F8 Series AnalogInput/Output Parameters (Continued)

Function Code	Name	Range of setting	Minimum Unit	Factory Default Setting	Note
F8.06	Frequency that corresponds to the maximum current for analog input	0.0–400.0Hz	0.1Hz	50.0Hz	
F8.07	Frequency that corresponds to the minimal current for analog input	0.0–400.0Hz	0.1Hz	0.0Hz	
F8.08	Maximum value for external impulse input	0.0–10.0KHz	0.1KHz	5.0KHz	
F8.09	Minimal value for external impulse input	0.0–10.0KHz	0.1KHz	0.1KHz	
F8.10	Frequency that corresponds to the maximum value for impulse input	0.0–400.0Hz	0.1Hz	50.0Hz	
F8.11	Frequency that corresponds to the minimal value for impulse input	0.0–400.0Hz	0.1Hz	0.0Hz	
F8.12	Analog output enable	0: Disabled 1: Enabled	1	1	
F8.13	Analog output content selection	0: Operating frequency 3: Motor rotating speed 1: Output voltage 4: PID set value 2: Output current 5: PID feedback value	0	0	
F8.14	Analog output correction coefficient	80%–120%	1%	100%	
F8.15	Frequency that corresponds to the maximum value for analog output	10.0–400.0Hz	0.1Hz	50.0Hz	

F9 series PLC FunctionParameters 1

Function Code	Name	Range of setting	Minimum Unit	Factory Default Setting	Note
F9.00	PLC operating frequency stage 1	0.0–400.0Hz	0.1Hz	5.0Hz	
F9.01	PLC operating frequency stage 2	0.0–400.0Hz	0.1Hz	5.0Hz	
F9.02	PLC operating frequency stage 3	0.0–400.0Hz	0.1Hz	5.0Hz	
F9.03	PLC operating frequency stage 4	0.0–400.0Hz	0.1Hz	5.0Hz	

F9 series PLC FunctionParameters 1 (Continued)

Function Code	Name	Range of setting	Minimum Unit	Factory Default Setting	Note
F9.04	PLC operating frequency stage 5	0.0 400.0Hz	0.1Hz	5.0Hz	
F9.05	PLC operating frequency stage 6	0.0–400.0Hz	0.1Hz	5.0Hz	
F9.06	PLC operating frequency stage 7	0.0–400.0Hz	0.1Hz	5.0Hz	
F9.07	PLC operating frequency stage 8	0.0–400.0Hz	0.1Hz	5.0Hz	
F9.08	PLC operating frequency stage 9	0.0–400.0Hz	0.1Hz	5.0Hz	
F9.09	PLC operating frequency stage 10	0.0–400.0Hz	0.1Hz	5.0Hz	
F9.10	PLC operating frequency stage 11	0.0–400.0Hz	0.1Hz	5.0Hz	
F9.11	PLC operating frequency stage 12	0.0–400.0Hz	0.1Hz	5.0Hz	
F9.12	PLC operating frequency stage 13	0.0–400.0Hz	0.1Hz	5.0Hz	
F9.13	PLC operating frequency stage 14	0.0–400.0Hz	0.1Hz	5.0Hz	
F9.14	PLC operating frequency stage 15	0.0–400.0Hz	0.1Hz	5.0Hz	
F9.15	PLC operating frequency stage 16	0.0–400.0Hz	0.1Hz	5.0Hz	

FAseries PLC Function Parameters2

Function Code	Name	Range of setting	Minimum Unit	Factory Default Setting	Note
FA.00	PLC operating time stage 1	0–9000s	1s	0s	
FA.01	PLC operating time stage 2	0–9000s	1s	0s	
FA.02	PLC operating time stage 3	0–9000s	1s	0s	

FA series PLC Function Parameters2 (Continued)

Function Code	Name	Range of setting	Minimum Unit	Factory Default Setting	Note
FA. 03	PLC operating time stage 4	0-9000s	1s	0s	
FA. 04	PLC operating time stage 5	0-9000s	1s	0s	
FA. 05	PLC operating time stage 6	0-9000s	1s	0s	
FA. 06	PLC operating time stage 7	0-9000s	1s	0s	
FA. 07	PLC operating time stage 8	0-9000s	1s	0s	
FA. 08	PLC operating time stage 9	0-9000s	1s	0s	
FA. 09	PLC operating time stage 10	0-9000s	1s	0s	
FA. 10	PLC operating time stage 11	0-9000s	1s	0s	
FA. 11	PLC operating time stage 12	0-9000s	1s	0s	
FA. 12	PLC operating time stage 13	0-9000s	1s	0s	
FA. 13	PLC operating time stage 14	0-9000s	1s	0s	
FA. 14	PLC operating time stage 15	0-9000s	1s	0s	
FA. 15	PLC operating time stage 16	0-9000s	1s	0s	

Fb series PLC Function Parameters 3

Function Code	Name	Range of setting	Minimum Unit	Factory Default Setting	Note
Fb. 00	PLC operating control stage 1	000-144	1	000	
Fb. 01	PLC operating control stage 2	000-144	1	000	

Fb series PLC Function Parameters 3 (Continued)

Function Code	Name	Range of setting	Minimum Unit	Factory Default Setting	Note
Fb. 02	PLC operating control stage 3	000-144	1	000	
Fb. 03	PLC operating control stage 4	000-144	1	000	
Fb. 04	PLC operating control stage 5	000-144	1	000	
Fb. 05	PLC operating control stage 6	000-144	1	000	
Fb. 06	PLC operating control stage 7	000-144	1	000	
Fb. 07	PLC operating control stage 8	000-144	1	000	
Fb. 08	PLC operating control stage 9	000-144	1	000	
Fb. 09	PLC operating control stage 10	000-144	1	000	
Fb. 10	PLC operating control stage 11	000-144	1	000	
Fb. 11	PLC operating control stage 12	000-144	1	000	
Fb. 12	PLC operating control stage 13	000-144	1	000	
Fb. 13	PLC operating control stage 14	000-144	1	000	
Fb. 14	PLC operating control stage 15	000-144	1	000	
Fb. 15	PLC operating control stage 16	000-144	1	000	

Fc series AuxiliaryControl Parameters

Function Code	Name	Range of setting	Minimum Unit	Factory Default Setting	Note
Fc. 00	PLC function setting	0: Non operation 1: Single cycling 2：Continuous Cycling 3；Retaining the final value after single cycling	1	0	
Fc. 01	AVI/ACI filter time	0.01—60.00s	0.01s	1.00s	
Fc. 02	Speed correction	50—100%	0.1%	100%	
Fc. 03	Remain				
Fc. 04	ACI fine tuning	0—1000	1	0	
Fc. 05	Digital frequency control	0: Keep memory after powerfailure; hold after shutdown. 1：Keep memory after power failure; don't hold after shutdown. 2: Don't keep memory after powerfailure; hold after shutdown. 3：Don't keep memory after power failure; don't hold after shutdown.	1	0	
Fc. 06	Digital frequency range	0.1—50.0Hz	0.1Hz	1.0Hz	
Fc. 07	Standby time	0.0—60.0s	0.1s	0.0s	
Fc. 08	Motor poles	2—20	2	4	
Fc. 09	Counter target value	1—9999	1	100	
Fc. 10	Counter arrival motion time	0.01—60.00s	0.01s	1.00s	
Fc. 11	Output voltage auto compensation	0: Disabled 1: Enabled	1	1	
Fc. 12	Parameter lock	0: Parameter modification allowed 1: Parameter modification not allowed	1	0	
Fc. 13	Parameter Initializing	0: Invalid 1: Parameter restores tothe default value.	1	0	

3.3 Function Parameters Description

F0 Series Operating Parameters Description
F0.00 Keyboard setting frequency Rangeof setting: 0.0~400.0Hz Factory DefaultValue: 5.0Hz

F0.01 Frequency setting mode Rangeof setting: 0~9 Factory DefaultValue: 0
0: Keyboard or terminal UP/DOWNsetting:
To set thefrequency by pressing▲▼ on the keyboard or UP/DWNkey of the terminal (ifthe port is valid).
1: Keyboard potentiometer setting:
To set thefrequency according to the resistancevalue of potentiometer on thekeyboard.
2: External analog voltage setting:
To set thefrequency according to the externalanalog voltage input value. F8.00and F8.01 are used toset the range for analog input. F8.02and F8.03 are used toset the frequency that correspondsto the maximum or minimal analog input.
3: External analog current setting:
To set thefrequency according to the externalanalog current input value. F8.04and F8.05 are used toset the range for analog input. F8.06and F8.07 are used toset the frequency that correspondsto the maximum or minimal analog input.
4: Combined multi-stage speed setting:
External terminals reserve the functionof 7-stage speed setting. Sofrequency can be set accordingto the state of external terminals. F4.00~F4.06 are frequencyparameters that correspond to everymulti stages.
5: External terminal high/low speedsetting (AVI):
To set thefrequency by analog voltage inputif there is input forthe terminal. If there isno input, then refer tothe frequency set by F8.03.
6: External impulse input setting:
To set thefrequency according to the externalpulse input value. F8.08~F8.09 areused to set the rangefor pulse input. F8.10~F8.11 refer tothe frequency that corresponds tothe maximum or minimal impulse.
7: PID setting: This indicatesPID's self-motion regulation function isenabled.
8: 485 COM setting: To realize frequency setting throughcommunication.
9: External TerminalAVI/ACIsetting:
When the external terminal isset to have two kindsof selections of analog frequencycommand AVI or ACI, its frequency can be set byexternal voltage or external current.

F0.02 Operation command selection Rangeof setting:0-5 Factory Default value:0-5
0: Keyboard control:
To switch on bypressing RUN key and switchoff by pressing STOPkey on the keyboard.
1: Terminal control:
To switch on oroff according to the stateof external terminals.
2: Multi-stage speed control
If external terminals are setto have the function of7-stage speed function, it isconsidered to perform the stop command over the machine whenthree ports of the terminalsare disabled; to perform thestart command when the ports are enabled.
3: External analog voltage inputcontrol:
To set "on-off"by external analog input voltage.The state of "ON" or"OFF" is decided by analogvoltage. When the analog voltage rises andexceeds DC1V,the machine switches on; whenthe analog voltage falls toDC1V, the machine switches off.
4: External analog current inputcontrol:
To set "on-off"by external analog input current.The state of "ON" or"OFF" is decided by analogcurrent. When the analog voltage rises andexceeds DC2mA, the machine switcheson; when the analog voltagefalls to DC2mA, the machine switches off.
5: 485 COM control
To set "on-off"by 485 COM.

F0.03 Stop mode Range ofsetting: 0~1 Factory default value:1
0: Free stop
Once the stop command isreceived, the inverter will blockPWM output with a freestop of the load dueto inertia.
1: Decelerated stop
Once the stop command isreceived, the inverter will decelerateits frequency gradually till afull stop according to the deceleration time.
Deceleration + DC braking:
If F0.03=1, parameter F2.02 (shutdownDC braking time) and F2.03(shutdown DC

braking level) ≠ 0, the inverter will decelerate its output frequency during theperiod of deceleration after the stop command is received. Oncethis value reaches the stopfrequency (parameter F0.11), theinverter will start its DC braking and thenstop.

F0.04 Basic frequency Range ofsetting: 40.0~400.0Hz Factory default value:50.0Hz
This refers to the minimaloutput frequency that corresponds tothe rated output voltage. Itis used as a reference for frequency regulation.
Note: The rated frequency ofthe motor is generally takenas the set value forbasic frequency, which can be reset according to therequirements in some special occasions.But attention must be paidto V/F characteristic of the load motorand output of the motor.

F0.05 Upper limiting frequency Rangeof setting: 0.2~400.0Hz Factory defaultvalue: 50.0Hz
This is used to setthe upper limit of frequency.

F0.06 Lower limiting frequency Rangeof setting: 0.0~400.0Hz Factory defaultvalue: 0.0Hz
This is used to setthe lower limit of frequency.

Note: The upper limiting frequencyrefers to the allowable maximumworking frequency of the inverter, and the tower limiting frequency refersto the allowable minimal outputfrequency of the inverter.To set theupper and lower limit of frequencymay ensure a moderate outputfrequency automatically, neither higherthan the upper limiting frequency nor lowerthan the lower limiting frequency.So the motor canalways work in the allowable frequency range to avoidmechanical or inverter accident dueerror operation. This function isespecially applicable to super high/low speedprevention.

F0.07 Acceleration time Rangeof setting: 0.1~999.9s Factory defaultvalue: 10.0s
This refers to the time during which the output frequencyof the inverter is acceleratedfrom 0Hz to 100Hz. It is used togetherwith the parameter F4.15. I.e.,if F4.15=0, the keyboard willkeep the control over frequency velocity accelerated from 0Hzto 100Hz according to theset value for this parameter.

F0.08 Deceleration time Range ofsetting: 0.1~999.9s Factory default value:10.0s
This refers to the periodduring which the output frequencyof the inverter is deceleratedfrom 100Hz to 0.0Hz. It is used togetherwith the parameter F4.15. I.e.,if F4.15=0, the keyboard shallkeep the control over frequency velocity decelerated from 100Hzto 0.0Hz according to theset value for this parameter.

F0.09 Starting frequency Range ofsetting: 0~40.0Hz Factory default value:0.5Hz
This refers to the inceptionfrequency of the inverter whenit is started. This isused to adjust the inception synchronous speed of the motorand overcome the maximum staticfriction force. Shifting from idleto start, the motor runs at thestarting frequency at first, thenenters into the stage ofholding (set by F0.10) andfinally it runs at the targetfrequency set by the user.

F0.10 Starting holding time Rangeof setting: 0~60.0s Factory defaultvalue: 10.0s
This refers to the holdingtime of starting frequency.

F0.11 Shutdown frequency Rangeof setting: 0~40.0Hz Factory defaultvalue: 0.0Hz
When the inverter is deceleratedto stop, its output frequencycan be set. Once thevalue reaches the shutdown frequency, the inverterwill close output.
Note: The inverter doesn't enterinto the stage of shutdownDC braking until its operatingfrequency reaches the stop frequency.

F0.12 Frequency fine tuning Rangeof setting: 0.00~0.09Hz Factory defaultvalue: 0.00Hz
The user can regulate theoperating frequency of the currentmotor by setting this parameter, which can be set up to an accuracyof 0.01Hz.

F0.13 Jog frequency Rangeof setting: 0.5~400.0Hz Factorydefault value: 5.0Hz
The inverter will runat the jog frequency(F0.13) automatically when itis in the stateof jog operation, and the frequencyvelocity will be decidedby the jog accelerationtime (F0.14) and the jog deceleration time (F0.15)when accelerating or decelerating.

F0.14 Jog acceleration time Range of setting: 0.1~999.9s Factory default value: 10.0s
This refers to theperiod during which thefrequency is accelerated from0Hz to 100Hz. The frequency velocity is determinedby this parameter whilethe machine is inthe state of jog operation.

F0.15 Jog Deceleration time Range of setting: 0.1~999.9s Factory default value: 10.0s
Parameter description: This refersto the period duringwhich the frequency isdecelerated from 100Hz to 0Hz.The frequency velocity isdetermined by this parameterwhile the machine is in the state ofjog operation.

F1 Series Control Parameters Description

F1.00 FWD/REV command selection Range of setting: 0~3 Factory default value: 0
0: No reversing:
The machine always forwardswhatever the input signalis, forward or reverse.
1: Keyboard selection: Theoperating direction is determinedby the keyboard.
2: External terminal selection:The operating direction isdetermined by external terminals.
3: 485 COM selection: The operation direction isdetermined by 485 COM.

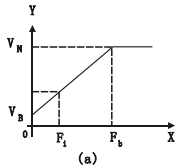
F1.01 Keyboard operating direction Range of setting: 0~1 Factory default value: 0
Combined with the parameterF1.00, this is usedto set the operatingdirection of the motor. If F1.00=1, the keyboardcan determine whether themotor forwards or reversesaccording to the set value for thisparameter.
0：Forward
1：Reverse

F1.02 FWD/REV shifting waiting time Range of setting:0~60.0s Factory default value:0.0s
Once the operating directionof the motor changes,the inverter enters intothe stage of FWD/REV shifting (if permitted)when the operation frequencyfalls to the stopfrequency (see the detail for F0.11).Wait tillthe set shifting timeis passed and themotor will counter rotate.
Using this function canavoid overcurrent protection causedby large inertia ofthe motor during FWD/REV shifting.
Please set proper FWD/REVshifting time according tothe actual inertia ofthe motor.
During the course ofshifting, the inverter hasno output and themotor decelerates freely according to its owninertia and load.

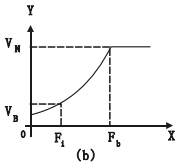
F1.03 V/F curve setting Range of setting: 0~2 Factory default value: 0
There are three kindsV/F curve setting:
0: Linear type, applicableto constant torque load;
1: Square type, applicableto fan, pump andsimilar loads;
2：Polygonal type, combined withthe parameter F1.04 andF1.05.

F1.04 Intermediate frequency (IF)setting Range of setting: 10~40.0Hz Factory default value: 30.0Hz
Intermediate frequency (IF) refersto the output frequencyat the turning pointof V/F curve if V/F curve is adopted.

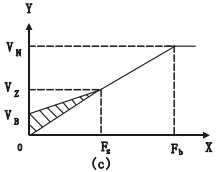
F1.05 IF output voltage setting Range of setting: 20%~100% Factory default value: 30.0Hz
Intermediate voltage refers to the output voltage at the turning point of V/F curve if V/F curve is adopted.



(a)



(b)

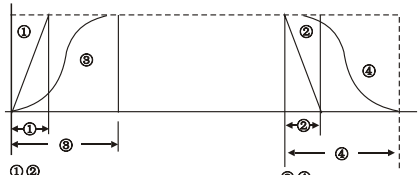


(c)

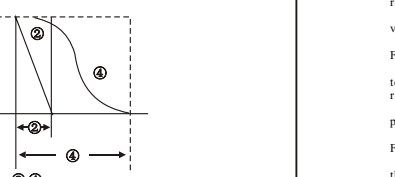
V_B – torque lifting
V_N – rated voltage
V_Z intermediate voltage
X – output frequency
Y – output voltage
F_i starting frequency
F_b basic frequency
F_z intermediate frequency

F1.06 Acceleration S curve setting Range of setting: 0~7 Factory default value: 0

F1.07 Deceleration S curve setting Range of setting: 0~7 Factory default value: 0
This is used in the occasion that has critical requirement for motor's acceleration/deceleration. If this parameter=0, then frequency velocity will be worked out according to the currently selected acceleration/deceleration time. If this parameter≠0, then the currently selected acceleration/deceleration time is for reference only. If the acceleration/deceleration time remains the same, the larger the parameter is, the longer the transformation period is. The acceleration curve is valid only when the set time for acceleration/deceleration is less than 10.0s.



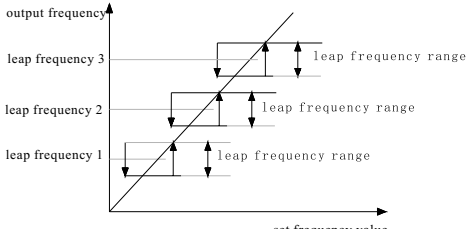
Acceleration/deceleration performance when S curve is not enabled.



Acceleration/deceleration performance when S curve is enabled.

F1.08 Leap frequency range Range of setting: 0.0~10.0Hz Factory default value: 0.0Hz
F1.09 1st leap frequency Range of setting: 0.0~400.0Hz Factory default value: 0.0Hz
F1.10 2nd leap frequency Range of setting: 0.0~400.0Hz Factory default value: 0.0Hz
F1.11 3rd leap frequency Range of setting: 0.0~400.0Hz Factory default value: 0.0Hz

To avoid point of resonant frequency of mechanical load, the inverter's set frequency may perform leap operation near some frequency points. The working frequency that corresponds to resonant frequency is called leap frequency. This inverter can set three leap frequency points whose ranges are not allowed to be overlaid or inlaid.
If the leap frequency range = 0.0Hz, then the function of leap frequency is disabled.
When the range of setting leap frequency is half lower than the leap frequency, The leap frequency function is invalid.
When the frequency is set within the range of the Xth leap frequency, the inverter will output the upper limiting value for the Xth leap frequency if the set frequency is larger than the Xth leap frequency, and output the lower limiting value for the Xth leap frequency if the set frequency is smaller than the Xth leap frequency.
Eg. If set F1.08=10.0Hz, F1.09=40.0Hz, then the frequency 35.0~45.0Hz is the range for the 1st leap frequency.



F1.12 Carrier frequency Range of setting: 1000~9999 Factory default value: 5000
Changing the value for carrier frequency may reduce noise of the motor and avoid mechanical resonant.
Note: To change carrier frequency when the inverter is in operation, the newly set parameter value will be effective only when the inverter restarts after stop.

F1.13 Torque lifting Range of setting: 0.0~20.0% Factory default value: 5.0%
The value stands for the set value for voltage when frequency = 0. It is used to regulate the output torque of the motor. The smaller the parameter is, the lower the output voltage is if other parameters remain the same.
Note: If output frequency >basic frequency, then the output voltage is not influenced by this parameter.

F1.14 Output voltage regulation Range of setting: 50%~100% Factory default value: 100%
This is used to regulate the percentage of output voltage to rated voltage. If it is set to be 100%, then the output voltage corresponds to the rated voltage.

Type F2 Braking Parameters Description

F2.00 Start DC braking time Range of setting:0~100.0s Factory default value:0.0s

Three manners can be selected to start the inverter: 1) Accelerate to the target frequency directly; 2) Perform inception frequency for a period of time, then accelerate to the target frequency; 3) Perform DC braking first, then perform incepting frequency for a period of time, and finally accelerate to the target frequency. E.g.

1) Accelerate to the target frequency directly:
Set F0.10 (start holding time) = 0, F2.00(starting DC braking time)= 0.

2) Perform inception frequency for a period of time, then accelerate to the target frequency:
Set F0.10 (start holding time) ≠0, F2.00 (starting DC braking time) = 0.

3) Perform DC braking first, then perform incepting frequency for a period of time, and finally accelerate to the target frequency:
Set F0.10 (start holding time) ≠0, F2.00 (starting DC braking time) ≠ 0, F2.01 (start braking voltage) ≠ 0.

F2.01 Start DC braking voltage Range of setting: 0~100V Factory default value:20V

If set this parameter when the motor needs DC braking before starting, the system will proceed braking over the motor. This parameter indicates the ratio of output voltage when performing braking to the output voltage when starting frequency is in a normal operation. The bigger the figure, the stronger the braking force.

F2.02 Shutdown DC braking time Range of setting: 0~100.0s Factory default value: 0.0s

DC braking is used if output frequency of the inverter is smaller than stop frequency when there is a decelerated stop or FWD/REV shift.

F2.03 Shutdown DC braking voltage Range of setting: 0~100V Factory default value: 20V

If set this parameter when the inverter stops running and the motor needs DC braking, the system will proceed braking over the motor. This parameter indicates the ratio of output voltage for braking to the output voltage when stop frequency is in a normal operation. The bigger the figure, the stronger the braking force.

F2.04 Braking enable Range of setting: 0~1 Factory default value: 1

This function is used to control the output of braking signal.

0：Disabled 1: Enabled

F2.05 Braking inception voltage coefficient Range of setting:100~170%

Factory default value: 140%

If detected voltage is higher than the product of rated voltage and this parameter, the braking signal will be output.

F2.06 Braking termination retard coefficient Range of setting: 0~20%

Factory default value: 5%

If detected voltage is lower than the product of braking inception voltage and this parameter, the braking signal will be terminated.

F2.07 Display mode 1 Range of setting: 0~9 Factory default value: 0

F2.08 Display mode 2 Range of setting: 0~9 Factory default value: 1

F2.09 Display mode 3 Range of setting: 0~9 Factory default value: 2

This is used to set the display contents of the inverter when it is in the mode of operation or holding.

0：Frequency display 5: Count input value
1: Output current 6：AVI feedback value
2：Input voltage 7：ACI feedback value
3：Output voltage 8：PID setting value
4: Motor rotating speed 9: PID feedback value

Note: The inverter's digital tube will display three types of data, which can be shifted by pressing the "SET" key. If Mode 1 is selected, the digital tube will display the data when the inverter is energized; If Mode 2 or Mode 3 is selected, the tube will display the data when the inverter is in the mode of shifting.

F3 Series Multi-function Port Parameters Description

F3.00 Terminal X1 function selection Range of setting: 0~30 Factory default value: 1
F3.01 Terminal X2 function selection Range of setting: 0~30 Factory default value: 2
F3.02 Terminal X3 function selection Range of setting: 0~30 Factory default value: 3
F3.03 Terminal X4 function selection Range of setting: 0~30 Factory default value: 6
F3.04 Terminal X5 function selection Range of setting: 0~30 Factory default value: 7
F3.05 Terminal X6 function selection Range of setting: 0~30 Factory default value: 12

Setting Value	Function Content	Function of TerminalX
0	Invalid	Invalid
1	Combined multi-stage speed 1	ON; OFF
2	Combined multi-stage speed 2	ON; OFF
3	Combined multi-stage speed 3	ON; OFF
4	Combined accelerating/decelerating period 1	ON; OFF
5	Combined accelerating/decelerating period 2	ON; OFF
6	Forward operation (FWD)	ON: Forward; OFF: Shutdown
7	Reverse operation (REV)	ON: Reverse; OFF: Shutdown
8	RUN	ON: Run OFF: Shutdown
9	Running direction(F/R)	ON: Reverse OFF: Forward
10	JOG forward	ON: Terminal jog forwards. OFF: Shutdown
11	JOG reverse	ON: Terminal jog reverses. OFF: Shutdown
12	Reset (RST)	ON: Chip resets; OFF: Chip doesn't reset.
13	Counter reset	ON: Counter resets; OFF: Counter doesn't reset.
14	Counter Up input	1 count per input of impulse
15	Counter Down input	1 count per input of impulse
16	External pulse input	Pulse input enabled.
17	Pulse enable	Pulse input enabled.
18	Frequency increasing (UP)	Impulse
19	Frequency decreasing (DOWN)	Impulse
20	External fault	Shutdown without reservation
21	PLC pulse enable	Impulse

Setting Value	Function Content	Function of TerminalX
22	PLC pulse stop	Impulse
23	Three-wire FWD control	ON: Forward
24	Three-wire REV control	ON: Reverse
25	Three-wire NO shutdown control	OFF: Stop
26	Three-wire NC shutdown control	ON: Stop
27	External free shutdown input	ON: Free shutdown
28	External decelerated shutdown input	ON: Decelerated shutdown
29	Analog frequency command selection(AVI/ACI)	ON: ACI enabled. OFF:AVIenabled.
30	Terminal high/low speedselection	ON: Frequency of VI input OFF: Minimal frequency of VIinput

Refer to parameter descriptionin the clause F3.00~F3.06for the use ofcombined multistage speed. Refer to parameterdescription in the clauseF3.07~F3.14 for the usageof combined acceleration/deceleration time.
When the terminal isset to have high/lowspeed function, just adoptthe frequency set byanalog input AVI if the terminalis ON and adoptthe frequency set bythe parameter F8.03.
When the terminal's settingfrequency rises or falls,each impulse is equivalentto one MOP and the impulse time mustnot be less than10ms.
Terminal's ON/OFF mustbe set for theinverter before performing thehigh/low speed function. An impulse lasts morethan 10ms can beregarded as an ON/OFFsignal. To avoiderror operation, different terminals can notbe set to performthe same function (butthey can be setto "0").

F3.06 Output target frequencysetting Range of setting:0.2~400.0Hz
Factory default value: 50.0Hz
Refer to the secondclause for the parameterF3.09.

F3.07 Frequency detection range Range of setting: 0.0~50.0Hz Factory default value: 0.0Hz
This refers to theminimal creepingrange of frequency when frequency output isselected.

F3.08 Relay output selection Range of setting: 0~5 Factory default value: 0
Used to set conditionsfor relay action.

F3.09 Y1 output selection Range of setting: 0~5 Factory default value: 0

Setting Value	Function Conten	Conditions for Relay Actuation
0	Invalid	The relay is failure toactuate.
1	Fault output	When the inverter is inan abnormal state.
2	Target frequency arrival	If output frequency > outputtarget frequency (set by F3.06),retard frequency (F3.07) can be set to prevent continuous shifting of frequency fluctuation when there is analog control frequency.
3	Setting frequency arrival	Output after the user presettarget frequency is reached.

Setting Value	Function Conten	Conditions for Relay Actuation
4	Operating Indication	When the inverter is inthe state of operation.
5	Counter arrival	If counting function is set,the number of the impulse input reaches thecounting value.
6	upper limiting frequency arrival	Output when the operation frequencyreaches the upper limit.
7	ower limiting frequency arrival	Output when the operation frequencyreaches the lower limit.
8	Program in-operating indication	Out put when PLC functionis started and actuated.

F4 Series Multi-stage SpeedParameters Description

F4.00 Multi-stage speed 1 Range of setting: 0.0~400.0Hz Default value: 10.0Hz

F4.01 Multi-stage speed 2 Range of setting: 0.0~400.0Hz Default value: 20.0Hz

F4.02 Multi-stage speed 3 Range of setting: 0.0~400.0Hz Default value: 30.0Hz

F4.03 Multi-stage speed 4 Range of setting: 0.0~400.0Hz Default value: 40.0Hz

F4.04 Multi-stage speed 5 Range of setting: 0.0~400.0Hz Default value: 50.0Hz

F4.05 Multi-stage speed 6 Range of setting: 0.0~400.0Hz Default value: 60.0Hz

F4.06 Multi-stage speed 7 Range of setting: 0.0~400.0Hz Default value: 70.0Hz

Multi-stage speed combination			Output frequency
Terminal X1	Terminal X1	Terminal X1	
OFF	OFF	OFF	No multi-stage speed
ON	OFF	OFF	Multi-stage speed 1 10Hz
OFF	ON	OFF	Multi-stage speed 2 20Hz
ON	ON	OFF	Multi-stage speed 3 30Hz
OFF	OFF	ON	Multi-stage speed 4 40Hz
ON	OFF	ON	Multi-stage speed 5 50Hz
OFF	ON	ON	Multi-stage speed 6 60Hz
ON	ON	ON	Multi-stage speed 7 70Hz

Parameter Description:
If the connecting terminalswith multi-stage speed areOFF, the motorwill begin to runwithout performing operation.
If multi-stage speed terminalsare ON during operation,the motor will runat corresponding multi- stage speed frequency.

F4.07 1st accelerating period Range of setting: 0.1~999.9s Default value: 10.0s
F4.08 1st decelerating period Range of setting: 0.1~999.9s Default value: 10.0s
F4.09 2nd accelerating period Range of setting: 0.1~999.9s Default value: 10.0s
F4.10 2nd decelerating period Range of setting: 0.1~999.9s Default value: 10.0s
F4.11 3rd accelerating period Range of setting: 0.1~999.9s Default value: 10.0s
F4.12 3rd decelerating period Range of setting: 0.1~999.9s Default value: 10.0s
F4.13 4th accelerating period Range of setting: 0.1~999.9s Default value: 10.0s
F4.14 4th decelerating period Range of setting: 0.1~999.9s Default value: 10.0s

Accelerating period refers to the time when frequency is accelerated from 0.0Hz to 100.0Hz.
Decelerating period refers to the time when frequency is decelerated from 100.0Hz to 0.0Hz.

Terminal X4	Terminal X5	Frequency Accelerating/Decelerating Period
OFF	OFF	Accelerate during accelerating period 1 anddecelerate during decelerating period 1.
ON	OFF	Accelerate during accelerating period 2 anddecelerate during decelerating period 2.
OFF	ON	Accelerate during accelerating period 3 anddecelerate during decelerating period 3.
ON	ON	Accelerate during accelerating period 4 anddecelerate during decelerating period 4.

If no terminal isset to acceleration/deceleration selectionparameter 1 or 2,then acceleration will be performed according to thedefault acceleration time F4.07and deceleration will beperformed according the deceleration timeF4.08.

F4.15 Acceleration/Deceleration source Range of setting: 0~1 Default value: 0
Frequency acceleration/deceleration can berealized by setting acceleration/decelerationtime, which refers to the time when the frequencychanges from 0.0Hz to100.0Hz or 100.0Hz to 0.0Hz.
0: Set by thekeyboard 1: Set bythe terminal

F5 Series Protecting FunctionParameters Description
F5.00 Undervoltage protection selection Range of setting: 0~1 Default value: 1
0: Disabled 1: Enabled
This function can beenabled or disabled accordingto user's selection.
Undervoltage protection can bejudged only when theinverter is in themode of operation.

F5.01 Undervoltage Protection Voltage Proportion Range ofsetting: 50%~100%
Default value: 60%
Undervoltage protection can bereported only when powervoltage is detected tobe lower than the product of thisparameter and rated voltage.

F5.02 Over-voltage protection Function Range of setting: 0~1 Default value: 2
0: Disabled 1: Enabled
Over-voltage protection will bereported by the systemwhen power voltage isdetected to be higher than the valuefor over-voltage protection ifthis parameter is setto 1.

F5.03 Over-voltage protection voltageproportion Range of setting:100%~150%
Default value: 135%
Over-voltage protection will occurand over-voltage protection isreported if the voltageis detected to be higherthan the product ofrated voltage and thisparameter.

F5.04 Over-voltage stall function Range of setting: 0~1 Defaultvalue: 1
0: Disabled 1: Enabled
If this parameter is setto 1 and the decelerationtime is set to beshorter than the necessary time for load inertia,then deceleration can bedelayed and over-voltage trippingcan be avoided.

F5.05 Over-voltage stall voltageproportion Range of setting: 100%~150% Default value: 125%
If capacitor voltage is detectedto be higher than theproduct of capacitor voltage and this parameter, over-voltage stallwill occur and frequencywill stop falling.

F5.06 Over-current stallfunction Rangeof setting: 0~1 Default value:1
0: Disabled 1: Enabled
If this parameter is setto 1 and the acceleration time is set tobe shorter than the necessary time for load inertia,then acceleration can bedelayed and over-current trippingcan be avoided.

F5.07 Stall current coefficient Range of setting: 10%~200% Defaultvalue: 150%
If the current is detectedto be higher than theproduct of rated current (Fd.04)and this parameter, over-current stallwill occur and frequencywill stop rising.

F5.08 Overload protection function Rangeof setting: 0~1 Default value:1
0: Disabled 1: Enabled
If this parameter is setto 1 and the currentis detected to be larger than the current valuefor overload protection (F5.09) and theduration is longer than overloadprotection time (F5.10), then overload protection willoccur.

F5.09 Overload current proportion Rangeof setting: 10%~200% Default value:150%
Parameter description:
If the current is detectedto be higher than theproduct of rated current (FD.04)and this parameter, it is regarded as overload.If the duration reaches theoverload protection time, then overload protection will be reported.

F5.10 Overload protection time Rangeof setting: 60~120s Default value:60s

F5.11 Overheat protection Rangeof setting: 0~1 Default value:1
This parameter is usedto enable or disable overheatprotection for module.

F5.12 OP trip function Range of setting: 0~1 Defaultvalue: 0
0: OP trip disabled; 1: OP trip enabled.

OP trip protection willbe reported if this functionis set to "1" andexternal terminals are setto be in the mode of operationat the moment of powerup,which means operation command before power failure hasn't been clearedoff after the poweris off. Tripprotection will not be reportedif no terminal is set tobe in the mode ofoperation while being energizedor this parameter is setto "0", but be sure toconfirm if the terminal modeis normal before powerup.

F6 series Communication and Fault Parameters Description

F6.00 Selection of COM mode Range of setting: 0~17 Defaultvalue: 4
Mode 1: 8-bit data, 1-bitstop, no parity, RTU transfer
Mode 2: 8-bit data, 1-bitstop, even parity, 8-bitRTU transfer
Mode 3: 8-bit data, 1-bitstop, odd parity, 8-bitRTU transfer
Mode 4: 8-bit data, 2-bitstop, no parity, 8-bitRTU transfer
Mode 5: 8-bit data, 2-bitstop, even parity, 8-bitRTU transfer
Mode 6: 8-bit data, 2-bitstop, odd parity, 8-bitRTU transfer
Mode 7: 8-bit data, 1-bitstop, no parity, 7-bitASCII transfer
Mode 8: 8-bit data, 1-bitstop, even parity, 7-bitASCII transfer
Mode 9: 8-bit data, 1-bitstop, odd parity, 7-bitASCII transfer
Mode 10: 8-bit data, 2-bitstop, no parity, 7-bitASCII transfer
Mode 11: 8-bit data,2-bit stop, even parity,7-bit ASCII transfer
Mode 12: 8-bit data, 2-bitstop, odd parity, 7-bitASCII transfer
Mode 13: 8-bit data, 1-bitstop, no parity, 8-bitASCII transfer
Mode 14: 8-bit data, 1-bitstop, even parity, 8-bitASCII transfer
Mode 15: 8-bit data, 1-bitstop, odd parity, 8-bitASCII transfer
Mode 16: 8-bit data, 2-bitstop, no parity, 8-bitASCII transfer
Mode 17: 8-bit data, 2-bitstop, even parity, 8-bitASCII transfer
Mode 18: 8-bit data, 2-bitstop, odd parity, 8-bitASCII transfer

F6.01 485 COM baud rateselection Range of setting: 0~5 Default value: 0
0: Transfer at thespeed of 1200pbs 3: Transfer at the speed of9600pbs
1: Transfer at thespeed of 2400pbs 4: Transfer at the speed of19200pbs
2: Transfer at thespeed of 4800pbs 5: Transfer at the speed of38400pbs

F6.02 485 COM local address selection Range of setting: 1~127 Defaultvalue: 1
Refer to instructions for 485COM in the attached pagesfor detail.

F6.03 Communication error report Rangeof setting: 0~1 Default value:0
Communication error refers to thefault that the inverter cannothave a normal communication with upper machine. When usingcommunication function, the upper machineneedn't keep continuous communication with the inverterto cancel the use ofcommunication fault to avoid the inverter's report of communication error

F6.04 Error-recoverable times Range ofsetting: 0~5 Default value: 0
If the number of faultsis higher than this parameterafter the inverter is poweredon, then the faults will always maintain and cannotbe restored. Tosay in detail, if thenumber is "0", the faultscan not be restored, if thenumber is "1", the faultwill be restored for 1time. E.g., if setting this parameter to "1" and overvoltageprotection occurs, the system willremove faults and reset after the voltage is restored toa normal value kept fora period of time whichcan be set by theparameter F6.05. If faults occur again,then the system will alwaysmaintain faults and will notrecover by itself.

F6.05 Error recovery time Rangeof setting: 5~600s Default value:30s

F6.06 Last error type Rangeof setting: 0~14 Default value:0

F6.07 Next-to-last (penultimate) error type Range of setting: 0~14 Defaultvalue: 0

F6.08 Antepenultimate error type Range of setting: 0~14 Defaultvalue: 0
The above parameters are setby the system and canbe referred by the userwhen faults occur. It is suggested not tomodify them. Parameter =0 indicatesno fault.

Data	Type of Error		Data	Type of Error
0	No error		8	485 COM error: ErCE
1	Short circuit protection: ErSC		9	Open-phase protection: ErLP
2	Over-voltage protection: ErOU		10	Fuse error: ErFS
3	Overheat protection: ErOH		11	Braking unit error: Erbr
4	Overload protection: ErOL		12	Current zero error: ErCO
5	Under-voltage protection: ErLU		13	External error: ErEF
6	EPROM failure: ErEP		14	Over-current Protection: ErOC
7	OP trip protection: ErOP			

F7 Series PID Function ParametersDescription
F7.00 PID setting source selection Range of setting: 0~6 Defaultvalue: 3
0: Keyboard setting (VI feedback):Keyboard setting -- target,VI -- feedback input;
1: Keyboard setting (CI feedback):Keyboard setting -- target,CI --feedback input;
2: Keyboard potentiometer setting (VIfeedback):
Keyboard potentiometer setting-- target,VI -- feedback input;
3: Keyboard potentiometer setting (CIfeedback):
Keyboard potentiometer setting-- target,CI -- feedback input;
4: VI setting (CIfeedback):VI target, CI feedbackinput;
5: CI setting (VIfeedback): CI target, VI feedback input.

F7.01 PID digital setting Rangeof setting: 0~100.0 Default value:50.0
This refers to setPID value by keyboard. Itwill be valid if F7.00(PID setting source selection) = 0.1.

F7.02 PID upper limiting frequency Range of setting: 10.0~400.0Hz Defaultvalue: 50.0Hz
This refers to themaximum operation frequency of theinverter when PID regulation is carried on.

F7.03 PID lower limiting frequency Range of setting: 10.0~400.0Hz Defaultvalue: 0Hz
This refers to theminimal allowable operation frequency ofthe inverter when PID regulationis carried on.

F7.04 PID Positive/Negative feedback selection Range of setting: 0~1 Defaultvalue: 0
0：Positive feedback: If the feedbackvalue is larger thanthe set value, the frequencywill fall; if the feedback value is smallerthan the set value, thefrequency will rise.
1：Negative feedback: If the feedbackvalue is larger thanthe set value, the frequencywill rise; if the feedback value is smallerthan the set value, thefrequency will fall.

F7.05 Proportional gain Kp Rangeof setting: 0~100.0 Default value:0.0
Influence of proportional gain Kpon system performance: This aparameter that decides deviation response of action "p".Big value for proportional gainwill enable the system tooperate flexibly and its influence willspeed up. Excessivevalue for "P" will bring out moreoscillation and longer regulation time. Too big "p" value willlead to instability of thesystem. Too small"p" value will cause instability andslow response of the system.

F7.06 Integral time Ki Rangeof setting: 0~100.0s Default value:0.0s
Influence of integral action onsystem performance:
Integral time decides the effect of integral action. Ifthe integral time is long,the response will be slow and the control overexternal agitation will be weakened.If the integral time isshort, the response will be fast, buttoo short integral time willresult in oscillation. Integral actionmay decrease the stability of thesystem. If "i" is small,the integral action will bestrong which will cause instability of the system,but can remove the steadystate error and improve thecontrol precision of the system.

F7.07 Differential time Kd Rangeof setting: 0~100.0s Default value:0.0s
Influence of differential control onsystem performance:
Differential time parameter decides theeffect of differential action.If the differential timeis long, oscillation caused by p actionwill soon be reduced andregulation time will be shortwhen deviation occurs, but too large "d" may cause oscillation.If the differential timeis short, the attenuation effect will besmall and the regulation timewill be longer when deviationoccurs. The regulation time can be reducedonly when there is aproper "d".

F7.08 PID tolerance error range Range of setting: 0.0%~20.0% Defaultvalue: 1.0%
This refers to the maximumdeviation ratio of the outputvalue of the system tothe given value for closed-loop, which is used tocontrol PID action. If theD-value between feedback and setpoint is lower than PID deviation tolerance,PID controller will pause andthe inverter will maintain present output.

F7.09 PID detection time Rangeof setting: 0~60.0s Default value:0.0s
PID detection time refers tothe cycle during which PIDregulation is performedover feedback sampling cycle.

F7.10 PID Sleep time Rangeof setting: 0.0~60.0s Default value:0.0s
If output frequency = F7.03(lower limiting frequency) with holdingtime > PID sleep timewhen PID regulation is enabled, theinverter will enter into thestate of sleep without operationof the motor. If it isset to "0", there willbe no sleep function.

F7.11 PID Frequency wake-upthreshold Range of setting: 1.0~100.0Hz Default value: 10.0Hz
If command frequency > (F7.03+F7.11) after the inverter entersinto sleep mode, the inverterwill wake up rapidly,start and begin to runthe motor.

F7.12 Encoder speed setting Rangeof setting: 1~9999 Default value:2400

F7.13 Encoder impulse timesper cycle Range of setting: 1~2000 Defaultvalue: 1024

F8 Series Analog Input/Output Parameters Description

F8.00 Maximum voltage valuefor analog voltage input Range of setting: 0.0~10.0V
Default value: 10.0V
F8.01 Minimal voltage valuefor analog voltage input Range of setting: 0.0~10.0V
Default value: 0.5V
F8.02 Frequency that correspondsto the maximum voltagefor analog input Rangeof setting: 0.0~400.0Hz Default value: 50.0Hz
F8.03 Frequency that correspondsto the minimal voltagefor analog input Rangeof setting: 0.0~400.0Hz Default value: 0.0Hz
F8.04 Maximum current valuefor analog current input Range of setting: 0~20mA
Default value: 20mA
F8.05 Minimal current valuefor analog current input Range of setting: 0~20mA Default value: 4.0mA
F8.06 Frequency that correspondsto the maximum currentfor analog input Range of setting: 0.0~400.0Hz Default value: 50.0Hz
F8.07 Frequency that correspondsto the minimal currentfor analog input
Range of setting: 0.0~400.0Hz Default value: 0.0Hz

Analog input can eitherbe voltage input orcurrent input. Both inputsare equivalent on hardware, but cannot be inputsimultaneously. If voltageinput is activated,AVI ofthe terminal will beused to input; if currentinput is enabled, CIwill be used toinput.

It is required thatF8.00 or F8.04 mustlarger than F8.01 orF8.05, and F8.02 orF8.06 must larger than F8.03 or F8.07.If analog input voltage(or current) is higherthan F8.00 or F8.04,then the target frequency will bethe set value forF8.02 or F8.06.

If analog input voltage(or current) is lowerthan F8.01 or F8.05,then the target frequencywill be the set valuefor F8.03 or F8.07.

If analog input voltage(or current) is lowerthan F8.02 or F8.06,and lower than theset value for F8.00 or F8.04, thetarget frequency will alinear result between theset value for F8.02or F8.06 and F8.03 or F8.07.

F8.08 Maximum value forexternal impulse input Rangeof setting: 0.0~10.0KHz Default value: 5.0KHz
F8.09 Minimal value forexternal impulse input Rangeof setting: 0.0~10.0KHz Default value: 0.1KHz
F8.10 Frequency that correspondsto the maximum valuefor impulse input Rangeof setting: 0.0~400.0Hz Default value: 50.0Hz
F8.11 Frequency that corresponds to the minimalvalue for impulse input Range of setting: 0.0~400.0Hz Default value: 0.0Hz
It is required thatF8.08 must larger thanF8.09, and F8.10 mustlarger than F8.11.If external impulse is higher thanF8.08, the target frequencywill be the setvalue for F8.10.
If external impulse islower than F8.09, thetarget frequency will bethe set value forF8.11.
If external impulse ishigher than the setvalue for F8.09 andlower than the setvalue for F8.08, the target frequency willa linear result betweenthe set value forF8.10 and F8.11.

F8.12 Analog output function Range ofsetting: 0~1 Default value: 1

0: Disabled 1: Enabled

F8.13 Analog output content selection Rangeof setting: 0~5 Default value: 0

0: Operating frequency 3: Motor rotating speed

1: Output voltage 4: PID setvalue

2: Output current 5: PID feedback value

F8.14 Analog output correction coefficient Range of setting: 80~120% Default value: 100%

This parameter is used to adjustthe output voltage if the setanalog output voltage is not proper

F8.15 Frequency that corresponds to the maximumvalue for analog output

Range of setting: 10.0~400.0Hz Default value: 50Hz

When the out put frequency of inverter is higher than the parameter setting value, The analog output voltage send the maximum value, while the output frequency inverter is lower than the parameter setting value. The analog output voltage depends on the frequency linear output.

F9 series PLC Function Parameters Description 1

F9.00 PLC operating frequency stage 1 Rangeof setting: 0.0~400.0Hz Default value: 5.0Hz

F9.01 PLC operating frequency stage 2 Rangeof setting: 0.0~400.0Hz Default value: 5.0Hz

F9.02 PLC operating frequency stage 3 Rangeof setting: 0.0~400.0Hz Default value: 5.0Hz

F9.03 PLC operating frequency stage 4 Rangeof setting: 0.0~400.0Hz Default value: 5.0Hz

F9.04 PLC operating frequency stage 5 Rangeof setting: 0.0~400.0Hz Default value: 5.0Hz

F9.05 PLC operating frequency stage 6 Rangeof setting: 0.0~400.0Hz Default value: 5.0Hz

F9.06 PLC operating frequency stage 7 Rangeof setting: 0.0~400.0Hz Default value: 5.0Hz

F9.07 PLC operating frequency stage 8 Rangeof setting: 0.0~400.0Hz Default value: 5.0Hz

F9.08 PLC operating frequency stage 9 Rangeof setting: 0.0~400.0Hz Default value: 5.0Hz

F9.09 PLC operating frequency stage 10 Rangeof setting: 0.0~400.0Hz Default value: 5.0Hz

F9.10 PLC operating frequency stage 11 Range of setting: 0.0~400.0Hz Default value: 5.0Hz

F9.11 PLC operating frequency stage 12 Range of setting: 0.0~400.0Hz Default value: 5.0Hz

F9.12 PLC operating frequency stage 13 Rangeof setting: 0.0~400.0Hz Default value: 5.0Hz

F9.13 PLC operating frequency stage 14 Rangeof setting: 0.0~400.0Hz Default value: 5.0Hz

F9.14 PLC operating frequency stage 15 Rangeof setting: 0.0~400.0Hz Default value: 5.0Hz

F9.15 PLC operating frequency stage 16 Rangeof setting: 0.0~400.0Hz Default value: 5.0Hz

FA series PLC Function Parameters Description 2

FA.00 PLC operating timestage 1 Range of setting: 0~9000s Defaultvalue: 0s

FA.01 PLC operating timestage 2 Range of setting: 0~9000s Defaultvalue: 0s

FA.02 PLC operating timestage 3 Range of setting: 0~9000s Defaultvalue: 0s

FA.03 PLC operating timestage 4 Range of setting: 0~9000s Defaultvalue: 0s

FA.04 PLC operating timestage 5 Range of setting: 0~9000s Defaultvalue: 0s

FA.05 PLC operatingtime stage 6 Rangeof setting: 0~9000s Default value: 0s

FA.06 PLC operatingtime stage 7 Rangeof setting: 0~9000s Default value: 0s

FA.07 PLC operatingtime stage 8 Rangeof setting: 0~9000s Default value: 0s

FA.08 PLC operatingtime stage 9 Rangeof setting: 0~9000s Default value: 0s

FA.09 PLC operatingtime stage 10 Rangeof setting: 0~9000s Defaultvalue: 0s

FA.10 PLC operatingtime stage 11 Rangeof setting: 0~9000s Defaultvalue: 0s

FA.11 PLCoperating time stage 12 Range of setting: 0~9000s Default value: 0s

FA.12 PLC operatingtime stage 13 Rangeof setting: 0~9000s Defaultvalue: 0s

FA.13 PLC operatingtime stage 14 Rangeof setting: 0~9000s Defaultvalue: 0s

FA.14 PLC operatingtime stage 15 Rangeof setting: 0~9000s Defaultvalue: 0s

FA.15 PLC operatingtime stage 16 Rangeof setting: 0~9000s Defaultvalue: 0s

Fb series PLC FunctionParameters Description 3

Fb.00 PLC operating control stage1 Range of setting: 0~144 Default value: 0

Fb.01 PLC operating control stage2 Range of setting: 0~144 Default value: 0

Fb.02 PLC operating control stage3 Range of setting: 0~144 Default value: 0

Fb.03 PLC operating control stage4 Range of setting: 0~144 Default value: 0

Fb.04 PLC operating control stage5 Range of setting: 0~144 Default value: 0

Fb.05 PLC operating control stage6 Range of setting: 0~144 Default value: 0

Fb.06 PLC operating control stage7 Range of setting: 0~144 Default value: 0

Fb.07 PLC operating control stage8 Range of setting: 0~144 Default value: 0

Fb.08 PLC operating control stage9 Range of setting: 0~144 Default value: 0

Fb.09 PLC operating control stage10 Range of setting: 0~144 Default value: 0

Fb.10 PLC operating control stage11 Range of setting: 0~144 Default value: 0

Fb.11 PLC operating controlstage 12 Range of setting: 0~144 Default value: 0

Fb.12 PLC operating control stage13 Range of setting: 0~144 Default value: 0

Fb.13 PLC operating control stage14 Range of setting: 0~144 Default value: 0

Fb.14 PLC operating control stage15 Range of setting: 0~144 Default value: 0

Fb.15 PLC operating control stage16 Range of setting: 0~144 Default value: 0

0	0	0	0
Invalid	FWD/REV	Acceleration Time	Deceleration Time
Invalid	Forward Reserve	0：F0.06 1：F4.07 2：F4.09 3：F4.11 4：F4.13	0：F0.07 1：F4.08 2：F4.10 3：F4.12 4：F4.14

Fc series Auxiliary Control Parameters Description

Fc.00 PLC function setting Range of setting: 0~3 Default value: 0
PLC function means the inverter proceeds auto running according to the preset frequency, FRD/REV, acceleration and deceleration time in the designated sectors divided into 16 sectors.
0: Non operation: There is no PLC function.
1: Single cycling: PLC runs from sector 1 to sector 16 and shutdown after the operation is completed.
2: Continuous Cycling: PLC runs from sector 1 to sector 16 and proceeds repeated operation.
3: Retaining the final value after single cycling: PLC retains the speed in sector 16 and runs at this speed after it runs from sector 1 to sector 16.

Fc.01 AVI/ACI filter time Range of setting: 0.01~60.00s Default value: 0.1s

Fc.02 Speed correction Range of setting: 50~100% Default value: 100%
The actual revolution is equivalent to the multiple of theoretic rotary and speed correction value.
Fc.03 Remain Range of setting: -- Default value: --
Fc.04 CI fine tuning Range of setting: 0~1000 Default value: 0
This refers to the corrected value for of analog current input.
Fc.05 Digital frequency control Range of setting: 0~3 Default value: 0
This is used to control the power-failure memory and shutdown memory of digital frequency.
0: Keep memory after power failure; holding after shutdown.
1: Keep memory after power failure; not holding after shutdown.
2: No memory after power failure; holding after shutdown.
3: No memory after power failure; no holding after shutdown.

Fc.06 MOP function Range of setting: 0.1~50.0Hz Default value: 1.0Hz
When there is a MOP operation, frequency variation value will be set by pressing ▲▼ (or external UP/DOWN input). The user can modify the setting frequency by MOP function.
Fc.07 Standby time Range of setting: 1~1000s Default value: 0s
This is used to set the standing time from this shutdown to next power up. It is applicable to the occasion that frequent start of the inverter is not allowed.
Fc.08 Motor poles Range of setting: 1~20 Default value: 4
Fc.09 Counter target value Range of setting: 1~9999 Default value: 100
This refers to the value compared with the impulse input of X4 if the terminal X4 is set to have counter function.
Fc.10 Counter arrival motion time Range of setting: 0.01~60.0s Default value: 1.0s
If the relay is set to counter output and the input impulse of terminal X4 matches with the set value for FC.09, then the output time of the relay is equal to the set value for this parameter.

Fc.11 Output voltage auto compensation Range of setting: 0~1 Default value: 1
If this parameter is set to "1", the output voltage of the inverter will not fluctuate with input power voltage and its internal self-regulating system will start to work.

Fc.12 Parameter lock Range of setting: 0~1 Default value: 0
This function is used to protect the dataset in the inverter so that the data cannot be changed. To avoid error operation or improper modification of others, the user may set this parameter to "1" and all the parameters will be locked till this parameter is reset to "0" which indicates parameters can be modified. The default value is "0", which means there is no parameter is locked.

Fc.13 Parameter Initializing Range of setting: 0~1 Default value: 0
This parameter is used to set initializing of the system. If it is set to non-zero, the system begins initializing.
Note: If this function is selected, parameter initializing will proceed only when the system is in the mode of shutdown.

Attached: 485 COM Description

The inverter ZVF11/M/S adopts MOBUS communication protocol on the aspect of 485 communication control. Before using 485COM, the address of the inverter, communication baud rate and data format must be set by hand, and do not modify these parameters during communication.

Two encoding formats are used under MODBUS communication protocol: ASCII (American Standard Code for Information Interchange) and RTU (Remote Terminal Unit). ASCII encoding means data to be delivered will convert to corresponding ASCII codes before transfer, while RTU encoding means data will be transferred directly without conversion.

In ASCII format, each BYTE data is made up of 2 ASCII codes. E.g. 0x1F can be described as '1F' in ASCII format, which is made up of '1'(31Hex) and 'F'(46Hex). The following are ASCII codes for 0 - 9 and A - F.

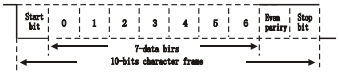
Bit	'0'	'1'	'2'	'3'	'4'	'5'	'6'	'7'
ASCII code	30H	31H	32H	33H	34H	35H	36H	37H
Bit	'8'	'9'	'A'	'B'	'C'	'D'	'E'	'F'
ASCII code	38H	38H	41H	42H	43H	44H	45H	46H

The following is thecharacter box

10.bit (For ASCII)

(Data Format7, N, 2)

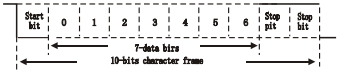
(Data Format7, E, 1)



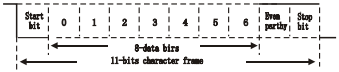
(Data Format7, O, 1)

11-bit (For RTU)

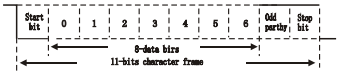
(Data Format8, N, 2)



(Data Format8, E, 1)



(Data Format8, O, 1)



The following is thestructure for each unitof data:

ASCII Mode

START	Initial character ' : ' (0x3A)
ADDR Hi	Secondary address: 8-bit datais made up of 2 ASCIIcodes.
ADDR Lo	
FUNCTION Hi	Function Code: 8-bit datais made up of 2 ASCII codes.
FUNCTION Li	
DATA(n-1)	Content 1) n*8-bit: The contentis made up of 2n ASCII codes; 2)n≤12, 24 ASCIIcodes maximally
……	
DATA0	
LRC CHK Hi	LRC checksum
LRC CHK Lo	
END1	End code 1 "CR" (0x0D
END2	End code 2 "LF" (0x0A)

RTU Mode

START	No signal. Input > 10ms
ADDR	Secondary Machine Address
FUNTION	Function code
DATA(n-1)	Content n*8-bit Content: n≤2
……	
DATA0	
CRC CHK Hi	CRC checksum
CRC CHK Lo	
END	>10m, no signal input

Communication address
00H: Broadcasting to all inverters
Secondary machine does notrespond to broadcast address
01H: Corresponds to the inverter atthe location 01
OFH: Corresponds to the inverter atthe location 15
10H: Correspond to the inverter atthe location 16. Therest can be done inthe same manner till at the maximum of 254(FEH).
Function Codes and Contents
03H: Read out the contents inthe inverter register.
Note: Only 1 piece ofthe content is readable atone time to read theset parameter register of the inverter. Several (<=12)are readable at one timeto read the register ifthe inverter is in themode of operation.

06H: To write 1WORD to the inverterregister
08H: Loop Detection
21H: Manufacturer reserved for the useof liquid-crystal display panel, unavailableto the user.

Function code 03H: Readout the contents in the inverter register.
E.g. If the driveris at 01H, thecontents read out in2 continuous registers withinitial address of 21002 are listed asfollows:

ASCII Mode

Inquiry message string format

STX	':'
Address	'0'
	'1'
Function	'0'
	'3'
Starting address	'2'
	'1'
	'0'
	'2'
Number of data (count by word)	'0'
	'0'
	'2'
LRC Check	'D'
	'7'
END	CR
	LF

Response message string format

STX	':'
Address	'0'
	'1'
Function	'0'
	'3'
Number of data (count by word)	'0'
	'4'
Conlent fo Starting address 2102H	'1'
	'7'
	'7'
	'0'
Conlent of address 2103H	'0'
	'0'
	'0'
LRC Check	'7'
	'1'
END	CR
	LF

RTU Mode

Inquiry message format

Address	01H
Function	03H
Starting data address	21H
	02H
Number of data (count by world)	00H
	02H
CRC CHK Low	6FH
CRC CHK High	F7H

Response message format

Address	01H
Function	03H
Number of data (count by byte)	04H
Content of data address 8102H	17H
	70H
Content of data address 8103H	00H
	00H
CRC CHK Low	FEH
CRC CHK High	5CH

Note: If inquiry functionis performed, when theupper machine sends messageto the lower, the number of bytes(beginning at the initialaddress) to be inquiredis described as 1WORD. When the lower machineresponds to it, theinitial address will notbe responded and the number of bytes isresponded in BYTE.

Function code 06H:
Write contents to theinverter register, only onecontent can be written inat one time.
E.g. 6000(1770H) should bewritten to the internalof the driver toset the parameter 0100Hif the inverter is atthe location of 01H.

ASCII Mode

Inquiry message string format

STX	':'
Address	'0'
	'1'
Function	'0'
	'6'
Data address	'0'
	'1'
	'0'
	'0'
Data content	'1'
	'7'
	'7'
	'0'
LRC Check	'7'
	'1'
END	CR
	LF

Response message string format

STX	':'
Address	'0'
	'1'
Function	'0'
	'6'
Data address	'0'
	'1'
	'0'
	'0'
Data content	'1'
	'7'
	'7'
	'0'
LRC Check	'7'
	'1'
END	CR
	LF

RTU Mode

Inquiry message format

Address	01H
Function	06H
Data address	01H
	00H
Data content	17H
	70H
CRC CHK Low	86H
CRC CHK High	22H

Response message format

Address	01H
Function	06H
Data address	01H
	00H
Data content	17H
	70H
CRC CHK Low	86H
CRC CHK High	22H

Function Code 08: Loop DetectionFunction
Under this function, if thefunction address is 00, messagesthat the secondary inverter responds to the upper will bethe same as it hasreceived.

ASCII Mode

Inquiry message string format

STX	':'
Address	'0'
	'1'
Function	'0'
	'8'
Sub-Function Hi	'0'
	'0'
Sub-Function LO	'0'
	'0'
Data content Hi (Any Data)	'1'
	'2'
Data content Lo (Any Data)	'A'
	'B'
LRC Check	'3'
	'A'
END	CR
	LF

Response message string format

STX	':'
Address	'0'
	'1'
Function	'0'
	'8'
Sub-Function Hi	'0'
	'0'
Sub-Function LO	'0'
	'0'
Data content Hi (Any Data)	'1'
	'2'
Data content Lo (Any Data)	'A'
	'B'
LRC Check	'3'
	'A'
END	CR
	LF

RTU Mode

Inquiry message format

Address	01H
Function	08H
Sub-function Hi	00H
Sub-function Lo	00H
Data content	12H
	ABH
CRC CHK Low	ADH
CRC CHK High	14H

Response message format

Address	01H
Function	08H
Sub-function Hi	00H
Sub-function Lo	00H
Data content	17H
	70H
CRC CHK Low	ADH
CRC CHK High	14H

Check code inASCII format (LRC):
In this format, checksum isthe value added up fromAddress to Data Content.E.g. Checksum for the above-mentioned 03 searchedinfo is: 01H +03H +21H + 02H +00H +02H=29H, then take the complement with respectto 2, that is,equal toD7H

Check code in RTU format (CRC):
In this format, checksum isthe value added up fromAddress to Data Content.The operational rule is listed below:
Step 1: Set 16-bit register(CRC register) = FFFFH.
Step 2: Exclusive OR whichmeans command for the first8-bit byte and the lowbit 16-bit CRC register is taken as anExclusive.OR: Store the result inCRC register.
Step 3: Move 1 bit right to CRC register andfil 0 in the highbit.
Step 4: Check the valuefor right shift. If itis 0,, restore the newvalue in step 3 toCRC register. Otherwise, Exclusive ORA001H and CRC registerwill store the result inCRC register.
Step 5: Repeat step 3to step 4 till all8-bit bytes are completed operation..
Step 6: Repeat step 2to step 5 and takeone 8-bit command till allthe info commands are done.
Finally, the valuefor CRC register (CRC checksum)will turn out. It isnotable that the CRC check must be exchanged andput into the checksum ofthe info command.
The following is an exampleof CRC check in Clanguage.

```
unsigned char* data
unsigned char length
unsigned int crc_chk(unsigned char* data, unsigned char length)
{
 int j;
 unsigned int reg_crc=0Xffff;
 while(length--){
 reg_crc ^= *data++;
 for(j=0;j<8;j++){
 if(reg_crc & 0x01){ /* LSB(b0)=1 */
 reg_crc=(reg_crc>>1) ^ 0Xa001;
 }else{
 reg_crc=reg_crc >>1;
       }
    }
 }
 return reg_crc;
```

Finally , Pass backCRC register value.