Zhejiang Igoye New Energy Technology Co., Ltd.

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Power Quality Management

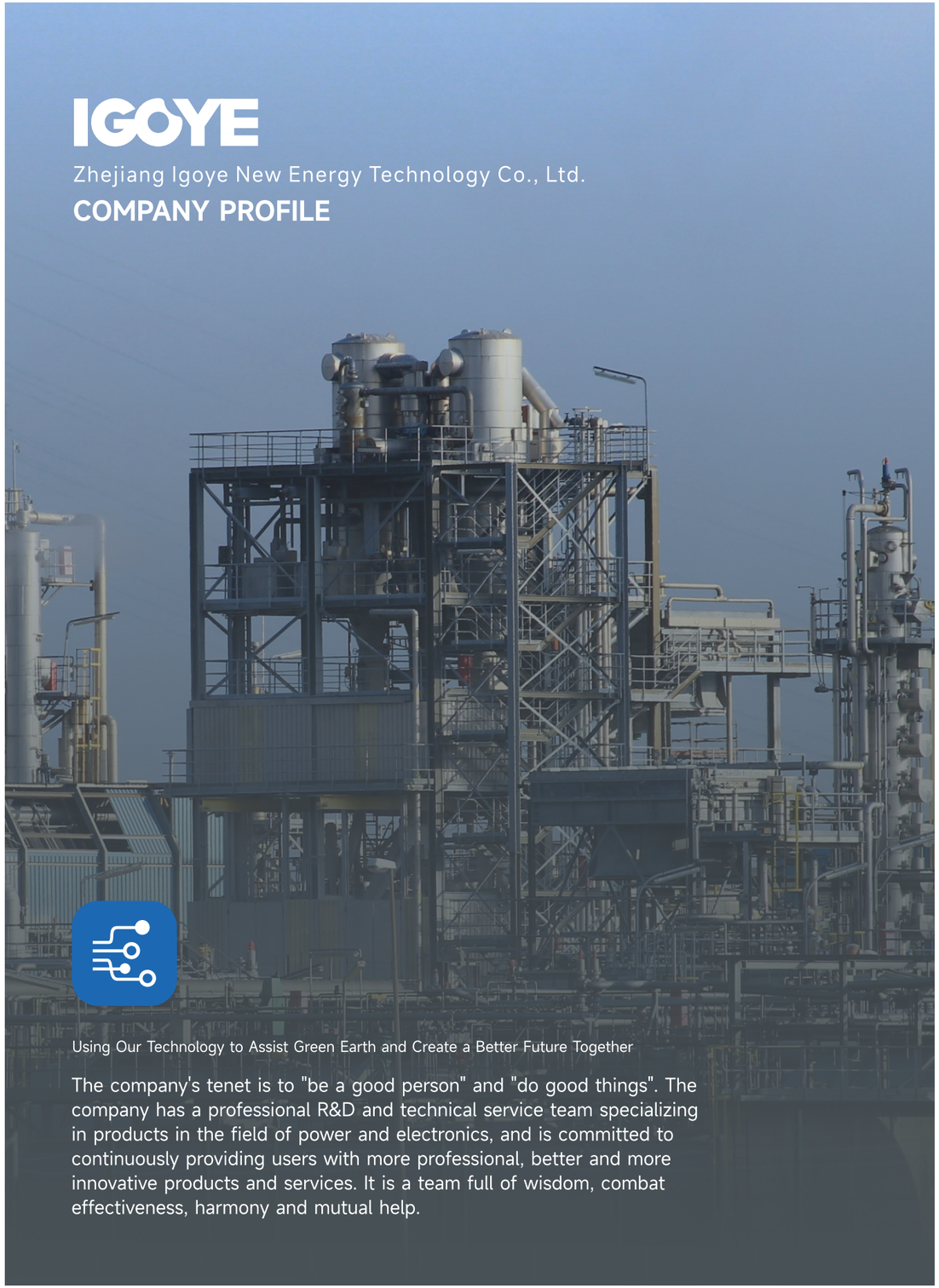
Product Manual

www.cngeya.com

IGOYE

Zhejiang Igoye New Energy Technology 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.

IGOYE

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), automatic voltage corrections (AVC), household energy storage converters (UP), household photovoltaic energy storage inverters (UPV), industrial and commercial photovoltaic storage integrated machines (PSI2), industrial and commercial energy storage converters (PCS1).

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	-	50	/	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

Sales hotline：0577-62926966

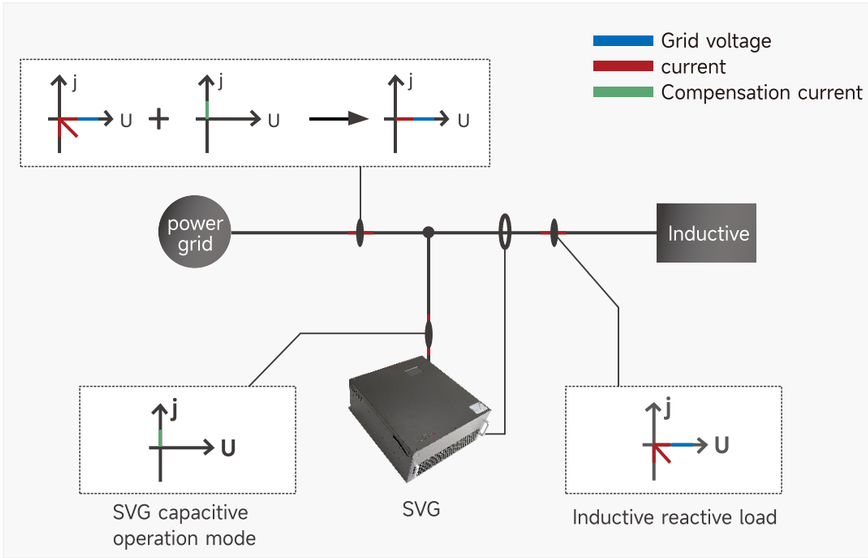
IGOYE

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 issue of power quality cannot be ignored. With the development of modern science and technology, various complex, precise, and sensitive electrical equipment are continuously popularized, and people's requirements for power quality and reliability are becoming increasingly high.

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 nonlinear characteristics of the current, harmonics may be generated, which may have an impact on the power grid. Meanwhile, when the distributed photovoltaic system is connected to the grid, if the load is concentrated near the end of the system, the voltage fluctuation 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 powerThe 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.

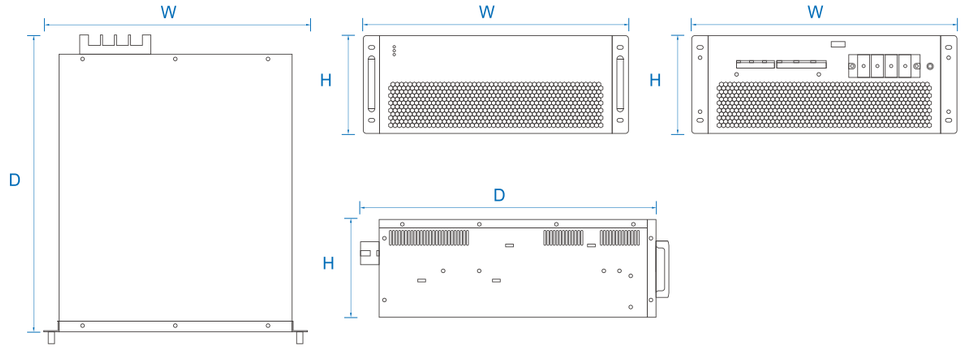
Technical Parameters

	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	Ulimited			
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

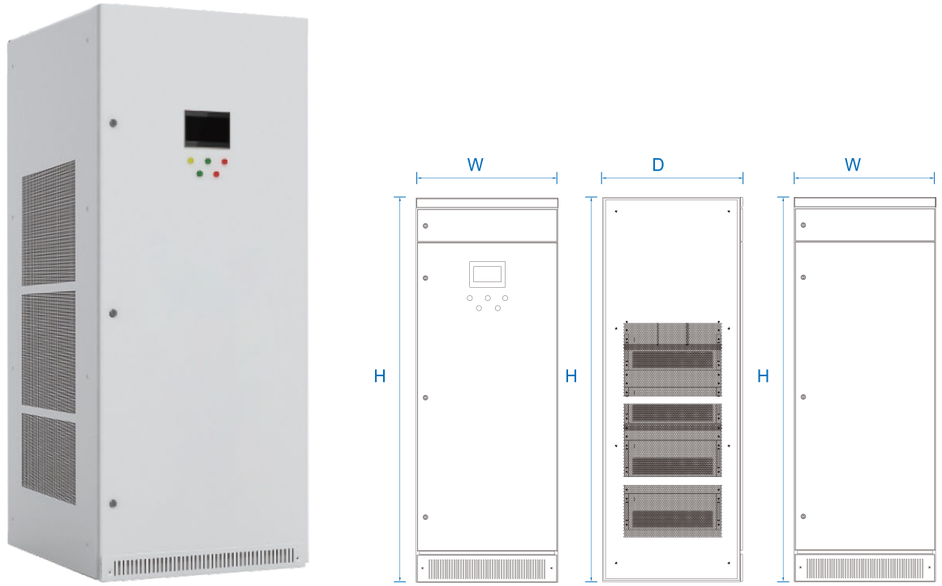
Wall-mounted

Rack mount



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

Cabinet



Main view Left view Rear view

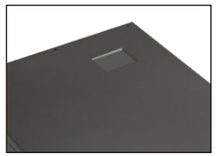
Cabinet device model				
Model Number	Compensation capacity (kvar)	System voltage (V)	Dimensions (D*W*H)	Cooling method
IGY SVG-0.4-200/4L-C	200	380±20%	1000*1000*2200mm	Forced air cooling
IGY SVG-0.4-250/4L-C	250	380±20%	1000*1000*2200mm	
IGY SVG-0.4-300/4L-C	300	380±20%	1000*1000*2200mm	
IGY SVG-0.4-400/4L-C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

Active Power Filter

Durable

Wear resistant

Multiple specifications



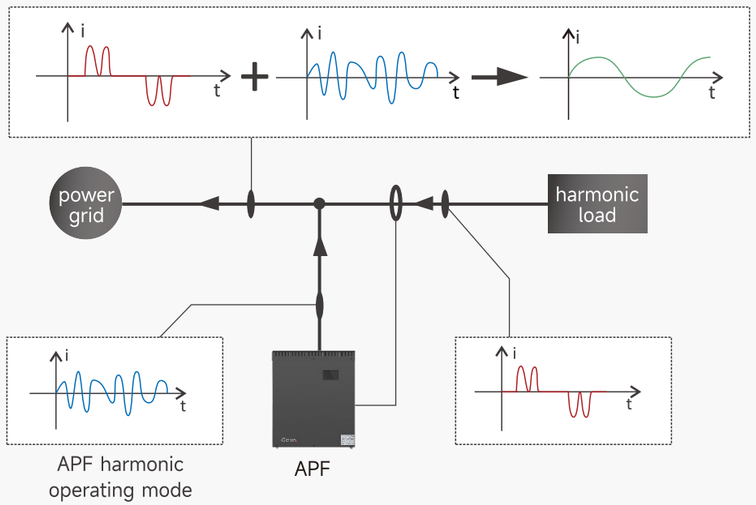
Model description

IGY	APF	-	0.4	-	50	/	4L	-	W

Enterprise code	Active Power Filter	Voltage level	Rated Capacity (kvar)			
		0.22: 220V 0.4: 380V±20% 0.5: 500V±20% 0.69: 690V±20%	25/50/75 /100/150A	2L: Single-phase 3L: Three-phase three-wire 4L: Three-phase four-wire	W: Wall-mounted R: Rack mount C: Cabinet	

Working principle

The working principle of the IGY APF series active power filter is to detect the load current in real time, separate the harmonic currents one by one based on the specified harmonic current detection algorithm, and generate control signals according to the set filtering percentage to drive the IGBT output and the load harmonic current amplitude, compensation currents with the same value and opposite phase achieve the purpose of harmonic cancellation.



Features

- Use DSP+CPLD all digital control core, three-level topology technology, advanced harmonic detection algorithm and PWM control strategy to achieve accurate compensation of harmonic current.
- Adopt modular design, which facilitates parallel connection of multiple modules, takes up little space and is easy to maintain.
- The structural design of independent air ducts and independent warehouses ensures the stable operation of the equipment.
- It can filter harmonics in a wide range of harmonics, from 2 to 50 harmonics, and solve the problem of three-phase unbalance at the same time.
- The harmonic filtering rate is high. If the capacity allows, the harmonic current filtering rate can be as high as 95%.
- Set 100% current limiting output to ensure long-term stable operation of the equipment.

Data center

A large number of devices in the data center, can cause harmonic pollution, affecting the stability and normal operation of the data center. Active power filter is a new power electronic device specially used for dynamic harmonic suppression and reactive power compensation. It can compensate for harmonics and reactive power that vary in size and frequency.

Hospital medical treatment

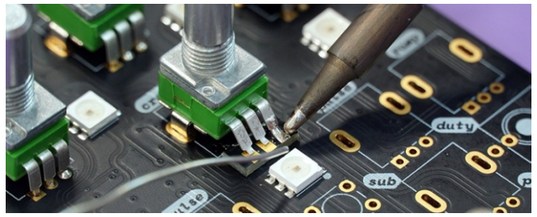
In hospitals, the use of a large number of modern medical equipment generates a large amount of harmonic currents, which can interfere with the hospital's power distribution system, reduce power quality, and affect the normal operation of medical equipment. The harmonics generated by these devices may also cause overheating of the capacitor, aging of the insulation, and shortening the service life of the capacitor.

pharmaceutical industry

Active power filters can not only suppress harmonics, stabilize voltage, improve power quality, and maintain the stability of the power system, thereby ensuring that the power system in the pharmaceutical manufacturing industry can always maintain a reliable and stable state.

Steel industry

Due to the large number of modern power electronic devices that generate a large amount of harmonic currents during operation, these devices have a significant impact on the power quality of the power grid. Active power filters can suppress harmonics, stabilize voltage, improve power quality, and maintain the stability of the power system, thereby ensuring that the power system in the steel industry can always maintain a reliable and stable state.



semiconductor

In semiconductor factories, a large number of power equipment generates a large amount of harmonic currents. These harmonic currents can cause interference to the power grid, reduce power quality, and affect the normal operation of equipment. Active power filters can dynamically suppress harmonics and compensate for reactive power.

Light Industry and Textile Industry

After the application of active power filters, the problem of poor power quality in power consumption systems caused by the extensive use of power electronic equipment has also been successfully solved.

Applications

Data centers, hospitals, petrochemical industry, pharmaceutical manufacturing, steel industry, semiconductor manufacturing, light industry and textile industry, etc.

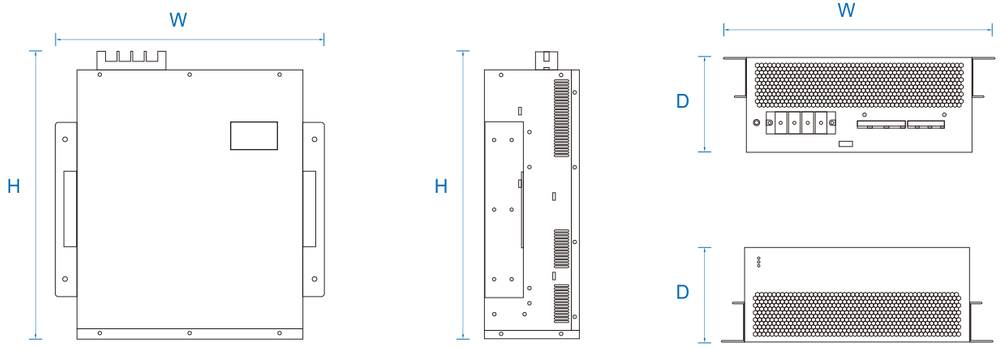
Technical Parameters

	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%			
Compensation current	25A	25/50/75/100/150A	100A	100A
Grid structure	L/N	3P3W/3P4W	3P3W/3P4W	3P3W/3P4W
Number of units connected in parallel	Ulimited			
Overall machine efficiency	≥97%			
Grid structure	32kHz	16kHz	12.8kHz	12.8kHz
Compensation range	2 ~ 50times, single compensation rate is adjustable			
Function selection	Reactive power	Reactive power, reactive power + asymmetry		
Reactive power compensation rate	≥95%	>92%		
Neutral filtering capability		Neutral line filtering capability is 3 times that of phase filtering capability		
full response time	<10ms	<40ms	<40ms	<40ms
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

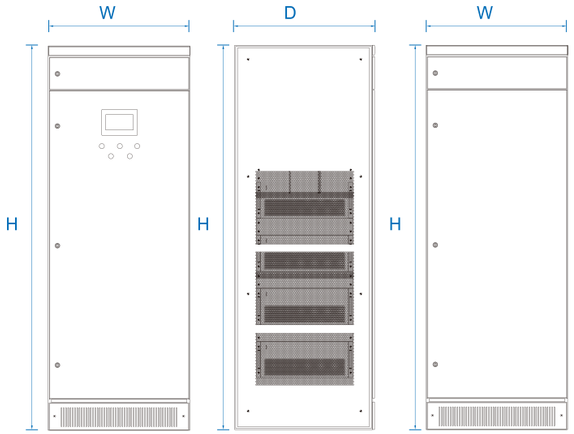
Wall-mounted

Rack mount



Models				
Model Number	Rated Current(A)	System voltage (V)	Dimensions (D*W*H)	Cooling method
IGY APF-0.22-25/2L-R/W	25	220	220*330*160mm	Forced air cooling
IGY APF-0.4-25/4L-R/W	25	380±20%	460*490*89mm	
IGY APF-0.4-50/4L-R/W	50	380±20%	460*490*89mm	
IGY APF-0.4-75/4L-R/W	75	380±20%	500*510*190mm	
IGY APF-0.4-100/4L-R/W	100	380±20%	500*550*240mm	
IGY APF-0.4-150/4L-R/W	150	380±20%	500*550*240mm	
IGY APF-0.5-100/4L-R/W	100	500±20%	495*675*275mm	
IGY APF-0.69-100/4L-R/W	100	690±20%	495*675*275mm	

Cabinet



Main view Left view Rear view

Cabinet device model				
Model Number	Compensation capacity (kvar)	System voltage (V)	Dimensions (D*W*H)	Cooling method
IGY APF-0.4-100/4L-C	100	380±20%	1000*1000*2200mm	Forced air cooling
IGY APF-0.4-150/4L-C	150	380±20%	1000*1000*2200mm	
IGY APF-0.4-200/4L-C	200	380±20%	1000*1000*2200mm	
IGY APF-0.4-250/4L-C	250	380±20%	1000*1000*2200mm	
IGY APF-0.4-300/4L-C	300	380±20%	1000*1000*2200mm	
IGY APF-0.4-400/4L-C	400	380±20%	1000*1000*2200mm	
IGY APF-0.5-300/4L-C	300	500±20%	1000*1000*2200mm	
IGY APF-0.69-300/4L-C	300	690±20%	1000*1000*2200mm	