# Inverter Operation Instructions

## AT901-7.5KW Vector Universal Inverter

**V1.0**

# A brief of the parameters table for the AT901-7.5KW 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

| Model | | AT901 series | | | Braking Resistor | |
|---|---|---|---|---|---|---|
| | | Adaptive motor | | Output Current:A | W | Ohm |
| | | KW | HP | | | |
| 220V | 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 |
| | **901-7K5G1** | **7.5** | **10** | **34.0** | **600** | **40** |

### 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% |
| | 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;<br>Manual torque increase: 0.1% -30.0% |

| Project | | Standard |
|---|---|---|
| | 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. |
| Oper ating | 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; |
| | 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 |

| Project | | Standard |
|---|---|---|
| | 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



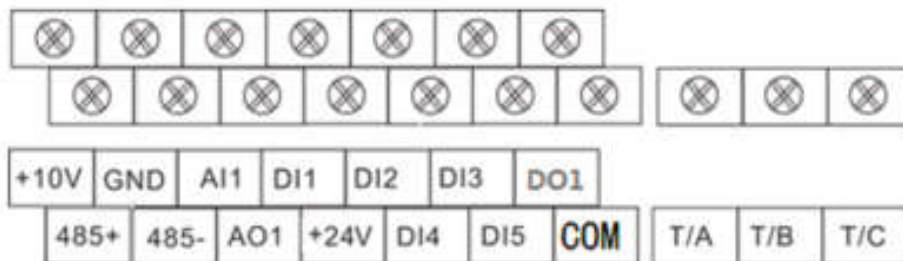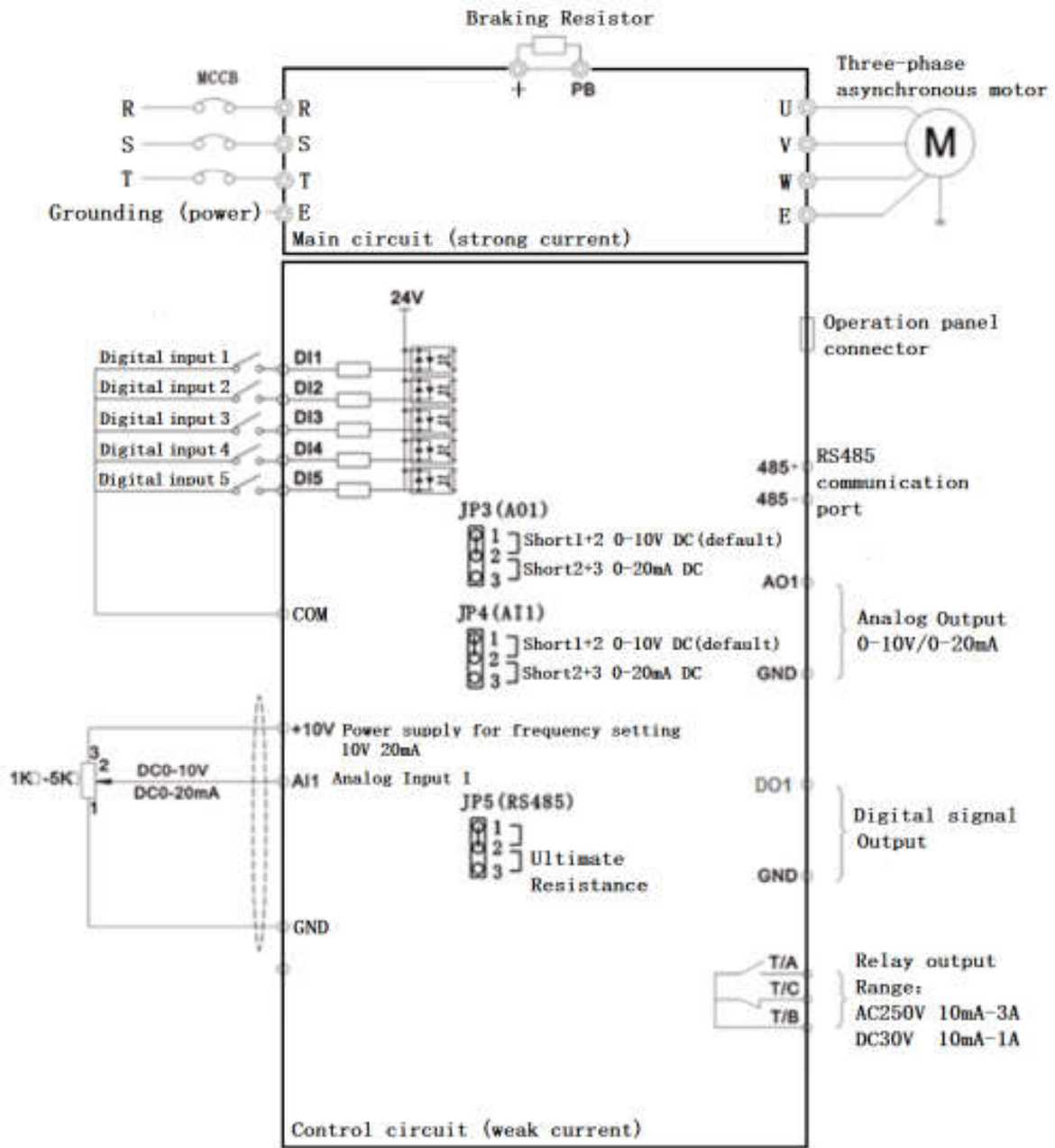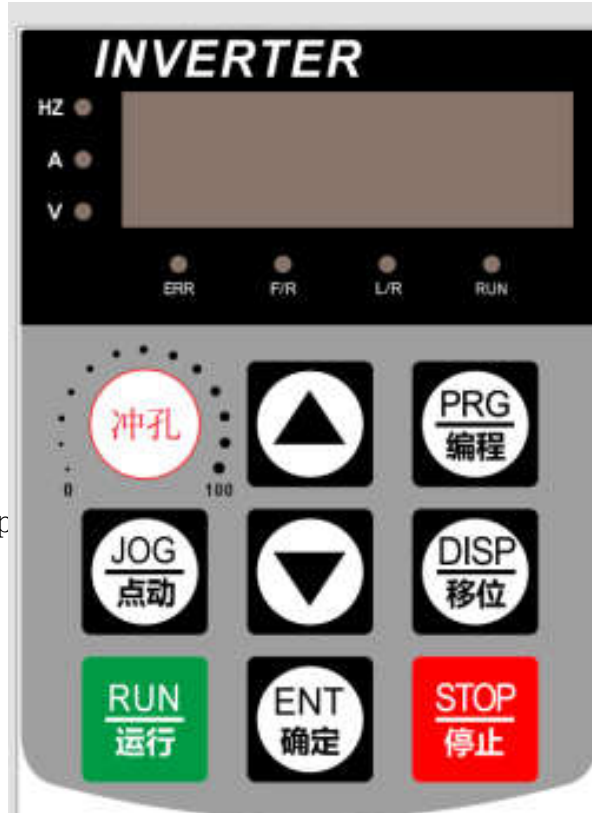Figure 1-3-1 0.75-11.0KW wiring diagram control terminal description

# 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<br>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<br>-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<br>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)<br>2: Type P (fan and water pump model) | 1 | ☆ |
| P01.01 | 1. Motor control mode | 0: Speed Sensorless Vector Control<br>2: V/F control model | 2 | ★ |
| P01.02 | Operation command channel | 0: Operation panel run command channel ("L/R" lights off)<br>1: Terminal Run channel ("L/R" lights on)<br>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)<br>1: Digital set (preset frequency P01.08, keypad ▲/▼ key,Power drop memory)<br>2: AI1 analog set (0-10V);<br>3: AI2 analog set(0-10V or 20mA);<br>4: Panel Potentiometer;<br>5: Pulse set (0～50KHZ DI5);<br>6: Multistage speed run set<br>7: Simple PLC set;<br>8: PID Control set;<br>9: Communication set. | 4 | ★ |
| P01.04 | Secondary frequency source Y | Same as P01.03 (Main frequency source X ) set | 0 | ★ |

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| P01.05 | Limit selection of Y when frequency superposition | 0: Compared to the 【P01.10】 Maximum frequency<br>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<br>0: Main frequency source X<br>1: Main and Secondary operation results (operation relationship is determined by Ten digits)<br>2: Main frequency X and Secondary frequency Y switch<br>3: Switch between main frequency X and Main and Secondary operation results<br>4: The frequency Y switches with Main and Secondary operation results<br>Ten digits: Frequency operation relationship of X and Y<br>0: X +Y                 1: X –Y<br>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<br>V/F:    50.00Hz ～ 2000.00Hz | 50.00 Hz | ★ |
| P01.11 | Upper limit frequency source | 0: 【P01.12】 Set up          1: AI1 Set up<br>2：AI2 Set up          3: AI3 Set up<br>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）<br>0.0s ～ 6500.0s（P01.19=1） | For Model | ☆ |
| P01.18 | Deceleration time 1 | 0s ～ 65000s（P01.19=0）<br>Reference frequency 【P01.25】 | | ☆ |
| P01.19 | Time unit of Acceleration and deceleration time | 0: 1    seconds<br>1: 0.1   seconds<br>2: 0.01 seconds | 1 | ☆ |
| P01.21 | Bias frequency of frequency Y when superposition | 0.00Hz ～ Maximum output frequency 【P01.10】 | 0.00Hz | ☆ |

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| 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, <br> 1: Motor parameter group 2. | 0 | ★ |
| P01.25 | Reference frequency of Acceleration and deceleration time | 0: Maximum frequency 【P01.10】 <br> 1: Setting frequency <br> 2:100Hz | 0 | ★ |
| P01.26 | Runtime frequency instruction UP/DOWN benchmark | 0: Operation frequency, <br> 1: Setting frequency | 0 | ★ |
| P01.27 | Command source bundled frequency source | **Single digit:** Operation Panel command binding frequency source selection <br> 0: No binding 1: Digital set <br> 2：AI1 3：AI2 4：AI3 <br> 5: Pulse set (0～50KHZ DI5); <br> 6: Multi segment speed; <br> 7: Simple PLC <br> 8:PID <br> 9: Communication Set <br> **Ten digit:** Terminal command binding frequency source selection <br> **100 digit:** communication command binding frequency source selection <br> **Thousand digit:** Automatically run the binding frequency source selection | 0000 | ☆ |

## P02 Asynchronous Motor parameter group 1

| P02.00 | Motor type | 0: Ordinary asynchronous motor, <br> 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 <br> (Inverter power <=55kW) <br> 0.1A ～ 6553.5A <br> (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) <br> 0.0001Ω ～ 6.5535Ω（Inverter power> 55kW) | Tuning Parameter | ★ |
| P02.07 | Rotor resistance of Motor | 0.001Ω ～ 65.535Ω（Inverter power <=55kW) <br> 0.0001Ω ～ 6.5535Ω（Inverter power> 55kW) | | ★ |
| P02.08 | Leak resistance of Motor | 0.01mH ～ 655.35mH（Inverter power <=55kW) <br> 0.001Mh ～ 65.535mH（Inverter power> 55kW) | | ★ |
| P02.09 | Mutual resistance of Motor | 0.1mH ～ 6553.5mH（Inverter power <=55kW) <br> 0.01mH ～ 655.35mH（Inverter power> 55kW) | | ★ |

| P02.10 | No-load current of the Motor | 0.01A ～ P02.03 （Inverter power <=55kW）<br>0.1A ～ P02.03　（Inverter power > 55kW） | | ★ |
|--------|------------------------------|-------------------------------------------------------------------------------------------|---|---|
| P02.37 | Tuning selection | 0: no-operation<br>1: Tuning at Motor stationary 1<br>2: Motor dynamic tuning<br>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<br>1：AI1;　　2：AI2;　　3：AI3;<br>4: Pulse set (DI5);<br>5: Communication Setting;<br>6: MIN (AI1, AI2)<br>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<br>1: Multipoint curve V/ F<br>2: Decreasing torque curve 1 (Square curve)<br>3: Decreasing torque curve 2 (1.2 power)<br>4: Decreasing torque curve 2 (1.4 power)<br>6: Decreasing torque curve 2 (1.6 power)<br>8: Decreasing torque curve 2 (1.8 power)<br>10: VF completely separation mode<br>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】<br>1: AI1　　2：AI2　　3：AI3<br>4: Pulse Setting (DI5)<br>5: Multiple instruction<br>6: Simple PLC<br>7: The PID<br>8: communication Setting<br>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<br>Note: Time when 0V rises to rated voltage of motor。 | 0.0s | ☆ |
| P04.16 | Voltage dorp time of VF separation | 0.0s ～ 1000.0s<br>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;<br>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,<br>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,<br>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;<br>1: Forward running(FWD) or Running; | 1 | ★ |
| P05.01 | DI2 terminal functional | 2:Reverse running (REV) or Forward/Reverse switch<br>3: three-wire running control<br>4: forward jog control (FJOG)<br>5: Reverse jog control (RJOG)<br>6: Freq. Increase(Terminal UP)<br>7: Freq. decrease(Terminal DOWN)<br>8: Free shutdown control<br>9: External reset signal input(RST)<br>10: Suspend operation;<br>11: External fault normally-open (NO) input<br>12: Multi-speed 1<br>13: Multi-speed 2 | 4 | ★ |
| P05.02 | DI3 terminal functional | 14: Multi-speed 3<br>15: Multi-speed 4<br>16: ACC/DEC time select 1( TT1)<br>17: ACC/DEC time select 2( TT2)<br>18: Frequency source switch<br>19: UP/DOWN Freq. zero clearing (terminal, keyboard)<br>20: Run command Switch terminal 1<br>21: VFD ACC/DEC prohibit<br>22: PID control Pause<br>23: PLC state reset<br>24: Pendulum frequency Pause<br>25: Counter input<br>26: Counter reset<br>27: Length count input<br>28: Length reset<br>29: Torque control Disable | 9 | ★ |

| | | | | |
|---|---|---|---|---|
| P05.03 | DI4 terminal functional | 30: Pulse Setting (only DI5 can setting, P05.04=30)<br>31: Reserved；<br>32: DC braking immediately；<br>33: External fault input（normally closed，NC）<br>34: Frequency modification Enables<br>35: PID input signal reversed;<br>36: External parking terminal 1<br>37: Run command Switch terminal 2<br>38: PID integral Pause;<br>39: Frequency X switches with the Preset frequency<br>40: Frequency Y switches with the Preset frequency<br>41: Motor selection terminal 1<br>43: The PID Parameters switch<br>44: User defined fault 1<br>45: User defined fault 2<br>46: Speed control / Torque control switch | 12 | ★ |
| P05.04 | DI5 terminal function<br>(only DI5 can setting Pulse function, P05.04=30) | 47: Emergency stop<br>48: External parking terminal 2<br>49: Slow ate DC braking<br>50: Run time cleared;<br>51: Two-wire control / Three-wire control switch<br>52: Reversal Disable; | 13 | ★ |
| P05.10 | DI filtering time | 0.000s ～ 1.000s | 0.010s | ☆ |
| P05.11 | Terminal control Mode | 0: Two-wire control mode 1,<br>1: Two-wire control mode 2,<br>2: Three-wire control mode 1,<br>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<br>1: AI curve 1<br>(2 PM, see P05.13 ~ P05.16.)<br>2: AI curve 2<br>(2 PM, see P05.18 ~ P05.21.)<br>3: AI curve 3<br>(2 PM, see P05.23 ~ P05.26.)<br>4: AI curve 4<br>(4 PM, see P24.00～P24.07)<br>5: AI curve 4<br>(4 PM, see P24.08～P24.15)<br>Ten bit: AI2 curve selection (the same as Single bit 1~5)<br>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<br>0: Corresponding value of Min. input<br>1: 0.0%<br>Ten bit: AI2 below Min. input setting<br>(the same as Single bit 1~2)<br>Hundred bit: AI3 below Min. input setting<br>(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<br>Single Bit: DI1;<br>Ten Bit: DI2;<br>Hundreds Bit: DI3;<br>Thousand Bit: DI4,<br>Ten thousand Bit: DI5 | 00000 | ★ |
| P05.39 | DI6-D17 terminal valid mode selection | 0: High level effective, 1: Low level effective<br>Single Bit: DI6,<br>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; <br> 2: Fault output (for free shutdown fault) <br> 3: Freq. level detection signal 1(P14T1) <br> 4: Frequency arrival indicator(FAR) <br> 5: VFD zero-speed running(When running) <br> 6: Motor overload Early-warning <br> 7: Inverter overload Early-warning <br> 8: The Set Count arrives <br> 9: The specified count is reached <br> 10: Length is reached <br> 11: The PLC cycle is completed <br> 12: Accumulated running time arrives <br> 13: Frequency limiting <br> 14: Torque limiting <br> 15: Ready to run <br> 16：AI1>AI2 <br> 17: Output freq. reaches Upper limit <br> 18: Output freq. reaches Lower limit(When running) <br> 19: Under pressure state output <br> 20: Communication setting <br> 21: Location is complete (reserved) <br> 22: Location proximity (reserved) <br> 23: Zero-speed running 2 (also output when shutdown) <br> 24: Accumulated power-on time arrives <br> 25: Freq. level detection signal 2(P14T2) <br> 26: Output freq. 1 reached <br> 27: Output freq. 2 reached <br> 28: Output Current 1 reached <br> 29: Output Current 2 reached <br> 30: Regularly reached <br> 31: Input signal AI1 overrun <br> 32: Load dropping <br> 33: VFD reverse running <br> 34: Zero-current state <br> 35: The Power module temperature arrives <br> 36: Output current out of limit <br> 37:Output freq. reaches Lower limit(shutdown also output) <br> 38: Fault output (all faults) <br> 39: Motor overheating Early-warning <br> 40: This running time arrives <br> 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.<br>2: Output current, 3: Output torque,<br>4: Output power, 5: Output voltage,<br>6: Input pulse freq.<br>7：AI1 8：AI2 9：AI3<br>10: Length 11: Count value | 0 | ☆ |
|---|---|---|---|---|
| P06.08 | AO2 output function selection | 12: Communication setting, 13: Motor speed<br>14: Output Current. (100.0% Corresponding to 1000.0A)<br>15: Output voltage (100.0% Corresponding to 1000.0V)<br>16: Motor output torque<br>(Percentage of actual value relative to motor rating)<br>17: VFD output torque<br>(Percentage of actual value relative to VFD rating) | 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<br>Single Bit: DO Ten bit: RELAY1<br>Hundred Bit: RELAY2 | 00000 | ☆ |
| **P07 group, Start and Stop control Parameters** | | | | |
| P07.00 | Starting mode | 0: Direct start<br>1: Start with speed tracking<br>2: DC braking + start at start frequency | 0 | ☆ |
| P07.01 | Speed tracking method | 0: Start with the shutdown frequency<br>1: Start with the working frequency<br>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<br>1: S curve Acc/Dec mode A<br>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<br>1: Switch between Remote Control (Terminal or Communication control) and Operation Panel Control, when 【P01.02】=1 or 2<br>2: FWD/REV switch<br>3: FJOG (Forward jog control)<br>4: RJOG (Reverse jog control) | 0 | ★ |
| P08.02 | STOP/RESET key function | 0: The STOP/RES key Only valid in panel control mode<br>1: The STOP/RES key Always valid | 1 | ☆ |
| P08.03 | LED displays parameter 1in Operation status | 0000 ～ FFFF<br>Bit00: Running Frequency 1 (Hz)<br>Bit01: Setting Frequency (Hz)<br>Bit02: Bus Voltage (V)<br>Bit03: Output Voltage (V)<br>Bit04: Output current (A)<br>Bit05: Output power (kW)<br>Bit06: Output torque (%)<br>Bit07: DI input status<br>Bit08: DO output status<br>Bit09: AI1 voltage (V)<br>Bit10: AI2 voltage (V)<br>Bit11: AI3 voltage (V)<br>Bit12: Count value<br>Bit13: Length value<br>Bit14: Load speed display<br>Bit15: PID settings | 1F | ☆ |
| P08.04 | LED displays parameter 2in Operation status | 0000 ～ FFFF<br>Bit00: PID feedback<br>Bit01: PLC stage<br>Bit02: PULSE Input frequency (kHz)<br>Bit03: Running Frequency 2 (Hz)<br>Bit04: Remaining runtime<br>Bit05:AI1-corrected front voltage (V)<br>Bit06:AI2-corrected front voltage (V)<br>Bit07:AI3-corrected front voltage (V)<br>Bit08: Line speed | 0 | ☆ |

| | | Bit09: Current Power Time (Hour)<br>Bit10: Current Runtime (Min)<br>Bit11:PULSE Input frequency (Hz)<br>Bit12: Communication Setting Value<br>Bit13: Encoder feedback speed (Hz)<br>Bit14: Main Frequency X Display (Hz)<br>Bit15: Secondary frequency Y Display (Hz) | | |
|---|---|---|---|---|
| P08.05 | LED displays parameter in Stop status | 0000 ～ FFFF<br>Bit00: Set Frequency (Hz)<br>Bit01: Bus Voltage (V)<br>Bit02: DI input status<br>Bit03: DO output status<br>Bit04: AI1 voltage (V)<br>Bit05: AI2 voltage (V)<br>Bit06: AI3 voltage (V)<br>Bit07: Count value<br>Bit08: Length value<br>Bit09: PLC stage<br>Bit10: Load speed<br>Bit11: PID settings<br>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<br><br>Recommended time:<br>0.4 ～ 4.0KW        7.5S<br>5.5 ～ 30.0KW       15.0S<br>37.0 ～ 132.0KW    40.0S<br>160.0～ 630.0KW   60.0S | 20.0s | ☆ |
| P09.02 | Jog Dec time | | 20.0s | ☆ |
| P09.03 | Acceleration time 2 | | | ☆ |
| P09.04 | Deceleration time 2 | | | ☆ |
| P09.05 | Acceleration time 3 | | | ☆ |
| P09.06 | Deceleration time 3 | | 15.0 | ☆ |
| 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<br>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% <br> 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) <br> 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,<br>1: AI1　　2: AI2　　3: AI3<br>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<br>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<br>0: Disable,　　　　　1: Enable<br>Ten Bit: Power relay pull in protection<br>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)<br>2: Over-current in Acc process<br>3: Over-current in Dec process<br>4: Over-current in constant speed<br>5: Over-voltage in Acc process<br>6: Over-voltage in Dec process<br>7: Over-voltage in constant speed<br>8: Buffer resistance overload<br>9: Under-voltage<br>10: VFD overload<br>11: Motor overload | — | ● |
| P10.16 | Third (most recent) fault type | 12: Input phase loss<br>13: Output phase loss<br>14: Power module is overheated<br>15: External fault<br>16: Communication exception<br>17: Power relay is abnormal<br>18: Abnormal current detection<br>19: Motor tuning is abnormal<br>21: Parameter read and write exception<br>22: Other Hardware abnormal<br>23: Motor short-circuit to ground<br>26: Run-time arrival<br>27: User Custom fault 1<br>28: User Custom fault 2<br>29: Power-on time arrives<br>30: Load drop<br>31: Runtime PID feedback is lost<br>40: Fast flow limit timeout<br>41: Switch the motor during operation<br>42: Speed deviation is too large<br>43: Motor over-speed | — | ● |
| 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)<br>Ten Bit:: User Custom fault 2 (Err28)<br>Hundred Bit: Power-on time arrives (Err29)<br>Thousand Bit: Load drop (Err30)<br>0: Coast to stop;<br>1: Stop by Stop mode【P07.10】<br>2: Jump to 7% of the Rated freq. of the Motor and keep running, Operate return to Set freq. when load recovery<br>Ten thousand Bit: PID feedback loss (Err31)<br>0: Coast to stop;<br>1: Stop by Stop mode【P07.10】<br>2: Keep running; | 00000 | ☆ |
| P10.50 | Fault protection action selection 4 | Single Bit: Speed deviation too large (Err42)<br>Ten Bit: Motor over-speed (Err43)<br>Hundred Bit: (Reserved)<br>Thousand Bit: Speed feedback error (Err52)<br>0: Coast to stop;<br>1: Stop by Stop mode【P07.10】<br>2: Keep running; | 00000 | ☆ |
| P10.54 | Keep running freq. selection when failure | 0: The current frequency<br>1: The setting frequency<br>2: Run at upper limit frequency<br>3: Run at lower limit frequency<br>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<br>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<br>1：AI1        2：AI2        3：AI3<br>4: Pulse Setting (DI5)<br>5: Communication Setting<br>6: Multistage speed<br>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<br>3: AI1-AI2<br>4: Pulse Setting (DI5)<br>5: Communication Setting<br>6：AI1+AI2<br>7：MAX（|AI1|, |AI2|）<br>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<br>1: Switch via the DI terminal<br>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<br>0: Invalid, 1: valid<br>Ten Bit: when the frequency reaches the limits<br>0: Continue integral regulation,<br>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,<br>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】<br>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) | | 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) | -100.0% ～ 100.0%(Max freq【P01.10】) | 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<br>1: Final value at end of single operation<br>2: Always cycle | 0 | ☆ |
|---|---|---|---|---|
| P13.17 | PLC running state saving after power off | Single Bit: when Power drop<br>Ten Bit: when Stop<br>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)<br>1: h (hours) | 0 | ☆ |

| | | | | |
|---|---|---|---|---|
| P13.51 | Signal source of Multistage speed 0 (MS0) | 0: Parameter 【P13.00】<br>1: AI1　　　2: AI2　　　3: AI3<br>4: Pulse（DI5）　　　　　5: PID<br>6: Preposition frequency 【P01.08】<br>7: Can be modified by ▲/▼ key | 0 | ☆ |

### P14 group RS485 Communication parameters

| | | | | |
|---|---|---|---|---|
| P14.00 | Baud rate setting for RS485 | Single Bit: MODBUS<br>0：300BPS　1：600BPS<br>2：1200BPS　3：2400BPS<br>4：4800BPS　5：9600BPS<br>6：19200BPS　7：38400BPS<br>8：57600BPS　9：115200BPS | 5 | ☆ |
| P14.01 | MODBUS Data format | 0: No check (8.N-2)　　　1: Parity check (8.E-1)<br>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<br>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<br>1: One drive two pumps<br>2: Water supply in the building community<br>3: Hotel water supply<br>4: Fire water supply<br>5: Booster pump<br>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)<br>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<br>Open the water Intake start-stop control via P01.02=3<br>The water inlet must use the current sensor of the AI2<br>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<br>When reaches the value, the Relay will ON | 50.00 | ☆ |
| P15.18 | RO1 Relay OFF frequency setting | 0~50HZ<br>When reaches the value, the Relay will OFF | 30.00 | ☆ |
| P15.19 | Signal source of **Water level controller** | 0: Function is not valid<br>1: AI1　　　　　2：AI2　　　　　3: AI3<br>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%<br>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<br>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.<br>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;<br>1: Enable, and judge by frequency and pressure | 0 | ☆ |
| P15.25 | Water shortage fault check value | 0.00 ～ Setting value KG (Bar/0.1Mpa)<br>Valid when the P15.19=1,<br>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<br>Valid when the P15.19=1<br>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 | ☆ |

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| P15.27 | Delay time of water shortage protection detection | 0～6553.5S<br>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<br>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<br>0.1.10.0秒 | 2.0S | ☆ |
| P15.33 | Sleep mode | 0: Disable<br>1: Sleep when pressure is greater than sleep pressure;<br>2: Sleep when running frequency is less than sleep frequency (affected by P15.29)<br>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<br>01: Restore factory parameters, excluding motor parameters<br>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)<br>1：AI1          2：AI2          3: AI3<br>4: PLUSE Setting<br>5: Communication setting<br>6: MIN (AI1, AI2)<br>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, <br> 1: Synchronous modulation | 0 | ☆ |
| P23.03 | Random PWM depth | 0: Invalid Random PWM <br> 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 | 270V | ★ |
| 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.