Aimike

AMK3100-G/P Series Inverter

USER'S MANUAL

SHENZHEN ZHENYEYUAN INDUSTRIAL AUTOMATION EQUIPMENT CO.LTD

2. Installation and Wiring

2.1 Specification

Items			standard
Input	Rated voltage and frequency		Three Phase 380V, 50/60Hz
	Voltage allowable vibration range		320V~460V
Output	Voltage		0~380V
	Frequency		0Hz ~ 500Hz
	Over-load capability		G3 Series: 150% rated current for 1 minute, 180% rated current for 2 seconds; P3 Series: 120% rated current for 1 minute, 150% rated current for 2 seconds.
Control character	Control mode		V/F Control
	Freq.Setting resolution	Analog terminal input	0.1% max output frequency
		Digital setting	0.01Hz
		Panel analog setting	0.4 % max frequency
		External pulse	0.1% max frequency
	Freq. accuracy	Analog Input	Within 0.2% max. output frequency
		Digital Input	Within 0.01% Setting output frequency
		External pulse	Within 0.1% Max. output frequency
	V/F Curve （Voltage-Frequency character）		Base frequency can be set from 5~500Hz arbitrarily, and there are three kinds of curve: constant torque, Dec torque 1 and Dec torque 2.
	Torque Boost		Manual Setting: 0~20% of rated output,Auto-boost: Automatically boost torque according to output current.
	Auto Energy-saving running		Adjust output voltage and slip compensation properly according to output current, which will make the motor working in highest efficiency.
	Acc./Dec time setting		0.1~6000 seconds can be set continuously, and S type and line type can be selected
	Braking	Dynamic braking	Over 75% (External the braking resistor)
		DC braking	It is selected respectively at start and stop, and its frequency is 0~15Hz, the action voltage is 0~15%, and the action time is 0~20.0 second or act continuously
	Auto current-limiting function		Fast auto current-limiting function ensures not to occur the over-current during the accelerate process or under the impact load.
	Voltage stall prevention		Ensure not over-voltage in Dec process.
	Low noise running		Carrier freq. can be adjusted continuously form 1.5KHz to 15.0KHz, which can reduce the motor’s noise furthest.

	Speed tracking restart		It can realize the smoothness restart and instantaneous stop then restart function.
	Freq setting signal	Analog input	DC voltage 0~10V、-10V~10V, DC current 0~20mA (Upper limit and Lower limit can be selected)
		Digital setting	By the operation panel
		Pulse input	0~10kHz（Upper limit and Lower limit can be selected）
	Startup signal		FWD, REV, Startup signal can be selected and self-keep (Three line control)
	Timer and Counter		Embedded one timer and one counter,which will help the system’s integration
	Multi-speed control function / Wobble frequency		Seven stages programmable multi-speed control at most, every stage’s running direction, running time can be set respectively. In external terminal control, It reaches 15 stages, and there are 6 kind of running modes.Including wobble frequency
	Embedded PID control	Ordinal PID	Expediently compose the simple control system without accessional PID controller.
		Special for water supply (Need accessories)	Be able to construct the constant-pressure water-supply system of 4 pumps switch at most, which includes the following functions:pressure upper or Lower limit alarm,Sleep or wake, Timing water-supply etc. multi kind running mode.
	Operation function		Setting the upper and lower limit of frequency, frequency jump-running, reversal running limit, slip frequency compensation, auto constant-voltage running, RS485 communication frequency increment and decrement control, fault self-restore running, multi inverter coupled running
	Output signal	Running status (OC Output)	During the running of inverter,Frequency arrival, Frequency level detection, over-load alarm, and external fault stop-machine. Frequency upper-limit arrival, Frequency lower-limit arrival, under-voltage stop,zero-speed running, programmable multi-speed running state, Internal counter arrival, Internal timer arrival,Pressure lower-upper limit alarm
		Indicated instrument	Output Freq., Output current, Output voltage, Motor speed, PID setting and feedback, External voltmeter, External cymometer.

Display	Operation panel display	Running status	Output Freq., Output current, Output voltage, Motor rotate speed, Setting Freq., PID setting, PID feedback,Model temperature, Accumulative running time, Analog I/O, Terminal Input status
		Alarm content	Last six fault records, Output frequency, Setting frequency, Output current, Output voltage, DC voltage, Model Temperature, Terminal status, Accumulative running time of Last fault trip.
Protective / Alarm function			Over-current, over-voltage, under voltage, electronic thermal protection,over-heat, short-circuit.
Operating Environment	Temperature		-10° C to +50° C
	Humidity		Under 90%（non-condensing）
	Ambient environment		Indoors （ no inflammable gasses or dust）
	Altitude		Under 1000m
Structure	Protective class		IP20
	Cooling method		Fans cooling
Mounting model			Wall mounting

2.2 Installation size of inverter

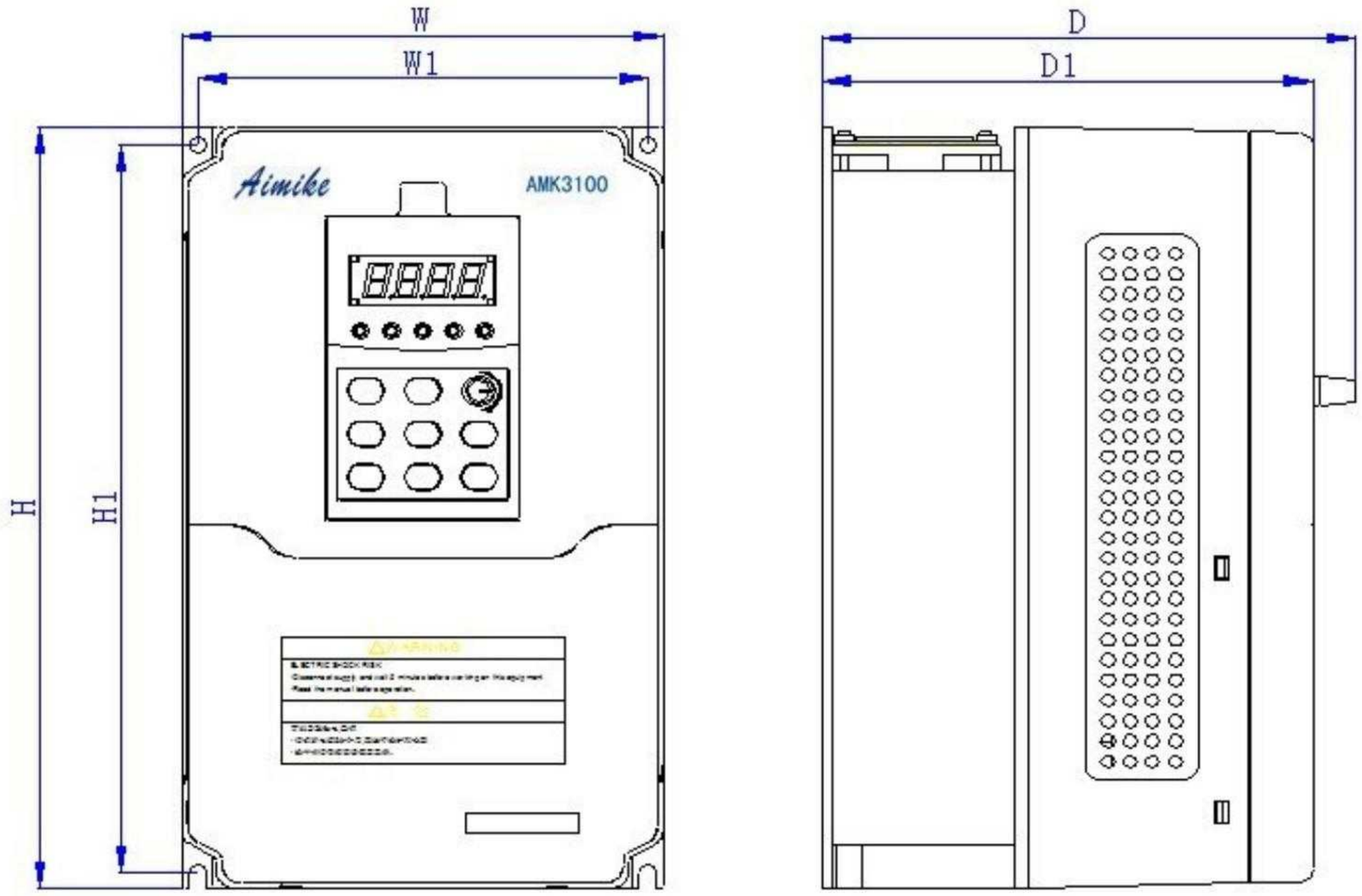


Fig. 2-1 Installation size of inverter

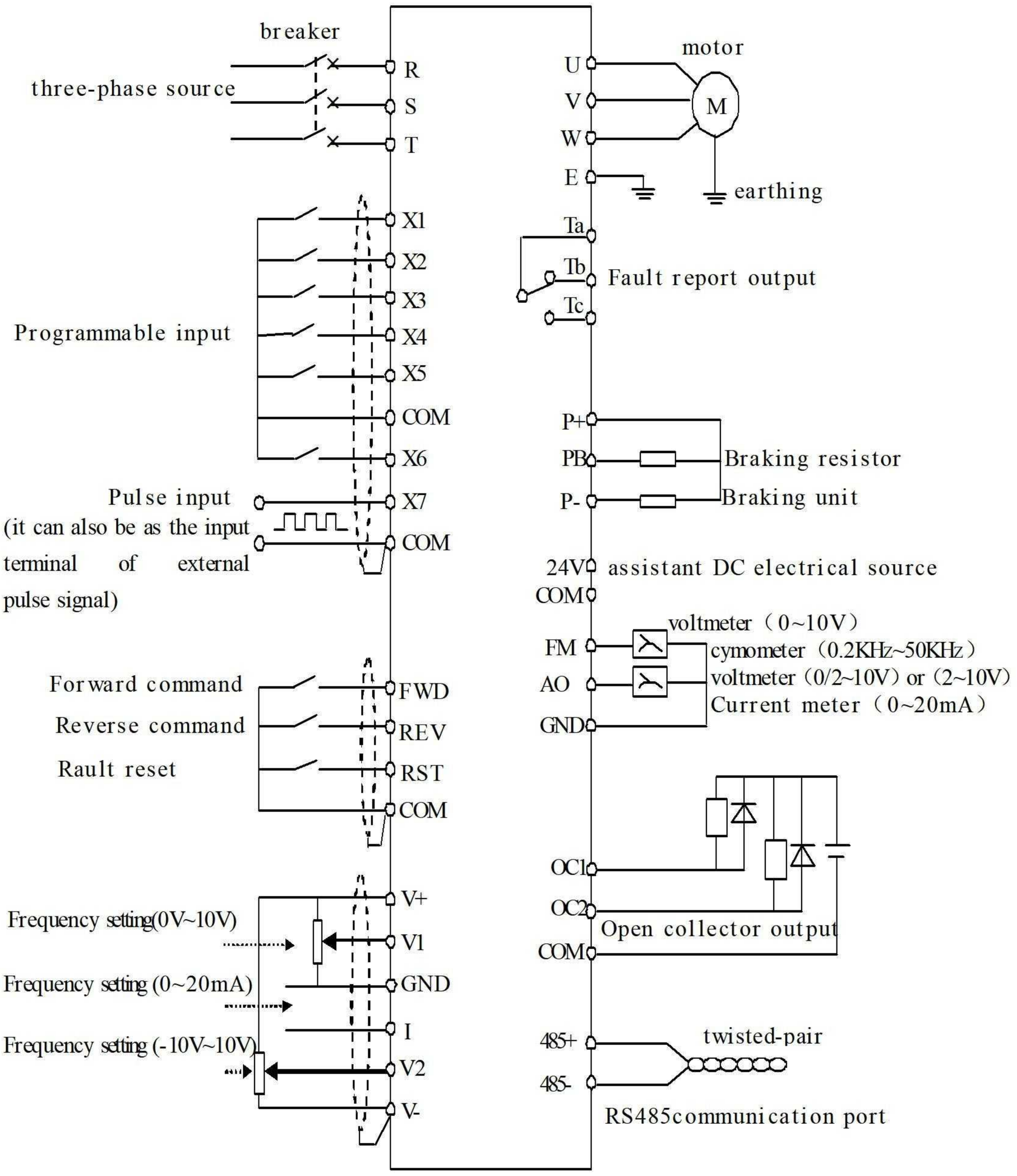
Wall-mounting inverter:

Inverter model		W1 (mm)	W (mm)	H1 (mm)	H (mm)	D1 (mm)	D (mm)	screw standard
G3 Series AMK3100-G3	G3 Series AMK3100-P3							
AMK3100-2S0007		90	100	170	180	130	135	M4
AMK3100-2S0015								
AMK3100-2S0022		95	105	200	210	146.5	161.5	M4
AMK3100-4T0007		90	100	170	180	130	135	M4
AMK3100-4T0015								
AMK3100-4T0022		95	105	200	210	146.5	161.5	M4
AMK3100-4T0037	AMK3100-4T0055							
AMK3100-4T0055	AMK3100-4T0075	159	170	286.5	300	173.5	188.5	M4
AMK3100-4T0075	AMK3100-4T0110							
AMK3100-4T0110	AMK3100-4T0150	150	204	325	340	208.5	223.5	M6
AMK3100-4T0150	AMK3100-4T0185	150	230	380	400	212	227	M6
AMK3100-4T0185	AMK3100-4T0220							
AMK3100-4T0220	AMK3100-4T0300	200	260	440.5	460	233	248	M6
AMK3100-4T0300	AMK3100-4T0370							
AMK3100-4T0370	AMK3100-4T0450	210	320	550	580	280	295	M6
AMK3100-4T0450	AMK3100-4T0550							
AMK3100-4T0550	AMK3100-4T0750	300	380	568	590	297.5	312.5	M8
AMK3100-4T0750	AMK3100-4T0900							
AMK3100-4T0900	AMK3100-4T1100	380	512	714	744	258	273	M8
AMK3100-4T1100	AMK3100-4T1320							
AMK3100-4T1320	AMK3100-4T1600	400	583	760	793	300	315	M8
AMK3100-4T1600	AMK3100-4T1850							

Cabinet inverter:

Inverter model		W (mm)	H (mm)	D (mm)
G3 Series	P3 Series			
AMK3100-4T2200	AMK3100-4T2500	832	1500	445
AMK3100-4T2500	AMK3100-4T2800			
AMK3100-4T2800	AMK3100-4T3150			
AMK3100-4T3150	AMK3100-4T3500	850	1750	450
AMK3100-4T3500	AMK3100-4T4000			
AMK3100-4T4000	AMK3100-4T4500			
AMK3100-4T4500	----			

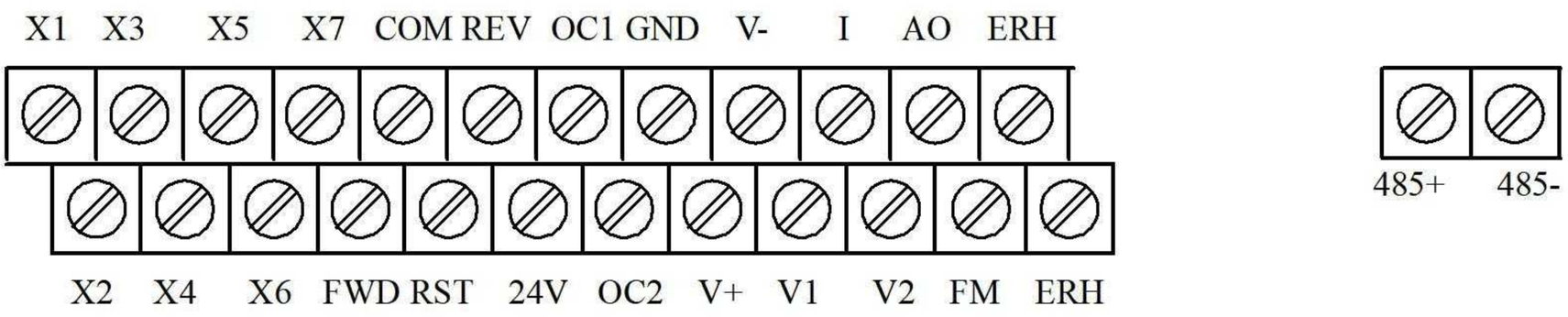
2.3 Basic Running Wiring Digram



Form2-2 Basic Running Wiring Diagram

2.4 Terminals of control circuit

2.4.1 Terminals of Control circuit



2.4.2 Description of terminals of control circuit

Type	Terminal	Terminal function	Notes
Analog input	+10V/V+	Provide +5V/50mA power or +10V/10mA power to external	Selected by control panel JP1 (refer to the following diagram)
	V-	Provide -10V/10mA power	
	V/V1	Frequency setting voltage signal input terminal 1	0 ~ 10V
	V2	Frequency setting voltage signal input terminal 2	－10 ~ 10V
	I	Input positive terminal of frequency setting current signal (Current input terminal)	0 ~ 20mA
	GND	Command terminal of Frequency setting voltage signal (Power earth of V+ 、V-), Negative terminal of frequency setting current signal (Current output terminal)	
Control Terminal	X1	Multi-function input terminal 1	The detailed function of Multi-function input terminal is set by parameter b-63～b-69, the terminal is valid while being closed with CM termina
	X2	Multi-function input terminal 2	
	X3	Multi-function input terminal 3	
	X4	Multi-function input terminal 4	
	X5	Multi-function input terminal 5	
	X6	Multi-function input terminal 6	
	PUL/X7	Multi-function input terminal 7，and it can also be as the input terminal of external pulse signal (refer to the following diagram)	
	FWD	FWD control command terminal	The terminal is valid while being closed with COM terminal. The on-off of terminals FWD and CM decides the running direction in panel control mode.
	REV	REV control command terminal	
	RST	Fault resetting input terminal	
	COM	Command terminal of control terminal	
	+24V	Provide +24V/50mA Power (COM is the ground of power)	
Analog output	AO	Programmable voltage signal output terminal can connect the external voltmeter (set by parameter A-10).	Highest allowable Current: 1mA; Output voltage:0-10V
	FM	Programmable frequency signal output terminal can connect the external cymometer. (Set by parameter A-11)	Max. output signal frequency: 50KHz Signal amplitude value: 10V
OC output	OC1 OC2	Programmable open-circuit collector output is set by parameter A-15 and A-16.	The highest loadcurrent is 50m and The highest withstand voltage is 24V
Fault output	TA TB TC	Normal: TA-TB is closed TA-TC is off Fault: TA-TB is off TA-TC is closed	Contact capacity: AC250V 1A resistive load
RS485 communication	485+ 485−	RS485 Communication terminal	
E	ERH	Earth terminal	

3.1 Panel function description

Items			Function description
Display function	Code display		Display the running parameter and setting parameter of inverter
	State Indicator	A、Hz、V	The corresponding unit of current number display
		MOD	In no-monitor state, the indicator light will be on. If there is no key-press in one minute, the indicator will be off and return the monitor state.
		ALM	Alarm indicated light. It expresses that the inverter is in over-current or over-voltage restrain state
		FWD	FWD indicated light. It expresses that inverter will output the positive phase. if connecting with the motor, the motor will run in positive direction.
		REV	REV indicated light. It expresses the inverter will output the negative phase sequence. If connecting with motor, the motor will run in reverse direction. If the indicated light of FWD and REV are lighted at the same time, it expresses that the inverter is in working DC brake state
Keyboard function	FWD		**FWD running key.** The running instruction of inverter channel can be set as panel control mode （[A-3]=0）, press this key, send out the positive running instruction. The inverter will run to the setting frequency according to the appointed acc or dec curve.
	REV JOG		**REV and JOG key.** The detailed function of this key is selected by parameter [A-17]. When parameter [A-17] equals 0， this key will take effect as reverse startup. When parameter [A-17] equals 1, the key is used as Jog control.
	STOP RESET		**Stop and Fault reset key.** The inverter is in normal running mode. if the running instruction channel is set as panel stop valid mode, （[A-3]=0、2、4）时，Press this key, the inverter will stop as the fixed mode. In fault state, press the key, will reset the inverter and return the normal stop state.
	MENU		**Mode switch mode.** It is used for changing the working mode of operation panel.
	ENTER		**Confirming key.** It is used for confirming the current state or parameter (Parameters are stored into the internal memory). In monitor state, press the key, will enter the modification surface directly, At the same time, MOD indicator light will be on, at that time you can modify the instruction frequency by ▲ ▼
	▲ ▼		**Data modification key.** It is used to modify the function code and parameter. Synchronously press ▲ ▼ key, will quicken the odification speed of parameter. First press ▲ key, then press ▼ key will quicken the speed of modifying data. Soften ▼ key will keep the current speed. If first press ▼ then press ▲ key will quicken the speed of modification data decreasing, soften ▼ key will keep the current speed. In state monitor mode, if the frequency instruction channel is panel digital setting mode （[A-1]=1）, press ▲ ▼ key will modify the frequency instruction synchronously MOD indicated light will be on.
	SHIFT		**Data bits switch key.** In any state of press key to modify the state of data, press the key ▲ ▼ to modify the digital bit, the modification bit will be displayed blink.

3.2 Operation way of keyboard

3. 2. 1Switching mode

Operation	Description	Display
Change the working mode of operation panel	Current state of operation panel: State monitor mode	Display the current running parameter of inverter, for example: 50.00
Initial state ↓ MODE ↓ MODE ↓ MODE ↓ MODE	Enter Monitor parameter inquiry mode	Display monitor code, for example: d-0
	Enter Basic running parameter setting mode	Display code: A-0
	Enter Intermediate running parameter setting mode	Display code:b-0
	Enter Advanced running parameter setting mode	Display code: C-0
	Enter State monitor mode	

3.2.2Monitor parameter inquiry

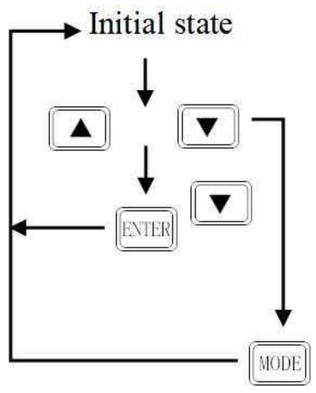
Operation	Description	Display
For example: looking over the setting frequency	Current state of operation panel monitor parameter inquiry mode	d-0 (Example)
▲ ↓ ▲ ▼ ↓ ENTER ↓ MODE	Monitor code plus 1	d-1
	Modify monitor code to the parameter d-4 which needs inquiry	d-4
	Confirm the inquiry monitor item	Display the Parameter value according to d-4 to set the frequency
	Switch the working mode of operation panel according to needs	

3.2.3 Setting parameter

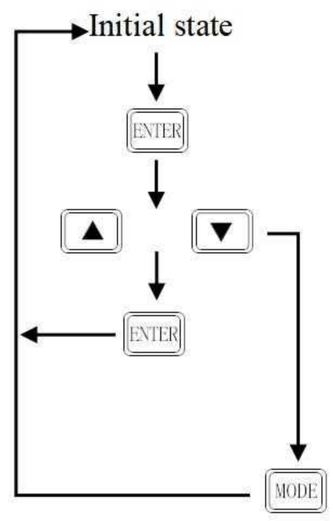
Operation	Description	Display
Change Acc time 1 from 5.0 Sec to 10.0 Sec （For example）	Current state of operation panel: parameter setting mode (Basic parameter for example)	A-0
▲ ▼ ↓ ENTER ↓ ▲ ▼ ↓ ENTER ↓ MODE	Modify the code of parameter to the expected value: A-7	For example: A-7 (Acc time 1)
	Confirm the parameter item being modified	Display the parameter value of A-7: 5.0
	Modify the parameter to the expected value: 10.0	10.0
	Confirm the parameter value, and store them into the internal store memory.	A-7
	Switch the working mode of operation panel according to needs	

3.2.4 Modification of Digital setting frequency

Mode 1:

Operation	Description	Display
Change the current digital setting frequency	Current state of operation panel: state monitor mode	Running parameter (Decided by parameter b-71)
	Change digital setting frequency to the expected value	Digital setting frequency
	Store the digital setting frequency into the internal, and return the state monitor mode.	Running parameter (Decided by parameter b-71)
	The digital setting frequency after modification is not stored into the internal memory, the inverter will return the state monitor mode after power-off.	

Mode 2:

Operation	Description	Display
Change the current digital setting frequency	Current state of operation panel: state monitor mode	Running parameter (Decided by parameter b-71)
	Enter digital frequency modification mod	Digital setting frequency
	Modify the digital setting value to the expected valu	Digital setting frequency
	If digital setting frequency after modification are not stored into internal memory, after power-off, the inverter will return State monitor code	Running parameter (Decided by parameter b-71)

Note:

1. Enter the frequency setting mode in mode 1, if there is no key-press in three seconds, the inverter will return State monitor mode.

2. Enter frequency setting mode in mode 2, if there is no key-press in ten seconds, the inverter will return State monitor mode

C-79	Data format	0: No parity check 1: Even parity check 2: Odd parity check	1	0	×	ABH
C-80	Baud rate	0: 1200 bps 1: 2400 bps 2: 4800 bps 3: 9600 bps 4: 19200 bps	1	3	×	ACH
C-81	Host setting	0: The inverter is slave 1: The inverter is host	1	0	×	ADH
C-82	Coupled setting ratio	0.10~10.00	0.01	1.00		AEH
C-83	RS485 communication wire-break action mode	0: Stop 1: Keep the existing state	1	0		AFH
C-84	Reserved	----	----	----		B0H

4.4 State monitor parameter table

Monitor code	Content	Unit	Address of code
d-0	Current output freq of inverter	0.01Hz	D8H
d-1	Current output curr of inverter	0.1A	DCH
d-2	Current output volt of inverter	1V	DDH
d-3	Motor's Current speed	1Rpm	DEH
d-4	Current setting freq of inverter	0.01Hz	DFH
d-5	DC bus voltage	1V	E0H
d-6	PID setting value	0.1%Mpa*	E1H
d-7	PID feedback value	0.1%Mpa*	E2H
d-8	Running linear speed	0.01*	E3H
d-9	Setting linear speed	0.01*	E4H
d-10	Input AC voltage	1V	E5H
d-11	Temperature of module	0.1℃	E6H
d-12	Total running time	1H	E7H
d-13	Input terminal state		E8H
d-14	Analog input voltage V1	0.1V	E9H
d-15	Analog input voltage V2	0.1V	EAH
d-16	Analog input current I	0.1mA	EBH
d-17	External pulse input	0.01KHz	ECH
d-18	Analog output AO	0.01V	EDH
d-19	Frequency output FM	0.01Hz*	EEH
d-20	First fault record		EFH
d-21	Second fault record		F0H
d-22	Third fault record		F1H
Monitor code	**Content**	**Unit**	**Address of code**
d-23	Fourth fault record		F2H
d-24	Fifth fault record		F3H
d-25	Sixth fault record		F4H

d-26	Output freq of last fault	0.01Hz	F5H
d-27	Setting freq of last fault	0.01Hz	F6H
d-28	Output current of last fault	0.1A	F7H
d-29	Output voltage of last fault	1V	F8H
d-30	DC voltage of last fault	1V	F9H
d-31	Temperature of module of last fault	0.1℃	FAH
d-32	Input terminal state of last fault		FBH
d-33	Accumulated running time of last fault	1H	FCH

HINT: Code Address is the appointed address while visiting these monitor parameters by RS485 interface.

Protection and solution

Code	Probable Cause	Fault description	Solution
Er. 01	Over-current during Acc	1. Acceleration time is too short 2. Torque boost is too high or V/F curve is not suitable.	1. Extend the acceleration time 2. Descend the torque boost or adjust the V/F curve.
Er. 02	Over-current during Dec	Deceleration time is too short	Increase the deceleration time.
Er. 03	Over-current during running	Load occurs mutation	Decrease fluctuation of load
Er. 04	Over-voltage in acceleration	1. Input -voltage is too high 2. Power switch is turned on and off frequently.	1. Check the voltage of power 2. Control the on-off of inverter by the control terminal
Er. 05	Over-voltage in deceleration	1. Deceleration time is too short 2. Input-voltage is abnormal	1. Extend the deceleration time. 2. Check the voltage of power supply. 3. Installation or reselect the braking resistor
Er. 06	Over-voltage during running	1. Power voltage is abnormal 2. There are energy feedback load	1. Check the voltage of power supply 2. Installation or reselect the braking resistor.
Er. 07	Over-voltage at stop	Power voltage is abnormal	Check the voltage of power
Er. 08	Under-voltage during running	1. Power voltage is abnormal There is great fluctuation of load in electric network.	1. Check the voltage of power 2. Provide the supply power separately
Er. 09	Inverter overload	1. Load is too heavy 2. Acc time is too short 3. Torque boost is too high or V/F curve is not suitable 4. Electric network is too low	1. Reduce the load or replace with higher capacity inverter. 2. Prolong Acc time. 3. Decrease the torque boost voltage or adjusting V/F curve. 4. Check mains voltage.
Code	**Probable Cause**	**Fault description**	**Solution**

Er. 10	Motor overload	1. Load is too heavy 2. Acc time is too short 3. The setting of protection factor is too little 4. Torque boost is too high or V/F curve is not suitable	1. Reduce the load 2. Prolong Acc time 3. Increase the over-load protection factor of motor (C-2) 4. Decrease torque boost voltage and adjust V/F curve.
Er. 11	Inverter overheat	1. Air duct is blocked 2. Too high environment temperature 3. Fan is damaged	1. Clear air duct or improve the air condition. 2. Improve ventilation condition or decrease carrier frequency. 3. Replace fan
Er. 12	Output ground	1. The output terminal of inverter grounds 2. The wire is too long between inverter and motor and the carrier frequency is too high.	1. Check the connecting wire 2. Shorten the connection wire or reduce the carrier frequency.
Er. 13	Interference	Misoperation because of ambient electromagnetic interference	Add the absorption capacitor to the interference source around inverter.
Er. 14	Output lack phase	Badness or disconnection of wire between Inverter and motor.	Check the connection wire
Er. 15	IPM fault	1. Output being short circuit or grounding 2. Load is too heavy	1. Check the wire 2. Look for the service to the manufacture.
Er. 16	Peripheral equipment fault	There are signal input on the peripheral equipment fault input terminal of Inverter	Check the signal source and the pertinent equipments.
Er. 17	Current detecting fault	1. The current detecting equipment or circuit is damaged 2. Auxiliary power source has problem	Look for the services to manufacture
Er. 18	RS485 communication fault	The sending and receiving of data occurs error in series communication	1. Detect the wire 2. Look for the help to the manufacture
Er. 19	PID feedback fault	1. PID feedback signal wire is disconnection; 2. The transistor which is used to detect the feedback signal, occurs the fault 3. The feedback signal is inconsistent with the setting signal	1. Check the feedback channel 2. Check whether there is fault on transistor. 3. Checkup the feedback signal whether consistent with the setting
Er. 20	The accessories connecting with the water supply system occurs the fault	1. No special accessories but select multi-pump constant-pressure water supply PID mode. 2. The connection with the accessory occurs the error	1. Improve the ordinary PID or single-pump constant-pressure water-supply mode. 2. Purchase the accessory 3. Check whether the connection between main control panel and accessories is solid

4.6 Fault record inquiry

This series of inverter record the last six fault codes and the output parameters of last fault. This information is aid in looking up the fault causes.Fault information and State monitor parameters are stored uniformly, so please refer to the operation way to look up the information.

Monitor item	Contents
d-20	First fault record

d-21	Second fault record
d-22	Third fault record
d-23	Fourth fault record
d-24	Fifth fault record
d-25	Sixth fault record
d-26	Output freq of last fault
d-27	Setting freq of last fault
d-28	Output current of last fault
d-29	Output voltage of last fault
d-30	DC voltage of last fault
d-31	Temperature of module of last fault
d-32	Input terminal state of last fault
d-33	Accumulated running time of last fault

4. Function parameter list

Description of symbols in the list:

"×" means that the parameter can not be changed during running.

" * " means that the parameter has relation to the model of inverter.

"----" means that the parameter is the reserved one and displays " ----".

4.1 Basic running parameters (A parameter)

Code	Name	Description	Min. unit	Factory setting	Change	Code addr.
A-0	Running parameter Selection	0: Basic running parameter 1: Intermediate running parameter 2: Advanced running parameter	1	1	×	00H
A-1	Frequency input channel selection	0: Panel potentiometer 1: Panel digital setup 2: External voltage signal 1 3: External voltage signal 2 4: External current signal 5: UP/ DW Acc and Dec control 6: External plus signal 7: RS485 terminal 8: Combination given 9: External terminal selection	1	0		01H
A-2	Frequency digital setup	0.0 ~ Upper limit frequency	0.01	0.0		02H
A-3	Running instruction channel selection	0: Keyboard control 1: External terminal (Key STOP is invalid) 2: External terminal (Key STOP is valid) 3: RS485 terminal (Key STOP is invalid) 4: RS485 terminal (Key STOP is valid)	1	0		03H
A-4	Running direction control	0: Same with the setting direction 1: Reverse with the setting direction 2: REV is prevented	1	0		04H
A-5	Rated voltage of load motor	100 ~ 250V 200 ~ 500V	1	220 380	×	05H
A-6	Rated frequency of load motor	5.00 ~ 500.0Hz	0.01	50.00	×	06H
A-7	Acc time 1	0.1 ~ 6000 Se	0.1	*		07H
A-8	Dec time 1	0.1 ~ 6000 Sec.	0.1	*		08H
A-9	Acc & Dec mode	0: Line 1: S curve	1	0		09H
A-10	Analog output (AO) setup	0: Output frequency 1: Output Current 2: Output voltage 3: Motor rotate speed 4: PID setting 5: PID feedback 6. Panel potentiometer 7. Panel digital setup 8. External voltage signal 1 9. External voltage signal 2 10. External current signal 11. External plus signal	1	0		0AH
A-11	Frequency output (FM) setup		1	0		0BH
A-12	Analog output (AO) gain	0.50~2.00	0.01	1.00		0CH

Code	Name	Description	Min. unit	Factory setting	Change	Code addr.
A-13	Frequency output (FM) gain	0.10~5.00	0.01	1.00		0DH
A-14	Analog output (AO) offset	0.AO offset 1. 0~10v 2.2~10v 3.0~20mA 4.4~20mA	1	3		0EH
A-15	OC1 Output setting	0: In the running 1: Frequency reaching. 2: Frequency level detection signal (FDT) 3: Over-load alarm 4: External fault halt 5: Output frequency reaching the upper-limit 6: Output frequency reaching the lower-limit 7: Inverter is in undervoltage halt 8: Inverter is running at zero speed 9: In the running process of PLC 10: A running cycle of PLC ends 11: A running stage of PLC ends 12: PLC running is finished. 13: Internal timer reaches the setting time. 14: Internal counter reaches the final value 15: Internal counter reaches the setting value 16: The upper-limit of pressure alarm 17: The lower-limit of pressure alarm.	1	0		0FH
A-16	OC2 Output setting		1	1		10H
A-17	REV/JOG key function selection	0: REV control; 1: Jog Control	1	0		11H

4.2 Intermediate running parameters (b parameter)

Code	Name	Description	Min. unit	Factory setting	Change	Code addr.
b-0	V/F curve type selection	0: Constant torque curve 1: Dec torque curve 1 2: Dec torque curve 2	1	0	×	12H
b-1	Torque boost	0~20 (%)	1	*		13H
b-2	Torque boost mode	0: Manual 1: Auto	1	0		14H
b-3	Upper limit freq	Lower limit freq ~500.0 Hz	0.01	50.00		15H
b-4	Lower limit freq	0.0 ~ Upper limit freq	0.01	0.50		16H
b-5	Lower limit freq Running mode	0: Stop 1: Run as the lower-limit freq	1	0	×	17H
b-6	Start mode	0: Start up from start freq 1: First brake, then restart 2.Frederick fast start	1	0		18H
b-7	Start frequency.	0.0 ~ 10.00 Hz	0.01	0.50		19H

Code	Name	Description	Min. unit	Factory setting	Change	Code addr.
b-8	Duration time at start frequency	0.0~20.0 Sec	0.1	0.0	×	1AH
b-9	DC brake voltage at start	0~15 (%)	1	0	×	1BH
b-10	DC brake time at start	0.0 ~ 20.0 Sec	0.1	0	×	1CH
b-11	Stop mode	0: Dec. 1: Free stop	1	0		1DH
b-12	DC brake start frequency at stop	0.0 ~ 15.00 Hz	0.01	3.00		1EH
b-13	DC brake time at stop	0.0~20.0 Sec	0.1	0.0	×	1FH
b-14	DC brake voltage at stop	0~15 (%)	1	5	×	20H
b-15	Jog frequency	0.0 ~ Upper Limit freq	0.01	10.00		21H
b-16	Jog Acc. time	0.1~6000 Sec.	0.1	10.0		22H
b-17	Jog Dec. time	0.1~6000 Sec.	0.1	10.0		23H
b-18	Multi-speed Freq 1	0.0 ~ Upper limit Freq	0.01	35.00		24H
b-19	Multi-speed Freq 2	0.0 ~ Upper limit Freq	0.01	15.00		25H
b-20	Multi-speed Freq 3	0.0 ~ Upper limit Freq	0.01	3.00		26H
b-21	Multi-speed Freq 4	0.0 ~ Upper limit Freq	0.01	20.00		27H
b-22	Multi-speed Freq 5	0.0 ~ Upper limit Freq	0.01	25.00		28H
b-23	Multi-speed Freq 6	0.0 ~ Upper limit Freq	0.01	30.00		29H
b-24	Multi-speed Freq 7	0.0 ~ Upper limit Freq	0.01	35.00		2AH
b-25	Multi-speed Freq 8	0.0 ~ Upper limit Freq	0.01	40.00		2BH
b-26	Multi-speed Freq 9	0.0 ~ Upper limit Freq	0.01	45.00		2CH
b-27	Multi-speed Freq 10	0.0 ~ Upper limit Freq	0.01	50.00		2DH
b-28	Multi-speed Freq 11	0.0 ~ Upper limit Freq	0.01	40.00		2EH
b-29	Multi-speed Freq 12	0.0 ~ Upper limit Freq	0.01	30.00		2FH
b-30	Multi-speed Freq 13	0.0 ~ Upper limit Freq	0.01	20.00		30H
b-31	Multi-speed Freq 14	0.0 ~ Upper limit Freq	0.01	10.00		31H
b-32	Multi-speed Freq 15	0.0 ~ Upper limit Freq	0.01	5.00		32H
b-33	External running instruction mode selection	0: Two-line control mode 1 1: Two-line control mode 2 2: Three-line control mode	1	0	×	33H
b-34	V1 Input lower-limit voltage	0.0V ~ [b-35]	0.1	0.0		34H
b-35	V1 Input upper-limit voltage	[b-34] ~ 10.0V	0.1	10.0		35H
b-36	V1 Input adjustment coefficient	0.01 ~ 5.00	0.01	1.00		36H
b-37	V2 Input lower-limit voltage	-10.0V ~ [b-38]	0.1	0.0		37H

Code	Name	Description	Min. unit	Factory setting	Change	Code addr.
b-38	V2 Input upper-limit voltage	[b-37] ~ 10.0V	0.1	10.0		38H
b-39	V2 Input adjustment coefficient	0.01 ~ 5.00	0.01	1.00		39H
b-40	V2 Input zero offset	-1.00 ~ 1.00V	0.01	0.0		3AH
b-41	V2 Input bipolar control	0: Invalid 1: Valid	1	0		3BH
b-42	V2 Input bipolar control zero relay time	0.00 ~ 1.00V	0.01	0.20		3CH
b-43	I Input lower-limit current	0.0mA ~ [b-44]	0.1	4.0		3DH
b-44	I Input upper-limit current	[b-43]~20.0mA	0.1	20.0		3EH
b-45	I Input adjustment factor	0.01~5.00	0.01	1.00		3FH
b-46	Pulse input lower-limit freq	0.0KHz~[b-47]	0.1	0.0		40H
b-47	Pulse input upper-limit freq	[b-46]~10.0KHz	0.1	10.0		41H
b-48	Pulse input adjustment coefficient	0.01~5.00	0.01	1.00		42H
b-49	Setup freq when inputting lower-limit	0.0 ~ Upper-limit freq	0.01	0.00		43H
b-50	Setup freq when inputting upper-limit	0.0 ~ Upper-limit freq	0.01	50.00		44H
b-51	Reserved	----	--	--		45H
b-52	Reserved	----	--	--		46H
b-53	Reserved	----	--	--		47H
b-54	Reserved	----	--	--		48H
b-55	Analog input channel filter time constant	0.01~5.00 Sec	0.01	0.20		49H
b-56	Frequency input channel combination	Refer to the detailed description of function	1	0	×	4AH
b-57	Carrier frequency	1.5 KHz ~ 15 KHz	0.1	*		4BH
b-58	Frequency reach the checkout amplitude	0. 0 ~ 20.00 Hz	0.01	5.00		4CH
b-59	FDT (Freq level) setup	0.0 ~ Upper-limit freq	0.1	10.00		4DH
b-60	FDT Output delay time	0.0~20.0 Sec	0.1	2.0		4EH
b-61	Over-load alarm level	50~200 (%)	1	110		4FH
b-62	Over-load alarm delay Time	0.0~20.0 Sec	0.1	2.0		50H

Code	Name	Description	Min. unit	Factory setting	Change	Code addr.
b-63	Input terminal 1 function selection (X1.0~28)	0: Control terminal is idle 1: Multi-speed ctrl terminal 1 2: Multi-speed ctrl terminal 2 3: Multi-speed ctrl terminal 3 4: Multi-speed ctrl terminal 4 5: FWD Jog control 6: REV Jog control 7: Free stop control 8: External device fault input 9: Acc & Dec time selection terminal 1 10: Acc & Dec time selection terminal 2 11: Freq ascending control (UP) 12: Freq descending control (DW) 13: Freq setting channel selection terminal 1 14: Freq setting channel selection terminal 2 15: Freq setting channel selection terminal 3 16: Simple PLC pause 17: Three-line running control 18: DC brake control 19: Internal timer trigger terminal 20: Internal timer reset terminal 21: Internal counter clear terminal 22: Internal counter clock terminal 23:-29 Reserved 30. External pulse input	1	1	×	51H
b-64	Input terminal 2 function selection (X2.0~28)		1	2	×	52H
b-65	Input terminal 3 function selection (X3.0~28)		1	3	×	53H
b-66	Input terminal 4 function selection (X4.0~28)		1	4	×	54H
b-67	Input terminal 5 function selection (X5.0~28)		1	6	×	55H
b-68	Input terminal 6 function selection (X6.0~29)		1	7	×	56H
b-69	Input terminal 7 function selection (X7.0~30)		1	23	×	57H
b-70	Linear speed coefficient setup	0.01~100.0	0.01	1.00		58H
b-71	Monitor item selection	0~19	1	0		59H
b-72	Parameter write protection	0: All parameters are allowed to be changed 1: Prohibit to change all parameters except for parameter A-2	1	0		5AH
b-73	Parameter initialization	0: No action 1: Initialization action 2: Clear the fault records	1	0		5BH

4.3 Advanced running parameters (C parameter)

Code	Name	Description	Min. unit	Factory setting	Change	Code addr.
C-0	Slip freq compensation	0 ~ 150(%)	1	0	×	5CH
C-1	Over-load & over-heat protection mode	0: Lock the output 1: Limit-current running (Alarm)	1	0		5DH

Code	Name	Description	Min. unit	Factory setting	Change	Code addr.
C-2	Motor over-load protection	50 ~ 110(%)	1	110	×	5EH
C-3	Auto energy-saving	0: Invalid 1: Valid	1	0	×	5FH
C-4	Restart after power-off	0: Invalid 1: Valid	1	0	×	60H
C-5	Waiting time for restart after power-off	0.0 ~ 10.0 Sec	0.1	0.5	×	61H
C-6	Fault self-restoring	0, 1, 2	1	0	×	62H
C-7	Fault self-restoring	2 ~ 20 Sec	1	5	×	63H
C-8	Automatic stabilivolt	0: Invalid 1: Valid 2:Invalid only deceleration	1	0		64H
C-9	Current-limit level	110% ~ 200%	1	150		65H
C-10	FWD & REV dead time	0.0 ~ 5.0 Sec	0.1	0.1	×	66H
C-11	Internal timer setup	0.1 ~ 6000.0 Sec	0.1	0.0	×	67H
C-12	Final value setup of internal counter	1 ~ 60000	1	1	×	68H
C-13	Internal counter setup	1 ~ 60000	1	1	×	69H
C-14	Programmable multi-speed running setup	**LED十位:简易PLC运行时间单位** **1:分钟; 0:秒** **LED个位:PLC的动作模式** 0: No action 1: Single loop 2: Continuous loop 3: Keep the final value 4: Wobble freq running 5: Single loop stop mode 6: Continuous loop stop mode 7: Keep the final value stop mode	1	0	×	6AH
C-15	Running time at stage 1	0.1 ~ 6000 Sec	0.1	10.0	×	6BH
C-16	Running direction at	0: FWD 1: REV	1	0		6CH
C-17	Acc& Dec time at stage	0.1 ~ 6000 Sec	0.1	10.0		6DH
C-18	Running time at stage 2	0.0 ~ 6000 Sec	0.1	10.0	×	6EH
C-19	Running direction stage	0: FWD 1: REV	1	0		6FH
C-20	Acc& Dec time at stage	0.1 ~ 6000 Sec	0.1	10.0		70H
C-21	Running time at stage 3	0.0 ~ 6000 Sec	0.1	10.0	×	71H
C-22	Running direction at	0: FWD 1: REV	1	0		72H
C-23	Acc & Dec time at stage	0.1 ~ 6000 Sec	0.1	10.0		73H
C-24	Running time at stage 4	0.0 ~ 6000 Sec	0.1	10.0	×	74H
Code	**Name**	**Description**	**Min. unit**	**Factory setting**	**Change**	**Code addr.**
C-25	Running direction at	0: FWD 1: REV	1	0		75H
C-26	Acc & Dec time at stage	0.1 ~ 6000 Sec	0.1	10.0		76H

C-27	Running time at stage 5	0.0 ~ 6000 Sec	0.1	10.0	×	77H
C-28	Running direction at	0: FWD 1: REV	1	0		78H
C-29	Acc & Dec time at stage	0.1 ~ 6000 Sec	0.1	10.0		79H
C-30	Running time at stage 6	0.0 ~ 6000 Sec	0.1	10.0	×	7AH
C-31	Running direction at	0: FWD 1: REV	1	0		7BH
C-32	Acc & Dec time at stage	0.1 ~ 6000 Sec	0.1	10.0		7CH
C-33	Running time at stage 7	0.0 ~ 6000 Sec	0.1	10.0	×	7DH
C-34	Running direction at	0: FWD 1: REV	1	0		7EH
C-35	Acc & Dec time at stage	0.1 ~ 6000 Sec	0.1	10.0		7FH
C-36	Jump freq 1	0.0 ~ Upper-limit freq	0.01	0.0		80H
C-37	Jump freq 1 range	0.0 ~5.00 Hz	0.01	0.0		81H
C-38	Jump freq 2	0.0 ~ Upper-limit freq	0.01	0.0		82H
C-39	Jump freq 2 range	0.0 ~5.00 Hz	0.01	0.0		83H
C-40	Jump freq 3	0.0 ~ Upper-limit freq	0.01	0.0		84H
C-41	Jump freq 3 range	0.0 ~5.00 Hz	0.01	0.0		85H
C-42	Acc time 2	0.1~ 6000 Sec	0.1	*		86H
C-43	Dec time 2	0.1~ 6000 Sec	0.1	*		87H
C-44	Acc time 3	0.1~ 6000 Sec	0.1	*		88H
C-45	Dec time 3	0.1~ 6000 Sec	0.1	*		89H
C-46	Acc time 4	0.1~ 6000 Sec	0.1	*		8AH
C-47	Dec time 4	0.1~ 6000 Sec	0.1	*		8BH
C-48	Embedded PID control	0: No PID control 1: Ordinal PID control 2: Constant-pressure water-supply PID 3: Double-pump constant pressure water-supply PID (Need accessory) 4: Triple-pump constant pressure water-supply PID (Need accessory) 5: Four-pump constant pressure water-supply (Need accessories)	1	0	×	8CH
C-49	Embedded PID configuration channel selection	0: Panel potentiometer 1: Panel digital setting 2: External voltage signal 1 (0~10V) 3: External voltage signal 2 (-10V~10V) 4: External current signal 5: External pulse signal 6: RS485 interface setting	1	0	×	8DH
C-50	PID feedback channel selection	0: Voltage input 1 (0～10V) 1: Current input 2: Pulse input 3: Voltage input 2 (-10V～10V)	1	3	×	8EH
Code	**Name**	**Description**	**Min. unit**	**Factory setting**	**Change**	**Code addr.**
C-51	Feedback signal character	0: Positive character 1: Negative character	1	0	×	8FH

C-52	Feedback channel gain	0.01~10.00	0.01	1.00		90H
C-53	PID setup and feedback display coefficient	0.001~10.000	0.001	1.000		91H
C-54	PID controller structure selection	0: Proportion 1: Integral 2: proportion & integral 3: Proportion & Integral & differential	1	2	×	92H
C-55	Proportion gain	0.0~5.00	0.01	0.50		93H
C-56	Integration time constant	1.0~100.0 Sec	0.1	10.0		94H
C-57	Differential gain	0.0~5.0	0.1	0.1	×	95H
C-58	Sampling period	0.01~1.00 Sec	0.01	0.1		96H
C-59	Allowable deviation	0~20(%)	1	0		97H
C-60	PID feedback wire-break	0.0~20.0 (%)	0.1	0.0		98H
C-61	PID feedback wire-break action selectio	0: Stop 1: Running as the digital setting frequency 2: Running as the upper-limit frequency 3: Running as the half of upper-limit frequency	1	0		99H
C-62	Full scale of remote manometer	0.001 ~ 20.00 Mpa	0.001	1.000		9AH
C-63	Alarm lower-limit	0.001~[C-64]	0.001	0.0		9BH
C-64	Alarm upper-limit	[C-63]~[C-62]	0.001	1.000		9CH
C-65	Lower-limit value of pressure	0.001~[C-66]	0.001	0.0		9DH
C-66	Upper-limit value of pressure	[C-65]~[C-62]	0.001	1.000		9EH
C-67	Wake valve value	0.001~[C-68	0.001	0.0		9FH
C-68	Sleep valve value	[C-67]~[C-62]	0.001	1.000		A0H
C-69	Pump switch time	0.1 Sec ~ 1000.0 Sec	0.1	300.0		A1H
C-70	Electromagnetic switch delay time	0.1~10.0 Sec	0.1	0.5	×	A2H
C-71	Multi-pump running mode	0: Switch as the fixed sequence 1: Timing polling	1	0		A3H
C-72	Timing polling interval	0.5 ~ 100.0 H	0.1	5.0		A4H
C-73	Timing water-supply	0.5 ~ 24.0 H	0.1	24.0		A5H
C-74	Reserved	----	----	----		A6H
C-75	Reserved	----	----	----		A7H
C-76	Reserved	----	----	----		A8H
Code	**Name**	**Description**	**Min. unit**	**Factory setting**	**Change**	**Code addr.**
C-77	Reserved	----	----	----		A9H
C-78	Local address	0~30	1	0	×	AAH