



Up&Down Solar Cleaning Robot

MR-XY

Your needs are our motivation

2023

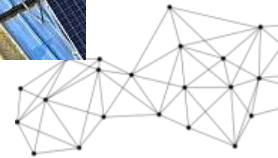
Beijing Multifit Electrical Technology Co., Ltd

SUNSHINE FOR YOU MULTIFIT TO ALL

The importance of cleaning solar power station

Since solar power stations are usually built in places with high terrain, sufficient sunshine, strong wind and lack of water resources, it is easy to accumulate sand and dirt on solar panels. If the dust and dirt are not removed in time, the power generation efficiency will be seriously affected by 8% to 30%. The hot spot problem on the pv panels caused by dust also greatly reduces the service life.

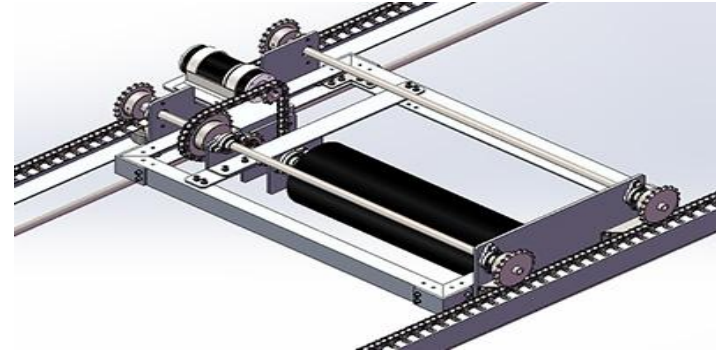
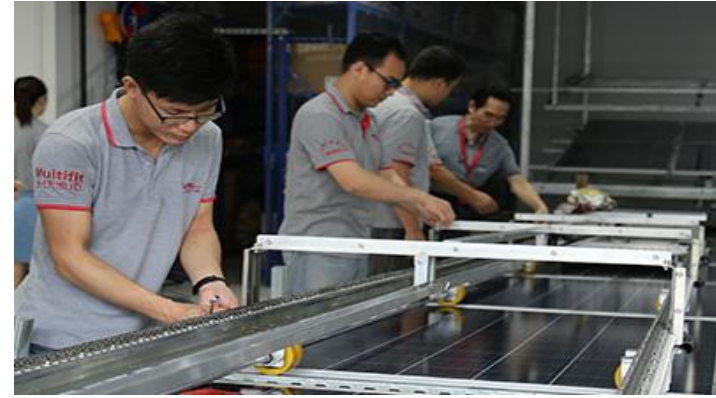
As a new clean energy, solar power generation is developing rapidly all over the world. The global installed capacity had over 150 GW in 2021, It is estimated that the total solar installation capacity will reach 1870GW in 2025, but most of the solar cleaning jobs are still done by manual work.



The Cleaning Robot For Large PV System

Multifit Solar adheres to the spirit of long-termism and contract, continues to increase investment in research and development, expands the types and catalogs of Solar Cleaning Brush and Automatic Cleaning Robot, make sure that is widely used in house, industrial and commercial, and large-scale power stations.

Sunshine For You Multifit To All!
Multifit Solar will continue to insist on innovation development in the solar industry, dedicate our own corporate advantages, serve global customers, and accelerate the transformation of global green energy.



Qualification Certification



ISO 9001



**The Certificate of
Quality Management System**

Certificate No: 51822Q07095R05
Guangdong Multifit Solar Co.,Ltd.
 (Unified social credit code: 91440500MA5138GD30)

Registered address: 301A,3F,6 Keji West Road,Hi-Tech Zone,Shantou,Guangdong
China
 Certification address: 301A,3F,6 Keji West Road,Hi-Tech Zone,Shantou,Guangdong
China

Has been awarded this certificate for compliance with the standard
GB/T19001-2016 /ISO9001:2015

Range of Products and Process: Production and sales of Solar Energy Generation System,Solar Panel Cleaning Equipment,Solar Inverter,Solar Light, and Solar Energy Products

Issued date: 2022-03-01 Valid Until: 2025-02-28
 Initial issued date: ***** Renewal date: *****

This certificate is used with the requirements of valid laws and regulations which the certification scope involved.These requirements include but are not limited to administrative permits, scopes of qualifications and CCC requirements etc.

Surveillance conformity label should be pasted below for continual effectiveness of this certificate.


The first
Surveillance

The second
Surveillance





GM *Multifit*



Shenzhen Zhongbiao International Testing and Certification Co., Ltd.
 Company address: 1103 / Zherye Building, Xing Hai Ming Cheng VI, Intersection of Qian Hai Road & Shen Nan
 Road,Xing Hai Ming Cheng Community, Nantou Street, NanShan District, Shenzhen
 TEL: 0755-82838999 FAX: 0755-82838999

Information of this certificate can be found on the official website of certification center (www.cccrc.com)
 and CNCA official website(www.cnca.gov.cn)

ISO 45001



**Occupational Health and Safety
Management System Certificate**

Certificate No: 51822O07097R05
Guangdong Multifit Solar Co.,Ltd.
 (Unified social credit code: 91440500MA5138GD30)

Registered address: 301A,3F,6 Keji West Road,Hi-Tech Zone,Shantou,Guangdong
China
 Certification address: 301A,3F,6 Keji West Road,Hi-Tech Zone,Shantou,Guangdong
China

Has been awarded this certificate for compliance with the standard
GB/T45001-2020/ISO45001:2018

Range of Products and Process: Production and sales of Solar Energy Generation System,Solar Panel Cleaning Equipment,Solar Inverter,Solar Light,Solar Energy Products and related occupational health and safety management activities.

Issued date: 2022-03-01 Valid Until: 2025-02-28
 Initial issued date: ***** Renewal date: *****

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 and CNCA official website(www.cnca.gov.cn)

ISO 14001



**The Certificate of Environmental
Management System**

Certificate No: 51822E07096R05
Guangdong Multifit Solar Co.,Ltd.
 (Unified social credit code: 91440500MA5138GD30)

Registered address: 301A,3F,6 Keji West Road,Hi-Tech Zone,Shantou,Guangdong
China
 Certification address: 301A,3F,6 Keji West Road,Hi-Tech Zone,Shantou,Guangdong
China

Has been awarded this certificate for compliance with the standard
GB/T24001-2016 /ISO14001:2015

Range of Products and Process: Production and sales of Solar Energy Generation System,Solar Panel Cleaning Equipment,Solar Inverter,Solar Light,Solar Energy Products and related environmental management activities.

Issued date: 2022-03-01 Valid Until: 2025-02-28
 Initial issued date: ***** Renewal date: *****

This certificate is used with the requirements of valid laws and regulations which the certification scope involved.These requirements include but are not limited to administrative permits, scopes of qualifications and CCC requirements etc.

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Surveillance

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Surveillance



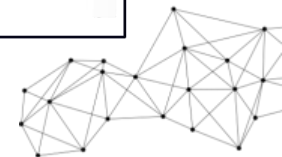


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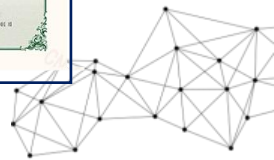
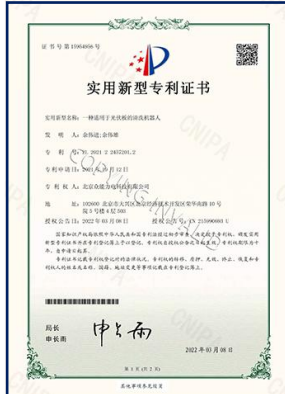
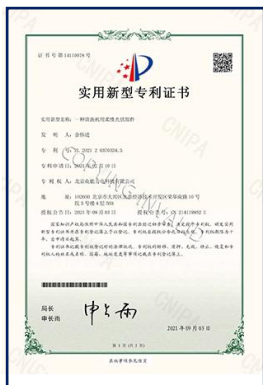
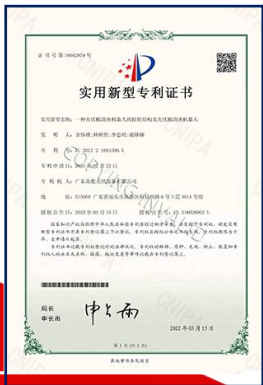


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 Company address: 1103 / Zherye Building, Xing Hai Ming Cheng VI, Intersection of Qian Hai Road & Shen Nan
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 TEL: 0755-82838999 FAX: 0755-82838999

Information of this certificate can be found on the official website of certification center (www.cccrc.com)
 and CNCA official website(www.cnca.gov.cn)



Qualification Certification



Qualification Certification



CERTIFICATE OF CONFORMITY



Certificate No. : BKC22030678CC

Certificate of Conformity

Applicant : Beijing Multifit Electrical Technology Co.,Ltd
503 No.5 Building No.10 Courtyard Ronghua South road,
Beijing Economic&Technological development Zone 100176,
Beijing P.R.China

Manufacturer : Guangdong Multifit Solar Co.,Ltd.
Room 301A, 3rd Floor, No. 6 Keji West Road, High-tech Zone,
Shantou, Guangdong, China

Trademark : 

Product : Solar Panel Cleaning Robot

Model(s) : MR-G1-XXXX (XXXX=0990-9000),
MR-G2-XXXX (XXXX=0990-9000),
MR-XY1-XXXX (XXXX=0990-9000), MR-T1, MR-AR1.

Essential requirement	Applied Specifications/Standards	Documentary Evidence
Art.3.1(a) Safety	EN IEC 62368-1:2020+A11:2020	BKC22030678CS
Art.3.1(a) Health	EN 52479-2:2010 ETSI EN 301 489-1 V2.2.3 (2016-11)	BKC22030678CF
Art.3.1(b) EMC	Final draft ETSI EN 301 489-3 V2.2.0 (2021-11)	BKC22030678CE
Art.3.2 Radio	ETSI EN 300 330 V2.1.1 (2017-02)	BKC22030678CR

The certificate of conformity is based on an evaluation of a sample of the above mentioned products. It does not imply an assessment of the whole production. It is possible to use CE marking to demonstrate the compliance with this RED Directive 2014/53/EU. It is only valid in connection with the test report number: BKC22030678CS/BKC22030678CF/BKC22030678CE/BKC22030678CR.

CE





Shenzhen BKC Testing Co., Ltd.
103, 1/F, Huaya Science Park, Longhua Community, Longhua District, Shenzhen,
Guangdong, China Tel: 4000-875-382 0755-84829082
E-mail: bkc@bkc-lab.com Certificate Search: <http://www.bkc-lab.com>

CERTIFICATE OF CONFORMITY



Certificate No. : BKC-190601363C

Certificate of Conformity

Applicant : Beijing Multifit Electrical Technology Co.,Ltd.
503 No.5 Building No.10 Courtyard Ronghua South road, Beijing
Economic&Technological development Zone 100176, Beijing
P.R.China

Manufacturer : Guangdong Multifit Solar Co.,Ltd
3/F, JieSi Bldg., 6 Keji West Road, Hi-Tech Zone 515041, Shantou,
Guangdong, China

Trademark : 

Product : Solar Panel Cleaning Robot

MIN : MULR1650
MULR990, MULR990-2, MULR990-3, MULR990-4, MULR990-5,
MULR990-6, MULR1650-2, MULR1650-3, MULR1650-4,
MULR1650-5, MULR1650, MULR1950-2, MULR1950-3,
MULR1950-4, MULR1950-5.

Test Standard : EN 1175-1:1998+A1:2010

The certificate of conformity is based on an evaluation of a sample of the above mentioned products. It does not imply an assessment of the whole production. It is possible to use CE marking to demonstrate the compliance with this MD Directive 2006/42/EC. It is only valid in connection with the test report number:BKC-190601363CS.

CE





Shenzhen BKC Testing Co., Ltd.
6/F, Building 3, Zhouteng Industrial Park, Nanwan Street, Longgang District,
Shenzhen, Guangdong, China. Tel: 4000-875-382 0755-32925341
E-mail: bkc@bkc-lab.com Certificate Search: <http://www.bkc-lab.com>

CERTIFICATE OF CONFORMITY



Certificate No. : BKC22030679CC

Certificate of Conformity

Applicant : Beijing Multifit Electrical Technology Co.,Ltd
503 No.5 Building No.10 Courtyard Ronghua South road,
Beijing Economic&Technological development Zone 100176,
Beijing P.R.China

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Trademark : 

Product : Solar Panel Cleaning Robot

Model(s) : MR-G1-XXXX (XXXX=0990-9000),
MR-G2-XXXX (XXXX=0990-9000),
MR-XY1-XXXX (XXXX=0990-9000), MR-T1, MR-AR1.

Test Standard : EN ISO 12100:2010
EN 60204-1:2018
EN IEC 61000-6-2:2019
EN IEC 61000-6-4:2019

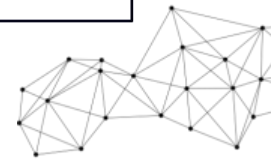
The certificate of conformity is based on an evaluation of a sample of the above mentioned products. It does not imply an assessment of the whole production. It is possible to use CE marking to demonstrate the compliance with this MD Directive 2006/42/EC and LVD Directive 2014/05/EU and EMC Directive 2014/03/EU. It is only valid in connection with the test report number: BKC22030679CS/BKC22030679CE.

CE





Shenzhen BKC Testing Co., Ltd.
103, 1/F, Huaya Science Park, Longhua Community, Longhua District, Shenzhen,
Guangdong, China Tel: 4000-875-382 0755-84829082
E-mail: bkc@bkc-lab.com Certificate Search: <http://www.bkc-lab.com>

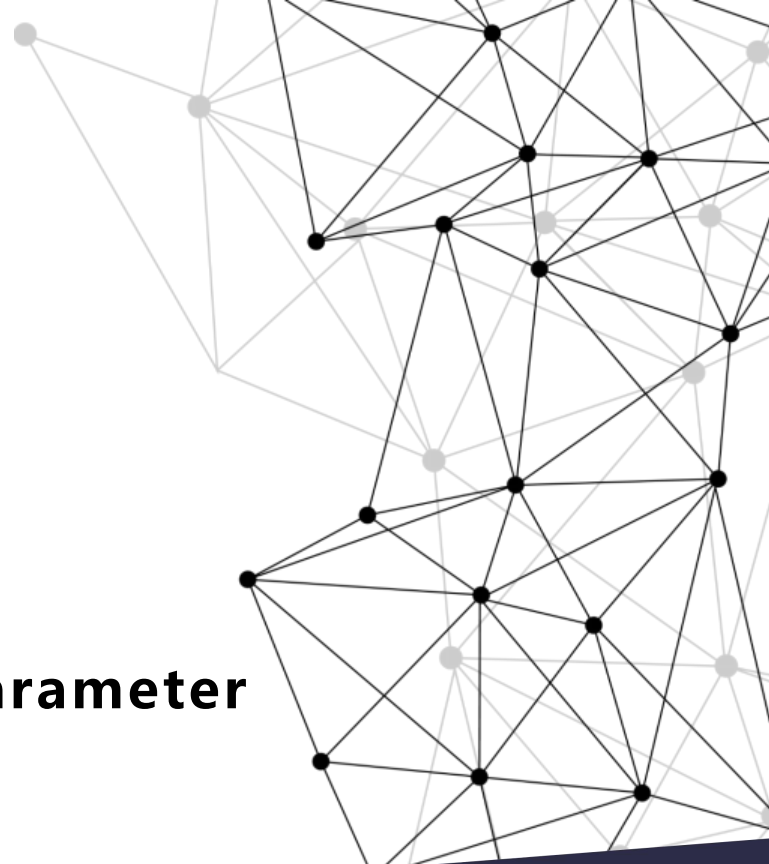


01

*Up&Down
Solar Cleaning Robot*

Product Details & Technical Parameter

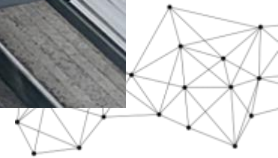
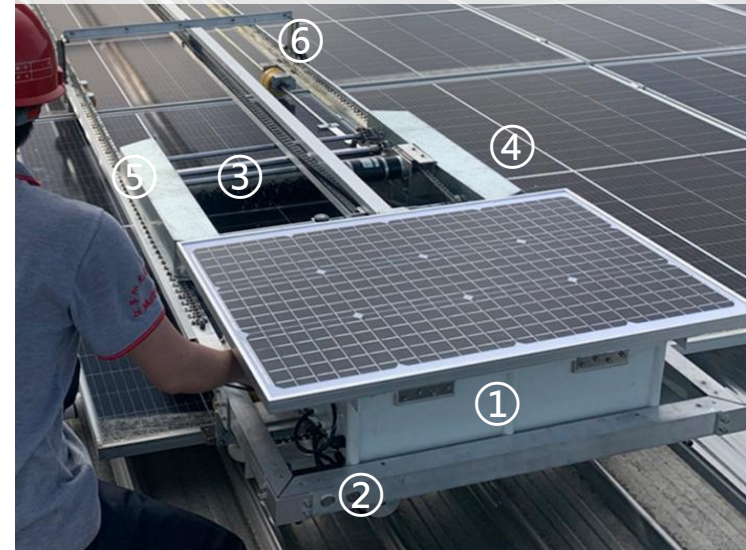
Versatile cleaning modes



Product Composition

The cleaning robot is divided into frame part, cleaning device and electrical control part. The frame part is made of aluminum alloy, on which a chain track is laid. The cleaning device walks on the chain through a sprocket. At the same time, the four guide wheels on the frame are clamped inside it to play a limiting role. The electric control part is integrated in the electric control box and placed at the end of the rack. The cable is connected to the motor on the cleaning device through the drag chain to control the motor to realize the up and down cleaning function of the cleaning device. The motor at the tail end controls the left and right walking function of the cleaning robot, and identifies the edge position of the photovoltaic panel through the limit switch.

1. Electrical Control Assembly
2. Switch Knob
3. Cleaning Device
4. Limit Switch
5. Chain Track
6. Walking Wheel



Technical Parameter

Models	Working Hours (H)	Working Speed (m/min)	Running Distance (m)	Working Temperature (°C)
MR-XY	>4	8-12 (m/min)	>2000m	-10°C (No condensation) ~50°C
The Way of controll	Remote control & Intelligent management control system			
Working mode	The staff activated the remote control for cleaning, no need for manual cleaning			
Cleaning robot berth	The Parking Spaces on either side of solar panels			
Protection grade	IP65			
Postscript	Can be customized based on the size of solar panel			

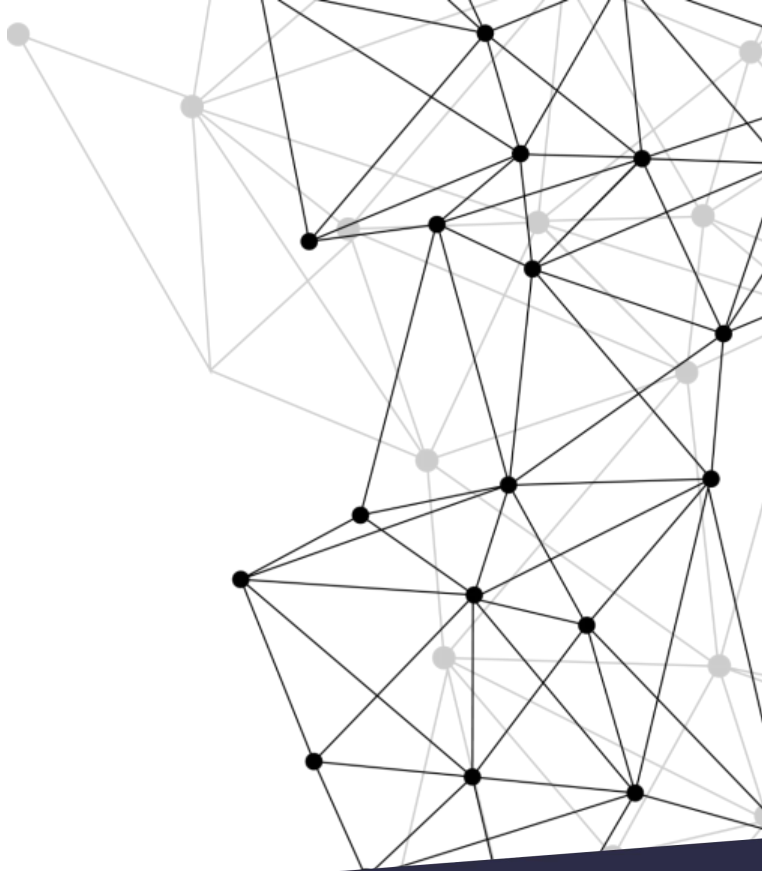


02

Up&Down Solar Cleaning Robot

Features

High quality products, We are trustworthy



Multi segment assembly

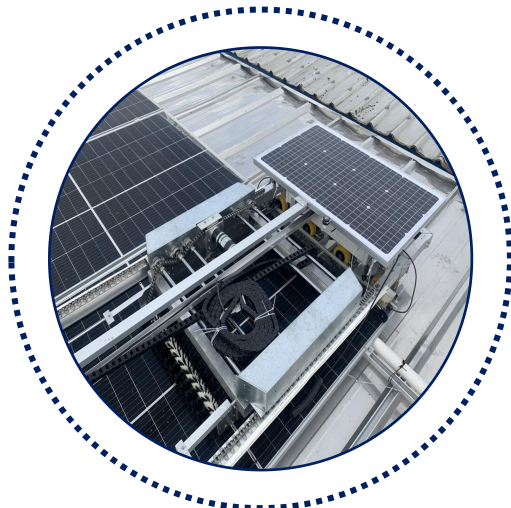
The frame part adopts multi segment splicing (the number of segments is determined according to the number of photovoltaic array panels on site) structure, which is convenient for transportation.



Multi solar panel cleaning

Large photovoltaic array cleaning robots can adapt to photovoltaic systems with multiple rows of solar panels assembled in an array.

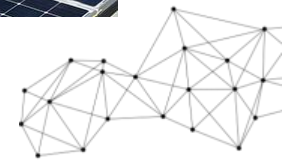


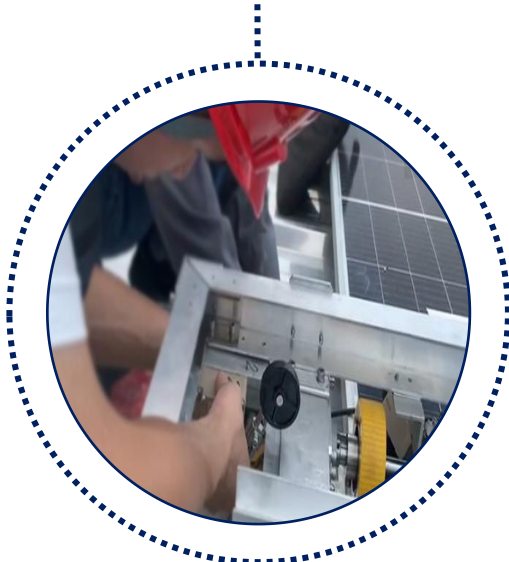


Large photovoltaic array cleaning robots
Aluminum alloy bracket for stable walking
Without manual cleaning

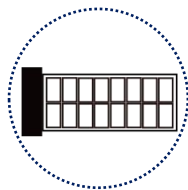


Walking steadily



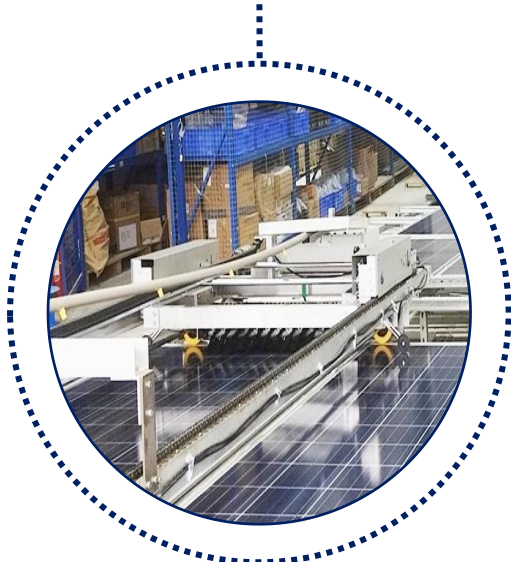


Edge automatic perception technology
Preventing robots from slipping
Avoiding danger



Avoid danger



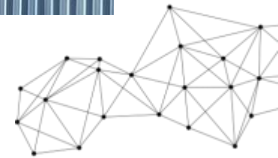


Integrated dry cleaning and water cleaning model .

Convenient to use in different photovoltaic power station.



Water washing
function





Remote control with independent power supply

Up&Down Solar Cleaning Robot
Applicable ambient temperature
-10 (No condensation) ~ 50 °C



Intelligent operation





Excellent Performance

Which is durable, efficient cleaning
customized equipment size

(the number of segments is determined according to the
number of photovoltaic array panels on site)



It adopts lithium battery and
brushless motor, which is durable

The frame part adopts multi
segment splicing structure, which is
convenient for transportation.

Efficient cleaning, special brush, neater,
only single machine can clean 1.2mwp/
day

Customized equipment length: the length of the
equipment can be customized according to the
size of solar panel

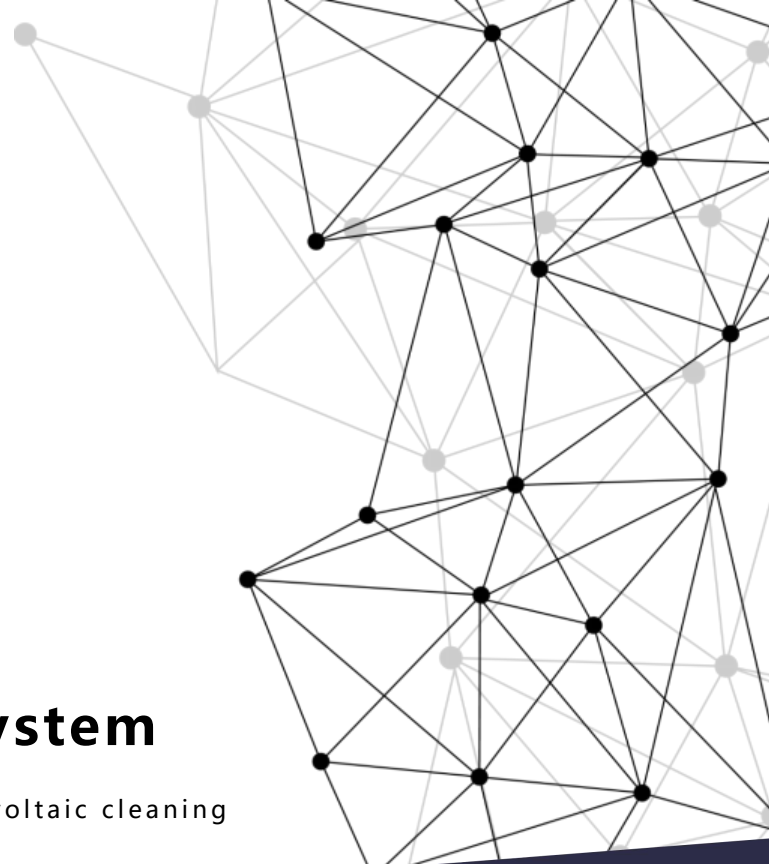


03

Up&Down Solar Cleaning Robot

Smart Management Control System

Our company independently developed a small smart photovoltaic cleaning robot to serve the photovoltaic energy industry.



Smart Management Control System



Robot Management

Robot Information

- Group:
- Board No.: 434843047526
- Model: 单板
- Name:
- Area:
- Address:
- Remote Control:
- WiFi Name:
- WiFi Password: *****
- Clean No.: 3 Times
- Manufacturing Time: 2022-03-04 16:21:54

[Back](#)

Robot Current Status

- Robot running status: **Being Disconnected**
- Distance from Station: **1Meter**
- Robot Speed(Actual): **0 m/m**
- Rainfall: **No Rain**
- Real-time Power: **Real-time Power : 100.00%**
- Robot alarm information:
 - 1. Low Power
 - 2. Sensors are out of range both
 - 3. Motor failure
 - 4. Collision sensor occurs



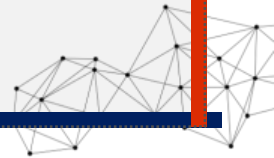
● Smart Management Control System



Up&Down Solar Cleaning Robot Control System

1. Improve the convert efficiency of solar panels.
2. Extend the service life of the panel.

Turn on the intelligently management control system according to your needs, follow up in real time, and keep your solar panels as clean as new.



Solar Panel Cleaning Robot Testing Result



MULTIFIT Cleaning Robot Application Testing Result

(FENGXI Project in China)

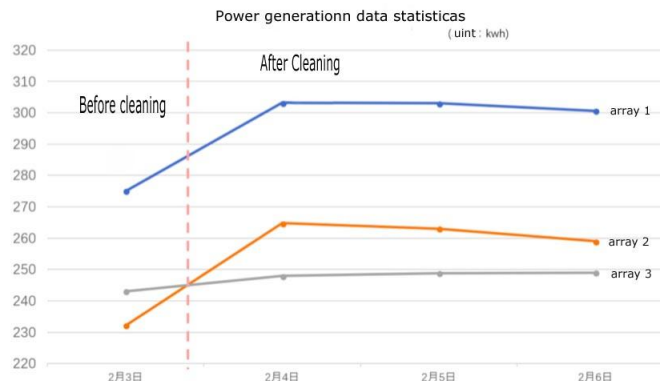
Cleaned array: array 1, array 2

Uncleaned array: array 3

Cleaning date: Feb 3

Data Sheet

Solar Array	Feb 3	Feb 4	Feb 5	Feb 6	Power increase
array 1	275.1	303.2	303	300.6	10%
array 2	232.2	264.8	263	259	14%
array 3	243.1	247.9	248.82	249	/



After Cleaning

Before cleaning



Solar Panel Cleaning Robot Customers :



Main customers:

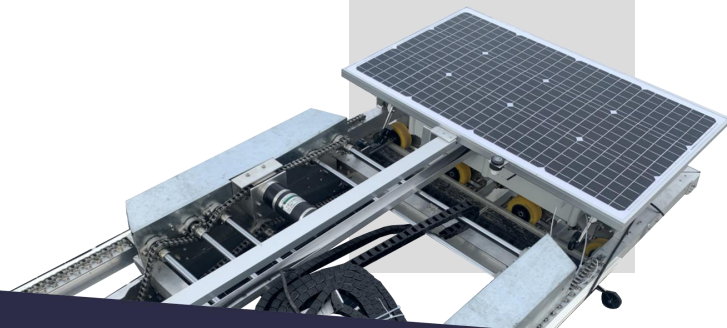
- (1) Solar power station owner—— The owner has operation team
- (2) Solar operation company——improve the cleaning efficiency, reduce operational costs
- (3) Professional cleaning company——improve the cleaning efficiency, and bring your investments back
- (4) Energy contract company——New business mode



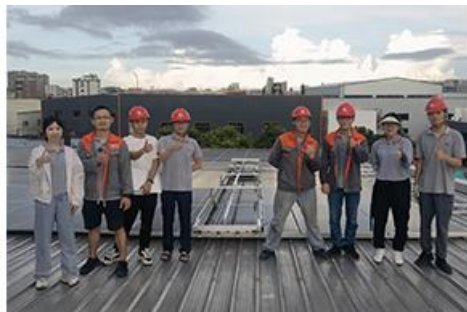
04

Project

Actual application scenarios of customers



Project



If your solar panels are clean ?

MULTIFIT GROUP



0086-13641024477



0086-010-87227420

0086-0754-81888658



multifit@multifitele.com



Multifit



<http://vmaxpowerpv.com>

<http://www.multifitsolar.com>

<http://www.multifitele.com>



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Ronghua South Rd.BDA Zone 100176,BeiJing China
- Guangdong Plant: 3/F,JieSi Bldg.,6 Keji West Road,Hi-Tech Zone 515041,Shantou,Guangdong,China
- Shenzhen Branch:Rm1213,ChenshishanHai Bluding.No.51 PingXin North Rd.LongGang
District.ShenZhen City GuangDong Province.China



**Thanks for
watching**