

General Purpose High Voltage Inverter

WD5100 Series
WD5180 Series

WOLONG
Power your future



卧龙(浙江)电力电子有限公司

WOLONG (ZHEJIANG) POWER ELECTRONICS CO.,LTD

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Wolong (Zhejiang) Power Electronics Co., Ltd.
Wolong Electric Drive Group Co., Ltd.

Group Profile

Founded in 1984, Wolong aims to become the world's No.1 motor company and is committed to providing safe, efficient, intelligent and green motor power system solutions to global users. It owns three listed companies, Wolong Electric Drive (600580SH), Wolong Real Estate (600173SH) and BrookCrompton (AWC.S1), 57 wholly-owned and holding subsidiaries and more than 18,000 employees. Wolong has 39 manufacturing bases and 5 technical centers in China, Vietnam, the United Kingdom, Germany, Austria, Italy, Poland, Serbia, Mexico, Japan, India and other places. It has established a three-level technology research and development system of the global central research institute, product group and manufacturing plant, forming a research and development, manufacturing, sales and service network covering more than 100 countries around the world, and continuously creating a safe, efficient and stable supply guarantee system for customers.

Since its inception, Wolong has insisted on developing the company through science and technology, and has achieved a leading position in the motor research and development industry. It has applied for a total of 2,861 patents, including 305 invention patents, and has participated in the formulation of more than 100 international, national and industry standards. It has 2 national accredited laboratories CNAS, a nationally recognized enterprise technology center, an expert workstation of the academy, a postdoctoral scientific research workstation, a special motor material production and application demonstration platform of the Ministry of Industry and Information Technology, a national technology innovation demonstration enterprise, and a national manufacturing single champion demonstration enterprise. It owns 12 national high-tech enterprises.



Company Profile

Wolong Power Electronics is affiliated to Wolong Electric Drive Group. It is a high-tech enterprise with motor drive technology as its core. The company focuses on the research and development of high-performance vector control technology, permanent magnet synchronous motor and synchronous reluctance motor control technology, three-level control technology, and unit cascade multi-level control technology. Its products currently cover the full voltage range of 380V-10KV, including high-performance low-voltage inverters, 1140V/3300V three-level inverters and control systems, unit cascade high-voltage inverters, low-voltage three-level high-speed permanent magnet synchronous motor inverters, etc.

The products are widely used in coal mining, chemical industry, petroleum, metallurgy, electric power and other industrial fields. Especially in low-frequency and high-torque starting, long cable drive, ultra-high frequency output harmonic control, low harmonic feedback, permanent magnet motor drive, multi-drive load distribution and other applications, they have great advantages.

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General High Voltage Inverter Product Introduction



	WD5100 Series	WD5180 Series
Capacity range	6kV : 250~9000kVA 10kV : 250~16000kVA	10kV: 280kVA-2500kVA
Features	Based on the two-quadrant, synchronous /asynchronous motor control platform design, a universal high-voltage vector inverter adopts a unit H-bridge series bypassable architecture	Based on the traditional unit series technology, the unit structure is merged and upgraded, with more stable performance, smaller size, and uses the same control system as WD5100
Application Areas	Energy-saving applications of fans and water pumps in the fields of petroleum, electricity, chemical industry, metallurgy, building materials, municipal engineering, etc.; Process applications such as compressors, belt conveyors, elevators, crushers, ball mills, variable frequency soft starters, etc.	Energy-saving applications of fans and water pumps in metallurgy, HVAC, chemical industry, nonferrous metals, building materials, coal mining, municipal administration, electricity, papermaking, testing equipment, petroleum and other fields

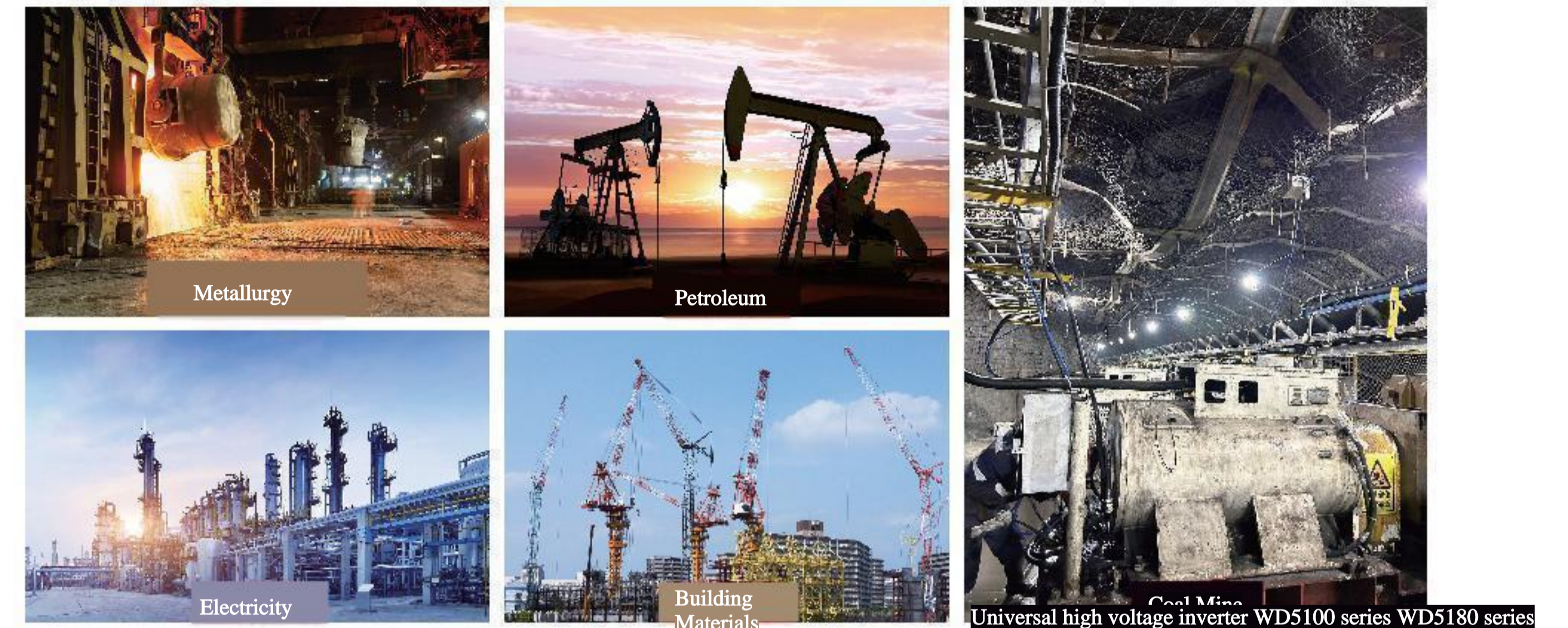
WD5100-1000-M100-ATB

① ② ③ ④ ⑤ ⑥ ⑦ ⑧

① Product categories: WD51 Wolong large transmission products	② 00: General high -voltage inverter 10:Dedicated for internal mixer 20: Air conditioning 30: Frequency supply 40: Water- cooled high voltage inverter 80: Compact high voltage inverter	③ Inverter rated capacity: KVA	④ The level of input voltage: A: 380V B: 690V C: 1140V D: 3kV E: 3.3kV G: 4.2kV H: 6kV L: 6.6kV M: 10kV N: 11kV P: 13.8kV	⑤ Output Voltage 060-6kV 100-10kV	⑥ Motor types: A: asynchronous motor P: permanent magnet motor S: electrically excited synchronous motor	⑦ F: The inverter has energy feedback T: The inverter does not have energy feedback	⑧ B: Power unit bypass configuration Default: No cell bypass
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Universal high voltage inverter WD5100 series/WD5180 series

General high voltage inverter application scenarios



WD5100 Series Universal High Voltage Inverter



Phase shifting transformer

The input transformer adopts dry multi-pulse rectification to improve the power factor and has no harmonic pollution on the grid side.



Control System

Based on high-speed ARM, DSP, FPGA high-performance chips, high-performance vector control is achieved, and the overlapping wave PWM control technology is used to achieve high-quality sinusoidal voltage and current output



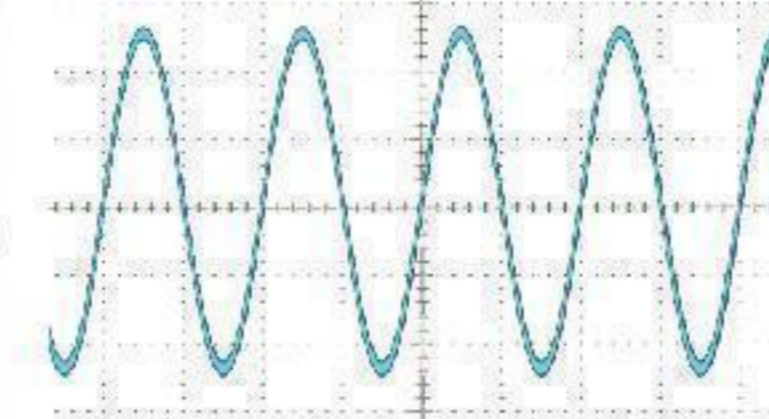
Newsletter

Adopt optical fiber isolation communication, high security and strong anti-interference ability



Filter device

The isolation filter uses a pull-up structure to replace the healthy



Output waveform

Output 4N+1 step PWM wave, almost a sine wave, more friendly to the motor



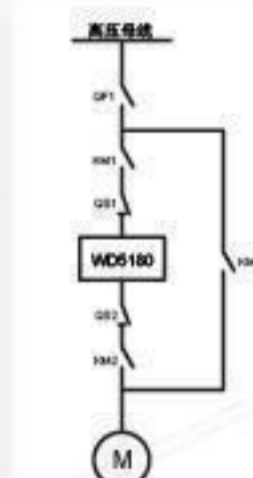
Power unit

The power unit adopts modular design, which is convenient for later maintenance and replacement



Simple human-machine interface

The HMI can intuitively display the operation status of the inverter, view or set function codes, and view fault information



Bypass cabinet

Optional manual/automatic bypass to achieve free switching between public and inverter frequency



WD5180 Series Universal High Voltage Inverter

Capacity range
280kVA~2500KVA

The power unit is fully enclosed and has strong environmental adaptability.

The power density is leading in the industry, and the overall size is 45% smaller than that of general products.

Ultra-long life: The life of core components such as film capacitors is increased by up to 100%

Comprehensive protection : temperature, voltage, current, fault self-recovery , etc.

Integrated heat dissipation of transformer cabinet and power unit cabinet



Technical advantages

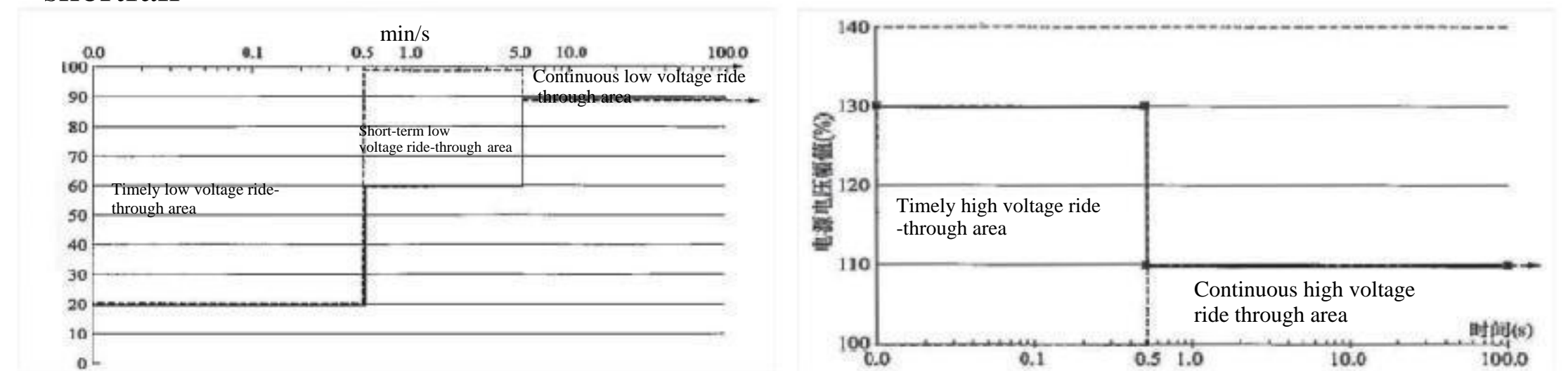
1 Support synchronous motor/ asynchronous motor control algorithm

(Adopting high-performance vector control algorithm, it can drive various motor types such as asynchronous motor, electric excitation motor, permanent magnet synchronous motor, etc.)



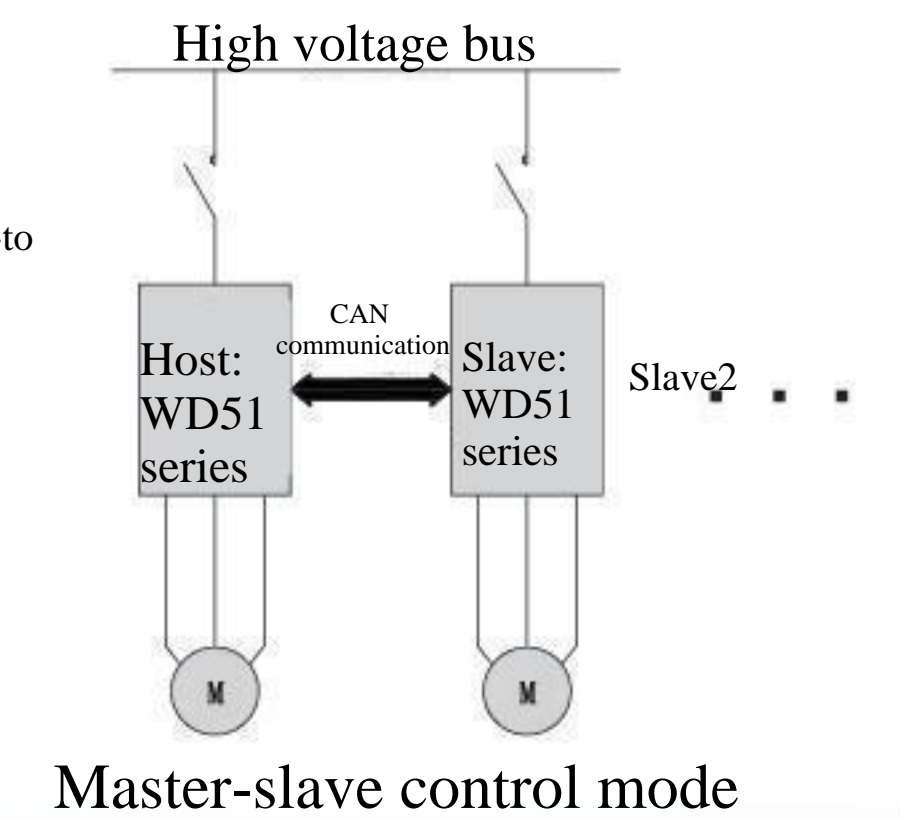
2 LVRT Low Voltage Ride Through Technology

The inverter continues to operate in the event of a grid shortfall



3 Master-slave control function

High control accuracy, simple operation, wide application range Can achieve one-to-one. One-to-many



4 Rich bus interface

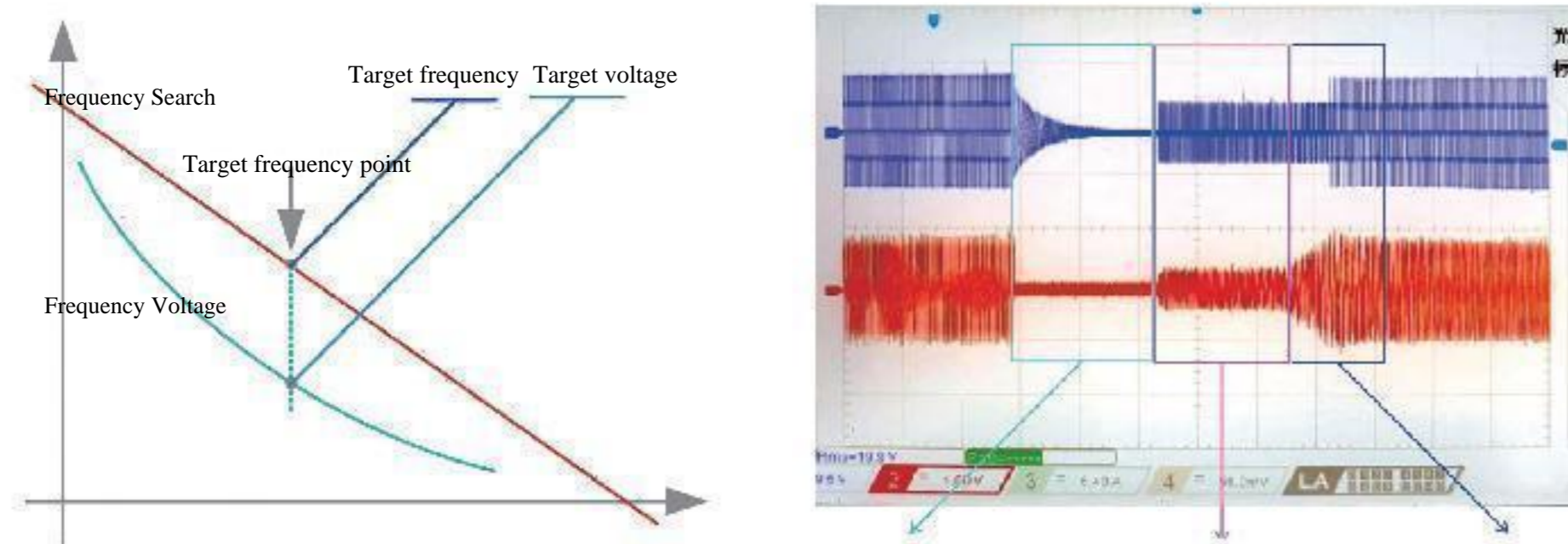
Provides a variety of fieldbus protocols and optional cards to facilitate connection with the user's DCS system to achieve centralized monitoring and management of equipment



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Flying start function

When the inverter is started in the unknown motor running state, the system can accurately track the current speed and direction, and output the voltage and current matching the current speed, so as to achieve flying start and reduce the impact on the motor.



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Adapt to harsh natural environment

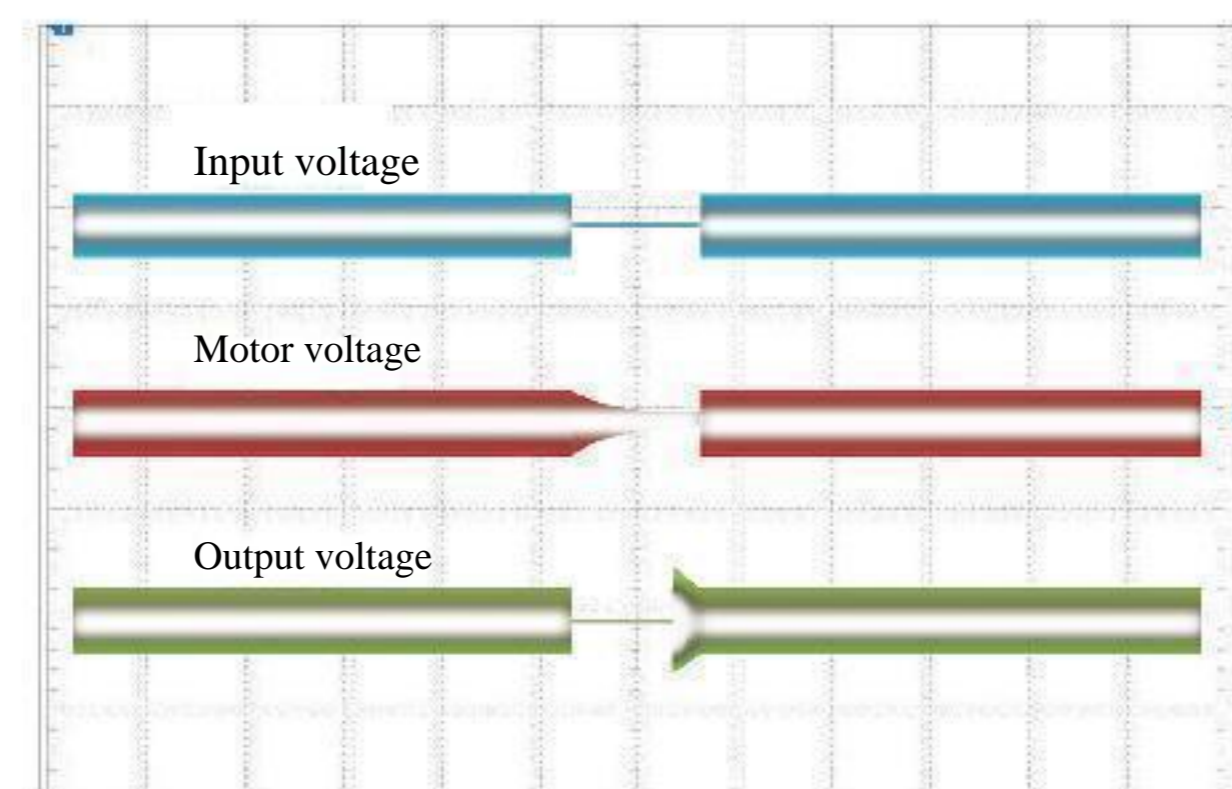
It can operate stably in high altitude and coastal areas, and provide timely after-sales service



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Power-off restart function

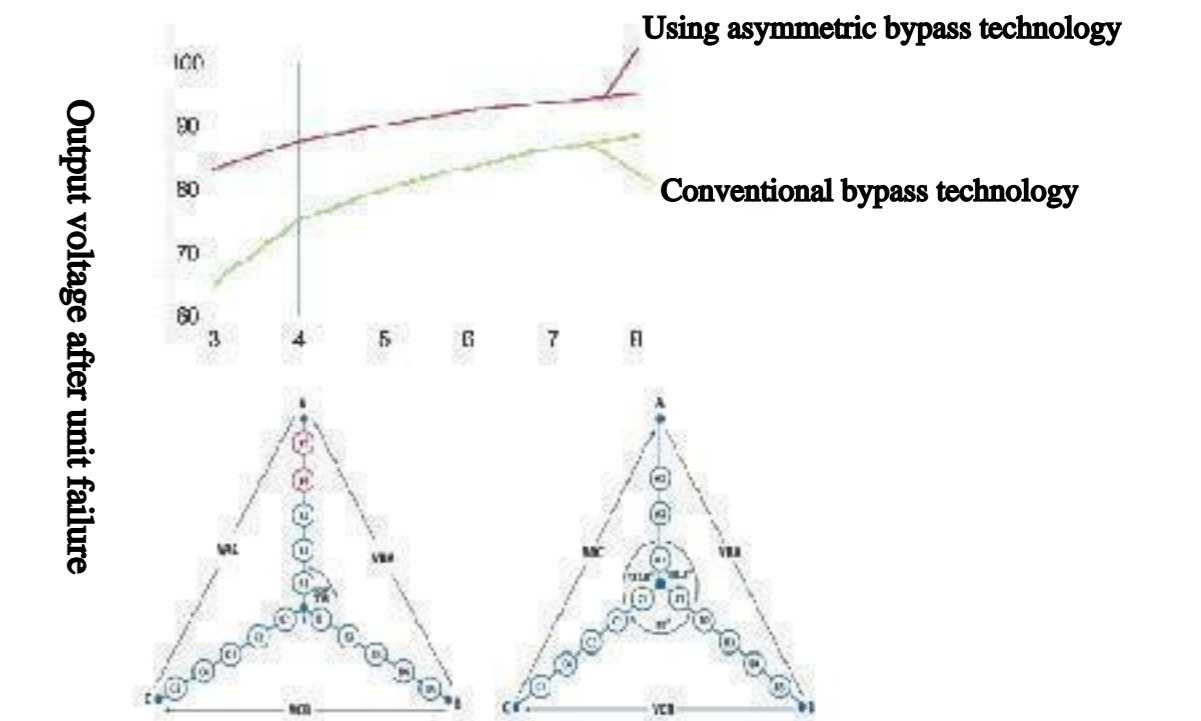
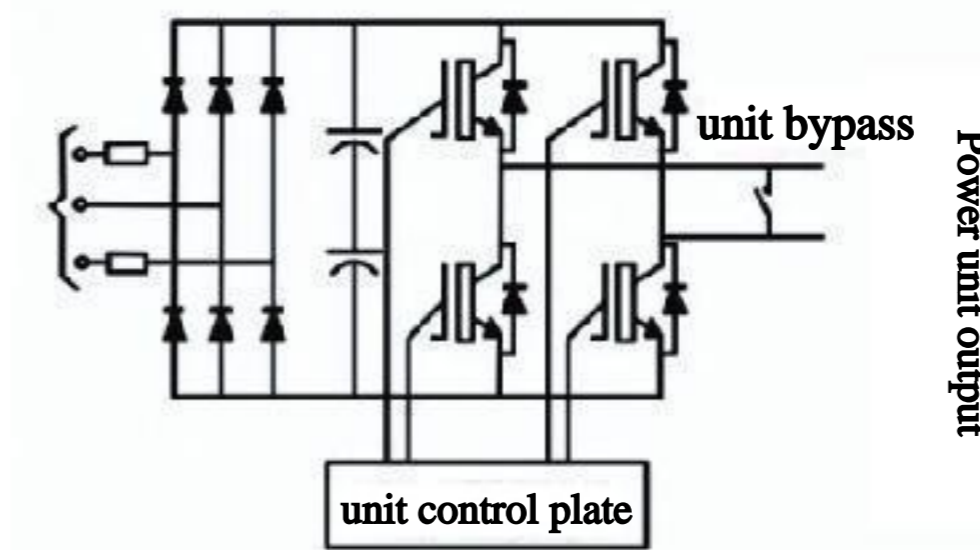
After the inverter is powered off for a short period of time and then powered on again, the inverter will automatically restart according to the state before the power failure, detect the motor speed through flying start, and start to the current target frequency.



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Asymmetric execution of unit bypass

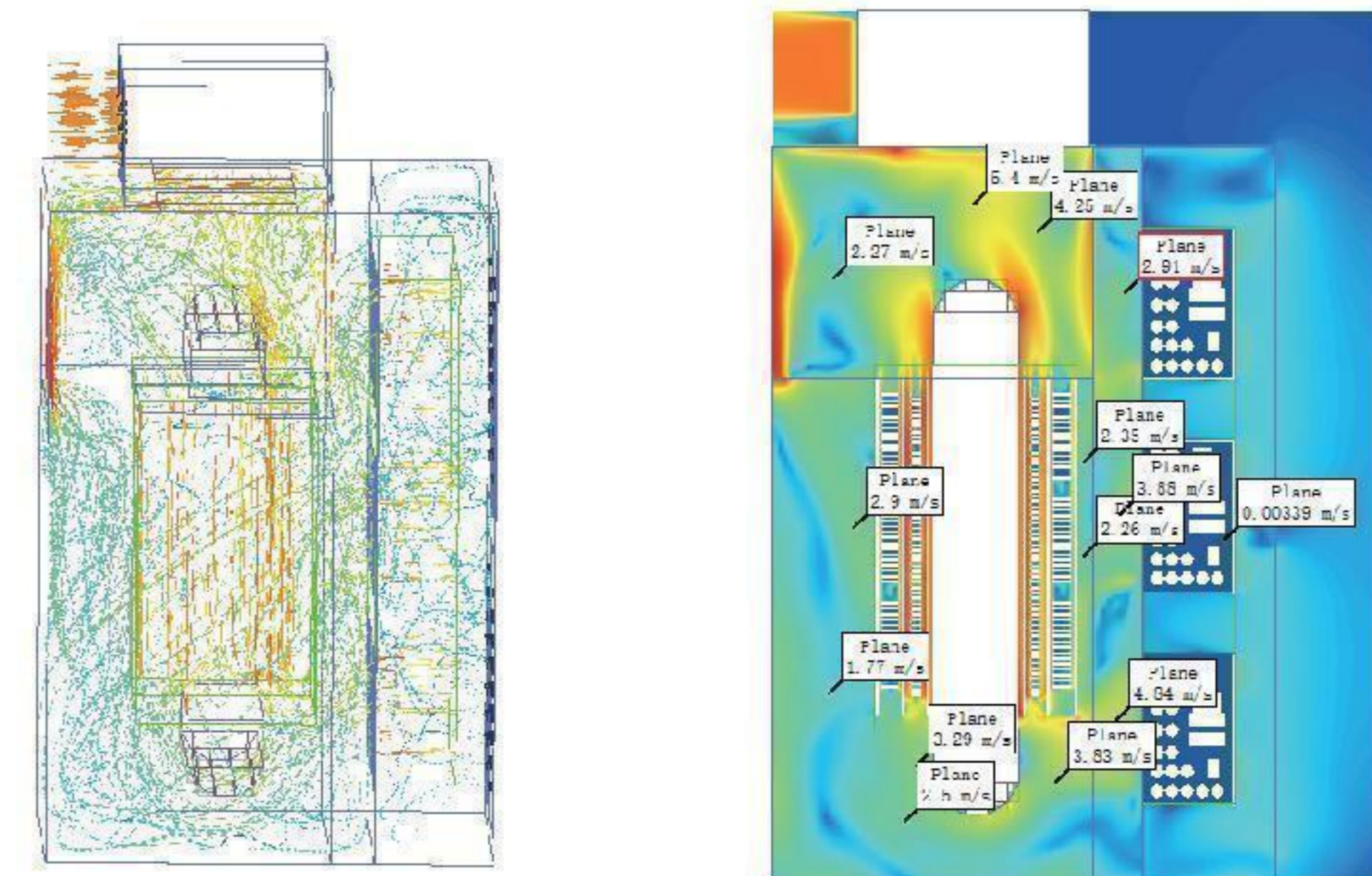
To improve operational reliability and safety, the frequency conversion unit has a bypass function. When any unit fails, the power unit uses a switch hard bypass to achieve unit bypass. Through the neutral point offset technology, the system can still operate stably.



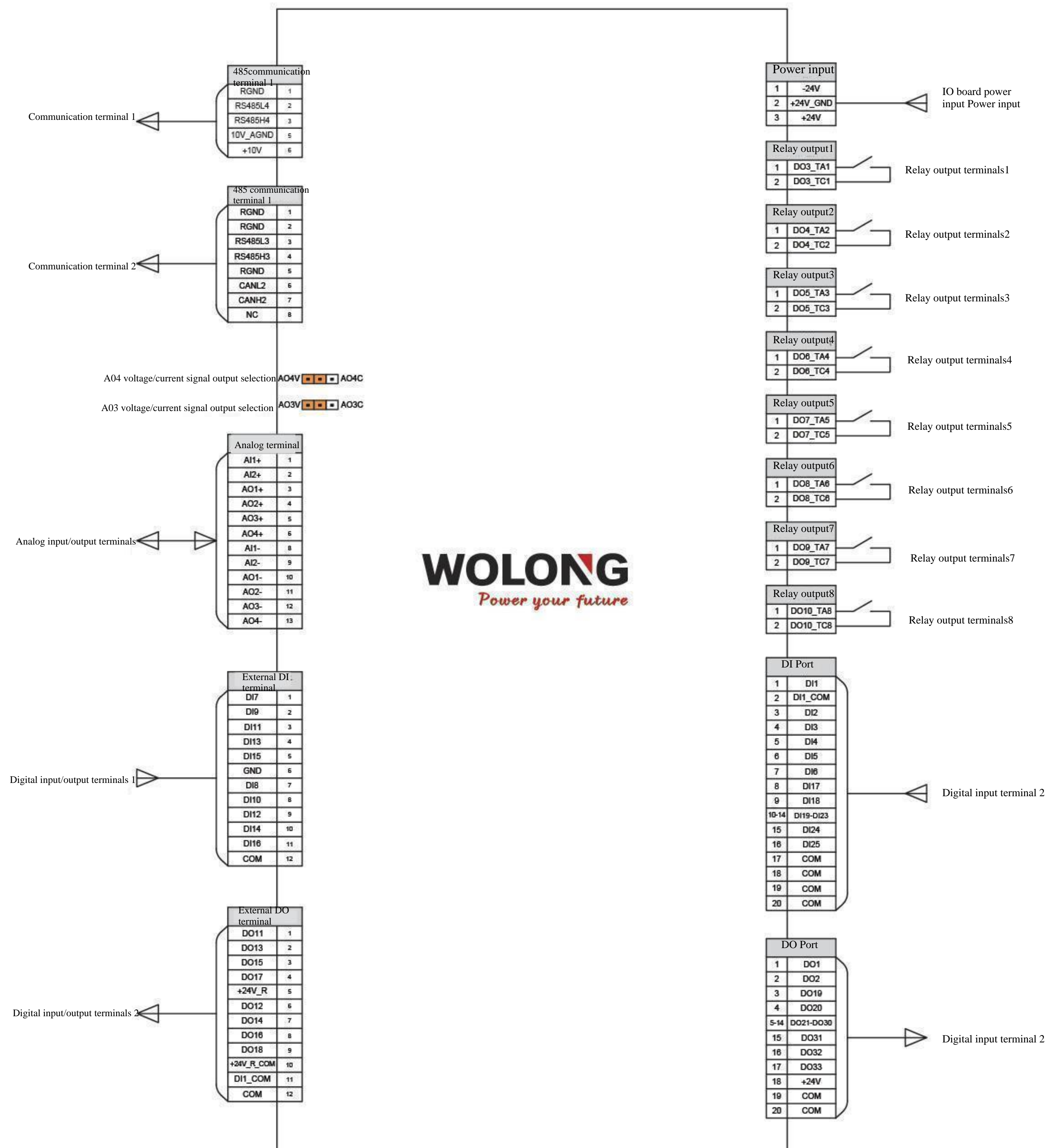
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Advanced thermal simulation technology

All power products are thermally simulated to ensure good heat dissipation design



Standard IO interface



WD5100/WD5180 DATASHEET

ITEM	VOLTAGE	6kV	10kV
Input	Input Rated Voltage	3 P 50/60Hz , 6KV	3 P 50/60Hz , 10KV
	Voltage Fluctuation Range	±10% Full load operation , -35%~-10% Long-term derating allowed	
	Frequency Range	50Hz±5%	
	Unit Input Voltage	690V	
	Input Power Factor	≥ 0.95 (20% load or more)	
Output	Voltage Range	0 ~ 6kV	0 ~ 10kV
	Capacity Range	315kVA ~ 9000kVA	5100 : 280kVA-16000kVA 5180 : 280kVA-2500kVA
	Unit output voltage	690V	
	Output frequency range	0 ~ 120Hz 120Hz and above, customized by manufacturers	
	Speed ratio	40:1 Universal Vector 100:1 (SVC) 200:1 (FVC)	
	Speed accuracy	±0.5% (SVC) ±0.2% (FVC)	
Number of power units	15pcs	24pcs (WD5180:12pcs)	
Technical solution	Unit cascade, AC-DC-AC, high-high mode		
Control method	V/F, Speed sensorless/with speed sensor control (SVC/FVC)		
Applicable motor type	Asynchronous motor, electrically excited synchronous motor, permanent magnet synchronous motor		
Rectification form	Diode three-phase full bridge		
Inversion form	IGBT inverter bridge		
Acceleration and deceleration time	0.1~6500 s		
Start-stop control	Local or remote		
Control system	ARM, DSP, FPGA, HMI		
Panel display	Touch screen, Simplified Chinese		
Overload capacity	5100 : 120% R.C /1min	5180 : 110% R.C /1min	
Equipment efficiency	≥ 96%		
Whether the frequency converter has a fuse	Yes		
Protection level	IP30		
System protection	Motor overload, output overload, output short circuit, output grounding, input overcurrent, input overvoltage, input unbalance, input grounding, cooling fan failure alarm, door switch interlock protection, transformer overheat alarm, transformer secondary short circuit protection, etc.		
Mean time between failures	50000 Hours		
Communication interface	CAN, Modbus RTU, Modbus TCP, PROFIBUS-DP (Option)		
Switch input	25-way relay dry contact		
Switch output	33-way relay dry contact		
Analog input	2-way 4 ~ 20mA 0 ~ 10V		
Analog output	4-way 4 ~ 20mA 0 ~ 10V		
Usage environment	Indoor		
AMB. environment	Preheating may be required if the temperature is below 0°C, and derating may be required if the temperature is above 40°C		
Usage altitude	< 1000m, if it is greater than 1000m, it needs to be derated (please specify when ordering)		
Total noise of the equipment	80dB		
Cooling method	Forced air cooling		
Control power supply	380V±10% AC three-phase four-wire		
Inlet and outlet line method	Bottom in and bottom out (special customization available)		

WD5100

10kV

Machine model	Nominal capacity (kVA)	Overall dimensions (width * depth * height mm)	Machine weight (kg)	
WD5100-280-M100-*T(B)	280	2700X1350X2050	2520	
WD5100-315-M100-*T(B)	315		2540	
WD5100-355-M100-*T(B)	355		2560	
WD5100-400-M100-*T(B)	400		2580	
WD5100-450-M100-*T(B)	450		2600	
WD5100-500-M100-*T(B)	500		2620	
WD5100-560-M100-*T(B)	560		2640	
WD5100-630-M100-*T(B)	630		2760	
WD5100-710-M100-*T(B)	710		2860	
WD5100-800-M100-*T(B)	800		2960	
WD5100-900-M100-*T(B)	900		3170	
WD5100-1000-M100-*T(B)	1000		3370	
WD5100-1120-M100-*T(B)	1120		3570	
WD5100-1250-M100-*T(B)	1250		3770	
WD5100-1400-M100-*T(B)	1400		3050X1625X2150	4680
WD5100-1600-M100-*T(B)	1600			4880
WD5100-1800-M100-*T(B)	1800			5080
WD5100-2000-M100-*T(B)	2000	5280		
WD5100-2250-M100-*T(B)	2250	5480		
WD5100-2500-M100-*T(B)	2500	5680		
WD5100-2800-M100-*T(B)	2800	4500X1375X2050		7430
WD5100-3000-M100-*T(B)	3000			7720
WD5100-3150-M100-*T(B)	3150			7760
WD5100-3500-M100-*T(B)	3500			7870
WD5100-3750-M100-*T(B)	3750		7950	
WD5100-4000-M100-*T(B)	4000		8470	
WD5100-4500-M100-*T(B)	4500		8500	
WD5100-5000-M100-*T(B)	5000		6400X1500X2500	11890
WD5100-5600-M100-*T(B)	5600			12400
WD5100-6300-M100-*T(B)	6300			13200
WD5100-7000-M100-*T(B)	7000	13700		
WD5100-8000-M100-*T(B)	8000	18550		
WD5100-9000-M100-*T(B)	9000	19150		
WD5100-10000-M100-*T(B)	10000	7350X1900X2850		21350
WD5100-11250-M100-*T(B)	11250			23300
WD5100-12500-M100-*T(B)	12500			24730
WD5100-13750-M100-*T(B)	13750			25190
WD5100-15000-M100-*T(B)	15000		26070	
WD5100-16000-M100-*T(B)	16000		26950	

6kV

Machine model	Nominal capacity (kVA)	Overall dimensions (width * depth * height mm)	Machine weight (kg)		
WD5100-315-H060-*T(B)	315	2000X1275X1900	1230		
WD5100-355-H060-*T(B)	355		1360		
WD5100-400-H060-*T(B)	400		1490		
WD5100-450-H060-*T(B)	450		1620		
WD5100-500-H060-*T(B)	500		1750		
WD5100-560-H060-*T(B)	560		1880		
WD5100-630-H060-*T(B)	630		2010		
WD5100-710-H060-*T(B)	710		2140		
WD5100-800-H060-*T(B)	800		2300X1525X2000	2500	
WD5100-900-H060-*T(B)	900			2700	
WD5100-1000-H060-*T(B)	1000	2900			
WD5100-1120-H060-*T(B)	1120	3100			
WD5100-1250-H060-*T(B)	1250	3300			
WD5100-1400-H060-*T(B)	1400	3500			
WD5100-1600-H060-*T(B)	1600	3700			
WD5100-1800-H060-*T(B)	1800	2600X1575X2050		3950	
WD5100-2000-H060-*T(B)	2000			4500	
WD5100-2250-H060-*T(B)	2250			4850	
WD5100-2500-H060-*T(B)	2500		5150		
WD5100-2800-H060-*T(B)	2800		5500		
WD5100-3150-H060-*T(B)	3150		4950X1300X2455	8000	
WD5100-3500-H060-*T(B)	3500			8550	
WD5100-4000-H060-*T(B)	4000			8750	
WD5100-4500-H060-*T(B)	4500			6800X1450/1300X2405	12420
WD5100-5000-H060-*T(B)	5000				12690
WD5100-5600-H060-*T(B)	5600	12970			
WD5100-6300-H060-*T(B)	6300	13290			
WD5100-7000-H060-*T(B)	7000	7100X1600/1400x2405			15420
WD5100-8000-H060-*T(B)	8000				16240
WD5100-9000-H060-*T(B)	9000				17000

WD5180 Specification

Machine model	Nominal capacity (kVA)	Overall dimensions (width * depth * height mm)	Machine weight (kg)	
WD5180-280-M100-*T(B)	280	1600X1300X2100	1880	
WD5180-315-M100-*T(B)	315		1890	
WD5180-355-M100-*T(B)	355		1900	
WD5180-400-M100-*T(B)	400		1930	
WD5180-450-M100-*T(B)	450		1950	
WD5180-500-M100-*T(B)	500		1990	
WD5180-560-M100-*T(B)	560		2000	
WD5180-630-M100-*T(B)	630		2100	
WD5180-710-M100-*T(B)	710		2200	
WD5180-800-M100-*T(B)	800		2300	
WD5180-900-M100-*T(B)	900	2500		
WD5180-1000-M100-*T(B)	1000	1600X1400X2100	2700	
WD5180-1120-M100-*T(B)	1120		2800	
WD5180-1250-M100-*T(B)	1250		2850	
WD5180-1400-M100-*T(B)	1400		1900	
WD5180-1600-M100-*T(B)	1600		1900X1500X2100	3300
WD5180-1800-M100-*T(B)	1800			3600
WD5180-2000-M100-*T(B)	2000			4000
WD5180-2250-M100-*T(B)	2250			4350
WD5180-2500-M100-*T(B)	2500			4700

Note:

- (1) The inverter capacity can be selected according to user requirements, and the bypass cabinet can be installed as an option.
- (2) The input voltage and output voltage of the standard series are the same, and the overall size needs to add 300mm-600mm fan height.
- (3) The overall weight only includes the transformer cabinet, power unit cabinet and control cabinet.