



BEIYANG[®]

—⚡— Never slacken, Strive for first-class —⚡—

**Weihai Beiyang Optoelectronics
Information Technology Co., Ltd**



Founded

- **2013**

State-controlled joint stock company

A high-tech enterprise specializing in the R&D, production, and sales of optical fiber sensing, RFID, and new energy series products. Products are widely used in petroleum & petrochemicals, smart grid, digital ports, big data security, smart library, smart archives, smart campus, and other fields.

Registered Capital

- **40 million** RMB

Registered Capital

Industry Position

- **10+** years

Core IoT Technology Accumulation

- **110+** people

Employee Team

- **In 2012**

Fiber optic sensing technology won the 'National Technology Invention Second Prize,' filling a domestic gap

1988

Former "Weihai Electronic Industry Bureau" established "Weihai Machinery & Electronics Industrial Company".

1994

Renamed "Weihai Beiyang Electric Group Co., Ltd."

2006

The Group researched and explored RFID and optical fiber sensing products and technologies.

2009

The Group defined the direction of core IoT perception technologies and products. Established the "Optical Fiber Sensing Technology Joint Research Center" with China Jiliang University.

2011

The Group established two business divisions: Optical Fiber Sensing and RFID

2012

Optical fiber sensing technology won the "National Technology Invention Award (Second Class)"

2013

The Group's Optical Fiber Sensing division became independent, establishing Weihai Beiyang Optoelectronics Information Technology Co., Ltd. for independent operation.

2015

Recognized as Shandong Provincial Software Engineering Technology Center

2016

Beiyang Optoelectronics absorbed the Group's RFID division, forming two major business segments: RFID and Optical Fiber Sensing

2017

Recognized as Shandong Provincial "One Enterprise, One Technology" R&D Center

2018

Rated as one of Shandong Province's Top 100 High-Tech Enterprises for Innovation Capability. Recognized as Shandong Provincial Engineering Technology Research Center

2019

The Weihai Archives Center, co-built by Beiyang Optoelectronics, won the National High-Quality Project Award

2021

Selected as a council member of the Shandong Archives Society

2022

Successfully hosted the Taishan Science and Technology Forum & Archives Science and Technology Application Innovation Development Forum

2023

Laid out new energy direction and businesses such as residential energy storage. Selected as a council member of the 9th China Archives Society



Second Prize of National Technological Invention Award

Novel distributed fiber optic temperature sensing technology and engineering security monitoring application based on Raman scattering-Filling a domestic gap

Third Prize of Shandong Provincial Science and Technology Progress Award

Ultra-long-distance intrusion security real-time monitoring system based on laser Rayleigh interferometry



Other National and Provincial Awards

National Excellent Project Award

Third Prize of Shandong Provincial Archives Excellent Scientific and Technological Achievement Award

Third Prize of China Ports Association Science and Technology Progress Award

First Prize of Weihai Municipal Science and Technology Award

Intellectual Property Status

8 items

Participated in drafting 8 national or industry standards

44 items

Holds 44 authorized patents, including 20 invention patents

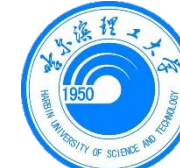
67 patents

67 software copyrights

National level	National recognized enterprise technology center
Provincial level	1. Shandong Provincial Engineering Technology Research Center 2. Shandong Provincial Software Engineering Technology Center 3. Shandong Provincial Marine Engineering Technology Collaborative Innovation Center 4. Shandong Provincial "One Enterprise, One Technology" R&D Center 5. Shandong Provincial Information Application and Monitoring Equipment Engineering Technology Research Center
Workstation	Shandong Provincial Academician Workstation
Laboratory	1. Shandong Provincial Key Laboratory of Fiber Optic Intelligent Sensing Technology 2. Shandong Provincial Model Worker and Craftsman Talent Innovation Studio



Industry-
University-
Research
Cooperation

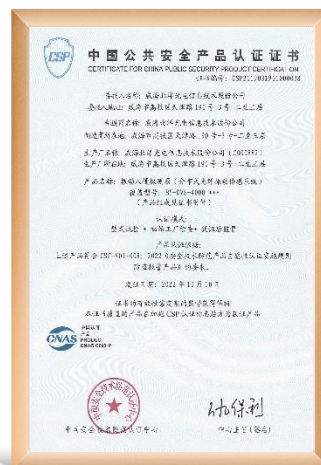




- Information System Security Integration Service Qualification
- Security Engineering Enterprise Design, Construction, and Maintenance Qualification
- Electronic intelligent Professional Contracting Qualification
- Double-Soft Enterprise
- High-Tech Enterprise
- ISO9001 Quality Management System Certification
- ISO14001 Environmental Management System Certification
- ISO45001 Occupational Health and Safety Management System
- Enterprise Abiding by Contracts and Honoring Credit
- Excellent incubation Enterprise
- Level 3 Safety Production Standardization
- Designated Enterprise of Shandong Provincial Archives Association
- Member of China Security and Protection industry Association
- Member of Shandong Provincial Software and information Service Industry Association
- Weihai City All-Staff Innovation Enterprise



DTS Fire Protection Product Certification



DVS Public Security Product Certification



OVS Public Security Product Certification



DTS Explosion-proof Certificate



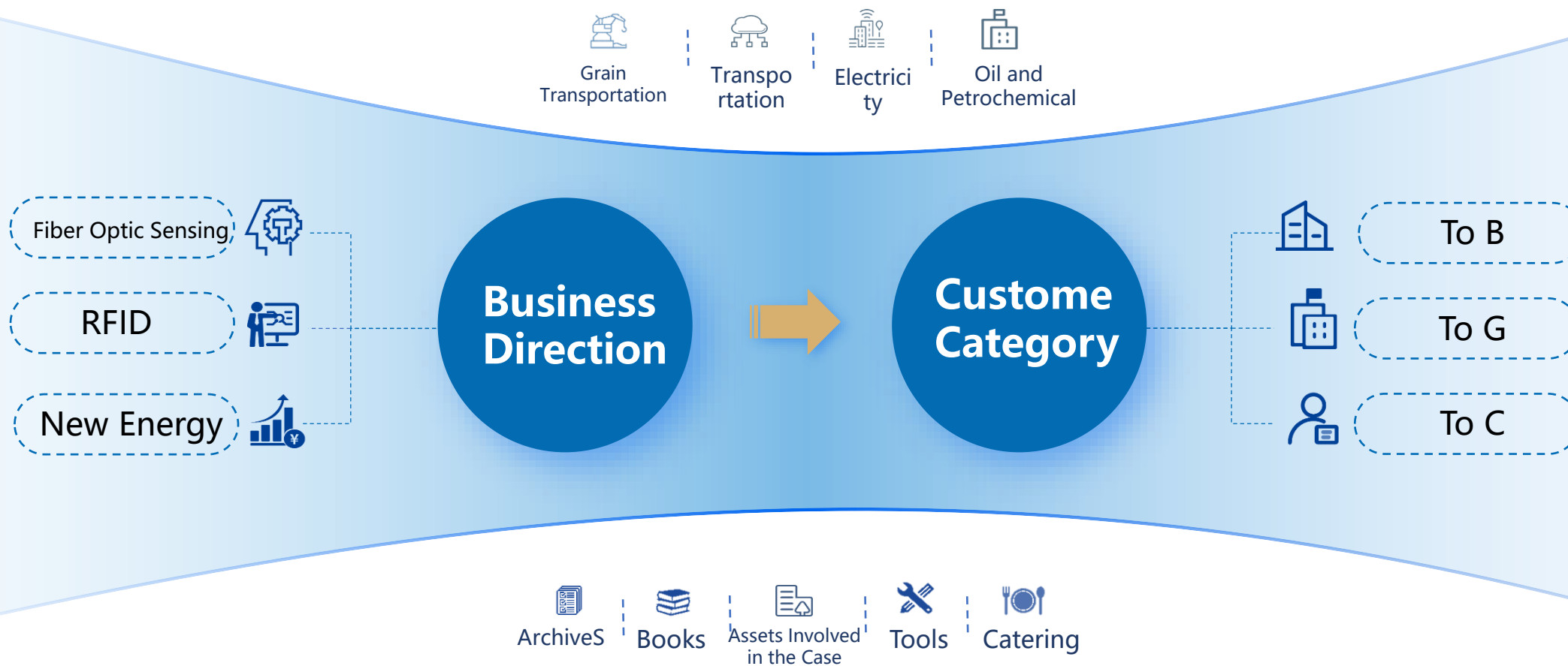
DVS Explosion-proof Certificate



Electromagnetic Compatibility Certificate



Laser Safety Level Certificate



Microgrid application solution

Industry Applications

Technical Foundation

Construction of distributed photovoltaic power stations



industrial and commercial rooftop photovoltaics

Rural rooftop photovoltaics

Household storage products



Stackable Integrated Split-type

Construction of industrial and commercial energy storage power stations



integrated liquid cooled energy storage system

Big data and high concurrency distributed cloud platform technology

Intelligent monitoring technology

Battery SOC Core Algorithm



Smart Photovoltaic System



Household energy storage system



Industrial and commercial energy storage system

Household solar energy storage system=household energy storage + photovoltaic modules=cleaner energy supply system

Household photovoltaic-storage systems mainly include photovoltaic (PV) modules, energy storage inverters (PCS), and energy storage battery packs. its core is photovoltaic (PV) modules + energy storage inverters + energy storage batteries.

Intelligent and efficient energy management

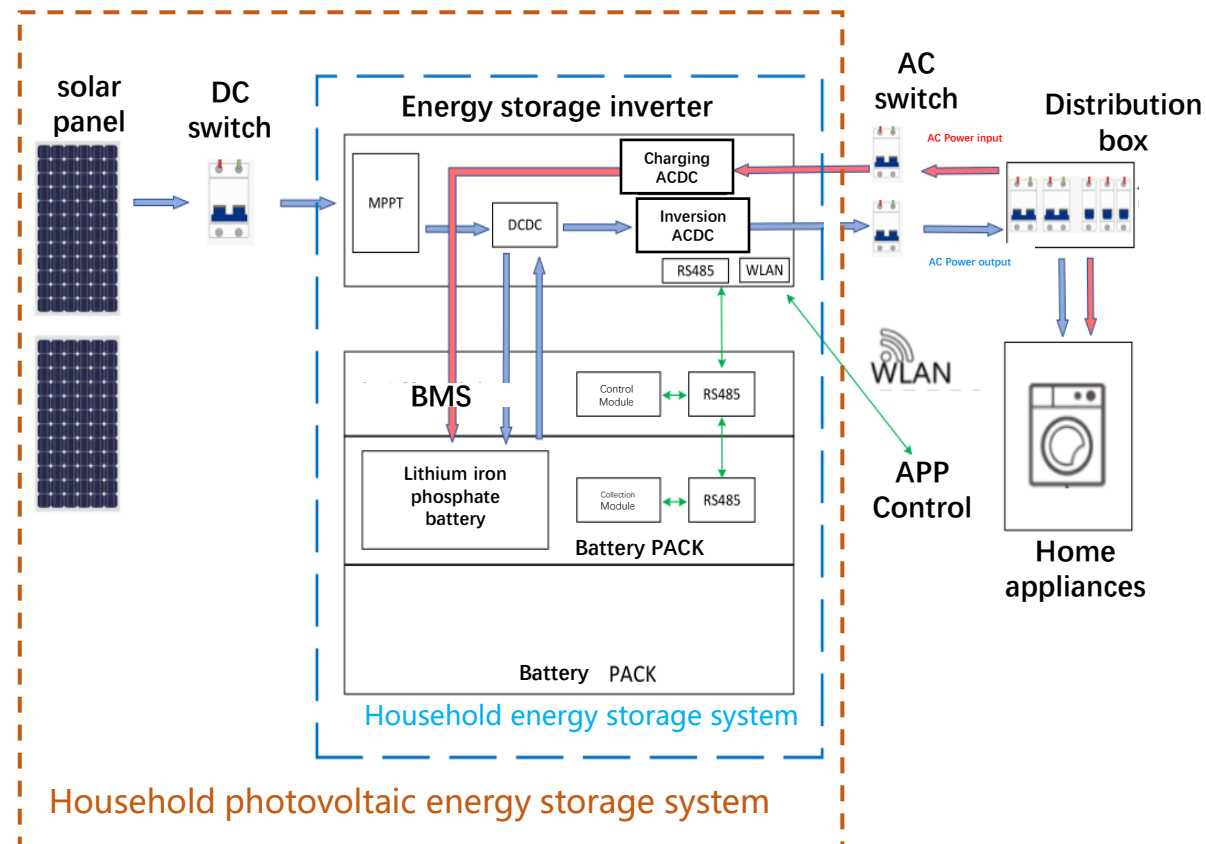
Equipped with intelligent energy management function, it can intelligently allocate and adjust electricity according to the household's demand, improve energy utilization efficiency, and reduce energy costs.

Multiple charging modes to meet different needs

Supporting grid access, it can also effectively store solar renewable energy and provide stable power supply during peak demand periods or grid failures, ensuring the normal electricity demand of households.

Advanced lithium-ion battery technology

Integrated high-performance lithium iron phosphate battery, with advantages such as high energy density, long lifespan, and fast charging, supporting multiple charging and discharging strategies.



Household energy storage products

- ◆ It has an independently developed BMS algorithm with a SOC accuracy of $\leq 5\%$; the BMS has functions such as battery over-discharge, overload, over-temperature, and short-circuit protection.
- ◆ Features multiple mode settings; priority levels for photovoltaic, mains power, and battery can be set via the LCD screen.
- ◆ Output pure sine wave, suitable for various types of loads



Integrated

Integrating the inverter, battery management system, and battery pack into one compact casing for easy installation and maintenance.

Home
backup
power supply



Stackable

Adopting modular design, including battery modules and inverter modules, which can be expanded according to electricity demand.

Green,
intelligent,
low-carbon



Split-type

It includes two parts: an inverter and an independent power unit, which are connected to achieve the construction of a household energy storage system.

renewable
Energy
integration

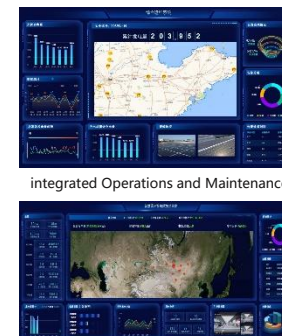
Smart Energy Management Platform



Smart Energy Management Platform



Smart Photovoltaic

Residential
energy storage

data panorama

commercial and
industrial energy storage

The Beiyang Smart Energy Management Platform relies on the "Beiyang Industrial Internet of Things Platform(IoT)" for technical support and leverages the cloud computing advantages of "Beiyang Cloud" to integrate key links in "source-grid-load-storage-charging, achieving intelligent coordination and efficient interaction between subsystems.

Refined Energy Management

Energy Scheduling

AI computing power assists in energy
consumption prediction and warning

Intelligent Operations
and Maintenance

Intelligent equipment control

Multi-scenario energy management

Market
layout

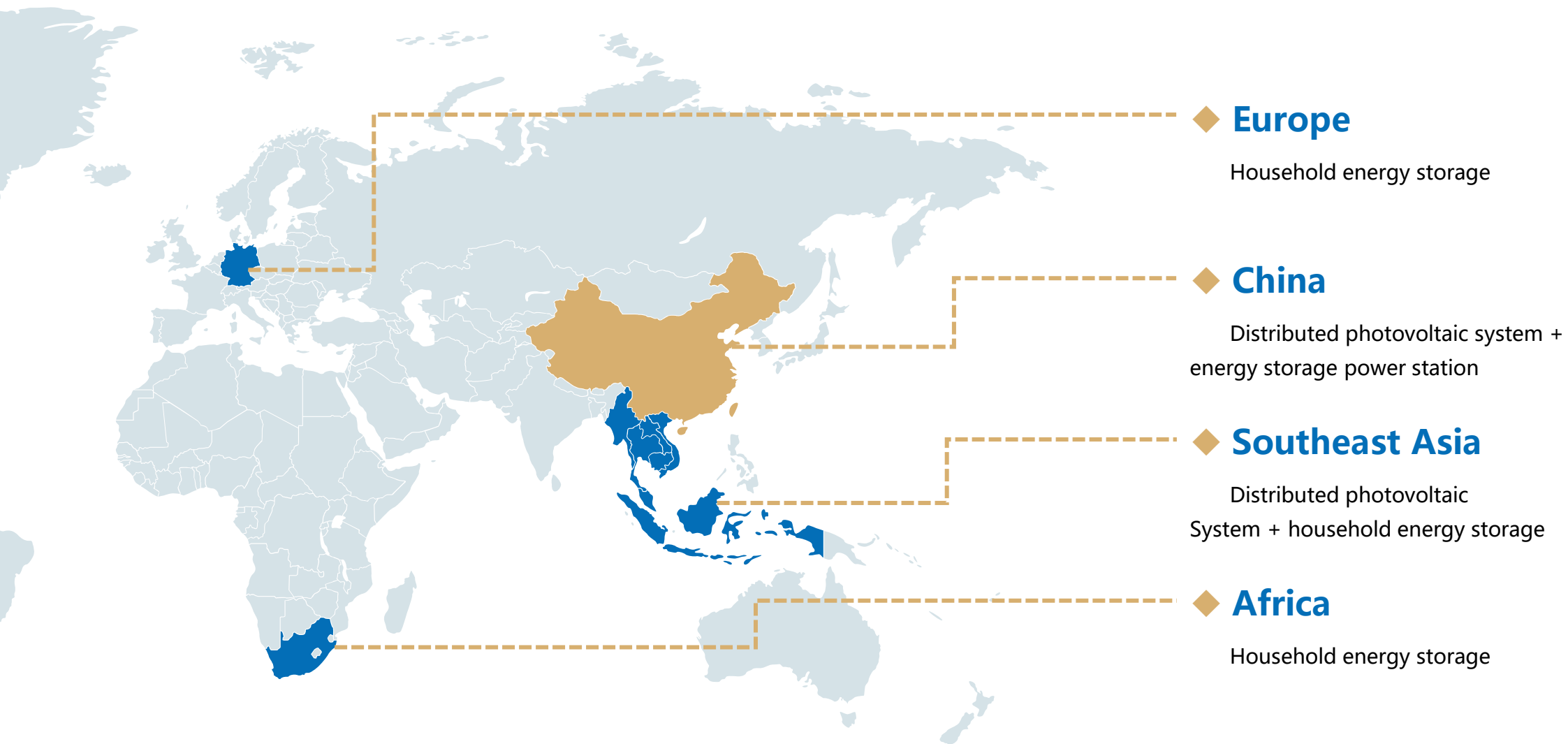
Europe
Household energy storage

China

Distributed photovoltaic system +
energy storage power station

Southeast Asia

Distributed photovoltaic
System + household energy storage



Intelligent Management Solution for Refined Items

Industry Applications

Technical Foundation



Book Exchange Cabinet



City Shared Bookshelves



Barrier-Free Access



Intelligent Bookshelves

BOOKS

Catering

Archives

Assets Involved in the Case

Controlled Tools

Circulation Management

Warehouse Management



Municipal Archives



RFID File Box Management



Intelligent Tool Management Cabinet



RFID Smart Compact Shelving

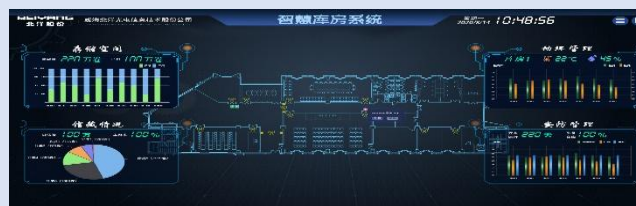
Data Analysis and Judgment Technology

Automation Control Technology

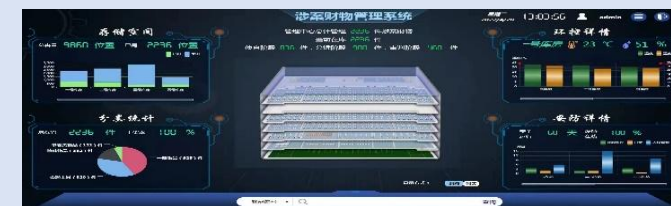
RFID Identification Technology



Smart Library Management System

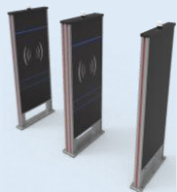


Smart Warehouse Management System



Management system for items involved in criminal cases

Barrier-Free Access



BY-RR5245III
Access Control and Time
Attendance Machine



BY-RR5224V
Conference Access Control
System



BY-RR5283V
Library Security Doors



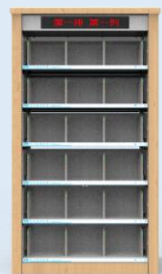
HT502
Library Security Doors



HT504
Library Security Doors

- ◆ Library and Archives Security
- ◆ Personnel check-in and attendance without feeling affected

Library Management



Intelligent
Bookshelves



Book Exchange
Cabinet



Self service book borrowing
and returning machine

Archives Management



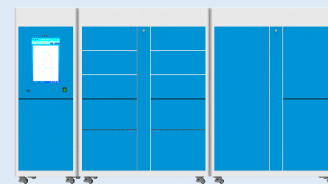
Mobile inspection
vehicle



Intelligent dense rack

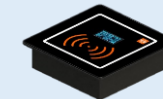
- ◆ Just ask and get
- ◆ Incorrect position alert
- ◆ Unauthorized warning

Item Management

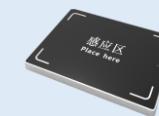


Intelligent management
cabinet

Smart Catering



Integrated
Dispenser



Anti-metal Settlement
All-in-One Machine

Platform Software



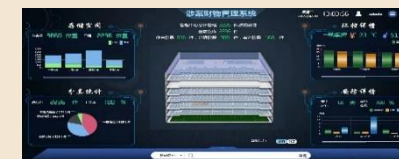
Smart Warehouse Platform



Integrated security platform



Smart Library Platform



Property management platform involved
in the Case

Smart book/archive construction

10+ Municipal-level Library/Archives Awards

1. Weihai Library/Archives has won the highest award for engineering construction quality in China, the "National Quality Engineering Award". National Demonstration Digital Archive. Shandong Province Excellent Scientific and Technological Achievement Award for Archives. Research Award for Intelligent Protection of Archive Security.
2. Guiyang Municipal Archives is a National First-Class Comprehensive Archives
3. Jining Municipal Library/Archives
4. Liaocheng Municipal Archives

10+ items of books/archives In enterprises/institutions

1. Excellent case of innovative management of enterprise archives in Sichuan Province of Luzhou Laojiao Company. Pilot unit for the construction of enterprise digital archives in Luzhou City.
2. State Grid Beijing Yizhuang/Wenzhou/Yangzhou/Hefei Electric Power Bureau
3. Forestry Department of Hunan Province
4. Yulin Chemical Company of Shaanxi Coal Group
5. Weihai High tech Holding Group
6. Party History Office of Weihai Municipal Committee of the Communist Party of China
7. Organization Department/Discipline Inspection Commission of Wendeng District Committee, Weihai City...

30+ books/archives at the district and county level

1. Huancui District/Gaoqu District/Jingqu District/Lingang District/Rushan City Library/Archives, Weihai City, Shandong Province
2. Boshan District/Huantai County/Gaoqing County/Yiyuan County Archives in Zibo City, Shandong Province. Gaoqing County Archive scored 87.05 points (the highest score among county-level archives in the province) and passed the evaluation of the National Digital Archives
3. Laishan District/Laizhou City Archives, Yantai City, Shandong Province
4. Archives of Weicheng District/Gaomi City, Weifang City, Shandong Province
5. Archives of Luozhuang District, Linyi City, Shandong Province
6. Archives of Leling City/Linyi County/Qihe County, Dezhou City, Shandong Province
7. Dongchangfu District/Guan County/Gaotang County Archives. Liaocheng City, Shandong Province
8. Shan County Archives, Heze City, Shandong Province
9. Jizhou District Archives of Tianjin City
10. Fan County Archives, Puyang City, Henan Province
11. Archives of Dingxiang County, Xinzhou City, Shanxi Province...

Succe
ss
cases

Monitoring and control of Major Infrastructure

Industry Applications

Technical Foundation

Belt Conveyor Temperature Measurement

Tank Top Fire Protection LNG Perlite Settlement Monitoring

Perimeter Security for Key Areas

Pipeline Fiber Optic Early Warning

Fiber Optic Temperature Measurement Technology

Port Grain and Ore

Energy Storage

Industrial Parks and Factory Area

Energy Transportation

Fiber Optic Vibration Technology

Fiber Optic Acoustic Technology

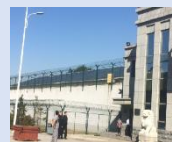
Neural Network Algorithm



Temperature Measurement of Hot Spots on Belt Conveyors in Ports and Storage Centers



Tank Top Fire Protection, LNG Perlite Settlement Monitoring



Perimeter Security for Key Areas such as Industrial Parks and Factory Areas



Long-Distance Pipeline intrusion Monitoring



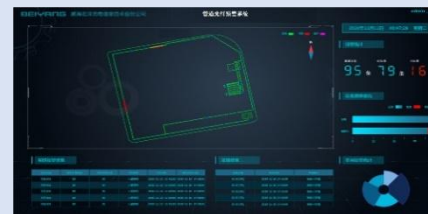
Belt Conveyor Temperature Measurement System



Oil and Gas Storage Tank Temperature Measurement System



Perimeter Security System



Pipeline Fiber Optic Early Warning System



光纤振动传感系统

Key Products

Fiber Optic Temperature Measurement Products



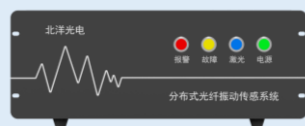
Distributed Fiber Optic
Linear Temperature-
Sensing Fire Detector
(BY-DTS-4100)



Distributed Fiber Optic
Linear Temperature-
Sensing Fire Detector
(BY-DTS-3100)

Fiber Optic Perimeter Security Products

Positioning Type



Distributed Fiber Optic Vibration
Intrusion Detector
(BY-DVS-4000)



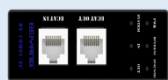
Distributed Fiber Optic Acoustic
Detector
(BY-DAS-4000S)

Zone Type



Optical Vibration Intrusion
Detector
(BY-OVS-3200)

Laser Displacement sensor



Communication Module
(BY-COM01-EC)

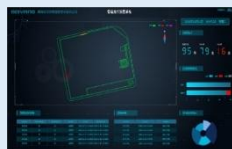


Controller
(BY-CTR-001-M/S)



Transmitter/Receiver
(BY-SEN001-T/R)

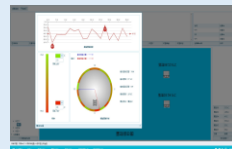
Platform Software



Intelligent Early
Warning System
for Pipeline Safety



Perimeter Security
System for Valve
Chambers in
Stations



Multi-Dimensional
Monitoring System
for Oil Tanks



Integrated Monitoring
Platform for Belt
Conveyors

Typical Cases

40+

Belt Conveyor Temperature Measurement

China Grain Reserves Corporation, Guangdong Grain Reserves Corporation, Qingdao Port, Yingkou Port, Panjin Port, Shenhua Group, Guoneng Group...

20+

Tank Temperature Measurement

Sinopec, CNOOC, Yingkou Port, Panjin Port, Rizhao Port, Yantai West Port, Shenhua Ningxia coal...

30+

Cable Temperature Measurement

State Grid, Huanghua Port, Jingtang Port, Shenhua Group, Tianjin Metro...

30+

Perimeter Security

CNPC, Sinopec, CNOOC, Panjin Port, Rizhao Port, Shenhua Ningxia Coal, Yantai Prison, Weihai Water...

10+

Pipeline Safety Early Warning

Guangdong Natural Gas, Zhengzhou Natural Gas, Baotou Gas, Changzhou Hong Kong and China Gas, Laiyang Hong Kong and China Gas.

Rizhao Port Oil Terminal Phase III Project Tank Top Temperature Measurement Project

This phase of the project includes 16 external floating roof crude oil storage tanks, each with a capacity of 100,000 m³, mainly storing crude oil and fuel oil. A tank top fire early warning system provides technical support for the safe operation of the tanks.

Panjin Port China Grain Reserves Northeast Comprehensive Industrial Base Belt Conveyor Temperature Measurement Project

The project constructed 158 belt conveyors of various types, with a total length of approximately 21,000 meters. Tooling clamps were installed on the easily overheated parts of the belt conveyors to effectively ensure their safe and stable operation.

Fujian Putian LNG Storage Tank Temperature Measurement Project

A distributed fiber optic temperature measurement system was constructed between the inner and outer tanks of four 160,000 m³ LNG storage tanks. This system provided the owner with accurate and timely warnings of perlitte subsidence locations on multiple occasions, ensuring the safe operation of the tanks.

Shenhua Huanghua Port Coal Terminal Phase IV Project Cable Temperature Measurement Project

This phase of the project constructed over 20,000 meters of cable trays, 16 substations, and 2 110KV substations. After the completion of the fourth phase of the project, our distributed fiber optic cable temperature measurement system has repeatedly provided early warning and alarm services for cable accidents on site.



Weihai Water Group -Mishan Water Purification Plant Project

Installed perimeter security control systems and video surveillance cameras within the Mishan Water Purification Plant area, providing a strong barrier for the safe and stable operation of the water plant, effectively monitoring illegal intrusion events and providing timely warnings.

Natural Gas Pipeline Project from Tuoketuo County to Baotou Jinshan Industrial Park

The entire line is 85.47km long. By laying a communication optical cable about 0.5m directly above the pipeline and installing a pipeline fiber optic early warning host in the valve chamber, the anti-dig monitoring of the entire pipeline line has been successfully realized, and multiple warnings of illegal excavation have been issued.

Changzhou Hong Kong and China Gas Utilization (Phase III) Pipeline Fiber Optic Early Warning System Project

This project utilizes existing communication fiber optic cables in the underground pipeline network as vibration fiber optic sensors to monitor natural disasters and third-party intrusion events along the pipeline.

Sinopec Natural Gas Branch Ordos-Anping-Cangzhou Gas Pipeline Phase I Project

This project installed fiber optic perimeter intrusion alarm systems at 32 stations and valve chambers along the gas pipeline, including Wanli Valve Chamber, Jizhou Branch Station, Huangdipu Valve Chamber of Guantao Branch Station, and Cangzhou Terminal Station. Combined with existing cameras and laser beam detectors, this achieved comprehensive monitoring of the perimeter of the site.

THANKS



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