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Active Harmonic filter

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Active Power Filter

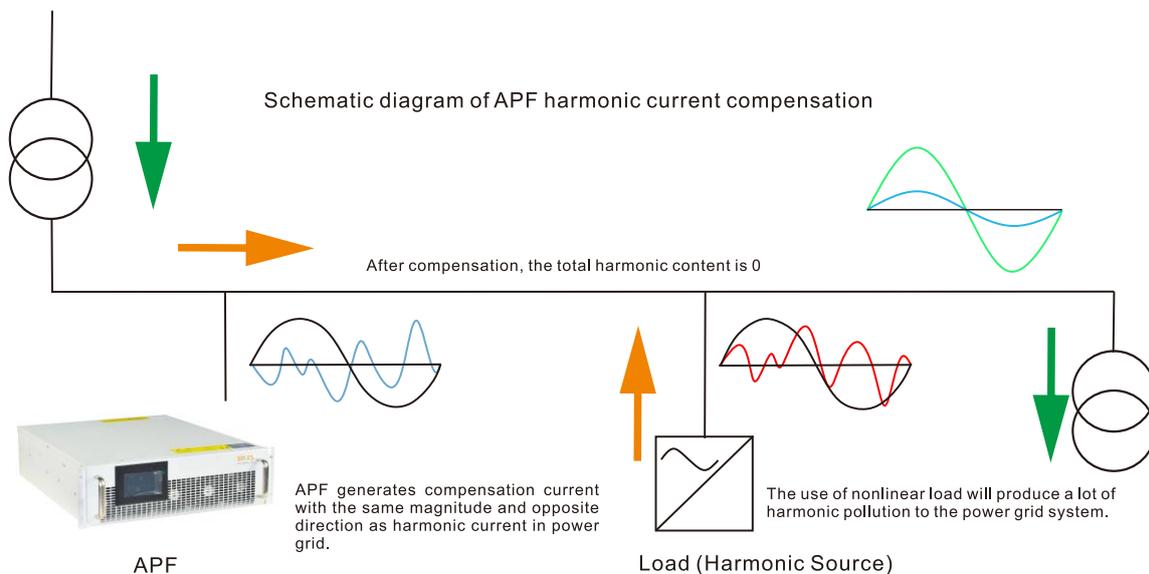
Product description



Active power filter (APF) is an electronic device that can simultaneously suppress high-frequency harmonic currents and compensate reactive currents. It overcomes the shortcomings of traditional LC filters that are easy to resonate and can only compensate for a fixed number of times. Sikes APF adopts the industry-leading T-type three-level topology technology, which can not only accurately filter the 2-50th harmonics in the power grid, but also compensate for reactive power in real time. Ensure that the power factor in the grid environment is 0.99, and no harmonic disturbance affects the equipment.

Electrical schematic diagram

The load current on the power grid is monitored in real time. By using DSP / FPGA / CPLD chip and the latest fast harmonic extraction technology, the reactive current and harmonic current content in the load current are analyzed rapidly. Then PWM pulse is generated according to the set value of the system, and the power converter composed of T-type three-level IGBT module is driven to generate the required harmonic compensation current, and finally realize the dynamic and accurate compensation of harmonic current.



■ Features of APF

- 1.The industrial model adopts a tower structure with high environmental adaptability, which is suitable for harsh industrial occasions;
- 2.The industrial model is equipped with independent air ducts and independent single-board warehouses to ensure the stable operation.
- 3.Compact module style is suitable for computer rooms such as data centers that have requirements on floor space;
- 4.The module style adopt the same design concept as industrial machines and have stronger environmental adaptability;
- 5.It can instantly compensate for 2~50 harmonics with a wide compensation range;
- 6.The compensation target can be flexibly set to optimize business goals;
- 7.Rich functional options, industrial models can reach IP43 protection level;
- 8.The full response speed is less than 2ms, which can precisely compensate harmonics to avoid over-compensation or under-compensation.
9. Standards:IEEE 519, EN 61000-2-2, EN 61000-2-4, IEC/EN 61000-3-2, IEC/EN 61000-3-4, IEC/EN 61000-3-12

■ Parameters of wall-mounted/rack-mounted products

| APF-400V | | | | |
|------------------------------------|--|---------|--------------------------------------|----------|
| Model | APF 50A | APF 75A | APF 100A | APF 150A |
| Parameters | | | | |
| Grid voltage | 380V(-40%~+20%) | | | |
| Grid frequency | 50Hz/60Hz(±10%) | | | |
| Parallel operation capacity | Unlimited | | | |
| Efficiency | Up to 98% | | | |
| Power system | Three-phase three-wire/three-phase four-wire | | | |
| Current transformer | 150/5~10000/5 | | | |
| Incoming Line Mode | Rear inlet/upper inlet | | | |
| Air outlet | Front and back/up and down | | | |
| Performance Indicators | | | | |
| Capacity | 50A | 75A | 100A | 150A |
| Response time | <2ms | | | |
| Harmonic times | 2~50 | | | |
| THDi | ≤5% | | | |
| Power factor | Adjustable from -1 to 1 | | | |
| Cooling method | Smart air cooling | | | |
| Noise | <56dB | | | |
| Mounted Method | Module or wall-mounted | | | |
| Dimension | By module(W*D*H) : 500*590*150 | | By wall-mounted(W*D*H) : 505*175*640 | |
| N.W | | | | |
| G.W | | | | |
| Environment parameter | | | | |
| Altitude | ≤2000m, 2000m~4000m derating | | | |
| Operating Temp. | -10°C~+50°C (derating above 40°C) | | | |
| Humidity | 5%~95%, non-condensing | | | |
| Controlling Method | | | | |
| Remote | RS485/Ethernet | | | |
| Local | RS485/CAN | | | |
| Protocol | CAN/MODBUS TCP | | | |

■ APF cabinet product parameters

APF-400V Parameters

Model

| | | | | | | | | | | | |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|
| G250A | G300A | G350A | G400A | G500A | G600A | G700A | G800A | G900A | G1000A | G1100A | G1200A |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|

Parameters

| | |
|------------------------------------|--|
| Grid voltage | 380V(-40%~+20%) |
| Grid frequency | 50Hz/60Hz(±10%) |
| Parallel operation capacity | Unlimited |
| Efficiency | Up to 98% |
| Power system | Three-phase three-wire/three-phase four-wire |
| Current transformer | 150/5~10000/5 |
| Incoming Line Mode | Rear inlet/upper inlet |
| Air outlet | up and down |

Performance Indicators

Capacity

| | | | | | | | | | | | |
|-----------------------------|---|------|------|------|------|------|------|------|-------|-------|-------|
| 250A | 300A | 350A | 400A | 500A | 600A | 700A | 800A | 900A | 1000A | 1100A | 1200A |
| Response time | <2ms | | | | | | | | | | |
| Harmonic times | 2~50 | | | | | | | | | | |
| THDi | ≤5% | | | | | | | | | | |
| Power factor | Adjustable from -1 to 1 | | | | | | | | | | |
| Cooling method | AN | | | | | | | | | | |
| Noise | <65dB | | | | | | | | | | |
| Mounted Method | Cabinet | | | | | | | | | | |
| Dimension(W*D*H)(mm) | Pic: C1,C2,C3 for your selection(on page 7-8) | | | | | | | | | | |

N.W/G.W(KG)

| | | | | | | | | | | | |
|--|--|--|--|--|--|--|--|--|--|--|--|
| | | | | | | | | | | | |
| | | | | | | | | | | | |

Environment parameter

| | |
|------------------------|-----------------------------------|
| Altitude | ≤2000m, 2000m~4000m derating |
| Operating Temp. | -10°C~+50°C (derating above 40°C) |
| Humidity | 5%~95%, non-condensing |

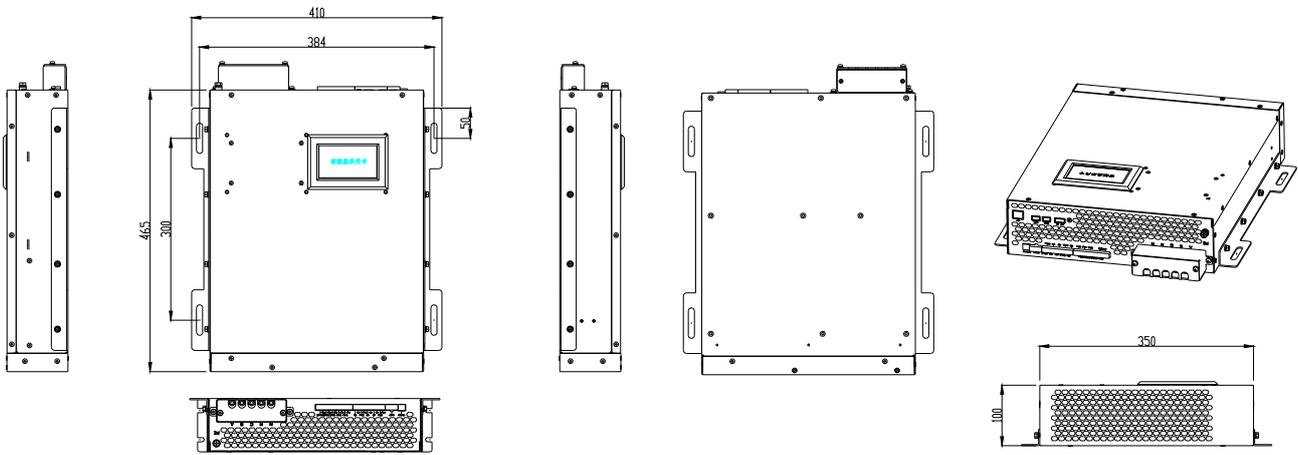
Controlling Method

| | |
|-----------------|----------------|
| Remote | RS485/Ethernet |
| Local | RS485/CAN |
| Protocol | CAN/MODBUS TCP |

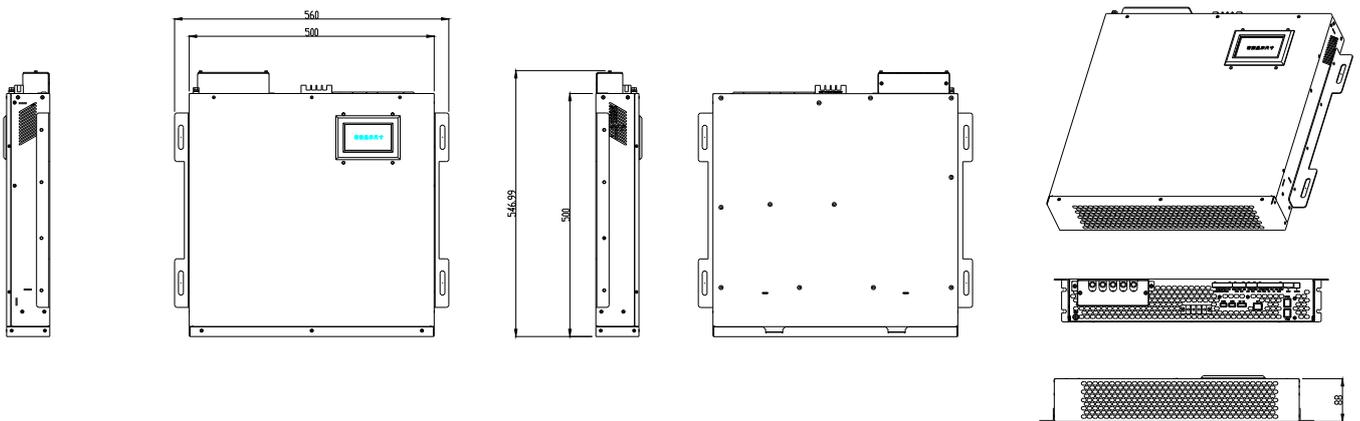
■ Selection table for wall-mounted with standard module style

| Power system | Mounting | Display | Model No. | Current detection CT*3 (A/B/C three-phase) |
|--------------------------|--------------|------------|------------------|--|
| 3 Phase 3Wire or 3Wire+N | Wall mounted | 4.3 in LCD | SKS-APF-4030-4L1 | 150/5~10000/5 |
| | Wall mounted | 4.3 in LCD | SKS-APF-4050-4L1 | 150/5~10000/5 |
| | Wall mounted | 4.3 in LCD | SKS-APF-4075-4L1 | 150/5~10000/5 |
| | Wall mounted | 4.3 in LCD | SKS-APF-4100-4L1 | 150/5~10000/5 |
| | Wall mounted | 4.3 in LCD | SKS-APF-4150-4L1 | 150/5~10000/5 |

■ Dimension of wall-mounted product with standard module

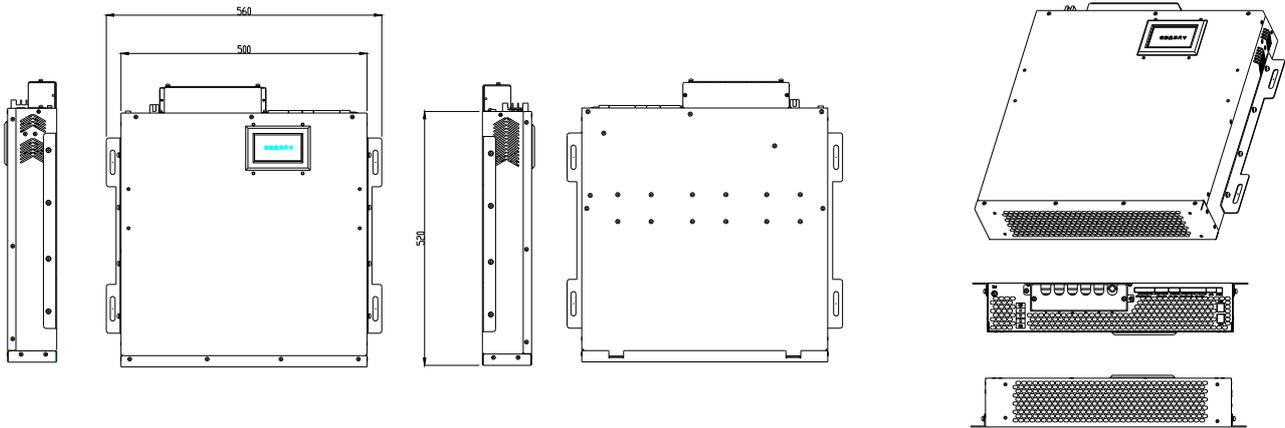


W-50A



W-75-100A

Dimension of wall-mounted product with standard module

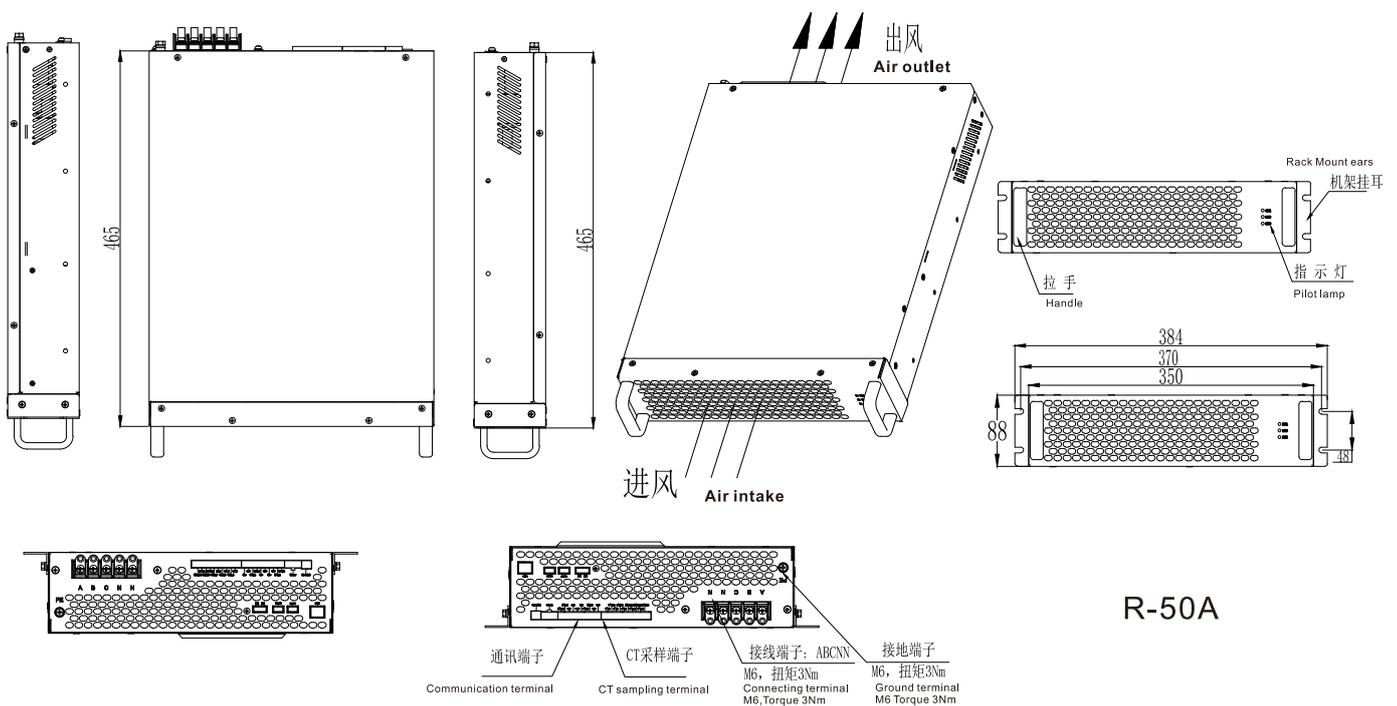


W-150A

Selection table for rack-mounted with standard module style

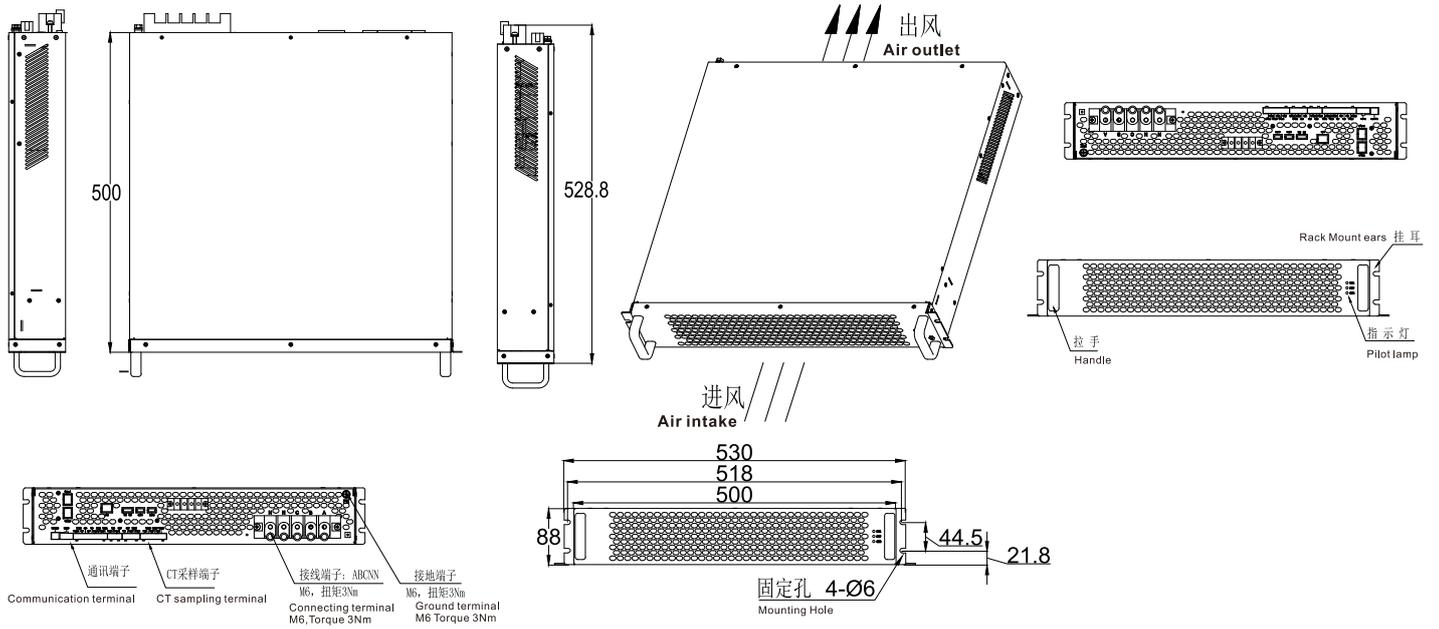
| Power system | Mounting | Display | Model No. | Curent detection CT*3 (A/B/C three-phase) |
|-----------------------------|--------------|-----------|------------------|--|
| 3 Phase 3Wire or 3Wire+N | Rack Mounted | LED Light | SKS-APF-4030-4M0 | 150/5~10000/5 |
| | Rack Mounted | LED Light | SKS-APF-4050-4M0 | 150/5~10000/5 |
| | Rack Mounted | LED Light | SKS-APF-4075-4M0 | 150/5~10000/5 |
| | Rack Mounted | LED Light | SKS-APF-4100-4M0 | 150/5~10000/5 |
| | Rack Mounted | LED Light | SKS-APF-4150-4M0 | 150/5~10000/5 |

Dimension of rack-mounted product with standard module

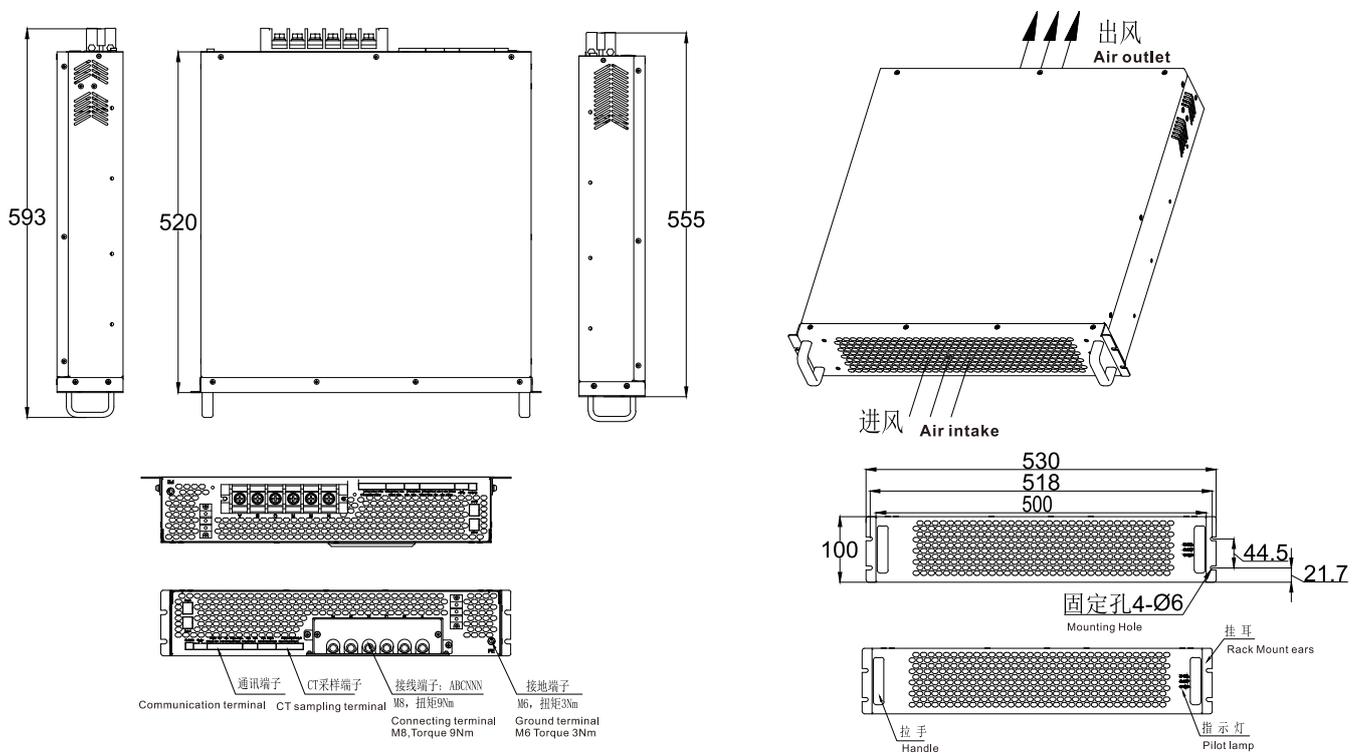


R-50A

Dimension of rack-mounted product with standard module



R-75-100A

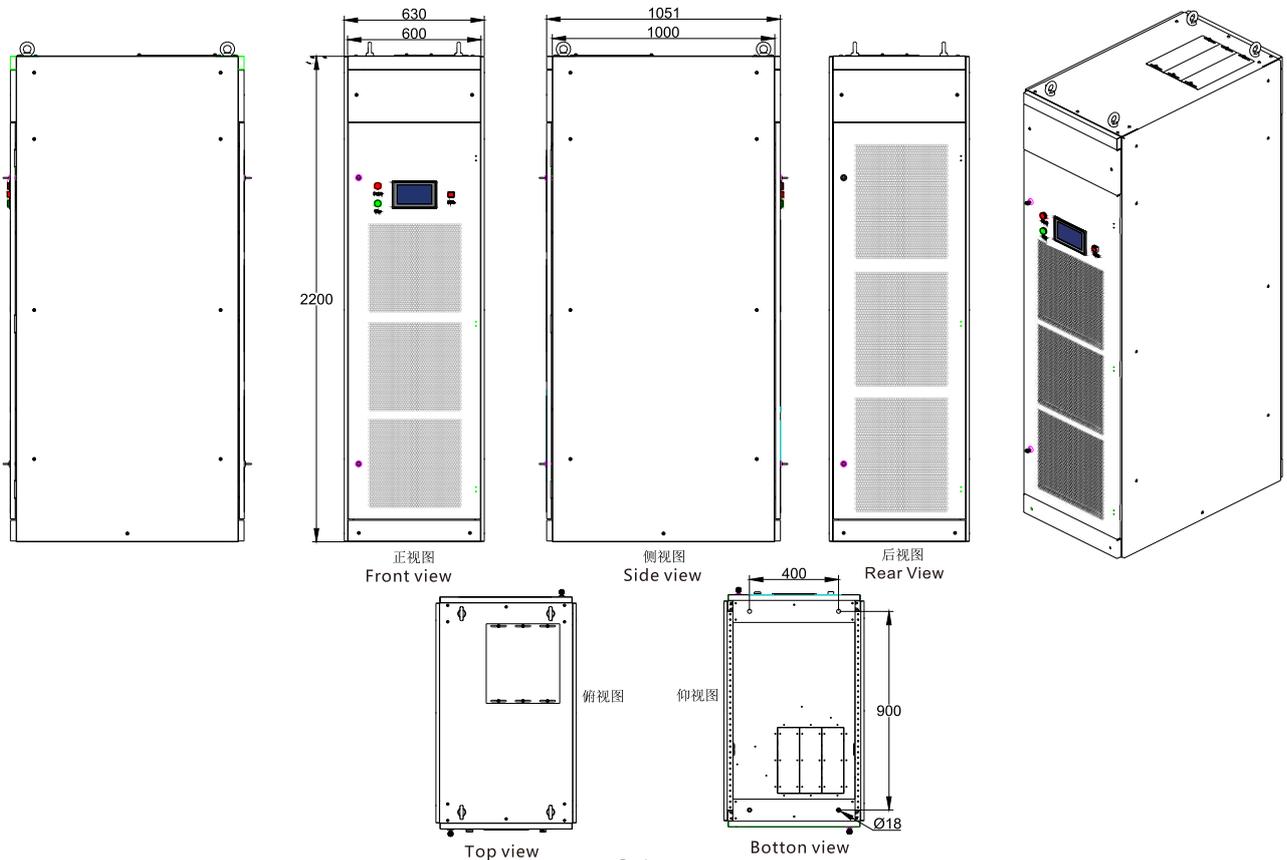


R-150A

■ Selection table of high current cabinet products

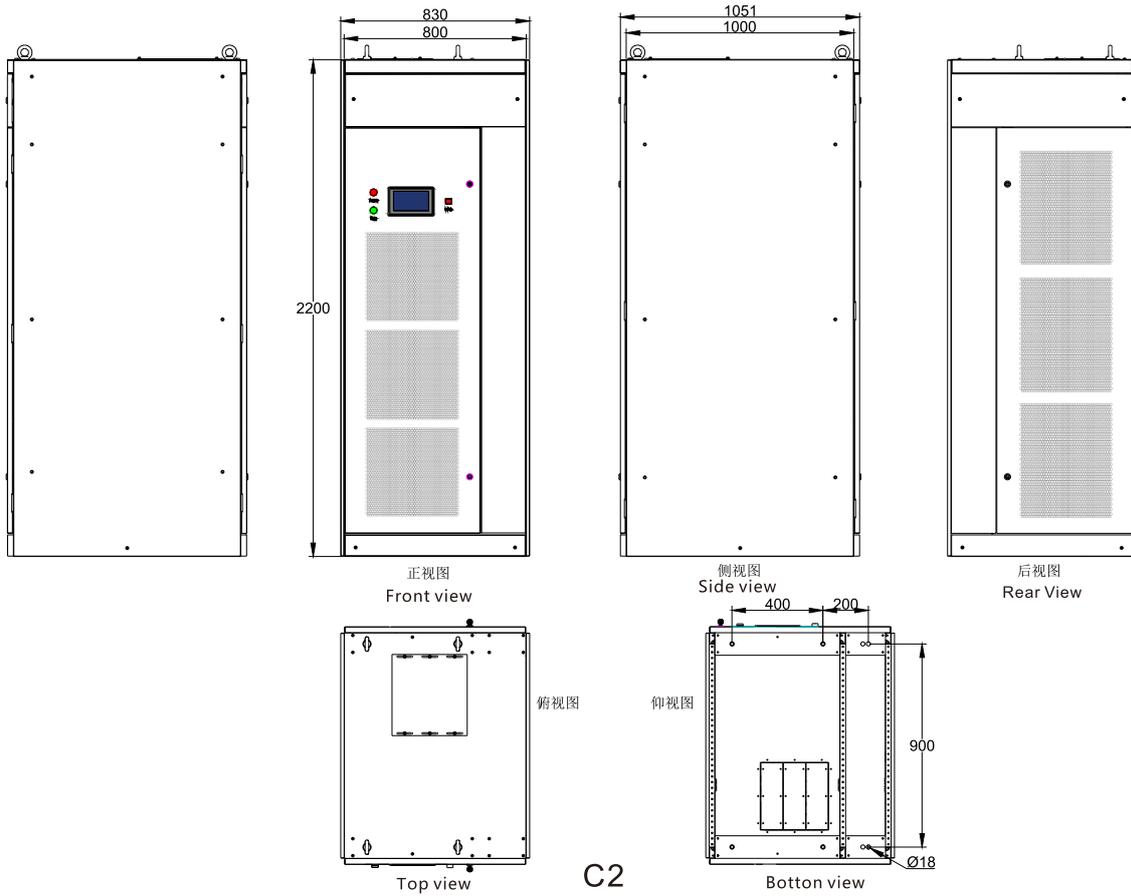
| Power system | Mounting | Display | Model No. | Curent detection CT*3 (A/B/Cthree-phase) |
|-----------------------------|----------|----------|-----------------|---|
| 3 Phase 3Wire or 3Wire+N | cabinet | 7 in LCD | SKS-APF-G0250-4 | 150/5~10000/5 |
| | cabinet | 7 in LCD | SKS-APF-G0300-4 | 150/5~10000/5 |
| | cabinet | 7 in LCD | SKS-APF-G0350-4 | 150/5~10000/5 |
| | cabinet | 7 in LCD | SKS-APF-G0400-4 | 150/5~10000/5 |
| | cabinet | 7 in LCD | SKS-APF-G0500-4 | 150/5~10000/5 |
| | cabinet | 7 in LCD | SKS-APF-G0600-4 | 150/5~10000/5 |
| | cabinet | 7 in LCD | SKS-APF-G0700-4 | 150/5~10000/5 |
| | cabinet | 7 in LCD | SKS-APF-G0800-4 | 150/5~10000/5 |
| | cabinet | 7 in LCD | SKS-APF-G0900-4 | 150/5~10000/5 |
| | cabinet | 7 in LCD | SKS-APF-G1000-4 | 150/5~10000/5 |
| | cabinet | 7 in LCD | SKS-APF-G1100-4 | 150/5~10000/5 |
| | cabinet | 7 in LCD | SKS-APF-G1200-4 | 150/5~10000/5 |

■ Dimension of cabinet products

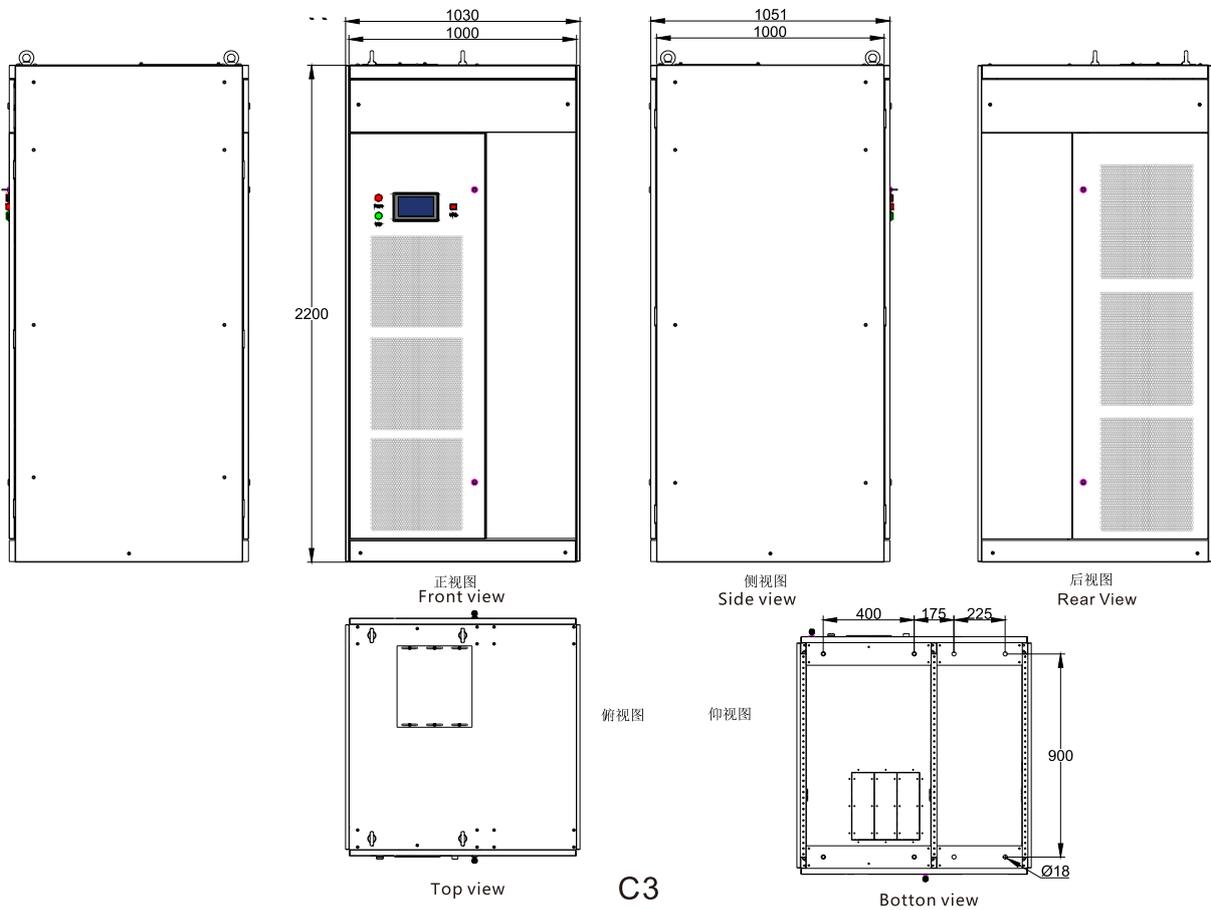


C1

Dimension of cabinet products



C2



C3