

Goodrive27 系列灵巧型变频器快速使用指南

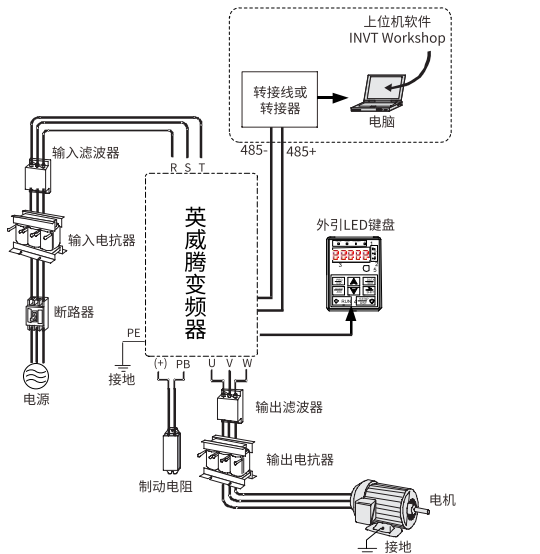
本指南简要介绍了 GD27 变频器的外围接线、端子、键盘、快速运行、常用功能参数设置、常见故障及对策、产品尺寸和能效数据。

拨打服务热线 400-700-9997 或访问 www.invt.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。



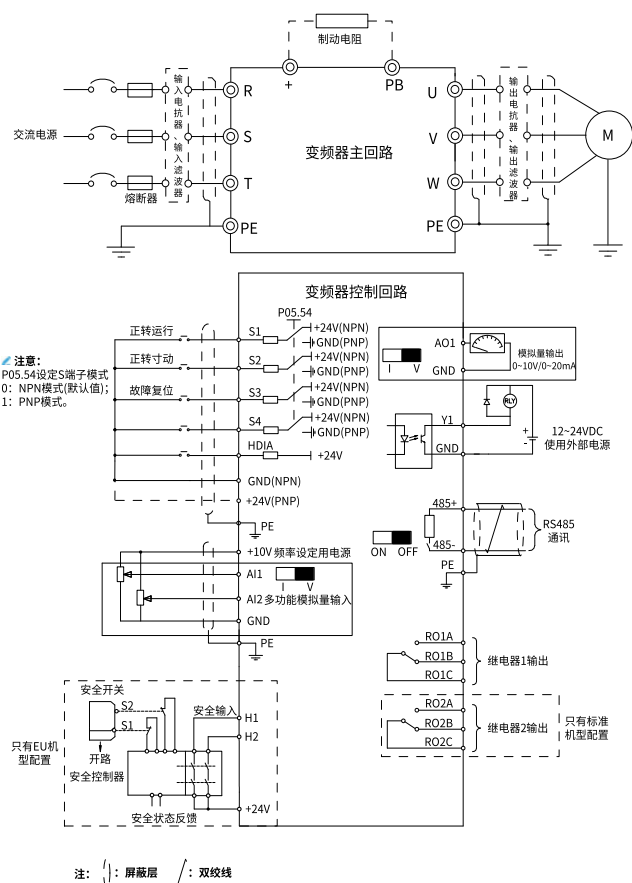
警告	
- 本指南仅包含基本的安装调试信息。若不遵守相关文档中的安全说明和安装调试说明，可能导致设备损坏、人身伤害、甚至人员死亡等事故。 - 只有培训合格的专业人员才允许进行相关操作。	
危险	
禁止在电源接通的情况下进行接线、检查或更换器件等作业。进行这些作业前，须确认所有输入电源已断开，并等待不短于变频器上标注的时间。	
至少等待时间	变频器机型
5 分钟	1PH 220V 0.4~2.2kW; 3PH 220V 0.4~15kW; 3PH 380V 0.75~22kW

1 外围接线



2 端子

图 2-1 变频器典型接线



故障代码	故障类型	可能的原因	故障解决方法
		电机控制方式为 V/F 控制时，V/F 曲线设置异常； 外部存在强干扰源（系统有接触器切换、系统接地不良）； 电网电压偏低； 硬件故障。	P00.15 进行参数自学习； 重新调整 V/F 曲线设定的频率和电压关系，降低频率对应的电压值； 避免存在强干扰现象，电机线远离接触器、系统可靠接地； 改善用电质量，或增大变频器容量； 更换变频器。
E7	加速过电压	加速时间过短； 电网电压偏高； 在电机旋转过程中启动； 负载存在较大能力回馈； 过压失速功能设置不合理。	增加加速时间或开启过压失速功能； 改善用电质量，符合变频器输入电压规格（见产品规格）； 待电机停稳后启动，或通过参数 P01.00 选择转速追踪启动； 加装制动单元、能量回馈单元，或排除外力拖动负载发电的因素； 通过 P11.03 开启过压失速保护功能，降低 P11.04 过压失速保护电压值。
E8	减速过电压	减速时间过短； 电网电压偏高； 负载存在较大能力回馈； 过压失速功能设置不合理。	增加减速时间；若工艺要求急减速，则可以加装制动单元、能量回馈单元或使用磁通制动功能； 改善用电质量，符合变频器输入电压规格（见产品规格）； 加装制动单元、能量回馈单元，或排除外力拖动负载发电的因素； 通过 P11.03 开启过压失速保护功能，降低 P11.04 过压失速保护电压值。
E9	恒速过电压	电网电压偏高； 负载存在较大能力回馈； 过压失速功能设置不合理。	改善用电质量，符合变频器输入电压规格（见产品规格）； 加装制动单元、能量回馈单元，或排除外力拖动负载发电的因素； 通过 P11.03 开启过压失速保护功能，降低 P11.04 过压失速保护电压值。
E10	母线欠压故障	电网电压偏低； 母线电压显示异常； 缓冲接触器吸合异常； 输入侧缺相时带重载运行。	调高电网输入电压； 联系厂家； 联系厂家； 检查输入电源是否正常和输入线缆是否松动。
E11	电机过载	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过大。	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。
E12	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； 负载过大； 变频器功率选型偏小。	增大加速时间； 避免停机再启动； 调高电网输入电压； 选择功率更大的变频器。
E13	输入侧缺相	输入 R，S，T 缺相或者波动大； 输入侧螺丝松动。	检查输入电源是否正常和输入线缆是否有松动； 可选择设置 P11.00 参数屏蔽。
E14	输出侧缺相	输出线缆有破损或对地短路； 输出 U，V，W 缺相（或负载三相严重不对称）。	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。
E16	逆变模块过热故障	风道堵塞或风扇损坏； 环境温度过高； 长时间过载运行。	疏通风道或更换风扇； 保持现场通风顺畅，降低环境温度； 选择功率更大的变频器。
E17	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。
E18	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，提高抗扰性。
E19	电流检测故障	电机线或电机绝缘异常。	拆除电机线进行验证； 联系厂家。
E20	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此故障； 电机参数设置不当； 自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。	更换变频器型号，或者采用 VF 模式控制； 检查电机接线，电机类型和参数设置； 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。
E21	EEPROM 操作故障	控制参数的读写发生错误； EEPROM 损坏。	按 STOP/RST 复位； 更换主控板。
E22	PID 反馈断线故障	PID 反馈断线； PID 反馈源消失。	检查 PID 反馈信号线； 检查 PID 反馈源。
E23	制动单元故障	制动线路故障或制动管损坏； 外接制动电阻阻值偏小。	检查制动单元，更换新制动管； 增大制动电阻。
E24	运行时间到达	变频器实际运行时间大于内	联系厂家。

故障代码	故障类型	可能的原因	故障解决方法
		部设定运行时间。	
E25	电子过载故障	变频器按设定值进行过载预警。	检查过载预警点设置是否合理。
E27	参数上传错误	键盘线接触不良或断线； 键盘线太长，受到强干扰； 键盘或主板通讯部分电路故障。	检查键盘线，重新插拔键盘线确认故障是否存在； 检查环境，排除干扰源； 更换硬件，寻求维修服务。
E28	参数下载错误	键盘线接触不良或断线； 键盘线太长，受到强干扰； 键盘中存储数据错误。	检查环境，排除干扰源； 更换硬件，寻求维修服务； 确定键盘备份参数的控制板软件版本是否与变频器的控制板软件版本是否一致。
E33	对地短路故障	变频器输出与地短接； 电流检测电路出故障； 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，接线是否正常； 拆除电机线是否正常； 更换主控板； 重新设置正确的电机参数。
E34	速度偏差故障	负载过重或者被堵转。	检查负载是否正常或过重，增加速度偏差检出时间或把加减速时间加长； 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。
E35	失调故障	负载异常； 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。	检查负载是否正常，反电动势设置是否正确； 重新做电机参数自学习； 增加失调检出时间； 适当调整弱磁系数，电流环参数。
E36	电子欠载故障	变频器按设定值进行欠载预警。	检测负载和欠载预警点。
E40	安全转矩停止	外部使能安全转矩停止功能。	-
E41	通道 1 安全回路异常	STO 功能接线不正确； STO 功能外部开关故障； 通道安全回路硬件故障。	检查 STO 功能端子接线是否正确、牢固； 检查 STO 功能外部开关是否正常； 更换控制板。
E42	通道 2 安全回路异常	STO 功能接线不正确； STO 功能外部开关故障； 通道安全回路硬件故障。	检查 STO 功能端子接线是否正确、牢固； 检查 STO 功能外部开关是否正常； 更换控制板。
E43	通道 1 和通道 2 同时异常	STO 功能电路硬件故障。	更换控制板。
E92	AI1 断线	AI1 输入过低； AI1 接线断开。	用 5V 电压（或 10mA 电流）源来检查输入是否正常； 检查接线或更换导线查看是否正常。
E93	AI2 断线	AI2 输入过低； AI2 接线断开。	用 5V 电压（或 10mA 电流）源来检查输入是否正常； 检查接线或更换导线查看是否正常。
E94	AI3 断线	AI3 输入过低； AI3 接线断开。	用 5V 电压（或 10mA 电流）源来检查输入是否正常； 检查接线或更换导线查看是否正常。
E96	无升级引导程序	烧录的文件不包含引导程序。	重新烧录带引导程序的文件； 通过功能码 P14.12 屏蔽该故障(没有引导程序不影响机器正常运行)。

7 产品尺寸

图 7-1 外形结构 A、B 的尺寸和孔位

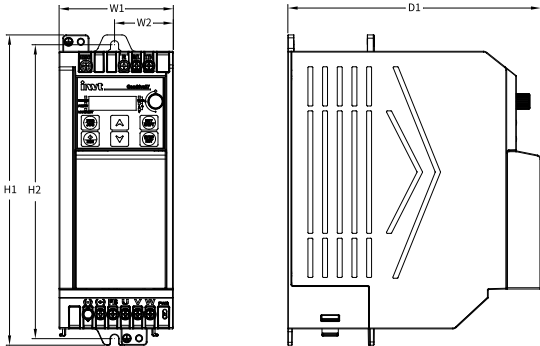


表 7-1 外形结构 A、B 的尺寸和孔位

产品型号	外形结构	外形尺寸 (mm)					安装孔位 (mm)	安装孔径 (mm)
		W1	H1	D1	W2	H2		
GD27-0R4G-S2-B-XX	A	60	190	155	36	180	Ø 5	Ø 5
GD27-0R7G-S2-B-XX		60	190	155	36	180	Ø 5	Ø 5
GD27-0R4G-2-B-EU		60	190	155	36	180	Ø 5	Ø 5
GD27-0R7G-2-B-EU		60	190	155	36	180	Ø 5	Ø 5
GD27-0R7G-4-B-XX		60	190	155	36	180	Ø 5	Ø 5
GD27-1R5G-4-B-XX	B	60	190	155	36	180	Ø 5	Ø 5
GD27-1R5G-S2-B-XX		70	190	155	36	180	Ø 5	Ø 5
GD27-2R2G-S2-B-XX		70	190	155	36	180	Ø 5	Ø 5
GD27-1R5G-2-B-EU		70	190	155	36	180	Ø 5	Ø 5
GD27-2R2G-2-B-EU		70	190	155	36	180	Ø 5	Ø 5
GD27-2R2G-4-B-XX		70	190	155	36	180	Ø 5	Ø 5
GD27-003G-4-B-XX		70	190	155	36	180	Ø 5	Ø 5
GD27-004G-4-B-XX		70	190	155	36	180	Ø 5	Ø 5

图 7-2 外形结构 C 的尺寸和孔位

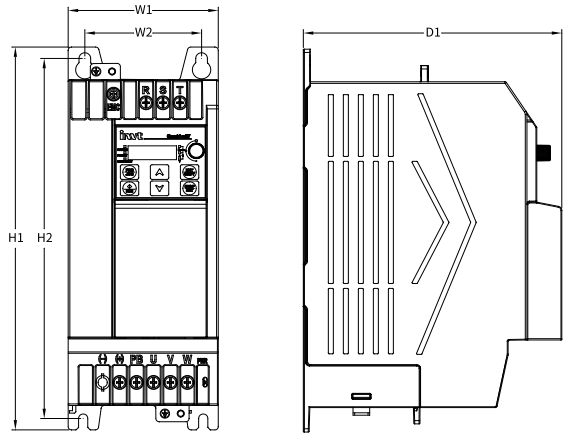


表 7-2 外形结构 C 的尺寸和孔位

产品型号	外形结构	外形尺寸 (mm)			安装孔位 (mm)		安装孔径 (mm)
		W1	H1	D1	W2	H2	
GD27-004G-2-B-EU	C	90	235	155	70	220	Ø 6
GD27-5R5G-2-B-EU		90	235	155	70	220	Ø 6
GD27-5R5G-4-B-XX		90	235	155	70	220	Ø 6
GD27-7R5G-4-B-XX		90	235	155	70	220	Ø 6

图 7-3 外形结构 D 的尺寸和孔位

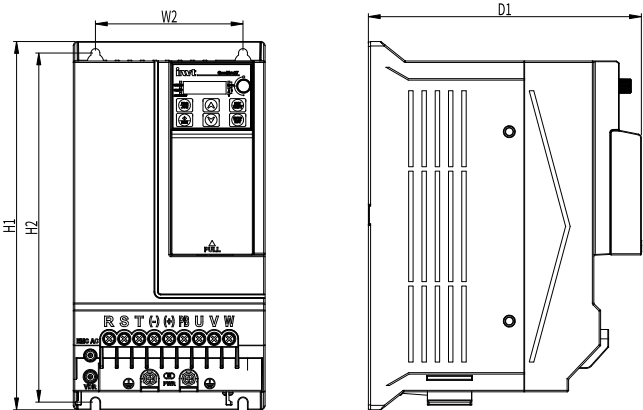


表 7-3 外形结构 D 的尺寸和孔位

产品型号	外形结构	外形尺寸 (mm)			安装孔位 (mm)		安装孔径 (mm)
		W1	H1	D1	W2	H2	
GD27-7R5G-2-B-EU	D	130	250	185	100	237	Ø 6
GD27-011G-2-B-EU		130	250	185	100	237	Ø 6
GD27-011G-4-B-XX		130	250	185	100	237	Ø 6
GD27-015G-4-B-XX		130	250	185	100	237	Ø 6

图 7-4 外形结构 E 的尺寸和孔位

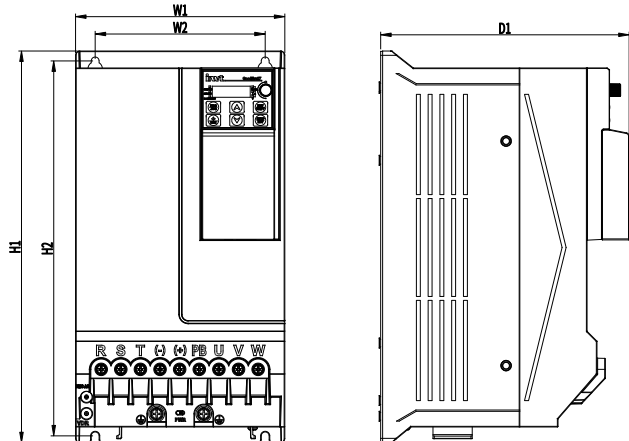


表 7-4 外形结构 E 的尺寸和孔位

产品型号	外形结构	外形尺寸 (mm)			安装孔位 (mm)		安装孔径 (mm)
		W1	H1	D1	W2	H2	
GD27-015G-2-B-EU	E	160	300	190	130	287	Ø 6
GD27-018G-4-B-XX		160	300	190	130	287	Ø 6
GD27-022G-4-B-XX		160	300	190	130	287	Ø 6

注意：-XX 表示空或-EU。

附录A 能效数据

表 A-1 能耗和 IE 等级

产品型号	相对损耗 (%)										待机损耗(W)	IE 等级
	(0;25)	(0;50)	(0;100)	(50;25)	(50;50)	(50;100)	(90;50)	(90;100)				
GD27-0R4G-S2-B-XX	1.46	1.62	1.92	1.53	1.76	2.10	1.95	2.24	5	5	IE2	
GD27-0R7G-S2-B-XX	1.38	1.48	1.85	1.45	1.65	2.03	1.81	2.22	5	5	IE2	
GD27-1R5G-S2-B-XX	1.42	1.46	1.86	1.66	1.86	2.03	1.88	2.28	5	5	IE2	
GD27-2R2G-S2-B-XX	1.36	1.42	1.76	1.59	1.79	1.96	1.85	2.12	5	5	IE2	
GD27-0R4G-2-B-EU	1.45	1.63	1.93	1.51	1.72	2.10	1.90	2.26	5	5	IE2	
GD27-0R7G-2-B-EU	1.40	1.46	1.82	1.44	1.59	2.00	1.76	2.18	5	5	IE2	
GD27-1R5G-2-B-EU	1.38	1.42	1.80	1.65	1.79	1.99	1.86	2.23	5	5	IE2	
GD27-2R2G-2-B-EU	1.32	1.38	1.74	1.56	1.76	1.94	1.83	2.18	5	5	IE2	
GD27-004G-2-B-EU	1.27	1.33	1.56	1.47	1.69	1.90	1.76	2.02	9	9	IE2	
GD27-5R5G-2-B-EU	0.79	1.32	1.99	0.87	1.34	2.22	1.41	2.39	9	9	IE2	
GD27-7R5G-2-B-EU	0.62	0.90	1.76	0.80	1.15	2.04	1.46	2.28	11	11	IE2	
GD27-011G-2-B-EU	0.54	0.78	1.87	0.77	1.18	2.09	1.23	2.48	11	11	IE2	
GD27-015G-2-B-EU	0.92	0.93	0.95	1.06	1.37	1.49	2.6	2.98	13	13	IE2	
GD27-0R7G-4-B-XX	1.32	1.43	1.82	1.48	1.66	2.12	1.70	2.29	7	7	IE2	
GD27-1R5G-4-B-XX	1.26	1.32	1.50	1.42	1.62	2.02	1.63	2.14	7	7	IE2	
GD27-2R2G-4-B-XX	1.28	1.30	1.62	1.57	1.76	2.11	1.61	2.24	8	8	IE2	
GD27-003G-4-B-XX	1.18	1.26	1.54	1.47	1.66	2.02	1.58	2.10	8	8	IE2	
GD27-004G-4-B-XX	1.12	1.22	1.46	1.35	1.63	1.83	1.54	1.97	8	8	IE2	
GD27-5R5G-4-B-XX	1.22	1.37	1.56	1.46	1.77	2.12	1.77	2.26	9	9	IE2	
GD27-7R5G-4-B-XX	1.14	1.31	1.48	1.42	1.70	2.06	1.74	2.21	9	9	IE2	
GD27-011G-4-B-XX	0.79	0.89	1.79	0.9	0.78	1.77	0.53	1.8	11	11	IE2	
GD27-015G-4-B-XX	0.7	1.01	1.98	0.74	1.02	1.87	1.17	2.23	11	11	IE2	
GD27-018G-4-B-XX	0.53	0.76	1.23	0.56	0.86	1.73	0.86	2.01	13	13	IE2	
GD27-022G-4-B-XX	0.63	0.71	1.38	0.60	0.90	1.73	1.02	1.95	13	13	IE2	

表 A-2 额定规格

产品型号	视在功率 (kVA)	额定输出功率 (kW)	额定输出电流 (A)	最高工作温度 (°C)	额定电源频率 (Hz)	额定电源电压 (V)
GD27-0R4G-S2-B-XX	0.9	0.4	2.5	50°C	AC 1PH 220V~240V	AC 1PH 220V~240V
GD27-0R7G-S2-B-XX	1.6	0.75	4.2			
GD27-1R5G-S2-B-XX	2.8	1.5	7.5			
GD27-2R2G-S2-B-XX	3.8	2.2	10			
GD27-0R4G-2-B-EU	0.9	0.4	2.5			
GD27-0R7G-2-B-EU	1.5	0.75	4.2			
GD27-1R5G-2-B-EU	2.8	1.5	7.5			
GD27-2R2G-2-B-EU	3.8	2.2	10			
GD27-004G-2-B-EU	6.1	4	16		AC 3PH 200V~240V	AC 3PH 200V~240V
GD27-5R5G-2-B-EU	7.6	5.5	20			
GD27-7R5G-2-B-EU	8.9	7.5	30			
GD27-011G-2-B-EU	11	11	42			
GD27-015G-2-B-EU	20.9	15	55			
GD27-0R7G-4-B-XX	1.6	0.75	2.5		AC 3PH 380V~480V	AC 3PH 380V~480V
GD27-1R5G-4-B-XX	2.5	1.5	3.7			
GD27-2R2G-4-B-XX	3.9	2.2	5.5			
GD27-003G-4-B-XX	5.1	3	7.5			
GD27-004G-4-B-XX	6.4	4	9.5			
GD27-5R5G-4-B-XX	9.2	5.5	14			
GD27-7R5G-4-B-XX	12.1	7.5	18.5			
GD27-011G-4-B-XX	14.3	11	25			
GD27-015G-4-B-XX	18.8	15	32			
GD27-018G-4-B-XX	25	18.5	38			
GD27-022G-4-B-XX	29.6	22	45			

注意：-XX 表示空或-EU。



Goodrive 27 Series Smart VFD Quick Start Guide

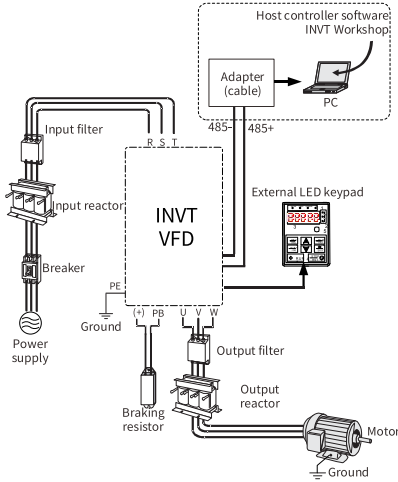
This guide briefly describes the external wiring, terminals, keypads, quick running, common function parameter settings, common faults and solutions, product dimensions, and energy efficiency data of GD27 series variable-frequency drive (VFD). Visit www.invt.com for more information and source download.

Scan the QR code to view the full version of GD27 series product e-manual.



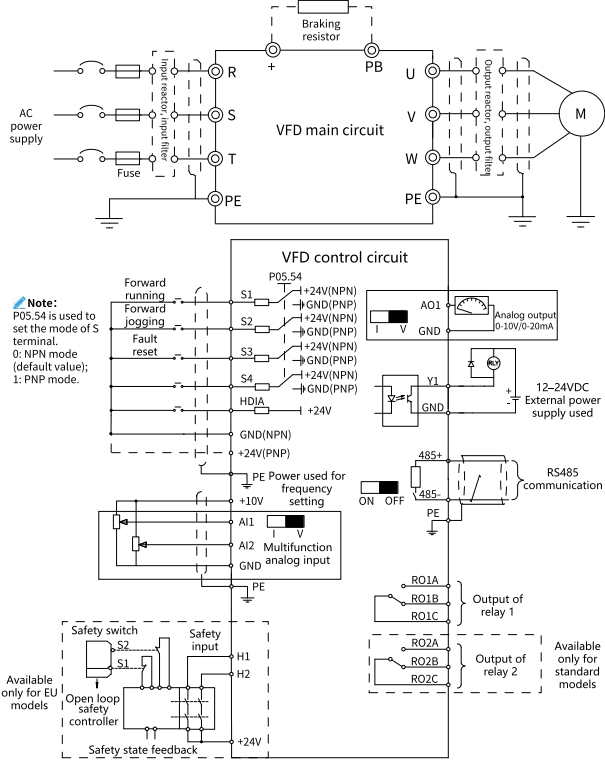
Warning	
- This guide only provides the basic installation and commissioning information. Failure to comply with the safety instructions and installation and commissioning instructions in the relevant documentation may result in accidents such as equipment damage, personal injury, or even death. - Only 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.	
Minimum waiting time	VFD model
5 minutes	1PH 220V 0.4~2.2kW; 3PH 220V 0.4~15kW; 3PH 380V 0.75~22kW

1 External wiring



2 Terminal

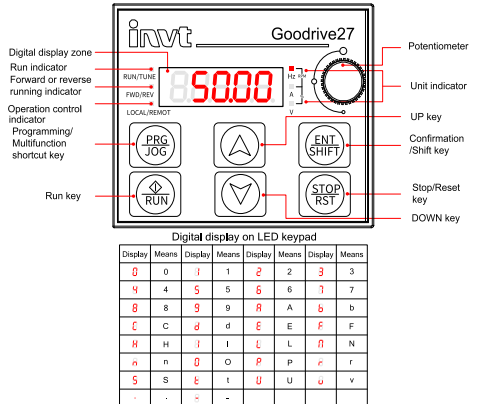
Figure 2-1 Typical VFD wiring



Note: : Shield layer : Twisted pair

Terminal	Description
Main circuit terminals	
R, S, T (or L, N)	3PH (or 1PH) AC input terminals, connected to the grid.
U, V, W	3PH (or 1PH) AC output terminals, connected to the motor usually.
(+)	(+) and (-) connect to the shared DC bus terminals.
(-)	PB and (+) connect to external braking resistor terminals.
PB	
	PE terminal. The PE terminals of each machine must be grounded reliably.
Control circuit terminals	
+10V	Locally provided +10V power supply
AI1	Analog input. Range: 0~10V/0~20mA. Whether voltage or current is used for input is set through the DIP switch.
AI2	Analog input. Range: 0V~+10V
AO1	Analog output. Range: 0~10V/0~20mA. Whether voltage or current is used for output is set through the DIP switch.
RO1A	Relay output. RO1A: NO; RO1B: NC; RO1C: common Contact capacity: 3A/AC 250V, 1A/DC 30V
RO1B	
RO1C	
RO2A	Relay output. RO2A: NO; RO2B: NC; RO2C: common Contact capacity: 3A/AC 250V, 1A/DC 30V
RO2B	
RO2C	
GND	Power reference ground
Y1	Switch capacity: 50mA/30V. Output frequency range: 0~1kHz
485+	RS485 differential signal communication port. The standard RS485 communication interface should use shielded twisted pair. Determine whether to connect the 120Ω terminal matching resistor of RS485 communication through the DIP switch.
485-	
+24V	User power supply provided by the VFD. Max. output current: 100mA
S1~S4	Active input high level range: 10~30V Active input low level range: 0~3V Max. input frequency: 1kHz Programmable digital input terminals, the functions of which can be set through the related parameters.
HDIA	Channels for both high frequency pulse input and digital input Max. input frequency: 50kHz Duty ratio: 30%~70%
H1	Safe torque off (STO) input Safe torque off (STO) redundant input, connected to the external NC contact. When the contact opens, STO acts and the VFD stops output.
H2	Safety 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 short connectors from the terminals before using STO function.

3 Keypad



Indicator	Status	Meaning
RUN/TUNE		The VFD is running.
		The VFD is in parameter autotuning.
FWD/REV		The VFD is running forwardly.
		The VFD is running reversely.
LOCAL/REMOT		The VFD uses communication as the command running channel.
		The VFD uses terminal as the command running channel.
		The VFD uses keypad as the command running channel.
RUN/TUNE		The VFD is in fault state.
		The VFD is in pre-alarm state.
LOCAL/REMOT		The indicator is on to indicate the unit displayed currently.
Unit indicator		Hz
		RPM
		A
		%
		V

Key	Function
	Programming/Multifunction shortcut key Press it to enter or exit level-1 menus or delete a parameter. Press and hold it for more than 1s to achieve the key function defined by ones of P07.02. Jogging is by default.
	Confirmation/shift key Press it to enter menus in cascading mode or confirm the setting of a parameter. Press it to select display parameters in the interface for the VFD in stopped or running state. Press and hold it for more than 1s to shift bits in the parameter change interface.
	Up key Press it to increase data or move upward.
	Down key Press it to decrease data or move downward.
	Run key Under keypad operation mode, the running key is used for running or autotuning.
	Stop/Reset key P07.04 specifies the validity of the key function. Press it to stop the VFD or perform autotuning when the VFD is in running state. Press it to reset faults when the VFD is in fault alarm state.

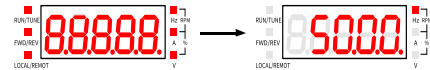
4 Quick running

4.1 Check before power-on

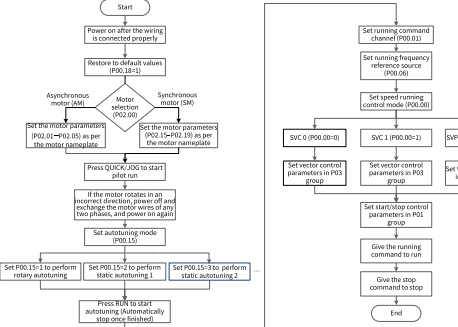
- Ensure that all terminals have been securely connected.
- Ensure that the motor power matches the VFD power.

4.2 Operating upon first power-on

After confirming the wiring and power are correct, close the air switch of the AC power at the VFD input side to power on the VFD.



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: Sensorless vector control (SVC) mode 0 1: Sensorless vector control (SVC) mode 1 2: Space voltage vector control mode	2	⊙
P00.01	Channel of running commands	0: Keypad 1: Terminal 2: Communication	0	○
P00.03	Max. output frequency	Max (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: AI1 2: AI2 3: AI3 (Corresponding to the keypad potentiometer) 4: High-speed pulse HDIA 5: Simple PLC program 6: Multi-step speed running 7: PID control 8: Modbus communication	0	○
P00.07	Setting channel of B frequency command	0: Keypad 1: AI1 2: AI2 3: AI3 (Corresponding to the keypad potentiometer) 4: High-speed pulse HDIA 5: Simple PLC program 6: Multi-step speed running 7: PID control 8: Modbus communication	1	○
P00.10	Frequency set through keypad	0.00Hz~P00.03 (Max. output frequency)	50.00Hz	○
P00.11	ACC time 1	0.0~3600.0s	Model depended	○
P00.12	DEC time 1	0.0~3600.0s	Model depended	○
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	0: No operation 1: Rotary autotuning 1	0	⊙

Function code	Name	Description	Default	Modify
		2: Static autotuning 1 (Complete) 3: Static autotuning 2 (Partial)		
P00.18	Function parameter restore	0: No operation 1: Restore default values (excluding motor parameters) 2: Clear fault records 3: Lock all function codes	0	⊙
P01.00	Start mode	0: Direct start 1: Start after DC braking 4: Speed tracking restart (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	○
P01.11	DC braking current for stop	0.0~100.0%	0.0%	○
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 running command is invalid at power-on 1: The terminal running command is valid at power-on	0	⊙
P02.00	Type of motor 1	0: Asynchronous motor (AM) 1: Synchronous motor (SM)	0	⊙
P02.01	Rated power of AM 1	0.1~3000.0kW	Model depended	⊙
P02.02	Rated frequency of AM 1	0.01Hz~P00.03 (Max. output frequency)	50.00Hz	⊙
P02.03	Rated speed of AM 1	1~6000rpm	Model depended	⊙
P02.04	Rated voltage of AM 1	0~1200V	Model depended	⊙
P02.05	Rated current of AM 1	0.08~600.00A	Model depended	⊙
P02.15	Rated power of SM 1	0.1~3000.0kW	Model depended	⊙
P02.16	Rated frequency of SM 1	0.01Hz~P00.03 (Max. output frequency)	50.00Hz	⊙
P02.17	Number of pole pairs of SM 1	1~128	2	⊙
P02.18	Rated voltage of SM 1	0~1200V	Model depended	⊙
P02.19	Rated current of SM 1	0.08~600.00A	Model depended	⊙
P02.23	Counter-emf of SM 1	0~10000	300	○
P03.00	Speed-loop proportional gain 1	0.0~200.0	20.0	○
P03.01	Speed-loop integral time 1	0.000~10.000s	0.200s	○
P03.03	Speed-loop proportional gain 2	0.0~200.0	20.0	○
P03.04	Speed-loop integral time 2	0.000~10.000s	0.200s	○
P03.10	Current-loop bandwidth	0~2000	400	○
P03.11	Torque setting method	0: Keypad (P03.12) 1: Keypad (P03.12) 2: AI1 3: AI2 4: AI3 5: Pulse frequency HDIA 6: Multi-step torque 7: Modbus communication	0	○
P04.01	Torque boost of motor 1	0.0%: (Automatic torque boost), 0.1%~10.0%	0	○
P04.09	V/F slip compensation gain of motor 1	0.0~200.0%	100.0%	○
P04.10	Low-frequency oscillation control factor of motor 1	0~100	10	○
P04.11	High-frequency oscillation control factor of motor 1	0~100	10	○
P05.01	Function of S1	0: No function 1: Run forward (FWD)	1	⊙
P05.02	Function of S2	1: Run forward (FWD) 2: Run reversely (REV)	4	⊙
P05.03	Function of S3	2: Run reversely (REV) 3: Three-wire running control (SIN) 4: Jog forward 5: Jog reversely 6: Coast to stop 7: Reset faults 9: External fault input 10: Increase frequency setting (UP) 11: Decrease frequency setting (DOWN)	7	⊙
P05.04	Function of S4	0: No function 1: Run forward (FWD) 2: Run reversely (REV) 3: Three-wire running control (SIN) 4: Jog forward 5: Jog reversely 6: Coast to stop 7: Reset faults 9: External fault input 10: Increase frequency setting (UP) 11: Decrease frequency setting (DOWN)	0	⊙
P05.32	AI1 lower limit	0.00V~P05.34	0.00V	○
P05.34	AI1 upper limit	P05.32~10.00V	10.00V	○
P05.54	Mode of S terminal	0: NPN mode 1: PNP mode	0	⊙
P06.01	Y1 output	0: Disable	0	○
P06.03	RO1 output	1: Running	1	○
P06.04	RO2 output	2: Running forward	5	○

Function code	Name	Description	Default	Modify
		3: Running reversely 4: Jogging 5: VFD in fault 6: Frequency level detection FDT1 8: Frequency reached		
P06.14	AO1 analog output	0: Running frequency 1: Set frequency 3: Rotational speed (speed corresponding to max. output frequency) 4: Output current (relative to twice the VFD rated current) 5: Output current (relative to twice the motor rated current) 6: Output voltage (relative to 1.5 times the VFD rated voltage) 7: Output power (relative to twice the motor rated power)	0	○
P06.17	AO1 output lower limit	-300.0%~P06.19	0.0%	○
P06.18	AO1 output corresponding to lower limit	0.00V~10.00V	0.00V	○
P06.19	AO1 output upper limit	P06.17~300.00Hz	100.0%	○
P06.20	AO1 output corresponding to upper limit	0.00V~10.00V	10.00V	○
P06.21	AO1 output filter time	0.000s~10.000s	0.000s	○
P07.00	User password	0~65535	0	○
P07.27	Present fault type	-	-	●
P07.28	Last fault type	-	-	●
P07.29	2nd-last fault type	-	-	●
P07.30	3rd-last fault type	-	-	●
P07.31	4th-last fault type	-	-	●
P07.32	5th-last fault type	-	-	●
P08.28	Auto fault reset count	0~10	0	○
P08.29	Auto fault reset interval	0.1~3600.0s	1.0s	○
P11.00	Phase loss protection	Setting range: 0x000~0x011 Ones: 0: Disable software protection against input phase loss 1: Enable software protection against input phase loss Tens: 0: Disable protection against output phase loss 1: Enable protection against output phase loss Hundreds: Reserved Note: Output phase loss cannot be detected when running without the motor connected, and input phase loss cannot be detected during no-load or light-load operation.	1PH model: 0x010 3PH model: 0x011	○
P14.00	Local communication address	1~247 Note: The communication address of a slave cannot be 0.	1	○
P14.01	Communication baud rate	0: 1200bps 2: 4800bps 4: 19200bps 1: 2400bps 3: 9600bps 5: 38400bps	4	○
P14.02	Data bit check	0: No check (N, 8, 1) for RTU 1: Even check (E, 8, 1) for RTU 2: Odd check (O, 8, 1) for RTU 3: No check (N, 8, 2) for RTU 4: Even check (E, 8, 2) for RTU 5: Odd check (O, 8, 2) for RTU	1	○

6 Common faults and solutions

Fault code	Fault type	Possible cause	Solution
E4	Overcurrent during ACC	ACC time too short. Load too large or sudden change of load. Start during motor rotating. 3PH output current imbalance. When sensorless vector control is used for motor control, parameter autotuning is not performed. When V/F control is used for motor control, V/F curve setting is abnormal. There are strong external interference sources (contactor switchover or improper grounding). Grid voltage too low. Hardware fault.	Increase the ACC time, or reduce the software current limit point through P11.06; if the process requires rapid ACC, increase the VFD capacity. Increase the VFD capacity to ensure that the motor does not experience stalling, and that the load equipment functions without any exception. Start after the motor stops, or select speed tracking start through P01.00. Check the VFD output voltage and motor resistance to ensure three-phase balance. Set the rated parameters according to the motor nameplate, and perform

Fault code	Fault type	Possible cause	Solution
			parameter autotuning through P00.15. Adjust the frequency and voltage relationship set by the V/F curve, and reduce the voltage corresponding to the frequency. To avoid strong interference, keep the motor cables away from contactors and ensure reliable grounding of the system. Improve the power quality, or increase the VFD capacity. Replace the VFD.
E5	Overcurrent during DEC	DEC time too short. Software current limit point setting too high. Load too large or sudden change of load. 3PH output current imbalance. When sensorless vector control is used for motor control, parameter autotuning is not performed. When V/F control is used for motor control, V/F curve setting is abnormal. There are strong external interference sources (contactor switchover or improper grounding). Hardware fault.	Increase the DEC time, or reduce the software current limit point through P11.06; if the process requires rapid DEC, increase the VFD capacity. Reduce the software current limit point through P11.06. Increase the VFD capacity to ensure that the motor does not experience stalling, and that the load equipment functions without any exception. Check the VFD output voltage and motor resistance to ensure three-phase balance. Set the rated parameters according to the motor nameplate, and perform parameter autotuning through P00.15. Adjust the frequency and voltage relationship set by the V/F curve, and reduce the voltage corresponding to the frequency. To avoid strong interference, keep the motor cables away from contactors and ensure reliable grounding of the system. Replace the VFD.
E6	Overcurrent during constant speed running	Load too large or sudden change of load. Software current limit point setting too high. 3PH output current imbalance. When sensorless vector control is used for motor control, parameter autotuning is not performed. When V/F control is used for motor control, V/F curve setting is abnormal. There are strong external interference sources (contactor switchover or improper grounding). Grid voltage too low. Hardware fault.	Increase the VFD capacity to ensure that the motor does not experience stalling, and that the load equipment functions without any exception. Reduce the software current limit point through P11.06. Check the VFD output voltage and motor resistance to ensure three-phase balance. Set the rated parameters according to the motor nameplate, and perform parameter autotuning through P00.15. Adjust the frequency and voltage relationship set by the V/F curve, and reduce the voltage corresponding to the frequency. To avoid strong interference, keep the motor cables away from contactors and ensure reliable grounding of the system. Improve the power quality, or increase the VFD capacity. Replace the VFD.
E7	Overvoltage during ACC	ACC time too short. Grid voltage too high. Start during motor rotating. The load has a significant energy feedback. Improper setting of overvoltage stall protection.	Increase the ACC time or enable overvoltage stall protection. Improve the power quality to comply with the VFD input voltage specifications (refer to product specifications). Start after the motor stops, or select speed tracking start through P01.00. Install a braking unit and energy feedback unit, or remove external factors that cause the load to generate power. Enable overvoltage stall protection through P11.03, and lower the overvoltage stall protection voltage value of P11.04.
E8	Overvoltage during deceleration	Deceleration time too short. Grid voltage too high. The load has a significant energy feedback. Improper setting of overvoltage stall protection.	Increase the DEC time; if the process requires rapid DEC, braking units, energy feedback units can be added, or the magnetic flux braking function can be used. Improve the power quality to comply with the VFD input voltage specifications (refer to

Fault code	Fault type	Possible cause	Solution
			product specifications). Install a braking unit and energy feedback unit, or remove external factors that cause the load to generate power. Enable overvoltage stall protection through P11.03, and lower the overvoltage stall protection voltage value of P11.04.
E9	Overvoltage during constant speed running	Grid voltage too high. The load has a significant energy feedback. Improper setting of overvoltage stall protection.	Improve the power quality to comply with the VFD input voltage specifications (refer to product specifications). Install a braking unit and energy feedback unit, or remove external factors that cause the load to generate power. Enable overvoltage stall protection through P11.03, and lower the overvoltage stall protection voltage value of P11.04.
E10	Bus undervoltage fault	The grid voltage is too low. Bus voltage display is abnormal. Buffer contactor closing is abnormal. The VFD runs with heavy load when phase loss on input side occurs.	Increase grid input voltage. Contact the manufacturer. Check whether the input power is normal and input cables are loose.
E11	Motor overload	The grid voltage is too low. The motor rated current is set incorrectly. The motor stall occurs or the load transient is too large.	Increase grid input voltage. Reset the motor rated current in the motor parameter group. Check the load and adjust the torque boost quantity.
E12	VFD overload	ACC is too fast. The motor in rotating is restarted. Grid voltage is too low. Load is too large. VFD power is too small.	Increase ACC time. Avoid restart after stop. Increase grid input voltage. Select a VFD with larger power.
E13	Phase loss on input side	Phase loss or violent fluctuation occurred on inputs R, S, and T. Screws on the input side are loose.	Check whether the input power is normal and input cables are loose. Set P11.00 to screen out the fault.
E14	Phase loss on output side	Output cables broken or short connected to the ground. U/V/W output phase loss or seriously asymmetrical 3PH loads.	Check for loose or broken output cables. Check for sharp load fluctuation and motor 3PH resistance imbalance.
E16	Inverter module overheating	Air duct is blocked or fan is damaged. Ambient temperature is too high. Long-time overload running.	Ventilate the air duct or replace the fan. Keep good ventilation to lower ambient temperature. Select a VFD with larger power.
E17	External fault	External fault input signal of S terminal acts.	Check whether external device input is normal.
E18	RS485 communication fault	Baud rate is set improperly. Communication line fault. Communication address error. Communication suffers from strong interference.	Set proper baud rate. Check the wiring of communication interfaces. Set the communication address correctly. Replace or change the wiring to enhance the anti-interference capacity.
E19	Current detection fault	Motor cable or motor insulator exception occurred.	Remove the motor cable for verification. Contact the manufacturer.
E20	Motor autotuning fault	The motor capacity does not match the VFD capacity. Motor parameter is set improperly. The parameters gained from autotuning deviate sharply from the standard parameters. Autotuning timeout.	Change the VFD model. Set proper motor type and nameplate parameters. Empty the motor load and carry out autotuning again. Check the motor wiring and parameter setup; Check whether the upper limit frequency is larger than 2/3 of the rated frequency.
E21	EEPROM operation error	Error in reading or writing control parameters. EEPROM is damaged.	Press STOP/RST to reset. Replace the main control board.
E22	PID feedback offline fault	PID feedback offline. PID feedback source disappears.	Check PID feedback signal wires. Check PID feedback source.
E23	Braking unit fault	Fault occurred to the braking circuit or the braking pipe is damaged. Resistance of the external braking resistor is small.	Check the braking unit, and replace with new braking pipe; Increase the brake resistance.
E24	Running time reached	The actual running time of the VFD is longer than the internal set running time.	Contact the manufacturer.
E27	Parameter upload error	Keypad cable connected improperly or disconnected. Keypad cable too long, causing strong interference.	Check the keypad cable and re-plug to determine whether a fault occurs. Check for and remove the

Fault code	Fault type	Possible cause	Solution
		Keypad or mainboard communication circuit error.	external interference source. Replace the hardware and seek maintenance services.
E28	Parameter download error	Keypad cable connected improperly or disconnected. Keypad cable too long, causing strong interference. Data storage error occurred to the keypad.	Check for and remove the external interference source. Replace the hardware and seek maintenance services. Check whether the control board software version of keypad backup parameters is consistent with that of the VFD.
E33	To-ground short-circuit fault	The output of the VFD is short circuited to the ground. Current detection circuit is faulty. Actual motor power setup deviates sharply from the VFD power.	Check whether the motor is short circuited to the ground and wiring is normal. Remove the motor cable for verification. Replace the main control board. Reset the motor parameters properly.
E34	Speed deviation fault	The load is too heavy or stalled.	Check for overload, increase speed deviation detection time, or prolong ACC/DEC time. Check motor parameter settings and re-perform motor parameter autotuning. Check whether speed loop control parameters are set properly.
E35	Mal-adjustment fault	Load exception occurred. SM parameters are set incorrectly. The parameters gained from autotuning are inaccurate. The VFD is not connected to the motor. Flux weakening application.	Check for overload or stalling. Check motor parameter and counter EMF settings. Re-perform motor parameter autotuning. Increase maladjustment detection time. Adjust flux weakening coefficient and current loop parameters.
E36	Electronic underload fault	The VFD reports underload pre-alarm according to the set value.	Check the load and the underload pre-alarm points.
E40	Safe torque off	Safe torque off function is enabled by external forces.	-
E41	Exception occurred to safe circuit of channel 1	The wiring of STO is improper; Fault occurred to external switch of STO;	Check whether terminal wiring of STO is proper and firm enough; Check whether the external switch of STO can work properly; Replace the control board.
E42	Exception occurred to safe circuit of channel 2	Hardware fault occurred to safety circuit of channel.	
E43	Exception occurred to channel 1 and channel 2	Hardware fault occurred to STO circuit.	Replace the control board.
E92	AI1 disconnection	Input voltage of AI1 is too low. AI1 wiring is disconnected.	Connect a 5V or 10mA power source to check whether the input is normal. Check the wiring or replace the cables.
E93	AI2 disconnection	Input voltage of AI2 is too low. AI2 wiring is disconnected.	
E94	AI3 disconnection	Input voltage of AI3 is too low. AI3 wiring is disconnected.	Check the wiring or replace the cables.
E96	No upgrade bootloader	The burned file does not contain a bootloader.	Burn the file with a bootloader again. You can screen out this fault by setting P14.12. (The absence of a bootloader does not affect the normal running of machine.)

7 Product dimensions

Figure 7-1 Dimensions and hole positions for VFDs in frames A and B

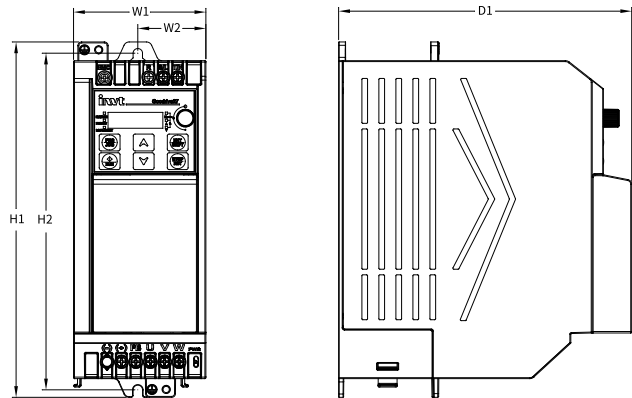


Table 7-1 Dimensions and hole positions for VFDs in frames A and B							
Model	Frame	Outline dimensions (mm)			Mounting hole distance (mm)		Mounting hole diameter (mm)
		W1	H1	D1	W2	H2	
GD27-0R4G-S2-B-XX	A	60	190	155	36	180	Ø 5
GD27-0R7G-S2-B-XX		60	190	155	36	180	Ø 5
GD27-0R4G-2-B-EU		60	190	155	36	180	Ø 5
GD27-0R7G-2-B-EU		60	190	155	36	180	Ø 5
GD27-0R7G-4-B-XX		60	190	155	36	180	Ø 5
GD27-1R5G-4-B-XX		60	190	155	36	180	Ø 5
GD27-1R5G-S2-B-XX	B	70	190	155	36	180	Ø 5
GD27-2R2G-S2-B-XX		70	190	155	36	180	Ø 5
GD27-1R5G-2-B-EU		70	190	155	36	180	Ø 5
GD27-2R2G-2-B-EU		70	190	155	36	180	Ø 5
GD27-2R2G-4-B-XX		70	190	155	36	180	Ø 5
GD27-003G-4-B-XX		70	190	155	36	180	Ø 5
GD27-004G-4-B-XX		70	190	155	36	180	Ø 5

Figure 7-2 Dimensions and hole positions for VFDs in frame C

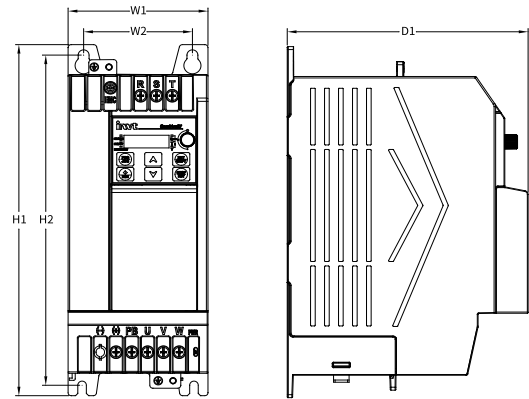


Table 7-2 Dimensions and hole positions for VFDs in frame C

Model	Frame	Outline dimensions (mm)			Mounting hole distance (mm)		Mounting hole diameter (mm)
		W1	H1	D1	W2	H2	
GD27-004G-2-B-EU	C	90	235	155	70	220	Ø 6
GD27-5R5G-2-B-EU		90	235	155	70	220	Ø 6
GD27-5R5G-4-B-XX		90	235	155	70	220	Ø 6
GD27-7R5G-4-B-XX		90	235	155	70	220	Ø 6

Figure 7-3 Dimensions and hole positions for VFDs in frame D

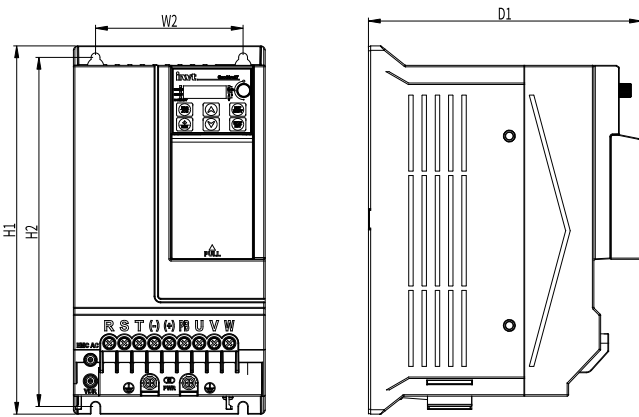
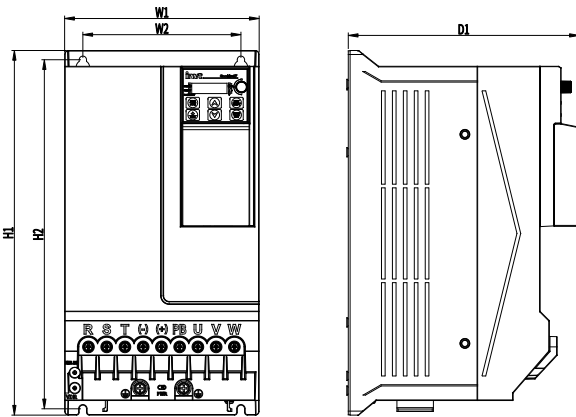


Table 7-3 Dimensions and hole positions for VFDs in frame D

Model	Frame	Outline dimensions (mm)			Mounting hole distance (mm)		Mounting hole diameter (mm)
		W1	H1	D1	W2	H2	
GD27-7R5G-2-B-EU	D	130	250	185	100	237	Ø 6
GD27-011G-2-B-EU		130	250	185	100	237	Ø 6
GD27-011G-4-B-XX		130	250	185	100	237	Ø 6
GD27-015G-4-B-XX		130	250	185	100	237	Ø 6

Figure 7-4 Dimensions and hole positions for VFDs in frame E



Model	Frame	Outline dimensions (mm)			Mounting hole distance (mm)		Mounting hole diameter (mm)
		W1	H1	D1	W2	H2	
GD27-015G-2-B-EU	E	160	300	190	130	287	Ø 6
GD27-018G-4-B-XX		160	300	190	130	287	Ø 6
GD27-022G-4-B-XX		160	300	190	130	287	Ø 6

Note: -XX indicates none or -EU.

Appendix A Energy efficiency data

Table A-1 Power losses and IE class

Model	Relative loss (%)						Standby loss (W)	IE class		
	(0;25]	(0;50]	(0;100]	[50;25]	[50;50]	[50;100]				
GD27-0R4G-S2-B-XX	1.46	1.62	1.92	1.53	1.76	2.10	1.95	2.24	5	IE2
GD27-0R7G-S2-B-XX	1.38	1.48	1.85	1.45	1.65	2.03	1.81	2.22	5	IE2
GD27-1R5G-S2-B-XX	1.42	1.46	1.86	1.66	1.86	2.03	1.88	2.28	5	IE2
GD27-2R2G-S2-B-XX	1.36	1.42	1.76	1.59	1.79	1.96	1.85	2.12	5	IE2
GD27-0R4G-2-B-EU	1.45	1.63	1.93	1.51	1.72	2.10	1.90	2.26	5	IE2
GD27-0R7G-2-B-EU	1.40	1.46	1.82	1.44	1.59	2.00	1.76	2.18	5	IE2
GD27-1R5G-2-B-EU	1.38	1.42	1.80	1.65	1.79	1.99	1.86	2.23	5	IE2
GD27-2R2G-2-B-EU	1.32	1.38	1.74	1.56	1.76	1.94	1.83	2.18	5	IE2
GD27-004G-2-B-EU	1.27	1.33	1.56	1.47	1.69	1.90	1.76	2.02	9	IE2
GD27-5R5G-2-B-EU	0.79	1.32	1.99	0.87	1.34	2.22	1.41	2.39	9	IE2
GD27-7R5G-2-B-EU	0.62	0.90	1.76	0.80	1.15	2.04	1.46	2.28	11	IE2
GD27-011G-2-B-EU	0.54	0.78	1.87	0.77	1.18	2.09	1.23	2.48	11	IE2
GD27-015G-2-B-EU	0.92	0.93	0.95	1.06	1.37	1.49	2.6	2.98	13	IE2
GD27-0R7G-4-B-XX	1.32	1.43	1.82	1.48	1.66	2.12	1.70	2.29	7	IE2
GD27-1R5G-4-B-XX	1.26	1.32	1.50	1.42	1.62	2.02	1.63	2.14	7	IE2
GD27-2R2G-4-B-XX	1.28	1.30	1.62	1.57	1.76	2.11	1.61	2.24	8	IE2
GD27-003G-4-B-XX	1.18	1.26	1.54	1.47	1.66	2.02	1.58	2.10	8	IE2
GD27-004G-4-B-XX	1.12	1.22	1.46	1.35	1.63	1.83	1.54	1.97	8	IE2
GD27-5R5G-4-B-XX	1.22	1.37	1.56	1.46	1.77	2.12	1.77	2.26	9	IE2
GD27-7R5G-4-B-XX	1.14	1.31	1.48	1.42	1.70	2.06	1.74	2.21	9	IE2
GD27-011G-4-B-XX	0.79	0.89	1.79	0.9	0.78	1.77	0.53	1.8	11	IE2
GD27-015G-4-B-XX	0.7	1.01	1.98	0.74	1.02	1.87	1.17	2.23	11	IE2
GD27-018G-4-B-XX	0.53	0.76	1.23	0.56	0.86	1.73	0.86	2.01	13	IE2
GD27-022G-4-B-XX	0.63	0.71	1.38	0.60	0.90	1.73	1.02	1.95	13	IE2

Table A-2 Rated specifications

Model	Apparent power (kVA)	Rated output power (kW)	Rated output current (A)	Max. working temperature (°C)	Rated power frequency (Hz)	Rated power voltage (V)
GD27-0R4G-S2-B-XX	0.9	0.4	2.5	50°C	AC 1PH 220V~240V	AC 1PH 220V~240V
GD27-0R7G-S2-B-XX	1.6	0.75	4.2			
GD27-1R5G-S2-B-XX	2.8	1.5	7.5			
GD27-2R2G-S2-B-XX	3.8	2.2	10			
GD27-0R4G-2-B-EU	0.9	0.4	2.5		AC 3PH 200V~240V	AC 3PH 200V~240V
GD27-0R7G-2-B-EU	1.5	0.75	4.2			
GD27-1R5G-2-B-EU	2.8	1.5	7.5			
GD27-2R2G-2-B-EU	3.8	2.2	10			
GD27-004G-2-B-EU	6.1	4	16			
GD27-5R5G-2-B-EU	7.6	5.5	20		AC 3PH 380V~480V	AC 3PH 380V~480V
GD27-7R5G-2-B-EU	8.9	7.5	30			
GD27-011G-2-B-EU	11	11	42			
GD27-015G-2-B-EU	20.9	15	55			
GD27-0R7G-4-B-XX	1.6	0.75	2.5			
GD27-1R5G-4-B-XX	2.5	1.5	3.7			
GD27-2R2G-4-B-XX	3.9	2.2	5.5			
GD27-003G-4-B-XX	5.1	3	7.5			
GD27-004G-4-B-XX	6.4	4	9.5			
GD27-5R5G-4-B-XX	9.2	5.5	14			
GD27-7R5G-4-B-XX	12.1	7.5	18.5			
GD27-011G-4-B-XX	14.3	11	25			
GD27-015G-4-B-XX	18.8	15	32			
GD27-018G-4-B-XX	25	18.5	38			
GD27-022G-4-B-XX	29.6	22	45			

Note: -XX indicates none or -EU.

