HD07-S Series

Mini Inverter

User Manual

V1.1 2024.01

FOREWORD

Thank you for purchasing HD07-S series mini inverter manufactured by Shenzhen Hpmont Technology Co., Ltd.

This User Manual describes how to use HD07-S series mini inverter and their mechanical installation, electrical installation, parameter setting, troubleshooting and daily maintenance etc.

Before using the product, please read through this User Manual carefully. In addition, please do not use this product until you have fully understood safety precautions.

Note:

- Preserve this Manual for future use.
- If you need the User Manual due to damage, loss or other reasons, please contact distributors of our company or directly contact our Technical Service Center.
- If you still have some problems during use, please contact with our Technical Service Center.
- Due to product upgrade or specification change, and for the purpose of improving convenience and accuracy of this manual, this manual's contents may be modified.
- Email address: **marketing@hpmont.com**

Version and Revision Records

Time: 2024/1

Version: V1.1

Chapter	Contents
	• V1.1 version released.

Contents

Chapter 1 Safety Information

Safety Definition

Pay attention to contents with following marks in the user manual or on the product.

Danger

Danger: A Danger contains information which is critical for avoiding safety hazards.

Warning

Warning: A Warning contains information which is essential for avoiding a risk of damage to products or other equipements.

Note

Note: A Note contains information which helps to ensure correct operation of the product.

Professional Personnel

Only professional electrical engineers can perform electrical wiring.

Only a trained and authorized professional person can maintain the product.

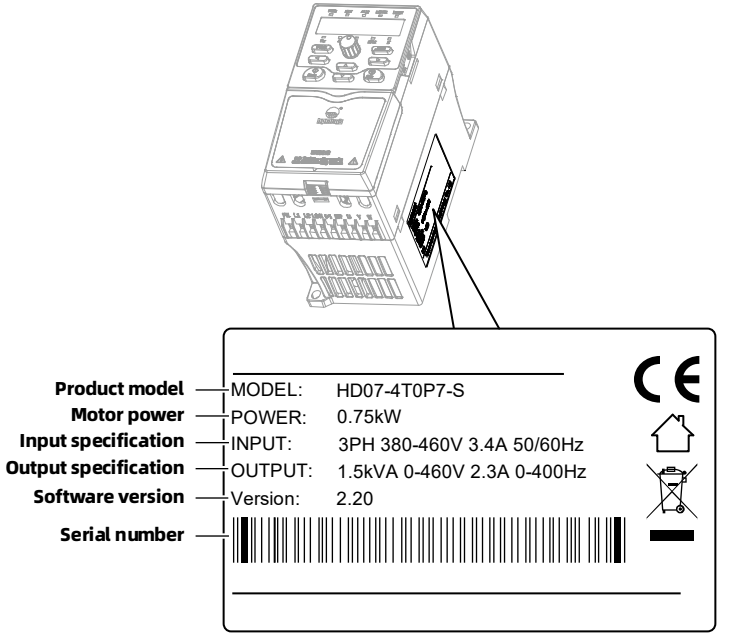
Chapter 2 Product Information

2.1 Model

HD07-4T0P4-S
1 2 3 4 5

Code	Description	
1/5	Product series	• **HD07-S**: Mini inverter
2	Voltage rating	• **2**: 200 - 240V • **4**: 380 - 460V
3	Phase	• **S**: Single phase • **T**: Three phase
4	Motor power	• **0P2**: 0.25kW • **0P4**: 0.4kW • **0P7**: 0.75kW

2.2 Nameplate



2.3 Rated Value

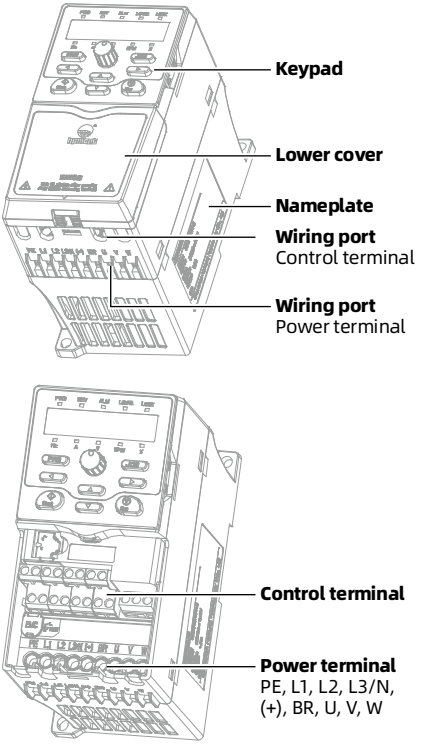
Model	Motor (kW)	Rated Input Current (A)	Rated Capacity (kVA)	Rated Output Current (A)
Single phase: 200 - 240V, 50/60Hz				
HD07-2S0P2-S	0.25	4.3	0.6	1.7
HD07-2S0P4-S	0.4	5.8	1.0	2.5
HD07-2S0P7-S	0.75	10.5	1.5	4.0
Three phase: 380 - 460V, 50/60Hz				
HD07-4T0P4-S	0.4	1.8	1.0	1.4
HD07-4T0P7-S	0.75	3.4	1.5	2.3

2.4 Technical Data

Electrical	
Input voltage	HD07-2S0P□-S: Single phase 200 - 240V HD07-4T0P□-S: Three phase 380 - 460V Fluctuating within ±10%, unbalance rate < 3%
Input frequency	50/60Hz ± 5%
Output voltage	0V - input voltage
Output frequency	0 - 400Hz
Performance	
Control mode	V/f, SVC
Overload capacity	150% rated output current for 2min; 180% rated output current for 10s
Running command	Keypad; Terminal; SCI communication
Speed setting	Digital; Analog / pulse; SCI communication
Speed resulotion	Digital setting: 0.01Hz Analog setting: 0.1% × Max. frequency
Speed control accuracy	SVC: ±0.5%
Speed control range	SVC: 1:100
Torque control response	SVC: <200ms
Start torque	SVC: 180% rated torque/0.5Hz
Basic Function	
Multi-group parameter upload and download	Upload and download parameters (2 groups): • From control board to keypad • From keypad to control board
Programmable input and output terminals	The functions of input terminals and output terminals can be set
Jog	Built-in jog module
Analog speed regulation	Built-in analog speed regulation module
PID regulation	Built-in PID module
FDT brake	Built-in FDT module
Modbus communication	Support Modbus communication protocol

Input and Output	
Analog power supply	+10V, the Max. output current is 100mA
Analog output	Output voltage: 0 - 10V
Analog input	AI1: 0 - 10V/0 - 20mA (voltage or current input) AI2: -10 - +10V (voltage input) AI can be set as digital input (ADI function)
Digital input	DI1 - DI5 Voltage: 0 - 30VDC • DI5: Set as high-speed pulse input, the Max. frequency is 50kHz
Digital output	DO1, DO2 Voltage: 0 - 30VDC, the Max. output current is 50mA • DO2: Set as high-speed pulse output, the Max. frequency is 50kHz
Relay output	RA, RB, RC Contact capacity: 250VAC/3A or 30VDC/1A
SCI communication	A, B
Environmentv	
Running temperature	-10 - +40℃ without derating 40 - 50℃ need derating use: Output current derating by 2% for each 1℃
Storage temperature	-40 - +70℃
Applicable place	Indoor or in electrical control panel • No direct sunlight, water droplets • No gas and liquid with flammable, explosive and corrosive • No oily dust, fiber and metal powder • The mounting surface is fire-retardant and strong enough to support the inverter
Altitude	Less than 2000m, otherwise needs derating use
Humidity	Less than 95%RH, non-condensing
Vibration resistance	IEC 60721-3-3 • $2 \le f < 9$Hz, the displacement is 0.3mm • $9 \le f < 200$Hz, the acceleration is $1 m/s^2$
Protection class	IP20
Pollution level	2 (dry, non conducting dust pollution)

2.5 Layout


Keypad
Lower cover
Nameplate
Wiring port
Control terminal
Wiring port
Power terminal
Control terminal
Power terminal
PE, L1, L2, L3/N,
(+), BR, U, V, W

Chapter 3 Mechanical Installation

Danger

- If you open the package and find that the inverter is incomplete or damaged, please do not install the inverter.
- Use tools to move the inverter according to the weight and size of the inverter. Avoid being cut by sharp edges or being injured by the overturned or dropped inverter.
- When installing, do not drop drilling residues into the inverter.
- When the storage time of the inverter is more than 2 years, please use regulator to power it slowly.

3.1 Confirm Installation Site

Confirm the installation site meets the following requirements.

Table 3-1 Confirm the installation site

Requirement	Description
Applicable place	Indoor or in electrical control panel • No direct sunlight, water droplets • No gas and liquid with flammable, explosive and corrosive • No oily dust, fiber and metal powder • The mounting surface is fire-retardant and strong enough to support the inverter
Running temperature	-10 - +40℃ without derating 40 - 50℃ need derating use: Output current derating by 2% for each 1℃
Storage temperature	-40 - +70℃
Humidity	Less than 95%RH, non-condensing
Vibration resistance	IEC 60721-3-3 • 2 ≤ f < 9Hz, the displacement is 0.3mm • 9 ≤ f < 200Hz, the acceleration is 1m/s^2
Protection class	IP20
Pollution level	2 (dry, non conducting dust pollution)
Altitude	Less than 2000m, otherwise needs derating use

3.2 Install HD07-S

Install the inverter in the control panel using the wall-mounted type.

3.2.1 Installation Direction

The installation direction must be vertical up.

Prohibited installation ways: Lying down, lying on the side, or standing upside down.

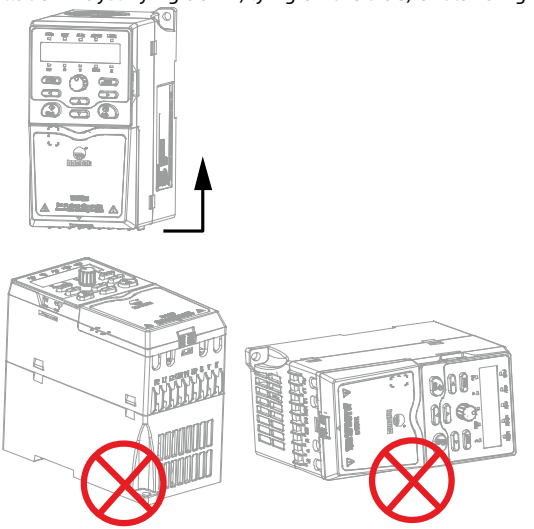


Figure 3-1 Installation direction

3.2.2 Plan the Installation Space

3.2.2.1 Overall Size and Net Weight

The overall size of HD07-S is shown in the figure below. Unit: mm.
Net weight: 0.7kg.

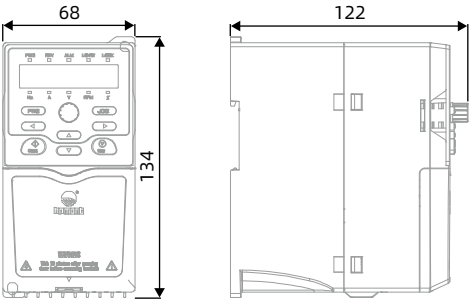


Figure 3-2 Overall size

3.2.2.2 Installation Space

Install a Single HD07-S

Installation space:

- A ≥ 10mm.
- B ≥ 10mm.
- C ≥ 10mm.

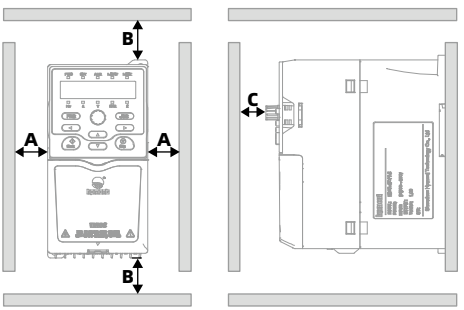


Figure 3-3 Installation space (install a single HD07-S)

Install Multiple HD07-S Side by Side

Align the upper part of HD07-S (for heat dissipation).

The distance between HD07-S:

- D ≥ 10mm.

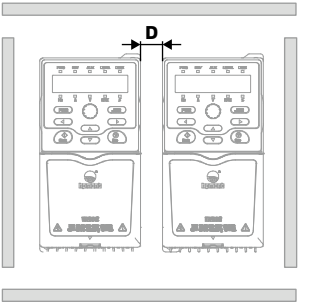


Figure 3-4 Installation space
(install multiple HD07-S side by side)

Install Multiple HD07-S Up and Down

Need to install diversion partitions.

The distance between the diversion partitions and HD07-S:

- a ≥ 50mm.
- b ≥ 10mm.
- c ≥ 100mm.

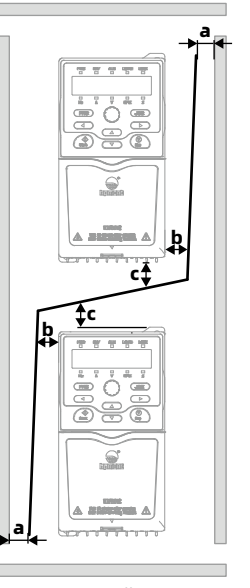


Figure 3-5 Installation space
(install multiple HD07-S up and down)

3.2.3 Install HD07-S (Single Unit)

3.2.3.1 Use Screws to Install HD07-S

1. Mark the installation position on the mounting bracket and drill holes. Unit: mm.
2. Fix HD07-S with 2 combined screws.
3. Tighten the 2 screws.

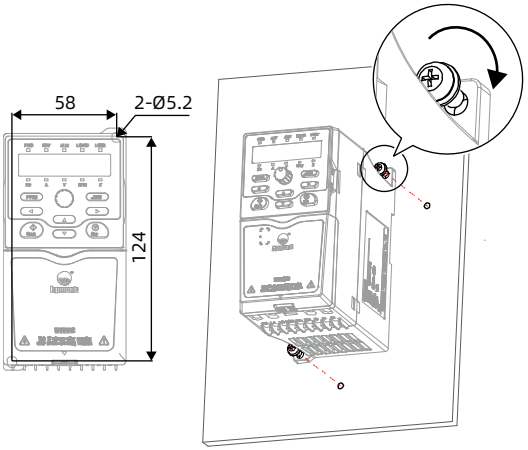


Figure 3-6 Use screws to install HD07-S

3.2.3.2 Use Guide Rail to Install HD07-S

1. Install the standard guide rail on the bracket.
2. Hold the HD07-S parallel to the guide rail, and then hang the HD07-S vertically on the guide rail, refer to figure [1].
3. Press the HD07-S vertically in the direction of the HD07-S until you hear a "click" sound, refer to figure [2].

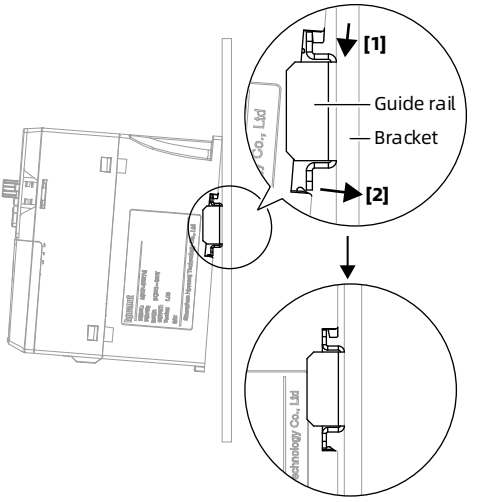


Figure 3-7 Use guide rail to install HD07-S

3.3 Install the Keypad

3.3.1 Remove the Keypad From HD07-S

Press and hold the snap of the keypad at both ends simultaneously, and pull outward to remove the keypad.

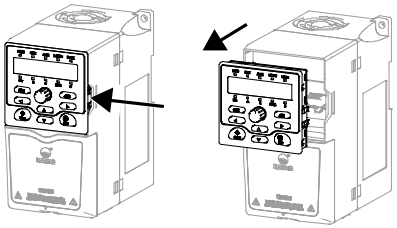


Figure 3-8 Remove the keypad from HD07-S

3.3.2 Install the Keypad to HD07-S

With the keypad parallel to HD07-S, press down in the direction of the vertical keypad until you hear a "click" sound.

Note:
Do not install the keypad from other directions. Otherwise, the keypad has poor contact.

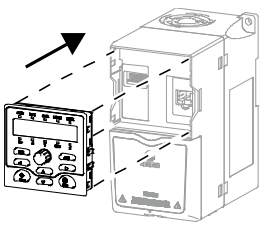


Figure 3-9 Install the keypad to HD07-S

3.3.3 Install the Keypad on the Control Panel Door

3.3.3.1 Keyapd Size

The sizes of the keypad is shown in the figure below. Unit: mm.

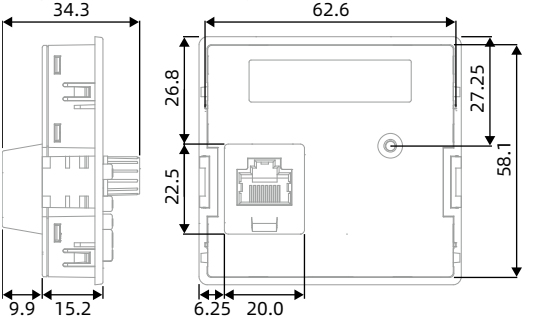


Figure 3-10 Side size and back size

3.3.3.2 Confirm the Installation Mode

Measure the thickness of the control panel door and confirm the installation mode.

- **Snap installation**: The thickness is 1.0 - 2.0mm.
- **Screw installation**: The thickness exceeds 2.0mm.

3.3.3.3 Install the Keypad

Snap installation steps:

1. Mark the installation position on the control panel door and drill holes. Unit: mm.
2. Press the keypad in the direction of the arrow until the snap goes through the control panel door.

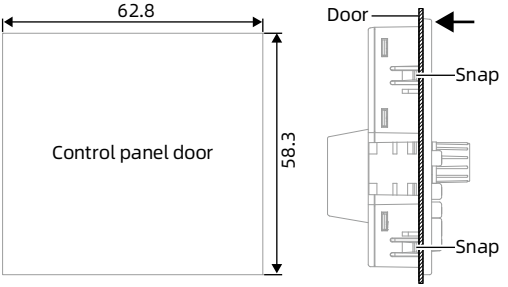


Figure 3-11 Install the keypad (snap installation)

Screw installation steps:

1. Mark the installation position on the control panel door and drill holes. Unit: mm.
2. Fix the keypad on the control panel door in the direction of the arrow.
3. Tighten the self-tapping screw (ST2.9), the depth is 6 - 10mm.

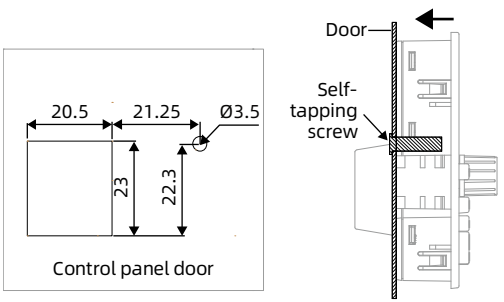


Figure 3-12 Install the keypad (screw installation)

Chapter 4 Electrical Installation

Danger

- Only professional electrical engineers can perform electrical wiring.
- Please completely disconnect the input power before wiring.
- After connecting the emergency stop terminal of the external power supply, please confirm the terminal action is valid and reliable.
- Please use insulating tape to wrap the exposed metal parts of the power terminal wiring.
- Do not touch the terminals when the inverter is powered on.

4.1 Remove and Install the Cover

Remove the Cover

Press the snap in the direction of the arrow, and then remove the cover upwards.

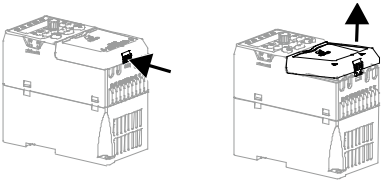


Figure 4-1 Remove the cover

Install the Cover

Push the cover in the direction of the arrow, and then press down the cover.

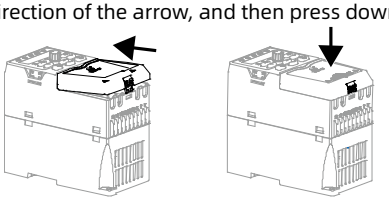


Figure 4-2 Install the cover

4.2 Electrical Installation Planning

4.2.1 Cable Routing Requirements

To avoid mutual coupling, power cables, motor cables and control cables must be installed in different pipes. When the cables are parallel and overdistanced, ensure that the cables have sufficient length.

If the control cable must pass through the power or motor cable, the cable must pass vertically (90° included angle), as shown in the figure.

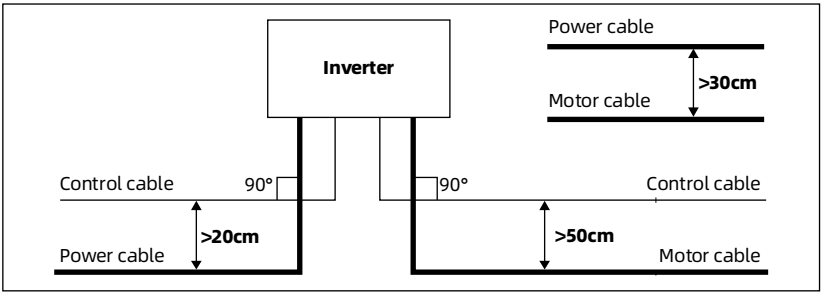


Figure 4-3 Cable routing requirements

4.2.2 Grounding Requirements

Danger

- Before power on, the ground terminal of the inverter must be grounded reliably.

The inverter has leakage current to the ground, the ground terminal PE must be grounded, and as close as possible to the ground point, the ground area is as large as possible, and the ground resistance is less than 10Ω.

Use with other power equipment or inverter, do not share the ground cable (A), please use the independent ground pole (B) or share ground pole (C).

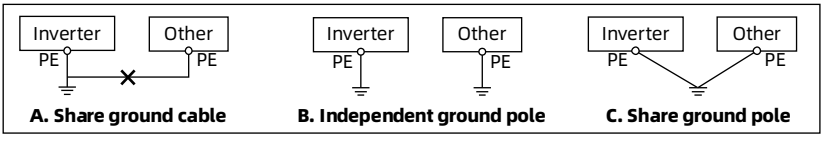


Figure 4-4 Grounding requirements

4.2.3 Cable Selection

Power Cable

Warning

- Do not connect the input power cable to the output terminals (U/V/W).
- Do not connect the phase-shifting capacitors to the output circuit.
- Confirm the AC input power voltage is the same as the rated input voltage of the inverter.

Motor Cable

The longer the motor cable, the higher the carrier frequency, and the greater the leakage current of higher harmonics on the cable. The leakage current can adversely affect the inverter and nearby equipment.

When the motor cable is longer than 100m, install the AC output reactor and set the carrier frequency (F23.00) according to the table below.

Table 4-1 Set carrier frequency

Motor Cable Length	<50m	50 - 100m	>100m
Carrier Frequency	Below 8kHz	Below 5kHz	Below 2kHz

The inverter should be derated if motor cables are too long or their CSA is too large. The current should be decreased by 5% when per level of CSA is increased. If the CSA increase, so do the current to ground and capacitance.

Control Cable

In order to reduce the interference and attenuation of the control signal, the length of the control cable is within 50m.

The control cable must use shielded cable, and the shielding layer is reliably grounded.

The analog control cables use twisted-pair shielded cables, and the shielding layer is reliably grounded.

Shielded cables use high-frequency low-impedance shielded cables, such as braided copper wire mesh, aluminum wire mesh or iron wire mesh.

4.2.4 Leakage Protection Switch

The inverter built-in EMC filter. When the inverter is connected to the power supply protective ground, the EMC filter can reduce the external radio frequency interference, and generate about 10mA AC leakage current on the protective ground cable.
For low leakage current applications, you can disconnect the EMC filter. After disconnection, the leakage current generated by the protective ground cable is less than 1mA AC.
Refer to the figure below to disconnect the EMC filter.

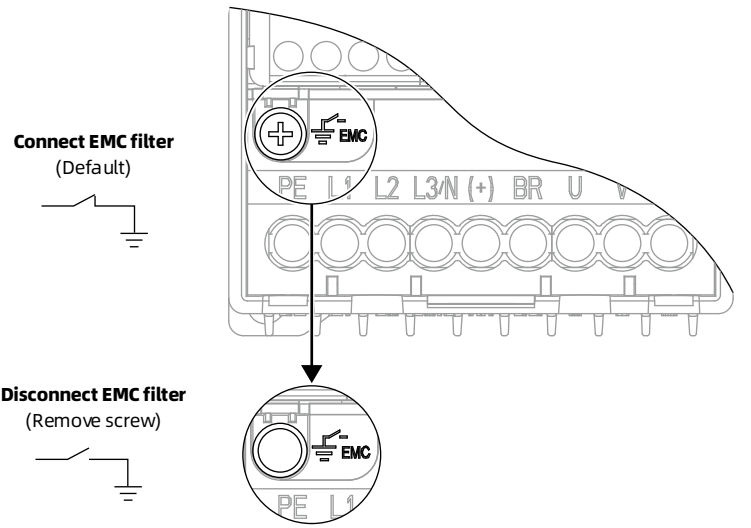


Figure 4-5 Disconnect EMC filter

If the leakage protection switch (ELCB/RCD) is installed on the input side of the inverter, disconnect the built-in EMC filter to prevent flase action of the ELCB/RCD.
The ELCB/RCD action is related to the waveform of detected fault current. There are three types of ELCB/RCD:

- Type AC: Detects AC fault currents, not used for inverter.
- Type A: Detects AC and pulsating DC fault currents, only used for single phase power input inverter.
- Type B: Detects AC, pulsating DC and smooth DC fault currents, used for three phase power input inverter.

4.3 Connect Power Cable

4.3.1 Select Peripheral Accessories

4.3.1.1 Select Breaker and Contactor

Between the power supply and the inverter, must be installed with overcurrent protection circuit breakers or fuses and other disconnecting devices.
Avoid expanding the scope of influence caused by subsequent equipment faults, and ensure the safety of equipment and people.
The recommended breaker and contactor are shown in the table below.

Table 4-2 Select breaker and contactor

Model	Breaker (A)	Contactor (A)
HD07-2S0P2-S	16	10
HD07-2S0P4-S	16	10
HD07-2S0P7-S	16	10
HD07-4T0P4-S	10	10
HD07-4T0P7-S	10	10

4.3.1.2 Select Brake Resistor

Table 4-3 Select brake resistor

Model	Brake Resistor Resistance (Ω)	Brake Resistor Power (W)
HD07-2S0P2-S	250 - 350	50
HD07-2S0P4-S	200 - 300	50
HD07-2S0P7-S	150 - 250	100
HD07-4T0P4-S	300 - 400	80
HD07-4T0P7-S	250 - 350	100

Note:

1. Please select brake resistor based on the above table.
   When the braking system fails, a larger resistance can ensure safety. However, if the resistance is too large, the braking capacity decreases, causing the inverter to perform overvoltage protection.
2. Install the brake resistor in a ventilated metal enclosure.
3. The temperature of the brake resistor is very high during running, please do not touch the brake resistor directly.

4.3.2 Select Power Cable

The ground cable diameter must accord with the requirement in 4.3.5.4 of IEC 61800-5-1.

Table 4-4 Ground cable diameter

Power Cable Diameter S (mm^2)	S ≤ 2.5	2.5 < S ≤ 16	16 < S ≤ 35	S > 35
Ground Cable Minimum Diameter Sp (mm^2)	2.5	S	16	S/2

Refer to the table below to select the cable diameter of the power cable.

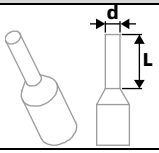
Table 4-5 Recommended cable diameter

Model	**Power Cable (mm^2) L1, L2, L3/N, (+), BR**	**Motor Cable (mm^2) U, V, W**	**Ground Cable (mm^2) PE**
HD07-2S0P2-S	1	0.5	2.5
HD07-2S0P4-S	1	0.5	2.5
HD07-2S0P7-S	2.5	0.5	2.5
HD07-4T0P4-S	0.5	0.2	2.5
HD07-4T0P7-S	1	0.5	2.5

4.3.3 Select Power Cable Terminal

The power cable terminals use code end terminal, and the specifications are shown in the table below.

Table 4-6 Power cable terminal specification

Power Terminal	**Tightening Torque (N·m)**	**Metal Tube Length L (mm)**	**Outer Diameter d (mm)**	**Code End Terminal**
L1, L2, L3/N, (+), BR, U, V, W, PE	0.6	10	≤3.2	

4.3.4 Power Terminal Description

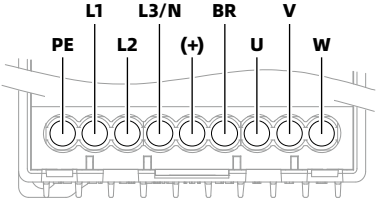


Figure 4-6 Power terminal

Table 4-7 Power terminal description

Power Terminal	Description
L1, L2, L3/N	Three phase AC power input terminal
L1, L3/N	Single phase AC power input terminal
U, V, W	Inverter output terminal, connect to motor
(+), BR	Connect brake resistor
PE	Ground terminal

4.3.5 Connect Power Cable

Connect the power cables as shown in the figure below.

- Refer to 4.3.1.1 to select the breaker and contactor.
- Refer to 4.3.1.2 to select the brake resistor.
- Refer to 4.3.2 to select the power cable diameter.
- Refer to 4.3.3 to select the power cable terminal.

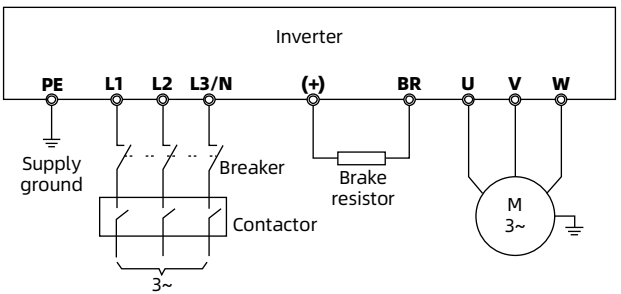


Figure 4-7 Connect power cable

4.4 Connect Control Cable

4.4.1 Control Terminal Description

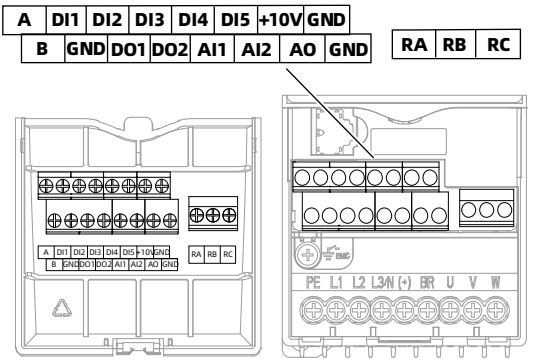


Figure 4-8 Control terminal

Table 4-8 Control terminal description

Control Terminal		Description
+10V, GND	Analog power supply	+10V, the Max. output current is 100mA
AI1, GND AI2, GND	Analog input	AI1 can set voltage input or current input • Voltage: 0 - 10V, impedance: 32kΩ (default) • Current: 0 - 20mA, impedance: 500Ω AI2 voltage input • Voltage: -10 - +10V, impedance: 32kΩ F16.29 sets AI1 input • 0: Voltage input (default) • 1: Current input F16.01 and F16.02 set terminal function
	Digital input (ADI function)	AI can be set as digital input, and receive signals above 6V F15.44 and F15.45 set terminal function
AO, GND	Analog output	Voltage: 0 - 10V F16.19 sets terminal function
DI1 - DI5, GND	Digital input	Voltage: 0 - 30VDC F15.00 - F15.04 set terminal function F15.04 = 53, DI5 is set as pulse input terminal • F16.17 sets the input pulse frequency, Max. 50kHz

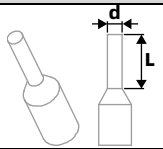
Control Terminal		Description
DO1, GND DO2, GND	Digital output	Voltage: 0 - 30VDC, the Max. output current is 50mA F15.18 and F15.19 set terminal function F15.19 = 38, DO2 is set as pulse output terminal • F16.21 sets function • F16.26 sets the output pulse frequency, Max. 50kHz
RA, RB, RC	Relay output	Contact capacity: 250VAC/3A or 30VDC/1A • RB, RC: normally open (NO) • RA, RC: normally close (NC) F15.20 sets relay function
A, B	Modbus communication	Connect to host computer

4.4.2 Connect Control Cable

4.4.2.1 Select Control Cable Terminl

The control cable terminals use code end terminal, and the specifications are shown in the table below.

Table 4-9 Control cable terminal specification

Tightening Torque (N·m)	Metal Tube Length L (mm)	Outer Diameter d (mm)	Code End Terminal
0.6	6	≤2.5	

4.4.2.2 Wiring Requirements

- The specification of the control cable is 18AWG.
- In order to reduce the interference and attenuation of the control signal, the length of the control cable is within 50m, and the distance from the motor cable is more than 0.3m.
- The control cable must use shielded cable, and the shielding layer is reliably grounded.
- The analog control cables use twisted-pair shielded cables, and the shielding layer is reliably grounded.

4.4.2.3 Default IO Wiring

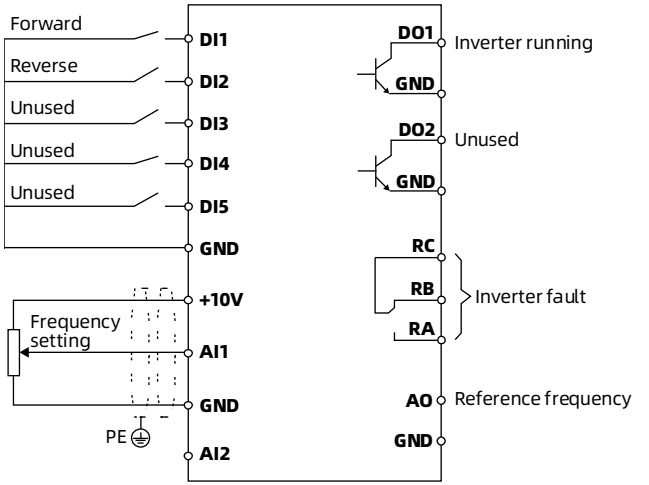


Figure 4-9 Control terminal default IO wiring

4.4.2.4 Digital Input Wiring

Refer to the figure below to wire, support:

- External is dry contact.
- External controller is NPN output.

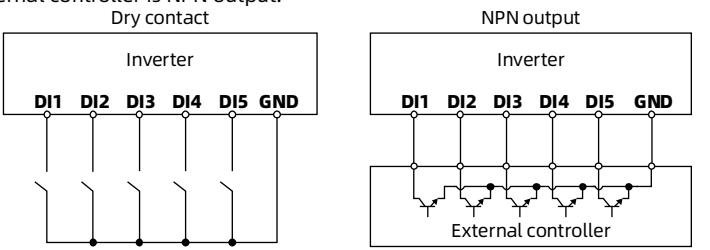


Figure 4-10 Digital input wiring

4.4.2.5 Digital Output Wiring

DO use external power supply.

DO2 can be set as high-speed pulse frequency output.

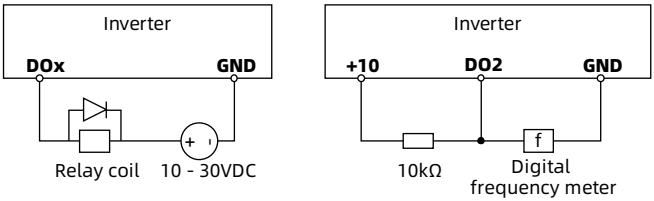


Figure 4-11 Digital output wiring

4.4.2.6 Analog Input Wiring

AI1 Wiring

AI1 defaults to voltage input, the range is 0 - 10V, the wiring is shown in the figure below.

- The analog control cables use twisted-pair shielded cables, and the shielding layer is reliably grounded.

AI1 can be set as current input (F16.29 = 1), the range is 0 - 20mA, the wiring is shown in the figure below.

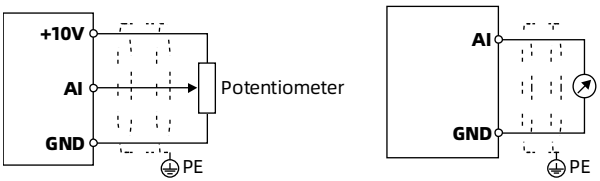


Figure 4-12 AI1 terminal wiring (voltage input and current input)

AI2 Wiring

AI2 is voltage input, the range is -10 - +10V.

- When using internal 10V power supply, the wiring is the same as AI1.
- When using external ±10V power supply, the wiring is shown in the figure below.

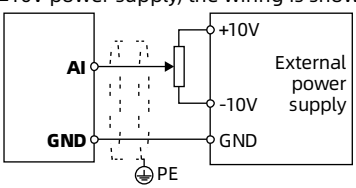


Figure 4-13 AI2 terminal wiring

4.5 External the Keypad

External lead by removing the keypad.

1. Remove the keypad and the terminal head of RJ45 port.
2. Connect one end of the cable to the removed keypad and the other end to the RJ45 port.

   The cables need to be prepared by yourself.

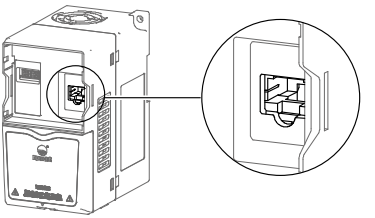


Figure 4-14 External the Keypad

Chapter 5 Operation

5.1 Keypad Description

5.1.1 Keypad Layout

HD07-S uses LED keypad by default, as shown in the figure below.

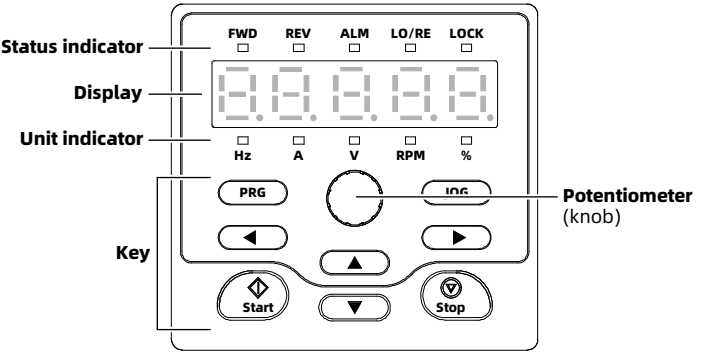


Figure 5-1 Keypad layout

5.1.2 Key Description

Table 5-1 Key description

Key		Description
PRG	**Program key**	Press this key to enter and exit the menu setting
	Exit key	Press this key to return to the previous menu
JOG	**Jog key**	In keypad control, press this key to jog start the inverter
Start	**Run key**	In keypad control, press this key to run the inverter
Stop	**Stop key**	In keypad control, press this key to stop the inverter
	Reset key	When the inverter reports a fault, after clearing the fault, press this key to reset the fault
▲	**Increase key**	Press this key to increase the present value
▼	**Decrease key**	Press this key to decrease the present value
◀	**Shift key**	Press this key to move the modified bit of the parameter or parameter value
▶	**Enter key**	Press this key to enter the next level menu
	Confirm key	Press this key to save changes and return to the previous level menu
Potentiometer		When setting parameter, decrease the value counterclockwise and increase the value clockwise

5.1.3 Indicator Description

Table 5-2 Status indicator description

Status Indicator		■ On	▣ Flashing	□ Off
FWD	Forward	Inverter runs forward	At the next startup, the inverter runs forward	/
REV	Reverse	Inverter runs reverse	At the next startup, the inverter runs reverse	/
ALM	Alarm	The inverter is faulty	/	The inverterr is not faulty
LO/RE	Remote or local	The inverter is in terminal control	The inverter is in communication control	The inverter is in keypad control
LOCK	Password	User password takes effect	/	No user password or unlocked status

Table 5-3 Unit indicator description

Unit Indicator		■ On	▣ Flashing	□ Off
Hz	Frequency unit	The parameter unit is Hz	The present parameter is output frequency	/
A	Current unit	The parameter unit is A	/	/
V	Voltage unit	The parameter unit is V	/	/
RPM	Rotational speed unit	The parameter unit is rpm	The present parameter is running speed	/
%	Percentage unit	The parameter unit is %	/	/

5.1.4 Display Description

Table 5-4 LED display meaning

LED	Meaning	LED	Meaning	LED	Meaning	LED	Meaning
	0		A		J		U
	1		b		L		u
	2		C		n		y
	3		c		o		-
	4		d		P		Point
	5		E		q		Full display
	6		F		r		No display
	7		H		S		Flashing display
	8		h		T		
	9		i		t		

5.2 Keypad Operation Instructions

5.2.1 Switch the Four-level Menu

Four-level menu: **Function group (first level) → Parameter group (second level) → Parameter (third level) → Parameter value (fourth level)**.

Refer to the figure below to switch the four-level menu, and the key descriptions are shown in the table below.

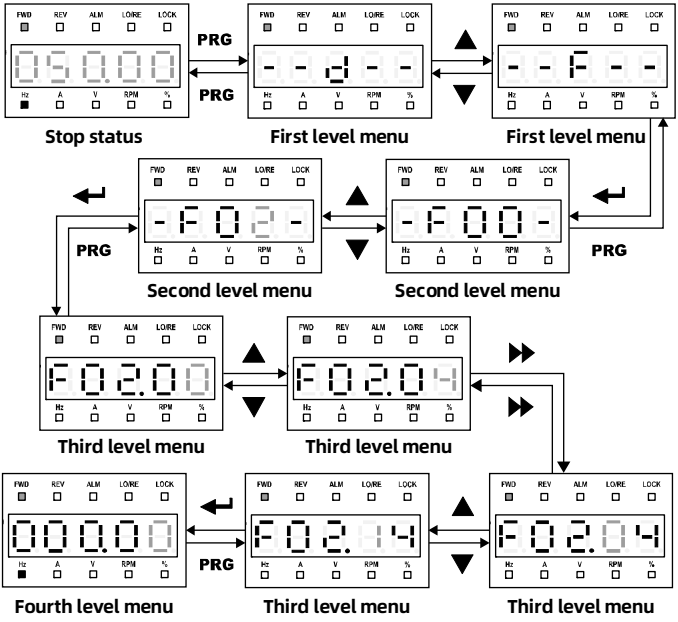


Figure 5-2 Switch the four-level menu

Table 5-5 Key description

Key	First Level Menu	Second Level Menu	Third Level Menu	Fourth Level Menu
PRG	Faulty: Return to the fault display No Fault: Return to run or stop status display	Return to first level menu	Return to second level menu	Do not save the present value and return to the third level menu
▶	Enter to second level menu	Enter to third level menu	Enter to fourth level menu	Save the present value and return to third level menu
▲	Cycle function group: d-F-R	Increase parameter group, press once to increase 1	Increase parameter, press once to increase 1	Increase parameter value, press once to increase 1
▼	Cycle function group: R-F-d	Decrease parameter group, press once to decrease 1	Decrease parameter, press once to decrease 1	Decrease parameter value, press once to decrease 1
◀	Invalid	Invalid	Cycle switch parameter: Unit, ten	Cycle switch parameter value: Unit, ten thousand, thousand, hundred, ten

5.2.2 Set Parameter

Example: F02.14 = 000.00Hz, set to 012.00Hz.

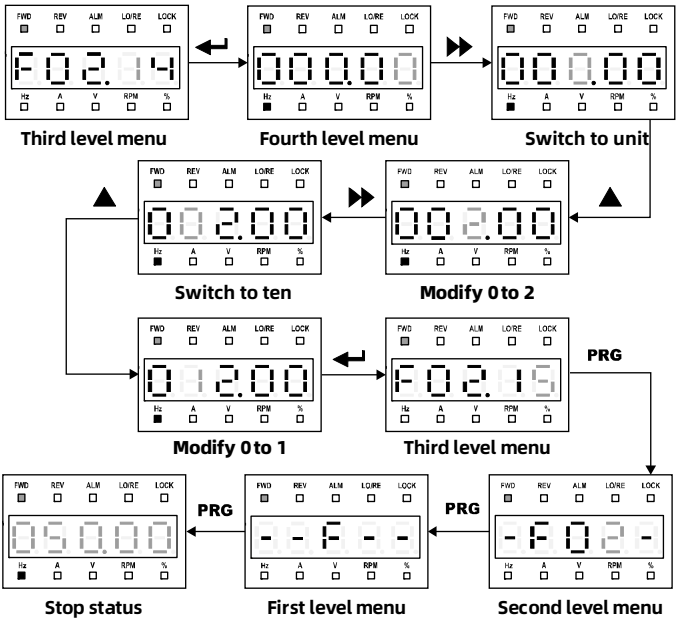


Figure 5-3 Set parameter

When setting the parameter value in the fourth level menu, if the value does not flash, this parameter cannot be set.

Possible reasons:

- This parameter cannot be set, such as the actual detect parameter, run record parameter, etc.
- This parameter cannot be set when the inverter is running. Set this parameter after the inverter stops.
- The inverter has a password. Enter the correct password first, and then set this parameter.

5.3 Quick Start

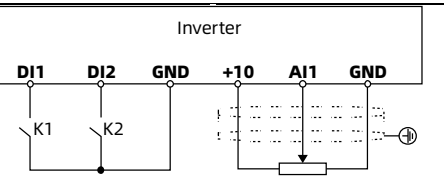
5.3.1 Keypad Start and Stop the Inverter

When F00.11 = 0 (keypad control), use the keypad to start and stop the inverter and set the running frequency.

1.	Turn on the input power.
2.	Set motor parameters according to motor nameplate: F08.00 (rated power), F08.01 (rated voltage), F08.02 (rated current), F08.03 (rated frequency), F08.04 (rated speed).
3.	Set running frequency: F00.13, range is 0.00 - 50.00Hz.
4.	Set Acc. and Dec. time: F03.01 (Acc. time), F03.02 (Dec. time).
5.	Press ◇ **Start**, the inverter starts.
6.	Press ▽ **Stop**, the inverter stops.

5.3.2 Terminal Start and Stop the Inverter

When F00.11 = 1 (terminal control), use the terminal to start and stop the inverter, set the running frequency, and control the run direction.

1.	Refer to the figure to wire, and then turn on the input power. 
2.	Set command channel: F00.11 = 1.
3.	Set frequency setting channel: AI1 (F00.10 = 3, F16.01 = 2).
4.	Set the DI terminal function: DI1 (F15.00 = 2, forward), DI2 (F15.01 = 3, reverse).
5.	Set motor parameters according to motor nameplate: F08.00 (rated power), F08.01 (rated voltage), F08.02 (rated current), F08.03 (rated frequency), F08.04 (rated speed).
6.	Set Acc. and Dec. time: F03.01 (Acc. time), F03.02 (Dec. time).
7.	Close K1, the inverter runs forward. Close K2, the inverter runs reverse.
8.	Close or disconnect K1 and K2 at the same time, the inverter stops.

5.3.3 Communication Start and Stop the Inverter

When F00.11 = 2 (communication control), use the host computer to read and write function parameters, read status parameters, and write control commands.

- The inverter is in slave mode during communication.
- Refer to section 6.15 to set the Modbus communication parameters.

Chapter 6 Detailed Parameter Description

6.1 d00: Display Parameters

<table>
<tr><th>Ref. Code</th><th>Function Description</th><th>Set Range [Default]</th></tr>
<tr><td>d00.00</td><td>Inverter series</td><td>[Actual]</td></tr>
<tr><td>d00.01</td><td>Control board software version</td><td>[Actual]</td></tr>
<tr><td>d00.03</td><td>Control board software non-standard version</td><td>[Actual]</td></tr>
<tr><td>d00.05</td><td>Keypad software version</td><td>[Actual]</td></tr>
<tr><td>d00.06</td><td>Customized series No.</td><td>[Actual]</td></tr>
<tr><td>d00.07</td><td>Control mode</td><td>[Actual]</td></tr>
<tr><td></td><td colspan="2">00: V/f control without PG.
20: Vector control without PG (SVC: Sensorless vector control).</td></tr>
<tr><td>d00.08</td><td>Inverter rated current (A)</td><td>[Actual]</td></tr>
<tr><td>d00.10</td><td>Inverter status</td><td>[Actual]</td></tr>
<tr><td></td><td colspan="2">Display the inverter status, as shown in the table below.
<table>
<tr><td>Thousand</td><td>Bit15: Unused</td><td>Bit14: Unused</td><td>Bit13: Auto current limit
0: Not in
1: In</td><td>Bit12: Overvoltage stall
0: Not in
1: In</td></tr>
<tr><td>Hundred</td><td>Bit11: Unused</td><td>Bit10: Speed limit
0: Not in
1: In</td><td>Bit9: Unused</td><td>Bit8: Parameter auto-tuning
0: Not in
1: In</td></tr>
<tr><td>Ten</td><td>Bit7: DC braking
0: Not in
1: In</td><td>Bit6: Unused</td><td colspan="2">Bit5&Bit4: Acc./Dec./Constant
00: Constant 01: Acc.
11: Constant 10: Dec.</td></tr>
<tr><td>Unit</td><td>Bit3: Zero speed running
0: Not in
1: In</td><td>Bit2: Forward or reverse
0: Forward
1: Reverse</td><td>Bit1: Run or stop
0: Stop
1: Run</td><td>Bit0: Inverter fault
0: No fault
1: Faul</td></tr>
</table></td></tr>
</table>

Ref. Code	Function Description	Set Range [Default]
d00.11	**Main setting frequency channel**	**[Actual]**
	0: Keypad. 1: Terninal. 2: Communicaiton. 3: Analog. 4: Terminal pulse. 6: AI1. 7: AI2. 10: Keypad potentiometer. 11: PID. 12: MS speed.	
d00.12	**Main setting frequency (Hz)**	**[Actual]**
d00.13	**Auxiliary setting frequency (Hz)**	**[Actual]**
d00.14	**Setting frequency (Hz)**	**[Actual]**
d00.15	**Reference frequency (after Acc./Dec.) (Hz)**	**[Actual]**
d00.16	**Output frequency (Hz)**	**[Actual]**
d00.17	**Setting speed (rpm)**	**[Actual]**
d00.18	**Running speed (rpm)**	**[Actual]**
d00.20	**Output voltage (V)**	**[Actual]**
d00.21	**Output current (A)**	**[Actual]**
d00.22	**Reference torque (%)**	**[Actual]**
d00.23	**Output torque (%)**	**[Actual]**
d00.24	**Output power (kW)**	**[Actual]**
d00.25	**DC bus voltage (V)**	**[Actual]**
d00.26	**Potentiometer input voltage (%)**	**[Actual]**
d00.27	**AI1 input (%)**	**[Actual]**
	Display the AI1 input. AI1 can set voltage input or current input. • Voltage input: 0V corresponds to 0.0%, 10V corresponds to 100.0%. • Current input: 0mA corresponds to 0.0%, 20mA corresponds to 100.0%.	
d00.28	**AI1 input (after process) (%)**	**[Actual]**
	Displays the AI1 input after filter, gain, and bias. • Voltage input: 0V corresponds to 0.0%, 10V corresponds to 100.0%. • Current input: 0mA corresponds to 0.0%, 20mA corresponds to 100.0%.	
d00.29	**AI2 input (%)**	**[Actual]**
	Display the AI2 input. • Voltage input: -10V corresponds to -100.0%, +10V corresponds to +100.0%.	

<table>
<tr><th>Ref. Code</th><th>Function Description</th><th>Set Range [Default]</th></tr>
<tr><td>d00.30</td><td>AI2 input (after process) (%)</td><td>[Actual]</td></tr>
<tr><td></td><td colspan="2">Displays the AI2 input after filter, gain, and bias.
• Voltage input: -10V corresponds to -100.0%, +10V corresponds to +100.0%.</td></tr>
<tr><td>d00.35</td><td>DI5 terminal pulse input frequency (Hz)</td><td>[Actual]</td></tr>
<tr><td>d00.36</td><td>AO output (%)</td><td>[Actual]</td></tr>
<tr><td></td><td colspan="2">Display the AO output.
• Voltage output: 0.0% corresponds to 0V, 100.0% corresponds to 10V.</td></tr>
<tr><td>d00.38</td><td>High-speed pulse output frequency (Hz)</td><td>[Actual]</td></tr>
<tr><td>d00.40</td><td>Setting line speed</td><td>[Actual]</td></tr>
<tr><td>d00.41</td><td>Reference line speed</td><td>[Actual]</td></tr>
<tr><td>d00.44</td><td>PID reference (%)</td><td>[Actual]</td></tr>
<tr><td>d00.45</td><td>PID feedback (%)</td><td>[Actual]</td></tr>
<tr><td>d00.46</td><td>PID error (%)</td><td>[Actual]</td></tr>
<tr><td>d00.47</td><td>PID integral (%)</td><td>[Actual]</td></tr>
<tr><td>d00.48</td><td>PID output (%)</td><td>[Actual]</td></tr>
<tr><td>d00.49</td><td>External count</td><td>[Actual]</td></tr>
<tr><td>d00.50</td><td>Input terminal status</td><td>[Actual]</td></tr>
<tr><td></td><td colspan="2">Display the input terminal status. Each Bit is a terminal.
• 0: The input terminal is disconnected with common terminal.
• 1: The input terminal is connected with common terminal.
<table>
<tr><th>Bit13</th><th>Bit12</th><th>Bit11 - Bit5</th><th>Bit4</th><th>Bit3</th><th>Bit2</th><th>Bit1</th><th>Bit0</th></tr>
<tr><td>AI2</td><td>AI1</td><td>-</td><td>DI5</td><td>DI4</td><td>DI3</td><td>DI2</td><td>DI1</td></tr>
</table></td></tr>
<tr><td>d00.51</td><td>Output terminal status</td><td>[Actual]</td></tr>
<tr><td></td><td colspan="2">Display output terminal status. Each Bit is a terminal.
• 0: The output terminal is disconnected with common terminal.
• 1: The output terminal is connected with common terminal.
<table>
<tr><th>Bit2</th><th>Bit1</th><th>Bit0</th></tr>
<tr><td>RLY</td><td>DO2</td><td>DO1</td></tr>
</table></td></tr>
<tr><td>d00.55</td><td>Total time at power on (h)</td><td>[Actual]</td></tr>
<tr><td>d00.56</td><td>Total time at running (h)</td><td>[Actual]</td></tr>
<tr><td>d00.57</td><td>Total motor energy consumption (high bit) (k kW.h)</td><td>[Actual]</td></tr>
<tr><td>d00.58</td><td>Total motor energy consumption (low bit) (kW.h)</td><td>[Actual]</td></tr>
<tr><td>d00.59</td><td>Energy consumption of this run (high bit) (k kW.h)</td><td>[Actual]</td></tr>
<tr><td>d00.60</td><td>Energy consumption of this run (low bit) (kW.h)</td><td>[Actual]</td></tr>
<tr><td>d00.61</td><td>Present fault</td><td>[Actual]</td></tr>
</table>

Ref. Code	Function Description	Set Range [Default]
d00.62	AI1 actual sampling value	[Actual]
d00.63	AI2 actual sampling value	[Actual]

6.2 F00: Basic Parameters

Ref. Code	Function Description	Set Range [Default]
F00.01	Control mode	0 - 2 [0]
	0: V/f control without PG. Constant control voltage/frequency ratio. • Applicable to one inverter driving multiple motors to improve the present speed control system. • In order to achieve the control effect, please set the group F09 parameters reasonably. 2: Vector control without PG. SVC (sensorless vector control) control. • Applicable to variable speed drives with high drive performance requirements and high torque requirements. • In order to achieve the vector control effect, please obtain the correct motor parameters through motor parameter auto-tuning, and set the group F10 parameters.	
F00.06	Max. output frequency	50.00 - 400.00 [50.00Hz]
	Set the Max. frequency of the inverter output. • The Max. frequency is 400Hz for V/f control and 150Hz for SVC control. • Set F00.06 according to the motor nameplate parameters and the actual running condition.	
F00.08	Upper limit running frequency	0.00 - F00.06 [50.00Hz]
F00.09	Lower limit running frequency	0.00 - F00.08 [0.00Hz]
	Limit the actual output frequency of the inverter. When F19.10 (zero frequency threshold) < setting frequency < F00.09, the inverter runs at F00.09. • Invalid for motor parameter auto-tuning. • The following parameters limit the output frequency of the inverter: F00.08/F00.09, F02.02/F02.14 (start/stop DWELL frequency), F02.16 (DC braking start frequency at stop), F05.17 (skip frequency), F19.10 (zero frequency threshold).	

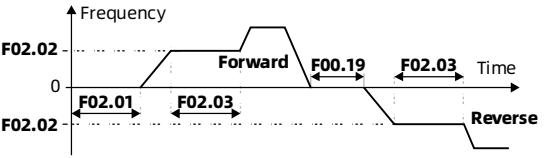
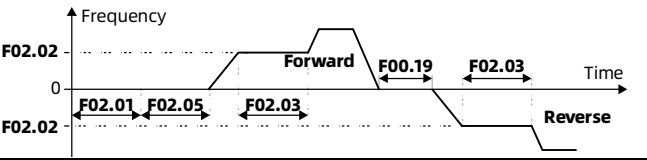
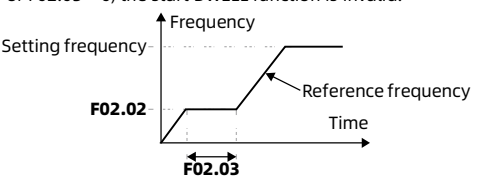
Ref. Code	Function Description	Set Range [Default]
F00.10	**Frequency setting channel**	**0 - 10 [0]**
	0: Keypad. • Use ▲ or ▼ key on the keypad to increase or decrease the frequency, F00.13 sets the initial running frequency. 1: Terminal. • Use UP or DN terminal to increase or decrease the frequency, F00.13 sets the initial running frequency. 2: SCI communication. • Use the frequency setting command of SCI communication to set the frequency, the initial running frequency is 0. 3: Analog. • Analog input sets the frequency, refer to F16.00 - F16.02. • For the relationship between analog input and setting frequency, refer to group F05. 4: Terminal pulse. • Use DI5 terminal to set the frequency, input pulse specifications: Voltage 0 - 30V, frequency 0.00 - 50.00kHz. • For the relationship between pulse input and setting frequency, refer to group F05. 6: AI1. 7: AI2. 10: Keypad potentiometer.	
F00.11	**Run command channel**	**0 - 2 [0]**
	0: Keypad. • Use ◇ **Start,** ▽ **STOP,** or **JOG** key on the keypad to start or stop the inverter. 1: Terminal. • Use DI terminal to start or stop the inverter. • DI terminal function: Forward (set to 2), reverse (set to 3), JOGF (set to 20), JOGR (set to 21), refer to group F15. 2: SCI communication. • Use the communication command to start or stop the inverter.	

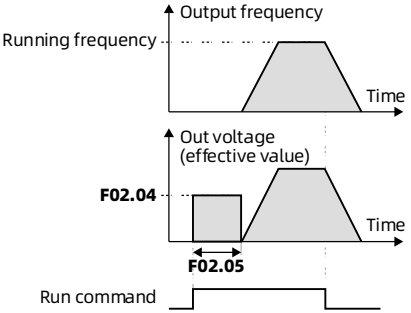
Ref. Code	Function Description	Set Range [Default]
F00.13	**Initial running frequency (digital setting)**	**0.00 - upper limit [50.00Hz]**
	When F00.10 = 0 or 1, F00.13 sets the initial running frequency.	
F00.14	**Frequency control (digital setting)**	**0000 - 1111 [1001]**
	Valid when F00.10 = 0 or 1. After setting the frequency use F00.13, the new frequency replaces the present setting frequency. **Unit: Save setting frequency when power off** • 0: Not save. • 1: Save to F00.13. **Ten: Setting frequency control when stop** • 0: Hold the setting frequency. • 1: The setting frequency is F00.13. **Hundred: Save communication setting frequency when power off** • 0: Not save. • 1: Save to F00.13. **Thousand: Save setting frequency when switching the frequency channel** • 0: Not save. • 1: Save. Example: F00.10 = 0 or 1 and the setting frequency is A. Switch the frequency channel to other channel (such as analog, F00.10 = 3), and then switch to the keypad or terminal (F00.10 = 0 or 1). If thousand = 0, the setting frequency is F00.13. If thousand = 1, the setting frequency is A.	
F00.15	**Jog running frequency (digital setting)**	**0.00 - upper limit [5.00Hz]**
F00.17	**Run direction**	**0, 1 [0]**
	0: Same direction. 1: Reverse direction.	
F00.18	**Anti-reverse**	**0, 1 [0]**
	Valid when F00.11 = 0, 1, or 2. 0: Allow reverse. 1: Prohibit reverse. • The inverter only responds to the FWD command. If the frequency is negative, the inverter runs at zero frequency. • In the stop state, the inverter does not respond to the REV command. • In the run state, when the inverter receives the REV command, the inverter decelerates to stop immediately and holds the stop state.	
F00.19	**Switching time between FWD and REV**	**0.0 - 3600.0 [0.0s]**
	When the inverter runs FWD to REV, or REV to FWD, F00.19 sets the time for the inverter to output zero frequency.	

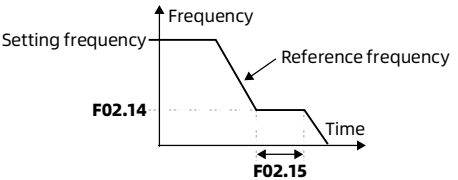
6.3 F01: Protection Parameters

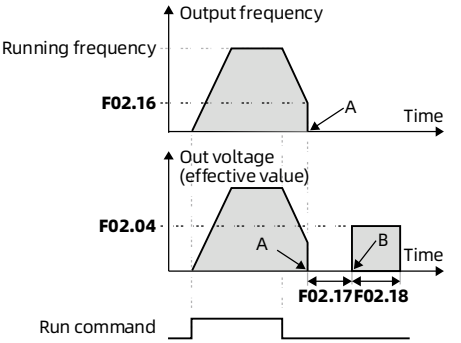
Ref. Code	Function Description	Set Range [Default]
F01.00	**User password**	**00000 - 65535 [00000]**
	Set F01.00 ≠ 0, press **PRG** key to exit to the state display interface or no key operation within 5 minutes, the user password takes effect. The keypad can only check the parameters. If you need to set parameter, please enter the user password. • If F01.00 ≠ 0, set F01.00 = 0 to clear the password.	
F01.01	**Menu mode**	**0, 1 [0]**
	0: Full menu mode. • Display all parameters. 1: Check menu mode. • Only display parameters different from the default setting.	
F01.02	**Parameter initialization (download)**	**0 - 6 [0]**
	0: No operation. • The inverter can read and write the parameters normally. Need to judge: User password status, inverter running condition. 1: Restore to factory setting. • Except F01.00, F01.02, F01.03, group F08, F19.19, F19.24, F20.21 - F20.37, F23.00. • **Steps:** Set F01.02 = 1, press ▶ key, the keypad display "rESEt". When the keypad displays the stop status parameter, the parameter restore is complete. 2, 3: Copy the keypad parameter 1/2 to the control board, and update the parameter value. • Cannot copy F01.00, F01.02, F01.03, and F20.21 - F20.37. • Valid only for the external keypad. 4: Clear fault information. • Clear the fault information recorded in F20.21 - F20.37. 5, 6: Copy the keypad parameter 1/2 to the control board, and update the parameter value (include motor parameters). • Cannot copy F01.00, F01.02, F01.03, and F20.21 - F20.37. • Valid only for the external keypad.	
F01.03	**Copy parameters to the keypad**	**0 - 2 [0]**
	0: No operation. • The inverter can read and write the parameters normally. 1, 2: Copy the present parameter value to the keypad parameter 1/2. • Cannot copy F01.00, F01.02, F01.03, and F20.21 - F20.37. • Valid only for the external keypad.	

6.4 F02: Run and Stop Control Parameters

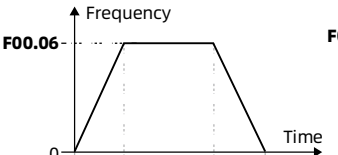
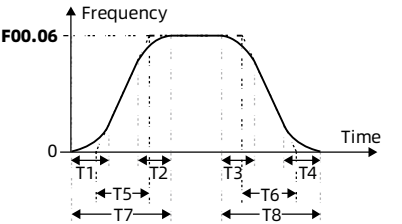
Ref. Code	Function Description	Set Range [Default]
F02.00	**Start mode**	**0, 1 [1]**
	0: From the DWELL frequency to start. • Refer to F02.02 and F02.03 for the start DWELL frequency.  1: Brake first and then start from DWELL frequency. • Refer to F02.04 and F02.05 for the DC braking. • Star DC braking is valid only in the starting process from the stop state to run state, and is invalid in the starting acceleration process after switching the run state. As shown in the figure below, there is no F02.05 in reverse running.  	
F02.01	**Start delay time**	**0.00 - 10.00 [0.00s]**
	The inverter receives the run command, waits for F02.01 time, and then starts to run.	
F02.02	**Start DWELL frequency**	**0.00 - upper limit [0.00Hz]**
F02.03	**Hold time of start DWELL frequency**	**0.00 - 10.00 [0.00s]**
	When starting, temporarily hold the output frequency to prevent the motor into a stall state. When the load is equipped with a brake, if the brake acts slowly, in order to prevent friction from the brake, use start DWELL function to accelerate after the brake is fully opened. • When the reference frequency accelerates to F02.02, the output frequency holds for F02.03 time, and then continues to accelerate. • When F02.02 = 0 or F02.03 = 0, the start DWELL function is invalid.  	

Ref. Code	Function Description	Set Range [Default]
F02.04	**DC braking current**	**0 – 100 (inverter rated current) [50%]**
F02.05	**Brake time of start DC braking**	**0.00 - 60.00 [0.00s]**
	F02.04 set the current of the DC braking at start and stop. • If F02.04 > 5 × motor rated current, the actual braking current = 5 × motor rated current. • When F02.05 = 0, no DC braking for starting process. • F02.05 is valid only when F02.00 = 1. 	
F02.13	**Stop mode**	**0 - 2 [2]**
	0: Unused. 1: Coast to stop. • After the inverter receives the stop command, the inverter stops output immediately and the load stops under the effects of mechanical inertia. 2: Dec. to stop with DC braking. • After the inverter receives the stop command, the inverter reduces the output frequency according to the Dec. time. When the output frequency is reduced to F02.16, the inverter starts DC braking. • Refers to F02.16 - F02.18 for the DC braking at stop. • Refers to F03.01 - F03.08 for the Dec. time.	

Ref. Code	Function Description	Set Range [Default]
F02.14	**Stop DWELL frequency**	**0.00 - upper limit [0.00Hz]**
F02.15	**Hold time of stop DWELL frequency**	**0.00 - 10.00 [0.00s]**
	When stopping, temporarily hold the output frequency to prevent the motor into a stall state. When the load is equipped with a brake, if the brake acts slowly, in order to prevent possible dangers when the brake is not fully closed, use stop DWELL function to stop after the brake is fully closed. • Valid only when F02.13 = 2. • When the reference frequency decelerates to F02.14, the output frequency holds for F02.15 time, and then continues to decelerate. • When F02.14 = 0 or F02.15 = 0, the stop DWELL function is invalid. 	

Ref. Code	Function Description	Set Range [Default]
F02.16	**Start frequency of stop DC braking**	**0.00 - 50.00 [0.50Hz]**
F02.17	**Wait time of stop DC braking**	**0.00 - 10.00 [0.00s]**
F02.18	**Brake time of stop DC braking**	**0.00 - 60.00 [0.00s]**
	During Dec. to stop, F02.17 sets the time from A to B in the figure. • A: The running frequency decelerates to F02.16. • B: Start DC braking. The inverter has no output within F02.17 time. • For high-power motors, setting F02.17 can prevent the current overshoot when the inverter starts DC braking (B in the figure). F02.04 set the current of the DC braking at stop. • When F02.18 = 0, no DC braking for stopping process. • Valid only when F02.13 = 2. 	
F02.19	**Jog control**	**0, 1 [0]**
	0: Disable. • During jog running, F02.00 (start mode) and F02.13 (stop mode) are invalid. • When the jog command is valid, the inverter starts running directly. When the jog command is invalid, the inverter decelerates to stop. 1: Enable. • During jog running, the inverter starts according to F02.00 and stops according to F02.13.	
F02.20	**Pre-excitation time**	**0.00 - 0.50 [0.01s]**
	Establish motor flux before the motor rotates to obtain faster acceleration performance. Please set F02.20 ≥ 0.10s. • Only valid under SVC control (F00.01 = 2). • When F02.20 = 0, the pre-excitation function is invalid.	

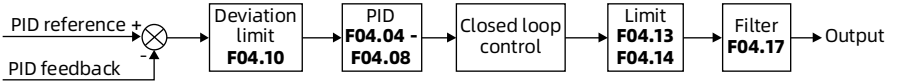
6.5 F03: Acc. and Dec. Parameters

Ref. Code	Function Description	Set Range [Default]
F03.00	**Acc. and Dec. mode**	**0, 1 [0]**
	0: Line Acc. and Dec. • Output frequency increases or decreases according to the constant slope. • F03.01 – F03.08 set the Acc. time and Dec. time. 1: S-curve Acc. and Dec. • Output frequency increases or decreases according to the S-curve. • T1 = F03.11. T2 = F03.12. T3 = F03.13. T4 = F03.14. • T5: Setting Acc. time. T7: Actual Acc. time. T6: Setting Dec. time. T8: Actual Dec. time.  	
F03.01	**Acc. time 1**	**0.1 - 6000.0 [10.0s]**
F03.02	**Dec. time 1**	**0.1 - 6000.0 [10.0s]**
F03.03	**Acc. time 2**	**0.1 - 6000.0 [10.0s]**
F03.04	**Dec. time 2**	**0.1 - 6000.0 [10.0s]**
F03.05	**Acc. time 3**	**0.1 - 6000.0 [10.0s]**
F03.06	**Dec. time 3**	**0.1 - 6000.0 [10.0s]**
F03.07	**Acc. time 4**	**0.1 - 6000.0 [10.0s]**
F03.08	**Dec. time 4**	**0.1 - 6000.0 [10.0s]**
	When F03.00 = 0, F03.01 – F03.08 set the Acc. time and Dec. time. • Acc. time: The time for inverter to accelerate from zero frequency to F00.06 (Max. output frequency). • Dec. time: The time for inverter to decrease from F00.06 (Max. output frequency) to zero frequency. Switch the Acc. time and Dec. time during inverter running: • DI terminal (function No. 26 and 27). • F03.09 and F03.10.	

Ref. Code	Function Description	Set Range [Default]
F03.09	**Switching frequency of Acc. time 2 and time 1**	**0.00 - upper limit [0.00Hz]**
	When the running frequency < F03.09, the inverter accelerates according to Acc. time 2. Otherwise, the inverter accelerates according to Acc. time 1. • Invalid when the DI terminals select Acc. and Dec. time (function No. 26 and 27).	
F03.10	**Switching frequency of Dec. time 2 and time 1**	**0.00 - upper limit [0.00Hz]**
	When the running frequency < F03.10, the inverter decelerates according to Dec. time 2. Otherwise, the inverter decelerates according to Dec. time 1. • Invalid when the DI terminals select Acc. and Dec. time (function No. 26 and 27).	
F03.11	**Acc. start time of S-curve**	**0.00 - 2.50 [0.20s]**
F03.12	**Acc. end time of S-curve**	**0.00 - 2.50 [0.20s]**
F03.13	**Dec. start time of S-curve**	**0.00 - 2.50 [0.20s]**
F03.14	**Dec. end time of S-curve**	**0.00 - 2.50 [0.20s]**
	Refer to the figure of F03.00.	
F03.15	**Acc. time of jog running**	**0.1 - 6000.0 [6.0s]**
F03.16	**Dec. time of jog running**	**0.1 - 6000.0 [6.0s]**
	Set the Acc. time and Dec. time during jog running.	
F03.17	**Dec. time of emergency stop**	**0.1 - 6000.0 [10.0s]**
	Set the Dec. time during emergency stop.	

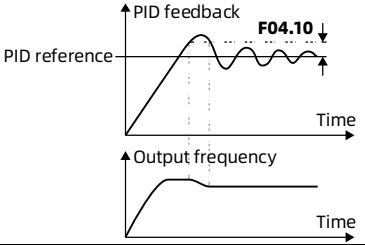
6.6 F04: PID Control Parameters

PID control is used to control physical quantities such as pressure, liquid level, temperature, etc.



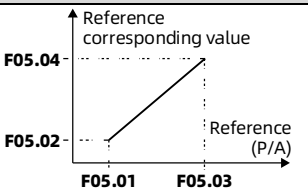
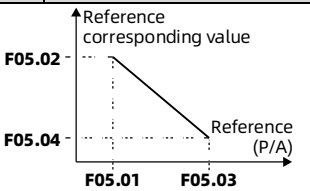
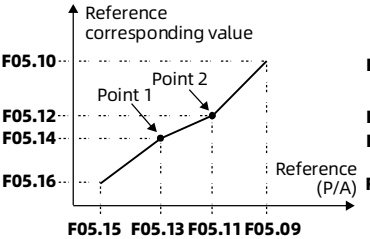
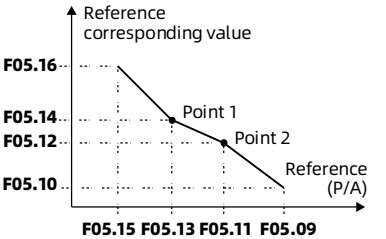
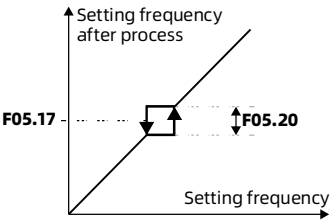
The Max. analog input of AI or Max. input pulse frequency (F16.17) of DI5 corresponds to F00.06 (Max. output frequency).

Ref. Code	Function Description	Set Range [Default]
F04.00	**PID control**	**0, 1 [0]**
	0: Invalid. 1: Valid.	
F04.01	**PID reference channel**	**0 - 2 [0]**
	0: Digital (F04.03). • F04.03 sets the PID reference. 1: Analog. • The analog input sets the PID reference (F16.00 - F16.02 = 4), the Max. analog input corresponds to 100% of the PID reference, refer to group F16. 2: Terminal pulse. • DI5 terminal sets the PID reference (F15.04 = 53), the Max. input pulse frequency (F16.17) corresponds to 100% of the PID reference.	
F04.02	**PID feedback channel**	**0, 1 [0]**
	0: Analog. • The analog input sets the PID feedback (F16.00 - F16.02 = 5). 1: Terminal pulse. • DI5 terminal sets the PID feedback (F15.04 = 53).	
F04.03	**PID reference (digital setting)**	**-100.0 - +100.0 [0.0%]**
	Valid only when F04.01 = 0.	
F04.04	**Proportional gain (P)**	**0.00 - 10.00 [2.00]**
F04.05	**Integral time (I)**	**0.01 - 10.00 [1.00s]**
F04.06	**Integral upper limit**	**0.00 - upper limit [50.00Hz]**
F04.07	**Differential time (D)**	**0.00 - 10.00 [0.00s]**
F04.08	**Differential limit**	**0.00 - upper limit [20.00Hz]**
F04.09	**Sampling time (T)**	**0.01 - 50.00 [0.10s]**
	F04.04, F04.05 and F04.07 set the PID parameters. F04.06 sets the PID integral upper limit. F04.08 sets the PID differential upper limit.	

Ref. Code	Function Description	Set Range [Default]
	F04.09 sets the time of PID feedback, and the PID regulator calculates once in each F04.09. • When F04.07 = 0, the differential is invalid.	
F04.10	**Deviation limit**	**0.0 - 20.0 [0.0%]**
	Set the Max. deviation of the system output (feedback) from the PID reference. • When the feedback amount is within the F04.10 range, the PID regulator stops regulating. • Setting F04.10 can balance the accuracy and stability of the system output. 	
F04.13	**PID regulator upper limit**	**0.0 - 100.0 [100.0%]**
F04.14	**PID regulator lower limit**	**0.0 - 100.0 [0.0%]**
	Set the upper and lower limits of the PID regulator output.	
F04.17	**PID output filter time**	**0.01 - 10.00 [0.05s]**
	Set the time to filter the PID output.	
F04.18	**PID output reverse**	**0, 1 [0]**
	0: Disable. • When PID output is negative, 0 is the limit. 1: Enable. • When F00.18 = 1 (prohibit reverse), 0 is the limit.	
F04.19	**Upper limit frequency of PID output reverse**	**0.0 - upper limit [50.0Hz]**
	When F04.18 = 1, F04.19 sets the upper limit frequency for PID reverse. If F00.18 = 1 (prohibit reverse), F04.19 is 0.	

6.7 F05: External Reference Curve Parameters

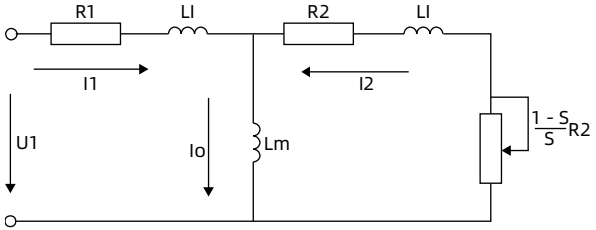
Ref. Code	Function Description	Set Range [Default]
F05.00	**External reference curve**	**00000 - 31133 [31133]**
	Unit: AI1 **Ten: AI2** **Hundred, thousand: Unused** **Ten thousand: Pulse input** • 0: Line. • 1: Unused. • 2: Polyline. • 3: Not process.	
F05.01	**Min. reference of line**	**0.0 - F05.03 [0.0%]**
F05.02	**Min. reference corresponding value of line**	**0.0 - 100.0 [0.0%]**
F05.03	**Max. reference of line**	**F05.01 - 100.0 [100.0%]**
F05.04	**Max. reference corresponding value of line**	**0.0 - 100.0 [100.0%]**
F05.09	**Max. reference of polyline**	**F05.11 - 100.0 [100.0%]**
F05.10	**Max. reference corresponding value of polyline**	**0.0 - 100.0 [100.0%]**
F05.11	**Point 2 reference of polyline**	**F05.13 - F05.09 [100.0%]**
F05.12	**Point 2 corresponding value of polyline**	**0.0 - 100.0 [100.0%]**
F05.13	**Point 1 reference of polyline**	**F05.15 - F05.11 [0.0%]**
F05.14	**Point 1 corresponding value of polyline**	**0.0 - 100.0 [0.0%]**
F05.15	**Min. reference of polyline**	**0.0 - F05.13 [0.0%]**
F05.16	**Min. reference corresponding value of polyline**	**0.0 - 100.0 [0.0%]**
	F05.01 - F05.04 set the line, F05.09 - F05.16 set the polyline. Line and polyline can independently achieve positive and negative characteristics. • If F05.09 = F05.15, the polyline is line. The default frequency is the frequency corresponding to the Min. reference of the polyline.	

Ref. Code	Function Description	Set Range [Default]
	    In the figure: • P: Terminal pulse, P = 100% corresponds to F16.17 (Max. input pulse frequency). • A: Terminal analog, A = 100%, AI1 corresponds to 10V or 20mA, and AI2 corresponds to 10V.	
F05.17	**Skip frequency**	**F00.09 - upper limit [0.00Hz]**
F05.20	**Skip frequency range**	**0.00 - 30.00 [0.00Hz]**
	Setting the skip frequency can make the inverter output frequency to avoid resonance with the load. • The skip frequency is invalid for PID control. Within the skip frequency range: • The inverter does not run at constant speed. • The inverter automatically updates the setting frequency. The output frequency does not change suddenly, but changes smoothly according to the Acc. and Dec. curve. 	

6.8 F06: Multi Speed Parameters

Ref. Code	Function Description	Set Range [Default]
F06.00	MS frequency 1	F00.09 - upper limit [5.00Hz]
F06.01	MS frequency 2	F00.09 - upper limit [5.00Hz]
F06.02	MS frequency 3	F00.09 - upper limit [5.00Hz]
F06.03	MS frequency 4	F00.09 - upper limit [5.00Hz]
F06.04	MS frequency 5	F00.09 - upper limit [5.00Hz]
F06.05	MS frequency 6	F00.09 - upper limit [5.00Hz]
F06.06	MS frequency 7	F00.09 - upper limit [5.00Hz]
F06.07	MS frequency 8	F00.09 - upper limit [5.00Hz]
F06.08	MS frequency 9	F00.09 - upper limit [5.00Hz]
F06.09	MS frequency 10	F00.09 - upper limit [5.00Hz]
F06.10	MS frequency 11	F00.09 - upper limit [5.00Hz]
F06.11	MS frequency 12	F00.09 - upper limit [5.00Hz]
F06.12	MS frequency 13	F00.09 - upper limit [5.00Hz]
F06.13	MS frequency 14	F00.09 - upper limit [5.00Hz]
F06.14	MS frequency 15	F00.09 - upper limit [5.00Hz]
	Set the start frequency of each step speed in the MS (multi speed) running.	

6.9 F08: Motor Parameters



In the figure:

- R1 = F08.07 (stator resistance)
- R2 = F08.08 (rotor resistance)
- LI = F08.09 (leakage inductance)
- Lm = F08.10 (mutual inductance)
- Io = F08.11 (idling exciting current)
- S = Slip ratio

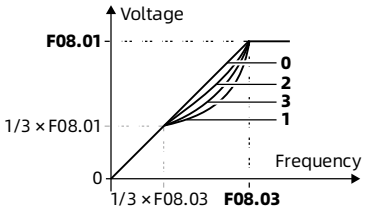
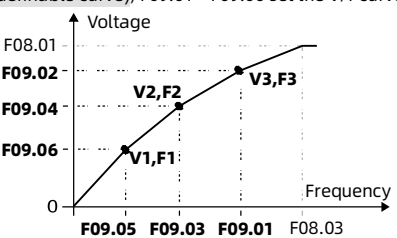
F08.10 is calculated by the following formula:

$$F08.10 = \frac{F08.01 / \sqrt{3}}{2\pi \times F08.03 \times F08.11} - F08.09$$

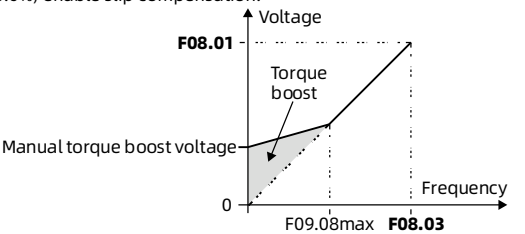
Ref. Code	Function Description	Set Range [Default]
F08.00	**Motor rated power**	**0.2 - 5.5kW [Depend on model]**
F08.01	**Motor rated voltage**	**0 - 999V [Depend on model]**
F08.02	**Motor rated current**	**0.01 - 99.99A [Depend on model]**
F08.03	**Motor rated frequency**	**1.0 - 400.0 [50.0Hz]**
F08.04	**Motor rated speed**	**1 - 24000rpm [Depend on model]**
	Set F08.00 - F08.04 according to the motor nameplate.	
F08.06	**Motor parameter auto-tuning**	**0 - 3 [0]**
	The auto-tuning is valid only in keypad control (F00.11 = 0). 0: No operation. 1 Static auto-tuning. • During auto-tuning, the motor is in stationary state, the inverter measures the stator resistance, rotor resistance and leakage inductance of the motor, and saves the measurement results into F08.07 - F08.09.	

<table>
<tr><th>Ref. Code</th><th>Function Description</th><th>Set Range [Default]</th></tr>
<tr><td></td><td colspan="2">2: Rotary auto-tuning.
• During auto-tuning, the motor is in stationary state first, the inverter measures the motor data (stator resistance, rotor resistance, and leakage inductance).
Then the motor is in rotating state, the inverter measures the motor data (mutual inductance, idling excitation current, and flux saturation coefficient).
Finally, the inverter saves the measurement results into F08.07 - F08.16.
• When the motor rotates, if oscillation or overcurrent occurs in the system, press ▽ STOP key to stop auto-tuning, adjust F09.15 and F09.16 (suppress oscillation coefficient), and then restart auto-tuning.
3. Measure motor stator resistance.
• The motor is in stationary state, the inverter measures the stator resistance of the motor and saves the measured result into F08.07.
Auto-tuning steps:
1. Set F08.00 - F08.04 according to the motor nameplat.
2. If you select rotary auto-tuning (F08.06 = 2), you also need to set:
• F03.01 and F03.02 (Acc. time and Dec. time).
• Remove the load from the motor shaft and confirm safety.
3. Set F00.11 = 0 (keypad control), default is 0.
4. Start auto-tuning: Set F08.06, press ◇ Start key, and the kaypad displays “tunE”.
5. When the kaypad does not display “tunE”, confirm the auto-tuning is successful: The inverter does not report fault.
6. F08.06 restore to 0.</td></tr>
<tr><td>F08.07</td><td>Stator resistance of motor</td><td>0.00 - 99.99Ω [Depend on model]</td></tr>
<tr><td>F08.08</td><td>Rotor resistance of motor</td><td>0.00 - 99.99Ω [Depend on model]</td></tr>
<tr><td>F08.09</td><td>Leakage inductance of motor</td><td>0.0 - 5000.0mH [Depend on model]</td></tr>
<tr><td>F08.10</td><td>Mutual inductance of motor</td><td>0.0 - 5000.0mH [Depend on model]</td></tr>
<tr><td>F08.11</td><td>Idling exciting current of motor</td><td>0.00 - 99.99A [Depend on model]</td></tr>
<tr><td>F08.12</td><td>Core saturation coefficient 1 of motor</td><td>0.00 - 1.00 [1.00]</td></tr>
<tr><td>F08.13</td><td>Core saturation coefficient 2 of motor</td><td>0.00 - 1.00 [1.00]</td></tr>
<tr><td>F08.14</td><td>Core saturation coefficient 3 of motor</td><td>0.00 - 1.00 [1.00]</td></tr>
<tr><td>F08.15</td><td>Core saturation coefficient 4 of motor</td><td>0.00 - 1.00 [1.00]</td></tr>
<tr><td>F08.16</td><td>Core saturation coefficient 5 of motor</td><td>0.00 - 1.00 [1.00]</td></tr>
</table>

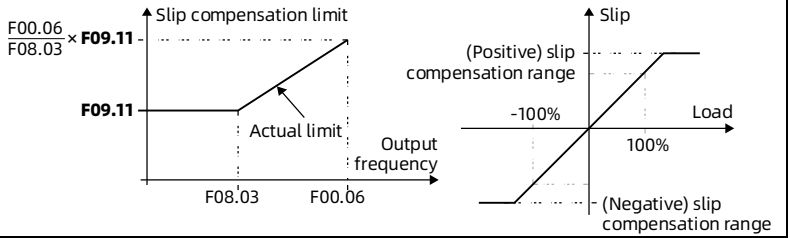
6.10 F09: V/f Control Parameters

Ref. Code	Function Description	Set Range [Default]
F09.00	**V/f curve**	**0 - 4 [0]**
	0: Line. • Shown as curve 0 in figure. 1: Square curve. • Shown as curve 1 in the figure. 2: 1.2 exponential curve. • Shown as curve 2 in the figure. 3: 1.7 exponential curve. • Shown as curve 3 in the figure. 4: User-defined curve. • Apply to special load. 	
F09.01	**V/f frequency F3**	**F09.03 - 100.0% (F08.03) [80.0%]**
F09.02	**V/f voltage V3**	**F09.04 - 100.0% (F08.01) [80.0%]**
F09.03	**V/f frequency F2**	**F09.05 - F09.01 (F08.03) [50.0%]**
F09.04	**V/f voltage V2**	**F09.06 - F09.02 (F08.01) [50.0%]**
F09.05	**V/f frequency F1**	**0.0 - F09.03 (F08.03) [0.0%]**
F09.06	**V/f voltage V1**	**0.0 - F09.04 (F08.01) [0.0%]**
	When F09.00 = 4 (user-definable curve), F09.01 - F09.06 set the V/f curve. 	

Ref. Code	Function Description	Set Range [Default]
F09.07	**Torque boost**	**0.0 - 30.0 [2.0%]**
F09.08	**Cut-off point for manual torque boost**	**0.0 - 50.0 (F08.03) [30.0%]**

	Torque boost is valid for any V/f curve. Increase the output voltage to compensate the low frequency torque.
	• When F09.07 ≠ 0, manual torque boost mode.
	• When F09.07 = 0, automatic torque boost mode. Please set the following parameters:
	  • Motor rated frequency (F08.03): According to the motor nameplate.
	  • Motor rated speed (F08.04): According to the motor nameplate, or by rotary auto-tuning.
	  • Motor stator resistance (F08.07): By auto-tuning.
	  • F09.09 = 100.0%, enable slip compensation.
	 	

F09.09	**Slip compensation gain**	**0.0 - 300.0 [0.0%]**
F09.10	**Slip compensation filter time**	**0.01 - 10.00 [0.10s]**
F09.11	**Slip compensation limit**	**0.0 - 250.0 [200.0%]**
	Changes of the motor load torque affect the motor run slip, and change the motor speed. Set slip compensation to reduce this change. Slip compensation: The inverter automatically adjusts the output frequency according to the motor load torque. • Electric status (actual speed < setting speed) and regenerative status (actual speed > setting speed) can increase F09.09. • F09.11 does not change within constant torque range (output frequency ≤ motor rated frequency), and increases proportionally according to output frequency within constant power range. • The automatic slip compensation is related to the motor rated slip. Please correctly set F08.03 (motor rated frequency) and F08.04 (motor rated speed). Slip compensation range = actual slip compensation limit × motor rated slip.	

Ref. Code	Function Description	Set Range [Default]
		
F09.12	**Motor iron loss**	**0.000 - 9.999kW [Depend on model]**
	Used for torque compensation in V/f control. Normally, F09.12 is not set. If the accurate iron loss value is obtained from the motor test report, please set F09.12 to this value.	
F09.14	**AVR (automatic voltage regulation) function**	**0 - 2 [1]**

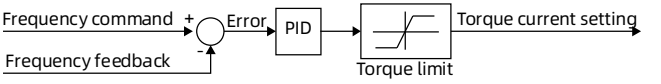
	Only valid in V/f control, AVR always acts in SVC control.
	0: Disabled.
	1: Enable all the time.
	2: Disable in Dec. process.
	• When the input voltage deviates from the rated voltage, use the AVR function to hold the output voltage constant. Especially for input voltage higher than the rated voltage, please enable the AVR function.
	• When Dec. to stop, the energy is feedback from the load to the inverter, the bus voltage rises.
	  • Set F09.14 = 0 or 2, the running current is larger.
	  • Set F09.14 = 1, the running current is small and the motor decelerates steadily.	

F09.15	**Suppress oscillation coefficient at low frequency**	**0 - 200 [50]**
F09.16	**Suppress oscillation coefficient at high frequency**	**0 - 200 [20]**
	Suppress the oscillation when the inverter drives the motor. If F09.15 and F09.16 are not set properly, it may cause current oscillation. • If the output current changes repeatedly during constant load running, set F09.16 to eliminate oscillation and make the motor run smoothly.	

6.11 F10: Vector Control Speed Loop Parameters

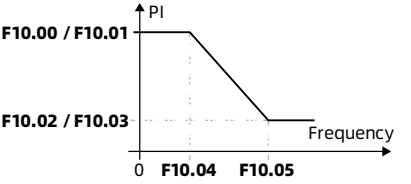
Ref. Code	Function Description	Set Range [Default]
F10.00	Proportional gain 1 (P)	0.1 - 200.0 [10.0]
F10.01	Integral time 1 (I)	0.00 - 10.00 [0.20s]
F10.02	Proportional gain 2 (P)	0.1 - 200.0 [10.0]
F10.03	Integral time 2 (I)	0.00 - 10.00 [0.20s]
F10.04	PI switching frequency 1	0.00 - 50.00 [10.00Hz]
F10.05	PI switching frequency 2	0.00 - 50.00 [15.00Hz]

F10.00 - F10.05 and F10.07 set the PID parameters of ASR (automatic speed regulator).



As shown in the figure below:

- When the running frequency < F10.04, the PI are F10.00 and F10.01.
- When the running frequency > F10.05, the PI are F10.02 and F10.03.
- When F10.04 < running frequency < F10.05, the P is the linear interpolation between F10.00 and F10.02, and the I is the linear interpolation between F10.01 and F10.03.



Adjustment mode:

- First adjust P (proportional gain), increase P to maximum without system oscillation, and then adjust I (integration time) so that the system can respond quickly without overshoot.
  - Increasing P can increase the dynamic response speed of the system. But if P is too large, the system is easy to oscillate.
  - Decreasing I can increase the dynamic response speed of the system. But if I is too small, the system is easy to oscillate and overshoot.
  - To improve the dynamic response speed in low frequency running, please increase P and decrease I.
- If I = 0, the integral is invalid and the ASR is a proportional regulator.

Ref. Code	Function Description	Set Range [Default]
F10.06	**Integral limit**	**0.0 - 200.0 (F08.02) [180.0%]**
	Set the ASR integral upper limit.	
F10.07	**Differential time (D)**	**0.00 - 1.00 [0.00s]**
	Normally, F10.07 is not set. if you need to improve the dynamic response, you can set F08.07. • When F10.07 = 0, the differential is invalid.	
F10.08	**ASR output filter time**	**0.000 - 1.000 [0.010s]**
	Set the time to filter the ASR output. • When F10.08 = 0, ASR output is not filtered.	
F10.09	**Motor torque limit lock**	**0, 1 [0]**
	0: Not lock. 1: Same as the FWD electric torque limit.	
F10.10	**Motor torque limit channel**	**0000 - 2222 [0000]**
	Unit: Forward electric **Ten: Reverse electric** **Hundred: Forward regenerative** **Thousand: Reverse regenerative** • 0: Digital limit (F10.11 – F10.14). • 1: Analog input. • 2: Terminal pulse.	
F10.11	**Electric torque limit for motor forward**	**0.0 - 250.0 (F08.02) [180.0%]**
F10.12	**Electric torque limit for motor reverse**	
F10.13	**Regenerative torque limitation for motor forward**	
F10.14	**Regenerative torque limitation for motor reverse**	
	Please set F10.11 - F10.14 carefully, too large a setting may damage the motor.	

6.12 F11: Vector Control Current Loop Parameters

Ref. Code	Function Description	Set Range [Default]
F11.00	KP	1 - 2000 [800]
F11.01	KI	1 - 1000 [200]
	Set the PI parameters of ACR (automatic current regulator). • Normally, the PI parameters are not set.	
F11.02	ACR output filter time	0 - 31 [3]
	Set the time to filter the ACR output.	
F11.03	Feedforward enable	0, 1 [0]
	The inverter calculates the voltage feedforward of the ACR output in real time based on the motor parameters, exciting current, and torque current. • When the motor parameters are accurate, please enable the feedforward to improve the dynamic response of the system. • When the motor parameters are not accurate, please disable the feedforward. 0: Disable. 1: Enable.	
F11.04	Motor exciting boost	0.0 - 30.0 (F08.11) [0.0%]
	When the motor runs under heavy load within the rated frequency range, increase the motor exciting current to improve the load capacity of the motor.	
F11.05	Motor field orientation optimization	0, 1 [0]
	0: Disable. 1: Enable.	

6.13 F15: Digital I/O Terminal Parameters

Ref. Code	Function Description	Set Range [Default]
F15.00	DI1 terminal function	0 - 86 [2]
F15.01	DI2 terminal function	0 - 86 [3]
F15.02	DI3 terminal function	0 - 86 [0]
F15.03	DI4 terminal function	0 - 86 [0]
F15.04	DI5 terminal function	0 - 86 [0]
F15.44	AI1 (ADI1) terminal function	0 - 86 [0]
F15.45	AI2 (ADI2) terminal function	0 - 86 [0]
	0: Unused. **1: Inverter enable.** • When the DI terminal is valid, the inverter is enabled to run. • When the DI terminal is invalid, the inverter cannot run in the stop state and coasts to stop in the run state. • If no DI terminal is set to 1, the inverter is enabled by default. **2: Forward (FWD).** **3: Reverse (REV).** • Use the DI terminals to control the inverter start and stop, refer to F15.16. • Valid only When F00.11 = 1 (terminal control). **4: Three-wire run mode.** • Refer to F15.16. **8: Switch to analog set frequency.** • When the DI terminal is valid, use the analog to set the frequency. • Setting priority: DI terminal switch (function No. 8) > DI terminal switch (function No. 13 - 16) > F00.10 set. **11: Switch to terminal control.** • Valid only for stop. • When the DI terminal is valid, use the terminal to set the run command. • Setting priority: DI terminal switch (function No. 11) > F00.11 set.	

Ref. Code	Function Description	Set Range [Default]

13 - 16: MS frequency 1 - 4 (K1 - K4).

- Use the DI terminals to switch the MS frequency.

K4 (No. 16)	K3 (No. 15)	K2 (No. 14)	K1 (No. 13)	Frequency
0	0	0	0	F00.10 setting
0	0	0	1	MS frequency 1 (F06.00)
0	0	1	0	MS frequency 2 (F06.01)
0	0	1	1	MS frequency 3 (F06.02)
0	1	0	0	MS frequency 4 (F06.03)
0	1	0	1	MS frequency 5 (F06.04)
0	1	1	0	MS frequency 6 (F06.05)
0	1	1	1	MS frequency 7 (F06.06)
1	0	0	0	MS frequency 8 (F06.07)
1	0	0	1	MS frequency 9 (F06.08)
1	0	1	0	MS frequency 10 (F06.09)
1	0	1	1	MS frequency 11 (F06.10)
1	1	0	0	MS frequency 12 (F06.11)
1	1	0	1	MS frequency 13 (F06.12)
1	1	1	0	MS frequency 14 (F06.13)
1	1	1	1	MS frequency 15 (F06.14)

17: Increase frequency (UP).

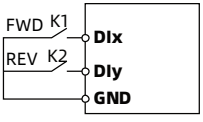
18: Decrease frequency (DN).

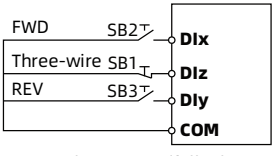
- Valid only when F00.10 = 1 (terminal set frequency).
- Use the DI terminals to increase or decrease the frequency. F15.12 set the frequency increase and decrease rate.

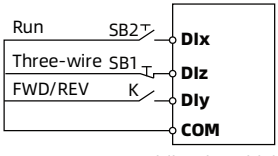
UP (No. 17)	DN (No. 18)	Frequency Change
0	0	Hold present frequency
0	1	Decrease the frequency
1	0	Increase the frequency
1	1	Hold present frequency

<table>
<tr><th>Ref. Code</th><th>Function Description</th><th>Set Range [Default]</th></tr>
<tr><td></td><td colspan="2">
20: Jog forward (JOGF).
21: Jog reverse (JOGR).
• Use the DI terminals to jog the inverter. F00.15 sets the frequency of jog running.
<table>
<tr><th>JOGR (No. 21)</th><th>JOGF (No. 20)</th><th>Run Command</th></tr>
<tr><td>0</td><td>0</td><td>Jog command is invalid</td></tr>
<tr><td>1</td><td>0</td><td>Jog reverse</td></tr>
<tr><td>0</td><td>1</td><td>Jog forward</td></tr>
<tr><td>1</td><td>1</td><td>Jog command is invalid</td></tr>
</table>
26: Acc. and Dec. time 1.
27: Acc. and Dec. time 2.
• Use the DI terminals to select the Acc. and Dec. time.
• Setting priority: DI terminal select (function No. 26 and 27) > F03.09 and F03.10 set.
<table>
<tr><th>Acc. and Dec. time 2 (No. 27)</th><th>Acc. and Dec. time 1 (No. 26)</th><th>Acc. and Dec. time</th></tr>
<tr><td>0</td><td>0</td><td>Acc. and Dec. time 1 (F03.01 and F03.02)</td></tr>
<tr><td>0</td><td>1</td><td>Acc. and Dec. time 2 (F03.03 and F03.04)</td></tr>
<tr><td>1</td><td>0</td><td>Acc. and Dec. time 3 (F03.05 and F03.06)</td></tr>
<tr><td>1</td><td>1</td><td>Acc. and Dec. time 4 (F03.07 and F03.08)</td></tr>
</table>
30: Switch to F00.10 set frequency.
• When the DI terminal is valid, use the channel set by F00.10 to set the frequency (include MS frequency, etc.).
41: Coast to stop (NO: normally open).
42: Coast to stop (NC: normally close).
• When the DI terminal is valid, the inverter immediately stops output and the load coast to stop accordance with the mechanical inertia.
43: Emergency stop.
• When the DI terminal is valid, the inverter decelerates to stop, and F03.17 sets the Dec. time.
44: External fault (NO: normally open).
45: External fault (NC: normally close).
• When the DI terminal is valid, the inverter reports E0024 fault (external equipment fault).
46: External reset.
• When the inverter reports a fault, clear the fault, and then use the DI terminal to reset the fault.
• The function is the same as ▽ STOP key on the keypad.
</td></tr>
</table>

<table>
<tr><th>Ref. Code</th><th>Function Description</th><th>Set Range [Default]</th></tr>
<tr><td></td><td colspan="2">50: Clear the counter to zero.
• When the DI terminal is valid, clear the counter built-in the inverter to zero.
• Used with function No. 51.
51: Counter trigger.
• DI terminal is used for the count pulse input port of the built-in counter, and the inverter saves the present count when power off.
• Max. pulse frequency: 200Hz.
• Refer to F15.37 and F15.38.
53: Pulse frequency input (DI5).
• DI5 terminal is used as pulse input terminal to set the frequency. For the relationship with the input pulse frequency, please refer to F05.00 - F05.04.
86: Terminal stop DC braking.
• When the DI terminal is valid, if F02.13 = 2 (stop mode is Dec. to stop with DC braking), and the running frequency decelerates to F02.16 (DC braking start frequency at stop), the inverter starts DC braking.
• F02.04 sets the braking current, and the braking time is the longer between the hold time of the DI terminal function and F02.18 (brake time of stop DC braking).</td></tr>
<tr><td>F15.12</td><td>Acc. and Dec. rate of UP/DN terminal</td><td>0.00 - 99.99 [1.00Hz/s]</td></tr>
<tr><td></td><td colspan="2">When the DI terminal is used as the UP or DN terminal (function No. 17 or 18), F15.12 sets the change rate of setting frequency.</td></tr>
<tr><td>F15.13</td><td>Terminal detection time interval</td><td>0 - 2 [0]</td></tr>
<tr><td></td><td colspan="2">0: 2ms.
1: 4ms.
2: 8ms.</td></tr>
<tr><td>F15.14</td><td>Terminal detection filter times</td><td>0 - 10000 [4]</td></tr>
<tr><td></td><td colspan="2">Set the number of times to filter the DI terminal signal.</td></tr>
<tr><td>F15.15</td><td>Terminal input logic</td><td>0000 - 100F [00]</td></tr>
<tr><td></td><td colspan="2">Set the input logic of the DI terminal, each Bit is a terminal.
• 0: Positive logic.
• Valid when DI terminal is connected to the common terminal, and invalid when disconnected.
• Valid when AI input voltage ≥ 6V, and invalid when AI input voltage ≤ 4V.
• 1: Negative logic.
• Invalid when DI terminal is connected to common terminal, and valid when disconnected.
• Valid when AI input voltage ≤ 4V, and invalid when AI input voltage ≥ 6V.
<table>
<tr><th>Bit13</th><th>Bit12</th><th>Bit11 - Bit5</th><th>Bit4</th><th>Bit3</th><th>Bit2</th><th>Bit1</th><th>Bit0</th></tr>
<tr><td>AI2 (ADI2)</td><td>AI1 (ADI1)</td><td>-</td><td>DI5</td><td>DI4</td><td>DI3</td><td>DI2</td><td>DI1</td></tr>
</table></td></tr>
</table>

<table>
<tr><th>Ref. Code</th><th>Function Description</th><th>Set Range [Default]</th></tr>
<tr><td>F15.16</td><td>FWD or REV run mode</td><td>0 - 3 [0]</td></tr>
<tr><td></td><td colspan="2">
Set the DI terminal to control the inverter run mode.
• DIx is set to function No. 2 (FWD).
• DIy is set to function No. 3 (REV).
• DIz is set to function No. 4 (three-wire run mode).
0: Two-wire run mode 1.
1: Two-wire run mode 2.
• Terminal control is terminal level valid. When a stop command from other sources stops the inverter, even if the FWD or REV terminal is valid, the inverter does not run.
• Other sources include: Terminal external stop command, terminal coast to stop command, inverter fault, and external fault.
• If the inverter needs to run again, re-trigger the FWD or REV terminal to the valid state.


<table>
<tr><th colspan="2">0: Terminal disconnected
1: Terminal closed</th><th colspan="2">Run command</th></tr>
<tr><th>K2</th><th>K1</th><th>F15.16 = 0</th><th>F15.16 = 1</th></tr>
<tr><td>0</td><td>0</td><td>Stop</td><td>Stop</td></tr>
<tr><td>1</td><td>0</td><td>REV</td><td>Stop</td></tr>
<tr><td>0</td><td>1</td><td>FWD</td><td>FWD</td></tr>
<tr><td>1</td><td>1</td><td>Stop</td><td>REV</td></tr>
</table>
2: Three-wire run mode 1.
• When the valid state of SB2 or SB3 does not change, the inverter holds the present run direction.
3: Three-wire run mode 2.
• When SB2 changes from valid to invalid, the inverter holds the run state.
F15.16 = 2


• SB1: Stop button, NC (fall edge enable)
• SB2: FWD button, NO (rise edge enable)
• SB3: REV button, NO (rise edge enable)
F15.16 = 3


• K: Direction terminal (level enable)
  • K = 0 (FWD)
  • K = 1 (REV)
• SB1: Stop button, NC (fall edge enable)
• SB2: Run button, NO (rise edge enable)
</td></tr>
<tr><td>F15.18</td><td>DO1 terminal function</td><td>0 - 38 [2]</td></tr>
<tr><td>F15.19</td><td>DO2 terminal function</td><td>0 - 38 [0]</td></tr>
</table>

Ref. Code	Function Description	Set Range [Default]
F15.20	**RLY relay function**	**0 - 38 [31]**

0: Unused.

2: Inverter running.

- When the inverter is running, the DO or RLY outputs the signal.

3: Inverter forward running.

- When the inverter is forward running, the DO or RLY outputs the signal.

4: Inverter reverse running.

- When the inverter is reverse running, the DO or RLY outputs the signal.

5: Inverter DC braking.

- When the inverter is DC braking, the DO or RLY outputs the signal.

6: Inverter zero frequency state.

- Refer to F15.28 and F15.29.

7: Inverter zero frequency running.

- Refer to F15.28 and F15.29.

9: FDT (frequency detection threshold).

- Refer to F15.31 and F15.32.

11: FAR (frequency arrive).

- Refer to F15.27.

12: Upper frequency limit.

- When the setting frequency ≥ the upper limit frequency, the DO or RLY outputs the signal.

13: Lower frequency limit.

- When the setting frequency ≤ the lower limit frequency, the DO or RLY outputs the signal.

20: SCI communication output data.

- SCI communication controls the output signal of DO or RLY.

21: Setting run time arrive.

- Refer to F15.36.

23: Setting count arrive.

- Refer to F15.37 and F15.38.

24: Specify count arrive.

- Refer to F15.37 and F15.38.

29: Undervoltage (LU).

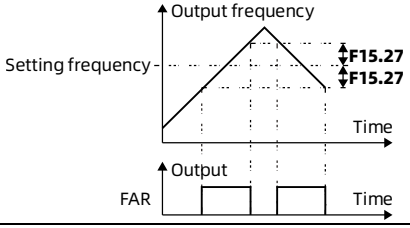
- When the inverter reports undervoltage fault, DO or RLY outputs the signal and the keypad displays "-Lu-".

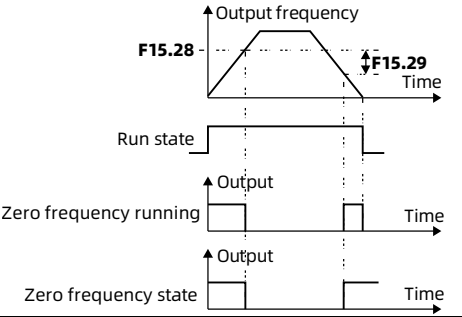
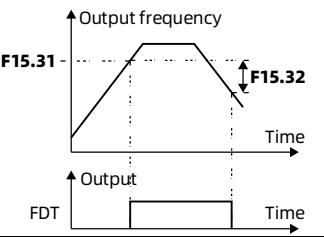
30: Overload.

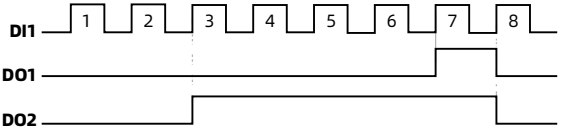
- When the inverter output current > 150% × inverter rated current and lasts for more than 5s, DO or RLY outputs the signal.

31: Inverter fault.

- When the inverter has a fault, DO or RLY outputs the signal.

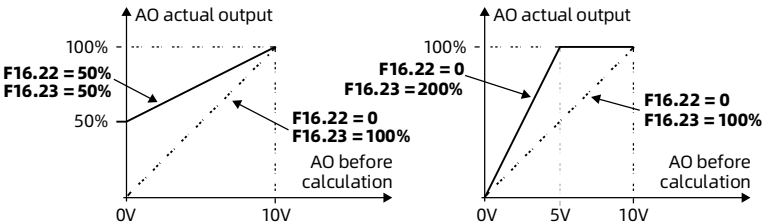
<table>
<tr><th>Ref. Code</th><th>Function Description</th><th>Set Range [Default]</th></tr>
<tr><td></td><td colspan="2">32: External fault.
• When the inverter detects a fault signal from external equipment via the terminal, DO or RLY outputs the signal.
33: Inverter auto reset fault.
• When the inverter automatically resets the fault, DO or RLY outputs the signal.
38: High-frequency output (DO2).
• DO2 terminal is used as pulse output terminal, F16.21 set the function.</td></tr>
<tr><td>F15.24</td><td>Output terminal logic</td><td>0 - F [0]</td></tr>
<tr><td></td><td colspan="2">Set the input logic of the DI terminal, each BIt is a terminal.
• 0: Positive logic.
• Valid when DO or RLY is connected to the common terminal, and invalid when disconnected.
• 1: Negative logic.
• Invalid when DO or RLY is connected to common terminal, and valid when disconnected.
<table>
<tr><th>Bit2</th><th>Bit1</th><th>Bit0</th></tr>
<tr><td>RLY</td><td>DO2</td><td>DO1</td></tr>
</table></td></tr>
<tr><td>F15.27</td><td>FAR (frequency arrive) range</td><td>0.00 - 100.00 [2.50Hz]</td></tr>
<tr><td></td><td colspan="2">DO or RLY is set to function No. 11 (FAR).
• When the output frequency of the inverter is within the positive and negative FAR range of the setting frequency, DO or RLY outputs a signal.
 
</td></tr>
</table>

<table>
<tr><th>Ref. Code</th><th>Function Description</th><th>Set Range [Default]</th></tr>
<tr><td>F15.28</td><td>Zero frequency threshold</td><td>0.00 - upper limit [0.00Hz]</td></tr>
<tr><td>F15.29</td><td>Zero frequency hysteresis</td><td>0.00 - upper limit [0.00Hz]</td></tr>
<tr><td></td><td colspan="2">DO or RLY is set to function No. 6 (inverter zero frequency state).
• When the output frequency of the inverter is within the zero frequency range (include stop state), DO or RLY outputs a signal.
DO or RLY is set to function No. 7 (inverter zero frequency running).
• When the output frequency of the inverter is within the zero frequency range, DO or RLY outputs a signal.
Zero frequency range:
• When starting, output frequency < F15.28.
• When stopping, output frequency < F15.28 - F15.29.
 
</td></tr>
<tr><td>F15.31</td><td>FDT (frequency detection threshold)</td><td>0.00 - upper limit [50.00Hz]</td></tr>
<tr><td>F15.32</td><td>FDT hysteresis</td><td>0.00 - upper limit [0.00Hz]</td></tr>
<tr><td></td><td colspan="2">DO or RLY is set to function No. 9 (FDT).
• When the output frequency > F15.31 (when starting), DO or RLY outputs a signal until the output frequency < F15.31 - 15.32 (when stopping).
 
</td></tr>
</table>

Ref. Code	Function Description	Set Range [Default]
F15.36	**Setting run time**	**0 - 65535 [0h]**
	DO or RLY is set to function No. 21 (setting run time arrive). After power on, when the total running time arrives to F15.36, the DO or RLY outputs a 500ms level signal, and the inverter controls the output according to this signal.	
F15.37	**Setting count**	**F15.38 - 9999 [0]**
F15.38	**Specify count**	**0 - F15.37 [0]**
	DO or RLY is set to function No. 23 (setting count arrive). • DI is set to function No. 51 (counter trigger), when the number of DI input pulse arrives to F15.37, DO or RLY outputs a signal, and the external counter automatically clears to zero. DO or RLY is set to function No. 24 (specify count arrive). • DI is set to function No. 51 (counter trigger), when the number of DI input pulse arrives to F15.38, DO or RLY outputs a signal until the number of pulse arrives to F15.37. **Example:** F15.37 = 7, F15.38 = 3, F15.00 = 51 (DI1), F15.18 = 23 (DO1), F15.19 = 24 (DO2). • When DI1 inputs the 7th pulse, DO1 outputs a signal. When DI1 inputs the 8th pulse, the DO1 output signal restores to low level. • When DI1 inputs the 3rd pulse, DO2 outputs a signal until DI1 inputs the 8th pulse. 	
F15.43	**Terminal output delay time**	**0.0 - 100.0 [0.0s]**

6.14 F16: Analog I/O Terminal Parameters

Ref. Code	Function Description	Set Range [Default]
F16.00	**Keypad potentiometer function**	**0 - 12 [0]**
F16.01	**AI1 terminal function**	**0 - 12 [2]**
F16.02	**AI2 terminal function**	**0 - 12 [0]**
	0: Unused. **2: Frequency setting.** • When F00.10 = 3, use the analog input to set the frequency. **3: Auxiliary frequency setting.** • When F19.00 = 4, use the analog input to set the auxiliary frequency. **4: PID reference.** • When F04.01 = 1, use the analog input to set the PID reference. **5: PID feedback.** • When F04.02 = 0, use the analog input to set the PID feedback. **9: Motor forward electric torque limit.** • When F10.10 unit = 1, use the analog input to set the electric torque limit when the motor rotates forward. **10: Motor reverse electric torque limit.** • When F10.10 ten = 1, use the analog input to set the electric torque limit when the motor rotates reverse. **11: Motor forward regenerative torque limit.** • When F10.10 hundred = 1, use the analog input to set the regenerative torque limit when the motor rotates forward. **12: Motor reverse regenerative torque limit.** • When F10.10 thousand = 1, use the analog input to set the regenerative torque limit when the motor rotates reverse.	
F16.05	**AI1 bias**	**-100.0 - +100.0 [0.1%]**
F16.06	**AI1 gain**	**-10.00 - +10.00 [0.01]**
F16.07	**AI1 filter time**	**0.01 - 10.00 [0.05s]**
	First filter the AI1 input, then calculate the AI1 input (bias, gain). • The larger the F16.07, the stronger the anti-interference ability, but the slower the response. • The smaller the F16.07, the faster the response, but the weaker the anti-interference ability. **Calculation formula**: AI1 input after calculation = F16.06 × AI1 input + F16.05. • For the relationship between AI1 input and setting frequency, refer to group F05.	
F16.08	**AI2 bias**	**-100.0 - +100.0 [0.1%]**
F16.09	**AI2 gain**	**-10.00 - +10.00 [0.01]**
F16.10	**AI2 filter time**	**0.01 - 10.00 [0.05s]**
	Refer to F16.05 - F16.07.	

Ref. Code	Function Description	Set Range [Default]
F16.17	**Max. input pulse frequency (DI5)**	**0 - 50000 [10000Hz]**
	When F15.04 = 53 (DI5 terminal is used as pulse input terminal), F16.17 sets the Max. input pulse frequency.	
F16.18	**Input pulse filter time**	**0.01 - 10.00 [0.05s]**
	When F15.04 = 53 (DI5 terminal is used as pulse input terminal), F16.18 sets the time to filter the pulse input. Filters out small fluctuations of the pulse frequency.	
F16.19	**AO terminal function**	**0 - 15 [2]**
F16.21	**DO2 terminal (high-speed pulse output) function**	**0 - 15 [0]**
	0: Unused. **2: Reference frequency.** Range: 0 - Max. output frequency. **3: Motor speed.** Range: 0 - rotation speed corresponding to Max. output frequency. **5: Output current.** Range: 0 - 2 times the motor rated current. **11: Output voltage.** Range: 0 - 1.2 times inverter rated voltage. **12: Bus voltage.** Range: 0 - 2.2 times inverter rated voltage. **14: AI1 output (after process).** **15: AI2 output (after process).**	
F16.22	**AO bias**	**-100.0 - +100.0 [0.0%]**
F16.23	**AO gain**	**0.0 - 200.0 [100.0%]**
	Adjust the AO output. **Calculation formula**: AO actual output = F16.23 × AO output before calculation + F16.22. 	
F16.26	**Max. output pulse frequency (DO2)**	**0.01 - 50.00 [10.00kHz]**
	When F15.19 = 38 (DO2 terminal is used as pulse output terminal), F16.26 sets the Max. output pulse frequency.	
F16.29	**AI1 voltage or current input**	**0, 1 [0]**
	0: Voltage input. 1: Current input.	

6.15 F17: SCI Communication Parameters

Ref. Code	Function Description	Set Range [Default]
F17.00	**Data format**	**0 - 6 [0]**
	0: 1-8-2 format, no parity, RTU. • Communication format: 1 bit start bit, 8 bits data bit, 2 bits stop bit. 1: 1-8-1 format, even parity, RTU. • Communication format: 1 bit start bit, 8 bits data bit, 1 bit stop bit. 2: 1-8-1 format, odd parity, RTU. • Communication format: 1 bit start bit, 8 bits data bit, 1 bit stop bit. 6: 1-8-1 format, no parity, RTU. • Communication format: 1 bit start bit, 8 bits data bit, 1 bit stop bit.	
F17.01	**Baud rate**	**0 - 8 [3]**
	0: 1200bps. 1: 2400bps. 2: 4800bps. 3: 9600bps. 4: 19200bps. 5: 38400bps. 6: 57600bps. 7: 76800bps. 8: 115200bps.	
F17.02	**Local address**	**0 - 247 [2]**
	F17.02 = 0, F17.02 is broadcast address.	
F17.03	**Local response time**	**0 - 1000 [1ms]**
	The communication port of the inverter receives a frame of communication data, waits for F17.03 time, and then processes the received data. Within the F17.03 time, this communication port does not receive communication commands.	
F17.04	**Communication timeout detection time in signle mode**	**0.0 - 600.0 [0.0s]**
	When the time interval between two data returns to the inverter (local) exceeds F17.04, the inverter reports E0028 fault (SCI communication timeout) and continues to run. • When F17.04 = 0, the inverter does not detect communication timeout.	
F17.05	**Communication error detection time**	**0.0 - 600.0 [0.0s]**
	When the time of the communication error exceeds F17.05, the inverter reports E0029 fault (SCI communication error) and continues to run. • When F17.05 = 0, the inverter does not detect communication error.	
F17.06	**Action at communication timeout**	**0 - 3 [3]**
F17.07	**Action at communication error**	**0 - 3 [3]**
F17.08	**Action at communication external equipment fault**	**0 - 3 [1]**
	When the inverter reports E0028 fault, 17.06 sets the protection action. When the inverter reports E0029 fault, F17.07 sets the protection action. When the communication reports E0024 fault in communication control (F00.11 = 2), F17.08 sets the protection action.	

Ref. Code	Function Description	Set Range [Default]
	0: Coast to stop. 1: Emergency stop. 2: Dec. to stop. 3: Continue to run.	
F17.09	**Communication write function parameter to EEPROM**	**00 - 11 [01]**
	Unit: Function parameters except F00.13 and F19.03 **Ten: Function parameters F00.13 and F19.03** • 0: Not save. • 1: Save. Note: 1. Setting ten = 1 may damage the inverter, please set carefully. 2. Valid when the communication write function parameter (function code is 0x06 or 0x10).	
F17.10	**Communication timeout detection time in network mode**	**0.0 - 600.0 [0.0s]**
	When the time interval between two correct data receptions by the local or non-local exceeds F17.10, the inverter reports E0028 fault (SCI communication timeout) and continues to run. • When F17.10 = 0, the inverter does not detect communication timeout.	
F17.11	**Master and slave**	**0, 1 [0]**
	When multiple inverters are synchronously controll (link), one of the inverters is set as master, the other are set as slaves and the frequency is set by communication. When the run command is valid (or SCI communication set command), the inverters can link normally. 0: The local is slave. 1: The local is master.	
F17.12	**Slave jog linkage**	**0, 1 [0]**
	Valid only when the SCI communication set command (linkage or no linkage). 0: Linkage. 1: No linkage.	
F17.13	**Synchronous frequency**	**0 - 2 [0]**
	When the master and slave are link, the master sends the master frequency to the slave. F17.13 sets the frequency sent by the master. 0: Reference frequency. 1: Setting frequency. 2: Output frequency.	

6.16 F18: Display Parameters

Ref. Code	Function Description	Set Range [Default]
F18.02	**Run display parameter 1**	**0 - 49 [8]**
F18.03	**Run display parameter 2**	**0 - 49 [7]**
F18.04	**Run display parameter 3**	**0 - 49 [9]**
F18.05	**Run display parameter 4**	**0 - 49 [13]**
F18.06	**Run display parameter 5**	**0 - 49 [14]**
F18.07	**Run display parameter 6**	**0 - 49 [18]**
F18.08	**Stop display parameter 1**	**0 - 49 [7]**
F18.09	**Stop display parameter 2**	**0 - 49 [18]**
F18.10	**Stop display parameter 3**	**0 - 49 [20]**
F18.11	**Stop display parameter 4**	**0 - 49 [19]**
F18.12	**Stop display parameter 5**	**0 - 49 [43]**
F18.13	**Stop display parameter 6**	**0 - 49 [44]**
	Set the run and stop parameters and press ◀ key to switch parameters. 0: Unused. 1: Inverter rated current. 3: Inverter status. • Refer to d00.10. 4: Main setting frequency channel. 5: Main setting frequency. 7: Setting frequency. 8: Reference frequency (after Acc. and Dec.). 9: Output frequency. 10: Setting speed. 11: Running speed. 13: Output voltage. 14: Output current. 15: Reference torque. 16: Output torque. 17: Output power. 18: DC bus voltage. 19: Potentiometer input voltage. 20: AI1 input voltage. 21: AI1 input voltage (after process). 22: AI2 input voltage. 23: AI2 input voltage (after process). 28: DI5 terminal pulse input frequency. 29: AO output. 33: Setting line speed. 34: Reference line speed. 42: External count. 43: Input terminal status. • Bit0 - Bit4 correspond to DI1 - DI5. • Bit12 corresponds to AI1. • Bit13 corresponds to AI2. 44: Output terminal status. • Bit0 - Bit2 correspond to DO1, DO2, RLY. 48: Total time at power on. 49: Total time at running.	
F18.15	**Max. line speed**	**0 - 65535 [1000]**
F18.16	**Line speed display accuracy**	**0 - 3 [0]**
	After setting F18.16, please reset F18.15. 0: Integer. 1: One decimal. 2: Two decimal. 3: Three decimal.	

6.17 F19: Enhancement Parameters

Auxiliary Frequency (F19.00 - F19.06)

The main frequency and the auxiliary frequency synthesize the final setting frequency.

Ref. Code	Function Description	Set Range [Default]
F19.00	**Auxiliary frequency setting channel**	**0 - 6 [0]**
	When the setting channels of the auxiliary frequency and main frequency are the same (except for analog), the auxiliary setting channel is invalid. 0: No auxiliary frequency. 1: Keypad. • Use ▲ or ▼ key on the keypad to set the auxiliary frequency, F19.03 sets the initial frequency. 2: Terminal. • Use the UP or DN terminal to set the auxiliary frequency, F19.03 sets the initial frequency. 3: SCI communication. • Use the frequency setting command of SCI communication to set the auxiliary frequency, and the initial frequency is 0. 4: Analog. • Use the actual analog input sets the auxiliary frequency, F05.00 sets the input curve. 5: Terminal pulse. • Use the actual analog input sets the auxiliary frequency, F05.00 sets the input curve. 6: PID output. • Use PID reference and feedback to set the auxiliary frequency.	
F19.01	**Master and auxiliary calculate**	**0, 1 [0]**
	0: Master + auxiliary. 1: Master - auxiliary.	
F19.02	**Auxiliary setting coefficient**	**0.00 - 9.99 [1.00]**
	When F19.00 = 4 or 5, the calculation sequence of auxiliary frequency: First use F19.02 to calculate (gain), and then calculate according to the frequency curve of group F05.	
F19.03	**Initial auxiliary frequency (digital setting)**	**0.00 - F00.06 [0.00Hz]**
F19.04	**Auxiliary frequency control (digital setting)**	**00 - 11 [00]**
	Valid only when F19.00 = 1 or 2. **Unit: Save auxiliary frequency when power off** • 0: Not save. • 1: Save. **Ten: Auxiliary frequency control when stop** • 0: Hold the auxiliary frequency. • 1: The auxiliary frequency is F19.03.	

Ref. Code	Function Description	Set Range [Default]
F19.05	**Adjust setting frequency ratio**	**0 - 2 [1]**
F19.06	**Adjustment coefficient of setting frequency ratio**	**0.0 - 200.0 [100.0%]**
	F19.05 sets the adjustment mode of the setting frequency (synthetic frequency). • The main frequency and the auxiliary frequency calculate the synthetic frequency. 0: Not adjust. • Setting frequency = synthetic frequency. 1: Adjust relative to the Max. output frequency (F00.06). • Setting frequency = synthetic frequency + F00.06 × (F19.06 – 100%). 2: Adjust relative to the present frequency. • Setting frequency = synthetic frequency × F19.06.	

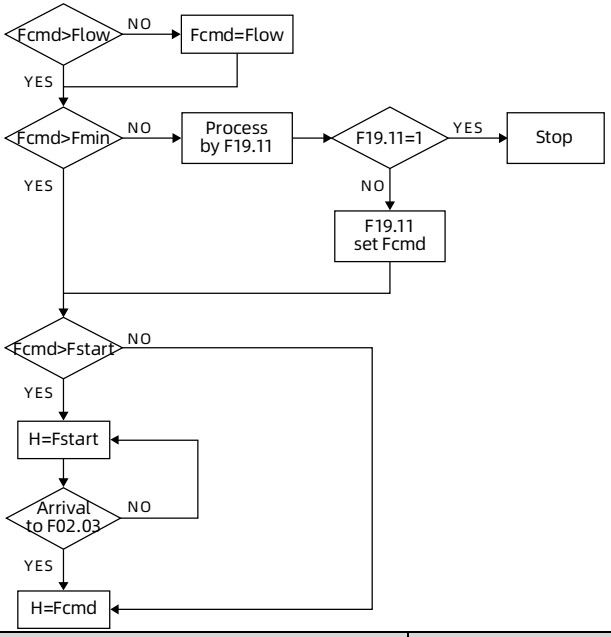
Fan Control (F19.07, F19.08)

Ref. Code	Function Description	Set Range [Default]
F19.07	**Fan control**	**0 - 2 [0]**
F19.08	**Fan control delay time**	**0.0 - 600.0 [60.0s]**
	If the inverter has overheat protection, the fan runs all the time. 0: Auto stop. • When the inverter is running, the fan runs. When the inverter stops for F19.08 time and the inverter is not overheated, the fan stops. 1: Stop immediately. • When the inverter is running, the fan runs until the inverter stops. 2: Runs all the time when power on.	

Zero frequency Running (F19.10, F19.11)

Refer to the figure below.

- Fcmd = Setting frequency
- Flow = Lower limit frequency (F00.09)
- Fstart = Start DWELL frequency (F02.02)
- Fmin = Zero frequency threshold (F19.10)
- H = Target frequency
- F02.03: Hold time of start DWELL frequency



Ref. Code	Function Description	Set Range [Default]
F19.10	**Zero frequency threshold**	**0.00 - upper limit [1.00Hz]**
F19.11	**Action at setting frequency is lower than F19.10**	**0 - 3 [0]**
	0: Run at setting frequency. 1: Stop, no output from inverter. 2: Run at F19.10. 3: Run at zero frequency.	

Overvoltage Stall Function (F19.18, F19.19)

Ref. Code	Function Description	Set Range [Default]
F19.18	**Suppress overvoltage gain**	**0.000 - 1.000 [0.500]**
F19.19	**Overvoltage stall point**	**0 - 1200V [220V: 390V] [380V: 740V]**

When F19.18 = 0, the overvoltage stall function is invalid.

Use with brake component:

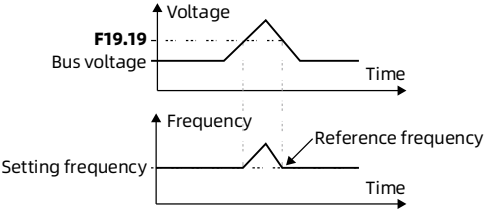
- When the inverter installs the brake component, please set F19.18 = 0.
- When the load instantly feedback more energy and the brake component can not release the energy in time, enable overvoltage stall function to avoid overvoltage.
- Please set F19.19 greater than the action voltage of the brake component.

When the inverter is running, if the bus voltage exceeds F19.19, the inverter automatically increase the output frequency to prevent more energy feedback from the load to the inverter.

- If F19.18 is too small, it cannot effectively suppress the rise of bus voltage.
- If F19.18 is too large, it may cause output frequency fluctuation to make the system oscillate.

When the bus voltage exceeds F19.19 for 1 minute, the inverter reports E0007 fault (overvoltage stall fault) and stops output. Troubleshooting (any mode):

- Install the correct brake component.
- Increase the Dec. time (group F03).
- Increase F19.18 and decrease F19.19.



$\triangle F = F19.18 \times (V_{DC} - F19.19)$

Auto Current Limit Function (F19.20 - F19.22)

Ref. Code	Function Description	Set Range [Default]
F19.20	**Auto current limit gain**	**0.000 - 1.000 [0.500]**
F19.21	**Auto current limit threshold**	**20.0 - 200.0 (inverter rated current) [150.0%]**
F19.22	**Integration time constant of auto current limit**	**0.000 - 1.000 [0.020]**
	When F19.20 = 0, the current limit function is invalid. When the inverter output current exceeds F19.21, the inverter automatically suppress the output current to avoid overcurrent protection. • If F19.20 or F19.22 is too small, it cannot effectively suppress the increase of the output current. • If F19.20 or F19.22 is too large, it may cause output frequency fluctuation to make the system oscillate. • If F19.21 is too large, it may affect the overload capability of the inverter.	

Other Functions

Ref. Code	Function Description	Set Range [Default]
F19.23	**Power on instant terminal detection**	**0, 1 [0]**
	Valid only for terminal two-wire control. 0: Rise edge enable. • Applicable occasions: After the inverter is power on, the inverter is not allow to run automatically without human intervention. Prevent damage to equipment and ensure personal safety. • After the inverter completes power on initialization and is ready for run, the inverter starts only when the terminal run command is valid. 1: Level enable. • Applicable occasions: Under personal safety and equipment safety, in order to improve the automation and efficiency of the equipment, the inverter runs immediately after powe on. • When the inverter is power on and the terminal command is valid, the inverter runs immediately.	
F19.24	**Action voltage of brake unit**	**380V: 630 - 750V [720V]** **220V: 380 - 450V [380V]**
	Valid only for inverter with built-in brake unit. The inverter releases the energy through the brake resistor during running.	
F19.39	**Input voltage**	**00 - 12 [00]**
	Unit: 380V inverter • 0: 380 - 460V. • 1: 260 - 460V. • 2: 200 - 460V. **Ten: 220V inverter** • 0: 200 - 240V. • 1: 120 - 240V. For low voltage input, please derate the inverter so that the actual output current does not exceed the rated output current of the inverter.	
F19.40	**Inverter overload protection coefficient**	**0.0 - 250.0 [200.0]**
	When the output current of per phase exceeds F19.40 × inverter rated current, the inverter reports E0017 fault (inverter overload fault). • F19.40 = 0, the inverter does not detect inverter overload fault.	

6.18 F20: Fault Protection Parameters

Overload (F20.00)

Ref. Code	Function Description	Set Range [Default]
F20.00	**Overload protection**	**00000 - 30000 [00000]**
	Unit/ten/hundred/thousand: Unused **Ten thousand: Overload protection** • 0: Enable overload protection. • 1: Enable inverter overload protection, shield motor overload protection. • 2: Shield inverter overload protection, enable motor overload protection. • 3: Shield overload protection.	

Output Phase Loss Fault (F20.10, F20.11)

Ref. Code	Function Description	Set Range [Default]
F20.10	**Output phase loss detection threshold**	**0 - 50 (inverter rated current) [20%]**
F20.11	**Output phase loss detection time**	**0.00 - 20.00 [3.00s]**
	If the output current of any phase does not arrive to F20.10 for F20.11 time, the inverter reports E0016 fault (output phase loss fault). • When F20.10 = 0 or F20.11 = 0, the inverter does not detect output phase loss fault.	

Auto Reset Fault Function (F20.18, F20.19)

Ref. Code	Function Description	Set Range [Default]
F20.18	**Auto reset times**	**0 - 100 [0]**
F20.19	**Time interval of auto reset**	**2.0 - 20.0 [5.0s/time]**
	When F20.18 = 0, the automatic reset is invalid Fault occurs when inverter is running, and inverter automatically resets the fault. The inverter does not output during reset. After the reset is completed, if the run command is valid, the inverter starts to run. • If the fault does not occur again within 5 minutes, the reset counter clears to zero. • If reset external fault, the reset count clear to zero. The inverter cannot automatically reset the following faults: • E0010: Brake unit fault • E0014: Current detect circuit fault • E0021: Control board EEPROM read or write fault • E0023: Parameter setting fault • E0024: External equipment fault	

Fault History (F20.21 - F20.37)

Ref. Code	Function Description	Set Range [Default]
F20.21	The fifth (latest) fault	[Actual]
F20.22	Reference frequency at the latest fault	0.00 - 150.00 [0.00Hz]
F20.23	Running frequency at the latest fault	0.00 - 150.00 [0.00Hz]
F20.24	Bus voltage at the latest fault	0 - 999 [0V]
F20.25	Output voltage at the latest fault	0 - 999 [0V]
F20.26	Output current at the latest fault	0.00 - 99.99 [0.00A]
F20.27	Input terminal status at the latest fault	0 - 0xF [0]
F20.28	Output terminal status at the latest fault	0 - 0xF [0]
F20.29	Time interval of the latest fault	0.0 - 6553.5 [0.0h]
F20.30	The fourth fault	[Actual]
F20.31	Time interval of the fourth fault	0.0 - 6553.5 [0.0h]
F20.32	The third fault	[Actual]
F20.33	Time interval of the third fault	0.0 - 6553.5 [0.0h]
F20.34	The second fault	[Actual]
F20.35	Time interval of the second fault	0.0 - 6553.5 [0.0h]
F20.36	The first fault	[Actual]
F20.37	Time interval of the first fault	0.0 - 6553.5 [0.0h]
	F20.21 - F20.29 record the fault information at the latest fault. F20.30 - F20.37 record the fault type and time interval of four faults before the latest.	

6.19 F23: PWM Control Parameters

Ref. Code	Function Description	Set Range [Default]
F23.00	**Carrier frequency**	**1 - 7 [7kHz]**
	Set the carrier frequency of the PWM wave output by the inverter. The carrier frequency affects the noise of motor running. The higher the F23.00, the lower the noise. Please properly set F23.00.	
F23.01	**Auto adjust carrier frequency**	**0, 1 [1]**
	The inverter automatically adjusts the carrier frequency according to the output frequency and radiator temperature. • Valid only when F23.00 > 3kHz. • Invalid during torque control. 0: Disable. 1: Enable.	
F23.02	**PWM over modulation**	**0, 1 [1]**
	0: Disabled. 1: Enable.	
F23.03	**PWM modulation mode**	**0, 1 [1]**
	0: Two phase modulation or three phase modulation. 1: Three phase modulation.	
F23.04	**Switching frequency 1 of PWM modulation**	**10.00 - F23.05 - 2Hz [10.00Hz]**
F23.05	**Switching frequency 1 of PWM modulation**	**F23.04 + 2Hz - 50.00Hz [15.00Hz]**
	Valid only for V/f control or F23.00 > 3kHz. For SVC control or F23.00 ≤ 3kHz, the inverter automatically selects three phase modulation. • F23.04 sets the frequency for switching from two phase to three phase modulation. • F23.05 sets the frequency for switching from three phase to two phase modulation.	
F23.09	**Narrow pulse width control**	**0x000 - 0x333 [0x333]**
	Unit: V/f control running **Ten: SVC control running** **Hundred: Auto-tuning** • 0: Invalid. • 3: Valid.	

6.20 R02: AI Correction Parameters

Ref. Code	Function Description	Set Range [Default]
R02.00	**AI1 actual sampling value 1**	**[Factory set]**
R02.01	**AI1 measure voltage 1**	**[Factory set]**
R02.02	**AI1 actual sampling value 2**	**[Factory set]**
R02.03	**AI1 measure voltage 2**	**[Factory set]**
R02.04	**AI2 actual sampling value 1**	**[Factory set]**
R02.05	**AI2 measure voltage 1**	**[Factory set]**
R02.06	**AI2 actual sampling value 2**	**[Factory set]**
R02.07	**AI2 measure voltage 2**	**[Factory set]**
R02.08	**Actual sampling value at 0V (AI1 input)**	**[Factory set]**
R02.09	**Actual sampling value at 0V (AI2 input)**	**[Factory set]**
	Used to correct the input signals of AI1 and AI2. **Manual correction steps (take AI1 as an example):** 1. Connect AI1 to 0V voltage, check d00.62, and set R02.08 to d00.62. 2. Input a 0 - 10V signal: Check d00.62, and set R02.00 to d00.62. Use a multimeter to measure the actual input value and set R02.01 to this value. 3. Input another 0 - 10V signal: Check D00.62, and set R02.02 to d00.62. Use a multimeter to measure the actual input value, and set R02.03 to this value. Normally, R02.00 - R02.09 are not set.	

Chapter 7 Troubleshooting

7.1 Fault Phenomenon

When the inverter fails, the keypad displays the fault code, **ALM** indicator is on, the fault relay acts, the inverter stops output and the motor coast to stops.

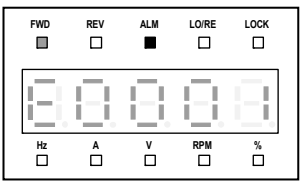


Figure 7-1 Keypad display the fault

7.2 Troubleshooting

Fault		Reasons	Troubleshooting
No display when power on		• Input power voltage is too low or none • The power supply of the drive board is faulty • The wiring of the control board, drive board and keypad is disconnected • The rectifier bridge is damaged • The inverter buffer resistance is damaged • The control board or keypad is faulty	• Check the input power voltage • Check the bus voltage • Reconnect the keypad, or check the wiring of the control board, drive board and keypad • Contact manufacturer
-Lu-	DC bus undervoltage	• Power on initial state or power off end state • Input voltage is too low • Irregular wiring leads to hardware undervoltage	• Normal power on or power off state • Check the input voltage • Check wiring, standardize wiring

Fault		Reasons	Troubleshooting
E0001	Inverter output overcurrent (in Acc.)	• The wiring of the inverter and motor is wrong • The setting of motor parameter (F08.00 - F08.04) is wrong • Inverter selection is too small • ACC. and Dec. time (F03.01 - F03.08) are too small • For vector control, motor parameter auto-tuning is not performed	• Check the wiring, confirm the wiring is correct • Correctly set F08.00 - F08.04 • Correctly select the inverter • Correctly set F03.01 - F03.08 • Start parameter auto-tuning (F08.06)
E0002	Inverter output overcurrent (in Dec.)		
E0003	Inverter output overcurrent (in constant speed)		
E0004	DC bus overvoltage (in Acc.)	• Input voltage is too high • Dec. time (group F03) is too small • Improper wiring leads to hardware undervoltage • Brake resistor selection is wrong	• Check power input • Correctly set Dec. time • Check wiring, standardize wiring • Correctly select the brake resistor (section 4.3.1.2)
E0005	DC bus overvoltage (in Dec.)		
E0006	DC bus overvoltage (in constant speed)		
E0007	Overvoltage stall fault	• Bus voltage is too high • Overvoltage stall point (F19.19) is too low	• Check power input or brake component • Correctly set F19.19
E0009	Heatsink overheat	• Environment temperature is too high • The ventilation outside the inverter is not good • Fan fault • Temperature detect circuit is faulty	• Use inverter with higher power capacity • Improve the ventilation outside the inverter • Replace the fan • Seek technical support
E0010	Brake unit fault	• The brake circuit is faulty	• Seek technical support
E0012	Parameter auto-tuning fault	• Parameter auto-tuning is timeout	• Check motor wiring, confirm the wiring is correct • Correctly set motor parameter (F08.01 - F08.04) • Seek technical support
E0014	Current detect circuit fault	• The current detect circuit is faulty	• Contact manufacturer
E0016	Output phase loss fault	• Output phase disconnection or loss • Three phase load imbalance	• Check the wiring the inverter and motor, confirm the wiring is correct • Check the quality of motor

Fault		Reasons	Troubleshooting
E0017	Inverter overload fault	• Acc. time (group F03) is too small • The setting of motor parameter (F08.00 - F08.04) is wrong • The setting of V/f curve (F09.00 - F09.06) or torque boost (F09.07 - F09.08) is wrong • For vector control, motor parameter auto-tuning is not performed • Input power voltage is too low • Motor load is too heavy	• Correctly set Acc. time • Correctly set F08.00 - F08.04 • Correctly set F09.00 - F09.06 or F09.07 - F09.08 • Start parameter auto-tuning (F08.06) • Check the input power voltage • Use inverter that matches the motor power
E0019	Motor overload fault	• The setting of V/f curve (F09.00 - F09.06) is wrong • Input power voltage is too low • Normal motor runs for a long time with heavy load at low speed • Motor runs with blocked or load is too heavy	• Correctly set F09.00 - F09.06 • Check the input power voltage • Use special motor • check the load and mechanical transmission
E0021	Control board EEPROM read or write fault	• Memory circuit of control board EEPROM is faulty	• Contact manufacturer
E0022	Keypad EEPROM read or write fault (inverter does not stop)	• Memory circuit of keypad EEPROM is faulty	• Replace the keypad • Contact manufacturer
E0023	Parameter setting fault	• The difference between the rated power of the motor and the inverter is too large • The setting of motor parameter (F08.00 - F08.04) is wrong	• Use motor that matches the inverter power • Correctly set F08.00 - F08.04
E0024	External equipment fault	• The terminal of external equipment fault function acts	• Check external equipment
E0028	SCI communication timeout	• The wiring of the communication cable is wrong • The wiring of the communication cable is disconnected or loose	• Check the wiring, confirm the wiring is correct • Check the wiring, confirm the wiring is correct
E0029	SCI communication error	• The wiring of the communication cable is wrong • The wiring of the communication cable is disconnected or loose	• Check the wiring, confirm the wiring is correct • Check the wiring, confirm the wiring is correct

Fault		Reasons	Troubleshooting
		• Communication setting or communication data is wrong	• Correctly set communication data (F17.00), baud rate (F17.01)

7.3 Reset Fault

After clearing the fault, perform any of the following operations to reset the fault.

- Press **STOP** key on the keypad.
- Use the external reset terminal, the terminal is set to function No. 46 (F15.00 - F15.04).
- Use communication command.
- The inverter is completely powered off and then powered on again.

Chapter 8 Maintenance

Danger

- Only trained and qualified professionals can maintain the inverter.
- Before checking and maintaining the inverter, disconnect the input power.

Warning

- The storage time of the inverter is more than 2 years. When the inverter is powered on for the first time, use the voltage regulator to slowly increase the voltage.
- Do not leave wires, tools, screws and other metal objects inside the inverter.
- Do not modify the inside of the inverter without authorization.
- There are IC components sensitive to static electricity inside the inverter, please do not touch them directly.

8.1 Daily Maintenance

The inverter must run in the specified environment, see section 3.1 on page 9.
Daily maintenance of the inverter can detect abnormalities in time and prolong the service life, as shown in the table below.

Object	Content	Criteria
Running environment	Temperature and humidity	-10 - +40℃, 40 - 50℃ need derating Less than 95%RH, no condensation
	Dust, water and drip	No conductive dust accumulation, no trace of water leakage
	Gas	Odorless
Inverter	Vibration, heat	Stable vibration and reasonable air temperature
	Noise	No strange sound
Motor	Heat	No overheat
	Noise	Low and regular noise
Running status parameters	Output current	Within rated range
	Output voltage	Within rated range

8.2 Regular Maintenance

According to the use environment, the inverter is routinely inspected every 3 - 6 months to eliminate hidden troubles and ensure long-term high performance and stable operation of the equipment.

- The control terminal screws are not loose. If the screws are loose, tighten the screws with a screwdriver with appropriate torque and size.
- The power terminals are in firm connected, and the copper bars or the cable connection has no overheating traces.
- The power cables and control cables are not damaged, and the skin in contact with the metal surface has no traces of cuts.
- The wire lug insulation binding tapes of power cables and control cables are not peeled off or broken.
- Clean the dust on PCBs and air ducts with a vacuum cleaner.

Note:

1. The inverter has passed the withstand voltage test before leaving the factory, and there is no need to carry out the withstand voltage test. Improper testing may damage the inverter.
2. When testing the insulation of the motor, the U/V/W terminals of the inverter must be disconnected, and the motor must be tested separately, otherwise may damage the inverter.
3. The inverter for long-term storage must be powered on once within 2 years. Use a voltage regulator to slowly increase the input voltage of the inverter to the rated value, and power on for at least 5 hours.

8.3 Replace Damaged Parts

Damaged parts of the inverter include: Cooling fan, filter electrolytic capacitor.
The service life is related to the use environment and maintenance status, and the user can set the replacement time according to the running time.

Easily Damaged	Cooling fan	Electrolytic capacitors
Life	60,000 hours	50,000 hours
Possible Damage Reasons	Bearings wear, blades age	Higher running temperature and frequent load jumps lead to pulsating current increase and electrolyte aging
Judgment Standard	• When the inverter is powered off, check the fan blades for cracks • When the inverter is powered on, check if the fan is running normally, and check if there is abnormal vibration and noise when the fan is running	• Check if frequent overcurrent or overvoltage faults occur when the inverter is running under load • Check if there is any liquid leakage • Check if the safety value protrudes • Measure the static capacitance • Measure the insulation resistance

8.4 Scrap Disposal

Note:

- When burned, the electrolytic capacitor inside the inverter may explode.
- When burned, plastic parts produce poisonous gases.
- Dispose of as industrial waste.

Chapter 9 Modbus Communication Protocol

9.1 Communication Terminal

A: 485+.
B: 485-.

9.2 Scaling Relationship of Parameter Values

Except for the following parameters, refer to the parameter list in Appendix A to define the scaling relationship for other parameters.

- F04.03, F16.05, F16.08, F16.22: Communication data 0 - 2000 correspond to data -100.0% - +100.0%.
- Status parameter (0x3318): Communication data 0 - 16000 corresponds to data -8000 - +8000.
- Status parameters (PID reference, PID feedback, PID error, PID integral and PID output): Communication data 0 - 2000 correspond to data -100.0% - +100.0%.

9.3 Protocol Function

Support Functions

Function	Function Code	Remark
Read function and status parameter	0x03	
Write single function or control parameter	0x06	F17.09 set whether to save when power off
Write multiple function or control parameters	0x10	

Read the Function and Status Parameters (RTU Mode)

Function code 0x03, command frame and response frame are shown in the table below.

Command Frame	Address	Code	Starting Register Address	Number of Register	CRC Check
Data frame bytes	1	1	2	2	2
Value or range	0 - 247	0x03	0x0000 - 0xFFFF	0x0001 - 0x000C	

Response Frame	Address	Code	Read Byte Number	Register Content	CRC Check
Data frame bytes	1	1	1	2 × No. of register	2
Value or range	1 - 247	0x03	2 × No. of register		

Write Single Function or Status Parameter (RTU Mode)

Function code 0x06 (F17.09 sets whether to save when power off), command frame and response frame are shown in the table below.

Command Frame	Address	Code	Register Address	Register Content	CRC Check
Data frame bytes	1	1	2	2	2
Value or range	0 - 247	0x06	0x0000 - 0xFFFF	0x0000 - 0xFFFF	

Response Frame	Address	Code	Register Address	Register Content	CRC Check
Data frame bytes	1	1	2	2	2
Value or range	1 - 247	0x06	0x0000 - 0xFFFF	0x0000 - 0xFFFF	

Write Multiple Function or Status Parameters (RTU Mode)

Write the content of the data unit continuously from the starting register address.

Function code 0x10 (F17.09 sets whether to save when power off), command frame and response frame are shown in the table below.

Command Frame	Address	Code	Starting Register Address	No. of Operation Registers	Bytes No. of Register Content	Register Content	CRC Check
Data frame bytes	1	1	2	2	1	2 × No. of operation registers	2
Value or range	0 - 247	0x10	0x0000 - 0xFFFF	0x0000 - 0x0004	2 × No. of operation registers		

Response Frame	Address	Code	Starting Register Address	Operation Registers	CRC Check
Data frame bytes	1	1	2	2	2
Value or range	1 - 247	0x10	0x0000 - 0xFFFF	0x0000 - 0x0004	

Error and Exception Code

If the command operation fails, the response is errer code (function code + 0x80).

The next byte of the errer code is the exception code, as shown in the table below.

Exception Code	Description
0x01	Wrong function code.
0x02	Wrong register address.
0x03	Wrong data (exceeds upper limit or lower limit)
0x04	Slave operation fails (data is in range, but data is invalid)
0x16	Unsupported operation (mainly for control and status parameters, such as not supporting read attributes, factory values, ranges, etc.)
0x17	Wrong number of registers in command frame
0x18	Wrong message frame (include message length, check)
0x20	You cannot set the parameter
0x21	When the inverter is running, cannot set the parameter
0x22	Parameters are protected by password

9.4 Address Mapping

Map the function parameters, control parameters and status parameters of HD07-S to read and write registers of Modbus.

- Function parameters (group F and R): 0x00 - 0x17 and 0x1b.
- Control parameters: 0x32.
- Status parameters (group d): 0x33.

Mapping Address of Function Parameters

The group number of the function parameter (group F and R) map to the high byte of the register address.

- F00 - F09: 0x00 - 0x09
- F10 - F15: 0x0a - 0x0f
- F16 - F23: 0x10 - 0x17
- R02: 0x1b

The index in the group map to the low byte of the register address.

Example:

The register address of F03.02 is 0x0302, the register address of F16.01 is 0x1001.

Mapping Address of Control Parameter (0x32)

The mapping address (0x32) of the control parameters is shown in the table below.

Register Address	Function	Power Off Save or Not
0x3200	Control command byte	No
0x3201	Running frequency setting	F00.14 hundred set
0x3202	Auxiliary frequency setting	No
0x3204	Virtual terminal control	No

The Bit definition of the control command byte (0x3200) are shown in the table below.

Bit	Value		Description
Bit0	0: Run command is invalid	1: Run command is valid	Inverter start and stop control (edge trigger mode)
Bit1	0: Forward	1: Reverse	Run direction, equivalent terminal forward or reverse
Bit2	0: Unused	1: Stop mode is Dec. to stop	Inverter decelerates to stop (edge trigger mode)
Bit3	0: Unused	1: Stop mode is emergency to stop	Inverter emergency to stop (edge trigger mode)
Bit4	0: Unused	1: Stop mode is coast to stop	Inverter coast to stop (edge trigger mode)

Bit	Value		Description
Bit5	0: Unused	1: External fault	The inverter displays E0024 fault and stops or continues to run according to F17.08
Bit6	0: Jog forward stop	1: Jog forward run	Jog forward control
Bit7	0: Jog reverse stop	1: Jog reverse run	Jog reverse control
Bit8	0: Fault reset is invalid	1: Fault reset is valid	Fault reset control
Bit9 - Bit11	0: Unused		
Bit12	0: Present control is invalid	1: Present control is valid	Presently sent control byte

The register contents of 0x3200 can define as control commands (Bit combinations of the control command byte), as shown in the table below.

Register Content	Control Command	Register Content	Control Command
0x1001	Forward	0x1020	External fault stop
0x1003	Reverse	0x1040	Jog forward
0x1004	Dec. to stop	0x1080	Jog reverse
0x1008	Emergency to stop	0x1100	Fault reset
0x1010	Coast to stop		

The Bit definition of the virtual terminal control (0x3204) are shown in the table below.

Bit	Value	
Bit0	0: DO1 output is invalid	1: DO1 output is valid
Bit1	0: DO2 output is invalidd	1: DO2 output is valid
Bit2	0: RLY output is invalid	1: RLY output is valid

Mapping Address of Status Parameter (0x33)

The group number of the status parameter (group d) map to the high byte of the register address (0x33), the index in the group is shown in below.

Register Address	Function	Register Address	Function
0x3300	Inverter series	0x331d	AI2 voltage
0x3301	Control board software version	0x331e	AI2 voltage (after process)
0x3303	Control board software non-standard version	0x3323	DI5 terminal pulse input frequency
0x3305	Keypad software version	0x3324	AO output
0x3306	Customized series No.	0x3326	High-speed pulse output frequency
0x3307	Control mode	0x3328	Setting line speed
0x3308	Inverter rated current	0x3329	Reference line speed
0x330a	Inverter status	0x332c	PID reference
0x330b	Main setting frequency channel	0x332d	PID feedback
0x330c	Main setting frequency	0x332e	PID error
0x330d	Auxiliary setting frequency	0x332f	PID integral
0x330e	Setting frequency	0x3330	PID output
0x330f	Reference frquency (after Acc./Dec.)	0x3331	External count
0x3310	Output frequency	0x3332	Input terminal status
0x3311	Setting speed	0x3333	Output terminal status
0x3312	Running speed	0x3337	Total time at power on (hour)
0x3314	Output voltage	0x3338	Total time at running (hour)
0x3315	Output current	0x3339	Total motor energy consumption (high bit)
0x3316	Reference torque	0x333a	Total motor energy consumption (low bit)
0x3317	Output torque	0x333b	Energy consumption of this run (high bit)
0x3318	Output power	0x333c	Energy consumption of this run (low bit)
0x3319	DC bus voltage	0x333d	Present fault
0x331a	Potentiometer input voltage	0x333e	AI1 actual sampling value
0x331b	AI1 voltage	0x333f	AI2 actual sampling value
0x331c	AI1 voltage (after process)		

Appendix A Parameter List

Parameter Setting Mode [Set]

***:** You cannot set the parameter.

×: When the inverter is running, you cannot set the parameter.

○: When the inverter is running, you can set the parameter.

Ref. Code	Function	Range	Default	Set
d00: Display Parameters				
d00.00	Inverter series		Actual	*
d00.01	Control board software version		Actual	*
d00.03	Control board software non-standard version		Actual	*
d00.05	Keypad software version		Actual	*
d00.06	Customized series No.		Actual	*
d00.07	Control mode	00: V/f control 20: SVC control	Actual	*
d00.08	Inverter rated current		Actual	*
d00.10	Inverter status	Unit: Bit0: Inverter fault Bit1: Run or stop Bit2: Forward or reverse Bit3: Zero speed running Ten: Bit5&Bit4: Acc./Dec./Constant Bit7: DC braking Hundred: Bit8: Parameter auto-tuning Bit10: Speed limit Thousand: Bit12: Overvoltage stall Bit13: Auto current limit	Actual	*
d00.11	Main setting frequency channel	0: Keypad 1: Terninal 2: Communicaiton	Actual	*

Ref. Code	Function	Range	Default	Set
		3: Analog 4: Terminal pulse 6: AI1 7: AI2 10: Keypad potentiometer 11: PID 12: MS speed		
d00.12	Main setting frequency		Actual	*
d00.13	Auxiliary setting frequency		Actual	*
d00.14	Setting frequency		Actual	*
d00.15	Reference frequency (after Acc./Dec.)		Actual	*
d00.16	Output frequency		Actual	*
d00.17	Setting speed		Actual	*
d00.18	Running speed		Actual	*
d00.20	Output voltage		Actual	*
d00.21	Output current		Actual	*
d00.22	Reference torque		Actual	*
d00.23	Output torque		Actual	*
d00.24	Output power		Actual	*
d00.25	DC bus voltage		Actual	*
d00.26	Potentiometer input voltage		Actual	*
d00.27	AI1 input		Actual	*
d00.28	AI1 input (after process)		Actual	*
d00.29	AI2 input		Actual	*
d00.30	AI2 input (after process)		Actual	*
d00.35	DI5 terminal pulse input frequency		Actual	*
d00.36	AO output		Actual	*
d00.38	High-speed pulse output frequency		Actual	*
d00.40	Setting line speed		Actual	*
d00.41	Reference line speed		Actual	*
d00.44	PID reference		Actual	*
d00.45	PID feedback		Actual	*
d00.46	PID error		Actual	*

Ref. Code	Function	Range	Default	Set
d00.47	PID integral		Actual	*
d00.48	PID output		Actual	*
d00.49	External count		Actual	*
d00.50	Input terminal status		Actual	*
d00.51	Output terminal status		Actual	*
d00.55	Total time at power on		Actual	*
d00.56	Total time at running		Actual	*
d00.57	Total motor energy consumption (high bit)		Actual	*
d00.58	Total motor energy consumption (low bit)		Actual	*
d00.59	Energy consumption of this run (high bit)		Actual	*
d00.60	Energy consumption of this run (low bit)		Actual	*
d00.61	Present fault		Actual	*
d00.62	AI1 actual sampling value		Actual	
d00.63	AI2 actual sampling value		Actual	
F00: Basic Parameters				
F00.01	Control mode	0: V/f control without PG (V/f control) 2: Vector control without PG (SVC control)	0	×
F00.06	Max. output frequency	50.00 - 400.00Hz	50.00Hz	×
F00.08	Upper limit running frequency	0.00Hz - F00.06	50.00Hz	×
F00.09	Lower limit running frequency	0.00Hz - upper limit	0.00Hz	×
F00.10	Frequency setting channel	0: Keypad 1: Terminal 2: SCI communication 3: Analog 4: Terminal pulse 6: AI1 7: AI2 10: Keypad potentiometer	0	×
F00.11	Run command channel	0: Keypad 1: Terminal 2: SCI communication	0	×

Ref. Code	Function	Range	Default	Set
F00.13	Initial running frequency (digital setting)	0.00Hz - upper limit	50.00Hz	○
F00.14	Frequency control (digital setting)	Unit: Save setting frequency when power off 0: Not save 1: Save to F00.13 Ten: Setting frequency control when stop 0: Hold the setting frequency 1: The setting frequency is F00.13 Hundred: Save communication setting frequency when power off 0: Not save 1: Save to F00.13 Thousand: Save setting frequency when switching the frequency channel 0: Not save 1: Save	1001	×
F00.15	Jog running frequency (digital setting)	0.00Hz - upper limit	5.00Hz	○
F00.17	Run direction	0: Same direction 1: Reverse direction	0	×
F00.18	Anti-reverse	0: Allow reverse 1: Prohibit reverse	0	×
F00.19	Switching time between FWD and REV	0.0 - 3600.0s	0.0s	×
F01: Protection Parameters				
F01.00	User password	00000 - 65535	00000	○
F01.01	Menu mode	0: Full menu mode 1: Check menu mode	0	○
F01.02	Parameter initialization (download)	0: No operation 1: Restore to factory setting 2, 3: Copy the keypad parameter 1/2 to the control board, and update the parameter value 4: Clear fault information	0	×

Ref. Code	Function	Range	Default	Set
		5, 6: Copy the keypad parameter 1/2 to the control board, and update the parameter value (include motor parameters)		
F01.03	Copy parameters to the keypad	0: No operation 1, 2: Copy the present parameter value to the keypad parameter 1/2	0	×
F02: Run and Stop Control Parameters				
F02.00	Start mode	0: From the DWELL frequency to start 1: Brake first and then start from DWELL frequency	1	×
F02.01	Start delay time	0.00 - 10.00s	0.00s	×
F02.02	Start DWELL frequency	0.00Hz - upper limit	0.00Hz	×
F02.03	Hold time of start DWELL frequency	0.00 - 10.00s	0.00s	×
F02.04	DC braking current	0 - 100%	50%	×
F02.05	Brake time of start DC braking	0.00 - 60.00s	0.00s	×
F02.13	Stop mode	0: Unused 1: Coast to stop 2: Dec. to stop with DC braking	2	×
F02.14	Stop DWELL frequency	0.00Hz - upper limit	0.00Hz	×
F02.15	Hold time of stop DWELL frequency	0.00 - 10.00s	0.00s	×
F02.16	Start frequency of stop DC braking	0.00 - 50.00Hz	0.50Hz	×
F02.17	Wait time of stop DC braking	0.00 - 10.00s	0.00s	×
F02.18	Brake time of stop DC braking	0.00 - 60.00s	0.00s	×
F02.19	Jog control	0: Disable 1: Enable	0	×
F02.20	Pre-excitation time	0.00 - 0.50s	0.01s	×
F03: Acc. and Dec. Parameters				
F03.00	Acc. and Dec. mode	0: Line Acc. and Dec. 1: S-curve Acc. and Dec.	0	○
F03.01	Acc. time 1	0.1 - 6000.0s	10.0s	○
F03.02	Dec. time 1	0.1 - 6000.0s	10.0s	○
F03.03	Acc. time 2	0.1 - 6000.0s	10.0s	○
F03.04	Dec. time 2	0.1 - 6000.0s	10.0s	○
F03.05	Acc. time 3	0.1 - 6000.0s	10.0s	○

Ref. Code	Function	Range	Default	Set
F03.06	Dec. time 3	0.1 - 6000.0s	10.0s	○
F03.07	Acc. time 4	0.1 - 6000.0s	10.0s	○
F03.08	Dec. time 4	0.1 - 6000.0s	10.0s	○
F03.09	Switching frequency of Acc. time 2 and time 1	0.00Hz - upper limit	0.00Hz	×
F03.10	Switching frequency of Dec. time 2 and time 1	0.00Hz - upper limit	0.00Hz	×
F03.11	Acc. start time of S-curve	0.00 - 2.50s	0.20s	○
F03.12	Acc. end time of S-curve	0.00 - 2.50s	0.20s	○
F03.13	Dec. start time of S-curve	0.00 - 2.50s	0.20s	○
F03.14	Dec. end time of S-curve	0.00 - 2.50s	0.20s	○
F03.15	Acc. time of jog running	0.1 - 6000.0s	6.0s	○
F03.16	Dec. time of jog running	0.1 - 6000.0s	6.0s	○
F03.17	Dec. time of emergency stop	0.1 - 6000.0s	10.0s	○
F04: PID Control Parameters				
F04.00	PID control	0: Invalid 1: Valid	0	×
F04.01	PID reference channel	0: Digital (F04.03) 1: Analog 2: Terminal pulse	0	×
F04.02	PID feedback channel	0: Analog 1: Terminal pulse	0	×
F04.03	PID reference (digital setting)	-100.0 - +100.0%	0.0%	○
F04.04	Proportional gain (P)	0.00 - 10.00	2.00	○
F04.05	Integral time (I)	0.01 - 10.00s	1.00s	○
F04.06	Integral upper limit	0.00Hz - upper limit	50.00Hz	○
F04.07	Differential time (D)	0.00 - 10.00s	0.00s	○
F04.08	Differential limit	0.00Hz - upper limit	20.00Hz	○
F04.09	Sampling time (T)	0.01 - 50.00s	0.10s	○
F04.10	Deviation limit	0.0 - 20.0%	0.0%	○
F04.13	PID regulator upper limit	0.0 - 100.0%	100.0%	×
F04.14	PID regulator lower limit	0.0 - 100.0%	0.0%	×
F04.17	PID output filter time	0.01 - 10.00s	0.05s	○
F04.18	PID output reverse	0: Disable 1: Enable	0	×

Ref. Code	Function	Range	Default	Set
F04.19	Upper limit frequency of PID output reverse	0.00Hz - upper limit	50.00Hz	×
F05: External Reference Curve Parameters				
F05.00	External reference curve	Unit: AI1 Ten: AI2 Hundred, thousand: Unused Ten thousand: Pulse input 0: Line 1: Unused 2: Polyline 3: Not process	31133	○
F05.01	Min. reference of line	0.0% - F05.03	0.0%	○
F05.02	Min. reference corresponding value of line	0.0 - 100.0%	0.0%	○
F05.03	Max. reference of line	F05.01 - 100.0%	100.0%	○
F05.04	Max. reference corresponding value of line	0.0 - 100.0%	100.0%	○
F05.09	Max. reference of polyline	F05.11 - 100.0%	100.0%	○
F05.10	Max. reference corresponding value of polyline	0.0 - 100.0%	100.0%	○
F05.11	Point 2 reference of polyline	F05.13 - F05.09	100.0%	○
F05.12	Point 2 corresponding value of polyline	0.0 - 100.0%	100.0%	○
F05.13	Point 1 reference of polyline	F05.15 - F05.11	0.0%	○
F05.14	Point 1 corresponding value of polyline	0.0 - 100.0%	0.0%	○
F05.15	Min. reference of polyline	0.0% - F05.13	0.0%	○
F05.16	Min. reference corresponding value of polyline	0.0 - 100.0%	0.0%	○
F05.17	Skip frequency	F00.09 - upper limit	0.00Hz	×
F05.20	Skip frequency range	0.00 - 30.00Hz	0.00Hz	×
F06: Multi Speed Parameters				
F06.00	MS frequency 1	F00.09 - upper limit	5.00Hz	○
F06.01	MS frequency 2	F00.09 - upper limit	5.00Hz	○
F06.02	MS frequency 3	F00.09 - upper limit	5.00Hz	○
F06.03	MS frequency 4	F00.09 - upper limit	5.00Hz	○
F06.04	MS frequency 5	F00.09 - upper limit	5.00Hz	○

Ref. Code	Function	Range	Default	Set
F06.05	MS frequency 6	F00.09 - upper limit	5.00Hz	○
F06.06	MS frequency 7	F00.09 - upper limit	5.00Hz	○
F06.07	MS frequency 8	F00.09 - upper limit	5.00Hz	○
F06.08	MS frequency 9	F00.09 - upper limit	5.00Hz	○
F06.09	MS frequency 10	F00.09 - upper limit	5.00Hz	○
F06.10	MS frequency 11	F00.09 - upper limit	5.00Hz	○
F06.11	MS frequency 12	F00.09 - upper limit	5.00Hz	○
F06.12	MS frequency 13	F00.09 - upper limit	5.00Hz	○
F06.13	MS frequency 14	F00.09 - upper limit	5.00Hz	○
F06.14	MS frequency 15	F00.09 - upper limit	5.00Hz	○
F08: Motor Parameters				
F08.00	Motor rated power	0.2 - 5.5kW	Depend on model	×
F08.01	Motor rated voltage	0 - 999V		×
F08.02	Motor rated current	0.01 - 99.99A		×
F08.03	Motor rated frequency	1.0 - 400.0Hz	50.0Hz	×
F08.04	Motor rated speed	1 - 24000rpm	Depend on model	×
F08.06	Motor parameter auto-tuning	0: No operation 1: Static auto-tuning 2: Rotary auto-tuning 3: Measure motor stator resistance	0	×
F08.07	Stator resistance of motor	0.00 - 99.99Ω	Depend on model	×
F08.08	Rotor resistance of motor	0.00 - 99.99Ω		×
F08.09	Leakage inductance of motor	0.0 - 5000.0mH	Depend on model	×
F08.10	Mutual inductance of motor	0.0 - 5000.0mH		×
F08.11	Idling exciting current of motor	0.00 - 99.99A		×
F08.12	Core saturation coefficient 1 of motor	0.00 - 1.00	1.00	×
F08.13	Core saturation coefficient 2 of motor	0.00 - 1.00	1.00	×
F08.14	Core saturation coefficient 3 of motor	0.00 - 1.00	1.00	×
F08.15	Core saturation coefficient 4 of motor	0.00 - 1.00	1.00	×
F08.16	Core saturation coefficient 5 of motor	0.00 - 1.00	1.00	×

Ref. Code	Function	Range	Default	Set
F09: V/f Control Parameters				
F09.00	V/f curve	0: Line 1: Square curve 2: 1.2 exponential curve 3: 1.7 exponential curve 4: User-defined curve	0	×
F09.01	V/f frequency F3	F09.03 - 100.0% (F08.03)	80.0%	×
F09.02	V/f voltage V3	F09.04 - 100.0% (F08.01)	80.0%	×
F09.03	V/f frequency F2	F09.05 - F09.01 (F08.03)	50.0%	×
F09.04	V/f voltage V2	F09.06 - F09.02 (F08.01)	50.0%	×
F09.05	V/f frequency F1	0.0% - F09.03 (F08.03)	0.0%	×
F09.06	V/f voltage V1	0.0% - F09.04 (F08.01)	0.0%	×
F09.07	Torque boost	0.0 - 30.0%	2.0%	○
F09.08	Cut-off point for manual torque boost	0.0 - 50.0% (F08.03)	30.0%	○
F09.09	Slip compensation gain	0.0 - 300.0%	0.0%	○
F09.10	Slip compensation filter time	0.01 - 10.00s	0.10s	○
F09.11	Slip compensation limit	0.0 - 250.0%	200.0%	×
F09.12	Motor iron loss	0.000 - 9.999kW	Depend on model	×
F09.14	AVR (automatic voltage regulation) function	0: Disabled 1: Enable all the time 2: Disable in Dec. process	1	○
F09.15	Suppress oscillation coefficient at low frequency	0 - 200	50	○
F09.16	Suppress oscillation coefficient at high frequency	0 - 200	20	○
F10: Vector Control Speed Loop Parameters (ASR)				
F10.00	Proportional gain 1 (P)	0.1 - 200.0	10.0	○
F10.01	Integral time 1 (I)	0.00 - 10.00s	0.20s	○
F10.02	Proportional gain 2 (P)	0.1 - 200.0	10.0	○
F10.03	Integral time 2 (I)	0.00 - 10.00s	0.20s	○
F10.04	PI switching frequency 1	0.00 - 50.00Hz	10.00Hz	○
F10.05	PI switching frequency 2	0.00 - 50.00Hz	15.00Hz	○
F10.06	Integral limit	0.0 - 200.0% (F08.02)	180.0%	○
F10.07	Differential time (D)	0.00 - 1.00s	0.00s	○

Ref. Code	Function	Range	Default	Set
F10.08	ASR output filter time	0.000 - 1.000s	0.010s	○
F10.09	Motor torque limit lock	0: Not lock 1: Same as the FWD electric torque limit	0	×
F10.10	Motor torque limit channel	Unit: Forward electric Ten: Reverse electric Hundred: Forward regenerative Thousand: Reverse regenerative 0: Digital limit (F10.11 – F10.14) 1: Analog input 2: Terminal pulse	0000	○
F10.11	Electric torque limit for motor forward	0.0 - 250.0% (F08.02)	180.0%	○
F10.12	Electric torque limit for motor reverse	0.0 - 250.0% (F08.02)	180.0%	○
F10.13	Regenerative torque limitation for motor forward	0.0 - 250.0% (F08.02)	180.0%	○
F10.14	Regenerative torque limitation for motor reverse	0.0 - 250.0% (F08.02)	180.0%	○
F11: Vector Control Current Loop Parameters (ACR)				
F11.00	KP	1 - 2000	800	○
F11.01	KI	1 - 1000	200	○
F11.02	ACR output filter time	0 - 31	3	○
F11.03	Feedforward enable	0: Disable 1: Enable	0	×
F11.04	Motor exciting boost	0.0 - 30.0%	0.0%	×
F11.05	Motor field orientation optimization	0: Disable 1: Enable	0	×
F15: Digital I/O Terminal Parameters				
F15.00	DI1 terminal function	0: Unused 1: Inverter enable 2: Forward (FWD) 3: Reverse (REV) 4: Three-wire run mode 8: Switch to analog set frequency 11: Switch to terminal control	2	×
F15.01	DI2 terminal function		3	×

Ref. Code	Function	Range	Default	Set
F15.02	DI3 terminal function	13 - 16: MS frequency 1 - 4 17: Increase frequency (UP) 18: Decrease frequency (DN) 20: Jog forward (JOGF) 21: Jog reverse (JOGR) 26: Acc. and Dec. time 1 27: Acc. and Dec. time 2 30: Switch to F00.10 set frequency 41: Coast to stop (NO: normally open) 42: Coast to stop (NC: normally close) 43: Emergency stop 44: External fault (NO: normally open) 45: External fault (NC: normally close) 46: External reset 50: Clear the counter to zero 51: Counter trigger 53: Pulse frequency input (DI5) 86: Terminal stop DC braking	0	×
F15.03	DI4 terminal function			
F15.04	DI5 terminal function		0	×
F15.44	AI1 (ADI1) terminal function		0	×
F15.45	AI2 (ADI2) terminal function		0	×
F15.12	Acc. and Dec. rate of UP/DN terminal	0.00 - 99.99Hz/s	1.00Hz/s	×
F15.13	Terminal detection time interval	0: 2ms 1: 4ms 2: 8ms	0	○
F15.14	Terminal detection filter times	0 - 10000	4	○
F15.15	Terminal input logic	Bit0 - Bit4 corresponds to DI1 - DI5 Bit12 corresponds to AI1 Bit13 corresponds to AI2 0: Positive logic 1: Negative logic	00	○
F15.16	FWD or REV run mode	0: Two-wire run mode 1 1: Two-wire run mode 2 2: Three-wire run mode 1 3: Three-wire run mode 2	0	×
F15.18	DO1 terminal function	0: Unused 2: Inverter running 3: Inverter forward running 4: Inverter reverse running 5: Inverter DC braking	2	×

Ref. Code	Function	Range	Default	Set
F15.19	DO2 terminal function	6: Inverter zero frequency state 7: Inverter zero frequency running 9: FDT (frequency detection threshold) 11: FAR (frequency arrive) 12: Upper frequency limit 13: Lower frequency limit 20: SCI communication output data 21: Setting run time arrive 23: Setting count arrive 24: Specify count arrive 29: Undervoltage (LU) 30: Overload 31: Inverter fault 32: External fault 33: Inverter auto reset fault 38: High-frequency output (DO2)	0	×
F15.20	RLY relay function		31	×
F15.24	Output terminal logic	Bit0 - Bit2 corresponds to DO1, DO2, RLY 0: Positive logic 1: Negative logic	0	○
F15.27	FAR range	0.00 - 100.00Hz	2.50Hz	○
F15.28	Zero frequency threshold	0.00Hz - upper limit	0.00Hz	○
F15.29	Zero frequency hysteresis	0.00Hz - upper limit	0.00Hz	○
F15.31	FDT	0.00Hz - upper limit	5.00Hz	○
F15.32	FDT hysteresis	0.00Hz - upper limit	0.00Hz	○
F15.36	Setting run time	0 - 65535h	0h	○
F15.37	Setting count	F15.38 - 9999	0	○
F15.38	Specify count	0 - F15.37	0	○
F15.43	Terminal output delay time	0.0 - 100.0s	0.0s	×
F16: Analog I/O Terminal Parameters				
F16.00	Keypad potentiometer function	0: Unused 2: Frequency setting 3: Auxiliary frequency setting 4: PID reference 5: PID feedback 9: Motor forward electric torque limit 10: Motor reverse electric torque limit	0	×
F16.01	AI1 terminal function		2	×

Ref. Code	Function	Range	Default	Set
F16.02	AI2 terminal function	11: Motor forward regenerative torque limit 12: Motor reverse regenerative torque limit	0	×
F16.05	AI1 bias	-100.0 - +100.0%	0.0%	○
F16.06	AI1 gain	0.00 - 10.00	1.00	○
F16.07	AI1 filter time	0.01 - 10.00s	0.05s	○
F16.08	AI2 bias	-100.0 - +100.0%	0.0%	○
F16.09	AI2 gain	0.00 - 10.00	1.00	○
F16.10	AI2 filter time	0.01 - 10.00s	0.05s	○
F16.17	Max. input pulse frequency (DI5)	0 - 50000Hz	10000Hz	○
F16.18	Input pulse filter time	0.01 - 10.00s	0.05s	○
F16.19	AO terminal function	0: Unused 2: Reference frequency 3: Motor speed 5: Output current 11: Output voltage 12: Bus voltage 14: AI1 output (after process) 15: AI2 output (after process)	2	○
F16.21	DO2 terminal (high-speed pulse output) function		0	○
F16.22	AO bias	-100.0 - +100.0%	0.0%	○
F16.23	AO gain	0.0 - 200.0%	100.0%	○
F16.26	Max. output pulse frequency (DO2)	0.01 - 50.00kHz	10.00kHz	○
F16.29	AI1 voltage or current input	0: Voltage input 1: Current input	0	○
F17: SCI Communication Parameters				
F17.00	Data format	0: 1-8-2 format, no parity, RTU 1: 1-8-1 format, even parity, RTU 2: 1-8-1 format, odd parity, RTU 6: 1-8-1 format, no parity, RTU	0	×
F17.01	Baud rate	0: 1200bps 1: 2400bps 2: 4800bps 3: 9600bps 4: 19200bps 5: 38400bps	3	×

Ref. Code	Function	Range	Default	Set
		6: 57600bps 7: 76800bps 8: 115200bps		
F17.02	Local address	0 - 247	2	×
F17.03	Local response time	0 - 1000ms	1ms	×
F17.04	Communication timeout detection time in signle mode	0.0 - 600.0s	0.0s	×
F17.05	Communication error detection time	0.0 - 600.0s	0.0s	×
F17.06	Action at communication timeout	0: Coast to stop 1: Emergency stop 2: Dec. to stop 3: Continue to run	3	×
F17.07	Action at communication error		3	×
F17.08	Action at communication external equipment fault		1	×
F17.09	Communication write function parameter to EEPROM	Unit: Function parameters except F00.13 and F19.03 Ten: F00.13 and F19.03 0: Not save 1: Save	01	×
F17.10	Communication timeout detection time in network mode	0.0 - 600.0s	0.0s	×
F17.11	Master and slave	0: The local is slave 1: The local is master	0	×
F17.12	Slave jog linkage	0: Linkage 1: No linkage	0	×
F17.13	Synchronous frequency	0: Reference frequency 1: Setting frequency 2: Output frequency	0	○
F18: Display Parameters				
F18.02	Run display parameter 1	0: Unused 1: Inverter rated current 3: Inverter status 4: Main setting frequency channel 5: Main setting frequency 7: Setting frequency	8	○
F18.03	Run display parameter 2		7	○
F18.04	Run display parameter 3		9	○

Ref. Code	Function	Range	Default	Set
F18.05	Run display parameter 4	8: Reference frequency (after Acc. and Dec.) 9: Output frequency 10: Setting speed 11: Running speed 13: Output voltage 14: Output current 15: Reference torque 16: Output torque 17: Output power 18: DC bus voltage 19: Potentiometer input voltage 20: AI1 input voltage 21: AI1 input voltage (after process) 22: AI2 input voltage 23: AI2 input voltage (after process) 28: DI5 terminal pulse input frequency 29: AO output 33: Setting line speed 34: Reference line speed 42: External count 43: Input terminal status 44: Output terminal status 48: Total time at power on (hour) 49: Total time at running (hour)	13	○
F18.06	Run display parameter 5		14	○
F18.07	Run display parameter 6		18	○
F18.08	Stop display parameter 1		7	○
F18.09	Stop display parameter 2		18	○
F18.10	Stop display parameter 3		20	○
F18.11	Stop display parameter 4		19	○
F18.12	Stop display parameter 5		43	○
F18.13	Stop display parameter 6		44	○
F18.15	Max. line speed	0 - 65535	1000	○
F18.16	Line speed display accuracy	0: Integer 1: One decimal 2: Two decimal 3: Three decimal	0	○
F19: Enhancement Parameters				
F19.00	Auxiliary frequency setting channel	0: No auxiliary frequency 1: Keypad 2: Terminal 3: SCI communication 4: Analog 5: Terminal pulse 6: PID output	0	○
F19.01	Master and auxiliary calculate	0: Master + auxiliary	0	○

Ref. Code	Function	Range	Default	Set
		1: Master - auxiliary		
F19.02	Auxiliary setting coefficient	0.00 - 9.99	1.00	○
F19.03	Initial auxiliary frequency (digital setting)	0.00Hz - F00.06	0.00Hz	○
F19.04	Auxiliary frequency control (digital setting)	Unit: Save auxiliary frequency when power off 0: Not save 1: Save Ten: Auxiliary frequency control when stop 0: Hold the auxiliary frequency 1: The auxiliary frequency is F19.03	00	○
F19.05	Adjust setting frequency ratio	0: Not adjust 1: Adjust relative to F00.06 2: Adjust relative to the present frequency	1	○
F19.06	Adjustment coefficient of setting frequency ratio	0.0 - 200.0%	100.0%	○
F19.07	Fan control	0: Auto stop 1: Stop immediately 2: Runs all the time when power on	0	○
F19.08	Fan control delay time	0.0 - 600.0s	60.0s	○
F19.10	Zero frequency threshold	0.00Hz - upper limit	1.00Hz	○
F19.11	Action at setting frequency is lower than F19.10	0: Run at setting frequency 1: Stop 2: Run at F19.10 3: Run at zero frequency	0	×
F19.18	Suppress overvoltage gain	0.000 - 1.000	0.500	○
F19.19	Overvoltage stall point	0 - 1200V	220V: 390V 380V: 740V	×
F19.20	Auto current limit gain	0.000 - 1.000	0.500	○
F19.21	Auto current limit threshold	20.0 - 200.0%	150.0%	×
F19.22	Integration time constant of auto current limit	0.000 - 1.000	0.020	○

Ref. Code	Function	Range	Default	Set
F19.23	Power on instant terminal detection	0: Rise edge enable 1: Level enable	0	○
F19.24	Action voltage of brake unit	220V: 380 - 450V	380V	×
		380V: 630 - 750V	720V	×
F19.39	Input voltage	Unit: 380V inverter 0: 380 - 460V 1: 260 - 460V 2: 200 - 460V Ten: 220V inverter 0: 200 - 240V 1: 120 - 240V	00	×
F19.40	Inverter overload protection coefficient	0.0 - 250.0%	200.0	○
F20.00	Overload protection	Unit/ten/hundred/thousand: Unused Ten thousand: Overload protection 0: Enable overload protection 1: Enable inverter overload protection, shield motor overload protection 2: Shield inverter overload protection, enable motor overload protection 3: Shield overload protection	00000	×
F20.10	Output phase loss detection threshold	0 - 50%	20%	×
F20.11	Output phase loss detection time	0.00 - 20.00s	3.00s	×
F20.18	Auto reset times	0 - 100	0	×
F20.19	Time interval of auto reset	2.0 - 20.0s/time	5.0s/time	×
F20.21	The fifth (latest) fault	-Lu-: DC bus undervoltage E0001: Inverter output overcurrent (in Acc.) E0002: Inverter output overcurrent (in Dec.) E0003: Inverter output overcurrent (in constant speed) E0004: DC bus overvoltage (in Acc.) E0005: DC bus overvoltage (in Dec.) E0006: DC bus overvoltage (in constant speed) E0007: Overvoltage stall fault	0	*

Ref. Code	Function	Range	Default	Set
F20.30	The fourth fault	E0009: Heatsink overheat E0010: Brake unit fault E0012: Parameter auto-tuning fault E0014: Current detect circuit fault E0016: Output phase loss fault E0017: Inverter overload fault E0019: Motor overload fault E0021: Control board EEPROM read or write fault E0022: Keypad EEPROM read or write fault (inverter does not stop) E0023: Parameter setting fault E0024: External equipment fault E0028: SCI communication timeout E0029: SCI communication error	0	*
F20.32	The third fault		0	*
F20.34	The second fault		0	*
F20.36	The first fault		0	*
F20.22	Reference frequency (fifth fault)	0.00 - 150.00Hz	0.00Hz	*
F20.23	Running frequency (fifth fault)	0.00 - 150.00Hz	0.00Hz	*
F20.24	Bus voltage (fifth fault)	0 - 999V	0V	*
F20.25	Output voltage (fifth fault)	0 - 999V	0V	*
F20.26	Output current (fifth fault)	0.00 - 99.99A	0.00A	*
F20.27	Input terminal status (fifth fault)	0 - 0xF	0	*
F20.28	Output terminal status (fifth fault)	0 - 0xF	0	*
F20.29	Time interval (fifth fault)	0.0 - 6553.5h	0.0h	*
F20.31	Time interval (fourth fault)	0.0 - 6553.5h	0.0h	*
F20.33	Time interval (third fault)	0.0 - 6553.5h	0.0h	*
F20.35	Time interval (second fault)	0.0 - 6553.5h	0.0h	*
F20.37	Time interval (first fault)	0.0 - 6553.5h	0.0h	*
F23: PWM Control Parameters				
F23.00	Carrier frequency	1 - 8kHz	8kHz	×
F23.01	Auto adjust carrier frequency	0: Disable 1: Enable	1	×
F23.02	PWM over modulation	0: Disable 1: Enable	1	×
F23.03	PWM modulation mode	0: Two phase or three phase modulation 1: Three phase modulation	1	×

Ref. Code	Function	Range	Default	Set
F23.04	Switching frequency 1 of PWM modulation	10.00 - [F23.05 - 2Hz]	10.00Hz	×
F23.05	Switching frequency 2 of PWM modulation	[F23.04 + 2Hz] - 50.00Hz	15.00Hz	×
F23.09	Narrow pulse width control	Unit: V/f control running Ten: SVC control running Hundred: Auto-tuning 0: Invalid 3: Valid	0x333	×
R02: AI Correction Parameters				
R02.00	AI1 actual sampling value 1	0 - 4095	Factory set	○
R02.01	AI1 measure voltage 1	0.00 - 10.00V		○
R02.02	AI1 actual sampling value 2	0 - 4095		○
R02.03	AI1 measure voltage 2	0.00 - 10.00V		○
R02.04	AI2 actual sampling value 1	0 - 4095		○
R02.05	AI2 measure voltage 1	0.00 - 10.00V		○
R02.06	AI2 actual sampling value 2	0 - 4095		○
R02.07	AI2 measure voltage 2	0.00 - 10.00V		○
R02.08	Actual sampling value at 0V (AI1 input)	0 - 4095		○
R02.09	Actual sampling value at 0V (AI2 input)	0 - 4095		○

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