
Static Var Generator

Modular and Cabinet



Overview

STANDARD POWER SVG is a Hi-Tech power quality solution, in addition to our advanced and innovative technology, its main components are all international brands, such as: IGBT Infineon Germany, DPS IT USA and PFGA Xilinx, USA etc.

Product and technology

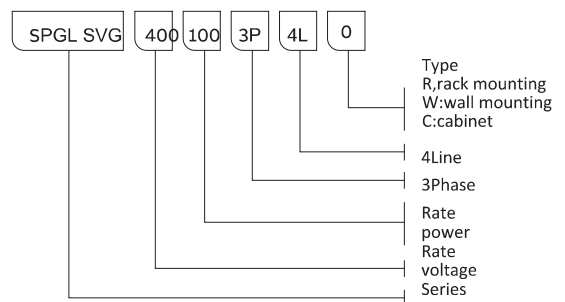
Static var generator (SVG) directly parallels the self commutation bridge circuit to the power grid through the reactor. By properly adjusting the phase and amplitude of the output voltage at the AC side of the bridge circuit or directly controlling the AC side current of the bridge circuit, the circuit can absorb or emit the required reactive current to achieve the purpose of dynamic reactive power compensation.

SPGL SVG can real-time monitor the reactive power and harmonic current demand in the power grid and can counteract the reactive current and harmonic current by injecting the reactive + harmonic current with the same reactive and harmonic current and opposite phase to the power grid.

Standard

IEC601000-3-6/EN61000-3-6,IEEE519-1992 etc.

Product series



Characteristic and features

Characteristic	Features
<p>The 3-Level Topology Design The 3-level topology technology can greatly reduce the volume of high frequency filter inductance and implement modularity of SVG. With the 3-level topology technology, the IGBT's switch voltage stress and switching, and efficiency are improved tremendously.</p>	<p>Owing to its 3-level topology design based on a zero level voltage transformation (comprising IGBT of lower voltage corresponding higher switching frequency).</p> <p>SPGL SVG are capable of suppressing the undesirable generated ripple currents effectively and promotes a high compensation precision for the output waveform with respect to the sinusoidal waveform.</p>
<p>Smart Calculation and Treatment The reactive currents and harmonic currents at the supply side are significantly reduced</p>	<p>when reactive current are required, the operating circuit measures the load current and calculates the reactive current spectrum via the advanced control algorithm programmed in the Digital Signal Processor (DSP). I active filter employs Fast Fourier Transform (FFT) 4 logic calculation method for the power factor up to +1, and also harmonic current spectrum from 2nd to 50th order filtering</p>
<p>Intelligent FFT, Self-Learn and Adapt the System Excellent comprehensive performance within capacity range: Reactive power compensation rate $\geq 99\%$ and harmonic compensation rate $\geq 97\%$;</p>	<p>Flexible grid connection technology and perfect intelligent starting system are adopted. Flexible grid connection and slow start control loop will not produce excessive inrush current at the start moment;</p> <p>It supports more than 15 operation modes, including any combination of harmonic, reactive power and unbalance, independent and any priority compensation modes, and the percentage of each compensation capacity can be set</p> <p>With triple logic protection: software protection, hardware protection and wave by wave current limiting protection, the equipment can adapt to the harsh natural environment and power grid environment</p> <p>It has resonance monitoring function: in hardware, the impedance is changed by virtual resistance, and the output of harmonic current caused by resonance is intelligently turned off to reduce the risk of resonance;</p>

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Static Var Generator-Active Harmonic Filter

POWER SWITCH EPO



STANDARD-POWER



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Static Var Generator-Active Ha

POWER SWITCH EPO



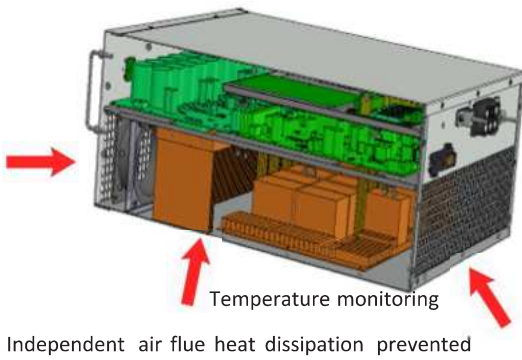
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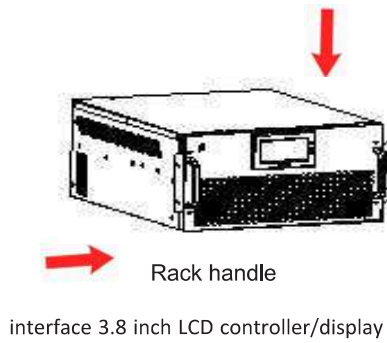
Modular Design

Modern racks and wall mounting design, interface 3.8 inch LCD controller/display, the installation suitable for all type of electric planes.

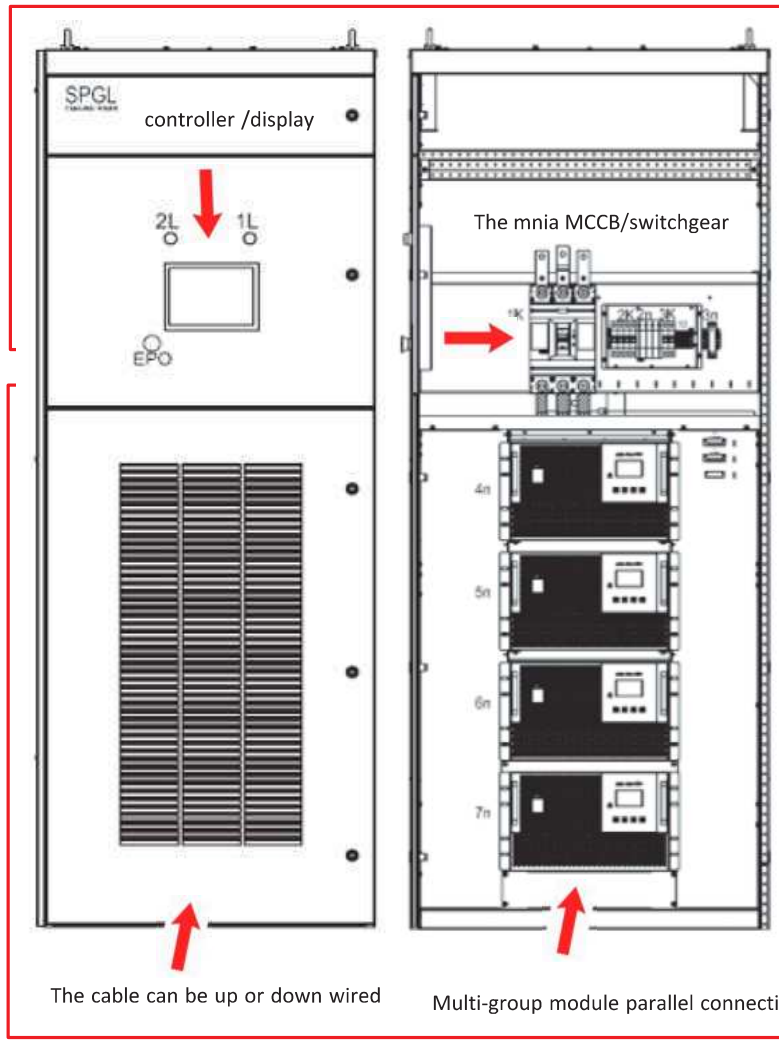
Compact rack type



Compact rack type



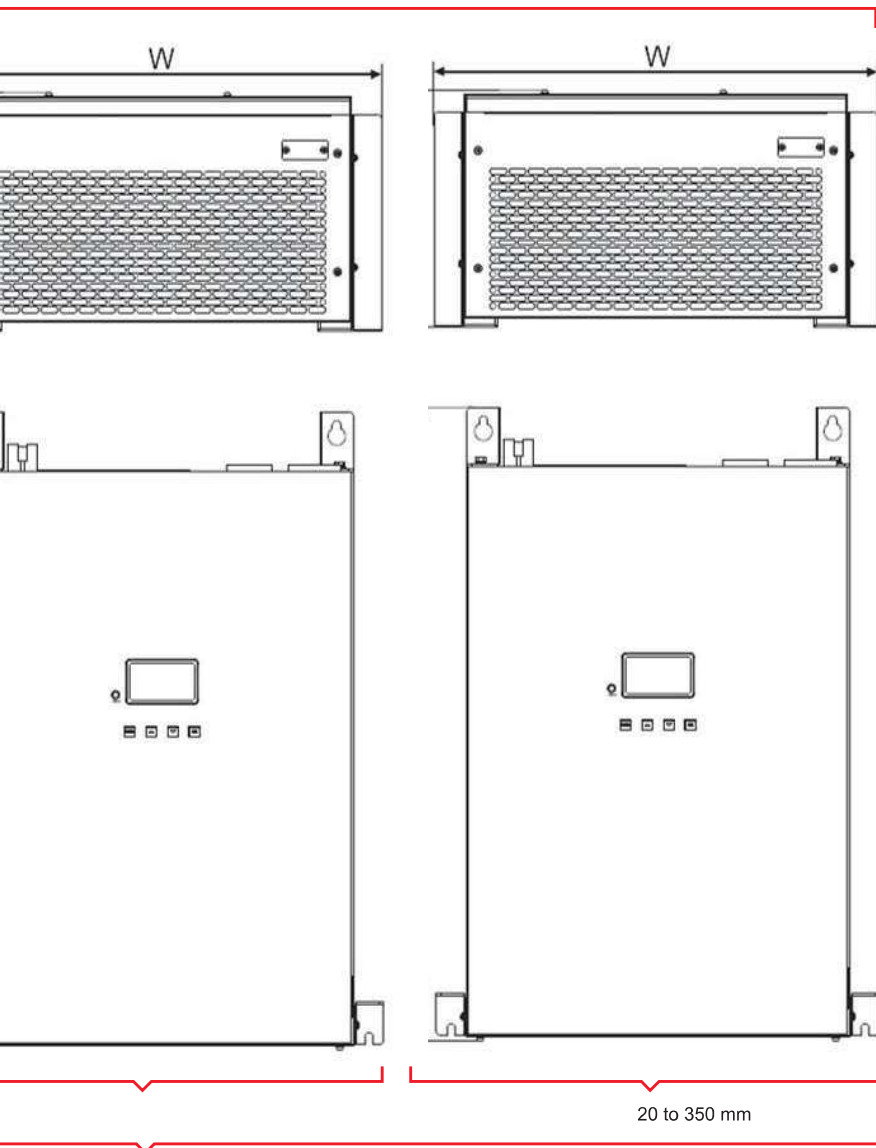
The cable can be up or down wired



Open pull door

The width are available 600mm,800mm,1000mm,1200mm etc.

Wall or suspension Mounting



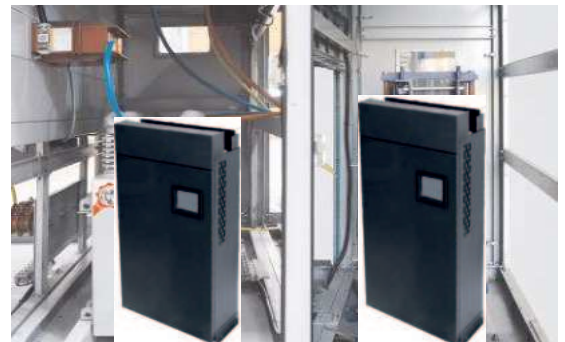
Parallel expandable capacity

Wall mounting



Wall mounting in power distribution room

Cabinet suspension Mounting



Erect directly into the cabinet

Technical specification and data sheet

Specifiction and rates

Product photo			
Power rate Kvar	5,10,15,20,25,Kvar 400V,50/60Hz	35,50,75,100Kvar 400V/480V/690V,50/60Hz	150,200,250,300,400,500,600Kvar 400V/480V/690V,50/60Hz
Rate voltage & Hz Wiring system	3 phase 4 line or 3 phase 3 line	3 phase 4 line or 3 phase 3 line	3 phase 4 line or 3 phase 3 line
Overall efficiency	>97%	>97%	>97%
Power factor target	up to 1	up to 1	up to 1
Total responsation	<=10 ms	<=5 ms	<=10 ms
Mounting	wall or suspension Mounting	rack or wall	cabinet
Parallel	Max. 5 modules	Max. 5 modules	three cabinets
Harmonic filtering	up to 13th	up to 13th	up to 13th
Unbalance	three phase compensationu	three phase compensationu	three phase
Operation condition	-25℃/+45℃	-25℃/+45℃	-25℃/+45℃
Temperature	5% to 95%	5% to 95%	5% to 95%
Humidity and altitude	<2000M	<2000M	<2000M
Display/controller	3.8 inch LCD	3.8 inch LCD	7.8 inch LCD
Protection level	IP20	IP20	IP20
Communication	RS485/232,modbus	RS485/232,modbus	RS485/232
Other	are available on request	are available on request	

Order selection
SPGL SVG 400-10-3P/4L-W

SPGL SVG
Rate voltage 400V
Rate power 10Kvar
3 phase 4 line
Wall mounting

Order selection
SPGL SVG 400-100-3P/4L-R

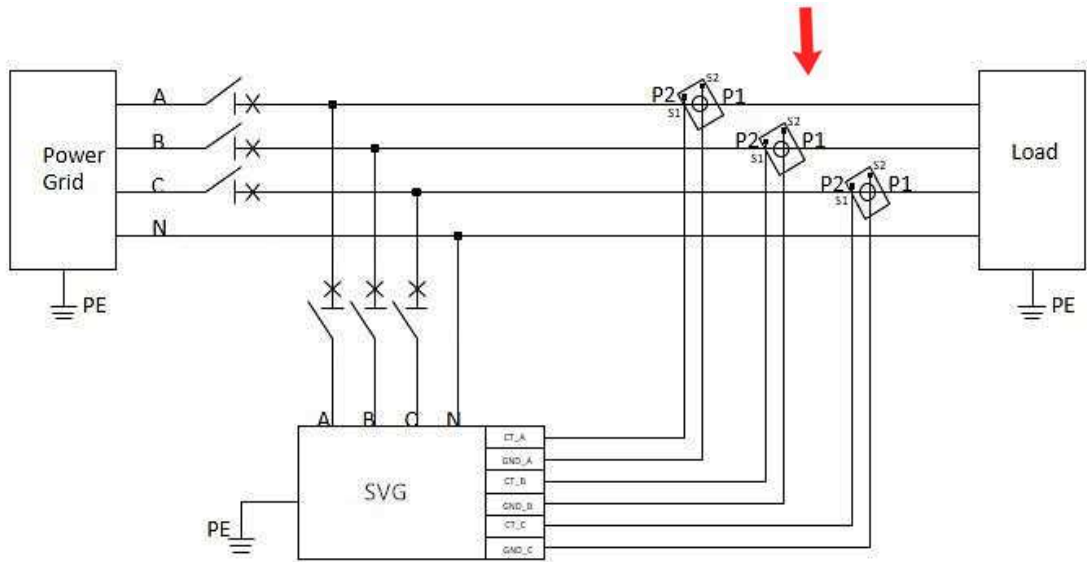
SPGL SVG
Rate voltage 400V
Rate power 100Kvar
3 phase 4 line
rack mounting

Order selection
SPGL SVG 400-500-3P/4L-C

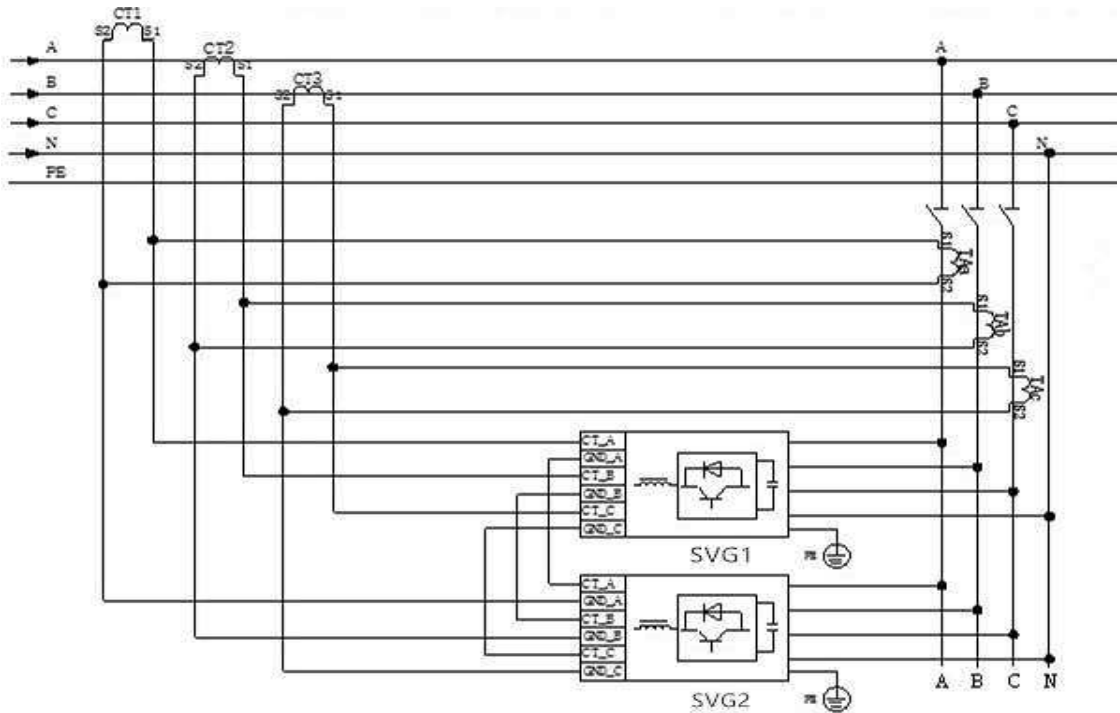
SPGL SVG
Rate voltage 400V
Rate power 500Kvar
3 phase 4 line
cabint mounting

Electric connection

- 01 CT position
- 02 Parallel



— 01

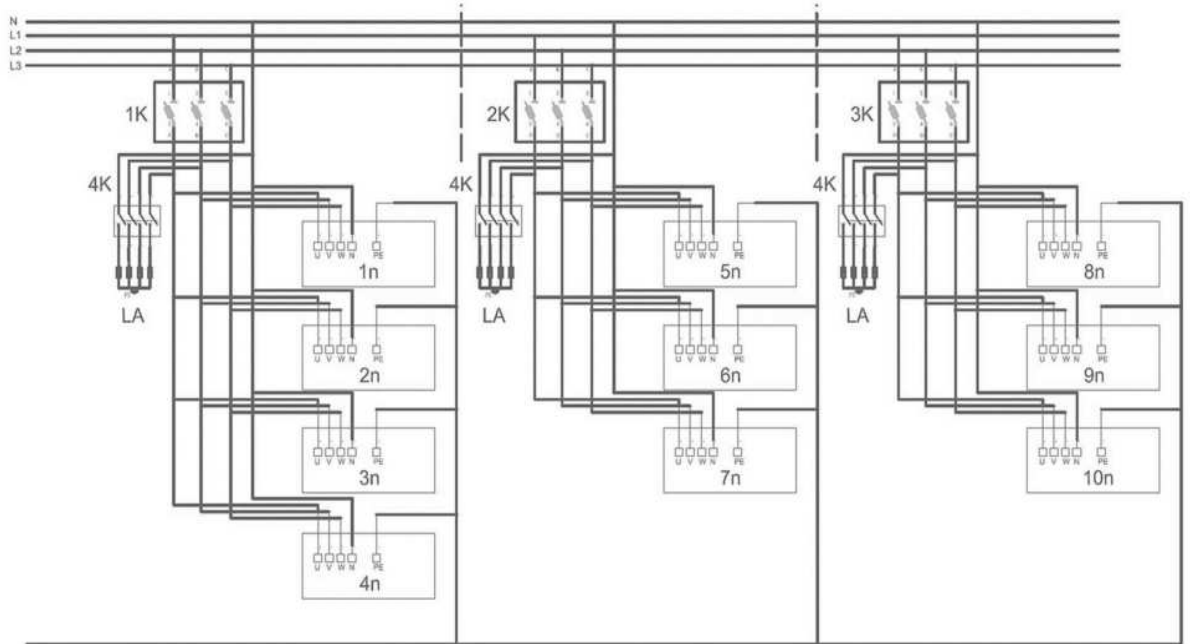


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Electric connection

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03 SVG cabinet

for example
1000Kvar
3 cabinets
4x100Kvar
3x100Kvar
2x100Kvar



Comparison of SVG and TRPC

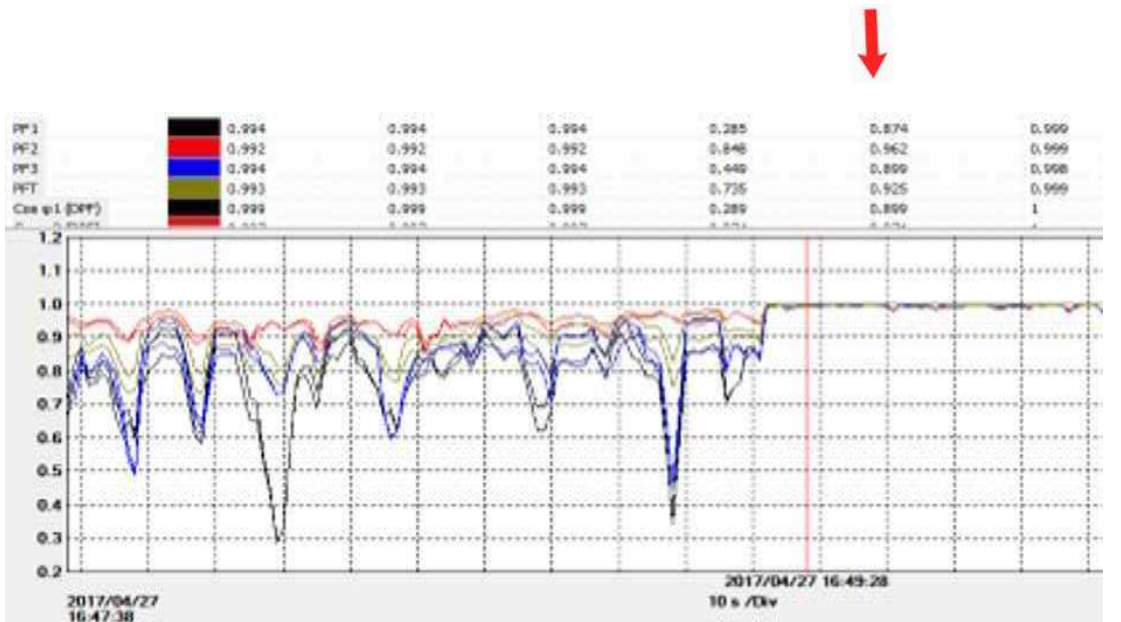
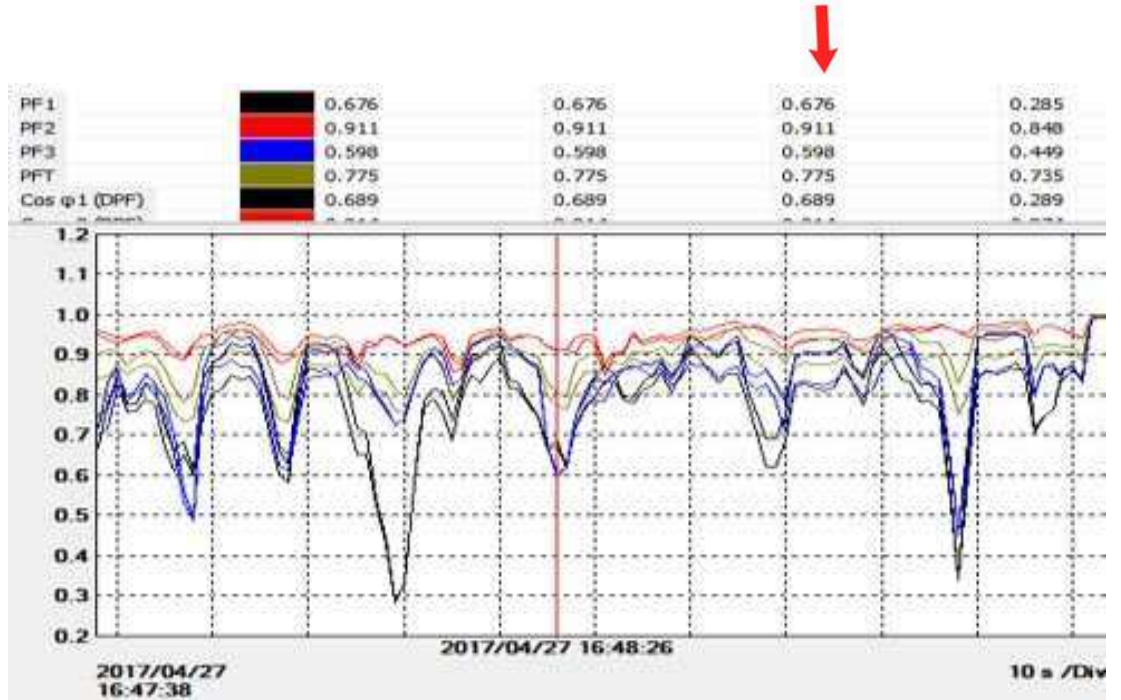
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SVG
TRPC

	TRPC	SVG
Technology	traditional capacitor bank	modern power & electronic technologies
Respond time	normal respond	highest speed
Efficiency	normal, step control	stepless, highest power factor
Filter function	non	excellent reactive filter function
Unbalance	non	excellent unbalance compensation
Resonance	yes	non
Overload	yes	non
Volume	big	very miniaturized

Example efficiency curves

— power factor before
0.775

— power factor after
0.999t



Quick selection SVG

03 SVG cabinet

1000Kvar
3 cabinets
4x100Kvar
3x100Kvar
2x100Kvar

According to the capacity (Q, kVA) and the current power factor $\cos \phi$ of the transformer, the capacity and specification model of the SVG to be installed can be quickly determined by referring to the following table

Transformer capacity (KVA)	SPGL Model and Qty.				
	$\cos\phi \leq 0.5$	$0.5 \leq \cos\phi \leq 0.6$	$0.6 \leq \cos\phi \leq 0.7$	$0.7 \leq \cos\phi \leq 0.8$	$0.8 \leq \cos\phi \leq 0.9$
200	SVG-100	SVG-100	SVG-100	SVG-100	SVG-100
250	SVG-150	SVG-100	SVG-100	SVG-100	SVG-100
315	SVG-200	SVG-100	SVG-100	SVG-100	SVG-100
400	SVG-200	SVG-200	SVG-200	SVG-150	SVG-100
500	SVG-300	SVG-300	SVG-300	SVG-150	SVG-100
630	SVG-300	SVG-300	SVG-300	SVG-200	SVG-150
800	SVG-500	SVG-500	SVG-300	SVG-300	SVG-150
1000	SVG-600	SVG-500	SVG-500	SVG-300	SVG-200
1250	SVG-400sets	SVG-600	SVG-600	SVG-500	SVG-300
	SVG-300sets				
1600	two sets of SVG-400	two sets of SVG-400	two sets of SVG-400	SVG-500	SVG-300
2000	two sets of SVG-500	two sets of SVG-500	two sets of SVG-400	SVG-600	SVG-300
2500	three sets of SVG-500	three sets of SVG-400	two sets of SVG-500	two sets of SVG-400	SVG-500

For example

if 400V and 3phase 4wire system the capacity of the transformer $Q = 1000\text{KVA}$, the current power factor $\cos \phi$ is between 0.6 and 0.7 then you can select 500 Kvar SVG, and the specification is SPGLSVG-500

You can select 5Pcs 100kvar SVG modules to install in your existing electrical cabinet, or you can select our cabinet type SVG of SPGLSVGb-500-400-4L-C

if 400V and 3 phase 4 wire system the capacity of the transformer $Q = 1000\text{KVA}$, the current power factor $\cos \phi$ is between 0.6 and 0.7 ,then you can select 500 Kvar SVG, and the specification is SPGLSVG-500 You can select 5Pcs 100kvar SVG modules to install in your existing electrical cabinet, or you can select our cabinet type SVG of SPGLSVG-500-400-3-C

Simple way:

The SVG reactive power compensation capacity is usually selected according to: 30% of the system capacity of power transformer

