

# High Voltage LFP Battery Modules and Assemblies

E24™

P364E



## High Voltage LFP Assemblies for 204.8 Vdc to 819.2 Vdc applications

E24 Offers modular lithium Iron (LFP) battery assemblies that can be installed indoors.

Indoor assemblies are modules ranging from 20.48 KWh to 229.4 KWh per assembly is various voltages to match the DC requirements of virtually all inverters on the market and can be combined to reach the desired Energy Storage Capacity.

Two types of assemblies are available in standard ready to ship versions for 100A and 200A Max. charge/discharge applications.



E24 standard assemblies include Bluetooth connectivity allowing the user to obtain detailed technical information about the batteries using any smart phone.

## Standard High Voltage LFP Assemblies

Standard 51Vdc 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 with adequate controllers are required when series connections are desired.

E24 offers pre-configured LFP battery assemblies using 2 possible LFP battery Modules:

- LFP51C0-R4-5K12H, a 5.12KWh, 51.2V module that can delivery a maximum charge/discharge current of 100A

or

- LFP51C0-R5-14K4H, a 14.34KWh, 51.2V module that can delivery a maximum charge/discharge current of 200A

Technical specifications of each module are provided below. For technical specifications of E24 Master BMS modules, please refer to data sheet Ref P366.

### Module Specifications

|                                      |  |
|--------------------------------------|--|
| Reference:                           | LFP51C0-R4-5K12H                           |
| Number of LFP Cells                  | 16   |
| Cells Voltage & Capacity (Vdc, Ah)   | 3.2V, 100Ah                                |
| Module Voltage, Capacity (Vdc, KWh)  | 51.2Vdc, 5.12 Kwh                          |
| Module Voltage Range (Vdc)           | 43.2 to 59.2                               |
| Design number of Cycles              | 10,000 @ 50% DOD<br>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)              | 315 x 820 x 171.5                          |
| Weight (Kg)                          | 55   |
| Index of Protection                  | IP20                                       |
| Design Life (Years)                  | 15+  |
| Operating Temperature (°C)           | +0 to + 50                                 |
| Storage Temperature (°C)             | -20 to + 60                                |
| Humidity (%)                         | 5 to 95                                    |
| Altitude (m)                         | 2000                                       |
| Certifications                       | IEC62619, UL 1973,<br>UL9540A, CE, UN38.3, |
| Warranty                             | 10 Years PR(*)                             |

(\*) Refer to Terms and Conditions

### Module Specifications

|                                      |  |
|--------------------------------------|--|
| Reference:                           | LFP51C0-R5-14K34H                          |
| Number of LFP Cells                  | 16   |
| Cells Voltage & Capacity (Vdc, Ah)   | 3.2V, 280Ah                                |
| Module Voltage, Capacity (Vdc, KWh)  | 51.2Vdc, 14.34 Kwh                         |
| Module Voltage Range (Vdc)           | 43.2 to 59.2                               |
| Design number of Cycles              | 10,000 @ 50% DOD<br>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)              | 570 x 830 x 420                            |
| Weight (Kg)                          | 135  |
| Index of Protection                  | IP20                                       |
| Design Life (Years)                  | 15+  |
| Operating Temperature (°C)           | +0 to + 50                                 |
| Storage Temperature (°C)             | -20 to + 60                                |
| Humidity (%)                         | 5 to 95                                    |
| Altitude (m)                         | 2000                                       |
| Certifications                       | IEC62619, UL 1973,<br>UL9540A, CE, UN38.3, |
| Warranty                             | 10 Years PR(*)                             |

(\*) Refer to Terms and Conditions

## Deployment on Site

E24 HV battery assemblies may be shipped fully mounted in their racks and configured or disassembled.













Assembling the equipment on site is fast and simple








## Technical Specifications

Assemblies using LFP51C0-R4-5K12H (51.2V, 5.12KWh, 100A Modules)

|  Cycle Lifes<br> Warranty period<br> Certification |          |              |              |              |              |              |              |              |              |  |
|---|---|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--|
|   | <b>8000 times</b><br><b>10 Years PR</b><br><b>CE/MSDS/UN38.3</b>  |              |              |              |              |              |              |              |              |  |
|   |   |              |              |              |              |              |              |              |              |  |
|   |   |              |              |              |              |              |              |              |              |  |
| MODEL   |   |              |              |              |              |              |              |              |              |  |
| Product   | 204.8V 100AH  | 256.0V100AH  | 307.2V100AH  | 358.4V 100AH | 409.6V 100AH | 460.8V 100AH | 512V 100AH   | 563.2V 100AH | 614.4V 100AH |  |
| Nominal Voltage   | 204.8V  | 256.0V       | 307.2V       | 358.4V       | 409.6V       | 460.8V       | 512V         | 563.2V       | 614.4V       |  |
| Nominal Capacity  | 100AH   | 100AH        | 100AH        | 100AH        | 100AH        | 100AH        | 100AH        | 100AH        | 100AH        |  |
| Dimension RACK(mm)  | 560*510*1210  | 560*510*1210 | 560*510*1210 | 560*510*1638 | 560*510*1638 | 560*510*1780 | 560*510*1780 | 560*510*2060 | 560*510*2060 |  |
| Weight(kg)  | 240   | 280          | 325          | 375          | 420          | 475          | 520          | 575          | 620          |  |
| SPECIFICATIONS  |   |              |              |              |              |              |              |              |              |  |
| Nominal Capacity (KWH)  | 20.48   | 25.6         | 30.72        | 35.84        | 40.96        | 46.08        | 51.2         | 56.32        | 61.44        |  |
| Discharge Cut-Off Voltage (V)   | 176   | 220          | 264          | 308          | 352          | 396          | 440          | 484          | 528          |  |
| Charge Cut-Off Voltage (V)  | 227.2   | 284          | 340.8        | 397.6        | 454.4        | 511.2        | 568          | 624.8        | 681.6        |  |
| Recommend Charge/Discharge Current (A)  | 60  | 60           | 60           | 60           | 60           | 60           | 60           | 60           | 60           |  |
| Max. Charge/Discharge working Current(A)  | 100   | 100          | 100          | 100          | 100          | 100          | 100          | 100          | 100          |  |
| Communication   | RS485/RS232/CAN   |              |              |              |              |              |              |              |              |  |
| Working Temperature   | 0°C~50°C Charge -10°C~50°C Discharge  |              |              |              |              |              |              |              |              |  |
| Transport or Storage Temperature Range  | -20°C~60°C  |              |              |              |              |              |              |              |              |  |
| Certification   | CE/IEC/UL/UN38.3/MSDS   |              |              |              |              |              |              |              |              |  |
| Design Life   | 15years+  |              |              |              |              |              |              |              |              |  |
| Cycle Life  | ( 0.5C/0.5C~80% DOD ) >8000 times   |              |              |              |              |              |              |              |              |  |
| Series Function   | Support 16 units in Series  |              |              |              |              |              |              |              |              |  |
| Certification   | UN38.3/MSDS/ROHS  |              |              |              |              |              |              |              |              |  |

Assemblies using LFP51C0-R5-14K4H (51.2V, 14.34KWh, 200A Modules)

|  Cycle Lifes<br> Warranty period<br> Certification |             |              |              |               |               |               |              |               |               |               |               |               |  |
|---|---|--------------|--------------|---------------|---------------|---------------|--------------|---------------|---------------|---------------|---------------|---------------|--|
|   | <b>8000 times</b><br><b>10 Years PR</b><br><b>CE/MSDS/UN38.3</b>  |              |              |               |               |               |              |               |               |               |               |               |  |
|   |   |              |              |               |               |               |              |               |               |               |               |               |  |
|   |   |              |              |               |               |               |              |               |               |               |               |               |  |
| MODEL   |   |              |              |               |               |               |              |               |               |               |               |               |  |
| Product   | 153.6V 280AH  | 204.8V 280AH | 256.0V 280AH | 307.2V 280AH  | 358.4V 280AH  | 409.6V 280AH  | 460.8V 280AH | 512V 280AH    | 563.2V 280AH  | 614.4V 280AH  | 665.6V 280AH  | 716.8V 280AH  |  |
| Nominal Voltage   | 153.6V  | 204.8V       | 256.0V       | 307.2V        | 358.4V        | 409.6V        | 460.8V       | 512V          | 563.2V        | 614.4V        | 665.6V        | 716.8V        |  |
| Nominal Capacity  | 280AH   | 280AH        | 280AH        | 280AH         | 280AH         | 280AH         | 280AH        | 280AH         | 280AH         | 280AH         | 280AH         | 280AH         |  |
| Dimension RACK(mm)  | 550*780*1190  | 550*780*1440 | 550*780*1690 | 1090*780*1190 | 1090*780*1190 | 1090*780*1440 | 560*510*1780 | 1090*780*1440 | 1090*780*1690 | 1090*780*1940 | 1090*780*1940 | 1090*780*2190 |  |
| Weight(kg)  | 408   | 534          | 660          | 796           | 912           | 1048          | 1164         | 1300          | 1416          | 1552          | 1668          | 1804          |  |
| SPECIFICATIONS  |   |              |              |               |               |               |              |               |               |               |               |               |  |
| Nominal Capacity (KWH)  | 43  | 57.3         | 71.6         | 86.01         | 100.3         | 114.6         | 129          | 143.3         | 157.6         | 172           | 186.3         | 200.7         |  |
| Discharge Cut-Off Voltage (V)   | 132   | 176          | 220          | 264           | 308           | 352           | 396          | 440           | 484           | 528           | 572           | 616           |  |
| Charge Cut-Off Voltage (V)  | 170.4   | 227.2        | 284          | 340.8         | 397.6         | 454.4         | 511.2        | 568           | 624.8         | 681.6         | 738.4         | 795.2         |  |
| Recommend Charge/Discharge Current (A)  | 100   | 100          | 100          | 100           | 100           | 100           | 100          | 100           | 100           | 100           | 100           | 100           |  |
| Max. Charge/Discharge working Current(A)  | 200   | 200          | 200          | 200           | 200           | 200           | 200          | 200           | 200           | 200           | 200           | 200           |  |
| Communication   | RS485/RS232/CAN   |              |              |               |               |               |              |               |               |               |               |               |  |
| Working Temperature   | 0°C~50°C Charge -10°C~50°C Discharge  |              |              |               |               |               |              |               |               |               |               |               |  |
| Transport or Storage Temperature Range  | -20°C~60°C  |              |              |               |               |               |              |               |               |               |               |               |  |
| Certification   | CE/IEC/UL/UN38.3/MSDS   |              |              |               |               |               |              |               |               |               |               |               |  |
| Design Life   | 15years+  |              |              |               |               |               |              |               |               |               |               |               |  |
| Cycle Life  | ( 0.5C/0.5C~80% DOD ) >8000 times   |              |              |               |               |               |              |               |               |               |               |               |  |
| Series Function   | Support 16 units in Series  |              |              |               |               |               |              |               |               |               |               |               |  |
| Certification   | UN38.3/MSDS/ROHS  |              |              |               |               |               |              |               |               |               |               |               |  |



## Custom Designed high Voltage LFP Assemblies

E24 standards assemblies provide ready to connect HV LFP assemblies in 100A and 200A configurations with voltages ranging from 204.8 Vdc to 819.2 Vdc.

Some applications require either higher currents or higher voltages.

For higher discharge current up to 400A, you may refer to E24 AirLFP batteries (Data Sheet # P363). For other custom requirements, E24 offers customized LFP assemblies. Kindly contact your nearest E24 authorized partner for details.

## Compatibility with Other Brands

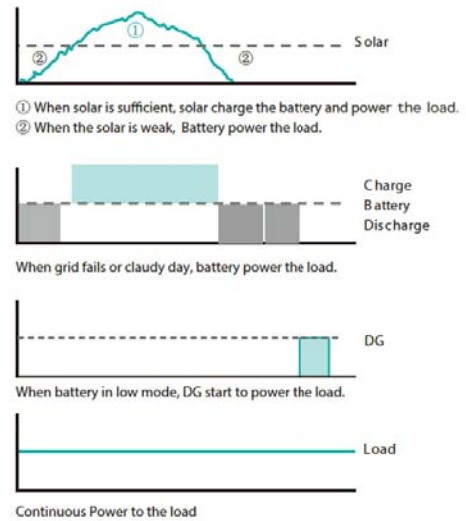
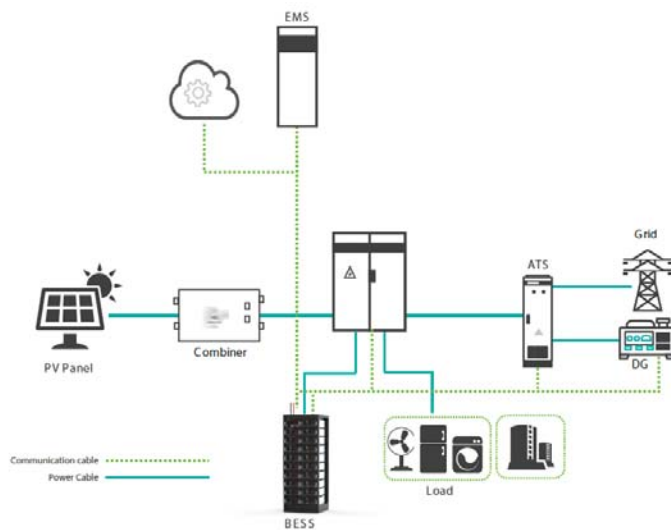
E24 High Voltage LFP assemblies are compatible virtually all inverter brands:



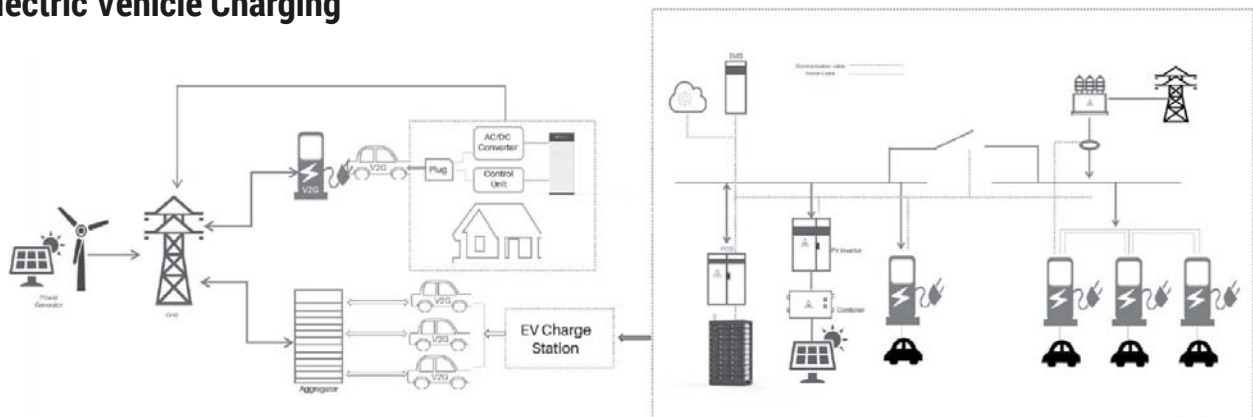


# Applications

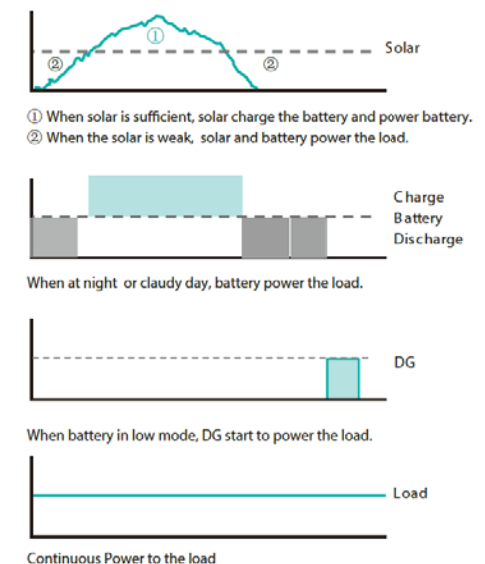
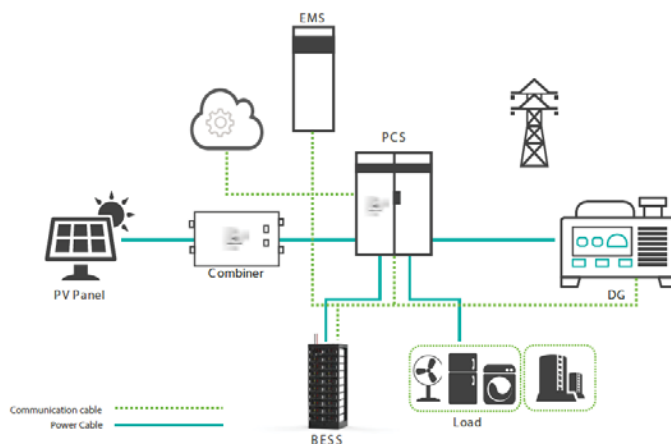
## Back-Up Power



## Electric Vehicle Charging

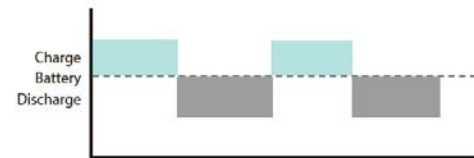
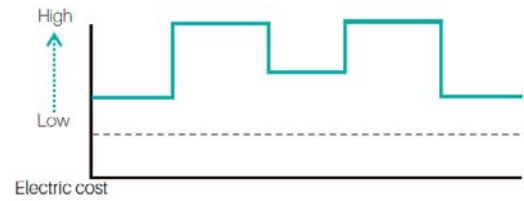
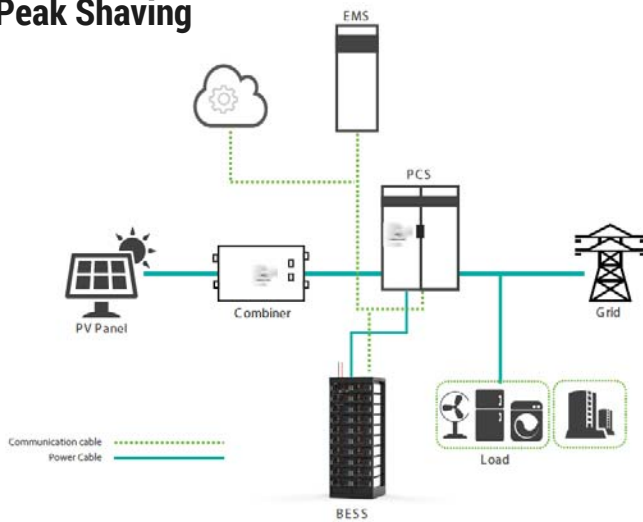


## Micro-Grid

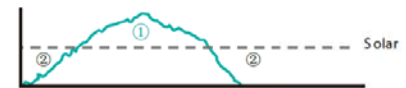
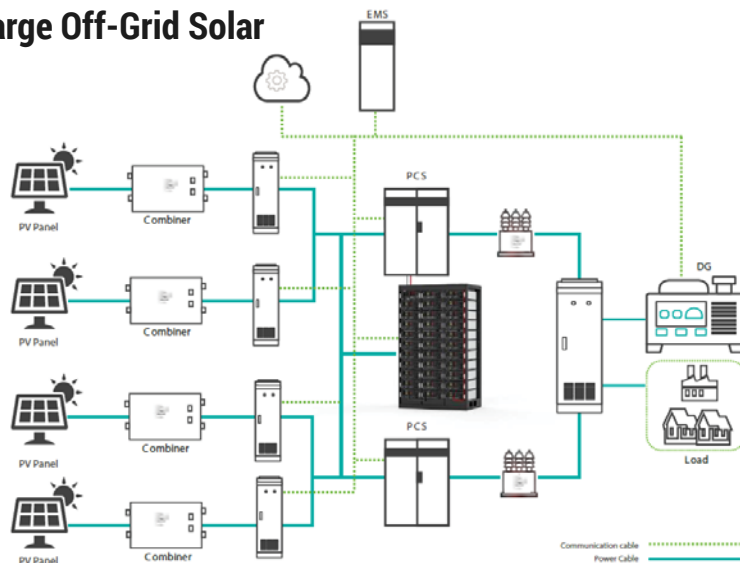




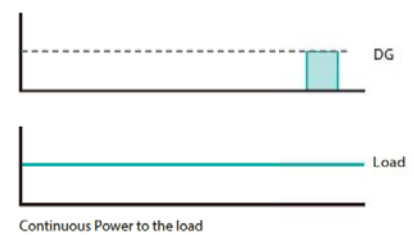
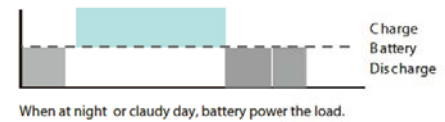
## Peak Shaving



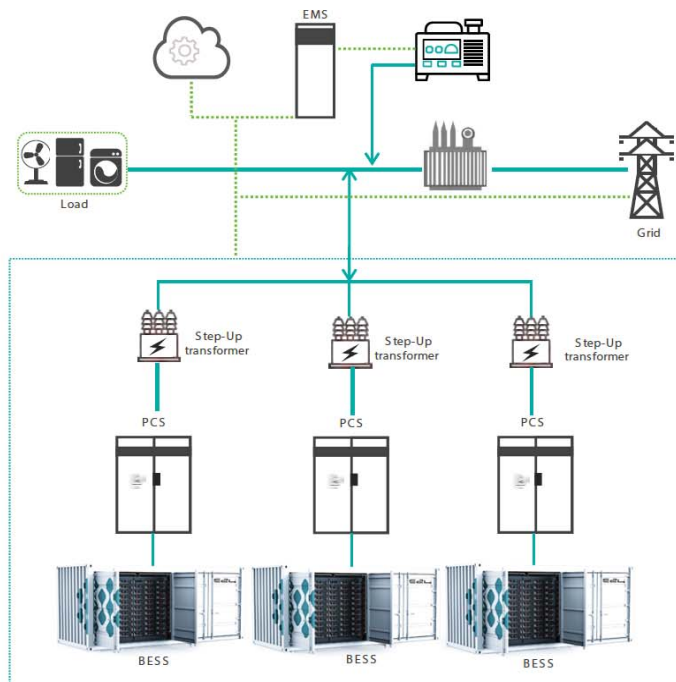
## Large Off-Grid Solar



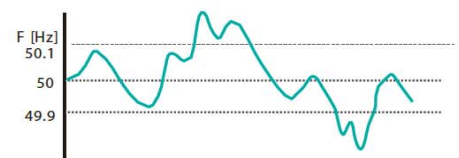
- ① When solar is sufficient, solar charge the battery and power load.
- ② When the solar is weak, solar and battery power the load.



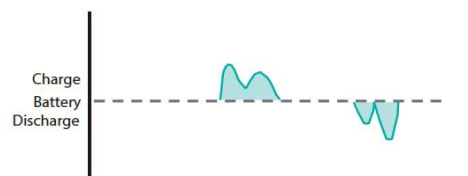
## Grid Frequency Stabilization



Communication cable  
Power Cable



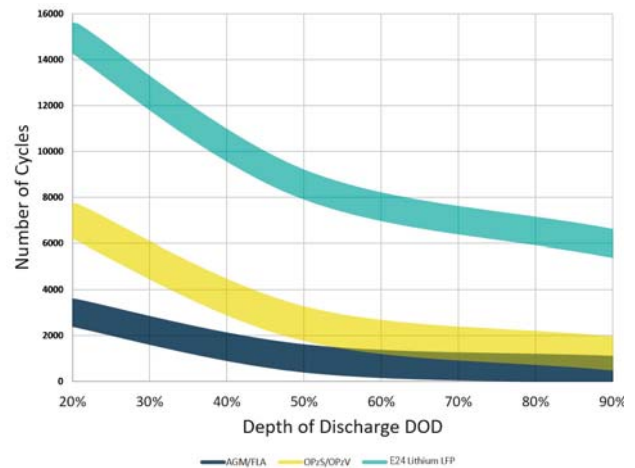
Charge the battery rapidly from the grid when demand on the grid is low. Discharge the battery into the grid when the load on the grid is high in order to keep the grid frequency stable.



## 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.



## 10-Year Field Warranty

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

With 10-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 serives is a remote prevent maintenance contract that would detect in a very early stage any system malfunction and recomande the corrective measures. E24 offers further after sales services to properly maintain client's assets.

## 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

## 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

| Ref Number    | Description  |
|---------------|--|
| LFP70H-R3-7K  | RM HV LFP battery, 51.2Vdc, 100AH, 5.12KWh, 100A                       |
| LFP77H-R4-10K | RM HV LFP battery, 51.2Vdc, 280AH, 14.34KWh, 200A                      |
| LFPAH-C0-20K  | HV RM LFP Assembly, 204.8Vdc, 100A, 20.48KWh (4x5.12KWh), 2 Columns    |
| LFPAH-C0-26K  | HV RM LFP Assembly, 256Vdc, 100A, 25.6KWh (5x5.12KWh), 2 Columns       |
| LFPAH-C0-31K  | HV RM LFP Assembly, 307.2Vdc, 100A, 30.72KWh (6x5.12KWh), 2 Columns    |
| LFPAH-C0-36K  | HV RM LFP Assembly, 358.4Vdc, 100A, 35.84KWh (7x5.12KWh), 2 Columns    |
| LFPAH-C0-41K  | HV RM LFP Assembly, 409.6Vdc, 100A, 40.96KWh (8x5.12KWh), 2 Columns    |
| LFPAH-C0-46K  | HV RM LFP Assembly, 460.8Vdc, 100A, 46.08KWh (9x5.12KWh), 2 Columns    |
| LFPAH-C0-51K  | HV RM LFP Assembly, 512Vdc, 100A, 51.2KWh (10x5.12KWh), 2 Columns      |
| LFPAH-C0-56K  | HV RM LFP Assembly, 563.2Vdc, 100A, 56.32KWh (11x5.12KWh), 2 Columns   |
| LFPAH-C0-61K  | HV RM LFP Assembly, 614.4Vdc, 100A, 61.44KWh (12x5.12KWh), 2 Columns   |
| LFPAH-C0-67K  | HV RM LFP Assembly, 665.6Vdc, 100A, 66.56KWh (13x5.12KWh), 2 Columns   |
| LFPAH-C0-72K  | HV RM LFP Assembly, 716.8Vdc, 100A, 71.68KWh (14x5.12KWh), 2 Columns   |
| LFPAH-C0-77K  | HV RM LFP Assembly, 768Vdc, 100A, 76.8KWh (15x5.12KWh), 2 Columns      |
| LFPAH-C0-82K  | HV RM LFP Assembly, 819.2Vdc, 100A, 81.92KWh (16x5.12KWh), 2 Columns   |
| LFPAH-C0-57K  | HV RM LFP Assembly, 204.8Vdc, 200A, 57.36KWh (4x14.34KWh), 2 Columns   |
| LFPAH-C0-72K  | HV RM LFP Assembly, 256Vdc, 200A, 71.7KWh (5x14.34KWh), 2 Columns      |
| LFPAH-C0-86K  | HV RM LFP Assembly, 307.2Vdc, 200A, 86.04KWh (6x14.34KWh), 2 Columns   |
| LFPAH-C0-100K | HV RM LFP Assembly, 358.4Vdc, 200A, 100.38KWh (7x14.34KWh), 2 Columns  |
| LFPAH-C0-115K | HV RM LFP Assembly, 409.6Vdc, 200A, 114.72KWh (8x14.34KWh), 2 Columns  |
| LFPAH-C0-129K | HV RM LFP Assembly, 460.8Vdc, 200A, 129.06KWh (9x14.34KWh), 2 Columns  |
| LFPAH-C0-143K | HV RM LFP Assembly, 512Vdc, 200A, 143.4KWh (10x14.34KWh), 2 Columns    |
| LFPAH-C0-158K | HV RM LFP Assembly, 563.2Vdc, 200A, 157.74KWh (11x14.34KWh), 2 Columns |
| LFPAH-C0-172K | HV RM LFP Assembly, 614.4Vdc, 200A, 172.08KWh (12x14.34KWh), 2 Columns |
| LFPAH-C0-186K | HV RM LFP Assembly, 665.6Vdc, 200A, 186.42KWh (13x14.34KWh), 2 Columns |
| LFPAH-C0-201K | HV RM LFP Assembly, 716.8Vdc, 200A, 200.76KWh (14x14.34KWh), 2 Columns |
| LFPAH-C0-215K | HV RM LFP Assembly, 768Vdc, 200A, 215.1KWh (15x14.34KWh), 2 Columns    |
| LFPAH-C0-229K | HV RM LFP Assembly, 819.2Vdc, 200A, 229.44KWh (16x14.34KWh), 3 Columns |



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