

VFD510

IP55 VECTOR CONTROL FREQUENCY INVERTER



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ShenZhen VEIKONG Electric CO., Ltd.

VEIKONG INDUSTRIAL CO.,LIMITED (HK)

Company Profile



Brief introduction

Shenzhen VEIKONG ELECTRIC CO., LTD is a reputable high-tech enterprise that specializes in researching, manufacturing, and trading both medium and low voltage inverters and solar pumping inverter. We offer our clients integrated system solutions, and our professional R&D team and devoted management with over 20 years of experience have made us one of the first independent AC drives companies in China.

We incorporate latest high efficiency mppt calculations and SPWM, sensorless vector control, and vector and torque control technology into our VFD and solar pump inverter which have reached international advanced standards, making them able to directly replace and be equivalent to Europe, the United States, Japan, and other brands, providing our clients with the highest level of technical support.

Quality is the foundation of our enterprise, and we consistently follow ISO9001 standards to manage and supervise quality. Our products have passed CE and IEC certifications and other technical approvals, and we continuously upgrade our technologies and products to better meet our customers' requirements and market needs.

VEIKONG team believes that the customer is the source of our enterprise. We take great pride in placing our customers' requirements first and ensuring that we meet and exceed their expectations. Our products have been widely used in various industries, including solar pumping, petroleum, chemical, melting, hoisting, electric power, building materials, water supply, plastics, textiles, printing, packing, and more, to create value for our customers.

VEIKONG, your trusted supplier!



Professional
R&D team

20+

Over 20 years of
professional
management experience

Company Certifications



Product Introduction

The VFD510 series high protection inverter is an IP55 protection grade inverter launched by our company. VFD510 is a product developed and improved based on VEIKONG VFD530 series. It not only has the high-quality performance of VFD530 series, but also has the additional high protection function. The product is especially suitable for application environments with a lot of dust, oil, and water mist. VFD510 can drive both asynchronous motors and permanent magnet synchronous motors. It has a standard STO function and supports a variety of encoder types and communication interfaces. It has excellent performance, rich functions, good reliability and environmental adaptability.

Supported motor types	asynchronous motor, synchronous motor
Control mode	V/F control, speed sensorless vector control (SVC), speed sensor vector control (VC)
Power range	4.0~110kw
Voltage level	Single-phase/three-phase 220V model: 200V~240V three-phase 380V model: 380V~480V
Allowable voltage fluctuation range	-15%~10%



High Protection Level

50°C ambient temperature standard design, can run coolly even in high temperature and harsh working conditions

Optional AC input switch, power-off operation is safer and more convenient

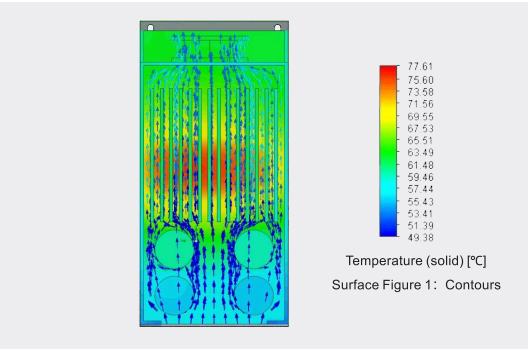
Ip55 protection level, high corrosion resistance, can be used outdoors, effectively resist water, dust, oil, etc., can greatly increase the service life of the inverter

Ip68 nylon cable threading connector, strong waterproof, aging-resistant, high toughness

High Reliability

Thermal design simulation experiment

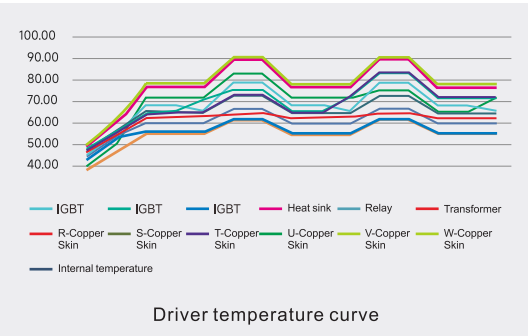
The accurate thermal simulation platform software is used to ensure the reliability of thermal simulation. The VFD510 series inverters have all undergone thermal simulation tests. Only within the thermal simulation safety design requirements, physical prototypes are developed. After actual testing, the thermal simulation results are very close to the physical test results. Under extreme test conditions, thermal simulation can replace actual load simulation, adding an extra layer of scientific thermal testing.



Strict temperature rise test

The whole Drive temperature rise test adopts the most stringent cycle overload test to ensure long-term reliable operation under extreme load conditions.

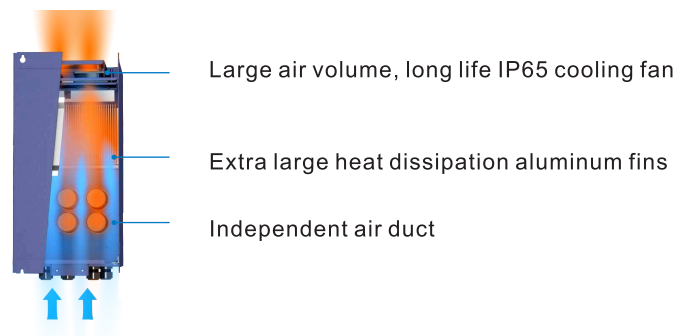
Cyclic overload test: At an ambient temperature of 50°, run at 1.5 times the overload current for 1 minute, then run at the rated current for 4 minutes, and then run at 1.5 times the rated current for 1 minute. This continuous cycle runs for 5 minutes per cycle until the system reaches a thermal equilibrium state and the whole Drive is within the thermal design safety range.



Independent air duct design

Independent air duct design effectively prevents dust from entering the inverter and causing short circuit and other faults, thereby improving reliability;

The use of large air volume and long life cooling fan effectively reduces the internal temperature rise of the inverter and ensures reliable and stable operation of the inverter.



Complete protection system

The whole series has STO protection, output short circuit protection to ground, overcurrent protection, driver overload protection, motor overload protection, driver overtemperature protection, optional PT100/PT1000/KTY84 motor overtemperature protection, etc.

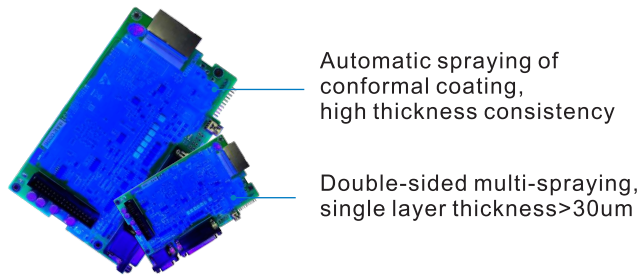
Depending on the fault type, it can be set to fault free stop, fault deceleration stop, fault continue to run, which brings convenience to on-site emergency handling.



Automatic spraying process of conformal coating

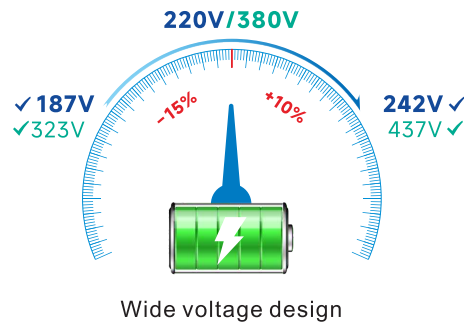
Multiple high-quality conformal coatings are used to enhance the environmental adaptability of the product.

The conformal coating adopts automatic spraying process to ensure the uniformity of the circuit board spraying thickness and the consistency of product batching.



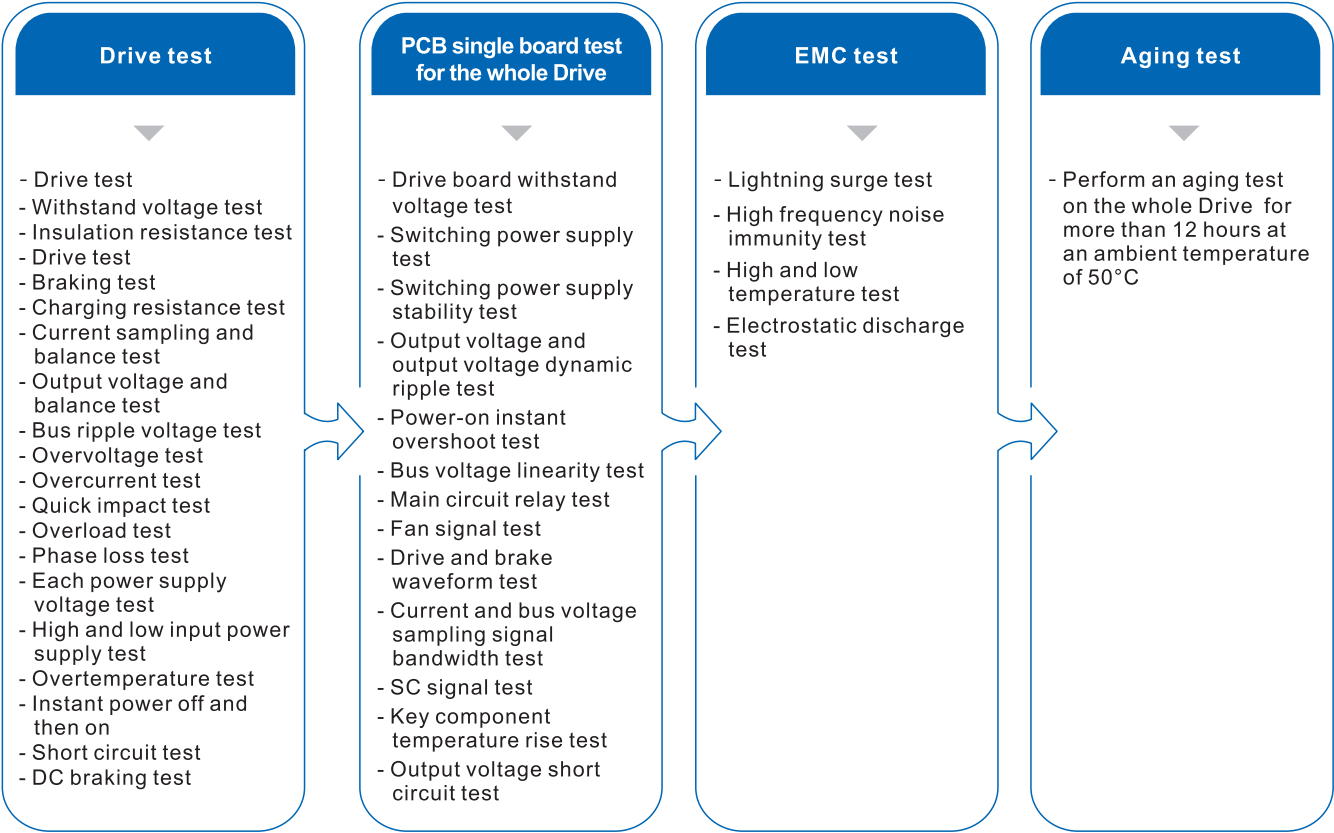
Wide voltage input range that complies with international standards

Rated voltage	Single-phase/three-phase 220V models: 200V~240V Three-phase 380V models: 380V~480V
Allowable voltage fluctuation range	-15%-10%
Input power frequency	50Hz or 60Hz, allowable fluctuation range ±5%



Full-cycle testing

During product development, the whole PCB board will be systematically tested. After assembly, the whole machine will be tested and the EMC environment will be tested. After passing the quality inspection, a 12-hour, 50°C high-temperature aging test will be performed to ensure the delivery quality of the entire series of products.



More flexible braking circuit solution

- SIZE C and below are equipped with built-in braking unit as standard, and SIZE D and above are optional;
- Strong braking force, short-term braking capacity can reach 1.1~1.4 times the rated power of the inverter;
- Strong braking protection, models above 30kW have braking resistor short-circuit protection and braking circuit overcurrent protection, etc.

Multiple practical functions

Process PID control

Multiple options for reference and feedback sources, with multiple functions such as feedback loss detection, output compensation, parameter switching, etc.

Independent sleep and wake-up functions extent

The sleep source and wake-up source can be set independently and arbitrarily to save power to the greatest

Flexible counter function

It can accumulate product output/length according to external photoelectric switches, encoder pulses and other signals, and perform corresponding actions when the output is reached.

Two sets of motor parameters can be switched

Supports parameter switching of two sets of motors. You can use the D terminal or modify the parameters to change the adapter motor to achieve one-to-two applications.

Multi-stage program operation

16-stage speed program operation and multiple cycle modes can meet various flexible process requirements.

Minor faults without shutdown

For most non-fatal faults, the fault handling mode can be set to continue running, emergency stop, stop according to the set stop mode, free stop and other response levels to reduce the impact on equipment operation.

Software changes the motor phase sequence

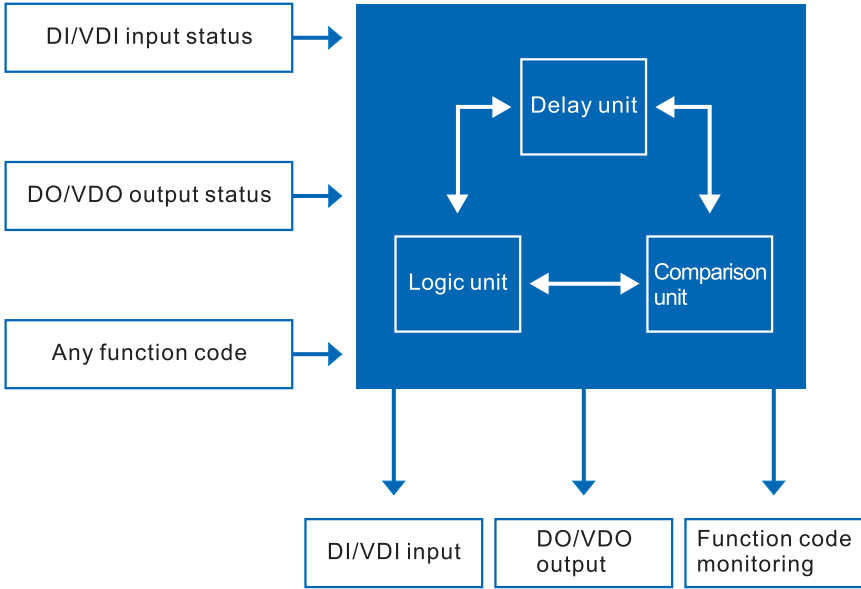
Whether it is open-loop control or closed-loop vector control, the motor phase sequence can be changed by software with one click, avoiding the need to change the motor wiring.

Parameter backup and restore

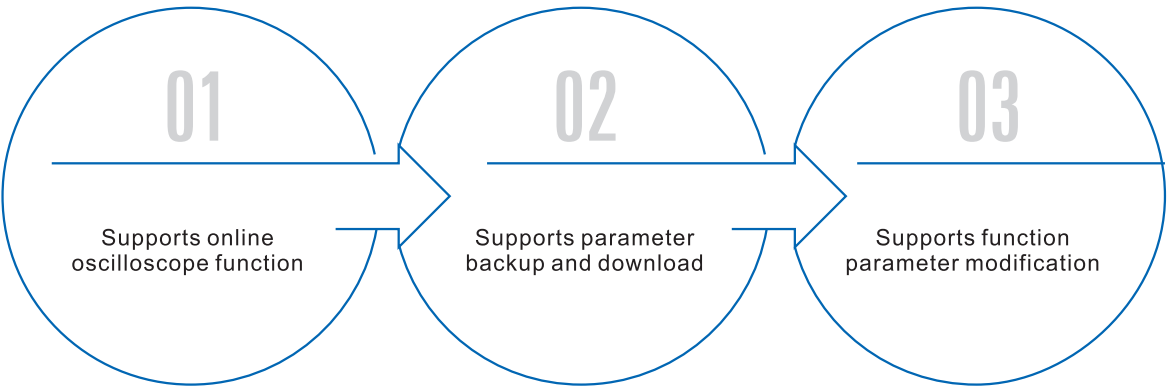
All current parameters can be saved in a copy to the built-in EEPROM backup area, and can be called out from the memory when restoration is needed.

Powerful internal logic function

- Built-in up to 4 groups of delay units, rich and diverse input sources, and output can be used as input for various other built-in modules.
- Built-in up to 4 groups of comparator units, arbitrary input, multiple comparison functions, and output can be used as input for various other built-in modules.
- Built-in up to 4 groups of logic units, arbitrary input, multiple logical operations, and output can be used as input for various other built-in blocks.
- The above modules can be used alone or in combination to achieve flexible logic functions, meet various applications, and save peripheral equipment and wiring.

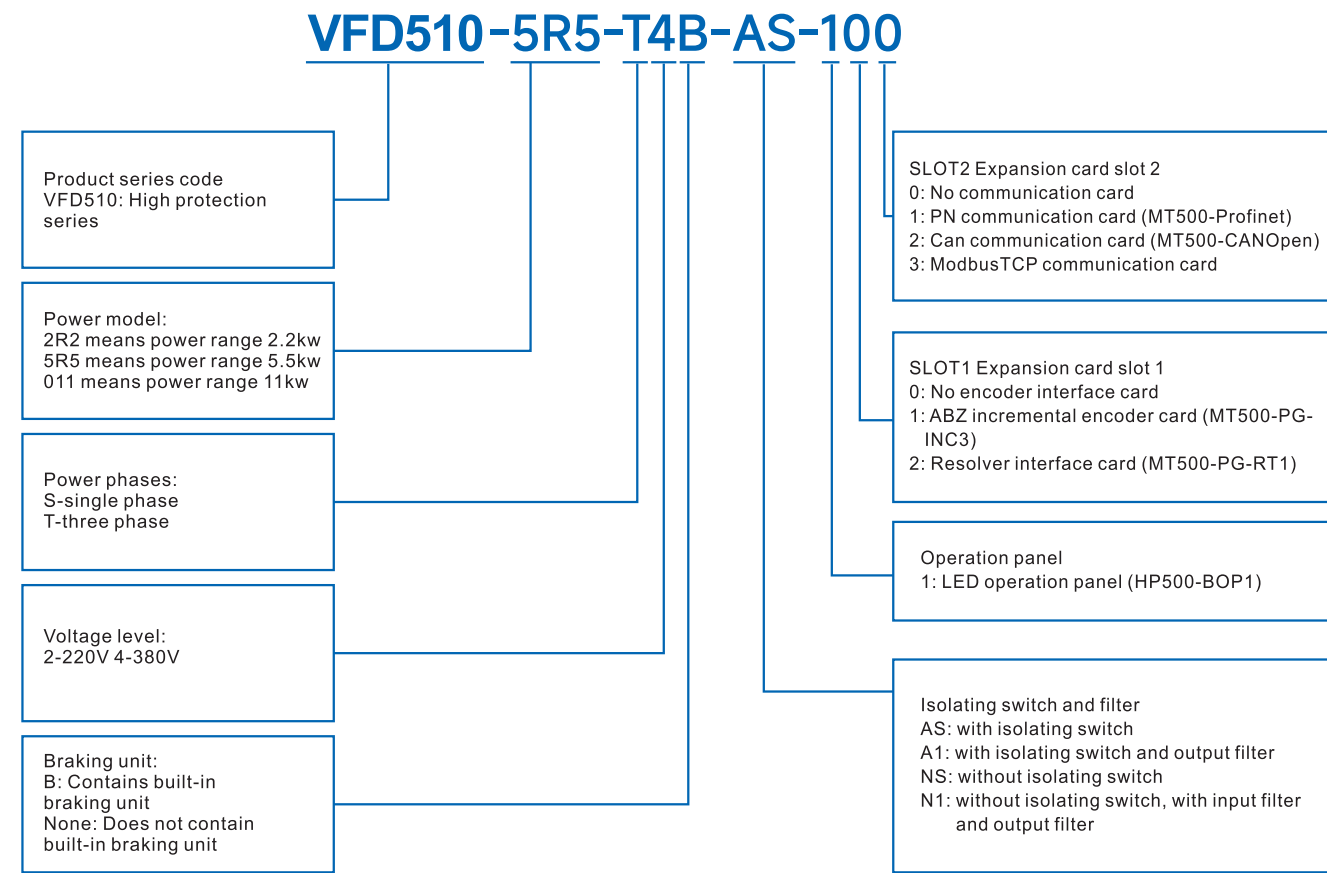


Powerful debugging software



Function name	Preset value	Current value	Default value	Unit	Maximum value	Minimum value	Attribute
00.00 User password	0	0	0		65535	0	Run writable
00.01 Access rights	0	1	0		1	0	Read only
00.02 Parameter backup and restore	0x0000	0x0000	0x0000		0x0014	0x0014	Run read-only
00.03 Parameter initialization	0x0000	0x0000	0x0000		0x0013	0x0013	Run read-only
00.04 Control mode	0	0	0		2	0	Run read-only
00.05 Operation mode	0	0	0		2	0	Run read-only
00.06 Operation command source	0	0	0		2	0	Run read-only
00.07 Digital preset frequency	0.00	50.00	Hz	0.00	600.00	0.00	Run writable
00.08 Operation direction	0	0	0		1	0	Run writable
00.09 Reverse disabled	0	0	0		1	0	Run read-only
00.10 Motor selection	0	0	0		1	0	Run read-only
00.11 Industry application macro selection	0	0	0		65535	0	Run read-only
00.12 Program block disabled bit	0000 0000 0000 0000B	0x0000	0x0000		0xFFFF	0xFFFF	Run read-only
00.13 Manufacturer password	0	0	0		65535	0	Run writable
00.14 Driver software version	0.00	0.00	0.00		655.35	0.00	Read only
00.15 Application software version	0.00	0.00	0.00		655.35	0.00	Read only
00.20 Non-standard program software version	0.00	0.00	0.00		655.35	0.00	Read only

Model Description



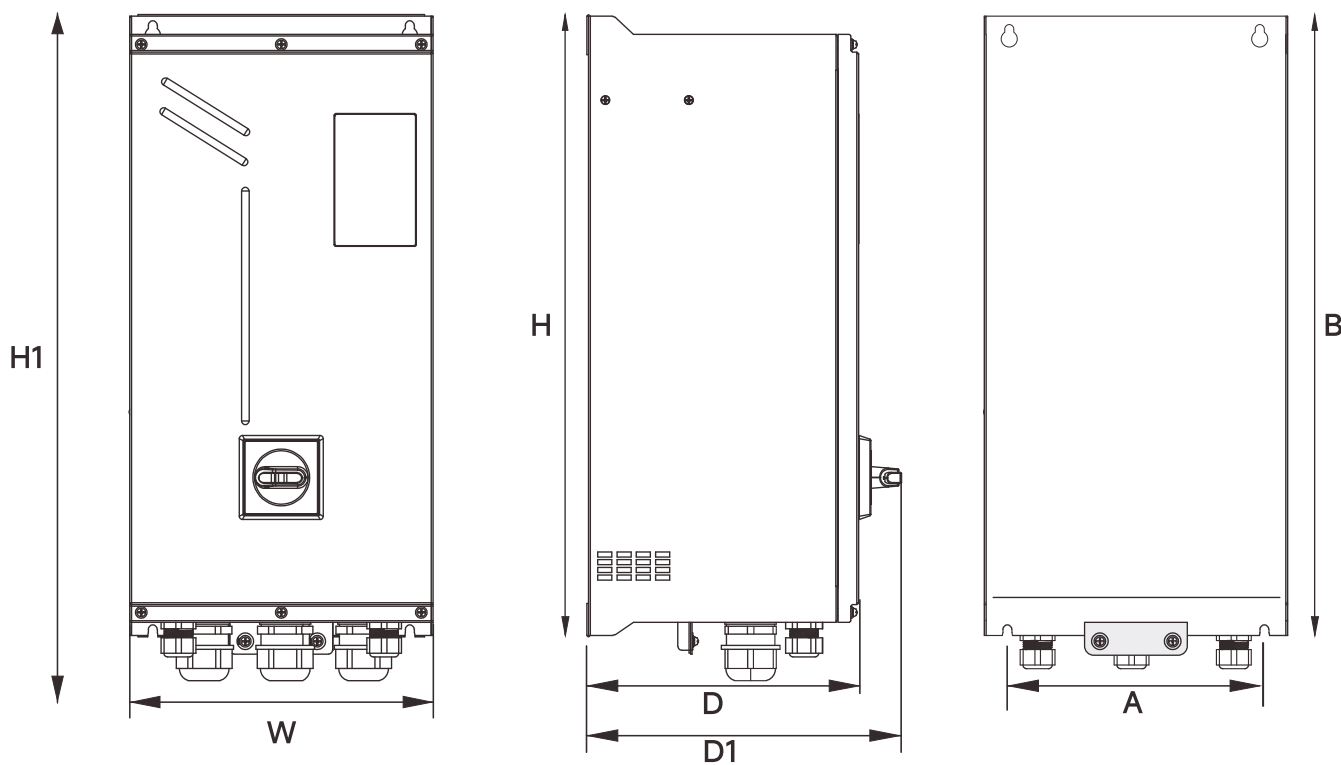
Abundant optional accessories

Accessory Type	Model	Image	Description
PG card	Incremental Encoder Interface Card MT500-PG-INC1		Differential or open collector input is optional, supporting up to 500kHz for differential input and 150kHz for open collector input; supports UVW differential input; without frequency division output.
	Differential Output and Open Collector MT500-PG-INC2		Differential or open collector input is optional, up to 500kHz for differential input and up to 150kHz for open collector input: supports 1~63 frequency division differential and open collector output, no UVW input.
	Differential Output and Open Collector MT500-PG-INC3		Differential or open collector input is optional, supporting up to 500kHz for differential input and 150kHz for open collector input; does not support UVW differential input; does not have frequency division output.
	Resolver PG card MT500-PG-RT1		Resolver PG card, supports 7Vrms, 10kHz excitation signal, DB9 female socket wiring.
Communication extension card	Modbus-TCP		Modbus-TCP communication card is a Modbus-TCP fieldbus adapter card, which complies with the international Modbus-TCP bus standard and has the advantages of high efficiency, flexible topology and easy operation. This card is used to connect the VFD500/510/530 series inverter to the Modbus-CP network, making the inverter a slave station of the fieldbus and accepting the control of the fieldbus master station.
	CANopen communication Canopen MT500-CAN1 (optional)		Used to connect VFD500/510/530 series inverters to CANopen communication network, supports NodeGuard protocol, the master station can use this function to query the device status; supports Heartbeat protocol; the slave station reports the current status to the master station regularly; supports NMT network management protocol: SDP only supports accelerated transmission mechanism to transmit up to 4 bytes, which can be used to read and write inverter parameters; supports 4 groups of PDO.
	Profinet communication card MT500-Profinet (optional)		MT500-Profinet is a Profinet fieldbus adapter card that complies with the internationally accepted Profinet Ethernet standard. This card is installed on the VFD510 series inverter to improve communication efficiency and facilitate the inverter networking function, making the inverter a slave station of the fieldbus and accepting the control of the fieldbus master station. MT500-Profinet card is suitable for all VFD510 series models.
IO extension card	IO extension card MT500-IOEX1		4 digital input terminals 2 analog input terminals 4 digital output terminals Supports the processing of PT100, PT1000, KTY84-130 temperature sensor signals.

VEIKONG VFD510 New look with different sides

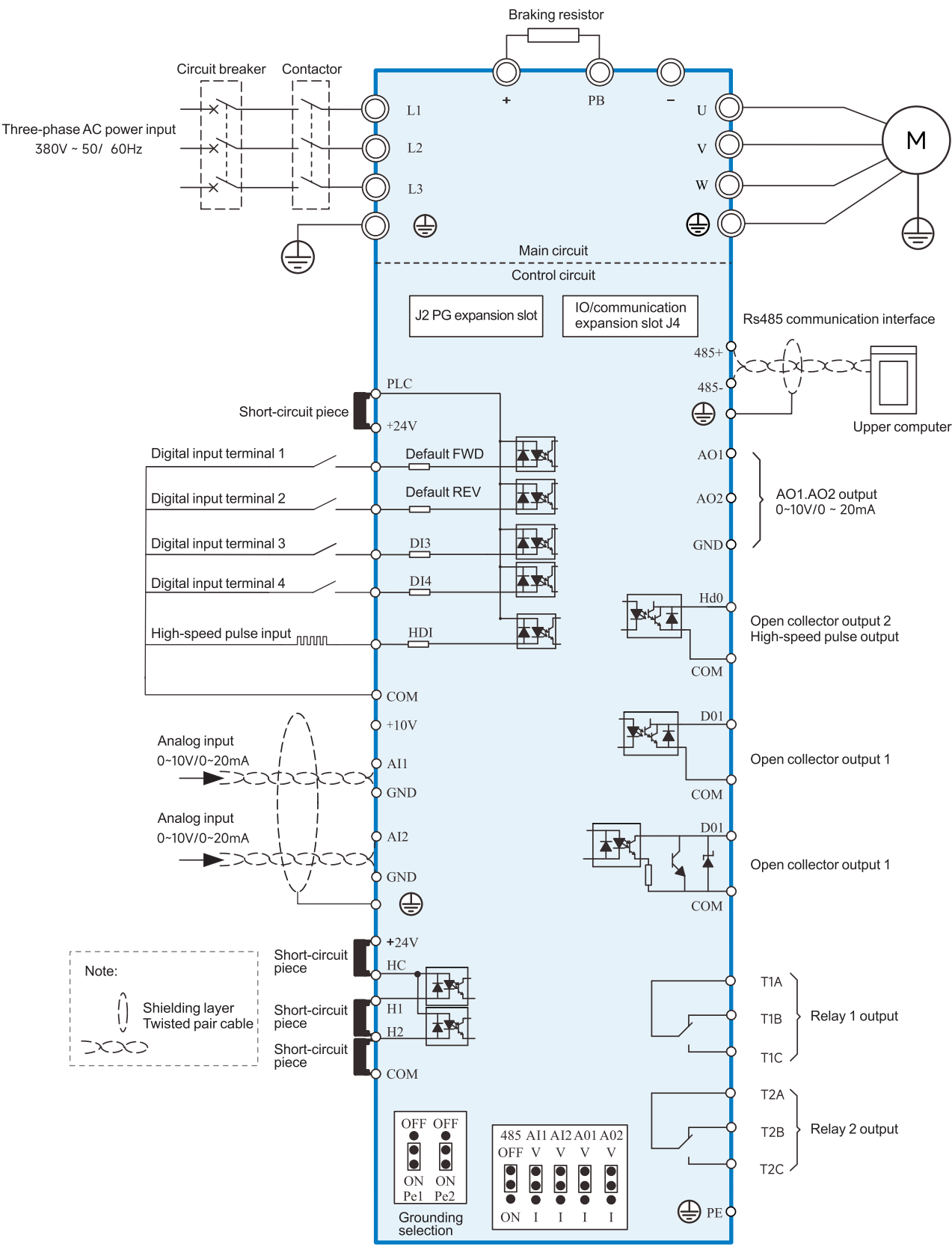


Appearance and installation dimensions



Appearance number	Models included	Appearance and installation dimensions							
		A	B	H	H1	W	D/D1	Φd	Mounting screws
SIZE A	VFD510-2R2-T4B	128	372	385	400	160	195/230	Φ6	M5
	VFD510-4R0-T4B								
	VFD510-5R5-T4B								
SIZE B	VFD510-7R5-T4B	165	408	420	445	200	210/245	Φ6	M5
	VFD510-011-T4B								
SIZE C	VFD510-015-T4B	200	470	480	515	235	210/245	Φ7	M6
	VFD510-018-T4B								
	VFD510-022-T4B								
SIZED	VFD510-030-T4(B)	250	550	569	595	334	265/293	Φ10	M8
	VFD510-037-T4(B)								
	VFD510-045-T4(B)								

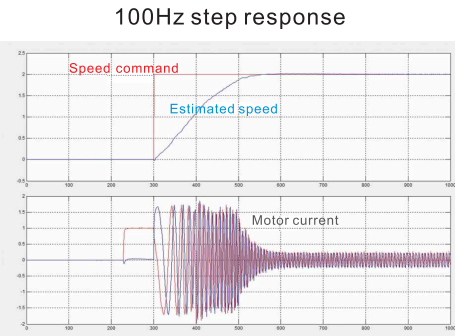
Standard wiring diagram



Excellent performance

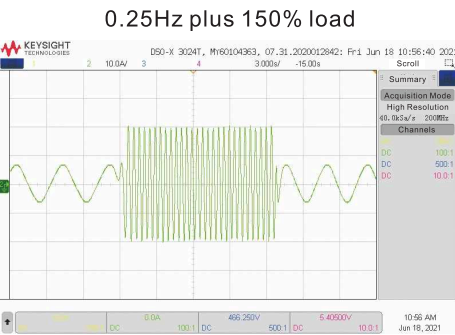
High speed stabilization accuracy, wide speed range

- Speed command Estimated speed Motor current
- Steady speed accuracy: $\pm 0.5\%$ (SVC), $\pm 0.02\%$ (VC);
- Speed adjustment range: 1:200(SVC)、1:1000(VC)
- Heavy load overload capacity: 110% rated current for long-term stable operation:
- 150% rated current for 1 minute;
- 180% rated current for 8S



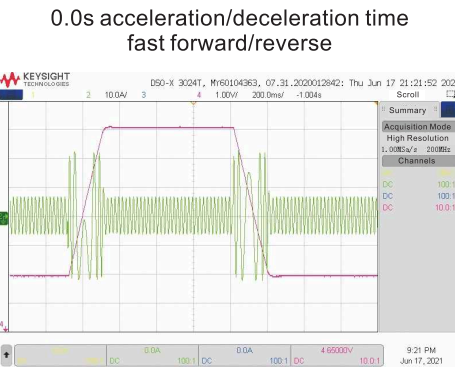
Big torque in low frequency , fast response for output torque

- Load capacity in low frequency: VF:180%@0.50HZ
- SVC: 180%@0.25HZ
- VC: 180%@0.00HZ



Fast Dynamic response

In SVC mode,the acceleration and deceleration time can be set arbitrarily (even 0.0s)The inverter runs stably without alarming,esp in some occasions requiring quick response.

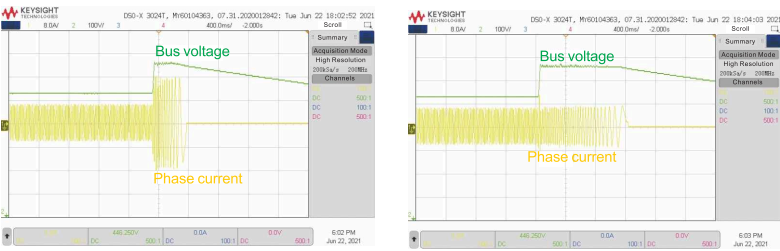


Multi-functions & simply use

Deceleration over excitation function

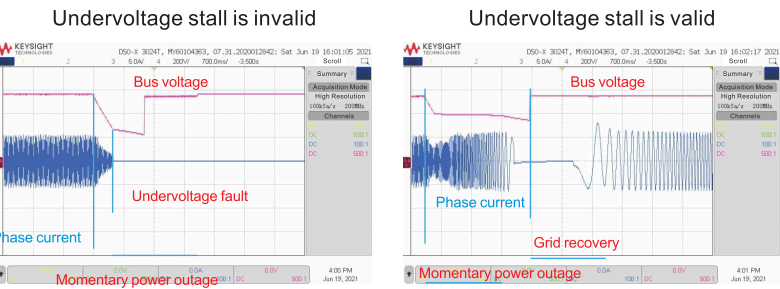
The over-excitation function is set to convert the mechanical energy of the motor when it is decelerated into motor heat to be consumed, which can shorten the deceleration time and save accessories such as braking resistors in the occasions where braking is infrequent.

Deceleration over excitation is effective Deceleration over excitation is ineffective



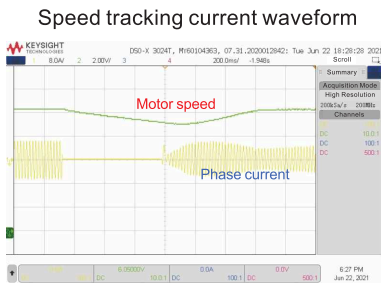
Undervoltage stall function

When the system is powered off instantaneously, the motor is controlled by the regenerative energy during deceleration to maintain the inverter running for a short period of time and reduce the risk of idling under the instability of the grid.



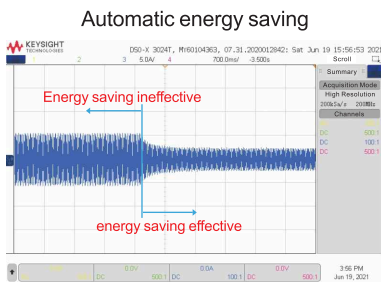
Excellent speed tracking function

Achieve smooth start without impact for the motor which does not stop rotating



Energy-saving operation of fans and pumps

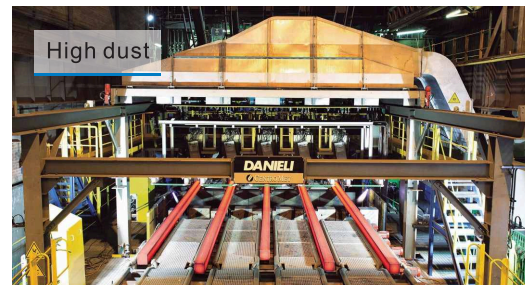
With excellent automatic energy-saving function, only need to set the maximum energy-saving target,When the operation meets the energy saving conditions, it can enter the automatic energy-saving state. By setting the VF function, one-to-multiple and long-distance control applications can be realized to meet the application of transformation occasions



Applications



Mining



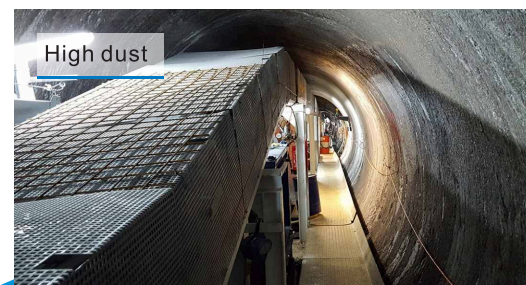
Machinery manufacturing



Metallurgy industry



Building materials manufacturing



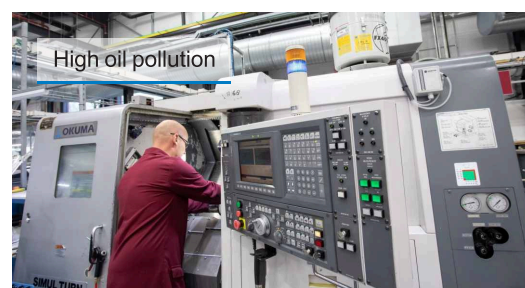
Construction of hydropower facilities



Stone processing



Oil extraction and refining



Machining



Sewage treatment



Municipal buildings

After Sale Service System



1. VEIKONG offers you 18-month quality guarantee. We will take responsibility for any problems caused during this period. As long as customers provide us with VFD error reports, we will provide free repair parts for them.

2. Please contact your sales representative in a timely manner, if you have any problems during usage. Meanwhile, we will build a professional technical team online to solve complex application issues for you.

VEIKONG , your trusted supplier!