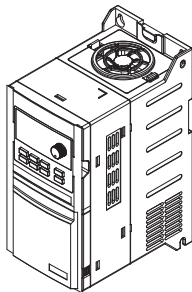


Canroon

CV900G系列通用型矢量变频器

CV900G Series Vector Control General Inverter

使用手册 Instruction Manual



使用前请务必仔细阅读此手册
Please read this manual before use

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一、产品技术指标及规格

输入	额定电压, 频率	三相 (4T) 380V; 47~63Hz 单相 (2S) 220V; 47~63Hz	
	电压允许变动范围	三相 (4T) 320V~480V 单相 (2S) 160V~260V	
输出	电压	4T; 0~480V 2S; 0~260V	
	频率	低频模式: 0~300Hz 高频模式: 0~3000Hz	
	过载能力	G型机: 110% 长期 150% 1分钟 180% 5秒 P型机: 105% 长期 120% 1分钟 150% 1秒	
控制方式		V/F控制、高级V/F控制、V/F分离控制、电流矢量控制	
控制特性	频率设定分辨率	模拟端输入	最大输出频率的0.1%
		数字设定	0.01Hz
	频率精度	模拟输入	最大输出频率的0.2% 以内
		数字输入	设定输出频率的0.01% 以内
	V/F控制	V/F曲线 (电压频率特性)	基准频率在5~600Hz任意设定, 多点V/F曲线任意设定, 亦可选择恒转矩、低减转矩 1、低减转矩 2、平方转矩等多种固定曲线
		转矩提升	手动设定: 额定输出的0.0~30.0% 自动提升: 根据输出电流并结合电机参数自动确定提升转矩
		自动限流与限压	无论在加速、减速或稳定运行过程中, 皆自动侦测电机定子电流和电压, 依据独特算法将其抑制在允许的范围内, 将系统故障跳闸的可能性减至最小
	无感矢量控制	电压频率特性	根据电机参数和独特算法自动调整输出压频比

控制特性	无感矢量控制	转矩特性	起动转矩： 3.0Hz时150%额定转矩（VF控制） 0.5Hz时180%额定转矩（SVC） 速度波动： $\leq \pm 0.5\%$ 额定同步转速 转矩响应：SVC $\leq 20\text{ms}$
		电机参数自测定	不受任何限制，在电机静态及动态下均可完成参数的自动检测，以获得最佳控制效果
		电流与电压抑制	全程电流闭环控制、完全避免电流冲击，具备完善的过流过压抑制功能
		运行中欠压抑制	特别针对低电网电压和电网电压频繁波动的用户，即使在低于允许的电压范围内，系统亦可依据独特之算法和残能分配策略，维持最长可能的运行时间
典型功能	多段速与摆频运行	16段可编程多段速控制、多种运行模式可选。摆频运行：预置频率、中心频率可调，断电后的状态记忆和恢复	
	PID控制 RS485通讯	内置PID控制器（可预置频率）。 标准配置RS485通信功能，具备联动同步控制功能	
	频率设定	模拟输入	直流电压0~10V，直流电流0~20mA（上、下限可选）
		数字输入	操作面板设定，RS485接口设定，UP/DW端子控制，也可以与模拟输入进行多种组合设定
	输出信号	数字输出	2路OC输出和一路故障继电器输出（TA,TB,TC），多达16种意义选择
		模拟输出	2路模拟信号输出，输出范围在0~20mA或0~10V之间灵活设置，可实现设定频率、输出频率等物理量的输出
	自动稳压运行	根据需要可选择动态稳压、静态稳压、不稳压三种方式，以获得最稳定的运行效果	
	加、减速时间设定	0.1s~3600min连续可设定，S型、直线型模式可选	
	制动	能耗制动	能耗制动起始电压、回差电压及能耗制动率连续可调整
		直流制动	停机直流制动起始频率：0.00~【F0.16】上限频率 制动时间：0.0~100.0s； 制动电流：0.0%~150.0%额定电流
		磁通制动	0~100 0：无效
	低噪音运行	载波频率1.0KHz~16.0KHz连续可调，最大限度降低电机噪声	

典型功能	转速追踪速再启动功能		可实现运转中电机的平滑再启动及瞬停再启动功能
	计数器		内部计数器一个，方便系统集成
	运行功能		上、下限频率设定，频率跳跃运行，反转运行限制，转差频率补偿，RS485通讯，频率递增、递减控制，故障自恢复运行等
显示	操作面板显示	运行状态	输出频率，输出电流，输出电压，电机转速，设定频率，模块温度，PID设定，反馈量，模拟输入输出等
		报警内容	最近六次故障记录，最近一次故障跳闸时的输出频率、设定频率、输出电流、输出电压、直流电压、模块温度等6项运行参数记录
保 护 功 能			过电流，过电压，欠压，模块故障，电子热继电器，过热，短路，输入及输出缺相，电机参数调谐异常，内部存储器故障等
环境	周围温度		-10℃~+40℃（环境温度在40℃~50℃，请降额使用）
	周围湿度		5%~95%RH，无水珠凝结
	周围环境		室内（无阳光直射、无腐蚀、易燃气体，无油雾、尘埃等）
	海拔		1000米以上降额使用，每升高1000米降额10%
结构	防护等级		IP20S
	冷却方式		风冷，带风扇控制
安 装 方 式			壁挂式，柜式

二、变频器的安全及安装注意事项

2.1 安全、安装注意事项、使用环境及安装方向与空间

2.1.1 安全注意事项

- ▲ 不能安装在含有爆炸性气体的环境里，否则有引发爆炸的危险。
- ▲ 必须由具有专业资格的人员进行配线作业，否则有触电的危险。确认输入电源处于完全断开的情况下进行配线作业，否则有触电危险。
- ▲ 本装置在通电后，请勿接触控制端子、内部线路板及其元器件，否则有触电危险。
- ▲ 使用时对变频器的接地端子，请依据国家电气安全规定和其他有关标准，正确、可靠地接地。
- ▲ 关闭电源，在键盘显示熄灭后5分钟之内，请勿触摸机内电路板及任何零部件，且必须用仪表确认机内已放电完毕，方可实施机内作业，否则有触电危险。
- ▲ 不能安装在含有爆炸性气体的环境里，否则有引发爆炸的危险。
- ▲ 必须由具有专业资格的人员进行配线作业，否则有触电的危险。确认输入电源处于完全断开的情况下进行配线作业，否则有触电危险。
- ▲ 本装置在通电后，请勿接触控制端子、内部线路板及其元器件，否则有触电危险。
- ▲ 使用时对变频器的接地端子，请依据国家电气安全规定和其他有关标准，正确、可靠地接地。
- ▲ 关闭电源，在键盘显示熄灭后5分钟之内，请勿触摸机内电路板及任何零部件，且必须用仪表确认机内已放电完毕，方可实施机内作业，否则有触电危险。
- ▲ 绝不可将交流电源接至变频器的输出端子（U、V、W）上，电源进线只能接到R、S、T（或者单相电源变频器的L1、L2）端子上。
- ▲ 人体静电有可能损坏设备内部MOS器件，如未采取防静电措施，请勿触摸印刷电路板及IGBT等器件。
- ▲ 不要将螺丝、垫片等金属类异物掉进变频器内部，否则有火灾及变频器损坏的危险。
- ▲ 绝不可将交流220V接到变频器内部控制端子上，否则会严重损坏变频器。
- ▲ 启动后如果出现过流保护，请再次确认外部接线无误后，再上电运行。
- ▲ 请勿以拉闸方式（断电）停机，等电机运行停止后再断开电源。
- ▲ 不要将设备安装在阳光直射的地方。

2.1.2 安装注意事项



1. 接线前，请确认输入电源已切断。
有触电和火灾的危险。
2. 请电气工程专业人员进行接线作业。
有触电和火灾的危险。
3. 接地端子一定要可靠接地。
有触电和火灾的危险。
4. 紧急停车端子接通后，一定要检查其动作是否有效。
有受伤的危险。（接线责任由使用者承担）
5. 请勿直接触摸输出端子。变频器的输出端子直接与电动机相连。输出端子之间切勿短接。
有触电及引起短路的危险。
6. 通电前，请务必安装好端子外罩。拆卸外罩时，务必先断开电源。
有触电的危险。



切断电源后，请再等10分钟让机内剩电基本放净，方可进行检查与保养。
电解电容上有残余电压的危险。



1. 请确认进线的电源电压与变频器的额定输入电压是否一致。
有受伤和火灾的危险。
2. 请按接线图连接制动电阻或制动单元。
有火灾的危险。
3. 最好选用指定力矩的螺丝刀和扳手紧固端子。
有火灾的危险。
4. 请勿将输入电源线接到输出U、V、W端子上。
电压加在输出端子上，会导致变频器内部损坏
5. 请勿拆卸前面板外罩，接线时仅需拆卸端子外罩。
可能导致变频器内部损坏。

2.1.3 使用环境

- ① 无腐蚀性气体、蒸气、灰尘及油性灰尘，不受阳光直射。
- ② 无漂浮性的尘埃及金属微粒场所。
- ③ 环境湿度20%~90% RH。
- ④ 振动小于5.9m/s² (0.6g)
- ⑤ 无电磁干扰场所。
- ⑥ 使用环境温度为-10℃~40℃，若环境温度超过40℃以上时，请置于通风良好场所。
- ⑦ 非标准环境时请用电控箱或远程控制方式，必须注意通风散热。变频器的寿命与安装环境及使用关系较大，但即使一切都符合安装环境的要求，如果长时间连续使用，其内的电解电容器寿命不超过5年，散热风扇的寿命约3年。我们建议您提前对变频器进行更新或大保养。

2.1.4 安装方向与空间

为使冷却循环效果良好，必须将变频器垂直安装，其上下左右与相邻的物品或挡板（墙）必须保持足够的空间。

2.2 变频器铭牌说明及产品型号

2.2.1 变频器铭牌说明

CV900G - 037 G/P - 1 4 T F				
①	②	③	④	⑤ ⑥ ⑦
①	产品系列	CV900G (变频器型号) 通用型矢量变频器		
②	机型功率	00A: 0.4KW ~ 500: 500KW		
③	负载类型	G: 恒转矩	P: 变转矩	
④	输出	1: 三相	2: 单相	
⑤	电压等级	1: 110V	2: 220V	4: 380V
⑥	输入	S: 单相	T: 三相	
⑦	冷却方式	F: 风冷	W: 水冷	

变频器型号 → Type: CV900G-037G/045P-14TF

功率等级 → Power: 37/45 kW

输入规格 → Input: AC 3PH 380~480V 47~63Hz

输出规格 → Output: 3PH 0~480V 0~300Hz 75A/90A

产品序列号 → S/N:

CE EAC

MADE IN CHINA

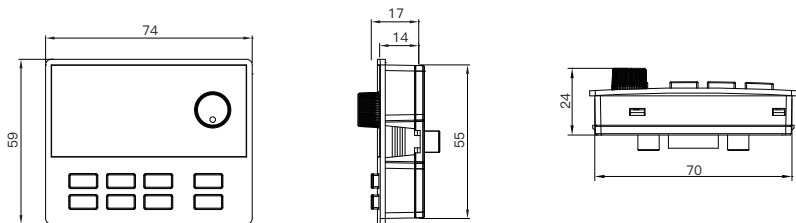
2.2.2 产品系列

电压等级	型 号	额定功率 (KW)	额定输出电流 (A)
单相220V	CV900G-00AG-12SF	0.4	2.4
单相220V	CV900G-00BG-12SF	0.75	4.5
单相220V	CV900G-001G-12SF	1.5	7
单相220V	CV900G-002G-12SF	2.2	10
单相220V	CV900G-003G-12SF	3	13
单相220V	CV900G-004G-12SF	3.7	16
单相220V	CV900G-005G-12SF	5.5	20
单相220V	CV900G-007G-12SF	7.5	30
单相220V	CV900G-011G-12SF	11	42
三相380V	CV900G-00BG-14TF	0.75	2.5
三相380V	CV900G-001G-14TF	1.5	3.7
三相380V	CV900G-002G-14TF	2.2	5
三相380V	CV900G-003G/004P-14TF	3/3.7	6.8/9
三相380V	CV900G-004G/005P-14TF	3.7/5.5	9/13
三相380V	CV900G-005G/007P-14TF	5.5/7.5	13/17
三相380V	CV900G-007G/011P-14TF	7.5/11	17/25
三相380V	CV900G-011G/015P-14TF	11/15	25/32
三相380V	CV900G-015G/018P-14TF	15/18.5	32/37
三相380V	CV900G-018G/022P-14TF	18.5/22	37/45
三相380V	CV900G-022G/030P-14TF	22/30	45/60

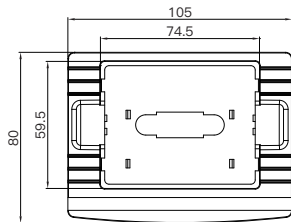
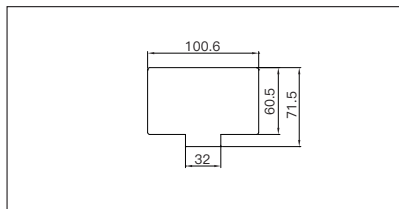
电压等级	型 号	额定功率 (KW)	额定输出电流 (A)
三相380V	CV900G-030G/037P-14TF	30/37	60/75
三相380V	CV900G-037G/045P-14TF	37/45	75/90
三相380V	CV900G-045G/055P-14TF	45/55	90/110
三相380V	CV900G-055G/075P-14TF	55/75	110/150
三相380V	CV900G-075G/090P-14TF	75/90	150/176
三相380V	CV900G-090G/110P-14TF	90/110	176/210
三相380V	CV900G-110G/132P-14TF	110/132	210/253
三相380V	CV900G-132G/160P-14TF	132/160	253/300
三相380V	CV900G-160G/185P-14TF	160/185	300/340
三相380V	CV900G-185G/200P-14TF	185/200	340/380
三相380V	CV900G-200G/220P-14TF	200/220	380/420
三相380V	CV900G-220G-14TF	220	420
三相380V	CV900G-250G-14TF	250	470
三相380V	CV900G-280G-14TF	280	520
三相380V	CV900G-315G-14TF	315	600
三相380V	CV900G-355G-14TF	355	640
三相380V	CV900G-400G-14TF	400	750
三相380V	CV900G-450G-14TF	450	830
三相380V	CV900G-500G-14TF	500	930

2.3 外形尺寸和安装尺寸

2.3.1 键盘外形尺寸

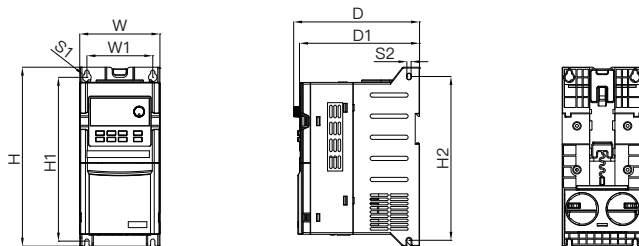


键盘 (单位: mm)

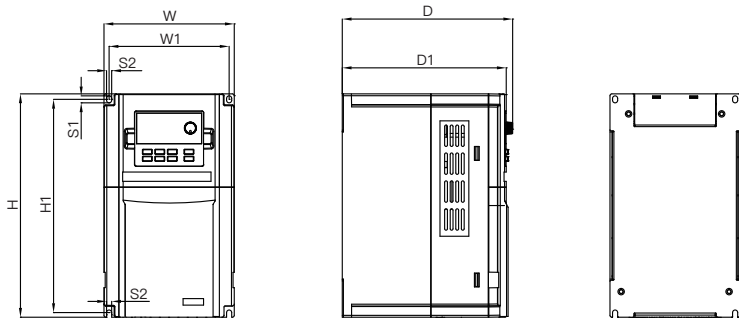


键盘底座及安装尺寸 (单位: mm)

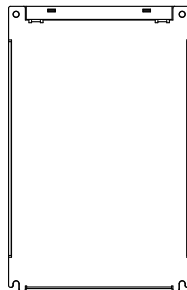
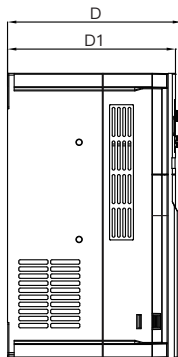
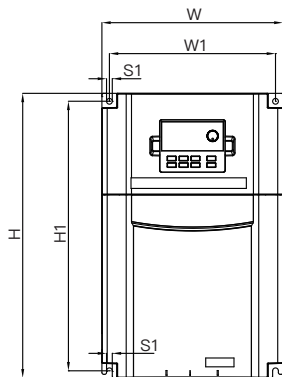
2.3.2 产品外形尺寸和安装尺寸



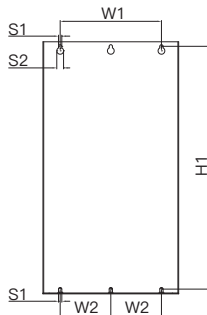
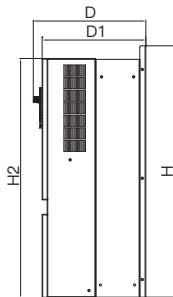
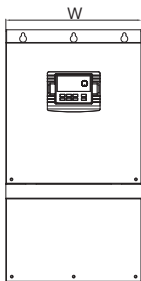
型 号	W(mm)	H(mm)	D(mm)	W1(mm)	H1(mm)	H2(mm)	D1(mm)	S1(mm)	S2(mm)
CV900G-00AG-12SF	95	212	149	78	194	194	142	Ø10	Ø5
CV900G-00BG-12SF	95	212	149	78	194	194	142	Ø10	Ø5
CV900G-001G-12SF	95	212	149	78	194	194	142	Ø10	Ø5
CV900G-002G-12SF	95	212	149	78	194	194	142	Ø10	Ø5
CV900G-003G-12SF	95	212	149	78	194	194	142	Ø10	Ø5
CV900G-00BG-14TF	95	212	149	78	194	194	142	Ø10	Ø5
CV900G-001G-14TF	95	212	149	78	194	194	142	Ø10	Ø5
CV900G-002G-14TF	95	212	149	78	194	194	142	Ø10	Ø5
CV900G-003G/004P-14TF	95	212	149	78	194	194	142	Ø10	Ø5
CV900G-004G/005P-14TF	95	212	149	78	194	194	142	Ø10	Ø5
CV900G-005G/007P-14TF	95	212	149	78	194	194	142	Ø10	Ø5



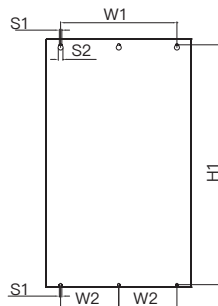
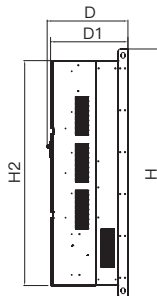
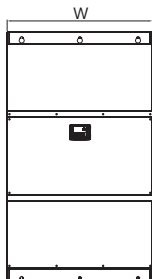
型 号	W(mm)	H(mm)	D(mm)	W1(mm)	H1(mm)	D1(mm)	S1(mm)	S2(mm)
CV900G-004G-12SF	140	240	183	129	229	176	Ø8	Ø6
CV900G-005G-12SF	140	240	183	129	229	176	Ø8	Ø6
CV900G-007G/011P-14TF	140	240	183	129	229	176	Ø8	Ø6
CV900G-011G/015P-14TF	140	240	183	129	229	176	Ø8	Ø6



型 号	W(mm)	H(mm)	D(mm)	W1(mm)	H1(mm)	D1(mm)	S1(mm)
CV900G-007G-12SF	205	322	197	188	305	190	Ø7
CV900G-011G-12SF	205	322	197	188	305	190	Ø7
CV900G-015G/018P-14TF	205	322	197	188	305	190	Ø7
CV900G-018G/022P-14TF	205	322	197	188	305	190	Ø7
CV900G-022G/030P-14TF	205	322	197	188	305	190	Ø7



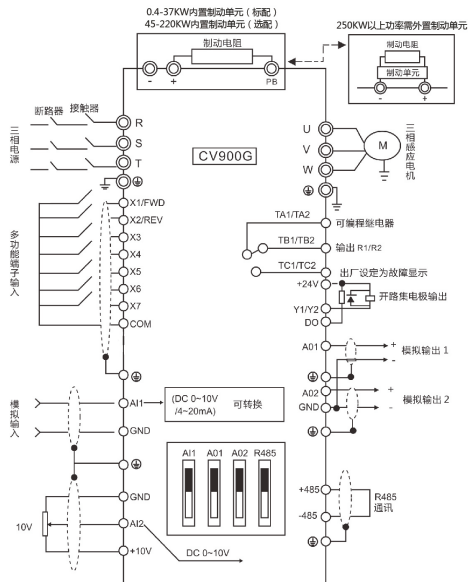
型号	W(mm)	H(mm)	D(mm)	W1(mm)	W2(mm)	H1(mm)	H2(mm)	D1(mm)	S1(mm)	S2(mm)
CV900G-030G/037P-14TF	270	463	223.9	201.5		444.5	437.7	206.3	Ø6.5	Ø13.5
CV900G-037G/045P-14TF	270	463	223.9	201.5		444.5	437.7	206.3	Ø6.5	Ø13.5
CV900G-045G/055P-14TF	320	522	257.6	200	100	499	489	240	Ø9	Ø16.5
CV900G-055G/075P-14TF	320	522	257.6	200	100	499	489	240	Ø9	Ø16.5
CV900G-075G/090P-14TF	340	720	305.6	260	130	700.5	663	288	Ø9	Ø16.5
CV900G-090G/110P-14TF	340	720	305.6	260	130	700.5	663	288	Ø9	Ø16.5
CV900G-110G/132P-14TF	340	720	305.6	260	130	700.5	663	288	Ø9	Ø16.5
CV900G-132G/160P-14TF	380	720	305.6	260	130	700.5	663	288	Ø9	Ø16.5
CV900G-160G/185P-14TF	380	720	305.6	260	130	700.5	663	288	Ø9	Ø16.5



型号	W(mm)	H(mm)	D(mm)	W1(mm)	W2(mm)	H1(mm)	H2(mm)	D1(mm)	S1(mm)	S2(mm)
CV900G-185G/200P-14TF	470	830	347.1	343	171.5	791	743	329.5	Ø11	Ø24
CV900G-200G/220P-14TF	470	830	347.1	343	171.5	791	743	329.5	Ø11	Ø24
CV900G-220G-14TF	470	830	347.1	343	171.5	791	743	329.5	Ø11	Ø24
CV900G-250G-14TF	540	1060	416.6	420	210	1031.5	970	399	Ø13	Ø26
CV900G-280G-14TF	540	1060	416.6	420	210	1031.5	970	399	Ø13	Ø26
CV900G-315G-14TF	540	1060	416.6	420	210	1031.5	970	399	Ø13	Ø26
CV900G-355G-14TF	650	1090	416.6	420	210	1061.5	1000	399	Ø13	Ø26
CV900G-400G-14TF	650	1090	416.6	420	210	1061.5	1000	399	Ø13	Ø26
CV900G-450G-14TF	750	1280	416.6	600	300	1237	1160	399	Ø13	Ø26
CV900G-500G-14TF	750	1280	416.6	600	300	1237	1160	399	Ø13	Ø26

2.4 基本运行配线

变频器配线部分，分为主回路及控制回路。用户可将输出/输入端子的盖子掀开，此时可看到主回路端子及控制回路端子，用户必须依照下图配线回路正确连接。

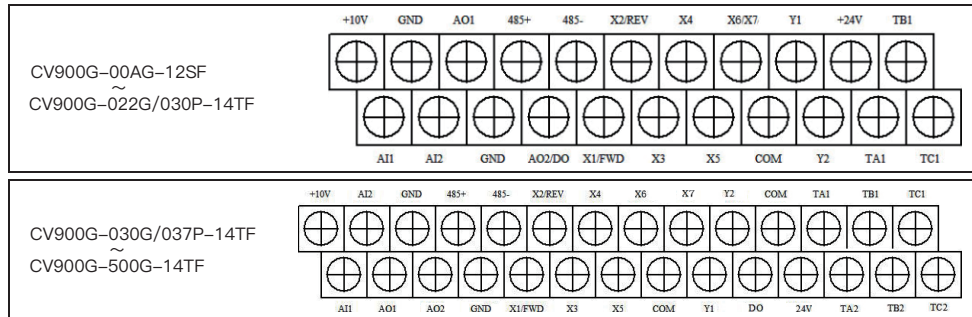


2.5 端子示意图及功能说明

2.5.1 主回路端子功能说明

端子标识	端子名称	端子功能描述
R、S、T	交流输入	三相交流（3PH 380/220V）输入端子，与电网连接
L1、L2	交流输入	单相交流（1PH 220V）输入端子，与电网连接
(+)、(-)	直流母线正、负端子	共直流母线输入点，45KW（G）及以上外置制动单元的连接点
(+)、PB	制动电阻连接端子	37KW（G）及以下制动电阻连接点
U、V、W	变频器输出	三相交流输出端子，接电机
	安全保护接地	安全保护接地端子，每台机器必须可靠接地。

2.5.2 控制回路端子示意图



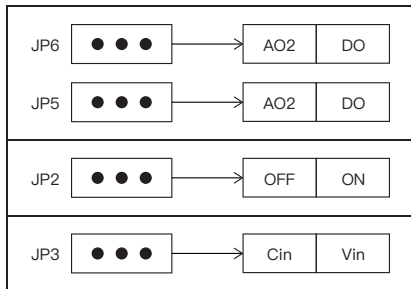
2.5.3 控制回路端子功能说明

类 别	端子标号	功 能 说 明	规 格
多功能数字输入端子	X1	X (X1、X2、X3、X4、X5、X6、X7) ~COM之间短接时有效，其功能分别由参数F7.00~F7.06设定(公共端：COM)	INPUT，0~24V电平信号，低电平有效，5mA。
	X2		
	X3		
	X4		
	X5		
	X6		
	X7	X7除可作为普通多功能端子使用外，还可编程作为高速脉冲输入端口，详见F7.06功能说明	
数字信号输出端子	Y1	多功能可编程集电极开路输出2路，可编程定义为多种功能的开关量输出端子。(公共端：COM)	OUTPUT，最大负载电流不大于50mA
	Y2		
	DO	可编程定义为多种功能的脉冲信号输出端子，可达13种。详见F6.23输出端子功能介绍。(公共端：COM)	OUTPUT，输出频率范围由F6.32~F6.35设置最高频率可至50KHz。
模拟输入输出端子	AI1	AI1接收模拟电压/电流输入，电压、电流由跳线CN4 (AI1跳线端子) 选择，出厂默认输入电压，如果要输入的是电流，只要把跳线帽短接中间和另外一端；AI2只接收电压量输入。量程范围设定见功能码F6.00~F6.11说明。(参考地：GND)	INPUT，输入电压范围：0~10V (输入阻抗：100KΩ)，输入电流范围：0~20mA (输入阻抗：500Ω)。
	AI2		
	AO1	AO1/AO2提供模拟电压/电流量的输出，可表示13种物理量，输出电压、电流由跳线JP4/JP8 (AO1/AO2跳线端子) 选择，出厂默认输出电压，如果要输出电流，只需跳线帽短接中间和另外一端。详见功能码F6.21、F6.22说明。(参考地：GND)	OUTPUT，0~10V直流电压。AO1、AO2端子的输出电压是来自中央处理器的PWM波形。输出电压的大小与PWM波形的宽度成正比。
	AO2		

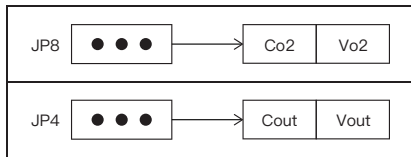
类别	端子标号	功能说明	规格
继电器输出端子	TA1/TA2	两路可编程继电器输出端子，TA1/TA2、TB1/TB2、TC1/TC2 可达99种。详见F7.20出端子功能介绍。	TA-TB：常闭；TA-TC：常开 触点容量：250VAC/2A (COSΦ=1)； 250VAC/1A (COSΦ=0.4), 30VDC/1A
	TB1/TB2		
	TC1/TC2		
电源接口	+24V	24V是数字信号输入端子的电路共同电源（COM为地）	最大输出电流200mA

- ▲ 控制端子AI1既可输入电压信号，也可输入电流信号，而AI2只能输入电压信号；用户使用时应根据信号类型，在主控板上作相应的跳线选择。
- ▲ 连接微弱的模拟信号，容易受外部干扰影响，所以配线应尽可能短。变频器的外部控制线需加装隔离装置或采用屏蔽线且要求接地。
- ▲ 输入指令信号线及频率表等连线除屏蔽外，还应单独走线，最好远离主回路接线。
- ▲ 控制回路接线应大于0.75mm²，建议使用屏蔽双绞线。控制回路端子接线处应搪锡或冷压金属接头。
- ▲ 连接模拟信号输出设备时，有时会由于变频器干扰产生误动作，发生这种情况时，可在外部模拟输出设备侧连接电容器或铁氧体磁环。

2.6 跳线与对应关系



JP5 & JP6	
AO2档	表示AO2/DO的AO2有效，输出电压信号
DO档	表示AO2/DO的DO有效，输出脉冲信号
JP2	
OFF档	表示485通讯上匹配电阻不接入
ON档	表示485通讯上匹配电阻接入
JP3	
Cin档	表示AI1输入电流信号
Vin档	表示AI1输入电压信号



JP8	
VO2档	表示AO2输出电压信号
CO2档	表示AO2输出电流信号
JP4	
Vout档	表示AO1输出电压信号
Cout档	表示AO1输出电流信号

2.7 接线注意事项

- ▲ 拆换电机时，必须切断变频器输入电源。
- ▲ 在变频器停止输出时方可切换电机或进行工频电源的切换。
- ▲ 为尽量减少电磁干扰的影响，当使用的电磁接触器及继电器等距离变频器较近时，应考虑加装浪涌吸收装置。
- ▲ 不可将交流输入电源接到变频器输出端子U，V，W。
- ▲ 变频器的外部控制线需加隔离装置或采用屏蔽线。
- ▲ 输入指令信号连线除屏蔽外还应单独走线，最好远离主回路接线。
- ▲ 载波频率小于4KHz时，变频器与电机间最大距离应在50米以内，载波频率大于4KHz时，应适当减少此距离，此接线最好敷设在金属管内。
- ▲ 当变频器加装外围设备（滤波器、电抗器等）时，应首先用1000伏兆欧表测量其对地绝缘电阻，保证不低于4兆欧。
- ▲ 在变频器U、V、W输出端不可以加装进相电容或阻容吸收装置。
- ▲ 若变频器需较频繁启动，勿将电源关断，必须使用控制端子的COM/RUN作起停操作，以免损伤到整流桥。
- ▲ 为防止意外事故发生，接地端子G必须可靠接地（接地阻抗应在10Ω以下），否则会有漏电的状况发生。
- ▲ 主回路配线时，配线线径规格的选择，请依照国家电工法规有关规定进行配线。

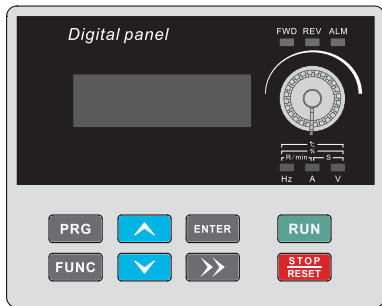
2.8 备用电路

在变频器故障或跳脱时可能产生较大的停机损失或其他意外故障。这种情况下建议增设备用电路，以保安全。

注：备用电路须事先确认及测试运转特性，确保工频与变频的相序一致。

三、操作面板及操作方法

3.1 操作面板按键说明



按键	名称	功能说明
	编程/ 退出键	进入或退出编程状况
	递增键	数据或功能码的递增 (连续按下时, 可提高递增速度)
	递减键	数据或功能码的递减 (连续按下时, 可提高递减速度)
	确认键	进入下级菜单或数据确认
	运行键	在操作键盘方式下, 按该键变频器进入运行状态
	多功能键	在操作键盘方式下, 按该键根据功能参数PE.01的设置做正反转切换或者点动运行及频率清除
	移位/ 监控键	在编辑状态时, 可以选择设定数据的修改位; 在其他状态下, 可切换显示监控参数
	停机/ 复位键	变频器在正常运行状态时, 如果变频器的运行指令通道设置为键盘停机有效方式, 按下该键变频器将按设定的方式停机。变频器在故障状态时, 按下该键将复位变频器, 返回到正常的停机状态
	模拟 电位器	用于频率给定; 当F0.07=0时, 编码器可给定频率数字编码器与递增/递减键为联动控制

3.2 LED 数码管及指示灯说明

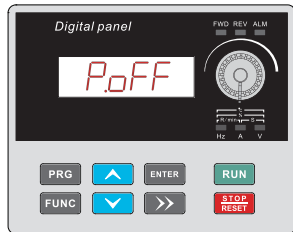
项目			功能说明
状态灯	数码显示		显示变频器当前运行的状态参数及设置参数
	LED指示灯	Hz、A、V	当前数码管显示参数所对应的物理量（电流为安培A、电压为伏特V、频率为赫兹Hz）单位
		ALM	警告指示灯，表明变频器当前处于过电流或过电压抑制状态或故障报警状态中
		FWD	变频器处于正转运行时，该指示灯亮绿灯
		REV	变频器处于反转运行时，该指示灯亮红灯

3.3 单位指示灯及组合说明

单位灯	LED指示灯	A	当前数码管显示参数单位为电流安培，LED指示灯A点亮
		V	当前数码管显示参数单位电压伏特，LED指示灯V点亮
		Hz	当前数码管显示参数单位频率赫兹，LED指示灯Hz点亮
		百分比%	当前数码管显示参数为百分比，LED指示灯Hz和V点亮
		转速r/min	当前数码管显示参数为转速，LED指示灯Hz和A点亮
		线速度m/s	当前数码管显示参数为线速度，LED指示灯V和A点亮
		温度℃	当前数码管显示参数为温度，LED指示灯V、A和Hz点亮

3.4 监控参数显示状态

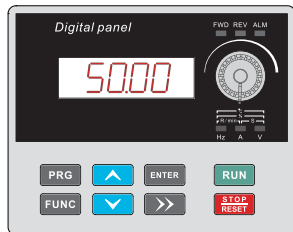
操作键盘的显示状态分为上电初始化显示、功能码参数及监控参数显示、故障报警状态显示、运行状态参数显示四种状态。本机上电后，数码管（LED）会显示“P.OFF”字符，如右图所示，然后进入设定频率显示状态。



上电参数显示状态
(上电初始化，显示“P.OFF”)

变频器处于停机状态，操作键盘显示停机状态监控参数，出厂默认为数字设定频率。如右图所示，单位指示灯显示该参数的单位为Hz。

按 **右箭头** 键，可循环显示不同的停机状态监控参数（默认设置依次为主设定频率、母线电压，两种监控参数）。其它监控参数，可由功能码FE.10~FE.11设置其显示功能，详见功能参数表FE.10~FE.11停机状态监控参数选择设置；也可以不按 **右箭头** 键，而通过设置FE.12十位为1（主辅交替显示），每隔1s自动循环显示停机状态监控参数；还可以通过 **PRG** 键进入监控菜单界面，通过 **上箭头**，**下箭头** 键与 **ENTER** 键的组合，逐一查看各监控参数。

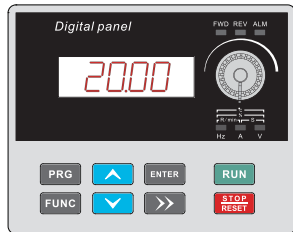


停机参数显示状态
(显示停机时的设定频率“50.00”)

3.5 运行参数显示状态

变频器接到有效的运行命令后，进入运行状态，操作键盘显示运行状态监控参数，出厂默认为输出频率。如右图所示，单位指示灯显示该参数的单位Hz。

按 **>>>** 键，可循环显示运行状态监控参数（默认设置依次为输出频率、输出电流，两种监控参数）。其它监控参数，可由功能码FE.08~FE.09设置其显示功能，详见功能参数表FE.08~FE.09运行状态监控参数选择设置；也可以不按 **>>>** 键，而通过设置FE.12十位为1(主辅交替显示)，每隔1s自动循环显示运行状态监控参数；还可以通过 **PRG** 键进入监控菜单单界面，通过 **▲**，**▼** 键与 **ENTER** 键的组合，逐一查看各监控参数。



运行参数显示状态
(显示运行时的输出频率“20.00”)

3.6 故障报警显示状态

故障报警显示变频器检测到故障信号，即进入故障报警显示状态，显示故障代码，如右图所示：按 **>>>** 键可查看停机后的相关参数；若要查看故障信息，可按 **PRG** 键进入编程状态查询D组参数。查明并排除故障后，可以通过操作键盘的 **STOP RESET** 键、控制端子或通讯命令进行故障复位操作。若故障持续存在，则维持显示故障代码。



加速中过流故障报警显示

注意：对于一些严重故障，如逆变模块保护，过电流、过电压等，在没有确认故障已排除时，绝对不可强行故障复位操作，再次运行，以免损坏变频器。

3.7 功能码编辑显示状态

在停机、运行或故障报警状态下，按下 **PRG** 键，均可进入编辑状态（如果设置了用户密码，输入密码后方可进入编辑状态，参见密码解除说明），编辑状态按二级菜单方式进行显示。按 **ENTER** 键可逐级进入。在功能参数显示状态下，按 **ENTER** 键则进行参数存储操作，按 **PRG** 键则修改的参数不存储，仅可返回上级菜单。

3.8 监控参数查看

例1：监控参数的显示切换

监控界面下，按下 **>>** 键后，根据FD组状态监控参数设置，将自动切换显示监控参数对应的参数值，同时，单位对应的指示灯点亮。

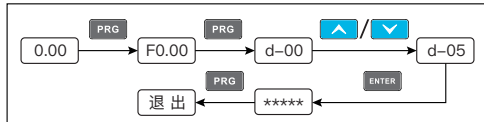
如：监控界面，按 **>>** 键后切换到输出频率D-00，则单位“Hz”对应的指示灯点亮。



例2：查看监控参数项d-05（输出电流）

方法1：

- ① 按 **PRG** 键进入编程状态，数码管显示功能参数F0.00，再按一次 **PRG** 键，数码管显示功能参数 d-00，闪烁位停留在个位，调节 **↑** 键或 **↓** 键，直到监控码项显示d-05。
- ② 按 **ENTER** 键，将会看到d-05对应的数据，同时，其单位“A”对应的指示灯亮。
- ③ 按 **PRG** 键，退出监控状态。



方法2:

在具体监控模式的界面下按  键，跳到下一监控参数项d-xx，按  键调节闪烁位在监控码的个位，再调节  键或  键，直到监控码显示d-05，再按法一的②、③操作即可实现。

例3：故障状态查询故障监控参数

说明：

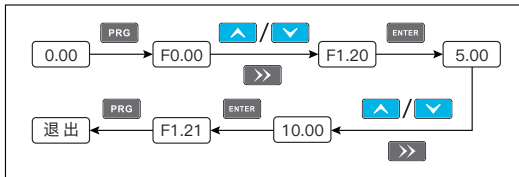
- ① 用户在故障状态下按  键可以查询D组监控参数，查询范围d-00~d-57；
- ② 当用户查询故障参数时，如故障未清除，停止操作5S后，直接自动切换回故障报警显示状态。
- ③ 故障码在d-48~d-57中显示（当前和前三次）。

3.9 功能码参数的设置

本变频器的功能参数体系包括功能码F0~FF、故障代码E组和监控码D组。每个功能组内包括若干功能码。功能码采用功能码组号+功能码号的方式标识，如“F5.08”表示为第5组功能的第8号功能码。功能码设定实例：

例1：将正转启动频率设定由5Hz修改为10Hz（F1.20由5.00Hz改为10.00Hz）

- ① 按  键进入编程状态，LED数码管显示功能参数F0.00，闪烁位停留在个位。
- ② 按  键，可以看到闪烁位在功能项的百位、十位、个位移动。
- ③ 按  键或  键将相应位数字更改。LED数码管显示F1.20。
- ④ 按  键，将会看到F1.20对应的数据（5.00），同时其单位Hz对应的指示灯亮。
- ⑤ 按  键，闪烁位到最高位“5”，按五次  键，改为10.00。
- ⑥ 按  键，保存F1.20的值并自动显示下一个功能码（F1.21）。
- ⑦ 按  键，退出编程状态。



3.10 设置用户密码后进入功能码编辑状态的操作

用户密码设定功能用于禁止非授权人员查阅和修改功能参数。用户密码F0.00出厂设定值为“00000”，用户在此界面下可进行参数设置(注意此处参数设置仅不受密码保护限制，但受其它条件限制，包括但不限于运行中可修改不可修改，监控参数内容等)。

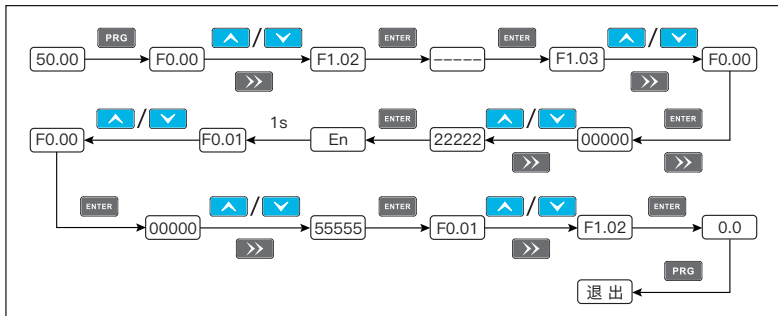
设置用户密码时，输入五位数，按 **ENTER** 键确认，3分钟后或直接掉电密码自动生效。密码生效后，如不正确设置密码，键盘显示“-Err-”，此时查看其它功能码，除密码项外(密码项显示“00000”)，均显示“-----”，用户不能设置功能码参数。密码设置成功后，键盘显示“-En--”，方可查看、修改功能码。

需要更改密码时，选择F0.00功能码，按下 **ENTER** 键进入密码验证状态，密码验证成功后，进入修改状态，输入新密码，并按 **ENTER** 键确认，密码更改成功，3分钟后或直接掉电，密码自动生效。

例1：将用户密码“22222”改为“55555”后，查看功能代码F1.02

- ① 按 **PRG** 键进入编程状态，LED数码管显示功能参数F0.00，闪烁位停留在个位。
- ② 按 **>>** 键，可以看到闪烁位在功能项的百位、十位、个位移动。
- ③ 按 **^** 键或 **v** 键将相应位数字更改；LED数码管显示F1.02。
- ④ 按 **ENTER** 键，将会看到F1.02对应的数据“-----”。

- ⑤ 按 **ENTER** 键进入F1.03后，重复2，3操作，查看F0.00对应的数据“00000”。
- ⑥ 按 **▲** 键或 **▼** 键将相应位数字更改，LED数码管显示“22222”，密码设置完毕。
- ⑦ 按 **ENTER** 键，将会看到数码管显示“-En--”，同时功能码显示F0.01。
- ⑧ 重复2，3操作，查看F0.00对应的数据“00000”，将其改为“55555”，按 **ENTER** 键后完成密码修改，进入F0.01项。
- ⑨ 重复2，3操作，查看F1.02对应的数据“0.0”，并可通过 **▲** 键或 **▼** 键进行修改。
- ⑩ 按 **PRG** 键，退出编程状态。



四、监控参数组及故障记录与参数简表及使用说明

4.1 监控参数组及故障记录

注：下表中“◆”表示实际检测参数，不能修改

D组-监控参数组及故障记录					
功能码	名称	设定范围	最小单位	出厂设定	更改
d-00	输出频率	0.00~最大输出频率【F0.15】	0.01Hz	0.00	◆
d-01	设定频率	0.00~最大输出频率【F0.15】	0.01Hz	0.00	◆
d-02	电机估算频率	0.00~最大输出频率【F0.15】 注：由电机估算速度折算出的电机运行频率	0.01Hz	0.00	◆
d-03	主设定频率	0.00~最大输出频率【F0.15】	0.01Hz	0.00	◆
d-04	辅助设定频率	0.00~最大输出频率【F0.15】	0.01Hz	0.00	◆
d-05	输出电流	0.0~6553.5A	0.1A	0.0	◆
d-06	输出电压	0~999V	1V	0	◆
d-07	输出转矩	-200.0~+200.0%	0.1%	0.0%	◆
d-08	电机转速 (RPM/min)	0~36000 (RPM/min)	1	0	◆
d-09	电机功率因数	0.00~1.00	0.01	0.00	◆
d-10	运行线速度 (m/s)	0.01~655.35 (m/s)	0.01 m/s	0.00	◆
d-11	设定线速度 (m/s)	0.01~655.35 (m/s)	0.01 m/s	0.00	◆
d-12	母线电压 (V)	0~999V	1V	0	◆
d-13	输入电压 (V)	0~999V	1V	0	◆

功能码	名 称	设 定 范 围	最小单位	出厂设定	更改
d-14	PID设定值 (V)	0.00~10.00V	0.01V	0.00	◆
d-15	PID反馈值 (V)	0.00~10.00V	0.01V	0.00	◆
d-16	模拟输入AI1 (V/mA)	0.00V/0.00mA~10.00V/20.00mA	0.01V	0.00	◆
d-17	模拟输入AI2 (V)	0.00~10.00V	0.01V	0.00	◆
d-18	脉冲频率输入 (KHz)	0.00~50.00KHz	0.01KHz	0.00	◆
d-19	模拟输出AO1 (V/mA)	0.00~10.00V/20mA	0.01V	0.00	◆
d-20	模拟输出AO2 (V)	0.00~10.00V	0.01V	0.00	◆
d-21	输入端子状态	0~7FH 注：展开为二进制后表示由高到低依次为X7/X6/X5/X4/X3/X2/X1	1	0	◆
d-22	输出端子状态	0~FH 注：展开为二进制后表示由高到低依次为R2/R1/Y2/Y1	1	0	◆
d-23	变频器运行状态	0~FFFFH BIT0：运行/停机 BIT1：反转/正转 BIT2：零速运行 BIT3：保留 BIT4：加速中 BIT5：减速中 BIT6：恒速运行中 BIT7：预励磁中 BIT8：电机参数调谐中 BIT9：过流限制中 BIT10：过压限制中 BIT11：转矩限幅中	1	0	◆

功能码	名 称	设 定 范 围	最小单位	出厂设定	更改
d-23	变频器运行状态	BIT12: 速度限幅中 BIT13: 速度控制 BIT14: 转矩控制 BIT15: 保留	1	0	◆
d-24	多段速当前段数	0~15	1	0	◆
d-25	脉冲频率输出 (Hz)	0~50000Hz	1Hz	0	◆
d-26	保留	——	——	0	◆
d-27	当前计数值	0~65535	1	0	◆
d-28	设定计数值	0~65535	1	0	◆
d-29	当前定时值(s)	0~65535s	1s	0	◆
d-30	设定定时值(s)	0~65535s	1s	0	◆
d-31	当前长度	0.000~65.535(KM)	0.001KM	0.000	◆
d-32	设定长度	0.000~65.535(KM)	0.001KM	0.000	◆
d-33	散热器温度1	0.0℃~+110.0℃	0.1℃	0.0	◆
d-34	散热器温度2	0.0℃~+110.0℃	0.1℃	0.0	◆
d-35	本机累积运行时间 (H)	0~65535H	1H	0	◆
d-36	本机累积通电时间 (H)	0~65535H	1H	0	◆
d-37	风扇累积运行时间 (H)	0~65535H	1H	0	◆
d-38	累积用电量 (低位)	0~9999KWH	1KWH	0	◆
d-39	累积用电量 (高位)	0~9999KWH (*10000)	1KWH	0	◆

功能码	名 称	设 定 范 围	最小单位	出厂设定	更改
d-40	PID压力反馈	0.00~60.00 (MPa、Kg)	0.01	0.00	◆
d-41	输出功率	0.0~6553.5KW	0.1KW	0.0	◆
d-42	PID压力设定	0.00~60.00 (MPa、Kg)	0.01	0	◆
d-43	专用机型监控参数 (保留)	——	——	0	◆
d-44	专用机型监控参数 (保留)	——	——	0	◆
d-45	专用机型监控参数 (保留)	——	——	0	◆
d-46	专用机型监控参数 (保留)	——	——	0	◆
d-47	专用机型监控参数 (保留)	——	——	0	◆
d-48	前三次故障类型	0~27	1	0	◆
d-49	前二次故障类型	0~27	1	0	◆
d-50	前一次故障类型	0~27	1	0	◆
d-51	当前故障类型	0~27	1	0	◆
d-52	当前故障时的运行频率	0.00~【F0.16】上限频率	0.01Hz	0.00	◆
d-53	当前故障时的输出电流	0.0~6553.5A	0.1A	0.0	◆
d-54	当前故障时的母线电压	0~999V	1V	0	◆
d-55	当前故障时的输入端子状态 注：展开为二进制后表示由高到低依次为X7/X6/X5/X4/X3/X2/X1	0~7FH	1	0	◆
d-56	当前故障时的输出端子状态 注：展开为二进制后表示由高到低依次为R2/R1/Y2/Y1	0~FH	1	0	◆
d-57	当前故障时的变频器运行状态	0~FFFFH	1	0	◆

4.2 功能参数表

注：下表中“○”表示任何状态下均可修改的参数

“◆”表示实际检测参数，不能修改

“×”表示运行状态下不可修改的参数

“◇”表示厂家参数，仅限于厂家修改，用户禁止修改

F0组 - 基本运行参数					
功能码	名 称	设 定 范 围	最小单位	出厂设定	更改
F0.00	用户密码	0~65535 注1：0~9：无密码保护 注2：密码设置成功，需等待3分钟才能生效 注3：写保护对本参数无效且不能被初始化	1	0	○
F0.01	控制软件版本号	1.00~99.99	0.01	1.12	◆
F0.02	面板软件版本号	1.00~99.99	0.01	1.00	◆
F0.03	变频器额定功率	0.4~999.9KW (G/P)	0.1KW	机型设定	◆
F0.04	变频器机型选择	0：G型（恒转矩负载机型） 1：P型（风机、水泵类负载机型） 注1：设置为F型机后，电机参数自动刷新，无须更改任何参数即可作为大一档的风机水泵专用变频器使用 注2：本参数不能被初始化，请手动修改	1	0	×
F0.05	控制方式	0：普通V/F控制（手动转矩提升） 1：高级V/F控制（自动转矩提升） 2：开环电流矢量控制（SVC） 3：保留 4：分离型V/F控制 注：本参数不能被初始化，请手动修改	1	机型设定	×

功能码	名 称	设 定 范 围	最小 单位	出厂 设定	更 改
F0.06	运行命令通道选择	0: 操作面板运行命令通道 1: 端子运行命令通道 2: 通讯运行命令通道	1	0	○
F0.07	主频率源 A 选择	0: 数字给定1 (面板▲/▼键、编码器+F0.12) 1: 数字给定2 (端子UP/DOWN调整+F0.13) 2: 数字给定3 (通讯设定) 3: AI1模拟给定 (0~10V/20mA) 4: AI2模拟给定 (0~10V) 5: 脉冲给定 (0~50KHz) 6: 简易PLC设定 7: 多段速运行设定 8: PID控制设定 9: 面板电位器 (兼容编码器) 10: 面板电位器	1	9	○
F0.08	辅助频率源 B 选择	0: 数字给定1 (面板▲/▼键、编码器+F0.12) 1: 数字给定2 (端子UP/DOWN调整+F0.13) 2: 数字给定3 (通讯设定) 3: AI1模拟给定 (0~10V/20mA) 4: AI2模拟给定 (0~10V) 5: 脉冲给定 (0~50KHz) 6: 简易PLC设定 7: 多段速运行设定 8: PID控制设定 9: 面板电位器 (兼容编码器) 10: 面板电位器	1	3	○

功能码	名 称	设 定 范 围	最小单位	出厂设定	更改
F0.09	频率源给定方式	0: 主频率源A 1: $A + K \cdot B$ 2: $A - K \cdot B$ 3: $ A - K \cdot B $ 4: $\text{MAX}(A, K \cdot B)$ 5: $\text{MIN}(A, K \cdot B)$ 6: 由A切换到 $K \cdot B$ (A优先于 $K \cdot B$) 7: 由A切换到 $(A + K \cdot B)$ (A优先于 $A + K \cdot B$) 8: 由A切换到 $(A - K \cdot B)$ (A优先于 $A - K \cdot B$) 注1: 频率切换需通过端子配合实现 注2: 相对于本频率源给定方式, 摆频控制拥有更高优先级	1	0	○
F0.10	数字给定1控制	LED个位: 掉电存储 0: 存储 1: 不存储 LED十位: 停机保持 0: 保持 1: 不保持	1	000	○
F0.11	数字给定2控制	LED百位: ▲/▼键、UP/DOWN频率负调节 0: 无效 1: 有效 LED千位: 保留	1	000	○
F0.12	频率源数字1设定	0.00Hz ~ 【F0.16】 上限频率	0.01Hz	50.00	○
F0.13	频率源数字2设定	0.00Hz ~ 【F0.16】 上限频率	0.01Hz	50.00	○
F0.14	辅助频率源系数K设定	0.01 ~ 10.00	0.01	1.00	○
F0.15	最大输出频率	低频段: $\text{MAX}\{50.00, \text{【F0.16】}\} \sim 300.00$ 高频段: $\text{MAX}\{50.00, \text{【F0.16】}\} \sim 3000.0$	0.01Hz	50.00	×

功能码	名 称	设 定 范 围	最小 单位	出厂 设定	更 改
F0.16	上限频率	【F0.17】 ~ 【F0.15】	0.01Hz	50.00	○
F0.17	下限频率	0.00Hz ~ 【F0.16】	0.01Hz	0.00	○
F0.18	频率输出模式选择	LED个位：高低频模式选择 0：低频模式 (0.00~300.00Hz) 1：高频模式 (0.0~3000.0Hz) LED十位：加减速基准选择 0：以最大输出频率为基准 1：以目标输出频率为基准 LED百位：保留 LED千位：保留 注：高频模式仅对VF控制有效	1	00	×
F0.19	加速时间1	0.1~3600.0s 0.4~4.0KW 7.5s 5.5~30.0KW 5.0s	0.1s	机型设定	○
F0.20	减速时间1	37.0~132.0KW 30.0s 160.0~630.0KW 60.0s	0.1s	机型设定	○
F0.21	运转方向设定	0：正转 1：反转 2：反转防止	1	0	×
F0.22	载波频率设置	1.0~16.0KHz 0.4~4.0KW 6.0KHz 1.0~16.0KHz 5.5~30KW 4.5KHz 1.0~16.0KHz 37~132KW 3.0KHz 1.0~10.0KHz 160~630KW 1.8KHz 1.0~5.0KHz	0.1KHz	机型设定	○

F1 组 – 辅助运行参数

功能码	名 称	设 定 范 围	最小单位	出厂设定	更改
F1.00	起动方式	0: 起动频率起动 1: 直流制动+起动频率起动 2: 转速跟踪起动	1	0	×
F1.01	起动频率	0.00~50.00Hz 注: 当F0.18=1 (高频模式) 时, 起动频率的取值上限为500.0Hz	0.01Hz	1.00	○
F1.02	起动频率保持时间	0.0~6000.0s	0.1s	0.0	○
F1.03	起动直流制动电流	0.0~150.0%*电机额定电流	0.1%	0.0%	○
F1.04	起动直流制动时间	0.0~100.0s	0.1s	0.0	○
F1.05	加减速方式	0: 直线加减速 1: S曲线加减速	1	0	×
F1.06	S曲线起始段时间比例	10.0~50.0%	0.1%	20.0%	○
F1.07	S曲线结束段时间比例	10.0~50.0%	0.1%	20.0%	○
F1.08	停机方式	0: 减速停机 1: 自由停机	1	0	×
F1.09	停机直流制动起始频率	0.00~【F0.16】上限频率	0.01Hz	0.00	○
F1.10	停机直流制动等待时间	0.0~100.0s	0.1s	0.0	○
F1.11	停机直流制动电流	0.0~150.0%*电机额定电流	0.1%	0.0%	○
F1.12	停机直流制动时间	0.0~100.0s	0.1s	0.0	○

功能码	名 称	设 定 范 围	最小单位	出厂设定	更改
F1.13	加速时间2	0.1~3600.0s 0.4~4.0KW 7.5s 5.5~30.0KW 15.0s 37.0~132.0KW 40.0s 160.0~630.0KW 60.0s	0.1	机型设定	○
F1.14	减速时间2		0.1	机型设定	○
F1.15	加速时间3		0.1	机型设定	○
F1.16	减速时间3		0.1	机型设定	○
F1.17	加速时间4		0.1	机型设定	○
F1.18	减速时间4		0.1	机型设定	○
F1.19	加减速时间单位选择	0: 秒 1: 分 2: 0.1秒	1	0	○
F1.20	点动正转运行频率设定	0.00~ 【F0.16】 上限频率	0.01Hz	5.00	○
F1.21	点动反转运行频率设定	0.00~ 【F0.16】 上限频率	0.01Hz	5.00	○
F1.22	点动加速时间设定	0.1~3600.0s 0.4~4.0KW 7.5s 5.5~30.0KW 15.0s 37.0~132.0KW 30.0s 160.0~630.0KW 60.0s	0.1s	机型设定	○
F1.23	点动减速时间设定		0.1s	机型设定	○
F1.24	点动间隔时间设定	0.0~100.0s	0.1s	0.1	○
F1.25	跳跃频率1	0.00~上限频率	0.01Hz	0.00	○
F1.26	跳跃频率1范围	0.00~上限频率	0.01Hz	0.00	○
F1.27	跳跃频率2	0.00~上限频率	0.01Hz	0.00	○
F1.28	跳跃频率2范围	0.00~上限频率	0.01Hz	0.00	○
F1.29	跳跃频率3	0.00~上限频率	0.01Hz	0.00	○

功能码	名 称	设 定 范 围	最小 单位	出厂 设定	更 改
F1.30	跳跃频率3范围	0.00~上限频率	0.01Hz	0.00	○
F1.31	设定频率低于下限频率时动作	0: 以下限频率运行 1: 经延迟时间后零频运行(启动时无延时) 2: 经延迟时间后停机(启动时无延时)	1	0	×
F1.32	频率低于下限频率时停机延迟时间 (简易休眠)	0.0~3600.0s	0.1s	0.0	○
F1.33	零频制动电流	0.0~150.0%*电机额定电流	0.1	0.0	×
F1.34	正反转死区时间	0.0~100.0s	0.1s	0.0	○
F1.35	正反转切换模式	0: 过零频切换 1: 过起动频率切换	1	0	×
F1.36	紧急停车备用减速时间	0.1~3600.0s	0.1s	1.0	○
F1.37	停机直流制动电流维持时间	0.0~100.0s	0.1s	0.0	○
F2组 - 电机参数					
F2.00	电机类型选择	0: 交流异步电机 1: 永磁同步电机(保留) 注1: 本参数不能被初始化, 请手动修改	1	0	×
F2.01	电机额定功率	0.4~999.9KW	0.1KW	机型设定	×
F2.02	电机额定频率	0.01Hz~【F0.15】最大频率	0.01Hz	50.00	×
F2.03	电机额定转速	0~60000RPM	1RPM	机型设定	×
F2.04	电机额定电压	0~999V	1V	机型设定	×
F2.05	电机额定电流	0.1~6553.5A	0.1A	机型设定	×

功能码	名 称	设 定 范 围	最小 单位	出厂 设定	更 改
F2.06	异步电机定子电阻	0.001~20.000Ω	0.001Ω	机型设定	×
F2.07	异步电机转子电阻	0.001~20.000Ω	0.001Ω	机型设定	×
F2.08	异步电机定, 转子电感	0.1~6553.5mH	0.1mH	机型设定	×
F2.09	异步电机定, 转子互感	0.1~6553.5mH	0.1mH	机型设定	×
F2.10	异步电机空载电流	0.01~655.35A	0.01A	机型设定	×
F2.11 F2.15	保留	——	——	0	◆
F2.16	电机调谐选择	0: 不动作 1: 静态调谐 2: 空载完整调谐	1	0	×
F2.17	异步电机预励磁保持时间	0.00~10.00s 0.4~4.0KW 0.02s 5.5~30KW 0.05s 37~132KW 0.10s 160~630KW 0.20s 注: 本参数对VF控制无效	0.01s	机型设定	×
F3组 - 起重机参数					
F3.00	松闸频率	0.00~50.00Hz	0.01Hz	2.00Hz	○
F3.01	松闸电流	0.0~200.0% 注: 该设定值是电机额定电流的百分比	0.1%	30.0%	○
F3.02	松闸时间	0.0~6000.0s	0.1s	5.0	○
F3.03	抱闸频率	0.00~50.00Hz	0.01Hz	2.00Hz	○

功能码	名 称	设 定 范 围	最小单位	出厂设定	更改
F3.04	抱闸时间	0.0~6000.0s	0.1s	5.0	○
F3.05	保留	——	0	保留	○
F3.06	准停停机频率	0.00~50.00Hz	0.01Hz	8.00	○
F3.07	准停停机频率维持时间	0.0~6000.0s	0.1s	12.0	○
F3.08	准停停机信号检索时间	0.0~6000.0s	0.1s	12.0	○
F3.09	准停频率减速时间	0.0~6000.0s	0.1s	0.5	○
F3.10	准停停机功能	0: 无效 1: 有效	1	0	○
F4组 – 速度环及转矩控制参数					
F4.00	速度环 (ASR1) 比例增益	0.0~12.5	0.1	3.0	○
F4.01	速度环 (ASR1) 积分时间	0.00~25.00s	0.001s	0.50	○
F4.02	ASR1滤波时间常数	0.000~0.100s	0.001s	0.000	○
F4.03	切换低点频率	0.00Hz~【F4.07】	0.01Hz	5.00	○
F4.04	速度环 (ASR2) 比例增益	0.0~12.5	0.1	2.0	○
F4.05	速度环 (ASR2) 积分时间	0.00~25.00s	0.01s	1.00	○
F4.06	ASR2滤波时间常数	0.000~0.100s	0.001s	0.000	○
F4.07	切换高点频率	【F4.03】~【F0.16】上限频率	0.01Hz	10.00	○
F4.08	矢量控制正转差补偿系数 (电动状态)	50.0%~200.0%*额定转差频率	0.1%	100.0%	○
F4.09	矢量控制负转差补偿系数 (制动状态)	50.0%~200.0%*额定转差频率	0.1%	100.0%	○

功能码	名 称	设 定 范 围	最小单位	出厂设定	更改
F4.10	速度与转矩控制选择	0: 速度 1: 转矩 2: 条件有效 (端子切换)	1	0	×
F4.11	速度与转矩切换延时	0.01~1.00s	0.01s	0.05	×
F4.12	转矩指令选择	0: 键盘数字给定 1: AI1 2: AI2 3: 通讯给定	1	0	○
F4.13	键盘数字设定转矩	-200.0%~200.0%*电机额定电流	0.1%	0.0%	○
F4.14	转矩控制模式之速度限定通道选择1 (正向)	0: 键盘数字给定1 1: AI1 2: AI2	1	0	○
F4.15	转矩控制模式之速度限定通道选择1 (反向)	0: 键盘数字给定2 1: AI1 2: AI2	1	0	○
F4.16	键盘数字限定速度1	0.0~100.0%*【F0.15】最大频率	0.1%	100.0%	○
F4.17	键盘数字限定速度2	0.0~100.0%*【F0.15】最大频率	0.1%	100.0%	○
F4.18	转矩上升时间	0.0~10.0s	0.1s	0.1	○
F4.19	转矩下降时间	0.0~10.0s	0.1s	0.1	○
F4.20	矢量模式之电动转矩限定	G型: 0.0%~200.0%*电机额定电流 180.0% P型: 0.0%~200.0%*电机额定电流 120.0%	0.1%	机型设定	○
F4.21	矢量模式之制动转矩限定	G型: 0.0%~200.0%*电机额定电流 180.0% P型: 0.0%~200.0%*电机额定电流 120.0%	0.1%	机型设定	○

功能码	名 称	设 定 范 围	最小 单位	出厂 设定	更 改
F4.22	转矩检出动作选择	0: 检出无效 1: 恒速中检出过转矩后继续运行 2: 运行中检出过转矩后继续运行 3: 恒速中检出过转矩后切断输出 4: 运行中检出过转矩后切断输出 5: 恒速中检出不足转矩后继续运行 6: 运行中检出不足转矩后继续运行 7: 恒速中检出不足转矩后切断输出 8: 运行中检出不足转矩后切断输出	1	0	×
F4.23	转矩检出水平	G型: 0.0%~200.0%*电机额定电流 150.0% P型: 0.0%~200.0%*电机额定电流 110.0%	0.1%	机型设定	×
F4.24	转矩检出时间	0.0~10.0s	0.1s	0.0	×
F4.25	静摩擦系数截止频率	0.00~300.00Hz	0.01Hz	10.00	○
F4.26	静摩擦系数设定	0.0~200.0	0.1	0.0	○
F4.27	静摩擦系数维持时间	0.00~600.00s	0.01s	0.00	×
F5组-V/F控制参数					
F5.00	V/F曲线设定	0: 线性曲线 1: 降转矩曲线1 (1.3次幂) 2: 降转矩曲线2 (1.5次幂) 3: 降转矩曲线3 (1.7次幂) 4: 平方曲线 5: 用户设定V/F曲线 (由F5.01~F5.06确定) 6: 电梯专用曲线 (电梯上行曲线由F5.01~F5.06确定, 电梯下行曲线由F5.27~F5.32确定)	1	0	×

功能码	名 称	设 定 范 围	最小单位	出厂设定	更改
F5.01	V/F曲线1频率值F1	0.00~ 【F5.03】	0.01Hz	12.50	×
F5.02	V/F曲线1电压值V1	0.00~ 【F5.04】	0.1%	25.0%	×
F5.03	V/F曲线1频率值F2	【F5.01】 ~ 【F5.05】	0.01Hz	25.00	×
F5.04	V/F曲线1电压值V2	【F5.02】 ~ 【F5.06】	0.1%	50.0%	×
F5.05	V/F曲线1频率值F3	【F5.03】 ~ 【F2.02】 电机额定频率	0.01Hz	37.50	×
F5.06	V/F曲线1电压值V3	【F5.30】 ~ 100.0%* 【F2.04】 电机额定电压	0.1%	75.0%	×
F5.07	转矩提升设置	0.0~30.0%*电机额定电压 【F2.04】 注：0.0代表转矩提升值为0，而不是自动提升	0.1%	机型设定	×
F5.08	转矩提升截止频率	0.00~电机额定频率	0.01Hz	15.00	×
F5.09	V/F控制转差频率补偿	0.0~200.0%*额定转差	0.1%	0.0%	○
F5.10	V/F控制转差补偿滤波系数	1~10	1	3	○
F5.11	V/F控制转矩补偿滤波系数	0~10	1	机型设定	○
F5.12	分离型V/F控制选择	0：VF半分离模式，电压开环输出 1：VF半分离模式，电压闭环输出 2：VF完全分离模式，电压开环输出 3：VF完全分离模式，电压闭环输出 注1：当选择VF分离控制时，请将变频器的死区补偿功能关闭 注2：半分离的概念就是起动过程中变频器的频率和电压依然保持变频变压的关系，当频率到达设定频率后，电压和频率才分离	1	0	×

功能码	名 称	设 定 范 围	最小单位	出厂设定	更改
F5.13	电压给定通道	0: 数字给定 1: AI1 2: AI2	1	0	○
F5.14	电压闭环输出之电压反馈通道	0: AI1 1: AI2 注: 本参数仅对闭环输出模式有效	1	0	×
F5.15	数字设定输出电压值	0.0~200.0%*电机额定电压 注: 开环输出模式下, 最大输出电压为100.0%电机额定电压	0.1%	100.0%	○
F5.16	电压闭环调整之偏差极限	0.0~5.0%*电机额定电压	0.1%	2.0%	×
F5.17	半分离模式之VF曲线最大电压	0.0~100.0%*电机额定电压 注: 此电压代表变频器的输出电压	0.1%	80.0%	×
F5.18	电压闭环输出之控制器调整周期	0.01~10.00s	0.01s	0.10	×
F5.19	电压上升时间	0.1~3600.0s 注: 本参数仅对完全分离后的电压开环输出方式有效	0.1s	10.0	○
F5.20	电压下降时间		0.1s	10.0	○
F5.21	电压反馈断线处理	0: 告警并以断线时刻电压维持运行 1: 告警并将电压降至限幅电压运行 2: 保护动作并自由停车	1	0	×
F5.22	电压反馈断线检测值	0.0~100.0%*电机额定电压	0.1%	2.0%	○
F5.23	电压反馈断线检测时间	0.0~100.0s	0.1s	10.0	○
F5.24	电压反馈断线之限幅电压	0.0~100.0%*电机额定电压 注: 此电压代表变频器的输出电压, 合理设置此参数可防止断线时刻电压超调导致的设备损坏	0.1%	80.0%	○

功能码	名 称	设 定 范 围	最小单位	出厂设定	更改
F5.25	母线电压欠压检测值	0~1000V 注: 0为无效, 母线电压低于该参数值, 报“E-34”	1V	0	○
F5.26	母线欠压故障复位值	0~1000V 注: 若母线电压达到该设定值时, 欠压故障“E-34”自动复位并启动	1V	0	○
F5.27	V/F曲线2频率值F1	0.00~【F5.29】	0.01Hz	12.50	×
F5.28	V/F曲线2电压值V1	0.00~【F5.30】	0.1%	25.0%	×
F5.29	V/F曲线2频率值F2	【F5.27】~【F5.31】	0.01Hz	25.00	×
F5.30	V/F曲线2电压值V2	【F5.28】~【F5.32】	0.1%	50.0%	×
F5.31	V/F曲线2频率值F3	【F5.29】~【F2.02】电机额定频率	0.01Hz	37.50	×
F5.32	V/F曲线2电压值V3	【F5.30】~100.0%*【F2.04】电机额定电压	0.1%	75.0%	×
F6组-模拟量及脉冲输入与输出参数					
F6.00	AI1输入对应物理量	0: 速度指令 (输出频率, -100.0%~100.0%) 1: 转矩指令 (输出转矩, -200.0%~200.0%) 2: 电压指令 (输出电压, 0.0%~200.0%*电机额定电压)	1	0	×
F6.01	AI1输入下限	0.00V/0.00mA~10.00V/20.00mA	0.01V	0.00	○
F6.02	AI1下限对应物理量设定	-200.0%~200.0% (注: 范围与F6.00关联)	0.1%	0.0%	○
F6.03	AI1输入上限	0.00V/0.00mA~10.00V/20.00mA	0.01V	10.00	○
F6.04	AI1上限对应物理量设定	-200.0%~200.0% (注: 范围与F6.00关联)	0.1%	100.0%	○
F6.05	AI1输入滤波时间	0.00s~10.00s	0.01s	0.05	○

功能码	名 称	设 定 范 围	最小单位	出厂设定	更改
F6.06	AI2输入对应物理量	0: 速度指令 (输出频率, -100.0%~100.0%) 1: 转矩指令 (输出转矩, -200.0%~200.0%) 2: 电压指令 (输出电压, 0.0%~200.0%*电机额定电压)	1	0	×
F6.07	AI2输入下限	0.00V~10.00V	0.01V	0.00	○
F6.08	AI2下限对应物理量设定	-200.0%~200.0% (注: 范围与F6.06关联)	0.1%	0.0%	○
F6.09	AI2输入上限	0.00V~10.00V	0.01V	10.00	○
F6.10	AI2上限对应物理量设定	-200.0%~200.0% (注: 范围与F6.06关联)	0.1%	100.0%	○
F6.11	AI2输入滤波时间	0.00s~10.00s	0.01s	0.05	○
F6.12	模拟量输入防抖偏差极限	0.00V~10.00V	0.01V	0.00	○
F6.13	零频运行阈值	零频回差~50.00Hz 注: 当F0.18=1 (高频模式) 时, 该功能码的取值上限为500.0Hz	0.01Hz	0.00	○
F6.14	零频回差	0.00~零频运行阈值	0.01Hz	0.00	○
F6.15	外部脉冲输入对应物理量	0: 速度指令 (输出频率, -100.0%~100.0%) 1: 转矩指令 (输出转矩, -200.0%~200.0%)	1	0	×
F6.16	外部脉冲输入下限	0.00~50.00KHz	0.01KHz	0.00	○
F6.17	外部脉冲下限对应物理量设定	-200.0%~200.0% (注: 范围与F6.15关联)	0.1%	0.0%	○
F6.18	外部脉冲输入上限	0.00~50.00KHz	0.01KHz	50.00	○
F6.19	外部脉冲上限对应物理量设定	-200.0%~200.0% (注: 范围与F6.15关联)	0.1%	100.0%	○
F6.20	外部脉冲输入滤波时间	0.00~10.00s	0.01s	0.05	○

功能码	名 称	设 定 范 围	最小单位	出厂设定	更改
F6.21	AO1多功能模拟量输出端子功能选择	0: 输出频率 (转差补偿前) 1: 输出频率 (转差补偿后) 2: 设定频率 3: 电机转速 (估算值) 4: 输出电流	1	0	○
F6.22	AO2多功能模拟量输出端子功能选择	5: 输出电压 6: 母线电压 7: PID给定量 8: PID反馈量 9: AI1	1	4	○
F6.23	DO多功能脉冲量输出端子功能选择	10: AI2 11: 输入脉冲频率 12: 转矩电流 13: 磁通电流 14: 通讯设定	1	11	○
F6.24	AO1输出下限对应物理量	-200.0%~200.0%	0.1%	0.0%	○
F6.25	AO1输出下限	0.00~10.00V	0.01V	0.00	○
F6.26	AO1输出上限对应物理量	-200.0%~200.0%	0.1%	100.0%	○
F6.27	AO1输出上限	0.00~10.00V	0.01V	10.00	○
F6.28	AO2输出下限对应物理量	-200.0%~200.0%	0.1%	0.0%	○
F6.29	AO2输出下限	0.00~10.00V	0.01V	0.00	○
F6.30	AO2输出上限对应物理量	-200.0%~200.0%	0.1%	100.0%	○
F6.31	AO2输出上限	0.00~10.00V	0.01V	10.00	○
F6.32	DO输出下限对应物理量	-200.0%~200.0%	0.1%	0.0%	○

功能码	名 称	设 定 范 围	最小单位	出厂设定	更改
F6.33	DO输出下限	0.00~50.00KHz	0.01KHz	0.00	○
F6.34	DO输出上限对应物理量	-200.0%~200.0%	0.1%	100.0%	○
F6.35	DO输出上限	0.00~50.00KHz	0.01KHz	50.00	○
F6.36	AI多点曲线选择	LED个位: AI1多点曲线选择 0: 禁止 1: 有效 LED十位: AI2多点曲线选择 0: 禁止 1: 有效 LED百位: 模拟输入信号选择 0: AI1和AI2输入信号0~10V 1: AI1输入信号4~20mA, AI2输入信号0~10V 2: AI2输入信号4~20mA, AI1输入信号0~10V 3: AI1和AI2输入信号4~20mA LED千位: 保留	1	00	×
F6.37	AI1曲线最小输入	0.00~【F6.39】	0.01V	0.00	○
F6.38	AI1曲线最小输入对应设定	-200.0%~200.0% (注: 范围与F6.00关联)	0.1%	0.0%	○
F6.39	AI1曲线拐点1输入	【F6.37】~【F6.41】	0.01V	3.00	○
F6.40	AI1曲线拐点1输入对应设定	-200.0%~200.0% (注: 范围与F6.00关联)	0.1%	30.0%	○
F6.41	AI1曲线拐点2输入	【F6.39】~【F6.43】	0.01V	6.00	○
F6.42	AI1曲线拐点2输入对应设定	-200.0%~200.0% (注: 范围与F6.00关联)	0.1%	60.0%	○
F6.43	AI1曲线最大输入	【F6.41】~10.00	0.01V	10.00	○
F6.44	AI1曲线最大输入对应设定	-200.0%~200.0% (注: 范围与F6.00关联)	0.1%	100.0%	○

功能码	名 称	设 定 范 围	最小单位	出厂设定	更改
F6.45	AI2曲线最小输入	0.00~【F6.47】	0.01V	0.00	○
F6.46	AI2曲线最小输入对应设定	-200.0%~200.0% (注: 范围与F6.00关联)	0.10%	0.0%	○
F6.47	AI2曲线拐点1输入	【F6.45】~【F6.49】	0.01V	3.00	○
F6.48	AI2曲线拐点1输入对应设定	-200.0%~200.0% (注: 范围与F6.00关联)	0.10%	30.0%	○
F6.49	AI2曲线拐点2输入	【F6.47】~【F6.51】	0.01V	6.00	○
F6.50	AI2曲线拐点2输入对应设定	-200.0%~200.0% (注: 范围与F6.00关联)	0.10%	60.0%	○
F6.51	AI2曲线最大输入	【F6.49】~10.00	0.01V	10.00	○
F6.52	AI2曲线最大输入对应设定	-200.0%~200.0% (注: 范围与F6.00关联)	0.10%	100.0%	○
F6.53	AI1输入电压保护上限	【F6.54】~10.00V	0.01V	6.80	○
F6.54	AI1输入电压保护下限	0.00~【F6.53】	0.01V	3.10	○
F7组-数字量输入与输出参数					
F7.00	输入端子X1功能 (F8.21为非0值时, 默认58号功能)	0: 控制端闲置 1: 正转运行 (FWD) 2: 反转运行 (REV) 3: 三线式运转控制 4: 正转点动控制 5: 反转点动控制 6: 自由停机控制 7: 外部复位信号输入(RST) 8: 外部设备故障常开输入 9: 外部设备故障常闭输入 10: 紧急停车功能 (以最快速度刹车) 11: 外部停机控制	1	1	×

功能码	名 称	设 定 范 围	最小单位	出厂设定	更改
F7.01	输入端子X2功能 (F8.21为非0值时, 默认59号功能)	12: 频率递增指令 13: 频率递减指令 14: UP/DOWN端子频率清零 15: 多段速选择1 16: 多段速选择2 17: 多段速选择3 18: 多段速选择4 19: 加减速时间选择TT1 20: 加减速时间选择TT2	1	2	×
F7.02	输入端子X3功能 (F8.21为非0值时, 默认60号功能)	21: 运行命令通道选择1 22: 运行命令通道选择2 23: 变频器加减速禁止指令 24: 变频器运行禁止指令 25: 运行命令切换至面板 26: 运行命令切换至端子 27: 运行命令切换至通讯 28: 辅助频率清零 29: 频率源 A 与 K*B 切换 30: 频率源 A 与 A + K*B 切换	1	4	×
F7.03	输入端子X4功能 (F8.21为非0值时, 默认61号功能)	31: 频率源 A 与 A - K*B 切换 32: 保留 33: PID控制投入 34: PID控制暂停 35: 摆频控制投入 36: 摆频控制暂停 37: 摆频状态复位 38: PLC控制投入 39: PLC暂停	1	7	×

功能码	名 称	设 定 范 围	最小单位	出厂设定	更改
F7.04	输入端子X5功能 (F8.21为非0值时，默认62号功能)	40: PLC复位 41: 计数器清零信号输入 42: 计数器触发信号输入 43: 定时触发输入 44: 定时清零输入 45: 外部脉冲频率输入（仅对X7有效）	1	8	×
F7.05	输入端子X6功能 (F8.21为非0值时，默认63号功能)	46: 长度清零 47: 长度计数输入（仅对X7有效） 48: 速度与转矩控制切换 49: 转矩控制禁止 50~57: 保留 58: 启动/停 59: 运行允许 60: 联锁1 61: 联锁2 62: 联锁3	1	0	×
F7.06	输入端子X7功能（高速脉冲输入）	63: PFC启/停 64: A频率切B上并运行 65: 第1组PID切换到第2组PID 66: 准停停机信号输入	1	45	×
F7.07	保留	——	——	0	◆
F7.08	开关量滤波次数	1~10 1: 代表2MS扫描时间单位	1	5	○
F7.09	上电时端子功能检测选择	0: 上电时端子运行命令无效 1: 上电时端子运行命令有效	1	0	○

功能码	名 称	设 定 范 围	最小单位	出厂设定	更改
F7.10	输入端子有效逻辑设定 (X1~X7)	0~7FH 0表示正逻辑, 即Xi端子与公共端连通有效, 断开无效 1表示反逻辑, 即Xi端子与公共端连通无效, 断开有效	1	00	×
F7.11	FWD/REV端子控制模式	0: 二线式控制模式1 1: 二线式控制模式2 2: 三线式控制模式1 3: 三线式控制模式2	1	0	×
F7.12	UP/DOWN端子频率修速率	0.01~50.00Hz/s 注: 当F0.18=1 (高频模式) 时, 该功能码的取值上限为500.0Hz/s	0.01Hz/s	1.00	○
F7.13	保留	——	——	0	◆
F7.14	Y1输出延迟时间	0.0~100.0s	0.1s	0.0	×
F7.15	Y2输出延迟时间	0.0~100.0s	0.1s	0.0	×
F7.16	R1输出延迟时间	0.0~100.0s	0.1s	0.0	×
F7.17	R2输出延迟时间	0.0~100.0s	0.1s	0.0	×
F7.18	开路集电极输出端子Y1设定	0: 无输出 1: 变频器正转运行 2: 变频器反转运行 3: 故障输出 4: 频率/速度水平检测信号 (FDT1) 5: 频率/速度水平检测信号 (FDT2) 6: 频率/速度到达信号 (FAR) 7: 变频器零转速运行中指示 8: 输出频率到达上限 9: 输出频率到达下限	1	0	×

功能码	名 称	设 定 范 围	最小单位	出厂设定	更改
F7.19	开路集电极输出端子Y2设定	10: 运行时设定频率下限值到达 11: 变频器过载报警信号 12: 计数器检测信号输出 13: 计数器复位信号输出 14: 变频器运行准备就绪1 15: 可编程多段速运行一个周期完成 16: 可编程多段速阶段运行完成 17: 摆频上下限限制 18: 限流动作中 19: 过压失速动作中 20: 欠压封锁停机 21: 休眠中 22: 变频器告警信号 (PID断线、RS485通讯失败、面板通讯失败、EEPROM读写失败、编码器断线告警等)	1	0	×
F7.20	可编程继电器R1输出	23: AI1 > AI2 24: 长度到达输出 25: 定时时间到达 26: 能耗制动动作 27: 直流制动动作 28: 磁通制动动作中 29: 转矩限定中 30: 过转矩指示 31: 辅助电机1 32: 辅助电机2 33: 累计运行时间到达 34~49: 多段速或简易PLC运行段数指示 50: 运行指示信号 51: 温度到达指示 52: 变频器停机或零速运行中指示	1	3	×

功能码	名 称	设 定 范 围	最小单位	出厂设定	更改
F7.21	可编程继电器R2输出	53: 保留 54: 保留 55: 通讯设定 56: 变频器运行准备就绪2 57: AI1输入超压 58: 输出电流超限 59: 联锁1输出 60: 联锁2输出 61: 联锁3输出 62: 频率与电流检测水平同时到达输出 63: 抱闸信号输出 64: 变频器运行进入到准停停机频率时输出信号	1	0	×
F7.22	输出端子有效逻辑设定 (Y1~Y2)	0~3H 0: 表示正逻辑, 即Yi端子与公共端连通有效, 断开无效 1: 表示反逻辑, 即Yi端子与公共端连通无效, 断开有效	1	0	×
F7.23	频率到达FAR检测宽度	0.0~100.0%* 【F0.15】 最大频率	0.1%	10.0%	○
F7.24	FDT1检出方式	0: 速度设定值 1: 速度检测值	1	0	○
F7.25	FDT1水平设定	0.00Hz~ 【F0.16】 上限频率	0.01Hz	50.00	○
F7.26	FDT1滞后值	0.0~100.0%* 【F7.25】	0.1%	2.0%	○
F7.27	FDT2检出方式	0: 速度设定值 1: 速度检测值	1	0	○
F7.28	FDT2水平设定	0.00Hz~ 【F0.16】 上限频率	0.01Hz	25.00	○
F7.29	FDT2滞后值	0.0~100.0%* 【F7.28】	0.1%	4.0%	○

功能码	名 称	设 定 范 围	最小单位	出厂设定	更改
F7.30	计数到达处理	0: 停止计数, 停止输出 1: 停止计数, 继续输出 2: 循环计数, 停止输出 3: 循环计数, 继续输出	1	3	×
F7.31	计数起动条件	0: 上电即一直起动 1: 运行状态时起动, 停机状态时停止	1	1	×
F7.32	计数器复位值设定	【F7.33】~65535	1	0	○
F7.33	计数器检测值设定	0~【F7.32】	1	0	○
F7.34	定时到达处理	0: 停止定时, 停止输出 1: 停止定时, 继续输出 2: 循环定时, 停止输出 3: 循环定时, 继续输出	1	3	×
F7.35	定时起动条件	0: 上电即一直起动 1: 运行状态时起动, 停机状态时停止	1	1	×
F7.36	定时时间设定	0~65535s	1s	0	○
F7.37	Y1断开延迟时间	0.0~100.0s	0.1s	0.0	×
F7.38	Y2断开延迟时间	0.0~100.0s	0.1s	0.0	×
F7.39	R1断开延迟时间	0.0~100.0s	0.1s	0.0	×
F7.40	R2断开延迟时间	0.0~100.0s	0.1s	0.0	×
F8组—PID控制参数					
F8.00	PID运行投入方式	0: 自动 1: 通过定义的多功能端子手动投入	1	0	×

功能码	名 称	设 定 范 围	最小单位	出厂设定	更改
F8.01	PID给定通道选择	0: 数字给定 1: AI1 2: AI2 3: 脉冲给定 4: RS485通讯 5: 压力给定 (MPa、Kg) 6: 面板电位器给定	1	0	○
F8.02	给定数字量设定	0.0~100.0%	0.1%	50.0%	○
F8.03	PID反馈通道选择	0: AI1 1: AI2 2: AI1+AI2 3: AI1-AI2 4: MAX {AI1, AI2} 5: MIN {AI1, AI2} 6: 脉冲给定 7: RS485通讯	1	0	○
F8.04	PID控制器高级特性设置	LED个位: PID极性选择 0: 正 1: 负 LED十位: 比例调节特性 (保留) 0: 恒定比例积分调节 1: 自动变比例积分调节 LED百位: 积分调节特性 0: 频率到达上下限时, 停止积分调节 1: 频率到达上下限时, 继续积分调节 LED千位: 保留	1	000	×
F8.05	比例增益KP1	0.01~100.00	0.01	5.00	○

功能码	名 称	设 定 范 围	最小单位	出厂设定	更改
F8.06	积分时间Ti1	0.01~10.00s	0.01s	0.05	○
F8.07	微分时间Td1	0.01~10.00s 0.00: 无微分	0.01s	0.00	○
F8.08	采样周期T	0.01~10.00s 0.00: 自动	0.01s	0.10	○
F8.09	偏差极限	0.0~100.0%	0.1%	0.0%	○
F8.10	闭环预置频率	0.00~上限频率	0.01Hz	0.00	○
F8.11	预置频率保持时间	0.0~3600.0s	0.1s	0.0	×
F8.12	睡眠模式	0: 无效 1: 反馈压力超过或低于睡眠阈值时睡眠 2: 反馈压力和输出频率稳定时睡眠 3: 反馈压力高于降频下限阈值时睡眠	1	1	×
F8.13	睡眠停机方式选择	0: 减速停机 1: 自由停机	1.00	0	○
F8.14	进入睡眠时的反馈与设定压力之偏差	0.0~10.0% (注: 本功能参数仅对第二种睡眠模式有效)	0.1%	0.5%	○
F8.15	睡眠阈值	0.0~200.0% (注: 该阈值是给定压力的百分比, 本功能参数仅对第一种睡眠模式有效)	0.1%	100.0%	○
F8.16	苏醒阈值	0.0~200.0% (注: 该阈值是给定压力的百分比)	0.1%	90.0%	○
F8.17	睡眠延迟时间	0.0~3600.0s	0.1s	100.0	○
F8.18	苏醒延迟时间	0.0~3600.0s	0.1s	5.0	○
F8.19	加泵延迟时间	0.0~3600.0s	0.1s	10.0	○
F8.20	减泵延迟时间	0.0~3600.0s	0.1s	10.0	○

功能码	名 称	设 定 范 围	最小单位	出厂设定	更改
F8.21	供水使能 (F8.21~F8.24需外部扩展硬件支持)	0: 无效 1: PFC有效 2: SPFC有效	1	0	×
F8.22	端子接入断开延时	0.0~6000.0s	0.1s	0.1	○
F8.23	轮询时间	0.0~6000.0h	0.1h	48.0	○
F8.24	减泵下限频率	0.0~600.00Hz	0.01Hz	35.00	×
F8.25	传感器量程	0.00~60.00 (MPa、Kg)	0.01	10.00	○
F8.26	压力设定	0.00~【F8.25】 (MPa、Kg)	0.01	5.00	○
F8.27	主泵启动延时	0.0~3600.0s	0.1s	0.3	○
F8.28	辅泵启动方式选择	0: 直启 1: 软启	1	0	×
F8.29	比例增益KP2	0.01~100.00	0.01	1.00	○
F8.30	积分时间Ti2	0.01~10.00s	0.01s	0.10	○
F8.31	微分时间Td2	0.01~10.00s 0.0: 无微分	0.01s	0.00	○
F8.32	PID上限截止频率	【F8.33】~300.00Hz	0.01Hz	50.00	×
F8.33	PID下限截止频率	-300.00Hz~【F8.32】 注: 频率低于-99.99Hz时, 需设置F0.18个位为1	0.01Hz	0.00	×
F8.34	降频时间	0.1~100.0s (注: 仅对F8.12=3时有用)	0.1s	2.0	○
F8.35	降频检测时间	0.1~100.0s (注: 仅对F8.12=3时有用)	0.1s	0.0	○
F8.36	降频前等待时间	0.1~100.0s (注: 仅对F8.12=3时有用)	0.1s	10.0	○

功能码	名 称	设 定 范 围	最小 单位	出厂 设定	更 改
F8.37	降频下限阈值	【F8.38】-100% (注：仅对F8.12=3时有用)	0.1%	95.0%	○
F8.38	睡眠下限阈值	【F8.37】-【F8.16】 (注：仅对F8.12=3时有用)	0.1%	90%	○
F8.39	降频幅值	0.00-50.00 (注：仅对F8.12=3时有用)	0.01	2.00	○
F8.40	睡眠频率	0.00Hz~【F0.16】	0.01Hz	20.00	×
F9组-多段速与PLC运行、摆频与定长控制参数					
F9.00	PLC运行模式选择	0: 单循环后停机 1: 单循环后保持最终值运行 2: 有限次连续循环 3: 连续循环	1	0	×
F9.01	PLC运行投入方式	0: 自动 1: 通过定义的多功能端子手动投入	1	0	×
F9.02	PLC运行掉电记忆	0: 不记忆 1: 记忆掉电时刻的阶段、频率	1	0	×
F9.03	PLC起动方式	0: 从第一段开始重新启动 1: 从停机(故障)时刻的阶段开始起动 2: 从停机(故障)时刻的阶段、频率开始起动	1	0	×
F9.04	有限次连续循环次数	1~65535	1	1	○
F9.05	PLC运行时间	0: s 1: m	1	0	×
F9.06	多段速频率0	-上限频率~上限频率	0.01Hz	5.00	○
F9.07	多段速频率1	-上限频率~上限频率	0.01Hz	10.00	○
F9.08	多段速频率2	-上限频率~上限频率	0.01Hz	15.00	○

功能码	名 称	设 定 范 围	最小单位	出厂设定	更改
F9.09	多段速频率3	-上限频率~上限频率	0.01Hz	20.00	○
F9.10	多段速频率4	-上限频率~上限频率	0.01Hz	25.00	○
F9.11	多段速频率5	-上限频率~上限频率	0.01Hz	30.00	○
F9.12	多段速频率6	-上限频率~上限频率	0.01Hz	40.00	○
F9.13	多段速频率7	-上限频率~上限频率	0.01Hz	50.00	○
F9.14	多段速频率8	-上限频率~上限频率	0.01Hz	0.00	○
F9.15	多段速频率9	-上限频率~上限频率	0.01Hz	0.00	○
F9.16	多段速频率10	-上限频率~上限频率	0.01Hz	0.00	○
F9.17	多段速频率11	-上限频率~上限频率	0.01Hz	0.00	○
F9.18	多段速频率12	-上限频率~上限频率	0.01Hz	0.00	○
F9.19	多段速频率13	-上限频率~上限频率	0.01Hz	0.00	○
F9.20	多段速频率14	-上限频率~上限频率	0.01Hz	0.00	○
F9.21	多段速频率15	-上限频率~上限频率	0.01Hz	0.00	○
F9.22	第0段速加减速间	0~3	1	0	○
F9.23	第0段速运行时间	0.0~6553.5s (M)	0.1s (M)	0.0	○
F9.24	第1段速加减速间	0~3	1	0	○
F9.25	第1段速运行时间	0.0~6553.5s (M)	0.1s (M)	0.0	○
F9.26	第2段速加减速间	0~3	1	0	○
F9.27	第2段速运行时间	0.0~6553.5s (M)	0.1s (M)	0.0	○
F9.28	第3段速加减速间	0~3	1	0	○

功能码	名 称	设 定 范 围	最小 单位	出厂 设定	更 改
F9.29	第3段速运行时间	0.0~6553.5s (M)	0.1s (M)	0.0	○
F9.30	第4段速加减速间	0~3	1	0	○
F9.31	第4段速运行时间	0.0~6553.5s (M)	0.1s (M)	0.0	○
F9.32	第5段速加减速间	0~3	1	0	○
F9.33	第5段速运行时间	0.0~6553.5s (M)	0.1s (M)	0.0	○
F9.34	第6段速加减速间	0~3	1	0	○
F9.35	第6段速运行时间	0.0~6553.5s (M)	0.1s (M)	0.0	○
F9.36	第7段速加减速间	0~3	1	0	○
F9.37	第7段速运行时间	0.0~6553.5s (M)	0.1s (M)	0.0	○
F9.38	第8段速加减速间	0~3	1	0	○
F9.39	第8段速运行时间	0.0~6553.5s (M)	0.1s (M)	0.0	○
F9.40	第9段速加减速间	0~3	1	0	○
F9.41	第9段速运行时间	0.0~6553.5s (M)	0.1s (M)	0.0	○
F9.42	第10段速加减速间	0~3	1	0	○
F9.43	第10段速运行时间	0.0~6553.5s (M)	0.1s (M)	0.0	○
F9.44	第11段速加减速间	0~3	1	0	○
F9.45	第11段速运行时间	0.0~6553.5s (M)	0.1s (M)	0.0	○
F9.46	第12段速加减速间	0~3	1	0	○
F9.47	第12段速运行时间	0.0~6553.5s (M)	0.1s (M)	0.0	○
F9.48	第13段速加减速间	0~3	1	0	○

功能码	名 称	设 定 范 围	最小单位	出厂设定	更改
F9.49	第13段速运行时间	0.0~6553.5s (M)	0.1s (M)	0.0	○
F9.50	第14段速加减速间	0~3	1	0	○
F9.51	第14段速运行时间	0.0~6553.5s (M)	0.1s (M)	0.0	○
F9.52	第15段速加减速间	0~3	1	0	○
F9.53	第15段速运行时间	0.0~6553.5s (M)	0.1s (M)	0.0	○
F9.54	保留	——	——	0	◆
F9.55	摆频控制	0: 禁止 1: 有效	1	0	×
F9.56	摆频运行投入方式	0: 自动 1: 通过定义的多功能端子手动投入	1	0	×
F9.57	摆幅控制	0: 固定摆幅 1: 变摆幅	1	0	×
F9.58	摆频停机起动方式选择	0: 按停机前记忆的状态起动 1: 重新开始起动	1	0	×
F9.59	摆频状态掉电存储	0: 存储 1: 不存储	1	0	×
F9.60	摆频预置频率	0.00Hz~上限频率	0.01Hz	10.00	○
F9.61	摆频预置频率等待时间	0.0~3600.0s	0.1s	0.0	×
F9.62	摆频幅值	0.0~100.0%	0.1%	0.0%	○
F9.63	突跳频率	0.0~50.0% (相对摆频幅值)	0.1%	0.0%	○
F9.64	摆频上升时间	0.1~3600.0s	0.1s	5.0	○

功能码	名 称	设 定 范 围	最小单位	出厂设定	更改
F9.65	摆频下降时间	0.1~3600.0s	0.1s	5.0	○
F9.66	保留	——	——	0	◆
F9.67	定长控制	0: 禁止 1: 有效	1	0	×
F9.68	设定长度	0.000~65.535 (KM)	0.001KM	0.000	○
F9.69	实际长度	0.000~65.535 (KM)	0.001KM	0.000	○
F9.70	长度倍率	0.100~30.000	0.001	1.000	○
F9.71	长度校正系数	0.001~1.000	0.001	1.000	○
F9.72	测量轴周长	0.10~100.00CM	0.01CM	10.00	○
F9.73	轴每转脉冲数 (X7)	1~65535	1	1024	○
FA组 – 保护参数控制参数					
FA.00	电机过载保护选择	LED个位: 电机过载保护选择 0: 禁止 1: 普通电机 (电子热继电器方式, 低速带补偿) 2: 变频电机 (电子热继电器方式, 低速不补偿) 3: 自定义电机过载保护 LED十位: 变频器过载保护选择 0: 禁止 1: 通用变频器过载保护 2: 自定义变频器过载保护 LED百位: 过载预警选择 0: 禁止 1: 有效 LED千位: 保留	1	11	×

功能码	名 称	设 定 范 围	最小单位	出厂设定	更改
FA.01	电机过载保护系数	20.0%~120.0%	0.1%	100.0%	×
FA.02	欠压保护动作选择	0: 禁止 1: 允许 (欠压视为故障)	1	0	×
FA.03	欠压保护水平	220V: 180~280V 200V 380V: 330~480V 350V	1V	机型设定	×
FA.04	过压限制水平	220V: 350~390V 370V 380V: 600~780V 660V	1V	机型设定	×
FA.05	减速电压限制系数	0~100 0: 过压失速保护无效	1	机型设定	×
FA.06	电流限制水平 (仅VF模式有效)	G型: 80%~200%*变频器额定电流 160% P型: 80%~200%*变频器额定电流 120%	1%	机型设定	×
FA.07	弱磁区电流限制选择	0: 由PA.06的电流限制水平来限制 1: 由PA.06折算的电流限制水平来限制	1	0	×
FA.08	加速电流限制系数	0~100 0: 加速电流限制无效	1	机型设定	×
FA.09	恒速电流限制使能	0~100	1	40	×
FA.10	掉载检出时间	0.1s~60.0s	0.1s	5.0	○
FA.11	掉载检出水平	0~100%*变频器额定电流 0: 掉载检测无效	1%	0%	○
FA.12	过载预警水平	G型: 20%~200%*变频器额定电流 160% P型: 20%~200%*变频器额定电流 120%	1%	机型设定	○
FA.13	过载预警报警延时	0.0~30.0s	0.1s	10.0	○

功能码	名 称	设 定 范 围	最小单位	出厂设定	更改
FA.14	温度检测阈值	0.0℃~90.0℃	0.1℃	65.0℃	×
FA.15	输入输出缺相保护选择	0: 均禁止 1: 输入禁止, 输出允许 2: 输入允许, 输出禁止 3: 均允许	1	机型设定	×
FA.16	输入缺相保护延迟时间	0.0~30.0s	0.1s	1.0	○
FA.17	输出缺相保护检测基准	0%~100%*变频器额定电流	1%	50%	×
FA.18	输出电流不平衡检测系数	1.00~10.00 1.00: 不平衡检测无效 注: 输出电流不平衡检测与输出缺相检测共用检测基准参数FA.17及故障代码E-13	——	1.00	×
FA.19	保留	——	——	0	◆
FA.20	PID反馈断线处理	0: 不动作 1: 告警并以断线时刻频率维持运行 2: 保护动作并自由停车 3: 告警并按设定的模式减速至零速运行	1	0	×
FA.21	反馈断线检测值	0.0~100.0%	0.1%	0.0%	○
FA.22	反馈断线检测时间	0.0~3600.0s	0.1s	10.0	○
FA.23	保留	——	——	0	◆
FA.24	RS485通讯异常动作选择	0: 保护动作并自由停机 1: 告警并维持现状继续运行 2: 报警并按设定的停机方式停机	1	1	×
FA.25	RS485通讯超时检出时间	0.1~100.0s 0.0: 表示不检测 注: 停机时不做通讯超时检测	0.1s	5.0	○

功能码	名 称	设 定 范 围	最小单位	出厂设定	更改
FA.26	面板通讯异常动作选择	0: 保护动作并自由停机 1: 告警并维持现状继续运行 2: 保护动作并按设定的停机方式停机	1	1	×
FA.27	面板通讯超时检出时间	0.0~100.0s	0.1s	1.0	○
FA.28	EEPROM读写错误动作选择	0: 保护动作并自由停机 1: 告警并继续运行	1	0	×
FA.29	电机过载保护阈值	0~200%*电机额定电流	1%	150%	○
FA.30	电机过载保护检测时间	0~60000s	1s	100	○
FA.31	变频器过载保护阈值	0~200%*变频器额定电流	1%	150%	○
FA.32	变频器过载保护检测时间	0~60000s	1s	60	○
FA.33 FA.35	保留	——	——	0	◆
FB组—RS485通讯参数					
FB.00	协议选择	0: MODBUS 1: 自定义	1	0	×
FB.01	本机地址	0: 广播地址 1~247: 从站	1	1	×
FB.02	通讯波特率设置	0: 2400BPS 1: 4800BPS 2: 9600BPS 3: 19200BPS 4: 38400BPS 5: 115200BPS	1	3	×

功能码	名 称	设 定 范 围	最小 单位	出厂 设定	更 改
FB.03	数据格式	0: 无校验 (N, 8, 1) for RTU 1: 偶校验 (E, 8, 1) for RTU 2: 奇校验 (O, 8, 1) for RTU 3: 无校验 (N, 8, 2) for RTU 4: 偶校验 (E, 8, 2) for RTU 5: 奇校验 (O, 8, 2) for RTU ASCII模式暂时保留	1	1	×
FB.04	本机应答延时	0~200ms	1ms	5	×
FB.05	传输响应处理	0: 写操作有回应 1: 写操作不回应	1	0	×
FB.06	比例连动系数	0.01~10.00	0.01	1.00	○
FB.07	通讯模式选择	LED个位: 通讯模式选择 0: 通用模式 1: MD380模式 2: BD600模式 3: CHF100A模式 4: GD20模式 LED十位: 广播频率源选择 0: 主机设定频率 1: 主机频率源A 2: 主机频率源B LED百位: 保留 LED千位: 保留	1	00	×

功能码	名 称	设 定 范 围	最小单位	出厂设定	更改
FB.08	通讯显示选择	LED个位：通讯母线电压显示选择 0：正常显示 1：放大10倍 2：放大100倍 3：缩小10倍 4：缩小100倍 LED十位：通讯电流显示选择 0：正常显示 1：放大10倍 2：放大100倍 3：缩小10倍 4：缩小100倍 LED百位：运行频率显示选择 0：正常显示 1：放大10倍 2：放大100倍 3：缩小10倍 4：缩小100倍 LED千位：保留	1	000	×
FC组 - 高级功能及性能参数					
FC.00	能耗制动功能设定	0：无效 1：全程有效 2：仅减速时有效	1	1	×
FC.01	能耗制动起始电压	220V: 340~380V 360V 380V: 660~760V 680V	1V	机型设定	○
FC.02	能耗制动回差电压	220V: 10~100V 5V 380V: 10~100V 10V	1V	机型设定	○

功能码	名 称	设 定 范 围	最小单位	出厂设定	更改
FC.03	能耗制动动作比例	10~100%	1%	100%	○
FC.04	停电再启动设置	0: 禁止 1: 从启动频率处启动 2: 转速追踪启动	1	0	×
FC.05	停电再启动等待时间	0.0~60.0s	0.1s	5.0	×
FC.06	故障自动复位次数	0~100 (设定为100表示次数不限制, 即无数次)	1	0	×
FC.07	故障自动复位间隔时间	0.0~60.0s	0.1	3.0	×
FC.08	冷却风扇控制	0: 自动控制模式 1: 通电过程一直运转 2: 温度高于50℃风扇动作, 低于45℃风扇不动作 3: 启动时风扇动作, 停机后风扇不动作	1	0	○
FC.09	运行限制功能密码	0~65535 注1: 密码设置成功, 需等待3分钟才能生效 注2: 本功能参数不能被初始化	1	0	○
FC.10	运行限制功能选择	0: 禁止 1: 有效 注: 本功能参数不能被初始化	1	0	○
FC.11	限制时间	0~65535 (h) 注: 本功能参数不能被初始化	1	0	×
FC.12	瞬间掉电降频点	220V: 180~330V 250V 380V: 300~550V 450V	1V	机型设定	×
FC.13	瞬间掉电频率下降系数	0: 瞬停不停功能无效 1~100	1	0	○

功能码	名 称	设 定 范 围	最小单位	出厂设定	更改
FC.14	下垂控制	0.00~10.00Hz 注：该值为0.00时无效；当F0.18=1（高频模式）时，该功能码的取值上限为100.0Hz	0.01Hz	0.00	×
FC.15	转速追踪等待时间	0.1~5.0s	0.1s	1.0	×
FC.16	转速追踪电流限幅水平	80%~200%*变频器额定电流	1%	100%	×
FC.17	转速追踪快慢	1~125	1	25	×
FC.18	PWM模式	LED个位：PWM合成方式 0：全频七段 1：七段转五段 LED十位：PWM温度关联 0：无效 1：有效 LED百位：PWM频率关联 0：均无效 1：低频调整，高频调整 2：低频不调整，高频调整 3：低频调整，高频不调整 LED千位：柔性PWM功能 0：无效 1：有效	1	0001	×

功能码	名 称	设 定 范 围	最小单位	出厂设定	更改
FC.19	电压控制功能	LED个位: AVR功能 0: 无效 1: 全程有效 2: 仅减速时无效 LED十位: 过调制选择 0: 无效 1: 有效 LED百位: 死区补偿选择 0: 无效 1: 有效 LED千位: 震荡抑制选择 0: 震荡抑制模式1 1: 震荡抑制模式2 2: 震荡抑制模式3 3: 震荡抑制模式3	1	1102	×
FC.20	振荡抑制起始频率	0.00~300.00Hz	0.01	机型设定	○
FC.21	磁通制动选择	0~100 0: 无效	1	0	○
FC.22	节能控制系数	0~100 0: 无效 1: 自动节能运行 注: 节能运行只对普通V/F控制有效	1	0	○
FC.23	多段速优先级使能	0: 无效 1: 多段速优先于F0.07给定	1	0	×
FC.24	点动优先级使能	0: 无效 1: 变频器运行时, 点动优先级最高	1	0	×

功能码	名 称	设 定 范 围	最小单位	出厂设定	更改
FC.25	特殊功能	LED个位: AO2与DO输出选择 0: AO2有效 1: DO有效 LED十位: IPM故障设置 0: 屏蔽该故障 1: 该故障有效 LED百位: 输入缺相故障复位选择 0: 不能复位 1: 电源正常后可以复位 LED千位: 保留	1	010	×
FC.26	振荡抑制上限频率	0.00~300.00Hz	0.01	50.00	○
FC.27	振荡抑制系数	1~500	1	50.00	○
FC.28	振荡抑制电压	0.0~25.0%*电机额定电压	0.1%	5.0%	○
FC.29	逐波限流与防过压动作选择	LED个位: 逐波限流加速中选择 0: 无效 1: 有效 LED十位: 逐波限流减速中选择 0: 无效 1: 有效 LED百位: 逐波限流恒速中选择 0: 无效 1: 有效 LED千位: 防过压动作选择 0: 无效 1: 有效	1	0011	○

功能码	名 称	设 定 范 围	最小单位	出厂设定	更改
FC.30	专用功能选择	LED个位：直起功能选择 0：无效 1：有效 LED十位：过转矩告警“A-05”显示选择 0：显示 1：不显示 LED百位：保留 LED千位：保留	1	00	○
FD组 – 保留参数					
FE组 – 面板功能设置及参数管理					
FE.00	LCD语言选择 (仅对LCD面板有效)	0：中文 1：英文 2：保留	1	0	○
FE.01	M-FUNC键功能选择	0：JOG(点动控制) 1：正反转切换 2：清除面板▲/▼键设定频率 3：本地操作与远程操作切换(保留) 4：反转	1	0	×
FE.02	STOP/RST键功能选择	0：只对面板控制有效 1：对面板和端子控制同时有效 2：对面板和通讯控制同时有效 3：对所有控制模式都有效	1	3	○
FE.03	STOP键+RUN键急停功能	0：无效 1：自由停车	1	1	○
FE.04	闭环显示系数	0.01~100.00	0.01	1.00	○

功能码	名 称	设 定 范 围	最小单位	出厂设定	更改
FE.05	负载转速显示系数	0.01~100.00	0.01	1.00	○
FE.06	线速度系数	0.01~100.00	0.01	1.00	○
FE.07	编码器调节速率	1~100	1	70	○
FE.08	运行状态监控参数选择1 (主显示)	0~57	1	0	○
FE.09	运行状态监控参数选择2 (辅助显示)	0~57	1	5	○
FE.10	停机状态监控参数选择1 (主显示)	0~57	1	1	○
FE.11	停机状态监控参数选择2 (辅助显示)	0~57	1	13	○
FE.12	参数显示模式选择	LED个位：功能参数显示模式选择 0：显示全部功能参数 1：仅显示与出厂值不同的参数 2：仅显示最后一次上电后修改的参数(保留) LED十位：监控参数显示模式选择 0：仅显示主监控参数 1：主辅交替显示(间隔时间1S) LED百位：调节频率显示选择 0：显示频率 1：仅显示状态监控参数 LED千位：面板▲/▼键调节使能 0：有效 1：无效	1	0000	○
FE.13	参数初始化	0：无操作 1：除电机参数外的所有用户参数恢复出厂设定 2：所有用户参数恢复出厂设定 3：清除故障记录	1	0	×

功能码	名 称	设 定 范 围	最小单位	出厂设定	更改
FE.14	参数写保护	0: 允许修改所有参数 (运行中有些参数不能修改) 1: 仅允许修改频率设定F0.12、F0.13和本功能码 2: 除本功能码外所有参数禁止修改 注: 以上限制对本功能码及F0.00无效	1	0	○
FE.15	参数拷贝功能	0: 无操作 1: 参数上传至面板 2: 所有功能码参数下载到变频器 3: 除电机参数外的所有功能码参数下载到变频器 注1: 选择参数下载时, 软件会判断变频器功率规格是否一致, 若不一致, 则与机型相关的参数一律不会被修改 注2: 只有外引键盘KB2方具有拷贝功能, 普通键盘拷贝将提升错误	1	0	×
FE.16	编码器调频起始位选择	0: LED个位 1: LED十位 2: LED百位 3: LED千位	1	1	○
FE.17	用户宏选择(保留)	——	——	0	◇

五、通讯协议

5.1 RTU模式及格式

控制器以RTU模式在Modbus总线上进行通讯时，信息中的每8位字节分成2个4位16进制的字符，该模式的主要优点是在相同波特率下其传输的字符的密度高于ASCII模式，每个信息必须连续传输。

5.1.1 RTU模式中每个字节的格式

编码系统：8 位二进制，十六进制 0-9，A-F。

数据位：1位起始位，8位数据（低位先送），停止位占1位，奇偶校验位可以选择。（参考RTU数据帧为序图）

错误校验区：循环冗余校验(CRC)

5.1.2 RTU数据帧位序图

带奇偶校验：

Start	1	2	3	4	5	6	7	8	Far	Stop
-------	---	---	---	---	---	---	---	---	-----	------

无奇偶校验：

Start	1	2	3	4	5	6	7	8	Stop
-------	---	---	---	---	---	---	---	---	------

5.2 系列变频器的寄存器地址及功能码

5.2.1 支持的功能代码

功 能 码	功 能 说 明
03	读多个寄存器
06	写单个寄存器

功 能 码	功 能 说 明
10	连续写多个寄存器
13	读单个参数

5.2.2 寄存器地址

寄 存 器 功 能	地 址
控制命令输入	0x2000

寄存器功能	地址
监控参数读取	0xD000 (0x1D00) ~ 0xD039 (0x1D39)
MODBUS频率设定	0x2001
MODBUS转矩设定	0x2002
MODBUS PID频率给定	0x2003
MODBUS PID反馈设定	0x2004
MODBUS 模拟输出AO1控制	0x2005 (0~7FFF表示0%~100%)
MODBUS 模拟输出AO2控制	0x2006 (0~7FFF表示0%~100%)
MODBUS 脉冲DO输出控制	0x2007 (0~7FFF表示0%~100%)
MODBUS 数字输出端子控制	0x2008
参数设置	0x0000~0x0F15

5.2.3 03H读多个参数（最多连续读8项）

Inquiry information frame format
(发送帧)：

此段数据分析：

01H 为变频器地址
 03H 为读功能码
 0001H 为起始地址类同控制面板的F0.01项
 0002H 为读菜单的项数，及F0.01和F0.02
 两项
 95CBH 为16位CRC校验码

Address	01H
Function	03H
Starting data address	00H
	01H
Number of Data (Byte)	00H
	02H
CRC CHK Low	95H
CRC CHK High	CBH

Response information frame format (返回帧)：

此段数据分析：

01H 为变频器地址
 03H 为读功能码
 04H 为是读取项*2的积
 0064H 为读取F0.01项的数据
 0064H 为读取F0.02项的数据
 BA07H 为16位CRC校验码

Address	01H
Function	03H
DataNum*2	04H
Data1[2Byte]	00H
	64H
Data2[2Byte]	00H
	64H
CRC CHK Low	BAH
CRC CHK High	07H

实例：

名 称	帧 格 式
读取F0.01和F0.02两项的数据	发送帧：01H 03H 0001H 0002H 95CBH
	返回帧：01H 03H 04H 0064H 0064H BA07H
读取F2.01项的数据	发送帧：01H 03H 0201H 0001H D472H
	返回帧：01H 03H 02H 000FH F840H
读取d-00项的监控参数 (地址D000H与1D00H通用)	发送帧：01H 03H D000H 0001H BCCA H
	返回帧：01H 03H 02H 1388H B512H
	发送帧：01H 03H 1D00H 0001H 8266H
	返回帧：01H 03H 02H 1388H B512H
读取变频器在停机时的状态 (地址A000H与1A00H通用，参考后面变频器运行状态说明)	发送帧：01H 03H A000H 0001H A60AH
	返回帧：01H 03H 02H 0040H B9B4H
	发送帧：01H 03H 1A00H 0001H 8312H
	返回帧：01H 03H 02H 0040H B9B4H
读取故障代码E-19 (地址E000H与1E00H通用，参考后面变频器故障代码表)	发送帧：01H 03H E000H 0001H B3CAH
	返回帧：01H 03H 02H 0013H F989H
	发送帧：01H 03H 1E00H 0001H 8222H
	返回帧：01H 03H 02H 0013H F989H
读取预告警码A-18 (地址E001H与1E01H通用，参考后面变频器预告警码表)	发送帧：01H 03H E001H 0001H E20AH
	返回帧：01H 03H 02H 0012H 3849H
	发送帧：01H 03H 1E01H 0001H D3E2H
	返回帧：01H 03H 02H 0012H 3849H

5.2.4 06H写单个参数

Inquiry information frame format
(发送帧) :

此段数据分析:

01H 为变频器地址
06H 为写功能码
2000H 为控制命令地址
0001H 为正转命令
43A1H 为16位CRC校验码

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

Response information frame format
(返回帧) :

此段数据分析:

如果设置正确, 返回相同的输入数据

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

实例:

名称	帧格式
正转	发送帧: 01H 06H 2000H 0001H 43CAH
	返回帧: 01H 06H 2000H 0001H 43CAH
反转	发送帧: 01H 06H 2000H 0009H 420CH
	返回帧: 01H 06H 2000H 0009H 420CH
停机	发送帧: 01H 06H 2000H 0003H C20BH
	返回帧: 01H 06H 2000H 0003H C20BH
自由停机	发送帧: 01H 06H 2000H 0004H 83C9H
	返回帧: 01H 06H 2000H 0004H 83C9H
复位	发送帧: 01H 06H 2000H 0010H 43CAH
	返回帧: 01H 06H 2000H 0010H 43CAH

名 称	帧 格 式
正转点动	发送帧: 01H 06H 2000H 0002H 03CBH
	返回帧: 01H 06H 2000H 0002H 03CBH
反转点动	发送帧: 01H 06H 2000H 000AH 020DH
	返回帧: 01H 06H 2000H 000AH 020DH
设置F8.00项的参数为1	发送帧: 01H 06H 0800H 0001H 4A6AH
	返回帧: 01H 06H 0800H 0001H 4A6AH
MODBUS给定频率为40Hz	发送帧: 01H 06H 2001H 0FA0H D642H
	返回帧: 01H 06H 2001H 0FA0H D642H
MODBUS PID给定值为5V	发送帧: 01H 06H 2003H 01F4H 721DH
	返回帧: 01H 06H 2003H 01F4H 721DH
MODBUS PID反馈值为4V	发送帧: 01H 06H 2004H 0190H C237H
	返回帧: 01H 06H 2004H 0190H C237H
MODBUS转矩设定为80%	发送帧: 01H 06H 2002H 0320H 22E2H
	返回帧: 01H 06H 2002H 0320H 22E2H
校验用户密码 (地址AD00H与1C00H通用)	发送帧: 01H 06H AD00H 0001H 68A6H
	返回帧: 01H 06H AD00H 0001H 68A6H
	发送帧: 01H 06H 1C00H 0001H 4F9AH
	返回帧: 01H 06H 1C00H 0001H 4F9AH

名 称	帧 格 式
效验运行限制功能密码 (地址AD01H与1C01H通用)	发送帧: 01H 06H AD01H 0002H 7967H
	返回帧: 01H 06H AD01H 0002H 7967H
	发送帧: 01H 06H 1C01H 0002H 5E5BH
	返回帧: 01H 06H 1C01H 0002H 5E5BH
MODBUS 模拟输出AO1控制输出5V	发送帧: 01H 06H 2005H 3FFFH C3BBH
	返回帧: 01H 06H 2005H 3FFFH C3BBH
MODBUS 模拟输出AO2控制输出10V	发送帧: 01H 06H 2006H 7FFFH 027BH
	返回帧: 01H 06H 2006H 7FFFH 027BH
MODBUS 脉冲DO输出控制输出25KHz	发送帧: 01H 06H 2007H 3FFFH 627BH
	返回帧: 01H 06H 2007H 3FFFH 627BH
MODBUS 数字输出端子Y1控制输出	发送帧: 01H 06H 2008H 0001H C208H
	返回帧: 01H 06H 2008H 0001H C208H

5.2.5 10H连续写多个参数

Inquiry information frame format
(发送帧) :

此段数据分析:

01H 为变频器地址

10H 为写功能码

0100H 为起始地址类同控制面板的
F1.00项

0002H 为寄存器的数目

04H 为总的字节数

(2*寄存器的数目)

0001H 为F1.00项的数据

0002H 为F1.01项的数据

2E3EH 为16位CRC效验码

Address	01H
Function	10H
Starting data address	01H
	00H
Number of Data (Byte)	00H
	02H
DataNum*2	04H
Data1 (2Byte)	00H
	01H
Data2 (2Byte)	00H
	02H
CRC CHK Low	2EH
CRC CHK High	3EH

Response information frame format
(返回帧) :

此段数据分析:

01H 为变频器地址

10H 为写功能码

0100H 为写F1.00项的数据

0002H 为写菜单的项数, 及F1.00和
F1.01两项

4034H 为16位CRC校验码

Address	01H
Function	10H
Starting data address	01H
	00H
Number of Data (Byte)	00H
	02H
CRC CHK Low	40H
CRC CHK High	34H

实例:

名称	帧格式
设置F1.00、F1.01的参数为1和0.02	发送帧: 01H 10H 0100H 0002H 04H 0001H 0002H 2E3EH
	返回帧: 01H 10H 0100H 0002H 4034H
正转并通讯给定频率为50Hz	发送帧: 01H 10H 2000H 0002H 04H 0001H 1388H 36F8H
	返回帧: 01H 10H 2000H 0002H 4A08H
设置F1.00项的参数为1	发送帧: 01H 10H 0100H 0001H 02H 0001H 7750H
	返回帧: 01H 10H 0100H 0001H 0035H

5.2.6 13H读单个参数（包括属性、最小值、最大值）

Inquiry information frame format
(发送帧)：

此段数据分析：

01H 为变频器地址
13H 为读功能码
000CH 为起始地址类同控制面板的
F0.12项
0004H 为寄存器的数目
45CBH 为16位CRC效验码

Address	01H
Function	13H
Starting data address	00H
	0CH
Number of Data (Byte)	00H
	04H
CRC CHK Low	45H
CRC CHK High	CBH

Response information frame format
(返回帧)：

此段数据分析：

01H 为变频器地址
13H 为写功能码
000CH 为起始地址类同控制面板的
F0.12项
1388H 为参数值
0322H 为属性值
0000H 为最小值
1388H 为最大值
2831H 为16位CRC校验码

Address	01H
Function	13H
Starting data address	00H
	12H
Data1 (2Byte)	13H
	88H
Data2 (2Byte)	03H
	22H
Data3 (2Byte)	00H
	00H
Data4 (2Byte)	13H
	88H
CRC CHK Low	28H
CRC CHK High	31H

实例：

名称	帧格式
读取F0.12项的参数值	发送帧：01H 13H 000CH 0001H 85CAH
	返回帧：01H 13H 02H 1388H B1D2H
读取F0.12项的参数值+属性值	发送帧：01H 13H 000CH 0002H C5CBH
	返回帧：01H 13H 04H 1388H 0322H FCE4H
读取F0.12项的参数值+属性值+最小值	发送帧：01H 13H 000CH 0003H 040BH
	返回帧：01H 13H 06H 1388H 0322H 0000H 628BH

名 称	帧 格 式
读取F0.12项的参数值+属性值+最小值+最大值	发送帧: 01H 13H 000CH 0004H 45CBH
	返回帧: 01H 13H 08H 1388H 0322H 0000H 1388H 2831H

5.3 其它寄存器地址功能说明:

功 能 说 明	地 址 定 义	数 据 意 义 说 明			
变频器运行状态	A000H (1A00H)	字 节	位	含 义	
		Byte1	Bit7	0: 无动作	1: 过载预告警
			Bit6~Bit5	0: INV_220V	1: INV_380V
				2: INV_660V	3: INV_1140V
			Bit4	0: 无动作	1: 掉电存储
			Bit3	0: 无动作	1: 复位
			Bit2~Bit1	0: 无动作	1: 静态调谐
		2: 动态调谐			
变频器运行状态	A000H (1A00H)	Byte0	Bit0	0: 操作面板运行命令通道 2: 通讯运行命令通道	
		Byte0	Bit7	1: 端子运行命令通道 3: 保留	
			Bit6	0: 无动作	1: 母线电压已正常
			Bit5	0: 无动作	1: 欠压
			Bit4	0: 无动作	1: 点动
			Bit3	0: 正转	1: 反转
		Bit2~Bit1	1: 加速运行	2: 减速运行	
			3: 匀速运行		

功 能 说 明	地 址 定 义	数 据 意 义 说 明			
变频器运行状态	A000H (1A00H)	字 节	位	含 义	
		Byte0	Bit0	0: 停机状态	1: 运行状态
读取变频器故障码	E000H (1E00H)	地址E000H与1E00H通用 (见故障代码表、读功能码03H实例)			
读取变频器故障告警码	E001H (1E01H)	地址E001H与1E01H通用 (见预告警代码表、读功能码03H实例)			
用户密码效验	AD00H (1C00H)	地址AD00H与1C00H通用 (见写功能码06H实例)			
运行限制密码效验	AD01H (1C00H)	地址AD00H与1C00H通用 (见写功能码06H实例)			

5.4 变频器故障代码表

故障代码	键盘显示内容	故障信息	故障代码	键盘显示内容	故障信息
0000H	—	无故障	000CH	E-12	输入侧缺相
0001H	E-01	加速运行中过流	000DH	E-13	输出侧缺相或电流不平衡
0002H	E-02	减速运行中过流	000EH	E-14	输出对地短路故障
0003H	E-03	恒速运行中过流	000FH	E-15	散热器过热1
0004H	E-04	加速运行中过压	0010H	E-16	散热器过热2
0005H	E-05	减速运行中过压	0011H	E-17	RS485通讯故障
0006H	E-06	恒速运行中过压	0012H	E-18	键盘通讯故障
0007H	E-07	母线欠压	0013H	E-19	外部设备故障
0008H	E-08	电机过载	0014H	E-20	电流检测错误
0009H	E-09	变频器过载	0015H	E-21	电机调谐故障
000AH	E-10	变频器掉载	0016H	E-22	EEPROM读写故障
000BH	E-11	功率模块故障	0017H	E-23	参数拷贝出错

故障代码	键盘显示内容	故障信息
0018H	E-24	PID反馈断线
0019H	E-25	电压反馈断线
001AH	E-26	运行限制时间到达
001BH	E-27	协处理器通讯故障

故障代码	键盘显示内容	故障信息
001CH	E-28	编码器断线故障
001DH	E-29	速度偏差过大故障
001EH	E-30	过速度故障
——	——	——

5.5 变频器预告警代码表

告警代码	键盘显示内容	故障信息
0000H	——	无故障
0009H	A-09	变频器过载预告警
0011H	A-17	RS485通讯故障告警
0012H	A-18	键盘通讯故障告警

告警代码	键盘显示内容	故障信息
0015H	A-21	电机调谐告警
0016H	A-22	EEPROM读写故障告警
0018H	A-24	PID反馈断线告警
——	——	——

5.6 控制命令字格式（见写功能码06H实例）

地 址	位	含 义	
2000H	Bit7~Bit5	保留	
	Bit4	0: 无动作	1: 复位
	Bit3	0: 正转	1: 反转
	Bit2~Bit0	100: 自由停机 010: 点动运行	011: 停机 001: 运行
2008H (按位置1为输出, 按位置0为关闭)	Bit7~Bit4	保留	
	Bit3	可编程继电器R2输出	

地 址	位	含 义
2008H (按位置1为输出, 按位置0为关闭)	Bit2	可编程继电器R1输出
	Bit1	开路集电极输出端子Y2
	Bit0	开路集电极输出端子Y1

5.7 参数属性表

位	含 义			
Bit15	保留			
Bit14	菜单			
Bit13	进制			
Bit12	恢复出厂值覆盖			
Bit11	EEPROM			
Bit10~Bit9	“○”: 01	“x”: 10	“◆”: 11	“◇”: 00
Bit8	符号			
Bit7~Bit3	1: 00000 V: 00001 A: 00010 rpm: 00011 Hz: 00100 %: 00110 S: 01000	KHz: 01100 KW: 01010 om: 01110 ms: 01001 MA: 01011 KM: 01101 CM: 01111	us: 10001 Hz/S: 10000 mh: 10010 C: 10011 m/s: 10100 H: 10101 KWH: 10110	
Bit2~Bit0	小数点			

5.8 从机回应异常信息的错误码含义

错误码	说 明
01H	非法功能码
02H	非法地址
03H	非法数据
04H	非法寄存器长度

错误码	说 明
05H	CRC校验错误
06H	参数运行中不可修改
07H	参数不可修改
08H	上位机控制命令无效

错误码	说 明
09H	参数受密码保护
0AH	密码错误
——	——
——	——

5.9 系列变频器所有参数对应的通讯地址

功能码	通讯地址
F0.00~F0.22	0000H~0016H
F1.00~F1.36	0100H~0124H
F2.00~F2.17	0200H~0211H
F3.00~F3.08	0300H~0308H
F4.00~F4.27	0400H~041BH
F5.00~F5.24	0500H~0518H

功能码	通讯地址
F6.00~F6.52	0600H~0634H
F7.00~F7.40	0700H~0728H
F8.00~F8.33	0800H~0821H
F9.00~F9.73	0900H~0949H
FA.00~FA.35	0A00H~0A23H
FB.00~FB.08	0B00H~0B08H

功能码	通讯地址
FC.00~FC.28	0C00H~0C1CH
FE.00~FE.15	0E00H~0E0FH
FF.00~FF.22	0F00H~0F16H
d-00~d-57	D000H (1D00H) D039H (1D39H)
——	——

注意：

- 1、上述所举例子中，变频器的地址都选择01，是为了便于说明；变频器为从机时，地址在1~247范围内设置，如果改变了帧格式中任意一个数据，则校验码也要重新计算，可以在网上下载CRC16位校验码计算工具。
- 2、监控项起始地址为D000，每项在此地址基础上相应偏移对应的16进制值，然后与起始地址相加。例如：监控起始项为d-00，对应的起始地址为D000H (1D00H)，现在读取监控项d-18，18-00=18，18转成16进制为12H，那么d-18的读取地址为D000H + 12H = D012H (1D00H + 12H = 1D12H)，地址D000H和1D00H通用。
- 3、从机回应信息发生异常时的帧格式：变频器地址+ (80H + 功能码) + 错误码 + 16位CRC校验码；如果从机返回帧为01H + 83H + 04H + 40F3H；01H是从机地址，83H是80H + 03H，则表示读取错误，04H表示非法数据长度，40F3H为16位CRC校验码。

5.10 读取变频器运行状态参数地址

功能码	地址 (十六进制)	地址 (十进制)	功能描述
d-00	1d00	7424	输出频率
d-01	1d01	7425	设定频率
d-02	1d02	7426	电机估算频率
d-03	1d03	7427	主设定频率
d-04	1d04	7428	辅助设定频率
d-05	1d05	7429	输出电流
d-06	1d06	7430	输出电压
d-07	1d07	7431	输出转矩
d-08	1d08	7432	电机转速 (RPM/min)
d-09	1d09	7433	电机功率因数
d-10	1d0a	7434	运行线速度 (m/s)
d-11	1d0b	7435	设定线速度 (m/s)
d-12	1d0c	7436	母线电压 (V)
d-13	1d0d	7437	输入电压 (V)
d-14	1d0e	7438	PID设定值 (V)
d-15	1d0f	7439	PID反馈值 (V)
d-16	1d10	7440	模拟输入AI1 (V/mA)

功能码	地址 (十六进制)	地址 (十进制)	功能描述
d-17	1d11	7441	模拟输入AI2 (V)
d-18	1d12	7442	脉冲频率输入 (KHz)
d-19	1d13	7443	模拟输出AO1 (V/mA)
d-20	1d14	7444	模拟输出AO2 (V)
d-21	1d15	7445	输入端子状态
d-22	1d16	7446	输出端子状态
d-23	1d17	7447	变频器运行状态
d-24	1d18	7448	多段速当前段数
d-25	1d19	7449	脉冲频率输出 (Hz)
d-26	1d1a	7450	保留
d-27	1d1b	7451	当前计数值
d-28	1d1c	7452	设定计数值
d-29	1d1d	7453	当前定时值 (s)
d-30	1d1e	7454	设定定时值 (s)
d-31	1d1f	7455	当前长度
d-32	1d20	7456	设定长度
——	——	——	——

六、异常诊断与排除

6.1 故障信息及排除方法

在运行过程中，如果发生异常，则变频器立即封锁PWM输出，进入故障保护状态。同时键盘上由闪烁显示的故障代码指示当前故障信息。同时，故障指示灯ALM点亮。此时需按本节提示方法进行检查故障原因和相应的处理方法，如果依然无法解决问题则请直接与我司联系。相应解决方法请参考表(A)、表(B)故障诊断及排除。

故障码	名 称	故障可能原因	故障对策
E-01	加速运行中过流	加速时间太短（包括调谐过程）	延长加速时间
		对旋转中的电机进行再起动	设置为直流制动后起动或转速追踪起动
		变频器功率偏小	选用功率等级大的变频器
		V/F曲线或转矩提升设置不当	调整V/F曲线或转矩提升量
E-02	减速运行中过流	减速时间太短（包括调谐过程）	延长减速时间
		变频器功率偏小	选用功率等级大的变频器
		负载惯性过大	外接制动电阻或制动单元
E-03	恒速运行中过流	电网电压偏低	检查输入电源
		负载发生突变或异常	检查负载或减小负载突变
		变频器功率偏小	选用功率等级大的变频器
E-04	加速运行中过压	输入电压异常（包括调谐过程）	检查输入电源
		对旋转中的电机进行再起动	设置为直流制动后起动或转速追踪起动
		特殊势能负载	外接制动电阻或制动单元
E-05	减速运行中过压	减速时间太短（包括调谐过程）	延长减速时间
		负载惯性过大	外接制动电阻或制动单元
		输入电压异常	检查输入电源

故障码	名 称	故 障 可 能 原 因	故 障 对 策
E-06	恒速运行中过压	输入电压异常	检查输入电源
		特殊势能负载	外接制动电阻或制动单元
E-07	母线欠压	输入电压异常或接触器（继电器）未吸合	检查电源电压或向厂家寻求服务
E-08	电机过载	V/F曲线或转矩提升设置不当	调整V/F曲线和转矩提升量
		电网电压过低	检查电网电压
		电机堵转或负载突变过大	检查负载
		电机过载保护系数设置不正确	正确设置电机过载保护系数
E-09	变频器过载	V/F曲线或转矩提升设置不当	调整V/F曲线和转矩提升量
		电网电压过低	检查电网电压
		加速时间太短	延长加速时间
		电机负载过重	选择功率更大的变频器
E-10	变频器掉载	输出电流小于掉载检测值	检查负载
E-11	功率模块故障	变频器输出短路或接地	检查电机接线
		变频器瞬间过流	参见过流对策
		风道堵塞或风扇损坏	疏通风道或更换风扇
		控制板异常或干扰严重	向厂家寻求服务
		功率器件损坏	向厂家寻求服务
E-12	输入侧缺相	电源输入缺相	检查电源及连线
E-13	输出侧缺相或电流不平衡	输出U、V、W有缺相	检查输出配线
E-14	输出对地短路故障	保留	保留

故障码	名 称	故 障 可 能 原 因	故 障 对 策
E-15	散热器过热1	环境温度过高	更换风扇
		风扇损坏	疏通风道
E-16	散热器过热2	风道堵塞	疏通风道
E-17	RS485通讯故障	与上位机波特率不匹配	调整波特率
		RS485信道干扰	检查通讯连线是否屏蔽，配线是否合理，必要的话需考虑并接滤波电容
		通讯超时	重试
E-18	键盘通讯故障	键盘与控制板连接线损坏	更换键盘与控制板的连接线
E-19	外部设备故障	外部设备故障输入端子闭合	断开外部设备故障输入端子并清除故障（注意检查原因）
E-20	电流检测错误	霍尔器件或放大电路故障	向厂家寻求服务
		辅助电源故障	
		霍尔或功率板连线接触不良	
E-21	电机调谐故障	电机参数设置错误	重新设置电机参数
		变频器与电机功率规格严重不匹配	向厂家寻求服务
		调谐超时	检查电机连线
E-22	EEPROM读写故障	EEPROM故障	向厂家寻求服务
E-23	参数拷贝出错	变频器参数上传到操作面板时数据错误	检查操作面板线连接情况
		参数从操作面板下载到变频器时数据错误	检查操作面板线连接情况
		未进行参数拷贝上传直接进行参数下载	先进行参数上传，再下载
E-24	PID反馈断线	PID反馈线路松动	检查反馈连线
		反馈量小于断线检测值	调整检测输入阈值

故障码	名 称	故 障 可 能 原 因	故 障 对 策
E-25	电压反馈断线	反馈量小于断线检测值	调整检测输入阈值
E-26	运行限制时间到达	运行限制时间到达	向代理商寻求服务
E-27	协处理器通讯故障	保留	保留
E-28	编码器断线故障	保留	保留
E-29	速度偏差过大故障	保留	保留
E-30	过速度故障	保留	保留

表6-1(A) 故障诊断及排除

预告故障码	名 称 (预告)	故障可能原因	故障对策
A-05	过转矩预告警	对旋转中的电机进行再起动	FC.30十位设置1
		负载发生突变或异常	
		变频器功率偏小	
A-09	变频器过载预告警	同E-09	同E-09
A-17	RS485通讯故障告警	同E-17	同E-17
A-18	键盘通讯故障告警	同E-18	同E-18
A-21	电机调谐告警	同E-21	同E-21
A-22	EEPROM读写故障告警	同E-22	同E-22
A-24	PID反馈断线告警	同E-24	同E-24
A-00	表示无告警	保留	保留

表6-1(B) 故障诊断及排除

6.2 异常处理

变频器在运行中，常见异常现象和对策见下表：

异常现象		可能的原因和对策
电机不转	键盘无显示	检查是否停电，输入电源是否缺相，输入电源线是否接错
	键盘无显示，但机内充电指示灯亮	检查与键盘相关的接线、插座等是否存在问题，测量机内各控制电源电压，以此确认开关电源是否正常工作，若开关电源工作不正常，检查开关电源进线（+、-）插座是否接好，起振是否损坏或稳压管是否正
	电机有嗡嗡声	电机负载太重，设法降低负载
	未发现异常	确认是否处于跳闸状态或跳闸后没复位，是否处于掉电再启动状态，键盘是否重新设定过，是否进入程序运行状态、多段速度运行状态、特定的运行状态或非运行状态，可试用恢复出厂值的办法。
		确认运行指令是否给出
		检查运转频率是否设定为0
电机不能顺利加减速		加减速时间设定的不合适，增大加减速时间
		电流限幅值设定的太小，提升限幅值
		减速时过电压保护动作，增大减速时间
		载波频率设定的不合适，负载过重或出现振荡
		负载过重，力矩不够。V/F模式下加大转矩提升值，如果依然不能满足要求，可改用自动转矩提升模式（A880默认就是这种方式），此时注意电机参数需与实际值相符合，如果还是不能满足要求，则建议改用磁通矢量控制方式，此时依然要注意电机参数与实际值是否一致，同时最好进行电机参数调谐。
		电机功率与变频器功率不匹配。请将电机参数设置为实际值
		一拖多台电机。请将转矩提升方式改为手动提升方式
电机虽能旋转但不能调速		频率上下限设定不合适
		频率设定偏低，或频率增益设定的太小

异 常 现 象	可 能 的 原 因 和 对 策
电机虽能旋转但不能调速	检查使用的调速方式是否与设定的频率给定相吻合
	检查负载是否过重，是否处于过压失速或过流限幅状态
电机在运转中转速变动	负载波动频繁，尽量减小其变化
	变频器与电机额定值严重不符。请电机参数设置为实际值
	频率设定电位器接触不良或频率给定信号波动。改为数字频率给定方式或者增大模拟输入信号的滤波时间常数
电机的旋转方向相反	调整输出端子U、V、W的相序
	设置运转方向（P0.21=1）为反转即可
	输出缺相导致的方向不确定性，请立即检查电机接线

七、保养与维护

7.1 日常保养及维护

变频器使用环境的变化，如温度、湿度、烟雾等的影响，以及变频器内部元器件的老化等因素，可能会导致变频器发生各种故障。因此，在存贮、使用过程中必须对变频器进行日常检查，并进行定期保养维护。

在变频器正常运行时，请确认如下事项：

1. 电机是否有异常声音及振动。
2. 变频器及电机是否发热异常。
3. 环境温度是否过高。
4. 负载电流值是否与往常值一样。
5. 变频器的冷却风扇是否正常运转。

7.2 定期保养及维护

1. 定期保养

为了使变频器长期正常工作，必须针对变频器内部电子元器件的使用寿命，定期进行保养和维护。变频器电子元器件的使用寿命又因其使用条件的不同而不同。如下表所示变频器的保养期仅供用户使用时参考。

组件	正常工作时间
风扇	2~3 年
电容	4~5 年
PCB	5~8 年

2. 定期维护

用户根据使用情况，可以短期或3~6个月对变频器进行一次定期常规检查，以消除故障隐患，确保长期高性能稳定运行。

常规检查内容：

1. 主回路端子是否有接触不良的情况，电缆或铜排连接处、螺钉等是否有过热痕迹。
2. 电力电缆、控制导线有无损伤，尤其是外部绝缘层是否有破裂、割伤的痕迹。
3. 电力电缆与冷压接头的连接是否松动，连接处的绝缘包扎带是否老化、脱落。
4. 对印刷电路板、风道等处的灰尘全面清理，清洁时注意采取防静电措施。
5. 对变频器的绝缘测试，必须首先拆除变频器与电源及变频器与电机之间的所有连线，并将所有的主回路输入、输出端子用导线可靠短接后，再对地进行测试。请使用合格的500V兆欧表（或绝缘测试仪的相应电压档）；请勿使用有故障的仪表。严禁仅连接单个主回路端子对地进行绝缘测试，否则将有损坏变频器的危险。切勿对控制端子进行绝缘测试，否则将会损坏变频器。测试完毕后，切记拆除所有短接主回路端子的导线。

附录A：制动电阻的选型

电压等级 (V)	额定功率 (KW)	制动电阻 (Ω)	电阻功率 (KW)
220	0.4	≥200	0.04
220	0.75	≥120	0.08
220	1.5	≥75	0.15
220	2.2	≥50	0.2
220	3	≥40	0.3
220	4	≥30	0.3
220	5.5	≥20	0.4
220	7.5	≥15	0.5
220	11	≥10	0.8
380	0.4	≥800	0.04
380	0.75	≥400	0.08
380	1.5	≥200	0.15
380	2.2	≥150	0.2
380	3	≥120	0.3

电压等级 (V)	额定功率 (KW)	制动电阻 (Ω)	电阻功率 (KW)
380	4	≥110	0.3
380	5.5	≥90	0.4
380	7.5	≥65	0.5
380	11	≥43	0.8
380	15	≥32	1
380	18.5	≥25	1.3
380	22	≥22	1.5
380	30	≥16	2.5
380	37	≥16	4
380	45	≥16	4.5
380	55	≥8	5.5
380	75	≥8	7.5
380	90	≥8*2	4.5*2
380	110	≥8*2	5.5*2

电压等级 (V)	额定功率 (KW)	制动电阻 (Ω)	电阻功率 (KW)
380	132	≥8*2	6.5*2
380	160	≥2.5	16
380	185	≥2.5	20
380	200	≥2.5	20
380	220	≥2.5	22
380	250	≥2.5*2	12.5*2
380	280	≥2.5*2	14*2
380	315	≥2.5*2	16*2
380	355	≥2.5*2	17*2
380	400	≥2.5*3	14*3
380	450	≥2.5*3	15*3
380	500	≥2.5*3	17*3
—	—	—	—
—	—	—	—

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1. Technical Index and Specification

Input	Rated Voltage, Frequency	3-phase (4T) 380V; 47~63Hz 1-phase (2S) 220V; 47~63Hz	
	Allowed Voltage Range	3-phase (4T) 320V~480V 1-phase (2S) 160V~260V	
Output	Voltage	4T; 0~480V 2S; 0~260V	
	Frequency	Low frequency mode: 0~300Hz ; High frequency mode: 0~3000Hz	
	Overload Capacity	G type: 110% for long-term, 150% for 1 min, 180% for 5s P type: 105% for long-term, 120% for 1 min, 150% for 1s	
Control Mode		V/F control, advanced V/F control, V/F separation control, electric current vector control	
Control Character	Frequency Setting Resolution	Analog Input	0.1% of maximum output frequency
		Digital Setting	0.01Hz
	Frequency Precision	Analog Input	Within 0.2% of maximum output frequency
		Digital Setting	Within 0.01% of set output frequency
	V/F Control	V/F Curve (voltage frequency character)	Reference frequency setting 5~600Hz, multipoint V/F curve setting, or fixed curve of constant torque, low decreasing torque 1, low decreasing torque 2, square torque
		Torque Compensation	Manual setting: 0.0~30% of rated output Automatic compensation: according to output current and motor parameter
		Automatic Current-limiting and Voltage-limiting	During acceleration, deceleration or steady running, detect automatically the current and voltage of motor stator, and control it within bounds based on unique algorithm, minimize fault-trip chance
	Senseless Vector Control	Voltage Frequency Character	Adjust pressure/frequency ratio according to motor parameter and unique algorithm

Control Character	Senseless Vector Control	Torque Character	Starting torque: 3.0Hz 150% rated torque (VF control) 0.5Hz 180% rated torque (SVC) Operating speed precision in steady state: $\leq \pm 0.5\%$ rated synchronous speed Torque response: SVC $\leq 20\text{ms}$
		Motor Parameter Self-measurement	Being able to detect parameter automatically under static state and dynamic state of motor, thus guarantee an optimum control.
		Current and Voltage Restrain	Current closed-loop control, free from current impact, perfect restrain function of overcurrent and overvoltage
	Undervoltage Restrain during Running	Specially for users with a low or unsteady voltage power grid: even lower than the allowable voltage range, the system can maintain the longest possible operating time based on its unique algorithm and residual energy allocation strategy	
Typical Function	Multi-velocity and Traverse Operation	16 segments programmable multi-velocity control, multiple operation mode. Traverse operation: preset frequency and center frequency adjustable, parameter memory and recovery after power cut.	
	PID Control RS485 Communication	Built-in PID controller (able to preset frequency). Standard configuration RS485 communication function, synchronizing control function.	
	Frequency Setting	Analog Input	Direct voltage 0~10V, direct current 0~20mA (optional up limit and lower limit)
		Digital Input	Operation panel setting, RS485 port setting, UP/DW terminal control, or combined with analog input
	Output Signal	Digital Input	2 channel OC output and one channel relay output (TA, TB, TC), up to 16 choices
		Analog Input	2 channel analog signal output, output ranging within 0~20mA or 0~10V with flexibly setting, achievable output of physical quantities like set frequency, output frequency
	Automatic Steady-voltage Operation	Dynamic steady state, static steady state, and unsteady voltage for choices to obtain the steadiest operation	
	Acceleration and Deceleration Time Setting	0.1s~3600min continuous setting, S type and linear type mode for choice	
	Brake	Dynamic Braking	Dynamic braking initial voltage, backlash voltage and dynamic braking continuous adjustable

Typical Function	Brake	DC Braking	Halt DC braking initial frequency: 0.00~[F0.16] upper limit frequency Braking time: 0.0~100.0s; Braking current: 0.0%~150.0% of rated current
		Flux Restraint	0~100 0: invalid
	Low Noise Running	Carrier frequency 1.0kHz~16.0kHz continuous adjustable, minimize motor noise	
	Speed Tracking and Restart Function	Smooth restart during operation, instantaneous stop and restart	
	Counter	A built-in counter, facilitate system integration	
Display	Operation Panel Display	Running State	Output frequency, output current, output voltage, motor speed, set frequency, module temperature, PID setting, feedback, analog input and output.
		Alarm	The latest 6 faults record; running parameters record when the latest fault tripping happens including output frequency, set frequency, output current, output voltage, DC voltage 4 and module temperature.
	Protective Function		Overcurrent, overvoltage, undervoltage, module fault, electric thermal relay, overheat, short circuit, default phase of input and output, motor parameter adjustment abnormality, internal memory fault, etc.
Environment	Ambient Temperature	-10°C~+40°C (please run the VFD in derated capacity when ambient temperature is 40°C~50°C)	
	Ambient Humidity	5%~95%RH, without condensing drops	
	Surroundings	Indoors (without direct sunlight, corrosive or flammable gas, oil fog and dust)	
	Altitude	Running in derated capacity above 1000m, derate 10% for every 1000m rise.	
Structure	Protection Level	IP20	
	Cooling Method	Air cooling with fan control	
Installation Method		Wall-hanging type, cabinet type	

2. Safety and Installation Precautions of Frequency Converter

2.1 Safety, Installation Precautions, Use Environment, Installation Direction and Space

2.1.1 Safety Precautions

- ▲ Do not install this equipment in an explosive gas atmosphere, or there will be explosion hazards.
- ▲ Only qualified individuals should proceed with wiring, or there will be electric shock hazards. Do not conduct any wiring during the system power on to avoid the electric shock.
- ▲ Do not touch control terminals, internal circuit board and its components, or there will be electric shock hazard.
- ▲ Earth terminal must be exactly grounded when using inverter. Grounding must be confirmed with the national electric safety regulation and other electric code.
- ▲ After power off, do not touch internal circuit board or any parts inside within 5 minutes after keypad display went off. Any internal operation must be after making sure of discharge off with instrument checking to avoid the electric shock.
- ▲ Do not connect AC power to output terminal (U, V, W) of inverter. The only terminal the AC power allowed to be connected is R, S, T (or L1, L2 single--phrase source inverter).
- ▲ Static electricity on human body can damage MOS device. Do not touch PCB and IGBT without anti-static measure.
- ▲ Do not lose screws, spacers and other metallic foreign bodies inside the driver to avoid fire hazard and driver damage.
- ▲ Do not connect 220V AC power to internal control terminal of the driver, or there will be serious damage to the driver.
- ▲ If overcurrent protection occurs after start the driver, confirm again the external wiring and then power on and run the driver.
- ▲ Do not switch off the power to stop the driver. Cut off power source after the motor stops running.
- ▲ Do not install the driver in places with direct sunlight.

2.1.2 Installation Precautions



DANGER

1. Ensure the power has been cut off before wiring.
Electric shock and fire hazard.
2. Ask electric engineering professionals to conduct wiring.
Electric shock and fire hazard.
3. Earth terminals must be reliable grounded.
(380V class: especially the third grounding)
Electric shock and fire hazard.
4. Check if its action is effective after emergency brake terminal is connected.
Injury risk (wiring responsibility should be beard by users).
5. Do not touch output terminals directly. The output terminal is connected directly to motor.
There should be no short circuit between output terminals.
Electric shock and short circuit hazard.
6. Install the terminal cover before power on, and ensure power off when dismantling the terminal cover.
Electric shock hazard.



Conduct check and maintenance after 10 minutes after power off when internal residual electricity is discharged completely.
Hazard of residual voltage in electrolytic capacitor.



CAUTION

1. Check if the voltage of power inlet wire agrees with rated input voltage of VFD.
Injury and fire hazard.
2. Connect brake resistor or brake unit according to wiring diagram.
Fire hazard.
3. Choose screw driver and wrench with specified torque to fasten terminals.
Fire hazard.
4. Do not connect the power input wire to output U, V, W terminals.
It will cause internal damage to VFD if load the voltage on output terminals.
5. Do not dismantle the front panel cover, only the terminal cover needs to be dismantled when wiring.
It may cause internal damage to VFD.

2.1.3 Operation Environment

- ① No corrosive gases, vapors, dust or oily dust, no direct sunlight.
- ② No floating dust and metal particle.
- ③ Ambient humidity 20%~90% RH.
- ④ Vibration less than 5.9m/s^2 (0.6g).
- ⑤ No electromagnetic interference.
- ⑥ Ambient temperature $-10^{\circ}\text{C}\sim 40^{\circ}\text{C}$. Ensure good ventilation when ambient temperature exceeds 40°C .
- ⑦ Use electric cabinet or remote control method in non-standard operation environment and ensure good ventilation and heat dissipation. The service life of VFD lies in installing environment and operation condition. But even in standard environment, a long-term continuous running can guarantee a life of no more than 5 years for electrolytic capacitor and about 3 years for cooling fan. An update or a thorough maintenance in advance is recommended.

2.1.4 Installing Direction and Space

To ensure a good cooling cycle, the VFD must be installed vertically, and keep enough space from surroundings.

2.2 Nameplate Introduction and VFD Series Type

2.2.1 Nameplate Introduction

CV900G – 037 G/P – 1 4 T F

① ② ③ ④ ⑤ ⑥ ⑦

①	Product Series	CV900G General vector model	
②	Model Power	00A: 0.4KW ~ 500: 500KW	
③	Load Type	G: constant torque	P: variable torque
④	Output	1: 3-phase	2: 1-phase
⑤	Voltage Grade	1: 110V	2: 220V 4: 380V
⑥	Input	S: 1-phase	T: 3-phase
⑦	Cooling Method	F: air cooling	W: water cooling

Model type → Type: CV900G-037G/045P-14TF

Power → Power: 37/45 kW

Input specifications → Input: AC 3PH 380~480V 47~63Hz

Output specifications → Output: 3PH 0~480V 0~300Hz 75A/90A

Serial number → S/N:

CE EAC

MADE IN CHINA

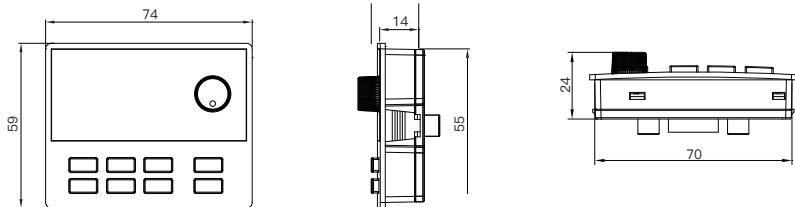
2.2.2 VFD Series Type

Voltage Classes	Model No.	Rated Power (KW)	Rated Output Current (A)
220V 1-phase	CV900G-00AG-12SF	0.4	2.4
220V 1-phase	CV900G-00BG-12SF	0.75	4.5
220V 1-phase	CV900G-001G-12SF	1.5	7
220V 1-phase	CV900G-002G-12SF	2.2	10
220V 1-phase	CV900G-003G-12SF	3	13
220V 1-phase	CV900G-004G-12SF	3.7	16
220V 1-phase	CV900G-005G-12SF	5.5	20
220V 1-phase	CV900G-007G-12SF	7.5	30
220V 1-phase	CV900G-011G-12SF	11	42
380V 3-phase	CV900G-00BG-14TF	0.75	2.5
380V 3-phase	CV900G-001G-14TF	1.5	3.7
380V 3-phase	CV900G-002G-14TF	2.2	5
380V 3-phase	CV900G-003G/004P-14TF	3/3.7	6.8/9
380V 3-phase	CV900G-004G/005P-14TF	3.7/5.5	9/13
380V 3-phase	CV900G-005G/007P-14TF	5.5/7.5	13/17
380V 3-phase	CV900G-007G/011P-14TF	7.5/11	17/25
380V 3-phase	CV900G-011G/015P-14TF	11/15	25/32
380V 3-phase	CV900G-015G/018P-14TF	15/18.5	32/37
380V 3-phase	CV900G-018G/022P-14TF	18.5/22	37/45
380V 3-phase	CV900G-022G/030P-14TF	22/30	45/60

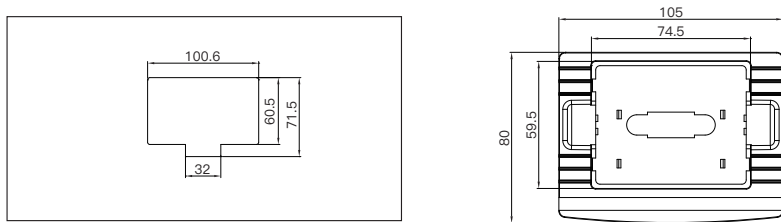
Voltage Classes	Model No.	Rated Power (KW)	Rated Output Current (A)
380V 3-phase	CV900G-030G/037P-14TF	30/37	60/75
380V 3-phase	CV900G-037G/045P-14TF	37/45	75/90
380V 3-phase	CV900G-045G/055P-14TF	45/55	90/110
380V 3-phase	CV900G-055G/075P-14TF	55/75	110/150
380V 3-phase	CV900G-075G/090P-14TF	75/90	150/176
380V 3-phase	CV900G-090G/110P-14TF	90/110	176/210
380V 3-phase	CV900G-110G/132P-14TF	110/132	210/253
380V 3-phase	CV900G-132G/160P-14TF	132/160	253/300
380V 3-phase	CV900G-160G/185P-14TF	160/185	300/340
380V 3-phase	CV900G-185G/200P-14TF	185/200	340/380
380V 3-phase	CV900G-200G/220P-14TF	200/220	380/420
380V 3-phase	CV900G-220G-14TF	220	420
380V 3-phase	CV900G-250G-14TF	250	470
380V 3-phase	CV900G-280G-14TF	280	520
380V 3-phase	CV900G-315G-14TF	315	600
380V 3-phase	CV900G-355G-14TF	355	640
380V 3-phase	CV900G-400G-14TF	400	750
380V 3-phase	CV900G-450G-14TF	450	830
380V 3-phase	CV900G-500G-14TF	500	930

2.3 Overall Dimensions and Installation Dimensions

2.3.1 Appearance and Dimension of Keypad

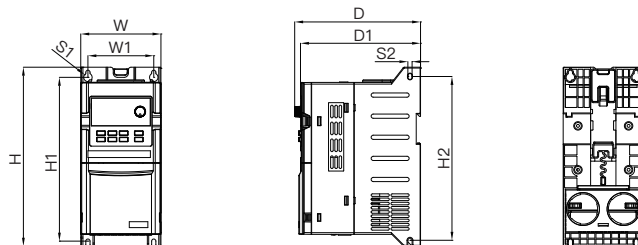


Keyboard (Unit: mm)

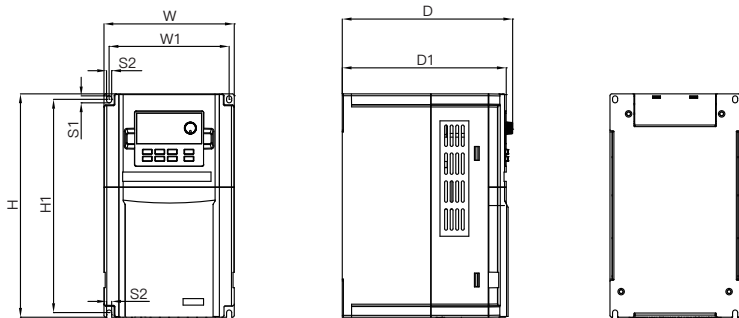


Keyboard base and Installation dimension (Unit: mm)

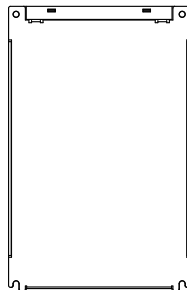
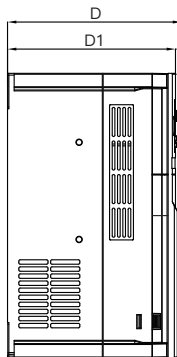
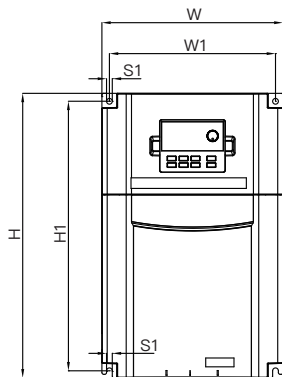
2.3.2 Product Overall Dimension and Installation Dimension



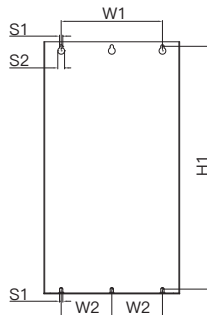
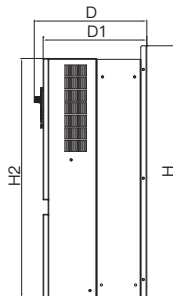
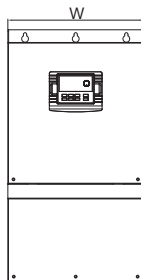
Model No.	W(mm)	H(mm)	D(mm)	W1(mm)	H1(mm)	H2(mm)	D1(mm)	S1(mm)	S2(mm)
CV900G-00AG-12SF	95	212	149	78	194	194	142	Ø10	Ø5
CV900G-00BG-12SF	95	212	149	78	194	194	142	Ø10	Ø5
CV900G-001G-12SF	95	212	149	78	194	194	142	Ø10	Ø5
CV900G-002G-12SF	95	212	149	78	194	194	142	Ø10	Ø5
CV900G-003G-12SF	95	212	149	78	194	194	142	Ø10	Ø5
CV900G-00BG-14TF	95	212	149	78	194	194	142	Ø10	Ø5
CV900G-001G-14TF	95	212	149	78	194	194	142	Ø10	Ø5
CV900G-002G-14TF	95	212	149	78	194	194	142	Ø10	Ø5
CV900G-003G/004P-14TF	95	212	149	78	194	194	142	Ø10	Ø5
CV900G-004G/005P-14TF	95	212	149	78	194	194	142	Ø10	Ø5
CV900G-005G/007P-14TF	95	212	149	78	194	194	142	Ø10	Ø5



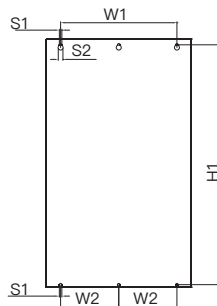
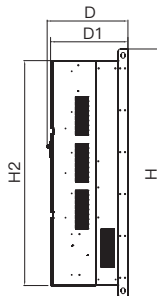
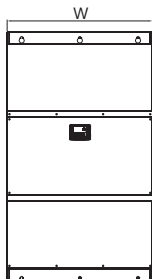
Model No.	W(mm)	H(mm)	D(mm)	W1(mm)	H1(mm)	D1(mm)	S1(mm)	S2(mm)
CV900G-004G-12SF	140	240	183	129	229	176	Ø8	Ø6
CV900G-005G-12SF	140	240	183	129	229	176	Ø8	Ø6
CV900G-007G/011P-14TF	140	240	183	129	229	176	Ø8	Ø6
CV900G-011G/015P-14TF	140	240	183	129	229	176	Ø8	Ø6



Model No.	W(mm)	H(mm)	D(mm)	W1(mm)	H1(mm)	D1(mm)	S1(mm)
CV900G-007G-12SF	205	322	197	188	305	190	Ø7
CV900G-011G-12SF	205	322	197	188	305	190	Ø7
CV900G-015G/018P-14TF	205	322	197	188	305	190	Ø7
CV900G-018G/022P-14TF	205	322	197	188	305	190	Ø7
CV900G-022G/030P-14TF	205	322	197	188	305	190	Ø7



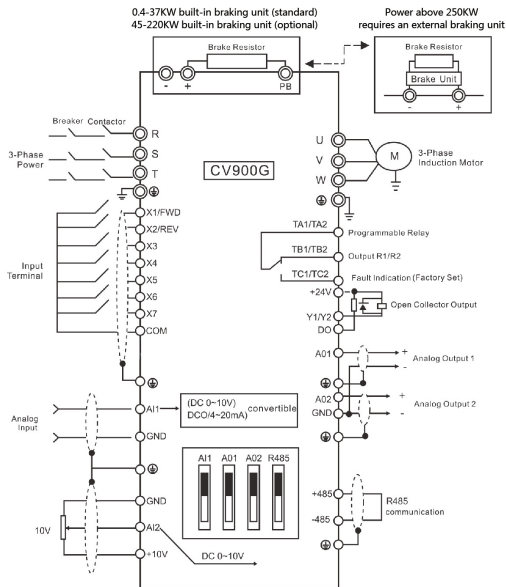
Model No.	W(mm)	H(mm)	D(mm)	W1(mm)	W2(mm)	H1(mm)	H2(mm)	D1(mm)	S1(mm)	S2(mm)
CV900G-030G/037P-14TF	270	463	223.9	201.5		444.5	437.7	206.3	Ø6.5	Ø13.5
CV900G-037G/045P-14TF	270	463	223.9	201.5		444.5	437.7	206.3	Ø6.5	Ø13.5
CV900G-045G/055P-14TF	320	522	257.6	200	100	499	489	240	Ø9	Ø16.5
CV900G-055G/075P-14TF	320	522	257.6	200	100	499	489	240	Ø9	Ø16.5
CV900G-075G/090P-14TF	340	720	305.6	260	130	700.5	663	288	Ø9	Ø16.5
CV900G-090G/110P-14TF	340	720	305.6	260	130	700.5	663	288	Ø9	Ø16.5
CV900G-110G/132P-14TF	340	720	305.6	260	130	700.5	663	288	Ø9	Ø16.5
CV900G-132G/160P-14TF	380	720	305.6	260	130	700.5	663	288	Ø9	Ø16.5
CV900G-160G/185P-14TF	380	720	305.6	260	130	700.5	663	288	Ø9	Ø16.5



Model No.	W(mm)	H(mm)	D(mm)	W1(mm)	W2(mm)	H1(mm)	H2(mm)	D1(mm)	S1(mm)	S2(mm)
CV900G-185G/200P-14TF	470	830	347.1	343	171.5	791	743	329.5	Ø11	Ø24
CV900G-200G/220P-14TF	470	830	347.1	343	171.5	791	743	329.5	Ø11	Ø24
CV900G-220G-14TF	470	830	347.1	343	171.5	791	743	329.5	Ø11	Ø24
CV900G-250G-14TF	540	1060	416.6	420	210	1031.5	970	399	Ø13	Ø26
CV900G-280G-14TF	540	1060	416.6	420	210	1031.5	970	399	Ø13	Ø26
CV900G-315G-14TF	540	1060	416.6	420	210	1031.5	970	399	Ø13	Ø26
CV900G-355G-14TF	650	1090	416.6	420	210	1061.5	1000	399	Ø13	Ø26
CV900G-400G-14TF	650	1090	416.6	420	210	1061.5	1000	399	Ø13	Ø26
CV900G-450G-14TF	750	1280	416.6	600	300	1237	1160	399	Ø13	Ø26
CV900G-500G-14TF	750	1280	416.6	600	300	1237	1160	399	Ø13	Ø26

2.4 Basic Running Wiring

The wiring parts of VFD include major loop and control loop. Open the cover of I/O terminals, users can see the major loop terminal and control loop terminal, and must conduct the wiring according to the following diagram.

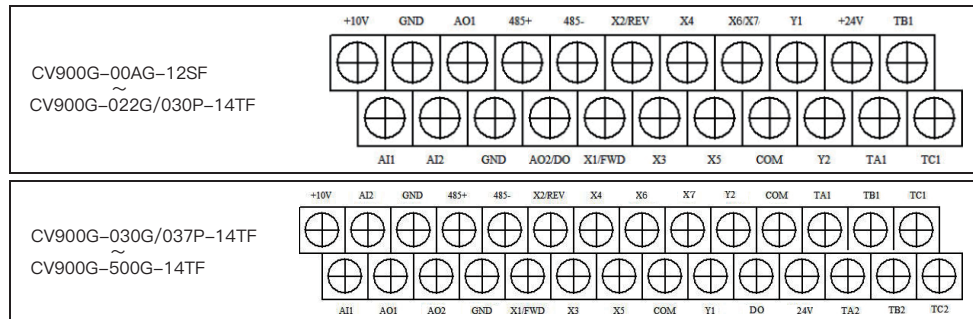


2.5 Diagram Terminal Diagram and Function Description

2.5.1 Function Description of Main Circuit Terminal

Terminal	Name	Function
R、S、T	AC input	3PH 380/220V AC input terminals, connected to the grid
L1、L2	AC input	1PH 220V AC input terminals, connected to the grid
(+), (-)	DC bus terminals	Connected to external braking unit (MDBUN) with AC drive units of 45kW (G) and above.
(+), PB	Braking resistor connection	Connected to external braking resistor for AC drive units of 37kW (G) and below.
U、V、W	Inverter output	3PH AC output terminals, connected to motor.
	Safety grounding	Safety grounding terminal. Each inverter must be grounded properly. Note: It is at the bottom of the chassis.

2.5.2 Control Loop Terminal Diagram



2.5.3 Control Loop Terminal Function Table

Functional Specification of Control Loop Terminal			
Category	Terminal Number	Functions	Specification
Multi-functional Digital Input Terminal	X1	Effective when short circuit between (X1、X2、X3、X4、X5、X6、X7、X8) ~COM, and the functions are set by parameters F7.00~F7.07 (common port: COM)	INPUT, 0~24V level signal, low level effective, 5mA.
	X2		
	X3		
	X4		
	X5		
	X6		
	X7	X7 can work as one of the multi-functional terminals, also as high-speed pulse input terminal with programming, see F7.06.	
Digital Output Terminal	Y1	Multi-functional programmable collector open circuit output channel 2, can be programmed as DO terminal of various functions (common port: COM)	OUTPUT, maximum load current $\leq 50\text{mA}$.
	Y2		
	DO	Can be programmed as impulse output terminal of various functions as many as 13 kinds (common port: COM). See F6.23.	OUTPUT, output frequency range F6.32~F6.35, set maximum frequency as high as 50KHz.
Analog Input / Output Terminal	AI1	AI1 receives voltage/current input. Jumper CN4 (for jumper terminal AI1) can select voltage or current input mode, and voltage input is the default one. For current input, just short the middle and another pin with the jumper cap. AI 2 only receives voltage input. Measuring range setting is function code F6.00 ~F6.11 (reference ground: GND)	INPUT, input voltage range: 0~10V (input impedance: 100K Ω), input current range 0~20mA (input impedance: 500 Ω).
	AI2		

Category	Terminal Number	Functions	Specification
Analog Input / Output Terminal	AO1	AO1/AO2 is able to output analog voltage/current (total 13 kinds of signals). Jumper JP4/JP8 (for jumper terminal AO1/AO2) can select voltage or current output mode, and voltage output is the default one. For current output, just short the middle and another pin with the jumper cap. See F6.21, F6.22. (Reference ground: GND)	OUTPUT, 0~10V DC voltage. Output voltage of AO1, AO2 came from PMW waveform of CPU. Output voltage is in direct proportion to the width of PWM waveform.
	AO2		
Relay Output Terminal	TA1/TA2	Multi-functional programmable collector open circuit output channel 2, can be programmed as DO terminal of various functions (common port: COM)	TA-TB: normal close; TA-TC: normal open. Contact compacity: 250VAC/2A (COSΦ=1); 250VAC/1A (COSΦ=0.4), 30VDC/1A.
	TB1/TB2		
	TC1/TC2		
Power Port	+24V	24V is the common power for circuits of all digital signal input terminals (COM is the ground).	Maximum output current 200mA

▲ Control terminal AI1 can input both voltage and current signal, while AI2 can only input voltage signal; users can conduct corresponding jumper on master control board according to signal type.

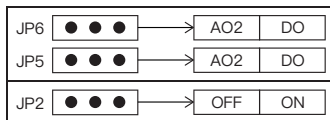
▲ Connecting weak analog signal is easily affected by external disturbance. So wiring should be as short as possible. The external control line should be set with isolating device or shielding line, and should be grounded.

▲ Input order signal line and frequency meter should be wired separately with shielding, and away from major loop wiring.

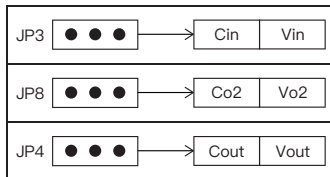
▲ Control loop wiring should be over 0.75 mm², and STP (shielded twisted pair) is recommended. The connecting part of control loop terminals should be enameled with tin, or process metal joint with cold pressing.

▲ While connecting analog signal output devices, malfunction may occur because of interference from VFD, which can be solved by fixing with capacitor or ferrite bead to the analog signal output device.

2.6 Jumpers And Corresponding Relationships



JP5 & JP6	AO2	AO2 of AO2/DO is effective, output voltage signal
	DO	DO of AO2/DO is effective, output pulse signal
JP2	OFF	Non-connecting for matched resistance of 485 communication
	ON	Connecting for matched resistance of 485 communication



JP3	Cin	AI1 input current signal
	Vin	AI1 input voltage signal
JP8	VO2	AO2 output voltage signal
	CO2	AO2 output current signal
JP4	Vout	AO1 output voltage signal
	Cout	AO1 output current signal

2.7 Wiring Notices

- ▲ Cut off the input power of VFD while dismantling and changing the motor.
- ▲ Switching of motor or work frequency power supply should only be conducted when the VFD stops output.
- ▲ To reduce the effect of EMI (electromagnetic interference), add a surge absorber when electromagnetic connector and relay are close to VFD.
- ▲ Do not connect AC input power to output terminal U, V, W of VFD.
- ▲ Add an isolating device to the external control line or use shield line.
- ▲ Input order signal line should be wired separately with shielding, and away from major loop wiring.
- ▲ When carrier frequency is less than 4kHz, keep the distance between VFD and motor within 50m; when carrier frequency exceeds 4kHz, make an appropriate reduction of the distance, and better lay the wire in metal tube.
- ▲ When adding peripherals (filters, reactors, etc.) to the VFD, check the ground resistance with 1000V megger and ensure the value is above 4 MΩ.
- ▲ Do not add phase advance capacitor or RC snubber to the U, V, W terminal of VFD.
- ▲ If the VFD starts frequently, do not cut off the power, use the COM/RUN of control terminal to conduct start and stop so as not to damage the rectifier bridge.
- ▲ The earth terminal must be grounded reliably (grounding impedance should be under 10 Ω) to avoid accidents, or there might be electric leakage.
- ▲ Choose the wire diameter according to national electrical code while conducting major loop wiring.

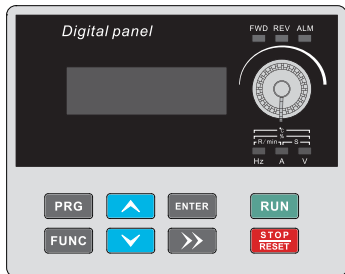
2.8 Spare Circuit

It may cause big downtime loss or other accidental failure during VFD failure or tripping. Adding spare circuit is recommended under this circumstance to ensure safety.

Note: confirm and test the operation characteristic of the spare circuit in advance to ensure the working frequency and the phase sequence of converted frequency are agreed.

3. Operation Panel and Operation Method

3.1 Operation Panel Keys



Key	Name	Function Description
	programming /escape key	Enter or escape from programming
	Increase key	Data or function code increase (speed up the increasing rate by keeping pressing the key)
	Decrease key	Data or function code decrease (speed up the decreasing rate by keeping pressing the key)
	Enter key	Enter into sub-menu items or confirm data.
	Run key	Enter into run mode under keypad model.
	Function key	According to the setting of function parameter FE.01, jog or reverse run, and frequency clearance is available when pressing this key under keypad mode.
	shift / monitor key	Choose the bit of the data which is to be set and modified when the VFD is in edit status; switch monitor parameter to be shown when the VFD is in other modes.
	stop / reset key	In common run status the VFD will be stopped according to set mode after press this key if run command channel is set as keyboard stop effective mode. The VFD will be reset and resume normal stop status after pressing this key when the VFD is in malfunction status.
	Analog potentiometer knob	Set the frequency; when F0.07=0, digital encoder can set the frequency as linkage control with increase/decrease key.

3.2 LED and Indicator Light Description

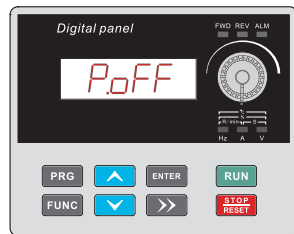
Item			Function Description
Display Function	Digital Display		Display current run status parameter and set parameter.
	LED Indicator	Hz、A、V	Displayed physical quantity unit (current A, voltage V, frequency Hz)
		ALM	Alarm indicator light, indicate that the VFD is in over current or over voltage suppressing status or failure alarm status currently.
		FWD	This indicator light turns green when the VFD is in forward running status.
		REV	This indicator light turns red when the VFD is in reverse running status.

3.3 Unit Indicator Light Description

Item			Function Description
Unit indicator	LED Indicator	A	Current displayed parameter is current with unit of A, LED indicator light A is on
		V	Current displayed parameter is voltage with unit of V, LED indicator light V is on
		Hz	Current displayed parameter is frequency with unit of Hz, LED indicator light Hz is on
		%	Current displayed parameter is percentage, LED indicator light Hz and V are on
		r/min	Current displayed parameter is rotational speed, LED indicator light Hz and A are on
		m/s	Current displayed parameter is linear velocity, LED indicator light V and A are on
		℃	Current displayed parameter is temperature, LED indicator light V, A and Hz are on

3.4 Monitoring Parameter Display

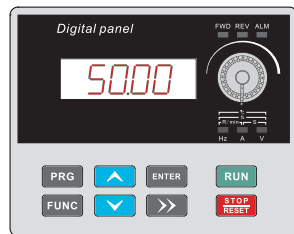
Keypad display status is classified as power-on initialization display, functioncode and monitoring parameters display, malfunction alarm status display, run status parameters display. After power-on, LED will display “P.OFF”, As shown in the right figure, then enter setting frequency display status.



Power-on Parameter Display
(Initialization Display “P.OFF”)

When the VFD is stopped, the keypad displays stopped state monitoring parameters, factory setting is digital setting frequency. As shown in the right figure, unit indicator light reminds that the unit of current displayed parameter is Hz.

Press **>>>** key, different monitoring parameters in stopped state can be displayed circularly (default setting in sequence is main setting frequency, bus voltage. Other monitoring parameters can be set to display by function code FE.10~FE.11, for details see function code table FE.10~FE.11); or without pressing **>>>** , but set tens place of FE.12 as 1 (alternate display of main and secondary parameters), and the stopped state monitoring parameters will display circularly every other second automatically; also enter monitoring menu by pressing **PRG** , and check each monitoring parameter by **▲** , **▼** and **ENTER** .

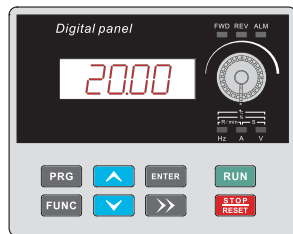


Stop Status Parameter Display
(Display Set Frequency “50.00”)

3.5 Run Status Parameter Display

The VFD enters into run status when receiving effective run command and run status monitoring parameters normally output frequency is displayed on the keypad. As shown in the right figure, unit is displayed as Hz.

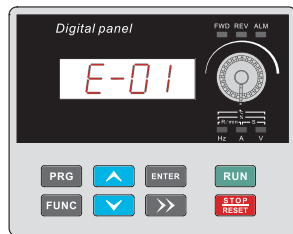
Press **>>**, the current run status parameter will display circularly (default set is output frequency, output current, two monitoring parameters in sequence. Other parameters display can be set by FE.08~FE.09, for details see parameter codes table FE.08~FE.09); or without pressing **>>**, but set tens place of FE.12 as 1 (alternate display of main and secondary parameters), and the stopped state monitoring parameters will display circularly every other second automatically; also enter monitoring menu by pressing **PRG**, and check each monitoring parameter by **↑**, **↓** and **ENTER**.



Run Status Parameter Display
(Display Current Output
Frequency "20.00")

3.6 Malfunction Alarm Display

The VFD enters into malfunction alarm display status upon detecting failure signal and display failure code (as shown in the right figure); Press **>>** to check relative parameters of stopped inverter; to check failure information, press **PRG** and enter into program mode to check D group parameter. After troubleshooting, conduct fault resetting by **STOP RESET** key on the keypad, by control terminal or communication command. Keep displaying fault code if fault exist continuously.



Fault Alarm Display of
Over current during Accelerating

Warning: For some serious fault, such as inverse module protect, over current, over voltage, etc., do not conduct fault reset forcibly to make the inverter run again without fault elimination confirmed, or might cause damage to the inverter.

3.7 Function Code Editing Display

Under stop, run or fault alarm status, press **PRG** key to enter editing status which is displayed as two classes menu (input the password first if it is preset, see password unlock instruction). Press **ENTER** key to enter items one class by one class. Under function parameter display status, press **ENTER** to conduct storage operation, press **PRG** key to return to the upper class menu without storing modified parameter.

3.8 Monitoring Parameter

Example 1: status parameter display switching

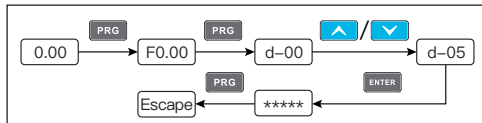
Under monitoring status, press **>>** key, the display will switch automatically to according value of monitoring parameter according to FD group status monitoring parameter setting, and meanwhile the corresponding unit indicator light will be on. For example, press **>>** to switch to output frequency d-00, and the indicator light of unit “Hz” is on.



Example 2: check monitoring parameter item d-05 (output current)

Method 1:

- ① Press **PRG** key to enter programming status, LED displays function code F0.00, press again **PRG** key, LED displays function code d-00, flicker bit stays in ones place, adjust **▲** key or **▼** key until the monitoring code turns d-05.
- ② Press **ENTER** key, the according value of d-05 displays and the indicator light of unit “A” is on.
- ③ Press **PRG** key, escape from monitoring status.



Method 2:

Under monitoring mode interface, press  key, switch to next monitoring parameter item d-xx, press  key to move flicker bit to ones digit of the monitoring code, then adjust  key or  key until the monitoring code displays d-05, then operate according to step ② and step ③ of method 1.

Example 3: check fault monitoring parameter in fault status

Note:

- ① Under fault status press  key and check D group monitoring parameter ranging from d-00 to d-57.
- ② If the fault wasn't eliminated during checking the fault parameter, the interface will automatically switch to fault alarm display 5s later after stopping operation.
- ③ The fault code displays ranging from d-48 to d-57 (the current status and latest 3 times).

3.9 Function Code Setting

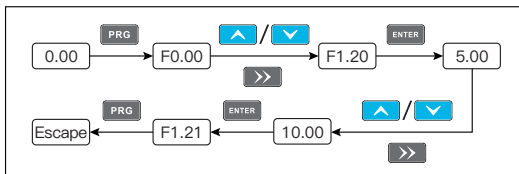
The function parameter system of this inverter includes function code F0 ~ FF, fault code E group and monitoring code D group. Each function group is consisted of several function code, which is marked as (function group code + function code). For example, "F5.08" means eighth function code in the fifth function group.

Function code setting example:

Example 1: change frequency setting of forward jogging from 5Hz to 10Hz (F1.20 modified from 5.00Hz to 10.00Hz)

- ① Press  key to enter programming status, LED displays function code F0.00, flicker bit stays in the ones digit.
- ② Press  key, move the flicker bit among the hundreds place, tens place and ones place.
- ③ Press  key or  key to modify the digit in the according digit place. LED displays F1.20.
- ④ Press  key, it displays the according value (5.00) of F1.20, meanwhile the indicator light of unit Hz is on.
- ⑤ Press  key, move the flicker bit to the highest place "5", press  /  key 5 times to change it to 10.00.
- ⑥ Press  key, save the value of F1.20 and displays next function code F1.21.

⑦ Press **PRG** key, escape from programming status.



3.10 User Password Setting and Function Code Edit

User password setting is used for preventing unauthorized people from checking and modifying function parameter. Factory set of user password F0.00 is “00000”, user can conduct parameter setting in this interface (parameter set here is only not restricted by password protection, but is restricted by conditions like whether is revisable during running, the monitoring parameters, etc.).

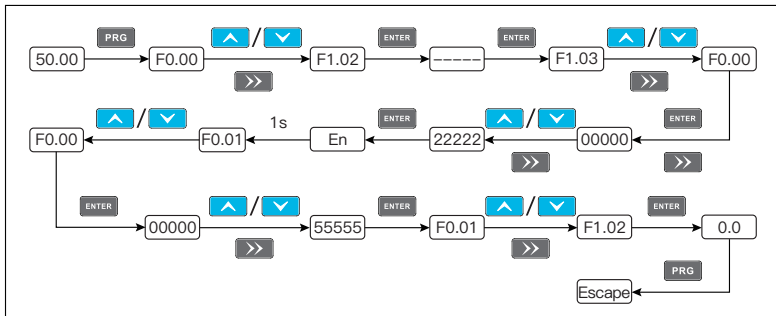
When setting the user password, press five-digit number and press **ENTER** to confirm, the password will take effect automatically 3 minutes later, or just power down to make it effective. After that, if the password is not set right, keypad will display “-Err-”, and when checking function codes, all will display “-----” except the password item (displays “00000”). These function codes parameters can’t be checked and modified until the password is set right and the keypad displays “-En--”.

When password modifying is required, choose function code F0.00, and press **ENTER** to enter password authentication status. Move to modifying status after password verified successfully. Input a new password and press **ENTER** to confirm. Power-down or wait for 3 minutes, the new password will take effect.

Example 1: change user password “22222” to “55555”, check function code F1.02.

- ① Press **PRG** to enter programming status, LED displays function code F0.00, flicker bit stays in the ones place.
- ② Press **>>** , move flicker bit among hundreds place, tens place and ones place of function items.

- ③ Press  key or  key to modify the digit in the according digit place. LED displays F1.20.
- ④ Press  , the according data “-----” of F1.20 is displayed.
- ⑤ Press  to enter F1.03, repeat step 2 and step 3, check according data “00000” of F0.00.
- ⑥ Press  key or  key to modify the digit in the according digit place, LED displays “22222”, and the password is set up.
- ⑦ Press  , it displays “-En--”, meanwhile function code displays F0.01.
- ⑧ Repeat step 2 and step 3, check the according data “00000” of F0.00 and modify it to “55555”, press  to end the password changing, enter F0.01 item.
- ⑨ Repeat step 2 and step 3, check the according data “0.0” of F1.02, conduct modifying by  key or  key.
- ⑩ Press  , escape from edit status.



4. Function Parameter Table and Description

4.1 Monitoring Parameter Group and Fault Record

NOTE: “◆”——the actual detected parameter, not modifiable.

D Group – Monitoring Parameter Group and Fault Record					
Function Code	Name	Set Range	Minimum Unit	Factory Default	Modification
d-00	Output frequency	0.00~maximum output frequency 【F0.15】	0.01Hz	0.00	◆
d-01	Set frequency	0.00~maximum output frequency 【F0.15】	0.01Hz	0.00	◆
d-02	Estimated motor frequency	0.00~maximum output frequency 【F0.15】 Note: motor running frequency converted from estimated motor speed	0.01Hz	0.00	◆
d-03	Main set frequency	0.00~maximum output frequency 【F0.15】	0.01Hz	0.00	◆
d-04	Auxiliary set frequency	0.00~maximum output frequency 【F0.15】	0.01Hz	0.00	◆
d-05	Output current	0.0~6553.5A	0.1A	0.0	◆
d-06	Output voltage	0~999V	1V	0	◆
d-07	Output torque	-200.0~+200.0%	0.1%	0.0%	◆
d-08	Motor revolving speed (RPM/min)	0~36000 (RPM/min)	1	0	◆
d-09	Motor power factor	0.00~1.00	0.01	0.00	◆
d-10	Run linear velocity (m/s)	0.01~655.35(m/s)	0.01m/s	0.00	◆
d-11	Set linear velocity (m/s)	0.01~655.35(m/s)	0.01m/s	0.00	◆
d-12	Bus voltage (V)	0~999V	1V	0	◆
d-13	Input voltage (V)	0~999V	1V	0	◆

Function Code	Name	Set Range	Minimum Unit	Factory Default	Modification
d-14	PID set value (V)	0.00~10.00V	0.01V	0.00	◆
d-15	PID feedback (V)	0.00~10.00V	0.01V	0.00	◆
d-16	Analog input AI1 (V/mA)	0.00V/0.00mA~10.00V/20.00mA	0.01V	0.00	◆
d-17	Analog input AI2 (V)	0.00~10.00V	0.01V	0.00	◆
d-18	Impulse frequency input (KHz)	0.00~50.00KHz	0.01KHz	0.00	◆
d-19	Analog output AO1 (V/mA)	0.00~10.00V/20mA	0.01V	0.00	◆
d-20	Analog output AO2 (V)	0.00~10.00V	0.01V	0.00	◆
d-21	Input terminal status	0~7FH Note: the sequence from high to low order digit in binary system X8/X7/X6/X5/X4/X3/X2/X1	1	0	◆
d-22	Output terminal status	0~FH Note: the sequence from high to low order digit in binary system R2/R1/Y2/Y1	1	0	◆
d-23	VFD running status	0~FFFFH BIT0: run/stop BIT1: reverse/forward BIT2: zero-speed running BIT3: reserved BIT4: accelerating BIT5: decelerating BIT6: constant speed running BIT7: pre-excitation BIT8: tuning of inverter parameter BIT9: overcurrent limit BIT10: overvoltage limit BIT11: amplitude limiting of torque	1	0	◆

Function Code	Name	Set Range	Minimum Unit	Factory Default	Modification
d-23	VFD running status	BIT12: amplitude limiting of speed BIT13: speed control BIT14: torque control BIT15: reserved	1	0	◆
d-24	Current stage of multistage Speed	0~15	1	0	◆
d-25	Pluse frequency output (Hz)	0~50000Hz	1Hz	0	◆
d-26	Reserved	—	—	0	◆
d-27	Current count value	0~65535	1	0	◆
d-28	Set count value	0~65535	1	0	◆
d-29	Current timing value (s)	0~65535s	1s	0	◆
d-30	Set timing value (s)	0~65535s	1s	0	◆
d-31	Current length	0.000~65.535(KM)	0.001KM	0.000	◆
d-32	Set length	0.000~65.535(KM)	0.001KM	0.000	◆
d-33	Radiator temperature 1	0.0℃~+110.0℃	0.1℃	0.0	◆
d-34	Radiator temperature 2	0.0℃~+110.0℃	0.1℃	0.0	◆
d-35	Accumulative run time of VFD (hour)	0~65535H	1H	0	◆
d-36	Accumulative power-on time of VFD (hour)	0~65535H	1H	0	◆
d-37	Accumulative run time of fan (hour)	0~65535H	1H	0	◆
d-38	Accumulative electricity consumption (low order digit)	0~9999KWH	1KWH	0	◆
d-39	Accumulative electricity Consumption (high order digit)	0~9999KWH (*10000)	1KWH	0	◆
d-40	Pid pressure feedback	0.00~60.00 (MPa, Kg)	0.01	0.00	◆

Function Code	Name	Set Range	Minimum Unit	Factory Default	Modification
d-41	Output power	0.0~6553.5KW	0.1KW	0.0	◆
d-42	PID Pressure Set up	0.00~60.00 (MPa、Kg)	0.01	0	◆
d-43	Special model monitoring parameter (reserved)	——	——	0	◆
d-44	Special model monitoring parameter (reserved)	——	——	0	◆
d-45	Special model monitoring parameter (reserved)	——	——	0	◆
d-46	Special model monitoring parameter (reserved)	——	——	0	◆
d-47	Special model monitoring parameter (reserved)	——	——	0	◆
d-48	The third to last fault type	0~27	1	0	◆
d-49	The second to last fault type	0~27	1	0	◆
d-50	Last fault type	0~27	1	0	◆
d-51	Current fault type	0~27	1	0	◆
d-52	Run frequency of current fault	0.00~ 【F0.16】 upper limit of frequency	0.01Hz	0.00	◆
d-53	Output current of current fault	0.0~6553.5A	0.1A	0.0	◆
d-54	Busbar voltage of current fault	0~999V	1V	0	◆
d-55	Input terminal status of current fault	0~7FH Note: sequence from high to low order digit in binary system X8/X7/X6/X5/X4/X3/X2/X1	1	0	◆
d-56	Output terminal status of current fault	0~FH Note: sequence from high to low order digit in binary system R2/R1/Y2/Y1	1	0	◆
d-57	Run state of current fault	0~FFFFH	1	0	◆

4.2 Function Code

NOTE: ○ — Modifiable parameter under any condition
 × — Not modifiable parameter under run status
 ◆ — The actual detected parameter, not modifiable
 ◇ — Factory parameter, only modifiable for factory, not allowed for users modifying

F0 Group – Basic Run Parameters					
Function Code	Name	Set Range	Minimum Unit	Factory Default	Modification
F0.00	User password	0~65535 Note 1: 0~9; without password protect Note 2: it takes 3 minutes to take effect of the successfully set password Note 3: invalid for write-protect, and can not be initialized	1	0	○
F0.01	Control software version	1.00~99.99	0.01	1.12	◆
F0.02	Operation panel software version	1.00~99.99	0.01	1.00	◆
F0.03	VFD rated power	0.4~999.9KW (G/P)	0.1KW	Depending on model	◆
F0.04	VFD type	0: G type (constant torque load type) 1: P type (fan, water pump load type) Note 1: set as F type, and the Inverter parameters will refresh automatically, without modifying any parameter the Inverter can be used as inverter of higher grade for application of fan and water pump. Note 2: can not be initialized, please modify it manually.	1	0	×
F0.05	Control mode	0: common V/F control (manually torque boost) 1: advanced V/F control (automatically torque boost) 2: open loop current vector control (SVC) 3: closed loop current vector control (reserved) 4: separated type V/F control Note: this parameter can not be initialized, please modify it manually.	1	Depending on model	×

Function Code	Name	Set Range	Minimum Unit	Factory Default	Modification
F0.06	Operation command Channel	0: operation panel run command channel 1: terminal run command channel 2: communication run command channel	1	0	○
F0.07	Main frequency source A	0: digital set 1 (keypad ▲/▼ key, encoder+F0.12) 1: digital set 2 (terminal UP/DOWN adjust+F0.13) 2: digital set 3 (communication set) 3: AI1 analog set (0~10V/20mA) 4: AI2 analog set (0~10V) 5: pulse set (0~50KHZ) 6: easy PLC set 7: multistage speed run set 8: PID control set 9: panel potentiometer (compatible encoder) 10: panel potentiometer	1	9	○
F0.08	Auxiliary frequency source B	0: digital set 1 (keypad ▲/▼ key, encoder+F0.12) 1: digital set 2 (terminal UP/DOWN adjust+F0.13) 2: digital set 3 (communication set) 3: AI1 analog set (0~10V/20mA) 4: AI2 analog set (0~10V) 5: pulse set (0~50KHZ) 6: easy PLC set 7: multistage speed run set 8: PID control set 9: panel potentiometer (compatible encoder) 10: panel potentiometer	1	3	○

Function Code	Name	Set Range	Minimum Unit	Factory Default	Modification
F0.09	Frequency source	0: main frequency source A 1: $A+K*B$ 2: $A-K*B$ 3: $ A-K*B $ 4: MAX (A, $K*B$) 5: MIN (A, $K*B$) 6: switch from A to $K*B$ (A prior to $K*B$) 7: switch from A to $A+K*B$ (A prior to $A+K*B$) 8: switch from A to $A-K*B$ (A prior to $A-K*B$) Note 1: frequency switch needs Note 2: compared with frequency source set method, traverse operation has a higher priority.	1	0	○
F0.10	Digital set 1 control	LED ones digit: power down storage 0: storage 1: not storage LED tens digit: hold when stop 0: hold 1: not hold	1	000	○
F0.11	Digital set 2 control	LED hundred digit: ▲/▼ key, UP/DOWN frequency 0: invalid 1: valid LED thousands digit: reserved	1	000	○
F0.12	Frequency source digital setting 1	0.00Hz ~ 【F0.16】 upper limit of frequency	0.01Hz	50.00	○
F0.13	Frequency source digital setting 2	0.00Hz ~ 【F0.16】 upper limit of frequency	0.01Hz	50.00	○
F0.14	Auxiliary frequency source weight coefficient K setting	0.01 ~ 10.00	0.01	1.00	○
F0.15	Maximum output frequency	Low frequency range: MAX {50.00, 【F0.16】 } ~ 300.00 High frequency range: MAX {50.00, 【F0.16】 } ~ 3000.0	0.01Hz	50.00	×
F0.16	Upper limit frequency	【F0.17】 ~ 【F0.15】	0.01Hz	50.00	○

Function Code	Name	Set Range	Minimum Unit	Factory Default	Modification
F0.17	Lower limit frequency	0.00Hz~ 【F0.16】	0.01Hz	0.00	○
F0.18	Frequency output mode selection	LED ones place: high and low frequency mode selection 0: Low frequency mode (0.00 to 300.00 Hz) 1: High frequency mode (0.0 to 3000.0 Hz) LED ten: acceleration and deceleration reference selection 0: based on the maximum output frequency 1: based on the target output frequency LED Hundreds: Reserved LED Thousands: Reserved Note: High frequency mode is only valid for VF control	1	00	×
F0.19	Acceleration time 1	0.1~3600.0s 0.4~4.0KW 7.5s 5.5~30.0KW 5.0s	0.1s	Depending on model	○
F0.20	Deceleration time 1	37.0~132.0KW 30.0s 160.0~630.0KW 60.0s	0.1s	Depending on model	○
F0.21	Running direction	0: forward 1: reverse 2: prevent rever	1	0	×
F0.22	Carrier frequency	1.0~16.0KHz 0.4~4.0KW 6.0KHz 1.0~16.0KHz 5.5~30KW 4.5KHz 1.0~16.0KHz 37~132KW 3.0KHz 1.0~10.0KHz 160~630KW 1.8KHz 1.0~5.0KHz	0.1KHz	Depending on model	○
F1 Group – Auxiliary Operating Parameters					
F1.00	Start mode	0: start at start frequency 1: DC braking + start at start frequency 2: start with speed tracking	1	0	×

Function Code	Name	Set Range	Minimum Unit	Factory Default	Modification
F1.01	Start frequency	0.00~50.00Hz Note: when F0.18=1 (high frequency mode), upper limit of start frequency is 500.0Hz.	0.01Hz	1.00	○
F1.02	Start frequency hold time	0.0~6000.0s	0.1s	0.0	○
F1.03	Dc brake current at startup	0.0~150.0%*rated current of motor	0.1%	0.0%	○
F1.04	Dc brake time at startup	0.0~100.0s	0.1s	0.0	○
F1.05	Accelerating and decelerating mode	0: linear Acc / Dec mode 1: S curve Acc / Dec mode	1	0	×
F1.06	Time ratio of Initial segment in S curve	10.0~50.0%	0.1%	20.0%	○
F1.07	Time ratio of ending segment in S curve	10.0~50.0%	0.1%	20.0%	○
F1.08	Stop mode	0: Decelerate to stop 1: coast to stop	1	0	×
F1.09	Frequency threshold of DC brake	0.00~ 【F0.16】 upper limit frequency	0.01Hz	0.00	○
F1.10	DC brake delay time	0.0~100.0s	0.1s	0.0	○
F1.11	DC brake current	0.0~150.0%*rated current of motor	0.1%	0.0%	○
F1.12	DC brake time at stop	0.0~100.0s	0.1s	0.0	○
F1.13	Acc time 2	0.1~3600.0s 0.4~4.0KW 7.5s 5.5~30.0KW 15.0s 37.0~132.0KW 40.0s 160.0~630.0KW 60.0s	0.1	Depending on model	○
F1.14	Dec time 2		0.1	Depending on model	○
F1.15	Acc time 3		0.1	Depending on model	○

Function Code	Name	Set Range	Minimum Unit	Factory Default	Modification
F1.16	Dec time 3	0.1~3600.0s 0.4~4.0KW 7.5s	0.1	Depending on model	○
F1.17	Acc time 4	5.5~30.0KW 15.0s 37.0~132.0KW 40.0s	0.1	Depending on model	○
F1.18	Dec time 4	160.0~630.0KW 60.0s	0.1	Depending on model	○
F1.19	Acc/Dec time unit	0: second 1: minute 2: 0.1s	1	0	○
F1.20	Frequency setting of forward jog operation	0.00~ 【F0.16】 upper limit frequency	0.01Hz	5.00	○
F1.21	Frequency setting of reverse jog operation	0.00~ 【F0.16】 upper limit frequency	0.01Hz	5.00	○
F1.22	Jog Acc time	0.1~3600.0s 0.4~4.0KW 7.5s 5.5~30.0KW 15.0s	0.1s	Depending on model	○
F1.23	Jog Dec time	37.0~132.0KW 40.0s 160.0~630.0KW 60.0s	0.1s	Depending on model	○
F1.24	Jog interval time	0.0~100.0s	0.1s	0.1	○
F1.25	Hopping frequency 1	0.00~upper limit frequency	0.01Hz	0.00	○
F1.26	Hopping frequency 1 rang	0.00~upper limit frequency	0.01Hz	0.00	○
F1.27	Hopping frequency 2	0.00~upper limit frequency	0.01Hz	0.00	○
F1.28	Hopping frequency 2 rang	0.00~upper limit frequency	0.01Hz	0.00	○
F1.29	Hopping frequency 3	0.00~upper limit frequency	0.01Hz	0.00	○
F1.30	Hopping frequency 3 rang	0.00~upper limit frequency	0.01Hz	0.00	○

Function Code	Name	Set Range	Minimum Unit	Factory Default	Modification
F1.31	Action when set frequency is lower than lower limit frequency	0: run at lower limit frequency 1: run at zero frequency after delay time (start without delay) 2: stop after delay time (start without delay)	1	0	×
F1.32	Delay time of stopping when frequency is lower than limit (simple sleep)	0.0~3600.0s	0.1s	0.0	○
F1.33	Zero frequency brake current	0.0~150.0%*rated current of motor	0.1	0.0	×
F1.34	FWD/REV transition time	0.0~100.0s	0.1s	0.0	○
F1.35	FWD/REV switch mode	0: over zero frequency switch 1: over start frequency switch	1	0	×
F1.36	Standby deceleration time when emergency brake	0.1~3600.0s	0.1s	1.0	○
F1.37	Stop DC braking current maintenance time	0.0~100.0s	0.1s	0.0	○
F2 Group – Motor Parameters					
F2.00	Motor type	0: AC asynchronous motor 1: PMSM (reserved) Note 1: this parameter can not be initialized, please modify it manually.	1	0	×
F2.01	Motor's rated power	0.4~999.9KW	0.1KW	Depending on model	×
F2.02	Motor's rated frequency	0.01Hz~ 【F0.15】 maximum frequency	0.01Hz	50.00	×
F2.03	Motor's rated speed	0~60000RPM	1RPM	Depending on model	×
F2.04	Motor's rated voltage	0~999V	1V	Depending on model	×

Function Code	Name	Set Range	Minimum Unit	Factory Default	Modification
F2.05	Motor's rated current	0.1~6553.5A	0.1A	Depending on model	×
F2.06	Stator resistance of asynchronous motor	0.001~20.000Ω	0.001Ω	Depending on model	×
F2.07	Rotor resistance of asynchronous motor	0.001~20.000Ω	0.001Ω	Depending on model	×
F2.08	Stator and rotor inductance of asynchronous motor	0.1~6553.5mH	0.1mH	Depending on model	×
F2.09	Stator and rotor mutual inductance of asynchronous motor	0.1~6553.5mH	0.1mH	Depending on model	×
F2.10	No-load current of asynchronous motor	0.01~655.35A	0.01A	Depending on model	×
F2.11 F2.15	Reserved	—	—	0	◆
F2.16	Motor tuning	0: no action 1: static tuning 2: no-load complete tuning	1	0	×
F2.17	Pre-excitation time of asynchronous motor	0.00~10.00s 0.4~4.0KW 0.02s 5.5~30KW 0.05s 37~132KW 0.10s 160~630KW 0.20s Note: invalid for VF control	0.01s	Depending on model	×
F3 Group — Crane parameters					
F3.00	Brake release frequency	0.00~50.00Hz	0.01Hz	2.00Hz	○

Function Code	Name	Set Range	Minimum Unit	Factory Default	Modification
F3.01	Brake release current	0.0~200.0% Note: The setting value is the percentage of the motor rated current	0.1%	30.0%	○
F3.02	Brake release time	0.0~6000.0s	0.1s	5.0	○
F3.03	Brake frequency	0.00~50.00Hz	0.01Hz	2.00Hz	○
F3.04	Brake time	0.0~6000.0s	0.1s	5.0	○
F3.05	Reserved	—	0	Reserved	○
F3.06	Accurate stop shutdown frequency	0.00~50.00Hz	0.01Hz	8.00	○
F3.07	Accurate stop shutdown frequency maintenance time	0.0~6000.0s	0.1s	12.0	○
F3.08	Accurate stop shutdown signal retrieval time	0.0~6000.0s	0.1s	12.0	○
F3.09	Accurate stop frequency deceleration time	0.0~6000.0s	0.1s	0.5	○
F3.10	Accurate stop shutdown function	0: invalid 1: valid	1	0	○
F4 Group – Speed Loop, Torque and Flux Control Parameters					
F4.00	Speed loop (ASR1) proportional gain	0.0~12.5	0.1	3.0	○
F4.01	Speed loop (ASR1) integral time	0.00~25.00s	0.001s	0.50	○
F4.02	ASR1 filter time constant	0.000~0.100s	0.001s	0.000	○
F4.03	Switch low point frequency	0.00Hz~ 【F4.07】	0.01Hz	5.00	○
F4.04	Speed loop (ASR2) proportional gain	0.0~12.5	0.1	2.0	○
F4.05	Speed loop (ASR2) integral time	0.00~25.00s	0.001s	1.00	○

Function Code	Name	Set Range	Minimum Unit	Factory Default	Modification
F4.06	ASR2 filter time constant	0.000~0.100s	0.001s	0.000	○
F4.07	Switch high point frequency	【F4.03】 ~ 【F0.16】 upper limit frequency	0.01Hz	10.00	○
F4.08	Vector control of positive slip compensation factor (electromotion state)	50.0%~200.0%*rated slip frequency	0.1%	100%	○
F4.09	Vector control of negative slip compensation factor (braking state)	50.0%~200.0%*rated slip frequency	0.1%	100%	○
F4.10	Speed and torque control	0: speed 1: torque 2: valid conditionally (terminal switch)	1	0	×
F4.11	Speed and torque switching delay	0.01~1.00s	0.01s	0.05	×
F4.12	Torque command	0: keypad set 1: AI1 2: AI2 3: communication set	1	0	○
F4.13	Torque set by keypad	-200.0%~200.0%*rated current of motor	0.1%	0.0%	○
F4.14	Speed limit channel 1 of torque control mode (forward)	0: keypad set 1 1: AI1 2: AI2	1	0	○
F4.15	Speed limit channel 1 of torque control mode (reverse)	0: keypad set 2 1: AI1 2: AI2	1	0	○
F4.16	Keypad limit speed 1	0.0~100.0%* 【F0.15】 maximum frequency	0.1%	100.0%	○
F4.17	Keypad limit speed 2	0.0~100.0%* 【F0.15】 maximum frequency	0.1%	100.0%	○
F4.18	Torque rise time	0.0~10.0s	0.1s	0.1	○

Function Code	Name	Set Range	Minimum Unit	Factory Default	Modification
F4.19	Torque decline time	0.0~10.0s	0.1s	0.1	○
F4.20	Electromotion torque limit of vector mode	G type: 0.0%~200.0%*rated current of motor 180.0% P type: 0.0%~200.0%*rated current of motor 120.0%	0.1%	Depending on model	○
F4.21	Braking torque limit of vector mode	G type: 0.0%~200.0%*rated current of motor 180.0% P type: 0.0%~200.0%*rated current of motor 120.0%	0.1%	Depending on model	○
F4.22	Torque detection action	0: detect invalid 1: keep running after over torque detected during constant speed 2: keep running after over torque detected during running 3: cut off output after over torque detected during constant speed 4: cut off output after over torque detected during running 5: keep running after torque shortage detected during constant speed 6: keep running after torque shortage detected during running 7: cut off output after torque shortage detected during constant speed 8: cut off output after torque shortage detected during running	1	0	×
F4.23	Torque detection level	G type: 0.0%~200.0%*rated current of motor 150.0% P type: 0.0%~200.0%*rated current of motor 110.0%	0.1%	Depending on model	×
F4.24	Torque detection time	0.0~10.0s	0.1s	0.0	×
F4.25	Cut off frequency of static friction coefficient	0.00~300.00Hz	0.01Hz	10.00	○
F4.26	Static friction coefficient set	0.0~200.0	0.1	0.0	○
F4.27	Hold time of static friction coefficient	0.00~600.00s	0.01s	0.00	×

F5 Group – VF Control Parameters					
Function Code	Name	Set Range	Minimum Unit	Factory Default	Modification
F5.00	Torque detection level	0: linear curve 1: decreasing torque curve 1 (1.3 power) 2: decreasing torque curve 2 (1.5 power) 3: decreasing torque curve 3 (1.7 power) 4: square curve 5: user set V/F curve (determined by F5.01~F5.06) 6: elevator special curve (elevator upward curve is determined by F5.01~F5.06, elevator downward curve is determined by F5.27~F5.32)	1	0	×
F5.01	V/F curve 1 frequency value F1	0.00~ 【F5.03】	0.01Hz	12.50	×
F5.02	V/F curve 1 voltage value V1	0.00~ 【F5.04】	0.1%	25.0%	×
F5.03	V/F curve 1 frequency value F2	【F5.01】 ~ 【F5.05】	0.01Hz	25.00	×
F5.04	V/F curve 1 voltage value V2	【F5.02】 ~ 【F5.06】	0.1%	50.0%	×
F5.05	V/F curve 1 frequency value F3	【F5.03】 ~ 【F2.02】 motor rated frequency	0.01Hz	37.50	×
F5.06	V/F curve 1 voltage value V3	【F5.30】 ~ 100.0%* 【F2.04】 motor rated voltage	0.1%	75.0%	×
F5.07	Torque boost setting	0.0~30.0%*rated voltage of motor 【F2.04】 Note: 0.0 means the torque boost value is 0, not automatic boost	0.1%	Depending on model	×
F5.08	Torque boost cutoff point	0.00~rated frequency of motor	0.01Hz	15.00	×
F5.09	V/F control slip frequency compensation	0.0~200.0%*rated slip	0.1%	0.0%	○
F5.10	V/F control slip compensation filtering coefficients	1~10	1	3	○
F5.11	V/F control torque compensation filtering coefficients	0~10	1	Depending on model	○

Function Code	Name	Set Range	Minimum Unit	Factory Default	Modification
F5.12	Separated type V/F control	0: VF half separated mode, voltage open-loop output 1: VF half separated mode, voltage closed-loop output 2: VF complete separated mode, voltage open-loop output 3: VF complete separated mode, voltage closed-loop output Note 1: when choose VF separated control, please close the dead-time compensation function Note 2: half separated concept is based on that during start-up the frequency and voltage of VFD remains the VVVF relation, but get separated after the reaching of set frequency	1	0	×
F5.13	Voltage setting channel	0: digital setting 1: AI1 2: AI2	1	0	○
F5.14	Voltage feedback method of voltage close-loop output	0: AI1 1: AI2 Note: only valid for closed loop output mode	1	0	×
F5.15	Output voltage of digital setting	0.0~200.0%*rated voltage of motor Note: in open loop output mode, the maximum output voltage is 100.0% of rated voltage of motor	0.1%	100.0%	○
F5.16	Deviation limit of voltage closed loop regulation	0.0~5.0%*rated voltage of motor	0.1%	2.0%	×
F5.17	VF curve max. voltage of half separation mode	0.0~100.0%*rated voltage of motor Note: this voltage represents output voltage of VFD	0.1%	80.0%	×
F5.18	Controller adjustment cycle of voltage closed loop output	0.01~10.00s	0.01s	0.10	×
F5.19	Voltage rising time	0.1~3600.0s	0.1s	10.0	○
F5.20	Voltage declining time	Note: this parameter is only valid for open loop output mode of complete separated voltage	0.1s	10.0	○

Function Code	Name	Set Range	Minimum Unit	Factory Default	Modification
F5.21	Voltage feedback disconnection treatment	0: alarm and keep running with the voltage of disconnection moment 1: alarm and keep running with decreased voltage of amplitude limiting value 2: protection action and free stop	1	0	×
F5.22	Detection value of voltage feedback disconnection	0.0~100.0%*rated voltage of motor	0.1%	2.0%	○
F5.23	Detection time of voltage feedback disconnection	0.0~100.0s	0.1s	10.0	○
F5.24	Limit voltage of voltage feedback disconnection	0.0~100.0%*rated voltage of motor Note: this voltage represents the output voltage of VFD, and reasonable setting of this parameter could prevent machine damage resulting from voltage overshoot at disconnection moment.	0.1%	80.0%	○
F5.25	Busbar voltage undervoltage detection value	Note: 0 is invalid, and the busbar voltage is lower than the value of this parameter, will report "E-34".	1V	0	○
F5.26	Busbar undervoltage fault reset value	Note: If the busbar voltage reaches this set value, the undervoltage fault "E-34" will automatically reset and start.	1V	0	○
F5.27	V/F curve 2 frequency value F1	0.00~ 【F5.29】	0.01Hz	12.50	×
F5.28	V/F curve 2 voltage value V1	0.00~ 【F5.30】	0.1%	25.0%	×
F5.29	V/F curve 2 frequency value F2	【F5.27】 ~ 【F5.31】	0.01Hz	25.00	×
F5.30	V/F curve 2 voltage value V2	【F5.28】 ~ 【F5.32】	0.1%	50.0%	×
F5.31	V/F curve 2 frequency value F3	【F5.29】 ~ 【F2.02】 motor rated frequency	0.01Hz	37.50	×
F5.32	V/F curve 2 voltage value V3	【F5.30】 ~100.0%* 【F2.04】 motor rated voltage	0.1%	75.0%	×

F6 Group – Analog Quantity and Pulse Input and Output Parameters

Function Code	Name	Set Range	Minimum Unit	Factory Default	Modification
F6.00	AI1 input corresponding physical quantity	0: speed command (output frequency, -100.0%~100.0%) 1: torque command (output torque, -200.0%~200.0%) 2: voltage command (output voltage, 0.0%~200.0% *rated voltage of motor)	1	0	×
F6.01	AI1 input lower-limit	0.00V/0.00mA~10.00V/20.00mA	0.01V	0.00	○
F6.02	AI1 lower limit corresponding physical quantity set	-200.0%~200.0% Note: range is relevant to F6.00	0.1%	0.0%	○
F6.03	AI1 input upper limit	0.00V/0.00mA~10.00V/20.00mA	0.01V	10.00	○
F6.04	AI1 upper limit corresponding physical quantity setting	-200.0%~200.0% Note: range is relevant to F6.00	0.1%	100.0%	○
F6.05	AI1 input smoothing time	0.00s~10.00s	0.01s	0.05	○
F6.06	AI2 input corresponding physical quantity	0: speed command (output frequency, -100.0%~100.0%) 1: torque command (output torque, -200.0%~200.0%) 2: voltage command (output voltage, 0.0%~200.0% *rated voltage of motor)	1	0	×
F6.07	AI2 input lower limit	0.00V~10.00V	0.01V	0.00	○
F6.08	AI2 lower limit corresponding physical quantity setting	-200.0%~200.0% Note: range is relevant to F6.06	0.1%	0.0%	○
F6.09	AI2 input upper limit	0.00V~10.00V	0.01V	10.00	○
F6.10	AI2 upper limit corresponding physical quantity setting	-200.0%~200.0% Note: range is relevant to F6.06	0.1%	100.0%	○

Function Code	Name	Set Range	Minimum Unit	Factory Default	Modification
F6.11	AI2 input filtering time	0.00s~10.00s	0.01s	0.05	○
F6.12	Error limit of analog input	0.00V~10.00V	0.01V	0.00	○
F6.13	Threshold of zero frequency operation	Zero frequency hysteresis~50.00Hz Note: when F0.18=1 (high frequency mode), upper limit of this parameter is 500.0Hz.	0.01Hz	0.00	○
F6.14	Zero frequency hysteresis	0.00~zero frequency threshold value	0.1%	0.0%	○
F6.15	External impulse input corresponding physical quantity	0: speed command (output frequency, -100.0%~100.0%) 1: torque command (output torque, -200.0%~200.0%)	1	0	×
F6.16	External impulse input lower limit	0.00~50.00KHz	0.01Hz	0.00	○
F6.17	External impulse lower limit corresponding physical quantity set	-200.0%~200.0% Note: range is relevant to P6.15	0.1%	0.0%	○
F6.18	External impulse input upper limit	0.00~50.00KHz	0.01Hz	50.00	○
F6.19	External impulse upper limit corresponding physical quantity set	-200.0%~200.0% Note: range is relevant to P6.15	0.1%	100.0%	○
F6.20	External impulse input filtering time	0.00~10.00s	0.01s	0.05	○
F6.21	AO1 multi-function analog output terminal	0: output frequency (before slip compensation) 1: output frequency (after slip compensation) 2: set frequency 3: motor speed (estimated value) 4: output current 5: output voltage 6: but voltage 7: PID specified value 8: PID feedback value 9: AI1	1	0	○
F6.22	AO2 multi-function analog output terminal		1	4	○

Function Code	Name	Set Range	Minimum Unit	Factory Default	Modification
F6.23	DO multi-function impulse output terminal	10: AI2 11: input pulse frequency 12: torque current 13: flux current 14: communication setting	1	11	○
F6.24	Physical quantity correspond to AO1 output lower limit	-200.0%~200.0%	0.1%	0.0%	○
F6.25	AO1 output lower limit	0.00~10.00V	0.01V	0.00	○
F6.26	Physical quantity correspond to AO1 output upper limit	-200.0%~200.0%	0.1%	100.0%	○
F6.27	AO1 output upper limit	0.00~10.00V	0.01V	10.00	○
F6.28	Physical quantity correspond to AO2 output lower limit	-200.0%~200.0%	0.1%	0.0%	○
F6.29	AO2 output lower limit	0.00~10.00V	0.01V	0.00	○
F6.30	Physical quantity correspond to AO2 output upper limit	-200.0%~200.0%	0.1%	100.0%	○
F6.31	AO2 output upper limit	0.00~10.00V	0.01V	10.00	○
F6.32	Physical quantity correspond to DO output lower limit	-200.0%~200.0%	0.1%	0.0%	○
F6.33	DO output lower limit	0.00~50.00KHz	0.01KHz	0.00	○
F6.34	Physical quantity correspond to DO output upper limit	-200.0%~200.0%	0.1%	100.0%	○
F6.35	DO output upper limit	0.00~50.00KHz	0.01KHz	50.00	○

Function Code	Name	Set Range	Minimum Unit	Factory Default	Modification
F6.36	AI multi-point curve selection	LED ones digit: AI1 multi-point curve selection 0: Disable 1: Valid LED ten: AI2 multi-point curve selection 0: Disable 1: Valid LED hundred digits: analog input signal selection 0: AI1 and AI2 input signal 0~10V 1: AI1 input signal 4~20mA, AI2 input signal 0~10V 2: AI2 input signal 4~20mA, AI1 input signal 0~10V 3: AI1 and AI2 input signals 4~20mA LED Thousands: Reserved	1	00	×
F6.37	AI1 curve minimum input	0.00 ~ 【F6.39】	0.01V	0.00	○
F6.38	AI1 curve minimum input corresponding setting	-200.0%~200.0% Note: The scope is associated with F6.00	0.1%	0.0%	○
F6.39	AI1 curve inflection point 1 input	【F6.37】 ~ 【F6.41】	0.01V	3.00	○
F6.40	AI1 curve inflection point 1 input corresponding setting	-200.0%~200.0% Note: The scope is associated with F6.00	0.1%	30.0%	○
F6.41	AI1 curve inflection point 2 input	【F6.39】 ~ 【F6.43】	0.01V	6.00	○
F6.42	AI1 curve inflection point 2 input corresponding setting	-200.0%~200.0% Note: The scope is associated with F6.00	0.1%	60.0%	○
F6.43	AI1 curve maximum input	【F6.41】 ~ 10.00	0.01V	10.00	○
F6.44	AI1 curve maximum input corresponding setting	-200.0%~200.0% Note: The scope is associated with F6.00	0.1%	100.0%	○
F6.45	AI2 curve minimum input	0.00 ~ 【F6.47】	0.01V	0.00	○
F6.46	AI2 curve minimum input corresponding setting	-200.0%~200.0% Note: The scope is associated with F6.06	0.1%	0.0%	○

Function Code	Name	Set Range	Minimum Unit	Factory Default	Modification
F6.47	AI2 curve inflection point 1 input	【F6.45】 ~ 【F6.49】	0.01V	3.00	○
F6.48	AI2 curve inflection point 1 input corresponding setting	-200.0%~200.0% Note: The scope is associated with F6.06	0.10%	30.0%	○
F6.49	AI2 curve inflection point 2 input	【F6.47】 ~ 【F6.51】	0.01V	6.00	○
F6.50	AI2 curve inflection point 2 input corresponding setting	-200.0%~200.0% Note: The scope is associated with F6.06	0.10%	60.0%	○
F6.51	AI2 curve maximum input	【F6.49】 ~10.00	0.01V	10.00	○
F6.52	AI2 curve maximum input corresponding setting	-200.0%~200.0% Note: The scope is associated with F6.06	0.10%	100.0%	○
F6.53	AI1 input voltage protection upper limit	【F6.54】 ~10.00V	0.01V	6.80	○
F6.54	AI1 input voltage protection lower limit	0.00~ 【F6.53】	0.01V	3.10	○
F7 Group – Digital Input and Output Parameters					
F7.00	Input X1 function (when F8.21 is non-zero, default as function NO.58)	0: control terminal idle 1: forward run (FWD) 2: reverse run (REV) 3: three-wire running control 4: forward jog control 5: reverse jog control 6: free shutdown control 7: external reset signal input (RST)	1	1	×
F7.01	Input X2 function (when F8.21 is non-zero, default as function NO.59)	8: external fault normally-open input 9: external fault normally-close input 10: emergency stop function (brake with) 11: External stop control 12: frequency increase 13: frequency decrease 14: UP/DOWN terminal frequency zero clearing 15: multi-speed 1	1	2	×

Function Code	Name	Set Range	Minimum Unit	Factory Default	Modification
F7.02	Input X3 function (when F8.21 is non-zero, default as function NO.60)	16: multi-speed 2 17: multi-speed 3 18: multi-speed 4 19: ACC/DEC time TT1 20: ACC/DEC time TT2 21: run command channel 1 22: run command channel 2 23: VFD ACC/DEC prohibit 24: VFD operation prohibiting	1	4	×
F7.03	Input X4 function (when F8.21 is non-zero, default as function NO.61)	25: run command switch to keypad 26: run command switch to terminal 27: run command switch to communication 28: auxiliary frequency zero clearing 29: frequency source A and K*B switch 30: frequency source A and A+K*B switch 31: frequency source A and A-K*B switch 32: reserved	1	7	×
F7.04	Input X5 function (when F8.21 is non-zero, default as function NO.62)	33: PID control input 34: PID control pause 35: start traverse operation 36: pause traverse operation 37: traverse status reset 38: PLC control input 39: PLC pause 40: PLC reset	1	8	×
F7.05	Input X6 function (when F8.21 is non-zero, default as function NO.63)	41: clear the counter to zero 42: input signal to trigger the counter 43: timing triggering input 44: timing clearing input 45: input external impulse frequency (only valid for X7) 46: clear the length information 47: input the signal of length (only valid for X7) 48: switch speed and torque control 49: prohibit torque control	1	0	×

Function Code	Name	Set Range	Minimum Unit	Factory Default	Modification
F7.06	Input X7 function (high speed pulse input)	50~57: reserved 58: start/stop 59: running allowed 60: interlock1 61: interlock2 62: interlock3 63: PFC start/stop 64: A frequency switch B and run 65: The first group PID is switched to the second group PID 66: Accurate Stop shutdown signal input	1	45	×
F7.07	Reserved	—	—	0	◆
F7.08	Digital filtering times	1~10 1: 2MS unit of scanning time	1	5	○
F7.09	Terminal function detection when power on	0: terminal operation command invalid when power on 1: terminal operation command valid when power on	1	0	○
F7.10	Effective logic setting of input terminal (X1~X7)	0~7FH 0 is positive logic, i.e. terminal Xi is enabled when it connects with common terminal and disabled if disconnected. 1 is negative logic, i.e. terminal Xi is disabled when it connects with common terminal and enabled when disconnected.	1	00	×
F7.11	FWD/REV terminal control mode	0: two-wire control mode 1 1: two-wire control mode 2 2: three-wire control mode 1 3: three-wire control mode 2	1	0	×
F7.12	UP/DOWN terminal frequency modifying rate	0.01~50.00Hz/s Note: when F0.18=1 (high frequency mode), upper limit of this parameter is 500.0Hz/s.	0.01Hz/s	1.00	○

Function Code	Name	Set Range	Minimum Unit	Factory Default	Modification
F7.13	Reserved	—	—	0	◆
F7.14	Y1 output delay time	0.0~100.0s	0.1s	0.0	×
F7.15	Y2 output delay time	0.0~100.0s	0.1s	0.0	×
F7.16	R1 output delay time	0.0~100.0s	0.1s	0.0	×
F7.17	R2 output delay time	0.0~100.0s	0.1s	0.0	×
F7.18	Open collector output terminal Y1	0: no output 1: VFD forward running 2: VFD reverse running 3: fault output 4: frequency/speed level detection signal (FDT1) 5: frequency/speed level detection signal (FDT2) 6: frequency/speed arrival signal (FAR) 7: VFD zero-speed running 8: upper limit arrival of output frequency 9: lower limit arrival of output frequency 10: lower limit arrival of preset frequency during running 11: pre-alarm signal of overload 12: counter detection signal output 13: counter detection reset signal output	1	0	×
F7.19	Open collector output terminal Y2	14: driver ready 15: one cycle finished of programmable MS running 16: stage finished of programmable MS running 17: upper and lower limit of traverse frequency 18: current limiting action 19: stall over voltage 20: low voltage lock-up 21: dormancy state 22: VFD alarm signal (PID disconnection, RS485 communication failure, panel communication failure, EEPROM read-write failure, encoder disconnection, etc.) 23: AI1 > AI2 24: preset length arrival	1	0	×

Function Code	Name	Set Range	Minimum Unit	Factory Default	Modification
F7.20	Programmable relay R1 output	25: preset operation time out 26: dynamic braking action 27: DC braking action 28: flux braking action 29: torque limiting 30: over torque signal 31: auxiliary motor 1 32: auxiliary motor 2 33: accumulated operation time out 34~49: segment of MS or simple PLC operation 50: running indication signal 51: temperature arrival indication 52: indication when VFD stops or during zero-speed running 53: reserved	1	3	×
F7.21	Programmable relay R2 output	54: reserved 55: Communication settings 56: The inverter is ready for operation 2 57: AI1 input over pressure 58: Output current overrun 59: Interlock 1 output 60: Interlock 2 output 61: Interlock 3 output 62: Frequency and current detection level reach the output at the same time 63: Brake signal output 64: Output signal when the frequency inverter runs to the accurate stop shutdown frequency	1	0	×
F7.22	Logic setting of output terminal (Y1~Y2)	0~3H 0: positive logic, i.e. terminal Yi is enabled when it connects with common terminal, and disabled if disconnected. 1: negative logic, i.e. terminal Yi is disabled when it connects with common terminal, and enabled if disconnected.	1	0	×

Function Code	Name	Set Range	Minimum Unit	Factory Default	Modification
F7.23	Frequency arrival detection range (FAR)	0.0~100.0%* 【F0.15】 max. frequency	0.1%	10.0%	○
F7.24	FDT1 detection method	0: speed set value 1: speed detected value	1	0	○
F7.25	FDT1 level	0.00Hz~ 【F0.16】 upper limit frequency	0.01Hz	50.00	○
F7.26	FDT1 lag	0.0~100.0%* 【F7.25】	0.1%	2.0%	○
F7.27	FDT2 detection method	0: speed set value 1: speed detected value	1	0	○
F7.28	FDT2 level	0.00Hz~ 【F0.16】 upper limit frequency	0.01Hz	25.00	○
F7.29	FDT2 lag	0.0~100.0%* 【F7.28】	0.1%	4.0%	○
F7.30	Counting value arrival processing	0: stop counting, stop output 1: stop counting, resume output 2: cycle count, stop output 3: cycle count, resume output	1	3	×
F7.31	Counting start condition	0: always count since power on 1: count in operation status, stop counting in stop status	1	1	×
F7.32	Counter reset value	【F7.33】 ~65535	1	0	○
F7.33	Counter detection value	0~ 【F7.32】	1	0	○
F7.34	Time out processing	0: stop timing, stop output 1: stop timing, resume output 2: cycle timing, stop output 3: cycle timing, resume output	1	3	×
F7.35	Timing start condition	0: timing starts since power on 1: timing starts in operation status, and stops in stop status	1	1	×

Function Code	Name	Set Range	Minimum Unit	Factory Default	Modification
F7.36	Timing setting	0~65535s	1s	0	○
F7.37	Y1 turn off delay time	0.0~100.0s	0.1s	0.0	×
F7.38	Y2 turn off delay time	0.0~100.0s	0.1s	0.0	×
F7.39	R1 turn off delay time	0.0~100.0s	0.1s	0.0	×
F7.40	R2 turn off delay time	0.0~100.0s	0.1s	0.0	×
F8 Group — PID Control Parameters					
F8.00	PID operation input mode	0: auto 1: manually input via defined multi-function terminal	1	0	×
F8.01	PID input channel	0: digital setting 1: AI1 2: AI2 3: pulse setting 4: RS485 communication 5: Pressure given (MPa, Kg) 6: Panel potentiometer given	1	0	○
F8.02	Digital reference input setting	0.0~100.0%	0.1%	50.0%	○
F8.03	PID feedback channel	0: AI1 1: AI2 2: AI1+AI2 3: AI1-AI2 4: MAX {AI1, AI2} 5: MIN {AI1, AI2} 6: pulse setting 7: RS485 communication	1	0	○

Function Code	Name	Set Range	Minimum Unit	Factory Default	Modification
F8.04	PID controller advanced setting	LED one's place: PID sign 0: positive 1: negative LED ten's place: proportion regulation (reserved) 0: integral regulation of constant proportion 1: integral regulation of auto changing proportion LED hundred's place: integral regulation 0: stop integral regulation when the frequency reaches the upper or lower limits 1: continue the integral regulation when the frequency reaches the upper or lower limits LED thousand's place: reserved	1	000	×
F8.05	Proportional gain KP1	0.01~100.00	0.01	5.00	○
F8.06	Integral time Ti1	0.01~10.00s	0.01s	0.05	○
F8.07	Derivative time Td1	0.01~10.00s 0.0: no derivation	0.01s	0.00	○
F8.08	Sampling cycle T	0.01~10.00s 0.00: auto	0.01s	0.10	○
F8.09	Error limit	0.0~100.0%	0.1%	0.0%	○
F8.10	Close-loop preset frequency	0.00~upper limit frequency	0.01Hz	0.00	○
F8.11	Preset frequency hold time	0.0~3600.0s	0.1s	0.0	×
F8.12	Sleep mode	0: disabled 1: sleep when feedback pressure exceeding or lower than sleep threshold 2: sleep when feedback pressure and output frequency are stable 3: Sleep when feedback pressure higher than frequency reduction lower limit threshold	1	1	×

Function Code	Name	Set Range	Minimum Unit	Factory Default	Modification
F8.13	Stop method of sleep mode	0: decelerate to stop 1: coast to stop	1.00	0	○
F8.14	Deviation limit of feedback when entering sleep state compared with set pressure	0.0~10.0% Note: this parameter is only valid to the second sleep mode.	0.1%	0.5%	○
F8.15	Threshold value of sleeping	0.0~200.0% Note: this threshold value is the percentage of given pressure, and it is only valid for the first sleep mode.	0.1%	100.0%	○
F8.16	Threshold value of awaking	0.0~200.0% Note: this threshold value is the percentage of given pressure.	0.1%	90.0%	○
F8.17	Delay time of sleep	0.0~3600.0s	0.1s	100.0	○
F8.18	Delay time of awaking	0.0~3600.0s	0.1s	5.0	○
F8.19	Delay time of adding pump	0.0~3600.0s	0.1s	10.0	○
F8.20	Delay time of reducing pump	0.0~3600.0s	0.1s	10.0	○
F8.21	Water supply enabling (F8.21~F8.24 External expansion hardware support required)	0: disabled 1: PFC enabled 2: SPFC enabled	1	0	×
F8.22	Delay time of terminal disconnect and connect	0.0~6000.0s	0.1s	0.1	○
F8.23	Polling time	0.0~6000.0h	0.1h	48.0	○
F8.24	Lower limit frequency of reducing pump	0.0~600.00Hz	0.01Hz	35.00	×
F8.25	Sensor range	0.00~60.00 (MPa, Kg)	0.01	10.00	○
F8.26	Pressure setting	0.00~ 【F8.25】 (MPa, Kg)	0.01	5.00	○

Function Code	Name	Set Range	Minimum Unit	Factory Default	Modification
F8.27	Main pump start delay	0.0~3600.0s	0.1s	0.3	○
F8.28	Auxiliary pump start mode selection	0: Direct start 1: soft start	1	0	×
F8.29	Proportional gain KP2	0.01~100.00	0.01	1.00	○
F8.30	Integration time Ti2	0.01~10.00s	0.01s	0.10	○
F8.31	Derivative time Td2	0.01~10.00s 0.0: no differentiation	0.01s	0.00	○
F8.32	PID upper limit cutoff frequency	【F8.33】 ~300.00Hz	0.01Hz	50.00	×
F8.33	PID lower limit cutoff frequency	-300.00Hz~ 【F8.32】 Note: When the frequency is lower than -99.99Hz, you need to set F0.18 bits to 1	0.01Hz	0.00	×
F8.34	Frequency reduction time	0.1~100.0s Note: Only useful when F8.12=3	0.1s	2.0	○
F8.35	Frequency reduction detection time	0.1~100.0s Note: Only useful when F8.12=3	0.1s	0.0	○
F8.36	Waiting time before frequency reduction	0.1~100.0s Note: Only useful when F8.12=3	0.1s	10.0	○
F8.37	Frequency reduction lower limit threshold	【F8.38】 -100% Note: Only useful when F8.12=3	0.1%	95.0%	○
F8.38	Sleep lower limit threshold	【F8.37】 - 【F8.16】 Note: Only useful when F8.12=3	0.1%	90.0%	○
F8.39	Frequency reduction amplitude	0.00~50.00 Note: Only useful when F8.12=3	0.01	2.00	○
F8.40	Sleep frequency	0.00Hz~ 【F0.16】	0.01Hz	20.00	×

F9 Group — MS and PLC Running, Traverse and Fixed Length Control

Function Code	Name	Set Range	Minimum Unit	Factory Default	Modification
F9.00	PLC running mode	0: stop after single cycle 1: retain value after single cycle 2: continuous cycle of limited times 3: continuous cycle	1	0	×
F9.01	Input mode of PLC running	0: auto 1: manually input via defined multi-function terminal	1	0	×
F9.02	PLC running state saving after power off	0: not save 1: save the stage and frequency when power off	1	0	×
F9.03	PLC restart mode	0: restart from the first stage 1: start from the stage where the driver stops (fault) 2: start from the stage where the driver stops (fault) at the recorded frequency	1	0	×
F9.04	Limited times of continuous cycle	1~65535	1	1	○
F9.05	Unit of PLC running time	0: s 1: m	1	0	×
F9.06	MS frequency 0	—upper limit frequency~upper limit frequency	0.01Hz	5.00	○
F9.07	MS frequency 1	—upper limit frequency~upper limit frequency	0.01Hz	10.00	○
F9.08	MS frequency 2	—upper limit frequency~upper limit frequency	0.01Hz	15.00	○
F9.09	MS frequency 3	—upper limit frequency~upper limit frequency	0.01Hz	20.00	○
F9.10	MS frequency 4	—upper limit frequency~upper limit frequency	0.01Hz	25.00	○
F9.11	MS frequency 5	—upper limit frequency~upper limit frequency	0.01Hz	30.00	○
F9.12	MS frequency 6	—upper limit frequency~upper limit frequency	0.01Hz	40.00	○
F9.13	MS frequency 7	—upper limit frequency~upper limit frequency	0.01Hz	50.00	○

Function Code	Name	Set Range	Minimum Unit	Factory Default	Modification
F9.14	MS frequency 8	-upper limit frequency~upper limit frequency	0.01Hz	0.00	○
F9.15	MS frequency 9	-upper limit frequency~upper limit frequency	0.01Hz	0.00	○
F9.16	MS frequency 10	-upper limit frequency~upper limit frequency	0.01Hz	0.00	○
F9.17	MS frequency 11	-upper limit frequency~upper limit frequency	0.01Hz	0.00	○
F9.18	MS frequency 12	-upper limit frequency~upper limit frequency	0.01Hz	0.00	○
F9.19	MS frequency 13	-upper limit frequency~upper limit frequency	0.01Hz	0.00	○
F9.20	MS frequency 14	-upper limit frequency~upper limit frequency	0.01Hz	0.00	○
F9.21	MS frequency 15	-upper limit frequency~upper limit frequency	0.01Hz	0.00	○
F9.22	Acc/Dec time of stage 0	0~3	1	0	○
F9.23	Run time of segment 0	0.0~6553.5s (M)	0.1s (M)	0.0	○
F9.24	Acc/Dec time of stage 1	0~3	1	0	○
F9.25	Run time of segment 1	0.0~6553.5s (M)	0.1s (M)	0.0	○
F9.26	Acc/Dec time of stage 2	0~3	1	0	○
F9.27	Run time of segment 2	0.0~6553.5s (M)	0.1s (M)	0.0	○
F9.28	Acc/Dec time of stage 3	0~3	1	0	○
F9.29	Run time of segment 3	0.0~6553.5s (M)	0.1s (M)	0.0	○
F9.30	Acc/Dec time of stage 4	0~3	1	0	○
F9.31	Run time of segment 4	0.0~6553.5s (M)	0.1s (M)	0.0	○
F9.32	Acc/Dec time of stage 5	0~3	1	0	○
F9.33	Run time of segment 5	0.0~6553.5s (M)	0.1s (M)	0.0	○

Function Code	Name	Set Range	Minimum Unit	Factory Default	Modification
F9.34	Acc/Dec time of stage 6	0~3	1	0	○
F9.35	Run time of segment 6	0.0~6553.5s (M)	0.1s (M)	0.0	○
F9.36	Acc/Dec time of stage 7	0~3	1	0	○
F9.37	Run time of segment 7	0.0~6553.5s (M)	0.1s (M)	0.0	○
F9.38	Acc/Dec time of stage 8	0~3	1	0	○
F9.39	Run time of segment 8	0.0~6553.5s (M)	0.1s (M)	0.0	○
F9.40	Acc/Dec time of stage 9	0~3	1	0	○
F9.41	Run time of segment 9	0.0~6553.5s (M)	0.1s (M)	0.0	○
F9.42	Acc/Dec time of stage 10	0~3	1	0	○
F9.43	Run time of segment 10	0.0~6553.5s (M)	0.1s (M)	0.0	○
F9.44	Acc/Dec time of stage 11	0~3	1	0	○
F9.45	Run time of segment 11	0.0~6553.5s (M)	0.1s (M)	0.0	○
F9.46	Acc/Dec time of stage 12	0~3	1	0	○
F9.47	Run time of segment 12	0.0~6553.5s (M)	0.1s (M)	0.0	○
F9.48	Acc/Dec time of stage 13	0~3	1	0	○
F9.49	Run time of segment 13	0.0~6553.5s (M)	0.1s (M)	0.0	○
F9.50	Acc/Dec time of stage 14	0~3	1	0	○
F9.51	Run time of segment 14	0.0~6553.5s (M)	0.1s (M)	0.0	○
F9.52	Acc/Dec time of stage 15	0~3	1	0	○
F9.53	Run time of segment 15	0.0~6553.5s (M)	0.1s (M)	0.0	○

Function Code	Name	Set Range	Minimum Unit	Factory Default	Modification
F9.54	Reserved	—	—	0	◆
F9.55	Traverse control	0: disabled 1: enabled	1	0	×
F9.56	Input method of traverse mode	0: auto 1: manually input via defined multi-function terminal	1	0	×
F9.57	Amplitude control	0: fixed amplitude 1: varied amplitude	1	0	×
F9.58	Restart method of traverse mode	0: start to the state before stop 1: restart without other requirement	1	0	×
F9.59	Save traverse state upon power failure	0: save 1: not save	1	0	×
F9.60	Preset traverse frequency	0.00Hz~upper limit frequency	0.01Hz	10.00	○
F9.61	Preset traverse frequency hold time	0.0~3600.0s	0.1s	0.0	×
F9.62	Traverse amplitude	0.0~100.0%	0.1%	0.0%	○
F9.63	Step frequency	0.0~50.0% (of amplitude)	0.1%	0.0%	○
F9.64	Traverse rising time	0.1~3600.0s	0.1s	5.0	○
F9.65	Traverse falling time	0.1~3600.0s	0.1s	5.0	○
F9.66	Reserved	—	—	0	◆
F9.67	Length control	0: disabled 1: enabled	1	0	×
F9.68	Preset length	0.000~65.535 (KM)	0.001KM	0.000	○
F9.69	Actual length	0.000~65.535 (KM)	0.001KM	0.000	○
F9.70	Length factor	0.100~30.000	0.001	1.000	○

Function Code	Name	Set Range	Minimum Unit	Factory Default	Modification
F9.71	Length calibration	0.001~1.000	0.001	1.000	○
F9.72	Shaft circumference	0.10~100.00CM	0.01CM	10.00	○
F9.73	Pulse per revolution (X7)	1~65535	1	1024	○
FA Group – Protective Parameters					
FA.00	Motor overload protection	LED units: motor overload protection selection 0: prohibited 1: Ordinary motor (Electronic thermal relay mode, low speed with compensation) 2: Frequency conversion motor (Electronic thermal relay mode, no compensation for low speed) 3: Self-defined motor overload protection LED ten bits: inverter overload protection selection 0: prohibited 1: General inverter overload protection 2: Self-defined inverter overload protection LED Hundreds bits: Overload pre-alarm selection 0: prohibited 1: Effective LEDs Thousands bits: reserved	1	11	×
FA.01	Motor overload protection factor	20.0%~120.0%	0.1%	100.0%	×
FA.02	Undervoltage protection	0: disabled 1: enabled (undervoltage is seen as fault)	1	0	×
FA.03	Undervoltage protection level	220V: 180~280V 200V 380V: 330~480V 350V	1V	Depending on model	×
FA.04	Overvoltage limit level	220V: 350~390V 370V 380V: 600~780V 660V	1V	Depending on model	×
FA.05	Voltage limit factor in decelerating	0~100 0: protection invalid of stall over voltage	1	Depending on model	×

Function Code	Name	Set Range	Minimum Unit	Factory Default	Modification
FA.06	Current limiting threshold (only valid for VF mode)	G type: 80%~200%*VFD rated current 160% P type: 80%~200%*VFD rated current 120%	1%	Depending on model	×
FA.07	Current limiting in the field weakening region	0: limited by FA.06 1: limited by conversion value of PA.06	1	0	×
FA.08	Current limiting factor in accelerating	0~100 0: acceleration current limiting is disabled	1	Depending on model	×
FA.09	Current limiting in constant speed running	0~100	1	40	×
FA.10	Off load detection time	0.1s~60.0s	0.1s	5.0	○
FA.11	Off load detection level	0~100%*VFD rated current 0: off load detection is disabled	1%	0%	○
FA.12	Overload pre-alarm level	G type: 20%~200%*VFD rated current 160% P type: 20%~200%*VFD rated current 120%	1%	Depending on model	○
FA.13	Overload pre-alarm delay time	0.0~30.0s	0.1s	10.0	○
FA.14	Temperature detection threshold	0.0°C~90.0°C	0.1°C	65.0°C	×
FA.15	Phase loss protection of input and output	0: disabled 1: disabled for input, enabled for output 2: enabled for input, disabled for output 3: enabled	1	Depending on model	×
FA.16	Delay time of input phase loss protection	0.0~30.0s	0.1s	1.0	○
FA.17	Detection reference of output phase loss protection	0%~100%*VFD rated current	1%	50%	×
FA.18	Detection factor of output current imbalance	1.00~10.00 1.00: imbalance detection is disabled Note: detection of output current imbalance and output phase loss share the same reference parameter FA.17 and fault code E-13.	—	1.00	×

Function Code	Name	Set Range	Minimum Unit	Factory Default	Modification
FA.19	Reserved	—	—	0	◆
FA.20	PID feedback disconnection processing	0: disabled 1: alarm and maintain the operation at the frequency of disconnection moment 2: protection action and coast to stop 3: alarm and decelerate to zero-speed operation according to preset mode	1	0	×
FA.21	Feedback disconnection detection value	0.0~100.0%	0.1%	0.0%	○
FA.22	Feedback disconnection detection time	0.0~3600.0s	0.1s	10.0	○
FA.23	Reserved	—	—	0	◆
FA.24	Action of RS485 communication error	0: protection action and coast to stop 1: alarm and maintain the current operation 2: alarm and stop according to the preset mode	1	1	×
FA.25	RS485 communication timeout detect	0.0: no detect 0.1~100.0s note: communication time out detection is disabled in stop status	0.1s	5.0	○
FA.26	Action of operation panel communication error	0: protection action and coast to stop 1: alarm and maintain the current operation 2: protection action and stop according to the preset stop mode	1	1	×
FA.27	Operation panel communication timeout detect	0.0~100.0s	0.1s	1.0	○
FA.28	Action of EEPROM read-write error	0: protection action and coast to stop 1: alarm and maintain the current operation	1	0	×
FA.29	Motor overload protection threshold	0~200%*motor rated current	1%	150%	○

Function Code	Name	Set Range	Minimum Unit	Factory Default	Modification
FA.30	Motor overload protection detection time	0~60000s	1s	100	○
FA.31	Inverter overload protection threshold	0~200%*inverter rated current	1%	150%	○
FA.32	Inverter overload protection detection time	0~60000s	1s	60	○
FA.33 FA.35	Reserved	—	—	0	◆
FB Group – RS485 Communication Parameters					
FB.00	Protocol	0: MODBUS 1: user-defined	1	0	×
FB.01	Local address	0: broadcast address 1~247: slave	1	1	×
FB.02	Baud rate setting	0: 2400BPS 1: 4800BPS 2: 9600BPS 3: 19200BPS 4: 38400BPS 5: 115200BPS	1	3	×
FB.03	Data format	0: no parity (N, 8, 1) for RTU 1: even parity (E, 8, 1) for RTU 2: odd parity (O, 8, 1) for RTU 3: no parity (N, 8, 2) for RTU 4: even parity (E, 8, 2) for RTU 5: odd parity (O, 8, 2) for RTU ASCII mode is reserved at present	1	1	×
FB.04	Response delay	0~200ms	1ms	5	×
FB.05	Transmission response	0: response for write operation 1: no response for write operation	1	0	×

Function Code	Name	Set Range	Minimum Unit	Factory Default	Modification
FB.06	Ratio correlation coefficient	0.01 ~ 10.00	0.01	1.00	○
FB.07	Communication mode selection	LED ones digit: communication mode selection 0: General mode 1: MD380 mode 2: BD600 mode 3: CHF100A mode 4: GD20 mode LED ten digits: broadcast frequency source selection 0: Host setting frequency 1: Host frequency source A 2: Host frequency source B LED hundred bits: Reserved LED Thousands: Reserved	1	00	×
FB.08	Communication display selection	LED ones digit: communication bus voltage display selection 0: normal display 1: 10 times magnification 2: Magnification 100 times 3: 10 times smaller 4: Reduce 100 times LED ten digits: communication current display selection 0: normal display 1: 10 times magnification 2: Magnification 100 times 3: 10 times smaller 4: Reduce 100 times LED Hundreds: Run frequency display selection 0: Normal display 1: 10 times magnification 2: Magnification 100 times 3: 10 times smaller 4: Reduce 100 times LED Thousands: Reserved	1	000	×

FC Group — Advanced Function and Performance Parameters					
Function Code	Name	Set Range	Minimum Unit	Factory Default	Modification
FC.00	Dynamic braking	0: disabled 1: always enabled 2: only enabled when decelerating	1	1	×
FC.01	Initial voltage of dynamic braking	220V: 340~380V 360V 380V: 660~760V 680V	1V	Depending on model	○
FC.02	Hysteresis voltage of dynamic braking	220V: 10~100V 5V 380V: 10~100V 10V	1V	Depending on model	○
FC.03	Action ratio of dynamic braking	10~100%	1%	100%	○
FC.04	Restart after power failure	0: disabled 1: start at start frequency 2: start in speed tracking mode	1	0	×
FC.05	Restart delay after power failure	0.0~60.0s	0.1s	5.0	×
FC.06	Auto reset times	0~100 (the setting value of 100 means unlimited times)	1	0	×
FC.07	Auto reset interval	0.0~60.0s	0.1	3.0	×
FC.08	Cooling fan control	0: auto control mode 1: always running when power on 2: The fan is operated at a temperature higher than 50 °C, and the fan does not operate below 45 °C. 3: fan works when starting, not work after stop	1	0	○
FC.09	Password of operation limiting function	0~65535 Note 1: the password will take into effect 3 minutes later after set successfully Note 2: this parameter cannot be initialized.	1	0	○
FC.10	Operation limiting function	0: disabled 1: enabled Note: this parameter cannot be initialized	1	0	○

Function Code	Name	Set Range	Minimum Unit	Factory Default	Modification
FC.11	Limiting time	0~65535 (h) Note: this parameter cannot be initialized	1	0	×
FC.12	Frequency decreasing point of instantaneous power failure	220V: 180~330V 250V 380V: 300~550V 450V	1V	Depending on model	×
FC.13	Frequency decreasing factor of instantaneous power failure	0: the function of immunity to transient power failure is disabled 1~100	1	0	○
FC.14	Droop control	0.00~10.00Hz Note: disabled when value is 0.00; when F0.18=1 (high frequency mode, upper limit of this parameter is 100.0Hz)	0.01Hz	0.00	×
FC.15	Delay time of rotating speed tracking	0.1~5.0s	0.1s	1.0	×
FC.16	Current amplitude limiting of rotating speed tracking	80%~200%* VFD rated current	1%	100%	×
FC.17	Speed of rotating speed tracking	1~125	1	25	×
FC.18	PWM mode	LED one's place: PWM synthesizing method 0: seven segments of full band 1: switch from 7 segment to five segments LED ten's place: PWM temperature correlation 0: disabled 1: enabled LED hundred's place: PWM frequency correlation 0: disabled 1: low frequency adjustment, high frequency adjustment 2: no adjustment for low frequency, high frequency adjustment 3: low frequency adjustment, no adjustment for high frequency LED thousand's place: flexible PWM function 0: disabled 1: enabled	1	0001	×

Function Code	Name	Set Range	Minimum Unit	Factory Default	Modification
FC.19	AVR function	LED one's place: AVR function 0: disabled 1: always enabled 2: only disabled when decelerating LED ten's place: overmodulation 0: disabled 1: enabled LED hundred's place: dead-time compensation 0: disabled 1: enabled LED thousand's place: harmonic components optimizing (reserved) 0: disabled 1: oscillation suppressing mode 1 2: oscillation suppressing mode 2 3: oscillation suppressing mode 3	1	1102	×
FC.20	Oscillation suppressing initial frequency	0.00~300.00Hz	0.01	Depending on model	○
FC.21	Flux braking	0~100 0: disabled	1	0	○
FC.22	Energy saving control factor	0~100 0: disabled 1: automatic energy-saving running Note: energy saving is only valid to V/F control	1	0	○
FC.23	MS priority	0: disabled 1: MS prior to F0.07 setting	1	0	×
FC.24	Jog priority	0: disabled 1: the jog has the highest priority during the driver operation	1	0	×

Function Code	Name	Set Range	Minimum Unit	Factory Default	Modification
FC.25	Special function	LED one's place: A02 and D0 output selection 0: A02 enabled 1: D0 enabled LED ten: IPM fault setting 0: Shield the fault 1: The fault is valid LED hundred digits: Input phase loss fault reset selection 0: Cannot reset 1: Can be reset after the power is normal LED thousand's place: reserved	1	010	×
FC.26	Oscillation suppression upper limit frequency	0.00~300.00Hz	0.01	50.00	○
FC.27	Oscillation suppressing coefficient	1~500	1	50.00	○
FC.28	Oscillation suppressing voltage	0.0~25.0%*rated voltage of motor	0.1%	5.0%	○
FC.29	Wave-by-wave current limiting and anti-overvoltage action selection	LED ones: selection by wave-by-wave current limiting acceleration 0: Invalid 1: Valid LED tens: Wave-by-wave current-limit deceleration selection 0: Invalid 1: Valid LED Hundreds: Selection by Wave-by-wave Current Limiting and Constant Speed 0: Invalid 1: Valid LED Thousand: Anti-overvoltage action selection 0: Invalid 1: Valid	1	0011	○

Function Code	Name	Set Range	Minimum Unit	Factory Default	Modification
FC.30	Dedicated function selection	LED one's place: straight up function selection 0: invalid 1: valid LED ten's place: over torque alarm "A-05" display selection 0: display 1: not display LED hundred's place: reserved LED thousand's place: reserved	1	00	○
FD Group — Reserved Parameter					
FE Group — Panel Function Setting and Parameter Management					
FE.00	LCD language option (only for LCD panel)	0: Chinese 1: English 2: reserved	1	0	○
FE.01	Key M-FUNC function	0: JOG (jog control) 1: FWD/REV switch 2: clear frequency set by ▲/▼ 3: switch between local operation and remote control (reserved) 4: reverse	1	0	×
FE.02	Key STOP/RST function	0: only effective to panel control 1: effective to both panel and terminal control 2: effective to both panel and communication control 3: effective to all control modes	1	3	○
FE.03	STOP+RUN emergency stop	0: disabled 1: coast to stop	1	1	○
FE.04	Close-loop display factor	0.01~100.00	0.01	1.00	○
FE.05	Display factor of load rotating speed	0.01~100.00	0.01	1.00	○

Function Code	Name	Set Range	Minimum Unit	Factory Default	Modification
FE.06	Line speed factor	0.01~100.00	0.01	1.00	○
FE.07	Encoder regulation speed (served)	1~100	1	70	○
FE.08	Monitoring parameters selection 1 in operation status	0~57	1	0	○
FE.09	Monitoring parameters selection 2 in operation status	0~57	1	5	○
FE.10	Monitoring parameters selection 1 in stop status	0~57	1	1	○
FE.11	Monitoring parameters selection 2 in stop status	0~57	1	13	○
FE.12	Parameter display mode	LED one's place: function parameters display mode 0: display all function parameters 1: only display parameters different from default value 2: only display parameters modified after power on of the last time (reserved) LED ten's place: monitoring parameters display mode 0: only display main monitoring parameters 1: alternate display of main and auxiliary parameters (interval time 1s) LED hundred's place: frequency display 0: display frequency 1: only display monitoring parameters LED Thousands: Panel ▲/▼ button adjustment enable 0: Valid 1: invalid	1	0000	○

Function Code	Name	Set Range	Minimum Unit	Factory Default	Modification
FE.13	Parameter initialization	0: disabled 1: restore to factory defaults (all user parameters except motor parameters) 2: restore to factory defaults (all user parameters) 3: clear fault record	1	0	×
FE.14	Write-protect	0: allow all parameters to be modified (some are not during operation) 1: only allow F0.12, F0.13 and F0.14 to be modified 2: only allow FE.14 to be modified Note: these above limitations are invalid to this function code and F0.00	1	0	○
FE.15	Parameter copy function	0: disabled 1: parameters upload to operation panel 2: all function code parameters download to the driver 3: download all function code parameters except motor parameters to the driver Note1: when selecting parameters to download, the software will check if it is in accordance with the driver power specification; if not, all the parameters relevant to model will not be changed. Note2: only keyboard KB2 has copy function, copy with normal keyboard will increase fault.	1	0	×
FE.16	Encoder FM start bit selection	0: LED one's place 1: LED ten's place 2: LED hundred's place 3: LED thousand's place: reserved	1	1	○
FE.17	Dedicated function selection	—	—	0	◇

5. Communication Protocol

5.1 RTU Mode and Format

When controller communicates via Modbus in RTU mode, each byte is divided into 2 hexadecimal characters of 4 bits. The main advantage of this mode is that it can transfer characters with higher density compared with ASCII mode given the condition of the same baud rate, and each information must be transported continuously.

5.1.1 Each Byte Format in RTU Mode

Encoding system: 8 bits binary, hexadecimal 0–9, A–F.

Data bits: 1 bit of start bit, 8 bits of data (send from the lower bit), 1 bit of stop bit, optional parity check bit
(refer to bit sequence of RTU data frame).

Error check zone: cyclic redundancy check (CRC)

5.1.2 Bit Sequence of RTU Data Frame

With parity check:

Start	1	2	3	4	5	6	7	8	Par	Stop
-------	---	---	---	---	---	---	---	---	-----	------

Without parity check:

Start	1	2	3	4	5	6	7	8	Stop
-------	---	---	---	---	---	---	---	---	------

5.2 Register Address and Function Code

5.2.1 Supported Function Code

Function Code	Function Description
03	Read multiple registers
06	Write single register
10	Write multiple registers continuously
13	Read single parameter

5.2.2 Register Address

Register Function	Address
Control command input	0x2000

Register Function	Address
Read monitor parameter	0xD000 (0x1D00) ~0xD039 (0x1D39)
MODBUS frequency setting	0x2001
MODBUS torque setting	0x2002
MODBUS PID frequency given	0x2003
MODBUS PID feedback setting	0x2004
MODBUS analog output AO1 control	0x2005 (0~7FFF represent 0%~100%)
MODBUS analog output AO2 control	0x2006 (0~7FFF represent 0%~100%)
MODBUS pulse DO output control	0x2007 (0~7FFF represent 0%~100%)
MODBUS digital output terminal control	0x2008
Parameter setting	0x0000~0x0F15

5.2.3 03H Read Multiple Parameters (8 Items Continuously at Most)

Inquiry information frame format
(send frame) :

Analysis of this segment data:

01H is the address of the driver
 03H is read function code
 0001H is start address, equivalent to F0.01 of control panel
 0002H is item count of menu, i.e. the two items of F0.01 and F0.02
 95CBH is 16 bits of CRC check code

Address	01H
Function	03H
Starting data address	00H
	01H
Number of Data (Byte)	00H
	02H
CRC CHK Low	95H
CRC CHK High	CBH

Response information frame format
(return frame) :

Analysis of this segment data:

01H is the address of the driver
 03H is read function code
 04H is the product of (read item)*2
 0064H is read the data of F0.01
 0064H is read the data of F0.02
 BA07H is 16 bits of CRC check code

Address	01H
Function	03H
DataNum*2	04H
Data1[2Byte]	00H
	64H
Data2[2Byte]	00H
	64H
CRC CHK Low	BAH
CRC CHK High	07H

Example:

Name	Frame Format
Read data of F0.01 and F0.02	Send frame: 01H 03H 0001H 0002H 95CBH
	Return frame: 01H 03H 04H 0064H 0064H BA07H
Read data of F2.01	Send frame: 01H 03H 0201H 0001H D472H
	Return frame: 01H 03H 02H 000FH F840H
Read monitor parameter of d-00 (address D000H and 1D00H interchangeable)	Send frame: 01H 03H D000H 0001H BCCAH
	Return frame: 01H 03H 02H 1388H B512H
	Send frame: 01H 03H 1D00H 0001H 8266H
	Return frame: 01H 03H 02H 1388H B512H
Read the status when the driver stops (address A000H and 1A00H interchangeable, refer to the run status description of the driver)	Send frame: 01H 03H A000H 0001H A60AH
	Return frame: 01H 03H 02H 0040H B9B4H
	Send frame: 01H 03H 1A00H 0001H 8312H
	Return frame: 01H 03H 02H 0040H B9B4H
Read fault code E-19 (address E000H and 1E00H interchangeable, refer to the fault code table)	Send frame: 01H 03H E000H 0001H B3CAH
	Return frame: 01H 03H 02H 0013H F989H
	Send frame: 01H 03H 1E00H 0001H 8222H
	Return frame: 01H 03H 02H 0013H F989H
Read pre-alarm code A-18 (address E001H and 1E01 interchangeable, refer to the pre-alarm code table)	Send frame: 01H 03H E001H 0001H E20AH
	Return frame: 01H 03H 02H 0012H 3849H
	Send frame: 01H 03H 1E01H 0001H D3E2H
	Return frame: 01H 03H 02H 0012H 3849H

5.2.4 06H Write Single Parameter

Inquiry information frame format
(send frame) :

Analysis of this segment data:

01H is the address of the driver
06H is write function code
2000H is the address of control
command
0001H is forward command
43A1H is 16 bits of CRC check code

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

Response information frame format
(return frame) :

Analysis of this segment data:

If set right, return the same input data

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

Example:

Name	Frame Format
Forward	Send frame: 01H 06H 2000H 0001H 43CAH
	Return frame: 01H 06H 2000H 0001H 43CAH
Reverse	Send frame: 01H 06H 2000H 0009H 420CH
	Return frame: 01H 06H 2000H 0009H 420CH
Stop	Send frame: 01H 06H 2000H 0003H C20BH
	Return frame: 01H 06H 2000H 0003H C20BH
Free stop	Send frame: 01H 06H 2000H 0004H 83C9H
	Return frame: 01H 06H 2000H 0004H 83C9H
Reset	Send frame: 01H 06H 2000H 0010H 43CAH
	Return frame: 01H 06H 2000H 0010H 43CAH

Name	Frame Format
Forward jog	Send frame: 01H 06H 2000H 0002H 03CBH
	Return frame: 01H 06H 2000H 0002H 03CBH
Reverse jog	Send frame: 01H 06H 2000H 000AH 020DH
	Return frame: 01H 06H 2000H 000AH 020DH
Set F8.00 parameter at 1	Send frame: 01H 06H 0800H 0001H 4A6AH
	Return frame: 01H 06H 0800H 0001H 4A6AH
MODBUS reference frequency 40Hz	Send frame: 01H 06H 2001H 0FA0H D642H
	Return frame: 01H 06H 2001H 0FA0H D642H
MODBUS PID reference 5V	Send frame: 01H 06H 2003H 01F4H 721DH
	Return frame: 01H 06H 2003H 01F4H 721DH
MODBUS PID feedback 4V	Send frame: 01H 06H 2004H 0190H C237H
	Return frame: 01H 06H 2004H 0190H C237H
MODBUS torque set at 80%	Send frame: 01H 06H 2002H 0320H 22E2H
	Return frame: 01H 06H 2002H 0320H 22E2H
User password check (address AD00H and 1C00H interchangeable)	Send frame: 01H 06H AD00H 0001H 68A6H
	Return frame: 01H 06H AD00H 0001H 68A6H
	Send frame: 01H 06H 1C00H 0001H 4F9AH
	Return frame: 01H 06H 1C00H 0001H 4F9AH

Name	Frame Format
Check operation limit password (address AD01H and 1C01H interchangeable)	Send frame: 01H 06H AD01H 0002H 7967H
	Return frame: 01H 06H AD01H 0002H 7967H
	Send frame: 01H 06H 1C01H 0002H 5E5BH
	Return frame: 01H 06H 1C01H 0002H 5E5BH
MODBUS analog output AO1 control output 5V	Send frame: 01H 06H 2005H 3FFFH C3BBH
	Return frame: 01H 06H 2005H 3FFFH C3BBH
MODBUS analog output AO2 control output 10V	Send frame: 01H 06H 2006H 7FFFH 027BH
	Return frame: 01H 06H 2006H 7FFFH 027BH
MODBUS pulse DO output control output 25KHz	Send frame: 01H 06H 2007H 3FFFH 627BH
	Return frame: 01H 06H 2007H 3FFFH 627BH
MODBUS digital output terminal Y1 control output	Send frame: 01H 06H 2008H 0001H C208H
	Return frame: 01H 06H 2008H 0001H C208H

5.2.5 10H Write Multiple Parameters Continuously

Inquiry information frame format
(send frame) :

Analysis of this segment data:

01H is the address of the driver
10H is write function code
0100H is start address, equivalent
to F1.00 of control panel
0002H is amount of registers
04H is bytes sum
(2*register amount)
0100H is data of F1.00
0002H is data of F1.01
2E3EH is 16 bits of CRC check code

Address	01H
Function	10H
Starting data address	01H
	00H
Number of Data (Byte)	00H
	02H
DataNum*2	04H
Data1 (2Byte)	00H
	01H
Data2 (2Byte)	00H
	02H
CRC CHK Low	2EH
CRC CHK High	3EH

Response information frame format
(return frame) :

Analysis of this segment data:

01H is address of the driver
10H is write function code
0100H is write data of F1.00
0002H is item count of write menu,
i.e.two items of F1.00 and
F1.01
4034H is 16 bits of CRC check code

Address	01H
Function	10H
Starting data address	01H
	00H
Number of Data (Byte)	00H
	02H
CRC CHK Low	40H
CRC CHK High	34H

Example:

Name	Frame Format
Set F1.00, F1.01 at 1 and 0.02 respectively	Send frame: 01H 10H 0100H 0002H 04H 0001H 0002H 2E3EH
	Return frame: 01H 10H 0100H 0002H 4034H
Forward and communicate reference frequency at 50HZ	Send frame: 01H 10H 2000H 0002H 04H 0001H 1388H 36F8H
	Return frame: 01H 10H 2000H 0002H 4A08H
Set F1.00 at 1	Send frame: 01H 10H 0100H 0001H 02H 0001H 7750H
	Return frame: 01H 10H 0100H 0001H 0035H

5.2.6 13H Read Single Parameter (Including Attribute, Min.value, Max.value)

Inquiry information frame format
(send frame) :

Analysis of this segment data:

01H is address of the driver
13H is read function code
000CH is start address, equivalent
to F0.12 of control panel
0004H is register amount
45CBH is 16 bits of CRC check code

Address	01H
Function	13H
Starting data address	00H 0CH
Number of Data (Byte)	00H 04H
CRC CHK Low	45H
CRC CHK High	CBH

Response information frame format
(return frame) :

Analysis of this segment data:

01H is address of the driver
13H is write function code
000CH is start address, equivalent
to F0.12 of control panel
1388H is parameter value
0322H is attribute value
0000H is min.value
1388H is max.value
2381H is 16 bits of CRC check code

Address	01H
Function	13H
Starting data address	00H 12H
Data1 (2Byte)	13H 88H
Data2 (2Byte)	03H 22H
Data3 (2Byte)	00H 00H
Data4 (2Byte)	13H 88H
CRC CHK Low	28H
CRC CHK High	31H

Example:

Name	Frame Format
Read parameter value of F0.12	Send frame: 01H 13H 000CH 0001H 85CAH
	Return frame: 01H 13H 02H 1388H B1D2H
Read parameter value + attribute value of F0.12	Send frame: 01H 13H 000CH 0002H C5CBH
	Return frame: 01H 13H 04H 1388H 0322H FCE4H
Read parameter value + attribute value + min.value of F0.12	Send frame: 01H 13H 000CH 0003H 040BH
	Return frame: 01H 13H 06H 1388H 0322H 0000H 628BH

Name	Frame Format
Read parameter value + min.value + max.value of F0.12	Send frame: 01H 13H 000CH 0004H 45CBH
	Return frame: 01H 13H 08H 1388H 0322H 0000H 1388H 2831H

5.3 Functions of Other Register Address

Function	Address	Description			
VFD operation status	A000H (1A00H)	byte	bit	meaning	
		Byte1	Bit7	0: no action	1: overload pre-alarm
			Bit6~Bit5	0: INV_220V	1: INV_380V
				2: INV_660V	3: INV_1140V
			Bit4	0: no action	1: power off save
			Bit3	0: no action	1: reset
			Bit2~Bit1	0: no action	1: static tuning
				2: dynamic tuning	
VFD operation status	A000H (1A00H)	Byte0	Bit7	0: control panel mode	1: terminal control mode
				2: communication control mode	3: reserved
		Byte0	Bit6	0: no action	1: bus voltage is normal
			Bit5	0: no action	1: undervoltage
			Bit4	0: no action	1: jog run
			Bit3	0: forward	1: reverse
			Bit2~Bit1	1: Acc	2: Dec
				3: constant speed	

Function	Address	Description			
VFD operation status	A000H (1A00H)	byte	bit	meaning	
		Byte0	Bit0	0: stop status	1: run status
Read VFD fault code	E000H (1E00H)	Address E000H and 1E00H interchangeable (refer to fault code table and example of read function code 03H)			
Read VFD fault pre-alarm code	E001H (1E01H)	Address E001H and 1E01H interchangeable (refer to example of pre-alarm code, read function code 03H)			
User password check	AD00H (1C00H)	Address AD00H and 1C00H interchangeable (refer to example of write function code 06H)			
Operation limit password check	AD01H (1C01H)	Address AD00H and 1C00H interchangeable (refer to example of write function code 06H)			

5.4 Fault Code

Fault Code	Displayed Code	Fault Information	Fault Code	Displayed Code	Fault Information
0000H	—	No fault	0009H	E-09	Driver overload
0001H	E-01	Overcurrent when accelerating	000AH	E-10	Driver off load
0002H	E-02	Overcurrent when decelerating	000BH	E-11	Function module fault
0003H	E-03	Overcurrent at constant speed	000CH	E-12	Input phase loss
0004H	E-04	Overvoltage when accelerating	000DH	E-13	Output phase loss or current unbalance
0005H	E-05	Overvoltage when decelerating	000EH	E-14	Short circuit of output to earth
0006H	E-06	Overvoltage at constant speed	000FH	E-15	Heatsink overheat 1
0007H	E-07	Bus undervoltage	0010H	E-16	Heatsink overheat 2
0008H	E-08	Motor overload	0011H	E-17	RS485 communication fault

Fault Code	Displayed Code	Fault Information
0012H	E-18	Keypad communication fault
0013H	E-19	External device fault
0014H	E-20	Current detection fault
0015H	E-21	Motor tuning fault
0016H	E-22	EEPROM read-write fault
0017H	E-23	Parameters copy fault
0018H	E-24	PID feedback disconnection

Fault Code	Displayed Code	Fault Information
0019H	E-25	Voltage feedback disconnection
001AH	E-26	Arrival of operation limit time
001BH	E-27	Coprocessor communication fault
001CH	E-28	Encoder disconnection fault
001DH	E-29	Speed deviation too much
001EH	E-30	Over-speed fault
—	—	—

5.5 Pre-alarm Code of the Driver

Alarm Code	Displayed Code	Fault Information
0000H	—	No fault
0009H	A-09	Driver overload alarm
0011H	A-17	RS485 communication fault alarm
0012H	A-18	Keypad communication fault alarm

Alarm Code	Displayed Code	Fault Information
0015H	A-21	Motor tuning alarm
0016H	A-22	EEPROM read-write fault alarm
0018H	A-24	PID feedback disconnection alarm
—	—	—

5.6 Control Command Format (See Function Code 06H Example)

Address	Bit	Meaning	
2000H	Bit7~Bit5	Reserved	
	Bit4	0: no action	1: reset
	Bit3	0: forward	1: reverse

Address	Bit	Meaning			
2000H	Bit2~Bit0	100: free stop	010: jog run	011: stop	001: run
2008H (output by position 1, closed by position 0)	Bit7~Bit4	Reserved			
	Bit3	Programmable relay R2 output			
	Bit2	Programmable relay R1 output			
	Bit1	Open collector output terminal Y2			
	Bit0	Open collector output terminal Y1			

5.7 Parameter Attribute

Bit	Meaning			
Bit15	Reserved			
Bit14	Menu			
Bit13	System			
Bit12	Reset to factory defaults			
Bit11	EEPROM			
Bit10~Bit9	"○": 01	"×": 10	"◆": 11	"◇": 00
Bit8	Sign			
Bit7~Bit3	1: 00000 V: 00001 A: 00010 rpm: 00011 Hz: 00100 %: 00110 S: 01000	KHz: 01100 KW: 01010 om: 01110 ms: 01001 MA: 01011 KM: 01101 CM: 01111	us: 10001 Hz/S: 10000 mh: 10010 C: 10011 m/s: 10100 H: 10101 KWH: 10110	
Bit2~Bit0	Decimal point			

5.8 Error Code from Slave Response of Abnormal Information

Error code	Description	Error code	Description
01H	Invalid function code	06H	Parameters can't be changed during running
02H	Invalid address	07H	The changes of parameters are invalid
03H	Invalid data	08H	Control command of host is invalid
04H	Invalid register length	09H	Parameter protected by password
05H	CRC validation error	0AH	Password error

5.9 Communication Address of all Parameters

Function Code	Communication Address	Function Code	Communication Address	Function Code	Communication Address
F0.00~F0.22	0000H~0016H	F6.00~F6.52	0600H~0634H	FC.00~FC.28	0C00H~0C1CH
F1.00~F1.36	0100H~0124H	F7.00~F7.40	0700H~0728H	FE.00~FE.15	0E00H~0E0FH
F2.00~F2.17	0200H~0211H	F8.00~F8.33	0800H~0821H	FF.00~FF.22	0F00H~0F16H
F3.00~F3.08	0300H~0308H	F9.00~F9.73	0900H~0949H	d-00~d-57	D000H (1D00H) D039H (1D39H)
F4.00~F4.27	0400H~041BH	FA.00~FA.35	0A00H~0A23H	—	—
F5.00~F5.24	0500H~0518H	FB.00~FB.08	0B00H~0B08H		

Notice:

- (1) In the above examples, the driver address is 01, which makes it better for illustration; when the driver is slave, the address setting range is 1 ~ 247, and if any data of frame format is changed, the check code needs to be recalculated. The calculating tools of 16bit CRC check code can be download from internet.
- (2) Initial address of monitor item is D000, each item offset corresponding hexadecimal value based on this address, then plus it with the initial address. For example: the monitor initial item is d—00, the corresponding initial address is D000H (1D00H), now read monitor item d—18, 18—00=18, the corresponding hexadecimal of 18 is 12H, then the read address of d—18 is D000H+12H = D012H (1D00H+12H = 1D12H). Address D000H and 1D00H are interchangeable.

(3) Frame format when the slave response information is abnormal: driver address + (80H+function code) + 16bit CRC check code; if the slave return frame is 01H + 83H + 04H + 40F3H, then 01H is slave address, 83H is 80H+03H indicating read error, 04H is invalid data length, 40F3H is 16bit CRC check code.

5.10 Read Inverter Running Status Parameter Address

Function Code	Address (hexadecimal)	Address (decimal)	Function description	Function Code	Address (hexadecimal)	Address (decimal)	Function description
d-00	1d00	7424	Output frequency	d-17	1d11	7441	Analog input AI2 (V)
d-01	1d01	7425	Set frequency	d-18	1d12	7442	Pulse frequency input (KHz)
d-02	1d02	7426	Motor estimated frequency	d-19	1d13	7443	Analog output AO1 (V/mA)
d-03	1d03	7427	Main set frequency	d-20	1d14	7444	Analog output AO2 (V)
d-04	1d04	7428	Auxiliary setting frequency	d-21	1d15	7445	Input terminal status
d-05	1d05	7429	Output current	d-22	1d16	7446	Output terminal status
d-06	1d06	7430	Output voltage	d-23	1d17	7447	Inverter running status
d-07	1d07	7431	Output torque	d-24	1d18	7448	Multi segment speed current segment number
d-08	1d08	7432	Motor speed (RPM/min)	d-25	1d19	7449	Pulse frequency output (Hz)
d-09	1d09	7433	Motor power factor	d-26	1d1a	7450	Reservation
d-10	1d0a	7434	Running line speed (m/s)	d-27	1d1b	7451	Current count value
d-11	1d0b	7435	Set line speed (m/s)	d-28	1d1c	7452	Set count value
d-12	1d0c	7436	Busbar voltage (V)	d-29	1d1d	7453	Current timing value (s)
d-13	1d0d	7437	Input voltage (V)	d-30	1d1e	7454	Set timer value (s)
d-14	1d0e	7438	PID set value (V)	d-31	1d1f	7455	Current length
d-15	1d0f	7439	PID Feedback value (V)	d-32	1d20	7456	Set length
d-16	1d10	7440	Analog input AI1 (V/mA)				

6. Troubleshooting

6.1 Fault information and Troubleshooting

Any abnormality 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 Table (A) and Table (B) for fault diagnosis and troubleshooting.

Fault code	Fault Descriptions	Possible Reasons	Actions
E-01	Over-current in Acc process	Too short Acc time (including tuning process)	Prolong the Acc time
		Restart the rotating motor	Start after setting as DC brake, or rotational speed tracking start
		Drive power is too small	Select a higher power drive
		V/F curve is not suitable	Adjust V/F curve or torque boost
E-02	Over-current in Dec process	Too short Dec time (including tuning process)	Prolong the Dec time
		Too low driver's power	Select the drive with large capacity
		The load inertia is too high	Connect suitable braking resistor or braking unit
E-03	Over-current in constant speed operation	Low network voltage	Check the power supply
		Sudden change or abnormal of load	Check the load or reduce the change of the load
		Too low driver's power	Select the driver with larger capacity
E-04	Over voltage in Acc process	Abnormal supply voltage (including tuning process)	Check the power supply
		The driver is restarted with a rotating motor	Start after setting as DC brake, or rotational speed tracking start
		Special potential energy load	Connect suitable braking resistor or braking unit

Fault code	Fault Descriptions	Possible Reasons	Actions
E-05	Over voltage in Dec process	Too short Dec time (including tuning process)	Prolong the Dec time
		The load inertia is too high	Connect suitable braking resistor or braking unit
		Abnormal of supply voltage	Check the power supply
E-06	Over voltage in constant-speed operating	Abnormal of supply voltage	Check the power supply
		Special potential energy load	Connect suitable braking resistor or braking unit
E-07	Bus undervoltage	Abnormal of supply voltage or disconnecting of contactor (relay)	Check supply voltage or seek help from manufacturer
E-08	Motor overload	Improper setting of V/F curve or torque boost	Adjust V/F curve and torque boost value
		Low network voltage	Check network voltage
		Motor blocked or load sudden change	Check load
		Incorrect setting of motor overload protection factor	Correct the setting
E-09	Driver overload	Improper setting of V/F curve or torque boost	Adjust V/F curve and torque boost value
		Low network voltage	Check network voltage
		Too short Acc time	Prolong Acc time
		Too heavy load	Select the driver with larger power
E-10	Off load	Output current lower than off-load detection	Check load
E-11	Function module fault	Short circuit or grounded of driver output	Check motor wiring
		Instantaneous over current of driver	Refer to actions of over current
		Obstruction of damage of ventilation channel	Clear the ventilation channel or replace the fan
		Control board abnormal or interference serious	Seek help from manufacturer

Fault code	Fault Descriptions	Possible Reasons	Actions
E-11	Function module fault	Power device damage	Seek help from manufacturer
E-12	Input phase loss	Phase loss of power supply	Check power supply and wiring
E-13	Output phase loss or current imbalance	Output phase failure among phase U, V, W	Check the driver's output wiring
E-14	Short trouble of output to ground	Reserved	Reserved
E-15	Heatsink overheat 1	Ambient over-temperature	Lower the ambient temperature
		Fan damage	Replace the fan
E-16	Heatsink overheat 2	Obstruction of ventilation channel	Clear the ventilation channel
E-17	RS485 communication failure	Mismatching with baud rate of host PC	Adjust the baud rate
		RS485 channel interference	Check whether the communication wiring is shield, whether the wiring is correct; consider connecting filter capacitor if necessary.
		Communication timeout	Retry
E-18	Keypad communication fault	Connecting line between keypad and control board is damaged.	Replace the connecting line.
E-19	External device fault	Input terminal of external device fault is closed	Disconnect the terminal and clear the faults (check the fault cause)
E-20	Current detection fault	Hall device or amplification circuit fault	Seek help from manufacturer
		Auxiliary power supply is damaged	
		Hall or power board wiring is bad contact	
E-21	Motor tuning fault	Wrong setting of motor parameters	Reset the motor parameter

Fault code	Fault Descriptions	Possible Reasons	Actions
E-21	Motor tuning fault	Mismatching of power specification between driver and motor	Seek help from manufacturer
		Tuning timeout	Check motor wiring
E-22	EEPROM R/W fault	EEPROM fault	Seek help from manufacturer
E-23	Parameter copy fault	Upload fault of the driver parameter to operation panel	Check wiring of operation panel
		Mismatching of power specification between driver and motor	Check wiring of operation panel
		Parameter download without upload in advance	Upload parameters first, then download
E-24	PID feedback disconnecting	PID feedback wire is loosen	Check feedback wiring
		Feedback value lower than disconnection detection value	Adjust detection input threshold
E-25	Voltage feedback disconnecting	Feedback value lower than disconnection detection value	Adjust detection input threshold
E-26	Arrival of operation limit time	Arrival of operation limit time	Seek help from agent
E-27	Co-processor communication fault	Reserved	Reserved
E-28	Encoder disconnecting	Reserved	Reserved
E-29	Large deviation of speed	Reserved	Reserved
E-30	Overspeed fault	Reserved	Reserved

Table 6-1 (A) Fault Diagnosis and Troubleshooting

Pre-alarm Fault Code	Name (Pre-alarm)	Possible Cause of Fault	Fault Countermeasures
A-05	Overtorque pre-alarm	Restart the rotating motor	FC.30 ten bits setting 1
		The load mutated or abnormal	
		Inverter power is low	
A-09	Inverter overload pre-alarm	Same E-09	Same E-09
A-17	RS485 Communication failure alarm	Same E-17	Same E-17
A-18	Keyboard communication fault alarm	Same E-18	Same E-18
A-21	Motor Tuning Alarm	Same E-21	Same E-21
A-22	EEPROM Read/write fault alarm	Same E-22	Same E-22
A-24	PID Feedback disconnection alarm	Same E-24	Same E-24
A-00	Indicates no alarm	Reservation	Reservation

Table 6-1 (B) Fault Diagnosis and Troubleshooting

6.2 Abnormal Phenomena Solution

During the driver operation, the common abnormal phenomena and solving actions are as showed in following table.

Phenomena		Possible Reasons of Fault and Actions to Take
Motor not running	LED no display	Check whether there is power failure, or phase loss of input power, check if the power line is connected correctly.
	LED no display, but the internal charging indicator is on	Check if there is problems with wiring or socket related to keypad. Measure the voltage of internal control source to check if the switching power supply is functioning well. If not, check its inlet wire, start oscillation and stabilivolt to see if they works well.
	Motor droning	The motor load is too much. Reduce the load.
	No abnormal phenomena	Check if it is in trip status or hasn't reset after tripping, check whether it is in restart status after power down, whether the keypad is reset, whether it is in program running status, multi-speed operation status, some specific operation status or non-operation status. Try recovering factory set.

Phenomena		Possible Reasons of Fault and Actions to Take
Motor not running	No abnormal phenomena	Check whether the running command is sent.
		Check whether the operation frequency is set at 0.
The motor can not Acc / Dec successfully		Improper setting of Acc/Dec time. Increase the value of Acc/Dec time.
		The current limit is set too low. Increase the value.
		Over-voltage protection action during decelerating. Increase the decelerating time.
		Improper setting of carrier frequency, too much load may cause oscillation.
		The load is too heavy, and the torque is not enough. Increase torque boost value in V/F mode. If not working, switch to auto torque boost mode, and the motor parameters should be in consistent with the actual value. If still not working, switch to flux vector control mode, and check the motor parameters and actual values to see if they are matched, meanwhile tune the motor parameters.
		Mismatching of motor power and driver power. Set the motor parameters at actual value.
		One driver for several motor. Please change the torque boost mode to manual mode.
The motor can rotate, but speed regulation can't be realized.		Improper setting of upper and lower limit of frequency.
		The frequency is set too low, or the frequency gain is set too low.
		Check whether the speed adjustment mode is in consistent with frequency setting.
		Check whether the load is too heavy, whether it is in overvoltage stalled state or overcurrent limiting state.
Speed changing during motor running		Frequent fluctuation of load. Decrease the changing.
		Serious mismatching of rated value of the driver and motor. Set the motor parameters as actual value.
		Frequency setting potentiometer is in bad connect or the frequency setting signal is in fluctuation. Switch to digit setting mode or increase filter time constant of analog input signal.
The rotation direction of motor is in reverse		Adjust phase sequence of output terminal U, V, W.
		Set the running direction as reverse (F0.21=1).
		Caused by phase loss of output. Check the motor wiring immediately.

7. Maintenance

7.1 Routine Maintenance

Many factors such as ambient temperature, humidity, smog, internal component aging will give rise to the occurrence of potential faults. Therefore, it is necessary to conduct routine and periodic maintenance during storage or using of the driver.

When the driver operates normally, please check if there are the following items:

- ① Abnormal sound or vibration of the motor;
- ② Abnormal heat producing from the driver or motor;
- ③ High ambient temperature;
- ④ Whether the load current is as usual;
- ⑤ Whether the cooling fan of the driver runs normally.

7.2 Periodic Maintenance

1. Regular maintenance:

To maintain a long-term normal operation, it is necessary to conduct periodic maintenance according to the working life of internal electronic components. The working life varies with the operation condition. The following table is for reference.

Part	Normal Working Life
Cooling fan	2~3 years
Electrolytic capacitor	4~5 years
PCB	5~8 years

2. Regular inspection:

You should check the driver every 3 months or 6 months according to the actual environment, thus could lower fault risks and maintain a long-term stable operation.

General Inspection:

- ① Whether screws of control terminals are loose. If so, tighten them with a screwdriver;
- ② Whether the main circuit terminals are properly connected; whether the cable or copper bar joints and screws are over heated;
- ③ Whether the power cables and control cables are damaged, check especially for any wear on the cable insulation;
- ④ Whether the connecting of power cable and cold pressing joint is loose, whether the insulating tapes around the joint are aged or stripped;
- ⑤ Clear the dust on PCBs and air ducts, and take anti-static measure;
- ⑥ Before performing insulation tests to the driver, dismantle the wiring between the driver and the power supply, the driver and motor, and all main circuit input/output terminals should be short-circuited with conductors. Then proceed insulation test to the ground. Please use qualified 500V Mega-Ohm-Meter (or with corresponding voltage shift of insulation tester); please do not use faulted meter. Insulation test of single main circuit terminal to ground is prohibited, or the driver can be damaged. After testing, remember to dismantle all the wire that short-circuit main circuit terminals.
- ⑦ If performing insulation test to the motor, be sure to disconnect the cables between the driver and it. Otherwise, the driver might be damaged.

Appendix A: Selection of Braking Resistor

Voltage Class (V)	Rated Power (KW)	Braking Resistor (Ω)	Power of Resistor (KW)
220	0.4	≥ 200	0.04
220	0.75	≥ 120	0.08
220	1.5	≥ 75	0.15
220	2.2	≥ 50	0.2
220	3	≥ 40	0.3
220	4	≥ 30	0.3
220	5.5	≥ 20	0.4
220	7.5	≥ 15	0.5
220	11	≥ 10	0.8
380	0.4	≥ 800	0.04
380	0.75	≥ 400	0.08
380	1.5	≥ 200	0.15
380	2.2	≥ 150	0.2
380	3	≥ 120	0.3

Voltage Class (V)	Rated Power (KW)	Braking Resistor (Ω)	Power of Resistor (KW)
380	4	≥ 110	0.3
380	5.5	≥ 90	0.4
380	7.5	≥ 65	0.5
380	11	≥ 43	0.8
380	15	≥ 32	1
380	18.5	≥ 25	1.3
380	22	≥ 22	1.5
380	30	≥ 16	2.5
380	37	≥ 16	4
380	45	≥ 16	4.5
380	55	≥ 8	5.5
380	75	≥ 8	7.5
380	90	$\geq 8*2$	4.5*2
380	110	$\geq 8*2$	5.5*2

Voltage Class (V)	Rated Power (KW)	Braking Resistor (Ω)	Power of Resistor (KW)
380	132	$\geq 8*2$	6.5*2
380	160	≥ 2.5	16
380	185	≥ 2.5	20
380	200	≥ 2.5	20
380	220	≥ 2.5	22
380	250	$\geq 2.5*2$	12.5*2
380	280	$\geq 2.5*2$	14*2
380	315	$\geq 2.5*2$	16*2
380	355	$\geq 2.5*2$	17*2
380	400	$\geq 2.5*3$	14*3
380	450	$\geq 2.5*3$	15*3
380	500	$\geq 2.5*3$	17*3
—	—	—	—
—	—	—	—

Warranty Card

Product Information:

Product Name: _____

Customer Name: _____

Model Type: _____

Customer Address: _____

Purchase Date: _____

Contact Number: _____

Warranty Terms:

1. From the date of original shipment, we guarantee warranty of 12 months for free, and paid service for a lifetime;
2. Product failure caused by the following reasons are not included in 12 months warranty guarantee:
 - (1) Users didn't conduct right operation according to user's manual;
 - (2) Equipment has been repaired or modified by user's without consent of manufacturer;
 - (3) Fault caused by operation outside standard scope of application;
 - (4) Abnormal aging or fault result from bad operating environment;
 - (5) Damage caused by force majeure like earthquake, fire, flood, thunderstrike, abnormal voltage, or other natural disasters;
 - (6) Damage caused by improper delivery or external force.
3. Manufacturer preserves the right to refuse warranty service for the following condition:
 - (1) Damage of beyond recognition of brand, trade mark, serial number, nameplate, and other manufacturer marks;
 - (2) Payment is not finished according to contract;
 - (3) Intentional concealment to our after-sale service provider of wrong operation during setting, wiring, operation, maintenance or other process.
4. For failing products, Canroon preserve the right to entrust others for warranty issues.

Certificate

Inspector: _____ QC 001

The product is inspected according to the standard.

保 修 卡

产品信息：

产品名称：_____

客户名称：_____

产品型号：_____

客户地址：_____

购买日期：_____

联系电话：_____

保修说明：

1. 本产品自出厂日起，实行为期12个月的免费保修服务，终身有偿服务。
2. 免责条款：因下列原因造成的产品故障不在厂家12个月免费保修服务承诺的范围之内：
 - (1) 用户不依照《使用手册》中所列程序进行正确的操作；
 - (2) 用户未经与厂家沟通自行修理产品或擅自改造产品造成产品故障；
 - (3) 用户超过产品的标准使用范围使用产品引发的故障；
 - (4) 因用户使用环境不良导致产品器件异常老化或引发故障；
 - (5) 由于地震、火灾、风水灾害、雷击、异常电压或其他自然灾害等不可抗力的原因造成的产品损坏；
 - (6) 用户购买产品后在运输过程中因运输方式选择不当发生跌损或其他外力侵入导致的产品损坏；
3. 在下列情况下，厂家有权不予提供保修服务：
 - (1) 厂家在产品中标示的品牌、商标、序号、铭牌等标识损毁或无法辨认时；
 - (2) 用户未按双方签订的《购销合同》付清货款时；
 - (3) 用户对厂家的售后服务提供单位故意隐瞒产品在安装、配线、操作、维护或其他过程中的不当使用情况时。
4. 对于发生故障的产品，本公司有权委托他人负责保修事宜。

合 格 证

质 检 员 _____ QC 001

经检验本产品符合技术标准，准予出厂。

深圳科朗电器有限公司

Shenzhen Canroon Electrical Appliances Co., Ltd

Canroon

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