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FR200 Series

Vector Control Inverter



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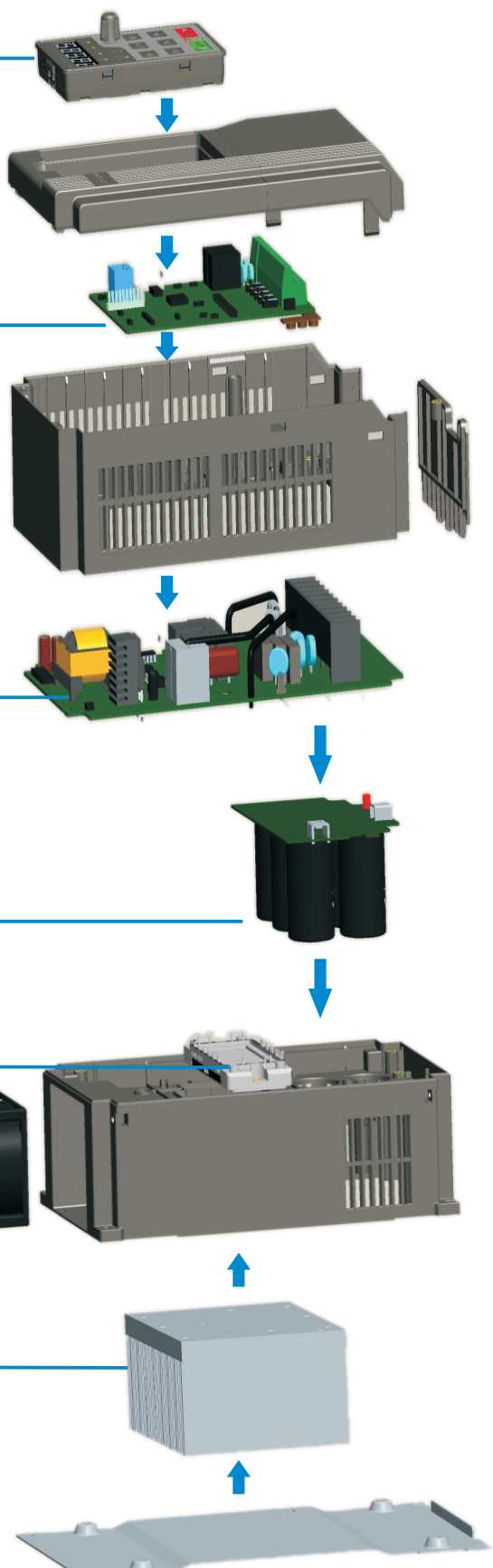
For FRECON Website
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Product design

- Supports 100m remote control and speed control potentiometer
- Unique upload and download module
- Adopts SPANSION new generation motor control dedicated processor, dominant frequency 144MHz
- PCBA with Germany original conformal coating to improve life and reliability greatly
- Electrolytic capacitor technology from Hitachi, big redundancy design
- Adopts Infineon latest generation IGBT module, high reliability
- Independent air duct design, maximum 50°C

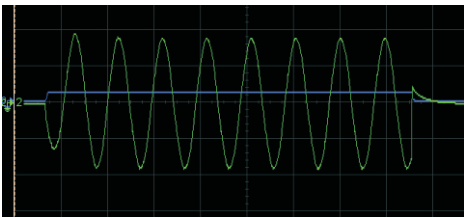


FR200 Series summary

FR200 series vector control inverter is mainly positioned as a high-end market for OEM customers and the specific requirements of fan and pump load applications, its flexible design, both embedded SVC and VF control in one, can be widely used for speed control accuracy, torque response speed, low-frequency output characteristics and other situations with higher requirements.

Excellent performance

- ◆ High starting torque
- ◆ 180% Rated torque / 0.5Hz (SVC 1)
- ◆ 180% Rated torque / 0.25Hz (SVC 2)
- ◆ Reduce the sensitivity from SVC control to motor parameter, to improve the site adaptability

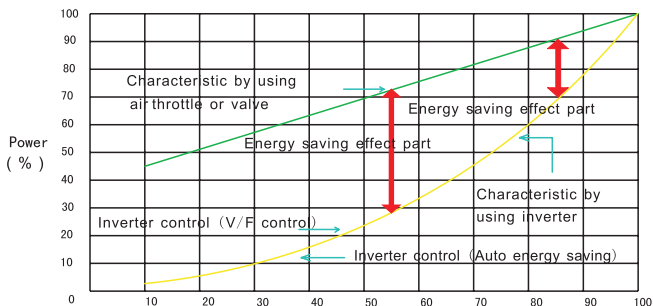


Abundant function

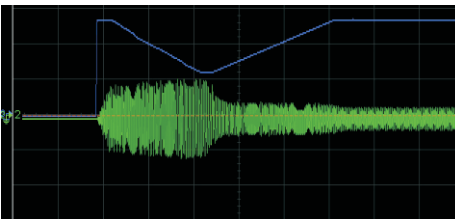
- ◆ Integrated model with G&P in one

Load torque characteristic		Variable torque characteristic (P model)	Constant torque characteristic (G model)
Load characteristic			
		Fan, pump load type	Conveyor belt, trolley and other constant torque load type
		Load torque change is proportional to speed (Non need overload capacity)	Fixed Load torque (Overload capacity required)
Inverter characteristic	Overload capacity	120% rated current: 60S	150% rated current: 60S
	Maximum output power	600Hz	600Hz

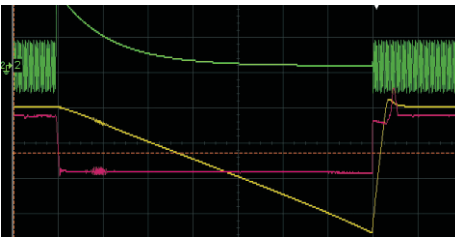
- Equipped functions most suitable for fan and pump, equipped PID control function
- To implement temperature, pressure, flow control without extra controllers



- Air flow or water flow Q(%) energy saving effect characteristic
- Different motor characteristic, different effect
- ◆ Dormant & wakeup function
Supports frequency dormant & wakeup and pressure dormant & wakeup, better adaptability for various sites
- ◆ Speed tracing function
Inverter starts motor smoothly according to motor's current running direction and speed

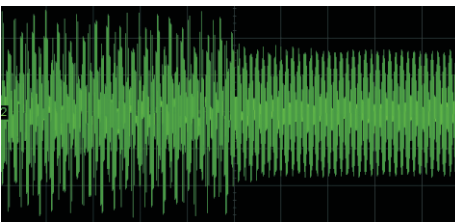


Speed tracing output frequency and current waveform



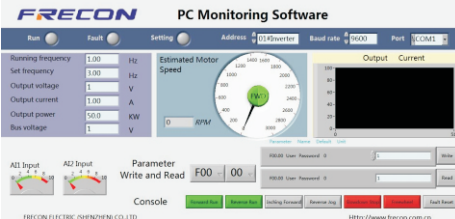
Green color is input voltage
Yellow color is output frequency
Red color is bus voltage

- ◆ Oscillation suppression function



Convenient debugging

- ◆ Powerful background 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

Electric Specification

Main Power Voltage	Model No.	Motor Power (kW)	Power Capacity (kVA)	Input Current (A)	Output Current (A)	Size of the Case	Dimension (W*H*D) (mm)
380 VAC, 3 ~	FR200-4T-0.7G/1.5PB	0.75	1.5	3.4	2.5	F2-1	117*187*160
	FR200-4T-1.5G/2.2PB	1.5	3	5.0	4.2		
	FR200-4T-2.2GB	2.2	4	5.8	5.5		
	FR200-4T-4.0G/5.5PB	4.0/5.5	6	11	9.5	F2-2	146*249*177
	FR200-4T-5.5G/7.5PB	5.5/7.5	8.9	14.6	13		
	FR200-4T-7.5G/011PB	7.5/11	11	20.5	17		
	FR200-4T-011G/015PB	11/15	17	26	25	F2-3	198*300*185
	FR200-4T-015G/018PB	15/18.5	21	35	32		
	FR200-4T-018G/022PB	18.5/22	24	38.5	37		
	FR200-4T-022G/030PB	22/30	30	46.5	45	F2-4	255*459*220
	FR200-4T-030G/037PB	30/37	40	62	60		
	FR200-4T-037G/045P	37/45	57	76	75		
	FR200-4T-045G/055P	45/55	69	92	91	F2-5	270*590*260
	FR200-4T-055G/075P	55/75	85	113	112		
	FR200-4T-075G/090P	75/90	114	157	150		
	FR200-4T-090G/110P	90/110	134	160*	176	F2-7	430*830*293
	FR200-4T-110G/132P	110/132	160	190*	210		
	FR200-4T-132G/160P	132/160	192	232*	253		
	FR200-4T-160G/185P	160/185	231	282*	304	F2-8	500*1107*328
	FR200-4T-185G/200P	185/200	240	326*	350		
	FR200-4T-200G/220P	200/220	250	352*	377		
	FR200-4T-220G/250P	220/250	280	385*	426	F2-9	660*1160*340
	FR200-4T-250G/280P	250/280	355	437*	470		
	FR200-4T-280G/315P	280/315	396	491*	520		
	FR200-4T-315G/355P	315/355	445	580*	600	F2-10	810*1140*400
	FR200-4T-355G/400P	355/400	500	624*	650		
	FR200-4T-400G/450P	400/450	565	690*	725		
	FR200-4T-450G/500P	450/500	623	765*	800	F2-11	1200*1900*480
	FR200-4T-500G/560P	500/560	670	835*	860		
	FR200-4T-560G/630P	560/630	770	960*	990		
	FR200-4T-630G/710P	630/710	855	1050*	1100		

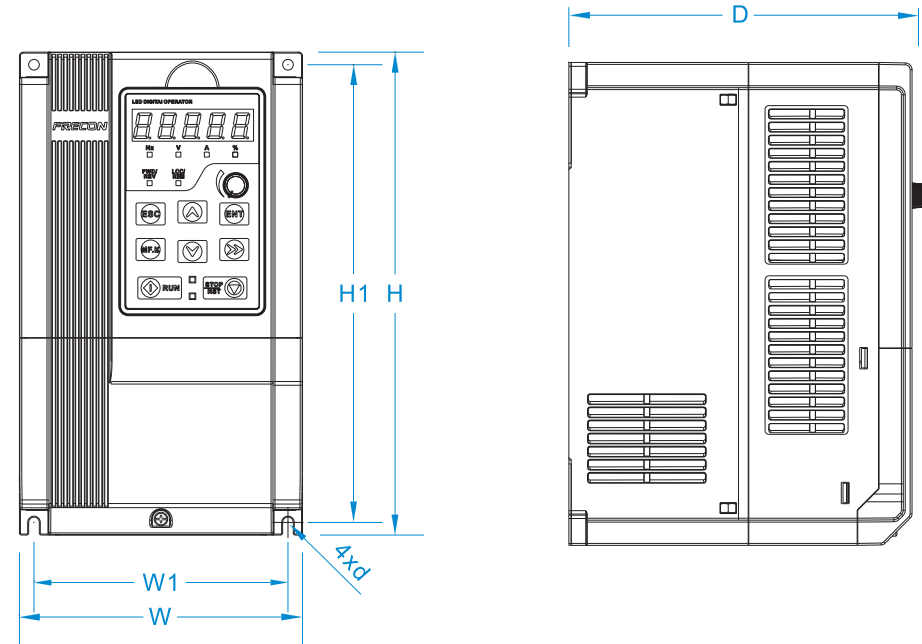
* FR200-4T-90G/110P or above is provided with an external-mounted DC reactor as default.

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)
Basic functions	Carrier frequency	0.7kHz ~ 16kHz
	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℃ ~ 40℃(De-rate from 40℃ ~ 50℃)
Others	Installation	Wall-mounted or Flange mounting
	IP grade	IP20
	Cooling method	Fan cooled

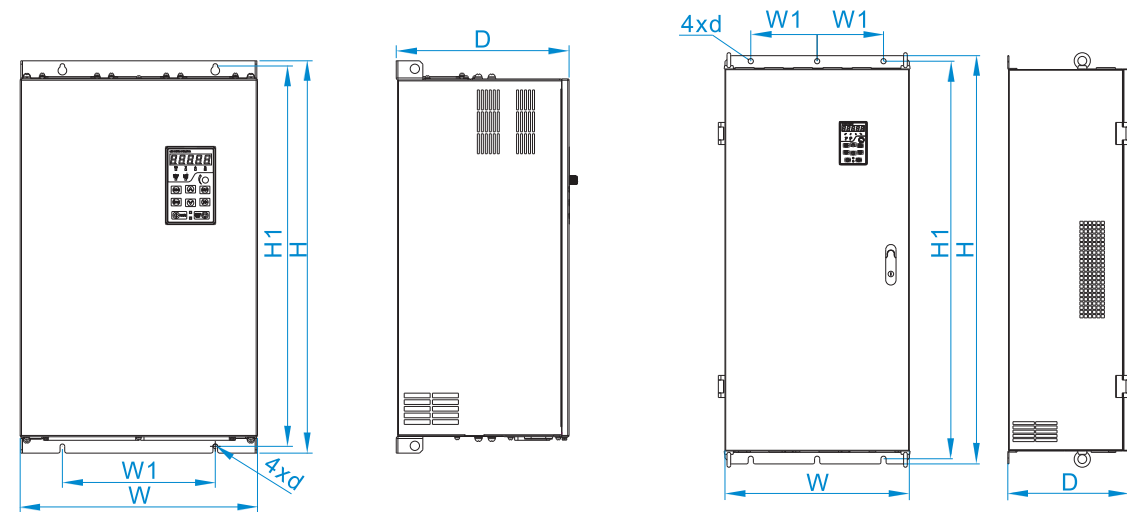
Product Installation Dimension

F2-1~F2-3 Structure Dimension Diagram



Size of the Case	External and installation dimensions (mm)						Weight (Kg)
	W	W1	H	H1	D	Mounting HoleDiameter	
F2-1	117	107	187	177	160	4.5	1.9
F2-2	146	131	249	236	177	5.5	3.2
F2-3	198	183	300	287	185	5.5	5.4

F2-4~F2-10 Structure Dimension Diagram

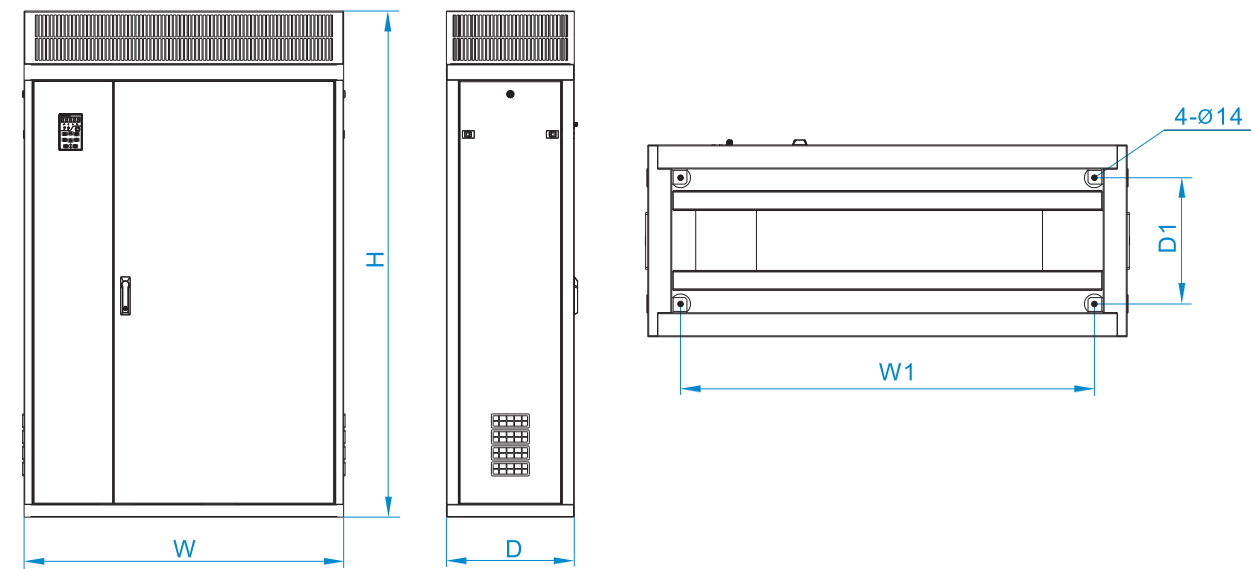


Product Installation Dimension

Size of the Case	External and installation dimensions (mm)						Weight (Kg)
	W	W1	H	H1	D	Mounting HoleDiameter	
F2-4	255	176	459	443	220	7	15.5
F2-5	270	130	590	572	260	7	27.5
F2-6	357	230	590	572	260	7	37
F2-7	430	320	830*	802	293	12	77.7
F2-8	500	180	1107*	1078	328	14	138.5
F2-9	660	230	1160*	1130	340	14	190
F2-10	810	300	1140*	1110	400	14	196

*Remark: 1. 90-280kW optional base height 263mm
2. 315-400kW DC reactor can be installed independently in the trench or the cabinet;
If vertical installation, need to purchase the base(DC reactor can be installed in the base),
base height 400mm

F2-11 Structure Dimension Diagram



Size of the Case	External and installation dimensions (mm)					
	W	W1	H	D	D1	Mounting HoleDiameter
F2-11	1200	1036	1900	480	316	14