Chapter 5 Function parameter

5-1.Menu grouping

Note:

"★": In running status, can not modify the parameter setting

"●": The actual testing data, can not be modified

"☆": In stop and run statuses, both can be changed;

"▲": "Factory parameter", no change about it.

"_" means the factory parameter is related to power or model. Please check the details in the involved parameter introduction.

PI570-S series Solar inverter, some parameters is "manufacturers retain", the serial number in the function parameter list is not listed, resulting in some of the parameters of the table number is not connected, For the parameters not described in the manual, please do not try to modify to avoid causing errors.

5-1-1.F00 Group -Basic function group

<table>
<tr><th>Code</th><th>Parameter name</th><th colspan="2">Setting range</th><th>Factory range</th><th>Change Limit</th></tr>
<tr><td rowspan="3">F00.00</td><td rowspan="3">Motor control manner</td><td>SVC 0</td><td>0</td><td rowspan="3">2</td><td rowspan="3">★</td></tr>
<tr><td>SVC 1</td><td>1</td></tr>
<tr><td>V/F control</td><td>2</td></tr>
<tr><td colspan="6">0:SVC 0
Open loop vector control,no need to install encoders.Applicable to scenarios with requirements for low frequency and high speed control accuracy.One inverter only can drive one motor.
1:SVC 1
Open loop vector control,no need to install encoder on the motor end.Applicable to high speed control accuracy or torque control accuracy.One inverter only can drive one motor.
2:V/F control
Applicable to scenarios without demanding requirements on control accuracy, such as fan and pump.One inverter can drive multiple motors.
Note: In vector control mode,the capacity of the inverter and the capacity of the motor should not differ too much,the inverter can be two levels higher or one level lower than the motor power level,Otherwise, the control performance may be degraded,Or the drive system cannot operate normally.</td></tr>
<tr><td>F00.01</td><td>Frequency source master setting</td><td colspan="2">Used to select the input channel of running inverter control commands.The inverter control commands include the start, stop, forward run, reverse run, jog, and fault reset commands.
0: Keypad ("LOCAL/REMOT" off) :The operation command is controlled by the RUN and STOP/RESET buttons on the operation panel.
1:Terminal control ("LOCAL/REMOT" blinking):The multi-function input terminal DI is defined as FWD, REV and other functions to perform operation command control.
2:Communication (LOCAL/REMOT on) :The running command is given by the upper computer in communication mode.</td><td>1</td><td>★</td></tr>
</table>

F00.03	Maximum output frequency	The maximum output frequency of the inverter. F00.04～599.9Hz	50.00Hz	★
F00.04	Upper limit frequency	F00.05 Lower limit frequency ～F00.03（(Max. output frequency）	50.00Hz	★
F00.05	Lower limit frequency	0.00Hz～F00.04(Upper limit frequency ≥) Note: Max. output frequency ≥ Upper limit frequency ≥ Lower limit frequency	0.00Hz	★
F00.06	Frequency source master setting	0:Digital settings 1: Reserve 2:Analog AI2 setting 3:Analog AI2 setting 4: High-speed pulse HDI setting 5: Simple PLC setting 6: Multi-segment command setting 7:PID setting 8: Remote communication setting 9～11:Reserve	0	☆
F00.07	Frequency source auxiliary setting	Same frequency source main setting F00.06	2	☆
F00.09	Frequency source superimposed selection	0:Frequency source master setting 1:Frequency source auxiliary setting 2:master setting+auxiliary setting 3:master setting-auxiliary setting 4:Max(master setting,auxiliary setting) 5:Min(master setting,auxiliary setting)	0	☆
F00.10	set frequency	Range: 0.00Hz～F00.03 (max frequency)	50.00Hz	☆
F00.11	Acceleration time 1	ACC time means to the time required for the inverter speeds to accelerate from 0 frequency to the set frequency. The DEC time refers to the time it takes for the inverter to decelerate from the set frequency,the time required to decelerate to zero frequency. Provide 4 groups of ACC and DEC time,Users can use the digital input terminal DI to switch the selection,The four groups of ACC and DEC time setting parameters are as follows: Group 1: F00.11, F00.12; Group 2:F08.00、F08.01; Group 3:F08.02、F08.03； Group 3:F08.04、F08.05. 0.0~3600.0s	-	☆
F00.12	Deceleration time 1		-	☆
		0: The direction is consistent,keyboard FWD/REV indicator is off. 1:Opposite direction,keyboard FWD/REV indicator is on. 2:Disable reverse running. It can be used in some		

F00.13	Running direction	special scenarios where reverse running is disallowed. Note: By changing this parameter,the purpose of changing the direction of the motor can be achieved without changing the motor wiring.This effect equals to the shifting the rotation direction by adjusting either two of the motor lines (U, V and W). When the parameter is restored to the default value, the motor's running direction is restored to the default one. Exercise caution before using this function if the change of motor rotation direction is disallowed after commissioning.	0	★
F00.15	Motor parameter auto tuning	0: No operation 1: Comprehensive self-learning of asynchronous motor parameters; 2: Asynchronous motor parameters static self-learning; 3: Static self-learning 2 (No-load current and mutual inductance are not studied) Note: No operation,That is, parameter self-learning is prohibited. 1:Asynchronous motor parameters static self-learning.Before performing static self-learning of asynchronous motor parameters,The motor type and motor nameplate parameters F02.01~F02.05 must be set correctly. 2: Comprehensive self-learning of asynchronous motor parameters.During the comprehensive self-learning process of asynchronous motor parameters,The inverter first performs static self-learning.Then accelerate to 80% of the motor rated frequency according to the acceleration time.After keeping it for a while,The machine will decelerate to stop according to the deceleration time and end the self-learning. Before performing comprehensive self-learning of asynchronous motor parameters,The motor nameplate parameters F02.01~F02.05 need to be set.	0	★
F00.16	Reserve			
F00.18	Parameter initialization	0:No operation: 1: Restore default values 2: Clear fault records Note: Restoring the default values may delete the user password. Exercise caution before using this function.	0	★

5-1-2.F01 Group - Start and stop control group

Code	Parameter name	Setting range	Factory setting	Change Limit
F01.00	Start-up mode	0: Direct start: Start from the starting frequency F01.01. 1: DC braking first, then starting If the starting DC braking time is set to 0, the inverter will start running from the starting frequency. If the starting DC braking time is not 0, DC braking will be performed first, and then the inverter will start running from the starting frequency. It is suitable for small inertia loads, and the motor may rotate at the time of starting. 2: Speed tracking restart: The inverter first determines the speed and direction of the motor, and then starts with the tracked motor frequency, and starts the rotating motor smoothly without impact. It is suitable for restarting after instantaneous power failure of large inertia load. To ensure the performance of speed tracking restart, the motor parameter group F01 group needs to be accurately set.	0	☆
F01.01	Direct starting frequency	0.00~50.00Hz	0.05Hz	☆
F01.08	Stop mode	0: deceleration stop 1: free stop	0	★
F01.13	Dead time	0.0~3600.0s	0.0	★
F01.19	Below the lower limit frequency	0: Running at lower limit frequency 1: Stop 2: Sleep standby	0	☆
F01.25	Reserve		0	☆

5-1-3.F02 Group -Motor parameter group

Code	Parameter name	Setting range		Factory setting	Change Limit
F02.00	Motor type selection	0:Asynchronous motor 1:Reserve		0	★
F02.01	Asynchronous motor rated power	0.1-3000.0kW	F02.01 to F02.05 are motor nameplate parameters that affect the accuracy of parameter measurement. Please set according to the nameplate parameters of the motor. Excellent vector control performance requires accurate motor parameters. Accurate parameter identification	-	★
F02.02	Asynchronous motor rated frequency	0.01Hz～F00.03		50.00 Hz	★
F02.03	Asynchronous motor rated speed	1～36000rpm		-	★
F02.04	Asynchronous motor rated voltage	0～1200V		-	★
F02.05	Asynchronous motor rated current	0.8～6000.0A		-	☆

			comes from the correct setting of the rated parameters of the motor. To ensure control performance, please configure the motor according to the frequency converter standard. The rated current of the motor is limited to 30% to 100% of the rated current of the frequency converter. The rated current of the motor can be set, but it cannot exceed the rated current of the frequency converter. This parameter can be used to determine the overload protection capacity and energy-saving operation of the frequency converter for the motor. To prevent the occurrence of motor overheating during low-speed operation of self cooling motors or when the motor capacity changes little due to changes in motor characteristics (smaller than the rated capacity of the frequency converter), this function can also be used for correction to achieve the purpose of protecting the motor.		
F02.06	Asynchronous motor stator resistance	0.001～65.535Ω	After motor parameter autotuning is properly performed, the values of F02.06–F02.10 are automatically updated. These parameters are the benchmark parameters for high-performance vector control, directly affecting the control performance. Note: Do not modify these parameters unless it is necessary.	–	☆
F02.07	Asynchronous motor rotor resistance	0.001～65.535Ω		–	☆
F02.08	Asynchronous motor leakage inductance	0.1~6553.5mH		–	☆
F02.09	Asynchronous motor mutual inductance	0.1~6553.5mH		–	☆
F02.10	Asynchronous motor no-load current	0.1~6553.5A		–	☆

F02.11～F02.14	Reserve			
F02.28	Reserve			

5-1-4.F04 Group -V/F control group

Code	Parameter name	Setting range	Factory setting	Change Limit
F04.00	V/F curve setting	0: Straight-line V/F curve 1: Multi-dots V/F curve 2: Torque-down V/F curve (power of 1.3) 3: Torque-down V/F curve (power of 1.7) 4: Torque-down V/F curve (power of 2.0) 5.Customized V/F(V/F separation) Note: 0: Straight-line V/F curve, applicable to constant torque loads 1: Multi point V/F, suitable for special loads such as dehydrators and centrifuges. Any V/F relationship curve can be obtained. 2-4: The V/F relationship curve between the straight line V/F and the square V/F. 5: V/F separation, in which the output frequency and output voltage of the frequency converter are independent of each other. The output frequency is determined by the frequency source, while the output voltage is determined by the voltage source F04.27 separated by V/F. Generally used in induction heating, inverter power supply, torque motor control and other occasions.	4	★
F04.01	Torque boost	Torque boosting is mainly used to improve the low-frequency torque characteristics under V/F control mode. The torque increase is too low, and the motor is weak at low speeds. The torque increase is too high, the motor is overexcited, the output current of the frequency converter is high, and the efficiency is reduced. When the load is heavy and the motor starting torque is insufficient, it is recommended to increase this parameter. When the load is light, the torque increase can be reduced. When the torque boost is set to 0.0, the frequency converter is in automatic torque boost mode. At this time, the frequency converter automatically calculates the required torque boost value	0.0%	☆
F04.02	Torque boost cut-off frequency		20.0%	☆

		based on parameters such as motor stator resistance. Torque boost cutoff frequency: Below this frequency, torque boost is effective, and beyond this set frequency, torque boost is invalid. F04.01:0.1% to 10.0% F04.02:0.0% to 50.0%		
F04.03	Multipoint V/F frequency point 1	F04.03:0.00Hz to F04.05 F04.04:0.0% to 110.0% (rated voltage of motor) F04.05 :F04.03 to F04.07 F04.06: 0.0% to 110.0% (rated voltage of motor) F04.07: F04.05 to F02.02 (rated frequency of motor) or F04.05 to F02.16 (rated frequency of motor) F04.08: 0.0% to 110.0% (rated voltage of motor) Six parameters, F04.03 to F04.08, define multiple V/F curves. The curve of multi-point V/F should be set according to the load characteristics of the motor. It should be noted that the relationship between the three voltage points and frequency points must satisfy: V1<V2<V3, F1<F2<F3. The following figure is a schematic diagram of the setting of multi-point V/F curve. Setting the voltage too high at low frequencies may cause the motor to overheat or even burn out, and the frequency converter may experience overcurrent stall or overcurrent protection, as shown in the schematic diagram of multi-point V/F curve setting below.	0.00Hz	☆
F04.04	Multipoint V/F voltage point 1		00.0%	☆
F04.05	Multipoint V/F frequency point 2		00.00 Hz	☆
F04.06	Multipoint V/F voltage point 2		00.0%	☆
F04.07	Multipoint V/F frequency point 3		00.00 Hz	☆
F04.08	Multipoint V/F voltage point 3		00.0%	☆
F04.09	Slip compensation coefficient	The parameters are only valid for asynchronous motors. V/F slip compensation can compensate for the motor speed deviation generated by asynchronous motors when the load increases, so that the motor speed can be basically maintained stable when the load changes. The V/F slip compensation gain is set to 100.0%, which means that the compensated slip when the motor is under rated load is the rated slip of the motor. The rated slip of the motor is calculated by the frequency converter through the F02 set of motor rated frequency and rated speed. When adjusting the V/F slip compensation gain, it is generally based on the principle that the motor speed is	0.0%	☆

		basically the same as the target speed under rated load. When the motor speed is different from the target value, it is necessary to adjust the gain appropriately. 0.0 to 200.0%		
F04.27	V/F separation voltage source	0: Number setting 1: Reserve 2: Analog AI2 setting 3: Analog AI3 setting 4: High speed pulse setting HDI 5: Multi segment instruction setting 6: PID setting 7: Remote communication settings 8-10: Reserve	00	☆
F04.33	Reserve			

5-1-5.F05 Group -Input terminals group

Code	Parameter name	Setting range	Factory setting	Change Limit
F05.00	HDI input type selection	0: HDI high-speed pulse input 1:switching value input	1	★
F05.01	DI1 terminal function selection	0:No function 1:Forward run (FWD) 2:Reverse run (REV) 3:Three-wire operation control 4:Forward JOG 5:Reverse JOG 6:Free stop 7:Fault reset(RESET) 8:Run pausing 9:External fault input 10:Terminal UP 11:Terminal DOWN 12:UP/DOWN setting zero clearing 13:Switch between the Master frequency source and Auxiliary frequency source 14: Switch between the Frequency source superimposed selection and Master frequency source 15:Switch between the Frequency source superimposed selection and Auxiliary frequency source 16:Multi-speed terminal 1 17:Multi-speed terminal 2 18:Multi-speed terminal 3 19:Multi-speed terminal 4 20:Multi-speed pausing 21:Ac/deceleration time selection terminal 1 22:Ac/deceleration time selection terminal 2 23:PLC Stop reset 24:PLC pausing 25:PID pausing	1	★
F05.02	DI2 terminal function selection		43	★
F05.03	DI3 terminal function selection		44	★
F05.04	DI4 terminal function selection		0	★
F05.09	HDI terminal function selection		0	★

		26:Wobbulate pausing 27:Wobbulate reset 28:Counting reset 29:Torque control prohibit 30:Acceleration and deceleration prohibition 31:Counter trigger 32:Reserve 33:UP/DOWN setting temporary clearance 34:DC braking 35:Reserve 36:Command switch to keyboard 37:Command switch to terminal 38:Command switch to communication 39:Reserve 40:Electricity consumption zero clearing 41:Electricity consumption keep 42:Force switching to power frequency 43:Full water signal 44:Empty water signal 45~63:Reserve		
F05.10	Input terminal polarity selection	BIT0 BIT1 BIT2 BIT3 BIT8 DI1 DI2 DI3 DI4 HDI ：0x000~0x10F	0x00	★
F05.37	AI2 lower limit	0.00V~F05.39	0.00V	☆
F05.39	AI2 upper limit	F05.37~10.00V	10.00 V	☆

5-1-6.F06 Group -Ouput terminals group

Code	Parameter name	Setting range	Factory setting	Change Limit
F06.03	Relay output selection	0:No function 1:Running 2:Forward run (FWD) 3:Reverse run (REV) 4:JOG runnning 5:Inverter fault 6:Frequency level detection FDT1 7:Frequency level detection FDT2 8:Frequency arrival 9:Zero-speed running 10:Upper frequency arrival 11:Lower frequency arrival 12:Ready to run 13:Reserve 14: Over load pre-alarm 15:Underload pre-alarm 16:Simple PLC stage completed 17:Simple PLC cycle completed 18:Setup counter arrive 19:Specifies the count arrive	30	☆
F06.04	Reserve		5	☆

		20:External fault valid 21:Reserve 22:running time arrival 23~26:Reserve 27:Low light medium 28~29:Reserve 30:Switch to PV mode		
F06.05	Output terminal polarity selection	BIT1 BIT0 Reserve Relay :0~F	0	☆
F06.10	Relay turn-on delay	0.000～50.000s	10.000 s	☆
F06.11	Relay turn-off delay	0.000～50.000s	10.000 s	☆
F06.14	DA1 output selection	0：Running frequency 1：setting frequency 2：Slope setting frequency 3：Running speed(Relative to 2 times the motor synchronous speed) 4：output current(Relative to 2 times the rated current of the inverter) 5：output current(Relative to 2 times the rated current of the motor) 6：Output voltage(Relative to 1.5 times the rated voltage of the inverter) 7：output power(Relative to 2 times the rated power of the motor) 8：setting torque(Relative to 2 times the rated torque of the motor) 9：output torque(Relative to 2 times the rated torque of the motor) 10：Reserve 11：Analog AI2 input(0V~10V) 12：Analog AI3 input 13：High speed pulse HDI input 14：MODBUS communication setting 1 15~21：Reserve 22：torque current(Relative to 3 times the rated current of the motor) 23~30：Reserve	0	☆
F06.17	DA1 output upper limit	-100.0%~F06.19	0.0%	☆
F06.18	The lower limit corresponds to the DA1 output	0.00V~10.00V	0.00V	☆
F06.19	DA1 output low limit	F06.17~100.0%	100.0 %	☆
F06.20	The upper limit corresponds to the DA1	0.00V~10.00V	10.00 V	☆

	output			

5-1-7.F07 Group -Keyboard interface group

Code	Parameter name	Setting range	Factory setting	Change Limit
F07.00	User password	0~65535	0	☆
F07.02	QUICK key function selection	0: No function 1: Jog running 2: Shift key switches the display state 3: Forward and reverse switching 4: Clear UP/DOWN settings 5: Free stop 6: Running command given mode is switched in order 7:Reserve	0	★
F07.03	QUICK key control mode switching	Set the control mode switching sequence 0:Keyboard→terminal→communication 1::Keyboard→terminal 2:Keyboard→communication 3:Terminal→communication	1	☆
F07.04	STOP/RST keypad lock-up selection	0:Only keyboard control is valid 1:Only keyboard and terminal control are valid 2:Only keyboard and communication control are valid 3:All control mode are valid	1	☆
F07.05	Running status display 1	0x0000~0xFFFF BIT0: Operating frequency (illuminated in Hz) BIT1: Set frequency (Hz flashing) BIT2: Bus voltage (V on) BIT3: Output voltage (V on) BIT4: Output current (A on) BIT5: Operating speed (rpm on) BIT6: Output power (% on) BIT7: Output torque (% on) BIT8: PID setpoint (% flashing) BIT9: PID feedback value (% on) BIT10: Input terminal status BIT11: Output terminal status BIT12: Torque setting value (% on) BIT13: Pulse count value BIT14: Reserve BIT15: PLC and current segment count of multiple speed segments	0x0043	★
F07.06	Running status display 2	0x0000~0xFFFF BIT0: Reserve BIT1: Analog AI2 value (V on) BIT2: Analog AI3 value (V on) BIT3: High speed pulse HDI frequency BIT4: Motor overload percentage (% on)	0x0000	☆

		BIT5: Overload percentage of frequency converter (% on) BIT6: Slope frequency setpoint (Hz on) BIT7: Linear speed BIT8: AC incoming current (A on) BIT9~15: Reserve		
F07.07	Stop display	0x0000~0xFFFF BIT0: Set frequency (Hz on, frequency flashing slowly) BIT1: Bus voltage (V on) BIT2: Input terminal status BIT3: Output terminal status BIT4: PID setpoint (% flashing) BIT5: PID feedback value (% on) BIT6: Torque setting value (% on) BIT7: Reserve BIT8: Analog AI2 value (V on) BIT9: Analog AI3 value (V on) BIT10: High speed pulse HDI frequency BIT11: Current number of segments for PLC and multi-stage speed BIT12: Pulse count value BIT13~BIT15: Reserve	0x0006	☆
F07.08	Frequency display coefficient	0.01~10.00 Display frequency=operating frequency * F07.08	1.00	●
F07.09	Speed display coefficient	0.1~999.9% Mechanical speed=120 * Display operating frequency × F07.09/Number of motor poles	100.0%	☆
F07.10	Linear velocity display coefficient	0.1~999.9% Linear velocity=Mechanical speed x F07.10	1.0%	☆
F07.11	Reserve			
F07.12	Inverter module radiator temperature	-20.0～120.0°		●
F07.13	Software version number	1.00~655.35	-	
F07.18	Inverter rated power	0.4~3000.0kW	-	
F07.19	Inverter rated voltage	50~1200V	-	
F07.20	Inverter rated current	0.1~6000.0A	-	
F07.27	Current fault type	0：no fault 1：Inverter voltage U phase protection（OUt1）		●
F07.28	Type of the first fault			●
F07.29	Type of the second fault			●

F07.30	Type of the third fault	2：Inverter voltage V phase protection（OUt2） 3：Inverter voltage W phase protection（OUt3） 4：Accelerating overcurrent（OC1） 5：decelerating overcurrent（OC2） 6：Constant velocity overcurrent（OC3） 7：Accelerating overvoltage（OV1） 8：decelerating overvoltage（OV2） 9：Constant speed overvoltage（OV3） 10：Bus undervoltage fault（UV） 11：Motor overload（OL1） 12：Inverter overload（OL2） 13：Input phase loss（SPI） 14：Output phase loss（SPO） 15：boost module overheating（OH1） 16：Inverter module overheating fault（OH2） 17：External fault（EF） 18：485 communication fault（CE） 19：Current detection fault（ItE） 20：Motor self-learning fault（tE） 21：EEPROM operation fault（EEP） 22：PID feedback lost during operation fault（PIDE） 23：Brake unit fault（bCE） 24：operation time arrival（END） 25：Electronic overload（OL3） 26～31：Reserve 32：Short-circuit to ground fault 1（ETH1） 33：Short-circuit to ground fault 2（ETH2） 34：Excessive speed deviation fault（dEu） 35：Offset fault（STo） 36：underload fault（LL） 37～38：Reserve		•
F07.31	Type of the fourth fault			•
F07.32	Type of the fifth fault			•
F07.57	Type of the sixth fault			•
F07.58	Type of the seventh fault			•
F07.59	Type of the eighth fault			•
F07.60	Type of the ninth fault			•
F07.61	Type of the tenth fault			•
F07.62	Type of the eleventh fault			•
F07.63	Type of the twelth fault			•
F07.64	Type of the thirteenth fault			•
F07.65	Type of the fourteenth fault			•
F07.66	Type of the fifteenth fault			•
F07.67	Type of the sixteenth fault			•
F07.68	Type of the seventeenth fault			•
F07.69	Type of the eighteenth fault			•
F07.70	Type of the nineteenth fault			•
F07.71	Type of the twentieth fault			•

5-1-8.F08 Group -Auxiliary function group

Code	Parameter name	Setting range	Factory setting	Change Limit
F08.00	Acceleration time 2	0.0~3600.0s	-	☆
F08.01	Deceleration time 2	0.0~3600.0s	-	☆

F08.02	Acceleration time 3	0.0~3600.0s	-	☆
F08.03	Deceleration time 3	0.0~3600.0s	-	☆
F08.04	Acceleration time 4	0.0~3600.0s	-	☆
F08.05	Deceleration time 4	0.0~3600.0s	-	☆
F08.06	Dot frequency(JOG)	0.00Hz~F00.03(Max output frequency)	30.00 Hz	☆
F08.37	The energy consumption brake is enabled	0: Disable power consumption braking 1: enable power consumption braking	0	☆
F08.38	Energy consumption braking voltage	200.0~2000.0V	-	☆
F08.39	Cooling fan control	0: Fan running only when running 1: Fan always running	0	☆

5-1-9.F09 Group -PID function group

Code	Parameter name	Setting range	Factory setting	Change Limit
F09.00	PID setting source	0: Figure setting 1: Reserve 2: Analog AI2 setting 3: Analog AI3 setting 4: High-speed pulse HDI setting 5: Multiple speed setting 6: Communications setting 7～9: Reserve	0	☆
F09.01	PID keyboard reference	-100.0%～100.0%	0.00%	☆
F09.02	PID feedback source	0: Reserve 1: Analog AI2 setting 2: Analog AI3 setting 3:High-speed pulse HDI setting 4:Communications setting 5～7: Reserve	0	☆
F09.03	PID Output polarity selection	0:Positive polarity 1:passive polarity	0	☆
F09.04	Proportional gain KP	0.00%～100.00%	1.00%	☆
F09.05	Integration time Ti	0.00~10.00s	0.10s	☆
F09.06	Differential time Td	0.00~10.00s	0.00s	☆
F09.07	Sampling period	0.001~10.000s	0.100s	☆
F09.08	PID control deviation limit	0.0~100.0%	0.0%	☆
F09.09	PID output upper limit	F09.10~100.0%	100.0 %	☆
F09.10	PID output lower limit	-100.0%~F09.09	0.0%	☆
F09.11	PID feedback loss detection value	0.0~100.0%	0.0%	☆

F09.12	PID feedback loss detection time	0.0~3600.0s	1.0s	☆
F09.13	PID regulation selection	0x00~0x11	0x00	☆

5-1-10.F10 Group -Multi-speed, Simple PLC group

Code	Parameter name	Setting range	Factory setting	Change Limit
F10.02	Multi-speed 0	-100.0%～100.0%	0.0%	☆
F10.03	0 stage running time T0	0～6553.5s	0.0s	☆
...	...			
F10.32	Multi-speed 15	-100.0%～100.0%	0.0%	☆
F10.33	0 stage running time T15	0～6553.5s	0.0s	☆

5-1-11.F11 Group -Protection function group

Code	Parameter name	Setting range	Factory setting	Change Limit
F11.00	Input phase loss protection selection	0x000～0x011 Units digit:Input phase loss 0: Invalid 1: Enable Tens digit:output phase loss 0: Invalid 1: Enable Hundreds digit: Reserve 000～111	010	☆
F11.01	Select the function of instantaneous power failure and frequency reduction	0: Invalid 1: Enable	0	☆
F11.02	Instantaneous power failure frequency drop rate	0.00Hz～F00.03/s voltage classes: 220V 400V Instantaneous power drop frequency drop point: 260V 460V	0.00Hz /s	☆
F11.03	Over-voltage stall protection	0: Invalid 1: Enable	0	☆
F11.04	Over-voltage stall protection voltage	G1:120%～150% G3:120%～150%	-	☆

5-1-12.F14 Group -Communication parameter group

Code	Parameter name	Setting range	Factory setting	Change Limit
F14.00	This unit address	1～247	1	☆
F14.01	Baud rate	0:1200bps 1:2400bps 2:4800bps 3:9600bps 4:19200bps 5:38400bps 6:57600bps	4	☆
F14.02	Data format	0:no parity（8，N，1） 1:even parity（8，E，1）	1	☆

		2:odd parity（8，O，1） 3:no parity（8，N，2） 4:even parity（8，E，2） 5:odd parity（8，O，2）		
F14.03	Response delay	0～200ms	5	☆
F14.04	Communication timeout time	0.0（invalid）；0.1～60.0s	0.0	☆
F14.05	Transmission error handling	0: Alarm and free stop 1: Do not alarm and continue to run 2: No alarm according to the shutdown mode (only under the communication control mode) 3: No alarm according to the shutdown mode (under all control modes)	0	☆
F14.06	Communication processing action selection	0x00~0x11 LED bits: 0: The write operation has a response 1: There is no response for the read operation and no response for the write operation. LED ten: 0: The communication encryption Settings are invalid 1: The communication encryption Settings are valid	00	☆

5-1-13.F15 Group -Photovoltaic inverter function group

Code	Parameter name	Setting range	Factory setting	Change Limit
F15.00	Photovoltaic inverter selection	0:invalid 1:enable	1	☆
F15.01	Solar operation mode selection	0: The voltage is set 1: MPPT mode 0: indicates that the voltage setting method is used, and the reference voltage is given by the F15.02 keyboard and is a fixed value. 1: indicates that the bus voltage is set to the maximum power search results mode, photovoltaic mode operation, starting until the start of the search, the bus voltage to locate F15.02, after the search interval time, to the search results. Note:When terminal function 43 is valid, the function code is invalid	1	☆
F15.02	Vmppt voltage keyboard setting	0.0～6553.5Vdc When F15.01=0, the reference voltage is set by the F15.02 keyboard. Note: the set value should be lower than the bus voltage value, if the value is higher than thebus voltage, the inverter may run at	-	☆

		around 0Hz during starting.		
F15.03	PID control deviation limit	0.0～100.0%(100.0% corresponding to F15.02 keyboard given) Note:Set the value should be lower than the bus voltage value, if the value is higher than the bus voltage, the frequency converter may run at about 0Hz.	0.0%	☆
F15.04	PID output upper frequency	F15.05～100.0%(100.0% corresponds to the maximum frequency of F00.03) F15.04 Limits the maximum target frequency.	100.0 %	☆
F15.05	PID output lower frequency	0.0%～F15.04(100.0% corresponds to the maximum frequency of F00.03) F15.05 Limits the minimum target frequency.target frequency cannot be lower F15.05.	60	☆
F15.06	KP1	KP1:0.00～100.00 target frequency proportional coefficient 1	5.00	☆
F15.07	KI1	KI1:0.00～100.00 target frequency integral coefficient 1	5.00	☆
F15.08	KP2	KP2:0.00～100.00 target frequency proportional coefficient 2	35.00	☆
F15.09	KI2	KI2:0.00～100.00 target frequency integral coefficient Note:Proportional coefficient KP: determines the adjustment intensity of the whole PID regulator. The greater the KP, the greater the adjustment intensity. The parameter 100.0 indicates that when the deviation of PID feedback quantity and feed quantity is 100.0%, the PID regulator adjusts the output frequency instruction to the maximum frequency. Integral coefficient KI: determines the strength of the integral adjustment of the PID regulator. The greater the integral coefficient, the greater the adjustment strength. The integral coefficient refers to that when the deviation of PID feedback quantity and feed quantity is 100.0%, the integral regulator is continuously adjusted through the time, and the adjustment amount reaches the maximum frequency.	35.00	☆
F15.10	PID switch point	0.0～6553.5Vdc If the absolute value of PV voltage minus reference value is greater than F15.10, F15.08 and F15.09 are used. Otherwise, F15.06 and F15.07 are used.	20.0V	☆
F15.11	Water level control selection	0: Control through digital input 1: Reserve	0	☆

		2: AI2 (the water-level signal is input through AI2, not supported currently) 3: AI3 (the water-level signal is input through AI3, not supported currently) If the function code is 0, the water-level signal is controlled by the digital input. See43 and 44 functions of S terminals in group F05 for detailed information. If the full-water signal is valid, the system will report the alarm (A-tF) and sleep after the time of F15.14. During the alarm, the full-water signal is invalid and the system will clear the alarm after the time of F15.15. If the empty-water signal is valid, the system will report the alarm (A-tL) and sleep after the time of F15.16. During the alarm, the empty -water signal is invalid and the system will clear the alarm after the time of F15.17. If the function code is 1 – 3, it is the reference of water-level control analog signal. For details, see F15.12 and F12.13.		
F15.12	Full water threshold	0.0 – 75.0% This code is valid when F15.11 water level control is based on analog input. If the detected water level control analog signal is less than the water level threshold F15.12 and keeps in the state after the delay time F15.14, the system reports A-tF and sleeps. If the delay time is not reached, the signal is bigger than the water level threshold, the time will be cleared automatically. When the measured water level control analog signal is less than the water level threshold, the delay time will be counted again. 0 is full water and 1 is no water. During the full-water alarm, if the detected water level signal is higher than the threshold of F15.12 and the delay counts, the alarm is cleared after the time set by F15.15 is reached in this continuous state continues. During the non-continuous application, the delay timing will clear automatically.	25.0%	☆
F15.13	Empty water threshold	0.0 – 100.0% Same as F15.12	75.0%	☆
F15.14	Full water delay	0～10000s	5s	☆
F15.15	Full water wake up delay	0～10000s	20s	☆
F15.16	Empty water delay	0～10000s	5s	☆
F15.17	Empty water wake up delay	0～10000s	20s	☆

F15.18	Hydraulic probe damage point	0.0 – 100.0% If F15.18 is 0.0%, it indicates F15.18 is invalid. If F15.18 is not 0.0%, when the detected water level control analog signal is greater than the value set in F15.18, the (tSF) fault is reported and the inverter stops.	0.0%	☆
F15.23	Low light delay	0.0 – 3600.0s Time setting on weak-light delay. When the output frequency is less than or equal to the PI output frequency lower limit and the delay counting is started, which reaches the weak-light delay time, the system reports the weak-light alarm (A-LS) and then sleeps. In the non-continuous situation, the delay counter is automatically cleared. Note: When the bus voltage is lower than the undervoltage point or the PV voltage is lower than 70V, the system directly reports the weak-light alarm without any delay. If F15.32=0, in weak-light condition, the system automatically switch to the power-frequency input mode.	100.0s	☆
F15.24	Low light wake up delay	0.0 – 3600.0s Time setting on weak-light wake-up delay. If the weak-light pre-alarm is reported, the system clears the pre-alarm with the weak-light wake-up delay and then re-enters the running state. When F15.32=0, if the PV voltage is greater than F15.34, the system switches from the power-frequency input mode to the PV input mode with the weak-light wake-up delay.	300.0s	☆
F15.25	Initial actual reference voltage given display	0.0 – 2000.0V	-	☆
F15.26	Min. reference voltage in max. power tracking	0.00～1.00 Used to set the min. reference voltage in max. power tracking. Min. reference voltage in max. power tracking = (Open-circuit voltage of photovoltaic panels) * F15.26. Open-circuit voltage of photovoltaic panels = F15.25 + F15.28 Track the max. power in the range of Min. reference voltage in max. power tracking – F15.27. F15.27 must be greater than the min. reference voltage. A smaller difference between them indicates a smaller range, which means faster tracking. The voltage corresponding to the max. power must be	0.70	☆

<table>
<tr><td></td><td></td><td>within the range. F15.26 and F15.27 must be adjusted according to the site situation.</td><td></td><td></td></tr>
<tr><td>F15.27</td><td>Max. reference voltage in max. power tracking</td><td>Min. reference voltage in max. power tracking – F15.31
It is the max. voltage tracked when MPPT max. power tracking is valid.
The factory value depends on the model.<table><tr><th>Model</th><th>Max. voltage reference</th><th>Max. Vmppt</th></tr><tr><td>G1S</td><td>400</td><td>400</td></tr><tr><td>G1</td><td>400</td><td>400</td></tr><tr><td>G2</td><td>400</td><td>400</td></tr><tr><td>G3</td><td>750</td><td>750</td></tr></table></td><td>-</td><td>☆</td></tr>
<tr><td>F15.28</td><td>Reference voltage initial value adjustment</td><td>0.0 – 200.0V
MPPT starts to be disturbed from the initial reference voltage.
Initial reference voltage = PV voltage – F15.28</td><td>-</td><td>☆</td></tr>
<tr><td>F15.29</td><td>Automatically adjusted the upper and lower Vmppt time</td><td>0.0 – 10.0s
When F15.29 = 0.0, auto adjustment of Vmppt upper/lower limit is invalid.
When it is not 0.0, Vmppt upper/lower limit is automatically adjusted at an interval specified by F15.29. The center after the adjustment is the actual PV voltage, and the upper/lower limit adjustment range is F15.30. That is:
Maximum/Minimum reference Max./Min. reference voltage = (Actual PV voltage ± F15.30
This will be automatically updated to F15.26
and F15.27.</td><td>1.0s</td><td>☆</td></tr>
<tr><td>F15.30</td><td>Automatically adjusted the upper and lower Vmppt</td><td>5.0 – 100.0V
Range in which Vmppt upper/lower limit can be automatically adjusted.</td><td>30.0V</td><td>☆</td></tr>
<tr><td>F15.31</td><td>Vmppt max</td><td>F15.27 – 6553.5V
During the max. power tracking, the upper limit of the solar panel reference voltage will not exceed the value of F15.31. The factory value depends on the model. By default, the value for the -4 models is 750V and the value for other models is 400V.</td><td>-</td><td>☆</td></tr>
<tr><td>F15.32</td><td>PV input and power frequency input selection</td><td>0: Automatic switching mode
1: Power frequency input mode 2: PV input mode
If F15.32 is set to 0, the system switches between PV input and power frequency input according to the detected PV voltage</td><td>2</td><td>☆</td></tr>
</table>

<table>
<tr><td></td><td></td><td>and switching threshold.
If F15.32 is set to 1, the system forcibly switches to power frequency input;
If F15.32 is set to 2, the system forcibly switches to PV input.
Note: F15.32 is invalid when terminal input function 42 is valid.</td><td></td><td></td></tr>
<tr><td>F15.33</td><td>Threshold for switching to power frequency input</td><td>0.0V – F15.34
If PV voltage is lower than the threshold or the light is weak, it can switch to power frequency input through the relay output.
If the value is 0, it is invalid.
For inverters without boost modules, the switching voltage is determined by the external voltage detection circuit.
For inverters with boost modules, the switching voltage is 70V.</td><td>-</td><td>☆</td></tr>
<tr><td>F15.34</td><td>Threshold for switching to PV input</td><td>F15.33 – 400.0V
If PV voltage is greater than the threshold, the system can switch to PV input through relay output with the weak-light wake-up delay F15.24. To avoid frequent switching, F15.34 shall be greater than F15.33. When F15.34 is set to 0.0, it is invalid.
The default value depends on model.</td><td>-</td><td>☆</td></tr>
<tr><td>F15.35</td><td>Rated pump flow</td><td>The pump flow is QN when the pump runs at the rated frequency and lift. Unit: cubic meter/hour.</td><td>0.0</td><td>☆</td></tr>
<tr><td>F15.36</td><td>Rated pump lift</td><td>The pump lift is H N when the pump runs at the rated frequency and flow. Unit: meter</td><td>0.0</td><td>☆</td></tr>
<tr><td>F15.37</td><td>Voltage setting at PV undervoltage point</td><td>When the PV voltage is less than the value of this parameter, the system reports the PV undervoltage fault.
The factory value depends on the model.<table><tr><th>Model</th><th>PV undervoltage point</th></tr><tr><td>G1S</td><td>140V</td></tr><tr><td>G1</td><td>140V</td></tr><tr><td>G2</td><td>140V</td></tr><tr><td>G3</td><td>240V</td></tr><tr><td>Any model with the boost module</td><td>70V</td></tr></table>Setting range: 0.0 – 400.0</td><td>-</td><td>☆</td></tr>
<tr><td>F15.39</td><td>Product model</td><td>This function code is provided for users to change models. For example, if the user wants to use model 3 (default after factory delivery) as model 2, F15.39 shall be set to 2.
G1S: 220V 1PH input and 1PH output
G1: 220V 1PH input and 3PH output
G2: 220V 3PH input and 3PH output</td><td>–</td><td>☆</td></tr>
</table>

		G3: 380V 3PH input and 3PH output Setting range: 0 - 3		

5-1-14.F17 Group - Monitoring function group

Code	Parameter name	Setting range	Factory setting	Change Limit
F17.00	Set frequency	0.00Hz~F00.03	-	●
F17.01	Output frequency	0.00Hz~F00.03	-	●
F17.03	Output voltage	0~1200V	-	●
F17.04	Output current	0.0~5000.0A	-	●
F17.05	Motor speed	0~65535rpm	-	●
F17.07	Exciting current	0.0~5000.0A	-	●
F17.08	Motor power	-300.0~300.0%（Relative to motor rated power）	-	●
F17.09	Output torque	-250.0~250.0%	-	●
F17.11	Bus voltage	0.0~2000.0V	-	●
F17.12	Switch input status	0000~00FF	-	●
F17.13	Switching output status	0000~000F	-	●
F17.14	Digital control	0.00Hz~F00.03	-	●
F17.15	Torque feed quantity	-300.0%~300.0%（motor rated current）	-	●
F17.16	Linear velocity	0~65535	-	●
F17.18	Count value	0~65535	-	●
F17.19	Reserve			●
F17.20	AI2 voltage	0.00~10.00V	-	●
F17.21	AI3 voltage	-10.00~10.00V	-	●
F17.22	HDI input frequency	0.00~50.00kHz	-	●
F17.23	PID setting	-100.0~100.0%	-	●
F17.24	PID feedback	-100.0~100.0%	-	●
F17.25	Power factor	-1.00~1.00	-	●
F17.26	This running time	0~65535min	-	●
F17.27	Simple PLC and multi-speed current speed	0~15	-	●

5-1-15.F18 Group - Status view function groups

Code	Parameter name	Setting range	Factory setting	Change Limit
F18.00	PV reference voltage	Mppt is done on the inverter side, and the value is given by the inverter side		●
F18.01	Current PV voltage	The booster module transmits the voltage to or from the bus		●
F18.02	MPPT minimum reference voltage display	This value displays the maximum power tracking minimum voltage reference, which is equal to the open circuit voltage of the panel *F15.26		●
F18.04	Current inductance	AC mode valid PV mode This value is invalid		●
F18.07	PV intput power	Reserve		●
F18.08	PV last input power	Reserve		●
F18.09	PV last voltage	Reserve		●
F18.10	Device configuration display	LED bit 0: PV power supply 1: AC power supply LED ten 0: The system is detected to have the boost module. 1: the system is detected to have no boost module		●
F18.11	Current pump flow	Q=QN * f/fN ,Unit: cubic meter per hour		●
F18.12	Current pump lift	H =0.9HN * (f / fN)^2 Unit:meter		●
F18.13	Total pump flow high-order position	This function code displays the high 16 digits of the total flow of the pump. Unit:cubic meter		●
F18.14	Total pump flow low-order position	This function code displays the low 16 digits of the total flow of the pump. Total pump flow=F18.13*65535+ F18.14		★
F18.15	Total pump flow reset	This variable is set to 1,F18.13 can be reset.F18.14 will clear zero and start accumulating again. After the reset is complete, function code F18.15 automatically changes to 0.		★

5-1-16.F19 Group - BOOST Booster special group

Code	Parameter name	Setting range	Factory setting	Change Limit
F19.00	Boost voltage loop KP	0.000~65.535	0.500	☆
F19.01	Boost voltage loop KI	0.000~65.535	0.080	☆
F19.02	Boost current loop KP	0.000~65.535	0.010	☆
F19.03	Boost current loop KI	0.000~65.535	0.010	☆
F19.04	Boost voltage loop PI	Boost voltage loop PI output upper limit,	12.0A	☆

	upper output current	boost current loop reference current upper limit F19.05~15.0A.		
F19.06	Bus reference voltage	PV input ,the system has a boost module. This function code sets the reference voltage of the bus voltage. The default value of this function code is 350V for the G1 model and 570V for the G3 model. ：300.0V~600.0V	-	☆
F19.07	Boost voltage loop KP 1	If the difference between the bus reference voltage and actual bus voltage is greater than 20V, the boost voltage loop uses PI parameters of this group. Otherwise, the boost voltage loop uses PI parameters of the first group. : 0.000–65.535	0.500	☆
F19.08	Boost voltage loop KI 1	If the difference between the bus reference voltage and actual bus voltage is greater than 20V, the boost voltage loop uses the PI parameters of this group. Otherwise, the boost voltage loop uses the PI parameters of the first group. Setting range: 0.000–65.535	0.080	☆
F19.10	Boost software version	Once being powered, the boost module sends its version information to the inverter module.	0.0	•

Note:

1.The duration from when the inverter starts to when it runs at the PI output frequency lower limit is determined by the ACC time.

2.Delay time counting follows the rules if multiple fault conditions are met simultaneously: For example, if all fault conditions of weak light, full water, and underload are met simultaneously, the delay time for each fault is counted independently. When the delay time of a fault is reached, the fault is reported. The delay time counting for the other two faults is kept. If the reported faults is resolved bu the conditions of the other two faults persist, the delay time counting of the other two faults continues. If a fault condition is not met during counting, the delay time of this fault is cleared.