

Kinco

Motion
Control
VFD

Kinco VFD Catalog

- FV100 Series
- CV100 Series
- CV20 Series
- Industry Specific VFD



Kinco® Automation

www.en.kinco.cn Email:sales@kinco.cn

(All trademarks and logos in this brochure are property of and registered by their respective owners)

02 FV100 Series

- Selection Guide
- Technical Specification
- General Product Series
- Model Specifications
- External Dimension
- Wiring Diagram of Product Terminal
- Terminal Type of Main Loop 's Input and Output
- CNA Function Table of Connector Terminal

10 CV100 Series

- Product Characteristics
- Technical Specification
- Model Specifications
- External Dimension
- Wiring Diagram of Product Terminal
- Terminal Type of Main Loop's Input and Output
- CNA Function Table of Connector Terminal

14 CV20 Series

- Product Characteristics
- Technical Specification
- Model Specifications
- External Dimension
- Terminal description

18 EC Series Electric Forklift Drive

- Product Characteristics
- Model Description
- Specifications
- External Dimension
- Wiring Diagram of Product Terminal

21 HP100 Series Medium Frequency Power Supply

- Product Characteristics
- Model Description
- Specifications
- External Dimension

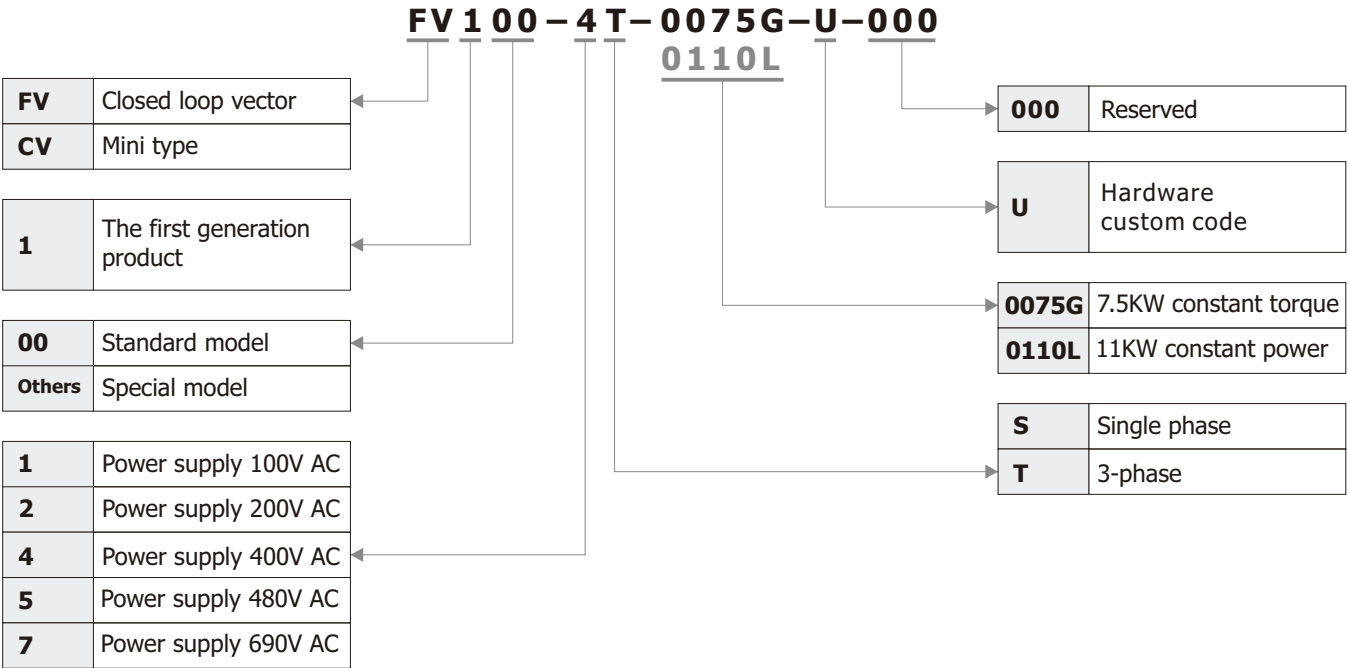
25 Power Inverter(Car Inverter)

- Product Characteristics
- Model Description
- Specifications
- External Dimension

26 Kinco Inverter Brake Resistor Selection



Selection Guide



Technical Specification

Item	Description
Input	
Rated Voltage/frequency	4T: 3-phase, 380V~440V AC, 50Hz/60Hz; 2T: 3-phase, 200V~240V, 50Hz/60Hz; 2S: Single-phase, 200V~240V, 50Hz/60Hz
Applicable voltage range	4T: 320V~460V AC; 2T/2S:180V~260V; Voltage unbalancedness: <3%. Frequency tolerance:±5%.
Output	
Rated voltage	0~Rated input voltage
Frequency	0Hz~300Hz (Customized 0Hz~3000Hz)
Overload capacity	G Type:150% 1 minute, 180% 10 seconds; L type :110% 1 minute, 150% 1 second
Control characteristics	
Control method	Vector control without PG.Vector control with PG, V/F control
Modulation system	Space vector PWM modulation
Starting Torque	0.5Hz: 150% of rated torque(Vector control without PG), 0.5Hz: 200% of rated torque(Vector control with PG)
Frequency accuracy	Digital setting: Max. frequency×±0.01% Analog setting: Max. frequency×±0.2%
Frequency resolution	Digital setting: 0.01Hz. Analog setting: Max. frequency×0.05%
Torque boost	Manual torque boost: 0%~30.0%
V/F pattern	4 patterns:1 pattern is V/F curve setting by users. 3 patterns are drop torque characters curve (2.0 power,1.7 power,1.2 power)
Acceleration/Deceleration curve	Linear acceleration/deceleration. Four kinds of acceleration/deceleration time are optional
DC braking	Braking starting frequency: 0.00~60.00Hz Braking time: 0.0~10.0s Braking current: 0.0~100.0%
Auto current limit	Auto limit the current during operation to prevent frequent overcurrent trip.
Customized function	
Jogging	Jogging frequency range: 0.00Hz~50.00Hz. Jogging acceleration/deceleration time: 0.1~60.0s.
Multiple speed operation	Implement multiple speed operation by digital inputs.
Operation function	
Operation command	Keypad setting, Terminal setting, Communication setting
Frequency command	Keypad setting, Analog input, Pulse input, Communication setting
Auxiliary frequency setting	Implement flexible auxiliary frequency trim and frequency synthesis.
Pulse output	0~100KHz pulse output.
Analog output	2 channels analog output(0/4~20mA or 0/2~10V).
Operation panel	
LED Display	Display setting frequency, output frequency, output voltage, output current and so on, about 20 parameters.
Parameters copy	Copy parameters by operation panel.
Keys lock and function selection	Lock part of keys or all the keys. Define the function of part of keys.
Protection function	
Open phase protection(optional), overcurrent protection, overvoltage protection, undervoltage protection, overheat protection, overload protection and so on.	
Environment	
Operating site	Indoor, installed in the environment free from direct sunlight, dust, corrosive gas, combustible gas, oil mist, steam and drip.
Altitude	Derated above 1000m, the rated output current shall be decreased by 10% for every rise of 1000m
Ambient temperature	-10℃~40℃, derated at 40℃~ 50℃.
Humidity	5%~95%RH, non-condensing.
Vibration	Less than 5.9m/s ² (0.6g)
Storage temperature	-40℃~70℃
Structure	
Protection class	IP20
Cooling method	Air cooling, with fan control.
Installation method	Wall-mounted
Effeciency	45kW or below:≥93%; 55kW or above:≥95%

General Product Series

FV100-4T-□□□□G 3-phase 380V AC constant torque VFD

Model		0007	0015	0022	0037	0055	0075	0110	0150	0185	0220	0300	0370	0450
FV100-4T-□□□□G														
The power of suitable motor(kW)		0.75	1.5	2.2	3.7	5.5	7.5	11	15	18.5	22	30	37	45
Output	Voltage(V)	3-phase 0~rated input voltage												
	Rated current(A)	2.3	3.7	5.5	8.8	13	17	25	32	37	45	60	75	90
	Overload capcity	150% 1 Minute, 180% 10 Seconds												
Input	Rated voltage/frequency	3-phase 380V~440V AC; 50Hz/60Hz												
	Allowable voltage range	320V~460V AC; Voltage unbalancedness:≤3%; Allowable frequency fluctuation:±5%												
	Rated current(A)	3.4	5.0	5.8	10.5	14.5	20.5	26	35	38.5	46.5	62	76	92
Brake unit		Built-in									Built-in(optional)		External brake unit	
Protection class		IP20												
Cooling method		Air cooling	Cooling by fan											

Model		0550	0750	0900	1100	1320	1600	1850	2000	2200	2500	2800	3150	3550	4000
FV100-4T-□□□□G															
The power of suitable motor(kW)		55	75	90	110	132	160	185	200	220	250	280	315	355	400
Output	Voltage(V)	3-phase 0~rated input voltage													
	Rated current(A)	110	152	176	210	252	304	350	380	426	470	520	600	650	690
	Overload capcity	150% 1 Minute, 180% 10 Seconds													
Input	Rated voltage/frequency	3-phase 380V~440V AC; 50Hz/60Hz													
	Allowable voltage range	320V~460V AC; Voltage unbalancedness:≤3%; Allowable frequency fluctuation:±5%													
	Rated current(A)	113	157	180	220	240	320	326*	352*	385*	437*	491*	580*	624*	670*
Brake unit		External brake unit													
Protection class		IP20													
Cooling method		Cooling by fan													

* 185KW above models standard equip with DC reactor externally.

FV100-4T-□□□□L 3-phase 380V AC constant power VFD

Model		0015	0022	0037	0055	0075	0110	0150	0185	0220	0300	0370	0450	0550
FV100-4T-□□□□L														
The power of suitable motor(kW)		1.5	2.2	3.7	5.5	7.5	11	15	18.5	22	30	37	45	55
Output	Voltage(V)	3-phase 0~rated input voltage												
	Rated current(A)	3.7	5.5	8.8	13	17	25	32	37	45	60	75	90	110
	Overload capcity	115% 1 Minute, 160% 0.5 Second												
Input	Rated voltage/frequency	3-phase 380V~440V AC; 50Hz/60Hz												
	Allowable voltage range	320V~460V AC; Voltage unbalancedness:≤3%; Allowable frequency fluctuation:±5%												
	Rated current(A)	5.0	5.8	10.5	14.5	20.5	26	35	38.5	46.5	62	76	92	113
Brake unit		Built-in									Built-in(optional)		External brake unit	
Protection class		IP20												
Cooling method		Air cooling	Cooling by fan											

Model		0750	0900	1100	1320	1600	1850	2000	2200	2500	2800	3150	3550	4000	4500
FV100-4T-□□□□L															
The power of suitable motor(kW)		75	90	110	132	160	185	200	220	250	280	315	355	400	450
Output	Voltage(V)	3-phase 0~rated input voltage													
	Rated current(A)	152	176	210	252	304	350	380	426	470	520	600	650	690	775
	Overload capcity	115% 1 Minute, 160% 0.5 Second													
Input	Rated voltage/frequency	3-phase 380V~440V AC; 50Hz/60Hz													
	Allowable voltage range	320V~460V AC; Voltage unbalancedness:≤3%; Allowable frequency fluctuation:±5%													
	Rated current(A)	157	180	220	240	320	336	352*	385*	437*	491*	580*	624*	670*	755*
Brake unit		External brake unit													
Protection class		IP20													
Cooling method		Cooling by fan													

Model Specifications

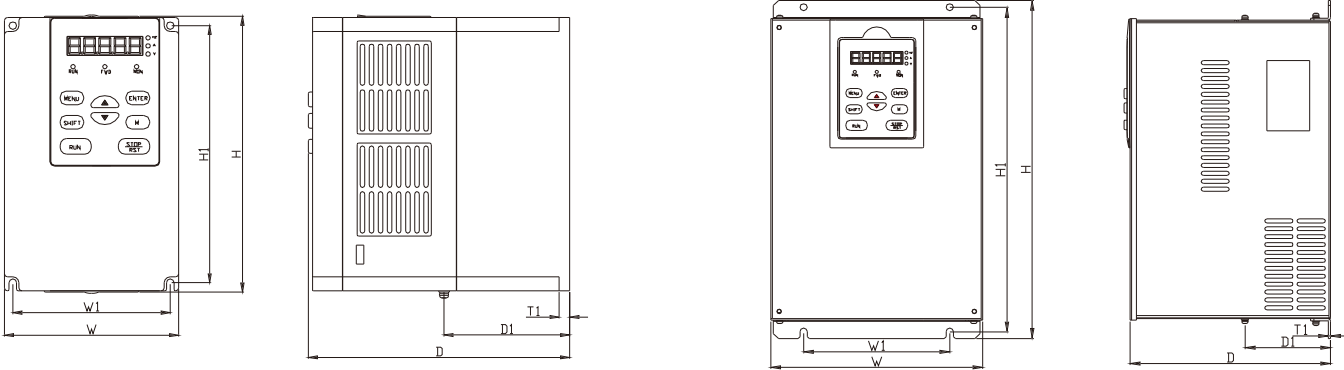
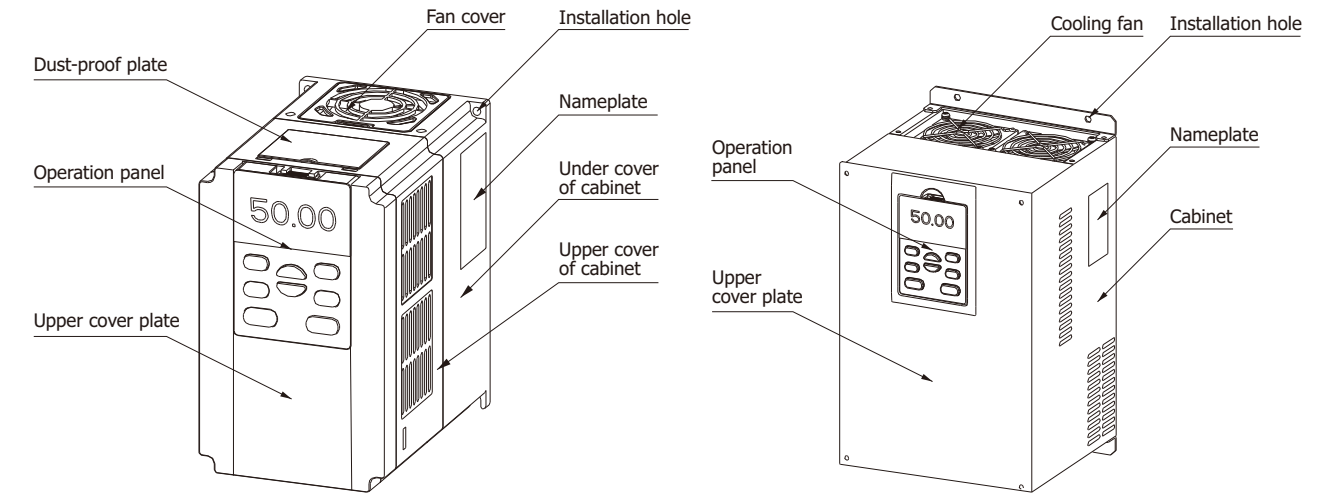
FV100-2S-□□□□G Single phase 220V AC constant torque VFD

Model													
FV100-2S-□□□□G		0004	0007	0015	0022	0037	0055	0075	0110	0150	0185	0220	
The power of suitable motor(kW)		0.4	0.75	1.5	2.2	3.7	5.5	7.5	11	15	18.5	22	
Output	Voltage(V)	3-phase, 0~rated input voltage											
	Rated current(A)	2.5	4.0	7.5	10	16	24.5	30	46	60	75	85	
	Overload capacity	150% 1 Minute; 180% 10 Seconds; 200% 0.5 Second; 10 minutes interval (inverse time limit speciality)											
Input	Rated voltage/frequency	Single phase 200~240V AC; 50/60Hz											
	Allowable voltage range	180~260V AC; Voltage unbalancedness:≤3%; Allowable frequency fluctuation:±5%											
	Rated current(A)	5.3	8.2	14.0	23	32	40	45	70	90	110	125	
Brake unit		Built-in								Built-in optional			
Protection class		IP20											
Cooling method		Air Cooling	Cooling by fan										

FV100-2T-□□□□G 3-phase 220V AC constant torque VFD

Model													
FV100-2T-□□□□G		0004	0007	0015	0022	0037	0055	0075	0110	0150	0185	0220	
The power of suitable motor(kW)		0.4	0.75	1.5	2.2	3.7	5.5	7.5	11	15	18.5	22	
Output	Voltage(V)	3-phase, 0~rated input voltage											
	Rated current(A)	2.5	4.0	7.5	10	16	24.5	30	46	60	75	85	
	Overload capacity	150% 1 Minute; 180% 10 Seconds; 200% 0.5 Second; 10 minutes interval (inverse time limit speciality)											
Input	Rated voltage/frequency	Single phase 200~240V AC; 50/60Hz											
	Allowable voltage range	180~260V AC; Voltage unbalancedness:≤3%; Allowable frequency fluctuation:±5%											
	Rated current(A)	3.2	6.3	9	15	22	30	35	50	63	80	87	
Brake unit		Built-in								Built-in optional			
Protection class		IP20											
Cooling method		Air Cooling	Cooling by fan										

External Dimension

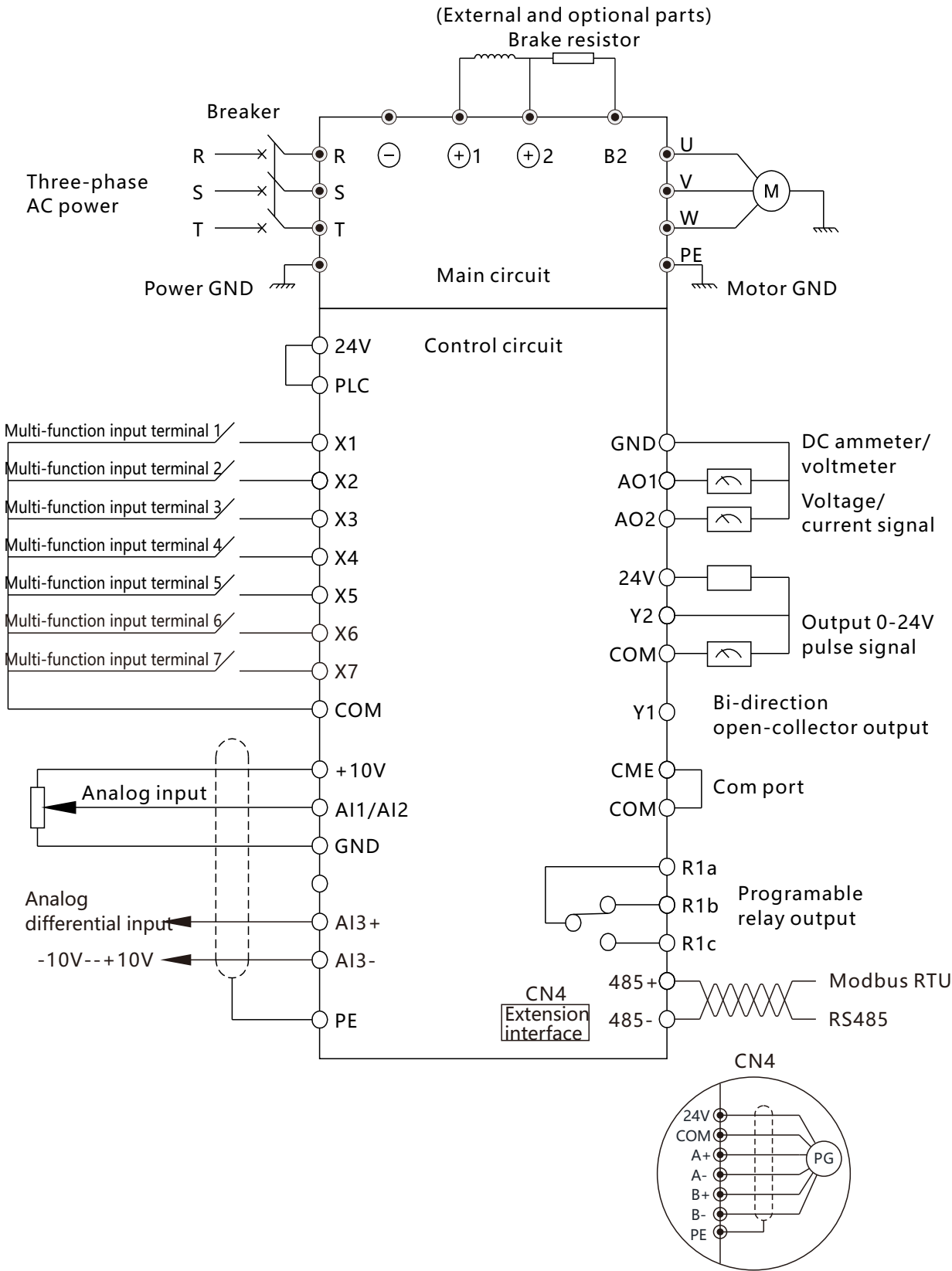


Power under FV100-2T/4T-0037G/0055L

FV100-4T-0055G/0075L ~ FV100-4T-4000G/4500L
FV100-2T-0055G ~ FV100-2T-0220G

Models of Inverter (G: Constant torque load L: Draught fan and water pump load)	External dimension(mm)								Weight (kg)
	W	H	D	W1	H1	D1	T1	Installation hole "d"	
FV100-2S(2T)-0004G	115	185	171	106	176	65	7	5	2
FV100-2S(2T)-0007G									
FV100-2S(2T)-0015G									
FV100-2S(2T)-0022G									
FV100-2S(2T)-0037G									
FV100-4T-0007G/0015L									
FV100-4T-0015G/0022L	165	274	193	110	264	-	2	6	6
FV100-4T-0022G/0037L									
FV100-4T-0037G/0055L									
FV100-2S(2T)-0055G									
FV100-2S(2T)-0075G									
FV100-4T-0055G/0075L									
FV100-4T-0075G/0110L	194	324	197	120	312	-	2	6	8
FV100-2S(2T)-0110G									
FV100-4T-0110G/0150L									
FV100-4T-0150G/0185L									
FV100-4T-0185G/0220L									
FV100-2S(2T)-0150G									
FV100-2S(2T)-0185G	297	451	224	200	433	-	3	7	18
FV100-2S(2T)-0220G									
FV100-4T-0220G/0300L									
FV100-4T-0300G/0370L									
FV100-4T-0370G/0450L									
FV100-4T-0450G/0550L									
FV100-4T-0550G/0750L	320	535	224	220	512	88.5	3	10	31
FV100-4T-0750G/0900L									
FV100-4T-0900G/1100L									
FV100-4T-1100G/1320L									
FV100-4T-1320G/1600L									
FV100-4T-1600G/1850L									
FV100-4T-1850G/2000L	530	940	380	340	910	206	4	14	114
FV100-4T-2000G/2200L									
FV100-4T-2200G/2500L									
FV100-4T-2500G/2800L									
FV100-4T-2800G/3150L									
FV100-4T-3150G/3550L									
FV100-4T-3550G/4000L	690	1006	380	500	974	207	4	14	156
FV100-4T-4000G/4500L									
FV100-4T-4000G/4500L	810	1228	400	520	1196	209	4	14	225

Wiring Diagram of Product Terminal



Terminal Type of Main Loop 's Input and Output

Terminal type

Suitable model : FV100-2S-0004G ~ FV100-2S-0037G

Machine Bottom L N ⊖ B1 ⊕/B2 U V W PE

Suitable model : FV100-2S-0055G ~ FV100-2S-0110G

Machine Bottom L N ⊖ ⊕1 ⊕2/B1 B2 U V W PE

Suitable model : FV100-2S-0150G ~ FV100-2S-0220G

Machine Bottom B2 L N ⊖ ⊕ U V W PE

Suitable model : FV100-2T-0004G ~ FV100-2T-0037G, FV100-4T-0007G/0015L ~ FV100-4T-0037G/0055L

Machine Bottom R S T ⊖ ⊕/B1 B2 U V W PE

Suitable model : FV100-4T-0055G/0075L ~ FV100-4T-0185G/0220L, FV100-2T-0055G ~ FV100-2T-0110G

Machine Bottom R S T ⊖ ⊕1 ⊕2/B1 B2 U V W PE

Suitable model : FV100-4T-0220G/0300L ~ FV100-4T-0450G/0550L, FV100-2T-0150G ~ FV100-2T-0220G

Machine Bottom B2 R S T ⊖ ⊕ U V W PE

Suitable model : FV100-4T-0550G/0750L ~ FV100-4T-0750G/0900L

Machine Top R S T

Machine Bottom ⊕1 ⊕2 ⊖ U V W PE

Suitable model : FV100-4T-0900G/1100L ~ FV100-4T-1320G/1600L

Machine Top R S T ⊖

Machine Bottom ⊕1 ⊕2 U V W ⊕

Suitable model : FV100-4T-1600G/1850L ~ FV100-4T-4000G/4500L

Machine Top R S T ⊖

Machine Bottom ⊕1 ⊕2 ⊖ U V W

Descriptions of the main loop terminals

Terminal name	Function description
L, N	Single phase 220v AC input terminal
R, S, T	3-phase 380v AC input terminal
⊖	DC bus output terminal negative
⊕1, ⊕2	Reserved terminal for external DC reactor
⊕2, ⊖	Terminal for external brake unit
B1, B2	Access terminal of brake resistor
U, V, W	3-phase AC output terminal
PE, ⊕	Earth terminal

Control loop terminals arrange as followings:

AO1	AO2	AI3+	+10V	24V	PLC	X4	X5	X6	X7		R1a	R1b	R1c		
⊕	AI1	AI2	AI3-	GND	X1	X2	X3	COM	485+	485-		CME	Y1	Y2	⊕

Arrangement diagram of control terminals.

CNA Function Table of Connector Terminal

Category	Terminal silk screen	Name	Description of terminal function	Specification
Shield	⊕ +10	Earth shield	GND for the shield layer of terminal. Shield layer of the analog signal cable , 485 communication cable , motor power cable can be connected here	Connect the PE terminal of internal main circuit
Power supply	GND	Power	Provide +10V reference power	Provide 5mA current at most
		Power GND	GND for analog signal and +10 power supply	Internal isolation from COM and CME
Analog input	AI1	Analog single-ended input AI1	Receive the analog voltage or current single-ended input, they are selected by jumper AI1 (Reference ground:GND)	Input voltage range: -10V~+10V (Input resistor: 45kΩ) Resolution: 1/4000 Input current range: 0mA~20mA, Resolution: 1/2047Jumper to select)
	AI2	Analog single-ended input AI2	Receive the analog voltage or current single-ended input, they are selected by jumper AI2 (Reference ground:GND)	
	AI3+	Analog voltage differential input AI3+ or analog voltage single-ended input.	When connected to the analog voltage differential input,AI3+ is the same-phase input and AI3- is the inverted input; when connected to the analog voltage single-ended input, AI3+ is signal input, AI3- is GND (Reference ground: GND)	Input voltage range: -10V~+10V (Input resistor: 15kΩ) Resolution: 1/4000
	AI3-	Analog voltage differential input AI3- or analog voltage single-ended input.		
Analog output	AO1	Analog output 1	Providing analog voltage or current output, they are selected by the jumper AO1 (The default setting is output voltage)	Voltage output range: 0V~10V Current output range: 0/4~20mA
	AO2	Analog output 2	Providing analog voltage or current output, they are selected by the jumper AO2 (The default setting is output voltage)	Voltage output range: 0V~10V Current output range: 0/4~20mA
Communication	RS485+ RS485-	RS485 communication connector	RS485 difference signal positive RS485 difference signal negative	Standard RS485 communication connector (Use twisted-pair or shield cable please)
Multi-function input terminal	X1~X6	Multi-function input terminal 1	Can be defined as multi-function digital input terminal	Optocoupler isolation input Input resistor: R=3.3kΩ Maximum input frequency of X1~X6: 200Hz Maximum input frequency of X7: 100kHz Input voltage range: 2~30v
	X7	Multi-function input terminal or pulse input		
Multi-function output terminal	Y1	Bi-direction open-collector output	Can be defined as multi-function digital output terminal (Com port: CME)	Optocoupler isolation output Maximum working voltage: 30v Maximum output current: 50mA
	Y2	Open collector pulse output terminal	Can be defined as multi-function pulse signal output terminal (Com port: COM)	Maximum output frequency: 100kHz
Power supply	24V	+24v power supply	Providing +24V power	Maximum output current: 200mA
Common port	PLC	Multi-function input common port	Common port of Multi-function input (Short cut with 24V in default)	Common port of X1~X7, PLC is isolated from 24V internally
	COM	Common port of 24V power supply	Three common ports in all, cooperate with other terminals	COM is isolated from CME and GND internally
	CME	Y1 output common port	Common port of multi-function output terminal Y1	
Relay output terminal 1	R1a	Relay output	Can be defined as multi-function relay output terminal	R1a-R1b : Normally closed , R1a-R1c : normally open Contact capacity : AC250V/2A (COSΦ = 1) AC250V/1A (COSΦ = 0.4) DC30V/1A Input voltage of relay output terminal 's overvoltage class is overvoltage class II
	R1b			
	R1c			

Accessory	Model	Function
PG card	PG-LWA_XX	A/B/Z Open collector input; differential signal input; U, V, W encoder input, voltage:5V, 12V, 24V; with CANopen communication port
Water supply card	PFC01_A00	Support up to 8 pumps
I/O extension card	PG-IO	Support extending 4*AI/4*DI/2*DO/1*relay output



CV100 Mini Type Vector Inverter

Product Characteristics

- Control Mode: V/F control
- Carrier frequency up to 15KHz
- Auto torque boost and auto slip compensation function
- Built-in PID control
- Standard equipped Modbus(RS485 baud rate up to 38400bps)
- Sleep/wake up function

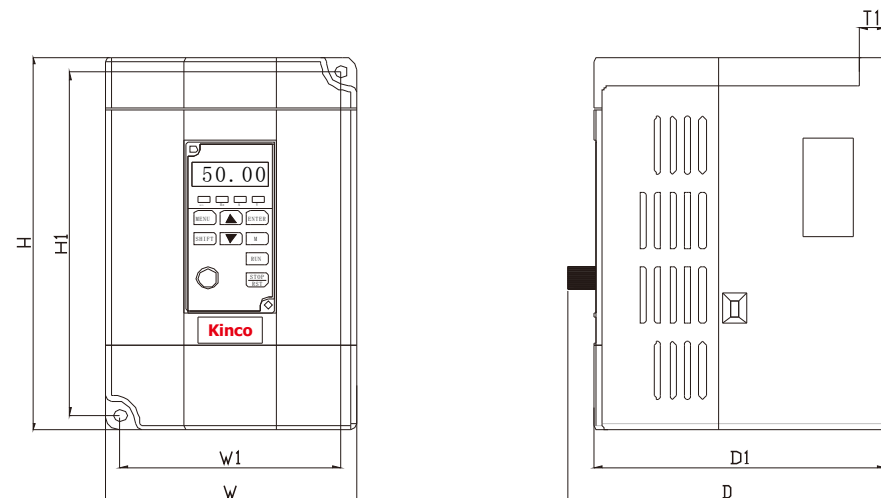
Technical Specification

Items	Description
Input	Rated Voltage/frequency 4T: 3-phase, 380V~440V; 50Hz/60Hz; 2S: Single phase, 200V~240V; 50Hz/60Hz ; 1S: Single-phase, 100~120V; 50/60Hz
	Allowable voltage range 4T: 320V~460V; 2S:180V~260V; 1S: 90~132V; Voltage unbalancedness:<3%; Frequency: ±5%
Output	Voltage 2T/2S: 0~ Rated input voltage ; 1S: 0~twice of rated input voltage
	Frequency 0Hz~300Hz (Customized 0Hz~2000Hz)
	Overload capacity G Type: 150% rated current for 1 minute, 180% rated current for 10 seconds.
Main control characteristics	Control method V/F control
	Starting torque Auto torque rising
	Frequency accuracy Digital setting: Max. frequency × ±0.01%; Analog setting: Max. frequency × ±0.2%
	Frequency resolution Digital setting: 0.01Hz; Analog setting: Max. frequency×0.05%
	Torque boost Manual torque boost: 0%~30.0%
	V/F pattern 4 patterns: 1 V/F curve mode set by user and 3 kinds of torque-derating modes (2.0 power, 1.7 power, 1.2 power)
	Acceleration/Deceleration curve Linear acceleration/deceleration. Four kinds of acceleration/deceleration time
	Auto current limit Limit current during operation automatically to prevent frequent overcurrent trip.
Customized function	Operation command Keypad setting, terminal setting, communication setting
	Frequency command Digital setting, analog voltage setting, analog current setting.
	Auxiliary frequency setting Implement flexible auxiliary frequency trim and frequency synthesis
	Analog output 2 channel analog output (0/4~20mA or 0/2~10V).
Protection function Overcurrent protection, overvoltage protection, undervoltage protection, overheat protection, overload protection, missing phase protection (seletable) and so on.	
Environment	Altitude Derated above 1000m, the rated output current shall be decreased by 10% for every rise of 1000m.
	Ambient temperature -10°C~ +40°C (derated at 40°C~50°C)
	Humidity 5%~95%RH, non-condensing
	Vibration Less than 5.9m/s ² (0.6g)
Storage temperature -40°C~ +70°C	

Model Specifications

Model	CV100-1S-□□□□G				CV100-2S-□□□□G					CV100-4T-□□□□G					
	0002	0004	0007	0011	0004	0007	0015	0022	0037	0007	0015	0022	0037	0055	0075
The power of suitable motor(KW)	0.2	0.4	0.75	1.1	0.4	0.75	1.5	2.2	3.7	0.75	1.5	2.2	3.7	5.5	7.5
Output	3-phase, 0~twice of rated input voltage				3-phase, 0~ Rated input voltage										
	2.5				2.5					2.3					
	150% rated current for 1 minute, 180% rated current for 10 seconds; 10 minutes interval(inverse time limit speciality)														
Input	Single-phase, 100~120V; 50/60Hz				Single-phase, 200V~240V; 50Hz/60Hz					3-phase, 380V~440V; 50Hz/60Hz					
	90V~132V; Voltage unbalancedness: <3%; Frequency: ±5%				180V~260V; Voltage unbalancedness: <3%; Frequency: ±5%					320V~460V; Voltage unbalancedness: <3%; Frequency: ±5%					
	6.0				5.3					3.4					
Rated current(A)	6.0	9.0	18.0	25.0	5.3	8.2	14.0	23.0	32.0	3.4	5.0	5.8	10.5	14.5	20.5
Brake unit	Built-in														
Protection class	IP20														
Cooling method	Cooling by fan														

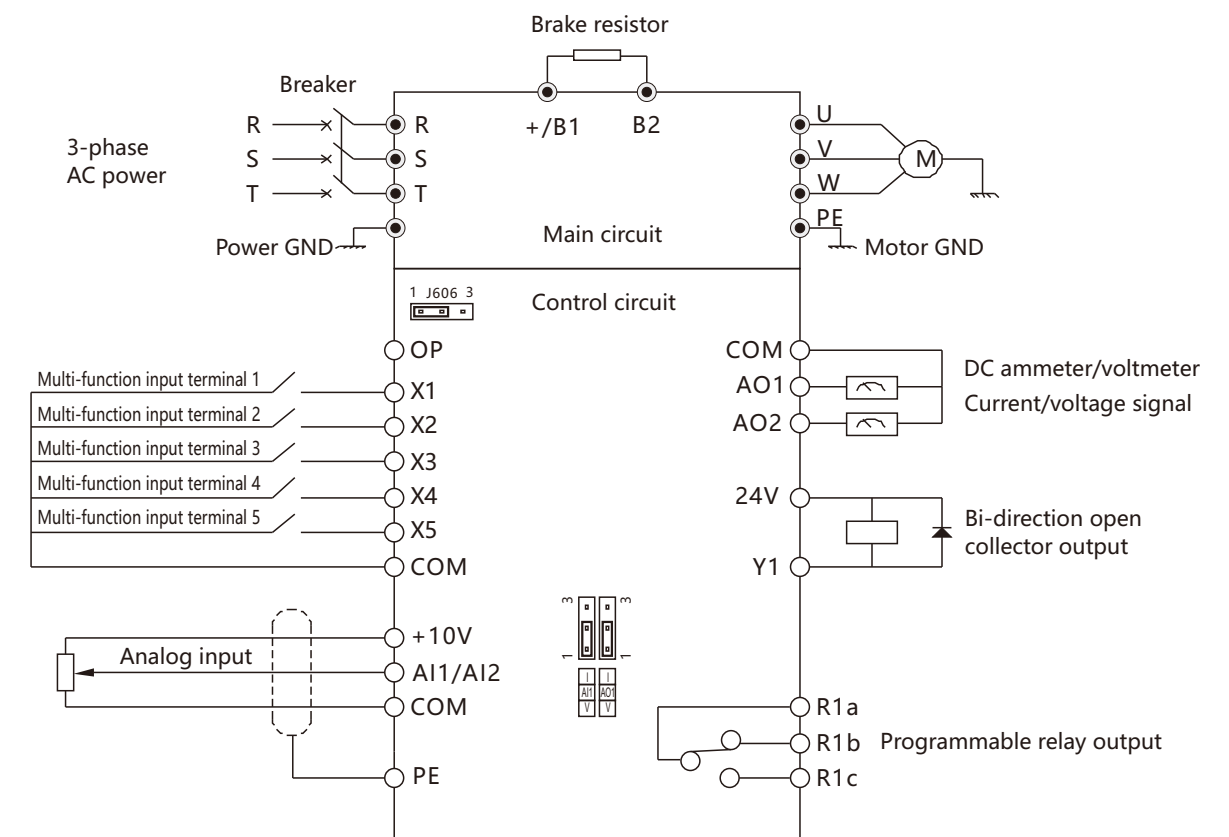
External Dimension : CV100-1S-0002G~CV100-1S-0011G、CV100-2S-0004G ~ CV100-4T-0075G/0110L



Models of Inverter (G: Constant torque load L: Draught fan and water pump load)	External dimension(mm)								Weight (kg)
	W	H	D	W1	H1	D1	T1	Installation hole "d"	
CV100-1S-0002G	85	142	122	73	130	112	10	5	0.8
CV100-1S-0004G									
CV100-1S-0007G									
CV100-1S-0011G	101	152	127	89	140	117	10	5	1.0
CV100-2S-0004G	85	142	122	73	130	112	10	5	0.8
CV100-2S-0007G									
CV100-2S-0015G									
CV100-2S-0022G	101	152	127	89	140	117	10	5	1.0
CV100-4T-0007G/0015L									
CV100-4T-0015G/0022L									
CV100-4T-0022G/0037L	125	220	178	109.5	205	165	10	5.5	3.4
CV100-2S-0037G									
CV100-4T-0037G/0055L									
CV100-4T-0055G/0075L									
CV100-4T-0075G/0110L									

Wiring Diagram of Product Terminal

Applicable models : CV100-2S-0004G ~ CV100-4T-0075G/0110L



Terminal Type of Main Loop's Input and Output

Terminal Type	Single -phase input(Top)								
	L	N		PE			PE	RS+	RS-
	R	S	T	PE			PE	RS+	RS-
Bottom	U	V	W	+/B1	B2				

Descriptions of the main loop terminals

Terminal name	Function description
L, N	Single phase 220V/110V AC input terminal
R, S, T	3-phase 380V AC input terminal
+/B1, B2	Access terminal of brake resistor
U, V, W	3-phase AC output terminal
PE	Earth terminal

Control loop terminals arrangement

RA	RB	RC	AI1	AI2	+10V	X1	X2	X3	X4	X5	Y1	AO1	AO2	OP	COM	PE
----	----	----	-----	-----	------	----	----	----	----	----	----	-----	-----	----	-----	----

CNA Function Table of Connector Terminal

Category	Terminal silk screen	Name	Description of terminal function	Specification
Shield	PE	Earth shield	GND for the shield layer of terminal. Shield layer of the analog signal cable , 485 communication cable , motor power cable can be connected here	Connect the PE terminal of internal main circuit
Power supply	+10	+10V Power	Provide +10V reference power	Provide 5mA current at most
Communication	RS+	RS485 communication connector	RS485 difference signal positive	Standard RS485 communication connector (Use twisted-pair or shield cable please)
	RS-		RS485 difference signal negative	
Analog input	AI1	Analog single-ended input AI1	Receive the analog voltage or current single-ended input, they are selected by jumper AI1 (Reference ground:COM)	Input voltage range: -10V~+10V (Input resistor: 45kΩ) Resolution: 1/4000 Input current range: 0mA~20mA, Resolution: 1/2000(Jumper to select)
	AI2	Analog single-ended input AI2	Receive the analog voltage or current single-ended input, they are selected by jumper AI2 (Reference ground:COM)	
Analog output	AO1	Analog output 1	Providing analog voltage or current output, they are selected by the jumper AO1. The default setting is output voltage, see to description of function code A6.28. (Reference ground: COM)	Voltage output range: 0V~10V Current output range: 0/4~20mA
	AO2	Analog output 2	Providing analog voltage or current output, they are selected by the jumper AO2. The default setting is output voltage, refer to the function code A6.29 (Reference ground: GND)	
Multi-function input terminal	X1~ X5	Multi-function input terminal	Can be defined as multi-function digital input terminal. Please see to description of function code A6.00~A6.04 (A6 group).	Optocoupler isolation input Input resistor: R=3.3kΩ Input voltage range of X1~X5: 2~30V
Multi-function output terminal	Y1	Bi-direction open collector output	Can be defined as multi-function digital output terminal. Please see to description of function code A6.14 (A6 group) (Com port: COM)	Optocoupler isolation output Maximum working voltage: 30V Maximum output current: 50mA
Power supply	OP	+24v power supply	Providing +24V power	Maximum output current: 200mA
Common port	COM	Common port of 24V power supply	Cooperate with other terminals	



Product Characteristics:

- Output frequency 0~300Hz
- V/F control and setable V/F curves
- Carrier frequency up to 6kHz
- Auto torque boost and auto slip compensation function
- Standard equipped Modbus(RS485 baud rate up to 19200bps)

Technical Specification

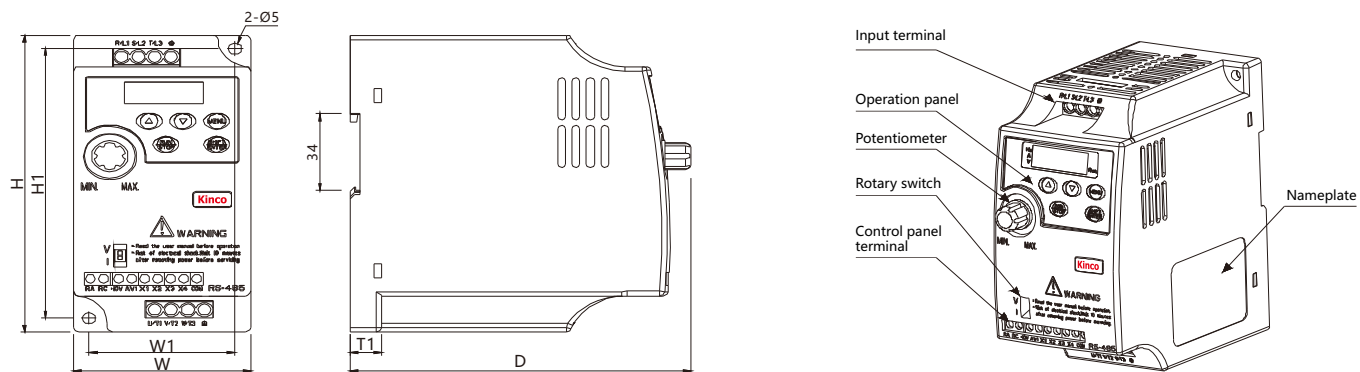
Item	Description	
Input	Rated voltage and frequency	4T: 3-phase, 380~440VAC, 50Hz/60Hz ; 2S: Single-phase, 200~240V, 50Hz/60Hz ; 1S: Single-phase, 100~120V, 50/60Hz
	Allowable voltage range	4T: 320V ~ 460V AC; 2S: 180V~260VAC; 1S: 90~132VAC; Voltage tolerance≤3%; Frequency: ±5%
Output	Rated voltage	2S/4T: 0~Rated input voltage ; 1S: 0~twice of rated input voltage
	Frequency	0Hz~300Hz (Customized 0Hz~800Hz)
	Overload capacity	150% 1 minute, 180% for 1 second, 200% FOR 0.5 second
Control Characteristics	Control mode	V/F control
	Starting torque	0.5Hz 150%rated torque
	Speed regulation range	1 : 100
	Speed stabilizing accuracy	±0.5%
Basic Function	Operation Command	Operation Panel, Terminal, Communication Control, Support switching between these control channels.
	Starting mode	Start from starting frequency; Brake first and then start; Speed tracking.
	Stopping mode	Dec-to-stop; Coast-to-stop; Dec-to-stop+DC injection braking
	V/F pattern	4 patterns: 1 V/F curve mode set by user and 3 kinds of torque-derating modes
	Acc/Dec curve	Linear Accn/Dec, S curve Acc/Dec
Protection function		Overcurrent protection, overvoltage protection, miss phase protection, under-voltage protection, overheat protection, over-load protection, short circuit protection and so on.
Environment	Operating site	Indoor, installed in the environment free from direct sunlight, dust, corrosive gas, combustible gas, oil mist, steam and drip.
	Altitude	Derated above 1000m, the rated output current , shall be decreased by 10% for every rise of 1000m
	Ambient temperature	-10℃~40℃, derated at 40℃~ 50℃
	Humidity	5%~95%RH, non-condensing
	Vibration	Less than 5.9m/s ² (0.6g)
Structure	Storage temperature	- 40℃ ~ + 70℃
	Protection class	IP20
	Cooling method	Air cooling, with fan control.
Installation method		DIN-rail mounting and wall-mounting
Efficiency		≥93%

Model Specifications

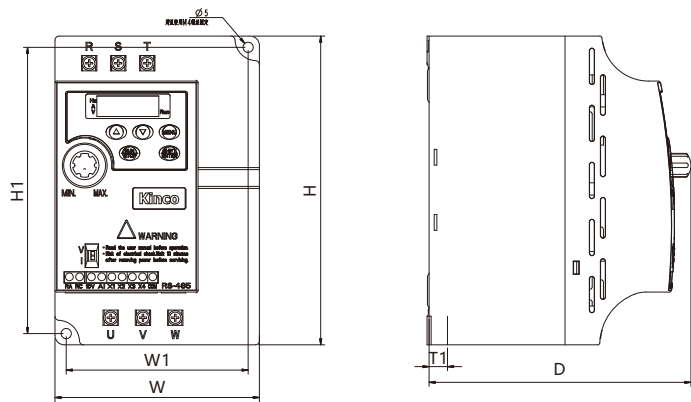
Model		CV20-1S-□□□□G			CV20-2S-□□□□G			CV20-4T-□□□□G		
		0002	0004	0007	0004	0007	0015	0007	0015	0022
The power of suitable motor(kW)		0.2	0.4	0.75	0.4	0.75	1.5	0.75	1.5	2.2
Output	Voltage (V)	3-phase, 0~rated input voltage								
	Rate current (A)	2.5	4.0	7.5	2.5	4.0	7.5	2.3	3.7	5.5
	Overload capacity	150% 1minute, 180% 1second, 200% 0.5second								
Input	Rated Voltage/frequency	Single-phase, 100~120V; 50/60Hz			Single-phase, 200V~240V; 50Hz/60Hz			3-phase, 380V ~ 440V AC; 50Hz/60Hz		
	Allowable voltage range	90~132V			180V ~ 260V			320V ~ 460V AC		
		Voltage tolerance<3%; Frequency: ±5%								
	Rated current (A)	6.0	9.0	18.0	5.3	8.2	14.0	3.4	5.0	5.8
Protection class		IP20								
Cooling method		Air cooling								

External Dimension

CV20-1S-□□□□G, CV20-2S-□□□□G



CV20-4T-□□□□G



External Dimension

Models of Inverter (G: Constant torque load L: Draught fan and water pump load)	External dimension (mm)								
	W	H	D	W1	H1	D1	T1	Installation hole "d"	Weight (kg)
CV20-1S-0002G	68	132	131	56	120	-	12	5	0.8
CV20-1S-0004G									
CV20-1S-0007G									
CV20-2S-0004G									
CV20-2S-0007G									
CV20-2S-0015G	100	151	128	89	140	-	9	5	1.0
CV20-4T-0007G									
CV20-4T-0015G									
CV20-4T-0022G									

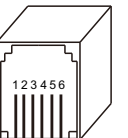
Terminal Description

Control board terminal arrangement

RA	RC	+10V	AV1	X1	X2	X3	X4	COM	RS-485
----	----	------	-----	----	----	----	----	-----	--------

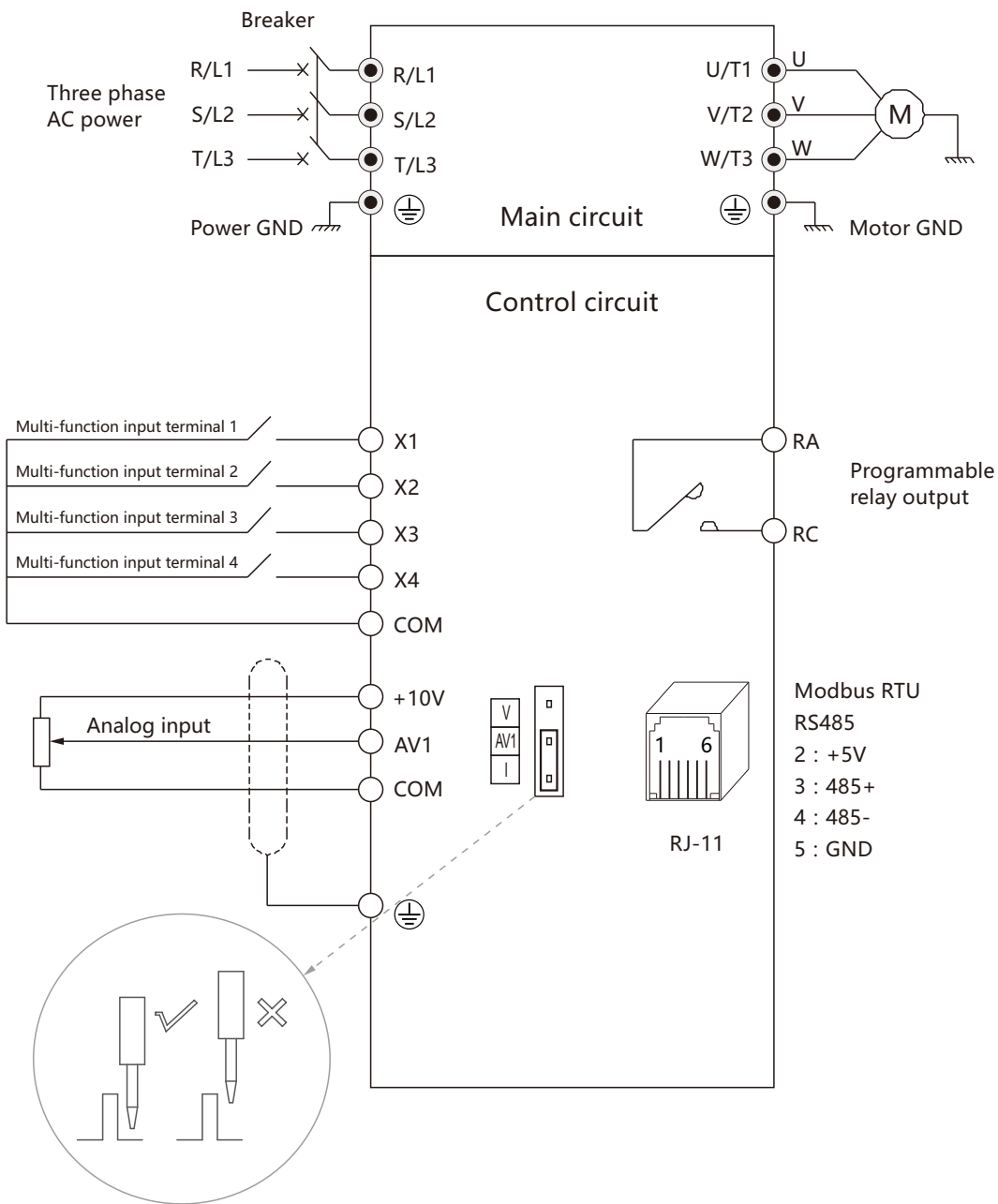
PIN definition of RS-485

PIN	1	2	3	4	5	6
Definition	N/A	+5V	485+	485-	GND	N/A



Category	Terminal silk screen	Name	Description of terminal function	Specification
Relay output	RA	Relay output	Can be defined as multi-function relay output terminal	RA - RC : Normally open ; Contact capacity : AC250V/2A(COSφ=1) AC250V1A(COSφ=0.4) ; DC30V/1A
	RC			
Power supply	+10V	+10V power supply	Providing +10V power	Maximum output current: 20mA
Analog input	AV1	Analog input	Analog voltage/current input, Current/voltage signal type is selected by rotary switch on control board	Input voltage range: -10~+10V Resolution: 1/4000
Digital input	X1	Multi-function input terminal	Can be defined as multi-function digital input terminal	Optocoupler isolation input Input resistor:R=3.3kΩ Maximum input frequency:200kHz
	X2			
	X3			
	X4			
Common port	COM	Common port of digital terminals and +10V power supply	Common port of digital input terminals and +10V power supply	
Communication	RS-485	RS485 communication port	Modbus communication port,6-wire, 2-PIN type socket	Standard RS485 communication port, please use twisted shielded pair

Terminal Description



Specification		Description
Input	Rated voltage	DC 24V, 48V
	Rated current	Three-phase , 100~150A ; 0~300Hz
Output	Max. current	Three-phase , 200~300A ; 0~300Hz
	Max. voltage	Three-phase , 16V, 32V ; 0~301Hz

EC Series-Electric Forklift Driver

Efficient walking and steering drive solution

Efficient walking and steering drive solution

1. Walking drive is compatible with synchronous motor resolver, synchronous motor encoder, and asynchronous motor encoder; Steering drive is compatible with DC brush motor and Brushless DC motor mode.
2. Support terminal communication, CANopen communication;
3. Various reserved I/O terminals, to meet system control requirements to the maximum extent.
4. Advanced PWM technology to ensure efficient use of batteries, reducing motor energy consumption and loss of torque conversion.
5. Modular design, profound product series to meet customization requirements.

Model Description

EC3001-40Z0110A-I--**

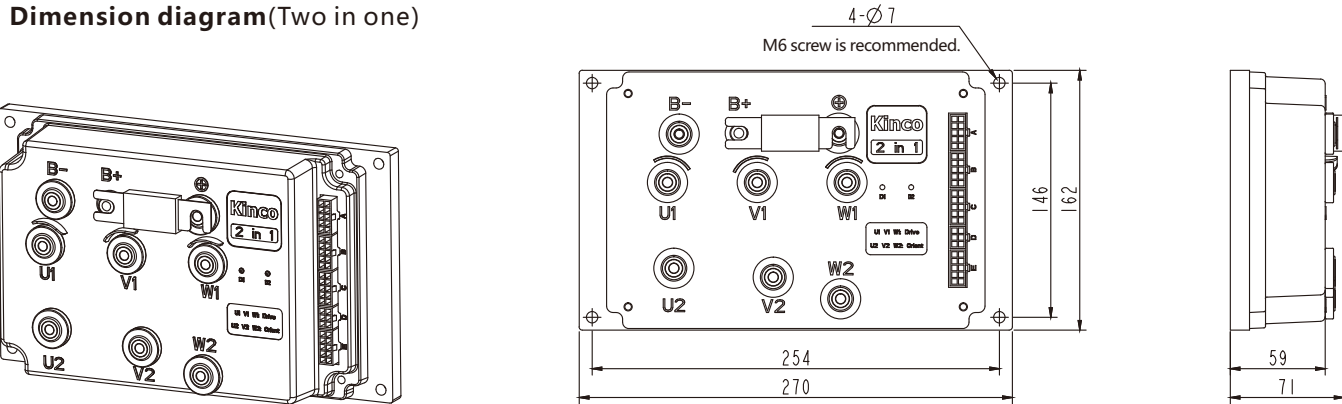
- | | |
|--|--|
| ① Kinco Electric Forklift Drive | ⑤ Rated voltage:40Z: 400VDC input
(Rounding rule:
366VDC:37Z) |
| ② Driver generation : 3 (1st generation)
5 (2nd generation) | ⑥ Capacity:0110 : 11kW
1100 : 110kW |
| ③ Structure : 0 (Sheet metal shell)
1 (Die-casting shell)
2 (Injection molded shell) | ⑦ Cooling method : A (Cooling by fan)
L (Liquid cooling)
N (Air cooling) |
| ④ Moduler Type: 00(No accessories)
01(Main motor drive)
02(Steering drive)
03(Air pump motor drive)
04(DC to DC inverter)
05(Main motor drive+steering dirve) | ⑧ Power moduler type : I (IGBT)
M (mos) |
| | ⑨ Custom code |

Specification

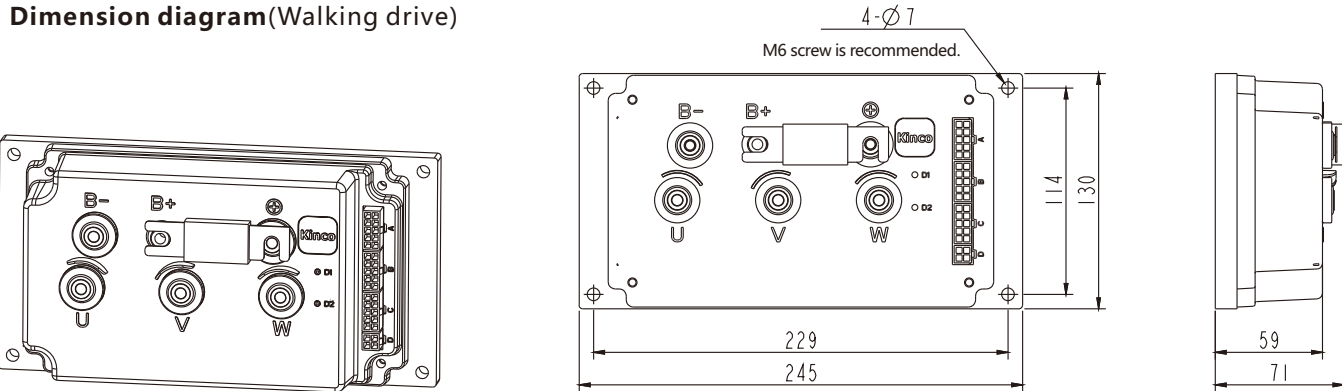
Model	Rated power	Input voltage	Max.current	Drive type	Drive type
EC3001-02Z0022N-M	2.2kW	24V	300A	Walking drive	Walking drive
EC3001-05Z0022N-M	2.2kW	48V	200A	Walking drive	Walking drive
EC3001-02Z0037N-M	3.7kW	24V	300A	Walking drive	Walking drive
EC3001-05Z0037N-M	3.7kW	48V	200A	Walking drive	Walking drive
EC3002-02Z0008N-M	0.8kW	24V	50A	Steering drive	Steering drive
EC3002-05Z0008N-M	0.8kW	48V	50A	Steering drive	Steering drive
EC3005-02Z0022N-M	2.2kW	24V	300A	Walking+Steering drive	Walking+Steering drive
EC3005-05Z0022N-M	2.2kW	48V	200A	Walking+Steering drive	Walking+Steering drive
EC3005-02Z0037N-M	3.7kW	24V	300A	Walking+Steering drive	Walking+Steering drive
EC3005-05Z0037N-M	3.7kW	48V	200A	Walking+Steering drive	Walking+Steering drive

External Dimension

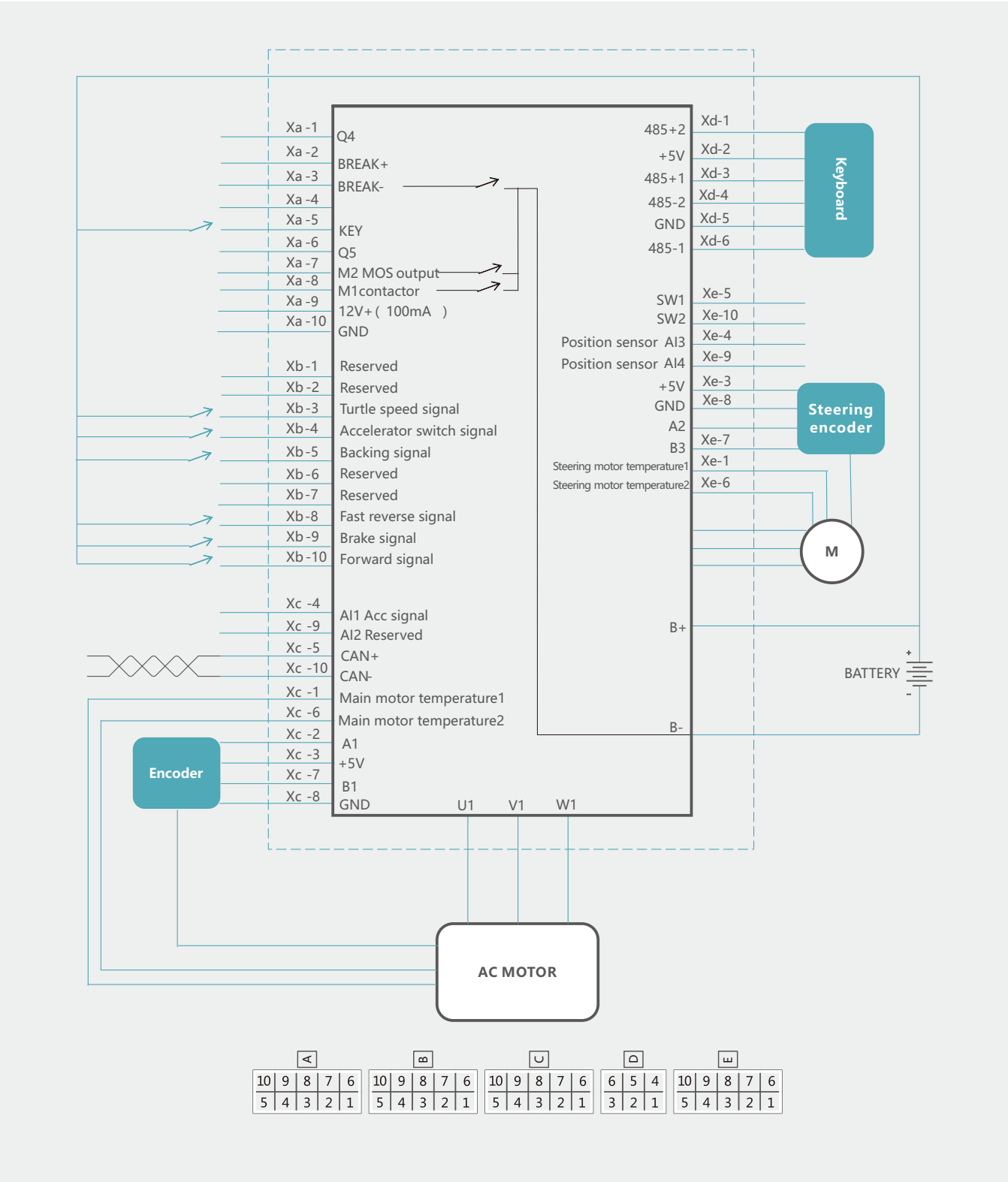
Dimension diagram(Two in one)



Dimension diagram(Walking drive)



Wiring Diagram of Product Terminal (Two in one)





Technical specification

Item	Description
Input	Rated voltage/Frequency Three-phase , 380V ~ 440V ; 50Hz/60Hz
	Allowable voltage Voltage : 320V ~ 460V ;
	Operating range Voltage unbalancedness : < 3% ; Frequency : ±5%
Output	Rated DC bus voltage 531V
	Frequency 50Hz ~ 6000Hz

Output frequency : 50Hz~6000Hz

KincoHP 100 Series Medium Frequency Power Supply

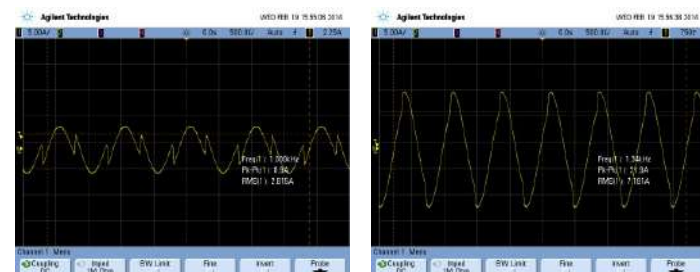
Excellent medium frequency power supply solution for Ozone generator

Product Characteristic

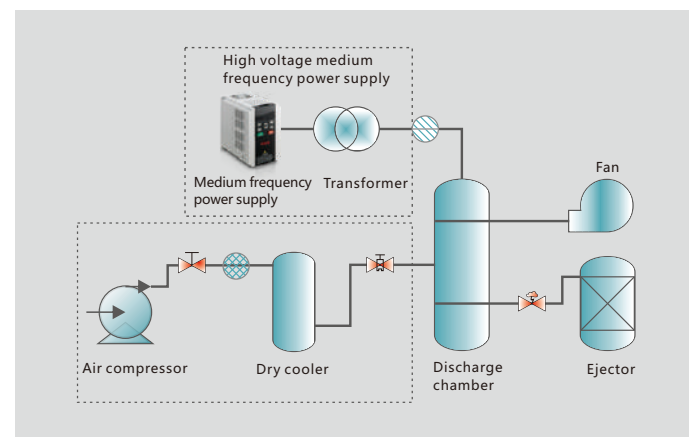
The new MF(Medium frequency) power supply has adaptive frequency function compared with the traditional MF power supply. The output frequency of the traditional MF power supply is set manually. Usually, the frequency is too high or low, which leads to low power supply efficiency and shortens the service life of the power supply in severe cases.

The new MF power supply can find the resonant frequency point of the load through its own unique algorithm, so that the power supply efficiency is the highest.

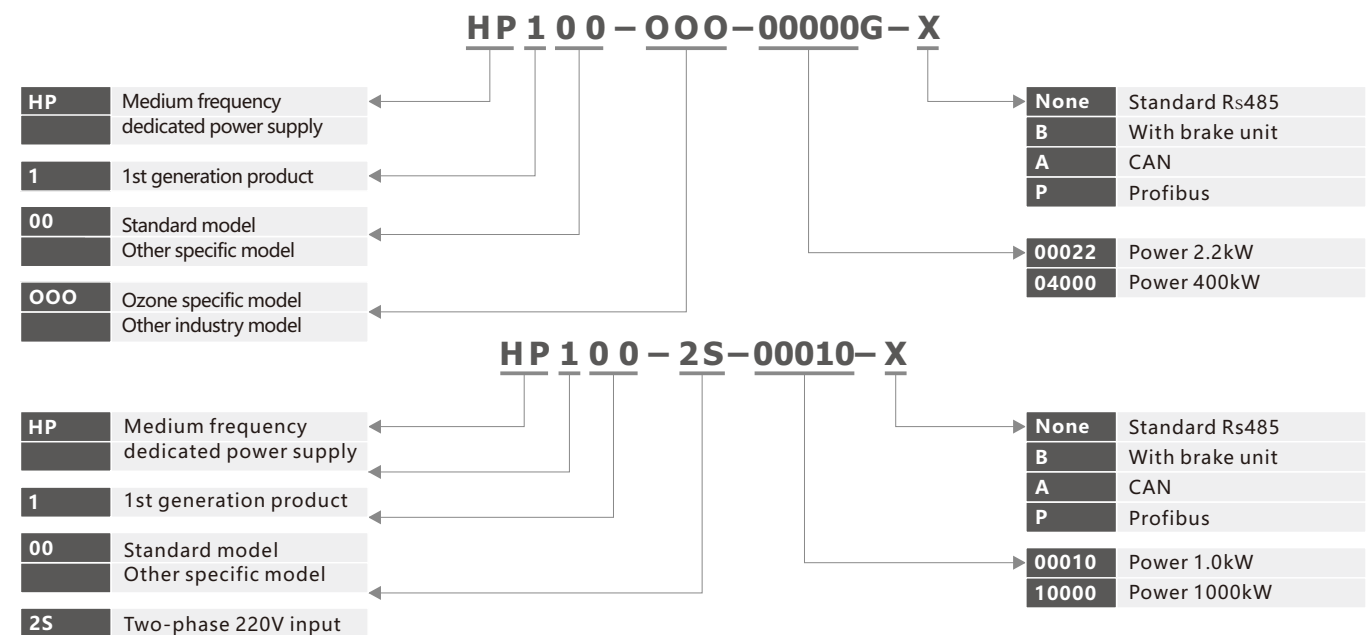
1. Output frequency range:50Hz~6000Hz;
2. Perfect control algorithm to make the current more stable at MF output;
3. Improve power efficiency based on load adaptive frequency output;
4. Short circuit protection, over voltage protection, over current protection, under voltage protection, over heat protection and so on. Rich protection features make the equipment run more stable and safer;
5. Can be set as constant voltage source or constant current source output, wider range of application;
6. Standard equipped with RS485 port.



1. When the output frequency is less than the load resonance frequency. The current waveform is obviously missing. The output current is small, and the internal power module is hot.
2. When the output frequency is equal to the load resonance frequency. The current waveform is not obviously missing. The output current is large, and the power supply efficiency is high.



HP100 Series Model Description



HP100 Series Specification

Model		00007	00015	00022	00037	00055	00075	00110	00150	00185	00220
HP100-2S-□□□□G											
Output	Voltage(V)	Two-phase 0~320V									
	Rated current(A)	4.0	7.5	10.0	16.0	24.5	30.0	46.0	60.0	75.0	85.0
	Overload capacity	115% 1minute , 160% 0.5second									
Input	Rated voltage/Frequency	Single phase 220V~240V ; 50Hz/60Hz									
	Allowable voltage range	Voltage : 180V~260V ; unbalancedness : 3% ; Frequency : ± 5%									
	Rated current(A)	8.2	14.0	23.0	32.0	40.0	45.0	70.0	90.0	110.0	125.0
Protection class		IP20									
Cooling method		Air cooling Cooling by fan									

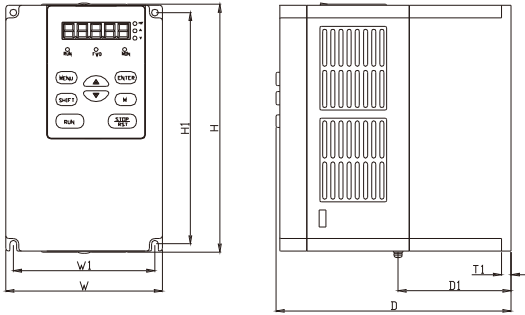
Model		00007	00015	00022	00037	00055	00075	00110	00150	00185	00220	00300	00370	00450	00550	00750	00900	01100
HP100-000-□□□□G																		
Output	Voltage(V)	Two-phase 0~540V																
	Rated current(A)	3.7	5.5	8.8	13.0	17.0	25.0	32.0	37.0	45.0	60.0	75.0	90.0	110.0	152.0	176.0	210.0	253.0
	Overload capacity	115% 1minute , 160% 0.5second																
Input	Rated voltage/Frequency	Single phase 380V~440V ; 50Hz/60Hz																
	Allowable voltage range	Voltage : 320V~460V ; unbalancedness : 3% ; Frequency : ± 5%																
	Rated current(A)	3.4	5.0	5.8	10.5	14.5	20.5	26.0	35.0	38.5	46.5	62.0	76.0	92.0	113.0	157.0	180.0	214.0
Protection class		IP20																
Cooling method		Air cooling Cooling by fan																

HP100 Series Specification

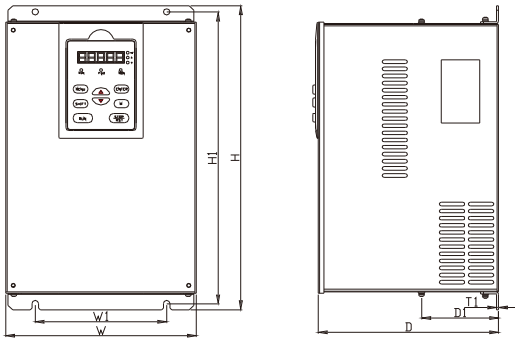
Model		01320	01600	01850	02000	02200	02500	02800	03150	03550	04000	05000	06000	07000	08000	09000	10000	20000
HP100-000-□□□□□G																		
Output	Voltage(V)	Two-phase 0~540V																
	Rated current(A)	368.0	385.0	400.0	450.0	500.0	555.0	632.0	700.0	780.0	950.0	1100.0	1250.0	1400.0	1550.0	1675.0	1800.0	3600.0
	Overload capacity	115% 1minute , 160% 0.5second																
Input	Rated voltage/Frequency	Single phase 380V~440V ; 50Hz/60Hz																
	Allowable voltage range	Voltage : 320V~460V ; unbalancedness : <3% ; Frequency : ± 5%																
	Rated current(A)	232.0	282.0	326.0	352.0	385.0	437.0	491.0	580.0	624.0	670.0	830.0	1000.0	1167.0	1350.0	1396.0	1600.0	3000.0
Protection class		IP20																
Cooling method		Cooling by fan																

HP100 Series External Dimension

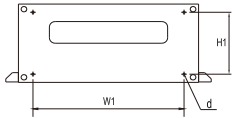
Model	Dimension(mm)								Weight (kg)
	W	H	D	W1	H1	D1	T1	Installation hole d	
HP100-2S-0007G	115	185	171	106	176	65	7	5	2
HP100-2S-0015G									
HP100-2S-0022G									
HP100-2S-0037G									
HP100-000-0007G									
HP100-000-0015G									
HP100-000-0022G	165	274	193	110	264	-	2	6	6
HP100-000-0037G									
HP100-2S-0055G									
HP100-000-0055G									
HP100-000-0075G									
HP100-2S-0110G									
HP100-000-0110G	194	324	197	120	312	-	2	6	8
HP100-000-0150G									
HP100-000-0185G									
HP100-2S-0150G									
HP100-2S-0185G									
HP100-2S-0220G									
HP100-000-0220G	297	451	224	200	433	89	3	7	18
HP100-000-0300G									
HP100-000-0370G									
HP100-000-0450G									
HP100-000-0550G									
HP100-000-0750G									
HP100-000-0900G	440	758	285	340	737	102	2.5	11	73
HP100-000-1100G									
HP100-000-1320G									
HP100-000-1600G									
HP100-000-1850G									
HP100-000-2000G									
HP100-000-2200G	690	1006	380	500	974	207	4	14	156
HP100-000-2500G									
HP100-000-2800G									
HP100-000-3150G									
HP100-000-3550G									
HP100-000-4000G									
HP100-000-5000G	810	1228	400	520	1196	209	4	14	225
HP100-000-6000G									



HP100-000-0007G ~ HP100-000-0037G



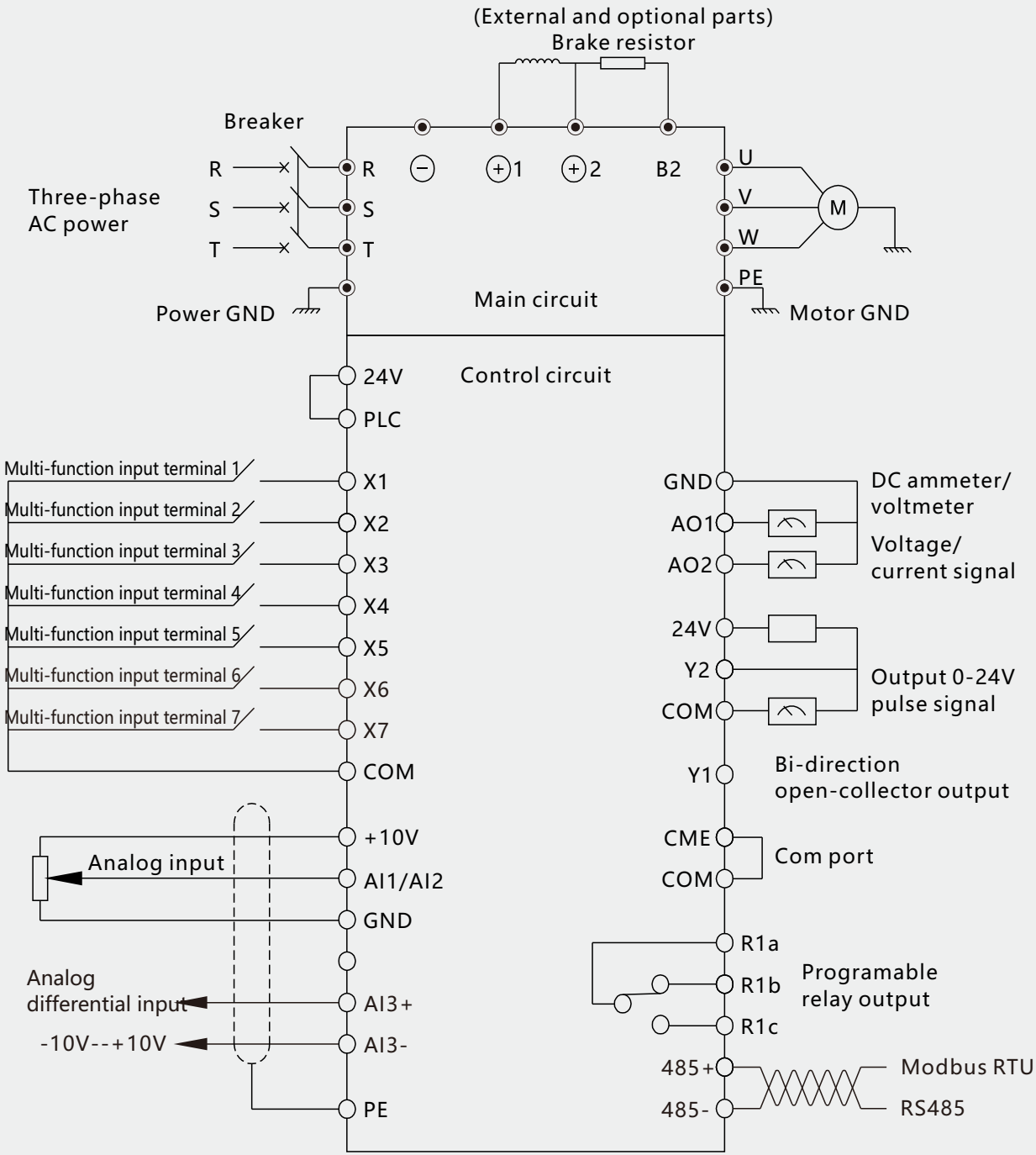
HP100-000-0055G ~ HP100-000-6000G



Base installation diagram :
HP100-000-7000G ~
HP100-000-20000G

Model	Dimension(mm)								Weight (kg)
	W	H	D	W1	H1	D1	T1	Installation hole d	
HP100-000-7000G	1251	1565	506	Base installation W1*H1=920x400 d=14					420
HP100-000-8000G									
HP100-000-9000G	1480	1807	600	Base installation W1*H1=1040x440 d=14					460
HP100-000-10000G									
HP100-000-20000G	1804	2110	600	Base installation W1*H1=1400x440 d=14					520

HP100 Series Wiring Diagram of Product Terminal



Kinco Power Inverter



Product Characteristic

- Pure sine wave output .
- Input and output isolation design.
- The fan is controllable according to temperature and load.
- Output frequency 50Hz/60Hz optional.
- Output voltage 220/230/240Vac optional.
- LED display running status in real time.
- Input protection(Over current/Over voltage/Under voltage protection).
- Output protection(Over temperature/Over current/Short circuit/Over load protection).

Power Inverter Model Description

PI100 – 2 – 2000 – 000

Series name
PI100 : Power Inverter

DC voltage
2 : 24V 4 : 48V

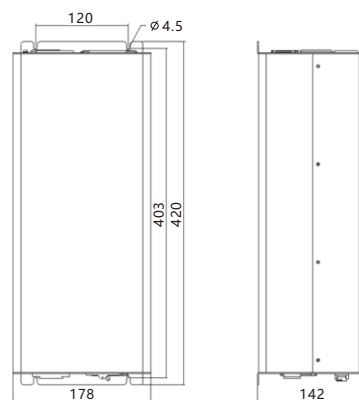
Custom
000 : Custom code

Capacity
2000 : 2KVA

Technical Specification

Model		PI100-2-2000	PI100-2-4000	PI100-4-2000	PI100-4-4000
Battery input	Voltage DC	24V	24V	48V	48V
	Voltage range	21.5V~31V	21.5V~31V	43V~62V	43V~62V
	No-load current	≤0.5A	≤0.5A	≤0.5A	≤0.5A
	Max. efficiency	90%	90%	90%	90%
Photovoltaic output	Charge voltage	27.6V	27.6V	55.2V	55.2V
	Floating charge voltage	31.2V	31.2V	62.4V	62.4V
	Max. charge current	10A	20A	10A	20A
	Max. charge current	10A	20A	10A	20A
Output	Voltage AC	220/230/240Vac	220/230/240Vac	220/230/240Vac	220/230/240Vac
	Voltage range	±5%	±5%	±5%	±5%
	Rated capacity	2000VA	4000VA	2000VA	4000VA
	Instantaneous capacity	3000VA	6000VA	3000VA	6000VA
	Rated power	1000W	2000W	1000W	2000W
	Overload capacity	2400VA/1min	4800VA/1min	2400VA/1min	4800VA/1min
	Frequency	50/60Hz	50/60Hz	50/60Hz	50/60Hz
	Frequency	50/60Hz	50/60Hz	50/60Hz	50/60Hz
Protection	Input under voltage	21.5V	21.5V	43V	43V
	Input over voltage	31V	31V	62V	62V
	Over current	7.5A	15A	7.5A	15A
	Over load	6A	12A	6A	12A
	Short circuit	10A	20A	10A	20A
	Over temperature	70°C	70°C	70°C	70°C
Control/display	LED indicator	Run/Under voltage/Error			
	LED	Input voltage/Output voltage			
Environment	Operating temperature	-20°C~+40°C			
	Storage temperature	-30°C~+70°C			
	Humidity	10%~95% RH			
Other	Dimension D*W*H	400×180×150mm			
	Weight	7.5kg	8kg	7.5kg	8kg

External Dimension



Kinco Inverter Brake Resistor Selection

VFD Model	Brake unit	Braking resistor			
		Standard resistance	Qty.	Min. resistance	Standard power
FV100-2S/2T-0004G	Built-in	200Ω	1	100Ω	100W
FV100-2S/2T-0007G		150Ω	1	100Ω	150W
FV100-2S/2T-0015G		150Ω	1	100Ω	150W
FV100-2S/2T-0022G		50Ω	1	35Ω	400W
FV100-2S/2T-0037G		45Ω	1	35Ω	450W
FV100-2S/2T-0055G		50Ω	1	25Ω	1600W
FV100-2S/2T-0075G		40Ω	1	25Ω	2000W
FV100-2S/2T-0110G		27.2Ω	1	20Ω	2000W
FV100-4T-0007G/0015L		750Ω	1	125Ω	110W
FV100-4T-0015G/0022L		400Ω	1	100Ω	260W
FV100-4T-0022G/0037L		250Ω	1	100Ω	320W
FV100-4T-0037G/0055L		150Ω	1	66.7Ω	550W
FV100-4T-0055G/0075L		100Ω	1	66.7Ω	800W
FV100-4T-0075G/0110L		75Ω	1	66.7Ω	1070W
FV100-4T-0110G/0150L		50Ω	1	25Ω	1600W
FV100-4T-0150G/0185L		40Ω	1	25Ω	2000W
FV100-4T-0185G/0220L		32Ω	1	20Ω	4800W
FV100-2S/2T-0150G	Built-in (Optional)	20Ω	1	14Ω	2000W
FV100-2S/2T-0185G		16Ω	1	14Ω	4800W
FV100-2S/2T-0220G		13.6Ω	1	10Ω	4800W
FV100-4T-0220G/0300L		27.2Ω	1	20Ω	4800W
FV100-4T-0300G/0370L		20Ω	1	14Ω	6000W
FV100-4T-0370G/0450L		16Ω	1	14Ω	9600W
FV100-4T-0450G/0550L	External	15Ω	1	13.6Ω	9600W
FV100-4T-0550G/0750L		20Ω	2	13.6Ω	6000W*2
FV100-4T-0750G/0900L		20Ω	2	13.6Ω	9600W*2
FV100-4T-0900G/1100L		18Ω	3	13.6Ω	9600W*3
FV100-4T-1100G/1320L		18Ω	3	13.6Ω	6000 W*3
FV100-4T-1320G/1600L		10Ω	1	4Ω	30KW
FV100-4T-1600G/1850L		8Ω	1	4Ω	30KW
FV100-4T-1850G/2000L		6Ω	1	4Ω	30KW
FV100-4T-2000G/2200L		5Ω	1	4Ω	30KW

Notes:

1. The resistance of brake resistor should be bigger than the liminal value. The selection is calculated basing on braking time 10S. For applications in industries such as crane and oil field, long braking time is required, the resistance should be magnified for serval times according to actual situations.

2. Avoid using ripple resistors: 1) Ripple resistor possesses negative temperature characteristic. After working for some time , the resistance of ripple resistor decreases with temperature rising. The brake unit will be easy to explore if resistance is too small; 2) The parasitic inductance of ripple resistor is large, which may cause brake unit broken easily; Aluminum Power Resistors are recommended. Please select larger resistance for ripple resistors.

3. If brake resistor power is smaller than the listed standard power, the brake resistor will burn up easily. The larger the brake resistor power is, the less the possibility there is brake resistor burn-out.

4. For 55KW/75KW/90KW inverters, there are two brake resistors in parallel, the equivalent resistance is 12000W 10Ω, 19200W 6.8Ω respectively; For 110KW/132KW inverters, there are 4 brake resistors paired up in parallel, then connected in series, the equivalent resistance is 24000W 5Ω; For 160KW inverter, there are 6 brake resistors paired up in parallel, then connected in series, the equivalent resistance is 36000W 4.5Ω.

5. CV20 does not has brake unit.