

# FR500D Series

Special Purpose Inverter for Elevator



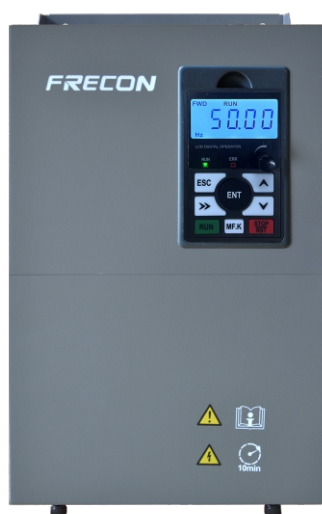
**FRECON**





## FR500D Series Summary

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### FR500D

FR500D series inverter is designed according to the carrying characteristics of elevator. It adopts high performance vector control technology, can control both asynchronous motor and synchronous motor. For asynchronous motor open-loop vector control, it combined with innovative sensor start/stop compensation technology without weighting to ensure the comfort when elevator start/stop without weighting device.

### Product Power

Three-phase 380V 4.0~75kW

## Features

### Applicable to both asynchronous/synchronous motor

- Innovative no sense weighting start/stop compensation technology to ensure the comfort when elevator starts/ stops without weighting device

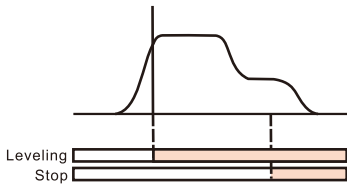


Asynchronous motor

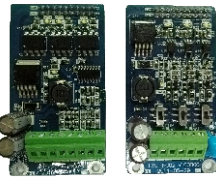


Synchronous motor

- Unique short floor function with shortest time to ensure the operation efficiency



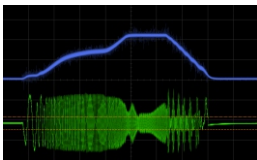
Short floor operation example



- High performance vector control and rich encoder interface
- High performance current vector control, high starting torque
- Kinds of motor encoder PG card

### High torque at low frequency

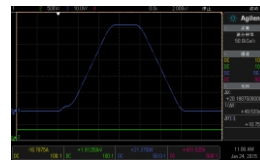
- Emergency operation mode supported by UPS power. When power off, it can be operated by 220V single phase UPS power. Automatic speed control to prevent motor stall when voltage is not enough. Effective use of UPS voltage light load direction search function



Unique vector control technology, starting torque 0.5Hz/150%



Dedicated braking output control for smooth stat and best elevator leveling control

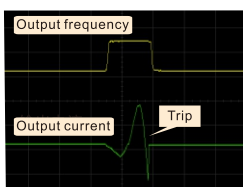


Dedicated inspection running mode for the safety

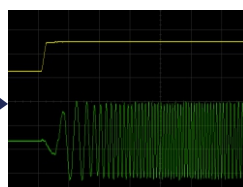
- If forward or reverse command is canceled under inspection mode, inverter stop immediately

### High speed current limiting function

- FR500D will not trip and continue to run even when instantaneous over current due to the load change



OFF



ON



Built-in 485+485-terminal

### Standard with serial interface RS485

- Communication protocol corresponding to MODBUS-RTU, send out speed command or data collection through PC or PLC

## Features

### Easy to use and maintenance

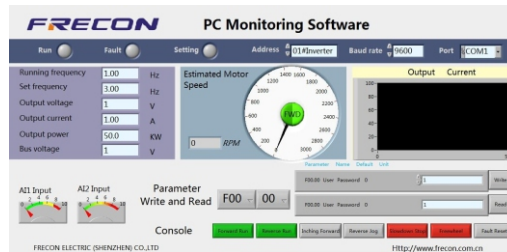
- Built-in elevator unique menu
- Simple LCD keypad as standard.
- Multi-function LCD keypad as optional.



Multi-function LCD keypad



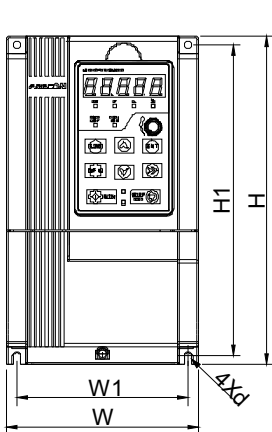
Simple LCD keypad



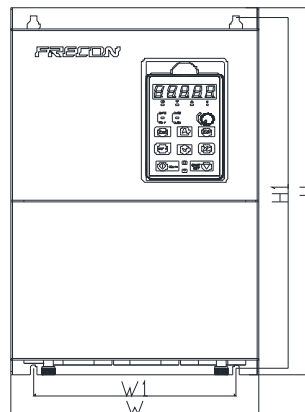
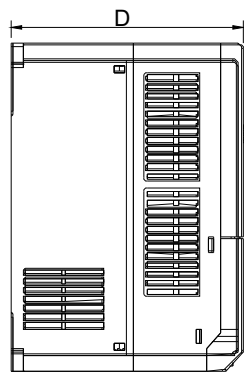
### Convenient debugging

- Powerful background software
- Design special application macro according to industry demand
- Short-cut menu, Common parameters setting rapidly to save customer's time to read manual
- Unique upload and download module which is convenient for parameter commissioning.  
Restore factory parameters, backup user parameters

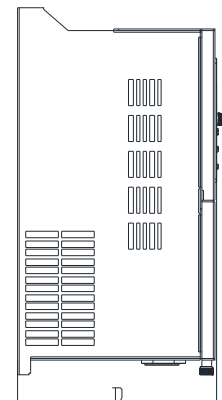
## Installation dimensions



4~18kW Wall Installation Diagram



22 ~ 110kW Wall mounting diagram

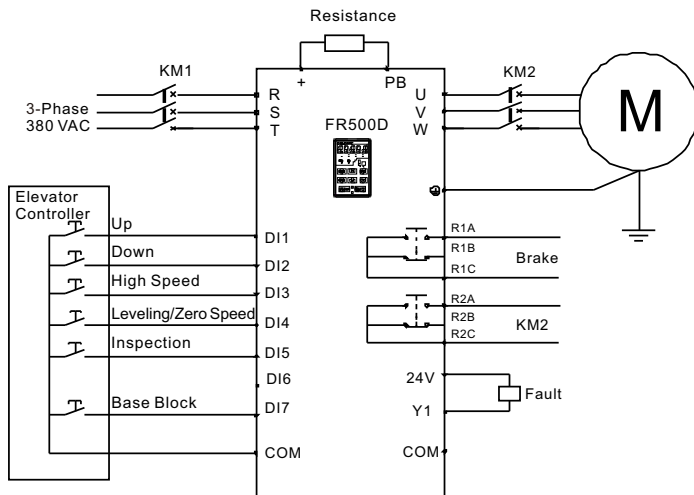


Model No.	External and installation dimensions(mm)						Weight (Kg)
	W	W1	H	H	D	Mounting Hole Diameter	
R1	116.6	106.6	186.6	176.6	175	4.5	2.5
R2	146	131	249	236	177	5.5	3.9
R3	198	183	300	287	185	5.5	6.2
R4	250	200	410	391	200	7	13.8
R5	300	200	470	451	215	7	15
R6	310	200	620	601	262	9.5	26
R7	310	200	650	620	350	11.5	45

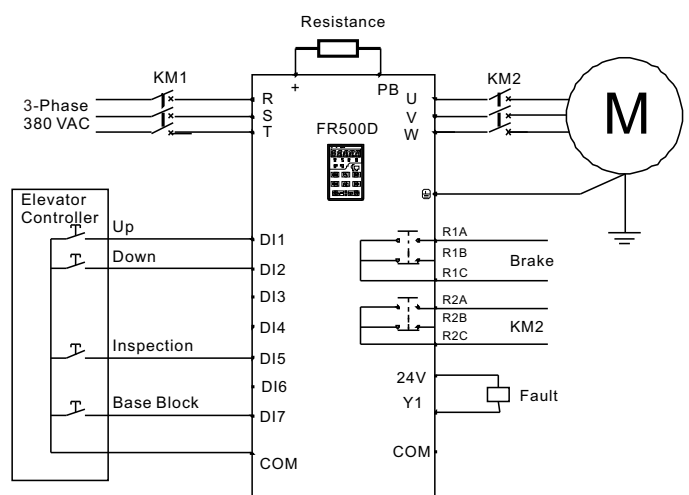
## Operation mode

FR500D supports three kinds of operation mode:

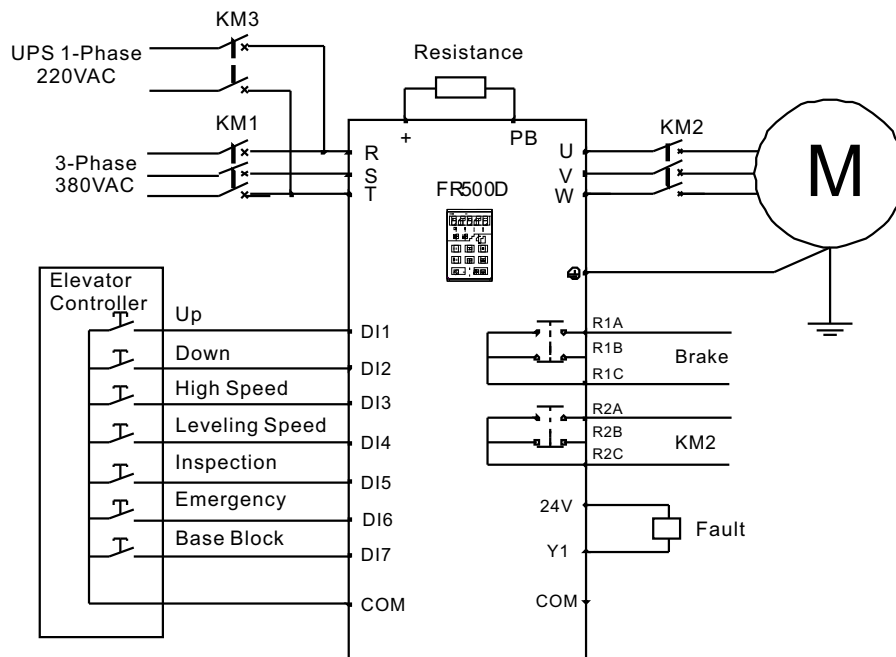
Multi speed given, Inspection operation mode and Emergency operation mode



Multi speed given

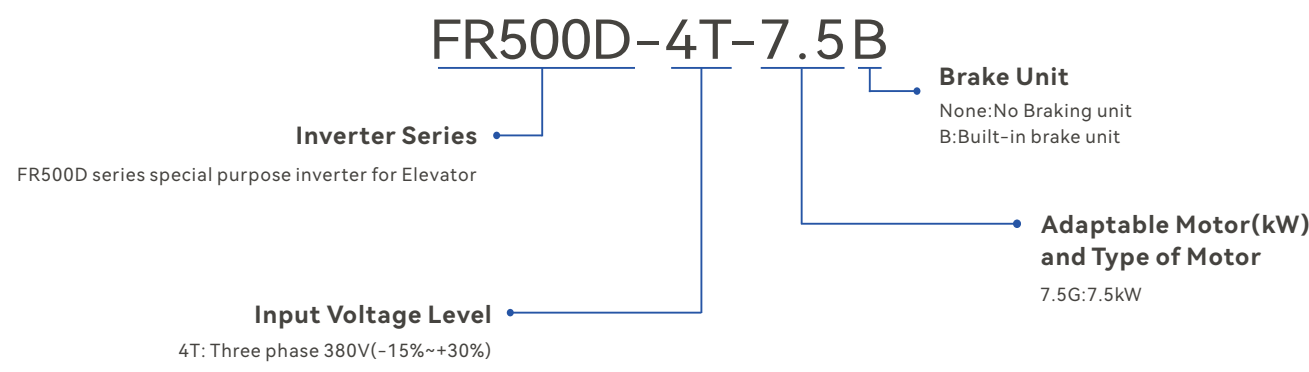


Inspection operation Mode



Emergency operation mode

# Nameplate



# Electric Specification

Size	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%						
R1	FR500D-4T-2.2B-H	4	5.8	5.5	2.2	3
	FR500D-4T-4.0B-H	6	11	9.5	4	5
	FR500D-4T-5.5B-H	8.9	14.6	13	5.5	7.5
R2	FR500D-4T-7.5B-H	11	20.5	17	7.5	10
R3	FR500D-4T-011B-H	17	26	25	11	15
	FR500D-4T-015B-H	21	35	32	18.5	20
	FR500D-4T-018B-H	24	38.5	37	20	25
R4	FR500D-4T-022B-H	30	46.5	45	22	30
	FR500D-4T-030B-H	40	62	60	30	40
R5	FR500D-4T-037(B)-H	57	76	75	37	50
R6	FR500D-4T-045(B)-H	69	92	91	45	60
	FR500D-4T-055(B)-H	85	113	112	55	70
	FR500D-4T-075(B)-H	114	157	150	75	100
R7	FR500D-4T-090-H	134	186	176	90	125
	FR500D-4T-110-H	160	220	210	110	150

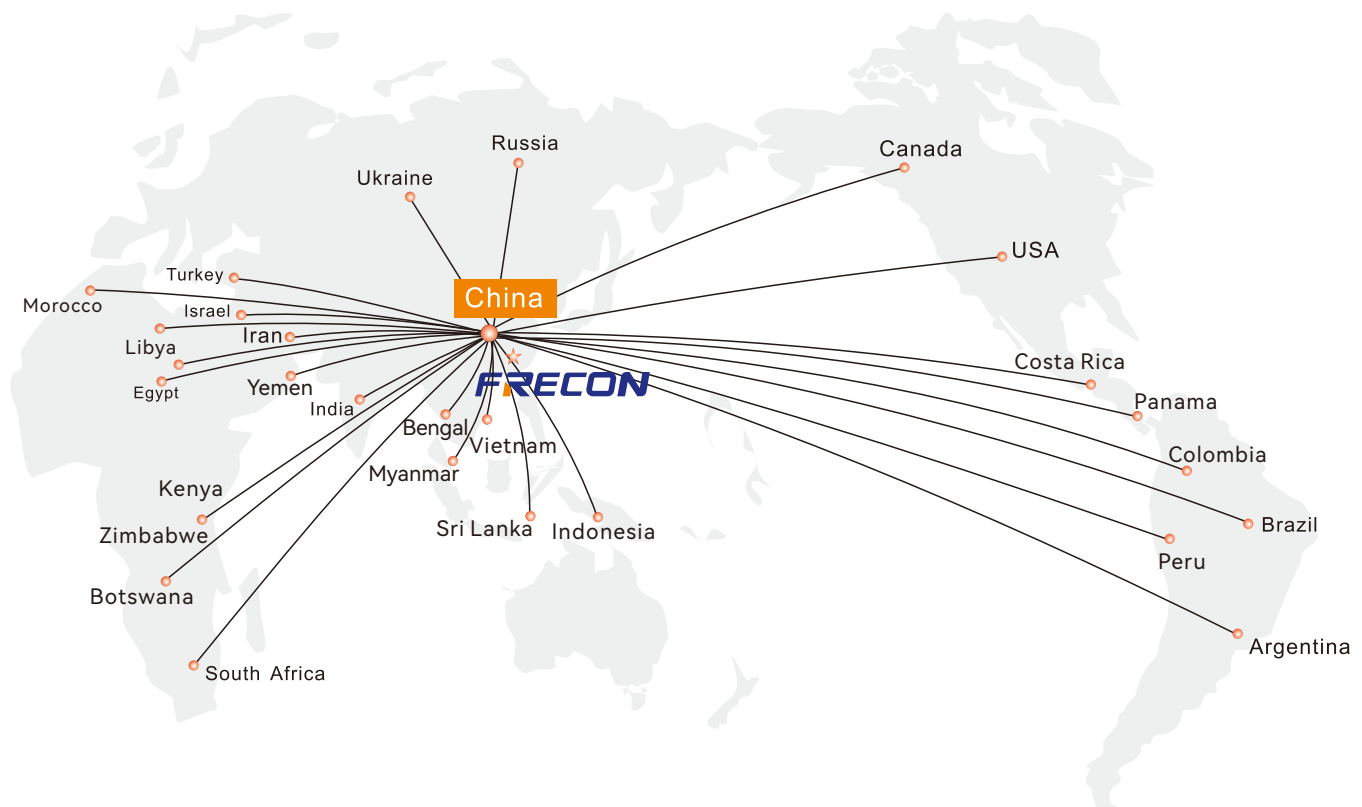


## Braking Resistor Selection Table

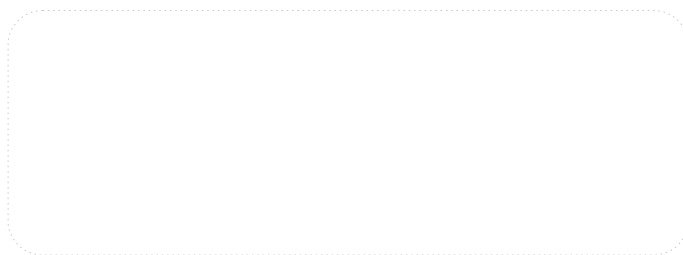
Model	Motor(kW)	Recommend the resistance value( $\Omega$ )	Recommended total power resistance(kW)
FR500D-4T-4.0B-H	4.0	80	1.2
FR500D-4T-5.5B-H	5.5	70	1.6
FR500D-4T-7.5B-H	7.5	64	2.0
FR500D-4T-011B-H	11.0	40	3.2
FR500D-4T-015B-H	15.0	36	4.0
FR500D-4T-048B-H	18.5	34	5.0
FR500D-4T-022B-H	22.0	20	6.4
FR500D-4T-030B-H	30.0	15	8.0
FR500D-4T-037B-H	37.0	12	10.0
FR500D-4T-045B-H	45.0	9	15.0
FR500D-4T-055B-H	55.0	8	18.0
FR500D-4T-075B-H	75.0	6	25.0

## Technical Parameters

Item		Specification
Input Power	Rated Input Voltage (V): Three phase 380V (-15%~+30%)	
	Rated Input Frequency (Hz): 50Hz/60Hz, $\pm 0.5\%$	
Output Power	Maximum Output Voltage (V) : 0~Rated input voltage, Error $\leq \pm 3\%$	
	Maximum Output Frequency (Hz): 0.00~600.00 Hz, Units: 0.01Hz	
Control Characteristic	Control mode	V/f control; Sensor-less vector control 1&2 Closed loop vector control
	Speed range	1:50 (V/f control);1:100 (sensor-less vector control 1&2) ;1:1000 (Closed loop vector control)
	Speed accuracy	$\pm 0.5\%$ (V/f control) ; $\pm 0.2\%$ (sensor-less vector control 1 & 2); $\pm 0.1\%$ (Closed loop vector control)
	Speed fluctuation	$\pm 0.3\%$ (sensor-less vector control 1 & 2); $\pm 0.1\%$ (Closed loop vector control)
Basic functions	Carrier frequency	0.7kHz~16kHz
	Overload capability	150% Rated Current 60s,180% Rated Current 10s,200% Rated Current 1s
	Acceleration and deceleration Curve	Line or curve acceleration and deceleration mode. Four kinds of acceleration and deceleration time, Ramp Time Range:0.0~6000.0s
	DC brake	DC brake start frequency: 0.00~600.00Hz;DC brake time: 0.0s~ 10.0s; DC brake current:0.0%~150.0%
Run	Input terminal	7 Switch input terminals, one way to make high-speed pulse input. Support NPN and PNP 3-channel analog inputs, including 2-way 0~10V /0~ 20mA voltage and current options,a way to support -10~ +10 V input
	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.
Protection function	Provide fault protection dozen : Over current 、 Overvoltage 、 Under voltage 、 Over temperature、 Overload Etc Protection.	
Environment	Place of operation	Indoors,no direct sunlight, free from dust, corrosive gases, flammable gases, oil mist, water vapor, water drop and salt, etc.
	Altitude	0~2000m De-rate 1% for every 100m when the altitude is above 1000 meters
	Ambient temperature	-10°C~40°C(De-rate from 40°C~50°C)
Others	Installation	Wall-mounted or Flange mounting
	IP grade	IP20
	Cooling method	Fan cooled



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