



WORLDTEK STATIC VAR GENERATOR / ADVANCED STATIC VAR GENERATOR / ACTIVE POWER/HARMONIC FILTER

Introduction:

WORLDTEK has recently launched SVG (STATIC VAR GENERATOR), ASVG (ADVANCED STATIC VAR GENERATOR) & APF/AHF (ACTIVE POWER/HARMONIC FILTER) in response to urgent need for very fast VAR compensation and Harmonic mitigation meant for a 356-480V low-voltage distribution network. Using full-digital control technology with DSP, our SVG/ASVG can compensate reactive power in a dynamic way and maintain three-phase imbalance compensation at the same time, fully improving the quality of power energy including harmonic mitigation as an option. Meanwhile, our SVG/ASVG/APF (AHF) supports Modbus protocol. These are available in different capacities like 15kVAr (25A), 30kVAr (50A), 50kVAr (75A), 75kVAr (100A) and 100kVAr (150A). These devices are connected in parallel with the load to maintain power factor and or mitigate harmonics. These devices are best suitable for instantaneous and effective response to power factor and harmonic problems in low voltage electric power systems. These enable longer equipment lifetime, higher process reliability, improved power system capacity, stability, and reduced energy losses.

Typical applications:

- Installations with fast changing reactive power demand like electric arc furnaces.
- Highly dynamic loads where the power factor fluctuates rapidly or in big steps like cranes, welding machines, etc.
- Correction of leading power factor like in data centres.
- UPS systems.
- Solar and wind turbine generators.
- Railways
- Loads with low power factor: Motors, cables, lighting, etc.

Dynamic response to system variations:

- Power factor correction (lagging or leading).
- Load balancing in three-phase systems.
- Harmonic filtering

Competitive advantages:

- Step less & Seam less correction (no visible “steps” in the reactive power), achieving better performance than only using capacitor bank steps.
- Capacitive and inductive real-time reactive power compensation (It can also produce inductive reactive power). This ensures that there will be no over compensation from steps or loads.
- Easy installation, commissioning and operation with touchscreen HMI controller.
- No risk of harmonic amplification or resonance in the system.
- Compact design and easily expandable.
- Supports Hybrid APFC so as to utilise the above advantages as well as be cost effective.



STATIC VAR GENERATOR (SVG):

Rated Capacity	30kVar/50kVar/75kVar/100kVar
Rated Voltage	400Vac±15%
Rated Frequency	50Hz±5%
Electrical System	Three phase four wire / three phase three wire
Controller	DSP and FPGA based full-digital control
Topology	Three-level
Response Time	Full response time ≤5ms, transient response time ≤50us
Switching Frequency	25.6 kHz
Reactive Compensation Range	PF -1~1 adjustable Leading capacitive reactive power and lagging inductive reactive power
Active Power Consumption	≤2.5% at full load
Function	Reactive power compensation / three phase unbalance correction
Reactive Compensation	PF ≥0.99
Unbalance Compensation	Current unbalance ≤5%
Parallel Operation	Multiple modules can be operated, up to 12 modules can be connected in parallel
Capacitor Bank Control	Maximum 16 steps per module
Protection	Over voltage, under voltage, over current, over temperature, hardware etc.
Output Current Limit	Automatically restricted within 100% of rated capacity
Communication Method	Two 485 communication ports, Modbus communication protocol
Noise Level	<60dBA
Installation Type	Wall-mounted module / Rack type module
Colour	RAL 7035 (optional)
Storage Temperature	-40°C ~ 70°C
Operation Temperature	-25°C ~ 55°C
Humidity	<95%, without condensation
Cooling Method	Forced air cooling
Altitude	<1500m (de-rating when exceeds 1500m)
Enclosure	IP20 (module)

Module Rating (Rack and Wall-mounted)	Module Dimensions (W*D*H in mm)	Module Weight (Kg)	Module Dimensions (W*D*H in mm)
30kVar (400Vac 50Hz)	510x515x160	32	630x565x250
50kVar (400Vac 50Hz)	510x515x160	35	630x565x250
75kVar (400Vac 50Hz)	505x570x280	53	740x690x385
100kVar (400Vac 50Hz)	505x570x280	55	740x690x385



ADVANCED STATIC VAR GENERATOR (ASVG):

Rated Capacity	15A/25A/50A/75A/100A/150A
Rated Voltage	400Vac±15%
Rated Frequency	50Hz±5%
Electrical System	Three phase four wire / three phase three wire
Controller	DSP and FPGA based full-digital control
Topology	Three-level
Response Time	Full response time ≤5ms, transient response time ≤50us
Switching Frequency	25.6 kHz
Active Power Consumption	≤2.5% at full load
Function	Harmonic mitigation / reactive power compensation / three phase unbalance correction
Reactive Compensation	PF -1~1 adjustable Leading capacitive reactive power and lagging inductive reactive power
Harmonic Filtering	THDi ≤5% (at sufficient capacity)
Unbalance Compensation	Current unbalance ≤5%
Parallel Operation	Multiple modules can be operated, up to 12 units can be connected in parallel
Capacitor Bank Control	Maximum 16 steps per module
Protection	Over voltage, under voltage, over current, over temperature, hardware etc.
Output Current Limit	Automatically restricted within 100% of rated capacity
Communication Method	Two 485 communication ports, Modbus communication protocol
Noise Level	<60dBA
Installation Type	Wall-mounted module / Rack module
Color	RAL 7035 (optional)
Storage Temperature	-40°C ~ 70°C
Operation Temperature	-25°C ~ 55°C
Humidity	<95%, without condensation
Cooling Method	Air cooling
Altitude	<1500m (derating when exceed 1500m)
Enclosure	IP20 (module)

Module Rating (Rack and Wall-mounted)	Module Dimensions (W*D*H in mm)	Module Weight (Kg)	Module Dimensions (W*D*H in mm)
30kVar (400Vac 50Hz)	510x515x160	32	630x565x250
50kVar (400Vac 50Hz)	510x515x160	35	630x565x250
75kVar (400Vac 50Hz)	505x570x280	53	740x690x385
100kVar (400Vac 50Hz)	505x570x280	55	740x690x385



ACTIVE POWER/HARMONIC FILTER (APF/AHF):

Rated Capacity	15A/25A/50A/75A/100A/150A
Rated Voltage	400Vac±15%
Rated Frequency	50Hz±5%
Electrical System	Three phase four wire / three phase three wire
Controller	DSP and FPGA based full-digital control
Topology	Three-level
Response Time	Full response time ≤5ms, transient response time ≤50us
Switching Frequency	25.6 kHz
Active Power Consumption	≤2.5% at full load
Function	Harmonic mitigation / reactive power compensation / three phase unbalance correction
Reactive Compensation	PF -1~1 adjustable Leading capacitive reactive power and lagging inductive reactive power
Harmonic Filtering	THDi ≤5% (at sufficient capacity)
Unbalance Compensation	Current unbalance ≤5%
Parallel Operation	Multiple modules can be operated, up to 12 units can be connected in parallel
Capacitor Bank Control	Maximum 16 steps per module
Protection	Over voltage, under voltage, over current, over temperature, hardware etc.
Output Current Limit	Automatically restricted within 100% of rated capacity
Communication Method	Two 485 communication ports, Modbus communication protocol
Noise Level	<60dBA
Installation Type	Wall-mounted module / Rack module
Color	RAL 7035 (optional)
Storage Temperature	-40°C ~ 70°C
Operation Temperature	-25°C ~ 55°C
Humidity	<95%, without condensation
Cooling Method	Air cooling
Altitude	<1500m (derating when exceed 1500m)
Enclosure	IP20 (module)

Module Rating (Rack and Wall-mounted)	Module Dimensions (W*D*H in mm)	Module Weight (Kg)	Module Dimensions (W*D*H in mm)
25A (400Vac 50Hz)	360x400x125	20	470x410x210
50A (400Vac 50Hz)	565x550x190	34	690x620x280
75A (400Vac 50Hz)	565x550x190	35	740x690x445
100A (400Vac 50Hz)	505x570x280	50	740x690x445
150A (400Vac 50Hz)	505x570x280	55	740x690x445

Note: R&D is a continuous process and efforts are made to keep improving upon and therefore the above specifications are subject to changes without prior notice.

Authorised Dealer / System Integrator: