



NK112&112A Solar Water Pump Inverter

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

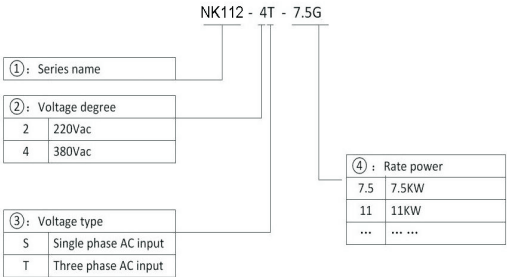
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1. Product information



Terminal name	Function
R、S、T	3phase AC input
(+), (-)	2phase DC input
(+), PB	Spare terminals of external braking resistor
P1、(+)	Spare terminals of external DC reactor
(-)	Terminal o negative DC bus
U、V、W	3phase AC output
⊕	Earth terminal (PE)

Functions of the terminals

Terminal	Description
DI1～DI5	ON-OFF signal input, optical coupling with PW and COM. Input voltage range: 9-30v Input impedance:3.3k Ω
PW	External power supply:+24V terminal is connected to PW terminals as default setting. If user need external power supply, disconnect +24v terminal with PW terminal and connect PW terminal with external power supply.
+24V	Provide output power supply of +24V. Maximum output current: 150mA
AIN	Analog input:0V～10V/0～20mA Maximum output current: 150mA
GND	Common ground terminal of analog signal and +10V. GND must isolated from COM.
COM	Common ground terminal of digital signal and +24V(or external power supply).
+10V	Supply +10v for inverter
PE	Ground terminal
T1A, T1B, T1C	RO1 relay output: RO1A--common; RO1B--NC; RO1C--NO. Contact capacity: AC 250V/3A, DC 30V/1A.
T2A, T2C	RO2 relay output: RO2A--common; RO2C--NO. Contact capacity: AC 250V/3A, DC 30V/1A.

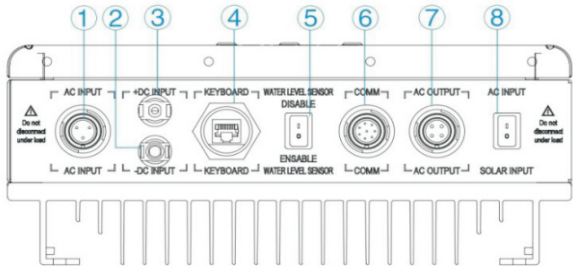
Indicator and buttons on keypad

Unit indicator	meaning
Run	Light on: Run Light off: Stop Flash: Sleeping mode
F/R	Light on: Reverse Light off: Forward
LO/RE	Light on: Communication control Light off: Keypad control Flash: Terminal control
ALM	Light on: Fault alarm Light off: No fault alarm Flash: Overload warning
Hz	Frequency unit
A	Current unit
V	Voltage unit
RPM	Rotating speed unit
%	Percentage.

Button

Button	Name	Function
	Programming/Exit key	Entry or escape of first-level menu
	Shortcut key	Determined by Function code F05.04 0: Jog operation 1: Switch between forward and reverse. 2: Clear the UP/DOWN settings. 3: Quick debugging mode1 (by menu) 4: Quick debugging mode2 (by latest order) 5: Quick debugging mode3 (by non-factory setting parameters)
	Run key	Start to run the inverter in keypad control mode.
	Enter key	Progressively enter menu and confirm parameters.
	Shift key	In parameter setting mode, press this button to select the bit to be modified. In other modes, cyclically displays parameters by right shift.
	Stop/Reset key	In running status, restricted by F05.05, can be used to stop the inverter. When fault alarm, can be used to reset the inverter without any restriction.
	UP key	Progressively increase data or function codes.
	DOWN key	Progressively decrease data or function codes.

112A solar water pump inverter terminals



No	Terminal name	Pin definition	
1	AC input terminal	1.L	
		2.N	
		3.PE	
2	PV input terminal: negative	-DC INPUT	
3	PV input terminal: positive	+DC INPUT	
4	External keypad terminal	RJ45	
5	Water level indication switch	1.DI3	Short circuit, water shortage, direct short-circuit running without water level sensor
		2.COM	
6	Functional terminal	1.485+	
		2.485-	
		3.DI2	Short circuit: full water
		4.DI3	Short circuit: water shortage
		5.COM	
		6.AIN	Pressure sensor
		7.+24V	
		8.PE	
7	AC output terminal	1.U	
		2.V	
		3.W	
		4.PE	
8	Solar/mains switch	1.DI4	Solar restrict switch, F05.05=42, D15 setting
		2.COM	

3 Parameter Table

Function code	Name	Detailed of parameters	Default value	Attr
F00 Group Basic function				
F00.01	Run command channel	0: Operation panel (LED off) 1: Terminal panel (LED on) 2:485 run command channel (L/R flash)	1	○
F00.03	Maximum frequency	F00.04---600.00Hz	50.00Hz	☆
F00.04	Upper frequency limit	F00.05---F00.03	50.00Hz	☆
F00.05	lower frequency limit	0.00Hz---F00.04	0.00Hz	☆
F00.06	Frequency setting	0:Keypad digital setting 1:Analog AI1 setting	0	○
F00.11	Acceleration Time 0	0.0s--3600s	Model set	○
F00.12	Deceleration Time 0	0.0s--3600s	Model set	○
F00.13	Run direction	0:Positive 1:Reverse 2:Prohibit reverse	0	☆
F00.14	Carrier frequency	0-15.0kHz	Model set	○
F00.17	Inverter type	0: G type 1: P type	0	☆
F00.18	Restore patameters	0: No action 1: Restore factoty setting 2: Clear fault records	0	☆
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) 0s~65000s(F00.16=0)	20.0	○
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 sourceY range	0%~150%	100	○
F00.18	Upper limit frequency source	0:F00.07set 1:A11 2:A12 3:keypad potentiometerAI0 4:high speed pulse input 5:485 communication	0	☆
F00Group Start and stop parameters				
F01.01	Starting frequency	0.00-50Hz	0.50Hz (NK112-4T) 20.00Hz (NK112-2S) 0.00Hz (NK112A)	☆
F01.02	Hold time of starting frequency	0.00-50.0s	0.0s	☆
F01.08	Stop mode selection	0: Deceleration stop	0(NK112)	○

Function code	Name	Detailed of parameters	Default value	Attr
		1: Freewheel stop	1(NK112A)	
F01.13	Dead time of FWD/REV	0.0--3600.0S	0.0S	○
F01.14	Switch mode of FWD/REV	0: Switch after zero frequency 1: Switch after starting frequency 2: Delay and switch after stop speed	0	○
F01.15	Stop speed	0.00--100.00Hz	10.00Hz (NK112) 0.50Hz (NK112A)	○
F01.18	Terminal control when power-on	0: Terminal command enabled 1: Terminal command disabled	1	○
F01.19	Actuation when running frequency is less than lower limit frequency	0: Run at lower limit frequency 1: Stop 2: Stand-by	0	☆
F01.20	Delay time of dormancy wake up	0.00--3600.0s	0.0s	☆
F01.21	Restart when power-off	0: Forbid to restart 1: Allow to restart	1	○
F01.22	Waiting time for restart after power-off	0.00--3600.0s	60.0s	○
F01.23	Delay time of start	0.00--60.0s	60.0s	○
F01.24	Waiting time of restart after power-off	0.00--100.0s	0.0s	○
F02 Group Motor parameter				
F02.00	Motor1 type	0: Asynchronous motor	0	●
F02.01	Motor1 rated power	0.1kw--3000.0kw	Model set	☆
F02.02	Motor1 rated frequency	0.00Hz~F00.03	50.00Hz	☆
F02.03	Motor1 rated rotational speed	1rpm~36000rpm	Model set	☆
F02.04	Motor1 rated voltage	0~1200v	Model set	☆
F02.05	Motor1 rated current	0.8A~6000.0A	Model set	☆
F02.06	Stator resistance of asynchronous motor	0.001--65.535 Ω	Model set	○
F02.07	Rotor resistance of asynchronous motor	0.001--65.535 Ω	Model set	○
F02.08	Inductance of asynchronous motor	0.1--6553.5mH	Model set	○
F02.09	Mutual inductance of asynchronous motor	0.1--6553.5mH	Model set	○
F02.10	Non-load current of asynchronous motor	0.1--6553.5A	Model set	○
F02.26	Motor overload protection	0: No protection 1: Ordinary motor(with low speed compensation) 2: Variable frequency motor (without low speed compensation)	2	☆
F02.27	Motor overload protection factor	20.0--120.0%	100.0%	○
F03 Group: Reserved				
F04 Group: V/F control				
F04.00	V/F curve	0: straight line V/F curve 1: multi-dots V/F curve 2: 1.3 th V/F curve 3: 1.7 th V/F curve 4: 2.0 th V/F curve 5: VF separate curve	4	☆

Function code	Name	Detailed of parameters	Default value	Attr
F04.01	Motor 1 torque boost	0.0%(automatic)0.1%~10.0%	1.0	○
F04.02	Motor 1 torque boost to stop	0.0%~50.0%	20.0%	○
F04.03	V/F frequency 1	0.00Hz~F04.05	0.00Hz	○
F04.04	V/F voltage 1	0.0%~110.0%(motor rated voltage)	0.0%	○
F04.05	V/F frequency 2	F04.03~F04.07	0.00Hz	○
F04.06	V/F voltage 2	0.0%~110.0%(motor rated voltage)	0.0%	○
F04.07	V/F frequency 3	F04.05~F02.02(motor rated frequency)	0.00Hz	○
F04.08	V/F voltage 3	0.0%~100.0%(motor rated voltage)	0.0%	○
F04.09	Slip compensation gain	0.0%~200.0%	100.0%	○
F04.10	Low frequency surge suppression factor	00~100	10	○
F04.11	High frequency surge suppression factor	00~100	10	○
F04.12	Frequency threshold of surge suppression	0.00Hz---F00.03(Max.frequency)	30.00Hz	○
F04.27	Voltage setting	0:Keypad setting 1:A11 voltage setting 2--10:Reserved	0	○
F04.28	Keypad setting voltage	0.0%~100%	100%	○
F04.29	Voltage ACC time	0.0s---3600.0s	5.0s	○
F04.30	Voltage DEC time	0.0s---3600.0s	5.0s	○
F04.31	Max.V/F separated voltage	F04.32--100.0%	100%	☆
F04.32	Min.V/F separated voltage	0.0%--F04.31	0.0%	☆
F04.33	Weak magnetic coefficient of constant power zone	1.00--1.30	1.00	○
F05 Group Input terminal				
F05.01	Terminal DI1 function selection	0: disabled	1	☆
F05.02	Terminal DI2 function selection	1: forward run 2: reverse running	43	☆
F05.03	Terminal DI3 function selection	3: three-wire running 4: forward jogging	44	☆
F05.04	Terminal DI4 function selection	5: reverse jogging 6: freewheel stop 7: fault reset 8: emergency stop 9: external fault input 21: ACC/DEC time selection 1 22: ACC/DEC time selection 2 30: ACC/DEC disabled 36: switch command to keypad 36: switch command to terminal 36: switch command to communication 40: power consumption clear 41: power consumption stay 42: PV Inverter Forbid 43: Full-Water	42	☆
F05.05	Terminal DI5 function selection		0	☆

Function code	Name	Detailed of parameters	Default value	Attr
		44: Dry -Water		
F05.10	Terminal DI1--DI5 Positive/Negative logic	0x00--0x1F	0x004	☆
F05.11	DI Terminal Filtering	0.000-1.000s	0.010s	○
F05.12	Virtual terminal setting	0:Virtual terminal invalid 1:Modbus communication virtual terminal valid	0	☆
F05.13	Terminal control running model	0:Two-line control mode 1	0	○
F05.14	Delay time of DI1 on	0.000~50.000s	0.000s	○
F05.15	Delay time of DI1 off	0.000~50.000s	0.000s	○
F05.16	Delay time of DI2 on	0.000~50.000s	0.000s	○
F05.17	Delay time of DI2 off	0.000~50.000s	0.000s	○
F05.18	Delay time of DI3 on	0.000~50.000s	0.000s	○
F05.19	Delay time of DI3 off	0.000~50.000s	0.000s	○
F05.20	Delay time of DI4 on	0.000~50.000s	0.000s	○
F05.21	Delay time of DI4 off	0.000~50.000s	0.000s	○
F05.22	Delay time of DI5 on	0.000~50.000s	0.000s	○
F05.23	Delay time of DI5 off	0.000~50.000s	0.000s	○
F05.32	AI1 lower limit	0.00v--F05.34	0.00v	○
F05.33	Corresponding setting of AI1 lower limit	-100%---100%	0.0%	○
F05.34	AI1 upper limit	F05.32--10.00V	10.00v	○
F05.35	Corresponding setting of AI1 upper limit	-100%---100%	100.0%	○
F05.36	AI1 input filter time	0.000~10.000s	0.100s	○
F05.37	AI0 lower limit	0.00v--F05.39	0.00v	○
F05.38	Corresponding setting of AI0 lower limit	-100%---100%	0.0%	○
F05.39	AI0 upper limit	F05.37--10.00V	10.00v	○
F05.40	Corresponding setting of AI0 upper limit	-100%---100%	0.0%	○
F05.41	AI0 input filter time	0.000~10.000s	0.100s	○
F06 Group Output terminal				
F06.03	Relay T1 output selection	0: Disabled	1	○
F06.04	Relay T2 output selection	1: running 2: forward running 3: reverse running 4: jogging 5: inverter fault 6: frequency level detection FDT1 7: frequency level detection FDT2 8: frequency arrival 9: zero speed running 10:upper limit frequency arrival 11:lower limit frequency arrival 12:running ready 14:overload early warning 15:under-load early warning 20:external fault valid 22:running time arrival 23:modbus communication virtual terminal output	5	○
F06.05	Output Terminal Positive/Negative Logic	0x0~0x1F	0x0	○

Function code	Name	Detailed of parameters	Default value	Attr
F06.10	Relay T1 output delay time	0.000~50.000	0.000s	○
F06.11	Relay T1 disconnect delay time	0.000~50.000	0.000s	○
F06.12	Relay T2 output delay time	0.000~50.000	0.000s	○
F06.13	Relay T2 disconnect delay time	0.000~50.000	0.000s	○
F07 Group HMI interface				
F07.00	User password	0--65535	0	○
F07.02	MF key function selection	0: invalid 1: jogging running 2: left-shift key to switch display state 3: FWD/REV switch 4: clear UP/DOWN setting 5: freewheel stop 6: switch command methods in order 7: non-factory parameter debugging	1	☆
F07.03	MF key switch command method order	0: keypad→terminal→communication 1: keypad←→terminal 2: keypad←→communication 3: terminal←→communication	0	○
F07.04	STOP/RESET key stop function	0: only valid for keypad control 1: valid for keypad and terminal control at the same time 2: valid for keypad and communication control at the same time 3: valid for all control modes	0	○
F07.05	Running Status Display Selection	0x0000~0xFFFF BIT0: Output frequency BIT1: Reference frequency BIT2: DC bus voltage BIT3: Output voltage BIT4: Output current BIT5: Rotation speed BIT6: Output power BIT10: input terminal status BIT11: output terminal status	0x05F	○
F07.06	Running Status Display Selection 2	0x0000~0xFFFF BIT0: Analog AI1(V light on) BIT1: Analog AI2(V light on) BIT2: Analog AI3(V light on) BIT3~BIT15: Reserved	0x0000	○
F07.07	Stop Status Display Selection	0x0000~0xFFFF BIT0: Reference frequency BIT1: DC bus voltage BIT2: Input terminal status BIT3: Output terminal status BIT7: Analog AI1(V light on) BIT8: Analog AI2(V light on) BIT9: Analog AI3(V light on)	0x00FF	○
F07.08	Frequency display coefficient	0.01~10.00 Display frequency=running frequency* F07.08	1.00	○
F07.09	Rotating speed display coefficient	0.1~999.9% Mechanical speed=120*display frequency×F07.09/Number of motor	100.0%	○

Function code	Name	Detailed of parameters	Default value	Attr
		pole pairs		
F07.10	Linear speed display coefficient	0.1~999.9% Linear speed=Mechanical speed×F07.10	1.0%	○
F07.11	Rectification bridge temperature	~100.0℃		●
F07.12	Converting module temperature	~100.0℃		●
F07.13	Software version	1.00--655.35		●
F07.14	Accumulative running time	0--65535h		●
F07.18	Inverter Rate Power	0.4--3000.0kw		●
F07.19	Inverter Rate Voltage	50--1200v		●
F07.20	Inverter Rate Current	0.1--6000.0A		●
F07.27	Now Fault Type	0: Not fault		●
F07.28	Latest Fault Type	1: Over-current when acceleration (OC1)		●
F07.29	The Second Fault Type	2: Over-current when deceleration (OC2)		●
F07.30	The Third Fault Type	3: Over-current when constant speed running (OC3)		●
F07.31	The Fourth Fault Type	4:Over-voltage when acceleration (OV1) 5:Over-voltage when deceleration (OV2)		●
F07.32	The Fifth Fault Type	6:Over-voltage when constant speed running (OV3) 7:DC bus Under-voltage (UV) 8:IGBT Ph-U fault (OUT1) 9:IGBT Ph-V fault (OUT2) 10:IGBT Ph-W fault (OUT3) 11:Motor overload (OL1) 12:Inverter overload (OL2) 13:overload alarm (OL3) 14:IGBT overheat (OH1) 15:Rectify overheat (OH2) 16:Input phase failure (SFI) 17:Output phase failure (SFO) 18:Brake unit fault (bCE) 19:Ground short-circuit fault (ETH) 20:Under load fault (LL) 21:Communication fault (E.485) 22:External fault (EF) 23:EEPROM fault (EEE) 24:Trial time reached (END) 25:Current detection fault (ItE) 32:Short to ground fault 1(ETH1) 33:Short to ground fault 2(ETH2) 36:Low-load fault(LL) Warning: A-LS:Lack sunlight A-tF:water full A-LL:lack water source A-LL1:water source drain		●
F08 Group Auxiliary function				
F08.00	ACC time 2	0.0--3600.0s	Depend on model	○
F08.01	DEC time 2	0.0--3600.0s	Depend on model	○

Function code	Name	Detailed of parameters	Default value	Attr
F08.02	ACC time 3	0.0--3600.0s	Depend on model	○
F08.03	DEC time 3	0.0--3600.0s	Depend on model	○
F08.04	ACC time 4	0.0--3600.0s	Depend on model	○
F08.05	DEC time 4	0.0--3600.0s	Depend on model	○
F08.06	Jogging frequency	0.00~F00.03(Max.frequency)	5.00Hz	○
F08.07	Jogging running ACC time	0.0--3600.0s	Depend on model	○
F08.08	Jogging running DEC time	0.0--3600.0s	Depend on model	○
F08.28	Fault auto reset times	0~10	5	○
F08.29	Reset interval	0.1--3600.0s	2.0s	○
F08.32	FDT1 level detection value	0.00--F00.03(Max.frequency)	50.00hz	○
F08.33	FDT1 lag detection	-100.0~100.0% (FDT1 level)	5.0%	○
F08.34	FDT2 level detection value	0.00--F00.03(Max.frequency)	50.00hz	○
F08.35	FDT2 lag detection	-100.0~100.0% (FDT2 level)	5.0%	○
F08.36	Frequency arrival detective value	0.00--F00.03(Max.frequency)	0.00hz	○
F08.37	Energy consumption brake enable	0:brake disable 1:brake enable	0	○
F08.38	Braking threshold voltage	200.0--2000.0v(220v voltage:380v)	Depend on voltage	○
		200.0--2000.0v(380v voltage:700v)		
		200.0--2000.0v(660v voltage:1120v)		
F08.39	Running mode of cooling fan	0:normal running mode 1:keep running after power on	0	○
F09 Group: Reserved				
F10 Group: Reserved				
F11 Group: Protective parameter				
F11.00	Phase loss protection	0x00~0x11 LED ones place: 0: input phase loss protection disabled 1:input phase loss protection enabled LED tens place: 0: output phase loss protection disabled 1:output phase loss protection enabled	10 (NK112-4T) 00 (NK112A) (NK112-2S)	○
F11.01	Frequency decreasing point at sudden power loss	00.0~100.0% (standard bus voltage)	80.0%	○
F11.02	Frequency decreasing ratio at sudden power loss	0.00Hz~F00.03 (Max. frequency)	15.00Hz/s	○
F11.03	Overvoltage stall selection	0: disabled 1: enabled	0	○
F11.04	Overvoltage stall protection voltage	380:120--150%(standard bus voltage)	140%	○
		220:120--150%(standard bus voltage)	120%	
F11.05	Overcurrent stall	0x00~0x11	01	☆

Function code	Name	Detailed of parameters	Default value	Attr
	actuation selection	Ones place:actuation selection 0: Current limit actuation selection 1:actuation always valid Tens place:hardware current limit over-load alarm selection 0:hardware current limit over load alarm valid 1:hardware current limit over load alarm invalid		
F11.06	Overcurrent stall protection current	50.0%~200.0%	160.0%	☆
F11.07	Overcurrent stall frequency decreasing ratio	0.00~50.00Hz/s	10.00Hz/s	☆
F11.08	Over(under)load warning actuation selection	0x000~0x131 Ones place: 0: motor over(under)load early alarm, relative to motor rated current 1: inverter over/under load early alarm,relative to inverter rated current Tens place: 0: inverter keeps running after over/under load alarm 1: inverter keeps running after under-load alarm and stops after over-load alarm 2: inverter keeps running after over-load alarm and stops after under-load alarm 3: inverter stops after over/under load alarm Hundreds place: 0: detecting all the way 1:detecting during constant running	0.00	○
F11.13	Fault output terminal actuation selection	0x00~0x11 Ones place: 0: action when under-voltage fault appears 1: no action when under-voltage fault appears Tens place: 0:action during automatic resetting 1:no action during when automatic resetting	0x00	○
F11.16	Automatic frequency reduction selection of Voltage fallen-down	0:invalid 1:valid	1	○
F14 Group: Communication				
F14.00	Local address	0 is the broadcast address, 1~247 are slave addresses	1	○
F14.01	Baud rate	0: 1200bps 1: 2400bps 2: 4800bps 3: 9600bps 4: 19200bps 5: 38400bps 6: 57600bps	4	○
F14.02	Data check	0: no check (N, 8,1) for RTU 1: even check (E, 8,1) for RTU	1	○

Function code	Name	Detailed of parameters	Default value	Attr
		2: odd check (O, 8,1) for RTU 3: no check (N, 8,2) for RTU 4: even check (E, 8,2) for RTU 5: odd check (O, 8,2) for RTU		
F14.03	Response delay	0~200ms	5	○
F14.04	Communication timeout detection time	0.0 (invalid), 0.1~100.0s	0.0s	○
F14.05	Communication timeout error handling	0: alarm and coast to stop 1: no alarm and continue running 2: no alarm and stop according to stop mode (communication mode is valid) 3: no alarm and stop according to stop mode (all control modes are valid)	0	○
F14.06	Communication processing actuation selection	LED ones 0: write with response 1: write without response LED tens 0: set value unsaved after power off 1: set value saved after power off	0x00	○
F15 Group: Solar inverter special function				
F15.00	PV Inverter Selection	0: Disabled 1: Enabled 2: Boost enabled (NK112A special)	1 (NK112) 2 (NK112A)	○
F15.01	Vmpp voltage selection	0: Constant Voltage 1: Max. Power Point Tacking(MPPT) 2: Bus voltage *0.85	1	○
F15.02	Vmpp Voltage Keypad Set	0.0~6553.5Vdc	555.0V or 200.0V Depend on mode	○
F15.03	PID Off Set Limits	0.0~100.0%(100.0% refer P11.18)	0.0%	☆
F15.04	PID Max. Output Frequency	0~100.0%	100.0%	○
F15.05	PID Min. Output Frequency	0.0%~100.0%	0.0%	○
F15.06	KP1	0.00~100.00	1.0 (NK112)	○
F15.07	KI1		10.0 (NK112A)	
F15.08	KP2		15.0 (NK112)	
F15.09	KI2		10.0 (NK112A)	
F15.10	PI Amplitude	0.0--6553.5Vdc	25.0v/30.0v /60.0v depend on mode	○
F15.11	Dry pump function	0:disabled 1:enabled	1	○
F15.12	Dry-Water Threshold	0.0--100.0%	0.0%	○

Function code	Name	Detailed of parameters	Default value	Attr
F15.13	Delay Time of Dry-Water	0.0--3600.0s	60.0s	○
F15.14	Wake-up Delay Time of Dry-Water	0.0--3600.0s	600.0s	○
F15.15	POWER SELECT	0: motor 1: UI	0	○
F15.16	Over-heat reduced frequency	0.00~10.00Hz/°C	3.00Hz/°C	○
F15.17	Delay Time of Full-Water	0.0~3600.0s	60.0s	○
F15.18	Reset Delay of Full-Water	0.0~3600.0s	120.0s	○
F15.19	Frequency of Weak Light	0~50.00Hz	5.00Hz (NK112) 15.00Hz (NK112A)	○
F15.20	Delay Time of Weak Light	0.0--3600.0s	600.0s	○
F15.21	Reset Delay of Weak Light	0.0--3600.0s	300.0s	○
F15.22	Reference Voltage of Given Display	0.0--2000.0v	0v	●
F15.23	Min. Voltage of MPPT	0.0--6553.5vdc	50.0v	○
F15.24	Max. Voltage of MPPT	0.0--6553.5vdc	780.0v	○
F15.25	KP3 (NK112A special)	0.00~100.00	40.00	○
F15.26	KI3 (NK112A special)	0.00~100.00	5.00	○
F15.27	Boost Voltage set (NK112A special)	0.0--6553.5vdc	330.0v	○
F15.28	KP4 (NK112A special)	0.00~100.00	20.00	○
F15.29	KI4 (NK112A special)	0.00~100.00	5.00	○
F17 Group: Status view function				
F17.00	Set frequency	0.00Hz~F00.03	0.00Hz	●
F17.01	Output frequency	0.00Hz~F00.03	0.00Hz	●
F17.02	Slope given frequency	0.00Hz~F00.03	0.00Hz	●
F17.03	Output voltage	0~1200V	0V	●
F17.04	Output current	0.0~5000.0A	0.0A	●
F17.05	Motor rotary speed	0~65535RFM	0 RFM	●
F17.08	Motor power	-300.0~300.0%	0.0%	●
F17.10	Solar battery voltage	0.0~2000.0V	0v	●
F17.11	DC bus voltage	0.0--2000.0v	0v	●
F17.12	Digital input terminal status	0000~000F	0	●
F17.13	Digital output terminal status	0000~000F	0	●
F17.14	Digital adjustment	0.00Hz~F00.03	0.00V	●
F17.15	Given torque	-300.0%~300.0%	0.0%	●
F17.16	Solar battery current	0.0~2000.0A	0A	●
F17.19	All input voltage	-10.00~10.00V	0.00V	●

Func ₁ cod	Name	Detailed of parameters	Default value	Attr
F17.20	AI2 input voltage	-10.00~10.00V	0.00V	●
F17.21	AI3 input voltage	-10.00~10.00V	0.00V	●
F17.22	HDI input Frequency	0.00Hz~50.00kHz	0.00kHz	●

Troubleshooting list

Code	Type	Reason	Solution
P.OFF	Power off	External power supply close	Check the three phase power is off or not
E.Out1	IGBT Ph-U fault	1.Acc/Dec time is too short	1.Increase Acc/Dec time 2.Ask for support 3.Inspect external equipment and eliminate interference
E.Out2	IGBT Ph-V fault	2.IGBT module fault	
E.Out3	IGBT Ph-W fault	3.Malfunction caused by interference 4.Ground is not properly	
E.oC1	Over current when acceleration	1. The acc time is too short 2. The input 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	Over current when deceleration	1. The dec time is too short 2. Load is too heavy 3. The inverter power is too small	1. Increase the DEC time 2. Add the appropriate braking components 3. Select the inverter of larger power
E.oC3	Constant speed running over current	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 over voltage	1. The input voltage is abnormal 2. After instantaneous power failure, restart the rotating motor	1. Check the input power 2. Avoid restart at stop
E.oU2	DEC running over voltage	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 over voltage	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.LU	Bus under voltage	The grid voltage is too low	Check the grid input power
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	1. Reduce the acceleration speed

Code	Type	Reason	Solution
		3. The grid voltage is too low 4. The load is too large	2. Avoid restart at stop 3. Check the grid voltage 4. Select the inverter of larger power
E.SPI	Input phase loss	Input R, S, T phase loss	1. Check the input power 2. Check the installation and wiring
E.SPO	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.oH1	Rectifier module overheating	1. Instantaneous over current of the inverter 2. Phase or ground short circuit of output three phases	1. Refer to over current solutions 2. Redistribution 3. Dredge the duct or replace the fan 4. Reduce the ambient temperature 5. Check and reconnect 6. Ask for service 7. Ask for service 8. Ask for service
E.oH2	Inverter 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 under voltage 7. The power module bridge is conducted 8. The control board is abnormal	
E.EF	External fault	SI external fault input terminal operation	1. Check the external device input
E.CE	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.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 3. Ask for service 4. Ask for service
E.TE	Motor auto tuning 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. Auto tuning 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.EEP	EEPROM read and write fault	1. Control parameters read and write error	1. Press the STOP/RESET key to reset and ask for

Code	Type	Reason	Solution
		2.EEPROM damaged	service 2. Ask for service
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.bCE	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.END	Running time arrival	User trial time arrival	Ask for service
E.oL3	Overload pre-warning	1. The load is too heavy 2. Inverter per-warning as setting	1. Select a larger power inverter 2. Check load and Pre-warning setting
E.EAH1	Earth fault	1. Inverter output short connect to earth 2. Current detection circuit fault	1.Check motor wire 2.Change hall, change control board
A-LS	Weak light	Light is too weak to keep running state	Wait for stronger sunshine
A-TF	Full water	Water is adequate	Waiting for clearing alert
A-LL	Water shortage	Water sources are lacking of water	Waiting for clearing alert
A-LL1	Water shortage	Water sources are lacking of water	Waiting for clearing alert

Note: if still can not settle down problem, please contact after-sales department