
Inverter

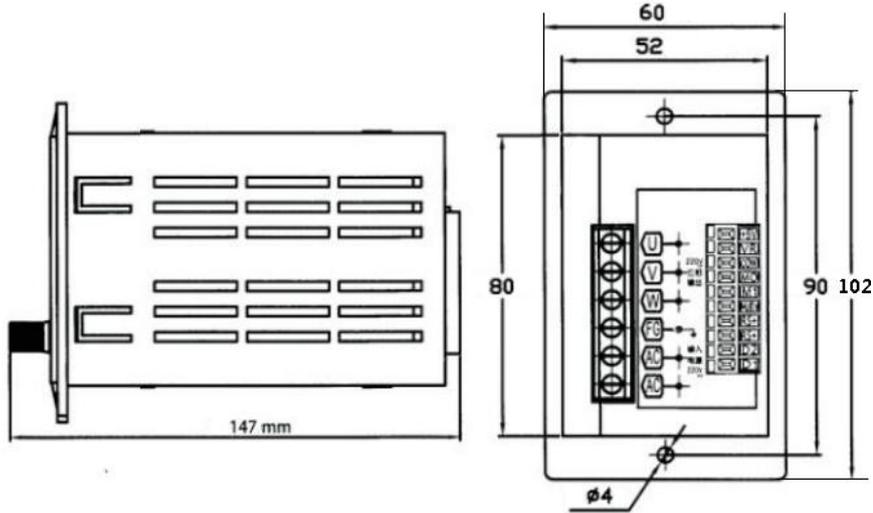
Operating Instructions



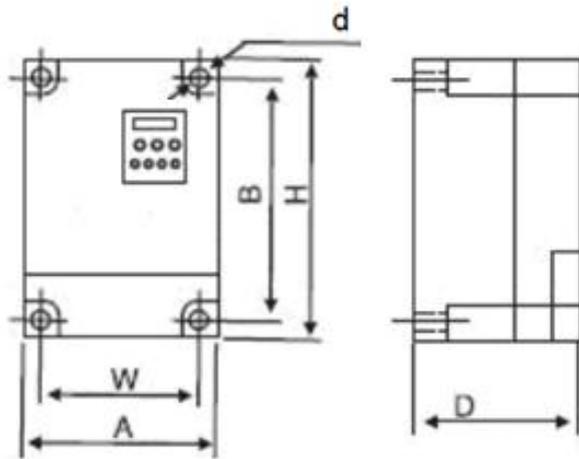
Chapter 1 Installation and Wiring

1.1 Dimensions

1.1.1 JH-100

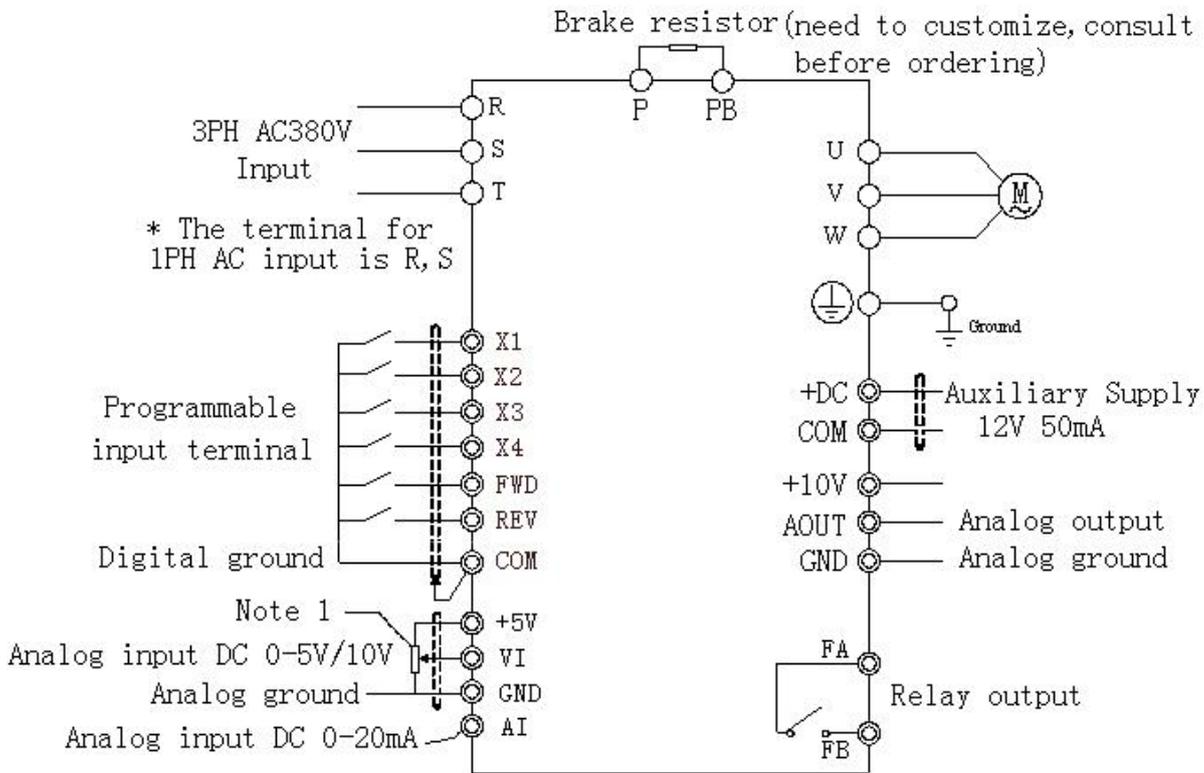


1.1.2 JH-500



Model	Power (kW)	Size (mm)					
		A	B	H	W	D	d
JH-500	0.4 ~3.0	130	185	195	120	103	4
	4.0 ~5.5	125	158	170	113	150	4
JH-500A	0.75 ~3.0	118	148	160	106	95	4

1.2 Connecting peripheral devices



Note :

- 1) The potentiometer is recommended 5.1k Ω ,2W;
- 2) Brake unit is optional,and the JH-100/500 series do not provide brake unit.
- 3) The JH-100 series does not provide the following ports: FWD,REV, +10V , +DC,AI ,AOUT ,FA and FB. Their corresponding fuctions and parameters are invalid. JH-100 does not have RS485 function.
- 4) The 380V product of JH-500A series does not provide the following ports: +10V ,AI and Ground(Earth).Their corresponding fuctions and parameters are invalid.

Chapter 2 Control panel keyboard

2.1 Keyboard control panel functions

JH series inverter control panel keypad by LED digital monitors, LED indicators, keys, panel potentiometers and other components, shown in Figure 2-1.



Figure 2-1a JH-500 Keypad

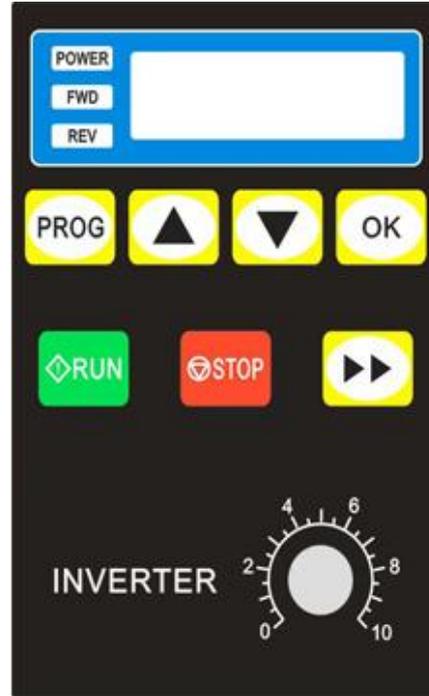


Figure 2-1b JH-100 Keypad

(A) Display format

The keyboard has a few 8-segment red LED monitors to display the operating status, function code, parameter values, fault codes.

(B) Keyboard control

Key features shown in Table 2-1.

Table 2-1 Key features

Button	Name	Features
PROG	Programming or ESC key	Under the direct display, press this button to enter the function set of options, and the functional group cycling page.
▲	Increase key	In the state of function code, the function of the code selector up operation. In the state of parameter values, parameter values set to increase in the value of the operation.

▼	Down key	In the state of function code, the code for the function selector down operation. In the state of parameter values, parameter values decrease the value of the operation.
OK	Memory key	In the function group, press this button to confirm the selection or data, and the data set is stored in the E2PROM, long-term preservation.
RUN	Run key	Starting with the control panel of the control command keys. When the key is pressed and released, the operation command issued, the inverter will set the acceleration time to run. For JH-100, long press run button for more than 3 seconds, the inverter can be reversed.
STOP	Stop / Reset key	Stop control panel with control of the command keys. When the key is pressed and released, issued a stop command, inverter will set deceleration time. The drive fault trip, with the key to reset the inverter.
▶▶	Shift Key	In the state of function code or parameter values, shift the position of the number. Press the button under the main menu to query various display options [P091]
REV	Reverse key	Starting with the control panel of the control command keys. When the key is pressed and released, the operation command issued, the inverter will set the acceleration time to reverse.

2.2 Basic Operations

2.2.1 Direct keyboard display state

Direct display state JH series inverter refers to the initial display mode after power.

2.2.2 Display switching parameter

Under the direct display status, you can view or modify the function parameters via the keyboard. First you sure you want to view the parameter display code and find out the feature set that is located, and then press the following sequence:

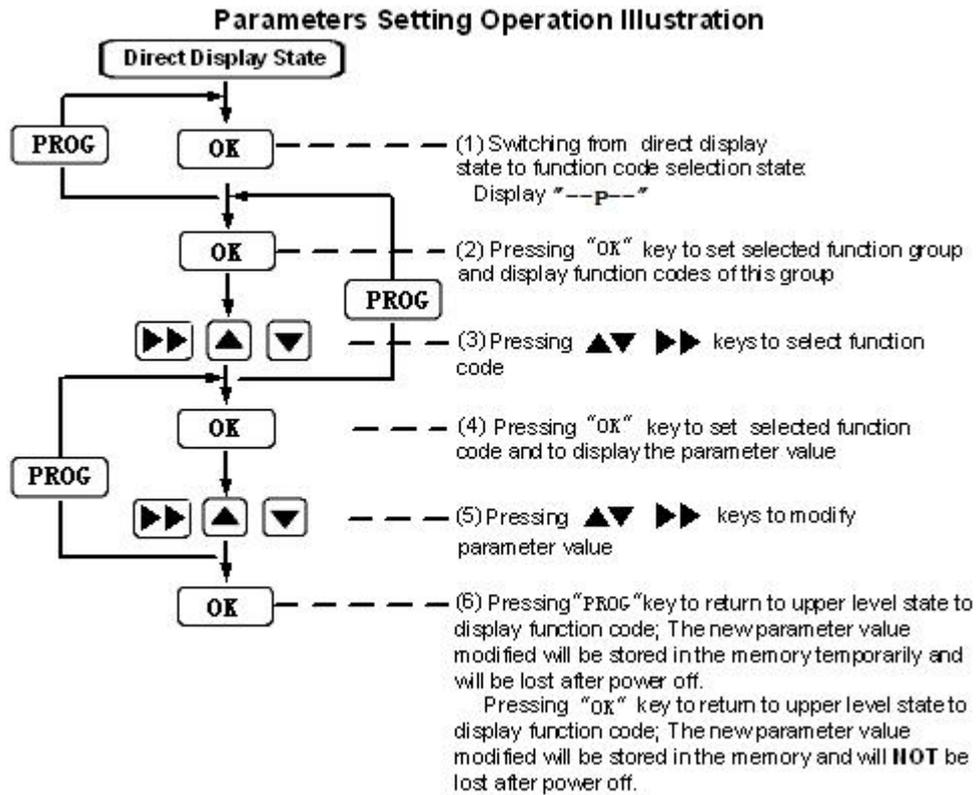


Figure 2-2 Parameter Settings Operation

Function setting and parameter adjustment sample (direct display):

Example 1: The "maximum frequency" is set to 60.0Hz:

Order	Operating	Explanation
1	PROG	P functional groups into the state, then display "--P--"
2	OK	Display P000
3	▲	Press the button continuously until P004
4	OK	Displays the current set value of 50.0
5	►►	Press the button until the 3rd LED twinkle
6	▲	Continue pressing until 60.0
7	OK	60.0 The current settings stored in the memory, the drive will run in accordance with the new setting, new data even after power failure will be saved.
8	2~6	We need to set other parameters, repeat the above 2 ~6
	PROG	Press PROG key to return to direct display.

Chapter 3 Function code

Function code	Function Name	Setting range	Incremental	unit	Factory default	modify
P000	Panel digital set frequency	0.0 ~highest frequency	0.1	Hz	0.0	√
P001	Run command source selection	0: external terminal control Run / Stop 1: the panel RUN / STOP keys to control	1		1	√
P002	Setting frequency source selection	0: external analog voltage signal (0 ~ 5V / 10V) setting 1: by the panel potentiometer setting 2: by the panel Digital setting(P000) 3: external analog current signal (0 ~ 20mA) setting	1		1	√
P003	Base frequency	25.0~400.0	0.1	Hz	50.0	
P004	The highest frequency	25.0~400.0	0.1	Hz	50.0	
P005	Upper frequency	Lower frequency ~ The highest frequency	0.1	Hz	50.0	√
P006	Lower frequency	0.0 ~upper frequency	0.1	Hz	0.0	√
P007	Lower frequency mode	0: Lower Frequency stop mode; 1: lower frequency operation mode.	1		0	
P008	The lower limit frequency hysteresis	0.0 ~highest frequency	0.1	Hz	0.0	√
P009	Acceleration time 1	0.1~6000.0	0.1	s	15.0	√
P010	Deceleration time 1	0.1~6000.0	0.1	s	15.0	√
P011	Acceleration time 2	0.1~6000.0	0.1	s	15.0	√
P012	Deceleration time 2	0.1~6000.0	0.1	s	15.0	√
P013	Acceleration and deceleration	0:time 1 is selected; 1:time 2 is selected;	1		0	

	time selection						
P014	Torque compensation voltage value	0~30	1	%	0		
P015	PWM carrier frequency	1~16	1	KHz	3		
P016	Motor direction selection	0: The motor is transferred; 1: Motor reverse.	1		0		
P017	Overcurrent stall function selection	0: Over current stall protection invalid; 1: valid overcurrent stall protection.	1		0	√	
P018	The stall reference value	50~200	1	%	150	√	
P019	Power-start	0: power-start function is invalid; 1: power-start function effectively.	1		0	√	
P020	Stop Options	0: Deceleration stop; 1: free stop.	1		0	√	
P021	Stop under-voltage mode	0: Free stop; 1: Deceleration stop	1		0	√	
P022	X1 terminal fuction selection	0: non-functioning 1: Forward running 2: Reverse running 3: Three-wire control 4: Forward jog-running 5: Reverse jog-running 6: Retention 7: Fault reset 8: Frequency increasing 9: Frequency decreasing 10: Multi-speed input 1 11: Multi-speed input 2 12: Multi-speed input 3 13: Retention 14: Retention 15: Retention 16: Retention 17:Emergency stop control 18: Retention	1		10		
P023	X2 terminal fuction selection		1		11		
P024	X3 terminal fuction selection		1		12		
P025	X4 terminal fuction selection		1		3		
P026	FWD terminal fuction selection		1		1		
P027	REV terminal fuction selection		1		2		
P028	Multi-speed operation is enabled		0: multi-speed operation is invalid; 1: valid multi-speed running.	1		0	√

P029	Running direction of each section setting	0~255	1		0	√
P030	Multi-speed 1	0.0~upper frequency	0.1	Hz	0.0	√
P031	Multi-speed 2	0.0~upper frequency	0.1	Hz	0.0	√
P032	Multi-speed 3	0.0~upper frequency	0.1	Hz	0.0	√
P033	Multi-speed 4	0.0~upper frequency	0.1	Hz	0.0	√
P034	Multi-speed 5	0.0~upper frequency	0.1	Hz	0.0	√
P035	Multi-speed 6	0.0~upper frequency	0.1	Hz	0.0	√
P036	Multi-speed 7	0.0~upper frequency	0.1	Hz	0.0	√
P037	DC braking duration	0.0~10.0	0.1	s	0.0	√
P038	DC braking	0: No DC braking; 1: DC braking stop.	1		0	√
P039	DC braking initial frequency	0.0~15.0	0.1	Hz	5.0	
P040	DC braking level	0~50	1		10	
P041	Write protect selection	0: All parameters can be modified; 1: P000 In addition to the parameters, the other parameters are prohibited modification; 2: All parameters are modified is prohibited; 3~100: Factory reserved.	1		0	√
P042	Parameter Initialization	0: The factory reserves; 1: All parameters restore factory value; 2: Clear fault records.	1		0	
P043	Retention					

P044	AOOUT Output mode	0: The maximum output frequency between AOOUT-GND voltage is about 10V; 1: The rated output current between AOOUT-GND voltage of about 5V; 2: When the rated output voltage AOOUT-GND voltage between about 10V.	1		0	√
P045	AOOUT output gain	50~120	1		100	√
P046	Torque compensation voltage mode	0: constant torque mode 1: torque mode power decreasing 1.2	1		0	
P047	Analog input gain	10~240	1		200	√
P048		Display set frequency (Hz)				
P049		The inverter output frequency (Hz)				
P050		The inverter output voltage				
P051		The inverter output current				
P052		Display the DC bus voltage value				
P053		IPM temperature display (°C)				
P054		The factory reserves				
P055		The fault record				
P056		Previous record of failure				
P057		Previous two faults record				
P058		The first three fault record				
P059		Retention				
P060		Retention				
P061	PID adjustment options	0: PID regulator invalid; 1: PID regulator valid.	1		0	√

P062	Given amount of channel selection	0: from [P063] setting; 1: from [P064] setting; 2: set by the VI-GND; 3: set by AI-GND.	1		0	√
P063	Digital voltage set point	0.0~10.0	0.1	V	0.0	√
P064	Digital current set point	0.0~20.0	0.1	mA	0.0	√
P065	Feedback channel selection	0: the analog voltage input VI-GND; 1: Select the analog current input AI-GND.	1	1	0	√
P066	Feedback bias	-100.0~100.0	0.1	%	0.0	√
P067	Feedback gain setting	0.0~10.0	0.1		1.0	√
P068	Positive feedback / reverse characteristic	0: positive character; 1: Negative characteristics.	1		0	
P069	PID regulator proportional Kp	0.0~10.0	0.1		1.5	√
P070	PID regulator integral Ti	0.0~100.0	0.1	s	0.1	√
P071	PID controller Td Differential	0.0~100.0	0.1	s	0.0	√
P072	Sampling period Ts	0.1~50.0	0.1	s	0.1	√
P073	PID deviation limit regulation	1~20	1	%	1	√
P074	Set point and feedback values are displayed magnification	0.1~600.0	0.1		1.0	√
P075	PID Sleep	0: Sleep invalid;	1		0	√

	Select	1: Sleep valid.				
P076	PID sleep delay	0.0~6000.0	0.1	s	60.0	√
P077	PID sleep frequency	0.0~[P005]	0.1	Hz	0.0	√
P078	PID wake-up level	0.0~100.0	0.1	%	0.0	√
P079	PID wake-up delay	0.0~60.0	0.1	s	0.5	√
P080		Retention				
P081	Jog frequency	0.00~upper frequency	0.1	Hz	0.0	√
P082	Jog acceleration and deceleration patterns	0~1	1		0	√
P083	Jog acceleration time	0.1~6000.0	0.1	s	15.0	√
P084	Jog deceleration time	0.1~6000.0	0.1	s	15.0	√
P085		Retention				
P086	Motor reverse prohibition	0: Enable reverse; 1: Disable reverse	1		0	
P087	Time interval of the motor reversing	0.1 ~ 20.0	0.1	s	1.0	
P088		Retention				
P089		Retention				
P090	Maximum voltage	0~420	1	V	110/220/380	
P091	Display options	1:Output Frequency; 2:Setting Frequency; 3:DC-bus Voltage; 4:Output Voltage; 5:Output Current	1		0	√
P092	Input stabilization time	0~5000	1		0	√

P093	Relay output selection	0: Alarm Signal; When error occurs, FA and FB close. 1: Frequency Arrival Signal ;When the output frequency \geq setting frequency, FA and FB close; 2: Running Signal;When running the inverter, FA and FB close.	1		0	√
P094		Retention				
P095		Retention				
P096		Retention				
P097	Three-wire control mode	0: Forward / Reverse mode --FWD-COM shorting the motor is transferred, REV-COM shorting the motor reversal; 1: run, forward / reverse mode FWD-COM shorted and the motor runs forward, FWD-COM, REV-COM are short-circuited the motor running and the reverse, FWD-COM disconnect the motor stops running; 2: Three-wire mode	1		0	
P098	Up/down Frequency adjusting step size	0.1~5.0	0.1	Hz	1.0	
P099	Up/down frequency storage enable	0~1	1		1	

√: The parameters can be modified on the run state.

Chapter 4

Troubleshooting and Countermeasures

After the drive detects an abnormal situation, the protective circuit and fault relay outputs, and displays the fault and stop, be sure to find the cause of the malfunction and the appropriate countermeasures, and troubleshooting and then run.

4.1 Protection

Table 4-1 Protection

Name	Function
Overcurrent protection intelligent power module (001)	When the above output current exceeds the rated current of 200 %, or when the intelligent power module fails, cut off the inverter output and stop running.
Undervoltage protection (002)	In operation, if the voltage drops due to power outages or the inverter power supply voltage drops below about 170V(220Vseries)/310V(380V series)/85V(110V series), the output and shut off.
Overvoltage protection (003)	Regenerative energy during deceleration so that the main circuit DC voltage rises to about 400V(220Vseries) /800V(380V series)/200V(110V series) or more, and cut off the output and stop running.
Overheating protection (004)	Radiator temperature detection, about 85 ° C at about cutting output and downtime.
Overload protection (005)	When the load exceeds the output characteristics (parameters P018) and shut off the output. (Default value of 150% of rated current for 1 minute)

4.2 fault code and cause analysis

Inverter record the reasons for the last four faults. Reset the fault can be viewed at any time (parameter P055~P058), fault codes are described in Table 4-2.

Table 4-2 Fault name and cause analysis

Fault code	Name	Reason	Countermeasure
001	Running overcurrent	Output short circuit or load mutation	Please identify the causes and take appropriate countermeasures reset. If this does not resolve, call for technical support.
	Overcurrent during acceleration	1. Acceleration time setting value is too small; 2. The torque compensation voltage value mistaken.	1. Increase acceleration time value; 2. Decreases torque up Offset voltage value.
	Deceleration overcurrent	1. The deceleration time setting is too small; 2. Output short circuit or load mutations.	1. Increase deceleration time value; 2. Eliminate short circuit or sudden load change.
	Intelligent power module protection	1. intelligent power module upper and lower arm short circuit fault; 2. Other causes of transient current is too large.	Please identify the causes and take appropriate countermeasures reset. If this does not resolve, call for technical support.
002	Instantaneous power failure or undervoltage fault	The emergence of the supply voltage drops or momentary power failure during operation.	Please check the wiring of the power state and input side.
003	Operation overpressure	1. The power supply voltage is too high; 2. load speed fluctuations.	1. the power supply voltage within the specified range; 2. Reduce load speed wave move.
	Overvoltage during acceleration		
	Deceleration Overvoltage	Load inertia (GD2) is too large	1. Change the deceleration time so that it is suitable for load inertia; 2. External brake unit.
004	Inverter overheat	1. The cooling fan is abnormal; 2. The ambient temperature is too high; 3. Vent blockage.	1. Check the operation of the fan; 2. To make the drive operating environment to meet the requirements; 3. Elimination of the vents, etc. of the dust and dirt.
005	overload	1. Motor overload; 2. V / F or torque characteristics complement Compensation amount of uncertainty.	1. To reduce the load or put a larger capacity drive; 2. Decrease the torque compensation voltage.
006	Read / write data error		

(Note) E²PROM write data errors, only displays the exception instead the trip.

4.3 Anomaly and Countermeasures

Causes and Countermeasures abnormalities shown in Table 4-3.

Table 4-3 Anomaly and Countermeasures

Abnormal items	Reason	Countermeasure
Motor does not turn	<ol style="list-style-type: none"> 1. The input and output lines are wrong or the occurrence of a phase output; 2. overload or motor stall occurs; 4. Set the frequency to 0; 5. The output terminal of the inverter has no output voltage; 6. due to a failure to stop. 	<ol style="list-style-type: none"> 1. Check the wiring of inputs and outputs; 2. Reduce the load; 3. Measure the output voltage, confirm the three-phase output is balanced; 4. If a failure occurs, troubleshooting and then run.
Motor reverse operation	The order of output terminals U, V, W is reversed.	Please adjust wiring sequence U, V, W.
Motor While running but the speed constant	<ol style="list-style-type: none"> 1. overloaded; 2. The upper frequency is too low; 3. The frequency setting signal is too low. 	<ol style="list-style-type: none"> 1. Reduce the load; 2. Make sure the frequency upper limit 3. Make sure the signal value and even loops connection.
The motor can not smooth acceleration and deceleration	Plus, the setpoint deceleration time is too short.	Increase the value of acceleration and deceleration time.
Motor speed fluctuates	<ol style="list-style-type: none"> 1. Large fluctuations or overloading the load; 2. If the inverter and motor ratings and load match. 	<ol style="list-style-type: none"> 1. Reduce the load fluctuations or reduce the load; 2. Select the drive and motor load match.
Motor speed does not match setpoint	<ol style="list-style-type: none"> 1. Set the display scale does not; 2. Set the value of the highest frequency or base frequency is incorrect; 3. The motor terminal voltage is low. 	<ol style="list-style-type: none"> 1. Make sure that the motor pole pairs; 2. Check the settings in the highest frequency or frequencies of the base; 3. Make a bold line output.