

E380/220变频器简版使用说明

物料编号	HPPV0140000
版本号	1.0
制作日期	2023年09月

开箱时请确认
确认包装物件及数量是否正确,包装清单如下:

序号	名称	数量
1	驱动器	1
2	一字螺丝刀	1
3	E380/220变频器简版使用说明	1
4	E380/220变频器参数简表	1
5	合格证	1

确认物件在运输途中是否有损伤。
如果发现问题,请联系经销商。

第一章 安全注意事项

1.1 标识定义

为了确保您的人身、设备及财产安全,在使用变频器之前,请务必仔细阅读本章内容,并在以后的搬运、安装、调试、运行与检修过程中遵照执行。用户请务必遵照本手册中的相关安全说明执行,如果出现因用户违规操作而造成任何的伤害事故和财产损失均与本公司无关。本手册中的安全标识定义分“危险”和“注意”两类。



- 由于没有按要求操作,可能导致重伤或者死亡及重大的财产损失!



- 由于没有按要求操作,可能导致中等程度伤害或轻伤,以及造成设备及财物损坏!

1.2 安全事项

1.2.1 安装前:



- 开箱时发现机器进水或遗留有水迹表示变频器曾经受潮甚至进水时,请不要安装!
- 开箱时发现机器部件损坏甚至缺失时,请不要安装!
- 开箱时发现装箱标识与实物不相符时,请不要安装!



- 搬运时应该轻抬轻放,否则有损坏机器的危险!
- 不要用手触摸机器内的元器件,否则有静电损坏机器的危险!

1.2.6 运行中:



- 请勿触摸散热风扇或制动电阻等,否则可能导致人身伤害!
- 非专业技术人员,请勿在变频器运行中检测信号,否则可能导致变频器损坏或人身伤害!



- 变频器运行中,避免移动变频器本体或变频器安装柜箱体,或者异物掉入变频器内,否则将引起变频器损坏!
- 请通过端子功能或其他控制回路的控制方式启停变频器,尽量避免采用变频器上电运行的控制方式来启动变频器,严禁在变频器输出端使用接触器通断的方式来控制电机的启停!

1.2.7 维护时:



- 严禁带电对变频器进行任何形式的维护或检修,以免触电!
- 当变频器面板及内部的所有指示灯还亮时,严禁对变频器内部进行拆卸,以免触电!
- 非专业人员或未经培训人员请勿对变频器进行维护或保养,否则将损坏变频器或造成人身伤害!
- 变频器的标配或选配附件,必须在变频器断电的情况下进行拆装。

1.3 注意事项

1.3.1 电机绝缘检查

电机在首次使用、长时间闲置后的再使用之前及定期检查时,必须做电机的绝缘检查,防止因电机绕组间绝缘失效而损坏变频器。做绝缘检查时必须将电机连线与变频器断开,建议采用500V电压型兆欧表,所测得的绝缘电阻不小于5MΩ为合格。

第二章 产品说明及选型

2.1 命名规则

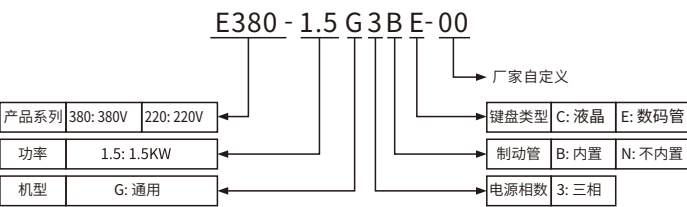


图2-1 命名规则

2.2 铭牌说明

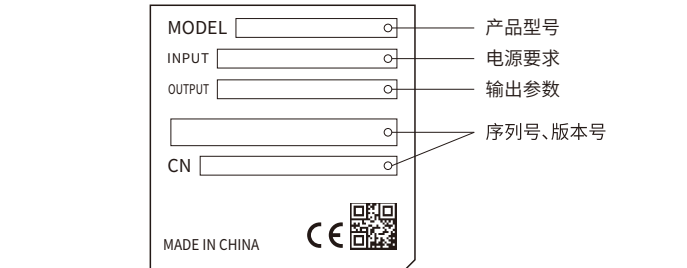


图2-2 铭牌说明

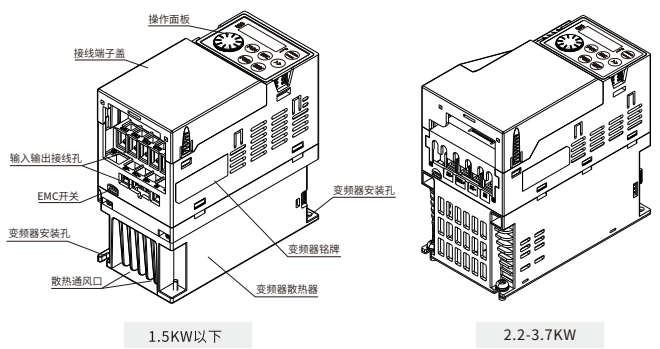


- 变频器铭牌上的条形码是识别每台变频器身份的唯一标志,所以条形码是售后服务最重要的依据。

项目	规格
基本功能	电流抑制: V/F运行负载变化时,自动限制输出电流大小,防止过流跳闸,实现“挖土机”特性 快速限流功能: 最大限度减小过流故障,保护变频器正常运行 动态过压抑制: 运行频率变化时自动抑制能量回馈大小,防止母线过压跳闸 振荡抑制: 优化V/F振荡抑制算法,实现V/F稳定运行

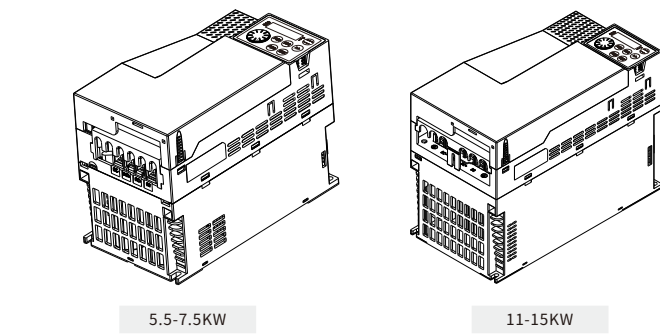
项目	规格
个性化功能	瞬时不停: 瞬时停电时通过负载回馈能量补偿电压的降低,维持变频器短时间内继续运行 定时控制: 定时控制功能: 设定时间范围0.0min~6500.0min 多电机切换: 二组电机参数,可实现二个电机切换控制 多种现场总线支持: 多种现场总线: Modbus-RTU、CANopen 电机过热保护: 选配/OI扩展卡★,模拟量输入AI3可接受电机温度传感器输入(PT100/PT1000)★ 多编码器支持: 支持增量式编码器★
运行	命令源: 操作面板给定、控制端子给定、通讯给定,可通过多种方式切换 频率源A: 10种频率源: 数字给定、模拟电压给定、模拟电流给定、脉冲给定、通讯给定,可通过多种方式切换 频率源B: 9种频率源,可灵活实现辅助频率微调、频率合成 输入端子: 标准: 7个数字输入端子,其中1个支持最高100kHz的高速脉冲输入3个模拟输入端子; AI1支持0V~10V电压输入; AI2支持0V~10V电压输入或0/4mA~20mA电流输入; AI3支持-10V~+10V电压输入; 扩展能力★: 可以根据客户需求定制 输出端子: 标准: 2个模拟输出端子,支持0V~10V电压输出或0/4~20mA电流输出2个数字输出端子,其中1个支持0kHz~100kHz的方波信号高速脉冲输出1个继电器输出端子 扩展能力★: 可以根据客户需求定制
显示与键盘操作	LED显示: 显示参数 LCD显示: 扩展能力★: 可以根据客户需求定制 参数拷贝: 可通过LCD操作面板选件实现参数的快速复制 按键锁定和功能选择: LCD操作面板可实现按键的部分或全部锁定,定义部分按键的作用范围,以防止误操作★ 保护功能: 上电机短路检测、输入输出缺相保护、过流保护、过压保护、欠压保护、过热保护、过载保护等 选配件: LCD操作面板、制动组件、I/O扩展卡★、CANopen通讯卡、增量式编码器PG卡
环境	使用场所: 室内,不受阳光直射,无尘埃、腐蚀性气体、可燃性气体、油雾、水蒸气、滴水或盐份等 海拔高度: 低于1000m(海拔高于1000m,请降额使用) 环境温度: -10℃~+40℃(环境温度在40℃~50℃,请降额使用) 湿度: 小于95%RH,无水珠凝结 振动: 小于5.9m/s ² (0.6g) 存储温度: -20℃~+60℃ 防护等级: IP020 冷却方式: 强制风冷 注: 带★项表示需要咨询厂家可能暂不支持

2.5 产品外形及主要结构图



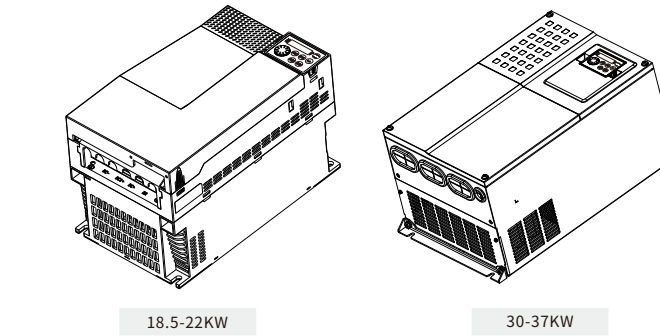
1.5KW以下

2.2-3.7KW



5.5-7.5KW

11-15KW



18.5-22KW

30-37KW

2.6 产品外形和安装尺寸

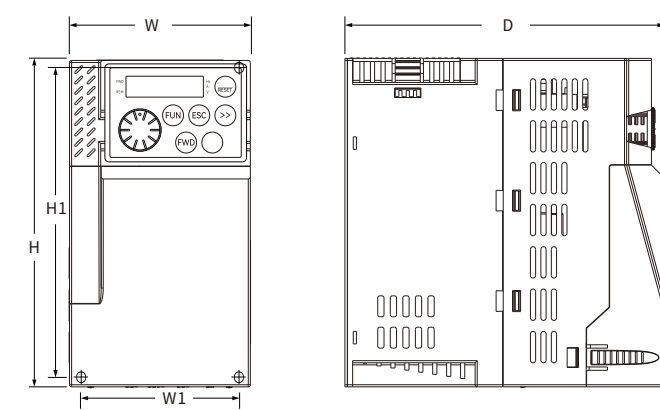
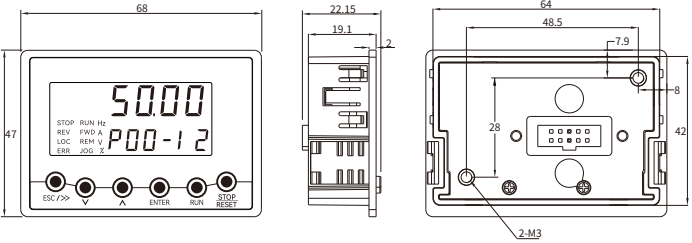
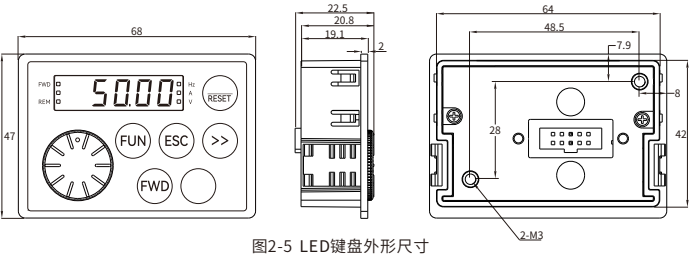


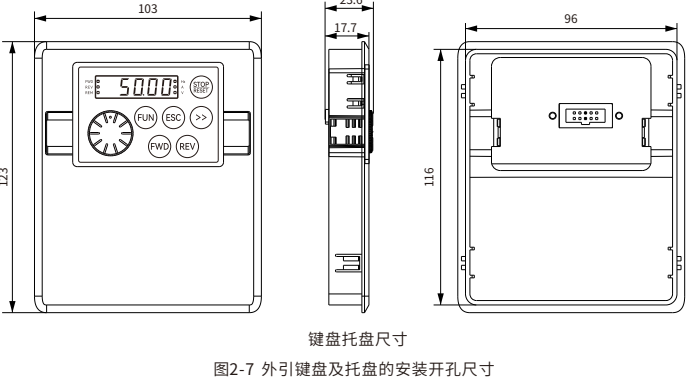
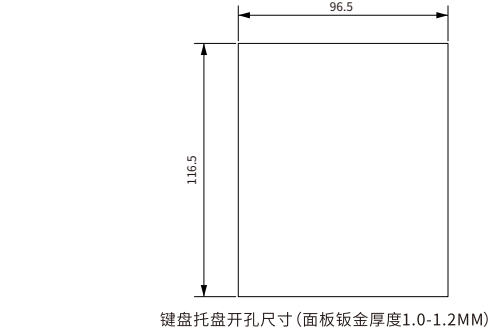
图2-4 产品外形及安装尺寸示意图

表2-3 产品外形及安装尺寸							
变频器型号	安装孔位 mm		外型尺寸 mm			安装孔位 mm	毛重 kg
	W1	H1	H	W	D		
单相220V, 50/60Hz							
E220-0.75G3BE-00	60	131	142(挂式)	72	143	5.2	2
E220-1.5G3BE-00	75	146	157(挂式)	87	153	5.2	3
E220-2.2G3BE-00							
三相220V, 50/60Hz							
E220-0.75G3BE-00	60	131	142(挂式)	72	143	5.2	2
E220-1.5G3BE-00	75	146	157(挂式)	87	153	5.2	3
E220-2.2G3BE-00							
E220-3.7G3BE-00							
三相380V, 50/60Hz							
E380-0.75G3BE-00	60	131	142(挂式)	72	143	5.2	2
E380-1.5G3BE-00							
E380-2.2G3BE-00	75	146	157(挂式)	87	153	5.2	3
E380-3.7G3BE-00							
E380-5.5G3BE-00	101	195	207(挂式)	113	155	5.2	5
E380-7.5G3BE-00							
E380-11G3BE-00	118	239	250(挂式)	130	185	5.5	8
E380-15G3BE-00							
E380-18.5G3BE-00	158	281	300(挂式)	178	192	8.4	10
E380-22G3BE-00							
E380-30G3NE-00	195	335	350(挂式)	225	192	6	15
E380-37G3NE-00							
E380-30G3BE-00	195	335	350(挂式)	225	192	6	15
E380-37G3BE-00							

2.7 键盘的外形及开孔尺寸



键盘不加托盘外引时，卡装时的开孔尺寸如图2-7，开孔钣金最佳厚度1.2毫米。



注意
WARNING

- 本机标配LED键盘，支持外引，订购时需说明，可以提供外引延长线；
- 选配液晶键盘，支持外引；

2.8 保修说明

凡我公司生产的变频器，自出厂之日起，在正常使用的前提下，变频器在18个月内发生故障或损坏，我公司负责保修。超出18个月的，用户需要承担合理的维修费用。

注意
WARNING

- 免费保修仅指变频器本体；
- 请务必保留好机器的外包装箱等包装材料，以方便日后变频器的搬运或维修等物流运输。

- ① 在保修期内，由下列原因导致变频器故障和损坏，用户需承担部分维修费用；
- ② 用户未按使用手册或超出标准规格范围使用所导致的机器故障；
- ③ 未经允许，用户自行修理、改装所导致的故障；
- ④ 由于用户保管、维护不当所导致的故障；
- ⑤ 将变频器用于非正常功能时所导致的故障；
- ⑥ 由于火灾、水灾、盐蚀、气体腐蚀、地震、风暴、雷电、电压异常或其他不可抗力导致的机器损坏；
- ⑦ 有关服务费用将按照厂家统一标准计算，如有契约在先的，按先前契约中相关的条款处理。

第三章 机械与电气安装

3.1 外围器件选型指南

变频器型号	断路器 (MCCB) (A)	推荐接触器 (A)	推荐输入侧主回路导线 (mm ²)	推荐输出侧主回路导线 (mm ²)	推荐控制回路导线 (mm ²)
单相220V 50/60Hz					
E220-0.75G3BE-00	16	12	0.75	0.75	0.5
E220-1.5G3BE-00	25	18	1.5	1.5	0.5
E220-2.2G3BE-00	32	25	2.5	2.5	0.5
三相220V 50/60Hz					
E220-0.75G3BE-00	10	9	0.75	0.75	0.5
E220-1.5G3BE-00	10	9	0.75	0.75	0.5
E220-2.2G3BE-00	16	12	1.5	1.5	0.5
E220-3.7G3BE-00	20	18	2.5	2.5	0.75

三相380V 50/60Hz						
E380-0.75G3BE-00	10	10	0.75	0.75	0.5	
E380-1.5G3BE-00	16	10	0.75	0.75	0.5	
E380-2.2G3BE-00	16	10	0.75	0.75	0.5	
E380-3.7G3BE-00	25	16	1.5	1.5	0.5	
E380-5.5G3BE-00	32	25	2.5	2.5	0.5	
E380-7.5G3BE-00	40	32	4.0	4.0	0.75	
E380-11G3BE-00	63	40	4.0	4.0	0.75	
E380-15G3BE-00	63	40	6.0	6.0	0.75	
E380-18.5G3BE-00	100	63	6	6	1.0	
E380-22G3BE-00	100	63	10	10	1.0	
E380-30G3NE-00	125	100	16	10	1.0	
E380-37G3NE-00	160	100	16	16	1.0	
E380-30G3BE-00	125	100	16	10	1.0	
E380-37G3BE-00	160	100	16	16	1.0	

变频器容量 (kW)	输入交流电抗器		输出交流电抗器		直流电抗器	
	电流 (A)	电感 (mH)	电流 (A)	电感 (mH)	电流 (A)	电感 (mH)
E380-0.7G3BE-00	5	3.8	5	1.5	/	/
E380-1.5G3BE-00	5	3.8	5	1.5	/	/
E380-2.2G3BE-00	7	2.5	7	1	/	/
E380-3.7G3BE-00	10	1.5	10	0.6	/	/
E380-5.5G3BE-00	15	1.0	15	0.25	/	/
E380-7.5G3BE-00	20	0.75	20	0.13	/	/
E380-11G3BE-00	30	0.60	30	0.087	/	/
E380-15G3BE-00	40	0.42	40	0.066	/	/
E380-18.5G3BE-00	50	0.35	50	0.052	40	1.3
E380-22G3BE-00	60	0.28	60	0.045	50	1.08
E380-30G3NE-00	80	0.19	80	0.032	65	0.80
E380-37G3NE-00	90	0.16	90	0.030	78	0.70
E380-30G3BE-00	80	0.19	80	0.032	65	0.80
E380-37G3BE-00	90	0.16	90	0.030	78	0.70

3.2 标准接线图

3.2.1 三相220V变频器标准接线

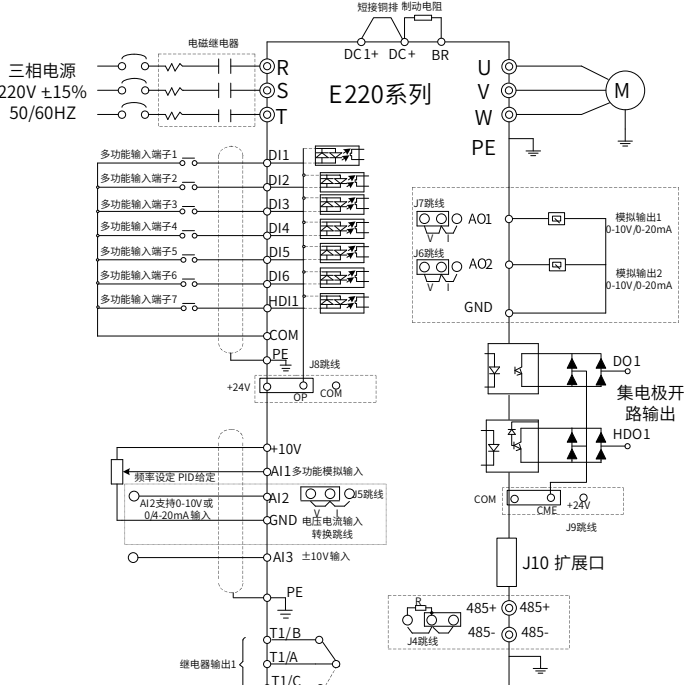


图3-1 三相15kW及以下变频器标准接线示意图
备注：E系列变频器控制回路接线方式一样，上图为例220V变频器接线示意图。

3.3 控制回路端子

3.3.1 控制回路端子布局示意图

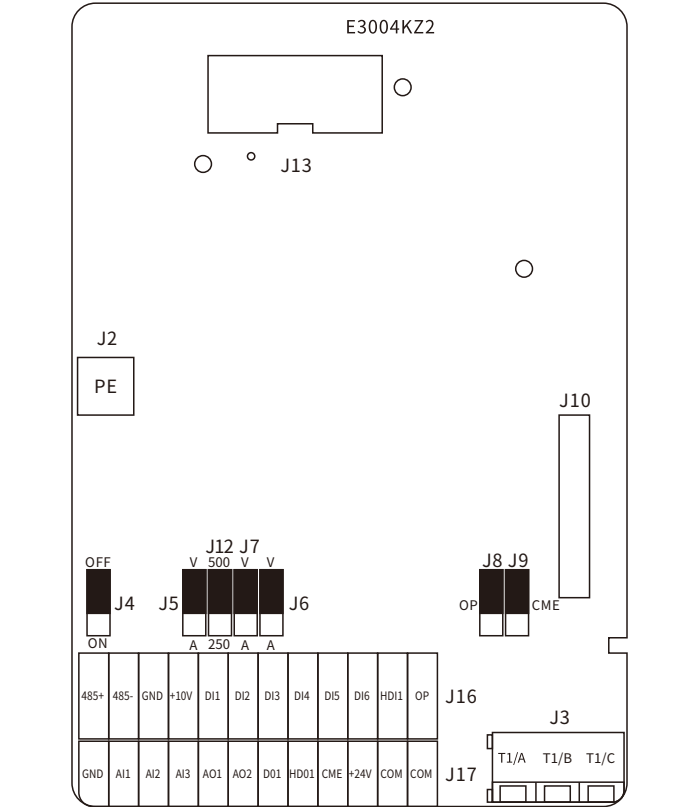


图3-2 控制回路端子排列图

3.3.2 控制回路端子功能说明

类型	端子标识	端子名称	功能说明
电源	+10V-GND	+10V电源	1. 对外提供+10V电源； 2. 一般用作外接电感器电源，电感器阻值范围1kΩ~10kΩ； 3. 最大输出电流10mA。
	+24V-COM	+24V电源	1. 向外提供+24V电源，一般用作数字输入输出端子工作电源和外接传感器电源； 2. 最大输出电流：200mA。
	OP	外部电源输入端子	1. 通过控制板上的J8跳线开关来选择与+24V或COM短接，默认为与+24V短接； 2. 当使用外部电源控制DI1~DI6、HDI1时，OP需与外部电源短接，且应拔掉J8上的跳线（不得与+24V或COM之中的任何一个接通）。
通讯	485+	RS-485通讯端子	标准RS-485通讯端子，请使用双绞屏蔽电缆。
	485-	RS-485通讯接口	标准RS-485通讯端子，请使用双绞屏蔽电缆。
模拟输入	AI1-GND	模拟量输入端子1	1. 输入电压范围：DC0V~10V； 2. 输入阻抗：22kΩ。
	AI2-GND	模拟量输入端子2	1. 输入范围：DC0V~10V或0/4mA~20mA，通过控制板上的J5跳线开关来选择，默认为DC 0V~10V/信号； 2. 输入阻抗：电压输入时22kΩ，电流输入时阻抗500Ω。
	AI3-GND	模拟量输入端子3	1. 输入电压范围：DC1~10V~+10V； 2. 输入阻抗：22kΩ。
数字输入	DI1-COM	数字量输入端子1	1. 光耦隔离，兼容双极性输入，内部阻抗3.3kΩ； 2. 多功能数字量输入，通过P05.00~P05.05来设置功能； 3. 变频器出厂默认为内部提供+24V电源，COM为公共端； 4. 当使用外部电源时J8应悬空，外部+24V接到OP端，COM为公共端（外部供电电压范围+24V±10%）。
	DI2-COM	数字量输入端子2	
	DI3-COM	数字量输入端子3	
	DI4-COM	数字量输入端子4	
	DI5-COM	数字量输入端子5	
	DI6-COM	数字量输入端子6	
数字输出	HDI1-COM	高速脉冲输出端子	1. 当作为通用数字量输出时，与DI1~DI6的功能一样； 2. 可与OP端子组合作为双极性高速脉冲输入端子，最高输入频率为100kHz； 3. 使用外部电源时，输入电压范围+24V±10%； 4. 内部阻抗1.65kΩ。

类型	端子标识	端子名称	功能说明
模拟输出	AO1-GND	模拟量输出端子1	支持0V~10V电压或0/4mA~20mA电流输出，由J7跳线开关选择，默认为0V~10V电压输出
	AO2-GND	模拟量输出端子2	支持0V~10V电压或0/4mA~20mA电流输出，由J6跳线开关选择，默认为0V~10V电压输出
数字输出	DO1-COM	数字量输出1	1. 光耦隔离，双极性OC（开路集电极）输出； 2. 上拉电压范围：5V~24V（上拉阻值范围：0.48 kΩ~10 kΩ）； 3. 输出电流范围：0mA~50mA。
	HDO1-COM	高速脉冲输出端子	1. 当作为数字量输出时，与DO1的功能一样； 2. 可与OP端子组合作为双极性高速脉冲输出端子，最高输出频率为100kHz； 3. 上拉电压范围：5V~24V（上拉阻值范围：0.48 kΩ~10 kΩ）； 4. 输出电流范围：0mA~50mA。
继电器输出	T1/A-T1/B	继电器T1常闭端子	触点驱动能力：AC250V，3A，COSΦ=0.4； DC30V，1A
	T1/A-T1/C	继电器T1常开端子	

3.3.3 跳线开关功能说明

表3-4 跳线开关功能说明		
跳线开关标号	跳线选择	功能说明
J7	A端	当跳帽插接在该端时，AO1端子选择DC0/4mA~20mA电流信号输出
	V端	当跳帽插接在该端时，AO1端子选择DC0V~10V电压信号输出
J6	A端	当跳帽插接在该端时，AO2端子选择DC0/4mA~20mA电流信号输出
	V端	当跳帽插接在该端时，AO2端子选择DC0V~10V电压信号输出
J12	500	当J5选择1，AI2选择500，此时输入阻抗是500
	250	当J5选择1，AI2选择250，此时输入阻抗是250
跳线开关标号	跳线选择	功能说明
J5	A端	当跳帽插接在该端时，AI2端子选择DC0/4mA~20mA电流信号输入
	V端	当跳帽插接在该端时，AI2端子选择DC0V~10V电压信号输入
J8	24V端	当跳帽插接在该端时，OP端子选择与+24V接通，此时HDI1、DI1~DI6与COM短接为输入有效
	COM端	当跳帽插接在该端时，OP端子选择与COM接通，此时HDI1、DI1~DI6与+24V短接为输入有效

第四章 操作与显示

4.1 操作与显示界面介绍

操作面板作为一种人机界面，是变频器进行功能参数修改、工作状态监控和接受控制命令的主要单元。
其外形及功能区如下图所示：

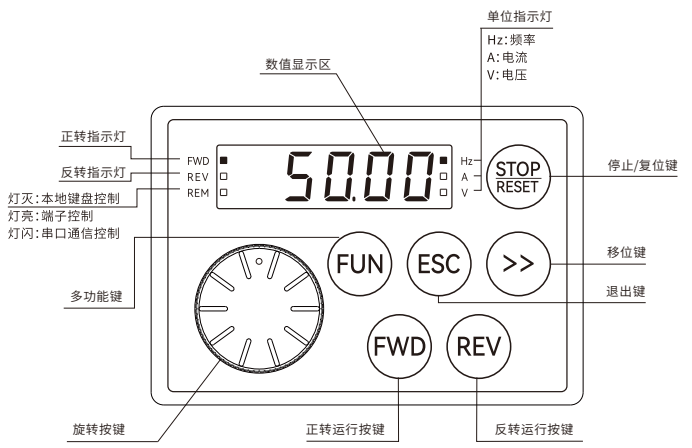


图4-1 操作面板示意图

4.1.1 按键功能说明

变频器操作面板上有6个按键1个飞梭，每个按键及飞梭的功能定义如表4-1所示。

表4-1 操作面板按键及飞梭功能表		
按键符号	名称	功能说明
	编程/退出键	进入或退出编程状态
	正转运行键	在键盘操作方式下，用于正转运行操作
	反转运行键	在键盘操作方式下，用于反转运行操作
	移位键	在停机显示界面和运行显示界面下，可循环选择显示参数；在修改参数时，可以选择参数的修改位
	停止/复位键	运行状态时，按此键可用于停止运行操作，故障报警状态时，可以用该键来复位。受功能码P10.00的制约。
	点动/正反转切换键	参见多功能FUN键功能定义表4-2
	旋钮按键	调节数字给定运行频率大小及修改确认参数大小，向左旋转减小设定参数大小，向右旋转增大设定参数大小，按下按键确认保存设定参数

表4-2 多功能FUN键功能定义表

P10-02设定值	FUN键功能	含义
0	无功能	多功能键无效
1	正转点动	正转点动功能
2	反转点动	反转点动功能
3	紧急停车	按下FUN键，按照P01~13设定时间减速停机
4	自由停车	自由停机，变频器封锁输出
5	运行命令切换	操作面板控制->端子控制->通讯控制->操作面板控制，长按2s生效
6	清除频率UP/DOWN	清除UP/DOWN调节的频率值

4.1.2 指示灯说明

变频器操作面板设有6个指示灯，每个指示灯的指示作用说明如表4-3。

表4-3 指示灯指示说明		
指示灯	名称	含义
状态灯	FWD	正转指示 亮：停机状态时，曾有正转运行命令运行状态时，变频器正转运行 闪：正在由正转切换到反转
	REV	反转指示 亮：停机状态时，曾有反转运行命令运行状态时，变频器反转运行 闪：正在由反转切换到正转
	REM	运行命令给定指示 亮：操作面板控制 闪：串口通信控制
单位灯	Hz	频率指示 亮：当前显示参数单位为频率
	A	电流指示 亮：当前显示参数单位为电流
	V	电压指示 亮：当前显示参数单位为电压
	Hz + A	转速指示 亮：当前显示参数单位为转速
	Hz + A + V	百分比指示 亮：当前显示参数单位为百分比
	全灭	无单位 无单位

Hardware Instruction for E380/220 Series Inverter
(Simplified)

Manual No.	HPPV0140000
Manual version	1.0
Date	Sept,2023

When unpacking, check the following items:

Items	Name	Quantity
1	Inverter	1
2	Straight screwdriver	1
3	This manual	1
4	Hardware Instruction for E380/220 Series Inverter(Simplified)	1
5	Certification of conformity	1

Check if there's any damage to the inverter during transportation. If you find any omission or damage, contact HCFA Technology or your supplier immediately.

1. Safety information and precautions

1.1 Safety symbols

Before installation, operation, maintenance or inspection of this product, thoroughly read through and understand this manual and all of the associated manuals. Installation, commissioning or maintenance may be performed in conjunction with this chapter. HCFA Corporation will assume no liability or responsibility for any injury or loss caused by improper operation. This manual classifies the safety precautions into two categories: "DANGER" and "WARNING".



- Indicates that incorrect handling may cause hazardous conditions,resulting in death or severe injury.



- Indicates that incorrect handling may cause hazardous conditions, resulting in medium or slight personal injury or physical damage.

1.2 Safety precautions

1.2.1 Before installation



- Do not install the equipment if you find any water seepage on the inverter upon unpacking.
- Do not install the equipment if you find component missing or damage upon unpacking.
- Do not install the equipment if the nameplate does not conform to the product you received.



- Handle the equipment with care during transportation to prevent damage to the equipment
- Do not touch the components with your hands. Failure to comply will result in static electricity damage.

1.2.6 During operation



- Do not touch the fan or the brake resistor. Failure to comply will result in personal burnt.
- Signal detection must be performed only by qualified personnel during operation. Failure to comply will result in personal injury or damage to the Inverter



- Do not move the inverter or control cabinet. Avoid objects falling into the inverter when it is running. Failure to comply will result in damage to the inverter.
- Start/stop the inverter by terminal or control methods in other control circuit. Avoid to start the inverter by power-on. Do not start/stop the Inverter by turning the contactor ON/OFF. Failure to comply will result in damage to the Inverter.

1.2.7 During maintenance



- Do not repair or maintain the inverter at power-on. Failure to comply will result in electric shock.
- Repair or maintain the inverter about ten minutes after the Inverter is powered off. This allows for the residual voltage in the capacitor to discharge to a safe value. Failure to comply will result in personal injury.
- Repair or maintenance of the inverter may be performed only by qualified personnel. Failure to comply will result in personal injury or damage to the inverter..
- All the components and optional accessories must be plugged or removed only after power-off.

1.3 General precautions

1.3.1 Motor insulation test

Perform the insulation test when the motor is used for the first time, or when it is reused after being stored for a long time, or in a regular check-up, in order to prevent the poor insulation of motor windings from damaging the inverter. The motor must be disconnected from the motor during the insulation test. A 500-V mega-Ohm meter is recommended for the test. The insulation resistance must not be less than 5 MΩ.

2. Product information and model selection

2.1 Designation rules

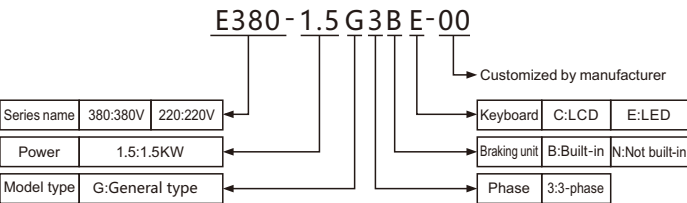


Figure 2-1 Designation rules

2.2 Nameplate description

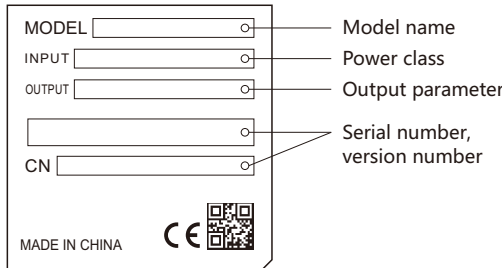


Figure 2-2 Nameplate description



- The barcode on the nameplate of each model is the only mark that identifies the manufacturing details, which is important for after-sale service.

2.3 Product series

Table 2-1 Product specifications and technical data

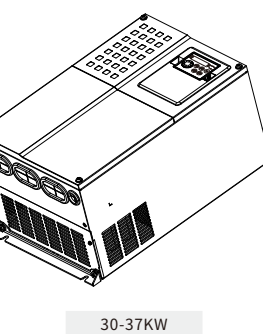
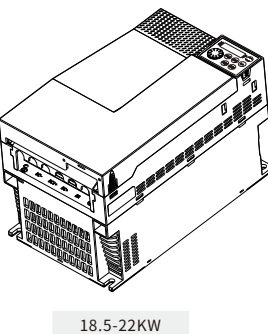
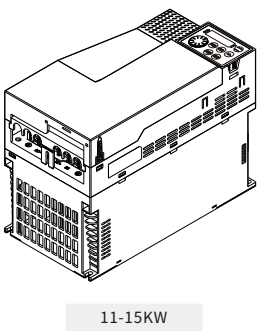
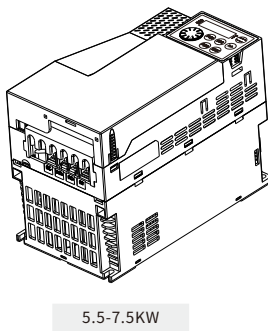
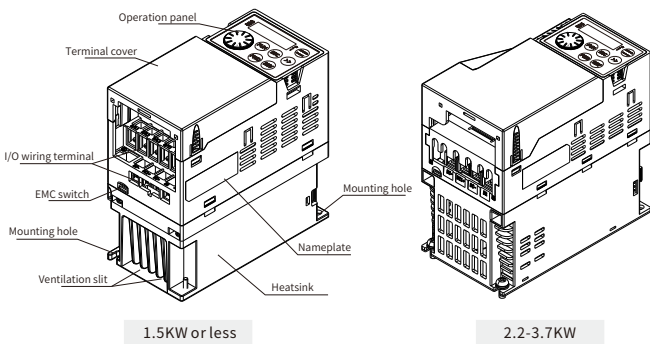
Model name	Power capacity kVA	Input current A	Output current A	Applicable motor	
				kW	HP
1-phase: 220V(-15%~+10%),50/60Hz					
E220-0.75G2BE-00	1.5	8.2	4.0	0.75	1
E220-1.5G2BE-00	3.0	14	7.0	1.5	2
E220-2.2G2BE-00	4.0	23	9.6	2.2	3
3-phase: 220V(-15%~+10%),50/60Hz					
E220-0.75G3BE-00	3.0	5.0	4.0	0.75	1
E220-1.5G3BE-00	4.0	8.0	7.0	1.5	2
E220-2.2G3BE-00	6.0	10.5	9.6	2.2	3
E220-3.7G3BE-00	8.9	14.6	13	3.7	5
3-phase: 380V(-15%~+10%),50/60Hz					
E380-0.75G3BE-00	1.5	3.4	2.1	0.75	1
E380-1.5G3BE-00	3.0	5.0	3.7	1.5	2
E380-2.2G3BE-00	4.0	5.8	5.0	2.2	3
E380-3.7G3BE-00	5.9	10.5	9.0	3.7	5
E380-5.5G3BE-00	8.9	14.6	13.0	5.5	7.5
E380-7.5G3BE-00	11.0	20.5	17.0	7.5	10
E380-11G3BE-00	17.0	26.0	25.0	11.0	15
E380-15G3BE-00	21.0	35.0	32.0	15.0	20
E380-18.5G3BE-00	24.0	38.5	37.0	18.5	25
E380-22G3BE-00	30.0	46.5	45.0	22	30
E380-30G3NE-00	40.0	62.0	60.0	30	40
E380-37G3NE-00	50.0	76.0	75.0	37	50
E380-30G3BE-00	40.0	62.0	60.0	30	40
E380-37G3BE-00	50.0	76.0	75.0	37	50

2.4 Technical specifications

Table 2-2 Product technical specifications

Items		Specifications
Power input	Rated input voltage	1-phase 220V: 220V~240V, Constant voltage fluctuation ±10%, transient fluctuation -15%~+10% 3-phase 220V: 220V~240V, Constant voltage fluctuation ±10%, transient fluctuation -15%~+10% 3-phase 380V:380V~480V, Constant voltage fluctuation ±10%, transient fluctuation -15%~+10% that is 323V~528V; Voltage imbalance <3%, in accordance with IEC61800-2
	Rated input current	Refer to Table 2-1
	Rated frequency	50Hz/60Hz,fluctuation range ±5%
Power output	Applicable motor	Refer to Table 2-1
	Rated capacity	Refer to Table 2-1
	Rated current	Refer to Table 2-1
Standard functions	Output voltage	Three-phase, 0V to the rated voltage, error less than ±3%
	Max. frequency	0Hz~500Hz,Hz~3000Hz can be customized by user
	Carrier frequency	1.0kHz~16.0kHz, can be adjusted automatically
	Input frequency resolution	0.01Hz (Digital setting)
	Control mode	No PG vector speed control, No PG vector torque control★, PG vector speed control★, PG vector torque control★, V/F control
	Startup torque	0.25Hz/150% (No PG vector) 0Hz/180%(PG vector)★
	Speed range	1:100(No PG vector) 1:1000 (PG vector)★
	Speed stability accuracy	±0.5% (No PG vector) ±0.02%(PG vector) ★
	Torque control accuracy	±5% (PG vector) ★
	Overload capacity	60s for 150% rated current, 1s for 200% rated current
Display and operation on panel	Torque boost	Automatic boost; Customized boost 0.1 % to 30.0 %
	Acceleration /deceleration curve	Straight-line or S-curve. Four kinds of acceleration/deceleration time, range : 0.0s~6500.0s
	DC braking	DC injection braking frequency: 0Hz to max. frequency, DC injection braking active time: 0.0s to 60.0s. Current level of DC injection braking: 0% to 100%
	Jog running	JOG frequency range: 0.00Hz~P00.08. JOG acceleration/deceleration time: 0.0~6500.0s
	Onboard multiple preset speeds	It implements up to 16 speeds via the simple PLC function or combination of DI terminal states
	Onboard PID	It realizes process-controlled closed loop control system easily.
Display and operation on panel	LED display	Show parameters
	LCD display	Optional★
	Parameter copy	Parameters can be copied rapidly by the LCD operation panel.
	Key locking and function selection	It can lock the keys partially or completely and define the function range of some keys so as to prevent mis-function.★
	Protection mode	Motor short-circuit detection at power-on, input/output phase loss protection, overcurrent protection, overvoltage protection, undervoltage protection, overheat protection and overload protection
Environment	Optional parts	LCD operation panel★, braking unit, I/O extension card ★, Profi bus-DP communication card★, CANopen communication card★, incremental encoder PG card★, rotary transformer PG card ★
	Installation location	Indoor, free from direct sunlight, dust, corrosive gas, combustible gas, oil smoke, vapour, drip or salt
	Altitude	Lower than 1000 m (de-rated if the altitude is above 1000m)
	Ambient temperature	-10°C~+40 °C (de-rated if the ambient temperature is between 40°C and 50°C)
	Humidity	Less than 95%RH, without condensing
Protection level	Vibration	Less than 5.9 m/s2 (0.6 g)
	Storage temperature	-20°C to +60°C
	IP20	
Cooling	Forced air cooling	
Note: Consult HCFA corporation for the items with ★, which may not be supported temporarily.		

2.5 Product appearance and main structure



2.6 Product appearance and installation size

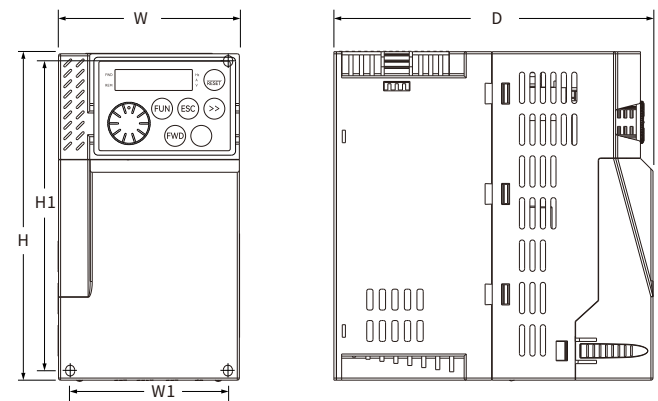


Figure 2-4 Product appearance and installation size

Table 2-3 Product size and installation dimension							
Model	Mounting hole mm		External dimension mm			Mounting hole mm	Weight kg
	W1	H1	H	W	D		
Single-phase 220V, 50/60Hz							
E220-0.75G3BE-00	60	131	142 (wall-mounting)	72	143	5.2	2
E220-1.5G3BE-00	75	146	157 (wall-mounting)	87	153	5.2	3
E220-2.2G3BE-00							
Three-phase 220V, 50/60Hz							
E220-0.75G3BE-00	60	131	142 (wall-mounting)	72	143	5.2	2
E220-1.5G3BE-00	75	146	157 (wall-mounting)	87	153	5.2	3
E220-2.2G3BE-00							
E220-3.7G3BE-00							
Three-phase 380V, 50/60Hz							
E380-0.75G3BE-00	60	131	142 (wall-mounting)	72	143	5.2	2
E380-1.5G3BE-00							
E380-2.2G3BE-00	75	146	157 (wall-mounting)	87	153	5.2	3
E380-3.7G3BE-00							
E380-5.5G3BE-00	101	195	207 (wall-mounting)	113	155	5.2	5
E380-7.5G3BE-00							
E380-11G3BE-00	118	239	250 (wall-mounting)	130	185	5.5	8
E380-15G3BE-00							
E380-18.5G3BE-00	158	281	300 (wall-mounting)	178	192	8.4	10
E380-22G3BE-00							
E380-30G3NE-00	195	335	350 (wall-mounting)	225	192	6	15
E380-37G3NE-00							
E380-30G3BE-00	195	335	350 (wall-mounting)	225	192	6	15
E380-37G3BE-00							

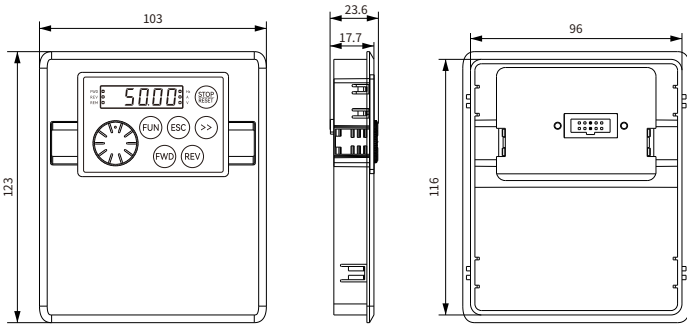


Figure 2-8 Cutout dimension for external keyboard and tray

WARNING

- The machine is equipped with LED panel and support external extension. Make notes when purchasing and the external extension cable can be provided.
- LCD panel is optional and can be extended externally.

2.8 Warranty Agreement

HCFA Corporation will provide 18-month warranty (starting from the leave-factory date on the barcode) for the failure or damage under normal use conditions. If the equipment has been used for over 18 months, reasonable repair expenses will be charged.

WARNING

- Free warranty only applies to the inverter itself
- Make sure to keep the packaging material of the inverter for convenient use of movement and maintenance in the future.

2.7 Operation panel and cutout dimensions (mm)

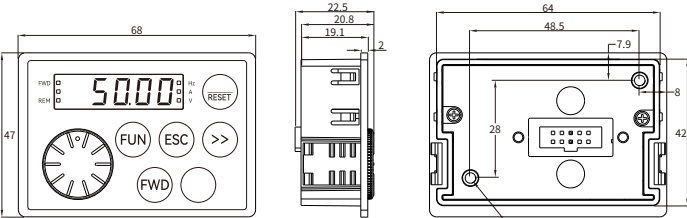


Figure 2-5 External dimension for LED panel

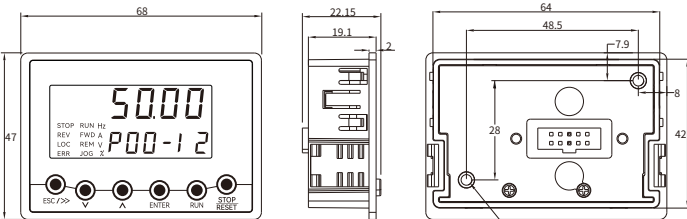


Figure 2-6 External dimension for LCD panel

The cutout dimensions for installation is shown as Figure 2-7 when no external tray. The best thickness for opening sheet is 1.2mm.

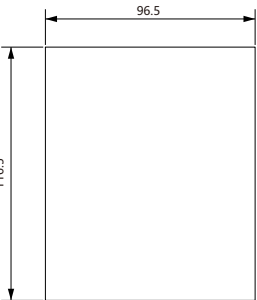


Figure 2-7 tray hole size (panel sheet metal thickness 1.0-1.2mm)

E380-18.5G3BE-00	100	63	6	6	1.0
E380-22G3BE-00	100	63	10	10	1.0
E380-30G3NE-00	125	100	16	10	1.0
E380-37G3NE-00	160	100	16	16	1.0
E380-30G3BE-00	125	100	16	10	1.0
E380-37G3BE-00	160	100	16	16	1.0

Table 3-2 Selection of I/O AC reactor, DC reactor]

Capacity (kW)	Input AC reactor		Output AC reactor		DC reactor	
	Current (A)	Inductance (mH)	Current (A)	Inductance (uH)	Current (A)	Inductance (mH)
E380-0.7G3BE-00	5	3.8	5	1.5	/	/
E380-1.5G3BE-00	5	3.8	5	1.5	/	/
E380-2.2G3BE-00	7	2.5	7	1	/	/
E380-3.7G3BE-00	10	1.5	10	0.6	/	/
E380-5.5G3BE-00	15	1.0	15	0.25	/	/
E380-7.5G3BE-00	20	0.75	20	0.13	/	/
E380-11G3BE-00	30	0.60	30	0.087	/	/
E380-15G3BE-00	40	0.42	40	0.066	/	/
E380-18.5G3BE-00	50	0.35	50	0.052	40	1.3
E380-22G3BE-00	60	0.28	60	0.045	50	1.08
E380-30G3NE-00	80	0.19	80	0.032	65	0.80
E380-37G3NE-00	90	0.16	90	0.030	78	0.70
E380-30G3BE-00	80	0.19	80	0.032	65	0.80
E380-37G3BE-00	90	0.16	90	0.030	78	0.70

3.2 Typical wiring

3.2.1 Typical wiring for three-phase 220V

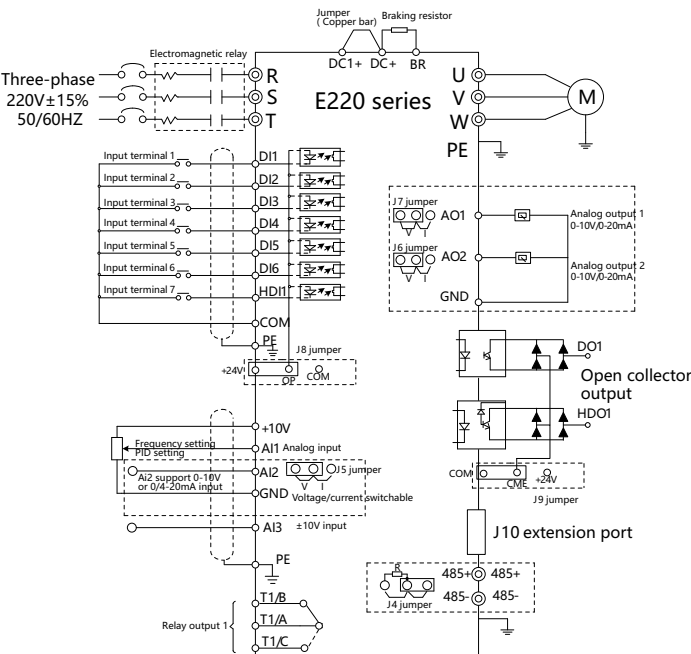


Figure 3-1 Typical wiring for inverter of three-phase 15kw or less

Notes: The control circuit wiring for E-series inverters are the same. The diagram above shows the wiring diagram for 220V inverter.

3.3 Control circuit terminals

3.3.1 Terminal arrangement of control circuit

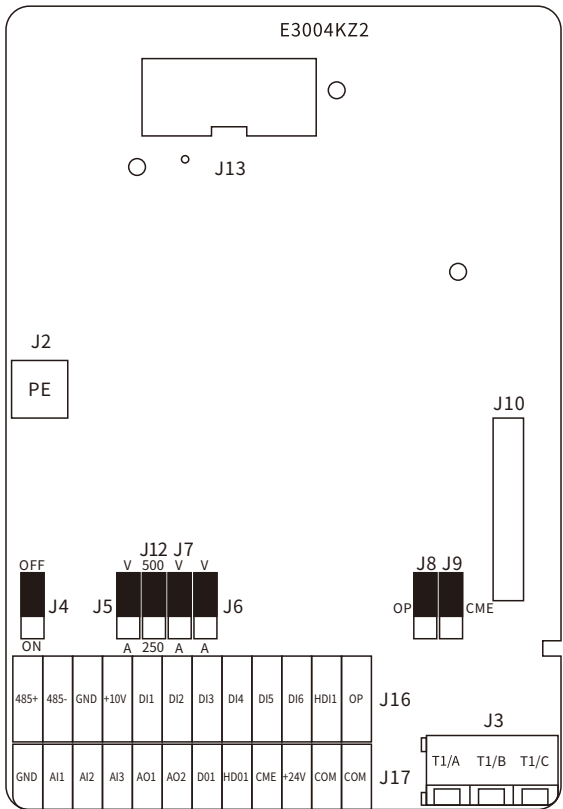


Figure 3-2 Terminal arrangement of control circuit

3.3.2 Description of control circuit terminals

Type	Terminal	Name	Function description
Power supply	+10V-GND	+10V power supply	1. Provide +10 V power supply to external unit. 2. Generally, it provides power supply to external potentiometer with resistance range of 1kQ~10kQ; 3. Maximum output current: 10 mA
	+24V-COM	External +24V power supply	1. Provide +24 V power supply to external unit. Generally, it provides power supply to DI/DO terminals and external sensors. 2. Maximum output current: 200 mA
	OP	Input terminal of external power supply	1. Connect to +24 V by default. 2. When DI1~DI6, HDI1 need to be driven by external signal, OP needs to be connected to external power supply and be disconnected from the jumper J8. (cannot be connected to +24V or COM)
Communicatio	485+	RS-485 communication terminal	Standard RS-485 communication terminal, please use shield twisted pair cable.
	485-	RS-485 communication terminal	Standard RS-485 communication terminal, please use shield twisted pair cable.
Analog input	AI1-GND	Analog input terminal 1	1. Input voltage range: 0V~10V DC; 2. Input impedance: 22kQ
	AI2-GND	Analog input terminal 2	1. Input range: 0~10 VDC/0/4~20 mA, decided by jumper J5 on the control board, Default: 0~10 VDC 2. Impedance: 22 kQ (voltage input), 500 Q (current input)
	AI3-GND	Analog input terminal 3	1. Input voltage range: -10V~+10VDC; 2. Input impedance: 22kQ
Digital input	DI1-COM	Digital input 1	1. Optical coupling isolation, compatible with dual polarity input ; Impedance: 3.3kQ 2. Multifunctional digital input, set the functions by P05.00~P05.05 3. Internal +24V power supply by default, COM is the common terminal 4. When using external power supply, J8 should be disconnected and connect +24V to the OP terminal. COM is the common terminal. (external voltage range: +24V±10%)
	DI2-COM	Digital input 2	
	DI3-COM	Digital input 3	
	DI4-COM	Digital input 4	
	DI5-COM	Digital input 5	
	DI6-COM	Digital input 6	
	HDI1-COM	High-speed pulse input	1. When used as general digital input, the features are same to the DI1~DI6's. 2. Connection with OP terminal as the dual-polarity high-speed pulse input terminal, max. input frequency is 100kHz; 3. When using external power supply, the input voltage range is +24V±10%; 4. Impedance : 1.65kQ

Type	Terminal	Name	Function description
Analog output	AO1-GND	Analog output terminal 1	Support 0V~10V voltage or 0/4mA~20mA current output, Voltage or current output is decided by jumper J7. Default: 0V~10V voltage output
	AO2-GND	Analog output terminal 2	Support 0V~10V voltage or 0/4mA~20mA current output, Voltage or current output is decided by jumper J6. Default: 0V~10V voltage output
Digital output	DO1-COM	Digital output 1	1. Optical coupling isolation, dual polarity open collector output 2. Voltage range: 5V~24V (resistance range: 0.48 kQ~10 kQ) 3. Output current range: 0mA~50mA
	HDO1-COM	Highs-speed pulse output terminal	1. When used as digital output, the feature is same to the DO1. 2. Connection with OP terminal as the dual-polarity high-speed pulse output terminal, max. input frequency is 100kHz; 3. Voltage range: 5V~24V (resistance range: 0.48 kQ~10 kQ) 4. Output current range: 0mA~50mA
Relay	T1/A-T1/B	NC terminal	Contact driving capacity: 250V AC, 3A, COSΦ=0.4; 30V DC, 1A
	T1/A-T1/C	NO terminal	

3.3.3 Jumper description

Jumper symbol	Selection	Function description
J7	A mark	When connected here, 0/4mA~20mA DC current output is selected for AO1 terminal.
	V mark	When connected here, 0V~10V DC voltage output is selected for AO1 terminal.
J6	A mark	When connected here, 0/4mA~20mA DC current output is selected for AO2 terminal.
	V mark	When connected here, 0V~10V DC voltage output is selected for AO2 terminal.
J12	500	When J5 selects I and J12 selects 500, the AI2 input impedance is 500
	250	When J5 selects I and J12 selects 250, the AI2 input impedance is 250
J5	A mark	When connected here, 0/4mA~20mA DC current output is selected for AI2 terminal.
	V mark	When connected here, 0V~10V DC voltage output is selected for AI2 terminal.
J8	24V mark	When inserted here, OP terminal should be connected to +24V. At this time, HDI 1, DI 1~DI 6 become valid when connected with COM for input.
	COM mark	When inserted here, OP terminal should be connected to COM. At this time, HDI 1, DI 1~DI 6 become valid when connected with +24V for input.

4. Operation and display

4.1 Operation panel

You can modify the parameters, monitor the working status and start or stop the inverter on the operation panel, as shown in the following figure:

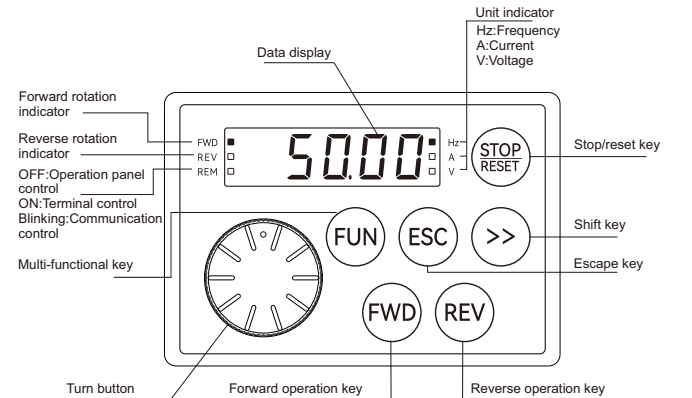


Figure 4-1 Diagram of the operation panel

4.1.1 Description of keys on the operation panel

The function description of six keys and one turn button on the operation panel is shown in Table 4-1.

Symbols	Name	Function description
ESC	Edit/ESC key	Enter or exit the programming status
FWD	Forward operation key	Start the forward operation with the operation panel
REV	Reverse operation key	Start the reverse operation with the operation panel
>>>	Shift	Select the displayed parameters in turn in the stop or running state, and select the digit to be modified when modifying parameters.
STOP/RESET	Stop/Reset	Stop the inverter when it is in the running state and perform the reset operation when it is in the fault state. The functions of this key are restricted in P10. 00.
FUN	JOG control/ forward/reverse rotation switchover	Refer to Table 4-2 for details of multi-functional keys.
Turn button	Turn button	Increase/decrease the data of setting operation frequency and parameters. Turn left to decrease the parameter data and right to increase the parameter data. And press the button to save the setting parameters.

Setting value for P10-02	FUN keys	Description
0	No function	FUN key disabled
1	Forward JOG	Forward JOG function
2	Reverse JOG	Reverse JOG function
3	Emergency stop	Press FUN key to decelerate to stop by the set time of P01-13
4	Coast stop	Coast to stop and output prohibit
5	Operation command switchover	Operation panel control →Terminal control →Communication control→Operation panel control, long-press for 2s to switch
6	Clear frequency UP/DOWN	Clear the frequency value adjusted by UP/DOWN

4.1.2 Description of indicators

Six indicators on operation panel and its description are shown as Table 4-3.

Table 4-3 Description of indicators		
Indicators	Name	Description
State indicators	FWD	Forward rotation indication
	REV	Reverse rotation indication
	REM	Operation command setting
Unit indicators	Hz	Frequency indication
	A	Current indication
	V	Voltage indication
	Hz + A	Speed indication
	Hz + V	Percentage indication
	Hz + A + V	Time indication
	All OFF	No unit