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Chapter 1 Safety and Precautions

1.1 Safety Statement

- 1) Please read and follow this safety precaution when installing, operating, and maintaining the product.
- 2) To ensure the safety of personnel and equipment, when installing, operating and maintaining the product, please follow all the safety precautions stated in the product identification and manual.
- 3) The “Danger”, “Warning” and “Caution” items in the manual do not represent all safety precautions that should be followed, but only supplement all safety precautions.
- 4) This product should be used in an environment that meets the design specifications. Otherwise, it may cause malfunctions. Functional abnormalities or component damage caused by failure to comply with relevant regulations are not covered by the product quality assurance.
- 5) Our company will not bear any legal responsibility for personal safety accidents and property losses caused by illegal operation of products.

1.2 Security level definition

DANGER

- “Danger” means death or serious bodily injury if not handled as specified.

WARNING

- “Warning” indicates that failure to follow the instructions may result in death or serious bodily injury.

CAUTION

- “Caution” indicates that minor physical injury or equipment damage may result if not handled as specified.

1.3 Safety Precautions

Unpacking Acceptance

CAUTION

- Before unpacking, please check whether the outer packaging of the product is well protected, whether it is damaged, soaked, damp or deformed.
- Please open the package in the order of the hierarchy, strictly forbidden to beat!
- When unpacking, please check the surface of the product and product accessories for damage, rust, bumps, etc.
- Please check the product and product accessories and information carefully after unpacking.

 WARNING

- Please do not install the product or its accessories if damage, rust or signs of use are found when opening the box.
- Do not install the product when it is found that the product is filled with water, parts are missing, or parts are damaged when opening the box.

Storage and Transportation **CAUTION**

- Please store and transport according to the storage and transportation conditions of the product. The storage temperature and humidity meet the requirements.
- Avoid storing and transporting in places such as water splashing, direct sunlight, strong electric field, strong magnetic field, strong vibration.
- Avoid product storage for more than three months. When storage time is too long, please perform more stringent protection and necessary inspection.
- Please transport the product strictly after transporting the vehicle, and use a closed box for long-distance transportation.
- It is strictly forbidden to mix and transport this product with equipment or products that may affect or damage this product.

 WARNING

- Be sure to use professional loading and unloading equipment to transport large or heavy equipment and products!
- When carrying the product by hand, be sure to hold the product case to prevent the product parts from falling, otherwise there is a danger of injury!
- When handling the product, be sure to lift it gently and pay attention to the items under your feet to prevent tripping or falling. Otherwise, there is a danger of injury or product damage!
- When the equipment is lifted by the lifting tool, the person is prohibited from standing or staying under the equipment.

During Installation **WARNING**

- Please read the product instruction manual and safety precautions carefully when installing!
- It is strictly forbidden to modify this product!
- It is strictly forbidden to twist the fixing bolts and red marked bolts of the product parts and components!
- Do not install this product in a place with strong electric field or strong electromagnetic interference!
- When the product is installed in the cabinet or terminal equipment, the cabinet or terminal equipment needs to provide corresponding fireproof enclosure, electrical protection enclosure and mechanical protection enclosure. The protection level should comply with relevant IEC standards and local laws and regulations.

 DANGER

- Non-professionals are strictly prohibited from product installation, wiring, maintenance, inspection or parts replacement!

- The installation, wiring, maintenance, inspection, or parts replacement of this product can only be carried out by professionals with sufficient electrical knowledge.
- Installers must be familiar with product installation requirements and related technical information.
- When installing a device with strong electromagnetic interference such as a transformer, install a shield protection device to avoid malfunction of this product!

Wiring



DANGER

- Non-professionals are strictly prohibited from equipment installation, wiring, maintenance, inspection or parts replacement!
- Do not perform wiring work while the power is on, otherwise there is a danger of electric shock.
- Turn off the power of all devices before wiring. After the power is turned off, there is residual voltage in the internal capacitance of the device. Wait at least 10 minutes before wiring.
- Please ensure that the equipment and products are well grounded, otherwise there is a danger of electric shock.
- Observe the procedures specified in the ESD and wear an electrostatic wrist strap for wiring to avoid damage to the equipment or the internal circuits of the product.



WARNING

- Do not connect the input power to the output of the device or product. Otherwise, the device may be damaged or even cause a fire.
- When connecting the drive device to the motor, make sure that the phase sequence of the drive and the motor terminals are exactly the same, so as to avoid reverse rotation of the motor.
- The cable used for wiring must meet the requirements of the corresponding wire diameter and shielding. The shielding layer using the shielded cable requires a single-ended reliable grounding.
- After the wiring is completed, make sure that there are no dropped screws or bare cables inside the device and the product.

At power-on



DANGER

- Before powering on, please confirm that the equipment and products are installed properly, the wiring is firm, and the motor device is allowed to start.
- Before powering on, please confirm that the power supply meets the requirements of the equipment to avoid damage to the equipment or cause fire!
- When the power is turned on, the mechanical device of the device or product may suddenly move. Please keep away from the mechanical device.
- After power-on, do not open the equipment cabinet door or product protection cover, otherwise there is danger of electric shock!
- Do not touch any terminal of the device under power-on state, otherwise there is danger of electric shock!
- It is strictly forbidden to disassemble any equipment or parts of the equipment and products under power-on conditions, otherwise there is danger of electric shock!

During operation	
 DANGER	
● Do not touch any terminal of the device under running conditions, otherwise there is danger of electric shock! ● It is strictly forbidden to disassemble any equipment or parts of the equipment and products under the operating condition, otherwise there is danger of electric shock! ● Do not touch the device casing, fan or resistor to test the temperature, otherwise it may cause burns! ● Non-professional technicians are strictly forbidden to detect signals during operation, otherwise personal injury or equipment damage may result!	
 WARNING	
● During operation, avoid other items or metal objects falling into the device, otherwise the equipment may be damaged! ● Do not use the contactor on/off method to control the start and stop of the device, otherwise the device will be damaged!	
During Maintenance	
 DANGER	
● Non-professionals are strictly prohibited from equipment installation, wiring, maintenance, inspection or parts replacement! ● It is strictly forbidden to carry out equipment maintenance under power-on state, otherwise there is danger of electric shock! ● After cutting off the power of all the equipment, wait at least 10 minutes before performing equipment maintenance.	
 WARNING	
● Please carry out daily and regular inspection and maintenance of equipment and products in accordance with equipment maintenance and maintenance requirements, and keep a record of maintenance.	
During Service	
 DANGER	
● Non-professionals are strictly prohibited from equipment installation, wiring, maintenance, inspection or parts replacement! ● It is strictly forbidden to carry out equipment maintenance under power-on state, otherwise there is danger of electric shock! ● After cutting off the power of all devices, wait at least 10 minutes before performing equipment inspection and maintenance.	
 WARNING	
● Please follow the product warranty agreement for equipment repair. ● When the equipment is faulty or damaged, the equipment and products shall be trouble-shooted and repaired by the professional in accordance with the maintenance instructions, and the maintenance records shall be made.	

- Please replace it according to the product consumable replacement instructions.
- Do not continue to use the damaged machine, as it will cause a greater degree of damage.
- After replacing the device, be sure to re-check the device wiring and parameters.

When Scrapped



WARNING

- Please dispose of equipment and products in accordance with relevant national regulations and standards, so as to avoid property damage or casualties!
- Dispose of discarded equipment and products in accordance with industrial waste disposal standards to avoid environmental pollution.

Chapter 2 Product Information

2.1 Designation Rules

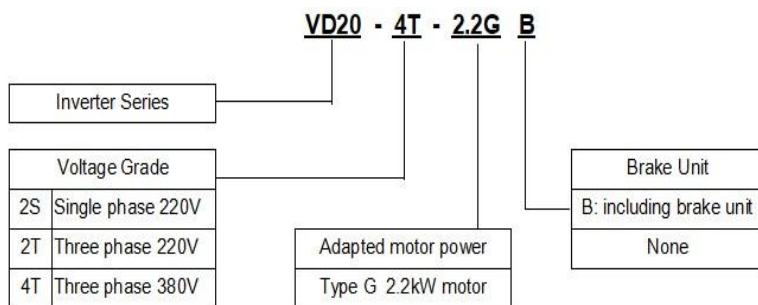


Fig 2.1-1 Designation Rules

2.2 Nameplate



Fig 2.2-1 Nameplate

2.3 Technical Specifications

Table 2.3-1 Product series specifications and technical data

Inverter Power (kW)			4T										2S				2T			
			0.4 GB	0.75 GB	1.5 GB	2.2 GB	3.0 GB	4.0 GB	5.5 GB	7.5 GB	11.0 GB	0.4 GB	0.75 GB	1.5 GB	2.2 GB	0.4 GB	0.75 GB	1.5 GB	2.2 GB	
Output	Adapt Motor	(kW)	0.4	0.75	1.5	2.2	3.0	4.0	5.5	7.5	11.0	0.4	0.75	1.5	2.2	0.4	0.75	1.5	2.2	
		(HP)	0.5	1.0	2.0	3.0	4.0	5.5	7.5	10	15	0.5	1	2	3	0.5	1	2	3	
	Rated output current (A)		1.5	2.5	3.8	5.1	8.0	9.6	13	17	25	2.3	4.8	7.0	9.6	2.3	4.8	7.0	9.6	
	Output voltage		0~rated input voltage																	
	Maximum output frequency		600Hz (can be changed by parameter)																	
	Carrier frequency		0.5kHz~12kHz																	
	Overload capacity		150% rated current for 60sec																	
Input	Rated input current (A)		1.9	4.0	5.0	5.8	9.2	11	14.6	22	32.5	5.4	9.8	14	23	4.0	6.0	7.8	10.5	
	Rated voltage Rated frequency		AC: three phase 380V, 50/60Hz										AC: single phase 220V, 50/60Hz				AC: three phase 220V, 50/60Hz			
	Allowable voltage fluctuation range		-15%~15%																	
	Allowable frequency fluctuation range		±5%																	
	Power capacity (kVA)		1.0	1.5	3.0	4.0	5.5	6.5	8.9	11.8	17.4	1.0	2.0	3.0	4.0	1.5	3.0	4.0	5.9	

2.4 Product Appearance and Installation Dimension

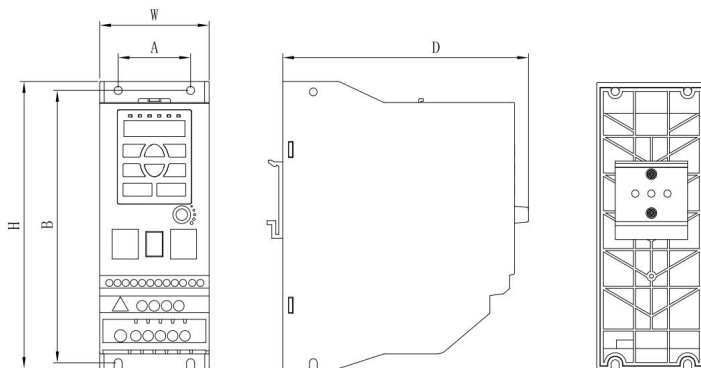


Fig 2.4-1 Schematic diagram of product appearance and installation dimensions

Adapted models (three-phase 380V: 0.4kW-11kW / single-phase, three-phase 220V: 0.4kW-2.2kW)

Standard: wall-mounted installation; optional: rail-mounted installation;
side installation (supported by models within 2.2kW)

Table 2.4-1 Product appearance and installation dimensions

Model	Mounting Hole (mm)		Dimensions(mm)			Installation Aperture (mm)	G.W(Kg)
	A	B	H	W	D		
Single-phase/three-phase power supply: 220V, 50/60Hz Range: -15%~15%							
VD20-2S/2T-0.4GB	45	168	177	68	152	5	1.1
VD20-2S/2T-0.7GB							
VD20-2S/2T-1.5GB							
VD20-2S/2T-2.2GB							
Three-phase power: 380V,50/60Hz Range: -15%~15%							
VD20-4T-0.4GB	45	168	177	68	152	5	1.1
VD20-4T-0.7GB							
VD20-4T-1.5GB							
VD20-4T-2.2GB							
VD20-4T-3.0GB	62	186	196	75	172	4.5	1.4
VD20-4T-4.0GB							
VD20-4T-5.5GB							
VD20-4T-7.5GB	93	244	255	107	180	5	2.5
VD20-4T-11GB							

2.5 External keypad appearance and hole size

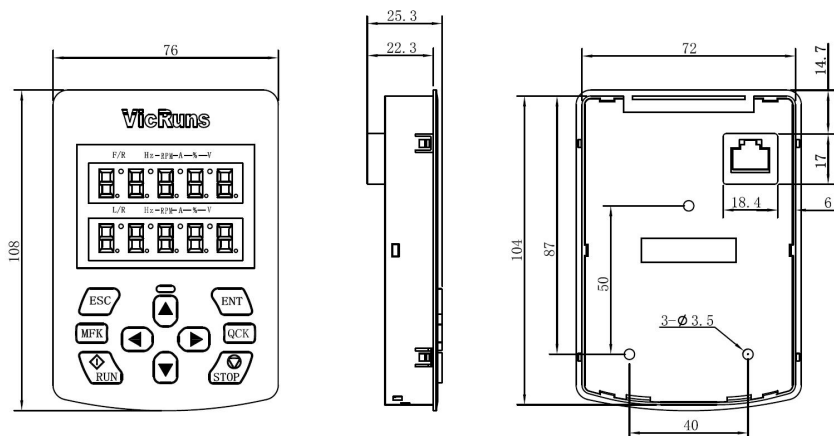


Fig 2.5-1 Dimensions of LED keypad (standard)

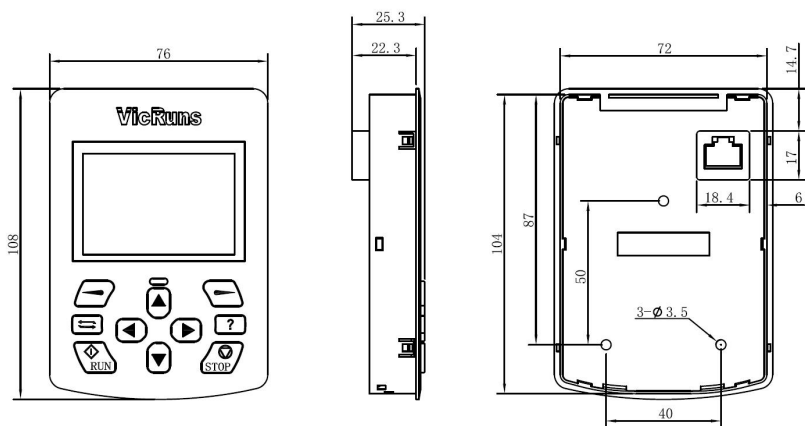


Fig 2.5-2 Dimensions of LCD keypad (Optional)

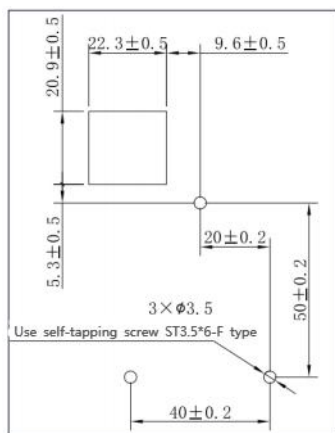


Fig 2.5-3 Opening size of keyboard installation (round hole)

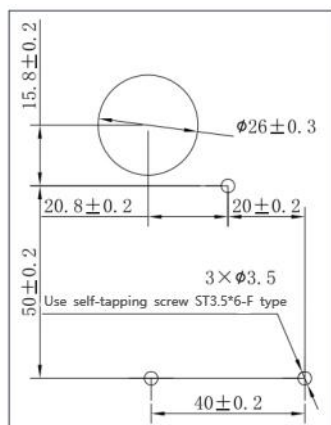


Fig 2.5-4 Opening size of keyboard (square hole)

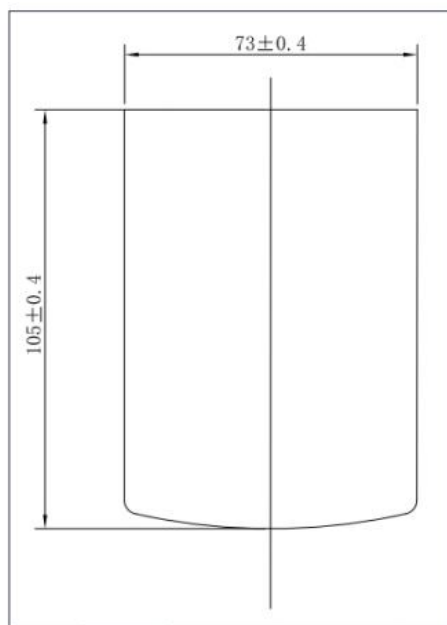


Fig 2.5-5 Dimension of the hole size for external keypad installation

Remark:

- The keypad of this machine can be directly connected.
- It can also be equipped with a tray for external lead, and the tray needs to be ordered separately.

2.6 Braking Resistor Selection Guide

Table 2.6-1 Selection table of inverter brake components

Single phase 220V			Three phase 380V		
Model	Resistance	Power	Model	Resistance	Power
VD20-2S-0.4GB	$\geq 200\Omega$	80W	VD20-4T-0.4GB	$\geq 300\Omega$	150W
VD20-2S-0.7GB	$\geq 150\Omega$	80W	VD20-4T-0.7GB	$\geq 300\Omega$	150W
VD20-2S-1.5GB	$\geq 100\Omega$	100W	VD20-4T-1.5GB	$\geq 220\Omega$	150W
VD20-2S-2.2GB	$\geq 70\Omega$	100W	VD20-4T-2.2GB	$\geq 200\Omega$	250W
Three phase 220V			VD20-4T-3.0GB	$\geq 150\Omega$	300W
Model	Resistance	Power	VD20-4T-4.0GB	$\geq 130\Omega$	300W
VD20-2T-0.4GB	$\geq 150\Omega$	150W	VD20-4T-5.5GB	$\geq 90\Omega$	400W
VD20-2T-0.7GB	$\geq 110\Omega$	150W	VD20-4T-7.5GB	$\geq 75\Omega$	500W
VD20-2T-1.5GB	$\geq 100\Omega$	250W	VD20-4T-11GB	$\geq 40\Omega$	800W
VD20-2T-2.2GB	$\geq 65\Omega$	300W	-	-	-
-	-	-	-	-	-

Remarks:

- Table 2.6-1 is a guide data, user can select different resistor value and power according to actual situation.
- Selection of braking resistor is based on the motor generation power in actual application system, it is related with system inertia, deceleration time, potential load energy, it is decided by user's actual situation.
- The greater the inertia of system, the required speed deceleration is shorter, the braking is more frequent, so the braking resistor require a bigger power and smaller resistance.

Chapter 3 Installation and Wiring

3.1 Standard Wiring Diagram

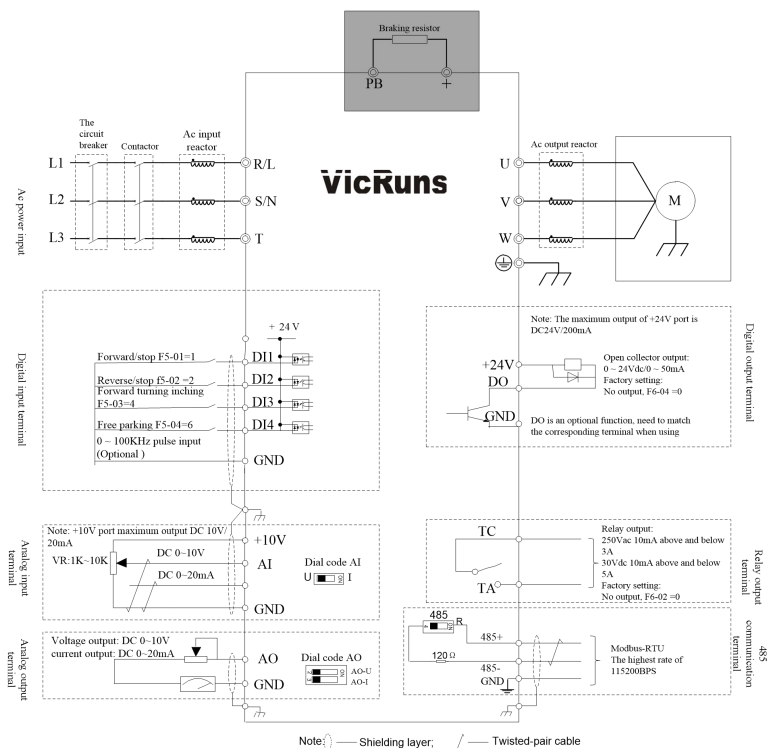


Fig 3.1-1 Schematic diagram of inverter standard wiring

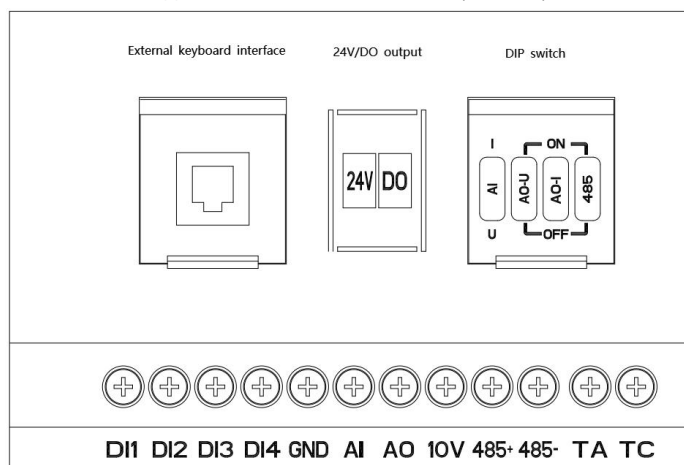
Precautions are as follows:

- 1) Terminal © means main circuit terminal, terminal ○ means control circuit terminal;
 - 2) "B" after the product model indicates the built-in braking unit of the standard model;
 - 3) Braking resistor's selection is based on the user demand. refer to Table 2.6-1;
 - 4) The signal wires and power wires must be routed separately. If the control cables and power cables cross, they should be crossed at a 90 degree angle as much as possible.
- The analog signal line refers to the description in the figure and selects the line type. The power cable is best to use a shielded three-core cable (its specification is one step larger than that of an ordinary motor cable);
- 5) The power connection terminals for single-phase 220V models are L and N.
 - 6) Digital input DI4 and digital output DO are optional functions;

3.2 Control Circuit Terminal

3.2.1 Schematic diagram of control board interface

Applicable to models below 5.5KW(inclusive)



Applicable to models 7.5~11kW

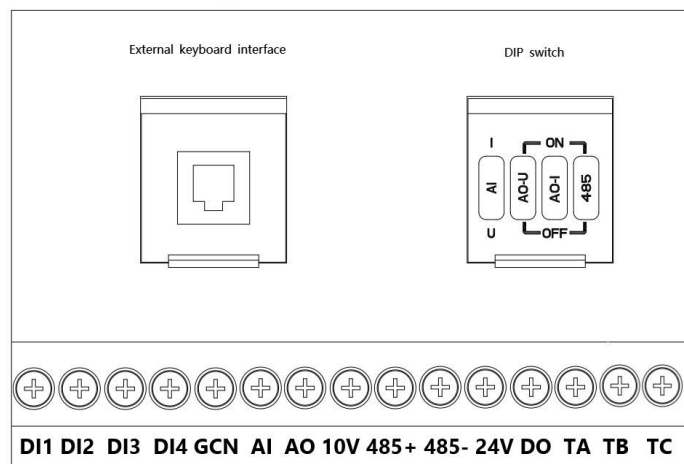


Fig 3.2.1-1 Schematic diagram of control board layout

3.2.2 Function Description of DIP Switch

DIP switch		Schematic Diagram of DIP Function		Tag	Dial Position	Function Description
ON 1234	U	AI	I	1	ON	AI current input 0-20ma
					OFF	AI voltage input 0-10V
	OFF	AO-U	ON	2	ON	Enable AO output 0-10V
					OFF	Disabled AO output 0-10V
	OFF	AO-I	ON	3	ON	Enable AO output 0-20ma
					OFF	Disable AO output 0-20ma
	OFF	485	ON	4	ON	485 access 120R terminal resistance
					OFF	485 disconnect 120R terminal resistance

Fig 3.2.2-1 Schematic diagram of DIP switch function description

3.2.3 Function Description of Control Circuit Terminal

Table 3.2.3-1 Function description of control circuit terminal

Type	Terminal Identification	Terminal Name	Function Description
Power Supply	10V-GND	10V power supply	1. Provide external 10V power supply. 2. Generally used as an external potentiometer power, the resistance range of the potentiometer is 1kΩ~10kΩ. 3. The maximum output current is 10mA.
	24V GND	24V power supply	1. Provide external +24V power supply, can only be used as a power supply for digital output terminals. 2. The maximum output current is 100mA. 3. Do not use this power supply as an external power supply. 4. Optional function, need to cooperate with external terminal.
Analog Input	AI1-GND	Analog input terminal	Support 0V~10V voltage or 0/4mA~20mA current input, selected by DIP switch 1, the default is 0V~10V voltage input.
Digital Input	DI1-GND	Digital input terminal 1	1. Multifunctional digital input, set function through F5-01~F5-04. 2. DI4 is a high speed input terminal, this function is optional.
	DI2-GND	Digital input terminal 2	
	DI3-GND	Digital input terminal 3	
	DI4-GND	Digital input terminal 4	
Analog Output	AO-GND	Analog output terminal	Support 0V~10V voltage or 0/4mA~20mA current output, selected by DIP switch 2 and 3, the default is 0V~10V voltage input.
Digital Output	DO	Digital output	1. DO open collector output. 2. Pull-up voltage range: 5V~24V (pull-up resistance range: 1kΩ~10kΩ); 3. Output current range: 0~20mA; 4. Optional function, need to cooperate with external terminal.
Relay Output	T/A-T/C	Relay normally open terminal	Contact driving capacity: AC250V, 3A, DC 30V, 5A
	TA-TB-TC	One set of normally open (T/A) One set of normally closed (T/C) T/B is the public side	Contact actuation capability: AC250V, 3A; DC30V, 5A It is applied to 7.5-11kW
485	485+-485-	485 differential	1. Standard RS-485 communication terminal, should use

Type	Terminal Identification	Terminal Name	Function Description
Communication		signal positive	twisted pair shielded cables. 2. The terminal resistance 120R is selected by DIP switch 4, the default is no terminal resistance.

Chapter 4 Operation and Debugging

4.1 Operation and Display Interface

With the operation panel, you can modify the function parameters of the inverter, monitor the working status of the inverter, and control the operation of the inverter (start, stop). Its appearance and functional areas are shown in the figure below:

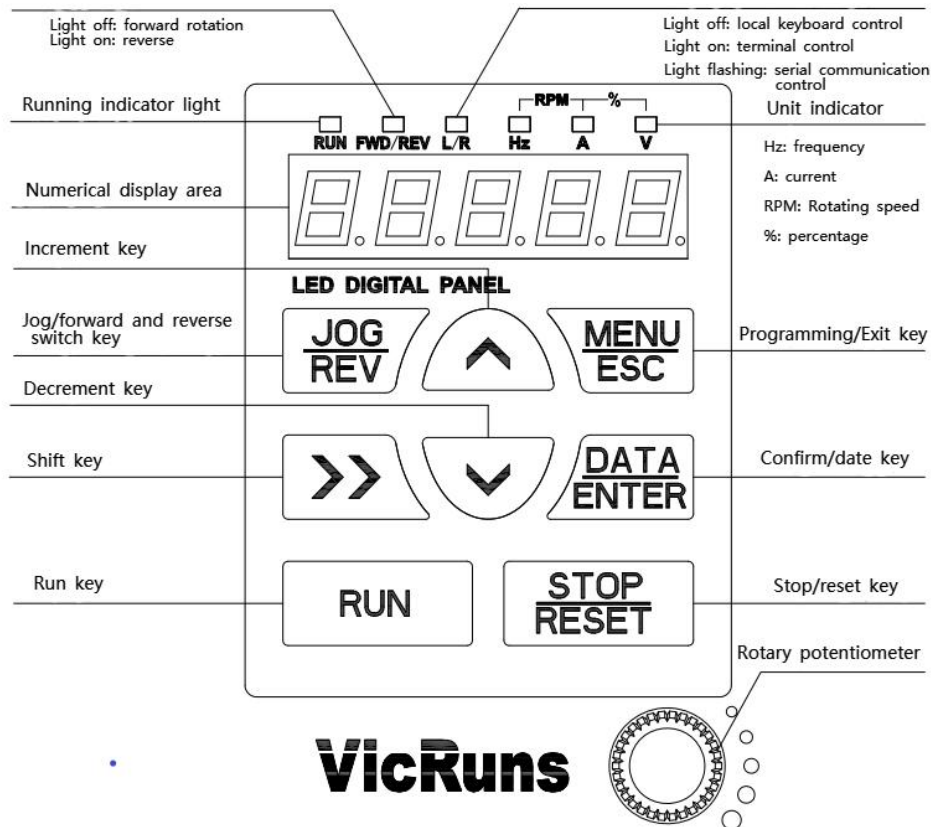


Fig 4.1-1 Schematic diagram of operation panel

4.1.1 Button Function Description

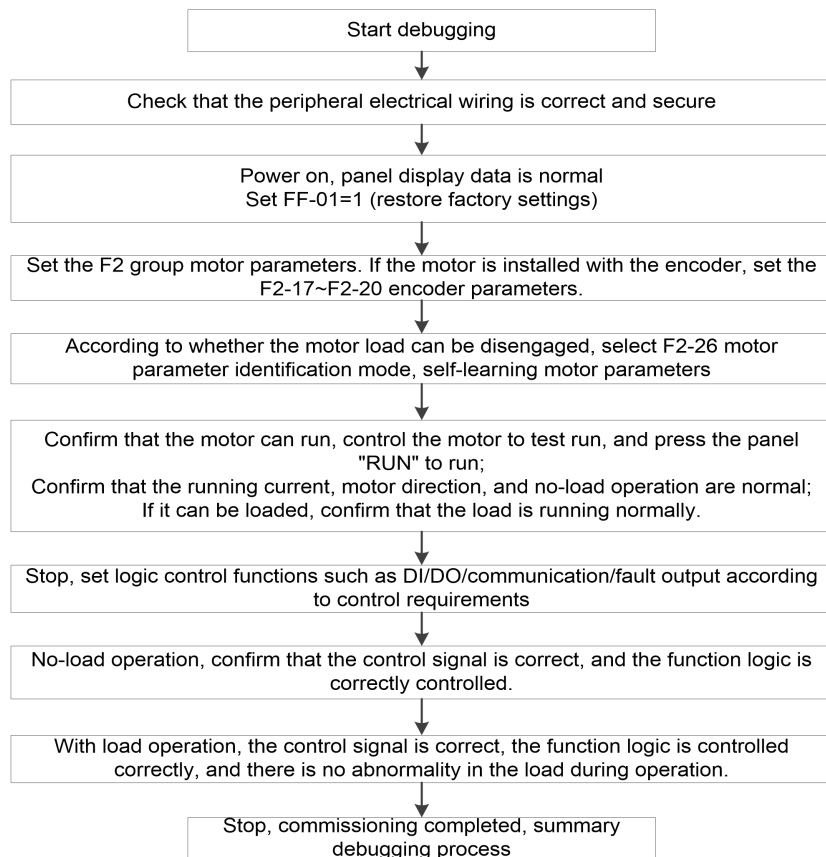
Buttons	Name	Function Description
	Programming / Exit key	Enter or exit the programming state
	Confirm / date key	Enter the menu screen level-by-level, and confirm the setting parameters

	Increment Key (UP)	Increment of data or function code
	Decrement key (DOWN)	Decrement of data or function code
	Shift key	In the stop display interface and the running display interface, the display parameters can be selected cyclically; when modifying the parameters, the modification position of the parameters can be selected
	Run key	In keypad operation mode, it is used for running operation
	Stop/Reset key	In the running state, pressing this key can be used to stop the running operation, and in the fault alarm state, this key can be used to reset. Restricted by function code F7-01
	Jog/forward and reverse switch key	The function of this key is determined by the function code F7-00 0: Invalid 1: Command channel switch 2: Forward and reverse switching 3: Forward jog 4: Reverse jog 5: Quick debugging

4.1.2 Description of Function LED Indicator

Name	Description
RUN	Running status indicator: When the light is off, it means that the inverter is in the stop state; when the light is flashing, it means the inverter is in the automatic parameter identification state; when the light is on, it means the inverter is in the running state.
FWD/REV	Positive and negative indicator: When the light is off, the inverter is in the forward rotation state; when the light is on, the inverter is in the reverse rotation state.
L/R	When the light is off, it is in the state of keypad operation control, the light is always on, it is in the terminal operation control state, and the light is flashing, it is in the communication operation control state.
Hz	Frequency indicator, unit: Hertz (Hz).
A	Current indicator, unit: ampere (A).
V	Voltage indicator, unit: Volt (V).
RPM	Speed indicator, unit: revolutions per minute (RPM).
%	Percent indicator, unit: %.

4.2 Fast Debugging



Chapter 5 Function Parameter Table

The symbols in the function table are described as follows:

- — It indicates that the parameter setup value can be modified when the inverter is in run state;
- ◎ — It indicates that the parameter setup value cannot be modified when the inverter is in the run state;
- — It indicates that the numerical value of the parameter is the actually measured value, which cannot be modified;
- ☆ — It indicates this parameter is "Factory default parameter" and can be set only by the manufacturer.

F0 Basic Parameter Group				
Function Code	Parameter Name	Setting Range	Factory Default Value	Property
F0-00	Motor Control Mode	0: V/F control 1: SVC Note: If you select the vector control mode, for the best control effect, please identify the motor parameters.	0	◎
F0-01	Running Command Source Selection	0: Control panel command source (L/R OFF) 1: Terminal command source (L/R ON) 2: communication command source (L/R flashes)	0	○
F0-02	Main Frequency Source A Selection	0: Digital setting (F0-09, no memory when power off) 1: Digital setting (F0-09, power off memory) 2: AI1 3: Reserved 4: Reserved 5: PULSE setting 6: Multi-segment command 7: Simple PLC 8: PID 9: Communication setting 10: Keypad potentiometer	10	◎
F0-03	Main Frequency A Gain	0.000~10.000	1.000	○
F0-04	Auxiliary Frequency Source B Selection	Same as F0-02 (Main Frequency Source A Selection)	0	◎
F0-05	Frequency Source Superposition Selection	Unit's digit: frequency source selection 0: Main frequency source A	00	○

		1: Main and auxiliary operation result (The operational relationship is determined by the ten digits) 2: Main frequency source A switching with auxiliary frequency source B 3: Main frequency source A switching with main auxiliary operation result Ten's digit: frequency source main and auxiliary operation relationship 0: Main + auxiliary 1: Main – auxiliary 2: Max value of the two 3: Min value of the two		
F0-06	Auxiliary Frequency Source B Range Reference Selection when Superimposed	1: Relative to the max frequency 2: Relative to frequency source A	0	○
F0-07	Auxiliary Frequency Source B Range when Superimposed	0%~150%	100%	○
F0-08	Auxiliary Frequency Source Offset Frequency when Superimposed	0.00Hz~max frequency F0-10	0.00Hz	○
F0-09	Digital Setting Frequency	0.00Hz~max frequency (F0-10)	50.00Hz	○
F0-10	Max Frequency	50.00Hz~600.00Hz	50.00Hz	◎
F0-11	Frequency Upper Limit Source	0: F0-12 setting 1: AI1 2: Reserved 3: Reserved 4: PULSE setting 5: Communication setting	0	◎
F0-12	Frequency Upper Limit	Frequency lower limit F0-14~max frequency F0-10	50.00Hz	○
F0-13	Frequency Upper Limit Offset	0.00Hz~max frequency F0-10	0.00Hz	○
F0-14	Frequency Lower Limit	0.00Hz~frequency upper limit F0-12	0.00Hz	○
F0-15	Frequency Command Resolution	2: 0.01Hz	2	●

F0-16	Frequency Command UP/DOWN Reference in Running	0: Running frequency 1: Setting frequency	0	⊙
F0-17	Digital Setting Frequency Memory Selection when Stop	0: No memory 1: Memory	0	○
F0-18	Acceleration Time 1	0.00s~65000s	Model dependent	○
F0-19	Deceleration Time 1	0.00s~65000s	Model dependent	○
F0-20	Acceleration / Deceleration Time Unit	0: 1s 1: 0.1s 2: 0.01s	1	⊙
F0-21	Acceleration and Deceleration Time Reference Frequency	0: Max frequency (F0-10) 1: Setting frequency 2: 100Hz	0	⊙
F0-22	Command Source Binding Frequency Source	Unit's digit: Operation panel command binding frequency source selection 0: No binding 1: Digital setting frequency 2: AI1 3: Reserved 4: Reserved 5: PULSE setting 6: MS reference 7: Simple PLC 8: PID 9: Communication setting Ten's digit: terminal command binding frequency source selection, same as above Hundred's digit: communication command binding frequency source selection, same as above	0000	○
F0-23	Communication Protocol Selection	0: Modbus	0	⊙
F0-26	Pressure Torque Quick Setting Selection	LED unit's digit: pressure quick setting 0: Disabled 1: Enable LED ten's digit: torque quick setting 0: Disable 1: Enable	00	⊙
F1 Start/Stop Control Group				

Function Code	Parameter Name	Setting Range	Factory Default Value	Property
F1-00	Start Mode	0: Direct start 1: SVC speed tracking restart 2: Pre excitation start (AC asynchronous machine)	0	○
F1-01	Starting Frequency	0.00Hz~10.00Hz	0.00Hz	○
F1-02	Start Frequency Holding Time	0.0s~100.0s	0.0s	◎
F1-03	Starting DC Braking Current / Pre-excitation Current	0%~100%	0%	◎
F1-04	Starting DC Braking Time / Pre-excitation Time	0.0s~100.0s	0.0s	◎
F1-08	Stop Mode	0: Decelerate to stop 1: Coast to stop	0	○
F1-09	Initial Frequency of Stop DC Braking	0.00Hz~max frequency	0.00Hz	○
F1-10	Waiting Time of Stop DC Braking	0.0s~100.0s	0.00s	○
F1-11	Stop DC Braking Current	0%~100%	0%	○
F1-12	Stop DC Braking Time	0.0s~100.0s	0.00s	○
F1-13	Stop Frequency	0.00Hz~max frequency	0.50	○
F1-14	Stop Frequency Holding Time	0.0s~60.0s	0.0s	○
F1-15	Restart Selection Upon Power Failure	0: Enabled 1: Disabled	1	○
F1-16	Waiting Time of Restart Upon Power Failure	0.0s~60.0s	0.0s	○
F1-17	Operation Mode of Setting Frequency is Lower than the Frequency Lower Limit	0: Running with frequency lower limit 1: Stop 2: Zero speed running	0	○

F1-18	Start Selection of Setting Frequency is Lower than the Start Frequency	0: Don't start 1: Zero speed running	1	⊙
F1-19	Running Direction	0: Same direction 1: Opposite direction	0	○
F1-20	Reverse Control Enable	0: Allow reverse 1: Prohibit reverse	0	○
F1-21	FWD/REV Dead-zone Time	0.0s~3000.0s	0.0s	○
F1-22	Dynamic Braking Enable	0: Disabled 1: Enabled	0	○
F1-23	Braking Usage Rate	0%~100%	100%	○
F1-24	Over-excitation Effective Range	0: The whole is valid	0	●
F1-25	VF Over-excitation Gain	0~200	64	○
F1-26	Vector Over-excitation Gain	0~200	32	○
F1-27	Acceleration / Deceleration Mode	0: Straight-line acceleration / deceleration 1: S curve acceleration/deceleration A 2: S curve acceleration/deceleration B	0	⊙
F1-28	Time Ratio of S Curve Start Segment	0.0%~(100.0%-F1-29)	30.0%	⊙
F1-29	Time Ratio of S Curve End Segment	0.0%~(100.0%-F1-28)	30.0%	⊙
F1-30	Zero Frequency Voltage Output Selection	0: None voltage output 1: Have voltage output 2: According to DC brake current output	0	○
F1-31	Speed Tracking Wait Time	0.00~5.00S	0.50s	⊙
F2 Motor 1 Parameter				
Function Code	Parameter Name	Setting Range	Factory Default Value	Property

F2-00	Motor Type Selection	0: Ordinary asynchronous motor 1: Frequency conversion asynchronous motor	0	⊙
F2-01	Rated Motor Power	0.1kW~11.0kW	Model dependent	⊙
F2-02	Rated Motor Voltage	1V~1000V	Model dependent	⊙
F2-03	Rated Motor Current	0.01A~100.00A	Model dependent	⊙
F2-04	Rated Motor Frequency	0.01Hz~max frequency	Model dependent	⊙
F2-05	Rated Motor Rotation Speed	1RPM~65535RPM	Model dependent	⊙
F2-06	Stator of Resistance Asynchronous Motor	0.001Ω~65.535Ω	Identification parameters	⊙
F2-07	Rotor Resistance of Asynchronous Motor	0.001Ω~65.535Ω	Identification parameters	⊙
F2-08	Asynchronous Motor Leakage Inductive Reactance	0.01mH ~655.35mH	Identification parameters	⊙
F2-09	Asynchronous Motor Mutual Inductive Reactance	0.1mH~6553.5mH	Identification parameters	⊙
F2-10	Asynchronous Motor No-load Current	0.01A~F2-03	Identification parameters	⊙
F2-16	Rated Power Factor of Asynchronous Motor	0.001~1.000	0.850	⊙
F2-26	Motor Parameter Identification	0: No operation 1: Static identification 1 2: Dynamic identification	0	⊙
F3 Motor 1 Vector Control Parameter				
Function Code	Parameter Name	Setting Range	Factory Default Value	Property
F3-00	Speed Loop Proportional Gain 1	1~100	30	○

F3-01	Speed Loop Integral Time 1	0.01s~10.00s	0.50s	○
F3-02	Switch Frequency 1	0.00~F3-05	5.00Hz	○
F3-03	Speed Loop Proportional Gain 2	1~100	20	○
F3-04	Speed Loop Integral Time 2	0.01s~10.00s	1.00s	○
F3-05	Switch Frequency 2	F3-02~max frequency	10.00Hz	○
F3-06	Vector Control Slip Gain	0%~200%	100%	○
F3-07	SVC Speed Filter Time	0.000s~0.100s	0.015s	○
F3-09	Motor Torque Upper Limit Source	0: Encode F3-10 setting 1: AI1 2: Reserved 3: Reserved 4: PULSE setting 5: Communication setting 6: Reserved 7: Reserved The full scale of options 1~7 corresponding to the F3-10	0	○
F3-10	Digital Setting for Motor Torque Upper Limit	0%~200.0%	150.0%	○
F3-11	Generator Torque Upper Limit Source	0: Encode F3-12 setting 1: AI1 2: Reserved 3: Reserved 4: PULSE setting 5: Communication setting 6: Reserved 7: Reserved The full scale of options 1~7 corresponding to the F3-12	0	○
F3-12	Digital Setting for Generator Torque Upper Limit	0.1%~200.0%	150.0%	○
F3-13	Excitation Adjustment Proportional Gain	0~60000	2000	○

F3-14	Excitation Adjustment Integral Gain	0 ~60000	1300	○
F3-15	Torque Adjustment Proportional Gain	0~60000	2000	○
F3-16	Torque Adjustment Integral Gain	0~60000	1300	○
F3-17	Speed Loop Integral Separation Enable	0: Disabled 1: Enabled	0	○
F3-18	Low Frequency Slip Coefficient	0.01~2.00	1.00	○
F3-19	Low Frequency Torque Boost	LED ten, one digit: boost mode 1 (0~39) LED thousand, hundred digit: boost mode 2 (0~49)	0000	○
F3-20	Low Frequency Cutoff Frequency	0.00~max frequency	5.00Hz	○
F3-21	Flux Adjustment Gain	0.1~8.0	2.0	○
F4 Motor 1 V/F Control Parameter				
Function Code	Parameter Name	Setting Range	Factory Default Value	Property
F4-00	VF Curve Setting	0: Straight line V/F 1: Multipoint V/F 2: Square V/F 3: 1.2#power V/F 4: 1.4#power V/F 5: 1.6#power V/F 6: 1.8#power V/F 7: V/F complete separation mode 8: V/F half separation mode	0	◎
F4-01	Torque Boost Mode	0: Automatic torque boost 1: Manual torque boost 2: Automatic boost mode 1	0	◎
F4-02	Manual Torque Boost	0.0%~30.0%	Model dependent	○
F4-03	Manual Torque Boost Cutoff Frequency	0.00Hz~max frequency	50.00Hz	◎

F4-04	Multipoint VF Frequency Point 1	0.00Hz~F4-06	0.00Hz	⊙
F4-05	Multipoint VF Voltage Point 1	0.0%~100.0%	0.0%	⊙
F4-06	Multipoint VF Frequency Point 2	F4-04~F4-08	0.00Hz	⊙
F4-07	Multipoint VF Voltage Point 2	0.0%~100.0%	0.0%	⊙
F4-08	Multipoint VF Frequency Point 3	F4-05~Rated motor frequency (F2-04)	0.00Hz	⊙
F4-09	Multipoint VF Voltage Point 3	0.0%~100.0%	0.0%	⊙
F4-10	VF Slip Compensation Gain	0.0%~200.0%	0.0%	⊙
F4-11	VF Oscillation Suppression Mode	0~4	3	⊙
F4-12	VF Oscillation Suppression Gain	0~100	40	○
F4-14	The Separation of VF Voltage Source	0: Digital setting (F4-14) 1: AI1 2: Reserve 3: Reserve 4: PULSE setting 5: Multiple instruction 6: Simple PLC 7: PID 8: Communication given Remark: 100% corresponding rated motor voltage	0	○
F4-15	VF Separation Voltage Digital Setting	0V~rated motor voltage	0V	○
F4-16	VF Separation Voltage Rise Time	0.0s~1000.0s Note: Indicates the time when 0V rises to the rated voltage of the motor	5.0s	○
F4-17	VF Separation Voltage Fall Time	0.0s~1000.0s Note: Indication the time when the rated voltage of the motor drops to 0V	5.0s	○
F4-18	VF Completely Separated Shutdown Mode	0: The frequency voltage is independently reduced to 0 1: After the voltage is reduced to 0, the frequency is reduced again	0	⊙

F4-19	VF Slip Filter Time	0.1~5.0s	0.1s	○
F4-20	VF Slip Compensation Delay	0.00~5.00s	0.20s	○
F4-21	VF Automatic Torque Boost Delay	0.1~5.0s	1.0s	○
F4-22	VF Automatic Torque Boost Coefficient	0.0%~50.0%	0.0%	○
F5 Input Terminal				
Function Code	Parameter Name	Setting Range	Factory Default Value	Property
F5-00	Terminal Command Mode	0: Two-line mode 1 1: Two-line mode 2 2: Three-line mode 1 3: Three-line mode 2 4: Alternate control 5: Back and forth control	0	◎
F5-01	DI1 Terminal Function Selection	0: No function 1: Forward running (FWD) 2: Reverse running (REV) 3: Three-line mode run control 4: Forward Jog (FJOG) 5: Reverse Jog (RJOG) 6: Coast to stop 7: Run pause 8: Fault reset (RESET) 9: External fault normally open input 10: External fault normally closed input 11: Terminal UP 12: Terminal DOWN 13: UP/DOWN setting clear (Terminal, keypad) 14: Switching frequency source 15: Frequency source A switching with preset frequency 16: Frequency source B switching with preset frequency 17: MS reference terminal 1 18: MS reference terminal 2 19: MS reference terminal 3	1	◎
F5-02	DI2 Terminal Function Selection		2	◎
F5-03	DI3 Terminal Function Selection		4	◎
F5-04	DI4 Terminal Function Selection		6	◎

		20: MS reference terminal 4 21: Acceleration and deceleration time selection terminal 1 22: Acceleration and deceleration time selection terminal 2 23: Reserved 24: Control command switch terminal 1 25: Control command switch terminal 2 26: Immediate DC braking 27: Deceleration DC braking 28: External stop terminal 1 (Only effective for keypad control) 29: External stop terminal 2 (According to the deceleration time 4) 30: Emergency stop 31: PID pause 32: PID integral pause 33: PID action direction is reversed 34: PID parameter switching 35: PLC pause 36: PLC state reset 37: Swing frequency pause 38: Swing frequency reset 39: Switching between speed control and torque control 40: Torque control prohibit 41: Acceleration and deceleration prohibit 42: Reverse prohibit 43: Frequency modification prohibit 44: Counter input 45 Counter reset 46: Length count input 47: Length reset 48: Reserved 49: Reserved 50: User defined failure 1 51: User defined failure 2 52: Cleared the running time 53: Switching between two-line and three-line mode (Switch is invalid in running) 54: PID feedforward coefficient reset 55~59: Reserved		
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F5-10	DI1 Terminal Valid Mode Selection 1	0: Low level effective 1: High level effective Unit's digit: DI1 Ten's digit: DI2 Hundred's digit: DI3 Thousand's digit: DI4 Ten thousand's digit: Reserved	00000	◎
F5-12	DI Filter Time	0.000s~1.000s	0.010s	○
F5-13	DI1 Close Delay Time	0.0s~3600.0s	0.0s	◎
F5-14	DI2 Close Delay Time	0.0s~3600.0s	0.0s	◎
F5-15	DI3 Close Delay Time	0.0s~3600.0s	0.0s	◎
F5-16	DI1 Off Delay Time	0.0s~3600.0s	0.0s	◎
F5-17	DI2 Off Delay Time	0.0s~3600.0s	0.0s	◎
F5-18	DI3 Off Delay Time	0.0s~3600.0s	0.0s	◎
F5-19	Terminal UP / DOWN Change Rate	0.001Hz/s~65.535Hz/s	1.000Hz/s	○
F5-20	AI Curve Selection	1: Curve 1 (2 point, see F5-22~F5-26) 2: Curve 2 (2 point, see F5-27~F5-31) 3: Curve 3 (2 point, see F5-32~F5-36) 4: Curve 4 (4 point, see b2~00-b2-07) 5: Curve 5 (4 point, see b2-08~b2-15)	1	○
F5-21	AI is Lower than Min Input Setting Selection	Unit's digit: AI1 is lower than min input setting selection 0: Corresponding to the min input setting 1: 0.0% Ten's digit: AI2 is lower than min input setting selection, same as above Hundred's digit: Reserved	000	○
F5-22	AI Curve 1 Min Input	-10.00V~F5-24	0.00V	○
F5-23	Corresponding Setting of AI Curve 1 Min Input	-100.0%~+100.0%	0.0%	○
F5-24	AI Curve 1 Max Input	F5-22~+10.00V	10.00V	○

F5-25	Corresponding Setting of AI Curve 1 Max Input	-100.0%~+100.0%	100.0%	○
F5-26	AI1 Curve 1 Filter Time	0.00s~10.00s	0.10s	○
F5-27	AI Curve 2 Min Input	-10.00V~F5-29	0.00V	○
F5-28	Corresponding Setting of AI Curve 2 Min Input	-100.0%~+100.0%	0.0%	○
F5-29	AI Curve 2 Max Input	F5-27~+10.00V	10.00V	○
F5-30	Corresponding Setting of AI Curve 2 Max Input	-100.0%~+100.0%	100.0%	○
F5-32	AI Curve 3 Min Input	-10.00V~F5-34	0.00V	○
F5-33	Corresponding Setting of AI Curve 3 Min Input	-100.0%~+100.0%	0.0%	○
F5-34	AI Curve 3 Max Input	F5-32~+10.00V	10.00V	○
F5-35	Corresponding Setting of AI Curve 3 Max Input	-100.0%~+100.0%	100.0%	○
F5-37	PULSE Min Input	0.00kHz~F5-39	0.00kHz	○
F5-38	Corresponding Setting of Pulse Min Input	-100.0%~+100.0%	0.0%	○
F5-39	Pulse Max Input	F5-37~100.00kHz	50.00kHz	○
F5-40	Corresponding Setting of Pulse Max Input	-100.0%~+100.0%	100.0%	○
F5-41	PULSE Filter Time	0.00s~10.00s	0.10s	○
F5-42	Travel Switch Lock Time	0.00s~10.00s	1.00s	○
F6 Output Terminal				

Function Code	Parameter Name	Setting Range	Factory Default Value	Property
F6-00	DO1 Terminals Output Mode Selection	0: Pulse output 1: Switch output	1	○
F6-01	DO1 Output Terminals Function Selection	0: No output 1: Inverter in running 2: Ready for run 3: Fault output (fault stop)	0	○
F6-02	Relay T1 Function Selection	4: Fault output (no output when undervoltage)	0	○
F6-03	Relay T2 Function Selection (expansion card)	5: Warning output (Keep running) 6: Output undervoltage	0	○
F6-04	DO2 Output Terminal Function Selection (expansion card)	7: Frequency level detection FDT1 output 8: Frequency level detection FDT2 output	0	○
F6-05	Reserved	9: Frequency reached 10: Frequency 1 reached output 11: Frequency 2 reached output 12: Zero speed running 1 (no output when stop) 13: Zero speed running 2 (output when stop) 14: Frequency upper limit reached 15: Frequency lower limit reached 1 (no output when stop) 16: Frequency lower limit reached 2 (output when stop) 17: Current 1 reached output 18: Current 2 reached output 19: Zero current state 20: Output current limit exceeded 21: Motor overload pre-alarm 22: Inverter overload pre-alarm 23: During the load 24: Set Count value reached 25: Designated count value reached 26: Length reached 27: Module temperature reached 28: Reserved 29: Current running time reached 30: Accumulative running time	0	○

		reached 31: Accumulative power-on time reached 32: Timing reached output 33: PLC circulation output 34: Frequency limit 35: Torque limit 36: Reverse running 37: AI1 input limit 38: Reserved 39: Communication setting 40: Brake control (power to release brake) 41: Timing braking (power on braking) 42: Inverter in running (jog no output)		
F6-06	DO Output Terminal Effective State Selection	0: Positive logic 1: Negative logic Unit's digit: reserved Ten's digit: RELAY1 Hundred's digit: reserved Thousand's digit: DO2 Ten thousand's digit: reserved	00000	○
F6-07	DO Closing Delay	0.0s~3600.0s	0.0s	○
F6-08	T1 Closing Delay	0.0s~3600.0s	0.0s	○
F6-12	Reserved	0: Running frequency	0	○
F6-13	AO Output Function Selection	1: Setting frequency 2: Output current (2 times of motor rated current) 3: Output torque 4: Output power 5: Output voltage (1.2 times inverter rated voltage) 6: PULSE input (100% corresponding 100.0kHz) 7: AI1 8: Reserved 9: Reserved 10: Length 11: Count value 12: Communication setting 13: Motor rotate speed 14: Output current	0	○

		(when≤55kW, 100.0% corresponding 100.00A; when>55kW, 100.0% corresponding 1000.00A) 15: Output voltage (100.0% corresponding 1000.00V) 16: Reserved		
F6-16	AO Output Voltage Lower Limit	0.00V~10.00V	0.00V	○
F6-17	Corresponding Setting Value of AO1 Output Voltage Lower Limit	0.0%~F6-19	0.0%	○
F6-18	AO Output Voltage Upper Limit	0.00V~10.00V	10.00V	○
F6-19	Corresponding Setting Value of AO Output Voltage Upper Limit	F6-17~100.0%	100.0%	○
F6-20	AO Output Filter Time	0.00s~10.00s	0.00s	○
F6-26	AO Output Mode	0: Voltage 1: Current	0	○
F6-28	DO Disconnect Delay	0.0s~3600.0s	0.0s	○
F6-29	T1 Disconnect Delay	0.0s~3600.0s	0.0s	○
F7 Keypad and Display				
Function Code	Parameter Name	Setting Range	Factory Default Value	Property
F7-00	JOG / REV Key Function Selection	0: Invalid 1: Switch between operation panel command channel and remote command channel (terminal command channel or communication command channel) 2: FWD/REV switching 3: Forward jog 4: Reverse jog 5: Rapid debugging	3	◎
F7-01	STOP / RESET Key Function	0: STOP/RES key stop function is valid only in keypad operation mode 1: STOP/RES key stop function all valid in any operation mode	1	○

F7-02	LED Running Display Parameter 1	0000~0xFFFF Bit00: Running frequency 1 (Hz) Bit01: Setting frequency (Hz) Bit02: Bus voltage (V) Bit03: Output voltage (V) Bit04: Output current (A) Bit05: Output power (kW) Bit06: Output torque (%) Bit07: DI input state Bit08: DO output state Bit09: AI1 voltage (V) Bit10: Reserved Bit11: Reserved Bit12: Count value Bit13: Length value Bit14: Load speed display BIT15: PID setting	0x001F	○
F7-03	LED Running Display Parameter 2	0000~0xFFFF Bit00: PID feedback Bit01: PLC stage Bit02: PULSE input frequency (kHz) Bit03: Running frequency 2 (Hz) Bit04: Set torque (0.%) Bit05: Voltage before AI1 correction (V) Bit06: Reserved Bit07: Running rotate speed (PRM) Bit08: Line speed Bit09: Current power on time (Hour) Bit10: Current running time (Min) Bit11: PULSE input frequency (Hz) Bit12: Communication setting value Bit13: Reserved Bit14: Main frequency A display (Hz) Bit15: Auxiliary frequency B display (Hz)	0x0080	○
F7-04	LED Stop Display Parameter	0000~0x7FFF Bit00: Set frequency (Hz) Bit01: Bus voltage (V) Bit02: DI input state Bit03: DO output state Bit04: AI1 voltage (V) Bit05: Reserved	0x0033	○

		Bit06: Reserved Bit07: Count value Bit08: Length value Bit09: PLC stage Bit10: Load speed Bit11: PID setting Bit12: Pulse input frequency (kHz) Bit13: Set torque (0.1%) Bit14: PID feedback		
F7-05	The Second Line LED Running Display Parameters	0~15 corresponding bit0~bit15 of F7-02 16~31 corresponding bit0~bit14 of F7-03	4	○
F7-06	The Second Line LED Stop Display Parameters	0~14 corresponding bit0~bit14 of F7-04	1	○
F7-07	Load Speed Display Coefficient	0.000s~6.5000	1.0000	○
F7-08	Load Speed Display Decimal Places	0: 0 bit decimal place 1: 1 bit decimal place 2: 2 bit decimal place 3: 3 bit decimal place	1	○
F7-10	Power Optimization Coefficient	0.000~10.000	1.000	○
F7-11	Current Optimization Coefficient	0.000~10.000	1.000	○
F7-12	Running Frequency Display Selection	0: Actual frequency 1: Slope frequency	1	○
F7-13	Filtering Method Selection	0~1	0	○
F8 Protection Parameters				
Function Code	Parameter Name	Setting Range	Factory Default Value	Property
F8-00	Motor Overload Protection Selection	0: Disabled 1: Enabled	1	○
F8-01	Motor Overload Protection Gain	0.20~10.00	1.00	○

F8-02	Motor Overload Warning Coefficient	50%~100%	80%	○
F8-07	Overvoltage Stall Proportion Gain	0: Disabled 1~100	30	○
F8-08	Overvoltage Stall Integral Gain	0~100	30	○
F8-09	Overvoltage Stall Protection voltage	100.0~3000.0V	Model dependent	○
F8-10	Over current Stall Proportion Gain	0: Disabled 1~1000	20	○
F8-11	Over current Stall Integral Gain	0~1000	20	○
F8-12	Over current Stall Protection Current	50%~200%	150%	○
F8-13	Double Speed Over current Suppression Gain	50~200	50	○
F8-14	Short-circuit to Ground Upon Power-on	0: Invalid 1: Valid	1	○
F8-15	Input Phase Loss Protection Selection	0: Disabled 1: Enabled	1	○
F8-16	Output Phase Loss Protection Selection	0: Disabled 1: Enabled	1	○
F8-17	Offload Protection Selection	0: Invalid 1: Valid	0	○
F8-18	Offload Detection Level	0.0~100.0%	10.0%	○
F8-19	Offload Detection Time	0.0s~60.0s	1.0s	○
F8-24	Action Selection Upon Instantaneous Power Failure	0: Invalid 1: Decelerate 2: Decelerate to stop Note: Deceleration time is set by Fb-08	0	○

F8-25	Voltage Restore Judgment Value Upon Instantaneous Power Failure	F8-27~100.0%	90.0%	○
F8-26	Voltage Restore Judgment Time Upon Instantaneous Power Failure	0.00s~100.00s	0.50s	○
F8-27	Voltage Judgment Value Upon Instantaneous Power Failure	60.0%~100.0% (Standard bus voltage)	80.0%	○
F8-28	Over Voltage Stall Max Rise Frequency Limit	0~50Hz	5Hz	○
F8-29	Brake Unit Action Starting Voltage	100.0~3000.0V	Model dependent	○
F8-34	Inverter Low Frequency Overload Protection Selection	0: Disable 1: Enable	0	○
F8-35	Output Phase Loss Detection Method Selection	0~1	0	○

F9 Fault Record and Setting

Function Code	Parameter Name	Setting Range	Factory Default Value	Property
F9-00	Fault Types for the First Time	0: No fault 1: Acceleration over current (hardware) 2: Deceleration over current (hardware) 3: Constant speed over current (hardware) 4: Acceleration over current (software) 5: Deceleration over current (software) 6: Constant speed over current (software) 7: Acceleration overvoltage 8: Deceleration overvoltage 9: Constant speed overvoltage	-	●
F9-01	Fault Types for the Second Time		-	●
F9-02	Fault Types for the Third Time (Last Time)		-	●

		10: Under voltage 11: Motor overload 12: Inverter overload 15: Module overheat 16: Current overrun fault 17: External fault 18: Communication abnormal 19: Current detection abnormal 20: Motor tune abnormal 21: EEPROM read-write fault 22: Disconnection detection fault 23: PID feedback lost at runtime 24: Motor short circuit to ground 25: Reserved 26: Reserved 27: Running time reached 28: Power-on time reached 29~34: Reserved 35: User-defined fault 1 36: User-defined fault 2 37: Offload 38: Fast current-limiting timeout 39~42: Reserved 43: Manufacturer defined fault 90: Keypad communication error 91: Parameter unload error 92: Parameter download error		
F9-03	Frequency Upon the Third Time (Last Time) Fault	-	-	●
F9-04	Current Upon the Third Time (Last Time) Fault	-	-	●
F9-05	Bus Voltage Upon the Third Time (Last Time) Fault	-	-	●
F9-06	Input Terminal State Upon the Third Time (Last Time) Fault	-	-	●
F9-07	Output Terminal State Upon the Third Time (Last Time) Fault	-	-	●

F9-08	Inverter State Upon the Third Time (Last Time) Fault	-	-	●
F9-09	Power on Time Upon the Third Time (Last Time) Fault	-	-	●
F9-10	Running Time Upon the Third Time Fault	-	-	●
F9-13	Frequency Upon the Second Time Fault	-	-	●
F9-14	Current Upon the Second Time Fault	-	-	●
F9-15	Bus Voltage Upon the Second Time Fault	-	-	●
F9-16	Input Terminal State Upon the Second Time Fault	-	-	●
F9-17	Output Terminal State Upon the Second Time Fault	-	-	●
F9-18	Inverter State Upon the Second Time Fault	-	-	●
F9-19	Power on Time Upon the Second Time Fault	-	-	●
F9-20	Running Time Upon the Second Time Fault	-	-	●
F9-23	Frequency Upon the First Time Fault	-	-	●
F9-24	Current Upon the First Time Fault	-	-	●
F9-25	Bus Voltage Upon the First		-	●

	Time Fault			
F9-26	Input Terminal State Upon the First Time Fault		-	●
F9-27	Output Terminal State Upon the First Time Fault	-	-	●
F9-28	Inverter State Upon the First Time Fault	-	-	●
F9-29	Power on Time Upon the First Time Fault	-	-	●
F9-30	Running Time Upon the First Time Fault	-	-	●
F9-33	Fault Automatic Reset Times	0~20	0	○
F9-34	Fault Automatic Reset Interval Time	0.1s~100.0s	1.0s	○
F9-35	Fault DO Action Selection During the Fault Automatic Reset	0: No action 1: Action	0	○
F9-36	Fault Protection Action Selection 1	Unit's digit: motor overload (Err.11) 0: Coast to stop 1: Stop according to stop mode 2: Continue to run Ten's digit: input phase loss (Err.13) 0: Coast to stop 1: Stop according to stop mode 2: Continue to run Hundred's digit: output phase loss (Err.14) 0: Coast to stop 1: Stop according to stop mode 2: Continue to run Thousand's digit: external fault (Err.17) 0: Coast to stop 1: Stop according to stop mode 2: Continue to run Ten thousand's digit: communication abnormal (Err.18) 0: Coast to stop	00000	○

		1: Stop according to stop mode 2: Continue to run		
F9-37	Fault Protection Action Selection 2	Unit's digit: Reserved Ten's digit: parameter read-write abnormal (Err.21) 0: Coast to stop 1: Stop according to stop mode 2: Continue to run Hundred's digit: running time reached (Err.27) 0: Coast to stop 1: Stop according to stop mode 2: Continue to run Thousand's digit: reserved Ten thousand's digit: reserved	00000	○
F9-38	Fault Protection Action Selection 3	Unit's digit: user-defined fault 1 (Err.35) 0: Coast to stop 1: Stop according to stop mode 2: Continue to run Ten's digit: user-defined fault 2 (Err.36) 0: Coast to stop 1: Stop according to stop mode 2: Continue to run Hundred's digit: power on time reached (Err.28) 0: Coast to stop 1: Stop according to stop mode 2: Continue to run Thousand's digit: offload (Err.37) 0: Coast to stop 1: Decelerate to stop 2: Decelerate to 7% of the rated motor frequency continue running, automatically restored to the set frequency operation when no offload Ten thousand's digit: PID feedback lost when running (Err.23) 0: Coast to stop 1: Stop according to stop mode 2: Continue to run	00000	○
F9-39	Fault Protection Action Selection 4	Unit's digit: Disconnection detection fault (Err.22) 0: Coast to stop	00000	○

		1: Stop according to stop mode 2: Continue to run Ten's digit: reserved Hundred's digit: reserved Thousand's digit: reserved Ten thousand's digit: reserved		
F9-40	Continue Running Frequency Selection at Failure	0: Run to the current running frequency 1: Run at set frequency 2: Run at frequency upper limit 3: Run at frequency lower limit 4: Run at abnormal backup frequency	0	○
F9-41	Abnormal Backup Frequency	0.0%~100.0% (100.0% corresponding max frequency F0-10)	100.0%	○
FA Process PID				
Function Code	Parameter Name	Setting Range	Factory Default Value	Property
FA-00	PID Given Source	0: FA-01 setting 1: AI1 2: Reserved 3: Reserved 4: PULSE setting 5: Communication setting 6: Multi-reference setting 7: Keypad potentiometer	0	○
FA-01	PID Digital Giving	0.0%~100.0%	50.0%	○
FA-02	PID Feedback Source	0: AI 1: Reserved 2: Reserved 3: Reserved 4: PULSE setting 5: Communication setting	0	○
FA-03	PID Action Direction	0: Positive action 1: Anti-action	0	○
FA-04	PID Given Feedback Range	0~65535	1000	○
FA-05	Proportion Gain Kp1	0.0~100.0	20.0	○
FA-06	Integral Time Ti1	0.01s~10.00s	2.00s	○

FA-07	Differential Time Td1	0.000s~10.000s	0.000s	○
FA-08	PID Reverse Cut-off Frequency	0.00~max frequency	0.00Hz	○
FA-09	PID Deviation Limit	0.0%~100.0%	0.0%	○
FA-10	PID Differential Limiting	0.00%~100.00%	0.10%	○
FA-11	PID Given Change Time	0.00s~650.00s	0.00s	○
FA-12	PID Feedback Filter Time	0.00s~60.00s	0.00s	○
FA-13	PID Output Filter Time	0.00s~60.00s	0.00s	○
FA-14	PID Regulation Mode	0~2	0	○
FA-15	Proportion Gain Kp2	0.0~100.0	20.0	○
FA-16	Integral Time Ti2	0.01s~10.00s	2.00s	○
FA-17	Differential Time Td2	0.000s~10.000s	0.000s	○
FA-18	PID Parameters Switching Condition	0: No switching 1: Switching through DI terminal 2: Automatic switching according to the deviation 3: Switch based on feedforward gain (100% corresponds to 2.000)	0	○
FA-19	PID Parameters Switching Deviation 1	0.0%~FA-20	20.0%	○
FA-20	PID Parameters Switching Deviation 2	FA-19~100.0%	80.0%	○
FA-21	PID Initial Value	0.0%~100.0%	0.0%	○
FA-22	PID Initial Value Hold Time	0.00s~650.00s	0.00s	○
FA-23	Twice Output Deviation Positive Maximum Value	0.00%~100.00%	1.00%	○
FA-24	Twice Output	0.00%~100.00%	1.00%	○

	Deviation Reverse Maximum Value			
FA-25	PID Integral Property	Unit's digit: integral separation 0: Disabled 1: Enabled Ten's digit: whether stop integral after output the limit 0: Continue integral 1: Stop integral	00	○
FA-26	PID Feedback Lost Detection Value	0.0%: Don't judge feedback lost 0.1%~100.0%	0.0%	○
FA-27	PID Feedback Lost Detection Time	0.0s~20.0s	0.0s	○
FA-28	PID Feedback Lost Detection Starting Frequency	0.00Hz~max frequency	10.00Hz	○
FA-29	PID Stop Operation	0: No operation when stop 1: Operation when stop	0	○
FA-30	The Lower Limit Value of Feedback when PID Action	0.0%: No limit 0.1%~100.0%	0.0.%	○
FA-31	PID Differential Low Limit Frequency	0.00~Maximum frequency	0.00Hz	○
FA-32	PID Upper Limit Output Frequency	0.00: Invalid 0.01~Maximum frequency	0.00Hz	○
Fb Enhance Function Group				
Function Code	Parameter Name	Setting Range	Factory Default Value	Property
Fb-00	Jog Running Frequency	0.00Hz~max frequency	5.00Hz	○
Fb-01	Jog Acceleration Time	0.0s~6500.0s	Model dependent	○
Fb-02	Jog Deceleration Time	0.0s~6500.0s	Model dependent	○
Fb-03	Acceleration Time 2	0.0s~6500.0s	Model dependent	○
Fb-04	Deceleration Time 2	0.0s~6500.0s	Model dependent	○

Fb-05	Acceleration Time 3	0.0s~6500.0s	Model dependent	○
Fb-06	Deceleration Time 3	0.0s~6500.0s	Model dependent	○
Fb-07	Acceleration Time 4	0.0s~6500.0s	Model dependent	○
Fb-08	Deceleration Time 4	0.0s~6500.0s	Model dependent	○
Fb-09	Emergency Stop Time	0.0s~6500.0s	10.0s	○
Fb-10	Acceleration Time 1 and Time 2 Switching Frequency Point	0.00Hz~max frequency	0.00Hz	○
Fb-11	Deceleration Time 1 and time 2 Switching Frequency Point	0.00Hz~max frequency	0.00Hz	○
Fb-12	Hopping Frequency 1	0.01Hz~max frequency	0.00Hz	○
Fb-13	Hopping Frequency 2	0.01Hz~max frequency	0.00Hz	○
Fb-14	Hopping Frequency Range	0.01Hz~max frequency	0.01Hz	○
Fb-15	Hopping Frequency Whether Valid in the Process of Acceleration and Deceleration	0: Disabled 1: Enabled	0	○
Fb-16	Frequency Detection Value (FDT1)	0.00Hz~max frequency	50.00Hz	○
Fb-17	Frequency Detection Lagged Value (FDTI)	0.0%~100.0% (FDT1 electrical level)	5.0%	○
Fb-18	Frequency Detection Value (FDT2)	0.00Hz~max frequency	50.00Hz	○
Fb-19	Frequency Detection Lagged Value (FDT2)	0.0%~100.0% (FDT2 electrical level)	5.0%	○

Fb-20	Frequency Reached Detection Width	0.0%~100.0% (max frequency)	0.0%	○
Fb-21	Any Frequency Reaching Detection Value 1	0.00Hz~max frequency	50.00Hz	○
Fb-22	Arbitrary Arrival Frequency Detection Width 1	0.0%~100.0% (max frequency)	0.0%	○
Fb-23	Arbitrary Arrival Frequency Detection Value 2	0.00Hz~max frequency	50.00Hz	○
Fb-24	Arbitrary Arrival Frequency Detection Width 2	0.0%~100.0% (max frequency)	0.0%	○
Fb-25	Zero Current Detection Levels	0.0%~300.0% 100.0% corresponding rated motor current	5.0%	○
Fb-26	Zero Current Detection Delay Time	0.01s~600.00s	0.10s	○
Fb-27	Output Current Limit Exceed	0.0% (no detection) 0.1%~300.0% (rated motor current)	200.0%	○
Fb-28	Output Current Limit Exceed Detection Delay Time	0.00s~600.00s	0.00s	○
Fb-29	Arbitrarily Reach Current 1	0.0%~300.0% (rated motor current)	100.0%	○
Fb-30	Arbitrarily Reach Current 1 Width	0.0%~300.0% (rated motor current)	0.0%	○
Fb-31	Arbitrarily Reach Current 2	0.0%~300.0% (rated motor current)	100.0%	○
Fb-32	Arbitrarily Reach Current 2 Width	0.0%~300.0% (rated motor current)	0.0%	○
Fb-33	Arrival Time Setting for This Run	0.0Min~6500.0Min	0.0Min	○
Fb-34	Accumulative Power-on Reached Time Setting	0h~65000h	0h	○

Fb-35	Accumulative Running Reached Time Setting	0h~65000h	0h	○
Fb-36	Timing Function Selection	0: Disabled 1: Enabled	0	○
Fb-37	Timing Running Time Selection	0: Fb-38 setting 1: AI1 Analog input range corresponding to the Fb-38	0	○
Fb-38	Timing Running Time	0.0Min~6500.0Min	0.0Min	○
Fb-39	Module Temperature Reached	0°C~100°C	75°C	○
Fb-40	Lower Limit of AI1 Input Voltage Protection Value	0.00V~Fb-41	3.10V	○
Fb-41	Upper Limit of AI1 Input Voltage Protection Value	Fb-40~10.00V	6.80V	○
Fb-43	Wakeup Delay Time	0.0s~6500.0s	0.0s	○
Fb-44	Dormancy Frequency	0.00Hz~wakeup frequency (Fb-42) 0.00: Cancel dormancy	0.00Hz	○
Fb-45	Dormancy Delay Time	0.0s~6500.0s	0.0s	○
Fb-46	Frequency of brake release	0.00Hz~max frequency	1.20Hz	○
Fb-47	Brake Frequency	0.00Hz~max frequency	2.00Hz	○
Fb-48	Timing Braking Frequency	0.00Hz~50.00Hz	1.50Hz	○
Fb-49	Timing Braking Time	0.0s~60.0s	2.0s	○
Fb-50	Terminal Jog Priority	0: Disabled 1: Enabled	1	○
Fb-51	Swing Frequency Setting Method	0: Relative to center frequency 1: Relative to max frequency	0	○
Fb-52	Swing Frequency Amplitude	0.0%~100.0%	0.0%	○
Fb-53	Jumping Frequency Amplitude	0.0%~50.0%	0.0%	○

Fb-54	Swing Frequency Cycle	0.1s~3000.0s	10.0s	○
Fb-55	Triangular Wave of Swing Frequency Rise Time	0.1%~100.0%	50.0%	○
Fb-56	Set Length	0m~65535m	1000m	○
Fb-57	Actual Length	0m~65535m	0m	○
Fb-58	Number of Pulse per Meter	0.1~6553.5	100.0	○
Fb-59	Set Count Value	1~65535	1000	○
Fb-60	Designated Count Value	1~65535	1000	○
Fb-61	Multi-speed Priority Selection	0: Disable 1: Allow	0	○
Fb-62	Zero Frequency Cutoff Frequency	0.00Hz~10.00Hz	0.00Hz	○
Fb-63	Zero Frequency Cutoff Effective Range	0: Valid for the whole process 1: Only the deceleration process is valid 2: Only the acceleration process is effective	0	○
Fb-64	Jog Reverse Selection	0: Reverse prohibition is valid 1: Reverse prohibition is invalid	0	○
Fb-65	Sleep Mode Selection	0: Sleep at frequency 1: Sleep at pressure	1	○
Fb-66	Awakening Pressure	0.0%~Fb-67	0.0%	○
Fb-67	Sleep Pressure	Fb-66~100.0% 100.0%: Cancel sleep	100.0%	○
Fb-68	Current Overrun Action Selection	0: Terminal output 1: Report fault 2: Terminal output during constant speed operation 3: Report fault during constant speed operation	0	○
FC Multi-reference and Simple PLC				
Function Code	Parameter Name	Setting Range	Factory Default Value	Property
FC-00	Multi-segment Instruction 0	-100.0%~100.0%	0.0%	○

FC-01	Multi-segment Instruction 1	-100.0%~100.0%	0.0%	○
FC-02	Multi-segment Instruction 2	-100.0%~100.0%	0.0%	○
FC-03	Multi-segment Instruction 3	-100.0%~100.0%	0.0%	○
FC-04	Multi-segment Instruction 4	-100.0%~100.0%	0.0%	○
FC-05	Multi-segment Instruction 5	-100.0%~100.0%	0.0%	○
FC-06	Multi-segment Instruction 6	-100.0%~100.0%	0.0%	○
FC-07	Multi-segment Instruction 7	-100.0%~100.0%	0.0%	○
FC-08	Multi-segment Instruction 8	-100.0%~100.0%	0.0%	○
FC-09	Multi-segment Instruction 9	-100.0%~100.0%	0.0%	○
FC-10	Multi-segment Instruction 10	-100.0%~100.0%	0.0%	○
FC-11	Multi-segment Instruction 11	-100.0%~100.0%	0.0%	○
FC-12	Multi-segment Instruction 12	-100.0%~100.0%	0.0%	○
FC-13	Multi-reference 13	-100.0%~100.0%	0.0%	○
FC-14	Multi-segment Instruction 14	-100.0%~100.0%	0.0%	○
FC-15	Multi-segment Instruction 15	-100.0%~100.0%	0.0%	○
FC-16	Simple PLC Run Mode	0: Stop when single run end 1: Keep the final value when single run end 2: Always circulation	0	○
FC-17	Simple PLC Power Failure Memory Selection	Unit's digit: power failure memory selection 0: Non memory at power failure 1: Memory at power failure Ten's digit: stop memory selection 0: No memory at stop 1: Memory at stop	00	○
FC-18	Run Time of Simple PLC Reference 0	0.0s (h)~6553.5s (h)	0.0s (h)	○

FC-19	Acceleration / Deceleration Time Selection of Simple PLC Reference 0	0~3	0	○
FC-20	Run Time of Simple PLC Reference 1	0.0s (h)~6553.5s (h)	0.0s (h)	○
FC-21	Acceleration / Deceleration Time Selection of Simple PLC Reference 1	0~3	0	○
FC-22	Run Time of Simple PLC Reference 2	0.0s (h)~6553.5s (h)	0.0s (h)	○
FC-23	Acceleration / Deceleration Time Selection of Simple PLC Reference 2	0~3	0	○
FC-24	Run Time of Simple PLC Reference 3	0.0s (h)~6553.5s (h)	0.0s (h)	○
FC-25	Acceleration / Deceleration Time Selection of Simple PLC Reference 3	0~3	0	○
FC-26	Run Time of Simple PLC Reference 4	0.0s (h)~6553.5s (h)	0.0s (h)	○
FC-27	Acceleration / Deceleration Time Selection of Simple PLC Reference 4	0~3	0	○
FC-28	Run Time of Simple PLC Reference 5	0.0s (h)~6553.5s (h)	0.0s (h)	○
FC-29	Acceleration / Deceleration Time Selection of Simple PLC Reference 5	0~3	0	○
FC-30	Run Time of Simple PLC Reference 6	0.0s (h)~6553.5s (h)	0.0s (h)	○

FC-31	Acceleration / Deceleration Time Selection of Simple PLC Reference 6	0~3	0	○
FC-32	Run Time of Simple PLC Reference 7	0.0s (h)~6553.5s (h)	0.0s (h)	○
FC-33	Acceleration / Deceleration Time Selection of Simple PLC Reference 7	0~3	0	○
FC-34	Run Time of Simple PLC Reference 8	0.0s (h)~6553.5s (h)	0.0s (h)	○
FC-35	Acceleration / Deceleration Time Selection of Simple PLC Reference 8	0~3	0	○
FC-36	Run Time of Simple PLC Reference 9	0.0s (h)~6553.5s (h)	0.0s (h)	○
FC-37	Acceleration / Deceleration Time Selection of Simple PLC Reference 9	0~3	0	○
FC-38	Run Time of Simple PLC Reference 10	0.0s (h)~6553.5s (h)	0.0s (h)	○
FC-39	Acceleration / Deceleration Time Selection of Simple PLC Reference 10	0~3	0	○
FC-40	Run Time of Simple PLC Reference 11	0.0s (h)~6553.5s (h)	0.0s (h)	○
FC-41	Acceleration / Deceleration Time Selection of Simple PLC Reference 11	0~3	0	○
FC-42	Run Time of Simple PLC Reference 12	0.0s (h)~6553.5s (h)	0.0s (h)	○

FC-43	Acceleration / Deceleration Time Selection of Simple PLC Reference 12	0~3	0	○
FC-44	Run Time of Simple PLC Reference 13	0.0s (h)~6553.5s (h)	0.0s (h)	○
FC-45	Acceleration / Deceleration Time Selection of Simple PLC Reference 13	0~3	0	○
FC-46	Run Time of Simple PLC Reference 14	0.0s (h)~6553.5s (h)	0.0s (h)	○
FC-47	Acceleration / Deceleration Time Selection of Simple PLC Reference 14	0~3	0	○
FC-48	Run Time of Simple PLC Reference 15	0.0s (h)~6553.5s (h)	0.0s (h)	○
FC-49	Acceleration / Deceleration Time Selection of Simple PLC Reference 15	0~3	0	○
FC-50	Simple PLC Run Time Unit	0: s (Second) 1: h (hour)	0	○
FC-51	Multi-reference 0 Setting Mode	0: Code FC-00 given 1: AI1 2: Reserved 3: Reserved 4: PULSE 5: PID 6: Preset frequency (F0-09) given, UP/DOWN can modify 7: Keypad Potentiometer	0	○
FC-52	MS Speed Acceleration / Deceleration Time Selection Mode	0: Function code confirm 1: Terminal confirm	0	○
Fd MODBUS Communication				

Function Code	Parameter Name	Setting Range	Factory Default Value	Property
Fd-00	Baud Rate	0: 300BPS 1: 600BPS 2: 1200BPS 3: 2400BPS 4: 4800BPS 5: 9600BPS 6: 19200BPS 7: 38400BPS 8: 57600BPS 9: 115200BPS	5	○
Fd-01	Data Format	0: No verify (8-N-2) 1: Even verify (8-E-1) 2: Odd verify (8-O-1) 3: 8-N-1	0	○
Fd-02	Local Address	0~247, 0: is broadcast address	1	○
Fd-03	Response Delay	0ms~20ms	2ms	○
Fd-04	Communication Timeout Time	0.0 (disabled), 0.1s~60.0s	0.0s	○
Fd-05	Data Transfer Format Selection	0: Non standard MODBUS protocol 1: Standard MODBUS protocol	1	○
Fd-06	Communication Read Current Resolution	0: 0.01A 1: 0.1A	0	○
Fd-08	Write Response Selection	0: Response 1: No response	0	○
FF User Parameters Group				
Function Code	Parameter Name	Setting Range	Factory Default Value	Property
FF-00	User Password	0:~65535	0	○
FF-01	Parameter Initialization	0: No operation 1: Restore factory parameters, excluding motor parameter 2: Clear record information 3: Backup user current parameters 401: Restore user backup parameters	0	◎
FF-03	Function Code Display Selection	Unit's digit: 0: Not display A group 1: Display A group Ten's digit:	11	○

		0: Not display b group 1: Display b group		
FF-04	Function Code Modify Property	0: Can modify 1: Can't modify	0	○
FF-05	Fast Debugging Setting	Unit's digit: user custom parameter group display selection 0: Not display 1: Display Ten's digit: user change parameter group display selection 0: Not display 1: Display	10	○
FF-06	Product Code	0~65535	Factory Setting	●
FF-07	Software Versioning	1.00~10.00	Factory Setting	●
FF-08	Inverter Model		Factory Setting	●
FF-09	Date of Production (Year/Month)	0~9999	Factory Setting	●
FF-10	Date of Production (Date)	0~31	Factory Setting	●
FF-11	Inverter Module Radiator Temperature	0°C~120°C	0	●
FF-13	Accumulative Power Consumption	0°C~65535°C	0°C	●
FF-14	Accumulative Runing Time	0h~65535h	0h	●
FF-15	Accumulative Power-on Time	0h~65535h	0h	●
A0 Motor 1 Torque Control .				
Function Code	Parameter Name	Setting Range	Factory Default Value	Property
A0-00	Speed / Torque Control Mode Selection	0: Speed control 1: Torque control	0	◎
A0-01	Torque Setting Source Selection under the Torque Control Mode	0: Digital setting (A0-02) 1: AI1 2: Reserved 3: Reserved 4: PULSE 5: Communication setting 6: Reserved 7: Reserved	0	◎

		8: Keypad potentiometer (The full scale of option 1~8 corresponding digital setting of A0-02)		
A0-02	Torque Digital Setting under the Torque Control Mode	-200.0%~200%	100.0%	○
A0-03	Max Frequency Source Selection under the Torque Control Forward	0: Digital setting (A0-04) 1: AI1 2: Reserved 3: Reserved 4: PULSE 5: Communication setting 6: Keypad potentiometer	0	◎
A0-04	Max Frequency Digital Setting under the Torque Control Forward	0.00Hz~max frequency	50.00Hz	○
A0-05	Max Frequency Source Selection under the Torque Control Reverse	0: Digital setting (A0-06) 1: AI1 2: Reserved 3: Reserved 4: PULSE 5: Communication setting 6: Keypad potentiometer	0	◎
A0-06	Max Frequency Digital Setting under the Torque Control Reverse	0.00Hz~max frequency	50.00Hz	○
A0-07	Torque Control Acceleration Time	0.00s~650.00s	0.00s	○
A0-08	Torque Control Deceleration Time	0.00s~650.00s	0.00s	○
A0-09	Starting Torque Setting	0.0%~100.0%	0.00%	○
A0-10	Torque Rigidity Adjustment	10~64	64	○
A0-11	Low Frequency Torque Compensation Amount	0.0%~50.0%	0.0%	○
A0-12	Low Frequency Torque Compensation	0.00Hz~Max frequency	10.00Hz	○

	Frequency Upper Limit			
A0-13	High Frequency Torque Compensation Amount	0.0%~50.0%	0.0%	○
A0-14	High Frequency Torque Compensation Frequency Lower Limit	0.00Hz~Max frequency	40.00Hz	○
A0-15	Disconnection Detection Time	0.0: Disconnection detection is invalid 0.1~60.0s	0.0	○
A1 Optimize Control Parameter				
Function Code	Parameter Name	Setting Range	Factory Default Value	Property
A1-00	Carrier Frequency	0.5kHz~12.0kHz	Model dependent	○
A1-01	Carrier Frequency Adjustment with the Temperature	0: No 1: Yes	1	○
A1-02	DPWM Switching Frequency Upper Limit	0.00Hz~15.00Hz	8.00Hz	○
A1-03	PWM Modulation Mode	LED unit's digit: 0: Asynchronous modulation 1: Synchronous modulation LED ten's digit: 0: Two phase modulation 1: Three phase modulation	00	◎
A1-04	Dead Zone Compensation Mode Selection	0: Disabled 1: Enabled	1	○
A1-05	Random PWM Depth	0: Random PWM invalid 1~10: PWM carrier frequency random depth	0	○
A1-06	Rapid Current Limiting Enable	0: Disabled 1: Enabled	1	○
A1-07	Maximum Output Voltage Adjustment	90~120	100	○

	Coefficient			
A1-08	SVC Mode Selection	0: SVC mode 0 1: SVC mode 1	1	○
A1-09	Dead Zone Time Adjustment	100%~200%	150%	○
A1-10	Droop Control	0.00Hz~20.00Hz	0.00Hz	○
A1-11	Cooling Fan Control	0: Fan operation in runtime 1: Fan is always running	0	○
A1-12	Torque Current Calibration Reference Selection	0: Rated current of the frequency inverter 1: Motor rated torque current	0	○
A1-13	Low Frequency Carrier Limit Mode	0: Limit mode 1 1: Limit mode 2 2: Not Limit	0	○
A1-14	Desaturation Coefficient	0.700~5.000	1.100	○
A1-15	Power Generation Compensation Coefficient	0~3	0	○
A1-16	Single Phase and Three Phase Motor Selection	0: Three phase motor 1: Single phase motor	0	◎
A1-17	U Phase Voltage Coefficient	0.000~5.000	1.000	○
A1-18	W Phase Voltage Coefficient	0.000~5.000	1.000	○
A1-19	V Phase Voltage Coefficient (Public end)	0.000~5.000	0.813	○
A1-20	Excitation Current Compensation Gain	0~5000	200	○
A1-21	Torque Current Compensation Gain	0~5000	500	○
A1-22	Starting Response Gain	0~1000	500	○
A1-23	Effective of Droop Control	0: The whole process is effective 1: The deceleration process is effective	0	○

A1-24	Weak Magnetic Mode	0~1	1	©
b0 User Customize Function Code				
Function Code	Parameter Name	Setting Range	Factory Default Value	Property
b0-00	User Code 0		F0.00	○
b0-01	User Code 1		F0.01	○
b0-02	User Code 2		F0.02	○
b0-03	User Code 3		F0.09	○
b0-04	User Code 4		F0.18	○
b0-05	User Code 5		F0.19	○
b0-06	User Code 6		F4.00	○
b0-07	User Code 7		F4.01	○
b0-08	User Code 8		F5.01	○
b0-09	User Code 9		F5.02	○
b0-10	User Code 10		F5.03	○
b0-11	User Code 11		F6.02	○
b0-12	User Code 12		F6.03	○
b0-13	User Code 13		FF.06	○
b0-14	User Code 14		FF.06	○
b0-15	User Code 15		FF.06	○
b0-16	User Code 16		FF.06	○
b0-17	User Code 17		FF.06	○
b0-18	User Code 18		FF.06	○
b0-19	User Code 19		FF.06	○
b0-20	User Code 20		FF.06	○
b0-21	User Code 21		FF.06	○
b0-22	User Code 22		FF.06	○
b0-23	User Code 23		FF.06	○
b0-24	User Code 24		FF.06	○
b0-25	User Code 25		FF.06	○
b0-26	User Code 26		FF.06	○

b0-27	User Code 27		FF.06	○
b0-28	User Code 28		FF.06	○
b0-29	User Code 29		FF.06	○
b0-30	User Code 30		FF.06	○
b0-31	User Code 31		FF.06	○
b1 Virtual IO				
Function Code	Parameter Name	Setting Range	Factory Default Value	Property
b1-00	Virtual VDI1 Terminal Function Selection	0~59	0	◎
b1-01	Virtual VDI2 Terminal Function Selection	0~59	0	◎
b1-02	Virtual VDI3 Terminal Function Selection	0~59	0	◎
b1-03	Virtual VDI4 Terminal Function Selection	0~59	0	◎
b1-04	Virtual VDI5 Terminal Function Selection	0~59	0	◎
b1-05	Virtual VDI Terminal State Setting Mode	Unit's digit: virtual VDI1 0: The status of VDO1 determines whether it is valid 1: Set by the unit's digit of b1-06 Ten's digit: virtual VDI2 0: The status of VDO2 determines whether it is valid 1: Set by the unit's digit of b1-06 Hundred's digit: virtual VDI3 0: The status of VDO3 determines whether it is valid 1: Set by the unit's digit of b1-06 Thousand's digit: virtual VDI4 0: The status of VDO4 determines whether it is valid 1: Set by the unit's digit of b1-06	00000	◎

		Ten thousand's digit: virtual VDI5 0: The status of VDO5 determines whether it is valid 1: Set by the unit's digit of b1-06		
b1-06	Virtual VDI Terminal state setting	0: Disabled 1: Enabled Unit's digit: virtual VDI1 Ten's digit: virtual VDI2 Hundred's digit: virtual VDI3 Thousand's digit: virtual VDI4 Ten thousand's digit: virtual VDI5	00000	○
b1-07	Function Selection when AI1 Terminal as DI	0~59	0	◎
b1-10	Effective Mode Selection when AI1 Terminal as DI	0: High electrical level enable 1: Low electrical level enable Unit's digit: AI	000	◎
b1-11	Virtual VDO1 Output Function Selection	0: Determined by physical DI1 status 1~41: See F6 group physical DO output selection	0	○
b1-12	Virtual VDO2 Output Function Selection	0: Determined by physical DI2 status 1~41: See F6 group physical DO output selection	0	○
b1-13	Virtual VDO3 Output Function Selection	0: Determined by physical DI3 status 1~41: See F6 group physical DO output selection	0	○
b1-14	Virtual VDO4 Output Function Selection	0: Determined by physical DI4 status 1~41: See F6 group physical DO output selection	0	○
b1-15	Reserved			
b1-16	VDO1 Closing Delay	0.0s~3600.0s	0.0s	○
b1-17	VDO2 Closing Delay	0.0s~3600.0s	0.0s	○
b1-18	VDO3 Closing Delay	0.0s~3600.0s	0.0s	○
b1-19	VDO4 Closing Delay	0.0s~3600.0s	0.0s	○
b1-20	VDO5 Closing Delay	0.0s~3600.0s	0.0s	○

b1-21	VDO Output Terminal Effective State Selection	0: Positive logic 1: Anti-logic Unit's digit: VDO1 Ten's digit: VDO2 Hundred's digit: VDO3 Thousand's digit: VDO4 Ten thousand's digit: VDO5	00000	○
b1-22	VDO1 Disconnection Delay	0.0s~3600.0s	0.0s	○
b1-23	VDO2 Disconnection Delay	0.0s~3600.0s	0.0s	○
b1-24	VDO3 Disconnection Delay	0.0s~3600.0s	0.0s	○
b1-25	VDO4 Disconnection Delay	0.0s~3600.0s	0.0s	○
b1-26	VDO5 Disconnection Delay	0.0s~3600.0s	0.0s	○
b2 AI Curve Setting				
Function Code	Parameter Name	Setting Range	Factory Default Value	Property
b2-00	AI Curve 4 Min Input	-10.00V~b2-02	0.00V	○
b2-01	Corresponding Setting of AI Curve 4 Min Input	-100.0%~+100.0%	0.0%	○
b2-02	AI Curve 4 Inflection Point 1 Input	b2-00~b2-04	3.00V	○
b2-03	Corresponding Setting of AI Curve 4 Inflection Point 1 Input	-100.0%~+100.0%	30.0%	○
b2-04	AI Curve 4 Inflection Point 2 Input	b2-00~b2-06	6.00V	○
b2-05	Corresponding Setting of AI	-100.0%~+100.0%	60.0%	○

	Curve 4 Inflection Point 2 Input			
b2-06	AI Curve 4 Max Input	b2-06~+10.00V	10.00V	○
b2-07	Corresponding Setting of AI Curve 4 Max Input	-100.0%~+100.0%	100.0%	○
b2-08	AI Curve 5 Min Input	-10.00V~b2-10	-10.00V	○
b2-09	Corresponding Setting of AI Curve 5 Min Input	-100.0%~+100.0%	-100.0%	○
b2-10	AI Curve 5 Inflection Point 1 Input	b2-08~b2-12	-3.00V	○
b2-11	Corresponding Setting of AI Curve 5 Inflection Point 1 Input	-100.0%~+100.0%	-30.0%	○
b2-12	AI Curve 5 Inflection Point 2 Input	b2-10~b2-14	3.00V	○
b2-13	Corresponding Setting of AI Curve 5 Inflection Point 2 Input	-100.0%~+100.0%	30.0%	○
b2-14	AI Curve 5 Max Input	b2-12~+10.00V	10.00V	○
b2-15	Corresponding Setting of AI Curve 5 Max Input	-100.0%~+100.0%	100.0%	○
b2-16	AI Curve 1 Set Jump Point	-100.0%~100.0%	0.0%	○
b2-17	AI Curve 1 Set Jump Amplitude	0.0%~100.0%	0.5%	○
b3 AIAO Correction				
Function Code	Parameter Name	Setting Range	Factory Default Value	Property
b3-00	AI Measured Voltage 1	0.500V~4.000V	Factory Correction	○

b3-01	AI Displayed Voltage 1	0.500V~4.000V	Factory Correction	○
b3-02	AI Measured Voltage 2	6.000V~9.999V	Factory Correction	○
b3-03	AI Displayed Voltage 2	6.000V~9.999V	Factory Correction	○
b3-12	AO Target Voltage 1	0.500V~4.000V	Factory Correction	○
b3-13	AO Measured Voltage 1	0.500V~4.000V	Factory Correction	○
b3-14	AO Target Voltage 2	6.000V~9.999V	Factory Correction	○
b3-15	AO Measured Voltage 2	6.000V~9.999V	Factory Correction	○
b3-20	AI Current Correction Factor	0.0~200.0%	100.0%	○
b3-21	AO Current Correction Factor	0.0~200.0%	100.0%	○

U0 Basic Monitoring Parameters

Function Code	Parameter Name	Display Value	Display Unit	Property
U0-00	Running Frequency (Hz)		0.01Hz	●
U0-01	Setting Frequency (Hz)		0.01Hz	●
U0-02	Bus Voltage (V)		0.1V	●
U0-03	Output Voltage (V)		1V	●
U0-04	Output Current (A)		0.01A	●
U0-05	Output Power (kW)		0.1kW	●
U0-06	Output Torque (%)		0.1%	●
U0-07	DI input status BIT0 ~ BIT3 correspond to DI1~DI4 BIT4~BIT8 reserved BIT9 ~ BIT13		1	●

	correspond to VDI1~VDI5 BIT14 corresponds to AI BIT15 reserved			
U0-08	DO output status BIT0: reserved BIT1: T1 BIT2: reserved BIT3: DO BIT4: reserved BIT5~BIT9 corresponding VDO1~VDO5		1	●
U0-09	AI Voltage (V)		0.01V	●
U0-12	Count Value		1	●
U0-13	Length Value		1	●
U0-14	Load Speed Display		1	●
U0-15	PID Setting		1	●
U0-16	PID Feedback		1	●
U0-17	PLC Stage		1	●
U0-18	PULSE Input Frequency (kHz)		0.01 kHz	●
U0-19	Feedback Speed (0.1Hz)		0.1Hz	●
U0-20	Setting Torque		0.1%	●
U0-21	AI Voltage before Correction		0.001V	●
U0-23	Running speed		1RPM	●
U0-24	Line Speed		1m/Min	●
U0-25	Current Power on Time		1Min	●
U0-26	Current Running Time		0.1Min	●
U0-27	PULSE Input Frequency		1Hz	●

U0-28	Communication Setting Value		0.01%	●
U0-30	Main Frequency A display		0.01Hz	●
U0-31	Auxiliary Frequency B Display		0.01Hz	●
U0-32	View the Value of Any Memory Address		1	●
U0-35	Surplus Running Time		0.1Min	●
U0-37	Power Factor Angle		0.1°	●
U0-38	ABZ Position		1	●
U0-39	VF Separation Target Voltage		1V	●
U0-40	VF Separation Output Voltage		1V	●
U0-41	DI Input Status Visual Display		1	●
U0-42	DO Input Status Visual Display		1	●
U0-43	DI Function Status Visual Display 1 (Function 01~40)		1	●
U0-44	DI Function Status Visual Display 2 (Function 41~80)		1	●
U0-45	Current Fault Status		1	●
U0-46	Torque Compensation Amount		0.1%	●

Chapter 6 Fault Shooting and Solutions

6.1 Fault Alarm and Countermeasures

VD20 inverter has warning information and fault protection function. In case of abnormal fault, the inverter error relay contactor will be in action, before user seeking for help, please do self-inspection according to this chapter to analyze causes and find out solution. If user cannot solve problem by himself, seeking for help or directly contact your local dealer or our company.

VD20 inverter during running process or powered on, if fault occurred, on the display of panel of inverter will show error code. At the moment inverter already have protection effectively to the fault, output terminal stopped output, the current fault information indicated by the display panel is represented by a display code consisting of 2~5 letters and numbers.

Inverter keypad displayer has showing error code when in error, the code content and corrective action as below table.

Code	Error type	Possible cause of failure	Solution
Er.01	Acceleration overcurrent (hardware)	1. Acceleration time is too short 2. Motor parameter is not correct 3. Grid voltage is too low 4. Inverter power is too small 5. V/F curve inappropriate 6. Inverse module short circuit protection	1. Extend acceleration time 2. Self-tuning to motor parameter 3. Check grid input power 4. Choose a frequency inverter with a large power rating 5. Adjust V/F curve setting, adjust manual torque boost 6. Inverter module or drive circuit damage
Er.02	Deceleration overcurrent (hardware)	1. Deceleration time is too short 2. Large load inertia torque 3. Inverter power is too small 4. Inverse module short circuit protection	1. Extend deceleration time 2. Add external energy consumption braking unit 3. Choose a frequency inverter with a large power rating 4. Inverse module or drive circuit damage
Er.03	Constant speed overcurrent (hardware)	1. Load with sudden change or abnormal 2. Grid voltage is too low 3. Inverter power is too small 4. Inverse module short circuit protection	1. Check the load or reduce the sudden change of the load 2. Check grid input power 3. Choose a frequency inverter with a large power rating 4. Inverse module or drive circuit damage
Er.04	Acceleration overcurrent (software)	1. Acceleration time is too short 2. Motor parameter is not correct 3. Grid voltage is too low 4. Inverter power is too small 5. V/F curve inappropriate	1. Extend acceleration time 2. Self-tuning to motor parameter 3. Check grid input power 4. Choose a frequency inverter with a large power rating 5. Adjust V/F curve setting, adjust manual torque boost

Er.05	Deceleration overcurrent (software)	1. Deceleration time is too short 2. Load inertia torque is too big 3. Inverter power is too small	1. Extend deceleration time 2. Add suitable energy consumption braking components 3. Choose a frequency inverter with a large power rating
Er.06	Constant speed overcurrent (software)	1. Load with sudden change or abnormal 2. Grid voltage is too low 3. Inverter power is too small	1. Check the load or reduce the sudden change of the load 2. Check grid input power 3. Choose a frequency inverter with a large power rating
Er.07	Acceleration overvoltage	1. The inverter output circuits exist grounding short circuit 2. The control model is vector and has no parameter identification 3. Low voltage 4. Whether there is a sudden load in running 5. The inverter selection is too small	1. Eliminate outside faults 2. Doing motor parameter identification 3. Set the voltage to normal range 4. Cancel the sudden load 5. Choose a frequency inverter with a large power rating
Er.08	Deceleration overvoltage	1. High input voltage 2. In the process of acceleration, there is an extant force to drive the motor running 3. Acceleration time is too short 4. No installation brake unit and brake resistor	1. Set the voltage to the normal range 2. Cancel the external power or installation brake resistance 3. Increase the acceleration time 4. Installation brake unit and resistor
Er.09	Constant speed overvoltage	1. High input voltage 2. In the process of deceleration, there is an extant force to drive the motor running 3. Deceleration time is too short 4. No installation brake unit and brake resistor	1. Set the voltage to the normal range 2. Cancel the external power or installation brake resistance 3. Increase the deceleration time 4. Installation brake unit and resistor
Er.10	Undervoltage	1. Instantaneous power failure 2. The voltage of the inverter input is not in the scope of the specification requirements 3. Bus voltage is not normal 4. Rectifier bridge and buffer resistance is not normal 5. Driven board abnormal 6. Control panel abnormal	1. Reset fault 2. Adjust the voltage to normal range 3. Seeking technical support 4. Seeking technical support 5. Seeking technical support 6. Seeking technical support

Er.11	Motor overload	1. Is the motor protection parameter F8-01 set properly 2. Whether the load is too large or motor blocked 3. The motor selection is too small	1. Check the grid voltage 2. Reset the rated current of the motor 3. Check the load and adjust the torque boost
Er.12	Inverter overload	1. Whether the load is too large or motor blocked 2. The inverter selection is too small	1. Reduce the load and check the motor and mechanical conditions 2. Choose a frequency inverter with a large power rating
Er.13	Input side phase loss	1. Three-phase input power is not normal 2. Drive board abnormal 3. Lightning protection plate abnormal 4. Main control board abnormal	1. Check and eliminate the problems existing in the peripheral circuit 2. Seeking technical support 3. Seeking technical support 4. Seeking technical support
Er.14	Output side phase loss	1. The lead of inverter to motor is not normal 2. Inverter three-phase output imbalance when motor running 3. Driven board abnormal 4. Module abnormal	1. Eliminate peripheral failure 2. Check whether the three-phase winding of the motor is normal and eliminate the fault 3. Seeking technical support 4. Seeking technical support
Er.15	Module overheat	1. Environment temperature is too high 2. Air duct blockage 3. Fan damage 4. Module thermal resistance damage 5. Inverter module damage	1. Reduce the environmental temperature 2. Clean air duct 3. Replace the fan 4. Replace the thermal resistance 5. Replace the inverter module
Er.17	External fault	1. Through the multi-function terminal DI input external fault signal 2. Input external fault signal through virtual IO function	1. Reset running 2. Reset running
Er.18	Communication fault	1. The PC work is not work 2. Communication line is not normal 3. Communication expansion card F0-23 set is incorrectly set 4. Communication parameter Fd group is incorrectly set	1. Check the PC connection line 2. Check the communication connection line 3. Correctly set up communication expansion card type 4. Correctly set communication parameters
Er.19	Current detection abnormal	1. Check the hall device abnormal 2. Driver board abnormal	1. Replace the hall device 2. Replace the driver board

Er.20	Motor self-learning abnormal	1. The motor parameters not set according to the nameplate 2. The parameter identification process timeout	1. Correctly set motor parameters according to the nameplate 2. Check the inverter to motor lead
Er.21	EEPROM write-read abnormal	1. EEPROM chip damage	1. Replace main control board
Er.22	Disconnection detection fault	1. Output disconnection 2. The upper limit frequency setting is too small of A0-21 setting time is too short 3. When do not need to disconnection detection, A0-21 set nonzero value, and the actual output frequency reaches the upper limit frequency	1. Rewing 2. The upper limit frequency application or A0-21 set reasonable value 3. Set A0-21 to zero
Er.23	PID feedback loss when running	1. PID feedback less than FA-26 set value	1. Check the PID feedback signal or set the FA-26 to an appropriate value
Er.24	Motor short circuit to ground	1. One of the phase (U, V, W) is short circuited to ground	1. Replace the cable or motor
Er.27	Running time reached	1. Accumulative running time reach to set value	1. Using parameter initialization function to clear the record information
Er.28	Power on time reached	1. Accumulative power on time reach to set value	1. Using parameter initialization function to clear the record information
Er.29	Reserved (Buffer contactor overheating)	1. Power grid voltage fluctuation range is too large, cause the inverter repeatedly up and down, buffer contactor overheating	1. Adding input reactor and other measures to ensure the stability of input voltage
Er.32	Encoder reverse fault	1. Encoder sequence is opposite to the motor running direction	1. Change the encoder phase sequence or swap any two phases of the three-phase motor line
Er.35	User self-define fault 1	1. Through the multi-function terminal DI input the signal of user-defined fault 1 2. Through the virtual IO function input the signal of user-defined fault 1	1. Reset running 2. Reset running
Er.36	User self-define fault 2	1. Through the multi-function terminal DI input the signal of user-defined fault 2	1. Reset running 2. Reset running

		2. Through the virtual IO function input the signal of user-defined fault 2	
Er.37	Offload	1. The inverter running current is less than F8-18	1. Confirm whether the load is out of or F8-18, F8-19 parameter settings are consistent with the actual running condition
Er.38	Rapid current-limiting timeout	1. Whether the load is too large or motor blocked 2. The inverter selection is too small	1. Reduce the load and check the motor and mechanical conditions 2. Choose a frequency inverter with a large power rating
Err.43	Manufacturer self-define fault		1. Seeking service

6.2 Common Faults and Solutions

No	Failure phenomenon	Possible cause of failure	Solution
1	No display after power on	Have no grid voltage or too low	Check input power
		The switching power supply circuit on the drive board of the inverter is faulty	Check bus voltage
		The connection between the control board and the drive board and keypad is broken	Seek factory service
		The inverter buffer resistance is damaged	Seek factory service
		Control board, keypad failure	
		The rectifier bridge is damaged	
2	Power-on circuit breaker tripped	Inverter input power line short circuited or leakage to the ground	Check the input power line
		The rectifier bridge is damaged	Seek factory service
3	Power on display "ERR.24"	Motor and motor cable shorted to ground	Measure the insulation of the motor and the motor cable with a shaker
		Inverter damaged	Seek factory service
4	Power on display "ERR.13"	Inverter input power line is loose	Check whether the wiring of the inverter power supply terminal and circuit breaker is loose; Check whether the wiring terminals of the electric control cabinet are loose;
		Inverter damaged	Seek factory service

No	Failure phenomenon	Possible cause of failure	Solution
5	The motor does not rotate after the inverter is running	Mechanical equipment	Check whether the mechanical equipment is blocked
		Motor and motor wire	Reconfirm that the connection between the inverter and the motor is correct
		Poor connection between the drive board and the control board	Re-plug the cable, make sure the cable is firm
		Drive board failure	Seek factory service
		Inverter parameter setting error	Restore factory parameter, reset application parameter; If the motor is connected to an encoder, check that motor's rated frequency, rated speed and encoder parameter setting are correct; Check that the parameters of F0-00(control mode) and F0-01(running mode) are set correctly
6	Frequency inverter frequently reports "ERR.15" fault	The carrier frequency is set to high	Reduce carrier frequency (A1-00)
		The fan is damaged or air duct is blocked	Replace the fan, clear the air duct
		Inverter internal components of the inverter are damaged (temperature sensor or others)	Seek factory service
7	Frequency inverter frequently reports overcurrent or overvoltage faults	The motor parameter setting is incorrect	Reset motor parameter or doing motor parameter identification
		Inappropriate acceleration and deceleration time	Setting appropriate acceleration and deceleration time
		Load fluctuation	Seek factory service
8	DI terminal is invalid	Parameter setting error	Check and reset F5 group parameters
		External signal error	Reconnect the external signal line
		Control board failure	Seek factory service

Chapter 7 Daily Maintenance

Affected by ambient temperature, humidity, dust, vibration, and the aging of the internal components of the inverter, some potential problems may occur during the operation of the inverter. In order to enable the inverter to run stably for a long time, the inverter must be inspected daily and regularly during use. Depending on the external environment of the inverter, regular maintenance must be carried out every 3-6 months in order to discover and deal with problems that are difficult to find in the daily inspection process.

7.1 Daily Inspection

In order to avoid damage to the inverter and shorten its service life, please check the following items daily.

Check Item	Check Content	Preventive Solution when Fault
Motor	Whether the motor has abnormal vibration and abnormal sound	- Confirm whether the mechanical connection is abnormal; - Confirm whether the motor lacks phase; - Confirm whether the motor fixing screws are firm.
Fan	Abnormal use of inverter and motor cooling fan	- Confirm whether the cooling fan of the inverter is running; - Confirm whether the cooling fan on the motor side is abnormal; - Confirm whether the ventilation channel is blocked; - Confirm whether the ambient temperature is within the allowable range.
Installation Temperature	Whether the electrical cabinet and cable trough are abnormal	- Confirm whether the cables in and out of the inverter have insulation damage; - Determine whether there is vibration in the mounting bracket; - Check whether the copper bars and connecting cable terminals are loose or corroded.
Load	Whether the running current of the inverter exceeds the inverter rating and the motor rating for a certain period of time	- Confirm whether the motor parameter settings are correct; - Confirm whether the motor is overloaded; - Confirm whether the mechanical vibration is too large (normally <1G).
Power Supply	Whether the input voltage meets the requirements and whether there is a lack of phase power supply phenomenon	- Confirm whether the voltage between any two phases of the input voltage is within the allowable range indicated on the nameplate; - Check whether there is a heavy load around it.

7.2 Periodic Inspection

Under normal circumstances, it is advisable to conduct regular inspections every 3 to 6 months. However, in actual situations, please determine the actual inspection cycle based on the usage and working environment of each machine.

Check Item	Check Content	Preventive Solution when Fault
Whole Machine	Whether there is garbage, dirt, dust accumulation on the surface	- Confirm whether the inverter cabinet is powered off; - Use a vacuum cleaner to remove garbage or dust to avoid touching the parts; - When the dirt on the surface cannot be removed, you can wipe it with alcohol and let it dry and volatilize completely.
Air Duct Vent	- Whether the air duct and heat sink are blocked; - Whether the fan is damaged.	- Sweep the air duct; - Replace the fan
Electrical Connections	- Whether there are any discoloration of wires and connection parts, and whether there are traces of damage, cracks, discoloration and aging in the insulation layer; - Whether the connecting terminals are worn, damaged or loose; - Grounding check.	- Replace the damaged cable; - Tighten loose terminals and replace damaged terminals; - Measure the ground resistance and tighten the corresponding ground terminal.
Peripheral of Electromagnetic Contactor	- Whether it sucks tightly or makes abnormal noise during the action; - Are there any peripheral devices that are short-circuited, contaminated by water, swelled, or broken	Replace abnormal components.
Motor	Whether the motor has abnormal vibration and abnormal noise	Tighten mechanical and electrical connections and lubricate the motor shaft.
Electrolytic Capacitor	Whether there is leakage, discoloration, cracking, and whether the safety valve leaks, swells, or ruptures.	Replace damaged parts
Printed Circuit Board	Whether there is peculiar smell, discoloration, severe rust, whether the connector is connected correctly and reliably	- Fastener connection; - Clean the printed circuit board; - Replace damaged printed circuit boards

Keypad	Whether the keypad is broken and display is incomplete	Replace damaged parts
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**CAUTION**

Do not perform related operations with the power on, otherwise there is a danger of electric shock and death. Please cut off the power when performing related operations and confirm that the main circuit DC voltage has dropped to a safe level. Wait 5 minutes before performing related operations.

7.3 Replacement of vulnerable parts of the inverter

Some components in the inverter will be worn or degraded during use. In order to ensure the stable and reliable operation of the inverter, preventive maintenance should be carried out on the inverter, and the components of the inverter should be replaced when necessary. The vulnerable parts of the frequency converter mainly include the cooling fan and the large-capacity electrolytic capacitor for filtering. The service life is closely related to the use environment and maintenance status.

**CAUTION**

- Generally, the cooling fan of the inverter should be replaced in 2~3 years;
- Under normal circumstances, the large-capacity electrolytic capacitor of the inverter should be replaced in 4~5 years;

7.4 Storage of the inverter

When the inverter is temporarily not used or stored for a long time after purchase, the following items should be noted:

**CAUTION**

- Avoid storing the inverter in a place with high temperature, humidity, vibration or metal dust, and ensure that the storage place is well ventilated;
- If the inverter has not been put into use for a long time, the characteristics of the internal filter capacitor will decrease;
- If the inverter is not used for a long time, it should be powered on once every two years to restore the characteristics of the large-capacity filter capacitor and check the function of the inverter. When energizing, the voltage should be gradually increased through an autotransformer, and the power on time should not be less than 5 hours.

Appendix: Modbus Communication Protocol

Standard structure of RTU frame:

Frame header START	T1-T2-T3-T4 (3.5 Bits transmission time)
Slave address field ADDR	Communication address: 0~247(decimal) (0 as broadcast address)
Function field CMD	03H: read slave parameter 06H: write slave parameter
Data field DATA (N-1)...DATA (0)	2*N Bit data: this part is the main content of communication, also as the core of data exchange in communication
CRC CHK low Bit	Detect value: CRC verify value (16Bit)
CRC CHK high Bit	
Tail Frame END	T1-T2-T3-T4 (3.5 Bits transmission time)

Function code parameter address expression rules (the following addresses are all expressed in hexadecimal): The communication address is expressed by the function code group number and label: the high byte represents the function code group number, and the low byte represents the function code label. Corresponding value of function code group number:

Function Code Group	EEPROM Address (Readable and writable)	RAM Address (Just write)
F0--FF	F0--FF	00--0F
A0--AF	A0--AF	40--4F
B0--BF	B0--BF	50--5F
U0--UF	70--7F (Read only)	

For example: function code F3-12 is not stored in EEPROM, the address is expressed as 030C; when stored in EEPROM, the address is expressed as F30C. Function code A0-05 is not stored in EEPROM, the address is represented as 4005; when stored in EEPROM, the address is represented as A005.

Non-function code communication address:

Communication Address	Communication Content	Read and write attributes (R/W)	Communication Address	Communication Content	Read and write attributes (R/W)
1000	Communication setting value (-10000~10000) (Decimal)	R/W	2000	0001: Forward running	W
1001	Running frequency	R		0002: Reverse running	

1002	Bus voltage	R		0003: Forward jog	
1003	Output voltage	R		0004: Reverse jog	
1004	Output current	R		000: Coast to stop	
1005	Output power	R		0006: Decelerate to stop	
1006	Output torque	R		0007: Fault reset	
1007	Running speed	R		0008: Emergency stop	
1008	DI input sign (please refer to Chapter 5 function parameter summary table U0-07)	R	2001	BIT0: DO	W
1009	DO output sign (please refer to Chapter 5 function parameter summary table U0-07)	R		BIT1: DO5	
100A	AI voltage	R		BIT2: Relay T1	
100B	Reserved	R		BIT3: Reserved	
100C	Reserved	R		BIT4: Reserved	
100D	Count value input	R		BIT5: VDO1	
100E	length value input	R		BIT6: VDO2	
100F	Load speed	R		BIT7: VDO3	
1010	PID setting	R		BIT8: VDO4	
1011	PID feedback	R		BIT9: VDO5	
1012	PLC step	R	2002	Analog AO (0-1000 means 0.0%-100.0%)	W
1013	PULSE input pulse frequency, unit 0.01kHz	R	2003	Reserved	W
1014	Feedback speed, unit 0.1Hz	R	2004	Reserved	W
1015	Surplus running time	R	3000	0001: Forward running	R
1016	AI voltage before correction	R		0002: Reverse running	
1017	Reserved	R		0003: Stop	
1018	Running speed, unit 1RPM	R	8000	Fault code (please refer to Chapter 5 function parameter summary table F9-00)	R

1019	Linear speed	R	8001	Communication fault function description 0000: No fault	R
101A	Current power on time	R		0001: Password error	
101B	Current running time	R		0002: Command code error	
101C	Reserved	R		0003: CRC Check error	
101D	Communication setting value	R		0004: Invalid address	
101E	Actual feedback speed, unit 0.01Hz	R		0005: Invalid parameter	
101F	Main frequency A display	R		0006: Invalid parameter changer	
1020	Auxiliary frequency B display	R		0007: System is locked	
				0008: EEPROM operation	

Remark:

- For the data unit of the communication content, please refer to the "Display Unit" in the Basic Monitoring Parameters of Group U0 in Chapter 6 Function Parameter Summary Table.