ES Series AC Drive Basic Functions Comissionin Guide

Keyboard Introduction

About more details of operating the LCD keyboard, please refer to firmware manual page 7~10.

Items		Function
1	**Local/ Remote status**	Display current control mode(Local or Remote). LOC mean local(LCD kepad) control; REM mean remote control via external signals. It swift status via key 【LOC/REM】.
2	**Option**	Press key【Left Function】to enter page for option items.
3	**Running/Fault Indicator**	**Green Light**=Running normally; **Red Light**=Current exist fault
4	**【Left Function】Key**	Entering【Option】page , or quit from the curren page, or exist current page. Also it can used for fault reset.
5	**【To the lef】key**	Move cursor to the left, or turn to last monitoring page.
6	**Swift key 【LOC/REM】**	Swfit control mode between Local and Remote, the statu of item

		1 will change accordingly.
7	**Stop Key**	Stop the inverter when it is in local control mode
8	**Speed Given Display**	Display the current actual given speed value
9	**Menu/ Parameters List**	Enter this menu page via key【Right Function】
10	【Right Function】	Enter the 【menu】page or save the page after edit.
11	**【Upward】 key**	Move upward or add value.
12	**【OK】 key**	After entering menu page, its function is as same as the key 【Right Function】, or can display the monitoring page details by long-pressing this key.
13	**【To the right】 key**	Move cursor righ, or turn to the next monitoring pages.
14	**【Downward】 key**	Move downward line, or reduce value.
15	**【START】Key**	Start up the inverter in local control mode.

Comssioning Introduction

1) Step 1. Set motor parameters, auto-tunning

After Power on, Enter "**Menu**"--> "**Parameters**" to find group 63 parameters to start setting motor parameters and do motor static identification / rotation identification.

Static identification: motor with load, the motor and the loads in running state.

Rotation identification: motor without load, only the motor running.

Note: if the conditions are satisfied, please select rotation identification to learn motor parameters, can achieve better control effect.

Motor Static identification parameter setting as following:

Function code	Parameter Name	Set value
63.05	Motor Type	Set according to motor nameplate information
63.04	Rated frequency	
63.03	Rated speed	

63.02	Rated current	
63.01	Motor rated voltage	**Asynchronous motor**: setting according to the motor nameplate. **Permanent magnet synchronous** motor: setting the back EMF voltage
63.00	Motor rated power	Set according to the motor nameplate details.
63.06	Motor self-identification request	**2= Static identification**

A. After setting all above parameters, return to the home page(the interface display appear when power on) to confirm that the display status in the upper left corner of the keyboard is LOC.

B. Press keyboard green key 【START】 to run frequency inverter, the motor will NOT rotate.

C. Pay attention to the middle row of the LCD keypad,and you will fnid the current will automatically rises to the motor rated current value first and then drops to 0 A, finally the frequency inverter will shutdown automatically. Thus the static identification is completed.

Motor rotation identification parameter setting:

Function Code	Parameter Name	Set value
63.05	Motor Type	Set according to motor nameplate information
63.04	Motor rated frequency	
63.03	Motor rated speed	
63.02	Motor rated current	

63.01	Motor rated voltage	Asynchronous motor: set by motor nameplate information Permanent magnet synchronous motor: setting back EMF voltage
63.00	Motor rated power	Set according to motor nameplate information
63.06	Motor self-identification request	**1= Rotary identification**
19.00	Speed Scaling	Motor rated speed
20.00	Maximum speed	Motor rated speed
20.01	Minimum speed	0 rpm

a. After setting above parameters, return to the home page interface (the interface display when power on) to confirm that the display status in the upper left corner of the keyboard is LOC.

b. Press the green key 【START】 to run the inverter, the motor will rotate.

c. Observing the running current value of the middle row monitoring in the home page, it will automatically rise to the motor's rated current and then drop to 0A. After the running speed automatically rises to 60% of the motor's rated speed, the inverter speed will reduce until it stops, the rotation identification is completed.

2) **Step 2. Set control parameters :**

setting control parameters according to different processes and requirements.

1. Local start, keyboard give speed.

Confirm that the upper left corner of the keyboard is shown as " LOC", it means that the inverter operated by the local keyboard operation.

- Start: Press the red 【Start】buttom;
- Stop: Press the red 【Stop】buttom.

➢ Speed Regulation:

a. Up and Down keys: increase or decrease speed (short press can increase or decrease the speed by 1 rpm, long press acheive continuous increase or decrease the speed).

b. Direct given: [**option**]--->[**local given**], then set the speed freely, and save after modification)

2. External terminal start, Potentiometer/Analog (0~10 V) speed regulation

Confirm that the upper left corner of the keyboar d is shown as **REM**, description is remote control.

Function	Parameter code	Parameter Name	Set value	Remarks
Start/stop	1000	External 1 start unction	2	In1 Forward/ In2 Reverse
Speed Regulation	2100	Signal source for speed setpoint 1	02.03	AI1 scale value
	1305	AI1 maximum scale	Customized	10V corresponding velocity values
	1306	AI1 minimum scale	0	0V corresponding velocity values
	2000	Maximum speed	Customized	Usually it is the motor rated speed
	2001	Minimum speed	0	Negative, reverse speed
	1900	Speed scalling	Rated speed	

Function	Terminal wiring	Description	Remarks
Start/Stop	DI1、COM	Terminal start-stop connection	DI1 default forward rotate.
Speed regulation	(+10V),AI1, GND	0~10V Potentiometer connection, need to connect with "+10V'; Analog 0~10V connection, no need to connect with "+10'.	Potentiometer request : 5 KΩ-10KΩ

3. External terminal start, analog 4~20 mA speed regulation [Example: AI2]

Confirm that the upper left corner of the keyboard is shown as **REM** which means the inverter in the satus of remote control.

Please dial the AI2 voltage/ current signal switch of the S1 position on the terminal board I(down).

Function	Parameter code	Parameter Name	Set value	Remarks
Start/stop	1000	External control 1 start function	2	In1 forward/ In2 reverse
Speed regulation	2100	Signal source of Speed setpoint 1	02.05	AI2 exchange value
	1317	AI2 input type	1	Current
	1316	AI2 Conversion Output Minimal value	0	4 mA Corresponding velocity values
	1315	AI2 conversion output maximum value	Customized	20 mA Corresponding velocity values
	1311	AI2 Input Minimum	mA 4	
	2000	Maximum speed	Customized;	General motor rated speed

	2001	Minimum speed	0	Negative, reverse speed
	1900	Speed scaling	Rated speed	

Function	Terminal wiring	Description	Remarks
Start/ Stop	DI1, COM	Terminal Start-stop connection	DI1 default positive turn
Speed regulation	AI2, GND	4~20 mA analog signal input wiring	

If you choose AI3 and GND, Please dial the switch S2 down to the position “I”which means that select current 0~20mA as siginal source, and change the relevant parameters in above table to AI3 related situation.

4. Filedbus Communication Start, Stop, and Given speed [Example: RS485 communication]

Confirm that the upper left corner of the keyboard is shown as REM meaning remote control status.

Function	Parameter Code	Parameter Name	Set value	Remarks
Start/stop	1000	Select signal source for External control 1	5	Fieldbus communications
Speed regulation	2100	Speed given 1 signal source	02.15	Fieldbus given 1
	5100	Modbus Enable	1	Enable (default)
	5101	Node address	Customized	Must be consistent with the host computer program
	5102	Serial port baud rate	Customized	Must be consistent

				with the host computer program
	5103	Serial Frame Format	Customized	Must be consistent with the host computer program
	2000	Maximum speed	Customized	Usually it is motor rated speed
	2001	Minimum speed	0	Negative means reverse speed
	1900	Speed scaling	Rated speed	

Function	Terminal wiring	Description	Remarks
Start/ Stop	A+, A- 、GND	RS485 signal to start and stop orders	Startup :882 H Stop :881 H
Speed regulation	A+, A- 、GND	RS485 signal give speed	1200rpm=04B0 H

5. External terminals DI signals start, multi-stage speed given [example :4 segment speed]

Confirm that the upper left corner of the keyboard is shown as REM, it means remote control.

Function	Parameter code	Parameter Name	Set value	Remarks
Start/stop	1000	Start signal source of Exteral control 1	2	In1 Forward/ In2 Reverse
	2100	Speed given 1 signal	03.02	Multi-stage speed

Speed regulation		source		rating
	2601	Multi-stage Speed 1 Speed	Customized	Example :300 rpm
	2602	Multi-stage Speed 2 Speed	Customized	Example: 800 rpm
	2603	Multi-stage Speed 3 Speed	Customized	Example: 1200 rpm
	2604	Multi-stage Speed 4 Speed	Customized	Example :1500 rpm
	2618	Multi-speed option 1	DI3	02.00.02
	2619	Multi-stage Speed Option 2	DI4	02.00.03
	2618	Multi-stage Speed Option 3	DI5	02.00.04
	2618	Multi-speed option 4	DI6	02.00.05
	2000	Maximum speed	Customized	Usually it is motor rated speed
	2001	Minimum speed	0	Negative, reverse speed
	1900	Speed reference	Rated speed	

Function	**Terminal wiring**	**Description**	**Remarks**
Start/stop	DI1、COM	Terminal start-stop connection	DI1 default positive turn
Speed regulation	DI3、COM	Multi-stage speed 1 given wiring	
	DI4、COM	Multi-stage speed 2 given wiring	
	DI5、COM	Multi-stage speed 3 given wiring	
	DI6、COM	Multi-stage speed 4 given wiring	

If the multi-segment speed demand exceeds 4 segments, the multi-segment speed combination mode [**parameter 2616=0**] can be used to realize up to 16 segments of multi-segment speed control.

6. The external terminal starts, PID adjusts the speed [example: feedback is AI1：0~10 V, remote pressure gauge]

Confirm that the upper left corner of the keyboard is shown as REM , it means remote control status.

Function	Parameter code	Parameter Name	Set value	Remarks
Start/stop	1000	External Control 1 start function	2	in1 positive/ in2 reversal
Speed regulation	2100	Speed given 1 signal source	04.04	Process PID output
	2700	PID functional activation	1	Enable
	2701	Select the given source type	Customized	Example: 2702 given internally
	2702	Internal given	Customized	Based on Actual demand pressure
	2706	Feedback signal 1	A11 exchange value	
	2708	Feedback signal 1 Maximum	10000	10 V
	2709	Feedback signal 1 Minimum	0	V 0

	2715	PID proportional gain	Customized	Generally do not modify, according to the actual situation
	2716	PID integration time	Customized	
	2721	PID output maximum	Customized	Usually it is motor rated speed
	2722	PID output minimum	0	
	2732	PID feedback breakage detection	0	Not detected
	1305	AI1 conversion output maximum	10000	
	2000	Maximum speed	Customized	Usually it is motor rated speed
	2001	Minimum speed	Customized	Negative means reverse speed
	1900	Speed reference	Rated speed	

Function	**Terminal wiring**	**Description**	**Remarks**
Start/stop	DI1、COM	Terminal start-stop connection	DI1 default positive turn
Pressure Feedback	AI1 、 +10 V、GND	Feedback wiring of remote pressure gauges	0~10 V

7. The external terminal starts, PID adjusts the speed [example: feedback is AI2：4~20 mA, pressure transmitter]

- When the feedback is AI3： 4~20 mA, some parameters need to be changed according to AI3 actual situation.
- Confirm that the upper left corner of the keyboard is shown as REM, it means the inverter are working in remote control status.
- Please dial down the AI2 switch of the S1 position to “I”on the terminal.

Function	Parameter code	Parameter Name	Set value	Remarks
Start/stop	1000	External Control 1 start function	2	In1 Fowward/ In2 Reverse
Speed regulation	2100	Speed given 1 signal source	04.04	Process PID output
	2700	PID functional activation	1	Enable
	2701	Select the given source type	Customized	Example :2702 given internally
	2702	Internal value given	Customized	Based on actual demand pressure
	2706	Feedback signal source 1	A12 scale value	
	2708	Feedback 1 Maximum	20000	20 mA corresponding
	2709	Feedback 1 Minimum	4000	Corresponding mA 4
	2715	PID proportional gain	Customized	Generally do not modify, according to the actual use of adjustment
	2716	PID integration time	Customized	

	2721	PID output maximum	Customized	Generally it is motor rated speed
	2722	PID output minimum	0	
	2732	PID feedback breakage detection	0	Not detected
	1315	AI2 conversion output maximum	20000	20 mA corresponding
	1316	AI2 Conversion Output Minimal	4000	Corresponding mA 4
	1317	AI2 input type	1	Current
	1311	AI2 Input Minimum	4 mA	
	2000	Maximum speed	Customized	Generallly it is motor rated speed
	2001	Minimum speed	Customized	Negative value means reverse speed
	1900	Speed reference	Rated speed	

Function	Terminal wiring	Description	Remarks
Start/stop	DI1、COM	Start/ Stop signal wiring	DI1 default foward rotate
Pressure Feedback	AI2、+24 V	Pressure transmitter feedback signal terminal wiring	4~20 mA
	COM、GND	Short connection	They are connected

Note : [Parameter 2702] is equal to the internal target pressure setting value.

Corresponding relationship:

[0~10 V]2702 set 1000 equivalent to 1 V, set 5000 equivalent to 5V

[4~20 mA]2702 set to 4000 equals 4 mA, set to 10000 equals 10 mA

For Example :

[0~1Mpa pressure transmitter] target pressure 0.7Mpa(7kg), then the voltage should be 7 V, parameter 2702 should set to 7000.

[0~1Mpa pressure transmitter], target pressure 0.7Mpa(7kg), then the current should be 15.2 mA, parameter 2702 should set to 15200.

Using a pressure transmitter of 4~20 mA as feedback, **the 27.02 setting value caculation formula** as following:

Full scale of pressure gauge /(20-4)= Pressure value(Mpa) per 1mA

(**Target current value**-4)* Pressure value(Mpa) per 1mA = target pressure value (Mpa)

27.02 target setting value=**Target current value** *1000

For Example : Take 0~1 Mpa pressure transmitter as the feedback signal, target pressure of 0.7 Mpa, how to calculate the 27.02 value?

1/（20-4）=0.0625

(Target current value-4)*0.0625=0.7

(Target Current Value-4)=11.2

Target current =15.2

Set value =15.2*1000=15200

8. Description of Sleep& Wake-up function:

There are three sleep modes, please choose one of themaccording to the actual needs of the control process.

1) Internal Sleep : process control internal enable sleep

2725=1: PID error <2728, and the motor speed <2726

: Motor speed which trigger the sleep mode.

2727 PID sleep delay: the delay time when the sleep mode is triggered.

2728 PID wake-up level: the error value which trigger the PID wake-up. Awaken when PID error is bigger than this value.

2729 PID wake-up delay: The delay time for PID wake-up mode is triggered.

2) Sleep by error: Enable when deviation value less than 2728, [commonly used].

2725=3, the PID error is less than or equal to the 1/2 of 2728 value.

2727 PID sleep delay: the delay time when the sleep mode is triggered.

2728 PID wake-up level: the error value which trigger the PID wake-up. Awaken when PID error is bigger than this value.

2729 PID wake-up delay: The delay time for PID wake-up mode is triggered.

3) Sleep External.

Enable this sleep by external signal (when actual speed is less than 2726,the inverter direclty go to sleep mode).

2725=2, External sleep enable(motor speed<2726)

2727 PID sleep delay: the delay time when the sleep mode is triggered.

2728 PID wake-up level: the error value which trigger the PID wake-up. Awaken when PID error is bigger than this value.

2729 PID wake-up delay: The delay time for PID wake-up mode is triggered.

2730 Sleep enable signal source: DI3~ DI7

4) Never Sleep, 2725=0

9. External terminal start, digital potentiometer speed regulation (terminal UP、DOWN function)

Confirm that the upper left corner of the keyboard is shown as REM, it means the

inverter in the remote control status.

Function	Parameter Code	Parameter Name	Set value	Remarks
Start/stop	1000	External Control 1 start function	2	In1 Forward/ In2 Reverse
Speed regulation	2100	Speed given 1 signal source	03.01	Digital potentiometer given
	2108	potentiometer rising signal source	DI3~DI7	For example: DI3(UP)
	2109	potentiometer drop signal source	DI3~DI7	For example: DI4(DOWN)
	2110	Maximum output of potentiometer	Customized	General motor rated speed
	2111	Potentiometer output minimum	Customized	Negative, reverse speed
	2112	potentiometer acceleration/deceleration time	Customized	Default :10 s
	2107	potentiometer storage mode	Customized	Retain the current given speed value after power failure

Function	Terminal wiring	Description	Remarks
Start/stop	DI1、COM	Terminal start-stop connection	DI1 default

			foward rotate
Speed regulation	DI3、COM	Terminal UP Speed Control Connection	
	DI4、COM	Terminal DOWN Speed Control Connection	

10. Jog function (LCD keyboard)

Confirm that the upper left corner of the keyboard is shown as REM, it means the inverter in the remote control mode.

Function	Parameter code	Parameter Name	Set value	Remarks
Point movement function	1008	Jog 1 start	DI3~DI7	For example: DI6
	1009	Jog 2 start	DI3~DI7	For example: DI7
	1010	Jog Enable	1	JOG Enable
	2105	Jog 1 speed given	150 rpm	Customizable
	2106	Jog 2 velocity given	300 rpm	Customizable
	2205	Jog acceleration time	s 5	Customizable
	2206	Time of point deceleration	s 5	Customizable

Function	Terminal wiring	Description	Remarks
Jog Function	DI6、COM	Jog 1 connection	
	DI7、COM	Jog 2 connection	

When using the LED keyboard, in addition to use the external terminal Jog according to the above parameters, LED keyboard has JOG keys on it, long press can achieve Jog function.

11. Fault reset function, default there is a reset command.

When fault occur and need need to reset, press the [left function] key to reset.

Can also set the parameter 1011=DI3~DI7, then enable the external terminal fault reset.

12. Emergency Stop Funcion (LCD keyboard)

Function	Parameter code	Parameter Name	Set value	Remarks
Emergency Stop	1013	Emergency Stop	DI3~DI7	For example: DI7 DI7 disconnect: emergency stop DI7 close: keep current
	1014	Emergency Mode	1	Default: Free Parking Customizable: Slow Stop
	2204	Emergency Stop	s 1	Customizable

When using the LED keyboard, in addition to realize the emergency function according to above parameters, also can press the [Start]+ [Stop] buttons at the same time to achieve emergency parking function.

13. Control switching function (two switching control)

Confirm that the upper left corner of the keyboard is shown as REM to let the inverter working in remote control status.

For example:

- External Control 1 ~10 V potentiometer starts at a given speed
- External Control 2 RS485 communication given speed Communications activated
- External Control 1/ External Control 2 switches via DI7

Function	Parameter code	Parameter Name	Set value	Remarks
Start/stop	1000	External Control 1 start	2	in1 positive/ in2 reversal
	1004	External Control 2 start	5	Fieldbus communications
	1101	Ext1/Ext2 Switch	DI7	
Speed regulation	2100	Speed given 1 signal source	02.03	AI1 exchange value
	2101	Speed given 2 signal source	02.15	Fieldbus given 1
	2103	Speed given signal 1/ signal 2 switch	DI7	
	1305	AI1 scale maximum	Customized	10V corresponding motor speed
	1306	AI1 scale Minimal	Defined	0V corresponding motor speed
	5100	Modbus enable	1	
	5101	Node address	Customized	Must be consistent with the master
	5102	Serial port baud rate	Customized	Must be consistent with the master
	5103	Serial Frame Format	Customized	Must be consistent with the master
	1900	Speed reference	Rated speed	
	2000	Maximum speed	Customized	Generally it is motor rated speed

	2001	Minimum speed	Customized	Negativ means the reverse speed

Function	Terminal wiring	Description	Remarks
Start/ Stop	DI1、COM	External Control 1 start-stop	
Speed Regulation	+10V, AI1, COM	External control 1 Controlled speed given	
	A+, A-, GND	External control 2 Start/ Stop and speed given	
Switch External Control	DI7, COM	External Control 1/ Control 2 signal switch	Stop/ Start/ Speed Given signal source switch.

14. Relay Output Function

Function	Parameter code	Parameter Name	Set value	Remarks
Relay Function	1431	RO1 source	Running	Default. Other function need be options selected or customized by the bit pointers
	1432	RO2 source	Failure	

Function	Terminal wiring	Description	Remarks
Relay Output	R1.NO、R1.CM	Relay 1 often open	NO： often open NC： often closed
	R1.NC、R1.CM	Relay 1 often closed	

	R2.NO、R2.CM	Relay 2 often open	CM： common end
	R2.NC、R2.CM	Relay 2 often closed	

15. Analog output function (AO1、AO2)

The default signal source is voltage 0~10V for AO1 and AO2.

if adopt current 4~20 mA signal for AO1, please remove the short ring of the J1 position on the terminal board before debugging the parameters, and short the right 2 needles of J1.

4~20 mA for AO2 on J6 position, the operation is as asme as AO1.

Below take AO1 analog output as an example. AO2 parameter setting refere to AO1's, bu need to change the according parameter codes.

Function	Parameter code	Parameter Name	Set value	Remarks
Analog Output Function	1500	AO1 Signal Source	Motor speed	Default. Other functions can be selected or customized by according bit pointer
	1501	AO1 output maximum	10V/ 20mA	
	1502	AO1 output minimum	0V/ 4mA	
	1503	AO1 scale maximum	Customized	Motor speed :10 V or 20mA corresponding maximum speed
	1504	AO1 scale minimum	Customized	Motor speed :0 V or 4mA corresponding minimum speed
	1508	AO1 output type	Voltage/current	

Function	Terminal wiring	Description	Remarks
Analog Output Function	AO1、GND	Analog Output 1	Factory Default: Motor Speed
	AO2、GND	Analog output 2	Factory Default: Motor Current

16. Parameters Modification Lock: 1601, default is “open**”.**

17. Parameters Restore: 1603**.**

- Default : except motor and encoder related parameters, other parameters are restored to factory default value.
- All Clear : All parameters are restored to factory default.

18. Fault record, Diagnostic information view

LCD keypad operate as following: 【HOME PAGE】 →【Menu】 →【Fault Logs】→【OK】 Then the upper right corner shows "1" as the latest fault alarm ,there can record and show the latest totally 99 groups of faults.

【HOME PAGE】 →【Menu】 →【Fault Logs】→【DIAG】→ then can check the specific running status details when the fault occur such as the DC bus voltage, motor speed, motor current, Run time, Power on time ect...

19. View of modified parameters

LCD keypad operate as following: 【HOME PAGE】 →【Menu】 →【Changed Params】→ 【OK】, then you can see recenlty modified parameters and setting values.

20. Fan Control function

Function	Parameter code	Parameter Name	Set value	Remarks
Fan control	1614	Fan control mode	Automatic control	Default=0(automatic control); Options as below: 1=on when drive run; 2=always on; 3=always off;
	1611	Fan open temperature	40℃	customize
	1612	Fan Shutdown temperature	35℃	customize
	1613	Fan shutdown delay	30s	customize

21. Fault Automatic Reset Function

Function	Parameter code	Parameter Name	Set value	Remarks
Fault Automatic Reset	3007	Fault Automatic Reset Enable	=0(default)	1=Enable 0=Disabled
	3008	The fault trying reset times	5	Customized (1~20)
	3009	Fault reset interval	1s	Customized
	3010	Time interval for fault reset trying to clear the counter	60s	Customized

22. Motor temperature protection function

- When the motor temperature sensor is not connected, the inverter uses the motor thermal model estimation method to obtain the motor temperature value

and compare it with the inverter set value to realize the temperature protection of the motor.

- After connecting the motor temperature sensor, the inverter will compare the measured value of the temperature sensor with its internal set value to realize the temperature protection of the motor.

Function	Parameter code	Parameter Name	Set value	Remarks
Motor Temperature Protection Function	3100	Motor temperature protection action	1=Fault	Default is 1; 0= No action ,2= warning
	3101	Signal source of motor temperature	0(default)	Default is Estimated Value KTY84 、 PTC 、 PT100 is optional
	3102	Motor temperature warning point	120℃	Customized
	3103	Motor temperature fault point	130℃	Customized
	3104	Ambient temperature	40℃	Customized
	3111	Sensor Signal Channel	Customized	AI1/AI2/AI3, dial should choose “voltage”
	3112	Sensor Bias Channel	Customized	AO1/AO2, jumper shall choose “current”

Function	Terminal wiring	Description	Remarks
Motor	AO2、GND	Temperature sensor wiring	

Temperature Protection	AO2、AI2	Short connection. Connect two terminals by wire	

Note:

- AO is used for current output bias to make temperature sensor generate voltage signal, AI for detecting sensor voltage signal.
- The bias current of different types of sensors is different that in order to maintain the appropriate output voltage. PT100 injection current is 10 mA,KTY84 and the PTC injection current is 2 mA.
- The actual temperature can be measured directly for PT100 and KTY84,. For PTC,, because it belongs to nonlinear devices, it can only do overheating protection and can not accurately measure motor temperature.

23. Multi-stage speed cycle control (simple PLC function to control 16 stages of speed and time)

Confirm that the upper left corner of the keyboard is shown as REM which means the inverter in remote control mode.

Function	Parameter code	Parameter Name	Set value	Remarks
Easy PLC Function	2100	Speed given 1 signal source	P47.00	Setting by bit pointer
	4701	Multi-stage speed Operation Enable	P.06.00 04	Auto running (Default); Can select different DI terminals by bit pointer
	4702	Circulating control mode	Single cycle Maintain final value	0= Single cycle, maintain final value 1= Cycle

				2= Single cycle, automatic shutdown. Start again with a stop command.
	4703	Save mode	0(Default)	0=stop without memory; 1=Stop memory operation phase
	4707	Time set for speed stage 1	For example : 0.1 min	Customized ; Time unit minutes
	4708	Time set for speed stage 2	For example: 0.2 min	Customized ; Time unit minutes
	4709	Time set for speed stage 3	For example : 0.3 min	Customized ; Time unit minutes
	4710	Time set for speed stage 4	For example: 0.4 min	Customized ; Time unit minutes
	4723	Speed of stage 1	For example : 300 rpm	Customzied
	4724	Speed of stage 2	For example :- 300 rpm	Customzied
	4725	Speed of stage 3	For example: rpm 1100	Customzied
	4726	Speed of stage 4	For example :-1100 rpm	Customzied