ES Series Frequency Conversion Drive

USER Manual

ES560 Series (5.5 to 630 kW)

Other series in accordance with the machine model.

CUMARK

■ Introduction

Thank you for using this series of drives !

This manual will provide you with a list of parameters of the drive, and the necessary information for debugging and operation. It is used for the technical personnel who conduct design, debugging, using and maintainance to the drives.

This series of drives is the latest launch by our company with the features of high reliability, high-performance, multifunction and the intelligent AC motor drive. Stable, reliable, intelligent and easy of using are the highlight features. The content of manual includes basic technical parameters of the drive, control keyboard operation, fault handling as well as the relevant operation methods and caution matters.

In order to ensure that you can use this series of drives correctly, making full use of the excellent performance of the product , the safety of the user and equipment, please read this manual in detail before starting any operation to the drive. Meanwhile, reader should have basic knowledge of electrical wiring, electrical components and electrical principle diagram symbols. The incorrect use of the drive may cause abnormal operation, failure or even accidents such as damage to the equipment, injuried and fatality!

In order to enhance the adaptability of the manual, we will use “drive” in the following content instead of the description of the usual inverter, motor controller, energy saving device,etc.

Since we are always committed to the continuous improvement of products and related information, the information provided by the company is subject to change without notice.

For the latest changes and more content, please contact our office or visit our website www.cumark.com.cn

■ abstract

Catalogue

■ Chapter1 Safety Information And Precautions

This chapter describes the safety instructions for the installation, operation, and maintenance of the drive. Ignoring these safety instructions may cause personal injury or damage to the motor and its drive. Please read the safety instructions before you do any operation on the device.

1.1 Warnings symbols and instructions

Table1.1 Warnings symbols and instructions

Warnings symbols	Name	Instructions
	**Dangerous voltage warning**	used to warn of the presence of high voltage, which may cause personal injury and / or damage to equipment.
	**Dangerous voltage warning**	Used to warn the device within 10 minutes after the main power cut will continue to exist in the presence of high voltage, may cause personal injury and / or damage to equipment.
	**General warning**	Used to warn of non electrical factors that may cause personal injury and / or damage to equipment.
	**Electrostatic discharge warning**	Used to warn of electrostatic discharge that can cause damage to equipment.
	**Surface high temperature warning**	Used to warn the parts of the surface temperature, exposure will cause burns.

1.2 Installation and maintenance

The following warnings apply to people who need to install and maintain a motor cable or motor.

Warning ! Ignore these safety instructions may cause personal injury or damage to the equipment Only a qualified electrical

engineer is allowed to install and maintain the drive.

In the case of main power on, it is not allowed to maintain drive, motor cable or motor. After disconnecting the power, must wait at least 10 minutes before operating the drive, the electric motor or the electric cable, so that the DC circuit capacitor is discharged.

Confirm by the universal meter measurement (The resistance is at least 1 MΩ):

1.For the three-phase of the drive, input terminals R, S and T or(L1/L2/L3), there is no voltage between either of the three and the ground.

2.DC busUDC+ and UDC- is Zero voltage to ground.

3. PB, + and – is Zero voltage to ground.

☐Do not carry on any insulation or the withstand voltage test to the drive or the drive module.

☐For the IT power supply system (ungrounded power system or with high resistance (more than 30 ohms) grounding power system) installed on the drive, if the piezoresistor or the internal EMC filters does not disconnect, then the drive will be grounded by the piezoresistor / filter. This may cause damage to the drive.

☐For a drive installed on the TN system with an angle to the ground, the drive will be damaged if the piezoresistor or internal EMC filter is not disconnected.

1.3 Pay attention to the dangerous voltage

Even if the motor has been stopped, the circuit terminals R, S, T and V, U, W, and UDC-, UDC+, and PB are still possible with a dangerous voltage.

Depending on the external connection, the drive control unit on the relay output terminal may be dangerous voltage (115V, 220 V or 230 V).

Warning! Ignore these safety instructions may cause personal injury or equipment damage.

Can not directly repair the drive. Do not attempt to repair a faulty drive on the spot; please contact the local representative office or authorized repair center for replacement.

At the time of installation, must ensure that the conductive dust produced by drilling did not enter inside the drive. The conductive dust cabinet may cause damage or drive failure.

Ensure that the drive is fully cooled.

warning! The printed circuit board contains elements that are sensitive to the electrostatic discharge. When processing the circuit board, make sure to wear the ground bracers to avoid

	the unnecessary contact to the circuit board.

1.4 Start and run

These warnings are applicable to the engineering and technical personnel s who design the operating procedures of the drive, start or operate the drive.

	**Warning! Ignore these safety instructions may cause personal injury or equipment damage.** **Before you debug or use the drive, you must ensure that the motor and its drive device can operate normally within the entire speed range of the drive. The drive can be adjusted to allow the motor to run at a speed higher or less than the rotation speed obtained from connecting the motor directly to the power grid.** **If there is a danger, do not activate the standard application of automatic fault reset function. Active this function if fault occurs, the drive will be reset and run.** **Do not use the AC contactor or circuit breaker (open circuit) to control the motor. Instead, use the control panel or the control command of the drive I/O board or the field bus adapter to control the drive. The maximum number of charging cycles (i.e. by applying a power supply) to the DC capacitor is once every two minutes. For the size of the F0-F3 series models, the total maximum charge is 100000 times, for the size of F4 and above series models the figure is around 50000 times.** **attention：** **If choose the external signal source as start command, and the signal source in ON (start) status, the driver will start immediately after the fault reset unless the drive configured into 3 lines (pulse) macro start / stop.** **When the drive control position is not set local, the stop button on the keyboard will not stop the drive**
	Warning! When the system is in use, the surface of the drive system components (e.g. the exposed radiator, the input reactor and the braking resistance

	in use) will produce high temperature. Do not touch, otherwise there is a risk of burns!

■ Chapter 2 Product Information

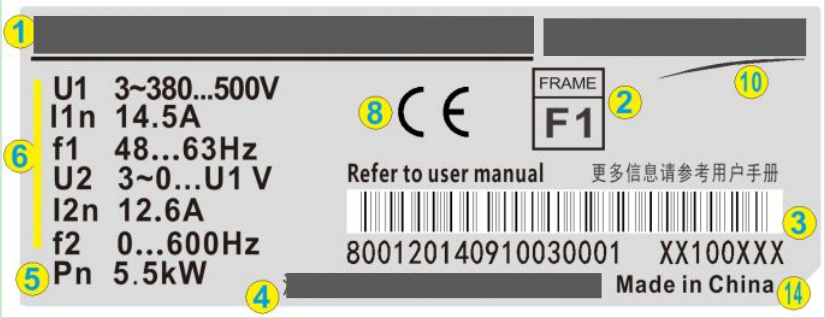
2.1 Name Rule

ES560 - 04 - 030G/037P - 3B - XXXXXY

① ② ③ ④ ⑤⑥ ⑦

table2.1 code instruction

Number	Brief definition	Example
①	Serial code	For example,none indicates asynchronous motor, L stands for synchronous motor,S stands for simple servo motor, T stands for special motor.
②	Shell code	For example: B4、B5 Respectively correspond the code04、05
②	Rated power class	For example: 030 indicates 30kW, 037 indicates 37kW;
④	Load type	G: Stands for heavy load, P: Stands for light load, None: Stands s for no overload required
⑤	Input voltage	Such as: 1 Stands for single phase AC220V, 2 Stands for Three-phase AC220V, 3 Stands for Three- phase AC380V, 5 Stands for Three- phase AC480V。
⑥	Break unit	B Stands for built-in break unit; None: No break unit.
⑦	Non-standard code	XXXXX Indicate the serial number of special motor ornon-standard function, Y=None/L/S（Only used for special machine T series, to distinguish between asynchronous/synchronous/servo,and standard drives this segment is the default）

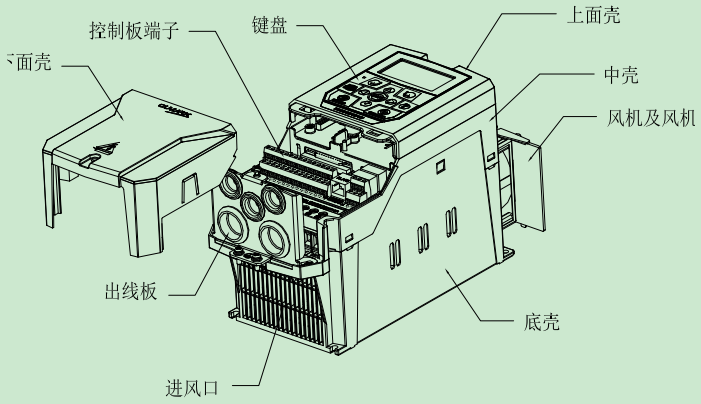


1=Model number， 2=Shapes and volume， 3= Serial number， 4= Enterprise name， 5=Power，6=Voltage/Electricity/Frequency ， 8=Certification mark

Picture 2.1 Product name and brand identity

2.2 drive structure diagram

The following figure takes the shape and volume of F1 and its local terminal as an example（For other dimensions,please refer to the size drawing and the product）



Picture2.2 F1 structure diagram

2.3 Product model and parameters

Table 2.2 Product model and parameters

Model Code	General Load Application		Heavy Load Application		Noise Level	Heat Radiation	Air Volume	Shell code
	ILd(A)	PLd(kW)	IHd(A)	PHd(kW)	dBa	W	m3/h	
XXXXXX-01-5K5G/7K5P-3B	17.5	7.5	14.5	5.5	55	210	130	F1
XXXXXX-02-7K5G/011P-3B	25	11	17.6	7.5	55	325	130	F2

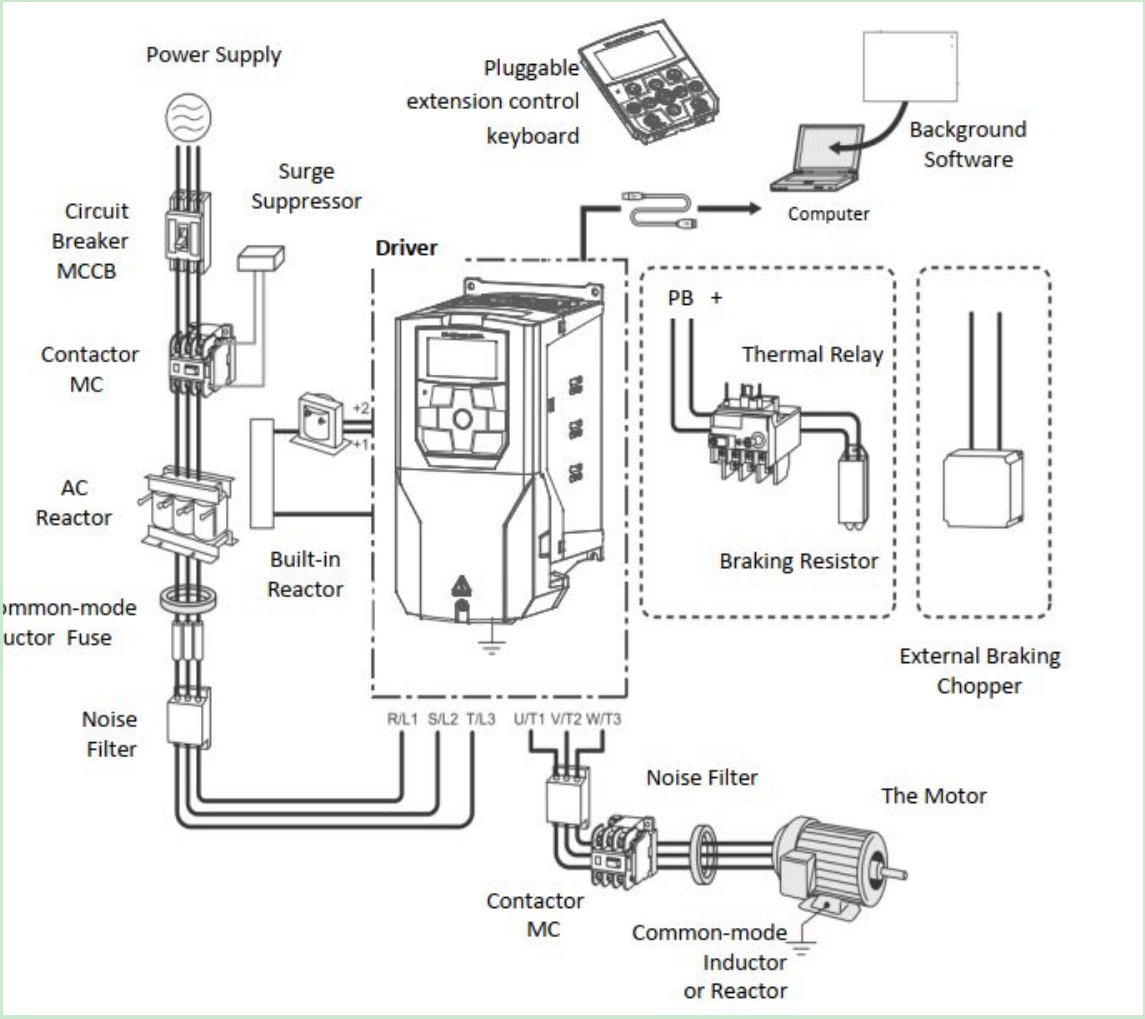
XXXXXX-02-011G-3B	/	/	25	11	55	420	130	
XXXXXX-02A-011G/015P-3B	35	15	25	11	52	470	175	F2A
XXXXXX-02A-015G/018P-3B	38.6	18.5	35	15	52	550	175	
XXXXXX-03-018G/022P-3B	46	22	41	18.5	57	660	306	F3
XXXXXX-03-022G/030P-3B	61	30	48	22	57	890	306	
XXXXXX-04-030G/037P-3/B	75	37	66	30	60	1114	610	B4
XXXXXX-04-037G/045P-3/B	91	45	79	37	60	1140	610	
XXXXXX-04-045G/055P-3/B	115	55	94	45	60	1200	610	
XXXXXX-05-055G/075P-3/B	155	75	116	55	60	1440	610	B5
XXXXXX-05-075G/090P-3/B	178	90	160	75	60	1940	610	
XXXXXX-05-090G/110P-3/B	215	110	179	90	68	2200	850	
Model Code	GeneralLoad Application		Heavy Load Application		Noise Level	Heat Radiation	Air Volume	Shell code
	ILd(A)	PLd(kW)	IHd(A)	PHd(kW)	dBa	W	m3/h	
XXXXXX-06-110G/132P-3	261	132	215	110	68	3300	1275	B6
XXXXXX-06-132G/160P-3	310	160	259	132	68	3850	1275	
XXXXXX-07-160G/200P-3	387	200	314	160	75	4100	1800	B7
XXXXXX-07-200G/220P-3	427	220	387	200	75	4600	1800	
XXXXXX-07-220G/250P-3	450	250	427	220	75	5100	1800	
XXXXXX-08-250G/280P-3	525	280	481	250	72	5782	2190	B8
XXXXXX-08-280G/315P-3	600	315	550	280	72	6252	2190	
XXXXXX-08-315G/355P-3	660	355	616	315	72	7866	2190	
XXXXXX-09-355G/400P-3	720	400	650	355	75	9100	2700	B9
XXXXXX-09-400G/450P-3	810	450	720	400	75	9900	2700	

XXXXXX-09-450G/500P-3	870	500	810	450	75	10500	2700	
XXXXXX-09-500G/560P-3	980	560	870	500	75	11500	2700	
XXXXXX-09-560G/630P-3	1060	630	980	560	75	12600	2700	

Note： XXXXXX in the specification column of the above table indicates the series code，such as ES560、ES560L,etc.

2.4 Peripheral electrical components and system composition

The hardware principle of the drive peripheral and ontology is summarized as: The three-phase AC reactor at the side of the main power supply or a built-in DC reactor and DC link capacitor together, constitute the LC filter, coupled with the diode bridge constitutes the DC voltage source required by an IGBT inverter bridge module. Another function of the AC reactor is to suppress the high frequency disturbances from the power supply to the drive or from the internal of the drive to the power side. At the same time improve the input current waveform of the drive. This makes the power absorbed from the power side by the drive almost active power. The IGBT bridge produces a symmetrical three-phase AC PWM voltage acting on the motor.The built-in microprocessor controls the motor according to the test signal, the parameter setting value and the command from the control I/O module and the control keyboard.The control unit module in the drive sends a command to the motor control customized integrated circuit, which calculates the IGBT switch position, and the gate drive amplifies the signals to drive the IGBT inverter bridge. In order to express with more details the general requirements for the design and implementation of an automatic drive and control system for the protection, efficiency and reliability of the drive, now will this drive and its peripheral standard configuration and connection relationship mapping indicated as below:



picture2.3 Standard Connection Diagram of the Drive and Its Periphey

2.5 Technical data parameters

table2.3 Technical data parameters

Item		Specification and Technical Data
Main power connection	Input voltage U1	380…500V three-phase power
	Input frequency f1	50…60Hz ±5%
	Input voltage U2	0…U1（V）（the maximum output voltage equals the input）
	Input frequencyf2	0-1000Hz（space voltage vector）
	Carrier frequency	2-12KHz（the device can intelligently and automatically make optimal adjustment according to load characteristics and drive temperature.）
	Input voltage unbalance degree	Maximum:±3% of rated inter-phase input voltage
	Efficiency	≈98%(when operating at rated power)
Basic functions	Input frequency resolution	Digital setting ： 1 RPM

		Analog setting: 0.025% of maximum RPM
	Control mode	Space voltage vector control Open-loop vector control

Continue

Item		Specification and Technical Data
Basic functions	Startup torque	150% 0.5Hz
	Speed range	1:100
	Torque boost	Automatic torque boos 1%-10%
	V/F curve	Intelligent adaptive
	V/F separation	full separation
	Acceleration and deceleration curves	straight-line or S-curve acceleration and deceleration
		Two acceleration time values. The acceleration and deceleration time range:0.0s-650.00s
	Simple PLC function	Achieve operation of up-to-16-stages speed(via built-in PLC or control terminals)
	Built-in PID	Conveniently achieve the process control
	Automatic voltage regulation（AVR)	When the grid voltage changes, the device automatically maintains constant output
	Over voltage and over current stall control	The current and voltage are automatically limited during running to avoid jump faults due to frequent over current and over voltage
	Protection function	Output short circuit protection, input & output phase loss protection, overcurrent protection, overvoltage protection,undervoltage protection, overheat protection, overload protection, brake chopper overload protection, brake chopper shortcircuit protection, brake resistor overload protection.

	Non-stop during transient interruption	Keep the drive operating in a short time (by reducing feedback energy compensation voltage at the moment of power outage). The duration depends on the mechanical inertia of the load at that time.
	Timing control	Timing control function. The time range and precision is 0.0-6500.0(min).
	Power-off synchronized	In the case of accidental power failure can ensure the drive steady stop
	Bus communication	The standard configuration uses the built in Modbus/CANopen communication, which can be extended to Profibus-DP bus communication.
I/O Input/Output Interface	Command input mode	Control keyboard input, control terminal input, bus communication input, which can be switched mutually.
	Speed giving mode	Digital giving, analog voltage (current) giving, pulse giving, bus communication giving and PID giving, which are mutually switched.
	Input terminal (input)	The followings are included in standard configuration： 7 digital input terminals, where DI7 supports the maximum of 50 kHz high-speed pulse input. 3 analog input terminals (where, at least 2 supports 0-10V voltage input or 0-20mA voltage input).

	Output terminal (output)	The followings are included in standard configuration： 1 high-speed pulse output terminal (supporting0-50 kHZ square signal output） 2 digital output terminals 2 relay output terminal 2 analog output terminals (supporting0-10V voltage output or 0- 20mA voltage output).
Display and contro	Man-machine interface	Standard LED control keyboard, optional intelligent sealed LCD control keyboard
	Parameters duplicating	Rapidly duplicating parameters via the LCD control keyboard

Continue

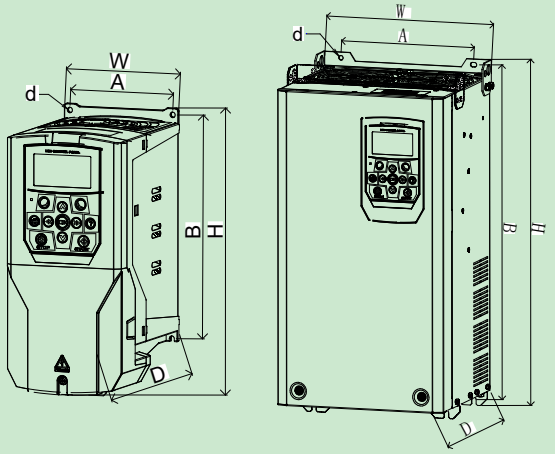
Item		Specification and Technical Data
Application environment	Application site	Indoor, free of direct sunshine, dusts, corrosive gases, flammable gases, oil mist, water vapor, drip or salts.
	Altitude	At 0-1000m;When the altitude is 1000-4000m, the capacity is reduced by 1% as the altitude rises by 100m. (consult professionals for more accurate values).
	Operation ambient temperature	−10℃ to +40℃ (when the ambient temperature is40℃-55℃, the drive is automatically derated to achieve self-protection).
	Relative humidity	Less than 95%RH. No droplets condensed (condensation)
	Sinusoidal vibration	(IEC 60068-2/-6.Test Fc) Max.0.1mm)(5 to 13.2Hz);max.7m/s^2（13.2 to 100Hz) sinusoidal vibration（F1-B7） Max.0.1mm(10 to 57Hz);max.10m/s^2 (57 to 150Hz) sinusoidal vibratio（B8-B9）
	Impact	Not allowed (during operation); maximum 100m/s2,11ms(during storage and transportation with packing).
	Free fall （Max.）	Not allowed (during operation); with packing：100cm @F1、F2、F2A,76cm @F3、B4,46cm @B5-B7,15cm @B8-B9

	Storage & transportation temperature	−40℃ to +70℃（-40 to +158°F)
Protection grade		IP20 (UL open type)
Cooling mode		Forced air cooling of the interior fan. The air flows from bottom to top. cooled radiator. Air-cooled radiator
Application standard		IEC 61800-3(2004);IEC 61800-5-1(2007);GB 12668.

■ Chapter 3 Product dimensions and electrical installation

3.1 Outline and mounting dimensions

3.1.1 Outline and mounting dimensions



F1-F3 B4-B9

Picture3.1 **Schematic diagram of Outline and wall mounting dimensions**

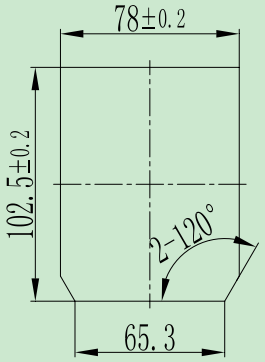
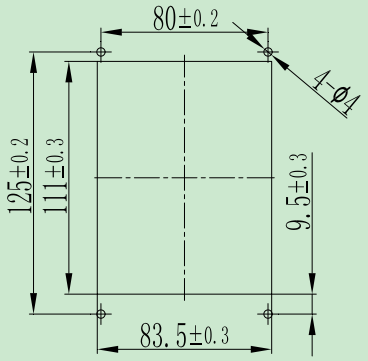
Table3.1 **Outline and wall mounting dimensions**

Outline dimension	Installation Hole Width Spacing A (mm)	Installation Hole Height Spacing B (mm)	Installation Hole Size d (mm)	Appearance Width W (mm)	Appearance Height H (mm)	Appearance Thickness D (mm)	Net weight approximately （Kg）
F1	110	222	5.5	122	276	172	3.7
F2	140	238	6.0	155	292	172	4.8
F2A	160	296	6.0	175	336	192	5.1
F3	150	368	7.0	180	420	216	12.6
B4	200	479	6.5	225	495	221	22
B5	250	650	12.0	355	670	260	65
B6	357/75*	761	11.0	390	790	278	95

B7	357/115*	973/977	11.0	390	1001	295	140
B8	490/200*	1280	13.0	537	1305	340	200
B9	490/240*	1420	13.0	537	1455	380	240

remark： *Indicates the book type mounting hole spacing. For the mechanical elements for the installation and the shapes of the industry dedicated derivative models not listed in the above table, please refer to the physical or contact our company's representatives.

3.1.2 Installation dimensions of keyboard

Hole type	**Control keyboard mounting** Hole shape and size	**Control keyboard** bracket mounting Hole shape
Diagram form		
Explain	This hole fits directly into the control keyboard	This array of holes locks the control keyboard stand directly with four M3X10 screws

3.2 Mechanical installation

3.2.1 Installation environment requirements

1) The installation environment must meet the requirements specified in《Table2.3 technical data parameter table》；
2) This series of products are plastic casings and need to be used in the final system, which should be provided with appropriate fireproof,electrical and mechanical casings and comply with local laws and IEC standards.

3.2.2 Installation Space Requirements

The cabinet must provide enough free space for the components to ensure for sufficient cooling. Please comply with the minimum clearance requirements of each component. Air inlet and outlet must be equipped with the grille, which is used :

• Direction of airflow direction

• Avoid of touch

• Avoid of splashing water droplets sputter into the cabinet

The amount of the cooling air required for the cabinet should be determined by reference to the corresponding values of the rated power and technical data and the calculation of the total installed capacity in the cabinet.

The cabinet system shall have measures to prevent the circulation of hot air, to avoid the hot air circulating outside the cabinet by guiding the hot air to leave the air inlet area. Following are possible solutions:

• Use the grille to guide the air flow of the air inlet and outlet area

• Air inlet and outlet are placed on different sides of the cabinet.

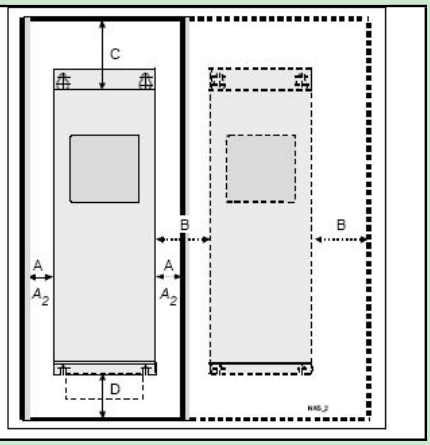
• The cold air inlet is located in the lower part of the front door, and an additional exhaust fan is installed at the top of the cabinet.

The cabinet can avoid the hot air circulation in the internal cabinet by using the leakproof wind shield. If the cabinet has the risk of condensation water, then use the cabinet heater. Although the main function of the heater is to keep the air dry, it may also be used to heat it at low temperatures. Please follow the instructions provided by the manufacturer when placing the heater. Among them the space around the drive can ensure the circulation of a certain amount of the cooling air and the maintenance to the drive. The specific data are detailed in the table below.

If there is more than one drive that needs to be installed in up and down arrangement, the spacing should be equal to C+D (see below). And the outlet air flow of the lower device can not be opposite to the air inlet of the upper device. And shall ensure that the temperature of the cooling air must not exceed the maximum ambient temperature limit of the drive.

Table3.2 Minimum space requirements for the drive of cooling and installation

Drive volume size	Space minimum interval size(mm)			
	A	B	C	D
F1、F2、F2A	20	20	50	30
F3	20	20	100	50
B4、B5、B6	50	50	150	100
B7、B8、B9	50	50	250	150



A=Free space around the drive (see A2 and B)

B=The distance between the drives or between the drive and the wall of the cabinet

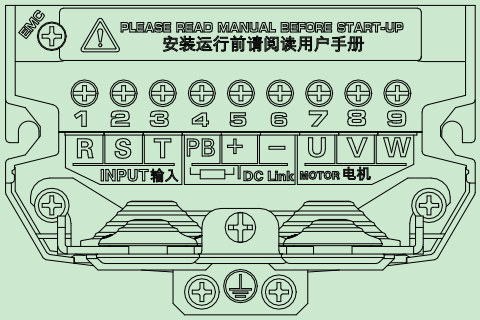
C=Free space on the drive

D=Free space below the drive

3.3 Electrical installation

3.3.1 Description of the main loop terminal

Table3.3 Description of the main loop terminal

Terminal	Termina l mark	Name	instruction
 Picture3.2 Flmain terminal layout diagram	R、S、T	Three-phase power input terminal	AC input Three-phase power connection point
	+、-	DC bus positive and negative terminal	Common DC bus input connection point
	PB、+	Break resistance connection terminal	Break resistance connection point
	U、V、W	drive output terminal	Connected Three-phase motor
	⏚	Grounding terminal	Grounding terminal

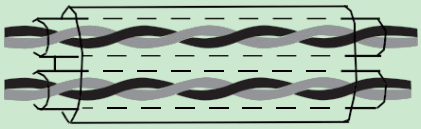
3.3.2 Control Terminal

Table3.3 Terminal diagram of control board（For detail refer to the standard wiring diagram in Figure3 on P20）

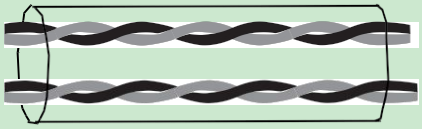
3.3.3 Control Cable Selection

It is recommended that all control cables be shielded. For analog signals, it is recommended to use a double shielded twisted pair. For the pulse encoder to walk the line, please follow the instructions provided by the manufacturer of the encoder. Each signal is paired with a pair of separate shielded pairs. Different analog signals do not share the route. For low voltage digital signals, it is best to use a double

shielded cable, but also can use a single layer shield (See Figure*b*) .



Picture a Twisted pair shielded cable



Picture b A single twisted pair shielded cable

Analog signals and digital signals are separated by different cables.

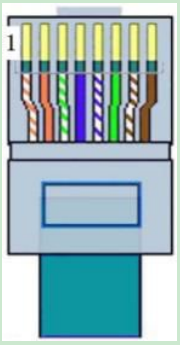
For signal relay control, If its voltage is not more than 48 V, then the relay cable and the digital input signal cable can be arranged in the same cable.The proposed relay control signal uses a twisted pair. 24 VDC and 115 / 230 VAC signals are not arranged in the same cable.

Relay cable: Cable with braided metal shield (Such as Germany Lapp Kabel the LFLEX) has passed the test, and has been recognized by the industry.

Control keyboard cable: Control keyboard port using RJ45 interface, the extension of the line is a common standard for straight line (Plug in connector EIA/TIA568B standard).The cable length of the connection control keyboard and driver is not longer than 3m. Such as the use of more than five kinds of wires and has a good electromagnetic environment, extension of the line up to 15m.

Communication cable： The drive comes with the communication RJ45 terminal definition as below table and figure. Other forms of communication port, please refer to the corresponding expansion card of each specification.

Line number	Channel name	Target communication
1	CANH	CAN
2	CANL	
3	NC	
4	GND	CAN
5	GND	
6	GND	MODBUS
7	A-	
8	A+	



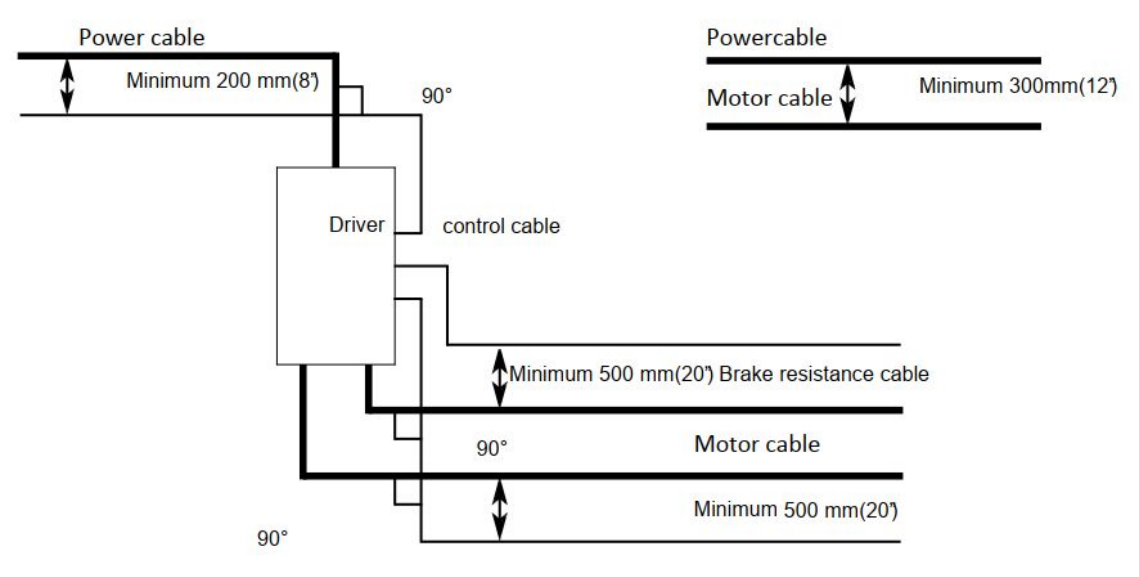
Be careful： Do not connect the two terminals in the shield layer of the cable which is from motor temperature sensor to drive directly to the ground. If one terminal can not install 3.3nF capacitor between the shielding layer and the ground, only one other terminal grounded.

3.3.4 Cable wiring

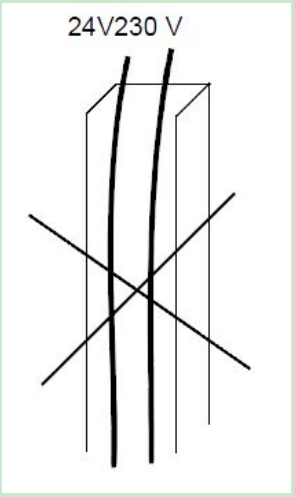
The cable of the motor must be far away from the other cables. Serveral motor cables can be arranged in side by side. It is proposed that the motor cable, the input power cable and the control cable are distributed in different wire slot.In order to avoid the electromagnetic interference caused by the fast change of the output voltage of the driver, the long distance from the motor cable and other cables should be avoided by walking the line side by side.

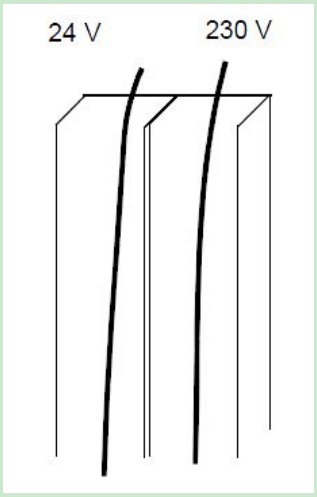
When the control cable must pass through the power cable, ensure that the included angle between the two cables is as far as possible to maintain 90 degrees. Do not put other cables across the drive.

Keep a good connection between cable slots and good grounding. Aluminum wire slot can be used to improve the potential bonding



Picture3.4 Cable wiring diagram



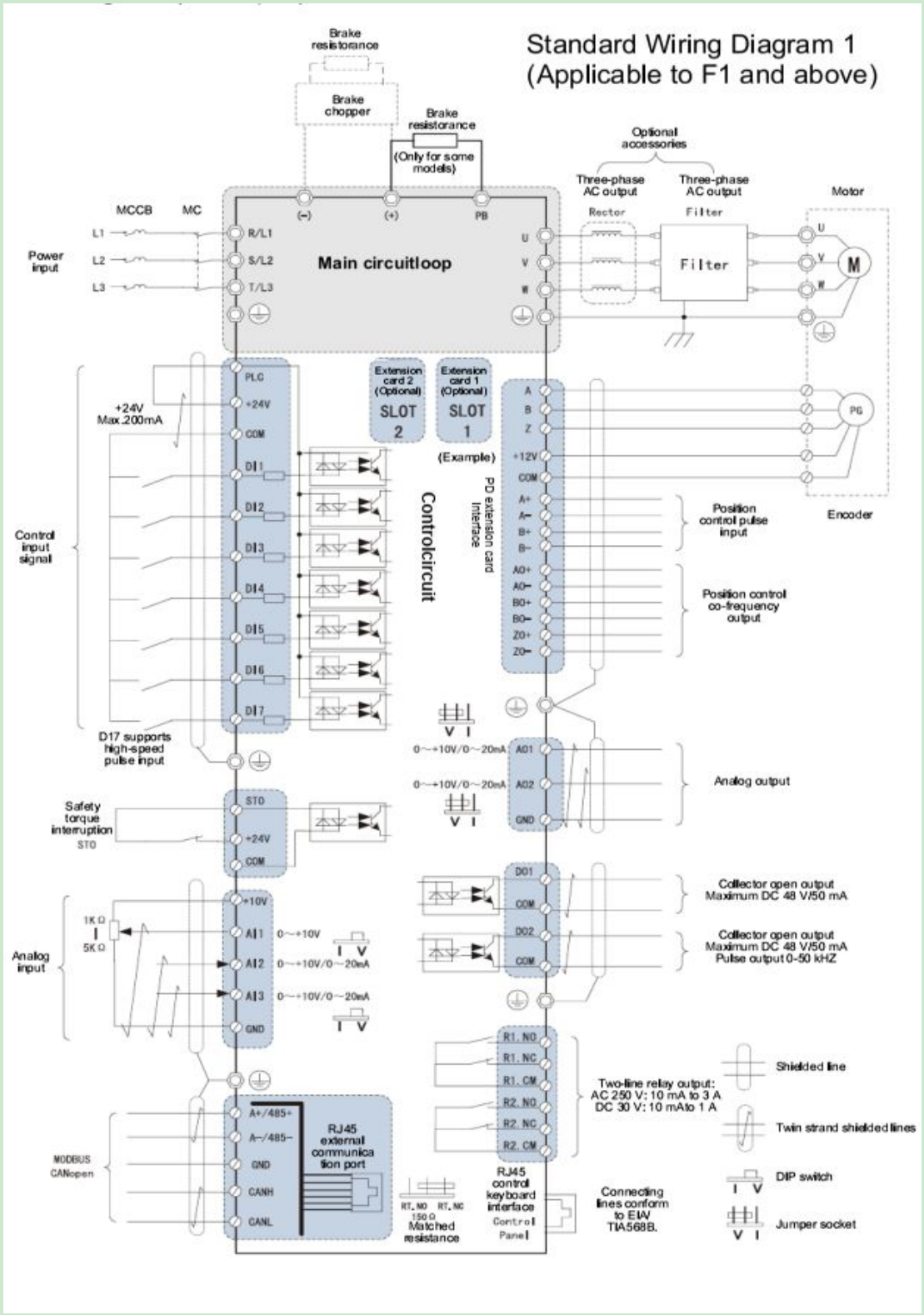


the 24 V cable and the 230 V cable are not allowed to be discharged in a conduit.

Different slot will be 24 V and 230 V control cable arranged in the cabinet.

Picture3.5 Cable wiring diagram of strong and weak

3.3.5 Standard wiring diagram

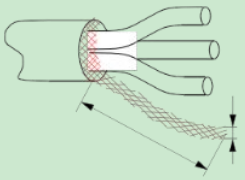


Picture3.6 Standard Wiring Diagram

3.3.6 Connection procedure

According to the wiring diagram, the next table is given the fastening torque of the connection operation：

1. According to the following example of the outline size, open the wiring cover.
2. In IT (floating ground) system and angle ground TN system,Remove the following screw to disconnect the internal piezoresistor and EMC filter：
•VAR (shape F3, located at the power terminal left)
•EMC (shape F1-F3, located near the power supply terminal. F4-F9 is located inside the structure, and can see the mark after removing the front cover.
3. Cut or cut the line terminal protection ring, some models need to sort the protection network.
4. Peel the cable, removing the cable clamping position shielding layer.
5. Lay the end of the cable shield wire to the braided wire.The end of the line peel cable.
6. Connect the power cable line to drive R, S and T or L1 and L2 terminals. Connect the cable of motor to U, V and W terminals.Connect the resistance cable (if any) to the + and PB terminals.



7. Clean the exposed cable shielding layer and connect to the wire plate.
8. The cable shield layer is fixed to the ground terminal. **Be careful：** To peel the shielding layer and the length of strip phase conductors as short as possible.
9. Please cover the exposed and braided wire with insulation tape.
10. Fix the external cable of drive by tool.
11. Connect the power cable shield or the other end of the PE cable to the power distribution board. If the input reactor or EMC filter is installed, make sure that the PE wire is connected from the distribution board to the drive.

At the motor end, the motor cable is grounded

In order to minimize the RF interference, please put the cable shield in the 360 degree grounding at the hole of the motor terminal box. Or through the twisted shielding layer to the grounding. Making the flattening of the shield width 1/5 of its length.

Table 34 terminal form and tightening torque

Dimension	terminal screw Size	tightening torque[Nm]	Terminal structure	Terminal symbol identification and description	Connection capacity
Control terminals	M3	0.8-1.2	European square hole type compression joint terminal*	Refer to the wiring diagram	30-14AWG
F0	M3	0.8-1.2	European square hole type compression joint terminal*	Refer to the wiring diagram	30-10AWG
F1, F2	M4	1.5—1.8	European square hole type compression joint terminal*	PE、R、S、T、PB、+、-、U、V、W、PE	20-6AWG

F2A, F3	M5	3.0—3.5	Fence pressing type	PE、R、S、T、PB、+、-、U、V、W、PE	22-6AWG
B4	M8	4.0-5.0	Fence pressing type	PE、R、S、T、PB、+、-、U、V、W、PE	10-22mm²
B5	M10	9.0-10.0	Fence pressing type	PE、R、S、T、PB、+、-、U、V、W、PE	25-75mm²
B6, B7	M10	17-22	Fence pressing type	R、S、T、+、-、U、V、W、PE	36-90mm²
B8	M12	35-55	With M12 hole copper	R、S、T、+、-、U、V、W、PE	2*M12 Copper
B9	M12	35-55	With M12 hole copper	R、S、T、+、-、U、V、W、PE	3*M12 Copper

Note: The main power on the European type hole shaped crimp terminals can be peeled bare about8-10mm directly into the lock, the fence type terminal needs to press the connecting pin to lock tightly.

3.4 Installation Check list

Carefully check the mechanical and electrical installation of the drive before starting the drive.Requires more than two engineering and technical personnel in accordance with the table below to check installation.Start working on the device before, Please read the manual of the first page of the safety instructions carefully.

3.4.1 Mechanical installation check list:

☐Ambient conditions must conform to the requirements.

☐Equipment properly fixed on the rack.

☐Cooling air flow is smooth,Cabinet put change draught fan air quantity whether or not enough.

☐Motor and actuator installation is completed.

☐On dust, drops splash water, damp air, corrosive gases whether there is sufficient assessment and take corresponding measures.

3.4.2 Electrical installation check list

☐ If the drive is connected to the IT (floating) power grid,VAR（ DimensionF3） and EMC(elseDimension)To loosen the screw.

☐ If the storage period is more than one year,The reforming capacitor is required.(Please refer to our local representative for more information).

☐Drive properly grounded.

☐ Power supply (input power) voltage and the match rated input voltage of the drive.

☐ Power supply (input power) connected to R/S/T or L1/L2/L3(For DC power supply UDC+/UDC-)upper，
Terminals are tightened to the specified torque.

☐ Installed a suitable power supply (input power) fuses and circuit breakers.

☐ Motor is connected to the U/V/W,Terminals are tightened to the specified torque.

☐ Brake resistance (if any) connected to +/PB,Terminals are tightened to the specified torque.

☐ Motor cable(As well as the braking resistance cable,If there)Separate from other cables.

☐ There is no power factor compensation capacitor in the motor cable.
☐ External control of the control unit is connected.
☐ There are no tools left in the drive,foreign bodies and boreholes produce conductive dust.
☐ Power supply (input power) voltage can not through the bypass connection applied to the input terminals of the drive.
☐ Motor junction boxes and other covers are installed in place.

■ Chapter 4 Operating Display

4.1 LED Control Keyboard

	Hz	A	V	explain
Unit indicator light	ON			The unit of current data is Hz
		ON		The unit of current data is A
			ON	The unit of current data is V
	ON	ON		The unit of current data is rpm
		ON	ON	The unit of current data is %

	indicator light	Status	explain
Status indicator light	FWD/REW	ON	REV
		OFF	FWD
	LOCAL/REMOTE	ON	LOC
		OFF	REM
		FLASH	Remote keyboard
	JOG	ON	JOG running
	RUN/FUALT	YELLOW	RUNNING
		RED	FAULT
		OFF	No fault no operation

Key	Function
【OK】Confirm key	Enter into the parameter menu and save the parameter values step by step.
【RES/ESC】key	When the screen displays failure code (E-XX), Reset fault. In other cases, exit the menu step by step, Cancel edit.
【Upward】key	Increase the parameter address (group, index), parameter values; Enter local given menu, Increase local given value.
【Downward】key	Reduce the parameter address (group, index), parameter values; Enter local given menu, Reduce local given value.
【Leftward】key	Backward to switch the monitoring signal (main interface), move the cursor left (menu interface).

【Rightward】key	Forward to switch the monitoring signal (main interface), move the cursor right (menu interface).
【LOC/REM】key	Switch between the local control mode and the remote control mode.
【STOP】key	Stop the drive in local mode.
【START】key	Start up the drive in local mode.
【JOG】key	Long press to achieve the inching function。
【STOP】key +【START】key	Press is at the same time to stop the drive
【RES/ESC】key +【JOG】key	Press is at the same time will display the LED keyboard version number

4.2 Operating instructions

1) Initially, the control panel is in the main interface. The LED digital tube shows a monitoring signal, such as motor speed 1500.0. ☞**Press the left or right function key to switch the monitoring signal, press these two buttons at the same time can restore to display the first monitoring signal**. When the drive stops, 7 different parameter values can be displayed, which are 03.00/03.06(Speed/Torque)、01.02、01.06、01.07、02.00、02.02、02.04, Among them, the given speed or torque is flashing and the rest are displayed normally. 24 different parameters can be displayed at runtime, the display parameters can be modified, for details, see 56 groups of parameters.

2)Drive in failure status, the LED digital tube displays the fault code, such as E-01, and all digital tubes synchronously flashing. At this time, ☞**Press【 RES/ESC】key can reset the fault.** when the drive alarms, the LED screen displays the warning code, such as A-01. Alarm information will pop up once in every 10 seconds, and last for 3 seconds (flashing 3 hypo) then automatically hidden. ☞**Press the up and down or so four direction keys and the OK button to hide the fault or alarm message.**

3）☞**When the control panel is in the main interface, press the OK button to enter the parameter menu to view or modify the parameter values.** The parameter menu is a three level menu. **The first level menu for selecting parameter group, the second menu for selecting parameter index, and the third menu for editing parameter value**. Press the upward key to increase the parameter group, the index or the parameter value; press the downward key to decrease them. After edit finished, press the OK button to save the parameter values and return to the previous menu, or you can press the 【 RES/ESC】 key to give up the edit. If there is no any keystrokes action in 1 minute, the Menu automatically exits.

4)☞**To view or modify the local given value, press the up or down arrow key in the main interface to enter the local given menu.** At this time, all digital tubes synchronous flashing, press the up or down arrow key again to increase or decrease the local given value. If no keying action in 3 seconds, **the menu automatically exit**. If need to quickly modify the local

given value, press the OK button to enter the parameter menu to modify the local given value.

5）Long press【JOG】key, the drive jog operation , then press other keys, jog stop, release【JOG】key, jog stop. Only used in local and rotate speed mode. When running, press, press【START】and【STOP】at the same time, and the drive can stop freely.

■ Chapter5 Drive Parameters

5.1 Parameter List Instruction

This chapter describes the parameters of the control program, including the actual signal.

1: Literal description of the enumeration type parameter (the first column of the table) solidified on LCD control keyboard. When using the MODBUS communication and the field bus edit parameters, please write this parameter with corresponding value (the third column of the table) of the specified text description.

2：The default option list of the pointer type parameters provides only a number of commonly used signal sources. If the user wants to select another signal source, select the first option when using the control keyboard to edit the pointer parameters (LCD show as P.xx.yy.zz, xx indicates the group number, yy indicates the index, zz indicates the item (Numeric pointer does not have this part). The specific value is determined by the current value of the parameter, then enter the pointer edit mode to select the parameters corresponding to the specified signal (the bit pointer also need to specify a specific binary bit), or use the MODBUS communications and the fieldbus to make the specified sigal corresponding parameters of the pointer code (refer to the relevant content of the "parameter" section of the "LCD control keyboard" chapter to learn the pointer encoding format) and write into this parameter.

01 Actual values

01 Actual values	Basic Signal of the Drive Monitoring	unit
01.00 Motor speed	The unit of the filtered motor speed is rpm. In open loop control, real time rpm for motor estimation; in closed loop control, measured real time speed for motor encoder.	0.1rpm
01.01 Output frequency	Actual value of drive output frequency, Unit is Hz.	0.1Hz
01.02 DC bus voltage	Intermediate circuit voltage measurement, Unit is V.	0.1V
01.03 Motor current	Motor current measurement, Unit is A.	0.1A
01.04 Motor current%	Motor current expressed as percentage of motor rated current.	0.1%
01.05 Heat sink temperature	Measured radiator temperature.	0.1℃
01.06 Rectifier temperature	For F6 models, indicates the measured temperature of radiator where the rectifier bridge is located. Other models are the same as 01.05 (radiator structure of the rectifier and the inverter).	0.1℃
01.07 CPU temperature	Measured temperature of CPU.	0.1℃

01 Actual values	Basic Signal of the Drive Monitoring	unit
01.08 IGBT Tjc	Temperature difference between the IGBT chip and the copper substrate.	0.1℃
01.09 IGBT Tj	IGBT Chip temperature.	0.1℃
01.10 IGBT power loss	IGBT Loss power.	0.001kW
01.11 CPU usage	CPU Actual loading rate.	0.1%
01.12 Motor slip est	Estimated value of the motor slip frequency, Unit is Hz.	0.01Hz
01.19 PLL freq	For power grid energy feedback, it indicates the actual measured value of the grid frequency For synchronous motor speed tracking, it indicates the actual measured grid frequency value of the back EMF.	0.1Hz
01.20 PLL volt	or power grid energy feedback, it indicates the actual measured value of the voltage For synchronous motor speed tracking, it indicates the actual measured voltage value of the back EMF.	0.1Vrms
01.21 Output voltage	Actual output voltage value of the drive.	0.1Vrms
01.23 Motor temperature	Motor temperature value.	0.1℃
01.25 Udc ripple	Peak value of the bus voltage ripple, the capacity of the DC bus capacitor drops or the unbalance of the grid, ripple peak value increases. Usually at full load, not exceeding 80V.	0.1V
01.26 Spd ref1 gain	Gain of the speed given1 used only in the PID mode with feed-forward. Q12 format.	1
01.27 Power factor	Real time motor power factor.	0.001
01.28 Output power	Real time motor active power.	0.1kW
01.29 Temp slew rate	Indicates the rate of temperature rise.	0.1℃
01.30 Modulation depth	Indicating the modulation depth	0.1%

02 I/O values

02 I/O values	Input and output signals	Unit
02.00 DI status	From the right to the left are the status of the digital input DI1, DI2, ……, DI7. For instance: 0000001=DI1 is 1, DI2…DI7 is 0. *For the meaning of 0 and 1, refer to the parameters of 14.22 DI logic (DI Input logic).*	-
02.01 DO status	From the right to the left are the status of the digital output DO1, DO2 and the relay output RO1, RO2 . For instance: 0101 =DO1synizesis, DO2 Disconnection, RO1 Already electrified, RO2 Power off. *For the meaning of* synthesize *and disconnection, refer to the parameters of 14.26 DO logic (DO Output logic).*	-
02.02 AI1 actual	The actual value of the analog input AI1. Unit is V.	0.001V
02.03 AI1 scaled	The conversion value of the analog input AI1. *Refer to the parameters 13.05 AI1 max scale* (*AI1 conversion maximum)* and *13.06 AI1 min scale* (*AI1 conversion minimum).*	-
02.04 AI2 actual	The actual value of the analog input AI2. Unit is V or mA. Set by the parameter of *13.17 AI2 input type (AI2 Input type).*	0.001V 或 0.001mA
02.05 AI2 scaled	The conversion value of the analog input AI2. *Refer to the parameters 13.15 AI2 max scale* (*AI2 conversion maximum)* and *13.16 AI2 min scale* (*AI2 conversion minimum).*	-
02.06 AI3 actual	The actual value of the analog input AI3. Unit isV or mA. Set by the of parameter *13.28 AI3 input type (AI3 Input type).*	0.001V 或 0.001mA
02.07 AI3 scaled	The conversion value of the analog input AI3. *Refer to the parameters 13.26 AI3 max scale* (*AI3 conversion maximum)* and *13.27 AI3 min scale* (*AI3 conversion minimum).*	-
02.08 AO1 actual	The actual value of the analog output AO1. Unit is V or mA. Set by the parameter *15.08 AO1 output type (AO1 Output type).*	0.001 V 或 0.001 mA

02.09 AO2 actual	The actual value of the analog output AO2. Unit is V or mA. Set by the parameter *15.18 AO2 output type (AO2 Output type).*	0.001V 或 0.001mA
02.10 Freq in actual	The actual frequency of DI7 high speed pulse input.	1Hz
02.11 Freq in scaled	The conversion value of DI7 high speed pulse input.	-
02.12 Freq out actual	The actual output frequency of DO2 after enabling the DO2 frequency output function.	1Hz
02.13 Control panel ref1	Given1 of the control keyboard.	1rpm
02.14 Control panel ref2	Given2 of the control keyboard.	0.1%
02.15 Control panel ref2	Given value1 of the field bus.	1rpm
02.16 Fieldbus ref2	Given value2 of the field bus.	0.1%

03 Control values

03 Control values	Speed control, torque control and other values	Unit
03.00 Speed ref output	The output value of speed given module.	1rpm
03.01 Motor potent out	The speed given value of the digital potentiometer, can be achieved by the terminal for the addition and subtraction of the speed given.	1rpm
03.02 Const speed out	The output given value for the multi segment speed function module.	1rpm
03.03 Speed ref unramp	Use the speed given value before the ramp and the forming speed.	1rpm
03.04 Speed ref ramped	Ramp and forming speed given.	1rpm
03.05 Control mode used	Actually implemented control mode.	-

05 Timer & counter

05 Timer & counter	Value of the timer and counter	Unit
05.00 Run time: sec	Less than one hour at current running time, the parameter will return to zero automatically when accumulated to 3600.	1s
05.01 Run time: hour	One or more than one hour at current running time. When the parameter of 05.00 accumulated to 3600, it will be incremented by 1.	1h
05.02 Power on time: s	Less than one hour at current power on time. This parameter will return to zero automatically when accumulated to 3600.	1s
05.03 Power on time: h	One or more than one hour at current power on time, when the parameters of 05.02 accumulated to 3600, it will be incremented by 1.	1h
05.04 Total run time: s	Less than one hour for the cumulative running time, this parameter will return to zero automatically when accumulated to 3600.	1s
05.05 Total run time: h	One or more than one hour for the cumulative running time, when the parameters of 05.04 accumulated to 3600, it will be incremented by1.	1h
05.06 Total power on: s	Less than one hour for the cumulative power on time, this parameter will return to zero automatically when accumulated to 3600.	1s
05.07 Total power on: h	One or more than one hour for the cumulative power on time, when parameters of 05.06 accumulated to 3600, it will be incremented by 1.	1h
05.08 Fan on time: s	Less than one hour for the cumulative fan running time, this parameter will return to zero automatically when accumulated to 3600.	1s
05.09 Fan on time: h	One or more than one hour for the cumulative fan running time, when the parameters of 05.08 accumulated to 3600, it will be incremented by1.	1h
05.10 EEP ROM wr tick	Less than one thousand times for the total number of writing the EEPROM memory. This parameter will return to zero automatically when accumulated to 1000.	-
05.11 EEP ROM wr tick k	Reaching or exceeding one thousand times for the total number of writing the EEPROM memory. When the parameters of 05.10 accumulated to 1000, it will be incremented by 1.	-
05.12 Max udc	The highest recorded value of the bus voltage.	0.1V

05 Timer & counter	Value of the timer and counter	Unit
05.13 Max Imag	The highest recorded value of the output current.	0.1A
05.14 Max Tj	The highest recorded value of the IGBT chip temperature.	0.1℃
05.15 Max T_heat sink	The highest recorded value of the radiator temperature.	0.1℃
05.16 Max T_cpu	The highest recorded value of the CPU temperature.	0.1℃
05.17 IGBT usage hour	IGBT equivalent use time.	1h
05.18 IGBT usage sec	IGBT equivalent use time.	1s
05.19 P_Mot_kWh	Electric power of the built-in electric energy meter, the kWh part.	0.1 kWh
05.20 P_Mot_MWh	Electric power of the built-in electric energy meter, the MWh part.	1 MWh
05.21 P_Reg_kWh	Power generation of the built-in electric energy meter, the kWh part.	0.1 kWh
05.22 P_Reg_MWh	Power generation of the built-in electric energy meter, the MWh part.	1 MWh

06 Drive status

06 Drive status	Drive status word

<table>
<tr><th>06 Drive status</th><th>Drive status word</th></tr>
<tr><td>06.00 Status word1</td><td>Drive status word1 .
<table>
<tr><th>position</th><th>Name</th><th>Information</th></tr>
<tr><td rowspan="2">0</td><td rowspan="2">Ready</td><td>1=Drive ready to receive start command.</td></tr>
<tr><td>0=Drive not ready.</td></tr>
<tr><td rowspan="2">1</td><td rowspan="2">Fault</td><td>1=Drive fault.</td></tr>
<tr><td>0=Drive no fault.</td></tr>
<tr><td rowspan="2">2</td><td rowspan="2">Alarm</td><td>1=Drive warning.</td></tr>
<tr><td>0=Drive no warning.</td></tr>
<tr><td rowspan="2">3</td><td rowspan="2">Limiting</td><td>1=Drive limited.</td></tr>
<tr><td>0= Drive unlimited.</td></tr>
<tr><td rowspan="2">4</td><td rowspan="2">Running</td><td>1= Drive running.</td></tr>
<tr><td>0=Drive not running.</td></tr>
<tr><td rowspan="2">5</td><td rowspan="2">Rev req</td><td>1=Drive starting reversal.</td></tr>
<tr><td>0=Drive starting forward.</td></tr>
<tr><td rowspan="2">6</td><td rowspan="2">Start req</td><td>1=Driver received Start request.</td></tr>
<tr><td>0=Drive not received Start request.</td></tr>
<tr><td rowspan="2">7</td><td rowspan="2">Stop req</td><td>1=Drive received shutdown request</td></tr>
<tr><td>0=Drive not received shutdown request.</td></tr>
<tr><td rowspan="2">8</td><td rowspan="2">JOG active</td><td>1=Drive jog operation.</td></tr>
<tr><td>0=Drive jog function not activated.</td></tr>
<tr><td rowspan="2">9</td><td rowspan="2">Int stop req</td><td>1=Drive internal forced shutdown activated.</td></tr>
<tr><td>0=Drive forced shutdown function not activated.</td></tr>
<tr><td rowspan="2">10</td><td rowspan="2">Ext run enable</td><td>1=Drive external operation enabled.</td></tr>
<tr><td>0=Drive external operation not enabled.</td></tr>
<tr><td rowspan="2">11</td><td rowspan="2">JOG2</td><td>1=Drive JOG2 activated.</td></tr>
<tr><td>0= Drive JOG1 activated.</td></tr>
<tr><td rowspan="2">12</td><td rowspan="2">DC charged</td><td>1=DC high voltage capacitor charging completed.</td></tr>
<tr><td>0=DC high voltage capacitor charging not completed.</td></tr>
<tr><td rowspan="2">13</td><td rowspan="2">Chg rly closed</td><td>1=Soft start relay closure.</td></tr>
<tr><td>0=Soft start relay disconnect.</td></tr>
<tr><td rowspan="2">14</td><td rowspan="2">Ext2</td><td>1=Control place2 activated.</td></tr>
<tr><td>0=Control place1activated.</td></tr>
<tr><td rowspan="2">15</td><td rowspan="2">Loc ctrl</td><td>1=Drive operates in remote control mode.</td></tr>
<tr><td>0=Drive operates in the local control mode.</td></tr>
</table></td></tr>
</table>

06 Drive status	Drive status word
06.01 Status word2	Drive status word 2。

position	Name	Information
0	Data log rdy	1=Software oscilloscope waveform cache updated.
		0=Software oscilloscope waveform cache not updated.
1	OFF1	1=OFF1 (Deceleration stop) activated.
		0=OFF1 (Deceleration stop) not activated.
2	OFF2	1=OFF2 (Emergency stop coast stop) activated.
		0=OFF2 (Emergency stop coast stop) not activated.
3	OFF3	1=OFF3 (Emergency stop deceleration stop) activated.
		0=OFF3 (Emergency stop deceleration stop) not activated.
4	Motor Brk	1= activated.
		0= not activated.
5	Ramp in zero	1=Ramp input forced to zero.
		0=Normal operation.
6	Ramp out zero	1= Ramp output forced to zero.
		0=Normal operation.
7	Ramp hold	1=Ramp input forced to keep.
		0= Normal operation.
8	Modulatin g	1= Modulating, IGBT being controlled.
		0=No modulating, IGBT not being controlled.
9	Modbus active	1=Built-in MODBUS Communication activated.
		0=Built-in MODBUS Communication not activated.
10	CANopen active	1=Built-in CAN Communication activated.
		0=Built-inCAN Communication not activated.
11	Profi-DP active	1=PROFIBUS-DP Communication activated.
		0=PROFIBUS-DP Communication not activated.
12	Fan on	1=Drive cooling fan is on.
		0=Drive cooling fan is off.
13	Start block	1=Start command not executed.
		0=Normal operation.
14	ID run req	1=Parameter identification function of the motor is activated.
		0=None.
15	Main power on	1=The main power is on.
		0=The main power supply is not normally powered or the voltage is insufficient.

<table>
<tr><th>06 Drive status</th><th>Drive status word</th></tr>
<tr><td>06.02 Status word3</td><td>Drive status word3
<table>
<tr><th>position</th><th>Name</th><th>Information</th></tr>
<tr><td rowspan="2">0</td><td rowspan="2">AC src active</td><td>1=AC power mode activated.</td></tr>
<tr><td>0=DC power mode activated.</td></tr>
<tr><td rowspan="2">1</td><td rowspan="2">DC src active</td><td>1=DC power mode activated.</td></tr>
<tr><td>0=DC power mode activated.</td></tr>
<tr><td rowspan="2">2</td><td rowspan="2">Start inhibit</td><td>1 = Start inhibit</td></tr>
<tr><td>0 = normal</td></tr>
<tr><td>3</td><td>Spdref limit</td><td></td></tr>
<tr><td>4</td><td>Trqref limit</td><td></td></tr>
<tr><td>5</td><td>Rem in local</td><td></td></tr>
<tr><td>6</td><td>Imax limit</td><td></td></tr>
<tr><td>7</td><td>Volt limit</td><td></td></tr>
<tr><td>8</td><td>PM sync loss</td><td></td></tr>
<tr><td>9</td><td>PM flux boost</td><td></td></tr>
<tr><td>10</td><td>Zero freq</td><td></td></tr>
<tr><td>11</td><td>Flux build</td><td></td></tr>
</table></td></tr>
</table>

<table>
<tr><th>06 Drive status</th><th>Drive status word</th></tr>
<tr><td>06.03 Speed ctrl stat</td><td>Speed control status word.
<table>
<tr><th>position</th><th>Name</th><th>Information</th></tr>
<tr><td rowspan="2">0</td><td rowspan="2">Zero speed</td><td>1=Actual speed has reached zero speed limit and zero speed delay.</td></tr>
<tr><td>0=Not enter the zero speed state.</td></tr>
<tr><td rowspan="2">1</td><td rowspan="2">Reverse</td><td>1=Actual speed is negative, i.e. Reverse.</td></tr>
<tr><td>0=Actual speed is positive, i.e. Corotation.</td></tr>
<tr><td>2</td><td>Ramp up</td><td>1 = Ramp up, Speed absolute value increases.
0 = No acceleration.</td></tr>
<tr><td>3</td><td>Ramp down</td><td>1 = Ramp down, Speed absolute value decreases.
0 = No deceleration.</td></tr>
<tr><td>4</td><td>At setpoint</td><td>1 = Deviation of actual speed and ramp input in the speed window.</td></tr>
<tr><td>5</td><td>Reserved</td><td>1 = VF scalar control activated.
0 = Vector control activated.</td></tr>
<tr><td>6</td><td>Regen active</td><td>1 = Power generation operation.
0 = Jog operation.</td></tr>
<tr><td>7</td><td>Reserved</td><td>1 = Open loop vector control activated.
0 = Open loop vector control not activated.</td></tr>
<tr><td>8</td><td>Pos ctrl</td><td>1 =Position control activated.</td></tr>
<tr><td>9</td><td>ACIM active</td><td>1 = Asynchronous motor activated.</td></tr>
<tr><td>10</td><td>PMSM active</td><td>1 = Synchronous motor activated.</td></tr>
<tr><td>11</td><td>SynRM active</td><td>1 = Synchronous reluctance motor activated.</td></tr>
<tr><td>12</td><td>ID run</td><td>1 = Motor parameter auto-tuning activated.</td></tr>
<tr><td>13</td><td>Torque limit</td><td>1 = Torque limiting</td></tr>
<tr><td>14</td><td>Speed limit</td><td>1 = Speed limiting</td></tr>
<tr><td>15</td><td>Exc active</td><td>1 = Pre excitation of induction motor</td></tr>
</table></td></tr>
<tr><td>06.04 Infeed ctrl word</td><td>Retain</td></tr>
</table>

<table>
<tr><th>06 Drive status</th><th>Drive status word</th></tr>
<tr><td>06.05 Fieldbus CW</td><td>Field bus control word
<table>
<tr><th>Position</th><th>Name</th><th>Information</th></tr>
<tr><td rowspan="2">0</td><td rowspan="2">Stop</td><td>1=Drive stop.</td></tr>
<tr><td>0=Maintain current status.</td></tr>
<tr><td rowspan="2">1</td><td rowspan="2">Start</td><td>1=Drive start.</td></tr>
<tr><td>0= Maintain current status.</td></tr>
<tr><td>2</td><td>StopMode OFF2</td><td>1 =Mandatory for emergency shutdown mode.</td></tr>
<tr><td>3</td><td>StopMode OFF3</td><td>1 =Mandatory for coast stop mode.</td></tr>
<tr><td>4</td><td>Local ctrl</td><td>1 =Request for local control.</td></tr>
<tr><td>5</td><td>StopMode ramp</td><td>1 =Mandatory for deceleration stop mode.</td></tr>
<tr><td>6</td><td>StopMode coast</td><td>1 =Mandatory for coast stop mode.</td></tr>
<tr><td>7</td><td>Run enable</td><td>1 = Run enable.
0 = Run inhibit.</td></tr>
<tr><td>8</td><td>Reset</td><td>0->1 Reset drive fault.</td></tr>
<tr><td>9</td><td>Jog1</td><td>1 = Jog 1 start.</td></tr>
<tr><td>10</td><td>Jog2</td><td>1 = Jog 2 start.</td></tr>
<tr><td>11</td><td>Remote</td><td>1 = Request for remote control.</td></tr>
<tr><td>12</td><td>Ramp in 0</td><td>1 =Force the input of the given ramp generator as 0.</td></tr>
<tr><td>13</td><td>Ramp hold</td><td>1 = Force the output of the given ramp generator to remain constant.</td></tr>
<tr><td>14</td><td>Ramp out 0</td><td>1 = Force the output of the given ramp generator as 0.</td></tr>
<tr><td>15</td><td>Ext2 sel</td><td>1 = Reversal command</td></tr>
</table></td></tr>
</table>

08 Fault & Alarm Log

08 Fault & Alarm Log	Fault and Alarm log	
08.00 Alarm Code	Latest Alarm Code.	-
08.01 Fault Code	Latest Fault Code.	-

09 System Info

09 System Info	Drive system Info	
09.00 Driver ID	Drive hardware code.	-
09.01 Drive type	Drive type.	-
09.02 Firmware version	Drive firmware version.	-
09.03 Encoder type	The encoder type identified by the expansion card slo SLOT1.	-
09.04 PWM freq	The actual application carrier frequency of the system.	-
09.05 App macro active	The actual application macro of the system.	-
09.06 Specil version	A version of software that is specific to a specific industry or customer	-

10 Start/Stop/Dir

10 Start/Stop/Dir	Selection of signal sources of start / stop / direction	Def
10.00 Ext1 start func	Select the signal source of the external control 1 (EXT1) start and the stop command. Note: this parameter cannot be changed when the drive is running.	In1FWD, In2 RVD= [2]
Not selected	The start function of control1 is not selected.	0
In1 RUN, In2 DIR	The signal source selected by the parameter of *10.01Ext1startin1* (*Control 1 of the input 1*) is the start signal (0= Stop， 1= Start). selected by the parameter of *10.02Ext1 startin2 (Control 1 of the input 2)* is the direction signal (0=Positive, 1=Reverse)	1

<table>
<tr><th>10 Start/Stop/Dir</th><th>Selection of signal sources of start / stop / direction</th><th>Def</th></tr>
<tr><td>In1 FWD, In2 REV</td><td>The signal sources of the start and stop command are selected by the parameters of 10.01Ext1startin1 (Control 1 of the input 1) and 10.02Ext1startin2 (Control 1 of the input 2). The state transition of the signal source bit is explained as follows:
<table>
<tr><th>The status of the input1 of control1</th><th>The status of the input2 of control1</th><th>Command</th></tr>
<tr><td>0</td><td>0</td><td>Stop</td></tr>
<tr><td>1</td><td>0</td><td>Forward start</td></tr>
<tr><td>0</td><td>1</td><td>Reverse start</td></tr>
<tr><td>1</td><td>1</td><td>Stop</td></tr>
</table></td><td>2</td></tr>
<tr><td>RUN/STOP/DIR
（启动/停止/方向）</td><td>The signal sources of the start and stop command are selected by the parameters of 10.01 Ext1 start in1 (Control 1 of the input 1), 10.02 Ext1 start in2 (Control 1 of the input 2) and 10.03 Ext1 start in3 (Control 1 of the input 3). The state transition of the signal source bit is explained as follows:
<table>
<tr><th>The status of the input1 of control1</th><th>The status of the input2 of control1</th><th>The status of the input3 of control1</th><th>Command</th></tr>
<tr><td>0 → 1</td><td>0</td><td>0</td><td>Forward start</td></tr>
<tr><td>0 → 1</td><td>0</td><td>1</td><td>Reverse start</td></tr>
<tr><td>X</td><td>1</td><td>X</td><td>Stop</td></tr>
<tr><td>0</td><td>0</td><td>X</td><td>Change Dir</td></tr>
</table></td><td>3</td></tr>
<tr><td>FWD/REV/STOP</td><td>The signal sources of the start and stop command are selected by the parameters of 10.01 Ext1 start in1 (Control 1 of the input 1), 10.02 Ext1 start in2 (Control 1 of the input 2) and 10.03 Ext1 start in3 (Control 1 of the input 3). The state transition of the signal source bit is explained as follows:
<table>
<tr><th>The status of the input1 of control1</th><th>The status of the input2 of control1</th><th>The status of the input3 of control1</th><th>Command</th></tr>
<tr><td>0 → 1</td><td>0</td><td>0</td><td>Forward start</td></tr>
<tr><td>0</td><td>0 → 1</td><td>0</td><td>Reverse start</td></tr>
<tr><td>X</td><td>X</td><td>1</td><td>Stop</td></tr>
<tr><td>1</td><td>1</td><td>0</td><td>Stop</td></tr>
</table></td><td>4</td></tr>
<tr><td>Fieldbus</td><td>Fieldbus communication control word decision.</td><td>5</td></tr>
<tr><td>Panel</td><td>Start-stop button control by control panel.</td><td>6</td></tr>
<tr><td>10.01 Ext1 start In1</td><td>Select the input1 signal source of control1.
Refer to parameters of 10.00 Ext1 start func (Control ground 1 star function).</td><td>DI1 = [2048]</td></tr>
</table>

10 Start/Stop/Dir	Selection of signal sources of start / stop / direction	Def
P.01.00.00 (Bit pointer)	User defined pointer (01.00.00 from left to right take two digits as a set, indicates the parameter group number, index No., item No. in turn. The actual value is determined by the current value of the parameter.)	-
CONST.FALSE	Always be 0	0
CONST.TRUE	Always be 1	1
DI1	Digital input DI1 *(02.00 DI state, position 0)*	2048
DI2	Digital input DI2	2049
DI3	Digital input DI3	2050
DI4	Digital input DI4	2051
DI5	Digital input DI5	2052
DI6	Digital input DI6	2053
DI7	Digital input DI7	2054
10.02 Ext1 start In2	Select the signal source for input 1 of control2. *Refer to the parameters 10.01 Ext start In1 for relevant available options.*	DI2 = [2049]
10.03 Ext1 start In3	Select the signal source for input 1 of control3. *Refer to the parameters 10.01 Ext start In1 for relevant available options.*	CONST.FALSE = [0]
10.04 Ext2 start func	Select the start and stop command signal source of the external control 2 (EXT2). *Refer to the parameters 10.00 Ext1 start func for relevant available options.*	Not selected = [0]
10.05 Ext2 start In1	Select the signal source for input 2 of control1. *Refer to the parameters 10.01 Ext start In1 for relevant available options.*	CONST.FALSE = [0]
10.06 Ext2 start In2	Select the signal source for input 2 of control2. *Refer to the parameters 10.01 Ext start In1 for relevant available options.*	CONST.FALSE = [0]
10.07 Ext2 start In3	Select the signal source for input 2 of control3. *Refer to the parameters 10.01 Ext start In1 for Relevant available options.*	CONST.FALSE = [0]
10.08 JOG1 start	Select the start signal source of Jog1, 0: No start command; 1: Has start command. *Refer to the pararameters of 10.01 Ext start In1 for relevant available options.*	CONST.FALSE = [0]
10.09 JOG2 start	Select the start signal source of Jog2, 0: No start command; 1: Has start command. Refer to the parameters of 10.01 Ext start In1 for relevant available options.	CONST.FALSE = [0]
10.10 JOG enable	Select the JOG enable signal source, 0: JOG Inhibit; 1: JOG Enable. Refer to the parameters of 10.01 Ext start In1 for relevant available options.	CONST.FALSE = [0]
10.11 Fault reset sel	Select the signal source of the fault reset command, 0: No reset command; 1: Has reset command. *Refer to the parameters of 10.01 Ext start In1 for relevant available options.*	CONST.FALSE = [0]
10.12 Run enable	Select the enable signal source for operation, 0: Running is inhibited, 1: Running enable. Refer to the parameters of 10.01 Ext start In1 for relevant available options.	CONST.TRUE = [1]

10 Start/Stop/Dir	Selection of signal sources of start / stop / direction	Def
10.13 Emergency stop	Select the signal source of the emergency stop command, 0: Emergency stop; 1: Keep the current state. *Refer to the parameters of 10.01 Ext start In1 for relevant available options.*	CONST.TRUE = [1]
10.14 EM stop mode	Selection of emergency stop mode.	OFF2 = [1]
OFF1	Deceleration stop, Deceleration time is the acceleration and deceleration time1.	0
OFF2	Coast stop	1
OFF3	Deceleration stop, Deceleration time is the emergency stop time.	2
10.15 Start enable	Select the start enable signal source, 0: Start inhibit; 1: Start enable. *Refer to the parameters of 10.01 Ext start In1 for relevant available options.*	CONST.TRUE = [1]

11 Start/Stop Mode

11 Start/Stop Mode	Start Stop Mode Settings	Def
11.00 Stop mode	Stop mode.	RAMP= [0]
RAMP	Deceleration stop.	0
COAST	Coast stop.	1
11.01 Ext1/Ext2 sel	Select the signal source for switching control, 0: Select control 1 (Ext1), 1: Select control 2 (Ext2).	CONST.FALSE
P.01.00.00	User defined pointer (01.00.00A from left to right take two digits as a set, indicates the parameter group number, Index No,Item No.. The actual value is determined by the current value of the parameter.)	-
CONST.FALSE	Always be 0	0
CONST.TRUE	Always be 1	1
DI1	Digital input DI1 *(02.00 DI state, position 0)*	2048
DI2	Digital input DI2	2049
DI3	Digital input DI3	2050
DI4	Digital input DI4	2051

11 Start/Stop Mode	Start Stop Mode Settings	Def
DI5	Digital input DI5	2052
DI6	Digital input DI6	2053
DI7	Digital input DI7	2054
11.02 Ext1 ctrl mode	Motor control mode of control1.	Speed = [0]
Speed	Speed mode	0
11.03 Ext2 ctrl mode	Motor control mode of control 2. *Refer to the parameters of 11.02 Ext1 ctrl mode for relative available options.*	Speed = [0]
11.04 Local ctrl mode	Motor control mode in local control.	Speed = [0]
Speed	Speed mode. Speed given set by the parameter of *02.13 Control panel ref1*.	0
Torque	Torque mode. Torque given set by the parameter of *02.14 Control panel ref2*.	1
11.05 Ext1 trig type	Select the trigger mode for control1.	Level = [1]
Edge	Edge trigger	0
Level	Level trigger	1
11.06 Ext2 trig type	Select the trigger mode for control2. *Refer to the parameters 11.05 Ext1 trig type for relevant available options.*	Level = [1]

13 Analog & pulse in

13 Analog & pulse in	Analog quantity and pulse input	Def
13.00 AI1 input max	Maximum value of analog input AI1.	10.000V
[0.000V, 10.000V]		-
13.01 AI1 input min	Minimum value of analog input AI1.	0.000V
[0.000V, 10.000V]		-
13.02 AI1 superv act	Action performed when AI1 exceeds the maximum or minimum range.	No action = [0]
No action	No action.	0

13 Analog & pulse in	Analog quantity and pulse input	Def
Fault	Report Fault.	1
Alarm	Report Alarm.	2
13.03 AI1 superv sel	Select the monitoring content of AI1.0:Monitor inhibited;1: Monitor enabled.	00b
BIT0: AI min sup	Whether the monitoring AI1 input value is less than the minimum value set by the parameters *13.01 AI1 input min (AI1 Input minimum value).*	0
BIT1: AI max sup	Whether the monitoring AI1 input value is greater than the maximum value set by the parameters *13.00 AI1 input max (AI1 Input*	0
13.04 AI1 calibration	AI1 Correct selection.	No action = [0]
No action	No corrective action, or the corrective action has been completed.	0
AI_MIN_TUNE	Minimum value correction. Requires the voltage supplied to AI1 externally should be accordance with the corresponding value of the parameters of *13.01 AI1 input min (AI1 Input minimum value).*	1
AI_MAX_TUNE	Maximum value correction. Requires the voltage supplied to AI1 externally should be accordance with the corresponding value of the parameters of *13.00 AI1 input max (AI1 Input maximum value).*	2
13.05 AI1 max scale	Maximum value of the converted analog AI1.	1500
[-32768, 32767]	The output value of the converted AI1 maximum input voltage.	-
13.06 AI1 min scale	The minimum value of the converted analog AI1.	0
[-32768, 32767]	The output value of the converted AI1 minimum input voltage.	-
13.07 AI1 sim enable	In debugging or other applications, user can enable the AI1 simulation function of the analog input by this parameter.	Disable = [0]
Disable	Turn off the simulation mode. The converted output of AI1 depends on the input voltage of AI1.	0
Enable	Enable simulation mode. The converted output of AI1 depends on the parameters of *13.08 AI1 sim data (AI1simulation data).*	1
13.08 AI1 sim data	Simulation data of anolog AI1.	0
[-32768, 32767]	Set the converted output of AI1 when the emulation mode of AI1 is enabled.	-

13 Analog & pulse in	Analog quantity and pulse input	Def
13.09 AI1 filter time	Define the first-order low-pass filtering time constant of analog AI1.	0.10s
[0.01s, 10.00s]	Filter time constant.	-
13.10 AI2 input max	Maximum value of analog input AI2.	10.000V 或 20.000mA
[0.000mA, 20.000mA] or [0.000V, 10.000V]	Range and unit by parameter *13.17 AI2 input type(AI2Input type)*Decision.	
13.11 AI2 input min	Minimum value of analog input AI2.	0.000 V 或 0.000mA
[0.000mA, 20.000mA] or [0.000V, 10.000V]	The value range and unit are determined by the parameter of *13.17 AI2 input type (AI2 Input type).* Decision.	
13.12 AI2 superv act	The performed action when AI2 exceeds the maximum or minimum range. *Refer to the parameters of 13.02 AI1 superv act (AI1 Monitoring action) for relative available options.*	No action = [0]
13.13 AI2 superv sel	Select the contents of AI2 monitoring. *Refer to the parameters of 13.03 AI1 superv sel (AI1 Monitoring options) for relative available options.*	00b
13.14 AI2 calibration	AI2 calibration selection. *Refer to the parameters of 13.04 AI1 calibration (AI1 Calibration selection) for relative available options.*	No action = [0]
13.15 AI2 max scale	Maximum value of the converted analog AI2.	1500
[-32768, 32767]	The output value of the converted AI2 maximum input voltage.	-
13.16 AI2 min scale	Minimum value of the converted analog AI2.	0
[-32768, 32767]	The output value of the converted AI2 minimum input voltage.	-
13.17 AI2 input type	The input type of analog AI2. Must be consistent with the dial-up position of the terminal panel dial-up switch S1. **Note: when using the 4~20mA current mode senso, user need to manually set the parameters of** *13.11 AI2 input min (AI2 Input minimum value)* **as 4.000mA.**	Voltage = [0]
Voltage	Dial code switch or jumper wire to the letter “V” side, select the voltage type input.	0
Current	Dial switch to the letter “I” side, select the current type input.	1

13 Analog & pulse in	Analog quantity and pulse input	Def
13.18 AI2 sim enable	Simulation enable of analog AI2. *Refer to the parameters of 13.07 AI1 sim enable (AI1 Simulation enable).*	Disable = [0]
13.19 AI2 sim data	Simulation data of analog AI2. *Refer to the parameters of 13.08AI1 sim data*	0
13.20 AI2 filter time	Define the first-order low-pass filter time constant of analog AI2.	0.10s
[0.01s, 10.00s]	Filter time constant.	-
13.21 AI3 input max	Maximum value of analog input AI3.	10.000V 或 20.000mA
[0.000mA, 20.000mA] or [0.000V, 10.000V]	The value range and the units are determined by the parameter of *13.28 AI3 input type (AI3 Input type).*	-
13.22 AI3 input min	Minimum value of analog input AI3.	0.000V 或 0.000mA
[0.000mA, 20.000mA] or [0.000V, 10.000V]	The value range and the units are determined by the parameter of *13.28 AI3 input type (AI3 Input type).* Decision。	-
13.23 AI3 superv act	Action performed when AI3 exceeds the maximum or the minimum range. *Refer to the parameters of 13.02 AI1 superv act (AI1 Monitoring action) for relevant available options.*	No action = [0]
13.24 AI3 superv sel	Select the contents of the AI3 monitor. *Refer to the parameters of 13.03 AI1 superv sel (AI1Monitoring options) for relevant available options.*	00b
13.25 AI3 calibration	AI3 calibration selection. *Refer to the parameters of 13.04 AI1 calibration (AI1 Calibration selection) for relevant available options.*	None = [0]
13.26 AI3 max scale	Maximum value of the converted analog AI3.	1500
[-32768, 32767]	The output value of the converted AI3 maximum input voltage.	-
13.27 AI3 min scale	Minimum value of the converted analog AI3.	0
[-32768, 32767]	The output value of the converted AI3 minimum input voltage.	-
13.28 AI3 input type	The anlog AI3 input type. It must be consistent with the dial position of the terminal panel dial switch S2. **Note: when using the 4~20mA current type sensor, user need to manually set the parameters of** *13.22 AI3 input min(AI3 Input minimum value)***as 4.000mA.** *Refer to the parameters of 13.17 AI2 input type (AI2 Input type).*	Voltage = [0]

13 Analog & pulse in	Analog quantity and pulse input	Def
13.29 AI3 sim enable	Simulation enable of analog AI3. *Refer to the parameters 13.07 AI1 sim enable (AI1 Simulation enable).*	Disable = [0]
13.30 AI3 sim data	Simulation data of analog AI3. *Refer to the parameters of 13.08 AI1 sim data (AI1 simulation data).*	0
13.31 AI3 filter time	Define the first-order low-pass filtering time constant of analog AI3.	0.10s
[0.01s, 10.00s]	Filter time constant.	-
13.32 Freq input max	Maximum frequency of DI7 high speed pulse input.	10000Hz
[0Hz, 60000Hz]		-
13.33 Freq input min	Minimum frequency of DI7 high speed pulse input.	0Hz
[0Hz, 60000Hz]		-
13.34 Freq in max scale	The converted maximum output value of the frequency input.	1500
[-32768, 32767]	The output value of the converted maximum input frequency of the frequency input.	-
13.35 Freq inmin scale	The converted minimum output value of the frequency input.	0
[-32768, 32767]	The output value of the converted minimum input frequency of the frequency input.	-
13.36 Freq in sim enable	In debugging or other applications, user can enable the simulation enable of the frequency input by this parameter.	Disable = [0]
Disable	Turn off the simulation mode. The frequency input conversion output depends on the DI7 high speed pulse input.	0
Enable	Enable simulation mode. The frequency input conversion output depends on the parameters of *13.37Freq in sim data (Frequency input simulation data).*	1
13.37 Freq in sim data	Simulation data of the frequency input.	0
[-32768, 32767]	When the frequency input simulation mode is enabled, set the converted output value of the frequency input.	-
13.38 Freq in filter time	Define the filter time constant of the frequency input.	0.10s
[0.01s, 10.00s]	Filter time constant.	-

14 Digital I/O

14 Digital I/O	Digital input and output	Def
14.00 DI1 on delay	Digital input DI1 closure delay time.	2ms
[0, 65535 ms]	Closure delay time.	
14.01 DI1 off delay	Digital input DI1 disconnect delay time.	2ms
[0, 65535 ms]	disconnect delay time.	
14.02 DI2 on delay	Digital input DI2 closure delay time. *Refer to the parameters of 14.00 DI1 on delay (DI1 on delay).*	2ms
14.03 DI2 off delay	Digital input DI2 disconnect delay time. *Refer to the parameters of 14.01DI1 off delay (DI1 off delay).*	2ms
14.04 DI3 on delay	Digital input DI3 on delay time. *Refer to the parameters of 14.00 DI1 on delay (DI1 on delay).*	2ms
14.05 DI3 off delay	Digital input DI3 off delay time. *Refer to the parameters of 14.01DI1 off delay (DI1 off delay).*	2ms
14.06 DI4 on delay	Digital input DI4 on delay time. *Refer to the parameters of 14.00 DI1 on delay (DI1 on delay).*	2ms
14.07 DI4 off delay	Digital input DI4 disconnect delay time. *See refer to the parameters of 14.01DI1 off delay (DI1 off delay).*	2ms
14.08 DI5 on delay	Digital input DI5 on delay time. *Refer to the parameters of 14.00 DI1 on delay (DI1 on delay).*	2ms
14.09 DI5 off delay	Digital input DI5 disconnect delay time. *Refer to the parameters of 14.01DI1 off delay (DI1 off delay).*	2ms
14.10 DI6 on delay	Digital input DI6 on delay time. *Refer to the parameters of 14.00 DI1 on delay (DI1on delay).*	2ms
14.11 DI6 off delay	Digital input DI6 disconnect delay time. *Refer to the parameters of 14.01DI1 off delay (DI1 off delay).*	2ms
14.12 DI7 on delay	Digital input DI7 on delay time. *Refer to the parameters of 14.00 DI1 on delay (DI1 on delay).*	2ms
14.13 DI7 off delay	Digital input DI7 disconnect delay time. *Refer to the parameters of 14.01DI1 off delay (DI1 off delay).*	2ms
14.14 DO1 on delay	Digital output DO1 on delay time.	0 ms
[0, 65535 ms]	Closed delay time.	
14.15 DO1 off delay	Digital output DO1 disconnect delay time.	0 ms
[0, 65535 ms]	Closed delay time.	
14.16 DO2 on delay	Digital output DO2 on delay time.*See parameters14.14DO1 on delay(DO1on delay).*	0 ms

14 Digital I/O	Digital input and output	Def
14.17 DO2 off delay	Digital output DO2 disconnect delay time. *Refer to the parameters of 14.14DO1 off delay (DO1 off delay).*	0 ms
14.18 RO1 on delay	Digital output RO1 closure delay time. *Refer to the parameters of 14.14DO1 on delay (DO1on delay).*	0 ms
14.19 RO1 off delay	Digital output RO1 disconnect delay time. *Refer to the parameters of 14.14DO1 off delay (DO1 off delay).*	0 ms
14.20 RO2 on delay	Digital output RO2 on delay time. *Refer to the parameters of 14.14DO1 on delay (DO1 on delay).*	0 ms
14.21 RO2 off delay	Digital output RO2 disconnect delay time. *Refer to the parameters of 14.14DO1 off delay (DO1 off delay).*	0 ms
14.22 DI logic	The logical type of digital input. The normal logic indicates that the terminal and the COM terminal are short circuit to 1, on the contrary is 0. The anti logic indicates that the terminal is disconnected from the COM terminal by 1, on the contrary by 0.	0000000b
BIT0: DI1	DI1 logic, 0=Normal, 1=Anti logic.	0
BIT1: DI2	DI2 logic, 0=Normal, 1=Anti logic.	0
BIT2: DI3	DI3 logic, 0=Normal, 1=Anti logic.	0
BIT3: DI4	DI4 logic, 0=Normal, 1=Anti logic.	0
BIT4: DI5	DI5 logic, 0=Normal, 1=Anti logic.	0
BIT5: DI6	DI6 logic, 0=Normal, 1=Anti logic.	0
BIT6: DI7	DI7 logic, 0=Normal,1=Anti logic.	0
14.23 DI sim enable	Simulation enable of the digital input. 0=Simulation shutdown, 1=Simulation enabled.	0000000b
BIT0: DI1	DI1 The simulation enable or data	0
BIT1: DI2	DI2 The simulation enable or data	0
BIT2: DI3	DI3 The simulation enable or data	0
BIT3: DI4	DI4 The simulation enable or data	0
BIT4: DI5	DI5 The simulation enable or data	0
BIT5: DI6	DI6 The simulation enable or data	0
BIT6: DI7	DI7 The simulation enable or data	0

14 Digital I/O	Digital input and output	Def
14.24 DI sim data	Simulation data of the digital input. 0: Terminal disconnection, 1: Terminal closure. *Refer to parameters of 14.23 DI sim enable (DI Simulation enable).*	0000000b
14.25 DI status undelay	Digital input status before the delay link, read-only. *Refer to parameters 14.22 DI logic (DI Input logic).*	-
BIT0: DI1	DI1 Actual state.	
BIT1: DI2	DI2 Actual state.	
BIT2: DI3	DI3 Actual state.	
BIT3: DI4	DI4 Actual state.	
BIT4: DI5	DI5 Actual state.	
BIT5: DI6	DI6 Actual state.	
BIT6: DI7	DI7 Actual state.	
14.26 DO logic	Logical type of the digital output. When the normal logic signal is 1, the output terminal is closed, on the contrary is disconnected. When the anti logic signal is 0, the output terminal is closed, on the contrary is disconnected.	0000b
BIT0: DO1	DO1 Logic, 0=Normal,1=Anti logic.	0
BIT1: DO2	DO2 Logic, 0=Normal,1=Anti logic.	0
BIT2: RO1	RO1 Logic, 0=Normal, 1=Anti logic.	0
BIT3: RO2	RO2 Logic, 0=Normal, 1=Anti logic.	0
14.27 DO sim enable	Digital output simulation enable, 0: Simulation shutdown, 1: Simulation enable.	0000b
BIT0: DO1	DO1 simulation enable or data	0
BIT1: DO2	DO2 simulation enable or data	0
BIT2: RO1	RO1 simulation enable or data	0
BIT3: RO2	RO2 simulation enable or data	0
14.28 DO sim data	Simulation data of the digital output. 0: Terminal disconnection, 1: Terminal closure. *Refer to parameters 14.27 DO sim enable (DO Simulation enable).*	0000b

14 Digital I/O	Digital input and output	Def
14.29 DO1 source	Set the signal source DO1. *Refer to parameters 14.26 DO logic (DO Output logic) for the meaning of 0 and 1.*	Running = [6148]
P.01.00.00	User defined pointer (01.00.00 from left to right take two digits as a set, indicates the parameter group number, index and item. The actual value is determined by the current value of the parameter).	-
CONST.FALSE	Has been 0	0
CONST.TRUE	Has been 1	1
Ready	Ready *(06.00 Status word 1, position 0)*	6144
Running	Drive running *(06.00 Status word 1, position 4)*	6148
Fault	Driver fault *(06.00 Status word 1, position 1)*	6145
Alarm	Drive alarm *(06.00 Status word 1, position 2)*	6146
Start req	Drive received start request *(06.00 Status word 1, position 6)*	6150
Ext2	Drive controlled by external control2 *(06.00 Status word 1, position 14)*	6158
Loc ctrl	Drive in local control *(06.00 Status word 1, position 15)*	6159
Zero speed	Drive output is 0 *(06.03 Speed control status word, position 0)*	6192
Reverse	Drive output is negative *(06.03 Speed control status word, position 1)*	6193
At setpoint	Drive output is equal with settings *(06.03 Speed control status word, position 4)*	6196
Torq limit	Drive torque limit running *(06.03 Speed control status word, position 13)*	6205
Speed limit	Drive speed limit running *(06.03 Speed control status word, position 14)*	6206
14.30 DO2 source	Set the signal source of DO2. *Refer to parameters 14.29 DO1 source (DO1 Signal source) for relevant available options.*	Fault = [6145]
14.31 RO1 source	Set the signal source of RO1. *Refer to parameters 14.29 DO1 source (DO1 Signal source) for relevant*	Running = [6148]
14.32 RO2 source	Set the signal source of RO2. *Refer to parameters 14.29 DO1 source (DO1Signal source) for relevant*	Fault = [6145]
14.33 DO1 level type	Set DO1 signal type.	Level = [1]
Edge	Output is edge pulse mode.	0
Level	Output is level mode.	1

14 Digital I/O	Digital input and output	Def
14.34 DO1 edge type	Set DO1 signal type.	Rising = [0]
Rising	Trigger the DO pulse output by rising edge.	0
Falling	Trigger the DO pulse output by falling edge.	1
Both	Trigger the DO pulse output by rising and falling edge.	2
14.35 DO1 pulse width	Set the pulse output width of DO1.	500ms
[0, 65535ms]		1ms
14.36 DO2 level type	Set DO2 signal type.	Level = [1]
Edge	Output is edge pulse mode.	0
Level	Output is level mode.	1
14.37 DO2 edge type	Set DO2 signal type.	Rising = [0]
Rising	Trigger the DO pulse output by rising edge.	0
Falling	Trigger the DO pulse output by falling edge.	1
Both	Trigger the DO pulse output by rising and falling edge.	2
14.38 DO2 pulse width	Set the pulse output width of DO2.	500ms
[0, 65535ms]		1ms
14.39 RO1 level type	Set RO1 signal type.	Level = [1]
Edge	Output is edge pulse mode.	0
Level	Output is level mode.	1
14.40 RO1edge type	Set RO1 signal type.	Rising = [0]
Rising	Trigger the DO pulse output by rising edge.	0
Falling	Trigger the DO pulse output by falling edge.	1
Both	Trigger the DO pulse output by rising and falling edge.	2
14.41 RO1 pulse width	Set the pulse output width of RO1.	500ms

14 Digital I/O	Digital input and output	Def
[0, 65535ms]		1ms
14.42 RO2 level type	Set RO2 signal type.	Level = [1]
Edge	Output is edge pulse mode.	0
Level	Output is level mode.	1
14.43 RO2 edge type	Set RO2 signal type.	Rising = [0]
Rising	Trigger the DO pulse output by rising edge.	0
Falling	Trigger the DO pulse output by falling edge.	1
Both	Trigger the DO pulse output by rising and falling edge.	2
14.44 RO2 pulse width	Set the pulse output width of RO2.	500ms
[0, 65535ms]		1ms
14.45 DO JOG mask	Set whether the DO output is shielded or not at JOG. Refer to 14.26 DO logic.	0

15 Analog & pulse out

15 Analog & pulse out	Analog output and pulse output	Def
15.00 AO1 source	Select the signal source of analog output AO1.	Motor speed=[256]
P.01.00	User defined pointer (01.00 from left to right take two digits as a set, indicates the parameter group number and index. The actual value is determined by the current value of the parameter).	-
Zero	Always be 0.	0
Motor speed	*Refer to parameters 01.00 Motor speed (motor speed).*	256
Output frequency	*Refer to parameters 01.01 Output frequency (output frequency).*	257
DC bus voltage	*Refer to parameters* 01.02 DC bus voltage *(DC Bus Voltage).*	258
Motor current	*Refer to parameters 01.03 Motor current (Motor current).*	259

15 Analog & pulse out	Analog output and pulse output	Def
Motor current %	*Refer to parameters 01.04* Motor current % *(Motor current percentage).*	260
Motor slip est	*Refer to parameters 01.12* Motor slip est *(Estimated value of motor slip).*	268
Output voltage	*Refer to parameters 01.21 Output voltage (output voltage).*	277
Motor torque	*Refer to parameters01.22 Motor torque (Motor torque).*	278
Motor temperature	*Refer to parameters 01.23 Motor temperature (Motor temperature).*	279
Output power	*Refer to parameters 01.28 Output power (output power).*	284
15.01 AO1 output max	Define the maximum value of the analog output AO1 output.	10.000V
[0.000mA, 20.000mA] Or [0.000V, 10.000V]	The value range and the unit are determined by the parameter *15.08 AO1 output type (AO1 type*	-
15.02 AO1 output min	Define the minimum value of the analog output AO1 output.	0.000V
[0.000mA, 20.000mA] Or [0.000V, 10.000V]	The value range and the unit are determined by the parameter *15.08 AO1 output type (AO1 type of output).*	-
15.03 AO1 source max	Define the maximum value of the signal selected via the parameter *15.00 AO1 source (AO1signal source). Refer to parameters of 15.07 AO1 output mode (AO1 Output mode) for corresponding output value of AO1.*	15000
[-32768, 32767]		-
15.04 AO1 source min	Define the minimum value of the signal selected via the parameter *15.00 AO1 source (AO1signal source). Refer to parameters of 15.07 AO1 output mode (AO1Output mode) for corresponding output value of AO1.*	0
[-32768, 32767]		-
15.05 AO1 sim data	Set the output voltage or current of AO1 when simulation enabled.	10.000V
[0mA, 20.000mA] Or [0V, 10.000V]		-
15.06 AO1 sim enable	In debugging or other application occasions, user can enable the simulation function of the analog output of AO1 via this parameter.	Disable = [0]
Disable	Simulation function turn off, the output voltage or current of AO1 depends on the actual value of the signal source.	0

15 Analog & pulse out	Analog output and pulse output	Def
Enable	Simulation function enabled. The output voltage or current of AO1 depends on the setting value of the parameters *15.05 AO1 sim data (AO1 simulation data).*	1
15.07 AO1 output mode	The output mode determines the correspondence between the maximum and minimum values of the AO1 signal source and the AO1 output.	Normal = [0]
Normal	Keep the symbol bit of the signal source, i.e. the maximum value of the signal source corresponds to the maximum output of AO, the minimum value of the signal source corresponds to the minimum value of the AO output.	0
Absolute	Take the absolute value of the signal source, i.e. of the maximum and minimum value of the signal source, take the greater one of the two corresponds to the maximum value of AO output, while the signal source is 0 corresponds to the minimum value of AO output.	1
15.08 AO1 output type	AO1 output type, must be consistent with the jumper position of the terminal panel jumper switch J1. **Note: To achieve 4~20mA output, user need to manually set the parameters** *15.02 AO1output min (AO1 Output minimum value)* **as 4.000mA.**	Voltage= [0]
Voltage	Jumper on the letter "V" side, Select the voltage type output.	0
Current	Jumper on the letter "I" side, select the current type output.	1
15.09 AO1 filter time	Define the filter time constant of AO1.	0.1s
[0.01s, 10.00s]	Filter time constant.	-
15.10 AO2 source	Selection of signal source for analog output AO2. *Refer to parameters 15.00 AO1 source (AO1 signal source) for relevant available options.*	Motor current %= [260]
15.11 AO2 output max	Define the maximum value of the analog output AO2 output.	10.000V
[0.000mA, 20.000mA] or [0.000V, 10.000V]	The range value and the unit determined by the parameter of *15.18 AO2output type (AO2type of output).*	-
15.12 AO2 output min	Define the minimum value of the analog output AO2 output.	0.000V
[0.000mA, 20.000mA] or [0.000V, 10.000V]	The range value and the unit determined by the parameter *15.18 AO2 output type (AO2 type of output).*	-

15 Analog & pulse out	Analog output and pulse output	Def
15.13 AO2 source max	Define the maximum value of the signal selected by the parameter of *15.10 AO2 source (AO2 signal source). Refer to the parameters of 15.17 AO2 output mode for corresponding AO2 output value.*	15000
[-32768, 32767]		-
15.14 AO2 source min	Define the minimum value of the signal selected by the parameter of *15.10 AO2 source (AO2 signal source). Refer to the parameters of 15.17 AO2 output mode for corresponding AO2 output value.*	0
[-32768, 32767]		-
15.15 AO2 sim data	Simulation data of analog AO2. *Refer to the parameters of 15.05 AO1 sim data (AO1 simulation data).*	10.000V
15.16 AO2 sim enable	Simulation enable of analog AO2. *Refer to the parameters of 15.06 AO1 sim enable (AO1 Simulation enable).*	Disable= [0]
15.17 AO2 output mode	The output mode determines the correspondence between the maximum and minimum values of the AO2 signal source and the output of AO2. *Refer to the parameters 15.07 AO1 output mode (AO1 output mode) for available options.*	Normal= [0]
15.18 AO2 output type	AO2 output type, must be consistent with the jumper position of the terminal panel jumper switch J2. **Note: To achieve 4~20mA output, user need to manually set the parameters** *15.12 AO1 output min (AO1 Output minimum value)* **as 4.000mA.** *Refer to the parameters of 15.08 AO1 output type (AO1 output type).*	Voltage= [0]
15.19 AO2 filter time	Define the filter time constant of AO2.	0.1s
[0.01s, 10.00s]	Filter time constant.	-
15.20 Freq out source	Select the signal source of the pulse output. **Note: to use the frequency output function, user need to set the parameters** *15.28 Freq out enable (Frequency output enable). Refer to the parameters15.00 AO1 source for relevant available options.*	0
15.21 Freq out max	Maximum frequency of DO2 high speed pulse output.	10000Hz
[0Hz, 60000Hz]		-
15.22 Freq out min	Minimum frequency of DO2 high speed pulse output.	0 Hz
[0Hz, 60000Hz]		-

15 Analog & pulse out	Analog output and pulse output	Def
15.23 Freq out src max	The actual signal value corresponding to the maximum frequency output value.	15000
[-32768, 32767]		-
15.24 Freq out src min	The actual signal value corresponding to the minimum frequency output value.	0
[-32768, 32767]		-
15.25 Freq out sim enable	In debugging or other applications occasion, user can enable the simulation function of the frequency outputvia this parameter. **Note: to use this function, user need to enable the high-speed pulse output at first.** *Refer to the rameters of 15.28 Freq out enable (Frequency output enable).*	Disable = [0]
Disable	Turn off the simulation mode, the output frequency of DO2 depends on the actual value of the signal source.	0
Enable	Enable the emulation mode, the output frequency of DO2 depends on the set value of the parameters of *15.26Freq out sim data (Frequency output simulation data).*	1
15.26 Freq out sim data	When the frequency output simulation is enabled, set its output frequency.	10000 Hz
[0Hz, 60000Hz]		-
15.27 Freq out filter time	Define the filter time constant of the frequency output.	0.1s
[0.01s, 10.00s]	Filter time constant.	-
15.28 Freq out enable	DO2 can not only achieve the switch output, but also to achieve the frequency output (i.e. high-speed pulse output), the default is switch output. User can enable the frequency output via this parameter.	Disable = [0]
Disable	Frequency output function disabled.	0
Enable	Frequency output function enabled.	1

16 System

16 System	Drive system settings. Parameter lock, Parameter restore, User parameter setting, etc.	Def

16 System	Drive system settings. Parameter lock, Parameter restore, User parameter setting, etc.	Def
16.00 Local lock	Select the signal source of inhibiting local control (LOC/REM button on the control panel). 0: local control permitted, 1: local control inhibited.	CONST.FALSE = [0]
P.01.00.00	User defined pointer (01.00.00 from left to right take two digits as a set, indicates the parameter set, index, and item number in turn. The actual value is determined by the current value of the parameter.)	-
CONST.FALSE	Always be 0	0
CONST.TRUE	Always be 1	1
DI1	Digital input DI1（*02.00 DI state，position 0*）	2048
DI2	Digital input DI2	2049
DI3	Digital input DI3	2050
DI4	Digital input DI4	2051
DI5	Digital input DI5	2052
DI6	Digital input DI6	2053
DI7	Digital input DI7	2054
16.01 Parameter lock	Select the status of the parameter lock. The parameter lock prevents the parameter from being modified.	Open = [0]
Open	Parameter lock open. Parameter values can be modified.	0
Locked	Locked. The parameter values cannot be modified from the control keyboard.	1
Not saved	Parameters lock open. User can modify the parameter values, but changes will not be saved if the power is cut off.	2
16.02 Pass code	Enter different passwords to obtain different parameters access rights.	0
[0, 65535]		-
16.03 Param restore	Restore the default value of the parameters. This parameter is automatically restored to 0 only after the operation is complete. *Affects only the currently active parameter set.*	Done = [0]
Done	No action or parameter restore completed.	0
Default	Restore to custom defaults, excluding motor and encoder related parameters.	1

<table>
<tr><th>16 System</th><th>Drive system settings. Parameter lock, Parameter restore, User parameter setting, etc.</th><th>Def</th></tr>
<tr><td>Clear all</td><td>Restore all parameters to the custom defaults.</td><td>2</td></tr>
<tr><td>Factory</td><td>Reserved for manufacturers.</td><td>3</td></tr>
<tr><td>16.04 Param save manual</td><td>Save the parameters manually. This parameter is automatically restored to 0 after the operation is complete. Affects only the currently active parameter set.</td><td>Done = [0]</td></tr>
<tr><td>Done</td><td>No action or parameter save completed.</td><td>0</td></tr>
<tr><td>Save</td><td>Request to save the parameters to the memory, next time will be automatically restored when power on.</td><td>1</td></tr>
<tr><td>16.05 Param set sel</td><td>Load the specified parameter set to the current active parameter set, or save the current active parameter set to the specified parameter set. This parameter is automatically restored to 0 when the operation is completed.</td><td>Norequest = [0]</td></tr>
<tr><td>No request</td><td>No request or operation completed.</td><td>0</td></tr>
<tr><td>Load by I/O</td><td>The parameter set 1~4 is selected by a combination of parameters of 16.08 Para set in1 (Parameter set switch input 1) and 16.09 Para set in2(Parameter set switch input 2)Combined selection parameter set 1~4：
<table>
<tr><th>Parameter set switch input 1 Status</th><th>Parameter set switch input 2 Status</th><th>Selected user parameter set</th></tr>
<tr><td>0</td><td>0</td><td>Load the parameter set1</td></tr>
<tr><td>1</td><td>0</td><td>Load the parameter set2</td></tr>
<tr><td>0</td><td>1</td><td>Load the parameter set3</td></tr>
<tr><td>1</td><td>1</td><td>Load the parameter set4</td></tr>
</table></td><td>1</td></tr>
<tr><td>Load set1</td><td>Load parameter set 1 to the current active parameter set.</td><td>2</td></tr>
<tr><td>Load set2</td><td>Load parameter set 2 to the current active parameter set.</td><td>3</td></tr>
<tr><td>Load set3</td><td>Load parameter set 3 to the current active parameter set.</td><td>4</td></tr>
<tr><td>Load set4</td><td>Load parameter set 4 to the current active parameter set.</td><td>5</td></tr>
<tr><td>Save to set1</td><td>Save current active parameter set to parameter set1.</td><td>6</td></tr>
<tr><td>Save to set2</td><td>Save current active parameter set to parameter set2.</td><td>7</td></tr>
<tr><td>Save to set3</td><td>Save current active parameter set to parameter set3.</td><td>8</td></tr>
<tr><td>Save to set4</td><td>Save current active parameter set to parameter set4.</td><td>9</td></tr>
</table>

16 System	Drive system settings. Parameter lock, Parameter restore, User parameter setting, etc.	Def
16.08 Param set in1	This parameter is valid only if the parameter *16.05 Param set sel (Parameter set switching control)* choose 1 (Load by IO).	CONST.FALSE = [0]
P.01.00.00	User defined pointer (01.00.00) from left to right take two digits as a set, indicates the parameter set, index, item No. in turn. The actual value is determined by the current value of the parameter) .	-
CONST.FALSE	Always be 0	0
CONST.TRUE	Always be 1	1
DI1	Digital input DI1 *(02.00 DI status, Position 0)*	2048
DI2	Digital input DI2	2049
DI3	Digital input DI3	2050
DI4	Digital input DI4	2051
DI5	Digital input DI5	2052
DI6	Digital input DI6	2053
DI7	Digital input DI7	2054
16.09 Param set in2	This parameter is valid only when the parameters *16.05 Param set sel (Parameter set switching control)* choose 1 (Load by IO). *Refer to parameters of 16.08 Param set in1 (Parameter set switching input 1) for relevant available options.*	CONST.FALSE = [0]
16.10 Set as default	Set the current value of all parameters to default value. This parameter will automatically restore to 0 when the operation is completed. *Refer to parameters of 16.03 Param restore (Parameter recovery).*	Done = [0]
Done	No request or operation completed.	0
Save as default	Request to save the current value of all parameters as custom default value.	1
16.11 Fan on temp	Cooling fan turn on temperature value	40.0℃
[0.0, 150.0℃]	Fan turn on temperature.	
16.12 Fan off temp	Cooling fan turn off temperature value.	30.0℃
[0.0, 150.0℃]	Fan turn off temperature.	
16.13 Fan off delay	Delay time of fan off after shutdown when using the operating signal to control the fan.	30.0s
[0.0, 6553.5s]	Fan off delay time.	

16 System	Drive system settings. Parameter lock, Parameter restore, User parameter setting, etc.	Def
16.14 Fan ctrl mode	Control mode of the cooling fan.	Auto = [0]
Auto	The fan operates automatically according to the temperature of the radiator.	0
On while run	The fan runs, when drive running. When the drive stops, fan stops after delay.	1
Always on	Fan always run.	2
Always off	Fan always stop. Be careful: select this mode may cause overheating.	3
16.15 System reboot	System manual reset request. This parameter is automatically restored to 0 after the operation is completed.	No request = [0]
No request	No request or reset completed.	0
Reboot request	Request reset.	1
16.16 System language	System language setting.	Chinese = [1]
English	Choose English as system language.	0
Chinese	Choose Chinese as system language.	1

18 Fault log

18 Fault log	Fault log	Def
18.00 Read index	The serial number of the fault record to be read. If you want to read the current fault record, set this parameter to 1. If you want to read the tenth fault record, set this parameter to 10.	0
[0, 99]		
18.01 Fault record num	Indicates the total number of fault records of the system. Read only.	-
18.02 Fault record clear	Set this parameter to 1 and clear all fault records. This parameter is automatically restored to 0 when the operation is completed.	
18.03 Fault code	The fault record data read from parameter 18.00 will be stored in parameter from 18.03 to 18.20, which including the fault code, the length of the fault additional information, the address and the content of additional fault information. Access to peripheral devices.	
18.04 Fault info len		
18.05 Fault info1 addr		

18 Fault log	Fault log	Def
18.06 Fault info1 data		
18.07 Fault info2 addr		
18.08 Fault info2 data		
18.09 Fault info3 addr		
18.10 Fault info3 data		
18.11 Fault info4 addr		
18.12 Fault info4 data		
18.13 Fault info5 addr		
18.14 Fault info5 data		
18.15 Fault info6 addr		
18.16 Fault info6 data6		
18.17 Fault info7 addr		
18.18 Fault info7 data		
18.19 Fault info8 addr		
18.20 Fault info8 data		
18.21 Fault code 1	The latest first fault code. Read-only.	
18.22 Fault code 2	The latest second fault code. Read-only.	
18.23 Fault code 3	The latest third fault code. Read-only.	
18.24 Fault code 4	The latest fourth fault code. Read-only.	
18.25 Fault code 5	The latest fifth fault code. Read-only.	
18.26 Fault code 6	The latest sixth fault code. Read-only.	
18.27 Fault code 7	The latest seventh fault code. Read-only.	
18.28 Fault code 8	The latest eighth fault code. Read-only.	

19 Speed calculation

19 Speed Calculation	Speed Calculation	Def
19.00 Speed scaling	Define the final speed value for acceleration, as well as the initial speed value in deceleration. Similar to the maximum frequency of drives.	1500rpm
[150rpm, 30000rpm]		
19.01 Speed filter time	Define the filtering time of the speed feedback.	2.0ms
[0.0ms, 10.0ms]		
19.02 Zero speed delay	Define the zero speed holding time for deceleration stop.	0.5s
[0.0s, 6000.0s]		
19.03 Zero speed level	Define the initial speed value of zero speed holding.	30rpm
[0 rpm, 1500rpm]		
19.04 Speed window	Define the speed window range of the speed to reach.	30rpm
[0rpm, 1500rpm]		

20 Limits

20 Limits	Limits Control	Def
20.00 Maximum speed	Define the maximum allowed speed.	1500rpm
[-30000rpm, 30000rpm]	Maximum speed.	
20.01 Minimum speed	Define the minimum allowed speed.	-1500rpm
[-30000rpm, 30000rpm]	Minimum speed.	
20.02 Pos speed enable	Select the signal source of the corotation (speed given value is positive) to enable the command. 0: No positive rotation; 1: Allow positive rotation.	CONST.TRUE=[1]
P.01.00.00	User defined pointer (01.00.00 from left to right take two digits as a set, indicating the parameter set, index, item No. in turn. The actual value is determined by the current value of the parameter.)	-
CONST.FALSE	Always be 0	0
CONST.TRUE	Always be 1	1
DI1	Digital input DI1*(02.00 DI State,position 0)*	2048

20 Limits	Limits Control	Def
DI2	Digital input DI2	2049
DI3	Digital input DI3	2050
DI4	Digital input DI4	2051
DI5	Digital input DI5	2052
DI6	Digital input DI6	2053
DI7	Digital input DI7	2054
20.03 Neg speed enable	Select the signal source of reverse (the speed given value is negative) enable command. 0: reverse inhibited 1: reverse allow. *Refer to parameters 20.02Pos speed enable for relevant available options.*	CONST.TRUE = [1]
20.07 Max regen torque	The permitted maximum generator torque. Relative to the rated torque of motor.	200.0%
[0.0%, 300.0%]		

21 Speed reference

21 Speed Reference	Speed Reference	Def
21.00 Speed ref1 src	Select the signal source for the speed setpoint 1. Also can refer to parameters *21.02 Speedref1 func (Speed given 1 ways).*	AI1scaled = [515]
P.01.00	User-defined pointer (01.00 from left to right take two digits a set, indicates the parameter set and the index in turn. The actual value is determined by the current value of the parameter.)	-
Zero	Always zero	0
AI1 scaled	*Refer to parameters 02.03 AI1 scaled (AI1 scaled).*	515
AI2 scaled	*Refer to parameters 02.05 AI2 scaled (AI2 scaled).*	517
AI3 scaled	*Refer to parameters 02.07 AI3 scaled (AI3 scaled).*	519
Freq in scaled	*Refer to parameters 02.11 Freq in scaled (Freq in scaled).*	523
Control panel ref1	*Refer to parameters 02.13 Control panel ref1 (Control panel ref 1).*	525
Control panel ref2	*Refer to parameters 02.14 Control panel ref2 (Control panel ref2).*	526
Fieldbus ref1	*Refer to parameters 02.15 Fieldbus ref1 (Fieldbus ref1).*	527

21 Speed Reference	Speed Reference	Def
Fieldbus ref2	*Refer to parameters 02.16 Fieldbus ref2 (Fieldbus ref2).*	528
Motor potent out	*Refer to parameters 03.01 Motor potent out (Motor potent out).*	769
Const speed out	*Refer to parameters 03.02 Const speed out (Const speed out).*	770
Process PID out	*Refer to parameters 04.04 Process PID out (Process PID out).*	1028
21.01 Speed ref2 src	Select the signal source for the speed setpoint 2. *Refer to parameters 21.00 Speed ref1 src for relevant available options.*	AI2 scaled = [517]
21.02 Speed ref1 func	Define the mathematical function of the two reference signal synthesis speed setpoint2 which are selected by the parameters *21.00 Speed ref1 src* (*Signal source for givenspeed 1*) *and 21.01 Speed ref2 src (Signal source for givenspeed 2).*	Ref1 = [0]
Ref1	The signal selected by the parameter *21.00 Speed ref1src* (*Signal source for speed given 1*) is used as the speed given value1.	0
Add (Ref1 + Ref2)	The sum of the two reference signals is used as the speed given1.	1
Sub （Ref1-Ref2）	The difference of the two reference signals is used as the speed given1.	2
Mul （Ref1xRef2）	The product of the two reference signals is used as the speed given1.	3
Min	The small one of the two reference signals is used as the speed given1.	4
Max	The big one of the two reference signals is used as the speed given1.	5
Abs	Select the absolute value of Ref1.	6
21.03 Speed ref2 sel	Select the signal source switching between the speed given1 and speed given2. 0: select the speed given1 which is composed by the parameter *21.02 Speed ref func (Speed given operation function);* 1: select the speed given2 which is composed by the parameter *21.01 Speed ref2 src* (*Signal source of speed given2*).	CONST.FALSE= [0]
P.01.00.00	User-defined pointer (01.00.00 from left to right take two digits a set, indicates the parameter set, indexes, Item number in turn. The actual value is determined by the current value of the parameter.)	-
CONST.FALSE	Always be 0	0
CONST.TRUE	Always be 1	1
DI1	Digital input DI1 *(02.00 DI Satus,Position 0)*	2048

21 Speed Reference	Speed Reference	Def
DI2	Digital input DI2	2049
DI3	Digital input DI3	2050
DI4	Digital input DI4	2051
DI5	Digital input DI5	2052
DI6	Digital input DI6	2053
DI7	Digital input DI7	2054
21.04 Speed ref share	Define the conversion factor for the speed given value.	1.000
[-10.000, 10.000]	Speed given conversion factor.	
21.05 Speed ref JOG1	Define the speed given value of the jog function1.	150rpm
[-30000rpm, 30000rpm]	The speed given value of the jog function1.	
21.06 Speed ref JOG2	Define the speed given value of the jog function2.	300rpm
[-30000rpm, 30000rpm]	The speed given value of the jog function2.	
21.07 Pot save mode	Select whether to retain the value of the potentiometer when the drive is powered off.	
Reset	The value of the potentiometer will be reset when the drive is powered off.	0
Store	The value of the potentiometer will be retained after the drive is powered off.	1
21.08 Pot up source	Select the incremental instruction signal source of the electric potentiometer. 0: No incremental instruction; 1: Has incremental instruction. *Refer to parameters 21.03 Speed ref2 sel for relevant available options.*	CONST.FALSE= [0]
21.09 Pot down source	Select the descending instruction signal source of the electric potentiometer. 0: No descending instruction; 1: Has descending instruction. *Refer to parameters 21.03 Speed ref2 sel for relevant available options.*	CONST.FALSE= [0]
21.10 Pot output max	The maximum output of the electric potentiometer.	1500rpm
[0, 30000rpm]		
21.11 Pot output min	The minimum output of the electric potentiometer.	-1500rpm
[-30000rpm, 0rpm]		
21.12 Pot ramp time	The acceleration and deceleration time from the parameter 21.10 to 21.11 for the output of the electric potentiometer.	10.0s

21 Speed Reference	Speed Reference	Def
[0.1s, 100.0s]		
21.13 Pot output	The real-time output of the electric potentiometer. Read-only.	

22 Speed Ramp(Speed Given Ramp Generator)

22 Speed ramp	Speed ramp	Def
22.00 Acc time1	Define the acceleration time 1, as the time required for the speed to accelerate from zero to the parameters *19.00 Speed scaling* (velocity reference value) defined value. If the speed of the given signal growth rate is faster than the rate of the acceleration, the motor speed will follow the acceleration rate. If the speed of the given signal growth rate is slower than the set acceleration rate, the motor speed will follow the given signal changes. If acceleration time set too short, the driver will be automatically extended acceleration time, in order to prevent the acceleration current exceeding the set value of the drive torque limit value in the speed up process.	Depends on model
[0.01s, 655.35s]		
22.01 Dec time1	Deceleration time1	Depends on model
[0.01s, 655.35s]		
22.02 Acc time2	Acceleration time2	Depends on model
[0.01s, 655.35s]		
22.03 Dec time2	Deceleration time2	Depends on model
[0.01s, 655.35s]		
22.04 EM stop time	Emergency stop time	1.00s
[0.01s, 655.35s]		
22.05 Jog acc time	Jog acceleration time	5.00s
[0.01s, 655.35s]		
22.06 Jog dec time	Jog deceleration time	5.00s
[0.01s, 655.35s]		
22.07 Shape acc time1	S Curve acceleration time 1	0.20s

22 Speed ramp	Speed ramp	Def
[0.01s, 655.35s]		
22.08 Shape acc time2	S Curve acceleration time 2	0.20s
[0.01s, 655.35s]		
22.09 Shape dec time1	S Curve deceleration time1	0.20s
[0.01s, 655.35s]		
22.10 Shape dec time2	S Curve deceleration time2	0.20s
[0.01s, 655.35s]		
22.11 Speed scaling	Is the same parameter with *19.00 Speed scaling (speed reference value).*	1500rpm
22.12 Ramp time sel	Select the signal source switching between the acceleration deceleration time 1 and the acceleration deceleration time 2. 0: select the acceleration deceleration time 1, 1: select the acceleration deceleration time 2.	CONST.FALSE= [0]
P.01.00.00	User-defined pointer (01.00.00 from left to right take two digits as a set, indicates the parameter set, index, item number in turn. The actual value is determined by the current value of the parameter.)	-
CONST.FALSE	Always be 0	0
CONST.TRUE	Always be 1	1
DI1	Digital input DI1 *(02.00 DI State, Position 0)*	2048
DI2	Digital input DI2	2049
DI3	Digital input DI3	2050
DI4	Digital input DI4	2051
DI5	Digital input DI5	2052
DI6	Digital input DI6	2053
DI7	Digital input DI7	2054

23 Speed control

23 Speed Control	Speed Control	Def

23 Speed Control	Speed Control	Def
23.00 Speed Kp	Define the proportional gain of the speed controller (K_p). The excessive gain may cause speed oscillation.	1.00
[0.00, 30.00]		
23.01 Speed Ti	Set the integral time of the speed loop.	60ms
[0, 3000ms]		
23.02 Torque Kp	Set the proportional gain of the torque loop.	1.00
[0.00, 30.00]		
23.03 Droop rate	Speed droop control rate used for speed droop contro only.	0.0%
[0.0, 1000.0%]		

25 Critical speed

25 Critical Speed	Set critical speed or speed range to be avoided,such as mechanical resonance issues	Def
25.00 Critspeed1 lo	Define the lower limit of the critical speed range 1. Note: this value must be less than or equal to the value of *25.01 Crit speed 1hi* (upper limit of critical speed 1).	0
[0, 30000rpm]	The lower limit of the critical speed 1.	
25.01 Critspeed 1hi	Define the upper limit of the critical speed range 1. Note: this value must be greater than or equal to the value of *25.00 Crit speed 1lo (*lower limit of critical speed 1).	0
[0, 30000rpm]	The upper limit of the critical speed 1.	
25.02 Critspeed 2lo	Define the lower limit of the critical speed range 2. Note: this value must be less than or equal to the value of *25.03 Crit speed 2hi* (upper limit of critical speed 2).	0
[0, 30000rpm]	The lower limit of the critical speed 2.	
25.03 Critspeed 2hi	Define the upper limit of the critical speed range 2. Note: this value must be greater than or equal to the value of *25.02 Crit speed 2lo (*lower limit of critical speed2).	0
[0, 30000rpm]	The upper limit of the critical speed 2.	
25.04 Critspeed 3lo	Define the lower limit of the critical speed range 3. Note: this value must be less than or equal to the value of *25.05 Crit speed 3hi* (upper limit of critical speed 3).	0

25 Critical Speed	**Set critical speed or speed range to be avoided,such as mechanical resonance issues**	Def
[0, 30000rpm]	The lower limit of the critical speed 3.	
25.05 Critspeed3hi	Define the upper limit of the critical speed range 3. Note: this value must be greater than or equal to the value of *25.04 Crit speed 3lo* (lower limit of critical speed 3).	0
[0, 30000rpm]	The upper limit of the critical speed 3.	
25.06 Critspeed sel	Critical speed control	Disable= [0]
Disable	Disable critical speed control.	0
Enable	Enable critical speed control.	1

26 Constant speeds

26 Constant Speeds	**Selection and value of multi segment velocity**	Def
26.00 Const speed0	Define the multi segment speed 0.	750rpm
[-30000rpm, 30000rpm]	Multi segment speed 0.	
26.01 Const speed1	Define the multi segment speed 1. For the value range and units and other instructions refer to the parameter *26.00 Const speed0 (Const speed1).*	1500 rpm
26.02 Const speed2	Define the multi segment speed 2. For the value range and units and other instructions refer to the parameter *26.00 Const speed0 (Const speed1).*	1500 rpm
26.03 Const speed3	Define the multi segment speed 3. For the value range and units and other instructions refer to the parameter *26.00 Const speed0 (Const speed1).*	1500 rpm
26.04 Const speed4	Define the multi segment speed 4. For the value range and units and other instructions refer to the parameter *26.00 Const speed0 (Const speed1).*	1500 rpm
26.05 Const speed5	Define the multi segment speed 5. For the value range and units and other instructions refer to the parameter *26.00 Const speed0 (Const speed1).*	0 rpm
26.06 Const speed6	Define the multi segment speed 6. For the value range and units and other instructions refer to the parameter *26.00 Const speed0 (Const speed1).*	0 rpm
26.07 Const speed7	Define the multi segment speed 7. For the value range and units and other instructions refer to the parameter *26.00 Const speed0 (Const speed1).*	0 rpm
26.08 Const speed8	Define the multi segment speed 8. For the value range and units and other instructions refer to the parameter *26.00 Const speed0 (Const speed1).*	0 rpm
26.09 Const speed9	Define the multi segment speed 9. For the value range and units and other instructions refer to the parameter *26.00 Const speed0 (Const speed1).*	0 rpm

<table>
<tr><th>26 Constant Speeds</th><th>Selection and value of multi segment velocity</th><th>Def</th></tr>
<tr><td>26.10 Const speed10</td><td>Define the multi segment speed 10. For the value range and units and other instructions refer to the parameter 26.00 Const speed0 (Const speed1).</td><td>0 rpm</td></tr>
<tr><td>26.11 Const speed11</td><td>Define the multi segment speed 11. For the value range and units and other instructions refer to the parameter 26.00 Const speed0 (Const speed1).</td><td>0 rpm</td></tr>
<tr><td>26.12 Const speed12</td><td>Define the multi segment speed 12. For the value range and units and other instructions refer to the parameter 26.00 Const speed0 (Const speed1).</td><td>0 rpm</td></tr>
<tr><td>26.13 Const speed13</td><td>Define the multi segment speed 13. For the value range and units and other instructions refer to the parameter 26.00 Const speed0 (Const speed1).</td><td>0 rpm</td></tr>
<tr><td>26.14 Const speed14</td><td>Define the multi segment speed 14. For the value range and units and other instructions refer to the parameter 26.00 Const speed0 (Const speed1).</td><td>0 rpm</td></tr>
<tr><td>26.15 Const speed15</td><td>Define the multi segment speed 15. For the value range and units and other instructions refer to the parameter 26.00 Const speed0 (Const speed1).</td><td>0 rpm</td></tr>
<tr><td>26.16 Const speed mode</td><td>Define a multi segment 0~15 mode with a total of 4 signals selected by a parameter of 26.18 Const speed sel1 to 26.21 Const speed sel4.</td><td>Packed= [1]</td></tr>
<tr><td>Packed</td><td>4 signal combinations to produce the 16 options, respectively corresponding to the multi segment speed 0~15,the specific combinations are as follows:
<table>
<tr><th>Multi speed option 1</th><th>Multi speed option 2</th><th>Multi speed option 3</th><th>Multi speed option 4</th><th>Multi segment speed selection</th></tr>
<tr><td>0</td><td>0</td><td>0</td><td>0</td><td>Const speed0</td></tr>
<tr><td>1</td><td>0</td><td>0</td><td>0</td><td>Const speed1</td></tr>
<tr><td>0</td><td>1</td><td>0</td><td>0</td><td>Const speed2</td></tr>
<tr><td>1</td><td>1</td><td>0</td><td>0</td><td>Const speed3</td></tr>
<tr><td>0</td><td>0</td><td>1</td><td>0</td><td>Const speed4</td></tr>
<tr><td>1</td><td>0</td><td>1</td><td>0</td><td>Const speed5</td></tr>
<tr><td>0</td><td>1</td><td>1</td><td>0</td><td>Const speed6</td></tr>
<tr><td>1</td><td>1</td><td>1</td><td>0</td><td>Const speed7</td></tr>
<tr><td>0</td><td>0</td><td>0</td><td>1</td><td>Const speed8</td></tr>
<tr><td>1</td><td>0</td><td>0</td><td>1</td><td>Const speed9</td></tr>
<tr><td>0</td><td>1</td><td>0</td><td>1</td><td>Const speed10</td></tr>
<tr><td>1</td><td>1</td><td>0</td><td>1</td><td>Const speed 11</td></tr>
<tr><td>0</td><td>0</td><td>1</td><td>1</td><td>Const speed 12</td></tr>
<tr><td>1</td><td>0</td><td>1</td><td>1</td><td>Const speed 13</td></tr>
<tr><td>0</td><td>1</td><td>1</td><td>1</td><td>Const speed 14</td></tr>
<tr><td>1</td><td>1</td><td>1</td><td>1</td><td>Const speed 15</td></tr>
</table>
If you need to use the multi segment speed 0, you need to set the parameter 21.00 spd ref1 src to P03.02 Const speed out.</td><td>0</td></tr>
</table>

<table>
<tr><th>26 Constant Speeds</th><th>Selection and value of multi segment velocity</th><th>Def</th></tr>
<tr><td>Separate</td><td>The 4 signals are used to select the multi segment speed 0~4, among which the priority of the multi segment speed 4 is the highest, and the priority of the multi segment speed 1 is the lowest.. The specific correspondence is as follows：
<table>
<tr><td>Multi speed option1</td><td>Multi speed option2</td><td>Multi speed option3</td><td>Multi speed option4</td><td>Multi segment speed selection</td></tr>
<tr><td>0</td><td>0</td><td>0</td><td>0</td><td>Const speed0</td></tr>
<tr><td>1</td><td>0</td><td>0</td><td>0</td><td>Const speed1</td></tr>
<tr><td>x</td><td>1</td><td>0</td><td>0</td><td>Const speed2</td></tr>
<tr><td>x</td><td>x</td><td>1</td><td>0</td><td>Const speed3</td></tr>
<tr><td>x</td><td>x</td><td>x</td><td>1</td><td>Const speed4</td></tr>
</table>
If you need to use the multi segment speed 0, you need to set the parameter 21.00 spd ref1 src to P03.02 Const speed out.</td><td>1</td></tr>
<tr><td>26.17 Const speed out</td><td>Output of the multi segment speed.</td><td>0 rpm</td></tr>
<tr><td>[-30000rpm, 30000rpm]</td><td>Actual output of the multi speed. Read-only.</td><td></td></tr>
<tr><td>26.18 Const speed sel1</td><td>Signal source of the multi segment speed selection 1.
Note: the usage method of the multi segment speed selection 1~4 refer to the parameters 26.16 Constspeed mode (Multi speed</td><td>CONST.FALSE= [0]</td></tr>
<tr><td>P.01.00.00</td><td>User-defined pointer (01.00.00 from left to right take two digits as a set, indicates the parameter set, indexes, item number in turn. The actual value is determined by the current value of the parameter).</td><td>-</td></tr>
<tr><td>CONST.FALSE</td><td>Always be 0</td><td>0</td></tr>
<tr><td>CONST.TRUE</td><td>Always be 1</td><td>1</td></tr>
<tr><td>DI1</td><td>Digital input DI1 (02.00 DI Status, Position 0)</td><td>2048</td></tr>
<tr><td>DI2</td><td>Digital input DI2</td><td>2049</td></tr>
<tr><td>DI3</td><td>Digital input DI3</td><td>2050</td></tr>
<tr><td>DI4</td><td>Digital input DI4</td><td>2051</td></tr>
<tr><td>DI5</td><td>Digital input DI5</td><td>2052</td></tr>
<tr><td>DI6</td><td>Digital input DI6</td><td>2053</td></tr>
<tr><td>DI7</td><td>Digital input DI7</td><td>2054</td></tr>
<tr><td>26.19 Const speed sel2</td><td>Signal source of the multi segment speed selection 2.
Refer to parameters 26.18 Const speed sel1 for relevant available options.</td><td>CONST.FALSE= [0]</td></tr>
<tr><td>26.20 Const speed sel3</td><td>Signal source of the multi segment speed selection 3.
Refer to parameters 26.18 Const speed sel1 for relevant available options.</td><td>CONST.FALSE= [0]</td></tr>
<tr><td>26.21 Const speed sel4</td><td>Signal source of the multi segment speed selection 4.
Refer to parameters 26.18 Const speed sel1 for relevant available options.</td><td>CONST.FALSE= [0]</td></tr>
</table>

27 Process PID

27 Process PID	PID for Process Control	Def
27.00 PID activate	Active the control of the process control PID.	Disable= [0]
Disable	Process control disabled.	0
Enable	Process control activated.	1
27.01 Reference source	Select a given signal source.	P.27.02=[6914]
P.01.00	User-defined pointer (01.00 from left to right take two digits as a set, indicates the parameter set, index in turn. The actual value is determined by the current value of the parameter.)	-
Zero	Always zero	0
AI1 scaled	*Refer to parameters of 02.03 AI1 scaled (AI1 scaled).*	515
AI2 scaled	*Refer to parameters of 02.05 AI2 scaled (AI2 scaled).*	517
AI3 scaled	*Refer to parameters of 02.07 AI3 scaled (AI3 scaled).*	519
Freq in scaled	*Refer to parameters of 02.11 Freq in scaled (Freq in scaled).*	523
Control panel ref1	*Refer to parameters of 02.13 Control panel ref1 (Control panel ref 1).*	525
Control panel ref2	*Refer to parameters of 02.14 Control panel ref2 (Control panel ref 2).*	526
Fieldbus ref1	*Refer to parameters 02.15 Fieldbus ref1 (Fieldbus ref 1).*	527
Fieldbus ref2	*Refer to parameters 02.16 Fieldbus ref2 (Fieldbus ref 2).*	528
27.02 Ref internal	Internal digital given for process control.	0
[-32768, 32767]		
27.03 Ref filter time	Given filter time constant.	0.1s
[0.01s, 3.00s]	Filter time constant.	-
27.04 Reference actual	Given actual value. Read-only.	
27.05 Feedback func	Select the operation mode of feedback signal source 1 and feedback signal source 2.	Fbk1 = [0]
Fbk1	Select feedback 1 as the actual feedback of PID.	0
Add	Select feedback 1 plus feedback 2 as actual feedback.	1

27 Process PID	PID for Process Control	Def
Sub	Select feedback 1 minus feedback 2 as actual feedback.	2
Min	Select the small value of feedback 1 and feedback 2 as feedback.	3
Max	Select the big value of feedback 1 and feedback 2 as feedback.	4
27.06 Feedback 1 source	Select the signal source of feedback 1. *Refer to parameters 27.01 Reference source (given signal source) for relevant available options.*	AI1 scaled=[515]
27.07 Feedback 2 source	Select the signal source of feedback 2. *Refer to parameters 27.01 Reference source (given signal source) for relevant available options.*	AI2 scaled=[517]
27.08 Feedback1 max	Set the maximum allowable value of feedback 1.	32767
[-32768, 32767]		
27.09 Feedback1 min	Set the minimum allowable value of feedback 1.	0
[-32768, 32767]		
27.10 Feedback2 max	Set the maximum allowable value of feedback 2.	32767
[-32768, 32767]		
27.11 Feedback2 min	Set the minimum allowable value of feedback 2.	0
[-32768, 32767]		
27.12 Feedback gain	Feedback gain factor.	1.00
[0.10, 10.00]		
27.13 Fbk filter time	Filter time constant of the feedback.	0.001s
[0.01s, 2.00s]		
27.14 Feedback actual	Actual value of the feedback. Read-only.	
27.15 PID Kp	Proportional gain of PID	1.00
[0.01, 100.00]		
27.16 PID Ti	PID integration time.	1.00s
[0.10s, 20.00s]		
27.17 PID Td	PID differential time.	0.000s
[0.00s, 20.00s]		

27 Process PID	PID for Process Control	Def
27.18 Deriv filter time	Filtering time of differential quantity.	0.000s
[0.01s, 20.00s]		
27.19 Error invert sel	Error is selected by the reverse mode.	Disable= [0]
Disable	Disable reverse,i.e. the feedback increases,output decreases.	0
Enable	Enable reverse. i.e. the feedback increases, the output also increases.	1
27.20 output trim mode	Format the output.	Direct = [1]
Direct	The output is not converted.	0
Speed	The output is converted into the speed dimension.	1
Torque	The output is converted into the torque dimension.	2
27.21 Out max	The maximum allowable value of PID output.	1500
[-32768, 32767]		
27.22 Out min	The minimum allowable value of PID output.	-1500
[-32768, 32767]		
27.23 Bal enable sel	Balanced control enable signal.	Disable= [0]
Disable	Balance control disable.	0
Enable	Balance control enabled.	1
27.24 Bal ref	Qualification of balance control.	0
[-32768, 32767]		
27.25 Sleep mode	Hiberation mode.	No sleep= [0]
No sleep	Process control never goes to hiberation mode.	0
Sleep internal	Process control enable hiberation externally.	1
Sleep external	Process control enable hiberation by external signal, and will be triggered when the actual speed is less than the value of the following clause of 27.26.	2
Sleep by error	Enable hiberation when the deviation is less than the value of the following clause of 27.28.	3

27 Process PID	PID for Process Control	Def
27.26 Sleep level	Motor speed level triggered by PID hiberation.	900
[-32768, 32767]		
27.27 Sleep delay	Delay time of PID hiberation.	60.0s
[0.0, 6553.5s]		
27.28 Wakeup level	The error level of PID wake up. Wake up when the PID error is greater than the value.	1000
[-32768, 32767]		
27.29 Wakeup delay	PID wake up delay time after hiberation.	1.0s
[0.0, 6553.5s]		
27.30 Sleep enable sel	Selection of PID sleep external enable signal source. Bit pointer.	CONST.FALSE = [0]
P.01.00.00	User-defined pointer (01.00.00 from left to right take two digits as a set, indicates the parameter set, index, item number in turn. The actual value is determined by the current value of the parameter.)	-
CONST.FALSE	Always be 0.	0
CONST.TRUE	Always be 1.	1
DI1	Digital input DI1 (02.00 DI Status, Position 0)	2048
DI2	Digital input DI2	2049
DI3	Digital input DI3	2050
DI4	Digital input DI4	2051
DI5	Digital input DI5	2052
DI6	Digital input DI6	2053
DI7	Digital input DI7	2054
27.31 Calc enable sel	Select the signal source of PID operation enable.	Running = [6148]
P.01.00.00	User-defined pointer (01.00.00 from left to right take two digits as a set, indicates the parameter set, index, item number in turn. The actual value is determined by the current value of the parameter.)	-
CONST.FALSE	Always be 0	0
CONST.TRUE	Always be 1	1
27.32 Feedback loss mode	Detection mode of PID feedback disconnection.	Internal= [2]
Disable	No detection.	0
External	Detection by external terminal input.	1

27 Process PID	PID for Process Control	Def
Internal	Detection by judging the PID error.	2
27.33 Fbk loss min speed	The minimum speed of the PID feedback disconnection detection.	30.0rpm
[0, 3000.0rpm]		0.1rpm
27.34 Fbk losssrc	Select the input terminal for the external feedback missing signal. *Refer to parameters 27.30 Sleep enable sel (Dormant enable signal source) for relevant available options.*	False
27.35 Fbk losslevel	The error judgment level of PID feedback disconnection.	3000
[0, 30000]		-
27.36 Fbk loss delay	PID feedback disconnection fault delay.	3.0s
[0, 60.0s]		0.1s

30 Fault function

30 Fault function	Fault Protection Function Setting	Def
30.00 Ext fault 1 src	Select the signal source for the external fault 1. 0: No fault signal source; 1: Has fault signal source.	CONST.FALSE= [0]
P.01.00.00	User-defined pointer (01.00.00 from left to right take two digits as a set, indicates the parameter set, index, item number in turn. The actual value is determined by the current value of the parameter.)	-
CONST.FALSE	Always be 0	0
CONST.TRUE	Always be 1	1
DI1	Digital input DI1 *(02.00 DI Status, Position 0)*	2048
DI2	Digital input DI2	2049
DI3	Digital input DI3	2050
DI4	Digital input DI4	2051
DI5	Digital input DI5	2052
DI6	Digital input DI6	2053
DI7	Digital input DI7	2054
30.01 Ext fault 2 src	Select the signal source for the external fault 2. Refer to parameters *30.00 Ext fault 1 src (signal source of external fault 1).*	CONST.FALSE= [0]
30.02 Groud fault act	Select the action to be performed by the drive when a ground fault is detected.	Fault = [1]
No action	No action.	0
Fault	Report fault.	1

30 Fault function	Fault Protection Function Setting	Def
Alarm	Report alarm.	2
30.03 Input phase loss	Select the action to be performed by the drive when an input phase fault is detected.	Fault = [2]
No action	No action.	0
Fault	Report fault.	1
Alarm	Report alarm.	2
30.04 Motor phase loss	Select the action to be performed by the drive when a motor phase fault is detected.	Fault = [2]
No action	No action.	0
Fault	Report fault.	1
Alarm	Report alarm.	2
30.06 OH alarm level	Setting the IGBT radiator overheating warning point. When the set overheating warning point exceeds the allowable temperature of the drive, it will ignore the parameter and automatically warn at 5 degrees ahead of the overheating.	90.0℃
[40.0℃, 120.0℃]	Overheat warning temperature point.	
30.07 Fault auto reset	Activate or disable the fault automatic reset function by this parameter.	Disable = [0]
Disable	Disable the fault automatic reset function.	0
Enable	Enable the fault automatic reset function.	1
30.08 Fault trial num	Number of times a fault reset trying is allowed.	5
[1, 20]		-
30.09 Fault trial wait	Interval time of fault reset.	1.00s
[0.01s, 150.00s]		
30.10 Trial cnt reset	Time interval for fault reset trying to clear the counter.	60.00s
[0.01s, 150.00s]		
30.11 ChopIGBT fault act	Action to be performed when the brake IGBT fails.	Fault
None	No action.	0
Fault	Fault output.	1
Alarm	Alarm output.	2
30.12 Rb est	Resistance estimated by the system. Read-only.	-

31 Motor therm prot

31 Motor Therm Prot	Motor temperature measurement and overheat protection set up	Def
31.00 Protect action	Select the action to be performed by the driver when the motor thermal protection 1 detects the over temperature of the motor.	Fault = [1]
No	Motor thermal protection is not activated.	0
Fault	When the temperature is above the alarm / fault level defined by the parameters *31.02 Alarm limit* (Motor temperature alarm value)*/31.03 Fault limit* (Motor temperature fault value)(whichever is lower), The drive will generate a MOTOROH alarm or a MOTOROH fault and trip off. The temperature sensor failure or wiring errors will cause the driver to trip off.	1
Alarm	When the motor temperature exceeds the alarm limit defined by the parameters *31.02 Alarm limit* (Motor temperature alarm value), the drive will generate a MOTOR OH alarm.	2
31.01 Temperature src	Select the temperature measurement method for the motor thermal protection. When the overheating is detected, the drive will react in accordance with the method defined by the parameters *31.00 Protect action* (Motor over temperature protection).	Estimated = [0]
Estimated	The monitoring temperature based on the motor thermal protection model which uses the thermal time constant of the motor (parameter *31.14Mot therm time* (thermal protection time constant)) and the motor load curve (parameter *31.10...31.12*).Only when the operating ambient temperature is different from the rated operating temperature of the motor, user need to adjust the relevant parameters. If the motor runs above the motor load curve, the motor temperature will increase. If the motor runs under the motor load curve (if the motor is overheated), the motor temperature will be reduced. Warning! If the the motor is not properly cooled due to the dust, the model can not perform the protection function to the motor.	0
KTY84	The motor temperature is monitored by the KTY84 temperature sensor.	1
PTC	The motor temperature is monitored by the PTC sensor.	2
PT100_X1	Monitoring by a PT100 sensor.	3
PT100_X2	Monitoring by two PT100 sensors.	4
PT100_X3	Monitoring by three PT100 sensors.	5
31.02 Alarm limit	Set the motor temperature warning point.	105.0℃

31 Motor Therm Prot	**Motor temperature measurement and overheat protection set up**	Def
[0.0℃, 200.0℃]	Motor temperature warning point.	
31.03 Fault limit	Set motor temperature fault point.	110.0℃
[0.0℃, 200.0℃]	Motor temperature fault point.	
31.04 Ambient temp	Set the actual operating ambient temperature of the motor.	40.0℃
[0.0℃, 90.0℃]	Ambient temperature of the motor.	
31.05 Motor nom load	When the parameters *31.01Temperature src* (Signal source of motor temperature) is set as *Estimated (Estimated value)*, the heating model of the motor will use the load curve.	100.0%
[50.0%, 200.0%]	Maximum load of the motor load curve.	
31.06 Zero speed load	Define the maximum motor load when the load curve is zero. If the motor is equipped with an external fan to enhance the ventilation cooling of the motor, a greater load may be used. Refer to the motor manufacturer's recommendations.	70.0%
[50.0%, 100.0%]	Zero load of the motor load curve.	
31.07 Motor nom speed	Define the inflection frequency of the load curve, i.e. the load on the load curve defined by the value of the parameter *31.05 Nominal load* (Rated speed load) begins to drop to the value defined by the parameter *31.06 Zero speed load* (Zero speed load).	1500rpm
[150rpm, 30000rpm]	The speed inflection point of the motor load curve.	
31.08 Motor nom temp rise	When the load of the motor reaches the rated current, define the temperature rise of the motor. Refer to the motor manufacturer's recommendations. When the parameters *31.01Temperature src* (Signal source of motor temperature) is set as *Estimated (Estimated value)*, the heating model of the motor will use the load curve.	60.0℃
[10.0℃, 200.0℃]	Temperature rise of the motor rated load.	
31.09 Therm time const	Defining the thermal time constant of the motor thermal protection model (i.e. the time that the temperature rise to the 60% of the rated temperature rise 63%). Refer to the motor manufacturer's recommendations.	300.0s
[10.0s, 1800.0s]	Motor thermal time constant.	
31.10 External cool fan	For the variable frequency asynchronous motor or the synchronous motor, the cooling fan is independent, then the load capacity of zero speed is the same as that of the rated speed. For the non variable frequency motor, the motor comes with the fan and coaxial with the rotor, then need to be set to Auto cool. The correct setting is the premise of accurate temperature estimation.	Externalcool = [1]
Auto cool	Non variable frequency motor. The load capacity of zero speed is lower than that of the rated speed.	0

31 Motor Therm Prot	Motor temperature measurement and overheat protection set up	Def
External fan	External independent fan. The load capacity of zero speed is the same as that of the rated speed.	1
31.11 Sensor input sel	The signal input channel of the temperature sensor. Be sure to change the corresponding jump line of the terminal board to voltage type input.	AI1 = [0]
AI1	The temperature sensor is connected to the analog input AI1.	0
AI2	The temperature sensor is connected to the analog input AI2.	1
AI3	The temperature sensor is connected to the analog input AI3.	2
31.12 Sensor bias out	The selection of bias current source for the temperature sensor. Be sure to change the corresponding jump line of the terminal board to current type output.	AO1 = [0]
AO1	The temperature sensor is connected to the analog output AO1.	0
AO2	The temperature sensor is connected to the analog output AO2.	1

34 Logic function

<table>
<tr><th>34 Logic Function</th><th>Edge counters, comparators, combinational logic, timers and other functions setting</th><th>Def</th></tr>
<tr><td>34.00 Logic status</td><td>Can be connected to any bit of the status word by a bit pointer.
<table>
<tr><th>No</th><th>Name</th><th>Describption</th></tr>
<tr><td>0</td><td>Edge1</td><td>Edge counter 1 output.</td></tr>
<tr><td>1</td><td>Edge2</td><td>Edge counter 2 output.</td></tr>
<tr><td>2</td><td>Edge3</td><td>Edge counter 3 output.</td></tr>
<tr><td>3</td><td>Comp1</td><td>Comparator 1 output.</td></tr>
<tr><td>4</td><td>Comp2</td><td>Comparator 2 output.</td></tr>
<tr><td>5</td><td>Comp3</td><td>Comparator 3 output.</td></tr>
<tr><td>6</td><td>Logic1</td><td>Logic 1 function output.</td></tr>
<tr><td>7</td><td>Logic2</td><td>Logic 2 function output.</td></tr>
<tr><td>8</td><td>Logic3</td><td>Logic 3 function output.</td></tr>
<tr><td>9</td><td>Ontime1</td><td>Timer 1 output.</td></tr>
<tr><td>10</td><td>Ontime2</td><td>Timer 2 output.</td></tr>
<tr><td>11</td><td>Ontime3</td><td>Timer 3 output.</td></tr>
<tr><td>12~15</td><td>Reserved</td><td>Retain</td></tr>
</table></td><td></td></tr>
<tr><td>34.01 Edge cnt1 val</td><td>Monitor the count value of the edge counter. Note that this parameter is read – only.</td><td>0</td></tr>
<tr><td>[0, 65535]</td><td></td><td>-</td></tr>
<tr><td>34.02 Edge cnt1 src</td><td>Select the count signal source for the edge counter 1. when the specified edge of the signal is detected, the counter plus 1.</td><td>CONST.FALSE= [0]</td></tr>
</table>

34 Logic Function	Edge counters, comparators, combinational logic, timers and other functions setting	Def
P.01.00.00	User-defined pointer (01.00.00 from left to right take two digits as a set, indicates the parameter set, index, item number in turn. The actual value is determined by the current value of the parameter.)	-
CONST.FALSE	Always be 0	0
CONST.TRUE	Always be 1	1
DI1	Digital input DI1 *(02.00 DI Status, Position 0)*	2048
DI2	Digital input DI2	2049
DI3	Digital input DI3	2050
DI4	Digital input DI4	2051
DI5	Digital input DI5	2052
DI6	Digital input DI6	2053
DI7	Digital input DI7	2054
34.03 Edge cnt1 reset	Select the reset signal source for the edge counter 1. When the signal is 1, the counter is cleared to 0. *Refer to parameters 34.02 Edge cnt1 src (count signal source of edge counter 1) for relevant available options.*	CONST.FALSE= [0]
34.04 Edge cnt1 edge	Select the count edge of the edge counter 1.	Rising = [0]
Rising	Counting for the rising edge of the count signal.	0
Falling	Counting for the falling edge of the count signal.	1
Both	Counting for the rising and falling edges of the count signal.	2
34.05 Edge cnt1 duty	Set the duty cycle of the edge counter 1. The output of the edge counter is monitored by the *parameter of 34.00 Logic status (Logical state) Bit 0.* When the count value is less than the duty cycle, the output is 0; otherwise, the output is 1.	100
[0,65535]		-
34.06 Edge cnt1 period	Set the count cycle for the edge counter 1. Note that the period of the edge counter should not be less than	120
[0,65535]		-
34.07 Edge cnt1 clear	Enable or disable the clear mode of the edge counter 1 .	Disable = [0]
Disable	Disable clear mode, clear when the count value exceeds the maximum value of 65535.	0
Enable	Enable clear mode, clear automatically when the count value reaches the cycle value.	1
... …	…	…

34 Logic Function	Edge counters, comparators, combinational logic, timers and other functions setting	Def
34.15 Edge cnt3 val	Monitor the count value of the edge counter 3. The value range and units and other instructions refer to the parameter *34.01 Edge cnt1 val (count value of edge counter 1).*	0
34.16 Edge cnt3 src	Select the count signal source of the edge counter 3. *Refer to parameters 34.02 Edge cnt1 src (count signal source of edge counter 1) for relevant available options.*	CONST.FALSE= [0]
34.17 Edge cnt3 reset	Select the reset signal source of edge counter 3. *Refer to parameters 34.02 Edge cnt1 src (count signal source of edge counter 1) for relevant available options.*	CONST.FALSE= [0]
34.18 Edge cnt3 edge	Select the count value of the edge counter 3. The value range and units and other instructions refer to the parameter *34.04 Edge cnt1 edge (count edge of edge counter 1) for relevant available options.*	Rising = [0]
34.19 Edge cnt3 duty	Set the duty cycle of the edge counter 3. The value range and units and other instructions refer to the parameter *34.05 Edge cnt1 duty (duty cycle of edge counter 1).*	100
34.20 Edge cnt3 period	Set the cycle of the edge counter 3. The value range and units and other instructions refer to the parameter *34.06 Edge cnt1 period (cycles of edge counter 1).*	120
34.21 Edge cnt3clear	Enable or disable the clear mode of the edge counter 3. *Refer to parameters 34.07 Edge cnt1 clear (Edge counter 1 clear) for relevant available options.*	
34.22 Comp1 output	Monitor the output of the comparator 1. Note that this parameter is read only. The output of the comparator 1 is also available for checking in the parameter *34.00 Logic status (Logical state)* Bit 3.	0
[0,1]	The comparator using the hysteresis comparison mode by default. The hysteresis size Δ is determined by the parameter *34.25 Comp1 range (comparison range of Comparator 1).* Initially, the comparator output is 0, when the input A decreased to less than or equal to B-Δ, the output is reversed to 0; when the input A increased to greater than or equal to the input B+Δ, the output is reversed to 1. Enable the window comparison mode by the parameter *34.28 Comp1 win (window mode of comparator 1),* the window size Δ is also determined by the parameter *34.25 Comp1 range (comparison range of comparator 1).* When the inputA is not less than B-Δ and no greater than the input B+Δ, the output is 1, otherwise the output is 0.	-
34.23 Comp1 A src	Select the input A signal source comparator 1.	Zero= [0]
P.01.00	User-defined pointer (01.00 from left to right take two digits as a set, indicates the parameter set, index in turn. The actual value is determined by the current value of the parameter.)	-

34 Logic Function	**Edge counters, comparators, combinational logic, timers and other functions setting**	Def
Zero	Always zero.	0
34.24 Comp1 B val	Set the value of the comparator 1 to input B.	120
[-32767,32767]		-
34.25 Comp1 range	Set the comparison range of comparator 1.	20
[-32767,32767]		
34.26 Comp1in abs	Enable or disable taking the absolute value of the comparator 1 to input A.	Disable = [0]
Disable	Disable	0
Enable	Enable	1
34.27 Comp1out inv	Enable or disable to reverse the output of comparator 1. *Refer to parameters 34.26 Comp1 in abs (take input absolute value of Comparator 1) for relevant available options.*	Disable = [0]
34.28 Comp1 win	Enable or disable the window comparison mode of comparator 1. *Refer to parameters 34.26 Comp1 in abs (take input absolute value of Comparator 1) for relevant available options.*	Disable = [0]
... …	…	…
34.36 Comp3 output	Monitor the output of comparator 3. The value range and units and other instructions refer to the parameter *34.22 Comp1 output (comparator 1 output).*	0
34.37 Comp3 A src	Select the signal source of comparator 3 to input A. *Refer to parameters 34.23 Comp1 A src (signal source of comparator 1 input A) for relevant available options.*	Zero= [0]
34.38 Comp3 B val	Set the value of comparator 3 to input B. The value range and units and other instructions refer to the parameter *34.24 Comp1B val (the value of the comparator 1 input B).*	100
34.39 Comp3 range	Set the comparison range of comparator 3. The value range and units and other instructions refer to the parameter *34.25 Comp1 range (comparison range of comparator 1).*	20
34.40 Comp3 in abs	Enable or disable the absolute value of comparator 3 input A. *Refer to parameters 34.26 Comp1 in abs (comparison range of comparator 1) for relevant available options.*	Disable = [0]
34.41 Comp3 out inv	Enable or disable the output of comparator 3. *Refer to parameters 34.26 Comp1 in abs (input absolute value of comparator 1) for relevant available options.*	Disable = [0]
34.42 Comp3 win	Enable or disable the window comparison mode of comparator 3. *Refer to parameters 34.26 Comp1 in abs (input absolute value of comparator 1) for relevant available options.*	Disable = [0]
34.43 Logic1 A src	Select the signal source of logic 1 input A.	CONST.FALSE= [0]
P.01.00.00	User-defined pointer (01.00.00 from left to right take two digits as a set, indicates the parameter set, index, item number in turn. The actual value is determined by the current value of the parameter.)	-

34 Logic Function	Edge counters, comparators, combinational logic, timers and other functions setting	Def
CONST.FALSE	Always be 0	0
CONST.TRUE	Always be 1	1
DI1	Digital input DI1 *(02.00 DI State,Position 0)*	2048
DI2	Digital input DI2	2049
DI3	Digital input DI3	2050
DI4	Digital input DI4	2051
DI5	Digital input DI5	2052
DI6	Digital input DI6	2053
DI7	Digital input DI7	2054
34.44 Logic1 B src	Select the signal source of logic 1 input B. *Refer to parameters 34.43 Logic1 A src (signal source of Logic 1 input A) for relevant available options.*	CONST.FALSE= [0]
34.45 Logic1 C src	Select the signal source of logic 1 input B. *Refer to parameters 34.43 Logic1 A src (signal source of Logic 1 input A) for relevant available options.*	CONST.FALSE= [0]
34.46 Logic1 func	Selection the function of logic 1, that is, the logical operation. A, B, C, the three input signals in accordance with the specified logic operators forms the combination logic. The output of Logic 1 is monitored by parameter *34.00 Logic status (Logical state) Bit 6.*	AND = [0]
AND	Logic and	0
OR	Logic or	1
NOT	Logic non	2
XOR	Logic exclusive or	3
Toggle	Logic reverse	4
NAND	Logic and non	5
...	…	…
34.51 Logic3 A src	Set the signal source of logic 3 input A . *Refer to parameters34.43Logic1A src(Logic 1 input A signal source)for relevant available options.*	CONST.FALSE= [0]
34.52 Logic3 A src	Set the signal source of logic 3 input B. *Refer to parameters34.43Logic1A src(Logic 1 input A signal source)for relevant available options.*	CONST.FALSE= [0]
34.53 Logic 3 A src	Set the signal source of logic 3 input C. *Refer to parameters34.43Logic1A src(Logic 1 input A signal source)for relevant available options.*	CONST.FALSE= [0]
34.54 Logic 3 func	Selection the function of logic 3, i.e. the logical operator. *Refer to parameters34.46Logic1func(Logical 1 function)for relevant available options.*	AND = [0]

34 Logic Function	Edge counters, comparators, combinational logic, timers and other functions setting	Def
34.55 Ontime1 enable src	Select the enable signal source of the timer 1. When the enable signal is equal to 0, timer stops; When the enable signal is equal to 1, timer starts.	CONST.FALSE= [0]
P.01.00.00	User-defined pointer (01.00.00 from left to right take two digits as a set, indicates the parameter set, index, item number in turn.The actual value is determined by the current value of the parameter).	-
CONST.FALSE	Always be 0	0
CONST.TRUE	Always be 1	1
DI1	Digital inputDI1*(02.00 DI state,position0)*	2048
DI2	Digital inputDI2	2049
DI3	Digital inputDI3	2050
DI4	Digital inputDI4	2051
DI5	Digital inputDI5	2052
DI6	Digital inputDI6	2053
DI7	Digital inputDI7	2054
34.56 Ontime1 comp val	Set the comparison value of timer 1， Units as 0.1s.Timer 1 output by parameter*34.00Logic status(Logical state)Bit 9 monitoring*,When the count value is less than the comparison value， The output is 0,otherwise,The output is 1.	6553.5 s
[0.0, 6553.5]		
34.57 Ontime 1 cnt	Monitor timer 1 count value.Notice, this parameter is read – only.	0
[0, 65535]		-
... …	…	…
34.61 Ontime3 enable src	Select the enable signal source of timer 3. *Refer to parameters 34.55 Ontime1 enable src (The timer 1 lose enabling signal source) for relevant available options.*	CONST.FALSE= [0]
34.62 Ontime3 comp val	Set the comparison value of timer 3. The value range and units and other instructions refer to the parameter *34.56 Ontime1comp val(Comparison value of timer 1).*	6553.5 s
34.63 Ontime 3 cnt	Monitor the count value of timer 3. The value range and units and other instructions refer to the parameter *34.57 Ontime1cnt(Timer 1 count value).*	0

35 Math function

35 Math function	**Linear scaling、 Arithmetic expression、integrator、Filter and other functions set up**	Def
35.00 Linear 1 x src	Select the signal source of retiomatric conversion 1 input X.	Zero = [0]
P.01.00	User-defined pointer (01.00 from left to right take two digits a set, indicates the parameter set, index in turn. The actual value is determined by the current value of the parameter).	-
Zero	Always zero	0
35.01 Linear1 y	Set the value of the retiomatric conversion 1 output y. Note this parameter is read only. User can connect to the parameters by a pointer.	0
[-32767,32767]		-
35.02 Linear1 x max	Set and select the maximum value of the ratiometric conversion input X.	32767
[-32767,32767]		-
35.03 Linear1 x min	Set and select the minimum value of the ratiometric conversion input X.	0
[-32767,32767]		-
35.04 Linear1 y max	Set and select the maximum value of the ratiometric conversion output Y.	32767
[-32767,32767]		-
35.05 Linear1 y min	Set and select the minimum value of the ratiometric conversion output Y.	0
[-32767,32767]		-
35.06 Linear 1 x abs	Enable or disable the absolute value of the ratiometric conversion 1 input X.	Disable = [0]
Disable	Disable	0
Enable	Enable	1
35.07 Linear1 y dec	Set the decimal digits of the ratiometric conversion output Y.	0
[0, 7]		-
35.08 Linear1 y unit	Select the unit of the ratiometric conversion 1 output Y.	0
[0, 63]		-
... …	…	…
35.18 Linear 3 x src	Select the signal source of the ratiometric conversion 3 input X. *Refer to parameters35.00Linear1 x src(Proportional conversion 1 input X signal source)for relevant available options.*	Zero = [0]

35 Math function	**Linear scaling、 Arithmetic expression、 integrator、Filter and other functions set up**	Def
35.19 Linear 3 y	Value of the ratiometric conversion 3 output Y. The value range and units and other instructions refer to the parameter *35.01 Linear1 output(Ratio conversion 1 output y value).*	0
35.20 Linear 3 x max	Set the maximum value the ratiometric conversion 3 input X. The value range and units and other instructions refer to the parameter *35.02 Linear1 x max(Proportional conversion 1 input x maximum).*	32767
35.21 Linear3 x min	Set the minimum value the ratiometric conversion 3 input X. The value range and units and other instructions refer to the parameter *35.03 Linear1 x min(Proportional conversion 1 input x minimum value).*	0
35.22 Linear3 y max	Set the maximum value the ratiometric conversion 3 input Y. The value range and units and other instructions refer to the parameter *35.04 Linear1 y max(Proportional conversion 1 output y maximum value).*	32767
35.23 Linear3 y min	Set the minimum value the ratiometric conversion 3 input Y. The value range and units and other instructions refer to the parameter *35.06Linear1 y min(Proportional conversion 1 input yminimum value).*	0
35.24 Linear3 x abs	Enable or disable the absolute value of the ratiometric conversion 3 input X.	Disable = [0]
35.25 Linear3 y dec	Set the decimal digits of the ratiometric conversion 3 output Y.	0
35.26 Linear3 y unit	Select the unit of the ratiometric conversion 3 output Y.	0
35.27 Math1 x src	Select the signal source of arithmetic 1 input X.	Zero = [0]
P.01.00	User-defined pointer (01.00 from left to right take two digits as a set, indicates the parameter set,, index in turn. The actual value is determined by the current value of the parameter).	-
Zero	Always zero	0
35.28 Math1 y src	Select the signal source of arithmetic 1 input Y.*Refer to parameters 35.27Math1 x src(Arithmetic 1 input X signal source)for relevant available options.*	Zero = [0]
35.29 Math1 func	Select the function of arithmetic 1, i.e. the arithmetic operator. Input X and Y in accordance with the specified arithmetic operator to form an arithmetic expression.	Add = [0]
Add	x + y	0
Sub	x - y	0
Min	The small one of X and Y	0
Max	The big one of X and Y	0
Abs	Absolute value of X	0
Mul	x * y / k(k is a scaling factor)	0

35 Math function	**Linear scaling、 Arithmetic expression、integrator、Filter and other functions set up**	Def
Div	X * k / y(k is a scaling factor)	0
35.30 Math 1 factor	When the parameter *35.29 Math1 func(Function of arithmetic1)*select multiply or divide as an arithmetic operator, set the scaling factor k of arithmetic 1.	0
[-32768,32767]		-
35.31 Math1 output	Monitor the output of arithmetic 1. Note that this parameter is read – only. It can be connected to the parameter by a pointer.	0
[-32768,32767]		-
... …	…	…
35.37 Math 3 x src	Select the signal source of arithmetic 3 input X. *Refer to parameters35.27Math1 x src(Arithmetic 1 input X signal source)for relevant available options.*	Zero = [0]
35.38 Math3 y src	Select the signal source of arithmetic 3 input Y. *Refer to the parameters35.27Math1 x src(Arithmetic 1 input X signal source)for relevant available options.*	Zero = [0]
35.39 Math 3 func	Select the function of arithmetic 1, i.e. the arithmetic operator. *Refer to parameters35.29Math1 func(Function of arithmetic 1)for relevant available options.*	Add = [0]
35.40 Math 3 factor	When parameters *35.39 Math3func(Function of arithmetic 3)*select multiply or divide as an arithmetic operator, set the scaling factor k of arithmetic 3.	0
35.41 Math 3 output	Monitor the output of arithmetic 3. Note that this parameter is read – only. It can be connected to the parameter by a pointer.	0
35.42 Integrator1src	Select the signal source of integrator1 input. *Refer to parameters35.27Math1 x src(Arithmetic 1 input X signal source)for the relevant available options.*	Zero = [0]
35.43 Integrator 1 output	Monitor the output of integrator 1. Note that this parameter is read – only. It can be connected to the parameter by a pointer.	0
[0, 65535]		-
35.44 Integrator1scaling		0
[0, 65535]		-
……	…	…
35.48 Integrator3src	Select the signal source of integrator3 input. *Refer to parameters35.42Integrator1 src(1 input signal source integrator)for relevant available options.*	
35.49 Integrator3output	Monitor the output of integrator 3. It can be connected to the parameter by a pointer.	
35.50 Integrator3scaling		
35.51 Filter1 input src	Select the signal source of a low pass filter 1 input.	Zero = [0]

35 Math function	**Linear scaling、 Arithmetic expression、integrator、Filter and other functions set up**	Def
P.01.00	User-defined pointer (01.00 from left to right take two digits as a set, indicates the parameter set, index in turn. The actual value is determined by the current value of the parameter).	-
Zero	Always zero	0
35.52 Filter1 output	Monitor the output of the low pass filter 1. Note that this parameter is read – only. It can be connected to the parameter by a pointer.	0
[0, 65535]		-
35.53 Filter1 timeconst	Set the filter time constant of low pass filter 1. Unit is 0.01s.	1.00 s
[0.00, 655.35]		-
……	…	…
35.57 Filter3 input src	Select the signal source of a low pass filter 3 input. *Refer to parameters35.51 Filter1 src(Filter 1 input signal source)for relevant available option.*	Zero = [0]
35.58 Filter 3 output	Monitor the output of the low pass filter 3. The value range and units and other instructions refer to the parameter *35.52Filter1 output(Filter 1 output).*	0
35.59 Filter 3 time const	Set the filter time constant of the low pass filter 3. The value range and units and other instructions refer to the parameter *35.53Filter1 timeconst(Filter 1 time constant).*	1.00 s

47 Multi step ctrl

47Multi step ctrl	**Simple multi stage speed circle control to save PLC and other control equipments. Support 16 stage speed and time definitions.**	Def
47.00 Speed out	Module speed output, read-only.The speed of a given pointer is controlled by pointing to the parameter P48.00.	-
47.01 Run enable src	Multi stage speed operation enables the signal source，the Bit pointer.The default is controlled by a motor operating signal.	P.06.00.04
47.02 Mode	Select the multi stage speed control mode.	0
Single	Single cycle，And keep the final value.	0
Repeat	Circulation mode.	1
Single & Stop	Single cycle,And automatically shut down。Restart need to issue a stop command.	2
47.03 Save mode	Shutdown or power down whether in memory status	0
Disable	Not enabled. Shut down with no nomemory.	0
Enable	Storage. Stop memory operation phase.	1

47Multi step ctrl	**Simple multi stage speed circle control to save PLC and other control equipments. Support 16 stage speed and time definitions.**	Def
47.04 Stage	At the current stage of the multi segment speed loop, user can edit as the starting phase.	0
[0, 15]		
47.05 Timer	The current cycle phase corresponds to the clock，users can edit as initial time.	0
[0.0, 6553.5]		0.1min
47.06 TimeSet 0	The zeroth section corresponds to the time setting.To set to 0 to indicate that the segment is ignored and skipped automatically.	0
[0.0, 6553.5]		0.1min
47.07 TimeSet 1	The first section corresponds to the time setting. Set to 0 to indicate that the segment is ignored and skipped automatically.	0
[0.0, 6553.5]		0.1min
47.08 TimeSet 2	The second section corresponds to the time setting. Set to 0 to indicate that the segment is ignored and skipped automatically.	0
[0.0, 6553.5]		0.1min
47.09 TimeSet 3	The third section corresponds to the time setting. Set to 0 to indicate that the segment is ignored and skipped automatically.	0
[0.0, 6553.5]		0.1min
47.10 TimeSet 4	The fourth section corresponds to the time setting. Set to 0 to indicate that the segment is ignored and skipped automatically.	0
[0.0, 6553.5]		0.1min
47.11 TimeSet5	The fifth section corresponds to the time setting. Set to 0 to indicate that the segment is ignored and skipped automatically.	0
[0.0, 6553.5]		0.1min
47.12 TimeSet 6	The sixth section corresponds to the time setting. Set to 0 to indicate that the segment is ignored and skipped automatically.	0
[0.0, 6553.5]		0.1min
47.13 TimeSet 7	The seventh section corresponds to the time setting. Set to 0 to indicate that the segment is ignored and skipped automatically.	0
[0.0, 6553.5]		0.1min
47.14 TimeSet 8	The eighth section corresponds to the time setting. Set to 0 to indicate that the segment is ignored and skipped automatically.	0

47Multi step ctrl	**Simple multi stage speed circle control to save PLC and other control equipments. Support 16 stage speed and time definitions.**	Def
[0.0, 6553.5]		0.1min
47.15 TimeSet 9	The nineth section corresponds to the time setting. Set to 0 to indicate that the segment is ignored and skipped automatically.	0
[0.0, 6553.5]		0.1min
47.16 TimeSet 10	The tenth section corresponds to the time setting. Set to 0 to indicate that the segment is ignored and skipped automatically.	0
[0.0, 6553.5]		0.1min
47.17 TimeSet 11	The eleventh section corresponds to the time setting. Set to 0 to indicate that the segment is ignored and skipped automatically.	0
[0.0, 6553.5]		0.1min
47.18 TimeSet 12	The twelfth section corresponds to the time setting. Set to 0 to indicate that the segment is ignored and skipped automatically.	0
[0.0, 6553.5]		0.1min
47.19 TimeSet 13	The thirteenth section corresponds to the time setting. Set to 0 to indicate that the segment is ignored and skipped automatically.	0
[0.0, 6553.5]		0.1min
47.20 TimeSet 14	The fourteenth section corresponds to the time setting. Set to 0 to indicate that the segment is ignored and skipped automatically.	0
[0.0, 6553.5]		0.1min
47.21 TimeSet 15	The fifteenth section corresponds to the time setting. Set to 0 to indicate that the segment is ignored and skipped automatically.	0
[0.0, 6553.5]		0.1min
47.22 SpeedSet 0	Corresponding speed settings of the segement 0.	0
[0, 65535]		1rpm
47.23 SpeedSet 1	Corresponding speed settings of the segement 1.	0
[0, 65535]		1rpm
47.24 SpeedSet 2	Corresponding speed settings of the segement 2.	0
[0, 65535]		1rpm
47.25 SpeedSet 3	Corresponding speed settings of the segement 3.	0
[0, 65535]		1rpm
47.26 SpeedSet 4	Corresponding speed settings of the segement 4.	0

47Multi step ctrl	**Simple multi stage speed circle control to save PLC and other control equipments. Support 16 stage speed and time definitions.**	Def
[0, 65535]		1rpm
47.27 SpeedSet 5	Corresponding speed settings of the segement 5.	0
[0, 65535]		1rpm
47.28 SpeedSet 6	Corresponding speed settings of the segement 6.	0
[0, 65535]		1rpm
47.29 SpeedSet 7	Corresponding speed settings of the segement 7.	0
[0, 65535]		1rpm
47.30 SpeedSet 8	Corresponding speed settings of the segement 8.	0
[0, 65535]		1rpm
47.31 SpeedSet 9	Corresponding speed settings of the segement 9.	0
[0, 65535]		1rpm
47.32 SpeedSet 10	Corresponding speed settings of the segement 10.	0
[0, 65535]		1rpm
47.33 SpeedSet 11	Corresponding speed settings of the segement 11.	0
[0, 65535]		1rpm
47.34 SpeedSet 12	Corresponding speed settings of the segement 12.	0
[0, 65535]		1rpm
47.35 SpeedSet 13	Corresponding speed settings of the segement 13.	0
[0, 65535]		1rpm
47.36 SpeedSet 14	Corresponding speed settings of the segement 14.	0
[0, 65535]		1rpm
47.37 SpeedSet 15	Corresponding speed settings of the segement 15.	0
[0, 65535]		1rpm

48 Switch Sync

48 Switch sync	**Used for synchronous or asynchronous AC motors soft start,power frequency synchronous,etc. To achieve the impact of the motor without access to the grid.**	Def

<table>
<tr><td>48 Switch sync</td><td>Used for synchronous or asynchronous AC motors soft start,power frequency synchronous,etc. To achieve the impact of the motor without access to the grid.</td><td>Def</td></tr>
<tr><td>48.00 status</td><td>Status word for synchronous switching controller.
<table>
<tr><td>Position</td><td>Name</td><td>Information</td></tr>
<tr><td rowspan="2">0</td><td rowspan="2">Sync out</td><td>1=Switching action.</td></tr>
<tr><td>0=Switching no action.</td></tr>
<tr><td rowspan="2">1:15</td><td rowspan="2">Reserved</td><td></td></tr>
<tr><td></td></tr>
</table></td><td>0</td></tr>
<tr><td>48.01 Phase err</td><td>The phase error value of the motor and the power grid, read-only.</td><td>-</td></tr>
<tr><td>48.02 Switch enable</td><td>Enable the synchronous switching</td><td>Disable = [0]</td></tr>
<tr><td>48.03 Phase comp</td><td>The phase compensation size for synchronous switching control is used to compensate for the phase lag caused by the contactor delay and the load.</td><td>6deg</td></tr>
<tr><td>48.04 Speed comp</td><td>The phase of the motor needs to be modified to synchronize with the grid before the synchronous switching. When enable the synchronous switching, the speed compensation is automatically added to the given speed.</td><td>0</td></tr>
</table>

50 Fieldbus

50 Fieldbus	**Field bus setting**	Def
50.00 Fieldbus enable	Disable or enable the fieldbus function.	Disable = [0]
Disable	Disable	0
Enable	Enable	1
50.01 Comm loss func	Select the action to be performed when the field bus communication is lost.	No action = [0]
No action	No action	0
Fault	Report failure	1
Alarm	Report alarm	2
50.02 Comm loss time	Set the detection time of the loss of the fieldbus communication, Unit is 0.1s.	2.0 s
[0.0, 60.0]	-	-
50.03 Act1 src		

50 Fieldbus	Field bus setting	Def
50.04 Act2 src		
50.05 Data in1	Select the data 1 transferred from the drive to the fieldbus module.	Status word = [1536]
P.01.00	User-defined pointer (01.00 from left to right take two digits as a set， In turn, said, indicates the parameter set, index in turn. The actual value is determined by the current value of the parameter).	—
Zero	Always zero	0
Status word	*Refer to parameters 06.00 Status word1 (status word 1)*	1536
Act1		
Act2		
… …	…	…
50.16 Data in12	Select the data 12 transferred from the drive to the fieldbus module.	-
50.17 Data out1	Select the data 1 transferred from the field bus module to the drive.	Control word = [1541]
P.01.00	User-defined pointer (01.00 from left to right take two digits as a a set, indicates the parameter set, index in turn. The actual value is determined by the current value of the parameter).	-
Zero	Always zero	0
Fieldbus ref1	*See parameters02.15Fieldbus ref1(Field bus given*	527
Fieldbus ref2	*See parameters02.16Fieldbus ref2(Field bus given 2)*	528
Control word	*See parameters06.05 Control word(Control word)*	1541
… …	…	…
50.28 Data out12	Select the data 12 transferred from the field bus module to the drive.	Zero = [0]

51 Embedded Modbus

51 Embedded Modbus	Embedded Modbus settings	Def
51.00 Modbus enable	Disable or enable the built-in Modbus communication function.When not in use，disable it can reduce the CPU load.	Enable = [1]
Disable	Disable	0
Enable	Enable	1
51.01 Node address	Set the node address of the Modbus communication, among which 0 is the broadcast	1

51 Embedded Modbus	Embedded Modbus settings	Def
[0, 247]		-
51.02 Baudrate	Set the serial baud rate of the Modbus communication, Unit is Bps.	4800 = [0]
4800		0
9600		1
19200		2
38400		3
57600		4
115200		5
230400		6
460800		7
921600		8
51.03 Format	Set the serial frame format of the Modbus communication.	8, E, 1= [2]
8, N, 1	8 bit data,No verification,1stop bit	0
8, N, 2	8 bit data,No verification,2stop bits	1
8, E, 1	8 bit data,Parity check,1stop bit	2
8, O, 1	8 bit data,Odd parity check,1stop bit	3
51.04 Master mode	Set Modbus to master mode. Note: the current master mode only supports 06 function code, that is to write a single register.	Disable= [0]
Disable	Disable	0
Enable	Enable	1
51.05 Reg data	When the Modbus is working on the master station, set the data source of the target register.	Zero = [0]
P.01.00	User-defined pointer (01.00 from left to right take two digits as a set,In turn, said, indicates the parameter set, index in turn. The actual value is determined by the current value of the parameter).	—
Zero	Always zero	0
51.06 Reg addr	Modbus work as the master station, set the address of the target register.	2
[0, 65535]		
51.07 Comm cycle	Modbus work as the master station, set the communication cycle. Unit is 1ms.	100 ms
[0, 65535]	-	-

51 Embedded Modbus	Embedded Modbus settings	Def
51.08 Slave addr	Modbus work as the master station, set the destination node address.	0
[0, 247]		
51.09 Diagnostics	Diagnostic information for Modbus Communications.	0
51.10 Packet recv count	Count the message frames for this node received from the Modbus bus. Note: this counter counts only the message frames sent to this node(Broadcast frame included)	
[0, 65535]		
51.11 Packet send count	Count the message frames for this node sent to the Modbus bus.	
[0, 65535]		
51.12 Bus message count	Count all the message frames detected by this node from the Modbus bus.	
[0, 65535]		
51.13 UART error count	Count the number of serial port errors when the node receives the message frame from the Modbus bus.	
[0, 65535]	Normally the baud rate, frame format error, will therefore increase the error.	
51.14 CRC error count	Count the number of CRC verification errors for this node to receive messages from Modbus bus.	
[0, 65535]	CRC is normally prone to errors when communication is disturbed or protocol is inconsistent. Make sure that the master-slave communication GND has been connected together.	
51.15 Frame error count	Count other errors that occur when the node receives the message frame from the Modbus bus, such as frame length error, frame timeout, etc.	
[0, 65535]	Check communication agreement.	

52 VF Cruve

52 VF Cruve	VF Cruve set	Def
52.00 VF Cruve	VF Cruve to choose	1
0	Straight line VF	
1	Multi-step VF	
2	1.2 Power Cruve	

3	1.7 Power Cruve	
4	2 Power Cruve	
5	VF Completely separated mood（Free downtime）	
52.01 Lift Mode	Torque lifting mode	0
0	Manual torque lifting	
1	Automatic torque lifting	
52.03 Lift LimitFrq	Torque lifting cutoff frequency	10.00Hz
[0 , 50.00Hz]		
52.04 Mutl VF Frq0	Multi-segment VF frequency points	10.00Hz
[0 , 1000.00Hz]		
52.05 Mutl VF Volt0	Multi-segment VF voltage points（Relative to rated voltage of motor）	20%
[0 , 100%]		
52.06 Mutl VF Frq1	Multi-segment VF frequency points 1	20.00Hz
[0 , 1000.00Hz]		
52.07 Mutl VF Volt1	Multi-segment VF voltage points 1（Relative to rated voltage of motor）	40%
[0 , 100%]		
52.08 Mutl VF Frq2	Multi-segment VF frequency points 2	30.00Hz
[0 , 1000.00Hz]		
52.09 Mutl VF Volt2	Multi-segment VF voltage point 2 Relative to rated voltage of motor）	60%
[0 , 100%]		
52.10 Mutl VF Frq3	Multi-segment VF frequency points 3	40.00Hz
[0 , 1000.00Hz]		
52.11 Mutl VF Volt3	Multi-segment VF voltage point 3 Relative to rated voltage of motor）	80%
[0 , 100%]		
52.12 VF Separate FrqSet	VF separation frequency setting value	1000.00Hz
[0 , 1200.00Hz]		
52.13 VF Separate VoltSet	VF separation voltage setting value	380V
52.14 VF Separate FrqScr	VF separation frequency given source	

52.15 VF Separate VoltScr	VF separation voltage given source	

60 Motor control

60 Motor control	Motor control set	Def
60.00 Carrier freq set	Carrier frequency setting of the drive. Affected by the temperature of the drive and the frequency of the motor, The actual carrier frequency may be different, refer to parameter P09.04.	Model correlation
[2kHz, 812kHz]	Enhance the carrier can reduce motor noise. For long-distance transmission, if no reactor at the output side, it is necessary to reduce the carrier to reduce the reflected voltage of motor, to avoid motor insulation failure and burned.	
60.01 Slip gain	Slip compensation gain of the asynchronous motor.	1.00
[0.00, 1.00]	In open loop control, it is used to modify the speed estimation value. Closed-loop control with encoder, it is used to correct the error of the rotor time constant, so that the motor is in the best state.	
60.02 Torque boost	Manual boost capacity of the motor torque. Normally no need to set.	0.00
[0.00, 1.00]	Manual torque boost ratio, relative to the rated torque of the motor.	
60.03 SC brake time	Synchronous motor to start short circuit braking time.	0.0s
[0.0s, 100.0s]	Start short circuit braking time.	-
60.04 Res damp gain	Oscillation suppression gain.	0.50
[0.00, 3.00]	The open loop V/F control applicable for synchronous and asynchronous motors.	
60.05 Excitation time	The pre excitation time of vector control of the asynchronous motor.	0.0s
[0.0s, 5.0s]	Increasing the pre excitation time can improve the starting torque.	
60.06 Fly restart	Speed tracking enable control can only be used in open loop V/F control mode of the asynchronous	Disable = [0]
Disable	Speed tracking function disabled.	0
Enable	Speed tracking function enabled.	1
60.07 Vdc max control	Activate or disable the overvoltage stall function by this parameter.	Enable = [1]
Disable	Disable over voltage stall function.	0
Enable	Enable over voltage stall function.	1
Enable at equeal	Activation of the overvoltage stall, but is invalid in the deceleration. Used for periodic load equipment.	2
60.08 Vdc min control	Activate or disable the under-voltage stall function by this parameter.	Disable = [0]

60 Motor control	Motor control set	Def
Disable	Disable under voltage stall function.	0
Enable	Enable under voltage stall function.	1
60.13 Over modu gain	Over modulation output intensity.	15%
[0, 15]		
60.14 PWM mode	PWM modulation mode.	THD = [0]
AUTO THD	The PWM mode is automatically adjusted to minimize the output voltage harmonics.	0
AUTO SL	The PWM mode is automatically adjusted to minimize the IGBT switching loss.	1
SVPWM	SVPWM represents a continuous PWM mode, DPWM means intermittent PWM mode.	2
DPWM MIN	DPWM MIN mode, micro drive series driver does not support DPWM mode.	3
DPWM MAX	DPWM MAX mode	4
DPWM3	DPWM3 mode	5
DPWM2	DPWM2 mode	6
DPWM1	DPWM1 mode	7
DPWM0	DPWM0 mode	8
60.15 Flux brake gain	Magnetic flux braking gain	0%
[0, 100]		
60.16 Energy opt gain	Energy-saving control gain of the asynchronous motor.	0%
[0, 50]		

62 Motor parameter

62 Motor parameter	Motor parameter setting	Def
62.00 Pole pairs	The pole number of the motor. Calculate automatically before drive running. The correct setting of the rated speed and rated frequency is the premise of correct calculation.	Model correlation
[1, 30]	The pole number of the motor. Applicable to all types of AC motors.	-
62.01 No-load current	No-load current of the asynchronous motor. When using the synchronous motor, this parameter is retained.	Model correlation

62 Motor parameter	Motor parameter setting	Def
[0A, 400.0A]	This parameter is usually obtained by auto tuning. You can also manually set.	
62.02 Stator resist	Stator phase resistance of motor. Applicable to all types of AC motors.	Model correlation
[0Ω, 65.535Ω]	This parameter is usually obtained by auto tuning, You can also manually set.	
62.03 Rotor resist	Rotor phase resistance of motor. Only for induction motors.	Model correlation
[0Ω, 65.535Ω]	This parameter is usually obtained by auto tuning, You can also manually set.	
62.04 Stator induct	Stator phase inductance of electric machine.	Model correlation
[0mH, 3000.0mH]	This parameter is usually obtained by auto tuning, You can also manually set.	
62.05 Leak induct coef	Leakage inductance coefficient of electric machine。Only for induction motors.	Model correlation
[0%, 20.0%]	This parameter is usually obtained by auto tuning. You can also manually set.	
[0.0mV, 3000.0mV]	This parameter is usually obtained by auto tuning. You can also manually set.	0.1mV/rpm
62.09 Core sat coef	Iron core saturation coefficient of electric machine.	80%
[50, 100]	This parameter is usually obtained by auto tuning. You can also manually set.	

63 Startup parameter

63 Startup parameter	Start Related Parameter Settings	Def
63.00 Motor nom power	Define motor rated power.This setting must be consistent with the motor nameplate value.If one drive control the multi motors, input motor total power. Be careful：When the drive is running, this parameter cannot be changed.	Default values Model correlations
[0.00kW, 630.00 kW]		-

63 Startup parameter	Start Related Parameter Settings	Def
63.01 Motor nom volt	The rated motor voltage is defined as the root mean square voltage between the basic lines supplied to the motor at the rated operating point.This setting must be consistent with the motor nameplate value. Be careful： • For permanent magnet motors, means the rated speed of the back EMF. Do not need very accurate, because the drive automatic recognition of back EMF in operation.	Default values dependon Models
[0 V, 1000 V]		
63.02 Motor nom current	Define motor rated current.The value must be equal to the motor nameplate.If the drive control multi motors, input motor total current. Be careful： • The correct operation of the motor requires no more than ninety percent of the rated current of the drive.	Default values Model correlations
[0.0 A, 1200.0 A]		
63.03 Motor nom speed	Define motor rated speed.This setting must be consistent with the motor nameplate value. Be careful ： When the drive is running, this parameter cannot be changed.	Default values Model correlations
[0 RPM, 30000 RPM]		
63.04 Motor nom freq	Define motor rated frequency. Be careful ： When the drive is running, the parameter cannot be changed.	50Hz
[0 Hz, 1000 Hz]		
63.05 Motor type	Select motor type. Be careful：When the drive is running, the parameter cannot be changed.	ACIM = [0]
ACIM	Asynchronous motor, three phase AC induction motor, Squirrel cage rotor.	0
63.07 Drive mode	Select motor control mode.	[0]
Openloop vector	Open loop vector control model is suitable for most applications.	0
Volt vector	Volt vector control model is suitable for most applications.	1

63 Startup parameter	Start Related Parameter Settings	Def
63.08 Phase inversion	Change the motor's turn.If the motor rotates in the wrong direction(For example, the power line of the motor is connected wrong)，And unable to re wiring，You can use this parameter. Notice：After changing this parameter，Encoder feedback signal must be checked(If there). Refer to parameter *01.14Motorspeedest*(Motor speed estimation)Signal and *01.08Encoder1speed* (Encoder 1 speed)(or 01.10 Encoder 2 speed) Signal compared to conduct Check.If these signals are in conflict, the wiring of the encoder must be corrected or auto tuning.	Normal, UVW= [0]
Normal, UVW	Motor phase sequence is normal.	0
Invert, UWV	Motor phase inverting,V and W exchange.	1
63.09 Macro sel	Select the drive application macro.	Factory = [0]
Factory	Default factory application macros.	0
Retain		1

■ 6.chapter Field Bus

6.1 data set

Address	Name
0001	Fieldbus control word (corresponding to monitoring parameter address 6.05)
0002	Field bus given 1(corresponding to monitoring parameter address02.15)
0003	Field bus given 2(corresponding to monitoring parameter address02.16)
0004	Field bus status word
0005	Field bus actual value1
0006	Field bus actual value2
0007-0018	Field bus module input1-12(parameter50.05-50.16)
0019-0030	Field bus module output1-12(parameter50.17-50.28)

Fieldbus control word can be viewed by parameter 6.05，Please refer to this manual before.

1）Field bus status word format

No.	Name	Meaning
0	Ready	1：Operationalreadiness
1	Enabled	1：Run enable
2	Modulating	1：PWM signal output
3	Following ref	1：
4	Em OFF2	1：Free parking mode
5	Em OFF3	1：Emergency stop mode
6	Start inhibit	1：Start inhibit
7	Alarm	1：Alarm
8	At setpoint	1：The output is consistent with the set (speed arrival or torque arrival)
9	Torque limited	1：Torque limited
10	Speed limited	1：Speed limited
11	EXT2 active	1：Control ground 2 effective
12	Local ctrl	1：Local ctrl
13	Zero speed	1：Zero speed
14	Direction reverse	1：Direction reverse
15	Fault	1：Fault

2）Related parameters

parameter address	parameter name	parameter values
51.00	**Modbus enable**	**Enable = [1]**
51.01	**Node address**	**-**
51.02	**Baudrate**	**-**
51.03	**Format**	**-**

3）Sample

The following is an example of node address equal to 1,The last CRC check code is only applicable to this case,To change any data should be recalculated after CRC check code,Can use the software automatically generated.

☞ Read drive status
Request frame：01 03 06 00 00 01 84 82
Response frame：01 03 02 B4 81 0F 24

☞ Modify drive given speed(First, the signal source for the given speed is field bus given 1）
Request frame：01 06 00 02 03 E8 28 B4
Response frame

☞ boot drive(Modify the external control to start first、Stop command signal source for fieldbus communication)
Request frame：01 06 00 01 08 82 5F AB
(Where 0x0882 for startup command,Note that bit 7 and bit 11 must always be maintained at a level of 1)
Response frame slightly

☞ Stop driver
Request frame：01 06 00 01 08 81 1F AA
(Where 0x0881 is a shutdown command,Note that bit 7 and bit 11 must always be maintained at a level of 1)
Response frame slightly

☞ Read parameter 22.00Acc time1(Acceleration time 1)Attribute
Request frame：01 42 0000 1600 77 A5
Response frame：01 42 00 0008 AC 7E 78

☞ Read parameter22.00Acc time1(Acceleration time 1)Default value
Request frame：01 42 0001 1600 26 65
Response frame：01 42 000101 F4 28 12

☞ Read parameter 22.01 Dec time1(Deceleration time 1)Minimum value
Request frame：01 42 00 02 16 01 17 A5
Response frame：01 42 00 02 00 01 19 C5

☞ Read parameter 22.01 Dec time1(Deceleration time 1)Maximum value of
Request frame：01 42 00 03 16 01 46 65
Response frame：01 42 00 03 EA 60 C6 8D

☞ Read parameter 01 Actual values(actual value)Containednumber of parameters
Request frame：01 42 00 04 16 01 F7 A4
Response frame：01 42 00 04 00 0D F9 C1

6.2 Modbus

MODBUS communication protocol based on master-slave mode，Communication is initiated by the master station,Receive requests from the machine and respond to,*Address of master station and slave station should be consistent*,Broadcast support，At this time the main station address is 0。MODBUS build upon the universal asynchronous transceiver (UART),*The master and the baud rate and frame format of station also need consistent.*

MODBUS basic unit is a byte,The format of the RTU mode frame is as follows (the middle omitted part is determined by the function code)：

Node address	Function code	…	CRC check code	
1 byte	1 byte	…	Low 8 bit	1 byte

Be careful：For the 16 bit register address、Number and data, etc.,The big endian format storage,High byte in front,Low byte after.but,CRC check code(Polynomial 0xA001)Using small end storage,Low byte in front,High byte after.

For more instructions please refer to *Modbus_Application_Protocol_V1_1b3.pdf*，*User can be from* ***www.modbus.org*** *Download this document*.

6.3 Function Code And Frame Format

at present,Only the following functions are supported(Suffix H said sixteen decimal,Suffix D said ten decimal)

03H	Reading a keep register	Reads the current value of the N parameter
06H	Write a single register	Rewrite the current value of a single parameter
08H	Diagnosis	For testing, checking communication link status, supporting the following sub function code： 0x00 returns query data 0x01 reset communication Initialize and restart the serial port of the slave device,Clear all communication event counters. 0x04 forced to listen only mode Forcing the specified slave to listen only mode, the slave will not respond to this message.
10H or 16D	Write multiple registers	Rewriting continuity the current value of the N parameter
42H or 66D	Read parameter related information	Used to read the drive parameters related information to support the following sub function code： 0x00 Read the attributes of the specified parameters 0x01 Read the default values for the specified parameters 0x02 Read the minimum value of the specified parameter 0x03 Read the maximum value of the specified parameter 0x04 Read the number of parameters for the specified parameter group 0x05 Read the visibility of the specified parameter group
55H or 85D	Read data log	

03H Request frame →3H Response frame（The number of bytes is equal to 2 times the number of registers）

Node address	03	Register start address		Number of registers	
		High 8 bit	Low 8bit	High 8 bit	Low 8bit

Node address	03	Number of bytes	Register data 1		…
			High 8 bit	Low 8bit	…

06H Request frame →06H Response frame（The same with the left side request）

Node address	06	Register address		Register data	
		High 8 bit	Low 8bit	High 8bit	Low 8bit

08H Request frame

Node address	08	Sub function code		Data	
		High 8 bit	Low 8 bit	High 8 bit	Low 8 bit

10H Request frame（The number of bytes is equal to 2 times the number of registers）

Node address	10	Register start address		Number of registers		Number of bytes	Register data 1		…
		High 8 bit	Low 8 bit	High 8 bit	Low 8 bit		High 8 bit	Low 8 bit	…

10H Response frame（Returns the first 6 bytes of the request frame）

42H Request frame

Node address	42	Sub function code		Parameter address	
		High 8 bit	Low 8 bit	High 8 bit	Low 8 bit

42H Response frame

Node address	42	Sub function code		Parameter information	
		High 8 bit	Low 8 bit	High 8 bit	Low 8 bit

6.4 Parameter address

Parameter address is 16 bits，High 8 bit parameter group number，Low 8 bit is within the group index

GROUP	INDEX	Address	
		Hexadecimal	Decimal system
00 Communication data	01-30 Data set	0001-001E	0001-0030
01 Parameter group 01	00- 255 Parameter 01.00-01.255	0100-01FF	256-511
02 Parameter group 02	00- 255 Parameter 02.00-02.255	0200-02FF	512-767
…	…	…	…
63 Parameter group 63	00- 255 Parameter 63.00-63.255	3F00-3FFF	16128-16383

Notice：

1、For each actual parameter, please refer to this manual.

2、The use of PLC as the main station parameter address need to add 40000,If the communication address of parameter 01.00 is 40256.

■ chapter 7 EMC Electromagnetic Compatibility

If there are CE mark on drive,Indicates that the drive is in compliance with the provisions of the European low voltage and EMC directive.
Follow the EMC international standard： The cabinet manufacturer is responsible for the drive system to meet the requirements of the European EMC directive.Relevant items to be considered,see also： Standard EN 61800-3 (2004),C2 Class、 satisfying criteria EN 61800-3 (2004), C3 C3 class and satisfying criteria EN61800-3 (2004), C4 Class section.

7.1 Electromagnetic compatibility definition

Electromagnetic compatibility is the limited time for the use of electrical equipment,Space and spectrum resources can coexist under the conditions,Does not cause performance degradation.equipment、 subsystem、 System should not generate more than the electromagnetic emission requirements stipulated in the specification or standard,And can meet the requirements of immunity.EMC Represents an electromagnetic compatibility.Electromagnetic compatibility is used to indicate the ability of the electrical and electronic equipment to work properly in electromagnetic environment.conversely,Equipment also does not respond to local other devices or systems to release electromagnetic interference.

The first environment includes civilian facilities.Also not through intermediate transformer connected directly to the facilities for civil building power supply of low voltage power grid.Second environment includes in addition to the direct connection to the power supply of low voltage power grid for civilian buildings outside the facility.

C2class driver.The rated voltage of electric drive system is lower than 1000 V,Can be a plug-in device or mobile device,When used in the first environment can only be used by professionals to carry on install and debug.

C3 class driver.The rated voltage of electric drive system is lower than 1000 V,Applicable to the second environment, Does not apply to the first environment.

C4 class driver.The rated voltage of electric drive system is lower than 1000 V,Or the rated current is not less than 400 A,Or suitable for complex systems with second environments

Introduction of EMC standard in China

According to the requirements of China national standard GB/T12668.3,The driver needs to meet the requirements of electromagnetic interference and electromagnetic interference in two aspects.We existing products perform are the latest international standards:IEC/EN61800-3： 2004 (Adjustable speed electrical power drive systems part 3:EMC requirements and specific
test methods)Equivalent national standard GB/T12668.3.

IEC/EN61800-3 Mainly from two aspects of electromagnetic interference and electromagnetic
interference on the drive to investigate,Electromagnetic interference mainly to drive radiated

interference,Test of conducted interference and harmonic interference(The corresponding drive for
civil use has this requirement.).Anti electromagnetic interference is the main driver of the conductive immunity,radiated immunity、 Surge immunity、 Fast mutation impulse group immunity、 ESD immunity and low frequency power supply noise immunity(Specific test items are：

1、 Input voltage sag、 Disruption and variation of immunity test；

2、 The Phase change commutation gap test；

3、 Harmonic input immunity test；

4、 Input frequency variation test；

5、 Input voltage unbalance test;

6、 Input voltage fluctuation test)carry testing.

According to the above IEC/EN61800-3's strict requirements for carry testing,Our products as shown in below carry guidance for installation,In the general industrial environment will have good electromagnetic compatibility.

7.2 EMC guide

Influence of harmonics

High order harmonics of the power supply may cause damage to the driver and its peripheral electrical equipment, Where the power quality is poor The proposed installation of AC input reactor or current harmonic filter.

Due to the influence of harmonics, Input leakage circuit breakers are selected with reference to the main circuit input side connection description.

Drive motor power cable contains higher harmonic current,So it may cause the thermal relay malfunction due to resonance, Need to reduce the carrier frequency or the installation of output reactor. It is recommended to use the drive motor before don't add thermal relay, While the use of the drive over current protection function.

Electromagnetic interference and installation considerations

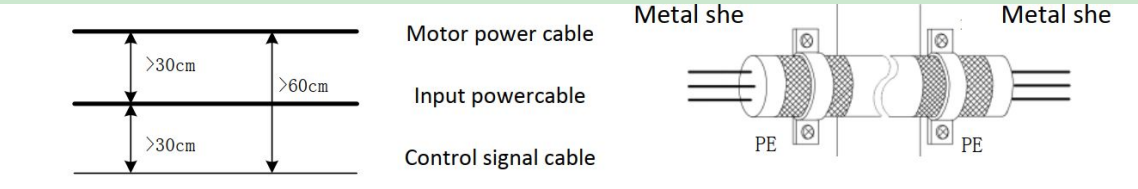
1.Other electrical products be grounded line should be good grounding. When using EMC filter, Must permanent fixed ground connection must be used, This kind of connector is not transferred through the connector.

2. Drive input and motor power cable and weak current signal(Such as control signal cable)As far as possible separated from each other. If there is potential weak signal line using the metal wire cable slot separate wiring.

3. Drive input and motor power cables are recommended for use in shielded cables, Or use armored cable. Both ends of the cable shielding layer or armored need reliable grounding. The shielding twisted pair is recommended for the weak signal line which is easy to be disturbed, Reliable grounding and shielding layer.

4. For the motor cable length of more than 100 m, Requires the installation of an output filter

or reactor.



picture7.1 Wiring requirements and shielding grounding method

Ground

1）. Drives and other equipment are recommended to be grounded separately; If you need any common ground, Need a single point grounding. Do not recommend a common ground wire.

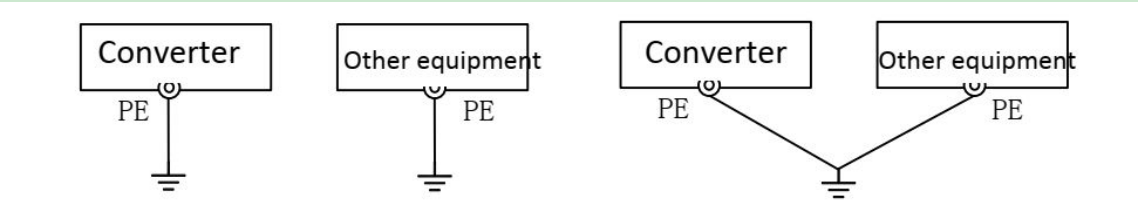
2. The grounding cable of the section, should choose as far as possible big, To ensure that the grounding impedance is as low as possible. Due to the same cross-sectional area of the cable, The high frequency impedance of the flat conductor is smaller than that circular conductor is smaller, So choose flat cable is better. Earthing cable should be as short as possible, The ground should be as close to the drive as possible.

3. Motor power cable, such as the use of 4 core cable, The ground wire in the 4 core cable must be grounded on the drive side, On the other side is connected to the ground terminal of the motor; If the motor and drive each have a dedicated access location the best grounding effect can be obtained.

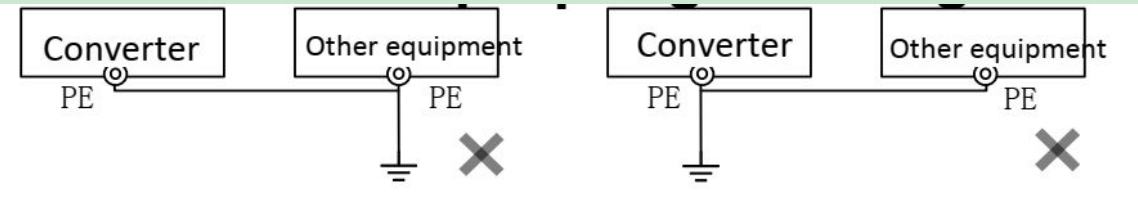
4. If the control system of the various components of the grounding end together, The formation of the earth leakage current noise source will affect other peripheral device driver control system in and abroad. So in the same control system, Drives and weak devices such as computers, Sensor or audio and other equipment to the ground to be separated, Can't be connected together.

5. In order to obtain a lower high frequency impedance, The fixing bolt of each device can be used as the high frequency terminal connected with the rear panel of the cabinet, When installing, please pay attention to the insulation paint to remove the fixed point.

6. Laying the grounding cable should be far away from the wiring of the I/O part of the noise sensitive equipment, At the same time pay attention to the ground wire should be shortened.



Drive and other devices in a proper grounding mode



Drive and other devices are not recommended in the ground mode

Method for processing the electromagnetic interference generated by the peripheral electric equipment to the driver

Relay in drive peripheral environment, Contactor、 Electromagnetic brake, etc. may produce electromagnetic interference. When there is electromagnetic interference misoperation of drive , Suggested using the following method:

1. Produce surge suppressor device with interference;
2. Drive input power cable to add EMC filter;
3. Drive control signal and detection circuit using shielded wire or twisted pair, For shielding the shielding layer of the need for reliable grounding (360 degree ring).

Processing method for electromagnetic interference generated by the driver to peripheral equipment

Drive on the peripheral equipment can be divided into two types of electromagnetic interference, A class of conduction interference, A class of radiation interference. According to different interference conditions, Reference to the following methods:

1. Used for measuring instruments, Meter、 Receiver and sensor signal is generally weak signal, If the and drive distance is near or in the same control cabinet, Is prone to interference and produce false action. Suggested that weak current signal away from disturbance sources as far as possible; Don't weak current signal wire and power cable tied together; Signal lines using shielded wire or twisted pair, shielded wire the Shielding layer needs a good grounding (As far as possible360 degree ring); Power cable increase ferrite beads(nickel zinc copper, restrain frequency interference in more than 30MHz) And around2～3 turns, In order to get better results can also be used EMC filter.
2. When the interference device and the driver use the same power supply, Easily lead to conductive interference, It is recommended to drive the input port increases EMC filter;

3. Peripheral equipment alone ground , Common mode interference caused by common ground impedance can be reduced.

Leakage current and treatment

Distributed capacitance between power cable and earth, The longer the power cable is, the larger the distributed capacitance between the earth and the earth, The bigger the leakage current; The higher the carrier frequency, the greater the leakage current. Can shorten the power cable length and reduce the carrier frequency to reduce leakage current. But reducing the carrier frequency can lead to the increase of motor noise,Need to seek balance between the two.

Power input EMC filter to add attention

1. Please use the filter strictly in accordance with the rated value; Because the filter is a kind of I electrical equipment, The metal case must be large area and install ark metal to good contact, And the requirements of a good grounding continuity, Otherwise there is a risk of electric shock and a serious impact on the effect of EMC.

2. PE filter must and drive side received the same common ground, Otherwise it will seriously affect the EMC effect.

3. In the cabinet, The installation position of the filter should be close to the entrance end

of the input power cable, And the power input line of the filter should be as short as possible in the control cabinet.

4. If the filter input line and output line laying too close, The high frequency interference will bypass the filter, Directly through the filter of input line and output line directly coupling, Make the power filter out of action.

5. The outer shell of the filter usually has a special ground terminal.But if the filter is connected to the control cabinet with a wire, For the high frequency interference is equal to the dummy.This is because the high frequency impedance of long wire is very large,Can not play an effective bypass role.The correct installation method is a large area of the filter housing is pasted on the conductive plane of the metal casing,Please pay attention to the removal of insulation paint,Ensure reliable connection.

6.If the drive is connected to the IT system(i.e., ungrounded, or high resistance grounding(more than 30 Ohm)Power supply system)， Is prohibited to install EMC filter.

7.3 EMC filters

7.3.1 When do you need the EMC filter?

EMC product standard (61800-3 EN + all revised (2000)) Covered within the eu to drive(test with electric motors and cables) Describes the specific EMC requirements. 61800-3 (2004) A new version of the product standard can be used from now on, But at least since October 1, 2007. EMC standards such as EN 55011 or 61000-6-3/4 EN are applicable to industrial and civil equipment and systems containing drive components. The drive equipment which meets the requirements of 61800-3 EN is consistent with the requirements of EN 55011 and 61000-6-3/4 EN, But otherwise it may not be consistent.EN 55011 and EN 61000-6-3/4 was prescribed length of cable, Also do not need to connect the motor as the load. The following table is a comparison of the standard radiation limits.

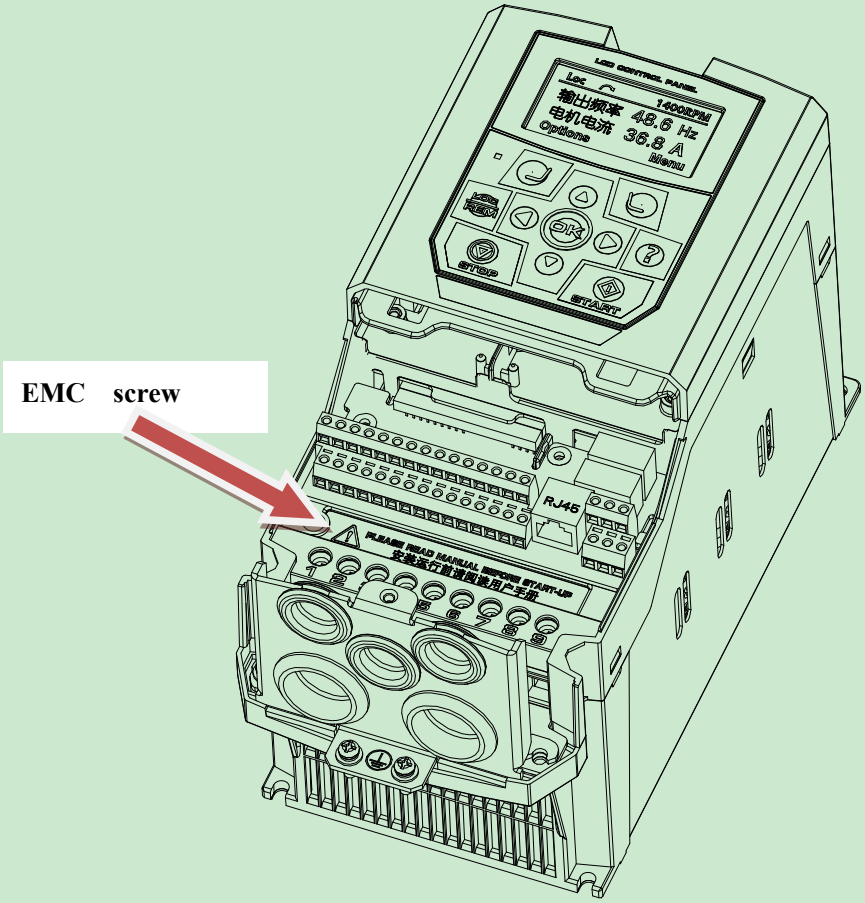
EMC General standard		
EN61800-3/A11 (2000)， Product standards	EN 61800-3(2004)， Product standards	EN55011， Industrial, scientific and medical(ISM) Equipment product family standard
First environment, nonlimiting sales	**C1**class	Group**1** category**B**
First environment, Limited sales	**C2**class	Group**1** category**A**
Second environment,non limitingsales	**C3**class	Group**2** category**A**
Second environment, Limited sales	**C4**class	not applicable

7.3.2 How to disconnect the built-in EMC filter with ground screw

When the system needs to reduce the EMC protection grade or reduce to ground leakage current, user can choose to disconnect the built-in EMC filter of the grounding screw,

the specific method for:

F1-F3 series models: Unscrew the EMC position screw on the drive body as shown.



be careful！ After changing the EMC level, please use glue to stick mark on the drive frame,And record the date. Tag suggestions posted on the nameplate side.

■ chapter 8 Maintenance

8.1 Summary of daily maintenance

This chapter introduces the description of relevant preventive maintenance. Due to changes in drive usage environment, as temperature, humidity, smoke, dust, etc factors and drives' aging of the internal components of the factors etc may cause the drive to produce various kinds of faults.Therefore, in the storage, the usage of process must be carried out daily check and regular maintenance.

■Drive through the transport, before the use, should check whether the element in good condition, If screw fastening.

■ Drive in the normal use of the period should be regularly cleaned up dust, And check whether the screw is loose.

■ If drive is not used in long-term, proposed electricity charging once in the half year. Charging half hour is appropriate in order to prevent the failure of electronic devices.

■ Drive should be avoided in wet and metal dust environment to use. Must be placed in electrical cabinets with protective measures or protecting room in the field.

In normal operation of the drive, please confirm the following matters：

■ Whether the motor has abnormal sound and vibration.

■ Whether drives and motors are fever abnormity.

■ Whether ambient temperature is too high.

■ Whether the output current value is normal.

■ Whether drive's cooling fan is functioning properly.

Maintenance cycle：

The following table shows the routine maintenance cycle recommended by our company.
For more understand detailed information, please contact the local service representative office.

Maintenance cycle	Maintenance	Explai006E
Each year (storage)	DC capacitor reforming	see alsoCapacitor charging
Each 6 to 12 months, depending on the amount of dust in the environment	Sink temperature inspection and cleaning	see also sink .
Each year	Power connection fastening degree check	
	Cooling fan visual inspection	see alsocooling fan.
Each 3 years, if the ambient temperature is higher than 40 °C (104 °F).Otherwise Each 6 years.	Replace cooling fan	see alsocooling fan.

Each 3 years, if the ambient temperature is higher than 40 °C (104 °F). Or the drive is suffered to periodic heavy load or continuous rated load. Otherwise each 9 years.	DC capacitor replacement	Contact our local service representative.

8.2 Sink maintenance and cleaning

The fins of the sink may accumulate the dust in the air. If the sink is not clean, drive will occur overheat warning and failure. In normal environment, the sink should carry out inspection once a year. In dusty environment inspection is more frequent.
Clean the radiator in the following manner (When needed)：

1. Remove the cooling fan.
2. With a clean compressed air to blow (arid) from bottom to top, at the same time the vacuum cleaner is used to collect the dust at the air outlet.

Be careful： If the dust may enter the adjacent equipment, please clean it in the other room. The F4, F5 models have the cleaning hole designed which cleaning can be used fine drill insert. (See schematic left 2 figure)

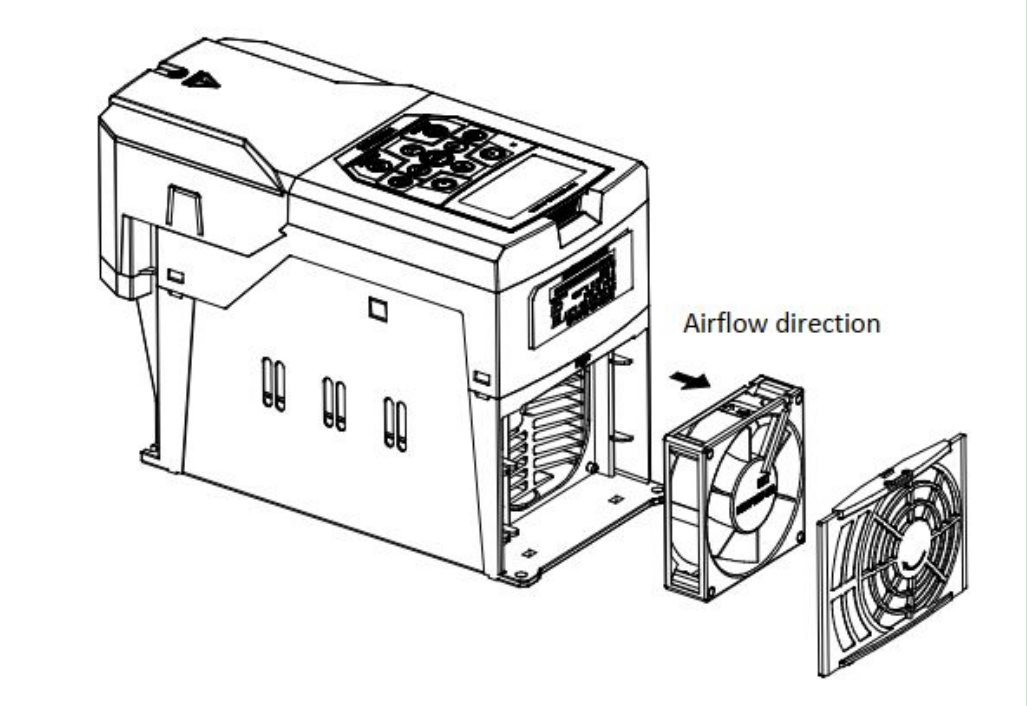
3. Re install the cooling fan.

8.3 Replace the fan

Fan's actual life depending on the use of drive as well as the ambient temperature.From the noise of fan bearings and the gradual rise of the heat sink temperature (Although the sink has been cleaned)upper, it can be predicted Fan failure. If driver used in key positions, user have to replace the fan when the fan is just beginning to make an abnormal noise.

How to remove the fan：

OnF1-F3： With a small – screwdriver, open the fan cover and take out of the fan.



Be careful！ The airflow direction is from the bottom up. When installing the fan, the air flow direction is upward.General fan has its steering and wind direction indicator arrow on the body. At the same time pay attention to arrange fan power cord, Avoid fan extrusion and blowing straight shaking the line.

8.4 Capacitor Charging

After a long storage time, capacitors need to be charged, in order to avoid damage of capacitance and limit the possibility of the high current leakage of the capacitor.The best way to achieve this goal is to use a DC power that can regulate the current limit.

1) According to the size of the drive, in 300…800mA range set current limit.

2) Then the DC power supply is connected to the terminals of DC-Link +/- terminals， Or directly connected to a capacitance.In a series of model drive without theDC-Linkof+/-terminal, user can connecte to the 2 input phases(R/L1and S/L2) DC power supply.

3) And then set the DC voltage to the rated voltage of the drive (1.35*Un AC) Charging for at least 1 hour. If the DC voltage is not available, drive has been stored for more than 12 months without power supply, please consult us before power on.

8.5 Other maintenance operations

Transfer user parameter settings to the new drive module（ The selected models if there is this function）

When replacing the drive module, the parameters copy function of the control keyboard can be used to transfer the user parameters from the fault driver module.

By using pluggable type control terminal board can not dismantle the original control wiring of fauty drive and fast transfer under the condition of the terminal connectivity.

8.6 Fault tracking and processing

This chapter lists all of the alarm (warning) and fault information,Including possible causes and corrective actions.Alarm / fault code is displayed on the driver's control keyboard (LED Version display in the form of E-XX).Alarm or fault information is used to indicate that the driver is in an abnormal state.Most alarms and faults can be identified and corrected using the information in this chapter.If you can not rule out the fault,Please contact our representative office.In this chapter,

8.6.1 Fault code and interpretation

Code	Fault name	Possible causes	Terms of settlement
01	SC(Output short circuit)	Output phase to phase short circuit 、 Or output to earth short circuit、Or output to the bus short circuit.	Check whether the motor is short circuit、Check wiring and cable short circuit.Check whether there is a power factor compensation capacitor or surge absorber in the motor cable.
02	OC(Motor over current)	Motor current exceeds the maximum permissible level of hardware.	Check the motor rated parameters is consistent with the nameplate 、 Check the acceleration and deceleration time is too fast.
03	OV(Bus overvoltage)	Bus voltage exceeds the maximum permissible level.	Check whether the overpressure stall enable.Check whether the brake resistance is within the recommended range.
04	OH(Drive over heat)	Drive within the radiator temperature is too high、Or the internal cavity temperature is too high、Or module chip temperature is too high.	Check cooling fan、Ventilation cooling system is normal 、Radiator is dust clogging 、Check if the ambient temperature is within the allowable range.
05	GF(Earth leakage)	The sum of the output current is not zero,And greater than the allowable value.	Check wiring is loose、Check whether the motor cable leakage.Or the motor output line is too long and there is no additional output reactor.
06	ADC(ADC Fault)	Motor current sensor fault、Analog to digital converter fault or control panel.	Contact local agents or vendors.
07	NTC LOSS(Temperature sensor break)	Drive internal temperature sensor disconnection.	Contact local agents or vendors.
08	ENC INIT	The encoder is found to be faulty during initialization.	Check the encoder wiring is correct,Check the encoder wiring is correct.

Code	Fault name	Possible causes	Terms of settlement
09	ENC ZMARK	The number of pulses between the two Z pulses captured by the encoder is different from that of the encoder.	Check encoder resolution settings are correct.Check whether the encoder cable is disturbed.
10	EEPROM	Memory failure,Failed write parameter.	Contact local agents or vendors.
11	CPU OVERLOAD	CPU load over 100%,Failure to complete real-time task.Or stack overflow.	Contact local agents or vendors.
12	PARA ERROR	The parameters of the motor are conflicting with each other。	Check motor parameters are set correctly.
13	MOTOR OH	The temperature of the motor exceeds the set fault point.	Check whether the motor is overloaded、Check motor overheating protection settings are correct.
14	AI LOSS	Analog input out set of range.	Check whether analog input is broken or short.
15	EXT FAULT	External user defined fault.	Check external fault signal。
16	SUPPLY LOSS	Abnormal power supply.Or lack of phase,Or unbalanced three-phase input, or insufficient capacity.	Check whether the lack of phase.Check whether the capacitance value is normal.
17	OUTPUT LOSS	Output current anomaly Or the output phase,or IGBT and peripheral anomalies can not be controlled.	Check whether the motor is short of phase.Check whether the motor vibration。Or contact local agents or vendors.
18	ID RUN	Motor self identification fault.	Check whether the motor has been connected.Check the
19	MODBUS FAULT	MODBUS Communication failure.	Check MODBUS communication.
20	CANOPEN FAULT	CAN Communication failure.	Check CAN communication.
21	PROFIBUS FAULT	PROFIBUSCommunication failure.	Check PROFIBUS communication.
22	PAR SET ERR	Backup parameter set error in memory.	Parameter set not backup.
23	UNDER VOLTAGE	Drive operation,Power supply under pressure.	Check whether the power supply is normal.Check whether the soft start is normal
24	SPEED FEEDBACK	Speed feedback fault.	Speed feedback speed feedback phase disconnection or positive feedback.

Code	Fault name	Possible causes	Terms of settlement
25	OVER SPEED	Overspeed.	Motor speed,Check encoder settings are correct,Check whether the feedback is positive feedback.
26	OPTCARD CHANGED	Hot swap card options.	Do not allow the hot swap option card,Otherwise it may cause permanent damage to the driver.
27	RUNTIME LIMITTED	Run time is limited.	Contact local agents.
28	PID FBK LOSS	Process PID feedback break.	Check whether the PID disconnection detection is correct,Check whether the external wire break.
29	BR ERR	The brake resistance is less than allowable resistance drive.	Check the brake resistance is reasonable.
30	BR OVERLOAD	Regenerative braking resistor.	Check the brake resistor overload detection settings are correct,Check whether the power of resistance is reasonable.
31	BRAKE SLIP	The brake during the inspection,Motor slip.	Check whether the need to replace the brake,Check the brake check settings are correct.
32	BRAKE FLT	Open the front brake,Start moment can not be reached.	Check whether the normal brake.
33	BRAKE SAFE CLOSE	Open loop control,The motor works in the low speed dangerous area,Brake force close.	Check whether speed given is too low.
34	BRAKE OL	After the brake open,Actual compliance exceeds the maximum allowable torque of the drive.	Check whether the load is too high，Check the brake control circuit is normal.
35	BRAKE ACK FLT	After the brake open,Non response signal.	Check the brake response signal is normal.
36	BRAKE SYNC FLT	Lifting control,Motor speed and the given estimated deviation is too large,Magnetic flux anomaly.	Check motor parameters are set correctly.
37	POWER OFF	When the power off function is enabled,the running power supply is suddenly interrupted.	Check whether the power failure is real
40	PM SYNC LOSS	Multiple step out of step in the starting process of synchronous motor.	Check whether the initial angle identification parameter is set correctly

Code	Fault name	Possible causes	Terms of settlement
41	MOTOR STALL	Motor blocking fault，The rotor is almost impossible to rotate,The moment has reached the maximum torque.	Check if the machine is locked

8.6.2 Fault reset

Can be controlled by pressing the keyboard (RESET key),Or cut off the power supply for a period of time to reset the fault.After troubleshooting,Motor can start again.