

### Mini type VFD of CV100 series

Thank you for using CV100 series Variable Frequency Drive made by Kinco Automation. CV100 satisfies the high performance requirements by using a unique control method to achieve high torque, high accuracy and wide speed-adjusting range. Its anti-tripping function and capabilities of adapting to severe power network, temperature, humidity and dusty environment exceed those of similar product made by other companies, which improves the product's reliability noticeably.

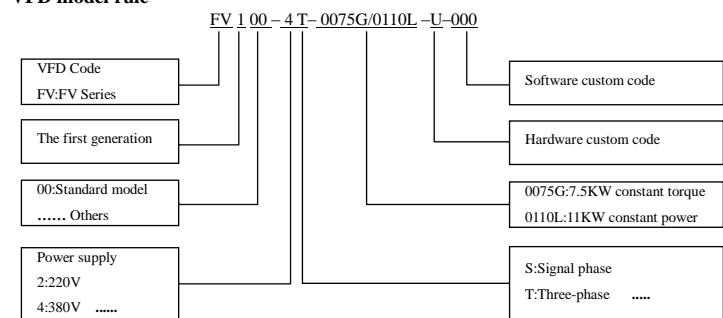
This manual provides information on installation, wiring, parameters setting, trouble-shooting, and daily maintenance. To ensure the correct installation and operation of CV100, please read this manual carefully before starting the drive and keep it in a proper place and to the right person.

#### Unpacking Inspection Note

Upon unpacking, please check for:
• Any damage occurred during transportation;
• Check whether the rated values on the nameplate of the drive are in accordance with your order.
Our product is manufactured and packed at factory with great care. If there is any error, please contact us or distributors.

The user manual is subject to change without notifying the customers due to the continuous process of product improvements

#### VFD model rule



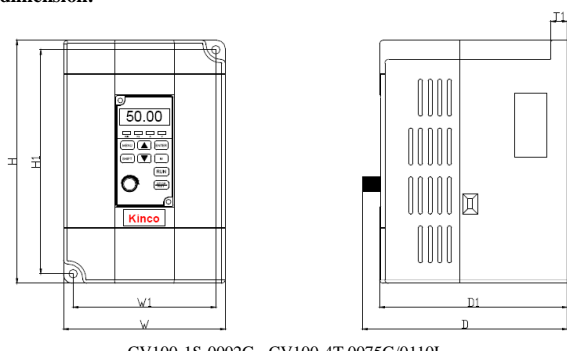
#### Production introduction:

Table with 2 columns: Item, Description. Rows include General specifications, Input, Output, Control Characteristics, Operation panel, Protection function, Environment, Structure, Installation method, and Efficiency.

#### Introduction of CV 100 series:

Table with 5 columns: Model of VFD, Rated capacity (kVA), Rated input current (A), Rated output current (A), Motor power (kW). Lists models from CV100-1S-0002G to CV100-4T-0075G/0110L.

#### External dimension:



CV100-1S-0002G~ CV100-4T-0075G/0110L

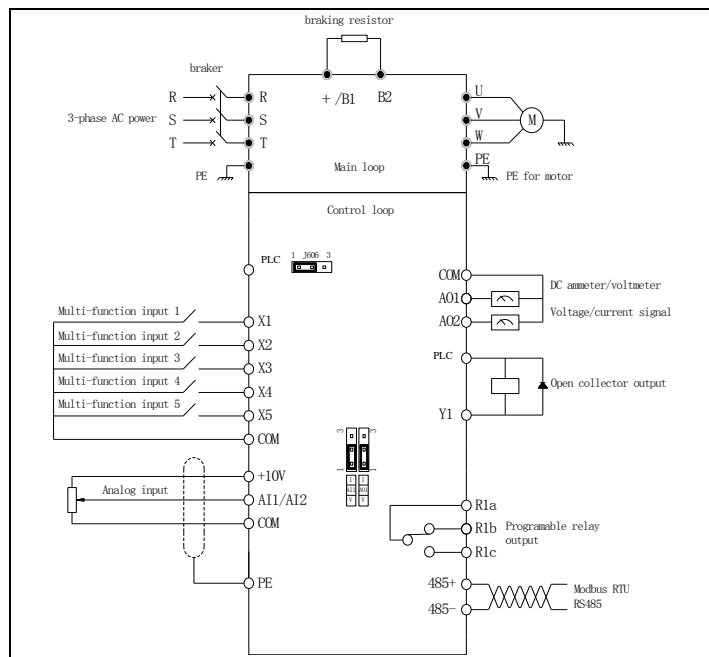
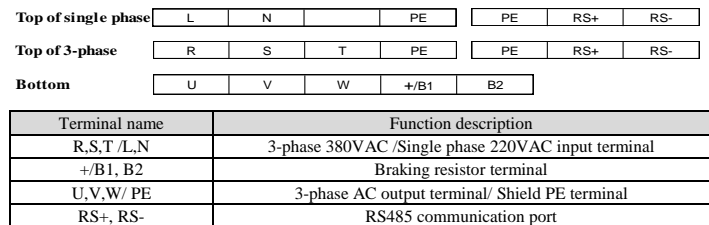
#### Mechanical parameters

Table with 10 columns: VFD model, External dimension and (mm) (W, H, D, W1, H1, D1, T1, Installation hole(d)), Weight (kg). Lists models from CV100-1S-0004G to CV100-4T-0075G/0110L.

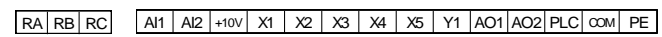
Note: Cutout size of try for Keyboard is 56.0mm\*96.5mm.

#### Wiring:

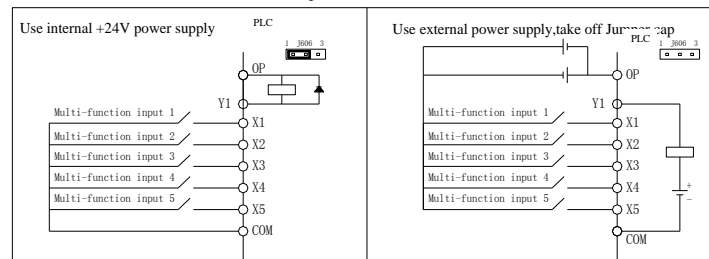
Wiring instructions including a 'Danger' warning triangle, safety steps for AC power disconnection, and an 'Attention' warning triangle. Details include wiring for AC power, braking resistor, and safety circuits.



Arrangement of control circuit terminals is as follows:



RA, RB: normal closed; RA, RC: normal open.



#### Faults and actions

It lists the possible faults of CV100, the fault code varies from E001 to E050. Once a fault occurs, you may check it against the table and record the detailed phenomena before seeking service from your supplier.

Table with 4 columns: Fault code, Fault categories, Possible reasons for fault, Actions. Lists faults E001 through E005.

Table with 4 columns: Fault code, Fault categories, Possible reasons for fault, Actions. Lists faults E006 through E020.



Function code	Name	Descriptions	Unit	Factory setting	Modif	Setting range
		2: frequency detection threshold (FDT1) 3: frequency detection threshold (FDT2) 4: overload signal(OL) 5: low voltage signal(LU) 6: external fault signal(EXT) 7: frequency high limit(FHL) 8: frequency low limit(FLL) 9: zero-speed running 10: Terminal X1(Reserved) 11: Terminal X2(Reserved) 12: PLC running step complete signal 13: PLC running cycle complete signal 14: Swing limit 15: Drive ready (RDY) 16: Drive fault 17: Switching signal of host 19: Torque limiting 20: Drive running forward/reverse 21: Timer 1 reach 22: Timer 2 reach 23: Preset counter reach 24: Intermediate counter reach Others: Reserved				
A6.15	Reserved	Reserved	1	1	×	0~50
A6.16	Output functions of relay R1	The same as A6.14	1	16	×	0~24
A6.17	Output functions of relay R2	The same as A6.14	1	15	×	0~50
A6.18	Output delay of Relay R1	0.1~10.0s	0.1s	0.1	○	1~100
A6.19	Output delay of Relay R2	0.1~10.0s	0.1s	0.1	○	1~100
A6.20	Output terminal's positive and negative logic	Binary setting: 0: Terminal is enabled if it is connected to correspond common terminal, and disabled if it is disconnected. 1: Terminal is disabled if it is connected to corresponding common terminal, and enabled if it is disconnected. Unit's place of LED: BIT0: Y1 BIT1: Y2 BIT2: R1 BIT3: R2 Ten's place of LED: BIT0:DO	1	0	○	0~1FH
A6.21	Frequency arriving signal (FAR)	0.00~300.00Hz	0.01 Hz	2.50Hz	○	0~30000
A6.22	FDT1 level	0.00~300.00Hz	0.01 Hz	50.00Hz	○	0~30000
A6.23	FDT1 lag	0.00~300.00Hz	0.01 Hz	1.00Hz	○	0~30000
A6.24	FDT2 level	0.00~300.00Hz	0.01 Hz	25.00Hz	○	0~30000
A6.25	FDT2 lag	0.00~300.00Hz	0.01 Hz	1.00Hz	○	0~30000
A6.26	Virtual terminal setting	Binary setting 0: Disable, 1: Enable Unit's place of LED: BIT0~BIT3: X1~X4 Ten's place of LED: BIT0~BIT2: X5~X8	1	00	○	0~FFH
A6.27	Function of terminal DO	0~50: DO as Y terminal; 51~88: DO function 0: Drive running signal (RUN) 1: Frequency arriving signal (FAR) 2: Frequency detection threshold (FDT1) 3: Frequency detection threshold (FDT2) 4: Overload signal 5: Low voltage lock-up signal (LU) 6: External stopping command (EXT) 7: High limit of frequency (FHL) 8: Lower limit of frequency (FLL) 9: Zero-speed running 10: X1 terminal(Reserved) 11: X2 terminal(Reserved) 12: PLC running step finish signal 13: PLC running cycle finish signal 14: Swing frequency limit 15: Drive ready (RDY) 16: Drive faulty 17: Switching signal of host 18: Reserved 19: Torque limiting				

Function code	Name	Descriptions	Unit	Factory setting	Modif	Setting range
		20: Drive running forward/reverse 21~50: Reserved 51: Output frequency (0~Max. Freq.) 52: Preset frequency (0~Max. Freq.) 53: Preset frequency (After Acc/Dec) (0~Max. Freq.) 54: Motor speed (0~Max. speed) 55: Output current (0~2*Iei) 56: Output current(0~2*Iem) 57: Output torque(0~3*Tem) 58: Output power(0~2*Pe) 59: Output voltage(0~1.2*Ve) 60: DC bus voltage(0~800V) 61: AI1 62: AI2 63: AI3 64: DI 65: Percentage of host (0~4095) 66~88: Reserved				
A6.28	Max. output pulse freq.	0.1~100.0(Max. 100.0k)	0.1 kHz	10.0	○	1~1000
A6.29	Center point of pulse output selection	0: No center point 1: Center point is (A6.26)/2, positive value when output pulse freq. less than center point. 2: Center point is (F14.13)/2, positive value when output pulse freq. larger than center point.	1	0	○	0~2
A6.30	Function of terminal AO1	0: No function 1: Output frequency (0~Max. output frequency) 2: Preset frequency (0~Max. output frequency) 3: Preset frequency(After Acc/Dec)(0~Max. output frequency) 4: Motor speed (0~Max. speed) 5: Output current (0~2*Iei) 6: Output current (0~2*Iem) 7: Output torque (0~3*Tem) 8: Output power (0~2*Pe) 9: Output voltage (0~1.2*Ve) 10: Bus voltage (0~800V) 11: AI1 12: AI2 13: AI3 14: DI 15: Percentage of host (0~4095) 16~36: Reserved	1	0	○	0~36
A6.31	Functions of terminal AO2	Same as A6.30	1	0	○	0~36
A6.32	Gain of AO1	0.0%~200.0%	0.1%	100.0%	○	0~2000
A6.33	Zero offset calibration of AO1	-100.0%~100.0%	0.1%	0.0	○	0~2000
A6.34	Gain of AO2	0.0%~200.0%	0.1%	100.0%	○	0~2000
A6.35	Zero offset calibration of AO2	-100.0%~100.0%	0.1%	0.0	○	0~2000
A6.36	AI1 filter	0.01~10.00s	0.01s	0.05	○	1~1000
A6.37	AI2 filter	0.01~10.00s	0.01s	0.05	○	1~1000
A6.38	AI3 filter	0.01~10.00s	0.01s	0.05	○	1~1000
A6.39	Analog input zero offset calibration	0~1	1	0	○	0~20000
A6.40	Gain of AI1	0.00%~200%	0.01%	110%	○	0~20000
A6.41	Gain of AI2	0.00%~200%	0.01%	110%	○	0~20000
A6.42	Gain of AI3	0.00%~200%	0.01%	110%	○	0~20000
A6.43~A6.45	Reserved	Reserved	1	0	○	0~4095
A6.46	Preset value of Timer 1	0.00~10.0s	0.1s	0.0	○	1~100
A6.47	Preset value of Timer 2	0~100s	1s	0	○	1~100
A6.48	Target value of timer	0~65535	1	100	○	0~65535
A6.49	Median value of timer	0~65535	1	50	○	0~65535
A6.50	Multi-speed terminal switching time	0~500	1	300	○	0~65535
A6.51~A6.60	Reserved	Reserved	1	0	○	0~65535
Group A8: Fault parameters						
A8.00	Protective action of relay	Unit's place of LED: Action selection for under-voltage fault indication. 0: Disable, 1: Enable Ten's place of LED: Action selection for auto reset interval fault indication.	1	0000	×	0~1111H

Function code	Name	Descriptions	Unit	Factory setting	Modif	Setting range
		0: Disable, 1: Enable Hundred's place of LED: Selection for fault locked function. 0: Disable, 1: Enable Thousand's place of LED: Reserved				
A8.01	Fault masking selection 1	Unit's place of LED: Communication fault masking selection Ten's place of LED: Relay faultmasking selection Hundred's place of LED: EEPROM fault masking selection Thousand's place of LED: reserved 0: Disable. Stop when fault happen 1: Disable. Continue operating when fault happen 2: Enable	1	2000	×	0~2222H
A8.02	Fault masking selection 2	Unit's place of LED: Open phase fault masking selection for input Ten's place of LED: Open phase fault masking selection for output	1	00	×	0~22H
A8.03	Motor overload protection mode selection	0: Disabled 1: Common mode (with low speed compensation) 2: Variable frequency motor (without low speed compensation)	1	1	×	0~2
A8.04	Auto reset times	0: No function 1~100: Auto reset times Note: The IGBT protection (E010) and external equipment fault (E015) cannot be reset automatically.	1	0	×	0~100
A8.05	Reset interval	2.0~20.0s/time	0.1s	5.0s	×	20~200
A8.06	Fault locking function selection.	0: Disable. 1: Enable.	1	0	×	0~1
Group b0: Motor parameters						
b0.00	Rated power	0.4~999.9KW	0.1	0	×	4~9999
b0.01	Rated voltage	0~rated voltage of drive	1	0	×	0~999
b0.02	Rated current	0.1~999.9A	0.1A	Depend on drive's model	×	1~9999
b0.03	Rated frequency	1.00~1000.00Hz	0.01 Hz	Depend on drive's model	×	100~30000
b0.04	Number of polarities of motor	2~24	1	4	×	2~24
b0.05	Rated speed	0~60000RPM	1 RPM	1440 RPM	×	0~60000
b0.06	Resistance of stator %R1	0.00%~50.00%	0.01%	Depend on drive's model	×	0~5000
b0.07	Leakage inductance %Xl	0.00%~50.00%	0.01%	Depend on drive's model	×	0~5000
b0.08	Resistance of rotor %R2	0.00%~50.00%	0.01%	Depend on drive's model	×	0~5000
b0.09	Exciting inductance %Xm	0.0%~2000.0%	0.1%	Depend on drive's model	×	0~20000
b0.10	Current without load I0	0.1~999.9A	0.1A	Depend on drive's model	×	1~9999
b0.11	Auto-tuning	0: Auto-tuning is disabled 1: Stationary auto-tuning (Start auto-tuning to a standstill motor) 2: Rotating auto-tuning	1	0	×	0~3
b0.12	Motor's overload protection coefficient	20.0%~110.0%	0.1%	100.0%	×	200~1100
b0.13	Motor's overload protection time	0.0~6000.0 0.0: Calculate the overload according to the internal overload curve	0.1s	0.0s	×	0~60000
b0.14	Oscillation inhibition coefficient	0~255	1	10	○	0~255
Group b1: V/F parameters						
b1.00	V/F curve setting	0: V/F curve is defined by user 1: 2-order curve 2: 1.7-order curve 3: 1.2-order curve	1	0	×	0~3
b1.01	V/F frequency value F3	B1.03~A0.08	0.01 Hz	0.00Hz	×	0~30000
b1.02	V/F voltage value V3	B1.04~100.0%	0.1%	0.0%	×	0~1000
b1.03	V/F frequency value F2	B1.05~B1.01	0.01 Hz	0.00Hz	×	0~30000
b1.04	V/F voltage value V2	B1.06~B1.02	0.1%	0.0%	×	0~1000
b1.05	V/F frequency value F1	0.00~B1.03	0.01 Hz	0.00Hz	×	0~30000
b1.06	V/F voltage value V1	0~B1.04	0.1%	0.0%	×	0~1000
b1.07	Cut-off point used for manual torque boost	0.0%~50.0% (Corresponding to A0.12)	0.1%	10.0%	○	0~500

Function code	Name	Descriptions	Unit	Factory setting	Modif	Setting range
b1.08	AVR function	0: Disable 1: Enable all the time 2: Disabled in Dec process	1	2	×	0~2
Group b2: Enhanced parameters						
b2.00	Carrier wave frequency	2.0~15.0KHz	0.1	8.0	○	20~150
b2.01	Auto adjusting of CWF	0: Disable 1: Enable	1	1	○	0~1
b2.02	Voltage adjustment selection	Unit's place of LED: Over-voltage at stall Selection 0: Disable (When install brake resistor) 1: Enable Ten's place of LED: Not stop when instantaneous stop function selection 0: Disable 1: Enable(Low voltage compensation) Hundred's place of LED: Overmodulation selection 0: Disable, 1: Enable	1	001	×	0~111H
b2.03	Overvoltage point at stall	120.0%~150.0%Udce	0.1%	140.0%	×	1200~1500
b2.04	Droop control	0: Disable, 0.01~10.00Hz	0.01	0.00Hz	○	0~1000
b2.05	Auto current limiting threshold	20.0%~200.0%Ie	0.1%	150.0%	×	200~2000
b2.06	Frequency decrease rate when current limiting	0.00~99.99Hz/s	0.01 Hz/s	10.00 Hz/s	○	0~9999
b2.07	Auto current limiting selection	0: Invalid at constant speed 1: Valid at constant speed Note: It is valid all the time at Acc/Dec	1	1	×	0~1
b2.08	Gain of Slip compensation	0.0~300.0%	0.1%	100.0%	○	0~3000
b2.09	Slip compensation limit	0.0~250.0%	0.1%	200.0%	○	0~2500
b2.10	Slip compensation time constant	0.1~25.0s	0.1s	2.0s	○	0~250
b2.11	auto energy-saving function	0: Disable 1: Enable	1	0	×	0~1
b2.12	Frequency decrease rate at voltage compensation	0.00~99.99Hz/s	0.01 Hz/s	10.00 Hz/s	○	0~9999
b2.13	Zero-frequency Operation threshold	0.00~300.00Hz	0.01 Hz	0.50Hz	○	0~30000
b2.14	Zero-frequency Hysteresis (Reserved)	0.00~300.00Hz	0.01 Hz	0.00Hz	○	0~30000
b2.15	Fan control	0: Auto operation mode 1: Fan operate continuously when power is on Note: Keep running for 3 minutes after the shutdown	1	0	×	0~1
Group b3: Communication parameter						
b3.00	Communication configuration	Unit's place of LED: Baud rate selection 0: 4800BPS 1: 9600BPS 2: 19200BPS 3: 38400BPS 4: 115200BPS 5: 125000BPS Ten's place of LED: Data format 0: 1-8-2-N format, RTU 1: 1-8-1-E format, RTU 2: 1-8-1-O format, RTU 3~5: Reserved Hundred's place of LED: wiring mode 0: Direct connection via cable (RS232/485) 1: MODEM (RS232)	1	001	×	0~155H
b3.01	Local address	0~127, 0 is the broadcasting address	1	5	×	0~127
b3.02	Time threshold for judging the communication status	0.0~1000.0s	0.1	0.0s	×	0~10000
b3.03	Delay for responding to control PC	0~1000ms	1	5ms	×	0~1000
b3.04~b3.11	Reserved	Reserved	-	-	-	-
Group b4: Keyboard parameters						
b4.00	Key-lock function selection	0: The keys on the operation panel are not locked, and all the keys are usable. 1: The keys on the operation panel are locked, and all the keys are unusable. 2: All the keys except for the multi-functional key are unusable. 3: All the keys except for the SHIFT key are unusable. 4: All the keys except for the RUN AND STOP keys are unusable.	1	0	○	0~4

