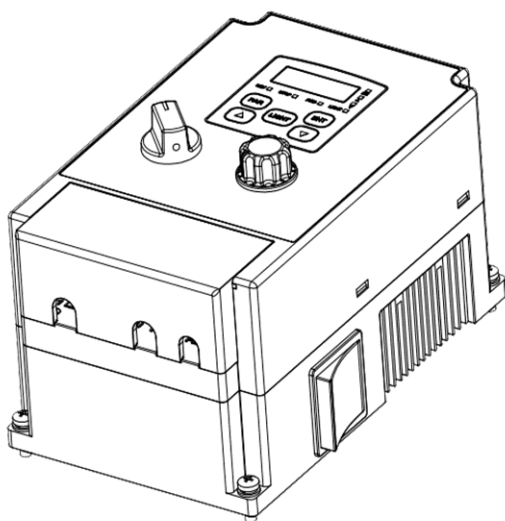

Industrial fan

Integrated Drive and Control System User Manual



CONTENTS

Chapter 1 Product Introduction	1
1.1 Product Specification	1
1.2 Drive Nameplate Description	1
1.3 Drive Model	2
1.4 Drive Series Specifications	2
Chapter 2 Installation Instructions	3
2.1 Product Outline Drawing, Installation Hole Size	3
2.2 Mechanical Installation Instructions	4
2.3 Standard Wiring	5
Chapter 3 Operation Process	6
3.1 Operation Panel Description	6
3.2 Key Function Description	6
3.3 LED Indicator Lights And Digital Tube Display	6
Chapter 4 Introduction to Monitoring Mode	7
4.1 The display on the panel when the drive is running	7
Chapter 5 Fault Diagnosis and Countermeasures	8
5.1 Fault Diagnosis and Countermeasures	8
5.2 Alarm Record Query	9
5.3 Initialization of Alarm Records	9
Chapter 6 Simple Debugging Instructions	10
6.1 Easy Debugging of Induction Motor	10
6.2 Easy Debugging of Synchronous Motor	10
Appendix A Parameter Table and Detailed Explanation	12
1. Parameter List	12
2. Parameter Initialization	16
Appendix B Common Parameters And Details	17
1. Common Parameters	17

Safety Warnings

Security Matters

(1) Types and meanings of warning signs

Before installation, wiring construction, maintenance, and inspection, please read and use this manual and other ancillary materials.

Please start using it after confirming the equipment knowledge, safety information and precautions.

This manual divides the levels of safety precautions into "DANGER" and "CAUTION".

Warning Signs		Meaning
	DANGER	This mark indicates that if the operation is wrong, a dangerous situation may occur, which may cause death or serious injury.
	CAUTION	This mark indicates that if you operate incorrectly, a dangerous situation may occur, resulting in moderate injury, minor injury, and equipment damage.

In addition, even the items listed in the "CAUTION" may have serious consequences depending on the situation.

The texts marked with warning signs are important contents, please observe them.

Please read this chapter carefully when installing, debugging and servicing this system, and be sure to follow the safety precautions required by this chapter. Any injuries and losses caused by illegal operations have nothing to do with the company. After reading this manual, please keep it in a place where the user can see it at all times.

(2) Symbols

Use symbols as needed so that you can understand the main points of the display at a glance.

Symbol	Meaning
	Generally prohibited
	No touch
	Dismantling is prohibited
	Burn carefully

Symbol	Meaning
	Instruct the general user's behavior
	Must be grounded
	Caution Electricity
	Caution hot

Security Matters

1. Precautions for use

	DANGER
	1. Never touch the inside of the drive with your hands. Otherwise, electric shock may occur.
	2. The ground terminal of the drive and motor must be grounded. Otherwise, electric shock may occur.
	3. Please perform wiring and inspection after cutting off the power supply for 5 minutes. Otherwise, electric shock may occur.
	4. Please do not damage the cable, or apply unnecessary stress, ballast, or pinch to the cable. Otherwise, it may cause malfunction, damage and electric shock.
	5. During operation, please do not touch the rotating part of the motor. Otherwise, it may be injured.
	CAUTION
	1. Please use the motor and driver in the specified combination. Otherwise, fire and malfunction may occur.
	2. Please never use it in a place prone to splashing water, corrosive gas environment, flammable gas environment and combustible materials. Otherwise, fire and malfunction may occur.
	3. The temperature of the drive, motor and peripheral equipment is high, so please keep the distance. Otherwise it is easy to burn.
	4. During the power-on process and for a period of time after the power is cut off, the heat sink, regenerative resistor, motor, etc. of the drive may be in a high temperature state, so please do not touch it. Otherwise, you may get burned.
	5. If the surface temperature of the motor in the final product exceeds 70°C during operation, please affix a label of "caution hot" on the final product.

2. Precautions for storage

	PROHIBIT
	1. Please do not store it in a place exposed to rain or dripping water, or in a place with harmful gases and liquids. Otherwise, a malfunction may occur.
	2. Do not store it in places with high vibration or directly on the ground. Otherwise, a malfunction may occur.

	INSTRUCTION
	1. Please keep it in a place without direct sunlight and within the specified temperature and humidity range (-20℃～60℃ 10%～90% RH or less, no condensation). Otherwise, a malfunction may occur.
	2. When storing in the installed state Please cover the entire servo motor with a film to prevent moisture, oil and water. Please apply anti-rust agent to the machined surface (shaft, flange surface) every 6 months. To prevent the bearing from rusting, rotate the bearing by hand or idling for 5 minutes once a month.

3. Precautions for handling	
	CAUTION
	When transporting, please do not hold the cable or motor shaft. Otherwise, the equipment is easily damaged or malfunctions, and personnel are easily injured.
	INSTRUCTION
	1. Excessive product loading may cause the goods to collapse, please do as required.
	2. The motor eye bolts are only used for the handling of the servo motor. Please do not use it for moving machinery and equipment. Otherwise, malfunctions may occur and personnel may be easily injured.

4. Precautions during installation	
	CAUTION
	1. Please do not sit on the motor or put heavy objects on it. Otherwise, the machine may malfunction, break down, or get an electric shock or injury.
	2. Please do not block the exhaust port, and do not allow debris to enter. Otherwise, accidents such as fire and electric shock may occur to the machine.
	3. Be sure to follow the installation direction. Otherwise, accidents such as fire and electric shock may occur to the machine.
	4. Do not apply strong shocks. Otherwise, the machine may malfunction.
	INSTRUCTION

	1. As the motor shaft passes through parts that are not waterproof or oil-proof, please take measures to prevent water and cutting oil from entering the motor. Otherwise, the machine may malfunction.
	2. If the use environment of the motor body is likely to be splashed with a large number of water droplets and oil droplets, please use a waterproof and oil drop cover for the equipment. For a small amount of splashing, the motor can be self-treated to protect it. When using in an environment with high humidity and oil mist, please install the wires and connectors downwards. Otherwise, poor insulation and short circuit may occur and cause accidents.
	3. Never disassemble or modify the motor. Otherwise, fire and malfunction may occur.

5. Wiring precautions

	CAUTION
	The wiring must be correct and connected securely. Otherwise, accidents such as fire, breakdown, and injury may occur.
	INSTRUCTION
	The ground wire is used to prevent an electric shock accident. For safety reasons, please install a ground wire.

6. Precautions during operation and operation

	CAUTION
	1. Excessive adjustments and changes will cause unstable operation, please do not make it arbitrarily. Otherwise, it may be injured.
	2. During the trial operation, fix the motor and install it in the equipment after confirming the operation status while it is disconnected from the mechanical equipment. Otherwise, it may be injured.
	3. The self-holding brake is not a stopping device to ensure the safety of the equipment. Please install a safety stop device on the equipment side. Otherwise, accidents such as failure or injury may occur.
	4. When an alarm occurs, remove the cause, and after ensuring safety, reset the alarm before running. Otherwise, it may be injured.
	5. The motor may restart suddenly when the power is turned on after a momentary power failure, so please keep away from the equipment. (Please consider when designing the machine, how to ensure personal safety when restarting) Otherwise, it may be injured.

	6. Please confirm that the power supply specifications are normal. Otherwise, it may cause fire, malfunction and injury.
	PROHIBIT
	The brake installed in the motor is used for self-protection, so please do not use it for general braking. Otherwise, malfunction or injury may occur.
	INSTRUCTION
	Please install an emergency stop circuit externally so that you can stop the operation at any time and cut off the power supply. Otherwise, fire, malfunction, burns and injuries may occur.

7. Precautions during maintenance and inspection	
	PROHIBIT
	Please do not allow non-professional technicians to disassemble and repair the equipment. When it is necessary to disassemble and repair the motor, please contact the sales engineer of the product or our company.

Chapter 1 Product Introduction

1.1 Product Specification

Input and output characteristics

- Input voltage range: 380/220V±15%
- Input frequency range: 47~63Hz
- Output voltage range: 0~rated input voltage
- Output frequency range: 0~500Hz

Peripheral interface characteristics

- Digital input: 3 multifunctional input terminals (1. Optical coupling isolation 2. Input impedance: 10K Ω)
- Digital output: 1 multifunctional output terminal (1. Optical coupling isolation 2. Input impedance: 10K Ω)
- 1 Relay control output (RB, RC contact points, Rated Current: 5A)

Technical performance characteristics

- Control mode: V/F control, Vector Control
- Overload capacity: 150% rated current 60s; 180% rated current 10s; 200% rated current 1s
- Carrier frequency: 4.0~16.0kHz

Features

- Automatic voltage adjustment function: when the grid voltage changes, it can automatically keep the output voltage constant
- Provide a variety of fault protection functions: overcurrent, overvoltage, undervoltage, overtemperature, overload and other protection functions

1.2 Drive's Nameplate Description

The nameplate description takes a three-phase 380V1.5KW drive as an example, as shown in Figure 1-1:



Figure 1-1: Schematic diagram of the nameplate of the VD series all-in-one driver

1.3 Drive Model

The model code contains drive product information. The user can find the drive model information from the drive's nameplate. Take VD-FTB-4015-00 as an example.

Table 1-1: Model description

Field	Specific Content
VD-FTB	Product serial number: VD stands for all-in-one driver series. FRC stands for Synchronous and Induction Motor Controller
4015	Product capacity and voltage level: Byte 3: 2: single-phase 220V power supply; 4: 380V; Byte 2~0: 015: rated power 1.5KW
00	00: Universal model

1.4 Drive Series Specifications

Table 1-2: Series specifications

Drive model	Input voltage (V)	Output current (A)	Adapted motor (KW)
VD-FRC-4015-00	380	4.0	1.5
VD-FRC-4022-00		5.0	2.2
VD-FRC-2015-00	220	6.0	1.5
VD-FRC-2022-00		8.0	2.2

Chapter 2 Installation Instructions

2.1 Product Outline Drawing, Installation Hole Size

Drive size drawing:

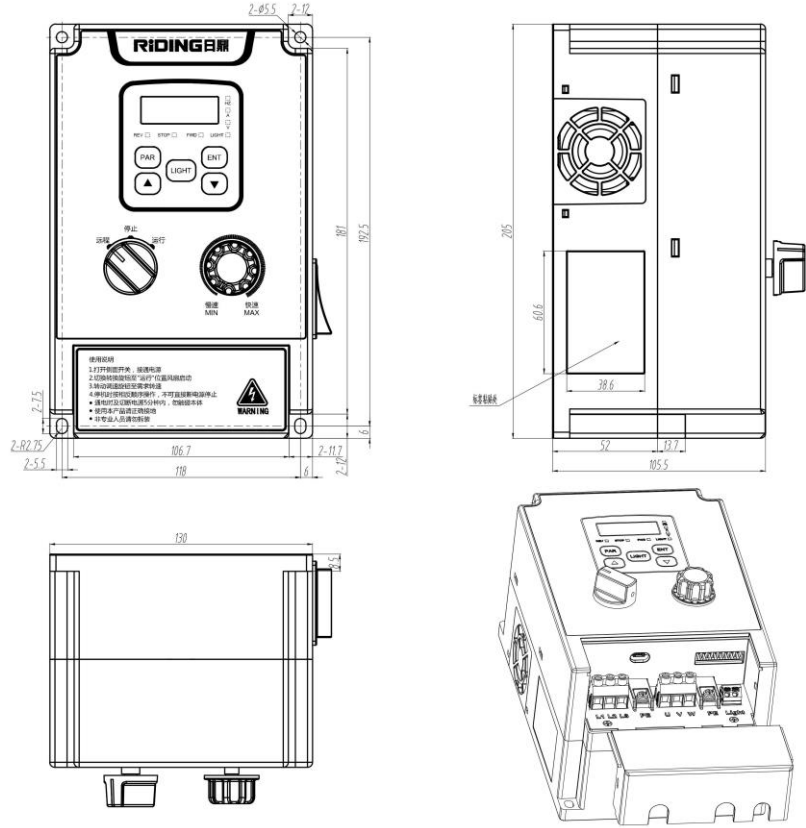


Figure 2-1: Schematic diagram of overall dimensions and installation dimensions

2.2 Mechanical Installation Instructions

2.2.1 Installation distance

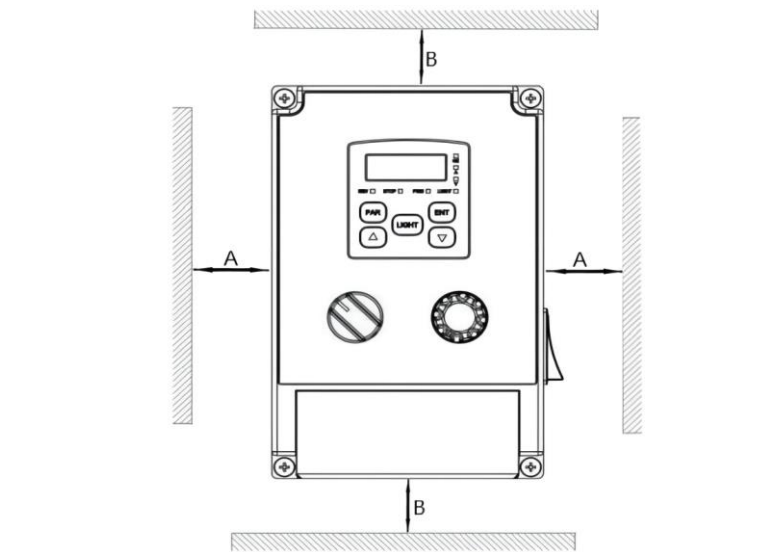


Figure 2-2: Installation diagram

Note: The minimum size of A and B is 100mm.

2.2.2 Disassembly instructions

1. Firstly, remove the power cover on the drive.



2. According to the regulations, connect the power cord and power line first, and then insert the power cover plate and fasten it.

2.3 Standard Wiring

2.3.1 VD series all-in one machine wiring diagram

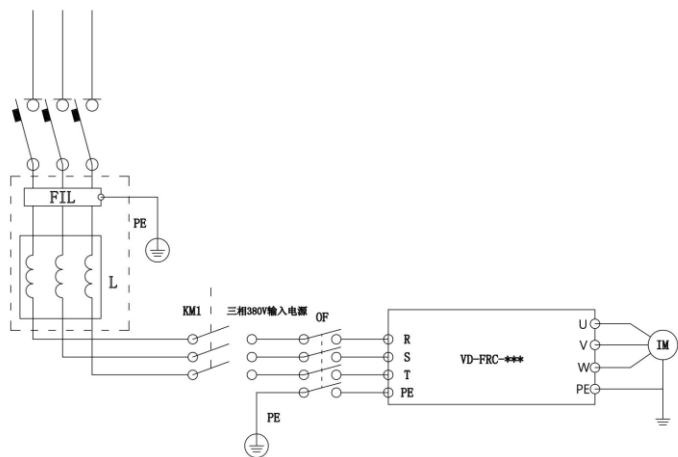
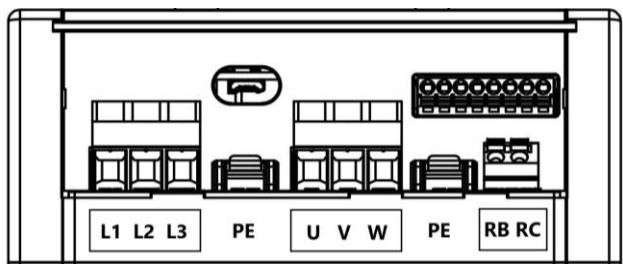


Figure 2-3: VD series all-in one machine wiring diagram

2.3.2 Main circuit terminal wiring instructions



Terminal symbol	Terminal name	Function description
L1	Main circuit power input	The three-phase AC input terminal is connected to the grid.
L2		
L3		
U	Drive output	The three-phase AC output terminal is generally connected to the motor.
V		
W		
PE	Safety protection ground terminal	Each machine must be grounded.
RB/RC	Relay Contact Point	This relay controls the on-off of external devices

Chapter 3 Operation Process

3.1 Operation Panel Description



Figure 3-1: Panel diagram

3.2 Button function description

Table 3-1: Button function description

Button	Name	Function Description
	Parameters/exit key	Enter or exit the first level menu
	OK key	Step by step enter the menu screen, confirm the setting parameters
	Increase	Increment of data or function code
	Reduce	Decrement of data or function code
	Relay Control	Press once to turn on and again to turn off

3.3 LED indicator and digital tube display

Table 3-2: Description of panel indicators

LED indicator	Symbol content description
FWD	Forward direction: When the light is on, it means it is in the forward direction.
STOP	Stop: When the light is on, it means it is in a stopped state.
REV	Reverse direction: When the light is on, it means it is in reverse direction.
RPM	Speed unit
A	Current unit
V	Voltage unit
LIGHT	For external devices, the conduction light is on, and the disconnected light is off
7 LED displays	Parameter display: can display various monitoring data such as set frequency, output frequency, and alarm code

Chapter 4 Introduction to Monitoring Mode

Monitor mode can display the output and input of the drive

Display on the panel when the drive is running

LD-00	Operating frequency	Display the current operating frequency of the drive, with HZ as the unit.
LD-01	Setting frequency	Display the current set frequency of the drive, with HZ as the unit.
LD-02	Bus voltage	Display the current DC bus voltage of the drive.
LD-03	Output voltage	Display the current output voltage value of the driver.
LD-04	Output current	Display the effective value of the current output current of the drive.
LD-05	Running speed	Display the current motor speed.
LD-07	Output Power	Display the output power of the driver.
LD-10	Input terminal status	Display the current state of the input terminal of the drive, and convert it into a binary number according to the displayed decimal number. When the input terminal is ON, the corresponding position is 1.
LD-12	Radiator temperature	Display the current radiator temperature of the drive.
LD-16	Speed control knob input command value	Display the current analog AI1 input voltage value of the drive.

Chapter 5 Fault Diagnosis and Countermeasures

The drive control all-in-one machine has multiple warning messages and protection functions. Once an abnormal fault occurs, the protection function will act and the drive will stop working. The drive fault relay contact action, and display the fault code on the drive display panel. Before seeking service, the user can perform self-examination according to the prompts in this section, analyze the cause of the failure, and find a solution. If you cannot find a solution, please seek technical support, contact the agent of the drive you purchased or contact our company directly.

5.1 Fault Diagnosis and Countermeasures

Fault Name	Operation Panel Display	Fault Shooting	Fault Handling
Hardware overcurrent	OC(Hardware current detection overcurrent)	1. The output circuit of the drive is grounded or short-circuited 2. The acceleration and deceleration time is too short 3. The manual torque boost or V/F curve is inappropriate 4. The voltage is low 5. Start the rotating motor 6. Sudden acceleration during acceleration Load 7. Driver selection is too small	1. Eliminate peripheral faults 2. Check parameters by referring to the appendix Common parameter tables 3. Increase acceleration and deceleration time 4. Adjust manual boost torque or V/F curve 5. Adjust the voltage to the normal range 6. Select speed tracking start or wait for the motor to stop before starting 7. Cancel sudden increase Load 8. Choose a driver with a higher power level 9. Seek technical support
Software overcurrent	OC2(Software current detection overcurrent)	1. There is a grounding or short circuit in the output circuit of the drive 2. The acceleration and deceleration time is too short 3. The voltage is too low 4. The load is suddenly added during the deceleration process	1. Eliminate peripheral faults 2. Check parameters by referring to the appendix Common parameter tables 3. Increase acceleration and deceleration time 4. Adjust the voltage to the normal range 5. Cancel sudden load loading 6. Seek technical support
Hardware overvoltage	HU	1. The input voltage is too high 2. There is external force to drive the motor to run 3. The acceleration and deceleration time is too short	1. Adjust the voltage to the normal range 2. Cancel the external power or install a braking resistor 3. Increase the acceleration and deceleration time
Undervoltage fault	LU	1. Instantaneous power failure 2. The input terminal voltage of the driver is not within the range required by the specification 3. The bus voltage is abnormal 4. The rectifier bridge	1. Reset the fault 2. Adjust the voltage to the normal range 3. Seek technical support 4. Seek technical support 5. Seek technical support 6. Seek technical support

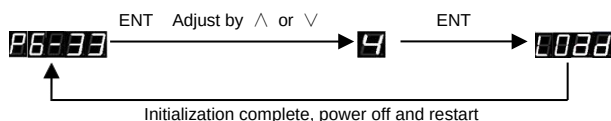
		and buffer resistance are abnormal 5. The drive board is abnormal 6. The control board is abnormal	
Overload	OL	1. Whether the load is too large or the motor is blocked 2. The driver selection is too small	1. Reduce the load and check the motor and mechanical conditions 2. Choose a driver with a higher power level 3. Check parameters by referring to the appendix Common parameter tables
Module Overheat ed	OH	1. The ambient temperature is too high 2. The air duct is blocked 3. The fan is damaged 4. The module thermistor is damaged 5. The inverter module is damaged	1. Reduce the ambient temperature 2. Clean the air duct 3. Replace the fan 4. Seek technical support, replace the thermistor 5. Seek technical support, replace the inverter module
External device failure	-EIn	1. Input the external fault signal through the multi-function terminal MI	1. Check and troubleshoot external faults
Current sensor failure	EH	1. Current detection circuit components are damaged	1. Seek technical support 2. Check parameters by referring to the appendix Common parameter tables

5.2 Alarm Record Query

Refer to P6-13~P6-22 for the query of alarm records, which can query the content of the alarm and the operating status of the drive at the time of the last alarm.

5.3 Alarm record initialization

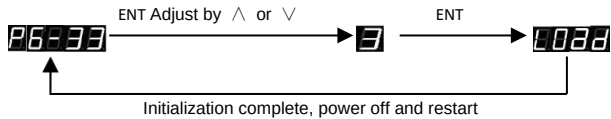
Clear the drive alarm record. The alarm detection record (alarm record) can be monitored through P6-13~P6-22, and the relevant parameters of P6-33 can be set to initialize the alarm record. The operation is as follows:



Chapter 6 Simple Debugging Instructions

6.1 Simple Debugging of Induction Machine

- ① Verify that the cable connection is correct and power on the device
- ② Parameter initialization: Set P6-33 to 3. Confirm.



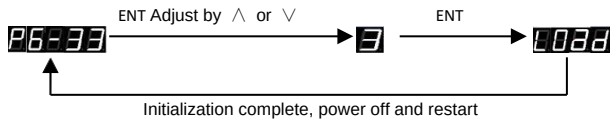
- ③ Motor type selection: set P0-30 to 0. Confirm.
- ④ Parameter setting: (maximum speed setting, acceleration and deceleration time setting, motor rated current setting)

Induction motor parameter table		
INDEX	Desperation	Settings
P0-00	Presetting frequency	According to the actual use (not exceeding the maximum frequency set)
P0-02	Maximum frequency	According to the actual use
P0-03	Upper limit frequency value	According to the actual use (not exceeding the maximum frequency set)
P0-04	Upper limit frequency value	0
P0-07	Upper frequency of reversal	According to the actual use (not exceeding the maximum frequency set)
P0-11	Acceleration time	120s
P0-12	Deceleration time	80s
P3-03	Motor rated voltage	According to the motor nameplate
P3-05	Motor rated frequency	According to the motor nameplate (not exceeding the maximum frequency set)
P3-08	Motor rated current	According to the motor nameplate

- ⑤ After setting the parameters, turn off the driver and wait until the digital display is completely off before turning it back on.
- ⑥ Turn the start switch to the positive position and test run the fan motor.

6.2 Simple Debugging of Synchronous Machine

- ① Verify that the cable connection is correct and power on the device
- ② Parameter initialization: Set P6-33 to 3. Confirm.



- ③ Motor type selection: set P0-30 to 1. Confirm.
- ④ Parameter setting: (maximum speed setting, acceleration and deceleration time setting, motor rated current setting)

Synchronous motor parameter table		
INDEX	Desperation	Settings
P0-00	Presetting frequency	According to the actual use (not exceeding the maximum frequency set)
P0-02	Maximum frequency	According to the actual use
P0-03	Upper limit frequency value	According to the actual use (not exceeding the maximum frequency set)
P0-04	Upper limit frequency value	0
P0-07	Upper frequency of reversal	According to the actual use (not exceeding the maximum frequency set)
P0-11	Acceleration time	120s
P0-12	Deceleration time	80s
P3-03	Motor rated voltage	According to the motor nameplate

P3-05	Motor rated frequency	According to the motor nameplate (not exceeding the maximum frequency set)
P3-08	Motor rated current	According to the motor nameplate

- ⑤ After setting the parameters, turn off the driver and wait until the digital display is completely off before turning it back on.
- ⑥ Self-learning:
Set P3-35 to 1 and confirm. Wait for the driver to learn from itself. If learning succeeds, the digital display shows as **Done**.
Failed handling measures:
1) If the driver reports an error OC or OC2, appropriately reduce the value of parameter P3-25 and repeat the above self-learning steps.
2) If no error is displayed on the drive, add the value of P3-25 and repeat the preceding self-learning steps.
- ⑦ Turn the start switch to the positive position and test run the fan motor.

Appendix: Parameter Table and Detailed Explanation

1. Parameter List

Parameter	Name	Predetermined Area	Defaults
P0: Basic function parameter group			
P0-00	Preset frequency	0.00Hz~maximum frequency (P0-02)	1.00Hz
P0-01	Command source selection	0: Operation panel command 1: Terminal command 2: Serial port communication command	1
P0-02	Maximum frequency	10.00~300.00Hz	50.00Hz
P0-03	Upper limit frequency value	Lower limit frequency (P0-04) ~ maximum frequency (P0-02)	50.00Hz
P0-04	Lower limit frequency value	0.00Hz~upper limit frequency (P0-03)	0.0Hz
P0-05	Main frequency source A selection	0: Digital setting (UP, DOWN adjustment) 1: Analog channel AI0 given (panel) 3: Analog channel AI1 given 4: Analog channel AI2 given 5: Analog channel AI3 given	3
P0-06	Reserved		
P0-07	Upper frequency of reversal	Lower limit frequency (P0-04) ~ Maximum frequency (P0-02)	50Hz
P0-08	Reserved		
P0-09	Running direction	Unchangeable	0
P0-10	Reverse control	0: Reverse is allowed 1: Reverse is forbidden	0
P0-11	Acceleration time 1	0.5s~3600.0s	10.0s
P0-12	Deceleration time 1	0.5s~3600.0s	10.0s
P0-13	Reserved		
P0-14	V/F torque increases	0.0%~30.0%	7.0%
P0-15	V/F torque increases cut-off frequency	0.00~1.00	0.40
P0-16	Start braking time	0.01s~50.0s	1
P0-17	Hold current before start	0.001~5	3
P0-18	Hold time before start	0.01s~50.0s	0.1
P0-19	Stop frequency	0.00~100.00Hz	1.00
P0-20	Stop method	0: Decelerate to stop 1: Freely stop	0
P0-21~27	Reserved		
P0-28	Password	When set to 0, the inverter can only set P002, P003, P004, P011, P012, P028, and P029. When set to 1122, the inverter is unlocked and any parameters can be set.	0
P0-29	Motor parameter selection	0: Factory test motor parameters Others	0

P0-30	Control mode selection	0: Induction motor 1: Synchronous motor	1
P1: Advanced function parameter group			
P1-00~38	Reserved		
P1-39	Remote/reverse control enabled	0: Remote control 1: Reverse control	0
P2: Input and output terminal parameter group			
P2-00~05	Reserved		
P2-06	Knob switch filter time	1 ~ 100	20
P2-07	Reserved		
P2-08	Terminal UP/DOWN rate	0.01Hz/s ~ 100.00Hz/s	1.00Hz/s
P2-15	Minimum input of speed control knob	0.00V ~ P2-17	0.00V
P2-16	Corresponding setting of the minimum input of the speed control knob	-100.0% ~ 100.0%	0.0%
P2-17	Maximum input of speed control knob	P2-15~10.00V	10.00V
P2-18	Corresponding setting of the maximum input of the speed control knob	-100.0% ~ 100.0%	100.0%
P2-19	Speed control knob input filter time	0.000s ~ 1.000s	0.010s
P2-20~33	Reserved		
P2-34	DI input valid state selection	0~255	0
P2-35~54	Reserved		
P2-55	Fan start mode	0: No self-learning start 1: Only self-learning before power-on 2: Self-learning before starting	0
P2-56	Reserved		
P3: Drive and motor parameter group			
P3-00	Drive rated current	0A ~ 600A	5.0A
P3-01	Drive rated voltage	100V ~ 600V	380V
P3-02	Driver output maximum voltage	100V ~ 600V	380V
P3-03	Motor rated voltage	0: 220V motor 1: 380V motor	1
P3-04	Motor rated power	0.75KW ~ 55KW	1.5
P3-05	Motor rated frequency	P0-04 ~ Maximum frequency (P0-02)	50Hz
P3-06	Number of motor pole pairs	Manufacturer parameters	4
P3-07	Motor stator resistance	0.001Ω ~ 30Ω	0.239
P3-08	Motor rated current	0.5A ~ 80A	3.2
P3-09	Motor flux coefficient	0.010Wb ~ 50.000Wb	0.180Wb

P3-10	Motor D axis inductance	0.01mH ~ 500mH	5mH
P3-11	Motor Q axis inductance	0.01mH ~ 500mH	5mH
P3-12	Magnetic pole phase discrimination injection voltage amplitude	0.01 ~ 1	0.1
P3-13	Current loop P gain	0.00 ~ 600	5
P3-14	Current loop I gain	1 ~ 60000	50
P3-15	Low frequency torque compensation	0 ~ 1.0	0
P3-16	No-load starting current	0.10 ~ 2.50	0.50
P3-17	Low speed load compensation P gain	0.00 ~ 600	5
P3-18	Low speed load compensation I gain	0 ~ 60000	50
P3-19~20	Reserved		
P3-21	High frequency harmonic injection frequency during parameter self-learning	100 ~ 1000	500
P3-22	Speed loop P gain	0.00 ~ 600.00	0.1
P3-23	Speed loop I gain	0.0 ~ 6000.0	1
P3-24	Filter coefficient	0 ~ 1.0	0.3
P3-25	Initial angle injection voltage amplitude	0.01 ~ 0.5	0.1
P3-26	Weakness coefficient	0 ~ 1.0	0
P3-27	Switching speed	0.05 ~ 1	0.5
P3-28	Current detection coefficient	0 ~ 1	0.25
P3-29	Initial angle injection voltage time	0 ~ 10000	100
P3-30	Motor overload alarm enable	0: invalid 1: valid	1
P3-31	Motor overload threshold	20% ~ 200%	120%
P3-32	Drive fan enable	0: invalid 1: valid	0
P3-33	Drive overheat protection enable	0: invalid 1: valid	1
P3-34	Drive overheating protection threshold	20°C ~ 110°C	95°C
P3-35	Self-learning	0: Invalid 1: Self-learning	0
P5: Other control parameters			
P5-00~15	Reserved		
P5-16	Switch of automatic speed reduction when the load is too large	0: invalid 1: valid	0
P5-17	Frequency step of automatic speed down.	0.0Hz~20.0Hz	0.2Hz
P5-18	Adjust period of automatic speed down.	0.1s~100.0s	5.0s

P5-19	Overload point of automatic deceleration trigger.	0.20~2.00	1.00
P5-20~50	Reserved		
P6: Communication and panel parameter group			
P6-00	Local address	0~254, 0 is the broadcast address	1
P6-01	Baud rate	1: 4800BPS 2: 9600BPS 3: 19200BPS 4: 38400BPS 5: 57600BPS 6: 115200BPS	3
P6-02	Data format	0: No parity 1: Even parity 2: Odd parity	1
P6-03	Data frame type	0: ASCII 1: RTU CRC Low eight first 2: RTU CRC High eight first	1
P6-04	Response delay	0ms ~ 200ms	2ms
P6-05	Communication timeout failure time	0.0s ~ 60.0s	2.0s
P6-06~12	Reserved		
P6-13	The fourth most recent abnormal record	Unchangeable	
P6-14	The third most recent abnormal record	Unchangeable	
P6-15	The second most recent abnormal record	Unchangeable	
P6-16	The first recent abnormal record	Unchangeable	
P6-17	Frequency of the last failure	Unchangeable	
P6-18	Current at the time of the last failure	Unchangeable	
P6-19	DC voltage at the time of the last failure	Unchangeable	
P6-20	DI state at the last failure	Unchangeable	
P6-21	DO status at the time of the most recent failure	Unchangeable	
P6-22	The fault code of the last fault	Unchangeable	
P6-23	Allowable times of automatic fault reset	0~99	0
P6-24	Fault reset interval time	0.1s~60.0s	2.0
P6-25	The number of automatic fault reset reset time	0.1h~999.9h	1.0
P6-26	Cumulative running time (h)	Unchangeable	
P6-27	Cumulative running time (min)	Unchangeable	
P6-28	Cumulative running times (ten thousand times)	Unchangeable	
P6-29	Cumulative running times (0-9999)	Unchangeable	

P6-30	Software version number	Unchangeable	
P6-31	Software version number production batch number	Unchangeable	
P6-32	Drive model	Unchangeable	
P6-33	Parameter management operation	0: Do not protect any parameters 1: Protect all parameters except P000 2: Protect all parameters 3: Restore factory values 4: Initialize fault records	0
P6-34	Reserved	Reserved	
P7: Protection Parameter Group			
P7-00~04	Reserved		
P7-05	Undervoltage point selection	150~ 500	150
P7-06~20	Reserved		
P7-21	Carrier frequency	4.0kHz ~ 16.0kHz	10KHZ
P7-22~24	Reserved		
P7-25	Discharge voltage	300V~800V	700V
P7-26	Discharge function enable	0: Disable 1: Enable	1

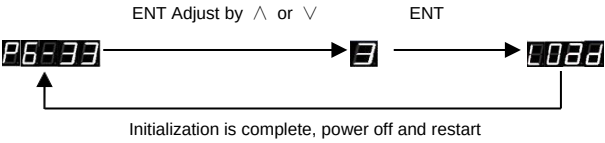
Table A: List of parameters

Parameters	Name	Predetermined area	Defaults
P3-35	Motor self-learning	0~1	0

When P3-35 is set to 1, click the ENT key to start self-learning and learn motor parameters. After self-learning is completed, this parameter is automatically cleared.

2. Parameter Initialization

The drive restores the factory values of all parameters. The operation is as follows:



Appendix B Common parameters and details

1. Common parameters

Parameters	Name	Predetermined area	Defaults
P0-00	Preset frequency	0.00Hz~maximum frequency (P0-02)	1.00Hz
P0-02	Maximum frequency	10.00~300.00Hz	50.00Hz
P0-03	Upper limit frequency value	Lower limit frequency (P0-04) ~ maximum frequency (P0-02)	50.00Hz
P0-04	Lower limit frequency value	0.00Hz~upper limit frequency (P0-03)	0.0Hz
P0-07	Upper frequency of reversal	Lower limit frequency (P0-04) ~ Maximum frequency (P0-02)	50Hz
P0-11	Acceleration time 1	0.5s~3600.0s	120.0s
P0-12	Deceleration time 1	0.5s~3600.0s	80.0s
P0-30	Control mode selection	0: Induction motor 1: Synchronous motor	1
P3-05	Motor rated frequency	P0-04 ~ Maximum frequency (P0-02)	50Hz
P3-06	Number of motor pole pairs	Manufacturer parameters	4
P3-07	Motor stator resistance	0.001 Ω ~ 30 Ω	0.239
P3-08	Motor rated current	0.5A ~ 80A	3.2
P3-09	Motor flux coefficient	0.010Wb ~ 50.000Wb	0.180Wb
P3-10	Motor D axis inductance	0.01mH ~ 500mH	5mH
P3-11	Motor Q axis inductance	0.01mH ~ 500mH	5mH
P3-16	No-load starting current	0.10 ~ 2.50	0.50
P3-27	Switching speed	0.05 ~ 1	0.5
P3-30	Motor overload alarm enable	0: invalid 1: valid	1
P6-22	The fault code of the last fault	Unchangeable	

