Inverter Operation Instructions

AT900 series Vector Universal Inverter

V1.0

A brief of the parameters table for the AT900 series high-performance vector frequency converter

The manual provides precautions and guidance for user type selection, installation, parameter setting, site commissioning, fault diagnosis and daily maintenance and maintenance

Chapter I Product information

1.1 Inverter series

		AT900 series			Braking Resistor	
Model		Adaptive motor		Output Current:A	W	Ohm
		KW	HP			
220 V	901-0K7G1	0.7	1	4.0	80	150
	901-1K5G1	1.5	2	7.0	100	100
	901-2K2G1	2.2	3	9.6	100	70
	901-3K7G1	3.7	5	17.0	300	50
	901-5K5G1	5.5	7.5	25.0	400	45
380 V	903-0K7G3	0.7	1	2.1	100	750
	903-1K5G3	1.5	2	3.8	300	400
	903-2K2G3	2.2	3	5.1	300	250
	903-3K0G3	3.0	4	7.2	400	200
	903-3k7G3	3.7	5	9.0	400	150
	903-5K5G3	5.5	7.5	13.0	500	100
	903-7K5G3	7.5	10	17.0	1000	75
	903-11G3	11	15	25.0	3000	43
	903-15G3	15	20	32.0	3000	32
	903-18.5G3	18.5	25	36.0	3000	25
	903-22G3	22	30	44.0	4000	22
	903-30G3	30	40	58.0	5000	16
	903-37G3	37	50	70.0	6000	13

1.2 Product Specification

Project		Standard
Basic Function	System	Current vector universal frequency converter
	Drive	High-efficiency drive of the Induction Motor
	Maximal Frequency	Vector control: 0-500Hz
		V/F control: 0-3200Hz.
	Carrier Frequency	0.5KHz-16KHz
		The carrier frequency can be adjusted
	Frequency resolutiony	Digital setting: 0.01Hz
		Simulation setting: ±0.025%
	Control Mode	Open-loop vector control (SVC)
		V/F control
	Starting torque	Type-G Mode: 0.3Hz/150% (SVC).
		Type-P Mode: 0.3Hz/100%

Project		Standard
	Range of	1：100(SVC)
	Stable	±0.5%(SVC)
	Overload capacity	Type G:150% Rated Current 120s;180% for 10s
		Type P:120% Rated Current for 60s;150% for 3s
	Torque rise	Automatic torque increase; Manual torque increase: 0.1% -30.0%
	V/F curve	Three ways: straight line; multi-point; N secondary V / F curve (1.2,1.4,1.6,1.8, and
	Curve Acc/Dec mode	Line or S curve acceleration and deceleration mode, four Acc/Dec times, Acc/Dec time range 0.0-6500.0s
	DC Braking	Brake frequency: 0.00Hz-Maximum frequency; Brake time:.0s-36.0s Brake current value: 0.0% -100.0%
	Jog control	Jog frequency range: 0.00Hz-50.00Hz;
		Acc & Dec time: 0.0s-6500.0s.
	Up to 16 segment speed runs with a built-in PLC or control terminal	
	built-in PID	It can easily realize the process control closed-loop control system
	AVR Function	When the input voltage jitter, the output voltage can be automatically kept constant
	Stall control	Automatically limited the current and voltage to prevent frequent overvoltage tripping.
	Fast current limiting	Minimize the overcurrent fault and protect the normal operation of the frequency converter
	Torque limit and control	Automatically limit the torque during operation to prevent frequent overcurrent tripping, and the vector mode of closed loop can realize torque control
	Instant power non-stop	When instantaneous power failure is achieved, load feedback energy compensation is used to maintain the converter running in a short
	Timing	Set the time range of 0.0Min-6500.0Min.
Operating	Command source	Control panel,Control terminal, Serial port,can be switched in multiple ways
	Frequency source	Panel potentiometer, Number given,External analog voltage/current input, and serial port input.can be switched in multiple ways
	Input Terminal	Five digital input terminals
		1 analog quantity input terminal;
		One 0-10V voltage or 0-20mA current input;

Project		Standard
	Output Terminal	1 digital output terminal
		1 relay output terminal(TA,TB,TC)
		1 analog output terminal, supporting 0-10V or 0-20mA voltage output
	Protection function	Power on motor short circuit detection, input and output phase loss protection, overcurrent protection, overvoltage protection, undervoltage protection, overheating protection and overload protection,etc
loop The environment	Use place	Indoor, not direct sunlight, no dust, corrosive gas, combustible gas, oil fog, steam, water or salt, etc
	Above sea level	under 1000m 2C116699
	Ambient temperature	-10℃ ~ + 40℃ (ambient temperature is 40℃ ~50℃, please decrease the amount)
	humidity	Less than 95%RH, anhydrous condensation
	vibrate	Less than 5.9m/s (0.6g)

1.3 Description of the control loop and the main loop terminal

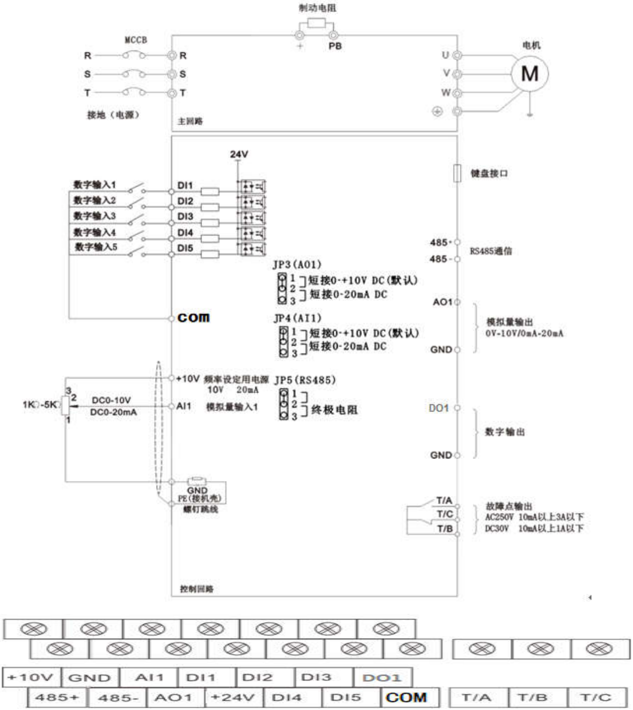
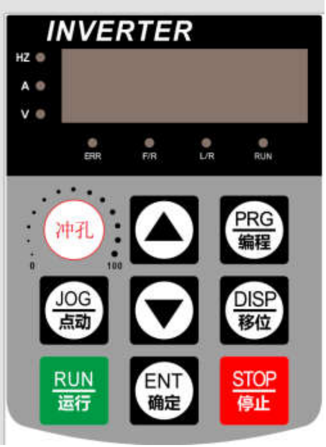

制动电阻
+
PB
MCCB
R
S
T
R
S
T
接地（电源）
主回路
U
V
W
电机
M
24V
键盘接口
数字输入1
数字输入2
数字输入3
数字输入4
数字输入5
DI1
DI2
DI3
DI4
DI5
485+
485-
RS485通信
JP3(A01)
1
2
3
短接0-+10V DC(默认)
短接0-20mA DC
AO1
模拟量输出
0V-10V/0mA-20mA
GND
com
JP4(AI1)
1
2
3
短接0-+10V DC(默认)
短接0-20mA DC
+10V 频率设定用电源
10V 20mA
JP5(RS485)
1
2
3
终极电阻
1KΩ-5KΩ
3
2
1
DC0-10V
DC0-20mA
AI1 模拟量输入1
DO1
数字输出
GND
GND
PE(接机壳)
螺钉跳线
T/A
T/C
T/B
故障点输出
AC250V 10mA以上3A以下
DC30V 10mA以上1A以下
控制回路
+10V
GND
AI1
DI1
DI2
DI3
DO1
485+
485-
AO1
+24V
DI4
DI5
COM
T/A
T/B
T/C

Figure 1-3-1 0.75-11.0KW wiring diagram control terminal description

Chapter 2

Operation and display



Function indicator lamp description

◆Hz:Frequency display indicator lamp
◆V: Voltage indicator lamp
◆A: Current indicator lamp
◆ERR: fault indicator lamp
◆F / R: Forward and Reverse indicator lamp
◆L / R: Communication control indicator lamp
◆RUN: Running indicator lamp

Key symbol	Name	Function declaration
PRG	Programming key	Menu enters or exits, with parameter modification
ENT	Determine the key	Enter the menu and confirm the parameter setting
▲	Upper key	Increment of data or function codes
▼	Down key	Diminishing data or function codes
DISP	Shift key	Select the parameter modifier bit and the display contents
RUN	Run the key	Start the inverter under the keyboard operation mode
STOP	Stop / Reset key	Stop / reset operation,
JOG	Jog key	Limited to the P08.01 function code

Set the parameter method:

1、 Press the PRG button to display the P 0.00,
2、 The ▲ ▼ and DISP keys select the parameter number to modify, and the ENTER key enters the parameter,
3、 ▲ ▼ and DISP keys modify parameter values, ENTER key save parameters,
4、 If you need to modify other parameters, repeat 2,3, steps, such as modification completion,
Return to the frequency interface using the PRG key.

Chapter 3 Summary table of functional parameters:

P00, Monitoring group			
P00.00	running frequency	0.00 ～ 320.00Hz（P01.22=2）	-
P00.01	Set the Frequency	0.0 ～ 3200.0Hz（P01.22=1）	-
P00.02	Busbar voltage (V)	0.0V ～ 3000.0V	-
P00.03	Output voltage (V)	0V ～ 1140V	-
P00.04	Output Current (A)	0.00A ～ 655.35A	-
P00.05	Output power (kW)	0 ～ 32767	-
P00.06	Output torque (%)	-200.0% ～ 200.0%	-
P00.07	DI input state	0 ～ 32767	-
P00.08	DO output state	0 ～ 1023	-
P00.09	AI1 voltage (V)	0.01V	-
P00.10	AI2 Voltage (V) or current (mA)	0.00V ～ 10.57V 0.00mA ～ 20.00mA	-
P00.12	count value	0 ～ 65535	-
P00.13	Length value	0 ～ 65535	-
P00.14	Load speed display	0 ～ 65535	-
P00.15	PID setting	0 ～ 65535	-
P00.16	PID feedback	0 ～ 65535	-
P00.17	PLC stage	0 ～ 65535	-
P00.18	Pulse input frequency	0 ~ 100kHz	-
P00.19	Feedback speed (Hz)	-320.00Hz ～ 320.00Hz -3200.0Hz ～ 3200.0Hz	-
P00.20	Runtime Remaining	0.0 ～ 6500.0Min	-
P00.21	AI1 Voltage before correction	0.000V ～ 10.570V	-
P00.22	AI2 Voltage/Current before correction	0.000V ～ 10.570V 0.000mA ～ 20.000mA	-
P00.24	linear speed	0 ～ 65535m/Min	-
P00.25	Current power time	0 ～ 6500Min	-
P00.26	Current running time	0.0 ～ 6500.0Min	-
P00.28	Communication setting	-100.00% ～ 100.00%	-
P00.30	Frequency X Display	0.00Hz ～ 500.00Hz	-
P00.31	Frequency Y Display	0.00Hz ～ 500.00Hz	-
P00.32	View any memory address value	0 ～ 65535	-
P00.35	Target torque, (%)	0.0° ～ 359.9°	-
P00.37	Power factor Angle		-
P00.39	Target voltage of VF separating	0V ~ Motor rated voltage	-
P00.40	Output voltage of VF separating	0V ~ Motor rated voltage	-

P00.41	DI input status display	-	-
P00.42	DO input status display	-	-
P00.43	DI function status display 1	(function 01. function 40)-	-
P00.44	DI function status visual display 2	(Function 41. Function 80)-	-
P00-45	fault message	-	-
P00-59	Set the frequency of (%)	-100.00% ～ 100.00%	-
P00-60	Running frequency (%)	-100.00% ～ 100.00%	-
P00-61	Inverter state	0 ～ 65535	-

★—modifiable parameter under any condition

☆—not modifiable parameter under run status

●—the actual detected parameter, not modifiable

FC	name	Set range	Factory value	modify
P01 Basic functional Group				
P01.00	G/P type	1: Type G (constant torque load model) 2: Type P (fan and water pump model)	1	☆
P01.01	1. Motor control mode	0: Speed Sensorless Vector Control 2: V/F control model	2	★
P01.02	Operation command channel	0: Operation panel run command channel ("L/R" lights off) 1: Terminal Run channel ("L/R" lights on) 2: Communication command channel ("L/R" lights flashing)	0	☆
P01.03	Main frequency source X	0: Digital set (preset frequency P01.08, keypad ▲/▼ key,power loss) 1: Digital set (preset frequency P01.08, keypad ▲/▼ key,Power drop memory) 2: AI1 analog set (0-10V); 3: AI2 analog set(0-10V or 20mA); 4: Panel Potentiometer; 5: Pulse set (0～50KHZ DI5); 6: Multistage speed run set 7: Simple PLC set; 8: PID Control set; 9: Communication set.	4	★
P01.04	Secondary frequency source Y	Same as P01.03 (Main frequency source X) set	0	★

P01.05	Limit selection of Y when frequency superposition	0: Compared to the 【P01.10】Maximum frequency 1: Relative to the frequency source X	0	☆
P01.06	Limit of Y when frequency superposition	0% ～150%	100%	☆
P01.07	Frequency source	Single digit: Frequency source selection 0: Main frequency source X 1: Main and Secondary operation results (operation relationship is determined by Ten digits) 2: Main frequency X and Secondary frequency Y switch 3: Switch between main frequency X and Main and Secondary operation results 4: The frequency Y switches with Main and Secondary operation results Ten digits: Frequency operation relationship of X and Y 0: X +Y 1: X -Y 2: Maximum of the Two, 3: Minimum of the Two.	00	
P01.08	Preposition frequency	0.00Hz ～ Maximum frequency【P01.10】	50.00 Hz	☆
P01.09	Running direction	0: Consistent direction, 1: Opposite direction	0	☆
P01.10	Maximum output frequency	Vector: 50.00Hz ~ 500.00Hz V/F: 50.00Hz ～ 2000.00Hz	50.00 Hz	★
P01.11	Upper limit frequency source	0: 【P01.12】 Set up 1: AI1 Set up 2：AI2 Set up 3: AI3 Set up 4: Pulse set (0～50KHZ DI5); 5: Communication Setup	0	★
P01.12	Upper limiting frequency	【P01.14】～ 【P01.10】	50.00 Hz	☆
P01.13	Upper limit frequency bias	0.00Hz ～【P01.10】	0.00Hz	☆
P01.14	Lower limit frequency	0.00Hz ～【P01.12】	0.00Hz	☆
P01.15	Carrier frequency	0.5kHz ～ 16.0kHz	For Model	☆
P01.16	Carrier frequency Adjust with temperature	0: No,1: Yes	1	☆
P01.17	Acceleration time 1	0.00s ～ 650.00s（P01.19=2） 0.0s ～ 6500.0s（P01.19=1） 0s ～ 65000s（P01.19=0） Reference frequency【P01.25】	For Model	☆
P01.18	Deceleration time 1			☆
P01.19	Time unit of Acceleration and deceleration time	0: 1 seconds 1: 0.1 seconds 2: 0.01 seconds	1	☆
P01.21	Bias frequency of frequency Y when superposition	0.00Hz ～ Maximum output frequency【P01.10】	0.00Hz	☆

P01.22	Resolution of Frequency	Resolution of all frequency commands.	2	★
P01.23	Power down memory for Digital Frequency setting	0: No memory 1: Memory	0	☆
P01.24	Motor parameter group selection	0: Motor parameter group 1, 1: Motor parameter group 2.	0	★
P01.25	Reference frequency of Acceleration and deceleration time	0: Maximum frequency【P01.10】 1: Setting frequency 2:100Hz	0	★
P01.26	Runtime frequency instruction UP/DOWN benchmark	0: Operation frequency, 1: Setting frequency	0	★
P01.27	Command source bundled frequency source	**Single digit:** Operation Panel command binding frequency source selection 0: No binding 1: Digital set 2：AI1 3：AI2 4：AI3 5: Pulse set (0～50KHZ DI5); 6: Multi segment speed; 7: Simple PLC 8:PID 9: Communication Set **Ten digit**: Terminal command binding frequency source selection **100 digit:** communication command binding frequency source selection **Thousand digit:** Automatically run the binding frequency source selection	0000	☆
P02 Asynchronous Motor parameter group 1				
P02.00	Motor type	0: Ordinary asynchronous motor, 1: Variable frequency asynchronous motor	0	★
P02.01	Rated power of motor	0.1kW ～ 400.0kW	According to the Model Of the Inverter	★
P02.02	Rated voltage of Motor	1V ～ 2000V		★
P02.03	Rated current of Motor	0.01A ～ 655.35A (Inverter power <=55kW) 0.1A ～ 6553.5A (Inverter power> 55kW)		★
P02.04	Rated frequency of motor	0.01Hz～ Maximum output frequency【P01.10】		★
P02.05	Rated speed of motor	1rpm ～ 65535rpm		★
P02.06	Stator resistance of motor	0.001Ω ～ 65.535Ω (Inverter power <=55kW) 0.0001Ω ～ 6.5535Ω (Inverter power> 55kW)	Tuning Parameter	★
P02.07	Rotor resistance of Motor	0.001Ω ～ 65.535Ω (Inverter power <=55kW) 0.0001Ω ～ 6.5535Ω (Inverter power> 55kW)		★
P02.08	Leak resistance of Motor	0.01mH ～ 655.35mH (Inverter power <=55kW) 0.001Mh ～ 65.535mH (Inverter power> 55kW)		★
P02.09	Mutual resistance of Motor	0.1mH ～ 6553.5mH (Inverter power <=55kW) 0.01mH ～ 655.35mH (Inverter power> 55kW)		★

P02.10	No-load current of the Motor	0.01A ～ P02.03 (Inverter power <=55kW) 0.1A ～ P02.03 (Inverter power > 55kW)		★
P02.37	Tuning selection	0: no-operation 1: Tuning at Motor stationary 1 2: Motor dynamic tuning 3: Tuning at Motor completely stationary 2	0	★
P03 Vector control parameters of motor group1				
P03.00	Speed loop proportional 1	1 ～ 100	30	☆
P03.01	Speed loop integration time 1	0.01s ～ 10.00s	0.50s	☆
P03.02	Switch frequency 1	0.00 ～ 【P03.05】	5.00Hz	☆
P03.03	Speed loop proportional 2	1 ～ 100	20	☆
P03.04	Speed loop integration time 2	0.01s ～ 10.00s	1.00s	☆
P03.05	Switch frequency 2	P03.02 ～Maximum output frequency【P01.10】	10.00Hz	☆
P03.06	Vector control of the shift gain	50% ～ 200%	100%	☆
P03.07	SVC torque filtering time constants	0.000s ～ 0.100s	0.050s	☆
P03.09	Torque upper limit source under speed control mode	0: P03.10 setting 1：AI1; 2：AI2; 3: AI3; 4: Pulse set (DI5); 5: Communication Setting; 6: MIN (AI1, AI2) 7: MAX (AI1, AI2)	0	☆
P03.10	Upper torque limit under speed control mode	0.0% ～ 200.0%	150.0%	☆
P03.13	Proportional gain of excitation regulation	0 ～ 60000	2000	☆
P03.14	Integral gain of excitation regulation	0 ～ 60000	1300	☆
P03.15	Proportional gain of torque regulation	0 ～ 60000	2000	☆
P03.16	Integral gain of torque regulation	0 ～ 60000	1300	☆
P04 V/F Control Parameters				
P04.00	VF curve setting	0: linear curve V/ F 1: Multipoint curve V/ F 2: Decreasing torque curve 1 (Square curve) 3: Decreasing torque curve 2 (1.2 power) 4: Decreasing torque curve 2 (1.4 power) 6: Decreasing torque curve 2 (1.6 power) 8: Decreasing torque curve 2 (1.8 power) 10: VF completely separation mode 11: VF semi-separation mode	0	★

P04.01	Torque boost setting	0.0% (Automatic lifting torque); 0.1%～30.0%	By Model	☆
P04.02	Torque boost cutoff point	0.00Hz ～Maximum output frequency【P01.10】	50.00Hz	★
P04.03	Multi-point V/F Freq. 1	0.00Hz ～ 【P04.05】	0.00Hz	★
P04.04	Multi-point V/F Voltage 1	0.0% ～ 100.0%	0.0%	★
P04.05	Multi-point V/F Freq. 2	【P04.03】 ～ 【P04.07】	0.00Hz	★
P04.06	Multi-point V/F Voltage 2	0.0% ～ 100.0%	0.0%	★
P04.07	Multi-point V/F Freq. 3	【P04.05】～ Motor Rated frequency 【P02.04】	0.00Hz	★
P04.08	Multi-point V/F Voltage 3	0.0% ～ 100.0%	0.0%	★
P04.09	V/F control Slip frequency compensation	0.0% ～ 200.0%	0.0%	☆
P04.10	V/F Over excitation gain	0 ～ 200	64	☆
P04.11	Oscillation suppression gain for V/F	0 ～ 100	By Model	☆
P04.13	Voltage source by VF separated	0: Digital Settings 【P04.14】 1: AI1 2：AI2 3：AI3 4: Pulse Setting (DI5) 5: Multiple instruction 6: Simple PLC 7: The PID 8: communication Setting Note: 100.0%, corresponding to the motor rated voltage	0	☆
P04.14	Voltage for VF separation	0V ～ Motor rated voltage	0V	☆
P04.15	Voltage rise time of VF separation	0.0s ～ 1000.0s Note: Time when 0V rises to rated voltage of motor。	0.0s	☆
P04.16	Voltage dorp time of VF separation	0.0s ～ 1000.0s Note: Time when Rated voltage of motor dorp to 0V	0.0s	☆
P04.17	Shutdown mode of VF separation	0: The frequency and voltage drop to 0 separately; 1: Frequency drops after the Voltage drop to 0	0	☆
P04.18	Over-current stall action current	50% ～ 200%	150%	★
P04.19	Suppression of Over current stall	0: Disable, 1: Enable.	1	★
P04.20	Suppression’ s gain of Over current stall	0 ～ 100	20	☆
P04.21	Compensation coefficient of action Over current stall	50% ～ 200%	50%	★
P04.22	Over-voltage stall action voltage	650.0V ～ 800.0V	760.0V	★
P04.23	Suppression of Over-voltage stall	0: Disable, 1: Enable.	1	★
P04.24	Suppression’ s Freq. gain of Over-voltage stall	0 ～ 100	30	☆

P04.25	Suppression’s Voltage gain of Over-voltage stall	0 ～ 100	30	☆
P04.26	Maximum rise frequency limit for Over-voltage stall	0 ～ 50Hz	5Hz	★
P05 group, Input Parameters				
P05.00	DI1 terminal function	0: No function; 1: Forward running(FWD) or Running; 2:Reverse running (REV) or Forward/Reverse switch 3: three-wire running control 4: forward jog control (FJOG) 5: Reverse jog control (RJOG) 6: Freq. Increase(Terminal UP) 7: Freq. decrease(Terminal DOWN) 8: Free shutdown control 9: External reset signal input(RST) 10: Suspend operation; 11: External fault normally-open (NO) input 12: Multi-speed 1 13: Multi-speed 2 14: Multi-speed 3 15: Multi-speed 4 16: ACC/DEC time select 1(TT1) 17: ACC/DEC time select 2(TT2) 18: Frequency source switch 19: UP/DOWN Freq. zero clearing (terminal, keyboard) 20: Run command Switch terminal 1 21: VFD ACC/DEC prohibit 22: PID control Pause 23: PLC state reset 24: Pendulum frequency Pause 25: Counter input 26: Counter reset 27: Length count input 28: Length reset 29: Torque control Disable	1	★
P05.01	DI2 terminal functional		4	★
P05.02	DI3 terminal functional		9	★

P05.03	DI4 terminal functional	30: Pulse Setting (only DI5 can setting, P05.04=30) 31: Reserved； 32: DC braking immediately； 33: External fault input（normally closed，NC） 34: Frequency modification Enables 35: PID input signal reversed; 36: External parking terminal 1 37: Run command Switch terminal 2 38: PID integral Pause; 39: Frequency X switches with the Preset frequency 40: Frequency Y switches with the Preset frequency 41: Motor selection terminal 1 43: The PID Parameters switch 44: User defined fault 1 45: User defined fault 2 46: Speed control / Torque control switch 47: Emergency stop 48: External parking terminal 2 49: Slow ate DC braking 50: Run time cleared; 51: Two-wire control / Three-wire control switch 52: Reversal Disable;	12	★
P05.04	DI5 terminal function (only DI5 can setting Pulse function, P05.04=30)		13	★
P05.10	DI filtering time	0.000s ～ 1.000s	0.010s	☆
P05.11	Terminal control 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	★
P05.12	Frequency adjusting step size	0.001Hz/s ～ 65.535Hz/s	1.00Hz/s	☆
P05.13	Min. input of AI curve 1	0.00V ～ P05.15	0.00V	☆
P05.14	Corresponding value of AI curve 1's Min. input	-100.0% ～ +100.0%	0.0%	☆
P05.15	Max. input of AI curve 1	P05.13 ～ +10.00V	10.00V	☆
P05.16	Corresponding value of AI curve 1's Max. input	-100.0% ～ +100.0%	100.0%	☆
P05.17	AI curve 1 filtering time	0.00s ～ 10.00s	0.10s	☆
P05.18	AI curve 2's Min. input	0.00V ～ P05.20	0.00V	☆
P05.19	Corresponding value of AI curve 2's Min. input	-100.0% ～ +100.0%	0.0%	☆
P05.20	Max. input of AI2	P05.18 ～ +10.00V	10.00V	☆
P05.21	Corresponding value of AI curve 2's Max. input	-100.0% ～ +100.0%	100.0%	☆
P05.22	AI curve 2 filtering time	0.00s ～ 10.00s	0.10s	☆
P05.23	AI curve 3's Min. input	-10.00V ～ P05.25	-10.00V	☆

P05.24	Corresponding value of AI curve 3's Min. input	-100.0% ～ +100.0%	0.0%	☆
P05.25	Max. input of AI curve 3	P05.23 ～ +10.00V	10.00V	☆
P05.26	Corresponding value of AI curve 3's Max. input	-100.0% ～ +100.0%	100.0%	☆
P05.27	AI curve 3 filtering time	0.00s ～ 10.00s	0.10s	☆
P05.28	Min. value of Pulse input	-10.00V ～ P05.25	0.00V	☆
P05.29	Corresponding value of Pulse's Min. input	-100.0% ～ +100.0%	0.0%	☆
P05.30	Max. value of Pulse input	P05.23 ～ +10.00V	10.00V	☆
P05.31	Corresponding value of Pulse's Max. input	-100.0% ～ +100.0%	100.0%	☆
P05.32	Pulse filtering time	0.00s ～ 10.00s	0.10s	☆
P05.33	AI curve selection	Single bit: AI1 curve selection 1: AI curve 1 (2 PM, see P05.13 ~ P05.16.) 2: AI curve 2 (2 PM, see P05.18 ~ P05.21.) 3: AI curve 3 (2 PM, see P05.23 ~ P05.26.) 4: AI curve 4 (4 PM, see P24.00～P24.07) 5: AI curve 4 (4 PM, see P24.08～P24.15) Ten bit: AI2 curve selection (the same as Single bit 1~5) Hundred bit: AI3 curve selection (the same as above)	321	☆
P05.34	The AI is below the minimum input setting selection	Single bit: AI1 below Min. input setting 0: Corresponding value of Min. input 1: 0.0% Ten bit: AI2 below Min. input setting (the same as Single bit 1~2) Hundred bit: AI3 below Min. input setting (the same as above)	000	☆
P05.35	DI1 delay time	0.0s ～ 3600.0s	0.0s	★
P05.36	DI2 delay time	0.0s ～ 3600.0s	0.0s	★
P05.37	DI3 delay time	0.0s ～ 3600.0s	0.0s	★
P05.38	DI1-DI5 terminal valid mode selection	0: High level effective, 1: Low level effective Single Bit: DI1; Ten Bit: DI2; Hundreds Bit: DI3; Thousand Bit: DI4, Ten thousand Bit: DI5	00000	★
P05.39	DI6-D17 terminal valid mode selection	0: High level effective, 1: Low level effective Single Bit: DI6, Ten Bit: DI7	00000	★

P06 group, Output Parameters				
P06.01	DO1 output function selection	0: No output	0	☆
P06.02	Control Board Relay (TA- TB- TC) Function Selection	1: Running indicator; 2: Fault output (for free shutdown fault) 3: Freq. level detection signal 1(P14T1) 4: Frequency arrival indicator(FAR) 5: VFD zero-speed running(When running) 6: Motor overload Early-warning 7: Inverter overload Early-warning 8: The Set Count arrives 9: The specified count is reached 10: Length is reached 11: The PLC cycle is completed 12: Accumulated running time arrives 13: Frequency limiting 14: Torque limiting 15: Ready to run 16：AI1>AI2 17: Output freq. reaches Upper limit 18: Output freq. reaches Lower limit(When running) 19: Under pressure state output 20: Communication setting 21: Location is complete (reserved) 22: Location proximity (reserved) 23: Zero-speed running 2 (also output when shutdown) 24: Accumulated power-on time arrives 25: Freq. level detection signal 2(P14T2) 26: Output freq. 1 reached 27: Output freq. 2 reached 28: Output Current 1 reached 29: Output Current 2 reached 30: Regularly reached 31: Input signal AI1 overrun 32: Load dropping 33: VFD reverse running 34: Zero-current state 35: The Power module temperature arrives 36: Output current out of limit 37:Output freq. reaches Lower limit(shutdown also output) 38: Fault output (all faults) 39: Motor overheating Early-warning 40: This running time arrives 41: Fault output (for free shutdown fault and no under pressure output)	2	☆

P06.07	AO1 output function selection	0: Operation freq., 1: Set freq. 2: Output current, 3: Output torque, 4: Output power, 5: Output voltage, 6: Input pulse freq. 7：AI1 8：AI2 9：AI3 10: Length 11: Count value 12: Communication setting, 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 (Percentage of actual value relative to motor rating) 17: VFD output torque (Percentage of actual value relative to VFD rating)	0	☆
P06.08	AO2 output function selection		1	☆
P06.10	AO1 zero-bias coefficient	-100.0% ～ +100.0%	0.0%	☆
P06.11	AO1 gain	-10.00 ～ +10.00	1.00	☆
P06.12	AO2 zero-bias coefficient	-100.0% ～ +100.0%	0.0%	☆
P06.13	AO2 gain	-10.00 ～ +10.00	1.00	☆
P06.17	DO output delay time	0.0s ～ 3600.0s	0.0s	☆
P06.18	RELAY output delay time	0.0s ～ 3600.0s	0.0s	☆
P06.19	RELAY2 output delay time	0.0s ～ 3600.0s	0.0s	☆
P06.22	DO output valid status selection	0: Positive logic, 1: Anti-logic Single Bit: DO Ten bit: RELAY1 Hundred Bit: RELAY2	00000	☆
P07 group, Start and Stop control Parameters				
P07.00	Starting mode	0: Direct start 1: Start with speed tracking 2: DC braking + start at start frequency	0	☆
P07.01	Speed tracking method	0: Start with the shutdown frequency 1: Start with the working frequency 2: Start at the maximum frequency	0	★
P07.02	Speed of Speed tracking	1 ～ 100	20	☆
P07.03	Start frequency	0.00Hz ～ 10.00Hz	0.00Hz	☆
P07.04	Start-frequency hold time	0.0s ～ 100.0s	0.0s	★
P07.05	DC brake current at startup	0% ～100%	0%	★
P07.06	DC brake time at startup	0.0s ～100.0s	0.0s	★
P07.07	Accelerating and Decelerating mode	0: linear Acc/Dec mode 1: S curve Acc/Dec mode A 2: S curve Acc/Dec mode B	0	★
P07.08	Time ratio of Start segment in S curve	0.0% ～ （100.0%-P07.09）	30.0%	★
P07.09	Time ratio of Start segment in S curve	0.0% ～ （100.0%-P07.08）	30.0%	★

P07.10	Stop mode	0：Decelerate to stop 1：Coast to stop	0	☆
P07.11	Frequency threshold of DC brake	0.00Hz ~ Maximum freq.【P01.10】	0.00Hz	☆
P07.12	DC brake delay time	0.0s ～ 100.0s	0.0s	☆
P07.13	DC brake current	0% ～ 100%	0%	☆
P07.14	DC brake time at stop	0.0s ～ 100.0s	0.0s	☆
P07.15	DC Brake utilization rate	0% ～ 100%	100%	☆
P07.18	Speed tracking current	30% ～ 200%		★

P08 Group Keyboards and Display Parameters

P08.01	M key function	0: The M key is invalid 1: Switch between Remote Control (Terminal or Communication control) and Operation Panel Control, when 【P01.02】 =1 or 2 2: FWD/REV switch 3: FJOG (Forward jog control) 4: RJOG (Reverse jog control)	0	★
P08.02	STOP/RESET key function	0: The STOP/RES key Only valid in panel control mode 1: The STOP/RES key Always valid	1	☆
P08.03	LED displays parameter 1in Operation status	0000 ～ FFFF Bit00: Running Frequency 1 (Hz) Bit01: Setting Frequency (Hz) Bit02: Bus Voltage (V) Bit03: Output Voltage (V) Bit04: Output current (A) Bit05: Output power (kW) Bit06: Output torque (%) Bit07: DI input status Bit08: DO output status Bit09: AI1 voltage (V) Bit10: AI2 voltage (V) Bit11: AI3 voltage (V) Bit12: Count value Bit13: Length value Bit14: Load speed display Bit15: PID settings	1F	☆
P08.04	LED displays parameter 2in Operation status	0000 ～ FFFF Bit00: PID feedback Bit01: PLC stage Bit02: PULSE Input frequency (kHz) Bit03: Running Frequency 2 (Hz) Bit04: Remaining runtime Bit05:AI1-corrected front voltage (V) Bit06:AI2-corrected front voltage (V) Bit07:AI3-corrected front voltage (V) Bit08: Line speed	0	☆

		Bit09: Current Power Time (Hour) Bit10: Current Runtime (Min) Bit11:PULSE Input frequency (Hz) Bit12: Communication Setting Value Bit13: Encoder feedback speed (Hz) Bit14: Main Frequency X Display (Hz) Bit15: Secondary frequency Y Display (Hz)		
P08.05	LED displays parameter in Stop status	0000 ～ FFFF Bit00: Set Frequency (Hz) Bit01: Bus Voltage (V) Bit02: DI input status Bit03: DO output status Bit04: AI1 voltage (V) Bit05: AI2 voltage (V) Bit06: AI3 voltage (V) Bit07: Count value Bit08: Length value Bit09: PLC stage Bit10: Load speed Bit11: PID settings Bit12: PULSE Input frequency (kHz)	33	☆
P08.06	Load speed display factor	0.0001 ～ 6.5000	1.0000	☆
P08.07	Power module temperature	0.0℃ ～ 100.0℃	-	●
P08.08	Product number	-	-	●
P08.09	Cumulative running time	0h ～ 65535h	-	●
P09 group, auxiliary function				
P09.00	Jog frequency	0.00Hz ~ Maximum freq.【P01.10】	2.00Hz	☆
P09.01	Jog Acc time	0.0s ～ 6500.0s Recommended time: 0.4 ～ 4.0KW 7.5S 5.5 ～ 30.0KW 15.0S 37.0 ～ 132.0KW 40.0S 160.0～ 630.0KW 60.0S	20.0s	☆
P09.02	Jog Dec time		20.0s	☆
P09.03	Acceleration time 2		By Model	☆
P09.04	Deceleration time 2			☆
P09.05	Acceleration time 3			☆
P09.06	Deceleration time 3			☆
P09.07	Acceleration time 4			☆
P09.08	Deceleration time 4			☆
P09.09	Hopping freq. 1	0.00Hz ~ Maximum freq.【P01.10】	0.00Hz	☆
P09.10	Hopping freq. 2		0.00Hz	☆
P09.11	Hopping freq. range		0.01Hz	☆
P09.12	Positive and Reverse dead time	0.0s ～ 3000.0s	0.0s	☆
P09.13	Reverse frequency permission	0: Allowed; 1: Prohibit	0	☆
P09.14	When the setting freq. is lower than the lower limit of freq.	0: Run at a lower limit frequency 1: Stop 2: zero-speed operation	0	☆
P09.15	Drop control	0.00Hz ～ 10.00Hz	0.00Hz	☆

P09.16	Setting cumulative power on arrival time	0h ～ 65000h	0h	☆
P09.17	Setting cumulative running arrival time	0h ～ 65000h	0h	☆
P09.18	Start protection	0: Unprotected; 1: protect	0	☆
P09.19	Frequency detection value 1 (P14T1)	0.00Hz ~ Maximum freq. 【P01.10】	50.00 Hz	☆
P09.20	Frequency detection lag value (P14T1)	0.0% ~ 100.0% (P14T1 level)	5.0%	☆
P09.21	Frequency reaches the detected width	0.0% ~ 100.0% (Maximum frequency)	0.0%	☆
P09.22	Frequency hopping function During Acc and Dec.	0: Invalid, 1: valid	0	☆
P09.25	Switching freq. of acceleration time 1 and time 2	0.00Hz ~ Maximum freq. 【P01.10】	0.00Hz	☆
P09.26	Switching freq. of deceleration time 1 and time 2	0.00Hz ~ Maximum freq. 【P01.10】	0.00Hz	☆
P09.27	Terminal Jog priority	0: Invalid, 1: valid	0	☆
P09.28	Frequency detection value 2 (P14T2)	0.00Hz ~ Maximum frequency	50.00 Hz	☆
P09.29	Frequency detection lag value (P14T2)	0.0% ~ 100.0% (P14T2 level)	5.0%	☆
P09.30	Arbitrary arrival frequency detection value 1	0.00Hz ~ Maximum frequency	50.00 Hz	☆
P09.31	Arbitrary arrival frequency detected width 1	0.0% ~ 100.0% (Maximum frequency)	0.0%	☆
P09.32	Arbitrary arrival frequency detection value 2	0.00Hz ~ Maximum frequency	50.00 Hz	☆
P09.33	Arbitrary arrival frequency detected width 2	0.0% ~ 100.0% (Maximum frequency)	0.0%	☆
P09.34	Zero-current detection level	0.0% ～ 300.0% 100.0% corresponds to the motor rated current	5.0%	☆
P09.35	Delay time of Current detect	0.01s ～ 600.00s	0.10s	☆
P09.36	Current value of output over current	0.0% (Not detect) 0.1% ~ 300.0% (Motor rated current)	200.0%	☆
P09.37	Delay time of Output Over current Detection	0.00s ～ 600.00s	0.00s	☆
P09.38	Arbitrary arrival current 1	0.0% ~ 300.0% (Motor rated current)	100.0%	☆
P09.39	Arbitrary arrival current 1 width	0.0% ~ 300.0% (Motor rated current)	0.0%	☆
P09.40	Arbitrary arrival current 2	0.0% ~ 300.0% (Motor rated current)	100.0%	☆
P09.41	Arbitrary arrival current 2 width	0.0% ~ 300.0% (Motor rated current)	0.0%	☆

P09.42	Timer function selection	0: Invalid, 1: valid	0	☆
P09.43	Timer runtime selection	0: P09.44 setting, 1: AI1 2: AI2 3: AI3 Analog input range corresponds to the【P09.44】	0	☆
P09.44	Timer running time	0.0Min ～ 6500.0Min	0.0Min	☆
P09.45	AI1 input voltage protection value lower limit	0.00V ～ P09.46	3.10V	☆
P09.46	AI1 input voltage protection value upper limit	P09.45 ～ 10.00V	6.80V	☆
P09.47	Over temp. protection Value	0℃ ～ 100 ℃	75℃	☆
P09.48	Cooling fan control	0: Fan running during VDF running 1: Always running when power on;	0	☆
P09.49	Wake up frequency	Hibernate frequency (P09.51) ~ Maximum freq.【P01.10】	0.00Hz	☆
P09.50	Wake up delay time	0.0s ～ 6500.0s	0.0s	☆
P09.51	Sleep frequency	0.00Hz ~ Wake-Up Frequency【P09.49】	0.00Hz	☆
P09.52	Sleep delay time	0.0s ～ 6500.0s	0.0s	☆
P09.53	Arrival time of this operation	0.0 ～ 6500.0Min	0.0Min	☆
P09.54	Correction factor of Output power	0.00% ～ 200.0%	100.0%	☆
P10 group Fault and Protection				
P10.00	Motor overload protection	0: Disable, 1: Enable	1	☆
P10.01	Motor overload protection gain	0.20 ～ 10.00	1.00	☆
P10.02	Motor overload early-warning factor	50 ～ 100%	80%	☆
P10.07	Short circuit to ground protection when power on	0: Disable, 1: Enable	1	☆
P10.08	Brake unit's starting voltage	650.0V ～ 800.0V	690V	☆
P10.09	Automatic fault reset times	0 ～ 20	0	☆
P10.10	DO action selection during automatic fault reset	0: No Action 1: Action	0	☆
P10.11	Interval for Automatic fault reset	0.1s ～ 100.0s	1.0s	☆
P10.12	Input phase loss protection/ Power relay pull in protection	Single Bit: Input phase loss protection 0: Disable, 1: Enable Ten Bit: Power relay pull in protection 0: Disable, 1: Enable	11	☆
P10.13	Output phase loss protection	0: Disable, 1: Enable	1	☆
P10.14	First-time failure type	0: No fault	—	●

P10.15	Second failure type	1: (Reserved) 2: Over-current in Acc process 3: Over-current in Dec process 4: Over-current in constant speed 5: Over-voltage in Acc process 6: Over-voltage in Dec process 7: Over-voltage in constant speed 8: Buffer resistance overload 9: Under-voltage 10: VFD overload 11: Motor overload 12: Input phase loss 13: Output phase loss 14: Power module is overheated 15: External fault 16: Communication exception 17: Power relay is abnormal 18: Abnormal current detection 19: Motor tuning is abnormal 21: Parameter read and write exception 22: Other Hardware abnormal 23: Motor short-circuit to ground 26: Run-time arrival 27: User Custom fault 1 28: User Custom fault 2 29: Power-on time arrives 30: Load drop 31: Runtime PID feedback is lost 40: Fast flow limit timeout 41: Switch the motor during operation 42: Speed deviation is too large 43: Motor over-speed	—	●
P10.16	Third (most recent) fault type		—	●
P10.17	Frequency at the third (most recent) failure	—	—	●
P10.18	Current at the third (most recent) fault	—	—	●
P10.19	Bus voltage at the third (most recent) fault	—	—	●
P10.20	Input terminal status at the third (most recent) failure	—	—	●
P10.21	Output terminal status at the third (most recent) failure	—	—	●
P10.22	The Inverter status at the third (most recent) failure	—	—	●

P10.23	Power-on time for the third (most recent) failure	—	—	●
P10.24	Run time for the third (most recent) failure	—	—	●
P10.27	Frequency at the second failure	—	—	●
P10.28	Current at the second failure	—	—	●
P10.29	Bus voltage at the second fault	—	—	●
P10.30	Input terminal status for the second failure	—	—	●
P10.31	Output terminal status at the second failure	—	—	●
P10.32	The Inverter status at the second failure	—	—	●
P10.33	Power-on time for the second failure	—	—	●
P10.34	Run time for the second failure	—	—	●
P10.37	Frequency at the first failure	—	—	●
P10.38	Current at the first failure	—	—	●
P10.39	Bus voltage at the first failure	—	—	●
P10.40	Input terminal status at the first failure	—	—	●
P10.41	Output terminal status at the first failure	—	—	●
P10.42	The Inverter status at the first failure	—	—	●
P10.43	Power-on time for the first failure	—	—	●
P10.44	Run time for the first failure	—	—	●
P10.47	Fault protection action selection 1	Single Bit: Motor overload (Err11) Ten Bit: Input phase loss, (Err12) Hundred Bit: Output phase loss, (Err13) Thousand Bit: External fault (Err15) Ten thousand Bit: Communication exception, (Err16) 0: Coast to stop; 1: Stop by Stop mode【P07.10】 2: Keep running;	00000	☆
P10.48	Fault protection action selection 2	Single Bit/Hundred Bit/Thousand Bit: (Reserved) Ten Bit: Parameter read and write exception (Err21) Ten thousand Bit: Run-time arrival (Err26) 0: Coast to stop; 1: Stop by Stop mode【P07.10】	00000	☆

P10.49	Fault protection action selection 3	Single Bit: User Custom fault 1 (Err27) Ten Bit:: User Custom fault 2 (Err28) Hundred Bit: Power-on time arrives (Err29) Thousand Bit: Load drop (Err30) 0: Coast to stop; 1: Stop by Stop mode【P07.10】 2: Jump to 7% of the Rated freq. of the Motor and keep running, Operate return to Set freq. when load recovery Ten thousand Bit: PID feedback loss (Err31) 0: Coast to stop; 1: Stop by Stop mode【P07.10】 2: Keep running;	00000	☆
P10.50	Fault protection action selection 4	Single Bit: Speed deviation too large (Err42) Ten Bit: Motor over-speed (Err43) Hundred Bit: (Reserved) Thousand Bit: Speed feedback error (Err52) 0: Coast to stop; 1: Stop by Stop mode【P07.10】 2: Keep running;	00000	☆
P10.54	Keep running freq. selection when failure	0: The current frequency 1: The setting frequency 2: Run at upper limit frequency 3: Run at lower limit frequency 4: Run at abnormal reserve frequency	0	☆
P10.55	Abnormal reserve frequency	0.0%~100.0% (100.0% corresponds to Max freq【P01.10】	100.0%	☆
P10.59	Instant power non-stop	0: Invalid 1: Reduce the speed; 2: Deceleration stop	0	☆
P10.60	The Pause judgment voltage of Instant power non-stop	80.0% ～ 100.0% (Standard bus voltage)	90.0%	☆
P10.61	Voltage recovery Judgment time of Instant power non-stop	0.00s ～ 100.00s	0.50s	☆
P10.62	The judgment voltage of Instant power non-stop	60.0% ~ 100.0% (Standard bus voltage)	80.0%	☆
P10.71	Gain of Instant power non-stop	0 ～ 100	40	☆
P10.72	Integral coefficient of Instant power non-stop	0 ～ 100	30	☆
P10.73	Deceleration time of Instant power non-stop	0 ～ 300.0s	20.0s	★
P10.63	Load drop protection selection	0: Invalid, 1: valid	0	☆
P10.64	Load drop detection level	0.0 ～ 100.0％	10.0%	☆
P10.65	Load drop detection time	0.0 ～ 60.0s	1.0s	☆
P10.67	Over-speed detection value	0.0% ~ 50.0% (Max freq【P01.10】)	20.0%	☆
P10.68	Over-speed detection time	0.0s: Non-detectable 0.1 ～ 60.0s	1.0s	☆

P10.69	The detection value for Speed deviation too large	0.0% ~ 50.0% (Max freq【P01.10】)	20.0%	☆
P10.70	The detection time for Speed deviation too large	0.0s: 0.1 ~ 60.0s	5.0s	☆
P11 group PID function				
P11.00	PID input channel	0: P11.01 setting 1：AI1 2：AI2 3：AI3 4: Pulse Setting (DI5) 5: Communication Setting 6: Multistage speed 7: Keyboard encoder settings	0	☆
P11.01	Digital reference input setting	0.0～10.00	3.00	☆
P11.02	PID feedback channel	0：AI1 1：AI2 2：AI3 3: AI1-AI2 4: Pulse Setting (DI5) 5: Communication Setting 6：AI1+AI2 7：MAX（|AI1|, |AI2|） 8：MIN （|AI1|, |AI2|）	0	☆
P11.03	PID polarity	0: Positive direction, 1: Negative direction	0	☆
P11.04	Range of PID feedback	0 ～ 100.00KG	10.00	☆
P11.05	Proportional gain KP02	0.0 ～ 100.0	20.0	☆
P11.06	Integration time Ti1	0.01s ～ 10.00s	2.00s	☆
P11.07	Derivative time Td1	0.000s ～ 10.000s	0.000s	☆
P11.08	PID reversal cutoff freq	0.00 ~ Maximum frequency	2.00Hz	☆
P11.09	The limit of PID deviation	0.0% ～ 100.0%	1.0%	☆
P11.10	Differential limiter of PID	0.00% ～ 100.00%	0.10%	☆
P11.11	PID Input signal change time	0.00 ～ 650.00s	0.00s	☆
P11.12	PID feedback filtering time	0.00 ～ 60.00s	0.00s	☆
P11.13	The PID output filtering time	0.00 ～ 60.00s	0.00s	☆
P11.15	Proportional gain KP03	0.0 ～ 100.0	20.0	☆
P11.16	Integration time Ti2	0.01s ～ 10.00s	2.00s	☆
P11.17	Derivative time Td2	0.000s ～ 10.000s	0.000s	☆
P11.18	The PID parameter switching conditions	0: No switch 1: Switch via the DI terminal 2: Automatic switch according to the deviation	0	☆
P11.19	The PID parameter switching Deviation 1	0.0% ～ P11.20	20.0%	☆
P11.20	The PID parameter switching Deviation 2	P11.19 ～ 100.0%	80.0%	☆
P11.21	Initial value of PID	0.0% ～ 100.0%	0.0%	☆
P11.22	Holding time of PID Initial	0.00 ～ 650.00s	0.00s	☆
P11.23	Max positive deviation of Two output	0.00% ～ 100.00%	1.00%	☆

P11.24	Max deviation deviation of Two output	0.00% ～ 100.00%	1.00%	☆
P11.25	The PID integral property	Single Bit: Integral separation 0: Invalid, 1: valid Ten Bit: when the frequency reaches the limits 0: Continue integral regulation, 1: Stop integral regulation	00	☆
P11.26	PID feedback loss detection values	0.1% ~ 100.0% (0.0%: Not detection)	0.0%	☆
P11.27	PID feedback loss detection time	0.0s ～ 20.0s	0.0s	☆
P11.28	The PID shutdown operation	0: Stop without PID operation, 1: Stop with PID operation	0	☆
P12 group -Swing frequency, Fixed length and Counting				
P12.00	Mode of Swing freq setting	0: Relative to the Central frequency【P01.07】 1: Relative to the Max freq【P01.10】	0	☆
P12.01	Range of Swing frequency	0.0% ～ 100.0%	0.0%	☆
P12.02	The Range of the jump freq	0.0% ～ 50.0%	0.0%	☆
P12.03	Cycle of Swing frequency	0.1s ～ 3000.0s	10.0s	☆
P12.04	Rise time of swing freq 's triangular wave	0.1% ～ 100.0%	50.0%	☆
P12.05	Setting length	0m ～ 65535m	1000m	☆
P12.06	Actual length	0m ～ 65535m	0m	☆
P12.07	Number of pulses per Meter	0.1 ～ 6553.5	100.0	☆
P12.08	Setting Count value	1 ～ 65535	1000	☆
P12.09	Specifies Count value	1 ～ 65535	1000	☆
P13 group Multistage speed, simple PLC				
P13.00	Multistage speed 0 (MS0)	-100.0% ～ 100.0% (Max freq【P01.10】)	0.0%	☆
P13.01	Multistage speed 1 (MS1)		0.0%	☆
P13.02	Multistage speed 2 (MS2)		0.0%	☆
P13.03	Multistage speed 3 (MS3)		0.0%	☆
P13.04	Multistage speed 4 (MS4)		0.0%	☆
P13.05	Multistage speed 5 (MS5)		0.0%	☆
P13.06	Multistage speed 6 (MS6)		0.0%	☆
P13.07	Multistage speed 7 (MS7)		0.0%	☆
P13.08	Multistage speed 8 (MS8)		0.0%	☆
P13.09	Multistage speed 9 (MS9)		0.0%	☆
P13.10	Multistage speed 10 (MS10)		0.0%	☆
P13.11	Multistage speed 11 (MS11)		0.0%	☆
P13.12	Multistage speed 12 (MS12)		0.0%	☆
P13.13	Multistage speed 13 (MS13)		0.0%	☆
P13.14	Multistage speed 14 (MS14)		0.0%	☆
P13.15	Multistage speed 15 (MS15)		0.0%	☆

P13.16	Simple PLC operation mode	0: End of single operation 1: Final value at end of single operation 2: Always cycle	0	☆
P13.17	PLC running state saving after power off	Single Bit: when Power drop Ten Bit: when Stop 0: Not save 1: Saving.	00	☆
P13.18	Multistage speed 0 runtime	0.0s（h）～6553.5s（h）	0.0s (h)	☆
P13.19	Acc/Dec time of MS 0	0 ～3	0	☆
P13.20	Multistage speed 1 runtime	0.0s（h）～ 6553.5s（h）	0.0s (h)	☆
P13.21	Acc/Dec time of MS 1	0 ～ 3	0	☆
P13.22	Multistage speed 2 runtime	0.0s（h） ～ 6553.5s（h）	0.0s (h)	☆
P13.23	Acc/Dec time of MS 2	0 ～ 3	0	☆
P13.24	Multistage speed 3 runtime	0.0s（h） ～ 6553.5s（h）	0.0s (h)	☆
P13.25	Acc/Dec time of MS 3	0 ～ 3	0	☆
P13.26	Multistage speed 4 runtime	0.0s（h） ～ 6553.5s（h）	0.0s (h)	☆
P13.27	Acc/Dec time of MS 4	0 ～ 3	0	☆
P13.28	Multistage speed 5 runtime	0.0s（h） ～ 6553.5s（h）	0.0s (h)	☆
P13.29	Acc/Dec time of MS 5	0 ～ 3	0	☆
P13.30	Multistage speed 6 runtime	0.0s（h） ～ 6553.5s（h）	0.0s (h)	☆
P13.31	Acc/Dec time of MS 6	0 ～ 3	0	☆
P13.32	Multistage speed 7 runtime	0.0s（h） ～ 6553.5s（h）	0.0s (h)	☆
P13.33	Acc/Dec time of MS 7	0 ～ 3	0	☆
P13.34	Multistage speed 8 runtime	0.0s（h） ～ 6553.5s（h）	0.0s (h)	☆
P13.35	Acc/Dec time of MS 8	0 ～ 3	0	☆
P13.36	Multistage speed 9 runtime	0.0s（h） ～6553.5s（h）	0.0s (h)	☆
P13.37	Acc/Dec time of MS 9	0 ～ 3	0	☆
P13.38	Multistage speed 10 runtime	0.0s（h） ～ 6553.5s（h）	0.0s (h)	☆
P13.39	Acc/Dec time of MS 10	0 ～ 3	0	☆
P13.40	Multistage speed 11 runtime	0.0s（h）～6553.5s（h）	0.0s (h)	☆
P13.41	Acc/Dec time of MS 11	0 ～ 3	0	☆
P13.42	Multistage speed 12 runtime	0.0s（h） ～ 6553.5s（h）	0.0s (h)	☆
P13.43	Acc/Dec time of MS 12	0 ～ 3	0	☆
P13.44	Multistage speed 3 runtime	0.0s（h） ～ 6553.5s（h）	0.0s (h)	☆
P13.45	Acc/Dec time of MS 3	0 ～ 3	0	☆
P13.46	Multistage speed 14 runtime	0.0s（h） ～ 6553.5s（h）	0.0s (h)	☆
P13.47	Acc/Dec time of MS 14	0 ～ 3	0	☆
P13.48	Multistage speed 15 runtime	0.0s（h） ～ 6553.5s（h）	0.0s (h)	☆
P13.49	Acc/Dec time of MS 15	0 ～ 3	0	☆
P13.50	Unit of Multistage speed’s Acc/Dec time	0: s (seconds) 1: h (hours)	0	☆

P13.51	Signal source of Multistage speed 0 (MS0)	0: Parameter 【P13.00】 1：AI1 2：AI2 3：AI3 4: Pulse (DI5) 5: PID 6: Preposition frequency 【P01.08】 7: Can be modified by ▲/▼ key	0	☆
P14 group RS485 Communication parameters				
P14.00	Baud rate setting for RS485	Single Bit: MODBUS 0：300BPS 1：600BPS 2：1200BPS 3：2400BPS 4：4800BPS 5：9600BPS 6：19200BPS 7：38400BPS 8：57600BPS 9：115200BPS	5	☆
P14.01	MODBUS Data format	0: No check (8.N-2) 1: Parity check (8.E-1) 2: Odd check (8.O-1) 3: No check (8.N-1)	0	☆
P14.02	Local address	0：broadcast address 1～247：(MODBUS)	1	☆
P14.03	MODBUS Response delay	0 ～ 20ms	2	☆
P14.04	Timeout time of RS485	0.0: Invalid 0.1 ˜ 60.0s	0.0	☆
P14.05	MODBUS Protocol selection	0: Non-standard MODBUS protocol 1: Standard MODBUS protocol	1	☆
P14.06	Current Resolution of 485 read	0：0.01A 1：0.1A	0	☆
P15 group Special parameters for constant pressure water supply				
P15.00	Simple macro debugging function	0: No function 1: One drive two pumps 2: Water supply in the building community 3: Hotel water supply 4: Fire water supply 5: Booster pump 6: Deep water pump	0	☆
P15.01	Wake up pressure	0˜ Sleep pressure 【P15.04】KG(1KG=0.1Mpa)	2.50KG	☆
P15.02	Delay time of Wake up	0.0s～6500.0s	0s	☆
P15.03	Sleep pressure	Wake up pres【P15.01】˜ Pressure Gauge Range(0.1Mpa)	3.50KG	☆
P15.04	Sleep delay time	0.0s～6500.0s	60.0s	☆
P15.05	Pressure proportional linkage	0: Disable; 1: Enable	1	☆
P15.06	Wake-up pressure difference	0˜100.0Bar(Kg,0.1Mpa)	0.50KG	☆
P15.07	Sleep pressure difference	0˜100.0Bar(Kg)	0.50KG	☆
P15.08	Over-pressure alarm value	0.00˜Pressure Gauge Range KG(1KG=0.1Mpa=1Bar)	9.00KG	☆
P15.09	Delay Time of Over-pressure alarm	0-6553.5S	0.0S	☆
P15.10	Low-pressure alarm value	0.00˜Pressure Gauge Range KG(1KG=0.1Mpa=1Bar) The parameter opens the low pressure reach alarm.	0.0KG	☆
P15.11	Low-pressure alarm delay time	0-6553.5S	20.0S	☆

P15.12	water Intake start-up pressure	0~Pressure Gauge Range KG Open the water Intake start-stop control via P01.02=3 The water inlet must use the current sensor of the AI2 For the voltage sensor, change the AI2 jumper	3.00KG	☆
P15.13	Inlet shutdown pressure	0~Pressure Gauge Range KG (Bar)	3.20KG	☆
P15.14	Number of auxiliary pumps	0~3	0	☆
P15.15	waiting time of Auxiliary pump turns on	0~1000.0S	60.0S	☆
P15.16	Waiting time for the auxiliary pump switch	0~1000.0S	5.0S	☆
P15.17	RO1 Relay ON frequency setting	0~50HZ When reaches the value, the Relay will ON	50.00	☆
P15.18	RO1 Relay OFF frequency setting	0~50HZ When reaches the value, the Relay will OFF	30.00	☆
P15.19	Signal source of **Water level controller**	0: Function is not valid 1: AI1 2：AI2 3: AI3 P15.19=1~3 ,The (P15.20,P15.21,P15.22,P15.23) setting is valid, P15.19=0, parameters Not Valid.	0	☆
P15.20	Sleeping Valve for the **Water level Controller**	0.0～100.0% The signal is less than this parameter continue【P15.21】time, Sleep and full water warning(ErrH)	25.0%	☆
P15.21	Full water level delay	0~1000.0S 【P15.20】’s delay time setting.	6.0S	☆
P15.22	Water empty delay for **Water level controller**	0~1000.0S In the full water warning(ErrH) state, when **Water level controller** signal is greater than the P15.20,and continue【P15.22】times, the full water warning is clear and restored to the normal state.	60.0S	☆
P15.23	Judgment value for Hydraulic probe damage(**Water level controller**)	0.0% : Invalid function. 0.1～100.0%: when **Water level controller** signal is greater than the【P15.23】, show (E.tSF) fault and shut down	0.0%	☆
P15.24	Water shortage protection function	0: Disable; 1: Enable, and judge by frequency and pressure	0	☆
P15.25	Water shortage fault check value	0.00 ～ Setting value KG (Bar/0.1Mpa) Valid when the P15.19=1, The water shortage is determined when the feedback value is less than this value	0.50	☆
P15.26	Water shortage protection detection frequency	0～50.00HZ Valid when the P15.19=1 when the operation frequency is greater than or equal to this frequency, and the pressure is lower than or equal to P15.25,Judge water shortage.	50.00	☆

P15.27	Delay time of water shortage protection detection	0～6553.5S Delay time for water shortage fault alarm Judgement.	10	☆
P15.28	Effective pressure of incoming water	0～Pressure Gauge Range KG (Bar/0.1Mpa)	3.00	☆
P15.29	Incoming water detection time	0～9999S Time for incoming water detection	20.0S	☆
P15.30	Water leakage and restart deviation amount	0～Pressure Gauge Range KG (Bar/0.1Mpa)	0	☆
P15.31	Water leakage and then start the return value	0～Pressure Gauge Range KG (Bar/0.1Mpa)	0	☆
P15.32	Water leakage and then start the return value detection time	0: NO Function 0.1.10.0秒	2.0S	☆
P15.33	Sleep mode	0: Disable 1: Sleep when pressure is greater than sleep pressure; 2: Sleep when running frequency is less than sleep frequency (affected by P15.29) 3: Sleep when pressure is greater than sleep pressure and running frequency is less than sleep frequency.	0	☆
P15.34	Sleep output frequency	0～P01.12	20.0Hz	☆
P17 group Functional code management				
P17.00	User password	0 ～ 65535	0	☆
P17.01	Parameter initialization	0: No operation 01: Restore factory parameters, excluding motor parameters 02: clear record information	0	★
P17.04	The Function code modifies the properties	0: Modifiable 1: Not modifiable	0	☆
P18 group Torque control parameters				
P18.00	Speed/Torque control mode	0: Speed control, 1: Torque control	0	★
P18.01	Torque setting source selection under torque control mode	0: Digital Settings 1: (P18.03) 1：AI1 2：AI2 3: AI3 4: PLUSE Setting 5: Communication setting 6: MIN (AI1, AI2) 7: MAX (AI1, AI2)	0	★
P18.03	Digital Setting under the torque control mode	-200.0% ～ 200.0% (P18.01=0)	150.0%	☆
P18.05	The Max forward freq for Torque controls	0.00Hz ～ Max freq【P01.10】	50.00Hz	☆
P18.06	The Max reverse freq for Torque controls	0.00Hz ～ Max freq【P01.10】	50.00Hz	☆
P18.07	Torque control 's Acc time	0.00s ～ 65000s	0.00s	☆
P18.08	Torque control 's Dec time	0.00s ～ 65000s	0.00s	☆

P23 group Control optimization parameters				
P23.00	Upper limit frequency for DPWM switch	5.00Hz ～ Max freq【P01.10】	8.00Hz	☆
P23.01	PWM modulation mode	0: Asynchronous modulation, 1: Synchronous modulation	0	☆
P23.03	Random PWM depth	0: Invalid Random PWM 1 ～ 10: Random depth of PWM carrier frequency	0	☆
P23.04	Fast flow limiting	0: Disable, 1: Enable	1	☆
P23.06	Under-voltage value Setting	200.0V ～ 2200.0V	350V	☆
P23.09	Over-pressure Value setting	200.0V ～ 2200.0V	By model	★
P23.10	Automatic carrier freq change at low frequency	0: Disable, 1: Enable	1	☆
P23.11	Zero-speed running output control	0: Disable, 1: Enable	1	☆
P23.12	Sensitivity of Power phase loss protection	0～30.0%	13.0%	☆
P24 group AI curve setting				
P24.00	Min input of the AI curve 4	-10.00V～P24.02	0.00V	☆
P24.01	Corresponding ratio of P24.00	-100.0%～+100.0%	0.0%	☆
P24.02	Turning 1 of the AI curve 4	P24.00～P24.04	3.00V	☆
P24.03	Corresponding ratio of P24.02	-100.0%～+100.0%	30.0%	☆
P24.04	Turning 2 of the AI curve 4	P24.02～P24.06	6.00V	☆
P24.05	Corresponding ratio of P24.04	-100.0%～+100.0%	60.0%	☆
P24.06	Max input of the AI curve 4	P24.06～+10.00V	10.00V	☆
P24.07	Corresponding ratio of P24.06	-100.0%～+100.0%	100.0%	☆
P24.08	Min input of the AI curve 5	-10.00V～P24.10	-10.00V	☆
P24.09	Corresponding ratio of P24.08	-100.0%～+100.0%	-100.0%	☆
P24.10	Turning 1 of the AI curve 5	P24.08～P24.12	-3.00V	☆
P24.11	Corresponding ratio of P24.10	-100.0%～100.0%	-30.0%	☆
P24.12	Turning 2 of the AI curve 5	P24.10～P24.14	3.00V	☆
P24.13	Corresponding ratio of P24.12	-100.0%～100.0%	30.0%	☆
P24.14	Max input of the AI curve 5	P24.12～+10.00V	10.00V	☆
P24.15	Corresponding ratio of P24.14	-100.0%～100.0%	100.0%	☆
P24.24	Jump point of the AI1	-100.0%～100.0%	0.0%	☆
P24.25	Jump range of the AI1	0.0%～100.0%	0.5%	☆
P24.26	Jump point of the AI2	-100.0%～100.0%	0.0%	☆
P24.27	Jump range of the AI2	0.0%～100.0%	0.5%	☆

P24.28	Jump point of the AI3	-100.0%～100.0%	0.0%	☆
P24.29	Jump range of the AI3	0.0%～100.0%	0.5%	☆

P30 group Correction for the AI and AO

P30.00	AI1 Measured voltage 1	0.500V～4.000V	Factory	☆
P30.01	AI1 display voltage 1	0.500V～4.000V	Factory	☆
P30.02	AI1 measured voltage 2	6.000V～9.999V	Factory	☆
P30.03	AI1 display voltage 2	6.000V～9.999V	Factory	☆
P30.04	AI2 Measured voltage 1	0.500V～4.000V	Factory	☆
P30.05	AI2 display voltage 1	0.500V～4.000V	Factory	☆
P30.06	AI2 measured voltage 2	6.000V～9.999V	Factory	☆
P30.07	AI2 display voltage 2	6.000V～9.999V	Factory	☆
P30.08	AI3 Measured voltage 1	-9.999V～10.000V	Factory	☆
P30.09	AI3 display voltage 1	-9.999V～10.000V	Factory	☆
P30.10	AI3 measured voltage 2	-9.999V～10.000V	Factory	☆
P30.11	AI3 display voltage 2	-9.999V～10.000V	Factory	☆
P30.12	AO1 target voltage 1	0.500V～4.000V	Factory	☆
P30.13	AO1 Measured voltage 1	0.500V～4.000V	Factory	☆
P30.14	AO1 target voltage 2	6.000V～9.999V	Factory	☆
P30.15	AO1 Measured voltage 2	6.000V～9.999V	Factory	☆
P30.16	AO2 target voltage 1	0.500V～4.000V	Factory	☆
P30.17	AO2 Measured voltage 1	0.500V～4.000V	Factory	☆
P30.18	AO2 target voltage 2	6.000V～9.999V	Factory	☆
P30.19	AO2 Measured voltage 2	6.000V～9.999V	Factory	☆

7. Fault alarm and Countermeasures

Displays	Fault name	Possible cause of failure	Trouble shooting
Err01	Power module protection	Motor power is too high or Wiring short circuit or Power module damaged	Remove the motor wire and start it again. If there is any problem, repair the Inverter
Err02	Undervoltage fault	The input voltage is abnormal or the Power relay is not engaged or the voltage detection fault	Check the power supply voltage or seek service from the manufacturer
Err31	Overvoltage during acceleration	The input voltage is abnormal	Check the input power supply
		Restart when the motor rotates	Set to start after DC braking
Err32	Overvoltage during deceleration	The deceleration time is too short	Extend the deceleration time
		The input voltage is abnormal	Check the input power supply
Err33	Overvoltage at constant speed	The input voltage is abnormal	Check the input power supply
Err60	Inverter overload	Improper setting of V/F curve or torque.	Adjust the V / F curve and the torque boost amount
		Low input voltage.	Check the power supply voltage
		The acceleration time is too short	Extend the acceleration time
		The motor load is too heavy	Select a more powerful Inverter
Err61	OverCurrent during acceleration	The acceleration time is too short	Extend the acceleration time
		The Inverter power is too small	Select Inverter with high power level
		Improper setting of V/F curve or torque.	Adjust the V / F curve or the torque boost amount
Err62	OverCurrent during deceleration	The deceleration time is too short	Extend the deceleration time
		The Inverter power is too small	Select the Inverter with high power level
Err63	OverCurrent at constant speed	Low input voltage.	Check the power supply voltage
		motor stall or load mutation is too large	Check the load
		The Inverter power is too small	Select a more powerful Inverter
Err64	Motor overload	Improper setting of V/F curve or torque.	Adjust the V / F curve or the torque boost amount
		Low input voltage.	Check the power supply voltage
		motor stall or load mutation	Check the load

Displays	Fault name	Possible cause of failure	Trouble shooting
		is too large	
		Motor overload protection coefficient is not set correctly	Set the motor overload protection coefficient correctly
Err65	Wave by wave current limiting fault	Same with motor Overload	Same with motor Overload
Err40	hardware malfunction	Water, insects, etc	restart can not resume back to the factory repair
Err41	EEPROM R/W failure	EEPROM hitch	Seek a service from the manufacturer
Err42	Control power failure	The input power supply is not in the specification range	Adjust the voltage to the specification requirements
Err46	Current detection failure	Current sampling circuit fault	Seek a service from the manufacturer
		Drive circuit failure	Seek a service from the manufacturer
Err11	External equipment failure 1	External fault input terminal 1 is closed	Disconnect the External fault terminal and clear the fault (pay attention to check the cause)
Err12	Communication failure	485 Communication failed	Check the 485 connection
Err13	Accumulated runtime arrives	The cumulative running time reaches the set value	Clear record by Parameter initialization function
Err15	External equipment failure 2	External fault input terminal 2 is closed	Disconnect the External fault terminal and clear the fault (pay attention to check the cause)
Err16	Power on time arrives	The cumulative power on time reaches the set value	Parameter initialization function clear records
Err17	Contact / relay failure	External equipment input terminal fault	Disconnect the External fault terminal and clear the fault (pay attention to check the cause)
Err08	Power module overheated	Bad cooling fan or overheated ambient temperature	Check the Fan or heat dissipation or wait for cool to try again
Err90	Switching motor fault at runtime	Poor contact of motor line or switch between motor and Inverter	The Inverter must be directly connected to the motor to check that the motor line is loose
Err91	Ground short circuit fault	Short to earth fault	Disconnect ground line (pay attention to check the cause)
Err92	Input phase loss	Check input power line	Seek a service from the manufacturer

Displays	Fault name	Possible cause of failure	Trouble shooting
Err93	Output phase loss	output power line loss or a phase circuit for detecting current is abnormal	Check the output voltage and Check output power line
Err94	Motor overspeed failure	Motor speed exceeds the normal speed	Check whether the load has other power
Err95	Speed deviation failure	The speed gap is too large than the normal speed	Check the motor load
Err96	PID feedback loss at runtime	Poor contact with the PID sensor signal	Check the sensor signal
Err97	Load drop fault	Motor line is disconnected	Check the motor line
Err98	Motor over temperature	The motor overheat	Check motor temperature
Err99	Motor tuning fault	The motor parameters are not set according to the nameplate or the motor line is in poor contact	Set the motor parameters according to the nameplate and check the lead from the Inverter to the motor
ErrH1	Water shortage	Water shortage failure	Check for lack of water
ErrH2	Full water early warning	The water is full	Restore normal water pressure
ErrH3	High water pressure failure	Force shutdown failure	Too high water pressure, check the water pressure

5. Setup Description

When the P17.00 is set to non-0 value,the parameter protection password is set.You must enter the password before modifying the parameters. Cancel the password, and the P17.00 needs to be set to 0.

The parameter menu in user custom parameter mode is not password protected.

P01～P23 group is basic function parameter,

P00 group is monitoring function parameter.

The symbols in the function table are described as follows:

″☆″: The set value of this parameter can be changed when the Inverter is Stop and Running state;

″★″: The set value of this parameter cannot be changed when the Inverter is in the running state;

″●″: The value of the parameter is the actual detected record value and cannot be changed;

″*″: It means that the parameter is the ″Manufacturer Parameter″ and is limited to the manufacturer setting to prohibit the user from operating.