

Corporate Information



ENAX, INC.

February, 2011

Ver. 203



Company Profile

02 ■ Corporate philosophy

“We, Enax, focuses on the the safe and high quality Li-ion batteries which is loved and admired by our stakeholders, and contribute to construction of the society with mobility and convenience.”



President & CEO Kazunori Ozawa, Ph.D.



<Tokyo Head office>
8F Otowa KS Bldg.,2-11-
19 Otowa Bunkyo-ku,
Tokyo 112-0013



<Yonezawa Laboratory>
2474-1 Kubota, Kubota-cho
Yonezawa-shi,
Yamagata 992-0003



<Hachinohe Factory>
2-9-15 Kikyono Kogyodanchi
Hachinohe-shi,
Aomori 039-2246



<New LSB Factory>
Tokoname, Aichi
From March 2011



<Saitama Technical Center>
3-19-13 Higashibenzai Asaka-shi,
Saitama 351-0022

<Sendai Office>
302-3-15-3 Izume Chuou Izumi-
ku Sendai-shi,
Miyagi 981-3133

■ Global Network : Overseas Affiliate Companies & Office

Name	Enax (Anqiu) New Energy Co.,Ltd (安丘)	Shuang Yi Li(Tianjin)New Energy Co.,Ltd (双-力)		Enax Europe GmbH
Address	Anqiu Shandong China	Tianjin China		Munster ,Germany
Capital	US\$2,500,000.00	Yuan 40,800,000		€ 25,000
Owner's interest	100.00%	5.51%		80.00%
Another Stock Holder	-	Dai-ichi Kogyo Seiyaku Co.,Ltd	Tianjin Yiqing	Jan-Steffen Lang
Voting right	-	50.00%	44.49%	20.00%
Established	Mar 2004	Mar 2005		Aug 2007
Commencement of Operation	Jun 2005	Oct 2005		Aug 2007
Activities	Li-ion Battery electrode manufacturing	Li-ion Battery manufacturing,assembly,packing		Business activities in Europe



ENAX Main Business Field

- I. Laminated Sheet Battery (LSB)
- II. Power Battery
- III. Li-ion rechargeable battery production Equipment, Materials
and/or Consulting service

■ I. Laminated Sheet Battery

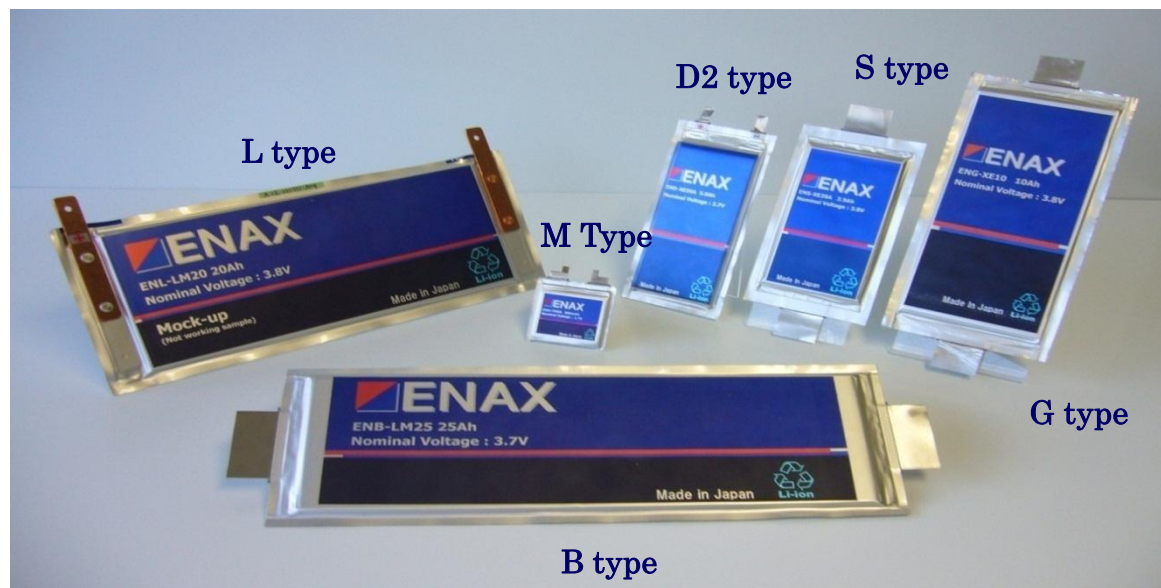
■ Laminated Sheet Battery(LSB)

- Development and manufacturing of Lithium Ion Batteries for automotives and other power unit and relating business.
By spending first 10 years for developing core technologies, we established good reputation as a high performance LIB company and partnership with major companies.
- LSB is expected to be used in automotive (EV and HEV), e-bike, construction machine, power tool as a high performance power source.

【Feature of technology · Domination】

- ① High safety
- ② Five kinds of electrode materials recipes are developed for different applications.
- ③ Laminate type can be less weighted and small sized
- ④ Quick full re-discharging longer cycle life
- ⑤ Quick charging

I. ENAX LSB Cell Line-up (currently available)



	Type	Part No.	Capacity	Dimension (mm)L×W×H	Weight	Specific characteristics
High energy Type	S type	ENS-XE36	3.6Ah	86 × 160 × 5.5mm	0.105kg	High Capacity
	D2 type	D2-50EC-L	5.0Ah	78 × 165 × 6.1mm	0.118kg	
	G type	ENG-XE10	10Ah	99 × 225 × 6.4mm	0.260kg	
	L type	ENL-LM20	20Ah	325 × 156 × 7.5mm	0.570kg	
	B type	ENB-LM25	25Ah	342 × 118 × 7.5mm	0.570kg	
High Power Type	S type	ENS-XP20	2.0Ah	86 × 160 × 5.0mm	0.109kg	Low - temperature characteristics High Power
	M type	ENM-XP08	0.8Ah	50 × 55 × 6.0mm	0.027kg	

Remark : Rate Capability 3C(maximum 5C 10~30sec) *Power type 20C

■ II. Power Battery : Currently available

■ Power Battery (PB)

Power Battery is a battery pack of 18650 type Li-ion rechargeable cells.

We develop, manufacture, and distribute Power Battery, which applies to laptop computers, digital cameras, or specific uses such as submarines and robots.



Power Battery HEVA



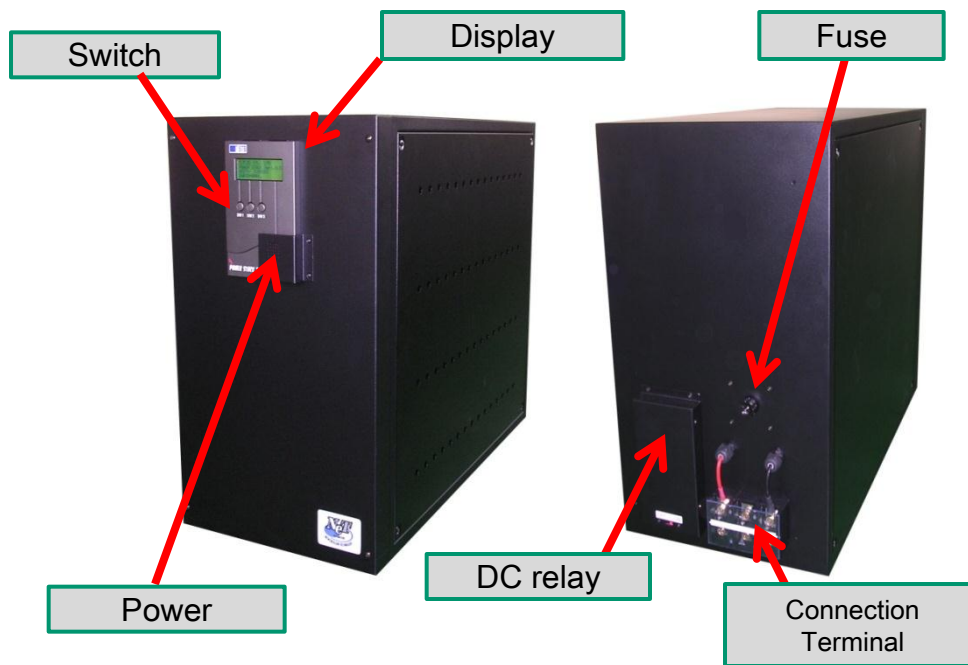
Power Battery

■ II. Power Battery : Large Capacity Storage System for Industrial use (New release)

- ENAX Power Stack Series (Tentative Name) Appearance



Rack type



Standard type

■ II. Power Battery : Large Capacity Storage System for Industrial use (New release)

● Applications

- Power storage system for communication, electric power, security instruments
- Power storage system for Alternative energy, renewable energy (Solar power, Wind power, Hydroelectric, Bio-mass etc.)
- Power storage system for back-up power
- Power source for any machinery that needs DC power
- Power storage for UPS (small, middle, large size)





Applications

< Electric Vehicles >

- I. Tram
- II. Hybrid Electrical Vehicle (HEV)
- III. Plug-in Hybrid Electrical Vehicle
- IV. Electric Bus
- V. Brush Cutter
- VI. Battery-Assisted Bicycle
- VII. Electric Bicycle
- VIII. Motor Sports Car

< Mobile Gear >

Quick-charge Batteries

< Grid connection >

Grid Connection Facilitate Storage System

Requirements:

- High acceleration for a few minutes
- High amount of energy to run fairly long distance
- Development of a special cathode material: LiMn_2O_4



Tram

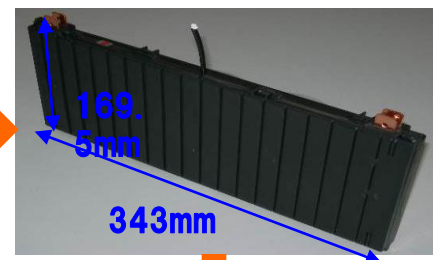
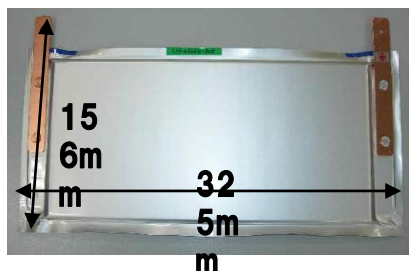
Dimension	17.84m (L) × 2.75m (W) × 3.982m (H)
Weight	30.3t
Electric Motor	80kW DC motor × 4

Battery

Dimension	1.8m (L) × 1.5m (W) × 1m (H)
Total Weight	600kg
Total Voltage	615.6V (average)
Cell Connection	162Series 12Parallel
Charge rate	2C

Running Data

Running Distance	20Km
Maximum Speed	70Km/H



■ II. Hybrid Electric Vehicle(HEV)

The following system has been selected:

Battery pack:

Nominal Operating Voltage: 144V

Cell connection: 40s3p

Cell:

Dimension: 76mm x 148mm x 5,2mm

Capacity: 2 Ah

Weight: 110g

Better performance compared with the NiMh battery because of the lower internal electric resistance

Cathode Materials:

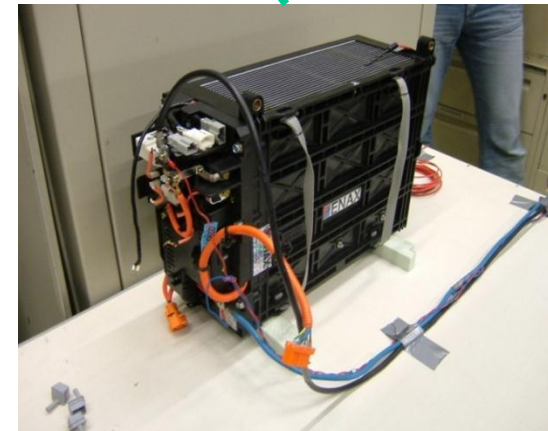
Mixture of $\text{LiNi}_{1/3}\text{Co}_{1/3}\text{Mn}_{1/3}\text{O}_2$ and modified LiMn_2O_4

Anode Material:

Amorphous carbon

Separator:

SEPARION



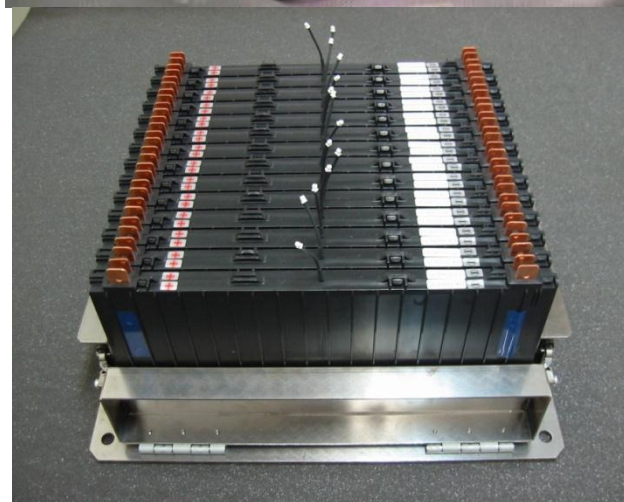
014 ■ III. Plug-in Hybrid Electrical Vehicle

Requirements:

- High energy
- High power
- Lower increase of temperature during charging and discharging

Developed 20Ah cell makes a low connection resistance possible.

New Charging System



015 ■ IV. Electric Bus

Requirements:

- High power for a steep road
- High acceleration for a few minutes
- High amount of energy to run fairly long distance
- Development of a special cathode material: LiMn_2O_4



Bus

Weight	4.6t
Capacity	29people

Battery

Cell Capacity	ENAX W-size 8.6Ah
Module	6modules
Total Weight	480kg (80kg/module)
Total Voltage	615.6V (average)
Cell conection	162Series 12Parallel (15S18P/module)
	BMS inside

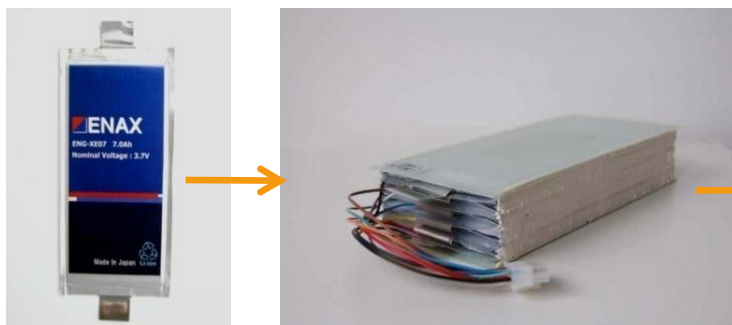
Running Data

Running Distance	105Km
Maximum Speed	90Km/ H



This battery-assisted bicycle has ENAX Li-ion battery pack under its book rack on the back.

Gazelle Orange Innergy
graphite / platinum



The battery pack :

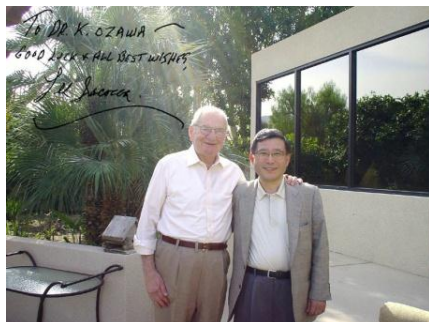
Nominal Operating Voltage : 38V

Cell connection : 10S1P

Cell :

Capacity : 7Ah

This electric bicycle “E-bike” is powered by ENAX Li-ion battery, and designed by Mr. Lee Iacocca.



LSB



Battery Pack



ENAX Li-ion battery is used as a starter battery of this motor sports car.

Battery Pack :

Nominal Operating Voltage : 14.8V

Cell connection : 4S5P

Weight : ~2.5kg



Lotus motor sports car

Cell :

Dimension : 76mm×148mm×5.2mm

Capacity : 2Ah



Cell for the starter battery

019

Hokuriku Electric Power Co

Shiga Wind-Power-Solar-Power Center

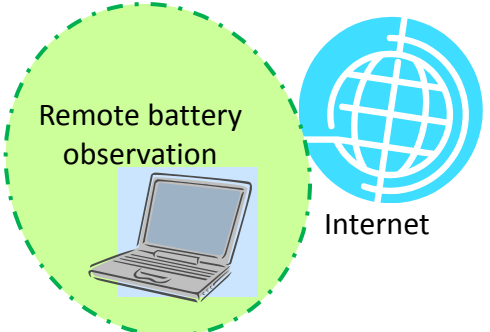
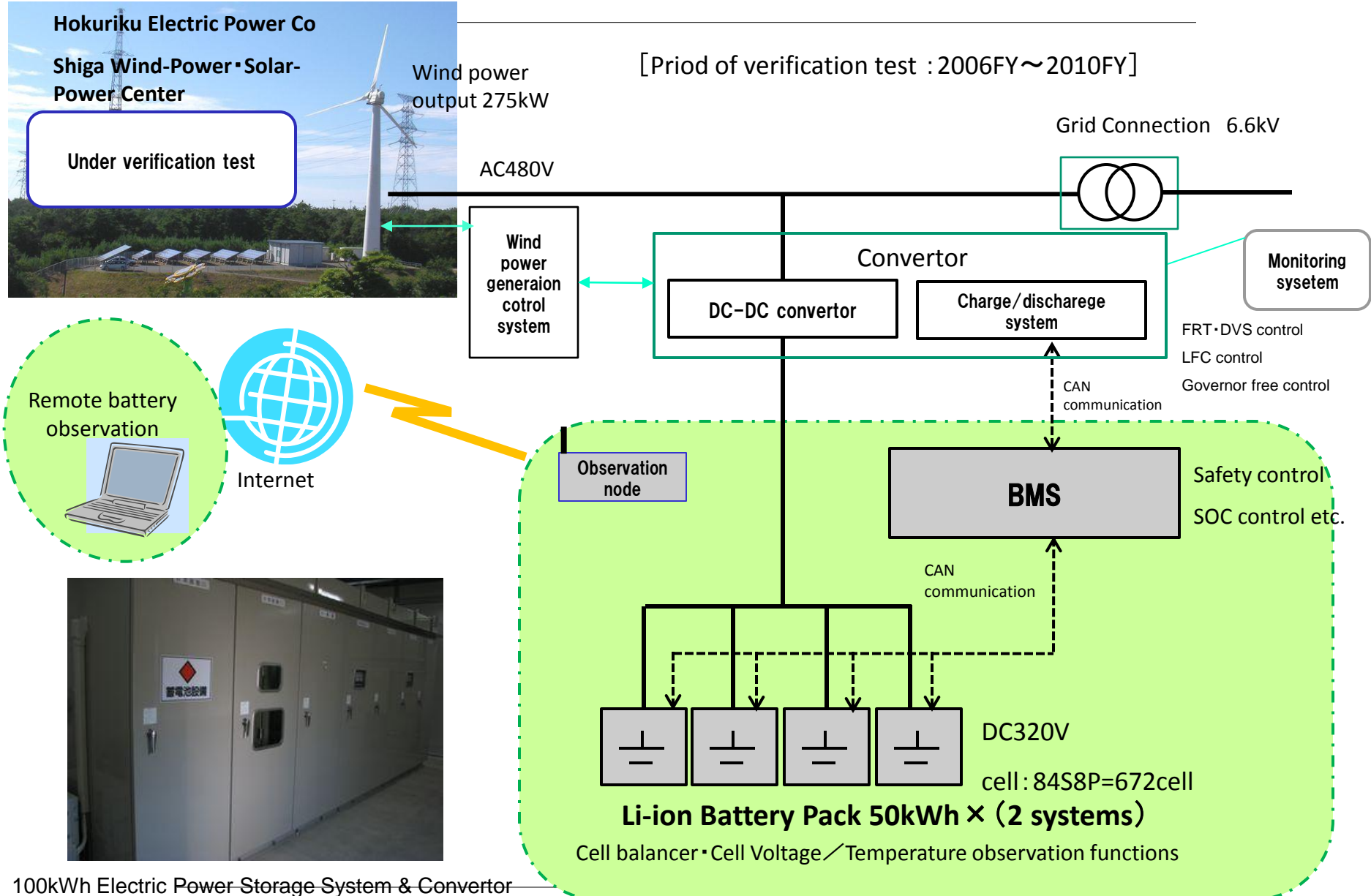
Wind power output 275kW

[Period of verification test : 2006FY~2010FY]

Under verification test

AC480V

Grid Connection 6.6kV





Movement to the next stage

Our activities at New Facility
with Strategic Items.

■ New LSB Factory (ENAX Chubu Lab & Plant)

Image Picture



This new facility will commence its operations from April 2011 at Tokoname, Aichi Pref. Japan

Where new large capacity LSB sells (50 Ah cell and larger ones) will be produced as ENAX LSB Factory.



As of beg. Feb. 2011

And
Major part of ENAX Advanced Technology Laboratory will be relocated from Yonezawa.

■ Our Strategic item is planned in mass-production at chubu plant

**【High Capacity 50Ah LSB Cell】
for industrial market**

- New 50Ah LSB Cell is already completed in design.
- Started our sample supply to some automobile manufactures.

【Specifications】

- Capacity ; 50Ah
- Voltage ; 3.7V
- Dimensions ; 200×210×12mm
- Energy density ; 162Wh/kg

【Unique features】

- Low materials cost (due to large sized
- Assembly process and costs are almost same as smaller sized cell's
- Packaging costs to be similar to small cell's.

【Merit at volume production】

- High yield rate

Thanks to

- ① Thick film ceramic separator
- ② no-bent at seal portion



50Ah Cell



50Ah cell pack