

Case Study

Campiña

📍 Spain | ⚙️ 11.65MW | 🕒 May 2023



Challenge High labor cost,
Variable weather

Solution **Trina Smart Cloud:** auto operation &
maintenance to reduce labor input
SuperTrack: energy generation boost
during different weather conditions

Typical Cloudy Day **9.15%**

Typical Sunny Day **2.87%**

**Energy Generation
Overall Gain** **2.21%**

Shandong Renquan (Retrofit)

📍 China | ⚙️ 21MW | 🕒 November 2023



Challenge Limited vehicle accessibility,
Communication failure causing tracker
malfunction

Solution **TrinaTracker Smart Control System**
TCU & NCU: use self-developed TCU &
NCU, makes the tracker more stable and
reliable
Trina Smart Cloud: features like 'Data
Sharing', 'Digital Map', and 'Health
Diagnosis', to ensure timely fault
detection and efficient maintenance,
significantly improving operational
efficiency and reducing power generation
losses.
SuperTrack: energy generation boost in
complex terrains

**Energy Generation
Overall Gain** **3.24%**

Add: No.2 Tianhe Road, Trina PV Industrial Park, New District, ChangZhou City, JiangSu Province

Postcode: 213031

Website: www.trinasolar.com

Email: sales_china@trinasolar.com



Digital Intelligent Monitoring Platform



Basic monitoring and control

NCU & TCU status monitoring
Display of wind speed& irradiance information
Working mode switch
Data sharing
Motor diagnostic and pre-warning
3D digital map (optional)



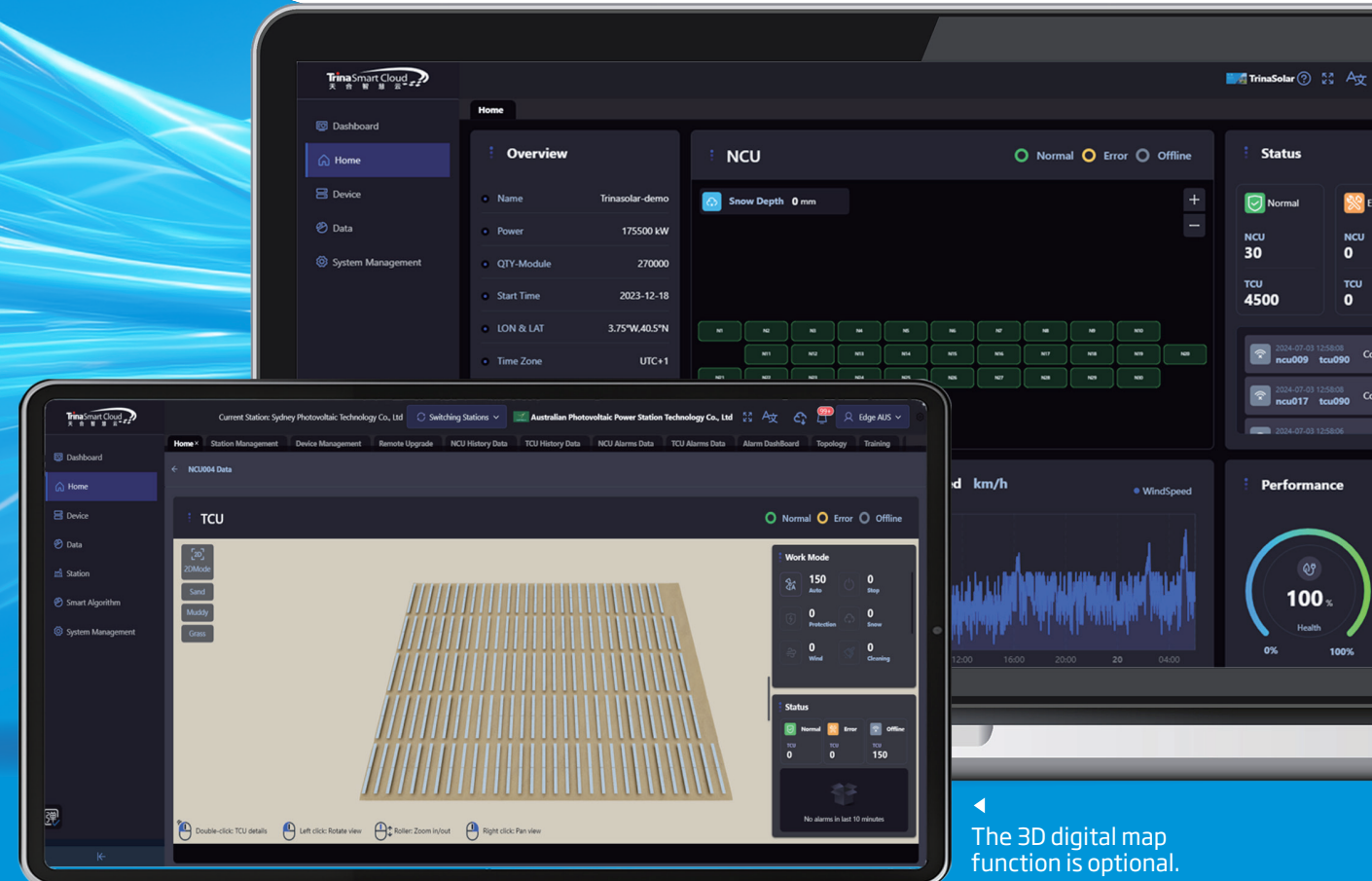
Local version

Local PC server deployment
Access via PC from project site centralized control room
On-site control management
Data stored locally



Cloud version

Cloud server deployment
Access via web from anywhere, anytime
Remote control management
Multi-station management
Data storage on cloud



◀ The 3D digital map
function is optional.

TrinaTracker

TrinaTracker Smart Control System



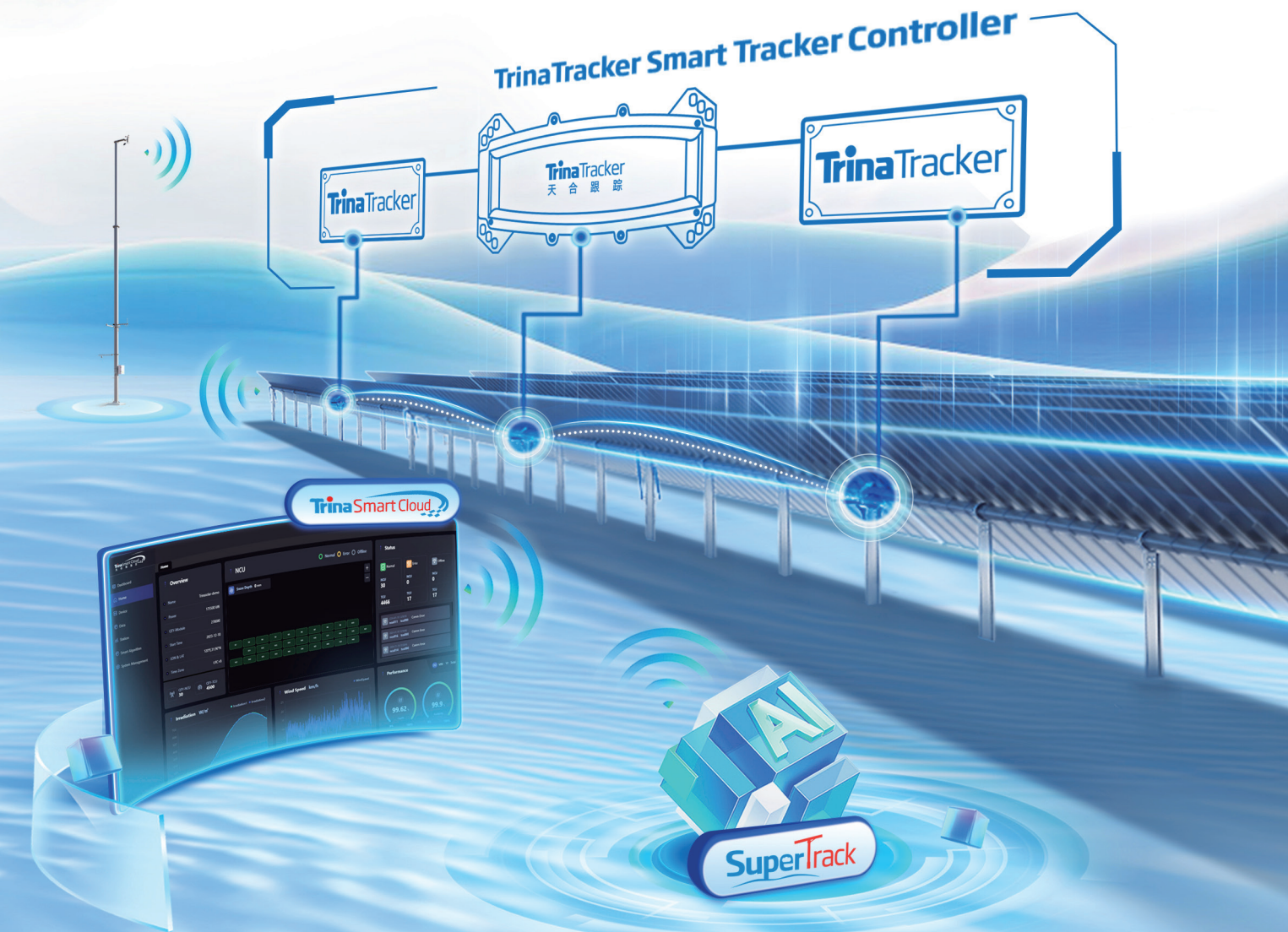
High
Reliability



High
Efficiency



High
Performance



Network Architecture Diagram



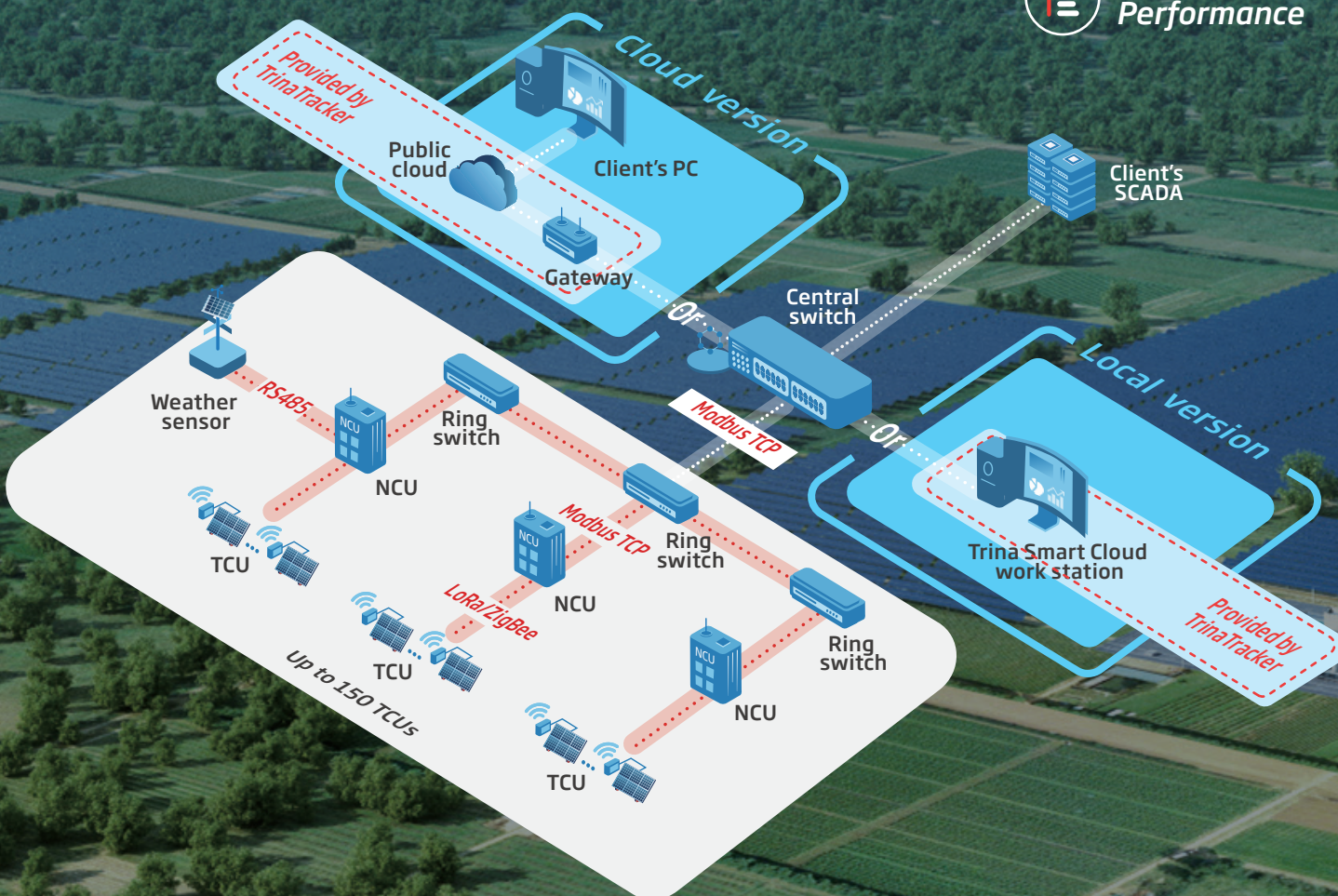
High Reliability



High Efficiency



High Performance



Smart Controller

- Self-developed and mass-produced TCU & NCU
- Providing multiple power supply solutions, communication technologies, and drive methods
- Multiple built-in stow strategies for safe and stable tracker operation in extreme weather conditions
- High power TCU to ensure rapid rotation
- Ensuring stable tracker operation, efficient installation and maximized power generation performance
- Meeting the requirements of IEC, UL and regional standards, covering most application scenarios worldwide



NCU



TCU

Single motor



TCU

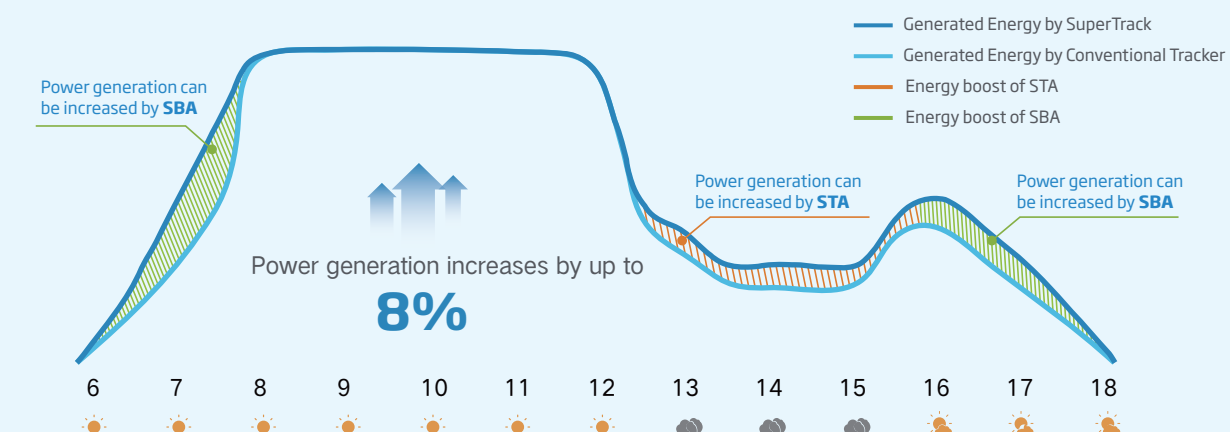
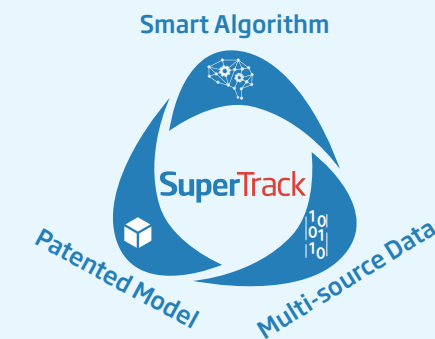
Multi-motor



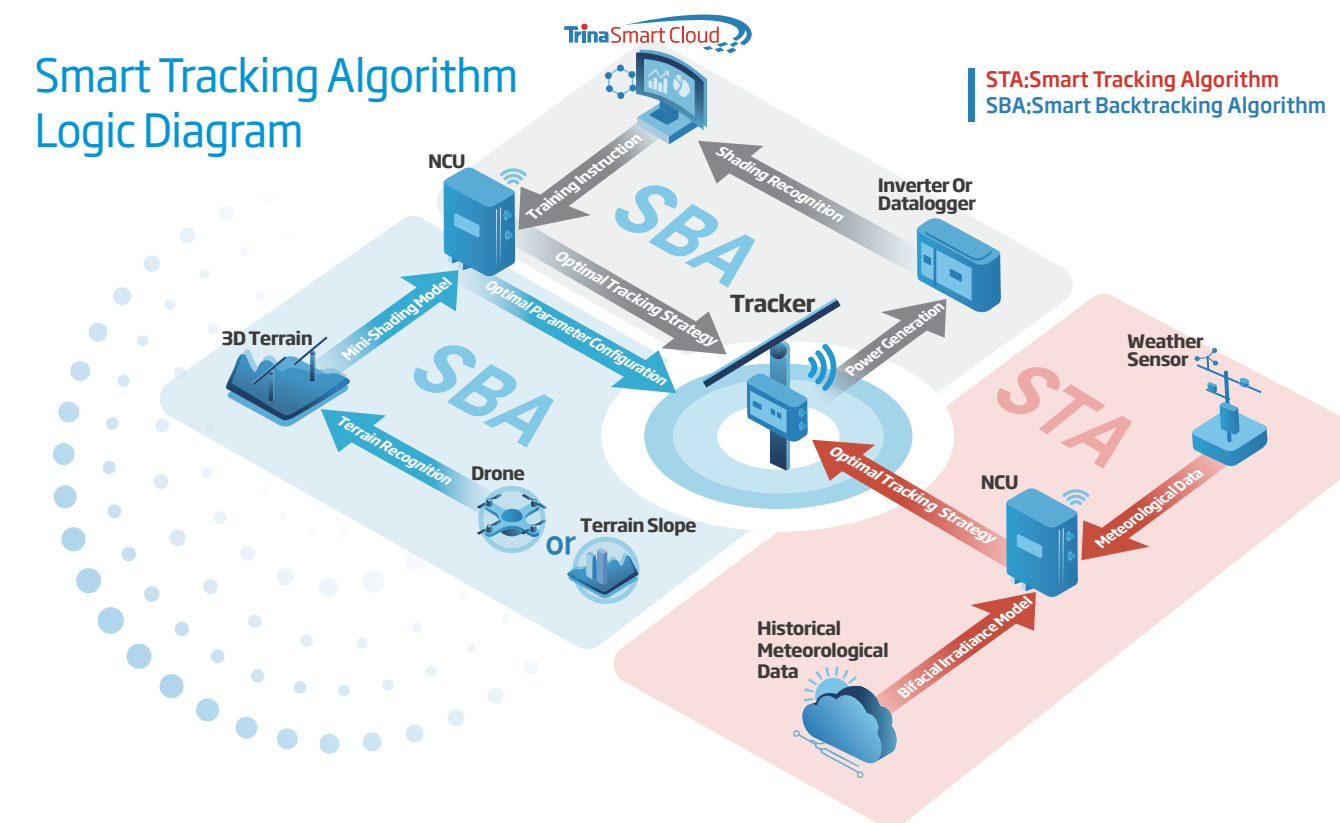
SuperTrack

Smart Tracking Algorithm

- Patented Bifacial Irradiance Model & Mini-Shading Model
- Two core algorithms: STA & SBA
- Boosting energy yield under high diffuse irradiance conditions
- Reducing the loss of energy yield caused by shading in complex terrains
- Seasonal optimization to maximize daily energy generation
- Increasing energy yield by up to 8% compared to traditional tracking algorithms
- Integrating meteorological, power generation, terrain and other multivariate data to meet multi-project site scenarios



Smart Tracking Algorithm Logic Diagram



TrinaTracker

Smart Control System Solution

TCU & NCU

SuperTrack

TrinaSmart Cloud