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BATTERY

Lithium Battery and Solar Energy Range



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ECOFLOW



PYLONTECH

SUNPOWER®



victron energy
BLUE POWER

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➤ LITHIUM BATTERIES: THE BASICS

Lithium batteries were invented and developed in the 1970s and 80s and have totally changed the way we use many electrical appliances. It's only recently though, that the advantages of lithium battery technology have begun to be available to motorhomers, caravanners, boaters and anyone who relies on 12V batteries for powering appliances.

There are several different types of lithium battery and the ones that are used as auxiliary / leisure batteries are very different indeed from those used in mobile phones and cordless electric tools. These are lithium iron phosphate batteries, often referred to as LiFePO4 batteries.

➤ KEY ADVANTAGES OVER TRADITIONAL LEAD-ACID BATTERIES:

- Voltage remains constant for much longer during discharge.
- Much higher charging rate and so faster charging – varies according to the charging system used.
- Can be discharged quickly without damaging the cells, making them ideal for use with inverters.
- Can be discharged as much as 95% on average without damaging the battery.
- Thousands of charging cycles compared to just a few hundred from a typical lead-acid battery.
- Very low rate of self-discharge means they can be left unattended for months.
- Zero maintenance required.
- Approximately 40% - 50% lighter than a good quality lead-acid battery with a similar Ah rating.
- The ability to charge quickly from the vehicle's engine can remove the need for a generator or fuel cell.
- Can be used in almost every situation where a lead-acid battery is being used to power appliances in a motorhome, campervan or caravan.

➤ FREQUENTLY ASKED QUESTIONS

DO LITHIUM BATTERIES WORK WHEN IT IS COLD?

If the temperature is under 5 degrees Celsius, charging is disabled by the built-in battery management system. Some lithium batteries such as the Pylontech RT12100 include a heat film, so if used in cold temperature, will come up to temperature to begin charging.

WHAT ABOUT CHARGING?

The lithium batteries that we offer are fitted with battery management systems (BMS) and are designed as a drop-in replacement for lead acid batteries. However, some applications such as motorhomes may require some updates to the charging system. As a battery and lithium specialist, we can provide you with the technical guidance to take you through what you need for your own application. You can contact us by phone or email on the contact details on the back of this brochure.

ECOBAT EBL BATTERIES

The Ecobat 12V lithium-ion phosphate deep cycle batteries are designed as a drop-in replacement for all the batteries with the BCI Group 31 form factor. With the built-in Bluetooth feature (EBL100), you can monitor the battery's state of charge. The RS485 and CANBUS communication protocol allows you to build your own high-end smart minigrid system.

With more than 4000 cycle charges (80% DOD), with high energy density, intelligent features, plus protection and upgradable design, Ecobat Lithium is your best choice to build your own intelligent grid system.



Lithium Ion	EBL10	EBL20	EBL33	EBL40	EBL50	EBL75	EBL90	EBL100D	EBL100 Bluetooth	EBLU1R Bluetooth
Chemistry	Lithium-ion (LiFePO4)									
Nominal voltage	12.8 V	12.8 V	12.8 V	12.8 V	12.8 V	12.8 V	12.8 V	12.8 V	12.8 V	12.8 V
Nominal capacity	10Ah	20Ah	33Ah	40Ah	50Ah	75Ah	90Ah	100Ah	100Ah	48Ah
Nominal energy	128Wh	256Wh	422Wh	512Wh	640Wh	960Wh	1152Wh	1280Wh	1280Wh	614.4Wh
Internal Impedance	≤80mΩ	≤30mΩ	≤100mΩ	≤20mΩ	≤20mΩ	≤15mΩ	≤10mΩ	≤10mΩ	≤5mΩ	≤20mΩ
Charge Voltage	14.4V	14.4V	14.4V	14.4V	14.4V	14.4V	14.4V	14.4V	14.4V	14.4V
Discharge Cut-off Voltage	11.2V	11.2V	11.2V	11.2V	11.2V	11.2V	11.2V	11.2V	10V	10V
Standard Charge Current	2A	4A	6.6A	8A	10A	15A	18A	20A	20A	9.6A
Max. Charge Current	10A	20A	33A	40A	50A	75A	90A	100A	100A	25A
Standard Discharge Current	2A	4A	6.6A	8A	10A	15A	18A	20A	20A	9.6A
Max. Discharge Current	10A	20A	36A	40A	50A	75A	90A	100A	150A	25A
Peak Discharge Current	20A<5S	40A<5S	66A<5S	80A<5S	100A<5S	150A<5S	300A<5S	300A<5S	350A <5S	80A<2S
Bluetooth	No	No	No	No	No	No	No	No	Yes	Yes
Operating Temperature	Charge 0°C ~ +45°C									
	Discharge -20°C ~ +55°C									
Maximum batteries in series	4	4	4	4	4	4	4	4	4	4
Maximum batteries in parallel	2	2	2	2	2	2	2	2	4	4*
Dimensions (L x W x H) mm	151 x 100 x 104	181 x 77 x 170	196 x 132 x 165	196 x 166 x 169	229 x 138 x 208	260 x 168 x 212	307 x 172 x 212	355 x 175 x 190	330 x 175 x 195	195 x 132 x 183
Weight (Kg)	1.5kg	3.1kg	5.0kg	5.5kg	6.0kg	10.5kg	12.5kg	12.5kg	12kg	5.5kg

* Can support up to 4 parallels, however only increases amp hours not current



EBL RANGE

12V SERIES LITHIUM-ION BATTERY

LiFePO4 Deep Cycle Battery. Drop in replacement for Lead-Acid batteries for a wide range of applications.

- 100% Usable Energy: 100% Depth of Discharge, Fully Utilise Each Charge
- Wide-Range Certificated: UL, UN38.3, CE, MSDS, etc.
- Safety First: LiFePO4 Technology Armed with BMS
- Drop-In Replacement: Simple and Powerful, Connect and Go
- Rival Weight: Nearly Half of the Weight of the Lead-Acid Equivalent
- 10 Years Run Time: 4000 Cycle Life Equivalent To 10-15 Years Service Life.

ECOBAT CONNECT APP



Ecobat Battery Connect Bluetooth App for ECOBAT EBL100 & EBL-U1R Lithium battery, to show the real-time status of the battery.

The Ecobat Battery monitoring app allows the user to connect with their EBL100 / EBL-U1R Lithium Ion Battery via Bluetooth. In the App, you can check the real-time Battery Information including State of Charge, Voltage Level, and Battery Temperature, as well as providing individual Cell Voltages and Alerts for Battery Status.

FEATURES:

- You can rename your battery individually in the app.
- You can check the real-time SOC (State of Charge) of the battery
- You can check the real-time voltage of the battery
- You can see the internal temperature of the battery in real-time
- You can see the battery alerts on the alerts pages if any abnormalities arise.



Applications

- Mobility
- Golf carts
- E Bikes
- Communications



Applications

- Mobility
- Golf carts
- Communications



Applications

- Electric outboards
- Golf carts
- Mobility Scooters
- Communications



Applications

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PYLONTECH



➤ 12V SERIES ALL PURPOSE LITHIUM ION BATTERY

The RT 12V Series battery is an all-purpose lithium-ion battery module developed with a cutting-edge LFP (Lithium Iron Phosphate) cell, embedded BMS (Battery Management System), and robust mechanical design that provides inherent safety, extremely high reliability, and zero maintenance.

The RT 12V Series battery's built-in heating film technology performs at temperatures as low as -40°C. The module weight less than half of the same capacity lead-acid battery, providing superior performance in cold weather while saving weight.

KEY FEATURES

• Ultra-Safety

The battery management system (BMS) provides comprehensive protection to the battery and manages the charging/discharging process wisely.

• Auto-Balance

Connects multiple batteries in parallel safely without internal state non-uniformity issues.

• Uncompromising Quality

State-of-the-art battery cells ensure a lifespan of more than 6000 cycles, 100A continuous discharge current, and a wide range of operation temperature.

• Communication

CAN, RS485, Blue Tooth, Dry Contact enable data transmission to meet the needs of different usage scenarios.

All Purpose Lithium Ion Battery	RT12100G31
Electrical	
Nominal Voltage(V)	12.8
Nominal Capacity(Ah)	100
Charge Voltage(VDC)	14V-14.4
Nominal Operation Current(A)	50
Max. continuous operation current(A)	100
Peak Current(A)	200@30sec
Serial Connection / Parallel Connection	≤4 pcs / ≤4 pcs
Structure	
Dimension (mm)	325 x 173.5 x 226
Weight(Kg)	13±0.2
IP rating	IP67
Terminal	M8 bolt
Working Environment	
Charge working temperature (°C)	0~60
Discharge working temperature (°C)	-20~60
Communication	
RS485	115200bps
CAN	500Kbps
Bluetooth	BLE5.0
Dry contactor	2×inputs & 2×outputs



ecobat
BATTERY



PYLONTECH

YOUR IDEAL RESIDENTIAL BESS

Save costs, save the planet, with our battery storage. So future generations can enjoy a safe and clean environment



PRODUCT LINEUP

48 V	
Cabinet/rack installation	Quick connector
US2000C (2.4 kWh)	Force L1 (7.1~24.86 kWh)
Phantom-S(2.4 kWh)	Force L2 (7.1~14.2 kWh)
US3000C (3.55 kWh)	
US5000 (4.8 kWh)	

SPECIFICATION (48V)



	US2000C	US3000C	US5000
Nominal Voltage (Vdc)	48	48	48
Nominal Capacity(Wh)	2400	3552	4800
Usable Capacity(Wh)	2280	3374	4560
Dimension(mm)	442 x 410 x 89	442 x 420 x 132	442 x 420 x 161
Weight(kg)	24	32	39.5
Charge/ (Recommend)	25	37	75
Discharge (Max)	89@1min	89@601min	120@15min
Current(A) (Peak)	200@15sec	200@15sec	200@15sec
Communication Port	RS485, CAN	RS485, CAN	RS485, CAN
Single string quantity (pcs)	16	16	16
Working Temperature/°C	0~50	0~50	0~50
Shelf Temperature/°C	-20~60	-20~60	-20~60
Cycle Life	>6000, 25°C	>6000, 25°C	>6000, 25°C
Authentication Level	IEC62619/CE UN38.3	VDE2510-50 IEC62619/ UL1973 UL9540A/CE/ UN38.3	IEC62619/UL1973/ UL9540A/CE/UN38.3

CHOOSING THE RIGHT CHARGER FOR YOUR BATTERY



CTEK BATTERY CHARGERS

CTEK design and develop a unique series of battery chargers for Lithium batteries for both private and professional use. They analyse, fix, charge and maintain many types of Lithium batteries.

CTEK offers the market high-quality, reliable chargers and accessories that are effective, user friendly and, most importantly, safe (for the user, the vehicle electronics, the battery and the charger).



LITHIUM XS

The LITHIUM XS is an advanced microprocessor controlled charger specially designed to charge and maintain the cells of Lithium-Ion Phosphate (LiFePO₄) batteries – maximising their performance and lifespan.



D250SE

The dual input D250SE allows you to enjoy your vehicle more with maximized battery capacity as the ideal charger for vehicles without access to a mains power supply.



M25

The M25 is recommended for boat owners who need quick and effective charging for larger service batteries.



PRO25S

The PRO25S is an innovative, versatile and highly efficient 25A battery charger and power supply, designed around the needs of the automotive professional.



PRO60

The CTEK PRO60 is an innovative and highly efficient 60A battery charger and power supply that's designed to meet the demands of the modern workshop.



VICTRON BATTERY CHARGERS

BLUE SMART CHARGERS IP22



The Blue Smart IP22 Charger is the new professional battery charger with built-in Bluetooth. The Blue Smart IP22 Charger can be used on devices in your workshop and on motor vehicles, such as (classic) cars; motorbikes; boats and camper-vans. Li-ion batteries are charged with a simple bulk – absorption – float algorithm.

Fully discharged battery recovery function - Will initiate charging even if the battery has been discharged to zero volts. Will reconnect to a fully discharged Li-ion battery with internal disconnect function.

PHOENIX SMART IP43 CHARGER



With boat owners in mind this adaptive 5-step charger can provide either 30A or 50A of charge to each of three battery banks. Bluetooth enabled, you can monitor the charger and set alarms straight from your phone.

Charger on-off control can be implemented by connecting a relay or open collector optocoupler output from a Li-ion BMS to the remote on-off port.

Alternatively full control of voltage and current can be achieved with Bluetooth.

BLUE SMART CHARGERS IP65



The Blue Smart IP65 Charger uses a specific charging algorithm for Li-ion (LiFePO₄) batteries, with automatic Li-ion under voltage protection reset. The Blue Smart IP65 Charger can be used on devices in your workshop and on motor vehicles, such as (classic) cars; motorbikes; boats and camper vans.

The Blue Smart IP65 is equipped with built-in Bluetooth, so the status of the charger and the battery can be checked on a smartphone, tablet or laptop. All settings of the charger can be configured with the VictronConnect app.



ECOFLOW

Portable Power Stations

RIVER 2 Series



Specifications	RIVER 2	RIVER 2 Max	RIVER 2 Pro
AC Output	300W (Surge 600W)	500W (Surge 1000W)	800W (Surge 1600W)
Capacity	256Wh	512Wh	768Wh
Output Ports	5	9	10
Weight	3.5 kg	6.1 kg	7.8 kg
Recharge Time Wall Charge	360W / 60 Mins	660W / 80 Mins	940W / 70 Mins
Recharge Time Solar Panel	110W / 3-6 Hrs	220W / 3-6 Hrs	220W / 4.5-9 Hrs
Recharge Time Car Charge	100W / 3 Hrs	100W / 6 Hrs	100W / 9 Hrs

Runtime reference

Phone 10Wh	20 Times	40 Times	60 Times
Speaker 10W (DC)	20.5 Hrs	41 Hrs	61.5 Hrs

DELTA Series



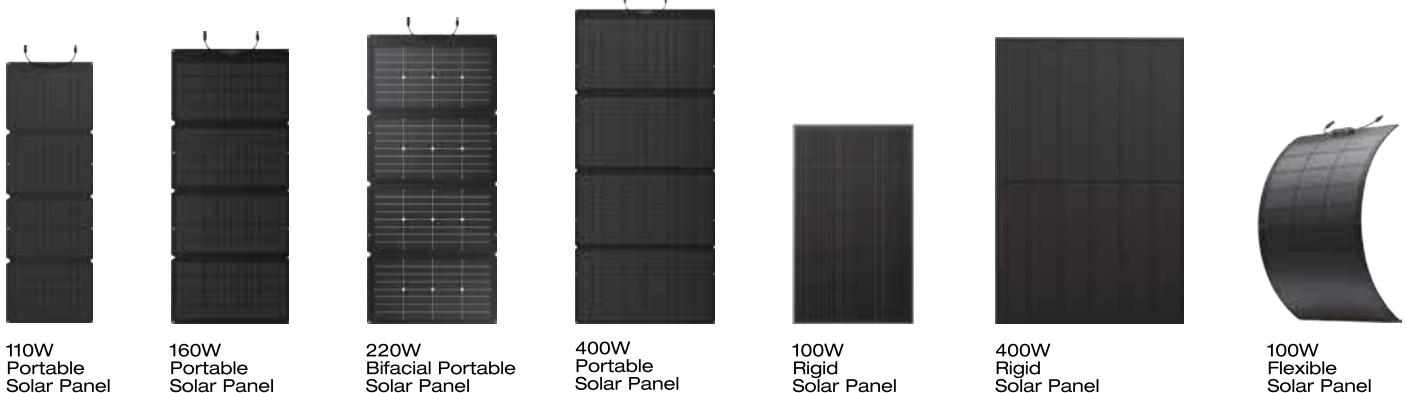
Specifications	DELTA 2	DELTA 2 Max	DELTA Pro
AC Output	1800W (Surge 2700W)	2400W (Surge 4800W)	3600W (Surge 7200W)
Capacity	1024Wh	2048Wh	3600Wh
Output Ports	13 (AC x 4)	13 (AC x 4)	14 (AC x 4)
Weight	12 kg	23 kg	45 kg
Recharge Time Wall Charge	1200W / 80 Mins	940W / 70 Mins	660W / 60 Mins
Recharge Time Solar Panel	400W / 3-6 Hrs	220W / 3-6 Hrs	220W / 4.5-9 Hrs
Recharge Time Car Charge	96W / 11 Hrs	100W / 6 Hrs	100W / 9 Hrs

Runtime reference

Laptop 60Wh	16 Times	25 Times	57 Times
Coffee Maker 1000W	0.8 Hrs	1.63 Hrs	3.3 Hrs

LITHIUM BATTERY AND SOLAR ENERGY RANGE

Solar Panels



Solar Panels	Rated Power	Efficiency	Weight	Dimension	TESTING & CERTIFICATION
110W Portable Solar Panel	110W ($\pm 5W$)	22.8%	4.0 kg	Folded Dimension: 42x48x2.5 cm	FC IP68
160W Portable Solar Panel	160W($\pm 5W$)	21-22%	5.6 kg	Folded Dimension: 68.5x43x2.5 cm	FC IP68
220W Bifacial Portable Solar Panel	220W($\pm 5W$) Front side 155W($\pm 5W$) Rear side	22-23%	9.5 kg	Folded Dimension: 82.0x50.0x3.2 cm	FC IP68
400W Portable Solar Panel	400W($\pm 10W$)	22.6%	16.0 kg	Folded Dimension: 105.8x62x2.5 cm	FC IP68
100W Rigid Solar Panel	100W($\pm 5W$)	23%	6.2 kg	98x58.6x3 cm	FC IP68
400W Rigid Solar Panel	400W($\pm 12W$)	23%	21.8 kg	172.2x113.4x3.5 cm	
100W Flexible Solar Panel	100W($\pm 5W$)	23%	2.3 kg	105.5x61.2x2.5 cm	FC IP68

Cell Type: Monocrystalline silicon

Output Ports: Connector type MC4



SUNPOWER®

➤ SOLAR PANEL KIT OPTIONS

SunPower's flexible panels deliver the highest power output and the highest charging capacity in their product class. SunPower's panels are constructed with top-grade, light-weight polymer materials, allowing for easy transport, installation and panel flexing up to 30 degrees. Our Solar Panel Kits offer a complete solution in an easy to install package.

OPTION 1 - PWM



SunPower SPR-E-Flex Panel + 10A Victron Solar Regulator +
5m Solar Cable + 1 x SikaFlex Adhesive + 1 x DD1 Gland

PART NO.	PANEL SIZE
K50PVSR	50 W

This option utilises SunPower's high efficiency cell, offering 23% efficiency. Mated with a Victron PWM controller will provide a quality off-grid solution for your leisure vehicle. The panel comes with eyelet fittings.

OPTION 2 - Smart



SunPower SPR-E-Flex Panel + Victron SmartSolar MPPT +
5m Solar Cable + 1 x SikaFlex Adhesive + 1 x DD1 Gland

PART NO.	PANEL SIZE
K100SMPPT	100 W

Using the latest, fastest technology, SmartSolar maximises this energy-harvest, driving it intelligently to achieve full charge in the shortest possible time. The panel comes with eyelet fittings.

SPR-E-FLEX-50 SPECIFICATIONS



Typical Electrical Data at STC: 25°C, 1000 W/m² and AM 1.5	
Model	SPR-E-Flex-50
Nominal Power (Pnom)	50 W
Power Tolerance	+/-3%
Rated Voltage (Vmpp)	18 V
Rated Current (Impp)	2.8 A
Open-circuit voltage (Voc)	21.5 V
Short-circuit current (Isc)	3.1 A
Power Temp Coefficient	-0.35% /° C
Voltage Temp Coefficient	-58.9 mV /° C
Current Temp Coefficient	2.6 mA /° C
Max. System Voltage	45 V
Series Fuse Rating	15 A

Mechanical Data	
Solar Cells	Prime monocrystalline 23% efficiency SunPower IBC cells
Junction Box	TE 1-21-2152049-1
Connectors	PV4-S (Compatible with MC4)
Cables	4 mm² (0.16in²), 12 AWG, 450 mm (17.7 in) long
Grommets	316 Stainless Steel
Charge Controller	None provided
Weight	1.1 kg
Panel Dimensions	653 x 556 x 20 mm with Jbox, 2 mm w/o Jbox
Fixing Type	Eyelets

SPR-E-FLEX-100 SPECIFICATIONS



Typical Electrical Data at STC: 25°C, 1000 W/m² and AM 1.5	
Model	SPR-E-Flex-100
Nominal Power (Pnom)	100 W
Power Tolerance	+6/-3%
Rated Voltage (Vmpp)	17.1 V
Rated Current (Impp)	5.9 A
Open-circuit voltage (Voc)	21.4 V
Short-circuit current (Isc)	6.3 A
Power Temp Coefficient	-0.35% /° C
Voltage Temp Coefficient	-58.9 mV /° C
Current Temp Coefficient	2.6 mA /° C
Max. System Voltage	45 V
Series Fuse Rating	15 A

Mechanical Data	
Solar Cells	32 Prime monocrystalline 23% efficiency SunPower IBC cells
Junction Box	TE 1-21-2152049-1
Connectors	PV4-S
Cables	4 mm² (0.16in²), 12 AWG, 450 mm (17.7 in) long
Grommets	316 Stainless Steel
Charge Controller	None provided
Weight	(2 kg)
Panel Dimensions	1153 x 556 x 20 mm with Jbox, 2 mm w/o Jbox
Fixing Type	Eyelets



➤ VICTRON ENERGY BLUE SOLAR KITS

CARAVAN PANEL KITS - MPPT SYSTEM



+



+



+



60W Poly

Victron SPP61-12 Panel
545 x 668 x 25mm

MPPT 10

Frame Mounting

5m Solar Cable
1 x SikaFlex Adhesive
1 x DD1 Gland



+



+



+



90W Poly

Victron SPP91-12 Solar Panel
780 x 668 x 30mm

MPPT 10

Frame Mounting

5m Solar Cable
1 x SikaFlex Adhesive
1 x DD1 Gland



+



+



+



115W Poly

Victron SPP115-12 Solar Panel
1015 x 668 x 30mm

MPPT 10

Frame Mounting

5m Solar Cable
1 x SikaFlex Adhesive
1 x DD1 Gland



+



+



+



115W Mono

Victron SPM115-12 Solar Panel
1015 x 668 x 30mm

MPPT 10

Frame Mounting

5m Solar Cable
1 x SikaFlex Adhesive
1 x DD1 Gland



+



+



+



175W Poly

Victron SPP175-12 Solar Panel
1485 x 668 x 30mm

MPPT 15

Frame Mounting

5m Solar Cable
1 x SikaFlex Adhesive
1 x DD1 Gland

CARAVAN PANEL KITS - SINGLE BANK SYSTEM


90W Poly

 Victron SPP91-12 Solar Panel
 780 x 668 x 30mm

+


 10A Victron Solar
 Regulator

+



Frame Mounting

+


 5m Solar Cable
 1 x SikaFlex Adhesive
 1 x DD1 Gland

115W Poly

 Victron SPP115-12 Solar Panel
 1030 x 668 x 30mm

+


 10A Victron Solar
 Regulator

+



Frame Mounting

+


 5m Solar Cable
 1 x SikaFlex Adhesive
 1 x DD1 Gland

115W Mono

 Victron SPM115-12 Solar Panel
 1030 x 668 x 30mm

+


 10A Victron Solar
 Regulator


Frame Mounting

+


 5m Solar Cable
 1 x SikaFlex Adhesive
 1 x DD1 Gland

175W Poly

 Victron SPP175-12 Solar Panel
 1485 x 668 x 30mm

+


 10A Victron Solar
 Regulator

+



Frame Mounting

+


 5m Solar Cable
 1 x SikaFlex Adhesive
 1 x DD1 Gland

175W Mono

 Victron SPM175-12 Solar Panel
 1485 x 668 x 30mm

+


 10A Victron Solar
 Regulator

+



Frame Mounting

+


 5m Solar Cable
 1 x SikaFlex Adhesive
 1 x DD1 Gland

MOTORHOME PANEL KITS - TWIN BANK SYSTEM


90W Poly

 Victron SPP91-12 Solar Panel
 780 x 668 x 30mm

+



Twin Bank Regulator



Frame Mounting

+


 5m Solar Cable
 1 x SikaFlex Adhesive
 1 x DD1 Gland

115W Poly

 Victron SPP115-12 Solar Panel
 1030 x 668 x 30mm

+



Twin Bank Regulator



Frame Mounting

+


 5m Solar Cable
 1 x SikaFlex Adhesive
 1 x DD1 Gland

115W Mono

 Victron SPM115-12 Solar Panel
 1030 x 668 x 30mm

+



Twin Bank Regulator



Frame Mounting

+


 5m Solar Cable
 1 x SikaFlex Adhesive
 1 x DD1 Gland

175W Poly

 Victron SPP175-12 Solar Panel
 1485 x 668 x 30mm

+



Twin Bank Regulator



Frame Mounting

+


 5m Solar Cable
 1 x SikaFlex Adhesive
 1 x DD1 Gland

175W Mono

 Victron SPP175-12 Solar Panel
 1485 x 668 x 30mm

+



Twin Bank Regulator



Frame Mounting

+


 5m Solar Cable
 1 x SikaFlex Adhesive
 1 x DD1 Gland

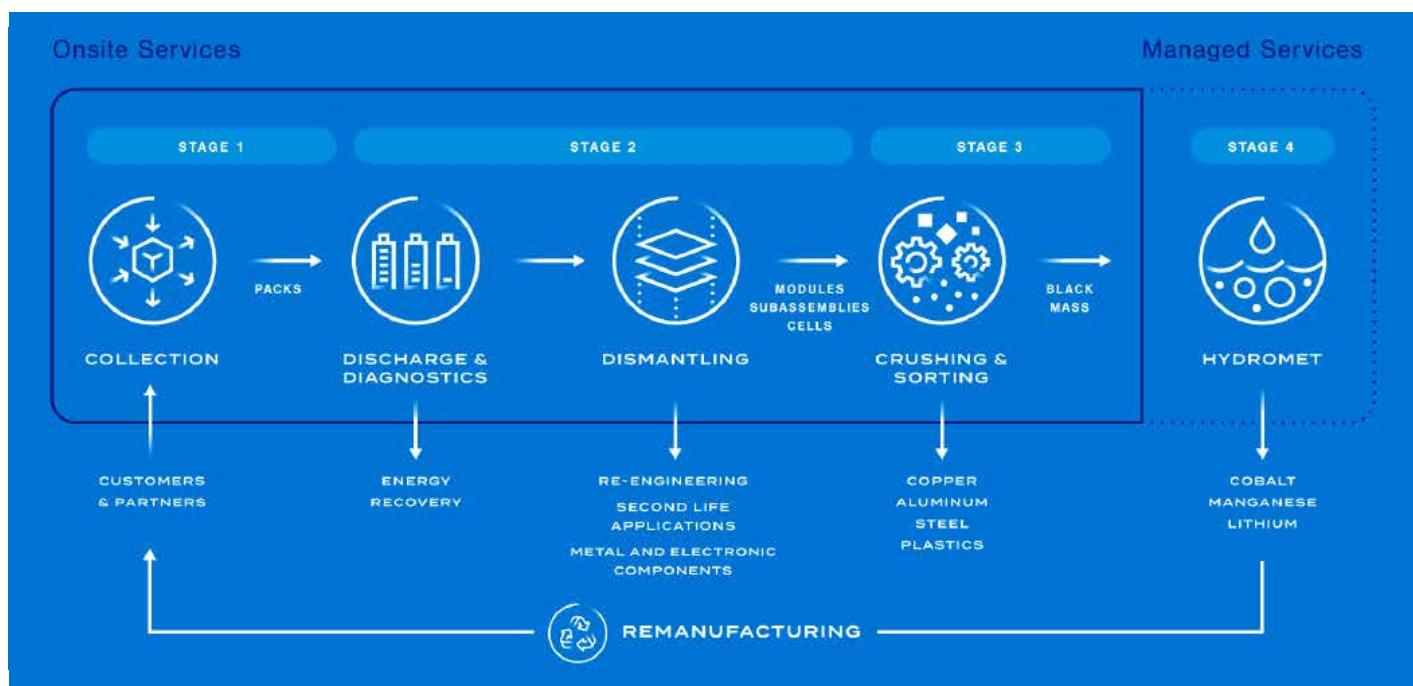

LITHIUM BATTERY AND SOLAR ENERGY RANGE



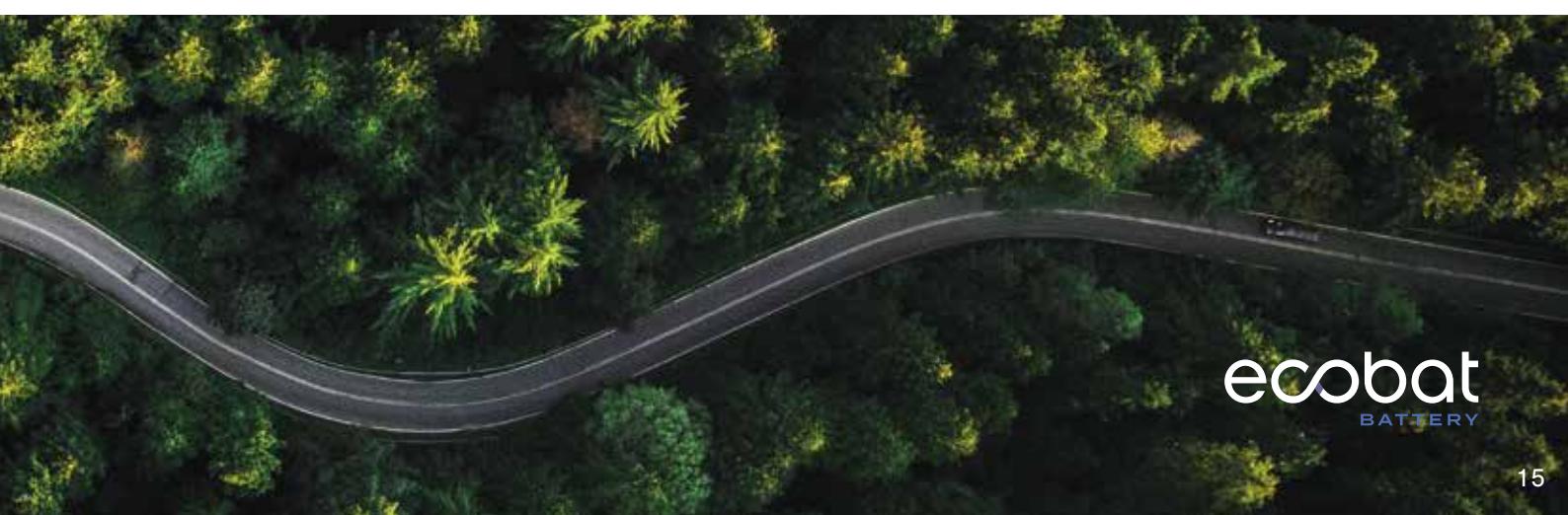
➤ ECOBAT LITHIUM SERVICES

DRIVING LITHIUM-ION AND BATTERY TECHNOLOGIES INTO THE FUTURE.

In supporting future energy and material lifecycle needs for emerging battery systems, Ecobat Solutions has been highly active in the development of advanced technologies and processes for recycling and resource recovery for Lithium-ion and other battery chemistries. We are the only European provider of fully integrated Stage 1-3 lithium battery recycling services and management services for Stage 4.



Ecobat Battery can provide you with a paid for collection and recycling service for your end-of-life lithium batteries. This helps to ensure your compliance and contribution to a circular economy. Please contact us for more details.





ecobat

BATTERY

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