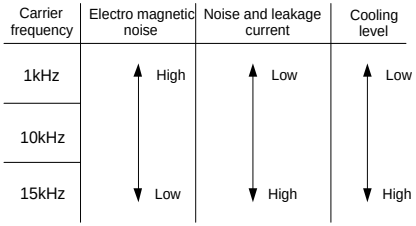
can be modified at any time; user password is subject to the last input. User password can be cancelled by setting P07.00 to 0; if P01.00 is set to a non-zero value, the parameter will be protected by password. When modifying function parameters through serial communication, the function of user password also follows above rules.

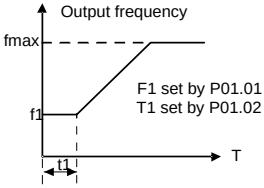
Function code	Name	Detailed parameter description	Default value	Modify
P00 group Basic functions				
P00.00	Speed control mode	0:SVC 0 1:SVC 1 2:SVPWM 3:VC **Note:** If 0, 1 or 3 is selected, it is required to carry out motor parameter autotuning first.	2	◎
P00.01	Running command channel	0: Keypad 1: Terminal 2: Communication	0	○
P00.02	Communication running command channel	0: MODBUS 1: PROFIBUS/CANopen/Devicenet 2: Ethernet 3: EtherCat/Profinet 4: PLC programmable card 5: Wireless communication card **Note:** 1, 2, 3, 4 and 5 are extended functions which are applicable with corresponding cards.	0	○
P00.03	Max. output frequency	Used to set the max. output frequency of the inverter. It is the basis of frequency setup and the acceleration/deceleration. Setting range: Max (P00.04, 10.00) –630.00Hz	50.00Hz	◎
P00.04	Upper limit of running frequency	The upper limit of running frequency is upper limit value of inverter output frequency. This value should be no more than the max. output frequency. When the set frequency is higher than the upper limit frequency, the inverter runs at the upper limit frequency. Setting range: P00.05–P00.03 (max. output frequency)	50.00Hz	◎
P00.05	Lower limit of running frequency	The lower limit of running frequency is the lower limit value of inverter output frequency. When the set frequency is lower than the lower limit frequency, the inverter runs at the lower limit	0.00Hz	◎

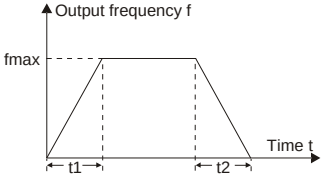
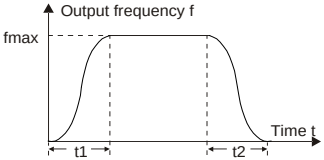
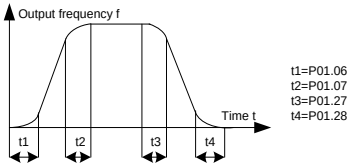
Function code	Name	Detailed parameter description	Default value	Modify
		frequency. **Note: Max. output frequency ≥ upper limit frequency ≥ lower limit frequency.** Setting range: 0.00Hz–P00.04 (upper limit of running frequency)		
P00.06	A frequency command selection	0: Set via keypad 1: Set via AI1 2: Set via AI2	0	○
P00.07	B frequency command selection	3: Set via AI3 4: Set via high speed pulse HDIA 5: Set via simple PLC program 6: Set via multi-step speed running 7: Set via PID control 8: Set via MODBUS communication 9: Set via PROFIBUS / CANopen / DeviceNet communication 10: Set via Ethernet communication 11: Set via high speed pulse HDIB 12: Set via pulse string AB 13: Set via EtherCat/Profinet communication 14: Set via PLC card 15: Reserved	15	○
P00.08	Reference object of B frequency command	0: Max. output frequency 1: A frequency command	0	○
P00.09	Combination mode of setting source	0: A 1: B 2: (A+B) 3: (A-B) 4: Max. (A, B) 5: Min. (A, B)	0	○
P00.10	Set frequency via keypad	When A and B frequency commands are set by keypad, the value is the initial digital set value of the inverter frequency. Setting range: 0.00 Hz–P00.03 (max. output frequency)	50.00Hz	○
P00.11	Acceleration time 1	Acceleration time is the time needed for accelerating	Depend on model	○

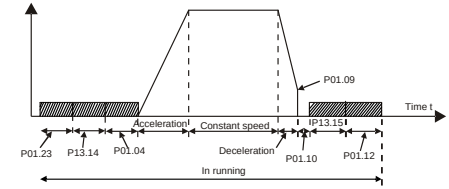
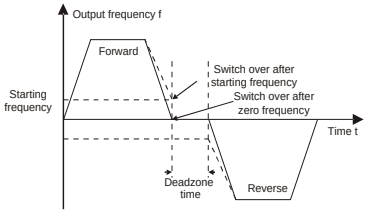
<table>
<tr><th>Function code</th><th>Name</th><th>Detailed parameter description</th><th>Default value</th><th>Modify</th></tr>
<tr><td>P00.12</td><td>Deceleration time 1</td><td>from 0Hz to max. output frequency (P00.03).
Deceleration time is the time needed from decelerating from max. output frequency (P00.03) to 0Hz.
The Goodrive350 IP54 high-ingress protection series inverter defines four groups of acceleration and deceleration time, which can be selected via multi-function digital input terminals (P05 group). The acceleration/deceleration time of the inverter is the first group by default.
Setting range of P00.11 and P00.12: 0.0–3600.0s</td><td>Depend on model</td><td>○</td></tr>
<tr><td>P00.13</td><td>Running direction</td><td>0: Run in default direction
1: Run in reverse direction
2: Reverse running is prohibited</td><td>0</td><td>○</td></tr>
<tr><td>P00.14</td><td>Carrier frequency setup</td><td> 

The relation between the model and carrier frequency is shown below.
<table>
<tr><th colspan="2">Model</th><th>Default value of carrier frequency</th></tr>
<tr><td rowspan="2">380V</td><td>004G/5R5P-011G/015P</td><td>8kHz</td></tr>
<tr><td>015G/018P-022G/030P</td><td>4kHz</td></tr>
</table>
Advantages of high carrier frequency are as follows: ideal current waveform, few current harmonics and small motor noise.
Disadvantages of high carrier frequency are as follows: growing switch consumption, enlarged temperature rise, impacted output capacity; under high carrier frequency, the inverter needs to be derated for use, meanwhile, the leakage current will</td><td>Depend on model</td><td>○</td></tr>
</table>

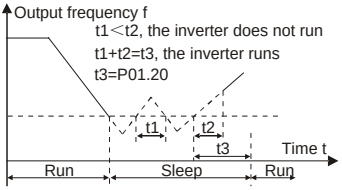
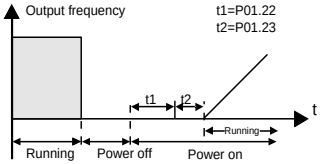
Function code	Name	Detailed parameter description	Default value	Modify
		increase, which increases electromagnetic interference to the surroundings. While low carrier frequency is the contrary. Low carrier frequency will cause unstable operation at low frequency, decrease the torque, or even lead to oscillation. The carrier frequency of inverter is set properly by default, and it should not be changed by users at will. If the default carrier frequency is exceeded during use, derating is required, derate by 10% for every additional 1k carrier frequency. Setting range: 1.2–15.0kHz		
P00.15	Motor parameter autotuning	0: No operation 1: Rotary autotuning; carry out comprehensive motor parameter autotuning; rotary autotuning is used in cases where high control precision is required; 2: Static autotuning 1 (comprehensive autotuning); static autotuning 1 is used in cases where the motor cannot be disconnected from load; 3: Static autotuning 2 (partial autotuning) ; when current motor is motor 1, only P02.06, P02.07 and P02.08 will be autotuned; when current motor is motor 2, only P12.06, P12.07 and P12.08 will be autotuned.	0	◎
P00.16	AVR function	0: Invalid 1: Valid during the whole process Automatic voltage regulation function is used to eliminate the impact on the output voltage of inverter when bus voltage fluctuates.	1	○
P00.17	Reserved	Reserved		
P00.18	Function parameter restoration	0: No operation 1: Restore to default value 2: Clear fault history Note: After the selected function operations are done, this function code will be restored to 0 automatically. Restoration to default value will clear the user password, this function should be used with caution.	0	◎

Function code	Name	Detailed parameter description	Default value	Modify
P01 group Start/stop control				
P01.00	Running mode of start	0: Direct start 1: Start after DC brake 2: Start after speed-tracking 1 3: Start after speed-tracking 2	0	◎
P01.01	Starting frequency of direct start	Starting frequency of direct startup is the initial frequency when the inverter starts. See P01.02 (hold time of starting frequency) for details. Setting range: 0.00–50.00Hz	0.50Hz	◎
P01.02	Hold time of starting frequency	 A proper starting frequency can increase the torque during startup. Within the hold time of starting frequency, the output frequency of inverter is the starting frequency, and then it runs from the starting frequency to the target frequency, if the target frequency (frequency command) is below the starting frequency, the inverter will be standby rather than running. The starting frequency value is unlimited by the lower limit frequency. Setting range: 0.0–50.0s	0.0s	◎
P01.03	DC brake current before start	During starting, the inverter will first perform DC brake based on the set DC brake current before startup, and then it will accelerate after the set DC brake time before startup elapses. If the set DC brake time is 0, DC brake will be invalid. The larger the DC brake current, the stronger the brake force. The DC brake current before startup refers to the percentage relative to rated inverter current. Setting range of P01.03: 0.0–100.0% Setting range of P01.04: 0.00–50.00s	0.0%	◎
P01.04	DC brake time before start		0.00s	◎
P01.05	Acceleration/deceleration mode	This function code is used to select the frequency variation mode during starting and running.	0	◎

Function code	Name	Detailed parameter description	Default value	Modify
		0: Straight line; the output frequency increases or decreases in straight line;  1: S curve; the output frequency increases or decreases in S curve; S curve is generally used in cases where smooth start/stop is required, eg, elevator, conveyer belt, etc.  **Note: When set to 1, it is required to set P01.06, P01.07, P01.27 and P01.28 accordingly.**		
P01.06	Time of starting section of acceleration S curve	The curvature of S curve is determined by acceleration range and acceleration and deceleration time.  Setting range: 0.0–50.0s	0.1s	◎
P01.07	Time of ending section of acceleration S curve		0.1s	◎
P01.08	Stop mode	0: Decelerate to stop; after stop command is valid, the inverter lowers output frequency based on the deceleration mode and the defined deceleration time, after the frequency drops to the stop speed (P01.15), the inverter stops. 1: Coast to stop; after stop command is valid, the inverter stops output immediately, and the load coasts to stop as per mechanical inertia.	0	○
P01.09	Starting	Starting frequency of DC brake after stop; during	0.00Hz	○

Function code	Name	Detailed parameter description	Default value	Modify
	frequency of DC brake after stop	decelerating to stop, when this frequency is reached, DC brake will be performed after stop.		
P01.10	Waiting time of DC brake after stop	Demagnetization time (waiting time of DC brake after stop): Before the DC brake, the inverter will block output, and after the demagnetization time elapses,	0.00s	○
P01.11	DC brake current of stop	DC brake will start. This function is used to prevent overcurrent fault caused by DC brake during high	0.0%	○
P01.12	DC brake time of stop	speed. DC brake current after stop: it means the DC brake force applied, the larger the current, the stronger the DC brake effect.  Setting range of P01.09: 0.00Hz–P00.03 (max. output frequency) Setting range of P01.10: 0.00–30.00s Setting range of P01.11: 0.0–100.0% Setting range of P01.12: 0.0–50.0s	0.00s	○
P01.13	Deadzone time of forward/reverse rotation	This function code refers to the transition time of the threshold set by P01.14 during setting forward/reverse rotation of the inverter, as shown below.  Setting range: 0.0–3600.0s	0.0s	○
P01.14	Forward/reverse rotation switch-over mode	0: Switch over after zero frequency 1: Switch over after starting frequency 2: Switch over after passing stop speed and delay	0	◎
P01.15	Stop speed	0.00–100.00Hz	0.50Hz	◎
P01.16	Stop speed	0: Set value of speed (the only detection mode valid	0	◎

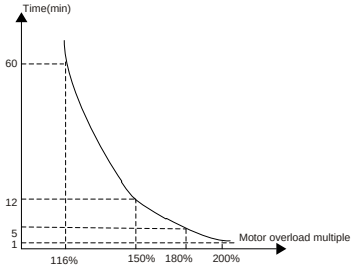
Function code	Name	Detailed parameter description	Default value	Modify
	detection mode	in SVPWM mode) 1: Detection value of speed		
P01.17	Stop speed detection time	0.00–100.00s	0.50s	◎
P01.18	Running protection of power-on terminal	When the running command channel is controlled by terminals, the system will detect running terminal state automatically during power up. 0: Terminal running command is invalid during power up. The inverter will not run during power up even if the running command terminal is detected to be valid, and the system is in running protection state. The inverter will run only after this terminal is cancelled and enabled again. 1: Terminal running command is valid during power up. The system will start the inverter automatically after initialization is done if the running command terminal is detected to be valid during power up. Note: This function must be set with caution, otherwise, serious consequences may occur.	0	○
P01.19	Action selection when the running frequency is below lower limit (lower limit should be larger than 0)	This function code is used to set the running state of inverter when the set frequency is below lower limit frequency. 0: Run in lower limit of the frequency 1: Stop 2: Sleep When the set frequency is below lower limit frequency, the inverter coasts to stop; when the set frequency is above lower limit again and continues to be so after the time set by P01.20 elapses, the inverter will be restored to running state automatically.	0	◎
P01.20	Wake-up-from-sleep delay	This function code is used to set the sleep delay. When the running frequency of inverter is below the lower limit frequency, the inverter enters sleep state; when the set frequency is above the lower limit again and continues to be so after the time set by P01.20 elapses, the inverter will run automatically.	0.0s	○

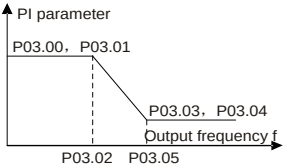
Function code	Name	Detailed parameter description	Default value	Modify
		 Setting range: 0.0–3600.0s (valid when P.01.19 is 2)		
P01.21	Restart after power cut	This function code sets the automatic running of the inverter at next power-on after power down. 0: Disabled restart 1: Enable restart, namely the inverter will run automatically after the time set by P01.22 elapses if the starting conditions are met.	0	○
P01.22	Waiting time of restart after power cut	This function code sets the waiting time before automatically running at next power-on after power down.  Setting range: 0.0–3600.0s (valid when P01.21 is 1)	1.0s	○
P01.23	Start delay	This function code sets the delay of the inverter's wake-up-from-sleep after running command is given, the inverter will start to run and output after the time set by P01.23 elapses to realize brake release. Setting range: 0.0–600.0s	0.0s	○
P01.24	Stop speed delay	0.0–600.0s	0.0s	○
P01.25	Open-loop 0Hz output selection	0: No voltage output 1: With voltage output 2: Output as per DC brake current of stop	0	○
P01.26	Deceleration time of emergency-stop	0.0–60.0s	2.0s	○
P01.27	Time of starting section of deceleration S curve	0.0–50.0s	0.1s	◎

Function code	Name	Detailed parameter description	Default value	Modify
P01.28	Time of ending section of deceleration S curve	0.0–50.0s	0.1s	◎
P01.29	Short-circuit brake current	When the inverter starts in direct start mode (P01.00=0), set P01.30 to a non-zero value to enter short-circuit brake. During stop, if the running frequency of inverter is below the starting frequency of brake after stop, set P01.31 to a non-zero value to enter short-circuit brake after stop, and then carry out DC brake in the time set by P01.12 (refer to P01.09–P01.12). Setting range of P01.29: 0.0–150.0% (inverter) Setting range of P01.30: 0.0–50.0s Setting range of P01.31: 0.0–50.0s	0.0%	○
P01.30	Hold time of short-circuit brake at startup		0.00s	○
P01.31	Hold time of short-circuit brake at stop		0.00s	○
P01.32–P01.34	Reserved variables	0–65535	0	●
P02 group Parameters of motor 1				
P02.00	Type of motor 1	0: Asynchronous motor 1: Synchronous motor	0	◎
P02.01	Rated power of asynchronous motor 1	0.1–3000.0kW	Depend on model	◎
P02.02	Rated frequency of asynchronous motor 1	0.01Hz–P00.03 (max. output frequency)	50.00Hz	◎
P02.03	Rated speed of asynchronous motor 1	1–36000rpm	Depend on model	◎
P02.04	Rated voltage of asynchronous motor 1	0–1200V	Depend on model	◎
P02.05	Rated current of asynchronous motor 1	0.8–6000.0A	Depend on model	◎
P02.06	Stator resistance of asynchronous motor 1	0.001–65.535Ω	Depend on model	○

Function code	Name	Detailed parameter description	Default value	Modify
P02.07	Rotor resistance of asynchronous motor 1	0.001–65.535Ω	Depend on model	○
P02.08	Leakage inductance of asynchronous motor 1	0.1–6553.5Mh	Depend on model	○
P02.09	Mutual inductance of asynchronous motor 1	0.1–6553.5Mh	Depend on model	○
P02.10	No-load current of asynchronous motor 1	0.1–6553.5A	Depend on model	○
P02.11	Magnetic saturation coefficient 1 of iron core of asynchronous motor 1	0.0–100.0%	80.0%	○
P02.12	Magnetic saturation coefficient 2 of iron core of asynchronous motor 1	0.0–100.0%	68.0%	○
P02.13	Magnetic saturation coefficient 3 of iron core of asynchronous motor 1	0.0–100.0%	57.0%	○
P02.14	Magnetic saturation coefficient 4 of iron core of asynchronous motor 1	0.0–100.0%	40.0%	○

Function code	Name	Detailed parameter description	Default value	Modify
P02.15	Rated power of synchronous motor 1	0.1–3000.0KW	Depend on model	◎
P02.16	Rated frequency of synchronous motor 1	0.01Hz–P00.03 (max. output frequency)	50.00Hz	◎
P02.17	Number of pole pairs of synchronous motor 1	1–128	2	◎
P02.18	Rated voltage of synchronous motor 1	0–1200V	Depend on model	◎
P02.19	Rated current of synchronous motor 1	0.8–6000.0A	Depend on model	◎
P02.20	Stator resistance of synchronous motor 1	0.001–65.535Ω	Depend on model	○
P02.21	Direct-axis inductance of synchronous motor 1	0.01–655.35Mh	Depend on model	○
P02.22	Quadrature-axis inductance of synchronous motor 1	0.01–655.35Mh	Depend on model	○
P02.23	Counter-emf constant of synchronous motor 1	0–10000	300	○
P02.24	Initial pole position of synchronous motor 1 (reserved)	0x0000–0xFFFF	0	●
P02.25	Identification current of	0%–50% (rated motor current)	10%	●

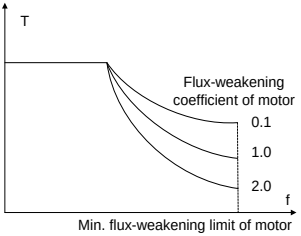
Function code	Name	Detailed parameter description	Default value	Modify
	synchronous motor 1 (reserved)			
P02.26	Overload protection of motor 1	0: No protection 1: Common motor (with low-speed compensation). As the cooling effect of common motor will be degraded in low speed, the corresponding electronic thermal protection value should also be adjusted properly, the low compensation here means to lower the overload protection threshold of the motor whose running frequency is below 30Hz. 2: Frequency-variable motor (without low speed compensation). As the cooling effect of frequency-variable motor is not affected by the rotating speed, there is no need to adjust the protection value during low speed running.	2	◎
P02.27	Overload protection coefficient of motor 1	Motor overload multiples M=Iout/(In×K) In is rated motor current, Iout is inverter output current, K is motor overload protection coefficient. The smaller the K, the larger the value of M, and the easier the protection. M=116%: protection will be applied when motor overloads for 1h; M=150%: protection will be applied when motor overloads for 12min; M=180%: protection will be applied when motor overloads for 5min; M>=400%: protection will be applied immediately  Setting range: 20.0%–120.0%	100.0%	○
P02.28	Power display calibration	This function adjusts the power display value of motor 1 only, and it does not affect the control	1.00	○

Function code	Name	Detailed parameter description	Default value	Modify
	coefficient of motor 1	performance of the inverter. Setting range: 0.00–3.00		
P02.29	Parameter display of motor 1	0: Display as per motor type; under this mode, only parameters related to current motor type will be displayed. 1: Display all; under this mode, all the motor parameters will be displayed.	0	○
P02.30	System inertia of motor 1	0–30.000kgm2	0	○
P02.31–P02.32	Reserved variables	0–65535	0	○
P03 group Vector control of motor 1				
P03.00	Speed loop proportional gain 1	Parameters of P03.00–P03.05 fit for vector control mode only. Below P03.02, speed loop PI parameter is P03.00 and P03.01; above P03.06, speed loop PI parameter is P03.03 and P03.04; in between, PI parameter is obtained by linear variation between two groups of parameters, as shown below.  	20.0	○
P03.01	Speed loop integral time 1		0.200s	○
P03.02	Switch low point frequency		5.00Hz	○
P03.03	Speed loop proportional gain 2		20.0	○
P03.04	Speed loop integral time 2		0.200s	○
P03.05	Switch over high point frequency	The speed loop dynamic response characteristics of vector control can be adjusted by setting the proportional coefficient and integral time of speed regulator. Increase proportional gain or decrease integral time can accelerate dynamic response of speed loop, however, if the proportional gain is too large or integral time is too small, system oscillation and overshoot may occur; if proportional gain is too small, stable oscillation or speed offset may occur. Speed loop PI parameter is closely related to the system inertial, users should make adjustment based on default PI parameter according to different load characteristics to fulfill different needs. Setting range of P03.00:0.0–200.0; Setting range of P03.01: 0.000–10.000s	10.00Hz	○

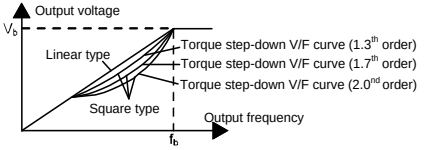
Function code	Name	Detailed parameter description	Default value	Modify
		Setting range of P03.02: 0.00Hz–P03.05 Setting range of P03.03: 0.0–200.0 Setting range of P03.04: 0.000–10.000s Setting range of P03.05: P03.02–P00.03 (max. output frequency)		
P03.06	Speed loop output filter	0–8 (corresponds to 0–2^8/10ms)	0	○
P03.07	Vector control slip compensation coefficient (motoring)	Slip compensation coefficient is used to adjust the slip frequency of vector control to improve speed control precision. This parameter can be used to control speed offset. Setting range: 50–200%	100%	○
P03.08	Vector control slip compensation coefficient (generating)		100%	○
P03.09	Current loop proportional coefficient P	**Note:** 1. These two parameters are used to adjust PI parameters of current loop; it affects dynamic response speed and control precision of the system directly. The default value needs no adjustment under common conditions; 2. Fit for SVC mode 0 (P00.00=0) and VC mode (P00.00=3); 3. The value of this function code will be updated automatically after parameter autotuning of synchronous motor is done. Setting range: 0–65535	1000	○
P03.10	Current loop integral coefficient I		1000	○
P03.11	Torque setup mode selection	0–1: Set via keypad (P03.12) 2: Set via AI1 (100% corresponds to three times of rated motor current) 3: Set via AI2 (the same as above) 4: Set via AI3 (the same as above) 5: Set via pulse frequency HDIA (the same as above) 6: Set via multi-step torque (the same as above) 7: Set via MODBUS communication (the same as above)	0	○

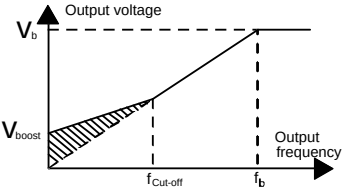
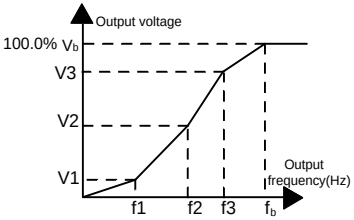
Function code	Name	Detailed parameter description	Default value	Modify
		8: Set via PROFIBUS/CANopen/DeviceNet communication (the same as above) 9: Set via Ethernet communication (the same as above) 10: Set via pulse frequency HDIB (the same as above) 11: Set via EtherCat/Profinet communication 12: Set via PLC		
P03.12	Torque set by keypad	-300.0%–300.0% (rated motor current)	20.0%	○
P03.13	Torque reference filter time	0.000–10.000s	0.010s	○
P03.14	Source of upper limit frequency setup of forward rotation in torque control	0: Keypad (P03.16) 1: AI1 (100% corresponds to max. frequency) 2: AI2 (the same as above) 3: AI3 (the same as above) 4: Pulse frequency HDIA (the same as above) 5: Multi-step (the same as above) 6: MODBUS communication (the same as above) 7: PROFIBUS /CANopen/ DeviceNet communication (the same as above) 8: Ethernet communication (the same as above) 9: Pulse frequency HDIB (the same as above) 10: EtherCat/Profinet communication 11: PLC 12: Reserved	0	○
P03.15	Source of upper limit frequency setup of reverse rotation in torque control	0: Keypad (P03.17) 1: AI1 (100% corresponds to max. frequency) 2: AI2 (the same as above) 3: AI3 (the same as above) 4: Pulse frequency HDIA (the same as above) 5: Multi-step (the same as above) 6: MODBUS communication (the same as above) 7: PROFIBUS /CANopen/ DeviceNet communication (the same as above) 8: Ethernet communication (the same as above) 9: Pulse frequency HDIB (the same as above) 10: EtherCat/Profinet communication 11: PLC	0	○

Function code	Name	Detailed parameter description	Default value	Modify
		12: Reserved **Note:** Source 1-11, 100% relative to the max. frequency		
P03.16	Keypad limit value of upper limit frequency of forward rotation in torque control	This function code is used to set frequency limit. 100% corresponds to the max. frequency. P03.16 sets the value when P03.14=1; P03.17 sets the value when P03.15=1. Setting range: 0.00Hz–P00.03 (max. output frequency)	50.00Hz	○
P03.17	Max. output frequency		50.00Hz	○
P03.18	Source of upper limit setup of the torque during motoring	0: Keypad (P03.20) 1: AI1 (100% relative to three times of motor current) 2: AI2 (the same as above) 3: AI3 (the same as above) 4: Pulse frequency HDIA (the same as above) 5: MODBUS communication (the same as above) 6: PROFIBUS/CANopen/DeviceNet communication (the same as above) 7: Ethernet communication (the same as above) 8: Pulse frequency HDIB (the same as above) 9: EtherCat/Profinet communication 10: PLC 11: Reserved	0	○
P03.19	Source of upper limit setup of brake torque	0: Keypad (P03.21) 1: AI1 (100% relative to three times of motor current) 2: AI2 (the same as above) 3: AI3 (the same as above) 4: Pulse frequency HDIA (the same as above) 5: MODBUS communication (the same as above) 6: PROFIBUS/CANopen/DeviceNet communication (the same as above) 7: Ethernet communication (the same as above) 8: Pulse frequency HDIB (the same as above) 9: EtherCat/Profinet communication 10: PLC 11: Reserved	0	○
P03.20	Set upper limit of the torque when motoring via	This function code is used to set torque limit. Setting range: 0.0–300.0% (rated motor current)	180.0%	○

Function code	Name	Detailed parameter description	Default value	Modify
	keypad			
P03.21	Set upper limit of brake torque via keypad		180.0%	○
P03.22	Flux-weakening coefficient of constant-power zone	Used when asynchronous motor is in flux-weakening control.  P03.22 and P03.23 are valid during constant power. When motor speed is above rated speed, motor enters flux-weakening running state. The flux-weakening control coefficient can change the flux-weakening curvature, the larger the coefficient, the steeper the curve, the smaller the coefficient, the smoother the curve. Setting range of P03.22: 0.1–2.0 Setting range of P03.23: 10%–100%	0.3	○
P03.23	Min. flux-weakening point of constant-power zone		20%	○
P03.24	Max. voltage limit	P03.24 sets the max. output voltage of the inverter, which is the percentage of rated motor voltage. This value should be set according to field conditions. Setting range:0.0–120.0%	100.0%	○
P03.25	Pre-exciting time	Carry out motor pre-exciting during starting to build a magnetic field inside the motor to improve the torque characteristics of motor during starting. Setting range: 0.000–10.000s	0.300s	○
P03.26	Flux-weakening proportional gain	0–8000	1000	○
P03.27	Vector control speed display	0: Display as per actual value 1: Display as per the set value	0	○
P03.28	Static friction compensation coefficient	0.0–100.0%	0.0%	○
P03.29	Corresponding	0.50– P03.31	1.00Hz	○

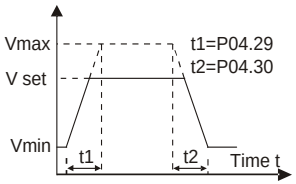
Function code	Name	Detailed parameter description	Default value	Modify
	frequency point of static friction			
P03.30	High speed friction compensation coefficient	0.0–100.0%	0.0%	○
P03.31	Corresponding frequency of high speed friction torque	P03.29–400.00Hz	50.00Hz	○
P03.32	Torque control enable	0:Disable 1:Enable	0	◎
P03.33–P03.35	Reserved variables	0–65535	0	●
P03.36	Speed loop differential gain	0.00–10.00s	0.00s	○
P03.37	High-frequency current loop proportional coefficient	Under closed-loop vector control mode (P00.00=3) and P03.39, the current loop PI parameters are P03.09 and P03.10; above P03.39, the PI parameters are P03.37 and P03.38. Setting range of P03.37: 0–20000 Setting range of P03.38: 0–20000 Setting range of P03.39: 0.0–100.0% (relative to max. frequency)	1000	○
P03.38	High-frequency current loop integral coefficient		1000	○
P03.39	Current loop high-frequency switch-over point		100.0%	○
P03.40	Inertia compensation enable	0: Disable 1: Enable	0	○
P03.41	Upper limit of inertia compensation torque	Limit the max. inertia compensation torque to prevent inertia compensation torque from being too large. Setting range: 0.0–150.0% (rated motor torque)	10.0%	○
P03.42	Inertia compensation filter times	Filter times of inertia compensation torque, used to smooth inertia compensation torque. Setting range: 0–10	7	○
P03.43	Inertia	Due to friction force, it is required to set certain	10.0%	○

Function code	Name	Detailed parameter description	Default value	Modify
	identification torque value	identification torque for the inertia identification to be performed properly. 0.0–100.0% (rated motor torque)		
P03.44	Enable inertia identification	0: No operation 1: Start identification	0	◎
P03.45–P03.46	Reserved variables	0–65535	0	●
P04 group V/F control				
P04.00	V/F curve setup of motor 1	This group of function code defines the V/F curve of motor 1 to satisfy different load characteristics needs. 0: Straight V/F curve; fit for constant-torque load 1: Multi-point V/F curve 2: Torque down V/F curve (1.3^{th} order) 3: Torque down V/F curve (1.7^{th} order) 4: Torque down V/F curve (2.0^{nd} order) Curve 2–4 are suitable for torque-variable load of fan pump and similar equipment. Users can make adjustment based on load characteristics to achieve optimal energy-saving effect. 5: Customized V/F (V/F separation); under this mode, V is separated from f. Users can adjust f through the frequency reference channel set by P00.06 to change the curve characteristic, or adjust V through the voltage reference channel set by P04.27 to change the curve characteristics. **Note: The V_b** in the figure below corresponds to rated motor voltage, and **f_b** corresponds to rated motor frequency. 	0	◎
P04.01	Torque boost of motor 1	In order to compensate for low-frequency torque characteristics, users can make some boost compensation to the output voltage. P04.01 is relative to the max. output voltage V_b. P04.02 defines the percentage of cut-off frequency	0.0%	○
P04.02	Motor 1 torque boost cut-off		20.0%	○

Function code	Name	Detailed parameter description	Default value	Modify
		of manual torque boost to the rated motor frequency f_b. Torque boost can improve the low-frequency torque characteristics of V/F. Users should select torque boost based on the load, eg, larger load requires larger torque boost, however, if the torque boost is too large, the motor will run at over-excitation, which will cause increased output current and motor heat-up, thus degrading the efficiency. When torque boost is set to 0.0%, the inverter is automatic torque boost. Torque boost cut-off threshold: Below this frequency threshold, the torque boost is valid, exceeding this threshold will nullify torque boost.  Setting range of P04.01: 0.0%: (automatic) 0.1%–10.0% Setting range of P04.02: 0.0%–50.0%		
P04.03	V/F frequency point 1 of motor 1	When P04.00 =1 (multi-point V/F curve), users can set V/F curve via P04.03–P04.08. V/F curve is usually set according to the characteristics of motor load. **Note:** V1<V2<V3, f1<f2<f3. If low-frequency voltage is set too high, motor overheat or burnt-down may occur, and overcurrent stall or overcurrent protection may occur to the inverter. 	0.00Hz	○
P04.04	V/F voltage point 1 of motor 1		00.0%	○
P04.05	V/F frequency point 2 of motor 1		0.00Hz	○
P04.06	V/F voltage point 2 of motor 1		0.0%	○
P04.07	V/F frequency point 3 of motor 1		0.00Hz	○
P04.08	V/F voltage point 3 of motor 1		00.0%	○

Function code	Name	Detailed parameter description	Default value	Modify
		Setting range of P04.03: 0.00Hz–P04.05 Setting range of P04.04: 0.0%–110.0% (rated voltage of motor 1) Setting range of P04.05: P04.03–P04.07 Setting range of P04.06: 0.0%–110.0% (rated voltage of motor 1) Setting range of P04.07: P04.05–P02.02 (rated frequency of motor 1) or P04.05– P02.16 (rated frequency of motor 1) Setting range of P04.08: 0.0%–110.0% (rated voltage of motor 1)		
P04.09	V/F slip compensation gain of motor 1	This function code is used to compensate for the motor speed changes occurred during load variation in SVPWM control mode, thus improving the rigidity of mechanical characteristics of motor. Rated slip frequency of the motor should be calculated. △f=fb-n×p/60 of which: fb is rated motor frequency, corresponds to P02.02; n is rated motor speed, corresponds to P02.03; p is the number of motor pole pairs. 100% corresponds to the rated slip frequency of motor △f. Setting range: 0.0–200.0%	0.0%	○
P04.10	Low-frequency oscillation control factor of motor 1	Under SVPWM control mode, the motor, especially the large-power motor may experience current oscillation during certain frequencies, which may lead to unstable motor operation, or even inverter overcurrent, users can adjust these two parameters properly to eliminate such phenomenon. Setting range of P04.10: 0–100 Setting range of P04.11: 0–100 Setting range of P04.12: 0.00Hz–P00.03 (max. output frequency)	10	○
P04.11	High-frequency oscillation control factor of motor 1		10	○
P04.12	Oscillation control threshold of motor 1		30.00Hz	○
P04.13	V/F curve setup of motor 2	0: Straight V/F curve; 1: Multi-point V/F curve 2: Torque-down V/F curve (1.3th order) 3: Torque-down V/F curve (1.7th order) 4: Torque-down V/F curve (2.0nd order) 5: Customize V/F (V/F separation)	0	◎

Function code	Name	Detailed parameter description	Default value	Modify
P04.14	Torque boost of motor 2	0.0%: (automatic) 0.1%–10.0%	0.0%	○
P04.15	Motor 2 torque boost cut-off	0.0%–50.0% (relative to rated frequency of motor 2)	20.0%	○
P04.16	V/F frequency point 1 of motor 2	0.00Hz– P04.18	0.00Hz	○
P04.17	V/F voltage point 1 of motor 2	0.0%–110.0% (rated voltage of motor 2)	00.0%	○
P04.18	V/F frequency point 2 of motor 2	P04.16– P04.20	0.00Hz	○
P04.19	V/F voltage point 2 of motor 2	0.0%–110.0% (rated voltage of motor 2)	00.0%	○
P04.20	V/F frequency point 3 of motor 2	P04.18– P12.02 (rated frequency of asynchronous motor 2) Or P04.18– P12.16 (rated frequency of synchronous motor 2)	0.00Hz	○
P04.21	V/F voltage point 3 of motor 2	0.0%–110.0% (rated motor voltage)	00.0%	○
P04.22	V/F slip compensation gain of motor 2	0.0–200.0%	0.0%	○
P04.23	Low-frequency oscillation control factor of motor 2	0–100	10	○
P04.24	High-frequency oscillation control factor of motor 2	0–100	10	○
P04.25	Oscillation control threshold of motor 2	0.00Hz–P00.03 (max. output frequency)	30.00Hz	○
P04.26	Energy-saving run	0: No action 1: Automatic energy-saving operation Under light-load state, the motor can adjust the output voltage automatically to achieve energy-saving purpose	0	◎
P04.27	Channel of voltage setup	0: Keypad; output voltage is determined by P04.28 1: AI1 2: AI2	0	○

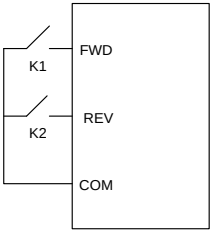
Function code	Name	Detailed parameter description	Default value	Modify
		3: AI3 4: HDIA 5: Multi-step (the set value is determined by P10 group) 6: PID 7: MODBUS communication 8: PROFIBUS/CANopen/DeviceNet communication 9: Ethernet communication 10: HDIB 11: EtherCat/Profinet communication 12: PLC programmable card 13: Reserved		
P04.28	Set voltage value via keypad	When the channel for voltage setup is set to "keypad", the value of this function code is digital voltage set value. Setting range: 0.0%–100.0%	100.0%	○
P04.29	Voltage increase time	Voltage increase time means the time needed from outputting the min. voltage to accelerating to output the max. voltage. Voltage decrease time means the time needed from outputting max. voltage to outputting the min. voltage Setting range: 0.0–3600.0s	5.0s	○
P04.30	Voltage decrease time		5.0s	○
P04.31	Output max. voltage	Set the upper/lower limit value of output voltage.  Setting range of P04.31: P04.32–100.0% (rated motor voltage) Setting range of P04.32: 0.0%–P04.31	100.0%	◎
P04.32	Output min. voltage		0.0%	◎
P04.33	Flux-weakening coefficient of constant-power zone	1.00–1.30	1.00	○
P04.34	VF pull-in current 1 of synchronous	-100.0%–100.0% (rated motor current)	20.0%	○

Function code	Name	Detailed parameter description	Default value	Modify
	motor			
P04.35	VF pull-in current 2 of synchronous motor	-100.0%–100.0% (rated motor current)	10.0%	○
P04.36	VF pull-in current frequency switch-over threshold of synchronous motor	0.00Hz–P00.03 (max. output frequency)	50.00Hz	○
P04.37	VF reactive closed-loop proportional coefficient of synchronous motor	0–3000	50	○
P04.38	VF reactive closed-loop integral time of synchronous motor	0–3000	30	○
P04.39	VF reactive closed-loop output limit of synchronous motor	0–16000	8000	○
P04.40	Enable/disable IF mode of asynchronous motor 1	0–1	0	◎
P04.41	IF current setting of asynchronous motor 1	0.0–200.0%	120.0%	○
P04.42	IF proportional coefficient of asynchronous motor 1	0–5000	650	○
P04.43	IF integral	0–5000	350	○

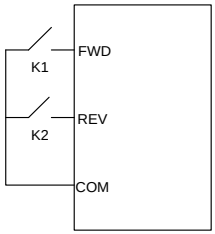
Function code	Name	Detailed parameter description	Default value	Modify
	coefficient of asynchronous motor 1			
P04.44	IF mode cut-off frequency threshold of asynchronous motor 1	0.00–20.00Hz	10.00Hz	○
P04.45	Enable/disable IF mode of asynchronous motor 2	0–1	0	◎
P04.46	IF current setting of asynchronous motor 2	0.0–200.0%	120.0%	○
P04.47	IF proportional coefficient of asynchronous motor 2	0–5000	650	○
P04.48	IF integral coefficient of asynchronous motor 2	0–5000	350	○
P04.49	IF mode cut-off frequency threshold of asynchronous motor 2	0.00–20.00Hz	10.00Hz	○
P04.50	Reserved variables	0–65535	0	●
P04.51	Reserved variables	0–65535	0	●
P05 group Input terminals				
P05.00	HDI input type	0x00–0x11 Ones: HDIA input type 0: HDIA is high-speed pulse input 1: HDIA is digital input Tens: HDIB input type	0	◎

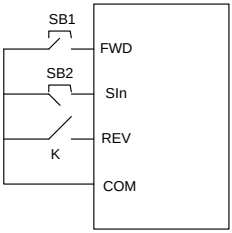
Function code	Name	Detailed parameter description	Default value	Modify
		0: HDIB is high-speed pulse input 1: HDIB is digital input		
P05.01	Function of S1 terminal	0: No function 1: Forward running 2: Reverse running 3: 3-wire control 4: Forward jogging 5: Reverse jogging 6: Coast to stop 7: Fault reset 8: Running pause 9: External fault input 10: Frequency increase (UP) 11: Frequency decrease (DOWN) 12: Clear frequency increase/decrease setting 13: Switch-over between setup A and setup B 14: Switch-over between combination setup and setup A 15: Switch-over between combination setup and setup B 16: Multi-step speed terminal 1 17: Multi-step speed terminal 2 18: Multi-step speed terminal 3 19: Multi-step speed terminal 4 20: Multi-step speed pause 21: Acceleration/deceleration time selection 1 22: Acceleration/deceleration time selection 2 23: Simple PLC stop reset 24: Simple PLC pause 25: PID control pause 26: Wobbling frequency pause 27: Wobbling frequency reset 28: Counter reset 29: Switch-over between speed control and torque control 30: Acceleration/deceleration disabled 31: Counter trigger 32: Reserved 33: Clear frequency increase/decrease setting	1	◎
P05.02	Function of S2 terminal		4	◎
P05.03	Function of S3 terminal		7	◎
P05.04	Function of S4 terminal		0	◎
P05.05	Function of HDIA terminal		0	◎
P05.06	Function of HDIB terminal		0	◎

Function code	Name	Detailed parameter description	Default value	Modify
		temporarily 34: DC brake 35: Switch-over between motor 1 and motor 2 36: Command switches to keypad 37: Command switches to terminal 38: Command switches to communication 39: Pre-exciting command 40: Zero out power consumption quantity 41: Maintain power consumption quantity 42: Source of upper torque limit switches to keypad 43: Position reference point input (only S6, S7 and S8 are valid) 44: Spindle orientation disabled 45: Spindle zeroing/local positioning zeroing 46: Spindle zero position selection 1 47: Spindle zero position selection 2 48: Spindle scale division selection 1 49: Spindle scale division selection 2 50: Spindle scale division selection 3 51: Position control and speed control switch-over terminal 52: Pulse input disabled 53: Clear position deviation cleared 54: Switch over position proportional gain 55: Enable cyclic positioning of digital position positioning 56: Emergency stop 57: Motor over-temperature fault input 58: Enable rigid tapping 59: Switches to V/F control 60: Switches to FVC control 61: PID polarity switch-over 62: Reserved 63: Enable servo 64: Limit of forward run 65: Limit of reverse run 66: Zero out encoder counting 67: Pulse increase 68: Enable pulse superimposition		

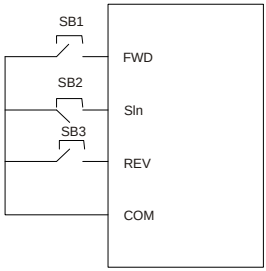
<table>
<tr><th>Function code</th><th>Name</th><th>Detailed parameter description</th><th>Default value</th><th>Modify</th></tr>
<tr><td></td><td></td><td>69: Pulse decrease
70: Electronic gear selection
71–79: Reserved</td><td></td><td></td></tr>
<tr><td>P05.07</td><td>Reserved variables</td><td>0–65535</td><td>0</td><td>●</td></tr>
<tr><td>P05.08</td><td>Polarity of input terminal</td><td>This function code is used to set the polarity of input terminals.
When the bit is set to 0, input terminal polarity is positive;
When the bit is set to 1, input terminal polarity is negative;
0x000–0x3F</td><td>0x000</td><td>○</td></tr>
<tr><td>P05.09</td><td>Digital filter time</td><td>Set S1–S4, filter time of HDI terminal sampling. In cases where interference is strong, increase the value of this parameter to avoid mal-operation.
0.000–1.000s</td><td>0.010s</td><td>○</td></tr>
<tr><td>P05.10</td><td>Virtual terminal setting</td><td>0x000–0x3F (0: disable, 1: enable)
BIT0: S1 virtual terminal
BIT1: S2 virtual terminal
BIT2: S3 virtual terminal
BIT3: S4 virtual terminal
BIT4: HDIA virtual terminal
BIT5: HDIB virtual terminal</td><td>0x00</td><td>◎</td></tr>
<tr><td>P05.11</td><td>2/3 wire control mode</td><td>This function code is used to set the 2/3 wire control mode.
0: 2-wire control 1; integrate enabling function with direction. This mode is the most popular dual-line mode. Direction of motor rotation is determined by the defined FWD/REV terminal command.
 

<table>
<tr><th>FWD</th><th>REV</th><th>Running command</th></tr>
<tr><td>OFF</td><td>OFF</td><td>Stop</td></tr>
<tr><td>ON</td><td>OFF</td><td>Forward running</td></tr>
<tr><td>OFF</td><td>ON</td><td>Reverse running</td></tr>
<tr><td>ON</td><td>ON</td><td>Hold</td></tr>
</table>
1: 2-wire control 2; separate enabling function with direction. In this mode, the defined FWD is enabling</td><td>0</td><td>◎</td></tr>
</table>

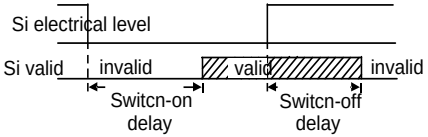
<table>
<tr><th>Function code</th><th>Name</th><th>Detailed parameter description</th><th>Default value</th><th>Modify</th></tr>
<tr><td></td><td></td><td>terminal, and the direction is determined by the state of REV.
 

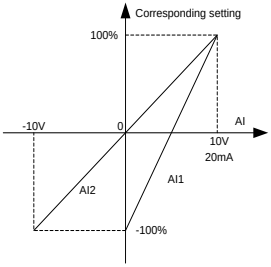
<table>
<tr><td>FWD</td><td>REV</td><td>Running command</td></tr>
<tr><td>OFF</td><td>OFF</td><td>Stop</td></tr>
<tr><td>ON</td><td>OFF</td><td>Forward running</td></tr>
<tr><td>OFF</td><td>ON</td><td>Stop</td></tr>
<tr><td>ON</td><td>ON</td><td>Reverse running</td></tr>
</table>
2: 3-wire control 1; This mode defines Sin as enabling terminal, and the running command is generated by FWD, the direction is controlled by REV. During running, the Sin terminal should be closed, and terminal FWD generates a rising edge signal, then the inverter starts to run in the direction set by the state of terminal REV; the inverter should be stopped by disconnecting terminal Sin.
 

The direction control during running is shown below.
<table>
<tr><th>SIn</th><th>REV</th><th>Previous running direction</th><th>Current running direction</th></tr>
<tr><td rowspan="2">ON</td><td rowspan="2">OFF→ON</td><td>Forward</td><td>Reverse</td></tr>
<tr><td>Reverse</td><td>Forward</td></tr>
<tr><td rowspan="2">ON</td><td rowspan="2">ON→OFF</td><td>Reverse</td><td>Forward</td></tr>
<tr><td>Forward</td><td>Reverse</td></tr>
<tr><td rowspan="2">ON→OFF</td><td>ON</td><td colspan="2" rowspan="2">Decelerate to stop</td></tr>
<tr><td>OFF</td></tr>
</table>
SIn: 3-wire control, FWD: Forward running, REV: Reverse running
3: 3-wire control 2; This mode defines Sin as</td><td></td><td></td></tr>
</table>

<table>
<tr><th>Function code</th><th>Name</th><th>Detailed parameter description</th><th>Default value</th><th>Modify</th></tr>
<tr><td></td><td></td><td>enabling terminal. The running command is generated by FWD or REV, and they control the running direction. During running, the terminal Sin should be closed, and terminal FWD or REV generates a rising edge signal to control the running and direction of inverter; the inverter should be stopped by disconnecting terminal Sin.
 

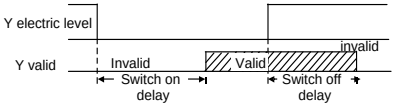
<table>
<tr><th>Sln</th><th>FWD</th><th>REV</th><th>Running direction</th></tr>
<tr><td rowspan="2">ON</td><td rowspan="2">OFF→ON</td><td>ON</td><td>Forward</td></tr>
<tr><td>OFF</td><td>Forward</td></tr>
<tr><td rowspan="2">ON</td><td>ON</td><td rowspan="2">OFF→ON</td><td>Reverse</td></tr>
<tr><td>OFF</td><td>Reverse</td></tr>
<tr><td rowspan="2">ON→OFF</td><td></td><td></td><td rowspan="2">Decelerate to stop</td></tr>
<tr><td></td><td></td></tr>
</table>
Sln: 3-wire control, FWD: Forward running, REV: Reverse running
Note: For dual-line running mode, when FWD/REV terminal is valid, if the inverter stops due to stop command given by other sources, it will not run again after the stop command disappears even if the control terminals FWD/REV are still valid. To make the inverter run again, users need to trigger FWD/REV again, eg, PLC single-cycle stop, fixed-length stop, and valid STOP/RST stop during terminal control. (see P07.04)</td><td></td><td></td></tr>
<tr><td>P05.12</td><td>S1 terminal switch-on delay</td><td>These function codes define corresponding delay of the programmable input terminals during level</td><td>0.000s</td><td>○</td></tr>
</table>

Function code	Name	Detailed parameter description	Default value	Modify
P05.13	S1 terminal switch-off delay	variation from switch-on to switch-off .  Setting range: 0.000–50.000s. **Note: After a virtual terminal is enabled, the state of the terminal can only be changed in communication mode. The communication address is 0x200A**	0.000s	○
P05.14	S2 terminal switch-on delay		0.000s	○
P05.15	S2 terminal switch-off delay		0.000s	○
P05.16	S3 terminal switch-on delay		0.000s	○
P05.17	S3 terminal switch-off delay		0.000s	○
P05.18	S4 terminal switch-on delay		0.000s	○
P05.19	S4 terminal switch-off delay		0.000s	○
P05.20	HDIA terminal switch-on delay		0.000s	○
P05.21	HDIA terminal switch-off delay		0.000s	○
P05.22	HDIB terminal switch-on delay		0.000s	○
P05.23	HDIB terminal switch-off delay		0.000s	○
P05.24	Lower limit value of AI1	These function codes define the relation between analog input voltage and corresponding set value of analog input. When the analog input voltage exceeds the range of max./min. input, the max. input or min. input will be adopted during calculation. When analog input is current input, 0–20mA current corresponds to 0–10V voltage. In different applications, 100% of analog setting corresponds to different nominal values. The figure below illustrates several settings.	0.00V	○
P05.25	Corresponding setting of lower limit of AI1		0.0%	○
P05.26	Upper limit value of AI1		10.00V	○
P05.27	Corresponding setting of upper limit of AI1		100.0%	○
P05.28	Input filter time of AI1		0.030s	○
P05.29	Lower limit value of AI2		-10.00V	○
P05.30	Corresponding setting of lower		-100.0%	○

Function code	Name	Detailed parameter description	Default value	Modify
	limit of AI2			
P05.31	Intermediate value 1 of AI2		0.00V	○
P05.32	Corresponding setting of intermediate value 1 of AI2		0.0%	○
P05.33	Intermediate value 2 of AI2		0.00V	○
P05.34	Corresponding setting of intermediate value 2 of AI2	Input filter time: Adjust the sensitivity of analog input, increase this value properly can enhance the anti-interference capacity of analog variables; however, it will also degrade the sensitivity of analog input.	0.0%	○
P05.35	Upper limit value of AI2	**Note:** AI1 can support 0–10V/0–20mA input, when AI1 selects 0–20mA input; the corresponding voltage of 20mA is 10V; AI2 supports -10V–+10V input.	10.00V	○
P05.36	Corresponding setting of upper limit of AI2	Setting range of P05.24: 0.00V–P05.26	100.0%	○
P05.37	Input filter time of AI2	Setting range of P05.25: -100.0%–100.0% Setting range of P05.26: P05.24–10.00V Setting range of P05.27: -100.0%–100.0% Setting range of P05.28: 0.000s–10.000s Setting range of P05.29: -10.00V–P05.31 Setting range of P05.30: -100.0%–100.0% Setting range of P05.31: P05.29–P05.33 Setting range of P05.32: -100.0%–100.0% Setting range of P05.33: P05.31–P05.35 Setting range of P05.34: -100.0%–100.0% Setting range of P05.35: P05.33–10.00V Setting range of P05.36: -100.0%–100.0% Setting range of P05.37: 0.000s–10.000s	0.030s	○
P05.38	HDIA high-speed pulse input function	0: Set input via frequency 1: Reserved 2: Input via encoder, used in combination with HDIB	0	◎
P05.39	Lower limit frequency of HDIA	0.000 kHz – P05.41	0.000 kHz	○
P05.40	Corresponding setting of lower	-100.0%–100.0%	0.0%	○

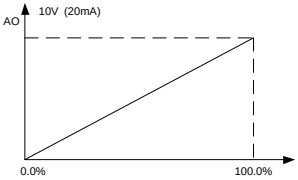
Function code	Name	Detailed parameter description	Default value	Modify
	limit frequency of HDIA			
P05.41	Upper limit frequency of HDIA	P05.39 –50.000kHz	50.000 kHz	○
P05.42	Corresponding setting of upper limit frequency of HDIA	-100.0%–100.0%	100.0%	○
P05.43	HDIA frequency input filter time	0.000s–10.000s	0.030s	○
P05.44	HDIB high-speed pulse input function selection	0: Set input via frequency 1: Reserved 2: Encoder input, it should be used in combination with HDIA	0	◎
P05.45	Lower limit frequency of HDIB	0.000 kHz – P05.47	0.000 kHz	○
P05.46	Corresponding setting of lower limit frequency of HDIB	-100.0%–100.0%	0.0%	○
P05.47	Upper limit frequency of HDIB	P05.45 –50.000kHz	50.000 kHz	○
P05.48	Corresponding setting of upper limit frequency of HDIB	-100.0%–100.0%	100.0%	○
P05.49	HDIB frequency input filter time	0.000s–10.000s	0.030s	○
P05.50	AI1 input signal type	0–1 0: Voltage type 1: Current type	0	◎
P05.51–P05.52	Reserved variables	0–65535	0	●
P06 group Output terminals				
P06.00	HDO output type	0: Open collector high-speed pulse output: Max.	0	◎

Function code	Name	Detailed parameter description	Default value	Modify
		frequency of the pulse is 50.00kHz. For details about the related functions, see P06.27–P06.31. 1: Open collector output: For details about the related functions, see P06.02.		
P06.01	Y output selection	0: Invalid 1: In running 2: In forward running 3: In reverse running 4: In jogging 5: Inverter fault 6: Frequency level detection FDT1 7: Frequency level detection FDT2 8: Frequency reached 9: Running in zero speed 10: Reach upper limit frequency 11: Reach lower limit frequency 12: Ready to run 13: In pre-exciting 14: Overload pre-alarm 15: Underload pre-alarm 16: Simple PLC stage completed 17: Simple PLC cycle completed 18: Reach set counting value 19: Reach designated counting value 20: External fault is valid 21: Reserved 22: Reach running time 23: Virtual terminal output of MODBUS communication 24: Virtual terminal output of POROFIBUS /CANopen communication 25: Virtual terminal output of Ethernet communication 26: DC bus voltage established 27: z pulse output 28: During pulse superposition 29: STO act 30: Positioning completed 31: Spindle zeroing completed	0	○
P06.02	HDO output selection		0	○
P06.03	Relay RO1 output selection		1	○
P06.04	Relay RO2 output selection		5	○

<table>
<tr><th>Function code</th><th>Name</th><th>Detailed parameter description</th><th>Default value</th><th>Modify</th></tr>
<tr><td></td><td></td><td>32: Spindle scale-division completed
33: In speed limit
34–35: Reserved
36: Speed/position control switch-over completed
37–40: Reserved
41: C_Y1 from PLC (set P27.00 to 1)
42: C_Y2 from PLC (set P27.00 to1)
43: C_HDO from PLC (set P27.00 to 1)
44: C_RO1 from PLC (set P27.00 to 1)
45: C_RO2 from PLC (set P27.00 to 1)
46: C_RO3 from PLC (set P27.00 to 1)
47: C_RO4 from PLC (set P27.00 to 1)
48–63: Reserved
29: STO action
48–63: Reserved</td><td></td><td></td></tr>
<tr><td>P06.05</td><td>Output terminal polarity selection</td><td>This function code is used to set the polarity of output terminals.
When the bit is set to 0, input terminal polarity is positive;
When the bit is set to 1 input terminal polarity is negative.
<table><tr><td>BIT3</td><td>BIT2</td><td>BIT1</td><td>BIT0</td></tr><tr><td>RO2</td><td>RO1</td><td>HDO</td><td>Y</td></tr></table>Setting range: 0x0–0xF</td><td>00</td><td>○</td></tr>
<tr><td>P06.06</td><td>Y switch-on delay</td><td rowspan="8">This function code defines the corresponding delay of the level variation from switch-on to switch-off.
 

Setting range: 0.000–50.000s
Note: P06.08 and P06.09 are valid only when P06.00=1.</td><td>0.000s</td><td>○</td></tr>
<tr><td>P06.07</td><td>Y switch-off delay</td><td>0.000s</td><td>○</td></tr>
<tr><td>P06.08</td><td>HDO switch-on delay</td><td>0.000s</td><td>○</td></tr>
<tr><td>P06.09</td><td>HDO switch-off delay</td><td>0.000s</td><td>○</td></tr>
<tr><td>P06.10</td><td>Relay RO1 switch-on delay</td><td>0.000s</td><td>○</td></tr>
<tr><td>P06.11</td><td>Relay RO1 switch-off delay</td><td>0.000s</td><td>○</td></tr>
<tr><td>P06.12</td><td>Relay RO2 switch-on delay</td><td>0.000s</td><td>○</td></tr>
<tr><td>P06.13</td><td>Relay RO2 switch-off delay</td><td>0.000s</td><td>○</td></tr>
</table>

Function code	Name	Detailed parameter description	Default value	Modify
P06.14	AO1 output selection	0: Running frequency 1: Set frequency	0	○
P06.15	Reserved variables	2: Ramps reference frequency 3: Running speed	0	○
P06.16	HDO high-speed pulse output	4: Output current (relative to inverter) 5: Output current (relative to motor) 6: Output voltage 7: Output power 8: Set torque value 9: Output torque 10: AI1 input value 11: AI2input value 12: AI3 input value 13: Input value of high-speed pulse HDIA 14: Set value 1 of MODBUS communication 15: Set value 2 of MODBUS communication 16: Set value 1 of PROFIBUS\CANopen communication 17: Set value 2 of PROFIBUS\CANopen communication 18: Set value 1 of Ethernet communication 19: Set value 2 of Ethernet communication 20: Input value of high-speed pulse HDIB 21: Reserved 22: Torque current (bipolar, 100% corresponds to 10V) 23: Exciting current (100% corresponds to 10V) 24: Set frequency (bipolar) 25: Ramps reference frequency (bipolar) 26: Running speed (bipolar) 27: Set value 2 of EtherCat/Profinet communication 28: C_AO1 from PLC (set P27.00 to 1) 29: C_AO2 from PLC (set P27.00 to 1) 30: Running speed 31–47: Reserved	0	○
P06.17	Lower limit of AO1 output	Above function codes define the relation between output value and analog output. When the output	0.0%	○

Function code	Name	Detailed parameter description	Default value	Modify
P06.18	Corresponding AO1 output of lower limit	value exceeds the set max./min. output range, the upper/low limit of output will be adopted during calculation.	0.00V	○
P06.19	Upper limit of AO1 output	When analog output is current output, 1mA corresponds to 0.5V voltage. In different applications, 100% of output value corresponds to different analog outputs.	100.0%	○
P06.20	Corresponding AO1 output of upper limit		10.00V	○
P06.21	AO1 output filter time	 Setting range of P06.17: -100.0%–P06.19 Setting range of P06.18: 0.00V–10.00V Setting range of P06.19: P06.17–100.0% Setting range of P06.20: 0.00V–10.00V Setting range of P06.21: 0.000s–10.000s	0.000s	○
P06.22–P06.26	Reserved variables	0–65535	0	●
P06.27	Lower limit of HDO output	-100.0%–P06.29	0.00%	○
P06.28	Corresponding HDO output of lower limit	0.00–50.00kHz	0.00kHz	○
P06.29	Upper limit of HDO output	P06.27–100.0%	100.0%	○
P06.30	Corresponding HDO output of upper limit	0.00–50.00kHz	50.00 kHz	○
P06.31	HDO output filter time	0.000s–10.000s	0.000s	○
P06.32–P06.34	Reserved variable	0–65535	0	●
P07 group HMI				
P07.00	User password	0–65535 Set it to any non-zero value to enable password protection.	0	○

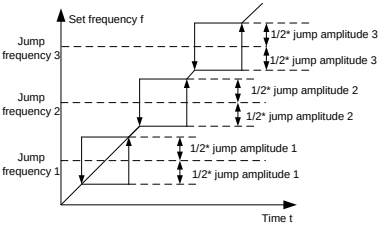
Function code	Name	Detailed parameter description	Default value	Modify
		00000: Clear previous user password and disable password protection. After user password becomes valid, if wrong password is inputted, users will be denied entry. It is necessary to keep the user password in mind. Password protection will be effective one minute after exiting function code edit state, and it will display "0.0.0.0.0" if users press PRG/ESC key to enter function code edit state again, users need to input the correct password. **Note: Restoring to default values will clear user password, use this function with caution.**		
P07.01	Reserved variables		/	/
P07.02	Function of keys	Range: 0x00–0x27 Ones: Function selection of QUICK/JOG key 0: No function 1: Jogging 2: Reserved 3: Forward/reverse rotation switch-over 4: Clear UP/DOWN setting 5: Coast to stop 6: Switch over the running command reference mode in sequence 7: Reserved Tens: Reserved	0x01	◎
P07.03	Running command channel switch-over sequence of QUICK key	When P07.02=6, set the switch-over sequence of running command channel. 0: keypad control→terminal control→ communication control 1: keypad control←→terminal control 2: keypad control←→communication control 3: terminal control←→communication control	0	○
P07.04	Stop function selection of STOP/RST key	Validness selection of stop function of STOP/RST. For fault reset, STOP/RST is valid under any situation. 0: valid only for panel control only 1: valid for both panel and terminal control 2: valid for both panel and communication control	0	○

Function code	Name	Detailed parameter description	Default value	Modify
		3: valid for all control modes		
P07.05–P07.07	Reserved variables		/	/
P07.08	Frequency display coefficient	0.01–10.00 Display frequency=running frequency× P07.08	1.00	○
P07.09	Speed display coefficient	0.1–999.9% Mechanical speed=120×display running frequency×P07.09/number of motor pole pairs	100.0%	○
P07.10	Linear speed display coefficient	0.1–999.9% Linear speed=mechanical speed×P07.10	1.0%	○
P07.11	Temperature of rectifier bridge module	-20.0–120.0°C	/	●
P07.12	Temperature of inverter module	-20.0–120.0°C	/	●
P07.13	Software version of control board	1.00–655.35	/	●
P07.14	Accumulated running time	0–65535h	/	●
P07.15	High bit of inverter power consumption	Display the power consumption of the inverter. Inverter power consumption=P07.15×1000+P07.16	/	●
P07.16	Low bit of inverter power consumption	Setting range of P07.15: 0–65535 kWh (×1000) Setting range of P07.16: 0.0–999.9 kWh	/	●
P07.17	Reserved		/	/
P07.18	Rated power of inverter	0.4–3000.0kW	/	●
P07.19	Rated voltage of inverter	50–1200V	/	●
P07.20	Rated current of inverter	0.1–6000.0A	/	●
P07.21	Factory barcode 1	0x0000–0xFFFF	/	●
P07.22	Factory barcode 2	0x0000–0xFFFF	/	●
P07.23	Factory barcode 3	0x0000–0xFFFF	/	●

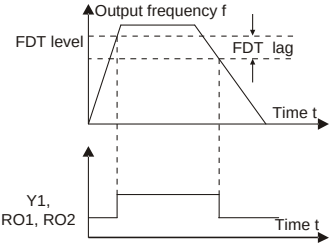
Function code	Name	Detailed parameter description	Default value	Modify
P07.24	Factory barcode 4	0x0000–0xFFFF	/	●
P07.25	Factory barcode 5	0x0000–0xFFFF	/	●
P07.26	Factory barcode 6	0x0000–0xFFFF	/	●
P07.27	Type of present fault	0: No fault 1: Inverter unit U phase protection (OUt1) 2: Inverter unit V phase protection (OUt2) 3: Inverter unit W phase protection (OUt3) 4: Overcurrent during acceleration (OC1) 5: Overcurrent during deceleration (OC2) 6: Overcurrent during constant speed (OC3) 7: Overvoltage during acceleration (OV1) 8: Overvoltage during deceleration (OV2) 9: Overvoltage during constant speed (OV3) 10: Bus undervoltage fault (UV) 11: Motor overload (OL1) 12: Inverter overload (OL2) 13: Phase loss on input side (SPI) 14: Phase loss on output side (SPO) 15: Rectifier module overheat (OH1) 16: Inverter module overheat (OH2) 17: External fault (EF) 18: 485 communication fault (CE) 19: Current detection fault (ItE) 20: Motor autotuning fault (tE) 21: EEPROM operation fault (EEP) 22: PID feedback offline fault (PIDE) 23: Brake unit fault (bCE) 24: Running time reached (END) 25: Electronic overload (OL3) 26: Keypad communication error (PCE) 27: Parameter upload error (UPE) 28: Parameter download error (DNE) 29: Profibus communication fault (E-DP) 30: Ethernet communication fault (E-NET) 31: CANopen communication fault (E-CAN) 32: To-ground short-circuit fault 1 (ETH1) 33: To-ground short-circuit fault 2 (ETH2) 34: Speed deviation fault (dEu) 35: Mal-adjustment fault (STo)	/	●
P07.28	Type of the last fault		/	●
P07.29	Type of the last but one fault		/	●
P07.30	Type of the last but two fault		/	●
P07.31	Type of the last but three fault		/	●
P07.32	Type of the last but four fault		/	●

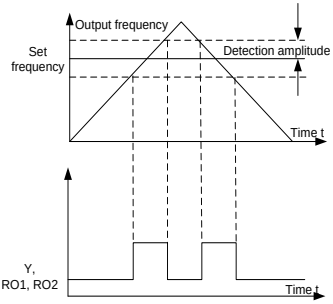
Function code	Name	Detailed parameter description	Default value	Modify
		36: Underload fault (LL) 37: Encoder offline fault (ENC1O) 38: Encoder reversal fault (ENC1D) 39: Encoder Z pulse offline fault (ENC1Z) 40: Safe torque off (STO) 41: Channel H1 safety circuit exception (STL1) 42: Channel H2 safety circuit exception (STL2) 43: Channel H1 and H2 exception (STL3) 44: Safety code FLASH CRC fault (CrCE) 45: PLC card customized fault 1 (P-E1) 46: PLC card customized fault 2 (P-E2) 47: PLC card customized fault 3 (P-E3) 48: PLC card customized fault 4 (P-E4) 49: PLC card customized fault 5 (P-E5) 50: PLC card customized fault 6 (P-E6) 51: PLC card customized fault 7 (P-E7) 52: PLC card customized fault 8 (P-E8) 53: PLC card customized fault 9 (P-E9) 54: PLC card customized fault 10 (P-E10) 55: Repetitive extension card type fault (E-Err) 56: Encoder UVW loss fault (ENCUV) 57: Profibus communication fault (E-PN) 58: CANopen communication fault (ESCAN) 59: Motor over-temperature fault (OT) 60: Card slot 1 card identification failure (F1-Er) 61: Card slot 2 card identification failure (F2-Er) 62: Card slot 3 card identification failure (F3-Er) 63: Card slot 1 card communication timeout fault (C1-Er) 64: Card slot 2 card communication timeout fault (C2-Er) 65: Card slot 3 card communication timeout fault (C3-Er) 66: EtherCat communication fault (E-CAT) 67: Bacnet communication fault (E-BAC) 68: DeviceNet communication fault (E-DEV) 69: Master-slave synchronous CAN slave fault (S-Err)		
P07.33	Running frequency of present fault		0.00Hz	●

Function code	Name	Detailed parameter description	Default value	Modify
P07.34	Ramps reference frequency of present fault		0.00Hz	●
P07.35	Output voltage of present fault		0V	●
P07.36	Output current of present fault		0.0A	●
P07.37	Bus voltage of present fault		0.0V	●
P07.38	Max. temperature of present fault		0.0°C	●
P07.39	Input terminal state of present fault		0	●
P07.40	Output terminal state of present fault		0	●
P07.41	Running frequency of the last fault		0.00Hz	●
P07.42	Ramps reference frequency of the last fault		0.00Hz	●
P07.43	Output voltage of the last fault		0V	●
P07.44	Output current of the last fault		0.0A	●
P07.45	Bus voltage of the last fault		0.0V	●
P07.46	Max. temperature of the last fault		0.0°C	●
P07.47	Input terminal state of the last fault		0	●
P07.48	Output terminal state of the last fault		0	●
P07.49	Running frequency of the last but one fault		0.00Hz	●
P07.50	Ramps reference frequency of the last but one fault		0.00Hz	●
P07.51	Output voltage of the last but one fault		0V	●
P07.52	Output current of the last but one fault		0.0A	●
P07.53	Bus voltage of the last but one fault		0.0V	●
P07.54	Max. temperature of the last but one fault		0.0°C	●
P07.55	Input terminal state of the last but one fault		0	●
P07.56	Output terminal state of the last but one fault		0	●
P08 group	**Enhanced functions**			
P08.00	Acceleration time 2	See P00.11 and P00.12 for detailed definitions. The Goodrive350 IP54 high protectionhigh-ingress protectionGoodrive350 series inverter defines four groups of acceleration/deceleration time, which can be selected by multi-function digital input terminal (P05 group). The acceleration/deceleration time of the inverter is the first group by default. Setting range: 0.0–3600.0s	Depend on model	○
P08.01	Deceleration time 2		Depend on model	○
P08.02	Acceleration time 3		Depend on model	○
P08.03	Deceleration time 3		Depend on model	○
P08.04	Acceleration time 4		Depend on model	○
P08.05	Deceleration time 4		Depend on model	○
P08.06	Running	This function code is used to define the reference	5.00Hz	○

Function code	Name	Detailed parameter description	Default value	Modify
	frequency of jogging	frequency of the inverter during jogging. Setting range: 0.00Hz–P00.03 (max. output frequency)		
P08.07	Acceleration time of jogging	Jogging acceleration time is the time needed for the inverter to accelerate from 0Hz to max. output frequency (P00.03).	Depend on model	○
P08.08	Deceleration time of jogging	Jogging deceleration time is the time needed from decelerating from the max. output frequency (P00.03) to 0Hz. Setting range: 0.0–3600.0s		○
P08.09	Jump frequency 1	When the set frequency is within the range of jump frequency, the inverter will run at the boundary of jump frequency. The inverter can avoid mechanical resonance point by setting the jump frequency, and three jump frequency points can be set. If the jump frequency points are set to 0, this function will be invalid.  Setting range: 0.00Hz–P00.03 (max. output frequency)	0.00Hz	○
P08.10	Jump frequency amplitude 1		0.00Hz	○
P08.11	Jump frequency 2		0.00Hz	○
P08.12	Jump frequency amplitude 2		0.00Hz	○
P08.13	Jump frequency 3		0.00Hz	○
P08.14	Jump frequency amplitude 3		0.00Hz	○
P08.15	Amplitude of wobbling frequency	0.0–100.0% (relative to set frequency)	0.0%	○
P08.16	Amplitude of jump frequency	0.0–50.0% (relative to amplitude of wobbling frequency)	0.0%	○
P08.17	Rise time of wobbling frequency	0.1–3600.0s	5.0s	○
P08.18	Descend time of wobbling frequency	0.1–3600.0s	5.0s	○
P08.19	Switching	0.00–P00.03 (max. output frequency)	0.00Hz	○

Function code	Name	Detailed parameter description	Default value	Modify
	frequency of acceleration/deceleration time	0.00Hz: no switch-over Switch to acceleration/deceleration time 2 if the running frequency is larger than P08.19		
P08.20	Frequency threshold of the start of droop control	0.00–50.00Hz	2.00Hz	○
P08.21	Reference frequency of acceleration/deceleration time	0: Max. output frequency 1: Set frequency 2: 100Hz **Note: Valid for straight acceleration/deceleration only**	0	◎
P08.22	Reserved variables	0–65535	0	○
P08.23	Number of decimal points of frequency	0: Two decimal points 1: One decimal point	0	○
P08.24	Number of decimal points of linear speed	0: No decimal point 1: One 2: Two 3: Three	0	○
P08.25	Set count value	P08.26–65535	0	○
P08.26	Designated count value	0–P08.25	0	○
P08.27	Set running time	0–65535min	0min	○
P08.28	Automatic fault reset times	Automatic fault reset times: When the inverter selects automatic fault reset, it is used to set the times of automatic reset, if the continuous reset times exceeds the value set by P08.29, the inverter will report fault and stop to wait for repair. Interval of automatic fault reset: select the interval time from when fault occurred to automatic fault reset actions. After inverter starts, if no fault occurred during 60s, the fault reset times will be zeroed out. Setting range of P08.28: 0–10 Setting range of P08.29: 0.1–3600.0s	0	○
P08.29	Automatic fault reset time interval		1.0s	○
P08.30	Reduction ratio of	This function code sets the variation rate of the	0.00Hz	○

Function code	Name	Detailed parameter description	Default value	Modify
	droop control	inverter output frequency based on the load; it is mainly used in balancing the power when multiple motors drive the same load. Setting range: 0.00–50.00Hz		
P08.31	Switch-over between motor 1 and motor 2	0x00–0x14 Ones: Switch-over channel 0: Switch over by terminal 1: Switch over by MODBUS communication 2: Switch over by PROFIBUS/CANopen/DeviceNet 3: Switch over by Ethernet communication 4: Switch over by EtherCat/Profinet communication Tens: Motor switch over during running 0: Disable switch over during running 1: Enable switch over during running	0x00	◎
P08.32	FDT1 level detection value	When the output frequency exceeds the corresponding frequency of FDT level, multi-function digital output terminal outputs "frequency level detection FDT" signal, this signal will be valid until the output frequency lowers to below the corresponding frequency (FDT level-FDT lag detection value), the waveform is shown in the figure below.  Setting range of P08.32: 0.00Hz–P00.03 (max. output frequency) Setting range of P08.33: 0.0–100.0% (FDT1 level) Setting range of P08.34: 0.00Hz–P00.03 (max. output frequency) Setting range of P08.35: 0.0–100.0% (FDT2 level)	50.00Hz	○
P08.33	FDT1 lag detection value		5.0%	○
P08.34	FDT2 level detection value		50.00Hz	○
P08.35	FDT2 lag detection value		5.0%	○
P08.36	Detection value for frequency arrival	When the output frequency is within the positive /negative detection range of the set frequency, the multi-function digital output terminal outputs	0.00Hz	○

Function code	Name	Detailed parameter description	Default value	Modify
		"frequency arrival" signal as shown below.  Setting range: 0.00Hz–P00.03 (max. output frequency)		
P08.37	Enable/disable energy-consumption brake	0: Disable energy-consumption 1: Enable energy-consumption	1	○
P08.38	Energy-consumption brake threshold voltage	Set the starting bus voltage of energy-consumption brake, adjust this value properly can brake the load effectively. The default value will change with the change of voltage class. Setting range: 200.0–2000.0V	220V voltage: 380.0V; 380V voltage: 700.0V;	○
P08.39	Running mode of cooling fan	0: Common running mode 1: The fan keeps running after power up	0	○
P08.40	PWM selection	0x0000–0x1121 Ones: PWM mode 0: 3PH modulation and 2-phase modulation 1: 3PH modulation Tens: PWM low-speed carrier limit 0: Limit low-speed carrier to 2K 1: Limit low-speed carrier to 4K 2: No limit on low-speed carrier Hundreds: Reserved Thousands: PWM loading mode 0: PWM loading mode 1 1: PWM loading mode 2	0001	◎
P08.41	Overmodulation selection	0x00–0x11 Ones	01	◎

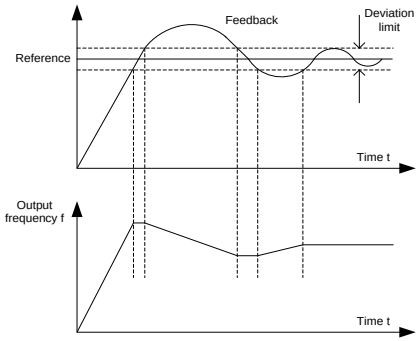
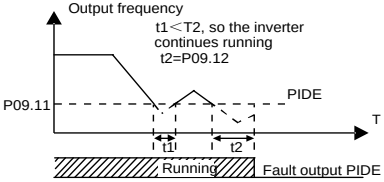
Function code	Name	Detailed parameter description	Default value	Modify
		0: Overmodulation is invalid 1: Overmodulation is valid Tens 0: Mild overmodulation 1: Deepened overmodulation		
P08.42	Reserved variables		/	/
P08.43	Reserved variables		/	/
P08.44	UP/DOWN terminal control setup	0x000–0x221 Ones: Frequency control selection 0: UP/DOWN terminal setup is valid 1: UP/DOWN terminal setup is invalid Tens: Frequency control selection 0: Valid only when P00.06=0 or P00.07=0 1: All frequency modes are valid 2: Invalid for multi-step speed when multi-step speed takes priority Hundreds: Action selection during stop 0: Valid 1: Valid during running, clear after stop 2: Valid during running, clear after receiving stop command	0x000	○
P08.45	UP terminal frequency incremental integral rate	0.01–50.00Hz/s	0.50Hz/s	○
P08.46	DOWN terminal frequency decremental change rate	0.01–50.00Hz/s	0.50Hz/s	○
P08.47	Action selection for frequency setup during power down	0x000–0x111 Ones: Action selection for frequency setup (by keypad digits) during power down 0: Save during power down 1: Zero out during power down Tens: Action selection for frequency setup (by MODBUS) during power down 0: Save during power down 1: Zero out during power down	0x000	○

Function code	Name	Detailed parameter description	Default value	Modify
		Hundreds: Action selection for frequency setup (by other communication) during power down 0: Save during power down 1: Zero out during power down		
P08.48	High bit of initial value of power consumption	Set the initial value of power consumption. Initial value of power consumption=P08.48×1000+P08.49 Setting range of P08.48: 0–59999 kWh (k) Setting range of P08.49: 0.0–999.9 kWh	0°	○
P08.49	Low bit of initial value of power consumption		0.0°	○
P08.50	Flux braking	This function code is used to enable flux braking function. 0: Invalid 100–150: The larger the coefficient, the stronger the brake intensity The inverter enables motor to decelerate quickly by increasing the motor flux which converts energy generated during braking into thermal energy. The inverter monitors motor state continuously even during flux braking, thus flux braking can be applied in motor stop or used to change motor speed. The flux braking also carries the following advantages. 1) Brake immediately after sending stop command, removing the need to wait for flux to attenuate. 2) Better cooling effect. During flux braking, the stator current of the motor increases, while the rotor current does not change, while the cooling effect of stator is much more effective than that of the rotor.	0	○
P08.51	Current regulation coefficient on input side	This function code is used to adjust the current display value on the AC input side. 0.00–1.00	0.56	○
P08.52	STO lock	0: STO alarm lock Alarm-lock means STO alarm must be reset after state restoration when STO occurs. 1: STO alarm unlock Alarm-unlock means when STO occurs, after state restoration, STO alarm will disappear automatically.	0	○

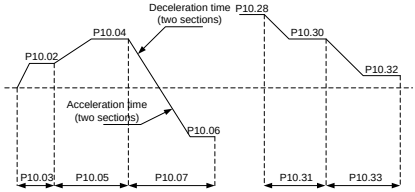
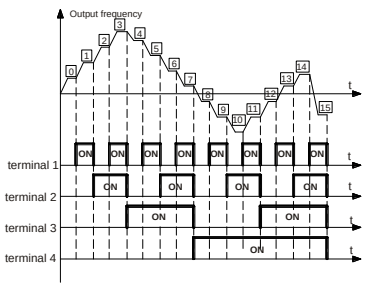
Function code	Name	Detailed parameter description	Default value	Modify
P08.53	Bias value of upper limit frequency of torque control	0.00 Hz–P00.03 (max. output frequency)	0.00Hz	○
P08.54	Acceleration/deceleration selection of upper limit frequency of torque control	0: No limit on acceleration or deceleration 1: Acceleration/deceleration time 1 2: Acceleration/deceleration time 2 3: Acceleration/deceleration time 3 4: Acceleration/deceleration time 4	0	○
P09 group PID control				
P09.00	PID reference source	When frequency command (P00.06, P00. 07) is set to 7, or channel of voltage setup (P04.27) is set to 6, the inverter running mode is process PID control. This parameter determines the target reference channel of process PID. 0: Keypad (P09.01) 1: AI1 2: AI2 3: AI3 4: High-speed pulse HDIA 5: Multi-step 6: MODBUS communication 7: PROFIBUS/CANopen/DeviceNet communication 8: Ethernet communication 9: High-speed pulse HDIB 10: EtherCat/Profinet communication 11: Programmable extension card 12: Reserved The set target value of process PID is relative value, the set 100% corresponds to 100% of the feedback signal of controlled system. The system operates based on the relative value (0–100.0%)	0	○
P09.01	Pre-set PID reference of keypad	Users need to set this parameter when P09.00 is set to 0, the reference value of this parameter is the feedback variable of the system. Setting range: -100.0%–100.0%	0.0%	○

Function code	Name	Detailed parameter description	Default value	Modify
P09.02	PID feedback source	This parameter is used to select PID feedback channel. 0: AI1 1: AI2 2: AI3 3: High-speed pulse HDIA 4: MODBUS communication 5: PROFIBUS/CANopen/DeviceNet communication 6: Ethernet communication 7: High-speed pulse HDIB 8: EtherCat/Profinet communication 9: Programmable extension card 10: Reserved **Note: The reference channel and feedback channel cannot overlap; otherwise, PID cannot be controlled effectively.**	0	○
P09.03	PID output characteristics	0: PID output is positive characteristic: namely, the feedback signal is larger than the PID reference, which requires the inverter output frequency to decrease for PID to reach balance, eg, tension PID control of winding 1: PID output is negative characteristics: namely the feedback signal is less than PID reference, which requires inverter output frequency to increase for PID to reach balance, eg, tension PID control of unwinding.	0	○
P09.04	Proportional gain (Kp)	This function code is suitable for proportional gain P of PID input. It determines the regulation intensity of the whole PID regulator, the larger the value of P, the stronger the regulation intensity. If this parameter is 100, it means when the deviation between PID feedback and reference is 100%, the regulation amplitude of PID regulator (ignoring integral and differential effect) on output frequency command is the max. frequency (ignoring integral and differential actions). Setting range: 0.00–100.00	1.80	○
P09.05	Integral time (Ti)	It determines the speed of integral regulation made on the deviation between PID feedback and	0.90s	○

Function code	Name	Detailed parameter description	Default value	Modify
		reference by PID regulator. When the deviation between PID feedback and reference is 100%, the regulation of integral regulator (ignoring integral and differential actions), after undergoing continuous regulation during this time period, can reach the max. output frequency (P00.03) The shorter the integral time, the stronger the regulation intensity. Setting range: 0.00–10.00s		
P09.06	Derivative time (Td)	It determines the intensity of the regulation made on the change rate of deviation between PID feedback and reference by PID regulator. If feedback changes by 100% during this period, the regulation of differential regulator (ignoring integral and differential actions) is the max. output frequency (P00.03) The longer the derivative time, the stronger the regulation intensity. Setting range: 0.00–10.00s	0.00s	○
P09.07	Sampling cycle (T)	It means the sampling cycle of feedback. The regulator operates once during each sampling cycle. The larger the sampling cycle, the slower the response. Setting range: 0.001–10.000s	0.001s	○
P09.08	Limit of PID control deviation	It is the max. allowable deviation of PID system output value relative to closed-loop reference value. Within this limit, PID regulator stops regulation. Set this function code properly to regulate the precision and stability of PID system. Setting range: 0.0–100.0%	0.0%	○

Function code	Name	Detailed parameter description	Default value	Modify
				
P09.09	Upper limit value of PID output	These two function codes are used to set the upper/lower limit value of PID regulator.	100.0%	○
P09.10	Lower limit value of PID output	100.0% corresponds to max. output frequency (P00.03) or max. voltage (P04.31) Setting range of P09.09: P09.10–100.0% Setting range of P09.10: -100.0%–P09.09	0.0%	○
P09.11	Feedback offline detection value	Set PID feedback offline detection value, when the detection value is no more than the feedback offline	0.0%	○
P09.12	Feedback offline detection time	detection value, and the duration exceeds the value set in P09.12, the inverter will report "PID feedback offline fault", and keypad displays PIDE.  Setting range of P09.11: 0.0–100.0% Setting range of P09.12: 0.0–3600.0s	1.0s	○
P09.13	PID control selection	0x0000–0x1111 Ones: 0: Continue integral control after the frequency reaches upper/lower limit 1: Stop integral control after the frequency reaches upper/lower limit Tens: 0: The same with the main reference direction 1: Contrary to the main reference direction	0x0001	○

Function code	Name	Detailed parameter description	Default value	Modify
		Hundreds: 0: Limit based on the max. frequency 1: Limit based on A frequency Thousands: 0: A+B frequency, acceleration /deceleration of main reference A frequency source buffering is invalid 1: A+B frequency, acceleration/ deceleration of main reference A frequency source buffering is valid, acceleration and deceleration are determined by P08.04 (acceleration time 4).		
P09.14	Low-frequency proportional gain (Kp)	0.00–100.00 Low-frequency switching point: 5.00Hz, high-frequency switching point: 10.00Hz (P09.04 corresponds to high-frequency parameter), and the middle is the linear interpolation between these two points	1.00	○
P09.15	Acceleration/ deceleration time of PID command	0.0–1000.0s	0.0s	○
P09.16	Filter time of PID output	0.000–10.000s	0.000s	○
P09.17–P09.28	Reserved variables	0–65536	0	○
P10 group Simple PLC and multi-step speed control				
P10.00	Simple PLC mode	0: Stop after running once; the inverter stops automatically after running for one cycle, and it can be started only after receiving running command. 1: Keep running in the final value after running once; The inverter keeps the running frequency and direction of the last section after a single cycle. 2: Cyclic running; the inverter enters the next cycle after completing one cycle until receiving stop command and stops.	0	○
P10.01	Simple PLC memory selection	0: No memory after power down 1: Memory after power down; PLC memories its running stage and running frequency before power down.	0	○
P10.02	Multi-step speed 0	Setting range of the frequency in 0^{th} –15^{th} sections	0.0%	○

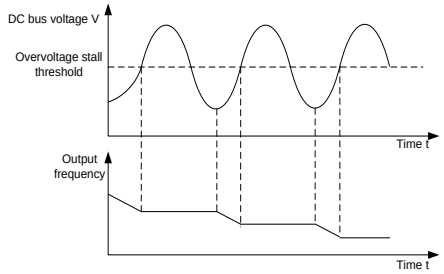
Function code	Name	Detailed parameter description	Default value	Modify
P10.03	Running time of 0th step	are -100.0–100.0%, 100% corresponds to max. output frequency P00.03.	0.0s(min)	○
P10.04	Multi-step speed 1	Setting range of the running time in 0th –15th sections are 0.0–6553.5s (min), the time unit is determined by P10.37.	0.0%	○
P10.05	Running time of 1st step	When simple PLC operation is selected, it is required to set P10.02–P10.33 to determine the running frequency and running time of each section.	0.0s(min)	○
P10.06	Multi-step speed 2	**Note: The symbol of multi-step speed determines the running direction of simple PLC, and the negative value means reverse running.**	0.0%	○
P10.07	Running time of 2nd step		0.0s(min)	○
P10.08	Multi-step speed 3	When selecting multi-step speed running, the multi-step speed is within the range of -fmax–fmax, and it can be set continuously. The start/stop of multi-step stop is also determined by P00.01.	0.0%	○
P10.09	Running time of 3rd step	The Goodrive350 IP54 high-ingress protection series inverter can set 16-step speed, which are set by combined codes of multi-step terminals 1–4 (set by S terminal, correspond to function code P05.01–P05.06) and correspond to multi-step speed 0 to multi-step speed 15.	0.0s(min)	○
P10.10	Multi-step speed 4		0.0%	○
P10.11	Running time of 4th step	When terminal 1, terminal 2, terminal 3 and terminal 4 are OFF, the frequency input mode is set by P00.06 or P00.07. When terminal 1, terminal 2,	0.0s(min)	○
P10.12	Multi-step speed 5		0.0%	○
P10.13	Running time of 5th step		0.0s(min)	○
P10.14	Multi-step speed 6		0.0%	○
P10.15	Running time of 6th step		0.0s(min)	○
P10.16	Multi-step speed 7		0.0%	○
P10.17	Running time of 7th step		0.0s(min)	○
P10.18	Multi-step speed 8		0.0%	○
P10.19	Running time of 8th step		0.0s(min)	○
P10.20	Multi-step speed 9		0.0%	○
P10.21	Running time of 9th step		0.0s(min)	○
P10.22	Multi-step speed 10		0.0%	○
P10.23	Running time of 10th step		0.0s(min)	○
P10.24	Multi-step speed 11		0.0%	○
P10.25	Running time of		0.0s(min)	○

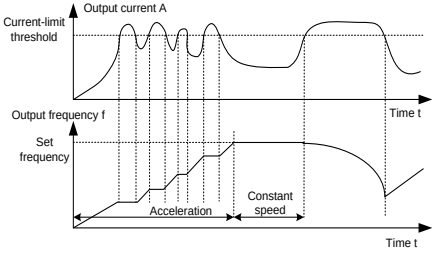
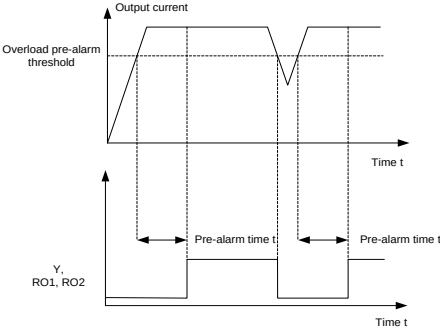
<table>
<tr><th>Function code</th><th>Name</th><th>Detailed parameter description</th><th>Default value</th><th>Modify</th></tr>
<tr><td></td><td>11th step</td><td>terminal 3 and terminal 4 are not all OFF, the</td><td></td><td></td></tr>
<tr><td>P10.26</td><td>Multi-step speed 12</td><td>frequency set by multi-step speed will prevail, and the priority of multi-step setting is higher than that of the keypad, analog, high-speed pulse, PID, and communication settings.</td><td>0.0%</td><td>○</td></tr>
<tr><td>P10.27</td><td>Running time of 12th step</td><td></td><td>0.0s(min)</td><td>○</td></tr>
<tr><td>P10.28</td><td>Multi-step speed 13</td><td>The relation between terminal 1, terminal 2, terminal 3 and terminal 4 are shown in the table below.</td><td>0.0%</td><td>○</td></tr>
<tr><td>P10.29</td><td>Running time of 13th step</td><td></td><td>0.0s(min)</td><td>○</td></tr>
<tr><td>P10.30</td><td>Multi-step speed 14</td><td></td><td>0.0%</td><td>○</td></tr>
<tr><td>P10.31</td><td>Running time of 14th step</td><td></td><td>0.0s(min)</td><td>○</td></tr>
<tr><td>P10.32</td><td>Multi-step speed 15</td><td></td><td>0.0%</td><td>○</td></tr>
<tr><td>P10.33</td><td>Running time of 15th step</td><td></td><td>0.0s(min)</td><td>○</td></tr>
<tr><td>P10.34</td><td>Acceleration/deceleration time of 0th –7th step of simple PLC</td><td>Detailed illustration is shown in the table below.</td><td>0x0000</td><td>○</td></tr>
<tr><td>P10.35</td><td>Acceleration/deceleration time of 8th – 15th step of simple PLC</td><td></td><td>0x0000</td><td>○</td></tr>
</table>

Terminal 1	OFF	ON	OFF	ON	OFF	ON	OFF	ON
Terminal 2	OFF	OFF	ON	ON	OFF	OFF	ON	ON
Terminal 3	OFF	OFF	OFF	OFF	ON	ON	ON	ON
Terminal 4	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
Step	0	1	2	3	4	5	6	7
Terminal 1	OFF	ON	OFF	ON	OFF	ON	OFF	ON
Terminal 2	OFF	OFF	ON	ON	OFF	OFF	ON	ON
Terminal 3	OFF	OFF	OFF	OFF	ON	ON	ON	ON
Terminal 4	ON	ON	ON	ON	ON	ON	ON	ON
Step	8	9	10	11	12	13	14	15

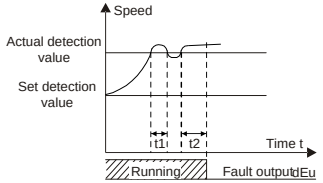
Function code	Binary		Step number	ACC/DEC time 1	ACC/DEC time 2	ACC/DEC time 3	ACC/DEC time 4
P10.34	BIT1	BIT0	0	00	01	10	11
	BIT3	BIT2	1	00	01	10	11
	BIT5	BIT4	2	00	01	10	11
	BIT7	BIT6	3	00	01	10	11
	BIT9	BIT8	4	00	01	10	11
	BIT11	BIT10	5	00	01	10	11
	BIT13	BIT12	6	00	01	10	11
	BIT15	BIT14	7	00	01	10	11
P10.35	BIT1	BIT0	8	00	01	10	11
	BIT3	BIT2	9	00	01	10	11
	BIT5	BIT4	10	00	01	10	11
	BIT7	BIT6	11	00	01	10	11
	BIT9	BIT8	12	00	01	10	11
	BIT11	BIT10	13	00	01	10	11
	BIT13	BIT12	14	00	01	10	11
	BIT15	BIT14	15	00	01	10	11

Function code	Name	Detailed parameter description	Default value	Modify
		Select corresponding acceleration/deceleration time, and then convert 16-bit binary number into hexadecimal number, finally, set corresponding function code. Acceleration/deceleration time 1 is set by P00.11 and P00.12; Acceleration/deceleration time 2 is set by P08.00 and P08.01; Acceleration/deceleration time 3 is set by P08.02 and P08.03; Acceleration /deceleration time 4 is set by P08.04 and P08.05. Setting range: 0x0000–0xFFFF		
P10.36	PLC restart mode	0: Restart from the first step, namely if the inverter stops during running (caused by stop command, fault or power down), it will run from the first step after restart. 1: Continue running from the step frequency when interruption occurred, namely if the inverter stops during running (caused by stop command or fault), it will record the running time of current step, and enters this step automatically after restart, then continue running at the frequency defined by this step in the remaining time.	0	◎
P10.37	Multi-step time unit	0: s; the running time of each step is counted in seconds; 1: min; the running time of each step is counted in minutes;	0	◎
P11 group Protection parameters				
P11.00	Phase-loss protection	0x000–0x111 Ones: 0: Disable software input phase loss protection 1: Enable software input phase loss protection Tens: 0: Disable output phase loss protection 1: Enable output phase loss protection Hundreds: 0: Disable hardware input phase loss protection 1: Enable hardware input phase loss protection	0x110	○
P11.01	Frequency-drop at transient	0: Disable 1: Enable	0	○

Function code	Name	Detailed parameter description	Default value	Modify
	power down			
P11.02	Reserved variables	0–65535	0	○
P11.03	Overvoltage stall protection	0: Disable 1: Enable 	1	○
P11.04	Overvoltage stall protection voltage	120–150% (standard bus voltage) (380V)	136%	○
		120–150% (standard bus voltage) (220V)	120%	
P11.05	Current-limit selection	During accelerated running, as the load is too large, the actual acceleration rate of motor is lower than that of output frequency, if no measures are taken, the inverter may trip due to overcurrent during acceleration. 0x00–0x11 Ones: Current-limit action selection 0: Invalid 1: Always valid Tens: Hardware current-limit overload alarm selection 0: Valid 1: Invalid	01	◎
P11.06	Automatic current-limit level	Current-limit protection function detects output current during running, and compares it with the current-limit level defined by P11.06, if it exceeds the current-limit level, the inverter will run at stable	G model: 160.0% P model: 120.0%	◎
P11.07	Frequency-drop rate during current limit	frequency during accelerated running, or run in decreased frequency during constant-speed running; if it exceeds the current-limit level continuously, the inverter output frequency will drop continuously until reaching lower limit frequency.	10.00 Hz/s	◎

Function code	Name	Detailed parameter description	Default value	Modify
		When the output current is detected to be lower than the current-limit level again, it will continue accelerated running.  Setting range of P11.06: 50.0–200.0% Setting range of P11.07: 0.00–50.00Hz/s		
P11.08	Inverter or motor overload/underload pre-alarm	If the inverter or motor output current is larger than the overload pre-alarm detection level (P11.09), and the duration exceeds the overload pre-alarm detection time (P11.10), overload pre-alarm signal will be outputted.  	0x000	○
P11.09	Overload pre-alarm detection level		G model: 150% P model: 120%	○
P11.10	Overload pre-alarm detection time	Setting range of P11.08: Enable and define overload pre-alarm function of the inverter and motor Setting range: 0x000–0x131 Ones: 0: Motor overload/underload pre-alarm, relative to rated motor current; 1: Inverter overload/underload pre-alarm, relative to rated inverter current. Tens:	1.0s	○

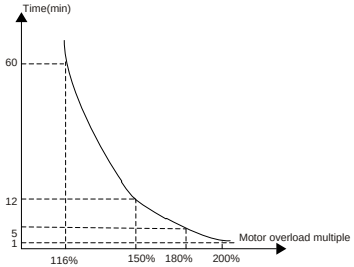
Function code	Name	Detailed parameter description	Default value	Modify
		0: The inverter continues running after overload/underload alarm; 1: The inverter continues running after underload alarm, and stops running after overload fault; 2: The inverter continues running after overload alarm, and stops running after underload fault; 3: The inverter stops running after overload/underload fault. Hundreds: 0: Always detect 1: Detect during constant-speed running Setting range of P11.09: P11.11–200% Setting range of P11.10: 0.1–3600.0s		
P11.11	Underload pre-alarm detection level	Underload pre-alarm signal will be outputted if the output current of the inverter or motor is lower than underload pre-alarm detection level (P11.11), and the duration exceeds underload pre-alarm detection time (P11.12). Setting range of P11.11: 0– P11.09 Setting range of P11.12: 0.1–3600.0s	50%	○
P11.12	Underload pre-alarm detection time		1.0s	○
P11.13	Fault output terminal action during fault	This function code is used to set the action of fault output terminals during undervoltage and fault reset. 0x00–0x11 Ones: 0: Act during undervoltage fault 1: Do not act during undervoltage fault Tens: 0: Act during fault reset 1: Do not act during fault reset	0x00	○
P11.14	Speed deviation detection value	0.0–50.0% This parameter is used to set the speed deviation detection value.	10.0%	○
P11.15	Speed deviation detection time	This parameter is used to set the speed deviation detection time. **Note: Speed deviation protection will be invalid if P11.15 is set to 0.0.**	1.0s	○

Function code	Name	Detailed parameter description	Default value	Modify
		 Setting range: 0.0–10.0s		
P11.16	Automatic frequency-reduction during voltage drop	0–1 0: Invalid 1: Valid	0	○
P11.17	Proportional coefficient of voltage regulator during undervoltage stall	0–1000	100	○
P11.18	Integral coefficient of voltage regulator during undervoltage stall	0–1000	40	○
P11.19	Proportional coefficient of current regulator during undervoltage stall	0–1000	25	○
P11.20	Integral coefficient of current regulator during undervoltage stall	0–2000	150	○
P11.21	Proportional coefficient of voltage regulator during overvoltage stall	0–1000	60	○
P11.22	Integral	0–1000	10	○

Function code	Name	Detailed parameter description	Default value	Modify
	coefficient of voltage regulator during overvoltage stall			
P11.23	Proportional coefficient of current regulator during overvoltage stall	0–1000	60	○
P11.24	Integral coefficient of current regulator during overvoltage stall	0–2000	250	○
P11.25	Enable inverter overload integral	0: Disable 1: Enable	0	
P11.26–P11.27	Reserved variables	0–65536	0	○
P12 group Parameters of motor 2				
P12.00	Type of motor 2	0: Asynchronous motor 1: Synchronous motor	0	◎
P12.01	Rated power of asynchronous motor 2	0.1–3000.0kW	Depend on model	◎
P12.02	Rated frequency of asynchronous motor 2	0.01Hz–P00.03 (max. output frequency)	50.00Hz	◎
P12.03	Rated speed of asynchronous motor 2	1–36000rpm	Depend on model	◎
P12.04	Rated voltage of asynchronous motor 2	0–1200V	Depend on model	◎
P12.05	Rated current of asynchronous motor 2	0.8–6000.0A	Depend on model	◎
P12.06	Stator resistance of asynchronous	0.001–65.535Ω	Depend on model	○

Function code	Name	Detailed parameter description	Default value	Modify
	motor 2			
P12.07	Rotor resistance of asynchronous motor 2	0.001–65.535Ω	Depend on model	○
P12.08	Leakage inductance of asynchronous motor 2	0.1–6553.5mH	Depend on model	○
P12.09	Mutual inductance of asynchronous motor 2	0.1–6553.5mH	Depend on model	○
P12.10	No-load current of asynchronous motor 2	0.1–6553.5A	Depend on model	○
P12.11	Magnetic saturation coefficient 1 of iron core of asynchronous motor 2	0.0–100.0%	80%	○
P12.12	Magnetic saturation coefficient 2 of iron core of asynchronous motor 2	0.0–100.0%	68%	○
P12.13	Magnetic saturation coefficient 3 of iron core of asynchronous motor 2	0.0–100.0%	57%	○
P12.14	Magnetic saturation coefficient 4 of iron core of asynchronous	0.0–100.0%	40%	○

Function code	Name	Detailed parameter description	Default value	Modify
	motor 2			
P12.15	Rated power of synchronous motor 2	0.1–3000.0kW	Depend on model	◎
P12.16	Rated frequency of synchronous motor 2	0.01Hz–P00.03 (max. output frequency)	50.00Hz	◎
P12.17	Number of pole pairs of synchronous motor 2	1–128	2	◎
P12.18	Rated voltage of synchronous motor 2	0–1200V	Depend on model	◎
P12.19	Rated voltage of synchronous motor 2	0.8–6000.0A	Depend on model	◎
P12.20	Stator resistance of synchronous motor 2	0.001–65.535Ω	Depend on model	○
P12.21	Direct-axis inductance of synchronous motor 2	0.01–655.35mH	Depend on model	○
P12.22	Quadrature-axis inductance of synchronous motor 2	0.01–655.35mH	Depend on model	○
P12.23	Counter-emf constant of synchronous motor 2	0–10000V	300	○
P12.24	Initial pole position of synchronous motor 2 (reserved)	0–0xFFFF	0x0000	●
P12.25	Identification	0%–50% (rated motor current)	10%	●

Function code	Name	Detailed parameter description	Default value	Modify
	current of synchronous motor 2 (reserved)			
P12.26	Overload protection of motor 2	0: No protection 1: Common motor (with low-speed compensation) 2: Frequency-variable motor (without low-speed compensation)	2	◎
P12.27	Overload protection coefficient of motor 2	Motor overload multiples M = Iout/(In×K) In is rated motor current, Iout is inverter output current, K is motor overload protection coefficient. The smaller the K, the larger the value of M, the easier the protection. M=116%: Protection will be applied when the motor overloads for 1h; M=150%: Protection will be applied when the motor overloads for 12min; M=180%: Protection will be applied when the motor overloads for 5min; M>=400%: Protection will be applied immediately.  Setting range: 20.0%–120.0%	100.0%	○
P12.28	Power display calibration coefficient of motor 2	0.00–3.00	1.00	○
P12.29	Parameter display of motor 2	0: Display based on the motor type; under this mode, only parameters related to current motor type will be displayed. 1: Display all; under this mode, all the parameters will be displayed.	0	○

Function code	Name	Detailed parameter description	Default value	Modify
P12.30	System inertia of motor 2	0–30.000kgm^2	0.000	○
P12.31–P12.32	Reserved variables	0–65535	0	○
P13 group Control parameters of synchronous motor				
P13.00	Reduction rate of the injection current of synchronous motor	0.0%–100.0% rated motor current	80.0%	○
P13.01	Initial pole detection mode	0: Pull-in current 1: High-frequency superposition (reserved) 2: Pulse superposition (reserved)	0	◎
P13.02	Pull-in current 1	Pull-in current is the pole position orientation current; pull-in current 1 is valid within the lower limit of pull-in current switch-over frequency threshold. If users need to increase the starting torque, increase the value of this function code properly. Setting range: 0.0%–100.0% (rated motor current)	20.0%	○
P13.03	Pull-in current 2	Pull-in current is the pole position orientation current; pull-in current 2 is valid within the upper limit of pull-in current switch-over frequency threshold, and users do not need to change pull-in current 2 under common situations. Setting range: 0.0%–100.0% (rated motor current)	10.0%	○
P13.04	Switch-over frequency of pull-in current	0.00Hz–P00.03 (max. output frequency)	10.00Hz	○
P13.05	High-frequency superposition frequency (reserved)	200Hz–1000Hz	500Hz	◎
P13.06	High-frequency superposition voltage	0.0–300.0% rated motor voltage	100.0%	◎
P13.07	Reserved variables	0–400.0	0.0	○
P13.08	Control	0–0xFFFF	0	○

Function code	Name	Detailed parameter description	Default value	Modify
	parameter 1			
P13.09	Control parameter 2	0–655.35	2.00	○
P13.10	Reserved variables	0–359.9	0	○
P13.11	Maladjustment detection time	This parameter is used to adjust the responsiveness of anti-maladjustment function. If the load inertia is large, increase the value of this parameter properly, however, the responsiveness may slow down accordingly. Setting range: 0.0–10.0s	0.5s	○
P13.12	High-frequency compensation coefficient of synchronous motor	This parameter is valid when the motor speed exceeds the rated speed. If motor oscillation occurred, adjust this parameter properly. Setting range: 0.0–100.0%	0.0	○
P13.13–P13.19	Reserved variables	0–65535	0	○
P14 group Serial communication function				
P14.00	Local communication address	Setting range: 1–247 When the master is writing frames, and the slave communication address is set to 0, it is the broadcast communication address, and all the slaves on the MODBUS bus will accept this frame, but the slave never responds. Local communication address is unique in the communication network, which is the basis for point-to-point communication between the upper computer and the inverter. **Note: The slave address cannot be set to 0.**	1	○
P14.01	Communication baud rate setup	This parameter is used to set the data transmission speed between upper computer and the inverter. 0: 1200BPS 1: 2400BPS 2: 4800BPS 3: 9600BPS 4: 19200BPS 5: 38400BPS	4	○

Function code	Name	Detailed parameter description	Default value	Modify
		6: 57600BPS 7: 115200BPS **Note: Baud rate of the upper computer must be the same with the inverter; otherwise, communication cannot be performed. The larger the baud rate, the faster the communication speed.**		
P14.02	Data bit check setup	The data format of upper computer must be the same with the inverter; otherwise, communication cannot be performed. 0: No parity check (N, 8, 1) for RTU 1: Even parity (E, 8, 1) for RTU 2: Odd parity (O, 8, 1) for RTU 3: No parity check (N, 8, 2) for RTU 4: Even parity (E, 8, 2) for RTU 5: Odd parity (O, 8, 2) for RTU	1	○
P14.03	Communication response delay	0–200ms It refers to the time interval from when the data is received by the inverter to the moment when the data is sent to the upper computer. If the response delay is less than the system processing time, the response delay will be subject to system processing time; if the response delay is longer than the system processing time, data will be sent to the upper computer at a delay after data process is done by system.	5	○
P14.04	Communication timeout period	0.0 (invalid) –60.0s This parameter will be invalid if it is set to 0.0; When it is set to a non-zero value, if the time interval between current communication and the next communication exceeds the communication timeout period, the system will report "485 communication fault" (CE). Under common situations, it is set to 0.0. In systems which have continuous communication, users can monitor the communication condition by setting this parameter.	0.0s	○
P14.05	Transmission error processing	0: Alarm and coast to stop 1: Do not alarm and continue running	0	○

Function code	Name	Detailed parameter description	Default value	Modify
		2: Do not alarm and stop as per the stop mode (under communication control mode only) 3: Do not alarm and stop as per the stop mode (under all control modes)		
P14.06	Communication processing action	0x00–0x11 Ones: 0: Write operation has response 1: Write operation has no response Tens: 0: Communication password protection is invalid 1: Communication password protection is valid	0x00	○
P14.07–P14.24	Reserved variables	0–65535	0	●
P15 group Functions of communication extension card 1				
P15.00–P15.27	See the operation manual of communication extension card for details			
P15.28	Master/slave CAN communication address	0–127	1	◎
P15.29	Master/slave CAN communication baud rate selection	0: 50Kbps 1: 100 Kbps 2: 125Kbps 3: 250Kbps 4: 500Kbps 5: 1M bps	4	◎
P15.30	Master/slave CAN communication timeout period	0.0 (invalid)–300.0s	0.0s	○
P15.31–P15.69	See the operation manual of communication extension card for details			
P16 group Functions of communication extension card 2				
P16.00–P16.23	See the operation manual of communication extension card for details			
P16.24	Identification time for the extension card in	0.0–600.0s If it is set to 0.0, identification fault will not be detected	0.0–600.00	0.0

Function code	Name	Detailed parameter description	Default value	Modify
	card slot 1			
P16.25	Identification time for the extension card in card slot 2	0.0–600.0s If it is set to 0.0, offline fault will not be detected	0.0–600.00	0.0
P16.26	Identification time for the extension card in card slot 3	0.0–600.0s If it is set to 0.0, offline fault will not be detected	/	/
P16.27	Communication timeout period of extension card in card slot 1	0.0–600.0s If it is set to 0.0, offline fault will not be detected	/	/
P16.28	Communication timeout period of extension card in card slot 2	0.0–600.0s If it is set to 0.0, offline fault will not be detected	/	/
P16.29	Communication timeout period of extension card in card slot 3	0.0–600.0s If it is set to 0.0, offline fault will not be detected	/	/
P16.30–P16.69	See the operation manual of communication extension card for details			
P17 group State-check functions				
P17.00	Set frequency	Display current set frequency of the inverter. Range: 0.00Hz–P00.03	50.00Hz	●
P17.01	Output frequency	Display current output frequency of the inverter. Range: 0.00Hz–P00.03	0.00Hz	●
P17.02	Ramps reference frequency	Display current ramps reference frequency of the inverter. Range: 0.00Hz–P00.03	0.00Hz	●
P17.03	Output voltage	Display current output voltage of the inverter. Range: 0–1200V	0V	●
P17.04	Output current	Display the valid value of current output current of the inverter. Range: 0.0–5000.0A	0.0A	●
P17.05	Motor speed	Display current motor speed. Range: 0–65535RPM	0 RPM	●

Function code	Name	Detailed parameter description	Default value	Modify
P17.06	Torque current	Display current torque current of the inverter. Range: -3000.0–3000.0A	0.0A	●
P17.07	Exciting current	Display current exciting current of the inverter. Range: -3000.0–3000.0A	0.0A	●
P17.08	Motor power	Display current motor power; 100% relative to rated motor power, positive value is motoring state, negative value is generating state. Range: -300.0–300.0% (relative to rated motor power)	0.0%	●
P17.09	Motor output torque	Display current output torque of the inverter; 100% relative to rated motor torque, during forward running, positive value is motoring state, negative value is generating state, during reverse running, positive value is generating state, negative value is motoring state. Range: -250.0–250.0%	0.0%	●
P17.10	Estimated motor frequency	The estimated motor rotor frequency under open-loop vector condition. Range: 0.00– P00.03	0.00Hz	●
P17.11	DC bus voltage	Display current DC bus voltage of the inverter. Range: 0.0–2000.0V	0V	●
P17.12	Digital input terminal state	Display current digital input terminal state of the inverter. 0000–03F Corresponds to HDIB, HDIA, S4, S3, S2 and S1 respectively	0	●
P17.13	Digital output terminal state	Display current digital output terminal state of the inverter. 0000–000F Corresponds to R02, RO1, HDO and Y1 respectively	0	●
P17.14	Digital adjustment variable	Display the regulating variable by UP/DOWN terminals of the inverter. Range: 0.00Hz–P00.03	0.00Hz	●
P17.15	Torque reference value	Relative to percentage of the rated torque of current motor, display torque reference. Range: -300.0%–300.0% (rated motor current)	0.0%	●
P17.16	Linear speed	0–65535	0	●
P17.17	Reserved	0–65535	0	●

Function code	Name	Detailed parameter description	Default value	Modify
	variables			
P17.18	Count value	0–65535	0	●
P17.19	AI1 input voltage	Display input signal of AI 1 Range: 0.00–10.00V	0.00V	●
P17.20	AI2 input voltage	Display input signal of AI2 Range: -10.00V–10.00V	0.00V	●
P17.21	HDIA input frequency	Display input frequency of HDIA Range: 0.000–50.000kHz	0.000 kHz	●
P17.22	HDIB input frequency	Display input frequency of HDIB Range: 0.000–50.000kHz	0.000 kHz	●
P17.23	PID reference value	Display PID reference value Range: -100.0–100.0%	0.0%	●
P17.24	PID feedback value	Display PID feedback value Range: -100.0–100.0%	0.0%	●
P17.25	Motor power factor	Display the power factor of current motor. Range: -1.00–1.00	1.00	●
P17.26	Current running time	Display current running time of the inverter. Range: 0–65535min	0m	●
P17.27	Simple PLC and current step number of multi-step speed	Display simple PLC and current step number of multi-step speed Range: 0–15	0	●
P17.28	Motor ASR controller output	Display the speed loop ASR controller output value under vector control mode, relative to the percentage of rated torque of the motor. Range: -300.0%–300.0% (rated motor current)	0.0%	●
P17.29	Pole angle of open-loop synchronous motor	Display initial identification angle of synchronous motor Range: 0.0–360.0	0.0	●
P17.30	Phase compensation of synchronous motor	Display phase compensation of synchronous motor Range: -180.0–180.0	0.0	●
P17.31	High-frequency superposition current of synchronous	0.0%–200.0% (rated motor current)	0.0	●

Function code	Name	Detailed parameter description	Default value	Modify
	motor			
P17.32	Motor flux linkage	0.0%–200.0%	0.0%	●
P17.33	Exciting current reference	Display the exciting current reference value under vector control mode Range: -3000.0–3000.0A	0.0A	●
P17.34	Torque current reference	Display torque current reference value under vector control mode Range: -3000.0–3000.0A	0.0A	●
P17.35	AC incoming current	Display the valid value of incoming current on AC side Range: 0.0–5000.0A	0.0A	●
P17.36	Output torque	Display output torque value, during forward running, positive value is motoring state, negative value is generating state; during reverse running, positive value is generating state, negative value is motoring state. Range: -3000.0Nm–3000.0Nm	0.0Nm	●
P17.37	Motor overload count value	0–65535	0	●
P17.38	Process PID output	-100.0%–100.0%	0.00%	●
P17.39	Parameter download wrong function code	0.00–99.00	0.00	●
P17.40	Motor control mode	Ones: Control mode 0: Vector 0 1: Vector 1 2: SVPWM control 3: VC Tens: Control state 0: Speed control 1: Torque control Hundreds: Motor number 0: Motor 1 1: Motor 2	2	●
P17.41	Upper limit of the torque when motoring	0.0%–300.0% (rated motor current)	180.0%	●

Function code	Name	Detailed parameter description	Default value	Modify
P17.42	Upper limit of brake torque	0.0%–300.0% (rated motor current)	180.0%	●
P17.43	Upper limit frequency of forward running of torque control	0.00–P00.03	50.00Hz	●
P17.44	Upper limit frequency of reverse running of torque control	0.00–P00.03	50.00Hz	●
P17.45	Inertia compensation torque	-100.0%–100.0%	0.0%	●
P17.46	Friction compensation torque	-100.0%–100.0%	0.0%	●
P17.47	Motor pole pairs	0–65535	0	●
P17.48	Inverter overload count value	0–65535	0	●
P17.49	Frequency set by A source	0.00–P00.03	0.00Hz	●
P17.50	Frequency set by B source	0.00–P00.03	0.00Hz	●
P17.51	PID proportional output	-100.0%–100.0%	0.00%	●
P17.52	PID integral output	-100.0%–100.0%	0.00%	●
P17.53	PID differential output	-100.0%–100.0%	0.00%	●
P17.54–P17.63	Reserved variables	0–65535	0	●
P18 group Closed-loop control state check				
P18.00	Actual frequency of encoder	The actual-measured encoder frequency; the value of forward running is positive; the value of reverse running is negative. Range: -999.9–3276.7Hz	0.0Hz	●
P18.01	Encoder position count value	Encoder count value, quadruple frequency, Range: 0–65535	0	●

Function code	Name	Detailed parameter description	Default value	Modify
P18.02	Encoder Z pulse count value	Corresponding count value of encoder Z pulse. Range: 0–65535	0	●
P18.03	High bit of position reference value	High bit of position reference value, zero out after stop. Range: 0–30000	0	●
P18.04	Low bit of position reference value	Low bit of position reference value, zero out after stop. Range: 0–65535	0	●
P18.05	High bit of position feedback value	High bit of position feedback value, zero out after stop. Range: 0–30000	0	●
P18.06	Low bit of position feedback value	Low bit of position feedback value, zero out after stop. Range: 0–65535	0	●
P18.07	Position deviation	Deviation between current reference position and actual running position. Range: -32768–32767	0	●
P18.08	Position of position reference point	Position of reference point of Z pulse when the spindle stops accurately. Range: 0–65535	0	●
P18.09	Current position setup of spindle	Current position setup when the spindle stops accurately. Range: 0–359.99	0.00	●
P18.10	Current position when spindle stops accurately	Current position when spindle stops accurately. Range: 0–65535	0	●
P18.11	Encoder Z pulse direction	Z pulse direction display. When the spindle stops accurately, there may be a couple of pulses' error between the position of forward and reverse orientation, which can be eliminated by adjusting Z pulse direction of P20.02 or exchanging phase AB of encoder. 0: Forward 1: Reverse	0	●
P18.12	Encoder Z pulse angle	Reserved. Range: 0.00–359.99	0.00	●
P18.13	Encoder Z pulse error times	Reserved. Range: 0–65535	0	●

Function code	Name	Detailed parameter description	Default value	Modify
P18.14	High bit of encoder pulse count value	0–65535	0	●
P18.15	Low bit of encoder pulse count value	0–65535	0	●
P18.16	Reserved variables	0–65535	0	●
P18.17	Pulse command frequency	Pulse command (A2, B2 terminal) is converted to the set frequency, and it is valid under pulse position mode and pulse speed mode. Range: 0–655.35Hz	0.00Hz	●
P18.18	Pulse command feedforward	Pulse command (A2, B2 terminal) is converted to the set frequency, and it is valid under pulse position mode and pulse speed mode. Range: 0–655.35Hz	0.00Hz	●
P18.19	Position regulator output	The output frequency of the position regulator during position control. Range: 0–65535	0	●
P18.20	Count value of resolver	Count value of resolver. Range: 0–65535	0	●
P18.21	Resolver angle	The pole position angle read according to the resolver-type encoder. Range: 0.00–359.99	0.00	●
P18.22	Pole angle of closed-loop synchronous motor	Current pole position. Range: 0.00–359.99	0.00	●
P18.23	State control word 3	0–65535	0	●
P18.24	High bit of count value of pulse reference	0–65535	0	●
P18.25	Low bit of count value of pulse reference	0–65535	0	●
P18.26	Spindle reduction ratio	It is the drive ratio (speed ratio) between the mounting shaft and the spindle of the encoder when	0.000	●

Function code	Name	Detailed parameter description	Default value	Modify
		spindle stops accurately. Range: 0.000–65.535		
P18.27	Encoder UVW sector	0–7	0	●
P18.28	Encoder PPR (pulse-per-revolution) display	0–65535	0	●
P18.29	Angle compensation value of synchronous motor	-180.0–180.0	0.00	●
P18.30	Reserved variables	0–65535	0	●
P18.31	Pulse reference Z pulse value	0–65535	0	●
P18.32–P18.35	Reserved variables	0–65535	0	●
P19 group Extension card state check				
P19.00	State of card slot 1	0–65535 0: No card 1: PLC programmable card 2: I/O card 3: Incremental PG card 4: Incremental PG card with UVW 5: Ethernet communication card 6: DP communication card 7: Bluetooth card 8: Resolver PG card 9: CANopen communication card 10: WIFI card 11: Profinet communication card 12: Sine/Cosine PG card without CD signal 13: Sine/Cosine PG card with CD signal 14: Absolute encoder PG card 15: CAN master/slave communication card 16: MODBUS communication card	0	●

Function code	Name	Detailed parameter description	Default value	Modify
		17: EtherCat communication card 18: BacNet communication card 19: DeviceNet communication card		
P19.01	State of card slot 2	0–65535 0: No card 1: PLC programmable card 2: I/O card 3: Incremental PG card 4: Incremental PG card with UVW 5: Ethernet communication card 6: DP communication card 7: Bluetooth card 8: Resolver PG card 9: CANopen communication card 10: WIFI card 11: Profinet communication card 12: Sine/Cosine PG card without CD signal 13: Sine/Cosine PG card with CD signal 14: Absolute encoder PG card 15: CAN master/slave communication card 16: MODBUS communication card 17: EtherCat communication card 18: BacNet communication card 19: DeviceNet communication card	0	●
P19.02	State of card slot 3	0–65535 0: No card 1: PLC programmable card 2: I/O card 3: Incremental PG card 4: Incremental PG card with UVW 5: Ethernet communication card 6: DP communication card 7: Bluetooth card 8: Resolver PG card 9: CANopen communication card 10: WIFI card 11: Profinet communication card 12: Sine/Cosine PG card without CD signal 13: Sine/Cosine PG card with CD signal	0	●

Function code	Name	Detailed parameter description	Default value	Modify
		14: Absolute encoder PG card 15: CAN master/slave communication card 16: MODBUS communication card 17: EtherCat communication card 18: BacNet communication card 19: DeviceNet communication card		
P19.03	Software version of the extension card in card slot 1	0.00–655.35	0.00	●
P19.04	Software version of the extension card in card slot 2	0.00–655.35	0.00	●
P19.05	Software version of the extension card in card slot 3	0.00–655.35	0.00	●
P19.06	Input state of extension I/O card terminals	0–0xFFFF	0	●
P19.07	Output state of extension I/O card terminals	0–0xFFFF	0	●
P19.08	HDI3 input frequency of extension I/O card	0.000–50.000kHz	0.000 kHz	●
P19.09	AI3 input voltage of extension I/O card	0.00–10.00V	0.00V	●
P19.10–P19.39	Reserved variables	0–65535	0	●
P20 group Encoder of motor 1				
P20.00	Encoder type display	0: Incremental encoder 1: Resolver-type encoder 2: Sin/Cos encoder 3: Endat absolute encoder	0	●
P20.01	Encoder pulse number	Number of pulses generated when the encoder revolves for one circle. Setting range: 0–60000	1024	◎

Function code	Name	Detailed parameter description	Default value	Modify
P20.02	Encoder direction	Ones: AB direction 0: Forward 1: Reverse Tens: Z pulse direction (reserved) 0: Forward 1: Reverse Hundreds: CD/UVW pole signal direction 0: Forward 1: Reverse	0x000	◎
P20.03	Detection time of encoder offline fault	The detection time of encoder offline fault. Setting range: 0.0–10.0s	1.0s	○
P20.04	Detection time of encoder reversal fault	Detection time of encoder reversal fault. Setting range: 0.0–100.0s	0.8s	○
P20.05	Filter times of encoder detection	Setting range: 0x00–0x99 Ones: Low-speed filter time, corresponds to 2^(0–9)×125us. Tens: High-speed filter times, corresponds to2^(0–9)×125us.	0x33	○
P20.06	Speed ratio between encoder mounting shaft and motor	Users need to set this parameter when the encoder is not installed on the motor shaft and the drive ratio is not 1. Setting range: 0.001–65.535	1.000	○
P20.07	Control parameters of synchronous motor	Bit0: Enable Z pulse calibration Bit1: Enable encoder angle calibration Bit2: Enable SVC speed measurement Bit3: Select resolver speed measurement mode Bit4: Z pulse capture mode Bit5: Do not detect encoder initial angle in v/f control Bit6: Enable CD signal calibration Bit7: Disable sin/cos sub-division speed measurement Bit8: Do not detect encoder fault during autotuning Bit9: Enable Z pulse detection optimization Bit10: Enable initial Z pulse calibration optimization Bit12: Clear Z pulse arrival signal after stop	0x3	○
P20.08	Enable Z pulse	0x00–0x11	0x10	○

Function code	Name	Detailed parameter description	Default value	Modify
	offline detection	Ones: Z pulse 0: Do not detect 1: Enable Tens: UVW pulse (for synchronous motor) 0: Do not detect 1: Enable		
P20.09	Initial angle of Z pulse	Relative electric angle of encoder Z pulse and motor pole position. Setting range: 0.00–359.99	0.00	○
P20.10	Initial angle of the pole	Relative electric angle of encoder position and motor pole position. Setting range: 0.00–359.99	0.00	○
P20.11	Autotuning of initial angle of pole	0–3 1: Rotary autotuning (DC brake) 2: Static autotuning (suitable for resolver-type encoder, sin/cos with CD signal feedback) 3: Rotary autotuning (initial angle identification)	0	◎
P20.12	Speed measurement optimization selection	0: No optimization 1: Optimization mode 1 2: Optimization mode 2	1	◎
P20.13	CD signal zero offset gain	0–65535	0	○
P20.14	Encoder type selection	Ones: Incremental encoder 0: without UVW 1: with UVW Tens: Sin/Cos encoder 0: without CD signal 1: with CD signal	0x00	◎
P20.15	Speed measurement mode	0: PG card 1: local; realized by HDIA and HDIB; supports incremental 24V encoder only	0	◎
P20.16	Frequency-division coefficient	0–255	0	○
P20.17	Pulse filer processing	0x0000–0xffff Bit0: Enable/disable encoder input filter 0: No filter 1: Filter	0x0011	○

Function code	Name	Detailed parameter description	Default value	Modify
		Bit1: Encoder signal filter mode (set Bit0 or Bit2 to 1) 0: Self-adaptive filter 1: Use P20.18 filter parameters Bit2: Enable/disable encoder frequency-division output filter 0: No filter 1: Filter Bit3: Reserved Bit4: Enable/disable pulse reference filter 0: No filter 1: Filter Bit5: Pulse reference filter mode (valid when Bit4 is set to 1) 0: Self-adaptive filter 1: Use P20.19 filter parameters Bit6–15: Reserved		
P20.18	Encoder pulse filter width	0–63 0 means 0.25us	39	○
P20.19	Pulse reference filter width	0–63 0 means 0.25us	39	○
P20.20	Pulse number of pulse reference	0–65535	1024	◎
P20.21	Enable angle compensation of synchronous motor	0–1	0	○
P20.22	Switch-over frequency threshold of speed measurement mode	0–630.00Hz	1.00Hz	○
P20.23–P20.24	Reserved variables	0–65535	0	○
P21 group Position control				
P21.00	Positioning mode	Ones: Control mode selection 0: Speed control 1: Position control	0x0000	○

Function code	Name	Detailed parameter description	Default value	Modify
		Tens: Position command source 0: Pulse string 1: Digital position 2: Positioning of photoelectric switch during stop Hundreds: Position feedback source (reserved, fixed to channel P) 0: PG1 1: PG2 Thousands: servo mode Bit0: Position deviation mode 0: No deviation 1: With deviation Bit1: Enable/disable servo 0: Disable (The servo can be enabled by terminals.) 1: Enable Bit2: (reserved)		
P21.01	Pulse command mode	Ones: Pulse mode 0: A/B quadrature pulse; A precedes B 1: A: PULSE; B: SIGN If channel B is of low electric level, the edge counts up; if channel B is of high electric level, the edge counts down. 2: A: Positive pulse Channel A is positive pulse; channel B needs no wiring 3: A\B dual-channel pulse; channel A pulse edge counts up, channel B pulse edge counts down Tens: Pulse direction Bit0: Set pulse direction 0: Forward 1: Reverse Bit1: Set pulse direction by running direction 0: Disable, and BIT0 is valid; 1: Enable Hundreds: Pulse/direction frequency-doubling selection (reserved) 0: No frequency-doubling 1: Frequency-doubling Thousands: Pulse control selection	0x0000	◎

Function code	Name	Detailed parameter description	Default value	Modify
		Bit0: Pulse filter selection 0: Inertia filter 1: Average moving filter Bit1: Overspeed control 0: No control 1: Control		
P21.02	Position loop gain 1	0–400.0	20.0	○
P21.03	Position loop gain 2	0–400.0	30.0	○
P21.04	Switch-over mode of position loop gain	0: No switch-over 1: Torque command 2: Speed command 3–5: Reserved	0	○
P21.05	Torque command level during position gain switch-over	0.0–100.0% (rated motor torque)	10.0%	○
P21.06	Speed command level during position gain switch-over	0.0–100.0% (rated motor speed)	10.0%	○
P21.07	Smooth filter coefficient during gain switch-over	The smooth filter coefficient during position gain switch-over. Setting range: 0–15	5	○
P21.08	Output limit of position controller	The output limit of position regulator, if the limit value is 0, position regulator will be invalid, and no position control can be performed, however, speed control is available. Setting range: 0.0–100.0% (max. output frequency P00.03)	20.0%	○
P21.09	Completion range of positioning	When the position deviation is less than P21.09, and the duration is larger than P21.10, positioning completion signal will be outputted. Setting range: 0–1000	10	○
P21.10	Detection time for positioning completion	0.0–1000.0ms	10.0ms	○

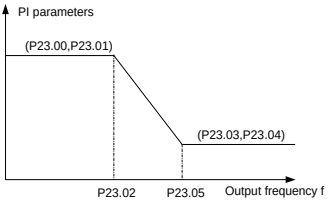
Function code	Name	Detailed parameter description	Default value	Modify
P21.11	Numerator of position command ratio	Electronic gear ratio, used to adjust the corresponding relation between position command and actual running displacement. Setting range: 1–65535	1000	○
P21.12	Denominator of position command ratio	Setting range: 1–65535	1000	○
P21.13	Position feedforward gain	0.00–120.00% For pulse string reference only (position control)	100.00	○
P21.14	Position feedforward filter time constant	0.0–3200.0ms For pulse string reference only (position control)	3.0ms	○
P21.15	Position command filter time constant	The position feedforward filter time constant during pulse string positioning. 0.0–3200.0ms	0.0ms	◎
P21.16	Digital positioning mode	Bit0: Positioning mode selection 0: Relative position 1: Absolute position (home) (reserved) Bit1: Positioning cycle selection 0: Cyclic positioning by terminals 1: Automatic cyclic positioning Bit2: Cycle mode 0: Continuous 1: Repetitive (supported by automatic cyclic positioning only) Bit3: P21.17 digital setting mode 0: Incremental 1: Position type (do not support continuous mode) Bit4: Home searching mode 0: Search for the home just once 1: Search for the home during each run Bit5: Home calibration mode 0: Calibrate in real time 1: Single calibration Bit6: Positioning completion signal selection 0: Valid during the time set by P21.25 (Hold time of positioning completion signal) 1: Always valid Bit7: Initial positioning selection (for cyclic	0	○

Function code	Name	Detailed parameter description	Default value	Modify
		positioning by terminals) 0: Invalid (do not rotate) 1: Valid Bit8: Positioning enable signal selection (for cyclic positioning by terminals only; positioning function is always enabled for automatic cyclic positioning) 0: Pulse signal 1: Level signal Bit9: Position source 0: P21.17 setting 1: PROFIBUS/CANopen setting Bit10–11: Reserved Bit12: Positioning curve selection (reserved) 0: Straight line 1: S curve		
P21.17	Position digital reference	Set digital positioning position; Actual position=P21.17×P21.11/P21.12 0–65535	0	○
P21.18	Positioning speed setup selection	0: Set by P21.19 1: Set by AI1 2: Set by AI2 3: Set by AI3 4: Set by high speed pulse HDIA 5: Set by high speed pulse HDIB	0	○
P21.19	Positioning speed digits	0–100.0% max. frequency	20.0%	○
P21.20	Acceleration time of positioning	Set the acceleration/deceleration time of positioning process. Acceleration time of positioning means the time needed for the inverter to accelerate from 0Hz to the max. output frequency (P00.03). Deceleration time of positioning means the time needed for the inverter to decelerate from the max. output frequency (P00.03) to 0hz. Setting range of P21.20: 0.01–300.00s Setting range of P21.21: 0.01–300.00s	3.00s	○
P21.21	Deceleration time of positioning		3.00s	○
P21.22	Hold time of positioning arrival	Set the hold time of waiting when target positioning position is reached. Setting range: 0.000–60.000s	0.100s	○

Function code	Name	Detailed parameter description	Default value	Modify
P21.23	Home search speed	0.00–50.00Hz	2.00Hz	○
P21.24	Home position offset	0–65535	0	○
P21.25	Hold time of positioning completion signal	The hold time of positioning completion signal, this parameter is also valid for positioning completion signal of spindle orientation. Setting range: 0.000–60.000s	0.200s	○
P21.26	Pulse superposition value	0–65535	0	○
P21.27	Pulse superposition speed	0–6553.5	8.0	○
P21.28	Acceleration/deceleration time after disabling pulse	000.0–3000.0s	5.0s	○
P21.29	Speed feedforward filter time constant (pulse string speed mode)	It is the filter time constant detected by pulse string when the speed reference source is set to pulse string (P0.06=12 or P0.07=12). Setting range: 0–3200.0ms	10.0ms	○
P21.30	Numerator of the 2nd command ratio	1–65535	1000	○
P21.31–P21.33	Reserved variables	0–65535	0	○
P22 group Spindle positioning				
P22.00	Spindle positioning mode selection	Bit0: Enable spindle positioning 0: Disable 1: Enable Bit1: Select spindle positioning reference point 0: Z pulse input 1: S2/S3/S4 terminal input Bit2: Search for reference point 0: Search the reference point only once 1: Search the reference point every time	0	○

Function code	Name	Detailed parameter description	Default value	Modify
		Bit3: Enable reference point calibration 0: Disable 1: Enable Bit4: Positioning mode selection 1 0: Set direction positioning 1: Near-by direction positioning Bit5: Positioning mode selection 2 0: Forward positioning 1: Reverse positioning Bit6: Zeroing command selection 0: Electric level mode 1: Pulse mode Bit7: Reference point calibration mode 0: Calibrate at the first time 1: Calibrate in real time Bit8: Action selection after zeroing signal cancellation (electric level type) 0: Switch to speed mode 1: Position lock mode Bit9: Positioning completion signal selection 0: Electric level signal 1: Pulse signal Bit10: Z pulse signal source 0: Motor 1: Spindle Bit11–15: Reserved		
P22.01	Speed of spindle orientation	During spindle orientation, the speed of the position point of orientation will be searched, and then it will switch over to position control orientation. Setting range: 0.00–100.00Hz	10.00Hz	○
P22.02	Deceleration time of spindle orientation	Deceleration time of spindle orientation. Spindle orientation deceleration time means the time needed for the inverter to decelerate from the max. output frequency (P00.03) to 0Hz. Setting range: 0.0–100.0s	3.0s	○
P22.03	Spindle zeroing position 0	Users can select the zeroing positions of four spindles by terminals (function code 46, 47). Setting range: 0–39999	0	○

Function code	Name	Detailed parameter description	Default value	Modify
P22.04	Spindle zeroing position 1	Setting range: 0–39999	0	○
P22.05	Spindle zeroing position 2	Setting range: 0–39999	0	○
P22.06	Spindle zeroing position 3	Setting range: 0–39999	0	○
P22.07	Spindle scale-division angle 1	Users can select seven spindle scale-division values by terminals (function code 48, 49 and 50). Setting range: 0.00–359.99	15.00	○
P22.08	Spindle scale-division angle 2	Setting range: 0.00–359.99	30.00	○
P22.09	Spindle scale-division angle 3	Setting range: 0.00–359.99	45.00	○
P22.10	Spindle scale-division angle 4	Setting range: 0.00–359.99	60.00	○
P22.11	Spindle scale-division angle 5	Setting range: 0.00–359.99	90.00	○
P22.12	Spindle scale-division angle 6	Setting range: 0.00–359.99	120.00	○
P22.13	Spindle scale-division angle 7	Setting range: 0.00–359.99	180.00	○
P22.14	Spindle drive ratio	This function code sets the reduction ratio of the spindle and the mounting shaft of the encoder. Setting range: 0.000–30.000	1.000	○
P22.15	Zero-point communication setup of spindle	P22.15 sets spindle zero-point offset, if the selected spindle zero point is P22.03, the final spindle zero point will be the sum of P22.03 and P22.15. Setting range: 0–39999	0	○
P22.16	Reserved variables	0–65535	0	○
P22.17	Reserved variables	0–65535	0	○

Function code	Name	Detailed parameter description	Default value	Modify
P22.18	Rigid tapping selection	Ones: Enable/disable 0: Disable 1: Enable Tens: Analog port selection 0: Invalid 1: AI1 2: AI2 3: AI3	0x00	◎
P22.19	Analog filter time of rigid tapping	0.0ms–1000.0ms	1.0ms	○
P22.20	Max. frequency of rigid tapping	0.00–400.00Hz	50.00Hz	○
P22.21	Corresponding frequency of analog zero drift of rigid tapping	0.00–10.00Hz	0.00Hz	○
P22.22	Reserved variables	0–1	0	○
P22.23–P22.24	Reserved variables	0–65535	0	○
P23 group Vector control of motor 2				
P23.00	Speed loop proportional gain 1	P23.00–P23.05 fit for vector control mode only. Below switch-over frequency 1 (P23.02), the speed loop PI parameters are P23.00 and P23.01. Above switch-over frequency 2 (P23.05), the speed loop PI parameters are P23.03 and P23.04; in between them, the PI parameters are obtained by linear variation between two groups of parameters, as shown in the figure below.  The speed loop dynamic response characteristics of vector control can be adjusted by setting the proportional coefficient and integral time of speed	20.0	○
P23.01	Speed loop integral time 1		0.200s	○
P23.02	Switch over low point frequency		5.00Hz	○
P23.03	Speed loop proportional gain 2		20.0	○
P23.04	Speed loop integral time 2		0.200s	○
P23.05	Switch over high point frequency		10.00Hz	○

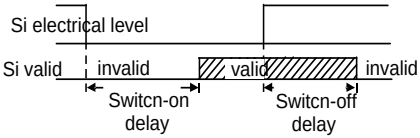
Function code	Name	Detailed parameter description	Default value	Modify
		regulator. Increase proportional gain or decrease integral time can accelerate dynamic response of speed loop, however, if the proportional gain is too large or integral time is too small, system oscillation and large overshoot may occur; if proportional gain is too small, stable oscillation or speed offset may occur. Speed loop PI parameter is closely related to the system inertia, users should make adjustment according to different load characteristics based on the default PI parameter to fulfill different needs. Setting range of P23.00: 0.0–200.0 Setting range of P23.01: 0.000–10.000s Setting range of P23.02: 0.00Hz–P23.05 Setting range of P23.03: 0.0–200.0 Setting range of P23.04: 0.000–10.000s Setting range of P23.05: P23.02–P00.03 (max. output frequency)		
P23.06	Speed loop output filter	0–8 (corresponds to 0–2^8/10ms)	0	○
P23.07	Slip compensation coefficient of vector control (motoring)	Slip compensation coefficient is used to adjust the slip frequency of vector control to improve system speed control precision. Users can effectively control the static error of speed by adjusting this parameter properly. Setting range: 50–200%	100%	○
P23.08	Slip compensation coefficient of vector control (generating)		100%	○
P23.09	Current loop proportional coefficient P	**Note:** 1. These two parameters are used to adjust PI parameters of current loop; it affects dynamic response speed and control precision of the system directly. The default value needs no adjustment under common conditions; 2. Fit for SVC mode 0 (P00.00=0) and VC mode (P00.00=3); 3. The value of this function code will be updated	1000	○
P23.10	Current loop integral coefficient I		1000	○

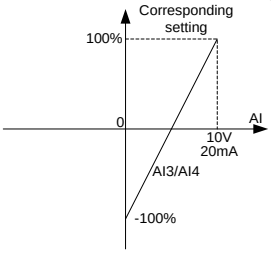
Function code	Name	Detailed parameter description	Default value	Modify
		automatically after parameter autotuning of synchronous motor is done. Setting range: 0–65535		
P23.11	Speed loop differential gain	0.00–10.00s	0.00s	○
P23.12	Proportional coefficient of high-frequency current loop	Under VC mode (P00.00=3), below current loop high-frequency switch-over threshold (P23.14), current loop PI parameters are P23.09 and P23.10; above current loop high-frequency switch-over threshold, current loop PI parameters are P23.12 and P23.13. Setting range of P23.12: 0–20000 Setting range of P23.13: 0–20000 Setting range of P23.14: 0.0–100.0% (relative to max. frequency)	1000	○
P23.13	Integral coefficient of high-frequency current loop		1000	○
P23.14	High-frequency switch-over threshold of current loop		100.0%	○
P23.15–P23.19	Reserved variables	0–65535	0	●
P24 group Encoder of motor 2				
P24.00	Encoder type display	0: Incremental encoder 1: Resolver-type encoder 2: Sin/Cos encoder 3: Endat absolute encoder	0	●
P24.01	Encoder pulse number	Number of pulses generated when the encoder revolves for one circle. Setting range: 0–60000	1024	◎
P24.02	Encoder direction	Ones: AB direction 0: Forward 1: Reverse Tens: Z pulse direction (reserved) 0: Forward 1: Reverse Hundreds: CD/UVW pole signal direction 0: Forward 1: Reverse	0x000	◎
P24.03	Detection time of encoder offline	The detection time of encoder offline fault. Setting range: 0.0–10.0s	1.0s	○

Function code	Name	Detailed parameter description	Default value	Modify
	fault			
P24.04	Detection time of encoder reversal fault	Detection time of encoder reversal fault. Setting range: 0.0–100.0s	0.8s	○
P24.05	Filter times of encoder detection	Setting range: 0x00–0x99 Ones: Low-speed filter times, corresponds to 2^(0–9)×125us. Tens: High-speed filter times; corresponds to 2^(0–9)×125us.	0x33	○
P24.06	Speed ratio between encoder mounting shaft and motor	Users need to set this parameter when the encoder is not installed on the motor shaft and the drive ratio is not 1. Setting range: 0.001–65.535	1.000	○
P24.07	Control parameters of synchronous motor	Bit0: Enable Z pulse calibration Bit1: Enable encoder angle calibration Bit2: Enable SVC speed measurement Bit3: Select resolver speed measurement mode Bit4: Z pulse capture mode Bit5: Do not detect encoder initial angle in v/f control Bit6: Enable CD signal calibration Bit7: Disable sin/cos sub-division speed measurement Bit8: Do not detect encoder fault during autotuning Bit9: Enable Z pulse detection optimization Bit10: Enable initial Z pulse calibration optimization Bit12: Clear Z pulse arrival signal after stop	0x3	○
P24.08	Enable Z pulse offline detection	0x00–0x11 Ones: Z pulse Reserved Tens: UVW pulse 0: Do not detect 1: Enable	0x10	○
P24.09	Initial angle of Z pulse	Relative electric angle of encoder Z pulse and motor pole position. Setting range: 0.00–359.99	0.00	○
P24.10	Initial angle of the pole	Relative electric angle of encoder position and motor pole position. Setting range: 0.00–359.99	0.00	○

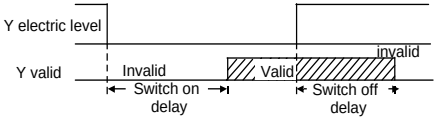
Function code	Name	Detailed parameter description	Default value	Modify
P24.11	Autotuning of initial angle of pole	0–3 1: Rotary autotuning (DC brake) 2: Static autotuning (suitable for resolver-type encoder, sin/cos with CD signal feedback) 3: Rotary autotuning (initial angle identification)	0	◎
P24.12	Speed measurement optimization selection	0: No optimization 1: Optimization mode 1 2: Optimization mode 2	1	◎
P24.13	CD signal zero offset gain	0–65535	0	○
P24.14	Encoder type selection	Ones: Incremental encoder 0: without UVW 1: with UVW Tens: Sin/Cos encoder 0: without CD signal 1: with CD signal	0x00	◎
P24.15	Speed measurement mode	0: PG card 1: local; realized by HDIA and HDIB; supports incremental 24V encoder only	0	◎
P24.16	Frequency-division coefficient	0–255	0	○
P24.17	Pulse filer processing	0x0000–0xffff Bit0: Enable/disable encoder input filter 0: No filter 1: Filter Bit1: Encoder signal filter mode (set Bit0 or Bit2 to 1) 0: Self-adaptive filter 1: Use P20.18 filter parameters Bit2: Enable/disable encoder frequency-division output filter 0: No filter 1: Filter Bit3: Reserved Bit4: Enable/disable pulse reference filter 0: No filter 1: Filter	0x0011	○

Function code	Name	Detailed parameter description	Default value	Modify
		Bit5: Pulse reference filter mode (valid when Bit4 is set to 1) 0: Self-adaptive filter 1: Use P24.19 filter parameters Bit6–15: Reserved		
P24.18	Encoder pulse filter width	0–63 0 means 0.25us	39	○
P24.19	Pulse reference filter width	0–63 0 means 0.25us	39	○
P24.20	Pulse number of pulse reference	0–65535	1024	◎
P24.21	Enable angle compensation of synchronous motor	0–1	0	○
P24.22	Switch-over frequency threshold of speed measurement mode	0–630.00Hz	1.00Hz	○
P24.23–P24.24	Reserved variables	0–65535	0	○
P25 group Extension I/O card input functions				
P25.00	HDI3 input type selection	0: HDI3 is high-speed pulse input 1: HDI3 is digital input	0	◎
P25.01	S5 terminal function	The same with P05 group	0	◎
P25.02	S6 terminal function		0	◎
P25.03	S7 terminal function		0	◎
P25.04	S8 terminal function		0	◎
P25.05	S9 terminal function		0	◎
P25.06	S10 terminal function		0	◎

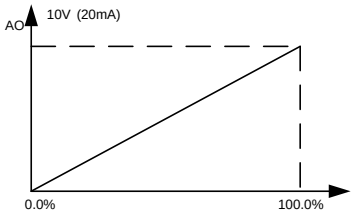
Function code	Name	Detailed parameter description	Default value	Modify
P25.07	HDI3 terminal function		0	◎
P25.08	Input terminal polarity of extension card	0x00–0x7F	0x00	○
P25.09	Virtual terminal setup of extension card	0x000–0x7F (0: disable, 1: enable) BIT0: S5 virtual terminal BIT1: S6 virtual terminal BIT2: S7 virtual terminal BIT3: S8 virtual terminal BIT4: S9 virtual terminal BIT5: S10 virtual terminal BIT6: HDI3 virtual terminal	0x00	◎
P25.10	HDI3 terminal switch-on delay	These function codes define corresponding delay of the programmable input terminals during level variation from switch-on to switch-off .  Setting range: 0.000–50.000s	0.000s	○
P25.11	HDI3 terminal switch-off delay		0.000s	○
P25.12	S5 terminal switch-on delay		0.000s	○
P25.13	S5 switch-off delay		0.000s	○
P25.14	S6 terminal switch-on delay		0.000s	○
P25.15	S6 switch-off delay		0.000s	○
P25.16	S7 terminal switch-on delay		0.000s	○
P25.17	S7 switch-off delay		0.000s	○
P25.18	S8 terminal switch-on delay		0.000s	○
P25.19	S8 switch-off delay		0.000s	○
P25.20	S9 terminal switch-on delay		0.000s	○
P25.21	S9 switch-off delay		0.000s	○
P25.22	S10 terminal		0.000s	○

Function code	Name	Detailed parameter description	Default value	Modify
	switch-on delay	These function codes define the relation between analog input voltage and corresponding set value of analog input. When the analog input voltage exceeds the range of max./min. input, the max. input or min. input will be adopted during calculation. When analog input is current input, 0–20mA current corresponds to 0–10V voltage. In different application cases, 100% of the analog setting corresponds to different nominal values. The figure below illustrates several settings.  Input filter time: Adjust the sensitivity of analog input, increase this value properly can enhance the anti-interference capacity of analog variables; however, it will also degrade the sensitivity of analog input. **Note:** AI3 and AI4 can support 0–10V/0–20mA input, when AI3 and AI4 select 0–20mA input, the corresponding voltage of 20mA is 10V; Setting range of P25.24: 0.00V–P25.26 Setting range of P25.25: -100.0%–100.0% Setting range of P25.26: P25.24–10.00V Setting range of P25.27: -100.0%–100.0% Setting range of P25.28: 0.000s–10.000s Setting range of P25.29: 0.00V–P25.31 Setting range of P25.30: -100.0%–100.0% Setting range of P25.31: P25.29–10.00V Setting range of P25.32: -100.0%–100.0% Setting range of P25.33: 0.000s–10.000s		
P25.23	S10 switch-off delay		0.000s	○
P25.24	Lower limit value of AI3		0.00V	○
P25.25	Corresponding setting of lower limit of AI3		0.0%	○
P25.26	Upper limit value of AI3		10.00V	○
P25.27	Corresponding setting of upper limit of AI3		100.0%	○
P25.28	Input filter time of AI3		0.030s	○
P25.29	Lower limit value of AI4		0.00V	○
P25.30	Corresponding setting of lower limit of AI4		0.0%	○
P25.31	Upper limit value of AI4		10.00V	○
P25.32	Corresponding setting of upper limit of AI4		100.0%	○
P25.33	Input filter time of AI4		0.030s	○

Function code	Name	Detailed parameter description	Default value	Modify
P25.34	HDI3 high-speed pulse input function	0: Set input via frequency 1: Count	0	◎
P25.35	Lower limit frequency of HDI3	0.000 kHz – P25.37	0.000 kHz	○
P25.36	Corresponding setting of lower limit frequency of HDI3	-100.0%–100.0%	0.0%	○
P25.37	Upper limit frequency of HDI3	P25.35 –50.000kHz	50.000 kHz	○
P25.38	Corresponding setting of upper limit frequency of HDI3	-100.0%–100.0%	100.0%	○
P25.39	HDI3 frequency input filter time	0.000s–10.000s	0.030s	○
P25.40	AI3 input signal type	Range: 0–1 0: Voltage type 1: Current type	0	○
P25.41	AI4 input signal type	Range: 0–1 0: Voltage type 1: Current type	0	○
P25.42–P25.45	Reserved variables	0–65535	0	○
P26 group	**Output functions of extension I/O card**			
P26.00	HDO2 output type	0: Open collector high-speed pulse output 1: Open collector output	0	◎
P26.01	HDO2 output selection	The same with P06.01	0	○
P26.02	Y2 output selection		0	○
P26.03	Y3 output selection		0	○
P26.04	Relay RO3 output selection		0	○

Function code	Name	Detailed parameter description	Default value	Modify
P26.05	Relay RO4 output selection		0	○
P26.06	Relay RO5 output selection		0	○
P26.07	Relay RO6 output selection		0	○
P26.08	Relay RO7 output selection		0	○
P26.09	Relay RO8 output selection		0	○
P26.10	Relay RO9 output selection		0	○
P26.11	Relay RO10 output selection		0	○
P26.12	Output terminal polarity of extension card	0x0000–0x7FF RO10, RO9…RO3, HDO2,Y3, Y2 in sequence	0x000	○
P26.13	HDO2 switch-on delay		0.000s	○
P26.14	HDO2 switch-off delay		0.000s	○
P26.15	Y2 switch-on delay		0.000s	○
P26.16	Y2 switch-off delay	This function code defines the corresponding delay of the level variation from switch-on to switch-off.	0.000s	○
P26.17	Y3 switch-on delay		0.000s	○
P26.18	Y3 switch-off delay		0.000s	○
P26.19	Relay RO3 switch-on delay	Setting range: 0.000–50.000s **Note: P26.13 and P26.14 are valid only when P26.00 is set to 1.**	0.000s	○
P26.20	Relay RO3 switch-off delay		0.000s	○
P26.21	Relay RO4 switch-on delay		0.000s	○
P26.22	Relay RO4 switch-off delay		0.000s	○
P26.23	Relay RO5		0.000s	○

Function code	Name	Detailed parameter description	Default value	Modify
	switch-on delay			
P26.24	Relay RO5 switch-off delay		0.000s	○
P26.25	Relay RO6 switch-on delay		0.000s	○
P26.26	Relay RO6 switch-off delay		0.000s	○
P26.27	Relay RO7 switch-on delay		0.000s	○
P26.28	Relay RO7 switch-off delay		0.000s	○
P26.29	Relay RO8 switch-on delay		0.000s	○
P26.30	Relay RO8 switch-off delay		0.000s	○
P26.31	Relay RO9 switch-on delay		0.000s	○
P26.32	Relay RO9 switch-off delay		0.000s	○
P26.33	Relay RO10 switch-on delay		0.000s	○
P26.34	Relay RO10 switch-off delay		0.000s	○
P26.35	AO2 output selection	The same with P06.14	0	○
P26.36	AO3 output selection		0	○
P26.37	Reserved variables		0	○
P26.38	Lower limit of AO2 output	Above function codes define the relation between output value and analog output. When the output value exceeds the set max./min. output range, the upper/low limit of output will be adopted during calculation. When analog output is current output, 1mA corresponds to 0.5V voltage. In different applications, 100% of output value corresponds to different analog outputs.	0.0%	○
P26.39	Corresponding AO2 output of lower limit		0.00V	○
P26.40	Upper limit of AO2 output		100.0%	○
P26.41	Corresponding AO2 output of		10.00V	○

Function code	Name	Detailed parameter description	Default value	Modify
	upper limit			
P26.42	AO2 output filter time	Setting range of P26.38: -100.0%–P26.40 Setting range of P26.39: 0.00V–10.00V Setting range of P26.40: P26.38–100.0% Setting range of P26.41: 0.00V–10.00V Setting range of P26.42: 0.000s–10.000s Setting range of P26.43: -100.0%–P26.45 Setting range of P26.44: 0.00V–10.00V Setting range of P26.45: P26.43–100.0% Setting range of P26.46: 0.00V–10.00V Setting range of P26.47: 0.000s–10.000s	0.000s	○
P26.43	Lower limit of AO3 output		0.0%	○
P26.44	Corresponding AO3 output of lower limit		0.00V	○
P26.45	Upper limit of AO3 output		100.0%	○
P26.46	Corresponding AO3 output of upper limit		10.00V	○
P26.47	AO3 output filter time		0.000s	○
P26.48–P26.52	Reserved variables	0–65535	0	○
P28 group Master/slave control functions				
P28.00	Master/slave mode selection	0: The master/slave control is invalid 1: This machine is a master 2: This machine is a slave	0	◎
P28.01	Master/slave communication data selection	0: CAN 1: Reserved	0	◎
P28.02	Master/slave control mode	Ones: Master/slave running mode selection 0: Master/slave mode 0 (The master and slave adopt speed control and maintains the power balance by droop control) 1: Master/slave mode 1 (The master and slave must be in the same type of vector control mode. The master is speed control, and the slave will be forced to be in the torque control mode. 2: Master/slave mode 2 Start in the slave first speed mode (master/slave mode 0) and then switch to torque mode at a certain	0x001	◎

Function code	Name	Detailed parameter description	Default value	Modify
		frequency point (master/slave mode 1) Tens: Slave start command source selection 0: Follow the master to start 1: Determined by P00.01 Hundreds: Slave transmitting/master receiving data enable 0: Enable 1: Disable		
P28.03	Slave speed gain	0.0–500.0%	100.0%	○
P28.04	Slave torque gain	0.0–500.0%	100.0%	○
P28.05	Master/slave mode 2 speed mode / torque mode switching frequency point	0.00–10.00Hz	5.00Hz	○
P28.06	Number of slaves	0–15	1	◎
P28.07–P28.29	Reserved variables	0–65535	0	○
P90 group	**Customized function group 1**			
P90.00–P90.39	Reserved variables	0–65535	0	○
P91 group	**Customized function group 2**			
P91.00–P91.39	Reserved variables	0–65535	0	○
P92 group	**Customized function group 3**			
P92.00–P92.39	Reserved variables	0–65535	0	○
P93 group	**Customized function group 4**			
P93.00–P93.39	Reserved variables	0–65535	0	○