Hertzkron

Silicon Carbide
Advanced Static Var Generator

User Manual

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Preface

Dear Valued Customer,

Thank you for choosing the Silicon Carbide Advanced Static Var Generator.

For safe and convenient use, and for proper maintenance, please read this user manual carefully before using the device and keep it handy for future reference.

Please adhere to the operating procedures and precautions that outlined in this manual.

Please neither attempt to disassemble or repair it by yourself, nor hand it over to unauthorized service departments If the device encounters any issues. On the contrary please contact our technical service team and provide your name, address, phone number, device model, purchase date, and a description of the fault. We are dedicated to serving you.

Due to product upgrades and technological advancements, the Silicon Carbide Advanced Static Var Generator may differ from the user manual. We apologize for any errors, omissions, or inconsistencies that arise.

Chapter I Safety Precautions

1.1 About This Manual

1) This manual covers the installation and operation of the Silicon Carbide Advanced Static Var Generator. Please read this manual before installation.
2) Only qualified personnel are permitted to operate the equipment, including installation, operation, maintenance, inspection, and removal. It is strictly prohibited for anyone other than our company's technical personnel and qualified users to operate this equipment.
3) Any modification, disassembly, disabling of components, or replacement of parts, may affect the safety performance of the equipment. Not using original parts may affect the working and safety performance of the equipment and will be considered as an automatic waiver of the quality guarantee.
4) Ensure that the equipment is properly grounded before power on. Poor grounding can cause abnormal operation and electric shock hazards.
5) Please wait for at least 10 minutes before disassembling the enclosure. Use a special instrument to test the DC bus voltage and ensure that the residual voltage in the DC capacitors is completely discharged before disassembling components, otherwise, there is a risk of electric shock.
6) Poor ventilation can cause overheating problem and damage the equipment. Do not cover the ventilation openings and ensure the equipment is kept away from any heat sources.
7) When transportation and storage, ensure that the equipment is not exposed to rain or water, not subjected to high temperatures, not corroded by salt fog, and not stored in a dusty environment.

1.2 Safety Labels

To ensure the personal and property safety of users while using this product, as well as to facilitate better product usage, this manual provides relevant information and highlights it with appropriate symbols.

The following are the symbols that may be used in this manual. Please read them carefully.

ATTENTION

Failure to follow the requirements of this manual may result in damage or malfunction of the equipment!

WARNING

Failure to follow the requirements of this manual may result in equipment damage and minor injury to personnel!

DANGER

Failure to follow the requirements of this manual may result in serious accidents, severe injury, or

death!

Whenever these symbols are used in this manual, they indicate important safety information. Failure to follow these precautions may result in economic losses, damage to this product, associated components, or enclosures, and may even lead to minor or serious injury or death. Additionally, our company assumes no responsibility for any injuries or equipment damage caused by your company or your company's clients not adhering to the contents of this manual.

1.3 Safety Precautions

Before Installation	
 Danger	1) Do not install if you find water inside the box, missing components, or noticeable damage upon unpacking . 2) Do not install if the packing list does not match the actual items or the ordered equipment.
 Attention	1) This equipment is intended for commercial and industrial use only and should not be used as a power source for any life-support devices. 2) When handling the module, ensure that you firmly hold the enclosure. Dropping it during handling may pose a risk of injury and may also damage the equipment. 3) Handle the module gently to avoid damaging it. 4) Do not use modules that are damaged or have missing parts, as this poses a risk of injury. 5) The device has undergone a high-voltage test before leaving the factory. Do not perform any high-voltage testing on any parts of the device without confirmation from company technical personnel. High voltage testing may damage the equipment’s insulation and internal components.
During Installation	
 Danger	1) Installation, maintenance, inspection, or component replacement should not be performed by individuals who are not qualified electrical professionals. Failure to do so may pose a risk of electric shock! 2) For modification projects, when installing primary cables or current sampling secondary lines, ensure that the system is de-energized and that the surrounding area is safe for work. Failure to ensure these conditions may result in electric shock hazards and could lead to serious injury or death!
	1) When connecting the input cables, ensure that the equipment is properly grounded. The grounding must comply with local electrical regulations. 2) Handle the module with care during installation and avoid dropping or bumping it. Damage resulting from improper handling is not covered under the company's responsibility or warranty. 3) When placing two or more modules in the same cabinet, ensure they are positioned correctly to guarantee effective heat dissipation. It is recommended to add cooling systems such as fans. 4) The installation location of the module should ensure adequate ventilation. Do not obstruct the module's built-in cooling fan's air intake and exhaust vents. 5) The installation location of the module should allow for safe maintenance and

Attention	adjustment by after-sales personnel. 6) For wall-mounted modules, install them in areas with minimal foot traffic and ensure that safety hazard labels are clearly visible. 7) Avoid installing the module in environments with conductive dust, volatile gases, corrosive substances, or excessive salt.
During Running	
 Danger	1) Do not open the cover after powering on. Failure to adhere to this precaution may result in electric shock and potential injury or death. 2) Do not install or wire the equipment while it is running. 3) Do not touch any primary or secondary terminals of the module. Doing so may pose an electric shock hazard and could result in injury or death. 4) This equipment must be commissioned by the manufacturer or its authorized agents. Any other operation should only be carried out under the guidance of our company's after-sales engineers. Unauthorized operation is prohibited and may cause equipment damage or even result in injury or death.
 Attention	1) Do not change the factory settings of the device while it is operating, as this may cause damage to the equipment. 2) Avoid letting any objects fall into the equipment during operation. This may cause damage to the equipment.
 Attention	1) After powering on the equipment, avoid starting and stopping of the device frequently or toggling of the upstream switches frequently. 2) Please promptly power off the device and contact our technical personnel if the equipment emits abnormal noises or displays fault information during commissioning.
Maintenance	
 Danger	1) Do not perform maintenance or servicing on the equipment unless you have received professional training. Failure to do so may result in personal injury or equipment damage. 2) Do not perform maintenance or servicing on the equipment while it is live. There is a risk of electric shock. 3) Ensure that the equipment’s input power is disconnected for at least 10 minutes before performing maintenance or repairs. Failure to do so may result in harm from residual charges in the capacitors. 4) Before performing maintenance or servicing, ensure that the equipment is safely disconnected from all power sources. 5) After replacing any parts of the equipment, parameters must be set and checked. 6) Do not power on or operate equipment that has reported a fault or is damaged, as this may exacerbate the damage.

Chapter II ASVG-SiC Overview

2.1 Product Theory

The ASVG-SiC model uses silicon carbide power devices as its core. A voltage source converter is connected in parallel to the power grid via a filter. Its working principle involves real-time detection of the load current and, based on advanced reactive power, harmonic current, and three-phase active power detection and control algorithms, generating corresponding drive signals to comprehensively compensate for reactive current, harmonic current, and three-phase unbalanced active power. Simultaneously, the device achieves a peak efficiency of over 98.5%, with a single cabinet accommodating up to 8 modules and a maximum capacity of 800 kvar. Installation and maintenance are convenient.

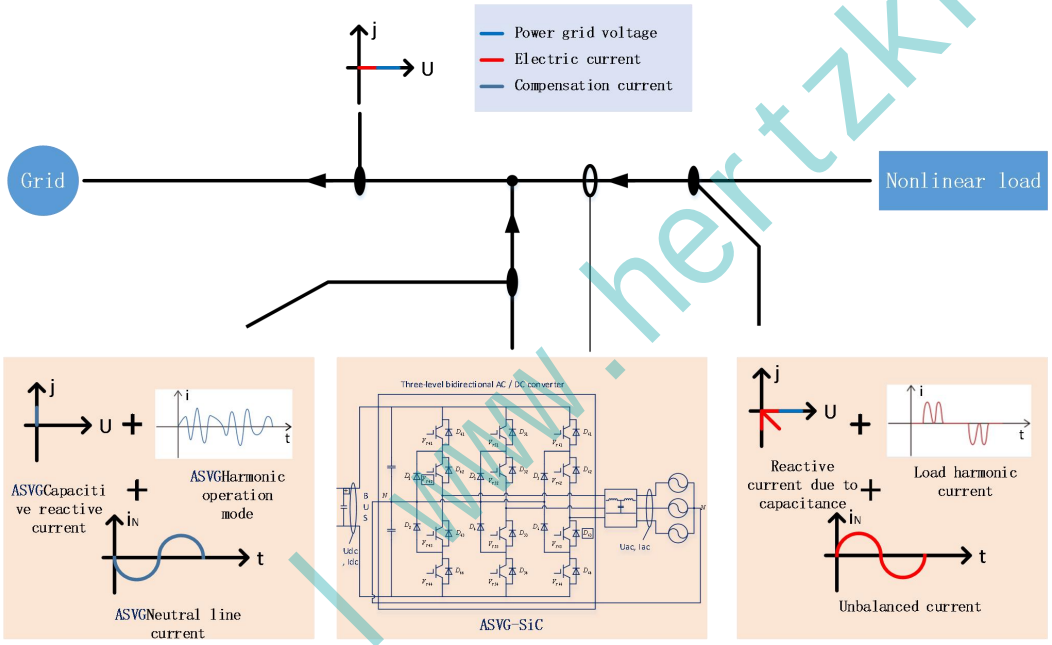


Figure 2.1: ASVG-SiC principle diagram

Figure 2.2: Physical Diagram of ASVG-SiC Module

2.2 ASVG-SiC Model Definition

The ASVG-SiC model definition is shown in Figure 2.3. Module specifications and dimensions are shown in Table 2.1, and the overall cabinet specifications and dimensions are shown in Table 2.2.

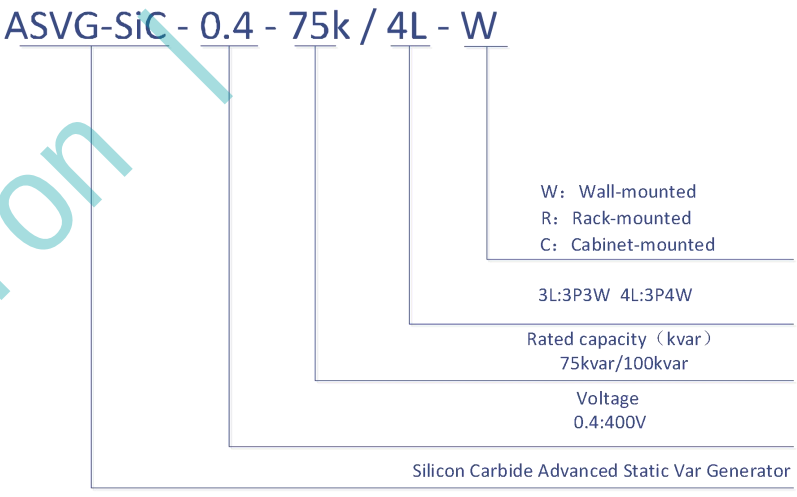


Figure 2.3: Model Description Schematic Diagram

Table 2.1: Module Specifications and Dimensions

Module Model				
Models	**Compensation Capacity (kvar)**	**System Voltage (V)**	**Dimensions W*D*H (mm)**	**Net Weight (kg)**
ASVG-SiC-0.22-37k/4L-W	37	220	500*600*100mm	35
ASVG-SiC-0.22-50k/4L-W	50	220	500*600*100mm	35
ASVG-SiC-0.4-75k/4L-W	75	400	500*600*100mm	35
ASVG-SiC-0.4-100k/4L-W	100	400	500*600*100mm	35

Chapter III ASVG-SiC Technical Parameters

The technical parameters of each series of modules are shown in Table 3.1.

Table 3.1: Technical Parameters

	220V Series	380V Series
Altitude	< 2000m (derated per GB/T 3859.2 above 2000m)	
Ambient Temperature	-10℃ ~ +50℃ (derated above 40℃)	
Relative Humidity	≤ 90%, no condensation on surface at monthly min. temperature of 25℃	
Pollution Level	Below Level III	
Operating Voltage	AC220V (±20%)	AC380V (±20%)
Operating Frequency	50Hz/60Hz （45Hz～63Hz）	
Rated Compensation Capacity	37kvar,50kvar	75kvar,100kvar
Grid Structure	3P3W, 3P4W	
Numbers in Parallel	Unlimited	
Full Load Efficiency	≥98%	
Switching Frequency	30kHz	
Function Selection	Reactive Power, Harmonic, Reactive Power + Harmonic, Harmonic + Reactive Power,Harmonic + Unbalance, Reactive Power + Unbalance, Harmonic + Unbalance + Reactive Power, Reactive Power + Unbalance + Harmonic	
Reactive Power Compensation Rate	≥ 99%	
Unbalance Compensation Capacity	≤5%	
Current Harmonic Compensation Capability	≥95%	
Neutral Line Filtering Capability	The neutral line filtering capacity is 3 times that of the phase filtering capacity	
Total Response Time	Reactive Power <10ms, Harmonic <40ms	
Cooling Method	Forced Air Cooling	
Noise	≤65dB	
Communication	2*RS485 Communication Interface (Support WiFi)	
Protection Function	Overload, Software/Hardware Overcurrent, Over/Undervoltage,Unbalance, Power Supply Fault, Overtemperature, Frequency Anomaly, Short Circuit Protection	
Overload Capacity	Rated 1.2 times overload for 60 seconds	
Installation	Rack-Mounted,Wall-Mounted	
Line Entry Method	Rear Inlet (Rack-Mounted), Top Inlet (Wall-Mounted)	
Protection Level	IP20 （IP54 is customizable）	

Chapter IV Transportation and Storage

4.1 Transportation

The product can be transported by automobile, train, airplane, and ship. It must be handled carefully during transportation. Exposure to rain, intense sunlight, severe vibration, collision, and inversion is strictly prohibited. The transportation temperature should be within the range of -40° C to +70° C.

Sign	Description
	The module must be kept with the front side facing up. It is prohibited to lay the module horizontally, tilt, or invert.
	Handle with care to avoid damage to the module caused by excessive collision or friction during transportation.
	Take precautions against moisture to avoid the module being exposed to rain or becoming damp.

4.2 Storage

The product must not be exposed to direct sunlight or rain. It should be stored in a well-ventilated area where the surrounding temperature is between -40° C and +70° C, with a maximum relative humidity of 95% (equivalent to an air temperature of 20±5° C) and free from corrosive gases.

4.3 Unboxing and Inspection

Upon unboxing, please carefully check:

 Attention	1) Verify that the capacity and model on the cabinet nameplate, module labels that align with your order.
	2) The box contains the ASVG-SiC device, user manual, product certificate, factory inspection report, M4X10 iron-nickel cross-head countersunk screws (6), lugs (2), handles (304 stainless steel handles Φ10*96mm, M5 screw holes) (2), and one each of 6P/6P/2P/14P terminals. Some accessories are already installed on the device body.
	3) If your order includes a centralized monitoring touchscreen, it is typically packaged separately. The package includes a 7-inch touchscreen, touchscreen installation accessories, communication cables for the touchscreen connection module, equipment engineering drawings, and insulation covers for module terminal blocks.
	4) Check for any damage during transportation. If you find any omissions or damage, please contact us promptly for resolution.

4.4 Product Packaging Contents

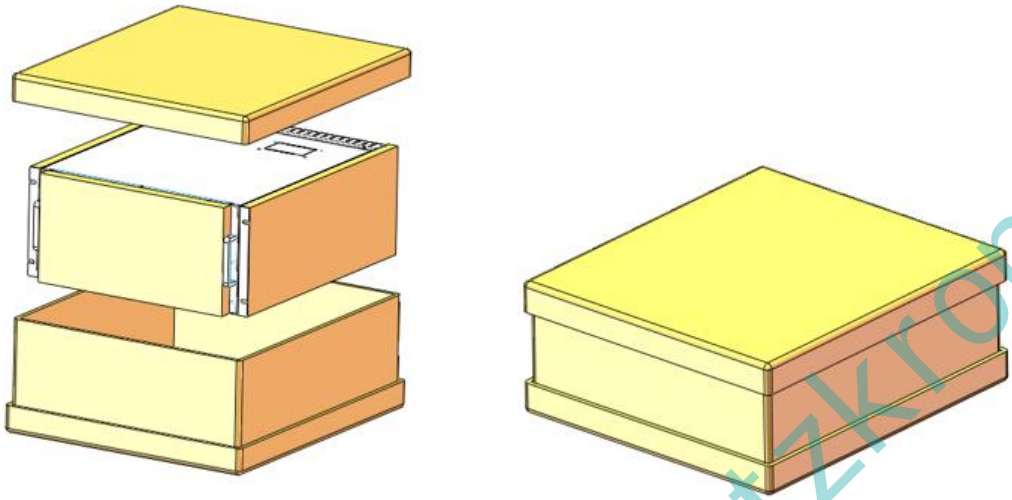


Figure 4.1: Module Packaging Illustration

4.5 Accessory packaging contents

1) The box contains ASVG-SiC device, touchscreen, user manual, product qualification certificate, and factory inspection report.
2) Main unit accessories: M4X10 iron-nickel cross-head countersunk screws *6, hook lugs *2, handles (304 stainless steel handles Φ 10*96mm, M5 screw holes) *2, terminals 6P/6P/2P/14P one each, primary line protective cover (optional), already installed on the equipment body.
3) Host and accessories (some accessories are installed on the main unit at the factory)

Chapter V Installation and System Wiring Diagram

5.1 Power Distribution Interface And Secondary Terminal Interface

The end-user only needs to select appropriate cables based on the power requirements for connecting to the fixed terminals of the equipment. The connections for each terminal are shown in Figure 5.1 and Table 5.1.

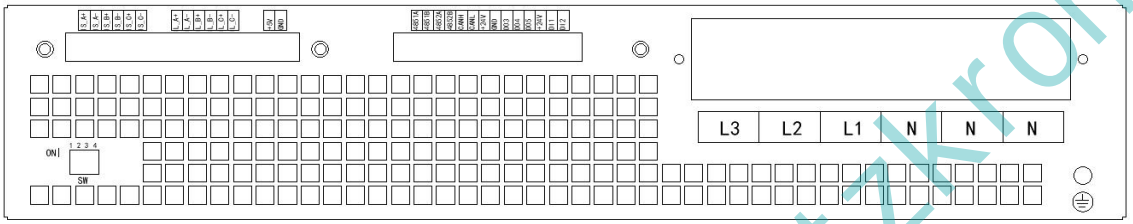


Figure5.1： External Terminal

Table5.1： External Secondary Wiring Description

Port Name	Port Labeling	Function/Description
Incoming Line for Single-Circuit Equipment	L3	Phase C Incoming Cable
	L2	Phase B Incoming Cable
	L1	Phase A Incoming Cable
	N	Phase N Incoming Cable (Both N-phase lines must be connected)
	N	Phase N Incoming Cable (Both N-phase lines must be connected)
	N	Phase N Incoming Cable (Both N-phase lines must be connected)
X1 Terminal: Current Sampling (CT:5A)	IS_A+	Ia (Connects to S1 terminal of the A-phase CT on the grid side or load side)
	IS_A-	Ia (Connects to S2 terminal of the A-phase CT on the grid side or load side)
	IS_B+	Ib (Connects to S1 terminal of the B-phase CT on the grid side or load side)
	IS_B-	Ib (Connects to S2 terminal of the B-phase CT on the grid side or load side)
	IS_C+	Ic (Connects to S1 terminal of the C-phase CT on the grid side or load side)
	IS_C-	Ic (Connects to S2 terminal of the C-phase CT on the grid side or load side)
X2 Terminal: Current Sampling	IL_A+	Ia (Connect to the S1 terminal of the A-phase CT in this cabinet, if applicable based on the actual situation)

(CT:5A)	IL_A-	Ia (Connect to the S2 terminal of the A-phase CT in this cabinet, if applicable based on the actual situation)
	IL_B+	Ib (Connect to the S1 terminal of the B-phase CT in this cabinet, if applicable based on the actual situation)
	IL_B-	Ib (Connect to the S2 terminal of the B-phase CT in this cabinet, if applicable based on the actual situation)
	IL_C+	Ic (Connect to the S1 terminal of the C-phase CT in this cabinet, if applicable based on the actual situation)
	IL_C-	Ic (Connect to the S2 terminal of the C-phase CT in this cabinet, if applicable based on the actual situation)
X3 Terminal Adjustment Port	+5V	Debug port
	GND	Debug port
X4 Terminal Communication Interface	4852A	Debug port
	4852B	Debug port
	4851A	Communicating with the human-machine interface and with the next module.
	4851B	Communicating with the human-machine interface and with the next module.
	CANH	Reserved opening
	CANL	Reserved opening
	+24V	Power supply output is positive +24V (for powering the human-machine interface).
	GND	The power output is 0V (negative terminal) (powers the human-machine interface and indicator lights).
	DO3	Fault indicator, output +24V voltage. (The indicator light will illuminate when voltage is applied to GND.)
	DO4	Ready indicator, outputting +24V voltage. (The indicator light will illuminate when the voltage is connected to GND.)
	DO5	Operating indicator: Output +24V voltage. (The indicator light will illuminate when the voltage is connected to GND.)
	+24V	DI common terminal (start and emergency stop signal power common terminal)
	D11	Start signal (external dry contact button, powered via +24V common terminal)
	D12	Emergency stop signal (external dry contact button, powered via +24V common terminal)
Grounding	PE	The system grounding terminal is essential because the system casing is made of metal. To prevent accidents that could

		endanger personal safety, the system must be connected to the ground via this terminal before powering on.
Binary DIP Switch	SW	Set the module communication address ("1" represents "off", "0" represents "on"). The bit weight from left to right is 1248. The sum of each bit DIP code value is the module address. A touch screen can connect to a maximum of 8 modules, with the address set from 1 to 8.
 Notice	Note: 1) Since the DI and DO of a module are active nodes, the DI and DO of multiple modules cannot be connected in parallel. If the project involves multiple modules, the DI can be designed as a multi-node button (one button closes multiple normally open nodes when pressed, and returns to its original position when released). The DO circuits of multiple modules should be designed independently, and each module must have an independent indicator light (DO) circuit. 2) The maximum allowable secondary current of the CT is 5A.	

5.2 Accessory Description

Part Name	Installation location	Function Description
Molded Case Circuit Breaker (Must be installed)	Power input terminal of the module. Circuit breaker for rack-mounted modules is installed inside the cabinet. The circuit breaker for the wall-mounted module is installed in the distribution box that comes with the wall-mounted module.	Controls the on/off state of the module. Simultaneously features overload, short circuit, and undervoltage protection functions to protect the circuit and module from damage.
Surge Protector (Required)	1) The power input terminal of the module, the upper port of the molded case circuit breaker. 2) Installed inside the cabinet or distribution box.	Provides safety protection for cabinets and modules. When a surge voltage occurs in the electrical circuit, the surge protector can conduct and divert the current in a very short time, thereby preventing overvoltage from damaging other equipment in the electrical circuit.

Miniature Circuit Breaker (Optional installation)	1) Surge protector or fan input terminal. 2) Installed inside the cabinet or distribution box.	The main purpose of installing a circuit breaker in front of a surge protector or fan is to prevent fires or other accidents when a continuous short circuit occurs in the internal components of the surge protector.
Centralized Monitoring Screen (Optional installation)	1) For rack-mount installation, it can be installed on the cabinet door. 2) For wall-mount installation, it can be installed on the distribution box door.	Centralized monitoring makes it easy to view and set parameters.
Emergency Stop Button (Optional installation)	Installed on the cabinet door or the door of the distribution box.	When an abnormal situation occurs inside the cabinet or module (smoke, unusual noise, flame), the emergency stop switch can be pressed immediately to stop the module from working and effectively protect the module.
Fan (Required)	Installed on the rear cabinet door.	1) If the number of modules is ≤2, it is recommended to install 2 fans. 2) If the number of modules is >2, it is recommended to install 4 fans.
Status Indicator Lights (Optional installation)	1) Installed on the cabinet door. 2) Connected to the circuit of the alarm output point.	Display module status: running, stopped, normal, or faulty.
Relays (Optional installation)	Installed inside the cabinet.	Control indicator lights and fans.
Current Transformer (Required)	Installed on the main busbar of the power distribution system.	Detect the load current of the power distribution system.

Table 5.2： Accessories Description

5.3 Primary Cable Sizing Recommendation

The selection of ASVG-SiC incoming cables for different capacities and current ratings should comply with relevant electrical regulations and take into account environmental conditions. The table below can be used as a reference:

Table 5.3: Recommended values for cable cross-section

Primary Power Line			
Current Capacity	Three-phase Main Circuit Incoming Line	N Line	PE Line
75k	35mm²	35mm²×3	25mm²
100k	50mm²	50mm²×3	35mm²
200k	95mm²	95mm²×3	70mm²
300k	150mm² or 3×70mm²	150mm² or 3×70mm²	120mm²
400k	185mm² or 3×95mm²	185mm² or 3×95mm²	150mm²
500k	240mm² or 3×120mm²	240mm² or 3×120mm²	185mm²
600k	300mm² or 3×150mm²	300mm² or 3×150mm²	240mm²
Notice	1) ASVG is rated in kvar. The specifications in the table above are for reference only; please refer to national standards. 2) Due to the presence of third harmonics in some projects, the harmonic current will superimpose on the neutral (N) line, reaching three times the current of the phase line. Therefore, the N line specification must be one size larger than the phase line specification. 75kvar and 100kvar modules have three N line terminals, requiring three N lines to be connected. 3) Cables are typically BVR multi-strand copper core PVC insulated flexible wires. 4) If aluminum cables are used, refer to the corresponding copper wire current carrying capacity specification.		

5.4 Primary Busbar Selection Recommendation

Table5.4: Copper Medal Selection Reference

Capacity (kvar)	Busbar Specifications (mm*mm)
＜150	15*3
150～300	30*4
300～600	50*5
600～900	60*8

5.5 CT and Secondary Current Cable Selection Recommendation

The current transformer is primarily used in ASVG-SiC to measure load current and calculate data such as harmonic current, reactive current, negative sequence current, and zero-sequence current. The following table can be used as a reference:

Table 5.5: CT Cable Selection Recommendation

Parameter	Specification Requirements	Remarks
Primary Rated Current	—	1.5 times the actual maximum operating current in the system ≤ Primary Rated Current of the Transformer
Secondary Rated Current	5A	——
Rated Voltage	≥0.66kV	——
Rated Capacity	≥2VA	——
Accuracy Class	Class 0.5 or Class 0.2	——
Size	——	Specific dimensions should be selected based on the on-site installation environment.
Wire Diameter	Three sets (six wires) of cables on the secondary side of the transformer (rated current 5A). Wire diameter: 2.5 mm^2 .	

5.6 Other Cable Selection Recommendation

Table 5.6: Other Cable Selection Recommendation Table

Name	Specification
Surge Protector Primary Wiring	6mm^2 BVR Multi-strand Copper Core Flexible Wire
Fan Circuit Wiring	1.5mm^2 BVR Multi-strand Copper Core Flexible Wire.
Emergency Stop Switch Circuit Wiring	
Indicator Light Circuit Wiring	
Grounding Cable	Yellow-green BVR multi-strand copper-core flexible wire: Protective grounding PE Wire Selection Recommendation: If the cross-sectional area of the AC phase conductor is less than 16mm^2 , select a grounding wire with the same cross-sectional area as the phase conductor. If the cross-sectional area of the phase conductor is between 16mm^2 and 35mm^2 (inclusive), choose a 16mm^2 grounding wire. If the cross-sectional area of the phase conductor exceeds 35mm^2 , select a grounding wire with a cross-sectional area equal to half of the phase conductor.
Touchscreen Communication Cable	Power Cable: 1.0mm^2 BVR multi-strand copper-core flexible wire (pre-installed by the factory). Communication Cable: Standard plug-in cable provided by our company with the equipment.
Module Interconnection Communication Cable	For communication cables, it is recommended to use RVVP 2*0.75mm^2 shielded wire.

5.7 Installation and Wiring

5.7.1 Installation Environment

Table 5.7: Installation Environment

Installation Environment Requirements	
 Attention	1) Ambient Temperature: Ambient temperature significantly affects the lifespan of the ASVG. The operating temperature of the ASVG must not exceed the allowable range (-10℃～50℃). 2) The ASVG should be installed on a flame-retardant surface with sufficient space for heat dissipation. It generates a significant amount of heat during operation; the cooling airflow for a single module (100kvar) is approximately 600 CFM/Min. To ensure smooth airflow, a hole spacing of 2-3mm is recommended for the door panel openings. 3) Install in a location free from vibration, with vibration not exceeding 0.6G. Pay special attention to keeping it away from stamping equipment such as punch presses. 4) Avoid installation in locations exposed to direct sunlight, dampness, or water droplets. 5) Avoid installation in locations with corrosive, flammable, or explosive gases in the air. 6) Avoid installation in locations with oil stains or dust. 7) The installation environment must not be in a strong magnetic field, exposed to nuclear radiation, or subjected to high-power radio frequency interference. 8) When rack-mounted modules are installed in a cabinet, the cabinet must meet relevant standards and regulations. 9) Wall-mounted modules should be installed in areas with minimal foot traffic and must be clearly marked with safety signs. 10) The module is intelligently cooled by an internal fan. The ventilation holes must not be blocked during use. To prevent dust from clogging the air inlet, it should be cleaned regularly, ideally every three months.

5.7.2 Installation Space

Table 5.8: Installation Space Requirements

Installation Space Requirements	
 Attention	1) Do not obstruct the module's air vents. 2) For floor-standing installations, leave at least 600mm of clearance for airflow at the front and rear of the cabinet, and ensure there is sufficient space for maintenance behind the cabinet. Additionally, ensure that the rear door of the cabinet can open and close properly. 3) For wall-mounted installations, leave at least 150mm of clearance above and below the module for proper airflow. 4) The wall-mounted installation should be positioned at least 1.5 meters above the ground and have a clearly visible electrical hazard warning label.

Rack-Mounted Installation Space Requirements:

Figure 5.2: Floor-Standing Installation Space Requirements Diagram

Wall-Mounted Installation Space Requirements:

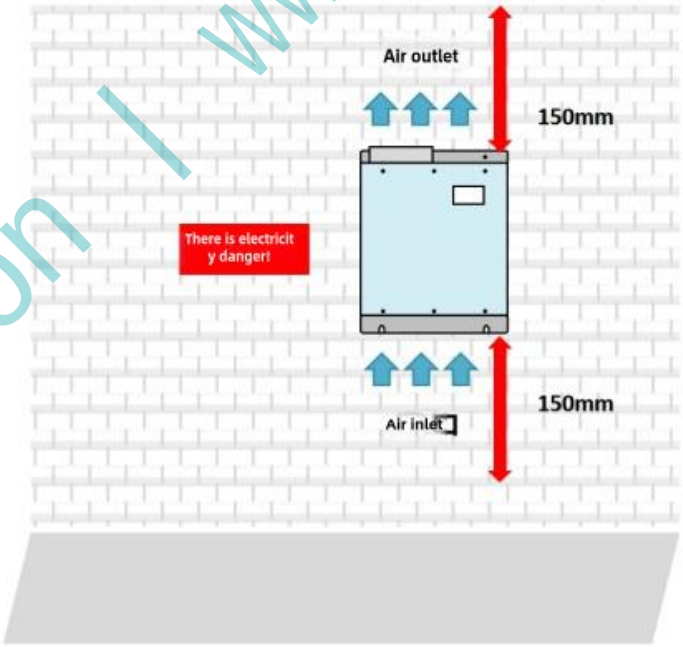


Figure 5.3: Wall-Mounted Installation Space Requirements Diagram

5.8 Installation Guidance

5.8.1 Cabinet Installation

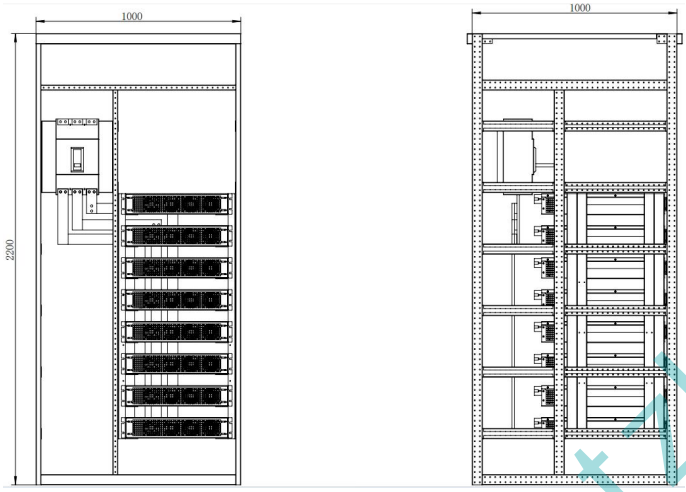


Figure 5.4: 1000k Cabinet Installation Diagram

5.8.2 Module Installation

The ASVG-SiC module is available in wall-mounted and rack-mounted models. Both models have the same main dimensions (excluding structural components for fixing and protruding handles).

Wall-mounted Installation:

The wall-mounted module can be mounted on a wall and operate independently. The mounting hole layout is shown in Figure 5.5.

Installation Method:

Secure the bracket to the wall using M8*15 cross-head screws through the six mounting holes.

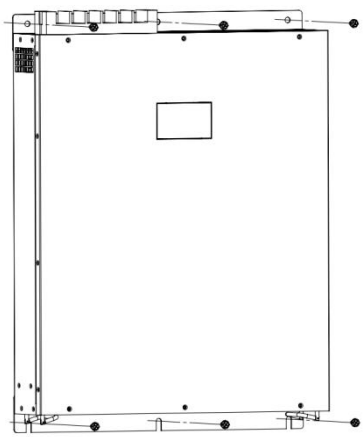


Figure 5.5: Wall-Mounted Installation Diagram for Single ASVG-SiC Module

Rack-Mount Installation:

When mounting the module in the rack, the location of the installation holes is as shown in Figure 5.6.

Installation Method：

Secure the module to the rack using the 4 mounting holes on the bracket with M6*15 cross-slot combination screws.

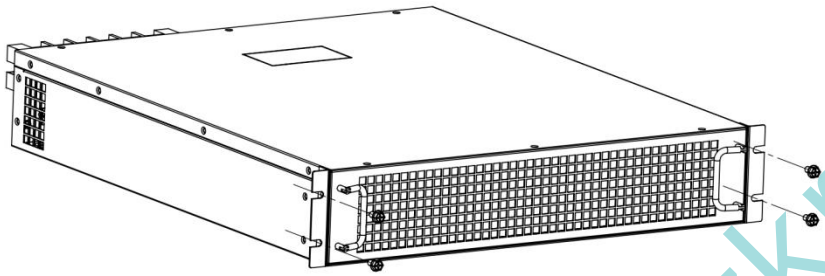


Figure 5.6: Rack-Mounted ASVG Installation Diagram

5.9 Cable Wiring

5.9.1 CT Installation Direction Instructions

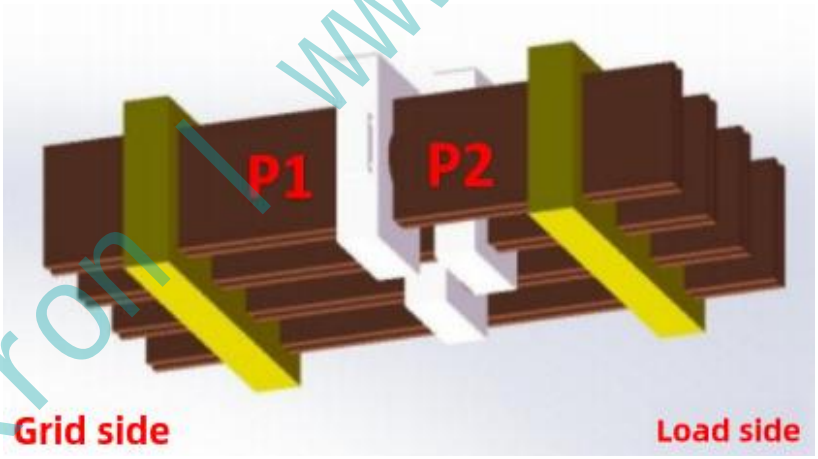


Figure 5.7: CT Installation Diagram

Attention	S1 should be the positive (+) and S2 should be the negative (-) if the current direction of the CT is from P1 to P2.

5.9.2 Single Module Single Cabinet Operating System Wiring Diagram

When operating with a single module in a single cabinet, the field-sampling CT (CT1 in Figure 5.8) should be installed on the load side as shown in Figure 5.8. The field-sampling CT can also be installed on the power side.

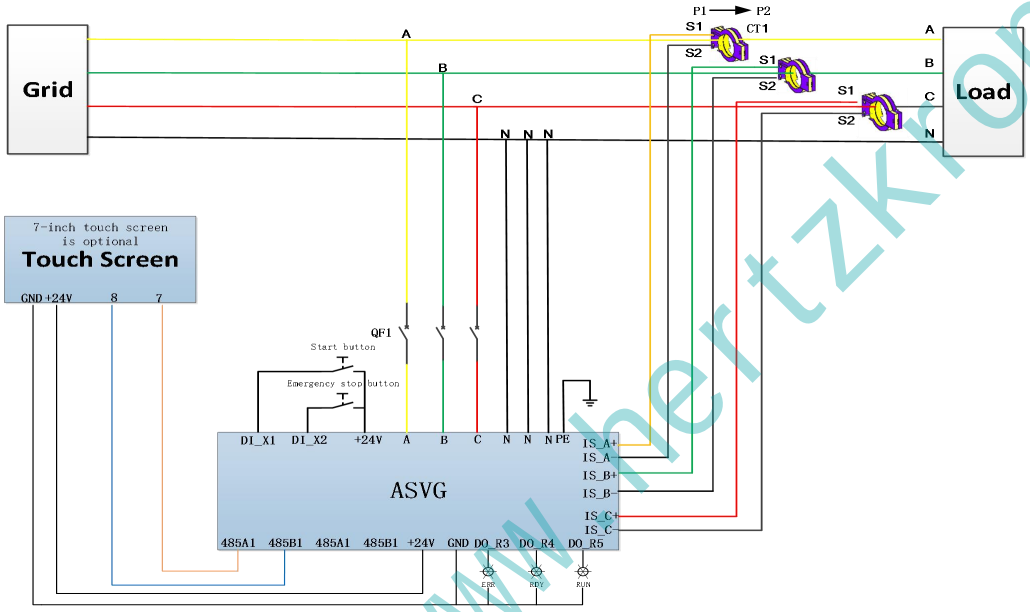


Figure 5.8: System Wiring Diagram for Single Module Operation in a Single Cabinet

5.9.3 Multi Module Single Cabinet Operating System Wiring Diagram

When multiple ASVG-SiC modules are connected in parallel to increase compensation current, all the devices share a single set of current transformers. The current signals collected by the external current transformers are sent to all the parallel ASVG-SiC devices. Additionally, an extra set of sampling current transformers (CT2) is installed inside the cabinet to measure the total cabinet current. The on-site CT is installed on the power side, as shown in Figure 5.14.

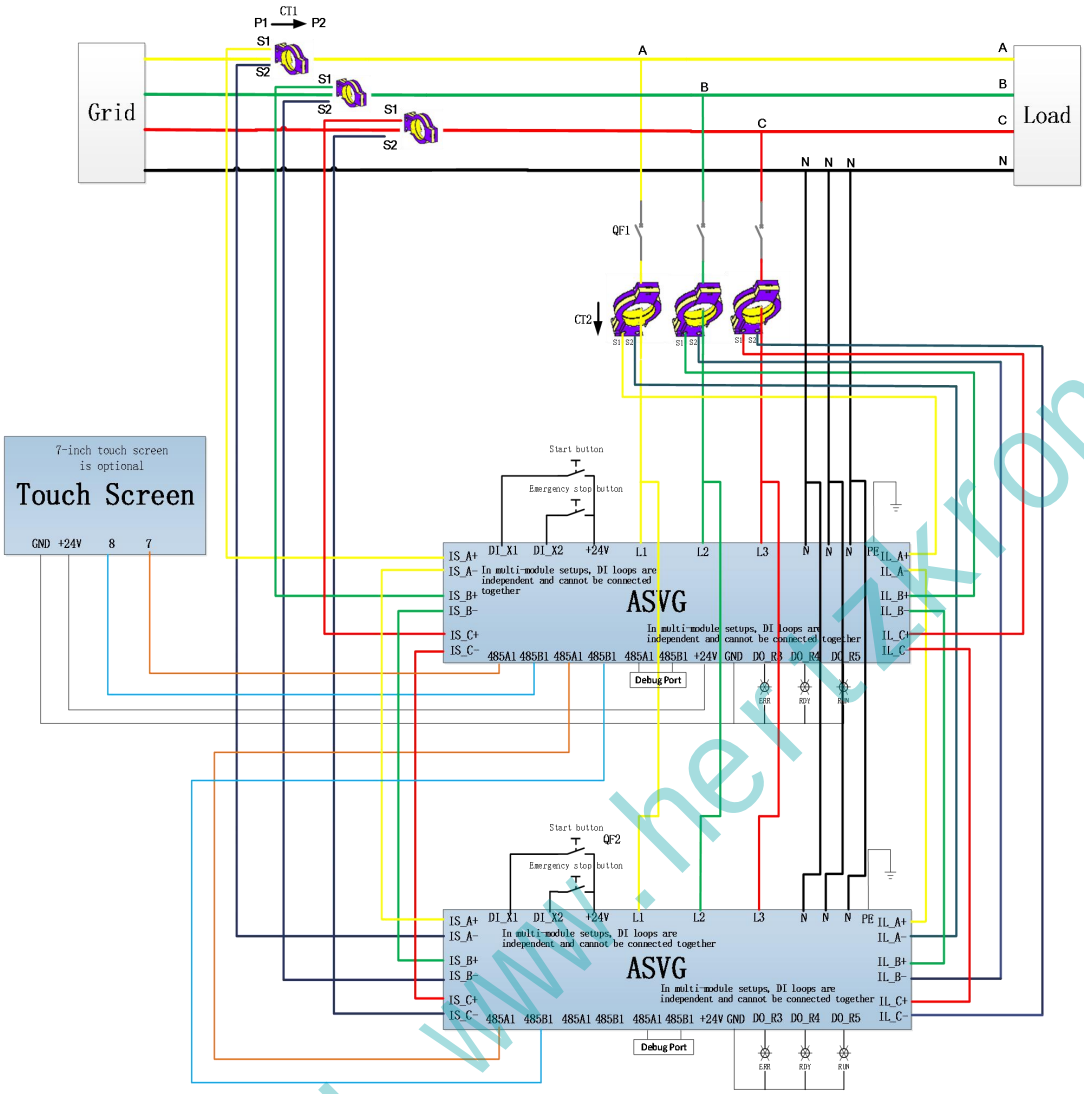


Figure 5.9: Multi Module Single Cabinet Operating System Wiring Diagram

Chapter VI HMI Description

6.1 Default startup interface

The main screen of the touchscreen is shown in Figure 6.1. It displays various system information, including details information of each side (grid and load). On the main screen, end-user can start, stop, and reset the device. On the left side of the main screen are the tabs for “Data”, “Settings” and “Records”.

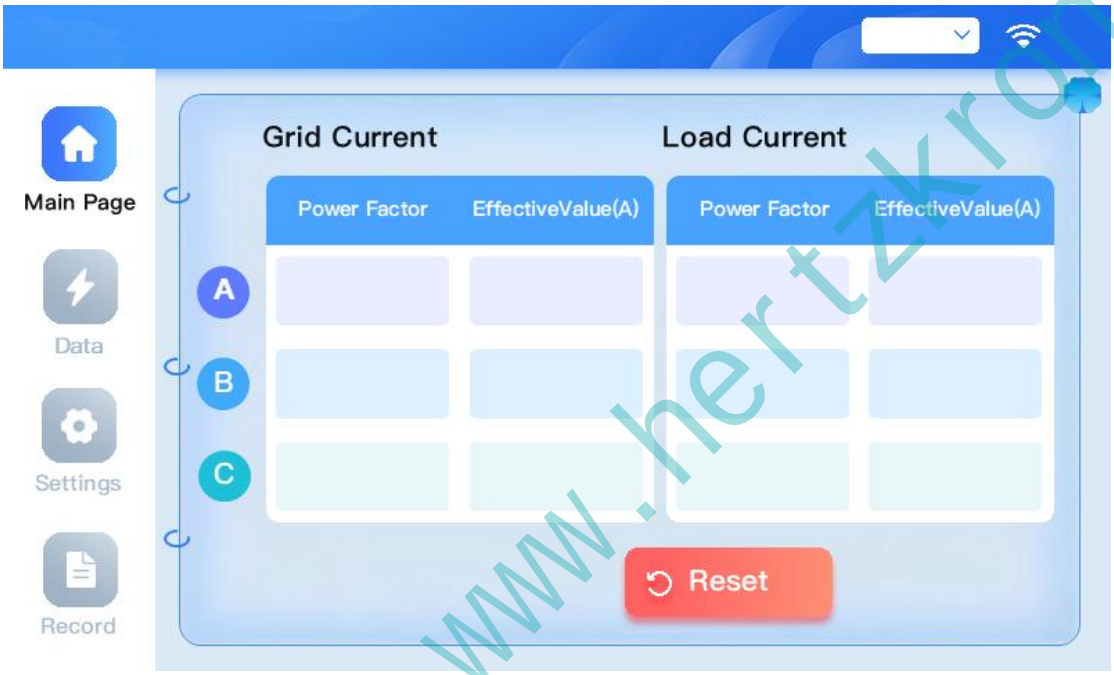


Figure 6.1: HMI Main Page

6.2 User Login

The login page is shown in Figure 6.2. It will pop up when you click the "Settings" button or update system parameters. Default password is 123.

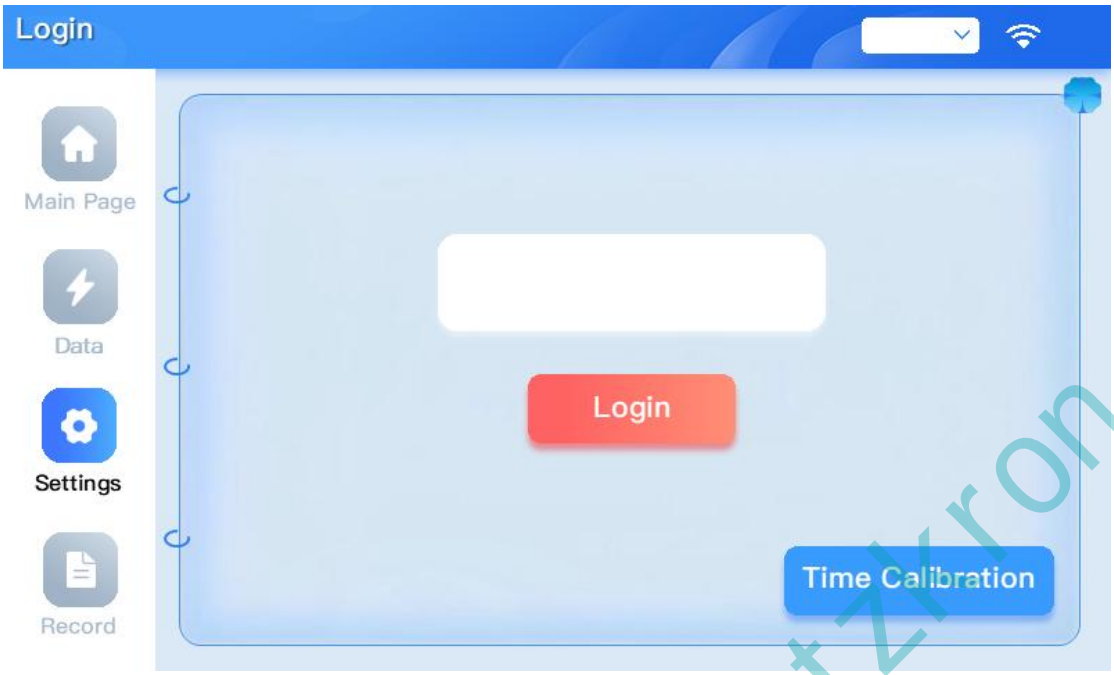


Figure 6.2: Login Page

6.3 Operation Permissions

Users can perform operations such as querying settings parameters, querying running data, querying history, starting, stopping, and resetting.

6.4 Parameters Settings

Select the 'Settings' button on the main touchscreen interface to enter the parameter settings page, as shown in Figure 6.3. All parameters are categorized into different sections, including 'System Parameters', 'Sampling Parameters', 'High Voltage Parameters', 'Harmonic Controller', 'Single Parameters' and 'Time Calibration'. Click on the corresponding tab to access the parameter settings page for any specific parameter.

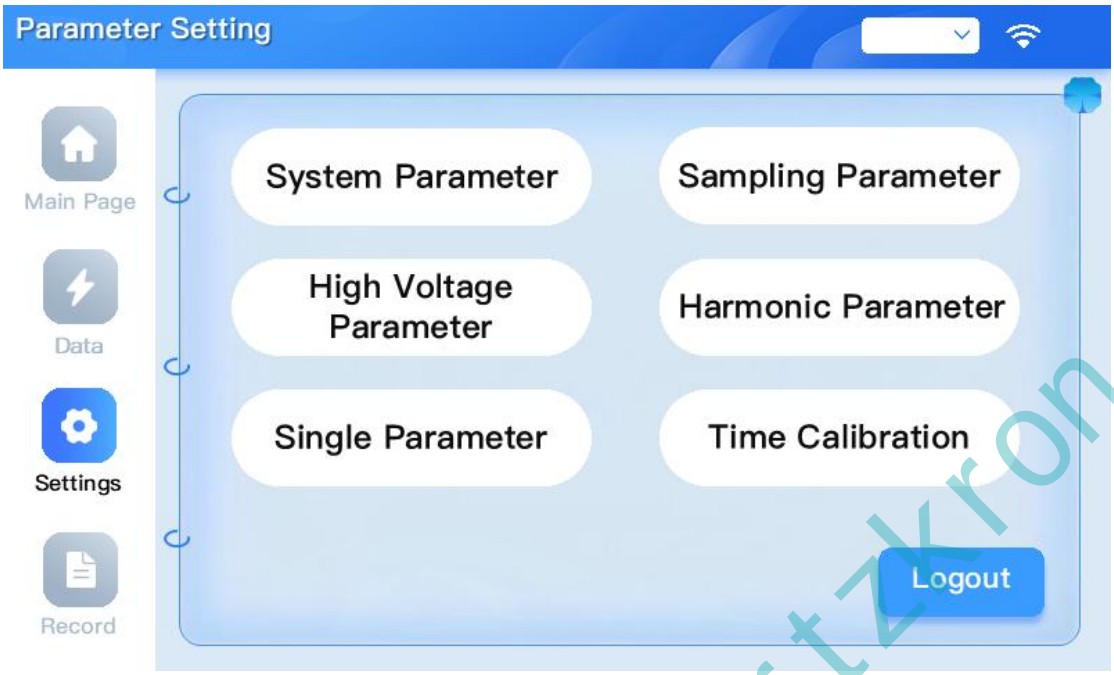


Figure 6.3: Parameter Settings Interface

6.5 Parameters Settings - System Parameter

The system parameter settings interface is shown in Figure 6.45. This section provides a detailed explanation of the parameters in this interface.

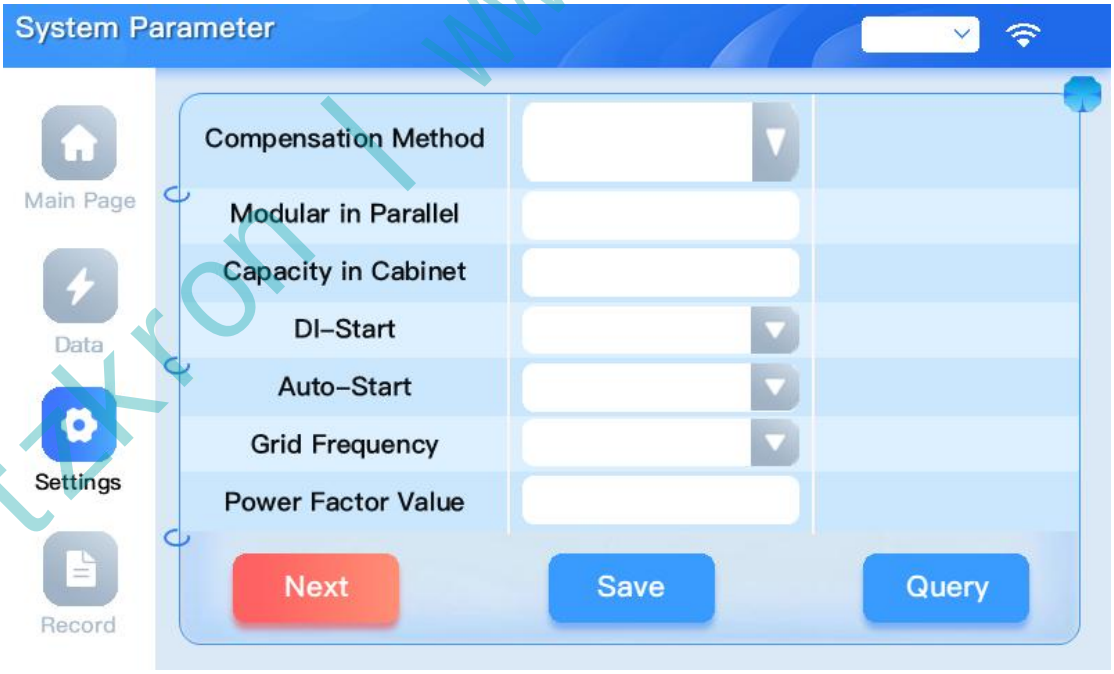


Figure 6.4: System Parameter Settings

1) Number of Parallel Modules: The total number of ASVG modules to be connected in parallel. If two modules are connected in parallel, set the value to 2.

2) Cabinet Capacity: The sum of the capacities of the parallel modules in this cabinet (unit: kvar). If this cabinet has two modules with capacities of 100k and 75k respectively, set the value to 175.

3) Compensation Method Selection: Reactive Power, Harmonics, Reactive Power + Harmonics , Harmonics+Reactive Power, Harmonics + Three-phase Unbalance, Reactive Power + Three-phase Unbalance, Harmonics + Three-phase Unbalance + Reactive Power, Reactive Power + Three-phase Unbalance + Harmonics, self-aging. Different priorities can be selected. Self-aging mode should be used with caution by the customer.

4) DI Start/Stop Enable: If the customer requires the module to be started via an external switch, select "Enable" for this option; otherwise, select "Disable".

5) Auto-start Enable: Selecting "Disable" requires manual clicking of the start button after power-on; setting it to "Enable" enables automatic startup after power-on when the set conditions are met.

6) Power Factor Setpoint: The actual setpoint for the power factor on-site, which can be set from 0 to 1.

7) After setting all parameters, click the "Confirm Settings" interface to confirm and complete the settings. You can confirm the settings were successful by clicking "Query Parameters".

6.6 Parameters Settings - Sampling Parameter

The sampling parameters setting interface is shown in Figure 6.5 , and the parameters on this interface are explained in detail.

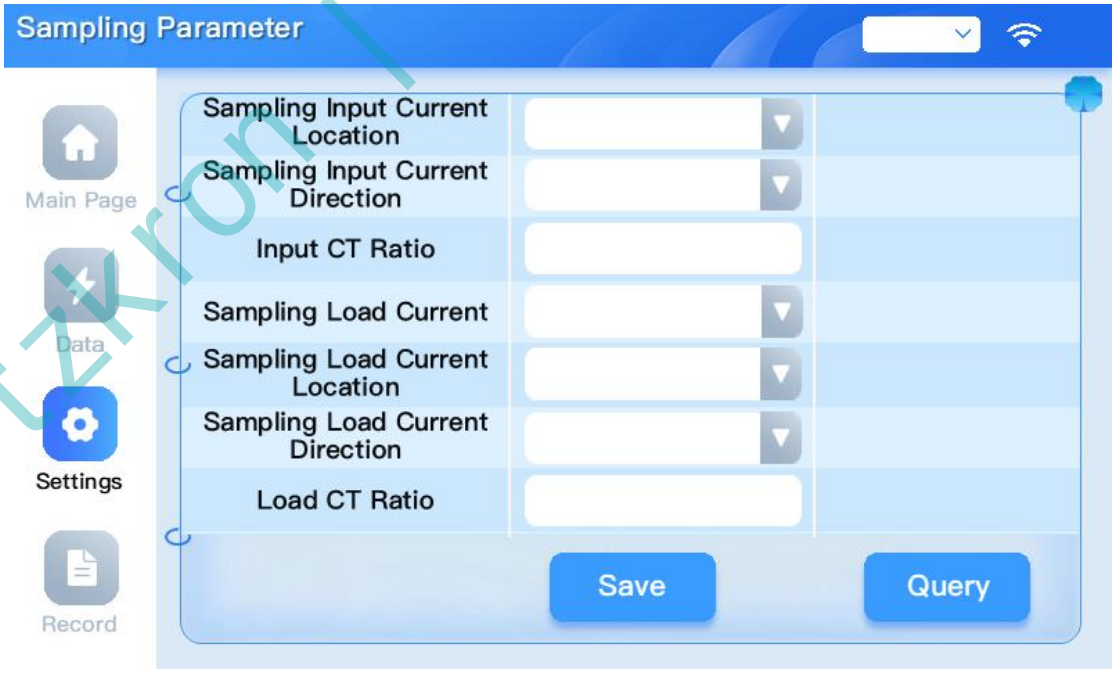


Figure 6.5: Input side sampling parameter setting interface

1) Sampling Input Current Location: If the CT is connected on the input side, select "Grid Side"; if the CT is connected on the load side, select "Load Side."
2) Sampling Input Current Direction: If the direction of the CT is from the load side to the grid side, select "Into the Grid"; otherwise, select "Out of the Grid."
3) Input CT Ratio: If the on-site CT ratio is 2000:5, set it to "400." Equipment current sampling enable: This sampling is only used for the current sampling of the entire cabinet. If the number of modules in the cabinet is greater than 1, it is recommended that the module be connected to the sampling CT of this cabinet. If connected, select "Enable"; otherwise, select "Disable".
4) Equipment current sampling location selection: This sampling is only used for the current sampling of the entire cabinet. Select "cabinet".
5) Selection of equipment current sampling direction: If the sampling direction of the entire cabinet CT is from the module side to the bus side, select "Inflow into the power grid"; otherwise, select "Outflow into the power grid".
6) Device Current CT Ratio: If the entire cabinet's sampling CT ratio is 2000:5, set it to "400."

6.7 Harmonic Parameter

The harmonic filtering interface is shown in Figure 6.6. If the module is required to compensate for harmonics on-site, you can enter this interface to select the order and compensation rate of the harmonics to be compensated. Select the compensation rate for the corresponding harmonic order. For example, if the third harmonic needs compensation, enter "1.00" in the corresponding field shown in the figure below. Finally, click "Save," and you can confirm the settings were successful by clicking "Query." This device allows you to filter up to eight selected harmonics.

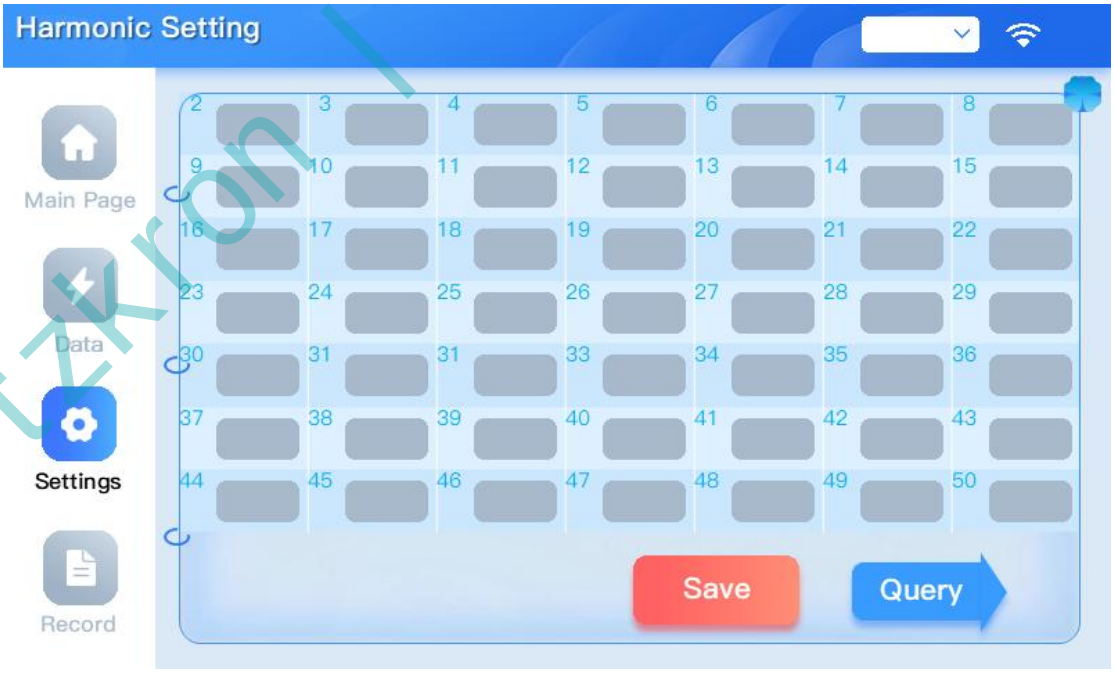


Figure 6.6: Harmonic Filter Parameter Settings Interface

6.8 Parameters Settings - High Voltage Parameter

The high-voltage parameter setting interface is shown in Figure 6.7, and the interface parameters are explained in detail (this function is only used when reactive power compensation is required).

Figure 6.7: High Voltage Parameter Settings Interface

1) Winding Type: You can choose from Normal, YY0, DY11, or YD1.
2) Transformation Ratio: If the on-site transformation ratio is 10kV:0.4kV, set the value to "25".

6.9 Operation Instructions

The operation modes of the equipment can be divided into automatic operation and DI operation, which can be set according to actual needs.

6.10 Automatic

Automatic start/stop: If "Disable" is selected, the ASVG-SiC must be manually started after power-on. If "Enable" is selected, the ASVG-SiC will automatically start after power on when the set conditions are met.

6.11 Manual Control (DI)

DI starts and stops automatically: If the customer requires the ASVG-SiC to be started via an external switch, select “Enable"; otherwise, select "Disable."

Note: Parameter modification needs to be determined by professional technicians, please modify with caution.

6.12 Debug parameters

The debugging parameters are provided by the manufacturer's debugging interface and are not publicly available.

6.13 Startup and DIP Switch Settings

When two or more modules are connected in parallel, DIP switches need to be configured.

Modules with address 1 correspond to Module 1 on the touchscreen, modules with address 2 correspond to Module 2 on the touchscreen, and so on.

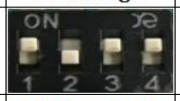
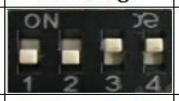
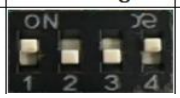
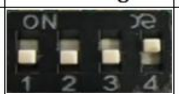
machine number	DIP switch settings	machine number	DIP switch settings	machine number	DIP switch settings	machine number	DIP switch settings
1		2		3		4	
machine number	DIP switch settings	machine number	DIP switch settings	machine number	DIP switch settings	machine number	DIP switch settings
5		6		7		8	

Figure 6.8 DIP Switch Configuration

After powering on the device, go to the “Module Configuration” screen to activate the modules that need to establish communication with the touchscreen. Once the communication connection is successfully established, set the operating parameters. When the parameters are correctly set and no faults are present, the touchscreen will allow the “Start” indicator light to illuminate, and the “Start” button will be active, while the “Stop” button will be inactive. In the module monitoring screen, select the module you want to start and click the “Start” button to begin operation, which will increase the DC bus voltage. The startup process for other modules in a parallel setup will be similar.

For stopping multiple modules in parallel using the touchscreen, the following applies: When the “Start” button is inactive and the “Stop” button is active, clicking the “Stop” button will stop the operation.

 Attention	Parameter modifications should be determined by qualified technical personnel, please proceed with caution.

Chapter VII HMI Description (7-inch Touchscreen)

7.1 Touchscreen Installation

7.1.1 Touchscreen Mounting Dimensions

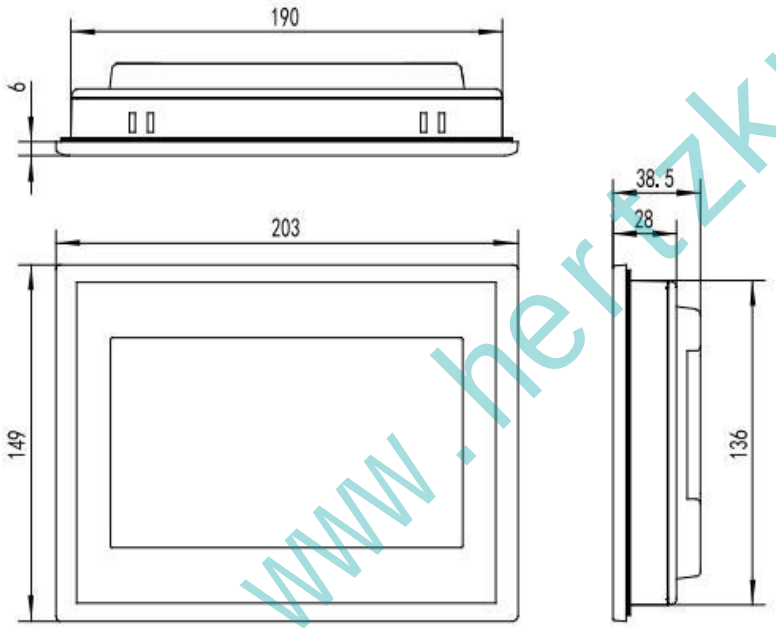


Figure 7.1: Overall Dimensions

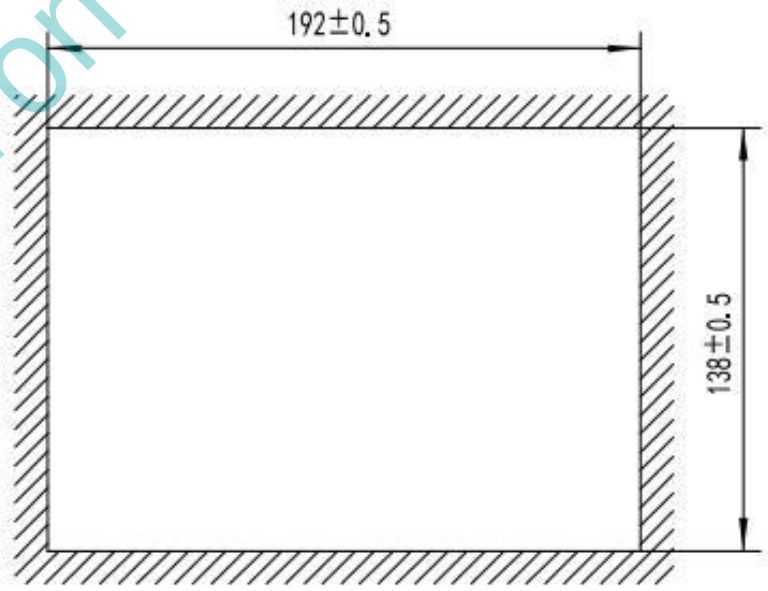


Figure 7.2: Cutout Dimensions

7.1.2 Touchscreen Installation Method

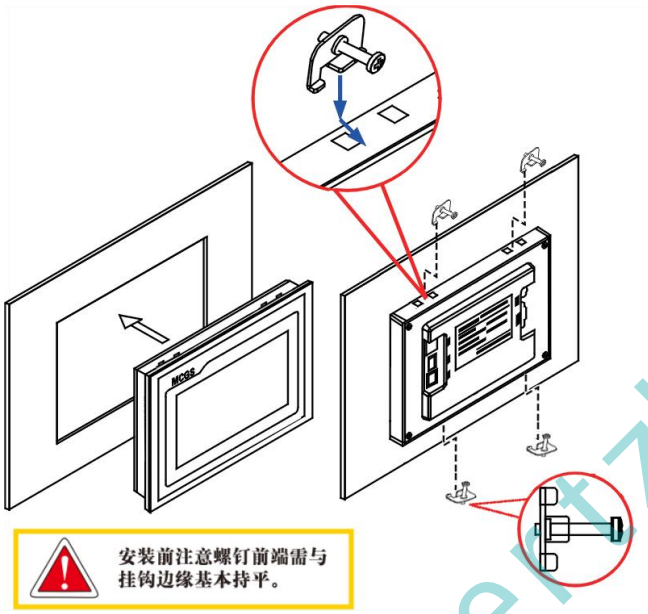


Figure 7.3: Touchscreen Installation Method

7.1.3 Touchscreen Interface Pin Definitions

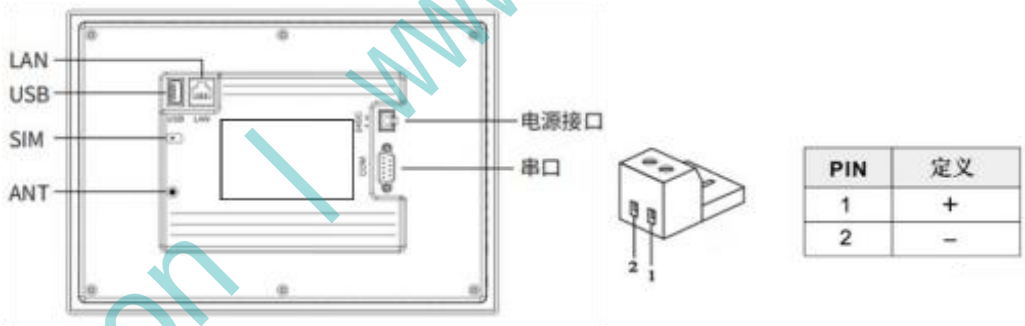


Figure 7.4: Touchscreen Interface Pin Definitions

Table 7.1: Touchscreen Serial Port DB9 Pin Definitions

Touchscreen Serial Port DB9 Pinout			
	COM1 Connects to Modules 1～4	PIN7	RS485+
		PIN8	RS485-
	COM2 Connects to Modules5～8	PIN4	RS485+
		PIN9	RS485-

Table 7.2: Communication Harness and Module Wiring Reference Table

Communication Wire Harness	ASVG Module Terminals	Directions
COM1:485A	485A1(Module 1)	Modules 1 through 4 are connected to Link 1.
COM1:485B	485B1(Module 1)	
COM2:485A	485A1(Module 5)	Modules 5 through 8 are connected to Link 2.
COM2:485B	485B1(Module 5)	

7.2 Default Startup Screen

Upon powering up, the touchscreen defaults to the "Home" interface. From this interface, users can monitor real-time system operational data, such as Grid Voltage, Grid Current, Device Current, Active Power, Reactive Power, and Apparent Power. Specifically, the "Device Current" refers to the compensation current of the entire ASVG cabinet, while the remaining data points represent grid-side parameters.

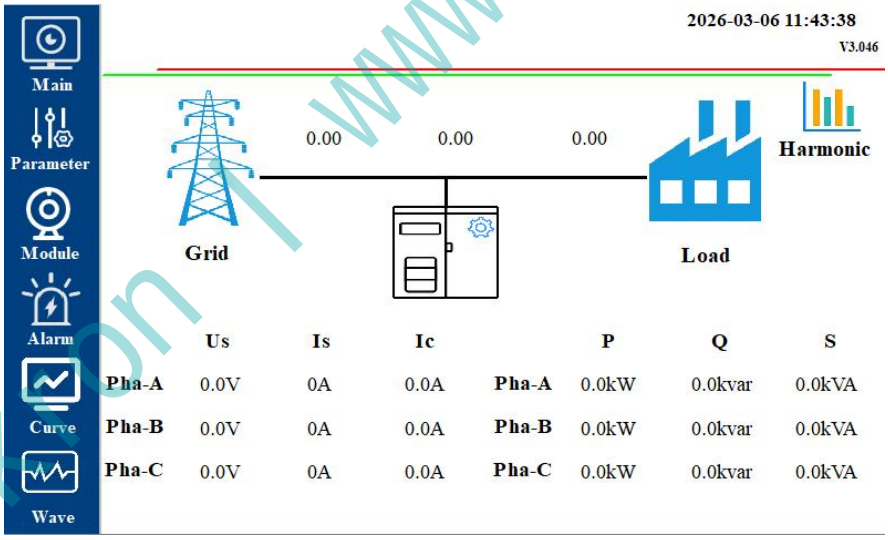


Figure 7.5: Default Startup Interface

The homepage not only displays real-time runtime data but also allows you to navigate to specific sub-interfaces by clicking icon buttons, as shown in the figure below:

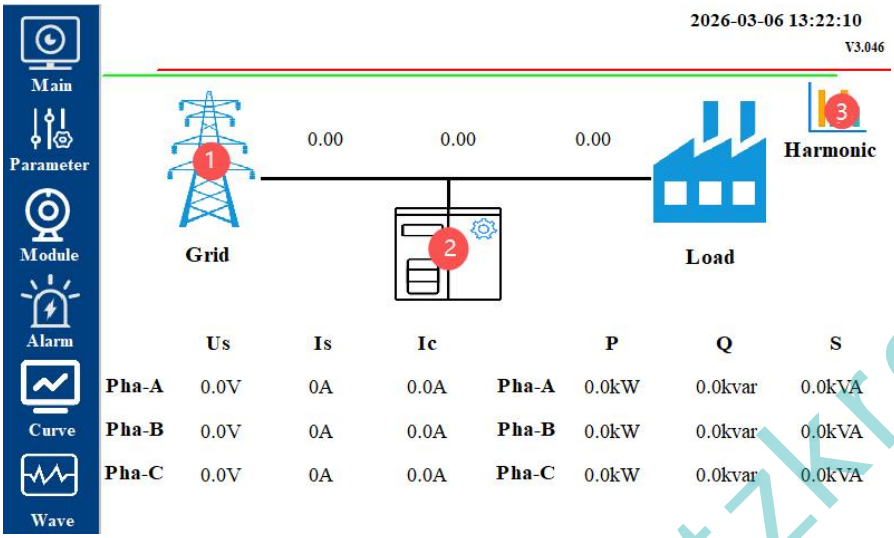


Figure 7.6: Startup Default Interface Navigation Button (Home Button)

① Clicking the " " icon button on the homepage allows you to navigate to the detailed system operational data monitoring interface; clicking the "Home" button in the top-left corner allows you to return to the previous screen.

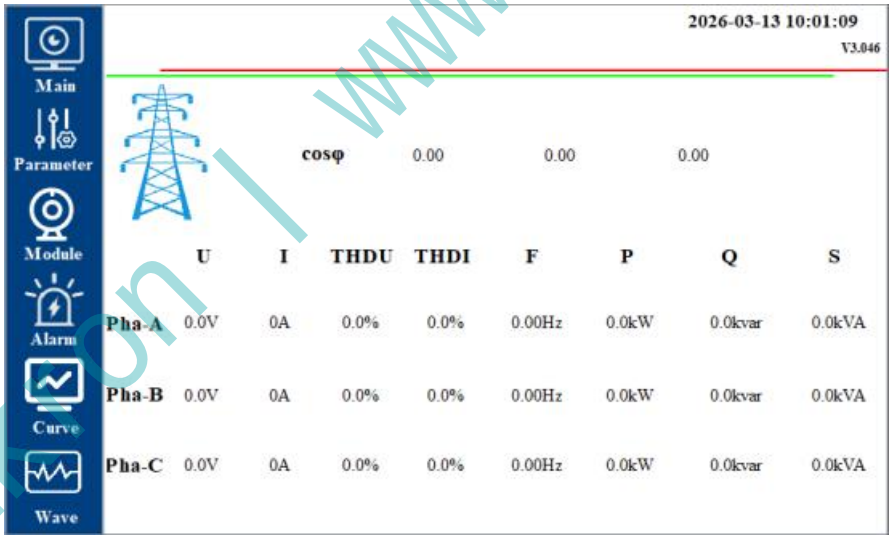


Figure 7.7: System Operation Data Monitoring Interface

② By tapping the " " icon button on the Home screen, you can navigate to the "Module Switching Settings and Confirmation" interface. You can return to the previous screen by tapping the "Home" button in the top-left corner or the "Back" button in the bottom-right corner.

Through this interface, users can control the communication connection status between each module and the touchscreen. The touchscreen features a "memory" function; therefore, if the

device experiences an abnormal power outage and is subsequently powered back on, manual re-engagement is not required.

1）ID： Module serial numbers are fixed, starting from 1; each touchscreen supports the connection of up to 8 modules.

2）ID setting: Enter the actual communication address of the module (controlled by the DIP switch for the actual communication address of the module);

3）Module Exit: The touchscreen terminates communication with this module.

4）Module Entry Point: The communication between the touchscreen input and this module.

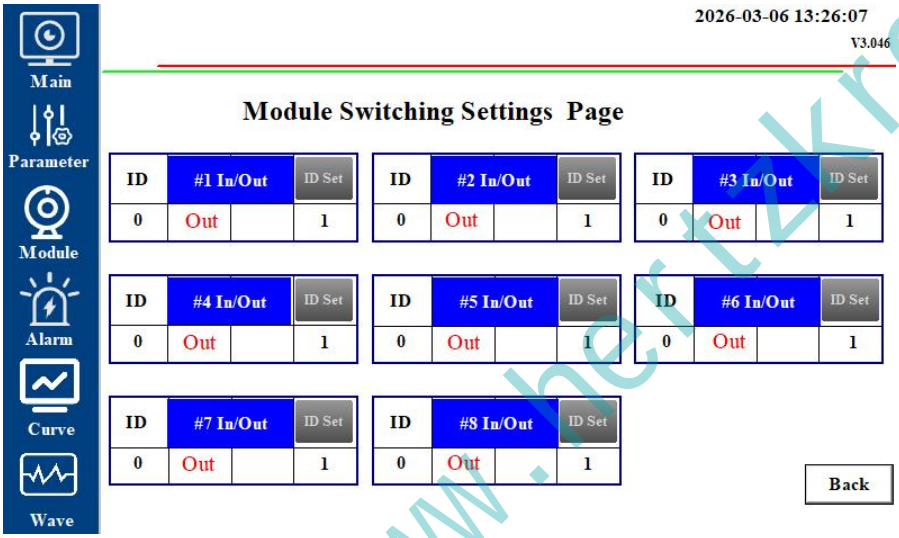


Figure 7.8: Module Switching Settings and Confirmation Interface

③ By clicking the "  " icon button located in the top-right corner of the homepage, you can navigate to the "Harmonic Bar Chart" interface. Users can select the specific harmonics they wish to view by utilizing the Module ID and the selection box on the right. Clicking the "Home" button in the top-left corner allows you to return to the previous screen.

1) This interface displays the harmonic content of the grid voltage, grid current, load current, and device current (module current). The buttons located at the top allow for switching between the harmonic display interfaces for Phases A, B, and C.

2) Display options are available for user selection in the upper-right corner of the interface. When "Device Current" is selected as the displayed content, the Module ID becomes active, allowing users to view the "Device Current" for different modules by specifying the ID number; for all other selected options, the Module ID is not applicable.

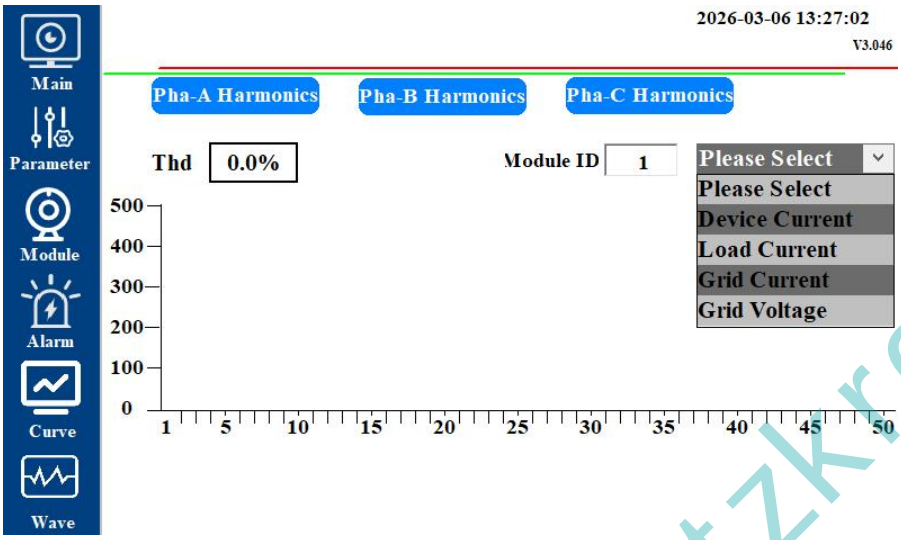


Figure 7.9: Harmonic Bar Chart

7.3 Module Monitoring Interface

The module monitoring interface displays various information regarding the module, including parameters such as the current, voltage, IGBT temperature, and frequency of the individual module. Located in the bottom-right corner of the touchscreen is a status indicator displaying the communication link between the module and the touchscreen; a green indicator signifies that the module is online, while a red indicator signifies that it is offline (this status display is active only when the "Module Switching" function is engaged; it is inactive when the module is switched out).

Users can view operational data for different modules by utilizing the "Module 1" through "Module 8" toggle buttons located at the top of the interface. Additionally, users may employ the "Reset" button to reset a module (in the event of an equipment fault, an engineer must first inspect and troubleshoot the issue; once external troubleshooting has been completed, the module can be reset by pressing the "Reset" button).

Note: When a module fault occurs, the interface displays only the Reset button; when the module is running, it displays only the Stop button; and when the module is in standby mode, it displays only the Start and Reset buttons (however, if an external phase sequence anomaly is detected, the Start button will not be displayed, and an alarm will be triggered).

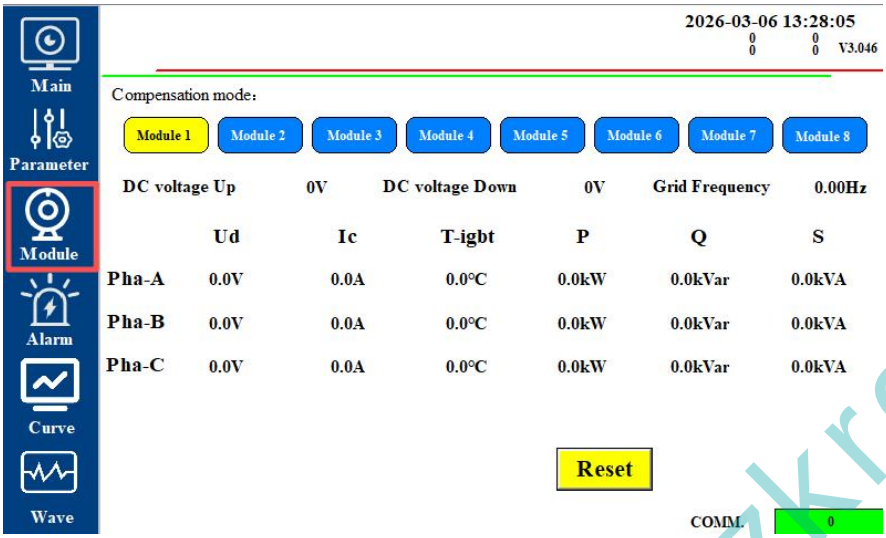


Figure 7.10: Module Monitoring Interface

7.4 Alarm Inquiry

The Alarm Query interface comprises "Real-time Alarms" and "Historical Alarms." The Real-time Alarms section displays the device's most recent alarm records, while the Historical Alarms interface allows users to query alarm information by specifying a specific time period.

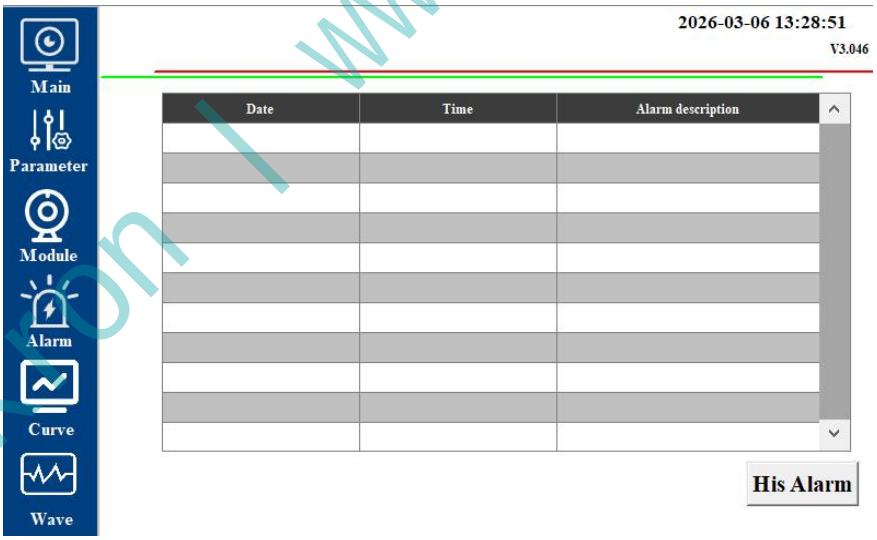


Figure 7.11: Real-time Alarm Information Query

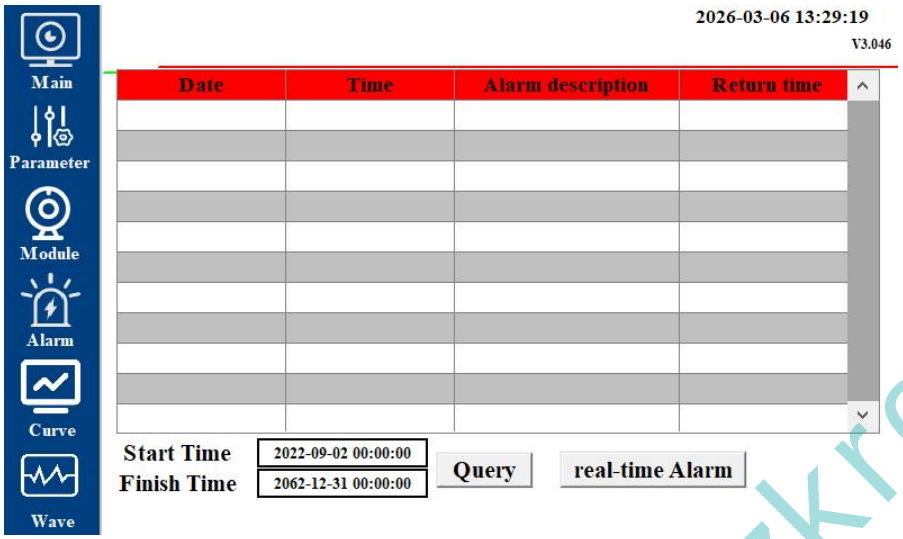


Figure 7.12: Historical Alarm Information Query

7.5 Historical Trends

The "Data Curves" interface allows you to query historical data, including historical records for grid voltage, grid current, and IGBT temperature.

The curve display interface presents data spanning the 24-hour period immediately preceding the moment the interface is accessed. To determine the absolute time for a specific point, tap on the curve displayed on the screen; an information window will then appear as shown below:

Figure 7.13: Curve Data Information Display

Pressing the "double-arrow"  movement button below shifts the timeline by 12 hours, while the "single-arrow"  button shifts it by 6 hours.

The query time range can be configured using Button  . By selecting the "Specified Time" option, you can retrieve data curves for a designated time interval; the other options need not be utilized.

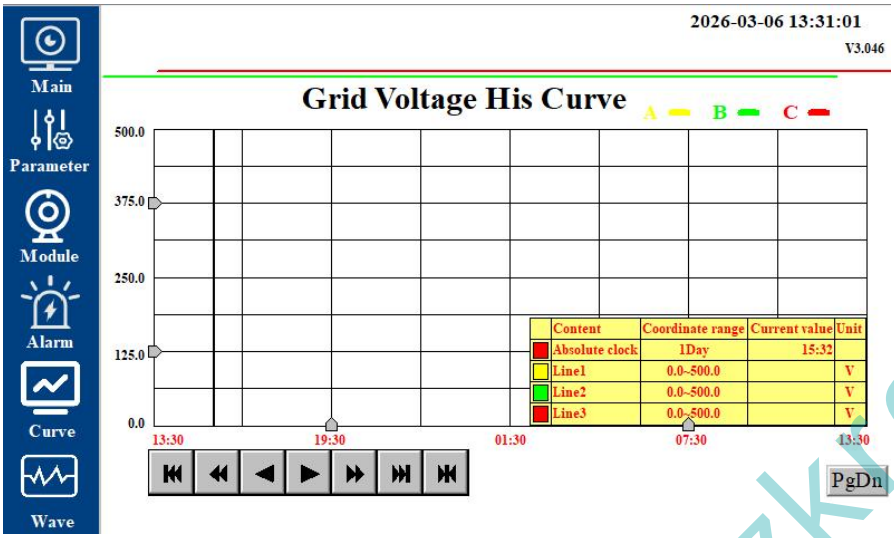


Figure 7.14: Grid Voltage History Curve Interface

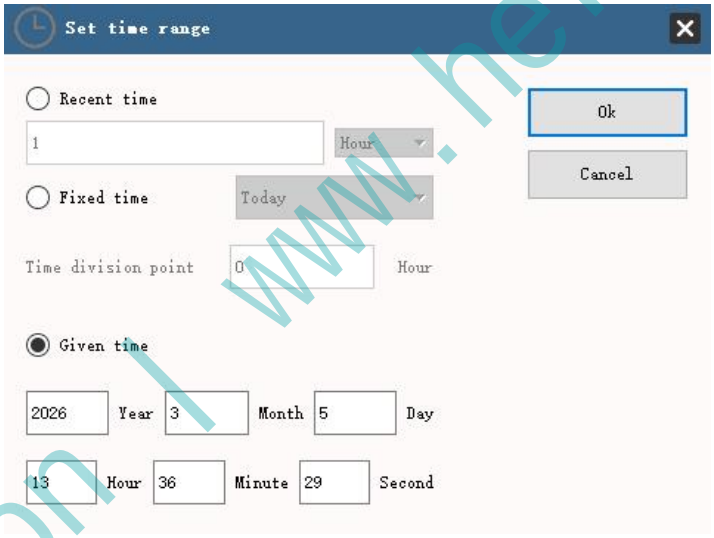


Figure 7.15: Historical Curve Query

7.6 Waveform Display

The waveforms include the grid voltage curve and the device current curve; the horizontal axis, ranging from 0 to 30, represents 30 waveform recording data points.

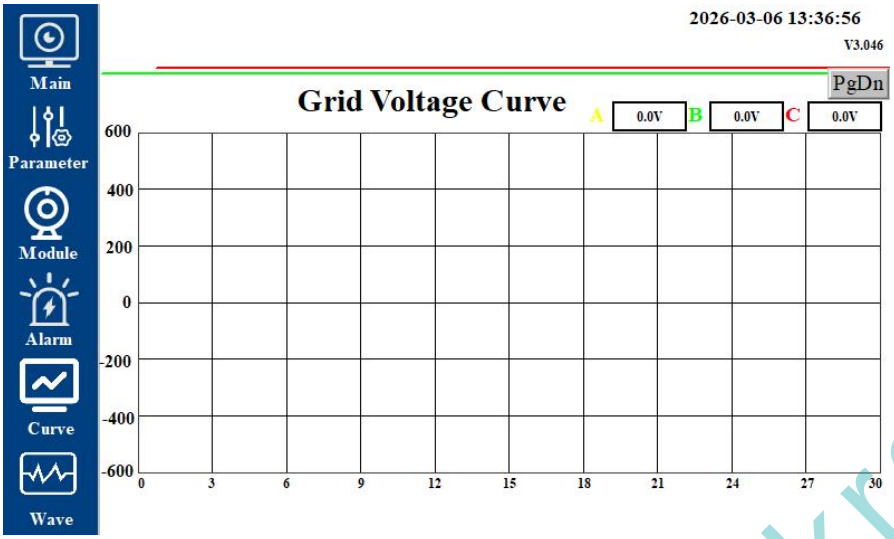


Figure 7.16: Waveform Curve

7.7 Operational Permissions

The permission login interface is shown in the figure below; this interface appears when you click the "Parameter Settings" button or select a parameter number. Select "User2," enter the password "123," and click the "Login" button.

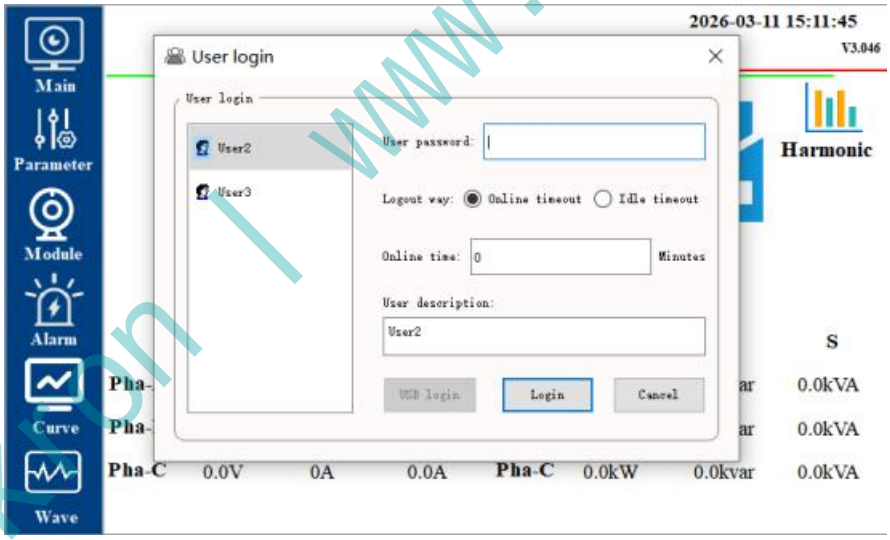


Figure 7.17: Permissions Login Interface

1）Operational Permissions

Under this permission level, users can perform parameter queries, runtime data queries, and historical record queries, as well as operations such as startup, shutdown, and reset.

2）Set Permissions

Under this permission level, users can not only perform all operations authorized by their operational privileges but also configure relevant runtime parameters.

7.8 Parameter Settings

Select the "Parameter Settings" button on the touchscreen's main interface to access the Parameter Settings screen. All parameters are categorized into distinct groups — including "System Parameters," "Sampling Parameters," "Harmonic Parameters," and "Debugging Parameters" — which can be configured to suit actual operating conditions. To configure a specific parameter, simply tap the corresponding entry to enter its dedicated settings interface.

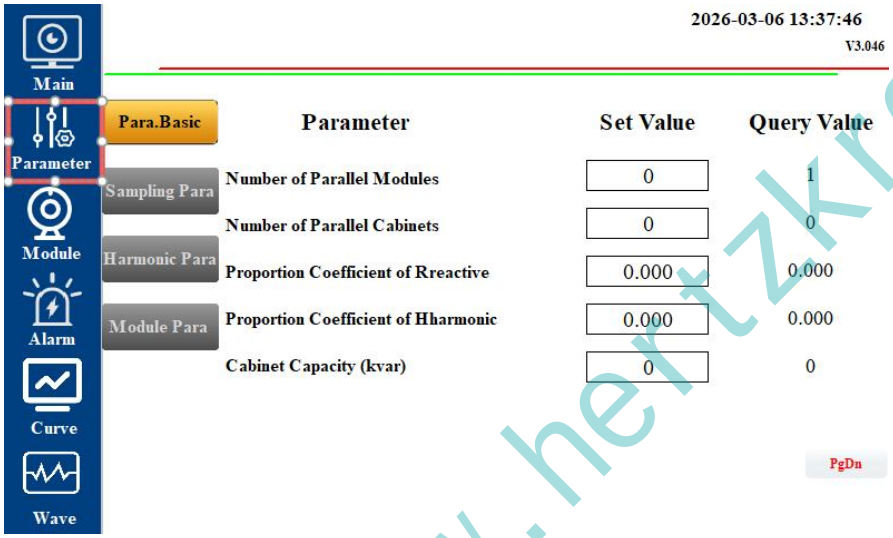


Figure 7.18: Parameter Settings Interface

7.9 System Parameters

Detailed Explanation of the System Parameter Settings Interface:

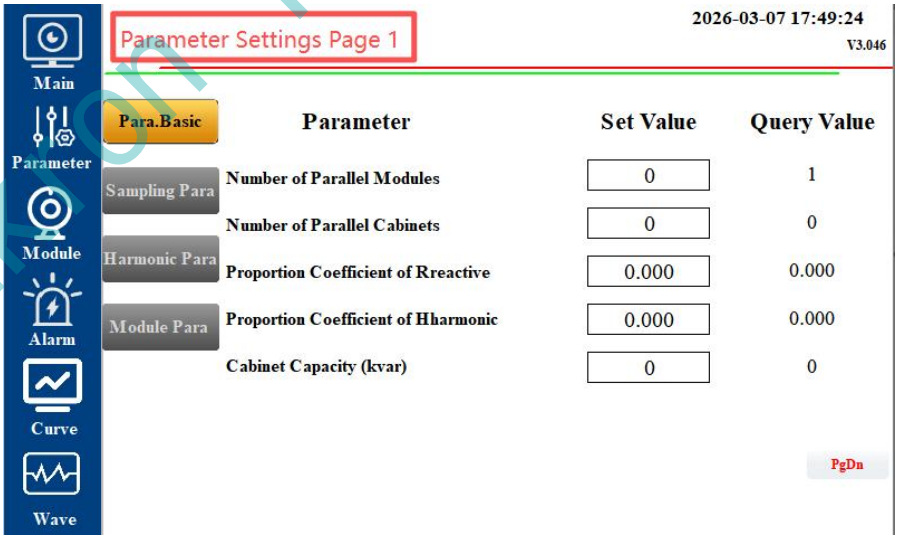


Figure 7.19: System Parameter Settings Interface (Page 1)

1) Number of Parallel Modules: The total number of SVG modules within the cabinet; for example, if the cabinet contains six modules, set the value to 6.

2) Number of Parallel Cabinets: If three cabinets are connected in parallel, set this value to "3".

3) Reactive power capacity ratio of this cabinet: The ratio of the reactive power capacity of this cabinet to the total reactive power capacity of all cabinets. If the capacities of the three cabinets are 100kvar, 150kvar and 300kvar, then this parameter of the second cabinet is 150/550, set to 0.272.

4) Harmonic Capacity Ratio Coefficient of This Cabinet: The ratio of the harmonic capacity of this cabinet to the total harmonic capacity of all cabinets. The setting method is the same as that for the reactive power capacity ratio coefficient.

5) Cabinet Capacity (kvar): For example, if there are 4 100k modules and 2 75k modules, the value should be set to 550.

6) After setting the parameters on this interface, click on the following functions below the parameters: "Number of Parallel Modules," "Number of Parallel Cabinets," "Reactive Power Capacity Ratio Coefficient of This Cabinet," "Harmonic Capacity Ratio Coefficient of This Cabinet," and "Cabinet Capacity (kvar)." A confirmation dialog box will pop up. If the settings are correct, click "OK"; otherwise, click "Cancel" to reset. You can confirm whether the settings were successful by clicking "Query Value."

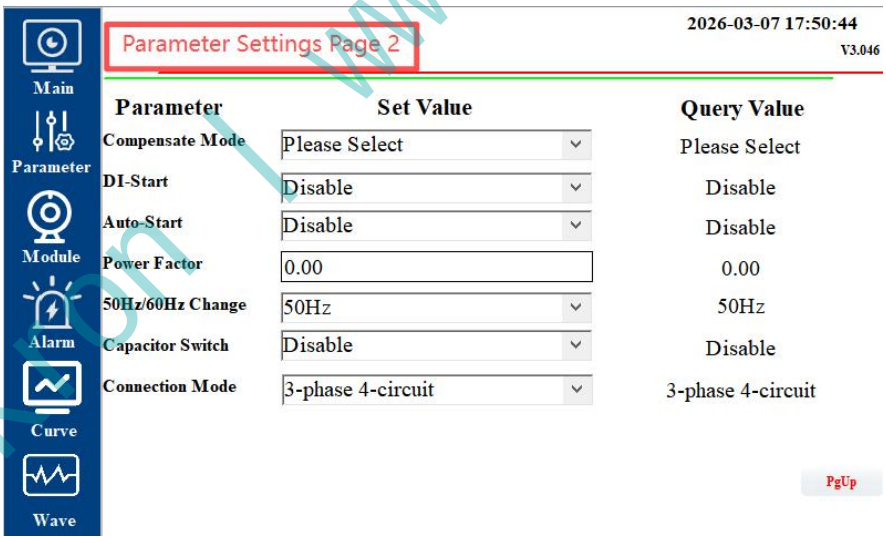


Figure 7.20: System Parameter Settings Interface (Page 2)

1）Compensation Mode Selection: Reactive Power, Reactive Power + Three-Phase Unbalance, Self-Aging. Different priority levels can be selected. Note: The Self-Aging mode should be used with caution by customers.

2）DI Start/Stop Enable: If the customer requires the module to be started via an external switch, select "Enable"; otherwise, select "Disable."

3) Auto-start Enable: If set to "Disabled," the module must be manually started by pressing the Start button after power-up; if set to "Enabled," the module will automatically start once the preset conditions are met following power-up.

4) Power Factor Setpoint: The actual target power factor value for the site; can be set within the range of 0 to 1.

5) 50Hz/60Hz Switching: Select "50Hz" or "60Hz" based on the power grid frequency.

6) Capacitor Switching Enable: No configuration is required; the default setting is "Disabled."

7) Wiring Mode: Select "3Phase 3Wire" or "3Phase 4Wire" according to the wiring requirements of the equipment.

8）Voltage selection: Select "380V" or "220V".

9）Once parameter configuration is complete on this interface, you must click on the specific function fields located below the parameters—namely: "Compensation Mode Selection," "DI Start/Stop Enable," "Auto-start Enable," "Power Factor Setpoint," "50Hz/60Hz," "Capacitor Switching Enable," and "Wiring Mode." A confirmation dialog box will appear; if the settings are correct, click "OK"; otherwise, click "Cancel" to reconfigure. You can verify whether the settings were successfully applied by checking the "Query Value."

7.10 Sampling Parameters

Detailed Explanation of the Sampling Parameter Settings Interface:

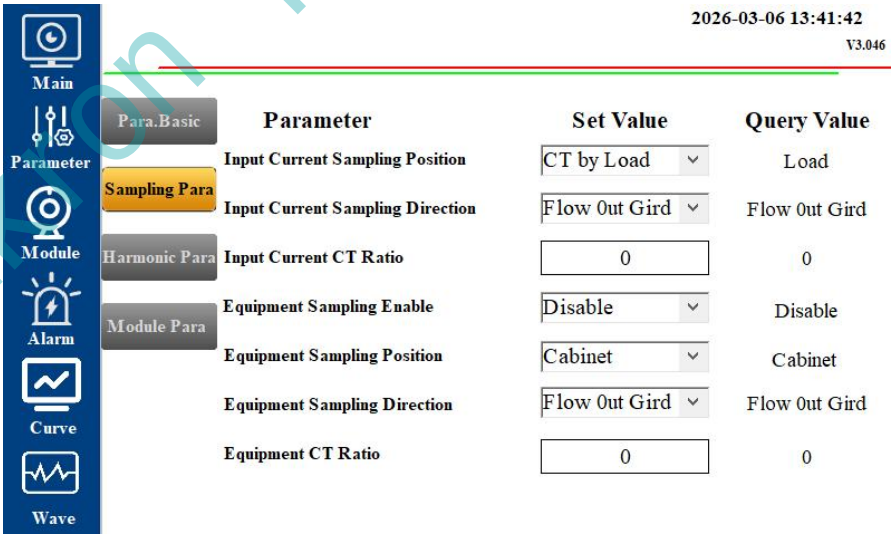


Figure 7.21: Sampling Parameter Settings Interface

1) Input Current Sampling Position Selection: If the field CT is connected on the incoming line side, select "Grid Side"; if the field CT is connected on the load side, select "Load Side."

2) Input Current Sampling Direction Selection: If the direction of the field CT points from the load side toward the grid side, select "Flowing into Grid"; otherwise, select "Flowing out of Grid."

3) Input Current CT Ratio: If the field CT ratio is 2000:5, set the value to "400."

4) Device Current Sampling Enable: This sampling function is used exclusively for whole-cabinet current sampling. If the cabinet contains more than one module, it is recommended that the modules be connected to the cabinet's dedicated sampling CT; if connected, select "Enable"; otherwise, select "Disable."

5) Device Current Sampling Position Selection: This sampling function is used exclusively for whole-cabinet current sampling; select "Cabinet."

6) Device Current Sampling Direction Selection: If the direction of the whole-cabinet sampling CT points from the module side toward the busbar side, select "Flowing into Grid"; otherwise, select "Flowing out of Grid."

7) Device Current CT Ratio: If the whole-cabinet sampling CT ratio is 2000:5, set the value to "400."

8) Once the parameter settings on this interface are complete, you must click on the specific parameter fields located below — namely: "Input Current Sampling Position Selection," "Input Current Sampling Direction Selection," "Input Current CT Ratio," "Device Current Sampling Enable," "Device Current Sampling Position Selection," "Device Current Sampling Direction Selection," and "Device Current CT Ratio." A confirmation dialog box will appear; if the settings are correct, click "OK"; otherwise, click "Cancel" to reconfigure. You may use the "Query Value" function to verify whether the settings have been successfully applied.

7.11 Harmonic Parameters

The harmonic controller settings interface is shown in the figure below. If the module is required to compensate for harmonics on site, you can enter this interface to select the order and compensation rate of the harmonics to be compensated. Select the compensation rate for the corresponding harmonic order to be compensated. For example, if the site requires compensation for the 3rd harmonic with a compensation rate of 95%, enter "0.95" in the corresponding field for the 3rd harmonic in the interface shown below. This is not 95% of the equipment's capacity, but 95% of the harmonic's value. Finally, click "Modify," and you can confirm whether the settings were successful through "Query."

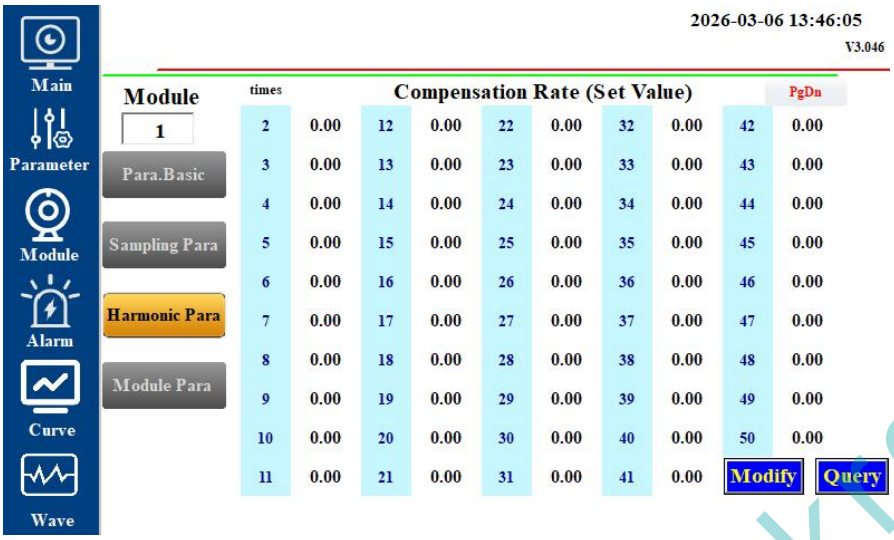


Figure 7.22: Harmonic Compensation Order Selection Settings Interface

7.12 Debugging Parameters

The debugging parameters pertain to the manufacturer's debugging interface and are not accessible to the public.

7.13 Module Startup and DIP Switch Settings

When two or more modules are connected in parallel, the DIP switches must be configured. The communication lines for the four modules with addresses 1 through 4 should be connected to the HMI's COM1 port (terminals 7A/8B), while the communication lines for the four modules with addresses 5 through 8 should be connected to the HMI's COM2 port (terminals 4A/9B). The module with address 1 corresponds to "Module 1" on the HMI, the module with address 2 corresponds to "Module 2," and so on.

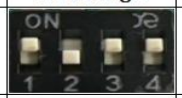
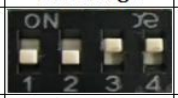
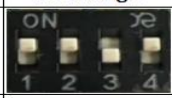
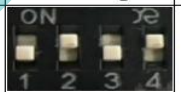
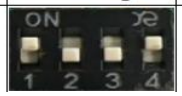
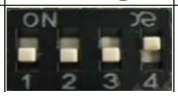
machine number	DIP switch settings	machine number	DIP switch settings	machine number	DIP switch settings	machine number	DIP switch settings
1		2		3		4	
machine number	DIP switch settings	machine number	DIP switch settings	machine number	DIP switch settings	machine number	DIP switch settings
5		6		7		8	

Figure 7.23: DIP Switch Schematic

After powering on the equipment, enable the specific modules required to establish a communication link with the touchscreen via the "Module Switching Configuration" interface. Once the communication link has been successfully established, proceed to configure the operating parameters. Provided that the parameters are set correctly and no faults are detected, the "Start Enable" indicator on the touchscreen will illuminate; the "Start" button will become active, while the "Stop" button will remain inactive. On the Module Monitoring interface, select the specific module you wish to start, then click the "Start" button to initiate the equipment startup sequence; the DC bus voltage will subsequently rise. When multiple modules are operating in parallel, the startup procedure for the remaining modules is similar.

The procedure for shutting down the system via the touchscreen—specifically when two or more modules are operating in parallel—is as follows: When the "Start" button appears inactive and the "Stop" button appears active, simply click the "Stop" button to shut down the equipment.

7.14 Touchscreen WiFi Network Settings

1) Immediately after powering on the screen, continuously press any location on the screen until the System Configuration Interface appears (as shown in Fig. 7.24); this indicates that you have successfully entered the System Configuration Interface.

Figure 7.24: System Configuration Interface

2) If you have already entered the main interface, please locate and click "Parameters" in the title bar on the right side. After entering the password (Password: 123), locate and click "Debug Parameters" within the interface's title bar. In the displayed Debug Parameters interface, find the "Restart" button (as shown in Figure 7.25); please click "Restart" and repeat the previous operation of continuously pressing and holding the screen.

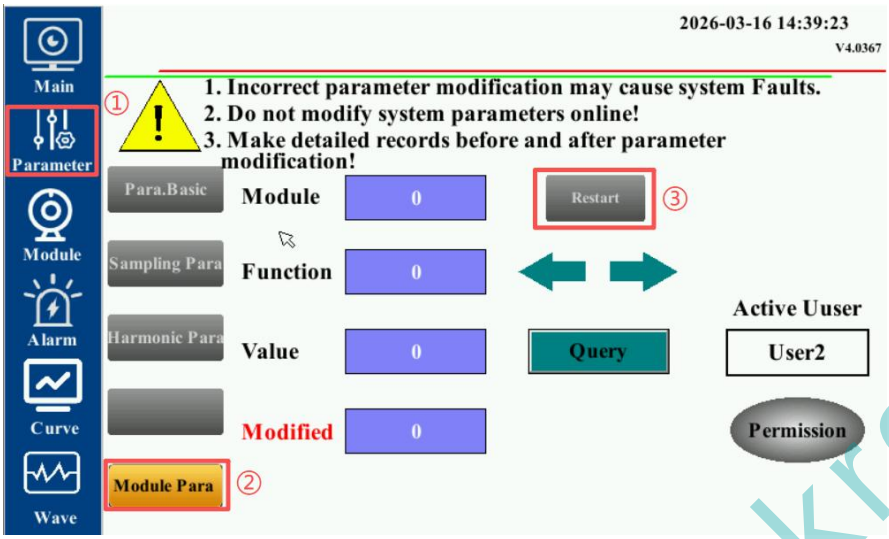


Figure 7.25: Touchscreen Restart Interface

3) Once you have successfully accessed the system configuration interface, please click "System Parameter Configuration." Upon clicking, the "TPC System Settings" interface will appear (as shown in Figure 7.26).

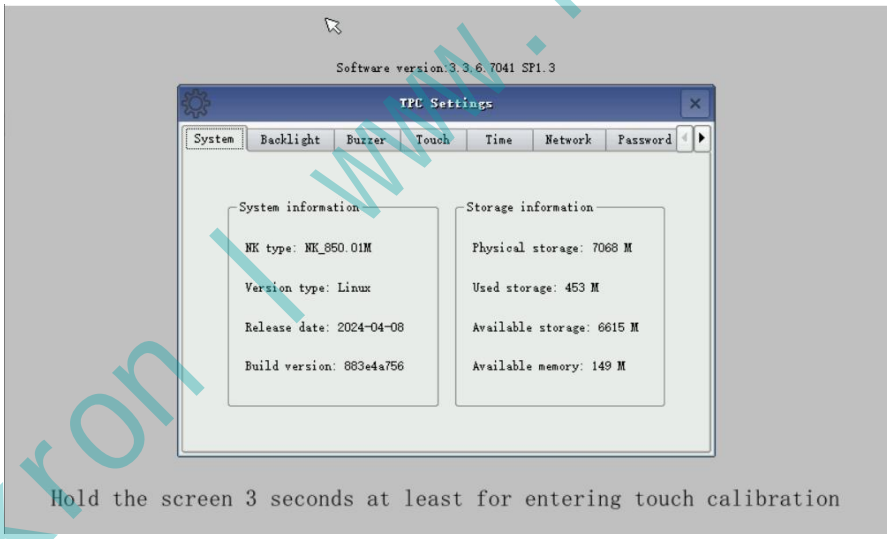


Figure 7.26: TPC System Settings Interface

4) Click the "Network" option in the title bar of the "TPC System Settings" interface to display the Network Settings screen. On this screen, click the drop-down menu next to "Network Adapter," and then select "WiFi" from the options that appear. If the selection field updates to display "WiFi," the selection was successful; then, click the "Configure" button located below (as shown in Figure 7.27).

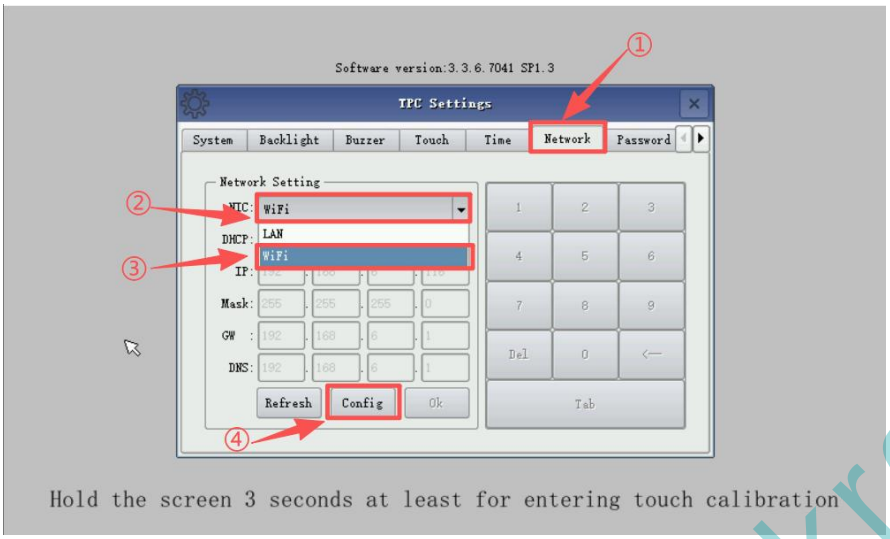


Figure 7.27: WiFi Configuration Interface 1

5) Clicking "Configuration" will take you to the Wi-Fi configuration interface. First, select "Enable"; then, click "SSID" to choose the Wi-Fi network you wish to connect to. Next, enter the password, and finally, click "Connect." After waiting a few seconds, the status indicator will display "Connected," signifying that the network configuration was successful (as shown in Figure 7.28). Click the "Close" button in the top-right corner to exit back to the System Configuration interface (as shown in Figure 7.29), then click "Runtime Environment" to enter the main interface.

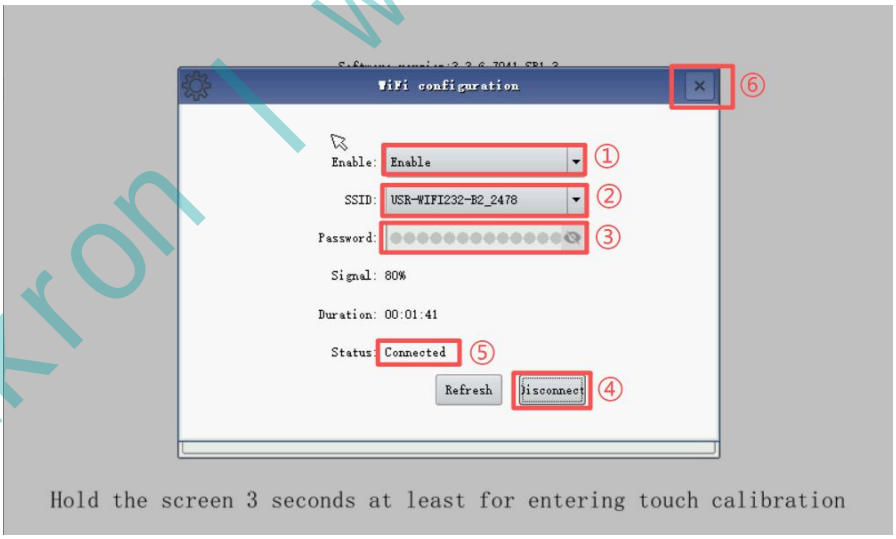


Figure 7.28: WiFi Configuration Interface 2

Figure 7.29: Entering the Main Interface

 Attention	Parameter modifications must be determined by professional technical personnel; please proceed with caution.

Chapter VIII Faults and Troubleshooting

Refer to Table 7.1 for common faults and solutions. Some common faults and alarm messages can be troubleshooted by the user. If the issue cannot be resolved, please contact the product engineer directly.

Faults caused by user errors, such as reversed CT connections, incorrect power line phase sequence, or parameter setting errors, can often be identified during startup and debugging by monitoring the data. If compensation performance is poor but no alarm information is displayed, please contact the product engineer.

Table 7.1: Common Faults and Solutions

Fault and Alarm	Possible Reason	Solution
Communication Fault	Communication issue between monitoring and ASVG module.	Check if the communication cables are securely connected.
Overtemperature Fault	High ambient temperature; blocked air ducts; fan failure	Check each possible reason one by one
Phase Lock Failure After Startup	Incorrect phase sequence of power lines	Verify the sequence of power lines A, B, and C
AC Software Overvoltage Fault	At least one phase of the three-phase voltage is overvoltage	Ensure that the three-phase voltage is within the operating range of the device
AC Software Undervoltage Fault	At least one phase of the three-phase voltage is overvoltage	Ensure that the three-phase voltage is within the operating range of the device
Input Frequency Abnormal	Input frequency exceeds the limit, causing ASVG shutdown	Check if the input voltage frequency is within the device's rated range
DC Bus Over Voltage Fault	High DC bus voltage causing ASVG module shutdown	Contact the engineer
UP\UN\VP\VN\WP\WN Fault	Drive fault causing ASVG module shutdown	Contact the engineer
Over Current Fault	Device output current exceeds the protection value, causing ASVG module shutdown	1) Check if the network voltage distortion rate is too high; 2) Check for significant voltage surges or drops in the network; 3) If the network voltage is normal, contact the engineer.

Chapter IX Contact Us

Our company has a comprehensive after-sales service system and network, dedicated to providing timely and high-quality follow-up service to both new and existing customers. If you have any questions or needs, please do not hesitate to contact us. Our technical engineers are available 24/7 to assist you.