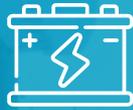




# YOUR SINGLE - STOP SOLUTION PREMIUM ESS BATTERIES



INVERTER / UPS  
BATTERIES



TELECOM  
BATTERIES



ENERGY STORAGE  
SYSTEM



# Empowering Clean Mobility Solutions

Since 2006



## MD's Message

Akshay Kashyap, MD of Greenfuel

*Our premium lithium-ion batteries are designed to provide long-lasting, reliable power for all your e-mobility and energy storage based applications. These batteries are not only energy efficient, but they are also eco-friendly and cost-effective. With our batteries, you can enjoy the power of reliable, safe and sustainable energy without breaking the bank.*

# Advanced Battery Division - Journey

**+7years**

of products knowledge  
(Li-ion Batteries)

**+100K**

Batteries sold and running successfully

**04**

Patents acquired for battery pack design

**2020**

**2022**

**2016**

Est. Battery Division

**13%**

Engineers engaged in R&D

**2021**

**+80M**

Kms covered by Greenfuel's lithium-ion battery

**2023**

**03**

Manufacturing Units

**342+**

Employees

**HEADQUARTERS**

IMT Manesar, Gurugram

**PAN INDIA**

Network

**02**

Divisions



# Infrastructure

**20K** Sq. Ft.

In utilisation for battery plant  
(IMT, Gurugram) expanding 3X by 2024

**125MW**

Production plant  
capacity in **Single  
Shift**

**3800**

Cell capacity  
channels

In-house

**BMS**

testers

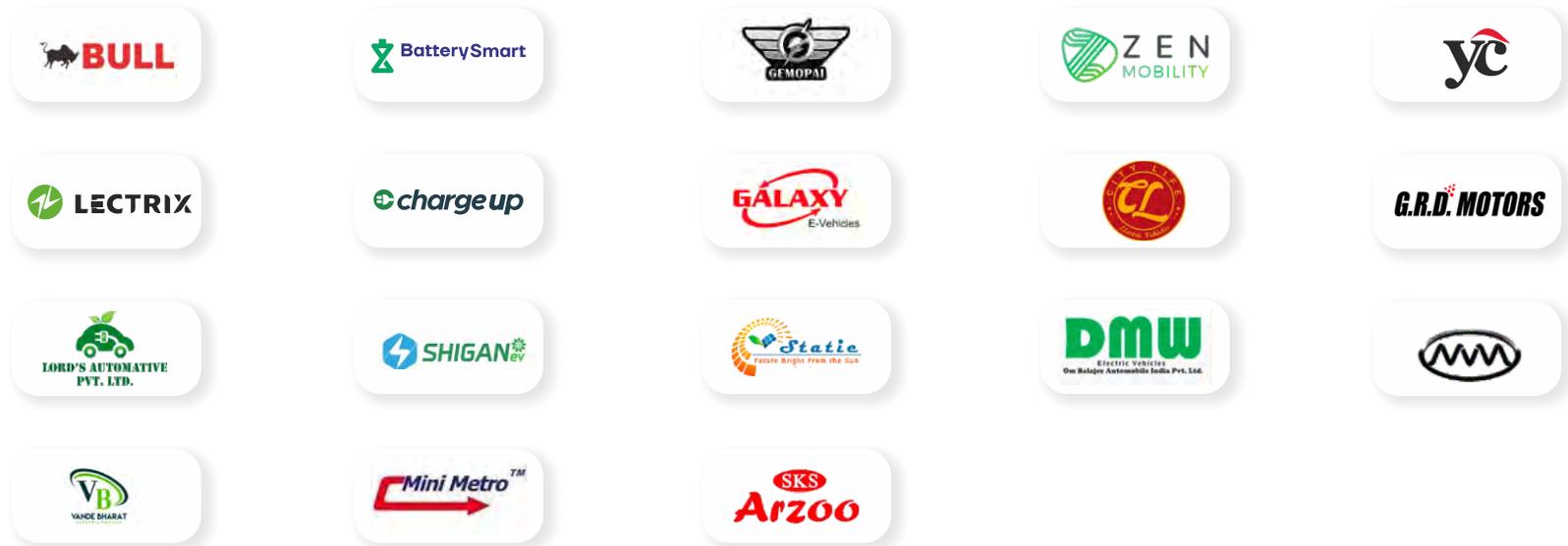
**222**

End Of Line (EOL)  
channels

**30K**

Cell testing per/day

# Prestigious Customers - Battery Division



## 4 Patents On Battery Pack Design





## Wall Mounted Home Inverter Batteries

### Battery Range

- 12.8 V - 100 Ah to 200 Ah
- 25.6 V - 100 Ah to 200 Ah
- 48 V - 24 Ah to 200 Ah

Batteries can be tailored to specific needs\*



# 12.8V 100Ah

## BATTERY FEATURES

### WALL - MOUNTED

Wall-mounted design, specially for home energy storage

### COMPACT SIZE

Greenfuel battery adopts LiFePO4 chemistry to ensure safety performance

### APPLICATION

Compatible with Inverter application

### CAPACITY

Parallel allowed to increase capacity

### PROTOCOL

Support communication protocol! R5485, CAN, ethernet

### COMPATIBILITY

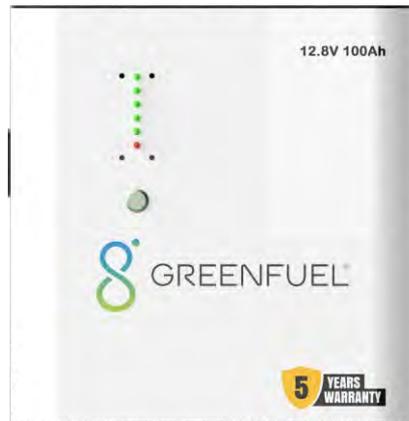
Our Battery compatible with major inverter brands are Microtek, Luminous, Genus, Sukam or Livguard etc

### EASY INSTALLATION

Easy installation and simply connection to inverter

### SMART BMS

Built-in intelligent BMS to protect the battery module and maintain the battery always work at the best condition.



## BATTERY PERFORMANCE



SAFE & RELIABLE



PERFECT COMPATIBLE



EASY INSTALLATION



LONG LIFE



SMART BMS

## PACK PROTECTION

Battery pack over voltage protection, battery pack under voltage protection charging over current protection, discharging over current protection charging under temperature protection, discharging under temperature protection.

## BATTERY SPECIFICATION

### NOMINAL CHARACTERISTICS

<b>NOMINAL VOLTAGE/V</b>	<b>12.8</b>
<b>NOMINAL CAPACITY /AH{25°C,0.2C}</b>	<b>100</b>

### MECHNICAL CHARACTERISTICS

<b>WEIGHT {APPROXIMATE} /KG</b>	<b>13 (APPROX.)</b>
<b>DIMENSION L *W*H/MM</b>	<b>304* 225*308</b>
<b>TERMINAL</b>	<b>M8</b>

<b>VOLTAGE WINDOW/V</b>	<b>10.8 TO 14.8</b>
<b>FLOAT CHARGE VOLTAGE</b>	<b>14.6</b>
<b>MAX. CONTINUE DISCHARGE CURRENT/A</b>	<b>60</b>
<b>MAX. PULSE DISCHARGE CURRENT/A</b>	<b>220A ISEC</b>
<b>MAX. CONTINUE CHARGE CURRENT/A</b>	<b>50</b>

### OPERATING CONDITIONS

<b>CYCLE LIFE {+25°C 0.25°C2C90% DOD}</b>	<b>&gt;3000 CYCLES</b>
<b>STORAGE TEMPERATURE</b>	<b>0 TO 45° c</b>
<b>STORAGE DURATION</b>	<b>6 MONTH AT 45°C</b>
<b>SAFETY STANDARD</b>	<b>UN38.3, MSDS</b>
<b>IP DEGREE</b>	<b>IP52</b>
<b>OPERATING TEMPERATURE</b>	<b>DISCHARGE -10°c TO 65°C CHARGE 0°c TO 65°C</b>
<b>INSTALLATION</b>	<b>VERTICAL</b>
<b>SCALABILITY</b>	<b>MAX.10 PIECES IN PARALLEL</b>
<b>RECOMMENDED OPERATION ENVIROMENT</b>	<b>INDOOR</b>

# 25.6V 100Ah

## BATTERY FEATURES

### WALL - MOUNTED

Wall-mounted design, specially for home energy storage

### COMPACT SIZE

Greenfuel battery adopts LiFePO4 chemistry to ensure safety performance

### APPLICATION

Compatible with Inverter application

### CAPACITY

Parallel allowed to increase capacity

### PROTOCOL

Support communication protocol! R5485, CAN, ethernet

### COMPATIBILITY

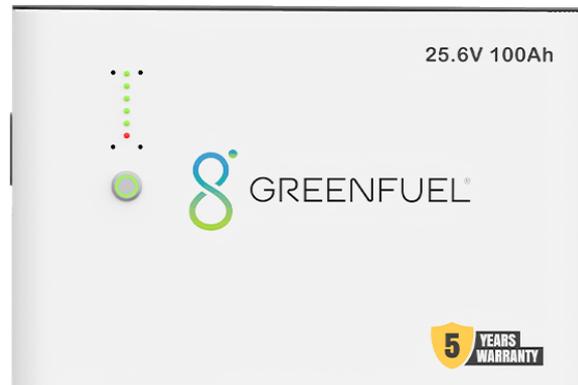
Our Battery compatible with major inverter brands are Microtek, Luminous, Genus, Sukam or Livguard etc

### EASY INSTALLATION

Easy installation and simply connection to inverter

### SMART BMS

Built-in intelligent BMS to protect the battery module and maintain the battery always work at the best condition.



## BATTERY PERFORMANCE



SAFE & RELIABLE



PERFECT COMPATIBLE



EASY INSTALLATION



LONG LIFE



SMART BMS

## PACK PROTECTION

Battery pack over voltage protection, battery pack under voltage protection charging over current protection, discharging over current protection charging under temperature protection, discharging under temperature protection.

## BATTERY SPECIFICATION

### NOMINAL CHARACTERISTICS

NOMINAL VOLTAGE/V	25.6
NOMINAL CAPACITY /AH{25°C,0.2C}	100

### MECHNICAL CHARACTERISTICS

WEIGHT {APPROXIMATE} /KG	26 (APPROX.)
DIMENSION L *W*H/MM	471* 307*256
TERMINAL	M8

VOLTAGE WINDOW/V	20 TO 29
FLOAT CHARGE VOLTAGE	29.2
MAX. CONTINUE DISCHARGE CURRENT/A	100
MAX. PULSE DISCHARGE CURRENT/A	400A ISEC
MAX. CONTINUE CHARGE CURRENT/A	60

### OPERATING CONDITIONS

CYCLE LIFE {+25°C 0.25°C2C90% DOD}	>3000 CYCLES
STORAGE TEMPERATURE	0 TO 45° c
STORAGE DURATION	6 MONTH AT 25°C
SAFETY STANDARD	UN38.3, MSDS
IP DEGREE	IP52
OPERATING TEMPERATURE	DISCHARGE -10°c TO 65°C CHARGE 0°c TO 65°C
INSTALLATION	VERTICAL
SCALABILITY	MAX.10 PIECES IN PARALLEL (STANDARD)
RECOMMENDED OPERATION ENVIROMENT	INDOOR

# 48V 100Ah

## BATTERY FEATURES

### WALL - MOUNTED

Wall-mounted design, specially for home energy storage

### COMPACT SIZE

Greenfuel battery adopts LiFePO4 chemistry to ensure safety performance

### APPLICATION

Compatible with Inverter application

### CAPACITY

Parallel allowed to increase capacity

### PROTOCOL

Support communication protocol! R5485, CAN, ethernet

### EASY INSTALLATION

Easy installation and simply connection to inverter

### COMPATIBILITY

Our Battery compatible with major inverter brands are Microtek, Luminous, Genus, Sukam or Livguard etc

### SMART BMS

Built-in intelligent BMS to protect the battery module and maintain the battery always work at the best condition.



## BATTERY PERFORMANCE



SAFE &  
RELIABLE



PERFECT  
COMPATIBLE



EASY  
INSTALLATION



LONG  
LIFE



SMART  
BMS

## PACK PROTECTION

Battery pack over voltage protection, battery pack under voltage protection charging over current protection, discharging over current protection charging under temperature protection, discharging under temperature protection.

## BATTERY SPECIFICATION

### NOMINAL CHARACTERISTICS

NOMINAL VOLTAGE/V	48
NOMINAL CAPACITY /AH{25°C,0.2C}	100

### MECHNICAL CHARACTERISTICS

WEIGHT {APPROXIMATE} /KG	50 (APPROX.)
DIMENSION L *W*H/MM	465* 320*500
TERMINAL	M8

VOLTAGE WINDOW/V	42 TO 54
FLOAT CHARGE VOLTAGE	55.2
MAX. CONTINUE DISCHARGE CURRENT/A	100
MAX. PULSE DISCHARGE CURRENT/A	400A ISEC
MAX. CONTINUE CHARGE CURRENT/A	50

### OPERATING CONDITIONS

CYCLE LIFE {+25°C 0.25°C2C90% DOD}	>3000 CYCLES
STORAGE TEMPERATURE	0 TO 30° c
STORAGE DURATION	6 MONTH AT 25°C
SAFETY STANDARD	UN38.3, MSDS
IP DEGREE	IP52
OPERATING TEMPERATURE	DISCHARGE -10°c TO 65°C CHARGE 0°c TO 65°C
INSTALLATION	VERTICAL
SCALABILITY	MAX.10 PIECES IN PARALLEL (STANDARD)
RECOMMENDED OPERATION ENVIROMENT	INDOOR



# Indigenously Designed Telecom Batteries

**Battery Range**

48V- 100Ah ●

Batteries can be tailored to specific needs\*



# 48V 100Ah/300Ah/800Ah

## BATTERY FEATURES

### WALL - MOUNTED

Wall-mounted design, specially for home energy storage

### COMPACT SIZE

Greenfuel battery adopts LiFePO4 chemistry to ensure safety performance

### APPLICATION

Compatible with Inverter application

### CAPACITY

Parallel allowed to increase capacity

### PROTOCOL

Support communication protocol! R5485, CAN, ethernet

### COMPATIBILITY

Our Battery compatible with major inverter brands are Microtek, Luminous, Genus, Sukam or Livguard etc

### EASY INSTALLATION

Easy installation and simply connection to inverter



### SMART BMS

Built-in intelligent BMS to protect the battery module and maintain the battery always work at the best condition.

## BATTERY PERFORMANCE



SAFE & RELIABLE



PERFECT COMPATIBLE



EASY INSTALLATION



LONG LIFE



SMART BMS

# BATTERY SPECIFICATIONS

<b>BATTERY CAPACITY</b>	5 kwh
<b>BATTERY TYPE</b>	Li-ion
<b>CHEMISTRY</b>	LFP
<b>CELL PACKAGE TYPE</b>	Prismatic
<b>CAPACITY</b>	100 Ah
<b>OPERATION DOD RANGE</b>	100
<b>NOMINAL VOLTAGE</b>	48V
<b>VOLTAGE RANGE</b>	40V to 54.7V
<b>RATED CHARGING CURRENT (STANDARD)</b>	0.5C
<b>PEAK CHARGING CURRENT</b>	1C
<b>RATED DISCHARGE CURRENT</b>	0.5C
<b>PEAK DISCHARGE CURRENT</b>	1C for 15 Sec
<b>COMMUNICATION INTERFACE/PROTOCOL</b>	CAN
<b>OPERATING AMBIENT TEMPERATURE – CHARGING</b>	0 TO 50°C (cell temperature)
<b>OPERATING AMBIENT TEMPERATURE – DISCHARGING</b>	0 to 55°C (cell temperature)
<b>STORAGE TEMPERATURE FOR 6 MONTHS</b>	0 to 35 (50% SOC)
<b>COOLING</b>	Convection using thermal materials
<b>LIFECYCLE @ AMBIENT 25°C</b>	~2500
<b>DETERIORATION IN CAPACITY OVER CYCLES AT 25°C FOR 100% DOD AND 0.5C</b>	20% drop in initial capacity at the end of <2500 cycles. % drop in capacity at different part of the life shall be confirmed after simulation.
<b>CYCLE DEFINITION</b>	One complete charging and discharging considered to be a cycle for the above.
<b>PACKAGE DIMENSION (L X W X H)</b>	501.50*488*266.70mm
<b>IP PROTECTION</b>	52
<b>WEIGHT</b>	<54Kg

# High Voltage ESS Lithium Batteries

## Battery Range

- 96V - 100Ah to 500Ah
- 120V - 100Ah to 500Ah
- 240V - 100Ah to 500Ah
- 365V- 100Ah to 800Ah
- 720V- 100Ah to 1000Ah

Batteries can be tailored to specific need



# 240V/480V 200Ah

## BATTERY FEATURES

### LFP CHEMISTRY

Delivering long cycle with highest safety.

### WIDE SCALABILITY

Daisy-chain architecture is adopted, and slave control units to be configured as per requirements.

### UN38.3 CERTIFIED

IEC 62619 & UL 9540A compliance.

### CUSTOMISED DESIGN

Flexibility in catering to rack voltage range and size of rack.

### IN BUILT CFT ANALYSIS

To ensure best thermal management for the safety of batteries/ performance.

### SMART BMS

Flexibility in catering to rack voltage range and size of rack.

### SOC ESTIMATION

Accuracy in signal acquisition and (combine the strength of various SOC algorithm in the industry) with high precision sampling chips

### 5+ YEARS

Data and event storage locally at BMS level.



## BATTERY PERFORMANCE



SAFE &  
RELIABLE



PERFECT  
COMPATIBLE



EASY  
INSTALLATION



LONG  
LIFE



SMART  
BMS

# BATTERY SPECIFICATIONS

<b>BATTERY CAPACITY</b>	24 kwh to 2 mwh
<b>BATTERY TYPE</b>	LFP
<b>CHEMISTRY</b>	LIFEPO4
<b>CELL PACKAGE TYPE</b>	Prismatic
<b>CAPACITY</b>	100Ah / 150Ah / 206Ah /230 Ah To 280Ah (depending Upon Project Requirements)
<b>OPERATION DOD RANGE</b>	>85% UP TO 99%
<b>NOMINAL VOLTAGE</b>	3.2V
<b>VOLTAGE RANGE</b>	48V upto 1500V
<b>RATED CHARGING CURRENT (STANDARD)</b>	0.25C / 0.3C / 0.5C
<b>PEAK CHARGING CURRENT</b>	0.5C
<b>RATED DISCHARGE CURRENT</b>	0.5C / 1C
<b>COMMUNICATION INTERFACE/PROTOCOL</b>	RS485/MODBUS TCP-IP/CAN
<b>OPERATING AMBIENT TEMPERATURE – CHARGING</b>	0 TO 45°C (cell temperature)
<b>OPERATING AMBIENT TEMPERATURE – DISCHARGING</b>	0 to 60°C (cell temperature)
<b>STORAGE TEMPERATURE FOR 6 MONTHS</b>	0 to 35 (50% SOC)
<b>COOLING</b>	Natural / Forced / HVAC / Liquid Cooled
<b>LIFECYCLE @ AMBIENT 25°C</b>	~4000
<b>RACK TYPE</b>	Enclosure / Container
<b>IP PROTECTION</b>	Ip20 /IP40 / Ip54
<b>ELECTRICAL PROTECTION</b>	Contactora / Breaker / Bms
<b>STANDARDS (COMPLIANCE)</b>	UN38.3, IEC 62619, IEC 61000, UL 1973 & UL 9540A
<b>PROTECTION</b>	<ul style="list-style-type: none"><li>- Over voltage, under-voltage</li><li>- Over-temperature (charge and discharge)</li><li>- Under-temperature (charge and discharge)</li><li>- Over current (charge and discharge)</li><li>- External short circuit detection</li></ul>

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# Contact Us

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## **Greenfuel Energy Solutions Pvt. Ltd**

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