

Goodrive350A 系列高性能通用变频器

快速使用指南

本指南简要介绍了 Goodrive350A 系列高性能通用变频器的外部接线、端子、键盘、快速运行、常用功能参数设置、常见故障及对策。

拨打服务热线 400-700-9997 或访问 www.inv.com.cn 获取更多信息及资源下载。保修条款详见完整版电子说明书。



警告

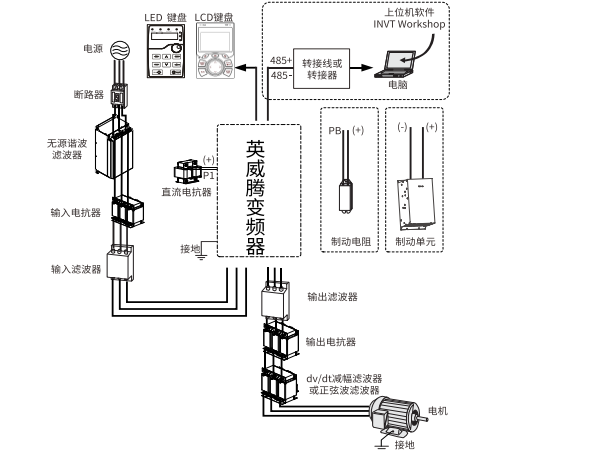
本指南仅包含基本的安装调试信息。若不遵守相关文档中的安全说明和安装调试说明，可能导致设备损坏、人身伤害，甚至人员死亡等事故。只有培训合格的专业人员才允许进行相关操作。

危险

禁止在电源接通的情况下进行接线。检查或更换器件等作业，进行这些作业前，须确保所有输入电源已断开，并等待不短于变频器上标注的时间或者确认直流母线电压低于 36V。

至少等待时间	变频器机型	
5 分钟	单相 220V 0.75kW~7.5kW	三相 525V 15kW~90kW
	三相 220V 0.75kW~55kW	三相 660V 22kW~132kW
	三相 380V 0.4kW~110kW	
15 分钟	三相 220V 75kW~160kW	三相 525V 110kW~280kW
	三相 380V 132kW~315kW	三相 660V 160kW~355kW
	三相 220V 185kW及以上	三相 525V 315kW及以上
25 分钟	三相 380V 355kW及以上	三相 660V 400kW及以上

1 外围接线



2 端子

图 2-1 变频器典型接线图

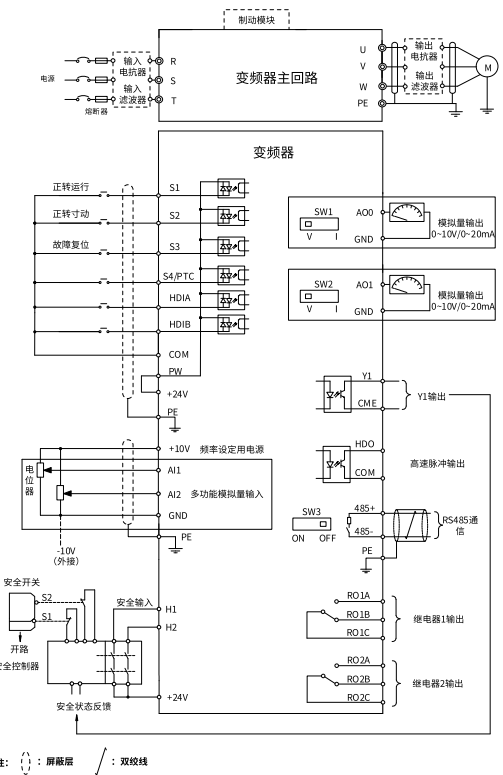
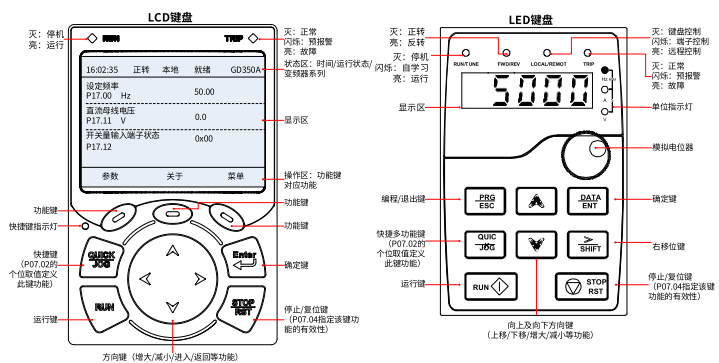


表 2-1 变频器端子说明

端子	说明
主回路端子	
R, S, T	三相交流输入端子，与电网连接
U, V, W	三相交流输出端子，一般接电机
P1	P1、(+) 外接直流电抗器端子
(-)	(-)、(-) 外接制动单元端子
PB	PB、(+) 外接制动单元端子
PE	PE 端子，每台电机 PE 端子必须可靠接地
控制回路端子	
+10V	本机提供 10V 电源
AI1	模拟量输入；默认为电压输入，通过跳线帽设置为电流输入
AI2	输入范围：AI1 0~10V/0~20mA，AI2 -10~10V
支持 S 模式端子	支持 S 模式端子：3V 以下为低电平，7~10V 为高电平
GND	+10V 的参考地
AO0	输出范围：0~10V/0~20mA 电压或电流输出由拨码开关 SW1 设定
AO1	输出范围：0~10V/0~20mA 电压或电流输出由拨码开关 SW2 设定
RO1A	RO1 继电器输出；RO1A 常开，RO1B 常闭，RO1C 公共端
RO1B	触点容量：3A/AC 250V，1A/DC 30V
RO1C	
RO2A	RO2 继电器输出，RO2A 常开，RO2B 常闭，RO2C 公共端
RO2B	触点容量：3A/AC 250V，1A/DC 30V
RO2C	
COM	+24V 的参考地
CME	开路集电极输出的公共端，出厂时与 COM 短接
Y1	开关容量：50mA/30V；输出频率范围：0~1kHz
485+	485 差分信号通讯端口，标准 485 通讯接口请使用屏蔽双绞线，485 通讯的 120Ω 终
485-	485- 匹配电阻通过拨码开关 SW3 选择接入
PE	接地端子
PW	开关量的外部电源输入端子 NPN 模式下，将 PW 与 +24V 短接；PNP 模式下，将 PW 与 COM 短接
+24V	变频器提供用户电源，最大输出电流 200mA
S1	开关量输入端子
S2	最大输入频率：1kHz；内部阻抗：3.3kΩ；可接受 12~30V 电压输入；全部为双向输入
S3	端子支持 NPN 和 PNP 接法；全部为可编程数字量输入端子，用户可通过功能码设定端子功能；S4 配置为 PTC 以温保护功能，设置功能码 P05.04 及拨动开关打
S4/PTC	到 PTC 位置，过温报警 3.7kΩ，恢复阻值 2.0kΩ 以下（仅支持 NPN 模式）；S 端子输入支持边沿触发和平触触发
HDIA	除有 S1~S4 功能外，还可作为高频脉冲输入通道；最大输入频率：50kHz；占空比：30%~70%；支持 24V 电源的正交编码器输入，具有测速功能
+24V-H1	安全转矩停止（STO）冗余输入，外接常闭触点，触点断开时 STO 动作，变频器停止输出
+24V-H2	STO 输入 2
+24V-H2	STO 输入 2

3 键盘

GD350A 系列产品标配 LCD 键盘，支持选配 LED 键盘。



4 快速运行

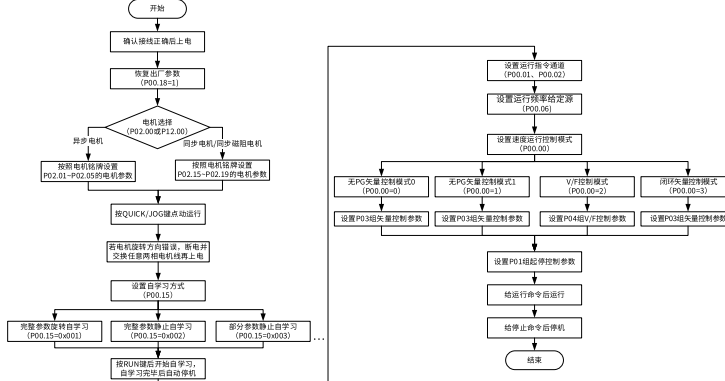
4.1 上电前检查

- 请确认所有的端子已正确牢固连接。
- 请确认电机与变频器功率匹配。

4.2 首次上电操作

接线及电源检查确认无误后，合上变频器输入侧交流电源的空气开关，给变频器加电，LCD 键盘界面会进入引导设置，请根据界面引导进行设置。

快速运行操作如下图所示：



5 常用功能参数设置

下述功能参数表仅列出部分常见功能参数，并进行了简要描述、列举典型取值。

“○”：表示该参数的设定值在变频器处于停机、运行状态中，均可更改；

“⊙”：表示该参数的设定值在变频器处于运行状态时，不可更改；

“●”：表示该参数的数值是实际检测记录值，不能更改。

变频器已对各参数的修改属性作了自动检查约束，可帮助用户避免误修改。

功能码	名称	详细说明	缺省值	更改
P00.00	速度控制模式	0：无 PG 矢量控制模式 0 1：无 PG 矢量控制模式 1 2：V/F 控制模式 3：闭环矢量控制模式	机型确定	⊙
P00.01	运行指令通道	0：键盘运行指令通道 1：端子运行指令通道 2：通讯运行指令通道	0	○
P00.03	最大输出频率	P00.04~599.00Hz	50.00Hz	⊙
P00.04	运行频率上限	P00.05~P00.03（最大输出频率）	50.00Hz	⊙
P00.05	运行频率下限	P00.04~P00.04（运行频率上限）	0.00Hz	⊙
P00.06	A 频率指令选择	0：键盘数字设定 1：模拟量 AI1 设定 2：模拟量 AI2 设定 3：模拟量 AI3 设定 4：高速脉冲 HDIA 设定 5：模拟量 AI3 设定转矩 6：多段速运行设定 7：PID 控制设定 8：Modbus/Modbus TCP 通讯设定 9：PROFIBUS/CANopen/DeviceNET 通讯设定 10：以太网通讯设定 11：高速脉冲 HDIB 设定 12：脉冲串 AB 设定 13：EtherCAT/PROFINET/EtherNet IP 通讯设定 14：PLC 可编程卡设定 15：模拟量 AI5 设定 16：模拟量 AI6 设定 17：模拟量 AI7 设定 18：预留	0	○
P00.07	B 频率指令选择	0：以太网通讯设定 11：高速脉冲 HDIB 设定 12：脉冲串 AB 设定 13：EtherCAT/PROFINET/EtherNet IP 通讯设定 14：PLC 可编程卡设定 15：模拟量 AI5 设定 16：模拟量 AI6 设定 17：模拟量 AI7 设定 18：预留	18	○
P00.10	键盘设定频率	0.00Hz~P00.03（最大输出频率）	50.00Hz	○
P00.11	加速时间 1	0~100.0s	20.0s	○
P00.12	减速时间 1	0.0~3600.0s	20.0s	○
P00.13	运行方向选择	0：默认方向运行 1：相反方向运行 2：禁止反转运行	0	○
P00.15	电机参数自学习	0x000~0x234 个位：电机基本参数自学习 0：无操作 1：完整参数旋转自学习 2：完整参数静止自学习 3：部分参数静止自学习 4：变频频率参数自学习 十位：初始磁极角自学习 0：无操作 1：旋转自学习 2：静止自学习 3：旋转自学习 2 百位：系统惯量自学习 0：无操作 1：模式 1 2：模式 2	0x000	⊙
P00.16	AVR 功能选择	0：无效 1：全程有效	1	○
P00.17	变频器类型	0：G 型机 1：P 型机	0	⊙
P00.18	功能参数恢复	0：无操作 1：恢复出厂值（不包括电机参数） 2：清除故障记录 3~4：保留 5：恢复出厂值（厂家测试模式）	0	⊙

功能码	名称	详细说明	缺省值	更改
P01.00	启动运行方式	0：直接启动 1：先直流制动再启动 2：转速跟踪再启动（有磁滞） 3：转速跟踪再启动（无磁滞） 4：转速跟踪再启动（软件）	0	⊙
P01.08	停机方式选择	0：减速停车 1：自由停车	0	○
P01.09	停机制动开始频率	0.00Hz~P00.03（最大输出频率）	0.00Hz	○
P01.10	消磁时间	0.00~30.00s	0.00s	○
P01.11	停机直流制动电流	0.0~100.0%	0.00%	○
P01.12	停机直流制动时间	0.00~50.00s	0.00s	○
P01.18	上电端子运行保护选择	0：上电时端子运行命令无效 1：上电时端子运行命令有效 注意：仅在 P01.21=0 时有效。	0	⊙
P01.21	停电再启动选择	0：禁止再启动 1：允许再启动	0	○
P02.00	电机 1 类型	0：异步电机 1：同步电机 2：同步磁阻电机	0	⊙
P02.01	异步电机 1 额定功率	0.1~3000.0kW	机型确定	⊙
P02.02	异步电机 1 额定频率	0.01~P00.03（Hz）	机型确定	⊙
P02.03	异步电机 1 额定转速	1~6000rpm	机型确定	⊙
P02.04	异步电机 1 额定电压	0~1200V	机型确定	⊙
P02.05	异步电机 1 额定电流	0.5~6000.0A	机型确定	⊙
P03.00	电机 1 速度环比例增益	0.0~200.0	20.0	○
P03.01	电机 1 速度环积分时间	0.000~10.000s	0.200s	○
P03.02	电机 1 速度环低截止频率	0.0~P03.05（Hz）	5.00Hz	○
P03.03	电机 1 速度环比例增益 2	0.0~200.0	20.0	○
P03.04	电机 1 速度环积分时间 2	0.000~10.000s	0.200s	○
P03.05	电机 1 速度环切换高频点	P03.02~P00.03（Hz）	10.00Hz	○
P03.11	转矩设定方式选择	0：键盘数字设定（P03.12） 1：键盘速度设定（P03.12） 2：模拟量 AI1 设定转矩 3：模拟量 AI2 设定转矩 4：高速脉冲 HDIA 设定 5：模拟量 AI3 设定转矩 6：多段速运行设定 7：Modbus/Modbus TCP 通讯设定转矩 8：PROFIBUS/CANopen/DeviceNET 通讯设定转矩 9：以太网通讯设定转矩 10：脉冲串 HDIB 设定转矩 11：EtherCAT/PROFINET/EtherNet IP 通讯设定转矩 12：PLC 可编程卡设定 13：模拟量 AI5 设定转矩 14：模拟量 AI6 设定转矩 15：模拟量 AI7 设定转矩 注意：100% 对应 1 倍电机额定电流。	0	○
P04.01	电机 1 转矩提升	0.0%~（自动转矩提升），0.1%~10.0%	0.0%	○
P04.09	电机 1 V/F 转差补偿增益	0.0~200.0%	100.0%	○
P04.10	电机 1 低频抑制振荡因子	0~100	10	○
P04.11	电机 1 高频抑制振荡因子	0~100	10	○
P05.01	S1 端子功能选择	0：无功能	1	⊙
P05.02	S2 端子功能选择	1：正转运行（FWD）	4	⊙
P05.03	S3 端子功能选择	2：反转运行（REV）	7	⊙
P05.04	S4 端子功能选择	3：三线式运行控制（SIN）	0	⊙
P05.05	HDIA 端子功能选择	4：正转寸动 5：反转寸动 6：自由停车 7：故障复位 9：外部故障输入 10：频率设定递增（UP） 11：频率设定递减（DOWN）	0	⊙
P05.29	AI2 下限值	-10.00V~P05.31	-10.00V	○
P05.35	AI2 上限值	P05.33~10.00V	10.00V	○
P06.01	Y1 输出选择	0：无效	0	○
P06.02	HDO 输出选择	1：运行中	0	○
P06.03	继电器 RO1 输出选择	2：正转运行中 3：反转运行中 4：点动运行中 5：变频器故障	1	○
P06.04	继电器 RO2 输出选择	6：频率水平检测 FDT1 7：频率水平检测 FDT2 8：频率到达	5	○
P06.14	AO1 输出选择	0：运行频率	0	○
P06.15	AO0 输出选择	1：设定频率 2：斜坡给定频率	0	○
P06.16	HDO 高速脉冲输出选择	3：运行转速（100% 对应最大输出频率对应的转速）	0	○

功能码	名称	详细说明	缺省值	更改
P06.17~P06.26	AO/PTC 输出上下限设置	4：输出电流（100% 对应 2 倍变频器额定电流） 5：输出电流（100% 对应 2 倍电机额定电流） 6：输出电压（100% 对应 1.5 倍变频器额定电压） 7：输出功率（100% 对应 2 倍电机额定功率）		
P06.17	AO/PTC 输出上下限设置	1~247 注意：从机地址不可为 0。	-	○
P07.00	用户密码	0~65535	0	○
P14.00	本机通讯地址	1~247 注意：从机地址不可为 0。	1	○
P14.01	通讯波特率设置	0：1200bps 2：4800bps 4：19200bps 1：2400bps 3：9600bps 5：38400bps	4	○
P14.02	数据位校验设置	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	1	○

6 常见故障及对策

故障码显示	故障类型	可能的原因	故障解决方法
OU11	[1] 逆变单元 U 相保护	● 增大加速时间 ● 更换逆变单元	● 增大加速时间 ● 更换逆变单元
OU12	[2] 逆变单元 V 相保护	● 该相 IGBT 内部损坏 ● 干扰引起误动作 ● 驱动线连接不良	● 检查设备是否可靠 ● 请检查驱动线是否有松动 ● 检查电机线型和电机对地是否有短路
OU3	[3] 逆变单元 W 相保护	● 是否对地短路 ● 机器使用环境导致内部出现火花	● 检查电机线型和电机对地是否有短路 ● 定期清理变频器内部粉尘或油污
OC1	[4] 加速过电流	● 增大加速时间 ● 调高电网输入电压	● 增大加速时间 ● 调高电网输入电压
OC2	[5] 减速过电流	● 电网电压偏低 ● 变频器功率偏小 ● 负载突变或者异常 ● 三相输出电流是否平衡 ● 外部存在强干扰源（系统有接触器切换、系统接地不良）	● 选用功率大一档的变频器 ● 检查电机是否堵转或短路，是否检查设备存在异常 ● 检查变频器三相输出电压是否平衡 ● 检查是否存在强干扰现象（电机线远离接触器，系统可靠接地）
OC3	[6] 恒速过电流	● 加速太快 ● 电网电压偏低 ● 变频器功率偏小 ● 负载突变或者异常 ● 三相输出电流是否平衡 ● 外部存在强干扰源（系统有接触器切换、系统接地不良）	● 增大加速时间 ● 检查输入电压 ● 采用转速跟踪启动 ● 需增加能耗制动组件或能量回馈单元 ● 设置能耗制动功能参数
OV1	[7] 加速过电压	● 加速时间过短 ● 输入电压异常	● 增大加速时间 ● 检查输入电压
OV2	[8] 减速过电压	● 存在电机反转中启动的现象 ● 负载存在较大能量回馈 ● 能耗制动功能未打开	● 检查输入电压 ● 采用转速跟踪启动 ● 需增加能耗制动组件或能量回馈单元 ● 设置能耗制动功能参数
OV3	[9] 恒速过电压	● 电网电压偏低 ● 母线电压显示异常 ● 缓冲接触器吸合异常	● 调高电网输入电压 ● 联系厂家 ● 调高电网输入电压
UV	[10] 母线欠压故障	● 电网电压过低 ● 电机额定电流设置不正确 ● 电机堵转或负载突变大	● 调高电网输入电压 ● 重新设置电机参数组的电机额定电流 ● 检查负载，调节转矩提升量
OL1	[11] 电机过载	● 加速太快 ● 对旋转中的电机实施再启动 ● 电网电压过低 ● 速度跟踪启动 ● 调高电网输入电压 ● 选择功率更大的变频器	● 增大加速时间 ● 避免停机再启动或进行转速跟踪启动 ● 调高电网输入电压 ● 选择功率更大的变频器
OL2	[12] 变频器过载	● 加速太快 ● 对旋转中的电机实施再启动 ● 电网电压过低 ● 速度跟踪启动 ● 调高电网输入电压 ● 选择功率更大的变频器	● 增大加速时间 ● 避免停机再启动或进行转速跟踪启动 ● 调高电网输入电压 ● 选择功率更大的变频器
SPI	[13] 输入侧缺相	● 检查输入电源是否正常 ● 输入侧螺丝松动 ● 检查输出线缆是否有松动或破损 ● 检查负载是否波动大和电机三相阻抗是否平衡	● 检查外部设备输入是否正常 ● 可通过设置参数 P11.00 将故障屏蔽 ● 检查输出线缆是否有松动或破损 ● 检查负载是否波动大和电机三相阻抗是否平衡
SPO	[14] 输出侧缺相	● 检查输出线缆是否有松动或破损 ● 检查负载是否波动大和电机三相阻抗是否平衡	● 检查输出线缆是否有松动或破损 ● 检查负载是否波动大和电机三相阻抗是否平衡
OH1	[15] 整流模块过热	● 风道堵塞或风扇损坏 ● 环境温度过高 ● 长时间过速运行	● 疏通风道或更换风扇 ● 保持环境通风顺畅，降低环境温度 ● 选择功率更大的变频器
OH2	[16] 逆变模块过热	● 风道堵塞或风扇损坏 ● 环境温度过高 ● 长时间过速运行	● 疏通风道或更换风扇 ● 保持环境通风顺畅，降低环境温度 ● 选择功率更大的变频器
EF	[17] 外部故障	● S 端子外部故障输入信号动作	● 检查外部设备输入是否正常
CE	[18] 485 通讯故障	● 波特率设置不当 ● 通讯线路故障 ● 通讯地址错误 ● 通讯受到强干扰	● 设置合适的波特率 ● 检查通讯接口配线连接是否正常 ● 设置正确通讯地址 ● 建议更换使用屏蔽线缆，提高抗干扰性
ItE	[19] 电流检测故障	● 电机线或电机绝缘异常 ● 霍尔线接触不良 ● 霍尔器件或电流采样光耦损坏	● 拆除电机线进行验证 ● 检查霍尔线接头 ● 联系厂家
tE	[20] 电机自学习故障	● 电机容量与变频器容量不匹配，相差 5 个功率等级以上容易出现故障 ● 更换变频器型号，或者采用 V/F 模式控制 ● 检查电机接线，电机类型和	● 更换变频器型号，或者采用 V/F 模式控制 ● 检查电机接线，电机类型和

故障码显示	故障类型	可能的原因	故障解决方法
ETH1	[32] 对地短路故障 1	● 电机参数设置不当 ● 数学习出的参数与标准参数偏差过大 ● 自学习超时 ● 脉冲电流设置值是否过大	● 参数设置 ● 使电机空载，重新辨识 ● 检查上限频率是否大于额定频率的 2/3 ● 适当减小脉冲电流设置值
ETH2	[33] 对地短路故障 2	● 变频器输出与地短接 ● 电流检测电路出现故障 ● 实际电机功率设置和变频器功率相差太大	● 检查电机对地是否短路，接点是否正常 ● 拆除电机线是否异常 ● 更换霍尔 ● 更换主控制板 ● 重新设置正确的电机参数
dEu	[34] 速度偏差故障	● 负载过重或者被堵转 ● 同步电机参数设置不当 ● 电机自学习参数不准 ● 变频器未接电机 ● 弱磁应用	● 检查负载是否过重或过重，增加速度偏差检出时间或把加速时间加长 ● 电机参数设置是否正确，重新做电机参数自学习 ● 检查速度环控制参数是否合适 ● 检查负载是否过重、堵转 ● 检查电机参数设置是否正确，反向电动势设置是否正确 ● 重新做电机参数自学习 ● 增加失速检出时间 ● 适当调整弱磁系数，电流环参数
STo	[35] 失速故障	● 变频器按设定值进行欠载预警 ● 编码器接线错误，或信号线未接好 ● 编码器信号受到干扰 ● 编码器损坏	● 检测负载和欠载预警点 ● 检查编码器接线是否正确，编码器线和动力线分开走线 ● 编码器线使用屏蔽线，屏蔽层和系统可靠接地 ● 更换新的编码器
LL	[36] 电子欠载故障	● 编码器速度信号与电机运行方向相反	● 重新设置编码器方向
ENC1o	[37] 编码器断线故障	● 编码器速度信号与电机运行方向相反	● 检查 Z 信号接线，重新接线
ENC1d	[38] 编码器反向故障	● 编码器速度信号与电机运行方向相反	● 检查 Z 信号接线，重新接线
ENC1Z	[39] 编码器 Z 脉冲断线故障	● 编码器速度信号与电机运行方向相反	● 检查 Z 信号接线，重新接线
OT	[59] 电机过热故障	● 电机过热温度输入端子有效 ● 温度检测电路异常 ● 电机长时间过速运行或散热异常	● 检查电机过热温度输入端子（端子功能 57）接线 ● 检查温度传感器是否正常工作 ● 检查电机并进行维护

附录 A 常用扩展卡

扩展卡类型	功能规格
IO 扩展卡 4	3 路模拟量 AI 输入 3 路模拟量 AO 输出 3 路继电器输出
PROFINET 通信卡	- 支持 PROFINET 协议 - 实现三路速度反馈；支持 PT100/PT1000/KTY84/PTC，检测精度 5°C
多功能增量 PG 卡	- 适用于 5V 或 12V OC 型编码器 - 适用于 5V 或 12V 推挽型编码器 - 适用于 5V 差分型编码器 - 支持 A、B、Z 正交输入 - 支持脉冲串给定输入

注意：GD350A 系列产品支持多种 IO 扩展卡、通信扩展卡以及 PG 扩展卡，详见《Goodrive350A 系列高性能通用变频器用户手册》。

附录 B 产品额定值

表 B-1 220V 产品额定规格

箱体	变频器型号	输出功率 (kW)	输入电流 (A)	输出电流 (A)	额定电源频率 (Hz)
T2	GD350A-0R7G-S2	0.75	9.3	5.0	50Hz/60Hz, 允许范围 47-63Hz
	GD350A-1R5G-S2	1.5	15.7	9.5	
T3	GD350A-2R2G-S2	2.2	24	14	
T4	GD350A-004G-S2	4	38	18.5	
T6	GD350A-5R5G-S2	5.5	55	25	
	GD350A-7R5G-S2	7.5	65	32	
T1	GD350A-0R7G-2	0.75	5.8	5.0	
T2	GD350A-1R5G-2	1.5	13.5	9.5	
	GD350A-2R2G-2	2.2	19.5	14	
T3	GD350A-004G-2	4	25	18.5	
T4	GD350A-5R5G-2	5.5	32	25	
	GD350A-7R5G-2	7.5	40	32	
T5	GD350A-011G-2	11	51	45	
T6	GD350A-015G-2	15	70	60	
	GD350A-018G-2	18.5	80	75	
T7	GD350A-022G-2	22	98	92	
	GD350A-030G-2	30	128	115	
T8	GD350A-037G-2	37	139	150	
	GD350A-045G-2	45	168	180	
	GD350A-055G-2	55	201	215	

Goodrive350A Series High-performance General-purpose VFD Quick Start Guide

This guide briefly describes the external wiring, terminals, Scan the QR code to view keypads, quick running, common function parameter settings, the full version of the and common faults and solutions of Goodrive350A series high- product e-manual, performance general-purpose VFD.

Visit www.invt.com for more information (including energy efficiency data) and source download. For details, see the full version of corresponding product e-manual.



Warning

This guide only provides the basic installation and commissioning information. Failure to comply with the safety instructions and installation and commissioning instructions in the relevant documentation may result in accidents such as equipment damage, personal injury, or even death.

Only trained and qualified professionals are allowed to carry out related operations.

Danger

Do not perform any operations including wiring, inspection, or component replacement when power supply is applied. Before performing these operations, ensure all the input power supplies have been disconnected, and wait for at least the time designated on the VFD or until the DC bus voltage is less than 36V.

Minimum waiting time VFD model

Waiting time	1PH 220V 0.75kW~7.5kW 3PH 220V 0.75kW~55kW 3PH 380V 0.4kW~110kW	3PH 525V 15kW~90kW 3PH 660V 22kW~132kW
5 minutes		
15 minutes	3PH 220V 75kW~160kW 3PH 380V 132kW~315kW	3PH 525V 110kW~280kW 3PH 660V 160kW~355kW
25 minutes	3PH 220V 185kW and higher 3PH 380V 355kW and higher	3PH 525V 315kW and higher 3PH 660V 400kW and higher

1 External wiring

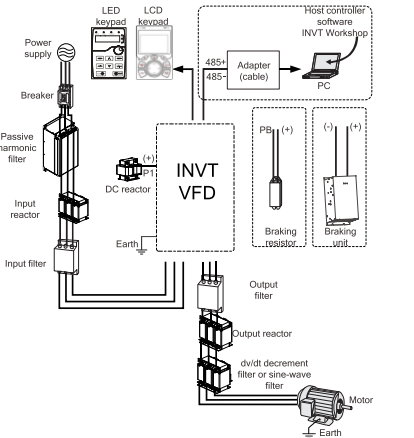


Figure 2-1 Typical VFD wiring

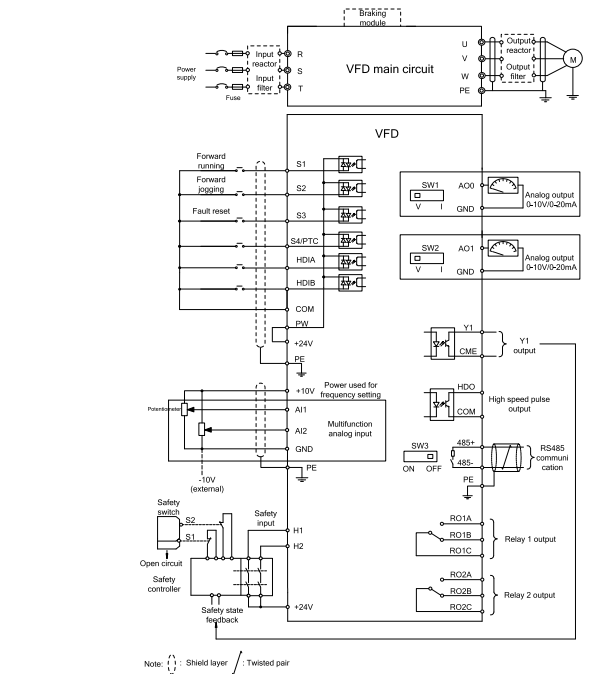
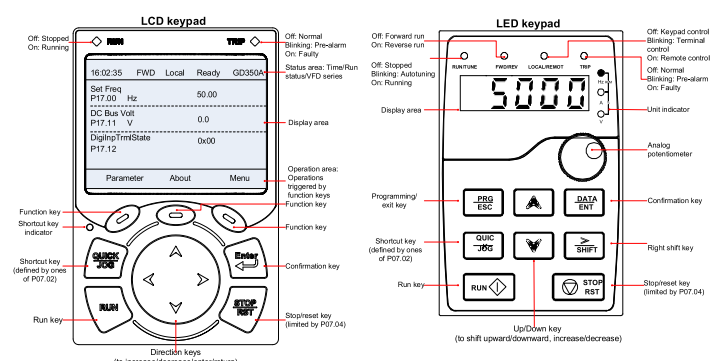


Table 2-1 VFD terminal description

Terminal	Description
Main circuit terminals	
R, S, T	3PH AC input terminals, connected to the grid
U, V, W	3PH AC output terminals, connected to the motor usually
P1	P1 and (+) connect to external DC reactor terminals.
(+)	(+) and (-) connect to external braking unit terminals.
PB	PB and (+) connect to external braking resistor terminals.
PE	PE terminal. The PE terminals of each machine must be grounded reliably.
Control circuit terminals	
+10V	Locally provided 10V power supply
A11	Analog input, using voltage input by default, which can be changed to current input through the corresponding jumper
A12	Analog input. Input range: A11 0~10V/0~20mA, A12 -10~10V Supports S terminal mode: less than 3V is judged as a logical low level; 7V~10V is judged as a logical low level.
GND	+10V reference ground
A00	Analog output; output range: 0~10V/0~20mA Whether voltage or current is used for output is set through the switch SW1
A01	Analog output; output range: 0~10V/0~20mA Whether voltage or current is used for output is set through the switch SW2
RO1A	RO1 output; RO1A: NO; RO1B: NC; RO1C: common
RO1B	Contact capacity: 3A/AC250V, 1A/DC30V
RO1C	
RO2A	RO2 output; RO2A: NO; RO2B: NC; RO2C: common
RO2B	Contact capacity: 3A/AC250V, 1A/DC 30V
RO2C	
COM	+24V reference ground
CME	Common terminal of open collector output; short connected to COM by default
Y1	Switch capacity: 50mA/30V. Output frequency range: 0~1kHz
485+	RS485 differential signal communication port. Use shielded twisted pairs for standard RS485 communication interfaces. You can determine whether to connect the 1200 terminal matching resistor of RS485 communication through the corresponding switch SW3.
485-	
PE	Grounding terminals
PW	External power input terminal for digital input circuits. In NPN mode, short connect PW and +24V. In PNP mode, short connect PW and COM.
+24V	User power supply provided by the VFD. Max. output current: 200mA
S1	Digital input terminals; Max. input frequency: 1kHz; Internal impedance: 3.3kΩ; 12~30V voltage input is acceptable;
S2	All are bi-direction input terminals, supporting both NPN and PNP; All are programmable digital input terminals, the functions of which can be set through function codes; S4 is configured with the PTC overtemperature protection function, which can be enabled through P05.04 and turning the toggle switch to the PTC position. Overtemperature resistance: 3.7kΩ. Recovery resistance: Below 2.0kΩ (only NPN mode is supported). S terminal input supports both edge trigger and level trigger.
S3	In addition to S1~S4 functions, the terminals can also act as high frequency pulse input channels; Max. input frequency: 50kHz; Duty ratio: 30%~70%; Supports the input of a quadrature encoder with 24V power supply; Equipped with speed-measurement function.
HDIA	
HDIB	
+24V—H1	STO Safe torque off (STO) redundant input, connected to the external NC input 1 contact. When the contact opens, STO acts and the VFD stops output.
+24V—H2	STO Safe input signal wires use shielded wires whose length is within 25m. The H1 and H2 terminals are short connected to +24V by default. Remove the jumper from the terminals before using the STO function.

3 Keypad

The product is equipped with a standard LCD keypad and supports an optional LED keypad.



4 Quick running

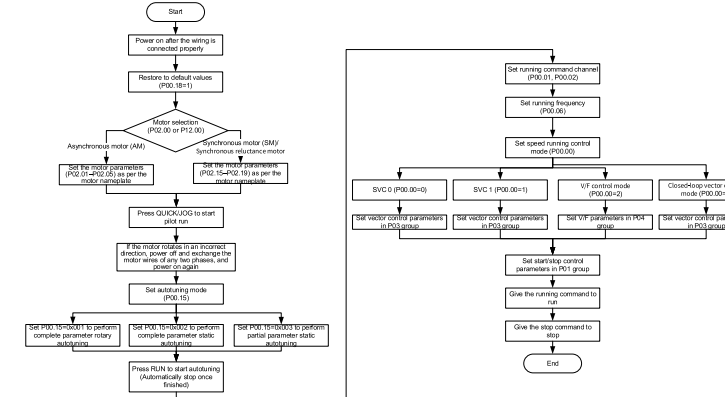
4.1 Check before power-on

- Ensure that all terminals have been securely connected.
- Ensure that the motor power matches the VFD power.

4.2 Operating upon first power-on

Ensure the wiring and power are correct, and close the air switch of the AC power at the VFD input side to power on the VFD. The LCD keypad interface enters the setup wizard, which guides you to complete the setup.

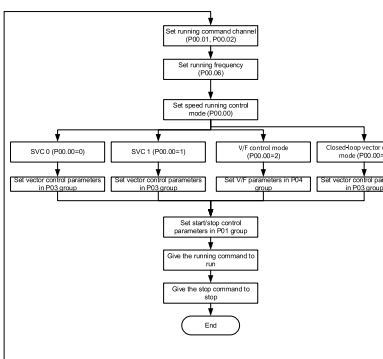
The quick startup flowchart is as follows:



5 Common function parameter setup

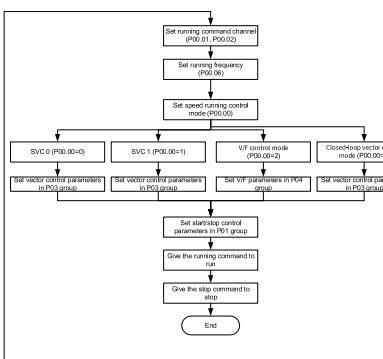
The following briefly describes only some common function parameters and typical values. "○" indicates that the value of the parameter can be modified when the VFD is in stopped or running state. "⊙" indicates that the value of the parameter cannot be modified when the VFD is in running state. "●" indicates that the value of the parameter is detected and recorded, and cannot be modified. (The VFD automatically checks and constrains the modification of parameters, which helps prevent incorrect modifications.)

Function code	Name	Description	Default	Modify
P00.00	Speed control mode	0: SVC 0 1: SVC 1 2: V/F control mode 3: Closed-loop vector control mode	Model depended	⊙
P00.01	Channel of running commands	0: Keypad 1: Terminal	0	○
P00.03	Max. output frequency	P00.04~599.00Hz	50.00Hz	⊙
P00.04	Upper limit of running frequency	P00.05~P00.03 (Max. output frequency)	50.00Hz	⊙
P00.05	Lower limit of running frequency	0.00Hz~P00.04 (Upper limit of running frequency)	0.00Hz	⊙
P00.06	Setting channel of A frequency command	0: Keypad 1: A11 2: A12 3: A13 4: High-speed pulse HDIA 5: Simple PLC program 6: Multi-step speed running 7: PID control 8: Modbus/Modbus TCP communication 9: PROFIBUS/CANopen/DeviceNet communication 10: Ethernet communication 11: High-speed pulse HDIB 12: Pulse train AB setting 13: EtherCAT/PROFINET/ EtherNet IP communication 14: Programmable card 15: A15 16: A16 17: A17 18: Reserved	0	⊙
P00.07	Setting channel of B frequency command	0: Keypad (P03.12) 1: Keypad (P03.12) 2: A11 3: A12 4: A13 5: Pulse frequency HDIA 6: Multi-step torque 7: Modbus/Modbus TCP communication 8: PROFIBUS/CANopen / DeviceNet communication 9: Ethernet communication 10: Pulse frequency HDIB 11: EtherCAT / PROFINET/ EtherNet IP communication 12: Programmable card 13: A15 14: A16 15: A17	18	○
P00.10	Setting frequency through keypad	0.00Hz~P00.03 (Max. output frequency)	50.00Hz	○
P00.11	ACC time 1	0~3600.0s	20.0s	○
P00.12	DEC time 1	0~3600.0s	20.0s	○
P00.13	Running direction	0: Run at the default direction 1: Run at the opposite direction. 2: Disable reverse running.	0	○
P00.15	Motor parameter autotuning	Ones: 0: No operation 1: Complete parameter rotary autotuning 2: Complete parameter static autotuning 3: Partial parameter static autotuning 4: VFD parameter autotuning Tens: Initial pole angle autotuning 0: No operation 1: Mode 1 2: Mode 2	0x000	⊙
P00.16	AVR function selection	0: Invalid 1: Valid during the whole process	1	○
P00.17	VFD type	0: G type 1: P type	0	⊙
P00.18	Function parameter restoration	0: No operation 1: Restore to default values (excluding motor parameters) 2: Clear fault records 3~4: Reserved	0	⊙



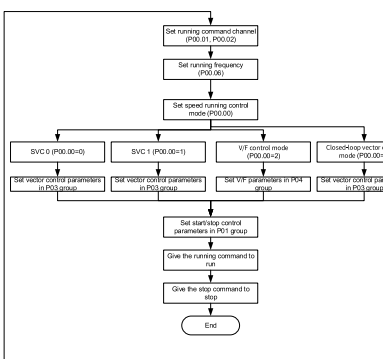
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Function code	Name	Description	Default	Modify
P01.00	Running mode of start	0: Direct start 1: Start after DC braking 2: Start after speed tracking (with exciting) 3: Start after speed tracking (without exciting) 4: Start after speed tracking (software)	0	⊙
P01.08	Stop mode	0: Decelerate to stop 1: Coast to stop	0	○
P01.09	Starting frequency of DC braking for stop	0.00Hz~P00.03 (Max. output frequency)	0.00Hz	○
P01.10	Demagnetization time	0.00~30.00s	0.00s	○
P01.11	DC braking current for stop	0.0~100.0%	0.00%	○
P01.12	DC braking time for stop	0.00~50.00s	0.00s	○
P01.18	Terminal-based running command protection at power-on	0: The terminal-based running command is invalid at power-on 1: The terminal-based running command is valid at power-on	0	⊙
P01.21	Power-off restart selection	0: Disable restart 1: Enable restart	0	○
P02.00	Type of motor 1	0: Asynchronous motor (AM) 1: Synchronous reluctance motor	0	⊙
P02.01	Rated power of AM 1	0.1~3000.0kW	Model depended	⊙
P02.02	Rated frequency of AM 1	0.01~P00.03 (Hz)	Model depended	⊙
P02.03	Rated speed of AM 1	1~6000rpm	Model depended	⊙
P02.04	Rated voltage of AM 1	1~1200V	Model depended	⊙
P02.05	Rated current of AM 1	10.8~6000.0A	Model depended	⊙
P03.00	Speed-loop proportional gain 1 of motor 1	0.0~200.0	20.0	○
P03.01	Speed-loop integral time 1 of motor 1	0.000~10.00s	0.200s	○
P03.02	Low-point frequency for speed-loop switching of motor 1	0.00~P03.05 (Hz)	5.00Hz	○
P03.03	Speed-loop gain 2 of motor 1	0.0~200.0	20.0	○
P03.04	Speed-loop integral time 2 of motor 1	0.000~10.00s	0.200s	○
P03.05	High-point frequency for speed-loop switching of motor 1	P03.02~P00.03 (Hz)	10.00Hz	○
P03.11	Torque setting method	0: Invalid 1: Valid during the whole process	0	○
P04.01	Torque boost of motor 1	0.0%~10.0% (Automatic torque boost), 0.1%~10.0%	0.0%	○



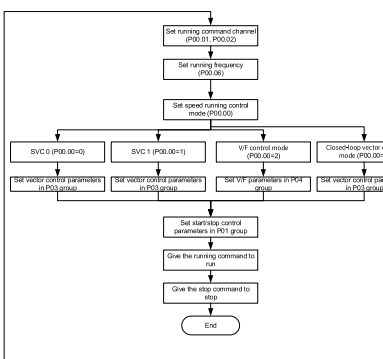
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Function code	Name	Description	Default	Modify
P01.00	Running mode of start	0: Direct start 1: Start after DC braking 2: Start after speed tracking (with exciting) 3: Start after speed tracking (without exciting) 4: Start after speed tracking (software)	0	⊙
P01.08	Stop mode	0: Decelerate to stop 1: Coast to stop	0	○
P01.09	Starting frequency of DC braking for stop	0.00Hz~P00.03 (Max. output frequency)	0.00Hz	○
P01.10	Demagnetization time	0.00~30.00s	0.00s	○
P01.11	DC braking current for stop	0.0~100.0%	0.00%	○
P01.12	DC braking time for stop	0.00~50.00s	0.00s	○
P01.18	Terminal-based running command protection at power-on	0: The terminal-based running command is invalid at power-on 1: The terminal-based running command is valid at power-on	0	⊙
P01.21	Power-off restart selection	0: Disable restart 1: Enable restart	0	○
P02.00	Type of motor 1	0: Asynchronous motor (AM) 1: Synchronous reluctance motor	0	⊙
P02.01	Rated power of AM 1	0.1~3000.0kW	Model depended	⊙
P02.02	Rated frequency of AM 1	0.01~P00.03 (Hz)	Model depended	⊙
P02.03	Rated speed of AM 1	1~6000rpm	Model depended	⊙
P02.04	Rated voltage of AM 1	1~1200V	Model depended	⊙
P02.05	Rated current of AM 1	10.8~6000.0A	Model depended	⊙
P03.00	Speed-loop proportional gain 1 of motor 1	0.0~200.0	20.0	○
P03.01	Speed-loop integral time 1 of motor 1	0.000~10.00s	0.200s	○
P03.02	Low-point frequency for speed-loop switching of motor 1	0.00~P03.05 (Hz)	5.00Hz	○
P03.03	Speed-loop gain 2 of motor 1	0.0~200.0	20.0	○
P03.04	Speed-loop integral time 2 of motor 1	0.000~10.00s	0.200s	○
P03.05	High-point frequency for speed-loop switching of motor 1	P03.02~P00.03 (Hz)	10.00Hz	○
P03.11	Torque setting method	0: Invalid 1: Valid during the whole process	0	○
P04.01	Torque boost of motor 1	0.0%~10.0% (Automatic torque boost), 0.1%~10.0%	0.0%	○



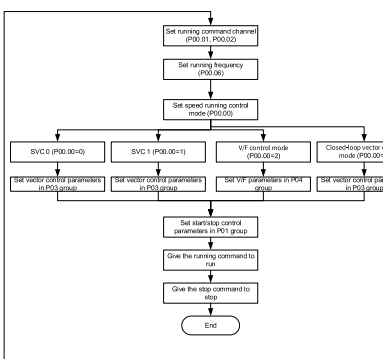
The following briefly describes only some common function parameters and typical values. "○" indicates that the value of the parameter can be modified when the VFD is in stopped or running state. "⊙" indicates that the value of the parameter cannot be modified when the VFD is in running state. "●" indicates that the value of the parameter is detected and recorded, and cannot be modified. (The VFD automatically checks and constrains the modification of parameters, which helps prevent incorrect modifications.)

Function code	Name	Description	Default	Modify
P01.00	Running mode of start	0: Direct start 1: Start after DC braking 2: Start after speed tracking (with exciting) 3: Start after speed tracking (without exciting) 4: Start after speed tracking (software)	0	⊙
P01.08	Stop mode	0: Decelerate to stop 1: Coast to stop	0	○
P01.09	Starting frequency of DC braking for stop	0.00Hz~P00.03 (Max. output frequency)	0.00Hz	○
P01.10	Demagnetization time	0.00~30.00s	0.00s	○
P01.11	DC braking current for stop	0.0~100.0%	0.00%	○
P01.12	DC braking time for stop	0.00~50.00s	0.00s	○
P01.18	Terminal-based running command protection at power-on	0: The terminal-based running command is invalid at power-on 1: The terminal-based running command is valid at power-on	0	⊙
P01.21	Power-off restart selection	0: Disable restart 1: Enable restart	0	○
P02.00	Type of motor 1	0: Asynchronous motor (AM) 1: Synchronous reluctance motor	0	⊙
P02.01	Rated power of AM 1	0.1~3000.0kW	Model depended	⊙
P02.02	Rated frequency of AM 1	0.01~P00.03 (Hz)	Model depended	⊙
P02.03	Rated speed of AM 1	1~6000rpm	Model depended	⊙
P02.04	Rated voltage of AM 1	1~1200V	Model depended	⊙
P02.05	Rated current of AM 1	10.8~6000.0A	Model depended	⊙
P03.00	Speed-loop proportional gain 1 of motor 1	0.0~200.0	20.0	○
P03.01	Speed-loop integral time 1 of motor 1	0.000~10.00s	0.200s	○
P03.02	Low-point frequency for speed-loop switching of motor 1	0.00~P03.05 (Hz)	5.00Hz	○
P03.03	Speed-loop gain 2 of motor 1	0.0~200.0	20.0	○
P03.04	Speed-loop integral time 2 of motor 1	0.000~10.00s	0.200s	○
P03.05	High-point frequency for speed-loop switching of motor 1	P03.02~P00.03 (Hz)	10.00Hz	○
P03.11	Torque setting method	0: Invalid 1: Valid during the whole process	0	○
P04.01	Torque boost of motor 1	0.0%~10.0% (Automatic torque boost), 0.1%~10.0%	0.0%	○



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P01.08	Stop mode	0: Decelerate to stop 1: Coast to stop	0	○
P01.09	Starting frequency of DC braking for stop	0.00Hz~P00.03 (Max. output frequency)	0.00Hz	○
P01.10	Demagnetization time	0.00~30.00s	0.00s	○
P01.11	DC braking current for stop	0.0~100.0%	0.00%	○
P01.12	DC braking time for stop	0.00~50.00s	0.00s	○
P01.18	Terminal-based running command protection at power-on	0: The terminal-based running command is invalid at power-on 1: The terminal-based running command is valid at power-on	0	⊙
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P03.04	Speed-loop integral time 2 of motor 1	0.000~10.00s	0.200s	○
P03.05	High-point frequency for speed-loop switching of motor 1	P03.02~P00.03 (Hz)	10.00Hz	○
P03.11	Torque setting method	0: Invalid 1: Valid during the whole process	0	○
P04.01	Torque boost of motor 1	0.0%~10.0% (Automatic torque boost), 0.1%~10.0%	0.0%	○



The following briefly describes only some common function parameters and typical values. "○" indicates that the value of the parameter can be modified when the VFD is in stopped or running state. "⊙" indicates that the value of the parameter cannot be modified when the VFD is in running state. "●" indicates that the value of the parameter is detected and recorded, and cannot be modified. (The VFD automatically checks and constrains the modification of parameters, which helps prevent incorrect modifications.)

Description	Default	Modify
0: Control mode 1: SVC 1	Model dependent	⊙
P00.00 Vector control mode	0	○
1: Terminal communication	0	○
599.00Hz	50.00Hz	⊙
P00.03 (Max. output frequency)	50.00Hz	⊙
P00.04 (Upper limit of running frequency)	0.00Hz	⊙
1: A11 3: A13	0	○
Speed pulse H/DIA	18	○
PLC program		
Step speed running		
Control		
Bus/Modbus TCP communication		
IBUS/CANopen/DeviceNet communication		
Ethernet communication		
Speed pulse H/DIB		
Terminal AB setting		
CAT/PROFINET/ EtherNet IP communication		
Programmable card		
16: A16 17: A17		
P00.03 (Max. output frequency)	50.00Hz	○
0.00s	20.0s	○
	20.0s	○
at the default direction at the opposite direction, the reverse running.	0	○
Ones: basic parameter autotuning operation complete parameter rotary running complete parameter static running	0x000	⊙
al parameter static autotuning parameter autotuning		
initial pole angle autotuning operation		
ry autotuning		
autotuning 2		
autotuning 2		
ds : System inertia autotuning operation		
1		
2		
id		
during the whole process	1	○
e 1: P type	0	⊙
operation		⊙
ore default values (excluding parameters)	0	⊙
fault records		