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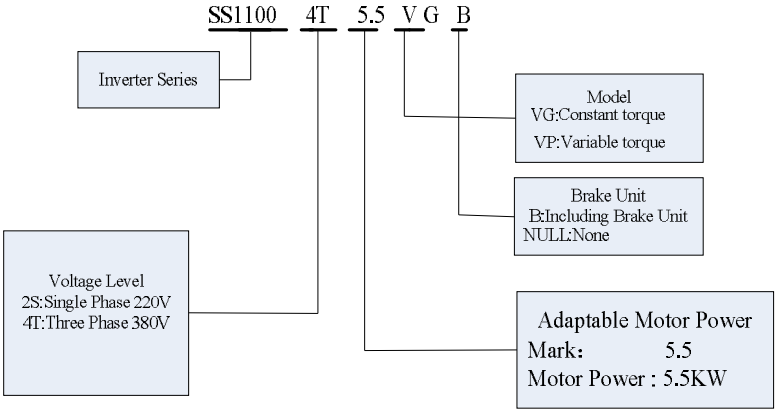
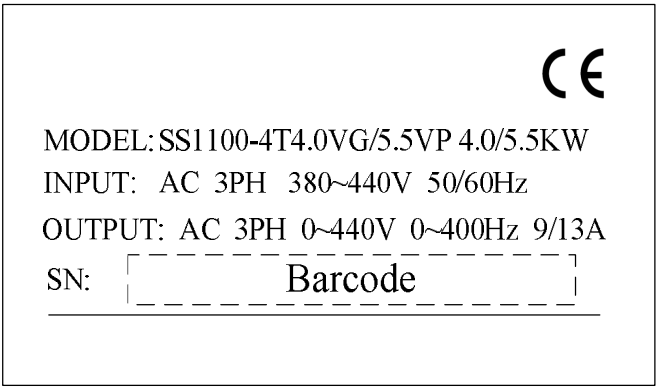
Chapter 1 Product Information

1.1 Naming Rules



Nameplate



1.2 SS1100 Inverter Series

Tab.1-1 models and technical data of SS1100

Model	Input voltage	Input current（A）	Output current（A）	Matched motor（kW）
SS1100-2S0.4VG	Single phase: 220V Range: -15%～20%	5.4	2.3	0.4
SS1100-2S0.75VG		8.2	4.0	0.75
SS1100-2S1.5VG		14.0	7.0	1.5
SS1100-2S2.2VGB		23.0	9.6	2.2
SS1100-2S4.0VGB		32.0	17	4.0
SS1100-2S5.5VGB		45.0	25	5.5
SS1100-4T0.75VGB/1.5VPB	Three phase: 380V Range：-15%～20%	3.4	2.1	0.75
SS1100-4T1.5VGB/2.2VPB		5.0/5.8	3.8/5.5	1.5/2.2
SS1100-4T02.2VGB/4.0VPB		5.8/10.5	5.5/9.0	2.2/4.0
SS1100-4T4.0VGB/5.5VPB		10.5/14.6	9.0/13.0	4.0/5.5
SS1100-4T5.5VGB/7.5VPB		14.6/20.5	13.0/17.0	5.5/7.5
SS1100-4T7.5VGB/9.0VPB		20.5/22.0	17.0/20.0	7.5/9.0
SS1100-4T9.0VGB/11VPB		22.0/26.0	20.0/25.0	9.0/11.0
SS1100-4T11VGB/15VPB		26.0/35.0	25.0/32.0	11.0/15.0
SS1100-4T15VGB/18.5VPB		35.0/38.5	32.0/37.0	15.0/18.5
SS1100-4T18.5VGB/22VPB		38.5/46.5	37.0/45.0	18.5/22.0
SS1100-4T22VGB/30VPB		46.5/62.0	45.0/60.0	22.0/30.0
SS1100-4T30VG/37VP		62.0/76.0	60.0/75.0	30.0/37.0
SS1100-4T37VG/45VP		76.0/92.0	75.0/90.0	37.0/45.0
SS1100-4T45VG/55VP		92.0/113.0	90.0/110.0	45.0/55.0
SS1100-4T55VG/75VP		113.0/157.0	110.0/152.0	55.0/75.0
SS1100-4T75VG/93VP		157.0/180.0	152.0/176.0	75.0/93.0
SS1100-4T93VG/110VP		180.0/214.0	176.0/210.0	93.0/110.0
SS1100-4T110VG/132VP		214.0/256.0	210.0/253.0	110.0/132.0
SS1100-4T132VG/160VP		256.0/307.0	253.0/304.0	132.0/160.0
SS1100-4T160VG/185VP		307.0/345.0	304.0/340.0	160.0/185.0
SS1100-4T185VG/200VP		345.0/385.0	340.0/380.0	185.0/200.0
SS1100-4T200VG/220VP		385.0/430.0	380.0/426.0	200.0/220.0
SS1100-4T220VG/250VP		430.0/468.0	426.0/465.0	220.0/250.0
SS1100-4T250VG/280VP		468.0/525.0	465.0/520.0	250.0/280.0
SS1100-4T280VG/315VP		525.0/590.0	520.0/585.0	280.0/315.0
SS1100-4T315VG/355VP		590.0/665.0	585.0/650.0	315.0/355.0
SS1100-4T355VG/400VP		665.0/785.0	650.0/725.0	355.0/400.0
SS1100-4T400VG/450VP		785.0/883.0	725.0/820.0	400.0/450.0

1.3 Technical Specification

Tab.1-2 SS1100 Inverter Technical Specifications

Item		Specifications
Main control functions	Maximum frequency	Vector control: 0~600Hz V/F control:0~1200Hz
	Carrier Frequency	1k ~ 15kHz; the carrier frequency will be automatically adjusted according to the load characteristics.
	Input frequency resolution	Digital setting: 0.01Hz Analog setting: maximum frequency ×0.1%
	Control mode	Open loop vector control ; V/F control.
	Start-up torque	Mode G machine: 0.5Hz/180% (Open loop vector control) Mode P machine: 0.5Hz/120% (Open loop vector control)
	Speed adjustment range	1：200（Open loop Vector flux control）
Main control functions	Stable speed Precision	Open loop Vector flux control：≤±0.5% (rated synchronous speed)
	Stabilization of speed control	Open loop Vector flux control：≤±0.3% (rated synchronous speed)
	Torque response	≤40ms(Open magnetic flux vector control)
	Overload capacity	Mode G machine: 150% rated current 60s; 180% rated current 5s Mode P machine: 130% rated current 60s; 150% rated current 5s
	Torque boost	Automatic torque boost; manual torque boost 0.1% to 30.0%
	V/F curve	Linear V/F, Multi-point V/F, and Square V/F
	Speed-up and Speed-down curve	Straight line or S curve speed-up and speed-down mode; four kinds of speed-up and speed-down time; Speed-up and speed-down time ranges from 0.0s to 3000.0s
	DC brake	DC brake frequency: 0.00Hz ~ maximum frequency; brake time: 0.0s ~ 36.0s, and brake current value: 0.0% to 100.0%.
	Jog control	Jog frequency range:0.00Hz ~ 50.00Hz; Jog speed-up/speed-down time: 0.0s ~ 3000.0s.
	Simple PLC and multi-speed running	It can realize a maximum of 16 segments speed running via the built-in PLC or control terminal.
	Built-in PID	It is easy to realize process-controlled close loop control system.

Item		Specifications
	（AVR）Automatic voltage regulation	It can keep constant output voltage automatically in case of change of mains voltage.
	Torque limit and control	"Shovel" characteristics, automatic limit on the torque on running time, preventing frequent over-current trip; closed loop vector mode can realize the torque control
Customized functions	Peripherals self-detection upon power-on	It can conduct safety detections on the peripherals upon power-on, including earth and short circuit detections.
	Shared DC bus function	It can realize the function that multiple inverters share the DC bus.
	JOG key	Programmable key: Select the forward and reverse rotations/jog operation command.
Customized functions	Traverse frequency control	Multiple triangular-wave frequency control function.
	Fast current limit function	With fast current limit algorithm built in to reduce the probability of over-current alarm; to improve the anti-jamming capacity of the whole machine.
	Timed control	Timing control function: Setting time range from 0h to 65535h.
	Keyboard extension line standardization	Customers can use standard cable to extend the keyboard
Operation function	Running command channel	Three types of channels: operation panel given, control terminal given and serial communication port given. These channels can be switched in various ways.
	Frequency source	Ten types of frequency sources in total: digital given, analog voltage given, analog current given, pulse given, and serial port given. It can be switched in various ways.
	Auxiliary frequency source	Ten types of auxiliary frequency sources in total. It can implement micro tuning and synthesis of auxiliary frequency.
	Input terminal	Seven digital input terminals, and nine terminals in maximum (AI1, AI2 can be used as DI terminals), it has compatibility to PNP or NPN input method. Two analog input terminals, in which AI1 only be used for voltage input, and AI2 can be used as voltage or current input. (if expanded-input or output terminal function is needed, please use SS1200 series.)

Item		Specifications
	Output terminal	One digital output terminal (bipolar output) Two relay output terminal Two analog output terminals, with optional 0/4mA to 20mA or 0/2V to 10V. It can realize the output of set frequency, output frequency and rotation speed etc.
Display and Keyboard Operate	LED display	Display parameter
	LCD display	Selective parts, Chinese/English to suggest the operation content
	LCD Parameter copy	Use LCD parameter special copy keyboard can copy the parameter quickly
	Key lock and function choose	Lock part of the keyboard or the whole keyboard, definite the function range of some keys to avoid mis-operation.
Protection and select accessories	protection function	Short circuit detective of power-on motor, input and output open-phase protection, over-current protection, overvoltage protection, under-voltage protection, over-heat protection, over-load protection etc.
	Selective accessories	LCD operation panel, brake group etc.
Environment	Suitable place	Indoor environment which is against from direct sunlight, dust, corrosive gas, combustible gas, oil mist, vapor, water drop and salt.
	Altitude	Less than 1000m
	Ambient Temperature	-10℃ ～+50℃ (derating is required if the natural temperature range is 40℃ ～50℃)
	Humidity	Less than 95%RH, no condensing water drops
	Vibration	Less than 5.9m/ s2 (0.6g)
	Storage temperature	-20℃ ～+60℃
	Class of pollution	2
Product standard	Safety standard	IEC61800-5-1:2007
	EMC standard	IEC61800-3:2005

1.4 General Specification

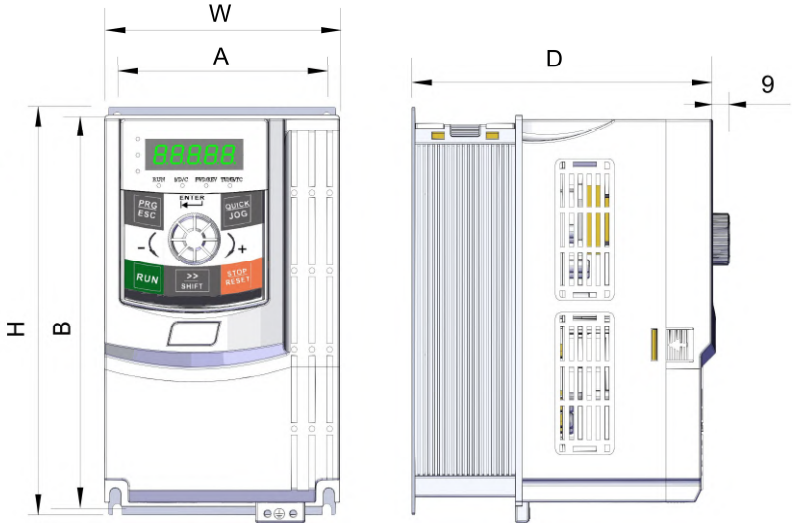


Fig.1-1 Installation dimensions of plastic mode below 7.5 kW

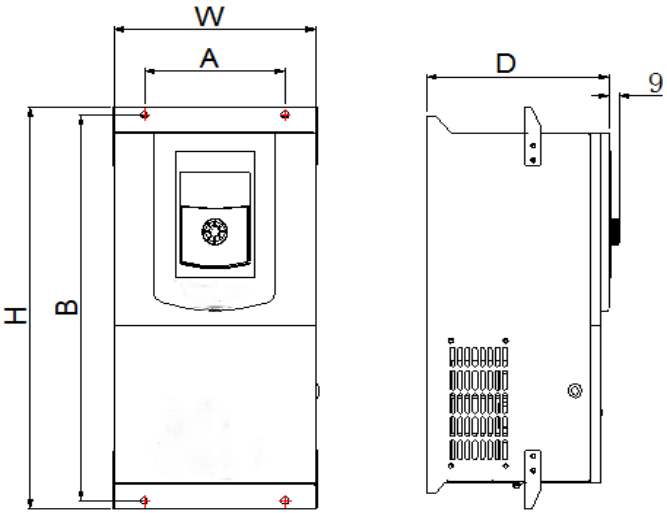


Fig1-2 Installation dimensions of metal mode 11~37KW

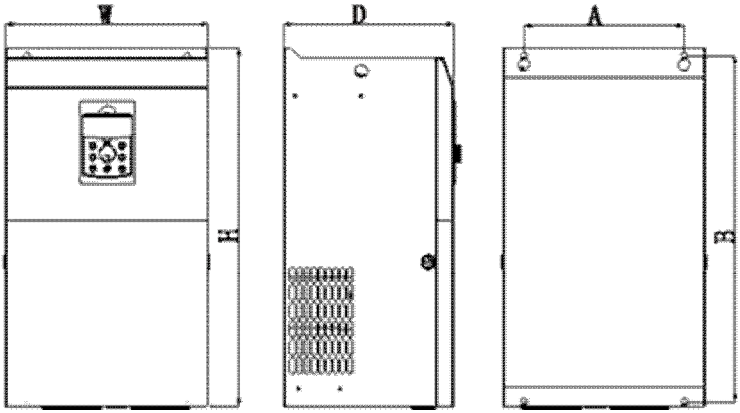


Fig.1-3 appearance and install dimension of inverter within 45KW~132KW

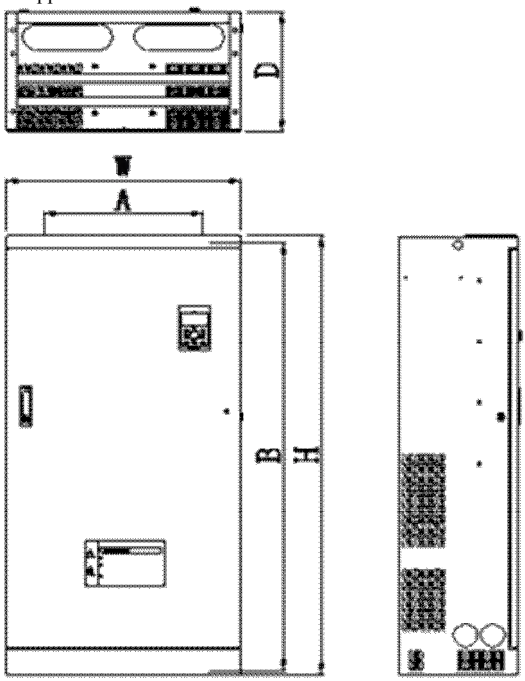
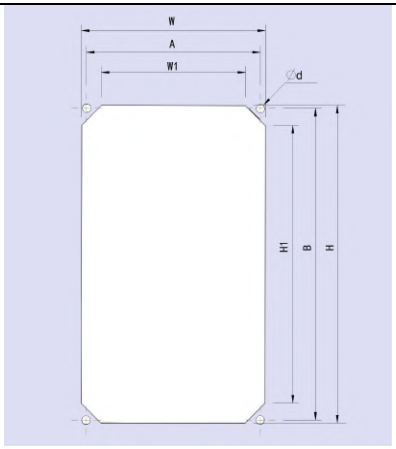
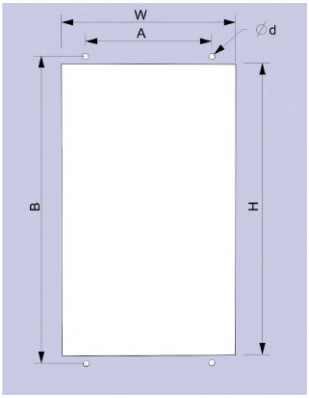


Fig1-4 Installation dimensions of metal mode above 160KW

Tab.1-3 mounting hole dimensions of SS1100

Model	Mounting hole		Physical dimension			Diameter of mounting hole (mm)
	A (mm)	B (mm)	H (mm)	W (mm)	D (mm)	
SS1100-2S0.4VG	78	162	172.5	96	141	Φ4.5
SS1100-2S0.75VG						
SS1100-2S1.5VG						
SS1100-2S2.2VGB	100	199	206	119	154	Φ5
SS1100-2S4.0VGB	120	260	268	139	155.5	Φ6
SS1100-2S5.5VGB						
SS1100-4T0.75VGB/1.5VPB	76	162	172.5	96	141	Φ4.5
SS1100-4T1.5VGB/2.2VPB	80					
SS1100-4T02.2VGB/4.0VPB	100	199	206	119	154	Φ5
SS1100-4T4.0VGB/5.5VPB						
SS1100-4T5.5VGB/7.5VPB	120	260	268	139	155.5	Φ6
SS1100-4T7.5VGB/9.0VPB						
SS1100-4T9.0VGB/11VPB	150	314	324	188	188	Φ6
SS1100-4T11VGB/15VPB						
SS1100-4T15VGB/18.5VPB						
SS1100-4T18.5VGB/22VPB	165	372	383	215	200	Φ6
SS1100-4T22VGB/30VPB						
SS1100-4T30VG/37VP	200	436	449	260	209	Φ7
SS1100-4T37VG/45VP						
SS1100-4T45VG/55VP	245	531	550	310	260	Φ10
SS1100-4T55VG/75VP						
SS1100-4T75VG/93VP	280	561	580	350	267	Φ10
SS1100-4T93VG/110VP						
SS1100-4T110VG/132VP	320	695	715	430	295	Φ10
SS1100-4T132VG/160VP						
SS1100-4T160VG/185VP	360	973	1000	470	318	Φ12
SS1100-4T185VG/200VP						
SS1100-4T200VG/220VP	380	1060	1088	520	338	Φ12
SS1100-4T220VG/250VP						
SS1100-4T250VG/280VP	440	1190	1220	650	330	Φ12
SS1100-4T280VG/315VP						
SS1100-4T315VG/355VP	500	1255	1290	740	420	Φ14
SS1100-4T355VG/400VP						
SS1100-4T400VG/450VP						





Tab.1-4 wall-mounted mode installation dimensions of SS1100 under 22KW

Model	Mounting hole		Wall-mounted hole dimension				Diameter of mounting hole (mm)
	A (mm)	B (mm)	H (mm)	H1 (mm)	W (mm)	W1 (mm)	
SS1100-2S0.4VG	88	157	160	140	93	73	Φ4.5
SS1100-2S0.75VG							
SS1100-2S1.5VG							
SS1100-2S2.2VGB	108	185	192	168	116	92	Φ4.5
SS1100-4T0.75VGB/1.5VPB	88	157	160	140	93	73	Φ4.5
SS1100-4T1.5VGB/2.2VPB							
SS1100-4T02.2VGB/4.0VPB	108	185	192	168	116	92	Φ4.5
SS1100-4T4.0VGB/5.5VPB							
SS1100-4T5.5VGB/7.5VPB	128	239	245	221	136	112	Φ5.5
SS1100-4T7.5VGB/9.0VPB							
SS1100-4T9.0VGB/11VPB	140	341	311	/	191	/	Φ8
SS1100-4T11VGB/15VPB							
SS1100-4T15VGB/18.5VPB							
SS1100-4T18.5VGB/22VPB	150	392	415	/	219	/	Φ8
SS1100-4T22VGB/30VPB							

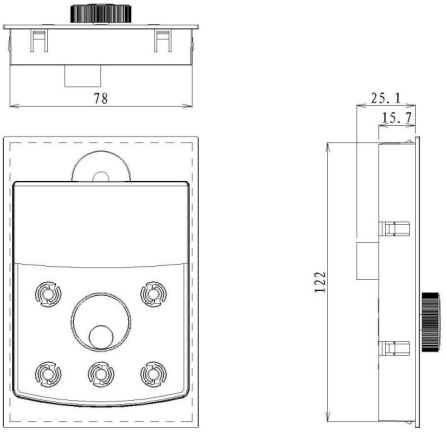


Fig.1-5 outer keyboard with plate installation dimension

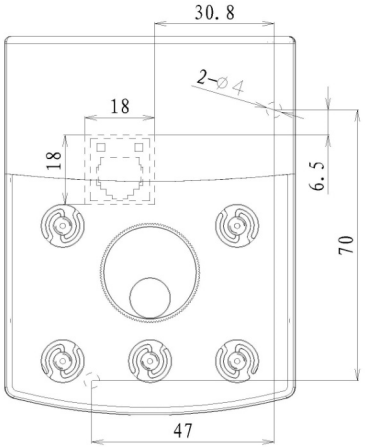


Fig.1-6 outer keyboard without plate installation dimension

1.5 Optional parts

If the user needs such optional parts, please specify when placing the order.

Tab.1-5 SS1100 Inverters Optional Parts

Name	Model	Function	Remarks
Built-in brake unit	The letter "B" attached behind the product model	Braking	Built-in as standard
External LED operating panel	SS1100-LED	External LED display and keyboard	M series universal The RJ45 interface
External LCD operating panel	SS1100 -LCD	External LCD display and keyboard	The RJ45 interface

Name	Model	Function	Remarks
External LED2 operating panel	SS1100 -LED2	The copy function keyboard with parameters	M series universal RJ45 interface
Extension cable	SS1100 -CAB	Standard 8 core cable, can and SS1100-LED, SS1100-LCD, SS1100-LED2 connection	Providing 1 meters, 3 meters, 5 meters, 10 meters, totally 4 kinds of specifications
If you need other function module extensions (such as: I/O card, PG card, EPS card and so on), please use the SS1200 series inverter, specifying the order function module card when ordering.			

1.6 Instruction on warranty of inverter

Free repair warranty is just for inverter itself.

1. Warranty instruction of product for domestic use.

① guarantee for repair, exchange and return of the inverter within 1 month after the delivery.

② guarantee for repair and exchange within 3 months after the delivery.

③ guarantee for repair with 15 months after the delivery or within 18 months after the date of production as indicated on the barcode.

2. Products exported to overseas area (excluding domestic area) have repair warranty on the purchase place with 6 month after the delivery.

3. Reasonable fees will be charged due to the expiration of the warranty period.

4. Reasonable fees will be charged for the following situations within the warranty period.

① The machine is damaged for the reason that the user didn't operate it according to the manual.

② The damage is caused by force majeure like flood, fire or abnormal voltage etc.

③ The damage is caused for the inverter been used in abnormal function.

④ The P-type (fan, water bump type) inverter is used as the G-type (general type).

⑤ Tear off the nameplate and serial number without authorization.

5. We only take responsibility for item 1 or item 2 if there were any product accident, for more compensation, please insure for the goods previously for property insurance.

The service charge is counted according to the standard rules made by the company; the contract takes the priority if there is any agreement previous.

1.7 Guide to select brake components

What in below Tab.1-6 are the guide data, the user can choose different resistance and power according to the practical situation, (the resistance value must not less than the recommended one; the power value can be more) the brake resistance should be chosen according to the real power of the motor when used in practical system. It is related to system inertia, speed decelerating time and potential energy load etc, the customer should choose it based on the real circumstance. The bigger inertia of the system; the shorter time of speed decelerating; the more frequent of the brake; the bigger power and smaller resistance of the brake resistor need to be with.

1.7.1 How to choose the resistance

When braking, almost all the recovery energy of the motor is spent on the braking resistance. It follows the formula: U*U/R=Pb

U---the braking voltage of the stable braking system (the value is different in different system. Generally for 380VAC, the value is 700V)

Pb---the braking power

1.7.2 How to choose the power of the braking resistor

The power of the braking resistor is same as the braking power theoretically, but taking into consideration that the derating is 70%. It follows the formula: 0.7*Pr=Pb*D

Pr---the power of the braking resistor

D---the braking ratio (the ratio which the reactivation process divides the whole working process), generally take 10% as its value. You can refer to the details in below chart.

Application industry	elevator	Winding and unwinding machine	centrifuge	Accidental braking load
ratio	20% ～30%	20～30%	50%～60%	5%

Tab.1-6 selection of SS1100 inverter brake components

Inverter model	Braking torque 150%,5S recommended resistance value, power and brake unit model	Braking torque 100%,15S recommended resistance value, power and brake unit model	Braking torque 50%,15S recommended resistance value, power and brake unit model
SS1100-2S0.4VG	≥220Ω，100W Optional brake unit	≥300Ω，80W Optional brake unit	≥300Ω，80W Optional brake unit
SS1100-2S0.75VG	≥200Ω，100W Optional brake unit	≥200Ω，100W Optional brake unit	≥300Ω，80W Optional brake unit
SS1100-2S1.5VG	≥100Ω，200W Optional brake unit	≥200Ω，100W Optional brake unit	≥300Ω，80W Optional brake unit
SS1100-2S2.2VGB	≥75Ω，0.4KW build-in brake unit	≥130Ω，0.2KW build-in brake unit	≥150Ω，0.2KW build-in brake unit
SS1100-2S4.0VGB	≥60Ω，0.3KW build-in brake unit	≥75Ω，0.4KW build-in brake unit	≥100Ω，0.2KW build-in brake unit
SS1100-2S5.5VGB	≥40Ω，0.8KW build-in brake unit	≥50Ω，1.5KW build-in brake unit	≥60Ω，0.3KW build-in brake unit
SS1100-4T0.75VGB/1.5VPB	≥300Ω，0.2KW build-in brake unit	≥300Ω，0.2KW build-in brake unit	≥300Ω，0.2KW build-in brake unit
SS1100-4T1.5VGB/2.2VPB SS1100-4T02.2VGB/4.0VPB	≥150Ω，0.3KW build-in brake unit	≥220Ω，0.25KW build-in brake unit	≥300Ω，0.2KW build-in brake unit
SS1100-4T4.0VGB/5.5VPB	≥100Ω，0.4KW build-in brake unit	≥130Ω，0.4KW build-in brake unit	≥150Ω，0.3KW build-in brake unit
SS1100-4T5.5VGB/7.5VPB	≥75Ω，0.5KW build-in brake unit	≥100Ω，0.4KW build-in brake unit	≥130Ω，0.4KW build-in brake unit
SS1100-4T7.5VGB/9.0VPB	≥60Ω，0.5KW build-in brake unit	≥75Ω，0.5KW build-in brake unit	≥≥100Ω，0.4KW build-in brake unit
SS1100-4T9.0VGB/11VPB	≥40Ω，1.0KW	≥50Ω，0.7KW	≥60Ω，0.5KW

Inverter model	Braking torque 150%,5S recommended resistance value, power and brake unit model	Braking torque 100%,15S recommended resistance value, power and brake unit model	Braking torque 50%,15S recommended resistance value, power and brake unit model
SS1100-4T11VGB/15VPB	build-in brake unit	build-in brake unit	build-in brake unit
SS1100-4T15VGB/18.5VPB	≥30Ω，1.2KW build-in brake unit	≥40Ω，1.0KW build-in brake unit	≥50Ω，0.7KW build-in brake unit
SS1100-4T18.5VGB/22VPB	≥24Ω，2KW build-in brake unit	≥30Ω，1.2KW build-in brake unit	≥40Ω，1.0KW build-in brake unit
SS1100-4T22VGB/30VPB	≥13.6Ω，3.7KW build-in brake unit	≥30Ω，1.2KW build-in brake unit	≥40Ω，1.0KW build-in brake unit
SS1100-4T30VG/37VP	≥13.6Ω，3.7KW Brake unit built-in as optional	≥24Ω，2KW Brake unit built-in as optional	≥30Ω，4KW Brake unit built-in as optional
SS1100-4T37VG/45VP	≥10Ω，4.5KW BR1100-4T075	≥24Ω，2KW BR1100-4T037	≥24Ω，2KW BR1100-4T037
SS1100-4T45VG/55VP	≥6.8Ω，8.0KW BR1100-4T132	≥10Ω，4.5KW BR1100-4T075	≥13.6Ω，3.7KW BR1100-4T075
SS1100-4T55VG/75VP			
SS1100-4T75VG/93VP			
SS1100-4T93VG/110VP	≥2*(6.8Ω,8.0KW) BR1100-4T200	≥6.8Ω，8.0KW BR1100-4T132	≥6.8Ω，8.0KW BR1100-4T132
SS1100-4T110VG/132VP			
SS1100-4T132VG/160VP			
SS1100-4T160VG/185VP	≥3*(6.8Ω，8.0KW) BR1100-4T315	≥2*(6.8Ω，8.0KW) BR1100-4T200	≥2*(6.8Ω，8.0KW) BR1100-4T200
SS1100-4T185VG/200VP			
SS1100-4T200VG/220VP			
SS1100-4T220VG/250VP	≥3*(6.8Ω，8.0KW) BR1100-4T315	≥2*(6.8Ω，8.0KW) BR1100-4T315	≥2*(6.8Ω，8.0KW) BR1100-4T315
SS1100-4T250VG/280VP			
SS1100-4T280VG/315VP			
SS1100-4T315VG/355VP			
SS1100-4T355VG/400VP	≥5*(6.8Ω，8.0KW) BR1100-4T630	≥4*(6.8Ω，8.0KW) BR1100-4T450	≥3*(6.8Ω，8KW) BR1100-4T450
SS1100-4T400VG/450VP			

Chapter 2 Wiring

2.1 Typical Wiring

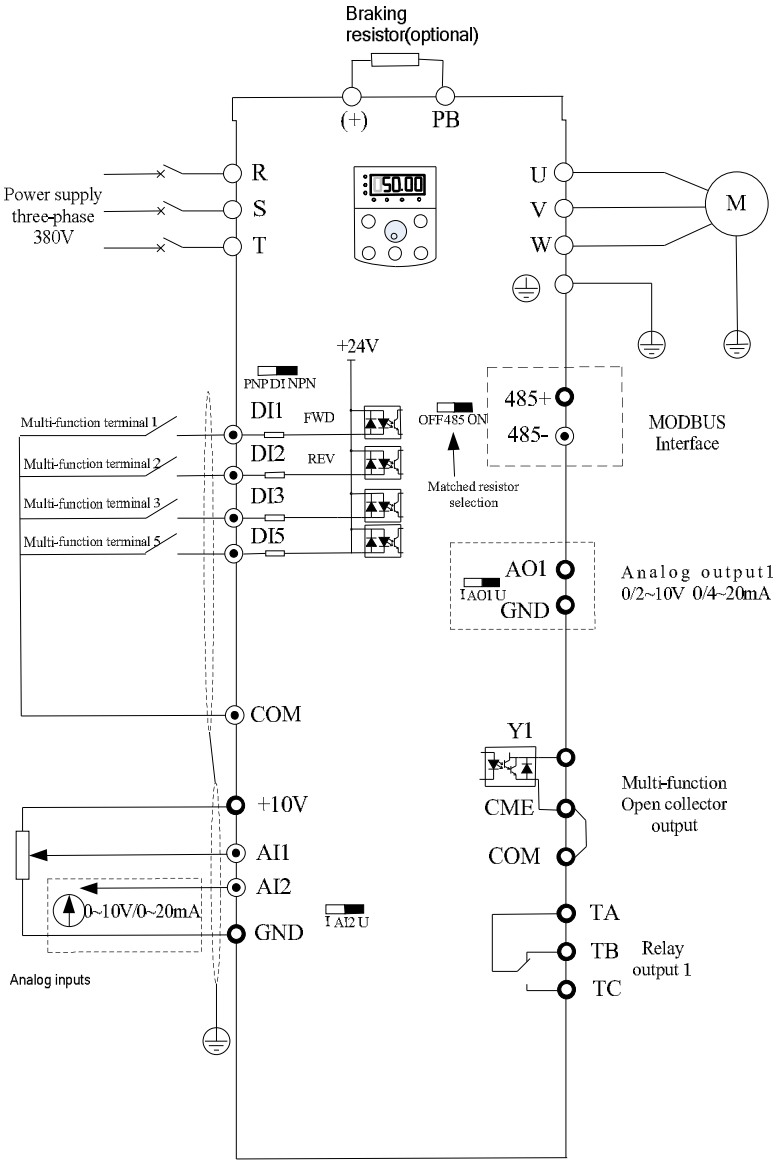


Fig.2-1 three-phase inverter under 1.5KW

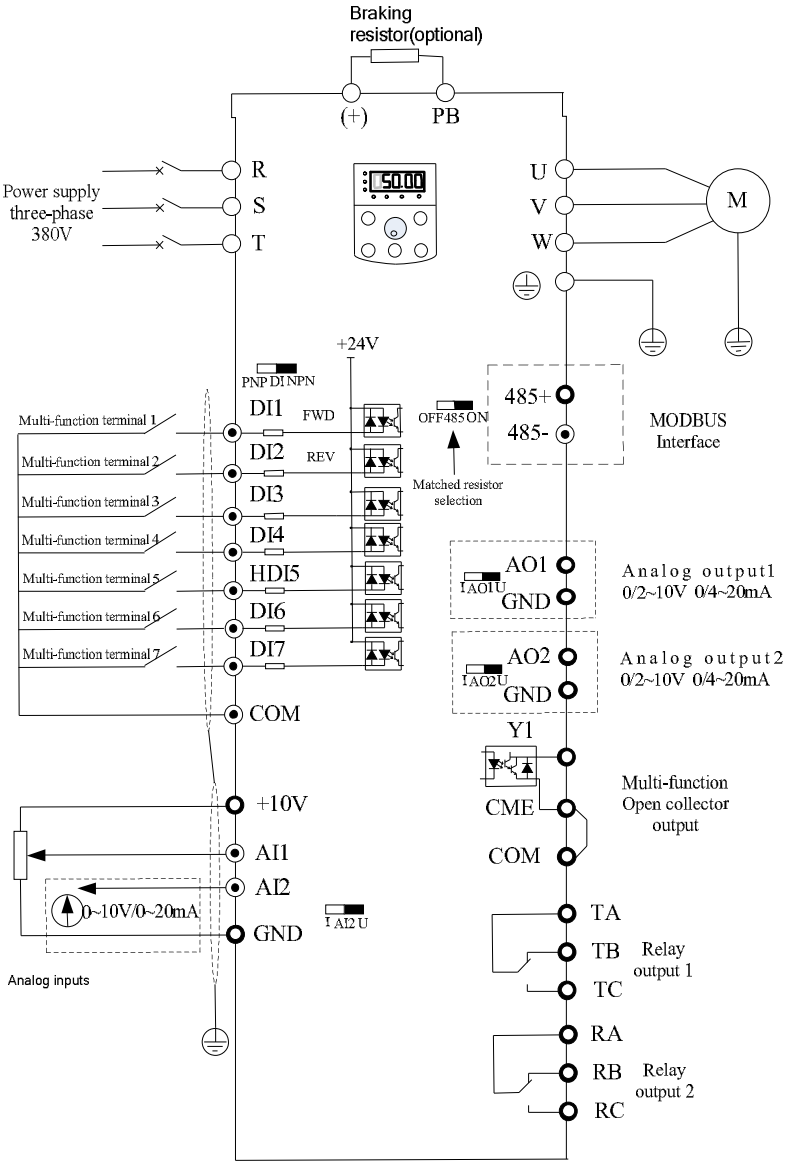


Fig.2-2 three-phase inverter under 22KW

Attention:

This figure is just for Ss1100-4T0.75VGB ~SS1100-4T22VGB series of inverter (30~93kw brake unit is the selective part, please declare it in order request if it's needed.)

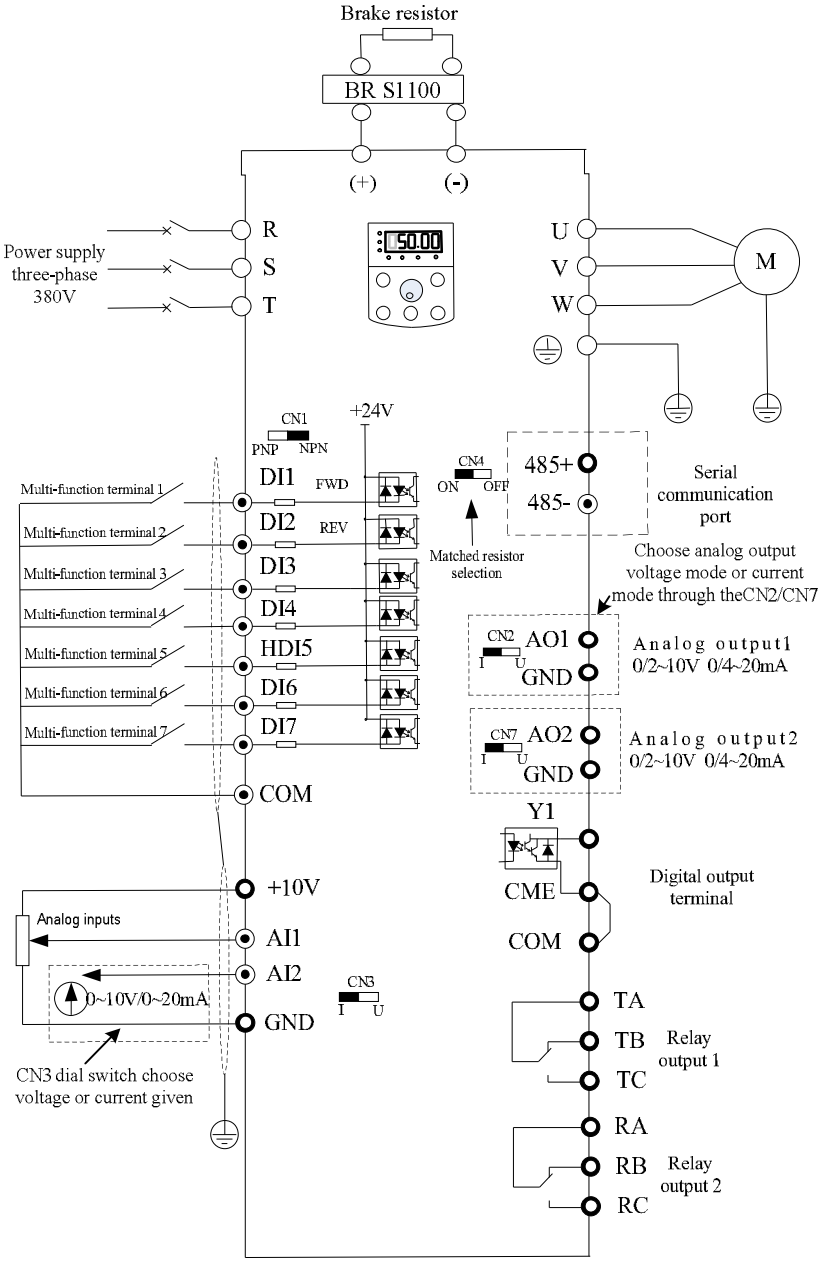


Fig.2-3 three-phase inverter within 30KW~55KW

Attention:

(30~93kw brake unit is the selective part, please declare it in order request if it's needed.)

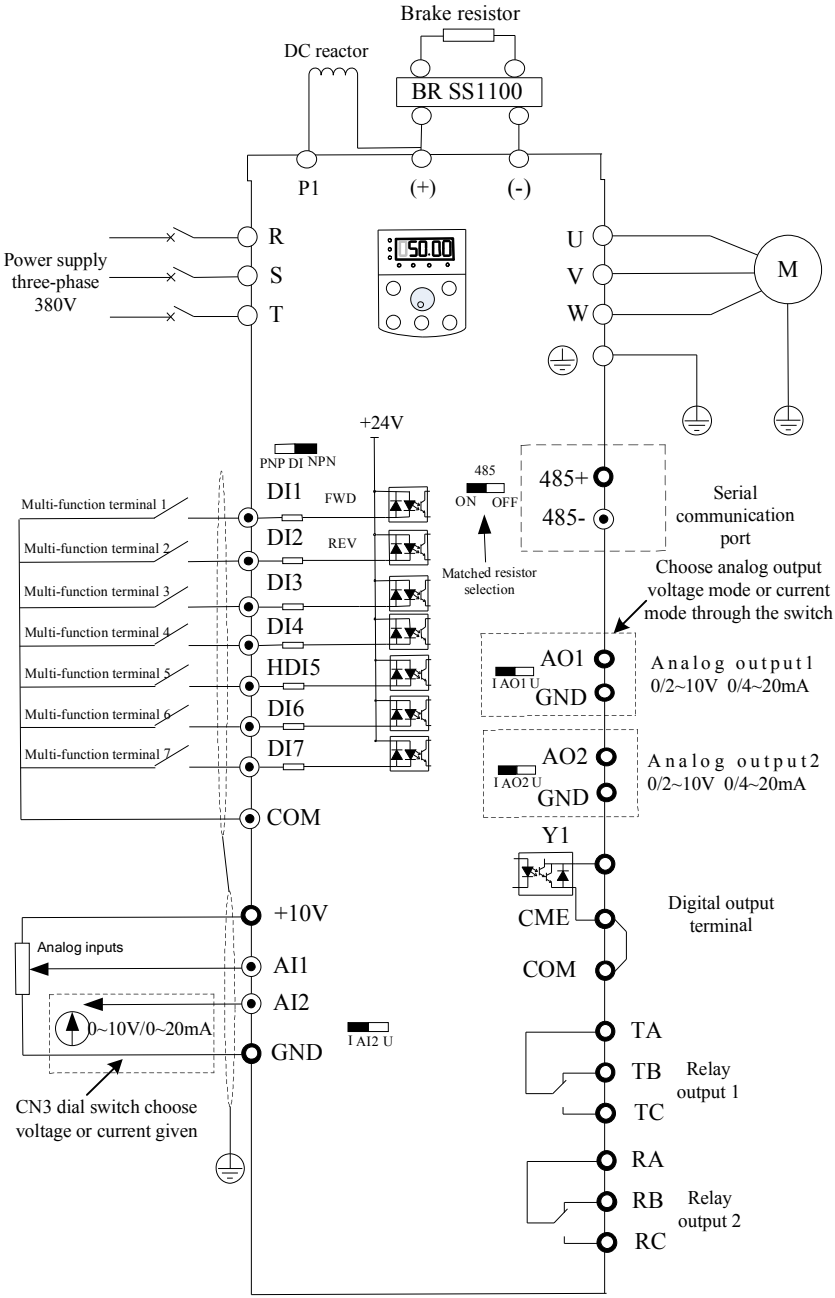


Fig.2-4 three-phase inverter above 75KW

Attention:

(30~93kw brake unit is the selective part, please declare it in order request if it's needed.)

2.2 Control Terminals And Wiring

2.2.1 Main circuit terminals

Table 2-1: Main circuit terminals of three-phase

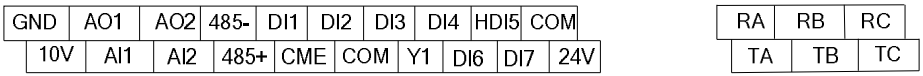
Terminal	Terminal Name	Description
R、S、T	Three-phase power supply input terminals	Connect to the three-phase AC power supply.
P(+)、(-)	Positive and negative terminals of DC bus	Common DC bus input point.
P(+)、PB	Connecting terminals of braking resistor	Connect to the braking resistor for the AC drive of 7.5 kW and below (220 V) and18.5kW and below (other voltage classes).
U、V、W	Output terminals	Connect to a three-phase motor.
⏚	Grounding terminal	Must be grounded.

Table 2-2: Main circuit terminals of single-phase

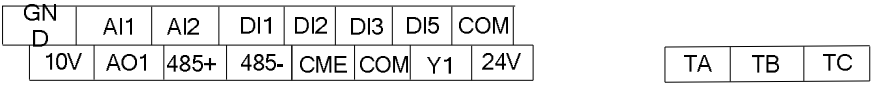
Terminal	Terminal Name	Description
L1、L2	Single-phase power supply input terminals	Connect to the single-phase 220 VAC power supply
P(+)、(-)	Positive and negative terminals of DC bus	Common DC bus input point.
P(+)、PB	Connecting terminals of braking resistor	Connect to a braking resistor
U、V、W	Output terminals	Connect to a three-phase motor.
⏚	Grounding terminal	Must be grounded.

2.2.2 Control circuit terminals and wiring

The control circuit terminals displayed as below:



Three-phase above 380V 2.2KW



Three-phase under 380V 1.5KW

☞ **Function instruction of the control terminals**

Tab.2-3 control interface function declaration of SS1100

Category	Terminal	Terminal Name	Function Description
Power source	**+10V-GND**	External +10 V power supply	Provide +10 V power supply to external unit, maximum output current: 10 mA Generally, it provides power supply to external potentiometer with resistance range of 1–5 kΩ.
	+24V-COM	External +24 V power supply	Provide +24 V power supply to external unit. Generally, it provides power supply to DI/DO terminals and external sensors. Maximum output current: 200 mA
Analog input	**AI1-GND**	Analog input 1	1) Input voltage range: 0–10 VDC； 2) Impedance: 100kΩ
	AI2-GND	Analog input 2	1) Input range: 0–10 VDC/4–20 mA, decided by CN3 dial switches on the control board 2) Impedance: 100 kΩ (voltage input), 500 Ω (current input)
Digital input	**DI1-COM**	Digital input 1	1) Optical coupling isolation, compatible with dual-polarity input. Switch over through DI dial switch, factory set PNP mode. 2) Impedance: 3.3 kΩ. 3) Input voltage range: 9 ~30V 4) HDI5 can be used as high-speed input port.
	DI2-COM	Digital input 2	
	DI3-COM	Digital input 3	
	DI4-COM	Digital input 4	
	HDI5-COM	Digital input 5	
	DI6-COM	Digital input 6	
	DI7-COM	Digital input 7	
Analog output	**AO1-GND**	Analog output 1	Voltage or current output is decided by dial switches CN2 and CN7. Output voltage range: 0–10 V Output current range: 0–20 mA
	AO2-GND	Analog output 2	
Digital output	**Y1-COME**	Digital output 1	Optical coupling isolation, dual polarity open collector output Output voltage range: 0–24 V Output current range: 0–50 mA Note that CME and COM are internally isolated, but they are short circuit externally when leaving factory (In this case Y1 is driven by +24 V by default). If you want to drive Y1 by external power supply, the external short circuit of CME and COM must be switched off.
Communication interface	**485+, 485-**	Modbus Communication terminal	Modbus communication interface, it can choose the communication matched resistance through dial switch CN4. If Profibus communication function is needed, please choose CM580 series of inverter, and use profibus DP card.
Relay output 1	**T/A-T/B**	NC terminal	Contact driving capacity: AC 250V, 3 A, COSø = 0.4 DC 30V, 1A
	T/A-T/C	NO terminal	

Category	Terminal	Terminal Name	Function Description
Relay output 2	**R/A-R/B**	NC terminal	Contact driving capacity: 250 VAC, 3 A, COSø = 0.4 30 VDC, 1 A
	R/A-R/C	NO terminal	
Keyboard extended line interface	**CN6**	External operation panel interface	External operation panel and parameter copy panel interface, take out the bidirectional crystal head, it can expand the standard network cable.

☞Signal input terminals wiring instruction

1) AI analog input

Since the weak analog voltage signal is easy to suffer external interferences, it needs to employ shielded cable generally and the length shall be no longer than 20 meters, as shown in Fig. 3-5. In case the analog signal is subject to severe interference, and analog signal source side shall be installed with filter capacitor or ferrite magnetic core.

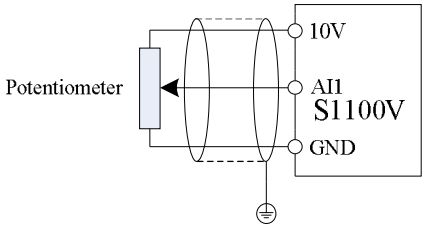


Fig.2-5 Schematic Diagram for Connection of Input Terminal of Analog Signal

2) Digital input terminal:

It needs to employ shielded cable generally, with cable length of no more than 20 meters. When active driving is adopted, necessary filtering measures shall be taken to prevent the interference to the power supply. It is recommended to use the contact control mode.

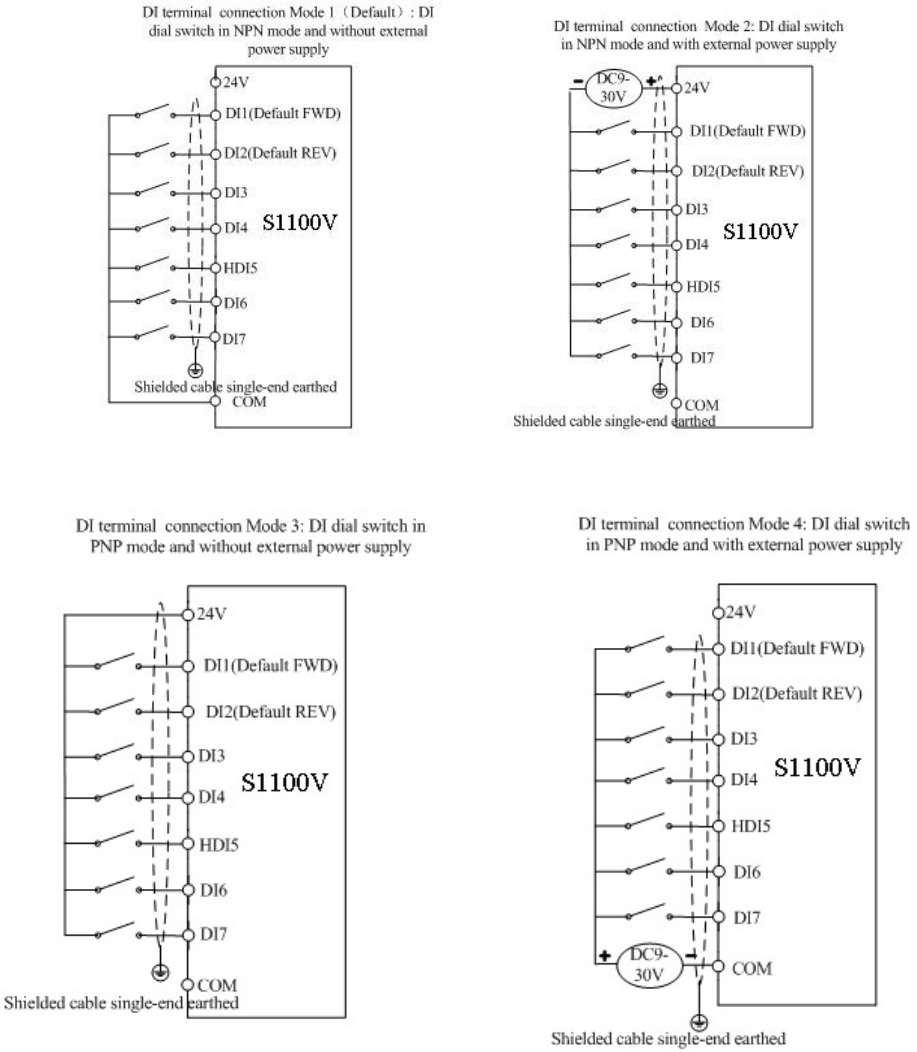


Fig 2-6 Four different wiring diagram

3) Y1 Digital output terminal:

When the digital output terminal needs the drive relay, absorption diode shall be installed at the two sides of the relay coil and the drive capacity should be no more than 50mA. Otherwise it may easily damage DC 24 power supply.

Caution: The absorption diode shall be installed with correct polarity, as shown in Fig.2-4, otherwise, when it has output on the digital output terminal, the DC 24V power supply will be damaged immediately.

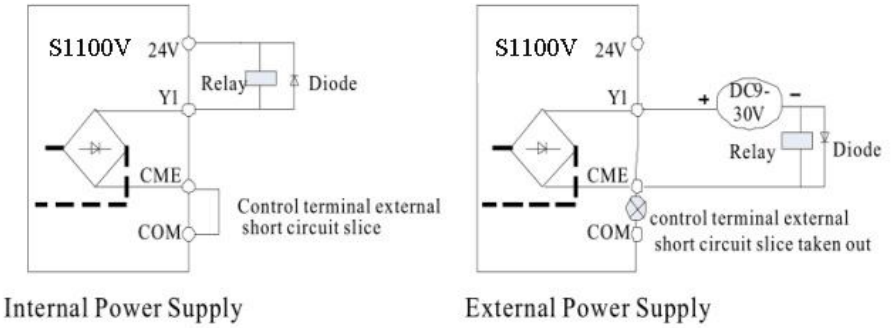


Fig.3-9 Schematic diagram for digital output terminal Y1 wiring

2.3 Electrical installation

2.3.1 Guide to the selection of peripheral electrical parts

Tab.2-4 Guide to the Selection of Peripheral Electrical Parts of SS1100 Inverter

Inverter Model	Circuit Breaker (MCCB) (A)	Contactor (A)	Input Side Main Circuit Wire (mm^2)	Output Side Main Circuit Wire (mm^2)	Control Circuit Wire (mm^2)	Earth Wire (mm^2)
SS1100-2S0.4VG	10	9	2.5	2.5	1.5	2.5
SS1100-2S0.75VG	16	12	2.5	2.5	1.5	2.5
SS1100-2S1.5VG	25	18	2.5	2.5	1.5	2.5
SS1100-2S2.2VGB	32	25	2.5	2.5	1.5	2.5
SS1100-2S4.0VGB	50	40	4	4	1.5	4
SS1100-2S5.5VGB	80	63	4	4	1.5	4
SS1100-4T0.75VGB/1.5VPB	6	9	2.5	2.5	1.5	2.5
SS1100-4T1.5VGB/2.2VPB	10	9	2.5	2.5	1.5	2.5
SS1100-4T2.2VGB/4.0VPB	10	12	2.5	2.5	1.5	2.5
SS1100-4T4.0VGB/5.5VPB	16	16	2.5	2.5	1.5	2.5
SS1100-4T5.5VGB/7.5VPB	20	18	2.5	2.5	1.5	2.5
SS1100-4T7.5VGB/9.0VPB	32	25	4.0	4.0	1.5	4
SS1100-4T9.0VGB/11VPB	40	32	4.0	4.0	1.5	6
SS1100-4T11VGB/15VPB	40	32	4.0	4.0	1.5	6
SS1100-4T15VGB/18.5VPB	50	40	6.0	6.0	1.5	6
SS1100-4T18.5VGB/22VPB	63	40	10	10	1.5	10

Inverter Model	Circuit Breaker (MCCB) (A)	Contactor (A)	Input Side Main Circuit Wire (mm^2)	Output Side Main Circuit Wire (mm^2)	Control Circuit Wire (mm^2)	Earth Wire (mm^2)
SS1100-4T22VGB/30VPB	80	50	10	10	1.5	16
SS1100-4T30VG/37VP	100	65	16	16	1.5	16
SS1100-4T37VG/45VP	100	80	25	25	1.5	25
SS1100-4T45VG/55VP	125	115	35	35	1.5	25
SS1100-4T55VG/75VP	160	150	50	50	1.5	25
SS1100-4T75VG/93VP	225	170	70	70	1.5	25
SS1100-4T93VG/110VP	250	205	95	95	1.5	25
SS1100-4T110VG/132VP	315	245	120	120	1.5	25
SS1100-4T132VG/160VP	350	300	120	120	1.5	25
SS1100-4T160VG/185VP	400	300	150	150	1.5	25
SS1100-4T185VG/200VP	500	410	185	185	1.5	25
SS1100-4T200VG/220VP	500	410	185	185	1.5	25
SS1100-4T220VG/250VP	630	475	240	240	1.5	25
SS1100-4T250VG/280VP	630	475	2×120	2×120	1.5	25
SS1100-4T280VG/315VP	700	620	2×120	2×120	1.5	25
SS1100-4T315VG/355VP	800	620	2×150	2×150	1.5	35
SS1100-4T355VG/400VP	1000	800	2×185	2×185	1.5	35
SS1100-4T400VG/450VP	1250	800	2×240	2×240	1.5	35

2.3.2 Use instruction of peripheral electric parts

Tab.3-1 Use Instruction of Peripheral Electric Parts of SS1100 Inverter

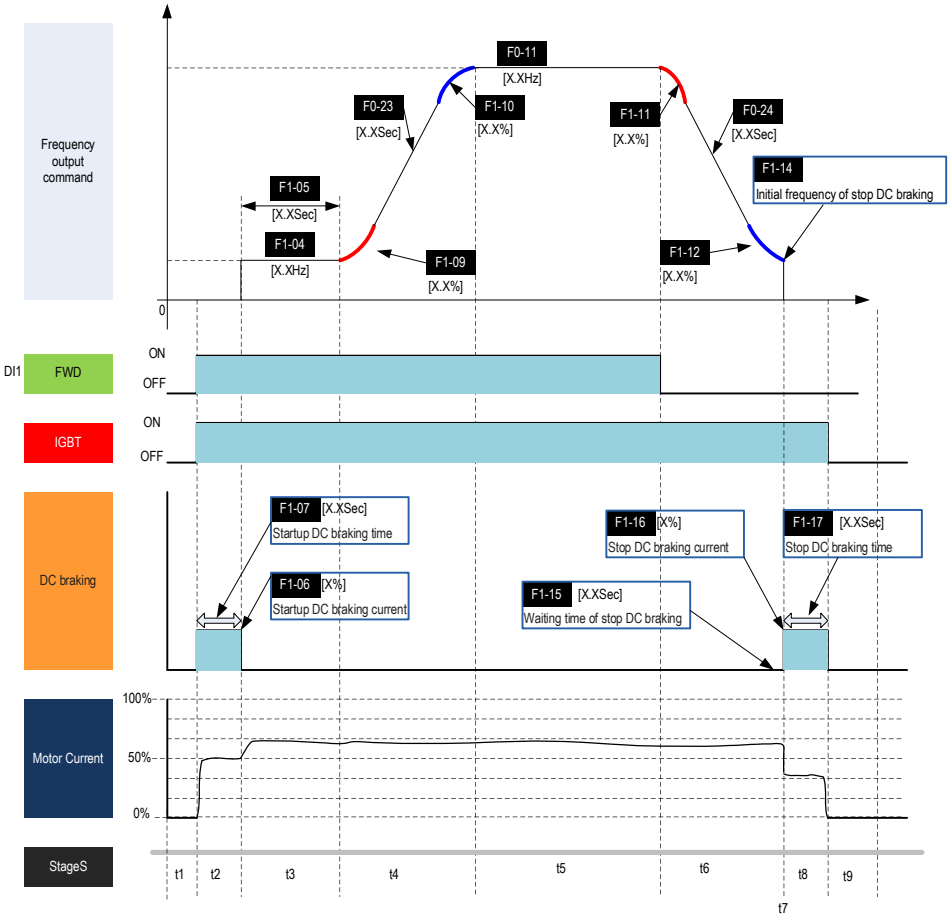
Part Name	Installation Location	Function Description
Circuit breaker	The front-end of the input circuit	Disconnect the power supply in case of downstream equipment is over current.
Contactor	Between the circuit breaker and the inverter input side	Power-on and power-off operation of the inverter. Frequent power-on/power-off operation (more than 2 times per minute) on the inverter or direct start shall be avoided.
AC input reactor	Input side of the inverter	1) Improve the power factor of the input side. 2) Eliminate the high order harmonics of the input side effectively, and prevent other equipment from damaging due to voltage waveform deformation. 3) Eliminate the input current unbalance due to the unbalance among the phase of input.

Part Name	Installation Location	Function Description
DC reactor	DC reactor is optional for 75KW~ 132KW CM series inverter, but standard for the 160KW above.	1) Improve the power factor of the input side. 2) Eliminate the high order harmonics of the input side effectively, and prevent other equipment from damaging due to voltage waveform deformation.
EMC input filter	Input side of the inverter	1) Reduce the external conduction and radiation interference of the inverter; 2) Reduce the conduction interference flowing from the power end to the inverter, thus improving the anti-interference capacity of the inverter.
AC output reactor	Between the inverter output side and the motor, close to the inverter	The inverter output side generally has higher harmonic. When the motor is far from the inverter, since there are many capacitors in the circuit, certain harmonics will cause resonance in the circuit and bring in the following results: 1) Degrade the motor insulation performance and damage the motor for the long run. 2) Generate large leakage current and cause frequent inverter protection action. 3) In general, if the distance between the inverter and the motor exceeds 100 meters, output AC reactor shall be installed.

Chapter 3 Easy Setup

3.1 Logic of Control

☞☞ Complete Timing Diagram

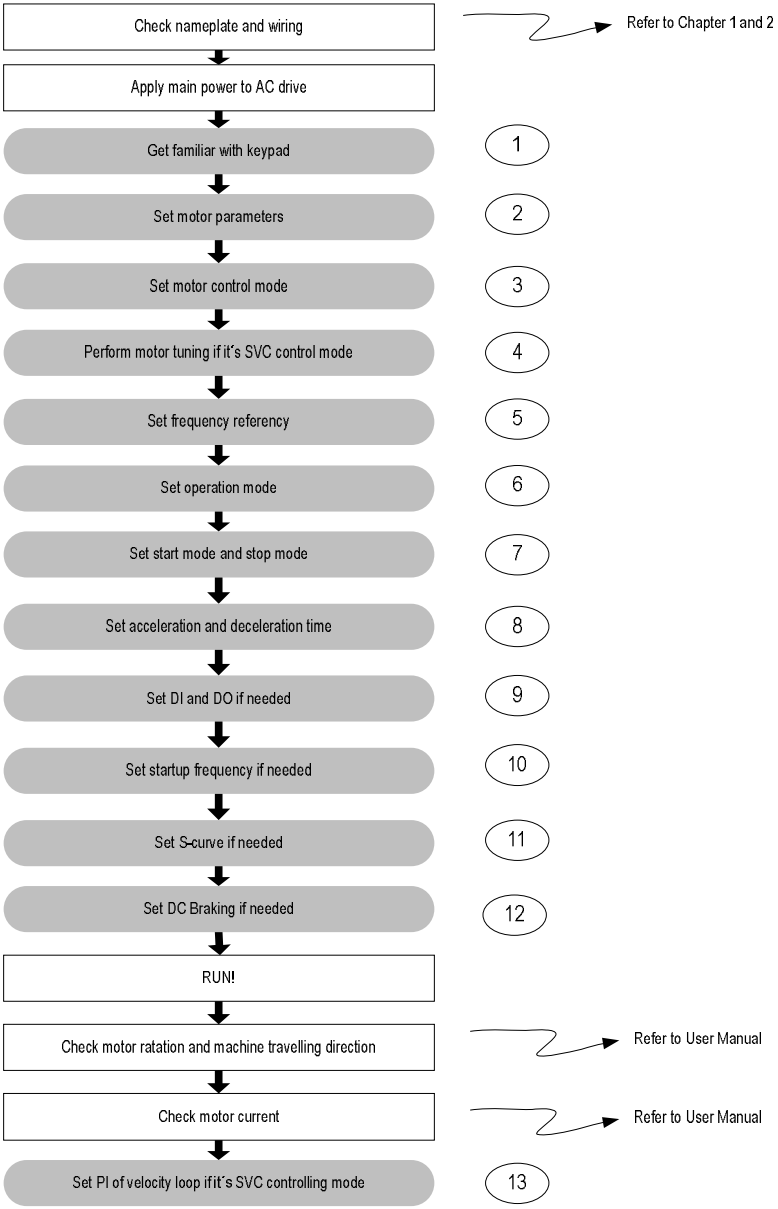


☞☞ Timing Diagram Description

Event	Description	Function code	Status
t1	-The AC drive waits for the RUN signal	……	Inhabit
t2	-The AC drive receives the Forward RUN command	……	RUN
	-The IGBT becomes active.	……	
	Startup DC braking is enabled if F1-07 > 0	F1-06 F1-07	
t3	Startup DC braking is disabled	……	RUN
	The startup frequency becomes active if F1-05 > 0.	F1-04 F1-05	
t4	-The startup frequency becomes inactive	……	RUN
	-The motor ramps up to the expected frequency	F0-23	
	-S-curve active	F1-09 F1-10	
t5	-Motor runs at expected frequency	F0-11	RUN
t6	-The Forward RUN command is cancelled.	……	RUN
	-The motor ramps down to zero frequency	F0-24	
	-S-curve active	F1-11 F1-12	
t7	-The frequency output command reaches the Stop DC braking frequency threshold.	F1-14	RUN
	-The IGBT shall become inactive if Waiting time of stop DC braking is not zero.	F1-15	RUN (if F6-15 = 0) Inhabit (if F6-15 > 0)
	-After the waiting time set in F1-15 the IGBT becomes active again	……	
t8	- DC Stop braking is enabled if F1-17 > 0	F1-16 F1-17	RUN
t9	-DC injection braking 2 is disabled.	……	Inhabit
	-The IGBT turns inactive	……	

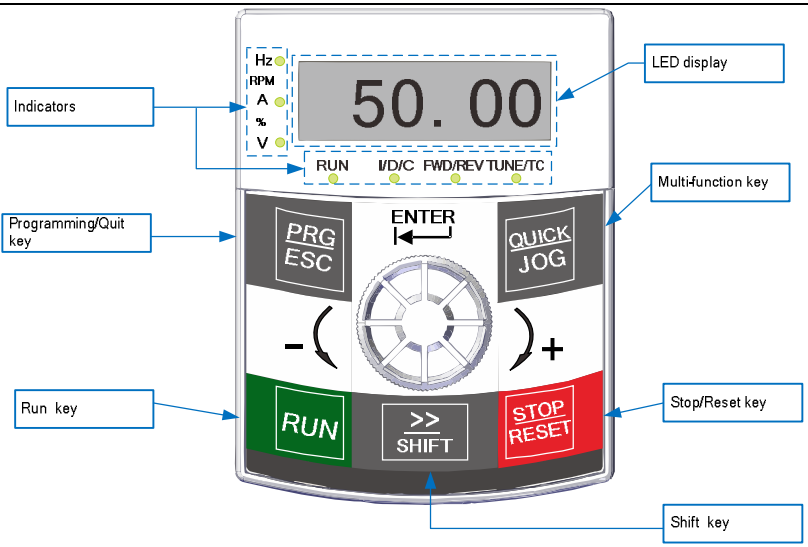
3.2 Step By Step Setup

☞☞ SetupFlowchart



☞☞ Step 1: Get Familiar with Keypad

◆ Overview



◆ Indicators

RUN : It indicates the state of the AC drive;
OFF indicates the stop state, ON (green) indicates the running state;

L/D/C : It indicates whether the AC drive is operated by means of keypad, terminals or communication.
OFF indicates keypad control, ON indicates terminal control, and blinking indicates communication control.

FWD/REV : It indicates forward or reverse rotation.
OFF indicates forward rotation and ON indicates reverse rotation.

TUNE/TC : ON indicates torque control mode, blinking slowly indicates auto-tuning state, blinking quickly indicates fault state.

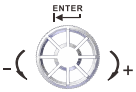
◆ LED display

The 5-digit LED display is able to display the frequency reference, output frequency, monitoring data and fault codes

◆ Hz/RPM/A/%/V

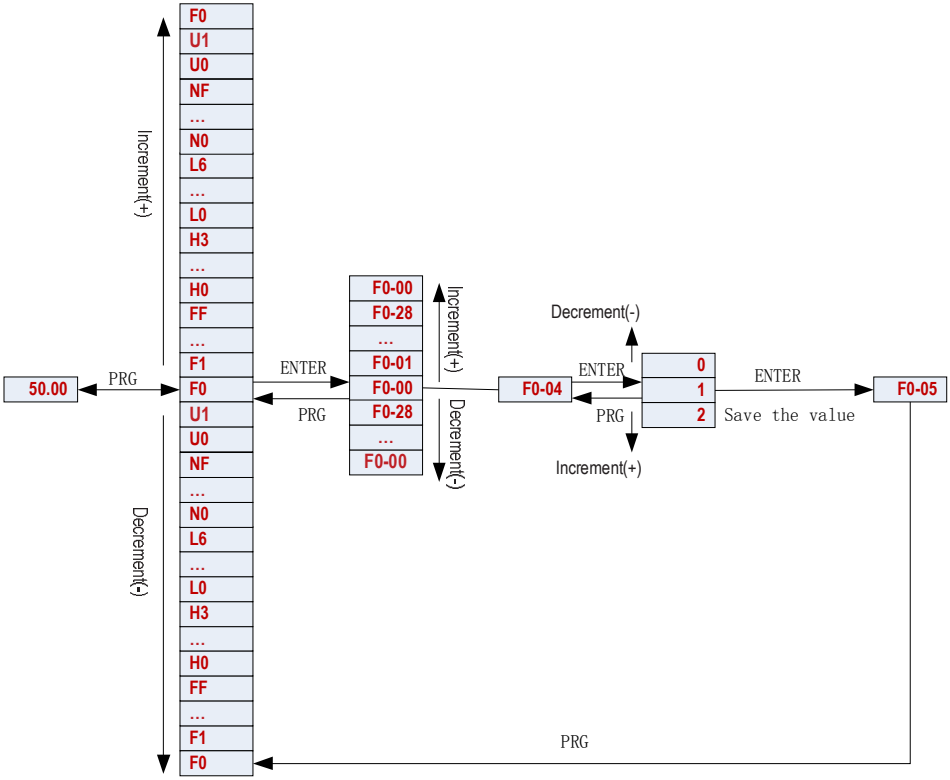
It indicates the unit of function code.

◆ Keys on Keypad

Key	Key Name	Function
	Programming/quit	Enter or exit Level I menu.
	Confirm(ENTER)	Enter the menu interfaces level by level, and confirm the parameter setting.
	Increment(+)	Increase data or function code
	Decrement(-)	Decrease data or function code.
	Shift	Select the displayed parameters in turn in the stop or running state, and select the digit to be modified when modifying parameters.
	RUN	Start the AC drive in the keypad operation mode.
	Stop/Reset	Stop the AC drive when it is in the running state and perform the reset operation when it is in the faulty state. The functions of this key are restricted by F7-27.
	Multi-function	Perform function switchover (such as quick switchover of command source or direction) according to the setting of F7-28.

Function Code	Parameter Name	Setting Range	Unit	Default
F7-27	Stop/Reset Function	0: STOP/RESET key enabled only in keypad control 1: STOP/RESET key enabled in any operation mode	N/A	1
F7-28	Quick/JOG function selection	0: Forward jog 1: Switchover between forward rotation and reverse rotation 2: Reverse jog 3: Switchover from remote control (terminal or communication) to keypad control	N/A	0

◆ Keypad Operation



◆ Function Code Arrangement

Function Code Group	Description	Remark
F0 to FF	Standard function code group	Compatible with SS1100 series function parameters
H0 to H3	Second motor function code group	Parameters, Acceleration and deceleration time and control mode of second motor can be set individual
L0 to L6	Advanced function code group	System parameters set, user function code select, optimizing control, AI/AO correction, master-slave control, band-type brake control and hibernation control.
N0 to NF	Industry machine function code group	Select different Industry machine
U0,U1	Monitor function code group	Group U0 is used to display of error information, group U1 is used to display of basic parameters

☞☞ Step 2: Set Motor Parameters

Function Code	Parameter Name	Setting Range	Unit	Default
F4-01	Rated motor power	0.1 to 1000.0	kw	Model dependent
F4-02	Rated motor voltage	0 to 1500	V	380V
F4-04	Rated motor current	0.1 to 6000.0	A	Model dependent
F4-05	Rated motor frequency	0.00 to F0-14	Hz	50.00Hz
F4-06	Rated motor speed	0 to 60000	rpm	F4-01 dependent

☞☞ Step 3: Set Motor Control Mode

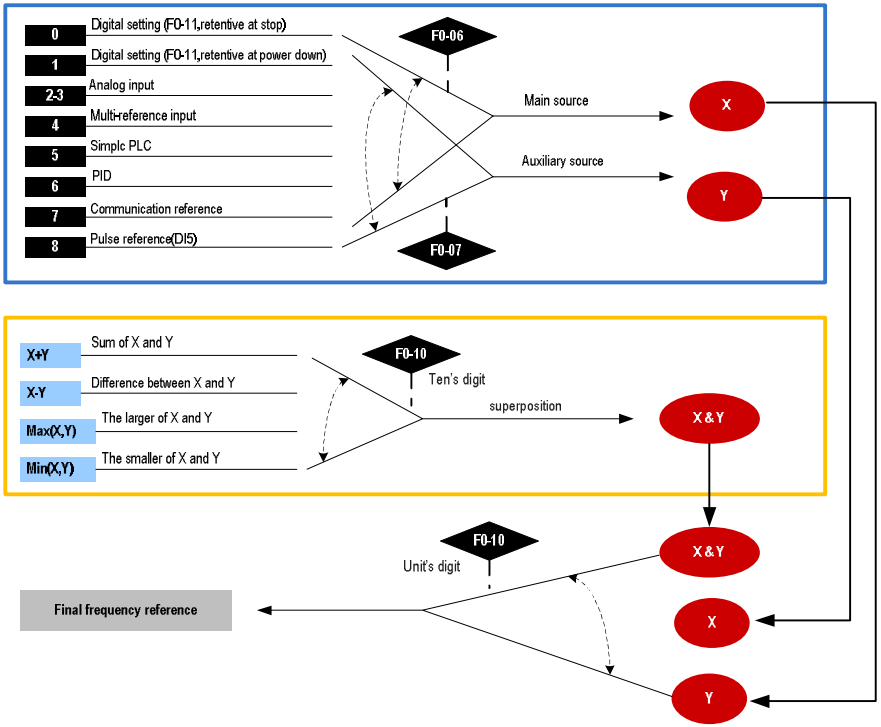
Function Code	Parameter Name	Setting Range	Unit	Default
F0-03	Control model	1: Sensorless vector control(SVC) 2: Voltage/Frequency control (V/F)	N/A	2

☞☞ Step 4: Perform Motor Tuning If It's SVC Control Mode

Function Code	Parameter Name	Setting Range	Unit	Default
F4-00	Auto-tuning selection	0: No auto-tuning 1: Static auto-tuning 2: Complete dynamic auto-tuning	N/A	0

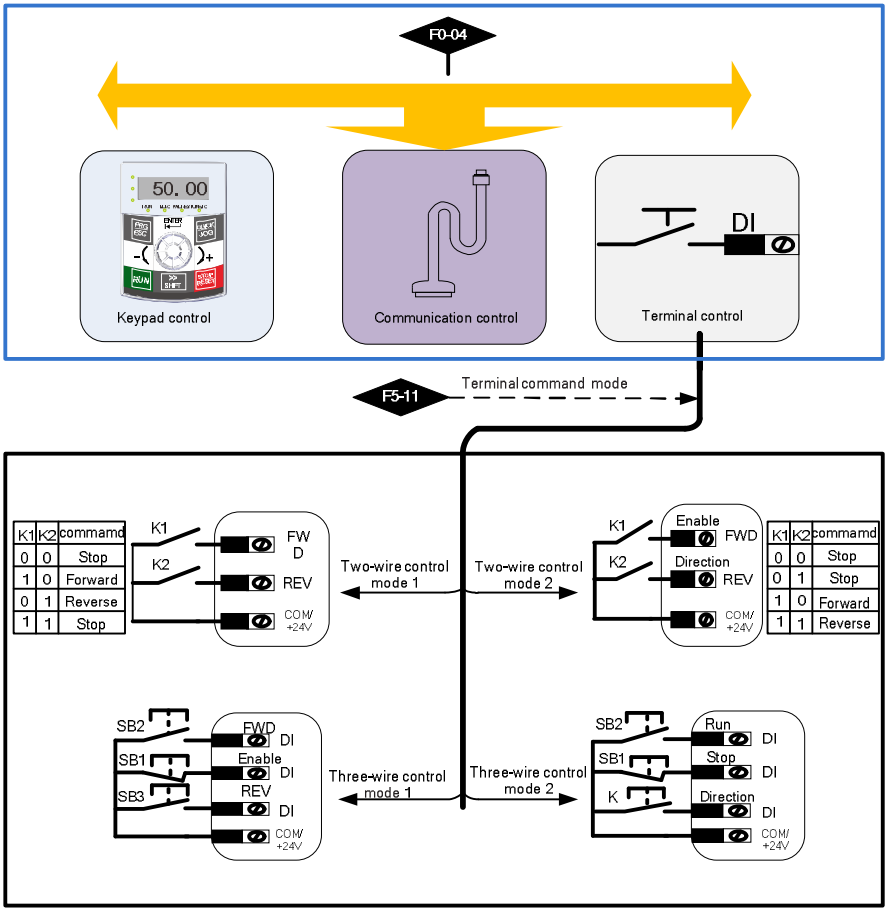
☞☞ Step 5: Set Frequency Reference

Function Code	Parameter Name	Setting Range	Unit	Default
F0-06	Main frequency source X selection	0: Up/Down digital setting (F0-11,retentive at stop) 1: Up/Down digital setting (F0-11 retentive at power down) 2: AI1 3: AI2 4: Multi-reference 5: Simple PLC 6: PID 7: Communication reference 8: Pulse reference (DI5)	N/A	1
F0-07	Auxiliary frequency source Y selection	The same as F0-03 (Main frequency source X selection)	N/A	0
F0-10	Frequency source selection	Unit's digit (Frequency source selection) 0：main frequency source X 1：X and Y operation result 2：Switchover between X and Y (by DI terminal) 3：Switchover between X and “X and Y superposition ” (by DI terminal) 4：Switchover between Y and “X and Y superposition ” (by DI terminal)	N/A	00
		Ten’s digit() 0：X+Y 1：X-Y 2：Max(X,Y) 3：Min(X,Y)		
F0-11	Preset frequency	0.00 to max F0-14	Hz	50.00



☞☞ Step 6: Select Operation Mode

Function Code	Parameter Name	Setting Range	Unit	Default
F0-04	Command source selection	0: Keypad control 1: Terminal control 2: Communication control	N/A	0
F5-11	Terminal command mode	0: Two-wire control mode 1 1: Two-wire control mode 2 2: Three-wire control mode 1 3: Three-wire control mode 2	N/A	0



☞☞ Step 7: Set Start Mode and Stop Mode

Function Code	Parameter Name	Setting Range	Unit	Default
F1-00	Start mode	0：Direct start 1： Rotational speed tracking restart 2：Pre-excited start	N/A	2
F1-13	Stop mode	0：Decelerate to stop 1：Coast to stop	N/A	0

☞☞ Step 8: Set Acceleration and Deceleration Parameters

Function Code	Parameter Name	Setting Range	Unit	Default
F0-21	Acceleration/ Deceleration time unit	0：1s 1：0.1s 2：0.01s	N/A	1
F0-23	Acceleration time 1	0s～65000s(F0-21=0) 0.0s～6500.0s(F0-21=1) 0.00s～650.00s(F0-21=2)	s	10.0s
F0-24	Deceleration time 1	0s～65000s(F0-21=0) 0.0s～6500.0s(F0-21=1) 0.00s～650.00s(F0-21=2)	s	10.0s
F1-08	Acceleration/ Deceleration mode	0:Linear Acceleration/Deceleration mode 1:S-curve Acceleration/Deceleration mode A 2:S-curve Acceleration/Deceleration mode B	N/A	0

☞☞ Step 9: Set DI and DO If Needed

Function Code	Parameter Name	Setting Range	Unit	Default
F5-00	DI1 function selection	0: No function 1: Forward RUN (FWD) 2: Reverse RUN (REV) 3: Three-wire control 4：Forward JOG (FJOG) 5：Reverse JOG (RJOG) 6：Terminal UP 7：Terminal DOWN 8：Coast to stop 9：Fault reset (RESET) 10：RUN pause	N/A	1 FWD
F5-01	DI2 function selection		N/A	2 REV
F5-02	DI3 function selection		N/A	9 RESET

Function Code	Parameter Name	Setting Range	Unit	Default
F5-03	DI4 function selection	11：External fault normally open (NO) input 12：Multi-reference terminal 1 13：Multi-reference terminal 2 14：Multi-reference terminal 3 15：Multi-reference terminal 4 16：Terminal 1 for acceleration/deceleration time selection 17：Terminal 2 for acceleration/deceleration time selection 18：Frequency source switchover	N/A	12 Multi-reference terminal 1
F5-04	DI5 function selection	19：UP and DOWN setting clear (terminal, keypad) 20：Command source switchover terminal 1 21：Acceleration/Deceleration prohibited 22：PID pause 23：PLC status reset 24：Swing pause 25：Timer triggers input 26：Immediate DC injection braking 27：External fault normally closed (NC) input 28：Counter input 29：Counter reset 30：Length count input 31：Length reset 32：Torque control prohibited 33：Pulse input (enabled only for DI5) 34：Frequency modification forbidden 35：PID action direction reverse 36：External STOP terminal 1 37：Command source switchover terminal 2 38：PID integral disabled 39：Switchover between main frequency source X and preset frequency 40：Switchover between auxiliary frequency source Y and preset frequency 41：Switchover between motor 1 and motor 2 42：Reserved	N/A	13 Multi-reference terminal 1

Function Code	Parameter Name	Setting Range	Unit	Default
		43：PID parameter switchover 44：Speed control/Torque control switchover 45：Emergency stop 46：External STOP terminal 2 47：Deceleration DC injection braking 48：Clear the current running time 49：Switchover between two-line mode and three-line mode 50：Reverse run prohibited 51：User-defined fault 1 52：User-defined fault 2 53：Dormant input		
F5-10	DI filter time	0.000 to 1.000	s	0.010
F5-13	DI active mode selection 1	00000~11111  DI5 active mode 0: High level active 1: Low level active DI4 active mode 0: High level active 1: Low level active DI3active mode 0: High level active 1: Low level active DI2active mode 0: High level active 1: Low level active DI1 active mode 0: High level active 1: Low level active	N/A	00000
F5-34	DI1 ON delay	0.0～3600.0	s	0.0
F5-35	DI1 OFF delay	0.0～3600.0	s	0.0

Function Code	Parameter Name	Setting Range	Unit	Default
F5-36	DI2 ON delay	0.0～3600.0	s	0.0
F5-37	DI2 OFF delay	0.0～3600.0	s	0.0
F5-38	DI3 ON delay	0.0～3600.0	s	0.0
F5-39	DI3 OFF delay	0.0～3600.0	s	0.0

Note: 'High level active' means that, if a high level voltage is applied to DI terminal, the DI signal will be seen as active.

'Low level active' means that, if a low level voltage is applied to DI terminal, the DI signal will be seen as active

Multistage command function description ((K1, K2, K3, K4 are corresponded respectively terminal DI function 12, 13, 14, 15)

K4	K3	K2	K1	Frequency setting	Corresponding Parameter
OFF	OFF	OFF	OFF	Multi-segment frequency 0	FC-00
OFF	OFF	OFF	ON	Multi-segment frequency 1	FC-01
OFF	OFF	ON	OFF	Multi-segment frequency 2	FC-02
OFF	OFF	ON	ON	Multi-segment frequency 3	FC-03
OFF	ON	OFF	OFF	Multi-segment frequency 4	FC-04
OFF	ON	OFF	ON	Multi-segment frequency 5	FC-05
OFF	ON	ON	OFF	Multi-segment frequency6	FC-06
OFF	ON	ON	ON	Multi-segment frequency 7	FC-07
ON	OFF	OFF	OFF	Multi-segment frequency 8	FC-08
ON	OFF	OFF	ON	Multi-segment frequency 9	FC-09
ON	OFF	ON	OFF	Multi-segment frequency 10	FC-10

ON	OFF	ON	ON	Multi-segment frequency 11	FC-11
ON	ON	OFF	OFF	Multi-segment frequency 12	FC-12
ON	ON	OFF	ON	Multi-segment frequency 13	FC-13
ON	ON	ON	OFF	Multi-segment frequency 14	FC-14
ON	ON	ON	ON	Multi-segment frequency 15	FC-15

4 multi segment command terminals can composed to 16 kinds of status, and the different status correspond to 16 command setting value, the details are showed in table.

Acceleration/Deceleration time selective terminal function description:

Terminal 2	Terminal 1	Speed-up/speed-down time selection	Corresponding Parameter
OFF	OFF	Speed-up time 1	F0-23、F0-24
OFF	ON	Speed-up time 2	F7-03、F7-04
ON	OFF	Speed-up time 3	F7-05、F7-06
ON	ON	Speed-up time 4	F7-07、F7-08

◆ DO Setting

Function Code	Parameter Name	Setting Range	Unit	Default
F6-00	Relay 1 function	0：No output 1：AC drive running 2：Fault output 3：Frequency-level detection FDT1 output 4：Frequency reached 5：Zero-speed running (no output at stop) 6：Motor overload pre-warning 7：AC drive overload pre-warning 8：PLC cycle completed 9：Accumulative running time reached 10：Frequency limited 11：Ready for RUN 12：AI1>AI2	N/A	2 Fault output
F6-01	Relay 2 function		N/A	1 AC drive running
F6-02	Y1 unction		N/A	1 AC drive running

Function Code	Parameter Name	Setting Range	Unit	Default
		13：Frequency upper limit reached 14：Frequency lower limit reached 15：Undervoltage state output 16：Communication setting 17：Timer output 18：Reverse running 19：Reserved 20：Length reached 21：Torque limited 22：Current 1 reached 23：Frequency 1 reached 24：Module temperature reached 25：Load lost 26：Accumulative power-on time reached 27：Timing duration reached output 28：Current running time reached 29：Set count value reached 30：Designated count value reached 31：Indicate motor 1 or motor 2 32：Brake control output 33：Zero-speed running 2 (having output at stop) 34：Frequency level detection FDT2 output 35：Zero current state 36：Software current limit exceeded 37：Frequency lower limit reached (having output at stop) 38：Alarm output 39：Reserved 40：AI1 input limit exceeded 41：Reserved 42：Reserved 43：Frequency 2 reached 44：Current 2 reached		

Function Code	Parameter Name	Setting Range	Unit	Default
		45：Fault output		
F6-26	Relay 1 output delay time	0.0～3600.0	s	0.0
F6-27	Relay 2 output delay time	0.0～3600.0	s	0.0
F6-28	Y 1 output delay time	0.0～3600.0	s	0.0

☞☞ Step 10: Set Startup Frequency If Needed

Function Code	Parameter Name	Setting Range	Unit	Default
F1-04	Startup frequency	0.00～10.00	Hz	0.00
F1-05	Startup frequency active time	0.0～100.0	s	0.0

☞☞ Step 11: Set S-Curve If Needed

Function Code	Parameter Name	Setting Range	Unit	Default
F1-08	Acceleration/ Deceleration mode	0:Linear Acceleration/Deceleration mode 1:S-curve Acceleration/Deceleration mode A 2:S-curve Acceleration/Deceleration mode B	N/A	0
F1-09	Acceleration time proportion of S-curve start segment	0.0～100.0	%	20.0%
F1-10	Deceleration time proportion of S-curve start segment	0.0～100.0	%	20.0%
F1-11	Acceleration time proportion of S-curve end segment	0.0～100.0	%	20.0%
F1-12	Deceleration time proportion of S-curve end segment	0.0～100.0	%	20.0%

☞☞ Step 12: Set DC Injection Braking If Needed

Function Code	Parameter Name	Setting Range	Unit	Default

F1-06	Startup DC injection braking current	0～100	%	0
F1-07	Startup DC injection braking time	0.0～100.0	s	0.0

☞☞ Step 13: Set PI of Velocity Loop If It's SVC Control Mode

Function Code	Parameter Name	Setting Range	Unit	Default
F3-00	Switchover frequency 1	1.00～F3-02	Hz	5.00
F3-04	Speed loop proportional gain at low frequency	0.1～10.0	N/A	4.0
F3-05	Speed loop integral time at low frequency	0.01～10.00	s	0.50
F3-06	Speed loop proportional gain at high frequency	0.1～10.0	N/A	2.0
F3-07	Speed loop integral time at high frequency	0.01～10.00	s	1.00

☞☞ Step 14: Set Multistage Mode If Needed

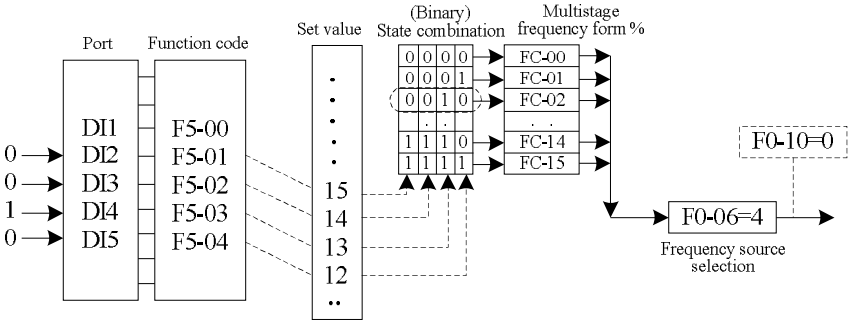


Fig.3-7 Illustration of multi-speed control mode

Function Code	Parameter Name	Setting Range	Unit	Default
FC-00	Multi-segment frequency 0	-100.0% to 100.0%	FC-53	0.0
FC-01	Multi-segment frequency 1	-100.0% to 100.0%	FC-53	0.0
FC-02	Multi-segment frequency 2	-100.0% to 100.0%	FC-53	0.0
FC-03	Multi-segment frequency 3	-100.0% to 100.0%	FC-53	0.0
FC-04	Multi-segment frequency 4	-100.0% to 100.0%	FC-53	0.0
FC-05	Multi-segment frequency 5	-100.0% to 100.0%	FC-53	0.0
FC-06	Multi-segment frequency6	-100.0% to 100.0%	FC-53	0.0

Function Code	Parameter Name	Setting Range	Unit	Default
FC-07	Multi-segment frequency 7	-100.0% to 100.0%	FC-53	0.0
FC-08	Multi-segment frequency 8	-100.0% to 100.0%	FC-53	0.0
FC-09	Multi-segment frequency 9	-100.0% to 100.0%	FC-53	0.0
FC-10	Multi-segment frequency 10	-100.0% to 100.0%	FC-53	0.0
FC-11	Multi-segment frequency 11	-100.0% to 100.0%	FC-53	0.0
FC-12	Multi-segment frequency 12	-100.0% to 100.0%	FC-53	0.0
FC-13	Multi-segment frequency 13	-100.0% to 100.0%	FC-53	0.0
FC-14	Multi-segment frequency 14	-100.0% to 100.0%	FC-53	0.0
FC-15	Multi-segment frequency 15	-100.0% to 100.0%	FC-53	0.0
FC-53	FC - 00 - FC - 15 units selection of multi-segment speed	0:% 1:Hz	%	0

NOTE: FC-53 is used to select the units of FC - 00 - FC - 15 multi-segment speed, when FC-53=0, the range (FC-00~FC15) is -100.0%; when FC-53=1, the range (FC-00~FC15) is 0~F0-14.

☞ Step 15: Set Simple PLC Mode If Needed

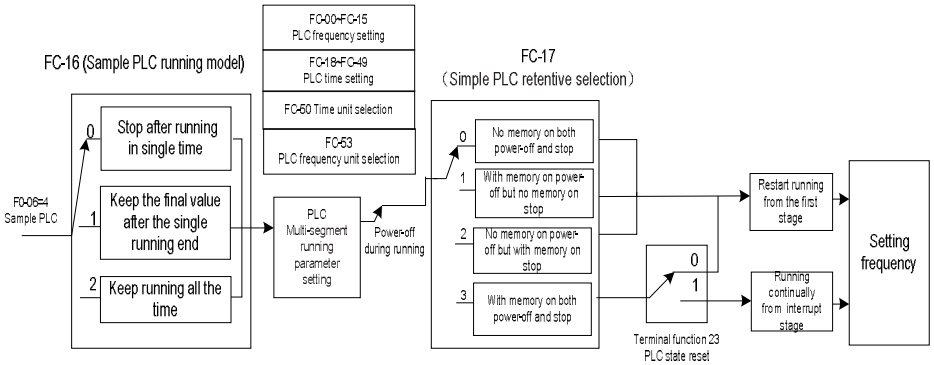


Fig.3-8 Sample PLC Illustration

Function Code	Parameter Name	Setting Range	Unit	Default
FC-16	Simple PLC running mode	0~2	N/A	0
FC-17	Simple PLC retentive selection	0~3	N/A	0
FC-18	Running time of simple PLC reference 0	0.0~6500.0	N/A	0.0
FC-19	Acceleration/deceleration time of simple PLC reference 0	0~3	N/A	0

Function Code	Parameter Name	Setting Range	Unit	Default
FC-20	Running time of simple PLC reference 1	0.0~6500.0	N/A	0.0
FC-21	Acceleration/deceleration time of simple PLC reference 1	0~3	N/A	0
FC-22	Running time of simple PLC reference 2	0.0~6500.0	N/A	0.0
FC-23	Acceleration/deceleration time of simple PLC reference 2	0~3	N/A	0
FC-24	Running time of simple PLC reference 3	0.0~6500.0	N/A	0.0
FC-25	Acceleration/deceleration time of simple PLC reference 3	0~3	N/A	0
FC-26	Running time of simple PLC reference 4	0.0~6500.0	N/A	0.0
FC-27	Acceleration/deceleration time of simple PLC reference 4	0~3	N/A	0
FC-28	Running time of simple PLC reference 5	0.0~6500.0	N/A	0.0
FC-29	Acceleration/deceleration time of simple PLC reference 5	0~3	N/A	0
FC-30	Running time of simple PLC reference 6	0.0~6500.0	N/A	0.0
FC-31	Acceleration/deceleration time of simple PLC reference 6	0~3	N/A	0
FC-32	Running time of simple PLC reference 7	0.0~6500.0	N/A	0.0
FC-33	Acceleration/deceleration time of simple PLC reference 7	0~3	N/A	0
FC-34	Running time of simple PLC reference 8	0.0~6500.0	N/A	0.0
FC-35	Acceleration/deceleration time of simple PLC reference 8	0~3	N/A	0
FC-36	Running time of simple PLC reference 9	0.0~6500.0	N/A	0.0
FC-37	Acceleration/deceleration time of simple PLC reference 9	0~3	N/A	0
FC-38	Running time of simple PLC reference 10	0.0~6500.0	N/A	0.0
FC-39	Acceleration/deceleration time of simple PLC reference 10	0~3	N/A	0
FC-40	Running time of simple PLC reference 11	0.0~6500.0	N/A	0.0
FC-41	Acceleration/deceleration	0~3	N/A	0

Function Code	Parameter Name	Setting Range	Unit	Default
	time of simple PLC reference 11			
FC-42	Running time of simple PLC reference 12	0.0~6500.0	N/A	0.0
FC-43	Acceleration/deceleration time of simple PLC reference 12	0~3	N/A	0
FC-44	Running time of simple PLC reference 13	0.0~6500.0	N/A	0.0
FC-45	Acceleration/deceleration time of simple PLC reference 13	0~3	N/A	0
FC-46	Running time of simple PLC reference 14	0.0~6500.0	N/A	0.0
FC-47	Acceleration/deceleration time of simple PLC reference 14	0~3	N/A	0
FC-48	Running time of simple PLC reference 15	0.0~6500.0	N/A	0.0
FC-49	Acceleration/deceleration time of simple PLC reference 15	0~3	N/A	0
FC-50	Time unit of simple PLC	0~1	N/A	0

☞ Step 16: Set Frequency Closed-loop Control of the Process Control Mode If Needed (PID)

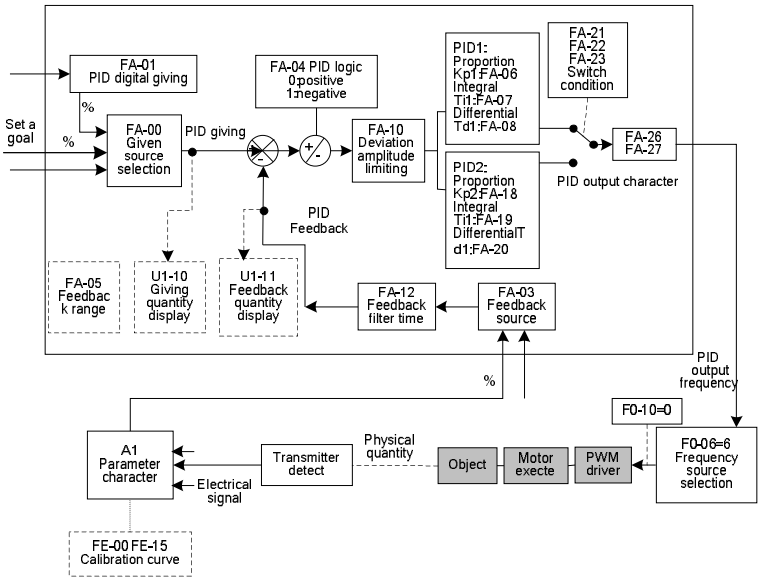


Fig.3-9 Illustration of frequency closed-loop control

Function Code	Parameter Name	Setting Range	Unit	Default
FA-00	PID setting source	0: Keypad 1: AI1 2: AI2 3: Communication setting 4: Pulse setting (DI5) 5: Multi-reference 6: UP/DOWN of keypad, valid when F0-06 = 6	N/A	0
FA-01	PID digital setting	0.0% to 100.0%	%	50.0%
FA-02	PID setting change time	Response time:0.00s to 650.00s	S	0.00s
FA-03	PID feedback source	0: AI1 1: AI2 2: AI1 - AI2 3: Communication setting 4: Pulse setting (DI5) 5: AI1 + AI2 6: MAX(|AI1|,|AI2|) 7: MIN(|AI1|,|AI2|)	N/A	0
FA-04	PID action direction	0: Forward action 1: Reverse action	N/A	0
FA-05	PID feedback range setting	0 to 65535	N/A	1000

☞☞ Step 17: Set Wake-up Function Mode If Needed

Function Code	Parameter Name	Setting Range	Unit	Default
L6-00	Sleep selection	0~3	N/A	0
L6-01	Sleep frequency	0.00Hz to 50.00Hz	Hz	0.00
L6-02	Sleep delay time	0.0s to 3600.0s	S	60.0
L6-03	Wake-up deviation	0.0% to 100.0%	%	10.0
L6-05	Dormant delay time Frequency output selection	0:PID auto-adjustment 1: Dormant frequency L6-01	N/A	0

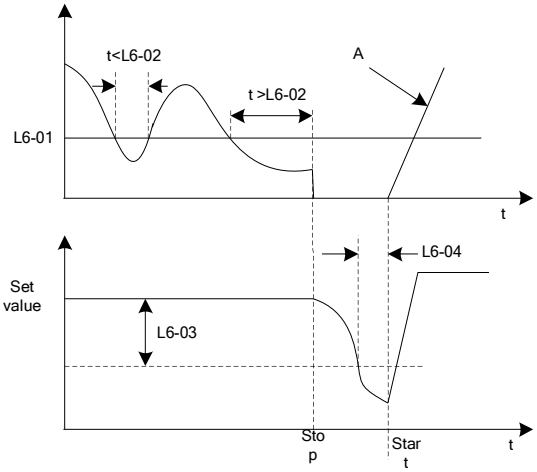


Fig.3-10 Sleep process frequency illustration

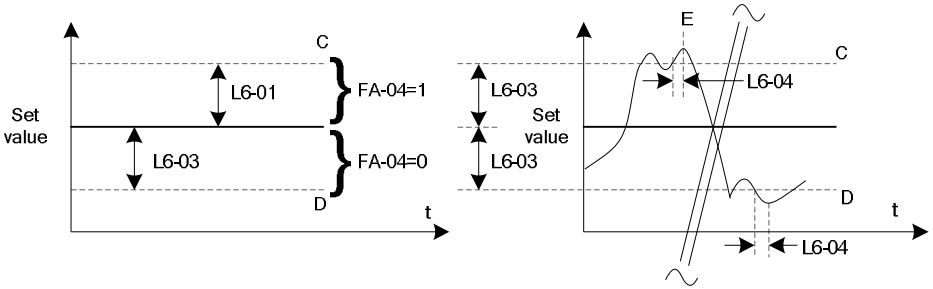


Fig.3-11 Wake-up illustration

☞☞ Step 18: Set Swing Frequency Mode If Needed

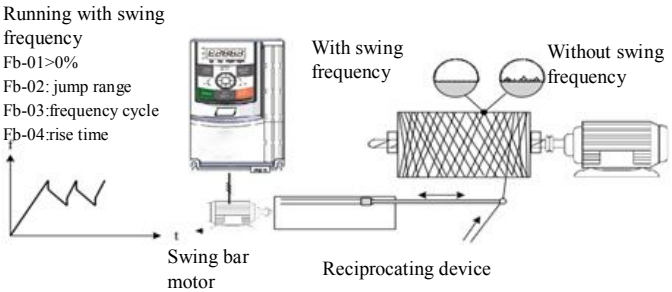


Fig.3-12 Illustration of swing frequency application setting

☞☞ Step 19: Set Counter Mode If Needed

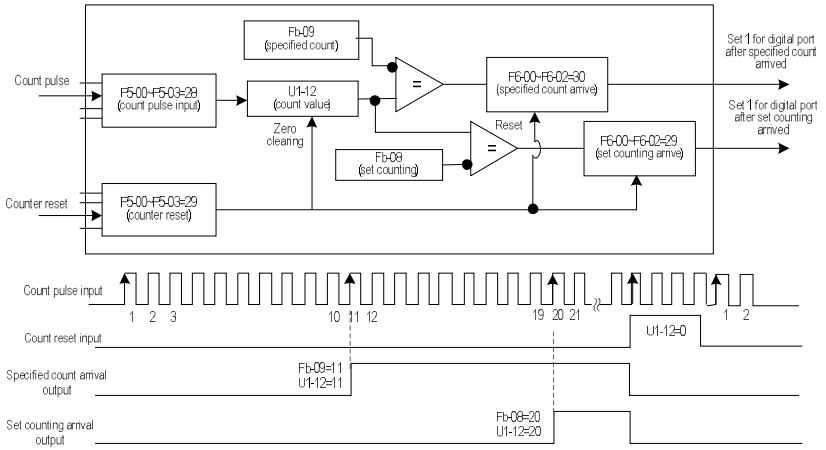


Fig.3-13 Counting mode function code setting

☞ Step 20: Set Fixed-length Mode If Needed

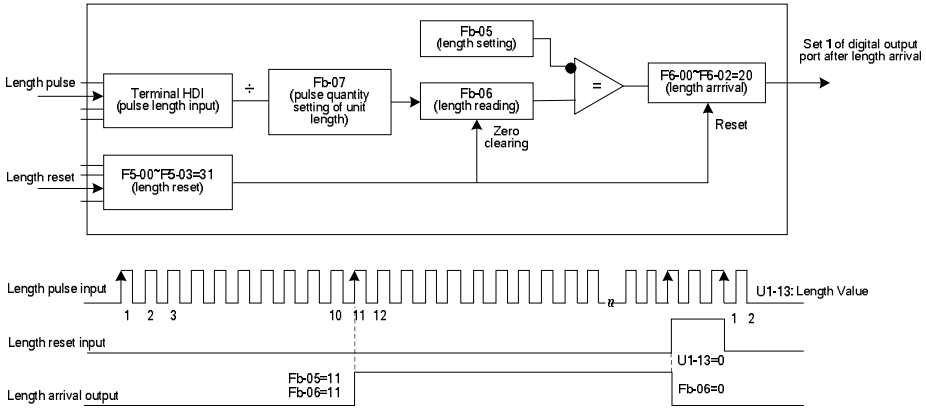


Fig.3-14 Function code setting of fixed-length control mode

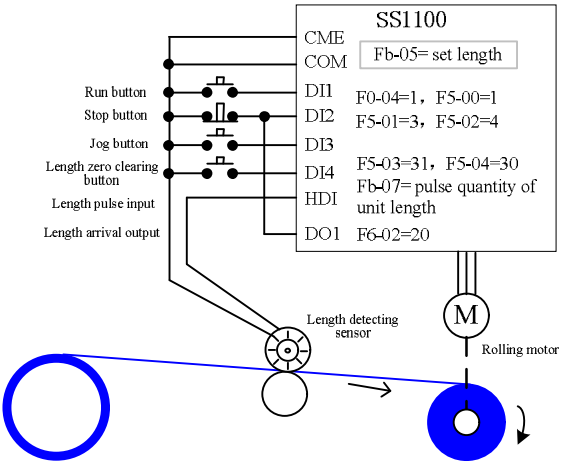


Fig.3-15 Examples of fixed-length control function

☞ Step 21: Usage of Inverter Serial Communication Mode If Needed

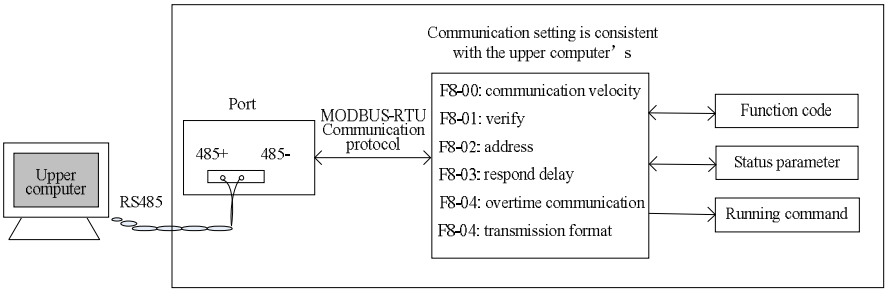


Fig.3-16 communication setting illustration

For details please refer to appendix A: SS1100 Modbus communication protocol.

☞ Step 22: Set Motor Running Direction Setting Mode If Needed

Function Code	Parameter Name	Setting Range	Unit	Default
F0-13	Rotation direction	0: Same direction 1: Reverse direction 2: Reverse forbidden	N/A	0

☞ Step 23: Keypad Display Function If Needed

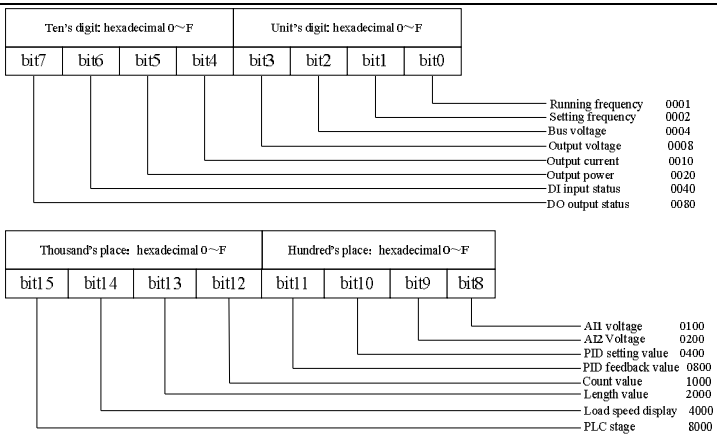


Fig.3-17 LED running display1 F7-29 illustration

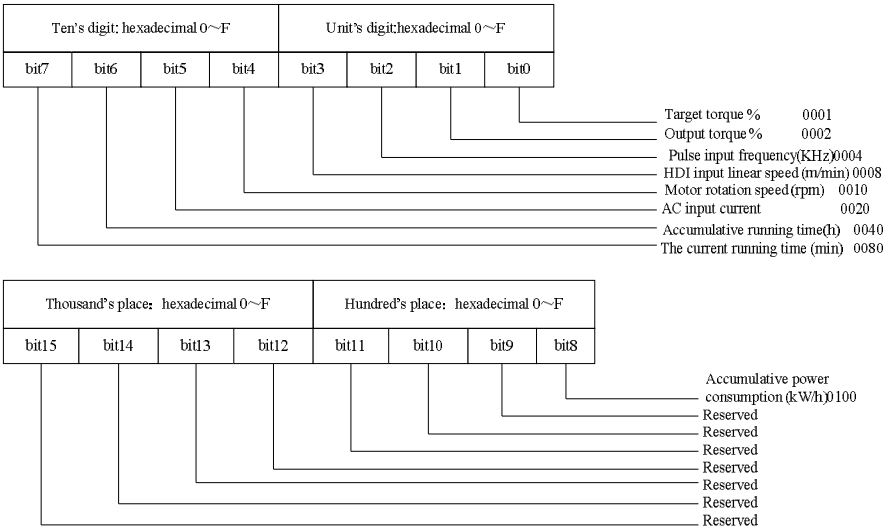


Fig.3-18 LED running display2 F7-65 illustration

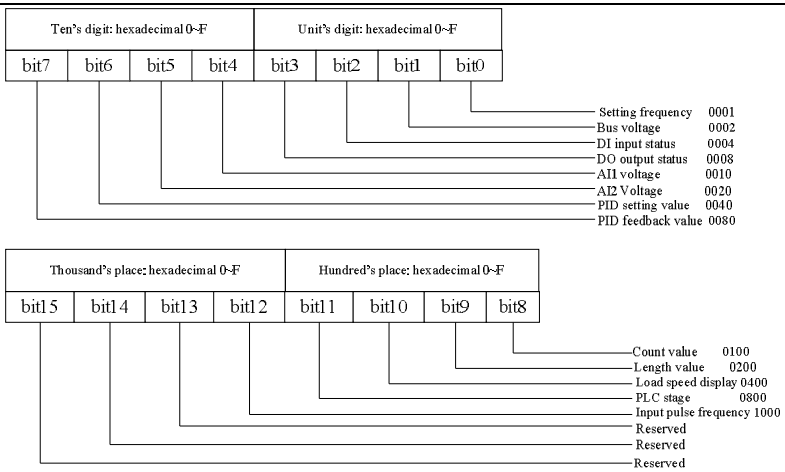


Fig.3-19 LED stop display3 F7-30 illustration

Function Code	Parameter Name	Setting Range	Unit	Default
F7-29	LED display running parameters	0000 to 0xffff Bit00: Running frequency 0001 Bit01: Set frequency 0002 Bit02: Bus voltage (V) 0004 Bit03: Output voltage 0008 Bit04: Output current 0010 Bit05: Output power (kW) 0020 Bit06: DI input status 0040 Bit07: DO output status 0080 Bit08: AI1 voltage (V) 0100 Bit09: AI2 voltage (V) 0200 Bit10: PID setting 0400 Bit11: PID feedback 0800 Bit12: Count value 1000 Bit13: Length value 2000 Bit14: load speed display 4000 Bit15: PLC stage 8000	N/A	H.441F
F7-30	LED display stop parameters	1 to 0x1fff Bit00: Set frequency 0001 Bit01: Bus voltage (V) 0002 Bit02: DI input status 0004 Bit03: DO output status 0008 Bit04: AI1 voltage (V) 0010 Bit05: AI2 voltage (V) 0020 Bit06: PID setting 0040 Bit07: PID feedback 0080	N/A	H.0043

Function Code	Parameter Name	Setting Range	Unit	Default
		Bit08: Count value 0100 Bit09: Length value 0200 Bit10:Load speed display 0400 Bit11:PLC stage 0800 Bit12: Pulse input frequency1000 Bit13~Bit15: Reserved		
F7-65	LED display running parameters 2	0x0~0x1FF Bit00: target torque 0001 Bit01: output torque 0002 Bit02: pulse input frequency (KHz) 0004 Bit03: HDI input liner speed(m/min) 0008 Bit04: motor rotation speed0010 Bit05: AC line current 0020 Bit06: Accumulative running time(h) Bit07: The current running time(min) Bit08: Accumulative power consumption (KW/h) Bit09~Bit15: reserved	N/A	0x00

☞ Step 24: Set Master-slave Control Function If Needed

L4-00	Master-slave control selection	Range: 0~1	Default: 0

0: Prohibited

1: Enable

L4-01	Master-slave machine selection	Range: 0~1	Default: 0

0: Master machine

1: Slave machine

L4-02	Master sending frequency selection	Range: 0~1	Default: 0<2>

0: Running frequency; on this condition the acceleration/ deceleration time must be set as 0, otherwise when the master and the slave accelerating or decelerating, the speed will not in synchronization.

1: Target frequency; on this condition it's needed to set a proper acceleration/ deceleration time respectively for master and slave machine, otherwise the acceleration/ deceleration time of master and slave machine will not in synchronization.

L4-03	Command source selection of slave followed the master	Range: 0~1	Default: 0<1>

0: Not follow, it means that the slave will not run after the master starts to run, so it's used to detect if the system communication is normal or not.

1: Follow, it means the slave machine follows the command source of master machine to start or stop synchronously.

L4-04	Slave received frequency coefficient	Range: 0.00%～600.00%	Default: 100.00%<1>

L4-05	Slave received torque coefficient	Range:-10.00 to 10.00	Default: 1.00<1>
L4-06	Slave received torque offset	Range: -50.00% to 50.00%	Default: 0<1>

L4-04~L4-06 are effective only to the slave machine, it's used to define the relationship between slave received data and the master machine.

Assuming that the slave send data x; the slave machine use data Y, the coefficient of slave received data is K(L4-04/L4-05), thus Y= K*x + b. When it's frequency b=0, and when it's torque b=L4-06.

L4-07	Frequency offset threshold	Range: 0.20% to 10.00%	Default: 0.50%
L4-08	Master-slave communication offline detection time	Range: 0.0s to 10.0s	Default: 0.1s

They are used to set the detected time during the communication break between master and slave. There is no detection when the value is 0.

Note: <1> Only effective on slave machine; <2> Only effective on master machine.

When using 485 communication to conduct master-slave control, the inverter can't communicate with the master machine which adopts 485 communication mode, otherwise there will be fault on the system.

Ensure the master and slave direction

When using master-slave control and synchronous speed, firstly please ensure that the running direction of the master machine and the slave machine is the same. If running direction of master machine and slave machine is not the same, you can adjust the direction by F0-13 or change the wiring order between the inverter and the motor to change the actual running direction.

Master and slave parameter setting

There are two kinds of master-slave control mode when multi inverter drives the same load.

1) Master machine control mode F0-03 is set as vector, and slave machine is also set vector and torque control. It's used in most of the occasions.

2) Master machine control mode F0-03 is set as V/F, slave machine is also set as V/F. On this condition please set a proper drop rate F7-18, otherwise the current between master and slave will be imbalance.

3) When the mechanical transmission rate of master and slave machine is in accordance, the maximum frequency F0-14 of master and slave machine must keep in accordance.

4) When master machine L4-02=0, the acceleration/ deceleration time of slave machine must set as 0; when master machine L4-02=1, the acceleration/ deceleration time of slave machine must keep same as the master machine.

5) When L4-03=1, please set F0-04(command source of slave) to Communication Control Mode.

6) There is only one master machine in the same one system, but slave machine can be multiple. Meanwhile wiring according to the communication mode, SS1100 only uses 485 communication.

☞ Step 25: Set Mechanical Braking Control Function If Needed

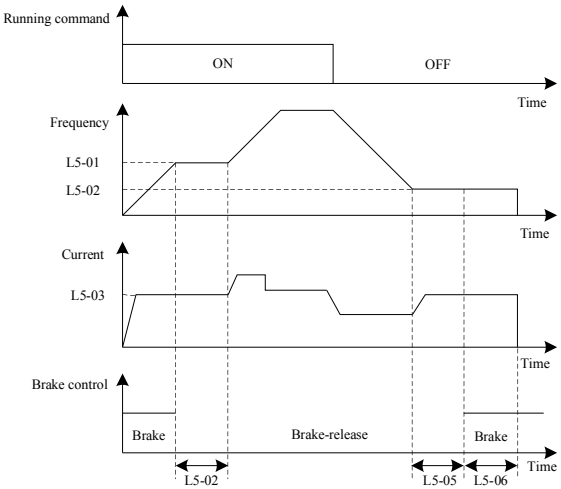


Fig.3-20 Band-type braking control process illustration

Function Code	Parameter Name	Setting Range	Unit	Default
L5-00	Braking control selection	0~1	N/A	0

☞☞ Step 26: Set Password If Needed

The inverter provides password protection function. It's just the user password when setting F7-49 to nonzero status. The password protection is effective after its back to state parameter interface. Pressing button PRG, it will display "-----", just showing the state parameter. If it's need to enter the normal menu to check and set the function code, you must press buttons on "-----" interface until it displays "00000"on the panel and then input the right password.

If you want to cancel the password protection function, you get through it with the right password, then set F70-49 to zero.

Chapter 4 Trouble Shooting

4.1 Faults and Solutions

Display	Fault Name	Possible Causes	Solutions
Err01	Inverter unit protection	1: The output circuit is grounded or short circuited. 2: The module overheats. 3: The internal connections become loose. 4: The main control board is faulty, drive board or module is faulty.	1: Eliminate external faults 2: Check the air filter and the cooling fan 3: Connect all cables properly. 4: Contact the agent or Machtric.
Err04	Overcurrent during acceleration	1: The output circuit is grounded or short circuited. 2: Motor parameter is not right. 3: The acceleration time is too short 4: Manual torque boost or V/F curve is not appropriate 5: The voltage is too low 6: The startup operation is performed on the rotating motor. 7: A sudden load is added during acceleration 8: The AC drive model is of too small	1: Eliminate external faults 2: Perform the motor auto- tuning 3: Increase the acceleration time 4: Adjust the manual torque boost or V/F curve 5: Adjust the voltage to normal range 6: Select rotational speed tracking restart or start the motor after it stops 7: Remove the added load 8:Select an AC drive of higher power class
Err05	Overcurrent during deceleration	1: The output circuit is grounded or short circuited. 2: Motor parameter is not right. 3: The deceleration time is too short 4: The voltage is too low 5: A sudden load is added during deceleration 6: The braking unit and braking resistor are not installed.	1: Eliminate external faults 2: Perform the motor auto- tuning 3: Increase the deceleration time 4: Adjust the voltage to normal range 5: Remove the added load 6:Install the braking unit and braking resistor 7: decrease the over-excitation gain
Err06	Over current at constant speed	1: The output circuit is grounded or short circuited. 2: Motor parameter is not right. 3: The voltage is too low 4: A sudden load is added during operation 5: The AC drive model is of too small	1: Eliminate external faults 2: Perform the motor auto- tuning 3: Adjust the voltage to normal range 4: Remove the added load 5: Select an AC drive of higher power class
Err08	Overvoltage during acceleration	1：The input voltage is too high 2：An external force drives the motor during acceleration 3：The acceleration time is too short 4：The braking unit and braking resistor are not installed. 5：Motor parameter is not right.	1：Adjust the voltage to normal range 2：Cancel the external force or install a braking resistor 3：Increase the acceleration time 4：Install the braking unit and braking resistor 5：Perform the motor auto-tuning
Err09	Overvoltage during	1：The input voltage is too high	1：Adjust the voltage to normal range 2：Cancel the external force or install

Display	Fault Name	Possible Causes	Solutions
	deceleration	2：An external force drives the motor during deceleration 3：The deceleration time is too short. 4：The braking unit and braking resistor are not installed.	a braking resistor 3：Increase the deceleration time 4：Install the braking unit and braking resistor
Err10	Overvoltage at constant speed	1：The input voltage is too high 2：An external force drives the motor during acceleration	1：Adjust the voltage to normal range 2：Cancel the external force or install a braking resistor
Err12	Undervoltage	1. Instantaneous power failure occurs 2. The input voltage exceeds the allowed range 3. The DC bus voltage is too low 4. The rectifier bridge and buffer resistor are faulty 5. The drive board is faulty 6. The control board is faulty	1. Reset the fault 2. Adjust the input voltage to within the allowed range 3. Seek for maintenance
Err13	Drive overload	1. The load is too heavy or the rotor is locked. 2. The drive is of too small power class	1: Reduce the load, or check the motor, or check the machine whether it is locking the rotor. 2: Select a drive of higher power class
Err14	Motor overload	1: F9-01 is too small 2: The load is too heavy or the rotor is locked 3: The drive is of too small power class	1: Set F9-01 correctly 2: Reduce the load, or check the motor, or check the machine whether it is locking the rotor. 3: Select a drive of higher power class
Err15	Drive overheat	1: The ambient temperature is too high 2: The air filter is blocked 3: The cooling fan is damaged 4: The thermally sensitive resistor of the module is damaged 5: The inverter module is damaged.	1: Lower the ambient temperature 2: Clean the air filter 3: Replace the damaged fan 4: Replace the damaged thermally sensitive resistor 5: Replace the inverter module
Err17	Current detection fault	1: The internal connections become loose 2: The HALL device is faulty 3: The control or drive board is faulty	1:Connect all cables properly. 2: Seek for maintenance
Err20	Short circuit to ground	The motor is short circuited to the ground	Replace the cable or motor
Err23	Power input phase loss	1: The three-phase power input is abnormal. 2: The drive board is faulty 3: The lightening board is faulty 4: The main control board is faulty.	1: Eliminate external faults 2: Seek for maintenance
Err24	Power output phase loss	1: The cable connecting the AC drive and the motor is faulty 2: he AC drive's three-phase outputs are unbalanced when the motor is running 3: The drive board is	1: Eliminate external faults 2: Check whether the motor three-phase winding is normal. 3: Seek for maintenance

Display	Fault Name	Possible Causes	Solutions
		4 The module is faulty:	
Err25	EEPROM read-write fault	The EEPROM chip is damaged.	Replace the main control board
Err27	Communication fault	1: The host computer is in abnormal state 2: The communication cable is faulty 3: The communication parameters in group F8 are set improperly	1: Check cabling of the host computer 2: Check the communication cabling 3: Set the communication parameters properly.
Err28	External equipment fault	External fault normally closed or normally open signal is input via DI	Reset the fault
Err29	Too large speed deviation	1: The load is too heavy and the acceleration time is too short. 2: F9-31 and F9-32 are set incorrectly	1: Increase the acceleration and deceleration time. 2: Set F9-31 and F9-32 correctly based on the actual situation
Err30	User-defined fault 1	The user-defined fault 1 signal is input via DI	Reset the fault
Err31	User-defined fault 2	The user-defined fault 2 signal is input via DI	Reset the fault
Err32	PID feedback lost during running	he PID feedback is lower than the setting of FA-13	Check the PID feedback signal or set FA-26 to a proper value.
Err33	Fast current limit fault	1: The load is too heavy or the rotor is locked 2: The acceleration time is too short	1: Reduce the load, or check the motor, or check the machine whether it is locking the rotor 2: Increase the acceleration time
Err34	Load becoming 0	The detection is reached, get more details form F9-28 to F9-30.	Reset the fault or reset F9-28 to F9-30 value
Err35	Control power supply fault	1: The input voltage is not within the allowable range. 2: The power on and off is too frequently	1: Adjust the input voltage to the allowable range. 2: Extension of power on cycle
Err37	Data storage fault	Communication between DSP and EEPROM fault	1: Replace the main control board 2: Contact the agent or Machtric.
Err39	Current running time reached	Current running time of AC driver is larger than .F7-38 value.	Reset the fault
Err40	Accumulative running time reached	The accumulative running time reaches the setting value of F7-20.	Clear the record through the parameter initialization function or set F7-20 to a new value.
Err42	Motor switchover fault during running	Change the selection of the motor via terminal during running of the AC drive.	Perform motor switchover after the AC drive stops.
Err46	Master slave control communication disconnection	1: There is no set host but set the slave machine 2: The communication cable is faulty or communication parameter setting not correct.	1: Set host and reset the fault. 2: Check the communication cabling and communication parameters F8.

4.2 Common Symptoms and Diagnostics

Fault Name	Possible Causes	Solutions
There is no display at power-on.	1: There is no power supply or the power supply is too low. 2: The switching power supply on the drive board is faulty. 3: The rectifier bridge is damaged	1: Check the power supply. 2: Check the bus voltage. 3: Re-connect the keypad and 30-core cables. 4: Contact the agent or Machtric for
There is no display at power-on.	4: The buffer resistor of the drive is damaged 5: The control board or the keypad is faulty. 6: The cable between the control board and the drive board or keypad breaks	Technical support
"Err20" is displayed at power-on	1: The motor or the motor output cable is short-circuited to the ground 2: The AC driver is damage.	1: Measure the insulation of the motor and the output cable with a megger. 2: Contact the agent or Machtricfor technical support.
Err15 (module overheat) fault is reported frequently.	1: The setting of carrier frequency is too high 2: The cooling fan is damaged, or the air filter is blocked 3: Components inside the AC drive are damaged (thermal coupler or others).	1: Reduce the carrier frequency (F0-26). 2: Replace the fan and clean the air filter 3: Contact the agent or Machtricfor technical support.
The motor does not rotate after the AC drive runs.	1: Check the motor and the motor cables 2: The AC drive parameters are set improperly (motor parameters) 3: The cable between the drive board and the control board is in poor contact. 4: The drive board is faulty	1: Ensure the cable between the AC drive and the motor is normal 2: Replace the motor or clear mechanical faults 3: Check and re-set motor parameters.
The DI terminals are disabled.	1: The parameters are set incorrectly. 2: The external signal is incorrect 3: 4: The control board is faulty	1:Check and reset the parameters in group F5 2: Re-connect the external signal cables 3: 4: Contact the agent or Machtric for technical support.
The AC drive reports overcurrent and overvoltage frequently	1: The motor parameters are set improperly 2: The acceleration/deceleration time is improper 3: The load fluctuates	1:Re-set motor parameters or re-perform the motor auto- tuning 2: Set proper acceleration/ deceleration time 3: Contact the agent or Machtric for technical support.

Chapter 5 SS1100 Modbus Communication Protocol

SS1100 series of frequency converters can provide RS232/RS485 communication interface, and use MODBUS communication protocol. The user can realize the central control through computer or PLC. Also it can set the running commands, modify or read the function code parameter, read the working status and fault information of the frequency converter according to the protocol.

5.1 Communication Protocol Content

This serial communication protocol has defined the content and the working format in serial communication, including master machine polling format (or broadcast) and master machine encoding method. The content includes the function code of the requested action, data transmission, error checking, etc. Same structure is used on the slave machine response, which includes action confirmation, data returning, error checking, etc. If the slave machine has an error in receiving information or cannot complete the requirements from the master machine, it will send a fault signal back as a response to the master machine.

5.2 Application Mode

The frequency converter connect PC/PLC network with RS232/RS485 bus and single master but multiple slave machines.

5.3 Bus Structure

(1) Interface mode

RS232/RS485 hardware interface

(2) Transmission mode

It's asynchronous serial and half-duplex transmission mode. For master machine and slave machine, only one can send data and another one receive it at the same time. In the process of serial asynchronous communication, the data is transmitted frame by frame in the form of message.

(3) Topological structure

In single master machine and multiple slave machines system, the setup range of slave address is"1~247", and "0 "is the broadcast communication address. The address of the slave machine in net work must be unique.

5.4 Protocol Specification

SS1100 series frequency converter communication protocol is a asynchronous serial and master-slave Modbus communication protocol, only one facility (master machine) in network can set up protocol (called "query/comma-（vertical type）nd"), other facilities (slave machines) can only response to the "query/command" of master machine according to the data provided, or make relevant action by "query/command" from the master machine. The master machine here means personal computer (PC), industrial controlled facility or programmable logic controller (PLC), etc., the slave machine means SS1100 frequency converter. The master machine can not only communicate with one slave machine separately, but also broadcast information to all the slave machines. For the separate access to "query/command" of master machine, the slave machine will return information (called response). For the broadcast information from the master machine, the slave machines need not to response to the master machine.

5.5 Communication Frame Structure

The Modbus protocol data format of SS1100 series of frequency convert is as follow:

If use RTU mode, the message must be sent with a pause of at least 3.5 characters time. Different character time is very easy to get under the circumstance of varieties of network baud rates. The first domain of the message transmission is the equipment address, the usable transmissive characters are hexadecimal 0~9, A~F. Network equipment continuously detect the network trunk line, including the pause time. Once the first domain (address domain) is received, all the facilities will decode to make out if it's sent to their own. After the last characters sent, a pause with at least 3.5 character time buckets indicates the end the message. A new message can be started after the pause.

The entire message frames must be sent as a continuous flow. If there was a pause over 1.5-character time before the frame completed, the receiving equipment will update the incomplete message and assume the next byte as address domain of a new message. Likewise, if a new message was sent following with the previous one during less than 3.5-character time, the receiving equipment will regard it as the extension of the previous message. This will lead to an error, because the result is impossible to be right with the value of CRC domain at last.

RTU frame format：

Frame Header **START**	3.5 characters time
Slave Address **ADR**	Contact address:1～247(Set by F8-02)
The command code **CMD**	03：Read the parameter of the slave machine 06：Write the parameters of the slave machine
The content of the data **DATA（N-1）**	The content of the DATA： The address of function code parameters;

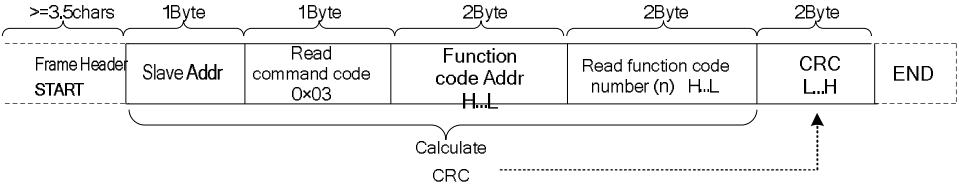
The content of the data **DATA（N-2）**	The quantity of function code parameters; The value of function code parameters;
……..	
The content of the data **DATA0**	
CRC CHK Low order	detection value：CRC16 verified value. low byte is sent previous than High byte.
CRC CHK High order	
End	3.5-characters time

Command instruction (CMD) and DATA description (DATA)

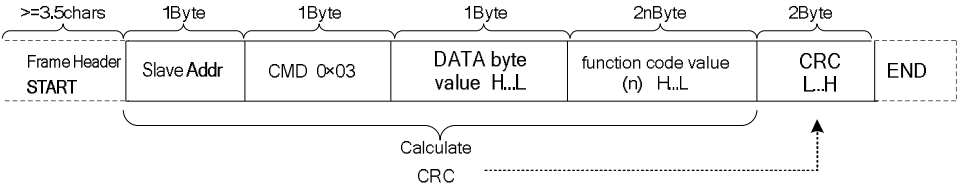
Command code: 03H, read N words (Word), it can read at most 12 words and N = 1 ~ 12 words.

Specific format is as below:

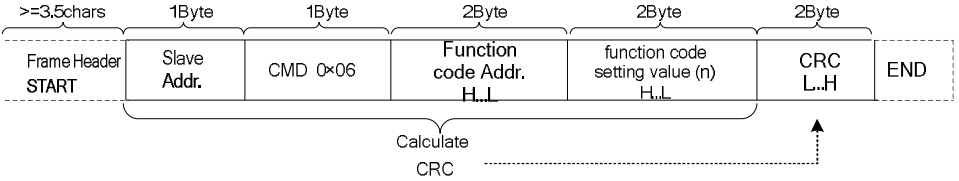
Frame of reading command from the master:



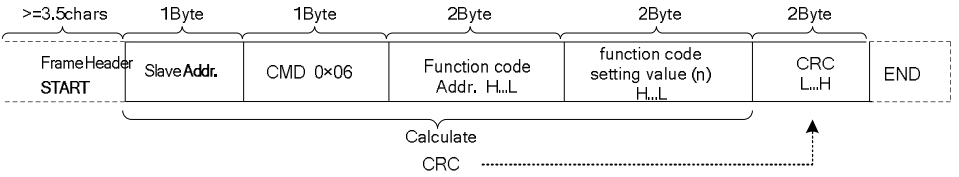
Frame of reading response command from the slave:



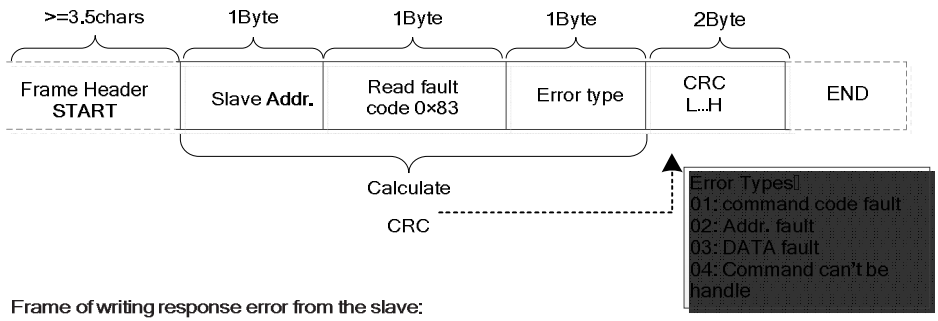
Frame of writing command from the master:



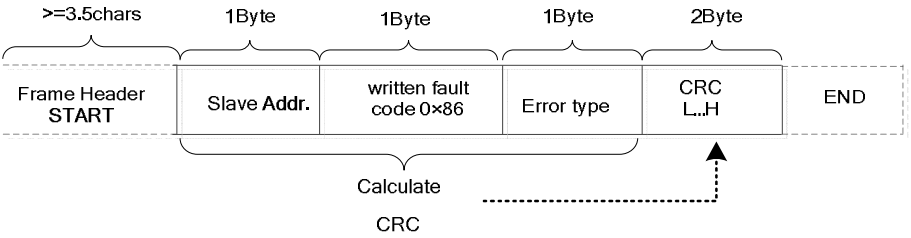
Frame of writing response command from the slave:



Note: If the slave detects a communication frame error or reading/writing failure is caused by other reasons, an error frame will be returned as follows:
Frame of reading response error from the slave:



Frame of writing response error from the slave:



Example: reading continuous 2 parameters from frequency convert F0~03 whose slave machine address F8-02= 01.

Command from the master machine:

Frame Header >=3.5chars	Slave Addr. 0x01	Read function code 0×03	Function code Addr. 0xF0 0x03	Read function code value 0x00 0x02	CRC 0x07 0x0B	END

Reply from the slave machine:

Frame Header >=3.5chars	Slave Addr. 0x01	Read function code 0×03	DATA byte value 0×04	F0_03 parameter value 0x00 0x00	F0_04 parameter value 0x00 0x00	CRC 0xFA 0x33	END

5.6 Verification Mode (CRC verification mode)

CRC (Cyclical Redundancy Check) use RTU frame format, the message includes error checking domain based on CRC method. CRC domain checked the content of the entire message. CRC domain is 2 bytes, containing a 16-bit binary value. It's added to the message after calculated by transmission equipment. The receiving device recalculates the CRC message after the information received, and compare with the value in the received CRC. If the two CRC values are not equal, it indicates that errors happened on transmission.

CRC saves 0xFFFF firstly, and then call a process to deal continuous 8-bit bytes in the message with the

value in current register. Only 8 bit data in each character is effective to CRC, start bit, stop bit and the parity bit are ineffective.

During the process of CRC, each 8- bit character individually exclusive or the content in the register (XOR), the result shifts to the least significant bit while the most significant bit is filled with a "0". The LSB is picked out to test, if the LSB is 1, the register exclusive or the preset value, if the LSB is 0, no action taken. The whole process will be repeated 8 times. When the last bit (the 8^{th} bit) is done, the next 8-bit character separately exclusive or the current value in the register again. The final value in the register is the CRC value after all the bytes in the message have been dealt with.

When adding CRC to message, the lower bytes are add previous than the higher bytes. The simple CRC function is as follow:

```
unsigned int crc_chk_value（unsigned char *data_value,unsigned char 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
                {
                    crc_value=crc_value>>1;
                }
            }
        }
        return（crc_value）;
}
```

5.7 The Definition of Communication Parameter Address

This part is the content about communication, which used for controlling the running and working status of the frequency convert, and set relevant parameter.

Parameter of read and write function code (some function code can't be changed, only for supplier and monitor usage):

Labeling rule of function code address:

Use the group number and mark number of the function code as parameter address rule:

The high bytes: F0~FF (group F)、H0~HF (group H)、L0~LF (group L)、n0~nF (group N)、P0~PF (group P)、70~7F (group U) the low byte：00~FF

For example：F0-11，the address indicated as F00B;

Attention:

Group FF: The parameter can neither be read nor be altered.

Group U: The parameter can only be read, but not be altered.

Some parameter can't be changed when the frequency convert is on running status; some parameter can't be changed regardless of any status of the frequency convert; please pay attention to the range, unit and relevant instruction when changing the function code parameter.

Group number of function code	access address of communication	Function code address of communication revise the RAM
Group F0~FE	0xF000~0xFEFE	0x0000~0x0EFF
Group H0~HF	0xA000~0xAFFF	0x4000~0x4FFF
Group L0~LF	0xB000~0xBFFF	0x5000~0x5FFF
Group n0~nF	0xC000~0xCFFF	0x6000~0x6FFF
Group P0~PF	0xD000~0xDFFF	0x9000~0x9FFF
Group U0、U1	0x70xx、0x71xx	

Pay attention that if the EEPROM is stored continuously, the service life will be reduced. So there is no need to store some function code on the communication mode, just need to change the value in RAM.

If it's group F of the parameter to realize this function, just need to change high byte from F to 0 on the function code address.

If it's group A of the parameter to realize this function, just need to change high byte from A to 4 on the function code address.

The relevant function code address indicated as below:

High byte: 00~0F (group F)、40~4F (group A) the low byte: 00~FF

For example: function code F0-11 doesn't store in EEPROM, the address indicated as 000B; this address means

that it only can write RAM, but can't use the read action, if it's being read, the address is ineffective.

Stop / Run Parameter

Parameter Address (HEX)	Parameter Description
0x1000/9000	1000:*Communication set value(-1000~1000) (decimal) (readable and writable) (minimum unit:0.01%),Read/Write
	9000: range(0HZ~F0-14) (minimum unit:0.01Hz), Read/Write
0x1001	Set frequency (minimum unit:0.01Hz), Read-only
0x1002	Running frequency (minimum unit:0.01Hz) , Read-only
0x1003	Busbar voltage (minimum unit: 0.01V) , Read-only
0x1004	Output voltage (minimum unit: 0.1V) , Read-only
0x1005	Output current (minimum unit: 0.1A) , Read-only
0x1006	Output power (minimum unit: 0.1kw) , Read-only
0x1007	DI input flag (minimum unit: 1) , Read-only
0x1008	DO output flag (minimum unit: 1) , Read-only
0x1009	PID set (minimum unit: 1) , Read-only
0x100A	PID feedback (minimum unit:1) , Read-only
0x100B	AI1 voltage (minimum unit: 0.01V) , Read-only
0x100C	AI2 voltage (minimum unit: 0.01V) , Read-only
0x100D	AO1 output voltage (minimum unit: 0.01V) , Read-only
0x100E	PLC step (minimum unit: 1) , Read-only
0x100F	Rotate speed (minimum unit: 1rpm) , Read-only
0x1010	Count value input (minimum unit: 1) , Read-only
0x1011	Pulse frequency input (minimum unit: 0.01kHz) , Read-only
0x1012	Feedback speed (minimum unit: 0.1Hz) , Read-only
0x1013	The remaining run time (minimum unit: 0.1 min) , Read-only
0x1014	Voltage before AI1 revised (minimum unit: 0.001V) , Read-only
0x1015	Voltage before AI2 revised (minimum unit: 0.001V) , Read-only
0x1016	The actual linear speed (minimum unit: 1m/min) , Read-only
0x1017	Load speed (minimum unit: user-defined, refer to F7-31) , Read-only
0x1018	present power-on time (minimum unit: 1min) , Read-only
0x1019	Present run time (minimum unit: 0.1min) , Read-only
0x101A	Pulse frequency input (minimum unit: 1Hz) , Read-only

0x101B	Main frequency X display (minimum unit: 0.01Hz) , Read-only
0x101C	Auxiliary frequency Y display (minimum unit: 0.01Hz) , Read-only
0x101D	Target torque (minimum unit: 0.1%), regard motor rated torque as 100%, Read-only
0x101E	Output torque (minimum unit: 0.1%), regard motor rated torque as 100%, Read-only
0x101F	Output torque (minimum unit: 0.1%), regard inverter rated current as 100%, Read-only
0x1020	Upper limit torque (minimum unit: 0.1%), regard inverter rated current as 100%, Read-only
0x1021	VF separate target voltage (minimum unit: 1V) , Read-only
0x1022	VF separate output voltage (minimum unit: 1V) , Read-only
0x1023	Reserved, Read-only
0x1024	Motor 1/2 direction (minimum unit: 1) , Read-only
0x1025	Length value input (minimum unit: 1) , Read-only
0x1026	AO2 output voltage (minimum unit: 0.1V) , Read-only
0x1027	Status of the invert (minimum unit: 1) , Read-only
0x1028	Present malfunction (minimum unit: 1) , Read-only

Example 1: read the run frequency of the first machine: 0x01 0x03 0x10 0x02 0x00 0x01 0x21 0x0A 0x10 0x02 (1002) run frequency address, 0x00 0x01 (0001) one data 0x21 0x0a (210A) CRC verified value.

Example 2: read the busbar voltage, output voltage, output current of the first machine at the same time: 0x01 0x03 0x10 0x03 0x00 0x03 CRC verified value, the meaning of the data is similar to example 1.

Attention:

Communication set value is a relative percentage value, 10000 correspond to 100.00% and -10000 correspond to -100.00%

For the data of frequency dimension, this percentage is the percentage of the relative maximum frequency (F0-14); for the data of torque, this percentage is F3-21, F3-23, H3-21, H3-23.

Control command input to the frequency convert: (Write only)

Command word address (HEX)	Command word function
0x2000	0001: Forward operation
	0002: Reverse operation
	0003: Forward jog
	0004: Reverse jog
	0005: Free stop

Command word address (HEX)	Command word function
	0006: Slow-down stop
	0007: Fault reset

Example 3: give command forward rotating to the second machine: 0x02 0x06 0x20 0x00 0x00 0x01 CRC verified value

Read the status of the frequency convert: (read only)

Status word address (HEX)	Status word function
0x3000	0001: Forward operation
	0002: Reverse operation
	0003: Stop

Digital output terminal control: (write only)

Command address (HEX)	Command content
0x2001	BIT0: RELAY1 output control BIT1: RELAY2 output control BIT2: DO1 output control

Attention: D0 output terminal need to choose 16 (communication control) function.

Analog AO1 control: (write only)

Command address (HEX)	Command content
0x2002	0~7FFF represent 0%~100%

Analog AO2 control: (write only)

Command address (HEX)	Command content
0x2003	0~7FFF represent 0%~100%

Attention: AO output need to choose 7 (communication control output) function.

Fault descriptions of the frequency convert:

The fault address (HEX)	The fault detail information
0x8000	0000: Fault free 0001: Reserve 0002: Reserve 0003: Reserve 0004: Accelerated over current 0005: Decelerated over current 0006: Constant over current 0007: Over current on stop 0008: Accelerated over voltage 0009: Decelerated over voltage 000A: Constant over voltage 000B: Over voltage on stop 000C: Undervoltage fault 000D: Frequency convert overload

The fault address (HEX)	The fault detail information
	000E: Motor overloading 000F: Module over heat 0010: Reserve 0011: Current detection fault 0012: Reserve 0013: Reserve 0014: Earth short circuit of the motor 0015: Tuning fault of the motor 0016: Reserve 0017: Shortage- phase on input 0018: Shortage- phase on output 0019: Abnormal read and write on EEPROM 001A: Enter the password more than the limit times 001B: Abnormal communication 001C: External fault 001D: Over speed deviation 001E: Fault 1 that user defined 001F: Fault 2 that user defined 0020: Lost the PID feedback on running 0021: Limit current fault of the hardware 0022: Off load 0023: Overload on the buffer resistance 0024: Abnormal contactor 0025: The agent running time is up 0026: Over temperature of the motor 0027: Present running time is up 0028: Accumulated running time is up 0029: Power-on time is up 002A: Fault on switching the motor 002B: Over speed of the motor 002C: Reserve 002D: Reserve 002E: Reserve 002F: Fault on point- to- point communication of slave machine

When it has fault on communication, the return address is: reading fault 83XX, writing fault 86XX.

Chapter 6 Function Code Table

The symbols in the function code table are described as follows:

"☆": The parameter can be modified when the AC drive is in either stop or running state.

"★": The parameter cannot be modified when the AC drive is in the running state.

"○": The parameter is the actually measured value and cannot be modified.

"●": The parameter is factory parameter and can be set only by the manufacturer

Enhancement code: group H0~group H3, group L0~group L3, are started by function code parameter F7-76.

6.1 General Function Codes

Function Code	Parameter Name	Setting Range	Default	Property
Group F0: Standard Function Parameters				
F0-00	Product model	Product model: 7 digital display, 2 decimal point	61#.##	●
F0-01	G/P type display 0: G type1: P type	0: Heavy duty 1: Normal duty	0	●
F0-02	Rated driver current	0.1A to 3000.0A	Model dependent	●
F0-03	Control mode	1: Sensor-less flux vector control (SFVC). 2: Voltage/Frequency (V/F) control.	2	★
F0-04	Running command source selection	0: Operation keypad control (LED off). 1: Terminal control (LED on). 2: Communication control (LED blinking).	0	★
F0-05	Base frequency for modification during running	0: Running frequency. 1: Set frequency.	0	★
F0-06	Main frequency source X selection	0: UP/ DOWN setting (non-recorded after stop). 1: UP/ DOWN setting (retentive after	1	★

Function Code	Parameter Name	Setting Range	Default	Property
		stop). 2: AI1 3: AI2 4: Multi-speed. 5: Simple PLC. 6: PID 7: Communication setting. 8: Pulse setting.		
F0-07	Auxiliary frequency source Y selection	0: UP/ DOWN setting (Non-recorded after stop). 1: UP/ DOWN setting (Retentive after stop). 2: AI1 3: AI2 4: Multi-reference. 5: Simple PLC. 6: PID 7: Communication setting. 8: Pulse setting.	0	★
F0-08	Range of auxiliary frequency Y selection	0: Relative to maximum frequency. 1: Relative to main frequency X.	0	☆
F0-09	Range of auxiliary frequency Y	0%～100%	100%	☆
F0-10	Frequency source selection	Unit's digit (Frequency source selection). 0：Main frequency source X. 1：X and Y operation result. 2：Switchover between X and Y (by DI terminal). 3：Switchover between X and “X and Y superposition” (by DI terminal). 4：Switchover between Y and “X and Y superposition” (by DI terminal).	00	☆

Function Code	Parameter Name	Setting Range	Default	Property
		Ten's digit() 0：X+Y 1：X-Y 2：Max(X,Y) 3：Min(X,Y)		
F0-11	Preset frequency	0.00 to maximum frequency F0-14.	50.00Hz	☆
F0-13	Rotation direction	0: Same direction 1: Reverse direction 2: Reverse forbidden	0	☆
F0-14	Maximum output frequency	50.0Hz–1200.0 Hz(F0-20=1) 50.0Hz–600.00 Hz(F0-20=2)	50.00Hz	★
F0-15	Frequency source upper limit	0: Set by F0-16 1: AI1 2: AI2 3: Communication setting 4: Pulse setting	0	★
F0-16	Frequency upper limit	Frequency lower limit(F0-18)to maximum frequency (F0-14)	50.0Hz	☆
F0-17	Frequency upper limit offset	0.00 Hz to maximum frequency (F0-14).	0.00Hz	☆
F0-18	Frequency lower limit	0.00 Hz to frequency upper limits (F0-16).	0.00Hz	☆
F0-19	Command source binding select	Unit's digit: Binding operation keypad command to frequency source. 0: No Binding 1:Digital setting 2: AI1 3: AI2 4: Multi-speed 5: Simple PLC 6: PID	000	☆

Function Code	Parameter Name	Setting Range	Default	Property
		7: Communication setting. 8: Pulse setting (HDI5).		
F0-19	Command source binding select	Ten's digit: Binding operation terminal command to frequency source. Hundred's digit: Binding operation communication command to frequency source. Thousand's digit: Reserved.	000	☆
F0-20	Frequency fractional selection	1: 0.1Hz 2: 0.01Hz	2	★
F0-21	Acceleration/Deceleration time unit	0: 1s 1: 0.1s 2: 0.01s	1	★
F0-22	Acceleration/Deceleration time base frequency	0: Maximum frequency (F0-14) 1: Set frequency 2: Rated motor frequency	0	★
F0-23	Acceleration time 1	0s～30000s (F0-21 = 0) 0.0s～3000.0s (F0-21 = 1) 0.00s～300.00s (F0-21 = 2)	10.0s	☆
F0-24	Deceleration time 1	0s～30000s (F0-21 = 0) 0.0s～3000.0s (F0-21 = 1) 0.00s～300.00s (F0-21 = 2)	10.0s	☆
F0-25	Over modulation voltage boost	0% to 10%	3%	★
F0-26	Carrier frequency	0.5kHz～16.0kHz	Model dependent	☆
F0-27	Carrier frequency adjustment with temperature	0: No 1: Yes	1	☆
F0-28	Initialization parameters	0:No operation. 1:Restore factory parameters, except motor parameters, record	0	★

Function Code	Parameter Name	Setting Range	Default	Property
		information and F0-20. 2:Clear the record information. 3:Backup the current user parameters. 4:User parameter backup recovery.		
F0-29	LCD upload or download parameter selection	0:no function 1:Download parameter to LCD 2:only upload F4 function parameters 3: Upload parameters except the F4 group 4: Upload all the parameters	0	☆
Group F1: Start/ Stop Control				
F1-00	Start mode	0: Direct start. 1: Rotational speed tracking restart. 2: Pre-excited start(asynchronous motor).	0	☆
F1-01	Rotational speed tracking mode	0: From frequency at stop 1: From zero speed 2: From maximum frequency	0	★
F1-02	Max current of rotational speed tracking	30%～150%	100%	★
F1-03	Rotational speed tracking speed	1～100	20	☆
F1-04	Startup frequency	0.00Hz～10.00Hz	0.00Hz	☆
F1-05	Startup frequency holding time	0.0s～100.0s	0.0s	★
F1-06	Startup DC braking current/ Pre-excited current	0%～100%	0%	★
F1-07	Startup DC braking time/ Pre-excited time	0.0s～100.0s	0.0s	★
F1-08	Acceleration/Deceleration mode	0: Linear Acceleration/Deceleration mode 1: S-curve Acceleration/Deceleration	0	★

Function Code	Parameter Name	Setting Range	Default	Property
		mode A 2: S-curve Acceleration/Deceleration mode B		
F1-09	Acceleration time proportion of S-curve start segment	0.00%～100.00%	20.00%	★
F1-10	Deceleration time proportion of S-curve start segment	0.00%～100.00%	20.00%	★
F1-11	Acceleration time proportion of S-curve end segment	0.00%～100.00%	20.00%	★
F1-12	Deceleration time proportion of S-curve end segment	0.00%～100.00%	20.00%	★
F1-13	Stop mode	0: Decelerate to stop 1: Coast to stop	0	☆
F1-14	Initial frequency of stop DC braking	0.00HZ～maximum frequency (F0-14)	0.00Hz	☆
F1-15	Waiting time of stop DC braking	0.0s～100.0s	0.0s	☆
F1-16	Stop DC braking current	0%～100%	0%	☆
F1-17	Stop DC braking time	0.0s～36.0s	0.0s	☆
F1-21	Demagnetization time	0.01s～3.00s	0.50s	★
F1-23	Nonstop at instantaneous stop (when power fail) mode selection	0: Ineffective 1: Automatic start at power fluctuation 2: Decelerate to stop.	0	★
F1-24	Deceleration time of nonstop at instantaneous stop	0.0s to 100.0s	10.0s	★
F1-25	Effective voltage of nonstop at instantaneous stop	60% to 85%	80%	★
F1-26	Recovery voltage of nonstop at instantaneous stop	85% to 100%	90%	★
F1-27	Detection time of instantaneous stop nonstop recovery voltage	0.0s to 300.0s	0.3s	★

Function Code	Parameter Name	Setting Range	Default	Property
F1-28	Auto-regulation gain of nonstop at instantaneous stop	0 to 100	40	☆
F1-29	Auto-regulation integral time of nonstop at instantaneous stop	1 to 100	20	☆
Group F2:V/F Control Parameters				
F2-00	V/F curve setting	0: Linear V/F. 1: Multi-point V/F. 2: Square V/F. 3: 1.7-power V/F. 4: 1.5-power V/F. 5: 1.3-power V/F. 6: Voltage and frequency complete separation. 7: Voltage and frequency half separation.	0	★
F2-01	Torque boost	0.0%～30.0%	0.0%	☆
F2-02	Cut-off frequency of torque boost	0.00 Hz to maximum output frequency (F0-14).	25.00Hz	★
F2-03	Multi-point V/F frequency 1 (F1)	0.00Hz to F2-05	1.30Hz	★
F2-04	Multi-point V/F voltage 1 (V1)	0.0% to 100.0%	5.2%	★
F2-05	Multi-point V/F frequency 2 (F2)	F0-05 to F2-07	2.50Hz	★
F2-06	Multi-point V/F voltage 2 (V2)	0.0% to 100.0%	8.8%	★
F2-07	Multi-point V/F frequency 3 (F3)	0.00Hz to 50.00Hz	15.00Hz	★
F2-08	Multi-point V/F voltage 3 (V3)	0.0% to 100.0%	35.0%	★

Function Code	Parameter Name	Setting Range	Default	Property
F2-09	Slip compensation ratio	0.0% to 200.0%	50.0%	☆
F2-10	V/F Magnetic flux brake Gain	0 to 200	100	☆
F2-11	Oscillation suppression gain	0 to 100	Model dependent	☆
F2-13	Slip compensation time	0.02s to 1.00s	0.30s	☆
F2-15	Output voltage source for voltage and frequency separation	0: Digital setting (F2-16). 1: AI1 2: AI2 3: Multi-reference 4: Simple PLC 5: PID 6: Communication setting. 7: Pulse setting (DI5). 100.0% corresponds to the rated.	0	☆
F2-16	Voltage digital setting for V/F separation	0 V to rated motor voltage	0V	☆
F2-17	Voltage rise time of V/F separation	0.0s to 3000.0s	1.0s	☆
F2-18	Voltage decline time of V/F separation	0.0s to 3000.0s	1.0s	☆
F2-19	Stop mode selection upon V/F separation	0: Frequency and voltage declining independently. 1: Frequency declining after voltage declines to 0.	0	☆
Group F3:Vector Control Parameters				
F3-00	Switchover frequency 1	1.00Hz to F3-02	5.00Hz	☆
F3-02	Switchover frequency 2	F3-00 to F0-14	10.00Hz	☆
F3-04	Speed loop proportional gain at low frequency	1.0 to 10.0	4.0	☆
F3-05	Speed loop integral time at low frequency	0.01s to 10.00s	0.50s	☆

Function Code	Parameter Name	Setting Range	Default	Property
F3-06	Speed loop proportional gain at high frequency	1.0 to 10.0	2.0	☆
F3-07	Speed loop integral time at high frequency	0.01s to 10.00s	1.00s	☆
F3-08	Speed loop integral property	0：Integral take effect 1：Integral separation	0	★
F3-11	Torque adjustment proportional gain Kp	0 to 30000	2200	☆
F3-12	Torque adjustment integral gain Ki	0 to 30000	1500	☆
F3-13	Excitation adjustment proportional gain Kp	0 to 30000	2200	☆
F3-14	Excitation adjustment integral gain Ki	0 to 30000	1500	☆
F3-15	Flux braking gain	0 to 200	0	☆
F3-16	Field weakening torque correction ratio	50% to 200%	100%	☆
F3-17	Slip compensation gain	50% to 200%	100%	☆
F3-18	Speed loop feedback filter time	0.000s to 1.000s	0.015s	☆
F3-19	Speed loop output filter time	0.000s to 1.000s	0.000s	☆
F3-20	Source of power-driven torque upper limit	0: F3-21 1: AI1 2: AI2 3: Communication setting 4: Pulse setting (DI5) (Analog range corresponds toF3-21)	0	☆
F3-21	Power-driven torque upper limit	0.0% to 200.0%	150.0%	☆
F3-22	Upper limit source of braking	0: F3-23	0	☆

Function Code	Parameter Name	Setting Range	Default	Property
	torque	1: AI1 2: AI2 3: Communication setting 4: Pulse setting (DI5) (Analog range corresponds to F3-23)		
F3-23	Braking torque upper limit	0.0% to 200.0%	150.0%	☆
Group F4: Motor 1Parameters				
F4-00	Auto-tuning selection	0: No auto-tuning 1: Static auto-tuning 2: Complete auto-tuning	0	★
F4-01	Rated motor 1 power	0.1kW to 1000.0kW	Model dependent	★
F4-02	Rated motor 1 voltage	0V to 1500V	380	★
F4-03	Number of pole pairs of motor 1	2 to 64	Model dependent	○
F4-04	Rated motor 1 current	0.01A to 600.00 A (motor rated power ≤30 kW). 0.1A to 6000.0 A (motor rated power >30kW).	F4-01 dependent	★
F4-05	Rated motor frequency	0.01Hz to F0-14	50.00Hz	★
F4-06	Rated motor 1 rotational speed	0rpm to 60000rpm	F4-01 dependent	★
F4-07	Motor 1 no-load current	0.01A to F4-04 A (motor rated power ≤30 kW). 0.1A to F4-04 A (motor rated power >30kW).	Model dependent	★
F4-08	Motor 1 stator resistance	0.001Ωto 65.535Ω	Model dependent	★
F4-09	Motor 1 rotor resistance	0.001Ωto 65.535Ω	Model dependent	★

Function Code	Parameter Name	Setting Range	Default	Property
F4-10	Motor 1 mutual inductive	0.1mH to 6553.5mH	Model dependent	★
F4-11	Motor 1 leakage inductive	0.01mH to 655.35mH	Model dependent	★
F4-12	Acceleration time of complete auto-tuning	1.0s to 6000.0s	10.0s	☆
F4-13	Deceleration time of complete auto-tuning	1.0s to 6000.0s	10.0s	☆
Group F5: Input Terminals				
F5-00	DI1 function selection	0: No function 1: Forward RUN (FWD) 2: Reverse RUN (REV) 3: Three-wire control 4：Forward JOG (FJOG) 5：Reverse JOG (RJOG) 6：Speed increase 7：Speed Decrease 8：Coast to stop 9：Fault reset (RESET) 10：RUN pause 11：External fault normally open (NO) input. 12：Constant speed 1 13：Constant speed 2 14：Constant speed 3 15：Constant speed 4 16：Terminal 1 for acceleration/ deceleration time selection 17：DI for acceleration/ deceleration time selection 18：Frequency source switchover	1	★
F5-01	DI2 function selection		2	★
F5-02	DI3function selection		9	★

Function Code	Parameter Name	Setting Range	Default	Property
F5-03	DI4 function selection	19：MOTPOT setting clear (terminal, keypad) 20：Command source switchover terminal 1 21：Acceleration/Deceleration prohibited 22：PID pause 23：PLC status reset 24：Swing pause 25：Timer trigger input 26：Immediate DC injection braking 27：External fault normally closed (NC) input 28：Counter input 29：Counter reset 30：Length count input 31：Length reset 32：Torque control prohibited. 33：Pulse input (enabled only for DI5). 34：Frequency modification forbidden. 35：PID action direction reverses. 36：External STO Pterminal1. 37：Command source switchover terminal 2 38：PID integral disabled 39：Switchover between main frequency source X and preset frequency 40：Switchover between auxiliary frequency source Y and preset frequency 41：Switchover between motor 1 and motor 2	12	★
F5-04	DI5 function selection		13	★
F5-05	DI6 function selection		13	★
F5-06	DI7 function selection		13	★

Function Code	Parameter Name	Setting Range	Default	Property
		42：Reserved 43：PID parameter switchover 44：Speed control/Torque control switchover 45：Emergency stop 46：External STOP terminal 2 47：Deceleration DC injection braking 48：Clear the current running time 49：Switchover between two-line mode and three-line mode 50：Reverse run prohibited 51：User- defined fault 1 52：User-defined fault 2 53：Dormant input		
F5-10	DI filter time	0.000 to 1.000s	0.010s	☆
F5-11	Terminal command mode	0: Two-line mode 1 1: Two-line mode 2 2: Three-line mode 1 3: Three-line mode 2	0	★
F5-12	Terminal UP/DOWN rate	0.01Hz/s to 100.00Hz/s	1.00Hz/s	☆
F5-13	Terminal effective mode 1	0: High level 1: Low level Unit's:DI1; Ten's:DI2; Hundred's:DI3; Kilobit:DI4; Myriabit:DI5	00000	★
F5-15	AI1 minimum input	0.00V to 10.00V	0.00V	☆
F5-16	Corresponding setting of AI1 minimum input	-100.0% to 100.00%	0.0%	☆
F5-17	AI1 maximum input	0.00V to 10.00V	10.00V	☆

Function Code	Parameter Name	Setting Range	Default	Property
F5-18	Corresponding setting of AI1 maximum	-100.0% to 100.00%	100.0%	☆
F5-19	AI1 filter time	0.00s to 10.00s	0.10s	☆
F5-20	AI2 minimum input	0.00V to 10.00V	0.00V	☆
F5-21	Corresponding setting of AI2 minimum input	-100.0% to 100.00%	0.0%	☆
F5-22	AI2 maximum input	0.00V to 10.00V	10.00V	☆
F5-23	Corresponding setting of AI2 maximum	-100.0% to 100.00%	100.0%	☆
F5-24	AI2 filter time	0.00s to 10.00s	0.10s	☆
F5-30	Pulse minimum input	0.00KHz to 50.00KHz	0.00KHz	☆
F5-31	Corresponding setting of pulse minimum input	-100.0% to 100.00%	0.0%	☆
F5-32	Pulse maximum input	0.00KHz to 50.00KHz	50.00KHz	☆
F5-33	Corresponding setting of pulse maximum input	-100.0% to 100.00%	0.0%	☆
F5-34	Pulse filter time	0.00s to 10.00s	0.10s	☆
F5-35	DI1 On delay time	0.0s to 3600.0s	0.0s	☆
F5-36	DI1 Off delay time	0.0s to 3600.0s	0.0s	☆
F5-37	DI2 On delay time	0.0s to 3600.0s	0.0s	☆
F5-38	DI2 Off delay time	0.0s to 3600.0s	0.0s	☆
F5-39	DI3 On delay time	0.0s to 3600.0s	0.0s	☆
F5-40	DI3 Off delay time	0.0s to 3600.0s	0.0s	☆
F5-41	AI1 function selection as DI terminal	0 to 53 as DI terminal function.	0	★

Function Code	Parameter Name	Setting Range	Default	Property
F5-42	AI2 function selection as DI terminal	0 to 53 as DI terminal function.	0	★
F5-44	AI effective mode selection as DI terminal	Unit's digit(AI1). 0: High level effective. 1: Low level effective. Ten's digit(AI2). 0: High level effective. 1: Low level effective. Hundred's digit::reserved	00	☆
F5-45	AI curve selection	Unit's digit (AI1 curve selection) 0: 2 points curve. 1: Multi-point curve 1. 2: Multi-point curve 2. Ten's digit (AI2 curve selection). 0: 2 points curve 1: Multi-point curve 1 2: Multi-point curve 2 Hundred's digit: reserved	00	☆
F5-46	AI Signal input type selection	Unit's digit:AI1; Ten's digit:AI2 0:Voltage style 1:Current style	00	☆
Group F6: Output Terminals				
F6-00	Relay 1 function	0：No output 1：AC drive running 2：Fault output 3：Frequency-level detection FDT1 reached 4：Frequency reached	2	☆
F6-01	Relay 2 function		1	☆
F6-02	Y1 function		1	☆

Function Code	Parameter Name	Setting Range	Default	Property
		5：Zero-speed running (no output at stop) 6：Motor overload pre-warning 7：AC drive overload pre-warning 8：PLC cycle completed 9：Accumulative running time reached 10：Frequency limited 11：Ready for RUN 12：AI1>AI2 13：Frequency upper limit reached 14：Frequency lower limit reached 15：Undervoltage state output 16：Communication setting 17：Timer output 18：Reverse running 19：Reserved 20：Length reached 21：Torque limited 22：Current 1 reached 23：Frequency 1 reached 24：Module temperature reached 25：Load lost 26：Accumulative power-on time reached 27：Clocking reached output 28：Current running time reached 29：Set count value reached 30：Designated count value reached 31: Motor 1 and motor 2 indication 32: Brake control output 33：Zero-speed running 2 (having		

Function Code	Parameter Name	Setting Range	Default	Property
		output at stop) 34：Frequency level detection FDT2 output 35：Zero current state 36：Software over current 37：Frequency lower limit reached (having output at stop) 38：Alarm output 39：Reserved 40：AI1 input overrun 41：Reserved 42：Reserved 43：Frequency 2 reached 44：Current 2 reached 45：Fault output		
F6-04	FM terminal output selection	0: pulse output (FMP) 1: open loop collector switch value output (FMR)	0	☆
F6-05	FMR output selection	Same as Y1 output selection	0	☆
F6-09	AO1 output function selection	0: Running frequency 1: Set frequency 2: Output current 3: Output power 4: Output voltage 5: Analog AI1 input 6: Analog AI2 input 7: Communication setting 8: Output torque 9: Length 10: Count value 11: Motor rotational speed 12: Output bus voltage(0 to 3 times of driver rated)	0	☆
F6-10	AO2 output function selection		0	☆
F6-11	FMP output function selection		0	☆

Function Code	Parameter Name	Setting Range	Default	Property
		13: Pulse input 14: Output current 15: Output voltage(100.0% corresponds to 1000.0V) 16: Output torque (Actual value: -2 to +2 times of the rated value		
F6-12	FMP output max-frequency	0.01KHz~100.00KHz	50.00	☆
F6-13	AO1 minimum output	-100.0% to F6-15	0.0%	☆
F6-14	Minimum corresponds to AO1 output	0.00V to 10.00V	0.00v	☆
F6-15	AO1 maximum output	F6-13 to 100.0%	100.0%	☆
F6-16	Maximum corresponds to AO1 output	0.00V to 10.00V	10.00V	☆
F6-17	AO2 minimum output	-100.0% to F6-19	0.0%	☆
F6-18	Minimum corresponds to AO2 output	0.00V to 10.00V	0.00v	☆
F6-19	AO2 maximum output	F6-17 to 100.0%	100.0%	☆
F6-20	Maximum corresponds to AO2 output	0.00V to 10.00V	10.00V	☆
F6-26	Relay 1 output delay	0.0s to 3600.0s	0.0s	☆
F6-27	Relay 2 output delay	0.0s to 3600.0s	0.0s	☆
F6-28	Y1 high level output delay	0.0s to 3600.0s	0.0s	☆
Group F7: Auxiliary Functions and Keypad Display				
F7-00	JOG running frequency	0.00 Hz to maximum frequency	6.00Hz	☆
F7-01	JOG acceleration time	0.0s to 3000.0s	10.0s	☆
F7-02	JOG deceleration time	0.0s to 3000.0s	10.0s	☆
F7-03	Acceleration time 2	0.0s to 3000.0s	10.0s	☆

Function Code	Parameter Name	Setting Range	Default	Property
F7-04	Deceleration time 2	0.0s to 3000.0s	10.0s	☆
F7-05	Acceleration time 3	0.0s to 3000.0s	10.0s	☆
F7-06	Deceleration time 3	0.0s to 3000.0s	10.0s	☆
F7-07	Acceleration time 4	0.0s to 3000.0s	10.0s	☆
F7-08	Deceleration time 4	0.0s to 3000.0s	10.0s	☆
F7-09	Jump frequency 1	0.00 Hz to maximum frequency	0.00Hz	☆
F7-10	Jump frequency 1 amplitude.	0.00 Hz to maximum frequency	0.00Hz	☆
F7-11	Jump frequency 2	0.00 Hz to maximum frequency	0.00Hz	☆
F7-12	Jump frequency 2 amplitude.	0.00 Hz to maximum frequency	0.00Hz	☆
F7-15	Forward/Reverse rotation dead-zone time.	0.0s to 3000.0s	0.0s	☆
F7-16	Keypad knob accuracy	0: Default mode 1: 0.1Hz 2: 0.5Hz 3: 1Hz 4: 2Hz 5: 4Hz 6: 5Hz 7: 8Hz 8: 10Hz	0	☆
F7-17	Running mode when set frequency lower than frequency lower limit.	0: Run at frequency lower limit 1: Stop 2: Run at zero speed	0	☆
F7-18	Droop ration	0.0% to 100.0%	0.0%	☆
F7-19	Delay time of stopping mode when set frequency lower than frequency lower limit.	0.0s to 600.0s	0.0s	☆
F7-20	Setting accumulative running time.	0h to 65000h	0h	☆

Function Code	Parameter Name	Setting Range	Default	Property
F7-21	JOG preferred Mode	0: invalid 1: JOG preferred Mode 1 2: JOG preferred Mode 2	1	☆
F7-22	Frequency detection value (FDT1)	0.00 Hz to maximum frequency	50.00Hz	☆
F7-23	Frequency detection hysteresis (FDT hysteresis 1)	0.0% to 100.0%	5.0%	☆
F7-24	Detection range of frequency reached	0.0% to 100.0%	0.0%	☆
F7-25	Reserved		0	●
F7-26	Cooling fan control	0: Fan working continuously. 1: Fan working during running (Fan working after stopping when temperature is higher than 40℃).	0	★
F7-27	STOP/RESET key function	0: STOP/RESET key enabled only in operation keypad control. 1: STOP/RESET key enabled in any operation mode.	1	☆
F7-28	Quick/JOG function selection	0: Forward JOG. 1: Switchover between forward rotation and reverse rotation. 2: Reverse JOG. 3: Switchover between operation keypad control and remote command control.	0	★
F7-29	LED display running parameters	0000 to 0xffff Bit00: Running frequency 0001 Bit01: Set frequency 0002 Bit02: Bus voltage (V) 0004 Bit03: Output voltage 0008 Bit04: Output current 0010 Bit05: Output power (kW) 0020		

Function Code	Parameter Name	Setting Range	Default	Property
F7-29	LED display running parameters	Bit06: DI input status 0040 Bit07: DO output status 0080 Bit08: AI1 voltage (V) 0100 Bit09: AI2 voltage (V) 0200 Bit10: PID setting 0400 Bit11: PID feedback 0800 Bit12: Count value 1000 Bit13: Length value 2000 Bit14: load speed display 4000 Bit15: PLC stage 8000	H.441F	☆
F7-30	LED display stop parameters	1 to 0xffff Bit00: Set frequency 0001 Bit01: Bus voltage (V) 0002 Bit02: DI input status 0004 Bit03: DO output status 0008 Bit04: AI1 voltage (V) 0010 Bit05: AI2 voltage (V) 0020 Bit06: PID setting 0040 Bit07: PID feedback 0080 Bit08: Count value 0100 Bit09: Length value 0200 Bit10:Load speed display 0400 Bit11:PLC stage 0800 Bit12: Pulse input frequency1000 Bit13~Bit15: Reserved	H.0043	☆
F7-31	Load speed display coefficient	0.001 to 65.500	1.000	☆
F7-32	Temperature of inverter module	12℃ to 100℃	Measured value	●
F7-33	Accumulative power-on time	0h to 65535h	Measured value	●
F7-34	Accumulative running time	0h to 65535h	Measured	●

Function Code	Parameter Name	Setting Range	Default value	Property
F7-36	Current running time function	0: Disable 1: Enable:	0	★
F7-37	Current running time source	0: Digital setting F7-38 1: AI1 2: AI2 (100% of analog input corresponds to F8-44)	0	★
F7-38	Setting of current running time	0.0 min to 6500.0 min	0.0 min	☆
F7-39	High level timing	0.0s to 6000.0s	2.0s	☆
F7-40	Low level timing	0.0s to 6000.0s	2.0s	☆
F7-41	Startup protection	0: No 1: Yes	1	☆
F7-43	Frequency reached detection value 1	0.00Hz to F0-14	50.00Hz	☆
F7-44	Frequency reached detection duration 1	0% to 100%	0%	☆
F7-45	Current detection level 1	0% to 300%	100%	☆
F7-46	Current reached detection duration 1	0% to 300%	0%	☆
F7-49	User code	0 to 65535	0	☆
F7-50	Jump frequency during acceleration and deceleration	0:Disable 1:Enable	0	☆
F7-51	Setting power-on reached time	0h to 65530h	0h	☆
F7-53	Frequency switchover point between acceleration time 1 and acceleration time 2	0.00Hz to maximum frequency(F0-14)	0.00Hz	☆
F7-54	Frequency switchover point between deceleration time 1 and deceleration time 2	0.00Hz to maximum frequency(F0-14)	0.00Hz	☆

Function Code	Parameter Name	Setting Range	Default	Property
F7-55	Frequency detection value (FDT2)	0.00 Hz to maximum frequency	50.00Hz	☆
F7-56	Frequency detect FDT2 hysteresis value	0.0% to 100.0%	5.0%	☆
F7-57	Frequency reached detection value 2	0.00Hz to F0-14	50.00Hz	☆
F7-58	Frequency reached detection duration 2	0% to 100%	0%	☆
F7-59	Zero current detection level	0% to 300%	10.0%	☆
F7-60	Zero current detection delay time	0% to 300%	1.0s	☆
F7-61	Current output detection amplitude	20.0% to 400.0%	200.0%	☆
F7-62	Current output detection amplitude delay time	0.00s to 300.00s	0.00s	☆
F7-63	Current detection level 2	20% to 300%	100%	☆
F7-64	Current reached detection duration 2	0.0% to 300.0%	0.0%	☆
F7-65	LED display running parameters 2	0x0~0x1FF Bit00: target torque 0001 Bit01: output torque 0002 Bit02: pulse input frequency (KHz) 0004 Bit03: HDI input liner speed(m/min) 0008 Bit04: motor rotation speed0010 Bit05: AC line current 0020 Bit06: Accumulative running time(h) Bit07: The current running time(min) Bit08: Accumulative power consumption (KW/h) Bit09~Bit15: reserved	0x00	☆

Function Code	Parameter Name	Setting Range	Default	Property
F7-67	AI1 input voltage lower limit	0.00V to F7-68	2.00V	☆
F7-68	AI1 input voltage upper limit	F7-67 to 11.00V	8.00V	☆
F7-69	Module temperature threshold	0℃ to 90℃	70℃	☆
F7-70	Output power correction coefficient	0.001 to 3.000	1.000	☆
F7-71	Linear speed display coefficient	Linear speed = F-71 * HDI1 pulse number per second /Fb-07	1.000	☆
F7-72	Accumulative power consumption	0kWto 65535kW	Measured value	●
F7-73	Performance software version		#.#	●
F7-74	Function software version		#.#	●
F7-75	Improve function parameter display selecting	0:Hide improvement function parameter:H0~H3,L0~L5 1:Display improvement function parameter:H0~H3,L0~L5	0	☆
F7-76	Motor rotational display correction coefficient	0.0010~3.0000	1.0000	☆
Group F8: Communication Parameters				
F8-00	Baud rate	0: 300BPS 1: 600BPS 2: 1200BPS 3: 2400BPS 4: 4800BPS 5: 9600BPS 6: 19200BPS 7: 38400BPS	5	☆

Function Code	Parameter Name	Setting Range	Default	Property
F8-01	Data format	0: No check <8,N,2> 1: Even parity check 2 <8,E,1> 2: Odd Parity check <8,O,1> 3: No check1 <8,N,1>	0	☆
F8-02	Local address	0 to 247 (0 is Broadcast address)	1	☆
F8-03	Response delay	0ms to 30ms	2ms	☆
F8-04	Communication timeout	0.0s to 30.0s	0.0s	☆
F8-05	Communication data format selection	0: Standard MODBUS-RTU protocol 1: Nonstandard MODBUS-RTU protocol	0	☆
F8-06	Background software monitoring function	0:Prohibit, the default 485 communication function. 1:open the Background software monitoring function , the 485 communication function be used at this time.	0	☆
Group F9: Fault and Protection				
F9-00	Motor overload protection selection.	0: Disable 1: Enable	1	☆
F9-01	Motor overload protection gain.	0.02 to 10.00	1.00	☆
F9-02	Motor overload warning coefficient.	50% to 100%	80%	☆
F9-03	Overvoltage stall gain	0 to 100	30	☆
F9-04	Overvoltage stall protective voltage	200.0～850.0V	760.0V	★
F9-05	V/F overcurrent stall gain	0 to 100	20	☆
F9-06	V/F overcurrent stall protective current	100% to 200%	150%	★

Function Code	Parameter Name	Setting Range	Default	Property
F9-07	VF weak magnetic current stall protection coefficient.	50% to 200%	100%	★
F9-08	Overvoltage stalling allowed to rise limit value	0% to 100%	10%	☆
F9-11	Fault auto reset times	0 to 20	0	☆
F9-12	Fault relay action selection during fault auto reset	0: Not act 1: Act	0	☆
F9-13	Time interval of fault auto reset	0.1s to 100.0s	1.0s	☆
F9-14	Input phase loss protection selection	0: Disable 1: Enable	1	☆
F9-15	Output phase loss protection selection	0: Disable 1: Enable	1	☆
F9-16	Short-circuit to ground upon power-on	0: Disable 1: Enable	1	☆
F9-17	Undervoltage fault auto reset selection	0: Manual reset fault after the under voltage fault. 1: Auto reset fault according to the bus voltage after the fault.	0	☆
F9-18	Overvoltage inhibition mode selection	0: Ineffective 1: Overvoltage inhibition mode 1 2: Overvoltage inhibition mode 2	1	★
F9-19	Over excitation force state selection	0: Ineffective 1:Effective during running at constant speed or deceleration 2: Effective during running at deceleration	2	★
F9-20	Threshold of over-voltage inhibition mode 2	1.0% to 150.0%	100.0%	★
F9-22	Fault protection action selection 1	0 to 22202 Unit's digit: Motor over load – Err14 0: Coast to stop 1: Stop according to stop mode	00000	☆

Function Code	Parameter Name	Setting Range	Default	Property
		2:Continue to run Ten's digit: Reserved Hundred's digit: Input phase loss - Err23 Thousand's digit: Output phase loss - Err24 Ten thousand's digit: Parameter read-write fault – Err25		
F9-23	Fault protection action selection 2	0 to 22222 Unit's digit: Communication fault – Err27 0: Coast to stop 1: Stop according to stop mode 2:Continue to run Ten's digit: External equipment fault – Err28 Hundred's digit: Too large speed deviation – Err29 Thousand's digit: User-definedfault1 – Err30 Ten thousand's digit: User-definedfault1 – Err31	00000	☆
F9-24	Fault protection action selection 3	0 to 22022 Unit's digit: PID feedback lost during running – Err32 0: Coast to stop 1: Stop according to stop mode 2:Continue to run Ten's digit: Load becoming 0 – Err34 Hundreds place: reserved Thousands place: Current running time reached – Err39 Ten thousand's digit: Accumulative running time reached – Err40	00000	☆

Function Code	Parameter Name	Setting Range	Default	Property
F9-26	Frequency selection for continuing to run upon fault	0: Current running frequency 1: Set frequency 2: Frequency upper limit 3: Frequency lower limit 4: Backup frequency(F9-27)	1	☆
F9-27	Backup frequency upon abnormality	0.0% to 100.0%	100.0%	☆
F9-28	Protection upon load becoming 0	0: Disable 1: Enable	0	☆
F9-29	Detection level of load becoming 0	0.0% to 80.0%	20.0%	★
F9-30	Detection time of load becoming 0	0.0s to 100.0s	5.0%	☆
F9-31	Detection value of too large speed deviation	0.0% to 100.0%	20.0%	☆
F9-32	Detection time of too large speed deviation	0.0s to 100.0s	0.0s	☆
F9-33	Over-speed detection value	0.0% to 100.0%	20.0%	☆
F9-34	Over-speed detection time	0.0s to 100.0s	2.0s	☆
F9-35	Motor overload protection current coefficient	100% to 200%	100%	☆
Group FA: PID Function				
FA-00	PID setting source	0: Keypad 1: AI1 2: AI2 3: Communication setting 4: Pulse setting (DI5) 5: Multi-reference 6: UP/DOWN of keypad, valid when F0-06 = 6	0	☆
FA-01	PID digital setting	0.0% to 100.0%	50.0%	☆

Function Code	Parameter Name	Setting Range	Default	Property
FA-02	PID setting change time	Response time:0.00s to 650.00s	0.00s	☆
FA-03	PID feedback source	0: AI1 1: AI2 2: AI1 - AI2 3: Communication setting 4: Pulse setting (DI5) 5: AI1 + AI2 6: MAX(|AI1|,|AI2|) 7: MIN(|AI1|,|AI2|)	0	☆
FA-04	PID action direction	0: Forward action 1: Reverse action	0	☆
FA-05	PID feedback range setting	0 to 65535	1000	☆
FA-06	Proportional gain Kp	0.0 to 100.0	20.0	☆
FA-07	Integral time Ti1	0.01s to 10.00s	2.00s	☆
FA-08	Differential time Td1	0.000s to 10.000s	0.000s	☆
FA-09	Cut-off frequency of PID reverse rotation	0.00Hz to maximum frequency(F0-14)	0.00Hz	☆
FA-10	Deviation limit	0.0% to 100.0%	0.0%	☆
FA-11	Differential limit	0.00% to 100.00%	0.10%	☆
FA-12	PID feedback filter time	0.00s to 60.00s	0.00s	☆
FA-13	Detection value of PID feedback loss	0.0% to 100.0%	0.0%	☆
FA-14	Detection time of PID feedback loss	0.0s to 3600.0s	3600.0s	☆
FA-18	Proportional gain Kip	0.0 to 100.0	20.0	☆
FA-19	Integral time Ti1	0.01s to 10.00s	2.00s	☆
FA-20	Differential time Td1	0.000s to 10.000s	0.000s	☆

Function Code	Parameter Name	Setting Range	Default	Property
FA-21	PID parameter switchover condition	0: No switchover 1: Switchover via DI 2: Automatic switchover based on deviation	0	☆
FA-22	PID parameter switchover deviation 1	0.0% to FA-23	20.0%	☆
FA-23	PID parameter switchover deviation 2	FA-22 to 100.0%	80.0%	☆
FA-24	PID initial value	0.0% to 100.0%	0.0%	☆
FA-25	PID initial value holding time	0.00s to 650.00s	0.00s	☆
FA-26	Maximum deviation between two PID outputs in forward direction	0.00% to 100.00%	1.00%	☆
FA-27	Maximum deviation between two PID outputs in reverse direction	0.00% to 100.00%	1.00%	☆
FA-28	PID integral property	Unit's digit: Integral separated 0: Effective 1: Ineffective Ten's digit: integral selection when output reached limit 0:Continue 1:Stop	00	☆
FA-29	PID operation at stop	0:No PID operation at stop 1: PID operation at stop	0	☆
Group Fb: Swing Frequency, Fixed Length and Count				
Fb-00	Swing frequency setting mode	0: Relative to the central frequency 1: Relative to the maximum frequency	0	☆
Fb-01	Swing frequency amplitude	0.0% to 100.0%	0.0%	☆
Fb-02	Jump frequency amplitude	0.0% to 50.0%	0.0%	☆

Function Code	Parameter Name	Setting Range	Default	Property
Fb-03	Swing frequency cycle	0.1s to 3000.0s	10.0s	☆
Fb-04	Triangular wave rising time coefficient	0.1% to 100.0%	50.0%	☆
Fb-05	Set length	0m to 65535m	1000m	☆
Fb-06	Actual length	0m to 65535m	0m	☆
Fb-07	Number of pulses per meter	0.1 to 6553.5	100.0	☆
Fb-08	Set count value	1 to 65535	1000	☆
Fb-09	Designated count value	1 to 65535	1000	☆
Group FC: Multi-Reference and Simple PLC Function				
FC-00	Multi-segment frequency0	-100.0% to 100.0%	FC-53	☆
FC-01	Multi-segment frequency1	-100.0% to 100.0%	FC-53	☆
FC-02	Multi-segment frequency2	-100.0% to 100.0%	FC-53	☆
FC-03	Multi-segment frequency3	-100.0% to 100.0%	FC-53	☆
FC-04	Multi-segment frequency4	-100.0% to 100.0%	FC-53	☆
FC-05	Multi-segment frequency5	-100.0% to 100.0%	FC-53	☆
FC-06	Multi-segment frequency6	-100.0% to 100.0%	FC-53	☆
FC-07	Multi-segment frequency7	-100.0% to 100.0%	FC-53	☆
FC-08	Multi-segment frequency8	-100.0% to 100.0%	FC-53	☆
FC-09	Multi-segment frequency9	-100.0% to 100.0%	FC-53	☆
FC-10	Multi-segment frequency10	-100.0% to 100.0%	FC-53	☆
FC-11	Multi-segment frequency11	-100.0% to 100.0%	FC-53	☆
FC-12	Multi-segment frequency12	-100.0% to 100.0%	FC-53	☆
FC-13	Multi-segment frequency13	-100.0% to 100.0%	FC-53	☆
FC-14	Multi-segment frequency14	-100.0% to 100.0%	FC-53	☆

Function Code	Parameter Name	Setting Range	Default	Property
FC-15	Multi-segment frequency15	-100.0% to 100.0%	FC-53	☆
FC-16	Simple PLC running mode	0: Stop after the AC drive runs one cycle 1: Keep final values after the AC drive runs one cycle 2: Repeat after the AC drive runs one cycle	0	☆
FC-17	Simple PLC retentive selection	0: Non-retentive neither at power off nor after stop. 1: Retentive at power off but non-retentive after stop. 2: Non-retentive at power off but retentive after stop. 3: Retentive at power off and after stop.	0	☆
FC-18	Running time of simple PLC reference 0	0.0~6500.0	0.0	☆
FC-19	Acceleration/deceleration time of simple PLC reference 0	0 to 3 (Means acceleration/deceleration time 1 to 4 respectively)	0	☆
FC-20	Running time of simple PLC reference 1	0.0~6500.0	0.0	☆
FC-21	Acceleration/deceleration time of simple PLC reference 1	0 to 3 (Means acceleration/deceleration time 1 to 4 respectively)	0	☆
FC-22	Running time of simple PLC reference 2	0.0~6500.0	0.0	☆
FC-23	Acceleration/deceleration time of simple PLC reference 2	0 to 3 (Means acceleration/deceleration time 1 to 4 respectively)	0	☆
FC-24	Running time of simple PLC reference 3	0.0~6500.0	0.0	☆

Function Code	Parameter Name	Setting Range	Default	Property
FC-25	Acceleration/deceleration time of simple PLC reference 3	0 to 3 (Means acceleration/deceleration time 1 to 4 respectively)	0	☆
FC-26	Running time of simple PLC reference 4	0.0~6500.0	0.0	☆
FC-27	Acceleration/deceleration time of simple PLC reference 4	0 to 3 (Means acceleration/deceleration time 1 to 4 respectively)	0	☆
FC-28	Running time of simple PLC reference 5	0.0~6500.0	0.0	☆
FC-29	Acceleration/deceleration time of simple PLC reference 5	0 to 3 (Means acceleration/deceleration time 1 to 4 respectively)	0	☆
FC-30	Running time of simple PLC reference 6	0.0~6500.0	0.0	☆
FC-31	Acceleration/deceleration time of simple PLC reference 6	0 to 3 (Means acceleration/deceleration time 1 to 4 respectively)	0	☆
FC-32	Running time of simple PLC reference 7	0.0~6500.0	0.0	☆
FC-33	Acceleration/deceleration time of simple PLC reference 7	0 to 3 (Means acceleration/deceleration time 1 to 4 respectively)	0	☆
FC-34	Running time of simple PLC reference 8	0.0~6500.0	0.0	☆
FC-35	Acceleration/deceleration time of simple PLC reference 8	0 to 3 (Means acceleration/deceleration time 1 to 4 respectively)	0	☆
FC-36	Running time of simple PLC reference 9	0.0~6500.0	0.0	☆
FC-37	Acceleration/deceleration time of simple PLC reference	0 to 3 (Means acceleration/deceleration time	0	☆

Function Code	Parameter Name	Setting Range	Default	Property
	9	1 to 4 respectively ）		
FC-38	Running time of simple PLC reference 10	0.0~6500.0	0.0	☆
FC-39	Acceleration/deceleration time of simple PLC reference 10	0 to 3 (Means acceleration/deceleration time 1 to 4 respectively ）	0	☆
FC-40	Running time of simple PLC reference 11	0.0~6500.0	0.0	☆
FC-41	Acceleration/deceleration time of simple PLC reference 11	0 to 3 (Means acceleration/deceleration time 1 to 4 respectively ）	0	☆
FC-42	Running time of simple PLC reference 12	0.0~6500.0	0.0	☆
FC-43	Acceleration/deceleration time of simple PLC reference 12	0 to 3 (Means acceleration/deceleration time 1 to 4 respectively ）	0	☆
FC-44	Running time of simple PLC reference 13	0.0~6500.0	0.0	☆
FC-45	Acceleration/deceleration time of simple PLC reference 13	0 to 3 (Means acceleration/deceleration time 1 to 4 respectively ）	0	☆
FC-46	Running time of simple PLC reference 14	0.0~6500.0	0.0	☆
FC-47	Acceleration/deceleration time of simple PLC reference 14	0 to 3 (Means acceleration/deceleration time 1 to 4 respectively ）	0	☆
FC-48	Running time of simple PLC reference 15	0.0~6500.0	0.0	☆
FC-49	Acceleration/deceleration time of simple PLC reference 15	0 to 3 (Means acceleration/deceleration time 1 to 4 respectively ）	0	☆

Function Code	Parameter Name	Setting Range	Default	Property
FC-50	Time unit of simple PLC	0:s 1:h	0	☆
FC-51	Multi-Reference priority selection	0: No 1:Yes	1	☆
FC-52	Acceleration/deceleration time of multi-Reference	0: Acceleration/deceleration time 1 1: Acceleration/deceleration time 2 2: Acceleration/deceleration time 3 3: Acceleration/deceleration time 4	0	☆
FC-53	FC - 00 - FC - 15 units selection of multi-segment speed	0:% 1:Hz	0	☆
FC-55	Reference 0 source	0: Keypad 1: AI1 2: AI2 3: Pulse setting 4: PID 5: Set by preset frequency (F0-11, modified via terminal UP/ DOWN	0	☆
Group Fd : Torque Control				
Fd-00	Torque setting source in torque control	0: Keypad 1: AI1 2: AI2 3: Pulse setting 4: Communication setting 5: MAX(|AI1|,|AI2|)	0	★
Fd-00	Torque setting source in torque control	6: MIN(|AI1|,|AI2|) (Full range of 1 to 6 corresponds to Fd-01)	0	★
Fd-01	Torque digital setting	-200.0% to 200.0%	150.0%	☆
Fd-03	Forward maximum frequency in torque	0.00Hz to maximum frequency(F0-14)	50.00Hz	☆

Function Code	Parameter Name	Setting Range	Default	Property
Fd-04	Reverse maximum frequency in torque	0.00Hz to maximum frequency(F0-14)	50.00Hz	☆
Fd-06	Torque setting filter time	0.00s to 10.00s	0.00s	☆
Fd-07	Acceleration time in torque control	0.0s to 1000.0s	10.0s	☆
Fd-08	Deceleration time in torque control	0.0s to 1000.0s	10.0s	☆
Fd-10	Speed/Torque control	0: Speed control 1: Torque control	0	★
Group FE: AI Curve Setting				
FE-00	AI curve 1 minimum input	-10.00V to FE-02	0.00	☆
FE-01	Corresponding setting of AI curve 1 minimum input	-100.0% to 100.0%	0.0%	☆
FE-02	AI curve 1 inflexion 1 input	FE-00 to FE-04	3.00	☆
FE-03	Corresponding setting of AI curve 1 inflexion 1 input	-100.0% to 100.0%	30.0%	☆
FE-04	AI curve 1 inflexion 2 input	FE-02 to FE-06	6.00	☆
FE-05	Corresponding setting of AI curve 1 inflexion 2 input	-100.0% to 100.0%	60.0%	☆
FE-06	AI curve 1 maximum input	FE-06 to 10.00V	10.00	☆
FE-07	Corresponding setting of AI curve 1 maximum input	-100.0% to 100.0%	100.0%	☆
FE-08	AI curve 2 minimum input	-10.00V to FE-02	0.00V	☆
FE-09	Corresponding setting of AI curve 2 minimum input	-100.0% to 100.0%	0.0%	☆
FE-10	AI curve 2 inflexion 1 input	FE-00 to FE-04	3.00	☆
FE-11	Corresponding setting of AI curve 2 inflexion 1 input	-100.0% to 100.0%	30.0%	☆
FE-12	AI curve 2 inflexion 2 input	FE-02 to FE-06	6.00	☆

Function Code	Parameter Name	Setting Range	Default	Property
FE-13	Corresponding setting of AI curve 2 inflexion 2 input	-100.0% to 100.0%	60.0%	☆
FE-14	AI curve 2 maximum input	FE-06 to 10.00V	10.00V	☆
FE-15	Corresponding setting of AI curve 2 maximum input	-100.0% to 100.0%	100.0%	☆
FE-24	Jump point of AI1 input corresponding setting	-100.0% to 100.0%	0.0%	☆
FE-25	Jump amplitude of AI1 input corresponding setting	0.0% to 100.0%	0.5%	☆
FE-26	Jump point of AI2 input corresponding setting	-100.0% to 100.0%	0.0%	☆
FE-27	Jump amplitude of AI2 input corresponding setting	0.0% to 100.0%	0.5%	☆
Group FF: Factory Parameters				
FF-00	User code	0 to 65535	*****	☆
Group H0: Motor 2 Parameters Setting				
H0-00	Motor selection	1: Motor 1 2: Motor 2	1	★
H0-01	Motor 2 control mode	1: Open loop flux vector control (Speed-sensorless vector control) 2: Voltage/Frequency (V/F) control	2	★
H0-02	Motor 2 acceleration/deceleration time	0: Same as motor 1 1: Acceleration/deceleration time 1 2: Acceleration/deceleration time 2 3: Acceleration/deceleration time 3 4: Acceleration/deceleration time 4	0	☆
Group H1: Motor 2 Parameters				
H1-00	Auto-tuning selection	0: No auto-tuning 1: Static auto-tuning 2: Complete auto-tuning	0	★

Function Code	Parameter Name	Setting Range	Default	Property
H1-01	Rated motor 2 power	0.4kW to 1000.0kW	Model dependent	★
H1-02	Rated motor 3 voltage	0V to 1500V	380V	★
H1-03	Number of pole pairs of motor 2	2 to 64	Model dependent	•
H1-04	Rated motor 2 current	0.01A to 600.00 A (motor rated power ≤30 kW) 0.1A to 6000.0 A (motor rated power >30kW)	H1-01 dependent	★
H1-05	Rated motor 2 frequency	0.00Hz to F0-14	50.00Hz	★
H1-06	Rated motor 2 rotational speed	0rpm to 30000rpm	H1-01 dependent	★
H1-07	Motor 2 no-load current	0.01A to H1-04 A (motor rated power ≤30 kW) 0.1A to H1-04 A (motor rated power >30kW)	H1-01 dependent	★
H1-08	Motor 2 stator resistance	0.001Ω to 65.535Ω	Model dependent	★
H1-09	Motor 2 rotor resistance	0.001Ω to 65.535Ω	Model dependent	★
H1-10	Motor 2 mutual inductive	0.1mH to 6553.5mH	Model dependent	★
H1-11	Motor 2 leakage inductive	0.01mH to 655.35mH	Model dependent	★
H1-12	Acceleration time of complete auto-tuning	1.0s to 600.0s	10.0s	☆
H1-13	Deceleration time of complete auto-tuning	1.0s to 600.0s	10.0s	☆
Group H2: Motor 2 V/F Control Parameters				
H2-00	Torque boost	0.0%～30.0%	0.0%	☆

Function Code	Parameter Name	Setting Range	Default	Property
H2-02	Oscillation suppression gain	0 to 100	Model dependent	☆
Group H3: Motor 2 Vector Control Parameters				
H3-00	Switchover frequency 1	1.00Hz to H3-02	5.00Hz	☆
H3-02	Switchover frequency 2	H3-00 to F0-14	10.00Hz	☆
H3-04	Speed loop proportional gain at low frequency	1.0 to 10.0	4.0	☆
H3-05	Speed loop integral time at low frequency	0.01s to 10.00s	0.50s	☆
H3-06	Speed loop proportional gain at high frequency	1.0 to 10.0	2.0	☆
H3-07	Speed loop integral time at high frequency	0.01s to 10.00s	1.00s	☆
H3-08	Speed loop integral property	0：integral effect 1：integral separation	0	★
H3-11	Torque adjustment proportional gain Kp	0 to 30000	2000	☆
H3-12	Torque adjustment integral gain Ki	0 to 30000	1300	☆
H3-13	Excitation adjustment proportional gain Kp	0 to 30000	2000	☆
H3-14	Excitation adjustment integral gain Ki	0 to 30000	1300	☆
H3-15	Flux braking gain	100 to 200	110	☆
H3-16	Field weakening torque correction ratio	50% to 200%	100%	☆

Function Code	Parameter Name	Setting Range	Default	Property
H3-17	Slip compensation gain	50% to 200%	100%	☆
H3-18	Speed loop feedback filter time	0.000s to 1.000s	0.015s	☆
H3-19	Speed loop output filter time	0.000s to 1.000s	0.000s	☆
H3-20	Source of power-driven torque upper limit	0: F3-21 1: AI1 2: AI2 3: Communication setting 4: Pulse setting (DI5) (Analog range corresponds to H3-21)	0	☆
H3-21	Power-driven torque upper limit	0.0% to 200.0%	150.0%	☆
H3-22	Source of braking torque upper limit	0: F3-23 1: AI1 2: AI2 3: Communication setting 4: Pulse setting (DI5) (Analog range corresponds to H3-23)	0	☆
H3-23	Braking torque upper limit	0.0% to 200.0%	150.0%	☆
Group L0: System Parameters				
L0-00	Parameters only for reading	0: Disable 1: Enable	1	☆
L0-01	LCD top menu display	0: output current 1: motor rotation speed 2:load speed 3: output voltage 4:PID giving 5: PID feedback	0	☆

Function Code	Parameter Name	Setting Range	Default	Property
L0-02	LCD language selection	0: Chinese 1: English	0	☆
L0-03	LED menu switching selection	0: prohibition 1: enable	0	☆
L0-04	Vector running frequency display selection	0: Real-time frequency 1: setting frequency	0	☆
L0-05	UP/Down regulation display selection	0: Display the setting value 1:Display the current variable value	0	☆
Group L1: User - defined Parameters				
L1-00	Clear user-defined parameters	0: Disable 1: Enable	0	☆
L1-01	User-defined parameters 1	uF0-00 to uU1-xx	uF0-03	☆
L1-02	User-defined parameters 2	uF0-00 to uU1-xx	uF0-04	☆
L1-03	User-defined parameters 3	uF0-00 to uU1-xx	uF0-06	☆
L1-04	User-defined parameters 4	uF0-00 to uU1-xx	uF0-23	☆
L1-05	User-defined parameters 5	uF0-00 to uU1-xx	uF0-24	☆
L1-06	User-defined parameters 6	uF0-00 to uU1-xx	uF4-00	☆
L1-07	User-defined parameters 7	uF0-00 to uU1-xx	uF4-01	☆
L1-08	User-defined parameters 8	uF0-00 to uU1-xx	uF4-02	☆
L1-09	User-defined parameters 9	uF0-00 to uU1-xx	uF4-04	☆
L1-10	User-defined parameters 10	uF0-00 to uU1-xx	uF4-05	☆
L1-11	User-defined parameters 11	uF0-00 to uU1-xx	uF4-06	☆
L1-12	User-defined parameters 12	uF0-00 to uU1-xx	uF4-12	☆
L1-13	User-defined parameters 13	uF0-00 to uU1-xx	uF4-13	☆
L1-14	User-defined parameters 14	uF0-00 to uU1-xx	uF5-00	☆

Function Code	Parameter Name	Setting Range	Default	Property
L1-15	User-defined parameters 15	uF0-00 to uU1-xx	uF5-01	☆
L1-16	User-defined parameters 16	uF0-00 to uU1-xx	uF5-02	☆
L1-17	User-defined parameters 17	uF0-00 to uU1-xx	uF6-00	☆
L1-18	User-defined parameters 18	uF0-00 to uU1-xx	uF6-01	☆
L1-19	User-defined parameters 19	uF0-00 to uU1-xx	uF0-00	☆
L1-20	User-defined parameters 20	uF0-00 to uU1-xx	uF0-00	☆
L1-21	User-defined parameters 21	uF0-00 to uU1-xx	uF0-00	☆
L1-22	User-defined parameters 22	uF0-00 to uU1-xx	uF0-00	☆
L1-23	User-defined parameters 23	uF0-00 to uU1-xx	uF0-00	☆
L1-24	User-defined parameters 24	uF0-00 to uU1-xx	uF0-00	☆
L1-25	User-defined parameters 25	uF0-00 to uU1-xx	uF0-00	☆
L1-26	User-defined parameters 26	uF0-00 to uU1-xx	uF0-00	☆
L1-27	User-defined parameters 27	uF0-00 to uU1-xx	uF0-00	☆
L1-28	User-defined parameters 28	uF0-00 to uU1-xx	uF0-00	☆
L1-29	User-defined parameters 29	uF0-00 to uU1-xx	uF0-00	☆
L1-30	User-defined parameters 30	uF0-00 to uU1-xx	uF0-00	☆
L1-31	User-defined parameters 31	uF0-00 to uU1-xx	uF0-00	☆
Group L2: Optimization Parameters				
L2-00	Dead zone compensation selection	0: No compensation 1: Compensation	1	☆
L2-01	PWM modulation mode	0: Asynchronous modulation 1: Synchronous modulation	0	☆
L2-02	PWM seven phase/five phase selection	0: Seven phase in whole course 1: Seven phase/five phase auto switchover	0	☆

Function Code	Parameter Name	Setting Range	Default	Property
L2-03	CBC current limit	0: Disable 1: Enable	1	☆
L2-04	Braking threshold	350.0V to 780.0V	360.0V 690.0V	☆
L2-05	Under voltage threshold	200.0V to 500.0V	200.0V 350.0V	☆
L2-06	Random PWM depth	0 to 6	0	☆
L2-07	0Hz running way	0: No current output 1: Normal operation 2: Output with DC braking current F1-16	0	☆
L2-08	Limitation of low frequency carrier	0: Limitation mode 0 1: Limitation mode 1 2: Unlimited (the carrier waves are in accordance in every frequency ranges)	0	☆
Group L3: AI/AO Correction				
L3-00	AI1 displayed voltage 1	-9.999V to 10.000V	3.000V	☆
L3-01	AI1 measured voltage 1	-9.999V to 10.000V	3.000V	☆
L3-02	AI1 displayed voltage 2	-9.999V to 10.000V	8.000V	☆
L3-03	AI1 measured voltage 2	-9.999V to 10.000V	8.000V	☆
L3-04	AI2 displayed voltage 1	-9.999V to 10.000V	3.000V	☆
L3-05	AI2 measured voltage 1	-9.999V to 10.000V	3.000V	☆
L3-06	AI2 displayed voltage 2	-9.999V to 10.000V	8.000V	☆
L3-07	AI2 measured voltage 2	-9.999V to 10.000V	8.000V	☆
L3-12	AO1 target voltage 1	-9.999V to 10.000V	3.000V	☆
L3-13	AO1 measured voltage 1	-9.999V to 10.000V	3.000V	☆

Function Code	Parameter Name	Setting Range	Default	Property
L3-14	AO1 target voltage 2	-9.999V to 10.000V	8.000V	☆
L3-15	AO1 measured voltage 2	-9.999V to 10.000V	8.000V	☆
L3-16	AO2 target voltage 1	-9.999V to 10.000V	3.000V	☆
L3-17	AO2 measured voltage 1	-9.999V to 10.000V	3.000V	☆
L3-18	AO2 target voltage 2	-9.999V to 10.000V	8.000V	☆
L3-19	AO2 measured voltage 2	-9.999V to 10.000V	8.000V	☆
Group L4: Master-slave Control Parameters				
L4-00	Master-slave control selection	0: Disable 1: Enable	0	★
L4-01	Master-slave selection	0: Master 1: Slave	0	★
L4-02	Master sending frequency selection	0: Running frequency 1: Target frequency	0	★
L4-03	Command source selection of slave followed the master	0: Non-follow 1: Follow	0	★
L4-04	Slave received frequency coefficient	0.00%～600.00%	100.00%<1>	☆
L4-05	Slave received torque coefficient	-10.00 to 10.00	1.00	☆
L4-06	Slave received torque offset	-50.00% to 50.00%	0.00%	☆
L4-07	Frequency offset threshold	0.20% to 10.00%	0.50%	☆
L4-08	Master-slave communication offline detection time	0.00s to 10.00s	0.10S	☆
Group L5: Braking Function Parameters				
L5-00	Braking control selection	0: Disable 1: Enable	0	★

Function Code	Parameter Name	Setting Range	Default	Property
L5-01	Braking loosen frequency	0.00Hz to 20.00Hz	2.50Hz	★
L5-02	Braking loosen frequency holding time	0.0s to 20.0s	1.0s	★
L5-03	Braking period current threshold	50.0% to 200.0%	120.0%	★
L5-04	Braking actuation frequency	0.00Hz to 20.00Hz	1.50Hz	★
L5-05	Braking actuation delay time	0.0s to 20.0s	0.0s	★
L5-06	Braking actuation frequency holding time	0.0s to 20.0s	1.0s	★
Group L6: Sleep Wake-up Function Parameters				
L6-00	Sleep selection	0:Sleep function ineffective 1:DI terminal control 2:PID setting and feedback control 3: Running frequency control	0	☆
L6-01	Sleep frequency	0.00Hz～F0-14	0.00Hz	☆
L6-02	Sleep delay time	0.0s～3600.0s	20.0s	☆
L6-03	Wake-up deviation	0.0%~100.0%	10.0%	☆
L6-04	Wake-up delay time	0.0s to 3600.0s	0.5s	☆
L6-05	Dormant delay time Frequency output selection	0:PID auto-adjustment 1: Dormant frequency L6-01	0	☆

6.2 Monitoring Parameters

Function Code	Parameter Name	Min. Unit	Property
Group U0: Error Recording Parameters			

Function Code	Parameter Name		Min. Unit	Property
U0-00	3rd (latest) fault type	00:No fault Err01: Inverter unit protection Err04: Overcurrent during acceleration Err05: Overcurrent during deceleration Err06: Over current at constant speed Err08: Overvoltage during acceleration Err09: Overvoltage during deceleration Err10: Overvoltage at constant speed Err12: Under voltage Err13: Drive overload Err14: Motor overload Err15: Drive overheat Err17: Current detection fault Err20: Short circuit to ground Err23: Power input phase loss Err24: Power output phase loss Err25: EEPROM read-write fault Err27: Communication fault Err28: External equipment fault Err29: Too large speed deviation Err30: User-definedfault1 Err31: User-definedfault2 Err32: PID feedback lost during running Err33: Fast current limit fault Err34: Load becoming 0 Err35: Control power supply fault	1	●
U0-01	2rd (latest) fault type		1	●
U0-02	1nd fault type		1	●

Function Code	Parameter Name		Min. Unit	Property
		Err37: Control power supply fault Err39: Current running time reached Err40: Accumulative running time reached Err42: Motor switchover fault during running Err46: Master slave control communication disconnection		
U0-03	Frequency upon the 3rd fault		0.01Hz	●
U0-04	Current upon the 3rd fault		0.01A	●
U0-05	Bus voltage upon the 3rd fault		0.1V	●
U0-06	DI status upon the 3rd fault		1	●
U0-07	Output terminal status upon the 3rd fault		1	●
U0-08	AC drive status upon the 3rd fault		1	●
U0-09	Power-on time upon the 3rd fault		1min	●
U0-10	Running time upon the 3rd fault		1min	●
U0-13	Frequency upon the 2nd fault		0.01Hz	●
U0-14	Current upon the 2nd fault		0.01A	●
U0-15	Bus voltage upon the 2nd fault		0.1V	●
U0-16	DI status upon the 2nd fault		1	●
U0-17	Output terminal status upon the 2nd fault		1	●
U0-18	AC drive status upon the 2nd fault		1	●
U0-19	Power-on time upon the 2nd fault		1min	●
U0-20	Running time upon the 2nd fault		1min	●
U0-21	Reserved			●
U0-22	Reserved			●

Function Code	Parameter Name	Min. Unit	Property
U0-23	Frequency upon the 1st fault	0.01Hz	●
U0-24	Current upon the 1st fault	0.01A	●
U0-25	Bus voltage upon the 1st fault	0.1V	●
U0-26	DI status upon the 1st fault	1	●
U0-27	Output terminal status upon the 1st fault	1	●
U0-28	AC drive status upon the 1st fault	1	●
U0-29	Power-on time upon the 1st fault	1min	●
U0-30	Running time upon the 1st fault	1min	●
Group U1: Application Monitoring Parameters			
U1-00	Running frequency	0.01Hz	●
U1-01	Setting frequency	0.01Hz	●
U1-02	Bus voltage	0.1V	●
U1-03	Output voltage	1v	●
U1-04	Output current	0.1A	●
U1-05	Output power	0.1kW	●
U1-06	DI input status, hexadecimal	1	●
U1-07	DO output status, hexadecimal	1	●
U1-08	AI1 voltage after correction	0.01V	●
U1-09	AI2 voltage after correction	0.01V	●
U1-10	PID setting, PID setting (percentage)×FA-05	1	●
U1-11	PID feedback, PID feedback (percentage)×FA-05	1	●
U1-12	Count value	1	●
U1-13	Length value	1	●
U1-14	Motor speed	1rpm	●

Function Code	Parameter Name	Min. Unit	Property
U1-15	PLC stage	1	●
U1-16	Input pulse frequency	0.01kHz	●
U1-17	Feedback speed	0.1Hz	●
U1-18	Remaining running time of F7-38 setting	0.1min	●
U1-19	AI1 voltage before correction	0.001v	●
U1-20	AI2 voltage before correction	0.001v	●
U1-21	HDI5 high speed pulse sampling linear speed	1m/min	●
U1-22	Load speed display	1rpm	●
U1-23	Current power-on time	1min	●
U1-24	Current running time	0.1min	●
U1-25	Pulse input frequency	1Hz	●
U1-26	Communication setting value	0.01%	●
U1-27	Main frequency X	0.01Hz	●
U1-28	Auxiliary frequency Y	0.01Hz	●
U1-29	Target torque	0.1%	●
U1-30	Output torque	0.1%	●
U1-31	Output torque	0.1%	●
U1-32	Torque upper limit	0.1%	●
U1-33	Target voltage upon V/F separation	1V	●
U1-34	Output voltage upon V/F separation	1V	●
U1-35	Reserved		●
U1-36	Current motor number	1	●
U1-37	AO1 target voltage	0.01V	●
U1-38	AO2 target voltage	0.01V	●

Function Code	Parameter Name	Min. Unit	Property
U1-39	AC drive running status: 0:Stop 1: Forward 2: Reverse 3: Fault	1	●
U1-40	AC drive current fault	1	●
U1-41	Agent remaining limited time	1h	●
U1-42	AC input current	0.1A	●
U1-43	PLC current stage remaining time	0.1	●
U1-47	Accumulative running time 1 (Accumulative running time=U1-47+U1-48)	1h	●
U1-48	Accumulative running time 2 (Accumulative running time=U1-47+U1-48)	1min	●