



Smart PV Service and Partner Systems





PV Service Trends and Challenges

- PV power generation and energy storage are the trends of energy development, which require vendors to shoulder more sustainable development responsibilities and achieve higher plant safety.
- Fast increasing scale poses huge challenges for traditional O&M.
- The most professional maintenance service is required to reduce the failure rate.
- Digitalization and intelligence are required to improve the overall revenue.
- Workers lack skills, and personnel knowledge and skills need to be updated periodically.
- Comprehensive safety services are necessary as potential safety risks exist.



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Smart PV Service System

Building a global service system with partners at the core



Standardized global delivery
Quality delivery,
safety first

Through digital methods, we achieve quality delivery with construction standards, process check, emergency drills, and completion reports, laying a solid foundation for quality services.



Premium intelligent global maintenance networks
Optimal services,
robust networks

Based on its digital technologies and ICT experience, Huawei establishes a global TAC network, spare parts network, and repair network, and provides active maintenance, such as health check and fault prediction, delivering fast, optimal, and intelligent maintenance networks to different countries/regions.



Professional services throughout the lifecycle
Experienced,
trustworthy

Improve professional service competitiveness of safety, cost reduction, and efficiency based on planning, construction, maintenance, optimization, and operation, increasing customer satisfaction.



Open and shared global partner ecosystem
Competent service partner network

To support partners' operations, we focus on platform enablement and partner enablement, building a cost-effective, digital service system with loyal partners.

Smart PV Customer Support System



Online services

The world's top 10 technical support website; 1.2+ million registered users, 1+ million downloads per month; self-service available anytime and anywhere



TAC support

Service request reception platform; 24/7 support services; dedicated call center agents for VIP customers



Onsite support

2000+ partners in China; regional and HQ expert pool, health check; assurance in key events



Hardware support

Three-level spare parts system: country-level spare parts center, regional spare parts center, and local spare parts warehouse



Global Service Center Network

600+ professional technical engineers in 170 countries and 14 languages, providing 24/7 support services with problems responded in 30 minutes in the hotline



Smart PV global service assurance:



3 remote service centers



10 regions



600+ personnel to ensure delivery resources

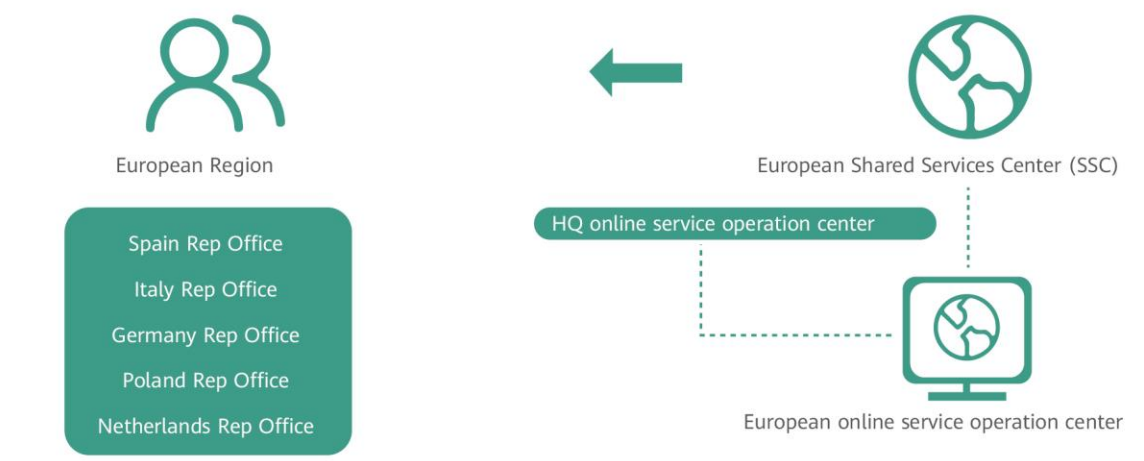
Global remote service centers:

GTAC China: provides 12/7 technical support in both Chinese and English, and has TAC China, TAC Malaysia, and TAC India to handle customer requests from China, Asia Pacific, and India.

GTAC Romania: provides 24/7 technical support in English, German, French, Spanish, and Italian, and has TAC Romania and TAC Egypt to handle customer requests from Europe, Middle East, Africa, North America, and Australia, with five more national TACs to be built in H2 2023.

GTAC Mexico: provides customer support in both Spanish and Portuguese, and has TAC Mexico and TAC Brazil to handle customer requests from Latin America and Central America.

European Service Center



European		
Sites	Countries with available services	Language
Romania	United Kingdom and Ireland	Support 8 languages (including English)
Italy	Italy	Italian
Germany	Germany	German
Spain	Spain and Portugal	Spanish
Poland	Poland	Polish

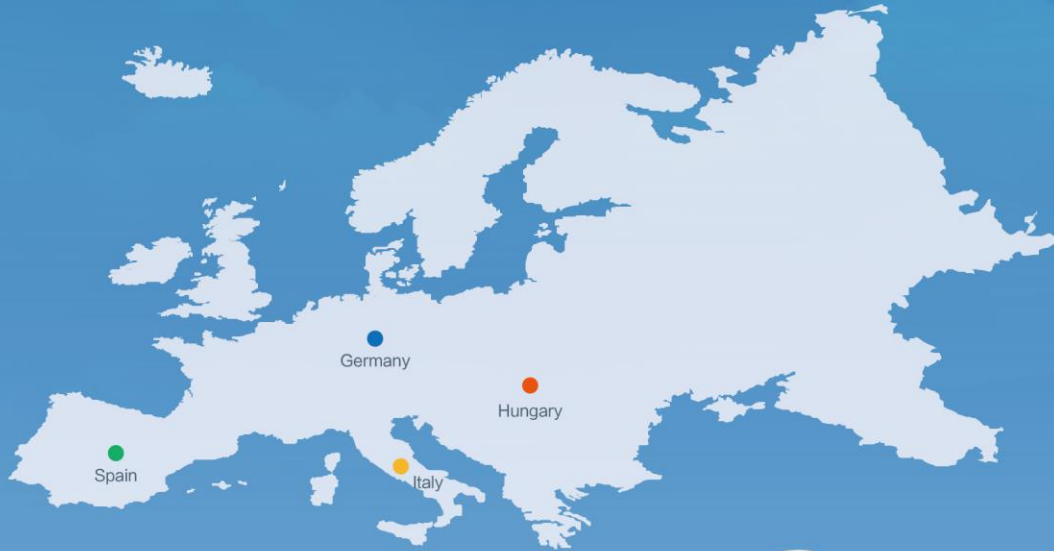
New Hotline Number was launched on May28,2023: 0080033666666

Available: Belgium、Cyprus、Germany、Finland、France、Greece、Hungary、Italy、Luxembourg、The Netherlands、Norway、Austria、Poland、Spain、Czech、UK、Iceland、Sweden、Switzerland

Ongoing: Canada、Denmark、Estonia、Ireland、Croatia、Portugal、Serbia、Slovenia、Bulgaria、Latvia、Lithuania、Moldova、Turkey

European Repair Center

Build a repair center serving the entire Europe in Hungary in 2023 and deploy four repair centers in Europe in 2024 to achieve efficient maintenance and environmental friendliness.



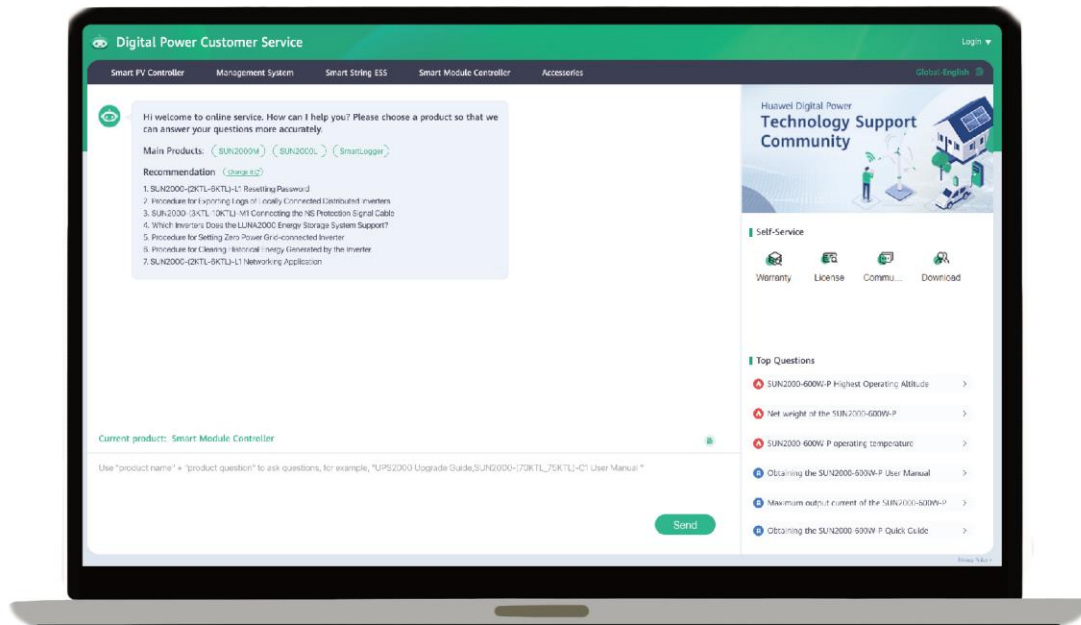
- Hungary repair center serving CEE & Nordic European countries, 20-day SLA
- Germany repair center serving West European countries, 15-day SLA
- Italy repair center serving Italy and Switzerland, 10-day SLA
- Spain repair center serving Spain and Portugal, 10-day SLA

SLA: from the repair center receiving bad parts to customer getting repaired ones.



Customer Service Chatbot

Provides customers with Huawei Smart PV technical Q&A services, covering multiple service scenarios from pre-sales to after-sales.



50,000+ Q&A pairs
Covering all product lines
of Digital Power



88% accuracy rate
Higher than the intelligent
customer service in the industry



300,000+ annual consultations
Preferred tool for quick query



Available in 7 languages*
User-friendly services with
multilingual support



Scan for the Chatbot.

How can I find the Customer Service Chatbot?

1. Go to FusionSolar > Me > Customer Service Chatbot.
2. Visit <https://digitalpower.huawei.com/en/>.
3. Visit <https://solar.huawei.com/>.

*Support 7 languages (Chinese, English, Italian, Spanish, German, French, and Dutch)

Customer Satisfaction and Delivery Quality of Smart PV Services

Higher customer satisfaction



Timely issue resolution rate



Timely recovery rate of major accidents



Number of service quality accidents

Main service processes

Project initiation ▶ Project implementation, acceptance, and closure ▶ Request handling ▶ Change implementation ▶ Urgent recovery

Checklist-based contract review to improve review quality	Unified handling and system follow-up to ensure SLA compliance	Standards compliance to ensure the recovery of major accidents	Process management and expert review to ensure issue closure	Regular customer interviews for progress and satisfaction management to avoid customer complaints
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IT tools

eCare issue management | Installed base management system | Delivery project management

Enablement

Subcontractor management | Channel partner certification | Training, enablement, and learning



Huawei Smart PV Services

Benefits



Safety Assurance



Cost Efficiency



Reliable Services



Stable Operation

Services

Process \ Scenario	Planning	Construction	Maintenance					Optimization		Operation	
	Design Tool	Supervision	Smart PVMS	Warranty Extension	Onsite Support	Spare Parts (Coming Soon)	ESS safety (Coming Soon)	Smart I-V Curve Diagnosis	SDS	Management Training	Technical Training
Utility		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
C&I	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓
Residential	✓			✓		✓					✓

Engineering Supervision: Ensure Safe, Reliable, and High-Quality Projects

Service content

- 1. Huawei dispatches experts to the sites to help customers install and commission Huawei devices.
- 2. Sales mode: sold with devices



Onsite technical disclosure and training



Installation and construction guide



Grid-connection commissioning guide



Faulty parts replacement guide



Huawei factory acceptance guide

Customer benefits

- (1) Professional: Provide expert guidance to ensure professional delivery of devices.
- (2) Standardized: Standardize delivery and eliminate potential risks in device installation.
- (3) Efficient: Improve the first-time pass rate of EPC construction, grid connection, and acceptance.
- (4) Safe: Guarantee the safe running of devices.

Extended Warranty Period: Quick Response, Less Electricity Loss, Easier O&M, and Assured Services

Smart PV extended warranty: The warranty service with the same SLA can be extended for a certain period of time.

Standard extended warranty periods:

Inverter: extended by 1 year (China), 5 years, 10 years, or 15 years (to a maximum of 20 years)

Accessories such as STSs and SmartLoggers: extended to the fifth or tenth year

Category	Content	Description
Remote technical support	Help Desk	24/7 and real-time response
	Remote troubleshooting	24/7 (GTAC Romania) or 12/7 (other regions) of technical consultation and problem handling
	Online technical support	Technical information sharing
Spare parts	Spare parts first	After confirming the RMA application, Huawei sends the spare parts to the customer within two business days (BDs). After receiving the spare parts provided by Huawei, the customer only needs to return the faulty parts within 15 BDs.
Software update	Software update authorization	Provide the device firmware maintenance version.

Service Upgrade Package: Quicker Response and Higher Efficiency

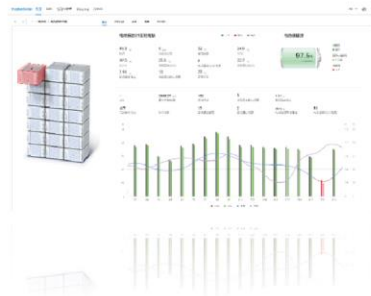
Within the warranty period or extended warranty period, Huawei can provide faster spare parts support and onsite expert support to achieve efficient O&M.

Category	Content	Description
Faster spare parts delivery	3-BD delivery of spare parts	Huawei spare parts center will deliver the spare parts to the address agreed by both parties within three BDs after confirming the spare parts application.
	2-BD delivery of spare parts	Huawei spare parts center will deliver the spare parts to the address agreed by both parties within two BDs after confirming the application.
Onsite support	Onsite troubleshooting (7 x 10 x 2 CDs)	If a fault occurs on a device within the warranty period and the fault cannot be located remotely, the region will arrange onsite troubleshooting within 2 calendar days (CDs) after receiving the request from the service center.
	Onsite replacement of faulty parts (5 x 10 x 2 BDs)	If the 400 service center confirms that spare parts need to be replaced by Huawei engineers onsite, Huawei engineers will arrive at the site within two BDs.

ESS Safety: Online Diagnosis and Offline Inspection



Offline inspection



Online inspection (coming soon)



Inspection report

① Offline inspection (mandatory) (once a year)

Systematic, professional, and comprehensive health check

- 6 components, 87 inspection items
- 1 report, 3 types of suggestions
- Inspection report analyzed/delivered to the customer to identify risks and ensure proper running
- Training in system running safety and O&M

② Online inspection (mandatory) (once a month)

Visible, controllable, and manageable risks

- Internal temperature/humidity check for ESSs
- SOC/Voltage/Temperature check for racks and cells
- Analysis on historical ESS data of charge/discharge power, battery level, and SOC
- Monthly check of safety alarm information to eliminate safety risks in a timely manner



Training and Certification: Standard O&M and Safe Production



Site visits of experts



Centralized training



Practices



Strict appraisal



Certificate issuance



Installer Certification and One-Stop Technical Support: All-Round, Reliable, and high efficiency



Efficient Authentication

Certificates provisioned within 1 day

Learning: 4 primary and advanced courses, various webinars, online primary or advanced exams in 14 languages, and certificates of the corresponding level



Abundant Incentives

Bonus points exchanged for high-value products

Participation in certification and activities to obtain bonus points and redeem 3C gifts



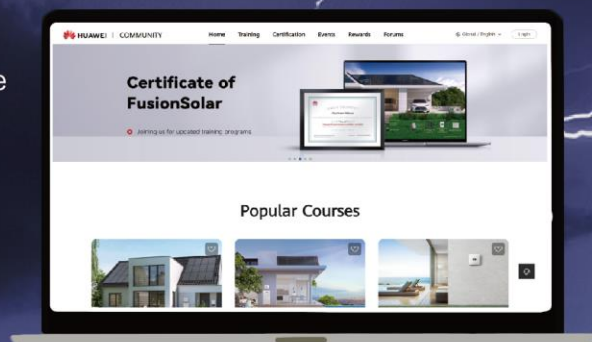
Protected Operation

Visible opportunities and support

Sales map: business opportunities
Forums: knowledge exchange
Abundant materials: technical video + webinar archive + download center
Customer Service Chatbot: quick Q&A

Smart PV Community, Comprehensive Customer Support

To obtain technical support, access
Huawei Digital Power Official Website > Global Service Hotline



Installer Capability Improvement Path

Access more information :



Website



FusionSolar App



Forum



Device QR code



Cases



A C&I ESS project in Japan

Huawei facilitates efficient delivery and stable operation of the plant.

Capacity: 200KWh

The continuity of power supply under power outages ensures continuous production in the campus.



PV+ESS project in Hunan, China

Huawei helps lower power consumption costs and improve efficiency in the campus.

Capacity: 200KWh

Algorithm optimization achieves time-of-use (TOU) arbitrage, reducing OPEX for the campus.

Cases



ESS project for an industrial company in Singapore

Huawei drives the fulfillment of policies on safety, green, and sustainable development.

Capacity: 146MWh

The project passed the commissioning and acceptance in a single attempt. ESS inspection improves charge and discharge efficiency. Comply with the government's green plan.



Yuchai PV project in Guiping, Guangxi, China

Huawei SDS helps improve energy yield in the Yuchai plant.

Capacity: 200MW

After the SDS is deployed, the energy yield in phase 1 increases, with an increased revenue of CNY2.2 million/year/100 MW.



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