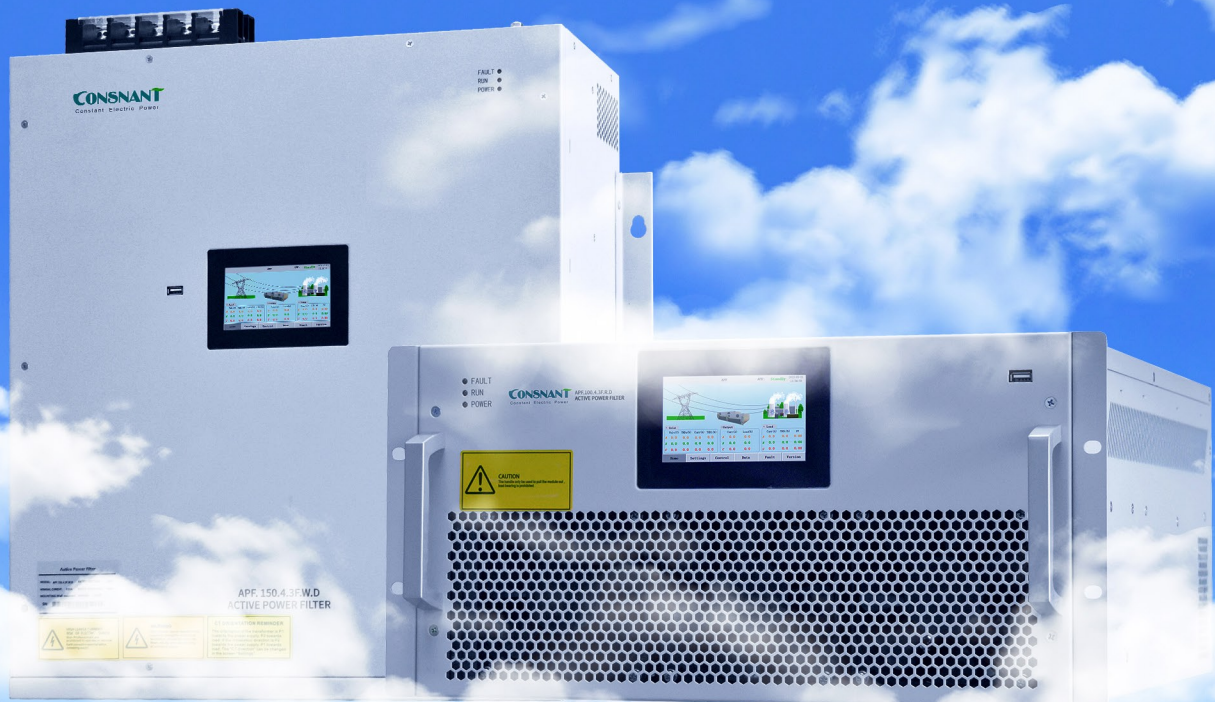


**CONSNANT**

LOW VOLTAGE POWER QUALITY SOLUTION

# Active Power Filter(APF) Static Var Generator (SVG)





## Ordering instruction

If you have technical solution, you can check our products directly.

If you need our technical guide, please advise your problem details as many as you can. We can give more reasonable solutions. You may provide the following:

- Single line drawing
- Panel primary scheme drawing
- Power quality test report (mainly about harmonics)

If you have no any drawings, you can advise us

- Load nameplate, load condition, existing power factor, target power factor, harmonic frequency, etc.
- Or rated voltage, compensation capacity, harmonic frequency (reactor detuning factor), and other components

If you can not provide enough information

- We can supply you with our products according to your technical requirements.
- We can go to your project site, and give a professional test report after test.

## Technical service

- Project-site power quality test (or test report for customer)
- Improvement solution and budget
- Product solution and price
- Products supply
- Product commissioning

## Compensation Effect

- Harmonic filtering meets the standards
- Power factor is over 0.95, electrical bill saving, low reactive power penalty killing
- Reducing the losses of transformer and line, improve the distribution ability, prolong the lifespan of electrical equipments

## Conform to IEC standards

IEC61921:2003	IEC61000-4-5:2005
IEC60529:2001	IEC60931-1:1996
IEC60439-1:2005	IEC60664-1:2007
IEC60831-1:1996	IEC61000-4-3/2/4/5/18 IEC61000-2-4
IEC60255	IEC62208:2011 ...
IEC255-22-1	

## Usage Condition:

Ambient Temp.	-25°C ~ +45°C
Humidity	≤95%
Aptitude	≤1000m (customization acceptable)
Max. Operating Voltage	≤110% (nominal voltage)
Max. Current	≤130% (nominal current)
Environment Around	No corrosive gas, no conductive dust and no explosive and flammable medium around
Installation Site	No severe vibration and bump, installation angle ≤5°

# Active Power Filter

APF (Active Power Filter) is a new power electronic harmonic filtering device based on voltage source inverter that dynamically generates reverse harmonic current through real-time detection of load current waveforms to achieve filtered (offset) harmonic, dynamic reactive power compensation system, voltage fluctuations, resonance suppression, power factor improvement, and other functions.

APF module generates PWM-signal of the internal IGBTs through DSP calculation. It has complete protection function and stable performance. Output characteristics of the system are not affected, no danger of harmonic amplification, fast response, wide filter range, high filtering efficiency, small size and light weight. It has become an important means of harmonic suppression and reactive power compensation.



Wall Mount



Rack Mount

## Application

- Commercial Buildings APF (three-phase four-wire products)
- Industrial-type Large-capacity Load APF (three-phase three-wire products)
- Telecommunication IDC Room
- UPS Systems
- Central Air Conditioning System
- Residential Building
- Municipal Facilities
- Electrified Railway and Urban Rail Transit Industry
- Petrochemical and Natural Gas Industries
- Power Industry
- Metallurgical Industry
- Building Materials Industry
- Coal Industry
- Textile Industry
- Paper Mill
- Precision Manufacturing
- Automotive Industry

# Active Power Filter Module

## Technical specification

Item		Description
Function	Main	Harmonics compensation
	Inverter topology	3-level NPC topology, IGBT
	Protection	Over voltage protection, under voltage protection, short circuit protection, reverse protection of inverter bridge, over compensation protection
	Harmonic degree	2~51 times (can be adjusted to any number of times within this range)
	Application	Hotel, Car park, Car charger station, Car 4S store, IDC, hospital, Railway, water treatment and other non-linerload.
Electrical spec	Rated voltage	380/400Vac
	Wiring	3P3W/3P4W
	Frequency	50±3Hz
	Capacity	35~150A
	Parallel units	8 pieces max. (customization acceptable)
	Filtering capability	THDi (Current distortion rate) <5%
	Switching frequency	20kHz
	Response time	Fast response time<50μs Total response time<5ms
	Dry contact	EPO, DI, DO
CT ratio	150:5~6000:5	
Terminals	Relay output	Max. 2, default 1
	Digital input	Max. 2, default 1
	Communication	RS485, RS232, Ethernet, GPRS
Environment	Operating environment	Indoor, free from moisture, dust, corrodent or flammable gases, oil mist, vapor, water leakage or salt water.
	Altitude	<1000m without derating, up to 4000m with derating 1% per 1000m
	Work temperature	-10°C~+40°C (derate from 40°C to 50°C, derate by 2% for every 1°C increase above 40°C, highest temperature allowed: 50°C)
	Humidity	Less than 95%RH, no condensing
	Storage temperature	-40°C~+70°C
	Vibration	Less than 5.9m/s <sup>2</sup> (0.6g)
Enclosure	Protection degree	IP20, the rest of the IP level can be customized
	Colour	7035 grey (customization is acceptable)
	Size	Based on type
	Cooling	Fan cooling, noise:<56dB
Other	Design standard	IEC61000 EN55011 EN62477 EN61800



# Active Power Filter Module

## Features

- Compact and reliable structure, flexible installation.
- Advanced and reliable software control algorithm.
- Double-DSP control system, using vector screening technology.
- Filter out a user-specified number of harmonics or compensate harmonics for 2 to 50 times.
- Harmonic compensation, reactive power compensation and three-phase unbalance compensation.
- Random module combination and capacity expansion units meet different capacity requirements.
- Standard communication interface and communication protocol.
- Fault alarm and recording function, up to 500 alarms can be recorded.
- Fully protect against impact such as overvoltage protection, undervoltage protection, short circuit protection.
- Inverter bridge reverse protection, compensation protection, etc.

## Specification Sheet

Model	Compensation Current (A)	Rated Voltage (Vac)	Electrical Wiring	Type
APF-50A-3P3W-WM 400VAC	50	380/400/415	3 phase, 3 wires	Wall Mounted
APF-50A-3P4W-WM 400VAC	50	380/400/415	3 phase, 4 wires	Wall Mounted
APF-75A-3P3W-WM 400VAC	75	380/400/415	3 phase, 3 wires	Wall Mounted
APF-75A-3P4W-WM 400VAC	75	380/400/415	3 phase, 4 wires	Wall Mounted
APF-100A-3P3W-WM 400VAC	100	380/400/415	3 phase, 3 wires	Wall Mounted
APF-100A-3P4W-WM 400VAC	100	380/400/415	3 phase, 4 wires	Wall Mounted
APF-150A-3P3W-WM 400VAC	150	380/400/415	3 phase, 3 wires	Wall Mounted
APF-150A-3P4W-WM 400VAC	150	380/400/415	3 phase, 4 wires	Wall Mounted
APF-50A-3P3W-RM 400VAC	50	380/400/415	3 phase, 3 wires	Rack Mount
APF-50A-3P4W-RM 400VAC	50	380/400/415	3 phase, 4 wires	Rack Mount
APF-100A-3P3W-RM 400VAC	100	380/400/415	3 phase, 3 wires	Rack Mount
APF-100A-3P4W-RM 400VAC	100	380/400/415	3 phase, 4 wires	Rack Mount
APF-150A-3P3W-RM 400VAC	150	380/400/415	3 phase, 3 wires	Rack Mount
APF-150A-3P4W-RM 400VAC	150	380/400/415	3 phase, 4 wires	Rack Mount
APF-200A-3P3W-RM 400VAC	200	380/400/415	3 phase, 3 wires	Rack Mount
APF-200A-3P4W-RM 400VAC	200	380/400/415	3 phase, 4 wires	Rack Mount

Note: The standard voltage for above models is 400Vac; 220Vac/690Vac for option.

# Active Power Filter Module

## APF Dimensions

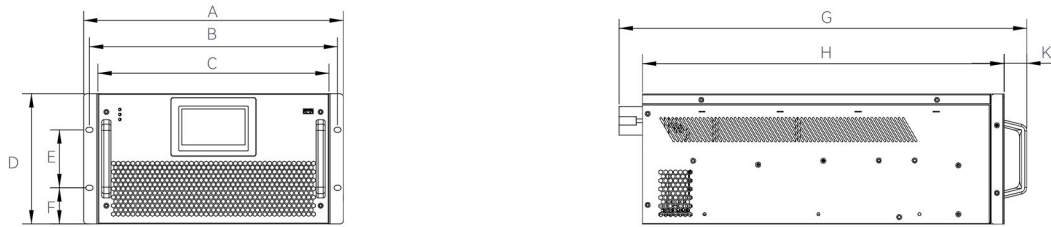


Fig.2-1 Dimensions of rack mounted type

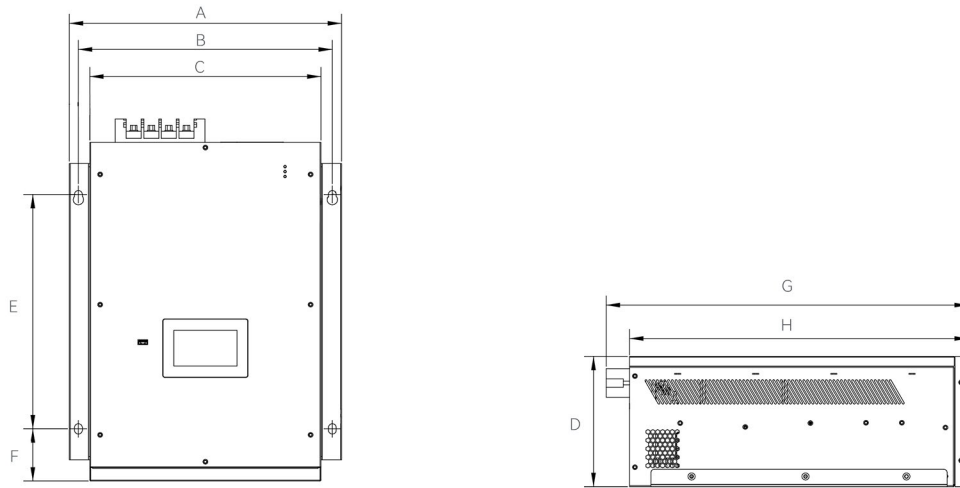


Fig.2-2 Dimensions of wall mounted type

NOTE: APF is not matched with screws. Recommend you use M8x11 exploration screws.

Size (mm)	Rack mounted				Wall mounted			
	50A	100A	150A	200A	50A	75A	100A	150A
A	359	484	554	674	378	418	503	573
B	341	466	536	656	350	390	475	545
C	315	440	510	630	315	355	440	510
D	200	232	250	250	200	200	232	250
E	89	89	89	89	300	360	300	300
F	55.5	71.5	80.5	80.5	120.5	80	137.5	142.5
G	538	646	656	676	525	556	611	621
H	500	575	585	640	500	520	575	585
K	13	35	35	30	/	/	/	/

# Static Var Generator Module

## Static Var Generator Module

### SVG STATIC VAR GENERATOR

A revolutionary modular three level inverter reactive power management system used for power factor correction, current balancing, voltage balancing, voltage regulation and VAR support. Ideal for industrial, commercial and electricity network applications.

Available in 50/75/100kVar wall mount and 50/100/150kVar rack mount modules, 400VAC three phase.



Wall Mount



Rack Mount

## Features

- Adopt the latest IGBT technology with a high switching frequency up to 35KHz.
- Quick response and minimal thermal and electric energy losses.
- Quickly responding DSP+FPGA processors.
- The SVG series products adopt full digital control systems DSP, which can immediately respond to the load changes and have no overcompensation and undercompensation, and support continuous automatic control adjustment.
- Unique and spacious design for optimal thermal management.
- Best-in-business three-level topology that can better offset the current to the sine wave compared with traditional two-level inverters.

# Static Var Generator Module

## Technical specification

Item		Description
Function	Main	Maintain receiving end voltage and strengthen system voltage stability
		Inverter topology: 3 level NPC topology, IGBT
		Compensate system reactive power, improve power factor, reduce line loss, save energy and reduce cost
		Suppress voltage fluctuation and flicker
		Suppress three phase unbalance
		Compensate both inductive and capacitive loads to achieve PF0.99 and avoid under and over compensation
	Ability to set compensation priority, set with power factor and balance, various combinations of harmonics.	
Harmonic	Setting filtering from 2 - 13 times	
Application	Hotel, Car park, Car charger station, Car4S store, IDC, Hospital, Railway water treatment and other non-liner load	
Electrical spec	Rated voltage	380/400Vac
	Wiring	3P3W/3P4W
	Frequency	50±3Hz
	Capacity	20~100kVar (According to SVG type)
	Efficiency	Up to 97.5%
	Switching frequency	20kHz
	Response time	Fast response time<50µs Total response time <5ms
	CT ratio	150:5~6000:5
	Parallel	Max. 8 (customization acceptable)
Terminals	Relay output	Max. 2, default 1
	Digital input	Max. 2, default 1
	Communication	RS485
Environment	Operating environment	Indoor, free from moisture, dust, corrodent or flammable gases, oil mist vapor, water leakage and salt water.
	Altitude	<1000m, use as per GB/T3859.2 (customization acceptable)
	Work temperature	-10°C~+40°C (derating is present from 40°C to 50°C, derate by 2% per every 1°C increase above 40°C, highest temperature allowed: 50°C)
	Humidity	Less than 95%RH, no condensing
	Storage temperature	-40°C~+70°C
	Vibration	Less than 5.9m/s <sup>2</sup> (0.6g)
Enclosure	Protection degree	IP20
	Colour	7035 grey (customization acceptable)
	Size	According to SVG type (refer to SVG Dimensions)
	Cooling	Fan cooling
Other	Design standard	IEC61000 EN55011 EN62477 EN61800



# Static Var Generator Module

## Specification Sheet

Model	Compensation Power (KVar)	Rated Voltage (Vac)	Electrical Wiring	Type
SVG-50K-3P3W-WM 400VAC	50	380/400/415	3 phase, 3 wires	Wall Mounted
SVG-50K-3P4W-WM 400VAC	50	380/400/415	3 phase, 4 wires	Wall Mounted
SVG-75K-3P3W-WM 400VAC	75	380/400/415	3 phase, 3 wires	Wall Mounted
SVG-75K-3P4W-WM 400VAC	75	380/400/415	3 phase, 4 wires	Wall Mounted
SVG-100K-3P3W-WM 400VAC	100	380/400/415	3 phase, 3 wires	Wall Mounted
SVG-100K-3P4W-WM 400VAC	100	380/400/415	3 phase, 4 wires	Wall Mounted
SVG-50K-3P3W-RM 400VAC	50	380/400/415	3 phase, 3 wires	Rack Mount
SVG-50K-3P4W-RM 400VAC	50	380/400/415	3 phase, 4 wires	Rack Mount
SVG-100K-3P3W-RM 400VAC	100	380/400/415	3 phase, 3 wires	Rack Mount
SVG-100K-3P4W-RM 400VAC	100	380/400/415	3 phase, 4 wires	Rack Mount
SVG-150K-3P3W-RM 400VAC	150	380/400/415	3 phase, 3 wires	Rack Mount
SVG-150K-3P4W-RM 400VAC	150	380/400/415	3 phase, 4 wires	Rack Mount

Note: The standard voltage for above models is 400Vac; 220Vac/690Vac for option.

# Static Var Generator Module

## SVG Dimensions

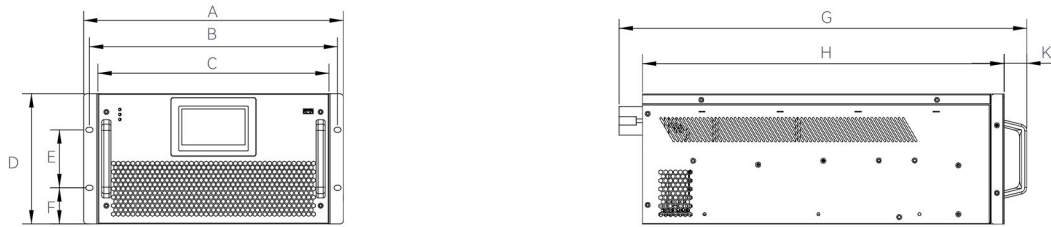


Fig.2-1 Dimensions of rack mounted type

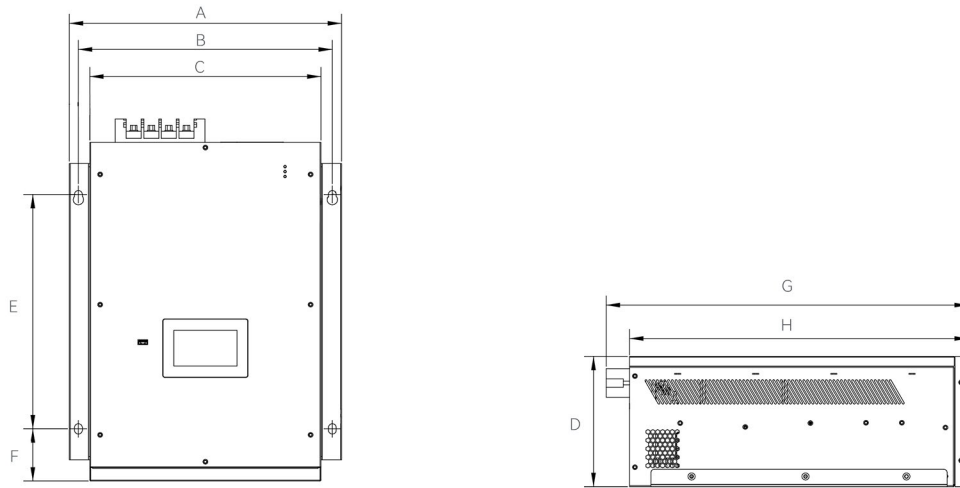


Fig.2-2 Dimensions of wall mounted type

NOTE: SVG is not matched with screws. Recommend you use M8x11 exploration screws.

Size(mm)	Rack type			Wall mounted		
	50KVar	100KVar	150KVar	50KVar	75KVar	100KVar
A	399	554	674	418	503	573
B	381	536	656	390	475	545
C	355	510	630	355	440	510
D	200	250	250	200	232	250
E	89	89	89	360	300	300
F	55.5	80.5	80.5	80	137.5	142.5
G	626	656	676	556	611	621
H	555	585	640	520	575	585
K	35	35	30	/	/	/