TETRANCA

T510 / T600 Series

HIGH-PERFORMANCE VECTOR FREQUENCY INVERTER

User Manual

Preface

First of all, thank you for purchasing our T510, T600 series inverter!

This manual describes how to properly use the T510, T600 series inverters. Be sure to read this manual carefully before use (installation, operation, maintenance, inspection, etc.). Also, please use the product only after understanding its safety precautions.

Caveat

- In order to illustrate detailed parts of the product, the illustrations in this manual are sometimes shown with the outer cover or safety cover removed.
- When using this product, be sure to install the case or cover as specified and follow the instructions.
- The illustrations in this manual are for illustrative purposes only and may differ from the product you ordered.
- The contents of this manual are subject to change without notice due to product upgrades or changes in specifications, as well as to improve the convenience and accuracy of the manual.
- If you need instruction manuals due to damage or loss, please contact our regional agents or directly contact our customer service center.
- If you still have some questions about the use of the product, please contact our customer service center.

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Chapter 1
Safety Information and Precautions for Use

To ensure the safety of your person and equipment, please read this chapter carefully before using the inverter.

1.1 Safety considerations

This symbol explains precautions that should be taken during operation and whether personal injury or equipment damage may occur if the instructions are not followed.

This symbol indicates that failure to comply with the instructions may result in death, serious injury, or severe property damage.

1. Never connect the AC power cord to the inverter's U, V, and W terminals to prevent damage.
2. Avoid short-circuiting the (-) and (+) terminals to prevent damage and power supply short-circuits.
3. Do not install the inverter on flammable materials to reduce fire risk.
4. Avoid installing the inverter in environments with explosive gases to prevent explosions.
5. Insulate exposed terminals after main circuit connections to minimize electric shock hazards.
6. Avoid operating the inverter with wet hands when powered to prevent electric shock.
7. Ensure the inverter's grounding terminal is properly grounded.
8. Do not open the cover or perform wiring while powered. Wait 10 minutes after power off for these operations.
9. Only qualified professionals should handle wiring. Remove any conductive objects to avoid shock or damage.
10. For inverters stored over 2 years, use a voltage regulator to gradually increase power to prevent shock and explosion.

1. Do not connect any control terminals other than TA, TB, TC, PA, PB, and PC to AC 220V to avoid property damage.
2. Do not install or operate a damaged inverter or one with missing components to prevent fire or injury.
3. Mount the inverter in a structurally sound location to support its weight and prevent falls that could cause injury or damage.

Chapter 2
T600 Series Product Information

2.1 Naming convention

T600 - 4 T 11G / 15P B

Code	Name
T600	Product Series Number
T510	Product Series Number

Code	2	4	5	7
Input Voltage	220V	380V	480V	690V

Code	Phase Number
S	Monophase
T	Three phase

Code	Number Built-in Braking Unit
Vacancy	No
B	yes

Code	1.5P	·····	1000P
Fan/Pump Special Adaptation Motor Power (kw)	1.5	·····	1000

Code	0.75P	·····	900P
Constant Torque General Adaptation Motor Power (kw)	0.75	·····	900

Figure 2-1 Naming Rules

2.2 Nameplate

MODEL : T600-4T11G/15PB
POWER : 11/15KW
INPUT : AC3PH 380V~480V
50/60HZ 26A/35A
OUTPUT: AC3PH 0~480V
0~3200HZ 25A/32A

Figure 2-2 Nameplate

2.3 T600 Series Inverter

Table 2-1 T510, T600 Inverter Models and Technical Data

Inverter Model	Rated capacity (KVA)	Rated Input Current (A)	Rated output current (A)	Adapted motor (KW)
Single-phase power supply 200～240V 50/60Hz				
***-2S0.4B	1	5.4	2.3	0.4
***-2S0.75B	1.5	8.2	4	0.75
***-2S1.5B	3	14	7	1.5
***-2S2.2B	4	23	9.6	2.2
Three-phase power supply 380～480V 50/60Hz				
***-4T0.75G/1.5PB	1.5/3	3.4/5	2.1/3.8	0.75/1.5
***-4T1.5G/2.2PB	3/4	5/5.8	3.8/5.1	1.5/2.2
***-4T2.2G/3.0PB	4/4.9	5.8/8.0	5.1/6.8	2.2/3.0
***-4T3.0G/4.0PB	4.9/5.9	8.0/10.5	6.8/9.0	3.0/4.0
***-4T4.0G/5.5PB	5.9/8.9	10.5/14.6	9/13	4.0/5.5
***-4T5.5G/7.5PB	8.9/11	14.6/20.5	13/17	5.5/7.5
***-4T7.5G/11PB	11/17	20.5/26	17/25	7.5/11
***-4T11G/15PB	17/21	26/35	25/32	11/15
***-4T15G/18.5PB	21/24	35/38.5	32/37	15/18.5
***-4T18.5G/22PB	24/30	38.5/46.5	37/45	18.5/22
***-4T22G/30PB	30/40	46.5/62	45/60	22/30
***-4T30G/37P(B)	40/57	62/76	60/75	30/37
***-4T37G/45P(B)	57/69	76/92	75/91	37/45
***-4T45G/55P(B)	69/85	92/113	91/112	45/55
***-4T55G/75P(B)	85/114	113/157	112/150	55/75
***-4T75G/90P(B)	114/134	157/180	150/176	75/90
***-4T90G/110P(B)	134/160	180/214	176/210	90/110
***-4T110G/132P(B)	160/192	214/256	210/253	110/132
***-4T132G/160P	192/231	256/307	253/304	132/160
***-4T160G/200P	231/250	307/385	304/377	160/200
***-4T200G/220P	250/280	385/430	377/426	200/220
***-4T220G/250P	280/355	430/468	426/465	220/250
***-4T250G/280P	355/396	468/525	465/520	250/280
***-4T280G/315P	396/445	525/590	520/585	280/315
***-4T315G/355P	445/500	590/665	585/650	315/355
***-4T355G/400P	500/565	665/785	650/725	355/400
***-4T400G/450P	565/630	785/883	725/800	400/450
***-4T450G/500P	630/695	883/988	800/940	500/560
***-4T500G/560P	700/784	988/1106	930/980	500/560

Inverter Model	Rated capacity (KVA)	Rated Input Current (A)	Rated output current (A)	Adapted motor (KW)
***-4T56G/630P	784/882	1106/1244	980/1180	560/630
***-4T630G/710P	882/994	1244/1401	1180/1320	630/710
***-4T710G/800P	994/1100	1401/1558	1320/1440	710/800
***-4T800G/900P	1100/1300	1558/1706	1440/1600	800/900
***-4T900G/1000P	1300/1500	1706/1854	1600/1760	900/1000
Three-phase power supply 660～690V 50/60Hz				
T600-7T11G/15P	17/21.7	17/22	15/18	11/15
T600-7T15G/18.5P	21.7/24	22/28	18/22	15/18.5
T600-7T18.5G/22P	24/32	28/38	22/28	18.5/22
T600-7T22G/30P	32/42	38/40	28/35	22/30
T600-7T30G/37P	42/55	40/47	35/45	30/37
T600-7T37G/45P	55/66	47/55	45/52	37/45
T600-7T45G/55P	66/84	55/70	52/65	45/55
T600-7T55G/75P	84/107	70/90	65/86	55/75
T600-7T75G/90P	107/125	90/105	86/100	75/90
T600-7T90G/110P	125/155	105/130	100/120	90/110
T600-7T110G/132P	155/192	130/170	120/150	110/132
T600-7T132G/160P	192/231	170/200	150/175	132/160
T600-7T160G/200P	231/250	200/235	175/215	160/200
T600-7T200G/220P	250/280	235/247	215/245	200/220
T600-7T220G/250P	280/355	247/265	245/260	220/250
T600-7T250G/280P	355/396	265/305	260/299	250/280
T600-7T280G/315P	396/445	305/350	299/330	280/315
T600-7T315G/355P	445/500	350/382	330/374	315/355
T600-7T355G/400P	500/565	382/435	374/410	355/400
T600-7T400G/450P	565/630	435/490	410/465	400/450
T600-7T450G/500P	630/700	490/575	465/550	450/500
T600-7T500G/560P	700/765	575/620	550/590	500/560
T600-7T560G/630P	765/835	620/710	590/680	560/630
T600-7T630G/710P	835/905	710/790	680/760	630/710
T600-7T710G/800P	905/975	790/860	760/830	710/800
T600-7T800G/1000P	975/1175	860/1095	830/1045	800/1000
T600-7T1000G/1250P	1175/1395	1095/1360	1045/1298	1000/1250

Note: The "****" in the above inverter model number indicates the series name, such as T600, T510.

2.4 T600 Series Inverter Appearance and Part Name Description

2.4.1 Product Outline Diagram

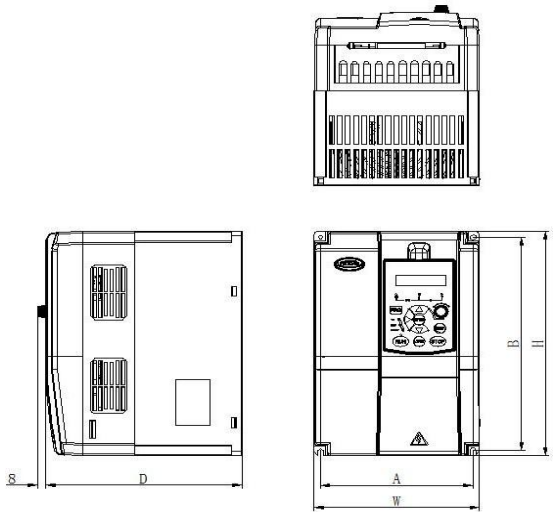


Figure 2-3 Schematic of 0.4kW to 11kW external dimensions and mounting dimensions

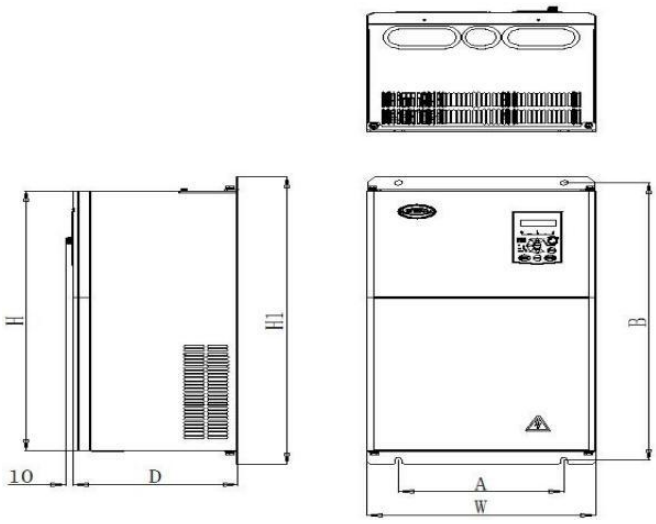


Figure 2-4 15kW～1000kW External Dimensions and Installation Dimensions Schematic

2.4.2 Shape and mounting hole dimensions

Note: Only the Z1 shell (T600-2S0.4B, T600-2S0.75B, T600-2S1.5B, T600-4T0.75G/1.5PB, T600-4T1.5G/2.2PB, T600-4T2.2G/3.0PB, T600-4T3.0GB) controls the digital input terminals X1, X2, X3, X4, and X5 without NPN or PNP connection methods, and X5 does not have the high-speed pulse input function.

Table 2-2 T600 Outline and Mounting Hole Dimensions

Shell code	Inverter Model	Mounting holes (mm)		Overall Dimension (mm)				Mounting holes (mm)	Weight (Kg)
		A	B	H	H1	W	D		
Z1	T600-2S0.4B	76	164	177	/	93	117	⌀ 5.5	0.95
	T600-2S0.75B								
	T600-2S1.5B								
	T600-4T0.75G/1.5PB								
	T600-4T1.5G/2.2PB								
	T600-4T2.2G/3.0PB								
	T600-4T3.0GB								
A	T600-2S0.4B-D	106.5	175.5	185	/	118	166.5	⌀ 4.5	1.8
	T600-2S0.75B-D								
	T600-2S1.5B-D								
	T600-2S2.2B								
	T600-4T0.75G/1.5PB-D								
	T600-4T1.5G/2.2PB-D								
	T600-4T2.2G/3.0PB-D								
	T600-4T3.0G/4.0PB								
	T600-4T4.0G/5.5PB								
	T600-4T5.5G/7.5PB								
B	T600-4T5.5G/7.5PB-D	148	234.5	247	/	161	187.5	⌀ 5.6	3.4
	T600-4T7.5G/11PB								
	T600-4T11G/15PB								
C	T600-4T15G/18.5PB	150	322	300	336	210	200	⌀ 7	7.8
	T600-4T18.5G/22PB								
Z5	T600-4T22G/30PB	150	339	340	355	230	210	⌀ 9	11.2
D	T600-4T22G/30P（B）	230	440	410	455	290	230	⌀ 7	17.5
	T600-4T30G/37P（B）								
	T600-4T37G/45P（B）								
E	T600-4T45G/55P（B）	230	536	500	555	320	230	⌀ 10	24.8
	T600-4T55G/75P（B）								
	T600-4T75G/90P（B）								
F	T600-4T75G/90P（B）-D	320	611	568	634	410	240	⌀ 12	36.2
	T600-4T90G/110P（B）								
	T600-4T110G/132P（B）								
G	T600-4T110G/132P-D	320	669	616	692	475	347	⌀ 12	55.4
	T600-4T132G/160P								
	T600-4T132G/160P-D								
	T600-4T160G/200P								

H	T600-4T160G/200P-D T600-4T200G/220P	420	818.6	762	843	520	352	⌀ 14	73.6
I	T600-4T220G/250P T600-4T250G/280P	420	1107.5	1051	1132	614	365	⌀ 14	135.2
J	T600-4T280G/315P T600-4T315G/355P	520	1214	1150	1241	740	366	⌀ 14	162.3
K	T600-4T355G/400P T600-4T400G/500P T600-4T450G/500P	620	1542	1470	1592	820	366	⌀ 18	247
L	T600-4T500G/560P T600-4T560G/630P T600-4T630G/710P	620	1622	1550	1673	970	378	⌀ 18	310
M	T600-4T710G/800P T600-4T800G/900P	825	1672	1638	1715	1200	510	⌀ 18	375

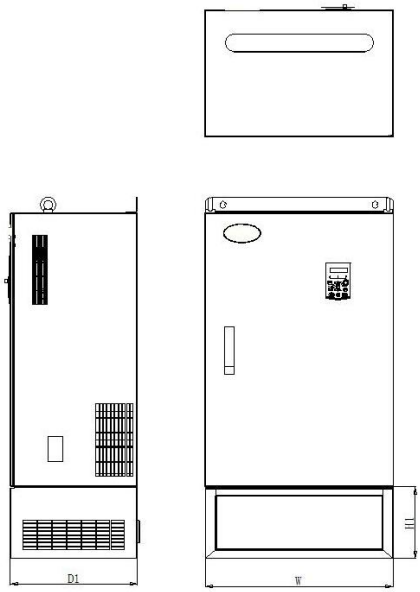
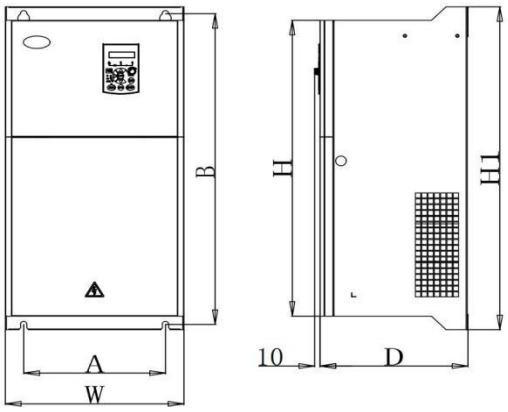


Figure 2-5: Base installation diagram

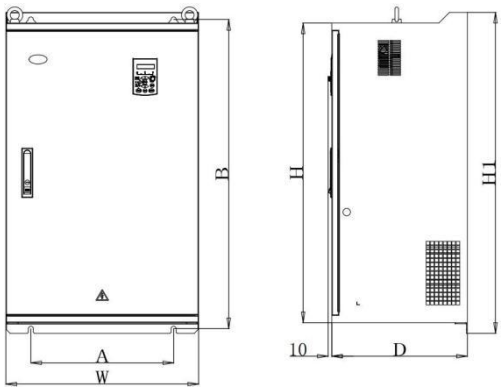
2-3 Base shape and installation hole dimensions

Base code	Corresponding inverter power	W(mm)	D1(mm)	H1(mm)	Icon
SizeG-DZ	T600-4T110G/132P-D T600-4T132G/160P T600-4T132G/160P-D T600-4T160G/200P	475	347	400	Figure 2-7-1
SizeH-DZ	T600-4T160G/200P-D T600-4T200G/220P	520	352	400	
SizeI-DZ	T600-4T220G/250P T600-4T250G/280P	614	365	400	
SizeJ-DZ	T600-4T280G/315P T600-4T315G/355P	740	366	400	
SizeK-DZ	T600-4T355G/400P T600-4T400G/450P T600-4T450G/500P	820	366	450	
SizeL-DZ	T600-4T500G/560P T600-4T560G/630P T600-4T630G/710P	970	377	450	
SizeM-DZ	T600-4T710G/800P T600-4T800G/900P	1200	495	500	

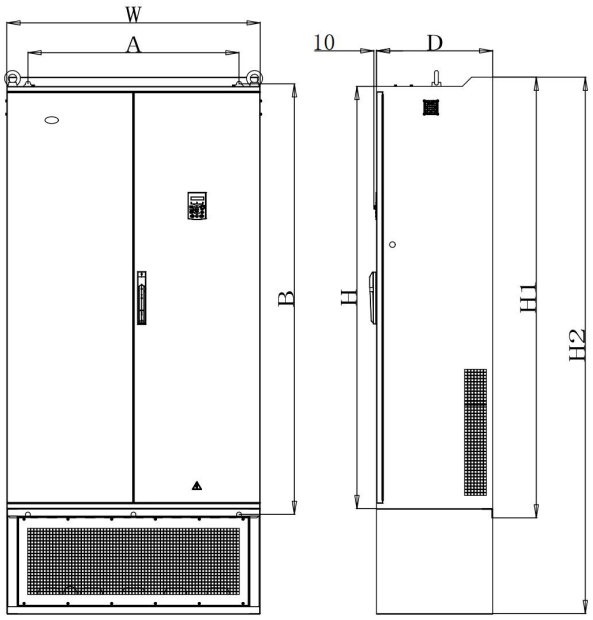
Medium voltage inverter dimensions and installation dimensions



690V 160kW and below power band dimensional drawings



690V 200KW to 560KW Power Section Dimensions

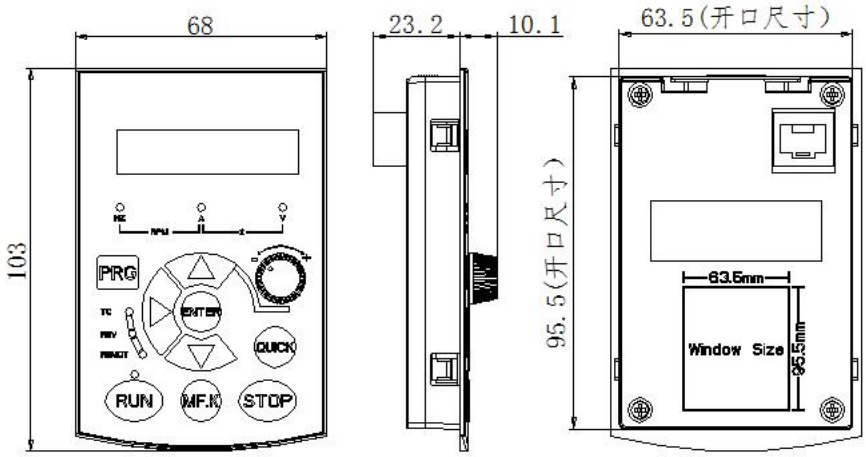


690V 630KW to 1000KW Power Section Dimensions

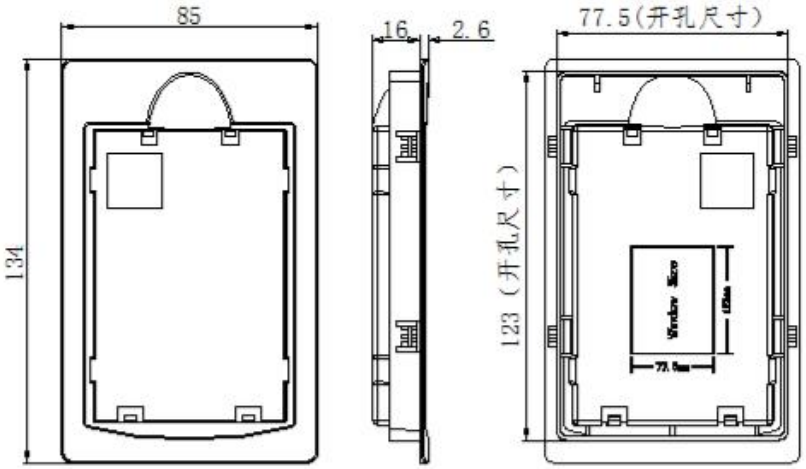
Medium Voltage 690V Inverter Mounting Dimensions Table

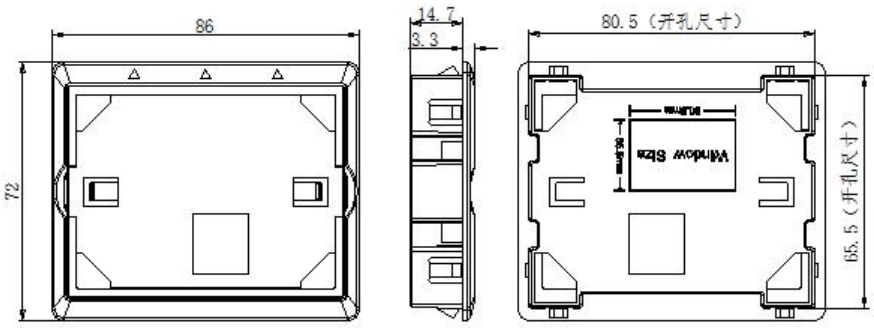
Base code	Inverter Model	Mounting holes (mm)		Overall Dimension (mm)					Mounting hole diameterr (mm)	Weight (Kg)
		A	B	H	H1	H2	W	D		
	T600-7T45G/55P	260	546	517	573	/	325	280	⌀ 12	
	T600-7T55G/75P									
	T600-7T75G/90P	270	641	610	666	/	340	282	⌀ 12	
	T600-7T90G/110P									
	T600-7T110G/132P									
	T600-7T132G/160P	360	651	620	676	/	440	288	⌀ 12	
	T600-7T160G/200P									
	T600-7T200G/220P	400	868	840	900	/	540	380	⌀ 14	
	T600-7T220G/250P									
	T600-7T250G/280P									
	T600-7T280G/315P	550	1178	1150	1210	/	680	380	⌀ 14	
	T600-7T315G/355P									
	T600-7T355G/400P									
	T600-7T400G/450P	640	1328	1300	1360	/	780	390	⌀ 14	
	T600-7T450G/500P									
	T600-7T500G/560P									
	T600-7T560G/630P									
	T600-7T630G/710P	800	1632	1600	1670	2035	960	440	⌀ 18	
	T600-7T710G/800P									
	T600-7T800G/1000P									
	T600-7T1000G/1250P	704	1667	1635	1705	2120	1100	460	⌀ 18	

External keyboard KB301 dimensions (opening size 63.5*95.5mm)

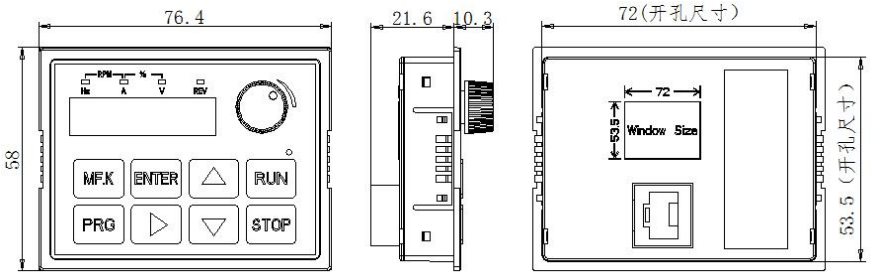


Keyboard tray KBT600 dimensions (opening size 77.5 * 123mm)





External keyboard KB510 external dimensions (opening size 72*53.5mm)



Dimensions of keyboard tray KBT510 (opening size 80.5*65.5mm)

Chapter 3
Installation and Wiring of T600 Series Inverter

3.1 Mechanical Installation

3.1.1 Installation environment:

1) Ambient temperature: the surrounding ambient temperature has a great impact on the life of the frequency converter, do not allow the frequency converter operating ambient temperature exceeds the allowable temperature range (-10 ℃ ~ 50 ℃).

2) Install the inverter vertically on a flame-retardant surface with ample clearance for heat dissipation, securing it with screws.

3) Install the inverter in a location with minimal vibration, not exceeding 0.6 G, and avoid proximity to equipment like presses to prevent damage.

4) Avoid installing in direct sunlight, humidity and water droplets.

5) Avoid installing in places where there are corrosive, flammable and explosive gases in the air.

6) Avoid installing in places with oil, dust and metal dust.

When installing multiple T600 series inverters side by side for heat dissipation, be aware that the heat from lower row inverters can increase the temperature of the equipment in the upper row, potentially causing malfunction. To mitigate this, install heat-insulating deflector boards. For inverters larger than 22kW, maintain a clearance of more than 50mm between units to ensure proper heat dissipation and prevent damage.

Power rating	Mounting Dimensions	
	B	A
≤15kW	≥100mm	May not be required
18.5kW-30kW	≥200mm	≥50mm
≥37kW	≥300mm	≥50mm

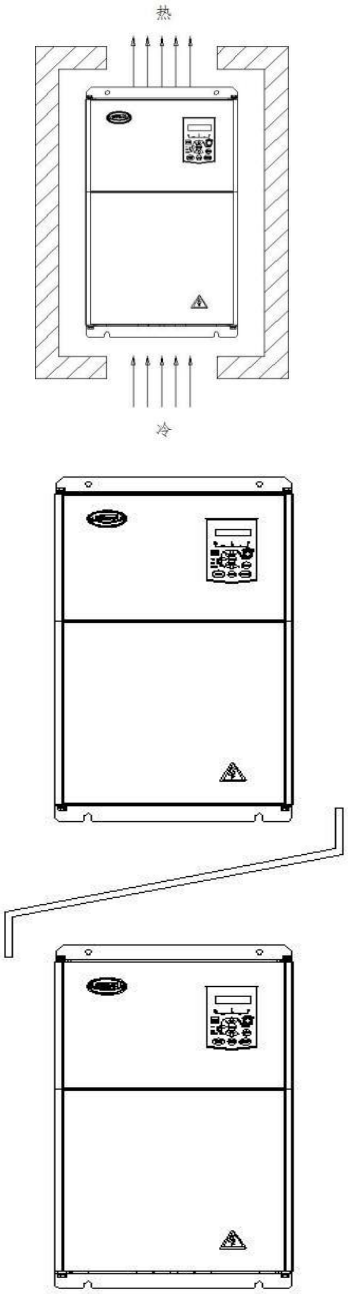


Figure 3-1 Insulation deflector installation diagram

3.2 Inverter Wiring

3.2.1 Typical Wiring Diagram

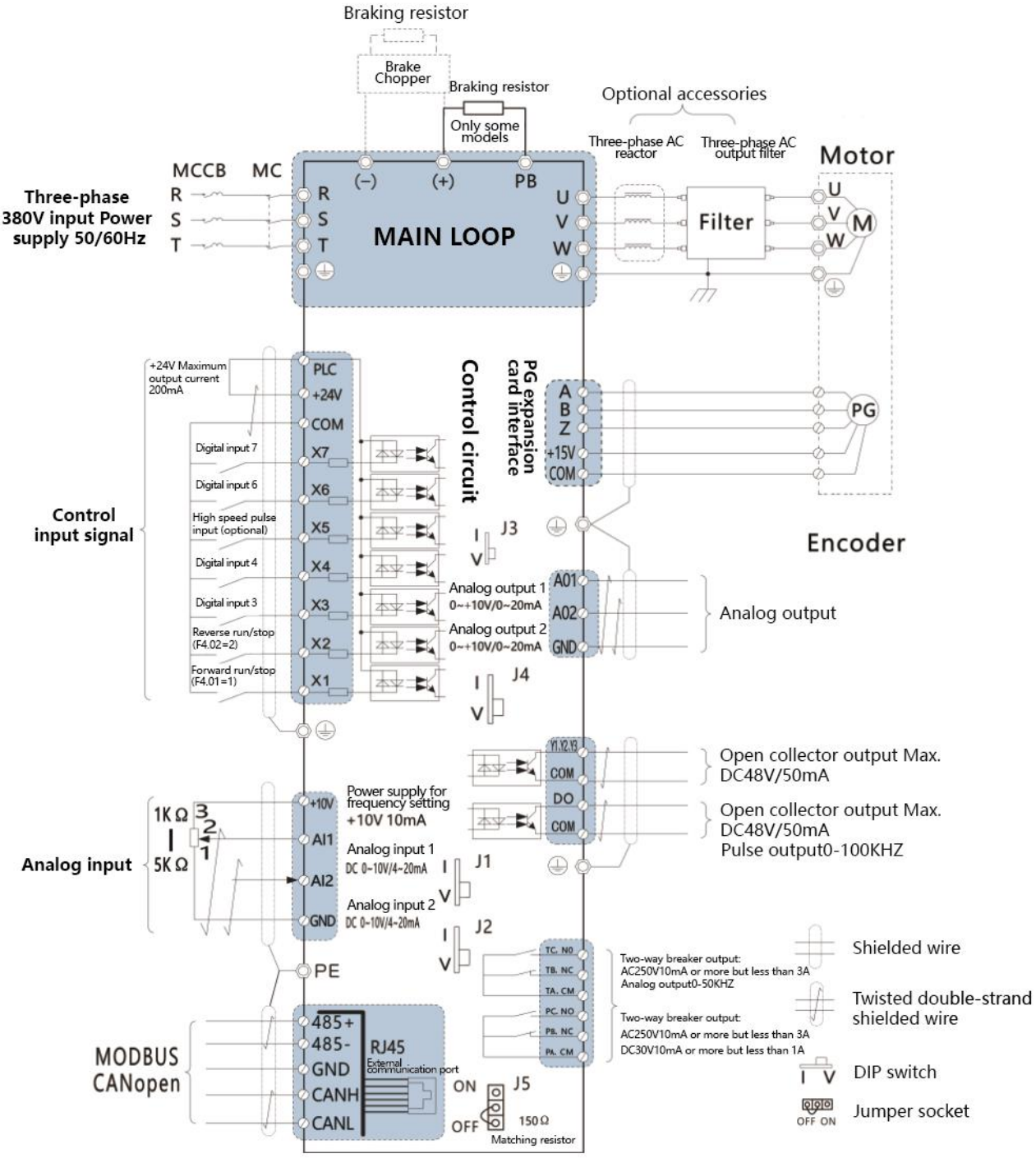


Figure 3-2 Typical wiring diagram of inverter

3.2.2 **Main circuit terminals and wiring**

1) Single-phase inverter main circuit terminal description:

Terminal Marking	Technical terms	Explanation
L, N or R, S	Single-phase power input terminals	Single-phase 220V AC power connection
(+), (-)	DC bus positive and negative terminals	Common DC bus input point
PB, (+)	Energy consumption brake terminal	Connecting the braking resistor
U, V, W	Inverter output terminals	Connecting a three-phase motor
⏚	ground terminal	Inverter safety grounding

2) Three-phase inverter main circuit terminal description:

Terminal	Name	Clarification
(+), (-)	DC bus positive and negative terminals	Common DC bus terminal, 18.5KW or more External brake unit connection point
PB, (+)	Energy consumption brake terminal	Connecting the braking resistor
P, (+)	External reactor connection terminals	External Reactor Connection Points
U, V, W	Inverter output terminals	Connecting a three-phase motor
⏚	ground terminal	Inverter safety grounding

3.2.3 Control terminals and wiring:

1） The control circuit terminal arrangement is shown below (the upper terminal diagram corresponds to the Z1 case, and the other cases correspond to the lower terminal diagram):

AI1	+10V	485+	485-	COM	X1	X2	X3
AI2	AO1	GND	24V	X4	X5	DO	PE

T/A	T/B	T/C

Upper Terminal Diagram

(Digital input terminal Xi does not have NPN, PNP connection and X5 does not have high-speed pulse input function) For the Z1 housing corresponding to the model, see subsection 2.4.2 for details.

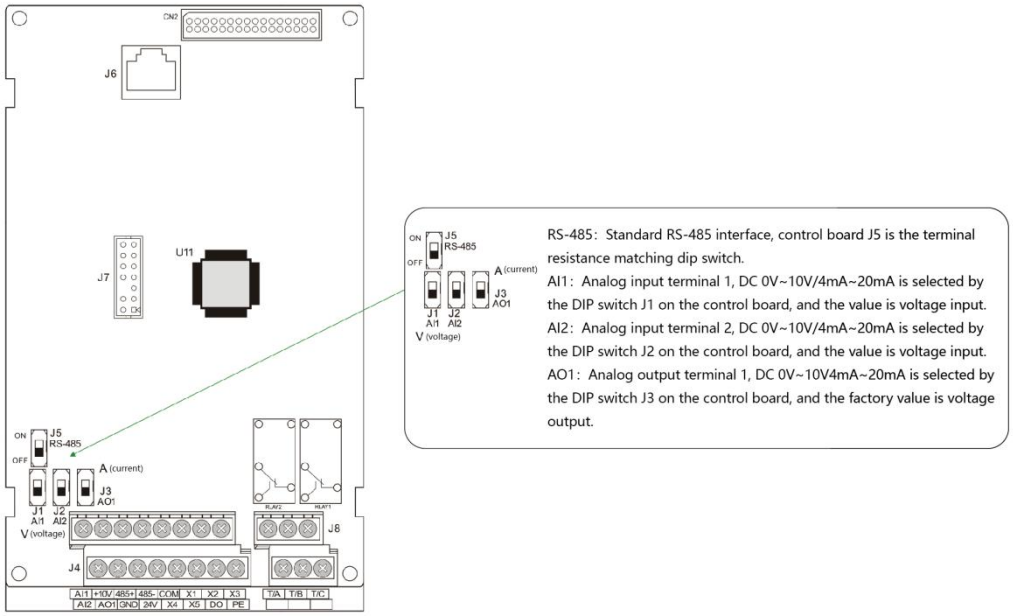


Figure 3-3 Terminal Arrangement on Control Circuit

485+	485-	10V	AI1	GND	X1	X2	X3	X4	X5	COM	DO	TA	TB	TC
GND	AI2	AO1	AO2	COM	X6	X7	24V	PLC	Y1	Y2	Y3	PA	PB	PC

Bottom Subplot

2）Description of control terminal functions:

Table 3-1 T600 Inverter Control Terminal Function Description

Sort	Terminal Symbols	Terminal Denomination	Functional Description
Power supply	+10V-GND	External connection +10V power supply	Provide +10V external power supply, maximum output current: 10mA Generally used as an external potentiometer power supply, potentiometer resistance range: 1kΩ ~ 5kΩ
	+24V-COM	External connection +24V power supply	Provide +24V power supply to the outside, generally used as the working power supply of digital input/output terminals and external sensor power supply Maximum output current: 200mA.
	PLC	External power input terminal	The default is to connect with +24V: When using external signal to drive X1~X7, PLC needs to connect with external power supply and disconnect from +24V power supply terminal. Note: Z1 housing does not have this function (corresponds to the upper terminal diagram).

Analog input	AI1-GND	Analog input terminal 1	1. Input range: DC 0V~10V (F5.00=0)/4mA~20mA (F5.00=1), determined by the J1 DIP switch on the control panel. When J1 is turned to the upper end, it is current, and when it is turned to the lower end, it is voltage. 2. Input impedance: 22kΩ for voltage input, 250Ω for current input.
	AI2-GND	Analog input terminal 2	1. Input range: DC 0V ~ 10V (F5.06 = 0) / 4mA ~ 20mA (F5.06=1), as determined by the J2 DIP switch selection on the control board, with J2 toggled up for current and down for voltage. 2. Input impedance: 22kΩ for voltage input, 250Ω for current input.

Sort	Terminal Symbols	Terminal Denomination	Functional Description
Digital input	X1-COM	Digital Input 1	1、Optical coupling isolation, compatible with bipolar inputs 2、Input impedance: 3.3kΩ 3、Voltage range at level input: 9V～30V
	X2-COM	Digital Input 2	
	X3-COM	Digital Input 3	
	X4-COM	Digital Input 4	
	X5-COM	High-speed pulse input terminal	In addition to the features of X1 to X4, it can be used as a high-speed pulse input channel. Maximum input frequency: 100kHz Note: The Z1 shell does not have a high-speed pulse input function (corresponds to the upper terminal diagram).
	X6-COM	Digital Input 6	1、Optical coupling isolation, compatible with bipolar inputs 2、Input impedance: 3.3kΩ 3、Voltage range during level input: 9V～30V
	X7-COM	Digital Input 7	
Analog output	AO1-GND	Analog Output 1	Voltage or current output is determined by the J3 DIP switch on the control board, J3 toggled up for current and down for voltage. Output voltage range: 0V to 10V (F5.29=0) Output current range: 4mA to 20mA (F5.29=1)
	AO2-GND	Analog Output 2	Voltage or current output is determined by the J4 DIP switch on the control board, J4 toggled up for current and down for voltage. Output voltage range: 0V to 10V (F5.34=0) Output current range: 4mA to 20mA (F5.34=1)
Digital output	Y1-COM	Digital output 1	Optical coupling isolation, bipolar open collector output Output voltage range: 0V～24V Output current range: 0mA～50mA
	Y2-COM	Digital output 2	
	Y3-COM	Digital output 3	
	DO-COM	High-speed pulse output	Constrained" (F5.24) is selected by the function code DO terminal output method; when used as a high-speed pulse output (F5.24=0), the maximum frequency is up to 100kHz; when used as an open collector output (F5.24=1), it is the same as the Y1 specification.

Communication port	485+	485 Differential Signal Positive	Standard RS-485 interface, please use twisted pair or shielded cable, J5 is the terminating resistor matching jumper, Factory default without jumper cap is OFF.
	485-	485 Differential Signal Negative	
Relay output	TA-TB	normally closed terminal	Contact point driving capability: AC250V, 3A, COSø=0.4. DC30V 1A
	TA-TC	normal open terminal (math.)	
	PA-PB	normally closed terminal	
	PA-PC	normal open terminal (math.)	
Secondary interface	J9	PG Card Interface	24 pole terminal, interfaces with various PG cards
	J10	keypad interface	local keyboard
	J13	external keyboard interface	External Keypad 485 Port
Jumper	J6、J7	COM, GND and earth E Connection Selection Jumper	J6 is COM and earth E jumper, J7 is GND and earth E jumper, out The factory default jumps to the lower end for the ON state.

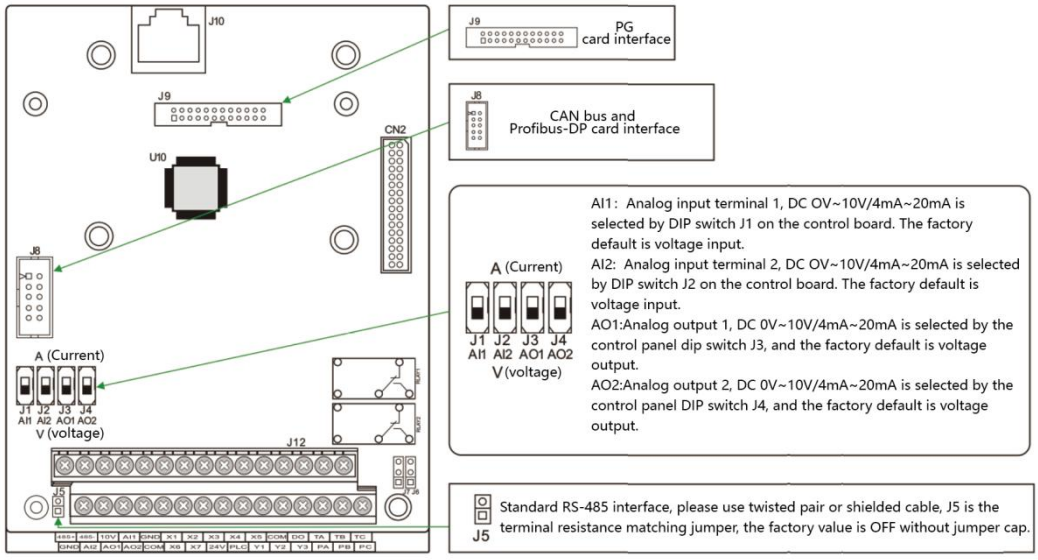


Figure 3-4 Lower Terminal Arrangement of Control Circuit

Chapter 4
Operation and Display

4.1 Introduction to the operation and display interface

With the operation panel, you can modify the functional parameters, monitor the working status of the frequency inverter and control the operation of the frequency inverter (starting and stopping), etc. Its shape and functional area are shown in the following figure:

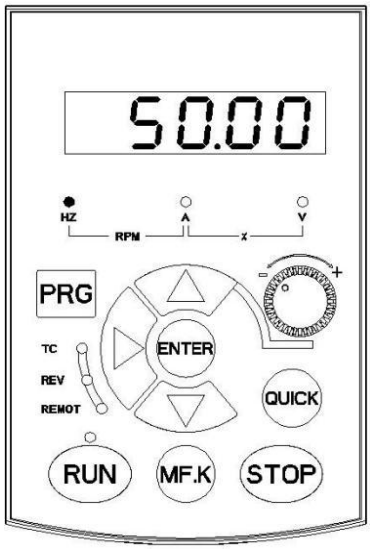


Figure 4-1 Operation Keyboard Diagram

1) Function indicator description:

RUN: When the light is off, it indicates that the inverter is in shutdown state; when the light is on, it indicates that the inverter is in running state.

REMOT: Keyboard operation, terminal operation and remote operation (communication control) indicator, light off means keyboard operation and control state, , the light is on indicating the terminal operation control status, and the light flashing indicates the remote operation control status.

REV: Forward and reverse indicator, light indicates that it is in reverse state.

TUNE/TC: Motor parameter self-learning indicator, light indicates that it is in the self-learning state.

2) Unit indicator:

Hz:Frequency unit A:Current unit V:Voltage unit RPM (Hz+A):Speed unit

% (A+V):Percentage

Digital display zone

The 5-digit LED display shows the set frequency, output frequency, various monitoring data and alarm codes.

3) Keyboard Button Description Sheet

Table 4-1 Keypad Menu

Button	Name	Functional Description
PRG	Program/Exit Key	Entry or exit shortcut parameter deletion
	Shift/Monitor Key	Under the shutdown display interface and operation display interface, the display parameters can be selected cyclically; when modifying the parameters, the modification position of the parameters can be selected.
ENTER	Function/Data Keys	Step-by-step access to the menu screen and confirmation of setup parameters
MF.K	Multi-Function selector	For details of operation, see the description of F0.40 (MF.K key function selection).
RUN	Forward Running Key	In the operation keypad mode, press this key to run the inverter positively.
STOP RES	Stop/Reset key	In the running state, press this key to stop the operation; in the fault alarm state, it can be used to reset the operation, the characteristics of this key are subject to the function code F0.05 (STOP/RES). key function) constraints.
	incremental key	Data or function code increment (increment rate can be increased when pressed continuously)
	decrement key	Decrement of data or function codes (when pressed continuously, the decrement rate can be increased)
QUICK	Menu Mode Selection Keys	Switching between different menu modes according to the value in F0.35 (Personalized parameter group display selection) (default is one menu mode)

4.2 Self-learning of motor parameters

To achieve optimal vector control operation with the T600 series inverter, it is crucial to input the motor's nameplate parameters accurately before initiating the frequency converter. The inverter then aligns with the standard motor parameters based on the provided nameplate data. Vector control is highly dependent on these motor parameters; thus, obtaining precise motor specifications is essential for achieving superior control performance.

First select the command source (F0.01) as the operation panel command channel. Then please input the following parameters according to the actual parameters of the motor:

F1.02:Rated motor power

F1.03:Rated motor voltage

F1.04:Rated motor current

F1.05:Rated motor frequency

F1.06:Rated motor speed

If it is the motor can be completely disengaged from the load, then F1.38 please select 2 (rotating complete self-learning), and then press RUN on the keypad panel, the inverter will automatically calculate the following parameters of the motor:

F1.07: Stator resistance

F1.08: Rotor resistance

F1.09: Leakage reactance F1.10: Mutual inductive resistance F1.11: No-load excitation current

If the motor is not completely disconnected from the load, select 3 for F1.38.

(stationary complete self-learning), and then press the RUN key on the keypad panel. The inverter measures five parameters in turn: stator resistance, rotor resistance, leakage inductive resistance, mutual inductive resistance, and no-load excitation current.

If the motor can not be completely disconnected from the load, please select 1 (static self-learning) for F1.38, and then press the RUN key on the keyboard panel. The inverter measures three parameters: stator resistance, rotor resistance and leakage inductance in sequence. It does not measure the motor's mutual inductance and no-load current. Users can calculate these two parameters according to the nameplate of the motor, and the parameters of the motor nameplate used in the calculation are: rated voltage U, rated current I, rated frequency f and power factor η :

The calculation method of motor no-load current and the calculation method of motor mutual inductance are described in the following equation, where Lσ is the motor leakage reactance.

Chapter 5
Table of Function parameter table

If F0.36 is set to a non-zero value, the parameter protection password is set. In the function parameter mode and the user parameter change mode, the parameter menu can only be entered after the password is correctly entered. To cancel the password, F0.36 must be set to "0".

The parameter menu in the User Customized Parameters mode is not password protected.

Group F and A are the basic function parameters, and group L is the monitoring function parameters.

The symbols in the function table are explained as follows: "☆": it means that the set value of the parameter can be changed when the frequency inverter is in the shutdown and running state;

"★": indicates that the set value of the parameter cannot be changed when the inverter is in running state;

"●": indicates that the value of the parameter is the actual detection record value and cannot be changed;

"*": indicates that the parameter is a "manufacturer's parameter", which is limited to the manufacturer's settings and prohibits the user from operating it;

5.1 Basic Functional Parameters

Table 5-1 Summary Table of Basic Functional Parameters

Function code	Name	Setting range	Factory default	Change
F0 Basic Function Group				
F0.00	GP type setting	1: G type (constant torque load model) 2: P type (fan and pump load models)	1	★
F0.01	Command Source Selection	0: Operator panel command channel (REMOT lamp off) 1: Terminal command channel (REMOT lamp lit) 2: Communication command channel (REMOT lamp blinking)	0	☆
F0.02	Main Frequency Command Selection	0: Digital setting (preset frequency F0.09, UP/DOWN modifiable, no memory for power-down) 1: Digital setting (preset frequency F0.09, UP/DOWN modifiable, power-down memory) 2: AI1 3: AI2 4: Panel Potentiometer 5: PULSE Pulse setting (X5) 6: Multi-segment instruction 7: Simple PLC 8: PID 9: Communication given Remarks: When F4.01 ～ F4.07 is set to 56,57,58 function, the multi-segment frequency has the highest priority when the terminal is valid, and its multi-segment frequency setting is shown in F8.01～F8.07.	4	★

Function code	Name	Setting range	Factory default	Change
F0.03	Auxiliary frequency command selection	Same as F0.03 (main frequency command selection)	0	★
F0.04	Frequency command overlay selection	Bit: Frequency command selection 0: Main frequency command 1: The result of the main and auxiliary arithmetic operations (the arithmetic relationship is determined by the tens place) 2: Switching between main and auxiliary frequency commands 3: Switching between main frequency command and main and auxiliary operation results 4: Auxiliary frequency instruction and main and auxiliary operation result switching ten bits: frequency instruction main and auxiliary operation relationship 0: Primary + Secondary 1: Primary - Secondary 2: Maximum value of both 3: Minimum of two	00	☆
F0.05	Auxiliary frequency command range selection during stacking	0: Relative to the maximum frequency 1: Relative to the main frequency command	0	☆
F0.06	Auxiliary frequency in superposition Scope of instructions	0% to 150	100%	☆
F0.07	reservations			
F0.08	Auxiliary frequency in superposition Source Bias Frequency	0.00Hz to maximum frequency (F0.13)	0.00Hz	☆
F0.09	Preset Frequency	0.00Hz to maximum frequency (F0.13)	50.00 Hz	☆
F0.10	Digital Setting Frequency Shutdown Memory Selection	0: No memory 1: Memorization	1	☆
F0.11	Frequency command resolution	1: 0.1 Hz (maximum frequency adjustable to 320 Hz) 2: 0.01 Hz (adjustable up to 3200 Hz)	2	★
F0.12	Runtime frequency command UP/DOWN Benchmark	0: Operating frequency 1: Setting frequency	0	★
F0.13	Maximum frequency	50.00Hz to 320Hz	50.00 Hz	★
F0.14	Upper frequency	Lower limit frequency F0.17～Maximum frequency F0.13	50.00 Hz	☆
F0.15	Upper frequency command	0: F0.14 Setting 1: AI1 2: AI2 3: Panel Potentiometer 4: PULSE Pulse setting 5: Communication given	0	★
F0.16	Upper Frequency Bias	0.00Hz to maximum frequency F0.13	0.00Hz	☆
F0.17	lower frequency	0.00Hz to upper limit frequency F0.14	0.00Hz	☆

Function code	Name	Setting range	Factory default	Change
F0.18	Set frequency below lower limit frequency operation mode	0: Operate at the lower frequency limit 1: Downtime 2: Zero-speed operation (no output below 0.20 Hz in VF mode)	0	☆
F0.19	Carrier frequency	0.5kHz～16.0kHz	Model Determination	☆
F0.20	Carrier frequency adjusted with temperature	0: No 1: Yes	1	☆
F0.21	Acceleration time 1	0.00s to 650.00s (F0.23=2) 0.0s to 6500.0s (F0.23=1) 0s to 65000s (F0.23=0)	Model Determination	☆
F0.22	Deceleration time 1	0.00s to 650.00s (F0.23=2) 0.0s to 6500.0s (F0.23=1) 0s to 65000s (F0.23=0)	Model Determination	☆
F0.23	Acceleration and deceleration time unit	0: 1 second 1: 0.1 seconds 2: 0.01 seconds	1	★
F0.24	Acceleration and deceleration time reference frequency	0: Maximum frequency (F0.13) 1: Setting frequency 2: 100Hz	0	★
F0.25	Acceleration and deceleration mode	0: linear acceleration and deceleration 1: S-curve acceleration and deceleration A 2: S-curve acceleration and deceleration B	0	★
F0.26	Beginning of S-curve Time ratio	0.0% to (100.0%-F0.27)	30.0%	★
F0.27	S-curve ending segment Time ratio	0.0% to (100.0%-F0.26)	30.0%	★
F0.28	Tap operation frequency	0.00Hz to maximum frequency	6.00Hz	☆
F0.29	Tap acceleration time	0.0s～6500.0s	20.0s	☆
F0.30	Tap deceleration time	0.0s～6500.0s	20.0s	☆
F0.31	Terminal Tap Priority	0: Invalid 1: Effective	1	☆
F0.32	Running direction	0: Same direction as set 1: Opposite to the set direction	0	☆
F0.33	Anti-reverse control	0: motor reversal allowed 1: motor reversal prohibited	0	☆
F0.34	Functional parameter group Display selection	Digit: L group display selection 0: no display 1: Display Tenth digit: Group A display selection 0: no display 1: Display	01	☆

Function code	Name	Setting range	Factory default	Change
F0.35	Personalized parameter group display selection	Bit: User-customized parameter group display selection 0: No display 1: Display Ten digits: user change parameter group display selection 0: no display 1: Display	00	☆
F0.36	user password	0~ 65535	0	☆
F0.37	Function Code Modification Attributes	0: Modifiable 1: Not modifiable (Except for F0.36 and F0.37, other parameters cannot be modified.)	0	☆
F0.38	Power-on start terminal Protection selection	0: No protection, the inverter runs directly when the run terminal is closed at power-on. 1: protection, power on the run terminal closed state, the inverter does not run, you need to disconnect and then close the run terminal to run.	0	☆
F0.39	Under-voltage point setting	180.0V ~ 420.0V	Model Determination	☆
F0.40	MF.K key function selection	0: MF.K Invalid 1: Switching between operator panel command channel and remote command channel (terminal command channel or communication command channel) 2: Forward and reverse switching 3: Positive rotation point movement 4: Reverse point movement 5: Reverse run	3	★
F0.41	STOP/RESET key functionality	0: The STOP/RES key stop function is valid only in the keypad operation mode. 1: STOP/RES key shut down in any mode of operation Functions are valid	1	☆
F0.42	Motor parameter set option	0: First motor parameters 1: Second motor parameters (group A0)	0	★
F0.49	Applying Macro Instructions	0: Invalid 2000: Constant pressure water supply (without sleep) 2010: Constant pressure water supply (with sleep, if the inverter is in sleep state, the LED digital tube will display SLP) 2668: For engraving machines	0	★
F0.50	Parameter initialization	0: No operation 01: Restore factory parameters, excluding motor parameters, F0.11. 02: Clearance of recorded information 03: Restore all factory parameters, including motor parameters 06: Backup user's current parameters 888: Restore user backup parameters	0	★

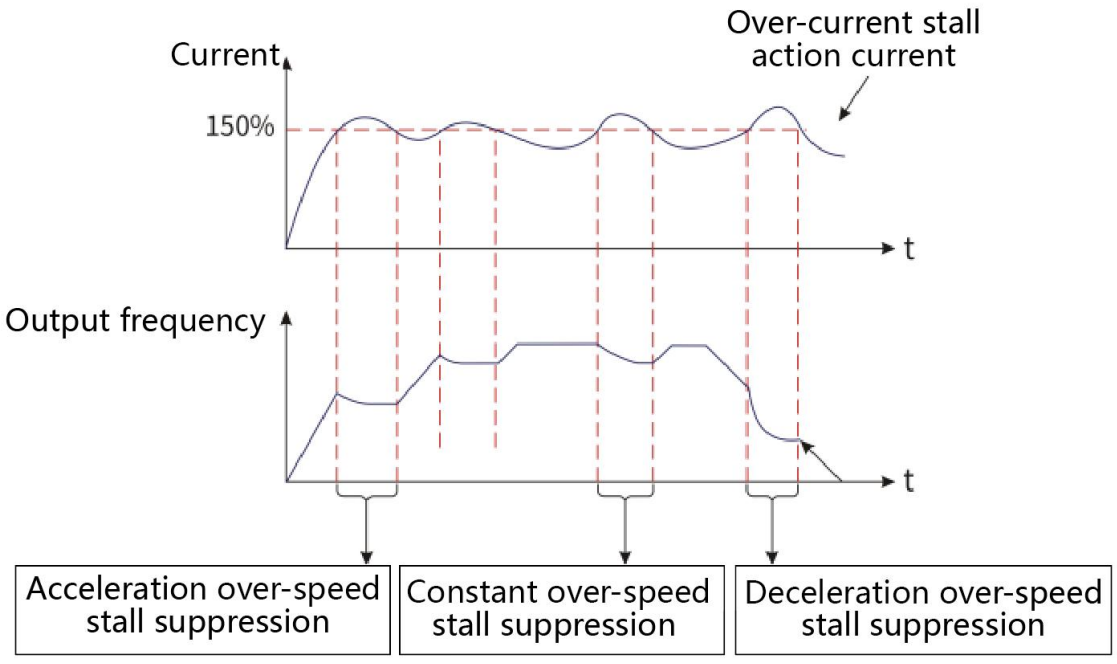
Function code	Name	Setting range	Factory default	Change
F1 First motor parameters				
F1.00	No. 1 Motor control method	0: No speed sensor vector control (SVC) 1: Closed-loop vector control (FVC) 2: V/F Control	2	★
F1.01	Motor type selection	0: Ordinary asynchronous motor 1: Inverter asynchronous motor	0	★
F1.02	Motor rated power	0.1KW～1000.0KW	Model Determination	★
F1.03	Motor rated voltage	1V ~2000V	Model Determination	★
F1.04	Motor rated current	0.01A～655.35A (Inverter power ≤ 55kW) 0.1A～6553.5A (Inverter power >55kW)	Model Determination	★
F1.05	Motor rated frequency	0.01Hz to Max frequency	Model Determination	★
F1.06	Rated motor speed	1rpm～65535rpm	Model Determination	★
F1.07	Asynchronous motor stator resistance	0.001Ω～65.535Ω (Inverter power ≤55kW) 0.0001Ω～6.5535Ω (Inverter power >55kW)	Self-learning parameters	★
F1.08	Asynchronous motor rotor resistance	0.001Ω～65.535Ω (Inverter power ≤55kW) 0.0001Ω～6.5535Ω (Inverter power>55kW)	Self-learning parameters	★
F1.09	Leakage reactance of asynchronous motors	0.01mH～655.35m (Inverter power≤55kW) 0.001mH～65.535mH (Inverter power >55kW)	Self-learning parameters	★
F1.10	Asynchronous motor mutual inductive resistance	0.1mH～6553.5mH (Inverter power ≤55kW) 0.01mH～655.35mH (Inverter power >55kW)	Self-learning parameters	★
F1.11	Asynchronous motor no-load current	0.01A～F1.04 (Inverter power ≤55kW) 0.1A～F1.04 (Inverter power >55kW)	Self-learning parameters	★
F1.28	Number of encoder lines	1 to 65535	2500	★
F1.29	Encoder Type	0: ABZ incremental encoder 1: UVW incremental encoder 2: Rotary Transformer 3: Sine-cosine encoder	0	★
F1.31	ABZ Incremental Encoder AB Phase Sequence	0: Positive 1: Reverse	0	★
F1.38	Self-learning selection of motor parameters	0: No operation 1: Stationary self-learning for asynchronous machines 2: Complete self-learning for asynchronous machines 3: Stationary complete self-learning for asynchronous machines	0	★

Function code	Name	Setting range	Factory default	Change
Group F2 First motor vector control parameters				
F2.00	Speed loop proportional gain 1	1 to 100	30	☆
F2.01	Velocity loop integration time 1	0.01s～10.00s	0.50s	☆
F2.02	Switching frequency 1	0.00 ~ F2.05	5.00Hz	☆
F2.03	Velocity loop proportional gain 2	1 ~100	20	☆
F2.04	Velocity loop integration time 2	0.01s～10.00s	1.00s	☆
F2.05	Switching frequency 2	F2.02～Max frequency	10.00Hz	☆
F2.06	Vector control slip gain	50% ~200%	100%	☆
F2.07	Velocity loop filtering time constant	0.000s～0.100s	0.000s	☆
F2.08	Vector control overexcitation gain	0 to 200	64	☆
F2.09	Torque upper limit source in speed control mode	0: Function code F2.10 Setting 1: AI1 2: AI2 3: Panel Potentiometer 4: PULSE Pulse setting 5: Communication given 6: MIN (AI1, AI2) 7: MAX (AI1, AI2) The full scale range of options 1-7 corresponds to F2.10.	0	☆
F2.10	Digital setting of upper torque limit in speed control mode	0.0% ~200.0%	150.0%	☆
F2.11	Torque limit source (power generation) in speed control mode	0: Function code P4.12 Setting 1: AI1 2: AI2 3: Panel Potentiometer 4: PULSE Pulse setting 5: Communication given 6: MIN (AI1, AI2) 7: MAX (AI1, AI2) The full scale range of options 1-7 corresponds to F2.12.	0	☆
F2.12	Digital setting of upper torque limit in speed control mode (power generation)	0.0% ~ 200.0%	150.0%	☆
F2.13	Excitation regulation proportional gain	0 ~60000	2000	☆
F2.14	Excitation Regulation Integral Gain	0 ~ 60000	1300	☆
F2.15	Torque Adjustment Proportional Gain	0 ~ 60000	2000	☆
F2.16	Torque Regulation Integral Gain	0 ~60000	1300	☆

Function code	Name	Setting range	Factory default	Change
F2.17	Speed Ring Points Properties	Single digit: Separation of points 0: Invalid 1: Effective	0	☆
F2.21	Max torque coefficient in weak magnetic region	50% ~200%	100%	☆
F2.22	Generation power limit enable	0: Invalid 1: Effective	0	☆
F2.23	Generation power ceiling	0.0 ~ 200.0%	Model Determination	☆
F2.24	Torque control method Lower torque setting source selection	0: Digital setting 1 (F2.26) 1: AI1 2: AI2 3: Panel Potentiometer 4: PULSE e 5: Communication 6: MIN (AI1, AI2) 7: MAX (AI1, AI2) (Full scale for options 1-7, corresponding to F2.26 numbers setting	0	★
F2.26	Torque control method Lower torque digital setting of	-200.0% ~200.0%	150.0%	☆
F2.28	Torque control forward Max frequency	0.00Hz ~Max frequency	50.00 Hz	☆
F2.29	Torque control reverse Max frequency	0.00Hz ~Max frequency	50.00 Hz	☆
F2.30	Torque rise filter time	0.00s～650.00s	0.00s	☆
F2.31	Torque drop filtering time	0.00s～650.00s	0.00s	☆
F2.32	Speed/torque control choice of method	0: Speed control 1: Torque control	0	★
F3 V/F control parameter set				
F3.00	VF curve setting	0: Straight line V/F 1: Multi-point V/F	0	★
F3.01	Torque Increase	0.0%: (automatic torque boost) 0.1% to 30.0%	Model Determination	☆
F3.02	Torque boost cutoff frequency	0.00Hz ~Max frequency	50.00 Hz	★
F3.03	Multi-point VF Frequency point 3	F3.05～Motor rated frequency (F1.05)	40.00Hz	★
F3.04	Multi-point VF Voltage point 3	0.0% ~ 100.0%	80.0%	★
F3.05	Multi-point VF Frequency point 2	F3.07 ~ F3.03	25.00Hz	★
F3.06	Multi-point VF Voltage point 2	0.0% to 100.0%	50.0%	★
F3.07	Multi-point VF Frequency point 1	0.00Hz ~ F3.05	10.00Hz	★
F3.08	Multi-point VF Voltage point 1	0.0% ~ 100.0%	20.0%	★
F3.09	VF Differential Compensation Gain	0.0% ~ 200.0%	0.0%	☆
F3.10	VF Overexcitation gain	0 ~200	0	☆
F3.11	VF Oscillation suppression gain	0 ~100	Model Determination	☆
F3.18	Overcurrent rapid-action current	50 ~200%	150%	★
F3.19	Overspeed loss enable	0: Invalid 1: Valid	1	★
F3.20	Over-velocity suppression gain	0 ~100	20	☆

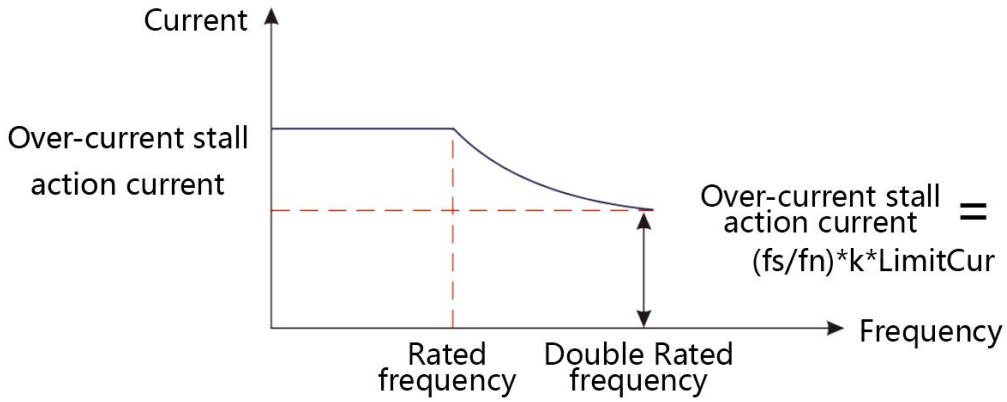
F3.21	Double speed over loss of speed action Current Compensation Factor	50 ~ 200%	50%	★
F3.22	Overvoltage stall operation voltage	650.0V ~ 800.0V	770.0V	★
F3.23	Overvoltage stall enable	0: Invalid 1: Valid	1	★
F3.24	Overvoltage stall suppression frequency gain	0 ~ 100	30	☆
F3.25	Overvoltage stall suppression voltage gain	0 ~ 100	30	☆
F3.26	Overpressure stall max. Rise Frequency Limit	0 ~ 50Hz	5Hz	★

In the process of acceleration, constant speed and deceleration, if the current exceeds the over-failure speed action current (150% of the factory default, which means 1.5 times of the rated current of the frequency inverter), the overcurrent stall will work, and the output frequency will start to decrease until the current returns to below the overcurrent stall point, and then the frequency will start to accelerate upward to the target frequency, and the actual acceleration time will be automatically lengthened, and the actual acceleration time will be appropriately lengthened if the actual acceleration time can not meet the requirements. Increase "F3.18 Excessive over-current stall action current".

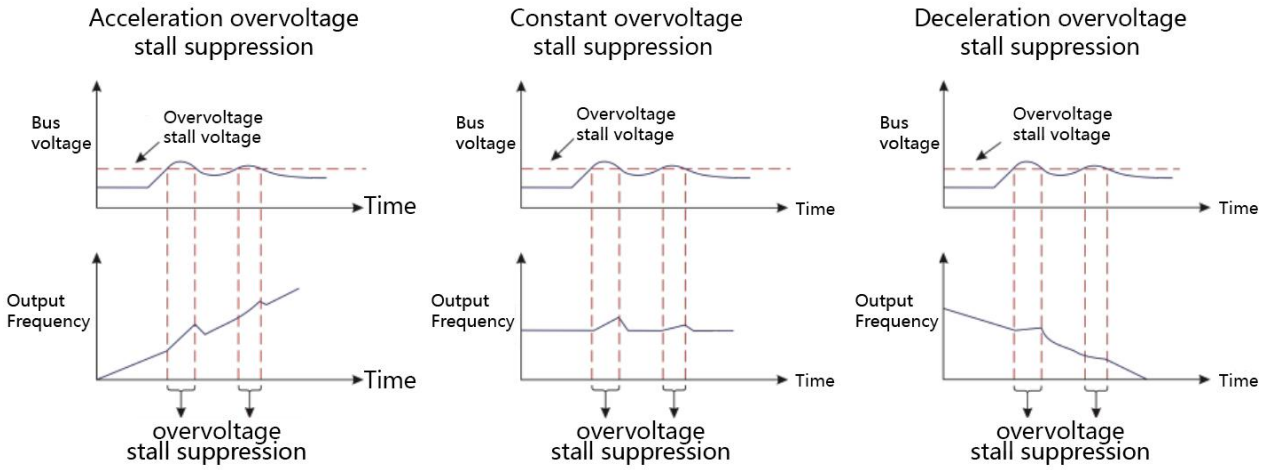


In the high-frequency region, the motor drive current is small, relative to the rated frequency below, the same stall current, the speed of the motor falls a lot, in order to improve the operating characteristics of the motor, you can reduce the stall action current above the rated frequency, in some centrifuges and other operating frequency is high, the requirement of a few times the weak magnetism and the load inertia is large occasions, this method for acceleration of the performance of the motor has a very good effect on the stall can be effectively prevented . Excessive stall action current above rated frequency = (fs/fn) * k * LimitCur;

fs is the running frequency, fn is the rated frequency of the motor, “k”is the F3.21 that Double speed over-current stall current compensation and LimitCur is the F3.18that over-current stall action current



If the bus voltage exceeds the overvoltage stall action voltage (F3.22), it means that the motor system is already in the power generation state (motor speed>output frequency), the overvoltage stall will work to regulate the output frequency and the actual deceleration time will be automatically elongated to avoid tripping protection, if the actual deceleration time can't meet the requirement, the over-excitation gain can be increased appropriately (F3.10).



How to improve VF operational performance:

1) How to improve the actual acceleration time in VF control mode

Measures
The target frequency is less than 2 times the rated frequency, and the actual acceleration time is found to be unsatisfactory during acceleration. If required, you can increase F3.18 "Over-current stall action current", each time to adjust 10%, If the setting value exceeds 170%, it is easy to cause "Inverter overload fault E010"
If the target frequency is 3 or 4 times the rated frequency or more, during rapid acceleration, it is likely that the motor stall phenomenon (the inverter output frequency has reached the target frequency, but the motor speed remains at a certain speed, or the acceleration time is too long) At this time, you can adjust the F3.21 "speed over-current stall action current compensation coefficient" to 100%

2) How to shorten the actual deceleration time in VF control mode

Phenomenon	Measures
If during deceleration the actual motor reduction was found to be speed time, much greater than setting the deceleration time can take the following measures	If no brake resistor or feedback unit is installed, please increase the setting value of F3.10 "V/F overexcitation gain" and adjust the amount by "±20" each time. If the motor oscillates and overvoltage faults occur after increasing the adjustment amount, please reduce F3.25 "overvoltage stall suppression voltage gain"
	If the inverter is equipped with a braking resistor or a feedback braking unit, and the inverter input voltage level is 360V~420V, please adjust the setting value of Fb.42 "Energy consumption braking starting voltage" to 690V, and adjust F3.10 "Overexcitation gain" to 0
	When using shutdown DC braking, the recommended setting values are: F6.08 (Stop DC braking starting frequency) 0.50Hz; F6.10 (Stop DC braking current) 50%; F6.11 (Stop DC braking time) 1s

3) How to control the output current under VF control mode and how to prevent overcurrent faults under extreme inrush load conditions.

Phenomenon	Measures
In order to better protect the motor and control the upper limit of the motor current, the following measures can be taken to adjust the upper limit of the inverter output current	"Upper limit of inverter output current" can be adjusted by adjusting F3.18 (overcurrent loss action current) to control, "upper limit of inverter output current" = rated current of inverter × F3.18(150% of the value). It is recommended that the "upper limit of inverter output current" should not be less than the rated current of the motor. The recommended value is 1.5 times the rated current of the motor.
	Rapid acceleration, rapid deceleration, or shock loads may cause an "Overcurrent fault". Increase the setting value of F3.20(Overcurrent stall suppression gain) by "±10" per adjustment, and adjust the value of F3.20 (Overcurrent stall suppression gain) by "±10" per adjustment. Too large a setting may cause current oscillations.

4) How to limit the bus voltage in VF control mode to prevent overvoltage faults?

Phenomenon	Measures
In some constant speed power generation loads (such as typical oil fields/pumping units), sudden impact load addition and removal (such as typical high-power punching machines), the operation process is very likely to cause overvoltage faults. In order to avoid overvoltage faults, if the factory parameters have overvoltage faults, the following measures can be taken	Constant speed intermittent power generation loads: please reduce the setting value of F3.22 (overvoltage stall action voltage) setting value (factory value 770V), non-special requirements to limit the upper limit value of bus voltage, it is recommended to adjust it to about "720V" , and if overvoltage fault still occurs, please adjust the setting value of F3.24 (overvoltage stall max rising frequency limit) to 10Hz or 20Hz (such as oil field pumping machines, which have more cyclical power generation time). If over-voltage fault still occurs, please adjust the setting value of F3.24 (over-voltage stall maximum rising frequency limitation) to 10Hz or 20Hz (such as oilfield pumping machine, which has a longer period of periodic power generation).
	When an overvoltage fault occurs due to sudden loading and unloading of a shock load, reduce the setting value of F3.22 (overvoltage stalling action voltage) to about 720V.
	Large inertia rapid deceleration load: if the inverter is equipped with braking resistor, and the input voltage level of the inverter is 360V~420V, please adjust the set value of Fb.42 "Energy braking starting voltage" to 690V, adjust F3.10 "Overexcitation gain" to 0. If it is still over-voltage, please reduce F3.22 "Over-excitation gain" to 0. "If still over-voltage, please reduce F3.22 to 0. （It is recommended to adjust the setting value (overvoltage stall action voltage) to about "740V".

Function code	Name	Setting range	Factory default	Change
F4 Digital input and output terminal function group				
F4.00	Terminal command method	0: 2-wire 1 1: Two-wire 2 2: Three-wire 1 3: Three-wire 2 4: Electronic cam two-wire 3	0	★
F4. 01	X1 Terminal function selection	0: No function 1: Positive rotation operation (FWD) 2: Reverse operation (REV) 3: Three-wire operation control 4: Forward Jogging Operation (FJOG) 5: Reverse Jogging (RJOG) 6: Terminal UP 7: Terminal DOWN 8: Free parking 9: Fault reset (RESET) 10: Running pause 11: External fault normally open input 12: Multi-segment command terminal 1 13: Multi-segment command terminal 2 14: Multi-segment command terminal 3 15: Multi-segment command terminals 4 16: Acceleration and deceleration time selection terminal 1 17: Acceleration and deceleration time selection terminal 2 18: Frequency command switching 19: UP/DOWN Setting clear (terminal, keypad) 20: Operation command switching terminal 1 21: Acceleration and deceleration prohibited 22: PID Suspension 23: PLC status reset 24: Pendulum pause 25: Counter Input 26: Counter reset 27: Length Count Input 28: Length reset 29: Torque control prohibited 30: PULSE (pulse) frequency input (valid only for X5) 31: Reserved 32: Immediate DC braking	1	★
F4. 02	X2 Terminal Function Selection		2	★
F4.03	X3 Terminal Function Selection		41	★
F4.04	X4 Terminal Function Selection		9	★
F4.05	X5 Terminal Function Selection		56	★
F4.06	X6 Terminal Function Selection		6	★
F4.07	X7 Terminal Function Selection		7	★
F4.08	X8 Terminal Function Selection		0	★

		33: External fault normally closed input 34: Frequency modification enable 35: Reverse direction of PID action 36: External parking terminal 1 37: Run command switching terminal 2 38: PID integral suspension 39: Master frequency command and preset frequency switching 40: Auxiliary frequency command and preset frequency switching 41: Positive Rotation Tap 1, Tap Priority 42: Reverse Tap 1, Tap Priority 43: PID parameter switching 44: User-defined faults 1 45: User-defined faults 2 46: Speed control/torque control switching 47: Emergency stops 48: External parking terminal 2 49: Deceleration DC braking 50: This run time is cleared to zero 51: Two-wire/three-wire switching 52: Inverse frequency prohibition 56: Multi-band frequency terminal 1 (corresponding to F8.01 to F8.07) 57: Multi-band frequency terminal 2 (corresponding to F8.01 to F8.07) 58: Multi-band frequency terminal 3 (corresponding to F8.01 to F8.07) 60: Motor Selection Terminal		

Function code	Name	Setting range	Factory default	Change
F4.09	X9 Terminal function selection	ibid	0	★
F4.10	X10 Terminal Function Selection	ibid	0	★
F4.11	X Filter time	0.000s～1.000s	0.010s	☆
F4.12	Terminal UP/DOWN Rate of Change	0.001Hz/s～65.535Hz/s	1.00Hz/s	☆
F4.13	X1 Delay time	0.0s～3600.0s	0.0s	★
F4.14	X2 Delay time	0.0s～3600.0s	0.0s	★
F4.15	X3 Delay time	0.0s～3600.0s	0.0s	★
F4.16	X Terminal active mode selection 1	0: High level active 1: Valid low level Bits: X1 Ten: X2 Hundred: X3 Thousand: X4 10,000 positions: X5	00000	★
F4.17	X Terminal active mode selection 2	0: High level active 1: Valid low level Bits: X6 Ten: X7 Hundred: X8 Thousand: X9 10,000 positions: X10	00000	★
F4.18	AI1 terminal as X Function Selection	0～60	0	★
F4.19	AI2 terminal as X Function Selection	0～60	0	★
F4.20	The panel potentiometer terminals are used as X Function selection when	0～60	0	★
F4.21	AI Terminal Active Mode Selection as X	0: High level active 1: Valid low level Bits: AI1 Ten: AI2 Hundredths: Panel potentiometer	000	★
F4.29	DOR output function selection	0: no output 1: Inverter in operation 2: Fault output (fault shutdown) 3: Frequency level detection FDT1 output 4: Frequency arrival 5: In zero-speed operation (no output at shutdown) 6: Motor overload pre-alarm 7: Inverter overload pre-alarm 8: Setting the notation value to arrive 9: Arrival of the designated notation value	3	☆

Function code	Name	Setting range	Factory default	Change
F4.30	Control Panel Relay Function Selection (TA-TB-TC)	10: Length Arrival 11: PLC cycle complete 12: Cumulative running time reached 13: Frequency limited 14: In torque limitation 15: Ready to run 16: AI1 > AI2 17: Upper limit frequency reached 18: Lower frequency reach (operationally relevant) 19: Undervoltage status output 20: Communication settings 21: FDT2 Non-standard output 22: Reservations 23: In zero-speed operation 2 (also output during shutdown) 24: Cumulative power-up time reached 25: Frequency Level Detection FDT2 Outputs 26: Frequency 1 Arrival Output 27: Frequency 2 Arrival Output 28: Current 1 to Output 29: Current 2 to Output 30: Timed arrival output 31: AI1 input overrun 32: Dropping in 33: Reverse running 34: Zero current state 35: Module temperature reaches 36: Output current overrun 37: Lower frequency limit reached (shutdown also output) 38: Alarm output (continue operation) 39: Motor over-temperature pre-alarm 40: This running time arrives 41: Fault output (fault for free stop and undervoltage not output)	2	☆
F4.31	Relay output function selection (PA-PB-PC)		1	☆
F4.32	Y1 Output function selection		1	☆

Function code	Name	Setting range	Factory default	Change
F4.33	Y2 Output function selection	ibid	1	☆
F4.34	Y3 Output function selection	ibid	1	☆
F4.35	DOR Output Delay Time	0.0s～3600.0s	0.0s	☆
F4.36	RELAY1 (TA/B/C) Output Delay Time	0.0s～3600.0s	0.0s	☆
F4.37	RELAY2 (PA/B/C) Output Delay Time	0.0s～3600.0s	0.0s	☆
F4.38	Y1 Output delay time	0.0s～3600.0s	0.0s	☆
F4.39	Y2 Output delay time	0.0s～3600.0s	0.0s	☆
F4.40	Y3 Output delay time	0.0s～3600.0s	0.0s	☆
F4.41	Y Output terminal valid state selection 1	0: Positive logic 1: Anti-Logic Single digit: DOR Tens: RELAY1 (TA/B/C) Hundreds digit: RELAY2 (PA/B/C) Thousands digit: Y1 Tens of thousands digit: Y2	00000	☆
F4.42	Y Output terminal valid state selection 2	0: Positive logic 1: Anti-Logic Single digit: Y3	00000	☆
F4.54	Frequency Detection Value (FDT1)	0.00Hz to max frequency	50.00 Hz	☆
F4.55	Frequency Detection Hysteresis vaule(FDT1)	0.0% ~100.0% (FDT1 level)	5.0%	☆
F4.56	Frequency Reach Detection Width	0.0% ~100.0% (max frequency)	0.0%	☆
F4.57	Frequency Detection value (FDT2)	0.00Hz ~ max frequency	50.00 Hz	☆
F4.58	Frequency Detection Hysteresis value (FDT2)	0.0% ~100.0% (FDT2 level)	0.0%	☆
F4.59	Arbitrary arrival frequency Detection value 1	0.00Hz ~ max frequency	50.00 Hz	☆
F4.60	Arbitrary arrival frequency Detection width 1	0.0% ~100.0% (max frequency)	0.0%	☆
F4.61	Arbitrary arrival frequency Detection value 2	0.00Hz to max frequency	50.00 Hz	☆

Function code	Name	Setting range	Factory default	Change
F4.59	Arbitrary arrival frequency Detection value 1	0.00Hz ~ max frequency	50.00 Hz	☆
F4.60	Arbitrary arrival frequency Detection width 1	0.0% ~100.0% (max frequency)	0.0%	☆
F4.61	Arbitrary arrival frequency Detection value 2	0.00Hz to max frequency	50.00 Hz	☆
F4.62	Arbitrary arrival frequency detection width 2	0.0% ~100.0% (max frequency)	0.0%	☆
F4.63	Zero current detection level	0.0% ~ 300.0% 100.0% corresponds to rated motor current	5.0%	☆
F4.64	Zero current detection delay time	0.01s～600.00s	0.10s	☆
F4.65	Output current overrun	0.0% (non-detectable) 0.1% ~ 300.0% (motor rated current)	200.0%	☆
F4.66	Output current overrun detection latency	0.00s～600.00s	0.00s	☆
F4.67	Arbitrary arrival current 1	0.0% ~ 300.0% (motor rated current)	100.0%	☆
F4.68	Arbitrary Arrival Current 1 Width	0.0% ~ 300.0% (motor rated current)	0.0%	☆
F4.69	Arbitrary arrival current 2	0.0% ~ 300.0% (motor rated current)	100.0%	☆
F4.70	Arbitrary Arrival Current 2 Width	0.0% ~ 300.0% (motor rated current)	0.0%	☆
F4.71	AI1 Input Voltage lower limit of protection value	0.00V ~ F4.72	3.10V	☆
F4.72	AI1 Input Voltage Protective value ceiling	F4.71 ~ 10.00V	6.80V	☆
F4.73	Module temperature reaches	0℃～100℃	75℃	☆

Function code	Name	Setting range	Factory default	Change
F5 Input and output function terminal block				
F5.00	AI1 Input voltage/current Signal Selection	0: 0 to 10V Voltage or 0 to 20mA 1: 4-20mA	0	☆
F5.01	AI curve 1 Mini input	0.00V ~ F5.03	0.00V	☆
F5.02	AI curve 1 Mini input Corresponding Settings	-100.0%～+100.0%	0.0%	☆
F5.03	AI curve 1 Max input	F5.01 to +10.00V	10.00V	☆
F5.04	AI curve 1 Max input Corresponding Settings	-100.0%～+100.0%	100.0%	☆
F5.05	AI1 Filter time	0.00s～10.00s	0.10s	☆
F5.06	AI2 Input voltage/current Signal Selection	0: 0 to 10V Voltage or 0 to 20mA 1: 4-20mA	0	☆
F5.07	AI Curve 2 mini Input	0.00V ~ F5.09	0.00V	☆
F5.08	AI curve 2 min. input the corresponding setting	-100.0%～+100.0%	0.0%	☆
F5.09	AI curve 2 max input	F5.07 to +10.00V	10.00V	☆
F5.10	AI curve 2 max. input the corresponding setting	-100.0%～+100.0%	100.0%	☆
F5.11	AI2 Filter time	0.00s～10.00s	0.10s	☆
F5.12	AI Curve 3 Mini Input	-10.00V ~F5.14	-9.50V	☆
F5.13	AI curve 3 mini input the corresponding setting	0.0%～+100.0%	-100.0%	☆
F5.14	Panel Potentiometer max input	F5.12 to +10.00V	9.50V	☆
F5.15	Panel potentiometer max. input the corresponding setting	-100.0%～+100.0%	100.0%	☆
F5.16	Panel potentiometer filter time	0.00s～10.00s	0.10s	☆
F5.17	PULSE Minimum Input	0.00kHz ~F5.19	0.00	☆
F5.18	PULSE Minimum Input the corresponding setting	-100.0% ~100.0%	0.0%	☆
F5.19	PULSE Max Input	F5.17 ~ 100.00kHz	50.00kHz	☆
F5.20	PULSE Max. Input Settings	-100.0% ~ 100.0%	100.0%	☆
F5.21	PULSE filter time	0.00s～10.00s	0.10s	☆
F5.22	AI Curve Selection	Single digit: AI1 Curve selection 1: Curve 1 (2 points, see F5.01 to F5.04) 2: Curve 2 (2 points, see F5.07 to F5.10) 3: Curve 3 (2 points, see F5.12 to F5.15) 4: Curve 4 (4 points, see A6.00 to A6.07) 5: Curve 5 (4 points, see A6.08 to A6.15) Tenth digit: AI2 Curve selection, same as above Hundredths digit: panel potentiometer curve selection, as above	321	☆

Function code	Name	Setting range	Factory Default	Change
F5.23	AI Below Minimum Input Setting Selection	Bit: AI1 below minimum input setting selection 0: Corresponds to minimum input setting 1: 0.0% Ten digit: AI2 below minimum input setting selection, same as above Hundred digit: panel potentiometer below minimum input setting selection Optional, ibid.	000	☆
F5.24	DO terminal output Mode Selection	0: Pulse output (DOP) 1: Switching output (DOR)	1	☆
F5.25	DOP output Maximum Frequency	0.01kHz ~100.00kHz	50.00kHz	☆
F5.26	DOP output function selection	0: Operating frequency 1: Setting frequency 2: Output current 3: Output torque 4: Output power 5: Output Voltage 6: PULSE input (100.% corresponds to 100.0 kHz) 7: AI1 8: AI2 9: Panel potentiometer (expansion card) 10: Length 11: Notation of values 12: Communication settings 13: Motor speed 14: Output current (100.0% corresponds to 1000.0 A) 15: Output voltage (100.0% corresponds to 1000.0 V) 16: Motor output torque (actual value, as a percentage of 2 times the actual motor torque)	0	☆
F5.27	AO1 output function selection	0: Operating frequency 1: Setting frequency 2: Output current 3: Output torque 4: Output power 5: Output Voltage 6: PULSE input (100.% corresponds to 100.0 kHz) 7: AI1 8: AI2 9: Panel Potentiometer	0	☆

		10: Length 11: Notation of values 12: Communication settings 13: Motor speed 14: Output current (100.0% corresponds to 1000.0 A) 15: Output voltage (100.0% corresponds to 1000.0 V) 16: Motor output torque (actual value, Percentage relative to 2 times the actual torque of the motor）		
F5.28	AO2 output Function Selection	Same as F5.27	1	☆
F5.29	AO1 output voltage/current signal selection	0: 0 ~ 10V or 0 ~20mA 1: 4-20mA	0	☆
F5.30	AO1 zero bias factor	-100.0%～+100.0%	0.0%	☆
F5.31	AO1 gain	-10.00 ~ +10.00	1.00	☆

Function code	Name	Setting range	Factory default	Change
F5.32	AO2 zero bias factor	-100.0%～+100.0%	0.0%	☆
F5.33	AO2 gain	-10.00 ~+10.00	1.00	☆
F5.34	AO2 output voltage/current signal selection	0: 0 ~10V or 0 ~20mA 1: 4-20mA	0	☆
F6 Group start-stop control				
F6.00	Activation method	0: Direct start 1: Speed tracking restart 2: Pre-excitation start (AC asynchronous machine)	0	☆
F6.01	Rotation speed tracking method	0: Starting from the shutdown frequency 1: Starting from zero speed 2: Starting from the maximum frequency	0	★
F6.02	RPM tracking fast and slow	1 ~ 100	20	☆
F6.03	Start-up frequency	0.00Hz ~10.00Hz	0.00Hz	☆
F6.04	Starting frequency hold time	0.0s ~ 100.0s	0.0s	★
F6.05	Starting DC braking current /pre-excitation current	0% ~ 100%	0%	★
F6.06	Start DC braking time /pre-excitation time	0.0s ~ 100.0s	0.0s	★
F6.07	Shutdown mode	0: Deceleration stop 1: Free stop	0	☆
F6.08	Stopping DC braking start frequency	0.00Hz ~max frequency	0.00Hz	☆
F6.09	Shutdown DC braking wait time	0.0s ~100.0s	0.0s	☆
F6.10	Stopping DC braking current	0% ~ 100%	0%	☆
F6.11	Stopping DC braking time	0.0s ~ 100.0s	0.0s	☆
F6.12	Brake utilization rate	0% ~ 100%	100%	☆

Function code	Name	Setting range	Factory default	Change
F7 Group Keypad and Display Function Group				
F7.02	LED running monitoring parameter display selection 1	0000 ~1111 Single-digit: L0.00 running frequency 1 (Hz) Ten-digit: L0.01-set frequency (Hz) Hundred-digit: L0.02-bus voltage Thousand-digit: L0.03 - output voltage 0: Not displayed 1: Displayed	0101	☆
F7.03	LED running monitoring parameter display selection 2	0000 ~1111 Single digit: L0.04 -output current (A) Ten digit: L0.05 - output power (KW) Hundred digit: L0.06 - output torque (%) Thousand digit: L0.07 - X input status 0: Not displayed 1: Displayed	0001	☆
F7.04	LED runing monitoring parameter display selection 3	0000 ~ 1111 Single digit: L0.08-Y output status Ten digit:: L0.09-AI1 voltage (V) Hundred digit: L0.10-AI2 voltage (V) Thousand digit: L0.11-panel potentiometer voltage (V) 0: Not displayed 1: Displayed	0000	☆
F7.05	LED running monitoring parameter display selection 4	0000 ~ 1111 Single digit: L0.12 - count value Ten digit: L0.13 - length value Hundred digit: L0.14 - load speed display Thousand digit: L0.15 - PID setting 0: Not displayed 1: Displayed	0100	☆
F7.06	LED running monitoring parameter display selection 5	0000 ~1111 Single digit: L0.16-PID feedback Ten digit: L0.17-PLC stage Hundred digdit: reserved Thousand digits: L0.19 - running frequency 2 (Hz) 0: Not displayed 1: Displayed	0000	☆

Function code	Name	Setting range	Factory default	Change
F7.07	LED running monitoring parameter display selection 6	0000 ~1111 Single digit: L0.20 - remaining running time Ten digit: L0.21- AI1 voltage (V) before correction Hundred digit: L0.22- AI2 voltage (V) before correction Thousand digit: L0.23-Panel potentiometer voltage before correction (V) 0:Not displayed 1: Displayed	0000	☆
F7.08	LED running monitoring parameter display selection 7	0000 ~ 1111 Single digit: L0.24 - Linear velocity Ten digit: L0.25 - current power-up time (Hour) Hundred digit: L0.26 - current running time (Min) Thousand digit: reserved 0: Not displayed 1: Displayed	0000	☆
F7.09	LED running monitoring parameter display selection 8	0000 ~1111 Single digit: L0.28-communication setpoint Ten digit: reserved Hundred digit: L0.30 - primary frequency X display (Hz) Thousand digit: L0.31 - auxiliary frequency Y display (Hz) 0: Not displayed 1: Display	0000	☆
F7.12	LED Stop parameter display selection 1	0000 ~1111 Single digit: L0.01-set frequency (Hz) Ten digits: L0.02-bus voltage (V) Hundred digits: L0.07-X Input status Thousand digits: L0.08-Y output status 0: Not displayed 1: Display	0011	☆
F7.13	LED Stop parameter display selection 2	0000 ~1111 Single digit: L0.09-AI1 voltage (V) Ten digit: L0.10-AI2 voltage (V) Hundred digit: L0.11 - panel potentiometer voltage (V) Thousand digit: L0.12 - count value 0: Not displayed 1: Displayed	0000	☆
F7.14	LED Stop parameter display selection 3	0000 ~1111 Single digit: L0.13 - length value Tenth digit: L0.17 - PLC phase Hundredths digit: L0.14 - Load speed Thousandths digit: L0.15 - PID setting 0: no display 1: Display	0000	☆

Function code	Name	Setting range	Factory default	Change
F7.15	LED Stop parameter display selection 4	0000 to 1111 Single digit: reserved Tenth position: L0.16- PID Feedback Hundredth position: reserved Thousands: reserved 0: not displayed 1: Display	0000	☆
F7.17	Second digital tube operation Display initial monitoring parameters	0 to 62, where 0 corresponds to L0.00. 62 corresponds to L0.62, and so on.	4	☆
F7.18	Second digital tube stop Display initial monitoring parameters	0 to 62, where 0 corresponds to L0.00. 62 corresponds to L0.62, and so on.	2	☆
F7.22	Load Speed Display Factor	0.01 to 200.00	100.00%	☆
F7.23	Load speed display in decimal places	0: 0 decimal places 1: 1 decimal place 2: 2 decimal places 3: 3 decimal places	0	☆
F7.24	Inverter Modules radiator temperature	0.0℃～100.0℃	-	●
F7.25	rectifier module radiator temperature	0.0℃～100.0℃	-	●
F7.26	reservations	-	-	●
F7.27	Cumulative running time	0h to 65535 hours	-	●
F7.28	Cumulative power-up time	0h to 65535 hours	-	●
F7.29	product number	-	-	●
F7.30	Functional software version number	-	-	●
F7.31	Cumulative power consumption	0 to 65535 degrees	-	●
F7.32	Output power correction factor	0.00% to 200.00%	100.00%	☆
Group F8 Auxiliary Function Terminal Group				
F8.00	Forward and reverse dead time	0.0s～3000.0s	0.0s	☆
F8.01	Multi-band frequency 1	0.00Hz to maximum frequency	10.00Hz	☆
F8.02	Multi-band frequency 2	0.00Hz to maximum frequency	15.00Hz	☆
F8.03	Multi-band frequency 3	0.00Hz to maximum frequency	20.00Hz	☆
F8.04	Multi-band frequency 4	0.00Hz to maximum frequency	25.00Hz	☆
F8.05	Multi-band frequency 5	0.00Hz to maximum frequency	30.00Hz	☆
F8.06	Multi-band frequency 6	0.00Hz to maximum frequency	35.00 Hz	☆
F8.07	Multi-band frequency 7	0.00Hz to maximum frequency	40.00Hz	☆
F8.16	Acceleration time 2	0.0s～6500.0s	Model Determination	☆
F8.17	Deceleration time 2	0.0s～6500.0s	Model Determination	☆
F8.18	Acceleration time 3	0.0s～6500.0s	Model Determination	☆

Function code	Name	Setting range	Factory default	Change
F8.19	Deceleration time 3	0.0s～6500.0s	Model Determination	☆
F8.20	Acceleration time 4	0.0s～6500.0s	Model Determination	☆
F8.21	Deceleration time 4	0.0s～6500.0s	Model Determination	☆
F8.23	Jump frequency 2	0.00Hz to maximum frequency	0.00Hz	☆
F8.24	Hopping frequency amplitude	0.00Hz to maximum frequency	0.01Hz	☆
F8.25	Sag control	0.00Hz to 10.00Hz	0.00Hz	☆
F8.26	Cooling Fan Control	0: Fan running during operation 1: Fan runs all the time	0	☆
F8.27	Setting cumulative power-up arrival time	0h～65000h	0h	☆
F8.28	Setting cumulative operation arrival time	0h～65000h	0h	☆
F8.29	Whether the jump frequency during acceleration and deceleration is effective	0: Invalid 1: Effective	0	☆
F8.30	Acceleration time 1 with acceleration Time 2 Switching frequency point	0.00Hz to maximum frequency	0.00Hz	☆
F8.31	Deceleration time 1 with deceleration Time 2 Switching frequency point	0.00Hz to maximum frequency	0.00Hz	☆
F8.32	Timer function selection	0: not valid 1: valid	0	☆
F8.33	Timed runtime selection	0: F8.34 Setting 1: AI1 2: AI2 3: The analog input range of the panel potentiometer corresponds to F8.34.	0	☆
F8.34	Timed Runtime	0.0Min～6500.0Min	0.0 Min	☆
F8.35	Arrival time setting for this run	0.0Min～6500.0Min	0.0 Min	☆
F8.36	Command Source Bundle Frequency Command	Bit: operation panel command binding frequency command selection 0: no binding 1: Digital setting frequency 2: AI1 3: AI2 4: Panel Potentiometer 5: PULSE Pulse setting (X5) 6: Multi-speed 7: Simple PLC 8: PID 9: Communication given Ten digits: terminal command binding frequency command selection Hundred digits: communication command binding frequency command selection Thousands of bits: auto run bound frequency command selection	0000	☆

Function code	Name	Setting range	Factory default	Change
F8.38	DPWM Switching upper frequency	0.00Hz to 320.00Hz	12.00Hz	☆
F8.39	PWM Modulation	0: Asynchronous modulation 1: Synchronized modulation	0	☆
F8.40	Deadband compensation mode selection	0: No compensation 1: Compensation model 1 2: Compensation mode 2	1	☆
F8.41	Random PWM Depth	0: Random PWM is invalid 1 to 10: PWM carrier frequency random depth	0	☆
F8.42	Fast Current Limit Enable	0: not enabled 1: Enabling	1	☆
F8.43	Current Detection Compensation	0 to 100	5	☆
F8.44	SVC Optimization Mode Selection	0: not optimized 1: Optimization mode 1 2: Optimization mode 2	1	☆
F8.45	Dead time adjustment	100% to 200%	150%	☆
F8.46	Overpressure point setting	200.0-2500.0V	Model Determination	★
F9 group Closed-loop PID, constant pressure water supply special parameter group				
F9.00	PID Given Source	0: F9.01 Setting 1: AI1 2: AI2 3: Panel Potentiometer 4: PULSE Pulse setting (X5) 5: Communication given 6: Multi-Segment Instruction Giving	0	☆
F9.01	PID value given	0.000 to F9.04 (Mpa)	0.200	☆
F9.02	PID Feedback Source	0: AI1 1: AI2 2: Panel Potentiometer 3: AI1-AI2 4: PULSE Pulse setting (X5) 5: Communication given 6: AI1+AI2 7: MAX (|AI1|, |AI2|) 8: MIN (|AI1|, |AI2|)	0	☆
F9.03	PID direction of action	0: positive effect 1: Counterproductive	0	☆
F9.04	PID given feedback (water supply Remote pressure gauge range at time)	0.00～655.35 (Mpa for water supply)	1.00	☆
F9.05	Proportional gain KP1	0.0 to 100.0	20.0	☆
F9.06	Integration time Ti1	0.01s～10.00s	2.00s	☆
F9.07	Differential time Td1	0.000s～10.000s	0.000s	☆
F9.08	PID Inversion Cutoff Frequency	0.00 to maximum frequency	0.00Hz	☆
F9.09	PID Deviation Limit	0.0% to 100.0%	0.0%	☆
F9.10	PID differential limiting	0.00% to 100.00%	0.10%	☆
F9.11	PID Given change time	0.00 to 650.00s	0.00s	☆

Function code	Name	Setting range	Factory default	Change
F9.12	PID Feedback Filter Time	0.00 to 60.00s	0.00s	☆
F9.13	PID output filter time	0.00 to 60.00s	0.00s	☆
F9.14	Initial value of the PID is given at the time of shutdown	0: Actual PID given 1: Equal to F9.21, used with F9.11	0	☆
F9.15	Proportional gain KP2	0.0 to 100.0	20.0	☆
F9.16	Integration time Ti2	0.01s～10.00s	2.00s	☆
F9.17	Differential time Td2	0.000s～10.000s	0.000s	☆
F9.18	PID parameter switching conditions	0: No switching 1: Switching via X-terminal 2: Automatic switching according to deviation	0	☆
F9.19	PID parameter switching deviation 1	0.0% to F9.20	20.0%	☆
F9.20	PID parameter switching deviation 2	F9.19 to 100.0%	80.0%	☆
F9.21	PID initial value	0.0% to 100.0%	0.0%	☆
F9.22	PID initial value hold time	0.00 to 650.00s	0.00s	☆
F9.23	Positive maximum of two output deviations	0.00% to 100.00%	1.00%	☆
F9.24	Two output deviation inverse maximum value	0.00% to 100.00%	1.00%	☆
F9.25	PID Integral Attributes	Single digit: Separation of points 0: Invalid 1: Effective Tenth position: whether to stop integration after outputting to the limit value 0: continue integration 1: Stopping points	00	☆
F9.26	PID Feedback Loss Detection Value	0.0%: no judgment on loss of feedback 0.1% to 100.0%	0.0%	☆
F9.27	PID Feedback Loss Check Time	0.0s～20.0s	0.0s	☆
F9.28	PID Stopping Operation	0: Shutdown without computing 1: Computing during downtime	0	☆
F9.36	Coefficient of awakening	0.0% to 100.0% (as a percentage of the target force) at F9.36 multiplied by F9.01 Calculated stress awakening	75.0%	☆
F9.37	Delay in awakening	0.0s～6500.0s	0.0s	☆
F9.38	Sleep frequency	0.00Hz～maximum frequency (inverter is sleeping) (The LEDs will display SLP when it is in sleep state).	38.00 Hz	☆
F9.39	Sleep latency	0.0s～6500.0s	0.0s	☆
F9.40	Water supply sleep tolerance	0.0% to 100.0%, this parameter is the corresponding percentage to the given pressure. See Chapter VI, F9.38, F9.39 for details. explain in detail	20.0%	☆
F9.41	Keypad UP/DOWN function selection in monitoring mode when PID is closed-looped	This function is valid in closed-loop PID mode, this function code is invalid innotclosed-loop PID mode 0: Adjustment of the keypad frequency given 1: PID digital feed to regulate	1	☆

Function code	Name	Setting range	Factory default	Change
F9.42	Constant pressure water supply mode selection	0: Invalid constant-pressure water supply mode for one-tow-many 1: Select Y1, Y3 for one-two water supply mode (one use, one standby). 2: Select Y1, Y2, Y3, DO one-two two cycle constant pressure water supply mode is effective (one with a complement, Y1 control the first pump frequency conversion, Y2 control the first pump frequency, Y3 control the second pump frequency conversion, DO control the second pumps at working frequency)	0	★
F9.43	Timed Rotation Interval	0 to 65535 minutes 0 indicates timed rotation no efficacy	0	☆
F9.44	Pumping judgment time	0.0 to 6553.5s	5.0s	☆
F9.45	Pump reduction judgment time	0.0 to 6553.5s	3.0s	☆
F9.46	Electromagnetic switching delay time	0.1 to 10.0s	0.5s	☆
F9.47	Inverter pump input delay time	0.1 to 20.0s	1.0s	☆
F9.49	Low pressure arriving at the monitoring point	0.0 to 100.0%	0.0%	☆
F9.50	Water shortage detection delay	0.1 to 999.9s	0.0s	☆
F9.51	Water Shortage Detection Current	0.0～100.0% (relative to motor rated power) (Stream)	0.0%	☆
F9.52	Y1 output function in water supply card mode	0: Water supply mode is invalid, Y1 can be used as other general-purpose inverter functions. 1: The water supply mode is effective, one towing two water supply, one with a backup Y1 as the first pump frequency control; one with a complementary Y1 as the first pump Frequency control of one pump	0	★
F9.53	Y2 output function in water supply card mode	0: Water supply mode is invalid, Y2 can be used as other general-purpose frequency converter functions. 1: The water supply mode is effective, two in one water supply, one with a complementary Y2 as the first pump frequency control	0	★
F9.54	Y3 output function in water supply card mode	0: water supply mode is invalid, Y3 can be used as other general-purpose inverter function 1: water supply mode is effective, two in one water supply, one with a backup Y3 as the first pump frequency control; one with a complementary Y3 as the first pump frequency control	0	★
F9.55	DO output function in water supply card mode	0: water supply mode is invalid, DO can be used as other general-purpose inverter functions 1：Water supply mode is effective, two in one water supply, one with a complementary DO as the first pump worker frequency control	0	★

Function code	Name	Setting range	Factory default	Change
F9.56	Water shortage protection function	0: Closed 1: open to frequency (F9.58), pressure (outlet pressure), current (actual motor current) for judgment, when the output frequency is greater than or equal to F9.58, the feedback pressure is less than F9.57, and the output current percentage is less than F9.59, and at the same time to meet the above three conditions, the delay F9.62, reported E069 (water shortage malfunction) 2：Open to the outlet pressure for judgment, when the feedback pressure is less than F9.57, delay F9.62 time after the report E069 (water shortage malfunction) 3: Open, to judge by the inlet pressure (the inlet needs to install a sensor), when the inlet pressure is less than F9.57 E069 (water shortage fault) after time delay F9.62	0	☆
F9.57	Water Shortage Fault Detection Threshold	0.00 Mpa to F9.04 When the feedback pressure is less than this setting, the feedback pressure can be set to 0.00 Mpa. Judgment of water shortage is made only when the value	0.05Mpa	☆
F9.58	Frequency of water shortage protection detection	0.00 to upper frequency Valid only when F9.56=1 Comparison frequency for determining whether water is scarce or not	50.00 Hz	☆
F9.59	Water shortage protection detection Percentage of current	0.0 to 100.0% Valid only when F9.56=1 Percentage of rated motor current	40.0%	☆
F9.60	Water shortage protection automatic restart delay	0 to 9999 minutes	15 minutes.	☆
F9.61	Number of automatic resets for water shortage protection	0~50 After reporting water shortage fault, after F9.60 time, the inverter will reset automatically, the reset times are limited by F9.61, when it reaches the reset times, the water shortage fault can't be cleared automatically, and it is necessary to reset the fault manually by pressing RESET. F9.61 Setting to 9999 resets the water shortage fault indefinitely.	10	☆
F9.62	Water shortage alarm detection time	0.0 to 120.0s	15.0s	☆

Function code	Name	Setting range	Factory default	Change
FA Group Multi-segment commands, simple PLCs, pendulums, fixed-length and counting				
FA.00	Multi-segment instruction 0	-100.0% to 100.0%	0.0%	☆
FA.01	Multi-segment instruction 1	-100.0% to 100.0%	0.0%	☆
FA.02	Multi-segment instruction 2	-100.0% to 100.0%	0.0%	☆
FA.03	Multi-segment instruction 3	-100.0% to 100.0%	0.0%	☆
FA.04	Multi-segment instructions 4	-100.0% to 100.0%	0.0%	☆
FA.05	Multi-segment instructions 5	-100.0% to 100.0%	0.0%	☆
FA.06	Multi-segment instructions 6	-100.0% to 100.0%	0.0%	☆
FA.07	Multi-segment instructions 7	-100.0% to 100.0%	0.0%	☆
FA.08	Multi-segment instructions 8	-100.0% to 100.0%	0.0%	☆
FA.09	Multi-segment instructions 9	-100.0% to 100.0%	0.0%	☆
FA.10	Multi-segment instruction 10	-100.0% to 100.0%	0.0%	☆
FA.11	Multi-segment instructions 11	-100.0% to 100.0%	0.0%	☆
FA.12	Multi-segment instructions 12	-100.0% to 100.0%	0.0%	☆
FA.13	Multi-segment instructions 13	-100.0% to 100.0%	0.0%	☆
FA.14	Multi-segment instructions 14	-100.0% to 100.0%	0.0%	☆
FA.15	Multi-segment instruction 15	-100.0% to 100.0%	0.0%	☆
FA.16	MUlti-Segment Instruction 0 Given Mode	0: Function code FA.00 given 1: AI1 2: AI2 3: Panel Potentiometer 4: PULSE Pulse 5: PID 6: Preset frequency (F0.09) given, UP/DOWN modifiable	0	☆
FA.17	Simple PLC operation method	0: Shutdown at the end of a single run 1: End of single run holds final value 2: Keep looping	0	☆
FA.18	SImple PLC Power-down Memory Selection	Bit: Power down memory selection 0: Power down no memory 1: Power-down memory Ten digits: Shutdown memory selection 0: Shutdown not memorized 1: Downtime memory	00	☆
FA.19	Simple PLC paragraph 0 running time	0.0s (h) to 6553.5s (h)	0.0s (h)	☆
FA.20	Simplified PLC paragraph 0 plus Deceleration time selection	0 to 3	0	☆
FA.21	Simple PLC paragraph 1 running time	0.0s (h) to 6553.5s (h)	0.0s (h)	☆
FA.22	Simplified PLC paragraph 1 plus Deceleration time selection	0 to 3	0	☆
FA.23	Simple PLC paragraph 2 running time	0.0s (h) to 6553.5s (h)	0.0s (h)	☆
FA.24	Simplified PLC, paragraph 2 plus Deceleration time selection	0 to 3	0	☆
FA.25	Simplified PLC 3rd stage operation travel time	0.0s (h) to 6553.5s (h)	0.0s (h)	☆

Function code	Name	Setting range	Factory default	Change
FA.25	Simplified PLC 3rd stage operation travel time	0.0s (h) to 6553.5s (h)	0.0s (h)	☆
FA.26	Simplified PLC, paragraph 3 plus Deceleration time selection	0 to 3	0	☆
FA.27	Simple PLC paragraph 4 running time	0.0s (h) to 6553.5s (h)	0.0s (h)	☆
FA.28	Simple PLC paragraph 4 plus Deceleration time selection	0 to 3	0	☆
FA.29	Simple PLC paragraph 5 running time	0.0s (h) to 6553.5s (h)	0.0s (h)	☆
FA.30	Simple PLC paragraph 5 plus Deceleration time selection	0 to 3	0	☆
FA.31	Simple PLC Paragraph 6 running time	0.0s (h) to 6553.5s (h)	0.0s (h)	☆
FA.32	Simple PLC paragraph 6 plus Deceleration time selection	0 to 3	0	☆
FA.33	Simplified PLC, paragraph 7 operation travel time	0.0s (h) to 6553.5s (h)	0.0s (h)	☆
FA.34	Simple PLC paragraph 7 plus Deceleration time selection	0 to 3	0	☆
FA.35	Simple PLC Paragraph 8 running time	0.0s (h) to 6553.5s (h)	0.0s (h)	☆
FA.36	Simple PLC paragraph 8 plus Deceleration time selection	0 to 3	0	☆
FA.37	Simple PLC Paragraph 9 running time	0.0s (h) to 6553.5s (h)	0.0s (h)	☆
FA.38	Simple PLC paragraph 9 plus Deceleration time selection	0 to 3	0	☆
FA.39	Simple PLC Paragraph 10 running time	0.0s (h) to 6553.5s (h)	0.0s (h)	☆
FA.40	Simple PLC paragraph 10 plus Deceleration time selection	0 to 3	0	☆
FA.41	Simple PLC Paragraph 11 running time	0.0s (h) to 6553.5s (h)	0.0s (h)	☆
FA.42	Simple PLC Paragraph 11 plus Deceleration time selection	0 to 3	0	☆
FA.43	Simple PLC Paragraph 12 running time	0.0s (h) to 6553.5s (h)	0.0s (h)	☆
FA.44	Simple PLC Paragraph 12 plus Deceleration time selection	0 to 3	0	☆
FA.45	Simple PLC Paragraph 13 running time	0.0s (h) to 6553.5s (h)	0.0s (h)	☆
FA.46	Simplified PLC Paragraph 13 plus Deceleration time selection	0 to 3	0	☆

Function code	Name	Setting range	Factory default	Change
FA.47	Simplified PLC, paragraph 14 Line Time Selection	0.0s (h) to 6553.5s (h)	0.0s (h)	☆
FA.48	Simple PLC Paragraph 14 plus Deceleration time selection	0 to 3	0	☆
FA.49	Simplified PLC Paragraph 15 running time	0.0s (h) to 6553.5s (h)	0.0s (h)	☆
FA.50	Simplified PLC Paragraph 15 plus Deceleration time selection	0 to 3	0	☆
FA.51	Simple PLC operation time unit	0: s (seconds) 1: h (hours)	0	☆
FA.52	Oscillation Frequency Setting Method	0: relative to the center frequency 1: Relative to the maximum frequency	0	☆
FA.53	swing amplitude	0.0% to 100.0%	0.0%	☆
FA.54	Burst frequency amplitude	0.0% to 50.0%	0.0%	☆
FA.55	oscillation period	0.1s～3000.0s	10.0s	☆
FA.56	Triangular wave with oscillating frequency rising time	0.1% to 100.0%	50.0%	☆
FA.57	Setting length	0m～65535m	1000m	☆
FA.58	Actual length	0m～65535m	0m	☆
FA.59	Pulses per meter	0.1 to 6553.5	100.0	☆
FA.60	Setting the count value	1 to 65535	1000	☆
FA.61	Specify the count value	1 to 65535	1000	☆
Group Fb Faults and Protection				
Fb.00	Motor overload protection options	0: Prohibited 1: Permission	1	☆
Fb.01	Motor overload protection gain	0.20 to 10.00	1.00	☆
Fb.02	Motor overload warning factor	50% to 100%	80%	☆
Fb.03	Overvoltage stall gain	0 to 100	0	☆
Fb.04	Overvoltage stall protection voltage	200.0V to 999.9V	760.0V	☆
Fb.05	Overspeed loss gain	0 to 100	20	☆
Fb.06	Overcurrent loss speed protection current	100% to 200%	150%	☆
Fb.07	Shorted to ground on power-up Protection options	0: Invalid 1: Effective	1	☆
Fb.08	Failure auto reset times	0 to 20	0	☆
Fb.09	During automatic fault reset Failure Y action for selection	0: No action 1: Movement	0	☆
Fb.10	Automatic fault reset interval time	0.1s～100.0s	1.0s	☆
Fb.11	Input phase loss and input line fault protection selection	Bit: Input phase loss protection selection Ten positions: Input line fault protection selection 0: Prohibit 1: Permission	11	☆
Fb.12	Output out-of-phase protection selection	0: Prohibited 1: Permission	1	☆

Function code	Name	Setting range	Factory default	Change
Fb.13	Fail-safe action selection 1	Bit: Motor overload (11) 0: Free parking 1: Shutdown by stopping mode 2: Keep running Tenth digit: input out of phase (12) Hundredth digit: output out of phase (13) Thousandth digit: external fault (15) 10,000: communication anomalies (16)	00000	☆
Fb.14	Fail-safe action selection 2	Bit: Encoder/PG Card Exception (20) 0: Free Parking Tenth position: Function code read/write abnormality (21) 0: Free parking 1: Shutdown by stopping mode Hundredth position: Inverter overload fault action selection (E010) 0: Free stopping 1: Run down Thousandth position: Motor overheating (25) 10,000 digits: reserved	00000	☆
Fb.15	Fail-safe action selection 3	digits: user-defined faults 1 (27) 0: free parking 1: Shutdown by stopping mode 2: Keep running Tenth position: user-defined fault 2 (28) 0: free parking 1: Shutdown by stopping mode 2: Keep running Hundredths: power-up time arrival (29) 0: free parking 1: Shutdown by stopping mode 2: Keep running Thousands of positions: Dropped load (30) 0: Free parking 1: Slow down and stop 2: Decelerate to 7% of the rated frequency of the motor to continue to run, and automatically return to the set frequency when the load is not dropped. 10,000 bits: Loss of PID feedback at runtime (31) 0: Free parking 1: Shutdown by stopping mode 2: Keep running	00000	☆
Fb.16	Fail-safe action selection 4	Bit: Excessive speed deviation (42) 0: Free parking 1: Shutdown by stopping mode 2: Keep running Tenth position: motor overspeed (43) Hundredth position: initial position error (51) Thousands: speed feedback error (52)	00000	☆
Fb.20	Frequency selection for continued operation in case of failure	0: Run at current operating frequency 1: Operation at set frequency 2: Upper frequency operation 3: Operating at the lower frequency limit 4: Operating at abnormal standby frequency	0	☆
Fb.21	Abnormal Standby Frequency	0.0% to 100.0% (100.0% corresponds to maximum frequency)	100.0%	☆

Function code	Name	Setting range	Factory default	Change
Fb.26	Instantaneous blackout action selection	0: Invalid 1: Decelerate 2: Decelerate and stop	0	☆
Fb.27	Momentary motion pause Voltage	80.0% to 100.0%	90.0%	☆
Fb.28	Instantaneous outage voltage Recovery judgment time	0.00s to 100.00s	0.50s	☆
Fb.29	Instantaneous blackout action Voltage	60.0% to 100.0% (standard bus voltage)	80.0%	☆
Fb.30	Load shedding protection options	0: Invalid 1: Effective	0	☆
Fb.31	Dropout detection level	0.0 to 100.0%	10.0%	☆
Fb.32	Load Drop Detection Time	0.0 to 60.0s	1.0s	☆
Fb.33	Over speed detection value	0.0% to 50.0% (maximum frequency)	20.0%	☆
Fb.34	Over speed detection time	0.0s: no detection 0.0s～60.0s	1.0s	☆
Fb.35	Excessive speed deviation detection value	0.0% to 50.0% (maximum frequency)	20.0%	☆
Fb.36	Excessive speed deviation detection time	0.0s: no detection 0.0s～60.0s	5.0s	☆
Fb.42	Energy braking starting voltage	350.0V to 999.9V	Model Determination	☆
FC Group Fault Logging Group				
FC.00	Previous (most recent) Fault type	Same as FC.03	-	●
FC.01	Pre-secondary fault type	Same as FC.03	-	●
FC.02	Type of first three failures	Same as FC.03	-	●
FC.03	First four failure types	0: No faults 1: Reservations 2: Accelerated overcurrent 3: Deceleration overcurrent 4: Constant speed overcurrent 5: Accelerated overvoltage 6: Deceleration overvoltage 7: Constant speed overvoltage	-	●

Function code	Name	Setting range	Factory default	Change
FC.04	First five failure types	8: Control power supply overvoltage (overvoltage in constant speed) 9: Undervoltage 10: Inverter overload 11: Motor overload 12: Input phase loss 13: Output out of phase 14: Module overheating 15: External faults 16: Communication anomalies 17: Input line abnormality 18: Abnormal current detection 19: Motor self-learning abnormality 20: Encoder/PG card abnormality 21: Parameter read/write exception 22: Inverter hardware abnormality 23: Motor shorted to ground 24: Reservations 25: Reservations 26: Reservations 27: User-defined faults 1 28: User-defined faults 2 29: Power-up time arrival 30: Dropout 31: Loss of PID feedback at runtime 40: Fast Current Limit Timeout 41: Switching motors during operation 42: Excessive speed deviation 43: Motor overspeed 45: Motor over-temperature 51: Initial position error	-	●
FC.05	First six failure types			
FC.06	Previous (most recent) Failure time frequency	-	-	●
FC.07	Previous (most recent) Current at fault	-	-	●
FC.08	Previous (most recent) Busbar voltage at fault	-	-	●
FC.09	Previous (most recent) Input terminal status at fault	-	-	●
FC.10	Previous (most recent) Output terminal status at fault	-	-	●
FC.11	Previous (most recent) Inverter status at fault	-	-	●
FC.12	Previous (most recent) Power-up time in case of failure	-	-	●
FC.13	Previous (most recent) Runtime in case of failure	-	-	●

Function code	Name	Setting range	Factory default	Change
FC.14	Inverter module at previous (most recent) failure radiator temperature	-	-	●
FC.15	Previous (most recent) Setting frequency in case of malfunction			
FC.16	Frequency at first second failure	-	-	●
FC.17	Current at first secondary fault	-	-	●
FC.18	At the time of the first two failures busbar voltage	-	-	●
FC.19	Input on first secondary fault terminal status	-	-	●
FC.20	Output on first two faults terminal status	-	-	●
FC.21	At the time of the first two failures Inverter status	-	-	●
FC.22	At the time of the first two failures power-on time	-	-	●
FC.23	At the time of the first two failures running time	-	-	●
FC.24	Inverter mode at first secondary fault Block radiator temperature	-	-	●
FC.25	At the time of the first two failures Setting frequency	-	-	●
FC.26	During the first three failures frequency	-	-	●
FC.27	Current during the first three faults	-	-	●
FC.28	During the first three failures busbar voltage	-	-	●
FC.29	Input for the first three failures terminal status	-	-	●
FC.30	Output on first three faults terminal status	-	-	●
FC.31	During the first three failures Inverter status	-	-	●
FC.32	During the first three failures power-on time	-	-	●
FC.33	During the first three failures running time	-	-	●
FC.34	verter module heat sink temperature during the first three failures	-	-	●
FC.35	During the first three failures Setting frequency	-	-	●

Function code	Name	Setting range	Factory default	Change
Group Fd communication parameters				
Fd.00	Baud rate	Bit: MODBUS 0: 300BPS 1: 600 BPS 2: 1200BPS 3: 2400 BPS 4: 4800 BPS 5: 9600 BPS 6: 19200 BPS 7: 38400BPS 8: 57600BPS 9: 115200BPS	6005	☆
Fd.01	MODBUS Data Format	0: no calibration (8-N-2) 1: Even check (8-E-1) 2: Odd check (8-O-1) 3: No checksum (8-N-1) (MODBUS valid)	0	☆
Fd.02	Local address	0: Broadcast address 1 to 247 (MODBUS, Profibus, CANlink valid)	1	☆
Fd.03	MODBUS Response Delay	0ms～20ms (MODBUS valid)	2	☆
Fd.04	Serial communication timeout	0.0 (invalid), 0.1s to 60.0s (valid for MODBUS, Profibus, CANOpen)	0.0	☆
Fd.05	MODBUS, Profibus-D communication s Data format	Digits: MODBUS 0: Non-standard MODBUS protocol 1: Standard MODBUS protocol ten bits: Profibus-DP 0: PPO1 format 1: PPO2 format 2: PPO3 format 3: PPO5 format	31	☆
Fd.06	Communication reading current resolution	0: 0.01A 1: 0.1A	0	☆
Fd.07	Master-slave selection	0: Mainframe 1: Slave	0	☆
Fd.15	Serial communication protocol selection	0: Modbus protocol 1: Profibus-DP bridge 2: CANopen Bridge	0	☆

5.2 Summary Table of Monitoring Parameters

Function code	Name	Smallest unit	Mail address
L0 Group Basic Monitoring Parameters			
L0.00	Operating frequency (Hz)	0.01Hz	7000H
L0.01	Setting frequency (Hz)	0.01Hz	7001H
L0.02	Bus voltage (V)	0.1V	7002H
L0.03	Output Voltage (V)	1V	7003H
L0.04	Output current (A)	0.01A	7004H
L0.05	Output power (kW)	0.1kW	7005H
L0.06	Output torque (%)	0.1%	7006H
L0.07	X Input status	1	7007H
L0.08	Y Output status	1	7008H
L0.09	AI1 Voltage (V)	0.01V	7009H
L0.10	AI2 Voltage (V)/Current (mA)	0.01V/0.01mA	700AH
L0.11	Panel potentiometer voltage (V)	0.01V	700BH
L0.12	numerical value	1	700CH
L0.13	length value	1	700DH
L0.14	Load speed display	1	700EH
L0.15	PID setting	0.01	700FH
L0.16	PID Feedback	0.01	7010H
L0.17	PLC Phase	1	7011H
L0.18	PULSE Input pulse frequency (Hz)	0.01kHz	7012H
L0.19	Feedback speed (in 0.1Hz)	0.1Hz	7013H
L0.20	Remaining running time	0.1Min	7014H
L0.21	AI1 Pre-correction voltage	0.001V	7015H
L0.22	AI2 Voltage/current before correction (mA)	0.01V/0.01mA	7016H
L0.23	Panel Potentiometers Voltage before calibration	0.001V	7017H
L0.24	linear velocity	1m/Min	7018H
L0.25	Current power-up time	1Min	7019H
L0.26	Current Runtime	0.1Min	701AH
L0.27	PULSE Input pulse frequency	1Hz	701BH
L0.28	Communication Setpoint	0.01%	701CH
L0.29	Encoder feedback speed	0.01Hz	701DH
L0.30	Main Frequency X Display	0.01Hz	701EH
L0.31	Auxiliary frequency Y display	0.01Hz	701FH
L0.32	View any memory address value	1	7020H
L0.33	Synchronizer rotor position	0.1°	7021H
L0.34	Motor temperature value	1°C	7022H
L0.35	Target torque (%)	0.1%	7023H
L0.36	axis of rotation (math.)	1	7024H
L0.37	Power factor perspective	0.1°	7025H
L0.38	ABZ Position	1	7026H
L0.39	VF Separation target voltage	1V	7027H
L0.40	VF Separate output voltage	1V	7028H

Function code	Name	Smallest unit	Mail address
L0.41	X Input status visualization	1	7029H
L0.42	Y Input status visualization	1	702AH
L0.43	X Functional status visualization Display 1 (functions 01-40)	1	702BH
L0.44	X Functional status visualization Exhibit 2 (Functions 41-80)	1	702CH
L0.45	error message (computing)	1	702DH
L0.58	Z Signal Counter	1	703AH
L0.59	Setting frequency (%)	0.01%	703BH
L0.60	Operating frequency (%)	0.01%	703CH
L0.61	Inverter status	1	703DH
L0.62	Current Fault Code	1	703EH
L0.65	Upper torque limit	0.1%	7041H
L0.74	Actual motor output torque	-100 to 100%	704AH

Chapter 6
Troubleshooting and Response Policy

6.1 Fault Alarms and Countermeasures

Fault name	Operating surface plate display	Troubleshooting	Troubleshooting Countermeasures
Acceleration overcurrent	E002	1、Inverter output circuit there is a ground or short circuit 2、Control mode is vector and there is no parameter identification. 3、Acceleration time is too short 4、Manual torque increase or inappropriate V/F curve 5、Low voltage 6、Starting the motor that is rotating 7、Accelerate the process of sudden load 8、Inverter selection is small	1、Troubleshooting peripheral faults 2、Motor parameter identification 3、Increase acceleration time 4、Adjust the manual lifting torque or V/F curve 5、Adjust the voltage to the normal range Select the speed tracking start or wait for e machine to stop before starting 7、Eliminate sudden loads 8、The choice of power level greater frequency converter
Deceleration overcurrent	E003	1、Inverter output circuit there is a ground or short circuit 2、Control mode is vector and there is no parameter identification. 3、Deceleration time is too short 4、Low voltage 5、Suddenly add load during deceleration 6、No braking unit and braking resistor installed	1、Troubleshooting peripheral faults 2、Motor parameter identification 3、Increase the deceleration time 4、Adjust the voltage to the normal range 5、Cancel the sudden load 6、Adding brake unit and resistor
Constant speed overcurrent	E004	1、Inverter output circuit there is a ground or short circuit 2、Control mode is vector and there is no parameter identification. 3、Low voltage 4、Whether there is a sudden load in the operation 5、Inverter selection is small	1、Troubleshooting peripheral faults 2、Motor parameter identification 3、Adjust the voltage to the normal range 4、Cancel the sudden load 5、The choice of power level greater frequency converter
Acceleration overvoltage	E005	1、High input voltage 2、The acceleration process there is an external force drag motor operation 3、Acceleration time is too short 4、No braking unit and braking resistor installed	1、Adjust the voltage to the normal range 2、Cancel this power or install braking resistance 3. Increase acceleration time 4、Adding brake unit and resistor
Deceleration overvoltage	E006	1、High input voltage 2、Deceleration process there is an external force drag motor operation 3、The deceleration time is too short 4、With the addition of braking unit and braking resistor	1、Adjust the voltage to the normal range 2、Cancel this power or install braking resistance 3、Increase the deceleration time 4、Adding brake unit and resistor
Constant speed overvoltage	E007	1、 High input voltage 2、 the existence of external drag motor operation during operation	1、Adjust the voltage to the normal range 2、Cancel this power or install braking resistance
Control electronics source failure	E008	Input voltage is not within the range specified in the specification	Adjust the voltage to the range required by the specification

Fault name	Operating surface plate display	Troubleshooting	Troubleshooting Countermeasures
Undervoltage fault	E009	1、Instantaneous blackout 2、Inverter input voltage is not in the range of specification requirements 3、Unnormal bus voltage 4、Rectifier bridge and buffer resistance is not normal 5、Driver board abnormality 6、Control board abnormality	1、Reset fault 2、Adjust the voltage to the normal range 3、Seek technical support 4、Seek technical support 5、Seeking technical support 6、Seek technical support
Frequency converter overload	E010	1、Whether the load is too large or motor blocking occurs 2、Inverter selection is small	1、Reduce the load and check the motor and mechanical conditions 2、Select a larger power level inverter
Motor overload	E011	1、Is the motor protection parameter Fb.01 set appropriately? 2、Whether the load is too large or motor blocking occurs 3、Inverter selection is small	1. Set this parameter correctly 2、Reduce the load and check the motor and mechanical conditions 3、Select the inverter with bigger power level
Input out of phase	E012	1、Three-phase input power is not normal 2、Driver board abnormality 3、Abnormal lightning protection board 4、Main control board abnormal	1、Check and eliminate problems in the peripheral wiring 2、Seek technical support 3、Seek technical support 4、 Seek technical support
Output Out-of-Phase	E013	1、The inverter to the motor lead is not normal 2、Inverter three-phase output imbalance during motor operation 3、Driver board abnormality 4、Module exceptions	1、Troubleshooting peripheral faults 2、check the motor three-phase winding is normal and troubleshooting 3、 Seek technical support 4、 Seek technical support
Module overheating	E014	1、High ambient temperature 2、Air duct blockage 3、Fan damage 4、Module thermistor damage 5、Damage to the inverter module	1、Reduce the ambient temperature 2、Clean the air duct 3、Replace the fan 4. Replace the thermistor 5、Replacement of inverter module
External equipment failure	E015	1、Signal input for external faults via multi-function terminal X 2、Input the external fault signal through the virtual IO function. horn (wind instrument)	1、Reset operation 2、Reset operation

Fault name	Operating surface plate display	Troubleshooting	Troubleshooting Countermeasures
Malfunction of communications	E016	1、The upper computer is not working properly 2、Communication line is not normal 3、Communication parameter Fd group is not set correctly.	1、Check the wiring of the upper computer 2、Check the communication connection line 3 、 Correctly set the communication parameters
Input line road fault	E017	1、L, N or R, S, T input line problem 2、Grid shaking	1、Check the input power line 2、Put Fb.11=00
Current Detection Fault	E018	1、Check the Hall device abnormality 2、Driver board abnormality	1、Replacement of Hall devices 2、Replace the driver board
Motor self-learning faults	E019	1、Motor parameters are not set according to the nameplate 2、Parameter identification process timeout	1 、 Correctly set the motor parameters according to the nameplate 2、Check the inverter to motor lead
Code disc failure	E020	1、Mismatch of encoder model 2、Encoder wiring error 3、Damaged encoder 4、PG Card Abnormal	1、Correctly set the encoder type according to the actual 2、Troubleshooting lines 3、Replacement of encoder 4. Replacement of PG card
EEPROM failures to read or write	E021	1、EEPROM chip damage	1、Replace the main control board
Inverter hardware failure	E022	1、Existence of overpressure 2、Existing overcurrent	1、Press overpressure troubleshooting 2、Press overcurrent fault processing
Short circuit to ground malfunctions	E023	1、Motor short circuit to ground	1、Replace the cable or motor
User-defined faults 1	E027	1、Input signal for user-defined fault 1 via multi-function terminal X 3、Input the signal of user-defined fault 1 through the virtual IO function.	1、Reset operation 2、Reset operation
User-defined faults 2	E028	1、Input signal for user-defined fault 2 via multi-function terminal X 2、Input the signal of user-defined fault 2 through the virtual IO function.	1、Reset operation 2、Reset operation
Cumulative power-up time reaches malfunctions	E029	1、Accumulated power-up time reaches the set value	1、Use the parameter initialization function to clear the record information
Loss of load failure	E030	Inverter running current less than Fb.31	Confirm whether the load is disengaged or whether the parameter settings of Fb.31 and Fb.32 are in accordance with the actual conditions. International operating conditions

Fault name	Operating surface plate display	Troubleshooting	Troubleshooting Countermeasures
Runtime PID inverse feed loss fault	E031	1、PID feedback less than F9.26 set value	1、Check the PID feedback signal or setting F9.26 is an appropriate value
Wave-by-wave current limiting faults	E040	1、Whether the load is too large or motor blocking occurs 2、Inverter selection is small	1、Reduce the load and check the motor and mechanical conditions 2、Select a larger power level inverter
Runtime switching motor failure	E041	1、During the operation of the inverter through the terminal Change current motor selection	1、Inverter stop and then motor Toggle operation
Excessive speed deviation fault	E042	1、Incorrect encoder parameter setting 2、No parameter identification 3、Speed deviation is too large detection parameter setting is unreasonable	1、Correctly set the encoder parameters 2、Motor parameter identification 3、Reasonable setting of detection parameters according to the actual situation
Motor overspeed fault	E043	1、Incorrect encoder parameter setting 2、No parameter identification 3、Motor over speed detection parameter setting is not reasonable	1、Correctly set the encoder parameters 2、Motor parameter identification 3、Reasonable setting of detection parameters according to the actual situation
Motor over-temperature fault	E045	1、Temperature sensor wiring loose 2、Motor temperature is too high	1、Test the temperature sensor wiring and troubleshooting 2、Reduce the load frequency or take other heat dissipation Measures to dissipate heat from the motor
Initial position error	E051	Motor parameters and the actual deviation is too large	1、Re-confirm that the motor parameters are correct, focusing on the rated current is No. Setting is on the small side
Constant pressure water supply water shortage fault	E069	Lack of water from water sources	Checking the water source
asleep	SLP	Constant pressure water supply sleep state	Normal phenomenon, if not right please set up Sleep-related parameters
Password protected	-----	The inverter is set with a user password	Enter the correct user password or link Department of Agents

E022 of the 60 warning messages is a hardware overcurrent or overvoltage signal, and in most cases a hardware overvoltage fault causes the E022 alarm.

Appendix A:
T510 Series Product Information, Installation and Wiring

1. Description of inverter appearance and part names

1.1Product Outline Diagram

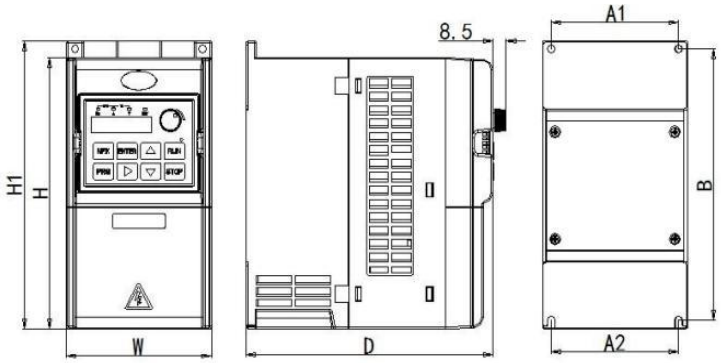


Figure A-1 External Dimensions and Installation Schematic for Power Segments 22kW and Below

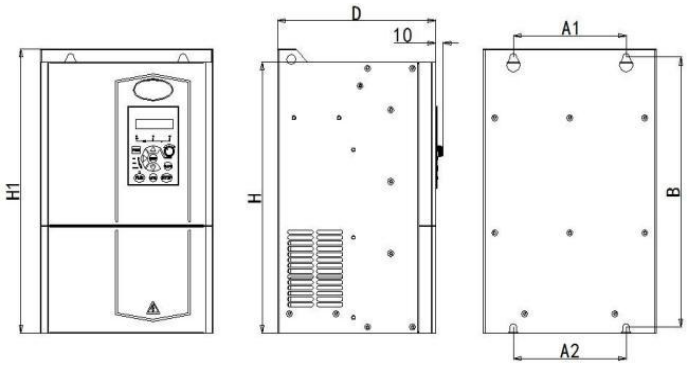


Figure A-2 Schematic of 18.5kW～110kW external dimensions and installation dimensions

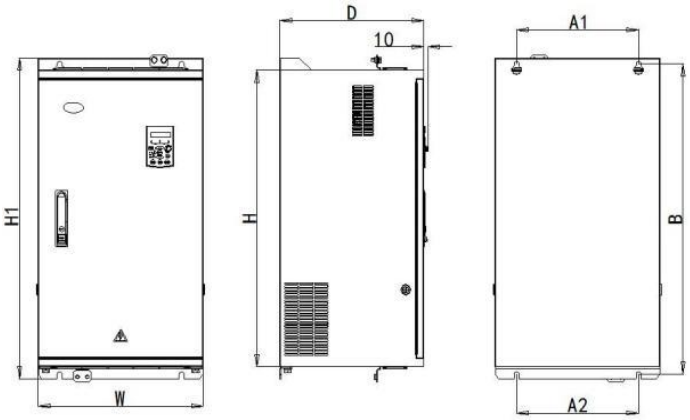


Figure A-3 160W～400kW External Dimensions and Installation Dimension Schematic

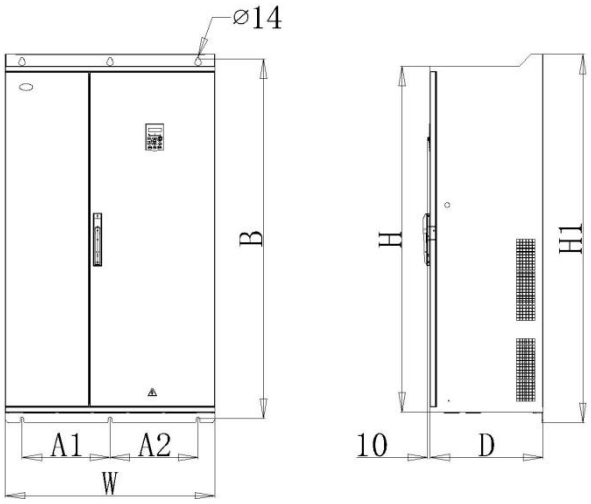


Figure A-4 Schematic of 450W～710kW External Dimensions and Mounting Dimensions

1.2 Shape and mounting hole dimensions:

Shell code	Model number	Mounting holes (mm)			Overall Dimension (mm)			Mounting hole diameter(mm)	Gross weight (Kg)
		A1/A2	B	H	H1	W	D		
Z2	T510-2T1.5B	81/81	162	162	172	92	152	⌀ 4.5	1.4
	T510-2T2.2B								
	T510-4T0.75G/1.5PB-S								
	T510-4T1.5G/2.2PB-S								
	T510-4T2.2G/3.0PB-S								
	T510-4T3.0G/4.0PB-S								
	T510-4T4.0G/5.5PB-S								
	T510-4T5.5GB-S								
	T510-4T3.0G/4.0PB								
	T510-4T4.0G/5.5PB								
Z3	T510-4T4.0G/5.5PB-D	98/98	208	207	219	109	172.5	⌀ 5.5	2.4
	T510-4T5.5G/7.5PB								
	T510-4T7.5G/11PB								
Z4	T510-4T11G/15PB	119/119	250	250	261	130	182	⌀ 5.5	3.8
	T510-4T15G/18.5PB								
	T510-4T18.5GBM								
	T510-4T18.5GB								
Z5N	T510-4T18.5G/22PB	167/177	282	280	293	190	199	⌀ 5.5	6.5
	T510-4T22G/30PB								
	T510-4T30GB								
Z5	T510-4T18.5G/22PB-D	150/150	339	340	355	230	210	⌀ 9	10.3
	T510-4T22G/30PB-D								
Z6N	T510-4T30G/37P	210/200	410	390	426	250	210	⌀ 9	14.6
	T510-4T37G/45P								

Shell code	Model number	Mounting holes (mm)			Overall Dimension (mm)			Mounting hole diameter(mm)	Gross weight (Kg)
		A1/A2	B	H	H1	W	D		
Z7N	T510-4T45G/55P	266/266	473	450	492	300	236	⌀ 9	19.4
	T510-4T55G								
	T510-4T55G/75P								
	T510-4T75G								
Z8N	T510-4T75G/90PA	286/286	471	450	493	335	236	⌀ 9	
EN	T510-4T75G/90P	230/230	536	500	555	320	230	⌀ 10	26.5
FN	T510-4T90G/110P	320/320	611	568	634	410	240	⌀ 12	49
	T510-4T110G/132P								
Z9	T510-4T132G/160PA	310/310	594	545	620	440	310	⌀ 11	
GN	T510-4T160G/185PA	310/310	649	600	675	440	320	⌀ 11	
G	T510-4T132G/160P	320/320	669	616	692	475	347	⌀ 12	55.4
	T510-4T160G/200P								
HN	T510-4T185G/200P	310/310	764	730	790	420	366	⌀ 12	80
	T510-4T200G/220P								
IN	T510-4T220G/250P	360/360	785	750	810	490	370	⌀ 12	103
	T510-4T250G/280P								
	T510-4T280G/315PA	360/360	1085	1050	1110	490	370	⌀ 12	126
JN	T510-4T280G/315P	520/520	1159	1120	1190	650	370	⌀ 14	164
	T510-4T315G/355P								
	T510-4T355G/400P								
	T510-4T400G								
KN	T510-4T450G/500P	335/335	1372	1320	1405	800	430	⌀ 14	
	T510-4T500G/560P								
LN	T510-4T560G/630P	400/400	1502	1450	1535	950	450	⌀ 14	
	T510-4T630G/710P								

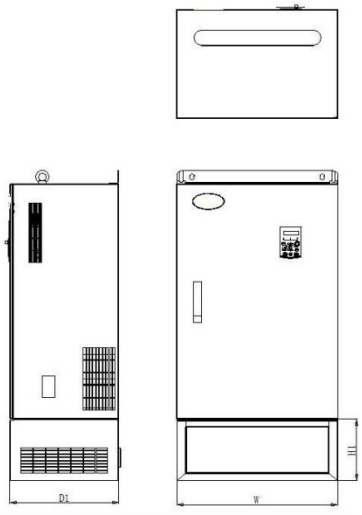


Figure A-5: Base Mounting Schematic

Table: Chassis Outline and Mounting Hole Dimensions

Chassis Designator	Corresponding inverter power	W(mm)	D1(mm)	H1(mm)	Icon
HN_DZ	T510-4T185G/200P T510-4T200G/220P	420	366	300	2-5
IN_DZ	T510-4T220G/250P T510-4T250G/280P	490	370	300	
	T510-4T280G/315PA Already comes standard with a base				
JN_DZ	T510-4T280G/315P T510-4T315G/355P T510-4T355G/400P T510-4T400G	650	370	400	
KN_DZ	T510-4T450G/500P T510-4T500G/560P	800	430	450	
LN_DZ	T510-4T560G/630P T510-4T630G/710P	950	450	450	

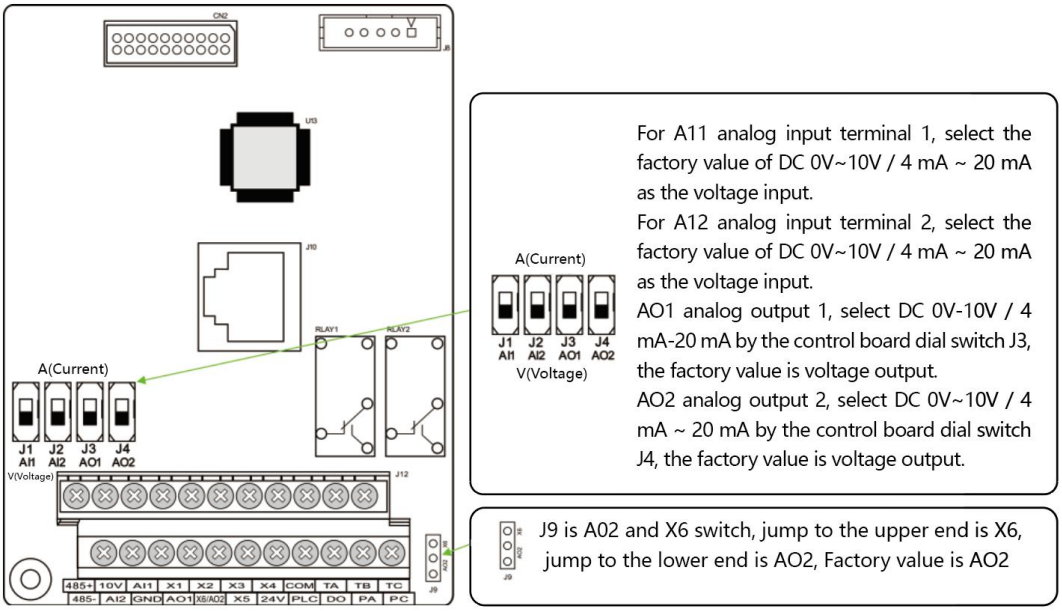
1.3 External Dimensions of External Keyboard

Only the Z2, Z3, Z4, and Z5N housings are standardized with the native keypad KB510 keypad, all other housings are standardized with the KB301 native keypad, see the T600 series, refer to Chapter II

1.4 Control Terminal:

1.4.1The control circuit terminal layout for the power range of 0.75KW to 22KW and below is shown below:

485+	10V	AI1	X1	X2	X3	X4	COM	TA	TB	TC
485-	AI2	GND	AO1	X6/AO2	X5	24V	PLC	DO	PA	PC



1.4.2 The control circuit terminals for 18.5KW and above are shown below:

485+	485-	10V	AI1	GND	X1	X2	X3	X4	X5	COM	DO	TA	TB	TC
GND	AI2	AO1	AO2	COM	X6	X7	24V	PLC	Y1	Y2	Y3	PA	PB	PC

Appendix B:
T510/T600 Serial Communications Protocols

T510/T600 series inverter provides RS485 communication interface and adopts standard MODBUS communication protocol. Users can realize centralized control (setting inverter operation commands, function code parameters, reading inverter working status and fault information) through PC/PLC to meet specific usage requirements.

1. Content of the agreement

This serial communication protocol defines the content of the information transmitted in serial communication and the format used. These include: the host polling (or broadcasting) format; the coding method of the host, which includes: the function code of the requested action, the transmitted data and the error check, and so on. The slave's response adopts the same structure, including: action confirmation, return data and error checking. If the slave makes an error in receiving information or fails to complete the action requested by the host, it will organize a fault message as a response back to the host.

2. Application

The frequency converter is connected to a PC/PLC control network with RS485 bus "single-master-multi-slave". Multi-computer applications:

In practice, daisy and star connections are generally used.

The RS485 industrial bus standard requires a daisy-chain connection between the devices, which must be connected with 120Ω terminating resistors at both ends, as shown in Figure B-1. Figure B-2 is a simplified wiring diagram. Figure B-3 shows the actual application diagram.

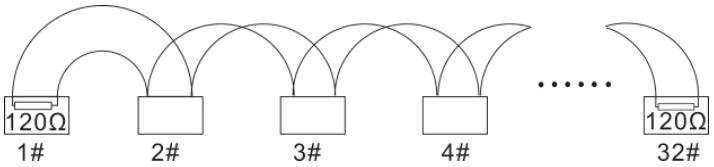


Figure B-1 Daisy Connection Field Wiring Diagram

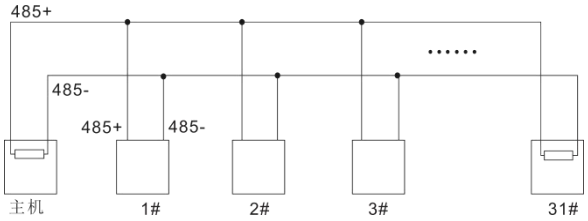


Figure B-2 Daisy Simplified Wiring Diagram

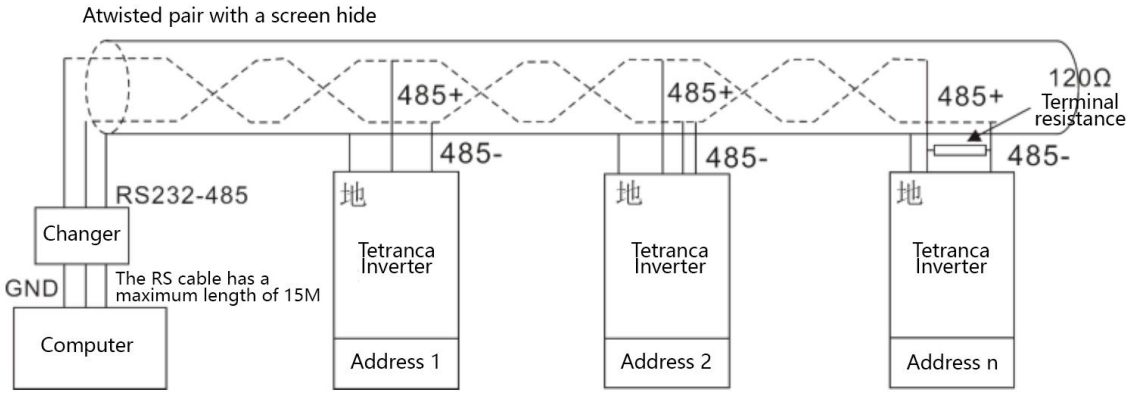
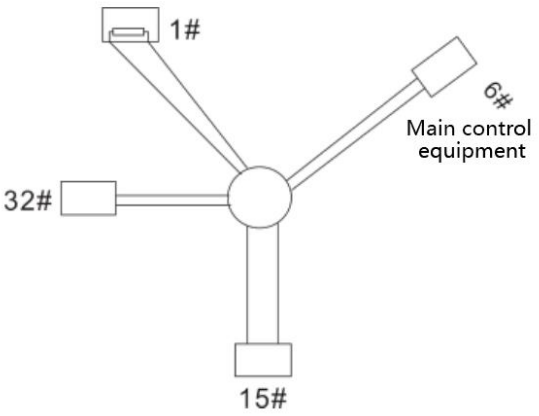


Figure B-3 Daisy Connection Application Diagram

Figure B-4 illustrates the star connection method. In this case, terminating resistors must be connected to the two devices that are furthest away from the line (devices 1# and 15#).



Multi-machine connection should try to use shielded wires. baud rate and data bit parity of all devices on the RS485 line must be the same basic parameters, the address must not be repeated.

3. Bus structure

1) Interface method RS485 Hardware interface

2) Transmission method

Asynchronous serial, half-duplex transmission method. At the same time only one of the host and slave can send data and the other can only receive data. Data is sent in the form of telegrams, frame by frame, during serial asynchronous communication.

3) Topological structure

Single-master-multi-slave system. The slave address is set in the range of 1 to 247, with 0 being the broadcast communication address. Slave addresses must be unique in the network

4. Description of the agreement

The communication protocol of T600 series inverter is an asynchronous serial master-slave ModBus communication protocol, in which only one device (host) in the network can establish the protocol (called "query/command"). Other devices (slaves) can only respond to the host's "query/command" by providing data, or make corresponding actions according to the host's "query/command". The master here refers to personal computers (PCs), industrial control devices or programmable logic controllers (PLCs), etc., and the slave refers to the T600 frequency converter. The master can communicate with a slave individually, or it can issue broadcast messages to all subordinate slaves. For individually accessed "queries/commands" from the host, the slaves are required to return a message (called a response), and for broadcast messages issued by the host, the slaves are not required to return a response to the host.

5. Communications data structure

The communication data format of ModBus protocol of T600 series inverter is as follows:

With RTU mode, message sending must start with a pause interval of at least 3.5 character times. This is easiest to achieve with varied character times at network baud rates (shown in T1-T2-T3-T4 in the following figure). The first field transmitted is the device address. The transmission characters that can be used are the hexadecimal 0.... .9,A...F. The network device continuously detects the network bus, including during the pause interval. When the first field (address field) is received, each device decodes it to determine if it is addressed to itself. After the last transmitted character, a pause of at least 3.5 characters marks the end of the message. A new message may

begin after this pause. The entire message frame must be transmitted as a continuous stream. If there is a pause of more than 1.5 characters before the frame is complete, the receiving device refreshes the incomplete message and

It is assumed that the next byte is the address field of a new message. Similarly, if a new message begins after the previous message in less than 3.5 characters, the receiving device will assume that it is a continuation of the previous message. This results in an error because the value in the last CRC field cannot be correct.

- **RTU frame format:**

Frame header START	3.5 character time
Slave Address ADR	Correspondence address: 1 to 247
Command Code CMD	03: Read slave parameters; 06: Write slave parameters
Data content DATA (N-1)	Data content: function code parameter address, number of function code parameters, function code parameter value, etc.
Data content DATA (N-2)	
.....	
Data content DATA0	
CRC CHK High	Detection value: CRC value.
CRC CHK Low	
END	3.5 character time

- **CMD (Command Message) and DATA (Data Word Description)**

Command code: 03H, read N words (Word) (up to 12 words)

For example, read the function code parameters F0.08, F0.09 two parameters, from the machine address for the start of the 01 inverter address F008H, continuous reading continuous 2 values

Host Command Information

ADR	01H
CMD	03H
High starting address	F0H
Start Address Low	08H
Number of registers high	00H
Number of registers low	02H
CRC CHK Low	76H
CRC CHK High	C9H

Slave Response Information

ADR	01H
CMD	03H
Profile F002H High	13H
Profile F002H Low	88H
Profile F003H High	00H
Profile F003H Low	00H
CRC CHK Low	7EH
CRC CHK High	9DH

Command Code: 06H, Write a Word (Word)

For example, setting F0.10 to 300.00Hz will write 30000 (7530H) to the F00AH address of the inverter at slave address 06H.

Host Command Information

ADR	08H
CMD	06H
Data Address High	F0H
data address low level	0AH
Information content high	75H
Profile content low	30H
CRC CHK Low	BCH
CRC CHK High	D5H

Slave Response Information

ADR	08H
CMD	06H
Data Address High	F0H
Data address low level	0AH
Profile content high	75H
Profile content low	30H
CRC CHK Low	BCH
CRC CHK High	D5H

- **Checksum method-CRC Checksum method: CRC (Cyclical Redundancy Check)**

Using the RTU frame format, the message includes an error detection field based on the CRC method.The CRC field detects the entire contents of the message.The CRC field is two bytes containing a 16-bit binary value. It is calculated by the transmitting device and added to the message. The receiving device recalculates the CRC of the received message and compares it to the value in the received CRC field, and if the two CRC values are not equal, there is an error in transmission.

The CRC is first deposited at 0xFFFF, and then a procedure is called to process the consecutive 8-bit bytes in the message with the value in the current register. Only the 8Bit data in each character is valid for the CRC; the start and stop bits and the parity bit are not valid.

During CRC generation, each 8-bit character is individually differentiated (XORed) from the register contents, resulting in a shift towards the least significant bit, with the most significant bit being filled with a 0. The LSB is extracted and detected, and the register is individually differentiated from the preset value if the LSB is a 1, or not if the LSB is a 0. The entire process is repeated eight times, with the register being differentiated from the preset value. The whole process is repeated 8 times. After the last bit

（After completion (bit 8), the next 8-bit byte is individually differentiated from the current value in the register. The final value in the register is the CRC value after all the bytes in the message have been executed.

When CRC is added to a message, the low byte is added first, then the high byte. The CRC simple function is as follows:

unsigned int crc_chk_value(unsigned cF0r *data_value,unsigned cF0r length)

{unsigned int crc_value=0xFFFF;int i;while(length--){crc_value^=*data_value++;

for(i=0;i<8;i++){if(crc_value&0x0001){crc_value= (crc_value>>1)^0xa001;}else{cr

c_value=crc_value>>1;}}}return(crc_value);}

- **Address definition of communication parameters**

This part is the content of communication, which is used to control the operation of the inverter, inverter status and related parameter settings. Read and write function code parameters (some function codes cannot be changed and are for the manufacturer's use only):

Use the function code group number and label as the parameter address labeling rules:

High byte: F0 to FF (Group F), A0 to AF (Group A), 70 to 7F (Group L) Low byte: 00 to FF

For example, to range function code F3.12, the access address of the function code is indicated as 0×F30C; note:

Group FF: parameters can neither be read nor changed; Group L: parameters can only be read but not changed.

Some parameters can not be changed when the inverter is in running state; some parameters can not be changed no matter what state the inverter is in; change the function code parameters, but also pay attention to the scope of the parameters, units, and related instructions.

Function code group number (computing)	Address for correspondence access	Communication modification of function code address in RAM
Group F0 to FE	0×F000～0×FEFF	0×0000～0×0EFF
Group A0 to AC	0×A000～0×ACFF	0×4000～0×4CFF
Group L0	0×7000～0×70FF	

Note: Since the life of the EEPROM will be reduced if the EEPROM is stored frequently, there are some function codes that do not need to be stored in the communication mode, just change the value in the RAM.

If the parameter is group F, the function can be realized by turning the high F bit of the function code address to 0. If the parameter is group A, to realize the function, just change the high bit A of the function code address to 4.

The corresponding function code address is indicated below:

High byte: 00 to 0F (Group P), 40 to 4F (Group A) Low byte: 00 to FF

As:

Function code F3.12 is not stored in the EEPROM and is indicated at address 030C; function code A0.05 is not stored in the EEPROM and is indicated at address 4005;

This address indicates that only write RAM can be done, not read action, and when reading, it is an invalid address. For all parameters, the command code 07H can also be used to realize this function.

Group F1: only read parameters, can not change parameters; some parameters can not be changed when the frequency converter is in running state; some parameters can not be changed no matter what state the frequency converter is in; change the function code parameters, but also pay attention to the scope of the parameters, the unit, and the relevant instructions.

Shutdown/Operation Parameters section:

Parameter address	Parameter Description	Parameter address	Parameter Description
1000 H	*Communication setpoint (decimal) -10000 to 10000	1010 H	PID Setting
1001 H	operating frequency	1011 H	PID Feedback
1002 H	busbar voltage	1012 H	PLC Steps
1003 H	output voltage	1013 H	PULSE Input pulse frequency, unit 0.01kHz
1004 H	Output Current	1014 H	Feedback speed in 0.1Hz
1005 H	output power	1015 H	Remaining running time
1006 H	Output torque	1016 H	AI1 Pre-correction voltage
1007 H	running speed	1017 H	AI2 Pre-correction voltage
1008 H	X Input Flag	1018 H	Voltage before panel potentiometer correction
1009 H	Y Output Flag	1019 H	linear velocity
100A H	AVI Voltage	101A H	Current power-up time
100B H	ACI Voltage	101B H	Current Runtime
100C H	Panel Potentiometer Voltage	101C H	PULSE Input pulse frequency, unit 1Hz
100D H	Count Input	101D H	Communication Setpoint
100E H	Length value input	101E H	Actual feedback speed
100F H	Load speed	101F H	Main Frequency X Display
-	-	1020 H	Auxiliary frequency Y display

Attention:

The communication setpoint is a percentage of the relative value, 10000 corresponds to 100.00% and -10000 corresponds to -100.00%.

For data in the frequency scale, the percentage is the percentage of the relative maximum frequency; for data in the torque scale, the percentage is F2.10, A0.48 (upper limit numerical setting of the torque, corresponding to the first and second motors, respectively).

Example 1: 2 values (i.e. two parameters, bus voltage and output voltage) are read consecutively from the start address 1002 of an inverter with the slave address 01 (Fd.02 = 001).

Host Command Information

ADR	01H
CMD	03H
High starting address	10H
Start Address Low	02H
Number of registers high	00H
Number of registers low	02H
CRC CHK Low	61H
CRC CHK High	0BH

Slave Response Information

ADR	01H
CMD	03H
Byte count	04H
Profile F002H High	11H
Profile F002H Low	B2H
Profile F003H High	00H
Profile F003H Low	00H
CRC CHK Low	5FH
CRC CHK High	28H

Example 2: Inverter with slave address 01 (Fd.02 = 001) starts at address 1000 and writes a value of 10000 (i.e., sets the communication given frequency as the maximum output frequency).

Host Command Information

ADR	01H
CMD	06H
High starting address	10H
Start Address Low	00H
Number of registers high	27H
Number of registers low	10H
CRC CHK Low	97H
CRC CHK High	36H

Slave Response Information

ADR	01H
CMD	06H
Data Address High	10H
data address low level	00H
Profile content high	27H
Profile content low	10H
CRC CHK Low	97H
CRC CHK High	36H

Control command input to inverter: (write only)

command word address	Command Function
2000	0001: Positive rotation operation
	0002: Reverse run
	0003: Positive rotation point movement
	0004: Reverse point movement
	0005: Free stops
	0006: Deceleration stop
	0007: Fault reset

Example: The inverter with slave address 01 is running positively (the run command channel is given by the communication)

Host Command Information

ADR	01H
CMD	06H
High starting address	20H
Start Address Low	00H
Number of registers high	00H
Number of registers low	01H
CRC CHK Low	43H
CRC CHK High	CAH

Slave Response Information

ADR	01H
CMD	06H
Data Address High	20H
data address low level	00H
Profile content high	00H
Profile content low	01H
CRC CHK Low	43H
CRC CHK High	CAH

Read inverter status: (read only)

Status word address	**Status word function**
3000	0001: Positive rotation operation
	0002: Reverse run
	0003: Downtime
password address	**Enter the contents of the password**
F024	****

Parameter lock password verification: (If the return is 8888H, it means the password verification passed)

Digital output terminal control: (write only)

Command address	**Order content**
2001 H	BIT0: Y1 output control BIT1: Y2 output control BIT2: RELAY1 output control BIT3: RELAY2 output control BIT4: DOR output control BIT5: Y3 BIT6: Reserved BIT7: Reserved BIT8: Reserved BIT9: Reserved

Analog output AO1 Control: (write only)

command address	Lock Password Command Contents
2002 H	0 to 7FFF indicates 0% to 100%.

Analog output AO2 Control: (write only)

command address	Lock Password Command Contents
2003 H	0 to 7FFF indicates 0% to 100%.

High-speed pulse (DO) output control: (write-only)

Command address	Lock Password Command Contents
2004 H	0 to 7FFF indicates 0% to 100%.

Inverter Fault Description:

Inverter Fault Address	Inverter Failure Information	
8000 H	0000: No faults 0001: Reservations 0002: Accelerated overcurrent 0003: Deceleration overcurrent 0004: Constant speed overcurrent 0005: Acceleration overvoltage 0006: Deceleration overvoltage 0007: Constant speed overvoltage 0008: Buffer resistor overload fault 0009: Undervoltage fault 000A: Inverter overload 000B: Motor overload 000C: Input out of phase 000D: Output out of phase 000E: Module overheating 000F: External fault 0010: Communication anomalies 0011: Input line abnormality 0012: Current Detection Fault 0013: Motor self-learning fault 0014: Encoder/PG Card Failure	0015: Parameter read/write exception 0016: Inverter hardware failure 0017: Motor short to ground fault 0018: Reservations 0019: Reservations 001A: Reservations 001B: User-defined faults 1 001C: User-defined faults 2 001D: Power-up time arrival 001E: Dropout 001F: Loss of PID feedback at runtime 0028: Fast Current Limit Timeout Fault 0029: Switching motor failure during operation 002A: Excessive speed deviation 002B: Motor overspeed 002D: Motor over temperature 005A: Encoder line number setting error 005B: Encoder not connected 005C: Initial position error 005E: Speed feedback error

Communication fault message description data (fault code):

Communications Fault Address	Failure Function Description
8001	0000: No faults 0001: Wrong password 0002: Command code error 0003: CRC Checksum Error 0004: Invalid address 0005: Invalid parameter 0006: Invalid parameter change 0007: System locked

6. Fd Group Communication Parameter Description

Fd.00	Baud	Factory value	6005
	Setting range	Digits: MODUBS Baud Rate	
		0: 300 BPS	5: 9600 BPS
		1: 600 BPS	6: 19200 BPS
		2: 1200BPS	7: 38400BPS
		3: 2400 BPS	8: 57600BPS
		4: 4800 BPS	9: 115200BPS

This parameter is used to set the data transmission rate between the upper computer and the inverter. Note that the baud rate set by the upper computer and the inverter must be the same, otherwise, the communication cannot be carried out. The larger the baud rate, the faster the communication speed.

Fd.01	Data format	Factory value	0
	Setting range	0: no checksum: data format <8, N, 2>	
		1: Even test: data format <8, E, 1>	
		2: Odd check: data format <8, O, 1>	
		3: No checksum: data format <8-N-1>	

The data format set by the host computer and the inverter must be the same, otherwise, the communication cannot be carried out.

Fd.02	Local address	Factory value	1
	Setting range	1 to 247, 0 is the broadcast address	

When the local address is set to 0, it is the broadcasting address to realize the upper computer broadcasting function.

The address of the machine is unique (except for the broadcast address), which is the basis for realizing the point-to-point communication between the host computer and the inverter.

Fd.03	Response time	Factory value	2ms
	Setting range	0-20ms	

Answer delay: It is the interval time between the end of data acceptance of the inverter and the sending of data to the host computer. If the answer delay is less than the system processing time, the answer delay is based on the system processing time; if the answer delay is longer than the system processing time, the system processing time is based on the system processing time.

After finishing the data, wait for a delay until the answer delay time is up before sending the data to the host computer.

Fd.04	communication timeout	factory value	0.0s
	Setting range	0.0s (invalid); 0.1～60.0s	

When this function code is set to 0.0s, the communication timeout time parameter is invalid.

When this function code is set to a valid value, the system will report a communication fault error (E016) if the interval between one communication and the next exceeds the communication timeout period. Normally, it is set to invalid. If the subparameter is set in a system with continuous communication, the communication status can be monitored.

Fd.05	Communication protocol selection	Factory value	1
	Setting range	0: Non-standard Modbus protocol; 1: Standard Modbus protocol	

Fd.05=1: Standard Modbus protocol is selected.

Fd.05=0: When reading command, the slave returns one byte more than the standard Modbus protocol, see "5 Communication data structure" section of this protocol.

Fd.06	Communication reading current resolution	Factory value	0
	Setting range	0: 0.01A;; 1: 0.1A	

Used to determine the output unit of the current value when the communication reads the output current.

Warranty agreement

1. The warranty period of this product is eighteen months (based on the body bar code information), the warranty period in accordance with the instructions for normal use, the product malfunction or damage, our company is responsible for free maintenance.

2. During the warranty period, a repair fee will be charged for damages caused by

1) Damage to the machine caused by errors in use and unauthorized repairs or modifications on your own;

2) Damage to products caused by force majeure such as earthquakes, fires, wind and water disasters, lightning strikes, abnormal voltages, or other natural disasters, as well as various human factors;

3) Hardware damage due to human drop and transportation after purchase;

4) Damage to the machine caused by not following the user manual provided by our company;

5) Malfunctions and damages caused by obstacles other than the machine (e.g. external equipment factors);

6) Unauthorized removal of product identification (e.g., nameplate).

3. When the product is malfunctioned or damaged, please fill in the contents of the Product Warranty Card correctly and in detail.

4. Maintenance fees will be charged in accordance with our latest adjusted Maintenance Price List.

5. This warranty card will not be reissued under normal circumstances, please make sure you keep this card and present it to the maintenance personnel when the product is under warranty.

6. If you have any questions during the service, please contact our agent or our company in time.

7. The right to interpret the agreement is vested in the Company.

Customer service center