

Industrial Online UPS 10-300KVA
CNI310 & CNI330
Series



CONSNANT

Constant Electric Power

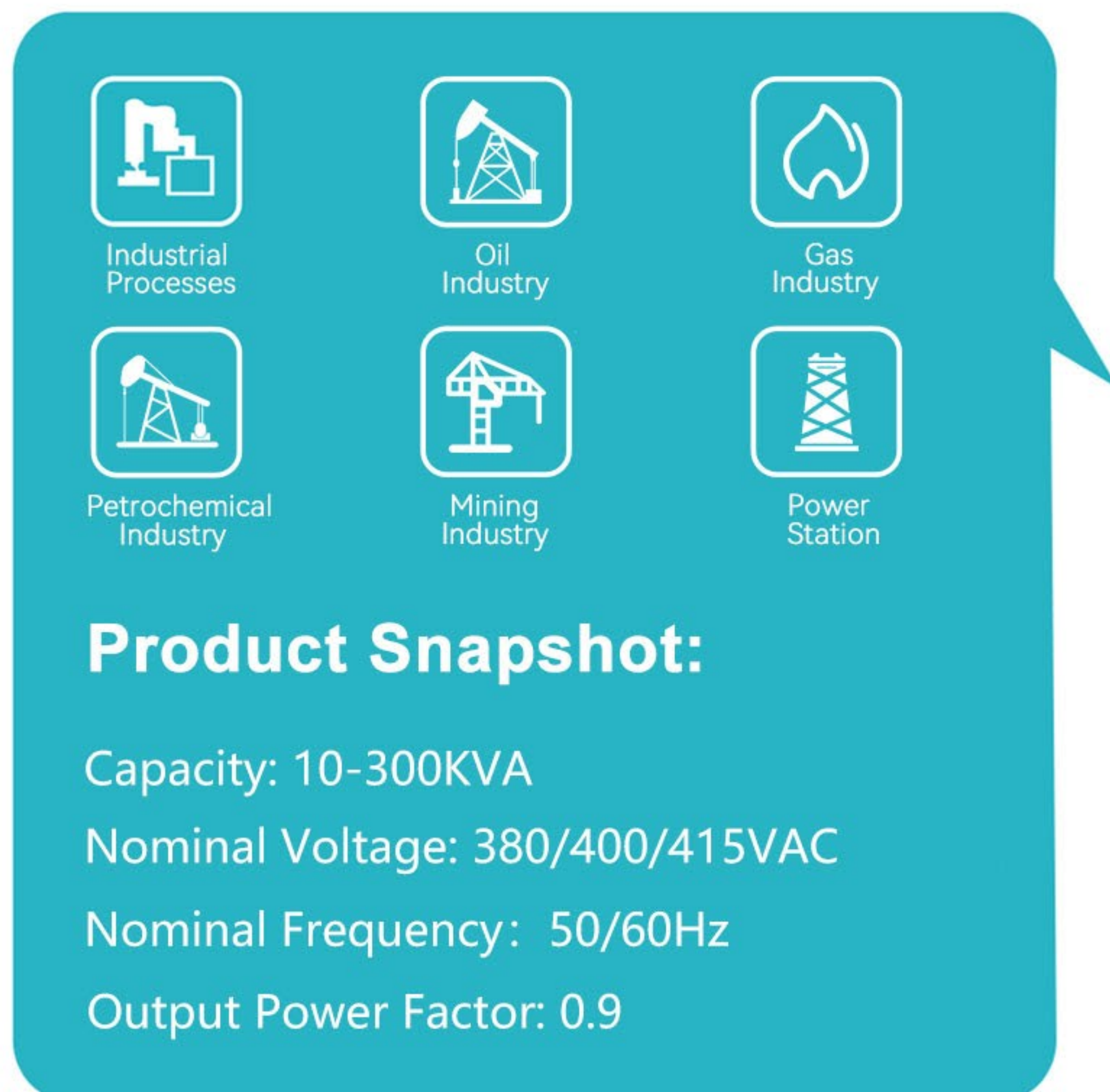
www.consnant.com



CNI310 & CNI330 Series

Industrial Online UPS

10-100KVA (3Ph in & 1Ph out) / 10-300KVA (3Ph in & 3Ph out)



Product Snapshot:

- Capacity: 10-300KVA
- Nominal Voltage: 380/400/415VAC
- Nominal Frequency: 50/60Hz
- Output Power Factor: 0.9



UPS Main Cabinet



Bypass Cabinet

CNI310/CNI330 series products ensure the continuous availability of uninterrupted power supply requirements in oil & gas, petrochemical, power generation, transportation and other heavy industries. The state-of-the-art, double-conversion topology, flexible and compact high-reliability industrial grade design, suitable for use in harsh environments.

Typical Applications:

For all industrial applications

- Oil & Gas, Petrochemical (offshore, onshore, pipelines)
- Energy and Power (generation, transmission, distribution)
- Transportation (rail, airports, shipping, highways, tunnels)
- Water (desalination, treatment)
- All industrial production processes
- Instrumentation & Process control (chemicals, mining, steel, paper, emergency lighting)

Key Features:

- Adopt full digital control technology.
- Intelligent detection and monitoring function.
- Digital control and static switch zero switching.
- Input/Output full isolation.
- Bypass isolation transformer and voltage stabilizer available.
- Multifunctional protections against overvoltage, low voltage, overcurrent, short circuit, and so on.
- Large touch screen LCD display with multi-language (English, Chinese, Russian, French...)
- Ultralong 256 event records, user-friendly analysis and management of the situation of power supply.
- Static bypass has a strong anti-overload capacity.

Control System

Adopt microprocessor bus control technology and ensure the real-time control of rectifier, inverter, static switch, as well as coordination of each power part, characterized by increased control of aging, higher reliability, and improved efficiency of the entire UPS system.

Static Switch:

Not sync automatically switch:

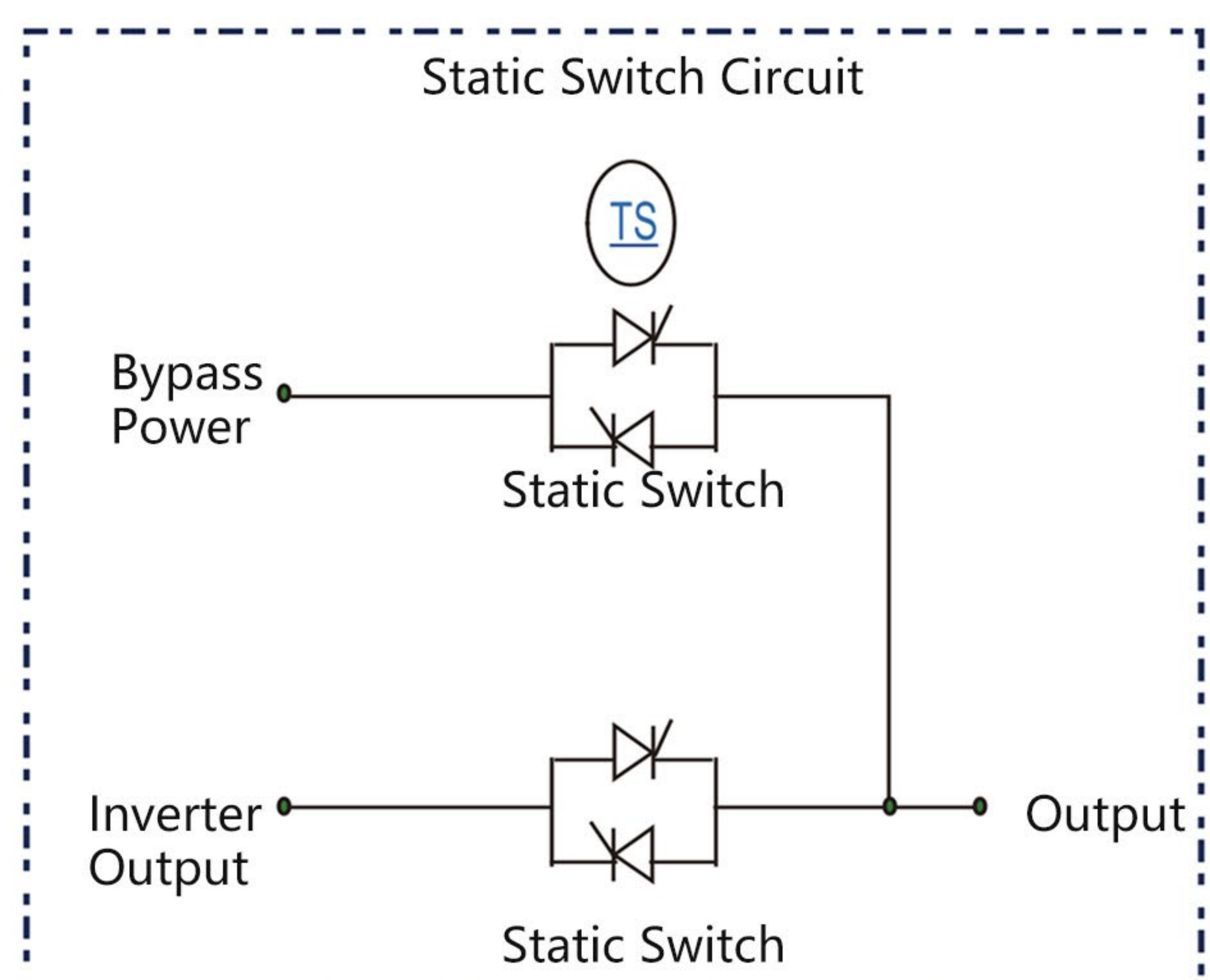
- When the bypass of UPS and inverter are not synchronized, the system can automatically implement not sync switch, which can ensure no power cutoff if the mains surge pulse width is $<5\text{ms}$.
- When the bypass exceeds the limit, UPS detects the bypass every 20ms, as long as the phase angle difference of bypass and inverter comes back to the normal range, not synchronized bypass switching can be realized.

Inverter

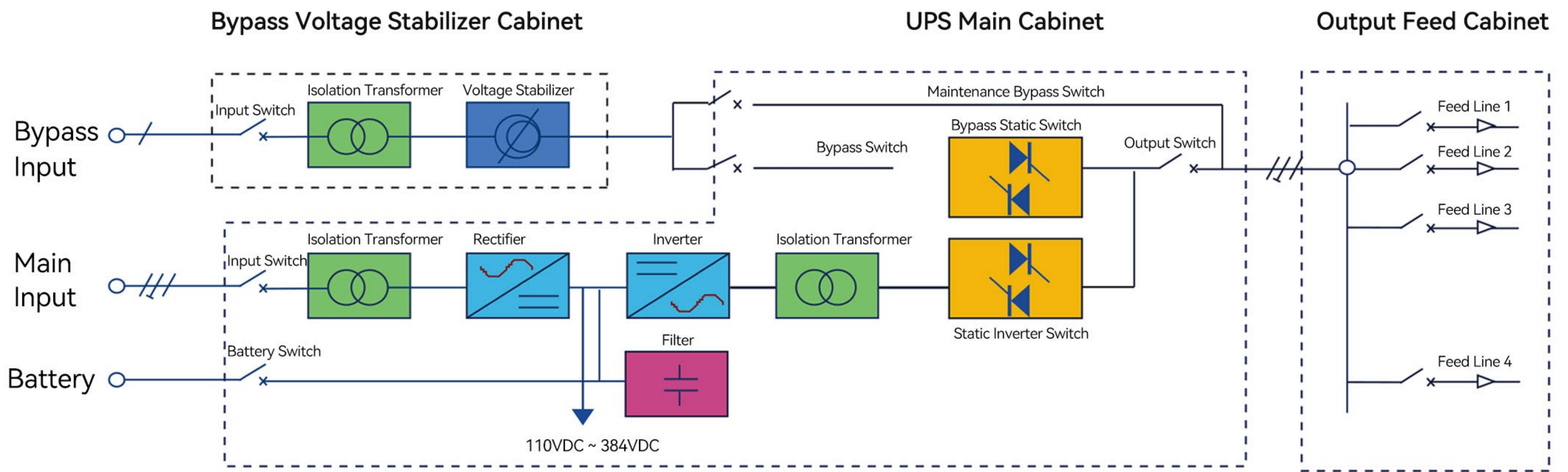
The SPWM (Sinusoidal Pulse Width Modulation) is a full bridge composed of six IGBT high-power transistors. Its function is to transform the DC voltage into standard sinusoidal AC voltage into AC 220V voltage required by the load through the special (Δ/Y) zero-phase-shift zigzag isolation transformer. In addition, the transformer can eliminate third harmonics reflected from non-linear loads such as computers. The control features the adoption of "slow-down gate voltage" protection technology, which greatly reduces the disturbance shutdown of the inverter (mutual conversion between the inverter and the static switch), improves the overload capacity of the entire UPS system, and the short-circuit resistance and anti-overload capacity are superior to the general UPS, especially the short-circuit resistance is unmatched by the general UPS.

Rectifier

A fully controlled bridge rectifier composed of 6 pulses or 12 pulses (6 or 12 SGR). Its function is to rectify the input AC 380V to DC 405V or so. Its control features "slope" start, that is, the rectifier output voltage rises from 0V to 405V within 10 seconds without affecting the grid.

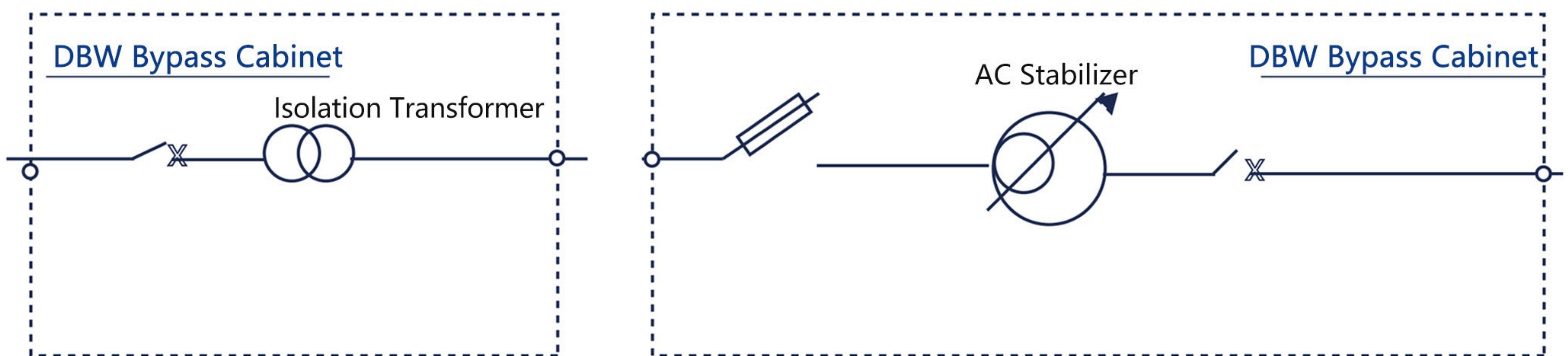


Principle Diagram



Optional Bypass Cabinet:

Isolation transformer and bypass voltage regulator



UPS Model List

Model	Capacity	Nominal Voltage	Battery Voltage	Power Factor	W x D x H (mm)	Weight (KG)
CNI310	10KVA/9KW	380 / 400 / 415 VAC	110 / 220 / 384 VDC	0.9	600x800x1900 (2050)	200
	15KVA/13.5KW					220
	20KVA/18KW					230
	30KVA/27KW					290
	40KVA/36KW		220 / 384 VDC		340	
	60KVA/54KW				800x800x1900 (2050)	440
	80KVA/72KW					520
	100KVA/90KW				1200x800x1900 (2050)	770
CNI330	10KVA/9KW	380 / 400 / 415 VAC	110 / 220 / 384 VDC	0.9	600x800x1900 (2050)	200
	15KVA/13.5KW					220
	20KVA/18KW					230
	30KVA/27W					290
	40KVA/36W		220 / 384 VDC		340	
	60KVA/54W				800x800x1900 (2050)	440
	80KVA/72W					520
	100KVA/90W				1200x800x1900 (2050)	770
	120KVA/108W		384 VDC		855	
	160KVA/144W				1400x800x1900 (2050)	1300
	200KVA/180W				1600x850x1900 (2050)	1550
	300KVA/270W				1640	

CNI310 Series Technical Specifications

CNI310 10-100KVA

Rating (kVA)* @ P.F. 0.9 vs DC Rated Voltage

Nominal Power (kW)	9	13.5	18	27	36	45	54	72	90
110Vdc	10	15	20	30	-	-	-	-	-
220Vdc	10	15	20	30	40	50	60	80	100
384Vdc	10	15	20	30	40	50	60	80	100

Input

Input Voltage	380/400/415 Vac 3Phase±20%, 50/60Hz±10% (208~690Vac for optional)
Power Factor	Up to 0.97
Input THDi	<5% @ rated load
Bypass Input Voltage	380/400/415 Vac 3Phase±25%, 50/60Hz±15% (208~690Vac for optional)

Battery

DC Voltage	110/220/384VDC
Battery Type	Lead-acid, Ni-cd, Li-Ion (optional)

Output

Nominal Voltage	220/230/240 Vac single phase
Frequency	50/60Hz (Adaptive), ±0.05% Hz synchronization, ±2Hz asynchronous
Voltage Regulation	±1% static; ±5% dynamic; 80% load change, <10 ms recovery
Overload Capacity	125% for 10 min; 150% for 1 min; 200% for 100ms
Harmonic Distortion THDv	<2% linear load; <5% non-linear load

System

Cooling	Forced ventilation and redundant fans
Color	RAL 7035 (Optional other color)
Protection Degree	IP42(standard), IP20/IP55 (optional)

Environmental

Operating Temperature	-10°C to 40°C (up to 55°C M24 with de-rating) / Storage: -20°C to 70°C
Altitude	<1000m (For places higher than 1000 meters, the output will be -1% of the nominal value for every 100 meters higher)
Audible Noise at 1 Meter (dBA)	65 to 75 (Depending on rating and options)

User Interface

Front Panel	Graphic display, minic LED panel, Running indicator, EPO optional
Connectivity	Includes alarm relay card and RS485 interface
Standards	Quality assurance, environment, health and safety: ISO 9001:2008, ISO 14001:2004, BS OHSAS 18001:2007; Safety: IEC EN 62040-1; EMC: IEC EN 62040-2; Environmental aspects: IEC EN 62040-4; Test and performance: IEC EN 62040-3 VFI-SS-111; Protection degree: IEC 60529; Marking: CE

CNI330 Series Technical Specifications

CNI330 10-300KVA

Rating (kVA)* @ P.F. 0.9 vs DC Rated Voltage

Nominal Power (kW)	9	13.5	18	27	36	45	54	72	90	108	144	180	270
110Vdc	10	15	20	-	-	-	-	-	-	-	-	-	-
220Vdc	10	15	20	30	40	50	60	80	100	120	-	-	-
384Vdc	10	15	20	30	40	50	60	80	100	120	160	200	300

Input

Input Voltage	380/400/415 Vac 3Phase±20%, 50/60Hz±10% (208~690Vac for optional)
Power Factor	Up to 0.97
Input THDi	<5% @ rated load
Bypass Input Voltage	380/400/415 Vac 3Phase±25%, 50/60Hz±15% (208~690Vac for optional)

Battery

DC Voltage	110/220/384VDC
Battery Type	Lead-acid, Ni-cd, Li-Ion (optional)

Output

Nominal Voltage	380/400/415 Vac 3-phase
Frequency	50/60Hz (Adaptive), ±0.05% Hz synchronization, ±2Hz asynchronous
Voltage Regulation	±1% static; ±5% dynamic; 8% load change, <10 ms recovery
Overload Capacity	125% for 10 min; 150% for 1 min; 200% for 100ms
Harmonic Distortion THDv	<2% linear load; <5% non-linear load

System

Cooling	Forced ventilation and redundant fans
Color	RAL 7035 (Optional other color)
Protection Degree	IP42 (standard), IP20/IP55 (Optional)

Environmental

Operating Temperature	-10°C to 40°C (up to 55°C M24 with de-rating) / Storage: -20°C to 70°C
Altitude	<1000m (For places higher than 1000 meters, the output will be -1% of the nominal value for every 100 meters higher)
Audible Noise at 1 Meter (dBA)	65 to 75 (Depending on rating and options)

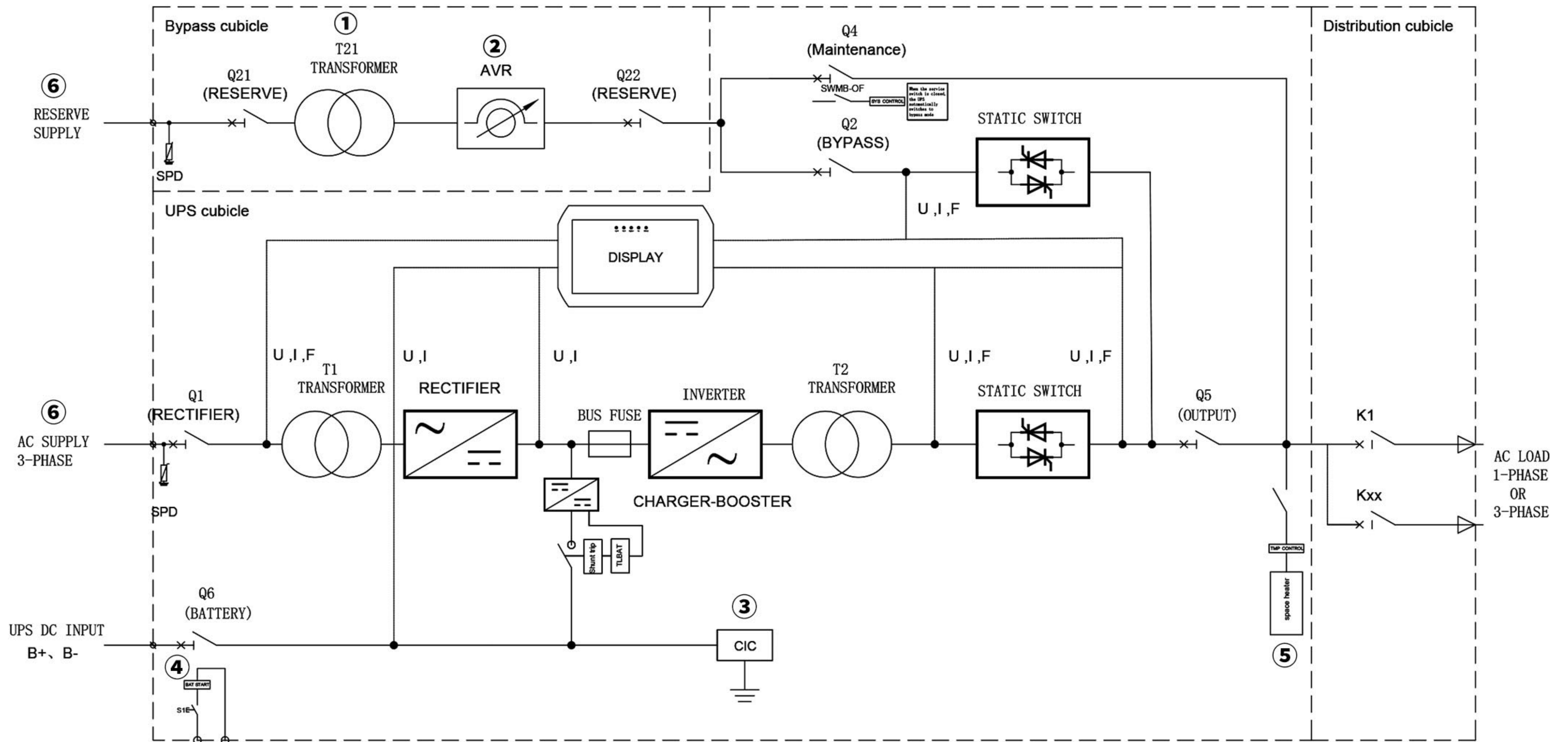
User Interface

Front Panel	Graphic display, minic LED panel, Running indicator, EPO optional
Connectivity	Includes alarm relay card and RS485 interface

Standards

Quality assurance, environment, health and safety: ISO 9001:2008, ISO 14001:2004, BS OHSAS 18001:2007; Safety: IEC EN 62040-1; EMC: IEC EN 62040-2; Environmental aspects: IEC EN 62040-4; Test and performance: IEC EN 62040-3 VFI-SS-111; Protection degree: IEC 60529; Marking: CE

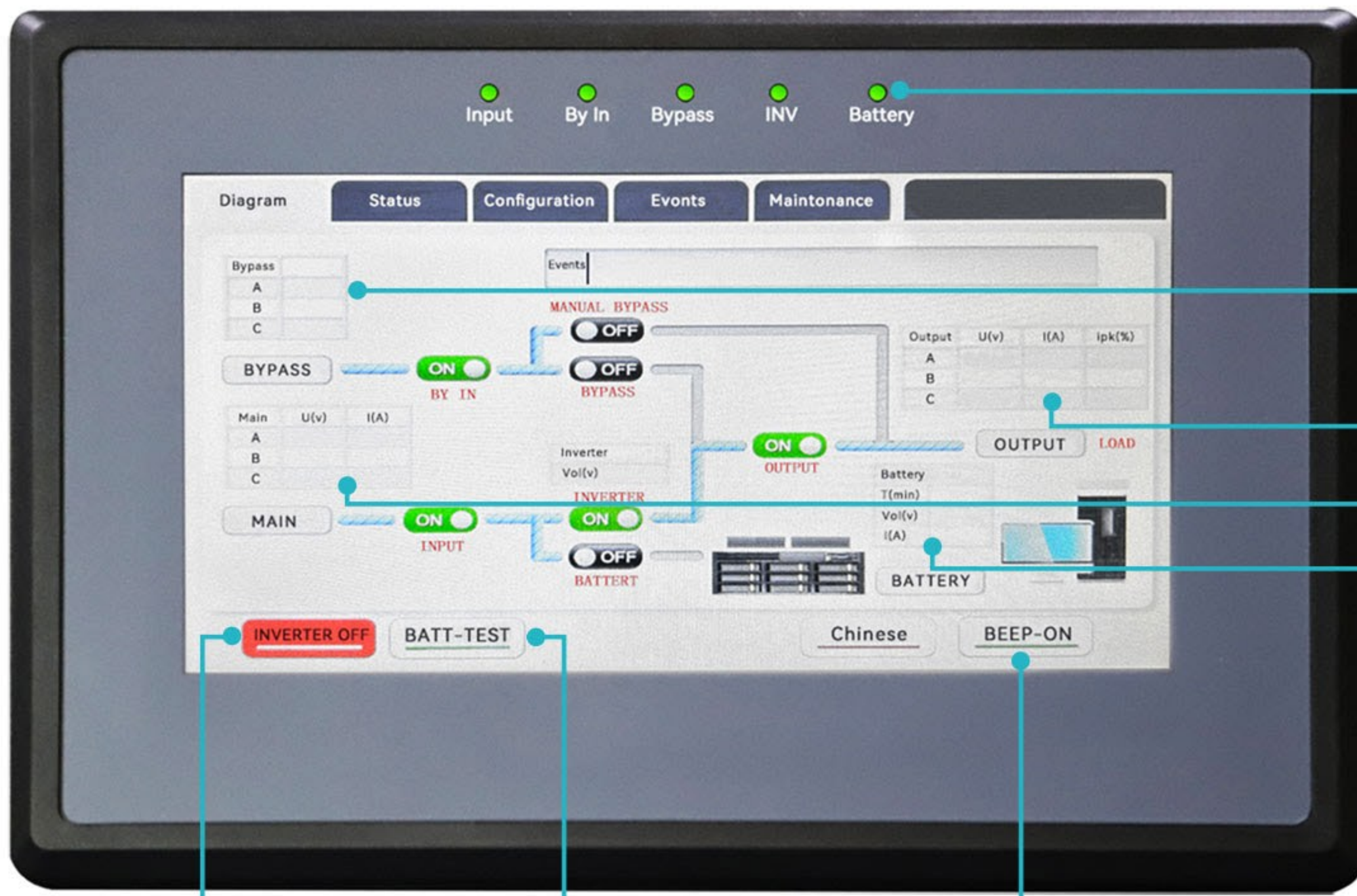
Main Electrical Options:



No.	Option Item	Item Name	Function Description
①	T21	Bypass Isolation Transformer	Realize the isolation between the ups output and the power grid, insulation class H.
②	AVR	Bypass Stabilizer	Electronic/electromechanical automatic voltage regulator to ensure the UPS reserve circuit voltage stability
③	CIC	Earth Leakage Monitor (DC earthing fault alarm)	Monitor DC bus insulation voltage and provide remote indication of non-voltage contacts
④	Bat Start	Battery Black Start	In case of mains power failure, the inverter can be started through the battery start button.
⑤	Space Heater	Internal Space Heater	Space heater to prevent condensation of internal components
⑥	Special Input Voltage	Special Input Voltage	Optional three-phase input voltage: 208/220/230/380/400/415/440/460/480/525/660/690V. Note: this option will affect the overall system size and technical information
⑦	Parallel	Parallel Function	Supports up to 6 ups for reliable parallel operation and shared battery pack mode
⑧	Input Harmonic Filter	Input Harmonic Filter	Input harmonic filter, input power factor up to 0.97
⑨	SNMP Card	SNMP Card	Web page remote monitoring, multiple UPS systems can be centralized monitoring
⑩	Protocols	Protocols	Modbus TCP ,Modbus SNMP, Profibus ,DF1 ,IEC61850
⑪	Analogue Meters	Analogue Meters	Meter size is 72x72, Can realize: input voltage, input current, battery voltage, battery current, output voltage, output current
⑫	Special Enclosure Painting	Special Enclosure Painting	Standard color RAL 7035, other color can be customized.

(The options listed above are non-exhaustive. If other special requirements, please consult us.)

7inch LCD Touch Screen Introduction



LED Status Indicators

Bypass Input Voltage Data Field

Output Voltage, Current, Power Data Column

Input Voltage, Current Data Column

Battery Information and Internal Temperature Data Bar

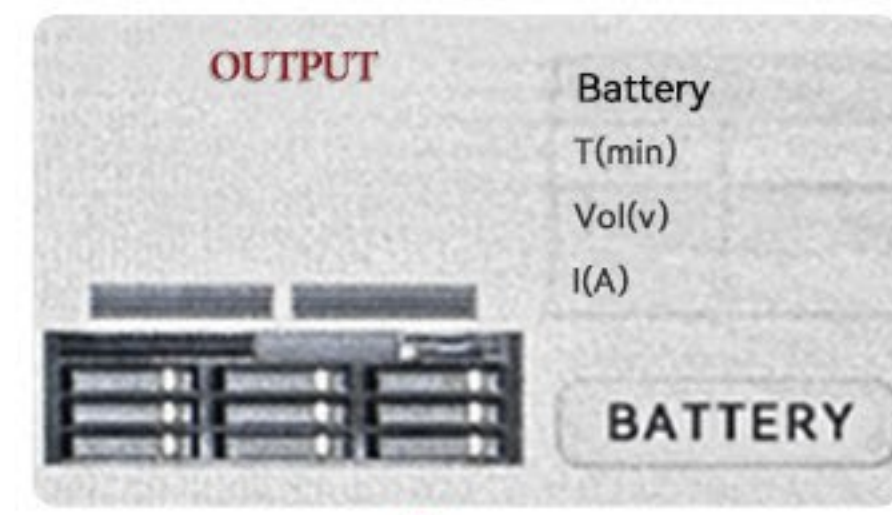
Inverter Switch Button

Battery Test Button

Alarm Switch Button

Benefits:

The button **INVERTER ON** or the inverter off button **INVERTER OFF** can easily turn on or off the inverter through the screen. This operation can be easily and fastly to realize the switch between inverter mode and bypass mode.



Estimated Battery Backup Time
Battery Voltage
Battery Charge and Discharge Current

Benefits:

Intelligent battery management function that can performance fault self-diagnosis at regular intervals, and automatically display battery capacity and standby time.

Battery Test:

Click the battery test button, the device will try to discharge the battery to run, the test time is 30s, when the battery is abnormal, the battery indicator will change to flashing state.

At the same time, the current status record bar prompts: battery or battery switch is abnormal.

Benefits:

The button **BATT-TEST** can be one-click operation to perform battery testing, intelligent and safe.



Benefits:

"Status" interface can displays the real-time operating status of the system, load, bypass, rectifier, inverter, alarm. It can provide more than 100 kinds of alarm, so that the fault can be found quickly.



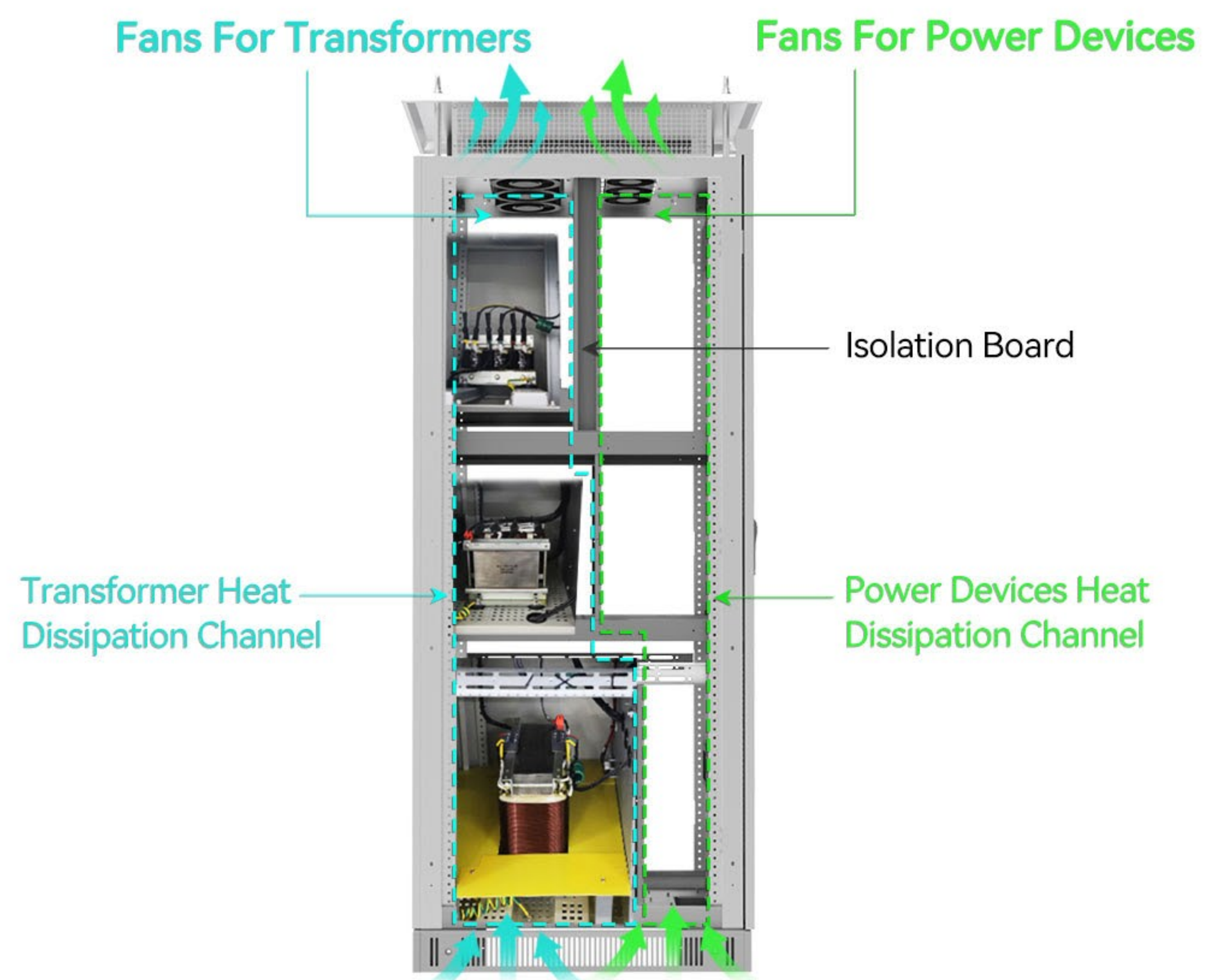
Benefits:

The Events interface can provide 256 history records. It can provide rich diagnostic data for the maintenance.

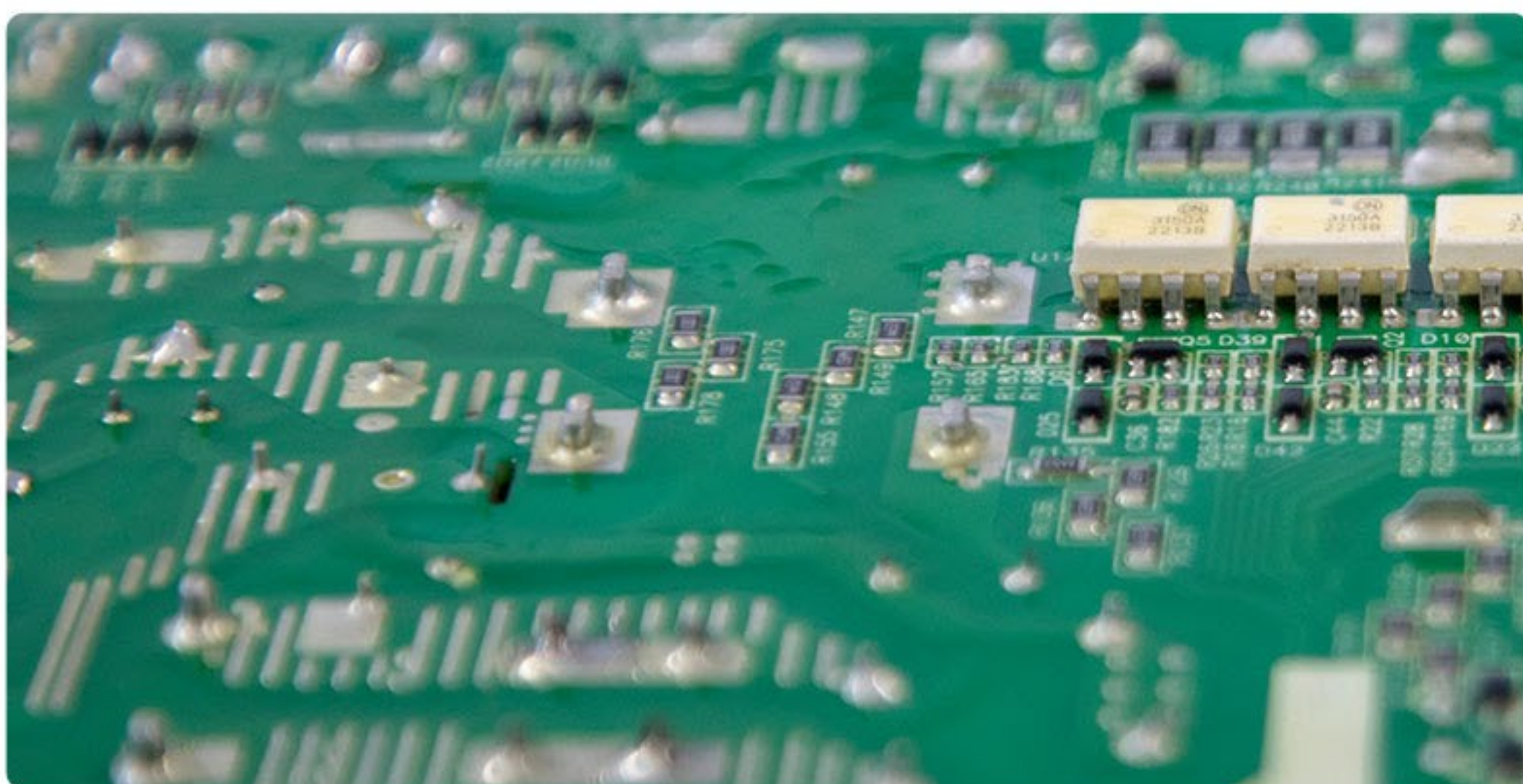
Structure Design Advantage:



1) Front maintenance design, can be installed against a wall.



2) Heat dissipation advantage: transformer heat dissipation and power device heat dissipation isolation; Fan redundancy design, double safety; Intelligent fan fault alarm.



3) The enclosure double stoving paintings are stronger corrosion resistant. The PCBA boards are covered with conformal coating, better water-proof, moisture-proof and mildew-resistant to protect the circuits than ordinary coating.

Application

