

Innovation/Technology/High Quality



## VFD510 IP65 VECTOR CONTROL

# FREQUENCY INVERTER

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# PICTURE



Front



Left



Back



Right



Top



Bottom

## INTRODUCTION

VFD510 is a high protection grade frequency inverter for asynchronous motor control. The product has the characteristics of excellent software performance, simple and easy to use; The hardware is designed with high reliability; The structure is simple and generous, The appearance is beautiful, and the protection level reaches IP65. VFD510 can be used for all kinds of open loop speed/torque control applications, especially suitable for occasions that have strict requirements on system cost, reliability, and use environment.

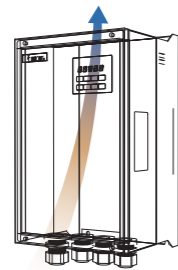
# PRODUCT FEATURES

## Wide input voltage range

single-phase/three-phase 220V model	200V~240V
three-phase 380V model	380V~440V

## Advanced thermal design

Small size, advanced thermal design, greatly smaller than the same type of inverter

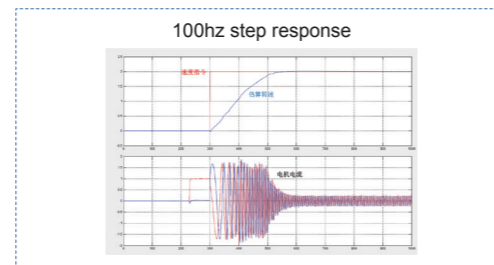


## High speed control accuracy

V/F control	±0.5%
SVC control	±0.2%
Overload capacity	180% for 10 seconds

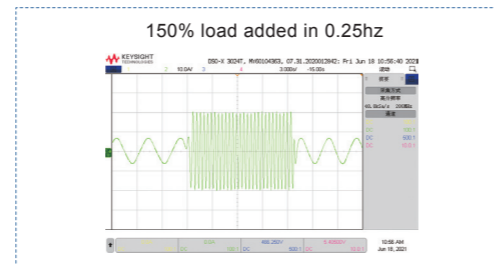
## High speed stabilization accuracy, wide speed range

- . Stable speed accuracy: ±0.5% ( SVC )、±0.02% ( VC ) ;
- . Speed adjustment range: 1:200 ( SVC )、1:1000 ( VC ) ;
- . Heavy duty overload capacity : Running stably with 110% rated current in long time ;
- . 150% rated current 60S ;
- . 180% rated current 10S



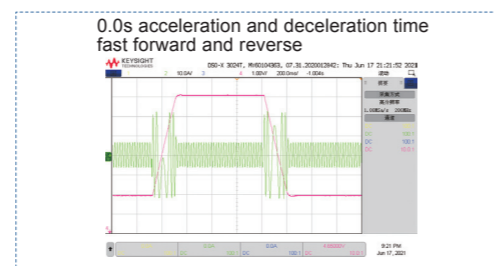
## Big torque in low frequency ,fast response for output torque

load capacity in low frequency: VF: 180%@0.50HZ ;  
SVC: 180%@0.25HZ



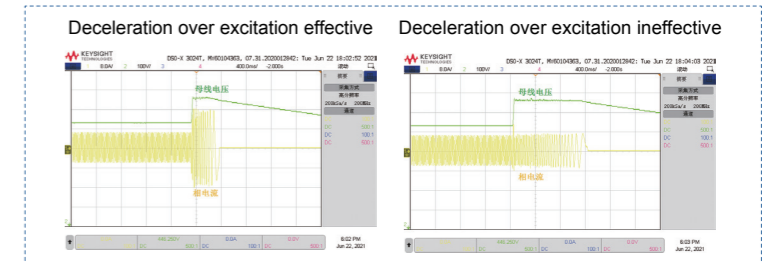
## Fast Dynamic response

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



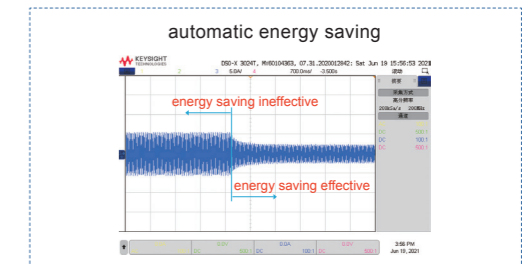
## Deceleration over excitation function

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.



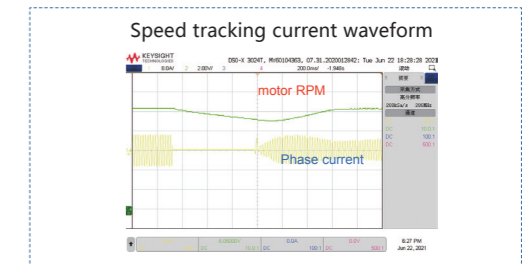
## Energy-saving operation of fans and pumps

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



## Excellent speed tracking function

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



## Strong PC tool commission

Strong PC tool commission, equipped with Modbus communication as standard, supports virtual terminals, programmable logic applications, and complete protection functions;

Function Name	Preset Value	Current Value	Default Value	Unit	Min	Max
00 Group Basic F						
01 Group Frequency						
02 Group Start an						
03 Group Ramp a						
04 Group Analog						
05 Group Analog						
06 Group Multi-fu						
07 Group Multi-fu						
08 Group Digital c						
10 Group encode						
11 Group Motor 1						
12 Group Motor 1						
13 Group Motor 1						
14 Group Torque						
18 Group Energy						
19 Reserved Para						
20 Group User-de						
21 Group Keypar						
22 Group AC drive						
23 Group Drive pr						
24 Group motor P						
25 Group Fault tr						
26 Group Fault re						
27 Group Monitor						
30 Group Modbus						
31 Group CANope						
40 Group PID fu						
41 Group Sleepin						
42 Group Simple						
43 Group Program						
44 Group Variable						
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# APPLICATION OCCASIONS

CNC machine tools



Photovoltaic pumps



large grinders



metal wire drawing machines



chemical machinery ,etc



# MODEL INSTRUCTION

**VFD510 - 4R0 - GT4B**

Product series

Power , 4R0 means 4kW

Load type:  
G normal duty

T:three phase

B means breaking units

4:380-480v three phase  
2: 200-240v

# PRODUCT SERIES INSTRUCTION

Model	Power capacity (KVA)	Input current (A)	Output current(A)		Adapt able Motor (KW)	SIZE	Brake Unit
			Heavy load	Light load			
3 phase: 380V-480V, 50/60Hz							
VFD510-4R0GT4B	6.2	11.6	9.4	10.5	3.7	Size A	Internal
VFD510-5R5GT4B	8.9	15.6	13.0	17.5	5.5		
VFD510-7R5GT4B	11	20.5	17.0	23.0	7.5	Size B	Internal
VFD510-011GT4B	17	26.0	25.0	32	11		

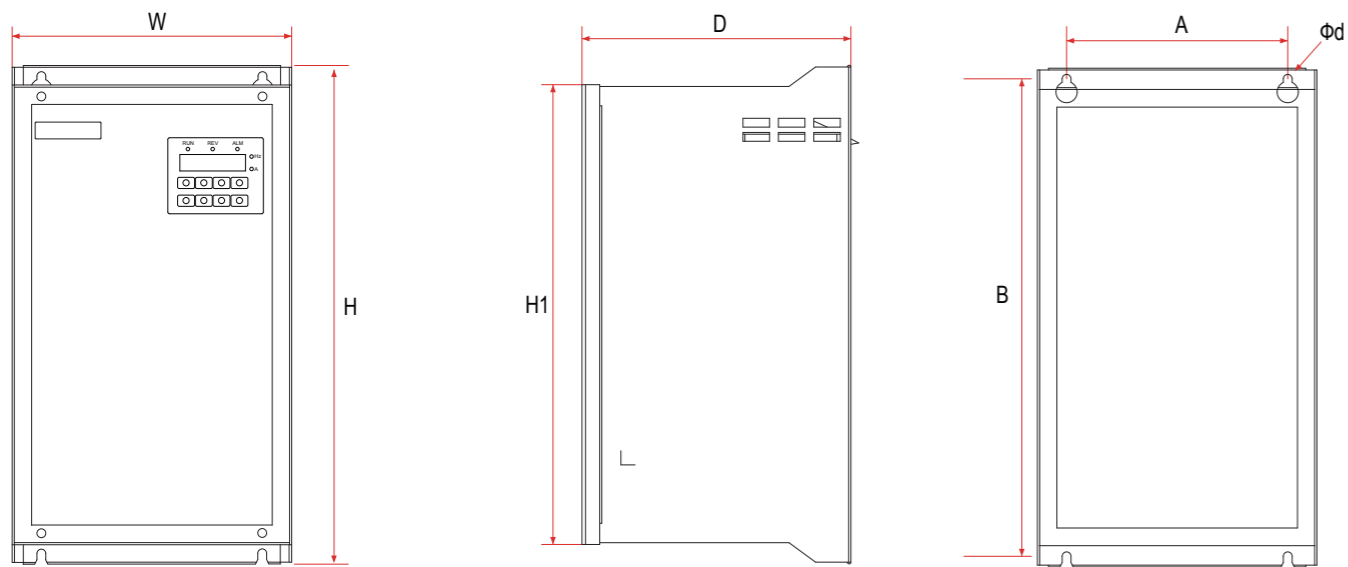
# TECHNICAL SPECIFICATIONS

Item		Specifiatio
Input	Input Voltage	1 phase/3phase 220V: 200V ~ 240V(In developing) 3 phase 380V-480V: 380V ~ 480V
	Allowed Voltage fluctuation range	-15% ~ 10%
	Input frequency	50Hz / 60Hz, fluctuation less than 5%
Output	Output Voltage	1/3phase: 0 ~ input voltage
	Overload capacity	General purpose application: 60S for 150% of the rated current Light load application: 60S for 120% of the rated current
Control	Control mode	V/f control Sensorless flux vector control without PG card (SVC)
	Operating mode	Speed control, Torque control (SVC)
	Speed range	1:100 (V/f) 1:200( SVC)
	Speed control accuracy	±0.5% (V/f) ±0.2% (SVC)
	Speed response	5Hz(V/f) 20Hz(SVC)
	Frequency range	0.00 ~ 600.00Hz(V/f) 0.00 ~ 200.00Hz(SVC)
	Input frequency resolution	Digital setting: 0.01 Hz Analog setting: maximum frequency x 0.1%
	Startup torque	150%/0.5Hz(V/f) 180%/0.25Hz(SVC)
	Torque control accuracy	SVC: within 5Hz10%, above 5Hz5% VC:3.0%
V/f curve	V / f curve type: straight line, multipoint, power function, V / f separation; Torque boost support: Automatic torque boost (factory setting), manual torque boost	

Item	Specifiatio	
Control	Frequency giving ramp	Support linear and S curve acceleration and deceleration; 4 groups of acceleration and deceleration time, setting range 0.00s ~60000s
	DC bus voltage control	Overvoltage stall control: limit the power generation of the motor by adjusting the output frequency to avoid skipping the voltage fault;
		Undervoltage stall control: control the power consumption of the motor by adjusting the output frequency to avoid yaw failure;
		VdcMax Control: Limit the amount of power generated by the motor by adjusting the output frequency to avoid over-voltage trip;
		VdcMin control: Control the power consumption of the motor by adjusting the output frequency, to avoid jump undervoltage fault
	Carrier frequency	1kHz ~ 16kHz(Varies depending on the type)
	Startup method	Direct start (can be superimposed DC brake); speed tracking start
Stop method	Deceleration stop (can be superimposed DC braking); free to stop	
Main control function	Jog control, droop control, up to 16-speed operation, dangerous speed avoidance, swing frequency operation, acceleration and deceleration time switching, VF separation, over excitation braking, process PID control, sleep and wake-up function, built-in simple PLC logic, virtual Input and output terminals, built-in delay unit, built-in comparison unit and logic unit, parameter backup and recovery, perfect fault record,fault reset, two groups of motor parameters free switching, software swap output wiring, terminals UP / DOWN	
Function	Keypad	LED Digital keypad and LCD keypad(option)and external LED display
	communication	Standard: MODBUS communication
	Input terminal	5 digital input terminals,one of which supports high-speed pulse input up to 50kHz;2 analog input terminals support 0 ~ 10V voltage input or 0 ~ 20mA current input;
	Output terminal	Size AB 1 digital output terminal; 1 high-speed pulse output terminal (open collector type), support 0 ~ 50kHz square wave signal output; 1 relay output terminal(SUPPORT NO AND NC) 1 analog output terminals, support 0 ~ 20mA current output or 0 ~ 10V voltage output;
Protection	Refer to Chapter 6 "Troubleshooting and Countermeasures" for the protection function	
Environment	Installation location	Indoor, no direct sunlight, dust, corrosive gas, combustible gas, oil smoke, vapor, drip or salt.
	Altitude	0-3000m.inverter will be derated if altitude higher than1000m and rated output current will reduce by 1% if altitude increase by 100m
	Ambient temperature	-10°C~ +40°C,maximum 50°C (derated if the ambient temperature is between 40°C and 50°C)Rated output current decrease by 1.5% if temperature increase by 1°C
	Humidity	Less than 95%RH, without condensing
	Vibration	Less than 5.9 m/s <sup>2</sup> (0.6 g)
	Storage temperature	-20°C ~ +60°C
Others	Installation	Wall-mounted, floor-controlled cabinet, transmural
	Protection level	IP65
	cooling method	NATURAL COOLING

# PRODUCT APPEARANCE AND INSTALLATION DIMENSION

## PRODUCT APPEARANCE



## INSTALLATION DIMENSION

SIZE	MODEL	Appearance and installation dimension (mm)							
		A	B	H	H1	W	D	ϕd	Mounting screws
SIZE A	VFD510-4R0GT4B	125	270	282	260	158	152	ϕ5.0	M4*16
	VFD510-5R5GT4B								
SIZE B	VFD510-7R5GT4B	120	305	318	292	170	170	ϕ5.0	M4*16
	VFD510-011GT4B								

# STANDARD WIRING DIAGRAM

