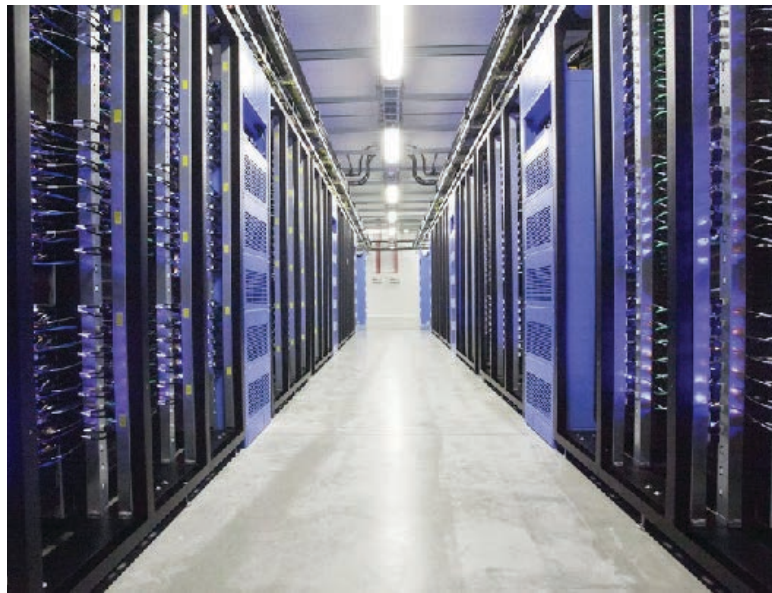


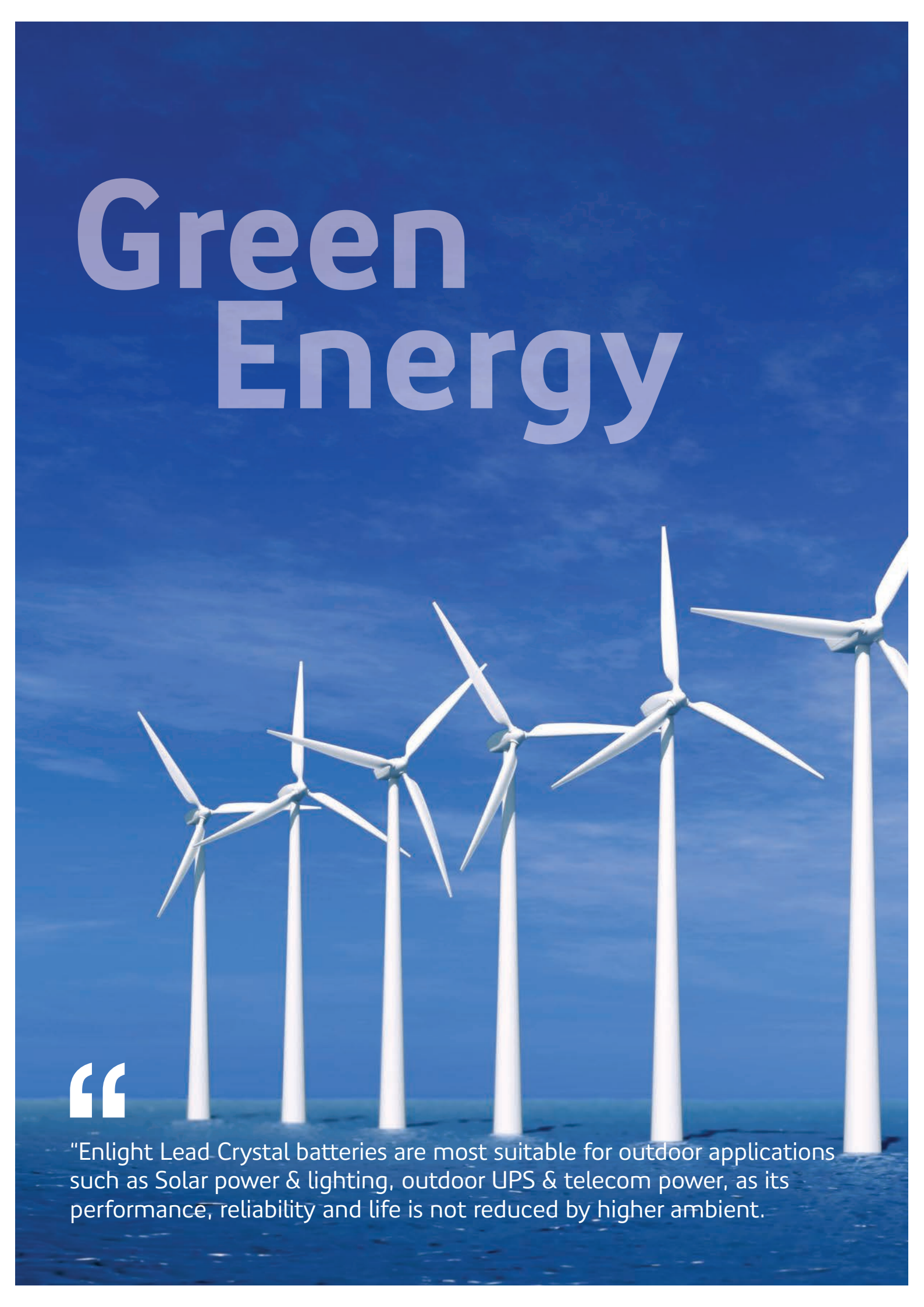


Green Energy  
More Power 



LEAD CRYSTAL  
**BATTERY** 2016

# Green Energy

A row of white wind turbines stands against a clear blue sky. The turbines are arranged in a line, receding into the distance. The blades are white and appear to be in motion. The overall scene is bright and clean, representing renewable energy.

“

“Enlight Lead-Crystal batteries are most suitable for outdoor applications such as Solar power & lighting, outdoor UPS & telecom power, as its performance, reliability and life is not reduced by higher ambient.”



# About Us

Our parent company Newstar Investments Limited was incorporated in the year 2000, when we started exporting engineering equipment and lighting systems from New Zealand to the Middle East.

Over the past 15 years we have successfully completed many projects in varied sectors such as Commercial Lighting, Solar Power, Telecom Power and infrastructure. We also manufacture and supply various types of Batteries, Telecom power & infrastructure, Industrial and Solar Power Systems for our customers globally.

Our strength remains in providing customized solutions, which are made to suit the customer needs and project requirements.

# OUR MISSION

To become a supplier of choice for our customer in all sectors of our business. To provide high quality products at competitive prices to the customers. To provide excellent after sales service and correct technical advise to our customers.

# OUR VISION

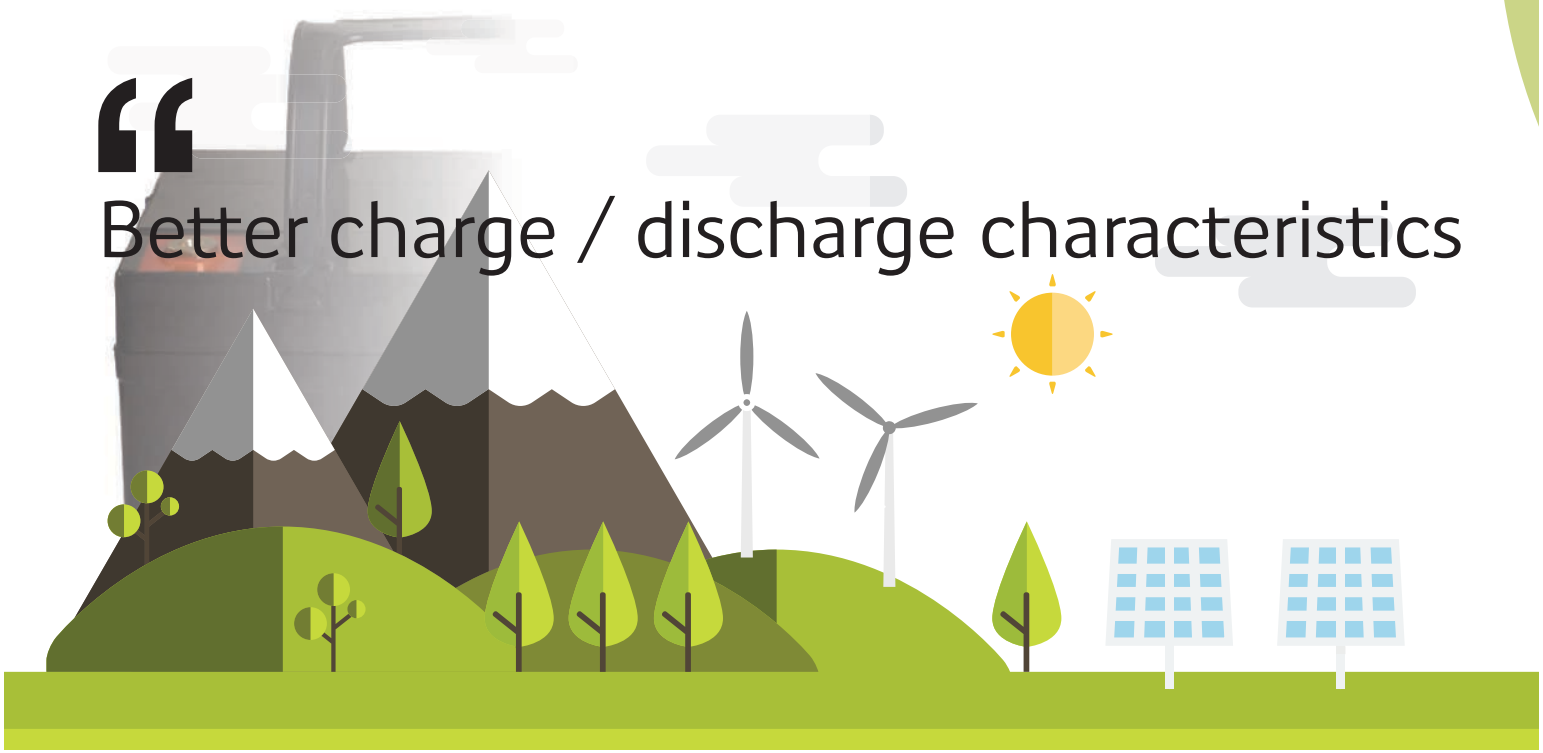
To serve our customers not only today but well into the future. To be amiable, efficient and economical in order to maintain a lifetime relationship with our customers. To achieve constant improvement in our technical specifications and customer services.

Enlight understands customer needs in keeping abreast of new developments and systems in the Industrial Battery domain and we are equipped to provide service to all customers locally and globally.

All Enlight Batteries undergo stringent testing and quality controls to provide the best and long time service to our customers.

“

Better charge / discharge characteristics



# INTRODUCTION TO **ENLIGHT** LEAD CRYSTAL BATTERIES

The energy storage market has grown multifold and with increased environmental awareness, more and more customers are demanding environmentally safe, longer lasting and sustainable batteries.

Lead Acid batteries are becoming unacceptable to a large number of environmentally aware and technologically advanced customers all over the world. The Lead Acid battery has major environmental impacts like waste, pollution, emissions and effluents during manufacture and operations. The disposal of the Lead Acid batteries is also a difficult procedure due to the presence of corrosive acids and gases. The Enlight Lead Crystal batteries have been produced after extensive research and development over the past few years. When compared with normal Lead Acid batteries, the Enlight Lead Crystal batteries provide a better option as greener and long lasting sustainable batteries.

The Lead Crystal battery technology has exclusive patents. Enlight Lead Crystal batteries are manufactured in accordance with environmental protection standards ISO 14001 and Occupational Health and Safety Act. The Enlight Lead Crystal battery is ideally suited for numerous global industries such as Telecommunications, Solar and Wind Energy Storage, Power Generation and Utilities, Defense, Health, Transportation and Data Centers, in addition to various other industries.

## TECHNICAL PARAMETERS

The Enlight Lead Crystal battery uses a new Electrolyte which is a non-corrosive SiO<sub>2</sub> solution. The first few charge/ discharge cycles causes the electrolyte to solidify and form a non-toxic crystalline substance. This results in a safer, high performance and environmentally friendlier battery.

The battery is housed inside a high quality, flame retardant PC-ABS smoulder-free plastic case and cover.

The batteries are compliant with 48cm (19") or 58cm (23") and industrial standard racking dimensions.

As these batteries are dry, they can also be mounted on the side with no risk of spillage or loss in their operation life.

The Enlight Lead Crystal batteries can withstand extreme temperatures ranging from -40°C to +65°C. Hence, they out perform any other battery at extreme temperatures as there is no fluid that can freeze and expand causing bending of plates.

The Electrolyte is not affected by internal temperature generated during Charge and Discharge cycles. The battery is manufactured with a high performance terminal seal design. Without a liquid electrolyte, the batteries have absolutely no risk of leakage.

Due to all above properties these batteries are safe to transport.

The Enlight Lead Crystal Batteries emit almost no vapours or gases as compared to other conventional Lead Acid batteries, thus making ventilation of battery chamber easier and less costly.

The Enlight Lead Crystal Batteries are designed to work with a 5% Ripple current.

Approved as non-hazardous cargo for ground, sea and air transportation. Can also be transported with general goods in the same containers with no risk of contamination.

Enlight Lead Crystal Batteries can withstand higher temperature variations as there is no fluid that can freeze and expand causing bending of plates.

Enlight Lead Crystal Batteries contain almost no harmful chemicals or acids making them environmentally friendly.

2 year factory guarantee (Terms & Conditions apply). 3 year guarantee is also available on request.



“

Excellent performance  
at higher ambients



# ENLIGHT LEAD CRYSTAL BATTERIES V/S LEAD-ACID BATTERIES

## 1. Battery Life

The Enlight Lead Crystal Batteries will in general have between 600 and 5000 charge discharge cycles, depending on DOD (7 to 12 year battery life). Under similar conditions Lead-acid batteries will have between 10 to 350 charge discharge cycles (2 to 3 year battery life). Therefore the Enlight lead crystal battery will have an expected useful life of (at least) more than double that of the life of a lead-acid battery

## 2. Shelf Life

The Enlight Lead Crystal Batteries have a very slow self discharge rate. The battery should be fully charged before being stored. The Enlight Lead Crystal Battery can be stored for 2 years without additional top-up charging. Hence there is no need to charge batteries in stock every few months.

## 3. High-Rate Discharge

Enlight Lead Crystal battery technology allows for a high-rate discharge of up to 10C. Lead-Acid batteries only work at a discharge rate of up to 3C.

## 4. Excellent Charge Performance

The Enlight Lead Crystal Battery has a faster charge time, The charging can be completed with in half the time (2X faster) as compared to that of lead acid batteries. This simplifies battery maintenance dramatically and saves on any extra energy required for Hybrid systems and Generators.

## 5. Depth of Discharge

The Enlight Lead Crystal battery can be discharged to 100% capacity / 0.0 Volt – and then restore to full rated capacity. The Lead-acid batteries can never be restored and have to be discarded after such discharge. This effectively increases Enlight Lead Crystal usable battery capacity by almost 25%.



## 6. Low Temperature Resistance

The Enlight Lead crystal batteries can function in temperature ranges of  $-40^{\circ}\text{C}$  to  $+65^{\circ}\text{C}$ .

The Enlight Lead Crystal battery delivers from 45% to 85% of its rated capacity at  $-40^{\circ}\text{C}$  to  $-10^{\circ}\text{C}$ , where as the Lead-acid batteries loose their discharge ability under sub-zero conditions.

## 7. Green

The Enlight Lead crystal batteries use new materials, processes and formulas.

The Enlight Lead Crystal Batteries do not discharge any harmful mist or gaseous emission as the basic electrolyte is neutral, non-corrosive. Therefore the Enlight Lead crystal batteries do not cause pollution - in line with ever increasing environmental protection requirements.

## 8. Safe to Transport

The Enlight Lead Crystal batteries are classified as non-hazardous devices and are safe to transport by land, sea and air - The battery has a Non Corrosive electrolyte in a Dry state.

Where as the Lead-acid batteries can not be transported by air.

# BENEFITS

The Enlight Lead Crystal batteries provide a very cost-effective energy storage solution. They perform better and last longer than the Lead Acid batteries.

The Enlight Lead Crystal batteries reduce energy costs and environmental impact.

For the Off-Grid Sites, the use of Enlight Lead Crystal batteries in a hybrid solution reduces fuel consumption, improves performance and lowers truck rolls, therefore decreasing operating expenses.

The Enlight Lead Crystal battery can frequently be discharged by 100%, and can be recharged with no special charging processes and with no risk to battery life.

When over discharged, the Enlight Lead Crystal battery will recover to normal.

The Enlight Lead Crystal batteries recharge up to 2 times faster than competitive products.

The Enlight Lead Crystal batteries have no risk of thermal runaway.

The Enlight Lead Cystal Batteries can Operates in  $-40$  to  $+65^{\circ}\text{C}$  temperatures and stringent environmental conditions without loss of performance.

The Enlight Lead Cystal Batteries have longer life time than the other competitive products.

The Enlight Lead Cystal Batteries lower operating costs and have Improved service quality

The Enlight Lead Cystal Batteries reduces your carbon footprint and support hybrid power sources and systems.

“  
longer  
life time

# PRODUCT IMAGES



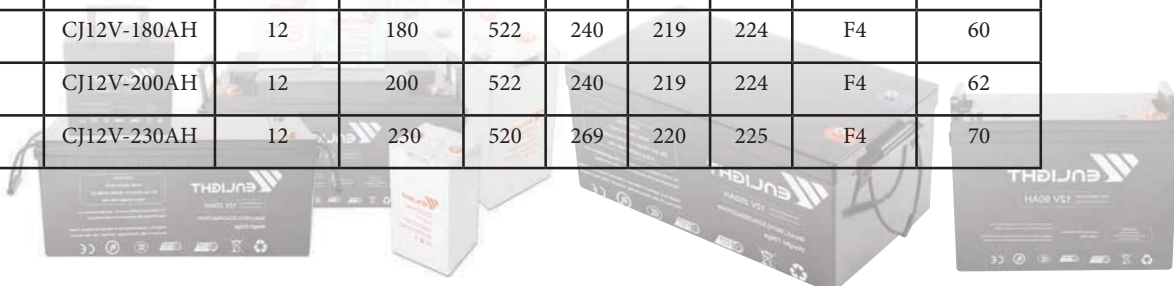
# DATA SHEET

## FT Series - 12V Front Terminal Telecom, UPS and Industrial application

Sr.	Catalogue Reference	Voltage (V)	10hr Capacity	Dimensions in mm (±2)				Standard Terminal	Weight/Kg
				L	W	H	TH		
1	FT12V-55	12	55	277	106	223	228	F9	16.8
2	FT12V -90	12	95	390	108	286	286	F9	34.5
3	FT12V -100	12	100	560	125	228	228	F8	34.5
4	FT12V -170	12	170	546	125	320	320	F8	50.0

## CJ Series - 12V Series for UPS, Telecom, Energy, Solar, Industrial application

Sr.	Catalogue Reference	Voltage (V)	10hr Capacity	Dimensions in mm (±2)				Standard Terminal	Weight/Kg
				L	W	H	TH		
1	CJ12V-4AH	12	4	90	70	101	106	F1	1.6
2	CJ12V-7.2AH	12	7.2	151	65	94	102	F2	2.25
3	CJ12V-8.5AH	12	8.5	151	65	94	102	F2	2.55
4	CJ12V-10AH	12	10	151	99	94	100	F5	3.5
5	CJ12V-12AH	12	12	151	99	94	100	F5	4.15
6	CJ12V-14AH	12	14	151	99	98	102	F5	4.35
7	CJ12V-20AH	12	20	181	76	167	167	F6	5.9
8	CJ12V-22AH	12	22	181	76	167	170	F6	6.9
9	CJ12V-24AH	12	24	175	166	125	125	F6	7.8
10	CJ12V-28AH	12	28	175	166	125	125	F6	8.7
11	CJ12V-35AH	12	35	222	105	175	175	F6	11
12	CJ12V-40AH	12	40	196	166	176	176	F3	13
13	CJ12V-45AH	12	45	222	120	175	175	F7	12.5
14	CJ12V-55AH	12	55	229	138	210	215	F3	16.9
15	CJ12V-65AH	12	65	350	166	175	175	F4	21
16	CJ12V-70AH	12	70	260	169	216	220	F3	22.5
17	CJ12V-90AH	12	90	306	174	206	240	F3	28
18	CJ12V-100AH	12	100	327	172	206	210	F3	31.5
19	CJ12V-120AH	12	120	408	174	211	234	F4	36.5
20	CJ12V-160AH	12	160	532	207	215	220	F3	50
21	CJ12V-180AH	12	180	522	240	219	224	F4	60
22	CJ12V-200AH	12	200	522	240	219	224	F4	62
23	CJ12V-230AH	12	230	520	269	220	225	F4	70



## TJ Series – 2V Batteries for Telecom and Energy sector

Sr.	Catalogue Reference	Voltage (V)	10hr Capacity	Dimensions in mm (±2)				Standard Terminal	Weight/Kg
				L	W	H	TH		
1	TJ2V-100AH	2	100	172	72	205	210	F3	5.8
2	TJ2V-150AH	2	150	172	102	205	227	F8	8.2
3	TJ2V-200AH	2	200	172	110	330	335	F4	13.5
4	TJ2V-300AH	2	300	175	155	330	335	F4	22.0
5	TJ2V-400AH	2	400	210	175	330	335	F4	28.0
6	TJ2V-500AH	2	500	241	175	330	335	F4	31.0
7	TJ2V-600AH	2	600	301	175	330	335	F4	38.0
8	TJ2V-800AH	2	800	412	175	330	335	F4	55.0
9	TJ2V-1000AH	2	1000	480	175	330	335	F4	65.0
10	TJ2V-1500AH	2	1500	400	351	340	345	F4	98.5
11	TJ2V-2000AH	2	2000	491	351	342	347	F4	125
12	TJ2V-2500AH	2	2500	491	351	342	347	F4	141.5
13	TJ2V-3000AH	2	3000	712	351	341	346	F4	192.0

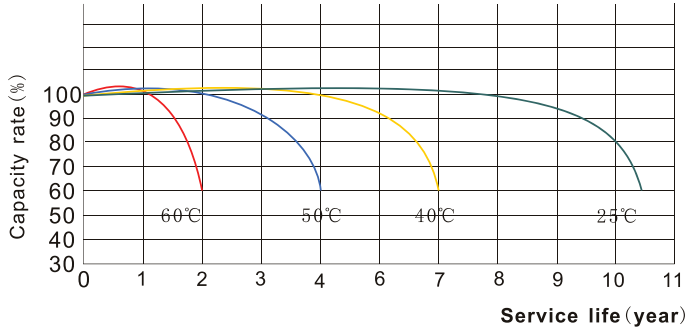
## EJ Series – 6V Electric Vehicle and General application

Sr.	Catalogue Reference	Voltage (V)	10hr Capacity	Dimensions in mm (±2)				Standard Terminal	Weight/Kg
				L	W	H	TH		
1	EJ6V-4AH	6	4	70	47.5	100	105	F1	0.7
2	EJ6V-7.2AH	6	7.2	151	35	94	102	F2	1.2
3	EJ6V-10AH	6	10	151	50	94	100	F2	1.9
4	EJ6V-12AH	6	12	151	50	94	100	F2	2.1
5	EJ6V-160AH	6	160	298	172	227	230	F3	25.0
6	EJ6V-180AH	6	180	306	168	222	225	F8	28.0
7	EJ6V-200AH	6	200	323	178	226	230	F10	30.5

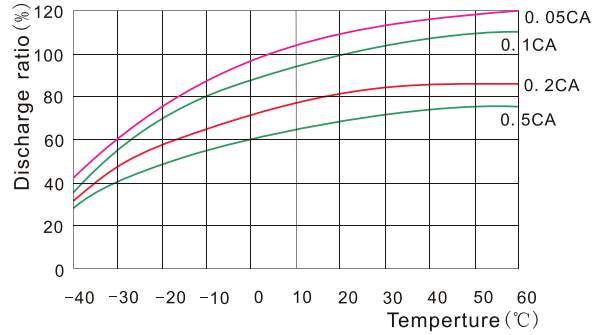


# TECHNOLOGY PARAMETERS

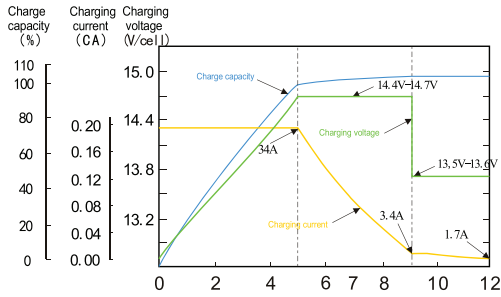
## Temperature and Float Service Life



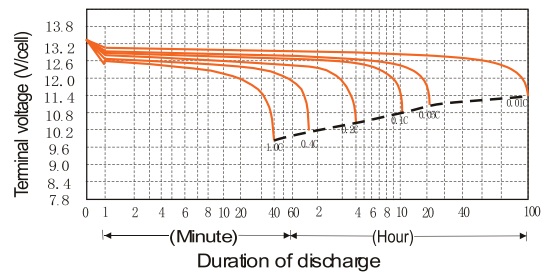
## Temperature and Discharge Capacity



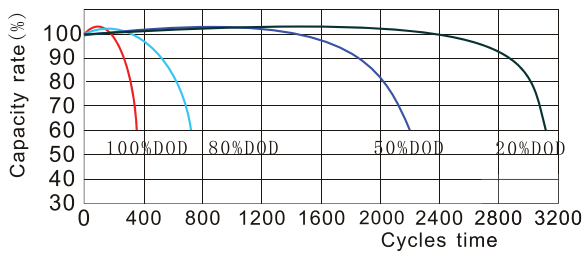
## Charge Characteristics 77F



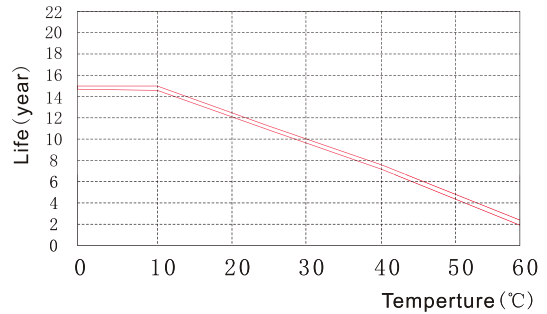
## Discharge Characteristics 77F




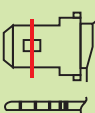

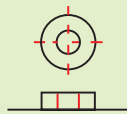




## Cycle Life Curves (25°C)



## Float Service Life



# BATTERY TERMINAL DETAILS

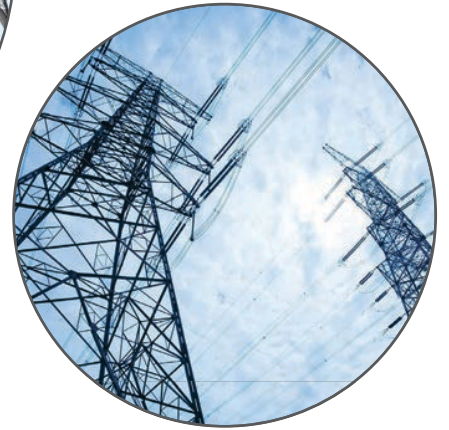
S.N.	TERMINAL TYPE	S.N.	DESCRIPTION
1	F1	187	
2	F2	250	
3	F3	Ø16xM6	
4	F4	Ø20xM8	
5	F5	Ø8xM5	
6	F6	Ø10xM5	
7	F7	Ø12xM6	
8	L1	RV 2.5mm	
9	L2	RV 4.0mm	
10	L3	RV 6.0mm	

# CATEGORY CONTRAST

Item	Lead Acid	Gel	Enlight Lead Crystal	Lithium	Better Choice
Working temperature	-18°C to +50°C	-18°C to +50°C	-40°C to +65°C	-20°C to +65°C	Enlight Lead Crystal
Useful life	2-3 years	3-4 years	7-10 years	7-10 years	Enlight Lead Crystal
Environment	Not friendly	Not friendly	Friendly	Friendly	Enlight Lead Crystal & lithium
Safety & transportation	Hazardous	Not so Safe	OK	OK	Enlight Lead Crystal & lithium
Discharge cycles at 80%	450	500	1000	1000	Enlight Lead Crystal & lithium
Discharge ability at high current	Not good	Not good	Good	Normal	Enlight Lead Crystal
Work ability as a battery pack	Ok	Ok	Good	Normal	Enlight Lead Crystal
Cost	Low	Lower	Slightly higher than gel	Much higher than gel	Lead Acid



# APPLICATION FIELD



Due to continuous product improvement, all specifications are subject to change without prior notice. Any picture provided is for representation purpose and actual product may be different.



Enlight is a registered trade mark of M/s Newstar Investments Limited

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