate of Discharge	96%
Maximum Depth of Discharge (DOD)	90%
Dimensions (WxDxH) (mm)	815x659x2130
Weight (Kg)	1250
Index of Protection	IP20
Design Life (Years)	15+
Operating Temperature (°C)	+10 to + 50
Humidity (%)	5 to 95
Altitude (m)	2000
Certifications	IEC62610 / IEC63056, UL 1973, UL9540A, VDE 2510-50, CE, UN38.3
Warranty	12 Years PR(*)

(\*) Refer to Terms and Conditions



## Assembly 2: 806V, 119KWh

Assembly 2 (Fully Configured)	
Reference:	LITA2-806-119K
Battery Module Used	LIT38H-5K68
Maximum Number of Modules	21
Assembly Capacity (KWh)	119
Assembly Voltage (Vdc)	806
Voltage Range (Vdc)	681-907
Design number of Cycles	10,000 @ 50% DOD 6,000 @ 90% DOD
Communication	RS485 Modbus, CAN, TCP/IP
Efficiency at 0.5C Rate of Discharge	96%
Maximum Depth of Discharge (DOD)	90%
Dimensions (WxDxH) (mm)	815x659x2343
Weight (Kg)	1375
Index of Protection	IP20
Design Life (Years)	15+
Operating Temperature (°C)	+10 to + 50
Humidity (%)	5 to 95
Altitude (m)	2000
Certifications	IEC62619, UL 1973, UL9540A, CE, UN38.3
Warranty	12 Years PR(*)

(\*) Refer to Terms and Conditions

### Assembly 3: 883V, 131KWh

Assembly 3 (Fully Configured)	
Reference:	LITA3-883-131K
Battery Module Used	LIT38H-5K68
Maximum Number of Modules	23
Assembly Capacity (KWh)	131
Assembly Voltage (Vdc)	883
Voltage Range (Vdc)	746-994
Design number of Cycles	10,000 @ 50% DOD 6,000@ 90% DOD
Communication	RS485 Modbus, CAN, TCP/IP
Efficiency at 0.5C Rate of Discharge	96%
Maximum Depth of Discharge (DOD)	90%
Dimensions (WxDxH) (mm)	815x659x2556
Weight (Kg)	1500
Index of Protection	IP20
Design Life (Years)	15+
Operating Temperature (C)	+10 to + 50
Humidity (%)	5 to 95
Altitude (m)	2000
Certifications	IEC62619, UL 1973, UL9540A, CE, UN38.3
Warranty	12 Years PR(*)

(\*) Refer to Terms and Conditions

### Assembly 4: 1114V, 165KWh

Assembly 4 (Fully Configured)	
Reference:	LITA4-1114-165K
Battery Module Used	LIT38H-5K68
Maximum Number of Modules	29
Assembly Capacity (KWh)	165
Assembly Voltage (Vdc)	1114
Voltage Range (Vdc)	940-1253
Design number of Cycles	10,000 @ 50% DOD 6,000@ 90% DOD
Communication	RS485 Modbus, CAN, TCP/IP
Efficiency at 0.5C Rate of Discharge	96%
Maximum Depth of Discharge (DOD)	90%
Dimensions (WxDxH) (mm)	1185x845x2130
Weight (Kg)	1875
Index of Protection	IP20
Design Life (Years)	15+
Operating Temperature (C)	+10 to + 50
Humidity (%)	5 to 95
Altitude (m)	2000
Certifications	IEC62619, UL 1973, UL9540A, CE, UN38.3
Warranty	12 Years PR(*)

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### Assembly 5: 1229V, 182KWh

Assembly 5 (Fully Configured)	
Reference:	LITA5-1229-182K
Battery Module Used	LIT38H-5K68
Maximum Number of Modules	32
Assembly Capacity (KWh)	182
Assembly Voltage (Vdc)	1229
Voltage Range (Vdc)	1037-1383
Design number of Cycles	10,000 @ 50% DOD 6,000@ 90% DOD
Communication	RS485 Modbus, CAN, TCP/IP
Efficiency at 0.5C Rate of Discharge	96%
Maximum Depth of Discharge (DOD)	90%
Dimensions (WxDxH) (mm)	1185x845x2343
Weight (Kg)	2063
Index of Protection	IP20
Design Life (Years)	15+
Operating Temperature (C)	+10 to + 50
Humidity (%)	5 to 95
Altitude (m)	2000
Certifications	IEC62619, UL 1973, UL9540A, CE, UN38.3
Warranty	12 Years PR(*)

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# Modular LFP Battery containers in 806Vdc and 1228Vdc



E24 offers pre-engineered and pre-assembled LFP battery containers in a manner to facilitate pricing, deployment and scaling of projects.

E24 also supplies custom-designed battery containers according to client requirements. This may include a separate space for Power Equipment, Transformers or switchgears.

Containers are fully assembled and tested and ready for field connection.

E24 standard LFP containers are factory fully configured and proposed in 0.5C discharge capacity under the following models:

- 20 Ft, 806Vdc, 1428KWh
- 20 Ft, 1229Vdc, 1456KWh
- 40 Ft, 806Vdc, 2975KWh
- 40 Ft, 1229Vdc, 3276KWh

E24 Also offers a high discharge version allowing 1C discharge power under the following models:

- 20 Ft, 806Vdc, 1190KWh
- 20 Ft, 1229Vdc, 1092KWh
- 40 Ft, 806Vdc, 2618KWh
- 40 Ft, 1229Vdc, 2548KWh

# Technical Specifications



## 20Ft Containers (Fully Configured)

Reference:	LITC2-806-1M4	LITC2-1228-1M5	LITC2-806-1M2	LITC2-1228-1M1
Assembly Used	LITA2-806-119K	LITA5-1229-182K	LITA2-806-119K	LITA5-1229-182K
Number of Units	12	8	10	6
Assembly Capacity (KWh)	1428	1456	1190	1092
Assembly Voltage (Vdc)	806	1229	806	1229
Discharge Capability	0.5C		1C	
Voltage Range (Vdc)	616-822	1037-1383	616-822	1037-1383
Design number of Cycles	10,000 @ 50% DOD; 6,000@ 90% DOD			
Communication	RS485 Modbus, CAN, TCP/IP			
Efficiency at 0.5C Rate of Discharge				96%
Maximum Depth of Discharge (DOD)				90%
Dimensions (WxDxH) (mm)	6058x2438x2896			
Weight (Kg)	18800	18804	16050	14678
Index of Protection				IP65
Design Life (Years)				15+
Operating Temperature (°C)				-40 to + 60
Humidity (%)				6 to 95
Altitude (m)				2500
Certifications	IEC62610 / IEC63056, UL 1973, UL9540A, VDE 2510-50, CE, UN38.4			
Warranty	12 Years PR(*)			

(\*) Refer to Terms and Conditions

## 40Ft Containers (Fully Configured)

Reference:	LITC4-806-3M0	LITC4-1228-3M3	LITC4-806-2M6	LITC4-1228-2M5
Assembly Used	LITA2-806-119K	LITA5-1229-182K	LITA2-806-119K	LITA5-1229-182K
Number of Units	25	18	22	14
Assembly Capacity (KWh)	2975	3276	2618	2548
Assembly Voltage (Vdc)	806	1229	806	1229
Discharge Capability	0.5C		1C	
Voltage Range (Vdc)	616-822	1037-1383	616-822	1037-1383
Design number of Cycles	10,000 @ 50% DOD; 6,000@ 90% DOD			
Communication	RS485 Modbus, CAN, TCP/IP			
Efficiency at 0.5C Rate of Discharge				96%
Maximum Depth of Discharge (DOD)				90%
Dimensions (WxDxH) (mm)	6058x2438x2896			
Weight (Kg)	38125	40884	34000	32632
Index of Protection				IP65
Design Life (Years)				15+
Operating Temperature (°C)				-40 to + 60
Humidity (%)				6 to 95
Altitude (m)				2500
Certifications	IEC62610 / IEC63056, UL 1973, UL9540A, VDE 2510-50, CE, UN38.4			
Warranty	12 Years PR(*)			

(\*) Refer to Terms and Conditions

# Uncompromised Safety and Reliability

## State of the art Smoke Detection:

E24 uses advanced smoke detector system (ASD) that operates by constantly aspirating air to detect any electrolytic gas particules. ASDs use dual-wavelength technology to reliably detect electrical fires as well as electrolytic gases and vapors, even at high air speeds and low gas concentrations.

## High end Fire Extinguishing System:

Upon any electrolytic gas detection, the battery system is flooded with a gaseous extinguishing agent introduced through nozzles. The gas displaces the oxygen that sustains the fire, thus extinguishing even hidden and obscured fires.

## Security System:

LFP Containers are designed in manner to include all the equipment (batteries, equipment, ACs etc.) in a temper-proof container. Each container also includes an advanced security system that would immediately trigger an alarm and notify a number of related parties through the cloud interface in case of a security breach.

The container is fitted with an internal locking mechanism that prevents its opening even if the lock on the door is cut. All security events are logged on the cloud and can be programmed to alert different people be email and SMS.

## Easy Swapable Battery Modules

In the event of a batter module being damaged, it is possible to replace the damaged module with a new one with limited down-time.

## Module or Assembly Isolation

In the event of a failure in a Battery Module, the Battery controller will isolate the failed module and will notify the failure through the cloud interface. In the event of a controller failure, the HV hub will isolate the string controlled by the Battery controller and will notify the failure through the cloud interface.

## Communication Options

Communications options include: RS232, RS485, Modbus, Ethernet (TCP/IP) and Dry Contacts.

## Built-in UPS (Optional)

It is possible to include a UPS with it independent batteries to power the control systems of the Battery Container in order to keep accessing the battery remotely in the event of a main controller failure.

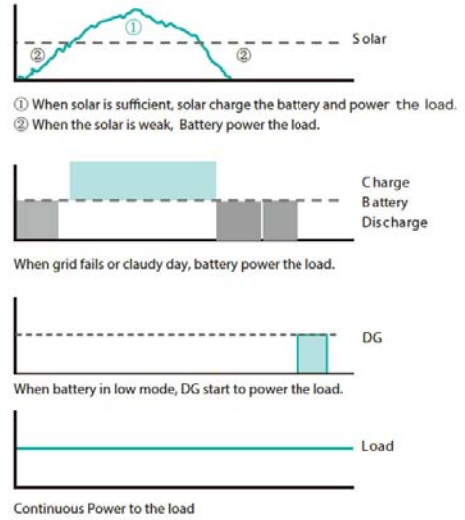
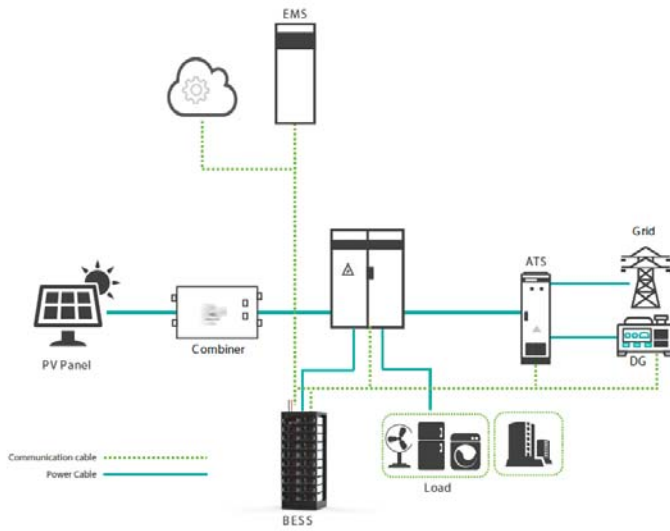
## Scalability

It is possible to connect up to 8 containers in parallel on the same PCS to reach the desired Energy Storage Capacity per PCS.

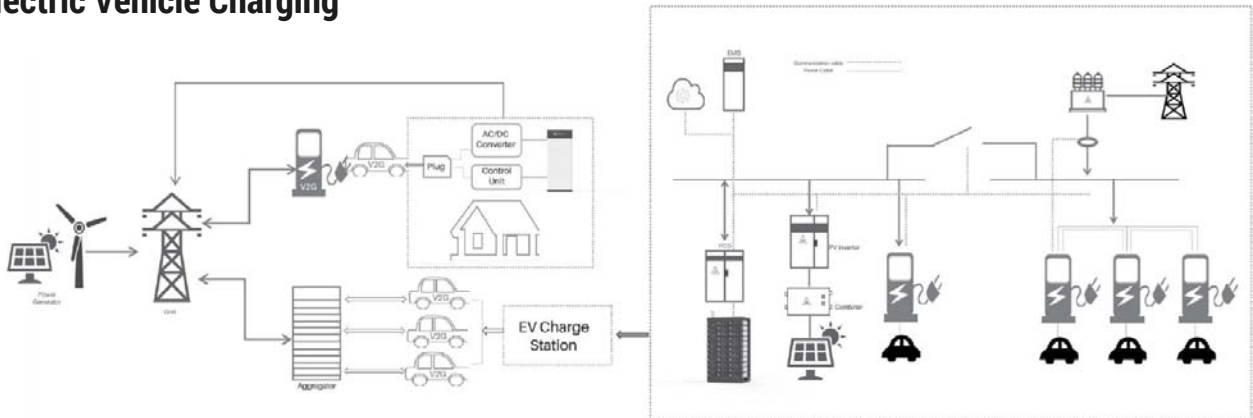


# Applications

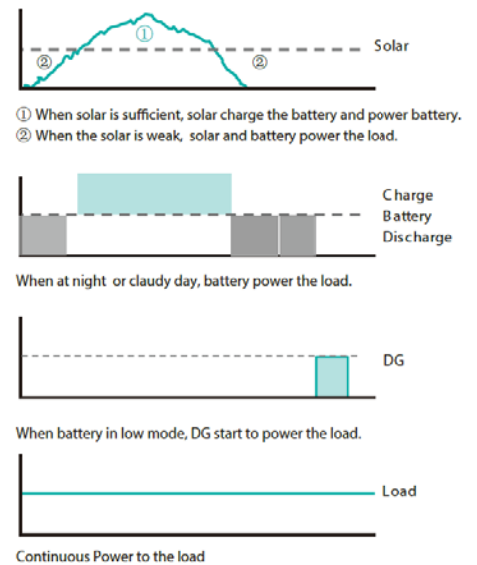
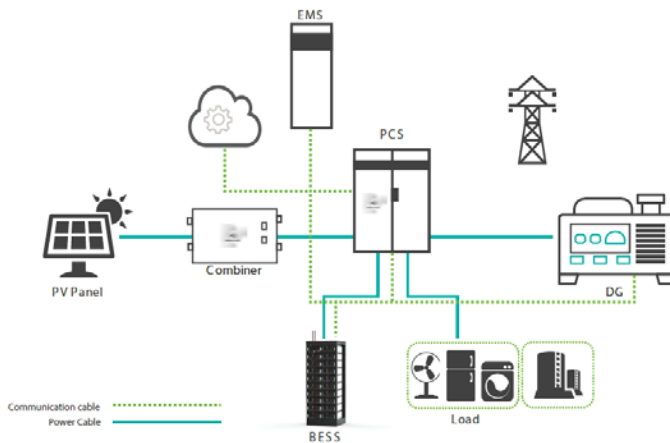
## Back-Up Power



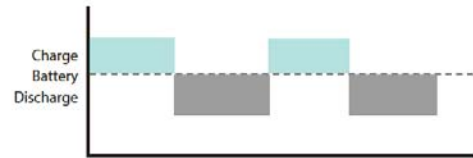
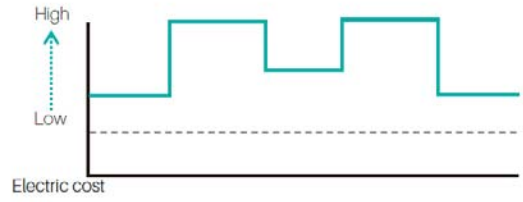
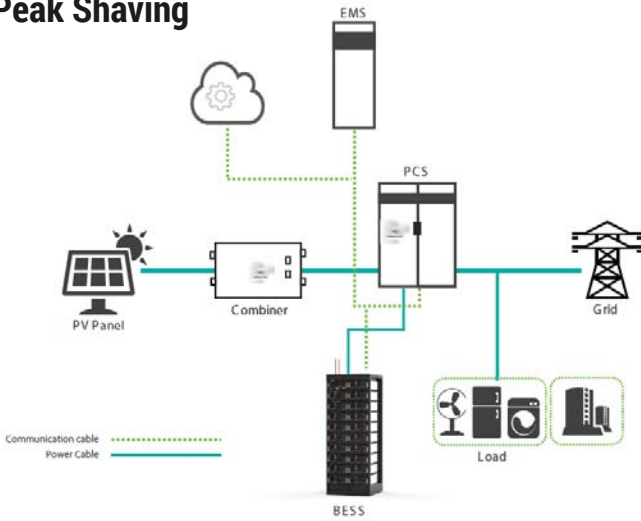
## Electric Vehicle Charging



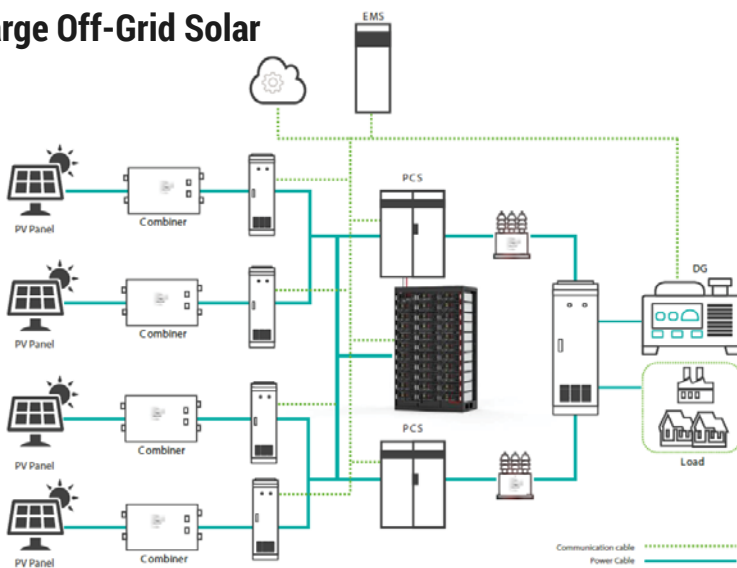
## Micro-Grid



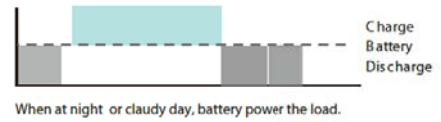
### Peak Shaving



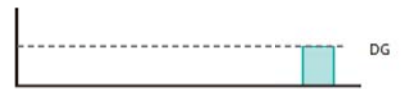
### Large Off-Grid Solar



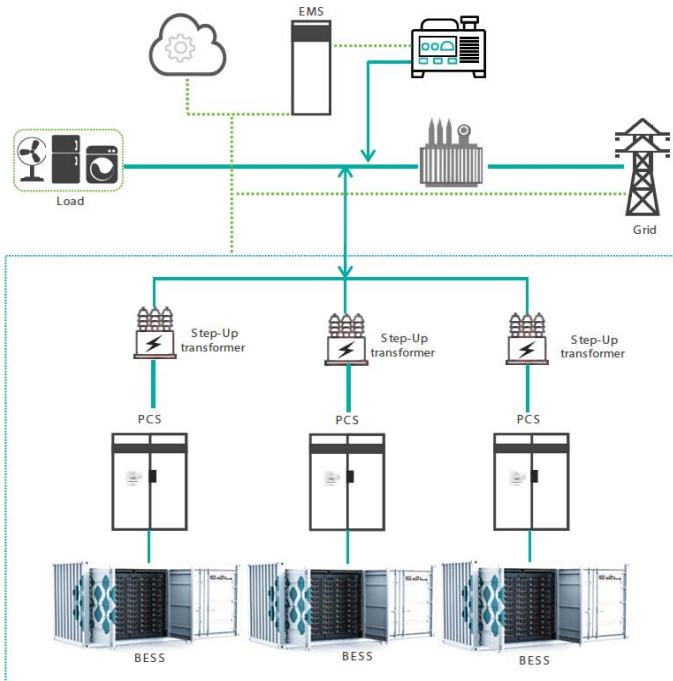
- ① When solar is sufficient, solar charge the battery and power load.
- ② When the solar is weak, solar and battery power the load.



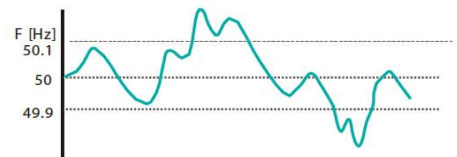
When at night or cloudy day, battery power the load.



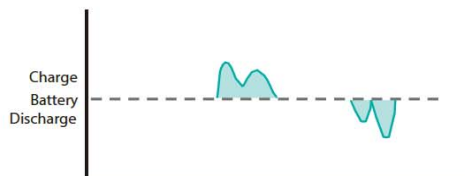
### Grid Frequency Stabilization



Communication cable  
Power Cable



Charge the battery rapidly from the grid when demand on the grid is low. Discharge the battery into the grid when the load on the grid is high in order to keep the grid frequency stable.



# Container Customizations

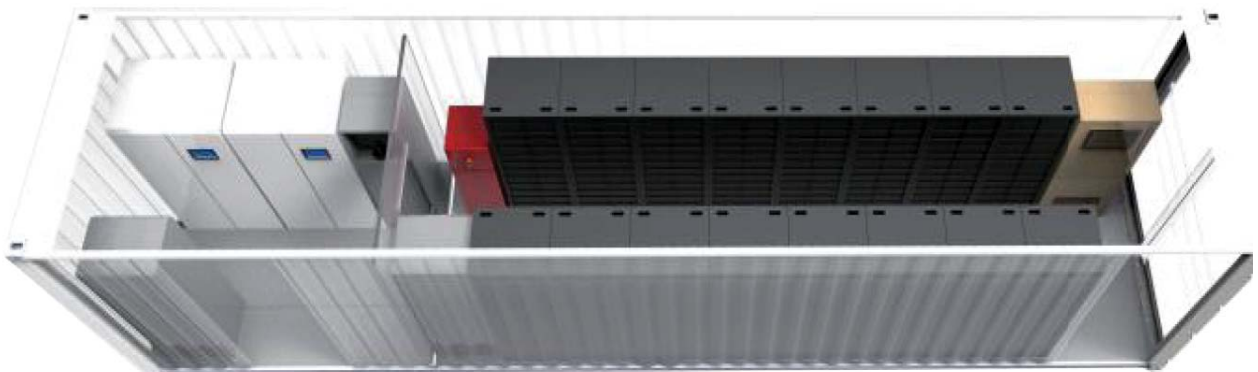
In some projects, it might be mandatory to supply a turnkey solution in a number of containers. E24 offers to customize the battery container to fit other equipment like switchgears, transformers, HVAC, UPS systems, control panels etc...

## Containers Structure change

E24 may swap container size from 20ft to 40ft or 40ft HC. It is also possible to include side doors instead of front door and vice versa. When installing MV transformers, it is possible to include separate chambers within the containers with separate doors when needed.

## Security System and cloud monitoring changes:

E24 may customize the security system to receive reading signals or video from other devices and feed the information into its cloud monitoring software in order to consolidate all readings on one platform



## 12-Year Field Warranty

**E24 Offers the longest warranty on LFP batteries in the industry.**

With 12-Year warranty (Refer to E24 Terms and conditions), E24 offers the most solid warranty on LFP batteries on the market.

## Remote Monitoring & After-Sales Service

**E24 Offers a range of after-sales service in partnership with its and service partners**

As part of E24 service offering, E24 offers remote monitoring service agreements to monitor clients assets and notify of any abnormality. The Remote monitoring service is a remote prevent maintenance contract that would detect in a very early stage any system malfunction and recommend the corrective measures. E24 offers further after sales services to properly maintain client's assets.

## Other Products from E24



Fuel Savers



PCS



String Inverters



Solar Structures

# E24 Modular Range Of Products For Building Easy, Flexible & Evolutive Solutions

E24 products dynamically evolve with the lifestyle and work style of its customers while easing the installation process.

E24 products are conceived in modules allowing for an easy upgrade to adjust with the needs of the customers. Being modular and easy to connect E24 products allow installers to easily configure the required modules for an optimal solution while offering upgrade options.





## Ordering Information

<b>Ref Number</b>	<b>Description</b>
LITA1-730-108K	LFP Battery Assembly, 730V, 108KWh, 1C
LITA2-806-119K	LFP Battery Assembly, 806V, 119KWh, 1C
LITA3-883-131K	LFP Battery Assembly, 883V, 131KWh, 1C
LITA4-1114-165K	LFP Battery Assembly, 1114V, 165KWh, 1C
LITA5-1229-182K	LFP Battery Assembly, 1229V, 182KWh, 1C
LITC2-806-1M4	LFP Container 20Ft, 806V, 1428KWh, 0.5C
LITC2-1229-1M5	LFP Container 20Ft, 1229V, 1456KWh, 0.5C
LITC2-806-1M2	LFP Container 20Ft, 806V, 1190KWh, 1C
LITC2-1229-1M1	LFP Container 20Ft, 1229V, 1092KWh, 1C
LITC4-806-3M0	LFP Container 40Ft, 806V, 2975KWh, 0.5C
LITC4-1229-3M3	LFP Container 40Ft, 1229V, 3276KWh, 0.5C
LITC4-806-2M6	LFP Container 40Ft, 806V, 2618KWh, 1C
LITC4-1229-2M5	LFP Container 40Ft, 1229V, 2548KWh, 1C

**E24**®

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ISO 9001:2015



QUALITY STANDARD

