



FD800

Modularity High Performance Vector Inverter

Drive the Future with Industrial Innovation



Mobile : +971529997915
Email : info@fusionenergyinternational.com
Facebook : www.facebook.com/fusionenergyinternational
Address : Office 0-212, Owned by ELHAM MOHAMED AMIN MIRZA GHAFARI, Abu Hail, Deira



FD800

Modularity High Performance Vector Inverter

Contents

Product Features	01
Technical Specification	05
Diagram	07
Product Model Specification	10
Product Application	13

1 Modularity High Performance

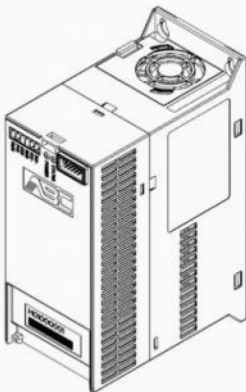
1.1、 One minute to understand the modularity

FD800 - Modularity high performance Vector Control platform Includes Power unit (PU), Control Unit (CU), External keypads and option cards.



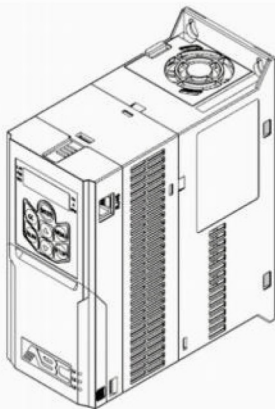
CU (Control Unit)

IO Functions, Option Cards,
Specified app functions Software



PU (Power Unit)

Motor Control, General App Functions



FD800PUCU

FD800 Inverter

Combination type of FD800

PU00/PU01 works alone		
Combination of power unit (PU) and control unit (CU)		
Power unit PU+ Control unit CU+Option card / External keyboard combination		

FD800 Inverter modules

Selection of Power units(PU)

Selection of Power unit (PU)	Model	Power Range	Description
	PU00	0.37-630kW	No DI/DO/RS485
	PU01	0.37-7.5kW	2DI/1DO/1RS485
		11-22kW	3DI/1AI/1Relay/1RS485
	PU0F	0.37~7.5kW	2DI/1AI/10V

Selection of Control units(CU)

Selection of Control Unit (CU)	Model	Power Range	Description
	CU00	Can be used for all power range PU	6DI+1DO+2AI+1AO+2Relay+RS485, LED Keypad,1 option card
	CU02	Can be used for all power range PU	5DI+1DO+2AI+2AO+2Relay+RS485, LED Keypad,1 option cards
	CU03	Can be used for all power range PU	8DI+4DO+4AI+2AO+2RS485, LED Keypad,2 option cards,Support customer modification
	CU04	Can be used for all power range PU	6DI+2DO+2AI+1AO+2Relay+2RS485 / LED Keypad,2 option cards

Selection of option cards

Selection of option cards	Option cards	Description
	PG01	Common mode incremental encoder
	PG02	Differential mode incremental encoder
	PG03	Resolver for speed/position sense
	IO01	IO Extension Card
	DP01	Profibus-DP Card
	PN01	ProfiNet Card
	MT01	Modbus TCP Card
	ET01	EtherCAT Card

1.2、 Highlight of FD800 Inverter

Easy installation, quick maintenance and replacement

PU-CU separable

Removable Fan

Increase the flexibility of business and limit inventory		
Free combination		
One CU for all power size PU		
One PU can support different CU		
PU can work alone		
Free customization		

High reliability	High control performance
Tough Grid High temperature: -10°C~50°C High humidity High dust	Vector / VF / SOL / SCL / TOL / TCL Control IM / IPM SPM / SRM

1.3 FD800 Applications

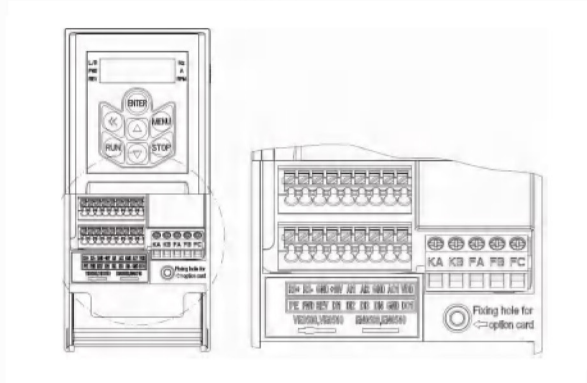
	Wire and cable	
	Ironing and folding	
	Hoisting machinery	
	Brick-making machinery	
	Industrial fan	
	Fast door	
	Air compressor	
	Digital control machine tool	

FD800 Technical specification

Technical specification of FD800 power unit PU00/PU01

Item		Speicification	
Line in	Voltage	Single Phase: 200~240V -150%~+10% 3 Phase: 380~480V -15%~+10%	
	Frequency	50 / 60Hz ±5%	
	Unbalance	3%	
Out put	Voltage	0~100% of output	
	Frequency	0~590Hz	
Main Control	Control algorithm	V/F control,Vector Control	
	Support motor type	IM、 PM	
	Start torque	0.5Hz,150%	
	Overload	Heavy load type: 150%~60s,180%~3s Light load type: 120%~60s,150%~3s	
	Switeching Frequency	0.37~22kW: 2~16kHz; ≥30kW: 2~12kHz	
	Speed resolution	Digital: 0.001Hz; Analogue: 0.5% of the maximal setup	
	Speed accuracy at Speed open loop	Rated: ±0.5%	
	Source of control command	Keypad,DI inputs,Bus communication	
	Set frequency source	Keypad,Analogue inputs,Pulse inputs,Bus communication	
	Acc/Dec	4 Group Paraineter for acc/dec: 0.05~6000.00s	
Basic Functions	Speed open loop/speed close loop,Process close loop,torque control (with/without speed sensor),Motor auto tuning,Load compensation, DC compensation ,DC brake/AC brake,speed limit,current/torque limit,fly start,KEB etc. (Note:Speed close loop or torque control with speed sensor will active only when a control unit and PG card are installed)		
Application Functions	Multistage speed control by terminals or PLC function,S ramp,Mechanic brake,counter,Process PID,jog etc.		
Protection Functions	Short circuit,Ground fault,Line phase loss,under voltage,over current,overload,over temperature,motor thermal protection,motor phase loss,control wire broken etc.		
Control Terminals	0.37~7.5kW	DI (PU01)	2 Dis for NPN and voltage input
		DO (PU01)	1 DO of 40mA
		RS485 (PU01)	1 RS485 Modbus, maximum baud rate 38400bit/s
	11~22kW	DI (PU01)	3 Dis for NPN and voltage input
		AI (PU01)	1 AI of Current and Voltage input
		10V (PU01)	10V of 10mA
		RL (PU01)	1 Relay SP ST,3A/250V
		RS485 (PU01)	1 RS485 Modbus, maximum 38400bit/s
	Module connection terminal		Used to connect the control unit or external keyboard
Operation Environment	Protection Level	IP 20	
	Working Temperature	Operating range: -10°C ~60°C ; As heavy load type: Nominal current at 50°C ,derate from 50°C ; As light load type:Nominal current at 40°C ,derate from 40°C	
	Working Humidity	No condensing at 95%	
	Vibration	1.14g	
	Altitude	1000m,derate from 1000m	
	Motor cable length	Shielded Cable 50m,Un-shielded cable 100m	
Others	Brake Chopper	Built in as default up to 22kW	

FD800 Control unit CU00 control terminal



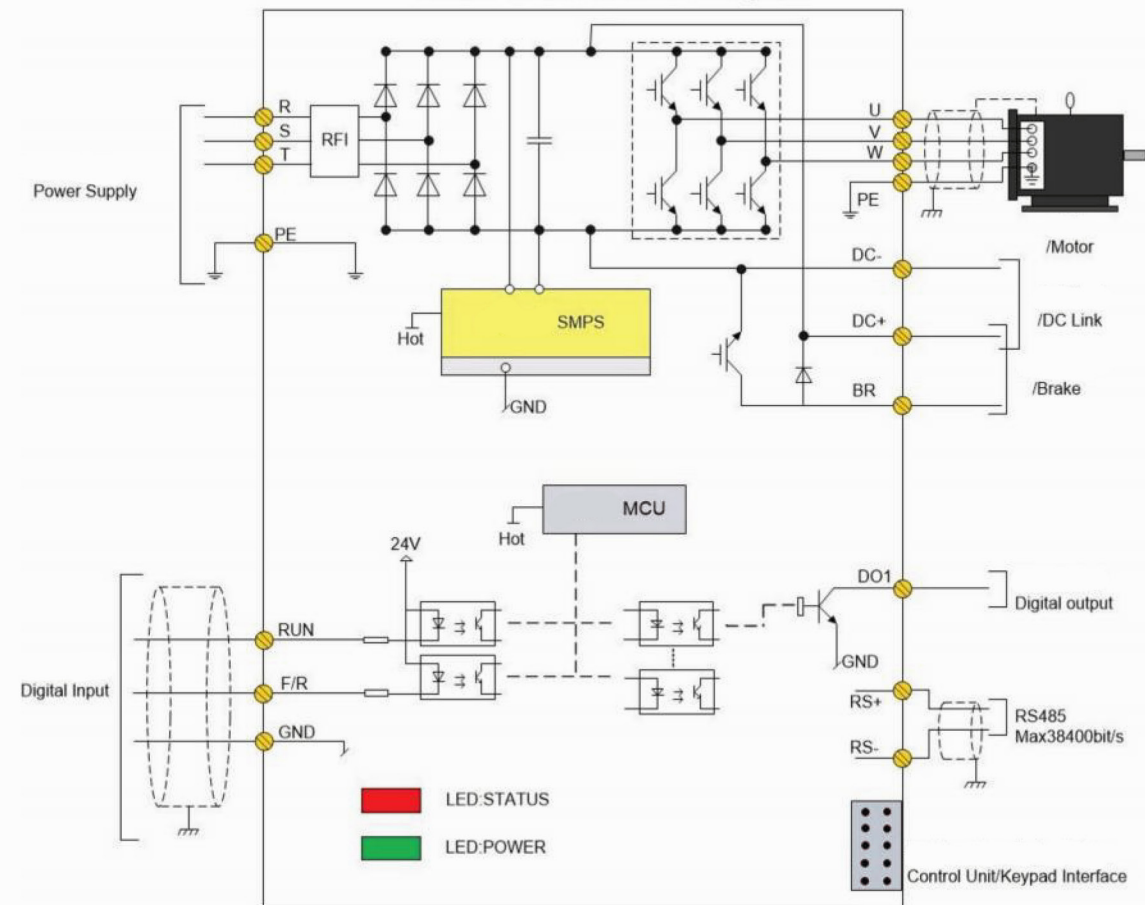
Control terminal specification

Terminal name	Description	Specifications
FWD, REV, DI1, DI2, DI3, DI4	Digital input terminal	Input type: NPN~PNP Input Voltage: 0~30V Input impedance: 3.6kΩ 0.00~100.00kHz / D4 can be configured for pulse input, pulse input range: 0.00~100.00kHz
DI4	Pulse input terminal	Frequency range: 0.00-100.00kHz Power range: 24V ± 20% Duty cycle range: 40%~60%
DO1	Digital output terminal	OC output current range: 0~40mA; OC output voltage range: 0~30V; Pulse output resistive load capacity: >1kΩ; Pulse output capacitive load capacity: <10nf; Pulse frequency range: 0.00~100.00kHz; Duty cycle range: 40%~60%
RS+,RS-	RS485 Communication	Maximum 38400bit/s;
FA-FB-FC KA-KB	Relay output	Resistive load: 250VAC 3A / 30VDC 3A Inductive load: 250VAC 0.2A / 24VDC 0.1A; (cosΦ=0.4)
AI1 , AI2	Analog and digital input	It can be configured as analog voltage input, analog current input or digital input by parameter selection. 1、 As analog voltage input: input impedance 10kΩ; input voltage range: 0mm 10V. 2、 As analog current input: input impedance ≤ 500Ω; input current range: 0-20mA. 3、 As digital input: input type NPN PNP input impedance 10kΩ voltage range 0-30V
AO1	Analog output	Can be configured as 0~10V voltage output or 0~20mA Current output, the load impedance is more than 500Ω at voltage output, and the load impedance is less than 500Ω at current output.
VDD	24V Power	Maximum output current: 200mA
+10V	10V Power	Maximum load: 30mA
GND	Signal ground	
PE	Earth	
Other terminals		
Option card interface		For option cards, located at the bottom of the control unit
External keyboard interface		For external control keyboard, located on the upper right side of the control unit

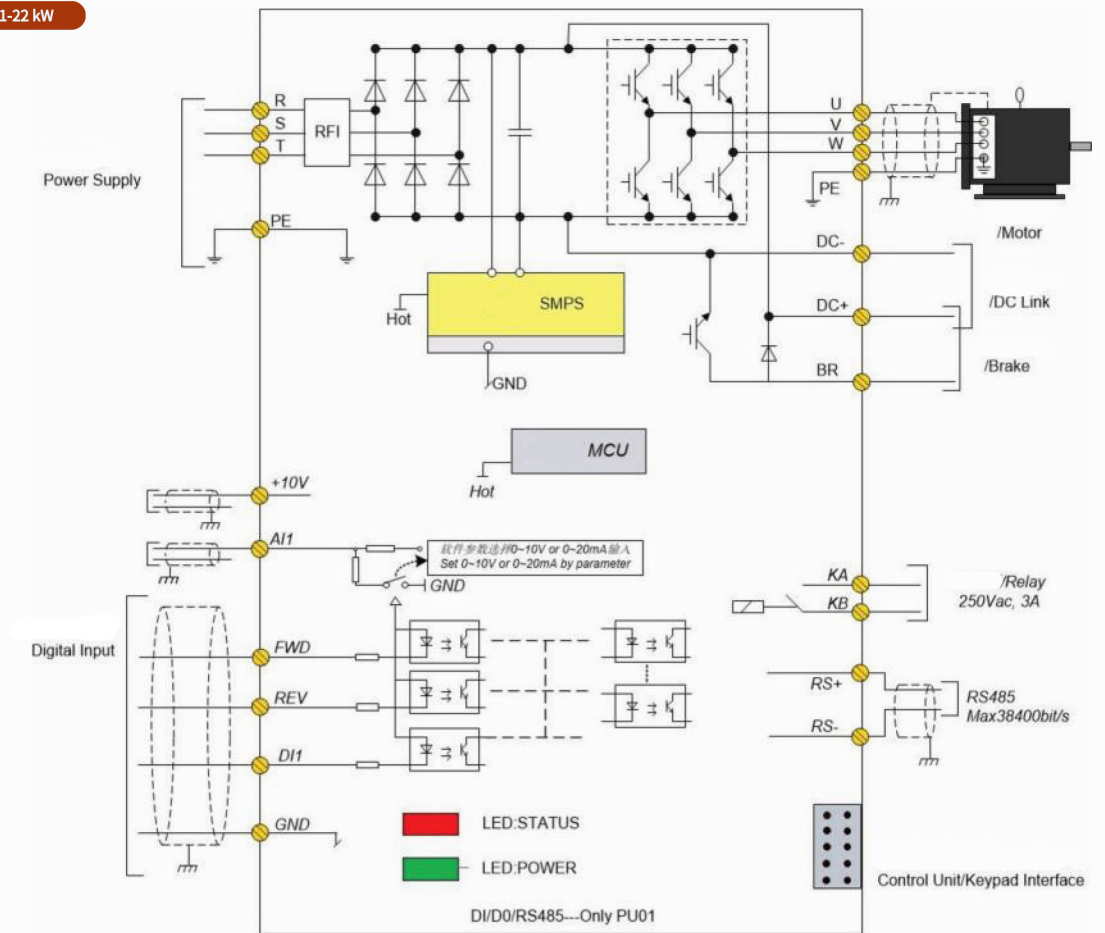
3 Electrical Diagram

0.37-7.5 kW

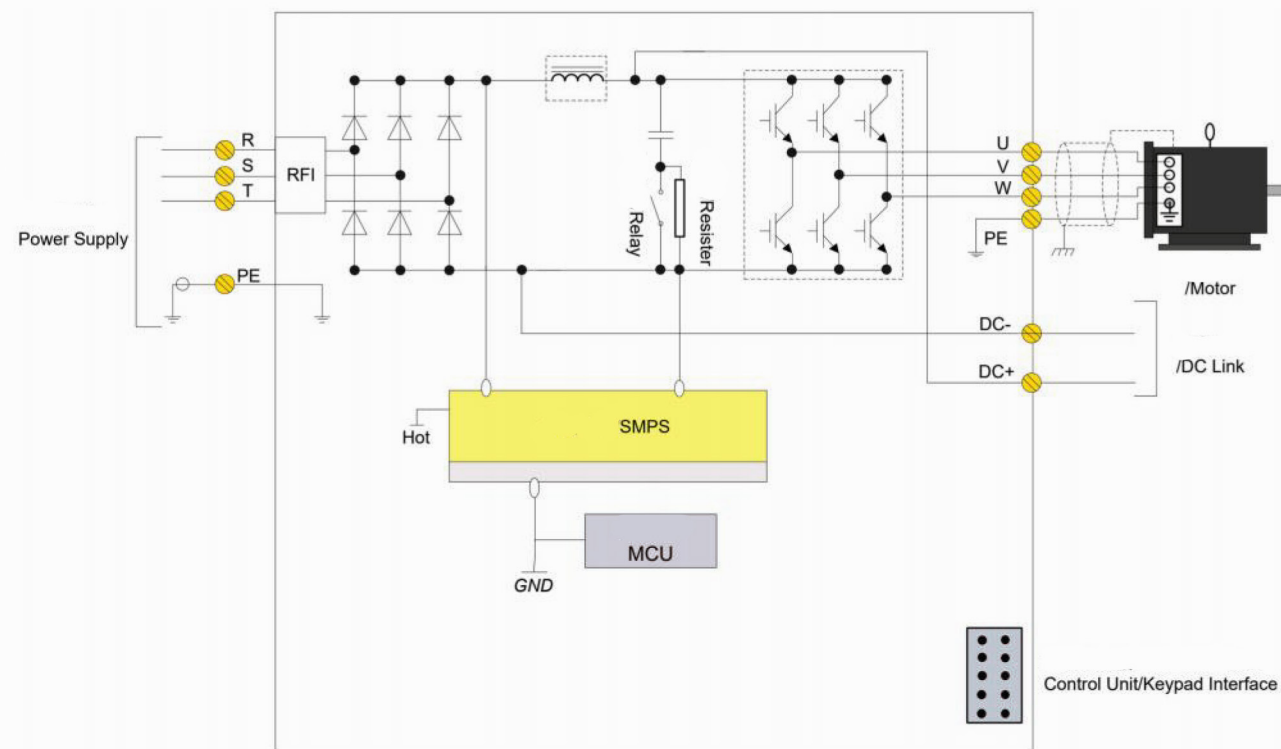
FD800 Power Unit Wire Diagram



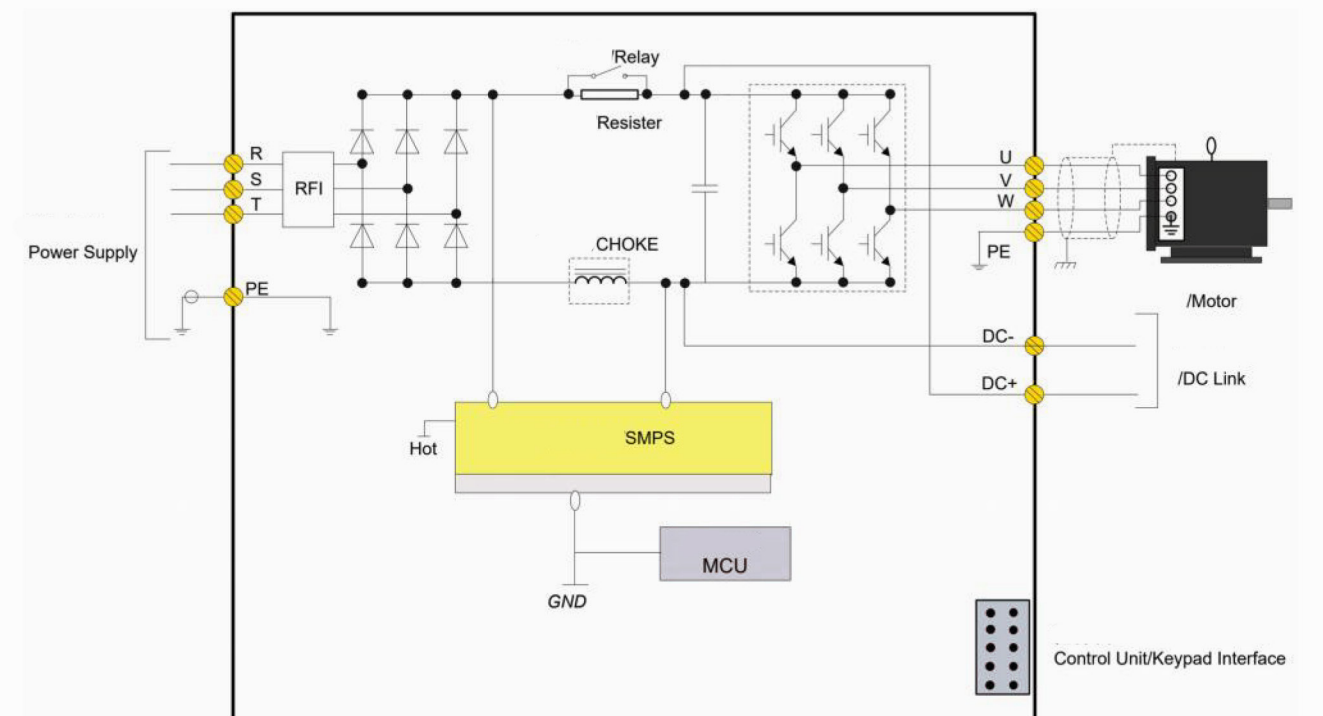
11-22 kW

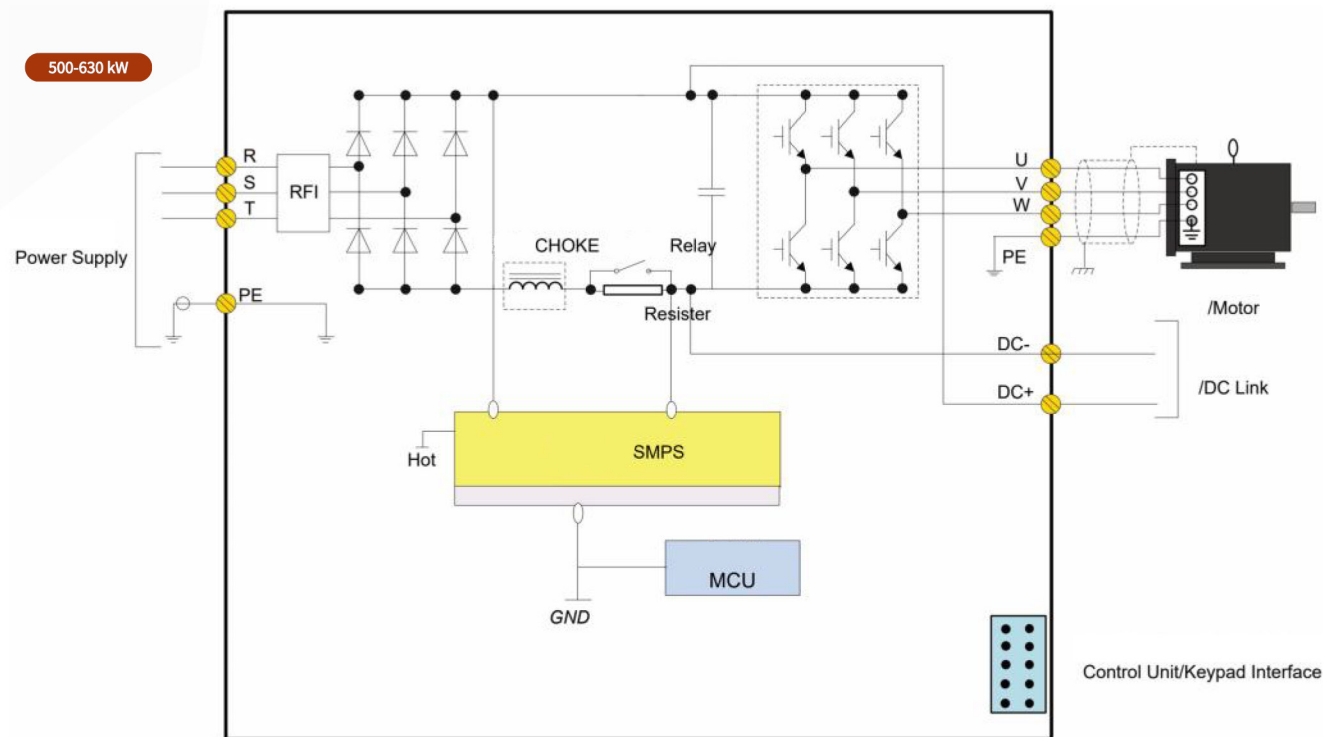


30-90 kW

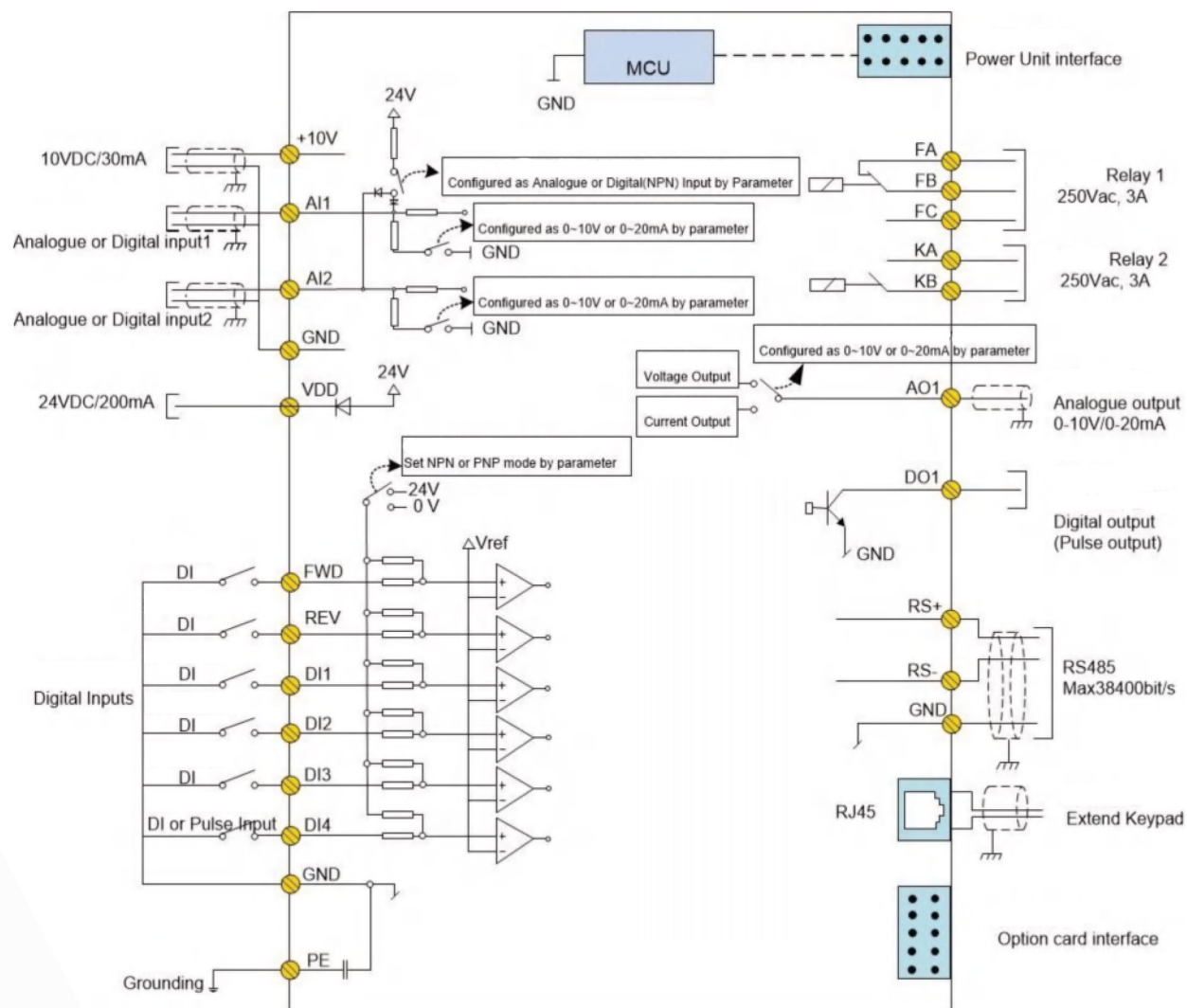


110-450kW





CU00 Electrical Diagram



4 FD800 Product model specification

Product model description

FD800 - 4T 1D5H / 2D2L - PU00 CU00

1 2 3 4 5 6

number	Model	Description
1	FD800	Represents the frequency converter AD800 series
2	4T	Representstive input voltage level: 4T~three-phase 380V; 2T~ three-phase 220V; 2S~single-phase 220V
3	1D5H	H stands for heavy load power level, 1D5 stands for 1.5kW
4	2D2L	L stands for light load power level, 2D2 stands for 2.2kW
5	PU00	Represents the model of the power unit
6	CU00	Represents the model of the control unit

Main specifications and models of power units

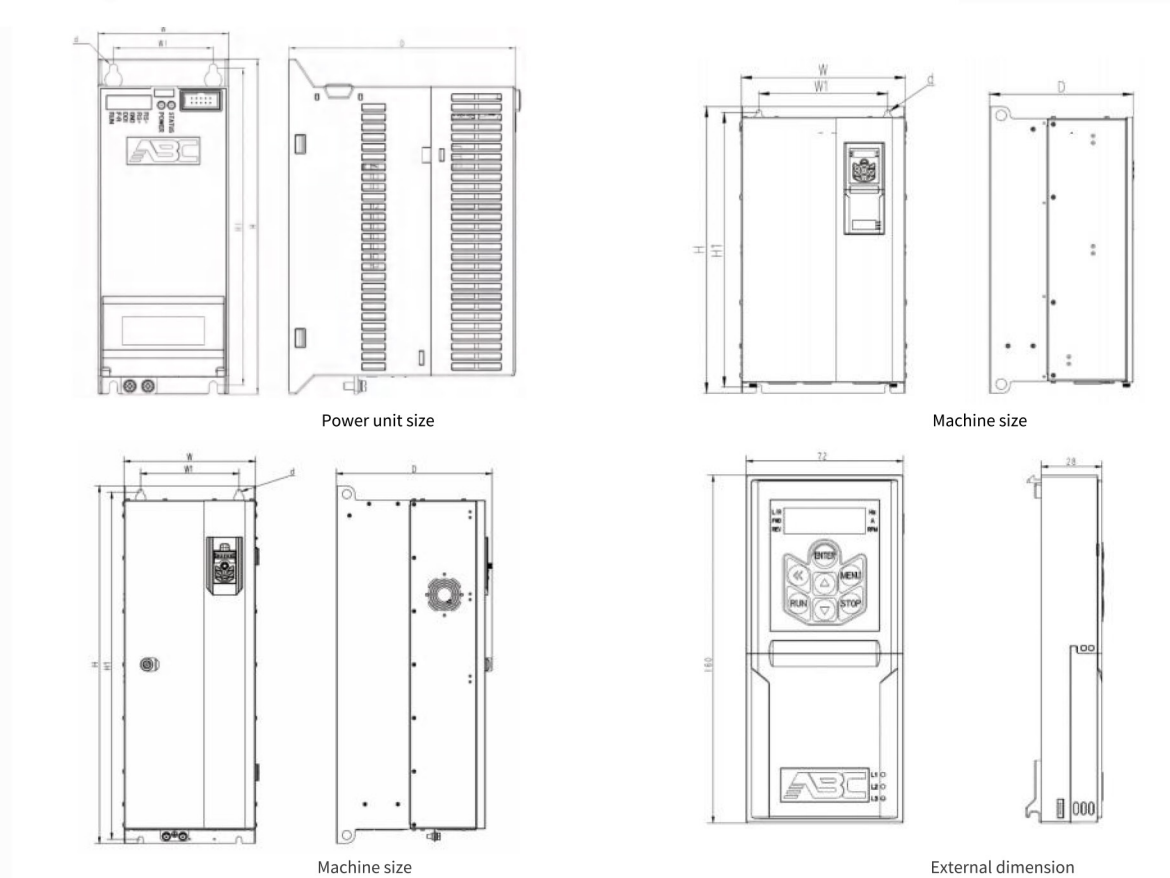
Model	Power (kW)	Voltage (V)	Heary load input (A)	Heary load output (A)	Light load input (A)	Light load output (A)	Ventilation volume (m³/h)
FD800-2SD37-PU00	0.37	1×200-240	6.5	2.5	-	-	17.2
FD800-2SD75-PU00	0.75	1×200-240	9.3	4.5	-	-	17.2
FD800-2S1D5-PU00	1.5	1×200-240	15.5	7.5	-	-	17.2
FD800-2S2D2-PU00	2.2	1×200-240	23	9.6	-	-	17.2
FD800-2S4D0-PU00	4.0	1×200-240	33	16	-	-	90
FD800-2TD37-PU00	0.37	3×200-240	6.5	2.5	-	-	17.2
FD800-2TD75-PU00	0.75	3×200-240	9.3	4.5	-	-	17.2
FD800-2T1D5-PU00	1.5	3×200-240	15.5	7.5	-	-	17.2
FD800-2T2D2-PU00	2.2	3×200-240	23	9.6	-	-	17.2
FD800-2T4D0-PU00	4.0	3×200-240	33	16	-	-	90
FD800-2T5D5-PU00	5.5	3×200-240	35.9	25.0	-	-	124
FD800-2T7D5-PU00	7.5	3×200-240	43.4	32.0	-	-	170
FD800-2T011-PU00	11	3×200-240	61	45.0	-	-	272
FD800-2T015-PU00	15	3×200-240	82.5	61.0	-	-	303
FD800-2T18D-PU00	18.5	3×200-240	72	75	-	-	374
FD800-2T022-PU00	22	3×200-240	88	91	-	-	408
FD800-4TD75H/1D5L-PU00	0.75/1.5	3×380-440	3.7	2.3	5.8	3.7	17.2
		3×440-480	3.2	2.1	5.0	3.4	
FD800-4T1D5H/2D2L-PU00	1.5/2.2	3×380-440	6	3.8	8.5	5.3	17.2
		3×440-480	5.2	3.5	7.3	4.8	
FD800-4T2D2H/4D0L-PU00	2.2/4.0	3×380-440	8.5	5.3	14	8.5	17.2
		3×440-480	7.3	4.8	12.4	8.2	
FD800-4T4D0H/5D5L-PU00	4.0/5.5	3×380-440	15	9.6	18.6	11.2	45.5
		3×440-480	12.9	8.8	18.1	11	
FD800-4T5D5H/7D5L-PU00	5.5/7.5	3×380-440	20.8	13	24.7	15.5	90
		3×440-480	19.1	11.8	21.4	14.2	
FD800-4T7D5H/011L-PU00	7.5/11	3×380-440	27.1	17	33.1	22	90
		3×440-480	23.4	15.5	30.2	21	
FD800-4T011H/015L-PU00	11/15	3×380-440	35.9	25	43.5	31	124
		3×440-480	31.4	22.7	39.8	28.5	
FD800-4T015H/18DL-PU00	15/18.5	3×380-440	43.4	32	50.2	36	170
		3×440-480	40.2	29.1	45.8	34	

Model	Power (kW)	Voltage (V)	Heary load input (A)	Heary load output (A)	Light load input (A)	Light load output (A)	Ventilation volume (m³/h)
FD800-4T18DH/022L-PU00	18.5/22	3×380-440	51.5	38	58.5	42.5	230
		3×440-480	46.1	34.5	54	40	
FD800-4T022H/030L-PU00	22/30	3×380-440	61	45	79	56	272
		3×440-480	54.5	40.9	73	51	
FD800-4T030H/037L-PU00	30/37	3×380-440	82.5	61	98	71	303
		3×440-480	74	52	90	65	
FD800-4T037H/045L-PU00	37/45	3×380-440	72	75	87	90	374
		3×440-480	65	68	79	80	
FD800-4T045H/055L-PU00	45/55	3×380-440	88	91	102	104	408
		3×440-480	80	82	99	101	
FD800-4T055H/075L-PU00	55/75	3×380-440	110	112	142	145	476
		3×440-480	100	102	132	136	
FD800-4T075H/090L-PU00	75/90	3×380-440	148	150	170	175	595
		3×440-480	135	140	150	155	
FD800-4T090H/110L-PU00	90/110	3×380-440	175	180	192	202	646
		3×440-480	155	160	172	179	
FD800-4T110H/132L-PU00	110/132	3×380-440	206	215	245	255	714
		3×440-480	183	190	225	235	
FD800-4T132H/160L-PU00	132/160	3×380-440	251	260	290	305	850
		3×440-480	231	240	285	295	
FD800-4T160H/185L-PU00	160/185	3×380-440	304	315	334	350	1029
		3×440-480	291	302	307	322	
FD800-4T185H/200L-PU00	185/200	3×380-440	350	365	370	385	1190
		3×440-480	320	335	336	352	
FD800-4T200H/220L-PU00	200/220	3×380-440	381	395	409	425	1292
		3×440-480	348	361	375	390	
FD800-4T220H/250L-PU00	220/250	3×380-440	420	435	453	461	1411
		3×440-480	383	398	419	425	
FD800-4T250H/280L-PU00	250/280	3×380-440	472	480	509	525	1564
		3×440-480	436	443	461	478	
FD800-4T280H/315L-PU00	280/315	3×380-440	525	540	568	585	1700
		3×440-480	475	490	510	522	
FD800-4T315H/355L-PU00	315/355	3×380-440	590	605	621	634	1870
		3×440-480	531	540	557	566	
FD800-4T355H/415L-PU00	355/415	3×380-440	647	660	694	725	2125
		3×440-480	580	590	628	655	
FD800-4T415H/450L-PU00	415/450	3×380-440	718	745	776	805	2380
		3×440-480	653	678	708	735	
FD800-4T450H/500L-PU00	450/500	3×380-440	836	827	932	918	2600
		3×440-480	722	714	805	793	
FD800-4T500-PU00	500	3×380-440	932	918			3100
		3×440-480	805	793			
FD800-4T560-PU00	560	3×380-440	1021	1028			3600
		3×440-480	882	888			
FD800-4T630-PU00	630	3×380-440	1178	1100			4100
		3×440-480	1017	1000			

Main specifications and models of control unit

Specification and model of control unit	CU00 / CU0H	CU02	CU03	CU04
Digital input	6	5	8	6
Digital output	1	1	4	2
Analog input	2, configurable as DI	2, configurable as DI	4	2
Analog output	1	2	2	1
Relay output	2	2	0	2
Communication port	1 RS485	1 RS485	2 RS485	2 RS485
Output power supply	10V / 30mA 24V / 200mA	10V / 30mA 24V / 200mA	10V / 30mA 24V / 200mA	10V / 30mA 24V / 200mA
Number of option card interface	1	1	2	2
Operating keyboard	Built-in	Built-in	Pluggable	Pluggable

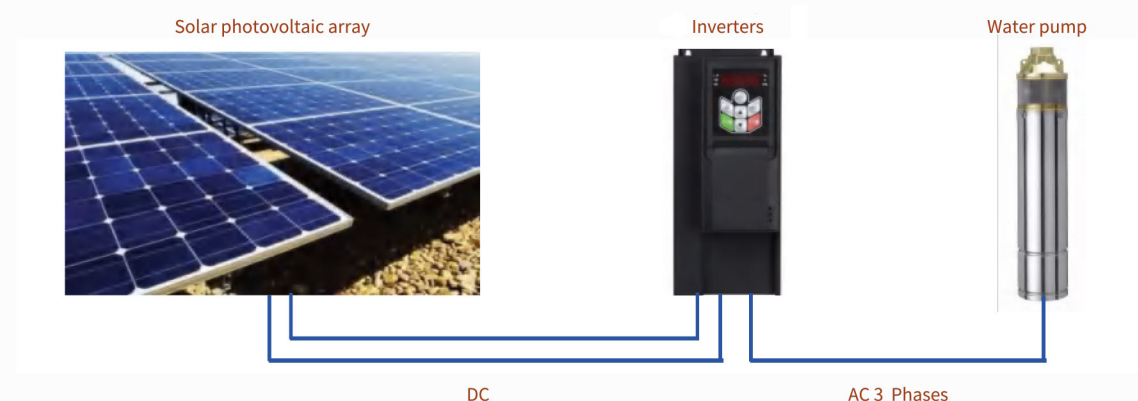
1.6、FD800 Standard Inverter(FD800-PU00CU00) Dimensions



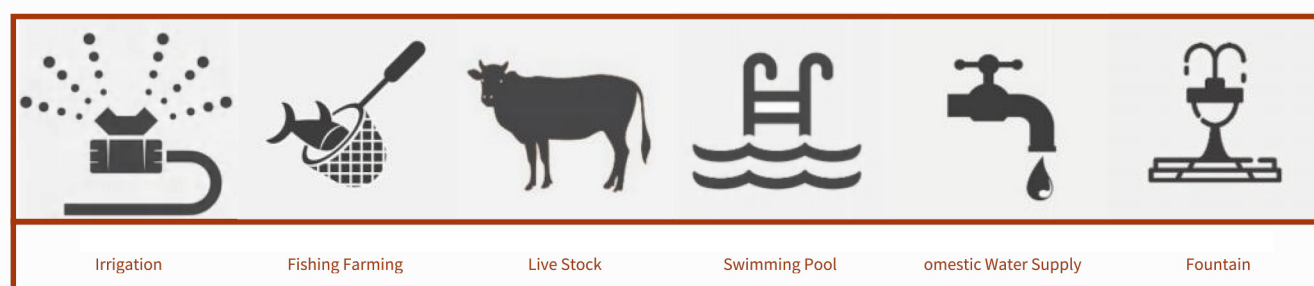
Frame size		Power and voltage level			Size (mm)					
	1×200-240V	3×200-240V	3×380-480V	W	H	D	W1	H1	d	
D1	0.37-1.5kW		0.75-2.2kW	72	185	125	55	175	4.5	
D2	2.2kW		4.0kW	88	215	130	70	205	4.5	
D3	4.0kW		5.5-7.5kW	100	250	135	80	240	4.5	
D4		5.5-11kW	11-22kW	170	370	150	145	355	6.5	
D5		15-22kW	30-45kW	280	490	245.5	220	470	9	
D6			55-90kW	330	620	265	270	600	9	
D7			110-160kW	320	870	380	240	845	13	
D8			185-315kW	500	1070	410	380	1040	13	
D9			355-450kW	650	1220	430	480	1190	13	
D10			500-630kW	750	1570	505	3x200=600	1540	13	
CU00/CU02				72	160	28				
CU03				72	160	61				

5 FD800 Application

Application for solar pump



- ◆ Built in MPPT (maximum power point tracking) to maximize your power output
- ◆ Support grid AC input and photovoltaic DC input
- ◆ The DC voltage ranges from 120vdc to 750vdc.(1000Vdc products also available)
- ◆ Start and stop automatically according to sunrise and sunset
- ◆ Automatic recovery after power failure
- ◆ Built in protection function, including no-load, overpressure, etc
- ◆ Compatible with automatic start / stop control
- ◆ Customized features to meet your special needs



Cold pier machine

Excellent Torque performance at low speed

High overload capacity

Fast jog response for mold adjustment

Excellent dynamic performance

Perfect fault protection function and power-off storage function

Good EMC performance



CNC machine

Large low-frequency torque and stable output. 150% rated torque can be output at low frequency (1~10Hz)

Fast dynamic response of torque and high precision of steady speed. The output torque can follow the load change very fast so as to achieve the stability of the speed of the rotating shaft

Automatic torque compensation to meet the high torque demands at low speed

Strong ability for fast ramp up ,ramp down and stop





FD800

Drive the Future with Industrial Innovation