Foreword

Thank you for choosing Sine Electric EM760 series high performance vector inverter.

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EM 760 series inverter is a high-performance vector control inverter launched by Shenzhen Sine Electric Co.,Ltd, which realizes the integration of synchronous motor drive and asynchronous motor drive : supports three-phase AC asynchronous motor and permanent magnet synchronous motor; supports a variety of international leading drive control technologies ——Improved vector VF control technology (VVF), speed sensorless vector control technology (SVC) and speed sensor vector control technology (FVC); support two output forms of speed and torque; support Wi - Fi access Function and background software debugging function ; support expansion - I/O expansion card, communication bus expansion card and various PG cards .

EM 760 series high performance vector inverter has the following characteristics :

- Built-in DC reactor from 18.5 kW to reduce input current distortion, improve power factor and enhance product reliability;
- High torque control accuracy: SVC/± 5 % rated torque, FVC/± 3 % rated torque;
- Wide speed regulation range and high control precision : SVC/1:200 (±0.2%) , FVC/1:1000 (±0.02 %) rated speed;
- Low frequency carrier: VVF/ 3 Hz/150%, SVC/0.25Hz/150%, FVC/0Hz/180 % ;
- Overvoltage stall, fast current limiting, overload, overheating, unloading, overspeed and other multiple guarantees;
- Support I/O expansion: 3 digital inputs, 2 relay outputs, 1 -10V~10V voltage input, 1 sensor input;
- Support communication bus expansion, realize various industrial network interconnection: 485 bus, PROFINET network, CANopen network and EtherCAT network;
- Support a variety of encoders: ABZ incremental, UVW incremental, UVW wire saving, resolver and sine cosine ;
- Support mobile phone APP debugging or monitor inverter status;
- Support Wi-Fi module or serial port access;
- Rich and convenient PC tool software functions.

Before using EM 760 series high performance vector inverter, please read this guide

carefully and keep it properly.

When the inverter is connected to the motor for the first time, please correctly select the motor type (asynchronous motor or synchronous motor), and set the motor nameplate parameters: rated power, rated voltage, rated current, rated frequency, rated speed, motor connection and rated power factor etc. If it is the FVC drive control mode, it is necessary to select the PG card and set the encoder parameters correctly.

As we always strive to improve our products and product information, the information provided by the company is subject to change without notice.

For the latest changes and more, please visit www.sinee.cn

Safety Precautions

Safety Definition: In this manual, safety precautions are divided into the following two categories;

DANGER：A situation that could result in serious injury or even death due to a hazard caused by failure to follow instructions.

CAUTION：Moderate or minor injury and equipment damage may result due to hazards caused by failure to follow instructions.

When installing, debugging and maintaining the system, please read this chapter carefully, and be sure to operate in accordance with the safety precautions required in this chapter. Any damage or loss caused by illegal operations has nothing to do with our company.

Safety Precautions

Before installation:

 **Danger**
1、Please do not install it when you find water in the package, missing parts or damaged parts when unpacking! 2、Please do not install if the outer packaging logo does not match the actual name!
 **Notice**
1、When unpacking the wooden box, please wear gloves and do not touch the sealing iron on the wooden box with your hands, otherwise there is a danger of injury! 2、When carrying the inverter, be sure to hold the bottom of the inverter. If you carry it by the front cover, the main body of the inverter may fall, and there is a danger of being smashed! 3、It should be handled with care, otherwise there is a risk of damage to the equipment! 4、Please do not use the damaged inverter or the inverter with missing parts, there is a danger of injury! 5、Do not touch the components of the control system with your hands, otherwise there is a danger of static electricity damage to the inverter! 6、The frequency converter has been subjected to the withstand voltage test before leaving the factory. Please do not perform the withstand voltage test on the frequency converter, otherwise there is a risk of damage to the frequency converter!

When installing:

 **Danger**
1、Please install it on flame-retardant objects such as metal, and keep away from combustibles, otherwise it may cause a fire! 2、Do not unscrew the fixing bolts of the device components, especially the bolts marked in red!
 **Notice**
1、Do not install the inverter in a place where there is conductive dust, corrosive gas, salt mist, oil, condensation, vibration or direct sunlight! 2、Do not let the wire ends or screws fall into the inverter, otherwise the inverter will be damaged! 3、When the inverter is placed in a relatively closed cabinet or space, please pay attention to the installation gap to ensure the heat dissipation effect.

When wiring:

Danger

1、The instructions in this manual must be followed, and the construction must be carried out by professional electrical engineers, otherwise there will be a danger of electric shock!
2、There must be a circuit breaker between the inverter and the power supply (recommended to use a specification greater than or equal to and closest to 2 times the rated current), otherwise a fire may occur!
3、Before wiring, please confirm that the power supply is disconnected (zero energy), and do not perform wiring work with electricity, otherwise there is a danger of electric shock! !
4、Never connect input power to the output terminals (U, V, W) of the inverter. Pay attention to the markings of the terminals, and do not connect the wrong wires! Otherwise, the inverter will be damaged or even fire!
5、Please ground the inverter correctly and reliably according to the standard, otherwise there will be danger of electric shock!

Notice

1、Please connect the inverter output terminals U, V, W to the motor input terminals U, V, W respectively. Inconsistent phase sequence can cause the motor to reverse.
2、Make sure that the wiring is in compliance with EMC requirements and the safety standards of the area. Please refer to the preferred recommendations for the wire size used. Otherwise an accident may occur!
3、Never connect the braking resistor directly between the DC bus ＋and －terminals, otherwise it will cause damage to the inverter and cause fire!
4、Please fasten the main circuit terminals with a screwdriver with specified torque, otherwise there is a risk of fire.
5、Do not connect phase-shift capacitors and LC/RC noise filters to the output circuit.
6、Do not connect the electromagnetic switch and electromagnetic contactor to the output circuit, otherwise the overcurrent protection circuit of the inverter will act, and in severe cases, it will cause internal damage to the inverter.
7、Do not disassemble the connecting cables inside the inverter, otherwise the inverter may be damaged.

Before power on:

Danger

1、Please confirm whether the voltage level of the input power supply is consistent with the rated voltage level of the inverter, otherwise it will cause equipment damage or fire;
2、Confirm whether the wiring positions on the power input terminals (R, S, T) and output terminals (U, V, W) are correct;
3、Pay attention to check whether there is a short circuit in the peripheral circuit connected to the inverter, and whether the connected circuit is fastened, otherwise the inverter will be damaged!

Notice

1、The inverter must cover the cover before powering on, otherwise it may cause electric shock!
2、The wiring of all peripheral accessories must comply with the instructions of this manual, and the correct wiring is provided according to the circuit connection method provided in this manual. Otherwise it may cause an accident!

After power up:

Danger

1、Do not touch the inverter and surrounding circuits, otherwise there is a danger of electric

shock!
2、 If the indicator light does not light up and the keyboard does not display after power-on, please turn off the power switch immediately. After 10 minutes of power-off, check whether the wiring is wrong. Do not touch the R, S, T and any power terminals of the inverter with hands or screwdrivers, otherwise there is a danger of electric shock. After eliminating the cause of the wiring error, you should contact our customer service staff immediately.
3、 After power-on, never touch any terminal of the inverter, never touch the motor, otherwise there is a danger of electric shock!
4、 Do not disassemble any parts of the inverter when the inverter is powered on.

Notice

1、 If parameter identification is required, please pay attention to the danger of injuring people during the rotation of the motor. Please confirm the safety before proceeding, otherwise it may cause an accident!
2、 Do not arbitrarily change the parameters of the inverter manufacturer, otherwise it may cause damage to the equipment!

During maintenance:

Danger

1、 Do not repair and maintain the equipment with electricity, otherwise there is a danger of electric shock!
2、 Cut off the main circuit power supply and confirm that the keyboard display interface is off for at least 10 minutes before maintenance and repair of the inverter, otherwise the residual charge on the capacitor will cause harm to people!
3、 Personnel without professional training should not repair and maintain the inverter, otherwise it will cause personal injury or equipment damage!
4、 After replacing the inverter, parameter setting and inspection must be carried out, and all pluggable interfaces must be plugged and unplugged in the case of power failure!
5、 When the synchronous machine rotates, it will generate electricity. In the case of power failure, it is necessary to wait for the motor to stop for 10 minutes, disconnect the connection between the motor and the inverter, and take safety measures before maintenance and repair of the inverter. Otherwise, there is a danger of electric shock. !

Running:

Danger

1、 Do not touch the cooling fan, radiator and discharge resistor to test the temperature, otherwise it may cause burns!
2、 Non-professional technicians should not detect signals during operation, otherwise it may cause personal injury or equipment damage!

Notice

1、 During the operation of the inverter, it should be avoided that something falls into the equipment, otherwise the equipment will be damaged!
2、 Do not use the method of contactor on and off to control the start and stop of the inverter, otherwise it will cause equipment damage!

Precautions

Motor insulation inspection

Before using the motor for the first time, before using it for a long time, and during regular inspection, the motor insulation should be checked to prevent damage to the inverter due to the insulation failure of the motor winding. During insulation inspection, the motor wiring must be

separated from the inverter. It is recommended to use a 500V voltage megohmmeter, and it should be ensured that the measured insulation resistance is not less than 5MΩ.

Thermal protection of the motor

If the selected motor does not match the rated capacity of the inverter, especially when the rated power of the inverter is greater than the rated power of the motor, be sure to adjust the motor protection related parameter values in the inverter or install a thermal relay in front of the motor to protect the motor.

Operation above power frequency

Some inverters can provide output frequencies of 0.00Hz to 600.00Hz/0.0Hz to 3000.0Hz. If the customer needs to run the motor above the rated frequency, please consider the bearing capacity of the mechanical device. Otherwise, there will be equipment damage and even life-threatening accidents.

When there is a varistor on the output side or a capacitor to improve power factor

The output of the inverter is PWM wave. If the output side is installed with a capacitor for improving power factor or a varistor for lightning protection, it is easy to cause instantaneous overcurrent of the inverter or even damage the inverter. Please do not use it.

Use other than rated voltage

It is not suitable to use the inverter outside the allowable working voltage range specified in the manual, otherwise it will easily cause damage to the components in the inverter. If necessary, please use the corresponding step-up or step-down device for voltage transformation.

Lightning strike protection

This series of inverters is equipped with surge current protection device, which has a certain self-protection ability for inductive lightning. Customers should also install lightning protection device at the front end of the inverter for frequent lightning occurrences.

Altitude and Derating Usage

In areas with an altitude of more than 1000m, the cooling effect of the inverter is deteriorated due to the thin air, and it is necessary to derate the use (every 100m of height, derate by 1%, and the maximum altitude is 3000m; when it exceeds 50 ° C, it is necessary to press The temperature is derated by 1.5% for every 1° C increase in temperature, and the maximum operating temperature is 60 ° C). In this case, please contact our company for technical consultation.

Pay attention to the scrapping of the inverter

The electrolytic capacitors of the main circuit and the electrolytic capacitors on the printed board may explode when they are burned. Toxic gas will be generated when the plastic parts are burned. Please dispose of them as industrial waste.

Scope of use of this product

This product is not designed and manufactured for use in devices or systems where life is at stake and should not be used in these situations.
This product is produced under strict quality control, but please configure safety devices when it is used in equipment that may cause serious accidents or losses due to the failure of this product.

Electric shock

Please read the requirements in this safety precaution carefully! Cut off the main circuit power supply and confirm that the keyboard display interface is off for at least 10 minutes before

maintenance and repair of the inverter, otherwise the residual charge on the capacitor will cause harm to people!

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1. Summary

1.1 EM 760 series inverter model and specification

voltage : three - phase AC 340V ~ 460V

Applicable motor: three-phase AC asynchronous motor and permanent magnet synchronous motor

Rated supply voltage	model	Applicable motor power (kW)	Rated output current (A)
phase AC 3 40 ~ 4 60 V	EM 76 0-0R7-3B	0.75	2.5
	EM 76 0-1R5-3B	1.5	4.2
	EM 76 0-2R2-3B	2.2	5.6
	EM 76 0-4R0-3B	4.0	9.4
	EM 76 0-5R5-3B	5.5	13
	EM 76 0-7R5-3B	7.5	17
	EM 76 0-011-3B	11	25
	EM 76 0-015-3B	15	32
	EM 76 0-018-3B	18.5	38
	EM 76 0-022-3B _	twenty two	45
	EM 76 0-030-3 /3B	30	60
	EM 76 0-037-3 /3B	37	75
	EM 76 0-045-3 /3B	45	90
	EM 76 0-055-3 /3B	55	110
	EM 76 0-075-3 /3B	75	150

Table 1- 1 Technical Specifications of EM 760 Series Frequency Converters

project		specification
power supply	Rated supply voltage	phase 3 40 V-10% to 46 0 V+10% 50 ~ 60Hz±5%, voltage unbalance rate <3%
output	Maximum output voltage	The maximum output voltage is the same as the input supply voltage
	Output current rating	100% rated current continuous output
	Maximum overload current	150% rated current 60s, 180% rated current 10s, 200% rated current 2s
Basic control functions	drive mode	V/F Control (VVF); Speed Sensorless Vector Control (SVC); Speed Sensor Vector Control (FVC)
	Input	Frequency (speed) input, torque input
	Start-stop control method	Keyboard, control terminals (two-wire control, three-wire control), communication
	Frequency control range	0.00 to 600.00 Hz/0.0 to 3000.0 Hz
	Input frequency resolution	Digital input: 0.0 1Hz Analog input: 0.1 % of maximum frequency
	Speed range	1:50 (VVF), 1:200 (SVC), 1:1000 (FVC)
	Speed control accuracy	± 0.5% (VVF) , ± 0.2% (SVC) , ± 0.02% (FVC)
	Acceleration and deceleration time	~ 600.00s / 0.1s ~ 6000.0s / 1s ~ 60000s
	Voltage / Frequency	The rated output voltage is adjustable from 20 % to 100 % , and the

	Characteristics	fundamental frequency is adjustable from 1 Hz to 600 Hz /3000 Hz
	Torque boost	Fixed torque boost curve, optional V/F curve
	starting torque	150%/ 3Hz (VVF), 150%/0.25Hz (SVC), 180%/0 Hz (FVC)
	Torque contro accuracy	± 5 % rated torque (SVC), ± 3% rated torque (FVC)
	Output voltag self-adjustment	The input voltage changes, the output voltage remains basically the same
	Current automati limiter	Automatically limit output current to avoid frequent overcurrent tripping
	DC braking	Braking frequency: 0.01 ～ Maximum frequency Braking time: 0 ～ 30S Braking current: 0% to 1 5 0% of rated current
	Signal input sourc	Communication, multi-speed, analog, high-speed pulse, etc.
enter outpu t Funct ion	reference power	10.5V ± 0.5V / 20mA
	Terminal contro power	24V/200mA
	Digital inpu terminal	7 (standard X1 ～ X7) + 3 (extension card X8 ～ X10) digita multi-function input: X7 can be used as high-speed pulse input terminal (F02.06=35/38/40) X1～X6 and X8 ～X1 0 , a total of 9 channels can only be used as ordinary digital input terminals
	Analog inpu terminal	3 (standard AI1~AI3) + 1 (extension card AI4) analog input: 1 channel A I1: support 0 ~ 10V or - 10 ~ 10V, optional through functio code F 02.62 ; 2 channels A I2/AI3 : support 0 ~ 10V or 0 ~ 20mA or 4 ~ 20mA, through the function code F 02.63 , F 02.64 optional ; 1 channel A I4 : support 0 ~ 10V or - 10 ~ 10V, optional through functio code F 02.65
	Digital outpu terminal	2 (standard Y1/Y2) open-collector multi-function output+ 2 channels (R1:EA/EB/EC and R2:RA/RB/RC) relay multi-function output+ 2 (expansion card) circuits (R 3: RA3/CA3 and R 4 : R A4/CA4) relay multi-function output collector output maximum output current 50mA; Relay contact capacity 250VAC/3A or 30VDC/1A, EA-EC and RA-RC normally open, EB-EC and RB-RC normally closed; R A3-CA3 , R A4-CA4 normally open
	Analog outpu terminal	2 channels (M1/M2) multi-function analog output terminals, can output 0~ 10V or 0 ~ 20mA or 4 ~ 20mA, through function code F 03.34 and F 03.35
V	LCD display _	LCD digital tube displays the relevant information of the inverte
	parameter copy	The parameter setting information of the inverter can be uploaded an downloaded to realize fast parameter copying
Prote ct	Protective function	Short circuit, overcurrent, overvoltage, undervoltage, phase loss, overload, overheating, overspeed, load loss and external fault, etc.
use condi tion	Installation site	Indoor, below 1km altitude, no dust, no corrosive gas and no direc sunlight
	Applicable environment	-10 ℃ ～+50 ℃, 20%～90%RH (non-condensing)
	vibration	less than 0.5 g
	storage	-40 ℃ ～+70 ℃

	environment	
	Installation method	Wall-mounted, floor-standing electrical control cabinet, through-wall
	Protection class	IP20 /IP21 (add plastic baffle)
	cooling method	forced air cooling

2. Installation

2.1 Product confirmation

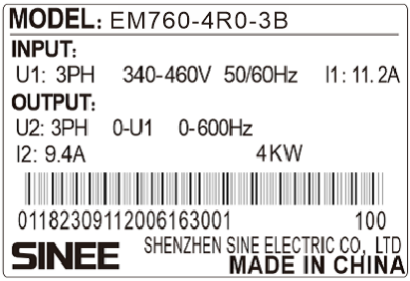
Notice
● **Do not install damaged inverters and inverters with missing parts.** risk of injury

When you get the product, please confirm with the table below.

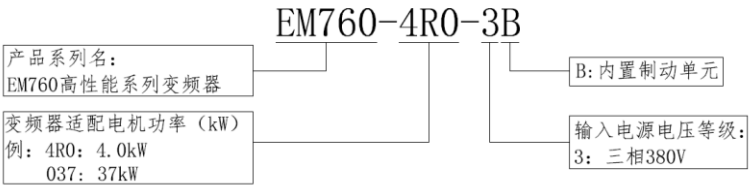
Confirm item	Confirmation method
Is it consistent with the ite ordered.	Check the nameplate on the side of the inverter.
Is there any damage.	Check the overall appearance and check for damage in transit.
Check whether the fastening part such as screws are loose.	Check with a screwdriver if necessary.

If there is any bad situation, please contact the agent or the marketing department of our company.

- **nameplate**

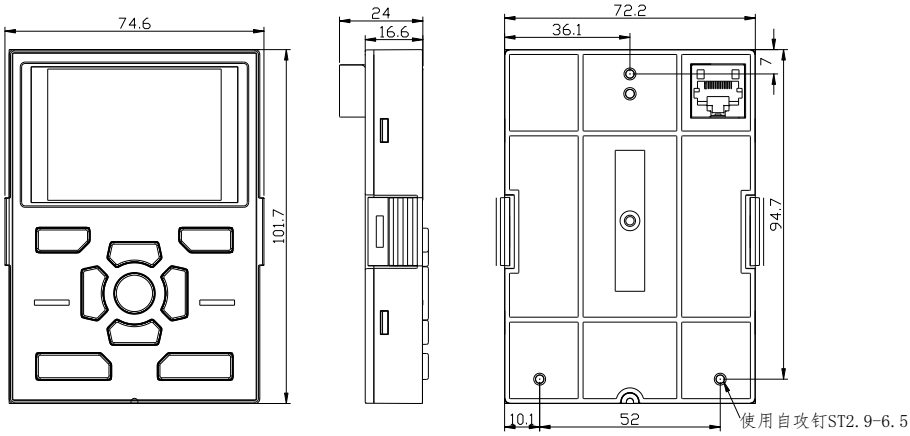


- **Inverter model description**

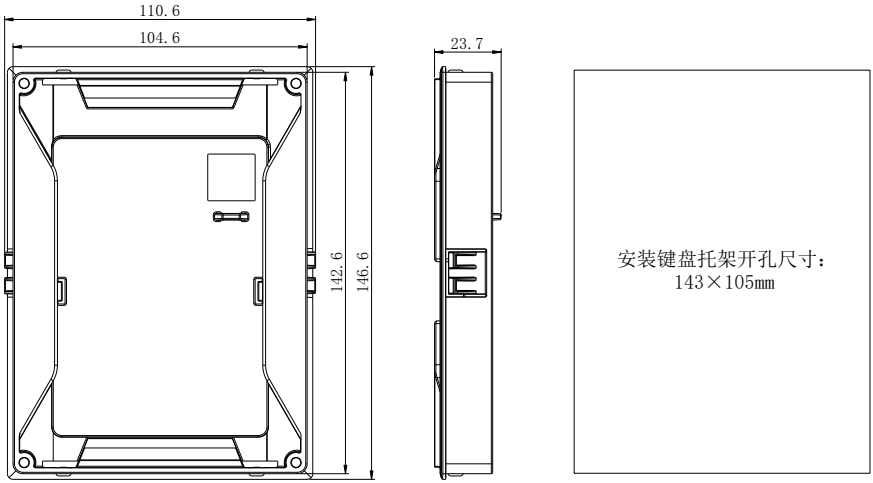


2.2 External Dimensions and Mounting Dimensions

EM760 series inverters have 15 specifications, 2 shapes and 7 installation sizes, and the keyboard and bracket can be externally drawn. As shown in Figure 2-1 and Table 2-2.

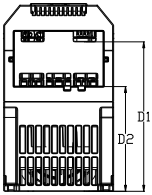


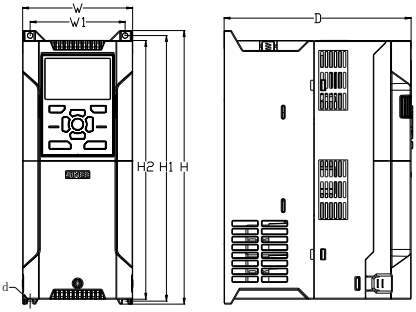
0.75～22kW series external keyboard size reference



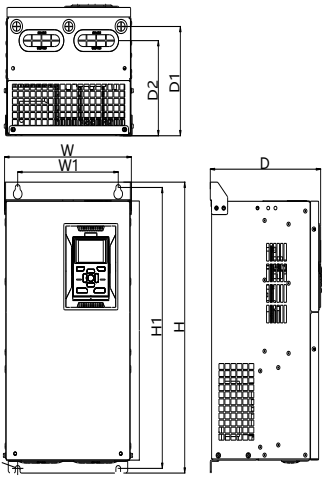
30～75kW series keyboard bracket opening dimension reference

(a) Dimensions of keyboard and bracket





(b) 0.75kW～22kW inverter shape



(c) 30kW～75kW inverter shape

Figure 2-1 Dimensions of EM760 series inverter and keyboard

Table 2-1 External dimensions and installation dimensions of EM760 series inverters

Specification	W	W1	H	H1	H2	D	D1	D2	d	shape
EM 76 0-0R7-3B	95	82	230	222	218	171	132	96	4.5	(b)
EM 76 0-1R5-3B										
EM 76 0-2R2-3B										
EM 76 0-4R0-3B										
EM 76 0-5R5-3B	110	95	275	267	260	187	146	105	5.5	
EM 76 0-7R5-3B										
EM 76 0-011-3B	140	124	297	289	280	207	163	120	5.5	
EM 76 0-015-3B										
EM 76 0-018-3B	190	171	350	340	330	220	173	12 8	7	
EM 76 0-022-3B _										
EM 76 0-030-3 /3B	255	202	494	477	440	222	186	162	9	(c)
EM 76 0-037-3 /3B										
EM 76 0-045-3 /3B	305	210	540	519	480	263	217	197	9	
EM 76 0-055-3 /3B										
EM 76 0-075-3 /3B	325	230	638	613	570	264	220	181	11.5	

2.3 Installation site requirements and management

installation site

The installation site should meet the following conditions:

- The interior is well ventilated.
- Ambient temperature -10 ℃ ~ 50 ℃.
- Avoid high temperature and humidity, humidity less than 90%RH, no rain or other liquid dripping.
- Please install it on a flame-retardant object such as metal, and do not install it on a flammable object such as wood.
- Avoid direct sunlight.
- No flammable, corrosive gases and liquids, no dust, oily dust, floating fibers and conductive dust.
- The installation base is firm and vibration-free.
- No electromagnetic interference, away from interference sources.

Precautions

During installation, please take protective measures for the inverter to prevent metal fragments or dust generated by drilling holes from falling into the inverter. After installation, please remove the shield.

2.4 Installation direction and space

EM760 series inverters are equipped with cooling fans for forced air cooling. In order to make the cooling cycle effect well, the inverter must be installed in a vertical direction, and there must be enough space for the up and down, left and right and adjacent objects or baffles (walls), please refer to Figure 2-2 .

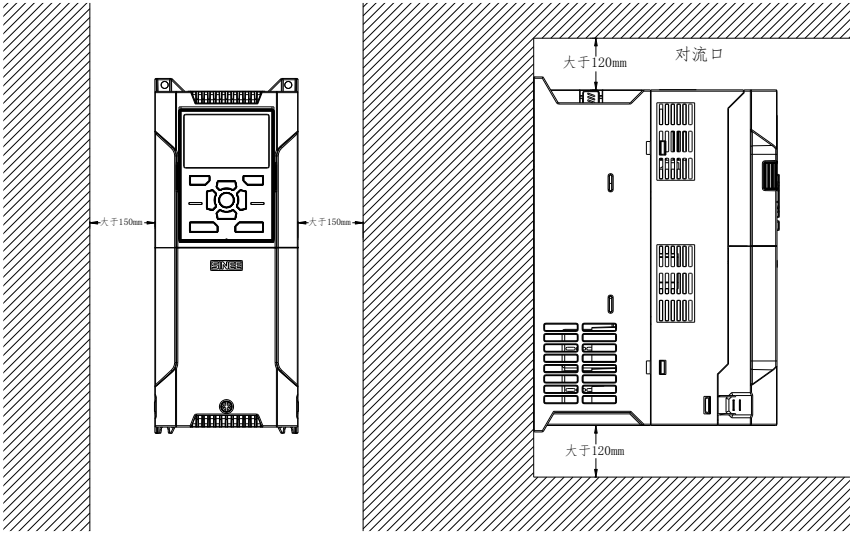
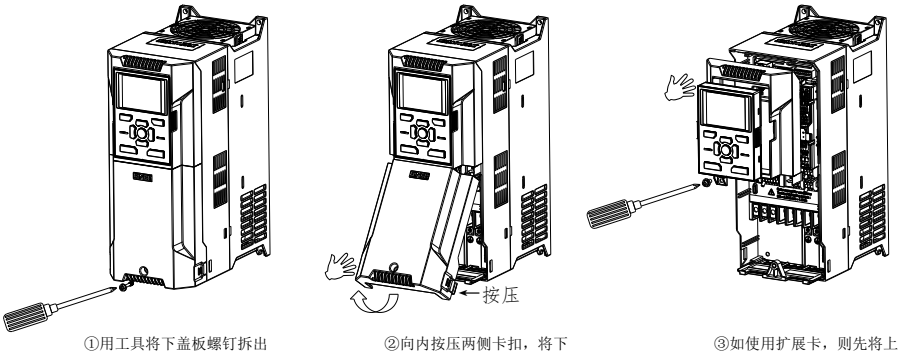


Figure 2-2 Inverter installation direction and space

2.5 Panel Removal and Installation

The EM760 series needs to remove the cover for wiring the main circuit, control circuit and expansion card. After completing the wiring work, install the wiring duct and cover in the reverse order of removal as shown in the illustration.

（1） EM760 series 0.75～22kW face cover removal



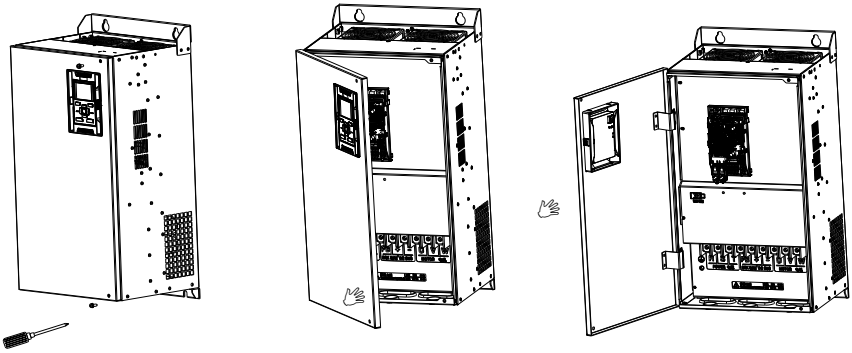
①用工具将下盖板螺钉拆出

②向内按压两侧卡扣，将下盖板倾斜向外拉出

③如使用扩展卡，则先将上盖板固定螺钉拆出，再将键盘网口拔出即可拆卸上盖板

Figure 2-1

（2） EM760 series 30～75kW face cover removal



①用工具将面板上下两侧螺钉取下 ②用手转动面盖右侧即可打开面盖 ③转动面盖，面盖最终可转到110° 左右

Figure 2-2

3. Wiring

3.1 Peripheral device connection

The standard connection diagram of EM760 series inverter and peripheral equipment is shown in Figure 3-1.

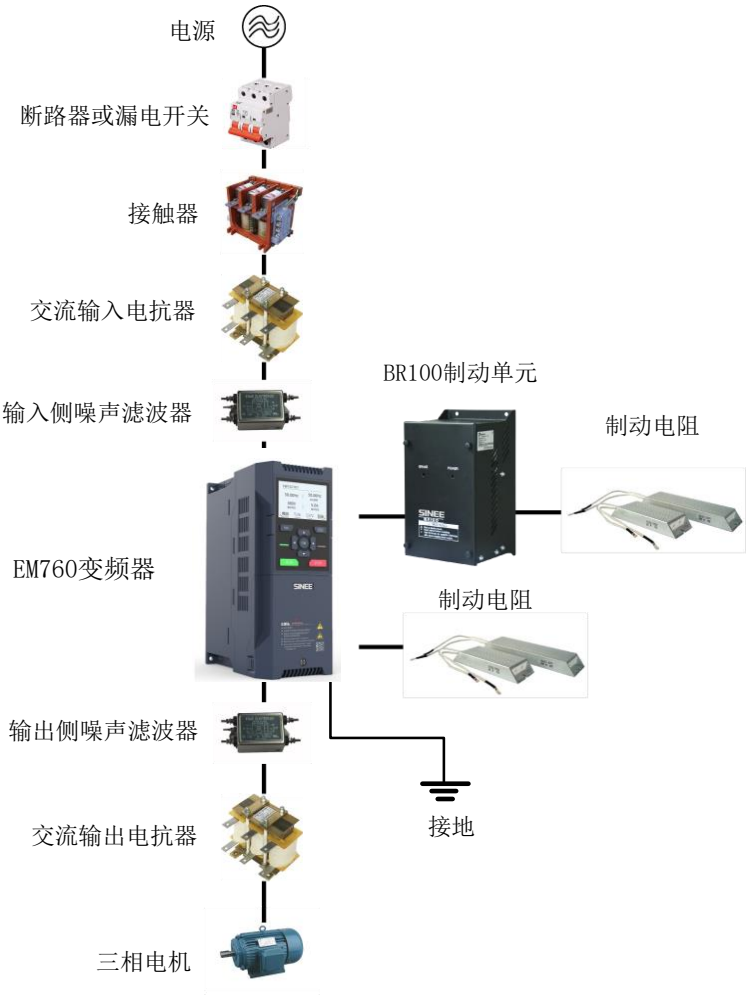
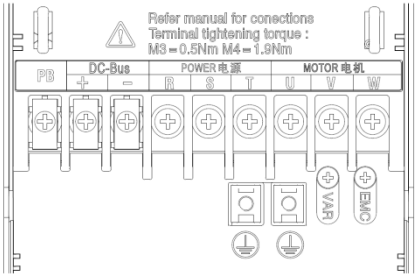


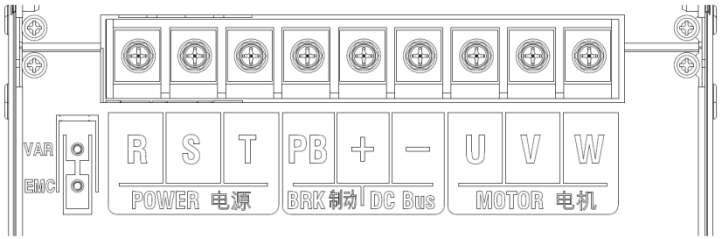
Figure 3-1 Connection diagram of inverter and peripheral equipment

3.2 Main circuit terminal wiring

3.2.1 Main circuit terminal composition



0.75-22kW main circuit terminal



30-75kW main circuit terminal

a) Schematic diagram of the main circuit terminals of medium and small power, the size of different power is slightly different

Figure 3-2 Schematic diagram of main circuit terminal arrangement

As shown in Figure 3-3, if the 0.75-22kW inverter encounters thick cables during wiring operation, remove the wire-passing fence of the wire-passing board.

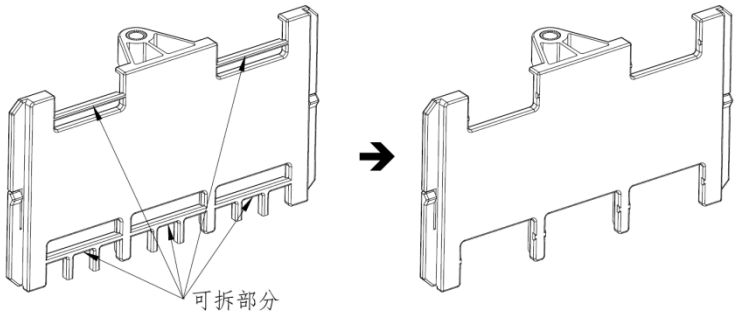


Figure 3-3 Cable Passing Board

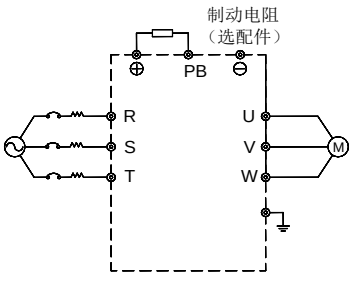
3.2.2 Main circuit terminal function

Table 3-1 Main circuit terminal functions

Terminal designation	Function Description
R, S, T	AC power input terminal, connected to three-phase AC power
U, V, W	AC output terminal of inverter, connected to three-phase AC motor
⊕⊖	They are the positive and negative terminals of the internal DC bus respectively, connected to the external braking unit
⊕, PB	Braking resistor connection terminal, one end of the braking resistor i connected ⊕, and the other end is connected to PB
⏚	ground terminal, ground

The standard wiring diagram of the main circuit of the EM 76 0 series inverter is shown in Figure 3-3

- EM 76 0-0R7-3B to EM 76 0-075-3B



EM 76 0-0 30-3 to EM 76 0- 075-3

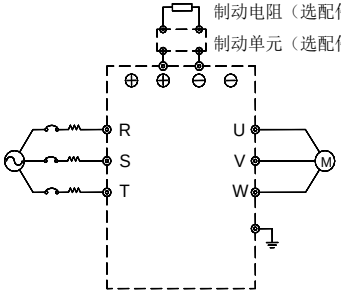


Figure 3-3 Standard wiring of main circuit

3.2.3 Main circuit input side wiring

Interference countermeasures

The working principle of the inverter determines that it will cause external interference. Please configure the peripheral equipment of the inverter according to Figure 3-1, install the filter and the inverter on the same iron plate, and shield the inverter and peripheral components with an iron box. Can reduce external interference. The wiring requirements are shown in Figure 3-4. For more detailed measures to reduce external interference, please refer to the EM 760 user manual.

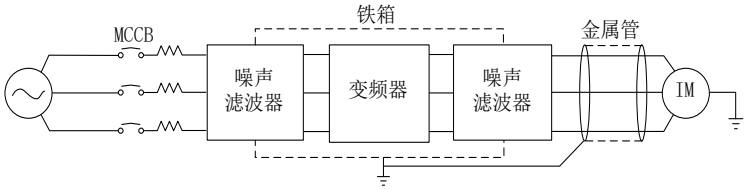


Figure 3-4 Countermeasures to reduce external interference

Main circuit cable and screw dimensions

For cable size and terminal screw specifications, please refer to the EM 760 frequency converter user manual.

Installation wiring of braking resistor and braking unit

If dynamic braking is required in work, please refer to Chapter 8 for the selection method of braking resistor and braking unit.

For models with built-in braking unit, the braking resistor is connected between the + and PB terminals of the inverter. For the inverter without built-in braking unit, it is necessary to connect the + and - terminals of the braking unit to the + and - terminals of the DC bus of the inverter, and connect the braking resistor to the PB+ and PB- terminals of the braking unit superior. For more information, please refer to the BR100 Brake Unit User Manual.

3.3 Control circuit terminal wiring

3.3.1 Control circuit terminal composition

arrangement of the control circuit terminals is shown in Figure 3-5 .

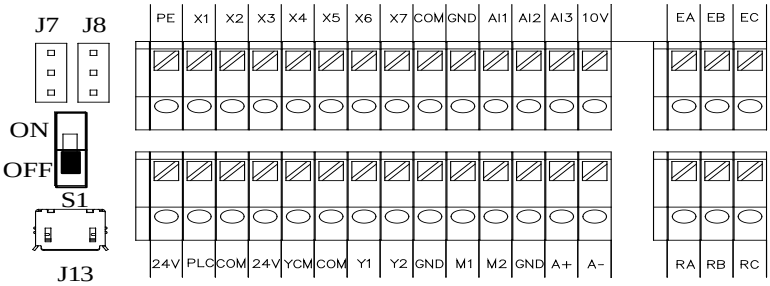


Figure 3-5 Control circuit terminal arrangement

3.3.2 Control circuit terminal functions and wiring

control loop terminals are shown in the table below

category	Terminal designation	Terminal name	Terminal function description
Auxiliary power supply	10V-GND	+10V power supply	Provide + 10.5±0.5 V power supply, maximum output current : 20mA
	24V-COM	+24V power supply	Provide +24V power supply to the outside, generally used as the working power supply of digital input and output terminals and external equipment power supply. Maximum output current: 200mA

	PLC	Multi-function input common terminal	The factory default is to connect with 24V When using an external power supply to drive the digital input terminal, it needs to be disconnected from the 24V terminal and connected to the external power supply
analog input	AI1-GND	Analog input terminal 1	Input voltage range: DC－10～10V/0～10V, selected by function code F 02.62
	AI2-GND	Analog input terminal 2	Input range: DC 0～10V /0～ 20mA /4 ～ 20mA , selected by function code F 02.63
	AI3-GND	Analog input terminal 3	Input range: DC 0～10V /0～ 20mA /4 ～ 20mA , selected by function code F 02.64
number enter	X1-COM	Multi-function input terminal 1	Photocoupler isolation, compatible with NPN, PNP bipolar input Input Impedance: 4kΩ Input voltage range: 9～30V
	X2-COM	Multi-function input terminal 2	
	X3-COM	Multi-function input terminal 3	
	X4-COM	Multi-function input terminal 4	
	X5-COM	Multi-function input terminal 5	
	X6-COM	Multi-function input terminal 6	
	X7-COM	High-speed pulse input terminal	In addition to being used as a multi-function input terminal, it can also be used as a high-speed pulse input terminal, the highest response frequency: 100kHz Input voltage: 12 to 30 V Input Impedance: 2 kΩ
Analog output	M1-GND	Analog output terminal 1	Output range: DC 0～10V/0～20mA/ 4 ～20mA, selected by function code F 03.34
	M2-GND	Analog output terminal 2	Output range: DC 0～10V /0～ 2 0mA / 4 ～20mA, selected by function code F 03.35
multifunction output	Y1- YCM	Open collector output terminal	Optocoupler isolation, open collector output Maximum output voltage: DC 30 V Output current: 50mA
	Y2-COM	High-speed pulse output terminal	Optocoupler isolation, open collector output Maximum output voltage: DC 30 V Maximum output current: 50mA When used as high-speed pulse output, the maximum output frequency: 100kHz
relay output	R1: EA-EB-EC	Relay output terminal	EA-EC: Normally open EB-EC: Normally closed
	R2: RA-RB-RC		RA-RC: Normally open RB-RC: Normally closed
communication	A+	RS-485 communication interface terminal	485 differential signal positive terminal
	A-		485 differential signal negative terminal
shield	PE	shield ground	For terminal wiring shield grounding

3.4 Wiring of analog input terminals

3.4.1 AI1, AI2, AI3 terminals use analog voltage signal wiring method:

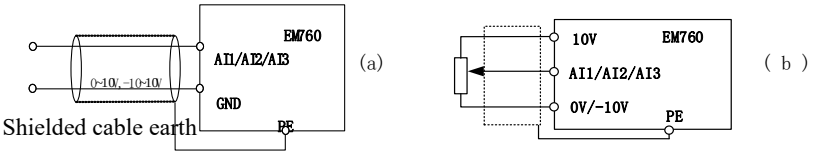
When AI 1 terminal selects analog voltage signal input, set function code F 02.62 (0/3) , corresponding input (0～ 10V/ -10 ～ 10V)

When AI 2 terminal selects analog voltage signal input, set function code F 02.63(0), corresponding input (0～1 0V)

When AI 3 terminal selects analog voltage signal input, set function code F 02.64(0), corresponding input (0～1 0V)

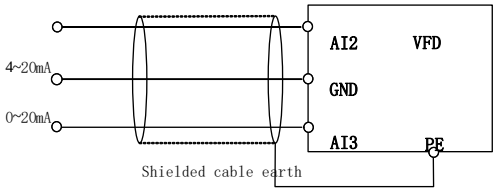
When the analog voltage input signal is powered by an external power supply, the wiring of AI1, AI2 and AI3 terminals is shown in the figure (a) below.

When the analog voltage input signal is a potentiometer, the wiring of AI1, AI2 and AI3 terminals is shown in the figure (b) below.



3.4.2 AI2, AI3 terminal input analog current signal wiring method:

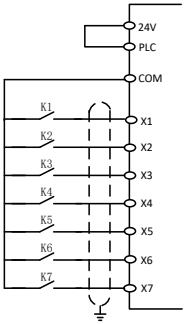
When AI2 and AI3 terminals select analog current signal input, set function code F 02.63 (1 /2), F 02.64 (1 /2)



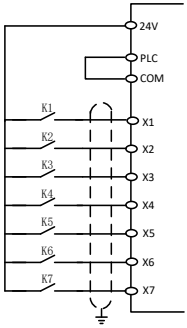
Wiring of multi-function input terminals

The multi-function input terminal of EM 760 series inverter adopts a full-bridge rectifier circuit. The PLC terminal is the common terminal of X1~X7, and the current flowing through the PLC terminal can be forward (NPN mode) or reverse (PNP mode). Therefore, the X1~X7 terminals are very flexible in connection with the outside. The typical connection method is shown in Figure 3-6:

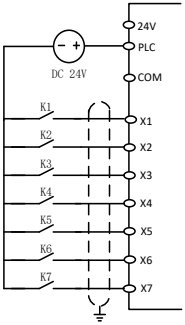
A. NPN mode uses internal power supply (+24Vdc)　　B. PNP mode uses internal power supply (+24Vdc)



C , NPN mode using external power supply



D. PNP mode uses external power supply



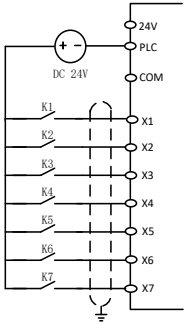
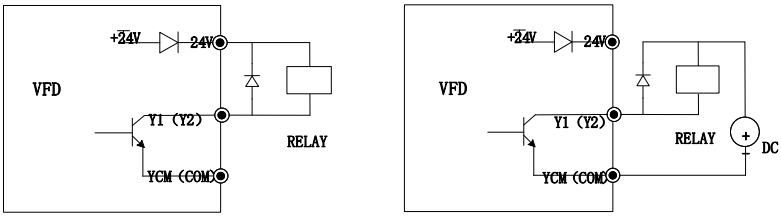


Figure 3-6 Wiring diagram of multi-function input terminal

Note: When using an external power supply, be sure to remove the short wire between 24V and the PLC terminal

Wiring of multi-function output terminals

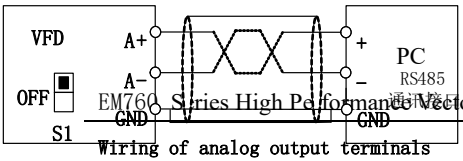
multi-function output terminals Y1 and Y2 can be powered by the internal 24V power supply of the inverter or an external power supply , as shown in Figure 3-7:



a: Use internal power supply b: Use external power supply

Figure 3-7 Wiring method of multi-function output terminals

Note: The relay wire package must be added with an anti-parallel diode. The components of the absorbing circuit should be installed at both ends of the coil of the relay or contactor nearby.



Wiring of analog output terminals

The analog output terminals M1 and M2 can be connected to an external analog meter to represent various physical quantities. The dial switch selects the output current (0～ 20mA) or (4 ～ 20mA) or (0 ～10V).

485 communication terminal wiring

Communication terminals A+ and A- are the RS485 communication interfaces of the inverter. Through the connection and communication with the upper computer, the network control between the upper computer (PC or PLC controller) and the inverter is realized. The connection between RS485, RS485/RS232 converter and EM 760 series inverter is shown in Figure 3-8, Figure 3-9, and Figure 3-10.

- The RS485 terminal of a single inverter is directly connected to the host computer for communication:

Figure 3-8 Wiring of communication terminals of a single inverter

- The RS485 terminals of multiple inverters are connected to the host computer for communication:

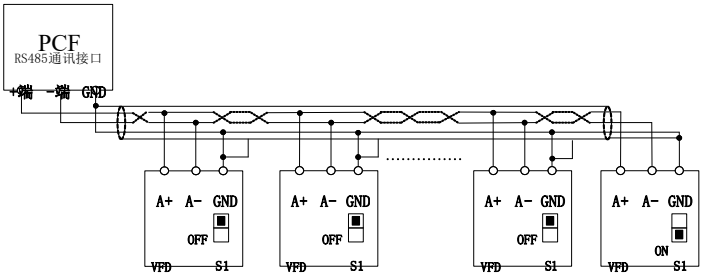


Figure 3-9 Wiring of communication terminals of multiple inverters

Standard wiring diagram of control loop

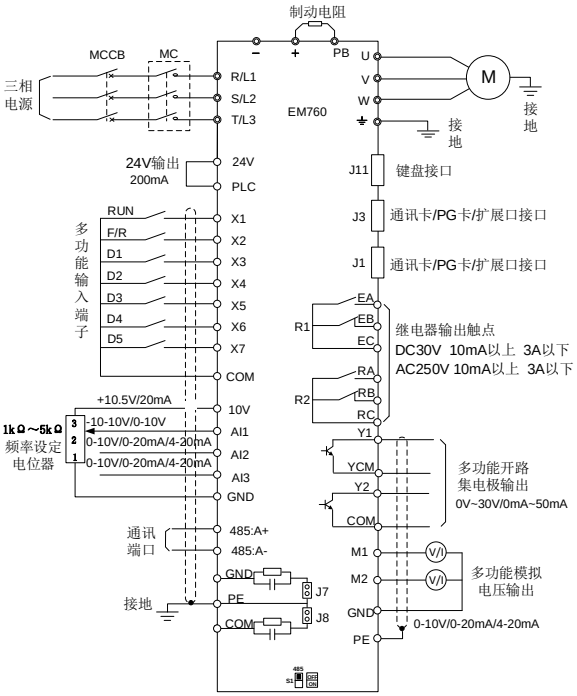


Figure 3-10 Standard wiring diagram of control loop

3.4.3 Extended keyboard wiring

1) The external keyboard port adopts RJ45 interface, and the extension cable is an ordinary network cable (the plug connector implements the EIA/TIA568B standard);
2) Use a network cable to connect the keyboard RJ45 port to the RJ45 port on the keyboard mount.
3) The keyboard extension cable should not be longer than 30m. If you use more than five types of wires and a good electromagnetic environment, the extension line can reach 50m .

4. Keyboard operation

4.1 keyboard function

LCD keyboard structure

EM760 series inverter control panel is divided into two types: LED keyboard, LCD keyboard. The LCD keyboard consists of an LCD display, nine operation buttons, and two status indicators. The user can set parameters, monitor the status, start and stop running, etc. of the inverter through the keyboard.

4.2 LCD liquid crystal keyboard operation mode

LCD LCD keyboard menu is divided into monitoring interface (level 0), menu mode selection (level 1), function code selection level (level 2), and function code detail level (level 3) in order from low to high. The menu will be mentioned later in this manual. The grades represent the corresponding grades with numbers.

Menu mode selection is divided into 6 types: **full menu mode** , used to display all function codes; **user-defined mode** , used to display F11 group user function code group; **non-factory value mode** , used to display all function codes not equal to the factory value ; **Fault query** : Check the last three fault records saved; **Guide mode** : Set the function codes related to the motor parameters according to the sequence, and carry out auto-tuning operation; **System settings** : Set the brightness, backlight time, language and check the software version.

When the keyboard is powered on, the display defaults to the monitoring interface (main monitoring) of the 1st level menu. When the 1st level menu is pressed, press the ESC key ESC to enter the 0th level menu . menu mode. Press the ESC key in the level 0 menu to return to the main monitor of the level 1 menu. The operation flow of menu mode selection is shown in Figure 4-1.

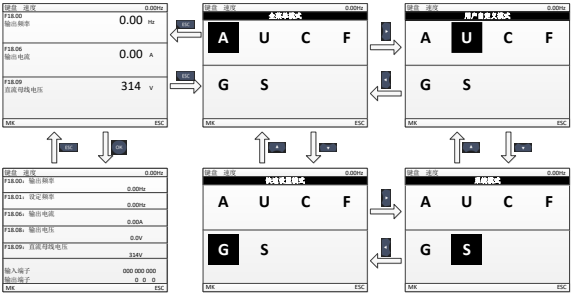


Figure 4-1 Operation flow chart of monitoring switching and 0-level menu mode selection

full menu mode

In the full menu mode, press the enter key OK to enter the level 2 menu to select any function code. Then enter the 3-level menu through the confirm key OK, and you can view or modify the function code. Except for a few special function codes, all the function codes that the general user needs to use can be modified.

In all menu modes, after parameter modification is completed, pressing the enter key OK will save the parameters.

Press the ESC key in the 3-level menu to ESC give up the parameter modification: when the function code is equal to its unmodified previous value, directly exit the 3-level menu and return to the 2-level menu; otherwise, the parameter value will be restored to the unmodified previous value and displayed, and then press ESC Press the key to ESC exit the 3-level menu and return to the 2-level menu.

Quick positioning function, there are all function code groups in the full menu mode, the number is large, the quick positioning function will make the operation more convenient, set the function code to be jumped, and press the OK key OK to jump to the function code .

In the full menu mode, the entire operation process from the initial power-on state to changing the value of the function code F03.28 to 2.000 is shown in Figure 4-2. When entering the full menu mode for the first time, the default is F00.00. In the second-level menu, use the quick positioning function to locate from F00.00 to F03.28, and then modify and save the parameter value of F03.28 in the third-level menu. After confirming the modification, return to the second level directly. menu. During this period, press the ESC key ESC, the quick positioning function can be canceled in the second-level menu, and the function code parameter value before modification can be restored in the third-level menu.

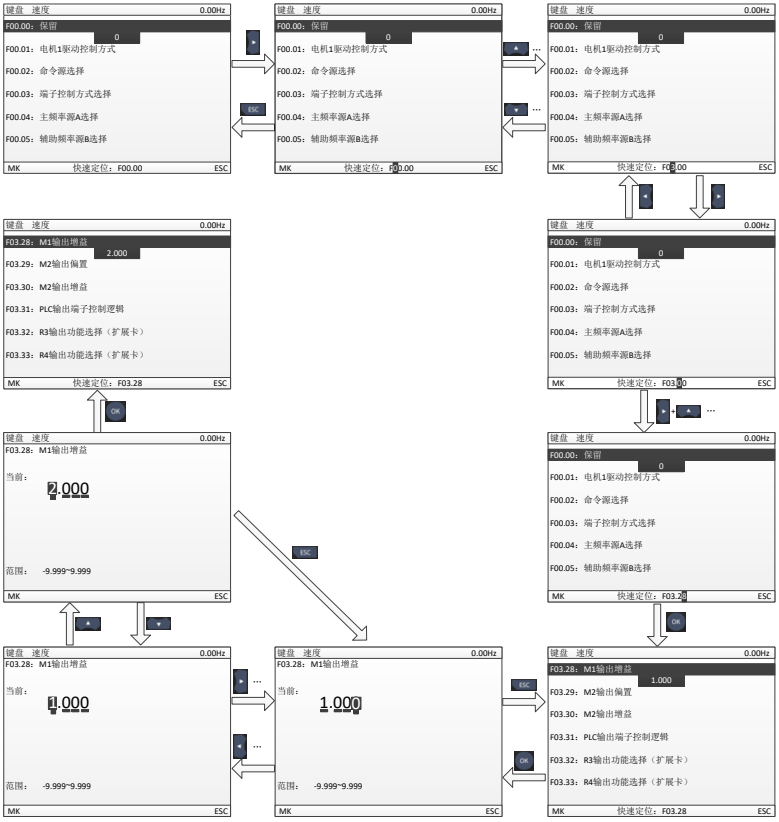


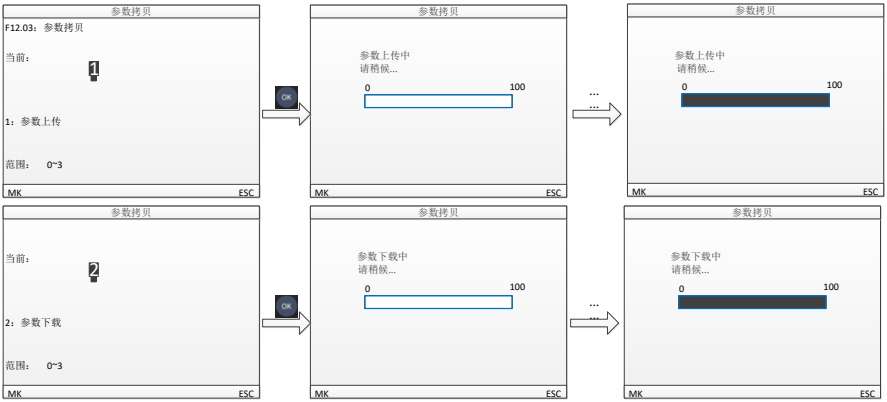
Figure 4-2 Quick positioning and function code parameter value modification in full menu mode

For other modes, please refer to the user manual

4.3 parameter copy

In order to facilitate users to set parameters between inverters using the same function parameters, the keyboard has parameter upload and download functions. When the function code F12.03 is set to 1 and the confirmation key is pressed OK, the relevant parameters of the inverter will be uploaded to the keyboard, and the keyboard will display the progress when uploading, and the function code will automatically change to 0 after the upload is completed. The uploaded keyboard can be plugged into other inverters that need to use the same parameters. When the function code F12.03 is changed to 2, normal parameter download can be performed, and the parameters saved by the keyboard can be downloaded to the inverter. When the function code F12.03 is changed to At 3:00, the motor parameters will be additionally downloaded on the basis of the normal parameter download, and the keyboard will display the progress during the download. Similarly, the function

code will be automatically changed to 0 after the parameter download is completed.



Of particular note are:

1、 The keyboard cannot download parameters before parameter uploading, because the parameters in the keyboard without parameter uploading are unknown. If downloading, the parameters in the inverter will be scrambled and the inverter will malfunction. Therefore, when the keyboard does not upload parameters If you use parameter download, it will prompt that there is no parameter in the keyboard, indicating that the parameter download is unsuccessful. Press the ECS key to exit and re-upload and then download.

2、 When the CPUA software version between the inverters is different, if the parameter download is performed, the keyboard will prompt whether the version is different and whether to force the download. At this time, the user needs to find out whether the parameter download can be performed between the two different versions. If yes, you can force it by pressing the OK key OK; if not, you can cancel the current operation by pressing the ESC key. **Uploading and downloading parameters between two inverters with incompatible parameters will easily cause the inverter to fail to run. Please operate with caution .**

4.4 run/stop

After the parameters are set, press the RUN key RUN, the inverter can run normally; press the STOP key STOP, the inverter stops. Among them, the MK key can be defined as free stop by changing the function code F12.00 to 5 MK, and the inverter can also stop running.

After the function code F01.34 is set to the corresponding auto-tuning mode, the RUN inverter must press the RUN key to enter the corresponding parameter identification state. During parameter identification, "TUNE" will be displayed. After the identification is completed, it will return to the original display, and the function code F01 .34 also automatically becomes 0. The motor may rotate when the inverter performs rotation parameter identification. If an emergency occurs,

d by pressing the STOP key.

5. Test running

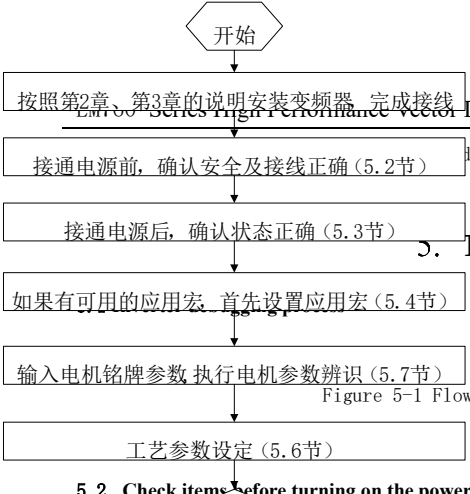


Figure 5-1 Flow chart of inverter debugging

5.2 Check items before turning on the power

Be sure to confirm the following items before turning on the power:

Confirm item	Confirm the content
	whether the input power voltage is consistent irements of the inverter
Power wiring confirmation	Confirm that the power supply circuit is connected to the circuit breaker , and the power cord is correctly connected to the R, S, T input terminals of the inverter
	the drive and motor are properly grounded
Motor wiring	Confirm that the motor is correctly connected to the U, V, W output terminals of the inverter, and the motor wiring is
Braking unit and braking resistor	Confirm the correct wiring of the braking resistor and t (if dynamic braking is required during work)
Control terminal wiri ation	Confirm whether the connection between the control terminals of the inverter and other control devices is correct and reliable
Control terminal status confirmation	Make sure that the control terminal circuits of the inverter are all disconnected to prevent the inverter from running after power-on
Mechanical load confirmation	Confirm that the mechanical load is unloaded and will not cause danger after operation

5.3 Inverter status confirmation after power-on

After the power is turned on, the inverter operation panel (keyboard) displays as follows in normal state:

state	show	illustrate
normal	0	The factory default display is digital setting 0Hz

when protecting	Protection code in character or Exx format	During protection, the protection code will be displayed. Please refer to Chapter 6 for protection measures.

5.4 Notes on setting up application macros

F16.00 is the industry application macro selection, select the application macro according to the specific application, press the Enter key to confirm, it will automatically restore the factory value once.

5.5 Start and stop control

F00.02=0: keyboard control

The start and stop of the inverter are controlled by the RUN key and STOP key on the keyboard. When the protection is not tripped , press the RUN key to enter the running state. The bar-shaped LED light above the RUN key is always on, indicating that the inverter is in the running state, and flickering indicates that the inverter is in the deceleration stop state.

F00.02=1: terminal control

by function codes F02.00~F02.06 control the start and stop of the inverter, and the terminal control mode is determined by F00.03 .

F00.02=2: communication control

The start and stop of the inverter is controlled by the host computer through the RS485 communication port.

F04.00=0: direct start

When the inverter starts, it first performs DC braking (no DC braking when F04.04=0), and then performs pre-excitation (no pre-excitation when F04.07 is set to 0), and then starts at the starting frequency, and the starting frequency remains After the time expires, it will enter the given frequency operation.

F04.00=1: Speed tracking start

When the inverter starts, the speed tracking is performed first, and then it starts smoothly from the current actual rotation frequency of the motor.

F04.19=0: Decelerate to stop

The motor decelerates and stops according to the set system deceleration time.

F04.19=1: Free parking

When the stop command is valid, the inverter will stop output immediately, and the motor will coast to stop. The stopping time depends on the inertia of the motor and load.

function code	Function code name	Parameter Description	Factory default	Attributes
F00.03	Terminal control mode selection	0: Terminal RUN running, F/R forward/reverse 1: Terminal RUN forward, F/R reverse 2:	0	○

		Terminal RUN forward, Xi stop, F/R reverse 3: Terminal RUN running, Xi stop, F/R forward/reverse		

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

Terminal F/R: Xi terminal is set to " 2: Running 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 rotation

The RUN terminal is valid/invalid to control the start and stop of the inverter, and the F/R terminal is invalid/valid to control the forward/reverse rotation; if F00.21 is set to 1, when the reverse rotation is prohibited, the F/R terminal is invalid. When the parking mode selects deceleration to stop, the logic diagram is shown in Figure 5-2(b);

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

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

Three-wire control:

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

RUN is the normally open forward running button, F/R is the normally open reverse running button, both are pulse edge valid; Xi is the normally closed stop button, the level is valid. In the running state, press the Xi button to stop. Xi is the terminal in X1~X5 that has been defined as 'three-wire running stop control' by F02.00~F02.04;

F00.03=3: Terminal RUN runs, Xi stops, F/R forward/reverse

RUN is the normally open running button, which is valid at the pulse edge, F/R is the forward/reverse switch (forward rotation when disconnected, and reverse rotation when closed), Xi is the normally closed stop button, and the level is valid.

5.6 Common process parameters of frequency converter

function code	Function code name	Parameter Description	unit	Factory default	Attributes
F00.01	Motor 1 drive control method	0 : V/F control (VVF) 1 : Speed sensorless vector control (SVC) 2: With speed sensor vector control (FVC)		0	○
F00.04	Main frequency source A selection	0: Digital frequency given F00.07 1: AI1 2: AI2 3: AI3 4: AI4 (expansion card)		0	○

		5: High frequency pulse input (X7) 6: Main frequency communication percentage given 7: The main frequency communication is given directly 8: Digital potentiometer given			
F00.07	Digital frequency given	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 limit frequency	Lower limit frequency F00.19～maximum frequency F00.16	Hz	50.00	●
F00.19	lower frequency	0.00～upper limit frequency F00.18	Hz	0.00	●
F00.21	Invert control	0: Enable forward/reverse 1: Disable reverse		0	○

Note: Common process parameters may also include input and output terminal function settings, please refer to the function table F02 group and F03 group for settings.

5.7 Motor parameter identification

In order to achieve better control performance, motor parameter identification must be carried out.

Identification method	Applicable	Identification effect
F01.34=01 Asynchronous machine static auto-tuning	It is difficult to separate the motor from the load, and rotation auto-tuning is not allowed.	generally
F01.34=11 synchronous machine static auto-tuning		
F01.34=02 Asynchronous machine rotation auto-tuning	Where the motor and the load are easily separated. Before the operation, the motor shaft should be disconnected from the load, and the motor should be prohibited from rotating auto-tuning operation with load.	optimal
F01.34=12 Synchronous machine rotation auto-tuning		

- Before the auto-tuning operation, make sure that the motor is in a stopped state, otherwise the auto-tuning cannot be carried out normally.

Parameter identification operation steps

- If the motor and the load can be separated, completely disconnect the mechanical load from the motor in the event of a power failure.
- After power on, set the inverter command source to keyboard control (set F00.02=0)
- Enter the nameplate parameters of the motor accurately.

motor	Corresponding parameters

Motor 1 (Motor 2 is the corresponding parameter of group F14)	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

- If the motor type is asynchronous motor:

  Set F01.34=1 to confirm , and then press the RUN key, the inverter starts to perform static self-identification on the motor.

  Or set F01.34=2, and then press the RUN key, the inverter will start to auto-identify the motor.

- If the motor type is a synchronous motor:

  Set F01.34=11, press the RUN key, the inverter starts to perform static self-identification on the motor.

  Or set F01.34=12, press the RUN key, the inverter will start to auto-identify the motor.

- It takes about two minutes, the motor self-identification is completed, and the "tune" interface exits to the initial power-on state.
- If multiple motors are used in parallel, the motor rated power and rated current input the sum of the motor power and current;

If the two motors are switched for use, the parameters of motor 2 in group F14 need to be set separately, and the parameters of motor 2 should be identified according to F14.34.

6. Troubleshooting

Protect content

When the inverter is abnormal, the keyboard display will display the corresponding protection code and its parameters, the protection relay will act, the protection output terminal will act, and the inverter will stop outputting. When protection occurs, if the motor is rotating, it will coast to stop or decelerate to stop until it stops rotating. The protection contents and countermeasures of EM760 series inverter are shown in REF _Ref372797954 \h * MERGEFORMAT Table 61 -.

Table 6 -1Protection content and countermeasures of EM760 series inverter

protection code	type of protection	reason for protection	Protection measures
E01	Short circuit protection	1. Phase-to-phase short circuit. 2. The external braking	1. Check the wiring for short circuits. 2. Investigate the cause, take

		resistor is short-circuited. 3. The inverter module is damaged.	appropriate countermeasures, and reset. 3. Seek technical support.
E02	Instantaneous overcurrent	1. The acceleration and deceleration time is too short. 2. In V/F drive mode, the V/F curve setting is unreasonable. 3. The motor is spinning at startup. 4. Use a motor that exceeds the capacity of the inverter or the load is too heavy. 5. The motor parameters are not suitable, parameter identification is required 6. Phase-to-phase short-circuit on the output side of the inverter. 7. Inverter damaged	1. Extend the acceleration and deceleration time. 2. Set the V/F curve reasonably. 3. Set the speed tracking start to be valid or start the DC braking. 4. Replace the suitable motor or inverter. 5. Perform motor parameter identification 6. Check the wiring for short circuits. 7. Seek technical support.
E04	Steady-state overcurrent	Same as E02	Same as E02
E05	overvoltage	1. The deceleration time is too short, and the regenerative energy of the motor is too large. 2. Braking unit or braking resistor open circuit. 3. Braking unit or braking resistor does not match. 4. The power supply voltage is too high. 5. The dynamic braking function is not enabled	1. Extend the deceleration time. 2. Check braking unit and braking resistor wiring 3. Match with suitable braking unit/braking resistor. 4. Reduce the power supply voltage to within the specified range. 5. For the built-in braking unit model, set F15.30 to 1 to enable the dynamic braking function.
E06	undervoltage	1. Input power phase loss. 2. Loose input power terminals. 3. The input supply voltage has dropped too much.	1. Check input power and wiring. 2. Tighten the input terminal block screws. 3. Check the air switch and contactor.

		4. Deteriorated switch contacts on input power.	
E07	input phase loss	1. Input power phase loss. 2. The input power fluctuates greatly.	1. Check input power. 2. Check input power wiring. 3. Check for loose terminals. 4. A voltage regulator is added on the input side.
E08	output phase loss	1. Output U, V, W phase loss.	1. Check the wiring between the inverter and the motor. 2. Check whether the output terminals are loose. 3. Check the motor windings for broken wires.
E09	Inverter overload	1. The acceleration and deceleration time is too short. 2. The V/F curve setting is not suitable for V/F drive mode. 3. The load is too heavy. 4. The braking time is too long, the braking intensity is too large, and the DC braking is repeated repeatedly.	1. Extend the acceleration and deceleration time. 2. Set the V/F curve reasonably. 3. Replace the inverter that matches the load. 4. Reduce braking time and braking intensity, do not repeat DC braking
E10	Inverter overheating	1. The ambient temperature is too high. 2. Inverter ventilation is poor. 3. Cooling fan failure.	1. The operating environment of the inverter should meet the specification requirements. 2. Improve the ventilation environment and check whether the air duct is blocked. 3. Replace the cooling fan.
E11	Parameter setting conflict	1. Parameter setting logic conflict.	1. Check whether the parameters set before protection are logically unreasonable.
E12	Motor overheating	1. The motor temperature sensor detects that the temperature is greater than the set threshold. 2. The motor temperature sensor is disconnected.	1. Verify that the motor thermal protection threshold is appropriate. 2. Check if the sensor is disconnected. 3. Enhanced motor cooling.

		3. Ambient temperature is too high. 4. The load is too heavy.	4. Inappropriate motor selection.
E13	Motor overload	1. The acceleration and deceleration time is too short. 2. The V/F curve setting is not suitable for V/F drive mode. 3. The load is too heavy.	1. Extend the acceleration and deceleration time. 2. Set the V/F curve reasonably. 3. Replace the motor that matches the load.
E14	external protection	1. The external device protection terminal operates.	1. Check external devices.
E15	Inverter memory protection	1. Disturbances make memory read and write errors. 2. The controller repeatedly writes to the internal memory, causing memory corruption .	1. Press the STOP key to reset and try again. 2. For parameters that need to be modified frequently, such as frequency setting, after debugging, set F10.56 to 11
E16	Communication exception	1. In systems with discontinuous communication, the communication timeout is enabled. 2. Communication disconnected.	1. In the discontinuous communication system, set F10.03 to 0.0. 2. Adjust the communication timeout time of F10.03. 3. Check if the communication cable is disconnected.
E17	Inverter temperature sensor abnormal	The drive temperature sensor is open or shorted.	1. Seek technical support.
E18	Soft start relay is not picking up	1. The cable is loose. 2. Soft start relay is invalid.	Check the inverter wiring. 1. Seek technical support.
E19	Abnormal current detection circuit	The driver board or control board detection circuit is damaged.	1. Seek technical support.
E20	Stall Protection	1. The deceleration time is set too short. 2. Abnormal energy consumption braking at deceleration stop. 3. The load is too heavy.	1. Extend the deceleration time. 2. Check dynamic braking. 3. Check if the motor is driven by other loads and cannot stop.

E21	PID feedback disconnection	1. The PID feedback is greater than the upper limit F09.24 or smaller than the lower limit F09.25, depending on the type of feedback sensor.	1. Check to see if the feedback line is disconnected. 2. Check whether the sensor is working abnormally. 3. Adjust the feedback disconnection detection value to a reasonable level.
E2 2	Encoder failure	1. The encoder cable is not connected properly. 2. The PG card is not installed properly. 3. PG card selection is wrong. 4. Encoder damaged. 5. On-site interference.	1. Check whether the wiring between the PG card and the encoder is correct 2. Check whether the PG card is inserted properly 3. Confirm the PG card selection. 4. Replace the encoder. 5. Electromagnetic compatibility measures such as adding a magnetic ring to the output cable of the inverter.
E2 3	keyboard memory failure	1. Disturbances make memory read and write errors. 2. Memory corrupted.	1. Press the STOP key to reset and try again. 2. Seek technical support.
E24	Self-identifying exception	1. Press the STOP key during parameter identification. 2. During the parameter identification process, the free stop action of the external terminal is FRS=ON. 3. Motor not connected. 4. The rotating auto-tuning motor is not disconnected from the load. 5. Motor failure.	1. Press the STOP key to reset. 2. During parameter identification, the external terminals do not act. 3. Check the wiring between the inverter and the motor. 4. The rotating auto-tuning motor disengages the load. 5. Check the motor.
E2 5	Motor overspeed protection	1. Missed PG card 2. The encoder line number F01.25 is set incorrectly 3. AB phase sequence F01.27 is wrong 4. Due to the excessive load, the motor actually The speed is higher than the given speed of the inverter	1. Connect PG card or change to V/F control 2. Set the encoder line number according to the encoder manual 3. Exchange the wiring of the encoder AB phase sequence. 4. Reduce the load or change the frequency by one gear device and motor

		or the load pulls the motor backwards	
E26	Drop load protection	1. The motor is not connected, or the motor does not match 2. A drop occurred 3. Unreasonable setting of load drop protection parameters.	1、Check the wiring and replace the matching motor 2、Check equipment 3、Change the load drop detection level F07.22 and check Measurement time F07.23.
E27	The cumulative power-on time arrives	1. The inverter maintenance time is up	1. Please contact your dealer to arrange technical support .
E28	Accumulated running time reached	1. The inverter maintenance time is up	1. Please contact your dealer to arrange technical support .
E43	Material break protection	1. When the external signal is detected, the external signal terminal is closed. 2. During automatic detection, the feedback is greater than the upper limit of the voltage or the feedback is less than the lower limit of the voltage.	1. When the startup is disconnected, reduce the initial feedforward and soft start feedforward gain. 2. Oscillation disconnection during operation, increase or decrease the ratio P. 3. Check whether the sensor is loose.
E44	Cable protection	1. The effective time of the cable detection terminal is too long. 2. The invalid time of the cable detection terminal is too long .	1. Check whether the sensor can operate normally. 2. Check whether the terminal can be judged to be closed or disconnected normally.
E57	Pipe network overpressure	1. Excessive feedback pressure in water supply applications.	1. Check whether the sensor is abnormal. 2. Check whether the analog input terminal is normal. 3. Check external equipment.
E76	Output short circuit to ground	1. The output is shorted to ground. 2. The inverter module is damaged.	1. Check if the output cable is broken or if the motor is No breakdown to the case. 2. Investigate the cause, take appropriate countermeasures, and reset. 3. Seek technical support.
E81	Encoder line	1. The number of encoder lines	1. Check whether the number of motor

	number fault	is set incorrectly. 2. Motor encoder wiring error	encoder lines is correct. 2. Check whether the motor encoder wiring is wrong

7. Maintenance

Routine maintenance and maintenance of the inverter

Due to factors such as the use environment of the inverter and the aging of the internal components of the inverter, various faults may occur in the inverter. Therefore, the inverter must be regularly maintained during storage and use.

- After the inverter has been transported, check whether the appearance is in good condition and whether the screws are fastened before use.
- During the normal use of the inverter, the dust should be cleaned regularly, and the screws should be checked for looseness.
- If the inverter will not be used for a long time, it is recommended to power on it once every six months during the storage period, and the time should be half an hour to prevent the failure of electronic devices.
- The inverter should be avoided in the environment of humidity, vibration, oil pollution and conductive dust. If it is really necessary to use it in such an environment, it must be placed in an electrical cabinet with protective measures or in a small room for on-site protection.

When the inverter is running normally, please confirm the following items:

- Whether the motor has abnormal sound and vibration, and whether the motor is abnormally heated.
- Whether the ambient temperature is too high.
- Is the output current value normal?
- Whether the cooling fan of the inverter is running normally.

According to the usage, the customer should conduct regular inspections on the inverter to eliminate faults and potential safety hazards. When checking, be sure to cut off the power supply and wait for 10 minutes after the keyboard LED goes out before checking. The inspection contents are shown in Table 7-1.

Table 7 -1Regular inspection content

Check item	Check the content	Abnormal measures
Main circuit terminal	Are the screws loose?	Tighten with a screwdriver
Heat sinks, vents PCB printed circuit board	Whether there is dust, foreign matter, whether it is blocked	4～6kg/ ^{cm2} pressure
cooling fan	Is there any abnormal sound or abnormal vibration? Whether the accumulated time has reached 20,000 hours	Replace the cooling fan
Electrolytic capacitor	Whether discoloration, odor, bubbling	Replace the electrolytic capacitor

In order to make the inverter work normally for a long time, it must be regularly maintained and replaced according to the service life of the internal components of the inverter. The service life of the components of the inverter varies with the environment and conditions of use.

Table 7 -2Frequency converter parts replacement time

Part Name	Standard replacement years
cooling fan	2 to 3 years

Electrolytic capacitors	4 to 5 years

The conditions of use for the replacement time of the inverter parts listed in the table above are:

Ambient temperature: 40℃.

Load factor: below 80%.

Operating time: less than 12 hours per day.

Warranty Instructions for the Inverter

The company will provide warranty service if the inverter occurs in the following situations:

The warranty scope only refers to the inverter itself; during normal use, if the inverter fails or is damaged within 12 months, the company is responsible for the warranty; more than 12 months, reasonable maintenance fees will be charged; within one year, if the following conditions occur , a certain maintenance fee should also be charged:

- The inverter will be damaged if it is not operated and used correctly according to the instructions in this manual;
- The inverter is damaged due to flood, fire, abnormal voltage, etc.;
- Inverter damage caused by wrong wiring, etc.;
- Inverter damage caused by self-modification, etc.;
- Inverter damage caused by harsh environment, especially when the inverter is exposed to conductive dust, salt mist, corrosive gas, condensation, oil pollution, obvious vibration and other harsh use environments, is not covered by the warranty.

The relevant service fees are calculated according to the actual fees; if there is another agreement, the agreement will be dealt with first.

8. Optional accessories

8.1 Braking resistor

When the braking performance does not meet the customer's requirements, an external braking unit and braking resistor are required to realize the timely release of energy.

The power of the braking resistor can be calculated according to the following formula:

Resistor power Pb = inverter power P × braking frequency D

D - braking frequency. This is an estimated value, which should be selected according to the characteristics of the load conditions. The value of D in common occasions is as follows:
In general, take D = 10%
Accidental braking load D = 5%
Elevator D=10%～15%
Centrifuge D=5%～20%
Oil field kowtow machine D=10%～20%
Unwinding and coiling D = 50% to 60%, it is best to calculate according to the system design index
D = 50% ~ 60% for lifting equipment with a height of more than 100m

recommended braking resistor power and resistance value for EM 760 series inverters. The recommended resistance power is basically calculated according to the braking utilization rate of 10% to 20%, which is for reference only. If the inverter is used in the occasion of frequent acceleration and deceleration or continuous braking, the power of the braking resistor needs to be amplified. According to the load situation, the user can change the value appropriately, but it needs to meet the required range.

Inverter model	motor (kW)	Resistance value (Ω)	Resistive power (W)	Wire for connecting resistor (mm^2)
EM 760-0R7-3B _	0.75	≧360	≧200	1
EM 76 0-1R5-3B	1.5	≧180	≧400	1.5
EM 760-2R2-3B _	2.2	≧180	≧400	1.5
EM 760-4R0-3B _	4	≧90	≧800	2.5
EM 760-5R5-3B _	5.5	≧60	≧1000	4
EM 760-7R5-3B _	7.5	≧60	≧1000	4
EM 760-011-3B _	11	≧30	≧2000	6
EM 760-015-3B _	15	≧30	≧2000	6
EM 760-018-3B _	18.5	≧30	≧2000	6
EM760-022-3B _	twenty two	≧15	≧4000	6
EM 760-030-3 /3B	30	≧15	≧4000	6
EM 760-037-3 /3B	37	≧10	≧6000	6
EM 760-045-3 /3B	45	≧10	≧6000	6
EM 760-055-3 /3B	55	≧7.5	≧8000	6
EM 760-075-3 /3B	75	≧6	≧8000	6

The wires listed in the table above refer to the lead wires of a single resistor. When the resistors are connected in parallel, the busbars connected in parallel should be enlarged accordingly. The single-phase type of the lead wire adopts the voltage-resistant AC300V or more, and the three-phase model uses the AC450V or more, and the temperature-resistant cable is 105℃.

8.2 brake unit

EM 760 series inverters with specifications above 22 kW and those without built-in braking unit need to be equipped with our company's BR100 series braking unit, whose power range is 45-315kW. The company's brake unit model specifications are as follows:

Model Specifications	Use occasions	Minimum resistance (Ω)	Average braking current I_{av} (A)	Peak current I_{max} (A)	Applicable inverter power (kW)
BR100-045	Dynamic braking	10	45	75	18.5～45
BR100-160	Dynamic braking	6	75	150	55～160
BR100-315	Dynamic braking	3	120	300	185～315

★ When the BR100 uses the minimum resistance, the **braking unit can work continuously when the braking frequency D=33%;**

When D>33%, it needs to work intermittently, otherwise there will be an over-temperature protection fault.

8.2.1 Choice of connecting wires

All braking units and braking resistors work under high voltage >400VDC and are in discontinuous working state. Please select appropriate wires.

Specifications	Average braking current I_{av} (A)	Peak braking current I_{max} (A)	Copper core cable cross section (mm^2)
BR100-045	45	75	10
BR100-160	75	150	16
BR100-315	120	300	25

Flexible cables have better flexibility. Because the cable may come into contact with high temperature equipment, it is recommended to use copper core, heat-resistant flexible cable or flame-retardant cable. The distance between the braking unit, the inverter and the braking resistor should be as close as possible, and the farthest distance should not exceed 2 meters. Otherwise, the DC side cables should be twisted and sheathed with magnetic rings to reduce radiation and inductance.

8.3 option card

I/O expansion card

Specifications	illustrate	Terminal function
E M760-IO-A1	I/O expansion card	3 -way multi-function digital signal input: X8～X1 0 2 -way relay output: R3 is set by function code F03. 32 , R4 is set by function code F03. 33 2 -way analog signal input: 1 channel I4, support -10V～+10V or 0～+10V voltage input 1 multi-function sensor input , support PT100/PT1000/PTC/KTY84

Communication card expansion card

Specifications	illustrate	communication rate
EM760-CM-C1	CANopen communication card	125kbps , 250kbps , 500kbps , 1Mbps

Encoder expansion card (PG card)

EM 760 inverter is equipped with a variety of general PG cards, the user should select the corresponding PG card according to the encoder output form, see the following table:

Specifications	name	Supported Encoder Types
E M760-PG- 0 D 1	Open collector/differential PG card	Open collector, push-pull complementary, voltage output, differential output encoder
E M760 -PG-0 D 2	Open collector/differential PG card with frequency division output	Open collector, push-pull complementary, voltage output, differential output encoder
E M760-PG-U1	UVW Differential PG Card	With UVW differential output encoder
E M760-PG-R1	Resolver PG card	Resolver output encoder
E M760-PG-S1	SinCos PG Card	Sine and cosine output encoder

9. Function code table

Function code table description

EM 760 series inverters (referred to as "function codes") are Table 9- 1The F18 group is the monitoring parameter group, which is used to check the inverter status; the F19 group is the fault record group, which is used to check the details of the last three faults; the other groups are the parameter setting groups, which are used to meet different functional requirements.

Table 9- 1Introduction to each group of function codes

F00	Basic function parameter group	**F01**	Motor 1 parameter group
F02	Input terminal function group	**F03**	Output terminal function group
F04	Start-stop control parameter group	**F05**	V/F control parameter group
F06	Vector control parameter group	**F07**	Protection function setting group
F08	Multi-speed and simple PLC	**F09**	PID function group
F10	Communication function group	**F11**	User-selected parameter group
F12	Keyboard and Display Function Group	**F13**	Torque control parameter group
F14	Motor 2 parameter group	**F15**	Accessibility group
F16	custom function group	**F17**	Virtual I/O functional group
F18	Monitoring parameter groups	**F19**	fault log group
F 21	Special function parameter group of winder	**F 45**	Modbus free mapping parameter group

★: Some parameters of the current series of products are reserved, and the reading returns 0; some options of some parameters are reserved and can still be set, but it may cause the inverter to run abnormally. Please avoid misuse of such parameters.

★ Parameter attributes: ● parameters that can be changed in any state; ○ parameters that cannot be changed in running state; × read-only parameters;

Function parameter table

function code	Function code name	Parameter Description	unit	Factory default	Attributes
F00	**Basic function parameter group**				
F00.01 –	Motor 1 drive control method	0 : V/F control (VVF) 1 : Speed sensorless vector control (SVC) 2 : Speed sensor vector control (FVC)		0	○
F00.02	Command source selection	0 : Keyboard control (LOC/REM light is on) 1 : Terminal control (LOC/REM light is off) 2 : Communication control (LOC/REM light is flashing)		0	○
F00.03	Terminal control mode selection	0 : Terminal RUN running, F/R forward / reverse		0	○

		1 : Terminal RUN forward, F/R reverse 2 : Terminal RUN forward, Xi stop, F/R reverse 3 : Terminal RUN running, Xi stop, F/R forward / reverse			
F00.04	Main frequency source A selection	0: Digital frequency reference F00.07 1: AI12: AI23: AI34: AI4 (expansion card) 5: High frequency pulse input (X7) 6: Main frequency communication reference (percentage) 7: Main frequency communication reference (direct give frequency)		0	○
F00.05	Auxiliary frequency source B selection	0: Digital frequency reference F00.07 1: AI12: AI23: AI34: AI4 (expansion card) 5: High frequency pulse input (X7) 6: Auxiliary frequency communication reference (percentage) 7: Auxiliary frequency communication reference (direct give frequency) 10: Process PID11: Simple PLC		0	○
F00.06	Frequency source selection	0: Main frequency source A 1: Auxiliary frequency source B2: Main and auxiliary operation result 3: Main frequency source A and auxiliary frequency source B switch 4: Main frequency source A and main and auxiliary operation result switch 5: Auxiliary frequency source B and main and auxiliary Operation result switch 6: Auxiliary frequency source B+ feedforward operation (winding application)		0	○
F00.07	Digital frequency given	0.00～Maximum frequency F00.16	Hz	50.00	●
F00.08	Main and auxiliary operation selection	0: Main frequency source A+Auxiliary frequency source B 1: Main frequency source A-Auxiliary frequency source B2: The maximum value of the main frequency source and the auxiliary frequency source 3: The minimum value of the main frequency source and the auxiliary frequency source 4: Main frequency source A - Auxiliary		0	○

		frequency source B			
F00.09	Auxiliary frequency source B reference selection during main and auxiliary operation	0: relative to the maximum frequency 1: relative to the main frequency source A		0	○
F00.10	Main frequency source gain	0.0～300.0	%	100.0	●
F00.11	Auxiliary frequency source gain	0.0～300.0	%	100.0	●
F00.12	Main and auxiliary frequency source synthesis gain	0.0～300.0	%	100.0	●
F00.13	Analog adjustment of synthetic frequency	0: main and auxiliary channel synthesis frequency 1: AI1* main and auxiliary channel synthesis frequency 2: AI2* main and auxiliary channel synthesis frequency 3: AI3* main and auxiliary channel synthesis frequency 4: AI4* main and auxiliary channel synthesis frequency 5: high frequency pulse (PULSE)* main and auxiliary channel synthesis frequency		0	○
F00.14	Acceleration time 1	0.00～650.00（F15.13=0） 0.0～6500.0（F15.13=1） 0～65000（F15.13=2）	s	15.00	●
F00.15	Deceleration time 1	0.00～650.00（F15.13=0） 0.0～6500.0（F15.13=1） 0～65000（F15.13=2）	s	15.00	●
F00.16	maximum frequency	1.00～600.00	Hz	50.00	○
F00.17	Upper limit frequency control selection	0: Set by F00.18 1: AI12: AI23: AI34: AI4 (expansion card) 5: High frequency pulse input (X7) 6: Communication given (percentage) 7: Communication given (directly given frequency)		0	○
F00.18	upper limit frequency	Lower limit frequency F00.19～maximum frequency F00.16	Hz	50.00	●
F00.19	lower frequency	0.00～upper limit frequency F00.18	Hz	0.00	●
F00.20	running direction	0: same direction 1: opposite direction		0	●
F00.21	Invert control	0: Enable forward/reverse 1: Disable reverse		0	○
F00.22	Forward and reverse	0.00～650.00	s	0.00	●

	dead time				
F00.23	carrier frequency	1.0 ~ 16.0 (The rated power of the inverter is less than 4kW) 1.0 ~ 10.0 (The rated power of the inverter is 5.5 ~ 7.5kW) 1.0 ~ 8.0 (The rated power of the inverter is 11 ~ 45kW) 1.0 ~ 4.0 (The rated power of the inverter is 55 ~ 90kW) 1.0 ~ 3.0 (inverter rated power 110 ~ 560kW)	kHz	2.0	●
F00.24	Automatic adjustment of carrier frequency	0: invalid 1: valid 1 2: valid 2		1	○
F00.25	Carrier Frequency Noise Suppression	0: invalid 1: Carrier frequency noise suppression method 1 2 : Carrier frequency noise suppression method 2		0	○
F00.26	Noise suppression width	1 to 20		1	●
F00.27	Noise suppression strength	0～10: Carrier frequency noise suppression mode 1 0 to 4 : Carrier frequency noise suppression method 2		0	●
F00.28	Motor parameter group selection	0 : Motor 1 parameter group 1: Motor 2 parameter group		0	○
F00.29	user password	0～65535		0	○
F 00.31	Frequency resolution	0: 0.01Hz 1: 0.1Hz (speed unit is 10rpm)		0	○
F00.32	The frequency point corresponding to the lower limit of the carrier frequency	0.00～F0.33	Hz	20.00	○
F00.33	The frequency point corresponding to the upper limit of the carrier frequency	10.00～150.00	H Z	5 0.00	○
F00.34	carrier frequency lower limit	1.0～F00.23	kHz	2.0 _	○
F00.35	380V class inverter power supply voltage selection	0: 380V 1: 440V		0	○
F01	**Motor 1 parameter group**				
F01.00	Motor type selection	0 : Ordinary asynchronous motor		0	○

		1 : Variable frequency asynchronous motor 2 : Permanent magnet synchronous motor			
F01.01	Motor rated power	0.10～650.00	kW	Model is determined	○
F01.02	Motor rated voltage	50～2000	V	Model is determined	○
F01.03	Motor rated current	0.01～600.00 (Motor rated power≤75kW) 0.1～6000.0 (Motor rated power＞75kW)	A	Model is determined	○
F01.04	Motor rated frequency	0.01～600.00	Hz	Model is determined	○
F01.05	Motor rated speed	1～60000	rpm	Model is determined	○
F01.06	Motor winding connection	0: Y 1: Δ		Model is determined	○
F01.07	Motor rated power factor	0.600～1.000		Model is determined	○
F01.08	Motor efficiency	30.0～100.0	%	Model is determined	○
F01.09	Asynchronous motor stator resistance	1～60000 (motor rated power≤75kW) 0.1～6000.0 (motor rated power＞75kW)	mΩ –	Model is determined	○
F01.10	Asynchronous motor rotor resistance	1～60000 (motor rated power≤75kW) 0.1～6000.0 (motor rated power＞75kW)	mΩ –	Model is determined	○
F01.11	Asynchronous motor leakage inductance	0.01～600.00 (motor rated power≤75kW) 0.001～60.000 (motor rated power＞75kW)	mH	Model is determined	○
F01.12	Asynchronous motor mutual inductance	0.1～6000.0 (motor rated power≤75kW) 0.01～600.00 (motor rated power＞75kW)	mH	Model is determined	○
F01.13	No-load excitation current of asynchronous motor	0.01～600.00 (Motor rated power≤75kW) 0.1～6000.0 (Motor rated power＞75kW)	A	Model is determined	○
F01.14	Magnetic saturation coefficient of asynchronous machine 1	10.00～100.00	%	87.00	○
F01.15	Asynchronous machine magnetic saturation coefficient 2	10.00～100.00	%	80.00	○
F01.16	Magnetic saturation coefficient of asynchronous machine 3	10.00～100.00	%	75.00	○
F01.17	Magnetic saturation coefficient of asynchronous machine 4	10.00～100.00	%	72.00	○
F01.18	Asynchronous machine	10.00～100.00	%	70.00	○

	magnetic saturation coefficient 5				
F01.19	Synchronous motor stator resistance	1～60000 (motor rated power≤75kW) 0.1～6000.0 (motor rated power＞75kW)	mΩ _	Model is determined	○
F01.20	Synchronous motor d - axis inductance	0.01～600.00 (motor rated power≤75kW) 0.001～60.000 (motor rated power＞75kW)	mH	Model is determined	○
F01.21	Synchronous motor q - axis inductance	0.01～600.00 (motor rated power≤75kW) 0.001～60.000 (motor rated power＞75kW)	mH	Model is determined	○
F01.22	Synchronous motor back EMF	10.0～2000.0 (back EMF of rated speed)	V	Model is determined	○
F01.24	Encoder type	0: ABZ incremental encoder 1: UVW incremental encoder 2: reserved 3 : Sincos encoder 4: Resolver		0	○
F01.25	Number of encoder lines	1～65535		1024	○
F01.26	Encoder zero pulse phase angle	0.0～359.9°		0.0	○
F01.27	AB pulse phase sequence	0: Forward 1: Reverse		0	○
F01.28	UVW encoder phase sequence	0: Forward 1: Reverse		0	○
F01.29	UVW initial bias phase angle	0.0～359.9°		0.0	○
F01.30	Number of pole pairs of resolver	1～65535		1	○
F 01.31	Encoder high frequency filter coefficients	0-15 _		1 0	○
F01.32	Speed feedback disconnection detection time	0.0～10.0 (0.0: Speed feedback disconnection detection is invalid)		0.0	○
F01.33	Speed feedback filter time	0.000～0.100	s	0.002	○
F01.34	Motor parameter auto-tuning	0 : No operation 1 : Asynchronous machine static auto-tuning 2 : Asynchronous machine rotating auto-tuning 3: Asynchronous machine encoder auto-tuning 11 : Synchronous machine static auto-tuning 12 : Synchronous machine rotating auto-tuning 13 : Synchronous machine encoder		0	○

		auto-tuning			
F02	**Input terminal function group**				
F02.00	X1 digital input function selection	0: No function 1: Running terminal RUN 2: Running direction F/R 3: Stop control of three-wire running 4: Forward jog (FJOG) 5: Reverse jog (RJOG) 6: Terminal UP 7: Terminal DOWN8: UP/DOWN offset reset 9: Coast to stop 10: Fault reset 11: Multi-stage speed terminal 1 12: Multi-stage speed terminal 2 13: Multi-stage speed terminal 3 14: Multi-stage speed terminal 4 15: Multi-stage PID terminal 1 16: Multi -stage PID terminal Terminal 217: Multi-stage torque terminal 118: Multi-stage torque terminal 219: Acceleration and deceleration time terminal 1 20: Acceleration and deceleration time terminal 2		1	○
F02.01	X2 digital input function selection			2	○
F02.02	X3 digital input function selection			11	○
F02.03	X4 digital input function selection			12	○
F02.04	X5 digital input function selection			13	○
F02.05	X6 digital input function selection			14	○
F02.06	X7 digital input function selection			10	○
F02.07	AI1 digital input function selection			0	○
F02.08	AI2 digital input function selection			0	○
F02.09	AI3 digital input function selection			0	○
F02.10	AI4 digital input function selection (expansion card)			0	○
F02.11	X8 digital input function selection (expansion card)			0	○
F02.12	X9 digital input function selection (expansion card)			0	○
F02.13	X10 digital input function selection (expansion card)			0	○
F02.14	reserve			0	×
21: Acceleration and deceleration prohibition		36: The counter is cleared 38: High-speed length counting 37: Length		51: The main frequency source is switched to	

22: Running pause 23: External fault input 24: Running command switching to keyboard 25: Running command switching to communication 26: Frequency source switching 27: Timing running time reset 28: Speed control/torque control switching 29 : Torque control prohibition 30: Motor 1/motor 2 switching 31: Simple PLC state reset (running from the first stage, the running time is cleared) 32: Simple PLC time pause (keep the current segment running) 33: Zero servo command 34: Counting input (≤250Hz) 35: High-speed counting input (≤100kHz, only valid for X7)		counting input (≤250Hz) Input (≤100kHz, only valid for X7) 39: Length reset 40: Pulse input (≤100kHz, only valid for X7) 41: Process PID pause 42: Process PID integral pause 43: PID parameter switching 44: PID forward/reverse action Toggle 45: Stop and DC braking 46: DC braking at stop 47: Immediate DC braking 48: Fastest deceleration stop 50: External stop		digital frequency reference 52: The main frequency source is switched to AI1 53: The main frequency source is switched to AI2 54: The main frequency source is switched to AI3 55: The main frequency source is switched to high-frequency pulse input 56: The main frequency source is switched to communication given 57: Inverter enable 69: Inversion prohibits XOR 8 9 : Feedforward reset 121 : External cut signal 1 22 : Cable detection signal 1 23 : Brake reset terminal		
F02.15	Positive and negative logic of digital input terminal 1	D7 D6 D5 D4 D3 D2 D1 D0 * X7 X6 X5 X4 X3 X2 X1 0: Positive logic closing valid/disconnecting invalid 1: Negative logic closing invalid/disconnecting valid			*00 00000	○
F02.16	Positive and negative logic of digital input terminal 2	D7 D6 D5 D4 D3 D2 D1 D0 X11 X10 X9 X8 AI4 AI3 AI2 AI1 0: Positive logic closing valid/disconnecting invalid 1: Negative logic closing invalid/disconnecting valid			000 00000	○
F02.17	Filter times of digital input terminals	0～100, 0 means no filtering, n means sampling every n ms			2	○

F02.18	X1 effective delay time	0.000～ 65 0.00	s	0.000	●
F02.19	X1 invalid delay time	0.000～ 65 0.00	s	0.000	●
F02.20	X2 effective delay time	0.000～ 65 0.00	s	0.000	●
F02.21	X2 invalid delay time	0.000～ 65 0.00	s	0.000	●
F02.22	X3 effective delay time	0.000～ 65 0.00	s	0.000	●
F02.23	X3 invalid delay time	0.000～ 65 0.00	s	0.000	●
F02.24	X4 effective delay time	0.000～ 65 0.00	s	0.000	●
F02.25	X4 invalid delay time	0.000～ 65 0.00	s	0.000	●
F02.26	Minimum input pulse frequency	0.00～Maximum input pulse frequency F02.28	kHz	0.00	●
F02.27	The setting corresponding to the minimum input	-100.0～+100.0	%	0.0	●
F02.28	Maximum input pulse frequency	0.01～100.00	kHz	50.00	●
F02.29	The setting corresponding to the maximum input	-100.0～+100.0	%	100.0	●
F02.30	Pulse input filter time	0.00～10.00	s	0.10	●
F02.31	Analog input function selection	**place** : AI1 **Tens place** : AI2 **Hundreds** : AI3 **Thousands place** : AI4 (expansion card) 0: Analog input 1: Digital input (0 below 1V, 1 above 3V, the same as the previous result)		0000D	○
F02.32	Analog input curve selection	**place** : AI1 curve selection **Tens place** : AI2 curve selection **Hundreds place** : AI3 curve selection **Thousands place** : AI4 curve selection 0: Curve 1 1: Curve 22: Curve 33: Curve 4		3210D	○
F02.33	Curve 1 minimum input	0.00～F02.35	V	0.10	●
F02.34	The minimum input of curve 1 corresponds to the given	-100.0～+100.0	%	0.0	●
F02.35	Curve 1 maximum input	F02.33～10.00	V	9.90	●
F02.36	The maximum input of	-100.0～+100.0	%	100.0	●

	curve 1 corresponds to the given				
F02.37	Curve 2 minimum input	-10.00～F02.39	V	0.10	●
F02.38	The minimum input of curve 2 corresponds to the given	-100.0～+100.0	%	0.0	●
F02.39	Curve 2 maximum input	F02.37～10.00	V	9.90	●
F02.40	The maximum input of curve 2 corresponds to the given	-100.0～+100.0	%	100.0	●
F02.41	Curve 3 minimum input	0.00V～F02.43	V	0.10	●
F02.42	The minimum input of curve 3 corresponds to the given	-100.0～+100.0	%	0.0	●
F02.43	Curve 3 Knee 1 Input	F02.41～F02.45	V	2.50	●
F02.44	Curve 3 inflection point 1 input corresponds to given	-100.0～+100.0	%	25.0	●
F02.45	Curve 3 Knee 2 Input	F02.43～F02.47	V	7.50	●
F02.46	Curve 3 inflection point 2 input corresponds to given	-100.0～+100.0	%	75.0	●
F02.47	Curve 3 maximum input	F02.45～10.00	V	9.90	●
F02.48	The maximum input of curve 3 corresponds to the given	-100.0～+100.0	%	100.0	●
F02.49	Curve 4 minimum input	-10.00～F02.51	V	-9.90	●
F02.50	Curve 4 minimum input corresponds to given	-100.0～+100.0	%	-100.0	●
F02.51	Curve 4 Knee 1 Input	F02.49～F02.53	V	-5.00	●
F02.52	Curve 4 inflection point 1 input corresponds to given	-100.0～+100.0	%	-50.0	●
F02.53	Curve 4 Knee 2 Input	F02.51～F02.55	V	5.00	●
F02.54	Curve 4 inflection point 2 input corresponds to given	-100.0～+100.0	%	50.0	●
F02.55	Curve 4 maximum input	F02.53～10.00	V	9.90	●
F02.56	The maximum input of curve 4 corresponds to the given	-100.0～+100.0	%	100.0	●
F02.57	AI1 filter time	0.0 0 0～10. 0 00	s	0.10 0	●

F02.58	AI2 filter time	0.0 0 0～10.00 0	s	0.10 0	●
F02.59	AI3 filter time	0.0 0 0～10.00 0	s	0.10 0	●
F02.60	AI4 filter time (expansion card)	0.00 0 to 10.00 0	s	0.10 0	●
F02.61	AD sampling hysteresis	2 to 50		2	○
F 02.62	Analog input A I1 type selection	0: 0～10V 1: reserved 2: reserved 3: -10～10V 4: 0～5V		0	○
F 02.63	Analog input A I2 type selection	0: 0～10V 1: 4～20mA 2: 0～20mA 3: reserved 4: 0～5V		1	○
F 06.64	Analog input A I3 type selection	0: 0～10V 1: 4～20mA 2: 0～20mA 3: reserved 4: 0～5V		0	○
F 02.65	Analog input A I4 type selection (expansion card)	0: 0～10V 1: reserved 2: reserved 3: -10～10V 4: 0～5V		2	○
F03	**Output terminal function group**				
F03.00	Y1 output function selection	0: No output 1: Inverter running (RUN) 2: Output frequency arrival (FAR) 3: Output frequency detection FDT1 4: Output frequency detection FDT2 5: Reverse running (REV) 6: Jog running 7: Inverter fault		1	○
F03.01	Y2 output function selection			3	○
F03.02	R1 output function selection (EA-EB-EC)			7	○
F03.03	R2 output function selection (RA-RB-RC)			8	○
F03.04	reserve			0	○

8: The inverter is ready to run	19: PID feedback reaches the upper limit	42: Speed reached
9: The upper limit frequency is reached	20: PID feedback reaches the lower limit	47: PLC output
10: The lower limit frequency is reached	21: Analog level detection ADT1	67: Brake Control
11: Current limit is valid	22: Analog level detection ADT2	68: Material break detection output
	24: Undervoltage state	69: FDT1 lower bound
	25: Motor overheating pre-alarm	

12: Overvoltage stall is valid 13: Simple PLC cycle completed 14: Set count value reached 15: The specified count value arrives 16: length arrives 17: Motor overload pre-alarm 18: Inverter overheating pre-alarm		26: The set time arrives 27: Running at zero speed 38: Dropping 39: Running at zero speed 2 40: Current arrives 41: Torque reached		(pulse) 70: FDT2 lower bound (pulse) 71: FDT1 lower bound (pulse, invalid when JOG) 72: FDT2 lower bound (pulse, invalid when JOG) 73: Overcurrent status	
F03.05	Output signal type selection	D7 D6 D5 D4 D3 D2 D1 D0 * * * * R2 R1 Y2 Y1 0: Level 1: Single pulse		*0000	○
F03.06	Digital output positive/negative logic	D7 D6 D5 D4 D3 D2 D1 D0 * R4 R3 * R2 R1 Y2 Y1 0: Positive logic closing valid/disconnecting invalid 1: Negative logic closing invalid/disconnecting valid		00000	○
F03.07	Y2 output type selection	0: Common digital output 1: High frequency pulse output		0	○
F03.08	Output state control when jogging	D7 D6 D5 D4 D3 D2 D1 D0 * * * REV FDT2 FDT1 FAR RUN 0: Valid when jogging 1: Invalid when jogging		00000	
F03.09	Y1 effective delay time	0.00～ 650.00	s	0.00	●
F03.10	Y1 invalid delay time	0.00～ 650.00	s	0.00	●
F03.11	Y2 effective delay time	0.00～ 650.00	s	0.00	●
F03.12	Y2 invalid delay time	0.00～ 650.00	s	0.00	●
F03.13	R1 effective delay time	0.00～ 650.00	s	0.00	●
F03.14	R1 invalid delay time	0.00～ 650.00	s	0.00	●
F03.15	R2 effective delay time	0.00～ 650.00	s	0.00	●
F03.16	R2 invalid delay time	0.00～ 650.00	s	0.00	●
F03.17	Y1 output single pulse time	0.001～30.000	s	0.250	●
F03.18	Y2 output single pulse time	0.001～30.000	s	0.250	●
F03.19	R1 output single pulse	0.001～30.000	s	0.250	●

	time				
F03.20	R2 output single pulse time	0.001～30.000	s	0.250	●
F03.21	Analog output M1 selection	0: Running frequency (absolute value) 1: Setting frequency (absolute value) 2: Output torque (absolute value) 3: Setting torque (absolute value) 4: Output current 5: Output voltage		0	○
F03.22	Analog output M2 selection			2	○
F03.23	Y2 high frequency pulse output function			11	○
6: Bus voltage 7: Output power 8: AI1 9: AI2 10: AI3 11: AI4 (expansion card)		12: High frequency pulse input (100.00% corresponds to the maximum frequency, 0.00% corresponds to the minimum frequency) 13: Communication given 1 14: count value 15: Length count value 16: PID output	18: PID feedback 19: PID given 30: Communication given 2 31: Communication given 3		
F03.24	Y2 high frequency pulse output 100% corresponding frequency	0.00～100.00	kHz	50.00	●
F03.25	Y2 high frequency pulse output 0% corresponding frequency	0.00～100.00	kHz	0.00	●
F03.26	Y2 high frequency pulse output filter time	0.00～10.00	s	0.10	●
F03.27	M1 output bias	-100.0～100.0	%	0.0	●
F03.28	M1 output gain	- 9.999 to 9.999 _ _ _ _		1. 0 00	●
F03.29	M2 output bias	-100.0～100.0	%	0.0	●
F03.30	M2 output gain	- 9.999 to 9.999 _ _ _ _		1. 0 00	●
F03.31	PLC output terminal control logic selection	D7 D6 D5 D4 D3 D2 D1 D0 * R4 R3 * R2 R1 Y2 Y1 0: not output 1: output		00000	●
F03.32	R 3 output function selection (expansion card)	For details, please refer to the work division table of digital output terminals.		0	○
F03.33	R 4 output function selection (expansion card)	For details, please refer to the work division table of digital output terminals.		0	○

F 03.34	Analog output M 1 output type selection	0: 0 to 10 V 1: 4 to 20mA 2 : 0 to 20mA		0	○
F 03.35	Analog output M 2 output type selection	0: 0 to 10 V 1: 4 to 20mA 2 : 0 to 20mA		1	○
F04	**Start-stop control parameter group**				
F04.00	Start method	0: Direct start 1: Speed tracking start		0	○
F04.01	Start frequency	0.00～ 5 0.00	Hz	0.00	○
F04.02	Start frequency hold time	0.00～60.00, 0.00 is invalid	s	0.00	○
F04.03	Start DC braking current	0.0～100.0 (100.0=motor rated current)	%	5 0.0	○
F04.04	Start DC braking time	0.00～30.00, 0.00 is invalid	s	0.00	○
F04.06	Pre-excitation current	1 0.0～500.0 (100.0=no-load current)	%	100.0	○
F04.07	Pre-excitation time	0.00～10.00	s	0.10	○
F04.08	Speed tracking method	Ones place: Tracking start frequency 0: maximum frequency 1: stop frequency 2: Power frequency Tens place: search direction selection 0: Search only in the command direction 1: Search in the opposite direction after the command direction cannot find the speed		0 1	○
F04.10	Speed tracking deceleration time	0.1～20.0	s	2.0	○
F04.11	Speed tracking current	30.0～150.0 (100.0=rated current of inverter)	%	50.0	○
F04.12	Speed tracking compensation gain	1.00～10.00		1.00	○
F04.14	Acceleration and deceleration method	0: Linear acceleration/deceleration 1: Continuous S-curve acceleration/deceleration 2: Intermittent S-curve acceleration and deceleration		0	○
F04.15	S-curve start time during acceleration	0.00～3 25.00 (F15.13=0) 0.0 ～3 250.0 (F15.13= 1) 0 ~ 32500 (F15.13= 2)	s	1.00	●
F04.16	End time of S curve during acceleration	0.00～3 25.00 (F15.13=0) 0.0 ～3 250.0 (F15.13= 1) 0 ~ 32500 (F15.13= 2)	s	1.00	●
F04.17	S-curve start time during deceleration	0.00～3 25.00 (F15.13=0) 0.0 ～3 250.0 (F15.13= 1) 0 ~ 32500 (F15.13= 2)	s	1.00	●
F04.18	End time of S curve	0.00～3 25.00 (F15.13=0) 0.0 ～3 250.0	s	1.00	●

	during deceleration	(F15.13= 1) 0 ~ 32500 (F15.13= 2)			
F04.19	Parking method	0: Decelerate to stop 1: Coast to stop		0	○
F04.20	DC braking starting frequency at stop	0.00～Maximum frequency F00.16	Hz	0.00	○
F04.21	Parking DC braking current	0.0～ 100.0 (100.0=motor rated current)	%	5 0.0	○
F04.22	DC braking time at stop	0.00～30.00 0.00: invalid	s	0.00	○
F04.23	Stop DC braking demagnetization time	0.00～30.00	s	0.50	○
F04.24	Flux Brake Gain	100 to 20 0 (100: no magnetic flux braking)		100	○
F04.26	Start mode after fault/freewheel stop	0: Start according to the setting method of F04.00 1: Start the speed tracking		0	○
F04.27	Reconfirmation of terminal start command	0: not confirmed 1: To confirm 2 : No confirmation mode 2 (fault reset is also not confirmed)		0	○
F04.2 8	Minimum effective output frequency	0.00 to 5 0.00 (0.00 : function invalid)	Hz	0	○
F04.2 9	Zero speed judgment frequency	0.00 to 5.00	Hz	0.25 _	●
F04.30 –	Synchronous machine initial magnetic pole search method	0: Invalid 1: Mode 1		1	●
F05	**V/F control parameter group**				
F05.00	V/F curve setting	0: Straight line V/F 1: Multi-point polyline V/F2: 1.3 power V/F3: 1.7 power V/F4: Square V/F5: VF complete separation mode (Ud=0, Uq=K*t=separation Voltage source voltage) 6: VF semi-separated mode (Ud=0, Uq=K*t=F/Fe*2*separated voltage source voltage)		0	○
F05.01	Multi-point VF frequency point F1	0.00～F05.03	Hz	0.50	●
F05.02	Multi-point VF voltage point V1	0.0～100.0 (100.0=rated voltage)	%	1.0	●
F05.03	Multi-point VF frequency point F2	F05.01～F05.05	Hz	2.00	●
F05.04	Multi-point VF voltage point V2	0.0～100.0	%	4.0	●
F05.05	Multi-point VF	F05.03～motor rated frequency (reference	Hz	5.00	●

	frequency point F3	frequency)			
F05.06	Multi-point VF voltage point V3	0.0～100.0	%	10.0	●
F05.07	VF split mode voltage source	0: VF separation voltage digital setting 1: AI1 2: AI23: AI34: high frequency pulse (X7) 5: PID6: communication given Note: 100% is the rated voltage of the motor		0	○
F05.08	VF separation voltage digital setting	0.0～100.0 (100.0=motor rated voltage)	%	0.0	●
F05.09	VF separation voltage rise time	0.00～60.00	s	2.00	●
F05.10	V/F stator voltage drop compensation gain	0.00～200.00	%	100.00	●
F05.11	V/F slip compensation gain	0.00～200.00	%	100.00	●
F05.12	V/F slip filter time	0.00～10.00	s	1.00	●
F05.13	Oscillation suppression gain	0 ～ 20000		100	●
F05.14	Oscillation suppression cut-off frequency	0.00～600.00	Hz	55.00	●
F05.15	Droop control frequency	0.00～10.00	Hz	0.00	●
F05.16	energy saving rate	0.00～50.00	%	0.00	●
F05.17	Energy saving action time	1.00～60.00	s	5.00	●
F05.18	Synchronous machine flux compensation gain	0.00～500.00	%	100.00	●
F05.19	Synchronous machine magnetic flux compensation filter time constant	0.00～10.00	s	0.50	●
F06	**Vector control parameter group**				
F06.00	Speed proportional gain ASR_P1	0.00～100.00		12.00	●
F06.01	Speed integration time constant ASR_T1	0.000～30.000 0.000: no points	s	0.2 5 0	●
F06.02	Speed proportional gain ASR_P2	0.00～100.00		10.00 _	●
F06.03	Speed integration time	0.000～30.000	s	0.300	●

	constant ASR_T2	0.000: no points			
F06.04	switching frequency 1	0.00～Switching frequency 2	Hz	5.00	●
F06.05	switching frequency 2	Switching frequency 1～maximum frequency F00.16	Hz	10.00	●
F06.07	Speed loop output filter time constant	0.000～0.100	s	0.001	●
F06.08	Vector control slip gain	10.00～200.00	%	100.00	●
F06.09	Speed control torque upper limit source selection	0: Set by F06.10 and F06.11 1: AI1 2: AI2 3: AI3 4: AI4 (expansion card) 5: Communication given (percentage) 6: AI2 and AI3 take the maximum value 7: AI2 and AI3 take minimum		0	○
F06.10	Speed control electric torque upper limit	0.0～250.0	%	165.0	●
F06.11	Speed control braking torque upper limit	0.0～250.0	%	165.0	●
F06.12	Excitation current proportional gain ACR-P1	0.00～100.00		0.50	●
F06.13	Excitation current integral time constant ACR-T1	0.00～600.00 0.00: No points	ms	10.00	●
F06.14	Torque current proportional gain ACR-P2	0.00～100.00		0.50	●
F06.15	Torque current integral time constant ACR-T2	0.00～600.00 0.00: No points	ms	10.00	●
F06.17	SVC zero frequency processing method	0: Brake 1: do not process 2: Seal the tube		2	○
F06.18	SVC zero frequency brake current	50.0～400.0 (100.0 is the no-load current of the motor)	%	100.0	○
F06.20	Voltage feed forward gain	0～100	%	0	●
F06.21	Field weakening control options	place: 0: Invalid 1: Direct calculation		1	○

		2: Automatic adjustment Tens place: 0: F06.22 output voltage limit is limited according to bus voltage 1: F06.22 output voltage limit is limited according to rated voltage			
F06.22	Field weakening voltage	70.00～100.00	%	100.00 _	●
F06.23	Maximum field weakening current of synchronous machine	0.0～150.0 (100.0 is the rated current of the motor)	%	100.0	●
F06.24	Field weakening regulator proportional gain	0.00～ 6 0.00		0.5 0	●
F06.25	Field weakening regulator integration time	0.00 1 ～ 6.000 _	s	0. 20 0	●
F06.26	Synchronizer MTPA control selection	0: invalid 1: valid		1	○
F06.27	Initial position auto-tuning gain	0～ 20 0	%	100	●
F06.28	Injected current low frequency	0.00～100.00 (100.00 is the rated frequency of the motor)	%	10.00	●
F06.29	Low frequency injection current	0.0～ 20 0.0 (100.0 is the rated current of the motor)	%	4 0.0	●
F06.30	Injected Current Low Frequency Regulator Gain	0.00～10.00		0.50	●
F06.31	Injection Current Low Frequency Regulator Integration Time	0.00～300.00	ms	10.00	●
F06.32	Injection current high frequency	0.00～100.00 (100.00 is the rated frequency of the motor)	%	20.00	●
F06.33	High frequency injection current	0.0～30.0 (100.0 is the rated current of the motor)	%	8.0	●
F06.34	Injected Current High Frequency Regulator Gain	0.00～10.00		0.50	●
F06.35	Injection current high frequency regulator integration time	0.00～300.00	ms	10.00	●
F06.36	Magnetic saturation coefficient of	0.00～1.00		0.60 _	○

	synchronous machine				
F 06.37	Speed loop stiffness coefficient	0 to 2 0		1 1	●
F06.40	Synchronous machine injected reactive current amplitude	-5 0.0～+ 5 0.0	%	10.0	○
F06.41	Synchronous machine open-loop low frequency processing method	0: VF 1: IF2: IF when starting, VF when stopping 3 : Full SVC _		0	○
F06.42	Synchronous machine open loop low frequency processing range	0.0～50.0	%	8.0	○
F06.43	IF injection current	0.0～600.0	%	8 0.0	○
F06.44	Pole pull-in current time constant	0.0～6000.0	ms	1.0	○
F06.45	Initial pole lead angle	0.0～359.9	°	0.0	○
F06.46	Synchronous machine speed tracking proportional gain	0.00～10.00		1.00	○
F06.47	Synchronous machine speed tracking integral gain	0.00～10.00		1.00	○
F06.48	Synchronous machine speed tracking filter time constant	0.00～10.00	ms	0.40	○
F06.49	Synchronous engine speed tracking control strength	1.0～100.0		5.0	○
F06.50	Synchronous engine speed tracking control threshold	0.00～10.00		0.20	○
F06.51	Synchronous machine injected active current rise time	0.1 ～ 50.0 _ _	s	5.0 _	○
F 06.52	Dead time compensation linear transition code value	1～1000		1 5	○
F 06.53	Switching frequency F3 to F4 excitation current setpoint	0.0 to 1 0 0.0 _	%	5 0.0	●

F 06.54	switching frequency 3	0.00 to 50.00 _ _ _ _ _	HZ	6.00 _	○
F 06.55	switching frequency 4	0.00 to 60.00 _ _ _ _ _	HZ	1 0.00	○
F 06.56	Steady state load torque current setting	0.0 to 150.0 _	%	30.0	○
F 06.57	Filter time constant for current	0.001 to 5.000 _ _ _	ms	0.350 _	○
F 06.58	Start injection pulse width	0.020 to 5.000 _ _ _	m s	0.050 _	○
F 06.59	switching frequency 1	0.00 to F 06.60	H Z	0.00 _	○
F 06.60	switching frequency 2	0.00 ～(F 06.54 /2)	H Z	1.00 _	○
F 06.61	Initial position auto-tuning current setting	0.10 to 1.25 _		0.90 _	○
F 06.62	Rotational auto-tuning speed loop ratio	0.00 to 100.00 _ _ _ _ _		2.00 _	○
F 06.63	Rotational auto-tuning speed loop integration time	0.000 to 3 0.0 0 0 _ _	s	0.150 _	○
F 06.64	Rotation auto-tuning acceleration time	5.00 to 100.00 _ _ _ _ _	s	2 0.00	○
F 06.65	Rotation auto-tuning deceleration time	5.00 to 100.00 _ _ _ _ _	s	2 0.00	○
F 06.66	Synchronizer type selection	0: Embedded permanent magnet synchronous motor 1: Surface mount permanent magnet synchronous motor 2: Permanent magnet direct drive motor		0	○
F 06.67	Magnetizing current MTPA calculation term gain	0.0～300.0	%	2 0.0	●
F 06.68	Excitation current field weakening calculation term gain	0.0～300.0	%	2 0.0	●
F 06.69	Start compensation angle	0～360	°	0	○
F06.7 0	Extended Back EMF Filter Coefficient 1	0.000～1.732		0.279 _	●
F06.7 1	Extended Back EMF Filter Coefficient 2	0.000～1.732		0.578 _	●
F06.7 2	Synchronous machine SVC minimum estimated frequency	0.01～100.00	HZ	0.50 _	○

F06.7 3	Low frequency band Id given gain	0～500.0	%	1 00.0	●
F06.7 4	Smooth switching times	1～1000		2 0	●
F06.7 5	Speed switching hold times	1 to 2 000		1 00	●
F06.76	Low-speed correction factor of stator resistance of asynchronous motor	10.0 to 500.0	%	100.0	●
F06.77	Low-speed correction factor for rotor resistance of asynchronous motor	10.0 to 500.0	%	100.0	●
F06.78	Asynchronous motor slip gain switching frequency point	0.10 ～ Fmax	Hz	5.00	○
F06.7 9	Speed loop differential time constant ASR_Td1	0.000～10.000	S	0	●
F06.80 _	Speed loop differential time constant ASR_Td2	0.000～10.000	S	0	●
F06.81 _	Velocity Loop Differential Limiting	0.0～150.0	%	0	●
F06.82 _	Bus voltage filter time constant	0.0～1500.0	ms	8.0 _	●
F07	**Protection function setting group**				
F07.00	protective shield	E20 E22 E13 E06 E05 E04 E07 E08 0: Protection is valid 1: Protection is masked		000 00000	○
F07.01	Motor overload protection gain	0.20～10.00		1.00	●
F07.02	Motor overload pre-alarm coefficient	50～100	%	80	●
F07.03	Motor temperature sensor type	0: No temperature sensor 1: PT100 2: PT1000 3: KTY84-130/150 4: PTC-130/150		0	●
F07.04	Motor overheat protection threshold	0～200	° C	110	●
F07.05	Motor overheating	0～200	° C	90	●

	pre-alarm threshold				
F07.06	Bus voltage control selection	One's place: Instantaneous stop and non-stop function selection 0: invalid 1: slow down 2: Decelerate to stop Tens place: Overvoltage stall function selection 0: invalid 1: Valid		10	○
F07.07	Overvoltage Stall Control Voltage	110.0～150.0（380V,100.0=537V）	%	1 34.1	○
F 07.08	Instantaneous stop and non-stop action voltage	60.0～Instant power failure and non-stop recovery voltage (100.0=standard bus voltage)	%	7 6.0	○
F 07.09	Instantaneous power failure and non-stop recovery of voltage	Instantaneous power failure and non-stop recovery voltage～1 00.0	%	8 6.0	○
F 07.10	Instantaneous power failure and non-stop voltage recovery judgment time	0.00 to 100.0 _	s	0.50 _	○
F07.11	Current Limit Control	0: invalid 1: Limit mode 1 2: Limiting mode 2		2	○
F07.12	Current limit level	20.0～180.0(100.0=rated current of inverter)	%	150.0	●
F07.13	Fast current limiting option	0: invalid 1: valid		0	○
F07.14	Failure retries	0～20, 0: Disable fault retry		0	○
F07.15	Digital output action selection during fault retry	0: no action 1: action		0	○
F07.16	failure retry interval	0.01～30.00	s	0.50	●
F07.17	Failure retries recovery time	0.01～30.00	s	10.00	●
F07.18	Failure retry selection	E08 * E07 * E02 E06 E05 E04 0: Allow fault retry 1: Disable fault retry		0 *0 00000	○
F07.19	Action selection 1 when fault occurs	E21 E16 E15 E14 E13 E12 E08 E07 0: Free parking 1: Parking according to the parking method		000 00000	○

F07.20	Action selection 2 when fault occurs	E28	E27	E25	E23		0000	○
		0: Free parking 1: Parking according to the parking method						
F07.21	Drop load protection option	0: invalid 1: valid					0	●
F07.22	Load drop detection level	0.0～100.0				%	20.0	●
F07.23	Load drop detection time	0.0～60.0				s	1.0	●
F07.24	Drop load protection action selection	0: Free parking 1: Parking according to the parking method					1	○
F07.25	Motor overspeed detection level	0.0～50.0 (The reference is the maximum frequency F00.16)				%	20.0	●
F07.26	Motor overspeed detection time	0.0～60.0, 0.0: Cancel motor overspeed protection				s	1.0	●
F07.27	AVR function	0: invalid 1: valid				%	1	○
F07.28	Stall fault detection time	0.0 ~ 6000.0 , (0.0 does not detect stall fault)				s	0.0	○
F07.29	Stall Control Strength	0～100				%	2 0	○
F07.30 –	Instantaneous stop non-stop action deceleration time	0.00 to 300.00 _ _ _				S	2 0.00	○
F07.32 –	Failure retry option 2	E10	E13	E15	E16	*	E19	E20	*		**0 00000	○
		0: Allow fault retry 1: Disable fault retry										
F 07.34	Encoder disconnection detection percentage	0 ～ 150.0 _								%	1 00.0	○
F 07.35	Protective shield 2	*	*	*	*	*	*	E 18	E81		0 0	○
		0: Protection is valid 1: Protection is masked										
F 07.36	Failure retry option 3	*	*	*	*	*	*	E 09	E17		0 0	○
		0: Allow fault retry 1: Disable fault retry										
F 07.37	Power down to save the starting voltage	60.0 ～ F07.38								%	7 6.0	○
F 07.38	Power on and read the judgment voltage	F 07.37 ～1 00.0								%	8 6.0	○
F 07.39	Power-on reading judgment delay time	0～1 00.0								S	5.00 _	○
F 07.40	Steady-state undervoltage judgment delay time	5 0～ 6000								ms	2 0	○
F 07.41	Input phase loss	0: software detection									0	○

	detection method selection	1: Hardware detection 2: Simultaneous detection of software and hardware			
F 07.42	Short circuit to ground judgment current setting value	0.00 to 100.0 _	%	2 0.0	○
F08	**Multi-speed and simple PLC**				
F08.00	Multi-speed 1	0.00～Maximum frequency F00.16	Hz	0.00	●
F08.01	Multi-speed 2	0.00～Maximum frequency F00.16	Hz	5.00	●
F08.02	Multi-speed 3	0.00～Maximum frequency F00.16	Hz	10.00	●
F08.03	Multi-speed 4	0.00～Maximum frequency F00.16	Hz	15.00	●
F08.04	Multi-speed 5	0.00～Maximum frequency F00.16	Hz	20.00	●
F08.05	Multi-speed 6	0.00～Maximum frequency F00.16	Hz	25.00	●
F08.06	Multi-speed 7	0.00～Maximum frequency F00.16	Hz	30.00	●
F08.07	Multi-speed 8	0.00～Maximum frequency F00.16	Hz	35.00	●
F08.08	Multi-speed 9	0.00～Maximum frequency F00.16	Hz	40.00	●
F08.09	Multi-speed 10	0.00～Maximum frequency F00.16	Hz	45.00	●
F08.10	Multi-speed 11	0.00～Maximum frequency F00.16	Hz	50.00	●
F08.11	Multi-speed 12	0.00～Maximum frequency F00.16	Hz	50.00	●
F08.12	Multi-speed 13	0.00～Maximum frequency F00.16	Hz	50.00	●
F08.13	Multi-speed 14	0.00～Maximum frequency F00.16	Hz	50.00	●
F08.14	Multi-speed 15	0.00～Maximum frequency F00.16	Hz	50.00	●
F08.15	Simple PLC operation mode	0: Stop after a single operation 1: Stop after a limited number of cycles 2: Run at the last stage after a limited number of cycles 3: Continuous cycle		0	●
F08.16	limited number of cycles	1～10000		1	●
F08.17	Simple PLC memory selection	**Ones place** : memory selection at shutdown **Tens place** : memory selection after power failure 0: no memory (from the first stage) 1: memory (from the moment of power failure)		0	●
F08.18	Simple PLC time unit	0: s (seconds) 1: mins (minutes)		0	●
F08.19	1st stage settings	**Units digit** : running direction selection 0: forward rotation 1: reverse rotation		0	●
F08.20	1st run time	0.0～6000.0	s/min	5.0	●
F08.21	Section 2 Settings	**Same as F08.19**		0	●
F08.22	2nd run time	0.0～6000.0	s/min	5.0	●
F08.23	3rd stage settings	**Same as F08.19**		0	●
F08.24	3rd run time	0.0～6000.0	s/min	5.0	●

F08.25	4th paragraph settings	**Same as F08.19**		0	●
F08.26	4th run time	0.0～6000.0	s/min	5.0	●
F08.27	Section 5 Settings	**Same as F08.19**		0	●
F08.28	5th run time	0.0～6000.0	s/min	5.0	●
F08.29	Section 6 Settings	**Same as F08.19**		0	●
F08.30	6th run time	0.0～6000.0	s/min	5.0	●
F08.31	Section 7 Settings	**Same as F08.19**		0	●
F08.32	7th run time	0.0～6000.0	s/min	5.0	●
F08.33	Section 8 Settings	**Same as F08.19**		0	●
F08.34	Section 8 runtime	0.0～6000.0	s/min	5.0	●
F08.35	Section 9 Settings	**Same as F08.19**		0	●
F08.36	9th run time	0.0～6000.0	s/min	5.0	●
F08.37	Paragraph 10 Settings	**Same as F08.19**		0	●
F08.38	10th run time	0.0～6000.0	s/min	5.0	●
F08.39	Section 11 Settings	**Same as F08.19**		0	●
F08.40	11th run time	0.0～6000.0	s/min	5.0	●
F08.41	Section 12 Settings	**Same as F08.19**		0	●
F08.42	12th run time	0.0～6000.0	s/min	5.0	●
F08.43	Paragraph 13 Settings	**Same as F08.19**		0	●
F08.44	13th run time	0.0～6000.0	s/min	5.0	●
F08.45	Paragraph 14 Settings	**Same as F08.19**		0	●
F08.46	14th run time	0.0～6000.0	s/min	5.0	●
F08.47	Paragraph 15 Settings	**Same as F08.19**		0	●
F08.48	15th run time	0.0～6000.0	s/min	5.0	●
F09	**PID function group**				
F09.00	PID given source	0: digital PID given 4: AI4 (expansion card) 1: AI1 5: PULSE high frequency pulse (X7) 2: AI2 6: Communication given 3: AI3		0	○
F09.01	Digital PID given	0.0～PID given feedback range F09.03		0.0	●
F09.02	PID feedback source	1: AI1 2: AI23: AI34: AI4 (expansion card) 5: PULSE high frequency pulse (X7) 6: Communication given 7: Reserved 8: Output torque		1	○
F09.03	PID given feedback range	0.1～6000.0		100.0	●
F09.04	PID positive and	Ones place : 0: positive action 1: negative		0	○

	negative action selection	action Tens place : 0: Does not change with the frequency direction 1: Follow the frequency direction to change			
F09.05	Proportional gain 1	0.00～100.00		0.40	●
F09.06	Integration time 1	0.000～30.000, 0.000: no points	s	10.000	●
F09.07	Differential time 1	0.000～30.000	ms	0.000	●
F09.08	Proportional gain 2	0.00～100.00		0.40	●
F09.09	Integration time 2	0.000～30.000, 0.000: no points	s	10.000	●
F09.10	Differential time 2	0.000～30.000	ms	0.000	●
F09.11	PID parameter switching conditions	0: No switching 1: Switching through digital input terminal 2: Automatic switching according to deviation		0	●
F09.12	PID parameter switching deviation 1	0.00～F09.13	%	20.00	●
F09.13	PID parameter switching deviation 2	F09.12～100.00	%	80.00	●
F09.14	PID initial value	0.00～100.00	%	0.00	●
F09.15	PID initial value hold time	0.00～650.00	s	0.00	●
F09.16	PID output upper limit	F09.17～+100.0	%	100.0	●
F09.17	PID output lower limit	-100.0～F09.16	%	0.0	●
F09.18	PID deviation limit	0.00～100.00, (0.00 is invalid)	%	0.00	●
F09.19	PID differential limiter	0.00～100.00	%	5.00	●
F09.20	PID integral separation threshold	0.00～100.00, (100.00% = integral separation is invalid)	%	100.00	●
F09.21	PID given change time	0.000～30.000	s	0.000	●
F09.22	PID feedback filter time	0.000～30.000	s	0.000	●
F09.23	PID output filter time	0.000～30.000	s	0.000	●
F09.24	PID feedback disconnection upper limit detection value	0.00～100.00 100.00=Feedback disconnection is invalid	%	100.00	●
F09.25	PID feedback disconnection lower limit detection value	0.00～100.00 0.00=Feedback disconnection is invalid	%	0.00	●
F09.26	PID feedback disconnection detection time	0.000～30.000	s	0.000	●
F09.27	PID sleep control	0: Invalid		0	●

	selection	1: Zero-speed sleep 2: Lower limit frequency sleep 3: Sealed tube dormancy			
F09.28	sleep action point	0.00～100.00 (100.00 corresponds to PID given feedback range)	%	100.00	●
F09.29	sleep delay time	0.0～6500.0	s	0.0	●
F09.30	wake up action point	0.00～100.00 (100.00 corresponds to PID given feedback range)	%	0.00	●
F09.31	Wake up delay time	0.0～6500.0	S	0.0	●
F09.32	Multi-segment PID given 1	0.0～PID given feedback range F09.03		0.0	●
F09.33	Multi-segment PID given 2	0.0～PID given feedback range F09.03		0.0	●
F09.34	Multi-segment PID given 3	0.0～PID given feedback range F09.03		0.0	●
F09.35	Feedback voltage lower limit	Feedback voltage lower limit～10.00	V	1 0.00	●
F09.36	Feedback voltage upper limit	0.00～Feedback voltage upper limit	V	0.00 _	●
F09.37	Integral action selection in given change time of PID	0: Integral term is always calculated 1: After the set time of F09.21 arrives, start calculating the integral term 2: Calculate the integral term when the error is less than F09.38		0	●
F09.38	Integral action input deviation within the given change time of PID	0.00～100.00	%	3 0	●
F09.39	Wake up method selection	0: target pressure F09.01 * wakeup action point coefficient 1: Wake up action point (F09.30)		0	○
F09.40	Awakening Action Point Coefficient	0.0～100.0 (100% corresponds to PID given)	%	9 0.0	●
F09.41	Pipe network overpressure alarm pressure	0.0～Pressure sensor range F09.03	bar	6.0 _	●
F09.42	Overpressure protection action time	0～3600 (0 is invalid)	s	0	●
F09.43	PID reverse clipping	0: invalid 1: Valid		0	○
F10	**Communication function group**				
F10.00	Local Modbus	1～247, 0 is the broadcast address		1	○

	communication address				
F10.01	Modbus communication baud rate	0:4800 3:38400 1:9600 4:576002:19200 5:115200		1	○
F10.02	Modbus data format	0: 1-8-N-1 (1 start bit + 8 data bits + 1 stop bit) 1: 1-8-E-1 (1 start bit + 8 data bits + 1 even parity + 1 stop bit) 2: 1-8-O-1 (1 start bit + 8 data bits + 1 odd parity + 1 stop bit) 3: 1-8-N-2 (1 start bit + 8 data bits + 2 stop bits) Bit) 4: 1-8-E-2 (1 start bit + 8 data bits + 1 even parity + 2 stop bits) 5: 1-8-O-2 (1 start bit + 8 data bits + 1 odd parity + 2 stop bits)		0	○
F10.03	Communication timed out	0. 0s～ 60 . 0s , 0.0: Invalid (also valid for master-slave mode)	s	0.0	●
F10.04	Modbus response delay	1 to 20	ms	2	●
F10.05	Master-slave communication function selection	0: invalid 1: valid		0	○
F10.06	Master-slave selection	0: Slave 1: Master (broadcast transmission)		0	○
F10.07	Host sends data	0: output frequency 3: given torque 1: set frequency 4: PID given 2: output torque 5: Output current		1	○
F10.08	Slave receive scaling factor	0.00～10.00 (multiple)		1.00	●
F10.09	Host send interval	0.000～30.000	s	0.200	●
F10.12	CANopen expansion card communication address	1～127		1	○
F10.14	Communication card process data response delay time	0.0 to 200.0	ms	0.0	○
F10.15	Expansion card and bus communication baud rate	**place:** CANopen 0: 125K 1: 250K2: 500K 3: 1M **Tens place:** reserved		twenty three	○
F10.17 ～ F10.31	PZD2 to PZD16 receive data type selection	When the displayed data is 65535, it means that the current PZD is reserved and unused; when it is displayed as other, such as 4609, it means the currently selected function code F18.01 (18D=12H, 01D=01H, 1201H=4609D).		65535	○
F10.32 ~ F10.46	PZD2 ~ PZD16 send data type selection			65535	○
F10.47	Communication card	**Ones place: Reserved**		000	×

	status	**Tens place: CANopen** 0: Initialization state 1: Pre-operational state 2: Operational state 3: Stop state 4: CANopen communication abnormal state 5: Modbus communication abnormal state 6: Factory test state **Hundreds place: Reserved**			
F10.48	Communication card software version				×
F10.49	Process data received	1 to 16		2	×
F10.50	Process data sent	1 to 16		2	×
F10.51	Process data address setting method selection	0: Keyboard settings 1: Master configuration		0	×
F10.52	Communication card manual reset selection	0: invalid 1: valid		0	×
F10.56	485 write EEPROM processing selection	0～10: Default operation (used during debugging) 11: Write operation is never triggered (can be used after debugging)		0	○
F 10.57	SCI send timeout reset enable	0: Reset invalid 1: Reset is valid		1	●
F 10.58	SCI send timeout reset delay time	110～10000		1 50	●
F 10.61	SCI answer selection	0: Reply to both read and write commands 1: read reply, write no reply 2: No reply to read or write		0	○
F1 1	**User-selected array (refer to the user manual or complete function table for details)**				
F12	**Keyboard and Display Function Group**				
F12.00	MK multi-function key selection	0: No function 1: Forward jog 2: Reverse jog 3: Forward/reverse switch 4: Quick stop 5: Coast to stop 6: Move the cursor to the left		1	○
F12.01	STOP key stop function selection	0: Valid only for keyboard control 1: Valid for all command channels		1	○
F12.02	parameter lock	0: Not locked 1: Reference input unlocked 2: All locked except this function code		0	●
F12.03	parameter copy	0: No operation		0	○

		1: Parameter upload keyboard 2: Parameter download to the inverter			
F12.09	Load speed display factor	0.01～600.00		30.00	●
F12.10	UP/DOWN acceleration/deceleration rate	0.00: Auto rate 0.01 to 500.00	Hz/s	5.00	○
F12.11	UP/DOWN offset reset selection	0: Not cleared 1: Cleared in non-running state 2: Cleared when UP/DOWN is invalid		1	○
F12.12	UP/DOWN offset power-down storage selection	0: do not store 1: Store (the offset is only valid when the offset has been modified)		0	○
F12.13	watt-hour meter reset	0: not cleared 1: cleared		0	●
F12.14	restore factory defaults	0: No operation 1: Restore factory defaults (excluding motor parameters, inverter parameters and factory parameters, running and power-on time records)		0	○
F12.15	Cumulative power-on time h	0～65535	h	XXX	×
F12.16	Cumulative power-on time min	0～59	min	XXX	×
F12.17	Cumulative running time h	0～65535	h	XXX	×
F12.18	Cumulative running time min	0～59	min	XXX	×
F12.19	Inverter rated power	0.40～650.00	kW	Model is determined	×
F12.20	Inverter rated voltage	60～690	V	Model is determined	×
F12.21	Inverter rated current	0.1～1500.0	A	Model is determined	×
F12.22	Performance Software Serial Number 1	XXX.XX		XXX.XX	×
F12.23	Performance software serial number 2	XX.XXX		XX.XXX	×
F12.24	Function software serial number 1	XXX.XX		XXX.XX	×
F12.25	Function software serial number 2	XX.XXX		XX.XXX	×
F12.26	Keyboard software	XXX.XX		XXX.XX	×

	serial number 1				
F12.27	Keyboard software serial number 2	XX.XXX		XX.XXX	×
F12.28	Product serial number 1	XX.XXX		XX.XXX	×
F12.29	Product serial number 2	XXXX.X		XXXX.X	×
F12.30	Product Serial Number 3	XXXXX		XXXXX	×
F12.31	LCD language selection	0: Chinese 1: English		0	●
F12.32	Monitoring Status Mode Selection	0: Mode 0 1: Mode 1		1	●
F12.33	Mode 1 running state display parameter 1 (LED stop state display parameter 5)	0.00～99.99		18.00	●
F12.34	Mode 1 running state display parameter 2 (LED stop state display parameter 1)	0.00～99.99		18.01	●
F12.35	Mode 1 running state display parameter 3 (LED stop state display parameter 2)	0.00～99.99		18.06	●
F12.36	Mode 1 running state display parameter 4 (LED stop state display parameter 3)	0.00～99.99		18.08	●
F12.37	Mode 1 running state display parameter 5 (LED stop state display parameter 4)	0.00～99.99		18.09	●
F12.38	LCD large line display parameter 1	0.00～99.99		18.00	●
F12.39	LCD large line display parameter 2	0.00～99.99		18.06	●
F12.40	LCD large line display parameter 3	0.00～99.99		18.09	●
F12.41	UP/DOWN zero crossing selection	0: disable zero crossing 1: Allow zero crossing		0	○
F 12.42	Digital potentiometer frequency given	0.00～Maximum frequency 0 0.16	H Z	0.00 _	×
F 12.43	Digital potentiometer	0.00～|Digital torque reference F13.02|	%	0.0 _	×

	torque given										
F 12.46	ACLib version number									X XX.XX	×
F 12.45	UP/DOWN function selection	scope limit	keyboard	communication	high speed pulse	analog	digital frequency	multi-speed		0111111	○
		0	1	1	1	1	1	1			
		0: Invalid 1 : Valid									
F 12.47	any address	0～65535								28673	●
F13	**Torque control parameter group**										
F13.00	Speed/torque control selection	0: Speed control 1: Torque control								0	○
F13.01	Torque reference source selection	0: Digital torque given F13.02 1: AI12: AI23: AI34: AI4 (expansion card) 5: High frequency pulse input (X7) 6: Communication given (full scale of items 1-6, corresponding to F13.02 digital torque given)								0	○
F13.02	Digital torque reference	-200.0～200.0 (100.0=motor rated torque)							%	100.0	●
F13.03	Multi-stage torque 1	-200.0～200.0							%	0.0	●
F13.04	Multi-stage torque 2	-200.0～200.0							%	0.0	●
F13.05	Multi-stage torque 3	-200.0～200.0							%	0.0	●
F13.06	Torque control acceleration and deceleration time	0.00～120.00							s	0.05	●
F13.08	Upper limit frequency selection of torque control	0: Set by F13.09 1: AI12: AI23: AI34: AI4 (expansion card) 5: High frequency pulse input (X7) 6: Communication given (percentage) 7: Communication given (direct frequency given)								0	○
F13.09	Torque control upper limit frequency	0.00～Maximum frequency F00.16							Hz	50.00	●
F13.10	Upper limit frequency offset	0.00～Maximum frequency F00.16							Hz	0.00	●
F13.11	Static friction torque compensation	0.0～100.0							%	0.0	●
F13.12	Static friction compensation frequency range	0.00～50.00							Hz	1.00	●

F13.13	Dynamic friction torque compensation	0.0～100.0	%	0.0	●
F13.18	Reverse speed limit selection	0～100	%	100	●
F13.19	Torque control speed priority enable	0: Disable 1: Enable		0	●
F14	**Motor 2 parameter group (refer to the user manual or complete function table for details)**				
F15	**Accessibility group**				
F15.00	Jog frequency	0.00～Maximum frequency F00.16	Hz	5.00	●
F15.01	Jog acceleration time	0.00～650.00（F15.13=0） 0.0～6500.0（F15.13=1） 0～65000（F15.13=2）	s	5.00	●
F15.02	Jog deceleration time	0.00～650.00（F15.13=0） 0.0～6500.0（F15.13=1） 0～65000（F15.13=2）	s	5.00	●
F15.03	Acceleration time 2	0.00～650.00（F15.13=0） 0.0～6500.0（F15.13=1） 0～65000（F15.13=2）	s	15.00	●
F15.04	deceleration time 2	0.00～650.00（F15.13=0） 0.0～6500.0（F15.13=1） 0～65000（F15.13=2）	s	15.00	●
F15.05	Acceleration time 3	0.00～650.00（F15.13=0） 0.0～6500.0（F15.13=1） 0～65000（F15.13=2）	s	15.00	●
F15.06	Deceleration time 3	0.00～650.00（F15.13=0） 0.0～6500.0（F15.13=1） 0～65000（F15.13=2）	s	15.00	●
F15.07	Acceleration time 4	0.00～650.00（F15.13=0） 0.0～6500.0（F15.13=1） 0～65000（F15.13=2）	s	15.00	●
F15.08	Deceleration time 4	0.00～650.00（F15.13=0） 0.0～6500.0（F15.13=1） 0～65000（F15.13=2）	s	15.00	●
F15.09	Acceleration and deceleration time reference frequency	0: Maximum frequency F00.16 1: 50.00Hz 2 : set frequency		0	○
F15.10	Automatic switching of acceleration and deceleration time	0: invalid 1: valid		0	○
F15.11	Acceleration time 1 and time 2 switching frequency	0.00～Maximum frequency F00.16	Hz	0.00	●
F15.12	Deceleration time 1 and time 2 switching frequency	0.00～Maximum frequency F00.16	Hz	0.00	●
F15.13	Acceleration and deceleration time unit	0:0.01s 1:0.1s 2:1s		0	○
F15.14	Jump frequency point 1	0.00～600.00	Hz	600.00	●
F15.15	Jump range 1	0.00～20.00, 0.00: invalid	Hz	0.00	●

F15.16	Jump frequency point 2	0.00～600.00	Hz	600.00	●
F15.17	Jump range 2	0.00～20.00, 0.00: invalid	Hz	0.00	●
F15.18	Jump frequency point 3	0.00～600.00	Hz	600.00	●
F15.19	Jump range 3	0.00～20.00, 0.00: invalid	Hz	0.00	●
F15.20	Output frequency arrival (FAR) detection width	0.00～50.00	Hz	2.50	○
F15.21	Output frequency detection FDT1	0.00～Maximum frequency F00.16	Hz	30.00	○
F15.22	FDT1 hysteresis	-(Fmax-F15.21)～F15.21	Hz	2.00	○
F15.23	Output frequency detection FDT2	0.00～Maximum frequency F00.16	Hz	20.00	○
F15.24	FDT2 hysteresis	-(Fmax-F15.23)～F15.23	Hz	2.00	○
F15.25	Analog level detection ADT selection	0: AI1 1: AI2 2: AI3 3: AI4 (expansion card)		0	○
F15.26	Analog level detection ADT1	0.00～100.00	%	20.00	●
F15.27	ADT1 hysteresis	0.00～F15.26 (one-way down valid)	%	5.00	●
F15.28	Analog level detection ADT2	0.00～100.00	%	50.00	●
F15.29	ADT2 hysteresis	0.00～F15.28 (one-way down valid)	%	5.00	●
F15.30	Dynamic braking function selection	0: invalid 1: valid		0	○
F15.31	Dynamic braking action voltage	110.0～140.0（380V,100.0=537V）	%	128.5	○
F15.32	brake usage	20～100 (100 means the duty cycle is 1)	%	100	●
F15.33	The set frequency is lower than the lower limit frequency operation mode	0: run at the lower frequency limit 1: stop 2: Running at zero speed		0	○
F15.34	Fan control	Ones place: Fan control mode 0: run when power is on 1: run at startup 2: Temperature-controlled intelligent operation Ten digit: power-on fan control 0: run for 1 minute and then run in fan control mode 1: run directly in accordance with the fan control mode		1	○
F15.35	Overmodulation	1.00～1.10		1.05	●

	strength				
F15.36	PWM modulation mode switching selection	0: Invalid (7-segment PWM modulation) 1: Valid (5-segment PWM modulation)		0	○
F15.37	PWM modulation switching frequency	0.00～Maximum frequency F00.16	Hz	15.00	●
F15.38	Dead time compensation mode selection	0: no compensation 1: Compensation mode 1 2: Compensation mode 2		1	○
F15.39	Terminal jog priority	0: invalid 1: valid		0	○
F15.40	Fast stop deceleration time	0.00～650.00（F15.13=0） 0.0～6500.0（F15.13=1） 0～65000（F15.13=2）	s	1.00	●
F 15.41	Output power display coefficient	5 0.00 to 1 50.00	%	1 00.0	●
F 15.42	Output current display coefficient	5 0.00 to 1 50.00	%	100.0	●
F 15.43	Output voltage display coefficient	5 0.00 to 1 50.00	%	1 00.0	●
F15.44	Current reaches detection value	0.0～300.0 (100.0% corresponds to the rated current of the motor)	%	1 00.0	●
F 15.45	Current arrives in hysteresis	0.0～F15.44	%	5.0 _	●
F 15.46	Torque arrival detection value	0.0～300.0 (100.0% corresponds to the rated torque of the motor)	%	1 00.0	●
F 15.47	Torque Arrival Hysteresis	0.0～F15.46	%	5.0	●
F 15.48	Encoder frequency division	1～256		1	●
F 15.49	PG card high frequency filter coefficient	0～255		0	●
F 15.62	PG card feedback frequency filter time	0.000 to 30.000 _	S	0.010 _	●
F 15.63	The speed reaches the ascent limit	0.00 ～ Fmax _	H Z	3 0.00	●
F 15.64	Velocity arrival filter time	0～ 60000	Ms	5 00	●
F15.65	The speed reaches the drop limit	0.00 ～ Fmax _	H Z	0.00 _	●
F 15.66	Overcurrent detection level	0.1 ~ 300.0 (0.0 is not detected, 100.0% corresponds to the rated current of the motor)	%	200.0	●
F 15.67	Overcurrent detection delay time	0.00 to 600.00	s	0.00	●

F 15.68	Market electricity price	0.00～100.00		1.00	○
F 15.69	Power frequency load factor	30.0～200.0	%	90.0	○
F16	**custom function group**				
F16.0 0	Industry application	0: General purpose model 1: reserved (water supply application) 2: reserved (air compressor application) 3: Rewinding and unwinding application 4: reserved (fan) 5: Reserved (machine tool spindle) 6: Reserve (extruder)		0	○
F16.01	set length	1～65535 (F16.13=0) 0.1～6553.5 (F16.13=1) 0.01～655.35 (F16.13=2) 0.001～65.535 (F16.13=3)	m	1000	●
F16.02	pulses per meter	0.1～6553.5		100.0	●
F16.03	Set count value	F16.04～65535		1000	●
F16.04	Specify count value	1～F16.03		1000	●
F16.05	Timing run set time	0.0 to 6500.0, 0.0: invalid	min	0.0	●
F16.06	Agent password	0～65535		0	○
F16.07	Set the cumulative power-on arrival time	0～65535, 0: prohibit power-on time arrival protection	H	0	○
F16.08	Set the cumulative operation arrival time	0～65535, 0: prohibit running time reaching protection	H	0	○
F16.09	factory password	0～65535		XXXXX	●
F16.10	Analog output percentage when set length/set count value is 0	0.00～100.00	%	0.00	○
F16.11	The percentage of analog output when the set length/set count value is the set value	0.00～100.00	%	100.00	○
F16.13	Set length resolution	0:1m 1:0.1m2:0.01m3:0.001m		0	○
F 16.14	Card slot 1 type	0: no card 1: PROFINET card 2: EtherCAT card 3: CANopen card 4 to 9: reserved 10: Incremental encoder PG card 11: Incremental encoder PG card with UVW 12: Rotary PG card		XXXX	×

		13: sine cosine PG card 14: Incremental encoder PG card with frequency division 15 to 19: reserved 20: IO expansion card 1 21 to 29: reserved 30: PLC card			
F 16.15	Card slot 2 type	Same as slot 1		XXXX	×
F 16.16	Card Slot 1 Software Serial Number 1	0.00～65.335		XXXX	×
F 16.17	Card slot 1 Software serial number 2	0.00～65.335		XXXX	×
F 16.18	Card slot 2 Software serial number 1	0.00～65.335		XXXX	×
F 16.19	Card slot 2 Software serial number 2	0.00～65.335		XXXX	×
F17	**Virtual I/O function group (refer to the user manual or complete function table for details)**				
F18	**Monitoring parameter groups**				
F18.00	Output frequency	0.00～upper limit frequency	Hz	0.00	×
F18.01	set frequency	0.00～Maximum frequency F00.16	Hz	0.00	×
F18.02	PG feedback frequency	0.00～upper limit frequency	Hz	0.00	×
F18.03	Estimated feedback frequency	0.00～upper limit frequency	Hz	0.00	×
F18.04	output torque	-200.0～200.0	%	0.0	×
F18.05	Torque given	-200.0～200.0	%	0.0	×
F18.06	Output current	0.00～650.00 (motor rated power≤75kW) 0.0～6500.0 (motor rated power>75kW)	A	0.00	×
F18.07	Output current percentage	0.0～300.0 (100.0=rated current of inverter)	%	0.0	×
F18.08	The output voltage	0.0～690.0	V	0.0	×
F18.09	DC bus voltage	0～1200	V	0	×
F18.10	Simple PLC running times	0～10000		0	×
F18.11	Simple PLC operation stage	1 to 15		1	×
F18.12	PLC running time at the current stage	0.0～6000.0		0.0	×
F18.14	load speed	0～65535	rpm	0	×
F18.15	UP/DOWN offset	0.00～2*Maximum frequency F00.16	Hz	0.00	×

	frequency								
F18.16	PID given	0.0～PID maximum range						0.0	×
F18.17	PID feedback	0.0～PID maximum range						0.0	×
F18.18	Electricity meter: MWh	0～65535					MWh	0	×
F18.19	Electricity meter: kWh	0.0～999.9					kWh	0.0	×
F18.20	Output Power	0.00～650.00					kW	0.00	×
F18.21	output power factor	-1.000～1.000						0.000	×
F18.22	Digital input terminal status 1	X5	X4	X3	X2	X1		XXX	×
		0/1	0/1	0/1	0/1	0/1			
F18.23	Digital input terminal status 2	AI 3	AI2	AI1	X5	X4		XXX	×
		0/1	0/1	0/1	0/1	0/1			
F18.24	Digital input terminal status 3	AI 4	*	X 10	X 9	X8 _		XXX	×
		*	0/1	0/1	0/1	0/1			
F18.2 5	Output terminal status 1	*	R 2	R1	Y 2	Y 1		XXX	×
		0/1	0/1	0/1	0/1	0/1			
F18.26	AI1	-100.0～100.0					%	0.0	×
F18.27	AI2	0.0～100.0					%	0.0	×
F18.28	AI3	0.0～100.0					%	0.0	×
F18.29	AI4	-100.0～100.0					%	0.0	×
F18.30	Output terminal status 2	*	*	*	R3 _	R4		XXX	×
		0/1	0/1	0/1	0/1	0/1			
F18.31	High frequency pulse input frequency: kHz	0.00～100.00					kHz	0.00	×
F18.32	High frequency pulse input frequency: Hz	0～65535					Hz	0	×
F18.33	count value	0～65535						0	×
F18.34	Actual length	0～65535					m	0	×
F18.35	Remaining time of scheduled operation	0.0～6500.0					min	0.0	×
F18.36	Synchronous machine rotor position	0.0～359.9°						0.0	×
F18.37	Resolver position	0～4095						0	×
F18.38	Motor temperature	0～200					° C	0	×
F18.39	VF separation target voltage	0～690					V	0	×
F18.40	VF split output voltage	0～690					V	0	×
F 18.41	View any address							0	×

	content				
F 18.42	Random carrier frequency display	100 0～16 00 0	H Z	0	×
F18.51	PID output	- 1 00.0 to 1 00.0	%		×
F18.58	Feedback pulse high	0～65535		0	×
F18.59	Feedback pulse low	0～65535		0	×
F18.60	Inverter temperature	-40～200	° C	0	×
F18.67	Electricity saved MWH	Cumulative energy saving MWH	MWh	0～65535	×
F18.68	Electric energy saved KWH	Cumulative energy saving KWH	kWh	0.0～999.9	×
F18.69	Thousands of dollars in electricity savings	Cumulative electricity saving high (*1000)		0～65535	×
F18.70	electricity bill savings	Cumulative savings in low electricity bills		0.0～999.9	×
F18.71	Power frequency power consumption MWh	Power frequency consumption MWH	MWh	0～65535	×
F18.72	Power frequency consumption KWH	Power frequency consumption KWH	kWh	0.0～999.9	×
F19	**fault log group**				
F19.00	last failure category	0 : No fault fault codes , see Chapter 6 Fault Countermeasures		0	×
F19.01	output frequency at fault	0.00～upper limit frequency	Hz	0.00	×
F19.02	output current at fault	0.00～650.00 (motor rated power≤75kW) 0.0～6500.0 (motor rated power>75kW)	A	0.00	×
F19.03	Bus voltage at fault	0～1200	V	0	×
F19.04	operating state at failure	0: Not running 1: Forward acceleration 2: Reverse acceleration 3: Forward deceleration 4: Reverse deceleration 5: Forward constant speed 6: Reverse constant speed		0	×
F19.05	working time in case of failure	0.00～6 553	h	0	×
F19.06	previous failure category	Same as F19.00 parameter description		0	×
F19.07	output frequency at		Hz	0.00	×

	fault				
F19.08	output current at fault		A	0.00	×
F19.09	Bus voltage at fault		V	0	×
F19.10	operating state at failure	Same as F19.04 parameter description		0	×
F19.11	working time in case of failure		h	0	×
F19.12	The first and second fault category	Same as F19.00 parameter description		0	×
F19.13	output frequency at fault		Hz	0.00	×
F19.14	output current at fault		A	0.00	×
F19.15	Bus voltage at fault		V	0	×
F19.16	operating state at failure	Same as F19.04 parameter description		0	×
F19.17	working time in case of failure		h	0	×
F27	**Rewinding and unwinding application macro parameter group (refer to the user manual or complete function table for details)**				
F27.00	application macro	0: Rewinding mode 1: Unwinding mode 2: Wire drawing mode 3: Straight wire drawing machine mode		0	○
F 45	**Modbus free mapping parameter group (refer to the user manual or complete function table for details)**				