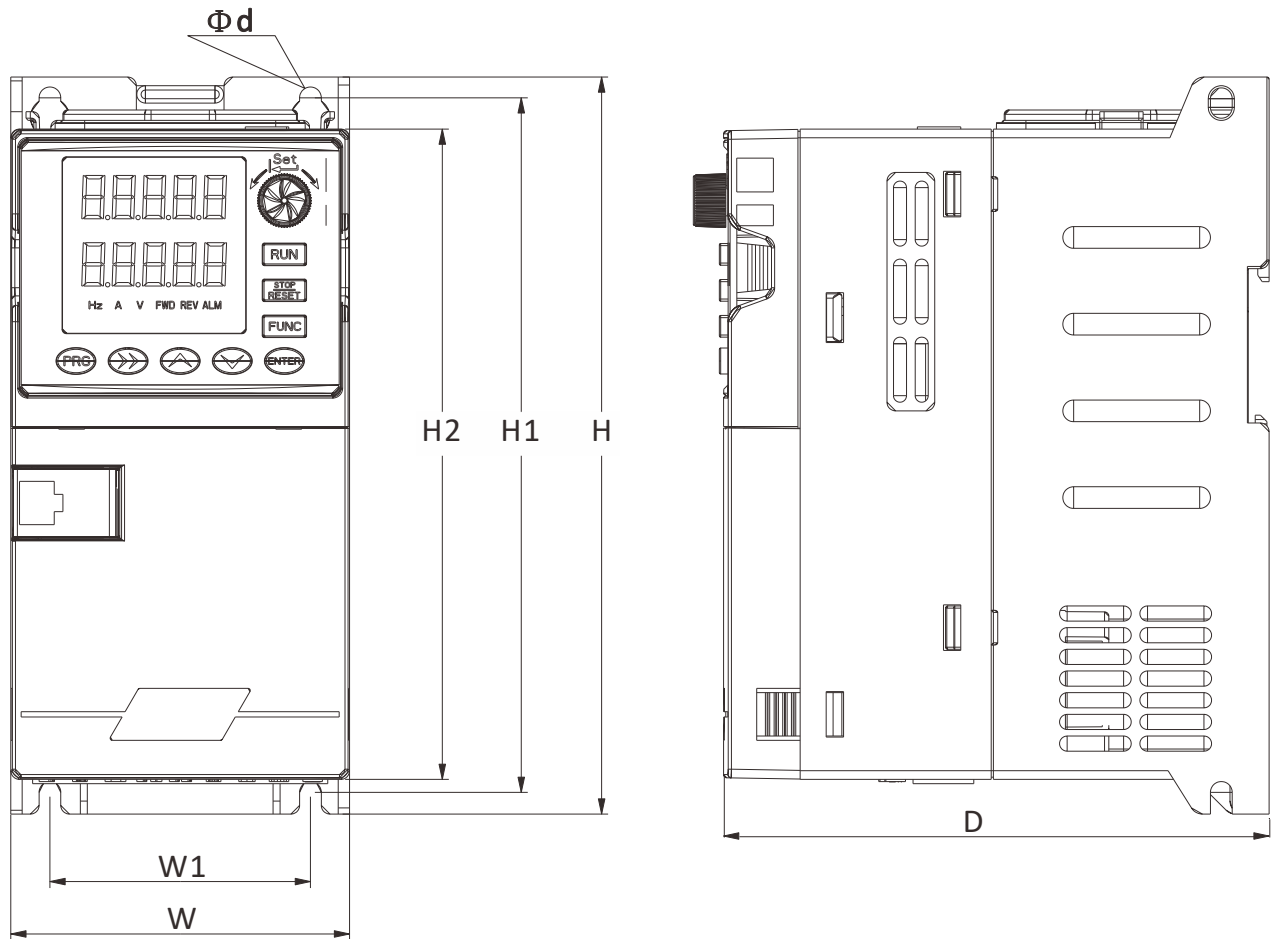| Description of mounting dimensions									
Voltage class	Power (KW)	Current output (A)	W (MM)	H (MM)	D (MM)	H2 (MM)	H1 (MM)	W1 (MM)	Φd (MM)
3AC 380V	0.75	2.1	78	170	125.6	150	160.2	60	5
	1.5	3.8	78	170	125.6	150	160.2	60	5
	2.2	5.1	78	170	125.6	150	160.2	60	5
	3.7	9	95	212	142.7	180	200	78	5
	5.5	13	95	212	142.7	180	200	78	5

Related dimensions of the keyboard

Wiring Diagram

R S T P+ PB U V W ⏚
L1 L2
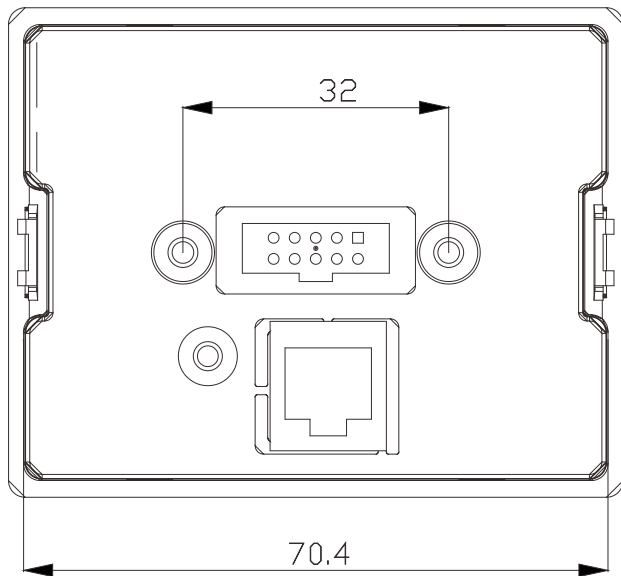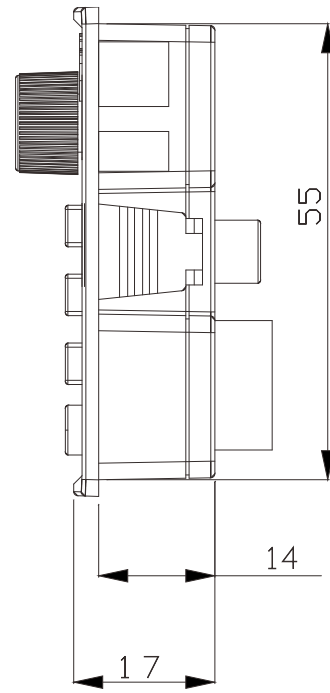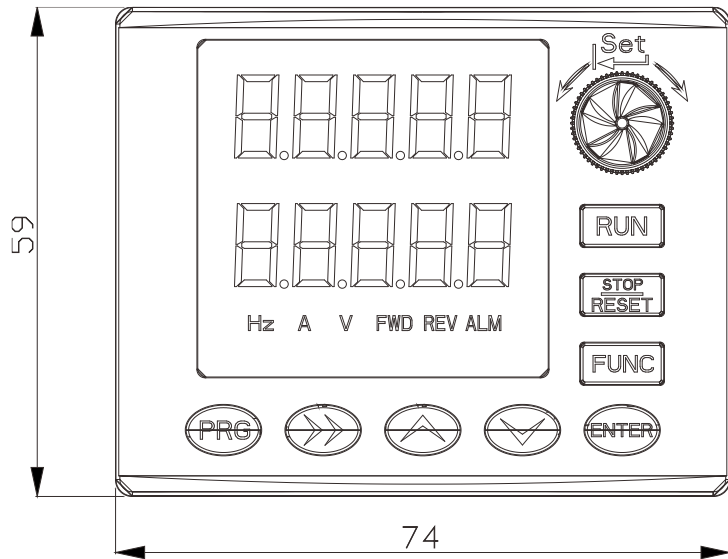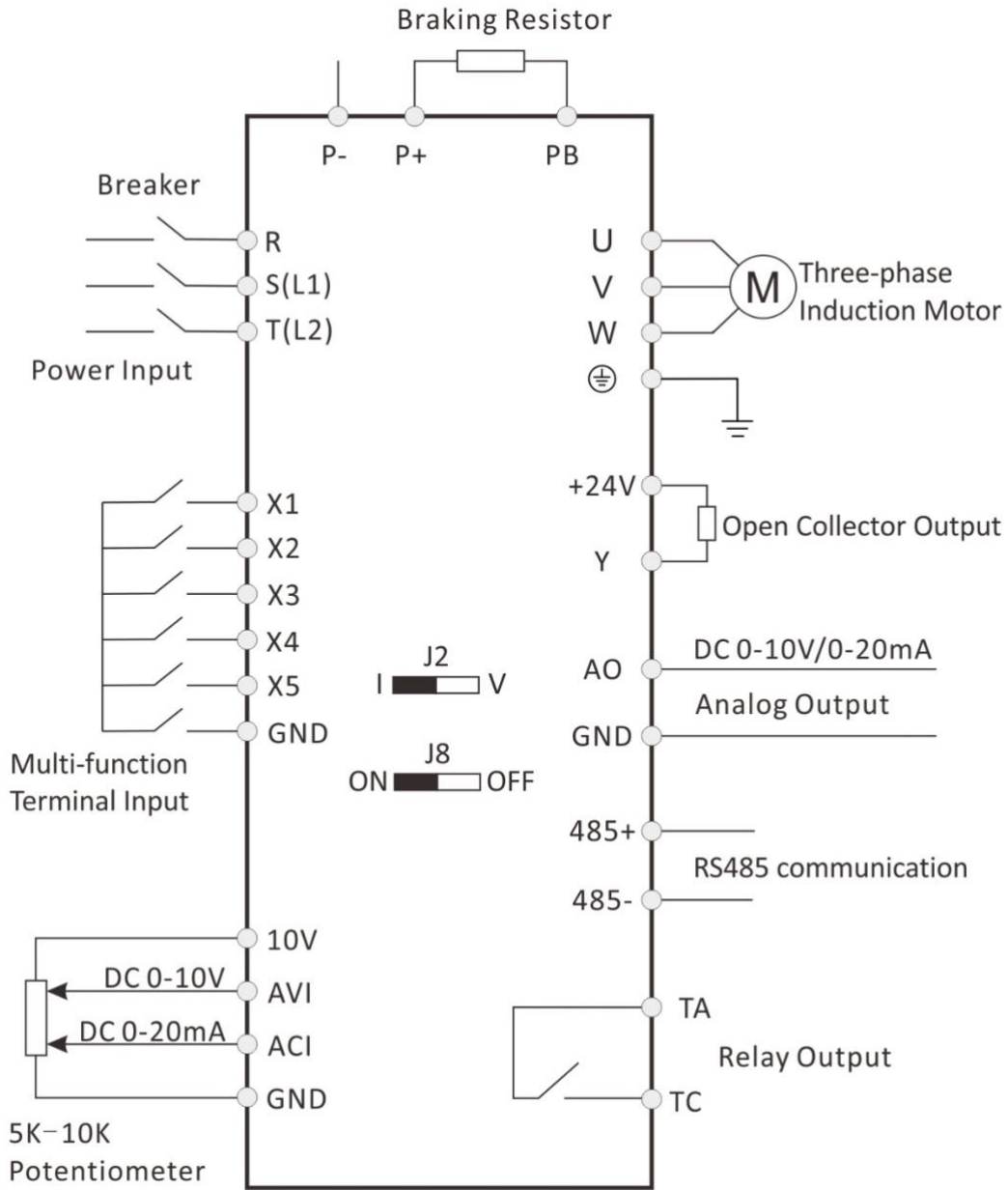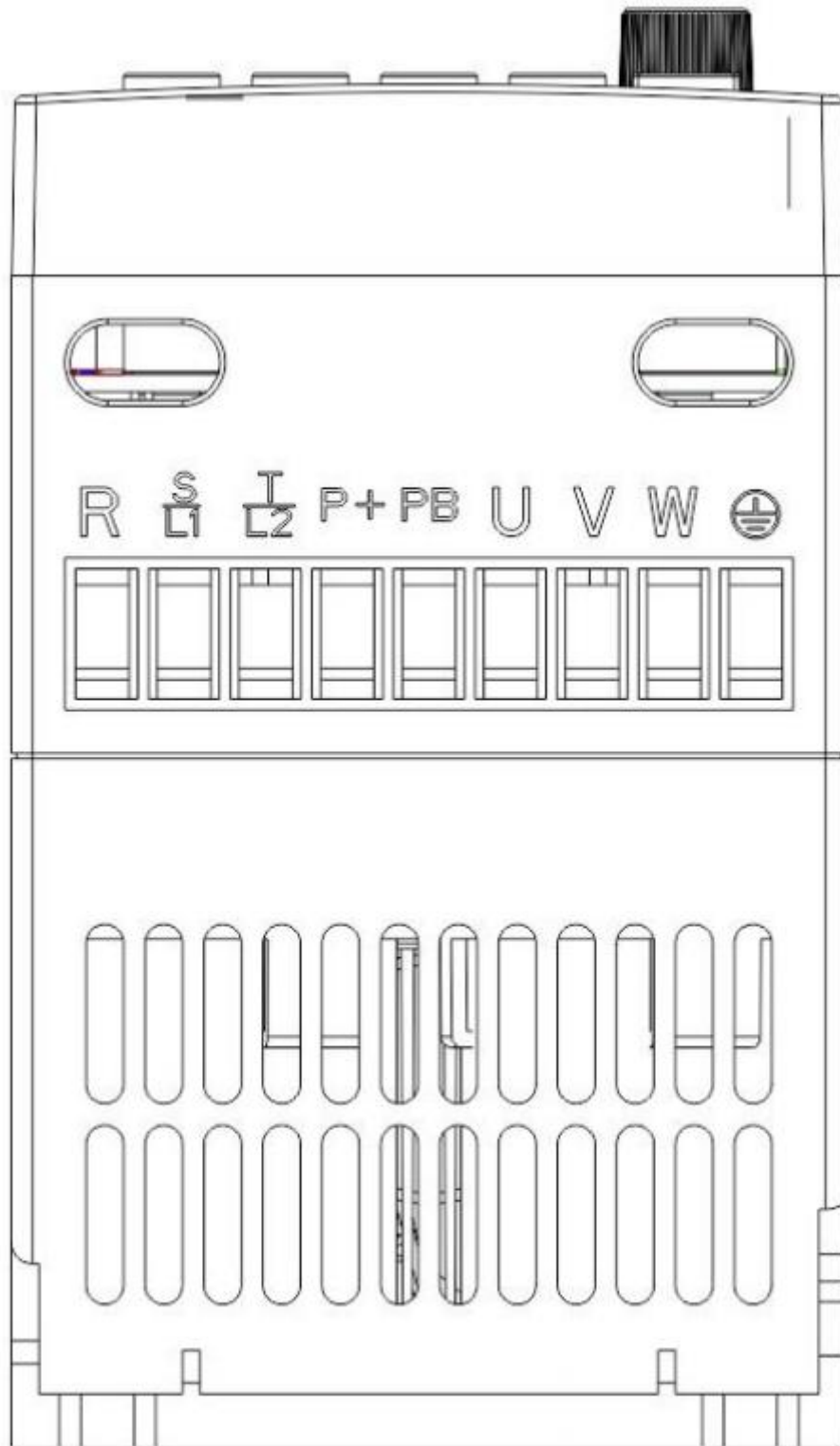
Functional Parameter Table

○—Parameters that can be modified in any state

×—Parameters that cannot be modified in the operating state

◆—Parameters that are actually detected and cannot be modified

◇—Manufacturer's parameter, limited to the manufacturer to modify it, the user is prohibited to modify it
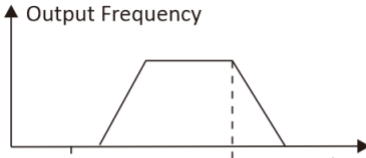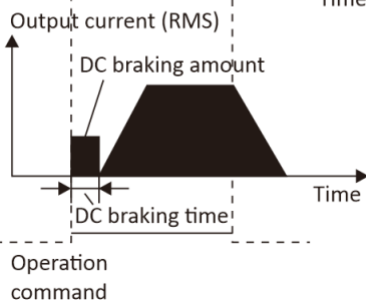
Group F0 - Basic operating parameters
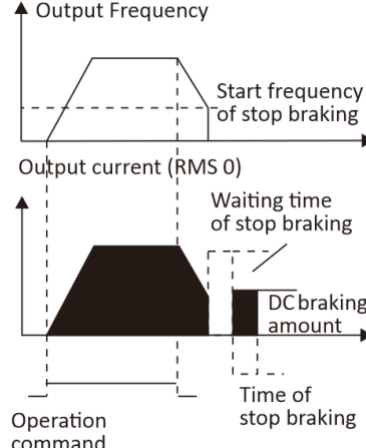
Function Code	Name	Content	Range of Settings	Factory Setting	Change
F0.00	Macro definition of function (temporary reservation)	0: Universal mode 1: Constant pressure water supply mode with single pump 2: Constant pressure water supply mode with -two pumps 3: Back-carried Intelligent small pump mode 4: Carving machine mode 5: Application mode for safety scenarios 6: Application mode for high torque start scenario 7: Application mode for fast start-stop scenarios 8: Application mode for automatic energy saving scenarios 9: Custom mode (please refer to the custom macro parameter set, application combinations of up to 16 parameters are supported)	0-9	0	×
F0.01	Motor control mode	0: VF control 1: Advanced VF control 2: Simple vector control	0-2	1	×
F0.02	Selection of operation command channel	0: Keypad operation command channel 1: Terminal operation command channel 2: Communication operation command channel	0-2	0	○
F0.03	Frequency given selection	0: Keypad potentiometer 1: Given number 1, adjustable by the ▲ and ▼ keys on the operating panel 2: Given number 2, terminal UP/DOWN adjustment 3: AVI Simulation Given (0-10V) 4: Combination given 5: ACI given (0-20mA) 6: Communication given	0-7	0	○

		7:Pulse given Note: When combination given is selected, the combination given is selected in F1.15.			
F0.04	Maximum output frequency	The maximum output frequency is the highest frequency that the frequency converter is allowed to output and is the reference for acceleration and deceleration settings.	MAX {50.0, [F0.05]} -999.9Hz	50.0Hz	×
F0.05	Upper limiting frequency	The operating frequency must not exceed this frequency.	MAX （0.1, [F0.06]}-[F0.04]	50.0Hz	×
F0.06	Lower limit frequency	The operating frequency must not fall below this frequency.	0.0-Upper limiting frequency	0.0Hz	×
F0.07	Arrival treatment of lower limit frequency	0: Running at zero speed 1: Running at the lower frequency limit 2: Stopping	0-2	0	×
F0.08	Digital setting of the operating frequency	The set value is the initial value of the frequency digit.	0.0-Upper limiting frequency	10.0Hz	○
F0.09	Digital frequency control	LED units digit: power-off storage 0: Storage 1: No storage Ten's digit: Hold shutdown 0: Hold 1: No hold LED hundreds digit: UP/DOWN negative frequency regulation 0: Invalid 1: valid LED thousand digit: PID, PLC frequency superimposed selection 0: invalid 1: F0.03+PID 2: F0.03+PLC	0000-2111	0000	○
F0.10	Acceleration time	Time required for the frequency converter to accelerate from zero frequency to maximum output frequency.	0.1-999.9S 0.4-4.0KW 7.5S 5.5-7.5KW 15.0S	Setting of the model	○
F0.11	Deceleration time	The time it takes for the frequency converter to decelerate from the maximum output frequency to zero			

		frequency.			
F0.12	Setting of the running direction	0: Corotation 1: Inversion 2: Inversion prohibited	0-2	0	○
F0.13	V/F curve setting	0: Linear curve 1: Squared curve 2: Multi-point VF curve	0-2	0	×
F0.14	Torque magnification	Manual torque magnification, this setting is a percentage relative to the rated voltage of the motor.	0.0-30.0%	Setting of the model	○
F0.15	The cut-off frequency of torque magnification	This setting is the frequency point for the boost cut-off for manual torque magnification.	0.0-50.0Hz	15.0Hz	×
F0.16	Setting of the carrier frequency	For applications requiring silent operation, the carrier frequency can be increased appropriately to meet the requirements, but the increased carrier frequency will increase the heat generation of the inverter.	2.0-16.0KHz 0.4-3.0KW 4.0KHz 4.0-7.5KW 3.0KHz	Setting of the model	×
F0.17	V/F frequency value F1		0.1-frequency value F2	12.5Hz	×
F0.18	V/F voltage value V1		0.0-voltage value V2	25.0%	×
F0.19	V/F frequency value F2		Frequency value F1-frequency value F3	25.0Hz	×
F0.20	V/F voltage valueV2		voltage value V1-voltage value V3	50.0%	×
F0.21	V/F frequency value F3		Frequency value F2-Rated frequency of the motor [F4.03]	37.5Hz	×
F0.22	V/F voltage value V3		Voltage value V2-100.0%*Uoute Rated voltage of the motor[F4.00]）	75.0%	×
F0.23	User	Set any non-zero number and wait 3	0-9999	0	○

Diagram (in F0.17-F0.22 row area):
Voltage axis (vertical): Rated voltage of the motor, V3, V2, V1
Frequency axis (horizontal): F1, F2, F3, Maximum output frequency

	password	minutes or power down for it to take effect.			
F0.24	Selection of frequency display resolution	0:0.1Hz ; 1:1Hz Note: When you set this parameter, please check the maximum output frequency (F0.04), the upper limit of the frequency (F0.05), the rated frequency of the motor (F4.03) and other frequency-related parameters.	0-1	0	○

Group F1 - Operating parameters of the auxiliary					
Function code	Name	Setting range	Range of Settings	Factory Settings	Change
F1.00	Starting mode	LED units digit: Starting mode 0: Starting from the starting frequency 1: DC braking first and then starting from the starting frequency LED tens digit: Start mode in case of power failure or abnormality 0: invalid 1: Start from starting frequency LED hundreds digit: reserved 1ED thousand digit: reserved	0000-0011	00	×
F1.01	Starting frequency		0.0-50.0Hz	1.0Hz	○
F1.02	DC Braking Voltage at Starting		0.0-50.0%×Rated voltage of the motor	0.0%	○
F1.03	DC Braking Time at Starting		0.0-30.0s	0.0s	○
F1.04	Halt mode	0: Deceleration stop 1: Free stop	0-1	0	×
F1.05	The starting frequency of DC braking at halt mode		0.0-upper limiting frequency	0.0Hz	○
F1.06	DC Braking Voltage at halt mode		0.0-50.0%×Rated voltage of the motor	0.0%	○
F1.07	DC Braking Time at halt mode		0.0-30.0s	0.0s	×
F1.08	DC braking waiting time at halt mode		0.00-99.99s	0.00s	×
F1.09	Setting of corotation inching frequency	The set frequency of corotation and inversion	0.0-50.0Hz	10.0Hz	○

F1.10	Setting of inversion inching frequency	of the inching			
F1.11	Acceleration time of inching	The acceleration and deceleration time of the set inching	0.1-999.9S 0.4-4.0KW 10.0S 5.5-7.5KW 15.0S	Setting of the model	○
F1.12	Deceleration time of inching				
F1.13	Hopping frequency	By setting the hopping frequency and range, the inverter can avoid the mechanical resonance point of the load.	0.0-upper limiting frequency	0.0Hz	○
F1.14	Hopping range		0.0-10.0Hz	0.0Hz	○
F1.15	Given method of frequency combination	0: Potentiometer + digital frequency 1 1: Potentiometer + digital frequency 2 2: Potentiometer + AVI 3: Digital frequency 1 + AVI 4: Digital frequency 2 + AVI 5: Digital frequency 1+multi-band speed 6: digital frequency 2 + multi-speed 7: Potentiometer+multi-band speed 8: AVI+PLC (simultaneous superposition) 9: ACI+PLC (same direction superposition)	0-9	0	×
F1.16	Programmable operation control (simple PLC operation)	LED unit digit: PLC enable control 0: invalid 1: valid LED ten digit: selection of operation mode 0:Single cycle 1: Continuous cycle 2: Hold final value after single cycle LED hundred digit: starting mode 0: Restart from the first stage 1:Starting from the stage at the moment of stopping (fault)	0000-1221	0000	×

		2:Starting from the stage and frequency of the moment of stopping (fault) LED thousand digit: selection of power-down storage 0: No storage 1: Store			
F1.17	Multi-speed frequency 1	Set the frequency of speed 1	-upper limiting frequency-upper limiting frequency	5.0Hz	○
F1.18	Multi-speed frequency 2	Set the frequency of speed 2	-upper limiting frequency-upper limiting frequency	10.0Hz	○
F1.19	Multi-speed frequency 3	Set the frequency of speed 3	-upper limiting frequency-upper limiting frequency	15.0Hz	○
F1.20	Multi-speed frequency 4	Set the frequency of speed 4	-upper limiting frequency-upper limiting frequency	20.0Hz	○
F1.21	Multi-speed frequency 5	Set the frequency of speed 5	-upper limiting frequency-upper limiting frequency	25.0Hz	○
F1.22	Multi-speed frequency 6	Set the frequency of speed 6	-upper limiting frequency-upper limiting frequency	37.5Hz	○
F1.23	Multi-speed frequency 7	Set the frequency of speed 7	-upper limiting frequency-upper limiting frequency	50.0Hz	○
F1.24	Running time of stage 1	Set the running time of speed 1 (unit is selected by [F1.35], default is seconds)	0.0-999.9s	10.0s	○
F1.25	Running time of stage 2	Set the running time of speed 2 (unit selected by [F1.35], default is seconds)	0.0-999.9s	10.0s	○
F1.26	Running time of stage 3	Set the running time of speed 3 (unit selected by	0.0-999.9s	10.0s	○

		[F1.35], default is seconds)			
F1.27	Running time of stage 4	Set the running time of speed 4 (unit selected by [F1.35], default is seconds)	0.0-999.9s	10.0s	○
F1.28	Running time of stage 5	Set the running time of speed 5 (unit selected by [F1.35], default is seconds)	0.0-999.9s	10.0s	○
F1.29	Running time of stage 6	Set the running time of speed 6 (unit selected by [F1.35], default is seconds)	0.0-999.9s	10.0s	○
F1.30	Run time of stage 7	Set the running time of speed 7 (unit selected by [F1.35], default is seconds)	0.0-999.9s	10.0s	○
F1.31	Stage acceleration and deceleration	LED unit digit: acceleration and deceleration time of stage 1 0-1 LED ten digit: acceleration and deceleration time of stage 2 0-1 LED hundred digit: acceleration and deceleration time of stage 3 0-1 LED thousand digit: acceleration and deceleration time of stage 4 0-1	0000-1111	0000	○
F1.32	Time option 1	LED unit digit: acceleration and deceleration time of stage 5 0-1 LED ten digit: acceleration and deceleration time of stage 6 0-1	000-111	000	○

		LED hundred digit: acceleration and deceleration time of stage 7 0-1 LED thousand digit: Reserved				
F1.33	Stage acceleration and deceleration	Set acceleration and deceleration time 2	0.1-999.9s 0.4-4.0KW 10.0s 5.5-7.5KW 15.0s	10.0s	O
F1.34	Time selection 2				
F1.35	Acceleration time 2	LED unit digit: time unit of over SPID LED ten digit: time unit for simple PLC LED hundred digit: time unit for regular acceleration and deceleration LED thousand digit: Reserved 0:Unit is 1 second 1: unit is 1 minute 1: unit is 0.1 second	000-211	000	×
F1.36	Deceleration time 2	The transition time that the inverter waits at the output zero frequency during the transition from forward operation to reverse operation or from reverse operation to forward operation.	0.0-999.9s	0.0	O

Group F2 - Parameters for analog and digital inputs and outputs					
Function Code	Name	Setting Range	Range of Settings	Factory Settings	Change
F2.00	Lower limit voltage of AVI input	Set AVI upper and lower limit voltage	0.00-[F2.01]	0.00V	○
F2.01	Upper limit voltage of AVI input		[F2.01] -10.00V	10.00V	○
F2.02	Setting corresponding to AVI lower limit	Set the setting corresponding to the AVI upper and lower limits, which corresponds to the percentage of the upper limit frequency [F0.05].	-100.0%-10 0.0%	0.0%	○
F2.03	Setting corresponding to AVI upper limit			100.0%	○
F2.04	ACI input lower limit current	Set ACI input upper and lower limit currents	0.00-[F2.05]	0.00mA	○
F2.05	Upper limit current of ACI input		[F2.04] -20.00mA	20.00mA	○
F2.06	Setting for ACI lower limit	Set the setting corresponding to the upper and lower ACI limits, which corresponds to the percentage of the upper limit frequency [F0.05].	-100.0%-10 0.0%	0.0%	○
F2.07	Setting for ACI upper limit			100.0%	○
F2.08	Constant for filtering time of analog input signal	This parameter is used for filtering the input signals of AVI, ACI and panel potentiometer to eliminate the effect of interference.	0.1-5.0s	0.1s	○
F2.09	Limit of anti-dither deviation of analog input	When the analog input signal fluctuates frequently around the given value, the frequency fluctuation caused by this fluctuation can be suppressed by setting F2.09.	0.00-0.10V	0.00V	○
F2.10	Function selection of AO analog output terminal	0: Output frequency 1: Output current 2: Motor speed 3: Output voltage 4: AVI 5: ACI	0-5	0	○
F2.11	AO output lower limit	Set the upper and lower limits of the AFM output	0.00-10.00 V/ 0.00-20.00 mA	0.00V	○
F2.12	AO output upper limit			10.00V	○

F2.13	Input terminal X1 function	0: Idle at the control 1:Point-action control for forward rotation	0-29	3	×
F2.14	Input terminal X2 function	2: Point-action control for reverse rotation	0-29	4	×
F2.15	Input terminal X3 function	3: Control of forward rotation (FWD)	0-29	0	×
F2.16	Input terminal X4 function	4: Control of reversing rotation (REV)	0-29	0	×
F2.17	Input terminal X5 function	5: Three-wire operation control 6: Free stop control 7: External stop signal input (STOP) 8: External reset signal input (RST) 9: Normally open input for external fault 10: Incremental frequency command (UP) 11: Decreasing frequency command (DOWN) 13:Multi-band speed selection S1 14: Multi-speed selection S2 15: Multi-speed selection S3 16:Run command channel is forced to terminal 17: Run command channel forced to communication 18:DC brake command at stop 19:Frequency switch to AVI 20:Frequency switch to digital frequency 1 21:Frequency switch to digital frequency 2 22: Input of pulse frequency (only valid for X5) 23:Counter clear signal 24:Trigger signal of counter 25:Clear signal of timer 26:Trigger signal of timer 27: Time selection for acceleration and deceleration 28: Pendulum frequency pause (stop at the current frequency) 29: Pendulum frequency reset (back to the center frequency)	0-29	22	×

F2.18	Control mode of FWD/REV terminal	0: 2-wire control mode 1 1: Two-wire control mode 2 2: Three-wire control mode 1 3: Three-wire control mode 2	0-3	0	×
F2.19	Selection of terminal function detection at power-on	0:The terminal operation command is invalid when power is applied 1:The terminal operation command is valid when power is applied	0-1	0	×
F2.20	R output setting	0:Idle 1:Inverter operation is ready 2:Inverter in operation 3:Inverter in zero speed operation 4:Shutdown due to external fault	0-16	5	○
F2.21	Output of Y open collector	5: Failure of the inverter 6:Frequency/speed arrival signal (FAR) 7: Level detection signal of frequency/speed (FDT) 8: Output frequency reaches upper limit 9: Output frequency reaches lower limit 10: Pre-alarm of inverter overload 11: Overflow signal of timer 12:Detection signal of counter 13: Reset signal of counter 14: Auxiliary motor 15:Forward rotation 16: Reverse rotation	0-16	0	○
F2.22	R closed delay	A change in the state of relay R causes a change in the delay time of the output	0.0-255.0s	0.0s	×
F2.23	R open delay time				
F2.24	Frequency arrival FAR detection amplitude	The output frequency is within the positive and negative detection width of the set frequency, and the terminal outputs a valid signal (low level).	0.0Hz-15.0Hz	5.0Hz	○

F2.25	FDT level setting value	*(FDT level diagram)*	0.0Hz- upper limiting frequency	10.0Hz	○
F2.26	FDT hysteresis value		0.0-30.0Hz	1.0Hz	○
F2.27	UP/DOWN Modification rate of the terminals	This function code is the frequency modification rate when setting the set frequency of the UP/DOWN terminal, i.e. the magnitude of the frequency change when the UP/DOWN terminal is shorted to the COM terminal for one second.	0.1Hz-99.9 Hz/s	1.0Hz/s	○
F2.28	Setting of the pulse trigger method for the input terminals (X1-X5)	0: indicates the trigger method of level 1: indicates the trigger method of pulse	0-1FH	0	○
F2.29	Setting of the valid logic for the input terminals (X1-X5)	0: indicates positive logic, i.e. the Xi terminal is connected to the common terminal and is valid, disconnection is not valid 1: indicates anti-logic, i.e. the Xi terminal is connected to the common terminal and is not valid, disconnection is valid	0-1FH	0	○
F2.30	X1 filter coefficient	Used to set the sensitivity of the input terminals. If the digital input terminals are susceptible to interference and cause malfunction, this parameter can be increased to increase the resistance to interference. However, setting it too high will result in a reduction in the sensitivity of the input terminals. 1: represents the unit of 2MS scan time	0-9999	5	○
F2.31	X2 filter coefficient		0-9999	5	○
F2.32	X3 filter coefficient		0-9999	5	○
F2.33	X4 filter coefficient		0-9999	5	○
F2.34	X5 filter coefficient		0-9999	5	○

Group F3 - PI D parameters					
Function Code	Name	Setting Range	Range of Settings	Factory Settings	Change
F3.00	PID function setting	LED unit digits: PID regulation characteristics 0: not valid 1: Positive effect When the feedback signal is greater than the given amount of the PID, the output frequency of the inverter is requested to decrease (i.e. reduce the feedback signal). 2: Negative effect When the feedback signal is greater than the given amount of PID, the output frequency of the inverter is requested to rise (i.e. reduce the feedback signal). LED ten digit: input channel for PID dosing 0: Keypad potentiometer The PID quantity is given by the potentiometer on the operating panel. 1: Digital dosing The PID quantity is given digitally and is set by function code F3.01. 2: Pressure feed (MPa, Kg) The pressure is given by setting F3.01, F3.18.	0000-2122	1010	×
		LED hundred digit: input channel for PID feedback quantity 0: AVI 1: ACI LED thousand digit: PID sleep selection 0: Invalid 1: Normal sleep This method requires specific parameters such as F3.10-F3.13 to be set. 2: Scrambled sleep Same parameter settings as for sleep mode selection 0. If the			

		PID feedback value is within the range of the F3.14 set value, the sleep delay time is maintained and then it enters scrambled sleep. If the feedback value is less than the wakeup threshold (PID polarity is positive), it will wake up immediately.			
F3.01	Digital setting of specified rate	Use the operating keypad to set the amount of feed for PID control. This function is only valid when digital feed is selected for the PID feed channel (1 or 2 in the F3.00 decimal place). If F3.00 decimal is 2, it is used as a pressure feed and this parameter is in the same units as F3.18.	0.0-100.0%	0.0%	○
F3.02	Feedback channel gain	This function can be used to adjust the gain of the feedback channel signal when the feedback channel does not match the level of the set channel.	0.01-10.00	1.00	○
F3.03	Proportional gain P	The speed of the PID adjustment is set by the proportional gain and integration time parameters, which are required to increase the proportional gain and decrease the integration time for fast adjustment, and to decrease the proportional gain and increase the integration time for slow adjustment. In general, the differential time is not set.	0.01-5.00	2.00	○
F3.04	Integration time Ti		0.1-50.0s	1.0s	○
F3.05	Differential time Td		0.1-10.0s	0.0s	○
F3.06	Period of sampling T	The larger the sampling period, the slower the response, but the better the suppression of interference signals, in general, do not need to set.	0.1-10.0s	0.0s	○
F3.07	Limit of deviation	The deviation limit is the ratio of the absolute value of the deviation between the feedback quantity and the given quantity, when the	0.0-20.0%	0.0%	○

		feedback quantity is within the deviation limit, the PID regulation does not act.			
F3.08	Preset frequency for closed loop	Frequency and time at which the frequency converter runs before the PID is put into operation	0.0-上限频率	0.0Hz	○
F3.09	Hold time of preset frequency		0.0-999.9s	0.0s	×
F3.10	Threshold factor for sleeping	If the actual feedback value is greater than this set value, and if the frequency of the inverter output reaches the lower frequency limit, the inverter goes to sleep (i.e. in zero speed operation) after the delayed waiting time defined in F3.12. This value is a percentage of the PID set value.	0.0-150.0%	100.0%	○
F3.11	Threshold factor for waking up	If the actual feedback value is less than this set value, the inverter comes out of sleep and starts operating after the delay wait time defined in F3.13; this value is a percentage of the PID set value.	0.0-150.0%	90.0%	○
F3.12	Delay time for sleep	Set the sleep delay time	0.0-999.9s	100.0s	○
F3.13	Delay time for waking up	Set the wake up delay time	0.0-999.9s	1.0s	○
F3.14	Deviation of the feedback from the set pressure on entering sleep	This function parameter is only valid for the disturbed sleep mode	0.0-10.0%	0.5%	○
F3.15	Delay time for burst pipe detection	Set burst pipe detection delay time	0.0-130.0s	30.0S	○
F3.16	Threshold value for high pressure detection	When the feedback pressure is greater than or equal to this setting, a burst pipe fault "EPA0" is reported after the F3.15 burst pipe delay time, and the burst pipe fault "EPA0" is automatically reset when the feedback pressure is less than this setting; the threshold is a percentage of the given pressure.	0.0-200.0%	150.0%	○
F3.17	Threshold value for low pressure	When the feedback pressure is less than this setting value, a	0.0-200.0%	50.0%	○

	detection	burst pipe fault "EPA0" is reported after the F3.15 burst delay, when the feedback pressure is greater than or equal to this setting value, the burst pipe fault "EPA0" is automatically reset; the valve value is a percentage of the given pressure.			
F3.18	Range of the sensor	Set the maximum range of the sensor	0.00-99.99 （MPa、 Kg）	10.00M Pa	○

Group F4 - Advanced Function Parameters					
Function Code	Name	Setting Range	Range of Settings	Factory Settings	Change
F4.00	Rated voltage of the motor	Setting of motor parameters	0-500V: 380V 0-250V: 220V	Model depend	×
F4.01	Rated current of the motor		0.1-999.9A	Model depend	×
F4.02	Rated speed of the motor		0-60000Krpm	Model depend	×
F4.03	Rated frequency of the motor		1.0-999.9Hz	50.0Hz	×
F4.04	Stator resistance of the motor	Set the motor's stator resistance	0.001-20.000Ω	Model depend	○
F4.05	No-load current of the motor	Set the no-load current of the motor	0.1-[F4.01]	Model depend	×
F4.06	AVR function	0: Invalid 1: valid throughout 2: Invalid only when decelerating	0-2	0	×
F4.07	Control of the cooling fan	0: Automatic control mode 1: Always running during power-on	0-1	0	○
F4.08	Number of automatic resets for faults	If the number of resets for faults is set to 0, there is no automatic reset. Only manual reset is possible, 10 means unlimited number of times, i.e. countless times.	0-10	0	×
F4.09	Time between automatic resets of faults	Set the interval for automatic fault resetting	0.5-25.0s	3.0s	×
F4.10	Start voltage of energy braking	If the voltage on the DC side of the inverter is higher than the starting voltage for energy braking, the built-in braking unit operates. If a braking resistor is connected at this point, the energy from the increased voltage inside the inverter will be released via the braking resistor, causing the DC voltage to return back.	330-380/660-800V	350/780V	○
F4.11	Ratio of energy braking action		10-100%	100%	○

F4.12	Selection of the over-modulation function	0: not valid 1: valid	0-1	0	×
F4.13	PWM mode	0: full frequency seven-band 1: Full-range five-band 2: Seven-band to five-band	0-2	2	×
F4.14	Slip compensation factor	Asynchronous motors with load cause a drop in speed. The use of slip compensation allows the motor speed to be brought close to its synchronous speed, resulting in more accurate control of the motor's speed. This factor is only valid for normal V/F, simple vectoring.	0-200%	100%	×
F4.15	Slip compensation mode	0: Invalid 1: Low frequency compensation Note: This parameter is only valid for advanced V/F	0-1	0	×
F4.16	Self-learning of motor parameters	0: Invalid 1: Static self-learning (STAR is displayed immediately at start, END is displayed at end 1S and then goes out)	0-1	0	×

Group F5 - Parameters of the protection function					
Function Code	Name	Setting Range	Range of Settings	Factory Settings	Change
F5.00	Protection settings	LED units digit: protection selection in case of motor overload 0: Invalid 1: Valid LED tens digit: protection against PID feedback disconnection 0: Invalid 1: Protection action and free stop LED hundreds digit: Handling of 485 communication failure 0: Protective action and free shutdown 1: Alarm but maintenance of status quo operation 2: Alarm and shutdown as set LED thousand digit: Selection of	0000-1211	0001	×

		oscillation suppression 0: Invalid 1: Valid			
F5.01	Protection factor in case of motor overload	The protection factor for motor overload is the percentage of the rated current value of the motor to the rated output current value of the frequency converter.	30%-110%	100%	×
F5.02	Overvoltage protection level	This function code specifies the lower limit voltage allowed on the DC bus when the frequency converter is operating normally.	50-280/50-480V	180/360V	×
F5.03	Limiting factor for voltage at speed reduction	This parameter is used to regulate the inverter's ability to suppress overvoltages during deceleration.	0:close，1-255	1	×
F5.04	Limiting level of overvoltage	The limit level of overvoltage defines the action voltage in case of protection due to overvoltage stall	350-400/660-850V	375/790V	×
F5.05	Limiting factor for accelerating current	This parameter is used to regulate the ability of the frequency converter to suppress overcurrents during acceleration.	0:close，1-99	10	×
F5.06	Limiting factor for constant speed currents	This parameter is used to regulate the inverter's ability to suppress overcurrent during constant speed.	0:close，1-10	0	×
F5.07	Limiting level of current	The current limiting level defines the current threshold for the automatic current limiting action, which is set as a percentage relative to the rated current of the frequency converter.	50%-200%	160%	×
F5.08	Feedback disconnection detection value	This value is the percentage of the PID given amount. When the feedback value of the PID is continuously less than the value detected by the feedback break, the frequency converter will make the corresponding protective action according to the setting of F5.00. Not valid when F5.08 = 0.0%.	0.0-100.0%	0.0%	×

F5.09	Detection time of feedback disconnection	The delay time before the protection action after the feedback disconnection has occurred.	0.1-999.9S	10.0s	×
F5.10	Overload of the frequency converter	The current threshold for the pre-alarm action of the inverter's overload is set as a percentage relative to the rated current of the inverter.	0-150%	120%	○
F5.11	Level of pre-alarm	The delay time between the output current of the frequency converter being continuously greater than the horizontal amplitude of the pre-alarm for overload (F5.10) and the signal for the pre-alarm for overload being output.	0.0-15.0s	5.0s	×
F5.12	Overload of the frequency converter	0: Invalid 1: Highest point priority when the inverter is running	0-1	0	×
F5.13	Pre-alarm delay time	In case of motor oscillation, a setting of F5.00 thousand digit valid values is required. Turn on the function for oscillation suppression and then adjust it by setting the coefficient for oscillation suppression. In general, if the oscillation is large, increase the oscillation suppression factor F5.13; F5.14-F5.16 do not need to be set. For special applications, F5.13-F5.16 should be used together.	0-200	30	○
F5.14	Enablement of inching priority		0-12	5	○
F5.15	Coefficient of oscillation suppression		0.0-[F5.16]	5.0Hz	○
F5.16	Coefficient of amplitude suppression		[F5.15]-[F0.05]	45.0Hz	○
F5.17	Selection of wave-by-wave current limiting	LED units digit: selected in acceleration 0: Invalid 1: Valid LED tens digit: selection in deceleration 0: Invalid 1: Valid LED hundreds digit: selected in constant speed 0: invalid 1: valid LED thousand digit: reserved	000-111	011	×

Function Code	Name	Setting Range	Range of Settings	Factory Settings	Change
F5.18	Detection factor for open-phase protection	If the ratio of the maximum value to the minimum value of the output current in the three phases is greater than this coefficient and lasts for more than 6 seconds, the inverter will alarm the fault ETUN for unbalanced output current.	0.00-20.00	2.00	○
F8.19	Frequency falling coefficient for instantaneous voltage drop	Set the frequency falling coefficient for instantaneous voltage drop	0:The function is disabled if the instantaneous stop is not stopped 1-100	0	○
F8.20	Frequency reduction for instantaneous voltage drop	Set the frequency reduction for instantaneous voltage drop	220V:180-330V 250V 380V:300-550V 450V	Model depend	×
Group F6 - Communication parameters					
Function Code	**Name**	**Setting Range**	**Range of Settings**	**Factory Settings**	**Change**
F6.00	Address of the local machine	Set the address of the local machine, 0 is the address of the broadcast.	0-247	1	×
F6.01	Configuration of MODBUS communication	LED units digit: selection of the baud rate 0: 9600BPS 1: 19200BPS 2: 38400BPS LED tens digit: format of the data 0: Non parity 1: Even parity 2: Odd parity LED hundred digit: response method of communication	0000-0322	0000	×
		0: Normal response 1: Respond only to the slave's address 2: No response 3: The slave does not respond to the command of the master in broadcast mode to stop freely LED thousand digit: reserved			

F6.02	Communication timeout detection time	If the local machine does not receive the correct data signal within the time interval defined by this function code, then the local machine considers that a communication failure has occurred and the inverter will decide whether to protect or maintain the status quo operation according to the setting of the communication failure mode. When this value is set to 0.0, the RS485 communication timeout is not detected.	0.1-100.0s	10.0s	×
F6.03	Response delay of local machine	This function code defines the intermediate time interval between the end of data frame reception by the inverter and the sending of an answer data frame to the host computer. If the answer time is less than the processing time of the system, the processing time of the system prevails.	0-200ms	5ms	×
F6.04	Proportional linkage factor	This function code is used to set the weight factor of the frequency command received by the frequency converter as a slave via the RS485 interface. The actual operating frequency of the machine is equal to the value of this function code multiplied by the command value of the frequency setting received via the RS485 interface. In continuous control, this function code sets the ratio of the operating frequencies of multiple inverters.	0.01-10.00	1.00	○
F6.05	Multiple manufacturers' protocols	0: M series 1: 380 series 2: ZC series 3: CHF series Compatible with as many manufacturers' communication protocols as possible,	0-3	0	×

Function Code	Name	Setting Range	Range of Settings	Factory Settings	Change
		depending on memory capacity			
Group F7 - Parameters for supplementary function					
F7.00	Counting and timing modes	LED units digit: processing of count arrivals 0: Single cycle count, stop output 1: Single cycle count, continue output 2: Cycle count, stop output 3: Cycle count, continue output LED tens digit: Reserved LED hundreds digit: Timed arrival handling 0: Single cycle timing, stop output 1: Single cycle timing, continue output 2: Cycle timing, stop output 3: Cycle timing, continue output LED thousand digit: Reserved	000-303	103	×
F7.01	Setting of the counter's reset value	Set the counter reset value	[F7.02] -9999	1	○
F7.02	Setting of the counter's detection value	Set counter detection value	0-[F7.01]	1	○
F7.03	Setting of the timing time	Set timing time	0-9999s	0s	○
F7.04	Lower limit frequency for external pulse X5 input	Set the upper and lower limit frequencies for the external pulse X5 input	0.00- [F7.14]	0.00KHz	○
F7.05	Upper limit frequency for external pulse X5 input		[F7.13] -99.99KHz	20.00KHz	○
F7.06	Setting of the lower limit of the external pulse X5	Set the setting corresponding to the upper and lower limits of the external pulse X5, this setting is a percentage relative to the maximum output frequency.	-100.0%- 100.0%	0.0%	○
F7.07	Setting of the upper limit of the external pulse X5		-100.0%- 100.0%	100.0%	○
F7.08	Swing frequency	0: disabled	0-1	0	×

Function Code	Name	Setting range	Range of Settings	Factory Settings	Change
	control	1: valid			
F7.09	Swing-scanning control	0: Fixed swing The reference value for the swing is the maximum output frequency (F0.04). 1: Variable swing The reference value for the swing is the given channel frequency.	0-1	0	×
F7.10	Selection of starting methods for swing frequency machines	0: Start as memorised before stop 1: restart start	0-1	0	×
F7.11	Swing frequency amplitude	The swing frequency amplitude is a percentage relative to the maximum output frequency (F0.04).	0.0-100.0 %	0.0%	○
F7.12	Startup frequency	This function code refers to the amplitude of the rapid drop in frequency after the frequency has reached the upper limit swing frequency during the pendulum. It is also, of course, the rapid rise in frequency after the lower limit swing frequency has been reached. This value is a percentage relative to the swing frequency amplitude (F7.11), if set to 0.0% there are no startup frequency.	0.0-50.0%	0.0%	○
F7.13	Rise time of the swing frequency	The running time from the lower limit swing frequency to the upper limit swing frequency.	0.1-3600.0 s	5.0	○
F7.14	Swing frequency fall time	Running time from the upper limit swing frequency to the lower limit swing frequency.	0.1-3600.0 s	5.0	○
F7.15	Delay of the upper swing frequency	Set the delay time for the upper and lower limit swing frequencies.	0.1-3600.0 s	5.0	○
F7.16	Delay of the lower swing frequency		0.1-3600.0 s	5.0	○
Group F8 - Managed and displayed parameters					
Function Code	**Name**	**Setting range**	**Range of Settings**	**Factory Settings**	**Change**
F8.00	Selection of the main parameters for operational monitoring	For example: F8.00 = 2, i.e. output voltage (d-02) is selected, then the default item displayed in the main monitoring screen is the	0-28	0	○

		current output voltage value.			
F8.01	Selection of items for the main parameters of the stopping monitoring	For example: F8.01 = 3, i.e. select busbar voltage (d-03), then the default item displayed in the main monitoring screen is the current busbar voltage value.	0-28	1	○
F8.02	Operating auxiliary display (only available for dual displays)	For example: F8.02 = 4, i.e. output current (d-02) is selected, then the default item displayed in the main monitoring screen is the current output voltage value.	0-28	4	○
F8.03	Auxiliary display for stopping (only available for dual displays)	For example: F8.03 = 3, i.e. the busbar voltage (d-03) is selected, then the default item displayed in the main monitoring screen is the current busbar voltage value.	0-28	3	○
F8.04	Display coefficients for the motor's speed	It is used to correct for errors in the scale display of the speed and has no effect on the actual speed.	0.01-99.99	1.00	○
F8.05	Initialization of parameters	0: no operation The frequency converter is in the normal state of reading and writing of parameters. The set value of the function code. The possibility of changing it is related to the setting state of the user code and the current operating state of the frequency converter. 1: Restore the factory settings All user parameters are restored to their factory settings according to the model. 2: Clear the fault record The contents of the fault record (d-19 - d-24) are cleared for operation. After the operation is completed, this function code is automatically cleared to 0.	0-2	0	X
F8.06	Setting of the JOG key	0: JOG 1: Switching of forward and	0-3	0	X

		reverse rotation 2: Clear the frequency setting of the ▲/▼ keys 3: Reverse rotation operation (at this time the RUN key defaults to forward rotation)			

Group F9 - Manufacturer's parameters					
Function Code	Name	Setting Range	Range of Settings	Factory Settings	Change
F9.00	Manufacturer's code	1-9999	1	****	◇

Group d - Parameter group for monitoring					
Function Code	Name	Range	Range of Settings	Factory Settings	Change
d-00	Output frequency (Hz)	0.0-999.9Hz	0.1Hz	0.0Hz	◆
d-01	Set frequency(Hz)	0.0-999.9Hz	0.1Hz	0.0Hz	◆
d-02	Output voltage(V)	0-999V	1V	0V	◆
d-03	Bus voltage(V)	0-999V	1V	0V	◆
d-04	Output current(A)	0.0-999.9A	0.1A	0.0A	◆
d-05	Speed of motor (Krpm)	0-60000Krpm	1Krpm	Model depend	◆
d-06	Analogue input AVI (V)	0.00-10.00V	0.01V	0.00V	◆
d-07	Analogue input ACI (mA)	0.00-20.00mA	0.01mA	0.00mA	◆
d-08	Analogue output AO (V/mA)	0.00-10.00V/0.00-20.00mA	0.01V/0.01mA	0.00V/mA	◆
d-09	Reserved	-	-	0	◆
d-10	Input frequency of pulses (KHz)	0.00-99.99KHz	0.01KHz	0.00KHz	◆
d-11	Feedback value for PID pressure	0.00-10.00V/0.00-99.99（MPa、Kg）	0.01V/（MPa、Kg）	0.00V/（MPa、Kg）	◆
d-12	Current count value	0-9999s	1s	0s	◆
d-13	Current timed value (s)	0-9999s	1s	0s	◆
d-14	Status of the input terminals (X1-X5)	0-1FH	1H	0H	◆
d-15	Status of the output (Y/R)	0-3H	1H	0H	◆
d-16	Temperature of the module (°C)	0.0-132.3C	0.1C	0.0	◆
d-17	Upgrade date of the software (year)	2010-2026	1	2020	◆
d-18	Upgrade date of the	0-1231	1	0907	◆

		software (month, day)				◆
d-19	Second fault code	0-19	1	0	◆
d-20	Most recent fault code	0-19	1	0	◆
d-21	Output frequency at last fault (Hz)	0.0-999.9Hz	0.1Hz	0.0Hz	◆
d-22	Output current at time of latest fault (A)	0.0-999.9A	0.1A	0.0V	◆
d-23	Busbar voltage at time of latest fault (V)	0-999V	1V	0V	◆
d-24	Module temperature at the time of the latest fault (C)	0.0-132.3T	0.1°C	0.0°C	◆
d-25	Cumulative time of operation of the frequency converter (h)	0-9999h	1h	0h	◆
d-26	Status of the frequency converter	0-FFFFH BIT0: Run/Stop BIT1: Reverse/forward rotation BIT2: Inching BIT3: DC braking BIT4: Reserved BIT5: Limitation of overvoltage BIT6: Derating for constant speed BIT7: Limitation of overcurrent BIT8-9: 00-zero speed / 01-acceleration / 10-deceleration / 11-uniform speed BIT10: Pre-alarm for overload BIT11: Reserved BIT12-13 Run command channel: 00-panel / 01-terminal / 10-reserved BIT14-15 Status of busbar voltage: 00-Normal / 01-Low voltage protection / 10-Over-voltage protection	1H	0H	◆
d-27	Version of the software	1.00-99.99	0.01	2.00	◆
d-28	Model of power	0.10-99.9KW	0.01KW	Model depend	◆

Group E - Codes for faults				
Faults Codes	Name	Possible Causes of Failure	Countermeasures for Faults	Code Name
E0C1	Overcurrent in accelerated operation	The acceleration time is too short	Extend acceleration times	1
		Low power of the frequency converter	Select a frequency converter with a large power rating	
		Improper setting of V/F curve or torque boost	Adjust the V/F curve or torque boost	
E0C2	Overcurrent in decelerating operation	Deceleration time too short	Extend the deceleration time	2
		Low power of the frequency converter	Select a frequency converter with a high power rating	
E0C3	Overcurrent in constant speed operation	Low voltage on the grid	Check the input power supply	3
		Sudden or abnormal load changes	Check the load or reduce the load	
		Low power of the frequency converter	Select a frequency converter with a high power rating	
EHU1	Overpressure during accelerated operation	Abnormal input voltage	Check the input power supply	4
		Re-starting of rotating motor	Set it to start after DC braking	
EHU2	Overpressure in decelerating operation	Deceleration time too short	Extend the deceleration time	5
		Abnormal input voltage	Check the input power supply	
EHU3	Overpressure in constant speed operation	Abnormal input voltage	Check the input power supply	6
EHU4	Overvoltage at standstill	Abnormal input voltage	Check the voltage of the power supply	7
ELU0	Undervoltage during operation	Input voltage abnormality or relay not activated	Check the voltage of the power supply or ask the manufacturer for service	8
ESC1	Fault in power module	Short circuit or grounding of the inverter output	Check the wiring of the motor	9
		Momentary overcurrent of the frequency converter	See countermeasures for overcurrent	
		Abnormal control board or severe interference	Seek service from the manufacturer	
		Damage to power devices	Seek service from the manufacturer	

Code	Fault	Cause	Solution	No.
E-OH	Heat sink overheating	High ambient temperature	Reduce ambient temperature	10
		Damage to the fan	Replace the fan	
		Blockage of the air duct	Unclog air ducts	
EOL1	Inverter overload	Improper setting of V/F curve or torque boost	Adjust V/F curve and torque boost	11
		Low voltage on the grid	Check grid voltage	
		Acceleration time too short	Extend acceleration times	
		Excessive load on the motor	Select a more powerful inverter	
EOL2	Overloading of motors	Improper setting of V/F curve or torque boost	Adjust the V/F curve and torque boost	12
		Low voltage on the grid	Check the grid voltage	
		Excessive motor blocking or sudden load changes	Check the load	
		Incorrect setting of motor overload protection factor	Correctly set the protection factor in case of motor overload	
E-EF	Failure of external equipment	Fault in external equipment, input terminals closed	Disconnect the external device fault input terminals and clear the fault (take care to check the cause)	13
EPID	PID feedback disconnection	Loose PID feedback line	Check the feedback connection	14
		Feedback is less than the value of the broken wire detection	Adjust the threshold value of the detection input	
E485	Fault in RS485 communication	Unmatched baud rate with master	Adjust the baud rate	15
		Interference in the RS485 channel	Check that the communication lines are not shielded and that the wiring is reasonable, consider connecting filter capacitors in parallel if necessary	
		Communication timeout	Retry	
ECCF	Current detection fault	Fault in current sampling circuit	Seek service from the manufacturer	16
		Fault in auxiliary power supply		
EEEP	EEPROM read/write rror	EEPROM failure	Seek service from the manufacturer	17
EPAO	Fault of burst tube	Feedback pressure less than low pressure detection threshold or greater than or equal to high pressure detection threshold	Test the feedback line or adjust the threshold for detecting high and low voltages	18
EPOF	Failure of dual	CPU communication fault	Seek service from the	19

	CPU communication		manufacturer	
ETUN	Output open-phase protection	Outputs U, V, W are out-phase	Check output wiring	20

Communication Protocol

The following data are in hexadecimal.

1. RTU mode and format

When the controller communicates in RTU mode on the Modbus bus, each 8-bit byte of the message is divided into two 4-bit hexadecimal characters. The main advantage of this mode is that it transmits a higher density of characters than ASCII mode at the same baud rate and each message must be transmitted continuously.

1.1 Format of each byte in RTU mode
  - Coding system: 8-bit binary, hexadecimal 0-9, A-F.
  - Data bits: 1 bit start, 8 bits data (low bit first), stop bit occupies 1 bit, parity bit optional (refer to RTU data frame bit sequence diagram)
    - Error check area: cyclic redundancy check (CRC)

1.2 RTU data frame sequence diagram
  − Parity check

Start	1	2	3	4	5	6	7	8	Par	Stop

  - No-parity

Start	1	2	3	4		6	7	8	Stop

2. Description of the read/write function code:

Function code	Description of functions
03	Read register
06	Write register

3. Description of the parameter addresses of the communication protocol:

Description of functions	Definition of address	Description of the meaning of the data	R/W
Commands for communication control	2000H	0001H: Stop	W
		0012H: Forward rotation operation	
		0013H: Operation of forward rotation inching	
		0022H: Reverse operation	
		0023H: Operation of reverse rotation inching	
Setting of the communication	2001H	The set frequency range for communication is -10000 to 10000. (Note: The set frequency for communication is a percentage relative to the maximum frequency, which ranges from -100.00% to 100.00%).	W
Address of the requency	2002H	0001H: Input for external faults	W
		0002H: Reset of fault	
Instrctions for reading the parameters of the run/stop	2102H	Set frequency (two decimal places)	R
	2103H	Output frequency (two decimal places)	R
	2104H	Output current (one decimal place)	R
	2105H	Busbar voltage (one decimal place)	R
	2106H	Output voltage (one decimal place)	R
	2107H	Analogue input AVI (two decimal places)	R
	2108H	Analogue input ACI (two decimal places)	R
	2109H	Current count value	R
	210AH	Speed of the motor	R
	210BH	Analogue input AO (two decimal places)	R

	210CH	Reserved	R
	210DH	Inverter temperature (one decimal place)	R
	210EH	PID feedback value (two decimal places)	R
	210FH	PID setpoint (two decimal places)	R
	2110H	Reserved	R
	2111H	Input frequency of the pulse	R
	2112H	Current fault	R
	2113H	Current timed value	R
	2114H	Input terminal status	R
	2115H	Output terminal status	R
	2116H	BIT0: Run/stop BIT1: forward/reverse BIT2: Inching BIT3: DC braking BIT4: Hold BIT5: Limit for overvoltage BIT6: Derating for constant speed; BIT7: Limiting for overcurrent; BIT8-9: 00-zero speed / 01-acceleration/10-deceleration / 11-uniform speed BIT10: Pre-alarm for overload; BIT11: Reserved; BIT12-13 operating command channels: 00-panel / 01-terminals / 10-communication; BIT14-15 Busbar voltage status: 00-normal / 01-low voltage protection / 10-over-voltage protection	R
	2101H	Bit0: Run Bit1: Stop Bit2: Inching Bit3: Forward rotation Bit4: Reverse rotation Bit5 to Bit7: Reserved Bit8: Given for communication Bit9: Input of analogue signals Bit10: Communication run command channel Bit11: Locking of parameters Bit12:Running Bit13:Inching command Bit14 to Bit15: Reserved	R
Instructions for reading fault codes	2100H	00: No abnormality 01: Fault in module 02: Overvoltage 03: Fault in temperature 04: Overload of the frequency converter 05: Overload of the motor 06: External fault 07 to 09: Reserved 10: Overcurrent in acceleration 11: Overcurrent in deceleration 12: Overcurrent in constant speed 13: Reserved 14: Undervoltage	R

4.03 Reading function mode:

Inquiry information frame format （transmit frame）		
Project	**Address**	**Analysis of this data**
Address	01H	the address of the converter
Function	03H	the read function code
Starting data address	21H	the start address
	02H	
Data （2Byte）	00H	the number of addresses to read and 2102H and 2103H
	02H	
CRC CHK Low	6FH	the 16-bit CRC validation code
CRC CHK High	F7H	
Response information frame format （return frame）		
Project	**Address**	**Analysis of this data**
Address	01H	the address of the converter
Function	03H	the read function code
DataNum*2	04H	the product of read item *2
Data1[2Byte]	17H	the data of reading 2102H (set frequency)
	70H	
Data2[2Byte]	00H	the data of reading 2103H (output frequency)
	00H	
CRC CHK Low	FEH	the 16-bit CRC check digit
CRC CHK High	5CH	

5、06H Writing function mode

Inquiry information frame format （transmit frame）		
Project	**Address**	**Analysis of this data**
Address	01H	the address of the converter
Function	06H	the writing function code
Starting data address	20H	the address of the control command
	00H	
Data （2Byte）	00H	the command to stop
	01H	
CRC CHK Low	43H	the 16-bit CRC validation code
CRC CHK High	CAH	
Response information frame format （return frame）		
Project	**Address**	**Analysis of this data**
Address	01H	If the settings are correct, the same input data will be returned.
Function	06H	
Starting data address	20H	
	00H	
Number of Data （Byte）	00H	
	01H	
CRC CHK Low	43H	
CRC CHK High	CAH	