

# F100 Series Inverter USER MANUAL

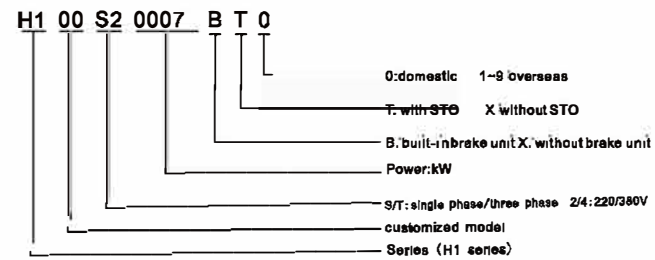


## NO.1 Product introduction

### 1. 1 Technical Features

Items	Description
<b>Input</b>	
Rated voltage /frequency	3ph: 380V~440V , 50Hz/60Hz 1ph: 200V~240V , 50Hz/60Hz
Allowed voltage	3ph: 320V~460V ; 1ph: 180V~260V ; voltage imbalance rate: <3% ; frequency: ±5%
<b>output</b>	
Voltage	0~rated input voltage
Frequency	0Hz~1000Hz
Overload capacity	150% rated current 60s, 180% rated current 2s
Control mode	V/F, SVC
Modulation Mode	SVPWM
Motor type	synchronous motor, asynchronous motor, single phase motor (consult factory before using)
Start torque	1Hz/150%
Speed range	1:100(SVC)
Frequency accuracy	digital setting: maximum frequency±0.01%; analog setting: maximum frequency±1%;
Frequency resolution	digital setting: 0.1Hz; analog setting: maximum frequency±1%;
Acceleration/ deceleration curve	line/ S-curve
Rapid current limit	limit current rapidly within the current protection value, to ensure the safety of the equipment
Non-stop when instantaneous power off	non-stop when instantaneous power off, automatic frequency drop
<b>Operation function</b>	
Command source	keypad, terminal, communication
Set value source	digital, analog, multi-speed, communication
PID	support main setting-PID
<b>Operation panel</b>	
LED display	Can display: output frequency, output voltage, output current, Bus voltage, display value 1, display value 2, error, alarm
External keypad	YES
<b>Protection function</b>	over-current protection, over-voltage protection, under-voltage protection, overheating protection, over-load protection, phase loss protection, earth leakage, etc.
<b>Environment</b>	
Store environment	indoor, away from direct sunlight, no dust, no corrosive gas, no inflammable gas, no oil mist, no vapour, no drip and no salinity, etc
Altitude	derating use above 1000M, derating 10% per 1000M
Environment temperature	-10℃~+40℃(environment temperature around 40℃~50℃ please derating use)
Humidity	5%~95%RH, no condensation
Store temperature	-40℃~+70℃
Vibration	<5.9M/S (0.6g)

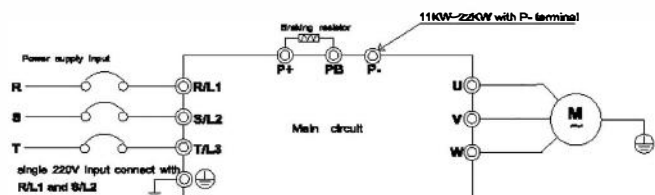
### 1.2 H1 nameplate



### 1.3 H1 series specifications and models

Base No	Models	Input voltage	Input current	Power (kw)	output current	Acceleration (SVC)
F1	H100S20007BX0	1 phase 220V	8.2	0.75	5.0	0.75
	H100S20015BX0	1 phase 220V	14.0	1.5	7.0	1.5
F2	H100T20022BX0	3 phase 220V	23.0	2.2	12.5	2.2
	H100T20037BX0	3 phase 220V	38.6	3.7	15.2	3.7
F3	H100T20055BX0	3 phase 220V	24	5.5	23	5.5
	H100T20075BX0	3 phase 220V	37	7.5	31	7.5
F4	H100T20110BX0	3 phase 220V	52	11	45	11
	H100T40007BX0	3 phase 380V	4.0	0.75	3.0	0.75
F1	H100T40015BX0	3 phase 380V	5.8	1.5	4.5	1.5
	H100T40022BX0	3 phase 380V	6.5	2.2	5.6	2.2
F2	H100T40040BX0	3 phase 380V	12.6	4.0	10.5	4.0
	H100T40055BX0	3 phase 380V	16	5.5	14	5.5
F3	H100T40075BX0	3 phase 380V	21	7.5	19	7.5
	H100T40110BX0	3 phase 380V	28	11	26	11
F4	H100T40150BX0	3 phase 380V	36	15	33	15
	H100T40185BX0	3 phase 380V	42	18.5	40	18.5
F5	H100T40220BX0	3 phase 380V	48	22	46	22

### NO.2 Main circuit and function card



Notice: different function card corresponding to different terminals. Except standard function card, can customize any type of card. Reset parameter when using different function cards. An AC drive only can use one function card.

**Warning: Do not use function card when power is on!**

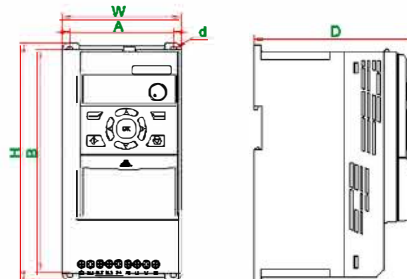
### 2. 1 Main circuit terminal description

Terminal identification	Name	Function description
⊕	Grounding terminal	Safely grounding
R/L1, S/L2, T/L3	Main circuit power input terminal	Connect three phase power supply, single phase power supply connect to R/L1, S/L2
P+, PB	Braking terminal	Connect to external braking resistor
P+, P-	DC bus terminal	Two sets or more Inverters use a common DC bus (11KW-22KW has P-terminal)
U, V, W	output termnal	Connect to three phase motor

### 2.2 Function card configuration table

Function card Physical characteristics	H10001	H10002	H10005	H10004	H10005	H10006	H10007	H10008	H10009	H10010	H10011	H10012
Digital input	4	3	4	8	2	2	3	2	2	4	4	3
Digital output								4	4			
Relay output	1		3	1	1	1	1	1	1	1	1	1
Analog input	1		1		2			1	1	1	1	1
Analog output					2			1	1			
Pulse input						1						
Pulse output						1						
Encoder input							1					
Modbus	1	1	1	1	1	1	1	1	1	1	1	1
Profibus								1				
Canbus									1			
Bluetooth										1		
GPRS											1	
STO												1
Typical application												

### NO.3 Product Dimension



Framework	H1 series Dimensions (mm)					
	W(Width)	H(Height)	D(Depth)	A	B	d
F1	85	170	124	67.3	158	5
F2	97	194	133	85	184	5
F3	126	237	147	112	223	6
F4	168	298	160	154	283	6
F5	198	355	177	183	338	6

### NO.4 Keypad description

#### 4. 1 Keypad appearance and keypad explanation

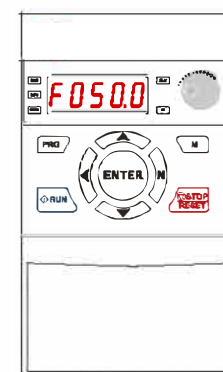


Figure 8-1 H1 series keypad

Item	Structure	Function description
1	F0500	Display
2	PRG	Program/Set
3	↔	Status display interface work as status switch key; other interface work as left shift key
4	↔	Reserved key
5	▶	RUN
6	◌	Potentiometer: refer to parameter P1.63
7	↔	In the mode of program, work as value change key; otherwise, UP/DOWN key, refer to parameter P1.63, P2.03, P2.04
9	ENTER	Enter
10	STOP/RESET	STOP/RESET
11	◌	Customization key

#### 4. 2 Indicator light description

Indicator light	Status	Function description
RUN	light on/flickering	operating /decelerating
REV	light on	reverse operation
REM	light on	remote operation
ALM	light on	fault indication
M	light on	customization indication, default alarm indication

#### 4. 3 Display item description

Display code	Item description
F	output frequency
C	output current
U	output voltage
d	DC bus voltage
H	display value 1(P10, 98)
E	display value 2(P10, 99)
R	current alarm
E	current fault

### NO.5 Function Parameter Table

Function code	Function	Description (setting range)	Factory default
P0.09	Parameter operation	1:parameter initialization, initialize parameters except PLXX, in normal condition, use mode 1 initialization; 2: initialize all parameters	0
P0.10	Setting(frequency) reference F1	0: keypad 1: multi-speed 2: AI1 3: AI2	0
P0.11	Setting(frequency) reference F2	0: keypad 1: multi-speed 2: AI1 3: AI2 5: communication	0
P0.12	setting relation selection	0: choose F1 channel setting value; 1: choose F2 channel setting value; 2: choose the sum of F1 and F2 channel setting value; 3: choose the difference of F1 and F2 channel setting value; 4: choose the product of F1 and F2 channel setting value divide 100; 5: choose larger value of F1 and F2; 6: choose smaller value of F1 and F2; 7: choose average value of F1 and F2; 8: choose PID control (F1 is setting, F2 is feedback).	0
P0.13	maximum setting value	- 99999.000~99999.000 * principle interpretation: limit setting value range. The unit of setting source is %, the maximum setting value(P0.13) stands for 100%, take minimum setting value as standard.	50.000
P0.14	motor output frequency upper limit	0.000Hz~1000.000Hz interpretation: motor operation frequency upper limit	55.000Hz
P0.15	multi-speed source	0-11111111 units: S1 tens: S2 hundreds digit: S3 thousands digit: S4 *** * P0.16 multi-speed source, select to corresponding external terminal, multi-speed refer to P0.18-P0.23. * agree to S2, S3, S4 as valid external terminal to control multi-speed set P0.15=1110, detailed 8 segment corresponding relationship as above table	0
P0.16	multi-speed 0		0.000%
P0.17	multi-speed 1		0.000%
P0.18	multi-speed 2	~ 1000.000%~1000.000%	0.000%
P0.19	multi-speed 3	function: multi-speed setting, corresponding to P0.13 maximum setting percentage	0.000%
P0.20	multi-speed 4		0.000%
P0.21	multi-speed 5		0.000%
P0.22	multi-speed 6		0.000%
P0.23	multi-speed 7		0.000%
P0.24	acceleration time	0.000s~3600.000s * principle interpretation: as figure, acceleration time refer to the time from 0Hz accelerate rate to P0.13 maximum setting value	S
P0.25	deceleration time		S
P0.26	Jog frequency	~ 1000.000~1000.000 function: set jog frequency, jog command refer to P0.33	10.000%
P0.30	start command source	0: invalid 1: keypad 2: communication	1
P0.31	reverse start command source	3: S1 4: S2 5: S3 6: S4 ***	0
P0.32	reverse command source	function: select command source(select keypad as command source, then reverse start command, reverse command, jog command, free stop command, safe stop command, pause command all from multi-function key of keypad)	0
P0.33	Jog command source		1
P0.34	stop command source	* reverse start command: setting value reversed, and give a start command * reverse command: setting value reversed. * jog command: jog command. Priority is higher than start command, lower than stop command.	0
P0.35	free stop command source	16 15 14 13 12 11 10 9 8 S14 S13 S12 S11 S10 S9 S8 S7 S6 7 6 5 4 3 2 1 0	0
P0.36	reset command source	S5 S4 S3 S2 S1 *** keypad invalid	1

Function code	Function	Description(setting range)	Factory default																																																																																																								
P0.37	S1 type	0:positive logic 1:negative logic 2:rising edge 3:falling edge function: select external terminal trigger type <b>* principle interpretation:</b> 0:positive logic, high level is valid status, low level is invalid status; 1: negative logic, high level is invalid status, low level is valid status; 2: rising edge, rising edge is valid; 3: falling edge, falling edge is valid. <b>*two-line mode 1:</b> the mode is most commonly used two-line mode, enable and direction combined, K1 and K2 control forward/reverse of motor	0																																																																																																								
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P0.40	Y1 terminal source	0:always 0 1:always 1 2:stopped 3:running 4:alarm 5:alarm 6:reversing 64:STO status 100~9999:high level parameter <b>* principle interpretation:</b> terminal source setting value >100 (address mode), the address is selected parameter no., actual value is decided by current value of selected parameter no. terminal source function description as below: <table border="1"> <thead> <tr> <th>setting value</th> <th>function</th> <th>description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>always 0</td> <td>Y1 terminal output always 0</td> </tr> <tr> <td>1</td> <td>always 1</td> <td>Y1 terminal output always 1</td> </tr> <tr> <td>2</td> <td>stopped</td> <td>in stopped status Y1 terminal output is 0</td> </tr> <tr> <td>3</td> <td>running</td> <td>in running status Y1 terminal output is 1</td> </tr> <tr> <td>4</td> <td>fault</td> <td>in fault status Y1 terminal output is 1</td> </tr> <tr> <td>5</td> <td>alarm</td> <td>in alarm status Y1 terminal output is 1</td> </tr> <tr> <td>6</td> <td>reversing</td> <td>in reversing status Y1 terminal output is 1</td> </tr> <tr> <td>64</td> <td>STO status</td> <td>in STO status Y1 terminal output is 1</td> </tr> </tbody> </table>	setting value	function	description	0	always 0	Y1 terminal output always 0	1	always 1	Y1 terminal output always 1	2	stopped	in stopped status Y1 terminal output is 0	3	running	in running status Y1 terminal output is 1	4	fault	in fault status Y1 terminal output is 1	5	alarm	in alarm status Y1 terminal output is 1	6	reversing	in reversing status Y1 terminal output is 1	64	STO status	in STO status Y1 terminal output is 1	3																																																																													
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P0.41	A11 low side voltage(current)	- 99999.000~99999.000 function: analog input A11 setting *A11 low side voltage(current): set the lowest voltage(current) of input signal. *A11 high side voltage(current): set the highest voltage(current) of input signal.	0.000V(mA)																																																																								
P0.42	A11 high side voltage(current)	*A11 low side setting: set corresponding value of low side voltage(current) *A11 high side setting: set corresponding value of high side voltage(current).	10.000V(mA)																																																																								
P0.43	A11 low side setting	range setting A11 high side setting A11 terminal setting A11 low side setting P0.43	0.000%																																																																								
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P0.45	AO1 signal source	0:always 0 1:always 10V/20mA 2:output frequency 3:motor current 4:output voltage 5:motor torque 6:output power 7:setting frequency 100~9999:high level parameter <b>** principle interpretation:</b> AO1 signal source function description as below: <table border="1"> <thead> <tr> <th>setting value</th> <th>function</th> <th>description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>always 0</td> <td>analog AO1 output always 0</td> </tr> <tr> <td>1</td> <td>always 10V/20mA</td> <td>analog AO1 output always 1</td> </tr> <tr> <td>2</td> <td>output frequency</td> <td>analog AO1 output is output frequency</td> </tr> <tr> <td>3</td> <td>motor current</td> <td>analog AO1 output is motor current</td> </tr> <tr> <td>4</td> <td>output voltage</td> <td>analog AO1 output is output voltage</td> </tr> <tr> <td>5</td> <td>motor torque</td> <td>analog AO1 output is motor torque</td> </tr> <tr> <td>6</td> <td>output power</td> <td>analog AO1 output is output power</td> </tr> <tr> <td>7</td> <td>setting frequency</td> <td>analog AO1 output is setting frequency</td> </tr> <tr> <td>100~9999</td> <td>high level parameter</td> <td></td> </tr> </tbody> </table>	setting value	function	description	0	always 0	analog AO1 output always 0	1	always 10V/20mA	analog AO1 output always 1	2	output frequency	analog AO1 output is output frequency	3	motor current	analog AO1 output is motor current	4	output voltage	analog AO1 output is output voltage	5	motor torque	analog AO1 output is motor torque	6	output power	analog AO1 output is output power	7	setting frequency	analog AO1 output is setting frequency	100~9999	high level parameter		2																																										
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P0.46	AO1 low side setting	- 99999.000~99999.000 * AO1 low side setting: set AO1 source minimum value. * AO1 high side setting: set AO1 source maximum value. * AO1 low side voltage(current): set the lowest voltage(current) of output signal. * AO1 high side voltage(current): set the highest voltage(current) of output signal.	0.000																																																																								
P0.47	AO1 high side setting		50.000																																																																								
P0.48	AO1 low side voltage(current)	voltage (current) output AO1 high side voltage (current) AO1 terminal setting P0.48 AO1 low side voltage (current) P0.48 AO1 low side setting signal source high side setting	0.000V(mA)																																																																								
P0.49	AO1 high side voltage(current)		10.000V(mA)																																																																								
P0.50	PID proportional gain	0.000%~10.000% Determine the adjustment intensity of the whole PID regulator, bigger proportional gain is, bigger adjustment intensity is.	0.010%																																																																								
P0.51	PID integral gain	0.001S~999.000S Determine PID regulator to the integral speed adjustment of the division of PID feedback quantity and given quantity, smaller integral gain is, greater adjustment intensity is.	10.000S																																																																								
P0.52	PID output upper limit	-1000.000~1000.000 PID adjust the output maximum value, if higher than maximum value, then output PID output upper limit, relative to P0.11 maximum setting value percentage.	100.000%																																																																								
P0.53	PID output lower limit	-1000.000~1000.000 PID adjust the output minimum value, if lower than minimum value, then output PID output lower limit, relative to P0.11 maximum setting value percentage.	0.000%																																																																								
P0.54	PID range	0.001~99999.000 set according to actual feedback value, if lower than feedback value, then PID invalid.	100.000																																																																								
P0.55	PID dormancy frequency	0.000~500.000 set dormancy accurate frequency, relative to P0.11 maximum setting value percentage.	0.000%																																																																								
P0.56	PID enter dormancy time	0.000~3600.000 inverter reach enter dormancy time and meet to dormancy time, enter dormancy.	0.000s																																																																								
P0.57	PID wakeup deviation	0.000~100.000 percentage based on setting value.	0.000%																																																																								
P0.58	PID enter wakeup time	0.000~3600.000 inverter reach wakeup deviation and meet to wakeup time, operation again.	0.000s																																																																								
P0.59	PID dormancy action	0:no dormancy; 2:decelerate to stop; 4:pause; 1:PID stop; 3:free stop; 5:operate in lowest frequency PID enter dormancy according to setting dormancy action.	0																																																																								
		pressure sensor range:1.6MPa(1MPa~10kg)PIDcontrol parameter <table border="1"> <thead> <tr> <th>parameter</th> <th>parameter name</th> <th>value</th> <th>description</th> </tr> </thead> <tbody> <tr> <td>P1.03</td> <td>keypad setting source</td> <td>0</td> <td>digital keypad(P2.92)setting</td> </tr> <tr> <td>P2.92</td> <td>setting value</td> <td>10</td> <td>PID-digital keypad set 10kg</td> </tr> <tr> <td>P0.11</td> <td>feedback value</td> <td>2</td> <td>PID-analog A11 feedback</td> </tr> <tr> <td>P0.12</td> <td>setting relationship selector</td> <td>8</td> <td>PID enable</td> </tr> <tr> <td>P0.44</td> <td>A11 high side setting</td> <td>16</td> <td>A11 high side set 16kg (0~10V corresponding to 0~16kg)</td> </tr> <tr> <td>P0.50</td> <td>PID proportional gain</td> <td>0.01%</td> <td>according to field adjustment (use PID dormancy gain)</td> </tr> <tr> <td>P0.51</td> <td>PID integral gain</td> <td>10s</td> <td>according to field adjustment (use PID dormancy gain)</td> </tr> <tr> <td>P0.54</td> <td>PID range</td> <td>16</td> <td>PID set feedback range 16kg</td> </tr> <tr> <td>P0.55</td> <td>PID dormancy frequency</td> <td>10%</td> <td>PID dormancy frequency set 5Hz (maximum default setting value 5Hz)</td> </tr> <tr> <td>P0.56</td> <td>PID dormancy time</td> <td>5s</td> <td>PID dormancy time 5s</td> </tr> <tr> <td>P0.57</td> <td>PID wakeup deviation</td> <td>20%</td> <td>PID wakeup deviation 20%</td> </tr> <tr> <td>P0.58</td> <td>PID enter wakeup time</td> <td>10s</td> <td>PID wakeup time 10s</td> </tr> <tr> <td>P0.59</td> <td>PID dormancy action</td> <td>2</td> <td>PID dormancy action after dormancy set 0: free stop</td> </tr> <tr> <td>P1.08</td> <td>display value 1 source</td> <td>1090</td> <td>keyboard display PID setting pressure</td> </tr> <tr> <td>P1.09</td> <td>display value 2 source</td> <td>1091</td> <td>keyboard display PID feedback pressure</td> </tr> <tr> <td>P2.03</td> <td>UPI command source</td> <td>1</td> <td>UPI command from keyboard</td> </tr> <tr> <td>P2.04</td> <td>DOWN command source</td> <td>1</td> <td>DOWN command from keyboard</td> </tr> </tbody> </table>	parameter	parameter name	value	description	P1.03	keypad setting source	0	digital keypad(P2.92)setting	P2.92	setting value	10	PID-digital keypad set 10kg	P0.11	feedback value	2	PID-analog A11 feedback	P0.12	setting relationship selector	8	PID enable	P0.44	A11 high side setting	16	A11 high side set 16kg (0~10V corresponding to 0~16kg)	P0.50	PID proportional gain	0.01%	according to field adjustment (use PID dormancy gain)	P0.51	PID integral gain	10s	according to field adjustment (use PID dormancy gain)	P0.54	PID range	16	PID set feedback range 16kg	P0.55	PID dormancy frequency	10%	PID dormancy frequency set 5Hz (maximum default setting value 5Hz)	P0.56	PID dormancy time	5s	PID dormancy time 5s	P0.57	PID wakeup deviation	20%	PID wakeup deviation 20%	P0.58	PID enter wakeup time	10s	PID wakeup time 10s	P0.59	PID dormancy action	2	PID dormancy action after dormancy set 0: free stop	P1.08	display value 1 source	1090	keyboard display PID setting pressure	P1.09	display value 2 source	1091	keyboard display PID feedback pressure	P2.03	UPI command source	1	UPI command from keyboard	P2.04	DOWN command source	1	DOWN command from keyboard	
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Function code	Function	Description(setting range)	Factory default
P0.60	startup function	0:start frequency operation 1:speed start 2:DC injection <b>* principle interpretation:</b> 0:no frequency output startup mode, meet to P0.61 startup time setting, P0.62 start frequency start to startup operation. 1:speed start, search rotating motor speed, smooth start without impact from search speed. 2:DC injection, inverter startup by "DC injection before startup" mode.	0
P0.61	startup time	0.000S~6000.000S <b>principle interpretation:</b> when system startup, setting start function work within setting start time.	0.000S
P0.62	start frequency	0.000Hz~100.000Hz <b>principle interpretation:</b> start function finish, if setting frequency bigger than start frequency, system start from start frequency; if setting frequency smaller than start frequency, system start from starting frequency.	0.000Hz
P0.63	DC injection current	0.000%~200.000% function: set magnitude of DC injection current. (set P0.60=2 as DC injection) <b>* principle interpretation:</b> start mode is DC injection, need to set magnitude of DC braking current, 100% corresponding to inverter rated current.	100.000%
P0.64	stop function	units: 0:free stop; 1:DC braking; tens: 1:accurate stop <b>* principle interpretation:</b> during stop process, stop function starts work when output frequency smaller than stop frequency. accurate stop: stop at any speed motor rotation turns are same, realize consistent repeatability of stop position. To get the best efficiency, deceleration time not to trigger over pressure and over loss rate prevention function as long as possible.	0
P0.65	stop frequency	0.000Hz~1000.000Hz interpretation refer to 0.64	0.000Hz
P0.66	DC braking current	0.000%~150.000% set DC braking current.	100.000%
P0.67	DC braking time	0.000s~1000.000s set DC braking time.	0.000s
P0.68	braking resistor mode	0:invalid 1:valid function: braking resistor braking mode parameter set	1
P0.70	control mode	0:VF 1:vector control 1 function:select motor control algorithm	1
P0.71	carrier frequency	2kHz~16kHz function: set carrier frequency	*kHz
P0.72	motor power	0.000kW~100000.000kW function: set motor parameters	*kW
P0.73	motor voltage	0V~1000V function: set motor parameters	*V
P0.74	motor frequency	1Hz~3000Hz function: set motor parameters	*Hz
P0.75	motor current	0.00A~1000.00A function: set motor parameters	*A
P0.76	motor speed	10rpm~65535rpm function: set motor parameters	*RPM
P0.78	VF curve-F1	0Hz~3000Hz	50Hz
P0.79	VF curve-F2	<b>* principle interpretation:</b> set V/F curve under V/F control mode. When vector control 1 is adopted, set the corresponding frequency points of V/F curve to adjust control characteristics of the corresponding control points.	50Hz
P0.80	VF curve-F3	50Hz	50Hz
P0.81	VF curve-F4	50Hz	50Hz
P0.82	VF curve-V0	0V~1000V	0V
P0.83	VF curve-V1	<b>* principle interpretation:</b> set V/F curve under V/F control mode. When vector control 1 is adopted, set the corresponding voltage points of V/F curve to adjust control characteristics of the corresponding control points.	*V
P0.84	VF curve-V2	*V	*V
P0.85	VF curve-V3	*V	*V
P0.86	VF curve-V4	*V	*V
P1.41	local address	0~247 function: set inverter local address	1
P1.42	baud rate	0:2400bps 1:4800bps 2:9600bps 3:19200bps 4:38400bps 5~10:reserved function: Communication port configuration	3

NO.6 Fault code

Fault Code	Protection function	Description
1	protection function	inverter components fault or software fault
4	ground fault	Abnormal resistance to ground, cause electric leakage
5	short circuit to ground	short circuit to ground
6	output short circuit	inverter cut off output when inverter output current is 250% larger than inverter rated current.
7	output over current	inverter cut off output when inverter output current is 200% larger than inverter rated current.
8	DC bus over voltage	inverter cut off output if main circuit DC voltage is higher than 400V(220V motor type) or 800V(380V motor type) when motor decelerates.
9	DC bus low voltage	input voltage decrease, inverter cut off output if main circuit DC voltage too low.
10	inverter over heat	inverter cut off output if cooling fin is over heat.
11	self-learning failure	self-learning parameter wrong or motor abnormal.
13	rectifier over heat	rectifier module over heat.
14	U phase loss	output U phase loss.
15	V phase loss	output V phase loss.
16	W phase loss	output W phase loss.
19	no motor connect	motor lost connection during operation.
20	input phase loss	power input phase loss.
21	inverter over load	inverter cut off output when inverter output current exceed inverter rated level (150% 60S).
22	over torque	motor over torque
24	motor over heat	motor temperature is over heat.
25	motor over load	inverter cut off output when inverter output current exceed motor rated level (150% 60S).
26	current limit	output current exceed setting limit threshold.
63	user fault	user defined fault(P3.08)