

Warranty Terms and Conditions for Commercial and Industrial Inverters

Document Version 01
Release Date 2024-10-09



Copyright © Huawei Technologies Co., Ltd. 2023. All rights reserved.

Without the written permission of the Company, no unit or individual may extract or copy part or all of the contents of this document, and may not disseminate it in any form.

Trademark Claims



HUAWEI and other Huawei trademarks are trademarks of Huawei Technologies Co., Ltd.

All other trademarks or registered trademarks mentioned in this document are the property of their respective owners.

note

The products, services, or features that you purchase are subject to Huawei's commercial contracts and terms. All or part of the products, services, or features described in this document may not be within your purchase or use scope. Unless otherwise specified in the contract, Huawei does not make any express or implied representations or warranties in this document.

This document is subject to irregular updates due to product version upgrades or other reasons. Unless otherwise agreed, this document is intended for guidance only and all statements, information and recommendations in this document do not constitute any warranty, express or implied.

Huawei Technologies Co., Ltd.

Address: Huawei Headquarters Office Building, Bantian, Longgang District, Shenzhen 518129

Website: <https://e.huawei.com>

Table of Contents

Table of Contents	ii
1 Applicable Product Model	1
2 Warranty Description	3
2.1 Warranty Description	3
2.1.1 Warranty Strategy	3
2.1.2 Warranty Extension Strategy	7
2.1.3 Spare Parts Strategy	10
2.1.4 Authentication Strategy	12
3 Warranty clause	13
3.1 Basic Provisions	13
3.2 Exception clause	14

1 Applicable Product Model

Inverter:

SUN2000-20KTL-M3、SUN2000-29.9KTL-M3、SUN2000-30KTL-M3、
SUN2000-33KTL-NH、SUN2000-33KTL-NHM3、SUN2000-36KTL-M3、
SUN2000-40KTL-M3、SUN2000-40KTL-NH、SUN2000-40KTL-NHM3、
SUN2000-43KTL-INM3、SUN-50KTL-MGL0、SUN2000-50KTL-M3、
SUN2000-50KTL-NHM3、SUN2000-50KTL-M0、SUN2000-50KTL-JPM0、
SUN2000-60KTL-M0、SUN2000-63KTL-JPM0、SUN2000-75KTL-MGL0、
SUN2000-75KTL-M1、SUN2000-80KTL-MGL0、SUN2000-100KTL-M1、
SUN2000-100KTL-M2、SUN2000-110KTL-M2、SUN2000-111KTL-NHM0、
SUN2000-115KTL-M2、SUN2000-150K-MG0、SUN2000-250KTL-H3、
SUN5000-150K-MG0

Optimizer:

SUN2000-450W-P2、SUN2000-600W-P (Long-cable design)、

MERC Smart PV Optimizer:

MERC-1100W-P (Long input cable design)、MERC-1100W-P (Short input cable design)、MERC-1300W-P (Long input cable design)、MERC-1300W-P (Short input cable design)

The above are the device models that are active or discontinued at the time of this release. For new models, please consult the regional channel managers.

The inverter mainly applies in C&I scenarios including rooftop PV plants. As the core electrical component in the PV system, it converts PV DC power into AC power. Huawei C&I Smart PV solution involves Huawei products such as the inverter, optimizer, SmartLogger, AC combiner box, Smart Array Controller (SACU), power line communication (PLC) module, and potential induced degradation (PID) module. The C&I Smart PV solution applies to low-voltage (three-phase, line voltage 380 V AC/400 V AC, as shown in Figure 1) and medium-voltage (three-phase, 6–35 kV AC, as shown in Figure 2) on-grid scenarios.

Figure 1 Networking in a low-voltage on-grid scenario

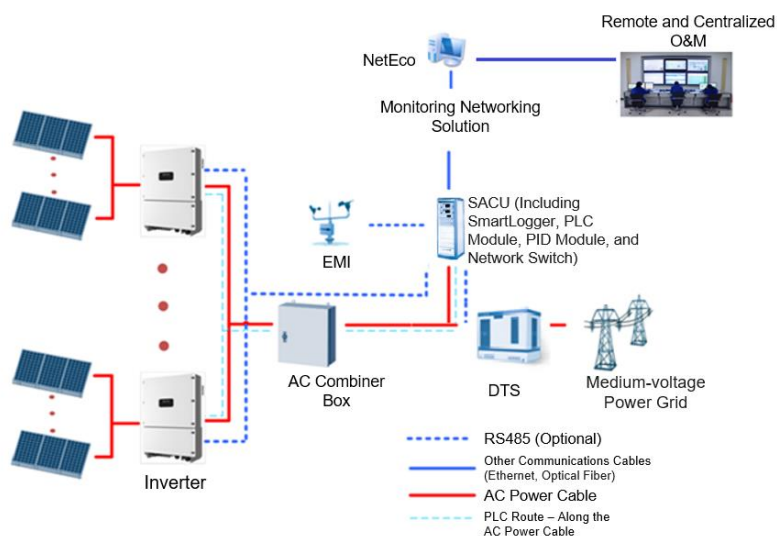
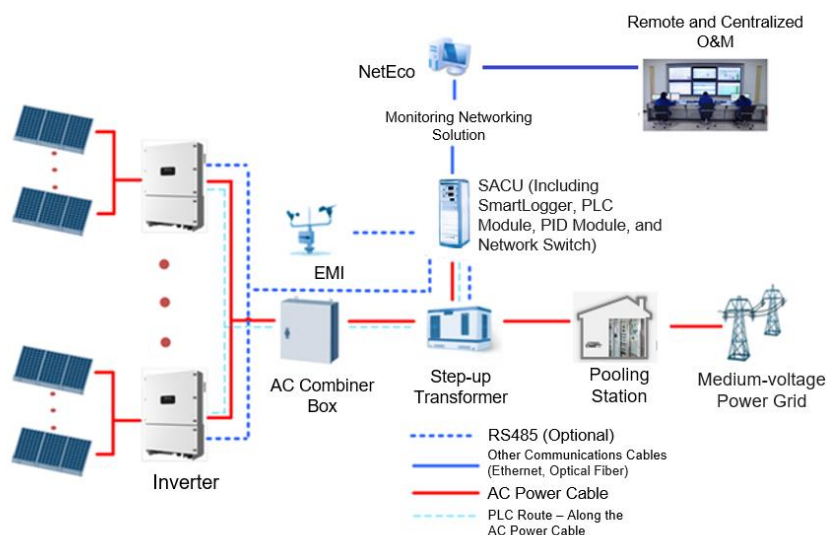


Figure 2 Networking in a medium-voltage on-grid scenario



2 Warranty Description

2.1 Warranty Description

2.1.1 Warranty Strategy

Warranty service is also known as the maintenance guarantee service or quality assurance service, which Huawei promises to provide for the customer to ensure product quality within a specified period. If product quality defects occur during the maintenance period, Huawei will provide free services for the customer based on the specified service level and service scope.

The following table lists the standard warranty period (see **Table 1**), warranty period start date (see **Table 2**), and standard warranty service content (see **Table 3**) of each product in the Huawei Smart PV solutions.

Table 1 Standard Warranty Period (Year) by Product Series									
Product Series	China	Europe	Japan	Middle East & Central Asia	Asia Pacific	Southern Africa	Northern Africa	Latin America	* Type-B Countries
SUN2000 C&I inverter	5	5	5	5	5	5	5	5	For details, see the remarks.
Optimizer	10	25	25	25	25	25	25	25	25
SmartLogger, PID module, PLC module, SACU, combiner box, ACBox, Smart Dongle, 4G wireless access module, smart meter, outdoor remote antenna (optional) for the SmartLogger, and inverter fan sold independently	1	2	1	2	2	2	2	2	2
Huawei's auxiliary products resold internally and not related to inverters	1	1	1	1	1	1	1	1	1
Third-party device (including the EMI)	Specified by the supplier	Specified by the supplier	Specified by the supplier	Specified by the supplier	Specified by the supplier	Specified by the supplier	Specified by the supplier	Specified by the supplier	Specified by the supplier

Y-branch connector	/	/	/	/	/	/	/	/	/
Accessories: smart ETH gateway, fitting bag for the specified product version, fitting bag for fiber ring switching, antenna spare parts, power cable fitting bag for the SmartLogger, onsite replacement fitting bag for the external fan, SIM card, power connector, terminal block, device connector, and surge protective device (SPD)	/	/	/	/	/	/	/	/	/
Tools: handling lifting fitting bag, PV connector unlocking tool, SPD insertion and removal tool, and PV USB adapter	/	/	/	/	/	/	/	/	/
Mechanical parts: DC cable protection box component and inverter mounting bracket	/	/	/	/	/	/	/	/	/

Remarks: 1. 5/10-year warranty in Canada: The standard warranty period for 1500 V inverters is 5 years, and that for 1100 V inverters is 10 years.

2. The 5+5 warranty in Australia: The logistics expenses of spare parts and device replacement compensation expenses are not included in the last five years of warranty.

3. The warranty period of some models in Brazil is 10 years. For details, see the local warranty policy in Latin America.

Table 2 Product Warranty Period Start Date by Country/Region

Start Date	China	Europe	Japan	Middle East & Central Asia	Asia Pacific	Southern Africa	Northern Africa	Latin America	* Type-B Countries
The warranty period starts 90 days after Huawei products are delivered, or the day Huawei receives the request for product service (whichever is earlier).	√	√		√	√	√	√	√	

The warranty period starts 180 days after Huawei products are delivered, or the day Huawei receives the request for product service (whichever is earlier).		✓	✓	✓	✓	✓	✓	✓	
The warranty period starts 6 months after products are delivered, or the day the products are installed (whichever is earlier).									✓
The warranty period start date is determined as follows: (a) For distribution products whose in-stock period is less than or equal to 90 days, the warranty period is 90 days from the shipment date of distributors. (b) For distribution products whose in-stock period is greater than 90 days, the warranty period is 180 days from the inbound date of distributors. (c) The date when Huawei receives the service request for this product. (whichever is earlier)	✓								

Note:

1. The start date of the warranty period marked in yellow applies to local channel sales, not direct sales.
2. The shortest warranty period of spare parts is calculated from the date when spare parts are delivered. This item must be specified in the contract.
3. For projects (> 2 MW) in Japan with a rather long duration, application for extending the warranty start date is supported, but it requires the SDT to make the decision, archive for the application, and make corresponding changes on the contract.
4. * Among type-B countries, Canada is an exception. The warranty period starts 90 days after Huawei products are delivered, or the day Huawei receives the request for product service (whichever is earlier).

Table 3 Standard Warranty Service Content

Content		China	Europe	Japan	Middle East & Central Asia	Asia Pacific	Southern Africa	Northern Africa	Latin America	Type-B Countries
Remote technical support	Help desk	24x7	24x7	12x7	24x7	24x7	24x7	24x7	24x7	24x7
	Online technical support	√	√	√	√	√	√	√	√	√
Software system support	Software update authorization	√	√	√	√	√	√	√	√	√
Hardware support	Return for repair	/	/	/	/	/	/	/	/	/
	Spare parts pre-replacement	9x5x2BD-S	9x5x(2-5BD)	9x5x2BD	9x5x2BD-S	9x5x2BD-S	9x5x2BD-S	9x5x2BD-S	9x5x2BD-S (Self-pickup in some countries)	9x5x2BD-S
Onsite support	Onsite hardware replacement	/	/	/	/	/	/	/	/	/
	Onsite fault diagnosis	/	/	/	/	/	/	/	/	/
	Onsite spare parts recycling	√	√	√	√	√	√	√	√	√

- Definition of terms:
 - 9x5: 9:00 – 18:00, business days, excluding public holidays
 - 12x7: 8:00 – 20:00, Monday to Sunday
 - 24x7: 00:00 – 24:00, Monday to Sunday
 - BD: business day
 - 2BD-S: Huawei starts delivering spare parts within two business days after Huawei confirms that hardware replacement is necessary and receives the RMA information.
 - 2BD: The spare parts are delivered to the customer at the specified location within two BDs after Huawei confirms that hardware replacement is necessary and receives the RMA information. Advance spare part replacement and hardware replacement services requested after 15:30 will be deemed as requests submitted on the next calendar day.
 - NBD-S: Huawei delivers spare parts on the next business day from the day when Huawei confirms that hardware replacement is necessary and receives the RMA information.
- Description of the onsite hardware replacement, fault diagnosis, and spare parts recycling services in China region:
 - The onsite hardware replacement service in China region applies only to the SUN8000 series.

- (2) Onsite fault diagnosis service is mainly dispatched as work orders by ASPs (business subcontractors) in China region. Not all standard warranty services include onsite fault diagnosis.
- (3) Onsite spare parts recycling service refers to the onsite recycling of faulty parts by logistics service providers (not by engineers) arranged by Huawei spare parts service platform.
- Spare parts service description:
 - (1) The default spare parts service for SUN2000s is the replacement for an entire device. Some inverter models support fan tray replacement.
 - (2) The SACU and AC combiner box support parts replacement.
 - (3) Huawei guarantees only that the supplied spare parts have the same performance as the faulty parts. The promise that the spare parts to be replaced are new shall not be made to the customer.

2.1.2 Warranty Extension Strategy

In addition to the free warranty services for devices, warranty extension packages with different extension periods for inverters and some accessories can be sold separately.

Huawei provides a 5-year, 10-year, or 15-year warranty extension service for the SUN2000s. For non-inverter components such as the SmartLogger, PID module, and PLC module, Huawei provides a 5-year or 10-year warranty extension service. Warranty extension service is not provided for the Smart Dongle (4G module).

Quotation of the extended warranty = Quotation baseline x Quantity of devices.

2.1.2.1 Warranty Extension Package

A standard warranty extension package includes the following contents.

Standard Warranty Extension Service Content										
Content		China	Europe	Japan	Middle East & Central Asia	Asia Pacific	Southern Africa	Northern Africa	Latin America	Type-B Countries
Remote technical support	Help desk	24x7	24x7	12x7	24x7	24x7	24x7	24x7	24x7	24x7
	Online technical support	√	√	√	√	√	√	√	√	√
Software system support	Software update authorization	√	√	√	√	√	√	√	√	√
Hardware support	Return for repair	/	/	/	/	/	/	/	/	/
	Spare parts pre-replacement	9x5x2BD-S	9x5x(2 - 5BD)	9x5x2BD	* 9x5x2BD-S	9x5x2BD-S	9x5x2BD-S	9x5x2BD-S	9x5x2BD-S(Self-pickup in some countries)	9x5x2BD-S

Standard Warranty Extension Service Content										
Content		China	Europe	Japan	Middle East & Central Asia	Asia Pacific	Southern Africa	Northern Africa	Latin America	Type-B Countries
Onsite support	Onsite hardware replacement	√	/	/	/	/	/	/	/	/
	Onsite fault diagnosis	√	/	/	/	/	/	/	/	/
	Onsite spare parts recycling	√	√	√	√	√	√	√	√	√

- Definition of terms:
 - (1) 9x5: 9:00 – 18:00, business days, excluding public holidays
 - (2) 12x7: 8:00 – 20:00, Monday to Sunday
 - (3) 24x7: 00:00 – 24:00, Monday to Sunday
 - (4) BD: business day
 - (5) 2BD-S: Huawei starts delivering spare parts within two business days after Huawei confirms that hardware replacement is necessary and receives the RMA information.
 - (6) 2BD: The customer receives the spare parts within two business days after Huawei confirms that hardware replacement is necessary and receives the RMA information. Advance spare parts replacement and hardware replacement services requested after 15:30 will be deemed as requests submitted on the next calendar day.
 - (7) NBD-S: Huawei delivers spare parts on the next business day from the day when Huawei confirms that hardware replacement is necessary and receives the RMA information.
 - (8) *: Saudi Arabia and United Arab Emirates
- Description of the onsite hardware replacement, fault diagnosis, and spare parts recycling services in China region:
 - (1) The onsite hardware replacement service in China region applies only to the SUN8000 series.
 - (2) Onsite fault diagnosis service is mainly dispatched as work orders by ASPs (business subcontractors) in China region. Not all standard warranty services include onsite fault diagnosis.
 - (3) Onsite spare parts recycling service refers to the onsite recycling of faulty parts by logistics service providers (not by engineers) arranged by Huawei spare parts service platform.
- Spare parts service description:
 - (1) The default spare parts service for SUN2000s is the replacement for an entire device. Some inverter models support fan tray replacement.
 - (2) The SACU and AC combiner box support parts replacement.
 - (3) Huawei guarantees only that the supplied spare parts have the same performance as the faulty parts. The promise that the spare parts to be replaced are new shall not be made to the customer.

2.1.2.2 Marketable Standard Warranty Extension Packages

- Application scenario: The warranty of the device purchased by the customer is about to expire or has expired, and the customer still wants to enjoy Huawei's maintenance and assurance service. A separate service sales contract can be signed for extended warranty.
- Extended warranty periods may vary with different products. For details, see the following table.

Standard Extended Warranty Periods (Year) by Product Series									
Product Series	China	Europe	Japan	Middle East & Central Asia	Asia Pacific	Southern Africa	Northern Africa	Latin America	* Type-B Countries
SUN2000 C&I inverter	5, 10, or 15 years	5, 10, or 15 years	5, 10, or 15 years	5, 10, or 15 years	5, 10, or 15 years	5, 10, or 15 years	5, 10, or 15 years	5, 10, or 15 years	5, 10, or 15 years
Optimizer	5, 10, or 15 years	/	/	/	/	/	/	/	/
SmartLogger, PID module, and PLC module	To the 5th or the 10th year	To the 5th or the 10th year	/	To the 5th or the 10th year	/	/	/	/	/
SACU, combiner box, ACBox, Smart Dongle, 4G wireless access module, smart meter, outdoor remote antenna (optional) for the SmartLogger, Y-branch connectors, accessories, tools, mechanical parts, and independently sold inverter fans. For details about accessories, tools, and mechanical parts, see Table 1 in 2.3.1.	/	/	/	/	/	/	/	/	/

Standard Extended Warranty Periods (Year) by Product Series									
Product Series	China	Europe	Japan	Middle East & Central Asia	Asia Pacific	Southern Africa	Northern Africa	Latin America	* Type-B Countries
Huawei's auxiliary products resold internally and not related to inverters	Contact the corresponding product service department for confirmation.	Contact the corresponding product service department for confirmation.	Contact the corresponding product service department for confirmation.	Contact the corresponding product service department for confirmation.	Contact the corresponding product service department for confirmation.	Contact the corresponding product service department for confirmation.	Contact the corresponding product service department for confirmation.	Contact the corresponding product service department for confirmation.	Contact the corresponding product service department for confirmation.
Third-party device (including the EMI)	/ (Advise customers to contact the vendor for services.)	/ (Advise customers to contact the vendor for services.)	/ (Advise customers to contact the vendor for services.)	/ (Advise customers to contact the vendor for services.)	/ (Advise customers to contact the vendor for services.)	/ (Advise customers to contact the vendor for services.)	/ (Advise customers to contact the vendor for services.)	/ (Advise customers to contact the vendor for services.)	/ (Advise customers to contact the vendor for services.)

- Warranty extension services can be sold only before the warranty (extended warranty) expires. Regional service managers need to regularly check the list of projects whose warranty is about to expire in the region, and proactively recommend extended warranty services to customers.
- If the warranty period has expired before the customer purchases an extended warranty service, Huawei need to send personnel to the project site to check the device health. The fee of onsite health check equals to that of a one-time onsite service. In European region, an extended warranty service can be purchased only after Huawei personnel verifies that the devices are within the warranty period and are operating normally.
- The contents of the extended warranty service are the same as those of the standard warranty service. Extended warranty services must not be sold in regions where the services are unavailable.

* Note: Canada is excluded from the type-B countries in the table above and its warranty periods are as follows:

The marketable warranty extension package for SUN2000 C&I inverters is 5 years or 10 years.

The standard warranty period of some models in Brazil is 10 years, and the extended warranty packages available for sales are 5 years and 10 years.

2.1.3 Spare Parts Strategy

- The default spare parts service for SUN2000s is the replacement for an entire device. Some inverter models support fan tray replacement.
- The SACU and AC combiner box support parts replacement.
- For projects in remote areas or the availability of which has been promised to the customer, advise the customer to purchase 0.5% of the ordered quantity of products as spare parts. This strategy is to reduce the recovery time of PV plant devices.
- For areas where spare parts are available, the Global Spare Parts Center (GSPC) and the warehouses in the rep offices are responsible for delivering the spare parts.
- According to the product sales contract or service contract, faulty parts are returned by customers.

- It is prohibited to promise to build any local spare parts warehouse for the customer in areas without Huawei rep offices or legal organizations, build any dedicated spare parts warehouse, or store spare parts for the customer. Spare parts services are provided for the customer only according to the service agreement.
- The spare parts SLA in the service contract cannot exceed the local spare parts service delivery capability or the highest level of the SLA that can be achieved by the local office.
- Spare parts in the spare parts center cannot be directly sold to customers. These spare parts are used only for spare parts service delivery. The sales of spare parts for out-of-warranty services is a marketing activity. If a customer wants to purchase spare parts, a sales contract must be signed. After that, the supply chain delivers the spare parts to the customer according to the sales contract.
- If Huawei does not have a registered subsidiary in the local region and does not have the import and export qualification, which means that Huawei cannot act as the customs clearance entity for devices or spare parts in the local region, spare parts replacement and pre-replacement services cannot be provided for customers in the name of Huawei. Only spare parts repair services are allowed (if the faulty parts cannot be repaired, Huawei provides good parts for the customer), and the customer is responsible for the import and export customs clearance of the devices.
- During the spare parts services, Huawei only promises to provide good parts, not necessarily new parts.
- The warranty periods of spare parts in regions are as follows.

Warranty Periods of Spare Parts by Region										
Product	Mode	China	Europe	Japan	Middle East & Central Asia	Asia Pacific	Southern Africa	Northern Africa	Latin America	* Type-B Countries
Inverter	The warranty period of the original device	√								
	180 days after the spare parts are delivered or the warranty period of the original device (whichever comes later)					√				
	360 days after the spare parts are delivered or the warranty period of the original device (whichever comes later)		√	√	√		√	√	√	√
Auxiliary components such as the	The warranty period of the original device	√								

Warranty Periods of Spare Parts by Region										
Product	Mode	China	Europe	Japan	Middle East & Central Asia	Asia Pacific	Southern Africa	Northern Africa	Latin America	* Type-B Countries
SmartLogger	90 days after the spare parts are delivered or the warranty period of the original device (whichever comes later)		✓	✓	✓		✓	✓		✓
	180 days after the spare parts are delivered or the warranty period of the original device (whichever comes later)					✓			✓	
	360 days after the spare parts are delivered or the warranty period of the original device (whichever comes later)									

* Note: Canada is excluded from the type-B countries in the table above and the warranty periods are as follows:

The warranty period for spare parts of inverters and auxiliary components such as the SmartLogger is 180 days after the spare parts are delivered or the warranty period of the original device (whichever comes later).

2.1.4 Authentication Strategy

The warranty and warranty extension services are authenticated based on the product serial number (SN) marked on the product appearance. The SN determines whether the customer can enjoy the warranty and warranty extension services. For details, contact the regional service contact person.

3

Warranty clause

3.1 Basic Provisions

During the warranty period, Huawei promise as follows:

- 3.1.1 Provide replacement service when normal functions cannot be used due to defects in materials, manufacturing or workmanship.
- 3.1.2 Provide replacement service when normal functions cannot be used due to non-compliance with published product specifications.
- 3.1.3 Huawei spare parts (excluding batteries) shall be delivered within two working days after the service request is confirmed. After receiving the spare parts, the asset ownership of the faulty parts will be transferred to Huawei. The customer shall return the faulty parts to Huawei within 15 working days. If the faulty parts cannot be returned, the customer must compensate Huawei for the loss.
- 3.1.4 If Huawei provides spare parts in the order, the customer is not allowed to sell the spare parts to third parties or use them for other purposes.
- 3.1.5 Spare parts provided by Huawei are equivalent to those used by customers on site.
- 3.1.6 After Huawei provides spare parts, the system warranty period inherits or is not shorter than the warranty period in the original contract.
- 3.1.7 Onsite engineering operations are completed by the customer, and Huawei is not responsible for onsite replacement.
- 3.1.8 After the spare parts request is confirmed, Huawei is responsible for the transportation of spare parts within the warranty period.
- 3.1.9 If a product fault is found within the warranty scope, the customer should contact Huawei hotline to report the fault and provide the following information:
 - 1. Brief description of the fault, including but not limited to input and output parameters, alarm ID, cause ID, and run logs.
 - 2. Product serial number.
 - 3. Purchase receipt.

The above information is the condition for reporting faults.

3.1.10 If the customer does not provide sufficient information or the spare parts are replaced without Huawei's confirmation, the customer shall bear the freight.

3.2 Exception clause

3.2.1 The preceding support services are only applicable to Huawei-produced equipment. The hardware equipment beyond the agreed scope is not covered by Huawei's service scope.

3.2.2 In all cases, whether on the basis of contract, warranty, tort (including liability for fault and strict liability) or any other theory and legal claim, Huawei does not assume any liability for any consequences arising from the installation, use, or poor performance of its products, any indirect loss, collateral damage, or punitive damages arising from any defect or breach of warranty, including, but not limited to, loss of profits, damage to goodwill or business reputation, or loss of delay. The total amount of Huawei's responsibility for damages or otherwise shall not exceed the purchase price paid by the original Buyer for the Products.

3.2.3 Widely used vulnerable parts and consumables are not covered by Huawei's service scope.

3.2.4 If Huawei cannot fulfill the service commitment within the promised time due to non-Huawei reasons, the customer shall exempt Huawei from the SLA fulfillment responsibilities and relevant compensations. If on-site services are required, travel time shall be excluded from SLA time.

3.2.5 Faults caused by the following reasons are not covered by Huawei's service scope:

3.2.5.1 The storage or handling of improper materials may cause product drop or collision damage. For example, the storage of improper materials may expose the battery to an environment below -40 degree Celsius or above 60 degree Celsius.

3.2.5.2 inverters are damp or wet due to outdoor storage.

3.2.5.3 Storage, installation, charging, operation, and control of the energy storage system not in accordance with the user manual, including placing the equipment in an environment below -30 degrees or above 55 degrees. Failures caused by failure to comply with the operating environment or external power parameters required by the written system specifications.

3.2.5.4 Caused by force majeure (such as natural disasters, fires, or wars)

3.2.5.5 Faults due to natural aging and wear.

3.2.5.6 Faults caused by engineering quality of joints.

3.2.5.7 After the system is installed or shut down during operation, no auxiliary power is supplied for more than 24 hours, causing condensation and moisture inside the cabinet.

3.2.5.8 The products are modified without Huawei's written approval.

3.2.5.9 Failure to feed back product problems within the warranty period.

3.2.5.10 Huawei hardware or data is damaged due to negligence, irrelevant operations, or intentional damage.

3.2.5.11 Performance unqualified/unqualified items due to laws and regulations update.

3.2.5.12 defects that are not currently recognized by technology at the time the product is sold.

3.2.5.13 Do not provide authorization to operate data via network access and refuse to install firmware updates.

- 3.2.5.14 If the system fails to be upgraded due to the customer's reasons, Huawei will not bear the warranty, and the customer will bear all the consequences.
- 3.2.5.15 Physical access to the system is not granted on site.
- 3.2.5.16 System damages caused by improper operations of a third party or customer, including those in transportation, installation, and improper adjustment, alteration, and removal of identification marks. If the ESS is used as a backup power device for medical treatment, it may cause personal injury, loss of life, or catastrophic property loss. Huawei shall not be liable for any loss.
- 3.2.5.17 This is directly caused by customer infrastructure problems.