

# Ultra ASVG

Advanced Static Var Generator

**Sinexcel Electric Co. Ltd**



Auto-Fine Tuning THDi(For 2nd-13rd harmonic orders)

**<5%**

Peak efficiency

**>99%**

New Beginning  
New Power Quality  
Compensation Era

# ULTRA SERIES ADVANCED STATIC VAR GENERATOR

Ultra ASVC

The revolutionary SiC Mosfet technology has driven the design optimization of power quality products, which delivering unparalleled improvements in performance and application of Sinexcel Ultra Series. This transformation has reshaped the business model for power quality solutions, setting a new industry benchmark for excellence.



01

## Performance breakthrough brought by SiC technology





99%  
Ultra high efficiency

97%  
Enormous harmonic compensation rate

>24kg  
Tiny dimension but huge capacity  
—Harmonic compensation only for 2nd to 13rd

02

## Industry application breakthrough brought by Ultra Series

-  Flexible Top-Vent Cabinet
-  Potting Protection
-  Automatic fine-tuning
-  Easy Maintenance

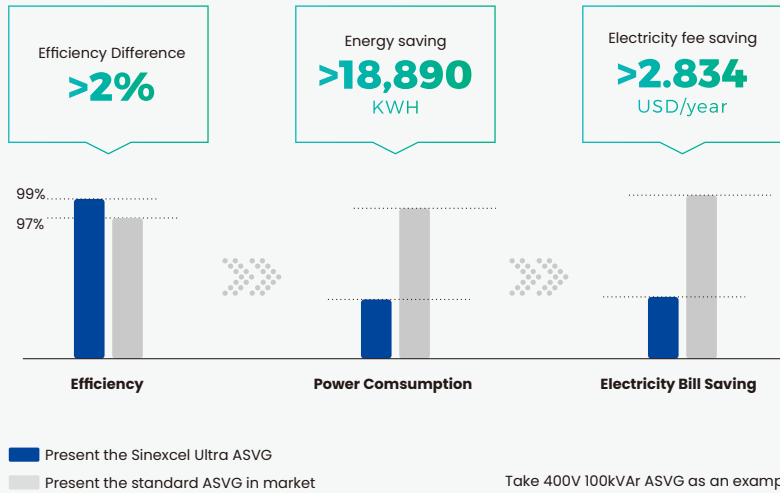
# ULTRA HIGH EFFICIENCY

\_Performance breakthrough brought by SiC technology

Silicon carbide (SiC) MOSFETs achieve ultra-high efficiency primarily due to their wide bandgap, which leads to lower on-state resistance (Rds(on)), faster switching speeds, and reduced switching losses. These properties enable SiC MOSFETs to operate at higher frequencies and temperatures with improved overall performance, resulting in more efficient power conversion systems.

## What benefit will be brought to user with 99% ultra high efficiency?

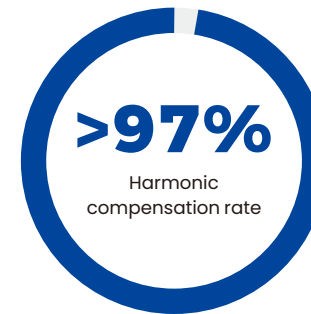
—Electricity bill saving, higher ROI



# ENORMOUS HARMONIC COMPENSATION RATE

\_Performance breakthrough brought by SiC technology

SiC technology brings much higher switching frequency (the average of 40KHz and maximum up to 95KHz) to Ultra Series ASVG. With the high switching frequency and Sinexcel unique algorithm design, Ultra Series ASVG realizes the enormous harmonic compensate rate.



—For 2nd to 13rd harmonic orders



(Before compensation)

VS



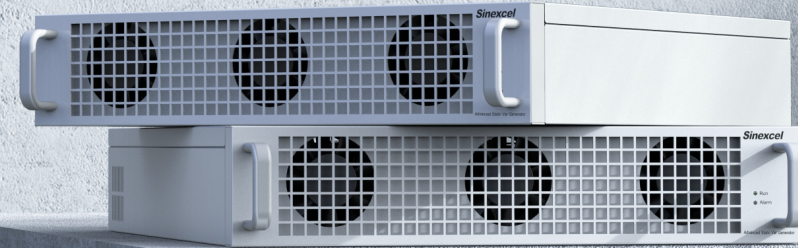
(After compensation)



# TINY DIMENSION BUT HUGE CAPACITY

— Performance breakthrough brought by SiC technology

High heat resistance, high thermal conductivity, and high switching frequency, these advantages of SiC bring lower heat dissipation and less ripple current output to Ultra Series ASVG. With the physical upgrade of this key component and the 3-year deep research of the R&D team, Sinexcel realizes the ultra-high integration design in Ultra Series ASVG



Each cabinet maximum supports  
8\*Ultra modules inside  
maximum capacity up high to

**800kVAr (8\*100VAr)**

**Standard IP grade is IP20**

(IP grade customized)



- ⦿ 400V Ultra ASVG 30kVAr  
**Size only 500\*470\*88mm (W\*D\*H)**
- ⦿ 400V Ultra ASVG 50kVAr  
**Size only 500\*470\*88mm (W\*D\*H)**
- ⦿ 400V Ultra ASVG 100kVAr  
**Size only 500\*520\*100mm (W\*D\*H)**
- ⦿ 400V Ultra ASVG 200kVAr  
**Size only 500\*646\*220mm (W\*D\*H)**

**Sinexcel Ultra Series available now**



# FLEXIBLE TOP-VENT CABINET

\_Industry application breakthrough brought by Ultra Series



High power density cabinet that can be installed against the wall, space saving for distribution room



Size optional, cabinet capacity optional and IP class optional

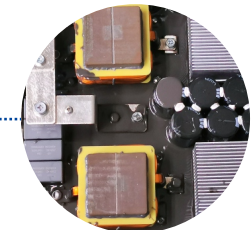
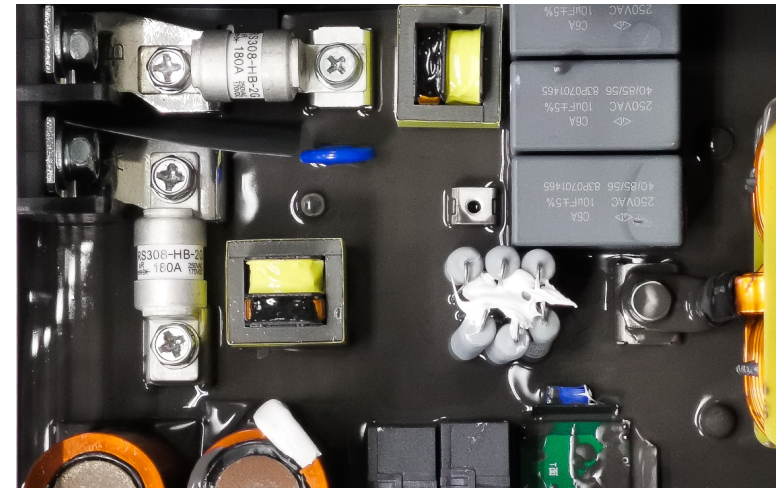


Collapsible design, small packing size, cost-effective for transportation

# POTTING PROTECTION

\_Industry application breakthrough brought by Ultra Series

Special glue is used inside the Ultra Series ASVG, and brings better anti-corrosion and anti-conductive dust performance. This makes the Ultra Series ASVG able to survive in harsh environments and increase its lifespan.



# AUTOMATIC FINE-TUNING

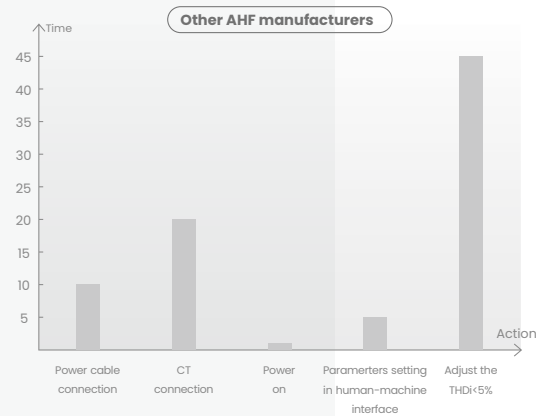
\_Industry application breakthrough brought by Ultra Series

Sinexcel Ultra Series ASVG updates the software algorithm and when CTs are at the source side, this makes the ASVG realizes the closed-loop design; The unique algorithm can automatically identify and correct the compensation output result, and the process without manual adjustment.

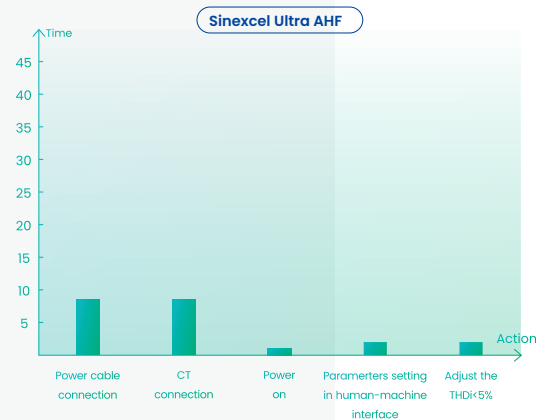
**The automatic fine-tuning realizes automatic adjusts THDi<5% and the whole process can be completed within one minute;**

Easy software operation, and simple hardware installation. Only power cables and a set of CT to set up Ultra Series ASVG. The Automatic fine-tuning function realizes intelligent and excellent compensation effects, bringing users a simple and efficient commissioning experience.

Note: The harmonic compensation only for 2nd to 13rd harmonic orders, if the system exists the higher harmonic orders please Sinexcel AHF solution;



VS



# SINEXCEL ULTRA ASVG SPECIFICATION

Items	Sinexcel Ultra Series ASVG			
Rating	30kVar	50kVar	100kVar	200kVar
Function	Harmonic, reactive power and three-phase unbalance compensation			
<b>System parameters</b>				
Nominal voltage	380V (-40% ~ +20%)			
Nominal frequency	50/60Hz, auto sensing Range : 45Hz-62.5Hz			
Parallel quantities	Unlimited			
Efficiency	99%			
Connection type	3 Phase 3 Wire / 3 Phase 4 Wire			
CT location	Load / Supply side			
<b>Performance indicators</b>				
Compensation rate	> 97%		> 98.5%	
Compensation Order	2nd to 13th, selectable for each order, amplitude adjustment			
Zero-Sequence compensation rate	3 times capacity compensated, >97%			
Fast response Time	< 50us			
Full response Time	< 5ms			
Target power factor	Adjustable from -1 to +1			
Switching frequency	Average 40kHz, up to 95kHz			
Cooling air requirement	180CFM	240CFM	480CFM	
Noise level	<60dB (Full load)		<65dB (Full load)	<68dB (Full load)
Communications ports	RS485 and Ethernet port(RJ45)			
Communications protocols	Modbus RTU, TCP/IP			
Module display interface	4.3-inch HMI(module), 7-inch HMI(central monitor) and LED			
Protection functions	Over-voltage protection, under-voltage protection, inverter bridge inverse protection, over-compensation protection and so on			
Mounting type	Wall-mounted, Rack-mounted and Cabinet			
Dimensions(W x D x H mm)	500*470*88		500*520*100	500*646*200
Net weight	24kg		32kg	63kg
Storage temperature	-40℃~70℃			
Operating Ambient temperature	-10℃40℃ (may derate capacity if ambient temperature exceeds 40℃)			
Relative humidity	5% to 95%, non-condensing			
Altitude	≤1500m, 1500-4000m, capacity is derating 1% for every 100m altitude increased			
protection class	IP20 (IP level can be customized)			
Qualifications	CE (400V type ASVG)			



# HONG KONG(CHINA) UNICOM-ASVG 2600KVAR



## Hong Kong(China) Unicom-ASVG 2600kvar

High frequency UPS and variable-frequency air-conditioner have been widely used in Data Center leading to the harmonic compensation and inductive reactive power compensation requirement, Sinexcel ASVG hybrid solution can meet customers' needs.



## New Zealand Napier Port-ASVG 100kvar

Cranes and hoists used in port and wharf most apply DC motor driven by three phase rectifier which make the PF below 0.7 and harmonic more than 35%.

Harmonic generated by the cranes and hoists will damage the capacitor banks. Also the fluctuated current can not be compensated on-time by cap banks.

