YT ELECTRIC

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Electrical Systems Integrated Solutions

Power Quality Field

Make Energy More Controllable

·AHF ·SVG ·HPFC ·SPC

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CONTENT

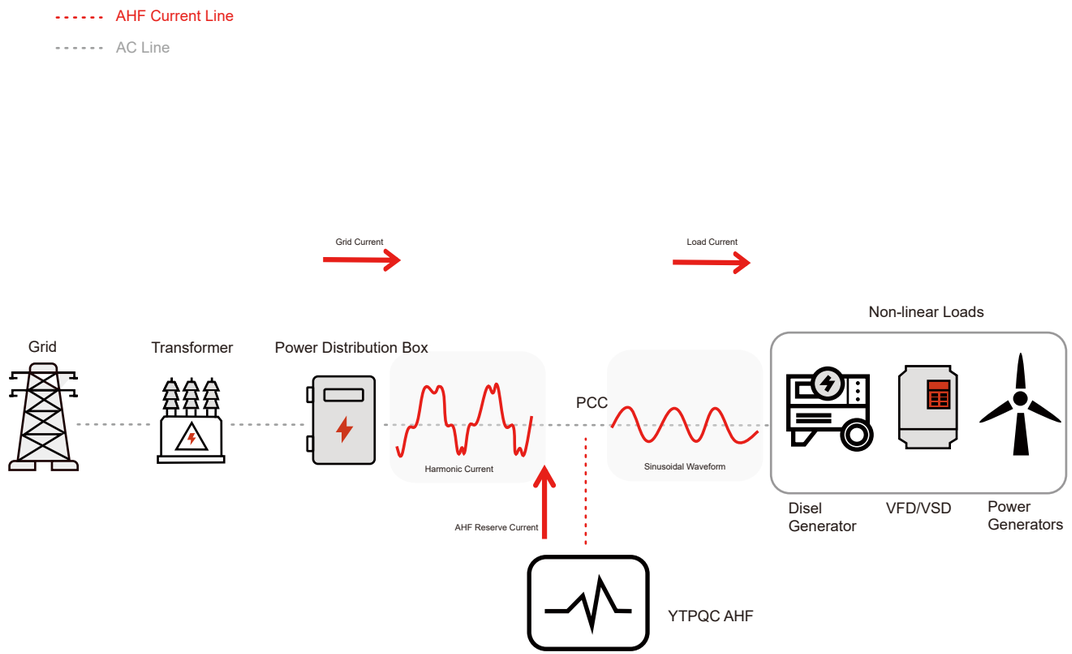
COMPANY PROFILE

Shanghai Yingtong(YT) Electric Co., Ltd. core team formed in 2009, the company was founded in March 2014, is a focus on power energy related products and services of high-tech enterprises, subsidiary of listed company CSG(Stock No.: 300222.

YT has realized product serialization, optimization of supply chains and service standardization with accurate strategic planning and solid talent strategy, so as to meet the needs of customers in different fields, such as smart grid, power quality, power automation, power energy saving, motor transmission, new energy generation, etc. Strive to achieve " talent gathering, concentric win-win, become a first-class electrical system integrated solution and service provider " enterprise vision.

We insist on customer-centered, launch "active harmonic filter(AHF), static var generator(SVG), three-phase load balancer device, power energy storage system, energy efficiency management system" and other main products; synchronous provision of project design, spot investigation and testing analysis , after-sale installation and commissioning, product customization, equipment maintenance and other customized services.

Active Harmonic Filter(AHF) Solution



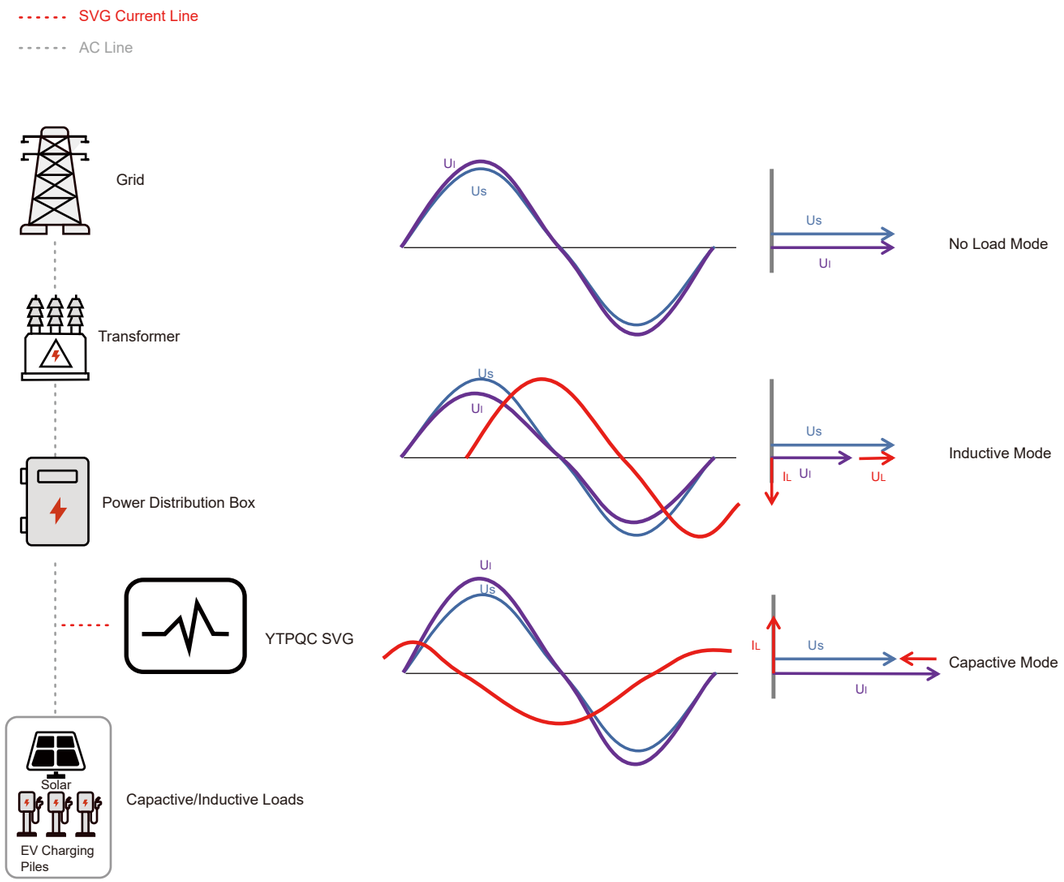
Application & Value

YTPQC-APF based on 3-level topology, is an Active Power Filter (APF) system designed to eliminate harmonic oscillations and reduce costs consequently. APF is a versatile solution, easily tailored to deliver power factor improvement, voltage variation control, flicker mitigation and load balancing functionality, and highly improved power quality in networks while reducing harmonic pollution.

AHF System Benefits:

- Prevent upstream circuit from harmonics damaging.
- Reduce the current of the neutral line, reduce the loss of the neutral line and heating.
- Reduce transformer loss and improve transformer efficiency.
- Reduce the line loss of power supply and distribution system, improve the efficiency of power generation and distribution.
- At the same time to prevent the power supply and distribution system from relay protection device mistrip.
- Decrease THDi and THDv

Static Var Generator(ASVG) Solution



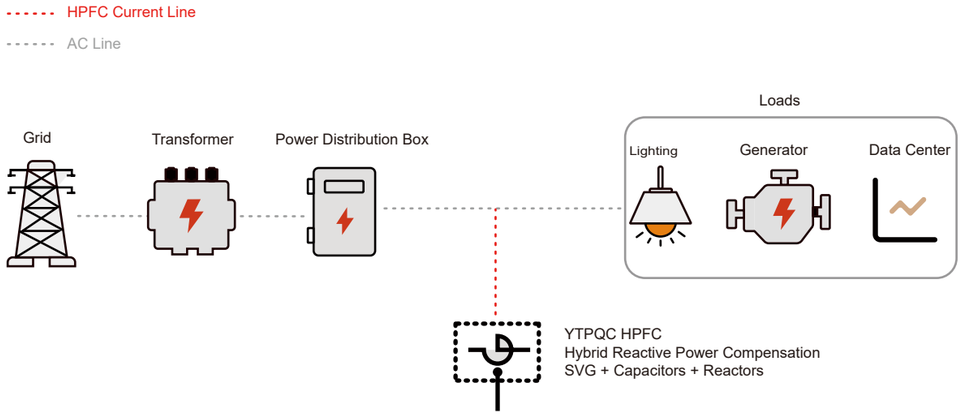
ASVG Principle & Function:

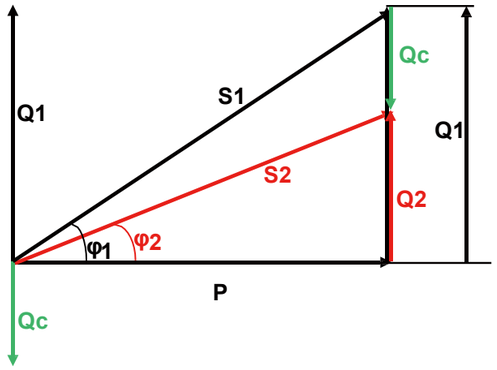
Based on the principle of voltage source inverter, YTPQC-ASVG Advanced Static Var Generator uses insulated gate bipolar transistor (IGBT) to control the magnitude and phase of inverter AC voltage, so as to achieve the purpose of reactive power, harmonic and imbalance compensation. Because the switching frequency of IGBT is very high (up to 25.6kHz), ASVG can compensate rapid reactive loads and achieve quite high compensation accuracy. ASVG have the best cost performance with the function of reactive power and harmonics control

ASVG System Benefits:

- Energy Saving, Electricity Bills Saving.
- Improve Power Factor(PF) to -1(Capacitive)/1(Inductive)
- Compensate reactive power about loads and transformer.
- Harmonics mitigation(2nd~25th)

HPFC(Hybrid Reactive Power Compensation) Solution





Reactive Power Compensation:

Using Hybrid Reactive Power Compensation or Static Var Generator(SVG) to reduce reactive power and improve Power Factor. The reduced reactive power is the compensation Qc.

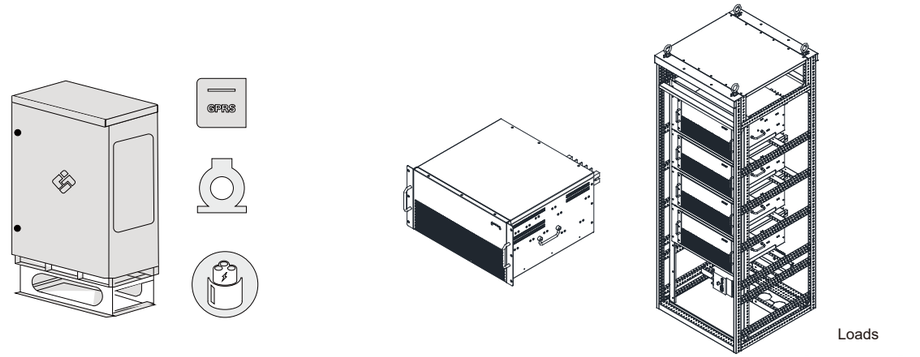
HPFC Principle & Function:

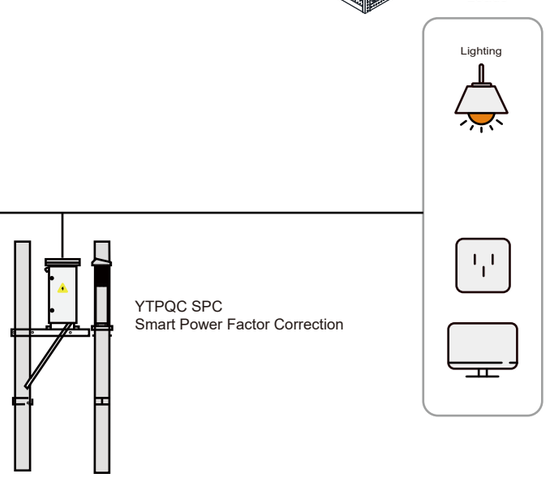
YTPQC-HPFC hybrid reactive power compensation device consists of two parts: Static Var Generator and switching capacitor / reactor reactive compensation unit. In YTPQC-HPFC hybrid dynamic reactive power compensation device, each unit is designed and produced in the method of low power, small volume and low cost, and both of them are optional, and can be combined in the best and flexible way according to the actual reactive state of the site, so as to achieve the optimum ratio of operation effect and cost.

HPFC System Benefits:

- Energy Saving, Electricity Bills Saving
- Improve Power Factor(PF) to -1(Capacitive)/1(Inductive), adjustable
- Compensate reactive power about loads and transformer
- Harmonics mitigation(2nd~25th)
- More cost-effective than pure SVG system
- SVG support automatically control TSC or hybird controller. Also support contractor

SPC(Smart Power Factor Correction) Solution





SPC Principle & Function:

Power electronics three-phase load imbalance automatic regulation device uses advanced power electronic technology and automatic control technology, different from the traditional capacitor, reactor passive scheme, the use of active scheme to comprehensively solve the power quality problems such as three-phase load imbalance, reactive power, harmonics, especially suitable for low-voltage distribution column transformer power quality comprehensive control field.

SPC System Benefits:

- Short-distance wireless communication method&remote communication(GPRS or Wifi available)
- Small volume, pole mounted or transformer rack mounted, outdoor installation
- Startup&Shutdown by timing or load rate, achieve machine more energy saving
- Light weight
- Harmonics mitigation, power factor correction, three-phase active load balancing

PRODUCTS PORTFOLIO

Power Quality Field

Active Harmonic Filter

YTPQC-AHF-220 Series

YTPQC-AHF-400 Series

YTPQC-AHF-440 Series

YTPQC-AHF-480 Series

YTPQC-AHF-690 Series

Static Var Generator

YTPQC-SVG-220 Series

YTPQC-SVG-400 Series

YTPQC-SVG-440 Series

YTPQC-SVG-480 Series

YTPQC-SVG-690 Series

Adavced Static Var Generator

YTPQC-ASVG-220 Series

YTPQC-ASVG-400 Series

YTPQC-ASVG-440 Series

YTPQC-ASVG-480 Series

YTPQC-ASVG-690 Series

Hybird Dynamic Compensation

YTPQC-HPFC Series

Smart Power Factor Correction Device

YTPQC-SPC series

2U Miniaturization Static Var Generator

YTPQC-2U SVG series
380x425x88mm

YTPQC AHF SERIES

10~150A Three Phase Active Harmonic Filter AHF

Best Power Quality Control

- Continuous power factor correction
- Both capacitive and inductive control
- Precise PF maintain -1.0 ≤ CosΦ ≤ 1.0
- 3 phase load balance less than 5%
- Mitigates neutral current

Leading Technology

- Three level topology
- Ultra-compact Modular design
- Fastest switching frequency 25.6kHz
- Lowest power consumption ≤ 2%
- Leading dissipation technology

Optical Harmonic Filter

- Self-adaptive algorithm(ADALINE)
- THDi less than 5% at rated load
- High filtering efficiency up to 98%
- Fast Response time less than 5ms
- Selective or Full compensation

Technical Data and Specifications

Rated Voltage	220V (171~269V)	400V (300~456V)	480V (356~515V)	690V (483~793V)
Rated Current	15/25/50/75/100/150A	15/25/30/50/75/100/125/150A	50/75/100/120/150A	50/100/125/150A
Phase System	3P3W/3P4W/Single Phase			
Mains Frequency	50/60Hz±5%			
Circuit Topology	Three Level			
Multi Compensation Mode	Harmonic compensation, reactive compensation, three-phase load unbalance compensation			
Filter range	2nd~51st odd order harmonics (Selective or Full compensation)			
Rated of Harmonic Reduction	≥98% (For typical harmonic order distortions)			
Filtering Performance	Typically, THDi≤ 5% at rated load(Even with most complex loads).			
3 Phase Load Balancing Effect	≤5%, Mitigate negative and zero sequence			
Neatral Filtering Capacity	3 times the rated filter current(in case of 4 wire device)			
Initial response time	≤50us			
Output current limit	Automatically limited within 100% of rated capacity to output			
Control algorithm	Intelligent FFT,Self-adaptive control algorithm(ADALINE), fast Fourier (FFT) and instantaneous reactive power algorithm			
Controller	DSP+FPGA			
Protection	Hardware protection, Software protection			
Control connection	Fiber or electrical connection			
Human Machine Interface	4.3"inch/7"inch/10"inch touched TFT LCD HMI			
Communication protocols	Adopt Modbus RTU remote communication protocol; Communication interface adopts two channel RS485 and CAN bus, Supporting mobile phone APP operation, Accessing and monitioring via Ethernet			
Noise	<60db (<45db during low-speed operation)			
Installation method	Module embedded(Rack),wall mounted, free landing			
Level of protection	IP20~IP54			
Cooling method	Speed regulation intelligent air cooling PWM Fans			
Color	RAL 7035 Light Grey/Black			
Ambient temperature	-20~55℃			
Relative humidity	Maximum 95%, without condensation			
Mounting height above sea level	≤2000 at rated capacity; appropriately reduce the capacity if it is > 2000(1% derating per 100m)			
Qaulifications	CE, IEEE61000,Type Test Report, ISO9001:2015			
Compliance with Standards	IEEE 519, ERG5/4			

YTPQC SVG SERIES

10~100kVAr Advanced Static Var Generator ASVG

Optimal Power Factor Correction

- Continuous power factor correction
- Precise PF maintain -1.0 ≤ CosΦ ≤ 1.0
- Both capacitive and inductive control
- No over or under-compensation
- Hybrid power factor correction

Advanced Networks Performance

- Saving Electricity Bills
- Harmonics mitigation
- 3 phase load balancing
- Low noise
- Friendly Human Machine Interface

High Quality Assurance

- TI DSP, Top Brand IGBT(Infineon or Semikron Selective)
- High Stability,avoids resonance
- Both Hardware and software protection
- High Reliability Test
- Good Environmental adaptability

CE

Technical Data and Specifications

Rated Voltage	220V (171~269V)	400V (300~456V)	480V (356~515V)	690V (483~793V)
Rated Capacity	10/20/30/40/50kVAr	30/50/75/100kVAr	30/50/75/100kVAr	150/175/200kVAr
Phase System	3P3W/3P4W/Single Phase			
Mains Frequency	50/60Hz±5%			
Circuit Topology	Three Level			
Multi Compensation Mode	Reactive compensation(**Support LT and HT sensing**), Harmonics Mitigation, 3 phase load unbalance compensation			
Filter range	2nd~25th order harmonics, 100% of rated capacity(Selective or Full compensation)			
Rated of Harmonic Reduction	≥97.5% (For typical harmonic order distortions)			
Filtering Performance	Typically, THDi≤ 5% at rated load(Even with most complex loads).			
Neutral Filtering Capacity	3 times the rated filter current(in case of 4 wire device)			
3 Phase Load Balancing Effect	≤5%, Mitigate negative and zero sequence			
Switching/control frequency	25.6kHz			
Initial response time	≤50us			
Overall Response time	≤5ms			
Active loss of system	≤2.5%			
Output current limit	Automatically limited within 100% of rated capacity to output			
Control algorithm	Intelligent FFT,Self-adaptive control algorithm(ADALINE), fast Fourier (FFT) and instantaneous reactive power algorithm			
Controller	DSP+FPGA			
Protection	Hardware protection, Software protection			
Control connection	Fiber or electrical connection			
Human Machine Interface	4.3"inch/7"inch/10"inch touched TFT LCD HMI			
Communication protocols	Adopt Modbus RTU remote communication protocol; Communication interface adopts two channel RS485 and CAN bus, Supporting mobile phone APP operation, Accessing and monitioring via Ethernet			
Noise	<60db (<45db during low-speed operation)			
Installation method	Module embedded(Rack),wall mounted, free landing			
Level of protection	IP20~IP54			
Cooling method	Speed regulation intelligent air cooling PWM Fans			
Color	RAL 7035 Light Grey/Black			
Ambient temperature	-20~55℃			
Relative humidity	Maximum 95%, without condensation			
Mounting height above sea level	≤2000 at rated capacity; appropriately reduce the capacity if it is > 2000(1% derating per 100m)			
Qaulifications	CE, IEEE61000,Type Test Report, ISO9001:2015			
Compliance with Standards	IEEE 519, ERG5/4			

YTPQC HPFC SERIES

Hybird Power Factor Correction

Cost Effective

- High cost performance
- Ultra-compact SVG Modular
- Fastest switching frequency 25.6kHz
- Lowest power consumption ≤ 2.5%
- Leading dissipation technology

Advanced Networks Performance

- Saving Electricity Bills
- Harmonics mitigation
- 3 phase load balancing
- Low noise
- Outdoor Installation

Technical Data and Specifications

Rated Voltage	400V(300~456V)
Rated Capacity	50kVAr~900kVAr
Mains Frequency	50/60Hz±5%
Circuit Topology	Three Level
Multi Compensation Mode	Harmonic compensation, reactive compensation, three-phase load unbalance compensation
Filter range	2nd~51st odd order harmonics (Selective or Full compensation)
Rated of Harmonic Reduction	≥97% (For typical harmonic order distortions)
Filtering Performance	Typically, THDi≤ 5% at rated load(Even with most complex loads).
Target Power Factor	The system PF is greater than 0.98 after compensation within the rated capacity.
3 Phase Load Balancing Effect	≤5%, Mitigate negative and zero sequence
Neutral Filtering Capacity	3 times the rated filter current(in case of 4 wire device)
ASVG Switching/control frequency	25.6kHz
ASVG response time	≤5ms
Capacitor control interface	16 Ways
Capacitor Switching Switch	Thyristor, Contactor
Capacitor response time	≤1s
Active loss of system	≤2.5%
Output current limit	Automatically limited within 100% of rated capacity to output
Control algorithm	Intelligent FFT,Self-adaptive control algorithm(ADALINE), fast Fourier (FFT) and instantaneous reactive power algorithm
Controller	DSP+FPGA
Protection	Hardware protection, Software protection
Control connection	Fiber or electrical connection
Human Machine Interface	4.3”inch/7”inch/10”inch touched TFT LCD HMI
Communication protocols	Adopt Modbus RTU remote communication protocol; Communication interface adopts two channel RS485 and CAN bus, Supporting mobile phone APP operation, Accessing and monitioring via Ethernet
Noise	<60db (<45db during low-speed operation)
Installation method	Module embedded(Rack),wall mounted, free landing
Level of protection	IP20~IP54
Cooling method	Speed regulation intelligent air cooling PWM Fans
Color	RAL 7035 Light Grey
Ambient temperature	-20~55℃
Relative humidity	Maximum 95%, without condensation
Mounting height above sea level	≤2000 at rated capacity; appropriately reduce the capacity if it is > 2000(1% derating per 100m)
Qaulifications	CE, IEEE61000,Type Test Report, ISO9001:2015
Compliance with Standards	IEEE 519, ERG5/4

YTPQC SPC SERIES

Smart Powet Factor Correction Device

Cost Effective

- High cost performance
- Ultra-compact SVG Modular
- Fastest switching frequency 25.6kHz
- Lowest power consumption ≤ 2.5%
- Leading dissipation technology

Advanced Networks Performance

- Saving Electricity Bills
- Harmonics mitigation
- 3 phase load balancing
- Low noise
- Outdoor Installation

Technical Data and Specifications

Rated Voltage	220V (171~269V)	400V (300~456V)	480V (356~515V)
Rated Current	30~100kVAr/15~150A	30~100kVAr/15~150A	50~150A
Mains Frequency	50/60Hz±5%		
Circuit Topology	Three Level		
Multi Compensation Mode	Harmonic compensation, reactive compensation, three-phase load unbalance compensation		
Filter range	2nd~51st odd order harmonics (Selective or Full compensation)		
Rated of Harmonic Reduction	≥97% (For typical harmonic order distortions)		
Filtering Performance	Typically, THDi≤ 5% at rated load(Even with most complex loads).		
Target Power Factor	Adjustable from -1.0 to +1.0		
3 Phase Load Balancing Effect	≤5%, Mitigate negative and zero sequence		
Neatral Filtering Capacity	3 times the rated filter current(in case of 4 wire device)		
Switching/control frequency	25.6kHz		
Initial response time	≤50us		
Overall Response time	≤5ms		
Active loss of system	≤2.5%		
Output current limit	Automatically limited within 100% of rated capacity to output		
Control algorithm	Intelligent FFT,Self-adaptive control algorithm(ADALINE), fast Fourier (FFT) and instantaneous reactive power algorithm		
Controller	DSP+FPGA		
Protection	Hardware protection, Software protection		
Control connection	Fiber or electrical connection		
Human Machine Interface	4.3"inch/7"inch/10"inch touched TFT LCD HMI		
Communication protocols	Adopt Modbus RTU remote communication protocol; Communication interface adopts two channel RS485 and CAN bus, Supporting mobile phone APP operation, Accessing and monitioring via Ethernet		
Noise	<60db (<45db during low-speed operation)		
Installation method	Module embedded(Rack),wall mounted, free landing		
Level of protection	IP42		
Cooling method	Speed regulation intelligent air cooling PWM Fans		
Color	RAL 7035 Light Grey		
Ambient temperature	-20~55℃		
Relative humidity	Maximum 95%, without condensation		
Mounting height above sea level	≤2000 at rated capacity; appropriately reduce the capacity if it is > 2000(1% derating per 100m)		
Qaulifications	CE, IEEE61000,Type Test Report, ISO9001:2015		
Compliance with Standards	IEEE 519, ERG5/4		

TOTAL QUALITY MANAGEMENT

- High Realiability

- Module redundancy technology
- Intelligent air cooling technology
- Top brand electronic components
- Advanced production technology

- Continuous Improvement Culture

- All employees engaged in quality improvement
- Standard Operation Procedure (SOP)
- Quality Board
- Value Stream Mapping (VSM)

- Quality Control System & Comprehensive Testing Equipment

- Automatic Testing Equipment (ATE)
- One-key Debugging Laptop
- In Circuit Test (ICT)
- Functional Circuit Test (FCT) and etc.
- Inspection System of all key components:
- 24Hours High Temperature Aging Test for all modules
- Lean Prodcution Unit
- Surface Mount Technology (SMT) and welding for PCBA components
- Advanced Product Quality Planning
- Manufacturing Execution System (MES) implement in all processes

Customer Care

01 - Pre-sale Technical Support

We offer technical proposals for projects including equipment form, system single-line diagram, outline dimensions and etc.

02 - Spare Parts and After-sale Service

Suffcient spare parts ensure that all equipment pieces can run normally within their service life.

03 - Training

We provide all-round training regarding the running, operation, and maintenance of equipment for users, engineers and feld personnel after the equipment commissioning.

04 - Product Upgrading

We provide product upgrading service to ensure that users can share the latest technological achievements.

Our Committment to ESG

- Our product(Static Var Generator & Active Harmonic Filter) can improve Energy Efficiency
- Energy Conservation and Facility Improvement
- Asset Life Extension
- Predictive Maintenance
- Energy Storage System and Controls
- Low Global Warming Potential Molecules
- Personal Protection
- Safety Assurance