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SMART MANUFACTURING & TAILORED SOLUTIONS

China's Leading Intelligent Manufacturer Of Linear Actuators









Drive Momentum Into Life Create Limitless Possibilities

Unlock the power of movement, Look for a smarter way, Powernice will offer more solutions to you.

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INTELLIGENT **ACTUATOR**

To Serve As Our Core Foundation

To Survive By Quality

To Develop Through Innovation





Leader of Intelligent Linear Actuator

Powernice is a high-tech enterprise integrating R&D, design, production, sales and service of industrial-grade high-precision intelligent linear actuators. Powernice products are widely used in photovoltaic and Photothermal power generation, medical equipment, intelligent equipment, automobiles, robots and

Powernice has over 27,000 square meters of production, R&D, and office areas. There are production bases and branches in the United States, Hong Kong, Shenzhen, Dongguan and other places, with a variety of advanced R&D, experiment, testing, and production facilities and equipment. Powernice has 7 core departments. Each department is set up independently and cooperatively with the idea of efficiency first and quality first to ensure that a professional and experienced team provides high-quality services to customers in various fields from beginning to

Powernice has established a global sales center in the Shenzhen Special Economic Zone of China, with offices in Hong Kong, Las Vegas, and Abu Dhabi in the Middle East, and plans to set up European offices in Europe to better serve global customers.

Company History

Newborn

2800 square meters PA2/PA6/PA7/PA8/ PA9 product launch

7500 square meters Mass production of PA8/PA9 products GCS bulk supply NCLAVE/CONVERT product testing 150-fold increase in

Growth

2019

output value

Strengthen

PA10/PA11/PA12/ PA13/PA14 product launch and mass production Trina strategic cooperation **CONVERT** strategic cooperation Liugong/Invola/BAIC/Haier



Leap

18,000 square meters

Government Fund

Patents 65+

Global leader in

photovoltaic tracking

Shanghai Gimpo + Ningbo

9 production lines in total

2020

2021



Not Simply **Better Quality**

Powernice' confidence

Originated from our continuous investment in product R&D and production capacity
Layout of industrial intelligent manufacturing bases in Ningbo, Zhejiang and Dongguan, Guangdong, China
Realized the leading position in the field of intelligent linear actuators in the photovoltaic industry in China

Ningbo Production Headquarters

Planning Production Capacity Of 700,000 Units 600,000 Units In The Photovoltaic Field 100,000 Units In The Photothermal Field

Dongguan Production Center

200,000 Units

120,000 Units In The Photovoltaic Field 60,000 Units In The Field Of New Energy Vehicles 20,000 Units In The Smart Medical Field

Global offices and sales networks allowing our service one step closer to you

Branch offices and numerous service outlets located in Mainland China, Hong Kong, North America-Las Vegas, Middle East-Abu Dhabi, and many service outlets to ensure follow-up services.











Shenzhen Global Sales Center

Marketing Department

Sales Department

Project Department

After-sales Department

Planning Department

Finance Department

Pre-sales Engineering Department

Other Service Outlets

Hong Kong, China

North America-Las Vegas

Middle East-Abu Dhabi







Part 2

Craftsmanship And Continous Innovation

The Pursue for maximum efficiency
Maintain the highest quality
Based In China
Servicing The World

Powernice has a series of professional and customized inspection and testing equipment, and the technical research and development team has many years of industry experience. Powernice is constantly pursuing for a perfect quality management system and has passed IS09001 certification to provide high-quality products to different customers.

The eternal sun makes us realize the infinite possibilities of green energy.

How to improve the performance and stability of the tracker and how to reduce the cost of electricity is our constant pursuit. Do everything possible to explore and innovate in technology, and work with customers to express our sincerity to the nature.

Powernice

Advantages of Powernice Intelligent Linear Actuators

Linear motion is mainly divided into: electric linear motion, hydraulic linear motion, and pneumatic linear motion.

- Powernice intelligent linear actuators are integrated into one, the performance is far superior than the traditional hydraulic system and pneumatic system.
- Compact design, convenient installation, eliminating the need of applications such as pumps and hoses.
- Value for money, efficient use, almost zero maintenance required, will be your biggest cost saving.
- 4 Our positioning feedback is accurate, Powernice intelligent linear actuator and control system dock accurately in place.
- Powernice intelligent linear actuators have low energy consumption and no risk of harmful hydraulic oil leakage, and truly achieve low carbon environmental protection



BENEFITS

The Benefits Of Using Powernice Intelligent Linear Actuator

Cost Reduction

- The cost of intelligent linear actuator is lower than that of hydraulic and pneumatic systems of the same function.
- With the same function, installing an intelligent linear actuator is faster and more convenient than installing multiple hydraulic and pneumatic components.
- The commissioning of the electric linear actuator is faster and more predictable than the power variation, temperature variation and nonlinear performance curve when configuring the hydraulic system and its components.
- The hydraulic system requires fluid replacement, leak repair and other routine maintenance, while the intelligent linear actuator is maintenance-free.
- Avoid environmental problems and costs associated with hydraulic fluid leakage and fluid handling.

BENEFITS

The Benefits Of Using Powernice Intelligent Linear Actuator

→ Increase Productivity And Efficiency

Improve the control of the key operations of the machine by:

2 Excellent precision and repeatability

A variety of digital and analog feedback options

3 Connect and automatically synchronize the process

(b) Fixed and programmable limit switches for "teaching and repeating" positioning

© Low-voltage switch option can directly establish a connection with the programmable PC/PLC controller

Keep workers away from dangerous sites with convenient remote control to increase safety and reduce costs

d Pulse width modulation for shift control

Example: photovoltaic field

Comparison between Powernice intelligent linear actuator with rotary mechanism

Tracker Type	Dynamic load	Static Load	Weight	Install	Shelf Life	Price (Base 1)
Slewing Mechanism	6.5KN.m	38KN.m	55Kg	3/Manual	5 years	1
Powernice Tracker	20KN	150KN	20Kg	2/Manual	5 years	0.5

The Advantages Of Intelligent Linear Actuator:

- -Triangular support structure is the most efficient design in mechanics
- -Lower cost
- -Does not take up any component space
- -Easy to replace, two workers can complete it quickly
- -No need for regular oil injection, lower long-term maintenance cost **Shortcomina**:
- -It is a relatively new technology, and it takes a while for mainstream global manufacturers to accept it.
- -The uneven quality of small companies can easily affect the reputation of the industry and the willingness of users to purchase in large quantities.

The Advantages Of Slewing Mechanism:

- -Simple structure
- -Accepted by the mainstream

Shortcoming:

- -After installation, some components and power generation space will be occupied
- -When repairing and replacing, a whole row of photovoltaic panels needs to be deactivated and disassembled, which takes a long time
- -Use more raw materials and higher manufacturing costs
- -As the size and weight of photovoltaic modules become larger and heavier, the greater the torque demand, the more likely it is to cause deformation of the steel pipe. The torsional damage of the main shaft and the failure of the tracking support structure due to "warping stress" and "non-linear contact stress"





Follow the light, let's take action

and achieve the goal of a greener earth together













Continuous Breakthrough R&D Technology

Powernice' technical team has many years of industry experience and has obtained 65+ patents



Systematic Testing Equipment

Powernice has a series of professional and customized testing equipment



Professional Laboratory Certification

Powernice cooperates with well-known organizations such as UL, TUV, SGS, CE, etc., and has passed multiple certifications



Excellent Innovative Technology

Powernice won the Trina Solar "Excellent Innovative Supplier" Annual Award



Reliable Quality Certification

With the goal of pursuing zero defects in products, Powernice has continuously improved the quality management system and implemented the process management method in order to provide customers with higher product quality.



Cooperation With Industry's Top Customers

Trina Solar, Shanghai Electric, BAIC, Liugong, Haier, etc.



Diversified and comprehensive product certification

TUV, UL, CE, SGS Vibration, high and low temperature, lifecvcle, salt spray, sand dust test destructive, static and dynamic waterproof



Quality Management System Certification

Passed IS09001 certification

PRODUCT INTRODUCTION

Promote the upgrade of photovoltaic tracking technology Achieve more efficient green energy

The intelligent linear actuator can be used in a photovoltaic solar panel/reflector tracking system with a controller to push the bracket mechanism to keep the panel always perpendicular to the sun.

Photovoltaic Series

PA8 PA15

PA8S PA16

PA9 PA20

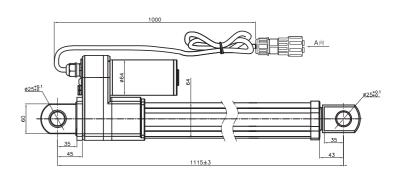
PA11 PA21

PA13 PA25

PA14 PT7

PA8







Protection level



Temperature



Salt spray



Single point tracking / Electrical linkage



Higher safety factor



More stable performance



More cost-effective



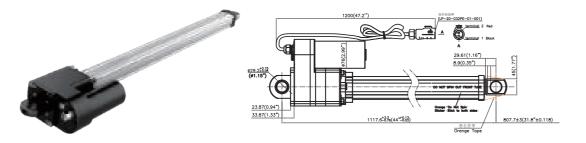
Intelligent equipment

믘

Technical Parameter

Voltage(V)	24 DC	Stroke (mm)	100~1200 (Customizable)
Power(W)	156	Installation Distance (mm)	≥310+ Stroke(Customizable)
Specified Load(N)	20000	IP Code	IP66
Maximum Load(N)	35000	Corrosion Category(ISO12944-2)	C3-15Years
Half Stroke Static Load (Varies According To Stroke)(N)	70000	The Highest Altitude (m)	3500
No-load Current (A)	≤1.2	Noise Level(dBA)	85
Rated Load Speed (mm/s)	1.3±10%	Rated Load Pull Current (A)	≤6.0
No-load Speed (mm/s)	1.7±10%	Rated Load Thrust Current (A)	≤6.5
Working Temperature (°C)	-40°C~+65°C	Built-in Limit Switch	YES
Working Relative Humidity (%)	<85%	Connector	Lingke/Weipu/Bare Wire Dip Tin etc.

PA8S





Protection level



Temperature



Salt spray



Single point tracking / Electrical linkage



Higher safety factor



More stable performance



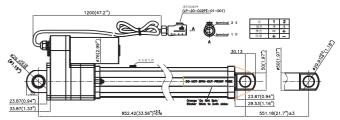
More cost-effective



Intelligent equipment

PA9







Protection level



Temperature



Salt spray



Single point tracking / Electrical linkage



 ${\it Higher\, safety\, factor}$



More stable performance



More cost-effective



Intelligent equipment

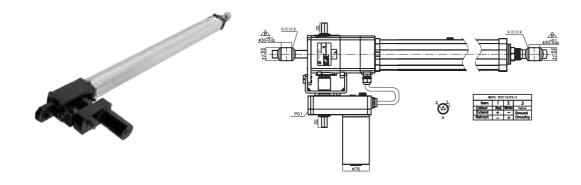
Technical Parameter

Voltage(V)	24 DC	Stroke (mm)	100~1200 (Customizable)
Power(W)	180	Installation Distance (mm)	≥310 + Stroke(Customizable)
Specified Load(N)	25000	IP Code	IP66
Maximum Load(N)	40000	Corrosion Category(ISO12944-2)	C3-15Years
Half Stroke Static Load (Varies According To Stroke)(N)	70000	The Highest Altitude (m)	3500
No-load Current (A)	≤1.5	Noise Level(dBA)	85
Rated Load Speed (mm/s)	1.25±10%	Rated Load Pull Current (A)	≤ 7.2
No-load Speed (mm/s)	1.54±10%	Rated Load Thrust Current (A)	≤7.6
Working Temperature (°C)	-40°C~ +65°C	Built-in Limit Switch	YES
Working Relative Humidity (%)	<85%	Connector	Lingke/Weipu/Bare Wire Dip Tin etc.

Technical Parameter

Voltage(V)	24 DC	Stroke (mm)	150~1200 (Customizable)
Power(W)	220	Installation Distance (mm)	≥301+Stroke(Customizable)
Specified Load(N)	31000	IP Code	IP66
Maximum Load(N)	50000	Corrosion Category(ISO12944-2)	C3-15Years
Half Stroke Static Load (Varies According To Stroke)(N)	110000	The Highest Altitude (m)	3500
No-load Current (A)	≤1.8	Noise Level(dBA)	85
Rated Load Speed (mm/s)	1.2±10%	Rated Load Pull Current (A)	≤ 9
No-load Speed (mm/s)	1.54±10%	Rated Load Thrust Current (A)	≤9.2
Working Temperature (°C)	-40°C~+65°C	Built-in Limit Switch	YES
Working Relative Humidity (%)	<85%	Connector	Lingke/Weipu/Bare Wire Dip Tin etc.

PA11





Protection level



Temperature



Salt spray



Multipoint mechanical linkage



Higher safety factor



 $More\,stable\,performance$

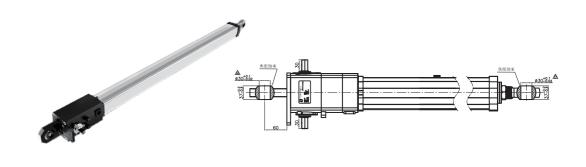


More cost-effective



Intelligent equipment

PA13









Temperature



Salt spray



Multipoint mechanical linkage



Higher safety factor



More stable performance



More cost-effective



Intelligent equipment

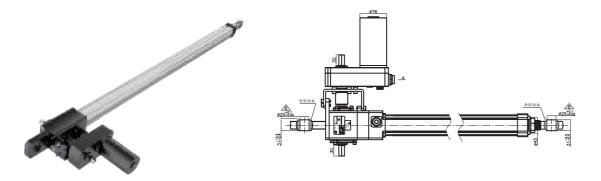
Technical Parameter

Voltage(V)	24 DC	Stroke (mm)	150~1200 (Customizable)
Power(W)	120	Installation Distance (mm)	≥472+ Stroke(Customizable)
Specified Load(N)	20800	IP Code	IP66
Maximum Load(N)	51000	Corrosion Category(ISO12944-2)	C3-15Years
Half Stroke Static Load (Varies According To Stroke)(N)	132800	The Highest Altitude (m)	3500
No-load Current (A)	≤1.2	Noise Level(dBA)	85
Rated Load Speed (mm/s)	0.65±10%	Rated Load Pull Current (A)	≪4.5
No-load Speed (mm/s)	0.73±10%	Rated Load Thrust Current (A)	≤5.0
Working Temperature (°C)	-40°C~+65°C	Built-in Limit Switch	YES
Working Relative Humidity (%)	<85%	Connector	Lingke/Weipu/Bare Wire Dip Tin etc.

Technical Parameter

Voltage(V)	20800	Installation Distance (mm)	≥472+ Stroke
Power(W)	51000	IP Code	IP66
Half Stroke Static Load (Varies According To Stroke)(N)	132800	Corrosion Category(ISO12944-2)	C3-15Years
No-load Speed (mm/r)	3.175	The Highest Altitude (m)	3500
Working Temperature (°C)	-40°C~+65°C	Noise Level(dBA)	85
Working Relative Humidity (%)	<85%	Built-in Limit Switch	No
Stroke (mm)	150~1200 (Customizable)		

PA14





Protection level



Temperature



Salt spray



Multipoint mechanical linkage



Higher safety factor



More stable performance

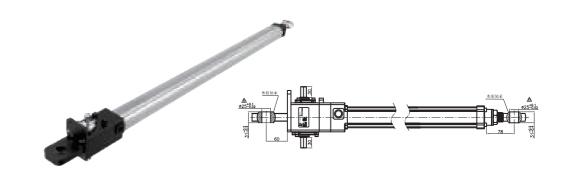


More cost-effective



Intelligent equipment

PA15





Protection level



Temperature



Salt spray



Multipoint mechanical linkage



Higher safety factor



More stable performance



More cost-effective



Intelligent equipment

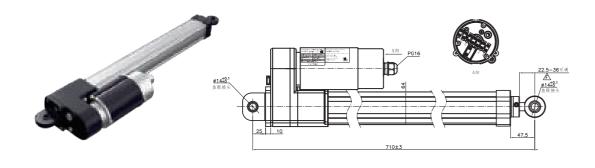
🚆 Technical Parameter

Voltage(V)	24 DC	Stroke (mm)	150~1200 (Customizable)
Power(W)	110	Installation Distance (mm)	≥472+Stroke
Specified Load(N)	20400	IP Code	IP66
Maximum Load(N)	46000	Corrosion Category(ISO12944-2)	C3-15Years
Half Stroke Static Load (Varies According To Stroke)(N)	70000	The Highest Altitude (m)	3500
No-load Current (A)	≤1.2	Noise Level(dBA)	85
Rated Load Speed (mm/s)	0.65±10%	Rated Load Pull Current (A)	≪4.0
No-load Speed (mm/s)	0.73±10%	Rated Load Thrust Current (A)	≪4.5
Working Temperature (°C)	-40°C~+65°C	Built-in Limit Switch	YES
Working Relative Humidity (%)	<85%	Connector	Lingke/Weipu/Bare Wire Dip Tin etc.

Technical Parameter

Voltage(V)	20400	Installation Distance (mm)	≥472+Stroke(Customizable)
Power(W)	46000	IP Code	IP66
Half Stroke Static Load (Varies According To Stroke)(N)	70000	Corrosion Category(ISO12944-2)	C3-15Years
No-load Speed (mm/r)	3.175	The Highest Altitude (m)	3500
Working Temperature (°C)	-40°C~+65°C	Noise Level(dBA)	85
Working Relative Humidity (%)	<85%	Built-in Limit Switch	No
Stroke (mm)	150~1200 (Customizable)		

PA16





Protection level



Temperature



Salt spray



AC tracker



Higher safety factor



More stable performance



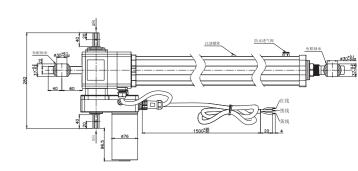
More cost-effective



Intelligent equipment

PA20







Protection level



Temperature



Salt spray



Multipoint mechanical linkage



Higher safety factor



More stable performance



More cost-effective



Intelligent equipment

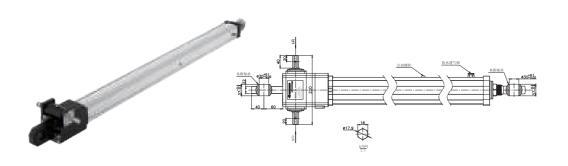
🖷 Technical Parameter

Voltage(V)	230 AC	Stroke (mm)	100~1200 (Customizable)
Power(W)	230	Installation Distance (mm)	≥300+ Stroke(Customizable)
Specified Load(N)	15000	IP Code	IP66
Maximum Load(N)	15000	Corrosion Category(ISO12944-2)	C3-15Years
Half Stroke Static Load (Varies According To Stroke)(N)	78000	The Highest Altitude (m)	3500
No-load Current (A)	≤0.75	Noise Level(dBA)	85
Rated Load Speed (mm/s)	1.75±10%	Rated Load Pull Current (A)	≤1.1
No-load Speed (mm/s)	2.1±10%	Rated Load Thrust Current (A)	≤1.2
Working Temperature (°C)	-40°C~+65°C	Built-in Limit Switch	NO/(Customizable)
Working Relative Humidity (%)	<85%	Connector	Lingke/Weipu/Bare Wire Dip Tin etc.

Technical Parameter

Voltage(V)	24 DC	Stroke (mm)	200~1000 (Customizable)
Power(W)	168	Installation Distance (mm)	≥420+ Stroke(Customizable)
Specified Load(N)	31000	IP Code	IP65
Maximum Load(N)	50000	Corrosion Category(ISO12944-2)	C3-15Years
Half Stroke Static Load (Varies According To Stroke)(N)	40000	The Highest Altitude (m)	3500
No-load Current (A)	≤1.2	Noise Level(dBA)	85
Rated Load Speed (mm/s)	0.7±10%	Rated Load Pull Current (A)	≤6.5
No-load Speed (mm/s)	1.1±10%	Rated Load Thrust Current (A)	≤7.0
Working Temperature (°C)	-40°C~ +65°C	Built-in Limit Switch	YES
Working Relative Humidity (%)	<85%	Connector	Lingke/Weipu/Bare Wire Dip Tin etc.







Protection level



Temperature



Salt spray



Multipoint mechanical linkage



Higher safety factor



More stable performance

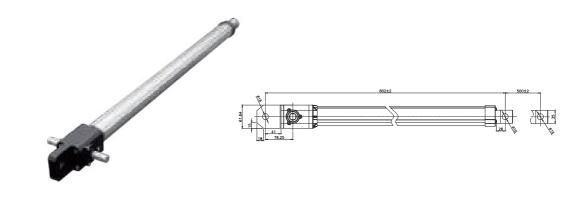


More cost-effective



Intelligent equipment

PA25









Temperature



Salt spray



Fixed and adjustable



Higher safety factor



More stable performance



More cost-effective



Intelligent equipment

Technical Parameter

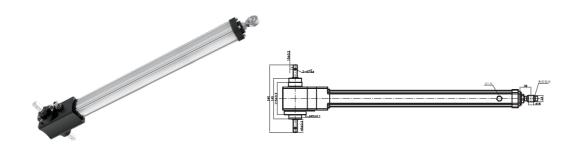
Voltage(V)	31000	Installation Distance (mm)	≥420+ Stroke(Customizable)
Power(W)	50000	IP Code	IP65
Half Stroke Static Load (Varies According To Stroke)(N)	40000	Corrosion Category(ISO12944-2)	C3-15Years
No-load Speed (mm/r)	0.83	The Highest Altitude (m)	3500
Working Temperature (°C)	-40°C~+65°C	Noise Level(dBA)	85
Working Relative Humidity (%)	<85%	Built-in Limit Switch	YES
Stroke (mm)	200~1000 (Customizable)		

Technical Parameter

Voltage(V)	6000	Installation Distance (mm)	≥240+ Stroke(Customizable)
Power(W)	7000	IP Code	IP66
Half Stroke Static Load (Varies According To Stroke)(N)	40000	Corrosion Category(ISO12944-2)	C3-15Years
No-load Speed (mm/r)	3.175	The Highest Altitude (m)	3500
Working Temperature (°C)	-40°C~+65°C	Noise Level(dBA)	85
Working Relative Humidity (%)	<85%	Built-in Limit Switch	NO
Stroke (mm)	100~700 (Customizable)		

PHOTOVOLTAIC SERIES

PT7





Protection level



Temperature



 ${\sf Salt\,spray}$



Multipoint mechanical linkage



Higher safety factor



More stable performance



More cost-effective



Intelligent equipment

Technical Parameter

Voltage(V)	20000	Installation Distance (mm)	≥330+ Stroke(Customizable)
Power(W)	40000	IP Code	IP66
Half Stroke Static Load (Varies According To Stroke)(N)	60000	Corrosion Category(ISO12944-2)	C3-15Years
No-load Speed (mm/r)	3.175/4	The Highest Altitude (m)	3500
Working Temperature (°C)	-40°C~+65°C	Noise Level(dBA)	85
Working Relative Humidity (%)	<85%	Built-in Limit Switch	(Customizable)
Stroke (mm)	100~1200 (Customizable)	Connector	Lingke/Weipu/Bare Wire Dip Tin etc.

PRODUCT INTRODUCTION

The Pursue for maximum efficiency
Maintain the highest quality
Based In China
Serving The World

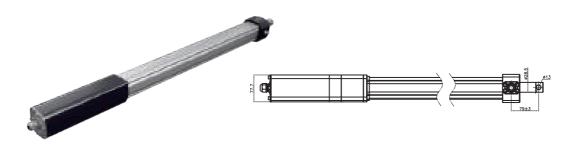
Photothermal series





PHOTOTHERMAL SERIES PHOTOTHERMAL SERIES







Protection level



Temperature



Salt spray



Tower photothermal



Higher safety factor



More stable performance

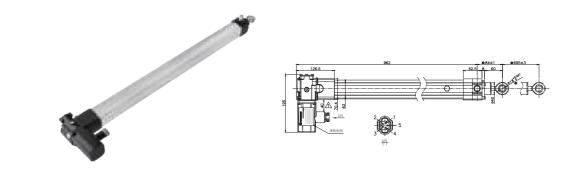


More cost-effective



Intelligent equipment

PN8





Protection level



Temperature



Salt spray



Tower photothermal



Higher safety factor



More stable performance



More cost-effective



Intelligent equipment

Technical Parameter

Voltage(V)	24 DC	Stroke (mm)	200~1000 (Customizable)
Power(W)	96	Installation Distance (mm)	≥100 (Customizable)
Specified Load(N)	3000	IP Code	IP66
Maximum Load(N)	5000	Corrosion Category(ISO12944-2)	C3-15years
Half Stroke Static Load (Varies According To Stroke)(N)	7000	The Highest Altitude (m)	3500
No-load Current (A)	≤1	Noise Level(dBA)	60
Rated Load Speed (mm/s)	0.88	Rated Load Pull Current (A)	≤3.5
No-load Speed (mm/s)	3.5	Rated Load Thrust Current (A)	≤4.0
Axial rigidity (mm)	≤0.25	Built-in Limit Switch	NO
Working Temperature (°C)	-40°C~+65°C	Connector	Lingke/Weipu/Bare Wire Dip Tin etc.
Working Relative Humidity (%)	<85%		

Technical Parameter

Voltage(V)	24 DC	Installation Distance (mm)	≥100 (Customizable)
Power(W)	96	IP Code	IP66
Specified Load(N)	850	Corrosion Category(ISO12944-2)	C3-15Years
Maximum Load(N)	2350	The Highest Altitude (m)	3500
No-load Current (A)	≤1	Noise Level(dBA)	≤60
Rated Load Speed (mm/s)	0.88	Rated Load Pull Current (A)	≤3.5
No-load Speed (mm/s)	3.3	Rated Load Thrust Current (A)	≪4.0
Working Temperature (°C)	-40°C~+65°C	Built-in Limit Switch	YES
Working Relative Humidity (%)	5%~65%	Motor Outlet Plug	Tin On Bare Wire, Customizable
Stroke (mm)	200~1000 (Customizable)		

Tracking Controller

► Introduction to Tracking Controller

The tracking controller is a horizontal single-axis dedicated controller used in the solar PV industry. The controller uses the astronomical calendar method to calculate the solar motion trajectory algorithm and thus the motion posture of the bracket in real time; and by combining the angle sensor device to detect the real-time angle information of the bracket, and ultimately sends a rotation command to the motor for execution. The rotation of the motor realizes the adjustment of the bracket angle, and the system tracks the sun in real time, with a control precision within 2 degrees.



The input power of the controller is DC24V/AC AC220V, the output is connected to a 24V DC motor. The DC motor is built in with the linear actuator, the length of the linear actuator can be adjusted to realize the change of the bracket angle, thereby integrating the controller and the entire system together, and the linear actuator with excellent matching with the controller, the lifespam of the tracking bracket drive system can be improved.



▶ Easy To Install

The controller is integrated with the push rod (linear actuator). The controller requires 4 mounting holes in advance, which can be directly fixed to the rotating shaft of the bracket. The whole field operation team only needs to install the push rod (linear actuator) and the fixed controller in two steps, without the need of connecting cables or other additional work.

▶ High Reliability

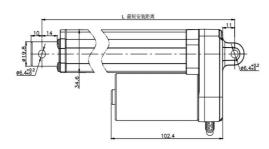
The controller has a water protection rating of up to IP67 with the highest waterproof and dustproof standard in the industry. The product is also designed with minimal environmental impact as one of the primary considerations. It can also adapt to severe cold and heat temperature, as well as in other extreme environments such as desert and places with high humidity.













Protection level



Temperature



Salt spray



Intelligent equipment



Higher safety factor



More stable performance

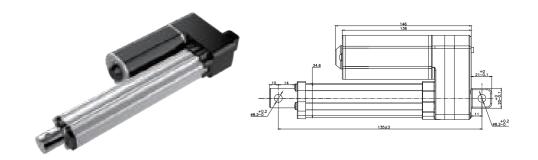


More cost-effective



Industrial agriculture

PA6









Temperature



Salt spray



medical treatment



Higher safety factor



More stable performance



More cost-effective



Intelligent equipment

Technical Parameter

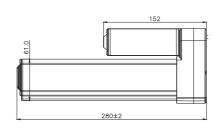
Voltage(V)	12/24/36/48 DC	IP Code	IP54/IP65/IP66
Maximum Load(N)	1400	Temperature Range (°C)	-40°C~+70°C
Maximum Static Load (N)	2500	Built-in Limit Switch	YES
Speed Range (mm/s)	5.5~100	Install The Joint Universal Joint	(Customizable)
Current Range (Amp)	0.2~3	Other Options	POT Hall Inductance (Single Or Double)
Stroke (mm)	20~1000 (Customizable)	Connector	Bare Wire Dip
Installation Distance (mm)	≥105+ Stroke(Customizable)		

Technical Parameter

Voltage(V)	12/24 DC	IP Code	IP55-IP66
Maximum Load(N)	3500	Temperature Range (°C)	-40°C~+70°C
Maximum Static Load (N)	5000	Built-in Limit Switch	YES
Speed Range (mm/s)	3~20	Install The Joint Universal Joint	(Customizable)
Current Range (Amp)	0.1~6	Other Options	Hall
Stroke (mm)	30~800 (Customizable)	Connector	(Customizable)
Installation Distance (mm)	≥115 Stroke(Customizable)		









Protection level



Temperature



Salt spray



Smart home



Higher safety factor



More stable performance



More cost-effective

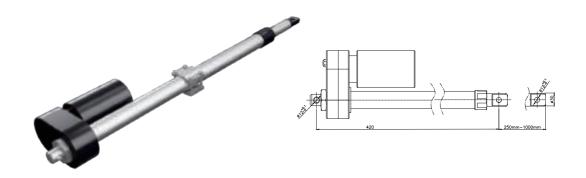


Intelligent equipment

Technical Parameter

Voltage(V)	24 DC	Working Relative Humidity (%)	≤90%
Power(W)	80	Stroke (mm)	30~700 (Customizable)
Rated load, thrust application(N)	200	Installation Distance (mm)	≥110+Stroke 4 (Customizable)
No-load Current (A)	€2	IP Code	IP42
Rated Load Speed (mm/s)	13	Noise Level(dBA)	55
No-load Speed (mm/s)	20	Built-in Limit Switch	Yes
Working Temperature (°C)	-30°C~+65°C	Motor Outlet Plug	Bare Wire Dip Tin, Customizable







Protection level



Temperature



Salt spray



Industrial agriculture



Higher safety factor



More stable performance



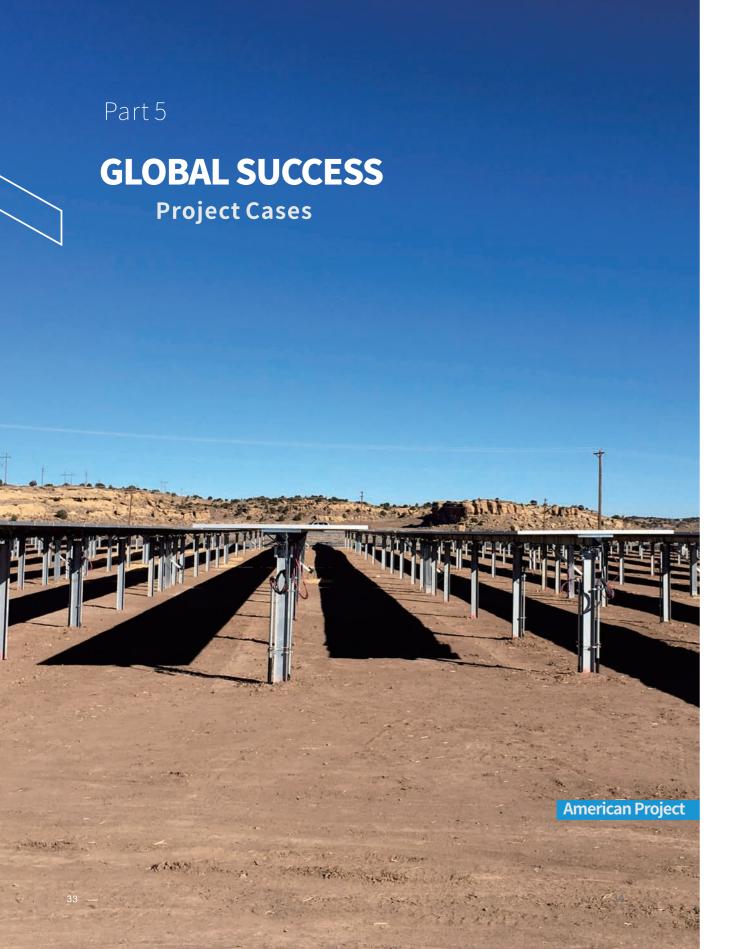
More cost-effective



Intelligent equipment

Technical Parameter

Voltage(V)	220 AC	Stroke (mm)	250~1000 (Customizable)
Power(W)	230	Installation Distance (mm)	≥420+ Stroke(Customizable)
Specified Load(N)	10000	IP Code	IP65
Maximum Load(N)	13000	Corrosion Category(ISO12944-2)	C3-15Years
Ultimate Static Load (N)	20000	The Highest Altitude (m)	3500
Half Stroke Static Load (Varies According To Stroke)(N)	20000	Noise Level(dBA)	85
No-load Current (A)	≤1	Rated Load Pull Current (A)	≤1.1
Rated Load Speed (mm/s	6±10%	Rated Load Thrust Current (A)	≤1.2
No-load Speed (mm/s)	7±10%	Built-in Limit Switch	YES
Working Temperature (°C)	-40°C~+65°C	Connector	Immersion Tin (Customizable)
Working Relative Humidity (%)	<90		























Financial Analysis of Three Tracking Systems for Photovoltaic Power Generation

System Introduction

- System 1 is the type of operation of each tracker table as a stand-alone drive unit (single-column system).
 The battery is charged using a PV solar module that operates a linear actuator (POWERNICE) driven by a DC motor.
- System 2 is a type in which each tracker table operates as a stand-alone drive unit (single-column system). The battery is charged using a PV solar module that operates a rotary drive driven by a DC motor.
- System 3 is a central drive (linkage system) design in which multiple tracker tables are driven by a single large drive that is coupled by a rotary power transmission.

📊 Power Generation Data Analysis

Through in-depth study of the technical characteristics of each system, as well as simulation analysis of the risks associated with component failure. The end result is a relative financial analysis of the three system types through energy standardization costs.

Data Sheet 1 System 1 has the highest power output of all systems. This is because System 1 has the highest module density resulting in the farthest line distance, so there is more time for the sun below the optimal angle.

Tracking method	System 1	System 2	System 3
Power generation / year /1 Mwh	124,227	123,520	121,155

\$ Financial Data Analysis

Data Sheet 2

Maintenance cost	System 1	System 2	System 3
Including mowing and battery Maintenance	\$3,732,775	\$8,754,975	\$5,344,556
System 1 saves money compared to System 2		\$5,022,220	
System 1 saves money compared to System 3			\$1,611,781

System 1 has the lowest overall operating and maintenance costs:

- 1. Due to the combination of the highest ground clearance, System 1 has the lowest mowing cost (reduced cutting frequency) and easy cutting of the grass (no rotary drive, making the machine work more efficiently in the bracket)
- 2. System 1 has lower equipment operating and maintenance costs, is an independent maintenance free drive system and requires very low maintenance of batteries with long life.

Therefore, System 1 exhibits the best (highest) return on investment and the best (lowest) average cost among the three.

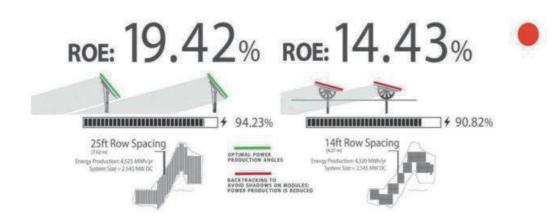
Data Sheet 3

Pre-tax Income	System 1	System 2	System 3
Unsubsidized Income	\$ 17,971,995	\$12,446,695	\$13,336,806
System 1 saves money compared to System 2		\$5,525,300	
System 1 saves money compared to System 3			\$4,635,189

Data Sheet 4

Average energy cost	System 1	System 2	System 3
Average 30 years of service life (\$/Mwh)	\$43.27	\$44.78	\$44.82
System 1 saves money compared to System 2		\$1.51	
System 1 saves money compared to System 3			\$1.55

Comparison Between Linear Actuator with Rotary System



Summary:

It is recommended to adopt photovoltaic tracking power Generation with high-quality DC linear actuator to achieve the highest return on investment.

Powernice Intelligent Linear Actuator Application Analysis Worksheet

0 11	,
Date	Company Name
Address	Contact
Department	Job
Telephone	Fax
Website	e-mail e-mail
Dataile and Annications	
Details and Applications	
01 Motor Arrangement Of Actuator The Motor Is Perper	ndicular To The Actuator
☐ The Motor Is Parallel To The Actuator ☐ Th	he Motor Is Coaxial With The Actuator
02 Total axial load	
Dynamic Load (kg	g) Static Load (kg)
Thrust	
Pull	
If the load changes in motion, please describe it in deta	iil
03 Stroke Length mm Stroke Length	mm/s
24	
04 Working System (Percentage Of Time Running In 10 Mir	
☐ Working System < 25% ☐ 25% < Working Sy	stem < 50%
Number Of Cycles Per 24 Hours:	
05 Screw Classification Trapezoidal Screw Intelligen	nt Linear Actuator 🔲 Ball Screw Intelligent Linear Actuator
06 Are There Self-locking Requirements Yes	□ No
07 Need To Run Without Rotation	□ No
08 Motor Classification	Motor 12V DC Motor 24V
☐ Three Phase AC Motor ☐ Step	pper Motor Is Provided By Customers
09 Working Temperature°C Working Humidit	y %
Special Working Environment	
10 Other Options	☐ Potentiometer
☐ Degree of protection ☐ Clu	utch
11 Detailed Application (Applied To What Equipment And H	How To Use It)
12 Demand Quantity Annual Demand Quanti	ity
13 For special requirements, please provide detailed drawi	ings