FR380 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.

Product Summary

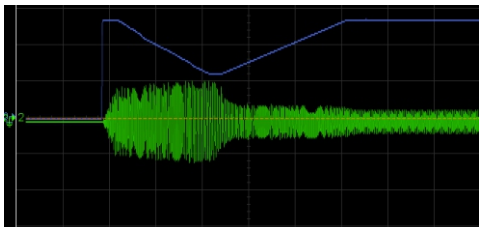
FR380

FR380 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.

Features

Speed Tracking Function

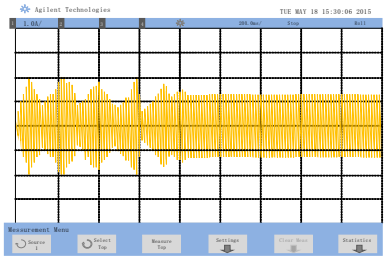
- In the case of fast start, the inverter can make the motor to start smoothly accordingto the current operation direction and speed of the motor



Speed tracking output frequency and current waveform

Oscillation Suppression Function

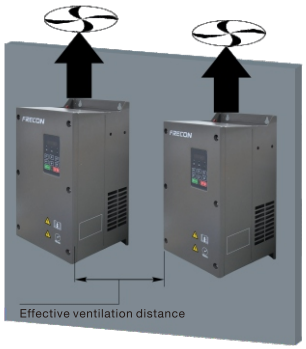
- When detected motor oscillation, automatic trimming output voltage and frequency make motor running smoothly



Oscillation suppression waveform

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 table operation



Excellent Performance

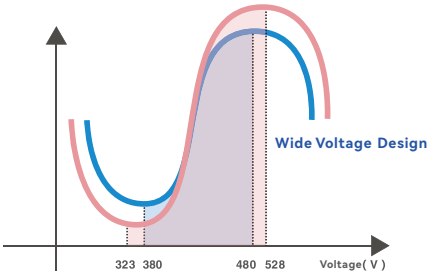
- High-start torque characteristic
- 0.5Hz can provide 150% start torque (Sensor-less vector control 1)
- 0.25Hz can provide 150% start torque (Sensor-less vector control 2)
- Sensorless vector control can reduces susceptibility of motor parameter, improves the field adaptability

Multiple Communication Expansion Card

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

Wide Range Voltage Input with International Standards

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



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

IP65

- IP65 design, support outdoor installation

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

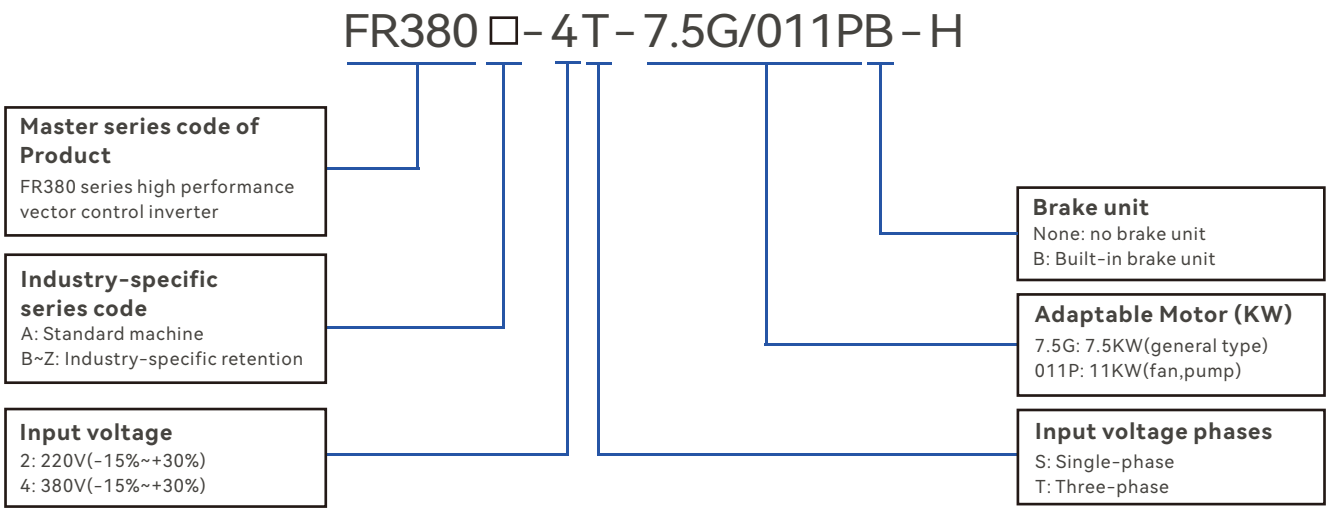
Flexible and Diversified Terminal Functions

- 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

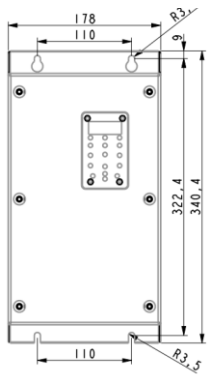
Nameplate

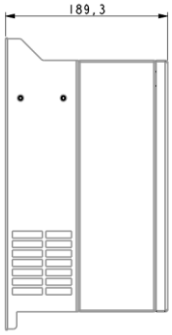


Model No	Power Capacity (KVA)	Rated Input Current (A)	Rated Output Current (A)	Applicable Motor	
				KW	HP
3-Phase: 380V, 50/60Hz Range: -15%~+30%					
FR380-4T-0.7G/1.5PB-H	1.5	3.4	2.5	0.75	1
FR380-4T-1.5G/2.2PB-H	3	5.0	4.2	1.5	2
FR380-4T-2.2G/4.0PB-H	4	5.8	5.5	2.2	3
FR380-4T-4.0G/5.5PB-H	6	11	9.5	3.7/ 4	5
FR380-4T-5.5G/7.5PB-H	8.9	14.6	13	5.5	7.5
FR380-4T-7.5G/011PB-H	11	20.5	17	7.5	10
FR380-4T-011G/015PB-H	17	26	25	11	15
FR380-4T-015G/018PB-H	21	35	32	15	20
FR380-4T-018G/022PB-H	24	38.5	37	18.5	25
FR380-4T-022G/030PB-H	30	46.5	45	22	30

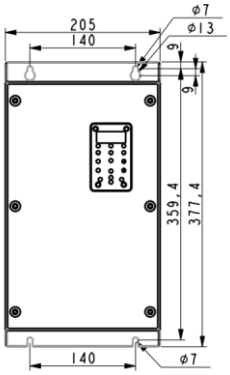
Installation Dimensions

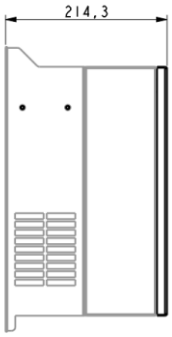
Model No.	External and installation dimensions (mm)						Weight (KG)
	W	W1	H	H1	D	Installation hole	
3-Phase: 380V, 50/60Hz Range: -15%~+30%							
FR380-4T-0.7G/1.5PB-H	178	110	340.4	320.4	189.3	3.5	5.4
FR380-4T-1.5G/2.2PB-H							
FR380-4T-2.2G/4.0PB-H							
FR380-4T-4.0G/5.5PB-H							
FR380-4T-5.5G/7.5PB-H							
FR380-4T-7.5G/011PB-H	205	140	377.4	359.4	214.3	7	7.2
FR380-4T-011G/015PB-H							
FR380-4T-015G/018PB-H	250	180	427.4	409	219.3	3.5	10.8
FR380-4T-018G/022PB-H							
FR380-4T-022G/030PB-H							



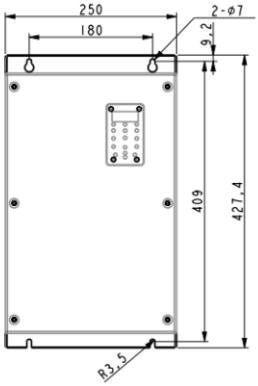


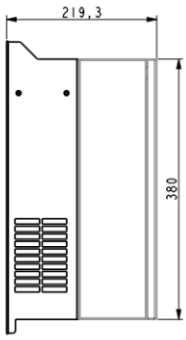
0.7-5.5 kW structure diagram





7.5~11 kW structure diagram

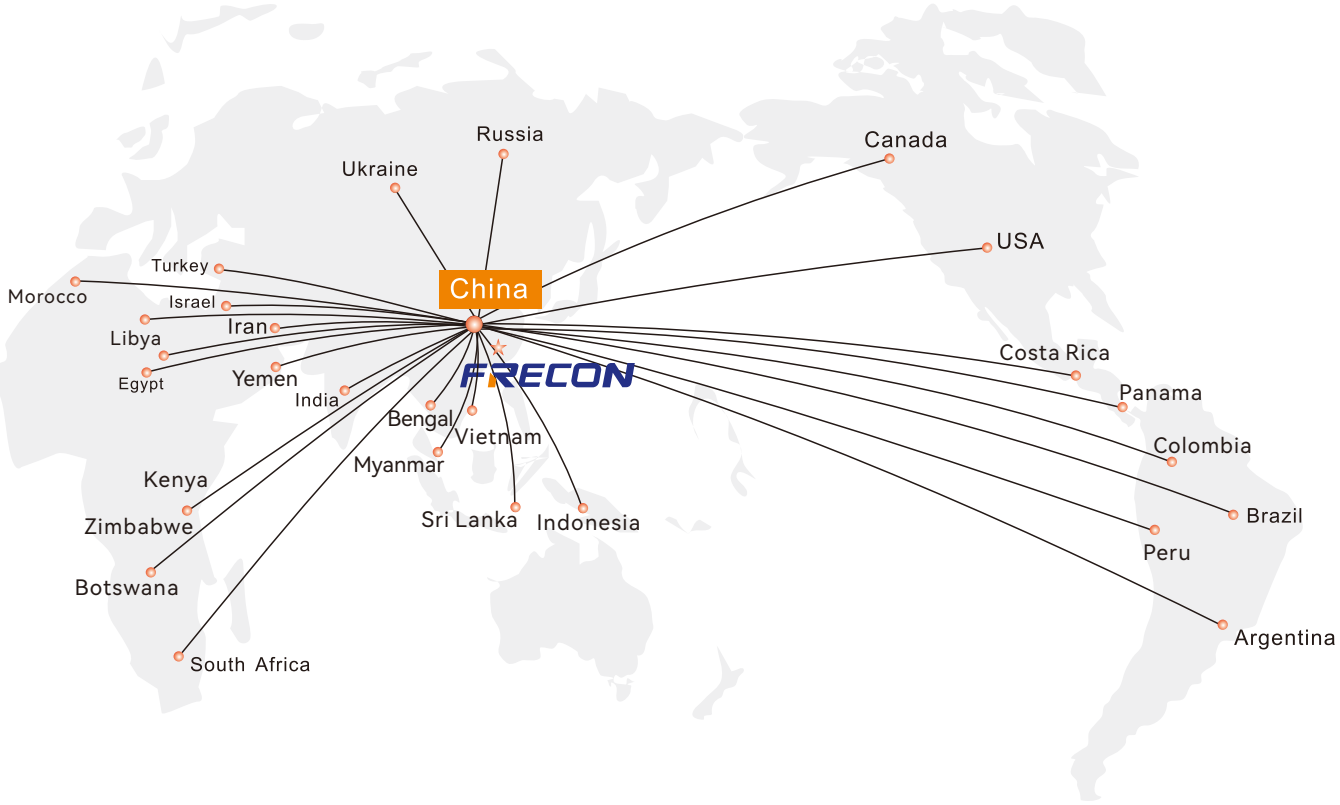




15~22 kW structure diagram

Technical Parameters

Specification		
Item		**FR380 Series**
Power Input	Rate Input Voltage(V)	3 Phase 380V(-15%~+30%)
	Rated Input Frequency(Hz)	50Hz/60Hz, ±5%
Power Output	Rate Output Voltage(V)	0V~Uin, Error<±3%
	Rated Output Frequency(Hz)	0.00~600.00Hz, Unit:0.01Hz
Load	Types Of Motor	AM, PMSM
	Control Motor	Speed torque
	Motor Parameters	2 Group
Control Characteristics	Control Mode	V/F Control ;Sensor-less Vector Control 1; Sensor-less Vector Control 2;
	Speed Range	1:50(V/F Control), 1:100(Sensor-less Vector Control 1) 1:200(Sensor-less Vector Control 2),
	Speed Control Precision	±0.5%(V/F Control),±0.2%(Sensor-less Vector Control 1&2)
	Speed Fluctuation	±0.3%(Sensor-less Vector Control 1&2)
	Torque Response	<10ms(Sensor-less Vector Control 2)
	Start Torque	0.5Hz:150%(V/F Control, Sensor-less Vector Control 1) 0.25Hz:150%(Sensor-less Vector Control 2)
Basic Function	Carrier Frequency	0.7kHz~16kHz
	Overload Capacity	150% Rated Current 60s,180% Rated Current 10s,200% Rated Current 1s
	Torque Boost	Auto Torque Boost, Manual Torque Boost 0.1%~30.0%
	V/F Curve	Three Models: Straight Line; Multi-point; NTh-type V/F Curve
	Acceleration and Decekeration Curve	Straight line or S cure acceleration and deceleration mode. Four kinds of acceleration and deceleration time, Ramp time range: 0.0~6000.0s
	DC Brake	DC brake start frequency:0.00Hz~Max frequency; DC brake time:0.0s~10.0s; DC brake current:0.0%~150.0%
Run	Command Source	Given the control panel, control terminal, serial communication port given
	Frequency Given	9 frequency sources: digital setting, keyboard potentiometer setting, analog voltage setting, analog current setting, pulse setting, serial port setting, multi-stage speed setting, PLC setting, process PID setting, can be switched in multiple ways
	Input Terminal	7 switch input terminals, of which 1 can be used for high-speed pulse input, compatible with active open collector NPN, PNP, and dry contact input methods 2 analog input terminals, 0~10V/0~20mA voltage and current optional
	Output Terminal	2 way switch output terminal, which supports a maximum road speed 100kHz pulse output 2 relay output terminals 2 analog output terminal, and optional voltage and current
Featured Function	Parameter copy, parameter backup, flexible parameter displayed & hidden. Common DC bus, Various master & auxiliary command and switchover, Reliable speed search started, A variety of Accel / Decel curves programmable, Timing control, fixed length control, count function, Three faults recorded, Over excitation brake, overvoltage stall protection programmable, under voltage stall, protection programmable, restart upon power loss, Four kinds of Accel/Decel time, Motor thermal protection, Flexible fan control, Process PID control, simple PLC, 16-step speed control programmable, Wobble frequency control, Multi-functional key programmable, field-weakening control, High-precision torque control, V/f separated control, torque control at sensor-less vector control	
Protection	Provide adozen fault protection: over-voltage, over-current, under-voltage, over-temperature, overload, etc.	
Environment	Operation Place	Indoors, no direct sunlight, no dust, no corrosive gases, no flammable gases, no oil mist, no water vapor, no water drop and salt, etc.
	Altitude	0~2000m Derate 1% for every 100m when the altitude is above 1000 meters
	Ambient Temperature	-10℃~40℃(When environment temperature is above 40℃, please derating use)
Others	Installation	Wall-mounting or flang mounting
	IP Grade	IP65
	Cooling Method	Forced air cooling



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