

KD4000 Series Economic Inverter

User Manual



Substantial. Economic. Utility

Green.Intelligent.Energy-Saving
Shenzhen Karda Electric Co.Ltd
www.szkarda.com

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Chapter 1 Production Overview

1.1 Precautions on commodity inspection and storage

Before delivery, all goods are under strictly quality control and well packed. However it may damage during the international transportation, please check them carefully:

1. Check the package condition to make sure no damage happened during transportation
2. Open the package and find out the user manual
3. Check the nameplate information on side of the inverter, be sure you get the right product or spare parts

For any problem you may have, please contact your supplier!

STORAGE

Inverter should be packed and stored in ventilate and dry place. Keep it away from corrosive gas, liquid and stained conditions.

The relative Humidity suggest to be 0% - 95% , no condensing,

The allowed temperature range is from -25°C to 65°C

Transportation Cautions:

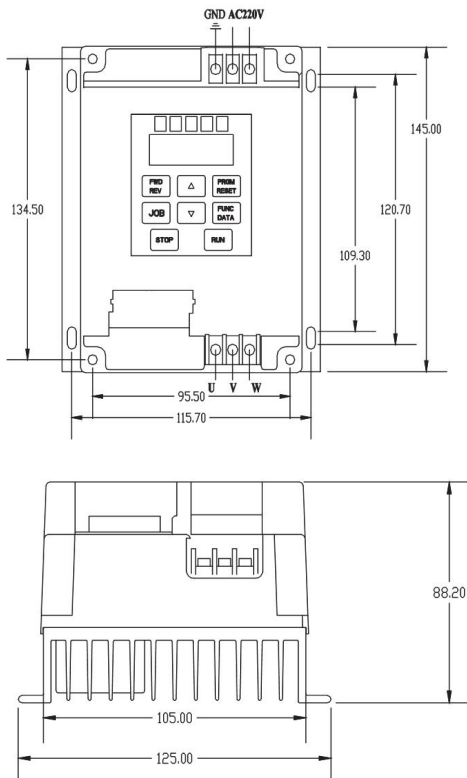
Temperature range is from -25°C to 70°C

Relative Humidity is allowed to be 5% - 95%

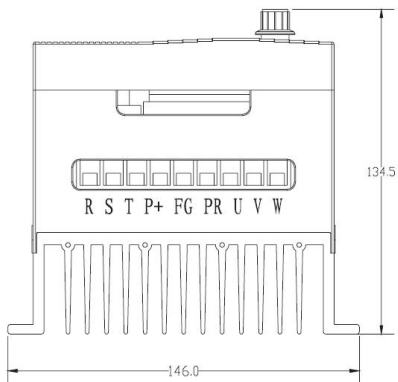
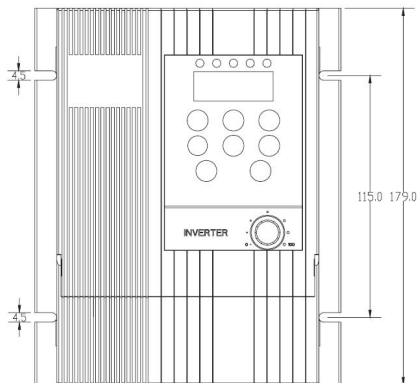
Atmospheric pressure is allowed to be from 70kpa to 106kpa.

Chapter 2 Installation and wiring

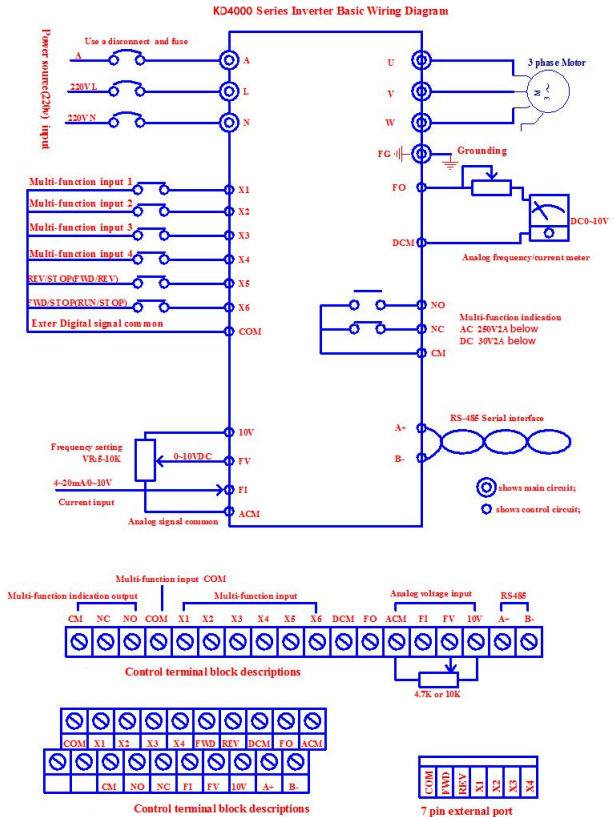
2.1 KD4000-2S(220V) Series Installation Dimension



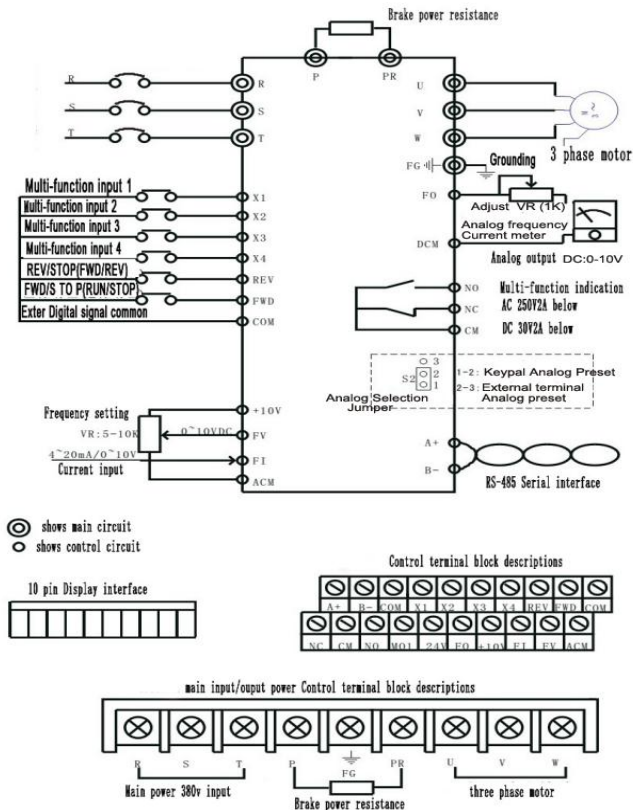
2.2 KD4000-4T(380V) Series Installation Dimension



2.3 KD4000-2S(220V) basic wiring diagram



2.4 SD4000-4T (380V) basic wiring diagram



2.5 Control circuit wiring

The Control circuit wiring should be separated from the main circuit wiring. Do not put them together in one slot.

Terminal marks:

Terminal marks	Terminal Function	Supplement
COM	External multifunctional common terminal	
X1-COM	The first input terminal	4 terminals can build up 16 speeds. 0000 refers first speed, 0001 refers to second speed, 0010 refers to third speed, 0011 refers to fourth speed.....1111 is the 16 th speed
X2-COM	The second input terminal	
X3-COM	The third input terminal	
X4-COM	The fourth input terminal	
FWD-COM	Forward rotation/ Stop	Run ->Stop Stop ->forward rotate
REV-COM	Reversion/ Stop	Run->pause Stop ->reverse
DCM	Digital signal	
FO-DCM	Analog Cymometer / galvanometer	
ACM	Analog signal	
CM	The common point of output instruction signal	contact output of the relay

NO-CM	The open point of output instruction signal	
NC-CM	The closed point of output instruction signal	
FI-ACM	Input terminal of analog current	4 ~ 20mA
FV-ACM	Input terminal of analog voltage	0 ~ +10V / Maximum output frequency
10V-ACM	Power for setting speed	+10V Speed instruction power
A+	Communication terminal A	RS485
B+	Communication terminal B	

§The control signal wire is shielded and stranded

§ Wire for RS-485 communication should be the twisted pair

2.6 Safety Considerations

1. Please use right wires according to relative laws. When the distance between inverter and motor is over than 25meters, should raise wiring standard.

2. Between the three-phase AC input power and main circuit terminal (R,S,T) there must be a fuse switch. Make an electromagnetic contactor in series to cut off power before the inverter steer its protection.

3. Ground terminal to the first grounded wiring.

The ground impedance must be less than 100R. Or make the ground wire dimension is same with the main circuit wires.

4.The inverter should not joint ground with other high current loads, must be separated.

5.The ground wire should be shorter.

6.When the inverters are common ground, don't make a ground loops.

7.Confirm the voltage and maximum current.

8. The power indicator on the side of inverter shows the voltage inside the inverter.

9.When the power indicator is lighting ,do not connect or disassemble wires.

10. The SD4000 series is not equipped with the brake resistor. In the occasion of frequently starting or stopping inverters, please install brake resistor or unit.

11.Please connect the inverter's terminal U,V,W with motors' correspondingly. If the FWD lights, means the inverter is forward rotation; if the REV lights, means the inverter is reversing. When the inverter is forward rotation and motor is reversing,swap any two terminals of the motor.

Do not connect the AC power with output terminals of the inverter.

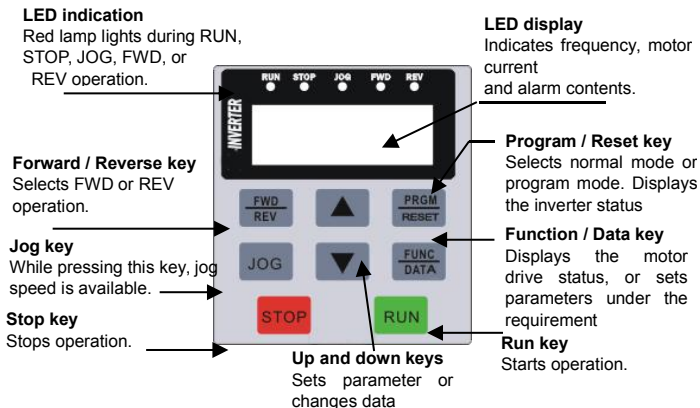
Chapter 3 Operation Panel

3.1 Operation panel description(digital keypad is optional)

I. Digital Keypad Operation

This digital keypad module includes two parts: display panel and keypad. The display panel allows the user to program the AC drive, as well as view the different operating parameters. The keypad is the interface for user and inverter.

. The following description refers to different parts.



II. Digital Keypad Parts and Functions

KEY	Functions
	For normal operating or programming mode (the key is always valid) . Must select programming mode to modify parameters If the drive is shut down due to a fault occurs, after troubleshooting, press this button will clear the error message.
	This is data setting key. In normal operating mode, press this button to display the drive status information, such as frequency command, output frequency and input current; in programming mode, press this key to display the parameter content. Then Press this button again will save the changed parameters to the internal memory
	Select forward or reverse operation. Press this button , the motor will decelerate to 0HZ and change direction, but motor will not restart automatically after the shutdown. An external terminal can control motor forwarding or reversing, when modify Pr.001 to "d0001" or "d0002"
	Press this button ,the motor will run at jog frequency as set by the parameter specified under Pr.23
	start running key (if set to an external terminal control, press this key is invalid)
	Stop key.
 	Press the "Up" and "Down" button to select or modify parameters .. Note: Pressing the "Up" or "Down" button momentarily changes the parameter settings in increments. Press and hold these keys to rapidly run through the possible settings.

III. Explanation of the display

Display	illustration
	Display the operating frequency of inverter .The frequency instruction may from self frequency setting or from jog frequency or multifunctional terminal 1,2,3,4. If frequency originates from digital keypad, user can use UP DOWN KEY to set it and saved automatically
	Display the operating frequency output to motor Display the operating AC voltage input to inverter
	Display the output current of inverter
	Display the specified parameter code. The present parameter Value will be displayed by pressing the  key.
	Display present parameters. Press the  key to store the modified parameters.
	The parameter is accepted and stored automatically at internal memory when the “end” (as left picture) remains approximately 1 second on the display.

LED indicators

RUN: light up means working

STOP: red light means stop working

JOG red light means operating jog command

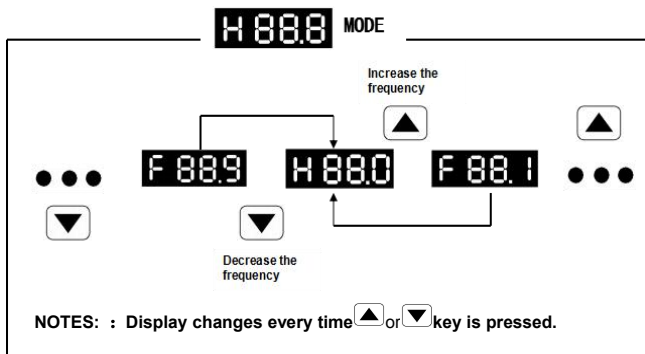
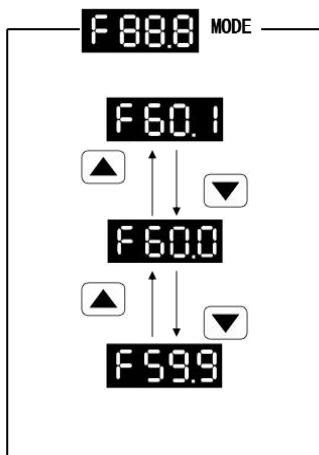
FWD red light means forward operation

REV red light means reversal operation

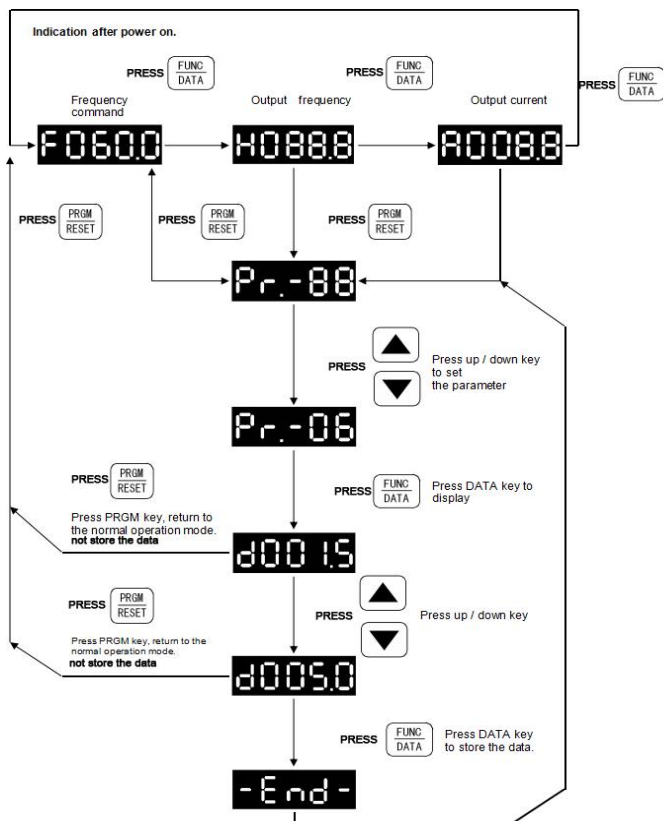
Digital keypad instructions:

The keypad will display below information after power on. Press 'RUN' , inverter will work at 50.00hz as default ; Press 'stop' inverter will stop working. Abide following steps to set frequency data.

3.2 Digital Keypad Operating Modes & Programming steps



3.3 Please observe below steps to set parameters



3.4 Basic Wiring Diagram

Summary of Parameter Settings

Code	Parameter	Function Explanation	Parameter Value	Factory Setting
Pr.000	Main frequency source selection setting	Select the main (first paragraph) frequency source	d0000: Main frequency (first paragraph) is determined by the digital keypad, press the up and down arrow keys to modify	d0000
			d0001: Main frequency (first paragraph) is decided by the input analog signal (DC 0 ~ +10 V) + (DC 4 ~ 20mA); Please set the parameters Pr.28 , Pr.29, Pr.41, Pr.42 correctly	
			d0002: Main frequency (first paragraph) is decided by RS-485 communication interface	
Pr.001	source of run command	selection of running signal source	d0000: Run command is determined by digital operator	d0000
			d0001: Run command is determined by external terminals .STOP key is valid	
			d0002: Run command is determined by external terminal decision, STOP key is invalid	

Code	Parameter	Function Explanation	Parameter Value	Factory Setting
			d0003:Run command is determined by the RS-485 serial communication interface, STOP key is valid	
			d0004: Run command is determined by RS-485 serial communication interface, STOP key is invalid	
Pr.002	selection of stop mode	selection of stop mode	d0000: RAMP stop	d0000
			d0001: Coast to stop	
Pr.003	V / F curve setting Note: curve setting conditions : 1. Max.operating frequency >= Mid-point frequency >= Min. output frequency; 2. Max. output voltage >= Mid-point voltage >= Min. output voltage (Note : Do not modify this parameter when motor is running)		Max. operating frequency d010.0--d400.0 Hz	d050.0
Pr.004			Max. voltage frequency d010.0--d400.0 Hz	d050.0
Pr.005			Max. output voltage d010.0--d250.0 V/400.0v	d220.0
Pr.006			Mid-point frequency d010.0--d120.0 Hz	d001.5
Pr.007			Mid-point voltage d010.0--d250.0 V	d040.0
Pr.008			Min. output frequency d010.0--d120.0 Hz	d001.0
Pr.009			Min. output voltage d010.0--d250.0 V	d035.0
Pr.010	DC-BUS brake level		220V Series Brake Level d0260-d320V	d0280
			380V Series Brake Level d0440--d550V	d0480

Code	Parameter	Function Explanation	Parameter Value	Factory Setting
Pr.011	Selection of acceleration and deceleration for S curve(Note : Do not modify this parameter when motor is running)		d0000: line Acc/Dec Mode d0001: S curve Acc/Dec Mode	d0000
Pr.012	Days of the accumulated running time		d0000—d9999	d0000
Pr.013	Hours of the accumulated running time		d0000—d0000	d0000
Pr.014	Jog acceleration and deceleration time settings		d000.1—d600.0s	d015.0
Pr.015	settings of forward and reversal frequency for JOG		d000.1—d120.0 Hz	d015.0
Pr.016	Prohibit reversal setting	Notes: Inverter will stop REV function without reminding when prohibit reversal is setup.	d0000: Allow Reversal	d0000
			d0001: Prohibit reversal Note: REV and FWD are relative concept. Please carefully check the motor direction in the occasion of reversing is not allowed.	
Pr.017	setting for over-voltage stall prevention	Over-voltage stall prevention setting	d0000: Over-voltage stall prevention function is invalid	d0001
			d0001: Over-voltage stall prevention function is valid.	
Pr.018	Setting for over-current during accelerate	d0050—d0200%		d0140
Pr.019	Setting for over-current during running	d0050—d0200%		d0140

Code	Parameter	Function Explanation	Parameter Value	Factory Setting
Pr.020	Setting for percentage of DC braking current	Please set 0% when don't need DC current to brake	d000.0—d050.0 %	d008.0
Pr.021	Setting the time for DC current braking on start the motor	Set up to 0 to shut down this function	d000.0—d025.0s	d0000
Pr.022	Setting the time for DC current braking on stop the motor	Set up to 0.0s to shut down this function	d000.0—d120.0s	d001.5
Pr.023	Setting the starting frequency for the DC current braking when shut down motor	Before decelerating to stop, this parameter is the starting frequency for DC current brake. It will work when the parameter is smaller than the min. frequency(pr.	d000.0—d060.0 Hz	d001.0
Pr.024	Momentary power loss protection	d0000: Operation stops after momentary power Loss.		d0000
		d0001: Operation continues after momentary power loss. Track down with operating frequency		

Code	Parameter	Function Explanation	Parameter Value	Factory Setting
		d0002: Operation continues after momentary power loss. Track up from minimum output frequency. d003: refer to Pr025		
Pr.025	Setting for restarting time after momentary power loss	d000.3—d005.0 s		d000.2
Pr.026	Setting for the Max. tracking time when power on	d000.3—d005.0 s		d000.5
Pr.027	Selection of the max. current for speed tracking	d0030 —d0200 %		d0150
Pr.028	Selection of the max. input analogy frequency	d000.0—d120.0 Hz (when Pr.000=1)		d050.0
Pr.029	Selection of the min. input analogy frequency	d000.0—d120.0 Hz (when Pr.000=1)		d000.0
Pr.030	External control terminal setting (2-wire 3-wire operation control	d0000:X5 FWD / STOP, X6 REV / STOP		d0000
		d0001:X5 FWD / REV, X6 RUN / STOP		
		d0002: X4,X5,X6 is the 3-WIRE operation control mode		

Code	Parameter	Function Explanation	Parameter Value	Factory Setting
	selection)	d0003 : Shutdown , Closing X5 will FWD motor instantly; During running, closing X5 will shut down motor instantly . Shutdown, closing X6 will REV motor instantly ; During running, closing X6 will shut down motor instantly		
Pr.031	Multi-function input terminal setting (Multi-function input 1)	d0000: Multiple speed command 1 d0001: Multiple speed command 2 d0002: Multiple speed command 3 d0003: Multiple speed command 4 d0004: Jog Fwd command d0005: Jog Rev command d0006: External faulty reset d0007: External fault, Closing operation failure d0008: External Fault, Opening operation failure d0009: Up command/frequency UP d0010: Down command/Frequency down d0011 : Jog command, X5 determines direction		d0000
Pr.032	Multi-function input 2	d0012 : Counter function when pulse frequency is lower than 500HZ d0013 : Counter reset function, clear present data d0014: Receive external sudden-stop signal, can reset automatic d0015: 0 start function timer, multi-function output action d0016: X4 is the input terminal for A mode (always close) d0017: AUTO RUN/PLC d0018: PAUSE for PLC d0019: PID is valid, connect junction, start PID d0020: No function. Isolate the wrong operation from outside terminals.		d0001

Code	Parameter	Function Explanation	Parameter Value	Factory Setting
Pr.033	Multi-function input 3	d0021:Reserve d0021: Reserve d0022:Reserve Notes: Do not set up several input terminals for JOG FWD or JOG REV contemporary ; several input terminals for JOG starting is allowed.		d0002
Pr.034	Multi-function input4			d0003
Pr.035	Setting for output analogy frequency/current/voltage signal	d0000: Analog frequency meter (0 to Maximum Frequency)		d0000
		d0001: Analog current meter (0 to 250% is associated with output current)		
		d0002: Analog voltage meter (0 to 250% is associated with output voltage)		
Pr.036	Reserved	d000.1-d600.0s		d000.4
Pr.037	Analog output gain setting	d0001-d200%		d0100
Pr.038	Reserved	d0000-d0001		d0000
Pr.039	Random frequency setting	d000.0—d0120.0 Hz		d0120.0
Pr.040	Set the delay time of relay	d000.0—d999.9S(when pr.040=0,the relay close.)		d000.0
Pr.041	Selection the max. voltage for analogy frequency input	d00.00—d10.00 V(it's when Pr.000=1)		d10.00
Pr.042	Selection the min. voltage for analogy frequency	d00.00—d10.00 V(it's when Pr.000=1)		d00.00

Code	Parameter	Function Explanation	Parameter Value	Factory Setting
	input			
Pr.043	Set the rated speed for motor	d0000—d3000		d1500
Pr.044	Set the rated current for	d0030—d0120%		d0100
Pr.045	Set the no load current for motor	d0000—d0099%		d0040
Pr.046	Torque compensation setting	d0000—d0010		d0000
Pr.047	Set the torque gain at accelerating (when Pr.011=0)	d0010—d0200%		d0100
Pr.048	Set the torque gain decelerating ((when Pr.011=0))	d0010—d0200%		d0100
Pr.049	Set the output mode for multi-function al relay	d0000: get power at faulty, otherwise loss power d0001: get power at running ,otherwise loss power d0002: get power at specified frequency ,otherwise loss power d0003: get power at random frequency, otherwise loss power d0004: get power at specified counter, otherwise loss power d0005: low voltage attained d0006: over voltage attained d0007: over current attained d0008: non-zero speed attained d0009: DC current braking attained		d0000

Code	Parameter	Function Explanation	Parameter Value	Factory Setting
		d0010: over torque attained d0011: external failure attained d0012: FWD attained d0013: REV attained		
Pr.050	Setting for action of electronic thermal relay	d0000: Active with standard motor d0001: Active with special motor d0002: Inactive		d0002
Pr.051	Setting for the time of action from electronic thermal relay	d0030—d0300 s		d0060
Pr.052	Over-torque detection setting	Over-torque detection function setting	d0000: Over-torque no detection	d0000
			d0001: Constant speed operation, operation halted after over-torque	
			d0002: Constant speed operation, operation continues after over-torque detection	
			d0003: Operation halted after over-torque detection	
			d0004: Operation continues after over-torque detection	
Pr.053		Over-torque detection	d0030—d0200%	d0150
Pr.054		Over-torque detection time	d000.1—d010.0 s	d000.1

Code	Parameter	Function Explanation	Parameter Value	Factory Setting
Pr.055	Energy brake setting		d0001—d9999	d0000
Pr.056	Count attained setting	Count attained setting	d0001—d9999	d0000
Pr.057	Function display	Output physical setting	d0000: Displays the actual operating freq. (H) d0001: Displays the actual operating running speed (H) d0002 : display the user defined setting (V) d0003: display the value of the internal counter (C)	d0000
Pr.058	Proportionality constant setting	d000.1—d200.0		d001.0
Pr.059	Skip frequency setting, Skip Frequency 1	d000.0—d120.0 Hz		d000.0
Pr.060	Skip frequency setting, Skip Frequency 2	d000.0—d120.0 Hz		d000.0
Pr.061	Skip frequency setting, Skip Frequency 3	d000.0—d120.0 Hz		d000.0
Pr.062	Skip Frequency band	d000.1—d020.0 Hz		d000.1

Code	Parameter	Function Explanation	Parameter Value	Factory Setting
Pr.063	PWM Frequency setting	d0000: FPWM=2.9KHz, d0001: FPWM=5.8KHz		d0000
Pr.064	Auto reset after fault	d0000—d0010		d0000
Pr.065	First record fault	d0000: Fault records clear (No errors occurred)		d0000
		d0001: Over-current (oc)		
		d0002: Over-voltage (ov)		
		d0003: Overheat (oH)		
		d0004: Overload (oL)		
		d0005: Overload 1 (oL1)		
		d0006: External fault (EF)		
		d0007: CPU failure 1 (CF1)		
		d0008: CPU Failure 3 (CF3)		
		d0009: Hardware protection failure (HPF)		
		d0010: O.C. during acceleration (ocA)		
		d0011: O.C. during deceleration (ocd)		
		d0012: O.C. during steady state operation (ocn)		
		d0013: Ground fault or fuse failure (GFF)		
		d0014-16: Reserved for manufacture diagnosis		
		d0017: External base block (bb)		
		d0018: Overload 2 (oL2)		
		d0019-20: Reserved for manufacture diagnosis		

Code	Parameter	Function Explanation	Parameter Value	Factory Setting
Pr.066	Second fault record			d0000
Pr.067	Third fault record			d0000
Pr.068	Parameter lock / restore setting	d0000: parameters can be written and read (need 5 to 10 minutes to reset)		d0000
		d0001: parameters are read only		
		d0002-d0009: Reserved d0010: Restore HQM when Pr.68 = 10 d0011: Reserved d0012: Reserved		
		d0019: General modes (need 5-10s to restore)		
Pr.069	Baud rate	d0000—d0016		d0002
Pr.070	Contact address	d0000—d0031		d00001
Pr.071	Exclusive mode	d0000 HQM model d0001 ZS model d0002 MD model d0003-d0004 reserved d0009 general model		d0000
Pr.072	AVR output function select	d0000: disable		d0001
		d0001: enable		
Pr.073	Acceleration time 1	d000.1—d99.99 s		d00.02
Pr.074	Deceleration time 1	d00.01—d99.99 s		d00.02
Pr.075	Acceleration time 2	d00.01—d99.99 s		d00.02
Pr.076	Deceleration time 2	d00.01—d99.99 s		d00.02

Code	Parameter	Function Explanation	Parameter Value	Factory Setting
Pr.077	Acceleration time 3	d00.01—d99.99 s		d00.02
Pr.078	Deceleration time 3	d00.01—d99.99 s		d00.02
Pr.079	Acceleration time 4	d00.01—d99.99 s		d00.02
Pr.080	Deceleration time 4	d00.01—d99.99 s		d00.02
Pr.081	Acceleration time 5	d00.01—d99.99 s		d00.02
Pr.082	Deceleration time 5	d00.01—d99.99 s		d00.02
Pr.083	Acceleration time 6	d00.01—d99.99 s		d00.02
Pr.084	Deceleration time 6	d00.01—d99.99 s		d00.02
Pr.085	Acceleration time 7	d00.01—d99.99 s		d00.02
Pr.086	Deceleration time 7	d00.01—d99.99 s		d00.02
Pr.087	Acceleration time 8	d00.01—dd99.99 s		d00.02
Pr.088	Deceleration time 8	d00.01—d99.99 s		d00.02
Pr.089	Acceleration time 9	d00.01—d99.99 s		d00.02
Pr.090	Deceleration time 9	d00.01—d99.99 s		d00.02
Pr.091	Acceleration time 10	d00.01—d99.99 s		d00.02
Pr.092	Deceleration time 10	d00.01—d99.99 s		d00.02
Pr.093	Acceleration time 11	d00.01—d99.99 s		d00.02

Code	Parameter	Function Explanation	Parameter Value	Factory Setting
Pr.094	Deceleration time 11	d00.01—d99.99 s		d00.02
Pr.095	Acceleration time 12	d00.01—d99.99 s		d00.02
Pr.096	Deceleration time 12	d00.01—d99.99 s		d00.02
Pr.097	Acceleration time 13	d00.01—d99.99 s		d00.02
Pr.098	Deceleration time 13	d00.01—d99.99 s		d00.02
Pr.099	Acceleration time 14	d00.01—d99.99 s		d00.02
Pr.100	Deceleration time 14	d00.01—d99.99 s		d00.02
Pr.101	Acceleration time 15	d00.01—d99.99 s		d00.02
Pr.102	Deceleration time 15	d00.01—d99.99 s		d00.02
Pr.103	Acceleration time 16	d00.01—d99.99 s		d00.02
Pr.104	Deceleration time 16	d00.01—d99.99 s		d00.02
Pr.105	Frequency setting 2	d000.1—d120.0Hz		d045.0
Pr.106	Frequency setting 3	d000.1—d120.0Hz		d040.0
Pr.107	Frequency setting 4	d000.1—d120.0Hz		d035.0
Pr.108	Frequency setting 5	d000.1—d120.0Hz		d030.0
Pr.109	Frequency setting 6	d000.1—d120.0Hz		d025.0
Pr.110	Frequency setting 7	d000.1—d120.0Hz		d020.0

Code	Parameter	Function Explanation	Parameter Value	Factory Setting
Pr.111	Frequency setting 8	d000.1—d120.0Hz		d015.0
Pr.112	Frequency setting 9	d000.1—d120.0Hz		d015.0
Pr.113	Frequency setting 10	d000.1—d120.0Hz		d020.0
Pr.114	Frequency setting 11	d000.1—d120.0Hz		d025.0
Pr.115	Frequency setting 12	d000.1—d120.0Hz		d030.0
Pr.116	Frequency setting 13	d000.1—d120.0Hz		d035.0
Pr.117	Frequency setting 14	d000.1—d120.0Hz		d040.0
Pr.118	Frequency setting 15	d000.1—d120.0Hz		d045.0
Pr.119	Frequency setting 16	d000.1—d120.0Hz		d050.0
Pr.120	Setting for RS485 communication data checking	d0000: ASCII(8,N,1) d0001: ASCII(8,N,2) d0002: ASCII(8,E,1) d0003: ASCII(8,E,2) d0004: ASCII(8,0,1) d0005: ASCII(8,0,2) d0006: RTU(8,N,2) d0007:RTU(8,E,1) d0008:RTU(8,0,1)		dxxx.x
Pr.121	Software version	Read only		dxxx.x
Pr.122	Produce date	Read only		dxxx.x
Pr.123	Self test	d0000—d0002		d0000
Pr.124	Backup			

Code	Parameter	Function Explanation	Parameter Value	Factory Setting
Pr.130	Set Pressure sensor range	d00.00- -d10.00mpa		d01.0
Pr.131	Target value of PID (MPa)	d00.00- -d10.00mpa		d00.4
Pr.132	Proportional constant	d0000- -d0999		d0015
Pr.133	Integration time	d0000- -d0999		d0999
Pr.134	Differential time	d0000- -d0100		d0000
Pr.135	Source of PID target value	d0000: by Pr200 d0001:by external analog(0-10V)		d0000
Pr.136	PID upper limit	d0000:- -d0100%		d0100
Pr.137	PID lower limit	d0000:- -d0100%		d0000
Pr.138	Pressure level on shutdown	d0000:- -d0100%		d0095
Pr.139	Continuing time for pressure level on shutdown	d0000:- -d1000		d0030
Pr.140	Wake-up level	d0001- - d0150%		d0080
Pr.141	Sleep rates	d000.1- -d100.0Hz		d020.0
Pr.142	Continuing time for sleep rates	d000.1- -d900.0s		d020.0
Pr.143	running time for inverter at max. frequency	d000.1- -d900.0s		d060.0
Pr.144	The lock time for power frequency and conversion frequency	d000.1- -d900.0s		d003.0

Code	Parameter	Function Explanation	Parameter Value	Factory Setting
Pr.145	Power frequency running time	d000.1- -d900.0s		d060.0
Pr.147	Frequency conversion	d0000:work in frequency conversion only d0001:with power frequency		d0000
Pr.148				
Pr.149				
Pr.150				
Pr.151				
Pr.152				
Pr.153	AUTO PLC	d0000: internal PLC invalid d0001:program operation stop after 1 week d0002:cycle operation d0003:Auto operation stop after 1 week d0004:Auto and cycle operation		d0000
Pr.153	PLC direction(internal 10 speed modes,0 refers FWD 1refers REV first speed is the lowest level , 1000000000 refers the 10 th speed is REV ,other speed is FWD	d0000- -d1023		d0000

Code	Parameter	Function Explanation	Parameter Value	Factory Setting
Pr.154	AUTO PLC memory function (this data determines the pause function)	d0000:no memory d0001:memory		d0000
Pr.155	Timer 1	d000.0- -d999.9		d000.0
Pr.156	Timer 2	d000.0- -d999.9		d000.0
Pr.157	Timer 3	d000.0- -d999.9		d000.0
Pr.158	Timer 4	d000.0- -d999.9		d000.0
Pr.159	Timer 5	d000.0- -d999.9		d000.0
Pr.160	Timer 6	d000.0- -d999.9		d000.0
Pr.161	Timer 7	d000.0- -d999.9		d000.0
Pr.162	Timer 8	d000.0- -d999.9		d000.0
Pr.163	Timer 9	d000.0- -d999.9		d000.0
Pr.164	Timer 10	d000.0- -d999.9		d000.0

3.5 Troubleshooting and Fault Information

Fault code	Error and solution
Er. 0	Input voltage is lower than 150VAC . Please ensure the working voltage is 150VAC-280VAC
Er. 1	Input voltage is over than 280VAC. Please ensure the working voltage is 150VAC-280VAC

Er. 2	motor is over current. The motor is short circuit or overload ,otherwise need to repair
Er. 3	PWM circuit error, should power off for one minute. Then restart motor, if same error appears ,please repair the inverter
Er. 4	IPM failure reasons: 1. Low Gate drive voltage, need repair 2. Over current, check the motor for short circuit or overload 3. Over hot, check the motor for short circuit or overload
Er. 5	Input signal is valid when external failure and motor is not working
Er. 6	Internal data storage error. Power off for 1 minute then restart motor. If same error appears ,need to repair.
Er. 7	Lifetime is finished. Please contact supplier
Er. 8	Over current at acceleration or deceleration. Please increase the deceleration time. Or change bigger power inverter.
Er. 9	Over current at running, machine is overload,please change bigger power inverter.
Er. 10	Communication code error.
Er. 11	Communication data error
Er. 12	Communication timeout
Er. 13	Communication calibration error
No display ,power indicator flash	1. check input power, ensure the voltage is 150 to 250V AC, otherwise need to repair 2. internal power supply detection, need to repair.
No display ,power indicator dark	check input power, ensure the voltage is 150 to 250V AC, otherwise need to repair

Chapter 4 Quality and Guarantee

Quality assurance in accordance with the following provisions:

- 4.1 12 months warranty
- 4.2 Offer lifelong paid service
- 4.3 Below failures is not guaranteed
 1. Improper operation or repair without permission
 2. Man-made damage
 3. Aging or failure caused by bad environment Or natural disasters.
 4. damage during transportation.
 5. trademark or label is damaged

Appendix: Standard specifications

Item		Specification
Input	Rated voltage , frequency range	Single phase:220V 50/60Hz tripphase:380V 50/60Hz Voltage: $\pm 25\%$ loss balance : $<5\%$ Frequency: $\pm 5\text{Hz}$
Output	Rated voltage , frequency over load	0~input voltage 0.01Hz- 400Hz 150% rated current for 60s
Main control function	Modulation Mode control mode Frequency accuracy frequency resolution Slip compensation Torque compensation Acceleration time Deceleration time AVR function	SVPWM V/F control , free V/F control 0.01Hz Digital setting: 0.01Hz Simulation Setting : Max. frequency $\ast 0.1\%$ Slip compensation range : 0% - 10% Two kinds of curves: Straight lines and arbitrary S curve Output voltage at rated frequency

Item		Specification
function of motion	Give operation command frequency setting input signal output signal	Panel given; external terminals give ;485 communication given Panel given; analogy voltage given ; analogy current input given ; external acceleration and deceleration given ; 485 communication given FWD /REV command ; Multistep speed control; operating command; Error input ; reset command Error alarm out(250V/ 2A)
Display	Five digital display	Display frequency; output frequency; output current; input voltage; motor speed; Load linear velocity
working condition	Place ALT Environmental temperature Humidity Vibration Storage temperature	Interior: no direct sunlight ; no dust, no corrosive gas ,oil mist ,salt ,drip , vapour Lower than 1000m -10℃ ~ +40℃ 20% ~90% RH, No condensation Less than 5.9m/s2 -20℃ ~ 60℃
Structure	IP rank Cooling method	IP20 forced cooling, natural cooling