



## NK100G Variable Frequency Drive

Add:Xi'an high-tech development zone, Shaanxi, China

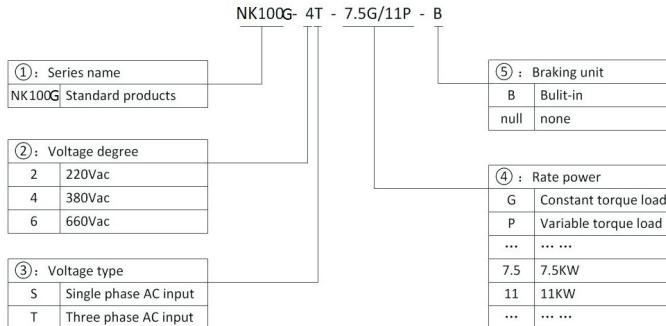
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## 1. Product information



### Functions of the terminals

Terminals	Function
R, S, T	Three-phase power input terminals
(+), (-)	Reserved terminals for external braking units, common DC bus terminals
(+), PB	Reserved terminals for external braking resistors
P1, (+)	Reserved terminals for external DC reactors
(-)	DC negative bus output terminal
U, V, W	Three-phase AC output terminals
$\ominus$	Grounding terminal (PE)

Category	Terminal	Terminal function	Technical specification
Switch input	+24V	+24V power supply	24V±10%, internal isolation from GND. Max. load 200mA
	PW	External power input terminal (power supply of digital input terminal)	Short circuit with +24V by default
	DI1~DI7	Switch input terminals 1~7	Input specifications: 24V, 5mA
	HDI	High speed pulse input or switch input	Pulse input frequency range: 0~50kHz High level voltage: 24V
	COM	+24V power supply or external power ground	Internal isolation from GND
Switch output	DO	Open collector output, common CME terminal	External voltage range: 0~24V
	CME	Common terminal of open collector output	Short circuit with COM by default
	HDO	High speed pulse output or open collector output, common COM terminal	Pulse output frequency range: 0~50kHz
	COM	HDO common terminal	Internal isolation from GND
Analog input	+10/5V	The local supplies +10V or 5V power output	Output voltage: 10V or 5V available via X13, optional

			Output current range: 0~50mA (If the potentiometer is connected between +10V/+5V and GND, the resistance should not be less than 2kΩ.)
	AI1	Analog input terminal 1	Input voltage and current are optional Input voltage range: 0~10V Input current range: 0/4~20mA
	AI2	Analog input terminal 2	Input voltage range: 0~10V
	GND	Analog ground	Internal isolation from COM
Analog output	AO1~AO2	Analog output terminal	Output voltage and current are optional Output voltage range: 0~10V Output current range: 0/4~20mA
	GND	Analog ground	Internal isolation from COM
Relay output	T1A/T1B/T IC	Relay output	T1A-T1B: normally closed T1A-T1C: normally open Contact capacity: 250VAC/3A, 30VDC/1A
	T2A/T2B// T2C	Relay output	T2A-T2B: normally closed T2A-T2C: normally open Contact capacity: 250VAC/3A, 30VDC/1A
Communication	485+/485-	RS485 communication interface	RS485 communication interface

### Keypad explain

The keypad consists of three parts for unit/status LEDs displaying, parameters displaying and key operation, as shown below.

Symbol	Name	meaning
Hz	Frequency LED	The unit of the current displayed parameter is Hz.
A	Current LED	The unit of the current displayed parameter is A.
V	Voltage LED	The unit of the current displayed parameter is V.
%	Percentage LED	The current displayed parameter is a percentage.
RUN	Run status LED	On: The inverter is running. Off: The inverter stopped. Blinking: The inverter is in dormant state.
F/R	Forward/Reverse LED	On: The inverter is in the reverse running state. Off: The inverter is in the forward running state or stopped.
LO/RE	Run command reference LED	Off: keypad run command reference mode Blinking: terminal run command reference mode On: communication run command reference mode

ALM	Alarm LED	Off: no fault alarm Blinking: fault alarm or automatic start parameter On: torque control
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**Buttons**

Button	Name	Function
	Program ming/ Exit key	Enter or exit the 1st level menu; Return to the 1st level menu from the 2nd level menu; Return to the 2nd level menu from the 3rd level menu.
	Multi-fun ction key	Operate according to multi-function selection [2]
	Run key	In the keypad run command reference mode, the key is used for start control of the inverter. After setting the parameter self-identification, the key is used to start the inverter for parameter self-identification.
	Enter key	After function group confirmation of the 1st level menu, enter the 2nd level menu; After function group confirmation of the 2nd level menu, enter the 3rd level menu; After function parameters setting confirmation of the 3rd level menu, return to the 2nd level menu; In password verification state, the password input is completed.
	Right-shi ft key	Function group edit step [1] selection in the 1st/2nd level menu; Function parameters settings edit step selection in the 3rd level menu; In stop parameter display status, running parameter display status and fault display state, display parameters selection; Edit bit selection in password verification state.
	Stop/Res et key	In keypad run command reference mode, the key is used for stop control of the inverter; In other run command reference modes, the key is used for stop protection of the inverter [3]; At fault or stop state, the key is used as a reset key to clear the fault alarm information.
	UP key	Increase function group in the 1st/2nd level menu progressively; Increase function parameters settings in the 3rd level menu progressively; Increase the set frequency progressively.
	DOWN key	Decrease function group in the 1st/2nd level menu progressively; Decrease function parameters settings in the 3rd level menu progressively; Decrease the set frequency progressively.
	Potentio meter	Adjust the frequency; Adjust the torque.

Note: [1] Select the edit step to be ones, tens or hundreds via the right-shift key.

[2] See function code (F05.04) for multi-function selection.

[3] After sending a stop command, you need to run the clear command in the current run command reference mode.

**3. Parameter table**

Function code	Name	Detailed of parameters	Default value	Attr
F00.00	Motor control mode	0: speed sensorless vector control 1: reserved 2: V/F control	2	☆
F00.01	Run command channel	0: keypad run command channel (LED off) 1: terminal command channel (LED on) 2: 485 run communication command channel (LED flickering)	0	○
F00.02	Main frequency source X	0: digital setting (pre-set frequency F00.09, UP/DOWN change, no power down memory) 1: digital setting (pre-set frequency F00.09, UP/DOWN change, with power down memory) 2:AI1 3:AI2 4: keypad potentiometer AI0 5: high speed pulse input (DI5) 6: multi-step speed 7: simple PLC 8: PID 9:485 communication	0	☆
F00.03	Auxiliary frequency source Y	Same as F00.02 main frequency	0	☆
F00.04	Reference object of Y frequency source	0: relative to the max frequency 1: relative to frequency source X	0	○
F00.05	Frequency source selection	Unit: frequency source selection 0: main 1: main and auxiliary operation (decided by ten) 2: main<--> auxiliary 3: main<-->main and auxiliary operation 4: auxiliary<-->main and auxiliary operation Ten: main and auxiliary operation relationship 0: main + auxiliary 1: main- auxiliary 2: max 3: min	00	○
F00.06	Max. frequency	50.00Hz~500.00Hz	50.00	☆
F00.07	Upper limit frequency	F00.08~F00.06(Max. frequency)	50.00	○
F00.08	Lower limit frequency	0.00Hz~F00.07(upper limit of running frequency)	0.00	○
F00.09	Frequency pre-setting	0.00Hz~F00.06(Max. frequency)	50.00	○
F00.10	Run direction	0: positive 1: reverse	0	○
F00.11	Carrier frequency	0.5kHz~16.0kHz	6.0	○
F00.12	Carrier frequency adjusted according to temperature	0:no 1:yes	1	○
F00.13	Motor selection	0: motor 1 1: motor 2	0	☆
F00.14	ACC time 1	0.00s~650.00s (F00.16=2) 0.0s~6500.0s (F00.16=1)	20.0	○

Function code	Name	Detailed of parameters	Default value	Attr
		0s~65000s (F00.16=0)		
F00.15	DEC time 1	0.00s~650.00s (F00.16=2) 0.0s~6500.0s (F00.16=1) 0s~65000s (F00.16=0)	20.0	○
F00.16	Unit of ACC/DEC time	0:1s 1:0.1s 2:0.01s	1	☆
F00.17	Auxiliary frequency source Y range	0%~150%	100	○
F00.18	Upper limit frequency source	0: F00.07set 1:AI1 2:AI2 3: reserved 4: high speed pulse input 5:485 communication	0	☆
F00.19	Upper limit frequency offset	0.00Hz~max frequencyF00.06	0.00	○
F00.20	Superimposed auxiliary frequency source offset	0.00Hz~max frequencyF00.06	0.00	○
F00.21	Decimal point of frequency instruction	1:0.1Hz 2:0.01Hz	2	☆
F00.22	Digital setting frequency memory selection	0: no memory after power failure 1: power-off memory	0	○
F00.23	Basis frequency of ACC/DEC time	0: Max frequency (F00.06) 1: setting frequency 2:100Hz	0	☆
F00.24	Basis frequency of running frequency UP/DOWN	0: running frequency 1: setting frequency	0	☆
F00.25	Command source binding frequency source	Unit: keypad command, binding frequency source selection 0: no binding 1: digital setting frequency 2:AI1 3:AI2 4: reserved 5: high speed pulse input (DI5) 6: multi-step speed 7: simple PLC 8: PID 9:485 communication Ten: Terminal command binding frequency source selection Hundreds: communication command binding frequency source selection	000	○
F00.26	Serial communication protocol selection	0: Modbus-RTU protocol 1: reserved	0	☆
F01 Group Motor 1 parameters				

Function code	Name	Detailed of parameters	Default value	Attr
F01.00	G/P type	0: G type 1:P type	0	☆
F01.01	Motor type	0: normal asynchronous motor 1: variable frequency asynchronous motor	0	☆
F01.02	Rated power of asynchronous motor	Depend on model	--	☆
F01.03	Rated frequency of asynchronous motor	0.01Hz~ (Max. frequency) F00.06	50.00	☆
F01.04	Rated speed of asynchronous motor	1rpm~65535rpm	1460	☆
F01.05	Rated voltage of asynchronous motor	1V~2000V	380	☆
F01.06	Rated current of asynchronous motor	0.01A~655.35A	9.00	☆
F01.07	Stator resistance of asynchronous motor	0.001Ω~65.535Ω	1.204	☆
F01.08	Rotor resistance of asynchronous motor	0.001Ω~65.535Ω	0.908	☆
F01.09	Inductance of asynchronous motor	0.01mH~655.35mH	5.28	☆
F01.10	Mutual inductance of asynchronous motor	0.1mH~6553.5mH	158.6	☆
F01.11	Non-load current of asynchronous motor	0.01A~F01.03	4.24	☆
F01.12	Motor parameters autotuning	0: no actuation 1: AM dynamic auto tuning (no load) 2: AM static auto tuning 1 (with load) 3: AM static auto tuning 2 (with load)	0	☆
F01.13	Encoder pulse quantity		1024	☆
F01.14	Encoder type	0: ABZ incremental encoder 1: UVW incremental encoder 2: Resolver encoder 3: Sin-Cos encoder 4: Line-saving UVW encoder	0	☆
F01.15	Speed feedback PG selection	0: local PG 1: expand PG 2: HDI high speed pulse input	0	☆
F01.16	ABZ encoder AB phase sequence	0: positive 1: negative	0	☆
F01.17	encoder install position angle	0.0 ~ 359.9°	0.0	☆
F01.18	UVW signal phase sequence	0: positive 1: negative	0	☆
F01.19	UVW signal 0 position angle	0.0 ~ 359.9°	0.0	☆
F01.20	Resolver pole pair number	1~65535	1	☆
F01.21	reserved	reserved	0	☆

Function code	Name	Detailed of parameters	Default value	Attr
F01.22	speed feedback PG disconnection detection time	0.0: no action 0.1s ~ 10.0s	0.0	☆
F01.23 ~F01.38	reserved	reserved	0	●
F02 Group Start and stop control				
F02.00	Start mode	0: start at the starting frequency 1: start after rotating speed tracking 2: Pre excitation for AM motor	0	○
F02.01	Start delay time	0.0s~1000.0s	0.0	○
F02.02	Starting frequency	0.00Hz~10.00Hz	0.00	○
F02.03	Hold time of starting frequency	0.0s~100.0s	0.0	☆
F02.04	Start DC braking/Pre excitation current	0%~100%	0	☆
F02.05	Start DC braking/Pre excitation time	0.0s~100.0s	0.0	☆
F02.06	ACC and DEC mode	0: linear type 1: S curve A 2: S curve B	0	☆
F02.07	Terminal DI1 characteristic selection after power on	0: invalid 1: valid	0	☆
F02.08	Restart after power off	0: invalid 1: valid	0	☆
F02.09	Waiting time for restart	0.0s~100.0s	0.0	☆
F02.10	Stop mode	0: decelerate to stop 1: coast to stop	0	○
F02.11	Dead time of FWD/REV	0.0s~3000.0s	0.0	○
F02.12	Starting frequency before stop DC braking	0.00Hz~max frequency F00.06	0.00	○
F02.13	Waiting time before stop DC braking	0s~100.0s	0.0	○
F02.14	Stop DC braking current	0.0%~100%	0	○
F02.15	Stop DC braking time	0.0s~100.0s	0.0	○
F02.16	Braking use rate	0%~100%	100	○
F02.17	Delay time of dormancy	0.0~6500.0s	0.0	○
F02.18	Actuation when running frequency is less than lower limit frequency	0: run at lower limit frequency 1: stop 2: 0 speed run	0	○
F02.19	Delay time of dormancy wake up	0.0s~6500.0s	0.0	○
F02.20	Speed track mode	0: start from stop frequency 1: start from working frequency 2: start from max frequency	0	☆
F02.21	Quick or slow speed track	1~100	20	○
F02.22	Speed track KP	0~1000	500	○

Function code	Name	Detailed of parameters	Default value	Attr
F02.23	Speed track KI	0~1000	800	○
F02.24	Speed track current	30%~200%	100	☆
F02.25	Speed track low limit	10~100%	30	☆
F02.26	Speed track voltage rise time	5~30	11	☆
F02.27	Demagnetizing time	0.00~5.00s	1.00	☆
F02.28	S curve first phase time rate	0.0%~(100.0%-F06.29)	30.0	☆
F02.29	S curve final phase time rate	0.0%~(100.0%-F06.28)	30.0	☆
<b>F03 Group V/F control</b>				
F03.00	V/F curve	0: straight line V/F curve 1: multi-dots V/F curve 2: square V/F curve 3: 1.2th V/F curve 4: 1.4th V/F curve 6: 1.6th V/F curve 8: 1.8th V/F curve 10: VF total separate mode 11: VF half separate mode	0	☆
F03.01	Torque compensation	0.0%: automatic 0.1%~30.0% VF separate invalid	1.0	○
F03.02	Torque compensation cut-off frequency	0.00Hz~max frequency F00.06	50.00	☆
F03.03	V/F frequency 1	0.00Hz~F03.05	0.00	☆
F03.04	V/F voltage 1	0.0%~100.0%	0.0	☆
F03.05	V/F frequency 2	F03.03~F03.07	0.00	☆
F03.06	V/F voltage 2	0.0%~100.0%	0.0	☆
F03.07	V/F frequency 3	F03.05~motor rated voltage (F01.03)	0.00	☆
F03.08	V/F voltage 3	0.0%~100.0%	0.0	☆
F03.09	Slip compensation gain	0.0%~200.0%	0.0	○
F03.10	VF over excitation gain	0~200	64	○
F03.11	Oscillation suppression gain	0~100	0	○
F03.12	Oscillation suppression gain mode	0~4	3	☆
F03.13	VF separate voltage source	0: digital setting (F03.14) 1:AI1 2:AI2 3: reserved 4: HDI high speed pulse setting 5: multi-step 6: simple PLC 7: PID 8: communication setting 100.0% refer to motor rated voltage	0	○
F03.14	VF separate voltage	0V~motor rated voltage F01.05	0	○

Function code	Name	Detailed of parameters	Default value	Attr
	source setting			
F03.15	VF separate voltage ACC time	0.0s~1000.0s It means time from 0v to motor rated voltage	0.0	○
F03.16	VF separate voltage DEC time	0.0s~1000.0s It means time from motor rated voltage to 0v	0.0	○
F03.17	VF separate stop model	0: frequency/voltage reduce to 0 separately 1: voltage reduce to 0, than frequency reduce	0	☆
F03.18	Current compensation coefficient of double speed over-current stall action	50~200%	130	☆
F03.19	over-current stall enable	0: invalid 1: valid	1	☆
F03.20	over-current stall Benefit	0~100	20	○
F03.21	Current compensation coefficient of double speed over-current stall action	50~200%	50	☆
F03.22	Overvoltage stall action voltage	200.0v~2000.0v set according to model 220V:380V 380V:760V	760.0	☆
F03.23	Overvoltage stall enable	0: invalid 1: valid	1	☆
F03.24	Overvoltage stall suppression frequency gain	0~100	30	○
F03.25	Overvoltage stall suppression voltage gain	0~100	30	○
F03.26	Overvoltage stall max frequency rise limit	0~50Hz	5	☆
F03.27	Slip compensation time constant	0.1~10.0s	0.5	○
F03.28	Automatic increase frequency enable	0: invalid 1: valid	0	☆
F03.29	Min electric torque current	10%~100%	50	☆
F03.30	Max power torque current	10%~100%	20	☆
F03.31	Automatic increase frequency KP	0~100	50	☆
F03.32	Automatic increase frequency KI	0~100	50	☆
F03.33	On line torque compensation gain	80%~150%	100	☆
F04 Group Motor 1 Vector control				
F04.00	Speed loop proportional gain 1	1~100	30	○
F04.01	Integration time of speed loop 1	0.01s~10.00s	0.50	○

Function code	Name	Detailed of parameters	Default value	Attr
F04.02	Switch frequency1	0.00~F04.05	5.00	○
F04.03	Speed loop proportional gain 2	1~100	20	○
F04.04	Integration time of speed loop 2	0.01s~10.00s	1.00	○
F04.05	Switch frequency2	F04.02~max frequency F00.06	10.00	○
F04.06	Slip gain of vector control	50%~200%	100	○
F04.07	SVC Speed feedback filtering time	0.000s~1.000s	0.050	○
F04.08	Overexcitation gain of vector control	0~200	64	○
F04.09	Speed control (drive) torque max limit digital setting	0.0%~200.0%	150.0	○
F04.10	Speed control(drive) torque max limit source	0: F04.09 set 1:AI1 2:AI2 3: reserved 4: HDI high speed pulse setting 5: communication setting 6: MIN (AI1, AI2) 7:MAX (AI1, AI2) 1-7 Full scale corresponding to F04.09	0	○
F04.11	Speed control(braking) torque max limit source	0: F04.12 set 1:AI1 2:AI2 3: reserved 4: HDI high speed pulse setting 5: communication setting 6: MIN (AI1, AI2) 7:MAX (AI1, AI2) 1-7 Full scale corresponding to F04.12	0	○
F04.12	Speed control(braking) torque max limit digital setting	0.0%~200.0%	150.0	○
F04.13	Proportional gain of excitation regulation	0~60000	2000	○
F04.14	Integral gain of excitation regulation	0~60000	1300	○
F04.15	Proportional gain of torque regulation	0~60000	2000	○
F04.16	Integral gain of torque regulation	0~60000	1300	○
F04.17	Integral attribute of speed loop	Unit place: integral separation 0: Integral always valid 1: speed loop integral separation	0	○
F04.18	Vector control mode weak magnetic mode selection	0: no weak magnetic 1: direct calculate	0	○

Function code	Name	Detailed of parameters	Default value	Attr
		2: Automatic adjust		
F04.19	Over modulation enable selection	0: forbid 1: enable	0	○
F04.20	Maximum output voltage coefficient	100%~110%	105	☆
F04.21	Maximum torque coefficient in weak magnetic region	50%~200%	100	○
F04.22	Selection of generation (braking) torque enabling under speed model	0: disable 1: enable	0	○
F05 Group Keypad and display				
F05.00	reserved	0~65535	0	●
F05.01	Parameter initialization	0: no actuation 01: recover default value, not include motor parameters 02: clear fault records 04: backup user parameters 501: recover user parameters	0	☆
F05.02	reserved	0~65535	0	●
F05.03	User password	0~65535	0	○
F05.04	Functions of MF key	0: MF invalid 1: switch between keypad command and remote command 2: FWD/REV switch 3: FWD jog 4: REV jog	0	☆
F05.05	Stop function of STOP/RERST key	0: only valid for keypad control 1: valid for all control modes	1	○
F05.06	Rotating speed display correction	0.0001~6.5000	1.0000	○
F05.07	Linear speed display correction	0.0001~6.5000	1.0000	○
F05.08	Displayed parameters 1 when running	0000~FFFF BIT00: running frequency (Hz) BIT01: set frequency (Hz) BIT02: bus voltage (V) BIT03: output voltage (V) BIT04: output current (A) BIT05: output power(kW) BIT06: output torque (%) BIT07: DI output state BIT08: DO output state BIT09: AI1 voltage (v) BIT10: AI2 voltage (v) BIT11: reserved BIT12: Count value	0x001F	○

Function code	Name	Detailed of parameters	Default value	Attr
		BIT13: Length value BIT14: load speed display BIT15: PID set		
F05.09	Displayed parameters 2 when running	0000~FFFF BIT00: PID feedback BIT01: PLC stage BIT02: high speed pulse input pulse frequency (kHz) BIT03: running frequency 2(Hz) BIT04: Remaining run time BIT05: AI1 voltage before correction BIT06: AI2 voltage before correction BIT07: reserved BIT08: linear speed BIT09: current power on time BIT10: current running time BIT11: high speed pulse input pulse frequency, unit:1Hz BIT12: communication set BIT13: encoder feedback speed BIT14: main frequency X display BIT15: auxiliary frequency Y display	0x0000	○
F05.10	LED display at stop	0000~FFFF BIT00: set frequency (Hz) BIT01: bus voltage (v) BIT02: DI input state BIT03: DO output state BIT04: AI1 voltage (v) BIT05: AI2 voltage (v) BIT06: reserved BIT07: Count value BIT08: Length value BIT09: PLC stage BIT10: load speed BIT11: PID set BIT12: high speed pulse input pulse frequency (kHz)	0x0033	○
F05.11	Software version 1	v0.0x	0.00	●
F05.12	Software version 2	v0.0x	0.00	●
F05.13	Product name	NK100G	0	●
F05.14	Inverter module radiator temperature	0.0°C~100.0°C	0	●
F05.15	Cumulative running time	0h~65535h	0	●
F05.16	Load speed display decimal places	Unit place: B00.14 decimal places 0:0 1:1 2:2 3:3	21	○

Function code	Name	Detailed of parameters	Default value	Attr
		Ten place: B00.19/B00.29 decimal places 1:1 2:2		
F05.17	Cumulative power on time	0h~65535h	0	●
F05.18	Cumulative power consumption	0~65535°	0	●
F06 Group Input terminals				
F06.00	Functions of DI1 terminal	0: invalid	1	☆
F06.01	Functions of DI2 terminal	1: forward running	4	☆
F06.02	Functions of DI3 terminal	2: reverse running	9	☆
F06.03	Functions of DI4 terminal	3: Three line operation control	12	☆
F06.04	Functions of DI5 terminal	4: forward jog	13	☆
F06.05	Functions of DI6 terminal	5: reverse jog	0	☆
F06.06	Functions of DI7 terminal	6: terminal UP	0	☆
F06.07	reserved	7: terminal DOWN	0	☆
F06.08	reserved	8: coast to stop		
		9: fault reset		
		10: run pause		
		11: external fault constant open input		
		12: multi-step speed terminal 1		
		13: multi-step speed terminal 2		
		14: multi-step speed terminal 3		
		15: multi-step speed terminal 4		
		16: ACC/DEC selection 1		
		17: ACC/DEC selection 2		
		18: frequency source switch		
		19: UP/DOWN setting clear (terminal, keypad)		
		20: running command switch		
		21: ACC/DEC forbid		
		22: PID pause		
		23: PLC reset		
		24: wobble pause		
		25: counter input		
		26: counter reset		
		27: length count input		
		28: length reset		
		29: torque control forbid		
		30: high speed pulse(pulse) frequency input (only valid to DI5)		
		31: reserved		
		32: Immediate DC braking		
		33: external fault constant open input		
		34: frequency set being valid terminal (if terminal set as this function. The terminal will be used to control what time the frequency change setting start to work)		
		35: negative PID direction		
		36: external stop terminal 1 (under keypad control)		

Function code	Name	Detailed of parameters	Default value	Attr
		mode, use this terminal to stop as the STOP key on keypad) 37: control command switch terminals 2 (switch between terminal control and communication control) 38: PID integral pause 39:X setting and pre-setting switch 40: Y setting and pre-setting switch 41: motor selection terminal 1 42: reserved 43: PID parameter switch terminal 44: user define fault 1 45: user define fault 2 46: speed control/ torque control switch 47: emergency stop 48: external stop terminal 2(under any control mode, this terminal can be used to stop as DEC time 4) 49: DEC DC braking 50: this running time to 0 51: two/three wire mode switch 52: forbid REV 53~59:reserved		
F06.09	reserved		0	☆
F06.10	DI filter time	0.000s~1.000s	0.010	○
F06.11	Terminal control running mode	0: two-wire control mode 1 1: two-wire control mode 2 2: three-wire control mode 1 3: three-wire control mode 2	0	☆
F06.12	Terminal UP/DOWN change rate every s	0.001Hz/s~65.535Hz/s	1.000	○
F06.13	Curve 1 minimum input	0.00V~F06.15	0.00	○
F06.14	Curve 1 minimum input corresponding setting	-100.0%~100.0%	0.0	○
F06.15	Curve 1 maximum input	F06.13~10.00V	10.00	○
F06.16	Curve 1 maximum input corresponding setting	-100.0%~100.0%	100.0	○
F06.17	AI1 filter time	0.00s~10.00s	0.10	○
F06.18	Curve 2 minimum input	0.00V~F06.20	0.00	○
F06.19	Curve2 minimum input corresponding setting	-100.0%~100.0%	0.0	○
F06.20	Curve 2 maximum input	F06.18~10.00V	10.00	○
F06.21	Curve 2 maximum input corresponding setting	-100.0%~100.0%	100.0	○
F06.22	AI2filter time	0.00s~10.00s	0.10	○
F06.23	Curve 3 minimum input	-10.00V~F06.25	-10.00	○
F06.24	Curve 3 minimum input	-100.0%~100.0%	-100.0	○

Function code	Name	Detailed of parameters	Default value	Attr
	corresponding setting			
F06.25	Curve 3 maximum input	F06.23~10.00V	10.00	○
F06.26	Curve 3 maximum input corresponding setting	-100.0%~100.0%	100.0	○
F06.27	reserved	0.00s~10.00s	0.10	○
F06.28	High-speed pulse minimum input	0.00kHz~F06.30	0.00	○
F06.29	High-speed pulse minimum input setting	-100.0%~100.0%	0.0	○
F06.30	High-speed pulse maximum input	F06.28~100.00kHz	50.00	○
F06.31	High-speed pulse maximum input setting	-100.0%~100.0%	100.0	○
F06.32	PULSE filter time	0.00s~10.00s	0.10	○
F06.33	AI setting curve selection	Unit place:AI1 curve selection 1:curve1 (2point, referF06.13~F06.16) 2:curve2 (2point, referF06.18~F06.21) 3:curve3 (2point, referF06.23~F06.26) 4:curve4 (4point, referA06.00~A06.07) 5:curve5(4point, referA06.08~A06.15) Ten place: AI2 curve selection, same as AI1 Hundred place: reserved	321	○
F06.34	AI lower than minimum input setting selection	Unit place:AI1 lower than minimum input setting selection 0: set minimum input correspondingly 1:0.0% Ten place:AI2 lower than minimum input setting selection, same as AI1 Hundred place: reserved	000	○
F06.35	DI1delay time	0.0s~3600.0s	0	○
F06.36	DI2delay time	0.0s~3600.0s	0	○
F06.37	DI3delay time	0.0s~3600.0s	0	○
F06.38	DI1-DI5input valid selection	terminal 0: high level 1: low level Unit place: DI1 Ten place: DI2 hundred place: DI3 Thousand place: DI4 Ten thousand place: DI5	00000	☆
F06.39	DI6-DI7input valid selection	terminal 0: high level 1: low level Unit place: DI6 Ten place: DI7 hundred place: reserved Thousand place: reserved Ten thousand place: reserved	00000	☆
F07 Group      Output terminals				

Function code	Name	Detailed of parameters	Default value	Attr
F07.07	AO1output selection	2: output current 3: output torque 4: output power 5: output voltage 6: high speed pulse output (100.0% corresponding to 100.0kHz) 7: AI1 8: AI2 9: reserved 10: length 11: count value 12: communication set 13: motor speed 14: output current (100.0% corresponding to 1000.0A) 15: output voltage (100.0% corresponding to 1000.0V) 16: motor output torque (true value, percentage of rated current relative to motor) 17: inverter output torque (true value, percentage of rated current relative to inverter)	0	○
F07.08	AO2output selection		1	○
F07.09	HDO pulse output max frequency	0.01kHz~100.00kHz	50.00	○
F07.10	AO1bias coefficient	-100.0%~100.0%	0.0	○
F07.11	AO1 gain	-10.00~10.00	1.00	○
F07.12	AO2bias coefficient	-100.0%~100.0%	0.0	○
F07.13	AO2gain	-10.00~10.00	1.00	○
F07.14	HDO switch output delay time	0.0s~3600.0s	0.0	○
F07.15	Relay 1 output delay time	0.0s~3600.0s	0.0	○
F07.16	Relay 2 output delay time	0.0s~3600.0s	0.0	○
F07.17	DO output delay time	0.0s~3600.0s	0.0	○
F07.18	reserved			
F07.19	DO output terminal valid state selection	0-positive logic 1:negative logic unit place: HDO ten place: relay 1 hundred place: relay 2 thousand place: DO ten thousand place: reserved	00000	○
<b>F08 Group Fault and protection</b>				
F08.00	Motor overload protection selection	0: disabled 1: enabled	1	○
F08.01	Motor overload protection gain	0.20~10.00	1.00	○
F08.02	Motor overload pre-alarm coefficient	50%~100%	80	○
F08.03	Motor overload pre-alarm detection time	0.20s~10.00s	1.00	○

Function code	Name	Detailed of parameters	Default value	Attr
F07.00	HDO output mode	0: pulse output 1: switch output	0	o
F07.01	HDO switch output selection	0: no output 1: running 2: fault output	0	o
F07.02	Relay T1 output selection	3: frequency level detection FDT1 output	2	o
F07.03	Relay T2 output selection	4: frequency arrival 5: zero speed running 1(no output at stop) 6: motor over load pre-alarm 7: inverter over load pre-alarm 8: set count value arrival 9: specified count value arrival 10: length arrival 11: simple PLC cycle is completed 12: running time arrival 13: frequency is limited 14: torque is limited 15: ready to run 16: AI1>AI2 17: upper limit frequency arrival 18: lower limit frequency arrival (related to running) 19: under voltage state output 20: communication set 21: location finished(reserved) 22: location approach(reserved)	0	o
F07.04	D0 output selection	23: zero speed running 2 (output at stop) 24: power on time arrive 25: frequency level detection FDT2 output 26: frequency arrive 1 output 27: frequency arrive 2 output 28: current arrive 1 output 29: current arrive 2 output 30: time arrive output 31: AI1 input out of limit 32: loss load 33: REV running 34: 0 current state 35: module temperature arrive 36: output current over limit 37: lower frequency arrive (not related to running) 38: fault output (all faults) 39: motor over heat pre-alarm 40: current running time arrive 41: fault output (free stop faults and not output under voltage)	1	o
F07.05	reserved	reserved	4	o
F07.06	HDO pulse output selection	0: running frequency 1: set frequency	0	o

Function code	Name	Detailed of parameters	Default value	Attr
F08.04	Motor overload pre-alarm act selection	0: no detection 1: overload warning is valid in running, continue to run 2: overload warning is valid in running, alarm (OL3) and stop 3: overload warning is valid in constant speed running, continue to run after detection 4: overload warning is valid in constant speed running, alarm (OL3) and stop after detection	1	○
F08.05	Over-voltage stall gain	0~100	0	○
F08.06	Over-voltage stall protection voltage	200.0~2000.0v set according to different models 220V:380V 380V:760V	760.0	☆
F08.07	Over-current stall gain	0~100	20	○
F08.08	Over-current stall protection current	100%~200%	150	☆
F08.09	Instant stop not stop gain Kp	0~100	40	○
F08.10	Instant stop not stop Integral coefficient Ki	0~100	30	○
F08.11	Instant stop not stop act DEC time	0.0~300.0s	20.0	☆
F08.12	Input phase loss / contactor protection	Unit place: input phase loss protection selection Ten place: contactor protection selection 0: disabled 1: enabled	01	○
F08.13	Output phase loss protection selection	0: disabled 1: enabled	1	○
F08.14	Automatic reset times	0~20	0	○
F08.15	Automatic reset interval	0.1s~100.0s	1.0	○
F08.16	First fault type	0: no fault 1: inverter unit U phase protection (E.oUt1) 2: inverter unit V phase protection (E.oUt2) 3 : inverter unit W phase protection (E.oUt3) 4: ACC overcurrent (E.oc1) 5: DEC overcurrent (E.oc2) 6: constant speed overcurrent (E.oC3) 7: ACC overvoltage (E.oU1) 8: DEC overvoltage (E.oU2) 9: constant speed overvoltage (E.oU3) 10: bus undervoltage fault (E.Lv) 11: motor overload (E.oL1) 12: inverter overload (E.oL2) 13: input side phase loss(E.ILF) 14: output side phase loss(E.oLF) 15: rectifier radiator overheating(E.oH1) 16: inverter radiator overheating(E.oH2) 17: external fault(E.EF)	0	●

Function code	Name	Detailed of parameters	Default value	Attr
		18: communication failure(E.485) 19: current detection fault(E.ItE) 20: motor parameter learning fault(E.AUt) 21:EEPROM operation fault(E.EEP) 22: PID disconnection fault(E.PIDE) 23: braking unit fault(E.bC) 24: run time arrival (E.END) 25: electric overload (E.oL3) 26: keypad communication fault (E.FCE) 27: parameter upload fault (E.UFE) 28: parameter download fault (E.dNE) 29: reserved 30: reserved 31: reserved 32: earth fault 1 (E.EAH1) 33: earth fault 2 (E.EAH2) 34: speed bias fault (E.dEU) 35: mis-adjust fault (E.Sto) 36: under load fault (E.LL) 37: reserved 38: Buffer resistance overload fault (E.BoL) 39: contactor fault (E.CEr) 40: quick limit third fault (E.CBC) 41: switch motor while running (E.CrP) 42: user define fault 1 (E.uD1) 43: user define fault 2 (E.uD2) 44: power on time arrive (E.PTo)		
F08.17	Second fault type		0	●
F08.18	Third fault type (latest fault)		0	●
F08.19	Frequency at third fault		0.00	●
F08.20	Current at third fault		0.00	●
F08.21	Bus voltage at third fault		0.0	●
F08.22	Input terminal status at third fault		0	●
F08.23	Output terminal status at third fault		0	●
F08.24	Inverter status at third fault		0	●
F08.25	Third fault time (count from latest power on)		0	●
F08.26	Third fault time (count from latest start running)		0.0	●
F08.27	Frequency at second fault		0.00	●
F08.28	Current at second fault		0.00	●
F08.29	Bus voltage at second fault		0.0	●
F08.30	Input terminal status at		0	●

Function code	Name	Detailed of parameters	Default value	Attr
	second fault			
F08.31	Output terminal status at second fault		0	●
F08.32	Inverter status at second fault		0	●
F08.33	Second fault time (count from latest power on)		0	●
F08.34	Second fault time (count from latest start running)		0.0	●
F08.35	Frequency at first fault		0.00	●
F08.36	Current at first fault		0.00	●
F08.37	Bus voltage at first fault		0.0	●
F08.38	Input terminal status at first fault		0	●
F08.39	Output terminal status at first fault		0	●
F08.40	Inverter status at first fault		0	●
F08.41	First fault time (count from latest power on)		0	●
F08.42	First fault time (count from latest start running)		0.0	●
F08.43	Power one earth protection selection	0: invalid 1: valid	1	○
F08.44	Braking start voltage	200.0~2000.0v set according different models 220V:360V 380V:690V	690.0	○
F08.45	DO act selection while fault automatic reset period	0: not act 1: act	0	○
F08.46	Fault protection act selection 1	Unit place: motor over load (E.oL1) 0: free stop 1: stop as stop mode 2: continue running Ten place: input phase loss (E.ILF) hundred place: output phase loss (E.oLF) Thousand: external fault (E.EF) Ten thousand: communication failure (E.485)	00000	○
F08.47	Fault protection act selection 2	Unit place: encoder fault (E.PGL) 0: free stop Ten place: reserved 0: free stop 1: stop as stop mode Ten place: reserved Thousand place: reserved Ten thousand place: running time arrive(E.END)	00000	○
F08.48	Fault protection act selection 3	Unit place: user define fault 1(E.uD1) 0: free stop	00000	○

Function code	Name	Detailed of parameters	Default value	Attr
		1: stop as stop mode 2: continue running Ten place: user define fault 2(E.uD2) 0: free stop 1: stop as stop mode 2: continue running ten place: power on time arrive(E.PTo) 0: free stop 1: stop as stop mode 2: continue running Thousand place: reserved 0: free stop 1: DEC stop 2: DEC to 7% of motor rated frequency and run. Automatic back to set frequency if not loss load Ten thousand place: PID feedback disconnect fault (E.PIdE) 0: free stop 1: stop as stop mode 2: continue running		
F08.49	Fault protection act selection 4	Unit place: too big speed bias(E.dEU) 0: free stop 1: stop as stop mode 2: continue running ten place: reserved hundred place: reserved	000	○
F08.50	reserved			
F08.51	Continue running (while fault) frequency selection	0: running as current frequency 1: running as set frequency 2: running as upper limit frequency 3: running as lower limit 4: running as abnormal standby frequency	0	○
F08.52	Abnormal standby frequency setting	0.0%~100.0% (current aim frequency)	100	○
F08.53	Motor temperature sensor types	0: no temperature sensor 1: PT100 2: PT1000	0	○
F08.54	Motor over heat protection value	0°C~200°C	110	○
F08.55	Motor over heat pre alarm value	0°C~200°C	90	○
F08.56	Instant stop not stop act selection	0: invalid 1: DEC 2: DEC to stop	1	☆
F08.57	Judging voltage for suspended stop instant stop act	80.0%~100.0%	85.0	☆
F08.58	Judging time for instant stop not stop voltage rise	0.0s~100.0s	0.5	☆

Function code	Name	Detailed of parameters	Default value	Attr
F08.59	Judging voltage for instant stop not stop act	60.0%~100.0% (standard bus voltage)	80.0	○
F08.60	Loss load protection selection	0: invalid 1: valid	0	○
F08.61	Detection lever for loss load	0.0~100.0%	10.0	○
F08.62	Detection time for loss load	0.0~60.0s	1.0	○
F08.63	reserved	0~65536	0	●
F08.64	Over speed detection value	0.0%~50.0% (max frequency)	20.0	○
F08.65	Over speed detection time	0.0s: no detection 0.1~60.0s	1.0	○
F08.66	Detection value for too big speed bias	0.0%~50.0% (max frequency)	20.0	○
F08.67	Detection time for too big speed bias	0.0s: no detection 0.1~60.0s	5.0	○

## F09 Group PID function

F09.00	PID given channel	0: Digital given (F09.01). 1: Analog input AI1 2: Analog input AI2 3: reserved 4: High-speed pulse given 5:485 communication given 6: Multi-step instruction given 7: Pressure setting	0	○
F09.01	PID digital given	0.0%~100.0%	50.0	○
F09.02	PID feedback channel	0: AI1 1: AI2 2: reserved 3: AI1-AI2 4: high speed pulse 5: communication 6: AI1+AI2 7: MAX ( AI1 , AI2 ) 8: min ( AI1 , AI2 )	0	○
F09.03	PID action direction	0: positive 1: negative	0	○
F09.04	PID feedback range	0~65535	1000	○
F09.05	PID REV stop frequency	0.00Hz~max frequency F00.06	2.00	○
F09.06	Proportional gain P1	0.0~100.0	20.0	○
F09.07	Integration time I1	0.01s~10.00s	2.00	○
F09.08	Differential time D1	0.000s~10.000s	0.000	○
F09.09	reserved	0~65535	0	●
F09.10	PID control deviation limit	0.0%~100.0%	0.0	○
F09.11	Feedback loss detection	0.0%: not judge feedback loss	0.0	○

Function code	Name	Detailed of parameters	Default value	Attr
	value	0.1%~100.0%		
F09.12	Feedback loss detection time	0.0s~20.0s	0.0	○
F09.13	PID Differential limit	0.00%~100.00%	0.10	○
F09.14	PID given change time	0.00~650.00s	0.00	○
F09.15	PID feedback filter time	0.00~60.00s	0.00	○
F09.16	PID output filter time	0.00~60.00s	0.00	○
F09.17	Proportional gain P2	0.0~100.0	20.0	○
F09.18	Integration time I2	0.01s~10.00s	2.00	○
F09.19	Differential time D2	0.000s~10.000s	0.000	○
F09.20	PID parameter change term	0: not change 1: DI terminal 2: Automatic change according to bias 3: Automatic change running frequency	0	○
F09.21	PID parameter change bias 1	0.0%~F10.22	20.0	○
F09.22	PID parameter change bias 2	F10.21~100.0%	80.0	○
F09.23	PID initial value	0.0%~100.0%	0.0	○
F09.24	PID initial value keep time	0.00~650.00	0.00	○
F09.25	FWD max bias of two output	0.00~100.00%	1.00	○
F09.26	REV max bias of two output	0.00%~100.00%	1.00	○
F09.27	PID Integral attribute	Unit place: integral attribute 0: invalid 1: valid Ten place: output arrive limit, stop integral or not 0: not stop 1:stop	00	○
F09.28	PID stop calculation	0: stop 1: calculate at stop	0	○

#### 4. Troubleshooting list

Code	Type	Reason	Solution
E.oC1	ACC running overcurrent	1. The acceleration is too fast 2. The grid voltage is too low 3. The inverter power is too small	1. Increase the ACC time 2. Check the input power 3. Select the inverter of larger power
E.oC2	DEC running overcurrent	1. The deceleration is too fast 2. Load inertia torque is too large 3. The inverter power is too small	1. Increase the DEC time 2. Add the appropriate energy consumption braking components 3. Select the inverter of larger power
E.oC3	Constant speed running overcurrent	1. Load sudden change or abnormal 2. The grid voltage is too low 3. The inverter power is too small	1. Check load or decrease load sudden change 2. Check the input power 3. Select the inverter of larger power
E.oU1	ACC running	1. The input voltage is abnormal	1. Check the input power

<b>Code</b>	<b>Type</b>	<b>Reason</b>	<b>Solution</b>
	overvoltage	2. After instantaneous power failure, restart the rotating motor	2. Avoid restart at stop
E.oU2	DEC running overvoltage	1. The deceleration is too fast 2. The load inertia is too large 3. The input voltage is abnormal	1. Increase the DEC time 2. Add the appropriate energy consumption braking components 3. Check the input power
E.oU3	Constant speed running overvoltage	1. The input voltage has changed abnormally 2. The load inertia is too large	1. Install the input reactor 2. Add the appropriate energy consumption braking components
E.Lv	Bus undervoltage	The grid voltage is too low	Check the grid input power
E.oUT1	Converter unit U-phase fault	1. The acceleration is too fast	1. Increase the ACC time
E.oUT2	Converter unit V-phase fault	2. The internal IGBT is damaged	2. Ask for service
E.oUT3	Converter unit W-phase fault	3. Interference causes malfunction 4. The grounding is good	3. Check if the peripheral devices have a strong interference source
E.oL1	Motor overload	1. The grid voltage is too low 2. The motor rated current is not set correctly 3. Motor stall or load sudden change 4. Motor power is much larger than load power	1. Check the grid voltage 2. Reset the motor rated current 3. Check the load and adjust the torque boost 4. Select the appropriate motor
E.oL2	Inverter overload	1. The acceleration is too fast 2. Restart the rotating motor 3. The grid voltage is too low 4. The load is too large	1. Reduce the acceleration speed 2. Avoid restart at stop 3. Check the grid voltage 4. Select the inverter of larger power
E.oL3	Overload pre-warning	1. The load is too heavy 2. The motor parameters are not correct during vector control 3. The grid voltage is too low	1. Select a larger inverter 2. Carry out motor rotation autotuning 3. Check the grid voltage
E.oH1	Rectifier module overheating	1. Instantaneous overcurrent of the inverter 2. Phase or ground short circuit of output three phases	1. Refer to overcurrent solutions 2. Redistribution 3. Dredge the duct or replace the fan
E.oH2	Converter module overheating	3. The duct is blocked or the fan is damaged 4. The ambient temperature is too high 5. The wiring or connectors of the control board is loose 6. The auxiliary power supply is damaged and the drive voltage is undervoltage 7. The power module bridge is conducted	4. Reduce the ambient temperature 5. Check and reconnect 6. Ask for service

Code	Type	Reason	Solution
		8. The control board is abnormal	
E.ILF	Input phase loss	Input R, S, T phase loss	1. Check the input power 2. Check the installation and wiring
E.OLF	Output phase loss	1. Output U, V, W phase loss 2. Serious asymmetry of load three-phase	1. Check the output wiring 2. Check the motor and cable
E.bC	Braking unit fault	1. Braking wiring fault or braking tube damaged 2. The external braking resistance is too small	1. Check the braking unit and replace a new braking tube 2. Increase the braking resistance
E.AUT	Motor autotuning fault	1. The motor capacity does not match with the inverter capacity 2. Incorrect setting of motor rating parameters 3. The deviation between autotuning parameters and standard parameters is too large 4. Autotuning timeout	1. Replace the drive model 2. Set the rated parameters according to the motor name plate 3. Make the motor at no load and re-identification 4. Check the motor wiring and parameters setting
E.PIDE	PID feedback disconnection	1.PID feedback disconnection 2.PID feedback source disappears	1. Check the PID feedback signal cable 2. Check the PID feedback source
E.485	Communication fault	1. Incorrect baud rate setting 2. Communication error when using serial communication 3. Communication interruption for a long time	1. Set the appropriate baud rate 2. Press the STOP/RESET key to reset and ask for service 3. Check the wiring of communication interfaces
E.EF	External fault	SI external fault input terminal operation	1. Check the external device input
E.EEP	EEPROM read and write fault	1. Control parameters read and write error 2. EEPROM damaged	1. Press the STOP/RESET key to reset and ask for service 2. Ask for service
E.END	Running time arrival	User trial time arrival	Ask for service
E.ITE	Current detection circuit fault	1. The connector of the control board is in poor connection 2. The auxiliary power supply is damaged 3. Hall device is damaged 4. Amplifier circuit is abnormal	1. Check the connector and reconnect 2. Ask for service

**Tips:** If you cannot perform troubleshooting according to the above solutions, please contact our after-sales service department.