F300 series

High Performance Vector AC Drive

Brochure

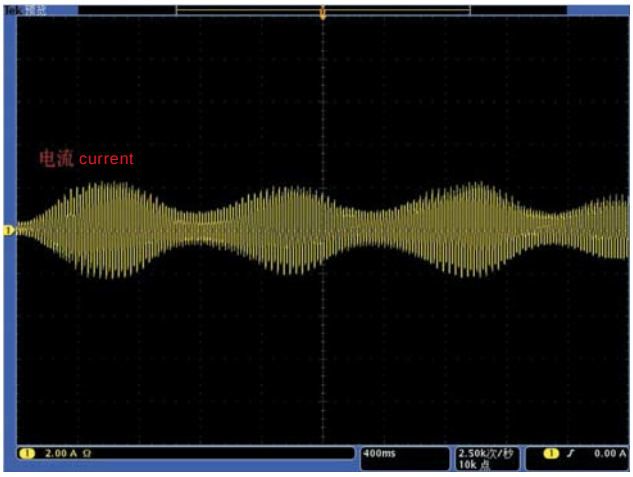
■ Introduction

F300 series is latest version for high performance vector inverter based on BD330. Multiple control modes ,New vector control algorithm can achieve stability at slow speed, stronger load capacity at low frequency. Support SVC,VC and V/F control, and achieved using multiple PG cards. Stronger functions, functional of motor control has clearly raised.

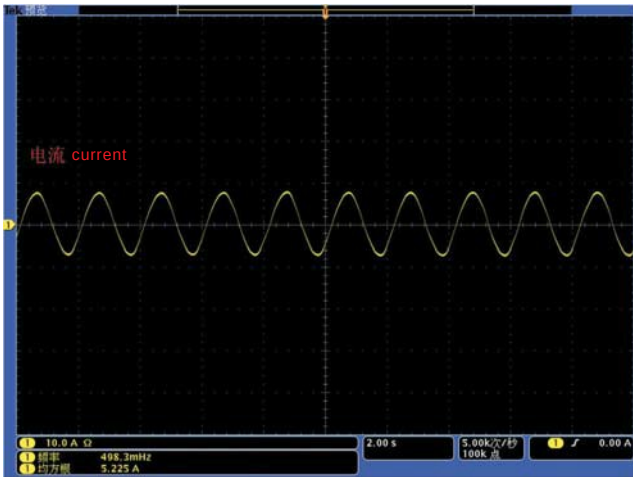
■ Features

Outstanding performance

1) Large torque output when low frequency ;
2) Fast dynamic response ;
3) Super strong overload capacity



0.5Hz full-load output



50Hz sudden load

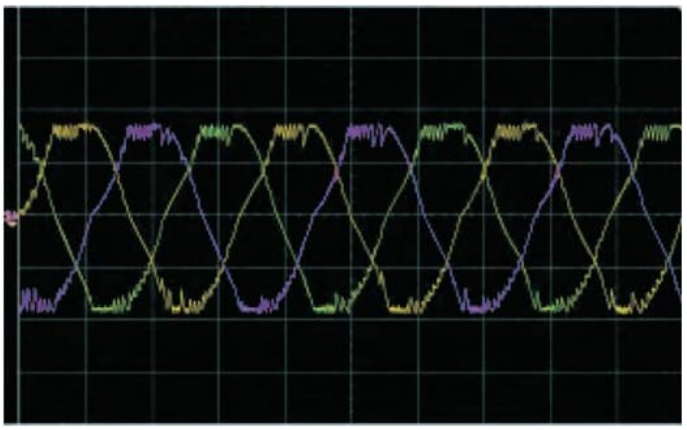
Accurate motor parameter self learning

F300 series inverter can accurately provide dynamic or static self-learning of motor parameters, simple debugging , easy operating, higher control accuracy and response speed.

Dynamic self-learning	Static self-learning
It need release the load, suitable for situation that requiring high control precision	Applicable to the motor and load cannot release

Features

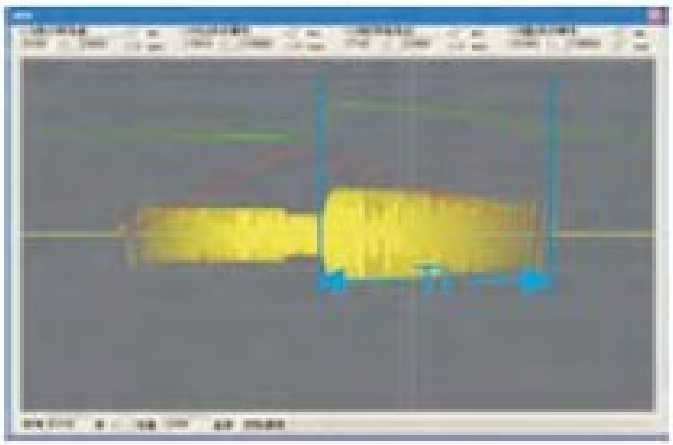
Rapid current limit



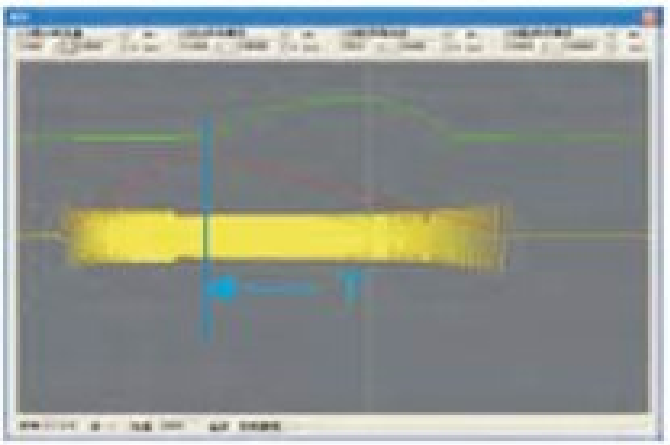
Rapid current limiting function can limit current rapidly within the current protection value, to ensure the safety of the equipment, and avoid over-current alarm caused by sudden loading or interference.

Over-excitation gain and oscillation suppression gain

Over-excitation brake function valid



Over-excitation brake function invalid



Rapid RUN/STOP

Excellent current and voltage control technology can realize rapid RUN/STOP, restrain overvoltage and overcurrent.

Overvoltage stall protection & Overcurrent stall protection

Support both asynchronous motor and synchronous motor

1) asynchronous motor

2) synchronous motor (by using extension card)

Features

Support multiple control mode

Speed sensorless vector control (SVC), sensor vector control(VC), V/F control

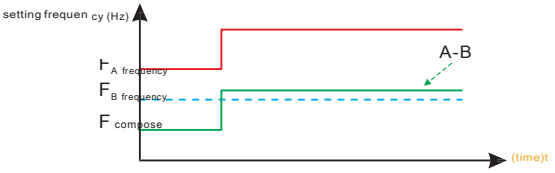
Differential Encoder

Resolver

Frequency source binding & compose

Run command source are free to bind any frequency source. 10 kinds of main-auxiliaryfrequency source, flexible to adjust and compose.

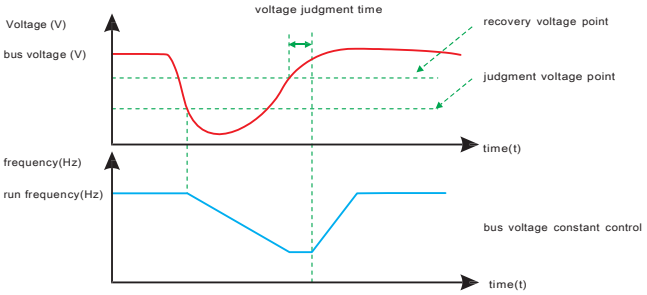
For example : A+B、A-B、AB switch,etc



Flexible and practical analog input/output

Each analog input (AI1 ~ AI3) can set 4 point curves.

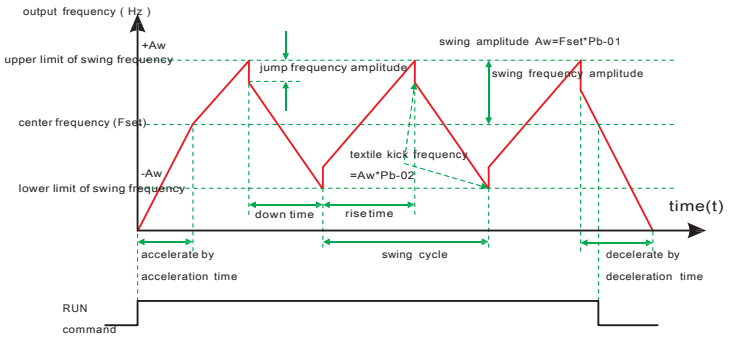
None-stop when instantaneous power off



High-speed pulse input and output functions

High speed pulse signal specification: voltage range 9V~26V, frequency range 0 ~ 100 KHZ. Can setting 2 pint curves, high control precision. HDI/HDO high speed pulse input/output terminal can be used for DI/DO.

Swing frequency control function



Simple PLC

Multiple motor switch

Two groups of motor parameters, and control two motors by one inverter.

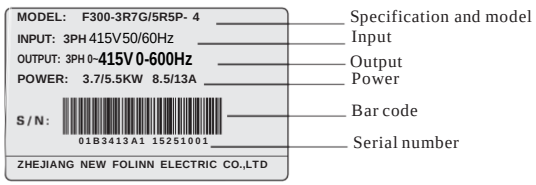
Technical Features

I/O Features	Input Voltage Range	1AC220V±15% / 3AC220V±15% / 3AC380V±15% / 3AC660V±10% / 3AC1140V±15%	
	Input Frequency Range	47-63Hz	
	Output Voltage Range	0~rated input voltage	
	Output Frequency Range	0~600Hz	
I/O Terminals	Input Terminals	• 6 programmable digital inputs,it can be extended to 4 digital inputs,one of which supports high speed pulse input; • 1 analog volatge input, -10~10VDC; • 2 volatge input 0~10VDC or current input 0~20mA	
	Output Terminals	• 1 open collector output ,it can be extended to 1 high speed pulse output ; • 2 relay outputs; • 2 analog output: volatge output 0~10VDC or current output 0~20mA	
RUN	Multiple encoder types	A variety of encoder is optional: support differential encoder, ABZ encoder,UVW encoder, rotary transformer	
	Control Mode	Speed sensorless vector control (SVC) , sensor vector control (VC), V/F control	
	Frequency Reference Source	Digital,analog,pulse frequency,serial communication,multi-step speed,simple PLC and PID, The combination of multi-modes and the different modes can be switched.	
	Overload Capacity	• G type: 60s for 150% of the rated current, 3s for 180% of the rated current • P type: 60s for 120% of the rated current, 3s for 150% of the rated current	
	Start Torque	• G type: 0.5 Hz/150% (SVC); 0 Hz/180% (VC) • P type: 0.5 Hz/100%	
	Speed Adjusting Range	1:100 (SVC)	1:1000 (VC)
	Speed Accuracy	±0.5%（SVC)	±0.02%（VC）
	Carrier Frequency	0.5 to 16.0kHz;automatically adjust carrier frequency according to the load characteristics	
	Resolution of Frequency setting	Digital setting:0.01Hz Anolog setting:maximum frequency x 0.025%	
	Running command source	• Keyboard • Control terminals • Serial communication port	
Functions	Torque Boost	Automatic torque boost;manual torque boost 0.1~30%	
	V/F curve	• Straight-line V/F curve • Multi-point V/F curve • Square V/F curve • V/F complete separation • V/F half separation • N-power V/F curve (1.2-power, 1.4-power,1.6-power, 1.8-power)	
	Acc/Dec Mode	Straight-line or S-curve，Four kinds of acceleration/deceleration time with the range of 0.0 –6500.0s	
	DC Braking	Supports starting and stopping DC braking • DC braking frequency: 0.00 Hz to maximum frequency • Braking time: 0.0–100.0s • Braking action current value: 0.0%–100.0%	
	Jogging control	Jog frequency range:0.0Hz to 50Hz; Jog Acc/Dec time:0~6500.0s	
	Simple PLC and Multi-speed operation	Built-in PLC or control terminal,16 steps speed can be set，Hold time and acceleration/deceleration of each step speed can be adjusted	
	Built-in PID	Easy to realize closed-loop control system for the process control	
	Automatic voltage regulation(AVR)	Automatically maintain a constant output voltage when the voltage of electricity grid changes	
	Stop mode selection	• Decelerate to stop • Coast to stop	
	Torque limit and control	“excavator”character, automatic limit torque when running can prevent over-current trip continually; Vector mode can realize torque control	
	Multi-motor switchover	Equip with two groups of motor parameter, it can realize switching control of two motors	
	Switchover function	Total 10 main and auxiliary frequency source.They can be switched and combined flexibly	

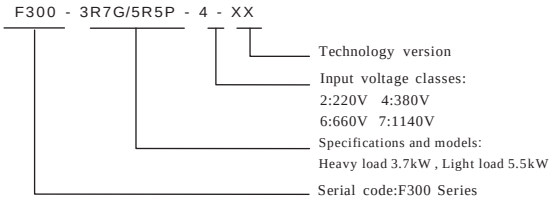
Technical Features

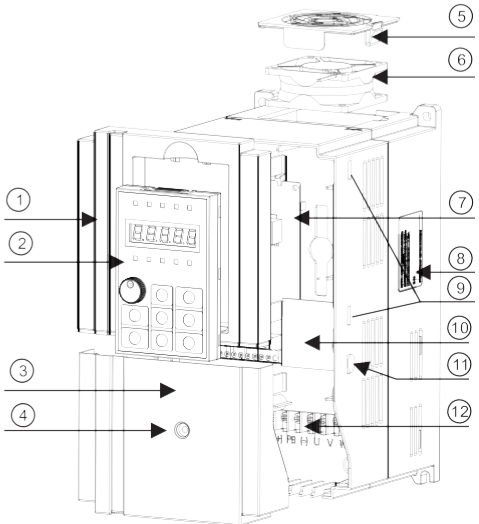
	Swing frequency control function	Multiple triangular pulse frequency control
	Common DC bus function	Multiple inverters can use a common DC bus
	Speed tracking function:	Multiple speed trace mode, the speed of trace can be adjusted
	Timing control	Timing setting range 0~6500min
	Fixed length	setting length control
	Jump frequency function	Prevents mechanical resonance and makes the system more stable and reliable
	Protection function	Overvolatge protection, undervoltage protection, overcurrent proteciton, overload protection, overheat protection, overcurrent stall protection, overvoltage stall protection, phase-loss protection, over-speed detection, motor overheat protection, short-circuit protection.
	Other functions	• Parameter restore • Parameter self-learning • PID parameters switchover • PID feedback loss detection • Over-torque and under-torque detection • None-stop when instantaneous power off • Sleep and wake function,etc. • Rapid current limit • Current detection compensation • Fault self-recovery • Backup data for power fail of simple PLC
Communications	RS485	
Extension card	I/O extension card, PG card, (Relay extension card and V/I extension card can be customized as your request.)	
PCB coating	Imported conformal protective coating	
Display	LED Display	Can display: setting frequency,output frequency,output voltage,output current etc.
Environmental Constraint	Protection level	IP20
	Temptemperature	-10℃~+40℃，it will be derated if ambient emperature exceeds 40℃
	Humidity	Below 90%RH (no condensation)
	Vibration	≤20Hz 9.8m/s(1G), ≥20Hz 5.88m/s(0.6G)
	Altitude	Below 1000m,indoor(place without corrosive gas, liquid)
	Storage temperature	-20℃~+60℃

- Inverter nameplate:



- Specifications and models:





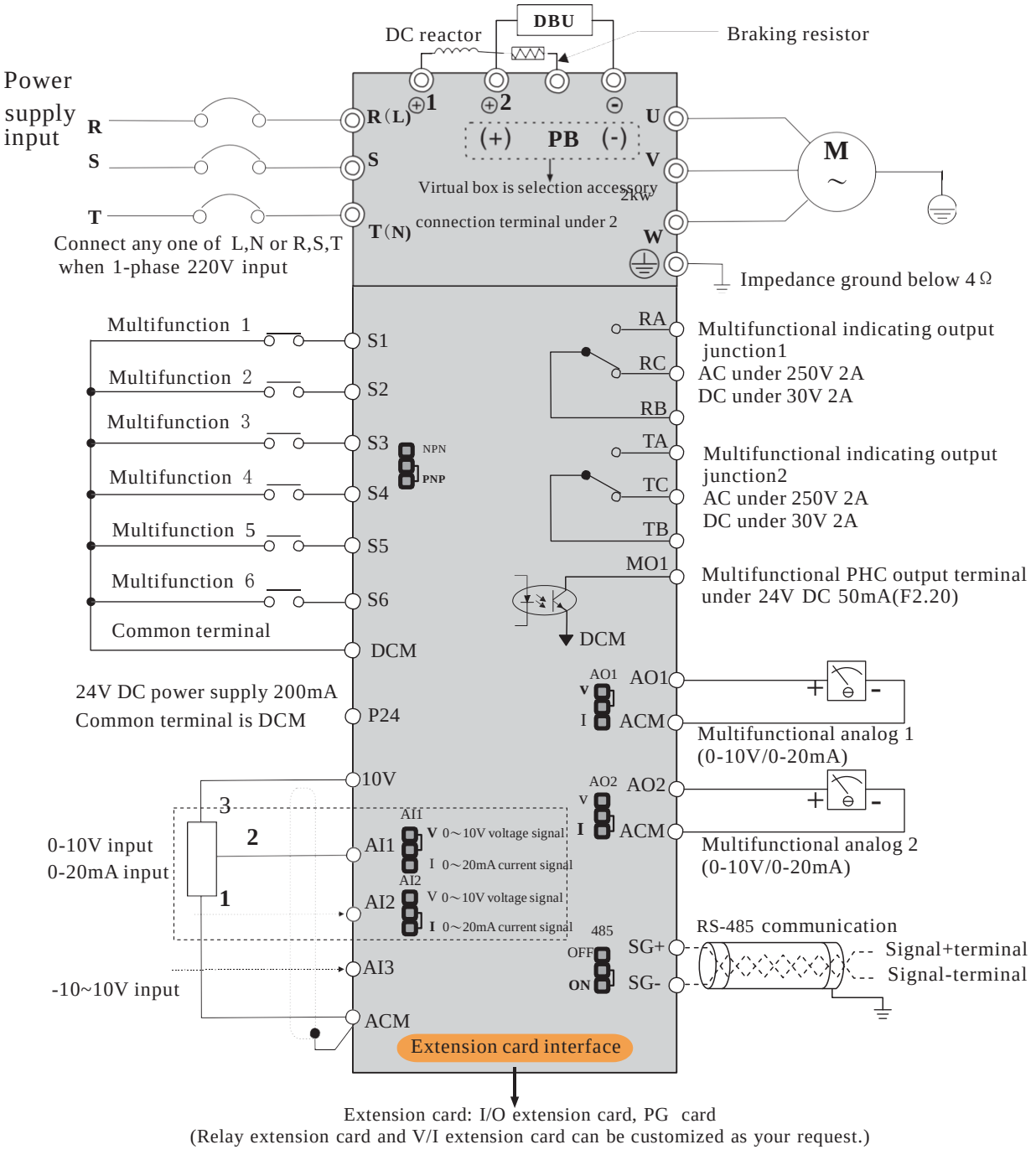
No.	Name	Description
①	Pre-cover	Used for install display keyboard and protect components
②	Keyboard	Used for amend and check inverter parameters, operation and other functions
③	Tail-hood	
④	Retaining screw of tail-hood	Used to fix tail-hood, and loosen this screw first while disassembly
⑤	Snap joint of fan	Used to fix fan, convenient to disassembly
⑥	Cooling fan	Internal heat dissipation of inverter
⑦	Control board	CPU board of inverter
⑧	Nameplate	
⑨	Snap joint of pre-cover	Used to fix pre-cover,total four on both left and right
⑩	Expansion board	Built-in multifunctional expansion board
⑪	Snap joint of tail-hood	Used to fix tail-hood,one on both left and right
⑫	Main loop terminal	

Basic wiring diagram

Basic wiring diagram

◎ Main circuit terminal

○ Cotrol circuit terminal



Notes: The general type inverters of 22KW and below have built-in brake unit,brake resistance (+) and PB terminal; (+) and (-) terminals are the plus or minus terminals of inverter's DC bus. Reserved direct current reactor connection terminals above 22KW, ⊕1⊕2, ⊕2 and ⊖ terminals are used to connect energy feedback unit or brake unit.
When brake unit is used in high-power inverters, you shall connect positive pole of brake unit to output terminal ⊕2 of direct current reactor. If it is connected to ⊕1 terminal, it will damage brake unit.

Model

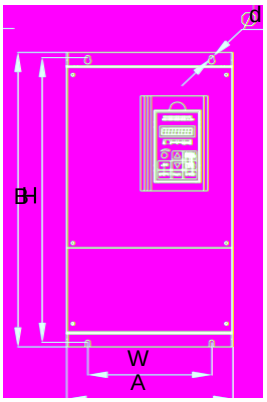
Models	Rated power (kW)	Rated input current (A)	Rated output current (A)	Adaptive motor (KW)
Input 1PH 240V±15% 47Hz-63Hz				
F300-0R4G-2	0.55	5.4	4.0	0.55
F300-0R7G-2	0.75	8.2	5.0	0.75
F300-1R5G-2	1.5	14.0	7.0	1.5
F300-2R2G-2	2.2	23	10.0	2.2

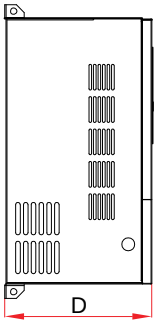
Models	Rated power (kW)	Rated input current (A)	Rated output current (A)	Adaptive motor (KW)
Input 3PH 415V±15% 47Hz-63Hz				
F300-0R5G-2	0.55	3.8	3.2	0.55
F300-0R7G-2	0.75	4.9	4.1	0.75
F300-1R5G-2	1.5	8.4	7.0	1.5
F300-2R2G-2	2.2	11.5	10.0	2.2
F300-3R7G-2	3.7	18	15	3.7
F300-5R5G-2	5.5	24	23	5.5
F300-7R5G-2	7.5	37	31	7.5
F300-011G-2	11	52	45	11
F300-015G-2	15	68	58	15
F300-018G-2	18.5	84	71	18.5
F300-022G-2	22	94	85	22
F300-030G-2	30	120	115	30
F300-037G-2	37	160	145	37
F300-045G-2	45	198	180	45
F300-055G-2	55	237	215	55
F300-075G-2	75	317	283	75

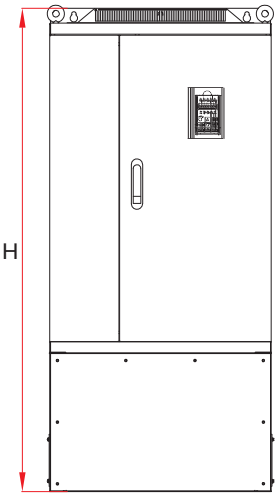
Model

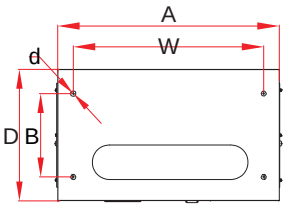
Models	Rated power (kW)	Rated input current (A)	Rated output current (A)	Adaptive motor (KW)
Input 3PH 415V±15% 47Hz-63Hz				
F300-0R7G/1R5P-4	0.75/1.5	3.4/5.0	2.5/3.7	0.75/1.5
F300-1R5G/2R2P-4	1.5/2.2	5.0/5.8	3.7/5.0	1.5/2.2
F300-2R2G/3R7P-4	2.2/3.7	5.8/10.5	5.0/8.5	2.2/3.7
F300-3R7G/5R5P-4	3.7/5.5	10.5/14.6	8.5/13	3.7/5.5
F300-5R5G/7R5P-4	5.5/7.5	14.6/20.5	13/18	5.5/7.5
F300-7R5G/011P-4	7.5/11	20.5/26	18/24	7.5/11
F300-011G/015P-4	11/15	26/35	24/30	11/15
F300-015G/018P-4	15/18.5	35/38.5	30/37	15/18.5
F300-018G/022P-4	18.5/22	38.5/46.5	37/46	18.5/22
F300-022G/030P-4	22/30	46.5/62	46/58	22/30
F300-030G/037P-4	30/37	62/76	58/75	30/37
F300-037G/045P-4	37/45	76/92	75/90	37/45
F300-045G/055P-4	45/55	92/113	90/110	45/55
F300-055G/075P-4	55/75	113/157	110/150	55/75
F300-075G/093P-4	75/93	157/180	150/170	75/90
F300-093G/110P-4	93/110	180/214	170/210	90110
F300-110G/132P-4	110/132	214/256	210/250	110/132
F300-132G/160P-4	132/160	256/307	250/300	132/160
F300-160G/200P-4	160/200	307/385	300/380	160/200
F300-200G/220P-4	200/220	385/430	380/430	200/220
F300-220G/250P-4	220/250	430/468	430/465	220/250
F300-250G/280P-4	250/280	468/525	465/520	250/280
F300-280G/315P-4	280/315	525/590	520/585	280/315
F300-315G/350P-4	315/350	590/665	585/650	315/350
F300-350G/400P-4	355/400	665/785	650/754	350/400
F300-400G/500P-4	400/500	785/965	754/930	400/500
F300-500G/630P-4	500/630	965/1210	930/1180	500/630
F300-630G/710P-4	630/710	1210/1465	1180/1430	630/710

External Dimension









Wall-mounted housing

Wall-mounted/ Floor combination housing

Base NO.	Model	Power(kW)	Dimensions(mm)						Housing
			A(width)	H(height)	D(depth)	W	B	d	
B10	F300-0R5G-2	0.55kW	116	175	153	103	165	5	wall mounted plastic housing
	F300-0R7G-2	0.75kW							
	F300-1R5G-2	1.5kW							
B01	F300-2R2G-2	2.2kW	134	251	173	121	238	5	
	F300-3R7G-2	3.7kW							
B02	F300-5R5G-2	5.5kW	161	274	198	148	261	6	
	F300-7R5G-2	7.5kW							

Base NO.	Model	Power(kW)	Dimensions(mm)						Housing
			A(width)	H(height)	D(depth)	W	B	d	
B10	F300-0R7G/1R5G-4	0.75kW	116	175	153	103	165	5	wall mounted plastic housing
	F300-1R5G/2R2G-4	1.5kW							
	F300-2R2G/3R7G-4	2.2kW							
B01	F300-3R7G/5R5G-4	3.7kW	134	251	173	121	238	5	

Note：B10 housing can not support PG card and extension card.
If need to add, please use B01 housing.

External Dimension

Base NO.	Model	Power(kW)	Dimensions(mm)						Housing
			A(width)	H(height)	D(depth)	W	B	d	
B02	F300-5R5G/7R5P-4	5.5kW	161	274	198	148	261	6	wall mounted plastic housing
	F300-7R5G/011P-4	7.5kW							
B03	F300-011G/015P-4	11kW	210	343	215	195	327	6	
	F300-015G/018P-4	15kW							
B11	F300-018G/022P-4	18.5kW	220	393	222	160	377	6	wall mounted steel casing housing
	F300-022G/030P-4	22kW							
B04	F300-030G/037P-4	30kW	255	453	237	190	440	7	
	F300-037G/045P-4	37kW							
B05	F300-045G/055P-4	45kW	280	582	295	200	563	9	
	F300-055G/075P-4	55kW							
B06	F300-075G/093P-4	75kW	300	685	323	200	667	11	
	F300-093G/110P-4	93kW							
B07	F300-110G/132P-4	110kW	420	840	334	150*150	815	11	
	F300-132G/160P-4	132kW							
	F300-160G/200P-4	160kW							
B09	F300-200G/220P-4	200kW	640	1035	390	250*250	1003	11	
	F300-220G/250P-4	220kW							
	F300-250G/280P-4	250kW							
	F300-280G/315P-4	280kW							
	F300-315G/350P-4	315kW							
B07-G	F300-110G/132P-4	110kW	420	1108	334	320	230	12	Floor type steel casing housing
	F300-132G/160P-4	132kW							
	F300-160G/200P-4	160kW							
B09-G	F300-200G/220P-4	200kW	640	1400	390	550	240	15	
	F300-220G/250P-4	220kW							
	F300-250G/280P-4	250kW							
	F300-280G/315P-4	280kW							
	F300-315G/350P-4	315kW							

■ Optional extension cards

RS485 communicvation card		Differential encoder PG card		Resolver PG card	
(BD-RS485)		(BD-PG03)		(BD-PG04)	

■ Optional brake unit and brake resistance

Voltage	AC Drive power	brake unit		brake resistance			brake torque (10%UD)
		model	pcs	power(W)/resistance(Ω)		pcs	
240	0.55kW	built-in	-	80	120	1	
	0.75kW		-	80	120	1	
	1.5kW		-	150	100	1	
	2.2kW		-	300	68	1	
	3.7kW		-	300	68	1	
	5.5kW		-	400	30	1	
	7.5kW		-	400	30	1	
415	0.75kW		-	150	300	1	
	1.5kW		-	200	300	1	
	2.2kW		-	200	200	1	
	3.7kW		-	400	150	1	
	5.5kW		-	400	100	1	
	7.5kW		-	750	75	1	
	11kW		-	1000	60	1	
	15kW		-	1500	40	1	
	18.5kW		-	2500	30	1	
	22kW		-	3000	30	1	
	30kW	DBU-4030	1	5000	25	1	
	37kW	DBU-4045	1	7500	20	1	
	45kW		1	10000	13.6	1	
	55kW	DBU-4030	2	5000*2	25	1	
	75kW	DBU-4045	2	7500*2	15	1	
	93kW		2	10000*2	13.6	1	
	110kW	DBU-4160	1	20000	8	1	
	132kW		1	25000	6	1	
	160kW		1	30000	6	1	
	200kW		1	35000	4.5	1	
	220kW	DBU-4280	1	40000	4.5	1	
	250kW		1	45000	4	1	
	280kW		1	50000	3.5	1	
	315kW		1	55000	3	1	
	350kW		1	60000	2.5	1	
	400kW		1	60000	2.5	1	
	450kW		1	80000	2	1	

HITEK

Driving Follow Haar!,Winning Tha Future

Authorised Distributor:

EAMNSUN
Phone: 021 88750 756
Email: info@eamensun.com Web:
www.eamensun.com