

iPVTracker

Precise tracking of the
Sun in 360°

360° 精准与日共生



iPVTracker

www.ipvtracker.com

BIG SUN's iPV Tracker is able to convert the virtually unlimited solar energy to electricity for daily needs in the most economical and efficient way, and brings real benefits for our customers and to the environment. The iPV Tracker has been granted with multi-national patents and has been awarded with Taiwan Industry Innovation Award (2013). In addition, its derivative product "iPV Smart Farm" has won the Taiwan Outstanding Photonics Award (2015) and the Top 10 Highlights Award (2015) at the SNEC PV Expo.

iPV Tracker 智能跟踪系统为台湾 BIG SUN 太阳光电集团提升太阳能发电效率的划时代力作，将源源不绝的太阳能，以最经济且有效的方式转换成每日用电所需，为客户及环境带来实质的贡献。iPV Tracker 智能跟踪系统已取得多国专利，并于 2013 年获得台湾产业创新成果奖；其应用产品「iPV 智能农业大棚」，更荣获 2015 年台湾杰出光电产品奖、2015 SNEC 十大亮点奖，备受专家肯定。



Taiwan 2013
Industrial Innovation
Awards



Taiwan 2015
Outstanding Photonics
Product Awards



SNEC 2015
TOP10 Highlight
Awards

OUTSTANDING PERFORMANCE

杰出的表现

"iPV Tracker has been tested and verified in field operations, delivered more than 99% availability from global case studies. Also, the internationally renowned consulting firm, Black and Veatch, has issued their technical due diligence report for the iPV Tracker. Thus, we can say the technology of iPV Tracker is really mature." - Chairman of BIG SUN, Summer Luo

「iPV Tracker 智能跟踪系统经过测试及实际营运验证，产品在一年内的稼动率达 99% 以上，2015 年系统程序改良后，全球各地的产品妥善率接近 100%，价格也能让中国系统大厂接受，并且技术上已获得 Black & Veatch 的查验，如此足以认定 iPV Tracker 智能跟踪系统已经真正成熟。」

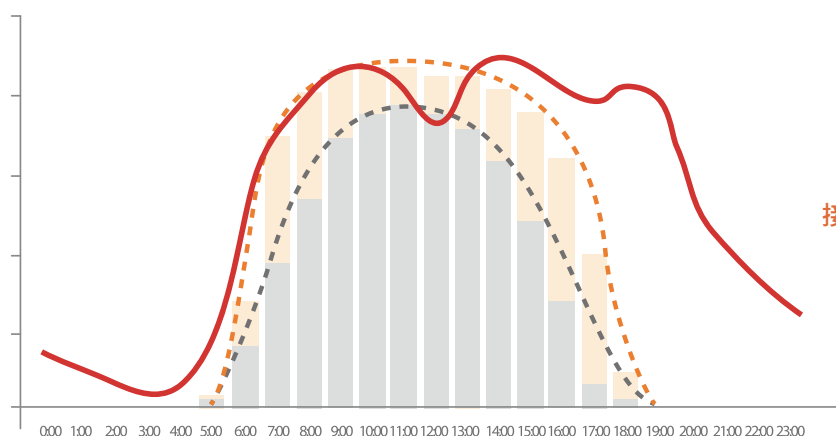
- BIG SUN 董事长 罗家庆



BLACK & VEATCH

Technical Due Diligence Report
[Bankability]

— iPV Tracker — Fixed-tilt 固定型
— The average load Curve of spring and fall. 春秋均值每日电力负载量（数据源：台湾电力公司网站）



Solar Radiation
接收日照量提升

Power Generation
发电量提升

Profit Incoming
利润收益提升

OUTSTANDING DESIGN

杰出的设计

This **CABLE-DRIVEN** dual-axis solar tracker with universal-joint design is able to swivel in **360°** to maximize power generation and matches best to the grid load curve. In conjunction with web-based iPVita control and monitoring system enables it as an **IoT PV SYSTEM**.

专利钢索传动十字双轴跟踪系统，首创 **360°** 转动角度，将光伏发电量最大化，并最能符合电网日间供电曲线。其精实的结构，不但可靠，更能降低维运成本，搭配 BIG SUN iPVita 能源管理系统，达成高妥善率，为最先进之 **IoT 光伏系统**。

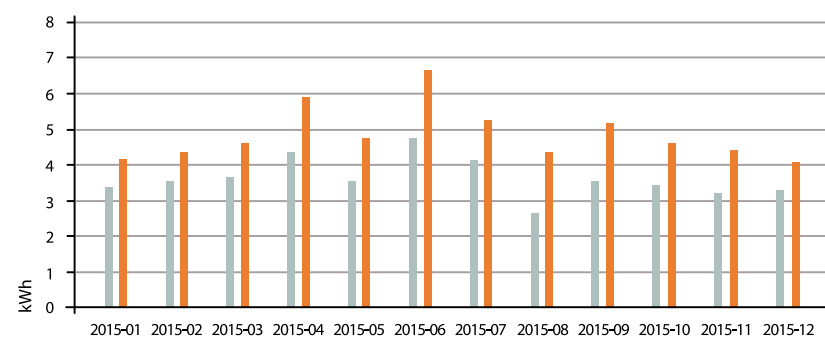


MAXIMIZING OUTPUT

精准跟踪

iPV Tracker is consistent in pointing to the Sun has provided more stable power and up to **30-50%*** power generation than a fixed system, and tracks 1 degree every five minutes, features a full 360 degrees azimuth rotation and altitude tilt of -40 to 40 degrees.

iPV Tracker 智能跟踪系统每 5 分钟转动 1 度，范围可至 360 度方位角、0-40 度倾斜角，在白天能精准追踪太阳轨迹，从日出至日落提供更稳定的电量，相较固定型系统有效提升整体发电量高达 **30-50%***。



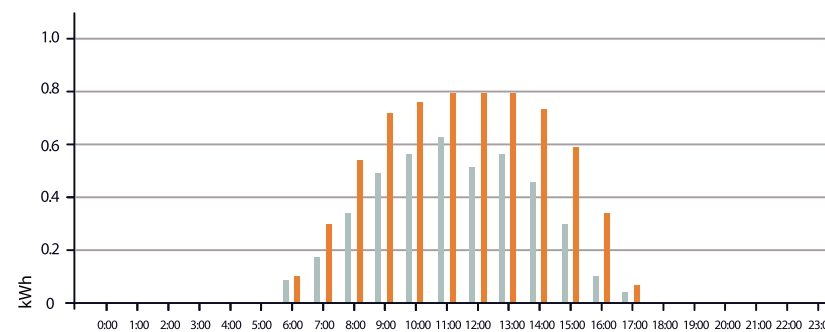
► YEARLY

+35%

Actual energy production comparison in Tainan area (latitude N 23.14 degrees) in 2015

台湾台南地区 (北纬 23.14 度) 2015 年一年发电量比较

iPV Tracker Fixed-tilt 固定型



► DAILY

+47%

Actual energy production comparison in Tainan area (latitude N 23.14 degrees) in a single day in September.

台湾台南地区 (北纬 23.14 度) 9 月份单日发电量比较

iPV Tracker Fixed-tilt 固定型

RISING CASH FLOW

现金流量逐年增高

The overall profit from iPV Tracker is much higher than the total investment costs. Therefore, its stable cash flow derives a much higher 20-year cumulative cash flow than those from fixed and single-axis systems.*

iPV Tracker 智能跟踪系统的获利能力远高于整体投资成本，因此可以提供稳定的现金流，20 年累计现金流量远高于固定式及单轴式系统*。

* The yield is location and system dependent. 实际发电情况依不同的系统及地区环境有所调整。



EASY MAINTENANCE

简易维护

This patented system consists primarily of a universal joint, high torque steel cables, pulleys, and springs, operated according to the controller algorithm. Compared to other complex dual-axis trackers, iPV Tracker is more reliable, with more affordable maintenance costs.

独家专利设计，使用十字双轴、钢索、滑轮、弹簧，根据控制器内建的日晷程序进行运转，相较于其他双轴跟踪系统更为可靠，而且零件及维护成本更为经济实惠。

The universal joint

is designed to rotate the module frame in two perpendicular directions.

十字双轴 设置于支柱上，使平台能够二维旋转。



The steel cables

steer the module frame and also function as four anchor points.

钢索 由四角带动平台运转，并能协助动态平衡。



The springs

act as cushions for wind gusts.

弹簧 的避震功能可帮助提升抗风性。

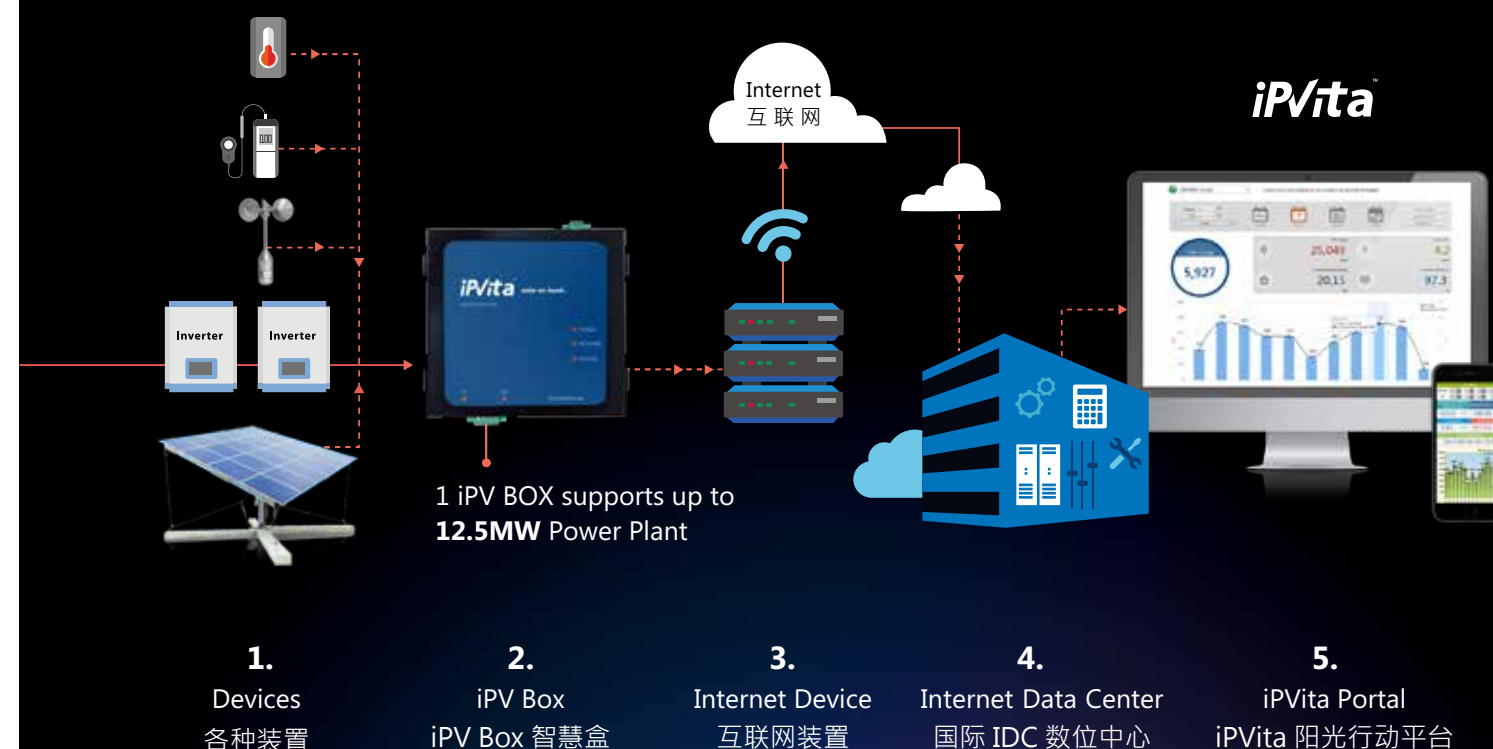


SMART CONTROL

智慧控管

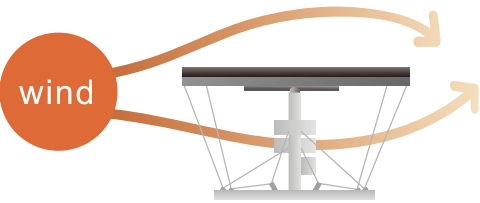
iPVita web-based monitoring system provides real-time monitoring of power generation, environmental information, system status, fault notification, troubleshooting tracking, PR analysis, as well as remote control of iPV Tracker. It also provides free App and customized display service. The iPVita data is stored in the cloud server, which offers secured backed up and the data can be saved for 30 years.

搭配 iPVita 智能监控系统提供最实时的系统管理，包含发电量及环境数据监视、实时异常分析与灯号显示、故障通报、追踪派工流程、PR 值分析、历史数据查询、远程控制 iPV Tracker 智能跟踪系统等，并提供免费 APP 及定制化的页面服务。各量测数据可以在云端主机保存 30 年，并能够异地实时备援。



HIGH RELIABILITY

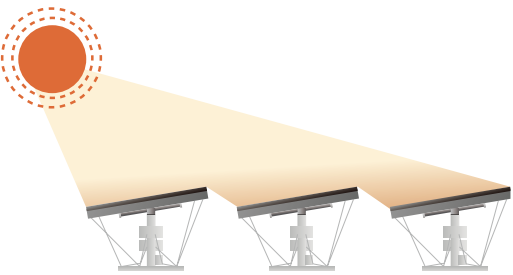
因地制宜



Wind Resistant 避强风

High wind loads automatically stow to horizontal position (safety mode).

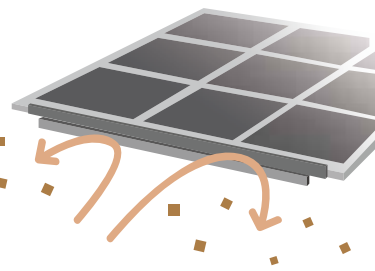
当风速达到一定强度时，自动将追日平台平躺（安全模式），减少受风面积。



Backtracking 避遮荫

iPV Tracker is programmed automatically to adjust to an optimal angle according to location, season and time of day, to prevent mutual shading.

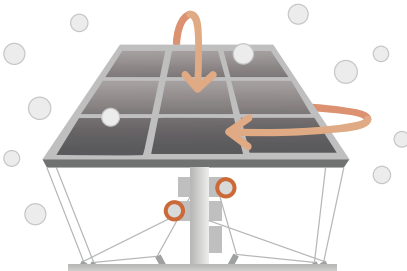
将太阳能板倾斜至相互不遮荫的最大角度，以吸收最多日照量，并提高土地使用率。



Dust Removal 避沙尘

iPV Tracker can be activated to rotate at a tilted angle to remove excessive dust.

日落后可顺应不同季节风向，调整跟踪倾斜方位使之与风向平行，减少沙尘累积于跟踪支架平台。



Snow Removal 避积雪

Rotation at a tilted angle removes snow accumulation on the PV modules.

设定太阳能板角度至最倾斜并旋转，帮助在太阳能板上的积雪滑落，并且不会堆积在同一处。

FAST INSTALLATION

快速安装

Fast option is offered to speed up installation.

iPV Tracker 智能跟踪系统使用牢靠且便利的方法，加快安装时间，降低施工成本。



H-Piling

H 型钢打桩

iPV Tracker can be installed rapidly without extensive land grading and concrete curing time.

降低整地费用及时间。

Cross-Foundation

十字水泥基墩

iPV Tracker can be deployed on flat roofs or ground sites.

力学平衡工法，适用于平面屋顶等案场。



REFERENCE PROJECTS

应用案例

iPV Tracker is applicable to ground-mount, roof-mount, agro-solar, and carport, with either on-grid or off-grid systems.

iPV Tracker 智能跟踪系统适用在各种商用电站，包含屋顶型、地面型、农业大棚型、车棚型，并网电网或独立自用的形式皆有配套措施。

Ground-Mount 地面型

iPV Tracker has been utilized throughout the world, with recognized effectiveness.
iPV Tracker 智能跟踪系统目前已在多个地区设置地面型电站，效益备受客户肯定。



Xinjiang TBEA Power Plant
新疆柳树泉特变电站
Capacity 系统容量 : 132 kW
Completed 完工年份 : 2015
Product 产品型号 : iPV Tracker T6024



Jiangxi AKCOME Power Plant
江西赣州爱康电站
Capacity 系统容量 : 80 kW
Completed 完工年份 : 2016
Product 产品型号 : iPV Tracker T6024



Japan Okayama Power Plant
日本冈山电站
Capacity 系统容量 : 499 kW
Completed 完工年份 : 2014
Product 产品型号 : iPV Tracker T6024



Japan Hyogo Power Plant
日本小野电站
Capacity 系统容量 : 524 kW
Completed 完工年份 : 2014
Product 产品型号 : iPV Tracker T6024

Taiwan Pingtung Power Plant

台湾屏东电站

Capacity 系统容量 : 840 kW

Completed 完工年份 : 2015

Product 产品型号 : iPV Tracker T6024

World's Largest Rooftop Dual-Axis Solar Power Station
全球最大屋顶型双轴追日电厂



Roof-Mount 屋顶型

iPV Tracker can be installed on the flat roofs of buildings such as warehouses and factories.

iPV Tracker 智能跟踪系统在有限的空间上也能将效益做最大的提升。



Taiwan Tainan Power Plant I

台湾台南电站一期

Capacity 系统容量 : 274.5 kW

Completed 完工年份 : 2013

Product 产品型号 : iPV Tracker T6006



Taiwan Tainan Power Plant II

台湾台南电站二期

Capacity 系统容量 : 224.64 kW

Completed 完工年份 : 2014

Product 产品型号 : iPV Tracker T6012

Agro-solar 农棚型

iPV Smart Farm is agriculture integrated with iPV Tracker, iPVita monitoring system, and steel frame to provide a more cost-effective solar shared farming for crops and energy.

iPV Tracker 智能跟踪系统结合农业大棚钢构，不但适合种植半日照植物也能达到发电收益，iPV Tracker 智能跟踪系统还可以调节日照让植物得到最佳日照量，结合 iPVita 智能监控系统，能随时上网监看发电数据、温湿度、风速、日照量、远程控制 iPV Tracker 智能跟踪系统，让维护与农作更为简便。



▲ Taiwan Yulin Farm A 台湾云林农棚 A

Capacity 系统容量 : 300 kW

Completed 完工年份 : 2014

Product 产品型号 : iPV Tracker T6024

◀ Taiwan Yulin Farm B 台湾云林农棚 B

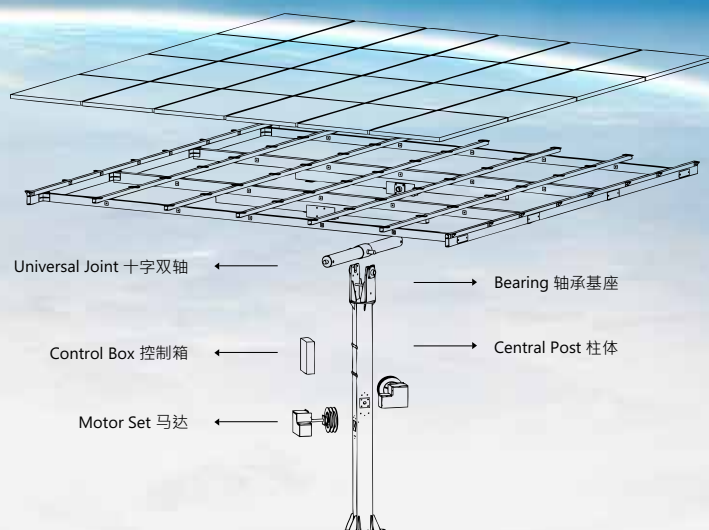
Capacity 系统容量 : 374.4 kW

Completed 完工年份 : 2014

Product 产品型号 : iPV Tracker T6024

SPECIFICATION

规格



Model 型号	T6012	T6024
Loading Surface 乘载面积	20.5 m ²	40.92 m ²
Module Capacity 适用太阳能组件	Commercial Modules 各大厂组件 ~3 kW	Commercial Modules 各大厂组件 ~6 kW
System Type 系统型式	On-Grid / Stand-Alone 并网型 / 独立型	On-Grid / Stand-Alone 并网型 / 独立型
Application Type 应用型式	Rooftop / Ground 屋顶型 / 地面型	Rooftop / Ground / Agriculture / Carport 屋顶型 / 地面型 / 农棚型 / 车棚型
Foundation 适用基墩	H-Piles / Cross / Others H 型钢 / 十字基墩 / 其他	H-Piles / Cross / Others H 型钢 / 十字基墩 / 其他
Azimuth Angle 方位角范围	360°	360°
Tilt Angle 仰角范围	0° - 40°	0° - 40°
Rotation Speed 跟踪速度	1°/ 5 min.	1°/ 5 min.
Control 控制方式	Position Sensor 方位感应	Position Sensor 方位感应
Motors 马达	(25 W / AC 220 V) x 2	(25 W / AC 220 V) x 2
Internal Power Consumption 系统耗电量	approx. 14 kWh/year	approx. 14 kWh/year
Wind Gust Resistance 乘载阵风风速	Operation Mode 作动模式 : ~87 km/h Safety Mode 安全模式 : ~220 km/h	Operation Mode 作动模式 : ~87 km/h Safety Mode 安全模式 : ~185 km/h
Main Material 主要材质	Steel (Hot Dip Galvanized) 热浸镀锌钢	Steel (Hot Dip Galvanized) 热浸镀锌钢
Compliance 设计标准	Structure Design: ASCE07-10	Structure Design: ASCE07-10
Operating Temperature 操作温度范围	-40°C - 80°C	-40°C - 80°C
Height 高度	2.46 m	3.6 m
Weight 净重	430 kg	730 kg
Warranty 结构保固	5 years for Tracker	5 years for Tracker



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—Your Best Energy— **Taiwan Headquarter**

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