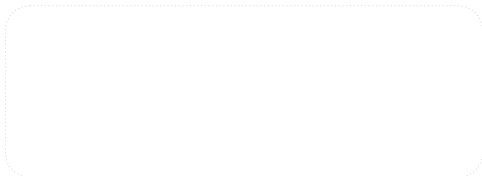


INNOVATION • DEDICATED • SERVICE • WIN-WIN



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For FRECON Website

20150711(V1.1)

FRECON



FR200D Series

Special Purpose Inverter for Elevator



FRECON ELECTRIC (SHENZHEN) CO.,LTD.



FR200D Series summary

FR200D series inverter is designed according to the carrying characteristics of open-loop control elevator. It uses 32 bit dedicated microprocessor for motor and advanced power module, combined with counterweight lift load to make sure the stable, comfortable and high efficiency of open-loop control elevator.

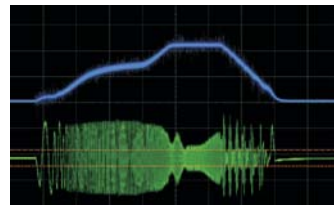


Innovative features

- Optimized S-curve to make sure the excellent comfort when start and stop
- Dynamic PWM carrier modulation technology to reduce the noise of motor effectively
- Uses sixth generation module, high junction temperature 175°C, low switching-loss and low turn-on loss.
- Built-in braking unit in FR200D, braking resistor connected externally for braking function
- Correct motor parameter setting, no need motor parameter auto-tuning, Inverter can study and get correct motor parameters through motor static auto-tuning.

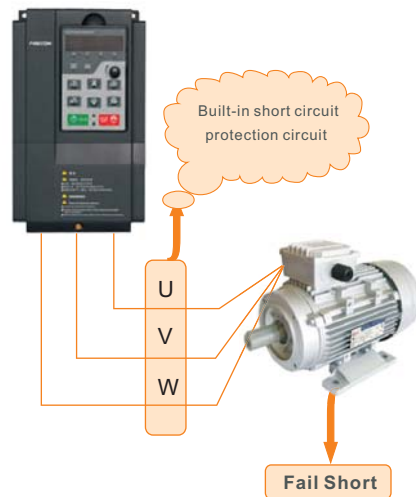


Big torque at low frequency



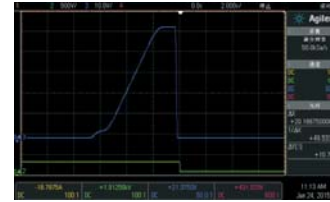
Unique vector control technology, starting torque 0.5Hz/150%

Built in output short-circuit protection



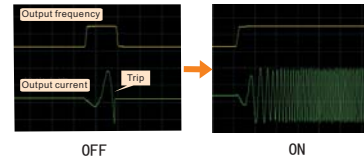
FR200D can detect and stop output instantaneous if any short-circuit, even the motor fault and short-circuit due to overload

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



High speed current limiting function

FR200D will not trip and continue to run even when instantaneous over current due to the load change



Standard with serial interface RS485

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



Built-in 485+485-terminal

Adopts large operation panel to improve the operability furtherly



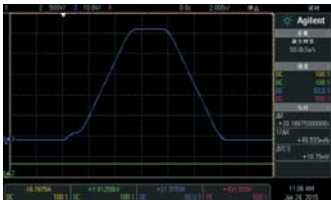
Seven-segment display
With potentiometer

Convenient debugging

- Powerful background software
 - PC Monitoring Software
- 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
- Design special application macro according to industry demand



Dedicated inspection running mode for the safety



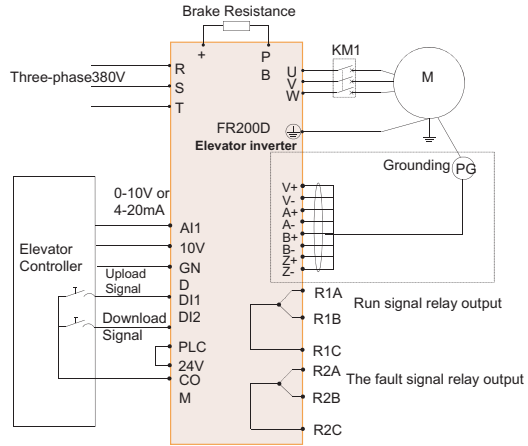
Wiring mode

FR200D supports two kinds of speed given: Analog speed given and multi-stage speed given

1) Analog speed given

Life controller sends out speed command curve, inverter get speed given command through the analog signal

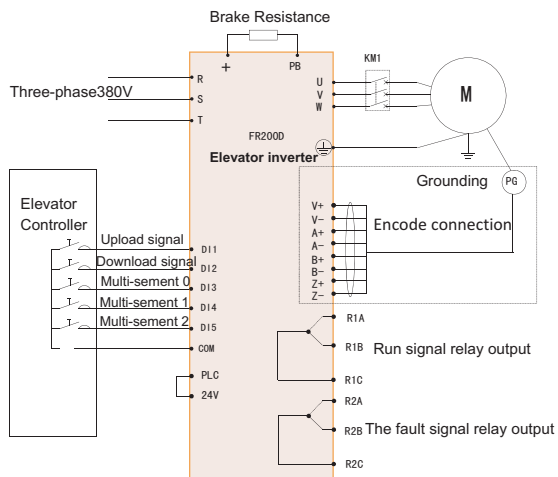
Wiring diagram as below:



2). Multi-stage speed given

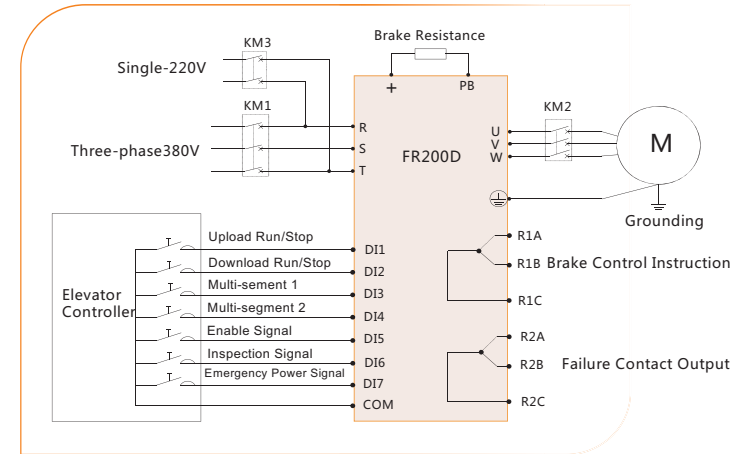
Elevator controller provide speed command, after receiving the command, inverter will automatically calculate S curve acceleration and deceleration speed

Wiring diagram as below:



3). Built-in Emergency leveling mode

In the using of elevator, if the power is cut suddenly, passengers may be kept in the cage. FR200-D series inverters can support emergency UPS power running, Both the main circuit of FR200D and the working are powered by 220V UPS.



Braking resistor selection table

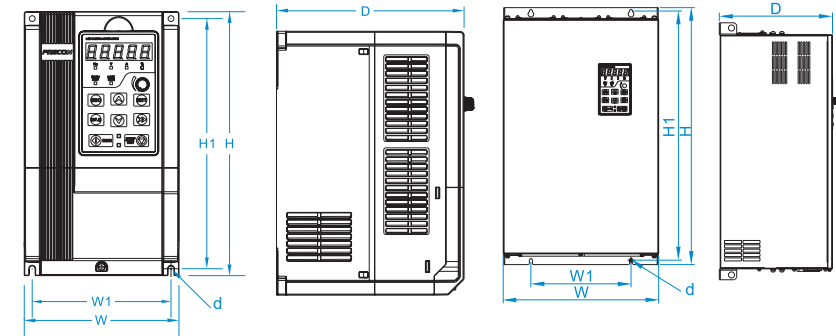
Model No. (FR200D-4T-)	Applicable Motor (kw)	Recommend the resistance value (Ω)	Recommended total power resistance (kw)
2.2B	2.2	100	1
4.0B	4	80	1.2
5.5B	5.5	70	1.6
7.5B	7.5	64	2
011B	11	40	3.2
015B	15	36	4
018B	18.5	24	5
022B	22	20	6.4
030B	30	15	8
037B	37	12	10
045B	45	9	15
055B	55	8	18
075B	75	6	25

Technical Parameters

Item	Specification
Input Power	Rated Input Voltage (V) : Three phase 380 V (-15%~+30%)
	Rated Input Frequency (Hz) : 50Hz/60Hz, ± 0.5%
Output Power	Maximum Output Voltage (V) : 0 ~ Rated input voltage ,Error<±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 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 accuracy ±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 1 & 2)
	Starting torque 0.5Hz: 180% (V/f control, sensor-less vector control 1) 0.25Hz: 180% (sensor-less vector control 2)
	Carrier frequency 0.7kHz ~ 16kHz
Basic functions	Overload capability G Model : 150% Rated Current 60s,180% Rated Current 10s, 200% Rated Current 1s. P Model : 120% Rated Current 60s,145% Rated Current 10s,160% Rated Current 1s.
	Torque boost Automatic torque boost ; Manual torque boost 0.1% ~ 30.0%
	V/F Curve Three ways : Three ways: straight; multi-point type; N Th-type V / F curve
	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	Command source Given the control panel, control terminal, serial communication port given.
	Frequency given 9 kinds of frequency sources
	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.	
Featured functions	Parameter copy, parameter backup, flexible parameter displayed & hidden. Reliable speed search started. 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.Motor thermal protection. Wobble frequency control.High-precision torque control, V/f separated control, torque control at sensor-less vector control.
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

Product Installation Dimension

F1-1~F1-5 Structure Dimension Diagram



Size of the Case	External and installation dimensions (mm)						Weight (Kg)
	W	W1	H	H1	D	d	
F1-1	146	131	249	236	177	5.5	3.2
F1-2	198	183	300	287	185	5.5	5.4
F1-3	255	176	459	443	220	7	15.5
F1-4	270	130	590	572	260	7	27.5
F1-5	357	230	590	572	260	7	37

Electric Specification

Model No.	Power Capacity (kVA)	Input Current (A)	Output Current (A)	Motor Power (kW / HP)		Size of the Case
Three-Phase: 380V, 50/60Hz Range: -15%~+30%						
FR200D-4T-4.0B	6	11	9.5	3.7, 4	5	F1-1
FR200D-4T-5.5B	8.9	14.6	13	5.5	7.5	
FR200D-4T-7.5B	11	20.5	17	7.5	10	
FR200D-4T-011B	17	26	25	11	15	F1-2
FR200D-4T-015B	21	35	32	15	20	
FR200D-4T-018B	24	38.5	37	18.5	25	F1-3
FR200D-4T-022B	30	46.5	45	22	30	
FR200D-4T-030B	40	62	60	30	40	
FR200D-4T-037B	57	76	75	37	50	F1-4
FR200D-4T-045B	69	92	91	45	60	
FR200D-4T-055B	85	113	112	55	70	F1-5
FR200D-4T-075B	114	157	150	75	100	