D32

Variable Frequency Drive
User's Manual

Prior to use, please read this user’ s manual carefully.
CAUTION:Please keep this user’ s manual for future reference.

D32 Series Variable Frequency Drive

User's Manual

V2022-R003S

CONTENTS

1 Preface

Thank you for using D32 series variable frequency drive (Hereinafter referred to as VFD).

This Use’s Manual offers complete introduction of performance，installation and use of the VFD, setting of function parameters, operation etc for D32 VFD. Before use (installation, operation, maintenance, inspection, etc.), Please be sure to read it carefully. In addition, please understand the safety precautions of the product before using it. There is two safety identity in this manual:

⚠ **Dangerous**

The electronic components inside the VFD are particularly sensitive to static electricity, so do not place foreign objects inside the VFD or touch the main circuit board.

Do not touch the VFD and surrounding circuits with wet hands before and after powering on.

⚠ **Note**

All cover plates must be installed and closed before power supply; After power, do not open the cover plate, do not touch any input and output terminals of the VFD. Please properly ground the VFD according to the standard, otherwise there is danger of electric shock.

2 Checking Before Use

When opening the box, please carefully check and confirm：

（1）If the product inside together with the quality certificate，user’s manual and warranty card；

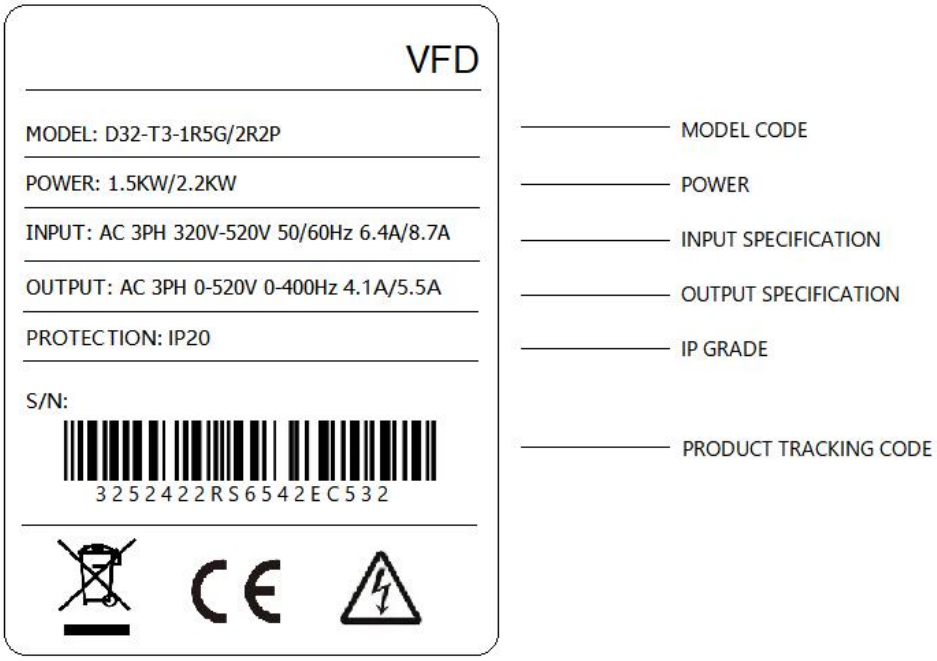
（2) Please check the “Model” label on the side of the machine, and re-confirm if the product and your order are consistent;；

（3）If there’s any damage, scratch or dirt (damages caused during transportation are not within the company’s warranty)

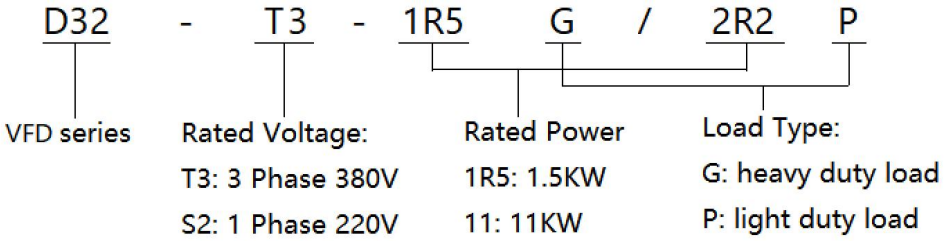
If there’s any damage,product missing or some other questions, please contact the dealer you purchased the product or the sales department immediately.

Note: Do not install the VFD if you find the product is damaged or component missing, otherwise it may cause safety incident.

2.1 Label



2.2 Model Description



2.3 D32 Series VFD Specification

Table 2.1 D32 single phase 220V VFD specification table

Model	Rated input current (A)	Rated output current (A)	Rated power (kW)
D32-S2-0R4	6.3	2.5	0.4
D32-S2-0R7	11.5	5	0.7
D32-S2-1R5	15.7	7	1.5
D32-S2-2R2	27	10	2.2

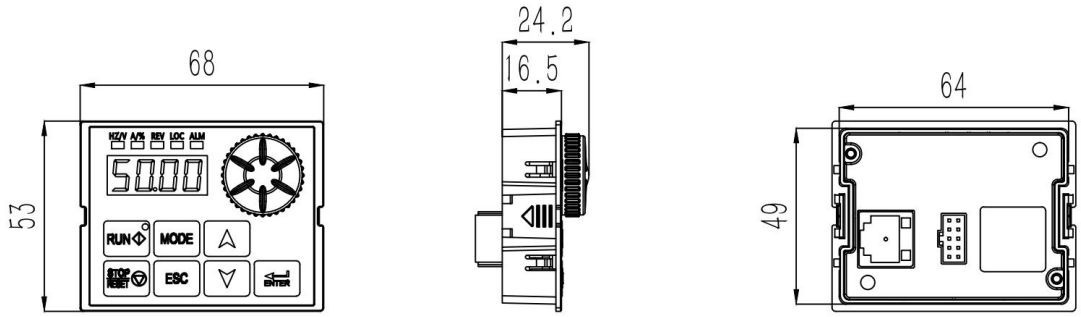
Table 2.2 D32 three phase 380V VFD specification table

VFD model	G type（Heavy duty load）			P Type（Light duty load）		
	Rated input current (A)	Rated output current(A)	Rated power (kW)	Rated input current (A)	Rated output current(A)	Rated power (kW)
D32-T3-0R7G/1R5P	3.6	2.6	0.75	6.4	4.1	1.5
D32-T3-1R5G/2R2P	6.4	4.1	1.5	8.7	5.5	2.2
D32-T3-2R2G/3P	8.7	5.5	2.2	10.9	6.9	3
D32-T3-3G/4P	10.9	6.9	3	14	9.5	4
D32-T3-4G/5R5P	14	9.5	4	20.7	12.6	5.5
D32-T3-5R5G/7R5P	20.7	12.6	5.5	26.5	18.5	7.5
D32-T3-7R5G/11P	26.5	18.5	7.5	36.6	25	11
D32-T3-11G/15P	36.6	25	11	40	32	15
D32-T3-15G/18P	40	32	15	47	38	18.5
D32-T3-18G/22P	47	38	18.5	56	45	22
D32-T3-22G/30P	56	45	22	70	60	30
D32-T3-30G/37P	70	60	30	80	75	37
D32-T3-37G/45P	80	75	37	94	92	45
D32-T3-45G/55P	94	92	45	128	115	55
D32-T3-55G/75P	128	115	55	160	150	75
D32T3-75G/90P	160	150	75	190	180	90
D32-T3-90G/110P	190	180	90	225	215	110
D32-T3-110G/132P	225	215	110	265	260	132
D32-T3-132G/160P	265	260	132	310	305	160
D32-T3-160G/185P	310	305	160	355	350	185
D32-T3-185G/200P	355	350	185	385	380	200
D32-T3-200G/220P	385	380	200	430	425	220
D32-T3-220G/250P	430	425	220	485	480	250
D32-T3-250G/280P	485	480	250	545	530	280
D32-T3-280G/315P	545	530	280	610	600	315
D32-T3-315G/355P	610	600	315	665	650	355
D32-T3-355G	665	650	355	-	-	-
D32-T3-400G	785	725	400	-	-	-
D32-T3-500G	890	860	500	-	-	-
D32-T3-560G	950	950	560	-	-	-
D32-T3-630G	1100	1100	630	-	-	-
D32-T3-710G	1280	1280	710	-	-	-
D32-T3-800G	1380	1380	800	-	-	-

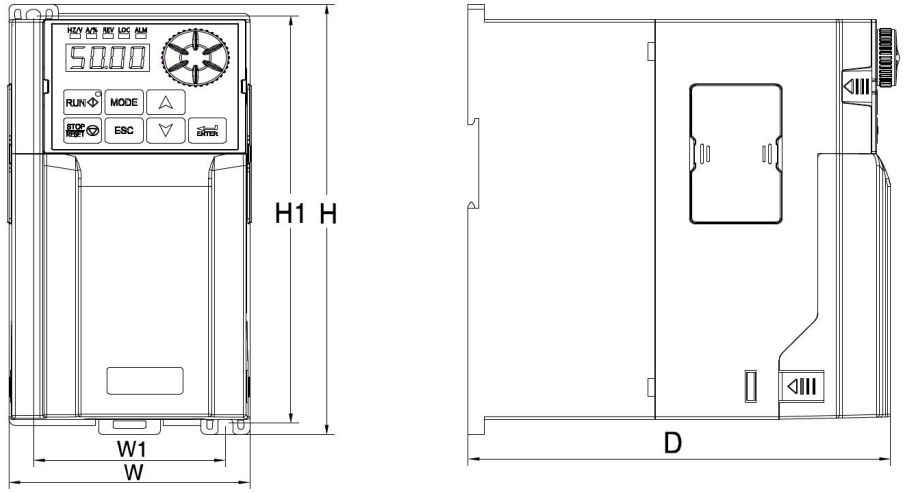
Notes: For 380V VFD,products of 37KW and below are standard equipped with built-in brake unit, 45KW-185KW can be equipped with built-in brake unit, 200-800kW can be equipped with external brake unit. When ordering, if you need to configure brake unit, please note in the order.

2.4 Appearance &Dimensions

2.4.1 Appearance & installation Size of 220V VFD



(a) Picture of Operating panel

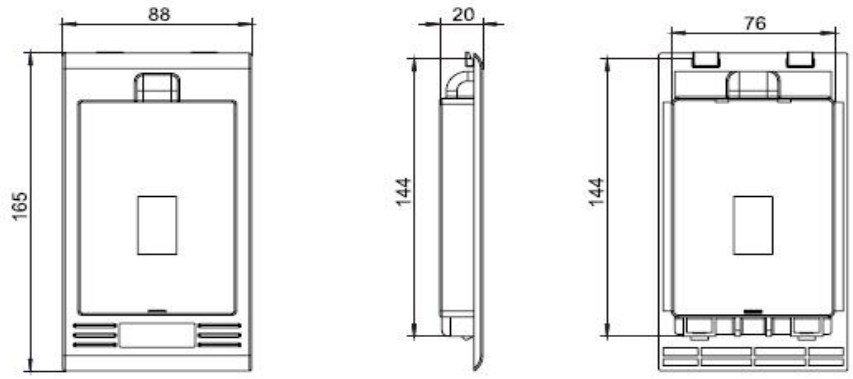


(b) 220V VFD Appearance Size

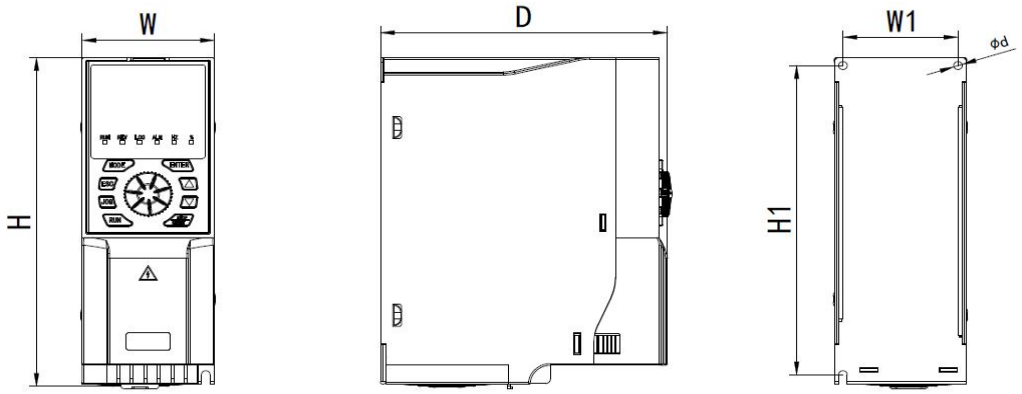
Table 2.3 Appearance &installation size(Single phase 220V)

Model (Single Phase 220V)	Outline Dimension (mm)			Installation Dimension (mm)		
	H	W	D	H1	W1	Aperture
D32-S2-0R4	170	81	142	161	64.5	Φ5
D32-S2-0R7						
D32-S2-1R5						
D32-S2-2R2						

2.4.2 Appearance & installation Size of 380V VFD



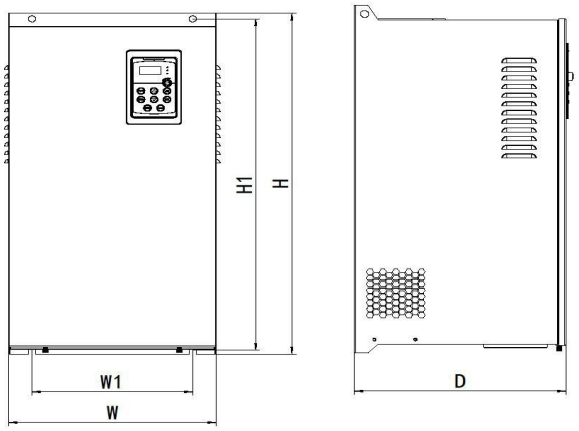
(c) Picture of Operating panel



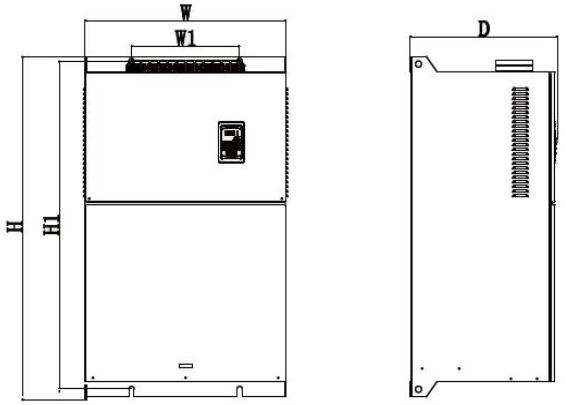
(d) 380V VFD Appearance Size (three phase 15KW and below)

Table 2.4 Appearance & Installation size (three phase 380V, 15KW and below)

Model (Three Phase 380V)	Outline Dimension (mm)			Installation Dimension (mm)		
	H	W	D	H1	W1	Aperture
D32-T3-0R7G/1R5P	206	76.5	165	195	66.5	Φ5
D32-T3-1R5G/2R2P						
D32-T3-2R2G/4RP						
D32-T3-3G/4P						
D32-T3-4RG/5R5P	262	100	168	253	90	Φ5
D32-T3-5R5G/7R5P						
D32-T3-7R5G/11P						
D32-T3-11G/15P	340	118	214	341	106	Φ7
D32-T3-15G/18P						



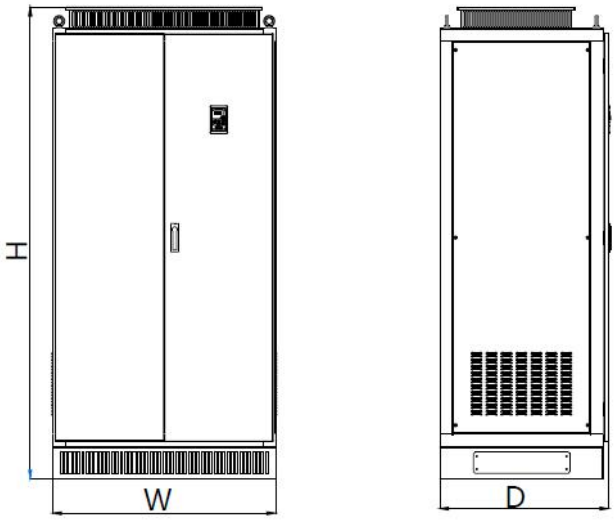
(e) 380V VFD Appearance Size (18.5KW-315KW)



(f) 380V VFD Appearance Size(355KW-500KW)

Table 2.5 Appearance & Installation size (three phase 380V 18.5KW~315KW)

Model (Three Phase 380V)	Outline Dimension (mm)			Installation Dimension (mm)		
	H	W	D	H1	W1	Aperture
D32-T3-18G/22P	335	200	195	321	140	Φ9
D32-T3-22G/30P						
D32-T3-30G/37P	410	260	214	396	180	Φ9
D32-T3-37G/45P						
D32-T3-45G/55P	520	288	236	500	200	Φ9
D32-T3-55G/75P	560	305	300	543	200	Φ11
D32-T3-75G/90P						
D32-T3-90G/110P	600	310	310	583	240	Φ11
D32-T3-110G/132P						
D32-T3-132G/160P	720	355	345	698	240	Φ13
D32-T3-160G/185P						
D32-T3-185G/200P						
D32-T3-200G/220P	920	480	390	898	320	Φ13
D32-T3-220G/250P						
D32-T3-250G/280P	1100	480	405	1078	320	Φ13
D32-T3-280G/315P						
D32-T3-315G/355P						
D32-T3-355G	1100	650	465	1060	350	Φ17
D32-T3-400G						
D32-T3-500G						



(g) VFD Appearance Size(three phase 380V 560KW and above)

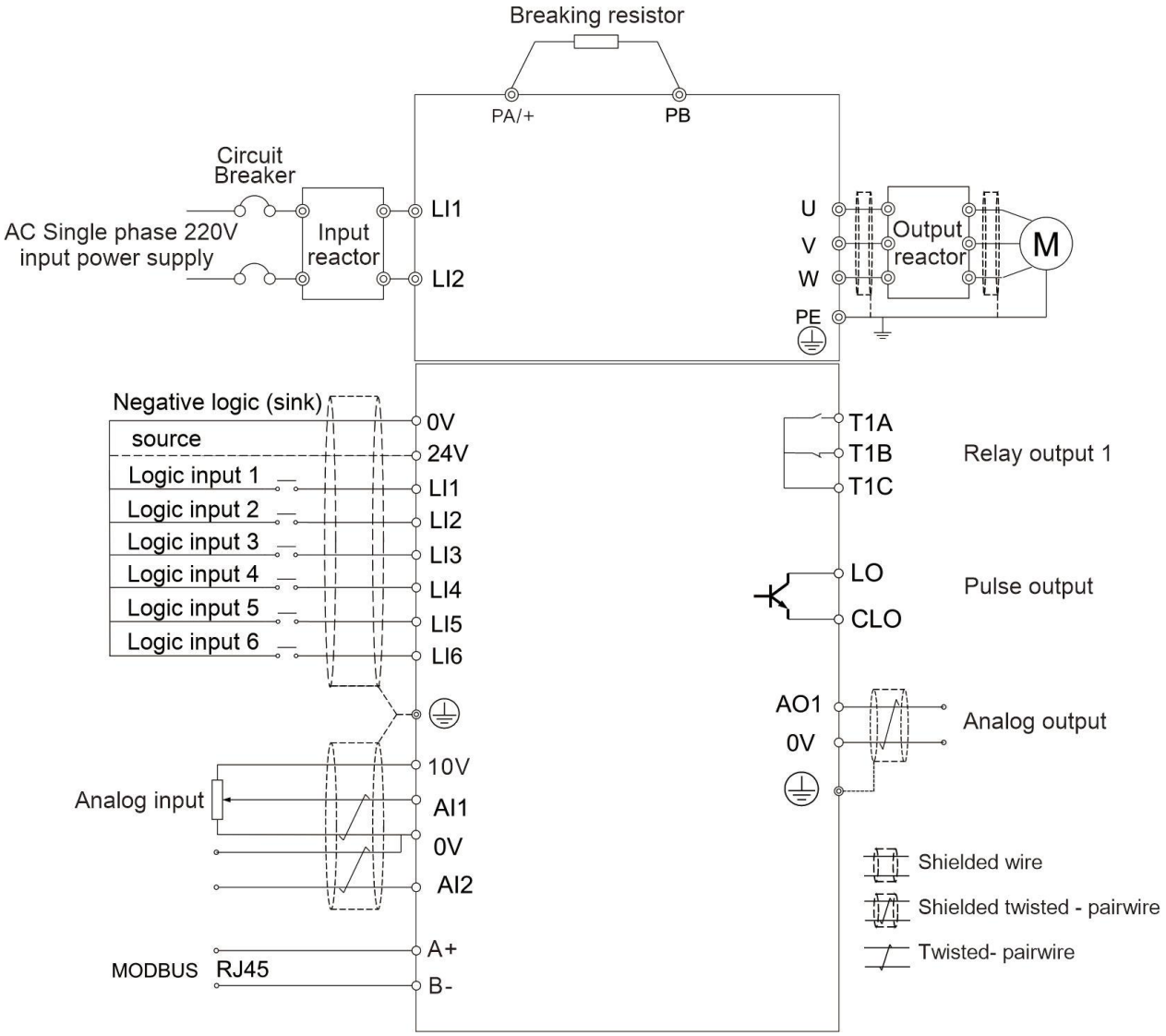
Table 2.6 Appearance &installation size (three phase 380V 560KW-800KW)

Model (Three Phase 380V)	Outline Dimension (mm)			Installation Dimension (mm)		
	H	W	D	H1	W1	Aperture
D32-T3-560G	2200	1100	800	-	-	-
D32-T3-630G						
D32-T3-710G	2200	1400	800	-	-	-
D32-T3-800G						

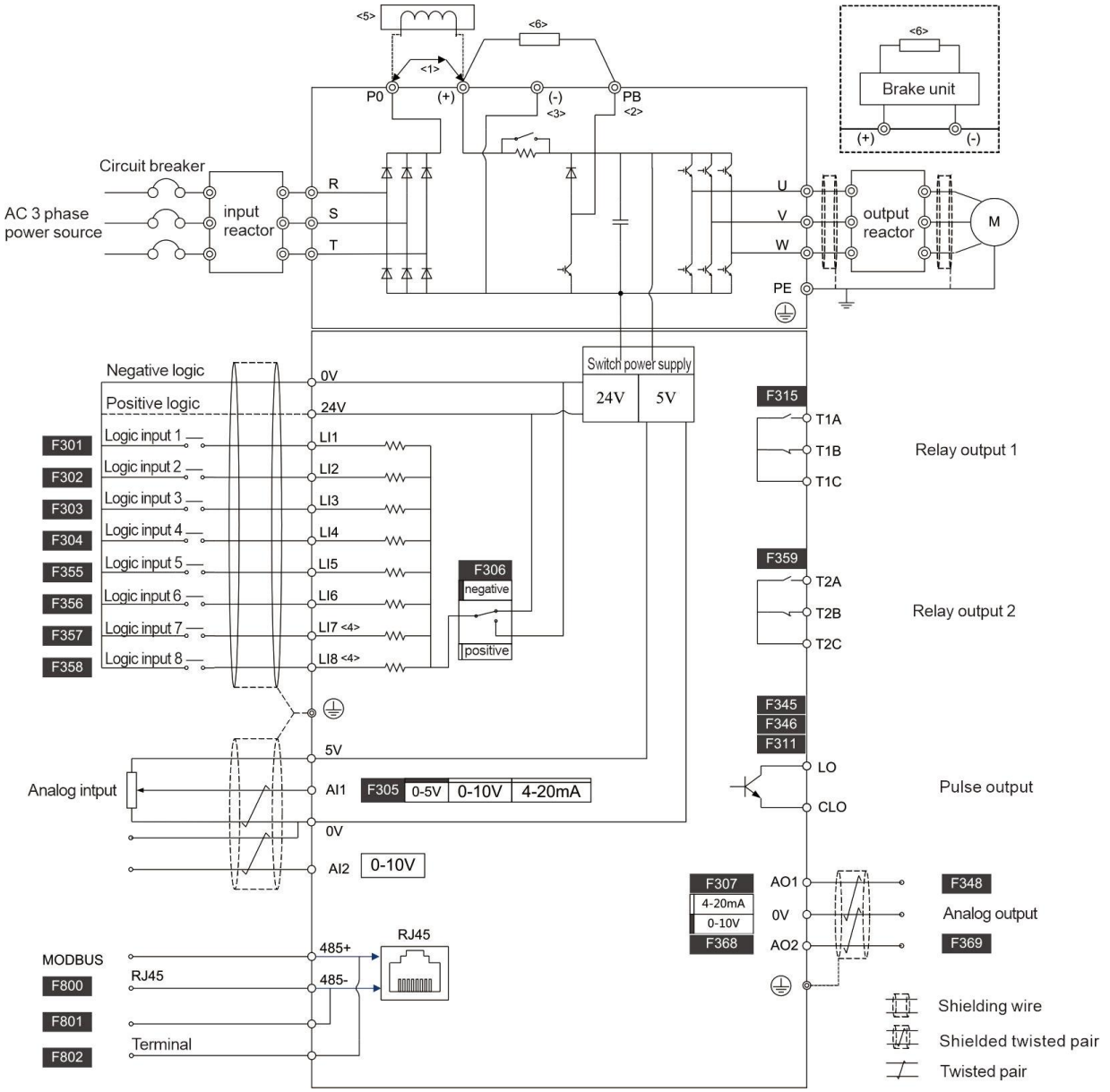
3 Basic Wiring Diagram

3.1 Basic Wiring Diagram

3.1.1 Basic Wiring Diagram of 220V VFD



3.1.2 Basic Wiring Diagram of 380V VFD



<1> 0.75-37kw VFDs has no P0 terminal; For VFDs above 45KW (included), be sure to remove the short connector between P0 and (+) when installing DC reactor (optional).

<2> Only 0.75-37kw VFDs have Pb terminals, and braking resistors can be connected between Pb and (+). For VFDs above 45KW (included), braking unit and braking resistance are required during braking.

<3> 0.75-15kw VFDs has no (-) terminal.

<4> 0.75-15kw VFDs has no LI7 and LI8 terminals.

<5> Input reactor, DC reactor

<6> Braking unit, braking resistance

3.2 Main Circuit Terminals

3.2.1 Main Circuit Terminals Structure of 220V VFD

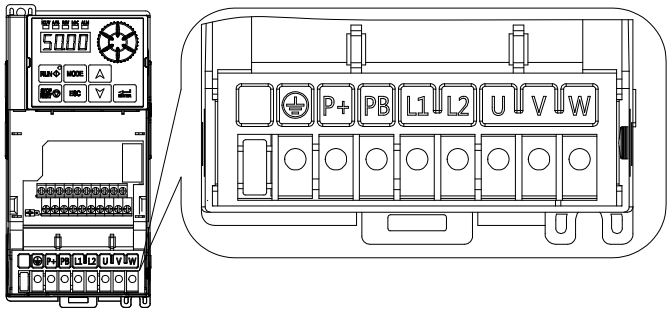
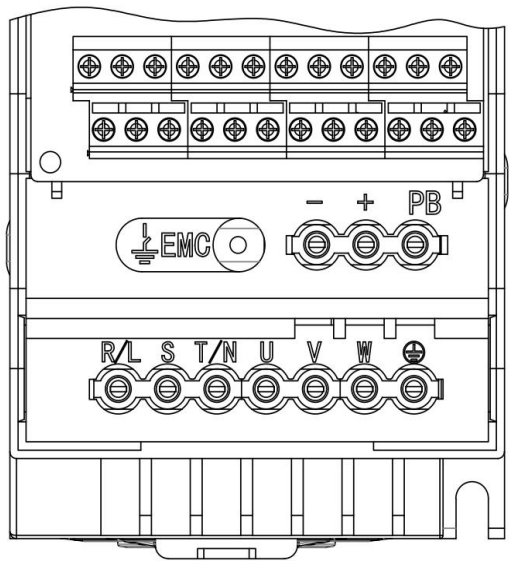


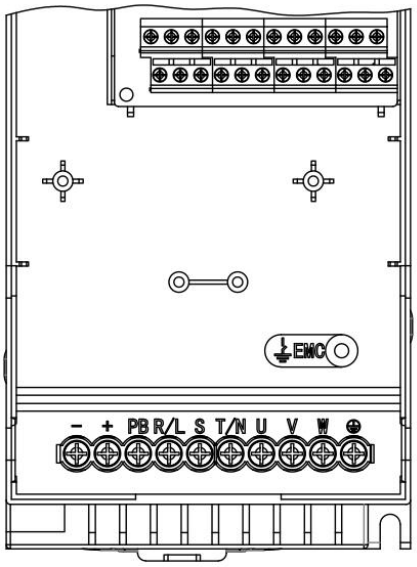
Table 3.1 Function of Main Circuit Terminals

Symbol	Function
L1、L2	Single phase AC power input terminal，220V，50Hz /60Hz
U、V、W	Output of VFD，Terminal for connection to motor
PA/+、PB	Connection of braking resistor，connection to braking resistor PA/+ ——positive terminal of DC power input
⏚	Terminal for grounding，220V : grounding resistance is 4Ω or below.

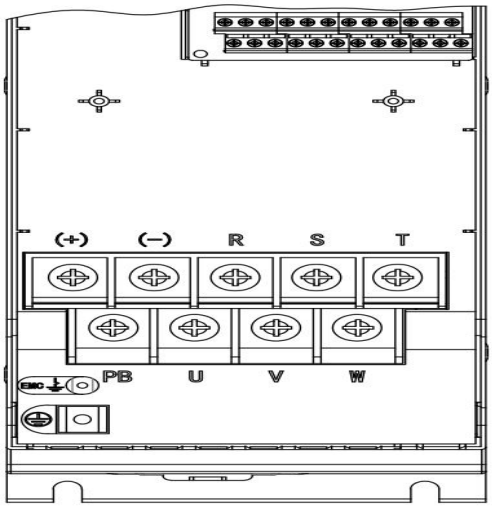
3.2.2 Main Circuit Terminals Structure of 380V VFD



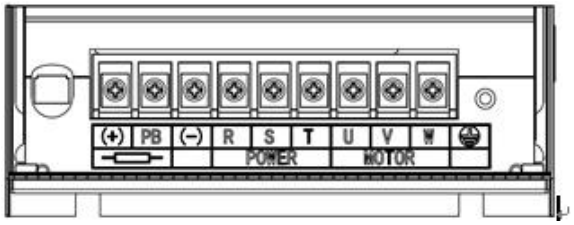
(a) Main Circuit Terminal (380V/0.75-3KW)



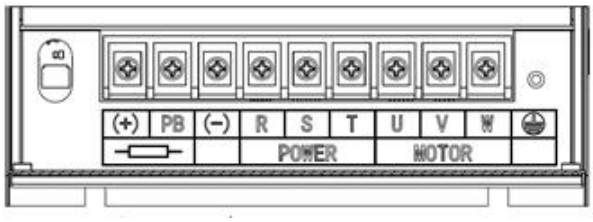
(b) Main Circuit Terminal (380V/4-7.5KW)



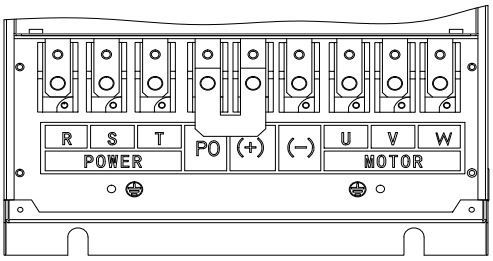
(c) Main Circuit Terminal (380V/11-15kW)



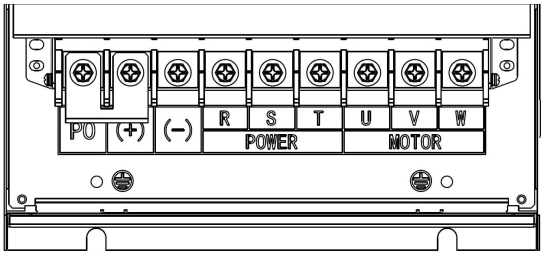
(d) Main Circuit Terminal (380V/18.5-22kW)



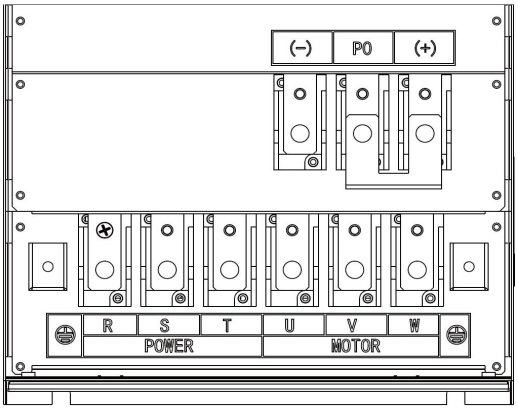
(e) Main Circuit Terminal (380V/30-37kW)



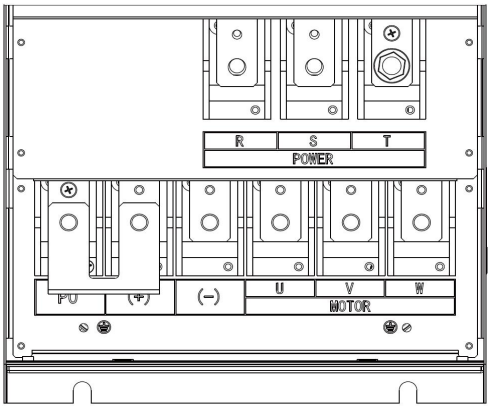
(f) Main Circuit Terminal (380V/45kW)



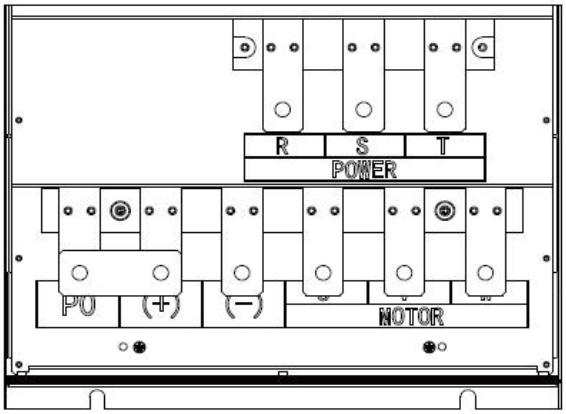
(g) Main Circuit Terminal (380V/55-75kW)



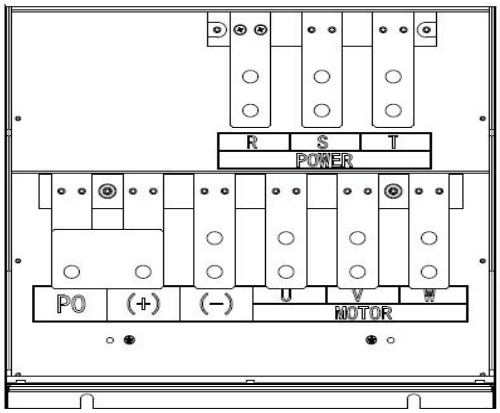
(h) Main Circuit Terminal (380V/90-110kW)



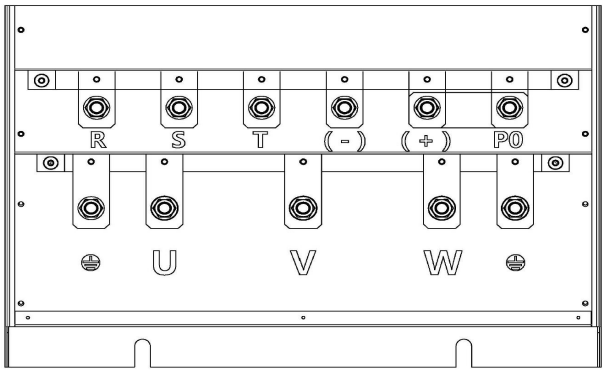
(i) Main Circuit Terminal (380V/132-185kW)



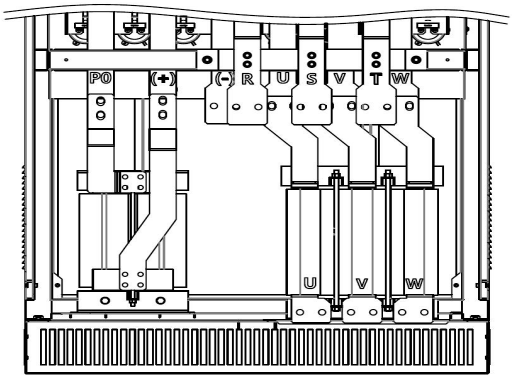
(j) Main Circuit Terminal (380V/200-220kW)



(k) Main Circuit Terminal (380V/250-315kW)



(l) Main Circuit Terminal（355-500kW）



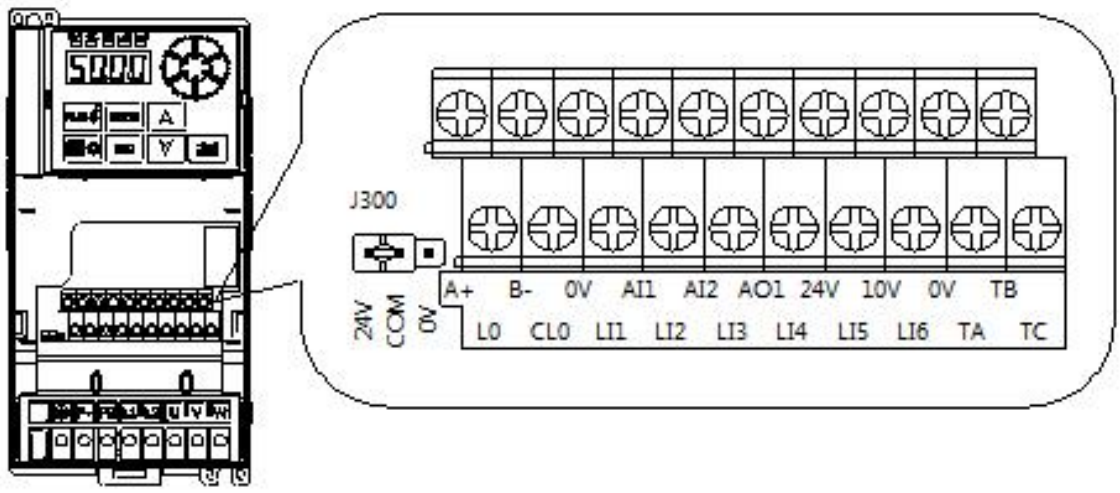
(m)Main Circuit Terminal（560-800kW）

Table 3.2 Function of Main Circuit Terminals of 380V VFD

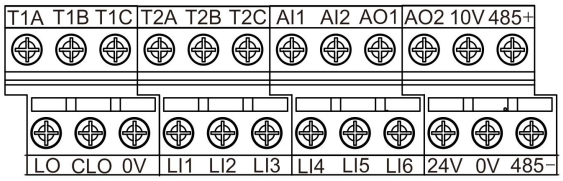
Symbol	Function
R/L1、S/L2、T/L3	Input of VFD，Terminal for Connection three phase AC Power source, 380V,50Hz /60Hz
U/T1、V/T2、W/T3	Output of VFD，Terminal for connection to three phase induction motor
+、-	DC bus terminal, connect to braking unit etc "+" is the positive terminal of DC bus, "-" is the negative terminal
PA/+、PB +、PB	Connection of braking resistor，connection to braking resistor PA/+、+ ——positive terminal of DC power input
P0、+	DC Reactor terminal, connect DC reactor
⏚	Terminal for grounding，380V : grounding resistance is 4Ω or below.

3.3 Control Terminals

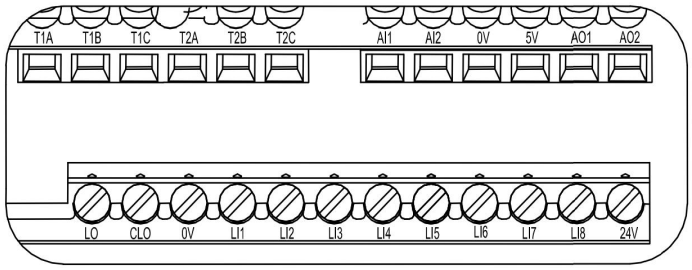
3.3.1 Control terminals structure of 220V VFD



3.3.2 Control terminals structure of 380V VFD



(a) Control terminal (380V/15kW and below)

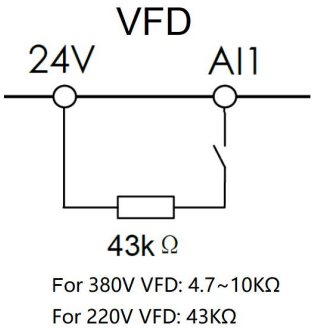


(b) Control terminal (380V/18.5kW and above)

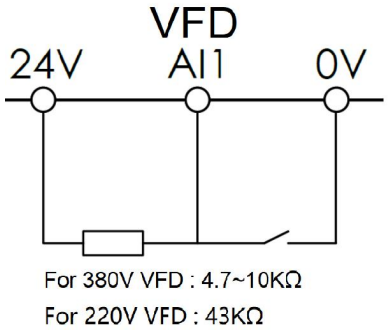
3.3.3 Description of Control Terminals Function

Symbol	Item	Function
0V	Common terminal of the control circuit	
5V/10V	5V/10V output voltage	Commonly used as working voltage of the external potentiometer Maximum current:10mA. accuracy:±5%
24V	24V output voltage	Commonly used as working voltage of the logic input terminal, Maximum current:100mA accuracy:±20%
AI1	Voltage/current analog input Or programmable logic input	Voltage/current analog input: accuracy:10 bit Analog voltage input:0 ~ +5 V or 0 ~ +10 V ,input Reactance 30K,Analog current input: Max 20mA,input Reactance 250Ω.
		By changing parameter setting, the AI1 can also be used as a programmable logic input terminal. If that, a resistor (4.7kΩ ~10k Ω, 1/2W) must be added between 24V and AI1; At the same time, set AI1 to 10V analog voltage input.see Figure 1.
AI2	Voltage Analog input Or programmable logic input	Voltage analogy input: Accuracy:10 bit Maximum range: 0 ~ +10 V, input Reactance 30K,
		By changing parameter setting, the AI2 can also be used as a programmable logic input terminal. If that, a resistor (4.7kΩ ~10k Ω, 1/2W) must be added between 24V and AI2 ,Reference AI1.
LI1 ~ LI8	programmable logic input	+24 V Power supply
		Positive Logic(source): port voltage< 5 V, input invalid (OFF), port voltage > 11V, input valid (ON); Negative Logic (sink): port voltage > 16V , input invalid (OFF); port voltage < 10V, input valid (ON);
		Logic input connection diagram refers to Figure 2.
AO1 AO2	Voltage/Current analog output	Analog voltage output: 0 ~ +10 V ,Min load reactance is 470Ω Analog current output: x ~ 20 mA, Max load reactance is 700Ω

Symbol	Item	Function
LO	Pulse output collector	Maximum current:100mA Maximum voltage:30V
CLO	Pulse output emitter	
T1A	Relay 1-Normally open	Maximum switching capacity: T1A-T1C: 5A @ 250VAC,5A @ 30VDC T1B-T1C: 3A @ 250VAC,3A @ 30VDC
T1B	Relay 1-Normally close	
T1C	Relay 1-Common terminal	
T2A	Relay 1-Normally open	Maximum switching capacity: T2A-T2C: 5A @ 250VAC,5A @ 30VDC T2B-T2C: 3A @ 250VAC,3A @ 30VDC
T2B	Relay 1-Normally close	
T2C	Relay 1-Common terminal	
485+/485- A+/B-	RS485 communication port	Theforth feet (A+) is positive port of RS485 differential signal, the fifth feet (B-) is the negative port of RS485 difference signal.
SW700 (380V)	RS485 Reactance marching	SW700 is only for 18.5KW and above VFD. SW700 total has 3 switch, from left to right is as below: SW700-1:ON-connect 'RS485+' signal's pull-up resistance; SW700-2:ON-connect 'RS485-' signal's pull down resistance; SW700-3:ON-connect 'RS485+,-' signal's matched resistance;
J300 (220V)	Logic port mode	J300 is 3PIN connector, From left to right, +24V, COM, 0V Jumper cap connect COM&+24V, Logic port is positive Jumper cap connect COM&0V, Logic port is negative

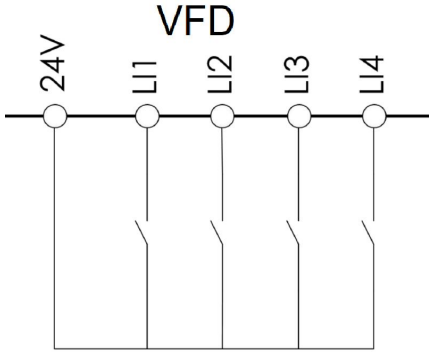


(a) Positive Logic – source

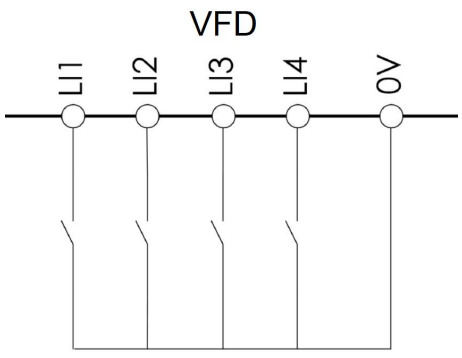


(b) negative logic– sink

Figure1: AI1 Wiring diagram when AI1is logic input terminal



(a) positive logic – source



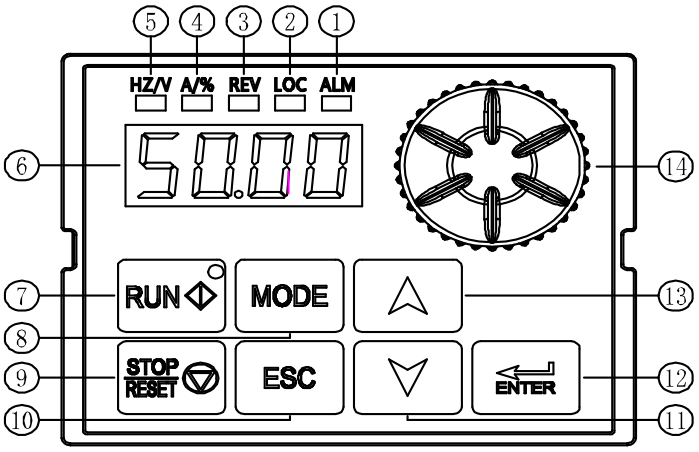
(b) negative logic– sink

Figure 2: Logic input terminal wiring diagram

4 Appearance of keyboard panel

4.1 Appearance of keyboard panel

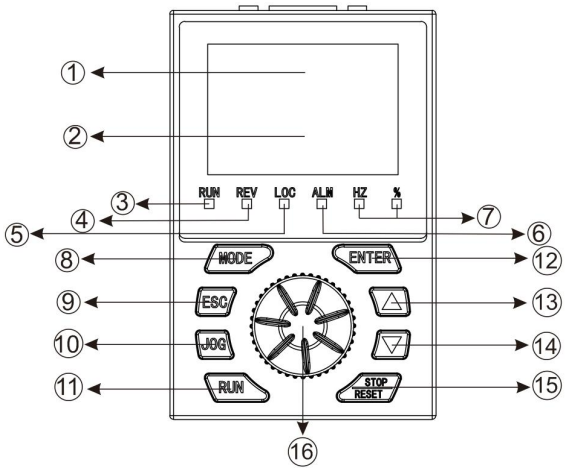
4.1.1 Appearance of keyboard panel (220V VFD)



4.1.2 Description and function of each part of the keyboard panel (220V VFD)

No	Designation	Sign	Function Performance
1	Failure status indicator	ALM	ON：Failure Off：No failure
2	Local status indicator	LOC	On：Local Off：Remote
3	Reverse status indicator	REV	On：Reverse Off：Forward
4	Unit indicator	A	The Current display data unit is A
		%	The current display data is a percentage
5	Unit indicator	HZ	The Current display data unit is Hz
		V	The Current display data unit is V
6	Display area	——	LED digital display for showing function parameters and set values, etc。
7	Run	RUN	Turn on VFD output.
8	Mode	MODE	Select the operating mode of the VFD or go back to mode from the submenu.
9	Stop/reset	STOP/RESET	Stop the output of the VFD and change to the reset button when fault is detected.
10	Escape	ESC	Exit the current state and return to the previous state.
11	Bown	▼	Reduce parameter number and parameter setting value
12	Enter	ENTER	Enter mode, view parameters, or confirm set values
13	Up	▲	Add parameter number and parameter setting value
14	Speed control knob	——	Adjust the speed.

4.1.3 Appearance of keyboard panel (380V VFD)



4.1.4 Description and function of each part of the keyboard panel (380V VFD)

NO.	Designation	Sign	Functional performance
1	Display area 1	——	LED digital display for showing function parameters and set values, etc.
2	Display area 2	——	LED digital display for monitoring values.
3	Running status indicator	RUN	On: The operation command and frequency setting are valid, and the output of the VFD is normal; Flash: The running command is valid, but the frequency setting is invalid. The VFD has no output; Off: Currently no running command, no output of the VFD, in standby state.
4	Reverse status indicator light	REV	On: Reverse Off: Forward
5	Local status indicator	LOC	On: Local Off: Remote
6	Failure status indicator	ALM	On: Failure Off: No failure
7	Unit light	%	The current display data is a percentage.
		Hz	The unit of data currently displayed is Hz.
8	Mode	MODE	Select the operating mode of the VFD or go back to mode from the sub-menu.
9	Escape)	ESC	Exits the current state and returns to the previous state.
10	Jog reset	JOG	Default is shortcut menu 3. See parameter F700 for Settings.
11	Run	RUN	Turn on VFD output.
12	Enter	ENTER	Enter mode, view parameters, or confirm set values.
13	Up	▲	Add parameter number and parameter setting value.
14	Down	▼	Reduce parameter number and parameter setting value.
15	Stop/reset	STOP/ RESET	Stop the output of the converter and change to the reset button when fault is detected.
16	Speed control knob	——	Adjust the speed.

5 Basic Operating & Running

5.1 Basic Performance Table

Item		Instruction
Power Input	Rated voltage	T3（Three phase 380V）：three phase AC voltage，380~480V S2（Single phase 220V）：Single phase AC voltage，200V~240V
	Rated Frequency	50/60Hz ± 5%
Output Power	Input Power	0-100% input voltage
	Rated input current	According to each model, see standard spec.2.3
	Overload	150% Rated output current.60s，200% Rated output current 2s
Control Function	Control Mode	V/f control for constant torque, V/f control for quadratic load, vector control without PG (open loop control),Energy-saving
	Setting method of Frequency command	External terminal (including Logic multi-speed, analog input, UP/DOWN given), keyboard, serial communication
	Setting method of run command	External terminal, keyboard panel or serial communication
	Frequency set precision	Keyboard、UP/DOWN given：0.1Hz
		Analog given, serial communication：10bit（0.05Hz/50Hz)
	Low frequency torque	No PG V/f Control：150%Rated torque/3Hz
		No PG Vector control：150% rated torque/0.5Hz
	Speed control range	No PGV/f control：1：40
		No PG Vector control：1：200
	Speed control precision	No PGV/f control：±2%
		No PG Vector control：±0.2%
	Acc / Dec time	0-3200.0s
	switching frequency	1.5kHz～12kHz,according to junction temperature automatically reduce the switching frequency
Built-in control power supply	Output Voltage	10VDC±5%（1ways），24VDC±5%（1ways）
	Max load	10V：Max current 10mA，For reference potentiometer 24V：Max current 100mA，for logic input
Analog input	Number	2 ways：AI1、AI2
	Type	DC voltage or DC current
	Maximum input range	AI1：0-5VDC，or 0-10VDC，or 0/4-20mADC AI2：0-10VDC，or PTC probe input receivable
Analog output	Number	380V VFD :2ways，,AO1，A02 220V VFDl : 1ways，AO1
	Type	DC voltage or DC current
	Maximum input range	0-10VDC，or 0/4-20mADC
	Function selection	Output frequency, output current, speed given, serial communication, etc.

Item		Instruction
Logic input	Number	0.75-15KW 8 ways：LI1 to LI6、AI1、AI2 18.5-800KW 10 ways：LI1 to LI8、AI1、AI2 notes：AI1、AI2 can be used as logic input port （positive logic or negative logic)
	Type	Positive Logistic （Source） Or Negative Logistic（Sink）
	Input voltage	0-24VDC
	Function Selection	FWD,REV, running, fault reset,multi-speed,etc.
Logic output	number	2ways pulse signal output（LO-CLO）、relay output 1way or 2 ways.
	pulse signal output	OC, output frequency、current output、and other function
	relay output	For 220V VFD: TA，TB are Normally open，TC is common terminal Probe capacity： TA：5A @ 250VAC，5A @ 30VDC TB：3A @ 250VAC，3A @ 30VDC For 380V VFD: T1A is normally open,T1B is normally closed, T1C is common terminal T2A is normally open,T2B is normally closed, T2C is common terminal Probe capacity：T1A-T1C / T2A-T2C: 5A@250VAC，5A@30VDC T1B-T1C / T2B-T2C: 3A@250VAC，3A@30VDC Function choose: Fault, alarm, set frequency reach,etc.
communicati on interface	Hardware protocol	RS-485
	Software protocol	Modbus
Structure	Protection Level	IP20
	Cool method	Forced Air cooling
Environment	Installation site	Indoor
	Work temperature	-10～40ºC
	Storage temperature	-20～60ºC
	Humidity	Below 95RH%（No moisture condensation）
	Altitude	1000m and below

5.2 Basic operation of Panel

5.2.1 Running model selection

The VFD include four running models: Powering-on default mode、Parameter setting mode、 Status monitoring mode and Parameter verifying mode. Any mode can be realized by the MODE Key, showed as Figure5.1

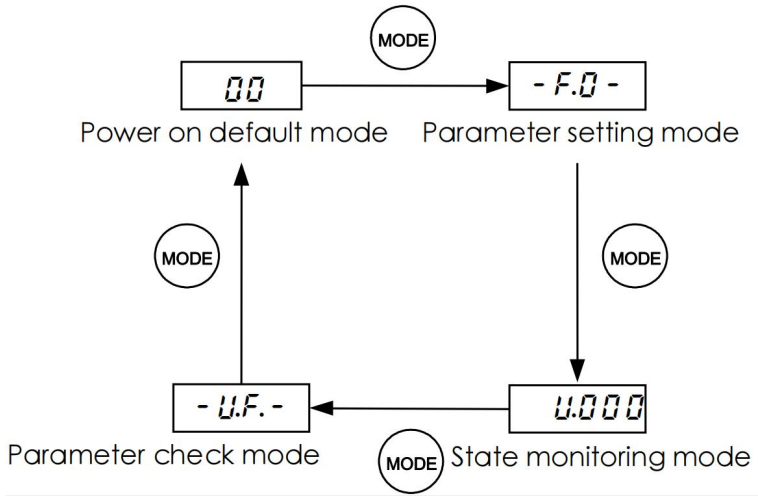


Figure 5.1 Structure of VFD Mode switch

Notes : when F6 18=1, showed parameter setting mode

5.2.2 Powering-on default mode

The display data is the current output frequency under Powering-on default mode, so directly use ▲or▼ key to modify the digital frequency setting, then press the ENT key to save the modified data and return Powering-on default mode，As showed as Figure5.2

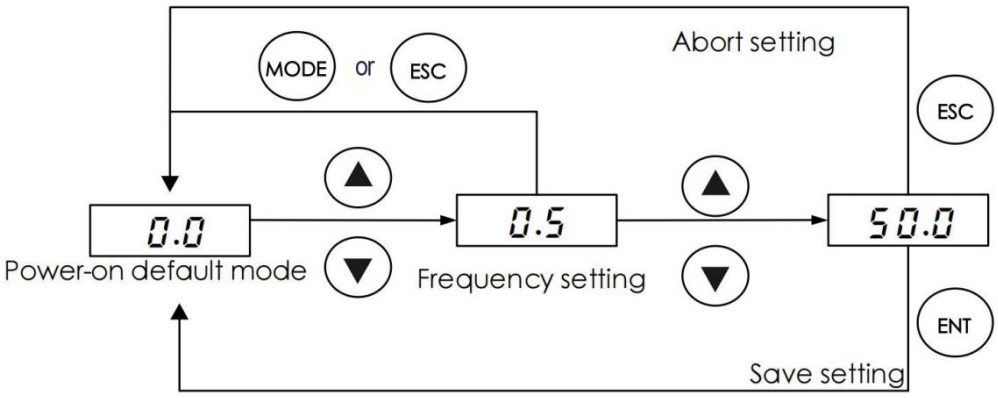


Figure 5.2 Powering-on default mode Navigation

Notes : Here the display data type can be set freely under the Powering-on default mode, showed in the parameter F6 10

5.2.3 Parameter Setting Mode

There are 10 groups function parameters from F0 group to F9 group, each group includes different numbers function parameter. The parameter setting value can be modified by ▲or ▼key and ENT key, or give up the modification by ESC key, as showed as Figure5.3

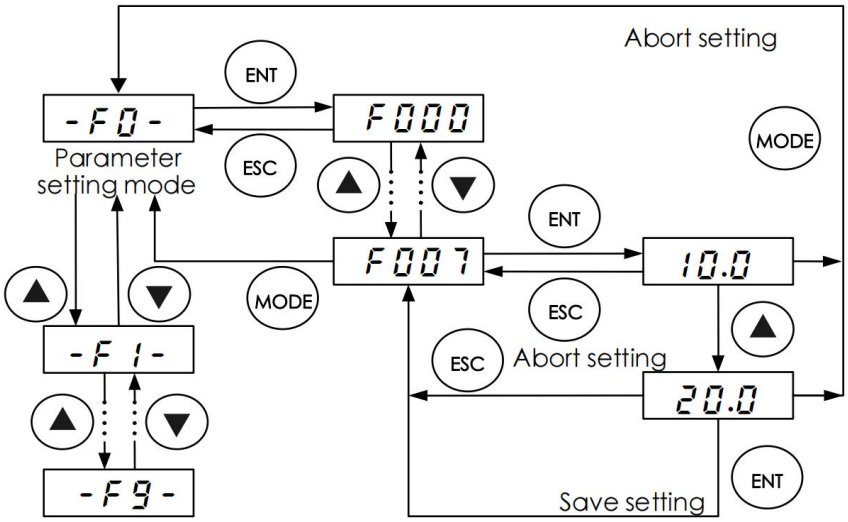


Figure 5.3 Parameter Setting Mode navigation

5.2.4 Status monitoring mode

The status monitoring mode can be used to monitor the current running status of VFD , or check the fault record, the operation shows as the Figure 5.4

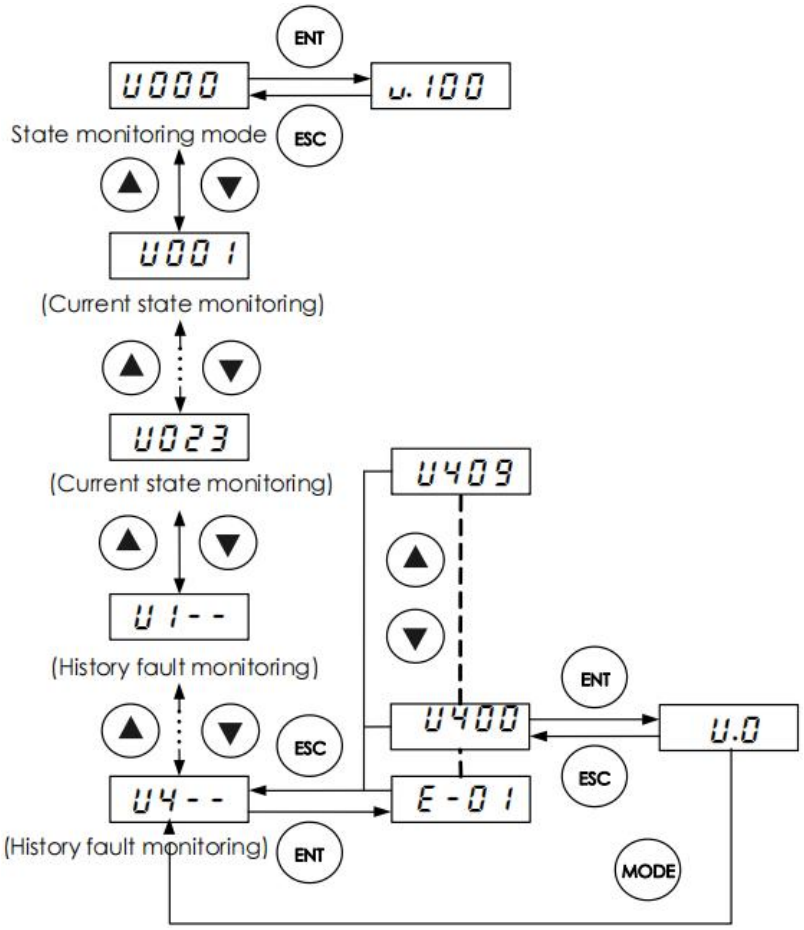


Figure 5.4. State monitoring mode navigation

Notes: Monitoring parameter only can be used to check, cannot be modified or set.

5.2.5 Parameter verifying mode

When F6 18=1, use MODE key to switch to parameter calibration mode. Under this mode, we can see all different parameters from the default value. The setup method for these parameters is the same to other parameter setup way. Please see figure 5.5.

Remarks: No other display only "-UF-" when pressing the ENT key without change to any parameter

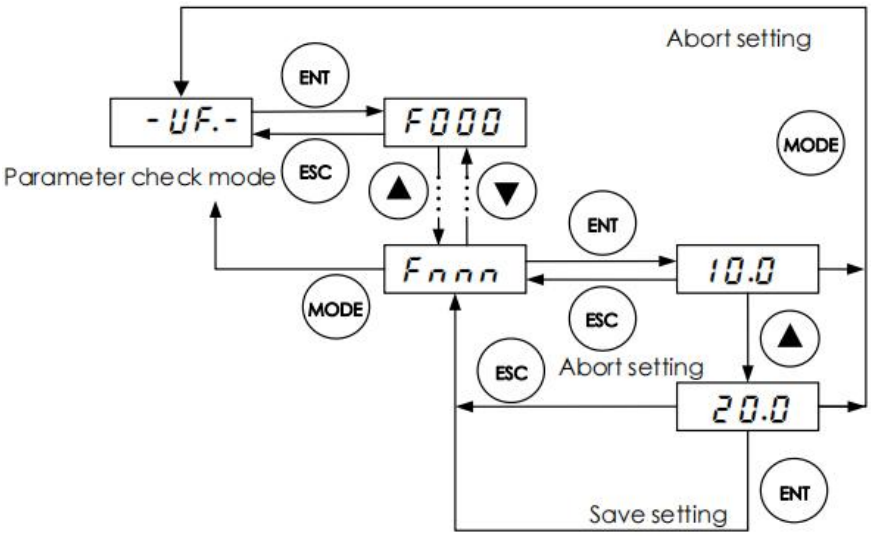


Figure 5.5 Parameter verifying mode navigation

5.3 Power on

Before switching on the VFD, please do check and confirm according to table 5.1, or there may be dangerous.

Table 5.1 Inspection Item before Power on

Item	Instruction
Input power voltage	Please confirm if the power supply is correctly connected (3-phase, AC380V~ 480V, 50/60 Hz or single phase, AC198V~ 242V, 50/60 Hz) Please confirm if the power supply input terminals L1, L2 are properly connected. Please confirm whether the VFD and the motor are correctly grounded.
Main circuit output terminals	Please confirm the output terminals of the VFD (U, V ,W) are reliably connected with the 3-phase input terminals of the motor.
Control circuit terminals	Please confirm the control circuit terminals are reliably connected with other device. Please confirm that all control circuit terminals are in the state OFF (The VFD does not run when powered on).
State of load	Please confirm the condition of the motor load (namely the status of connection with mechanical system).

After the VFD is switched on, the keyboard panel enters into Powering-on mode. The displayed value type at Powering-on mode is determined by the setting value of parameter F6 10.

5.4 Running

5.4.1 Local control mode

VFD provide two control modes: local and remote. The mode is set with parameter F601.

At local control mode, both the command source and frequency setting source of the VFD are set through the keyboard panel:

(1)Command source is given through RUN and STOP keys in order to run or stop the motor.

(2)Frequency is given by ▲ and ▼ keys.

(3)Motor rotation direction: ENTER+▲——Setting motor rotation as Forward;

ENTER+▼——Setting motor rotation as Reverse（confirm the setting of F522）;

Parameter F522 is used to limit the ability of the motor to rotate only in a single direction。

(4)Fault reset: When fault occurred, press STOP key，if show as A-00，Press STOP key again，finish fault reset function, Please see parameter F600。

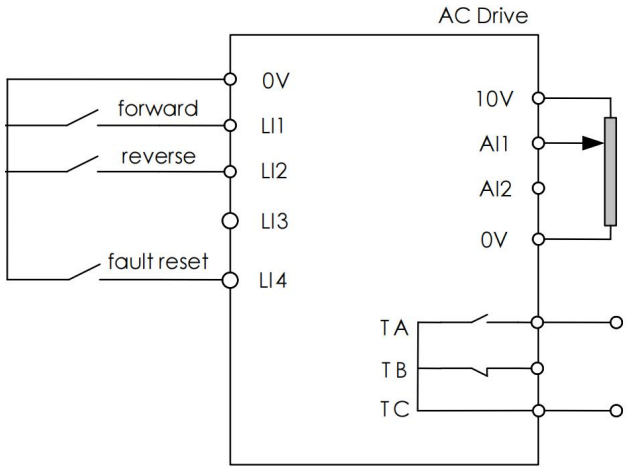
5.4.2 Remote control mode

Under remote control mode, the command source and frequency setting source of the VFD are set through parameters F002 and F003 respectively. The command source and frequency setting source can be combined in any way. As show as Parameter F002、F003.

Below is the main two ways of remote control mode wiring and setting:

（1）2 wires control (including (decelerating stop , free stop)　（2）3-wire control（decelerating stop）

(1) Remote mode example 1: 2-wire control



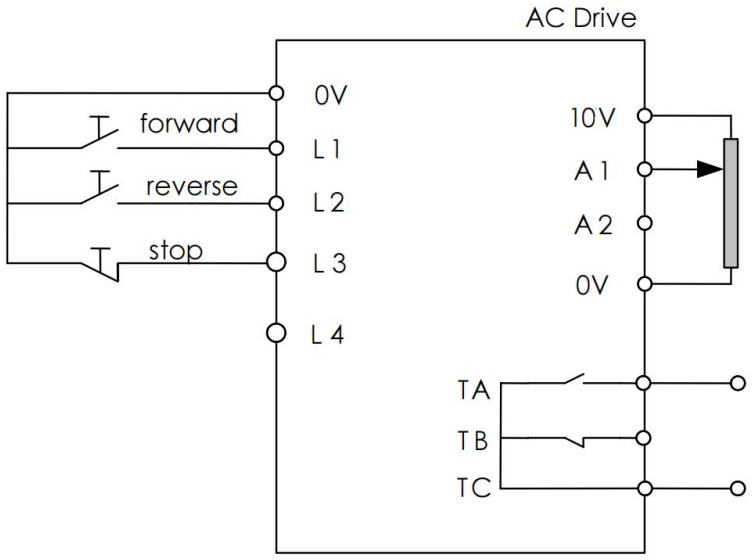
Wiring I ： 2 wires control wiring figure

Table 5.2　2-wire control parameter setting　(Negative logic)

Code	Parameter	Setting value (Decelerating stop)	Setting Value (Free stop)
F002	Running Command Selection	0	0
F003	Frequency Command Selection	1	1
F300	AI1 Input function（Analog or logic	0	0

F301	LI1 Logic input function	2	2
F302	LI2 Logic input function	3	3
F304	LI4 Logic input function	10	10
F305	Analog input mode setting	0	0
F306	Logic input type selection	1	1
F309	Forcing valid input function	1	1
F310	Forcing valid input function 2	0	0
F522	Motor reverse forbid	0	0
F523	Motor stop type	0	2

(2) Remote mode example 2: 3-wire control (Negative Logic)



Wiring II ： 3-wires control (negative logic) wiring figure

Table 5.3 3-wire control parameter setting (Negative logic)

Code	Parameter	Setting value (Decelerating stop)	Setting Value (Free stop)
F002	Running Command Selection	0	0
F003	Frequency Command Selection	1	1
F300	AI1 Input function（Analog or logic	0	0
F301	LI1 Logic input function	2	2
F302	LI2 Logic input function	3	3
F303	LI3Logic input function	30	30
F305	Analog input mode setting	0	0
F306	Logic input type selection	1	1
F309	Forcing valid input function	1	1
F310	Forcing valid input function 2	0	0
F522	Motor reverse forbid	0	0
F523	Motor stop type	0	3

6 Function Parameter

6.1 Parameter Table

6.1.1 F0 Group

NO.	Parameter Name	Setting Range	Default	WRT	User setting
F000	Frequency given by keypad	F009~F008	0.0	○	
F001	Motor control mode	0: V/F constant 1: Variable torque 2: Sensor-less vector control 3: Energy saving	0	●	
F002	Command mode selection	0: Terminal board 1: Keypad 2: Serial communication	1	●	
F003	Frequency setting mode selection	0: Built-in potentiometer 1: AI1 input 2: AI2 input 3: Keypad(Given frequency) 4: Serial communication (Given frequency) 5: UP/DOWN setting 6: AI1+AI2 7: PID setting of keypad (PID given) 8: Simple PLC	3	●	
F004	Command mode selection 2	0: Terminal board 1: Keypad 2: Serial communication	0	○	
F005	Frequency setting mode selection 2	0: Built-in potentiometer 1: AI1 input 2: AI2 input 3: Keypad(Given frequency) 4: Serial communication (Given frequency) 5: Set by UP/DOWN key 6: AI1+AI2 7: PID setting of keypad (PID given) 8: Simple PLC	2	○	

NO.	Parameter Name	Setting Range	Default	WRT	User setting
F006	Frequency /PID given source conversion	0: Switch between F003 and F005 1: Switch is disabled 2: Switch between F003 and F021 selected frequency/PID source 3: Switch between F005 and F021 selected frequency /PID source	0	○	
F007	Maximum output frequency	30.0~400.0 Hz	50.0	●	
F008	Upper limit frequency	0.5 Hz ~F007	50.0	○	
F009	Lower limit frequency	0.0 Hz ~F008	0.0	○	
F010	Acceleration time 1	0.1~3200 s	varies by model	○	
F011	Deceleration time 1	0.1~3200 s	varies by model	○	
F012	PWM carrier frequency	1.5k~12.0 kHz	varies by model	○	
F013	Carrier frequency control mode selection	0: not reduced automatically 1: reduced automatically	1	●	
F014	Random PWM mode	0: Disable. 1: Enable.	0	○	
F015	Automatic acceleration/deceleration	0: Disabled (manual). 1: Automatic (at acceleration & deceleration) 2: Automatic (only at acceleration)	0	●	
F016	Factory reserved	-	-		
F017	Terminal control macro	0: Factory Settings 1: 2-wire control (Negative logic mode, ramp stop). 2: 3-wire control (Negative logic mode, ramp stop). 3: External input UP/DOWN setting (Negative logic mode, slowdown stop). 4 ~ 16: Factory reserved 17: PID sleep & Wake Control 18: PID basic control 19: Factory reserved 20: JY common macro parameter	0	●	
F018	Factory reserved	-	-		
F020	Factory reserved	-	-		

NO.	Parameter Name	Setting Range	Default	WRT	User setting
F021	Operational relationship between primary frequency and secondary frequency	0: Single channel given 1: F003 + F005 2: F003-F005 3: MAX (F003, F005) 4: MIN (F003, F005)	0	○	
F022	F005 frequency given coefficient	0.0~ 100.0%	100.0 %	○	
F023	F005 frequency given offset	0.0Hz~400.0Hz	0.0Hz	○	
F024	Lower limit frequency selection and F005 = 3/7 setting	0~ 5	0	●	

6.1.2 F1 Group

NO.	Parameter Name	Setting Range	Default	WRT	User setting
F100	Auto-tuning	0: Auto-tuning disabled 1: F203 restore factory values 2: Auto-tuning enabled	0	●	
F101	Motor rated frequency	25.0~400.0 Hz	50.0	●	
F102	Motor rated frequency voltage	50~660 V	varies by model	●	
F103	Motor rated current	0.1~200.0 A	varies by model	●	
F104	Motor rated speed	100~30000rpm	varies by model	●	
F105	Motor no-load current	10.0~100.0%	varies by model	●	
F106	Motor thermal protection current setting	varies by model	varies by model	○	
F107	Motor current limit	varies by model	varies by model	●	
F108	Motor 2 rated frequency	25.0~400.0 Hz	50.0	●	
F109	Motor2 rated frequency voltage	50~660V	varies by model	●	
F110	Motor 2 thermal protection current setting	varies by model	varies by model	○	
F111	Motor 2 current limit	varies by model	varies by model	○	
F112 ~ F115	Factory reserved	-			
F119	Keyboard control mode	0: Local panel 1: Remote panel	0	●	

NO.	Parameter Name	Setting Range	Default	WRT	User setting
F120	Default setting	0: - 1: Restore factory settings 2: User parameter setting backup 3: Call backed up user parameters 4: Clear fault record 5: Clear the running time of VFD 6: Clear the running time of fans 7: Clear Type fault(E-36) 8: Set the VFD to P-type mode 9: Set the VFD to G-type mode	0	●	

6.1.3 F2 Group

NO.	Parameter Name	Setting Range	Default	WRT	User setting
F201	Automatic voltage regulation (AVR function)	0: AVR disabled-Output voltage enable is limited 1: AVR enabled-Output voltage enable is limited 2: AVR disabled-Output voltage disable is limited 3: AVR enabled-Output voltage	3	●	
F202	Motor voltage boost	0.0~30.0%	varies by model	○	
F203	Torque boost	0.0~30.0%	varies by model	○	
F204	Slip frequency gain	0~150%	50	○	
F205	Exciting current coefficient	100~130	100	●	
F206	Motor 2 voltage boost	0~30%	varies by model	○	
F207	Speed control response coefficient	1~150	40	●	
F208	Speed frequency coefficient	1~100	20	●	
F209	Weak magnetic stall current level	10~250	100	●	
F210	Weak magnetic frequency level	50~150	100	●	
F211	Maximum ouput voltage adjustment coefficient	90~120%	104	●	
F212	Waveform switching adjustment coefficient	0.1~14kHz	14.0	●	
F213 ~ F216	factory reserved				
F217	Multi-point profile V/F patter	0: disable multi-point V/F		●	

NO.	Parameter Name	Setting Range	Default	WRT	User setting
		control mode. 1: factory reserved. 2: Enable multi-point V/F control mode.	0		
F218	point 1 output frequency (f1)	0~F220	10.0	●	
F219	point 1 output voltage (v1)	0~100%	20.0	●	
F220	point 2 output frequency (f2)	F218~F220	20.0	●	
F221	point 2 output voltage (v2)	0~100%	40.0	●	
F222	point 3 output frequency (f3)	F220~F101	30.0	●	
F223	point 3 output voltage (v3)	0~100%	60.0	●	
F225	Speed Factor	1~999	420	○	

6.1.4 F3 Group

NO.	Parameter Name	Setting Range	Default	WRT	User setting
F300	AI1 terminal function selection	0: AI1 - analog input 1: AI1 - contact input (Sink mode) 2: AI1 - contact input (Source mode)	0	●	
F301	Input logic function for LI1	0: No function is assigned 1: Operation license 2: Forward run command 3: Reverse run command 4: Jog run mode 5: Acceleration/deceleration 2 pattern selection 6: Preset-speed command 1 7: Preset-speed command 2 8: Preset-speed command 3 9: Preset-speed command 4 10: Fault reset 11: External fault 13: DC braking command 14: PID control disable 15: Permission of parameter editing 16: Operation license and fault reset 17: Frequency source switch to AI1 18: Forward jog run 19: Reverse jog run 20: Frequency setting source switching 21: Switching parameter of motor V/Hz 22: Switching motor +Current limiting+Acc/Dcc curve 23: Frequency UP signal input from external contacts 24: Frequency DOWN signal input from external contacts 25: Frequency UP/DOWN cancellation signal input from external contacts 26: inversion of trip stop command from external device 27 Thermal trip stop signal input from external device 28: inversion of thermal trip stop signal input from external device 29: Forced switching from remote to local control	2	●	
F302	Input logic function for LI2		3	●	
F303	Input logic function for LI3		0	●	
F304	Input logic function for LI4		10	●	

NO.	Parameter Name	Setting Range	Default	WRT	User setting
F301	Input logic function for LI1	30: Operation holding (stop of 3-wire operation) 31: Forced switching of command mode to terminal board command 32: Display cancellation of the cumulative power amount (kWh) 33: Fire-mode control, see F419 34: Coast stop (gate off) 35: Inversion of Reset 36: Forced switching of stall prevention level 2 37: PID control integral value clear 38: inversion of PID error signal 39: Forward running + Acc & Dec curve 2 40: Reverse running + Acc&Dec curve 2 41: Forward running+ Multi-speed section 1 42: Reverse running + Multi-speed section 1 43: Forward running+ Multi-speed section 2 44: Reverse running+ Multi-speed section 2 45: Forward running+ Multi-speed section3 46: Reverse running+ Multi-speed section 3 47: Forward running+ Multi-speed section 4 48: Reverse running+ Multi-speed section 4 49: Multi-speed section 1+Acc&Dec curve 2 50: Multi-speed section 2+ Acc&Dec curve 2 51: Multi-speed section 3+ Acc&Dec curve 2 52: Multi-speed section 4+ Acc&Dec curve 2 53: Forward running command+Multi-speed section 1+ Acc&Dec curve 2 54: Reverse running command+Multi-speed section 1+ Acc&Dec curve 2 55: Forward running command+Multi-speed section 2+ Acc&Dec curve 2 56: Reverse running command+Multi-speed section 2+ Acc&Dec curve 2 57: Forward running Acc&Dec curve 2 command +Multi-speed section 3+Acc&Dec curve 2 58: Reverse running command+Multi-speed section 3+ Acc&Dec curve 2 59: Forward running comman+Multi-speed section 4+ Acc&Dec curve 2	2	●	
F302	Input logic function for LI2		3	●	
F303	Input logic function for LI3		0	●	
F304	Input logic function for LI4		10	●	

NO.	Parameter Name	Setting Range	Default	WRT	User setting
F301	Input logic function for LI1	60: Reverse running command+Multi-speed section 4+ Acc&Dec curve 2 61: UP/DOWN speed clean up+ fault reset 62: Running permission+ Forward running command (only 2-wire control) 63: Running permission+ reverse running command (only 2-wire control) 64: Acc&dec curve 3 65: Acce/Dece curve 3+ Forward running command 66: Acce/Dece curve 3+ Reverse running command 67: Command source switch 68: Command source+ frequency source switch 69: Three-wire control stop reverse 70: Reset when simple PLC stops 71: Simple PLC hold 72: Simple PLC pause 73/74: PID control+ frequency given source switch 75: (UP/DOWN) stop speed clearance 76:2-wire control mode2-start/stop control 77:2-wire control mode2-FWD/REV control	2	●	
F302	Input logic function for LI2		3	●	
F303	Input logic function for LI3		0	●	
F304	Input logic function for LI4		10	●	
F305	AI1 voltage-current input selection	0:0 ~ 5V voltage signal input. 1:0 ~ 10V voltage signal input. 2: current signal input.	0	●	
F306	sink/soruce mode selection	0: Source (Positive) logic terminal mode. 1: Sink (Negative) logic terminal mode	1	●	
F307	AO voltage-current output selection	0: Current signal output. 1: Voltage signal output.	1	●	
F308	Input terminal function of AI1	0-75, see F301~F304	0	●	
F309	Always-active terminal selection 1	0-75, see F301~F304	1	●	
F310	Always-active terminal selection 2	0-75, see F301~F304	0	●	
F311	Output terminal function A of LO-CLO	F315	4	●	
F312	Output terminal function B of LO-CLO	F315	255	●	
F313	AI2 terminal function selection	0: AI2 - analog input 1: AI2 - contact input (Sink) 2: AI2 - contact input (Source)	0	●	

NO.	Parameter Name	Setting Range	Default	WRT	User setting
F314	Input terminal function of AI2	0-75, F301~F304	0	●	
F315	Output terminal function A of T1 (T1A-T1B-T1C)	0: Output frequency higher than lower limit frequency 2: Output frequency equals to upper limit frequency 4: Output frequency is higher or equal to F337 6: (set frequency -F339)<output frequency<(set frequency+F339) 8: (F338-F339) < output frequency < (F338+F339) 10: Output frequency higher or equal to F338+F339 12: F003 or F005 source supply given speed=AI1 signal 14: F003 or F005 source supply given speed=AI2 signal 16: AI1' s value higher or equal to F340+F341 18: AI2' s value is higher or equal to F342 +F343 20: AI2 is the speed given source 22: VFD forward motor power supply (acceleration, deceleration, constant speed or DC braking) 24: Ready for running of the VFD (running permission and running command available) 26: Motor reverse running 28: Under local mode for VFD 30: Fault happened in the VFD 32: Evaluated motor torque is at F412 level time is still less than F414 set value. 34:Motor current is less than F408 and its lasting time is over F410 setting. 36:Fault occurred and could not reset. 38: Fault occurred but it could reset. 38: Fault occurred but it could reset. 40: Fault occurs in the VFD 42: Alarm occurs 44: Motor heating status has reached 50% of motor overload fault level.	40	●	

NO.	Parameter Name	Setting Range	Default	WRT	User setting
F315	Output terminal function A of T1 (T1A-T1B-T1C)	46: DC braking resistor status has reached 50% DC braking resistor overload fault level. 48: Evaluated motor torque reaches F412*70% 52: The equipment sends maintenance alarmwarning. (Fan, PCB or capacitor needs replacement.) 56: Undervoltage alarm is valid. 58: Brake pull 60: In the process of motor acceleration process 62: In the process of motor deceleration 64: In the process of motor deceleration or acceleration 66: Heat sink temperature has reached alarm value 68: One PLC recycle completes 70: One PLC speed section completes 72: The inverter is ready to receive the running signal 74: Communication address 0xfa15 bit0 state output 76~79: Factory reserve 80: LI1 input is valid 82: LI2 input is valid 84: PID feedback pressure equal to or higher than F627 + F628 86: PID feedback pressure equal to or higher than F918 + F628 88: communication address 0xFA15 bit1 state output 90~253: Unused 254: Relay constant output OFF 255: Relay constant output ON	40	●	
F316	Output terminal logic selection of LO-CLO	0: And logic 1: Or logic	0	●	
F317	LO1-CLO1 output delay	0.0~60.0 s	0.0	○	
F318	Relay 1 closing delay	0.0~60.0 s	0.0	○	
F319	External contact input --UP-speed response time	0.0~10. 0 s	0.1	○	

NO.	Parameter Name	Setting Range	Default	WRT	User setting
F320	External contact input --UP-speed frequency steps	0.0 Hz ~F007	0.1	○	
F321	External contact input - DOWN response time	0.0~10.0 s	0.1	○	
F322	External contact input - DOWN frequency steps	0.0 Hz ~F007	0.1	○	
F323	Initial up/down frequency	0.0 Hz ~F007	0.0	○	
F324	Change of the initial up/down frequency	0/2/4: disabled 1/3/5: enabled	1	○	
F325	AI1 input point 1 setting	0~100%	0	○	
F326	AI1speed setting level 1	0.0~400.0 Hz	0.0	○	
F327	AI1 output frequency level 1	0~100%	100	○	
F328	AI1 speed setting level 2	0.0~400.0 Hz	50.0	○	
F329	AI1 output frequency level 2	0~100%	0	○	
F330	AI2 speed setting level 1	0.0~400.0 Hz	0.0	○	
F331	AI2 output frequency level 1	0~100%	50	○	
F332	AI2 speed setting level 2	0.0~400.0 Hz	50.0	○	
F333	AI1 input bias	0~255	varies by	○	
F334	AI1 input gain	0~255	varies by model	○	
F335	AI2 input bias	0~255	varies by model	○	
F336	AI2 input gain	0~255	varies by model	○	
F337	Relay output-Low-speed output frequency signal	0.0 Hz ~ F007	0.0	○	
F338	Relay output- output frequency signal 2	0.0 Hz ~F007	0.0	○	
F339	Relay output- output frequency signal 2 bandwidth	0.0 Hz ~ F007	2.5	○	
F340	AI1 input reach detection level	0~100%	0	○	
F341	AI1 input reach detection bandwidth	0~20%	3	○	
F342	AI2 input reach detection level	0~100%	0	○	

NO.	Parameter Name	Setting Range	Default	WRT	User setting
F343	AI2 input reach detection bandwidth	0~20%	3	○	
F344	Frequency command detection bandwidth	0.0 Hz ~F007	2.5	○	
F345	Logic output/pulse train output selection (LO- CLO)	0: Logic output 1: Pulse train output	0	●	
F346	Pulse train output function selection (LO - CLO)	0: Output frequency 1: Output current 2: Reference frequency 3: Motor frequency 4: DC voltage 5: Output voltage 6: Input power 7: Output power 8: AI1 Input value 9: AI2 Input value 10: Torque 11: Torque current 12: Motor overload state 13: VFD overload state 14:Braking reactor overload state	0	○	
F347	Maximum numbers of pulse train	500~1600	800	○	
F348	AO1 selection	0: Output frequency 1: Output current 2: Reference frequency 3: Motor frequency 4: DC voltage 5: Output motor voltage 6: Input power 7: Output power 8: AI1 input value 9:AI2 input value 10:Estimated motor torque 11:Motor torque current 12:Motor overheating state 13:VFD overheating state 14:Braking reactor overload state 15:Serial communication data 16:185% proofread 17:150% proofread 18.100% proofread	0	○	

NO.	Parameter Name	Setting Range	Default	WRT	User setting
F349	AO1 gain adjustment	1~1280	varies by model	○	
F350	Inclination characteristic of analog output(AO1)	0: Negative 1: Positive	1	○	
F351	Bias of analog output (AO1)	0~100%	0	○	
F352	Min output frequency when AO1 = 0V	0 Hz ~F007	0.0	○	
F353	Max output frequency when AO1 = 10V	0 Hz ~F007	0.0	○	
F354	AO1 bias	0~255	128	○	
F355	Ipput terminal function for L15	F301~F304	0	●	
F356	Input terminal function for LI6	F301~F304	0	●	
F357	Ipput terminal function for L17	F301~F304		●	
F358	Input terminal function for LI8	F301~F304		●	
F359	Main function of relay 2	F315		●	
F360	Auxiliary function of relay 2	F315		●	
F361	Logical relationship of relay 2 functions	0: 'And' logic 1: 'Or' logic		●	
F362	Closing delay of relay 2	0.0~60.0S		●	
F363	Input terminal active mode	8 bits - hexadecimal display, each option: 1.Valid when closed 2.Valid when disconnected		○	
F364	Logical input terminal filtering	0~200	0	●	
F365	Relay output 1 assistant function	F315	255	●	
F366	Relay function logic relation	0: 'And' logic 1: 'Or' logic	0	●	
F367	Terminal run detection selection at power on	0: disable 1: enable	0	●	
F368	Analog output signal type (AO2)	0: Current signal output 1: Voltage signal output	1	●	
F369	Analog output function selection (AO2)	F348	0	○	

NO.	Parameter Name	Setting Range	Default	WRT	User setting
F370	Analog output current scaling (AO2)	1~1280	varies by model	○	
F371	AO2 Analog output slope	0：Negative slope 1：Positive slope	1	○	
F372	AO2 Analog output bias	0~100%	0	○	
F373	Analog Output current Bias Calibration (AO2)	0~255	4	○	
F374	Percentage of AO monitored values	0~250%	0	○	
F375	Relay 1 disconnect delay	0~60.0s	0.0	○	
F376	Relay 1 disconnect delay	0~60.0s	0.0	○	

6.1.5 F4 Group

NO.	Parameter Name	Setting Range	Default	WRT	User setting
F400	Number of automatic fault reset	0: disabled 1~10: reset times.	0	●	
F401	Electronic-thermal protection characteristic selection	0：Trip enable，stall disable (standard motor) 1：Trip enable，stall enable (standard motor) 2：Trip disable，stall disable (standard motor) 3：Trip disable，stall enable (standard motor) 5：Trip enable，stall disable (forced cooling motor) 6：Trip enable，stall enable (forced cooling motor) 7：Trip disable，stall disable (forced cooling	0	○	
F402	Motor 150%-overload	10-2400 s	300	○	
F403	Emergency stop selection	0: Coast stop 1: Slowdown stop 2: Emergency DC braking	0	●	
F404	Emergency braking time	0.0-20.0 s	1.0	○	
F405	Input phase failure detection	0: Disabled 1: Enable	0	●	

NO.	Parameter Name	Setting Range	Default	WRT	User setting
F406	Output phase failure detection mode selection	0: Disabled 1: At start-up (Only one time after power is turned on) 2: At start-up (each time) 3: During operation 4: At start-up + during operation 5: Detection of cutoff on output side	0	●	
F407	Under-load trip/alarm selection	0: Alarm 1: trip	0	○	
F408	Under-load detection current	0~100%	0.00	○	
F409	Under-load detection current hysteresis	1~20%	10	○	
F410	Under-load detection time	0-255 s	0	○	
F411	Over-torque trip/Over-current indication	0: Over-torque alarm (70%) 1: Over-torque fault 2: Over-torque alarm (100%) 3: Over-current alarm (70%) 4: Over-current fault 5: Over-current alarm (100%)	0	○	
F412	Over-torque detection	0~250%	130	○	
F413	Over-torque detection level hysteresis	0~100%	10	○	
F414	Over-torque detection time	0.0~10.0 s	0.5	○	
F415	Over-voltage limit operation	0: Enabled. 1: Disabled 2: Enabled (Quick deceleration). 3: Enabled (Dynamic quick deceleration).	2	●	
F416	Over-voltage limit	100-150%	130	●	
F417	Under-voltage trip/alarm selection	0: Alarm only (detection level below 60%) 1: Tripping (detection level below 60%). 2: Alarm only (detection level below 50%)	0	●	
F418	Instantaneous power failure coast stop selection	0: disabled 1: factory reserved 2: Coast stop.	0	●	
F419	Forced fire-speed control function	0: Disabled. 1: Enabled.	0	○	

NO.	Parameter Name	Setting Range	Default	WRT	User setting
F420	Detection of output short-circuit during start-up	0: Each time (standard pulse) 1: Only one time after power is turned on (standard pulse) 2: Each time (short-time pulse) 3: Only one time after power is turned on (short-time pulse)	0	●	
F421	Motor over-load retention selection	0: disabled. 1: Enabled.	0	○	
F422	AI1 input loss	1~100%	0	○	
F423	Activation of the VFD during 4-20mA signal loss	0: No measures. 1: Coast stop. 2: switch to Fallback speed. 3: Speed maintaining. 4: Slowdown stop.	0	●	
F424	Fallback speed	0.0 Hz ~F007	0.0	○	
F425	PTC thermal selection	0: Disabled 1: Enabled (trip mode) 2: Enabled (alarm mode)	0	○	
F426	Resistor value for PTC	100-9999Ω	3000	○	
F428	Cumulative operation time alarm setting	0.0-999.9 h (0.1=10 hour)	610.0	○	
F429	VFD trip retention selection	0: clearing 1: maintaining	0	○	
F430	Heat sink temperature reaches the alarm value	0 ~100℃	varies by model	●	
F431	Analog output current scaling (AO1)	1~1280	varies by model	○	
F432	Analog Output current Bias Calibration (AO1)	0~255	varies by model	○	
F433	Analog output current scaling (AO2)	1~1280	varies by model	○	
F434	Analog Output current Bias Calibration (AO2)	0~255	varies by model	○	
F435	Runtime (read-only)	0~65535	-	●	

6.1.6 F5 Group

NO.	Parameter Name	Setting Range	Default	WRT	User setting
F500	Auto-restart control selection	0: Disabled 1: At auto-restart after momentary stop 2: When turning standby (input terminal function =1) on or off 3: At auto-restart or when turning standby (input terminal function =1) on or off 4: At start-up 5~7: Factory reserved 8: DC braking and then start. DC braking current level and brake time according F507& F508	0	●	
F501	auto-stop time limit for lower-limit frequency operation	0.0: disable 0.1-600.0 s	0.1	○	
F502	Bumpless operation selection	0: disabled. 1: enabled.	1	○	
F503	Starting frequency setting	0.5~10.0 Hz	0.5	○	
F504	Operation starting frequency	0.0 Hz ~F007	0.0	○	
F505	Operation starting frequency hysteresis	0.0 Hz ~F007	0.0	○	
F506	DC braking starting frequency	0.0 Hz ~F007	0.0	○	
F507	DC braking current	varies by model	varies by model	○	
F508	DC braking time	0.0~20.0 s	1.0	○	
F510	Acceleration/deceleration 1 pattern	0: Linear 1: S pattern 1 2: S pattern 2 3 : Elevator acceleration / deceleration curve	0	○	
F511	Acceleration/deceleration 2 pattern	0: Linear 1: S pattern 1 2: S pattern 2	0	○	
F512	Acceleration/deceleration 3 pattern	0: Linear 1: S pattern 1 2: S pattern 2	0	○	
F513	Acceleration/deceleration 1 and 2 switching frequency	0.0 Hz ~F008	0.0	○	

NO.	Parameter Name	Setting Range	Default	WRT	User setting
F514	Acceleration/deceleration 2 and 3 switching frequency	0.0 Hz ~F008	0.0	○	
F515	Selecting an acceleration/deceleration pattern	1: Acc/Dec 1 2: Acc/Dec 2 3: Acc/Dec 3	1	○	
F516	S-pattern lower-limit adjustment amount	0~50%	10	○	
F517	S-pattern upper-limit adjustment amount	0~50%	10	○	
F518	Acceleration time 2	0.0~3200 s	20.0	○	
F519	Deceleration time 2	0.0~3200 s	20.0	○	
F520	Acceleration time 3	0.0~3200 s	20.0	○	
F521	Deceleration time 3	0.0~3200 s	20.0	○	
F522	Reverse-run prohibition	0: Forward/reverse run permitted. 1: Reverse run prohibited. 2: Forward run prohibited.	0	●	
F523	Stop type	0: Ramp shutdown 1: Free shutdown of keyboard 2: 2 line control free stop 3: 2 line control free stop	2	○	
F526	Forward and reverse priority setting	0: Forward + Reverse ----->Reverse 1: Forward + Reverse ----->Stop 2: Forward + Reverse ----->pre-set direction 3: Forward + Reverse------>In the direction given by 4: Forward + Reverse------>Forward	1	○	
F527	regenerative braking selection	0: Disabled 1: Enabled (with resistor overload protection) 2: Enabled (without resistor overload protection)	2		
F528	regenerative braking resistance	1.0~1000.0Ω	20.0	●	
F529	regenerative braking resistor capacity	0.01~30.0 kW	0.12	●	
F530	Positive and negative dead zone time	0.0~25.0s	10	○	
F531	HMI RS485 communication port Modbus protocol selection	0~1	0	○	

NO.	Parameter Name	Setting Range	Default	WRT	User setting
F532	Input voltage monitoring value compensation	0.0%~900.0%	100%	●	
F534	Communication address E002H input current phase selection	0: 1A 1: 0.1A 2: 0.01A	2	○	
F535	PLC Preset speed direction 2	0000H~FFFFH	0000H	●	
F536	PLC speed direction selection	0:PLC speed direction select as F748 1:PLC speed direction select as F535		●	
F537	2-wire control mode 2 enabled	0: disable 1:enable 2-wire control mode 2-Self - locking switch (Electrial level) controls positive and negative rotation 2:enable 2-wire control mode 2-button switch(pulse)controls positive and negative rotation		●	

6.1.7 F6 Group

NO.	Parameter Name	Setting Range	Default	WRT	User setting
F600	Prohibition of panel reset operation	0: Permitted 1: Prohibited	0	○	
F601	Switching between remote control and Local control	0: Local control mode 1: Remote control mode 2: Cooperate with F700 to set the function of JOG key	1	○	
F602	Password check/input	0~9999	0	○	
F603	Current/voltage/% display mode	0: % 1: A (ampere)/V (volt),	1	○	
F604	Frequency free unit magnification	0：unit is Hz 0.01-200.0：free unit	0.00	○	
F605	Arbitrary unit conversion selection	0: Show as frequency unit 1: Change PID frequency to any unit	0	●	
F606	Inclination characteristic of free unit display	0: Negative inclination (downward slope) 1: Positive inclination (upward slope)	1	○	
F607	Bias of free unit display	0.00 Hz ~F007	0.00	○	
F608	Free step 1 (pressing a panel key once)	Disabled：0.00 Enabled：0.01 Hz~F007	0.00	○	
F609	Frequency resolution of the panel	0：disabled 1~255：enabled	0	○	

NO.	Parameter Name	Setting Range	Default	WRT	User setting
F610	Standard monitor display selection	0: Output frequency(Hz(free)) 1: Frequency command(Hz(free)) 2:Output current(%/A) 3: VFD rated current (A) 4: VFD load (%) 5: Output power (kW) 6: Stator frequency (Hz (free)) 7: Communication data display 8: Output speed 9: Communication counter 10: Normal communication counter 11: Stop - given frequency (F900=0)/given PID (F900 ≠0),Run - output frequency 12: Running speed(output frequency*F225) 13: Average speed (Average speed setting of multistage speed) 14: Multistage speed number (Current running segment speed number) 15: Running time 2 (not the cumulative running time)	0	○	
F611	panel running order clear selection	0: clear (When running order terminal off) 1: keep (When running order terminal off)	1	○	
F612	Panel operation prohibition (F000)	0: Permitted 1: Prohibited	0	○	
F613	Prohibition of panel operation (RUN/STOP keys)	0: Permitted. 1: Prohibition.	0	○	
F614	Prohibition of panel emergency stop operation	0: Permitted. 1: Prohibition.	0	○	
F616	Integral output power retention selection	0: (clear) 1: (memory)	1	○	
F617	Integral output power display unit selection	0: 1kWh. 1: 10kWh. 2: 100kWh. 3: 1000kWh.	varies by model	○	
F618	Search and resetting of changed parameters	0: disable 1: enable	0	○	
F619	VFD internal temperature monitoring 1				
F620	VFD internal temperature monitoring 2				
F621	LCD contrast control	15~40	25		

NO.	Parameter Name	Setting Range	Default	WRT	User setting
F622	factory reserved				
F623	Bit0: Fan auto-running	0: The fan works when the VFD is running 1. The fan works when the VFD is powered on	0	○	
	Bit1: Positive power monitoring	0: Monitoring both positive and negative power 1: Monitor only positive power			
	Bit2:main display quickly monitoring	0:disable 1:enable			
	Bit3:Forward and reverse dead time mode selection	0:Forward and reverse dead time mode1 1:Forward and reverse dead time mode2			
	Bit4: over current alarm	0: Alarm 1: No alarm			
	Bit5:overvoltage alarm	0: Alarm 1: No alarm			
	Bit6:overload alarm	0: Alarm 1: No alarm			
	Bit7:overheat alarm	0: Alarm 1: No alarm			
	Bit IGBT overheat current level calculation forbid	0: Enable 1: Disable			
F624	Keyboard panel displays 2	Same as F610	2	○	
	Quick Monitoring 1	Same as F610			
F625	Keyboard panel displays 3	Same as F610	1	○	
	Quick Monitoring 2	1-8: See F610 9: PID is given 10: PID feedback 11~15: See F610			
F626	Keyboard panel displays 4	Same as F610	5		
	Quick Monitoring 3	1-8: see F610 9: PID is given 10: PID feedback 11~15: See F610			
F627	Relay output -PID feedback check out	0.00~99.99	0.00	○	
F628	Relay output -PID feedback to detect bandwidth	0.00~99.99	0.00	○	
F629	Factory reserved		-	○	

6.1.8 F7 Group

NO.	Parameter Name	Setting Range	Default	WRT	User setting
F700	JOG key function setting	0~6	5	○	
F701	Jog frequency	0.0~20.1Hz	5.0	○	
F702	Jog stop mode	0：Decelerating Stop 1：Free stop 2：DC Braking	0	○	
F703	Jump frequency 1	0.0 Hz ~F007	0.0	○	
F704	Jumping width 1	0.0 ~30.0 Hz	0.0	○	
F705	Jump frequency 2	0.0 Hz ~F007	0.0	○	
F706	Jumping width 2	0.0~30.0 Hz	0.0	○	
F707	Jump frequency 3	0.0 Hz ~F007	0.0	○	
F708	Jumping width 3	0.0~30.0 Hz	0.0	○	
F709	Braking mode selection	0~3	0	●	
F710	Release frequency	F503~20.0Hz	3.0	○	
F711	Release time	0~25.0s	0.5	○	
F712	Creeping frequency	F503~20.0Hz	3.0	○	
F713	Creeping time	0~25.0s	1.0	○	
F714	Droop gain	0~100%	0	○	
F715	Droop insensitive torque band	0~100%	10	○	
F716	Preset-speed 1	F009~F008	3.0	○	
F717	Preset-speed 2	F009~F008	6.0	○	
F718	Preset-speed 3	F009~F008	9.0	○	
F719	Preset-speed 4	F009~F008	12.0	○	
F720	Preset-speed 5	F009~F008	15.0	○	
F721	Preset-speed 6	F009~F008	18.0	○	
F722	Preset-speed 7	F009~F008	21.0	○	
F723	Preset-speed 8	F009~F008	24.0	○	
F724	Preset-speed 9	F009~F008	27.0	○	
F725	Preset-speed 10	F009~F008	30.0	○	
F726	Preset-speed 11	F009~F008	33.0	○	
F727	Preset-speed 12	F009~F008	36.0	○	
F728	Preset-speed 13	F009~F008	39.0	○	
F729	Preset-speed 14	F009~F008	45.0	○	
F730	Preset-speed 15	F009~F008	50.0	○	
F731	factory reserved	-			
F732	Multi-speed 0 run time	0~65000.0s(min)	0.0	●	
F733	Multi-speed 1 run time	0~65000.0s(min)	0.0	●	

NO.	Parameter Name	Setting Range	Default	WRT	User setting
F734	Multi-speed 2 run time	0~65000.0s(min)	0.0	●	
F735	Multi-speed 3 run time	0~65000.0s(min)	0.0	●	
F736	Multi-speed 4 run time	0~65000.0s(min)	0.0	●	
F737	Multi-speed 5 run time	0~65000.0s(min)	0.0	●	
F738	Multi-speed 6 run time	0~65000.0s(min)	0.0	●	
F739	Multi-speed 7 run time	0~65000.0s(min)	0.0	●	
F740	Multi-speed 8 run time	0~65000.0s(min)	0.0	●	
F741	Multi-speed 9 run time	0~65000.0s(min)	0.0	●	
F742	Multi-speed 10 run time	0~65000.0s(min)	0.0	●	
F743	Multi-speed 11 run time	0~65000.0s(min)	0.0	●	
F744	Multi-speed 12 run time	0~65000.0s(min)	0.0	●	
F745	Multi-speed 13 run time	0~65000.0s(min)	0.0	●	
F746	Multi-speed 14 run time	0~65000.0s(min)	0.0	●	
F747	Multi-speed 15 run time	0~65000.0s(min)	0.0	●	
F748	PLC speed direction option	0~65535	0000	●	
F749	Simple PLC running mode	0: run one time and then stop 1: run one time and keep running at the final value 2: recycle running	0	●	
F750	Simple PLC restart mode selection	0: start running from the first phase 1: keep running from the interrupt frequency	0	●	
F751	Simple PLC Power drop memory selection	0: no memory for power drop 1: memory for power drop	0	●	
F752	Simple PLC running time unit selection	0: second (s) 1: minute (min)	0	●	
F753	Nonstandard function selection	0: Standard functions 1~65535: Nonstandard functions	0	○	
F754	AI1 curve selection	0: Curve (Point 2) 1: Curve (Point 4)	0	○	
F755	AI1 curve 2 set point 1 input	0.0 ~ 100.0%	0.0%	○	
F756	AI1 curve 2 sets point 1 output	-100% ~ 100%		○	
F757	AI1 curve 2 set point 2 input	0.0 ~ 100.0%		○	
F758	AI1 curve 2 sets point 2 output	-100% ~ 100%	30.0%	○	
F759	AI1 curve 2 set point 3 input	0.0 ~ 100.0%	60.0%	○	
F760	AI1 curve 2 sets point 3 output	-100% ~ 100%	60.0%	○	

NO.	Parameter Name	Setting Range	Default	WRT	User setting
F761	AI1 curve 2 set point 4 input	0.0 ~ 100.0%	100.0%	○	
F762	AI1 curve 2 sets point 4 output	-100% ~ 100%	100.0%	○	
F763	LI1 effective delay	6500.0 ~ 0.0 s	0.0	○	
F764	LI1 invalid delay	6500.0 ~ 0.0 s	0.0	○	
F765	LI2 effective delay	6500.0 ~ 0.0 s	0.0	○	
F766	LI2 invalid delay	6500.0 ~ 0.0 s	0.0	○	
F767	AI1 filtering coefficient	0.00 -10.00	0.30	○	
F768	AI2 filtering coefficient	0.00 -10.00	0.30	○	
F769	AO1 filtering coefficient	0.00 -10.00	0.00	○	
F771	Foreward Jog frequency	0.0HZ -F007	0.00	○	
F772	Password Setting	0~9999	0	○	
F773	Password duration	0~9999 min	5	○	

6.1.9 F8 Group

NO.	Parameter Name	Setting Range	Default	WRT	User setting
F800	Modbus baud rate	0: 9600 bps 1: 19200 bps 2: 4800 bps 3: 2400 bps 4: 1200 bps	1	○	
F801	Modbus parity	0: None 1: Even 2: Odd	1	○	
F802	Modbus address	0-247	1	○	
F803	Modbus timeout	0: Timeout check disabled. 1-100s: Communication timeout	0	○	
F804	Modbus transfer waiting time	0~2.00 s	0.00	○	
F805	Modbus behaviour on communication fault	0: VFD stop, communication command, frequency mode open (by F002, F003) 1: None (continued operation) 2: Deceleration stop			
F806	Number of motor poles for communication	2~16	2	○	
F813	Write data 1	0: No select 1: Communication commend control (FA05) 2: Reserved 3: Communication commend control(FA08) 4-6: reserved	0	○	
F814	Write data 2		0	○	

F815	Read data 1	0: No select 1: state data (Fd03) 2: Output frequency (Fd12) 3: output current (FE08) 4: Output voltage (FE10) 5: Fault data (FC39) 6: PID feedback (FA36) 7: input terminal data (Fd01) 8: output terminal data (Fd02) 9: AI1 input (FE30) 10: AI2 input (FE31) 11: Motor speed (FE50) 12: Absolute value of output current (E002),unit 0.01A 13: Absolute value of output voltage (E006), unit V 14: Absolute value of output voltage of DC bus (E009), unit V 15: PID Given value (FA35) 16: output torque (FE20), 0.01% of unit motor rated torque 17: input power (FE28), unit 0.01kW 18: output power (FE29), unit 0.01kW 19:Input power accumulation/ input power (FE44) ,see F617 20: output power accumulation / output power (FE45), Unit see F617 21: running time accumulation (FE17) unit h (hour)	1	○	
F816	Read data 2		2	○	
F817	Read data 3		12	○	
F818	Read data 4		18	○	
F819	Read data 5		8	○	
F821 ~ F829	Factory reserved	-	-		
F830	PID keyboard setting	0~100%	0.0	○	

6.1.10 F9 Group

NO.	Parameter Name	Setting Range	Default	WRT	User setting
F900	PID control setting	0: Disabled, 1: Enabled (Feedback: AI1) 2: Enabled (Feedback: AI2)	0	○	
F901	PID Proportional gain (P control)	0.01~100.0	varies by model	○	
F902	PID Integral gain (I control)	0.01~100.0	varies by model	○	

NO.	Parameter Name	Setting Range	Default	WRT	User setting
F903	PID Differential gain(D control)	0.00~2.55	0.00	○	
F904	PID control waiting time	0~2400 s	0	○	
F905	PID regulator deviation input signal negation/Direction	0: disable/Direct action 1: enable/Reaction	0	○	
F906	Sleep mode awakening hysteresis	0.0 Hz ~F007	0.2	○	
F907	When F917≠0.00,Sleeping mode awakening deviation(absolute value)	0.00~F917 MPa	0.00	○	
	When F917=0.00, based on PI error value sleeping mode awakening PI threshold value	0.0~F007Hz	0.0	○	
F908	When F917≠0.00,Sleeping mode awakening threshold value (absolute	0.0 Hz ~F917MPa	0.00	○	
	When F917=0.00, based on PI error value sleeping mode awakening PI	0.0~F007Hz	0.0	○	
F909	sleeping mode action	0: Motor slowdown to a stop. 1: Motor keep running at lower limit	0	●	
F910	wake up/ delay control time	0~600.0s	0.0	●	
F911	When F917≠0.00, Sleeping mode awakening threshold value (Percent)	0~200.0%	0.0	○	
	When F917=0.00, Sleeping mode awakening pressure percent	0~100%	0.0	○	
F912	When F917≠0.00, Sleeping mode awakening threshold value (Percent)	0~200.0%	0.0	○	
	When F917=0.00, Sleeping mode awakening pressure percent	0~100%	0.0	○	
F913	Upper limit of PID setting	0~100%	100	●	
F914	Lower limit of PID setting	0~F913	0	●	
F915	Delay control of sleep mode	Disable: 0.0 Enable: 0.1-600.0 s	0.1	○	
F916	When F917≠0.00, PID given control deviation	0~100%	0.0	○	
	When F917=0.00,PID keyboard given	0~100%	0.0	○	
F917	Sensor range (When F917≠0.00,PID setting adopt absolute value.PID's keyboard adjustment is F918. F917=0.00,PID setting adopt percent, PID's keyboard adjustment is F916.	0.00~99.99	1.00	○	

NO.	Parameter Name	Setting Range	Default	WRT	User setting
F918	PID adjustment	0.00~F917	0.00	○	
F919	Sleeping frequency	0.0Hz~F008	0.0	○	
F920	Sleeping threshold tolerance	0.0~25.0%	0.0	○	

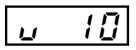
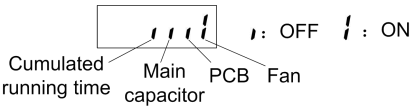
Note 1: in the volume of '○' : means writable at stop or running status, '●' : means unwritable at stop or running status;

Note 2: we can obtained modbus parameter address by replacing 'F' to '0'. E.g. F908's address is 0x0908

Note 3: Common user parameter power-off does not save the communication address. F is reserved, that is, the communication address is the same as the parameter number. For example, the communication address of F908 is 0xF908.

6.1.11 U0 Group

NO.	Parameter Name	Description
U000	CPU1 Version	E.g: U100, G type: U=G,P type: U=P.
U001	Operation frequency	Value is displayed in Hz/free unit. See F604.
U002	Direction of rotation	0 Forward run, 1 Reverse run.
U003	Frequency command value	Value is displayed in Hz/free unit. See f604.
U004	Load current	The VFD output current (%/A) is displayed.
U005	Input voltage (AC RMS)	The VFD input voltage (%/V) is displayed.
U006	Output voltage (AC RMS)	The VFD output voltage command (%/V) is displayed.
U007	Input terminal status indicated	15kW and below: AI1-AI2 LI6 ··· LI2 LI1 0: OFF 1: ON 18.5kW and above: AI1-AI2 LI6 ··· LI2 LI1 0: OFF 1: ON
U008	Output terminal status indicated	0: OFF 1: ON T2 LO-CLO T1
U009	Cumulative operation time	(0.01=1 hour, 1.00=100 hours)
U010	Output speed	Displays the motor speed (min-1) by calculating with output frequency and pole numbers.
U011	Rated current	The rated current of the VFD (A) is displayed.
U012	Torque current	The torque current (%/A) is displayed.
U013	Load current	The VFD output current (load current) (%/A) is displayed.
U014	Torque	The torque (%) is displayed.
U015	Input power	The VFD input power (kW) is displayed.
U016	Output power	The VFD output power (kW) is displayed.

NO.	Parameter Name	Description
U017	PID feedback	The PID feedback value is displayed. (Hz/free unit)
U018	Frequency command value (PID-computed)	The PID-computed frequency command value is displayed. (Hz/free unit)
U019	Integral input power	The integrated amount of power (kWh) supplied to the VFD is displayed.
U020	Integral output power	The integrated amount of power (kWh) supplied from the VFD is displayed.
U021	Communication counter	Displays the counter numbers of communication through the network.
U022	Normal state communication counter	Displays the counter numbers of communication only at normal state in the all communication through network.
U023	HMI version	Example: 
U024	Parts replacement alarm information	 ON: The maintenance time is up. It is recommended to replace the components
U025	Factory Reserve	
U026	When F917=0.00; given pressure percent	When under PID control, given pressure percent monitor
	When F917≠0.00, given pressure absolute value	When under PID control, given pressure absolute value monitor (1.00=1.00Mpa=10kg/cm2)
U027	When F917=0.00, feedback pressure percent	When under PID control, feedback pressure percent monitor
	When F917≠ 0.00,feedback pressure absolute value	When under PID control, feedback pressure absolute value monitor (1.00=1.00Mpa=10kg/cm2)
U1--	Past trip 1	Enter into the display of detailed information on past trip 1
U2--	Past trip 2	Enter into the display of detailed information on past trip 2
U3--	Past trip 3	Enter into the display of detailed information on past trip 3
U4--	Past trip 4	Enter into the display of detailed information on past trip 4

7 Fault Diagnosis and Measures

7.1 Fault Code, course and measures

When fault (failure) occurs, the VFD takes the following actions: The keyboard panel blinks to display the fault code, the VFD stops output and the motor freely stops.

Table 7.1 Fault display and measures

Code of fault	Type of fault	Possible cause	Measures (troubleshooting)
E-01	Overcurrent protection	● Acceleration time is too short. ● V/f parameter is wrongly set. ● When the VFD starts, the load is still in rotation. ● VFD is supplying power to low-impedance motor. ● IntePhase short circuit or earthing failure. ● Abrupt fluctuation of the load	● Increase acceleration parameter (F010 or F618) and the deceleration time (F011 or F519) ● Select the correct setpoint for V/f. ● Adopt forward/reverse speed tracking and restart function (STR function). ● Tune the switching frequency. ● Check wiring to see if there is Intephase short circuit or earthing failure. ● Reduce fluctuation of the load
E-02	IntePhase short circuit	● InterPhase output is short circuit. ● Motor impedance is too low.	● Confirm the wiring and insulation status.
E-03	Starting overcurrent	● Grounding fault ● IGBT unit damage	● Confirm whether the wiring and device are earthing ● Connect with factory
E-04	Grounding fault	● Grounding fault ● IGBT unit damage	● Confirm whether the wiring and device are earthing ● Connect with factory
E-06	Underload fault	● VFD's output current is lower than low current detection threshold.	● Check whether F407~F410 are correctly set.
E-07	Overtorque fault	● The motor estimates that the torque has reached the level set by F412.	● Adjust the settings of F411~F414. ● Confirm the load status.
E-11	Undervoltag e fault	● Abnormal fluctuation of input voltage; ● Power network capacity higher than 200 kVA; ● There is switchable capacitor to improve power factor on the power network; ● SCRs is connected to the power network. ● VFD starts the load already in rotation. ● There is possible phase failure. ● The deceleration time is too short.	● Install input reactor or use braking resistance. ● Adopt forward/reverse speed tracking and restart function (STR function) (F500 = 1) ● Set F418 = 2. ● Determine the cause of output phase failure (such as poor connection, open circuit of output or open circuit of motor winding) and correct it. ● Increase the deceleration time (F011 or F519) ● Adopt overvoltage protect

Code of fault	Type of fault	Possible cause	Measures (troubleshooting)
E-12	DC bus undervoltag fault	• Input voltage is too low.	• Check input voltage. • Set F417 to select alarm or tripping. • Adopt forward/reverse speed tracking and restart function (STR function) (F500 = 1) • Set F418 = 2.
E-21	VFD overload	• Acceleration time is too short. • DC braking current level is too high. • V/f parameter is wrongly set. • When the VFD starts, the load is still in rotation. • The load is too large.	• Increase acceleration parameter F010 or F518). • Decrease the setting of F507 or F508. • Correctly set V/f parameter. • Set parameter F418 = 2. • Adopt one VFD with higher rated power.
E-22	Motor overload	• V/f parameter is wrongly set. • The motor is blocked. • The motor continues to run at low speed. • The load applied to the motor is too large.	• Correctly set V/f parameter. • Check the load.
E-23	Braking resistor overload	• Improper specification selection for braking resistor	• Select competent braking resistor. Prohibit braking resistor overload protection F527=2
E-24	VFD overheat fault	• VFD ' s cooling fan does not work. • Environment temperature is too high. • Certain ventilation opening is blocked. • There is heat source near the VFD .	• Reset the VFD ' s fault after cooling and restart the VFD • Expand the free space around the VFD ; Remove all heat sources near the VFD to lower the environment temperature.
E-25	Motor PTC overheating fault	• External PTC embedded in the motor winding indicates existence of motor overheating.	• Correct motor overheating. • Check whether PTC is working properly. • Check logic input functions 27 and 28.
E-31	EEPROM fault	• Data writing and read errors occur. • TheVFD has power failure during parameter reset.	• Power on the VFD to eliminate the fault. If the fault can not be eliminated, contact us or our distributor for maintenance or repair of the VFD .
E-32	Control board fault	• Control board cannot work	• Connect manufacturer to maintain
E-33	Communica tion fault	• Network communication error.	• Check network control devices and cables. • Check the setting of communication overtime parameter F803. • Check remote keyboard panel cable.

Code of fault	Type of fault	Possible cause	Measures (troubleshooting)
E-34	Current sensor fault	• The current sensor is in abnormal status.	• Replace the VFD .
E-35	Network fault	• Network error	• Check network control devices and cables.
E-36	VFD type error	• VFD hardware fault	• F120=7 If error is still, connect manufacturer to maintain
E-38	AI1 signal Loss	• AI1 analog signal level is lower than the level set by the parameter F422.	• Check signal on AI1 to eliminate the cause of signal loss. • Confirm whether F422 is correctly set.
E-39	VFD inside communication error	• Communication error between keyboard and control board CPU	• Connect manufacturer to maintain
E-42	Output phase failure	• The output side of the main circuit is phase failure.	• Determine the cause of input phase failure (such as poor connection, open circuit of output or open circuit of motor winding) and correct it. • Set F406 = 0.
E-43	Emergency stop fault	• Use the keyboard panel to perform stop operation when the motor works under remote mode.	• Perform fault reset.
E-45	Torque boost is too large	• Setting of torque boost parameter F203 is too high. • Motor impedance is too low.	• Repeat self-tuning of the VFD and downward tune parameter F203.
E-46	Self-setting error	• Confirm whether motor rated parameter settings are correct. • The motor capacity is far smaller than that of the VFD . • Cable of the motor is too thin. • Motor is still in rotation when the self-setting starts.	• Correctly set motor rated parameters. • Use VFD with larger capacity. • Apply thicker cable of the motor. • Confirm the motor has stopped before the self-setting begins.

7.2 Description of alarm and indication code

Table 7.2 Alarm display and measures

Code	Description	Cause	Measures
A-00	Fault reset is acceptable.	Under fault code display state, press STOP key and A-00 is displayed.	Press the STOP key again and the fault is eliminated.
A-01	Undervoltage indication	Insufficient input voltage	Check the single-phase input power supply. If the power supply is normal, the VFD has to be repaired.

Code	Description	Cause	Measures
0.0 (flash)	"Running ready" is invalid	Under remote control mode the corresponding terminal to the logic input function 1 is not closed.	Configure one logic input function as 1, and close this terminal.
A-05	Abnormal setting of frequency point	Frequency points at point 1 and point 2 are set too closely.	Do not set F325 and F327 too closely. Do not set F329 and F331 too closely.
A-06	Free stop action during transient power failure.	F418 is set to 2 and transient power failure occurs.	Input running signal to the VFD again or reset the VFD.
A-07	In DC braking	DC braking function is activated.	If the code disappears in several seconds, the VFD comes back to normal.
A-08	In running retrial	The VFD is in the process of restart. Forward/reverse speed tracking and restart function (STR function) is activated.	The alarm code is momentarily displayed then disappears, and the VFD restarts.
A-10	In low speed sleep	See parameter F501.	Disabled This function or raise the frequency instruction to F009+F906.
A-11	Key fault on the keyboard	Certain key on the keyboard panel is continuously pressed more than 20 s or the panel is damaged.	If all keys are released but the alarm does not disappear, the VFD has to be repaired.
A-12	In the process of parameter initialization	See parameter F120.	If the alarm code is momentarily displayed and then disappears, the VFD comes back to normal.
A-13	Loss of analog signal	Analog input terminal detection level is lower than the setting level of F422.	Check analog input terminal
E1	Exceeding displayed digit number by 1 digit	Displayed digit number exceeds 4 digits.	Try to reduce the set-point of F604
EUn1	In the process of self-setting	VFD is performing self-setting.	If the alarm code is momentarily displayed and then disappears, the VFD comes back to normal.

Table 7.3 Display of early warning code

Code	Type	Description
---C	Over current early warning	VFD is in current amplitude limiting state. See parameters F107 and F111.
--U-	Over voltage early warning	VFD approaches over voltage fault. See parameters F415 and F416.
-L--	Overload early warning	This code is displayed when the motor or VFD overload counter exceeds 50%.

H - - -	Overheat early warning	VFD approaches overheat fault.

Note: Early warning types can occur simultaneously. E.g, when overheat early warning and over current early warning happen in the same time, the corresponding code is H - - C.

7.3 Restart of the VFD after fault occurs

After failure occurs in the VFD , it can be restarted only when the cause of the failure has been eliminated. Please follow the undermentioned operations to realize fault reset of the VFD .

(1) After the defect is eliminated, press STOP on the keyboard, display show A - 00, press STOP again, VFD fault reset,then can supply power to the motor.

(2) When the VFD is under remote control mode and F002 = 0, set the input function configuration of any logic input terminal to 10. Then the VFD can use this terminal to perform fault reset.

(3) When the VFD is under remote control mode and F002 = 2, fault reset is realized through remote communication devices. See Appendix A: Serial communication.

(4) Switch off the VFD and power it on again

Note: When the fault is motor overload or VFD overload (E - 21 or E - 22), VFD reset function can not be performed if computed cooling time is not up. The computed cooling time is specified as: E - 21, 30 seconds after the fault occurs; E - 22, 120 seconds after the the fault occurs。

Appendix A：Serial Communication

Serial communication is the information exchange channel of the VFD with upper computer. Through serial communication, users can use personal computer or industrial control equipment (such as PLC etc) as host to set VFD (slave)' s running frequency or command, modify or read data, read working state and fault information etc and realize remote or centralized control of the VFD .

D32 series VFD adopt RS-485 bus and Modbus protocol for serial communication.

A1．RS485 Bus

The VFD' s serial communication follows two-wiring RS-485 standard. The array sequence of the corresponding pins of RJ45 interface is shown as below:

Figure A.1 RJ45 front view

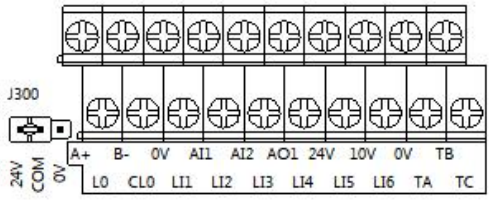


Table A.1 RJ45 wiring terminal PIN

Pin	Signal description
485+	RS-485+
485-	RS-485-

RS-485 two-wire wiring method is half-duplex serial communication. At the same moment the host and slave can not simultaneously transmit or receive data. Only one transmits data and another receives them.

RS-485 two-wire wiring method supports bus-type topological structure. At most 32 nodes can be connected to the same bus. Normally master-slave communication method is adopted in the RS-485 communication network, namely, one master commands as many as 31 slaves.

Under the circumstance of multi-computer communication or long-distance communication, it is suggested to connect the signal ground of the master station with the common port of the VFD to raise the ant- interference ability of communication.

A2．Modbus protocol

Modbus is a master-slave communication protocol. The master governs the whole communication process. Only when the master sends command to the slave, the slave executes the actions or/and send feedback information to the master. Otherwise the slave performs no operation and the slave can not communicate with each other directly.

There are two kinds of dialogues between the master and slaves:

（1）Point-to-point: Master sends command individually to a certain slave which executes action or/and sends feedback information.

When the master command is correct, the slave executes corresponding actions and transmits feedback of result information to the master.

When the master command is false, the slave transmits feedback of error information to the master but executes no actions.

（2）Broadcast mode: The master sends command to all slaves which execute action but send no feedback information.

Modbus protocol has two kinds of transmission patterns: Modbus RTU and Modbus ASCII. D32 series VFD supports Modbus RTU.

A2.1 Description of Modbus-RTU message format

When the Modbus-RTU mode is used for communication, the communication information (message) is represented directly with hexadecimal code (1-9, A-F). Two hexadecimal codes form one byte. The message format is shown as below:

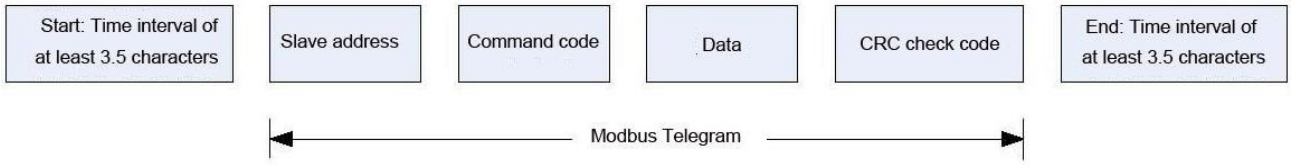


Figure A.2 Modbus Message Format

As shown in Figure A.2, during the communication process, the master and slave determine the start and end of Modbus message according to time interval of at least 3.5 characters. The message includes the complete data information to be transmitted: in the sequence of slave address, command code, data and CRC code. Its length varies with the change of the command code.

The message of Modbus-RTU is classified into three types and two formats:

1.Request (Interrogation) message: Command request message transmitted by master to slave;

2.Normal response message: The slave's feedback message when the master's command is correct.

3.Error response message: The slave's feedback message when the master's command is false / invalid.

Please find Table A.2 to check the details of Modbus-RTU message.

Table A.2 Instruction of Modbus-RTU message

Number	Name	Function
1	Slave address	● Configured from 0 to 247 ● When master checking, if slave address set as 0, All slaves execute command but provide no feedback information; If slave address is set to 1~247, the dialog is point-to-point mode. All address-matching slaves execute command and provide feedback information. ● Under the point-to-point mode, when the matching slave responses, it sends back the slave address of itself.
2	Command code	● This VFD supports part of command codes of Modbus protocol. ● All slaves execute command code and the matching slave responses code include: (1) 03H:Read one word (2 bytes) (2) 06H:Write one word (2 bytes) ● During error response, the feedback command code of the slave = the request command code of the master + 80H.
3	Data	● This part is the main content of communication and the core of data exchange. Its content and length vary with the variation of the command codes. See the following concrete descriptions of every command code.

Number	Name	Function
4	CRC code	● Cyclical redundancy check (CRC) code is used for error detection of received data done by the receiving equipment and for judging whether the received data are correct. Please refer to "A2.3 Cyclical redundancy check (CRC)" for generation of CRC code. Note: CRC code first sends low bytes then high bytes. Except this, all messages of Modbus-RTU adopt the transmission sequence of "high bytes first - then low bytes".

A2.2 Detailed message description of different commands

A2.2.1 Read N words (2*N bytes) -- command code 03H

1. Master request message

Table A.3 Command code 03H host query message format

Slave address	Command code	Communication address		Read word number		CRC code	
1 byte	1 byte	2 bytes		2 bytes		2 bytes	
		High byte	Low byte	High byte	Low byte	low byte	high byte
	03H						

1) Slave address and CRC code: See "Table A.2".

2) Command code: 03H, request to read N words (2*N bytes) of the slave machine. Notice that N is at most 5.

3) Communication address: The address of read data. This is not the real physical address for data storage, but a number corresponding to the data. Every control, state or monitoring parameter of D32 series VFD corresponds to a communication address. See "A2.5 Communication parameter".

4) Read word number: The length of the read data with the word (2 bytes) as the count unit. When current request asks for reading one word, it is set to 0001H.

2. Message of slave normal response

Table A.4 Command code 03H of slave machine normal reply message

Slave address	Command code	Read bytes number	Read bytes number 2		...	Read bytes number N		CRC code	
1 byte	1 byte	1 byte	2 bytes		...	2 bytes		2 bytes	
			High byte	Low byte	...	High byte	Low byte	Low byte	High byte
	03H				...				

1) Slave address and CRC code: See "A2".

2) Command code: 03H. The same as the master request command code.

3) Read word number: The length of the read data with byte as the count unit. When current master requests to read one word, set read byte number transmitted from the slave to 02H.

Note: The count unit of the length of the read data is different from that of request message.

4) Read data: Data corresponding to the communication address in the request message. Note: Read data firstly sends high byte then low byte in an opposite direction to CRC code。

3．Slave error response message

Table A.5 Slave error response message of Command code 03H

Slave address	Command code	Error code	CRC code	
1 byte	1 byte	1 byte	2 bytes	
			Low byte	High byte
	83H			

1) Slave address and CRC code: See "A2".

2) Command code: 83H. It is = 03H + 80H.

3) Error code. For detail see "A2.4 Error code".

4) Example: Read upper limit frequency.

Master request message: 01 03 00 08 00 01 05 C8

Normal response message: 01 03 02 13 88 B5 12 (Suppose that current upper limit frequency is 50 Hz)

Error response message: 01 83 03 01 31 (Suppose that read word number is altered from 0001 to FFFF)

A2.2.2 Write one word (2 bytes) — Command code 06H

1.Master request message

Table A.6 Format of master request message

Slave address	Command code	Communication address		Write data		CRC code	
1 byte	1 byte	2 bytes		2 bytes		2 bytes	
		High byte	Low byte	High byte	Low byte	Low byte	High byte
	06H						

1) Slave address and CRC code: See "Table A.2".

2) Command code: 06H. Request to write 1 word (2 bytes) of the slave.

3) Communication address: The address of read data. This is not the real physical address for data storage, but a number corresponding to the data. Every control, state or monitoring parameter of VFD corresponds to a communication address. See "A2.5 Communication parameter".

4) Write data: Request data written by the slave.

A2.2.3 Write more word (2*N bytes) — Command code 10H

1．Master request message

Table A.7 Command 10H: Format of master request message

Slave Address	Commend code	Communication add		Write data		Write bite	Write data1		...	Write data N		CRC code	
1byte	1byte	2byte		2byte		1byte	2byte		...	2byte			
		High byte	Low byte	High byte	Low byte		High byte	Low byte	...	High byte	Low byte	Low byte	High byte
	10H								...				

1) Slave address and CRC code: See "Table A.2".

2) Command code: 10H. Request to write N word (2*N bytes) of the slave.,note N≥5

3) Communication address: The address of read data. This is not the real physical address for data storage, but a number corresponding to the data. Every control, state or monitoring parameter of VFD corresponds to a communication address. See "A2.5 Communication parameter".

4) Write data: Request data written by the slave.。

5) Write byte number:Request data written by the slave.=write numer*2

6) write data1~write data N:Request data written by the slave

2. Slave normal response message

Table A.8 Commend 10H: Slave normal response message

Slave address	Command code	Communication address		Write data		CRC code	
1 byte	1 byte	2 bytes		2 bytes		2 bytes	
		High byte	Low byte	High byte	Low byte	Low byte	High byte
	10H						

1) Slave address and CRC code: See "Table A.2".

2) Command code: 10H. The same as master command

3) Communication address: the same as master communication address. .

4) Write data: the same as master

3. Slave error response message

Table A.9 Commend10H Format of slave error response message

Slave address	Command code	Error code	CRC code	
1 byte	1 byte	1 byte	2 bytes	
			Low byte	High byte
	90H			

1)Slave address and CRC code: See "Table A.2".

2)Command code: 90H. It is = 10H + 80H.

3)Error code. For detail see "A2.4 Error code".

4. Example: To write the beginning five data of F300

Master request message: 01 10 03 00 00 05 0A 00 01 00 03 00 04 00 01 00 0B 9D AE

(Suppose F300=1; F301=3; F302=4; F303=1; F304=11)

Normal response message: 01 10 03 00 00 05 00 4E

Error response message: 01 90 03 0C 01 (Suppose current writing operation cannot be performed)

Table A.10 error code explanation

Error code	Description
01	Command code error
	Command code other than 03H 06 and 10H is set in the request message
02	Communication address error
	Visited communication address does not exist. The register corresponding to the communication address does not permit performance of the action demanded by the current command code.
03	Data setting error
	Written data exceeds the allowable range of the register. Improper setting of certain parameter in the request message.
04	Unable to continue implementing the master's request.
	Error occurs during the process of writing data. Currently the register corresponding to the communication address does not permit performance of the action demanded by the command code.

A2.3 Cyclic redundancy check (CRC)

Modbus-RTU's communication message uses cyclic redundancy check (CRC) for transmission error check.

During each communication, the sender computes CRC code of transmitted data according to CRC rules, then sends the data by attaching the CRC code to them; After receiving the data, the receiver re-computes the CRC code according to the same rules. The computed content does not include the received CRC code. The reciever compares the re-calculated CRC code with the received code. If they are not the same, the transmitted data are determined to be false.

This VFD adopts CRC16 rule for message check of serial communication. Every CRC code consists of 2 bytes, including 16-bit binary value. The calculation is as follows:

1) Initialize CRC register (16 bit) to 0xFFFF;

2) Perform XOR to the first byte (slave address) and the low 8 bits of the register, and then put the computed result back to CRC register;

3) Make a right shift by 1 bit to the content of CRC register and fill in the highest bit with 0;

4) Check the shift-out bit after right shift;

If the shift-out bit is 0, repeat 3), namely, make another right shift;

If the shift-out bit is 1, make XOR to CRC register and 0xA001, and put the computed result back to the CRC register;

5) Repeat steps 3) and 4) until 8 right shifts are made. Implement the same procedure to all the 8-bit data; Repeat steps 2) ~ 5) to implement the processing of the next byte in the message;

6) After all the bytes in the message are computed according to the above procedures, the content in the CRC register is the CRC code.

7) After the CRC code is acquired through the above-mentioned method, attach it to the transmitted data and send them. It is necessary to exchange the high and low bytes of the CRC code, namely, to send the low byte firstly and then the high byte.

There are two methods to compute CRC code with software: table look-up and on-line computation. Computation speed of the table look-up is fast but its table data occupy considerable space; On-line computation method requires no table data. It saves space but needs much time. Suitable computation method is selected according to concrete circumstance during application.

A2.4 Error code

When the slave is not able to implement master's request, the slave gives feedback of corresponding error code to indicate cause of the current error. Refer to the following table for the concrete meaning of error code.

Table A. 11Error code explanation

Error code	Description
01	Command code error
	● Command code other than 03H 06 and 10H is set in the request message
02	Communication address error
	● Visited communication address does not exist. ● The register corresponding to the communication address does not permit performance of the action demanded by the current command code.
03	Data setting error
	● Written data exceeds the allowable range of the register. ● Improper setting of certain parameter in the request message.
04	Unable to continue implementing the master's request.
	● Error occurs during the process of writing data. ● Currently the register corresponding to the communication address does not permit performance of the action demanded by the command code.

A2.5 Communication parameter

1. Control parameter

Control parameters are edited through serial communication in order to realize VFD's function setting, running frequency setting, start/stop control and logic/analog output setting.

1) Basic parameters

Basic parameters consist of 10 groups: F0 – F9. They are used to control the function setting of the VFD . Their detailed description, communication addresses and value ranges are shown in "6.Detailed description of parameters".

Note: The communication address of the basic parameter corresponds to its display code. However, it is required to change F at the highest bit to 0;

Example: The display code of parameter " Running command selection is F001, so the corresponding communication address is 0001;

Another example: The display code of parameter "Default keyboard panel is play value" is F702, so the corresponding communication address is 0X702.

2) Communication control word (Communication address: fa05)

Table A.12 Detailed description of communication control word

Bit	Description of function	0	1	Default value
0	JOG	NO-JOG	Jog frequency	0
1	Forward/reverse rotation	Forward rotation	Reverse rotation	0
2	Running/stop	Stop	Running	0
3	Free stop	No action	Free stop	0
4	Emergency stop	No action	Emergency stop	0
5	Fault reset	No action	Reset	0
6	Given frequency by communication	Disable	Enable	0
7	Given code by communication	Disable	Enable	0
8	Multi-speed 1	OFF	ON	0
9	Multi-speed 2	OFF	ON	0
10	Multi-speed 3	OFF	ON	0
11	Multi-speed 4	OFF	ON	0
12	Motor parameter switch	1nd Motor Parameter	2nd Motor Parameter	0
13	PID control Disabling	Enabling PID control	Disabling PID control	0
14	Acceleration/ deceleration curve switch	Acceleration/ deceleration curve 1	Acceleration/ deceleration curve 2	0
15	DC braking	No DC braking	DC braking start	0

3) Communication running frequency setting(communication address FA08)

Table A.13 communication running frequency setting

Bit	Description of function	Default
0-15	Running frequency data of communication setting. Hexadecimal setting: 50Hz (50Hz)x100 = 5000→1388Hz. It is if setting: 50Hz, write 1388H in the FA08 address	0.0

4) Communication analog output setting (Communication address: FA16)

Table A.14 Communication analog output setting

Bit	Description of function	Lower limit	Upper limit	Default
0-15	Analog output data of communication setting (in correspondence with analog output function 15)	0 (0000H)	1023 (03FFH)	0

2．Monitoring parameter

Monitoring parameters can be read through serial communication to see the running state of the converter. The following table is the description of monitoring parameters.

Table A.15 Monitoring parameters 1

No.	Communication address	Description of function	Unit	Note
1	FD03	Real-time running state	-	See table A.14 for detail
2	FD12	Real-time running frequency	0.01 Hz	
3	FE18	Actual output frequency	0.01 Hz	
4	FE09	DC bus input voltage	0.01 %	
5	FE10	Output voltage	0.01 %	
6	FE08	Output current	0.01 %	
7	FE20	Output torque	0.01 %	
8	FE29	Output power	0.01 kW	
9	FE50	Motor speed (estimated)	1r pm	
10	FE11	Logic input	-	See Table A.15 for details
11	FE12	Logic output	-	See Table A.16 for details
12	FE30	Logic input AI1 (10-bit accuracy)	-	Range (0-1023)
13	FE31	Logic input AI2 (10-bit accuracy)	-	Range (0-1023)
14	FC39	Fault monitoring	-	See A.17 for details
15	FA35	Given press percent		See 6.1.11 for details
16	FA36	Given press percent		See 6.1.11 for details
17	FE41	VFD rated current	0.1A	

Table A.16 Monitoring parameter specification 2

No.	Communication address	Description of function	Unit	Note
1	E000	Real-time running state	-	See table A.14 for details
2	E001	Real-time running frequency	0.01Hz	
3	E002	output current	According F534 seeting	Suggest F534=1
4	E003	Fault monitoring	-	See Table A.17 for details
5	E004	PID given		
6	E005	PID feedback		
7	E006	output voltage	V	
8	E007	Motor speed (estimated)	1rpm	
9	E008	Output torque	0.01%	
10	E009	DC bus input voltage	V	

No.	Communication address	Description of function	Unit	Note
11	E010	Input power	0.01kW	
12	E011	Output power	0.01kW	
13	E012	Input power accumulates	W.h	
14	E013	Output power accumulation	Unit accoring F6.17 dada	
15	E014	Running time accumulation	Hour	
16	E015	Logic input		See Table A.15 for details
17	E016	Logic output		See Table A.16 for details
18	E017	Analog input AI1(10-bit precision)		Range(0~1023)
19	E018	Analog input AI2(10-bit precision)		Range(0~1023)

Table A.17 Logic input state monitoring

Communication address	Description of function		
FE11/FD01/E015	Logic input state monitoring		
Bit	Description	0	1
0	Terminal LI1	OFF	ON
1	Terminal LI2	OFF	ON
2	Terminal LI3	OFF	ON
3	Terminal LI4	OFF	ON
4	Terminal LI5	OFF	ON
5	Terminal LI6	OFF	ON
6	Terminal LI7 or as AI1 when logic input	OFF	ON
7	Terminal LI8 or as AI2 when logic input	OFF	ON
8-15	Reserved	-	-

Table A.18 Logic Output state monitoring

Communication address	Description of function		
FE12/FD02/E016	Logic output state monitoring		
Bit	Description	0	1
0	Terminal LO1-CLO	OFF	ON
2	Relay T1	OFF	ON
3-15	Reserve	-	-

Table A.19 Real-time running state monitoring

Communication address	Description of function
FD03/E000	Real-time running state monitoring

Bit	Description	0	1
0	Reserved	-	-
1	Fault	No fault	Tripping
2-8	Reserved	-	-
9	Forward/reverse rotation	Forward rotation	Reverse rotation
10	Running/stop	Stop	Running
11-15	Reserved	-	-

Table A.20 Fault monitoring

Communication address	Description of function	
FC39/E003	Fault monitoring	
Value	Corresponding fault	Panel display
0000H	No fault	nerr
0001H	Acceleration overcurrent	E-01
0002H	Deceleration overcurrent	E-01
0003H	Constant speed overcurrent	E-01
0009H	Output phase failure	E-42
000AH	Acceleration overvoltage	E-11
000BH	Deceleration overvoltage	E-11
000CH	Constant speed overvoltage	E-11
000DH	VFD overload	E-21
000EH	Motor overload	E-22
0010H	Overheat tripping	E-24
0011H	EmeGency tripping	E-43
0012H	EEPROM error 1 (write error)	E-31
0013H	EEPROM error 2 (Read error)	E-31
0014H	EEPROM error 3 (Internal error)	E-31
0018H	External communication error	E-33
001AH	Current detection fault	E-34
001EH	Undervoltage	E-12

Appendix B: Brake Unit/Resistance Selection

When fast or precise motor deceleration is required in transmission applications, brake units and brake resistors are used to release the energy back to the DC bus in order to obtain the desired braking torque and avoid excessive pump voltage during deceleration that will affect the safe operation of the equipment. Please choose the appropriate brake unit and brake resistance according to the VFD capacity and specific working conditions. Under general working conditions, the brake resistance can be selected according to the configuration in Table B.1

Table B.1 Brake unit resistance selection

VFD MODEL	Brake unit		Brake resistor		
	Description	QTY	VALUE	POWER	QTY
D32-T3-0R7G/1R5P	BUILD-IN	1	750 Ω	110W	1
D32-T3-1R5G/2R2P		1	400 Ω	260W	1
D32-T3-2R2G/3P		1	250 Ω	320W	1
D32-T3-3G/4P		1	250 Ω	320W	1
D32-T3-4G/5R5P		1	150 Ω	400W	1
D32-T3-5R5G/7R5P		1	100 Ω	520W	1
D32-T3-7R5G/11P		1	75 Ω	1040W	1
D32-T3-11G/15P		1	50 Ω	1040W	1
D32-T3-15G/18R5P		1	40 Ω	1500W	1
D32-T3-18G/22P		1	40 Ω	1500W	1
D32-T3-22G/30P		1	20 Ω	8kW	1
D32-T3-30G/37P		1	20 Ω	8kW	1
D32-T3-37G/45P		1	13.6 Ω	10kW	1
D32-T3-45G/55P	CBU4045	1	13.6 Ω	10kW	1
D32-T3-55G/75P	CBU4055	1	12 Ω	12kW	1
D32-T3-75G/90P	CBU4075	1	10 Ω	20kW	1
D32-T3-90G/110P	CBU4110	1	6.8 Ω	30kW	1
D32-T3-110G/132P		1	6.8 Ω	30kW	1
D32-T3-132G/160P	CBU4160	1	5 Ω	40kW	1
D32-T3-160G/185P		1	5 Ω	40kW	1
D32-T3-185G/200P	CBU4220	1	3.2 Ω	60kW	1
D32-T3-200G/220P		1	3.2 Ω	60kW	1
D32-T3-220G/250P		1	3.2 Ω	60kW	1
D32-T3-250G/280P	CBU4300	1	2.5 Ω	80kW	1
D32-T3-280G/315P		1	2.5 Ω	80kW	1
D32-T3-315G/355P		1	2.5 Ω	80kW	1
D32-T3-355G	CBU4220	2	3.2 Ω	60kW	2
D32-T3-400G		2	3.2 Ω	60kW	2
D32-T3-500G	CBU4300	2	2.5 Ω	80kW	2

D32-T3-560G	CBU4220	3	3.2 Ω	60KW	3
D32-T3-630G	CBU4220	3	3.2 Ω	60KW	3
D32-T3-710G	CBU4220	3	3.2 Ω	60KW	3
D32-T3-800G	CBU4220	3	3.2 Ω	60KW	3

Note:

1. Please select the resistance value and power of the brake resistor according to the data provided by our company.

2. The data in the above table are designed according to 100% braking torque and 10% braking utilization rate. If the user wants to use a larger braking torque, the resistance value of the braking resistance can be appropriately reduced and its power can be enlarged.

3. For applications requiring frequent braking, the power of braking resistor shall be appropriately increased according to specific working conditions