

# SinE Series Product Brochure

## Power quality solutions



# CATALOG ▶▶▶

## CATALOG

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## Function Introduction



## Product Introduction

- AHF/SVG

It has functions such as harmonic elimination, power factor correction and three-phase unbalance correction, and is suitable for industrial and commercial, power grid, new energy and other scenarios.



Rack mounted



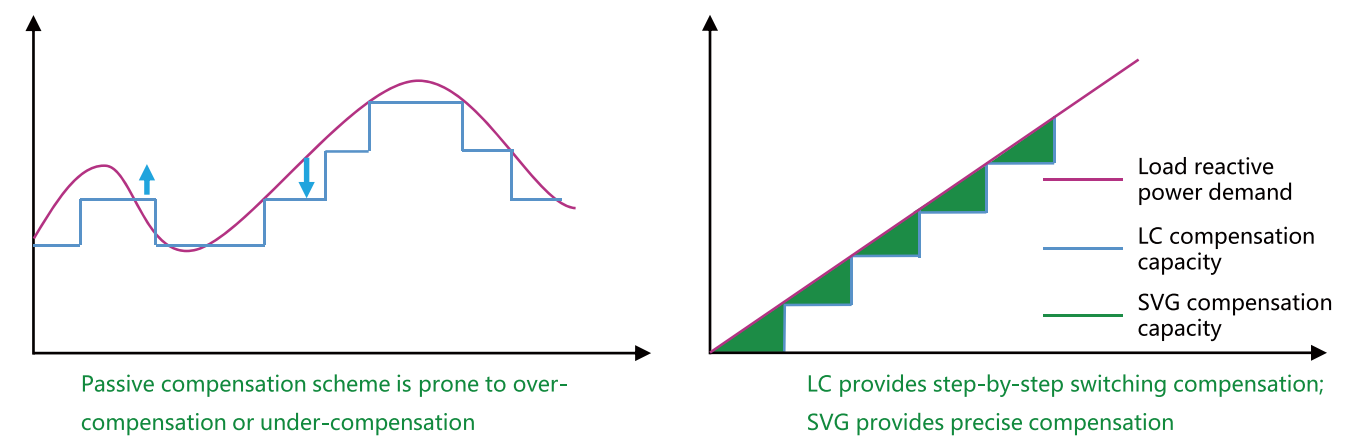
wall-mounted



Vertical

- SVGC

A hybrid solution composed of active high-quality power compensation and passive power products is the most essential solution.



# AHF

## Overview of active harmonic filters

Adopting a three-level topology, it provides power quality solutions such as dynamic harmonic filtering, stepless power factor correction and load balancing. The module capacity of the active harmonic filter ranges from 30A to 200A, allowing 20 modules to be connected in parallel, so users can easily obtain the target filter current capacity.

### Product Value



1 Improve power system operation efficiency and reduce carbon dioxide emissions



2 Reduce downtime and outages in power distribution systems



4 No detailed analysis of the power grid is required, and the solution can be implemented quickly and easily



5 No overload, especially suitable for low voltage systems with frequent load upgrades



6 Meet the power supply bureau's strict requirements for power quality and avoid fines or power outages caused by power quality issues

### Model Description

| SinE           | xxx                          | A                      | 4                                                   | 4                              | F                                                                                       | N                                                                                                            |
|----------------|------------------------------|------------------------|-----------------------------------------------------|--------------------------------|-----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|
| Product series | capacity :<br>APF:30 ~ 1000A | Product type:<br>A:APF | Voltage level :<br>2:200<br>4:400<br>6:600<br>8:800 | Grid type:<br>3:3P3W<br>4:3P4W | Installation :<br>F: Rack Mount<br>W:Wall-mounted<br>C:Vertical<br>S: Complete cabinets | Monitoring Type :<br>C:With centralized monitoring screen<br>L:Module with monitoring screen<br>N: No screen |

Example: Model "SinE100A44FN" refers to the SinE series 100A 400V three-phase four-wire rack-mounted screenless APF module

Note: The maximum capacity of a single module is 200A

### Products and Services

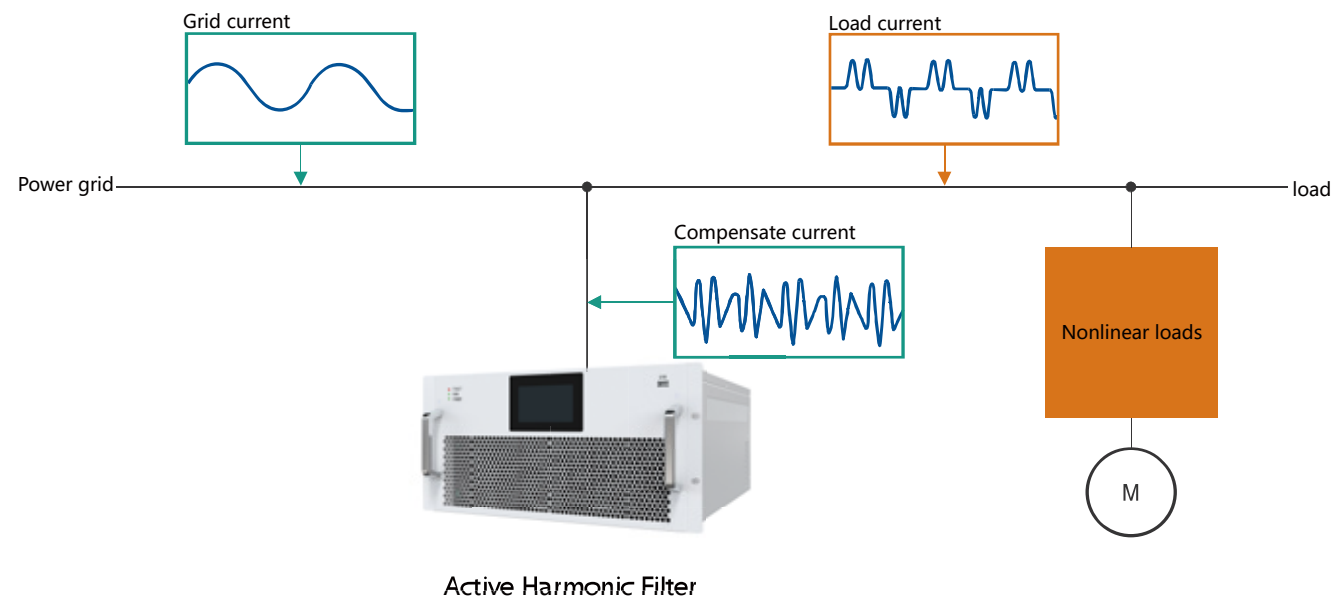
#### 1 Typical Applications

- Data center
- UPS system
- Green energy generation, such as photovoltaic and wind power
- Precision equipment manufacturing, such as monocrystalline silicon, semiconductor
- Industrial production machinery and equipment
- Electrical welding system
- Plastic industrial machinery, such as extruders, injection molding machines, and molding machines

#### 2 Safety Features

- Overload protection
- Internal short circuit protection
- Overheat protection
- Overvoltage and undervoltage protection
- Inverter bridge protection
- Resonance protection
- Fan failure alarm

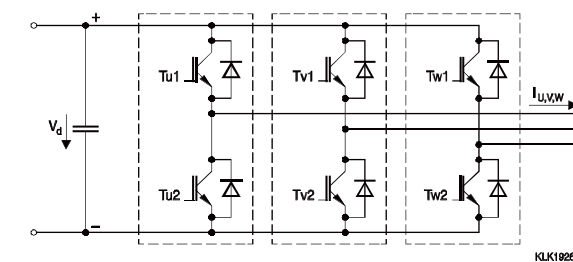
## The working principle of AHF



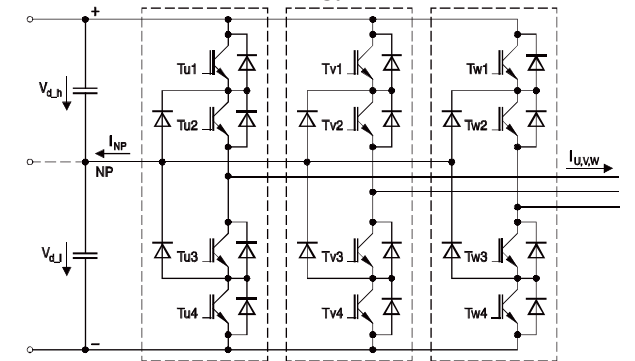
## Advantages of the AHF three-level topology

Active Harmonic Filter operate on the basis of a three-level neutral clamping (NPC) topology. As shown in the figure below, the traditional two-level topology circuit structure consists of 6 IGBTs (2 IGBT power devices per phase pin and current path) and 12 IGBTs in each phase pin and current path in a three-level topology. There are 4 IGBT power devices on it). A three-level topology circuit can generate three voltage levels at the output, including DC bus positive, zero, and DC Negative bus voltage. The two-level topology circuit can only output positive and negative voltages. At the same time, the three-level topology circuit also ensures higher quality and better harmonic transmission voltage, thereby reducing the output filter requirements and associated costs.

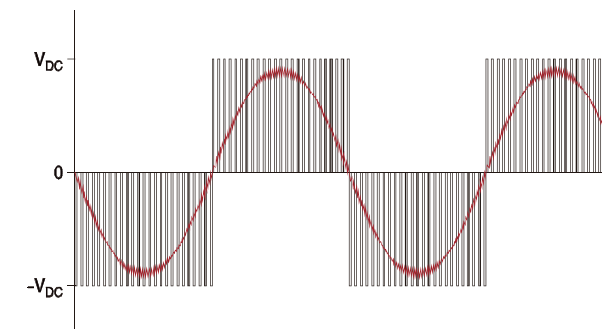
Dual-level topology circuit



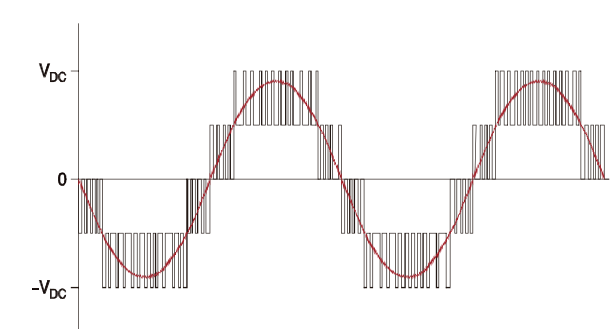
Three-level NPC topology



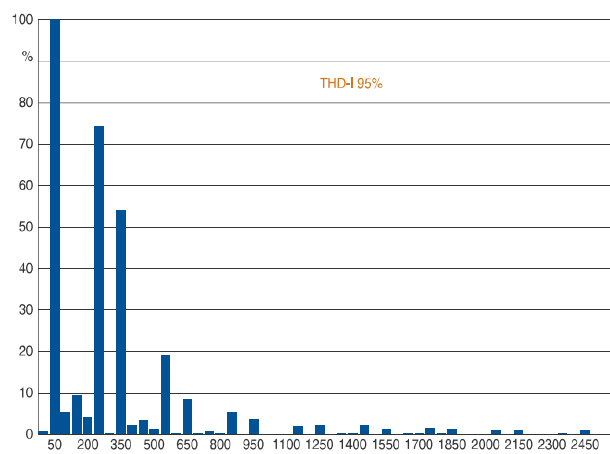
Current and switching output voltage for a dual-level topology



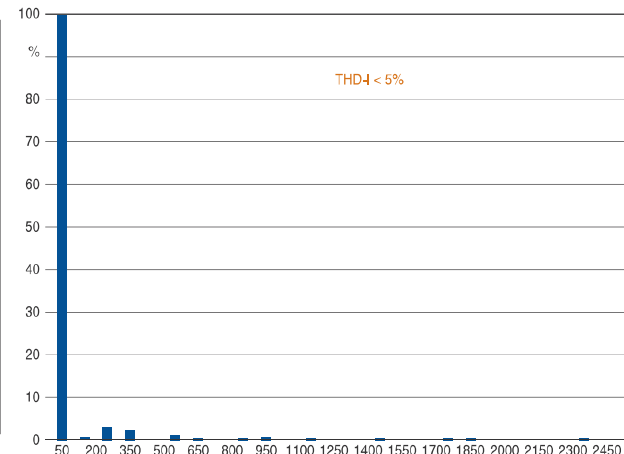
Current and voltage of the three-level NPC topology



Current distortion rate of AHF ablation



Current distortion rate after AHF input



## The main advantages of the three-level NPC topology



### Low loss

Only half of the switching voltage is used, which reduces the loss of semiconductor switching. The use of a three-level solution is conducive to reducing circuit losses and maintaining higher efficiency, thus conforming to the concept of energy saving.

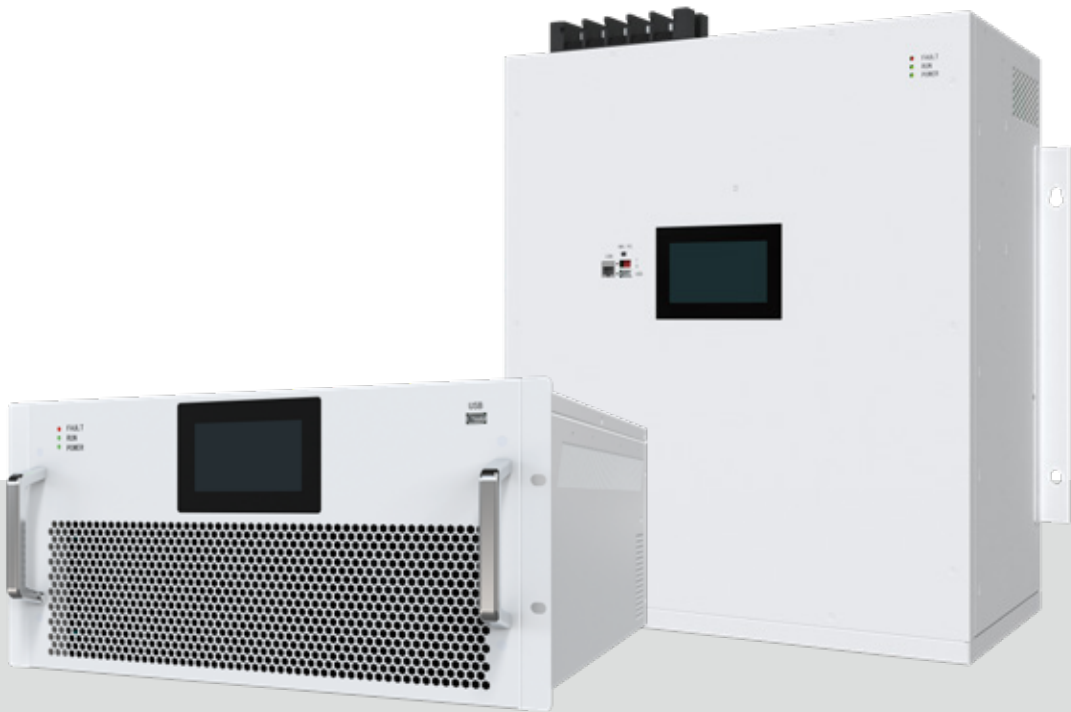


### Smaller output ripple current

The three-level NPC topology maintains a lower ripple output current, thanks to its high quality output voltage. Improve product performance and reduce the demand for internal filtering.

# SinE series AHF

Low power consumption | Flexible installation | Versatile functions



### Model features

- ① Applicable to various installation types such as rack-mounted/wall-mounted/vertical;;
- ② Flexible combination of cabinets, portable installation, modular design, support for intelligent parallel operation;
- ③ Large selection margin for internal key components, strong impact resistance.

Parallel connection does not introduce new hidden dangers and does not affect power supply safety

### Technical data and specifications

| AHF Electrical Specifications              |                                                                              |                   |           |            |
|--------------------------------------------|------------------------------------------------------------------------------|-------------------|-----------|------------|
| Rated Voltage(V)                           | 200/400                                                                      | 480               | 690       | 800        |
| Input voltage range                        | -20%~+20%                                                                    | Max Voltage: 500V | -20%~+10% | -20%~+850V |
| Rated Current(A)                           | 30、50、75、100、150、200                                                         | 50、75、100、150、200 | 100       | 100        |
| Frequency(Hz)                              | 50/60 (-10%~+10%)                                                            |                   |           |            |
| Harmonic current compensation range        | 2nd to 50th harmonic order                                                   |                   |           |            |
| Rate of harmonic reduction                 | Better than 95% at rated load                                                |                   |           |            |
| CT configuration                           | Closed or open loop (Open loop is recommended in case of parallel operation) |                   |           |            |
| Overall response time (ms)                 | ≤10                                                                          |                   |           |            |
| Grid type                                  | 3P3W, 3P4W                                                                   |                   |           |            |
| Overload capacity                          | 110%-Continuous operation,120%-1min                                          |                   |           |            |
| Overload capacity Switching frequency(kHz) | 3-level topology                                                             |                   |           |            |
| Modularity                                 | 20                                                                           |                   |           |            |
| Redundancy                                 | Maximum 20 units can be combined                                             |                   |           |            |
| Rate of harmonic reduction                 | Any unit can become an independent unit                                      |                   |           |            |
| Power Factor Control                       | ≥97.5%                                                                       |                   |           |            |
| Unbalance compensation                     | Total inductive or capacitive current compensation 0~100%                    |                   |           |            |
|                                            | Available                                                                    |                   |           |            |
| Display functions                          |                                                                              |                   |           |            |
| Display                                    | 1.8/4.3/7-inch HMI (Optional)                                                |                   |           |            |
| Communication                              |                                                                              |                   |           |            |
| Communication ports                        | RS485                                                                        |                   |           |            |
|                                            | CAN protocol, RJ45 ports, for communication between modules                  |                   |           |            |
| General parameters                         |                                                                              |                   |           |            |
| Noise level (dB)                           | < 69 dB (depending on the load and model)                                    |                   |           |            |
| Altitude (m)                               | Derating usage >1500m                                                        |                   |           |            |
| temperature(°C)                            | Operating Temperature: -35°C~55°C, Derating usage above 45°C                 |                   |           |            |
| Humidity                                   | Storage temperature: -45~70                                                  |                   |           |            |
| Protection class                           | 5%~95%RH, non-condensing                                                     |                   |           |            |
| Design/Approvals                           | IP20                                                                         |                   |           |            |
| EMC                                        | EN 62477-1(2012), EN 61439-1 (2011)                                          |                   |           |            |
| Certification                              | EN/IEC 61000-6-4, Class A                                                    |                   |           |            |
|                                            | CE, CQC                                                                      |                   |           |            |



#### Flexible application

Supports multiple application modes such as harmonics, reactive power, three-phase unbalance, and neutral line management



#### Safe and reliable

Complete software and hardware protection, stable and continuous operation in harsh power grid environments



#### Strong applicability

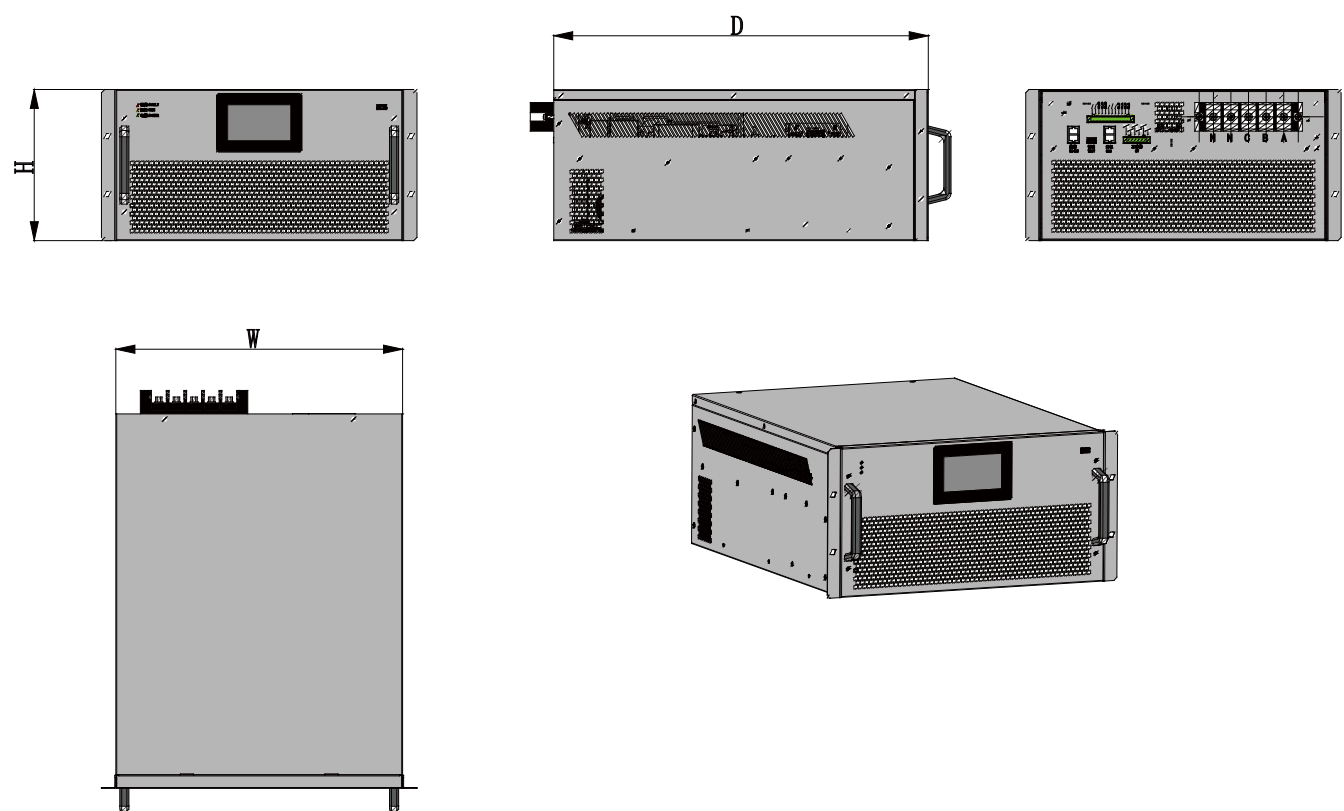
Adapts to THDu-16% power grid application environment and supports fine compensation of small current



#### Efficient and stable

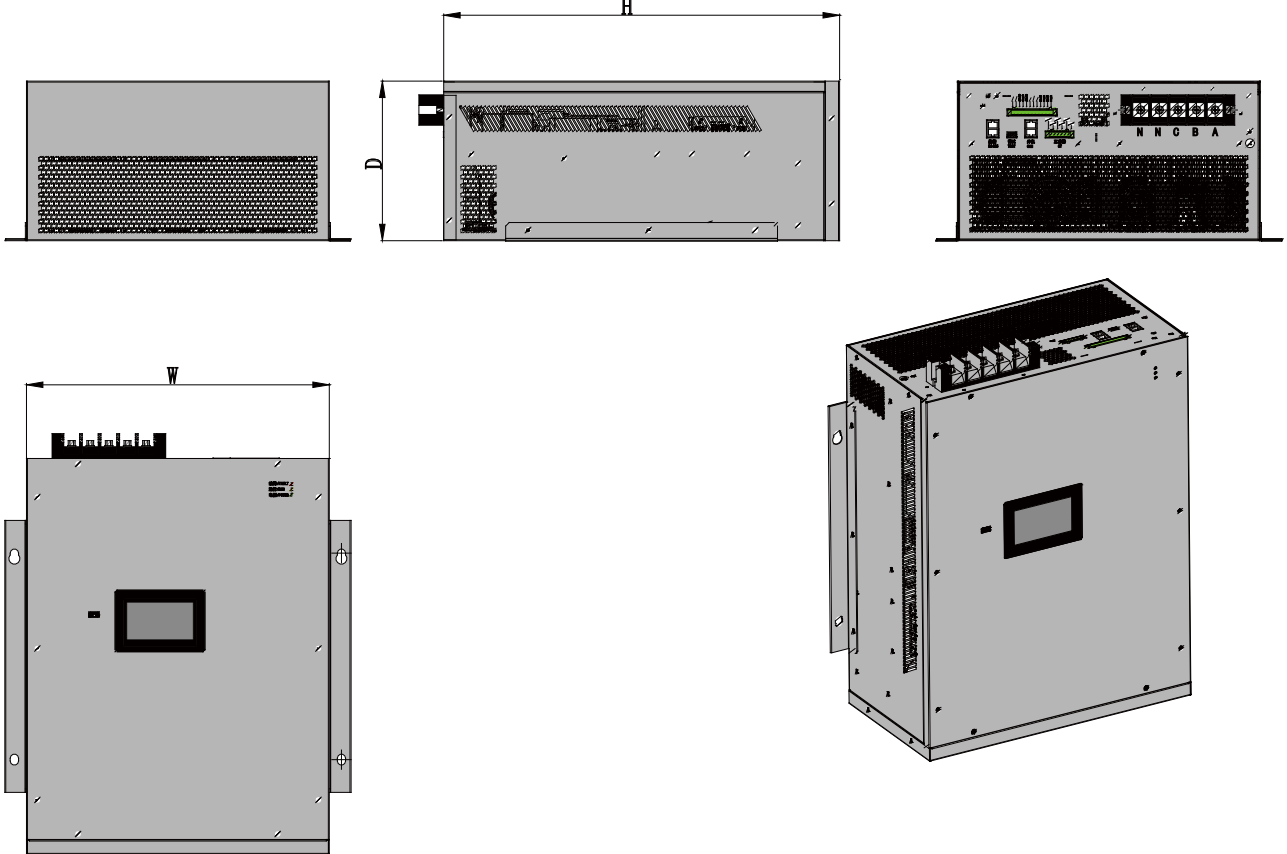
Wide filtering range, 2~50th harmonic filtering rate can reach 95%, achieving current distortion rate THDi≤5%

AHF: Rack-mount module diagram



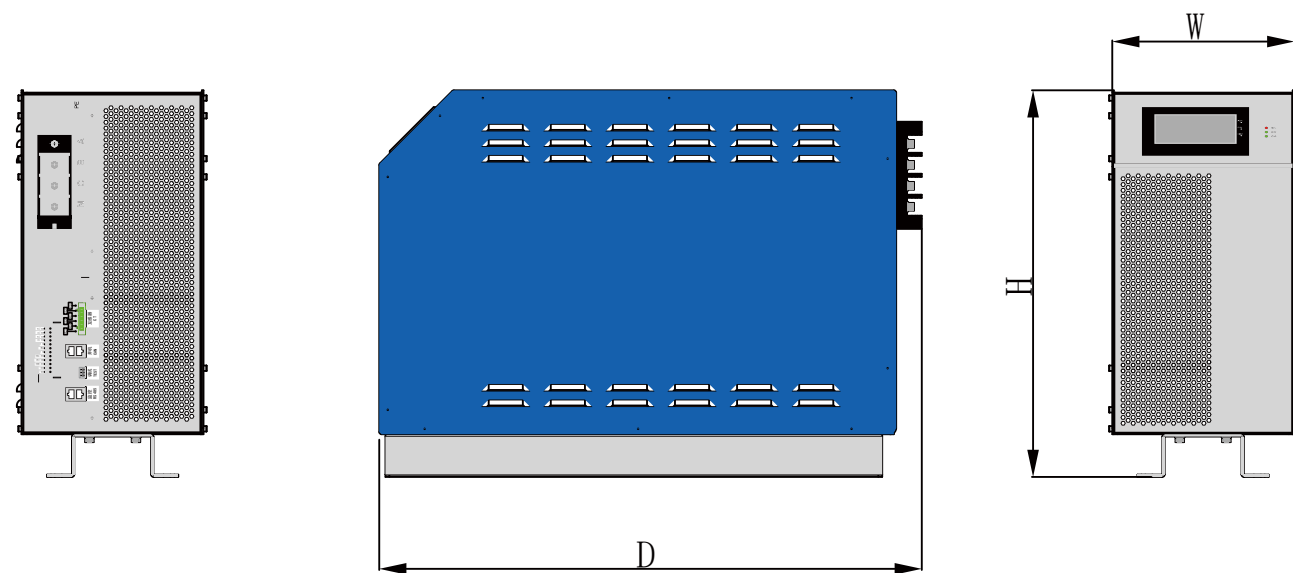
| Module         |      | Dimension:W*D*H (mm) | Weight - Net Weight (kg) |
|----------------|------|----------------------|--------------------------|
| 200V/400V/480V | 50A  | 315*500*200          | 18.5                     |
|                | 75A  | 355*500*200          | 24.5                     |
|                | 100A | 440*575*232          | 35                       |
|                | 150A | 510*585*250          | 43.5                     |
|                | 200A | 630*640*250          | 65                       |
| 690V/800V      | 100A | 525*626*250          | 55                       |

AHF: Wall-mounted module diagram



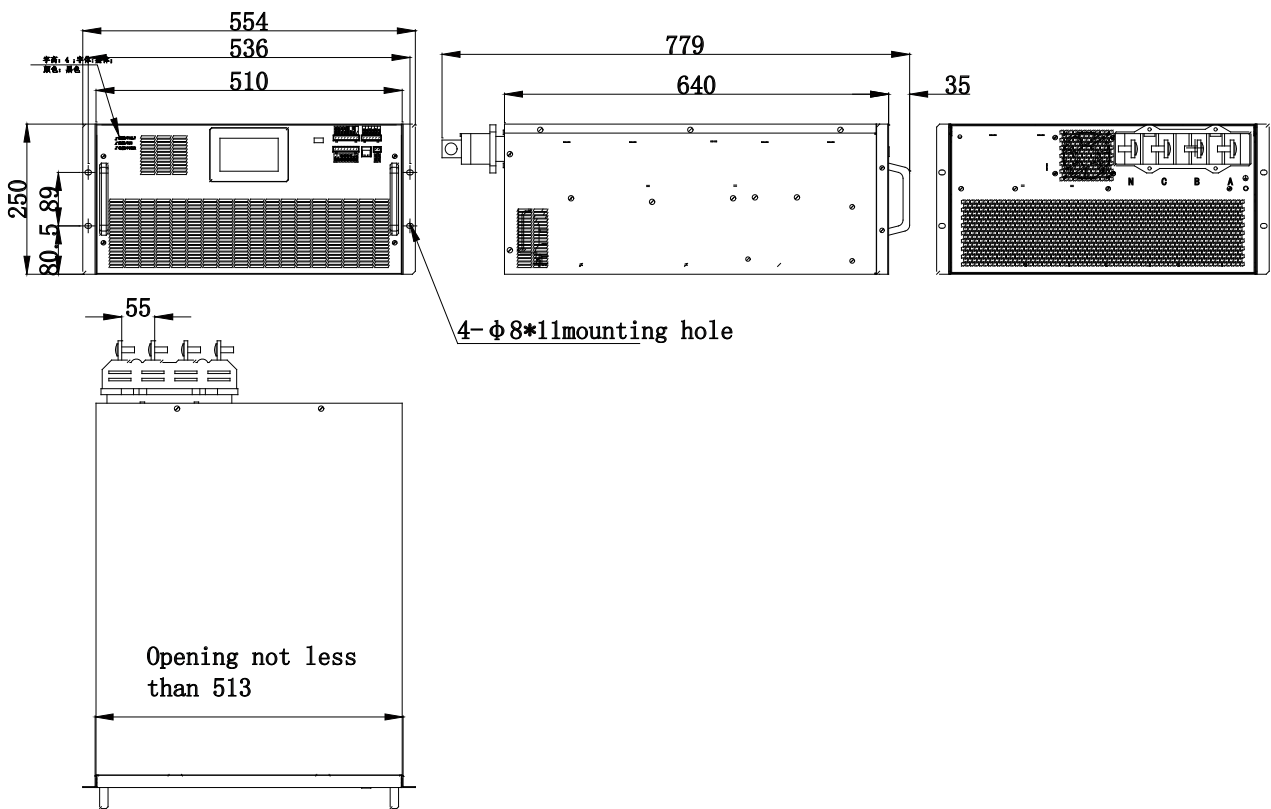
| Module         |      | Dimension:W*D*H (mm) | Weight - Net Weight (kg) |
|----------------|------|----------------------|--------------------------|
| 200V/400V/480V | 50A  | 315*200*500          | 19.5                     |
|                | 75A  | 355*200*520          | 25.3                     |
|                | 100A | 440*232*575          | 35.7                     |
|                | 150A | 510*250*585          | 44.2                     |
|                | 200A | 630*250*640          | 68.5                     |
| 690V/800V      | 100A | 525*250*626          | 56                       |

|| AHF: Vertical installation module diagram



| Module         |      | Dimension:W*D*H (mm) | Weight - Net Weight (kg) |
|----------------|------|----------------------|--------------------------|
| 200V/400V/480V | 50A  | 202.2*553*372        | 23.5                     |
|                | 75A  | 202.5*616*413        | 29.5                     |
|                | 100A | 234.5*666*498        | 41                       |
|                | 150A | 251.5*656*568        | 52                       |
|                | 200A | 251.5*711*688        | 86                       |
| 690V           | 100A | 251.5*722*583        | 58                       |

|| AHF: Plug in dimension diagram



| Module         |      | Dimension: W*D*H(mm) | Weight - Net Weight (kg) |
|----------------|------|----------------------|--------------------------|
| 200V/400V/480V | 100A | 510*640*250          | 37                       |
|                | 150A | 510*640*250          | 45.5                     |

# Recommended reference value

| Cable cross-section and fuses |                      |         |         |          |          |
|-------------------------------|----------------------|---------|---------|----------|----------|
| AHF Current                   | A/B/C(L1/L2/L3)(mm²) | N (mm²) | N (mm²) | PE (mm²) | Fuse (A) |
| 50A                           | 16                   | 25      | -       | 16       | 80       |
| 75A                           | 25                   | 35      | -       | 16       | 125      |
| 100A                          | 35                   | 35      | 35      | 16       | 160      |
| 150A                          | 50                   | 50      | 50      | 25       | 250      |
| 200A                          | 70                   | 70      | 70      | 25       | 400      |

- \* It is recommended to use copper core conductors;
- \* If it has harmonic compensation function, the cross-sectional area of the N line must be at least 1.5 times the cross-sectional area of the phase sequence line.

| CT        |                                                                                                                                                                                                              |                                      |                 |
|-----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|-----------------|
| CT Radio  | 50/5~10000/5. Select according to 1.2~1.5 times of system current, or select according to transformer capacity<br>For example: if the transformer capacity is 400V 2000kVA, the CT can be selected as 3000/5 |                                      |                 |
|           | CT rated power (kva)                                                                                                                                                                                         | Conductor cross-sectional area (mm²) | Wire length (m) |
| CT Cables | 5                                                                                                                                                                                                            | 2.5                                  | ≤10             |
|           |                                                                                                                                                                                                              | 4.0                                  | 10~20           |
|           | 10                                                                                                                                                                                                           | 2.5                                  | ≤20             |
|           |                                                                                                                                                                                                              | 4.0                                  | 20~40           |
|           | 15                                                                                                                                                                                                           | 2.5                                  | ≤30             |
|           |                                                                                                                                                                                                              | 4.0                                  | 30~60           |

- \* Rated secondary power is greater than 1VA;
- \* Accuracy requirement is above 0.5 level;
- \* CT secondary side must be reliably grounded (only one end needs to be grounded);
- \* Shielded twisted pair cable (RVVP) is recommended for transformers, with a wire diameter of 2.5mm2 for less than 15m and 4mm2 for 15~30m.
- \* Example: The required air volume, minimum air inlet area and minimum opening Dimension of the front and rear door panels of a 400A active harmonic filter cabinet need to be calculated according to 4 times of 100A

| Cooling Requirements for Active Harminet Filter Cabinets |                                   |          |                                                         |                                                      |
|----------------------------------------------------------|-----------------------------------|----------|---------------------------------------------------------|------------------------------------------------------|
| Module current                                           | ModuleActual effective air volume |          | The actual effective air inlet area of the cabinet (m²) | Actual effective air outlet area of the cabinet (m²) |
|                                                          | (CFM)                             | (m³/min) |                                                         |                                                      |
| 50A                                                      | 152                               | 4.3      | 0.020                                                   | 0.024                                                |
| 75A                                                      | 152                               | 4.3      | 0.020                                                   | 0.024                                                |
| 100A                                                     | 343                               | 9.72     | 0.045                                                   | 0.054                                                |
| 150A                                                     | 485                               | 13.74    | 0.064                                                   | 0.077                                                |
| 200A                                                     | 656                               | 18.58    | 0.086                                                   | 0.103                                                |

# SVG

## Overview of Static VAR Generator

The 3-level topology structure is adopted to provide power quality solutions such as fast-response reactive power compensation, harmonic filtering and load balancing. The module capacity of the static VAR generator ranges from 20kVar to 150kVar, and 20 modules can be connected in parallel, so users can easily obtain the capacity of reactive power compensation.

### Product Value



1 Improve power system operation efficiency and reduce carbon dioxide emissions



2 Reduce downtime and outages in power distribution systems



4 No detailed analysis of the power grid is required, and the solution can be implemented quickly and easily



5 No overload, especially suitable for low voltage systems with frequent load upgrades



6 Meet the power supply bureau's strict requirements for power quality and avoid fines or power outages caused by power quality issues

### Model Description

| SinE           | xxx               | S             | 4               | 4          | F                    | N                                    |
|----------------|-------------------|---------------|-----------------|------------|----------------------|--------------------------------------|
| Product series | capacity :        | Product type: | Voltage level : | Grid type: | Installation :       | Monitoring Type :                    |
|                | SVG:35 ~ 750kvar  | S:SVG         | 2:200           | 3:3P3W     | F: Rack Mount        | C:With centralized monitoring screen |
|                | ASVG:35 ~ 750kvar | AS:ASVG       | 4:400           | 4:3P4W     | W:Wall-mounted       | L:Module with monitoring screen      |
|                |                   |               | 6:600           |            | C:Vertical           | N: No screen                         |
|                |                   |               | 8:800           |            | S: Complete cabinets |                                      |

Example: Model "SinE100S44FN" refers to the SinE series 100kvar 400V three-phase four-wire rack-mounted screenless SVGModule

Note: The maximum capacity of a single module is 150 kvar

### Products and Services

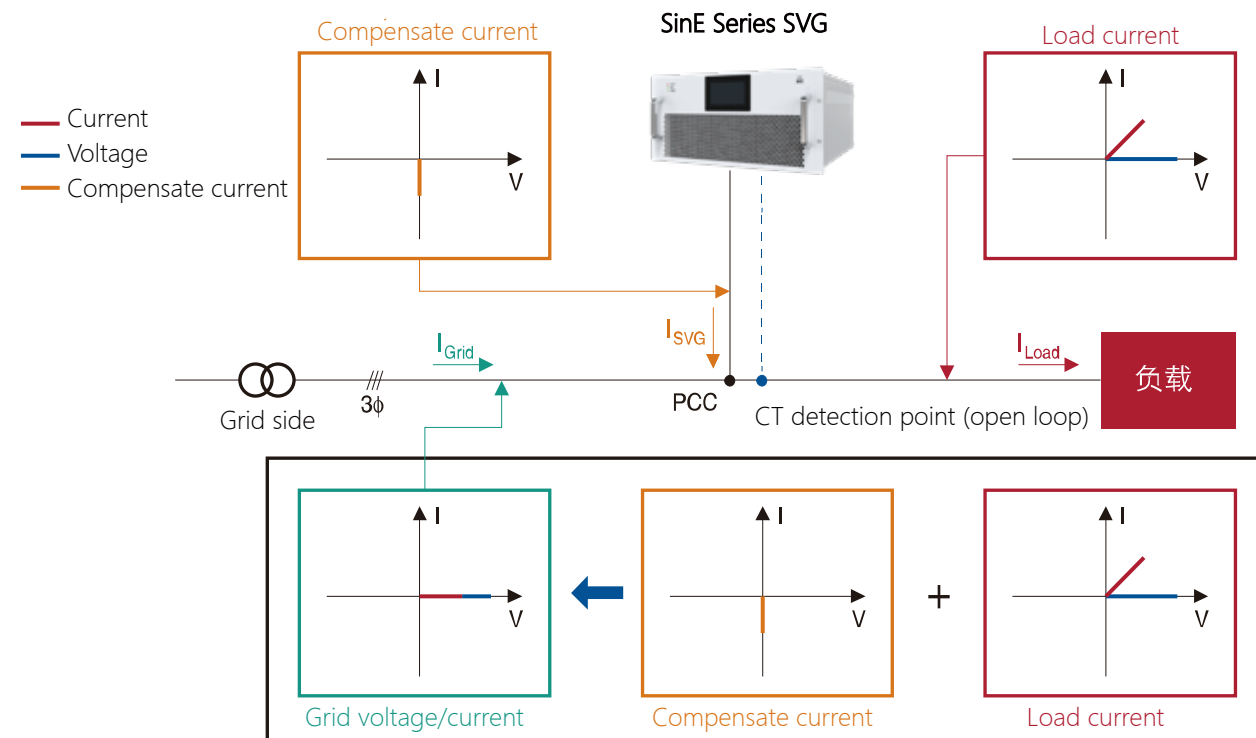
#### 1 Typical Applications

- Data center
- UPS system
- Green energy generation, such as photovoltaic and wind power
- Precision equipment manufacturing, such as monocrystalline silicon, semiconductor
- Industrial production machinery and equipment
- Electrical welding system
- Plastic industrial machinery, such as extruders, injection molding machines, and molding machines

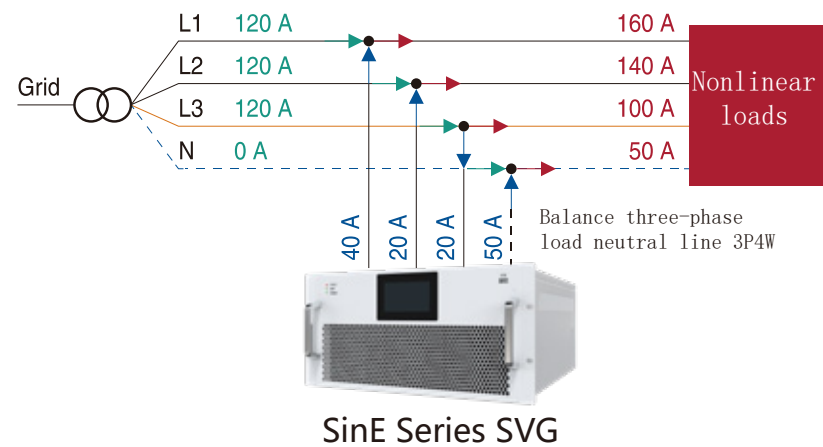
#### 2 Safety Features

- Overload protection
- Internal short circuit protection
- Overheat protection
- Overvoltage and undervoltage protection
- Inverter bridge protection
- Resonance protection
- Fan failure alarm

## The working principle of SVG



## SVG 3P3W and 3P4W balance three-phase loads

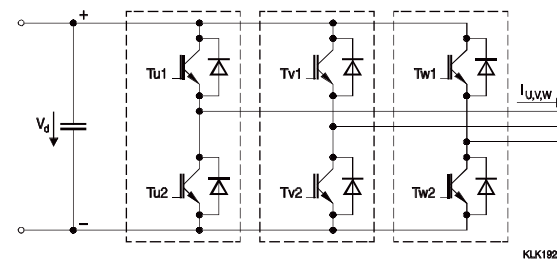


The SinE series SVG can be used in three-phase three-wire systems and three-phase four-wire systems to balance three-phase loads or reduce neutral loads. Therefore, in rural areas with severe imbalances, and in some industrial applications, the SinE series SVG is the ideal solution.

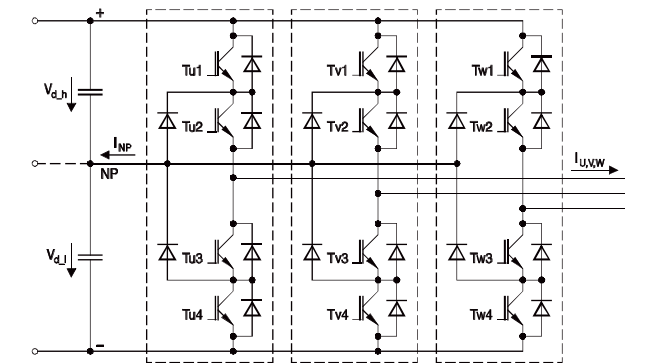
## Advantages of the SVG three-level topology

Static Var Generator operate on the basis of a three-level neutral clamping (NPC) topology. As shown in the figure below, the traditional two-level topology circuit structure consists of 6 IGBTs (2 IGBT power devices per phase pin and current path) and 12 IGBTs in each phase pin and current path in a three-level topology. There are 4 IGBT power devices on it). A three-level topology circuit can generate three voltage levels at the output, including DC bus positive, zero, and DC Negative bus voltage. The two-level topology circuit can only output positive and negative voltages. At the same time, the three-level topology circuit also ensures higher quality and better harmonic transmission voltage, thereby reducing the output filter requirements and associated costs.

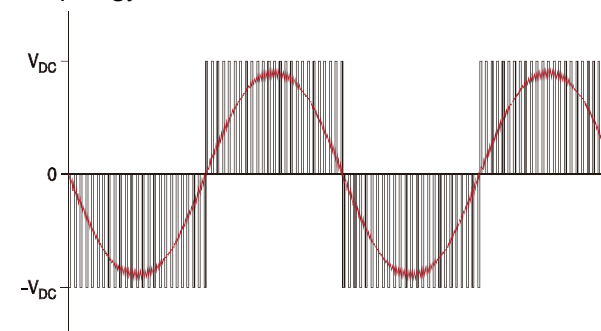
Dual-level topology circuit



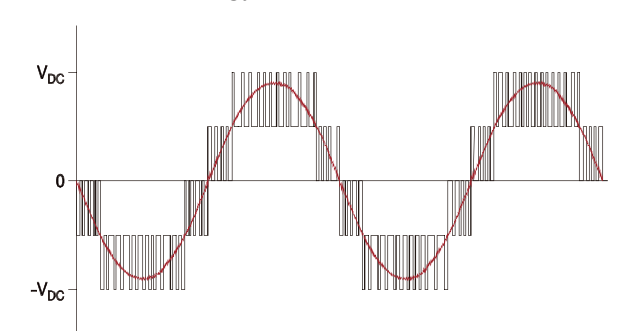
Three-level NPC topology



Current and switching output voltage for a dual-level topology



Current and switching output voltage for a three-level topology



## The main advantages of the three-level NPC topology



### Low loss

Only half of the switching voltage is used, which reduces the loss of semiconductor switching. The use of a three-level solution is conducive to reducing circuit losses and maintaining higher efficiency, thus conforming to the concept of energy saving.

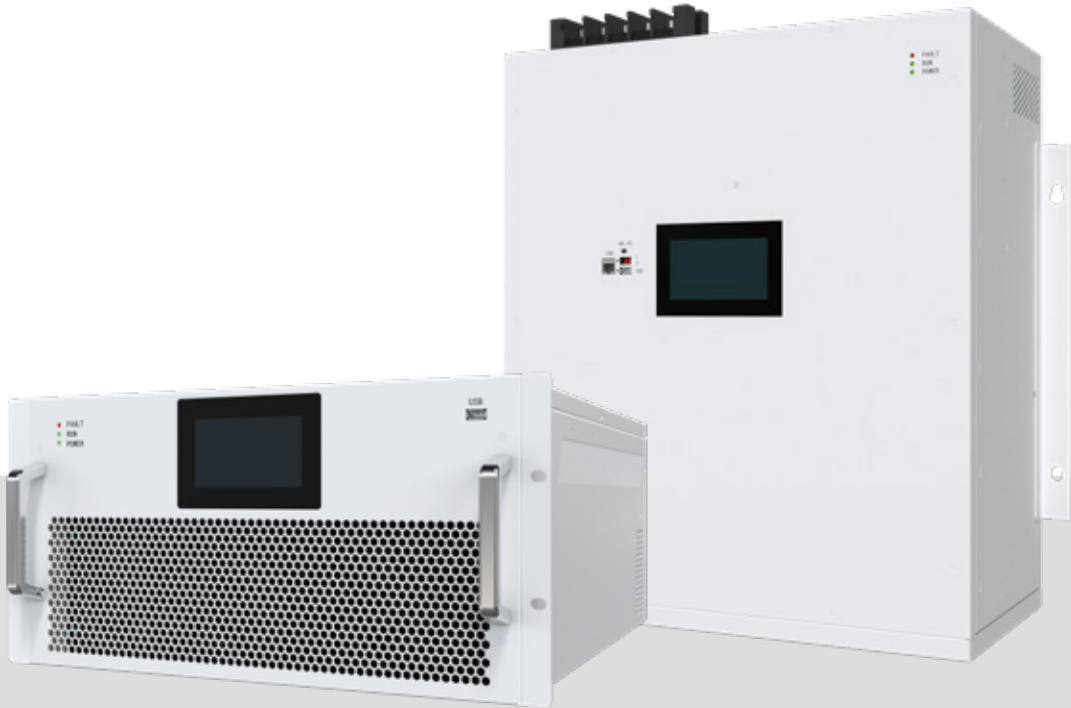


### Smaller output ripple current

The three-level NPC topology maintains a lower ripple output current, thanks to its high quality output voltage. Improve product performance and reduce the demand for internal filtering.

# SinE series SVG

Low power consumption | Flexible installation | Versatile functions



### Model features

- ① Applicable to various installation types such as rack-mounted/wall-mounted/vertical;;
- ② Flexible combination of cabinets, portable installation, modular design, support for intelligent parallel operation;
- ③ Large selection margin for internal key components, strong impact resistance.

Parallel connection does not introduce new hidden dangers and does not affect power supply safety

## Technical data and specifications

| SVG Electrical specifications              |                                                                              |                  |          |           |            |
|--------------------------------------------|------------------------------------------------------------------------------|------------------|----------|-----------|------------|
| Rated Voltage(V)                           | 200                                                                          | 400              | 480      | 690       | 800        |
| Input voltage range                        | ±20%                                                                         | ±20%             | 320-500V | -20%~+10% | -20%~+850V |
| Single Module Capacity(kVar)               | 25、50、75                                                                     | 35、50、75、100、150 |          | 120       | 120        |
| Frequency(Hz)                              | 50/60 (±10%)                                                                 |                  |          |           |            |
| Harmonic current compensation range        | Available                                                                    |                  |          |           |            |
| CT configuration                           | Closed or open loop (Open loop is recommended in case of parallel operation) |                  |          |           |            |
| Overall response time (ms)                 | <5                                                                           |                  |          |           |            |
| Grid type                                  | 3P3W/3P4W                                                                    |                  |          |           |            |
| Overload capacity                          | 110%-Continuous operation,120%-1min                                          |                  |          |           |            |
| Overload capacity Switching frequency(kHz) | 3-level topology                                                             |                  |          |           |            |
| Modularity                                 | 20                                                                           |                  |          |           |            |
| Redundancy                                 | Maximum 20 units can be combined                                             |                  |          |           |            |
| Rate of harmonic reduction                 | Any unit can become an independent unit                                      |                  |          |           |            |
| Target power factor                        | ≥97.5%                                                                       |                  |          |           |            |
| Harmonic compensation                      | -1 ... +1                                                                    |                  |          |           |            |
| Unbalance compensation                     | Available                                                                    |                  |          |           |            |
| Display functions                          |                                                                              |                  |          |           |            |
| Display                                    | 1.8/4.3/7-inch HMI (Optional)                                                |                  |          |           |            |
| Communication                              |                                                                              |                  |          |           |            |
| Communicationports                         | RS485                                                                        |                  |          |           |            |
|                                            | CAN protocol, RJ45 ports, for communication between modules                  |                  |          |           |            |
| General parameters                         |                                                                              |                  |          |           |            |
| Noise level (dB)                           | < 56 max to < 69 (depending on module or load conditions)                    |                  |          |           |            |
| Altitude (m)                               | >2000m, use derating                                                         |                  |          |           |            |
| temperature(°C)                            | Working temperature: -35°C~60°C, derated when above 55°C                     |                  |          |           |            |
| Humidity                                   | Storage temperature: -45°C~70°C                                              |                  |          |           |            |
|                                            | 5%~95%RH, non-condensing                                                     |                  |          |           |            |
| Protection class                           | IP20                                                                         |                  |          |           |            |
| Design/Approvals                           | EN 62477-1(2012), EN 61439-1 (2011)                                          |                  |          |           |            |
| EMC                                        | EN/IEC 61000-6-4, Class A                                                    |                  |          |           |            |
| Certification                              | CE, CQC                                                                      |                  |          |           |            |

\* When the rated voltage is 200V, the reactive power compensation capacity is half of the compensation capacity when the rated voltage is 400V.



#### Flexible application

It has reactive power, harmonic, three-phase unbalance compensation modes, with selectable priority and adjustable allocation ratio



#### Strong applicability

Supports control of domestic mainstream intelligent capacitor switching



#### Reactive power compensation

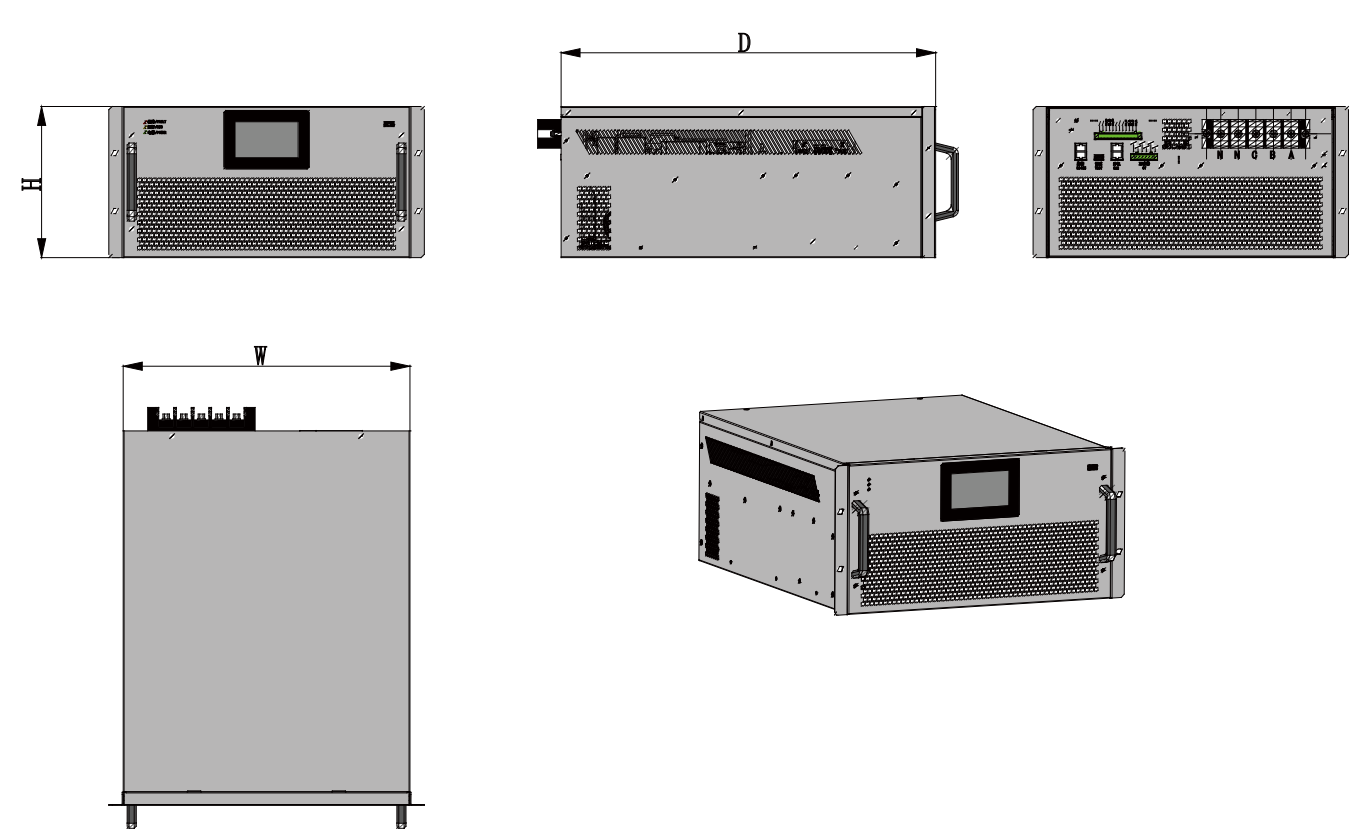
Supports target power factor setting and constant reactive power compensation



#### Efficient and stable

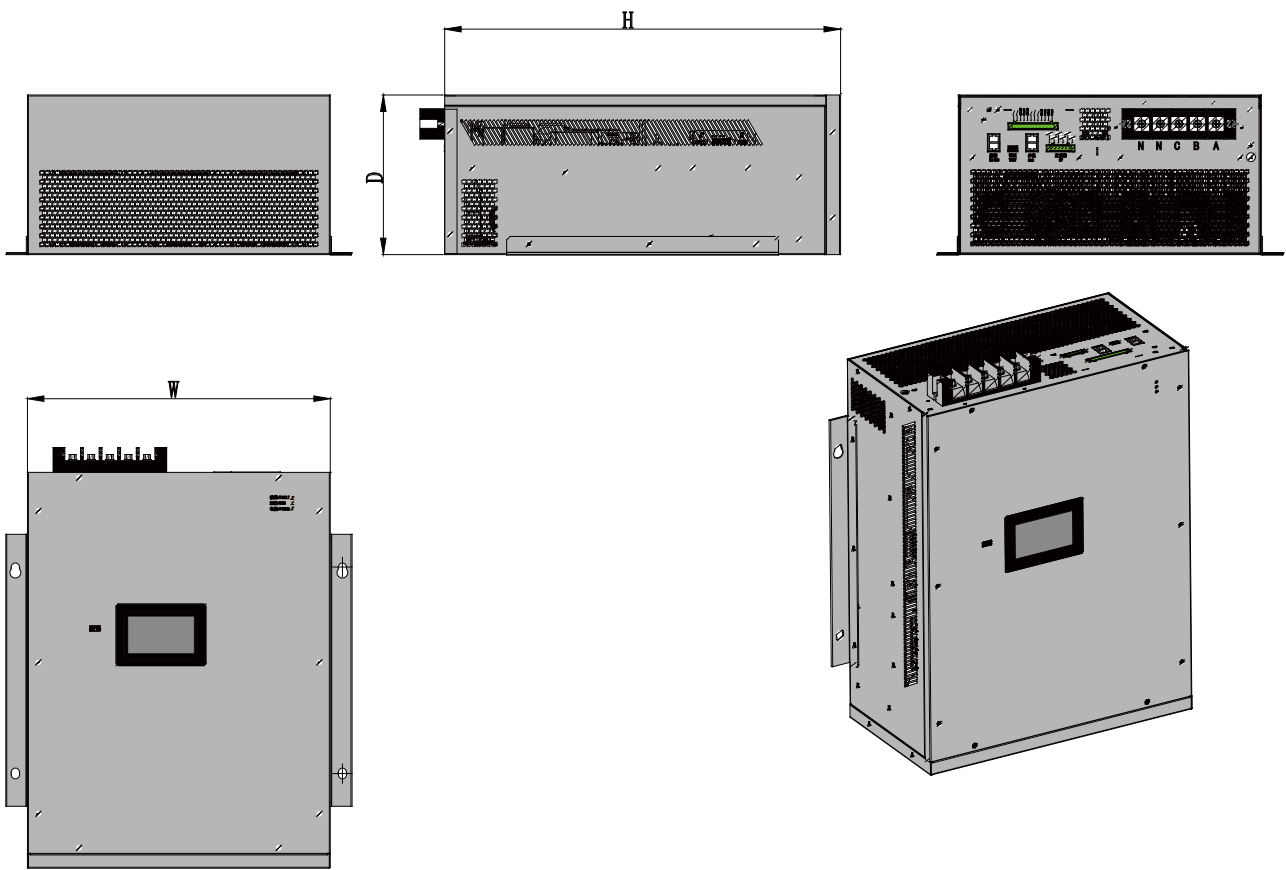
Rate of harmonic reduction ≥97.5%, reactive power compensation rate ≥99%

SVG: Rack-mount Module diagram



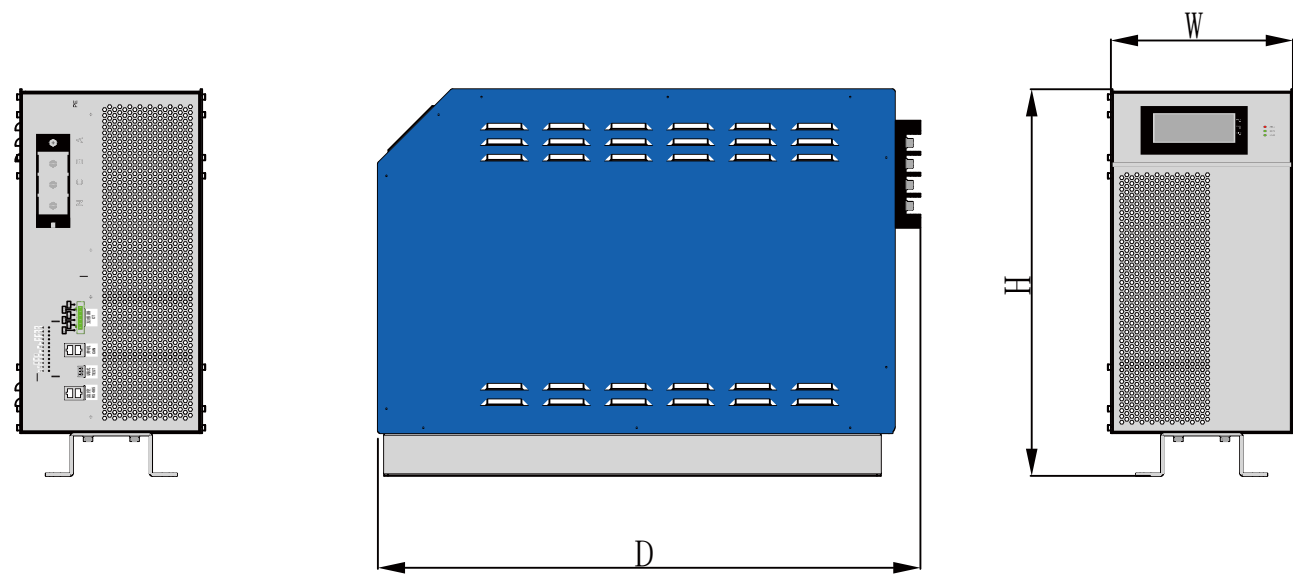
| Module    |         | Dimension:W*D*H (mm) | Weight - Net Weight (kg) |
|-----------|---------|----------------------|--------------------------|
| 400V/480V | 35kVar  | 315*500*200          | 18.5                     |
|           | 50kVar  | 355*500*200          | 24.5                     |
|           | 75kVar  | 440*575*232          | 35                       |
|           | 100kVar | 510*585*250          | 43.5                     |
|           | 150kVar | 630*640*250          | 65                       |
| 690V/800V | 120kVar | 525*626*250          | 55                       |

SVG: Wall Mount Module Diagram



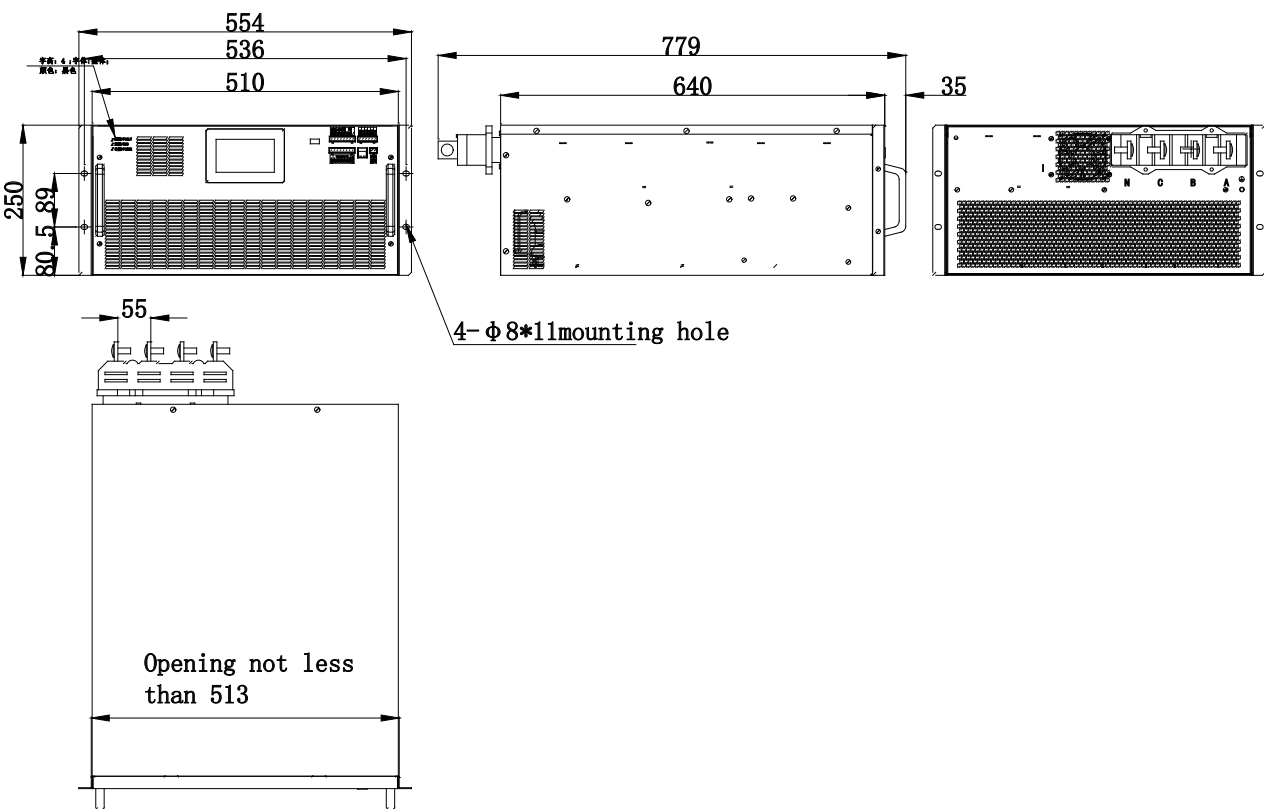
| Module    |         | Dimension:W*D*H (mm) | Weight - Net Weight (kg) |
|-----------|---------|----------------------|--------------------------|
| 400V/480V | 35kVar  | 315*200*500          | 19.5                     |
|           | 50kVar  | 355*200*520          | 25.3                     |
|           | 75kVar  | 440*232*575          | 35.7                     |
|           | 100kVar | 510*250*585          | 44.2                     |
|           | 150kVar | 630*250*640          | 68.5                     |
| 690V/800V | 120kVar | 525*250*626          | 56                       |

SVG: Vertical installation of Module



| Module    |         | Dimension:W*D*H (mm) | Weight - Net Weight (kg) |
|-----------|---------|----------------------|--------------------------|
| 400V/480V | 35kVar  | 202.2*553*372        | 23.5                     |
|           | 50kVar  | 202.5*616*413        | 29.5                     |
|           | 75kVar  | 234.5*666*498        | 41                       |
|           | 100kVar | 251.5*656*568        | 52                       |
|           | 150kVar | 251.5*711*688        | 86                       |
| 690V      | 120kVar | 251.5*711*688        | 58                       |

SVG: Plug in dimension diagram



| Module    |         | Dimension: W*D*H(mm) | Weight - Net Weight (kg) |
|-----------|---------|----------------------|--------------------------|
| 400V/480V | 75kVar  | 510*640*250          | 37                       |
|           | 100kVar | 510*640*250          | 45.5                     |

## Recommended reference value

| Cable cross-section and fuses |                  |                      |                       |          |
|-------------------------------|------------------|----------------------|-----------------------|----------|
| SVG Current                   | A/B/C (L1/L2/L3) | N (mm <sup>2</sup> ) | PE (mm <sup>2</sup> ) | Fuse (A) |
| 35kVar                        | 16               | 16                   | 16                    | 80       |
| 50kVar                        | 25               | 25                   | 16                    | 125      |
| 75kVar                        | 35               | 35                   | 16                    | 160      |
| 100kVar                       | 50               | 50                   | 25                    | 250      |
| 150kVar                       | 70               | 70                   | 25                    | 400      |

- \* It is recommended to use copper core conductors;
- \* If it has harmonic compensation function, the cross-sectional area of the N line must be at least 1.5 times the cross-sectional area of the phase sequence line.

| CT       |                                                                                                              |                                                   |                  |
|----------|--------------------------------------------------------------------------------------------------------------|---------------------------------------------------|------------------|
| CT Radio | 50/5~10000/5. Choose according to 1.2~1.5 times of grid current, or choose according to transformer capacity |                                                   |                  |
| CT Cable | CTrated power (kvar)                                                                                         | Conductor cross-sectional area (mm <sup>2</sup> ) | Wire length ( m) |
|          | 5                                                                                                            | 2.5                                               | ≤10              |
|          |                                                                                                              | 4.0                                               | 10~20            |
|          | 10                                                                                                           | 2.5                                               | ≤20              |
|          |                                                                                                              | 4.0                                               | 20~40            |
|          | 15                                                                                                           | 2.5                                               | ≤30              |
|          |                                                                                                              | 4.0                                               | 30~60            |

- \* Rated secondary power is greater than 1VA;
- \* Accuracy requirement is above 0.5 level;
- \* CT secondary side must ensure reliable grounding (only one end needs to be grounded);
- \* Shielded twisted pair cables (RVVP) are recommended for transformers, with a wire diameter of 2.5mm2 for less than 15m and 4mm2 for 15~30m
- \* Example: The required air volume, minimum air inlet area and minimum opening Dimension of the front and rear door panels of a 400kVar reactive compensation cabinet need to be calculated according to 4 times of 100kVar.

| Cooling Requirements for SVG Cabinets |                                    |                       |                                                                      |                                                                   |
|---------------------------------------|------------------------------------|-----------------------|----------------------------------------------------------------------|-------------------------------------------------------------------|
| Module current                        | Module Actual effective air volume |                       | The actual effective air inlet area of the cabinet (m <sup>2</sup> ) | Actual effective air outlet area of the cabinet (m <sup>2</sup> ) |
|                                       | (CFM)                              | (m <sup>3</sup> /min) |                                                                      |                                                                   |
| 35kVar                                | 152                                | 4.3                   | 0.020                                                                | 0.024                                                             |
| 50kVar                                | 152                                | 4.3                   | 0.020                                                                | 0.024                                                             |
| 75kVar                                | 343                                | 9.72                  | 0.045                                                                | 0.054                                                             |
| 100kVar                               | 485                                | 13.74                 | 0.064                                                                | 0.077                                                             |
| 150kVar                               | 656                                | 18.58                 | 0.086                                                                | 0.103                                                             |

# Introduction to SVGC

## Product Overview:

The SVGC compensation system combines the advantages of dynamic compensation SVG and static compensation capacitors. For the relatively stable reactive demand part of the system, static compensation can be performed through capacitors; for the fast-changing reactive demand part of the system, SVG can be used for rapid compensation. This system can not only meet the user's needs for reactive compensation, but also significantly reduce equipment costs.



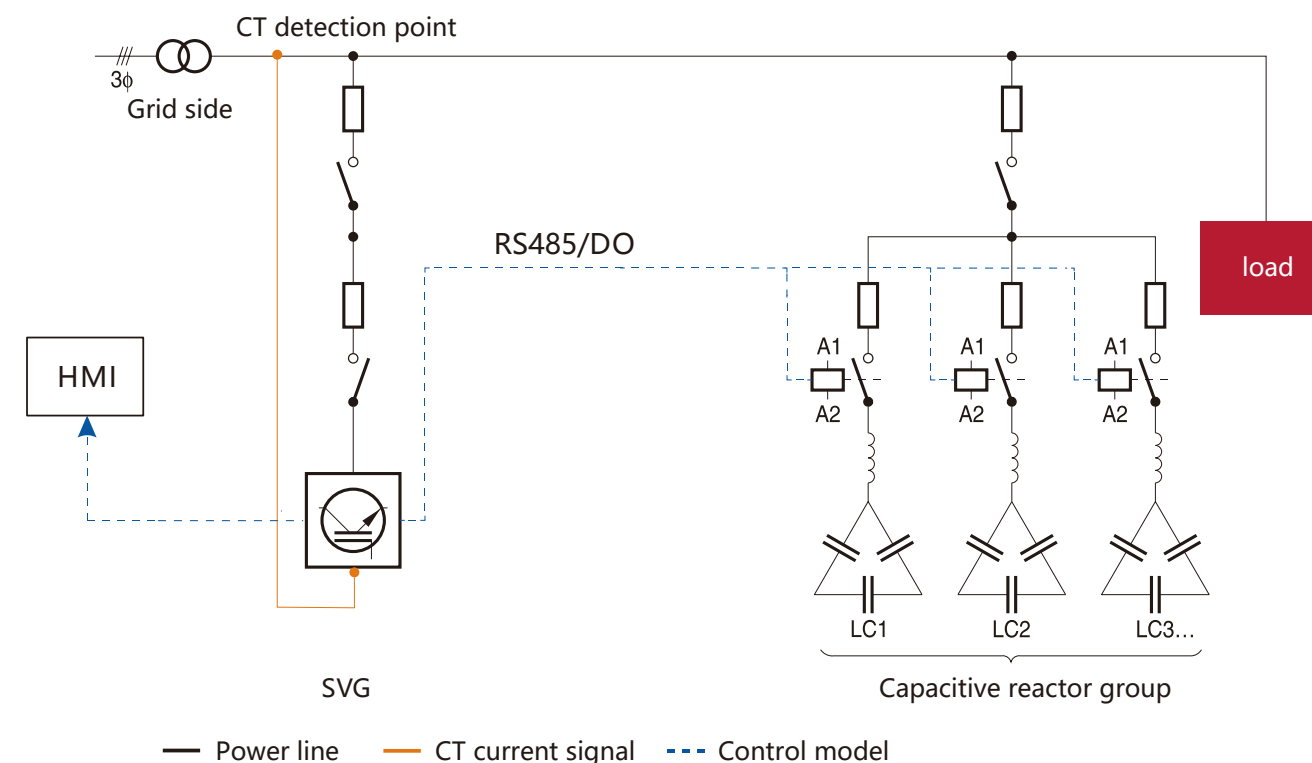
## Product configuration:

- Provide 7-inch or 10-inch touch color human-machine interface
- Set the working mode and related parameters of SVG and LC;
- Real-time display of power and other power parameters, data before and after compensation, waveforms, bar graphs, monitor and control the working status of SVG+LC;
- Equipped with 8/16 IO ports
- Support more than 15 combined compensation modes



# SVGC Solution

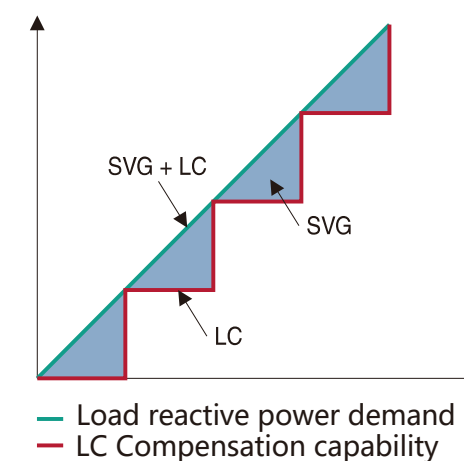
- Working principle of hybrid reactive power compensation scheme (SVG module+intelligent/ordinary capacitor reactive power compensation)



- Performance Comparison between Traditional Capacitor Compensation and SVG+Capacitor Hybrid Reactive Power Compensation

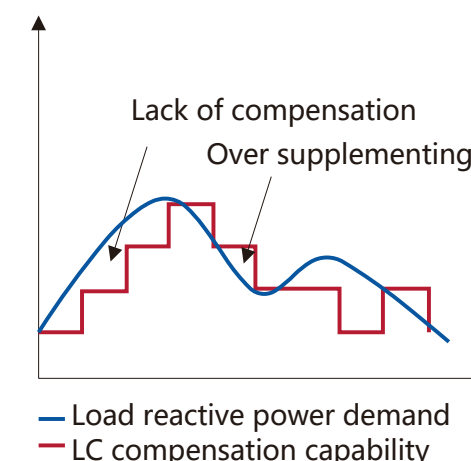
## SVG+LC hybrid compensation

- Implementation of step-by-step switching compensation for capacitor reactor group
- The SVG module can cover all blind spots and achieve infinite switching



## Traditional reactive power compensation

- May lead to over supplementation and under supplementation



# 产品案例展示

01

Grid applications



China Southern Power Grid Co., Ltd    LVR



State Grid Xizang Electric Power Co.Ltd    BSVG



State Grid JiangSu Electric Power Co., Ltd    SVG



State Grid ShanXi Electric Power Co., Ltd    SVG



02

Materials

Times FAW Power Battery Co., Ltd.    AHF&SVG



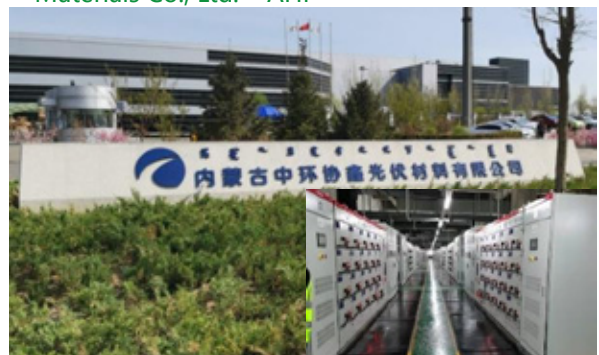
Shuangliang Silicon Materials (Baotou) Co., Ltd. AHF



Qujing LONGi Silicon Materials Co., Ltd.    AHF



Inner Mongolia Zhonghuan GCL Photovoltaic Materials Co., Ltd.    AHF





Beijing West Railway Station AHF



Hong Kong Metro AHF



Sky Eye (FAST) AHF



Shanghai Oriental Pearl AHF



Shanghai Jiading Metro AHF



Hangzhou Ring Expressway Tunnel AHF

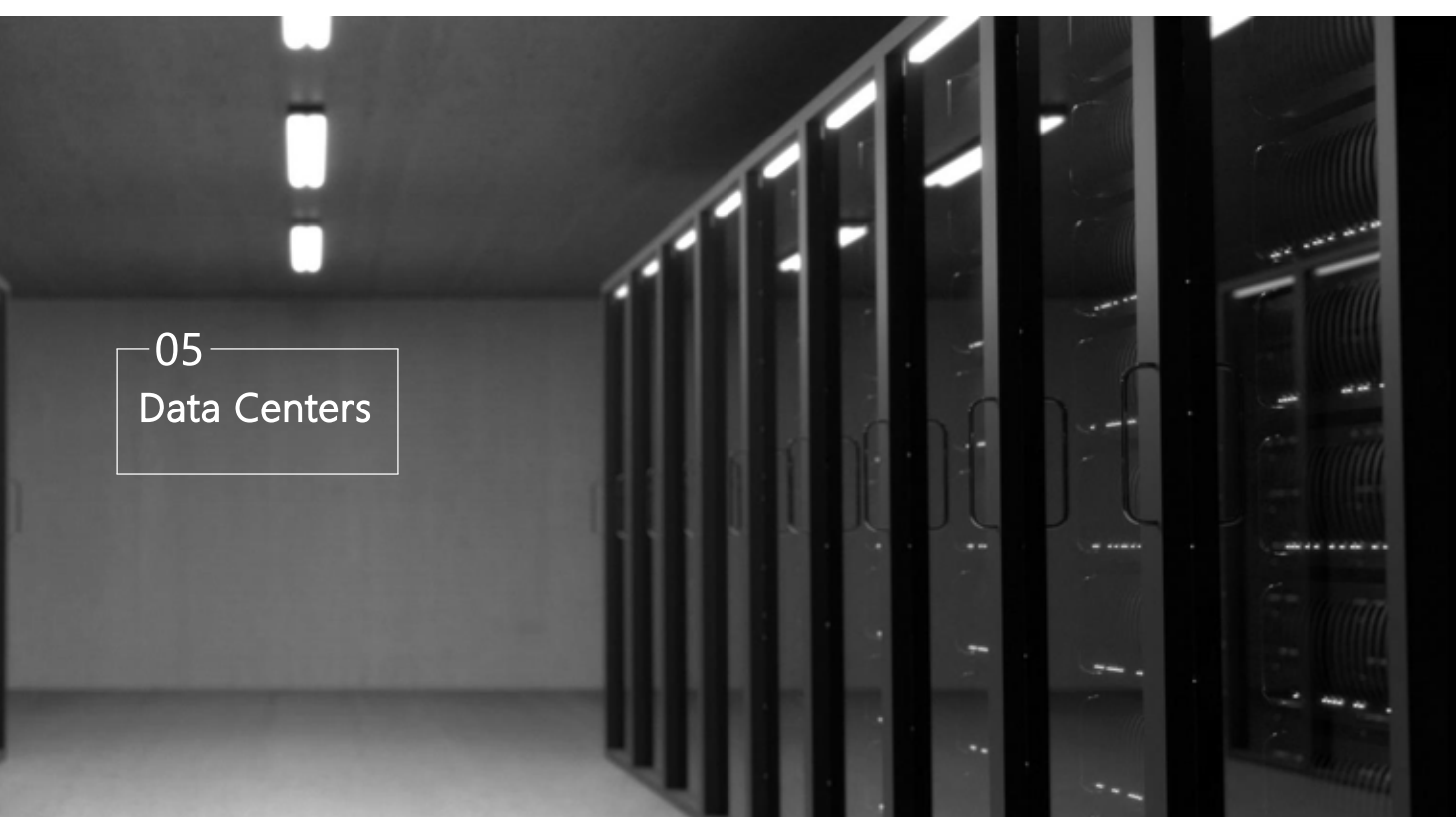


China Aerospace AHF



Hangzhou Asian Games AHF





05  
Data Centers



06  
semiconductor

Yangtze River Delta Digital Financial Data Center  
AHF&SVG



Chengdu Intelligent Computing Center AHF&SVG



Guangzhou Yuexin Semiconductor Technology Co., Ltd.  
AHF&SVG



Guangdong Fenghua High-tech Co., Ltd. AHF



Guangzhou Big Data Center AHF&SVG



Guangzhou Telecom Building AHF&SVG



Xiamen Silan Jike Microelectronics Co., Ltd.  
AHF&SVG



Zhejiang Lishuixin Wafer Semiconductor Technology Co., Ltd. AHF





07  
New energy



08  
food, medicine

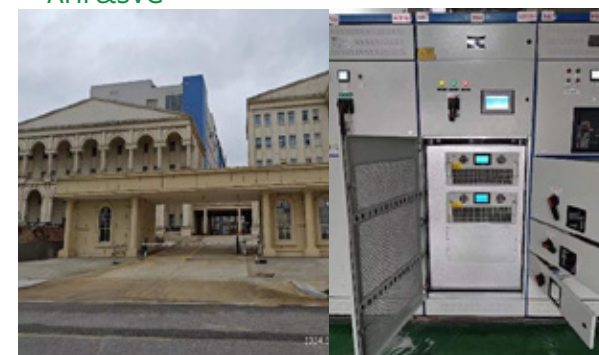
Guizhou Jinze New Energy Technology Co., Ltd. AHF



Chuzhou Jietai New Energy Technology Co., Ltd. AHF&SVG



Dongguan Dongyang Biologics Co., Ltd. AHF&SVG



Guangdong Lanbao Pharmaceutical Co., Ltd. AHF&SVG



Risen Energy Co., Ltd. AHF



JinkoSolar Corporation SVG



By-Health Inc. AHF



Wencheng Wahaha Hongzhen Food Technology Co., Ltd. AHF





09  
Petroleum and  
petrochemical



10  
other

■ Sinopec Ningbo Zhenhai Refining & Chemical AHF



■ CNOOC Hegang Self-Owned Power Plant SVG



■ Xuzhou Zoomlion Cement Co., Ltd. AHF



■ Shandong Alliance Chemical Co., Ltd. AHF



■ Hainan Yisheng Petrochemical Co., Ltd. AHF&SVG



■ Shandong HSBC Petrochemical Group Co., Ltd.  
AHF&SVG



■ Gezhouba Laohekou Cement Co., Ltd. AHF



■ Burnley Sapphire Ltd. AHF



# Product development and service

- |
- APF
- SVG
- SVG C



7×24 hours service



Customized Solutions



## Technical Support

- 1 Pre-sales  
Preliminary technical exchanges, on-site power quality diagnosis, and formulation of overall solutions
- 2 On Sale  
On-site guidance for installation, commissioning, effect verification, and operation training
- 3 After-sales  
Product troubleshooting, product maintenance, and product software upgrades.