

FR500A&FR510A Series

High performance vector control inverter



FRECON



ABOUT US

FRECON Electric (Shenzhen) Co., Ltd. is a national key high-tech enterprise, a dual-soft enterprise in Shenzhen, and a professional company in the fields of industrial automation, high efficiency and energy saving, and green new energy which was founded in 2013. We have more than 16 years of experience in the development and application of inverters, servo drives, energy-saving control cabinets, solar inverter systems etc.





FR500A&FR510A Series Summary



FR500A

FR500A series is a high performance, high quality, high power density design, new generation inverter of FRECON, which is mainly for OEM customers of mid-high market and for applications such as fan and pump, flexible design, embedded SVC and VF control, widely used in the applications with higher requirements, such as the speed control accuracy and torque response speed, low frequency output characteristics.

FR510A

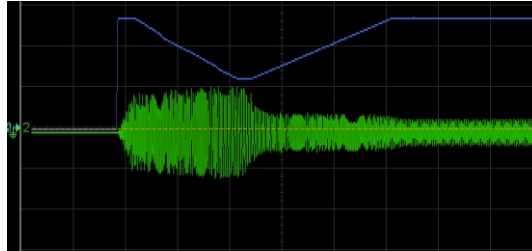
Based on FR500A series, FR510A series adds the following functions:

- ☐ Support synchronous motor
- ☐ Support multiple PG cards
- ☐ Support position control such as spindle orientation, pulse follow, zero serve
- ☐ Support two groups of motor parameters

Features

Speed Tracking Function

- In the case of fast start, the inverter can make the motor to start smoothly according to the current operation direction and speed of the motor



Speed tracking output frequency and current waveform

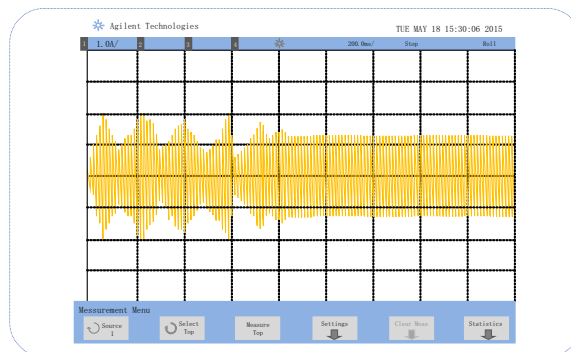
Convenient Debugging

- Strong back ground software
- Specialized upload and download module, convenient parameter debugging and backup
- According to the industry demand, develop a dedicated application macro



Oscillation Suppression Function

- When detected motor oscillation, automatic trimming output voltage and frequency make motor running smoothly

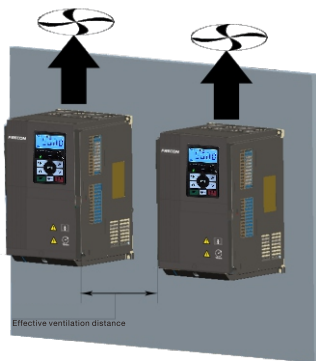


Oscillation suppression waveform

Excellent Performance

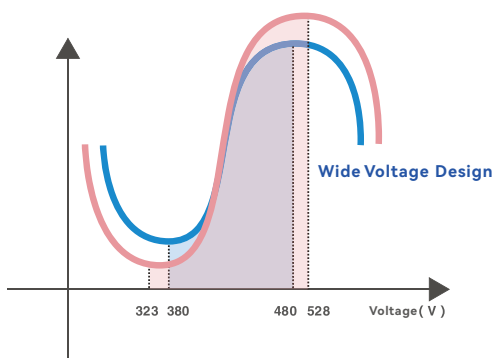
- High-start torque characteristic
- 0.5Hz can provide 150% start torque (Sensor-less vector control 1)
- 0.25Hz can provide 150% start torque (Sensor-less vector control 2)
- Sensorless vector control can reduces susceptibility of motor parameter, improves the field adaptability

Features



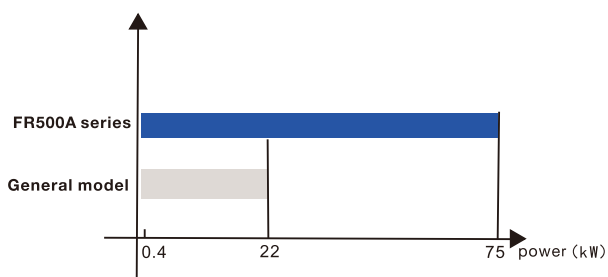
Independent Air Duct

- The independent air duct design, can effectively prevent the dust from entering the inverter and causing the fault of short circuit, improve the reliability
- Select the long-life and max air flow rate cooling fans, effectively reduce inverter temperature rise, ensure reliable and stable operation



Wide Range Voltage Input with International Standards

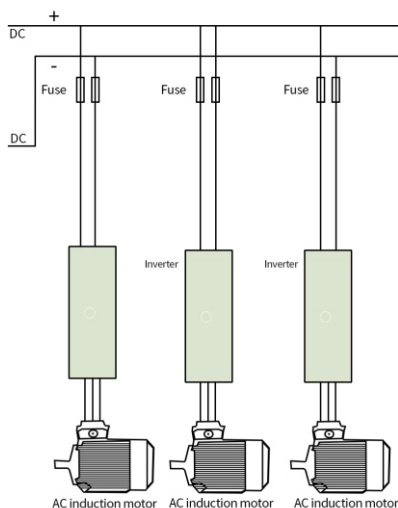
- Rated voltage: 3 phase 380~480V, 50Hz/60Hz
- Voltage fluctuation range: 323~528V, 50Hz/60Hz



- General model: 0.4 ~ 22 kw built-in brake unit
- FR500A series: Below 37 kw (including 37 kw) , built-in brake unit. 45 kw ~ 75 kw built-in brake unit is optional

Perfect Brake Circuit Scheme

- Strong braking ability: The short-time braking ability can reach 1.1~1.4 times of inverter's rated power
- Brake protection is more comprehensive and intelligent



Common DC bus

- All series support common DC bus

Features

Strong Overload Ability

- Heavy load overload capacity:
 - 150% of rated load can keep 1min
 - 180% of rated load can keep 10s
 - 200% of rated load can keep 1s

Unique dead zone compensation

- Ensure smooth torque output at low frequency

Multiple Communication Expansion Card

- Support PROFIBUS, CAN PROFINET, EtherCAT, 4G, WIFI, Modbus-TCP and other communications

Match a Variety of Encoder (FR510A)

- Support ABZ(Push pull, differential), EN1313, UVW, Rotary transformer and sine cosine encoders

New Technology Platform, Large Surplus Reduction Design

- Adopting a new generation IGBT hardware platform with higher configuration and large margin derating design

Built in smart PID function

- Built-in two groups of PID parameters, which can automatically switch according to the deviation, DI terminal and frequency conditions
- Given and feedback source selection is various, practical
- Detect function of PID feedback loss, which is convenient for user to detect faults
- Support dormancy and wake up function, can be switched according to the frequency and pressure

V/F fully separated and semi-separated Operation

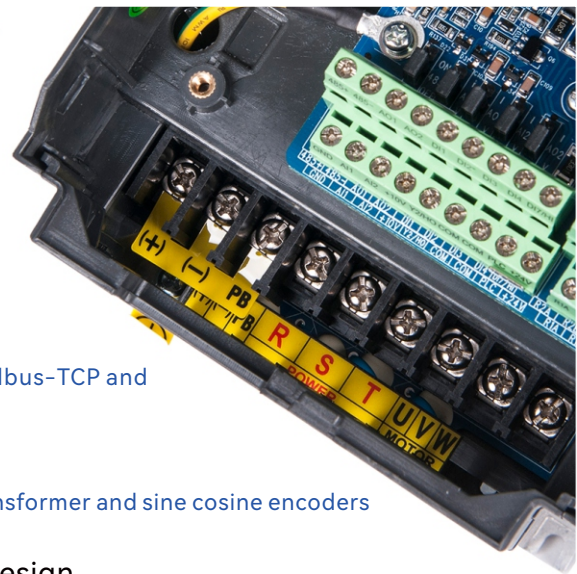
- Automatically compensate by voltage when overload, realize output voltage constant and meet the application requirements of power supply in dystry

CE Certification

- The drive comply with the directive requirements of the 'New method of technical coordination and standardization' in EU

Flexible and Diversified Terminal Functions

- Multi-function terminal DI, DO, AO with a variety of logic functions for selection
- AI terminal can be used as multi-function DI terminal
- Built-in multi-group virtual DI and DO function selection to reduce external DI/DO wiring
- Support high-speed pulse input and output, up to 100 KHz



Comprehensive Protection Functions

- The entire series has output to ground short circuit protection, fan drive circuit protection, external 24VDC DC short circuit protection, motor overload protection, optional PT100/PT1000 motor temperature protection function, etc
- According to the severity of the fault type, it can be set as early warning prompt, fault shutdown and continued operation, and convenient for daily maintenance

Nameplate

FR500A-4T-7.5G/011PB

Vector Control Inverter Series

FR500A series high-performance vector control inverter
FR510A series close-loop vector control inverter

Input Voltage Level

2:220V(-15%~+20%)
4:380V(-15%~+30%)

Brake Unit

B:Built-in brake unit

Adaptable Motor(kW) and Type of Motor

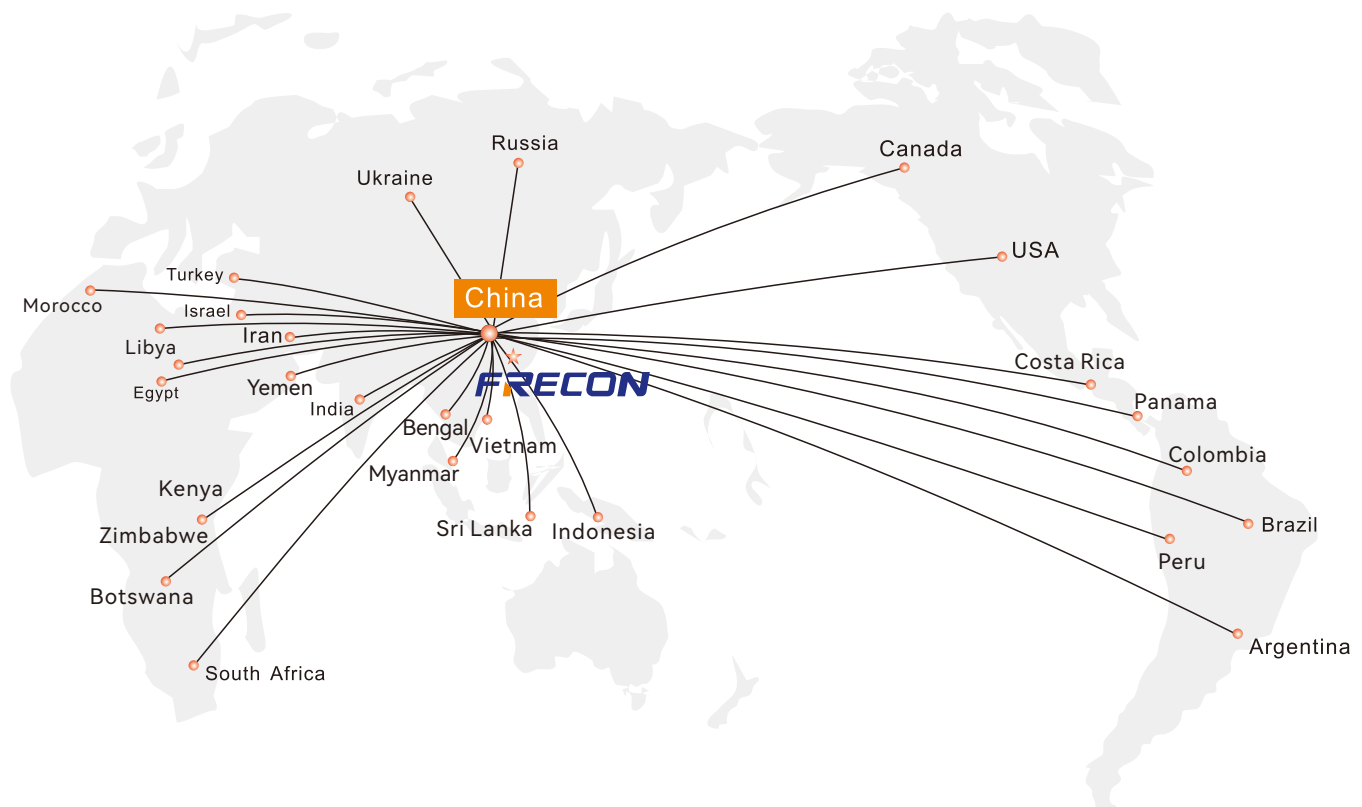
7.5G:7.5kW(General type)
011P:11kW(Fan pump type)

Input Voltage Phase

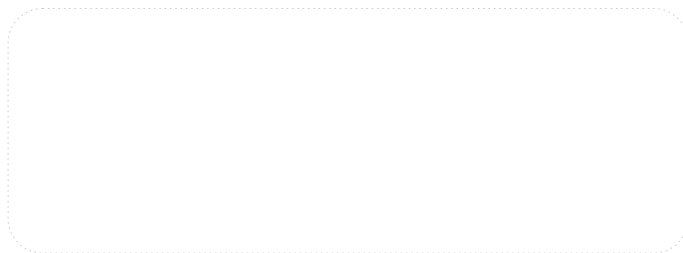
S:Single Phase
T:Three Phase

Model No.	Power Capacity (kVA)	Rated Input Current (A)	Rated Output Current (A)	Applicable Motor	
				kW	HP
3-Phase :380V, 50/60Hz Range:-15%~+30%					
FR500A-4T-0.7G/1.5PB-H	1.5	3.4	2.5	0.75	1
FR500A-4T-1.5G/2.2PB-H	3	5.0	4.2	1.5	2
FR500A-4T-2.2G/4.0PB-H	4	5.8	5.5	2.2	3
FR500A-4T-4.0G/5.5PB-H	6	11	9.5	3.7/4	5
FR500A-4T-5.5G/7.5PB-H	8.9	14.6	13	5.5	7.5
FR500A-4T-7.5G/011PB-H	11	20.5	17	7.5	10
FR500A-4T-011G/015PB-H	17	26	25	11	15
FR500A-4T-015G/018PB-H	21	35	32	15	20
FR500A-4T-018G/022PB-H	24	38.5	37	18.5	25
FR500A-4T-022G/030PB-H	30	46.5	45	22	30
FR500A-4T-030G/037PB-H	40	62	60	30	40
FR500A-4T-037G/045PB-H	57	76	75	37	50
FR500A-4T-045G/055P(B)-H	69	92	91	45	60
FR500A-4T-055G/075P(B)-H	85	113	112	55	70
FR500A-4T-075G/090P(B)-H	114	157	150	75	100
FR500A-4T-090G/110P(B)-H	134	186	176	90	125
FR500A-4T-110G/132P-H	160	220	210	110	150
FR500A-4T-132G/160P-H	192	260	253	132	175
FR500A-4T-160G/185P-H	231	310	304	160	210
FR500A-4T-185G/200P-H	240	355	350	185	250
FR500A-4T-200G/220P-H	250	382	377	200	260
FR500A-4T-220G/250P-H	280	430	426	220	300
FR500A-4T-250G/280P-H	355	475	470	250	330
FR500A-4T-280G/315P-H	396	535	520	280	370
FR500A-4T-315G/355P-H	445	610	600	315	420
FR500A-4T-355G/400P-H	500	690	650	355	470
FR500A-4T-400G/450P-H	565	765	725	400	530
FR500A-4T-450G/500P-H	623	865	800	450	600
FR500A-4T-500G/560P-H	670	890	860	500	660
FR500A-4T-560G/630P-H	770	1025	990	560	750
FR500A-4T-630G/710P-H	855	1150	1100	630	840
FR500A-4T-710G/800P-H	950	1250	1200	710	940
FR500A-4T-800G-H	1250	1890	1400	800	1060

Note: 1. (B) Built-in brake unit is optional 2. For FR510A series model number, just need to replace FR500A to FR510A



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