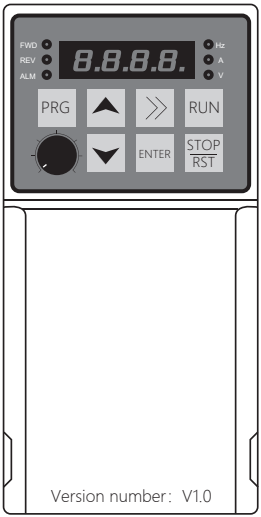

FWD
REV
ALM
8.8.8.8.
Hz
A
V
PRG
RUN
ENTER
STOP
RST
Version number: V1.0

"☆" : Indicates that the setting value of this parameter can be changed when the inverter is in stop or running state;

"★" : Indicates that the setting value of this parameter cannot be changed when the inverter is running;

"●" : Indicates that the value of this parameter is the actual detection record value and cannot be changed;

"*" : Indicates that the parameter is "Manufacturer Parameter", which can be set only by manufacturer and cannot be operated by users.

F00 Group - Basic Functions				
Function Code	Name	Set Range	Factory Default	Modification
F00.00	Macro function definition	0: Common mode 1～5: Reserved 6: Single pump (1 variable frequency pump) water supply mode 7: Photovoltaic water supply voltage tracking mode 8: Photovoltaic water supply power tracking VF mode 9: Photovoltaic water supply power tracking SVC mode 10～100：Reserved Note: Initialize parameters before setting macro function.	0	★
F00.01	Motor control mode	0: V/F control 1: Speed Sensorless Vector Control（SVC）	0	★
F00.02	Command source selection	0: Operation panel command channel 1: Terminal command channel 2: Communication command channel	0	☆

Function Code	Name	Set Range	Factory Default	Modification
F00.03	Main frequency source A selection	0: Digital setting (preset frequency F00.08, UP/DOWN can be modified, no memory when power off) 1: Digital setting (preset frequency F00.08, UP/DOWN can be modified, power-off with memory) 2: AI (0～10V/20mA) 3: Reserved 4: Panel potentiometer 5: Reserved 6: Multi-segment command 7: Simple PLC 8: PID 9: Communication given 10: Multi pump command 11: Reserved	4	★
F00.04	Auxiliary frequency source B selection	Same as F00.03 (main frequency source A selection)	0	★
F00.05	Auxiliary frequency source B range selection during superposition	0: Relative to the maximum frequency 1: Relative to frequency source A	0	☆
F00.06	Auxiliary frequency source B range during superposition	0%～150%	100%	☆
F00.07	Frequency source B superposition selection	Units: frequency source selection 0: Main frequency source A 1: Main and auxiliary calculation results (the operation relationship is determined by the tens digit) 2: Switch between main frequency source A and auxiliary frequency source B 3: Switch between main frequency source A and main and auxiliary calculation results 4: Switch between auxiliary frequency source B and main and auxiliary calculation results Tens digit: frequency source main and auxiliary calculation relationship 0: Main + auxiliary 1: Main - auxiliary 2: Maximum value of both 3: Minimum value of both	00	☆

Function Code	Name	Set Range	Factory Default	Modification
F00.08	Preset frequency	0.00Hz～maximum frequency (F00.10)	50.00Hz	☆
F00.09	Running direction	0: Same direction 1: Opposite direction	0	☆
F00.10	Maximum frequency	50.00Hz～500.00Hz	50.00Hz	★
F00.11	Upper limit frequency source	0: F00.12 setting 1: AI 2: Reserved 3: Panel potentiometer 4: Reserved 5: Communication given	0	★
F00.12	Upper limit frequency	Lower limit frequency F00.14～maximum frequency F00.10	50.00Hz	☆
F00.13	Upper limit frequency bias	0.00Hz～maximum frequency F00.10	0.00Hz	☆
F00.14	Lower limit frequency	0.00Hz～upper limit frequency F00.12	0.00Hz	☆
F00.15	Carrier frequency	0.5kHz～16.0kHz	Depending on model	☆
F00.16	Carrier frequency adjusted with temperature	0: No 1: Yes	1	☆
F00.17	Acceleration time 1	0.00s～650.00s（F00.19=2） 0.0s～6500.0s（F00.19=1） 0s～65000s（F00.19=0）	Depending on model	☆
F00.18	Deceleration time 1	0.00s～650.00s（F00.19=2） 0.0s～6500.0s（F00.19=1） 0s～65000s（F00.19=0）	Depending on model	☆
F00.19	Acceleration and deceleration time unit	0: 1s 1: 0.1s 2: 0.01s	1	★

Function Code	Name	Set Range	Factory Default	Modification
F00.21	Auxiliary frequency source bias frequency during superposition	0.00Hz～maximum frequency F00.10	0.00Hz	☆
F00.22	Frequency command resolution	1: 0.1Hz 2: 0.01Hz	2	★
F00.23	Digital setting frequency stop memory selection	0: No memory 1: Memory	0	☆
F00.24	Reserved	——	0	★
F00.25	Acceleration and deceleration time reference frequency	0: Maximum frequency (F00.10) 1: Set frequency 2: 100Hz	0	★
F00.26	Frequency command UP/DOWN reference during running	0: Running frequency 1: Set frequency	0	★
F00.27	Command source bundled frequency source	Units: operation panel command binding frequency source selection 0: No binding 1: Digital setting frequency 2: AI 3: Reserved 4: Panel potentiometer 5: Reserved 6: Multi-segment speed 7: Simple PLC 8: PIDs 9: Communication given Tens digit: terminal command binding frequency source selection Hundreds place: communication command binding frequency source selection Thousands place: auto run binding frequency source selection	0000	☆
F00.28	Serial communication protocol selection	0: Modbus protocol 1: Reserved	0	☆

Function Code	Name	Set Range	Factory Default	Modification
F00.29	GP type display	1: G type (constant torque load model) 2: P type (fan and water pump load model)	Depending on model	●
F01 Group - Start-Stop Control Parameters				
F01.00	Start mode	0: Direct start 1: Speed tracking restart 2: Pre-excitation start (AC asynchronous machine) 3: Super fast start (valid in vector mode)	0	☆
F01.01	Speed tracking mode	0: Start from stop frequency 1: Start from zero speed 2: Start from the maximum frequency	0	★
F01.02	Speed tracking speed	1～100	20	☆
F01.03	Start frequency	0.00Hz～10.00Hz	0.00Hz	☆
F01.04	Start frequency hold time	0.0s～100.0s	0.0s	★
F01.05	DC braking current at startup/ Pre-excitation current	0%～100%	50%	★
F01.06	DC braking time at startup/ Pre-excitation time	0.0s～100.0s	0.0s	★
F01.07	Accelerating and decelerating mode	0: Linear Acc/Dec mode 1: S curve Acc/Dec mode A 2: S curve Acc/Dec mode B	0	★
F01.08	Time ratio of Initial segment in S curve	0.0%～(100.0%-F01.09)	30.0%	★
F01.09	Time ratio of ending segment in S curve	0.0%～(100.0%-F01.08)	30.0%	★
F01.10	Stop mode	0: Decelerate to stop 1: Coast to stop	0	☆
F01.11	Start frequency of DC braking at stop	0.00Hz～maximum frequency	0.00Hz	☆

Function Code	Name	Set Range	Factory Default	Modification
F01.12	DC braking waiting time at stop	0.0s～100.0s	0.0s	☆
F01.13	DC braking current at stop	0%～100%	50%	☆
F01.14	DC braking time at stop	0.0s～100.0s	0.0s	☆
F01.15	Brake utilization rate	0%～100%	100%	☆
F01.16～F01.20	Reserved	——	0	☆
F01.21	Speed tracking delay	0.00～5.00s	0.50s	☆
F02 Group - Auxiliary Functions				
F02.00	Jog running frequency	0.00Hz～maximum frequency	2.00Hz	☆
F02.01	Jog acc time	0.0s～6500.0s	20.0s	☆
F02.02	Jog dec time	0.0s～6500.0s	20.0s	☆
F02.03	Acc time 2	0.0s～6500.0s	Depending on model	☆
F02.04	Dec time 2	0.0s～6500.0s	Depending on model	☆
F02.05	Acc time 3	0.0s～6500.0s	Depending on model	☆
F02.06	Dec time 3	0.0s～6500.0s	Depending on model	☆
F02.07	Acc time 4	0.0s～6500.0s	Depending on model	☆
F02.08	Dec time 4	0.0s～6500.0s	Depending on model	☆

Function Code	Name	Set Range	Factory Default	Modification
F02.09	Jump frequency 1	0.00Hz～maximum frequency	0.00Hz	☆
F02.10	Jump frequency 2	0.00Hz～maximum frequency	0.00Hz	☆
F02.11	Jump frequency amplitude	0.00Hz～maximum frequency	0.01Hz	☆
F02.12	Forward and reverse deadband time	0.0s～3000.0s	0.0s	☆
F02.13	Reverse control prohibition	0: Invalid 1: Valid	0	☆
F02.14	Set frequency lower than the lower limit frequency running mode	0: Run at the lower limit frequency 1: Stop 2: Run at zero speed	0	☆
F02.15	Droop control	0.00Hz～10.00Hz	0.00Hz	☆
F02.16	Set the cumulative power-on arrival time	0h～65000h	0h	☆
F02.17	Set the cumulative running arrival time	0h～65000h	0h	☆
F02.18	Boot Protection Selection	0: No protection 1: Protect Note: When F02.18=0, the terminal power-on detection running command is valid; when F02.18=1, the terminal power-on detection running command is invalid.	0	☆
F02.19	Frequency detection value (FDT1)	0.00Hz～maximum frequency	50.00Hz	☆
F02.20	Frequency detection hysteresis value (FDT1)	0.0%～100.0% (FDT1 Electrical Level)	5.0%	☆
F02.21	Frequency arrival (FAR) detection width	0.0%～100.0% (maximum frequency)	0.0%	☆

Function Code	Name	Set Range	Factory Default	Modification
F02.22	Whether the jump frequency is valid during acceleration and deceleration	0: Invalid 1: Valid	0	☆
F02.23	Acceleration time 1 and acceleration time 2 switching frequency points	0.00Hz～maximum frequency	0.00Hz	☆
F02.24	Deceleration time 1 and deceleration time 2 switching frequency points	0.00Hz～maximum frequency	0.00Hz	☆
F02.25	Terminal jog priority	0: Invalid 1: Valid	0	☆
F02.26	Frequency detection value (FDT2)	0.00Hz～maximum frequency	50.00Hz	☆
F02.27	Frequency detection hysteresis value (FDT2)	0.0%～100.0% (FDT2 Electrical Level)	5.0%	☆
F02.28	Arbitrary arrival frequency detection value 1	0.00Hz～maximum frequency	50.00Hz	☆
F02.29	Arbitrary arrival frequency detection width 1	0.0%～100.0% (maximum frequency)	0.0%	☆
F02.30	Arbitrary arrival frequency detection value 2	0.00Hz～maximum frequency	50.00Hz	☆
F02.31	Arbitrary arrival frequency detection width 2	0.0%～100.0% (maximum frequency)	0	☆
F02.32	Zero current detection level	0.0%～300.0% 100.0% Corresponding motor rated current	5.0%	☆
F02.33	Zero current detection delay time	0.01s～600.00s	0.10s	☆
F02.34	Output current over-limit value	0.0% (No detection) 0.1%～300.0%（motor rated current）	200.0%	☆

Function Code	Name	Set Range	Factory Default	Modification
F02.35	Output current over-limit detection delay time	0.00s～600.00s	0.00s	☆
F02.36	Arbitrary arrival current 1	0.0%～300.0% (motor rated current)	100.0%	☆
F02.37	Arbitrary arrival current 1 width	0.0%～300.0% (motor rated current)	0.0%	☆
F02.38	Arbitrary arrival current 2	0.0%～300.0% (motor rated current)	100.0%	☆
F02.39	Arbitrary arrival current 2 width	0.0%～300.0% (motor rated current)	0.0%	☆
F02.40	Timing function selection	0: Invalid 1: Valid	0	☆
F02.41	Timing running time selection	0: F02.42 setting 1: AI 2: Reserved 3: Panel potentiometer Note: Analog input range corresponds to F02.42	0	☆
F02.42	Timing running time	0.0Min～6500.0Min	0.0Min	☆
F02.43	AI input voltage protection value lower limit	0.00V～F02.44	3.10V	☆
F02.44	AI input voltage protection upper limit	F02.43～11.00V	6.80V	☆
F02.45	Module temperature arrival	0℃～100℃	75℃	☆
F02.46	Cooling fan control	0: The fan runs during operation 1: The fan runs all the time	0	☆
F02.47	Wakeup frequency	Sleep frequency (F02.49)～maximum frequency (F00.10)	0.00Hz	☆
F02.48	Wake up delay time	0.0s～6500.0s	0.0s	☆
F02.49	Sleep frequency	0.00Hz～wakeup frequency (F02.47)	0.00Hz	☆

Function Code	Name	Set Range	Factory Default	Modification
F02.50	Sleep delay time	0.0s～6500.0s	0.0s	☆
F02.51	Arrival time setting for this run	0.0～6500.0Min	0.0Min	☆
F02.52	Output power correction factor	0.00%～200.0%	100.0%	☆
F03 Group - Motor Parameters				
F03.00	Motor type	0: Ordinary asynchronous motor 1: Variable frequency asynchronous motor	0	★
F03.01	Motor rated power	0.1kW～1000.0kW	Depending on model	★
F03.02	Motor rated voltage	1V～2000V	Depending on model	★
F03.03	Motor rated current	0.01A～655.35A (VFD power<=55kW) 0.1A～6553.5A (VFD power>55kW)	Depending on model	★
F03.04	Motor rated frequency	0.01Hz～maximum frequency	Depending on model	★
F03.05	Motor rated speed	1rpm～65535rpm	Depending on model	★
F03.06	Asynchronous motor stator resistance	0.001Ω～65.535Ω（VFD power<=55kW） 0.0001Ω～6.5535Ω（VFD power>55kW）	Tuning parameter	★
F03.07	Asynchronous motor rotor resistance	0.001Ω～65.535Ω（VFD power<=55kW） 0.0001Ω～6.5535Ω（VFD power>55kW）	Tuning parameter	★
F03.08	Asynchronous motor leakage inductance reactance	0.01mH～655.35mH（VFD power<=55kW） 0.001mH～65.535mH（VFD power>55kW）	Tuning parameter	★
F03.09	Asynchronous motor mutual inductance reactance	0.1mH～6553.5mH（VFD power<=55kW） 0.01mH～655.35mH（VFD power>55kW）	Tuning parameter	★

Function Code	Name	Set Range	Factory Default	Modification
F03.10	Asynchronous motor no-load current	0.01A～F03.03（VFD power<=55kW） 0.1A～F03.03（VFD power>55kW）	Tuning parameter	★
F03.11～F03.26	Reserved	——	0	★
F03.27	Tuning selection	0: No operation 1: Asynchronous motor static tuning 2: Asynchronous motor complete tuning 3: Static complete parameter identification	0	★
F04 Group - Motor Vector Control Parameters				
F04.00	Speed loop proportional gain 1	1～100	30	☆
F04.01	Speed loop integration time 1	0.01s～10.00s	0.50s	☆
F04.02	Switching frequency 1	0.00～F04.05	5.00Hz	☆
F04.03	Speed loop proportional gain 2	1～100	20	☆
F04.04	Speed loop integration time 2	0.01s～10.00s	1.00s	☆
F04.05	Switching frequency 2	F04.02～maximum frequency	10.00Hz	☆
F04.06	Vector control slip gain	50%～200%	100%	☆
F04.07	Speed loop filter time constant	0.000s～0.100s	0.015s	☆
F04.08	Vector control overexcitation gain	0～200	64	☆
F04.09	Torque upper limit source under speed control mode	0: Function code F04.10 setting 1: AI 2: Reserved 3: Panel potentiometer 4: Reserved 5: Communication given 6～7: Reserved The full range of 1-7 option corresponds to F04.10	0	☆

Function Code	Name	Set Range	Factory Default	Modification
F04.10	Torque upper limit digital setting under speed control mode	0.0%～200.0%	160.0%	☆
F04.13	Excitation regulation proportional gain	0～60000	2000	☆
F04.14	Excitation regulation integral gain	0～60000	1300	☆
F04.15	Torque regulation proportional gain	0～60000	2000	☆
F04.16	Torque regulation integral gain	0～60000	1300	☆
F04.17	Speed loop integral properties	0: Invalid 1: Valid	0	☆
F04.18～F04.20	Reserved	——	0	☆
F05 Group - Torque Control Parameters				
F05.00	Speed/torque control mode selection	0: Speed control 1: Torque control	0	★
F05.01	Torque setting source selection under torque control mode	0: Digital setting 1 (F05.03) 1: AI 2: Reserved 3: Panel potentiometer 4: Reserved 5: Communication given 6～7: Reserved (The full range of 1-7 option corresponds to F05.03 digital setting)	0	★
F05.03	Torque digital setting under torque control mode	-200.0%～200.0%	150.0%	☆
F05.05	Torque control forward maximum frequency	0.00Hz～maximum frequency	50.00Hz	☆

Function Code	Name	Set Range	Factory Default	Modification
F05.06	Torque control reverse maximum frequency	0.00Hz～maximum frequency	50.00Hz	☆
F05.07	Torque control acceleration time	0.00s～650.00s	0.00s	☆
F05.08	Torque control deceleration time	0.00s～650.00s	0.00s	☆
		F06 Group - V/F Control Parameters		
F06.00	V/F curve setting	0: Linear V/F 1: Multi-point V/F 2: Square V/F 3: 1.2 power V/F 4: 1.4 power V/F 5: Reserved 6: 1.6 power V/F 7: Reserved 8: 1.8 power V/F 9: Reserved 10: VF complete separation mode 11: VF half-separated mode	0	★
F06.01	Torque boost	0.0%：(Automatic torque boost) 0.1%～30.0%	Depending on model	☆
F06.02	Torque boost cut-off frequency	0.00Hz～maximum frequency	50.00Hz	★
F06.03	Multi-point VF frequency point F1	0.00Hz～F06.05	0.00Hz	★
F06.04	Multi-point VF voltage point V1	0.0%～100.0%	0.0%	★
F06.05	Multi-point VF frequency point F2	F06.03～F06.07	0.00Hz	★
F06.06	Multi-point VF voltage point V2	0.0%～100.0%	0.0%	★
F06.07	Multi-point VF frequency point F3	F06.05～Motor rated frequency (F03.04)	0.00Hz	★
F06.08	Multi-point VF voltage point V3	0.0%～100.0%	0.0%	★

Function Code	Name	Set Range	Factory Default	Modification
F06.09	VF slip compensation gain	0.0%～200.0%	0.0%	☆
F06.10	VF overexcitation gain	0～200	64	☆
F06.11	VF oscillation suppression gain	0～100	Depending on model	☆
F06.13	VF separation voltage source	0: Digital setting (F06.14) 1: AI 2: Reserved 3: Panel potentiometer 4: Reserved 5: Multi-segment command 6: Simple PLC 7: PIDs 8: Communication given Note: 100.0% corresponds to the motor rated voltage	0	☆
F06.14	Voltage digital setting of VF separation	0V～Motor rated voltage	0V	☆
F06.15	Voltage acceleration time of VF separation	0.0s～1000.0s Note: Indicates the time from 0V to the motor rated voltage	0.0s	☆
F06.16	Voltage deceleration time of VF separation	0.0s～1000.0s Note: Indicates the time from 0V to the motor rated voltage	0.0s	☆
F06.17	VF separation stop mode selection	0: Frequency/voltage independently reduced to 0 1: After the voltage is reduced to 0, the frequency will be reduced again	0	☆
F06.18	VF overcurrent stall action current	50～200%	150%	☆
F06.19	VF overcurrent stall enable	0: Invalid 1: Valid	1	☆
F06.20	VF overcurrent stall suppression gain	0～100	20	

Function Code	Name	Set Range	Factory Default	Modification
F06.21	VF time speed overcurrent stall action Current compensation coefficient	50～200%	50%	☆
F06.22	VF overvoltage stall action voltage	200.0～2000.0	760.0	☆
F06.23	VF overvoltage stall enable	0: Invalid 1: Valid	1	☆
F06.24	VF overvoltage stall suppression frequency gain	0～100	30	☆
F06.25	VF overvoltage stall suppression voltage gain	0～100	30	☆
F06.26	Overvoltage stall maximum rise limit frequency	0～50Hz	5Hz	☆
F07 Group - Input Terminals				
F07.00	X1 terminal function selection	0: No function 1: Forward running FWD or running command 2: Reverse running REV or forward and reverse running direction Note: When it is set to 1 or 2, it needs to be used in conjunction with F07.11, see the function code parameter description for details 3: Three-wire running control 4: Forward jog (FJOG) 5: Reverse jog (RJOG) 6: Terminal UP 7: Terminal DOWN 8: Coast to stop 9: Fault reset (RESET) 10: Running pause 11: External fault normally open input 12: Multi-segment command terminal 1 13: Multi-segment command terminal 2	1	★
F07.01	X2 terminal function selection		2	★
F07.02	X3 terminal function selection		9	★

Function Code	Name	Set Range	Factory Default	Modification
F07.03	X4 terminal function selection	14: Multi-segment command terminal 3 15: Multi-segment command terminal 4 16: Acceleration and deceleration time selection terminal 1 17: Acceleration and deceleration time selection terminal 2 18: Frequency source switching 19: UP/DOWN setting clear (terminal, keypad) 20: Control command switching terminal 1 21: Acceleration and deceleration prohibited 22: PID pause 23: PLC status reset 24:Swing frequency pause 25: Counter input 26: Counter reset 27: Length count input 28: Length reset 29: Torque control prohibited 30: Reserved 31: Reserved 32: Immediate DC braking 33: External fault normally closed input 34: Frequency modification prohibited 35: Reverse PID action direction 36: External stop terminal 1 37: Control command switching terminal 2 38: PID integral pause 39: Switch between frequency source A and preset frequency 40: Switch between frequency source B and preset frequency 41: Reserved 42: Reserved 43: PID parameter switching 44: User-defined fault 1 45: User-defined fault 2 46: Speed control/torque control switching 47: Emergency stop	12	★
F07.04	Reserved		0	★
F07.05	Reserved		0	★
F07.06	Reserved		0	★
F07.07	Reserved		0	★
F07.08	Reserved		0	★

Function Code	Name	Set Range	Factory Default	Modification
F07.09	Reserved	48: External stop terminal 2 49: Deceleration DC braking 50: The current running time is cleared 51: Two-wire/three-wire switching 52: No reverse 53～58: Reserved	0	★
F07.10	X filter time	0.000s～1.000s	0.010s	☆
F07.11	Terminal command mode	0: Two-wire type 1 1: Two-wire type 2 2: Three-wire type 1 3: Three-wire type 2	0	★
F07.12	Terminal UP/DOWN change rate	0.001Hz/s～65.535Hz/s	1.00Hz/s	☆
F07.13	AI curve 1 minimum input	0.00V～F07.15	0.00V	☆
F07.14	AI curve 1 minimum input corresponding setting	-100.0%～+100.0%	0.0%	☆
F07.15	AI curve 1 maximum input	F07.13～+10.00V	10.00V	☆
F07.16	AI curve 1 maximum input corresponding setting	-100.0%～+150.0%	100.0%	☆
F07.17	AI filter time	0.00s～10.00s	0.10s	☆
F07.18～F07.22	Reserved	——	0	☆
F07.23	Panel potentiometer minimum input	-10.00V～F07.25	-9.50V	☆
F07.24	Panel potentiometer minimum input corresponding setting	-100.0%～+100.0%	0.0%	☆
F07.25	Panel potentiometer maximum input	F07.23～+10.00V	9.50V	☆

Function Code	Name	Set Range	Factory Default	Modification
F07.26	Panel potentiometer maximum input corresponding setting	-100.0% ～+150.0%	100.0%	☆
F07.27	Panel potentiometer filter time	0.00s～10.00s	0.10s	☆
F07.28 ～ F07.33	Reserved	——	0	☆
F07.34	AI below minimum input setting selection	Units: AI below the minimum input setting selection 0: Corresponds to the minimum input setting 1: 0.0% Tens, Hundreds place: Reserved	000	☆
F07.35	X1 delay time	0.0s～3600.0s	0.0s	★
F07.36	X2 delay time	0.0s～3600.0s	0.0s	★
F07.37	X3 delay time	0.0s～3600.0s	0.0s	★
F07.38	X terminal valid state selection 1	0: Low electrical level valid 1: High electrical level valid Units: X1 Tens: X2 Hundreds: X3 Thousands: X4 Ten thousand digits: Reserved	00000	★
F07.39	Reserved	——	0	☆
F07.40	AI input signal selection	0: Voltage signal 1: Current signal	0	★
F07.41	AI input anti-shake coefficient	0～1000	0	☆
F07.42	Reserved	——	0	☆
F08 Group - Output Terminal				

Function Code	Name	Set Range	Factory Default	Modification
F08.00	Reserved	——	0	☆
F08.01	Reserved	——	0	☆
F08.02	Control board relay R function selection	0: No output 1: The inverter is running 2: Fault output (free stop fault) 3: Frequency level detection FDT1 output 4: Frequency arrival signal (FAR) 5: Running at zero speed (no output when stopped) 6: Motor overload pre-alarm 7: Inverter overload pre-alarm 8: The set count value arrives 9: The specified count value arrives 10: Length arrives 11: PLC cycle completed 12: Accumulated running time arrives 13: Frequency limiting 14: Torque limiting 15: Ready to run 16: Reserved 17: Upper limit frequency arrives 18: Lower limit frequency arrives (related to running) 19: Undervoltage status output 20: Communication setting 21: Reserved 22: Reserved 23: Running at zero speed 2 (output even when stopped) 24: Accumulated power-on time arrives 25: Frequency level detection FDT2 output 26: Frequency 1 arrival output 27: Frequency 2 arrival output 28: Current 1 arrival output 29: Current 2 arrival output	2	☆

Function Code	Name	Set Range	Factory Default	Modification
F08.02	Control board relay R function selection	30: Timing arrival output 31: AI input over limit 32: Drop loading 33: Reverse running 34: Zero current state 35: Module temperature arrives 36: The output current exceeds the limit 37: The lower limit frequency arrives (output even when stopped) 38: Alarm output (all faults) 39: Motor over-temperature pre-alarm 40: The running time arrives 41: Fault output (free stop fault and undervoltage no output) 42～44: Reserved	2	☆
F08.03 ～ F08.06	Reserved	——	0	★
F08.07	AO output function selection	0: Running frequency 1: Set frequency 2: Output current (2 times the motor rated current) 3: Output torque (2 times the motor rated torque) 4: Output power (2 times rated power) 5: Output voltage (1.2 times the inverter rated voltage) 6: Reserved 7: AI 8～11: Reserved 12: Communication setting 13: Motor speed 14: Output current (100.0% corresponds to 1000.0A) 15: Output voltage (100.0% corresponds to 1000.0V) 16: Output torque (torque actual value)	0	☆
F08.08	Reserved	——	0	☆

Function Code	Name	Set Range	Factory Default	Modification
F08.09	Reserved	——	0	☆
F08.10	AO zero bias coefficient	-100.0%～+100.0%	0.0%	☆
F08.11	AO gain	-10.00～+10.00	1.00	☆
F08.12 ～ F08.17	Reserved	——	0	☆
F08.18	R output delay time	0.0s～3600.0s	0.0s	☆
F08.19 ～ F08.21	Reserved	——	0	☆
F08.22	Switch output terminal valid state selection	0: Positive logic 1: Reverse logic Units: Reserved Tens: R Hundreds, thousands, ten thousands: Reserved	0000	☆
F08.23	A0 output signal selection	0:Voltage signal 1:current signal	0	☆
F09 Group - PID Functions				
F09.00		0: F09.01 setting 1: AI 2: Reserved 3: Panel potentiometer 4: Reserved 5: Communication given 6: Multi-segment command given 7: Pressure given (MPa、Kg)		
F09.01	PID value given	0.0%～100.0%	50.0%	☆
F09.02	PID feedback source	0: AI 1～8: Reserved	0	☆

Function Code	Name	Set Range	Factory Default	Modification
F09.03	PID action direction	0: Forward action 1: Reverse action	0	☆
F09.04	PID given feedback range	0～65535	1000	☆
F09.05	Proportional gain Kp1	0.0～999.9	20.0	☆
F09.06	Integral time Ti1	0.01s～10.00s	2.00s	☆
F09.07	Differential time Td1	0.000s～10.000s	0.000s	☆
F09.08	PID reverse cut-off frequency	0.00～maximum frequency	2.00Hz	☆
F09.09	PID deviation limit	0.0%～100.0%	0.0%	☆
F09.10	PID differential limit range	0.00%～100.00%	0.50%	☆
F09.11	PID given change time	0.00～650.00s	0.00s	☆
F09.12	PID feedback filter time	0.00～60.00s	0.00s	☆
F09.13	PID output filter time	0.00～60.00s	100.0s	☆
F09.14	Reserved	——	——	☆
F09.15	Proportional gain Kp2	0.0～999.9	20.0	☆
F09.16	Integral time Ti2	0.01s～10.00s	2.00s	☆
F09.17	Differential time Td2	0.000s～10.000s	0.000s	☆
F09.18	PID parameter switching condition	0: Do not switch 1: Switch via X terminal 2: Automatic switching according to the deviation 3～8: Reserved	0	☆
F09.19	PID parameter switching deviation 1	0.0%～F09.20	20.0%	☆
F09.20	PID parameter switching deviation 2	F09.19～100.0%	80.0%	☆

Function Code	Name	Set Range	Factory Default	Modification
F09.21	PID initial value	0.0%～100.0%	0.0%	☆
F09.22	PID initial value hold time	0.00～650.00s	0.00s	☆
F09.23	Reserved	——	——	☆
F09.24	Reserved	——	——	☆
F09.25	PID feedback upper limit loss detection value	Does not judge feedback loss 0.1%～100.0%	0.0%	☆
F09.26	PID feedback lower limit loss detection value		0.0%	☆
F09.27	PID feedback loss detection time	0.0s～20.0s	0.0s	☆
F09.28	PID stop operation	0: No operation when stopped 1: Operation during stop	0	☆
F10 Group Multi-Segment Command, Simple PLC				
F10.00	Multi-segment command 0	-100.0%～100.0%	0.0%	☆
F10.01	Multi-segment command 1	-100.0%～100.0%	0.0%	☆
F10.02	Multi-segment command 2	-100.0%～100.0%	0.0%	☆
F10.03	Multi-segment command 3	-100.0%～100.0%	0.0%	☆
F10.04	Multi-segment command 4	-100.0%～100.0%	0.0%	☆
F10.05	Multi-segment command 5	-100.0%～100.0%	0.0%	☆
F10.06	Multi-segment command 6	-100.0%～100.0%	0.0%	☆
F10.07	Multi-segment command 7	-100.0%～100.0%	0.0%	☆
F10.08	Multi-segment command 8	-100.0%～100.0%	0.0%	☆
F10.09	Multi-segment command 9	-100.0%～100.0%	0.0%	☆

Function Code	Name	Set Range	Factory Default	Modification
F10.10	Multi-segment command 10	-100.0%～100.0%	0.0%	☆
F10.11	Multi-segment command 11	-100.0%～100.0%	0.0%	☆
F10.12	Multi-segment command 12	-100.0%～100.0%	0.0%	☆
F10.13	Multi-segment command 13	-100.0%～100.0%	0.0%	☆
F10.14	Multi-segment command 14	-100.0%～100.0%	0.0%	☆
F10.15	Multi-segment command 15	-100.0%～100.0%	0.0%	☆
F10.16	Simple PLC running mode	0: Stop at the end of a single run 1: Keep the final value at the end of a single run 2: Continuous cycle	0	☆
F10.17	Simple PLC power-off memory selection	Units: Power-off memory selection 0: No memory when power off 1: Power-off memory Tens: Inverter stop memory selection 0: Stop without memory 1: Stop with memory	00	☆
F10.18	Simple PLC 0-segment running time	0.0s (h)～6500.0s (h)	0.0s (h)	☆
F10.19	Simple PLC 0-segment Acc/Dec time selection	0～3	0	☆
F10.20	Simple PLC 1-segment running time	0.0s (h)～6500.0s (h)	0.0s (h)	☆
F10.21	Simple PLC 1-segment Acc/Dec time selection	0～3	0	☆
F10.22	Simple PLC 2-segment running time	0.0s (h)～6500.0s (h)	0.0s (h)	☆
F10.23	Simple PLC 2-segment Acc/Dec time selection	0～3	0	☆

Function Code	Name	Set Range	Factory Default	Modification
F10.24	Simple PLC 3-segment running time	0.0s (h)～6500.0s (h)	0.0s (h)	☆
F10.25	Simple PLC 3-segment Acc/Dec time selection	0～3	0	☆
F10.26	Simple PLC 4-segment running time	0.0s (h)～6500.0s (h)	0.0s (h)	☆
F10.27	Simple PLC 4-segment Acc/Dec time selection	0～3	0	☆
F10.28	Simple PLC 5-segment running time	0.0s (h)～6500.0s (h)	0.0s (h)	☆
F10.29	Simple PLC 5-segment Acc/Dec time selection	0～3	0	☆
F10.30	Simple PLC 6-segment running time	0.0s (h)～6500.0s (h)	0.0s (h)	☆
F10.31	Simple PLC 6-segment Acc/Dec time selection	0～3	0	☆
F10.32	Simple PLC 7-segment running time	0.0s (h)～6500.0s (h)	0.0s (h)	☆
F10.33	Simple PLC 7-segment Acc/Dec time selection	0～3	0	☆
F10.34	Simple PLC 8-segment running time	0.0s (h)～6500.0s (h)	0.0s (h)	☆
F10.35	Simple PLC 8-segment Acc/Dec time selection	0～3	0	☆
F10.36	Simple PLC 9-segment running time	0.0s (h)～6500.0s (h)	0.0s (h)	☆
F10.37	Simple PLC 9-segment Acc/Dec time selection	0～3	0	☆
F10.38	Simple PLC 10-segment running time	0.0s (h)～6500.0s (h)	0.0s (h)	☆
F10.39	Simple PLC 10-segment Acc/Dec time selection	0～3	0	☆

Function Code	Name	Set Range	Factory Default	Modification
F10.40	Simple PLC 11-segment running time	0.0s (h)～6500.0s (h)	0.0s (h)	☆
F10.41	Simple PLC 11-segment Acc/Dec time selection	0～3	0	☆
F10.42	Simple PLC 12-segment running time	0.0s (h)～6500.0s (h)	0.0s (h)	☆
F10.43	Simple PLC 12-segment Acc/Dec time selection	0～3	0	☆
F10.44	Simple PLC 13-segment running time	0.0s (h)～6500.0s (h)	0.0s (h)	☆
F10.45	Simple PLC 13-segment Acc/Dec time selection	0～3	0	☆
F10.46	Simple PLC 14-segment running time	0.0s (h)～6500.0s (h)	0.0s (h)	☆
F10.47	Simple PLC 14-segment Acc/Dec time selection	0～3	0	☆
F10.48	Simple PLC 15-segment running time	0.0s (h)～6500.0s (h)	0.0s (h)	☆
F10.49	Simple PLC 15-segment Acc/Dec time selection	0～3	0	☆
F10.50	Simple PLC running time unit	0: s (second) 1: h (hour)	0	☆
F10.51	Multi-segment command 0 given mode	0: Function code F10.00 given 1: AI 2: Reserved 3: Panel potentiometer 4: Reserved 5: PIDs 6: Preset frequency (F00.08) given, UP/DOWN can be modified	0	☆
F11 Group - Reserved				
F12 Group - Fault And Protection				

Function Code	Name	Set Range	Factory Default	Modification
F12.00	Motor overload protection selection	0: Prohibited 1: Allowed	1	☆
F12.01	Motor overload protection gain	0.20～10.00	1.00	☆
F12.02	Motor overload pre-alarm coefficient	50%～100%	80%	☆
F12.03	Overvoltage stall gain	0～100	0	☆
F12.04	Overvoltage stall protection voltage	200.0～2000.0	760.0	☆
F12.05	Overcurrent stall gain	0～100	20	☆
F12.06	Overcurrent stall protection current	100%～200%	150%	☆
F12.07	Reserved	——	0	☆
F12.08	Braking initial voltage	200.0～2000.0V	690.0V	☆
F12.09	Fault automatic reset times	0～200	0	☆
F12.10	Fault digital output terminal action selection during fault automatic reset	0: No action 1: Action	1	☆
F12.11	Fault automatic reset interval time	0.1s～100.0s	6.0s	☆
F12.12	Input phase loss protection selection	0: Prohibited (inverter power <=11kW) 1: Allowed (inverter power >11kW)	Depending on model	☆
F12.13	Output phase loss protection selection	0: Prohibited 1: Allowed	1	☆
F12.14	1st fault type	0: No fault 1: Reserved 2: Acceleration overcurrent 3: Deceleration overcurrent 4: Constant speed overcurrent 5: Acceleration overvoltage	——	●

Function Code	Name	Set Range	Factory Default	Modification
F12.15	2nd fault type	6: Deceleration overvoltage 7: Constant speed overvoltage 8: Buffer resistance overload 9: Undervoltage 10: Inverter overload 11: Motor overload 12: Input phase loss 13: Output phase loss 14: Module overheating 15: External fault 16: Abnormal communication 17: Reserved 18: Abnormal current detection 19: Abnormal motor tuning 20: Reserved 21: Abnormal parameters read and write 22: Abnormal Inverter hardware 23: Reserved 24: Reserved 25: Reserved 26: Run time arrives 27: Reserved 28: Reserved 29: The power-on time is arrives 30: Offload 31: Loss of PID feedback while running 40: Fast current limit timeout 41: Switch motors while running 42: Speed deviation too large 43: Motor overspeed 45: Motor over temperature 51: Initial position error	——	●
F12.16	3rd (latest) fault type		——	●
F12.17	Frequency at 3rd (latest) fault	——	——	●

Function Code	Name	Set Range	Factory Default	Modification
F12.18	Current at 3rd (latest) fault	——	——	●
F12.19	Bus voltage at 3rd (latest) fault	——	——	●
F12.20	Input terminal status at 3rd (latest) fault	——	——	●
F12.21	Output terminal status at 3rd (latest) fault	——	——	●
F12.22	Inverter status at 3rd (latest) fault	——	——	●
F12.23	Power-on time at 3rd (latest) fault	——	——	●
F12.24	Run time at 3rd (latest) fault	——	——	●
F12.27	Frequency at 2nd fault	——	——	●
F12.28	Current at 2nd fault	——	——	●
F12.29	Bus voltage at 2nd fault	——	——	●
F12.30	Input terminal status at 2nd fault	——	——	●
F12.31	Output terminal status at 2nd fault	——	——	●
F12.32	Inverter status at 2nd fault	——	——	●
F12.33	Power-on time at 2nd fault	——	——	●
F12.34	Run time at 2nd fault	——	——	●
F12.36	Undervoltage fault reset time during operation	0.0s～6553.s	0.0s	☆
F12.37	Frequency at 1st fault	——	——	●
F12.38	Current at 1st fault	——	——	●
F12.39	Bus voltage at 1st fault	——	——	●

Function Code	Name	Set Range	Factory Default	Modification
F12.40	Input terminal status at 1st fault	——	——	●
F12.41	Output terminal status at 1st fault	——	——	●
F12.42	Inverter status at 1st fault	——	——	●
F12.43	Power-on time at 1st fault	——	——	●
F12.44	Run time at 1st fault	——	——	●
F12.45	Shield "E-08" selection	0: Invalid 1: Valid	0	☆
F12.46	Power-off restart setting	Units digit: Power-off and restart selection 0: Invalid 1: Valid Tens digit: Under voltage restart selection 0: Invalid 1: Valid Hundreds: Reserved Thousands: Reserved Ten thousand digit: Reserved	00	☆
F12.47	Fault protection action selection 1	Units: Motor overload (11) 0: Coast to stop 1: Stop according to the stop mode 2: Keep running Tens: Input phase loss (12) Hundreds: Output phase loss (13) Thousands: External fault (15) Ten thousands: Communication abnormal (16)	00000	☆

Function Code	Name	Set Range	Factory Default	Modification
F12.48	Fault protection action selection 2	Units: Reserved 0: Coast to stop Tens: Function code read/write abnormal (21) 0: Coast to stop 1: Stop according to the stop mode Hundreds: Reserved Thousands: Motor overheating (25) Ten thousands: Runtime arrives (26)	00000	☆
F12.49	Fault protection action selection 3	Units: User-defined fault 1 (27) 0: Coast to stop 1: Stop according to the stop mode 2: Keep running Tens: User-defined fault 2 (28) 0: Coast to stop 1: Stop according to the stop mode 2: keep running Hundreds: Power-on time arrival (29) 0: Coast to stop 1: Stop according to the stop mode 2: Keep running Thousands: Drop loading (30) 0: Coast to stop 1: Decelerate to stop 2: Jump directly to 7% of the motor rated frequency and continue to run, when the load is not drop, it will automatically return to the set frequency running Tens thousands: PID feedback loss while running (31) 0: Coast to stop 1: Stop according to the stop mode 2: Keep running	00000	☆

Function Code	Name	Set Range	Factory Default	Modification
F12.50	Fault protection action selection 4	Units: Speed deviation too large (42) 0: Coast to stop 1: Stop according to the stop mode 2: Continue running Tens, hundreds, thousands, ten thousand: Reserved	00000	☆
F12.54	Continue to run frequency selection in case of fault	0: Run at the current running frequency 1: Run at the set frequency 2: Run at the upper limit frequency 3: Run at the lower limit frequency 4: Running at abnormal standby frequency	0	☆
F12.55	Abnormal standby frequency	0.0%～100.0% (100.0% corresponds to the maximum frequency F00.10)	100.0%	☆
F12.56～F12.58	Reserved	——	0	★
F12.59	Instantaneous power failure action selection	0: Invalid 1: Deceleration 2: Deceleration to stop	0	☆
F12.60	Instantaneous stop action pauses to judge voltage	80.0%～100.0%	85.0%	☆
F12.61	Instantaneous power failure voltage recovery judgment time	0.00s～100.00s	0.50s	☆
F12.62	Instantaneous power failure action judgment voltage	60.0%～100.0% (Standard bus voltage)	80.0%	☆
F12.63	Off load protection selection	0: Invalid 1: Valid	0	☆
F12.64	Off load detection level	0.0～100.0%	10.0%	☆
F12.65	Off load detection time	0.0～60.0s	1.0s	☆

Function Code	Name	Set Range	Factory Default	Modification
F12.66	Reserved	——	——	☆
F12.67	Reserved	——	——	☆
F12.68	SVC speed deviation excessive detection value	0.0%～50.0% (maximum frequency)	20.0%	☆
F12.69	SVC speed deviation excessive detection time	0.0s: No detection 0.1～60.0s	0.0s	☆
F12.70	Instantaneous stop non-stop gain Kp	0～100	40	☆
F12.71	Instantaneous stop non-stop integral coefficient Ki	0～100	30	☆
F12.72	Instantaneous stop non-stop action deceleration time	0.0～300.0s	20.0s	☆
F12.73	Carrier automatic adjustment selection	Units digit: Automatic adjustment of overload carrier 0: Prohibited 1: Valid Tens digit: Carrier automatically adjusted at startup 0: Prohibited 1: Valid Hundreds, thousands, ten thousand: Reserved	11	☆
F13 Group - Communication Parameters				
F13.00	MODBUS communication baud rate	0～1: Reserved 2: 1200BPS 3: 2400BPS 4: 4800BPS 5: 9600BPS 6: 19200BPS 7: 38400BPS 8: 57600BPS 9: 115200BPS	6	☆

Function Code	Name	Set Range	Factory Default	Modification
F13.01	MODBUS data format	0: No parity (8-N-2) 1: Even parity (8-E-1) 2: Odd parity (8-O-1) 3: No parity (8-N-1)	1	☆
F13.02	Local address	1～247	1	☆
F13.03	MODBUS response delay	0～20ms	2	☆
F13.04	RS485 communication overtime time	0.0: Invalid 0.1～60.0s	0.0s	☆
F13.05	MODBUS protocol selection	0: Non-standard MODBUS protocol 1: Standard MODBUS protocol	1	☆
F13.06	RS485 communication read current resolution	0: 0.01A 1: 0.1A	0	☆
F13.07	RS485 communication protocol selection	0: 900N protocol 1: 900G protocol 2～10：Reserved	0	☆
F14 Group - Keypad And Display				
F14.00	Reserved	——	0	☆
F14.01	Key STOP/RESET function selection	0: Only in the keypad operation mode, the stop function of the STOP/RES key is valid 1: In any operation mode, the stop function of STOP/RES key is valid	1	☆

Function Code	Name	Set Range	Factory Default	Modification
F14.02	LED running main display parameter 1	0000～FFFF Bit00: Running frequency 1(Hz) Bit01: Set frequency (Hz) Bit02: Bus voltage (V) Bit03: Output voltage (V) Bit04: Output current (A) Bit05: Output power (kW) Bit06: Output torque (%) Bit07: Terminal input status Bit08: Terminal output status Bit09: AI Bit10: Reserved Bit11: Pressure feedback (MPa, Kg) Bit12: Reserved Bit13: Reserved Bit14: Load speed display Bit15: PID setting	1F	☆
F14.03	LED running main display parameter 2	0000～FFFF Bit00: PID feedback Bit01: PLC stage Bit02: Reserved Bit03: Operating frequency 2 (Hz) Bit04: Remaining running time Bit05: Voltage before AI correction (V) Bit06: Reserved Bit07: Pressure setting (MPa, Kg) Bit08: Line speed Bit09: Current power-on time (Hour) Bit10: Current running time (Min) Bit11: Reserved Bit12: Communication setting value Bit13: Reserved Bit14: Main frequency A display (Hz) Bit15: Auxiliary frequency B display (Hz)	0	☆

Function Code	Name	Set Range	Factory Default	Modification
F14.04	LED stop main display parameters	0000～FFFF Bit00: Set frequency (Hz) Bit01: Bus voltage (V) Bit02: Terminal input status Bit03: Terminal output status Bit04: AI voltage (V) Bit05: Reserved Bit06: Panel potentiometer voltage (V) Bit07: Reserved Bit08: Reserved Bit09: PLC stage Bit10: Load speed Bit11: PID setting Bit12: Reserved Bit13: Pressure feedback (MPa, Kg) Bit14: Input voltage (V) Bit15: Reserved	33	☆
F14.05	LED running auxiliary display parameters	0～80	4	☆
F14.06	LED stop auxiliary display parameters	0～80	38	☆
F14.07	Load speed display coefficient	0.0001～6.5000	1.0000	☆
F14.08	Inverter module heat sink temperature	0.0℃～100.0℃	——	●
F14.09	Cumulative running time	0h～65535h	——	●
F14.10	Load speed display decimal places	LED units: Load speed (d00.14) display coefficient 0: 0 decimal places 1: 1 decimal place 2: 2 decimal places 3: 3 decimal places LED ten digit: Feedback speed (d00.19) display coefficient 1: 1 ecimal place 2: 2 decimal places	21	☆

Function Code	Name	Set Range	Factory Default	Modification
F14.11	Cumulative power-on time	0～65535 hour	——	●
F14.12	Cumulative power consumption	0～65535 kWh	——	●
F14.13	Hardware version number	——	——	●
F14.14	Software version number	——	——	●
F14.15	Software batch number	——	3.0410	●
F15 Group - Function Code Management				
F15.00	User password	0～65535	0	☆
F15.01	Parameter initialization	0: No operation 1: All user parameters except the motor parameters are restored to factory settings 2: All user parameters are restored to factory settings 3: Clear record information	0	★
F15.02	Function code modification attribute	0: Modifiable 1: Unmodifiable	0	☆
F15.03	Reserved	——	0	●
F15.04	Reserved	——	0	●
F16 Group - Water Supply Parameter Group				
F16.01～F16.04	Reserved	——	0	★
F16.05	Pump sleep waiting time	0.0～3600.0s	2.0	☆
F16.06	Pump wake-up waiting time	0.0～3600.0s	1.0	☆
F16.07	Pump wake up pressure point	(0.0～100.0%)*（F16.08）	80.0%	☆
F16.08	Preset pressure	0.00～F16.09（MPa、Kg）	5.00	☆

Function Code	Name	Set Range	Factory Default	Modification
F16.09	Sensor range	0.00～100.00（MPa、Kg）	10.00	☆
F16.10	Maximum power node of the battery panel	0.0%～100.0%	81.0	☆
F16.11	VF speed adjustment coefficient	0.000～2.000	1.000	☆
F16.12	MPPT high point working voltage	(F16.13)～200.0%	100.0%	☆
F16.13	MPPT low point working voltage	0.0%～(F16.12)	75.0%	☆
F16.14	MPPT high point voltage frequency point	0.00Hz～maximum frequency (F00.10)	50.00	☆
F16.15	MPPT low point voltage frequency point	0.00Hz～maximum frequency (F00.10)	0.00	☆
F16.16	MPPT low voltage protection point	40.0%～100.0%	45.0%	☆
F16.17	Water shortage detection initial frequency	0.00Hz～maximum frequency (F00.10)	10.00	☆
F16.18	Photovoltaic water pump water shortage detection current corresponds to no-load current ratio	0.0%～300.0%* no-load current (F03.10)	0.0	☆
F16.19	Photovoltaic water pump water shortage detection time	0～6000.0s	0.0	☆
F16.20	Photovoltaic undervoltage self-start delay	0.1～6000.0s (0.0 value turn off self-start)	2.0	☆
F16.21	Photovoltaic water shortage self-start delay	0.1～6000.0s (0.0 value turn off self-start)	15.0	☆
F16.22	Power search time	0.050～60.000	0.500	☆
F16.23	Power search gain	10～500	125	☆

Function Code	Name	Set Range	Factory Default	Modification
F16.24	Power search speed gain	1～1000	100	☆
F16.25	Pre-search increase frequency time	0.01～600.00s	15.00	☆
F16.26	Pre-search decrease frequency time	0.01～600.00s	15.00	☆
F17 Group - Control Optimization Parameters				
F17.00	DPWM switching upper limit frequency	0.00Hz～maximum frequency (F00.10)	8.00Hz	☆
F17.01	PWM modulation mode	0: Asynchronous modulation 1: Synchronous modulation	0	☆
F17.02	Deadband compensation mode selection	0: No compensation 1: Compensation mode	1	☆
F17.03	Random PWM depth	0: Random PWM invalid 1～10: PWM carrier frequency random depth	0	☆
F17.04	Pulse-by-wave current limit enable	0: Disable 1: Enable	1	☆
F17.05	Voltage overmodulation coefficient	100～110	105	☆
F17.06	Undervoltage point setting	200.0V～2000.0V	350.0V	☆
F17.07	Reserved	——	0	☆
F17.08	Overvoltage point setting	200.0V～2200.0V	0	★
F18 Group - Reserved				
FFF Group - Manufacturer Parameters				
FFF.00	Factory password	0～65535	0	★

d00 Group - Basic Monitoring Parameters			
Function Code	Name	Factory Value	Modification
d00.00	Running frequency (Hz)	0.01Hz	7000H
d00.01	Set frequency (Hz)	0.01Hz	7001H
d00.02	Bus voltage (V)	0.1V	7002H
d00.03	Output voltage (V)	1V	7003H
d00.04	Output current (A)	0.01A	7004H
d00.05	Output power (kW)	0.1kW	7005H
d00.06	Output torque (%)	0.10%	7006H
d00.07	Terminal input status	1	7007H
d00.08	Terminal output status	1	7008H
d00.09	AI voltage (V) / current (mA)	0.01V/0.01mA	7009H
d00.10	Reserved	——	700AH
d00.11	Pressure feedback (MPa、Kg)	0.00	700BH
d00.12	Reserved	——	700CH
d00.13	Reserved	——	700DH
d00.14	Load speed display	1	700EH
d00.15	PID setting	1	700FH
d00.16	PID feedback	1	7010H
d00.17	PLC stage	1	7011H
d00.18	Reserved	——	7012H

Function Code	Name	Factory Value	Modification
d00.19	Feedback speed (Hz)	0.01Hz	7013H
d00.20	Remain run time	0.1Min	7014H
d00.21	Voltage (V) / current (mA) before AI correction	0.001V/0.01mA	7015H
d00.22	Reserved	——	7016H
d00.23	Pressure setting (MPa、Kg)	0.00	7017H
d00.24	Linear speed	1m/Min	7018H
d00.25	Current power-on time	1Min	7019H
d00.26	Current running time	0.1Min	701AH
d00.27	Reserved	——	701BH
d00.28	Communication set value	0.01%	701CH
d00.29	Reserved	0	701DH
d00.30	Main frequency A display	0.01Hz	701EH
d00.31	Auxiliary frequency B display	0.01Hz	701FH
d00.32	Reserved	——	7020H
d00.33	Reserved	——	7021H
d00.34	Motor temperature value	1℃	7022H
d00.35	Target torque (%)	0.1%	7023H
d00.36	Reserved	——	7024H
d00.37	Power factor angle (Hz)	0.1°	7025H
d00.38	Input voltage (V)	0.0V	7026H

Function Code	Name	Factory Value	Modification
d00.39	VF separation target voltage	1V	7027H
d00.40	VF separation output voltage	1V	7028H
d00.41	Input terminal status visual display	1	7029H
d00.42	Output terminal status visual display	1	702AH
d00.43	Input terminal function status visual display 1 (Function 01- Function 40)	1	702BH
d00.44	Input terminal function status visual display 2 (Function 41- Function 80)	1	702CH
d00.45	Fault information	1	702DH
d00.58	Reserved	0	703AH
d00.59	Set frequency (%)	0.01%	703BH
d00.60	Running frequency (%)	0.01%	703CH
d00.61	Inverter status	1	703DH
d00.62	Current fault code	1	703EH
d00.63	Reserved	——	703FH
d00.64	Reserved	——	7040H
d00.65	Torque upper limit	0.10%	7041H
d00.66 ~ d00.78	Reserved	——	——
d00.79	Set temperature	1℃	704FH

7. EMC (Electromagnetic Compatibility)

7.1 Definition

Electromagnetic compatibility (EMC) refers to the ability of electrical equipment to operate in an electromagnetic interference environment without interfering with the electromagnetic environment and to realize its function stably.

7.2 EMC Standard Introduction

According to the requirements of the national standard GB/T12668.3, the inverter needs to meet the requirements of electromagnetic interference and anti-electromagnetic interference.
Our existing products implement the latest international standards: I E C / E N 6 1 8 0 0 - 3: 2004 (Adjustable speed electrical power drive systems part 3: EMC requirements and specific test methods), which is equivalent to the national standard GB/T12668.3 .
IEC/EN61800-3 mainly inspects the frequency converter from two aspects of electromagnetic interference and anti-electromagnetic interference. Electromagnetic interference mainly tests the radiated interference, conduction interference and harmonic interference of the frequency inverter (this requirement is required for frequency inverters used in civilian use).Anti-electromagnetic interference mainly affects the conduction immunity, radiation immunity, surge immunity, fast mutation pulse group immunity, ESD immunity and low-frequency power supply immunity (specific test items are):
① Immunity test for input voltage sags, interruptions and changes;
② Commutation notch immunity test;
③ Harmonic input immunity test;
④ Input frequency change test;
⑤ Input voltage unbalance test;
⑥ Input voltage fluctuation test) for testing. Tested in accordance with the strict requirements of IEC/EN61800-3 above, our products are installed and used in accordance with the guidance shown in 8.3, and will have good electromagnetic compatibility in general industrial environments.

7.3 EMC Guide

(1) Harmonic Wave Effect

The higher harmonics of the power supply will cause damage to the inverter. Therefore, in some places where the power grid quality is relatively poor, it is recommended to install an AC input reactor.

(2) Electromagnetic Interference And Installation Precautions

There are two kinds of electromagnetic interference, one is the interference of the electromagnetic noise of the surrounding environment on the inverter, and the other is the interference generated by the inverter on the surrounding equipment.

Installation Precautions:
① The grounding wires of inverters and other electrical products should be well grounded;
② The power input and output lines of the inverter and the weak current signal lines (such as: control lines) should not be arranged in parallel as much as possible, but vertically if possible;
③ It is recommended to use shielded cable or steel pipe shielded power line for the output power line of the inverter, and the shielding layer must be reliably grounded. It is recommended to use twisted-pair shielded control lines for the lead wires of the interfered equipment, and the shielding layer must be grounded reliably;
④ For motor cables longer than 100m, it is required to install an output filter or reactor.

(3) Method Of Interference Caused By Peripheral Electromagnetic Equipment To VFD

Generally, the reason for the electromagnetic impact on the frequency inverter is that there are a large number of relays, contactors or electromagnetic brakes installed near the frequency inverter. When the frequency inverter is disturbed and malfunctions, it is recommended to adopt the following solutions:
① Install a surge suppressor on the device that generates interference;
② Install a filter at the input end of the frequency inverter, refer to to point 6 for details;
③ Use shielded cables for the lead wires of inverter control signal lines and detection lines, and ground the shielding layer reliably.

(4) Method Of Dealing With Interference Caused By VFD To Peripheral Equipment

The noise in this part is divided into two types: one is the radiated interference of the frequency inverter, and the other is the conducted interference of the frequency inverter. These two kinds of interference cause the surrounding electrical equipment to be subjected to electromagnetic or electrostatic induction. Thus causing the equipment to malfunction. For several different interference situations, refer to the following solutions:
① The instruments, receivers and sensors used for measurement generally have relatively weak signals. If they are close to the frequency inverter or in the same control cabinet, they are susceptible to interference and malfunction. It is recommended to adopt the following solutions: keep away from Interference source; do not arrange signal lines and power lines in parallel, especially do not bundle them together in parallel; use shielded lines for signal lines and power lines, and have good grounding; add ferrite magnetic rings on the output side of the inverter (select the suppression frequency at 30～1000MHz range), and wind 2～3 turns in the same direction, for bad conditions, you can choose to install an EMC output filter;
② When the disturbed equipment and the inverter use the same power supply, it will cause conduction interference. If the above methods cannot eliminate the interference, an EMC filter should be installed between the inverter and the power supply (refer to point 6 for type selection) ;
③ The peripheral equipment is grounded separately, which can eliminate the interference caused by the leakage current of the ground wire of the inverter when it is common ground.

(5) Leakage Current And Treatment

There are two forms of leakage current when using a frequency inverter: one is leakage current to ground; the other is leakage current between lines.

① Factors affecting ground leakage current and solutions:
There is distributed capacitance between the wire and the ground, the larger the distributed capacitance, the greater the leakage current; effectively reduce the distance between the inverter and the motor to reduce the distributed capacitance. The greater the carrier frequency, the greater the leakage current. The carrier frequency can be lowered to reduce leakage current. However, reducing the carrier frequency will increase the noise of the motor. Please note that adding a reactor is also an effective way to solve the leakage current.
The leakage current will increase with the increase of the loop current, so when the motor power is large, the corresponding leakage current is large.
② Factors and solutions that cause leakage current between lines:
There is distributed capacitance between the output wiring of the inverter, if the current passing through the line contains high-order harmonics, it may cause resonance and generate leakage current. At this time, if a thermal relay is used, it may malfunction.
The solution is to reduce the carrier frequency or install an output reactor. When using a frequency inverter, it is recommended not to install a thermal relay between the frequency inverter and the motor, and use the electronic overcurrent protection function of the frequency inverter.

(6) Precautions for installing an EMC input filter at the power input terminal

① Note: When using the filter, please use it strictly according to the rated value; since the filter belongs to Class I electrical appliances, the metal shell of the filter should be in good contact with the metal ground of the installation cabinet in a large area, and it is required to have good conductive continuity, otherwise there will be a risk of electric shock And seriously affect the EMC effect;
② Through the EMC test, it is found that the ground of the filter must be connected to the same common ground as the PE terminal of the inverter, otherwise the EMC effect will be seriously affected.
③ The filter should be installed as close as possible to the power input end of the inverter.

8. Fault Diagnosis And Solutions

8.1 Fault Alarm And Solution

Any abnormity occurs during operation, the inverter will lock PWM output immediately and enter the fault protection status. Meanwhile,the flashing fault code on the keyboard indicates the current fault information.At the same time, the fault indicator ALM lights up. At this time, you need to check the cause of the fault and the corresponding treatment method according to the methods in this section. If the problem still cannot be solved, please contact our company directly. For the corresponding solutions, see the table below for fault diagnosis and troubleshooting.

Fault Name	Display Code	Possible Reasons	Solutions
Inverter unit protection	E-01	1. Inverter output circuit is short-circuited 2. The wire between the motor and the inverter too long 3. The module overheated 4. Inverter internal wiring is loose 5. Main control board abnormal 6. Driver board abnormal 7. Inverter module abnormal	1. Eliminate peripheral faults 2. Install reactor or output filter 3. Check whether the air duct is blocked, whether the fan is working normally and eliminate the existing problems 4. Plug in well all cables 5. Seek technical support 6. Seek technical support 7. Seek technical support
Overcurrent when accelerating	E-02	1. There is grounding or short circuit in the inverter output circuit 2. The control mode is vector without parameter identification 3. The acceleration time is too short 4. Manual torque boost or V/F curve is inappropriate 5. Low voltage 6. Start the rotating motor 7. Sudden load increase during acceleration 8. The selection of inverter power is small	1. Eliminate peripheral faults 2. Carry out motor parameter identification 3. Increase the acceleration time 4. Adjust manual boost torque or V/F curve 5. Adjust the voltage to the normal range 6. Select speed tracking start or start after the motor stops 7. Cancel sudden load increase 8. Choose a higher power level inverter

Fault Name	Display Code	Possible Reasons	Solutions
Overcurrent when decelerating	E-03	1. There is grounding or short circuit in inverter the output circuit 2. The control mode is vector without parameter identification 3. The deceleration time is too short 4. Low voltage 5. Sudden load increase during deceleration 6. No braking unit and braking resistor installed	1. Eliminate peripheral faults 2. Carry out motor parameter identification 3. Increase the deceleration time 4. Adjust the voltage to the normal range 5. Cancel sudden load increase 6. Install braking unit and resistor
Overcurrent at constant speed	E-04	1. There is grounding or short circuit in the inverter output circuit 2. The control mode is vector without parameter identification 3. Low voltage 4. Whether there is a sudden load increase during running 5.The selection of inverter power is small	1. Eliminate peripheral faults 2. Carry out motor parameter identification 3. Adjust the voltage to the normal range 4. Cancel sudden load increase 5. Choose a higher power level inverter
Overvoltage when accelerating	E-05	1. The input voltage is too high 2. During the acceleration process, there is an external force to drive the motor to run 3. Acceleration time is too short 4. No braking unit and braking resistor installed	1. Adjust the voltage to the normal range 2. Cancel the external force or install braking resistor 3. Increase the acceleration time 4. Install braking unit and resistor
Overvoltage when decelerating	E-06	1. The input voltage is too high 2. During the deceleration process, there is an external force to drive the motor to run 3. The deceleration time is too short 4. No braking unit and braking resistor installed	1. Adjust the voltage to the normal range 2. Cancel the external force or install braking resistor 3. Increase the deceleration time 4. Install braking unit and resistor
Overvoltage at constant speed	E-07	1. The input voltage is too high 2. During the operation, there is an external force to drive the motor to run	1. Adjust the voltage to the normal range 2. Cancel the external force or install braking resistor

Fault Name	Display Code	Possible Reasons	Solutions
Control power supply fault	E-08	1. The input voltage is not within the specified range	1. The input voltage is not within the specified range
Undervoltage fault	E-09	1. Instantaneous power failure 2. The voltage at the inverter input terminal is not within the required range 3. The bus voltage abnormal 4. The rectifier bridge and buffer resistor are abnormal 5. Drive board abnormal 6. Control board abnormal	1. Reset fault 2. Adjust the voltage to the normal range 3. Seek technical support 4. Seek technical support 5. Seek technical support 6. Seek technical support
Inverter overload	E-10	1. Whether the load is too large or the motor is blocked 2. The selection of inverter power is too small	1. Reduce the load and check the motor and mechanical condition 2. Choose a higher power level inverter
Motor overload	E-11	1. Three-phase input power supply abnormal 2. Driver board abnormal 3. lightning protection board abnormal 4. Main control board abnormal	1. Check and eliminate the problems in the peripheral circuit 2. Seek technical support 3. Seek technical support 4. Seek technical support
Input phase loss	E-12	1. Three-phase input power supply abnormal 2. Driver board abnormal 3. Lightning protection board abnormal 4. Main control board abnormal	1. Check and eliminate the problems in the peripheral circuit 2. Seek technical support 3. Seek technical support 4. Seek technical support
Output phase loss	E-13	1. The lead wire from the inverter to the motor is abnormal 2. The three-phase output of the inverter is unbalanced when the motor is running 3. Driver board abnormal 4. Module abnormal	1. Eliminate peripheral faults 2. Check whether the three-phase winding of the motor is normal and troubleshoot 3. Seek technical support 4. Seek technical support

Fault Name	Display Code	Possible Reasons	Solutions
Module overheat	E-14	1. The ambient temperature is too high 2. The air duct is blocked 3. The fan is damaged 4. The module thermistor is damaged 5. The inverter module is damaged	1. Reduce the ambient temperature 2. Clean the air duct 3. Replace the fan 4. Replace the thermistor 5. Replace the inverter module
External device fault	E-15	1. Input external fault signal through multi-function terminal X	1. Reset operation
Communi-cation fault	E-16	1. The upper computer is not working properly 2. The communication cable is abnormal 3. The setting of communication expansion card F00.28 is incorrect 4. The setting of communication parameter F13 group is incorrect	1. Check the wiring of the upper computer 2. Check the communication cable 3. Correctly set the communication expansion card type 4. Correctly set the communication parameters
Current detection fault	E-18	1. Check whether the hall device is abnormal 2. Driver board abnormal	1. Replace the hall device 2. Replace the driver board
Motor tuning fault	E-19	1. The motor parameters are not set according to the nameplate 2. The parameter identification process timed out	1. Correctly set the motor parameters according to the nameplate 2. Check the lead wires from the inverter to the motor
EEPROM read and write fault	E-21	1. EEPROM chip damage	1. Replace the main control board
Inverter hardware fault	E-22	1. Overvoltage 2. Overcurrent	1. Handle according to overvoltage fault 2. Handle according to overcurrent fault
Cumulative running time reached fault	E-26	1. The cumulative running time reaches the set value	1. Use the parameter initialization function to clear the record information

Fault Name	Display Code	Possible Reasons	Solutions
User-defined Fault 1	E-27	1. Input the signal of user-defined fault 1 through the multi-function terminal X	1. Reset operation
User-defined Fault 2	E-28	1. Input the signal of user-defined fault 2 through the multi-function terminal X	1. Reset operation
Cumulative power-on time reached fault	E-29	1. The cumulative running time reaches the set value	1. Use the parameter initialization function to clear the record information
Off load fault	E-30	1. The inverter running current is less than F12-64	1. Confirm whether the load is off or whether the parameter settings of F12-64 and F12-65 conform to the actual operating conditions
Runtime PID feedback loss fault	E-31	1. PID feedback is less than the set value of F09.26	1. Check the PID feedback signal or set F09.26 to an appropriate value
Wave-by-wave current limiting fault	E-40	1. Whether the load is too large or the motor is blocked 2. The selection of inverter power is too small	1. Reduce the load and check the motor and mechanical condition 2. Choose a higher power level inverter
Excessive speed deviation fault	E-42	1. No parameter identification 2. The setting of the detection parameters F12.66～F12.69 for excessive speed deviation is unreasonable	1. Carry out motor parameter identification 2. Reasonably set the detection parameters according to the actual situation
Wrong initial position	E-51	1. The motor parameters and the actual deviation are too large	1. Reconfirm whether the motor parameters are correct, focusing on whether the rated current is set too small
Master-slave control slave fault	E-55	1. The slave machine fails, check the slave machine	1. Start troubleshooting according to the slave fault code

Fault Name	Display Code	Possible Reasons	Solutions
Brake tube protection fault	E-60	1. The braking resistor is short-circuited or the braking module is abnormal	1. Check braking resistor or seek technical support
Photovoltaic water shortage detection fault	E-65	1. Photovoltaic water pump water shortage detection fault	1. See F16.10～F16.26 for details

8.2 Common Faults And Solutions

No.	Fault Phenomenon	Possible Reasons	Solutions
1	No display after power on	The grid voltage is not available or is too low; The switching power supply on the inverter drive board is faulty; The rectifier bridge is damaged; The inverter buffer resistor is damaged; Control board, keypad fault; The connection between the control board, the driver board and the keypad is broken.	Check the input power; Check bus voltage; Seek manufacturer services.
2	Power on display “P.OFF"	Poor connection between the driver board and the control board; Related components on the control board are damaged; There is a short circuit to the ground of the motor or the motor line; Hall fault; Grid voltage is too low	Seek manufacturer services.

No.	Fault Phenomenon	Possible Reasons	Solutions
3	The display is normal when the inverter powered on, display "P.OFF" after running and stop immediately	The fan is damaged or blocked; There is a short circuit in the peripheral control terminal wiring.	Replace the fan; Eliminate external short circuit faults.
4	Frequent report of E-14 (module overheat) fault	The carrier frequency setting is too high; The fan is damaged or the air duct is blocked; The inverter internal components are damaged (thermocouple or others).	Reduce carrier frequency (F00.15); Replace the fan and clean the air duct; Seek manufacturer services.
5	The motor does not rotate after the inverter is running	Motors and motor cables; Inverter parameter setting error (motor parameter); Poor contact between the driver board and the control board; Driver board fault.	Reconfirm the connection between the inverter and the motor; Replace the motor or clear the mechanical fault; Check and reset the motor parameters.
6	X-terminal invalid	Parameter setting error; External signal error; Control board fault.	Check and reset the relevant parameters of Group F07; Reconnect the external signal line; Seek manufacturer services.
7	The inverter frequently reports overcurrent and overvoltage faults	Motor parameter setting is wrong; The acceleration and deceleration time is inappropriate; load fluctuations.	Reset the motor parameters or perform motor tuning; Set the appropriate acceleration and deceleration time; Seek manufacturer services.
8	Power-on digital tubes are all lit	Related components on the control board are damaged.	Replace the control board.

Appendix I: Modbus Communication Protocol

CV800D series inverters provide RS485 communication interface and support Modbus-RTU slave station communication protocol. Users can realize centralized control through a computer or PLC, set inverter running commands through this communication protocol, modify or read function code parameters, and read inverter working status and fault information, etc.

(1) Agreement Content

The serial communication protocol defines the content and format of information transmitted in serial communication. It includes: the polling (or broadcast) format of the master; the encoding method of the master, including: the function code required for action, transmission data and error checking, etc. The response of the slave machine also adopts the same structure, including: action confirmation, return data and error checking, etc. If the slave makes an error when receiving information, or cannot complete the action required by the master, it will organize a fault message as a response and feed it back to the master.

(2) Application Method

The inverter is connected to the "single master and multiple slaves" PC/PLC control network with RS485 bus as a communication slave.

(3) Bus Structure

① Hardware Interface

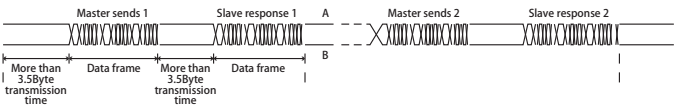
Inverter terminals 485+ and 485- are Modbus communication interfaces.

② Topology

Single-master multi-slave system. Each communication device in the network has a unique slave address, and one of the devices acts as a communication master(usually is PC upper computer, PLC, HMI, etc.), actively initiates communication, and performs parameter read or write operations on the slave. Other devices are communication slaves, responding to inquiries or communication operations from the master to the machine. Only one device can send data at a time, while other devices are receiving. The setting range of the slave address is 1～247, and 0 is the broadcast communication address. The slave address must be unique in the network.

③ Communication transmission method

Asynchronous serial, half-duplex transmission mode. In the process of serial asynchronous communication, the data is sent one frame at a time in the form of a message. According to the MODBUS-RTU protocol, when the idle time of no data on the communication data line is greater than 3.5Byte transmission time, it means a new communication frame start.

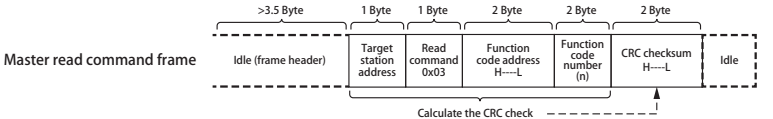


CV800D series inverter built-in communication protocol is the Modbus-RTU slave communication protocol, which can respond to the "query/command" of the master, or make corresponding actions according to the "query/command" of the master, and respond with communication data.

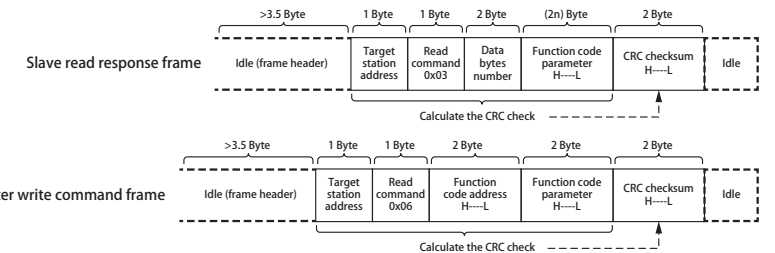
The master can refer to a personal computer (PC), industrial control equipment or programmable logic controller (PLC), etc. The master can not only communicate with a slave, but also issue broadcast information to all lower slaves. For the individual access "query/command" of the master, the accessed slave must return a response frame; for the broadcast information sent by the master, the slave does not need to feedback a response to the master.

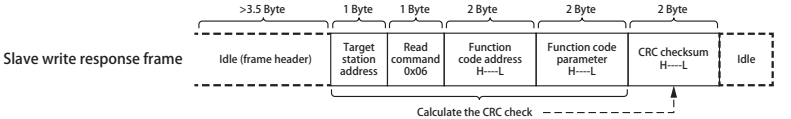
(4) Communication Data Structure

CV800D series inverter Modbus protocol communication data format is as follows. The inverter only supports reading or writing of Word parameters, and the corresponding communication read operation command is 0x03; the write operation command is 0x06, and does not support byte or bit read and write operations:

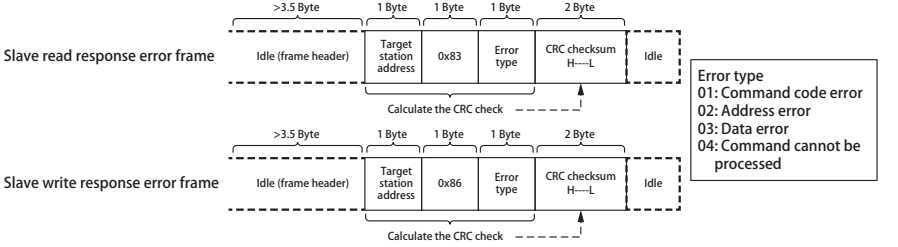


Theoretically, the upper computer can read several consecutive function codes at one time (that is, n can reach a maximum of 12), but be careful not to cross the last function code of this function code group, otherwise it will reply incorrectly.





If the slave detects a communication frame error, or the read and write fails due to other reasons, it will reply with an error frame.



Data Frame Field Description:

Frame Header START	The transmission time is more than 3.5 characters idle
Slave address ADR	Communication address range: 1~247; 0 = broadcast address
Command Code CMD	03: Read slave parameters; 06: Write slave parameters
Function code address H	The inverter internal parameter address is expressed in hexadecimal; it is divided into functional code type and non-functional code type (such as running status parameters, running commands, etc.) parameters, etc., see address definition for details. When transmitting, the high byte comes first and the low byte follows.
Function code address L	

Function codes number H	The number of function codes read in this frame, if it is 1, it means read 1 function code. When transmitting, the high byte comes first and the low byte follows. This protocol can only rewrite one function code at a time, without this field.
Function codes number L	
Data H	The response data, or the data to be written. When transmitting, the high byte comes first and the low byte follows.
Data L	
CRC CHK high bit	Detection value: CRC16 check value. When transmitting, the high byte comes first and the low byte follows. For the calculation method, please refer to the description of CRC check in this section.
CRC CHK low bit	
END	At 3.5 characters

CRC check method:

CRC (Cyclical Redundancy Check) uses the RTU frame format, and the message includes an error detection field based on the CRC method. The CRC field checks the content of the entire message. The CRC field is two bytes containing a 16-bit binary value. It is calculated by the transmitting device and added to the message. The receiving device recalculates the CRC of the received message and compares it with the value in the received CRC field. If the two CRC values are not equal, it means that there is an error in the transmission.

CRC is to store 0xFFFF first, and then call a process to process the continuous 8-bit bytes in the message with the value in the current register. Only the 8Bit data in each character is valid for CRC, the start and stop bits and parity bits are invalid. In the process of CRC generation, each 8-bit character is exclusive or (XOR) with the contents of the register, and the result moves to the least significant bit, and the most significant bit is filled with 0. The LSB is extracted and detected. If the LSB is 1, the register is exclusive or different from the preset value. If the LSB is 0, it will not be performed. The whole process is repeated 8 times. After the last bit (bit 8) is complete,the next 8-bit byte separately differs from the current value of the register. The value in the final register is the CRC value after all bytes in the message have been executed.

When the CRC is added to the message, the low byte is added first, followed by the high byte. CRC simple function as follows:

```
unsigned int crc_chk_value（unsigned char *data_value,unsigned char length）
{
    unsigned int crc_value=0xFFFF;
    int i;
    while（length--）
     {
       crc_value^=*data_value++;
       for（i=0;i<8;i++）
       {
```

```
        if（crc_value&0x0001）
        {
          crc_value=（crc_value>>1）^0xa001;
        }
        else
        {
          crc_value=crc_value>>1;
        }
      }
    }
    return（crc_value）;
}
```

(5) Communication Parameters Address Definitions

Read and write function code parameters (some function codes cannot be changed and are only used by manufacturers or monitored):
Use the function code group number and label as the parameter address to express the rule：
High byte: F00～FFF (F Group)、d00 (d Group)
Low byte: 00～FF
For example: if you want to access the function code F00.20, the access address of the function code is expressed as 0xF014;
Note: some parameters cannot be changed when the inverter is running; some parameters cannot be changed no matter what state the inverter is in; when changing function code parameters, pay attention to the range, unit and related instructions of the parameters.

Function Code Group No.	Communication Access Address	Communication Modify Function Code Address In RAM
F00～F15 Group	0xA000～0xAFFF	0x4000～0x4FFF
F16 Group～F18 Group	0xB000～0xB1FF	0x5000～0x51FF
FFF Group	0xBF00～0xBFFF	0x5F00～0x5FFF
d00 Group	0x7000～0x70FF	

Note: Since the EEPROM is frequently stored, the service life of the EEPROM will be reduced. Therefore, some function codes do not need to be stored in the communication mode, and only need to change the value in RAM.

(6) Stop/Run Parameters Section:

Parameter Address	Parameter Description	Parameter Address	Parameter Description
1000H	* Communication setting value (decimal) -10000～10000	1010H	PID setting
		1011H	PID feedback
1001H	Running frequency	1012H	PLC steps
1002H	Bus voltage	1013H	Reserved
1003H	Output voltage	1014H	Feedback speed, unit 0.1Hz
1004H	Output current	1015H	Remaining run time
1005H	Output power	1016H	AI voltage before correction
1006H	Output torque	1017H	Reserved
1007H	Running speed	1018H	Panel potentiometer voltage before correction
1008H	Digital input terminal input sign	1019H	Linear speed
1009H	Digital output terminal output sign	101AH	Current power-on time
100AH	AI voltage	101BH	Current running time
100BH	Reserved	101CH	Reserved
100CH	Panel potentiometer voltage	101DH	Communication setting value
100DH	Reserved	101EH	Actual feedback speed
100EH	Reserved	101FH	Main frequency A display
100FH	Load speed	1020H	Auxiliary frequency B display

Note:
The communication setting value is the percentage of the relative value, 10000 corresponds to 100.00%, and -10000 corresponds to -100.00%.

Control command input to the inverter: (write only)

Command Address	Command Function
2000H	0001: Forward running
	0002: Reverse running
	0003: Forward jog
	0004: Reverse jog
	0005: Coast to stop
	0006: Deceleration stop
	0007: Fault reset

Read inverter status: (read only)

Status Address	Status Function
3000H	0001: Forward running
	0002: Reverse running
	0003: Stop

Parameter lock password verification: (if the return is 8888H, it means the password verification is passed)

User Password Address	Content Of The Enter Password
AF00H	*****

Parameter initialization:

Command Address	Command Content
AF01H	0～FFFF means 0～65535

Digital output terminal control: (write only)

Command Address	Command Content
2001H	BIT0: Reserved BIT1: Reserved BIT2: R output control BIT3: Reserved

Analog output AO control: (write only)

Command Address	Command Content
2002H	0～7FFF means 0%～100%

(7) Inverter Fault Description:

Inverter Fault Address	Inverter Fault Information	
8000H	0000: No fault 0001: Reserved 0002: Overcurrent when accelerating 0003: Overcurrent when decelerating 0004: Overcurrent at constant speed 0005: Overvoltage when accelerating 0006: Overvoltage when decelerating 0007: Overvoltage at constant speed 0008: Buffer resistor overload fault 0009: Undervoltage fault 000A: Inverter overload 000B: Motor overload 000C: Input phase loss 000D: Output phase loss 000E: Module overheat 000F: External device fault 0010: Communication fault 0011: Reserved	0012: Current detection fault 0013: Motor tuning fault 0014: Reserved 0015: Parameter read and write fault 0016: Inverter hardware fault 0017: Reserved 0018: Reserved 0019: Reserved 001A: Running time arrives 001B: User-Defined Fault 1 001C: User-Defined Fault 2 001D: Power-on time arrives 001E: Off load 001F: Runtime PID Feedback Loss 0028: Fast Current Limit Timeout Fault 002A: Excessive speed deviation 005C: Wrong initial position 0041: Photovoltaic water shortage detection fault

(8) The Meaning Of The Error Code That The Slave Responds To The Abnormal Message:

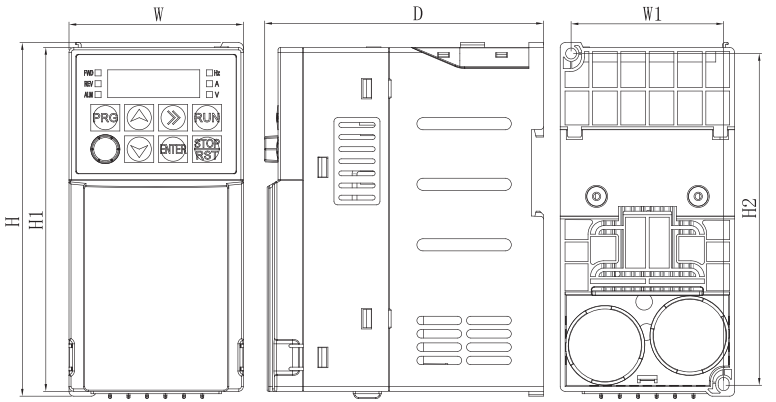
Error Code Address	Error Code	Description
8001H	01H	Wrong password
	02H	Read and write command error
	03H	CRC verification error
	04H	Invalid address
	05H	Invalid parameter
	06H	Invalid parameter
	07H	System lock
	08H	Saving parameters

Appendix II: Macro Parameter Settings Description

Function Macro Definition	Setting Parameters	Automatically Modify The Parameter List	Debugging Steps
Single pump (1 variable frequency pump) water supply mode	F00.00=6	F00.03=10; F14.02=11; F14.03=80; F14.04=2002; F14.05=11; F14.06=11; F09.00=7。	Step1: Determine the sensor feedback type, AI factory default input voltage feedback signal, you can also select AI input current feedback signal through jumper JP5; Step2: Terminal wiring, if the pressure gauge is 0～10V output, connect the signal wire of the pressure gauge to AI, and connect the other two wires to +10V and GND; if the output is 0～20mA, short connect COM and GND, Connect the pressure gauge signal wire to AI, and the other wire to 24V. Step3: Parameter initialization (F15.01=2); Step4: Set the sensor range (F16.09); Step5: Function macro selection (F00.00=3、4、5、6) Step6: Set the target pressure, which can be set by parameter F16.08,
Photovoltaic water supply voltage tracking mode	F00.00=7	F00.03=11.	Step2: Parameter initialization（F15.02=2）; F00.03=11; Step3: Function macro selection (F00.00=7、8、9) Note: Refer to F16.10～F16.26 for photovoltaic water supply.
Photovoltaic water supply power tracking VF mode	F00.00=8		
Photovoltaic water supply power tracking SVC mode	F00.00=9		

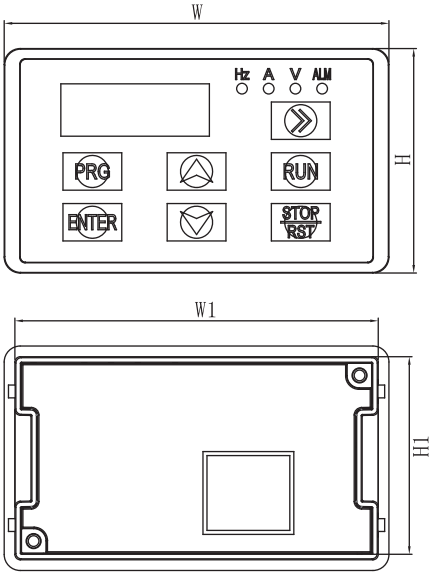
Chassis and keyboard dimensions

Chassis size:



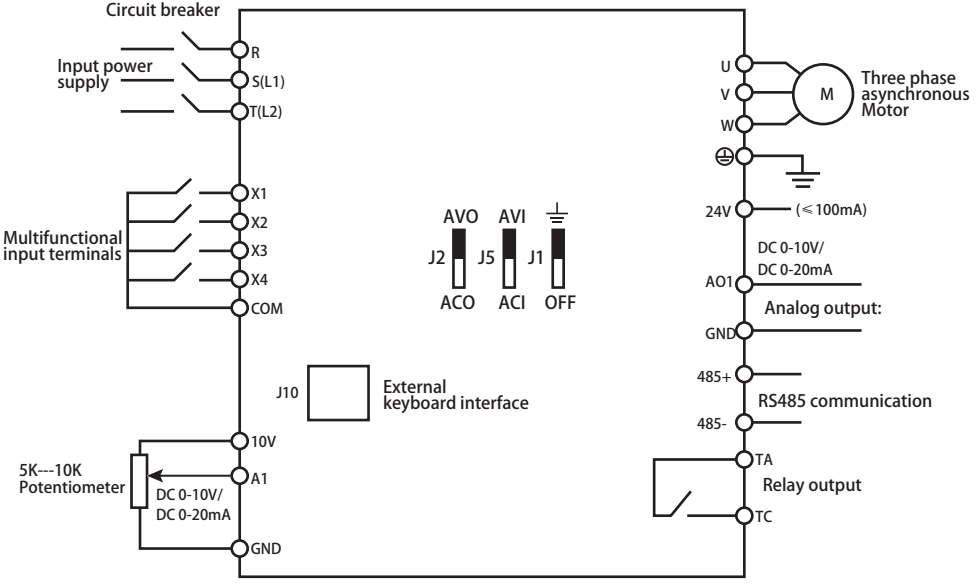
Power/ Voltage		H2 (mm)	W 1 (mm)	H (mm)	H (mm)	W (mm)	D (mm)	Installation Holes (mm)
		Installation Dimensions		Overall Dimension				
0.4KW	220V	136.5	63	146	142	72	115.1	4
0.75KW								
1.5KW								
2.2KW								
0.75KW	380V							
1.5KW								
2.2KW								

Installation dimensions of external keyboard



Keyboard base size				Keyboard thickness	
W	W1	H	H1	D	D1
72mm	68mm	42mm	38mm	16.2mm	15mm

Wiring instructions



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