

Electricity Special Industrial Online UPS

# CND310 & CND330

10-80KVA Series

GREEN  
ENERGY SAVING  
ENVIRONMENTAL PROTECTION

**CONSNANT**

Constant Electric Power  
[www.consnant.com](http://www.consnant.com)



# CND310 & CND330

## Electricity Special Industrial Online UPS

### Snapshot

Model: 10-80KVA  
Nominal Voltage: 380 /400 /415VAC  
Nominal Frequency: 50Hz/60Hz  
Output Power Factor: 0.8

### Application:

Petroleum,chemical industry,  
gas and power station...



The CND310 & CND330 series electricity special UPS system consisting of system cabinet, DBW bypass stabilized cabinet, and PDU feeder cabinet; CONSNANT designs exclusively for power plant, transformer substation, and distribution substation according to the development requirement of China power. It possesses on-line double conversion and zero transfer function. It can be mainly applied for power system telemechanics, PTU, power line carrier, power system monitoring and so on. After being isolated and filtered by regulator, single-phase 220V or three-phase 380V can provide stable power for load through inverter when the AC is normal. If the failure of AC power grid supply or a power cut occurs the backup of DC power system can invert to supply electricity through the reverse diode. If the DC power system is under voltage or cut off, the static switch will turn to bypass automatically. When the AC power is recover, the static switch will turn to AC power automatically. If the inverter is overloaded or fault, the system will turn to bypass and indicates a warning signal at the same time.

## Key Features:

- Adopt full digital control technology
- Intelligent detection and monitoring function
- Digitally control the static switching with zero switch
- Full isolation between input and output
- Super low output zero earth voltage
- DC UPS isolated with utility power compatible with the DC power system and isolated with utility power completely
- Cubicle design with the power standard both indication and cabinet (Can be customized according to customer demands)
- Multifunctional protection for over voltage, under voltage, over current, short circuit and over temperature and so on.
- Large-screen LCD monitor with Chinese and English operation interface
- Ultralong 256 event record, user-friendly analysis and management to the situation of the power supply (touch screen optional)
- Static bypass has a strong anti-overload capability

## Control System

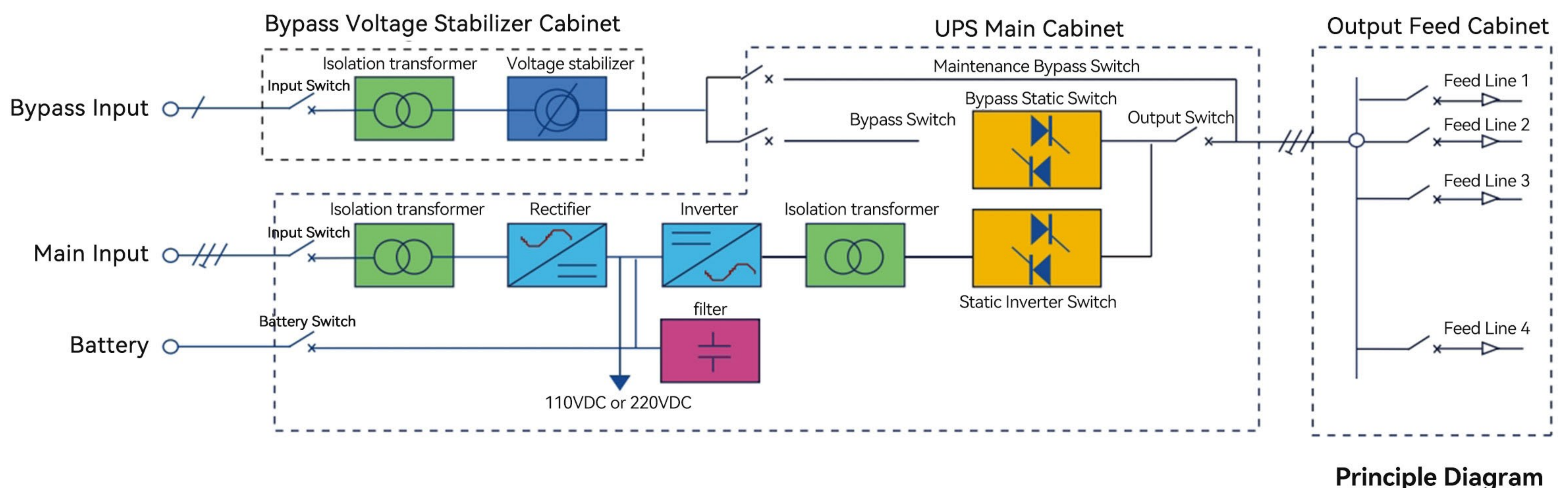
It adopts microprocessor bus control technology, three core processor controlling rectification, inverter and parallel connection respectively, to ensure the real-time control of the rectifier, inverter and static switch and the coordination of every power part, characterized by increased control of aging, higher reliability, enhance of the efficiency of the whole UPS system and the output technical parameters are better than that of the device with same capacity.

## Inverter

SPWM (sinusoidal pulse width modulation), formed by 6 IGBT high power tubes, is composed of full-bridge-control. Its function is to transform DC voltage into sinusoidal AC voltage, boosting by the special ( $\Delta/Y$ ) zero phase shift zigzag type isolation transformer and become AC 220V as load required. In addition, the transformer can eliminate like triple harmonics current that are reflected by non linear load from computer. Control features is the adoption of the “slow-down gate voltage” protection technology, greatly reducing disturbance of shutoff of the inverter (inverter and static switch shift mutually), enhancing the overload capacity of the whole UPS system, which makes the capability of anti-short circuit and anti overload of UPS far superior to the ordinary UPS, especially the anti short circuit is unmatched by similar devices.

## Rectifier

6 pulse or 12 pulse fully controlled bridge (6 or 12 SCR) compose rectifier. Its function is to input AC 380V to DC 220V or so by rectification. “slope” start (soft start) is the control feature, which means output voltage of the rectifier increase from 0V to 200V within 10 second and has no impact on the power grid.

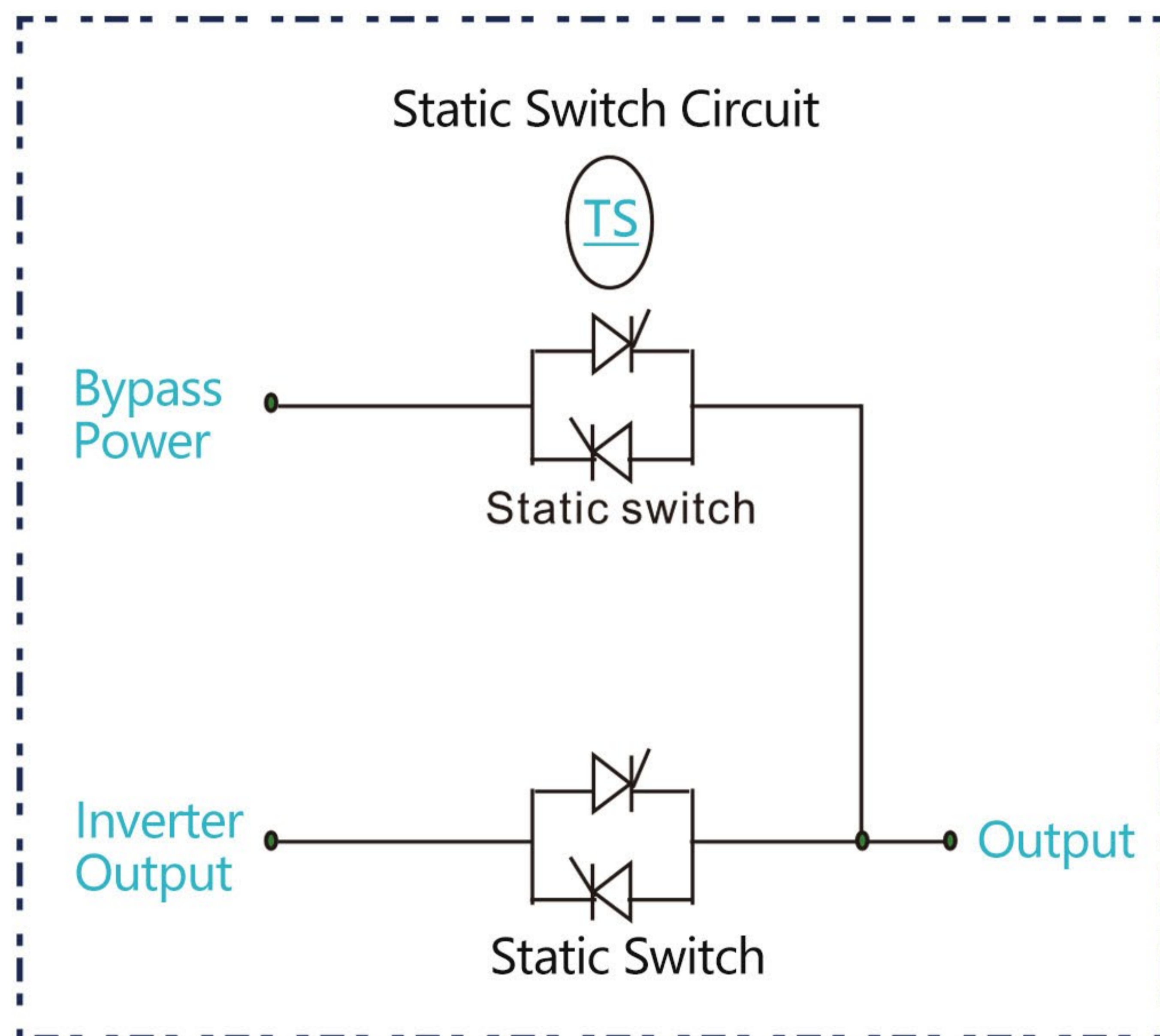


## Static Switch:

No sync automatically switch:

When the bypass of the UPS lose sync with the inverter, system can automatically implement not sync switch, for example, when the utility power surge pulse width <5ms, the system can ensure no power cutoff.

When the bypass exceed the limitation, UPS will detect the bypass every 20ms, when the phase angle difference of bypass and the inverter turn to normal range, not synchronized bypass shifting can be realized.



## Inverter of UPS have a Strong Overload:

110% load -- 60 minutes

125% load -- 10 minutes

150% load -- 1 minute

200% single phase load -- 30 seconds

Good capacity of resistance to output short circuit current limiting and period load impact.

**Advantages:**

290% rated current -- 5": Even though a output short circuit or an overload occurs because of user's improper operation, the output current of UPS can still be limited to a controllable extent instead of exceedingly increasing, consequently laying a good foundation for a long-term and reliable operation of UPS..

## Intelligent Monitoring:

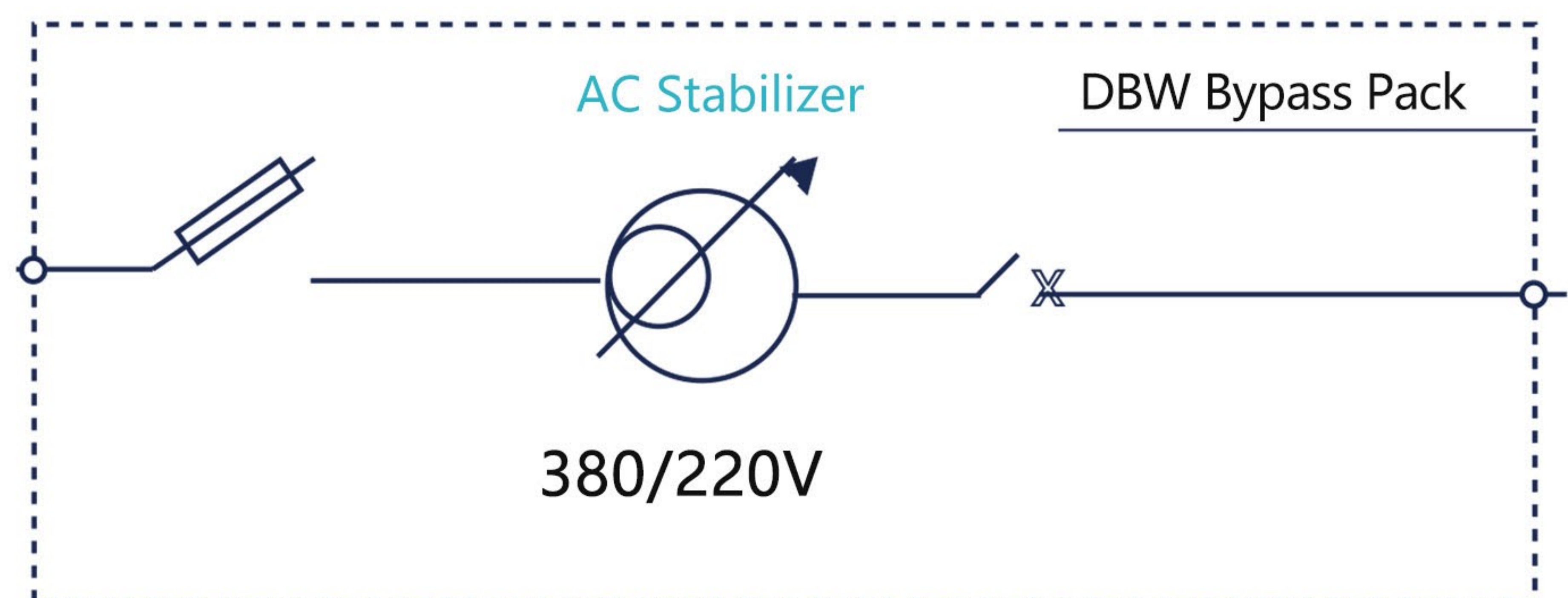
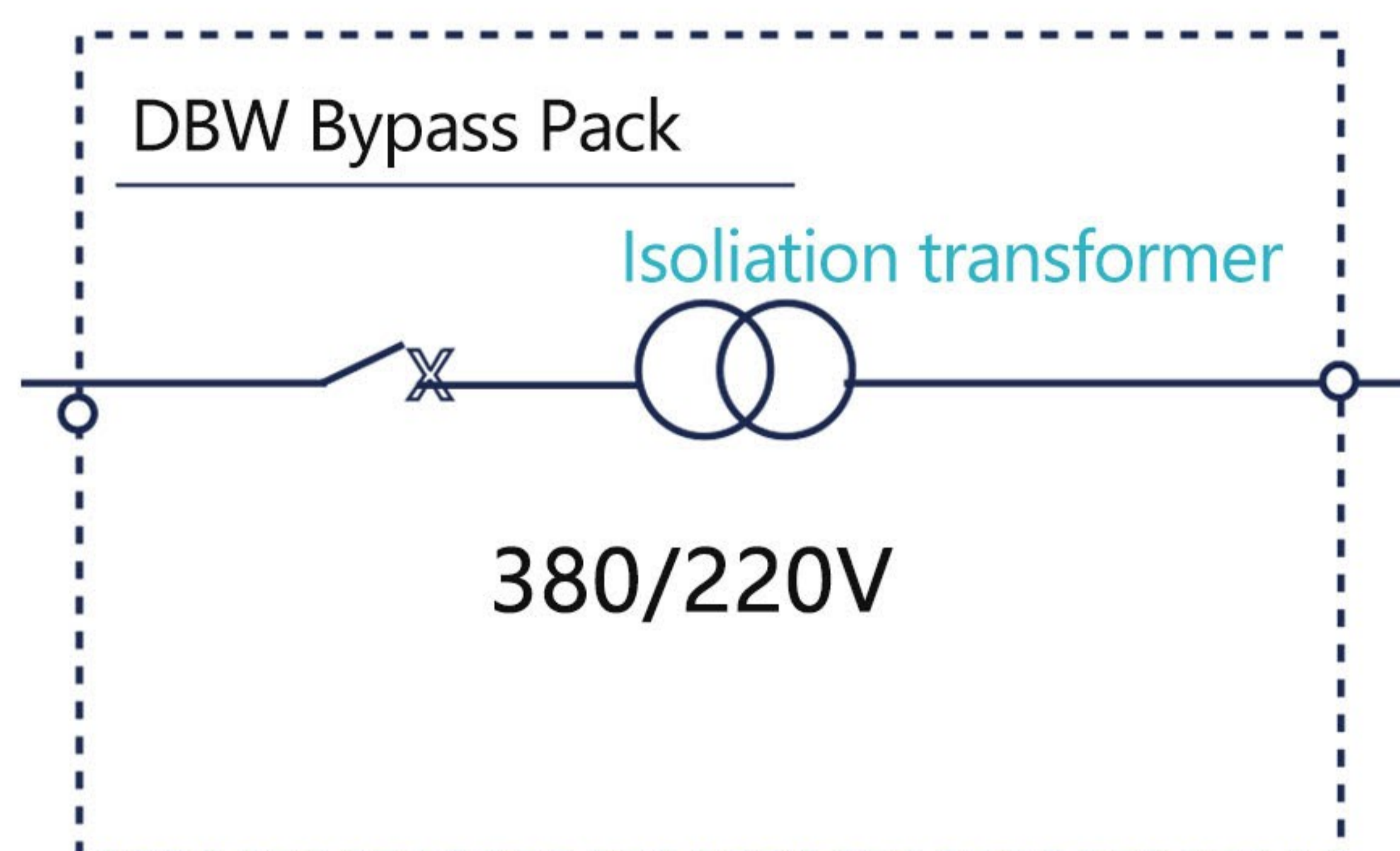
Working status and data of UPS are transmitted to DCS system in real-time via RS232/RS485, passive contact and power transmitter, which finally realize intelligent monitoring.

## Unique Option:

- SNMP card
- Dry contact card
- Signal transmitter
- Bypass isolation and voltage regulation
- Increase feeder circuit (standard for 8 loops)
- 12 pulse rectifier
- The appearance of special models (standard dimension: 800x600x2260mm)

## Optional Bypass Cabinet:

Isolation transformer and bypass voltage regulator



## CND310 Series Technical Specifications

CND310 10 - 80KVA								
Model Number	10KVA	15KVA	20KVA	30KVA	40KVA	50KVA	60KVA	80KVA
Rating Capacity	8KVA	12KVA	16KVA	24KVA	32KVA	40KVA	48KVA	64KVA
Rating Voltage	220VAC Single Phase							
<b>AC Input</b>								
Voltage Range	±25%							
Frequency Range	50/60Hz ±10%							
Soft Start	0 - 100% 5 seconds							
Power Factor	0.95 (with input filter)							
<b>Bypass Input</b>								
Permitted Voltage Range	±25%							
Frequency Range	50/60Hz±5%							
<b>Output</b>								
Voltage Accuracy	±1% (steady load); ±3% (fluctuating load)							
Permitted Frequency Range	50/60Hz±0.05Hz (powered by battery)							
Power Factor	0.8							
Waveform Distortion	Linearload<2%, non linear load<4%							
Dynamic Load Voltage Transients	<5%, recovery within 10ms							
Crest Factor (Ipeak /Irms)	3:1							
Overload Capacity	Normal in 110% load, 125% for 10min							
Efficiency	Double conversion mode: 94%; ECO mode: 98%							
<b>DC</b>								
Battery Voltage	220; (10-40KVA 100V is optional)							
Cutoff Voltage	185V							
Maximum Discharge Current	45A	70A	92A	138A	184A	230A	276A	368A
Battery Charger	Optional							
<b>Panel Display</b>								
LCD	Chinese/English UPS status, operation instruction input voltage, output voltage, current, frequency, battery voltage, value of charge and discharge current, fault display, warning							
<b>Environment</b>								
Temperature	0°C-40°C							
Humidity	0-95% (no condensing)							
Storage Temperature	-25°C-55°C							
Altitude	<1500m							
<b>Optional</b>								
Item	RS485 / SNMP / Harmonic compensation cabinet / Input and output isolation cabinet / Lightning protection device / Bypass stablelized cabinet / Customized appearance and size							

Note: Product specifications are subject to change without further notice.



## CND330 Series Technical Specifications

CND330 10 - 80KVA								
Model Number	10KVA	15KVA	20KVA	30KVA	40KVA	50KVA	60KVA	80KVA
Rating Capacity	8KVA	12KVA	16KVA	24KVA	32KVA	40KVA	48KVA	64KVA
Rating Voltage	380/400/415/ three-phase four-wire							
<b>AC Input</b>								
Voltage Range	±25%							
Frequency Range	50/60Hz ±10%							
Soft Start	0 - 100% 5 seconds							
Power Factor	0.95 (with input filter)							
<b>Bypass Input</b>								
Permitted Voltage Range	±25%							
Frequency Range	50/60Hz±5%							
<b>Output</b>								
Voltage Accuracy	380/400/415 VAC 3ph+N							
Permitted Frequency Range	50/60Hz±0.05Hz (powered by battery)							
Power Factor	0.8							
Waveform Distortion	Linearload <2%, non linear load <4%							
Dynamic Load Voltage Transients	<5%, recovery within 10ms							
Crest Factor (I <sub>peak</sub> / I <sub>rms</sub> )	3:1							
Overload Capacity	Normal in 110% load, 125% for 10min							
Efficiency	Double conversion mode: 94%; ECO mode: 98%							
<b>DC</b>								
Battery Voltage	220; (10-40KVA 100V is optional)							
Cutoff Voltage	185V							
Maximum Discharge Current	45A	70A	92A	138A	184A	230A	276A	368A
Battery Charger	Optional							
<b>Panel Display</b>								
LCD	Chinese/English UPS status, operation instruction input voltage, output voltage, current, frequency, battery voltage, value of charge and discharge current, fault display, warning							
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Temperature	0°C-40°C							
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Storage Temperature	-25°C-55°C							
Altitude	<1500m							
<b>Optional</b>								
Item	RS485 / SNMP / Harmonic compensation cabinet / Input and output isolation cabinet / Lightning protection device / Bypass stabilized cabinet / Customized appearance and size							

Note: Product specifications are subject to change without further notice.



Model	Capacity	Nominal Voltage	Battery Voltage	Power Factor	WxDxH (mm)	Weight (KG)
CND310	10KVA/8KW	380 / 400 / 415 VDC	110 / 220 / 384 VDC	0.8	600x800x2050	150
	15KVA/12KW				600x800x2050	300
	20KVA/16KW				600x800x2050	500
	30KVA/24KW				600x800x2050	700
	40KVA/32KW		220 / 384 VDC		600x800x2050	750
	60KVA/48KW				800x800x2050	850
	80KVA/64KW				800x800x2050	1000
CND330	10KVA/8KW	380 / 400 / 415 VDC	110 / 220 / 384 VDC	0.8	600x800x2050	150
	15KVA/12KW				600x800x2050	300
	20KVA/16KW				600x800x2050	500
	30KVA/24KW				600x800x2050	700
	40KVA/32KW		220 / 384 VDC		600x800x2050	750
	50KVA/40KW				800x800x2050	850
	60KVA/48KW				800x800x2050	1000
	80KVA/64KW				800x800x2050	1200

## Main UPS Structure:

- |  |                          |
|--|--------------------------|
| Input Isolation Transformer ⑩<br>(it is behind the power distribution panel) | Output Voltmeter ①       |
| Battery Switch ⑪   | Output Ammeter ②         |
| Input Switch ⑫   | Output Frequency Meter ③ |
| Bypass Switch ⑬  | Input Indicator ④        |
| Output Switch ⑭  | Output Indicator ⑤       |
| Maintenance Switch ⑮   | Power Module ⑥           |
| SPD ⑯  | Cooling Fan ⑦            |
| Input / Output Terminal Block ⑰  | Output Transformer ⑧     |
|  | Shunt Reactor ⑨          |



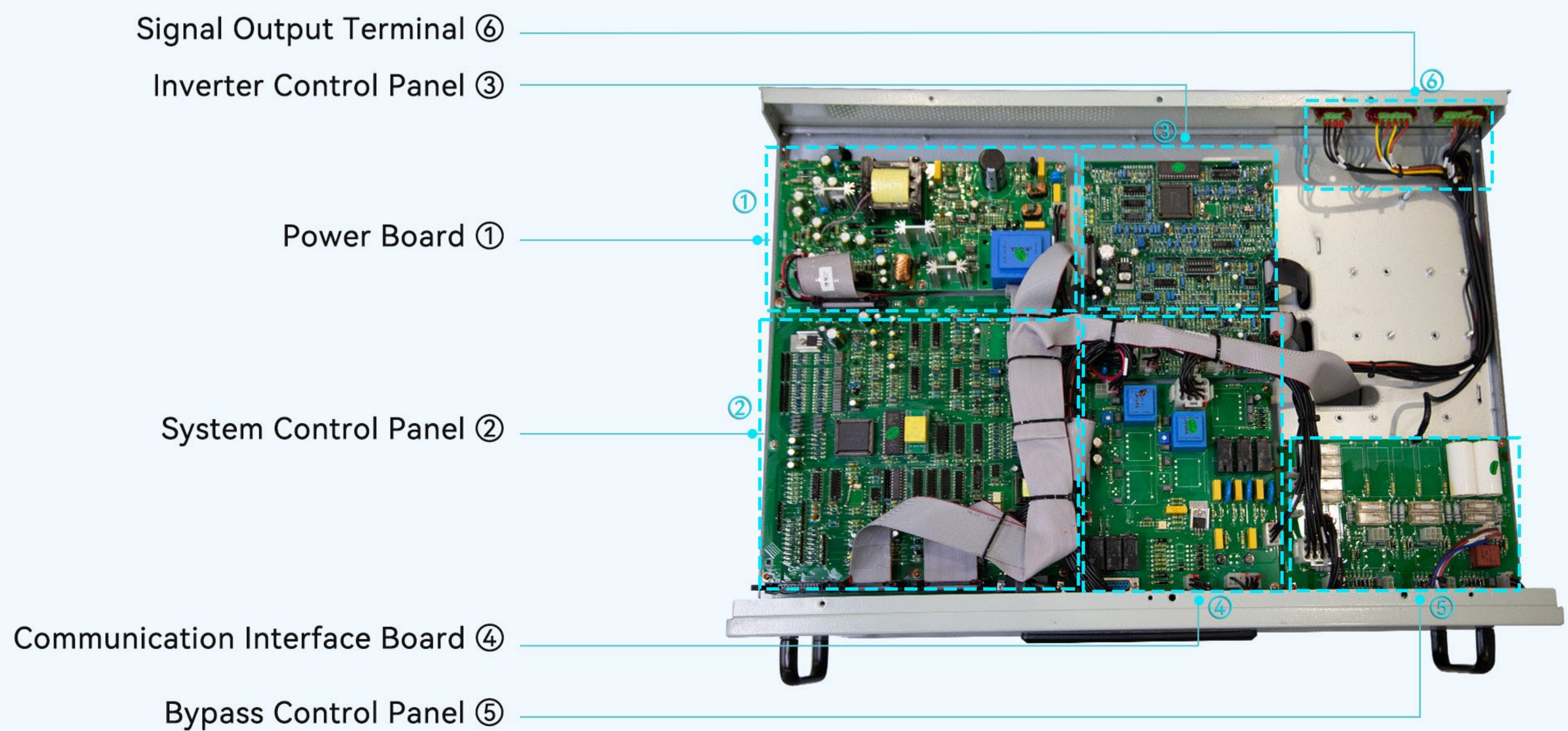
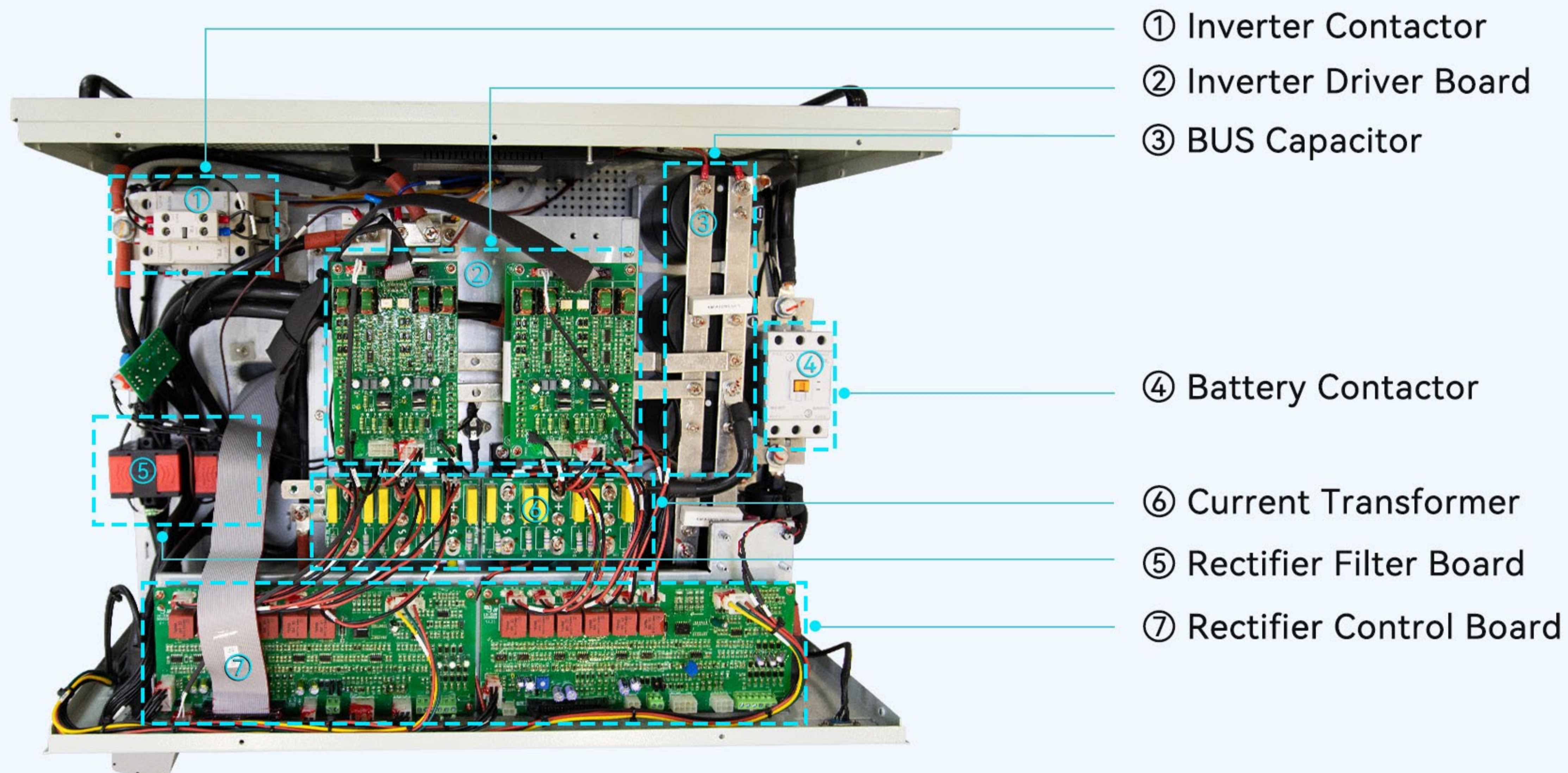
## Bypass Cabinet Structure

- |                           |                                |
|---------------------------|--------------------------------|
| ① Feeder Voltmeter        | ⑨ Bypass Output Switch         |
| ② Feeder Ammeter          | ⑩ Feeder Loop                  |
| ③ Feeder Frequency Meter  | ⑪ Feeder Loop                  |
| ④ Bypass Input Voltmeter  | ⑫ Feeder Loop                  |
| ⑤ Bypass Output Voltmeter | ⑬ Bypass Voltage Regulator     |
| ⑥ Input Indicator Light   | ⑭ Feeder Master Switch         |
| ⑦ Output Indicator Light  | ⑮ Bypass Isolation Transformer |
| ⑧ Bypass Input Switch     |                                |

## Power Module (Front & Rear)



## Power Module Inner Structure





# Production & Application

