



Power Quality Management

Product Manual

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ZHEJIANG GEYA ELECTRICAL Co., Ltd.

COMPANY PROFILE



Using Our Technology to Assist Green Earth and Create a Better Future Together

The company's tenet is to "be a good person" and "do good things". The company has a professional R&D and technical service team specializing in products in the field of power and electronics, and is committed to continuously providing users with more professional, better and more innovative products and services. It is a team full of wisdom, combat effectiveness, harmony and mutual help.

ABOUT US

Zhejiang Igoye New Energy Technology Co., Ltd. is a high-tech enterprise specializing in the R&D, production and sales of power and electrical devices. The product ranges covers static var generators (SVG), active power filters (APF), The company is mainly staffed by R&D personnel, more than 50% of whom have a bachelor's degree or above in power electronics-related majors.

The company cooperates closely with Nanjing University of Aeronautics and Astronautics in the field of power electronics to continuously improve the comprehensive competitiveness of products and has strong power quality management and photovoltaic energy storage integrated overall solution capabilities.

Static Var Generator

- Durable
- Wear resistant
- Multiple specifications



Model description

IGY SVG - 0.4 - 50k / 4L - W

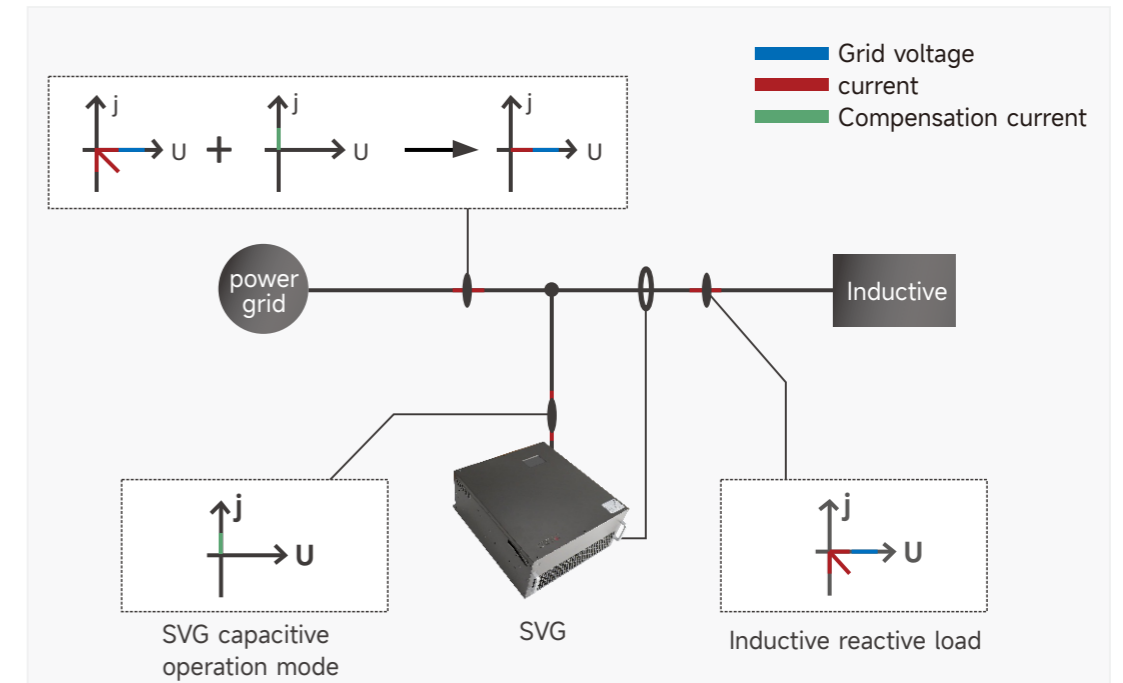
Enterprise code	Static var generator	Voltage level 0.22: 220V 0.4: 380V±20% 0.5: 500V±20% 0.69: 690V±20%	Rated Capacity (kvar) 5/15/35/50 /75/100kvar	2L: Single-phase 3L: Three-phase three-wire 4L: Three-phase four-wire	W: Wall-mounted R: Rack mount C: Cabinet
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Product instruction

The working principle of the IGY SVG series static var generator is to connect a voltage-type inverter in parallel to the power grid through a filter. By adjusting the amplitude and phase of the AC side output voltage of the inverter, it can dynamically control the reactive power in the power grid system for accurate compensation, the instantaneous response time is less than 50us, and the full response time is less than 10ms, avoiding overcompensation and undercompensation. It is currently the best solution in the field of reactive power compensation.



- <50us**
The instantaneous response time
- <10ms**
the full response time



Features

- Use DSP+CPLD all digital control core, three-level topology technology, advanced reactive power detection algorithm and PWM control strategy to achieve dynamic and accurate compensation of reactive power.
- Adopt modular design, which facilitates parallel connection of multiple modules, takes small space and is easy to maintain.
- The structural design of independent air ducts and independent warehouses ensures the stable operation of the equipment.
- Carry out full-range dynamic compensation for inductive reactive power and capacitive reactive power, and solve the three-phase unbalance problem at the same time.
- The dynamic response speed to the load is at the millisecond level, which can achieve dynamic and accurate compensation for the reactive power of impact loads.



Residential Distribution System

In the residential distribution system, the emergence of the residential distribution system, the emergence of power quality problems cannot be ignored as they pose a serious threat to the power grid and distribution system. With the development of modern science and technology, various complex, sophisticated, and sensitive electrical equipment are becoming increasingly popular, and people's demand for power quality and reliability is also increasing.



Wastewater Treatment Industry

The wastewater treatment industry requires a high level of power quality due to the large amount of harmonics generated by equipment such as pumps, filtration systems, and automatic treatment devices. These harmonics can distort voltage and current waveforms, affecting the quality of power supply to the system.



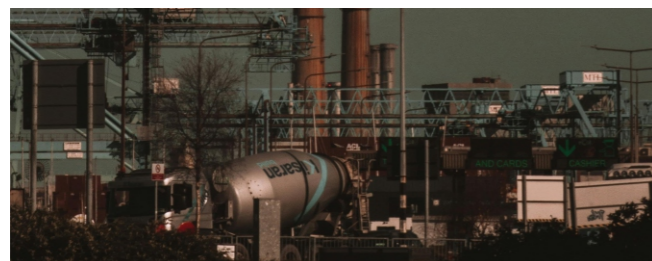
Distributed Photovoltaic Industry

During the operation of the device, due to the non-linear characteristics of the current, harmonics may be generated, which may affect the power grid and cause power quality issues. At the same time, when a distributed photovoltaic system is connected to the grid, if the load is concentrated near the end of the system, voltage fluctuations will be greater.



Oil Industry

The petroleum and petrochemical industry uses a large number of impact loads and nonlinear loads. Specifically, the main factors affecting power quality include frequency deviation and voltage deviation. Frequency deviation can cause changes in the speed of motors, resulting in reduced power and increased reactive power due to increased excitation current.



Metallurgical Industry

The metallurgical, foundry, and cement industries cause severe power quality problems during production processes, such as voltage fluctuations, harmonics, and flicker. Installing a static var generator can effectively compensate for the harmonics and reactive power generated by the load, thereby improving power quality.



Automobile Manufacturing Industry

The automotive manufacturing industry is a typical heavy industrial industry with large power demand, low power factor of electrical equipment, typical nonlinear loads and many impact load devices. Therefore, it has high requirements for power quality.

Applications

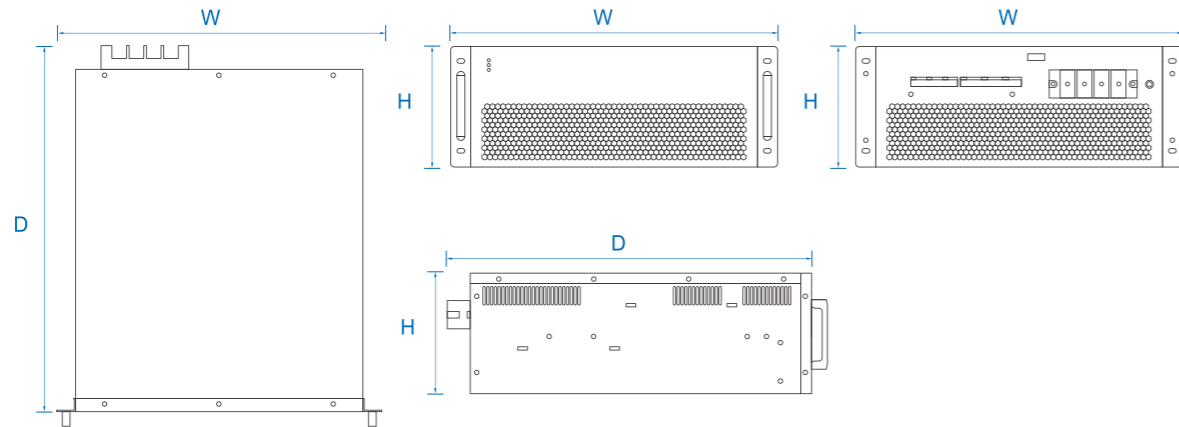
Residential power distribution system, drainage and sewage treatment industry, distributed photovoltaic industry, chemical industry, chemical fiber and petroleum industry, metallurgy, foundry and cement industry, coal and mining industry, automobile manufacturing industry, etc.

Technical Parameters

	220V series	380V series	500V series	690V series
Altitude	<2000m, above 2000m, derate according to GB/T3859.2			
ambient temperature	-20 ~ +50°C			
Relative humidity	≤90%, no condensation on the surface when the monthly minimum temperature is 25°C			
pollution level	Level III below			
Operating Voltage	AC220V±20%	AC380V±20%	AC500V±20%	AC690V±20%
working frequency	50Hz±5%			
Rated compensation capacity	5kvar	15/35/50/75/100kvar	90kvar	120kvar
Grid structure	L/N	3P3W/3P4W		
Number of units connected in parallel	Unlimited			
Overall machine efficiency	≥97%			
On-off frequency	32kHz	16kHz	12.8kHz	12.8kHz
Function selection	Reactive power	Reactive power、Reactive power+imbalance		
Reactive power compensation rate	≥99%	>95%		
full response time	<10ms			
noise	≤60dB	≤60dB	≤65dB	≤65dB
control method	2-way RS485 interface (supports GPRS/WIFI)			
Protection	Overload, software/hardware overcurrent, grid overvoltage and undervoltage, power failure, overtemperature, frequency abnormality protection, etc.	Overload, software/hardware overcurrent, grid overvoltage and undervoltage, grid voltage imbalance, power failure, overtemperature, frequency abnormality, short circuit protection, etc.		
Installation method	Rack/wall-mounted		Rack	
Incoming line	Back incoming (rack type) 、upper incoming (wall-mounted)		Back incoming line	
Protection level	IP20			

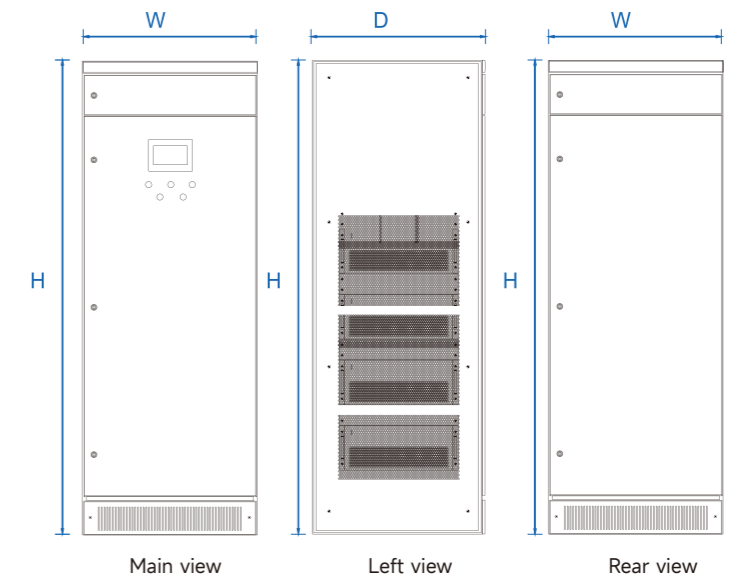
▶ Model& Specification

- Wall-mounted
- Rack mount



Models				
Model Number	Compensation capacity (kvar)	System voltage (V)	Dimensions (D*W*H)	Cooling method
IGY SVG-0.22-5k/2L-R/W	5	220	220*330*160mm	Forced air cooling
IGY SVG-0.4-15k/4L-R/W	15	380±20%	460*490*89mm	
IGY SVG-0.4-35k/4L-R/W	35	380±20%	460*490*89mm	
IGY SVG-0.4-50k/4L-R/W	50	380±20%	500*510*190mm	
IGY SVG-0.4-75k/4L-R/W	75	380±20%	500*550*240mm	
IGY SVG-0.4-100k/4L-R/W	100	380±20%	500*550*240mm	
IGY SVG-0.5-90k/4L-R/W	90	500±20%	495*675*275mm	
IGY SVG-0.69-120k/4L-R/W	120	690±20%	495*675*275mm	

Cabinet



Cabinet device model				
Model Number	Compensation capacity (kvar)	System voltage (V)	Dimensions (D*W*H)	Cooling method
IGY SVG-0.4-200k/4L-C	200	380±20%	800*1000*2200mm	Forced air cooling
IGY SVG-0.4-250k/4L-C	250	380±20%	800*1000*2200mm	
IGY SVG-0.4-300k/4L-C	300	380±20%	800*1000*2200mm	
IGY SVG-0.4-400k/4L-C	400	380±20%	800*1000*2200mm	
IGY SVG-0.5-270k/4L-C	270	500±20%	800*1000*2200mm	
IGY SVG-0.69-360k/4L-C	360	690±20%	800*1000*2200mm	