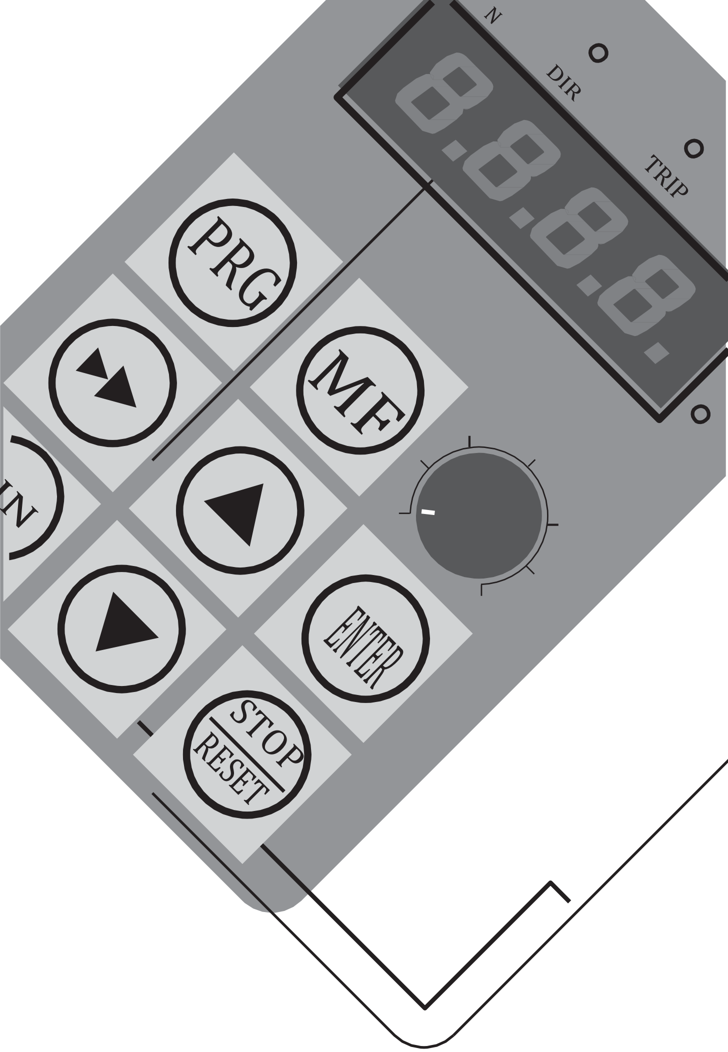


OPERATION MANUAL

V3 SERIES HIGH PERFORMANCE
FREQUENCY INVERTER

FMZ2019-12 Version ： V1.0

Function parameter table

○—Parameter that can be modified in any state

✕ —Unmodifiable parameters in the running state

◆—Actual test parameters cannot be modified

◇—Factory parameters which are limited to the manufacturer's modification, the user is prohibited from modifying

Group P0 - Basic operating parameters

Function Code	Name	Content	Predetermined Area	Factory Default	Modification
P0.00	Power specification of frequency inverter	Display current power	0.10~99.99kw	Device settings	◆
P0.01	Software version of the master controller	Display current software version number	1.00~99.99	1.00	◆
P0.02	Run command channel selection	0: The panel runs the command channel 1: The terminal runs the command channel 2: The communication runs command channels	0~2	0	○
P0.03	Frequency setting selection	0: Panel potentiometer 1: Number given 1, adjust by operating ▲/▼ keys on the panel 2: Number given 2, adjust by terminals UP/DOWN 3: AVI simulation given (0～10V) 4: Combination given 5: ACI given (0~20 mA) 6: Communication given 7: Pulse given Note: When selecting the combination given, select the mode of combination given mode in P1.15.	0~7	0	○

P0.04	Maximum output frequency	The maximum output frequency is the highest frequency allowed by the frequency inverter and the reference for the acceleration/ deceleration setting.	MAX {50.0, [P0.05]} ~ 999.9Hz	50.0Hz	×
P0.05	Upper frequency	The operating frequency cannot exceed this frequency	MAX {0.1, [P0.06]} ~ [P0.04]	50.0Hz	×
P0.06	Low limit frequency	The operating frequency cannot be lower than this frequency	0.0~Upper limit frequency	0.0Hz	×
P0.07	The processing at the lower limit frequency	0: Running at zero speed 1: Running at lower frequency 2: Stop	0~2	0	×
P0.08	Operation frequency digital setting	The set value is a given initial value of the frequency number	0~upper limit frequency	10.0Hz	○
P0.09	Digital frequency control	LED ones place: Storage at power off 0: Store 1: Do not store LED tens place: Keep state at downtime 0: Keep 1: Do not keep LED hundreds place: UP/DOWN negative frequency regulation 0: Invalid 1: Valid LED thousands place: PID and PLC frequency overlay options 0: Invalid 1: P0.03+PID 2: P0.03+PLC	0000~2111	0000	○

P0.10	Acceleration time	Time required for the frequency inverter to accelerate from zero frequency to the maximum output frequency	0.1~255.0S 0.4~4.0KW 7.5S 5.5~22KW 15.0S	Device setting	○
P0.11	Deceleration time	Time required for the frequency inverter to decelerate from maximum output frequency to zero frequency			
P0.12	Running direction setting	0: Forward 1: Reverse 2: Ban reversing	0~2	0	○
P0.13	V/F curve setting	0: Linea curve 1: Square curve 2: Multipoint VF curve	0~2	0	×
P0.14	Torque lift	Vector control: Please set this parameter to 0.0 VF control: This parameter is manual torque lift; this value is set relatively to the motor rating percent voltage.	0.0~30.0%	Device setting	○
P0.15	Cut-off frequency of torque lift	This setting is lifting cutoff frequency point of manual torque lifting	0.0~50.0Hz	15.0Hz	×
P0.16	Carrier frequency setting	For the occasion of silent operation, the carrier frequency can be increased to meet the requirements appropriately, but increasing the carrier frequency will increase the heat of frequency inverter.	2.0~16KHz 0.4~3.0KW 4.0KHz 4.0~7.5KW 3.0KHz	Device setting	×

P0.17	V/F frequency value F1		0.1~frequency Value F2	12.5Hz	×
P0.18	V/F voltage value V1		0.0~ Voltage value V2	25.0%	×
P0.19	V/F frequency value F2		Frequency value F1 ~ Frequency value F3	25Hz	×
P0.20	V/F Voltage value V2		Voltage value V1 ~ Voltage value V3	50%	×
P0.21	V/F frequency value F3		Frequency value F2 ~ Motor rated power [p4.03]	37.5Hz	×
P0.22	V/F Voltage value V3		Voltage value V2~100.0% multiply Uoute(Motor rated voltage[p4.00])	75%	×
P0.23	User password	Set any non-zero number and wait 3 minutes or power off before it takes effect.	0~9999	0	×

P1 group - auxiliary operating parameters					
Function code	**Name**	**Setting range**	**Minimum Unit**	**Factory default**	**Modification**
P1.00	Start mode	LED single digits: Starting type 0: Start from the starting frequency 1: First dc braking and then start from the starting frequency LED tens digits: power failure or abnormal restart mode 0: Invalid 1: Start from the starting frequency LED hundreds digits: Reserve LED thousands digits: Reserve	0000~0011	00	×
P1.01	Start frequency		0.0~50.0Hz	1.0Hz	○
P1.02	Start dc braking voltage		0.0~50.0% ×Motor rated voltage	0.0%	○
P1.03	Start dc braking time		0.0~30.0s	0.0s	○
P1.04	Stop mode	0: Slowing down to stop 1: Stopping freely	0~1	0	×
P1.05	Starting frequency of stop DC braking		0.0~upper limit frequency	0.0Hz	○
P1.06	Stop DC braking voltage		0.0~50.0% ×Motor rated voltage	0.0%	○
P1.07	Stop DC braking time		0.0～30.0s	0.0s	×
P1.08	Waiting time of stop DC braking		0.00~99.99s	0.00s	×
P1.09	Frequency setting of forward jog	Set the frequency of forward or reverse jog	0.0~50.0Hz	10.0Hz	○
P1.10	Frequency setting of reverse jog				

P1.11	Jog acceleration time	Set the jog acceleration and deceleration time	0.1~999.9S 0.4~4.0KW 10.0S 5.5~7.5KW 15.0S	Device setting	○
P1.12	Jog deceleration time				
P1.13	Jumping frequency	The frequency inverter can avoid the mechanical resonance point of load by setting the jumping frequency and range.	0.0~upper limit frequency	0.0Hz	○
P1.14	Jumping range		0.0~10.0Hz	0.0Hz	○
P1.15	Combination of frequency setting method	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+SPD 6: Digital frequency 2+SPD 7: Potentiometer + SPD	0~7	0	×
P1.16	Programmable operation control (Simple PLC operation)	LED single digits: PLC controller0: Invalid 1: Valid LED tens digits: Operation mode options 0: Single cycle 1: Continuous cycle 2: Keep the final value after a single cycle LED hundreds digits: Start mode 0: Restart from the first stage 1: Start from the stage of stop (fault) moment 2: Start from the stage and frequency of stop (fault) moment LED thousands digits: Power off and then storage options 0: Do not store 1: Store	0000~1221	0000	×
P1.17	Multi-speed frequency 1	Set the frequency in velocity period 1	Negative upper limit frequency~ Upper limit	5.0Hz	○

P1.18	Multi-speed frequency 2	Set the frequency in velocity period 2	Negative upper limit frequency~ Upper limit frequency	10.0Hz	○
P1.19	Multi-speed frequency 3	Set the frequency in velocity period 3	Negative upper limit frequency~ Upper limit frequency	15.0Hz	○
P1.20	Multi-speed frequency 4	Set the frequency in velocity period 4	Negative upper limit frequency~ Upper limit frequency	20.0Hz	○
P1.21	Multi-speed frequency 5	Set the frequency in velocity period 5	Negative upper limit frequency~ Upper limit frequency	25.0Hz	○
P1.22	Multi-speed frequency 6	Set the frequency in velocity period 6	Negative upper limit frequency~ Upper limit frequency	37.5Hz	○
P1.23	Multi-speed frequency 6	Set the frequency in velocity period 7	Negative upper limit frequency~ Upper limit frequency	50.0Hz	○
P1.24	Running time of stage 1	Set the running time of stage 1 (unit is chosen by [P1.35] and defaults to seconds)	0.0~999.9s	10.0s	○
P1.25	Running time of stage 2	Set the running time of stage 2 (unit is chosen by [P1.35] and defaults to seconds)	0.0~999.9s	10.0s	○
P1.26	Running time of stage 3	Set the running time of stage 3 (unit is chosen by [P1.35] and defaults to seconds)	0.0~999.9s	10.0s	○
P1.27	Running time of stage 4	Set the running time of stage 4(unit is chosen by [P1.35] and in second by default)	0.0~999.9s	10.0s	○

P1.28	Running time of stage 5	Set the running time of stage 5(unit is chosen by [P1.35] and in second by default)	0.0~999.9s	10.0s	○
P1.29	Running time of stage 6	Set the running time of stage 6(unit is chosen by [P1.35] and in second by default)	0.0~999.9s	10.0s	○
P1.30	Running time of stage 7	Set the running time of stage 7(unit is chosen by [P1.35] and in second by default)	0.0~999.9s	10.0s	○
P1.31	Stage acceleration and deceleration time option 1	LED single digits: Acceleration and deceleration time in stage 1 0~1 LED tens digits: Acceleration and deceleration time in stage 2 0~1 LED hundreds digits: Acceleration and deceleration time in stage 3 0~1 LED thousands digits: Acceleration and deceleration time in stage 4 0~1	0000~1111	0000	○
P1.32	Stage acceleration and deceleration time option 2	LED ones digits: Acceleration and deceleration time in stage 5 0~1 LED tens digits: Acceleration and deceleration time in stage 6 0~1 LED hundreds digits: Acceleration and deceleration time in stage 7 0~1 LED thousands digits: Reserve	000~111	000	○
P1.33	Acceleration time 2	Set acceleration and deceleration time 2	0.1~999.9s 0.4~4.0KW 10.0s 5.5~7.5KW 15.0s	10.0s	○
P1.34	Deceleration time2				

P1.35	Time unit selection	LED single digits: Time unit of process PLC LED tens digits: Time unit of simple PLC LED hundreds digits: Regular acceleration and deceleration time LED thousands digits: Reserve0: Unit is in 1 second 1: Unit is in 1 minute 1: Unit is in 0.1 second	000~211	000	×

Group P2 - analog and digital input and output parameters					
Function code	**Name**	**Setting range**	**Minimum Unit**	**Factory default**	**Modification**
P2.00	AVI input lower limit voltage	Set AVI upper and lower limits of voltage	0.00~[P2.01]	0.00V	○
P2.01	AVI input upper limit voltage		[P2.01] ~ 10.00V	10.00V	○
P2.02	AVI lower limit corresponding setting	Set the AVI upper and lower limits corresponding setting which is corresponding to the percentage of the upper limit frequency [P0.05]	-100.0%~100.0%	0.0%	○
P2.03	AVI upper limit corresponding setting			100.0%	○
P2.04	AVI input lower limit voltage	Set ACI upper and lower limits of current	0.00~[P2.05]	0.00mA	○
P2.05	AVI input upper limit voltage		[P2.04] ~ 20.00mA	20.00mA	○
P2.06	ACI lower limit corresponding setting	Set the ACI upper and lower limits corresponding setting which is corresponding to the percentage of the upper limit frequency [P0.05]	-100.0%~100.0%	0.0%	○
P2.07	ACI upper limit corresponding setting			100.0%	○
P2.08	Time constant of analog input signal filtering	This parameter is used to filter input signals of AVI, ACI and panel potentiometers to eliminate the influence of interference.	0.1~5.0s	0.1s	○
P2.09	Anti - shake error limit of analog input	When the analog input signal fluctuates frequently near the given value, P2.09 can be set to suppress the frequency fluctuation caused by this fluctuation.	0.00~0.10V	0.00V	○

<table>
<tr><td>P2.10</td><td>AFM analog output terminal function options</td><td>0: Output frequency
1: Output current
2: Motor speed
3: Output voltage
4: AVI
5: ACI</td><td>0~5</td><td>0</td><td>○</td></tr>
<tr><td>P2.11</td><td>AFM output lower limit</td><td rowspan="2">Set the AFM output upper and lower limits</td><td rowspan="2">0.00~10.00V/
0.00~20.00mA</td><td>0.00V</td><td>○</td></tr>
<tr><td>P2.12</td><td>AFM output upper limit</td><td>10.00V</td><td>○</td></tr>
<tr><td>P2.13</td><td>Input Terminal X1 function</td><td rowspan="4">0: Idle control terminal
1: Forward jog control
2: Reverse jog control
3: Forward control (FWD)
4: Reverse control (REV)
5: Three-wire operation control
6: Free stop control
7: External stop signal input (STOP)
8: External reset signal input (RST)
9: External fault normally open input
10: Frequency up command (UP)
11: Frequency down command (DOWN)
13: Multi-speed option S1
14: Multi-speed option S2
15: Multi-speed option S3
16: Run command channel forced to be terminal
17: Run command channel forced to be communication
18: Stop DC braking command
19: Frequency switching to AVI
20: Frequency switching to digital frequency 1
21: Frequency switching to digital</td><td>0~27</td><td>3</td><td>×</td></tr>
<tr><td>P2.14</td><td>Input Terminal X2 function</td><td>0~27</td><td>4</td><td>×</td></tr>
<tr><td>P2.15</td><td>Input Terminal X3 function</td><td>0~27</td><td>0</td><td>×</td></tr>
<tr><td>P2.16</td><td>Input Terminal X4 function</td><td>0~27</td><td>0</td><td>×</td></tr>
</table>

P2.17	Input Terminal X5 function	frequency 2 22: Pulse frequency input (only valid for M5) 23: Counter clear signal 24: Counter trigger signal 25: Timer clear signal 26: Timer trigger signal	0~27	22	×
P2.18	FWD/REV terminal control mode	0: Two-wire control mode 1 1: Two-wire control mode 2 2: Three-wire control mode 1 3: Three-wire control mode 2	0~3	0	×
P2.19	Terminal function detection selection at power-on	0: Terminal run command is invalid at power-on 1: Terminal run command is valid at power-on	0~1	0	×
P2.20	Relay output setting	0: Idle 1: The frequency inverter is ready for operation 2: The frequency inverter is running 3: The frequency inverter runs at zero speed 4: External downtime 5: frequency inverter failure 6: Frequency/speed arrival signal (FAR) 7: Frequency/speed level detection signal (FDT 8: Output frequency reaches the upper limit 9: Output frequency reaches the lower limit 10: frequency inverter overload pre-alarm 11: Timer overflow signal 12: Counter detection signal 13: Counter reset signal 14: Auxiliary motor	0~14	5	○
P2.21	Reserve		-	0	◆

P2.22	Closing delay	The delay of the relay R state changes to the output change	0.0~255.0s	0.0s	×
P2.23	Disconnection delay				
P2.24	Frequency reaches the FAR detection range	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	○
P2.25	FDT level setting value		0.0Hz~ frequency upper limit	10.0Hz	○
P2.26	FDT hysteresis value		0.0~30.0Hz	1.0Hz	○
P2.27	UP/DOWN terminal end rate	The function code is the frequency end rate when the UP/DOWN terminal setting frequency is set, that is, the amount of frequency change when UP/DOWN terminal is shorted to the COM terminal for one second.	0.1Hz~99.9Hz/s	1.0Hz/s	○
P2.28	Input terminal pulse trigger mode setting (X1~ X5)	0： Indicates the level trigger mode 1： Indicates the pulse trigger mode	0~1FH	0	○
P2.29	Input terminal effective logic setting (X1~X5)	0： Indicates positive logic, that is, the connection between the Mi terminal and the common terminal is valid, and the disconnection is invalid .1： Indicates the inverse logic, that is, the connection between the Mi terminal and the common terminal is invalid, and the disconnection is valid.	0~1FH	0	○

P2.30	X1 Filter coefficient	Used to set the sensitivity of the input terminals. If the digital input terminal is susceptible to interference and cause malfunction, you can increase this parameter to increase the anti-interference ability, but if the setting is too large, the sensitivity of the input terminal will decrease. 1: Represent 2MS scan time unit	0~9999	5	○
P2.31	X2 Filter coefficient		0~9999	5	○
P2.32	X3 Filter coefficient		0~9999	5	○
P2.33	X4 Filter coefficient		0~9999	5	○
P2.34	X5 Filter coefficient		0~9999	5	○

Group P3 - PID parameters					
Function code	**Name**	**Setting range**	**Minimum unit**	**Factory default**	**modification**
P3.00	PID function setting	LED single digits: PID adjustment characteristics 0: Invalid 1: Positive action when the feedback signal is greater than the given amount of PID, the output frequency of frequency inverter is required to decrease (i.e., the feedback signal is reduced). 2: Negative action when the feedback signal is greater than the given amount of PID, the output frequency of the frequency inverter is required to increase (i.e., the feedbacksignal is reduced). LED tens digits: PID given amount channel 0: Keyboard potentiometer The PID given amount is given by the potentiometer on the operation panel. 1: Digital given The PID given amount is given by the number and set by the function code P3.01. 2: Pressure given (MPa, Kg) The pressure is given by setting P3.01 and P3.18. LED hundreds digits: PID feedback amount input channel 0: AVI 1: ACI LED thousands digits: PID sleep options 0: Invalid 1: Normal sleep This mode needs to set specific parameters such as P3.10~P3.13. 2: Disturbing sleep The parameter setting is the same as when the sleep mode is selected as 0. If the PID feedback value is within the range of the P3.14 set value, enter the disturbance sleep after the sleep delay time is maintained. When the feedback value is less than the wake threshold (the PID polarity is positive), it will wake up immediately.	0000~2122	1010	×

P3.01	The number setting given amount	Use the operation keypad to set the given amount of PID control. This function is valid only when the PID given channel selecting digital is given (P3.00 tens place is 1 or 2). If the P3.00 tens digits is 2, it is used as the pressure given, and the unit of this parameter is consistent with of P3.18.	0.0~100.0%	0.0%	○
P3.02	Gain of feedback channel	This function can be used to adjust the gain of the feedback channel signal when the feedback channel does not match the set channel level.	0.01~10.00	1.00	○
P3.03	Proportional gain P	The speed of the PID adjustment is set by the two parameters of proportional gain and integration time. It is required to increase the proportional gain and reduce the integration time to get high adjustment speed. It is required to reduce the proportional gain and increase the integration time to get a low adjustment speed. In general, the derivative time is not set.	0.01~5.00	2.00	○
P3.04	Integration time Ti		0.1~50.0s	1.0s	○
P3.05	Derivative time Td		0.1~10.0s	0.0s	○
P3.06	Sampling period T	The larger the sampling period, the slower the response, but the better the suppression of the interference signal, and it is generally not necessary to set it.	0.1~10.0s	0.0s	○
P3.07	Deviation limit	The deviation limit is the ratio of the absolute value of the deviation between the system feedback quantity and the given quantity to the given quantity, when the feedback quantity is within the deviation limit range, the PID adjustment does not work.	0.0~20.0%	0.0%	○

P3.08	Closed loop preset frequency	Frequency and running time of the frequency inverter before the PID is put into operation	0.0~upper limit frequency	0.0Hz	○
P3.09	Preset Frequency hold time		0.0~999.9s	0.0s	×
P3.10	Wake-up threshold coefficient	If the actual feedback value is greater than the set value and the output frequency of the frequency inverter reaches the lower limit frequency, the frequency inverter enters the sleep state (i.e., zero speed running) after the delay waiting time defined by P3.12; the value is the percentage of PID set value.	0.0~150.0%	100.0%	○
P3.11	Awakening threshold coefficient	If the actual feedback value is less than the set value, the frequency inverter will leave the sleep state after the delay waiting time defined by P3.13, and start working; this value is the percentage of the PID set value	0.0~150.0%	90.0%	○
P3.12	Sleep delay time	Set the sleep delay time	0.0~999.9s	100.0s	○
P3.13	Awakening delay time	Set the awakening delay time	0.0~999.9s	1.0s	○
P3.14	The difference between the feedback and the set pressures when entering sleep	This function parameter is valid only for the disturbance sleep mode.	0.0~10.0%	0.5%	○
P3.15	Burst detection delay time	Set the burst detection delay time	0.0~999.9s	30.0S	○

P3.16	High pressure detection threshold	When the feedback pressure is greater than or equal to this set value, the tube explosion fault "EPA0" is reported after the P3.15 burst tube delay. When the feedback pressure is less than this set value, the burst alarm "EPA0" is automatically reset; the given threshold is the percentage of pressure.	0.0~200.0％	150.0%	○
P3.17	Low pressure detection threshold	When the feedback pressure is less than or equal to this set value, the tube explosion fault "EPA0" is reported after the P3.15 burst tube delay. When the feedback pressure is greater than this set value, the burst alarm "EPA0" is automatically reset; the given threshold is the percentage of pressure.	0.0~200.0％	50.0%	○
P3.18	Sensor range	Set the maximum range of the sensor	0.00~99.99 (MPa/Kg)	10.00MPa	○

Group P4 - Advanced Function Parameters					
Function code	**name**	**Setting range**	**Minimum unit**	**Factory default**	**Modifi-cation**
P4.00	Motor rated voltage	Motor parameter setting	0~500V: 380V 0~250V: 220V	Service setting	×
P4.01	Motor rated current		0.1~999A	Service setting	×
P4.02	Motor rated speed		0~60000Krpm	Service setting	×
P4.03	Motor rated frequency		1.0~999.9Hz	50.0Hz	×
P4.04	Motor stator resistance	Set the motor stator resistance	0.001~20.000Ω	Service setting	○
P4.05	Motor no-load current	Set the motor no-load current	0.1~ [P4.01]	Service setting	×
P4.06	AVR function	0: Invalid 1: Valid throughout 2: Invalid only during deceleration	0~2	0	×
P4.07	Cooling fan control	0: Automatic control mode 1: Keep running during the power-on process	0~1	0	○
P4.08	Number of automatic resets	When the number of fault resets is set to 0, there is no automatic reset function but only manual reset. And if the number is to be10 that means the number of times is not limited (countless times)	0~1	0	×
P4.09	Interval of fault auto reset	Set the interval of fault auto reset	0.5~25.0s	3.0s	×
P4.10	Energy consumption brake starting voltage	If the internal DC side voltage of the frequency inverter is greater than the energy consumption brake starting voltage, the built-in brake unit operates. If the brake resistor is connected at this time, the voltage	330~380/660 ~760V	350/ 780V	○

P4.11	Energy consumption braking action ratio	energy boosted inside the frequency inverter will be released through braking resistor, causing the DC voltage to fall back.	10~100%	100%	○

Group P5 - Protection function parameters					
Function code	**Name**	**Setting range**	**Minimum unit**	**Factory default**	**Modification**
P5.00	Protection settings	LED single digits: motor overload protection option 0: Invalid 1: Valid LED tens digits: PID feedback disconnection protection 0: Invalid 1: Protect action and stop freely LED Hundreds digits: Reserve LED Thousands digits: Oscillation suppression options 0: Invalid 1: Valid	0000~1211	0001	×
P5.01	Motor overload protection coefficient	The motor overload protection coefficient is the percentage of the motor rated current value to the rated output current of the frequency inverter.	30%~110%	100%	×
P5.02	Undervoltage protection level	This function code specifies the lower limit voltage allowed by the DC bus when the frequency inverter is working normally.	50~280/50~480V	180/360V	×
P5.03	Deceleration voltage limiting coefficient	This parameter is used to adjust the ability of the frequency inverter to suppress overvoltage during deceleration.	0: shut down, 1~255	1	×
P5.04	Overvoltage limit level	The overvoltage limit level defines the operating voltage for overvoltage stall protection	350~400/660~850V	375/790V	×

P5.05	Acceleration current limit coefficient	This parameter is used to adjust the ability of the frequency inverter to suppress overcurrent during acceleration.	0: shut down, 1~99	10	×
P5.06	Constant speed current limiting coefficient	This parameter is used to adjust the ability of the frequency inverter to suppress overcurrent during constant speed.	0: shut down, 1~10	0	×
P5.07	Current limit level	The current limit level defines the current threshold for the automatic current limit action, and its set value is relative to the percentage of rated current of the frequency inverter.	50%~250%	180%	×
P5.08	Feedback disconnection detection value	The value is the percentage of given amount of the PID. When the feedback value of the PID continues to be less than the feedback disconnection detection value, the frequency inverter will make the corresponding protection action according to the setting of P5.00, which is invalid when P5.08=0.0%.	0.0~100.0%	0.0%	×
P5.09	Feedback disconnection detection time	After the feedback disconnection occurs, the delay time before the action is protected.	0.1~999.9S	10.0s	×
P5.10	Frequency inverter overload pre-alarm level	The current threshold of the frequency inverter overload pre-alarm action, the set value is relative to the rated current of the frequency inverter.	0~150%	120%	○

P5.11	Frequency inverter overload pre-alarm delay	The delay time between the output current of the frequency inverter is continuously lager than the overload pre-alarm level (P5.10) and output overload pre-alarm signals.	0.0~15.0s	5.0s	×
P5.12	Jog priority enable	0: Invalid 1: The jog priority is highest when the frequency inverter is running	0~1	0	×
P5.13	Oscillation suppression coefficient	When the motor is oscillating, you should set the thousands digits of P5.00 effective, turn on the oscillation suppression function and adjust by setting the oscillation suppression coefficient. Under normal circumstances, the oscillation amplitude is large, and increase the oscillation suppression coefficient P5.13, do not set P5.14~P5.16; if you encounter a special occasion, you need to use P5.13~P5.16 together.	0~200	30	○
P5.14	Amplitude suppression coefficient		0~12	5	○
P5.15	Oscillation suppression lower limit frequency		0.0~ [P5.16]	5.0Hz	○
P5.16	Oscillation suppression upper limit frequency		[P5.15] ~ [P0.05]	45.0Hz	○
P5.17	Wave-by-wave current limit selection	LED single digits: options in acceleration 0: Invalid 1: Valid LED tens digits: options in deceleration 0: Invalid 1: Valid LED Hundreds digits: Options in constant speed running 0: Invalid 1: Valid LED Thousands digits: Reserve	000～111	011	×

Group P6 - Communication parameters					
P6.00	Native address	Set the native address, and 0 is the broadcast address.	0~247	1	×
P6.01	MODBUS communication configuration	LED single digits: Baud rate options 0:9600BPS 1:19200BPS 2:38400BPS LED Tens digits: Data Format 0: No parity 1: Even parity 2: Odd parity LED Hundreds digits: Communication Response 0: Normal response 1: Only respond to the slave address 2: No response 3: Slave does not respond to the free stop command of the host in broadcast mode LED Thousands digits: Reserve	0000~0322	0001	×
P6.02	Communication timeout checkout time	If the native machine does not receive the correct data signal within the interval time defined by this function code, then the native machine thinks that the communication has failed, and the frequency inverter will decide whether to protect or maintain the current operation according to the setting of the communication failure action mode; when the value is set to 0.0, RS485 communication timeout is not detected.	0.1～100.0s	10.0s	×

P6.03	Native response delay	This function code defines the intermediate interval time between the end of the data frame reception of the frequency inverter and the transmission of the response data frame to the host computer. If the response time is less than the system processing time, the system processing time shall prevail.	0~200ms	5ms	×
P6.04	Proportional linkage coefficient	This function code is used to set the weight coefficient of the frequency command of the frequency inverter received through the RS485 interface as the slave. The actual running frequency of the native machine is equal to the value of this function code multiplied by the frequency setting command value received through the RS485 interface. In the linkage control, this function code can set the ratio of the running frequency of multiple frequency inverter.	0.01~10.00	1.00	○

Group P7 - Supplementary function parameters					
Function code	**Name**	**Setting range**	**Minimum unit**	**Factory default**	**Modification**
P7.00	Counting and timing mode	LED single digits: Counting arrival processing 0: Single cycle count, stop outputting 1: Single cycle count, continue to output 2: Loop count, stop outputting 3: loop count, continue to output LED Tens digits: Reserve LED Hundreds digits: Timing arrival processing 0: One-week timing, stop outputting 1: Single-cycle timing, continue to output 2: Cycle timing, stop outputting 3: Cycle timing, continue to output LED Thousands digits: Reserve	000~303	103	×
P7.01	Counter reset value setting	Set the counter reset value	[P7.02] ~9999	1	○
P7.02	Counter detection value setting	Set the counter detection value	0~ [P7.01]	1	○
P7.03	Timed time setting	Set timed time	0～9999s	0s	○
P7.04	External pulse X5 input lower limit frequency	Set the input upper and lower limit frequency of external pulse X5	0.00~ [P7.14]	0.00KHz	○
P7.05	External pulse X5 input upper limit frequency		[P7.13] ~ 99.99KHz	20.00KHz	○

P7.06	External pulse X5 lower limit corresponding setting	Set the external pulse X5 upper and lower limit corresponding settings, this setting is the percentage relative to the maximum output frequency.	-100.0%～100.0%	0.0%	○
P7.07	External pulse X5 upper limit corresponding setting		-100.0%～100.0%	100.0%	○

Group P8 - Management and Display Parameters					
Function code	**Name**	**Setting range**	**Minimum unit**	**Factory default**	**Modification**
P8.00	Operation monitoring parameter item selection	For example: P8.00=2, that is, select the output voltage (d-02), then the default display item of the main monitoring interface is the current output voltage value.	0~26	0	○
P8.01	Shut-down monitoring parameter selection	For example: P8.01=3, that is, select the bus voltage (d-03), then the default display item of the main monitoring interface is the current bus voltage value.	0~26	1	○
P8.02	Motor speed display factor	It is used to correct the display error of the speed scale and has no effect on the actual speed.	0.01~99.99	1.00	○
P8.03	Parameter initialization	0: No operationThe frequency inverter is in thenormal parameter read-write status.Whether the function code setting value can be changed depends on the setting status of the user password and the current working status of the frequency inverter. 1: Restore factory settings All user parameters are restored to the factory settings according to device. 2: Clear the fault record Clear the contents of the fault record (d-19~d-24). This function code is automatically cleared to 0 after the operation is completed.	0~2	0	×
P8.04	MF key setting	0: MF 1: Forward and reverse switching 2: Clear frequency setting of ▲/▼ button 3: Reverse run (At this time, the RUN button defaults to forward)	0~3	0	×

Group P9 - manufacturer parameters					
Function code	**Name**	**Setting range**	**Minimum unit**	**Factory default**	**Modification**
P9.00	Manufacturer password	1~9999	1	****	◇

Group d - Monitoring parameter group					
Function code	**Name**	**Range**	**Minimum unit**	**Factory default**	**Modification**
d-00	Output frequency (Hz) setting	0.0~999.9Hz	0.1Hz	0.0Hz	◆
d-01	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	Motor speed (Krpm)	0~60000Krpm	1Krpm	Device setting	◆
d-06	Analog input AVI(V)	0.00~10.00V	0.01V	0.00V	◆
d-07	Analog input ACI (mA)	0.00~20.00mA	0.01mA	0.00mA	◆
d-08	Analog input AFM (V/mA)	0.00~10.00V/0.00~20.00mA	0.01V/0.01 mA	0.00V/ mA	◆
d-09	Reservation	-	-	0	◆
d-10	Pulse input frequency (KHz)	0.00~99.99KHz	0.01KHz	0.00KHz	◆
d-11	PID pressure feedback value	0.00~10.00V/0.00~ 99.99(MPa/Kg)	0.01V/(MP)/Kg)	0.00V/(MPa/ Kg)	◆
d-12	Current count value	0~9999s	1s	0s	◆
d-13	Current timing value (s)	0~9999s	1s	0s	◆
d-14	Input terminal status (X1-X5)	0~1FH	1H	0H	◆

d-15	Output relay status (R)	0~1H	1H	0H	◆
d-16	Module temperature (°C)	0.0~132.3℃	0.0～132.3℃	0.0～132.3℃	◆
d-17	Software upgrade date (year)	2010~2026	1	2017	◆
d-18	Software upgrade date (month, day)	0~1231	1	0914	◆
d-19	Second fault code	0~19	1	0	◆
d-20	Last fault code	0~19	1	0	◆
d-21	Output frequency (Hz) in the most recent fault	0.0~999.9Hz	0.1Hz	0.0Hz	◆
d-22	Output current (A) in the most recent fault	0.0~999.9A	0.1A	0.0V	◆
d-23	Bus voltage (V) in the most recent fault	999.9V	1V	0V	◆
d-24	Module temperature in the most recent fault (°C)	0.0~132.3℃	0.1℃	0.0℃	◆
d-25	Accumulated running time of the frequency inverter (h)	0~9999h	1h	0h	◆

d-26	Frequency inverter status	0 ~ FFFFH BIT0: Run/Stop BIT1: Reverse / Forward BIT2: Jog BIT3: DC braking BIT4: Reserve BIT5: Overvoltage limit BIT6: Frequency decreasing in constant speed BIT7: Overcurrent limit BIT8~9:00-zero speed/01-acceleration/10-deceleration/11-constant speed BIT10: Overload pre-alarm BIT11: Reserve BIT12~13 running command channel: 00-panel/01- terminal /10-reserve BIT14~15 bus voltage status: 00-normal/01-low voltage protection/10-overpressure protection	1H	0H	◆

Group E - Fault code			
Fault code	**Name**	**Possible reason of failure**	**Troubleshooting**
EOC1	Overcurrent during acceleration	Acceleration time is too short	Increase the acceleration time
		The power of frequency inverter is too small	Use a new frequency inverter with a bigger power level
		Improper setting of V/F curve or torque boost	Adjust the V/F curve or torque boost
EOC2	Overcurrent during deceleration	Deceleration time is too short	Increase the deceleration time
		The power of frequency inverter is too small	Use a new frequency inverter with a bigger power level
EOC3	Overcurrent during constant speed operation	Low grid voltage	Check input power
		Load become mutational or abnormal	Check load or reduce load change
		The power of frequency inverter is too small	Use a new frequency inverter with a bigger power level
EHU 1	Overvoltage during acceleration	Abnormal input voltage	Check input power
		Restart the rotating motor	Set to start after DC braking
EHU 2	Overvoltage during deceleration	Deceleration time is too short	Increase deceleration time
		Abnormal input voltage	Check input power
EHU 3	Overvoltage during constant speed operation	Abnormal input voltage	Check input power
EHU 4	Overvoltage during shut-down	Abnormal input voltage	Check the power voltage

ELU0	Undervoltage in operation	The input voltage is abnormal or the relay is not connected	Check the supply voltage or ask the manufacturer for service
ESC1	Power module failure	Frequency inverter output short circuit or grounding	Check motor wiring
		Frequency inverter transient overcurrent	Refer to the overcurrent countermeasures
		The control board is abnormal or the interference is serious.	Ask the manufacturer for service
		Power device damage	Ask the manufacturer for service
E-OH	Heat sink overheating	Ambient temperature is too high	Reduce ambient temperature
		Fan damage	Replace the fan
		Air duct blockage	Dredge the air duct
EOL1	Frequency inverter overload	Improper setting of V/F curve or torque boost	Adjust the V/F curve or torque boost
		Grid voltage is too low	Check the grid voltage
		Acceleration time is too short	Increase acceleration time
		Motor overload	Use one new bigger power frequency inverter
EOL2	Motor overload	Improper setting of V/F curve or torque boost	Adjust the V/F curve or torque boost
		Grid voltage is too low	Check grid voltage
		Motor stalled or the mutation of load is too large	Check the load
		Motor overload protection factor setting is incorrect	Set the motor overload protection coefficient Correctly

E-EF	External device failure	External device fault input terminal is closed	Disconnect the external device fault input terminal and clear the fault (Pay attention to checking the cause)
EPID	PID Feedback disconnection	PID feedback circuit is loose	Check feedback connection
		The feedback amount is less than the disconnection detection value	Adjust the detection input threshold
E485	RS485 communication failure	Does not match the host computer baud rate	Adjust baud rate
		RS485 channel interference	Check whether the communication connection is shielded, whether the wiring is reasonable, and considering connecting the filter capacitor if necessary.
		Communication timeout	Retry
ECCF	Current detection fault	Current sampling circuit failure	Ask the manufacturer for service
		Auxiliary power failure	
EEEP	EEPROM read-write error	EEPROM failure	Ask the manufacturer for service
EPAO	Burst failure	The feedback pressure is less than the low-pressure detection threshold or greater than or equal to the high-pressure detection threshold	Detect feedback connection or adjust detection high- and low-pressure threshold
EPOF	Dual CPU communication failure	CPU communication failure	Ask the manufacturer for service

Communication protocol (All of the following data are hexadecimal)

1. RTU mode and format

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

(1) Format of each byte in RTU mode

Coding system: 8-bit binary, hex 0-9, A-F.

Data bits: 1 start bit, 8 data bits (low bit first), stop bit occupies 1 bit, parity check bit can be selected. (Refer to RTU data frame bit sequence diagram)

Error check area: Cyclic Redundancy Check (CRC)

(2) RTU data frame bit sequence diagram

With parity check

Start	1	2	3	4	5	6	7	8	Par	Stop

Without parity check

Start	1	2	3	4	5	6	7	8	Stop

Read-write function code description:

Function code	Function Description
03	Read the register
06	Write the register

2. Parameter description of the communication protocol:

Function Description	Address definition	Data meaning description	R/W
Communication control command	2000H	0001H: Shut down 0012H: Forward running 0013H: Forward jog running 0022H: Reverse running 0023H: Reverse jog running	W
Communication setting frequency address	2001H	The communication setting frequency range is -10000 to 10000. Note: The communication setting frequency is the percentage relative to the maximum frequency, which ranges from -100.00% to	W
Communication control command	2002H	0001H: External fault input 0002H: Fault reset	W
Read run/stop parameter description	2102H	Setting frequency (two decimal digits)	R
	2103H	Output frequency (two decimal digits)	R

	2104H	Output current (one decimal digits)	R
	2105H	Bus voltage (one decimal digits)	R
	2106H	Output voltage (one decimal digits)	R
	210DH	Inverter temperature (one decimal digits)	R
	210EH	PID feedback value (two decimal digits)	R
	210FH	PID setting value (two decimal digits)	R
Read the fault code description	2101H	Bit0：Run Bit1：Shut down Bit2：Jog Bit3：Forward Bit4：Reverse Bit5～Bit7: Reserve Bit8: Communication given Bit9: Analog signal input Bit10: Communication running command channel Bit11: Parameter lock Bit12: Running Bit13: Command of jog Bit14~Bit15: Reserve	R
Read the fault code description	2101H	00: No abnormality 01: Module failure 02: Overvoltage 03: Temperature failure 04: Frequency inverter overload 05: Motor overload 06: External fault 07~09: Reserve 10: Overcurrent in acceleration 11: Overcurrent in deceleration 12: Overcurrent in constant speed 13: Reserve 14: Undervoltage	R

4. 03 read function mode：

Inquiry information frame format:

Address	01H
Function	03H
Starting data address	21H
	02H
Data(2Byte)	00H
	02H
CRC CHK Low	6FH
CRC CHK High	F7H

Analysis of This paragraph of data：

01H is the address of frequency inverter
03H is the read function code
2102H is the initial address
0002H is the number of read address, that is, 2102H and 2103H
F76FH is the 16-bit CRC checking code

Response information frame format:

Address	01H
Function	03H
DataNum*2	04H
Data1[2Byte]	17H
	70H
Data2[2Byte]	00H
	00H
CRC CHK Low	FEH
CRC CHK High	5CH

Analysis of this paragraph of data:

01H is the address of frequency inverter
03H is the read function code
04H is the product of the read item *2
1770H is the data of read 2102H (set frequency)
0000H is the data of read 2103H (output frequency)
5CFEH is a 16-bit CRC checking code

5. 06 read function mode

Inquiry information frame format

Address	01H
Function	06H
Starting data address	20H
	00H
Data(2Byte)	00H
	01H
CRC CHK Low	43H
CRC CHK High	CAH

Analysis of this paragraph of data:

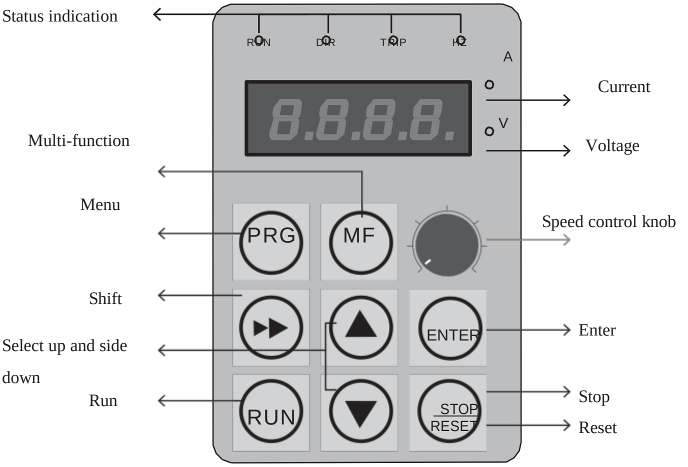
01H	is the address of frequency inverter
06H	is the write function code
2000H	is the address of control command
0001H	is the stop command
43CAH	is a 16-bit CRC checking code

Response information frame format:

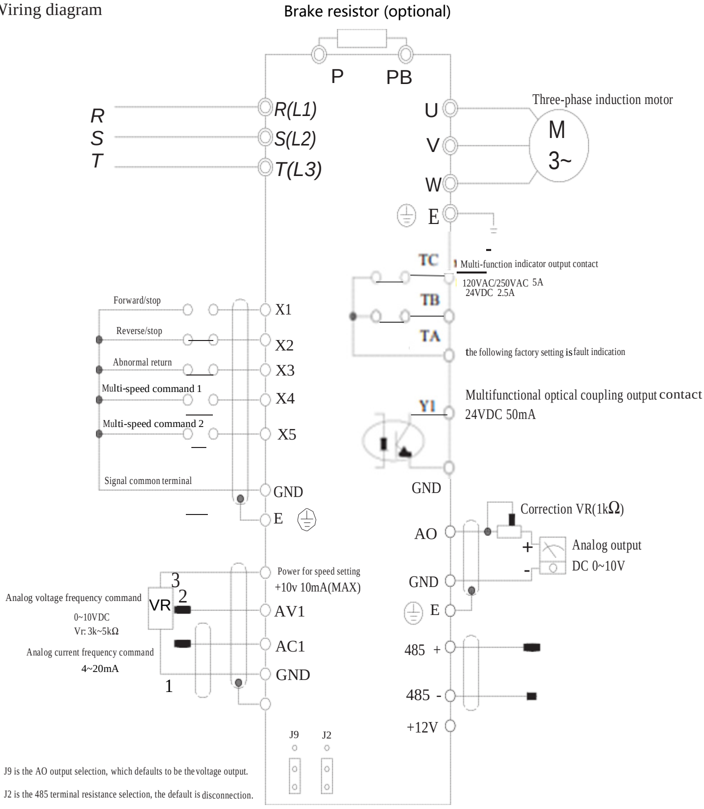
Address	01H
Function	06H
Starting data address	20H
	00H
Number of Data (Byte)	00H
	01H
CRC CHK Low	43H
CRC CHK High	CAH

Analysis of this paragraph of data: If the settings are correct, return the same input data.

Operation keyboard description



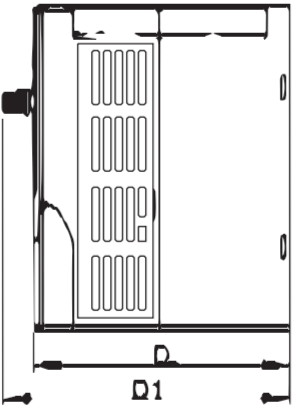
Wiring diagram

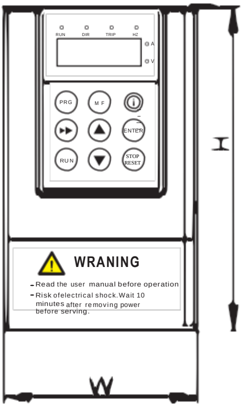


J9 is the AO output selection, which defaults to be the voltage output.

J2 is the 485 terminal resistance selection, the default is disconnection.

Installation size description





<table>
<tr><th>Voltage</th><th>Power (KW)</th><th>Output current(A)</th><th>W (MM)</th><th>H (MM)</th><th>D (MM)</th><th>D1 (MM)</th><th>Mounting aperture (MM)</th></tr>
<tr><td rowspan="4">Single Phase AC 220V</td><td>0.4</td><td>2. 5</td><td rowspan="3">85</td><td rowspan="3">143</td><td rowspan="3">116</td><td rowspan="3">126</td><td rowspan="10">4. 5</td></tr>
<tr><td>0. 75</td><td>5</td></tr>
<tr><td>1. 5</td><td>7</td></tr>
<tr><td>2. 2</td><td>10</td><td rowspan="4">100</td><td rowspan="4">151</td><td rowspan="4">120</td><td rowspan="4">130</td></tr>
<tr><td rowspan="6">Three Phase AC 380V</td><td>0. 75</td><td>3</td></tr>
<tr><td>1. 5</td><td>4</td></tr>
<tr><td>2. 2</td><td>5</td></tr>
<tr><td>3. 7</td><td>8. 5</td><td rowspan="3">125</td><td rowspan="3">220</td><td rowspan="3">166</td><td rowspan="3">176</td></tr>
<tr><td>5. 5</td><td>13</td></tr>
<tr><td>7. 5</td><td>17</td></tr>
</table>

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