

More Power More Protection

SUNGROW SMART MODULE

PRODUCT MANUAL

Anhui Sungrow Solar Energy Technology Co., Ltd.

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Introducing a New Era of Intelligent Solar Modules

PREFACE

Redefining, Leading the Future with Intelligence

AI is reshaping our world,
making the internet of everything real.

No power plant stands alone,
each acts as a neuron,
sensing the pulse of energy.

From the smallest generating cell
to an actively thinking intelligent node,
solar modules are evolving.

Digital intelligence is embedded in every module.
Welcome to a new era of intelligent solar world.

PULSON SUNGROW SMART MODULE

Introducing a New Era of Intelligent Solar Modules



SELF-DIAGNOSIS



SELF-LOGGING



SELF-RSD



SELF-CLEANING



SELF-COOLING



5S All-Dimensional Intelligence Technology

Self-diagnosis



- Real-Time Monitoring
- AI Diagnosis & Pinpointing

✓ 3% Higher Plant Returns

Self-logging



- A Complete Digital Record for Every Module
- ✓ Transparent and Traceable Quality
- ✓ Lower Upfront Investment for Distributed PV
- ✓ Trusted Data for Secondary Market Transactions
- ✓ Continuous Health Tracking for Plant Optimization
- ✓ Improved Forecast Accuracy for Power Markets

Self-RSD



Powered by Sungrow Heartbeat Technology

- Module-Level Shutdown—Automatic Isolation of Faulty Modules
- System-Level Shutdown—Full Plant Shutdown Within 25 Seconds
- ✓ 40% Lower DC-Side Fire Risk
- ✓ Zero Generation Loss
- ✓ Emergency Shutdown for Firefighter & Maintenance Personnel Safety

Self-cleaning



Dual-Layer Nano-Scale Super-Hydrophilic Surface Treatment Technology

- Significantly Reduced Dust Adhesion
- Sustained High Performance
- Designed to Last the Lifetime of the Module

✓ 5% Higher Energy Yield

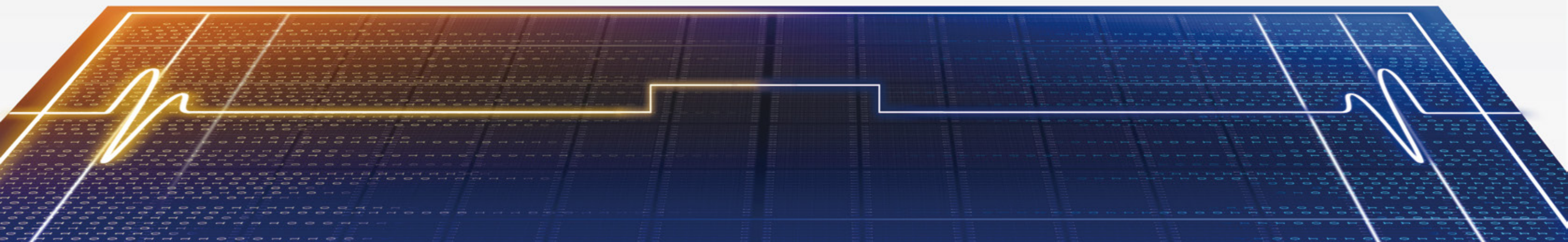
Self-cooling



World's First SilverAnt Cooling Technology

- Lower Operating Temperature, Extended Module Lifetime
- Sustained Performance, Long-Term Protection

✓ 1% Higher Energy Yield



PRODUCT ADVANTAGES

Enabling modules to leap from passive power generators to active intelligent terminals.

Value	Conventional Module	Sungrow Smart Module
 Generation Efficiency	• Passive loss, long repair time, and significant financial losses • Reliance on manual cleaning, resulting in persistent losses • Temperature increases cause a linear drop in efficiency	• Auto-isolate faulty modules without affecting power generation of other modules in the string • Self-cleaning, renewed by rainwater • Power-free cooling for active temperature reduction
 Safety Performance	• Response delays posing a fire risk • Periodic manual inspections posing an electric shock risk • Hard to detect posing a high risk of serious accidents	• Module-level fault isolation eliminates hazards • System responds to inverter arc signals, reducing arc below safety threshold in 25s • Emergency shutdown ensures firefighter & maintenance personnel safety
 Convenient O&M	• No site setup capability • String-level identification making troubleshooting difficult • No data resulting in black-box operation • No identification tags complicating transaction valuation	• Quick digital site setup via QR code scanning • Timely module-level alerts for rapid fault localization • Transparent and visible data for every module • Full lifecycle data on blockchain

PRODUCT CERTIFICATIONS

Backed by uncompromising product quality and certified in multiple countries, we are steadily advancing our global presence.

 TÜV SÜD	 CE (EU)	 CQC (CHINA)	 ISO 9001 (CHINA)
 CEC (AUSTRALIA)	 MCS (UK)	 PEP ECOPASSPORT (FRANCE)	 KS (KOREA)
 BSN (INDONESIA)	 INMETRO (BRAZIL)		



PRODUCT CERTIFICATIONS

Earn the world's first certification for high-efficiency intelligent modules, leading the industry into a new era of smart solar.

- World's First High-efficiency Smart Module Certification by TÜV SÜD
- Smart Module Component Certification by TÜV SÜD
- Smart Module Demonstration Plant Certification by China National Institute of Metrology



Delivers superior impact resistance to withstand extreme weather conditions.

Awarded the industry's highest fire resistance rating, ensuring reliable safety performance.

- TÜV Rheinland HW4 Hail Resistance Certification
- TÜV Rheinland Class A Fire Resistance Certification



QUALITY ASSURANCE

Building on Sungrow DNA to forge exceptional quality. Delivering verified real-world power output, backed by the industry's most rigorous standards.

- Genuine Materials

We adopt the advanced technical solutions provided by the leading suppliers in the industry to build reliability and efficiency from the ground up.
- Rigorous Standards

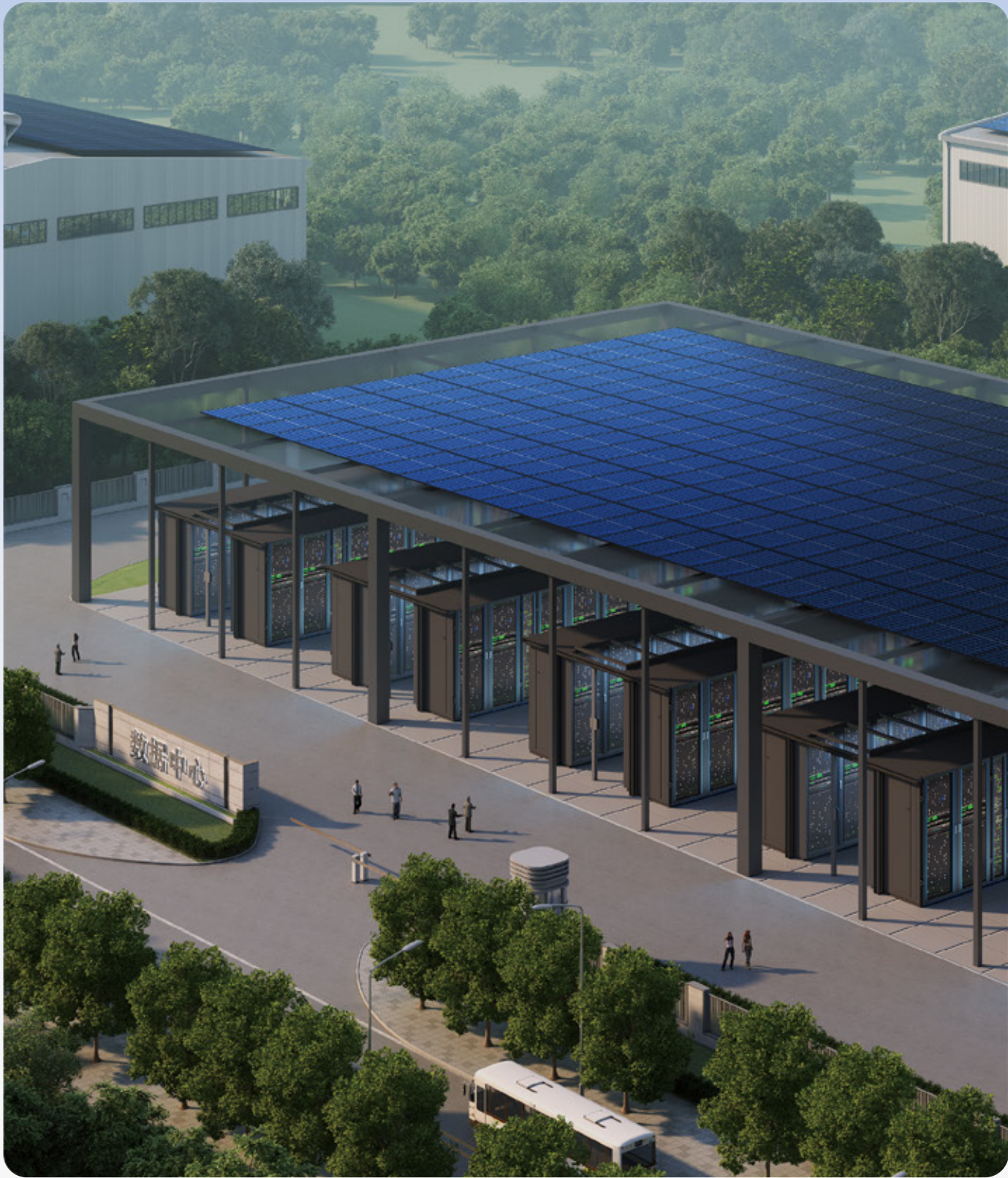
Adhering to a "quality-first, long-term reliability" philosophy, we implement higher technical standards.
- Exceptional Quality

By combining authoritative certifications with global field validation, we continuously achieve outstanding performance.

PRODUCT APPLICATION



RESIDENTIAL SCENARIOS



C&I SCENARIOS