





This document only provides basic information on installing and debugging the EM730 series inverter. For more detailed information, please refer to the EM730 Series Inverter User Manual, which can be downloaded directly by scanning the QR code on the right below. For more product information, please visit the official website of Sine Electric Co., Ltd. www.sinee.cn or scan the QR code on the left below.

Sine Electric WeChat Official Account Scan the QR code to view the detailed manual

Safety Signs

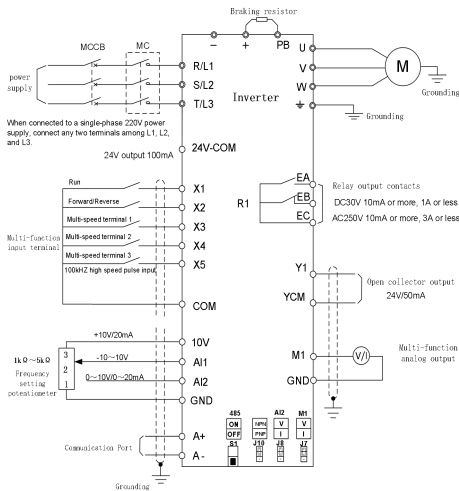
-  Please read the safety manual and instructions carefully before using the product, otherwise there may be danger of personal injury or product damage!
-  Do not touch the terminals or remove the cover when the power is on or within 10 minutes after the power is turned off, otherwise there is a risk of electric shock!

Danger Failure to follow the instructions may result in danger, which may lead to serious injury or even death.

1. If you find that the package has water ingress, parts are missing or parts are damaged when unpacking, please do not install it!
2. Please install it on flame-retardant objects such as metal, away from combustibles, otherwise it may cause a fire!
3. Do not twist the fixing bolts of the equipment components at will, especially the bolts with red marks!
4. The instructions of this manual must be followed and the construction must be carried out by professional electrical engineers, otherwise unexpected dangers will occur!
5. The inverter and the power supply must be separated by a circuit breaker (it is recommended to use a specification greater than or equal to and closest to 2 times the rated current), otherwise a fire may occur!
6. Please make sure that the power supply is in a zero energy state before wiring, otherwise there is a risk of electric shock!
7. Please correctly, standardized and reliably ground the inverter according to the standard, otherwise there may be a risk of electric shock and fire!
8. If the indicator light does not light up and the keyboard does not display after power-on, please turn off the power switch immediately. Do not touch the inverter R, S, T and any terminals on the wiring terminals with your hands or screwdriver, otherwise there is a risk of electric shock. Contact our customer service staff immediately after disconnecting the power switch.
9. At the beginning of power-on, the inverter automatically performs a safety test on the external strong current circuit. At this time, you must not touch the inverter U, V, W terminals or motor terminals, otherwise there is a risk of electric shock!
10. Do not disassemble any parts of the inverter when the inverter is powered on.
11. Do not touch the cooling fan, radiator and discharge resistor to test the temperature, otherwise it may cause burns!
12. Non-professional technicians should not detect signals during operation, otherwise it may cause personal injury or equipment damage!
13. Do not repair and maintain the equipment with power on, otherwise there is a risk of electric shock!
14. Cut off the main circuit power supply and confirm that the keyboard display interface is off for at least 10 minutes before performing maintenance and repair on the inverter, otherwise the residual charge on the capacitor will cause harm to people!
15. Personnel who have not received professional training should not perform maintenance and repair on the inverter, otherwise it will cause personal injury or equipment damage!
16. The synchronous machine will generate electricity when rotating. In the event of a power outage, you must wait 10 minutes after the motor stops before performing maintenance and repair on the inverter. Otherwise, there is a risk of electric shock!





(1)

Inverter standard wiring diagram



- It is recommended to use wires with a diameter of 0.5~1mm² for the control circuit wires
- Please use a PH0 cross screwdriver to install the control circuit terminals, and the tightening torque is 0.5N.m.

Jumper and DIP switch

Position No.	Logo	Functional Description
J10		When the jumper is placed at the NPN end, the X terminal input is in NPN mode. When the jumper is placed at the PNP end, the X terminal input is in PNP mode.
J7		When the jumper is placed at the V terminal, the analog output M1 is a voltage type output. When the jumper is placed at the I terminal, the analog output M1 is a current type output.
J8		When the jumper is placed at the V terminal, analog input AI2 is a voltage input. When the jumper is placed at the I terminal, analog input AI2 is a current input.
S1		When the DIP switch is turned ON, a 120Ω terminal resistor is added to the RS485 bus. When the DIP switch is turned OFF, the terminal resistor is disconnected.

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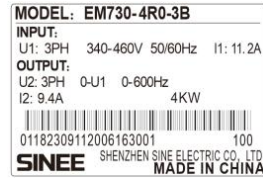
Product Confirmation

When you receive the product, please confirm according to the table below.

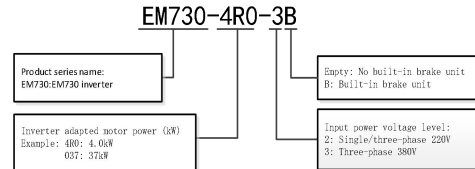
Confirm Project	Confirmation method
Is it consistent with the ordered product?	Please check the nameplate on the side of the inverter.
Is there any damaged area?	Check the overall appearance to see if there is any damage during transportation.
Check whether the fastening parts such as screws are loose.	If necessary, check with a screwdriver.

If there are any adverse situations, please contact the agent or our marketing department.

● **Nameplate**







● **Inverter model description**



Connect the power cord and control cord

The functions of the main circuit terminals of the EM730 series inverter are shown in the following table. Please connect correctly according to the corresponding functions.



Terminal number	Functional Description
R/L1, S/L2, T/L3	AC power input terminal, connected to three-phase AC power, for single-phase power input, any two terminals can be connected
U, V, W	Inverter AC output terminal, connected to three-phase AC motor
	They are respectively the positive and negative terminals of the internal DC bus, connecting the external brake unit
 PB	Braking resistor connection terminal, one end of the braking resistor is connected, and the other end is connected to PB
P, 	DC reactor terminal, used when EM730-132-3 and above models are connected to an external DC reactor
	Ground terminal, for safety, please be sure to connect to the protective ground

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Digital tube display keyboard operation mode

The LED keyboard menu is divided into monitoring level (level 0), menu mode selection level (level 1), function code selection level (level 2), and parameter value level (level 3) from low to high. The menu level mentioned later in this manual is represented by numbers.

There are 5 parameter display modes: full menu mode (--A--), used to display all function codes; user-defined mode (--U--), used to display only the function code selected by the user through the F11 group; non-factory value mode (--C--), used to display only function codes different from the factory value, fault information display mode (--E--), used to display the current fault information; version information mode (--P--), used to display the software and product serial number.

The keyboard displays the first monitoring parameter of level 0 by default when it is powered on. Press the ESC key  to enter the level 1 menu. In the level 1 menu, you can select different menu modes by rotating  the keyboard encoder. The menu mode selection operation process is shown in Figure 4-1

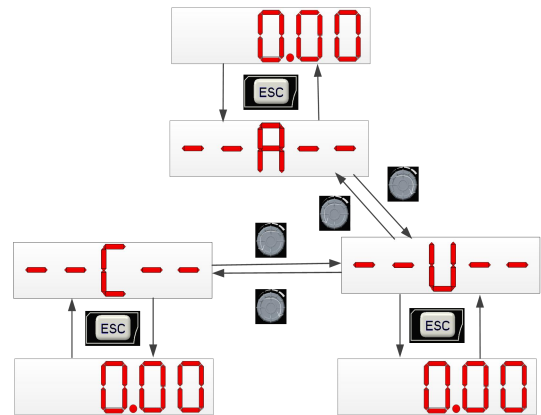



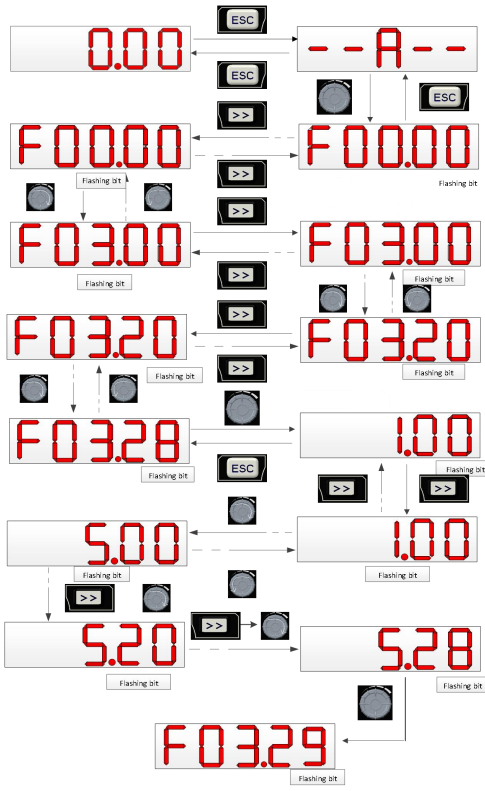
Figure 4-1 Menu mode selection operation flow chart

Full menu mode (--A--)

In full menu mode, press ENTER  to enter level 2 menu and select any function code. Then press ENTER to enter level 3 menu to view or modify function codes. Except for a few special function codes, function codes that general users need to use can be modified.

Example: In full menu mode, the entire operation process from power-on initial state to changing the value of function code F03.28 to 5.28 is as shown in the figure below.

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After modifying the parameters, press ENTER the parameters will be saved
 Press the ESC key in the Level 3 menu to abandon the parameter modification.

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Common Process Parameters of Frequency Inverter

Code	Function code name	Parameter Description	Unit	Default	
F00.01	Motor 1 drive control mode	0: V/F control (VVF) 1: Sensorless Vector Control (SVC)		0	○
F00.04	Main frequency source A selection	0: Digital frequency given F00.07 1: AI1 2: AI2 5: High frequency pulse input (X5) 6: Main frequency communication percentage given 7: Main frequency communication direct given 8: Digital potentiometer given		0	○
F00.07	Frequency setting	0.00~maximum frequency F00.16	Hz	0.00	●
F00.14	Acceleration time 1	0.00~650.00 (F15.13=0)	s	15.00	●
F00.15	Deceleration time 1	0.00~650.00 (F15.13=0)	s	15.00	●
F00.16	Maximum frequency	1.00~600.00	Hz	50.00	○
F00.18	Upper frequency	Lower limit frequency F00.19~maximum frequency F00.16	Hz	50.00	●
F00.19	Lower frequency	0.00~Upper frequency limit F00.18	Hz	0.00	●
F00.21	Inversion of Control	0: Allow reverse rotation 1: Disable reverse rotation		0	○

Note: Commonly used process parameters may include input and output terminal function settings. Please refer to the function table F02 and F03 group in the "EMD800 Series Inverter User Manual" for settings.

Motor Parameter Identification

To achieve optimal control performance, it is crucial to perform motor parameter identification.

Identification method	Applicable situations	Identification effect
F01.34=01 IM <i>static tuning</i>	The motor shaft and the load are difficult to separate, and rotation tuning is not feasible.	General
F01.34=11 PM <i>static tuning</i>		
F01.34=02 IM <i>rotation tuning</i>	The motor and the load can be easily separated. The motor shaft should be separated from the load, and it is forbidden to perform <i>rotation tuning</i> operation with the motor under load.	Optimal
F01.34=12 PM <i>rotation tuning</i>		

Note: IM - Induction Motor PM- Permanent Magnet Motor

Parameter Identification Steps

- Before the tuning operation, make sure that the motor is in a stopped state, otherwise the tuning cannot be performed normally.
- If the motor and load can be separated, fully separate the load from the motor when the power is off.
- After power on, set the inverter command source to keyboard control (set F00.02 = 0).
- Enter the motor nameplate parameters accurately.

Motor	Corresponding parameters
Motor 1 (Motor 2 has corresponding parameters in group F14. Example F14.00)	F01.00 Motor Type F01.01 Motor rated power
	F01.02 Motor rated voltage F01.03 Motor rated current
	F01.04 Motor rated frequency F01.05 Motor rated speed
	F01.06 Motor winding connection

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Start and stop control

Code	Code name	Parameter Description	Default
F00.02	Command source	0: Keyboard control 1: Terminal control 2: Communication control	0
F04.00	Startup method	0: Direct start 1: Speed tracking start	0
F04.19	Parking options	0: Deceleration stop 1: Free stop	0

Terminal control start and stop

Code	Code name	Parameter Description	Default
F00.03	Terminal control mode selection	0: Terminal RUN, F/R forward/reverse 1: Terminal RUN, F/R reverse 2: Terminal RUN, Xi stop, F/R reverse 3: Terminal RUN, Xi stop, F/R forward/reverse	0

Terminal RUN: Xi terminal is set to 1: Run terminal RUN

Terminal F/R: Xi terminal is set to 2: Run direction F/R

Terminal control can be divided into two-wire and three-wire control modes

Two-wire control:

F00.03=0: Terminal RUN runs, F/R controls forward/reverse

RUN terminal valid/invalid controls the start and stop of the inverter, F/R terminal invalid/valid controls forward/reverse; if F00.21 is set to 1, when reversing is prohibited, F/R terminal is invalid.

F00.03=1: Terminal RUN forward, F/R reverse

RUN terminal valid/invalid controls the forward and stop of the inverter, F/R terminal valid/invalid controls the reverse and stop, RUN terminal and F/R terminal are valid at the same time, and the inverter stops. F/R terminal is invalid when reversing is prohibited.

Three-wire control:

F00.03=2: Terminal RUN forward, Xi stops, F/R reverses

RUN is a normally open forward run button, F/R is a normally open reverse run button, both of which are valid on the pulse edge; Xi is a normally closed stop button, and the level is valid. Pressing the Xi button in the running state stops the inverter.

F00.03=3: Terminal RUN for operation, Xi for parking, F/R for forward/reverse

RUN is a normally open operation button, which is effective on the pulse edge, F/R is a forward/reverse switching switch (forward when open, reverse when closed), Xi is a normally closed parking button, which is effective on the level.



When the start/stop selection of F00.03 is 0 or 1, even if the RUN terminal status is valid, pressing the STOP key or the terminal external stop command can stop the inverter. At this time, the RUN terminal status must be invalidated once and then valid again before re-entering the running state.

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- If the motor type is an asynchronous motor:
 Set F01.34=1 to confirm, then press the RUN key, and the inverter will start to perform static tuning of the motor.
 Or set F01.34=2, then press the RUN key, and the inverter will start to perform rotating tuning of the motor.
- If the motor type is a synchronous motor:
 Set F01.34=11, press the RUN key, and the inverter will start to perform static tuning of the motor.
 Or set F01.34=12, press the RUN key, and the inverter will start to perform rotating tuning of the motor.
- It takes about two minutes for the motor to complete tuning and exit from the "tune" interface to the initial power-on state.
- If multiple motors are used in parallel, the rated power and rated current of the motors are the sum of the powers and currents of the connected motors; If two motors are switched, the parameters of motor 2 in group F14 need to be set separately, and the parameters of motor 2 need to be identified according to F14.34.

Fault/Prompt Code Table

Fault Codes	Describe	Fault Codes	Describe
E01	Short circuit fault/EMC fault	E17	The inverter temperature sensor is abnormal.
E02	Instantaneous overcurrent	E18	Soft start relay is not energized
E04	Steady-state overcurrent	E19	Current detection circuit abnormality
E05	Steady-state overvoltage	E20	Stall fault
E06	Steady-state undervoltage	E21	PID feedback disconnection
E07	Input phase loss	E24	Self-recognition of abnormalities
E08	Output phase loss	E26	Load drop protection
E09	Inverter overload	E27	Accumulated power-on time reached
E10	Inverter overheating	E28	Cumulative running time reached
E11	Parameter setting conflict	E43	Material cut protection
E13	Motor overload	E44	Cable failure
E14	External fault	E57	Pipeline network overpressure
E15	Inverter memory fault	E58	Pipeline network under pressure
E16	Communication abnormality	E76	Short circuit to ground

Prompt code	Status
P.-ON	The inverter is powered on.
P.-OFF	The inverter is in power-off state
SOFT.E	When the soft start is not engaged, the inverter will report SOFT.E when it is started. When the voltage is restored and the soft start is engaged, it will run normally.

For more detailed fault information and troubleshooting methods, please refer to the EMD800 Series Inverter User Manual.

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