Quick Setting Manual
快速设定手册

TECO INVERTER

Class 380V: 0.75~400KW
(1~535HP)



TECO INVERTER

T310 Series

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Chapter 1 Safety Precautions

Safety definitions:

In this manual, safety precautions are classified into the following two categories:

Warning: Hazards caused by operation against the requirements may lead to serious injury and even death.

Caution: Hazards caused by operation against the requirements may lead to moderate or minor injury and equipment damage.

Users are requested to carefully read the safety precautions in this chapter before installation, test and maintenance of the system. The company will not be liable for any personal injury and equipment damage caused by operation against the rules.

1.1 Before power-on

Warning

- The main circuit terminals must be correctly wired. The three phases (R/L1, S/L2, T/L3) should be used as input terminals, and never be mixed with U/T1, V/T2 and W/T3; otherwise, power transmission will cause damage to the inverter.

Caution

- The selected supply voltage must be the same with input voltage of the inverter.
- When the inverter is handled, do not fetch the front cover directly, but the inverter body should be handled to prevent falling of the front cover and avoid personal injury or the inverter damage.
- Please mount the inverter on metal or other incombustible material; do not put it on or near combustible material to prevent fire.
- When multiple inverters are placed in the same control board, please provide a cooling fan to keep temperature inside the board below 40°C and prevent overheating or fire.
- Please remove or install the operator after power-off, and use the fixed operator as instructed in the drawing to avoid the operator or display failure caused by poor contact.
- Avoid collision during installation, transportation and use of the inverter.

Warning

- The product is qualified for use in restricted areas according to EN 61800-3. When used in certain environment, the product may cause electromagnetic interference; therefore, perform proper test and make sure the grounding before use.
- Provide the protection against motor overtemperature.

Caution

- The product must be installed and used by the qualified electricians.
- The method of fixed wiring must be used for installation of the product.

1.2 Wiring

Warning

- Before any inverter installation or wiring, be sure to turn off the main power to avoid electric shock and fire.
- The wiring engineers should have relevant professional knowledge to avoid electric shock and fire.
- Make sure the grounding wire is connected to the ground. Class 380V: ground impedance should be below 10Ω. Please ground the inverter according to EN 61800-5-1. The wire diameter must be up to 10mm^2 (6AWG) to meet the standard of limit leakage current.

- Be sure to correctly ground the inverter grounding terminal; otherwise, the ground wire of control board must be removed to avoid damage to electronic parts caused by surge.
- RCD should be conforming to the protection specification for type B leakage current.
- Make sure the E-stop function is effective after wiring. (User is responsible for the wiring)
- Do not touch the input/output wire directly, and avoid any wire contact with the inverter housing and wire short-circuit.
- Do not perform withstand voltage test on the inverter to avoid damage to semiconductor parts.

Caution

- Make sure the main input power is consistent with the inverter to avoid injury or fire.
- Connect the brake resistor and unit according to relevant wiring diagram to avoid fire.
- Check the main input power is consistent with the inverter to avoid injury or fire.
- Connect the brake resistor and unit according to relevant wiring diagram to avoid fire.
- Please lock the terminal screws as per the specified torque to avoid fire.
- Do not connect input power to output terminal of the inverter.
- Do not connect electromagnetic contactor and switch contact to the output terminal.
- Do not connect power capacitor or LC/RC filter to the output circuit.
- Make sure interference generated by the inverter and motor will not affect surrounding sensors or equipment.

1.3 Before operation

Warning

- Check the inverter capacity is the same with the setting of functional parameter 13- 00 before power-on.
- In case of wire length between the inverter and motor over 25m, reduce the carrier frequency (11-01) or mount an output filter to reduce oscillation and avoid overvoltage and motor damage.

1.4 Parameter setting

Caution

- Please do not connect the motor to load (machinery) during rotary auto adjustment.
- The motor turns during rotary auto adjustment. Check the motor surrounding to avoid danger.

1.5 Operation

Warning

- Please turn on power supply after the front outer cover is mounted.
- Do not cut in or off the motor unit during operation; otherwise, overcurrent trip and even main circuit damage of the inverter may be caused.
- Do not get close to the machine when the resetting function is used; the machine will restart after fault clearing.
- Do not operate the machine with wet hand.
- Provide an independent E-stop switch, which is enabled when the functional parameter is set (refer to 11-55).
- Provide an independent E-stop switch for external hardware, which is used to switch off the inverter output in emergency.
- Please confirm the running command is closed before reset warning.
- The inverter will start up automatically after power recovery if auto start (07-00) after power-on is selected.
- Before auto adjustment, check the peripheral system and machinery state to ensure personal safety.
- Avoid contact with relevant terminals whether the inverter is running or stopped to avoid danger.
- The fan may run continuously for certain period after power-off.

Caution

- Do not touch the heat sink, brake resistor and other heating parts.

- The inverter may easily speed up the motor. Please check permissible range of the motor and machinery.
- Please observe the rules for use of brake module and other accessories.
- Do not check signal of circuit board during operation of the inverter.

Warning

- Avoid electric shock! DC capacitor inside the inverter can only be discharged completely 5 minutes after removal of power supply. Please perform disassembly or inspection 5 minutes after power-off. It is required to wait for over 15 minutes for product over 15HP.

1.6 Inspection, maintenance and replacement

Warning

- Please check power supply and indicator are off (DC voltage below 25V) before inspection and maintenance.
- Do not touch HV terminals of the inverter at will.
- Be sure to mount the protective cover when power is on; use the circuit breaker to turn off power after the cover is removed.
- Nobody other than the designated professionals is allowed for inspection, maintenance or replacement of parts.

Caution

- Ambient temperature of the inverter should be (－10℃～＋40 ℃ (IP20) or 10℃～＋50 ℃ (IP00); if derated, the inverter may be used under temperature up to 60℃ (to be derated over 40℃)); make sure the surrounding is free of water drop and metal dust when the inverter is used in 95%RH non-condensing environment. Clean the heat sink regularly according to the site environment.

Precautions for inverter scrapping

Caution

When the inverter is scrapped, please treat it as industrial waste and pay attention to the following:

- Explosion may be caused by burning of electrolytic capacitor in the main circuit and on the printed circuit board;
- Toxic gas may be caused by burning of the inverter housing and other plastic parts.



Equipment with electronic parts can not be treated together with domestic waste, and must be separately recycled with electrical and electronic wastes according to the existing local regulations.

Exclusion of Liability for Guarantee

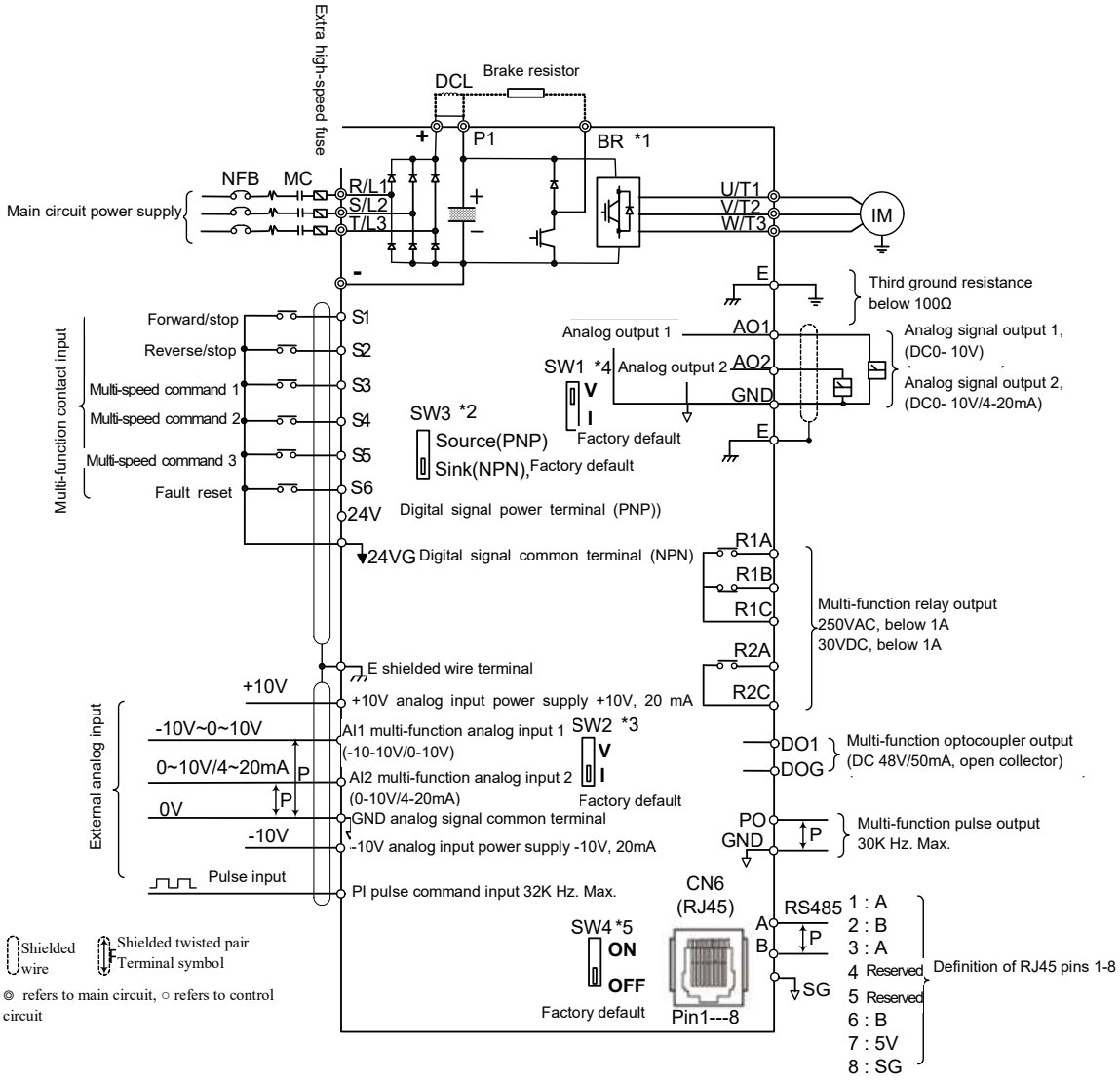
Loss of chance caused by the product failure to your company or your customers, damage not caused by our product or compensation for other business is not covered by the scope of guarantee of our company, whether it is within the guarantee period or not.

Note：
Motor over temperature protection is not provided.

Chapter 2 Surrounding and Installation

2.1 Wiring diagram

The standard wiring diagram of T310 inverter is shown below (□ refers to main circuit terminal, ○ to control circuit terminal). The position and symbol of wiring terminals vary with T310 model. Refer to table 1 and table 2 for description of main circuit terminals and control circuit terminals.



Notes:

*1: 380V 1~30HP: Brake crystal is designed and directly used for connecting brake resistor between P1 and BR; external DCL is reserved (between + (P) and P1); 380V 40~535HP: built-in DCL; no brake crystal is provided, and external brake unit may be connected between + (P) and – (N).

*2: Multi-function digital input contact S1~S6 may be set as Source (PNP, with +24V common) or Sink (NPN, with 24VG common) by SW3.

*3: Multi-function analog input AI2 may be set as voltage command input (0~10V) or current command input (4~20mA) by SW2.

*4: Multi-function analog output AO2 may be set as voltage command output (0~10V) or current command output (4~20mA) by SW1(1~75HP) or SW6(100~535HP).

*5: RS485 terminal resistance switch: When multiple inverters are connected in parallel, the final inverter should be turned on and wired in reference to annex A. Ground signal of RS485 is SG isolated from GND of analog signal. A is equal to S+, and B to S-.

2.2 Terminal function description

Table 1 Main circuit terminals

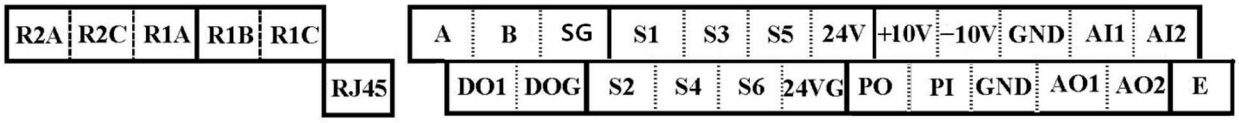
Terminal symbol	380V: 1~10HP	380V: 15-30HP	380V: 40~535HP
R/L1	Main circuit power input		
S/L2			
T/L3			
+ (P)	• + (P)~ －(N): DC power input • + (P)~BR: External brake resistor	• + (P)~P1: External DCL *1 • + (P)~ －(N): DC power input • P1~BR: External brake resistor	• + (P)~ －(N): DC power input or external brake resistor
P1			
BR			
－ (N)			
U/T1	Inverter output		
V/T2			
W/T3			
E	Ground terminal (third ground)		

Note:

15~30HP: + (P)~P1: Short-circuited at the time of delivery, removed only when external DCL connection is required.

■Control circuit terminal configuration

380V:1HP~75HP



380V:100HP~535HP

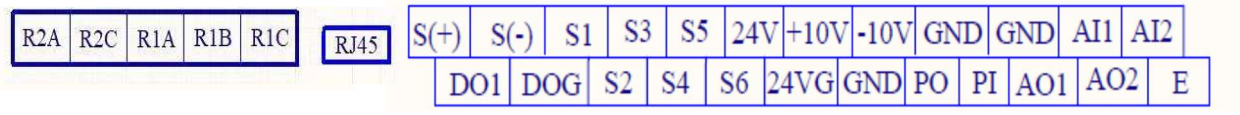


Table 2 Control circuit terminals

Type	Terminal	Terminal function	Signal level
Digital input signal	S1	Two-wire forward/ stop (preset), multi-function input terminal *1	24 VDC, 8 mA optical coupler isolation (max. voltage 30 Vdc , input impedance 4.22kΩ)
	S2	Two-wire forward/ stop (preset), multi-function input terminal *1	
	S3	Multi-speed command 1 (default), multi-function input terminal *1	
	S4	Multi-speed command 2 (default), multi-function input terminal *1	
	S5	Multi-speed command 3 (default), multi-function input terminal *1	
	S6	Fault reset (preset), multi-function input terminal *1	
24V power supply (independent winding)	24V	Common terminal of digital signal SOURCE (SW3 to SOURCE position)	±15%, max. output current 250mA (total of all loads)
	24VG	Common terminal of digital signal Common terminal of digital signal SINK (SW3 to SINK position)	
Analog input signal	+10V	Power supply for speed setting	+10V (max. current 20mA)
	-10V	Power supply for speed setting	-10V (max. current 20mA)
	AI1	Main voltage speed command (0-10V input)/(-10V~10V input)	0 to +10V, -10V to +10V (input impedance: 20kΩ) (11bit + 1 symbol, resolution)
	AI2	Multi-function analog input *2, SW2 used to switch voltage or current input(0~10V)/(4-20mA)	0 to +10V, (input impedance:200kΩ) 4 to 20 mA (input impedance: 250Ω) (11 bit + 1 symbol, resolution)
	GND	Common terminal of analog signal	----
	E	Shielded wire terminal (ground)	----
Analog output signal	AO1	Multi-function analog output terminal (0~10V output)	0 to 10V, (max. current :2mA) 4 to 20 mA (load< 500Ω) (PWM 10kHz resolution)
	AO2	Multi-function analog output terminal *3, SW1 (1~75HP) or SW6 (100~535HP) used to switch voltage or current output (0~10V output)/(4-20mA output)	
	GND	Common terminal of analog signal	
Pulse output signal	PO	Pulse output, maximum pulse frequency 32kHz	32kHz(max), open collector output
	GND	Common terminal of analog signal	----
Pulse input signal	PI	Pulse command input, maximum pulse frequency 32kHz	L: 0.0 to 0.5V H: 4.0 to 13.2V 0 - 32 kHz(max) Built-in pull-up resistor, not connected in series when open collector input is used
	GND	Common terminal of analog signal	----

Type	Terminal	Terminal function	Signal level
Digital output	DO1	Multi-function (open collector transistor) output: in operation, zero speed, consistent frequency, random frequency consistent, output frequency, preparation completed, low-voltage detected, output breaking, operation and frequency command, over-torque detected, abnormality, low voltage, overheat, motor overload, overload output of inverter; retesting, communication abnormality, timing function output unit…	48Vdc, 2 mA~50mA optical coupler output
	DOG	Common terminal of open collector transistor	----
Relay output	R1A	Relay A contact (multi-function output terminal) Relay B contact (multi-function output terminal) Common terminal of relay Same function with DO1	Terminal capacity: Under 250Vac, 10 mA~1A Under 30Vdc, 10 mA~1A
	R1B		
	R1C		
	R2A-R2C	Same function with DO1	Terminal capacity: Under 250Vac, 10 mA~1A Under 30Vdc, 10 mA~1A
RS-485 interface	A (S+)	RS485/MODBUS	Differential output/input
	B (S-)		
	SG	Ground signal *4*5	Zero level

*1: Refer to group 03-digital input/output herein for multi-function digital input function;

*2: Refer to group 04-analog input/output function of external terminals herein for multi-function analog input function;

*3: Refer to group 04-analog input/output function of external terminals herein for multi-function analog output function;

*4: Please note that ground signal of RS485 (SG) and the common terminal of analog signal (GND) are mutually isolated and can not be mixed.

*5: There is no RS485 ground signal (SG) for product over 100HP (inclusive).



Caution

- Maximum capacity of output current of terminal ±10V is 20ma.
- Multi-function analog outputs AO1 and AO2 are analog output specially for ammeter connection, which can not be used as analog output signal for feedback control.
- 24V and ±10V power sources of control board are for internal control only, and can not be connected with other external device.

2.3 Inverter specification

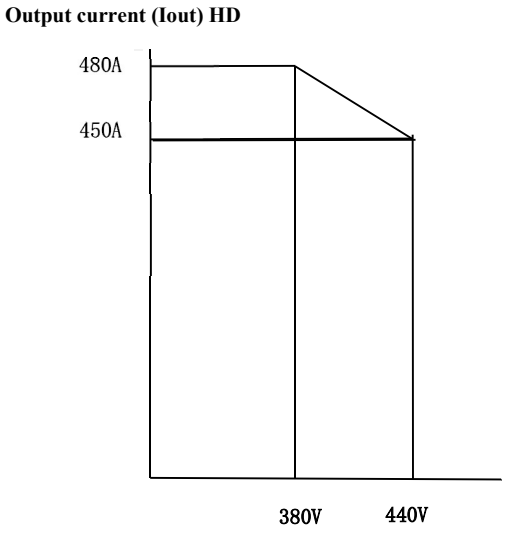
Inverter capacity (HP)			1	2	3	5S**	5	8	10S**	10	15	20	25	30	40	50	60	75
Output rating	Heavy duty H.D. (150%/min)	Rated output capacity (KVA)	2.6	3.2	4.2	7	7	11.3	13.7	13.7	18.3	23.6	29.7	34.3	45.7	57.2	69.3	89.9
		Rated output current (A)	2.3	4.2	5.5	9.2	9.2	13	18	18	24	31	39	45	60	75	91	118
		Max. applicable motor *1HP (KW)	1 (0.75)	2 (1.5)	3 (2.2)	5 (3.7)	5 (3.7)	7.5 (5.5)	10 (7.5)	10 (7.5)	15 (11)	20 (15)	25 (18.5)	30 (22)	40 (30)	50 (37)	60 (45)	75 (55)
	Normative duty N.D. (120%/min)	Rated output capacity (KVA)					8.5	13.3		17.5	23.6	29.0	33.5	44.2	54.9	67.1	78.5	111
		Rated output current (A)					13	18		23	31	39	45	60	75	91	118	145
		Max. applicable motor *1HP (KW)					7.5 (5.5)	10 (7.5)		15 (11)	20 (15)	25 (18.5)	30 (22)	40 (30)	50 (37)	60 (45)	75 (55)	100 (75)
	Max. output voltage (V)		Three-phase 380V~440V															
	Max. output frequency (Hz)		Parameter setting 0.1~599.0 Hz															
Power supply	Rated voltage, frequency		Three-phase 380V ~ 440V, 50/60Hz															
	Allowable voltage variation		-15% ~ +10%															
	Allowable frequency variation		±5%															

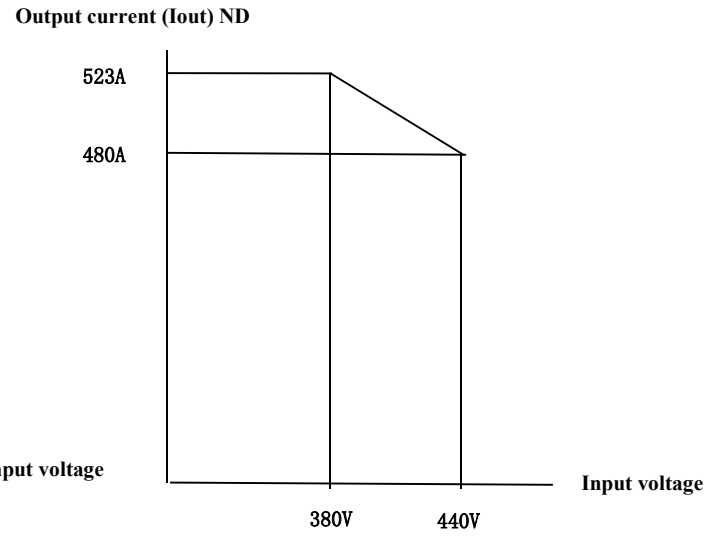
Inverter capacity (HP)			100	125	150	175	215	250	270	300	335	375	425	475	535
Output rating	Heavy duty H.D. (150%/min)	Rated output capacity (KVA)	114	137	165	198	232	282	290	343	343	398	446	495	552
		Rated output current (A)	150	180	216	260	304	370	380	450	480	523	585	650	725
		Max. applicable motor *1HP (KW)	100 (75)	125 (90)	150 (110)	175 (132)	215 (160)	250 (185)	270 (200)	300 (220)	335 (250)	375 (280)	425 (315)	475 (355)	535 (400)
	Normative duty N.D. (120%/min)	Rated output capacity (KVA)	137	159	198	232	250	332	332	366	366	446	488	552	625
		Rated output current (A)	180	208	260	304	328	435	435	480	523	585	640	725	820
		Max. applicable motor *1HP (KW)	125 (90)	150 (110)	175 (132)	215 (160)	250 (185)	300 (220)	300 (220)	335 (250)	375 (280)	425 (315)	475 (355)	535 (400)	600 (450)
	Max. output voltage (V)		Three-phase 380V~440V												
	Max. output frequency (Hz)		Parameter setting 0.1~599.0 Hz												
Power supply	Rated voltage, frequency		Three-phase 380V ~ 440V, 50/60Hz												
	Allowable voltage variation		-15% ~ +10%												
	Allowable frequency variation		±5%												

*1. 4-pole inductor motor of TECO standard is used for reference.

*2. Derating is required when 335HP is used up to 440V. The voltage derating curve is shown below.

* 3.The product 5S**&10S**is is being designed and is expected to be available in 2023





*3. T310 is designed for use under heavy duty. The factory default is H.D. (heavy duty type as standard), and overload capacity is 150%/min. Carrier and factory default are listed below.

H.P Class 380V	Carrier range of heavy duty (HD) mode	Factory default of carrier of heavy duty mode (HD)	Carrier range of normative duty (ND) mode	Factory default of carrier of normative duty (ND) mode
1~3HP	2~16KHz	8KHz		
5HP/8HP/10HP	2~16KHz	5KHz	2~16KHz	4KHz
15~30HP	1~16KHz	8KHz	1~16KHz	4KHz
40~50HP	1~12KHz	5KHz	1~12KHz	4KHz
60~75HP	1~10KHz	5KHz	1~10KHz	4KHz
100HP	1~8KHz	5KHz	1~8KHz	2KHz
125HP	1~8KHz	4KHz	1~8KHz	2KHz
150HP/175HP	1~5KHz	4KHz	1~5KHz	2KHz
215-535HP	1~5KHz	3KHz	1~5KHz	2KHz

Load mode	Control mode	Other setting	Max. frequency
Heavy duty (00-27=0)	V/F SLV2	Max. frequency selected as 599Hz	599Hz
	SLV	380V 1~15HP	150Hz
		380V 20HP	110Hz
		380V 25~30HP	100Hz
		380V 40~75HP, carrier (11-01) set at 8K or below	100Hz
		380V 40~75HP, carrier (11-01) set over 8K	80Hz
		380V 100~535HP, carrier (11-01) set at 8K or below	100Hz
	PMSLV	Unlimited	Fundamental frequency
Normative duty (00-27=1)	V/F	Max. frequency selected as 120Hz	120Hz
	SLV SLV2	No normative duty mode	-

*4. Carrier setting should be no higher than 2KHz when motor wire of 100m or above is used (for T310-1HP/2HP/3HP/5HP/8HP/10HP type, carrier can only be set as 2KHz in case of motor wire over 100m).

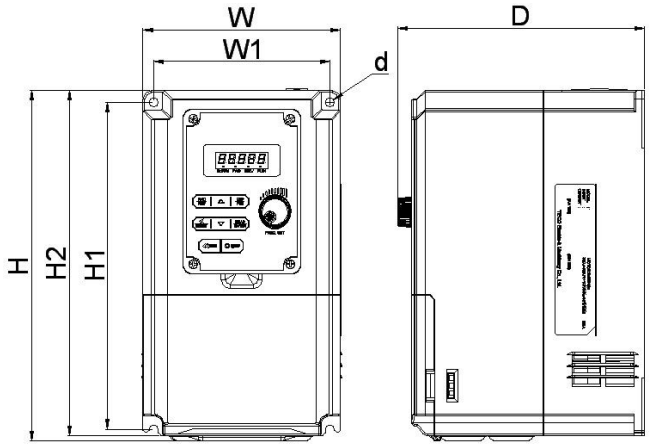
*5. Digital operator can be removed from the inverter body, and its extension cord can be used for remote operation. Extension cord over 5m can only be used after approval by FAE.

*6. SLV mode can not be selected in ND mode; carrier range is limited to 4~8kHz when the control mode is SLV and maximum frequency (01-02) is set over 80Hz.

*7. 1HP and 0.5HP motors can only be used in SLV mode of T310-1HP.

*8. For instantaneous stop of T310-1HP/2HP, 07-25 (low voltage detection delay) should be set as 0, and the allowable instantaneous stop is 1s to the maximum.

2.4 Product dimensions



Inverter model	Overall dimensions (mm)								
	W	H	D	W1	H1	H2	d	Net weight (kg)	Remarks
T310-4001-H3(IP20)	120	213	150	107	199	210	M5	1.7	Recommended range of locking pound force in position d 15~18kgf.cm
T310-4002-H3(IP20)	120	213	150	107	199	210	M5	1.75	
T310-4003-H3(IP20)	120	213	150	107	199	210	M5	1.8	
T310-4005S-H3(IP20)	120	213	150	107	199	210	M5	1.8	
T310-4005-H3(IP20)	144	263	170	132	248	260	M5	2.8	
T310-4008-H3(IP20)	144	263	170	132	248	260	M5	2.85	
T310-4010S-H3(IP20)	144	263	170	132	248	260	M5	2.85	
T310-4010-H3(IP20)	215	315	212	198	284	300	M5	6.2	
T310-4015-H3(IP20)	215	315	212	198	284	300	M5	6.2	
T310-4020-H3(IP20)	215	315	212	198	284	300	M5	6.2	
T310-4025-H3(IP20)	256	378	234	218	360		M6	15	
T310-4030-H3(IP20)	256	378	234	218	360		M6	15	
T310-4040-H3(IP20)	284	535	270	220	515		M8	30	
T310-4050-H3(IP20)	284	535	270	220	515		M8	30	
T310-4060-H3(IP20)	323	575	292	220	553		M8	40	
T310-4075-H3(IP20)	323	575	292	220	553		M8	40	
T310-4100-H3(IP00)	344	600	315	250	560		M10	42	
T310-4125-H3(IP00)	344	600	315	250	560		M10	42	
T310-4150-H3(IP00)	459	790	333	320	760		M10	81	
T310-4175-H3(IP00)	459	790	333	320	760		M10	81	
T310-4215-H3(IP00)	459	790	333	320	760		M10	81	
T310-4250-H3(IP00)	540	822	378	360	795		M10	110	
T310-4270-H3(IP00)	540	822	378	360	795		M10	110	
T310-4300-H3(IP00)	540	822	378	360	795		M10	110	
T310-4335-H3(IP00)	540	822	378	360	795		M10	110	
T310-4375- H3(IP20)	709	896	417	530	855		M12	150	
T310-4425- H3(IP20)	709	896	417	530	855		M12	150	
T310-4475- H3(IP20)	806	1015	420	530	975		M12	170	
T310-4535- H3(IP20)	806	1015	420	530	975		M12	170	

T310-4005S-H3 and T310-4010S-H3will be available in 2023.

Chapter 3 Software Index

3.1 List of parameters

Parameter group	Name
Group 00	Basic function group
Group 01	V/F control function group
Group 02	IM motor parameter group
Group 03	Digital input/output function group of external terminal
Group 04	Analog input/output function group of external terminal
Group 05	Multi-speed function group
Group 06	Auto operation function group
Group 07	Operation/stop function group
Group 08	Protection function group
Group 09	Communication function group
Group 10	PID function group
Group 11	Auxiliary function group
Group 12	Monitoring function group
Group 13	Maintenance function group
Group 14	Reserved
Group 15	Reserved
Group 16	Reserved
Group 17	Auto-tuning function group
Group 18	Slip compensation function group
Group 19	Wobble frequency function group
Group 20	Speed control function group
Group 21	Torque and position control function group
Group 22	PM motor group
Group 23	Pump group
Group 24	Quick parameter group of special machine application

Parameter attribute	
*1	Parameter modifiable during operation
*3	Parameter value (user setting) not restored to the factory default at the time of factory setting
*4	Parameter readable but not modifiable
*6	Displayed only when LED digital operator is used
*8	Parameter setting varying with 13-08 setting
*9	T1.0 software not designed with the function or option

Group 00 Basic function group				
Code	Name	Range	Factory setting	Attribute
00-00	Motor control mode	0: V/F 1: Reserved 2: SLV 3: Reserved 4: Reserved 5: PM SLV 6: SLV2	0	*3
00-01	Motor rotation direction	0: Forward 1: Reverse	0	*1
00-02	Main operation command source selection	0: Keypad 1: External control 2: Communication control 3: Reserved	1	
00-03	Secondary operation command source selection	0: Keypad 1: External control 2: Communication control 3: Reserved	0	
00-04	Reserved			
00-05	Main frequency command source selection	0: Keypad 1: External control (analog AI1) 2: Terminal UP/DOWN 3: Communication control 4: Pulse input 5: Reserved 6: Reserved 7:AI2 auxiliary frequency 8: Knob setting	1	
00-06	Secondary frequency command source selection	0: Keypad 1: External control (analog AI1) 2: Terminal UP/DOWN 3: Communication control 4: Pulse input 5: Reserved 6: Reserved 7:AI2 auxiliary frequency 8: Knob setting	0	
00-07	Frequency source combination mode selection	0: Main frequency source 1: Main frequency source + secondary frequency source	0	
00-08	Communication frequency command	0.00~599.00	0.00	
00-09	Frequency command memory mode	0: Communication frequency command (00-08) before power-off not memorized 1: Communication frequency command (00-08) before power-off memorized	0	

*Note 1: Initial setting of 13-08 is required before 00-32 application adjustment.
Warning: The setting function of input/output terminal will automatically vary with the set value if the parameter 00-32 (application adjustment) is set.

Group 00 Basic function group				
Code	Name	Range	Factory setting	Attribute
00-10	Min. frequency test	0: Warning of frequency below the min. value 1: Running under min. frequency if below the value 2: No stop0 warning, output frequency command 3: No stop0 warning, output 0 if below min. frequency	0	
00-11	PID lower frequency limit selection	0: PID Lower limit of sleep limit frequency 1: PID sleep limit 0Hz	0	
00-12	Upper frequency limit	0.1~109.0	100.0	
00-13	Lower frequency limit	0.0~109.0	0.0	
00-14	Acceleration time 1	0.1~6000.0	*	*1
00-15	Deceleration time 1	0.1~6000.0	*	*1
00-16	Acceleration time 2	0.1~6000.0	*	*1
00-17	Deceleration time 2	0.1~6000.0	*	*1
00-18	Inching frequency	0.00~599.00	6.00	*1
00-19	Inching acceleration time	0.1~0600.0	*	*1
00-20	Inching deceleration time	0.1~0600.0	*	*1
00-21	Acceleration time 3	0.1~6000.0	*	*1
00-22	Deceleration time 3	0.1~6000.0	*	*1
00-23	Acceleration time 4	0.1~6000.0	*	*1
00-24	Deceleration time 4	0.1~6000.0	*	*1
00-25	Acceleration/ deceleration switching frequency	0.0~599.0	0.0	
00-26	E-stop time	0.1~6000.0	5.0	
00-27	HD/ND selection	0:HD mode 1:ND mode	0	*3
00-28	Main frequency command attribute selection	0: Positive attribute (0~10V/4~20mA corresponding to 0~100%) 1: Negative attribute (0~10V/4~20mA corresponding to 100~0%)	0	
00-29~00-31 reserved				
00-32	Application adjustment *Note 1	0: General 1: Pump parameter 2: Conveyor parameter 3:Exhaust fan parameter 4:HVA fan parameter 5: Air compressor parameter 6~9: Reserved 10: Injection machine application parameter 11: Injection machine 2 application parameter 20: Punch application parameter 30: Air compressor application parameter	0	
00-34	Two-wire/ three-wire selection	0: Two-wire 1: Three-wire	0	

Make sure input of the inverter before test run.

Group 01 Basic function group				
Code	**Name**	**Range**	**Factory setting**	**Attribute**
01-00	V/F curve selection	0~FF	F	*3
01-01	Reserved			
01-02	Max. output frequency of motor 1	4.8~599.0	50.0/ 60.0	*8
01-03	Max. output voltage of motor 1	380V: 0.2~480.0	-	*8
01-04	Intermediate output frequency 2 of motor 1	0.0~599.0	0.0	
01-05	Intermediate output voltage 2 of motor 1	380V: 0.0~480.0	0.0	*8
01-06	Intermediate output frequency 1 of motor 1	0.0~599.0	2.5	
01-07	Intermediate output voltage 1 of motor 1	380V: 0.0~480.0	*	*8
01-08	Min. output frequency of motor 1	0.0~599.0	VF: 1.3 SLV:0.5 SLV2:1.3	
01-09	Min. output voltage of motor 1	380V: 0.0~480.0	*	*8
01-10	Torque compensation gain	0.0~2.0	0.5	*1
01-11	Torque compensation mode selection	0: Torque compensation mode 0 1: Torque compensation mode 1	0	
01-12	Base frequency of motor 1	4.8~599.0	50.0/ 60.0	*8
01-13	Base output voltage of motor 1	380V: 0.0~480.0	-	*8
01-14	Input voltage setting	380V: 310.0~480.0	-	*8
01-15	Torque compensation time	0~10000	200	
01-16	Max. output frequency of motor 2	4.8~599.0	50.0/ 60.0	*8
01-17	Max. output voltage of motor 2	380V: 0.2~480.0	-	*8
01-18	Intermediate output frequency 2 of motor 2	0.0~599.0	0.0	
01-19	Intermediate output voltage 2 of motor 2	380V: 0.0~480.0	0.0	
01-20	Intermediate output frequency 1 of motor 2	0.0~599.0	2.5	

Group 01 Basic function group				
Code	**Name**	**Range**	**Factory setting**	**Attribute**
01-21	Intermediate output voltage 1 of motor 2	380V: 0.0~480.0	KVA *Note 1	
01-22	Min. output frequency of motor 2	0.0~599.0	1.3	
01-23	Min. output voltage of motor 2	380V: 0.0~480.0	KVA * Note 1	
01-24	Base frequency of motor 2	4.8~599.0	50.0/ 60.0	*8
01-25	Base output voltage of motor 2	380V: 0.0~480.0	-	*8
01-26	V/F curve selection of motor 2	0~FF	F	

*Note 1: KVA: The parameter varies with inverter capacity.

2: Based on delivery VF curve.

3：When parameter 01-00 is set to F or FF, Parameters 01-02 to 01-09 and 01-12 to 01-13 can be set by the user.

4：If parameter 01-00 is set to any value other than F or FF, parameters 01-02 to 01-09 and 01-12 to 01-13 cannot be changed.

Group 02 IM motor parameter group				
Code	Name	Range	Factory setting	Attribute
02-00	No-load current of motor 1	0.01~600.00	KVA	
02-01	Rated current of motor 1	25%~200% rated current of inverter	KVA	
02-02	Reserved			
02-03	Rated speed of motor 1	0~60000	KVA	
02-04	Rated voltage of motor 1	380V: 100.0~480.0	-	*8
02-05	Rated power of motor 1	0.01~600.00	-	
02-06	Rated frequency of motor 1	4.8~599.0	50.0/ 60.0	*8
02-07	Number of poles of motor 1	2~16(even)	4	
02-08	Reserved			
02-09	Exciting current of motor 1	15%~70% rated current of motor	-	
02-10	Iron core saturation factor 1 of motor 1	1~100	-	
02-11	Iron core saturation factor 2 of motor 1	1~100	-	
02-12	Iron core saturation factor 3 of motor 1	80~300	-	
02-13	Iron core loss of motor 1	0.0~15.0	-	
02-14	Reserved			
02-15	Line resistance of motor 1	0.001~60.000	-	
02-16~02-18 reserved				
02-19	No-load voltage of motor 1	380V: 100~480	-	
02-20	No-load current of motor 2	0.01~600.00	-	
02-21	Rated current of motor 2	25%~200% rated current of inverter	-	

Group 02 Basic function group				
Code	Name	Range	Factory setting	Attribute
02-22	Rated speed of motor 2	0~60000	-	
02-23	Rated voltage of motor 2	380V: 100.0~480.0	-	*8
02-24	Rated power of motor 2	0.01~600.00	-	
02-25	Rated frequency of motor 2	4.8~599.0	50.0/ 60.0	
02-26	Number of poles of motor 2	2~16 (even)	4	
02-27~02-31 reserved				
02-32	Line resistance of motor 2	0.001~60.000	-	
02-33	leakage inductance ratio of motor	0.1~15.0	KVA	
02-34	Slip frequency of motor	0.10~20.00	KVA	
02-35~02-37 reserved				

Group 03 Digital I/O function group of external terminal				
Code	Name	Range	Factory setting	Attribute
03-00	Function setting of multi-function terminal S1	0: Two-wire forward/stop 1: Two-wire reverse/stop 2: Multi-speed setting command 1 3: Multi-speed setting command 2 4: Multi-speed setting command 3 5: Multi-speed setting command 4 6: Inching forward command 7: Inching reverse command 8:UP frequency command 9:DOWN frequency command 10: Accelerate/deceleration time selection 1 11: Accelerate/deceleration disabled 12: Main/secondary operation switching 13: Main/secondary frequency switching 14:E-stop (speed down to zero) 15: Breaking stop (auto-run stop) 16:PID function disabled 17: Fault reset (RESET) 18: Reserved 19: Speed search 1 (from max. frequency) 20: Manual energy saving 21:PID integral reset 22~24: Reserved 25: External fault 26: Three-wire forward/stop 27: Body/remote selection 28: Remote mode selection 29: Inching frequency selection 30: Accelerate/deceleration time selection 2 31: Inverter overheat warning 32: Syn. command 33: DC brake 34: Speed search 2(from frequency command) 35:Timing input 36:PID soft-start disabled 37: Wobble frequency running 38: Wobble frequency up 39: Wobble frequency down 40: Motor 1/motor 2 switching 41: PID sleep 42: Reserved 43: Reserved 44: Reserved 45: Reserved 46: Reserved 47: Fire mode (forced run) 48: KEB speed-up 49: Parameter writing enabled 50: Direct running protection after power-on (USP) 51: Reserved 52: Reserved 53: Two-wire self-protection (stop command) 54: Reserved 55: Reserved 56: Reserved 57: Reserved 58: Safety function 59: Reserved 60: Reserved 61: Reserved 62: EPS input 63: Switch to pressure error range of group II 64: Reserved 65: Short-circuit brake 66: PID function disabled 67: Reserved 68: External fault 2	0	
03-01	Function setting of multi-function terminal S2		1	
03-02	Function setting of multi-function terminal S3		2	
03-03	Function setting of multi-function terminal S4		3	
03-04	Function setting of multi-function terminal S5		4	
03-05	Function setting of multi-function terminal S6		17	
03-06~03-07 reserved				

Group 03 Digital I/O function group of external terminal				
Code	Name	Range	Factory setting	Attribute
03-08	(S1~S6) DI scanning time	0: Scanning time 4ms 1: Scanning time 8ms	1	
03-09	Type selection of multi-function terminal S1-S4	xxx0b:S1 contact A xxx1b:S1 contact B xx0xb:S2 contact A xx1xb:S2 contact B x0xxb:S3 contact A x1xxb:S3 contact B 0xxxb:S4 contact A 1xxxb:S4 contact B	0000b	
03-10	Type selection of multi-function terminal S5-S6	xxx0b:S5 contact A xxx1b:S5 contact B xx0xb:S6 contact A xx1xb:S6 contact B	0000b	
03-11	Relay (R1A-R1C) output	0: Running 1: Fault indication 2: Frequency arrived 3: Any frequency arrived (03-13±03-14) 4: Frequency detection 1 (output frequency≧ (03-13+03-14)) 5: Frequency detection 2 (output frequency≦ (03-13+03-14)) 6: Auto restart 7: Reserved 8: Reserved 9: Breaking stop 10: Reserved 11: Reserved 12: Over-torque detection 13: Current arrived 14: Mechanical brake control (03-17~18) 15: Reserved 16: Reserved 17: Reserved 18: Reserved 19: Reserved 20: Zero speed 21: Inverter standby 22: LV detection 23: Running command source 24: Frequency command source 25: Low torque detection	1	

Group 03 Digital I/O function group of external terminal				
Code	Name	Range	Factory setting	Attribute
03-11	Relay (R1A-R1C) output	26: Frequency off-line 27: Timing output 28: Wobble frequency UP 29: Wobble frequency on 30: Select motor 2 31: Reserved 32: Communication control 33: Reserved 34: Reserved 35: Reserved 36: Reserved 37: PID feedback off detection output 38: Brake release 39: Frequency detection 1 (for crown block) 40: Reserved 41: Reserved	1	
03-12	Relay (R2A-R2C) output	42: Too high pressure 43: Too low pressure 44:Pressure loss detection 45: PID sleep 46: Too high flow 47: Too low flow 48: Insufficient low suction 49: Reserved 50: Frequency detection 3 (output frequency≧(03-44+03-45)) 51: Frequency detection 4 (output frequency≦(03-44+03-45)) 52: Frequency detection 5 (output frequency ≧(03-46+03-47) 53: Frequency detection 6 (output frequency ≦03-46+03-47) 54: short circuit braking 55: Reserved 56: Reserved 57: Low current detection 58: Frequency down detection 59: Over-temperature detection	0	

Group 03 Digital I/O function group of external terminal				
Code	Name	Range	Factory setting	Attribute
03-13	Frequency detection level	0.0~599.0	0.0	
03-14	Frequency detection width	0.1~25.5	2.0	
03-15	Current arrival level	0.1~999.9	0.1	
03-16	Current arrival detection delay	0.1~10.0	0.1	
03-17	*Mechanical brake release level setting	0.00~599.00	0.00	
03-18	* Mechanical brake action level setting	0.00~599.00	0.00	
03-19	Relay (R1A-R2C) type selection	xxx0b: R1 contact A xxx1b: R1 contact B xx0xb: R2 contact A xx1xb: R2 contact B	0000b	
03-20~03-21 reserved				
03-22	Relay optocoupler output delay time	0.0~60.0	0	
03-23~03-26 Reserved				
03-27	UP/DOWN frequency holding selection	0: UP/DOWN frequency held when stop 1: UP/DOWN frequency cleared when stop 2: Frequency UP/DOWN allowed when stop 3.Frequency updated when speed up	0	
03-28	Optocoupler output	Range and definition same with 03-11 and 03-12	0	
03-29	Optocoupler output type selection	xxx0b: Optocoupler contact A xxx1b: Optocoupler contact B	0000b	
03-30	Pulse input selection	0: General pulse input 1:PWM mode	0	
03-31	Pulse input scale	Adjust as per 03-30 setting 03-30 setting 0: 50~32000Hz 03-30 setting 1:10~1000Hz	1000	*1
03-32	Pulse input gain	0.0~1000.0	100	*1
03-33	Pulse input bias	-100.0~100.0	0.0	*1
03-34	Pulse input filter time	0.00~2.00	0.1	*1

Group 03 Digital I/O function group of external terminal				
Code	Name	Range	Factory setting	Attribute
03-35	Pulse output setting	1: Frequency command 2: Output frequency 3: Output frequency after soft start 4: Motor speed 5: PID feedback 6: PID input 7: Reserved	2	*1
03-36	Pulse output scale	1~32000	1000	*1
03-37	Timer ON delay (DI/DO)	0.0~6000.0	0.0	
03-38	Timer OFF delay (DI/DO)	0.0~6000.0	0.0	
03-39	Reserved			
03-40	Up/Down frequency width setting	0.00~5.00	0.00	
03-41	Torque detection level	0~150	10	
03-42	Brake action delay time	0.00~65.00	0.00	
03-43	Speed UP/DOWN selection	0: UP/DOWN time 1 1: UP/DOWN time 2	0	
03-44	Frequency detection level 2	0.0~599.0	0.0	
03-45	Frequency detection width 2	0.1~25.5	2.0	
03-46	Frequency detection level 3	0.0~599.0	0.0	
03-47	Frequency detection width 3	0.1~25.5	2.0	
03-48	Low current detection level	0.0~999.9	0.1	
03-49	Low current detection delay time	0.00~655.34	0.01	
03-50	Frequency detection level 4	0.0~599.0	0	
03-51	Frequency detection level 5	0.0~599.0	0	
03-52	Frequency detection level 6	0.0~599.0	0	
03-53	Current arrival level 2	0.0~999.9	0.0	Note 1.1
03-54	Frequency detection points	0: 1 point 1: 2 points	0	

Note 1.1: V1.07, 1.09 and 1.21 versions added with 03-00~03-05 as 65~69 function, relay output 58,59 and parameter 03-53.

Group 04 Analog I/O function group of external terminal				
Code	Name	Range	Factory setting	Attribute
04-00	AI input signal type	0: AI1:0~10V AI2: 0~10V 1: AI1:0~10V AI2: 4~20mA 2: AI1: -10~10V AI2: 0~10V 3: AI1: -10~10V AI2: 4~20mA	1	
04-01	AI1 signal scanning filter time	0.00~2.00	0.03	
04-02	AI1 gain value	0.0~1000.0	100.0	*1
04-03	AI1 bias value	-100.0~100.0	0	*1
04-04	AI negative attribute	0: Invalid 1: Valid	0	注 1.2
04-05	AI2 function setting	0: Auxiliary frequency 1: Frequency gain 2: Frequency bias 3: Voltage bias 4: Acceleration/Deceleration shortening coefficient 5: DC brake current 6: Over-torque detection level 7: Running stall level 8: Lower frequency limit 9: Hopping frequency 4 10: Up to AI1 11: Positive torque limit 12: Negative torque limit 13: Recovery torque limit 14: Positive/negative torque limit 15: Reserved 16: Torque command/ compensation 17: PTC overheat protection	10	
04-06	AI2 signal scanning filter time	0.00~2.00	0.03	
04-07	AI2 gain value	0.0~1000.0	100.0	*1
04-08	AI2 bias value	-100.0~100.0	0	*1
04-09~04-10 reserved				

Group 04 Analog I/O function group of external terminal				
Code	Name	Range	Factory setting	Attribute
04-11	AO1 function setting	0: Output frequency 1: Frequency command 2: Output voltage 3: DC voltage 4: Output current 5: Output power 6: Motor speed 7: Output power factor 8: AI1 input 9: AI2 input 10: Torque command 11: q shaft current 12: d shaft current 13~16: Reserved 17: q shaft voltage 18: d shaft voltage 19~20: Reserved 21: PID input 22: PID output 23: PID target value 24: PID feedback value 25: Soft starter output frequency 26~27: Reserved 28: Communication control	0	
04-12	AO1 gain value	0.0~1000.0	100.0	*1
04-13	AO1 bias value	-100.0~100.0	0	*1
04-14~04-15 reserved				
04-16	AO2 function setting	Range and definition same with 04-11	4	
04-17	AO2 gain value	0.0~1000.0	100.0	*1
04-18	AO2 bias value	-100.0~100.0	0	*1
04-19	AO output signal type	0:AO1: 0~10V AO2: 0~10V 1: AO1: 0~10V AO2 4~20mA	0	
04-20	AO signal scanning filter time	0.00~0.50	0.00	*1
04-24	Frequency display filter	0.00~3.00	0.00	
04-25	AI1 filter parameter	0.00~3.00	0.00	

Note 1.2: Added parameter of V1.21 version; frequency output is AI1+AI2 if 04-05 is 10.

Group 04 Analog I/O function group of external terminal				
Code	**Name**	**Range**	**Factory setting**	**Attribute**
04-26	AI1 average filter	0 ~255	0	
04-27	Average output frequency filter	0 ~255	0	

Group 05 Multi-speed function group				
Code	**Name**	**Range**	**Factory setting**	**Attribute**
05-00	Multi-speed up/down mode selection	0: Stage speed up/down time set by acceleration/deceleration time 1-4 1: Stage speed up/down time independently set	0	
05-01	*Stage 0 speed frequency setting	0.00~599.00	5.00	*1
05-02	* Stage 1 speed frequency setting	0.00~599.00	5.00	*1
05-03	* Stage 2 speed frequency setting	0.00~599.00	10.00	*1
05-04	* Stage 3 speed frequency setting	0.00~599.00	20.00	*1
05-05	* Stage 4 speed frequency setting	0.00~599.00	30.00	*1
05-06	* Stage 5 speed frequency setting	0.00~599.00	40.00	*1
05-07	* Stage 6 speed frequency setting	0.00~599.00	50.00	*1
05-08	* Stage 7 speed frequency setting	0.00~599.00	50.00	*1
05-09	* Stage 8 speed frequency setting	0.00~599.00	5.00	*1
05-10	* Stage 9 speed frequency setting	0.00~599.00	5.00	*1
05-11	* Stage 10 speed frequency setting	0.00~599.00	5.00	*1
05-12	* Stage 11 speed frequency setting	0.00~599.00	5.00	*1
05-13	* Stage 12 speed frequency setting	0.00~599.00	5.00	*1
05-14	* Stage 13 speed frequency setting	0.00~599.00	5.00	*1
05-15	* Stage 14 speed frequency setting	0.00~599.00	5.00	*1
05-16	* Stage 15 speed frequency setting	0.00~599.00	5.00	*1
05-17	Multi-speed 0 acceleration time setting	0.1~6000.0	10.0	
05-18	Multi-speed 0 deceleration time setting	0.1~6000.0	10.0	
05-19	Multi-speed 1 acceleration time setting	0.1~6000.0	10.0	
05-20	Multi-speed 1 deceleration time setting	0.1~6000.0	10.0	
05-21	Multi-speed 2 acceleration time setting	0.1~6000.0	10.0	
05-22	Multi-speed 2 deceleration time setting	0.1~6000.0	10.0	

Group 05 Multi-speed function group				
Code	Name	Range	Factory setting	Attribute
05-23	Multi-speed 3 acceleration time setting	0.1~6000.0	10.0	
05-24	Multi-speed 3 deceleration time setting	0.1~6000.0	10.0	
05-25	Multi-speed 4 acceleration time setting	0.1~6000.0	10.0	
05-26	Multi-speed 4 deceleration time setting	0.1~6000.0	10.0	
05-27	Multi-speed 5 acceleration time setting	0.1~6000.0	10.0	
05-28	Multi-speed 5 deceleration time setting	0.1~6000.0	10.0	
05-29	Multi-speed 6 acceleration time setting	0.1~6000.0	10.0	
05-30	Multi-speed 6 deceleration time setting	0.1~6000.0	10.0	
05-31	Multi-speed 7 acceleration time setting	0.1~6000.0	10.0	
05-32	Multi-speed 7 deceleration time setting	0.1~6000.0	10.0	
05-33	Multi-speed 8 acceleration time setting	0.1~6000.0	10.0	
05-34	Multi-speed 8 deceleration time setting	0.1~6000.0	10.0	
05-35	Multi-speed 9 acceleration time setting	0.1~6000.0	10.0	
05-36	Multi-speed 9 deceleration time setting	0.1~6000.0	10.0	
05-37	Multi-speed 10 acceleration time setting	0.1~6000.0	10.0	
05-38	Multi-speed 10 deceleration time setting	0.1~6000.0	10.0	
05-39	Multi-speed 11 acceleration time setting	0.1~6000.0	10.0	
05-40	Multi-speed 11 deceleration time setting	0.1~6000.0	10.0	
05-41	Multi-speed 12 acceleration time setting	0.1~6000.0	10.0	
05-42	Multi-speed 12 deceleration time setting	0.1~6000.0	10.0	
05-43	Multi-speed 13 acceleration time setting	0.1~6000.0	10.0	
05-44	Multi-speed 13 deceleration time setting	0.1~6000.0	10.0	
05-45	Multi-speed 14 acceleration time setting	0.1~6000.0	10.0	
05-46	Multi-speed 14 deceleration time setting	0.1~6000.0	10.0	

Group 05 Multi-speed function group				
Code	Name	Range	Factory setting	Attribute
05-47	Multi-speed 15 acceleration time setting	0.1~6000.0	10.0	
05-48	Multi-speed 15 deceleration time setting	0.1~6000.0	10.0	

Group 06 Auto run function group				
Code	Name	Range	Factory setting	Attribute
06-00	Auto run mode selection	0: Invalid 1: Single cycle running mode executed, continuous running under pre-stop speed after stop 2: Continuous cycle running mode, continuous running under pre-stop speed after stop 3: Continuous running under final-stage speed after the end of single cycle, continuous running under pre-stop speed after stop 4: Single cycle running mode executed, running from zero-stage speed after stop 5: Continuous cycle running mode, running from zero-stage speed after stop 6: Continuous running under final-stage speed after the end of single cycle, running from zero-stage speed after stop	0	
06-01	*Stage 1 running frequency setting	0.00~599.00	5.00	*1
06-02	*Stage 2 running frequency setting	0.00~599.00	10.00	*1
06-03	*Stage 3 running frequency setting	0.00~599.00	20.00	*1

Group 06 Auto run function group				
Code	Name	Range	Factory setting	Attribute
06-04	*Stage 4 running frequency setting	0.00~599.00	30.00	*1
06-05	*Stage 5 running frequency setting	0.00~599.00	40.00	*1
06-06	*Stage 6 running frequency setting	0.00~599.00	50.00	*1
06-07	*Stage 7 running frequency setting	0.00~599.00	50.00	*1
06-08	*Stage 8 running frequency setting	0.00~599.00	5.00	*1
06-09	*Stage 9 running frequency setting	0.00~599.00	5.00	*1
06-10	*Stage 10 running frequency setting	0.00~599.00	5.00	*1
06-11	*Stage 11 running frequency setting	0.00~599.00	5.00	*1
06-12	*Stage 12 running frequency setting	0.00~599.00	5.00	*1
06-13	*Stage 13 running frequency setting	0.00~599.00	5.00	*1
06-14	*Stage 14 running frequency setting	0.00~599.00	5.00	*1
06-15	*Stage 15 running frequency setting	0.00~599.00	5.00	*1
06-16	Stage 0 running time setting	0.0~6000.0	0.0	*1
06-17	Stage 1 running time setting	0.0~6000.0	0.0	*1
06-18	Stage 2 running time setting	0.0~6000.0	0.0	*1
06-19	Stage 3 running time setting	0.0~6000.0	0.0	*1
06-20	Stage 4 running time setting	0.0~6000.0	0.0	*1
06-21	Stage 5 running time setting	0.0~6000.0	0.0	*1
06-22	Stage 6 running time setting	0.0~6000.0	0.0	*1
06-23	Stage 7 running time setting	0.0~6000.0	0.0	*1
06-24	Stage 8 running time setting	0.0~6000.0	0.0	*1
06-25	Stage 9 running time setting	0.0~6000.0	0.0	*1
06-26	Stage 10 running time setting	0.0~6000.0	0.0	*1

Group 06 Auto run function group				
Code	Name	Range	Factory setting	Attribute
06-27	Stage 11 running time setting	0.0~6000.0	0.0	*1
06-28	Stage 12 running time setting	0.0~6000.0	0.0	*1
06-29	Stage 13 running time setting	0.0~6000.0	0.0	*1
06-30	Stage 14 running time setting	0.0~6000.0	0.0	*1
06-31	Stage 15 running time setting	0.0~6000.0	0.0	*1
06-32	Stage 0 running direction selection	0: Stop 1:Forward 2: Reverse	0	
06-33	Stage 1 running direction selection	0: Stop 1:Forward 2: Reverse	0	
06-34	Stage 2 running direction selection	0: Stop 1:Forward 2: Reverse	0	
06-35	Stage 3running direction selection	0: Stop 1:Forward 2: Reverse	0	
06-36	Stage 4 running direction selection	0: Stop 1:Forward 2: Reverse	0	
06-37	Stage 5 running direction selection	0: Stop 1:Forward 2: Reverse	0	
06-38	Stage 6 running direction selection	0: Stop 1:Forward 2: Reverse	0	
06-39	Stage 7 running direction selection	0: Stop 1:Forward 2: Reverse	0	
06-40	Stage 8 running direction selection	0: Stop 1:Forward 2: Reverse	0	
06-41	Stage 9 running direction selection	0: Stop 1:Forward 2: Reverse	0	
06-42	Stage 10 running direction selection	0: Stop 1:Forward 2: Reverse	0	
06-43	Stage 11 running direction selection	0: Stop 1:Forward 2: Reverse	0	
06-44	Stage 12 running direction selection	0: Stop 1:Forward 2: Reverse	0	
06-45	Stage 13 running direction selection	0: Stop 1:Forward 2: Reverse	0	
06-46	Stage 14 running direction selection	0: Stop 1:Forward 2: Reverse	0	
06-47	Stage 15 running direction selection	0: Stop 1:Forward 2: Reverse	0	

Group 07 Stop function group				
Code	Name	Range	Factory setting	Attribute
07-00	Restart selection after instantaneous stop	0: Invalid 1: Valid	0	
07-01	Restart time after auto reset	0~7200	0	
07-02	Restart number after auto reset	0~10 (Note 1.3)	0	
07-03	Reserved			
07-04	Direct start after power-on	0: Direct start after power-on when external running command is valid 1: Not started directly after power-on when external running command is valid	1	
07-05	Direct start delay after power-on	1.0~300.0	3.5	
07-06	Brake start frequency	0.0~10.0	0.5	
07-07	DC brake current level	0~100	50	
07-08	DC brake time at stop	0.00~100.00	0.50	
07-09	Stop mode selection	0: Deceleration stop 1: Free running stop 2: All-range DC brake stop 3: Free running stop with timer	0	
07-10~07-12 reserved				
07-13	LV detection level	380V type: 250~600 * Note 1	380	
07-14	Pre-exciting limit time	0.00~10.00	2.00	
07-15	Pre-exciting level	50~200	100	
07-16	DC brake time after power-on	0.00~100.00	0.00	
07-17	Reserved			
07-18	Min. breaking time	0.1~5.0	KVA	
07-19	Steering search current	0~100	50	
07-20	Speed search current	0~100	20	
07-21	Speed search integral time	0.1~10.0	2.0	
07-22	Speed search delay time	0.0~20.0	0.2	
07-23	Voltage recovery time	0.1~5.0	2.0	

Note: 07-43~07-45 is added in V1.07, and 07~47~07-48 in V1.21. For the type of 07-13 LV detection level 440V, 07-30 LV level selection should be set as valid and lower limit adjusted to 250V. This is applied to EPS (emergency power supply) system for elevator.
*Frequency resolution is 0.1Hz when max. output frequency of motor is over 300Hz.

Group 07 Stop function group				
Code	Name	Range	Factory setting	Attribute
07-24	Bi-directional speed search selection	0: Invalid 1: Valid	0	
07-25	LV detection time	0.00~1.00	0.02	
07-26	Starting mode selection after SLV free stop	0: Speed search start 1: Normal start	0	
07-27	Starting mode selection after SLV fault	0: Speed search start 1: Normal start	0	
07-28	Starting mode selection after breaking	0: Speed search start 1: Normal start	0	
07-29	Running command selection after DC brake action	0: Start disabled 1: Start enabled	0	
07-30	LV level selection	0: Invalid 1: Valid	0	
07-32	Speed search mode selection	0: Invalid 1: Speed search after power-on 2: Speed search after each start	0	
07-33	Speed search start frequency selection	0: Max. output frequency of motor 1: Frequency command	0	
07-34	Short-circuit brake time when start	0.00~100.00	0.00	
07-35	Short-circuit brake time when stop	0.00~100.00	0.5	
07-36	Short-circuit brake current limit	0.0~200.0	100.0	
07-42	Voltage limit gain	0.0~50.0	0	
07-43	Short-circuit brake time of PM speed search	0.00~100.00	0.00	
07-44	DC brake time of PM speed search	0.00~100.00	0.00	
07-45	STP2 function selection	0: STP2 enabled 1: STP2 cancelled	0	
07-47	DC brake selection at ES	0: Without DC brake 1: With DC brake	0	
07-48	PM speed switching frequency mode	0: Invalid 1: Mode 1 2: Mode 2	0	

Group 08 Protection function group				
Code	Name	Range	Factory setting	Attribute
08-00	Stall prevention function	xxx0b: Acceleration stall prevention valid xxx1b: Acceleration stall prevention invalid xx0xb: Deceleration stall prevention valid xx1xb: Deceleration stall prevention invalid x0xxb: Running stall prevention valid x1xxb: Running stall prevention invalid xxx0b: Acceleration stall prevention valid 0xxxb: Running stall prevention as per stage 1 deceleration time 1xxxb: Running stall prevention as per stage 2 deceleration time	0000b	
08-01	Acceleration stall prevention level	20~200	HD:150 ND:120	
08-02	Deceleration stall prevention level	660V~820V	380V:680 others:770	
08-03	Running stall prevention level	30~200	HD:160 ND:120	
08-04	Reserved			
08-05	Motor overload (OL1) protection selection	xxx0b: Motor overload invalid xxx1b: Motor overload valid xx0xb: Motor overload cold start xx1xb: Motor overload hot start x0xxb: Standard motor x1xxb: VF motor 0xxxb: Reserved 1xxxb: Reserved	0101b	
08-06	Start mode of overload (OL1) protection	0: Output stop after overload protection 1: Continuous running after overload protection	0	

Group 08 Protection function group				
Code	Name	Range	Factory setting	Attribute
08-07	Motor overload (OL1) protection level	0: (OL1) protection 0 1: (OL1) protection 1 2: (OL1) protection 2	0	
08-08	Auto voltage regulation (AVR)	0: Valid 1: Invalid	0	
08-09	Input phase failure protection selection	0: Invalid 1: Valid	0	
08-10	Output phase failure protection selection	0: Invalid 1: Valid	0	
08-11~08-12 reserved				
08-13	Overtorque detection selection	0: Overtorque detection invalid 1: Detection start under set frequency 2: Detection during running	0	
08-14	Overtorque action selection	0: Deceleration stop after detection 1: Warning displayed and continuous running after detection 2: Free running stop after detection	0	
08-15	Overtorque detection level	0~300	150	
08-16	Overtorque detection time	0.0~10.0	0.1	
08-17	Low torque detection selection	0: Low torque detection invalid 1: Start detection as set 2: Detection during running	0	
08-18	Low torque action selection	0: Deceleration stop after detection 1: Warning displayed and continuous running after detection 2: Free running stop after detection	0	
08-19	Low torque detection level	0~300	30	
08-20	Low torque detection time	0.0~10.0	0.1	
08-21	Acceleration stall prevention limit	1~100	50	
08-22	Running stall detection time	2~100	100	
08-23	Ground fault (GF) selection	0: Invalid 1: Valid	0	

Group 08 Protection function group

Code	Name	Range	Factory setting	Attribute
08-24	External fault operation selection	0: Deceleration stop 1: Free running stop 2: Continuous running	0	
08-25	External fault detection selection	0: Detect immediately after power on 1: Detected during operation	0	
08-26~08-29 reserved				
08-30	Safety function selection	0: Deceleration stop 1: Free running stop	0	
08-31~08-34 reserved				
08-35	Motor overheat fault selection	0: Invalid 1: Deceleration stop 2: Free running stop 3: Continuous running	0	
08-36	PTC input filter time constant	0.00 ~ 5.00	2.00	
08-37	Fan control	0: Start in operation 1: Permanent start 2: Start under high temperature	0	
08-38	Fan off delay time	0~600	180	
08-39	Motor overheat protection delay time	1~300	60	
08-40	Motor 2 acceleration stall prevention level	20~200	HD:150 ND:120	
08-41	Motor 2 acceleration stall prevention limit	1~100	50	
08-42	PTC protection level	0.1~10.0V	0.7	
08-43	PTC reset level	0.1~10.0V	0.3	
08-44	PTC warning level	0.1~10.0V	0.5	
08-45 reserved				
08-46	Over-temperature protection level	0~254	0	
08-47	Over-temperature reset level	0~254	0	
08-48	OC reset function	0: Invalid, resettable 1: Valid, reset 1min later	1	Note 1.3
08-49	Keypad selection	0: T310 1: A510S 2: T310&A510S	0	
08-50	OL3 function selection	0: Invalid 1: Valid	0	
08-51	OL3 reset time	0~300s	0	

Note 1.3: 08-48 is added in V1.21;

Set 08-48=0 when immediate OC reset is required or auto OC fault reset is allowed

Group 09 Communication function group

Code	Name	Range	Factory setting	Attribute
09-00	Inverter communication station	1~31	1	*3
09-01	Communication mode selection	0: MODBUS 1: Reserved 2: Reserved 3:PUMP parallel communication 4: Reserved	0	*3
09-02	Baud rate setting (bps)	0:1200 1: 2400 2: 4800 3: 9600 4: 19200 5: 38400	4	*3
09-03	Stop bit selection	0: Stop bit 1 1: Stop bit 2	0	*3
09-04	Parity bit selection	0: No parity bit 1: Even bit selection 2: Odd bit selection	0	*3
09-05	Communication data bit selection	0: 8-bit data 1: 7-bit data	0	*3
09-06	Communication abnormality detection time	0.0~25.5	0.0	*3
09-07	Fault stop selection	0: Deceleration stop as per deceleration time 1 after communication fault 1: Free running stop after communication fault 2: Deceleration stop as per deceleration time 2 after communication fault 3: Continuous running after communication fault	3	*3
09-08	Communication fault-tolerant number	1~20	1	*3
09-09	Waiting time	5~65	5	*3

*3: Group 09 is not affected by 13-08 initialization.

Group 10 PID function group				
Code	Name	Range	Factory setting	Attribute
10-00	PID target value source setting	0:PUMP or HVAC setting 1:AI1 setting 2:AI2 setting 3: Pulse setting 4:10-02 setting 5: Reserved 6: Frequency command (00-05)	4	
10-01	PID feedback value source setting	1:AI1 setting 2:AI2 setting 3: Pulse setting	2	
10-02	PID target value	0.00~100.00	0.00	*1
10-03	PID control mode	xxx0b:PID invalid xxx1b:PID valid xx0xb: PID positive xx1xb: PID negative x0xxb: PID error D control x1xxb: PID feedback D control 0xxxb: PID output 1xxxb: PID output + frequency command	0000b	
10-04	Feedback gain	0.01~10.00	1.00	*1
10-05	Proportional gain (P)	0.00~10.00	1.00	*1
10-06	Integral time (I)	0.00~100.00	1.00	*1
10-07	Differential time (D)	0.00~10.00	0.00	*1
10-08	AI1 frequency limit	0.00~599.00	0	
10-09	PID bias	-100.0~100.0	0	*1
10-10	PID output delay time	0.00~10.00	0.00	*1
10-11	PID feedback off detection	0: Invalid 1: Warning 2: Fault	0	
10-12	PID feedback off detection level	0~100	0	
10-13	PID feedback off detection time	0.0~10.0	1.0	
10-14	PID integral limit	0.0~100.0	100.0	*1
10-15	PID change mode	0~2	0	
10-16	PID change scale	0~100	100	*1
10-17	*PID sleep start frequency	0.00~599.00	0.00	

Group 10 PID function group				
Code	Name	Range	Factory setting	Attribute
10-18	PID sleep delay time	0.0~255.5	0.0	
10-19	*PID wake start frequency	0.00~599.00	0.00	
10-20	PID wake delay time	0.0~255.5	0.0	
10-21~10-22	Reserved			
10-23	PID output limit	0.00~100.0	100.0	*1
10-24	PID output gain	0.0~25.0	1.0	
10-25	PID reverse output selection	0: Reverse output disabled 1: Reverse output enabled	0	
10-26	PID target acceleration/deceleration time	0.0~25.5	0.0	
10-27	PID feedback display bias	0~9999	0.00	
10-28	Reserved			
10-29	PID sleep selection	0: Invalid 1: Valid 2: Set by DI	1	
10-30	Upper limit of PID target	0.0 ~ 100.0	100.0	
10-31	Lower limit of PID target	0.0 ~ 100.0	0.0	
10-32	Reserved			
10-33	Max. PID feedback value	1 ~ 10000	999	
10-34	PID decimal width	0 ~ 4	1	
10-35	Reserved			
10-36	PID2 proportional gain (P)	0.00~10.00	3.00	*1
10-37	PID2 integral time (I)	0.00~100.00	0.50	*1
10-38	PID2 differential time (D)	0.00~10.00	0.00	*1
10-39	*PID off output frequency setting	00.00~599.00	30.00	
10-40	PID sleep compensation frequency selection	0: Invalid 1: Valid	0	
10-41	PID mode switching	0: General PID 1: D type PID	0	

Group 11 Auxiliary function group				
Code	Name	Range	Factory setting	Attribute
11-00	Motor direction locking command	0: Forward/reverse allowed 1: Forward only 2: Reverse only	0	
11-01	Carrier frequency	0: Adjusted with output frequency 1~16: 1~16KHz Min. set carrier frequency: V/F, SLV2 min. carrier setting 1k SLV min. carrier setting 4k	*Note1	*1
11-02	Soft modulation selection	0: Invalid 1: Soft modulation 1 2: Soft modulation 2 *9	0	
11-03	Auto carrier reduction selection	0: Invalid 1: Valid	0	
11-04	Acceleration start S curve time setting	0.00~2.50	0.20	
11-05	Acceleration end S curve time setting	0.00~2.50	0.20	
11-06	Deceleration start S curve time setting	0.00~2.50	0.20	
11-07	Deceleration end S curve time setting	0.00~2.50	0.20	
11-08	Hopping frequency 1	0.0~599.0	0.0	
11-09	Hopping frequency 2	0.0~599.0	0.0	
11-10	Hopping frequency 3	0.0~599.0	0.0	
11-11	Hopping frequency width	0.0~25.5	1.0	
11-12	Manual energy saving gain	0~100	80	
11-13	Auto return time	0~120	60	*1
11-14~11-17 reserved				
11-18	Manual energy saving frequency	0.0~599.0	0.00	
11-19	Manual energy saving function	0: Auto saving invalid 1: Auto saving valid	0	
11-20	Manual energy saving filter time	0~200	140	
11-21	Upper limit of energy saving adjustment voltage	0~100	100	
11-22	Energy saving adjustment time	0~5000	20	*1
11-23	Energy saving detection level	0~100	10	
11-24	Auto energy saving factor	0.00~655.34	KVA	
11-26	Upper frequency limit of carrier switching	10%~100%	80%	*9
11-27	Lower frequency limit of carrier switching	2%~100%	20%	*9

Group 11 Auxiliary function group				
Code	Name	Range	Factory setting	Attribute
11-28	Over-voltage prevention 2 frequency gain	1~200	100	
11-29	Auto output frequency reduction selection	0: Invalid 1: Valid	0	
11-30	Max. limit of variable carrier frequency	2~16	KVA	
11-31	Min. limit of variable carrier frequency	1~16	KVA	
11-32	Variable carrier frequency gain	00~99	00	
11-33	DC voltage filter rise	0.1~10.0	0.1	
11-34	DC voltage filter drop	0.1~10.0	5.0	
11-35	DC voltage filter dead space level	0.0~99.0	10.0	
11-36	Over-voltage prevention frequency gain	0.000~1.000	0.050	
11-37	** Over-voltage prevention frequency limit	*0.00~599.00	5.00	
11-38	Start voltage of over-voltage prevention deceleration	380V: 400~800V	700	
11-39	Stop voltage of over-voltage prevention deceleration	380V: 600~800V	750	
11-40	Over-voltage prevention selection	0: Invalid 1: Over-voltage prevention 1 2: Over-voltage prevention 2 3: Over-voltage prevention 3 4: Overexcitation Deceleration	V/F SLV2:0 SLV:1	
11-41	Reference frequency disappearance detection selection	0: Deceleration stop when reference frequency disappears 1: Running as per 11-42 setting when reference frequency disappears	0	
11-42	Frequency command when reference frequency disappears	0.0~100.0	80.0	
11-43	Locking frequency when start	0.0~599.0	0.0	
11-44	Frequency locking time when start	0.0~10.0	0.0	
11-45	Locking frequency when stop	0.0~599.0	0.0	
11-46	Frequency locking time when stop	0.0~10.0	0.0	
11-47	KEB deceleration time	0.0~25.5	0.0	*1
11-48	KEB detection level	380V:380~420	400	

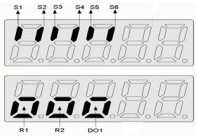
Note: 11-26~11-27: The auto variable carrier function can only be used when 00-00=5, 22-26=2 and 11-01=0.

Group 11 Auxiliary function group				
Code	Name	Range	Factory setting	Attribute
11-49~11-50 reserved				
11-51	Zero-speed brake selection	0: Zero-speed DC brake invalid 1: Zero-speed DC brake valid	0	
11-52	Droop control level	0.0~100.0	0.0	*1
11-53	Droop control delay	0.01~2.00	0. 2	*1
11-54	Cumulative energy initialization	0: Not cleared 1: Cleared	0	*1
11-55	STOP key selection	0: Stop key invalid when running command is not provided by operator 1: Stop key valid when running command is not provided by operator	1	
11-56	UP/DOWN selection	0: Operator UP/DOWN is valid only when ENTER is pressed after frequency change 1: Operator UP/DOWN becomes valid upon frequency change	0	
11-57	Reserved			
11-58	Reference frequency record	0: Invalid 1: Valid	0	*1
11-59	Oscillation prevention gain	0.00~2.50	0.05	
11-60	Upper limit of oscillation prevention	0~100	KVA	
11-61	Time parameter of oscillation prevention	0~100	0	
11-62	Oscillation prevention selection	0: Mode 1 1: Mode 2 2: Mode 3	0	
11-63	Strong magnet selection	0: Invalid 1: Valid	1	
11-64	Acceleration rate adjustment gain	0.1~10.0	1.0	
11-65	Target main circuit voltage	380V:400V~800V	740	
11-66	Start frequency of modulation mode switching	6.00~60.00	20	
11-67	Soft modulation 2 detection range	0~12000	0	*9
11-68	Start frequency of soft modulation 2 detection	6.00~60.00	20	*9

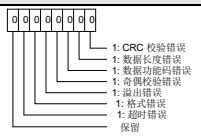
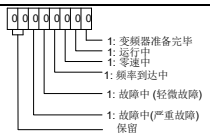
Group 11 Auxiliary function group				
Code	Name	Range	Factory setting	Attribute
11-69	Oscillation prevention gain	0.00~200.00	5.00	
11-70	Upper limit of oscillation prevention	0.01~100.00	5.00	
11-71	Time constant of oscillation prevention	0~30000	100	
11-72	Switching frequency 1 of oscilliation prevention gain	0.01~300.00	30.00	
11-73	Switching frequency 2 of oscillation prevention gain	0.01~300.00	50.00	
11-74~11-75 reserved				
11-76	Droop frequency level 1	0.00~599.00	0.00	*4
11-77	Droop frequency level 2	0.00~599.00	0.00	*4
11-78	Droop torque offset	0.00~100.00	0.00	*4
11-79	Carrier modulation mode	0 and 2: Two-phase modulation 1: Three-phase modulation	0	
11-81	Overexciting current limit level	1.00~2.00	1.1	
11-82	Overexciting current gain factor %	0~256	64	

*Note 1: In reference to page 4-45, Attachment I, carrier frequency adjustment range in operation 11-01 is 1~16KHz; 11-79 is added in V1.21, which may be set as 1 for reduction of motor noise; operation in the full frequency range is three-phase modulation mode.

Group 12 Monitoring function group				
Code	Name	Range	Factory setting	Attribute
12-00	Display selection (LED)	00000~88888 Screen displayed after DSP is pressed from the leftmost bit: 0: No display 1: Output current 2: Output voltage 3:DC bus voltage 4:Heatsink temperature* 5:PID feedback 6:AI1 value 7:AI2 value 8: Frequency command	00321	*1 *6
12-01	PID feedback display mode (LED)	0: Feedback value displayed in integer (xxx) 1: Feedback value displayed in 1 decimal place (xx.x) 2: Feedback value displayed in 2 decimal places (x.xx)	0	*6
12-02	PID feedback display unit setting (LED)	0:xxxxx (no unit) 1:xxxPb (pressure) 2:xxxFL (flow)	0	*6

Group 12 Monitoring function group				
Code	Name	Range	Factory setting	Attribute
12-03	Linear speed display (LED)	0~60000	1500/ 1800	*1 *6
12-04	Linear speed display mode (LED)	0: Inverter output frequency displayed 1: Linear speed displayed in integer (xxxxx) 2: Linear speed displayed 1 decimal place (xxxx.x) 3: Linear speed displayed in 2 decimal places (xxx.xx) 4: Linear speed displayed in 3 decimal places (xx.xxx)	0	*1 *6
12-05	Display digital I/O terminal state (LED)	Input/ output correspondence  Refer to the diagram in P35 for the detail	-	*4
12-06~12-10 reserved				
12-11	Output current of the last fault	Output current of the last fault displayed	-	*4
12-12	Output voltage of the last fault	Output voltage of the last fault displayed	-	*4
12-13	Output frequency of the last fault	Output frequency of the last fault displayed	-	*4
12-14	DC voltage of the last fault	DC voltage of the last fault displayed	-	*4
12-15	Frequency command of the last fault	Frequency command of the last fault displayed	-	*4
12-16	Frequency command	Frequency command monitored only when LED enters the parameter	-	*4
12-17	Output frequency	Current output frequency displayed	-	*4
12-18	Output current	Current output current displayed	-	*4
12-19	Output voltage	Current output voltage displayed	-	*4
12-20	DC voltage (Vdc)	Current DC voltage displayed	-	*4
12-21	Output power (kw)	Current output power displayed	-	*4

Group 12 Monitoring function group				
ode	Name	Range	Factory setting	Attribute
12-22	Motor speed (RPM)	Current motor speed displayed. In VF/SLV mode, motor speed= output frequency x120/pole number (**upper limit of motor speed (RPM) 65535**)	-	*4
12-23	Output power factor (Pfo)	Current output power factor displayed	-	*4
12-24	Control mode	Control mode displayed 0:VF 2:SLV 6:SLV2	-	*4
12-25	AI1 input	AI1 input (-10V corresponding to -100%, 10V to 100%)	-	*4
12-26	AI2 input	Current AI2 input displayed (0V or 4mA corresponding to 0%, 10V or 20mA to 100%)	-	*4
12-27	Motor torque	Current torque command displayed (100% corresponding to motor torque)	-	*4
12-28	Motor torque current (Iq)	Current q shaft current displayed	-	*4
12-29	Motor exciting current (Id)	Current d shaft current displayed	-	*4
12-30~12-35 reserved				
12-36	PID control input	Error input of PID controller displayed (PID target-PID feedback) (100% corresponding to max. frequency setting of 01-02 or 01-16)	-	*4
12-37	PID output	PID controller output displayed (100% corresponding to max. frequency setting of 01-02 or 01-16)	-	*4
12-38	PID setting	PID controller target value displayed (100% corresponding to max. frequency setting of 01-02 or 01-16)	-	*4
12-39	PID feedback	PID controller feedback value displayed (100% corresponding to max. frequency setting of 01-02 or 01-16)	-	*4
12-40	Reserved			
12-41	Inverter temperature display	Heat sink or IGBT temperature displayed	-	*4

Group 12 Monitoring function group				
Code	Name	Range	Factory setting	Attribute
12-42	RS-485 error code	 Refer to the diagram in P31 for detail	-	*4
12-43	Inverter state	 Refer to the diagram in P31 for detail	-	*4
12-44	Pulse input frequency	Pulse input frequency displayed	-	*4
12-45	Current fault message	Current fault message displayed	-	*4
12-46	Last fault message	Last fault message displayed	-	*4
12-47	Last 2 fault message	Last 2 fault message displayed	-	*4
12-48	Last 3 fault message	Last 3 fault message displayed	-	*4
12-49	Last 4 fault message	Last 4 fault message displayed	-	*4
12-50	DI/DO state of last (new) fault	DI/DO state of last fault displayed, as instructed for 12-05	-	*4
12-51	Inverter state of last (new) fault	Inverter state of last fault displayed, as instructed for 12-43	-	*4
12-52	Tripping time 1 of last (new) fault	Running time of last fault displayed; 12-53 refers to days, 12-52 to hours	-	*4
12-53	Tripping time 2 of last (new) fault		-	*4
12-54	Frequency command of previous (old) fault	Frequency command of previous fault displayed	-	*4
12-55	Output frequency of previous (old) fault	Output frequency of previous fault displayed	-	*4
12-56	Output current of previous (old) fault	Output current of previous fault displayed	-	*4
12-57	Output voltage of previous (old) fault	Output voltage of previous fault displayed	-	*4
12-58	DC voltage of previous (old) fault	DC voltage of previous fault displayed	-	*4
12-59	DI/DO state of previous (old) fault	DI/DO state of previous fault displayed, as instructed for 12-05	-	*4

Group 12 Monitoring function group

Code	Name	Range	Factory setting	Attribute
12-60	Inverter state of previous (old) fault	Inverter state of previous fault displayed, as instructed for 12-43	-	*4
12-61	Tripping time 1 of previous fault	Running time of last fault displayed; 12-62 refers to days, 12-61 to hours	-	*4
12-62	Tripping time 2 of previous fault		-	*4
12-63	Last warning message	Current warning message displayed	-	*4
12-64	Previous warning message	Previous warning message displayed	-	*4
12-65~12-66 reserved				
12-67	Cumulative energy (KWh)	0.0 ~ 999.9		*4
12-68	Cumulative energy (MWh)	0 ~ 60000		*4
12-69~12-75 reserved				
12-76	Actual no-load voltage	0.0~600.0	-	*4
12-77~12-78 reserved				
12-79	Pulse input percent	0.0~100.0	-	*4
12-80	AI1 frequency command	0.0~599.0	0	*4
12-82	Motor load	0~200.0	-	*4
12-85	Temperature value of last (new) fault	Temperature of last fault displayed	-	*4
12-86	Temperature value of previous (old) fault	Temperature of previous fault displayed	-	*4
12-87	Fault state	Source of UV, CF08 fault	-	*4

Group 13 Maintenance function group

Code	Name	Range	Factory setting	Attribute
13-00	Inverter H.P	----	-	*4
13-01	Software version	0.00-9.99	-	*4
13-02	Cumulative working time clearing	0: Cumulative working time not cleared 1: Cumulative working time cleared	0	*1
13-03	Cumulative working time 1	0~23	-	*4
13-04	Cumulative working time 2	0~65535	-	*4
13-05	Cumulative working time selection	0: Cumulative time at power-on 1: Cumulative time during operation	0	*1
13-06	Parameter lock	0: All parameters other than 13-06 and main page frequency 05-01 not writable 1: Reserved 2: All parameters writable	2	*1
13-07	Password function	00000~65534	00000	
13-08	Restore factory setting	0: Not initialized 2: 2-wire initialization (60Hz) (440V) 3:3-wire initialization (60Hz) (440V) 4: 2-wire initialization (50Hz) (415V) 5: 3-wire initialization (50Hz) (415V) 6: 2-wire initialization (50Hz) (380V) 7:3-wire initialization (50Hz) (380V) 8: Reserved 9: Reserved 10: Reserved 11:2-wire initialization (60Hz) (400V) 12:3-wire initialization (60Hz) (400V) 13:2-wire initialization (50Hz) (400V) 14:3-wire initialization (50Hz) (400V)	-	

Group 13 Maintenance function group				
Code	Name	Range	Factory setting	Attribute
13-09	Fault history clearing	0: Fault history not cleared 1:Fault history cleared	0	*1
13-10	State function	0 ~ 9999	0	
13-11	C/B CPLD software version (for CLPLD type)	0.00~9.99	-	*9
13-14	Fault storage selection	0: Fault message of restart after auto reset not stored in fault history 1: Fault message of restart after auto reset stored in fault history	1	
13-15	Reserved			
13-21	Last fault message	Last fault message displayed	-	
13-22	Last 2 fault message	Last 2 fault message displayed	-	
13-23	Last 3 fault message	Last 3 fault message displayed	-	
13-24	Last 4 fault message	Last 4 fault message displayed	-	
13-25	Last 5 fault message	Last 5 fault message displayed	-	
13-26	Last 6 fault message	Last 6 fault message displayed	-	
13-27	Last 7fault message	Last 7 fault message displayed	-	
13-28	Last 8 fault message	Last 8 fault message displayed	-	

Group 13 Maintenance function group				
Code	Name	Range	Factory setting	Attribute
13-29	Last 9 fault message	Last 9 fault message displayed	-	
13-30	Last 10 fault message	Last 10 fault message displayed	-	
13-31	Last 11 fault message	Last 11 fault message displayed	-	
13-32	Last 12 fault message	Last 12 fault message displayed	-	
13-33	Last 13 fault message	Last 13 fault message displayed	-	
13-34	Last 14 fault message	Last 14 fault message displayed	-	
13-35	Last 15 fault message	Last 15 fault message displayed	-	
13-36	Last 16 fault message	Last 16 fault message displayed	-	
13-37	Last 17 fault message	Last 17 fault message displayed	-	
13-38	Last 18 fault message	Last 18 fault message displayed	-	
13-39	Last 19 fault message	Last 19 fault message displayed	-	
13-40	Last 20 fault message	Last 20 fault message displayed	-	
13-41	Last 21 fault message	Last 21 fault message displayed	-	
13-42	Last 22 fault message	Last 22 fault message displayed	-	
13-43	Last 23 fault message	Last 23 fault message displayed	-	
13-44	Last 24 fault message	Last 24 fault message displayed	-	
13-45	Last 25 fault message	Last 25 fault message displayed	-	
13-46	Last 26 fault message	Last 26 fault message displayed	-	
13-47	Last 27 fault message	Last 27 fault message displayed	-	
13-48	Last 28 fault message	Last 28 fault message displayed	-	
13-49	Last 29 fault message	Last 29 fault message displayed	-	
13-50	Last 30 fault message	Last 30 fault message displayed	-	

Group 17 Auto-tuning function group

Code	Name	Range	Factory setting	Attribute
17-00	*Auto-tuning mode selection	0: Rotational auto-tuning 1: Static auto-tuning 2: Stator resistance measurement 3: Reserved 4: Circuit adjustment 5: Rotational auto-tuning integration (option: 4+2+0) 6: Static auto-tuning integration (option: 4+2+1)	VF:2 SLV:6 SLV2:6	-
17-01	Rated output power of motor	0.00~600.00	KVA *Note 1	
17-02	Rated current of motor	25%~120% rated current of inverter	KVA * Note 1	
17-03	Rated voltage of motor	380V: 100.0~480.0	-	*8
17-04	Rated frequency of motor	4.8~599.0	50.0/60.0	*8
17-05	Rated speed of motor	0~24000	KVA	
17-06	Pole number of motor	2~16 (even)	4	
17-07	Reserved			
17-08	No-load voltage of motor	380V:100~480	Depending on type	
17-09	Exciting current of motor	15%~70% rated current of motor	-	
17-10	Auto-tuning ON	0: Invalid 1: Valid	0	
17-11	Auto-tuning error history	0: No error 1: Motor data error 2. Stator resistance adjustment error 3. Leakage inductance adjustment error 4. Rotor resistance adjustment error 5. Mutual inductance adjustment error 6. DT error 7. Encoder error 8. Motor Acceleration error 9. Warning	0	*4
17-12	Motor leakage inductance ratio	0.1~15.0	3.4	
17-13	Motor slip frequency	0.10~20.00	1.00	
17-14	Rotational adjustment type selection	0: VF rotational auto-tuning 1: Vector rotational auto-tuning	0	

Group 18 Slip compensation function group

Code	Name	Range	Factory setting	Attribute
18-00	Low speed slip compensation gain	0.00~2.50	VF:0.00 SLV: *Note 1	*1
18-01	High speed slip compensation gain	-1.00~1.00	0.0	*1
18-02	Slip compensation limit	0~250	200	
18-03	Slip compensation filter time	0.0~10.0	1.0	
18-04	Recovery slip compensation selection	0: Invalid 1: Valid	0	
18-05	FOC delay time	1~1000	100	
18-06	FOC gain	0.00~2.00	0.1	

*Note 1: Refer to Attachment I.

Group 19 Wobble frequency function group

Code	Name	Range	Factory setting	Attribute
19-00	Wobble frequency center frequency	5.00~100.00	20.00	*1
19-01	Wobble frequency amplitude	0.1~20.0	10.0	*1
19-02	Wobble frequency hopping frequency	0.0~50.0	0.0	*1
19-03	Wobble frequency hopping time	0~50	0	*1
19-04	Wobble frequency cycle	0.0~1000.0	10.0	*1
19-05	Wobble frequency ratio	0.1~10.0	1.0	*1
19-06	Wobble frequency UP amplitude	0.0~20.0	0.0	*1
19-07	Wobble frequency DOWN amplitude	0.0~20.0	0.0	*1

*Note 1: KVA: The parameter varies with inverter capacity.

Note: In vector mode, factory setting of 17-00 is 6; static auto-tuning integration (option:4+2+1): 5: rotational auto-tuning integration (option 4+2+0) is recommended if rotational adjustment is available when motor is not loaded.

Group 20 Speed control function group				
Code	Name	Range	Factory setting	Attribute
20-00	ASR gain 1	0.00~250.00	-	*1
20-01	ASR integral time 1	0.001~10.000	-	*1
20-02	ASR gain 2	0.00~250.00	-	*1
20-03	ASR integral time 2	0.001~10.000	-	*1
20-04	ASR integral time limit	0~300	200	
20-05~20-06 reserved				
20-07	Acceleration/Deceleration P/PI selection	0:PI speed control is valid only under constant speed; P control is used during acceleration/deceleration 1:PI speed control is valid during constant speed and acceleration/deceleration	1	
20-08	ASR delay time	0.000~0.500	0.004	
20-09	Speed observation gain 1	0.00~2.55	0.61	*1
20-10	Speed observation integral time 1	0.01~10.00	0.05	*1
20-11	Speed observation gain 2	0.00~2.55	0.61	*1
20-12	Speed observation integral time 2	0.01~10.00	0.06	*1
20-13	Low-pass filter constant 1 of speed feedback	1~1000	4	
20-14	Low-pass filter constant 2 of speed feedback	1~1000	30	
20-15	ASR gain change frequency 1	0.0~599.0	4.0	
20-16	ASR gain change frequency 2	0.0~599.0	8.0	
20-17	Low-speed torque compensation gain	0.00~2.50	1.00	*1
20-18	High-speed torque compensation gain	-10~10	0	*1
20-19~20-32 reserved				
20-33	Constant speed detection level	0.1~5.0	1.0	*1
20-34	Speed DOWN compensation gain	0~25600	0	*1
20-35	Speed DOWN compensation time	0~30000	100	*1
20-36~20-44 reserved				
20-45	frequency limit	100~800	120	

Group 21 Torque and position control function group				
Code	Name	Range	Factory setting	Attribute
21-00~21-04 reserved				
21-05	Positive torque limit	0~300	*Note 1	
21-06	Negative torque limit	0~300	*Note 1	
21-07	Forward UP torque limit	0~300	*Note 1	
21-08	Reverse UP torque limit	0~300	*Note 1	

Group 22 PM motor group				
Code	Name	Range	Factory setting	Attribute
22-00	Rated power of PM motor	0.00~600.00	KVA	
22-01	Rated voltage of motor	100.0~480.0	380.0	
22-02	Rated current of PM motor	25%~200% rated current of inverter	KVA	
22-03	Pole number of PM motor	2~96	6	
22-04	Rated speed of PM motor	6~60000 (set either 22-04 or 22-06, the other calculated by program)	1500	
22-05	Max. speed of PM motor	6~60000	1500	
22-06	Rated frequency of PM motor	4.8~599.0	75.0	
22-07	PM type selection	0:SPM 1:IPM	1	
22-10	PM SLV starting current	0 ~ 200% rated current of motor	60	
22-11	Start frequency switching point of I/f mode	2~100%	10	
22-14	Armature resistance of PM motor	0.001 ~ 30.000	1.000	
22-15	D shaft inductance of PM motor	0.01 ~ 300.00	10.00	
22-16	Q shaft inductance of PM motor	0.01 ~ 300.00	10.00	
22-17	PM no-load voltage	380V:0.0~500.0	300.0 Note 1.1	
22-18	Weak magnetic limit	0~120	90	
22-21	PM motor adjustment	0: Invalid 1: Auto parameter adjustment 2: Pole alignment and circuit adjustment 3: Dynamic self-learning	0	
22-22	PM motor adjustment failure history	0. No error 1: Static pole alignment failure 2: No PG option card 3: Forced stop of rotational pole alignment 4: Encoder feedback direction error 5: Circuit adjustment timeout 6: Reserved 7: Other motor adjustment error	0	

Group 22 PM motor group				
Code	Name	Range	Factory setting	Attribute
22-22	PM Motor adjustment failure history	8: Abnormal current during rotational pole alignment 9: Abnormal current during circuit adjustment 10: Reserved 11: Stator resistance measurement timeout	0	*4
22-25	Initial pole detection method selection	0: Use angle before stop 1:6 pulse angle measurement 2: High frequency angle measurement 3: 12 pulse angle measurement	2	
22-26	Estimator mode	0: I/F start 1: High frequency start 2: Full closed-loop start	0	
22-27	Voltage command of method 2 (22-25=2	5~120 (22-25=2 or 22-26=1 valid)	50	
22-28	Frequency division ratio of method 2 (22-25=2)	0~8 (22-25=2 or 22-26=1 valid)	2	
22-29	Weak magnetic voltage limit	80~110	100	
22-30	SPM estimation gain	1~150	85	Note 1.1
22-31	SPM estimation frequency	1~2000HZ	60	Note 1.1
22-32	MTPA selection	0: Invalid 1: Method	0	Note 1.1
22-33	MTPA gain	000~400%	200	Note 1.1
22-34	IPM estimation gain	1~300	180	Note 1.1
22-36	PM motor type	0: General PM motor 1: DVEN60HZ motor 2: DVEN50HZ motor	0	
22-37	PM motor H.P	0~34	0	
22-38	Start frequency switching width of I/F mode	1.0~40.0	5.0	
22-39	DC excitation time	0~20.0	0.00	
22-40	High-frequency angle measurement time	0.01~1.00	0.02	
22-41	Stop speed control ratio	0:1: 10 1: 1: 50	0	
22-42	D-shaft inductance factor 1	64~8192	100	
22-43	D-shaft inductance factor 2	64~8192	500	
22-44	Speed integral filter time	1~256	4	
22-45	Linkage coefficient	0.001~10.000	0.600	
22-46	System rotational inertia (kg*cm^2)	1~30000	10	
22-47	Coefficient of viscosity	0.0001~3.0000	0.1000	

Group 22 PM motor group

Code	Name	Range	Factory setting	Attribute
22-48	Torque feedforward compensation current selection	0: Invalid 1: Valid	0	
22-49	Torque feedforward compensation current ratio	0~32	12	
22-50	Speed feedforward selection	0: Invalid 1: Valid	0	
22-51	Speed feedforward ratio	1~1024	128	
22-52	Full closed-loop correction factor β_low speed stage	3000~60000	4000	
22-53	Low-speed position filter factor of full closed-loop	1~256	32	
22-54	Voltage rating	50.0~600.0	300.0	*9
22-55	High-speed position filter factor of full closed-loop	1~256	32	*9
22-56	Low-speed filter factor of full closed-loop	1~256	64	*9
22-57	Number of zero voltage pulse cycles	3~20	4	*9
22-58	Optimizing current amplitude limit of zero voltage pulse width	1~50	10	*9
22-59	Zero voltage adding enabling	0: Not added 1: Added	1	*9
22-60	Optimizing value of zero voltage pulse cycle	4000~40000	4000	*9

Group 23 Pump and HVAC group

Code	Name	Range	Factory setting	Attribute
23-00	Function selection	0: Invalid 1: Pump selection	0	
23-01	Single/multiple pump, main and auxiliary machine selection	0 : Single pump 1 : Main machine 2 : Auxiliary 1 3 : Auxiliary 2 4 : Auxiliary 3	0	
23-02	Operating pressure setting	0.10 ~ 650.00	4.00	
23-03	Max. pressure of pressure transmitter	0.10 ~ 650.00	10.00	
23-04	Pump pressure command source	0: Set by parameter 23-02 1: Set by AI	0	
23-05	Display mode selection	0: Target pressure and feedback pressure displayed (23-03 required to be below 9.9PSI if LED operator is used) 1. Target pressure only 2. Feedback pressure only	0	
23-06	Proportional gain (P)	0.00~10.00	1.00	*1
23-07	Integral time (I)	0.00~100.00	1.00	*1
23-08	Differential time (D)	0.00~10.00	0.00	*1
23-09	Constant pressure error range	23-20=0:0.01 ~ 650.00 23-20=1:1~100	5	*6
23-10	Constant pressure sleep frequency	0.00 ~ 599.00	30.00	
23-11	Constant pressure sleep time	0.0~255.5	0.0	
23-12	Max. pressure limit	23-20=0:0.00 ~ 650.00	50	
		23-20=1:0~100		
23-13	High pressure warning time	0.0 ~ 600.0	10.0	
23-14	High-pressure stop time	0.0 ~ 600.0	20.0	
23-15	Min. pressure limit	23-20=0:0.00 ~ 650.00	5	
		23-20=1:0~100		
23-16	Low pressure warning time	0.0 ~ 600.0	0.0	
23-17	Low pressure downtime	0.0 ~ 600.0	0.0	
23-18	Pressure loss detection time	0.0 ~ 600.0	0.0	
23-19	Pressure loss detection ratio	0 ~ 100	0	

Group 23 Pump and HVAC group				
Code	**Name**	**Range**	**Factory setting**	**Attribute**
23-20	Pressure percentage switching	0: Pressure 1: Percentage	1	
23-21	Reserved			
23-22	Auxiliary tripping frequency	0.00 ~ 599.00	45.00	
23-23	Water detection direction	0: Up 1: Down	1	
23-24	Water detection pressure range	23-20=0:0.00 ~ 65.00 23-20=1:0~10	1	*6
23-25	Water detection cycle	0.0 ~ 200.0	30.0	
23-26	Water detection acceleration time	0.1 ~ 6000.0 (acceleration time II)	Based on H.P	*1
23-27	Water detection deceleration time	0.1 ~ 6000.0 (deceleration time II)	Based on H.P	*1
23-28	Forced operation frequency	0.00~ 599.00	0.00	
23-29	Alternating time of multiple pumps in parallel	0~240	3	
23-30	Auxiliary pumping detection time of multiple pumps in parallel	0.0 ~ 30.0	0.0	
23-31	Synchronization selection of multiple pumps in parallel	0 : Off 1 : Pressure setting and Run/Stop synchronization 2 : Pressure setting synchronization 3 : Run/Stop synchronization	1	
23-32	Reserved			
23-33	Reserved			
23-34	Constant pressure error range 2	23-20=0:0.01 ~ 650.00 23-20=1:1~100	5	
23-35	Switching selection of multiple sets in parallel (range 2, 3 and 4 for V1.05 and above)	0: Invalid 1:Timer alternating selection 2: Sleep stop alternating selection 3: Alternating selection of timer and sleep stop 4. Parallel test mode of multiple sets	1	
23-37	Leakage detection time	0.0~100.0	0	

Group 23 Pump and HVAC group				
Code	**Name**	**Range**	**Factory setting**	**Attribute**
23-38	Leakage detection restart pressure variation	23-20=0:0.01 ~ 65.00 23-20=1:1~10	1	
23-39	Leakage detection restart error range	23-20=0:0.01 ~ 650.00 23-20=1:1~100	5	
23-40	Reserved			
23-41	Local/remote key	0: Invalid 1: Valid	1	*9
23-42	Energy recalculation	0: Invalid (continuous energy calculation) 1: Valid (energy recalculation)	0	*9
23-43	Electricity fee per KWh	0.000~5.000	0.000	*9
23-44	Accumulated energy pulse output unit selection	0: Accumulated energy pulse output invalid 1: in 0.1kWh 2: in 1kWh 3: in 10kWh 4: in 100kWh 5: in 1000kWh	0	*9
23-45	Flowmeter feedback setting method	0: Invalid 1: Analog input 2: Pulse input	1	*9
23-46	Max. value of flowmeter	1~50000	10000	*9
23-47	Target value of flowmeter	1~50000	5000	*9
23-48	Max. flow fed back	0.01~99.00	80	*9
23-49	Max. flow warning time fed back	0.0~255.0	3.0	*9
23-50	Max. flow stop time fed back	0.0~255.0	6.0	*9
23-51	Min. flow fed back	0.01~99.00	10.00	*9
23-52	Min. flow warning time fed back	0.0~255.0	3.0	*9
23-53	Min. flow stop time fed back	0.0~255.0	6.0	*9

Group 23 Pump and HVAC group				
Code	Name	Range	Factory setting	Attribute
23-54	Low suction detection function	0: Invalid 1: PID error value 2: Current 3: Current and PID error	0	*9
23-55	Low suction detection time	0.0 ~ 30.0	10.0	*9
23-56	PID error level of low suction	0 ~ 30	10	*9
23-57	Current level of low suction	0 ~ 100	10	*9
23-58	Reaction to low suction	0: Invalid 1: Warning 2: Fault 3: Fault and restart	0	*9
23-59	HVAC pressure command source	0: Set by parameter 23-47 1: Set by AI	0	*9
23-66	Derating current level	10~200	110	*9
23-67	Derating delay time	1.0~20.0	10	*9
23-68	Derating frequency gain	1~100	90	*9
23-69	OL4 current level	10~200	120	*9
23-70	OL4 delay time	0.0~20.0	5	*9
23-71	Max. pressure setting	0.10~650.00	10	
23-72	Parallel alternating time switching	0: Hour 1: Minute	0	
23-73	Auxiliary wake selection	0: Invalid 1: Valid	0	
23-74	High-pressure action setting	0: Invalid 1: High pressure warning only 2: All high pressure warning errors valid	2	
23-75	Low-pressure action setting	0: Invalid 1: Low pressure warning only 2: All low pressure warning errors valid	0	

Group 23 Pump and HVAC group				
Code	Name	Range	Factory setting	Attribute
23-76	High-flow action setting	0: Invalid 1: High flow warning only 2: All high flow warning errors valid	2	*9
23-77	Low-flow action setting	0: Invalid 1: Low flow warning only 2: All low flow warning errors valid	2	*9
23-78	Pressure loss detection selection	0: Invalid 1: Pressure loss warning 2: Pressure loss fault	0	

Note: 23-74~23-78 are reserved for the versions earlier than V1.04 (inclusive), and enabled for
V1.05 and above.

Group 24 Quick parameter group of special machine application

Code	Name	Range	Factory setting	Attribute
24-00	Special machine application parameter	0~30 (same with 00-32) The group includes application parameters for setting 10, 20, 30	0	
24-01	Control mode	0: V/F 2: SLV 5: PMSLV 6: SLV2	0	
24-02	Main operation command source selection	0: Keypad 1: External control 2: Communication control	1	
24-03	Main frequency command source selection	0: Keypad 1: External control AI 2: Terminal UP/down 3: Communication control 4. Pulse input 5~6: Reserved 7: Auxiliary frequency 8: Knob setting	1	
24-04	Upper frequency limit	0.1~109.0	100.0	
24-05	Lower frequency limit	0.1~109.0	0.0	
24-06	Acceleration time 1	0.1~6000.0	KVA	*1
24-07	Deceleration time 1	0.1~6000.0	KVA	*1
24-08	VF curve selection	00~FF	F	
24-09	Max. output frequency of motor 1	4.8~599.0	50.0/60.0	*8
24-10	Max. output voltage of motor 1	380V: 0.2~480.0	-	*8
24-11	Intermediate output frequency 2 of motor 1	0.0~599.0	0.0	
24-12	Intermediate output voltage 2 of motor 1	380V: 0.2~480.0	0.0	*8
24-13	Intermediate output frequency 1 of motor 1	0.0~599.0	2.5	
24-14	Intermediate output voltage 1 of motor 1	380V: 0.0~480.0	-	*8
24-15	Min. output frequency of motor 1	0.0~599.0	-	
24-16	Min. output voltage of motor 1	380V:0.0~480.0	-	*8
24-17	Base frequency of motor 1	4.8~599.0	50.0/60.0	*8
24-18	Base output voltage of motor 1	380V:0.0~480.0	-	*8
24-19	Rated current of motor 1	25%~200% rated current of inverter	KVA	
24-20	Function setting of multi-function terminal S1	Same with 03-00 setting	0	
24-21	Function setting of multi-function terminal S2		1	
24-22	Function setting of multi-function terminal S3		2	
24-23	Relay R1A –R1C output	Same with 03-11 setting	1	

Group 24 Quick parameter group of special machine application

Code	Name	Range	Factory setting	Attribute
24-24	Pulse output scale	1~32000	1000	*1
24-25	AI input signal type	0~3 (same with 04-00)	1	
24-26	AI2 function setting	0~17 (same with 04-05)	10	
24-27	AO1function setting	0~28 (same with 04-11)	0	
24-28	AO2 function setting	0~28（同 04-11）	4	
24-29	AO output signal type	0~3	0	
24-30	Direct start after power-on	When external operation command is valid: 0: Direct start after power-on enabled 1: Direct start after power-on disabled	1	
24-31	DC brake time after stop	0.00~100.00	0.5	
24-32	Stop mode selection	0~3	0	
24-33	Pre-exciting level	50~200	100	
24-34	Speed search mode selection	0~2	0	
24-35	Stall prevention	Same with 08-00 setting	0000b	
24-36	Carrier frequency	0: Adjusted with output frequency 1~16: 1~16KHz	Based on mode	*1
24-37	Display screen selection	Same with 12-00 setting	00321	*1
24-38	ASR gain 1	0.00~250.00	Based on mode	*1
24-39	ASR integral time 1	0.001~10.000	Based on mode	*1
24-40	ASR gain 2	0.00~250.00	Based on mode	*1
24-41	ASR integral time 2	0.001~10.000	Based on mode	*1
24-42	Speed DOWN compensation gain	0~25600	0	*1
24-43	Speed DOWN compensation time	0~30000	100	*1
24-44	Positive torque limit	0~300	200	
24-45	Negative torque limit	0~300	200	
24-46	Forward UP torque limit	0~300	200	
24-47	Reverse UP torque limit	0~300	200	
24-48	Auto-tuning mode selection	Same with 17-00	VF: 0 SLV: 6 SLV2: 6	
24-49	Rated output power of motor	0.00~600.00	Based on H.P	
24-50	Rated current of motor	25%~120% rated current of inverter	Based on H.P	
24-51	Rated voltage of motor	380V: 100.0~480.0	-	*8
24-52	Rated frequency of motor	4.8~599.0	50/60HZ	
24-53	Rated speed of motor	0~24000	Based on H.P	
24-54	Pole number of motor	2~16(even)	4	
24-55	Auto-tuning ON	0~1	0	

Chapter 4 Troubleshooting

4.1 General

The inverter is designed with troubleshooting, warning/self-diagnosis function. When fault is detected and the fault code is displayed on the digital operator, the fault contact output is actuated, and inverter output is cut off to make the motor freely run and stop (optional stop methods for certain faults).

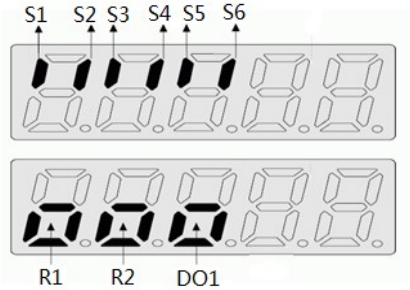
When warning/self-diagnosis is detected, the digital operator will display the warning/self-diagnosis code, but fault output of the contact is not actuated. The system will automatically restore to the original state upon elimination of warning.

4.2 Fault detection function

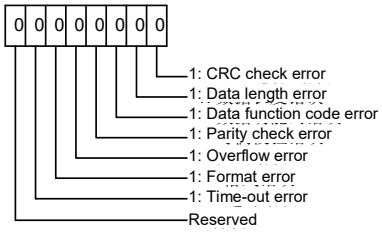
In case of fault, find the causes in table 4.1 and take proper measures. Please stop the machine firstly, and use one of the following methods for restart:

1. Set one of the multi-function digital input terminals (03-00, 03-05) to 17 (fault reset) to put fault reset signal ON.
2. Press the Reset key on the digital operator.
3. Cut off power supply for the main circuit and then switch on.

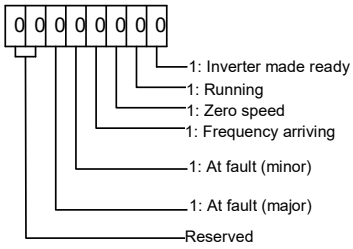
Upon occurrence of fault, the fault message is stored (group 12 parameters).



12-05 diagram

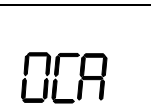
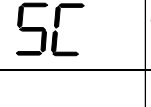
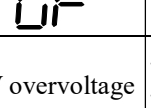
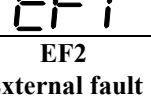
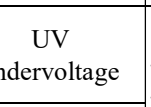
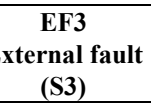
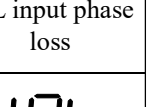
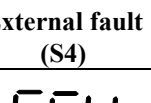
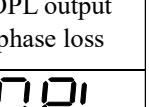
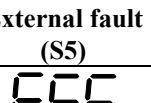
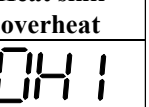
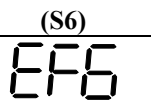
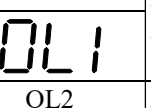
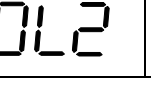


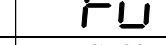
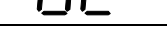
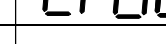
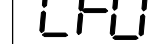
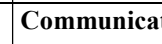
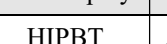
12-42 diagram

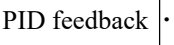
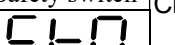
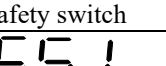
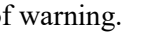


12-43 diagram

Table 4.1 Error message and corrective measures

LED display	Corrective action	LED display	Corrective action
OC **overcurrent** 	.Extend acceleration/deceleration time. .Check load wiring. .Remove motor and try to run the inverter. .Inverter repair.	**OCA** **overcurrent** 	.Set longer acceleration time. .Replace with an inverter of equal capacity. .Perform motor inspection. .Check the wiring. .Inverter repair.
OCC overcurrent 	.Increase the inverter capacity. .Mount a reactor on the power input side. . Inverter repair.	**OCD** **overcurrent** 	. Set longer deceleration time. . Inverter repair.
LED display	Corrective action	LED display	Corrective action
SC **short-circuit** 	.Check load wiring. . Inverter repair.	EF0 External fault 0 	Check the cause of external fault. .Reset bit 2 of the communication position 0x2501.
GF ground fault 	.Check motor wiring and impedance. . Inverter repair.	**EF1** **External fault (S1)** 	.Check external causes. .Reset external fault of multi-function digital input.
OV overvoltage 	.Extend deceleration time. .Check input circuit and reduce input voltage to specification. .Remove the power factor correction capacitor. . Mount a brake resistor.	**EF2** **External fault (S2)** 	
UV undervoltage 	.Check input circuit and supply voltage. .Extend acceleration time. . Inverter repair.	**EF3** **External fault (S3)** 	
IPL input phase loss 	.Check power supply wiring of main circuit is correct. .Check whether terminal screws are loose. .Check supply voltage and take measures for voltage stabilizing, or close IPL. . Inverter repair.	**EF4** **External fault (S4)** 	
OPL output phase loss 	.Check motor wiring. .Check capacity of motor and inverter.	**EF5** **External fault (S5)** 	
OH1 **Heat sink overheat** 	.Check ambient temperature of inverter. .Check dust and dirt of fan or heat sink. .Check carrier frequency setting.	**EF6** **External fault (S6)** 	
OL1 Motor overload 	.Check V/F mode. .Check rated current of motor. .Check load size and running cycle.	**CF07** **Motor control failure** 	.Perform rotational motor parameter test (rotational auto-tuning) .Otherwise, perform static motor parameter test or increase 01-08 set value
OL2 Inverter overload 	.Check V/F mode. .Replace with inverter of higher capacity. .Check load size and running cycle.	CF08 Motor control failure 	. Properly increase 22-10 and 22-23 set values. .Perform auto-tuning of 22-21 again. .Check whether load is too high and whether it is required to increase the output torque limit.

OT Overtorque detection 	.Check APP or operating state. .Check whether 08-15 and 08-16 values are appropriate.	**FUFuse open-circuit** 	.Check whether motor and cable are short-circuited or insulation is damaged. .Repair/replace the inverter.
UT Undertorque detection 	. Check APP or operating state. .Check whether 08-19 and 08-20 values are appropriate.	**CF00 Operator communication failure** 	.Unplug the digital operator connector and then plug in. .Replace the control board.
run Motor 1/motor 2 switching 	.Correct sequence control for motor switching after stop.	**CF01 Operator communication failure 2** 	.Unplug the digital operator connector and then plug in. .Replace the control board.
FB PID feedback off-line 	.Check the set PID feedback mode is correct. .Ensure correct installation and PID feedback signal is normal.	**CT fault** 	.Check input voltage signal and control board voltage.
LOPBT Low flow fault 	.Check whether feedback signal is correct and connected. .Check whether feedback flow is lower than the minimum flow limit (parameter 23-51).	**Communication error** 	.Check only one communication mechanism is used currently.

LED display	Corrective action	LED display	Corrective action
HIPBT High flow fault 	.Check whether feedback signal is correct. . Check whether feedback flow is higher than the maximum flow limit (parameter 23-48)。	OPBFT High pressure fault 	. Check whether feedback signal is correct. . Check whether feedback pressure is higher than the maximum pressure limit (parameter 23-12).
LPBFT Low pressure fault 	. Check whether feedback signal is correct and connected. .Check whether feedback pressure is lower than the minimum pressure limit (parameter 23-15)。	LSCFT Low suction fault 	.Check whether effluent trough is insufficient and water supply is normal. .Check PID error is higher than PID error level or current is lower than the output current level of low suction.
FBLSS PID feedback signal loss 	. Check whether the set 23-19 pressure loss ratio is correct. . Ensure correct installation and PID signal is normal.	LSCFT low suction failure 	. Check all connections and verify all client software architectures.
STO Safety switch 	Check if digital terminal (58) is open	SS1 Safety switch 	Check if digital terminal (58) is open

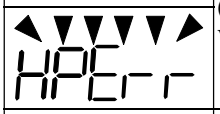
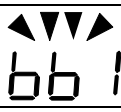
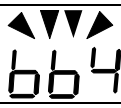
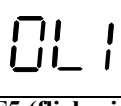
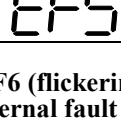
4.3 Warning/self-diagnosis function

When a warning is detected by the inverter, the digital operator will display the warning code (flickering), and the fault output contact is not actuated; the system automatically restores to the original state upon elimination of warning.

When a self-diagnosis function is detected by the inverter (for instance, an invalid setting or two inconsistent parameter settings), the digital operator will display the self-diagnosis code, and the fault output contact is not actuated; the inverter is unable to execute running command till the parameters are correctly set.

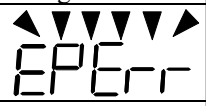
In case of warning or self-diagnosis error, please refer to table 4.2 to check and correct the error.

Table 4.2 Warning/self-diagnosis and corrective measures

LED display	Corrective action	LED display	Corrective action
HPErr Type selection error 	.Check the inverter capacity setting (13-00) is consistent with hardware voltage class.	bb1 (flickering) External breaking 	. Remove the cause of external breaking.
OV (flickering) Overvoltage 	.Check input voltage.	bb2 (flickering) External breaking 	
UV (flickering) Undervoltage 	. Check input voltage. . Check input circuit. . Check main circuit MC.	bb3 (flickering) External breaking 	
OH1 Heat sink overheat 	.Check ambient temperature of inverter. . Check dust and dirt of fan and heat sink. . Check carrier frequency setting.	bb4 (flickering) External breaking 	
OH2 (flickering) Inverter overheat warning 	.Check external conditions.	bb5 (flickering) External breaking 	
LED display	Corrective action	LED display	Corrective action
OT (flickering) Overtorque detection 	.Check application or machine running status. .Check 08-15 and 08-16 settings.	bb6 (flickering) External breaking 	. Remove the cause of external breaking.
UT (flickering) Undertorque detection 	.Check application or machine running status. . Check 08-19 and 08-20 settings.	**OL1** **Motor overload** 	. Check V/F mode. Check rated current of motor. . Check load size and running cycle.
OL2 **Inverter overload** 	.Check V/F mode. .Replace with inverter of higher capacity. . Check load size and running cycle.	**EF5 (flickering)** **External fault (S5)** 	. Remove the cause of external fault. . Reset external fault of multi-function digital input.
CE **(flickering)** **Communication error**	. Check all connections and verify all client software settings.	**EF6 (flickering)** **External fault (S6)**	

			
CLA **Current protection level A** 	Check load size and running cycle.	**EF9 (flickering)** **Forward/reverse error** 	**.** Check external program logic.
CLB **Current protection level B** 	Check load size and running cycle.	**FB** **(flickering)** **PID feedback off-line** 	.Check whether the set PID feedback mode is correct. .Ensure correct installation and normal feedback signal.
Retry **(flickering)** Retest 	Disappear after the restart time of auto reset.	USP (flickering) **Unattended protection** 	. Run command for closing, or perform terminal resetting (03-00 to 03-05 as 3), or use the RESET key on digital operator for resetting. .Close USP signal and turn on/off power again.
ES **(flickering)** **External E-stop** 	.Remove the cause of external E-stop. . Run command for closing, and reset external E-stop command of multi-function digital input.	SE01 **Setting range error** 	. Check parameter setting.
EF1 (flickering) External fault (S1) 	.Remove the cause of external fault. . Reset external fault of multi-function digital input.	SE02 Digital input terminal error 	. Check parameter setting.
EF2 (flickering) External fault (S2) 		SE03 V/f curve error 	.Check V/F parameter setting.

LED display	Corrective action	LED display	Corrective action
EF3 (flickering) **External fault (S3)** 	.Remove the cause of external fault. . Reset external fault of multi-function digital input.	SE05 PID selection error 	**.**Check 10-00 and 10-01 settings. **.**Check 10-29 and 10-25 settings. **.Check 10-29 and 10-03 settings.**
EF4 (flickering) **External fault (S4)**		SE09 PI setting error	. Check inverter PI option (03-30), and select PID source (10-00

			and 10-01).
Parameter setting error 	.Refer to setting in the manual or represent this option is invalid.	**Zero-speed stop warning** 	.Adjust frequency command. Note: It is required to adjust stage 0 frequency setting of 05-01 if frequency source 00-05 is set as digital operator.
Direct start warning 	.Check external running terminal, disconnect and then connect; wait for the setting time of 07-05 after power-on.	**External control stop warning** 	**.** Remove external running command.
FIRE Forced running mode 	Check whether there is fire around the equipment; in case of false triggering, turn off power for clearing.	**Wrong running direction warning** 	**.** Correct 11-00 motor direction locking command to the existing external control DI or JOG and three-wire forward or reserve command direction.
ADC voltage error 	. Check input voltage signal and control board voltage.	**Parameter lock** 	. Enter the correct password in parameter 13-07.
EEPROM Storage error 	Power off and on after initialization; replace the circuit board if warning appears again.	Password setting error 	. The password entered for the second time should be the same with that entered for the first time when the password lock function is enabled.
Control board error 	. Control board is inconsistent with program; replace the control board.	LFPB Low flow error 	. Check whether feedback signal is correct and connected. . Check whether feedback flow is lower than the minimum flow limit.
L0PB Low voltage error 	. Check whether feedback signal is correct and connected. . Check whether feedback pressure is lower than the minimum pressure limit.	HFPB High flow error 	. Check whether feedback signal is correct. . Check whether feedback flow is lower than the maximum flow limit.
HIPB High voltage error 	. Check whether feedback signal is correct. . Check whether feedback pressure is lower than the maximum pressure limit.	LSCFT Low suction error 	**.**Check whether effluent trough is insufficient and water supply is normal. **.**Check PID error is higher than PID error level or current is lower than the output current level of low suction.
SE10 PUMP/HVAC Setting error 	.Check inverter PUMP option (23-02), and select the maximum pressure (23-03) setting. . Check inverter HVAC option (23-46), and select the maximum pressure (23-47) setting.	COPUP PUMP communication off-line error 	Check whether communication fails or is not properly connected.

LED display	Corrective action
Air compressor overload	Check whether compressor load exceeds the standard.

4.4 Auto-tuning errors

In the event of auto-tuning error, the fault "AtErr" is displayed on the digital operator, motor is stopped, and fault message is displayed in 17-11. The faulty digital output contact is not actuated. Refer to table 4.3 to check and correct the faults occurred.

Table 4.3 Auto-tuning errors and corrective measures

Error	Description	Cause	Corrective action
01	Motor data input error	.Data error of input auto-tuning. . Wrong relation between output current and rated current of motor.	. Check input data of auto-tuning (17-00 to 17-09). . Check inverter capacity.
02	Motor line resistance R1 adjustment error	.Auto-tuning is not completed in certain time. . Auto-tuning result exceeds the parameter setting. . Rated current of motor is exceeded. . Three-phase output of inverter is broken.	· Check input data of auto-tuning (17-00 to 17-09). ·Check motor wiring. ·Disconnect motor load. ·Check inverter current detection circuit, including current sensor. · Check motor wiring. · Check motor installation.
03	Motor leakage inductance adjustment error		
04	Motor rotor resistance R2 adjustment error		
05	Motor mutual inductance Lm adjustment error		
07	Deadtime compensation detection error		
08	Motor acceleration error (applicable to rotational auto-tuning only)	Motor is not speeded up successfully in the set time (00-14= 20sec).	. Increase acceleration time (00-14). . Disconnect motor load.
09	Other auto-tuning error	Other auto-tuning errors (except ATE-01~ATE-0 error, such as no-load current over 70% rated current or torque 100% higher than the reference value)	·Check motor wiring. ·Check input data of auto-tuning.

4.5 Auto-tuning errors of PM motor

In case of auto-tuning error of PM motor, the fault message "IPErr" (PM motor adjustment failure) is displayed on the digital operator, motor is stopped, and fault message is displayed in 22-22. The faulty digital output contact is not actuated. Refer to table 4.4 to check and correct the faults occurred.

Table 4.4

Error	Description	Cause	Corrective action
01	Static pole alignment failure	Wrong relation between output current and rated current of motor	. Check input data of auto-tuning (22-02). . Check inverter capacity. . Check motor wiring.
02~04	Reserved		
05	Circuit adjustment time-out	System abnormality during circuit adjustment	Check whether the system enters other protection procedure.
06	Reserved		
07	Other motor adjustment errors	Other errors of auto-tuning	·Check motor wiring. · Check input data of auto-tuning.
08	Reserved		
09	Abnormal current during circuit adjustment	Wrong relation between output current and rated current of motor	. Check input data of auto-tuning (22-02). · Check inverter capacity.
10	Reserved		
11	Parameter testing time-out	Wrong relation of voltage and current	. Check the parameter (22-11) is set too small, but the maximum setting should not exceed 100% of the inverter. . Check motor wiring.

Annex

Name and Content of Hazardous Substances in the Product

Part name		Hazardous and noxious substance or element					
		Lead and its compound (Pb)	Mercury and its compound (Hg)	Cadmium and its compound (Cd)	Chromium VI compound (Cr(VI))	Polybrominated biphenyls (PBB)	Polybrominated diphenyl ethers (PBDE)
Electronic parts	Electronic parts and components	X	O	O	O	O	O
	Electromagnetic contactor	O	O	X	O	O	O
Display		O	O	O	O	O	O
Wire and cable	Terminal	X	O	O	O	O	O
	Conductor	O	O	O	O	O	O
	Insulated parts	O	O	O	O	O	O
Mechanical parts	Conductive copper post, fan, temperature controlled switch	X	O	O	O	O	O
	Others	O	O	O	O	O	O

This table is prepared according to SJ/T 11364.

O: It means content of the hazardous and noxious substance in all homogeneous materials of the part is below the limit specified in GB/T 26572.

X: It means content of the hazardous and noxious substance in at least one homogeneous material of the part is over the limit specified in GB/T 26572.

Definitions of main parts:

Electronic parts – Including electronic components, welded PCB and etc.

Display – Including the display unit, its electronic parts and components or touch screen.

Wire and cable – Including terminal, wire, shielded wire, sheath and electronic parts.

Mechanical parts – Parts other than the defined electronic parts, display, wire and cable.

Over-limit explanation:

Electronic parts and components: Lead content in some electronic parts is higher than 1000ppm but conforming to RoHS exemption rules.

7 (a): Lead in welding flux of high melting temperature (for example: lead content in lead base alloy ≥85 %);

7 (c)-I: Lead in glass or ceramics of electronic and electrical parts (except lead in intermediate electroceramics of capacitor), or lead in glass or ceramic composite materials (for example: piezoelectric ceramic parts)

Electromagnetic contactor: Cadmium content in some electromagnetic contactors is higher than 100ppm but conforming to RoHS exemption rules.

8 (b) Cadmium and its compounds are used in electronic contacts

Terminal, conductive post, fan, temperature controlled switch: Lead content in some parts of wire, cable and mechanical components is higher than 100ppm but conforming to RoHS exemption rules.

6 (a) As an alloy element, lead is below 0.35% (Wt) in finished steel and galvanized steel;

6 (b) The maximum allowable content of lead in aluminum alloy is 0.4%;

6 (c) The maximum allowable content of lead in copper alloy is 4%;

Environment-friendly use period (EFUP) explanation:

Within EFUP, the product is not subject to hazardous substance leakage, precipitation and other health-harming problems during normal use, and can be used by consumers securely.

EFUP of the product is 10 years, which is effective only under normal conditions as described herein.

Disclaimer: The information regarding substance content in the product disclosed by the **Company** only represents our understanding and knowledge of the product when the information is provided. These knowledge and understanding of the **Company** are based on information provided by third party, the accuracy of which is not committed or guaranteed by the **Company**. In addition, the **Company** may not have performed destructive test or chemical analysis of the materials or chemicals used. Use of the above-mentioned product and relevant liability of the **Company** are governed by standard contract provisions of the company.

Manufacturer’s Statement for T310 series

T310 efficiency according to IEC/EN 61800-9-2

Drive models: T310 series, please refer to the table below for the model list

Efficiency class: IE2

Nominal voltage: Please refer to the tabel below

Nominal frequency: 50Hz

Nominal power: Please refer to the tabel below

Motor control: V/f, SLV, SLV2, PMSLV

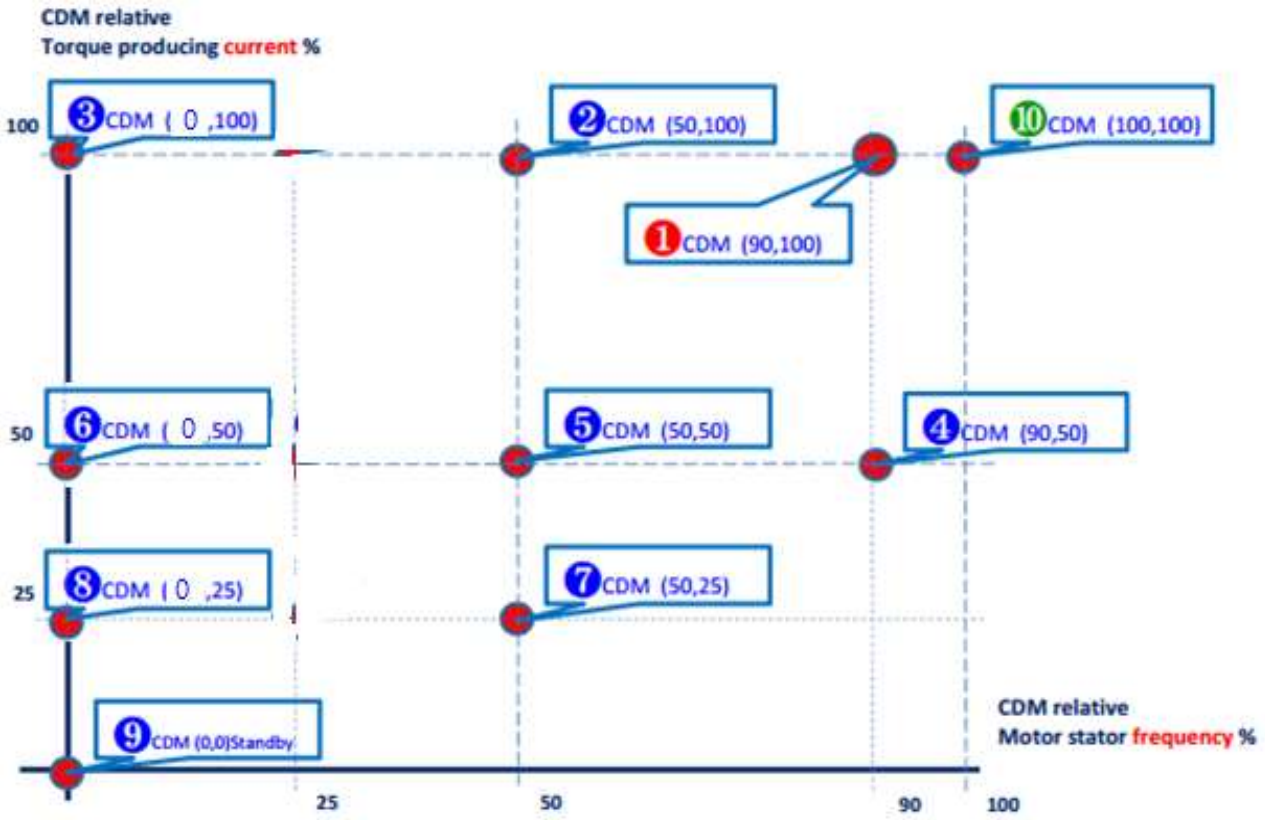
Nominal current: Please refer to the table below

Nominal apparent power: Please refer to the table below

Maximum operating temperature:40℃

Derating if temperature is above 40℃

CDM losses and efficiency (calculated with default settings) point: As the picture right



Manufacturer: Taian Technology(Wuxi) CO., LTD.
No. 29, East Gaolang Rd., New District, Wuxi, Jiangsu, China

EU contact: MOTOVARIO S.p.A - Via Quattro Passi 1/3 - 41043 - Formigine (MO) - ITALY. MOTOVARIO EORI number: IT02569681204

CDM losses and efficiency table

						②	③		④		⑤		⑥		⑦		⑧		⑨		⑩		⑪		⑫	
Frame	Model Name	Nominal voltage (V)	Nominal current (A)	Nominal Power (kW)	Nominal apparent power (KVA)	CDM STANDBY LOSS	CDM (0,25) or (*12Hz/25,25)		CDM(0;50) or (*12Hz/25,50)		CDM(0; 100) or (*12Hz/25,100)		CDM (50,25)		CDM (50,50)		CDM (50,100)		CDM (90,50)		CDM (90,100)		CDM (100,100)	
						p Loss(W)	p Loss(W)	η(%)	p Loss(W)	η(%)	p Loss(W)	η(%)	p Loss(W)	η(%)	p Loss(W)	η(%)	p Loss(W)	η(%)	p Loss(W)	η(%)	p Loss(W)	η(%)	p Loss(W)	η(%)
1	T310-4001-H3	380	2.3	0.75	2.6	25.66	37.84	68.79	41.01	79.72	48.25	86.10	38.29	81.33	41.94	88.49	50.32	92.24	44.05	92.95	55.52	95.12	56.75	95.47
1	T310-4002-H3	380	4.2	1.5	3.2	25.66	50.59	75.07	57.15	83.74	72.27	88.31	51.33	85.58	58.67	90.94	75.43	93.54	61.72	94.50	82.07	95.99	84.03	96.29
1	T310-4003-H3	380	5.5	2.2	4.2	25.66	54.13	78.65	61.35	86.27	77.87	90.18	55.11	87.86	63.48	92.39	82.83	94.52	68.74	95.28	95.61	96.42	99.73	96.63
2	T310-4005-H3	380	9.2	3.7	7	28.86	81.14	80.44	95.48	87.10	129.14	90.25	82.78	88.96	98.82	92.88	137.75	95.19	105.50	95.65	150.60	96.62	154.91	96.86
2	T310-4008-H3	380	13	5.5	11.3	28.86	78.85	85.68	98.04	90.29	153.10	92.23	80.70	92.12	102.20	94.69	164.44	95.67	112.03	96.70	193.14	97.13	202.35	97.29
3	T310-4010-H3	380	18	7.5	13.7	43.71	120.50	84.42	150.68	89.33	238.03	91.36	123.13	91.39	156.15	94.17	251.05	95.25	167.10	96.45	279.18	97.01	287.62	97.22
3	T310-4015-H3	380	24	11	18.3	39.21	141.91	85.99	181.33	90.27	293.26	91.97	145.60	92.28	189.11	94.65	312.26	95.56	205.18	96.72	354.67	97.15	287.62	97.22
3	T310-4020-H3	380	31	15	23.6	39.21	174.54	86.57	227.54	90.52	380.58	91.93	179.31	92.62	237.60	94.82	405.12	95.54	258.35	96.80	459.91	97.14	476.59	97.33
4	T310-4025-H3	380	39	18.5	29.7	54.51	214.50	86.84	276.51	90.81	453.72	92.32	220.23	92.78	288.48	94.99	482.31	95.77	312.54	96.92	544.42	97.30	563.09	97.48
4	T310-4030-H3	380	45	22	34.3	54.51	241.31	87.12	314.58	90.93	526.00	92.29	247.93	92.94	328.38	95.05	558.99	95.75	356.15	96.96	630.65	97.29	652.19	97.47
5	T310-4040-H3	380	60	30	45.7	57.66	262.06	89.26	347.71	92.36	581.90	93.53	275.45	94.05	368.23	95.81	632.92	96.37	411.56	97.35	749.44	97.58	785.29	97.71
5	T310-4050-H3	380	75	37	57.2	57.66	322.97	89.39	429.33	92.45	738.27	93.42	335.02	94.20	454.98	95.85	802.03	96.32	509.14	97.38	947.69	97.55	992.50	97.69
6	T310-4060-H3	380	91	45	69.3	57.66	344.29	90.79	472.52	93.23	838.42	93.89	359.95	94.97	506.66	96.26	925.06	96.53	579.92	97.59	1128.82	97.62	1192.29	97.74
6	T310-4075-H3	380	118	55	89.9	81.66	465.65	90.44	639.00	92.97	1132.48	93.65	487.32	94.76	685.15	96.10	1247.60	96.40	782.11	97.49	1510.61	97.55	1591.52	97.67
7	T310-4100-H3	380	150	75	114	83.46	578.38	90.64	800.36	93.06	1430.62	93.69	607.26	94.85	863.43	96.13	1595.11	96.38	1002.89	97.47	1989.71	97.46	2113.63	97.57
7	T310-4125-H3	380	180	90	137	83.46	664.78	90.99	930.62	93.26	1697.05	93.75	698.65	95.06	1004.22	96.25	1887.33	96.43	1165.34	97.55	2339.61	97.51	2481.12	97.62
8	T310-4150-H3	380	216	110	165	110.76	743.11	91.56	1020.03	93.81	1785.47	94.43	780.22	95.38	1098.96	96.57	1981.82	96.86	1172.89	97.79	2429.03	97.84	2566.42	97.94
8	T310-4175-H3	380	260	132	198	110.76	868.03	91.79	1196.88	93.96	2099.99	94.60	909.49	95.52	1283.41	96.67	2307.45	96.96	1457.10	97.87	2759.51	97.96	2895.63	98.07
8	T310-4215-H3	380	304	160	232	110.76	962.52	92.18	1337.99	94.21	2380.21	94.76	1010.99	95.73	1439.17	96.80	2622.78	97.04	1642.26	97.95	3151.35	98.01	3310.50	98.11
9	T310-4250-H3	380	370	185	282	157.64	1181.87	92.12	1627.96	94.21	2851.30	94.84	1241.78	95.70	1753.52	96.80	3134.75	97.08	2007.90	97.94	3822.62	98.01	4024.65	98.11
9	T310-4270-H3	380	380	200	290	157.64	1134.59	92.45	1618.37	94.41	2934.27	94.88	1193.86	95.88	1746.47	96.90	3249.55	97.10	2004.71	98.00	3943.45	98.03	4153.35	98.13
9	T310-4300-H3	380	450	220	343	157.64	1302.10	92.67	1861.76	94.56	3363.47	95.04	1373.17	96.00	2016.00	96.98	3745.81	97.17	2329.36	98.04	4594.37	98.06	4852.05	98.15
9	T310-4335-H3	380	480	250	343	157.64	1381.16	92.71	1981.08	94.57	3595.37	95.03	1456.97	96.02	2143.59	96.98	4003.20	97.17	2479.84	98.04	4908.34	98.05	5183.20	98.15
10	T310-4375-H3	380	523	280	398	193.64	1529.18	92.60	2183.95	94.51	3948.58	94.99	1606.06	95.97	2347.05	96.97	4335.49	97.19	2662.99	98.07	5150.11	98.13	5391.37	98.23
10	T310-4425-H3	380	585	315	446	193.64	1694.47	92.66	2434.25	94.53	4439.52	94.97	1780.46	96.01	2616.69	96.98	4872.30	97.17	2970.09	98.08	5783.48	98.12	6033.35	98.22
11	T310-4475-H3	380	650	355	495	229.64	1878.29	92.68	2680.17	94.57	4822.80	95.07	1973.84	96.01	2882.88	97.01	5303.66	97.23	3275.54	98.09	6316.09	98.15	6615.94	98.25
11	T310-4535-H3	380	725	400	552	229.64	2075.48	92.74	2977.28	94.59	5398.55	95.06	2182.06	96.05	3203.38	97.02	5934.90	97.22	3641.35	98.10	7064.15	98.14	7398.59	98.25

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第 1 章安全注意事项

安全定义：

在本手册中，安全注意事项分以下两类：

警告：由于没有按照要求操作所造成的危险，可能导致重伤，甚至死亡的情况。

注意：由于没有按照要求操作所造成的危险，可能导致中度伤害或轻伤，及设备损坏的情况。

请用户在安装、测试及维修本系统前，仔细阅读本章内容所要求的安全注意事项进行操作，如出现因违规操作，而造成的任何人员伤害和设备损失，均与本公司无关，本公司不负担任何责任。

1.1 送电前

警告

- 主回路端子必须正确配线，三相(R/L1、S/L2、T/L3)为电源输入端子，绝对不可以与 U/T1、V/T2、W/T3 混用；混用时，送电将造成变频器的损坏。

注意

- 所选用之电源电压必须与变频器之输入电压规格相同。
- 搬运变频器时，请勿直接提取前盖，应由变频器本体搬运，以防止前盖脱落，避免变频器掉落造成人员受伤或变频器损坏。
- 请将变频器安装于金属类等不燃物材料之上，请勿安装于易燃性材料上或附近，以防止发生火灾。
- 若多台变频器同放在一个控制盘内，请外加散热风扇，使盘内温度低于 40℃以下，以防过热或火灾等发生。
- 请于关闭电源后，再拆卸或装入操作器，并请按图操作固定操作器，以免接触不良造成操作器故障或不显示。
- 变频器在安装、运输及使用过程中避免磕碰。

警告

- 本产品系通过 EN 61800-3 限制区域使用等级。在某些环境下使用本产品时，可能造成电磁干扰，故在使用前请先进行适当的测试，同时请务必做好接地。
- 提供电机过温度保护功能。

注意

- 产品的安装及使用必须由有资格的专业电气人员进行。
- 产品的安装必须以固定式配线方式进行。

1.2 接线

警告

- 实施任何变频器装机或配线前，请务必关上总电源，避免触电及火灾发生。
- 配线工程人员须具备相关专业知识，避免触电与火灾发生。
- 确认接地线与大地连接。380V 级:接地阻抗需低于 10Ω。请依据 EN 61800-5-1 规范要求将变频器接地。电线线径至少须达到 10mm² (6AWG)才能符合限制泄漏电流的标准。
- 变频器接地端子请务必正确接地;如未正确接地,请务必将控制板地线拔除,避免突波打坏电子零件。
- RCD 需符合 B 型漏电流之保护规范。
- 接线完成后，确认紧急停止功能有效。(接线责任属于使用方)
- 勿直接触碰输入/输出电源线，并避免所有接线与变频器外壳接触与线路短路。
- 勿对变频器进行耐压测试，容易造成半导体组件受损。

注意

- 确认输入主电源与变频器相符，避免受伤或火灾发生。
- 请依相关接线图连接刹车电阻及刹车单元，否则有引发火灾危险。
- 确认输入主电源与变频器相符，避免受伤或火灾发生。
- 请依相关接线图连接刹车电阻及刹车单元，否则有引发火灾危险。
- 请依指定转矩来锁固端子螺丝，避免引发火灾的危险。
- 勿将输入电源连接至变频器输出端子上。
- 勿将电磁接触器，电磁开关接点连接至输出端子。
- 勿将进相电容器或 LC/RC 滤波器连接至输出电路上。
- 确保变频器、电机所产生的干扰不会影响周边传感器或设备。

1.3 运转前

警告

- 送电前请确认变频器之机种容量和变频器功能参数 13- 00 所设定的机种容量相同。
- 变频器与电机间线长超过 25m，需降低载波频率(11-01)或加装输出滤波器来降低振荡和避免过电压，避免电机受损。

1.4 参数设定

注意

- 进行旋转型自动调校时，请勿将电机连接到负载(机械设备)上。
- 进行旋转型自动调校时，电机将进行旋转，确认电机周围，避免造成危险。

1.5 运转

警告

- 请确认前外盖安装完成后，再打开电源。
- 运转中不可将电机机组投入或切离，否则会造成变频器过电流跳脱，严重时会造成变频器主回路损坏。
- 进行复归功能时，请勿靠近机器，故障清除后，机器会再启动。
- 勿于双手潮湿时操作机器。
- 提供一个独立的紧急停止开关，此开关使用在该功能参数被设置时启用(请参考 11-55) 。
- 提供一个独立外部硬件紧急开关，当遇危险时可紧急关断变频器输出。
- 复归警告前请确认运转命令为关闭的。
- 若选择复电后自动重新启动(07-00)，变频器将在电源回复后自动启动。
- 自动调校执行前，请确保外围系统，机械设备状态，确保人员安全。
- 无论变频器处于运转或停止状态，避免触碰相关端子，以防发生危险。
- 电源切断后，风扇可能会继续旋转一段时间。

注意

- 散热座、刹车电阻等发热组件请勿触摸。
- 变频器可以很容易使电机从低速到高速运转，请确认电机与机械的容许范围。
- 使用刹车模块等搭配产品时，请注意其使用之相关设定。
- 变频器运转时，请勿检查电路板上的信号。

警告

- 避免触电！变频器内部的直流电容器在电源移除后 5 分钟才能放电完毕，请在电源移除 5 分钟后，再进行拆装或实施检查。15HP 以上需等待 15 分钟。

1.6 检查保养和更换

警告

- 进行维护检查前，请先确认电源已经关闭且电源指示灯熄灭(请确认直流电压不超过 25V)。
- 变频器端子中有高压端子，请勿随意触摸。
- 电源开启情况下，请务必安装保护盖，另拆卸保护盖后，请务必透过断路器断开电源。
- 除指定的专业人员外，他人请勿进行保养检查或更换零件。

注意

- 变频器周围温度应在(－10℃～＋40 ℃ (IP20)，－10℃～＋50 ℃ (IP00),若降额最高可工作至 60℃（40℃以上降额使用）) 95%RH 不结露环境中使用，但需确保周围环境无滴水及金属粉尘。依据现场环境，定期清理散热器。

变频器报废时注意事项

注意

当变频器要处理报废时，请作为工业垃圾进行处理，并请注意以下事项：

- 变频器主回路的电解电容和印刷电路板上的电解电容焚烧时可能会发生爆炸；
- 变频器的外壳等塑料件焚烧时会产生有毒气体。



装有电子组件的设备不能与生活垃圾一起处理，必须按照地方现行法规将其与电气和电子废弃物一起单独回收。

保证责任的免除

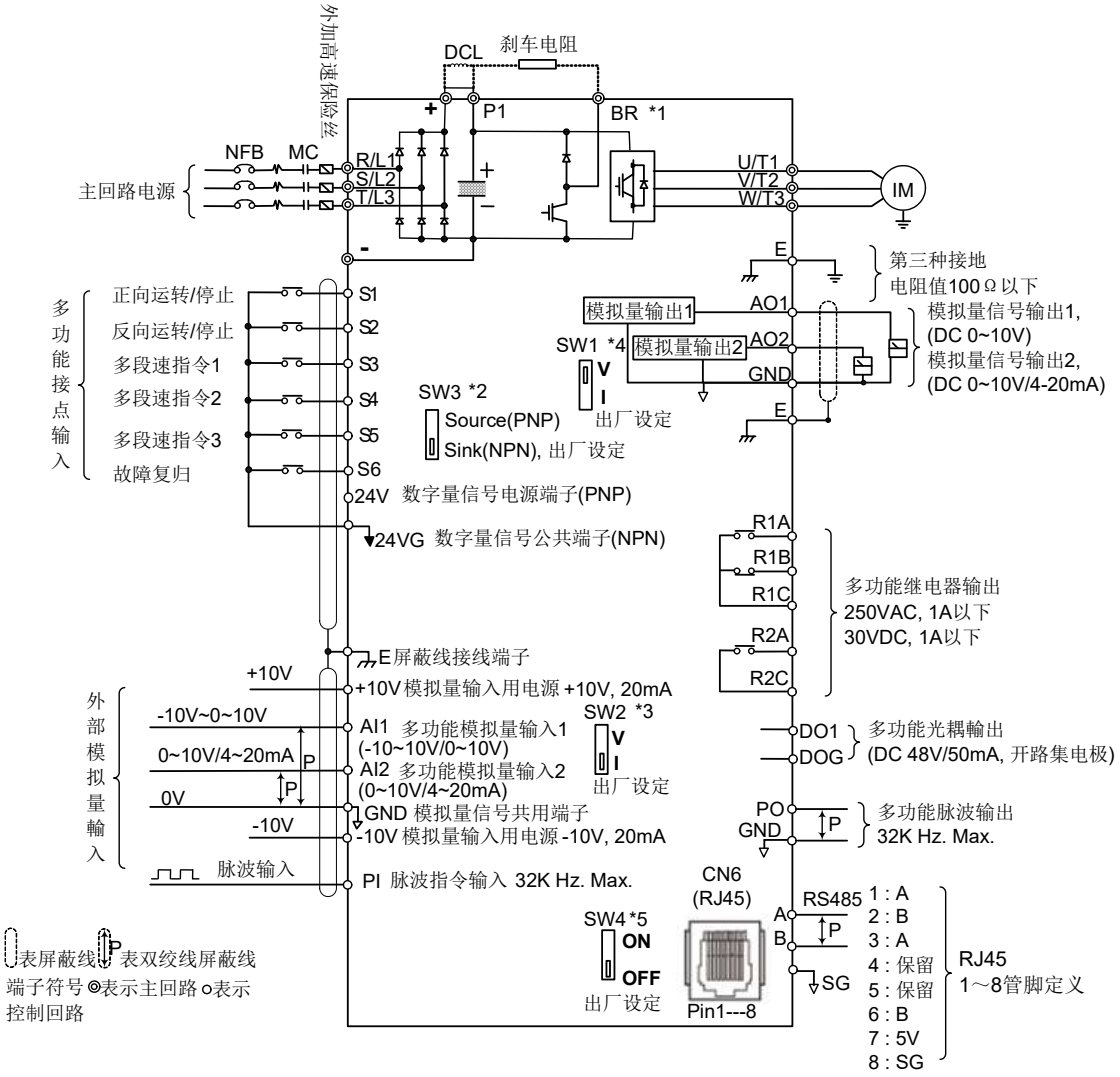
因本公司产品的故障，给贵公司或贵公司的客户等造成的机会丧失以及非本公司产品的损伤，或对于其他业务的补偿，无论是否在保证期限内，均不属于本公司的保证范围。

附注：
未提供马达过温度保护功能。

第 2 章周围环境及安装

2.1 配线示意图

以下为 T310 变频器标准配线图(◎表示主回路端子，○表示控制回路端子)。T310 依型号不同，配线端子台的位置及符号会稍有差异，主回路端子及控制回路端子说明请参考表 1、2。



说明：

*1：380V 1~30HP：内建刹车晶体,可直接于 P1、BR 之间连接刹车电阻；预留外接 DCL（+（P）~P1 之间）；380V 40~535HP：内置 DCL；无内建刹车晶体，可在+（P）~－(N)之间外接刹车单元。

*2：多功能数字输入接点 S1~S6，可透过开关 SW3 设置成 Source(PNP, with +24V common) or Sink(NPN, with 24VG common) 。

*3：多功能模拟输入 AI2，可透过开关 SW2 设置成电压命令输入(0~10V)或电流命令输入(4~20mA)。

*4：多功能模拟输出 AO2，可透过开关 SW1(1~75HP)或 SW6(100~535HP)设置成电压命令输出(0~10V)或电流命令输出(4~20mA)。

*5：RS485 终端电阻开关。在多台变频器并联使用时最后一台变频器需开启，接线方式参考附录 A。RS485 的地信号是 SG，与模拟量信号的 GND 相互隔离。A 等同于 S+，B 等同于 S-。

2.2 端子功能说明

表 1　主回路端子

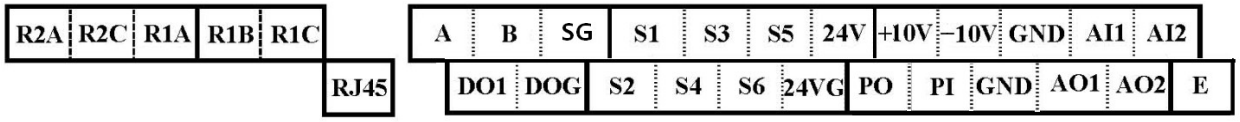
端子记号	380V：1~10HP	380V：15-30HP	380V: 40~535HP
R/L1	主回路电源输入		
S/L2			
T/L3			
+ (P)	• + (P)~ －(N)：直流电源输入 • + (P)~BR：外接刹车电阻	• + (P)~P1：外接 DCL *1 • + (P)~ －(N)：直流电源输入 • P1~BR：外接刹车电阻	• + (P)~ －(N)：直流电源输入或外接刹车单元
P1			
BR			
－ (N)			
U/T1	变频器输出		
V/T2			
W/T3			
E	接地端子 (第三种接地)		

备注：

15~30HP: + (P)~P1：出厂已短接，仅需要外接 DCL 时才能移除。

■控制回路端子配置

380V:1HP~75HP



380V:100HP~535HP

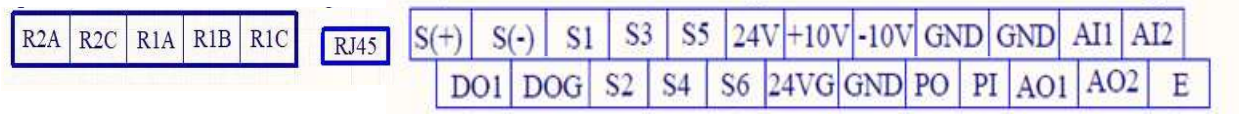


表 2　控制回路端子

种类	端子	端子功能	讯号位准
数位输入讯号	S1	二线式正转/停止 (预设),多功能输入端子*1	24 VDC, 8 mA 光耦合隔离 (最大电压 30 Vdc, 输入阻抗 4.22kΩ)
	S2	二线式反转/停止 (预设), 多功能输入端子*1	
	S3	多段速指令 1 (默认), 多功能输入端子*1	
	S4	多段速指令 2 (默认), 多功能输入端子*1	
	S5	多段速指令 3 (默认), 多功能输入端子*1	
	S6	故障复归(预设), 多功能输入端子*1	
24V 电源供应（独立绕组）	24V	数字讯号 SOURCE 公共端子 (SW3 切至 SOURCE 位置)	±15%, 最大输出电流 250mA(所有负载总和)
	24VG	数字讯号公共端子 数字讯号 SINK 公共端子 (SW3 切至 SINK 位置)	
模拟输入讯号	+10V	速度设定用电源	+10V (最大电流, 20mA)
	-10V	速度设定用电源	-10V (最大电流, 20mA)
	AI1	电压主速指令(0-10V 输入)/(-10V~10V 输入)	0 到 +10V, -10V 到 +10V (输入阻抗: 20kΩ) (11bit + 1 符号，分辨率)
	AI2	多功能模拟输入*2,可用 SW2 切换电压或电流输入 (0~10V)/(4-20mA)	0 到 +10V, (输入阻抗:200kΩ) 4 到 20 mA (输入阻抗: 250Ω) (11 bit + 1 符号，分辨率)
	GND	模拟讯号公共端子	----
	E	屏蔽线连接端子 (大地)	----
模拟输出讯号	AO1	多功能模拟输出端子 (0~10V 输出)	0 到 10V, (最大电流:2mA) 4 到 20 mA (负载< 500Ω) (PWM 10kHz 分辨率)
	AO2	多功能模拟输出端子*3 可用 SW1(1~75HP)或 SW6(100~535HP)切换电压或电流输出(0~10V 输出)/(4-20mA 输出)	
	GND	模拟讯号公共端子	
脉波输出讯号	PO	脉波输出,最大脉冲频率 32kHz	32kHz(max), 开集极输出
	GND	模拟讯号公共端子	----
脉波输入讯号	PI	脉波指令输入,最大脉冲频率 32kHz	L: 0.0 到 0.5V H: 4.0 到 13.2V 0 - 32 kHz(max) 内建 pull-up 电阻，使用开集极输入时，可不串接电阻
	GND	模拟讯号公共端子	----

种类	端子	端子功能	讯号位准
数位输出	DO1	多功能(开集极晶体管)输出：运转中，零速，频率一致，任意频率一致，输出频率，准备完成，低电压检出，输出遮断，运转及频率指令，过转矩检出，异常，低电压、过热、电机过负载、变频器过负载输出，重试中，通讯异常，计时功能输出器…	48Vdc, 2 mA~50mA 光耦合输出
	DOG	开集极晶体管公共端子	----
继电器输出	R1A	继电器 A 接点 (多功能输出端子) 继电器 B 接点 (多功能输出端子) 继电器公共端子, 功能与 DO1 相同	端子容量: 在 250Vac，10 mA~1A 在 30Vdc，10 mA~1A
	R1B		
	R1C		
	R2A-R2C	功能与 DO1 相同	端子容量: 在 250Vac，10 mA~1A 在 30Vdc，10 mA~1A
RS-485 接口	A (S+)	RS485/MODBUS	差动输出入
	B (S-)		
	SG	地信号*4*5	零点电位

*1:多功能数字输入功能,请参阅手册 03 群组- 数字输入输出

*2:多功能模拟输入功能,请参阅手册 04 群组- 外部端子模拟输入输出功能

*3:多功能模拟输出功能,请参阅手册 04 群组- 外部端子模拟输入输出功能

*4:RS485 的地信号（SG）与模拟信号公共端子（GND）是相互隔离的，不能混用，请注意。

*5:100HP(含)以上没有 RS485 地信号（SG）。

注意

- 端子±10V 输出电流最大容量为 20mA。
- 多功能模拟输出 AO1，AO2 为接电表专用之模拟输出，请勿用作回授控制等之模拟输出信号。
- 控制板 24V 与±10V 电源仅供内部控制使用，请勿外接至其他装置供电。

2.3 变频器规格

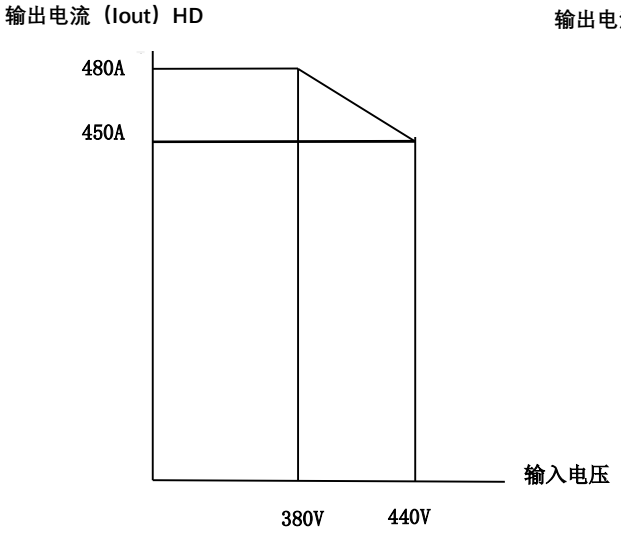
变频器容量(HP)			1	2	3	5S**	5	8	10S**	10	15	20	25	30	40	50	60	75
输出额定	重负载型 H.D. (150%/1 分)	额定输出容量 (KVA)	2.6	3.2	4.2	7	7	11.3	13.7	13.7	18.3	23.6	29.7	34.3	45.7	57.2	69.3	89.9
		额定输出电流 (A)	2.3	4.2	5.5	9.2	9.2	13	18	18	24	31	39	45	60	75	91	118
		最大适用马达 *1HP (KW)	1 (0.75)	2 (1.5)	3 (2.2)	5 (3.7)	5 (3.7)	7.5 (5.5)	10 (7.5)	10 (7.5)	15 (11)	20 (15)	25 (18.5)	30 (22)	40 (30)	50 (37)	60 (45)	75 (55)
	标准负载型 N.D. (120%/1 分)	额定输出容量 (KVA)					8.5	13.3		17.5	23.6	29.0	33.5	44.2	54.9	67.1	78.5	111
		额定输出电流 (A)					13	18		23	31	39	45	60	75	91	118	145
		最大适用马达 *1HP (KW)					7.5 (5.5)	10 (7.5)		15 (11)	20 (15)	25 (18.5)	30 (22)	40 (30)	50 (37)	60 (45)	75 (55)	100 (75)
	最大输出电压 (V)		三相 380V~440V															
	最高输出频率(Hz)		可由参数设定 0.1~599.0 Hz															
电源	额定电压、频率		三相 380V ~ 440V， 50/60Hz															
	容许电压变动		-15% ~ +10%															
	容许频率变动		±5%															

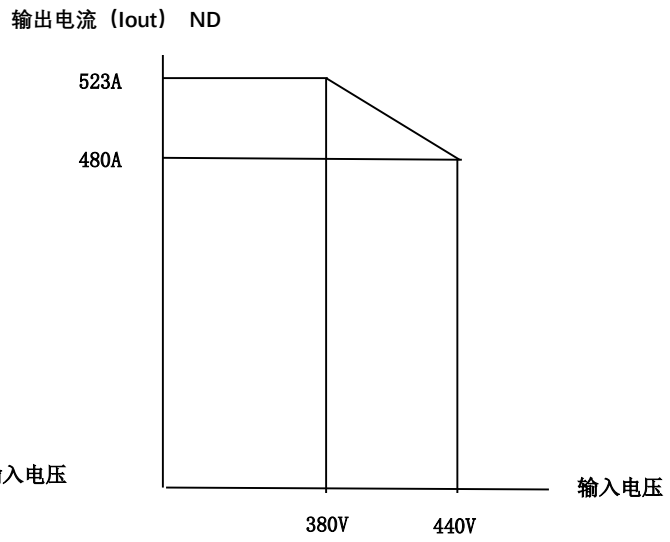
变频器容量(HP)			100	125	150	175	215	250	270	300	335	375	425	475	535
输出额定	重负载型 H.D. (150%/1 分)	额定输出容量 (KVA)	114	137	165	198	232	282	290	343	343	398	446	495	552
		额定输出电流(A)	150	180	216	260	304	370	380	450	480	523	585	650	725
		最大适用马达 *1HP (KW)	100 (75)	125 (90)	150 (110)	175 (132)	215 (160)	250 (185)	270 (200)	300 (220)	335 (250)	375 (280)	425 (315)	475 (355)	535 (400)
	标准负载型 N.D. (120%/1 分)	额定输出容量 (KVA)	137	159	198	232	250	332	332	366	366	446	488	552	625
		额定输出电流(A)	180	208	260	304	328	435	435	480	523	585	640	725	820
		最大适用马达 *1HP (KW)	125 (90)	150 (110)	175 (132)	215 (160)	250 (185)	300 (220)	300 (220)	335 (250)	375 (280)	425 (315)	475 (355)	535 (400)	600 (450)
	最大输出电压 (V)		三相 380V~440V												
	最高输出频率(Hz)		可由参数设定 0.1~599.0 Hz												
电源	额定电压、频率		三相 380V ~ 440V， 50/60Hz												
	容许电压变动		-15% ~ +10%												
	容许频率变动		±5%												

*1. 以东元标准 4 极感应电机为基准。

*2. 5S** 和10S** 为正在开发中，预计2023年上市

*3. 335HP如用到440V需降额使用，电压降额曲线如下。





*4. T310 机种是设计在重负载使用的负载条件下，出厂设定以 H.D.(重负载型为基准)，过载能力为 150%/1 分钟，载波及出厂设定请参考下表。

马力数 380V 级	重载(HD)模式 载波范围	重载模式(HD) 载波出厂设定	轻载模式(ND) 载波范围	轻载模式(ND) 载波出厂设定
1~3HP	2~16KHz	8KHz		
5HP/8HP/10HP	2~16KHz	5KHz	2~16KHz	4KHz
15~30HP	1~16KHz	8KHz	1~16KHz	4KHz
40~50HP	1~12KHz	5KHz	1~12KHz	4KHz
60~75HP	1~10KHz	5KHz	1~10KHz	4KHz
100HP	1~8KHz	5KHz	1~8KHz	2KHz
125HP	1~8KHz	4KHz	1~8KHz	2KHz
150HP/175HP	1~5KHz	4KHz	1~5KHz	2KHz
215-535HP	1~5KHz	3KHz	1~5KHz	2KHz

负载模式	控制模式	其他设定	最大频率
重负载型 (00-27=0)	V/F SLV2	最大频率选择为 599Hz	599Hz
	SLV	380V 1~15HP	150Hz
		380V 20HP	110Hz
		380V 25~30HP	100Hz
		380V 40~75HP, 载波(11-01)设定在 8K 或 8K 以下	100Hz
		380V 40~75HP, 载波(11-01) 设定在 8K 以上	80Hz
		380V 100~535HP,载波(11-01)设定在 8K 或 8K 以下	100Hz
	PMSLV	无限制	基频
标准负载型 (00-27=1)	V/F	最大频率选择为 120Hz	120Hz
	SLV SLV2	无标准负载型模式	-

*5. 使用100米及以上马达线载波设定不能大于2KHz（T310-1HP/2HP/3HP/5HP/8HP/10HP机种,使用100米及以上马达线载波仅能设为2KHz）。

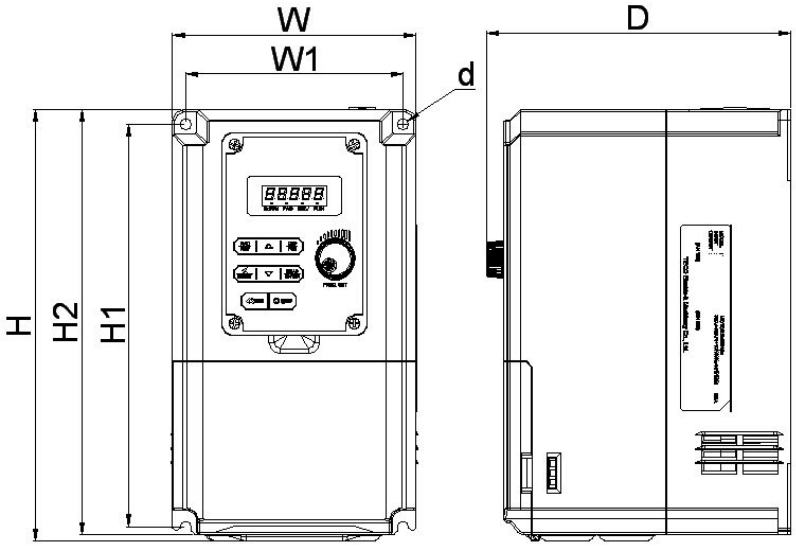
*6. 数字操作器可拆离变频器本体，使用数字操作器延长线作远方操作。延长线长度大于5米需经FAE确认后，方可使用。

*7. ND 模式不可选择 SLV 模式；若控制模式为 SLV，且最大频率 (01-02) 设定大于 80Hz，载波范围限制为 4~8kHz。

*8. T310-1HP的SLV模式下仅可使用1HP及0.5HP电机。

*9. T310-1HP/2HP如需允许瞬停功能，需设定07-25（低电压检测延时）为0，并且允许瞬停最大不超过1s。

2.4 产品外形尺寸



变频器型号	外型尺寸(mm)								
	W	H	D	W1	H1	H2	d	净重(kg)	备注
T310-4001-H3(IP20)	120	213	150	107	199	210	M5	1.7	
T310-4002-H3(IP20)	120	213	150	107	199	210	M5	1.75	
T310-4003-H3(IP20)	120	213	150	107	199	210	M5	1.8	d 处安装锁固
T310-4005S-H3(IP20)*1	120	213	150	107	199	210	M5	1.8	磅力推荐范围
T310-4005-H3(IP20)	144	263	170	132	248	260	M5	2.8	15~18kgf.cm
T310-4008-H3(IP20)	144	263	170	132	248	260	M5	2.85	
T310-4010S-H3(IP20)*1	144	263	170	132	248	260	M5	2.85	
T310-4010-H3(IP20)	215	315	212	198	284	300	M5	6.2	
T310-4015-H3(IP20)	215	315	212	198	284	300	M5	6.2	
T310-4020-H3(IP20)	215	315	212	198	284	300	M5	6.2	
T310-4025-H3(IP20)	256	378	234	218	360		M6	15	
T310-4030-H3(IP20)	256	378	234	218	360		M6	15	
T310-4040-H3(IP20)	284	535	270	220	515		M8	30	
T310-4050-H3(IP20)	284	535	270	220	515		M8	30	
T310-4060-H3(IP20)	323	575	292	220	553		M8	40	
T310-4075-H3(IP20)	323	575	292	220	553		M8	40	
T310-4100-H3(IP00)	344	600	315	250	560		M10	42	
T310-4125-H3(IP00)	344	600	315	250	560		M10	42	
T310-4150-H3(IP00)	459	790	333	320	760		M10	81	
T310-4175-H3(IP00)	459	790	333	320	760		M10	81	
T310-4215-H3(IP00)	459	790	333	320	760		M10	81	
T310-4250-H3(IP00)	540	822	378	360	795		M10	110	
T310-4270-H3(IP00)	540	822	378	360	795		M10	110	
T310-4300-H3(IP00)	540	822	378	360	795		M10	110	
T310-4335-H3(IP00)	540	822	378	360	795		M10	110	
T310-4375- H3(IP20)	709	896	417	530	855		M12	150	
T310-4425- H3(IP20)	709	896	417	530	855		M12	150	
T310-4475- H3(IP20)	806	1015	420	530	975		M12	170	
T310-4535- H3(IP20)	806	1015	420	530	975		M12	170	

*1为正在开发中，预计2023年上市

第 3 章 软件索引

3.1 参数一览表

参数群组	名　称
群组 00	基本功能群组
群组 01	V/F 控制功能群组
群组 02	IM 电机参数群组
群组 03	外部端子数位输入输出功能群组
群组 04	外部端子模拟输入输出功能群组
群组 05	多段速功能群组
群组 06	自动运转功能群组
群组 07	运转停止功能群组
群组 08	保护功能群组
群组 09	通讯功能群组
群组 10	PID 功能群组
群组 11	辅助功能群组
群组 12	监视功能群组
群组 13	维护功能群组
群组 14	保留
群组 15	保留
群组 16	保留
群组 17	自动调校功能群组
群组 18	滑差补偿功能群组
群组 19	摆频功能群组
群组 20	速度控制功能群组
群组 21	转矩及位置控制功能群组
群组 22	PM 马达群组
群组 23	泵浦群组
群组 24	专用机应用快捷参数群组

参数属性	
*1	运转中可修改的参数
*3	在做出厂设定时，此参数的值(用户设定的值)不会恢复为出厂默认值
*4	参数只读不可修改
*6	仅使用 LED 数字操作器时显示
*8	其设定值将依 13-08 之设定而变更
*9	T1.0 版软体不含此功能或此选项

群组 00 基本功能群组				
代码	参数名称	范围	出厂设定	属性
00-00	电机控制模式	0: V/F 1: 保留 2: SLV 3: 保留 4: 保留 5: PM SLV 6: SLV2	0	*3
00-01	电机转向	0:正转 1:反转	0	*1
00-02	主运转命令来源选择	0:按键面板 1:外控 2:通讯控制 3:保留	1	
00-03	副运转命令来源选择	0:按键面板 1:外控 2:通讯控制 3:保留	0	
00-04	保留			
00-05	主频率命令来源选择	0:按键面板 1:外控(模拟 AI1) 2:端子 UP/DOWN 3:通讯控制 4:脉波输入 5:保留 6:保留 7:AI2 辅助频率 8:旋钮给定	1	
00-06	副频率命令来源选择	0:按键面板 1:外控(模拟 AI1) 2:端子 UP/DOWN 3:通讯控制 4:脉波输入 5:保留 6:保留 7:AI2 辅助频率 8:旋钮给定	0	
00-07	频率源组合模式选择	0:主频率源 1:主频率源+副频率源	0	
00-08	通讯频率命令	0.00~599.00	0.00	
00-09	频率命令记忆模式	0:不记忆断电前通讯频率命令(00-08) 1:记忆断电前通讯频率命令(00-08)	0	

群组 00 基本功能群组				
代码	参数名称	范围	出厂设定	属性
00-10	最小频率检测动作	0: 低于最小频率会跳警告 1: 低于最小频率以最小频率运转 2： 无 stp0 警告，输出频率命令 3：无 stp0 警告， 低于最小频率输出 0	0	
00-11	PID 频率下限选择	0: PID 休眠限制频率下限 1: PID 休眠限制 0Hz	0	
00-12	频率上限	0.1~109.0	100.0	
00-13	频率下限	0.0~109.0	0.0	
00-14	加速时间 1	0.1~6000.0	*	*1
00-15	减速时间 1	0.1~6000.0	*	*1
00-16	加速时间 2	0.1~6000.0	*	*1
00-17	减速时间 2	0.1~6000.0	*	*1
00-18	寸动频率	0.00~599.00	6.00	*1
00-19	寸动加速时间	0.1~0600.0	*	*1
00-20	寸动减速时间	0.1~0600.0	*	*1
00-21	加速时间 3	0.1~6000.0	*	*1
00-22	减速时间 3	0.1~6000.0	*	*1
00-23	加速时间 4	0.1~6000.0	*	*1
00-24	减速时间 4	0.1~6000.0	*	*1
00-25	加减速切换频率	0.0~599.0	0.0	
00-26	紧急停止时间	0.1~6000.0	5.0	
00-27	HD/ND 选择	0:HD 模式 1:ND 模式	0	*3
00-28	主频率命令特性选择	0: 正特性(0~10V/4~20mA 对应 0~100%) 1: 负特性(0~10V/4~20mA 对应 100~0%)	0	
00-29~00-31 保留				
00-32	应用调整 *注 1	0:通用 1:水泵浦专用参数 2:传送带专用参数 3:排气风机专用参数 4:HVA 风机专用参数 5:空气压缩机专用参数 6~9:保留 10:塑机应用参数 11: 塑机 2 应用参数 20: 冲床应用参数 30：空压机应用参数	0	
00-34	两线式三线式选择	0:两线式 1:三线式	0	

*注 1 :设定参数 00-32 应用调整前，请先进行 13-08 初始化设定。

警告:如果设定参数 00-32(应用调整)则输入输出端子设定功能将根据设定值自动发生变化，在试运转前，请先确保变频器的输入

群组 01 基本功能群组				
代码	参数名称	范围	出厂设定	属性
01-00	V/F 曲线选择	0~FF	F	*3
01-01	保留			
01-02	电机 1 最大输出频率	4.8~599.0	50.0/60.0	*8
01-03	电机 1 最大输出电压	380V: 0.2~480.0	-	*8
01-04	电机 1 中间输出频率 2	0.0~599.0	0.0	
01-05	电机 1 中间输出电压 2	380V: 0.0~480.0	0.0	*8
01-06	电机 1 中间输出频率 1	0.0~599.0	2.5	
01-07	电机 1 中间输出电压 1	380V: 0.0~480.0	*	*8
01-08	电机 1 最小输出频率	0.0~599.0	VF: 1.3 SLV: 0.5 SLV2 :1.3	
01-09	电机 1 最小输出电压	380V: 0.0~480.0	*	*8
01-10	转矩补偿增益	0.0~2.0	0.5	*1
01-11	转矩补偿模式选择	0: 转矩补偿模式 0 1: 转矩补偿模式 1	0	
01-12	电机 1 基底频率	4.8~599.0	50.0/60.0	*8
01-13	电机 1 基底输出电压	380V: 0.0~480.0	-	*8
01-14	输入电压设定	380V: 310.0~480.0	-	*8
01-15	转矩补偿时间	0~10000	200	
01-16	电机 2 最大输出频率	4.8~599.0	50.0/60.0	*8
01-17	电机 2 最大输出电压	380V: 0.2~480.0	-	*8
01-18	电机 2 中间输出频率 2	0.0~599.0	0.0	
01-19	电机 2 中间输出电压 2	380V: 0.0~480.0	0.0	
01-20	电机 2 中间输出频率 1	0.0~599.0	2.5	

群组 01 基本功能群组				
代码	参数名称	范围	出厂设定	属性
01-21	电机 2 中间输出电压 1	380V: 0.0~480.0	KVA *注 1	
01-22	电机 2 最小输出频率	0.0~599.0	1.3	
01-23	电机 2 最小输出电压	380V: 0.0~480.0	KVA *注 1	
01-24	电机 2 基底频率	4.8~599.0	50.0/60.0	*8
01-25	电机 2 基底输出电压	380V: 0.0~480.0	-	*8
01-26	电机 2 V/F 曲线选择	0~FF	F	

*注 1:KVA:该参数会随着不同变频器的容量大小而不同。

2:由出厂 VF 曲线决定

3：当参数 01-00 已经被设成“F”或“FF”时，参数 01-02~01-09 及 01-12~01-13 方可被使用者设定。

4：假使参数 01-00 被设成不是 F 或 FF 的任意值，参数 01-02~01-09 及 01-12~01-13 无法改变。

群组 02　IM 电机参数群组				
代码	参数名称	范围	出厂设定	属性
02-00	电机 1 无载电流	0.01~600.00	KVA	
02-01	电机 1 额定电流	25%~200%变频器额定电流。	KVA	
02-02	保留			
02-03	电机 1 额定转速	0~60000	KVA	
02-04	电机 1 额定电压	380V: 100.0~480.0	-	*8
02-05	电机 1 额定功率	0.01~600.00	-	
02-06	电机 1 额定频率	4.8~599.0	50.0/ 60.0	*8
02-07	电机 1 极数	2~16(偶数)	4	
02-08	保留			
02-09	电机 1 激磁电流	15%~70%电机额定电流	-	
02-10	电机 1 铁心饱和系数 1	1~100	-	
02-11	电机 1 铁心饱和系数 2	1~100	-	
02-12	电机 1 铁心饱和系数 3	80~300	-	
02-13	电机 1 铁心损失	0.0~15.0	-	
02-14	保留			
02-15	电机 1 线间电阻	0.001~60.000	-	
02-16~02-18 保留				
02-19	电机 1 无载电压	380V: 100~480	-	
02-20	电机 2 无载电流	0.01~600.00	-	
02-21	电机 2 额定电流	25%~200% 变频器额定电流	-	

群组 02 基本功能群组				
代码	参数名称	范围	出厂设定	属性
02-22	电机 2 额定转速	0~60000	-	
02-23	电机 2 额定电压	380V: 100.0~480.0	-	*8
02-24	电机 2 额定功率	0.01~600.00	-	
02-25	电机 2 额定频率	4.8~599.0	50.0/ 60.0	
02-26	电机 2 极数	2~16(偶数)	4	
02-27~02-31 保留				
02-32	电机 2 线间电阻	0.001~60.000	-	
02-33	电机漏感比例	0.1~15.0	KVA	
02-34	电机滑差频率	0.10~20.00	KVA	
02-35~02-37 保留				

群组 03 外部端子数字输入输出功能群组				
代码	参数名称	范围	出厂设定	属性
03-00	多功能端子 S1 功能设定	0:二线式正转/停止 1:二线式反转/停止 2:多段速设定指令 1 3:多段速设定指令 2 4:多段速设定指令 3 5:多段速设定指令 4 6:寸动正转指令 7:寸动反转指令 8:UP 增频率指令 9:DOWN 减频率指令 10:加减速时间选择 1 11:加减速禁止 12:主副运转切换功能 13:主副频率切换功能 14:紧急停止(减速到零停止) 15:遮断停止(自由运转停止) 16:PID 功能禁止 17:故障复归(RESET) 18:保留 19:速度搜寻 1(从最大频率) 20:手动省能源功能 21:PID 积分复归 22~24:保留 25:外部故障 26:三线式正转/反转 27:本体/远程选择 28:远程模式选择 29:寸动频率选择 30:加减速时间选择 2 31:变频器过热预警 32:同步指令 33:直流刹车 34:速度搜寻 2(从频率指令) 35:计时功能输入 36:PID 软启动无效 37:摆频运转 38:摆频上偏移 39:摆频下偏移 40:电机 1/电机 2 切换 41: PID 休眠 42：保留 43：保留 44：保留 45：保留 46:保留 47:火灾模式(强制运转模式) 48: KEB 加速 49:允许参数写入 50:送电后直接运转保护(USP) 51:保留 52:保留 53:二线式自保(停止指令) 54：保留 55:保留 56：保留 57：保留 58:安全功能 59：保留 60：保留 61：保留 62:EPS 输入 63:切换第二组压力误差范围 64：保留 65：短路煞车 66：PID 功能禁止 67：保留 68：外部故障 2	0	
03-01	多功能端子 S2 功能设定		1	
03-02	多功能端子 S3 功能设定		2	
03-03	多功能端子 S4 功能设定		3	
03-04	多功能端子 S5 功能设定		4	
03-05	多功能端子 S6 功能设定		17	
03-06~03-07 保留				

群组 03 外部端子数字输入输出功能群组				
代码	参数名称	范围	出厂设定	属性
03-08	(S1~S6)DI 扫瞄时间	0: 扫描时间 4ms 1: 扫描时间 8ms	1	
03-09	多功能端子 S1-S4 类型选择	xxx0b:S1 A 接点 xxx1b:S1 B 接点 xx0xb:S2 A 接点 xx1xb:S2 B 接点 x0xxb:S3 A 接点 x1xxb:S3 B 接点 0xxxb:S4 A 接点 1xxxb:S4 B 接点	0000b	
03-10	多功能端子 S5-S6 类型选择	xxx0b:S5 A 接点 xxx1b:S5 B 接点 xx0xb:S6 A 接点 xx1xb:S6 B 接点	0000b	
03-11	继电器 (R1A-R1C)输出	0: 运转期间 1: 故障指示 2: 频率到达 3: 任意频率到达 (03-13±03-14) 4: 频率检出 1 (输出频率≧ (03-13+03-14)) 5: 频率检出 2 (输出频率≦ (03-13+03-14)) 6: 自动再启动 7: 保留 8: 保留 9: 遮断停止 10: 保留 11: 保留 12: 过转矩检出 13: 电流到达 14: 机械刹车控制 (03-17~18) 15: 保留 16: 保留 17: 保留 18: 保留 19: 保留 20: 零速 21: 变频器待命 22: 低电压检出 23: 运转指令来源 24: 频率指令来源 25: 低转矩检出	1	

群组 03 外部端子数字输入输出功能群组				
代码	参数名称	范围	出厂设定	属性
03-11	继电器 (R1A-R1C)输出	26: 频率断线 27: 计时功能输出 28: 摆频向上偏移状态 29: 摆频动作中 30: 选择电机 2 31: 保留 32: 通讯控制 33：保留 34：保留 35：保留 36: 保留 37: PID 回授断线侦测输出 38: 刹车释放 39: 频率检出 1(天车专用) 40: 保留 41: 保留	1	
03-12	继电器 (R2A-R2C)输出	42: 过高压力 43: 过低压力 44: 失压检测 45: PID 休眠 46: 过高流量 47: 过低流量 48: 低吸力不足 49: 保留 50: 频率检出 3 (输出频率≧(03-44+03-45)) 51: 频率检出 4 (输出频率≦(03-44+03-45)) 52：频率检出 5（输出频率≧(03-46+03-47)） 53: 频率检出 6 (输出频率≦03-46+03-47) 54：短路煞车中 55：保留 56：保留 57: 低电流检出 58:频率减速侦测 59:过温度检出	0	

群组 03 外部端子数字输入输出功能群组				
代码	参数名称	范围	出厂设定	属性
03-13	频率检测准位	0.0~599.0	0.0	
03-14	频率检测宽度	0.1~25.5	2.0	
03-15	电流到达准位	0.1~999.9	0.1	
03-16	电流到达检测延迟时间	0.1~10.0	0.1	
03-17	*机械刹车释放准位设定	0.00~599.00	0.00	
03-18	*机械刹车动作准位设定	0.00~599.00	0.00	
03-19	继电器(R1A-R2C)类型选择	xxx0b: R1 A 接点 xxx1b: R1 B 接点 xx0xb: R2 A 接点 xx1xb: R2 B 接点	0000b	
03-20~03-21 保留				
03-22	继电器光耦输出延时时间	0.0~60.0	0	
03-23~03-26 保留				
03-27	UP/DOWN 频率保持选择	0: 停止时保持 UP/DOWN 频率 1: 停止时清除 UP/DOWN 频率 2: 停止时允许频率 UP/DOWN 3. 加速时更新频率。	0	
03-28	光耦输出	范围和定义和 03-11, 03-12 相同	0	
03-29	光耦输出类型选择	xxx0b: 光耦 A 接点 xxx1b: 光耦 B 接点	0000b	
03-30	脉波输入选择	0:一般脉波输入 1:PWM 方式	0	
03-31	脉波输入刻度	依 03-30 设定调整 03-30 设定 0: 50~32000Hz 03-30 设定 1:10~1000Hz	1000	*1
03-32	脉波输入增益	0.0~1000.0	100	*1
03-33	脉波输入偏压	-100.0~100.0	0.0	*1
03-34	脉波输入滤波时间	0.00~2.00	0.1	*1

群组 03 外部端子数字输入输出功能群组				
代码	参数名称	范围	出厂设定	属性
03-35	脉波输出功能设定	1: 频率指令 2: 输出频率 3: 软启动后的输出频率 4: 电机速度 5: PID 回授 6: PID 输入 7: 保留	2	*1
03-36	脉波输出刻度	1~32000	1000	*1
03-37	定时器 ON 延迟(DI/DO)	0.0~6000.0	0.0	
03-38	定时器 OFF 延迟 (DI/DO)	0.0~6000.0	0.0	
03-39	保留			
03-40	Up/Down 频率幅宽设定	0.00~5.00	0.00	
03-41	转矩检测准位	0~150	10	
03-42	刹车动作延迟时间	0.00~65.00	0.00	
03-43	UP/DOWN 加/减速选择	0:加减速时间 1 1:加减速时间 2	0	
03-44	频率检测准位 2	0.0~599.0	0.0	
03-45	频率检测宽度 2	0.1~25.5	2.0	
03-46	频率检测准位 3	0.0~599.0	0.0	
03-47	频率检测宽度 3	0.1~25.5	2.0	
03-48	低电流检出准位	0.0~999.9	0.1	
03-49	低电流检出延迟时间	0.00~655.34	0.01	
03-50	频率检测准位 4	0.0~599.0	0	
03-51	频率检测准位 5	0.0~599.0	0	
03-52	频率检测准位 6	0.0~599.0	0	
03-53	电流达到准位 2	0.0~999.9	0.0	注 1.1
03-54	频率检出点个数	0：1 个检出点 1：2 个检出点	0	

注 1.1 ：V1.07，1.09 及 1.21 版本以上新增 03-00~03-05 为 65~69 功能，继电器输出为 58,59 功能，以及参数 03-53

群组 04 外部端子模拟输入输出功能群组				
代码	参数名称	范围	出厂设定	属性
04-00	AI 输入信号种类	0: AI1:0~10V AI2: 0~10V 1: AI1:0~10V AI2: 4~20mA 2: AI1: -10~10V AI2: 0~10V 3: AI1: -10~10V AI2: 4~20mA	1	
04-01	AI1 信号扫瞄滤波时间	0.00~2.00	0.03	
04-02	AI1 增益值	0.0~1000.0	100.0	*1
04-03	AI1 偏压值	-100.0~100.0	0	*1
04-04	AI 负特性	0：无效 1：有效	0	注 1.2
04-05	AI2 功能设定	0: 辅助频率 1: 频率增益 2: 频率偏压 3: 电压偏压 4: 加减速缩短系数 5: 直流刹车电流 6: 过转矩侦测准位 7: 运转中失速准位 8: 频率下限 9: 跳跃频率 4 10: 加到 AI1 11: 正转矩限制 12: 负转矩限制 13: 回升转矩限制 14: 正/负转矩限制 15: 保留 16: 转矩命令/转矩补偿 17: PTC 过热保护	10	
04-06	AI2 信号扫瞄滤波时间	0.00~2.00	0.03	
04-07	AI2 增益值	0.0~1000.0	100.0	*1
04-08	AI2 偏压值	-100.0~100.0	0	*1
04-09~04-10 保留				

群组 04 外部端子模拟输入输出功能群组				
代码	参数名称	范围	出厂设定	属性
04-11	AO1 功能设定	0: 输出频率 1: 频率指令 2: 输出电压 3: 直流电压 4: 输出电流 5: 输出功率 6: 电机速度 7: 输出功因 8: AI1 输入 9: AI2 输入 10: 转矩命令 11: q 轴电流 12: d 轴电流 13~16: 保留 17: q 轴电压 18: d 轴电压 19~20: 保留 21: PID 输入 22: PID 输出 23: PID 目标值 24: PID 回授值 25: 软启动器的输出频率 26~27: 保留 28: 通讯控制	0	
04-12	AO1 增益值	0.0~1000.0	100.0	*1
04-13	AO1 偏压值	-100.0~100.0	0	*1
04-14~04-15 保留				
04-16	AO2 功能设定	范围和定义和 04-11 相同	4	
04-17	AO2 增益值	0.0~1000.0	100.0	*1
04-18	AO2 偏压值	-100.0~100.0	0	*1
04-19	AO 输出信号种类	0:AO1：0~10V AO2： 0~10V 1: AO1：0~10V AO2 4~20mA	0	
04-20	AO 信号扫瞄滤波时间	0.00~0.50	0.00	*1
04-24	频率显示滤波	0.00~3.00	0.00	
04-25	AI1 滤波参数	0.00~3.00	0.00	

注 1.2：V1.21 版本新增参数，使用时若 04-05 为 10，频率输出为 AI1+AI2.

群组 04 外部端子模拟输入输出功能群组				
代码	参数名称	范围	出厂设定	属性
04-26	AI1 值平均值滤波	0 ~255	0	
04-27	输出频率显示值平均值滤波	0 ~255	0	

群组 05 多段速功能群组				
代码	参数名称	范围	出厂设定	属性
05-00	多段速加减速模式选择	0: 段速加减速时间由加减速时间 1~4 设定 1: 段速加减速时间独立设定	0	
05-01	*第 0 段速频率设定	0.00~599.00	5.00	*1
05-02	*第 1 段速频率设定	0.00~599.00	5.00	*1
05-03	*第 2 段速频率设定	0.00~599.00	10.00	*1
05-04	*第 3 段速频率设定	0.00~599.00	20.00	*1
05-05	*第 4 段速频率设定	0.00~599.00	30.00	*1
05-06	*第 5 段速频率设定	0.00~599.00	40.00	*1
05-07	*第 6 段速频率设定	0.00~599.00	50.00	*1
05-08	*第 7 段速频率设定	0.00~599.00	50.00	*1
05-09	*第 8 段速频率设定	0.00~599.00	5.00	*1
05-10	*第 9 段速频率设定	0.00~599.00	5.00	*1
05-11	*第 10 段速频率设定	0.00~599.00	5.00	*1
05-12	*第 11 段速频率设定	0.00~599.00	5.00	*1
05-13	*第 12 段速频率设定	0.00~599.00	5.00	*1
05-14	*第 13 段速频率设定	0.00~599.00	5.00	*1
05-15	*第 14 段速频率设定	0.00~599.00	5.00	*1
05-16	*第 15 段速频率设定	0.00~599.00	5.00	*1
05-17	多段速 0 加速时间设定	0.1~6000.0	10.0	
05-18	多段速 0 减速时间设定	0.1~6000.0	10.0	
05-19	多段速 1 加速时间设定	0.1~6000.0	10.0	
05-20	多段速 1 减速时间设定	0.1~6000.0	10.0	
05-21	多段速 2 加速时间设定	0.1~6000.0	10.0	
05-22	多段速 2 减速时间设定	0.1~6000.0	10.0	

群组 05 多段速功能群组				
代码	参数名称	范围	出厂设定	属性
05-23	多段速 3 加速时间设定	0.1~6000.0	10.0	
05-24	多段速 3 减速时间设定	0.1~6000.0	10.0	
05-25	多段速 4 加速时间设定	0.1~6000.0	10.0	
05-26	多段速 4 减速时间设定	0.1~6000.0	10.0	
05-27	多段速 5 加速时间设定	0.1~6000.0	10.0	
05-28	多段速 5 减速时间设定	0.1~6000.0	10.0	
05-29	多段速 6 加速时间设定	0.1~6000.0	10.0	
05-30	多段速 6 减速时间设定	0.1~6000.0	10.0	
05-31	多段速 7 加速时间设定	0.1~6000.0	10.0	
05-32	多段速 7 减速时间设定	0.1~6000.0	10.0	
05-33	多段速 8 加速时间设定	0.1~6000.0	10.0	
05-34	多段速 8 减速时间设定	0.1~6000.0	10.0	
05-35	多段速 9 加速时间设定	0.1~6000.0	10.0	
05-36	多段速 9 减速时间设定	0.1~6000.0	10.0	
05-37	多段速 10 加速时间设定	0.1~6000.0	10.0	
05-38	多段速 10 减速时间设定	0.1~6000.0	10.0	
05-39	多段速 11 加速时间设定	0.1~6000.0	10.0	
05-40	多段速 11 减速时间设定	0.1~6000.0	10.0	
05-41	多段速 12 加速时间设定	0.1~6000.0	10.0	
05-42	多段速 12 减速时间设定	0.1~6000.0	10.0	
05-43	多段速 13 加速时间设定	0.1~6000.0	10.0	
05-44	多段速 13 减速时间设定	0.1~6000.0	10.0	
05-45	多段速 14 加速时间设定	0.1~6000.0	10.0	
05-46	多段速 14 减速时间设定	0.1~6000.0	10.0	

群组 05 多段速功能群组				
代码	参数名称	范围	出厂设定	属性
05-47	多段速 15 加速时间设定	0.1~6000.0	10.0	
05-48	多段速 15 减速时间设定	0.1~6000.0	10.0	

群组 06 自动运转功能群组				
代码	参数名称	范围	出厂设定	属性
06-00	自动运转模式选择	0: 无效 1: 执行单一周期运转模式，停止后会由停止前的速度继续运转 2: 连续周期运转模式，停止后会由停止前的速度继续运转 3: 单一周期结束后，以最后一段运转速度继续运转，停止后会由停止前的速度继续运转 4: 执行单一周期运转模式，停止后会从第零段速起开始运转 5: 连续周期运转模式，停止后会从第零段速起开始运转 6: 单一周期结束后，以最后一段运转速度继续运转，停止后会从第零段速起开始运转	0	
06-01	*第 1 段运转频率设定	0.00~599.00	5.00	*1
06-02	*第 2 段运转频率设定	0.00~599.00	10.00	*1
06-03	*第 3 段运转频率设定	0.00~599.00	20.00	*1

群组 06 自动运转功能群组				
代码	参数名称	范围	出厂设定	属性
06-04	*第 4 段运转频率设定	0.00~599.00	30.00	*1
06-05	*第 5 段运转频率设定	0.00~599.00	40.00	*1
06-06	*第 6 段运转频率设定	0.00~599.00	50.00	*1
06-07	*第 7 段运转频率设定	0.00~599.00	50.00	*1
06-08	*第 8 段运转频率设定	0.00~599.00	5.00	*1
06-09	*第 9 段运转频率设定	0.00~599.00	5.00	*1
06-10	*第 10 段运转频率设定	0.00~599.00	5.00	*1
06-11	*第 11 段运转频率设定	0.00~599.00	5.00	*1
06-12	*第 12 段运转频率设定	0.00~599.00	5.00	*1
06-13	*第 13 段运转频率设定	0.00~599.00	5.00	*1
06-14	*第 14 段运转频率设定	0.00~599.00	5.00	*1
06-15	*第 15 段运转频率设定	0.00~599.00	5.00	*1
06-16	第 0 段运转时间设定	0.0~6000.0	0.0	*1
06-17	第 1 段运转时间设定	0.0~6000.0	0.0	*1
06-18	第 2 段运转时间设定	0.0~6000.0	0.0	*1
06-19	第 3 段运转时间设定	0.0~6000.0	0.0	*1
06-20	第 4 段运转时间设定	0.0~6000.0	0.0	*1
06-21	第 5 段运转时间设定	0.0~6000.0	0.0	*1
06-22	第 6 段运转时间设定	0.0~6000.0	0.0	*1
06-23	第 7 段运转时间设定	0.0~6000.0	0.0	*1
06-24	第 8 段运转时间设定	0.0~6000.0	0.0	*1
06-25	第 9 段运转时间设定	0.0~6000.0	0.0	*1
06-26	第 10 段运转时间设定	0.0~6000.0	0.0	*1

群组 06 自动运转功能群组				
代码	参数名称	范围	出厂设定	属性
06-27	第 11 段运转时间设定	0.0~6000.0	0.0	*1
06-28	第 12 段运转时间设定	0.0~6000.0	0.0	*1
06-29	第 13 段运转时间设定	0.0~6000.0	0.0	*1
06-30	第 14 段运转时间设定	0.0~6000.0	0.0	*1
06-31	第 15 段运转时间设定	0.0~6000.0	0.0	*1
06-32	第 0 段运转方向选择	0:停止 1:正转 2:反转	0	
06-33	第 1 段运转方向选择	0:停止 1:正转 2:反转	0	
06-34	第 2 段运转方向选择	0:停止 1:正转 2:反转	0	
06-35	第 3 段运转方向选择	0:停止 1:正转 2:反转	0	
06-36	第 4 段运转方向选择	0:停止 1:正转 2:反转	0	
06-37	第 5 段运转方向选择	0:停止 1:正转 2:反转	0	
06-38	第 6 段运转方向选择	0:停止 1:正转 2:反转	0	
06-39	第 7 段运转方向选择	0:停止 1:正转 2:反转	0	
06-40	第 8 段运转方向选择	0:停止 1:正转 2:反转	0	
06-41	第 9 段运转方向选择	0:停止 1:正转 2:反转	0	
06-42	第 10 段运转方向选择	0:停止 1:正转 2:反转	0	
06-43	第 11 段运转方向选择	0:停止 1:正转 2:反转	0	
06-44	第 12 段运转方向选择	0:停止 1:正转 2:反转	0	
06-45	第 13 段运转方向选择	0:停止 1:正转 2:反转	0	
06-46	第 14 段运转方向选择	0:停止 1:正转 2:反转	0	
06-47	第 15 段运转方向选择	0:停止 1:正转 2:反转	0	

群组 07 运转停止功能群组				
代码	参数名称	范围	出厂设定	属性
07-00	瞬停再启动选择	0：瞬停再启动无效		
		1: 瞬停再启动有效	0	
07-01	自动复归再启动时间	0~7200	0	
07-02	自动复归再启动次数	0~10（注 1.3）	0	
07-03	保留			
07-04	开机后直接启动	0:外部运转命令有效时，送电后直接启动	1	
		1:外部运转命令有效时，送电后不可直接启动		
07-05	开机直接启动延时	1.0~300.0	3.5	
07-06	刹车开始频率	0.0~10.0	0.5	
07-07	直流刹车电流准位	0~100	50	
07-08	停止时直流制动时间	0.00~100.00	0.50	
07-09	停止模式选择	0: 减速停止	0	
		1: 自由运转停止		
		2: 全领域直流刹车停止		
		3: 有定时器自由运转停止		
07-10~07-12 保留				
07-13	低压检测准位	380V 机种: 250~600 *注 1	380	
07-14	预激磁限制时间	0.00~10.00	2.00	
07-15	预激磁准位	50~200	100	
07-16	启动时直流制动时间	0.00~100.00	0.00	
07-17	保留			
07-18	最小遮断时间	0.1~5.0	KVA	
07-19	转向寻找电流	0~100	50	
07-20	速度寻找电流	0~100	20	
07-21	速度寻找积分时间	0.1~10.0	2.0	
07-22	速度寻找延迟时间	0.0~20.0	0.2	
07-23	电压回复时间	0.1~5.0	2.0	

注:07-43~07-45 为 V1.07 新增，07~47~07-48 为 V1.21 新增

群组 07 运转停止功能群组				
代码	参数名称	范围	出厂设定	属性
07-24	双向速度寻找选择	0: 无效 1：有效	0	
07-25	低压检测时间	0.00~1.00	0.02	
07-26	SLV 自由运转停止后启动方式选择	0:速度寻找启动	0	
		1:正常启动		
07-27	SLV 故障后启动方式选择	0: 速度寻找启动	0	
		1: 正常启动		
07-28	遮断后启动方式选择	0: 速度寻找启动	0	
		1: 正常启动		
07-29	直流刹车动作时运转指令选择	0:过程中不允许启动	0	
		1:过程中允许启动		
07-30	低压准位选择	0: 无效	0	
		1: 有效		
07-32	速度搜寻模式选择	0: 无效	0	
		1: 开机后执行一次速度搜寻		
		2: 每次启动均速度搜寻		
07-33	速度搜寻开始频率选择	0: 电机最大输出频率	0	
		1: 频率指令		
07-34	启动时短路煞车时间	0.00~100.00	0.00	
07-35	停止时短路煞车时间	0.00~100.00	0.5	
07-36	短路煞车电流限制	0.0~200.0	100.0	
07-42	电压限制增益	0.0~50.0	0	
07-43	PM 速度搜寻短路煞车时间	0.00~100.00	0.00	
07-44	PM 速度搜寻直流煞车时间	0.00~100.00	0.00	
07-45	STP2 机能选择	0：致能 STP2 1：取消 STP2	0	
07-47	ES 时直流制动选择	0：无直流制动 1：有直流制动	0	
07-48	PM 速度切换频率模式	0：无效 1：模式 1 2：模式 2	0	

07-13 低压检测准位 440V 机种需将 07-30 低压准位选择设定为有效，下限才调整至 250V。 此应用于电梯机能搭配 EPS 系统(Emergency power supply 紧急电源供给)使用。

*马达最大输出频率超过 300Hz 时，频率分辨率为 0.1H。

群组 08 保护功能群组				
代码	参数名称	范围	出厂设定	属性
08-00	失速防止功能	xxx0b: 加速时失速防止有效 xxx1b: 加速时失速防止无效 xx0xb: 减速时失速防止有效 xx1xb: 减速时失速防止无效 x0xxb: 运转中失速防止有效 x1xxb: 运转中失速防止无效 xxx0b: 加速时失速防止有效 0xxxb: 运转中失速防止依据第一段减速时间 1xxxb: 运转中失速防止依据第二段减速时间	0000b	
08-01	加速失速防止准位	20~200	HD:150 ND:120	
08-02	减速失速防止准位	660V~820V	380V:680 其它:770	
08-03	运转中失速防止准位	30~200	HD:160 ND:120	
08-04	保留			
08-05	电机过载(OL1)保护选择	xxx0b: 电机过载无效 xxx1b: 电机过载有效 xx0xb: 电机过载冷启动 xx1xb: 电机过载热启动 x0xxb: 标准电机 x1xxb: 变频电机 0xxxb: 保留 1xxxb: 保留	0101b	
08-06	过载(OL1)保护动作启动方式	0:过载保护后停止输出 1:过载保护后继续运转	0	

群组 08 保护功能群组				
代码	参数名称	范围	出厂设定	属性
08-07	电机过载(OL1)保护准位	0:电机过载(OL1)保护 0 1:电机过载(OL1)保护 1 2:电机过载(OL1)保护 2	0	
08-08	自动稳压功能(AVR)	0: 有效 1: 无效	0	
08-09	输入欠相保护选择	0: 无效 1: 有效	0	
08-10	输出欠相保护选择	0: 无效 1：有效	0	
08-11~08-12 保留				
08-13	过转矩检测选择	0: 过转矩侦测无效 1: 到达设定频率后开始侦测 2: 运转中即侦测	0	
08-14	过转矩动作选择	0: 检出后减速停止 1: 检出后显示警告，继续运转 2: 检出后自由运转停止	0	
08-15	过转矩检测准位	0~300	150	
08-16	过转矩检测时间	0.0~10.0	0.1	
08-17	低转矩检测选择	0: 低转矩侦测无效 1:到达设定后开侦测始 2: 运转中即侦测	0	
08-18	低转矩动作选择	0: 检出后减速停止 1: 检出后显示警告，继续运转 2: 检出后自由运转停止	0	
08-19	低转矩检测准位	0~300	30	
08-20	低转矩检测时间	0.0~10.0	0.1	
08-21	加速失速防止限制	1~100	50	
08-22	运转失速检测时间	2~100	100	
08-23	接地故障（GF）选择	0: 无效 1: 有效	0	

群组 08 保护功能群组				
代码	参数名称	范围	出厂设定	属性
08-24	外部故障工作选择	0: 减速停止 1: 自由运转停止	0	
08-25	外部故障检测选择	0: 送电后即侦测 1: 运转中才即侦测 2: 继续运转	0	
08-26~08-29 保留				
08-30	安全功能选择	0: 减速停止 1: 自由运转停止	0	
08-31~08-34 保留				
08-35	电机过热故障选择	0: 无效 1: 减速停止 2: 自由运转停止 3: 持续运转	0	
08-36	PTC 输入滤波时间常数	0.00 ~ 5.00	2.00	
08-37	风扇控制功能	0:运转时启动 1:永远启动 2:高温时启动	0	
08-38	风扇关闭延迟时间	0~600	180	
08-39	电机过热保护延迟时间	1~300	60	
08-40	电机 2 加速失速防止准位	20~200	HD:150 ND:120	
08-41	电机 2 加速失速防止限制	1~100	50	
08-42	PTC 保护准位	0.1~10.0V	0.7	
08-43	PTC 复归准位	0.1~10.0V	0.3	
08-44	PTC 警告准位	0.1~10.0V	0.5	
08-45 保留				
08-46	过温保护准位	0~254	0	
08-47	过温复归准位	0~254	0	
08-48	OC 复归功能	0:无效 ，可复归 1:有效，需等待 1min 后才可复归	1	注 1.3
08-49	Keypad 选择	0：T310 1：A510S 2：T310&A510S	0	
08-50	OL3 功能选择	0：无效 1：有效	0	
08-51	OL3 复归时间	0~300s	0	

注 1.3： 08-48 为 V1.21 新增；
如果需要立即复归 OC 或者允许自动复归 OC 故障（当 07-02>0）时，需设置 08-48=0。

群组 09 通讯功能群组				
代码	参数名称	范围	出厂设定	属性
09-00	变频器通讯站别	1~31	1	*3
09-01	通讯模式选择	0: MODBUS 1:保留 2:保留 3:PUMP 并联通讯 4:保留	0	*3
09-02	波特率设定 (bps)	0:1200 1:2400 2:4800 3:9600 4:19200 5:38400	4	*3
09-03	停止位选择	0: 1 停止位 1: 2 停止位	0	*3
09-04	奇偶位选择	0: 无奇偶位 1: 偶位选择 2: 奇位选择	0	*3
09-05	通讯数据位选择	0: 8 位数据 1: 7 位数据	0	*3
09-06	通讯异常检测时间	0.0~25.5	0.0	*3
09-07	故障停止选择	0: 通讯故障后依减速时间 1 减速停止 1: 通讯故障后自由运转停止 2: 通讯故障后依减速时间 2 减速停止 3: 通讯故障后继续运转	3	*3
09-08	通讯容错次数	1~20	1	*3
09-09	等待时间	5~65	5	*3

*3 09 群组不受 13-08 初始化影响。

群组 10 PID 功能群组				
代码	参数名称	范围	出厂设定	属性
10-00	PID 目标值来源设定	0:PUMP 或 HVAC 给定 1:AI1 给定 2:AI2 给定 3:脉波给定 4:10-02 给定 5：保留 6:频率指令 (00-05)	4	
10-01	PID 回授值来源设定	1:AI1 给定 2:AI2 给定 3:脉波给定	2	
10-02	PID 目标值	0.00~100.00	0.00	*1
10-03	PID 控制模式	xxx0b:PID 无效 xxx1b:PID 有效 xx0xb: PID 正特性 xx1xb: PID 负特性 x0xxb: PID 误差值 D 控制 x1xxb: PID 回授值 D 控制 0xxxb: PID 输出 1xxxb: PID 输出+频率命令	0000b	
10-04	回授增益	0.01~10.00	1.00	*1
10-05	比例增益(P)	0.00~10.00	1.00	*1
10-06	积分时间(I)	0.00~100.00	1.00	*1
10-07	微分时间(D)	0.00~10.00	0.00	*1
10-08	AI1 频率限制	0.00~599.00	0	
10-09	PID 偏压	-100.0~100.0	0	*1
10-10	PID 输出延迟时间	0.00~10.00	0.00	*1
10-11	PID 回授断线检测	0: 无效 1: 警告 2: 故障	0	
10-12	PID 回授断线检测准位	0~100	0	
10-13	PID 回授断线检测时间	0.0~10.0	1.0	
10-14	PID 积分限制	0.0~100.0	100.0	*1
10-15	PID 变化模式	0~2	0	
10-16	PID 变化刻度	0~100	100	*1
10-17	*PID 休眠起始频率	0.00~599.00	0.00	

群组 10 PID 功能群组				
代码	参数名称	范围	出厂设定	属性
10-18	PID 休眠延迟时间	0.0~255.5	0.0	
10-19	*PID 唤醒起始频率	0.00~599.00	0.00	
10-20	PID 唤醒延迟时间	0.0~255.5	0.0	
10-21~10-22	保留			
10-23	PID 输出限制	0.00~100.0	100.0	*1
10-24	PID 输出增益	0.0~25.0	1.0	
10-25	PID 反向输出选择	0:不允许反向输出 1:允许反向输出	0	
10-26	PID 目标加/减速时间	0.0~25.5	0.0	
10-27	PID 回授显示偏压	0~9999	0.00	
10-28	保留			
10-29	PID 休眠选择	0: 无效 1: 有效 2:由 DI 设定	1	
10-30	PID 目标上限	0.0 ~ 100.0	100.0	
10-31	PID 目标下限	0.0 ~ 100.0	0.0	
10-32	保留			
10-33	PID 回授最大值	1 ~ 10000	999	
10-34	PID 小数宽度	0 ~ 4	1	
10-35	保留			
10-36	PID2 比例增益(P)	0.00~10.00	3.00	*1
10-37	PID2 积分时间(I)	0.00~100.00	0.50	*1
10-38	PID2 微分时间(D)	0.00~10.00	0.00	*1
10-39	*PID 断线输出频率设定	00.00~599.00	30.00	
10-40	PID 休眠补偿频率选择	0:无效 1:有效	0	
10-41	PID 模式切换	0:一般 PID 1:D 型 PID	0	

群组 11 辅助功能群组				
代码	参数名称	范围	出厂设定	属性
11-00	电机方向锁定指令	0: 允许正反转 1: 只允许正转 2: 只允许反转	0	
11-01	载波频率	0: 载波随输出频率调整 1~16: 1~16KHz 最小设定载波频率: V/F,SLV2 最小载波设定 1k SLV 最小载波设定 4k	*注 1	*1
11-02	软调变选择	0: 无效 1: 软调变 1 2: 软调变 2 *9	0	
11-03	自动降载波选择	0: 无效 1: 有效	0	
11-04	加速开始 S 曲线时间设定	0.00~2.50	0.20	
11-05	加速结束 S 曲线时间设定	0.00~2.50	0.20	
11-06	减速开始 S 曲线时间设定	0.00~2.50	0.20	
11-07	减速结束 S 曲线时间设定	0.00~2.50	0.20	
11-08	跳跃频率 1	0.0~599.0	0.0	
11-09	跳跃频率 2	0.0~599.0	0.0	
11-10	跳跃频率 3	0.0~599.0	0.0	
11-11	跳跃频率宽度	0.0~25.5	1.0	
11-12	手动省能增益	0~100	80	
11-13	自动退回时间	0~120	60	*1
11-14~11-17 保留				
11-18	手动省能频率	0.0~599.0	0.00	
11-19	自动省能功能	0:自动省能无效 1:自动省能有效	0	
11-20	自动省能滤波时间	0~200	140	
11-21	省能调整电压上限	0~100	100	
11-22	省能调整时间	0~5000	20	*1
11-23	省能侦测准位	0~100	10	
11-24	自动省能系数	0.00~655.34	KVA	
11-26	载波频率切换上限频率	10%~100%	80%	*9
11-27	载波频率切换下限频率	2%~100%	20%	*9

群组 11 辅助功能群组				
代码	参数名称	范围	出厂设定	属性
11-28	过压防止 2 频率增益	1~200	100	
11-29	自动降输出频率选择	0: 无效 1: 有效	0	
11-30	可变载波频率最大限制	2~16	KVA	
11-31	可变载波频率最小限制	1~16	KVA	
11-32	可变载波频率增益	00~99	00	
11-33	DC 电压滤波上升量	0.1~10.0	0.1	
11-34	DC 电压滤波下降量	0.1~10.0	5.0	
11-35	DC 电压滤波死域准位	0.0~99.0	10.0	
11-36	过压防止频率增益	0.000~1.000	0.050	
11-37	**过压防止频率限制	*0.00~599.00	5.00	
11-38	过压防止减速开始电压	380V: 400~800V	700	
11-39	过压防止减速停止电压	380V: 600~800V	750	
11-40	过压防止选择	0: 无效 1: 过压防止模式 1 2: 过压防止模式 2 3: 过压防止模式 3 4：过励磁减速	V/F SLV2:0；SLV:1	
11-41	参考频率消失检测选择	0: 参考频率消失时，减速停止 1: 参考频率消失时，依 11-42 的设定运转	0	
11-42	参考频率消失时的频率命令	0.0~100.0	80.0	
11-43	启动时锁定频率	0.0~599.0	0.0	
11-44	启动时频率锁定时间	0.0~10.0	0.0	
11-45	停止时锁定频率	0.0~599.0	0.0	
11-46	停止时频率锁定时间	0.0~10.0	0.0	
11-47	KEB 减速时间	0.0~25.5	0.0	*1
11-48	KEB 检测准位	380V:380~420	400	

注：11-26~11-27 ，在 00-00=5 且 22-26=2，11-01=0 时才可使用自动变载波功能。

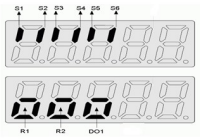
群组 11 辅助功能群组				
代码	参数名称	范围	出厂设定	属性
11-49~11-50 保留				
11-51	零速刹车选择	0: 零速直流刹车无效 1: 零速直流刹车有效	0	
11-52	下垂控制准位	0.0~100.0	0.0	*1
11-53	下垂控制延迟	0.01~2.00	0. 2	*1
11-54	累计能量初始化	0: 不清除累计能量 1: 清除累计能量	0	*1
11-55	STOP 键选择	0: 运转指令不由操作器提供时，停止键无效 1: 运转指令不由操作器提供时，停止键有效	1	
11-56	UP/DOWN 选择	0: 操作器 UP/DOWN 效，修改频率后需按 ENTER 才有效 1: 操作器 UP/DOWN 有效，修改频率后立刻有效	0	
11-57	保留			
11-58	记录参考频率	0: 无效 1: 有效	0	*1
11-59	防止振荡增益	0.00~2.50	0.05	
11-60	防止振荡上限	0~100	KVA	
11-61	防止振荡时间参数	0~100	0	
11-62	防止振荡选择	0:模式 1 1:模式 2 2:模式 3	0	
11-63	强磁选择	0: 无效 1: 有效	1	
11-64	加速速率调整增益	0.1~10.0	1.0	
11-65	目标主回路电压	380V:400V~800V	740	
11-66	调变模式切换起始频率	6.00~60.00	20	
11-67	软调变 2 侦测范围	0~12000	0	*9
11-68	软调变 2 侦测起始频率	6.00~60.00	20	*9

群组 11 辅助功能群组				
代码	参数名称	范围	出厂设定	属性
11-69	防止振荡增益	0.00~200.00	5.00	
11-70	防止振荡上限	0.01~100.00	5.00	
11-71	防止振荡时间常数	0~30000	100	
11-72	防止振荡增益切换频率 1	0.01~300.00	30.00	
11-73	防止振荡增益切换频率 2	0.01~300.00	50.00	
11-74~11-75 保留				
11-76	下垂(Droop)频率准位 1	0.00~599.00	0.00	*4
11-77	下垂(Droop)频率准位 2	0.00~599.00	0.00	*4
11-78	下垂(Droop)转矩偏移量	0.00~100.00	0.00	*4
11-79	载波调变模式	0 和 2:两相调变 1:三相调变	0	
11-81	过励磁电流限制准位	1.00~2.00	1.1	
11-82	过励磁电流增益系数%	0~256	64	

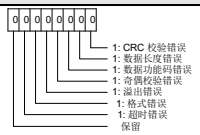
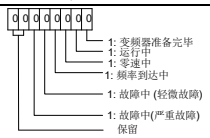
*注 1: 参考附件一，参阅 4-45 页，11-01 运转中修改载波频率范围为 1~16KHz;

11-79 为 V1.21 新增，如降低马达噪音可设置 11-79 为 1，全频率运转均为三相调变模式。

群组 12 监视功能群组				
代码	参数名称	范围	出厂设定	属性
12-00	显示画面选择 (LED)	00000~88888 由最左位数起，依序为按 DSP 键后会显示的画面 0:不显示 1:输出电流 2:输出电压 3:DC bus 电压 4:heatsink 温度* 5:PID 回授 6:AI1 值 7:AI2 值 8:频率命令	00321	*1 *6
12-01	PID 反馈显示模式 (LED)	0: 以整数显示反馈值(xxx) 1:以小数点 1 位显示反馈值(xx.x) 2:以小数点 2 位显示反馈值(x.xx)	0	*6
12-02	PID 反馈显示单位设定 (LED)	0:xxxxx (无单位) 1:xxxPb(压力) 2:xxxFL(流量)	0	*6

群组 12 监视功能群组				
代码	参数名称	范围	出厂设定	属性
12-03	线速度显示 (LED)	0~60000	1500/1800	*1 *6
12-04	线速度显示模式 (LED)	0:显示变频器输出频率 1:以整数显示线速度(xxxxx) 2:以小数点 1 位显示线速度(xxxx.x) 3:以小数点 2 位显示线速度(xxx.xx) 4:以小数点 3 位显示线速度(xx.xxx)	0	*1 *6
12-05	显示数字输入输出端子状态 (LED)	有输入输出时之对应  大图参见 35 页示意图	-	*4
12-06~12-10 保留				
12-11	最近一次（故障时之输出电流	显示最近一次故障时的输出电流	-	*4
12-12	最近一次故障时之输出电压	显示最近一次故障时的输出电压	-	*4
12-13	最近一次故障时之输出频率	显示最近一次故障时的输出频率	-	*4
12-14	最近一次故障时之直流电压	显示最近一次故障时的直流电压	-	*4
12-15	最近一次故障时之频率命令	显示最近一次故障时的频率命令	-	*4
12-16	频率命令	LED 进入此参数时，只允许监控频率命令	-	*4
12-17	输出频率	显示目前的输出频率	-	*4
12-18	输出电流	显示目前的输出电流	-	*4
12-19	输出电压	显示目前的输出电压	-	*4
12-20	直流电压(Vdc)	显示目前的直流电压	-	*4
12-21	输出功率 (kw)	显示目前的输出功率	-	*4

群组 12 监视功能群组				
代码	参数名称	范围	出厂设定	属性
12-22	电机速度 (RPM)	显示目前的电机速度 VF/SLV 模式时电机速度 = 输出频率 x120/电机极数**(电机速度(RPM)最大上限为 65535)**	-	*4
12-23	输出功率因数 (Pfo)	显示目前的输出功因	-	*4
12-24	控制模式	显示控制模式 0:VF 2:SLV 6:SLV2	-	*4
12-25	AI1 输入	AI1 输入(-10V 对应 -100%, 10V 对应 100%)	-	*4
12-26	AI2 输入	显示目前的 AI2 输入(0V 或 4mA 对应 0%, 10V 或 20mA 对应 100%)	-	*4
12-27	电机转矩	显示目前的转矩命令 (100% 对应电机转矩)	-	*4
12-28	电机转矩电流 (Iq)	显示目前的 q 轴电流	-	*4
12-29	电机激磁电流 (Id)	显示目前的 d 轴电流	-	*4
12-30~12-35 保留				
12-36	PID 控制输入	显示 PID 控制器的误差输入 (PID 目标值 – PID 回授) (100% 对应 01-02 或 01-16 设定的最大频率)	-	*4
12-37	PID 输出	显示 PID 控制器的输出 (100% 对应 01-02 或 01-16 设定的最大频率)	-	*4
12-38	PID 设定	显示 PID 控制器的目标值 (100% 对应 01-02 或 01-16 设定的最大频率)	-	*4
12-39	PID 回授	显示 PID 控制器的回授值 (100% 对应 01-02 或 01-16 设定的最大频率)	-	*4
12-40	保留			
12-41	变频器温度显示	显示散热片或 IGBT 的温度	-	*4

群组 12 监视功能群组				
代码	参数名称	范围	出厂设定	属性
12-42	RS-485 错误码	 大图参见 31 页示意图	-	*4
12-43	变频器状态	 大图参见 31 页示意图	-	*4
12-44	脉波输入频率	显示脉波输入的频率值	-	*4
12-45	当前故障讯息	显示当前故障的讯息	-	*4
12-46	前一次故障讯息	显示前一次故障的讯息	-	*4
12-47	前二次故障讯息	显示前二次故障的讯息	-	*4
12-48	前三次故障讯息	显示前三次故障的讯息	-	*4
12-49	前四次故障讯息	显示前四次故障的讯息	-	*4
12-50	最近一次(新)故障时之 DI/DO 状态	显示最近一次故障的 DI/DO 状态，说明如同 12-05	-	*4
12-51	最近一次(新)故障时之变频器状态	显示最近一次故障时的变频器状态，说明如同 12-43	-	*4
12-52	最近一次(新)故障时之跳脱时间 1	显示最近一次故障时的运转时间，12-53 为其天数，12-52 为其不满一天的小时数	-	*4
12-53	最近一次(新)故障时之跳脱时间 2		-	*4
12-54	前一次（旧）故障频率命令	显示上一次故障时的频率命令	-	*4
12-55	前一次（旧）故障输出频率	显示上一次故障时的输出频率	-	*4
12-56	前一次（旧）故障输出电流	显示上一次故障时的输出电流	-	*4
12-57	前一次（旧）故障输出电压	显示上一次故障时的输出电压	-	*4
12-58	前一次（旧）故障直流电压	显示上一次故障时的直流电压	-	*4
12-59	前一次（旧）故障 DI/DO 状态	显示上一次故障的 DI/DO 状态，说明如同 12-05	-	*4

群组 12 监视功能群组				
代码	参数名称	范围	出厂设定	属性
12-60	前一次（旧）故障变频器状态	显示上一次故障时的变频器状态，说明如同 12-43	-	*4
12-61	上一次故障时之跳脱时间 1	显示上一次故障时的运转时间，12-62 为其天数，12-61 为其不满一天的小时数	-	*4
12-62	上一次故障时之跳脱时间 2		-	*4
12-63	最近警告讯息	显示目前的警告讯息	-	*4
12-64	前一次警告讯息	显示前一次的警告讯息	-	*4
12-65~12-66 保留				
12-67	累计能量(千瓦小时)	0.0 ~ 999.9		*4
12-68	累计能量(兆瓦小时)	0 ~ 60000		*4
12-69~12-75 保留				
12-76	实际无载电压	0.0~600.0	-	*4
12-77~12-78 保留				
12-79	脉波输入百分比	0.0~100.0	-	*4
12-80	AI1 频率命令	0.0~599.0	0	*4
12-82	马达负载	0~200.0	-	*4
12-85	最近一次（新）故障时温度数值	显示最近一次故障时的温度	-	*4
12-86	前一次（旧）故障时温度数值	显示前一次故障时的温度	-	*4
12-87	故障状态	UV，CF08 故障的来源	-	*4

群组 13 维护功能群组				
代码	参数名称	范围	出厂设定	属性
13-00	变频器马力数	----	-	*4
13-01	软件版本	0.00-9.99	-	*4
13-02	累计工作时间清除功能	0:不清除累计工作时间 1:清除累计工作时间	0	*1
13-03	累计工作时间 1	0~23	-	*4
13-04	累计工作时间 2	0~65535	-	*4
13-05	累计工作时间选择	0:通电时累积时间 1:运转时累积时间	0	*1
13-06	参数锁定	0:13-06 及主页面频率 05-01 之外的所有参数不可写 1:保留 2:所有参数可写	2	*1
13-07	密码功能	00000~65534	00000	
13-08	恢复出厂设定	0:不初始化 2:2 线式初始化 (60Hz) (440V) 3:3 线式初始化 (60Hz) (440V) 4:2 线式初始化 (50Hz) (415V) 5:3 线式初始化 (50Hz) (415V) 6:2 线式初始化 (50Hz) (380V) 7:3 线式初始化 (50Hz) (380V) 8:保留 9:保留 10:保留 11:2 线式初始化 (60Hz) (400V) 12:3 线式初始化 (60Hz) (400V) 13:2 线式初始化 (50Hz) (400V) 14:3 线式初始化 (50Hz) (400V)	-	

群组 13 维护功能群组				
代码	参数名称	范围	出厂设定	属性
13-09	故障履历清除功能	0:不清除故障履历 1:清除故障履历	0	*1
13-10	状态功能	0 ~ 9999	0	
13-11	C/B CPLD 软件版本(无 CLPLD 机种无此参数)	0.00~9.99	-	*9
13-14	故障储存选择	0: 自动复归再启动的故障讯息不储存于故障履历 1: 自动复归再启动的故障讯息储存于故障履历	1	
13-15	保留			
13-21	前一次故障讯息	显示前一次故障的讯息	-	
13-22	前二次故障讯息	显示前二次故障的讯息	-	
13-23	前三次故障讯息	显示前三次故障的讯息	-	
13-24	前四次故障讯息	显示前四次故障的讯息	-	
13-25	前五次故障讯息	显示前五次故障的讯息	-	
13-26	前六次故障讯息	显示前六次故障的讯息	-	
13-27	前七次故障讯息	显示前七次故障的讯息	-	
13-28	前八次故障讯息	显示前八次故障的讯息	-	

群组 13 维护功能群组				
代码	参数名称	范围	出厂设定	属性
13-29	前九次故障讯息	显示前九次故障的讯息	-	
13-30	前十次故障讯息	显示前十次故障的讯息	-	
13-31	前十一次故障讯息	显示前十一次故障的讯息	-	
13-32	前十二次故障讯息	显示前十二次故障的讯息	-	
13-33	前十三次故障讯息	显示前十三次故障的讯息	-	
13-34	前十四次故障讯息	显示前十四次故障的讯息	-	
13-35	前十五次故障讯息	显示前十五次故障的讯息	-	
13-36	前十六次故障讯息	显示前十六次故障的讯息	-	
13-37	前十七次故障讯息	显示前十七次故障的讯息	-	
13-38	前十八次故障讯息	显示前十八次故障的讯息	-	
13-39	前十九次故障讯息	显示前十九次故障的讯息	-	
13-40	前二十次故障讯息	显示前二十次故障的讯息	-	
13-41	前二十一次故障讯息	显示前二十一次故障的讯息	-	
13-42	前二十二次故障讯息	显示前二十二次故障的讯息	-	
13-43	前二十三次故障讯息	显示前二十三次故障的讯息	-	
13-44	前二十四次故障讯息	显示前二十四次故障的讯息	-	
13-45	前二十五次故障讯息	显示前二十五次故障的讯息	-	
13-46	前二十六次故障讯息	显示前二十六次故障的讯息	-	
13-47	前二十七次故障讯息	显示前二十七次故障的讯息	-	
13-48	前二十八次故障讯息	显示前二十八次故障的讯息	-	
13-49	前二十九次故障讯息	显示前二十九次故障的讯息	-	
13-50	前三十次故障讯息	显示前三十次故障的讯息	-	

群组 17 自动调校功能群组				
代码	参数名称	范围	出厂设定	属性
17-00	*自动调校模式选择	0:旋转自动调校 1:静止自动调校 2:定子电阻量测 3:保留 4:回路调校 5:旋转自动调校整合(选项:4+2+0) 6:静止自动调校整合(选项:4+2+1)	VF:2 SLV:6 SLV2:6	-
17-01	电机额定输出功率	0.00~600.00	KVA *注 1	
17-02	电机额定电流	25%~120%变频器额定电流	KVA *注 1	
17-03	电机额定电压	380V: 100.0~480.0	-	*8
17-04	电机额定频率	4.8~599.0	50.0/60.0	*8
17-05	电机额定速度	0~24000	KVA	
17-06	电机极数	2~16(偶数)	4	
17-07	保留			
17-08	电机无载电压	380V:100~480	由机型决定	
17-09	电机激磁电流	15%~70%电机额定电流	-	
17-10	自动调校启动	0: 无效 1: 有效	0	
17-11	自动调校错误履历	0: 无误 1: 电机数据错误 2. 定子电阻调校错误 3. 漏感调校错误 4. 转子电阻调校错误 5. 互感调校错误 6. DT 错误 7. 编码器错误 8. 电机加速错误 9. 警告	0	*4
17-12	电机漏感比例	0.1~15.0	3.4	
17-13	电机滑差频率	0.10~20.00	1.00	
17-14	旋转调校型式选择	0:VF 型旋转自动调校 1:向量型旋转自动调校	0	

群组 18 滑差补偿功能群组				
代码	参数名称	范围	出厂设定	属性
18-00	低速滑差补偿增益	0.00~2.50	VF:0.00 SLV: *注 1	*1
18-01	高速滑差补偿增益	-1.00~1.00	0.0	*1
18-02	滑差补偿限制	0~250	200	
18-03	滑差补偿滤波时间	0.0~10.0	1.0	
18-04	回升滑差补偿选择	0:无效 1:有效	0	
18-05	FOC 延迟时间	1~1000	100	
18-06	FOC 增益	0.00~2.00	0.1	

*注 1:参考附件一

群组 19 摆频功能群组				
代码	参数名称	范围	出厂设定	属性
19-00	摆频中心频率	5.00~100.00	20.00	*1
19-01	摆频振幅	0.1~20.0	10.0	*1
19-02	摆频跳动频率	0.0~50.0	0.0	*1
19-03	摆频跳动时间	0~50	0	*1
19-04	摆频周期	0.0~1000.0	10.0	*1
19-05	摆频比例	0.1~10.0	1.0	*1
19-06	摆频上偏移振幅	0.0~20.0	0.0	*1
19-07	摆频下偏移振幅	0.0~20.0	0.0	*1

*注 1:KVA:该参数会随着不同变频器的容量大小而不同。

注:向量模式 17-00 出厂值为 6 静止自动调校整合(选项:4+2+1)，若电机无挂载可以进行旋转调校时，建议进行 5:旋转自动调校整合(选项:4+2+0)

群组 20 速度控制功能群组				
代码	参数名称	范围	出厂设定	属性
20-00	ASR 增益 1	0.00~250.00	-	*1
20-01	ASR 积分时间 1	0.001~10.000	-	*1
20-02	ASR 增益 2	0.00~250.00	-	*1
20-03	ASR 积分时间 2	0.001~10.000	-	*1
20-04	ASR 积分时间限制	0~300	200	
20-05~20-06 保留				
20-07	加减速 P/PI 选择	0:PI 速度控制只在定速时有效；加减速时只使用 P 控制 1:PI 速度控制在定速及加减速都有效	1	
20-08	ASR 延迟时间	0.000~0.500	0.004	
20-09	速度观测增益 1	0.00~2.55	0.61	*1
20-10	速度观测积分时间 1	0.01~10.00	0.05	*1
20-11	速度观测增益 2	0.00~2.55	0.61	*1
20-12	速度观测积分时间 2	0.01~10.00	0.06	*1
20-13	速度回授低通滤波常数 1	1~1000	4	
20-14	速度回授低通滤波常数 2	1~1000	30	
20-15	ASR 增益改变频率 1	0.0~599.0	4.0	
20-16	ASR 增益改变频率 2	0.0~599.0	8.0	
20-17	低速转矩补偿增益	0.00~2.50	1.00	*1
20-18	高速转矩补偿增益	-10~10	0	*1
20-19~20-32 保留				
20-33	定速侦测准位	0.1~5.0	1.0	*1
20-34	降转补偿增益	0~25600	0	*1
20-35	降转补偿时间	0~30000	100	*1
20-36~20-44 保留				
20-45	频率限制	100~800	120	

群组 21 转矩及位置控制功能群组				
代码	参数名称	范围	出厂设定	属性
21-00~21-04 保留				
21-05	正转矩限制	0~300	*注 1	
21-06	负转矩限制	0~300	*注 1	
21-07	正转回升转矩限制	0~300	*注 1	
21-08	反转回升转矩限制	0~300	*注 1	

群组 22 PM 马达群组				
代码	参数名称	范围	出厂设定	属性
22-00	PM 马达额定功率	0.00~600.00	KVA	
22-01	马达额定电压	100.0~480.0	380.0	
22-02	PM 马达额定电流	25%~200%变频器额定电流	KVA	
22-03	PM 马达极数	2~96	6	
22-04	PM 马达额定转速	6~60000(22-04, 22-06 只要设定其中之一即可，程式会自动计算另一个)	1500	
22-05	PM 马达最大转速	6~60000	1500	
22-06	PM 马达额定频率	4.8~599.0	75.0	
22-07	PM 类型选择	0:SPM 1:IPM	1	
22-10	PM SLV 启动电流	0 ~ 200% 马达额定电流	60	
22-11	I/f 模式启动频率切换点	2~100%	10	
22-14	PM 马达电枢电阻	0.001 ~ 30.000	1.000	
22-15	PM 马达 D 轴电感	0.01 ~ 300.00	10.00	
22-16	PM 马达 Q 轴电感	0.01 ~ 300.00	10.00	
22-17	PM 无载电压	380V:0.0~500.0	300.0 注 1.1	
22-18	弱磁限制	0~120	90	
22-21	PM 马达调校	0:无效 1:参数自动调校 2:磁极对位与回路调整 3:动态自学习	0	
22-22	PM 马达调校故障履历	0. 无误 1: 静止磁极对位失败 2: 无 PG option card 3: 旋转磁极对位被迫停止 4: 编码器回授方向错误 5: 回路调整逾时 6: 保留 7: 其他马达调校错误	0	

群组 22 PM 马达群组				
代码	参数名称	范围	出厂设定	属性
22-22	PM 马达调校故障履历	8: 旋转磁极对位时电流异常 9: 回路调整电流异常 10: 保留 11: 定子电阻量测逾时	0	*4
22-25	初始磁极侦测方式选择	0:使用停止前角度 1:6 脉波找角 2:高频找角 3：12 脉波找角	2	
22-26	估测器模式	0：I/F 启动 1：高频启动 2：全闭环启动	0	
22-27	方法 2 电压命令(22-25=2)	5~120(22-25=2 或 22-26=1 有效)	50	
22-28	方法 2 除频比例(22-25=2)	0~8(22-25=2 或 22-26=1 有效)	2	
22-29	弱磁电压限制	80~110	100	
22-30	SPM 估测增益	1~150	85	注 1.1
22-31	SPM 估测频率	1~2000HZ	60	注 1.1
22-32	MTPA 选择	0：无效 1：方式	0	注 1.1
22-33	MTPA 增益	000~400%	200	注 1.1
22-34	IPM 估测增益	1~300	180	注 1.1
22-36	PM 马达类型	0：一般 PM 马达 1：DVEN60HZ 马达 2：DVEN50HZ 马达	0	
22-37	PM 马达马力数	0~34	0	
22-38	I/F 模式启动频率切换宽度	1.0~40.0	5. 0	
22-39	直流激磁时间	0~20.0	0. 00	
22-40	高频找角时间	0.01~1.00	0. 02	
22-41	停机速控比	0:1：10 1：1：50	0	
22-42	D 轴电感系数 1	64~8192	100	
22-43	D 轴电感系数 2	64~8192	500	
22-44	速度积分滤波时间	1~256	4	
22-45	磁链系数	0.001~10.000	0. 600	
22-46	系统转动惯量(kg*cm^2)	1~30000	10	
22-47	粘滞系数	0.0001~3.0000	0. 1000	

群组 22 PM 马达群组				
代码	参数名称	范围	出厂设定	属性
22-48	转矩前馈补偿电流选择	0：无效 1：有效	0	
22-49	转矩前馈补偿电流比例	0~32	12	
22-50	速度前馈选择	0：无效 1：有效	0	
22-51	速度前馈比例	1~1024	128	
22-52	全闭环矫正系数 β_低速段	3000~60000	4000	
22-53	全闭环低速下位置滤波系数	1~256	32	
22-54	电压定标值	50.0~600.0	300.0	*9
22-55	全闭环高速速度滤波系数	1~256	32	*9
22-56	全闭环低速速度滤波系数	1~256	64	*9
22-57	零电压脉冲周期个数	3~20	4	*9
22-58	零电压脉宽寻优电流限幅值	1~50	10	*9
22-59	零电压加入使能	0：不加入 1：加入	1	*9
22-60	零电压脉冲周期寻优值	4000~40000	4000	*9

群组 23 泵浦与 HVAC 群组				
代码	参数名称	范围	出厂设定	属性
23-00	机能选择	0: 无效 1: 泵浦选择	0	
23-01	单多泵浦及主副机设定	0：单 Pump 1：主机 2：副机 1 3：副机 2 4：副机 3	0	
23-02	工作压力设定	0.10 ~ 650.00	4.00	
23-03	压力传送器最大压力	0.10 ~ 650.00	10.00	
23-04	泵浦压力命令来源	0: 由 23-02 参数设定 1: 由 AI 设定	0	
23-05	显示方式选择	0: 显示目标压力及回授 压力(若配合 LED 操作器,23-03 需小于 9.9PSI) 1. 仅显示目标压力 2. 仅显示回授压力	0	
23-06	比例增益(P)	0.00~10.00	1.00	*1
23-07	积分时间(I)	0.00~100.00	1.00	*1
23-08	微分时间(D)	0.00~10.00	0.00	*1
23-09	恒压误差范围	23-20=0:0.01 ~ 650.00 23-20=1:1~100	5	*6
23-10	恒压休眠频率	0.00 ~ 599.00	30.00	
23-11	恒压休眠时间	0.0~255.5	0.0	
23-12	最大压力限制	23-20=0:0.00 ~ 650.00	50	
		23-20=1:0~100		
23-13	高压警告时间	0.0 ~ 600.0	10.0	
23-14	高压停机时间	0.0 ~ 600.0	20.0	
23-15	最小压力限制	23-20=0:0.00 ~ 650.00	5	
		23-20=1:0~100		
23-16	低压警告时间	0.0 ~ 600.0	0.0	
23-17	低压故障停机时间	0.0 ~ 600.0	0.0	
23-18	失压检测时间	0.0 ~ 600.0	0.0	
23-19	失压检测比例	0 ~ 100	0	

群组 23 泵浦与 HVAC 群组				
代码	参数名称	范围	出厂设定	属性
23-20	压力百分比切换	0:压力 1:百分比	1	
23-21	保留			
23-22	副机跳脱频率	0.00 ~ 599.00	45.00	
23-23	用水检测方向	0: 向上检测 1: 向下检测	1	
23-24	用水检测压力范围	23-20=0:0.00 ~ 65.00 23-20=1:0~10	1	*6
23-25	用水检测周期	0.0 ~ 200.0	30.0	
23-26	用水检测加速时间	0.1 ~ 6000.0(加速时间二)	依马力数	*1
23-27	用水检测减速时间	0.1 ~ 6000.0(减速时间二)	依马力数	*1
23-28	强制运转频率	0.00~ 599.00	0.00	
23-29	多泵浦并联交替时间	0~240	3	
23-30	多泵浦并联辅助打水侦测时间	0.0 ~ 30.0	0.0	
23-31	多泵浦并联同步选择	0 : 关闭 1 : 压力设定及 Run/Stop 同步 2 : 压力设定同步 3 : Run/Stop 同步	1	
23-32	保留			
23-33	保留			
23-34	恒压误差范围 2	23-20=0:0.01 ~ 650.00 23-20=1:1~100	5	
23-35	多台并联交换选择（范围 2、3、4 需 V1.05 版本及以上方可使用）	0:不进行功能 1:定时器交替选择 2:休眠停止交替选择 3:定时器与休眠停止交替选择 4.多台并联测试模式	1	
23-37	漏水检测时间	0.0~100.0	0	

群组 23 泵浦与 HVAC 群组				
代码	参数名称	范围	出厂设定	属性
23-38	漏水检测再启动压力变化量	23-20=0:0.01 ~ 65.00 23-20=1:1~10	1	
23-39	漏水检测再启动误差范围	23-20=0:0.01 ~ 650.00 23-20=1:1~100	5	
23-40	保留			
23-41	本体/远程键	0:无效 1:有效	1	*9
23-42	能量重新计算	0: 无效(能量继续累计) 1: 有效(能量重新计算)	0	*9
23-43	每度电费单位	0.000~5.000	0.000	*9
23-44	累积电能脉波输出单位选择	0:累积电能脉波输出无效 1:以 0.1kWh 为单位 2:以 1kWh 为单位 3:以 10kWh 为单位 4:以 100kWh 为单位 5:以 1000kWh 为单位	0	*9
23-45	流量计回授给定方式	0: 无效 1: 模拟输入 2: 脉波输入	1	*9
23-46	流量计最大值	1~50000	10000	*9
23-47	流量计目标值	1~50000	5000	*9
23-48	回授最高流量值	0.01~99.00	80	*9
23-49	回授最高流量警告时间	0.0~255.0	3.0	*9
23-50	回授最高流量停机时间	0.0~255.0	6.0	*9
23-51	回授最低流量值	0.01~99.00	10.00	*9
23-52	回授最低流量警告时间	0.0~255.0	3.0	*9
23-53	回授最低流量停机时间	0.0~255.0	6.0	*9

群组 23 泵浦与 HVAC 群组				
代码	参数名称	范围	出厂设定	属性
23-54	吸力过低检出机能	0: 无效 1: PID 误差值 2: 电流 3: 电流及 PID 误差值	0	*9
23-55	吸力过低检出时间	0.0 ~ 30.0	10.0	*9
23-56	吸力过低 PID 误差准位	0 ~ 30	10	*9
23-57	吸力过低电流准位	0 ~ 100	10	*9
23-58	吸力过低动作反应	0: 无效 1: 警告 2: 故障 3: 故障及重新启动	0	*9
23-59	HVAC 压力命令来源	0: 由 23-47 参数设定 1: 由 AI 设定	0	*9
23-66	降载电流准位	10~200	110	*9
23-67	降载延迟时间	1.0~20.0	10	*9
23-68	降载频率增益	1~100	90	*9
23-69	OL4 电流准位	10~200	120	*9
23-70	OL4 延迟时间	0.0~20.0	5	*9
23-71	压力设定最大值	0.10~650.00	10	
23-72	并联交替时间切换	0:小时 1:分	0	
23-73	副机唤醒选择	0: 无效 1:有效	0	
23-74	高压动作设定	0: 无效 1: 只有高压警告 2: 高压警告错误都有效	2	
23-75	低压动作设定	0: 无效 1: 只有低压警告 2: 低压警告错误都有效	0	

群组 23 泵浦与 HVAC 群组				
代码	参数名称	范围	出厂设定	属性
23-76	高流量动作设定	0: 无效 1: 只有高流量警告 2: 高流量警告错误都有效	2	*9
23-77	低流量动作设定	0: 无效 1: 只有低流量警告 2: 低流量警告错误都有效	2	*9
23-78	失压检测动作选择	0: 无效 1: 失压警告 2: 失压故障	0	

注:23-74~23-78 V1.04（含） 之前版本为保留功能，V1.05 及以上版本功能开启。

群组 24 专用机应用快捷参数群组				
代码	参数名称	范围	出厂设定	属性
24-00	专用机应用参数	0~30 （同 00-32） 本群组为设置 10,20,30 时的应用参数	0	
24-01	控制模式	0: V/F 2：SLV 5：PMSLV 6：SLV2	0	
24-02	主运转命令来源选择	0：按键面板 1：外控 2：通讯控制	1	
24-03	主频率命令来源选择	0：按键面板 1：外控 AI 2：端子 UP/down 3:通讯控制 4.脉波输入 5~6：保留 7：辅助频率 8：旋钮给定	1	
24-04	频率上限	0.1~109.0	100.0	
24-05	频率下限	0.1~109.0	0.0	
24-06	加速时间 1	0.1~6000.0	KVA	*1
24-07	减速时间 1	0.1~6000.0	KVA	*1
24-08	VF 曲线选择	00~FF	F	
24-09	电机 1 最大输出频率	4.8~599.0	50.0/60.0	*8
24-10	电机 1 最大输出电压	380V: 0.2~480.0	-	*8
24-11	电机 1 中间输出频率 2	0.0~599.0	0.0	
24-12	电机 1 中间输出电压 2	380V: 0.2~480.0	0.0	*8
24-13	电机 1 中间输出频率 1	0.0~599.0	2.5	
24-14	电机 1 中间输出电压 1	380V: 0.0~480.0	-	*8
24-15	电机 1 最小输出频率	0.0~599.0	-	
24-16	电机 1 最小输出电压	380V:0.0~480.0	-	*8
24-17	电机 1 基底频率	4.8~599.0	50.0/60.0	*8
24-18	电机 1 基底输出电压	380V:0.0~480.0	-	*8
24-19	电机 1 额定电流	25%~200%变频器额定电流	KVA	
24-20	多功能端子 S1 功能设定	同 03-00 设定	0	
24-21	多功能端子 S2 功能设定		1	
24-22	多功能端子 S3 功能设定		2	
24-23	继电器 R1A –R1C 输出	同 03-11 设定	1	

群组 24 专用机应用快捷参数群组				
代码	参数名称	范围	出厂设定	属性
24-24	脉波输出刻度	1~32000	1000	*1
24-25	AI 输入信号种类	0~3（同 04-00）	1	
24-26	AI2 功能设定	0~17（同 04-05）	10	
24-27	AO1 功能设定	0~28（同 04-11）	0	
24-28	AO2 功能设定	0~28（同 04-11）	4	
24-29	AO 输出信号种类	0~3	0	
24-30	开机后直接启动	外部运转命令有效时 0：送电后可直接启动 1：送电后不可直接启动	1	
24-31	停机直流制动时间	0.00~100.00	0.5	
24-32	停机模式选择	0~3	0	
24-33	预激磁准位	50~200	100	
24-34	速度搜寻模式选择	0~2	0	
24-35	失速防止功能	同 08-00 设置	0000b	
24-36	载波频率	0: 载波随输出频率调整 1~16: 1~16KHz	依模式	*1
24-37	显示画面选择	同 12-00 设定	00321	*1
24-38	ASR 增益 1	0.00~250.00	依模式	*1
24-39	ASR 积分时间 1	0.001~10.000	依模式	*1
24-40	ASR 增益 2	0.00~250.00	依模式	*1
24-41	ASR 积分时间 2	0.001~10.000	依模式	*1
24-42	降转补偿增益	0~25600	0	*1
24-43	降转补偿时间	0~30000	100	*1
24-44	正转矩限制	0~300	200	
24-45	负转矩限制	0~300	200	
24-46	正转回升转矩限制	0~300	200	
24-47	反转回升转矩限制	0~300	200	
24-48	自动调校模式选择	同 17-00	VF：0 SLV：6 SLV2：6	
24-49	电机额定输出功率	0.00~600.00	依马力	
24-50	电机额定电流	25%~120%变频器额定电流	依马力	
24-51	电机额定电压	380V: 100.0~480.0	-	*8
24-52	电机额定频率	4.8~599.0	50/60HZ	
24-53	电机额定速度	0~24000	依马力	
24-54	电机极数	2~16(偶数)	4	
24-55	自动调校启动	0~1	0	

第 4 章 异常诊断及排除

4.1 总则

变频器的故障检测和预警/自我诊断功能。当变频器检测到故障的故障码显示在数字操作器时，故障接点输出动作，切断变频器输出，使电机自由运转停止(在某些故障方面，停机的方法是可以选择)。

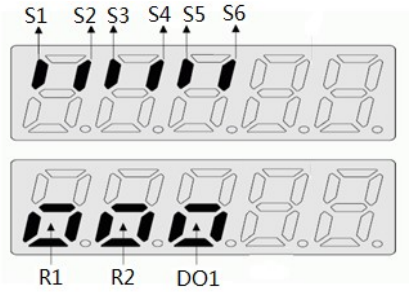
当变频器检测到警告/自我诊断，数字操作器会显示警告/自诊断代码，但接点的故障输出不动作。一旦发生的警告已被排除，系统会自动恢复到原来的状态。

4.2 故障检测功能

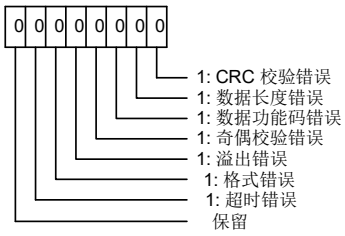
故障发生时，参阅表 4.1 查询可能的原因，采取适当的措施。 请先停机，再启动时，请使用下列任一种方法：

1. 设置其中一个多功能数字输入端子（03-00，03-05）至 17（故障复归），使故障复归讯号 ON。
2. 按下数字操作器的 Reset 键。
3. 将主电路电源先切断后再接通。

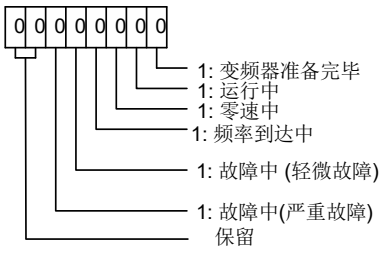
当故障发生时，故障讯息储存在故障信息（群组 12 参数）。



12-05 示意图

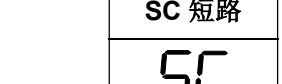
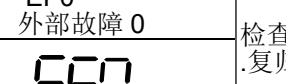
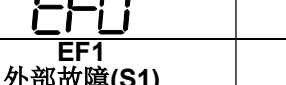
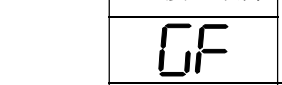
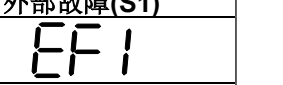
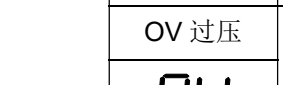
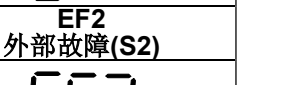
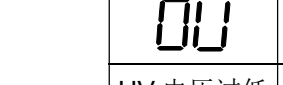
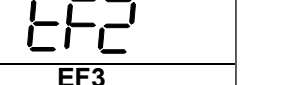
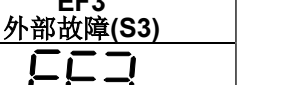
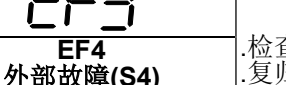
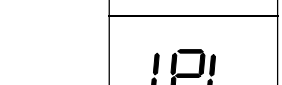
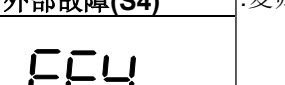
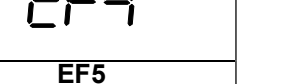
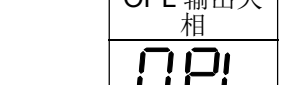
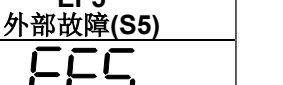
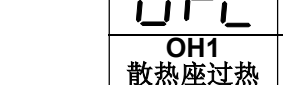
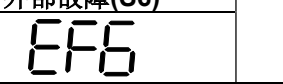
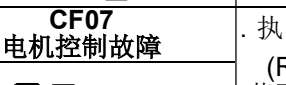


12-42 示意图



12-43 示意图

表 4.1 错误讯息与改正措施

LED 显示	改正行动	LED 显示	改正行动
OC 过电流	.延长加速/减速时间。 .检查负载接线。 .移除马达并尝试运转变频器。 .变频器送修。	**OCA 过电流**	设定较长的加速时间。 .更换容量相当的变频器。 .检修电机。 .检查配线。 .变频器送修
			
OCC 过电流	加大变频器容量。 .电源输入侧加装电抗器。 .变频器送修。	**OCD 过电流**	.设定较长的减速时间。 .变频器送修。
			
LED 显示	改正行动	LED 显示	改正行动
SC 短路	.确认负载接线。 .变频器送修。	EF0 外部故障 0	检查外部故障原因。 .复归通讯位置 0x2501 的 bit 2。
			
GF 接地故障	.检查电机接线及接线阻抗。 .变频器送修。	**EF1** **外部故障(S1)**	.检查外部原因故障。 .复归多功能数字输入的外部故障。
			
OV 过压	.延长减速时间。 .检查输入电路和降低输入电压符合规范要求。 .移除功率因数校正电容。 .加装刹车电阻。	**EF2** **外部故障(S2)**	
			
UV 电压过低	.检查输入电路和电源电压。 .延长加速时间。 .变频器送修。	**EF3** **外部故障(S3)**	
			
IPL 输入欠相	.确认主回路电源接线是否正确。 .检查端子螺丝是否松动。 .确认电源电压采取稳定电压的对策，或将输入欠相检出关闭。 .变频器送修。	**EF4** **外部故障(S4)**	
			
OPL 输出欠相	.检查电机的接线。 .检查电机和变频器的容量。	**EF5** **外部故障(S5)**	
			
OH1 **散热座过热**	.检查变频器环境周围的温度。 .检查风扇或散热槽之尘埃和污垢。 .检查载波频率之设定。	**EF6** **外部故障(S6)**	
			
OL1 电机过载	.检查 V/F 模式。 .检查电机额定电流。 .检查负载大小和运转周期时间。	**CF07** **电机控制故障**	.执行旋转型电机参数检测 (Rotational Auto-tuning) .若无法执行旋转型电机参数检测，请执行静止型电机参数检测，或增加 01-08 设定值。
			
OL2 变频器过载	.检查 V/F 模式。 .替换至更高容量的变频器。 .检查负载大小和运转周期时间。	CF08 **馬達控制故障**	**請適當調整增加 22-10 及 22-23 設定值。** .请重新进行 22-21，参数自动调整。 **.檢查負載是否過大，是否需要提高輸出轉矩限制。**
			
OT 过转矩侦测	.检查应用程序或操作状态。 .08-15 及 08-16 是否为适当值。	**FU** **保险丝开路**	.检查电机和电缆是否为短路或绝缘损毁。 .修理/替换变频器。
			
UT 低转矩侦测	.检查应用程序或操作状态。 .检查 08-19 及 08-20 是否为适当值。	**CF00** **操作器通讯异常**	.数字操作器之连接器拔起再插入。 .更换控制基板。
			
run 电机 1/电机 2 切换	.修正顺序控制，以便在停止时进行电机切换。	**CF01** **操作器通讯异常 2**	.数字操作器之连接器拔起再插入。 .更换控制基板。

run		CF01	
FB PID 回授断线 Fb	.检查设立的 PID 回授方式是否正确。 .确保正确安装及 PID 回授信号的工作正常。	**CT 故障** CtEr	.检查输入电压讯号与控制板上的电压。
LOPBT 低流量故障 LOPbt	.检查回授信号是否正确且有接上。 .确认回授流量是否低于最小流量限制值 (参数 23-51)。	**通讯错误** CF20	.检查目前通讯机制只有使用一种。

LED 显示	改正行动	LED 显示	改正行动
HIPBT 高流量故障 HiPbt	.检查回授信号是否正确。 .确认回授流量是否高于最大流量限制值(参数 23-48)。	OPBFT 高压故障 OPbFt	.检查回授信号是否正确。 .确认**回授**压力**是否**高于**最大**压力限制值(参数 23-12)。
LPBFT 低压故障 LPbFt	.检查回授讯号是否正确且有接上 .确认回授压力是否低于最小压力限制值(参数 23-15)。	LSCFT **低吸力**故障 LSCFt	.检测出水槽内是否不足，而出水槽内是否正常供水。 .确认 PID 误差高于 PID 误差准位或者电流低于吸力不足輸出电流准位。
FBLSS PID **回授讯号遗失** FbLSS	检查设立的 23-19 失压比例是否正确。 .确保正确安装及 PID 信号**的工作正常。**	LSCFT **低吸力**故障 CE	.检查所有连接和验证所有客户端软件架构。
STO **安全开关** Sto	检查数字端子(58)是否开启	SS1 **安全开关** SS1	检查数字端子(58)是否开启。

4.3 警告/自诊断检测功能

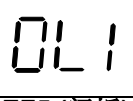
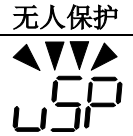
当变频器检测到一个警告，数字操作机将显示警告代码（闪烁），故障输出接点不动作，一旦此警告解除，系统会自动恢复原来的状态。

当变频器检测到一个自诊断功能（例如，有一个无效的设置或矛盾的两个参数设置），数字操作器将显示自诊断代码，且故障输出接点不动作；直到参数已经设置正确前，变频器无法执行运转指令。

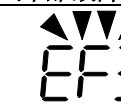
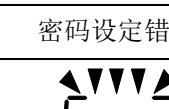
当一个警告或自我诊断错误发生，请参考表 4.2，以确定和纠正造成的错误。

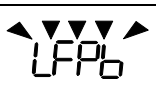
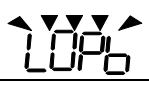
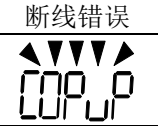
表 4.2 警告/自診斷和糾正措施

LED 显示	改正行动	LED 显示	改正行动
HPErr 机种别选择错误 HPErr	.检查变频器容量设置（13-00）符合硬件电压等级。	bb1 (闪烁) 外部遮断 bb1	.移除外部遮断的原因。
OV (闪烁) 过电压 OU	.检查输入电源之电压。	bb2 (闪烁) 外部遮断 bb2	
UV (闪烁) 低电压	.检查输入电源电压。 .检查输入电路。 .检查主回路 MC。	bb3 (闪烁) 外部遮断	

			
OH1 散热座过热 	.检查变频器环境周围的温度。 .检查风扇或散热槽之尘埃和污垢。 .检查载波频率之设定。	bb4 (闪烁) 外部遮断 	
OH2 (闪烁) 变频器过热警告 	.检查外部条件。	bb5 (闪烁) 外部遮断 	
LED 显示	改正行动	LED 显示	改正行动
OT (闪烁) 过转矩侦测 	.检查应用或机器运转状态。 .检查 08-15 和 08-16 设定值。	bb6 (闪烁) 外部遮断 	.移除外部遮断的原因。
UT (闪烁) 低转矩侦测 	.检查应用或机器运行状态。 .检查 08-19 及 08-20 设定值。	**OL1** **电机过载** 	.检查 V/F 模式。 .检查电机额定电流。 .检查负载大小和运转周期时间。
OL2 **变频器过载** 	.检查 V/F 模式。 .替换至更高容量的变频器。 .检查负载大小和运转周期时间。.	**EF5 (闪烁)** **外部故障(S5)** 	.移除外部故障的原因。 .复归多功能数字输入的外部故障。
CE **(闪烁)** **通讯错误** 	检查所有连接并验证所有客户端软件设定。	**EF6 (闪烁)** **外部故障(S6)** 	
CLA **电流保护准位 A** 	检查负载大小和运转周期时间。	**EF9 (闪烁)** **正反转错误** 	.检查外部程序逻辑
CLB **电流保护准位 B** 	检查负载大小和运转周期时间。	**FB** **(闪烁)** **PID 回授断线** 	.检查设立的 PID 回授方式是否正确。 .确保正确安装及 PID 回授信号的工作正常。
Retry **(闪烁)** **重试** 	自动复归再启动时间过后会消失	USP (闪烁) **无人保护** 	运转命令关闭，或执行端子复归动作(03-00 至 03-05 为 3)，或使用数字操作器上的 RESET 键进行复归。 .关闭 USP 信号和重新启闭电源。
ES **(闪烁)** **外部紧急停止**	.移除外部紧急停止的原因。 .运转命令关闭,并且复归多功能数字输入的外部紧急停止命	SE01 **设定范围错误**	.检查参数设置。

			
EF1 (闪烁) 外部故障(S1)	.移除外部故障的原因。 .复归多功能数字输入的外部故障。	SE02 数字输入端子错误	.检查参数设置。
			
EF2 (闪烁) 外部故障(S2)		SE03 V/f 曲线错误	.确认 V/F 参数设定。
			

LED 显示	改正行动	LED 显示	改正行动
EF3 (闪烁) 外部故障(S3)	.移除外部故障的原因。 .复归多功能数字输入的外部故障。	SE05 PID 选择错误	.检查 10-00,与 10-01 设定值。 .检查 10-29 与 10-25 设定值。 .**检查 10-29 与 10-03 设定值。**
			
EF4 (闪烁) 外部故障(S4)		SE09 PI 设定错误	.检查变频器 PI 选项(03-30)选择与 PID 来源(10-00 及 10-01)
			
参数设定错误	.请参照手册设定或者代表此项选择无效。	**零速停止警告**	.调整频率指令 .注:若频率来源 00-05 设定为数字操作器，则需调整 05-01 第 0 段速频率设定。
			
直接启动警告	.检查外部运转端子先断开之后再接上， 开机后等待 07-05 当设定时**间过后。**	**外控停止警告**	.移除外部运转命令。
			
FIRE 强制运转模式	确认设备周围是否发生火灾，如果是误触发可断电重新清除。	**运转方向错误警告**	.修正 11-00 电机方向锁定命令，与现行利用外部控制 DI 或 JOG 以及三线式下达正或反转命令相同方向。
			
ADC 电压错误	.检查输入电压讯号与控制板上的电压。	**参数锁定**	.在参数 13-07 输入正确密码
			
EEPROM 储存错误	进行初始化后重新断送电，若再次出现警告，则更换电路板。	密码设定错误	.使用密码锁功能时，第二次输入的密码与第一次输入的密码相同。
			

控制板错误 	.控制板与程序不符合，请更换控制板。	LFPB **低流量錯誤** 	.检查回授讯号是否正确且有接上。 .确认回授流量是否低于最小流量限制值。
L0PB **低壓錯誤** 	.检查回授讯号是否正确且有接上。 .确认回授压力是否低于最小压力限制值。	HFPB **高流量錯誤** 	.检查回授讯号是否正确。 .确认回授流量是否低于最大流量限制值。
HIPB **高壓錯誤** 	.检查回授讯号是否正确。 .确认回授压力是否低于最大压力限制值。	LSCFT 低吸力错误 	.检测出水槽内是否不足，而出水槽内是否正常供水。 .确认 PID 误差**高**于 PID 误差准位**或者**电流低于**吸力不足**输出电流准位。
SE10 PUMP/HVAC 设定错误 	.检查变频器 PUMP 选项(23-02)选择与压力最大值(23-03) 设定。 .检查变频器 HVAC 选项(23-46)选择与压力最大值(23-47) 设定。	COPUP PUMP 通讯 断线错误 	看是否通讯有意如通讯坏或者没连接好。

LED 显示	改正行动
空压机过载 	检查压缩机负载使用是否超出标准

4.4 自动调校错误

当自动调校故障发生时，故障显示 “AtErr”在数字操作器且电机停止，故障讯息显示在 17-11。故障数字输出接点不动作。参考表 4.3，以确定和纠正所发生的故障。

表 4.3 自动调谐故障和纠正措施

错误	说明	原因	改正行动
01	电机数据输入错误	·输入自动调校的数据错误 ·电机输出电流和电机额定电流之间的错误关系	·检查自动调校所输入数据(17-00 到 17-09)。 ·检查变频器的容量
02	电机线对线电阻 R1 调校错误。	·自动调校在一定时间内未完成。 ·自动调校之结果超出参数设定。 ·超过电机额定电流。 ·变频器三相输出断线。	·检查自动调校输入数据（17-00 到 17-09） ·检查电机接线。 ·断开电机所连接的负载。 ·检查变频器电流检测电路，包括电流传感器。 ·检查电机接线。 ·检查电机安装。
03	电机漏感调校错误。		
04	电机转子电阻 R2 调校错误。		
05	电机互感 Lm 调校错误		
07	Deadtime 补偿侦测错误		
08	电机加速错误(仅适用于旋转型自动调校)。	电机在指定的时间(00-14= 20sec)内，没有加速成功。	·增加加速度时间（00-14）。 ·断开电机所连接的负载。
09	自动调校其它错误	自动调校之其它错误（除 ATE-01~ATE-08 错误，如空载电流高于 70%， 额定电流或转矩超过参考 100%）。	·检查电机接线。 ·检查自动调校输入数据。

4.5 PM 马达自动调校错误

当 PM 马达自动调校故障发生时，故障显示“IPErr”（PM 马达调校失败）讯息在数字操作器且马

达停止，故障讯息显示在 22-22。故障数字输出接电不动作。参考表 4.4，以确定和纠正所发生的故障。

错误	说明	原因	改正行动
01	静止磁极对位失败。	马达输出电流和马达额定电流之间的错误关系。	·检查自动调校所输入数据 (22-02)。 ·检查变频器的容量。 ·检查马达接线。
02~04	Reserved		
05	回路调整逾时。	回路调整时系统异常。	检查是否进入其它保护程序。
06	Reserved		
07	其他马达调校错误。	自动调校之其它错误。	·检查马达接线。 ·检查自动调校输入数据。
08	Reserved		
09	回路调整时，电流异常。	马达输出电流和马达额定电流之间的错误关系。	·检查自动调校所输入数据 (22-02)。 ·检查变频器的容量。
10	Reserved		
11	参数调测逾时	电压、电流关系错误	·检查参数(22-11)是否设定过小但最大不得设定超过变频器 100%。 ·检查马达接线。

附录

产品中的有害物质的名称及含量

部件名称		有毒有害物质或元素					
		铅及其化合物 (Pb)	汞及其化合物 (Hg)	镉及其化合物 (Cd)	六价铬化合物 (Cr(VI))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
电子部件	电子元器件	X	O	O	O	O	O
	电磁接触器	O	O	X	O	O	O
显示器		O	O	O	O	O	O
电线和电缆	接线端子	X	O	O	O	O	O
	导线	O	O	O	O	O	O
	绝缘部件	O	O	O	O	O	O
机械部件	导电铜柱、风扇、温控开关	X	O	O	O	O	O
	其他	O	O	O	O	O	O

本表格依据 SJ/T 11364 的规定编制。

O: 表示该有毒有害物质在该部件所有均质材料中的含量均在 GB/T 26572 规定的限量要求以下。

X: 表示该有毒有害物质至少在该部件的某一均质材料中的含量超出 GB/T 26572 标准规定的限量要求。

主要部件名称中的部件定义：

电子部件 – 包括电子组件、焊接印刷电路板等。

显示器 – 包括显示单元、电子元器件或触摸屏。

电线和电缆 – 包括终端、接线、屏蔽线、护套以及电子部件。

机械部件 – 除已定义电子部件、显示器、电线和电缆以外的部件。

超限说明：

电子元器件：部分电子元器件中铅含量超过 1000ppm 但符合欧盟 RoHS 指令豁免条例

7（a）：高熔融温度型焊料中的铅（例如：铅基合金中铅含量≥85 %）；

7（c）-I ：电子电气器件的玻璃或陶瓷（电容中介电陶瓷除外）中的铅，或玻璃或陶瓷复合材料中的铅（例如：压电陶瓷器件）

电磁接触器：部分电磁接触器中镉含量超过 100ppm 符合欧盟 RoHS 指令豁免条例

8（b）镉及其化合物，用于电子触点。

接线端子、导电铜柱、风扇、温控开关：电线和电缆、机械部件中某些组成部分可能铅含量超过 1000ppm 但符合欧盟 RoHS 指令豁免条例

6（a）铅作为一种合金元素，在用于加工的钢和镀锌钢中铅含量不超过 0.35%（Wt）；

6（b）铝合金中的铅含量最大容许浓度为 0.4%；

6（c）铜合金中的铅含量最大容许浓度为 4%；

环保使用期限说明：

在环保使用期限内，消费者在正常使用过程中，本产品不会出现有害物质泄漏，析出等影响消费者健康的问题，可以放心使用。

本公司产品环保使用期限为 10 年，只有在本说明书所述的正常情况下使用本产品时，“环保使用期限”才有效。

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