AI Empower & Intelligence Achieve

Lingyang Technologies INC

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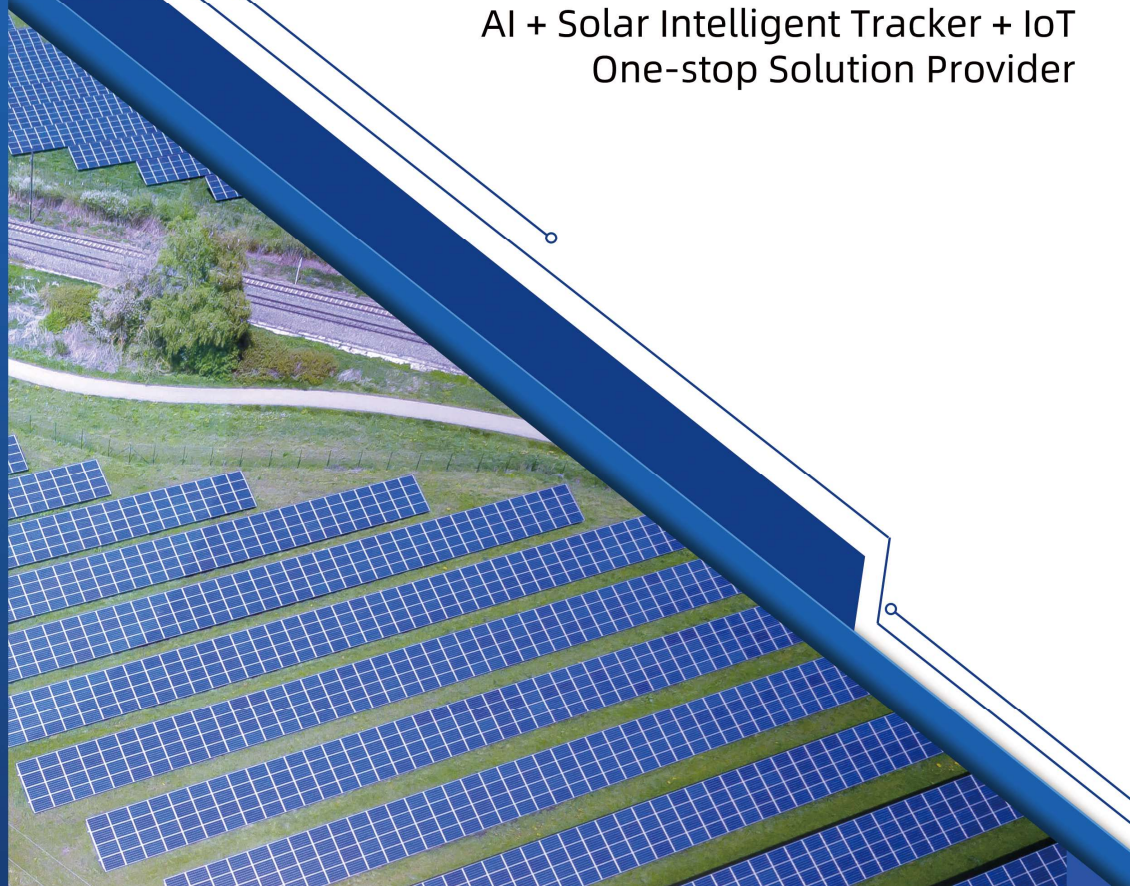
领鞅科技
LINGYANG TECHNOLOGY

Lingyang Technologies INC

AI + Solar Intelligent Tracker + IoT
One-stop Solution Provider



About Us

We focus on the new energy of PV tracking electrical control system and AI algorithm system in R&D, production, sales and service as one of the high-tech intelligent technology enterprises. The core team has more than ten years of experience in the PV industry and is committed to providing customers with safe, minimalist, intelligent and efficient products and services.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质量管理体系认证证书
领勤科技（杭州）有限公司


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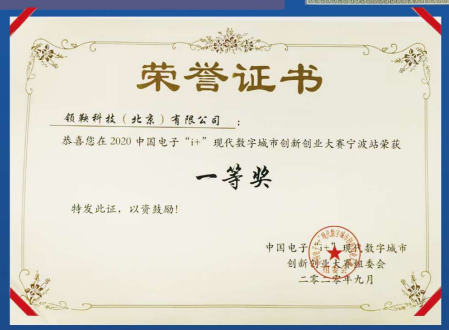
实用新型专利证书
局长 申长雨
2022 年 01 月 04 日


荣誉证书
领勤科技（北京）有限公司：
恭喜您在 2020 中国电子“i+”现代数字城市创新创业大赛宁波站荣获
一等奖
特发此证，以资鼓励！
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创新创业大赛组委会
二零二零年十月

We insist on independent R&D and focus on technological innovation. We have been awarded 36 invention patents and other intellectual property rights, including 5 high-tech products. Furthermore, we have passed the certification of intellectual property management and quality management system.

Product Service

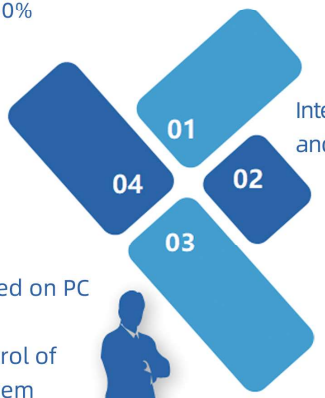
Since its establishment, the company has always adhered to the corporate philosophy of "development is the direction, practice is the truth", all products have passed the testing and certification of national authorities, and have been widely used in the PV power generation industry; We owe the independent R&D of solar tracker control box TCU, intelligent communication box NCU, intelligent operation platform SCADA, intelligent weather station SWM etc; Our company takes the improvement of product quality as the core and the intelligence of PV as the guide, furthermore, Our sales services are available in many countries and regions around the world, and our products are well received by our customers.

Our panel tracking control system is deeply integrated by AI+solar tracking, providing a multi-purpose solution of hardware+software+data+ service for customers. Our exclusive intelligent tracking algorithm of real-time optimizing control has proven its powerful scenario-based deployment capability, creating huge value for customers.

Reduced wiring by 90%
Lower cost
Increased system reliablity in tough environment

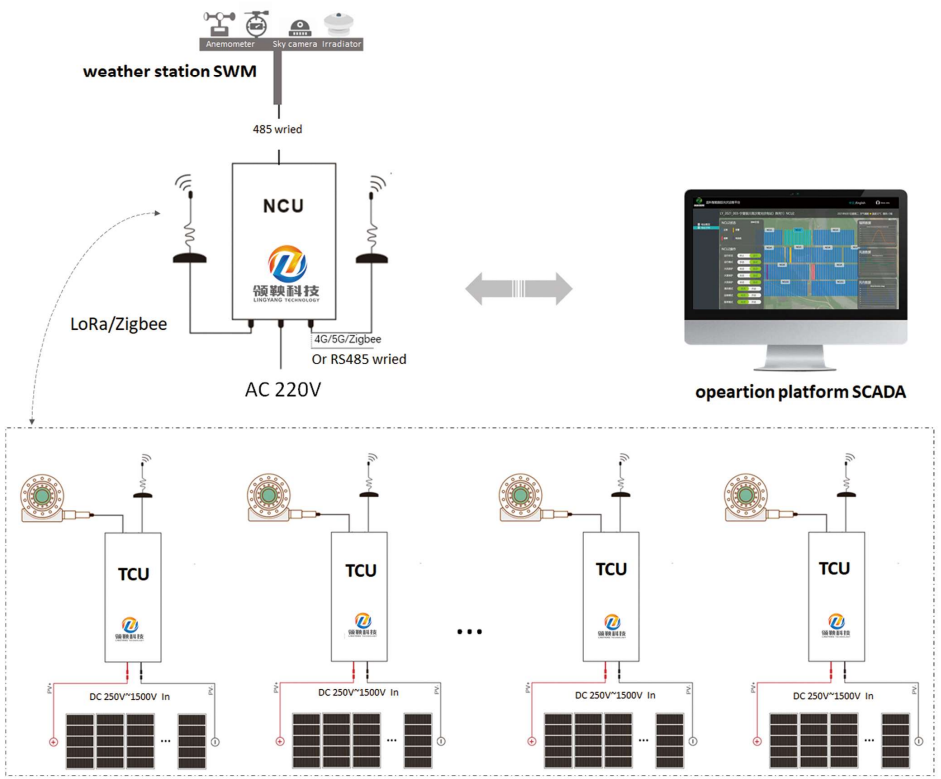
Increased electricity production by intelligent optimization algorithm

Integration design of controller and sensor for unmaned operation



Historical data displayed on PC end and mobile end
Management and control of real-time status of system

Distributed deployment for precision maintenance of system and lower cost of electricity production maintenance



Track Controller

In automatic tracking mode, the system will issue tracking commands automatically according to the current position of the sun and control the motor to achieve real-time tracking of the sun for higher electricity production.

PV Track Control Algorithm

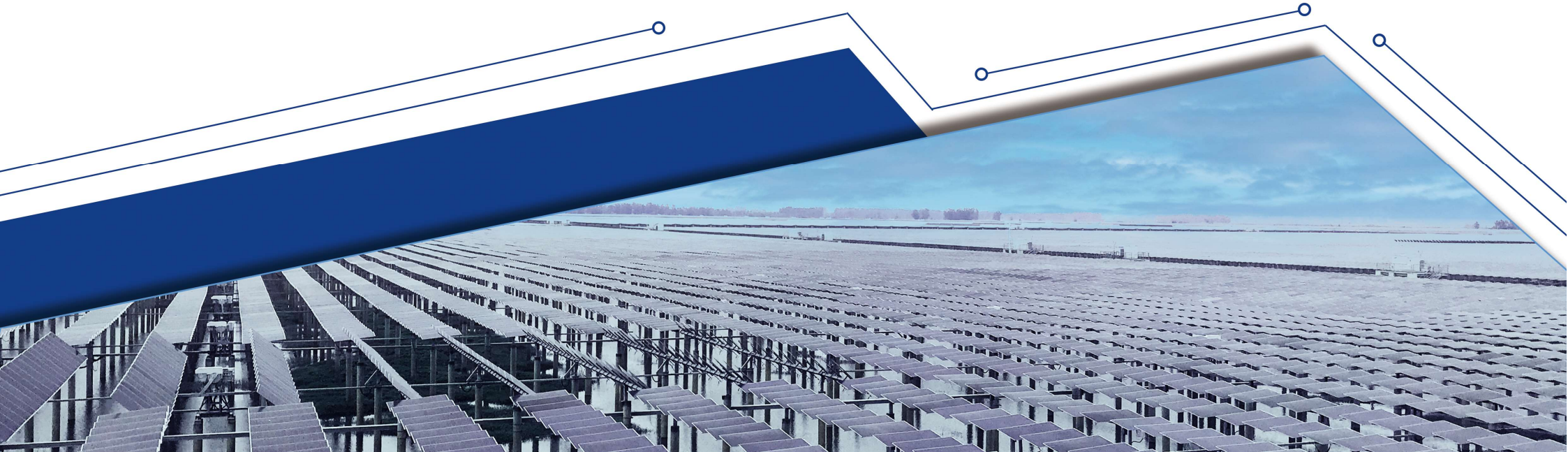
With 3D geographical data model, real-time meteorological data, sunlight irradiation data, based upon the topological algorithm of neural network, looped self-study track system solution, driven by new-generation big data.

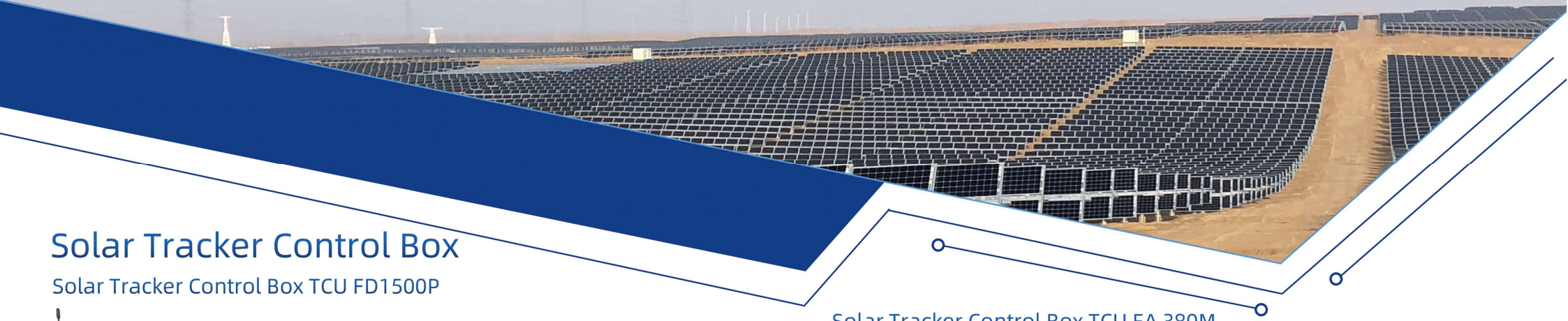
Cloud APP

Customized Cloud Platform & APP to monitor intelligent devices. To optimize the algorithm and update the model by analyzing of big data.

Operation Center

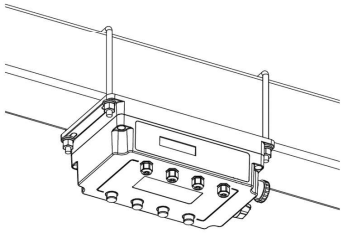
We provide companies with a user operation center for the industrial Internet era, establishing communication and management channels for you and your customers.



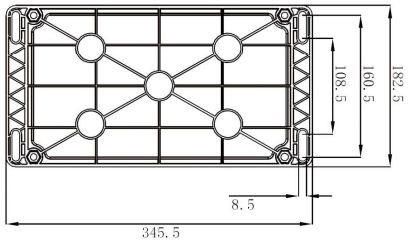


Solar Tracker Control Box

Solar Tracker Control Box TCU FD1500P

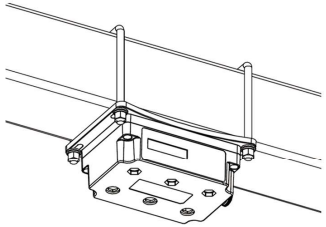


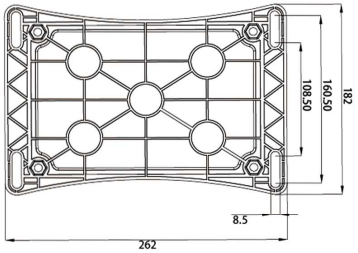
This series of product is intelligent solar tracking control box, which is highly intelligent PV tracking controllers. It will automatically calculate the movement trajectory, the azimuth and altitude angle of sun at any moment according to the local longitude, latitude, time and program, and control the operation of motor actuators to achieve real-time solar tracking of PV modules and thus increase power generation.



Note: The installation dimension of the control box FD1500P

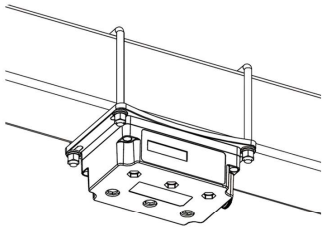
Solar Tracker Control Box TCU FA 260P





Note: The installation dimension of the control box FA260P&FA380M

Solar Tracker Control Box TCU FA 380M



01 Low Cost Design

Low power cost
Higher level of safety

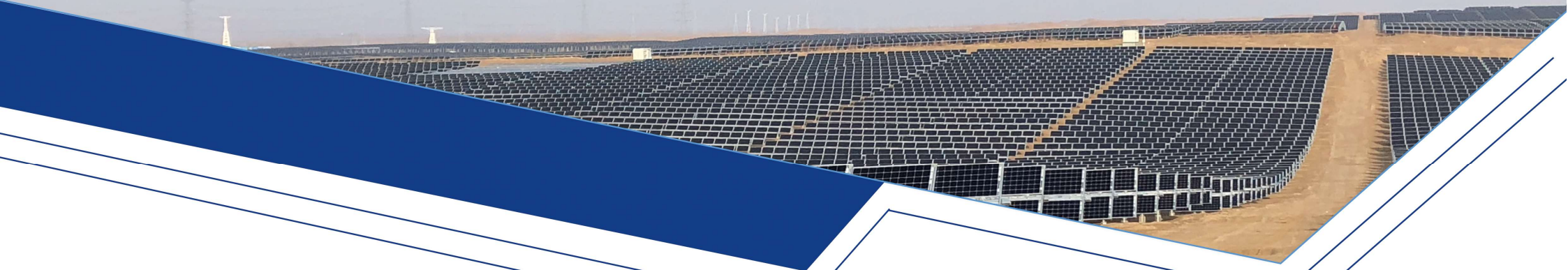
02 Highly Safe

Pass over 20 items of internal test (UV, heat circulating, wet cold, etc.)
Internal test higher than industrial certification standard

03 Highly Reliable

Multi protection increase system reliability
Snow protection model
Rain cleaning model
Wind protection model
Reliable wireless communication model

- Water-proof structure——Aviation plug facedown
- Human-Machine Interaction——Easy clicking and debugging for less time and labour
- IoT cloud platform——Long-distance operation and monitor
- Load AI Module——Higher electricity production with further optimization intelligent algorithm by neural network



Solar Tracker Control Box TCU FD1500P

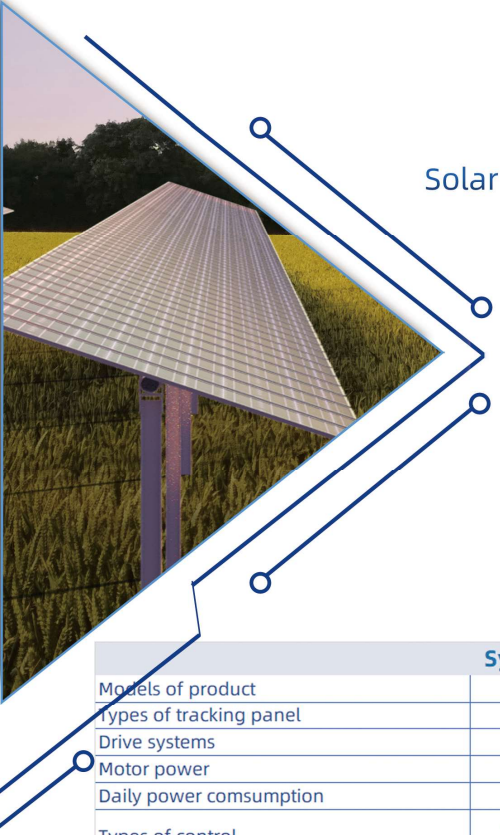
System Datasets	
Models	FD 1500P
Types of tracking panel	horizontal single-axis/ tilted single-axis panel
Drive systems	slewing reducer + DC motor / linear actuator + DC motor
Motor power	≤180W（customized）
Daily power comsumption	≤0.1kWh
Types of control	active tracking closed-loop control (astronomical algorithm + location feedback)
Mechanical Datasets	
Sizes	345mm*182mm*120mm
Box material	polymer material Makrolon®6487
Water-proof level	IP65
Display interface	YES
Keyboard interface	YES
Electrical Datasets	
Types of power supply	PV series power supply (DC input) 250-1500VD (wide input voltage)
Output voltage	24VDC
Types of lithium battery	6AH（customized）
BMS battery management system	YES
Wind protection	YES
Nighttime reset protection	YES(confirmed)
Disturbing protection	YES (soft pounding protection, over current protection, over load protection)
Anti-shadow tracking	YES
Wind speed protection	10m/s-30m/s（3S）（customized）
Types of communication	ZigBee/LoRa（wireless）/ RS485（wired）
Angle range of tracking	±30°-±60°（customized）
Models of AI control	customized
Network background	customized
Work temperatures	-20℃-55℃

Note: Standard setting above. For customized setting, please contact the team of Lingyang Technology

Solar Tracker Control Box TCU FA 260P

System Datasets	
Models of product	FA 260P
Types of tracking panel	horizontal single-axis/ titled single-axis
Drive systems	slewing reducer + DC motor / linear actuator + DC motor
Motor power	≤180W（customized）
Daily power comsumption	≤0.17kW.h
Types of control	active tracking closed-loop control (astronomical algorithm + location feedback)
Mechanical Datasets	
Sizes	262mm*182mm*120mm
Box material	polymer material Makrolon®6487
Water-proof level	IP65
Display interface	YES
Keyboard interface	YES
Electrical Datasets	
Types of power supply	L+N（two-phases input）90-264VAC（wide input voltage）
Output voltage	24VDC
Wind protection	YES
Nighttime reset protection	YES(confirmed)
Disturbing protection	YES (soft pounding protection, over current protection, over load protection)
Anti-shadow tracking	YES
Wind speed protection	10m/s-30m/s（3S）（customized）
Types of communication	ZigBee/LoRa（wireless）/ RS485（wired）
Angle range of tracking	±30°-±60°（customized）
Models of AI control	customized
Network background	customized
Work temperatures	-30℃-70℃

Note: Standard setting above. For customized setting, please contact the team of Lingyang Technology



Solar Tracker Control Box TCU FA 380M

System Datasets	
Models of product	FA380M
Types of tracking panel	horizontal single-axis / titled single-axis
Drive systems	slewing reducer+ AC motor
Motor power	≤2.2KW（customized）
Daily power comsumption	≤0.1kW.h
Types of control	active tracking closed-loop control (astronomical algorithm + location feedback)
Mechanical Datasets	
Sizes	262mm*182mm*120mm
Box material	polymer material Makrolon®6487
Water-proof level	IP65
Display interface	YES
Keyboard interface	YES
Electrical Datasets	
Types of power supply	380V AC（3 phase 4 wire system）
Output voltage	380VAC
Wind protection	YES
Nighttime reset protection	YES (confirmed)
Disturbing protection	YES (soft pounding protection, over current protection, over load protection)
Anti-shadow tracking	YES
Wind speed protection	10m/s-30m/s（3S）（customized）
Types of communication	ZigBee/LoRa（wireless）/ RS485（wired）
Angle range of tracking	±30°-±60°（customized）
Models of AI control	customized
Network background	customized
Work temperatures	-30℃-70℃

Note: Standard setting above. For customized setting, please contact the team of Lingyang Technology

Intelligent Communication Box NCU

After receiving the data of wind speed and wind direction taken by the environment measuring instrument, in accordance with the local latitude and longitude, this product analyze and estimate with the AI algorithm. And then, it get the best operating degree and send instructions to TCU for optimization tracking.

Feature Datasets	
Models	NCU
Types of power supply	90-264 VAC
Data set	PC
Daily power comsumption	0.04 kWh
GPS signal	YES
Wind speed trigger	Auto
Snow trigger	PC
Latitude and longitude finder	Auto
Time zones	PC
Functional Datasets	
Alarm for aborted connection with TCU	YES
Alarm for model fault of GPS	YES
Wireless communication with TCU	LoRa/ZigBee
Communication terminal	RS485
Wind speed	YES
Normal Datasets	
Installation methods	Hang on back
Water-proof level	IP65
Weight	<2kg
Sizes	200*200*100mm(L*W*H)
Working temperature	-30℃-70℃
Altitude	<4000m

Note: Standard setting above. For customized setting,

Solar Tracker Monitor

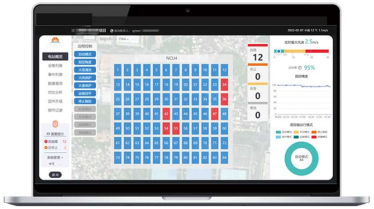
SCADA is a new generation of system software that allows the owner and operator fully control the real-time operation of the photovoltaic power station, so as to efficiently and safely ensure the operation and maintenance of the power station. The software has real-time data collection and monitoring, fault early warning, data analysis and other functions with the collocation of intelligent optimization tracking control system, so that the power station in a variety of different weather conditions to effectively improve power generation. The software also provides diverse protection mode against wind and snowstorm, and the user can control he power station in one click, which is greatly enhancing the reliability of power station operations.

- Efficient and stable monitoring system
- Convenient Mobile O&M
- Nicer HIC and full data monitoring
- Real-time access to key data from power stations, Easier and more efficient operation and maintenance
- Real-time access to accurate angular data of field stations and single-row brackets, timely detection of system abnormalities
- Real-time view of power station information , stay on top of the situation

Product Features

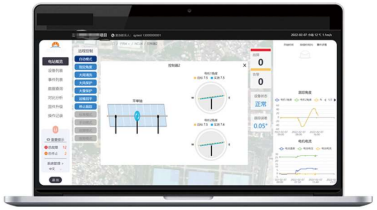
Hierarchical visual monitoring

Data mining and visual monitoring are performed hierarchically from top to bottom in accordance with power stations, collection stations, partitions, sub-arrays, and single trackers, so as to obtain accurate field station and single-row bracket angle data in real time.



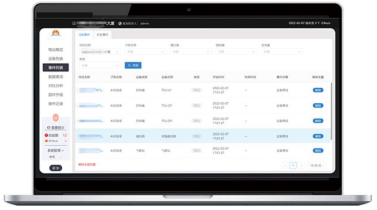
Intelligent alarm and control

It can quickly push fault signals and accurately locate the alarm equipment. And it support to view the cause of the alarm and repair suggestions. At the same time, it has two modes of automatic control and manual control, and completes the control and protection of large-scale stations with one key.



Intelligent data analysis

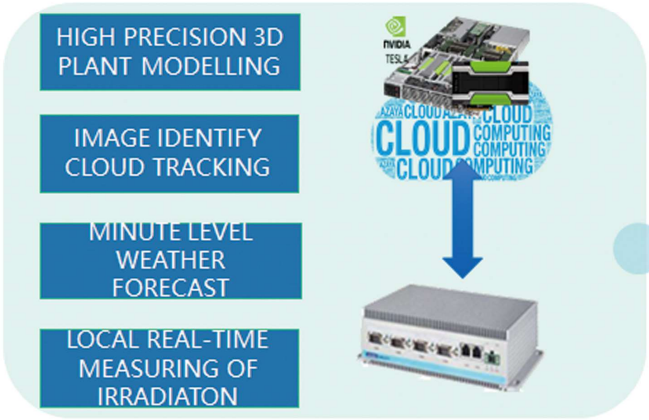
It can display equipment dispersion rate analysis, comparative analysis and other data in various forms, integrate meteorological conditions, power generation information and other factors. So that we can analyze tracking units with backward angles, and find problems in the system control process.



Work order management

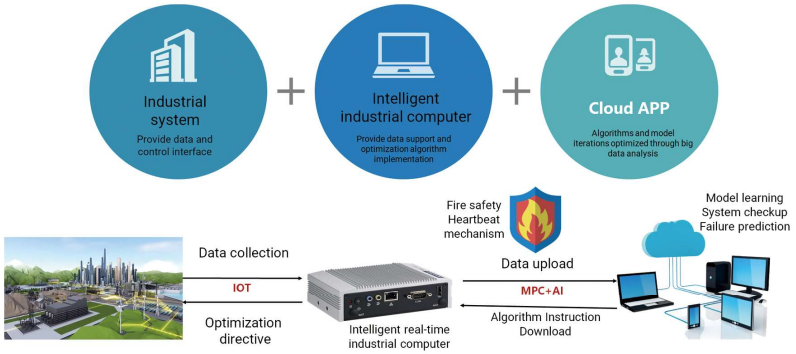
Through Lingyang's intelligent optimization control box, the operation status of each tracking bracket motor is collected in real time, and the fault warning information of the power station is quickly formed into an operation and maintenance work order, and at the same time, it is pushed to the mobile terminal.

Photovoltaic AI Algorithm System

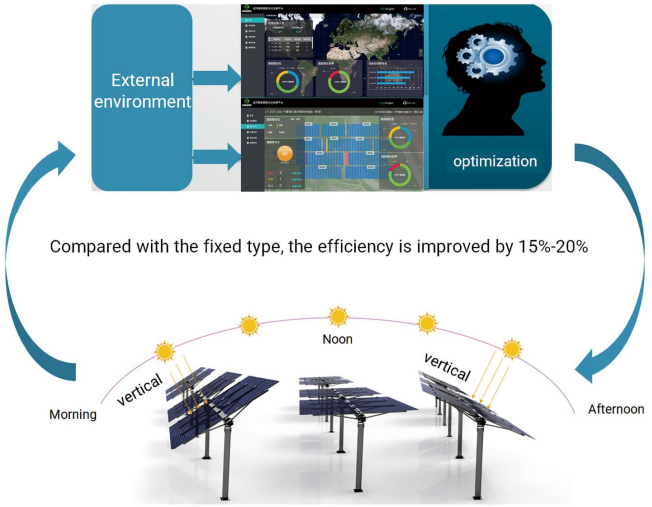


We provide a new generation of big data-driven closed-loop self-learning tracking system solutions combined with the site 3D geographic data model, real-time weather data, solar irradiance data, and relying on neural network topology algorithms.

Product Form



Optimization Algorithm Advantage



- Tracking system intelligent operation and maintenance
- First application and commercialization of artificial intelligence in solar tracking systems
- Using the algorithm to improve the efficiency of solar power generation
- Validated in more than 20GW systems worldwide
- Has reached cooperation with many well-known enterprises

BRAND VALUE

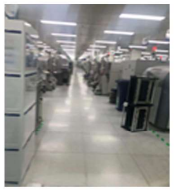
INDUSTRY PROMINENCE

ECONOMIC BENEFITS

Production Capacity

265MW/Month





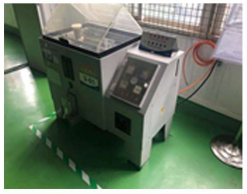

Million Level Dust-free Production Line





Modern Laboratory



Efficient inventory management

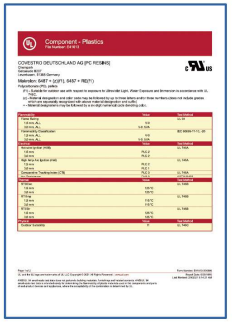


Quality Assurance

High Low Temperature, Isolation, Dust-proof, Salt Spray, EMI and EMC;
Low Pressure Air, Waterproof, Hardware Test Software, etc.
Pass over 20 items of internal test (UV, heat circulating, wet cold, etc.)

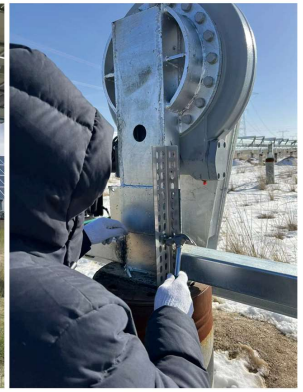


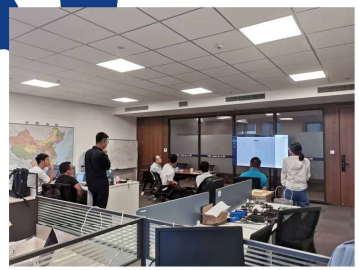
Physical and Chemical Feature Standard of Raw Materials
Third Party Test of CE Certification

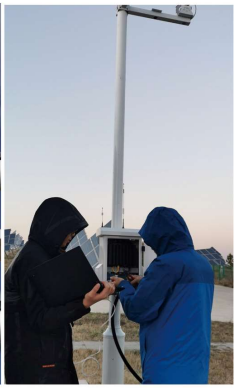


Tested by strict software testing institutions
Obtained software product certificates

The Project Site



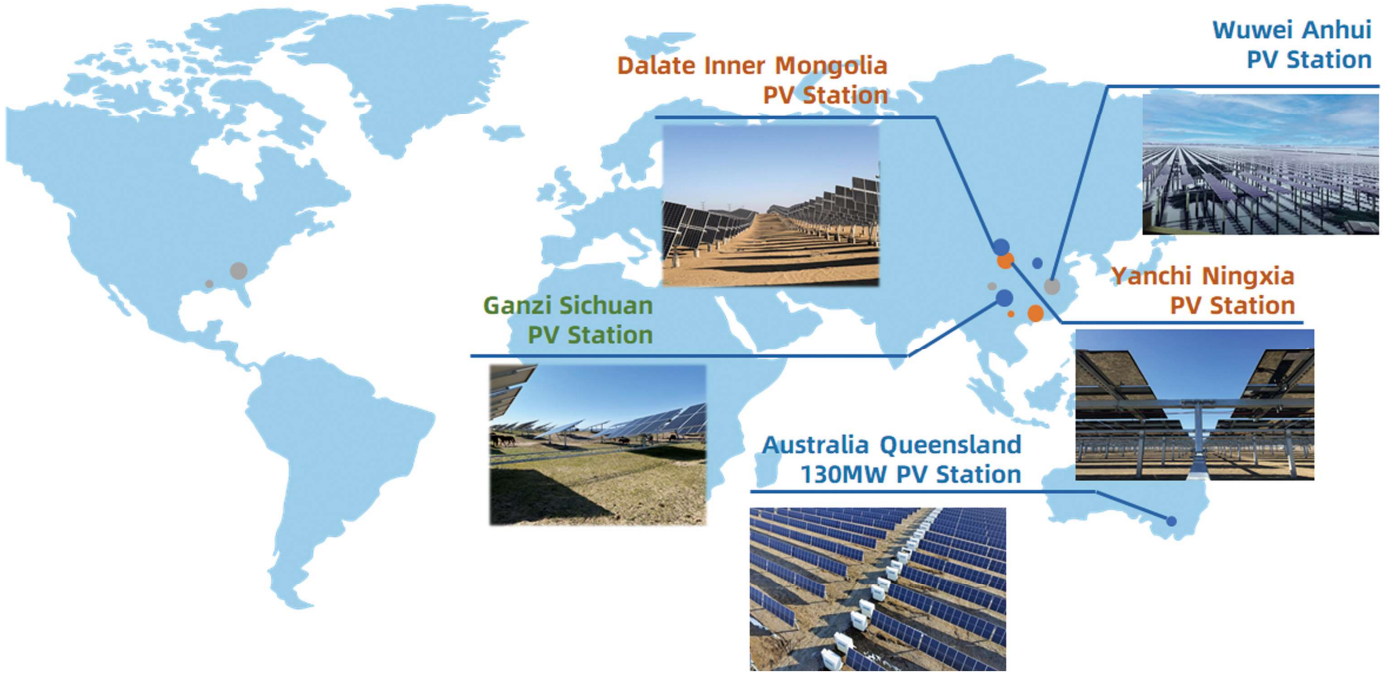




Partners

XINYI SOLAR 信義光能 股票代码:00968.HK
CMIG Asset 中民新能
CHNT 正泰新能源
AKCOME 爱康科技
BOSCH 博世 科技成就生活之美
上海电气 SHANGHAI ELECTRIC
Clenergy
MIBET ENERGY
首航节能 SHOUHANG RESOURCES SAVING
黄河上游水电开发有限责任公司 HUANGHE HYDROPOWER DEVELOPMENT CO., LTD.
顶威科技 DWin Solar Tech
JinKO Solar
中核集团 CNNC

Projects



Our Ability

One-stop Service

Site Investigation | System Design | Installation Debugging | System Maintenance

Our Advantage

- High Electricity Production
- Low Maintenance Cost
- Long Longevity
- High Safety Rate
- High Return on Investment

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