

SIEMENS



SINAMICS

SINAMICS G120 变频器

CU250S-2 控制单元

入门指南

版本

10/2013

Answers for industry.



安全提示

1

变频器的结构

2

安装

3

调试

4

更多信息

5

SINAMICS

SINAMICS G120

变频器，配备控制单元 CU250S-2

入门指南

版本 10/2013, 固件 V4.6

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法律资讯

警告提示系统

为了您的人身安全以及避免财产损失，必须注意本手册中的提示。人身安全的提示用一个警告三角表示，仅与财产损失有关的提示不带警告三角。警告提示根据危险等级由高到低如下表示。



危险

表示如果不采取相应的小心措施，**将会**导致死亡或者严重的人身伤害。



警告

表示如果不采取相应的小心措施，**可能**导致死亡或者严重的人身伤害。



小心

表示如果不采取相应的小心措施，可能导致轻微的人身伤害。

注意

表示如果不采取相应的小心措施，可能导致财产损失。

当出现多个危险等级的情况下，每次总是使用最高等级的警告提示。如果在某个警告提示中带有警告可能导致人身伤害的警告三角，则可能在该警告提示中另外还附带有可能导致财产损失的警告。

合格的专业人员

本文件所属的产品/系统只允许由符合各项工作要求的**合格人员**进行操作。其操作必须遵照各自附带的文件说明，特别是其中的安全及警告提示。由于具备相关培训及经验，合格人员可以察觉本产品/系统的风险，并避免可能的危险。

按规定使用 Siemens 产品

请注意下列说明：



警告

Siemens 产品只允许用于目录和相关技术文件中规定的使用情况。如果要使用其他公司的产品和组件，必须得到 **Siemens** 推荐和允许。正确的运输、储存、组装、装配、安装、调试、操作和维护是产品安全、正常运行的前提。必须保证允许的环境条件。必须注意相关文件中的提示。

商标

所有带有标记符号 ® 的都是西门子股份有限公司的注册商标。本印刷品中的其他符号可能是一些其他商标。若第三方出于自身目的使用这些商标，将侵害其所有者的权利。

责任免除

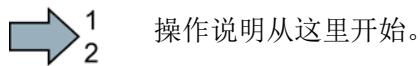
我们已对印刷品中所述内容与硬件和软件的一致性作过检查。然而不排除存在偏差的可能性，因此我们不保证印刷品中所述内容与硬件和软件完全一致。印刷品中的数据都按规定经过检测，必要的修正值包含在下一版本中。

目录

| | | |
|-------|----------------------------|----|
| 1 | 安全提示 | 7 |
| 1.1 | 一般安全说明 | 8 |
| 1.2 | 有关电磁场 (EMF) 的安全说明..... | 11 |
| 1.3 | 操作静电敏感元器件 (ESD) | 11 |
| 1.4 | 驱动系统（电气传动系统）的遗留风险 | 12 |
| 2 | 变频器的结构 | 15 |
| 2.1 | 变频器结构 | 15 |
| 2.2 | 控制单元..... | 16 |
| 2.3 | 功率模块..... | 16 |
| 2.4 | 组装变频器 | 18 |
| 3 | 安装 | 19 |
| 3.1 | 如何安装功率模块 | 19 |
| 3.1.1 | 连接电机和功率模块 | 20 |
| 3.2 | 安装控制单元 | 22 |
| 3.2.1 | 接口一览..... | 22 |
| 3.2.2 | 端子排 | 24 |
| 3.2.3 | 确定合适的接口设置 | 25 |
| 3.2.4 | 端子排的接线 | 30 |
| 3.3 | 安装编码器 | 32 |
| 3.3.1 | 允许的编码器 | 32 |
| 3.3.2 | 编码器模块 | 33 |
| 3.4 | 现场总线的说明文件 | 33 |
| 4 | 调试 | 35 |
| 4.1 | 变频器的调试工具 | 35 |
| 4.2 | 使用 STARTER 开展调试 | 36 |
| 4.2.1 | 创建 STARTER 项目 | 36 |
| 4.2.2 | 将通过 USB 连接的变频器接收到项目中 | 36 |
| 4.2.3 | 配置驱动 | 38 |
| 4.2.4 | 调整编码器数据 | 42 |
| 4.2.5 | 将配置数据载入到驱动中 | 43 |
| 4.2.6 | 电机数据检测 | 43 |
| 5 | 更多信息 | 45 |
| 5.1 | 变频器手册 | 45 |
| 5.2 | 产品支持 | 46 |

本手册旨在向您说明如何安装和调试配备了控制单元 CU250S-2 的变频器 SINAMICS G120。

本手册中的符号有什么含义？



固件升级和降级

关于固件升级和降级的方法和步骤请访问网址

<http://support.automation.siemens.com/WW/news/de/67364620>

(<http://support.automation.siemens.com/WW/news/de/67364620>)。

将开源软件代码的授权条件传送到 PC 上

变频器内包含开源软件（OSS 软件）。 OSS 授权条件保存在变频器中。

步骤



1. 切断变频器的电源。
2. 将空存储卡插入到变频器的卡槽内。另见章节：
 - 变频器的调试工具 (页 35)
 - 接口一览 (页 22)
3. 接通变频器的电源。
4. 电源接通后等待 30 秒。

变频器在该时间内向将文件“Read_OSS.ZIP”写入存储卡。

5. 切断变频器的电源。
6. 从变频器上拔出存储卡。
7. 将文件通过读卡器载入到 PC 中。



现在，您已经将 OSS 授权条件从变频器传送到 PC。

安全提示

规范使用

本手册描述的变频器是一种用于控制三相异步电机或同步电机的设备。本变频器用于安装在电气设备或机械内部。

本变频器允许用于工业电网内的工业和商业场合。在民用电网中使用时，要求采取附加措施。

关于变频器的技术数据以及连接条件的说明请参见铭牌与操作说明。

安全提示

1.1 一般安全说明

1.1 一般安全说明



! 危险

接触带电部件和其他能源供给会引发生命危险

接触带电部件会导致死亡或重伤。

- 只有专业人员才允许在电气设备上作业。
- 在所有作业中必须遵守本国的安全规定。

通常有六项安全步骤:

1. 做好断电的准备工作，并通知会受断电影响的组员。
 2. 断开设备电源。
 - 关闭设备。
 - 请等待至警告牌上说明的放电时间届满。
 - 确认导线与导线之间和导线与接地线之间无电压。
 - 确认辅助电压回路已断电。
 - 确认电机无法运动。
 3. 检查其他所有危险的能源供给，例如：压缩空气、液压、水。
 4. 断开所有危险的能源供给，措施比如有：闭合开关、接地或短接或闭合阀门。
 5. 确定能源供给不会自动接通。
 6. 确保设备已经完全闭锁并选择了正确的设备！
- 结束作业后以相反的顺序恢复设备的就绪状态。



! 警告

连接了不合适的电源所产生的危险电压可引发生命危险

在出现故障时，接触带电部件可能会造成人员重伤，甚至是死亡。

- 所有的连接和端子只允许使用可以提供 SELV(Safety Extra Low Voltage: 安全低压) 或 PELV(Protective Extra Low Voltage: 保护低压) 输出电压的电源。



! 警告

接触损坏设备上的带电压部件可引发生命危险

未按规定操作设备可能会对其造成损坏。

设备损坏后，其外壳或裸露部件可能会带有危险电压。

- 在运输、存放和运行设备时应遵循技术数据中给定的限值。
- 不要使用已损坏的设备。

**! 警告****电缆屏蔽层未接地可引起电击从而导致生命危险**

电缆屏蔽层未接地时，电容超临界耦合可能会出现致命的接触电压。

- 电缆屏蔽层和未使用的功率电缆芯线（如抱闸芯线）至少有一侧通过接地的外壳接地。

**! 警告****未接地可引起电击从而导致生命危险**

防护等级 I 的设备缺少安全接地连接或连接出错时，在其裸露的部件上会留有高压，接触该部件会导致重伤或死亡。

- 按照规定对设备进行接地。

**! 警告****运行时断开插接可引起电击从而导致生命危险**

运行时断开插接所产生的电弧可引起重伤或死亡。

- 如果没有明确说明可以在运行时断开插接，则只能在断电时才能断开连接。

! 警告**外壳大小空间不足可引起火灾从而导致生命危险**

明火和烟雾可引起重大人员伤亡或财产损失。

- 没有保护外壳的设备应安装在金属机柜中（或采取相同效果的措施进行保护），以避免设备内外部接触明火。
- 此外，要选择在发生火灾时能控制住烟雾扩散的安装地点。
- 确保烟雾能经所设通道排出。

! 警告**使用移动无线电装置或移动电话时机器的意外运动可引发生命危险**

在距离本组件大约 2 m 的范围内使用发射功率大于 1 W 的移动无线电设备或移动电话时，会导致设备功能故障，该故障会对设备功能安全产生影响并能导致人员伤亡或财产损失。

- 关闭设备附近的无线电设备或移动电话。

安全提示

1.1 一般安全说明



绝缘过载可引起火灾从而导致生命危险

在 IT 电网中接地会使电机绝缘增加负荷。绝缘失效可产生烟雾，引发火灾，从而造成人身伤害。

- 使用可以报告绝缘故障的监控设备。
- 尽快消除故障，以避免电机绝缘过载。



通风不足会引起过热、引发火灾，从而导致生命危险

通风空间不足会导致过热，产生烟雾，引发火灾，从而造成人身伤害。此外，设备/系统故障率可能会因此升高，使用寿命缩短。

- 组件之间应保持规定的最小间距，以便通风。最小间距参见外形尺寸图或各个章节开头各个产品的特殊安全说明。



缺少警示牌或警示牌不清晰可导致事故

缺少警示牌或或警示牌不清晰可能会导致人员重伤，甚至是死亡。

- 根据文档检查警示牌的完整性。
- 为组件安装警示牌，必要时安装本国语言的警示牌。
- 替换掉不清晰的警示牌。



无效的安全功能可导致生命危险

无效的或不适合的安全功能可引起机器功能故障，可能导致重伤或死亡。

- 调试前请注意相关产品文档中的信息。
- 对整个系统和所有安全相关的组件进行安全监控，以确保安全功能。
- 进行适当设置，以确保所使用的安全功能是与驱动任务和自动化任务相匹配并激活的。
- 执行功能测试。
- 在确保了机器的安全功能能正常工作后，才开始投入生产。

说明

安全功能的重要安全说明

使用安全功能时务必要注意安全手册中的安全说明。

1.2 有关电磁场 (EMF) 的安全说明



⚠ 警告

电磁场可引发生命危险

在电气能源技术设备例如变压器、变频器、电机运行时会产生电磁场 (EMF)。

因此可能会对设备/系统附近的人员，特别是对那些带有心脏起搏器或医疗植入体等器械的人员造成危险。

- 至少应保持 2 米的距离。

1.3 操作静电敏感元器件 (ESD)

静电敏感元器件 (ESD) 是可被静电场或静电放电损坏的元器件、集成电路、电路板或设备。



注意

电场或静电放电可损坏设备

电场或静电放电可能会损坏单个元件、集成电路、模块或设备，从而导致功能故障。

- 仅允许使用原始产品包装或其他合适的包装材料（例如：导电的泡沫橡胶或铝箔）包装、存储、运输和发运电子元件、模块和设备。
- 只有采取了以下接地措施之一，才允许接触元件、模块和设备：
 - 佩戴防静电腕带
 - 在带有导电地板的防静电区域中穿着防静电鞋或配带防静电接地带
- 电子元件、模块或设备只能放置在导电性的垫板上（带防静电垫板的工作台、导电的防静电泡沫材料、防静电包装袋、防静电运输容器）。

1.4 驱动系统（电气传动系统）的遗留风险

1.4 驱动系统（电气传动系统）的遗留风险

驱动系统的控制组件和传动组件允许用于工业电网内的工业和商业场合。在民用电网中使用时，要求采取特殊设计或附加措施。

这种组件只允许在封闭的壳体或控制柜内运行，并且必须安装保护装置和保护盖。

只有经过培训、了解并遵循组件和用户手册上指出的所有安全注意事项的专业技术人员，才可以在组件上开展工作。

机器制造商在依据相应的本地指令（比如：欧盟机械指令）对机器进行风险评估时，必须注意驱动系统的控制组件和驱动组件会产生以下遗留风险：

1. 调试、运行、维护和维修设备时，被驱动的机器部件意外运行，原因可能有：

- 编码器、控制器、执行器和连接器中出现了硬件故障和/或软件故障
- 控制器和驱动器的响应时间
- 运行和/或环境条件不符合规定
- 凝露/导电杂质
- 参数设置、编程、布线和安装出错
- 在控制器附近使用无线电装置/移动电话
- 外部影响/损坏

2. 在出现故障时，变频器内外部出现异常温度、明火以及异常亮光、噪音、杂质、气体等，原因可能有：

- 零件失灵
- 软件故障
- 运行和/或环境条件不符合规定
- 外部影响/损坏

防护方式为“开放式类型/IP20”的设备必须安装在金属机柜中（或采取相同效果的措施进行保护），以避免变频器内外部接触明火。

3. 出现危险的接触电压，原因可能有：

- 零件失灵
- 静电充电感应
- 电机运转时的电压感应
- 运行和/或环境条件不符合规定
- 凝露/导电杂质
- 外部影响/损坏

4. 设备运行中产生的电场、磁场和电磁场可能会损坏近距离的心脏起搏器支架、医疗植入体或其它金属物。

5. 当不按照规定操作以及/或违规处理废弃组件时，会释放破坏环境的物质和辐射。

说明

必须采取措施防止导电异物进入各组件，例如：将组件装入符合 EN 60529 IP54 防护等级或符合 NEMA 12 的控制柜中。

如果安装地点排除了导电异物，则使用较低防护等级的控制柜。

其它有关驱动系统组件产生的遗留风险的信息见用户技术文档的相关章节。

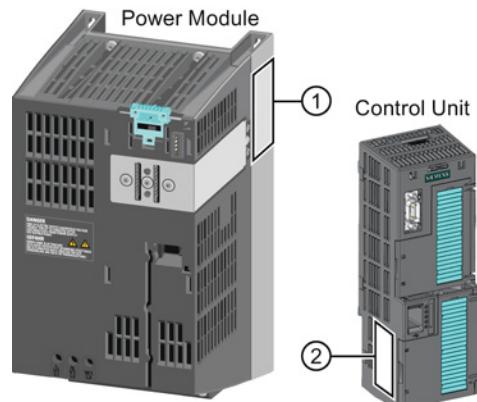
变频器的结构

2.1 变频器结构

变频器的主要组件

每个 SINAMICS G120 变频器都是由一个控制单元（Control Unit，简称 CU）和一个功率模块（Power Module，简称 PM）组成。

- 控制单元可以控制和监测功率模块和与它相连的电机。
- 功率模块适用于功率范围在 0.37 kW 和 250 kW 之间的电机。



可以在功率模块铭牌 (①) 上查阅以下数据:

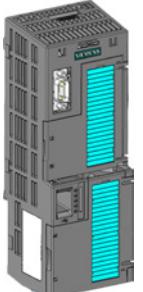
- | | |
|---------|------------------------|
| • 名称: | 例如: 功率模块 240 |
| • 技术数据: | 电压、电流、功率 |
| • 订货号: | 例如: 6SL3224-0BE13-7UA0 |
| • 版本: | 例如: A02 |

可以在控制单元铭牌 (②) 上查阅以下数据:

- | | |
|--------|------------------------|
| • 名称: | 例如: 控制单元 CU250S-2 DP |
| • 订货号: | 例如: 6SL3246-0BA22-1PA0 |
| • 版本: | 例如: 02 (硬件) 4.6 (固件) |

2.2 控制单元

控制单元 CU250S-2 各个型号的区别在于现场总线的类型。

| | 名称 | 订货号 | 现场总线 |
|---|--------------|--------------------|-----------------------------|
|  | CU250S-2 | 6SL3246-0BA22-1BA0 | USS, Modbus RTU |
| | CU250S-2 DP | 6SL3246-0BA22-1PA0 | PROFIBUS DP |
| | CU250S-2 PN | 6SL3246-0BA22-1FA0 | PROFINET IO, EtherNet/IP |
| | CU250S-2 CAN | 6SL3246-0BA22-1CA0 | CANopen |

2.3 功率模块



该控制单元可以和以下功率模块一起运行：

- PM240 (3 AC 400 V, 用于采用电阻制动的标准应用)
- PM240-2 (3 AC 400 V, 用于采用第 2 代电阻制动的标准应用)
 - 防护等级 IP20 并采用穿墙式安装技术 (PT)
- PM340 (1 AC 200 V, 采用电阻制动)
- PM250 (3 AC 400 V, 具有再生反馈功能)
- PM260 (3 AC 690 V, 具有再生反馈功能)

PM340, 1 AC 200 V - 标准应用范围

防护等级为 IP20 的功率模块 PM340 有不带滤波器或带有集成的 A 级电源滤波器两种类型。PM340 通过一个外部制动电阻实现动态制动。

订货号范围：6SL3210-1SB1...

| 结构尺寸 | FSA | FSB | FSC | FSD | FSE | FSF | FSGX |
|-----------|---------------|-----|-----|-----|-----|-----|------|
| 功率范围 (kW) | 0,12 ... 0,75 | -- | -- | -- | -- | -- | -- |

PM240, 3 AC 400 V - 标准应用范围

防护等级为 IP20 的功率模块 PM240 有不带滤波器或带有集成的 A 级电源滤波器两种类型。PM240 通过一个外部制动电阻实现动态制动。

订货号号段: 6SL3224-0BE... 和 6SL3224-0XE...

| 结构尺寸 | FSA | FSB | FSC | FSD | FSE | FSF | FSGX |
|-----------|--------------|-----------|------------|-------------|-----------|------------|-------------|
| 功率范围 (kW) | 0,37 ... 1,5 | 2,2 ... 4 | 7,5 ... 15 | 18,5 ... 30 | 37 ... 45 | 55 ... 132 | 160 ... 250 |

PM240-2, 3 AC 400 V - 第二代标准应用范围

功率模块 PM240-2 有不带滤波器或带有集成的 A 级电源滤波器两种类型。PM240-2 通过一个外部制动模块实现动态制动。

订货号号段:

- IP20 型: 6SL3210-1PE...
- 穿墙式安装型: 6SL3211-1PE...

| 结构尺寸 | FSA | | | | | | |
|------------------|------------|--|--|--|--|--|--|
| 功率范围 (kW), IP20 | 0,55 ... 3 | | | | | | |
| 功率范围 (kW), 穿墙式安装 | 2,2 ... 3 | | | | | | |

PM250, 3 AC 400 V - 带电源反馈的应用范围

防护等级为 IP20 的功率模块 PM250 有不带滤波器或带有集成的 A 级电源滤波器两种类型。PM250 通过将能量反馈给电网实现动态制动。

订货号号段, IP20: 6SL3225-0BE ...

| 结构尺寸 | FSC | FSD | FSE | FSF | | | |
|-----------|------------|-------------|-----------|-----------|--|--|--|
| 功率范围 (kW) | 7.5 ... 15 | 18.5 ... 30 | 37 ... 45 | 55 ... 90 | | | |

PM260, 3 AC 690 V - 带电源反馈的应用范围

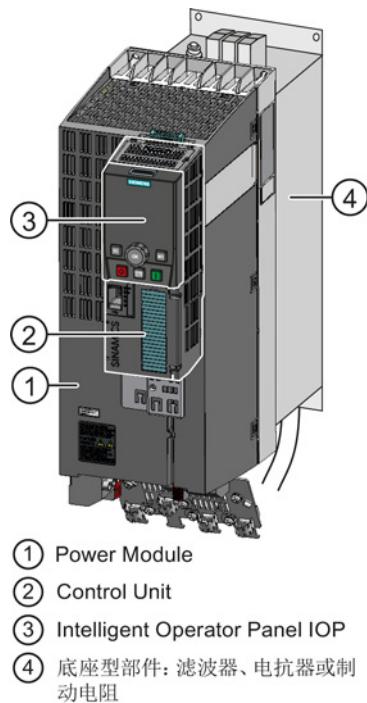
防护等级为 IP20 的功率模块 PM260 有不带滤波器或带有集成的 A 级电源滤波器两种类型。电机侧安装有正弦滤波器。PM260 通过将能量反馈给电网实现动态制动。

订货号号段, IP20: 6SL3225-0BH...

| 结构尺寸 | FSD | FSF | | | | | |
|-----------|-------------|-----------|--|--|--|--|--|
| 功率范围 (kW) | 11 ... 18.5 | 30 ... 55 | | | | | |

2.4 组装变频器

变频器的附件

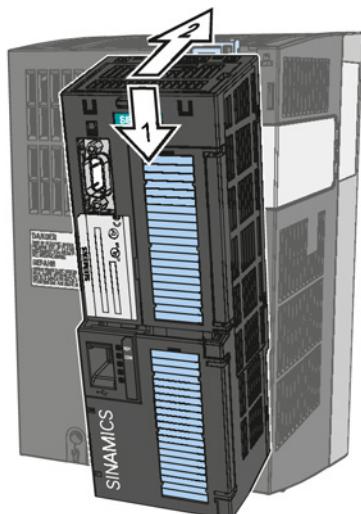


带附件的变频器（示例）

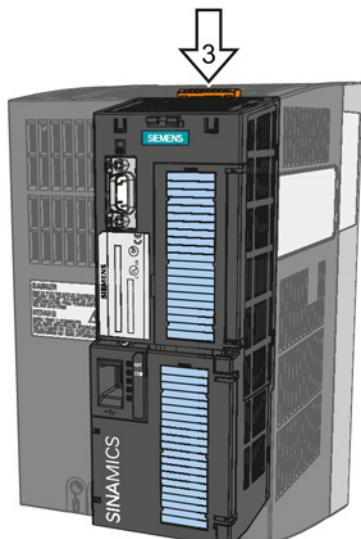
变频器有下列附件：

- 操作面板，用于调试和诊断（基本型操作面板 BOP-2 或智能型操作面板 IOP）。
- 用于执行以下任务的存储卡：
 - 将变频器的设置保存在可更换的介质上。
 - “扩展安全功能”许可和“基本定位器”许可。
- 屏蔽连接套件，可实现电缆屏蔽层的最佳接地。
- 电源滤波器，用于达到更高的抗射频干扰等级。
- 电源电抗器，用于保护处于恶劣工业电网条件中的变频器。
- 输出电抗器，用于保护电机电缆长度大于 50 米（屏蔽）或大于 100 米（未屏蔽）时的变频器。
- 正弦滤波器，用于保护不适用于变频器运行、电缆长度最长达 300 米的电机。
- 制动电阻，用于电机的动态制动。
- 制动继电器，用于控制电机抱闸。

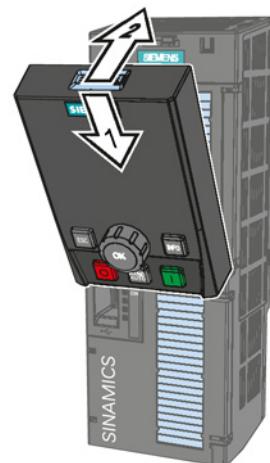
2.4 组装变频器



装入控制单元



取下控制单元



插入操作面板

安装

3.1 如何安装功率模块



警告

外部保护接地线中断所产生的高放电电流可引发电击危险

变频器通过保护接地线传导大于 3.5 mA 的高放电电流。保护接地线断线时接触带电部件可能会导致人员重伤，甚至是死亡。

- 将保护接地线连接到变频器上，该保护接地线至少要满足下列条件：
 - 保护接地线的布线已加以保护，以避免机械损伤。
在控制柜或封闭的设备机壳内布线可以提供充足的保护。
 - 单芯电缆中单根芯线的横截面最小为 10 mm²（铜线）。
 - 多芯电缆中单根芯线的横截面最小为 2.5 mm²（铜线）。
 - 两根平行的保护接地线的横截面相同。
 - 它符合当地关于高放电电流装置的保护接地线规定。

安装

3.1 如何安装功率模块

3.1.1 连接电机和功率模块

将功率模块连接到电机和电源上

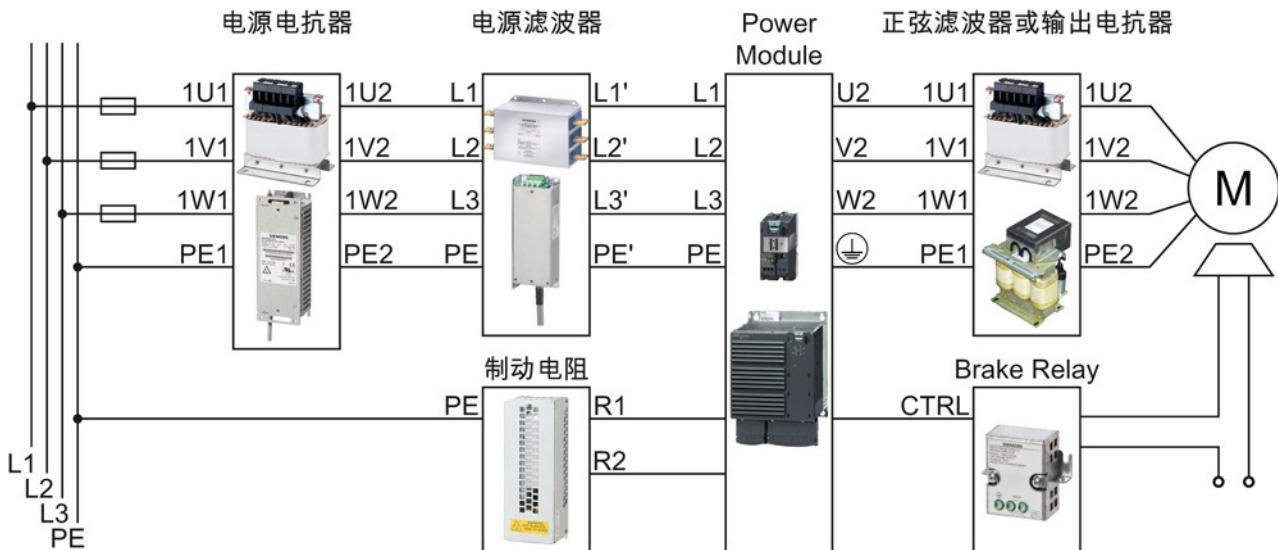


图 3-1 功率模块 PM240 和 PM240-2 3AC 的接线图

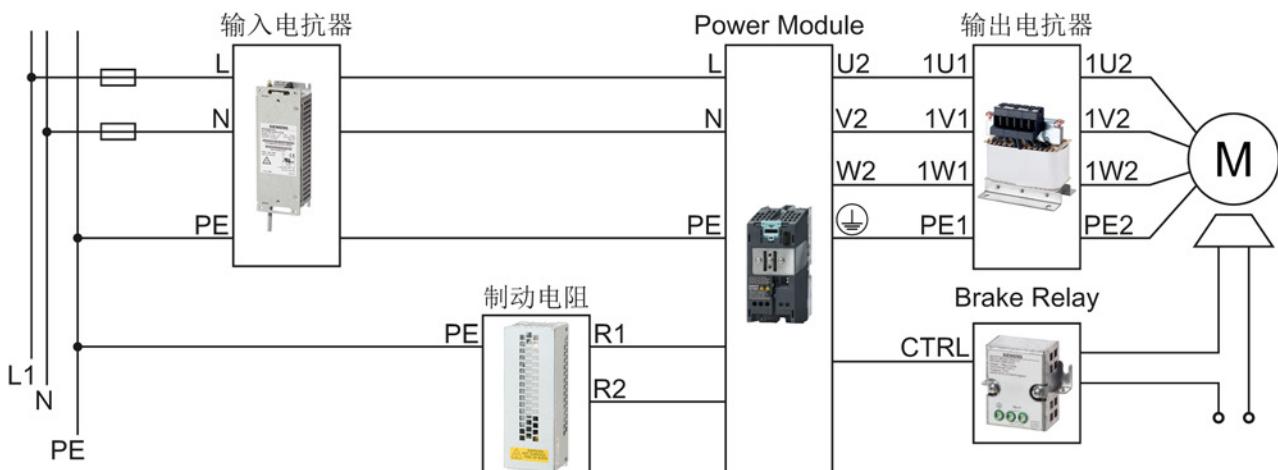


图 3-2 功率模块 PM340 1AC 的接线图

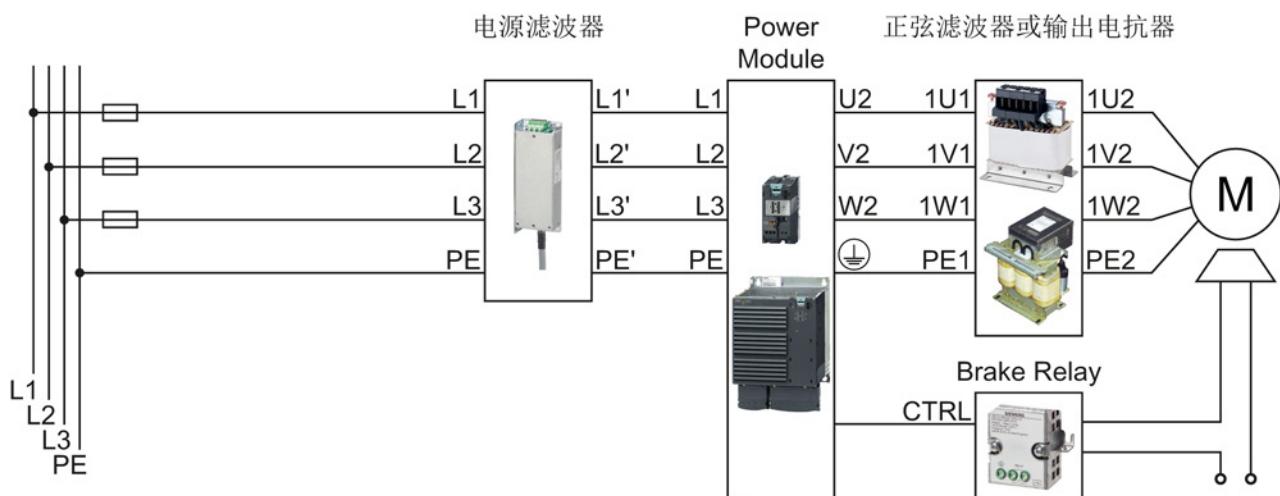


图 3-3 功率模块 PM250 的接线图

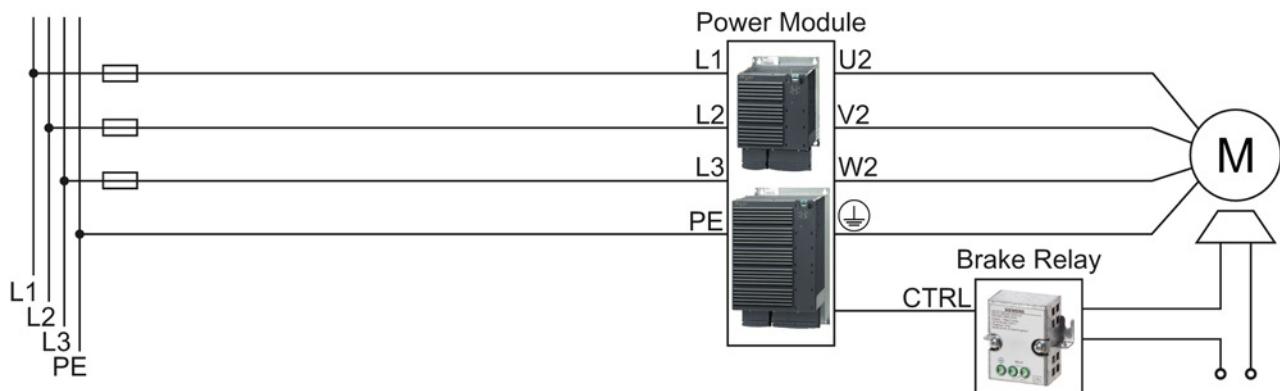


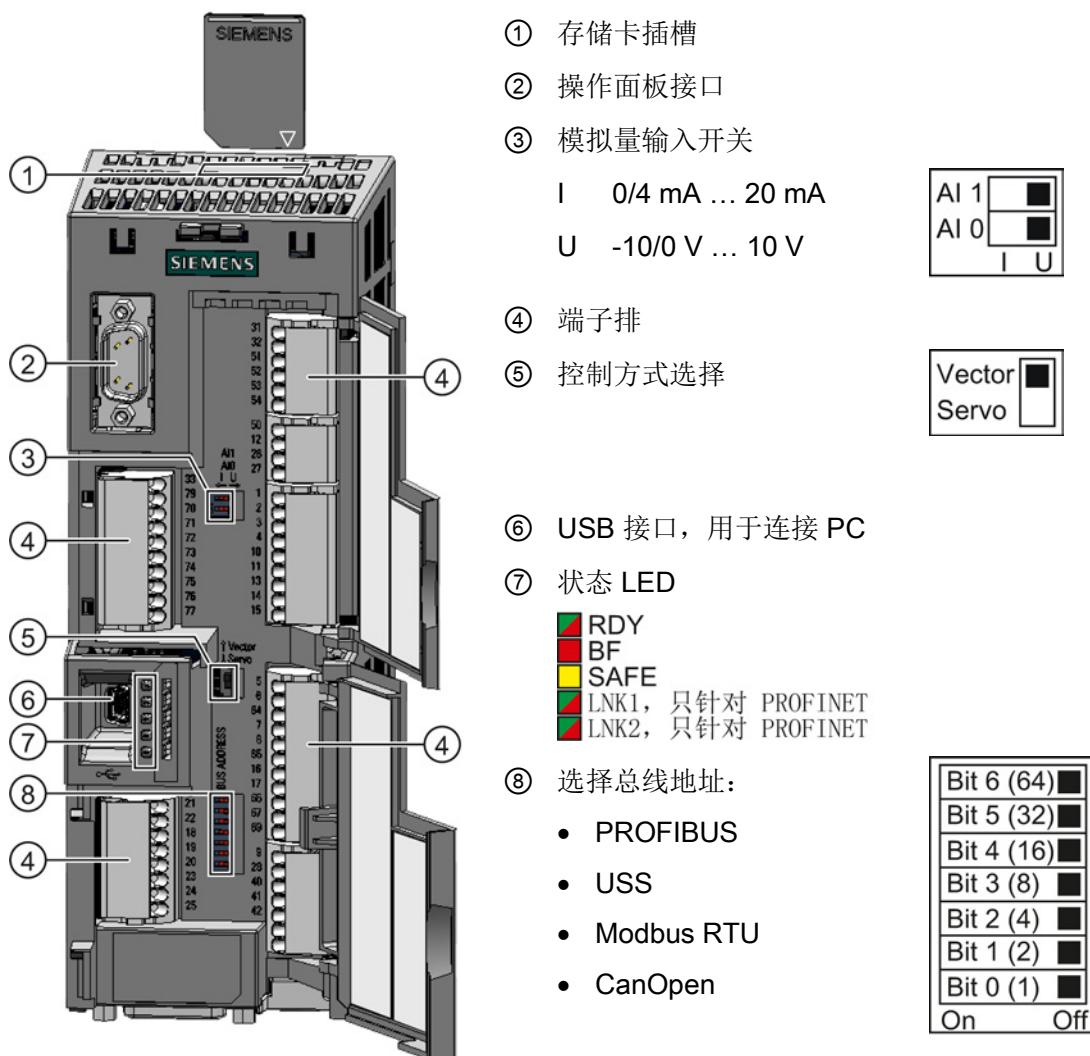
图 3-4 功率模块 PM260 的接线图

3.2 安装控制单元

3.2.1 接口一览

控制单元正面的接口

必须拆下操作面板（如果有）并打开正面门盖才可以操作控制单元正面的接口。



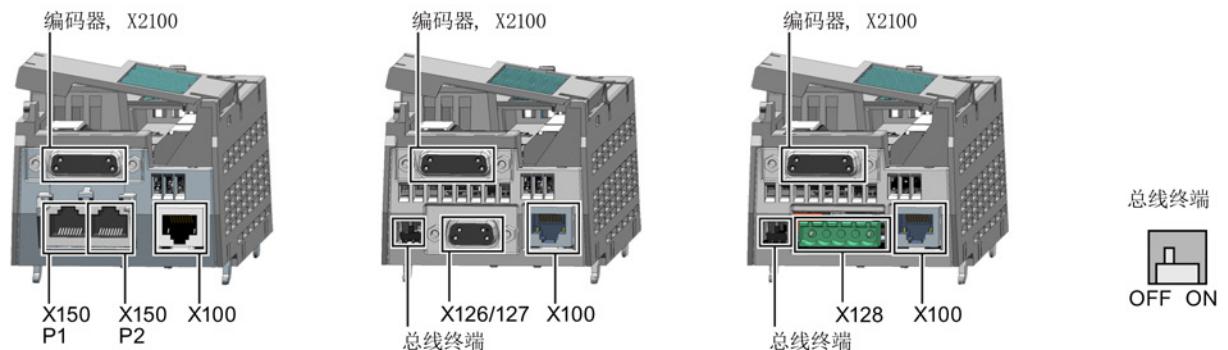
控制单元背面的接口

X2100 编码器

| | | 电机温度, KTY84 或 PTC | HTL | TTL | SSI (RS422 标准) |
|---------------------------|--|----------------------|-----|-----|-------------------|
| 1 正 | | X | --- | --- | --- |
| 2 时钟 + | | --- | --- | --- | X |
| 3 时钟 - | | --- | --- | --- | X |
| 4 电源, 以引脚 7 为基准 | | --- | X | X | X |
| 5 电源, 以引脚 7 为基准 | | --- | X | X | X |
| 6 P_Sense, 电源的 Sense 输入 | | --- | --- | X | --- |
| 7 GND, 引脚 4 和 5 的基准电位 | | --- | X | X | X |
| 8 负 | | X | --- | --- | --- |
| 9 M_Sense, GND 的 Sense 输入 | | --- | --- | X | --- |
| 10 Z+ | | --- | X | X | --- |
| 11 Z- | | --- | X | X | --- |
| 12 B- | | --- | X | X | --- |
| 13 B+ | | --- | X | X | --- |
| 14 A- / 数据 - | | --- | A- | A- | 数据 - |
| 15 A+ / 数据 + | | --- | A+ | A+ | 数据 + |

X100 DRIVE-CLiQ

| | | |
|---------------------------|------|------------|
| 1 ... 8 | X100 | DRIVE-CLiQ |
| 1 发送数据 + | | |
| 2 发送数据 - | | |
| 3 接收数据 + | | |
| 4 --- | | |
| 5 --- | | |
| 6 接收数据 - | | |
| 7 --- | | |
| 8 --- | | |
| A + 24 V 电源, 最大 450 mA | | |
| B M, 电源的基准电位 | | |



X150 P1 X150 P2 PROFINET

| | | |
|--------------|-----------------------------------|---------------------|
| 1 RX+ 接收数据 + | 1 --- | 1 0 V, 基准电位 |
| 2 RX- 接收数据 - | 2 CAN_L CAN 信号(dominant low) | 2 RS485P, 接收和发送 (+) |
| 3 TX+ 发送数据 + | 3 CAN_GND, CAN 接地 | 3 RS485N, 接收和发送 (-) |
| 4 --- | 4 --- | 4 电缆屏蔽 |
| 5 --- | 5 (CAN_SHLD), 可选屏蔽 | 5 --- |
| 6 TX- 发送数据 - | 6 (GND), 可选接地 | |
| 7 --- | 7 CAN_H, CAN 信号(dominant high) | |
| 8 --- | 8 --- | |
| | 9 --- | |

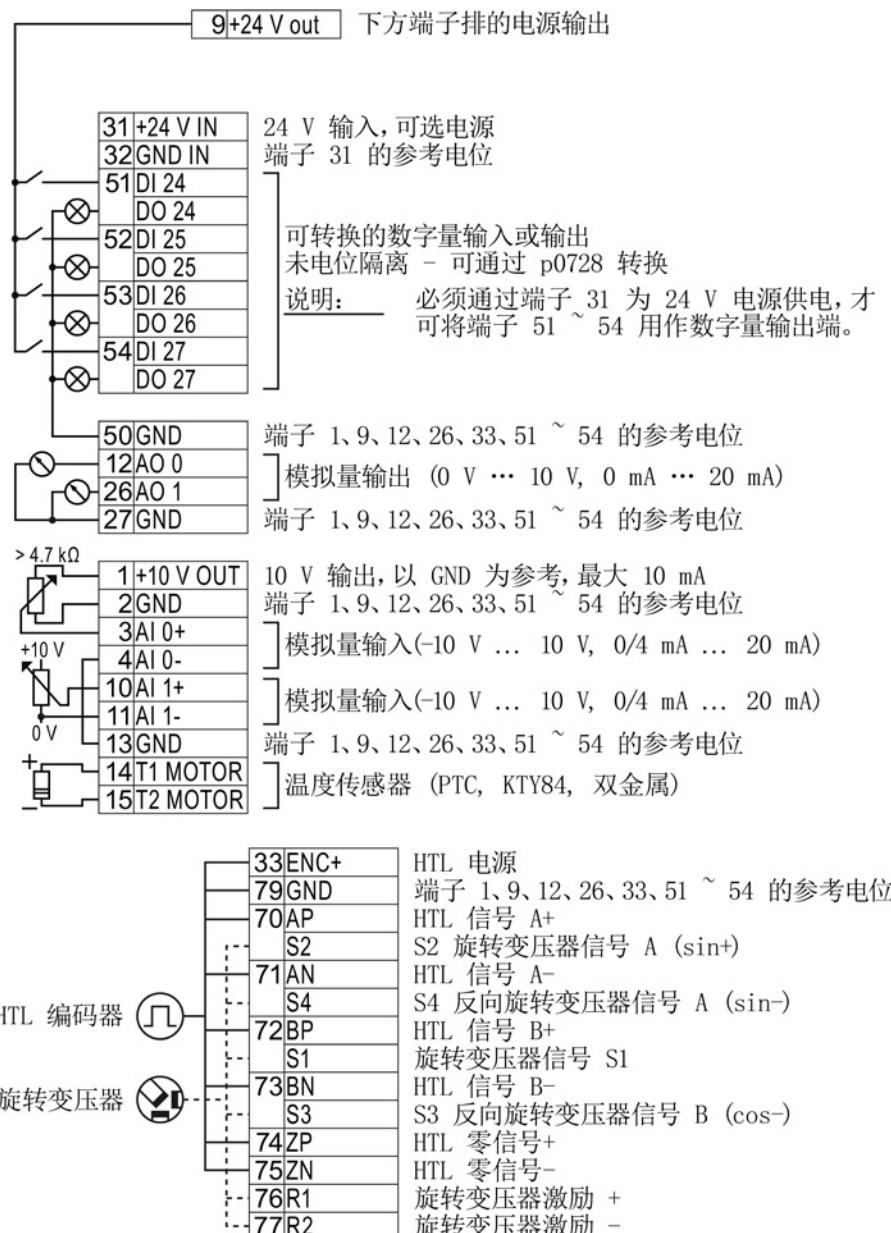
X126 CAN

X127 PROFIBUS

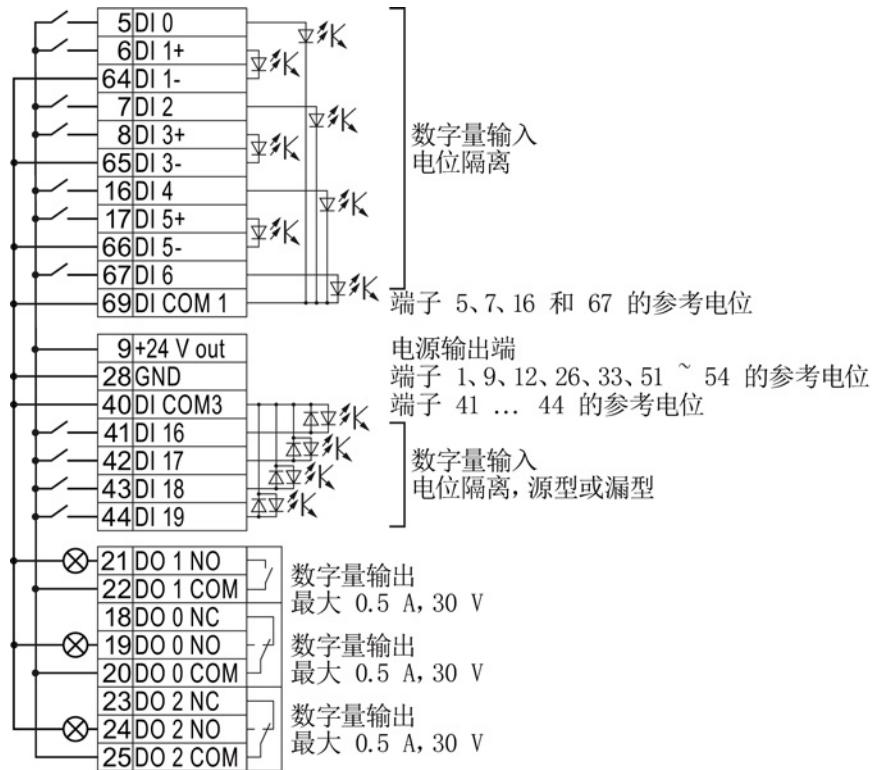
X128 RS485

3.2.2 端子排

顶部正面保护盖后面的端子排



底部正面保护盖后面的端子排



说明

控制单元完全负载时的输出端子上的短路

如果在控制单元完全负载时，输出端子上出现短路，功率模块会关闭控制单元的内部电源。

3.2.3 确定合适的接口设置

在出厂设置中，变频器的输入/输出端和现场总线接口都具备一定的功能。

调试变频器时，可对变频器的每个输入/输出端的功能和现场总线接口的设置进行修改。

变频器提供了不同的预定义（宏）以简化该设置。

下文只介绍输入与输出，其功能随选中的预定义变化。

步骤



按照以下步骤选择变频器的预设：

1. 考虑您的应用需要使用输入/输出端的哪个功能。
2. 找到最适合您应用的输入/输出端配置（宏）。
3. 对合适的宏编号进行标记。

该宏编号必须在调试变频器时设置。



已找到合适的变频器预设。

| 宏指令 1：两个固定转速 | 宏指令 2：两个固定转速，带安全功能 | 宏指令 3：四个固定转速 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|--------------------|--------------|------------|---|------|------------|---|------|----|---|------|-----|----|------|--------|----|------|--------|---|------|-----|---|--|--|----|------|----|----|--|--|----|--|--|----|------|----|----|--|--|----|------|----|----|--|--------------|----|------|----|----|--|--------------|---|---|------|---------|--|--|--------|---|------|--------|---|------|----|---|------|-----|----|------|-----|----|------|------|---|------|-----|---|--|--|----|------|----|----|--|--|----|--|--|----|------|----|----|--|--|----|------|----|----|--|--------------|----|------|----|----|--|--------------|---|---|------|---------|--|--|--------|---|------|--------|---|------|----|---|------|-----|----|------|--------|----|------|--------|---|------|-----|---|--|--|----|------|----|----|--|--|----|--|--|----|------|----|----|--|--|----|------|----|----|--|--------------|----|------|----|----|--|--------------|
| <table border="1"> <tr><td>5</td><td>DI 0</td><td>ON/OFF1/正转</td></tr> <tr><td>6</td><td>DI 1</td><td>ON/OFF1/反转</td></tr> <tr><td>7</td><td>DI 2</td><td>应答</td></tr> <tr><td>8</td><td>DI 3</td><td>---</td></tr> <tr><td>16</td><td>DI 4</td><td>固定转速 3</td></tr> <tr><td>17</td><td>DI 5</td><td>固定转速 4</td></tr> <tr><td>3</td><td>AI 0</td><td>---</td></tr> <tr><td>4</td><td></td><td></td></tr> <tr><td>18</td><td>DO 0</td><td>故障</td></tr> <tr><td>19</td><td></td><td></td></tr> <tr><td>20</td><td></td><td></td></tr> <tr><td>21</td><td>DO 1</td><td>报警</td></tr> <tr><td>22</td><td></td><td></td></tr> <tr><td>12</td><td>AO 0</td><td>转速</td></tr> <tr><td>13</td><td></td><td>0 V ... 10 V</td></tr> <tr><td>26</td><td>AO 1</td><td>电流</td></tr> <tr><td>27</td><td></td><td>0 V ... 10 V</td></tr> </table> <p>DI 4 和 DI 5 为高电平时：变频器将两个固定转速相加。</p> | 5 | DI 0 | ON/OFF1/正转 | 6 | DI 1 | ON/OFF1/反转 | 7 | DI 2 | 应答 | 8 | DI 3 | --- | 16 | DI 4 | 固定转速 3 | 17 | DI 5 | 固定转速 4 | 3 | AI 0 | --- | 4 | | | 18 | DO 0 | 故障 | 19 | | | 20 | | | 21 | DO 1 | 报警 | 22 | | | 12 | AO 0 | 转速 | 13 | | 0 V ... 10 V | 26 | AO 1 | 电流 | 27 | | 0 V ... 10 V | <table border="1"> <tr><td>5</td><td>DI 0</td><td>ON/OFF1</td></tr> <tr><td></td><td></td><td>固定转速 1</td></tr> <tr><td>6</td><td>DI 1</td><td>固定转速 2</td></tr> <tr><td>7</td><td>DI 2</td><td>应答</td></tr> <tr><td>8</td><td>DI 3</td><td>---</td></tr> <tr><td>16</td><td>DI 4</td><td>预留给</td></tr> <tr><td>17</td><td>DI 5</td><td>安全功能</td></tr> <tr><td>3</td><td>AI 0</td><td>---</td></tr> <tr><td>4</td><td></td><td></td></tr> <tr><td>18</td><td>DO 0</td><td>故障</td></tr> <tr><td>19</td><td></td><td></td></tr> <tr><td>20</td><td></td><td></td></tr> <tr><td>21</td><td>DO 1</td><td>报警</td></tr> <tr><td>22</td><td></td><td></td></tr> <tr><td>12</td><td>AO 0</td><td>转速</td></tr> <tr><td>13</td><td></td><td>0 V ... 10 V</td></tr> <tr><td>26</td><td>AO 1</td><td>电流</td></tr> <tr><td>27</td><td></td><td>0 V ... 10 V</td></tr> </table> | 5 | DI 0 | ON/OFF1 | | | 固定转速 1 | 6 | DI 1 | 固定转速 2 | 7 | DI 2 | 应答 | 8 | DI 3 | --- | 16 | DI 4 | 预留给 | 17 | DI 5 | 安全功能 | 3 | AI 0 | --- | 4 | | | 18 | DO 0 | 故障 | 19 | | | 20 | | | 21 | DO 1 | 报警 | 22 | | | 12 | AO 0 | 转速 | 13 | | 0 V ... 10 V | 26 | AO 1 | 电流 | 27 | | 0 V ... 10 V | <table border="1"> <tr><td>5</td><td>DI 0</td><td>ON/OFF1</td></tr> <tr><td></td><td></td><td>固定转速 1</td></tr> <tr><td>6</td><td>DI 1</td><td>固定转速 2</td></tr> <tr><td>7</td><td>DI 2</td><td>应答</td></tr> <tr><td>8</td><td>DI 3</td><td>---</td></tr> <tr><td>16</td><td>DI 4</td><td>固定转速 3</td></tr> <tr><td>17</td><td>DI 5</td><td>固定转速 4</td></tr> <tr><td>3</td><td>AI 0</td><td>---</td></tr> <tr><td>4</td><td></td><td></td></tr> <tr><td>18</td><td>DO 0</td><td>故障</td></tr> <tr><td>19</td><td></td><td></td></tr> <tr><td>20</td><td></td><td></td></tr> <tr><td>21</td><td>DO 1</td><td>报警</td></tr> <tr><td>22</td><td></td><td></td></tr> <tr><td>12</td><td>AO 0</td><td>转速</td></tr> <tr><td>13</td><td></td><td>0 V ... 10 V</td></tr> <tr><td>26</td><td>AO 1</td><td>电流</td></tr> <tr><td>27</td><td></td><td>0 V ... 10 V</td></tr> </table> <p>多个 DI 同时为高电平时，变频器将各个固定转速相加。</p> | 5 | DI 0 | ON/OFF1 | | | 固定转速 1 | 6 | DI 1 | 固定转速 2 | 7 | DI 2 | 应答 | 8 | DI 3 | --- | 16 | DI 4 | 固定转速 3 | 17 | DI 5 | 固定转速 4 | 3 | AI 0 | --- | 4 | | | 18 | DO 0 | 故障 | 19 | | | 20 | | | 21 | DO 1 | 报警 | 22 | | | 12 | AO 0 | 转速 | 13 | | 0 V ... 10 V | 26 | AO 1 | 电流 | 27 | | 0 V ... 10 V |
| 5 | DI 0 | ON/OFF1/正转 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | DI 1 | ON/OFF1/反转 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | DI 2 | 应答 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | DI 3 | --- | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 16 | DI 4 | 固定转速 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 17 | DI 5 | 固定转速 4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | AI 0 | --- | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 18 | DO 0 | 故障 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 19 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 20 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 21 | DO 1 | 报警 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 22 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | AO 0 | 转速 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13 | | 0 V ... 10 V | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 26 | AO 1 | 电流 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 27 | | 0 V ... 10 V | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | DI 0 | ON/OFF1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 固定转速 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | DI 1 | 固定转速 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | DI 2 | 应答 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | DI 3 | --- | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 16 | DI 4 | 预留给 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 17 | DI 5 | 安全功能 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | AI 0 | --- | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 18 | DO 0 | 故障 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 19 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 20 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 21 | DO 1 | 报警 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 22 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | AO 0 | 转速 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13 | | 0 V ... 10 V | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 26 | AO 1 | 电流 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 27 | | 0 V ... 10 V | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | DI 0 | ON/OFF1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 固定转速 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | DI 1 | 固定转速 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | DI 2 | 应答 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | DI 3 | --- | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 16 | DI 4 | 固定转速 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 17 | DI 5 | 固定转速 4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | AI 0 | --- | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 18 | DO 0 | 故障 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 19 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 20 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 21 | DO 1 | 报警 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 22 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | AO 0 | 转速 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13 | | 0 V ... 10 V | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 26 | AO 1 | 电流 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 27 | | 0 V ... 10 V | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| 宏指令 4: PROFIBUS 或 PROFINET | 宏指令 5: PROFIBUS 或 PROFINET, 带安全功能 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| PROFIdrive 报文 352 <table border="1"> <tr><td>5</td><td>DI 0</td><td>---</td></tr> <tr><td>6</td><td>DI 1</td><td>---</td></tr> <tr><td>7</td><td>DI 2</td><td>应答</td></tr> <tr><td>8</td><td>DI 3</td><td>---</td></tr> <tr><td>16</td><td>DI 4</td><td>---</td></tr> <tr><td>17</td><td>DI 5</td><td>---</td></tr> <tr><td>3</td><td>AI 0</td><td>---</td></tr> <tr><td>4</td><td></td><td></td></tr> <tr><td>18</td><td>DO 0</td><td>故障</td></tr> <tr><td>19</td><td></td><td></td></tr> <tr><td>20</td><td></td><td></td></tr> <tr><td>21</td><td>DO 1</td><td>报警</td></tr> <tr><td>22</td><td></td><td></td></tr> <tr><td>12</td><td>AO 0</td><td>转速</td></tr> <tr><td>13</td><td></td><td>0 V ... 10 V</td></tr> <tr><td>26</td><td>AO 1</td><td>电流</td></tr> <tr><td>27</td><td></td><td>0 V ... 10 V</td></tr> </table> | 5 | DI 0 | --- | 6 | DI 1 | --- | 7 | DI 2 | 应答 | 8 | DI 3 | --- | 16 | DI 4 | --- | 17 | DI 5 | --- | 3 | AI 0 | --- | 4 | | | 18 | DO 0 | 故障 | 19 | | | 20 | | | 21 | DO 1 | 报警 | 22 | | | 12 | AO 0 | 转速 | 13 | | 0 V ... 10 V | 26 | AO 1 | 电流 | 27 | | 0 V ... 10 V | PROFIdrive 报文 1 <table border="1"> <tr><td>5</td><td>DI 0</td><td>---</td></tr> <tr><td>6</td><td>DI 1</td><td>---</td></tr> <tr><td>7</td><td>DI 2</td><td>应答</td></tr> <tr><td>8</td><td>DI 3</td><td>---</td></tr> <tr><td>16</td><td>DI 4</td><td>预留给</td></tr> <tr><td>17</td><td>DI 5</td><td>安全功能</td></tr> <tr><td>3</td><td>AI 0</td><td>---</td></tr> <tr><td>4</td><td></td><td></td></tr> <tr><td>18</td><td>DO 0</td><td>故障</td></tr> <tr><td>19</td><td></td><td></td></tr> <tr><td>20</td><td></td><td></td></tr> <tr><td>21</td><td>DO 1</td><td>报警</td></tr> <tr><td>22</td><td></td><td></td></tr> <tr><td>12</td><td>AO 0</td><td>转速</td></tr> <tr><td>13</td><td></td><td>0 V ... 10 V</td></tr> <tr><td>26</td><td>AO 1</td><td>电流</td></tr> <tr><td>27</td><td></td><td>0 V ... 10 V</td></tr> </table> | 5 | DI 0 | --- | 6 | DI 1 | --- | 7 | DI 2 | 应答 | 8 | DI 3 | --- | 16 | DI 4 | 预留给 | 17 | DI 5 | 安全功能 | 3 | AI 0 | --- | 4 | | | 18 | DO 0 | 故障 | 19 | | | 20 | | | 21 | DO 1 | 报警 | 22 | | | 12 | AO 0 | 转速 | 13 | | 0 V ... 10 V | 26 | AO 1 | 电流 | 27 | | 0 V ... 10 V | |
| 5 | DI 0 | --- | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | DI 1 | --- | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | DI 2 | 应答 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | DI 3 | --- | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 16 | DI 4 | --- | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 17 | DI 5 | --- | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | AI 0 | --- | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| 18 | DO 0 | 故障 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 19 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 20 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 21 | DO 1 | 报警 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 22 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | AO 0 | 转速 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13 | | 0 V ... 10 V | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 26 | AO 1 | 电流 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 27 | | 0 V ... 10 V | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | DI 0 | --- | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | DI 1 | --- | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | DI 2 | 应答 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | DI 3 | --- | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 16 | DI 4 | 预留给 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 17 | DI 5 | 安全功能 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | AI 0 | --- | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 18 | DO 0 | 故障 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 19 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 20 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 21 | DO 1 | 报警 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 22 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | AO 0 | 转速 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13 | | 0 V ... 10 V | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 26 | AO 1 | 电流 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 27 | | 0 V ... 10 V | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| 宏指令 7: 通过 DI 3 在现场总线和 JOG 之间切换 带 PROFIBUS 或 PROFINET 接口的变频器的出厂设置 | 宏指令 8: 电动电位器 (MOP), 带安全功能 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|------------------------------|--------------|-----|---|------|-----|---|------|----|---|------|-----|----|------|-----|----|------|-----|---|------|-----|---|--|--|----|------|----|----|--|--|----|--|--|----|------|----|----|--|--|----|------|----|----|--|--------------|----|------|----|----|--|--------------|---|---|------|---------|---|------|--------|---|------|--------|---|------|----|----|------|-----|----|------|------|---|------|-----|---|--|--|----|------|----|----|--|--|----|--|--|----|------|----|----|--|--|----|------|----|----|--|--------------|----|------|----|----|--|--------------|
| PROFIdrive 报文 1 <table border="1"> <tr><td>5</td><td>DI 0</td><td>---</td></tr> <tr><td>6</td><td>DI 1</td><td>---</td></tr> <tr><td>7</td><td>DI 2</td><td>应答</td></tr> <tr><td>8</td><td>DI 3</td><td>LOW</td></tr> <tr><td>16</td><td>DI 4</td><td>---</td></tr> <tr><td>17</td><td>DI 5</td><td>---</td></tr> <tr><td>3</td><td>AI 0</td><td>---</td></tr> <tr><td>4</td><td></td><td></td></tr> <tr><td>18</td><td>DO 0</td><td>故障</td></tr> <tr><td>19</td><td></td><td></td></tr> <tr><td>20</td><td></td><td></td></tr> <tr><td>21</td><td>DO 1</td><td>报警</td></tr> <tr><td>22</td><td></td><td></td></tr> <tr><td>12</td><td>AO 0</td><td>转速</td></tr> <tr><td>13</td><td></td><td>0 V ... 10 V</td></tr> <tr><td>26</td><td>AO 1</td><td>电流</td></tr> <tr><td>27</td><td></td><td>0 V ... 10 V</td></tr> </table> | 5 | DI 0 | --- | 6 | DI 1 | --- | 7 | DI 2 | 应答 | 8 | DI 3 | LOW | 16 | DI 4 | --- | 17 | DI 5 | --- | 3 | AI 0 | --- | 4 | | | 18 | DO 0 | 故障 | 19 | | | 20 | | | 21 | DO 1 | 报警 | 22 | | | 12 | AO 0 | 转速 | 13 | | 0 V ... 10 V | 26 | AO 1 | 电流 | 27 | | 0 V ... 10 V | <table border="1"> <tr><td>5</td><td>DI 0</td><td>ON/OFF1</td></tr> <tr><td>6</td><td>DI 1</td><td>MOP 升高</td></tr> <tr><td>7</td><td>DI 2</td><td>MOP 降低</td></tr> <tr><td>8</td><td>DI 3</td><td>应答</td></tr> <tr><td>16</td><td>DI 4</td><td>预留给</td></tr> <tr><td>17</td><td>DI 5</td><td>安全功能</td></tr> <tr><td>3</td><td>AI 0</td><td>---</td></tr> <tr><td>4</td><td></td><td></td></tr> <tr><td>18</td><td>DO 0</td><td>故障</td></tr> <tr><td>19</td><td></td><td></td></tr> <tr><td>20</td><td></td><td></td></tr> <tr><td>21</td><td>DO 1</td><td>报警</td></tr> <tr><td>22</td><td></td><td></td></tr> <tr><td>12</td><td>AO 0</td><td>转速</td></tr> <tr><td>13</td><td></td><td>0 V ... 10 V</td></tr> <tr><td>26</td><td>AO 1</td><td>电流</td></tr> <tr><td>27</td><td></td><td>0 V ... 10 V</td></tr> </table> | 5 | DI 0 | ON/OFF1 | 6 | DI 1 | MOP 升高 | 7 | DI 2 | MOP 降低 | 8 | DI 3 | 应答 | 16 | DI 4 | 预留给 | 17 | DI 5 | 安全功能 | 3 | AI 0 | --- | 4 | | | 18 | DO 0 | 故障 | 19 | | | 20 | | | 21 | DO 1 | 报警 | 22 | | | 12 | AO 0 | 转速 | 13 | | 0 V ... 10 V | 26 | AO 1 | 电流 | 27 | | 0 V ... 10 V |
| 5 | DI 0 | --- | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | DI 1 | --- | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | DI 2 | 应答 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | DI 3 | LOW | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 16 | DI 4 | --- | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 17 | DI 5 | --- | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | AI 0 | --- | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| 18 | DO 0 | 故障 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| 21 | DO 1 | 报警 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| 12 | AO 0 | 转速 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13 | | 0 V ... 10 V | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 26 | AO 1 | 电流 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 27 | | 0 V ... 10 V | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | DI 0 | ON/OFF1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | DI 1 | MOP 升高 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | DI 2 | MOP 降低 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | DI 3 | 应答 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 16 | DI 4 | 预留给 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 17 | DI 5 | 安全功能 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | AI 0 | --- | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| 18 | DO 0 | 故障 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| 21 | DO 1 | 报警 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| 12 | AO 0 | 转速 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13 | | 0 V ... 10 V | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 26 | AO 1 | 电流 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 27 | | 0 V ... 10 V | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

3.2 安装控制单元

| 宏指令 9: 电动电位器 (MOP) | 宏指令 12: 双线制控制, 方法 1 不带 PROFIBUS 或 PROFINET 接口的变频器的出厂设置。 | 宏指令 13: 通过模拟量输入给定 设定值, 带安全功能 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| <table border="1"> <tr><td>5 DI 0</td><td>ON/OFF1</td></tr> <tr><td>6 DI 1</td><td>MOP 升高</td></tr> <tr><td>7 DI 2</td><td>MOP 降低</td></tr> <tr><td>8 DI 3</td><td>应答</td></tr> <tr><td>16 DI 4</td><td>---</td></tr> <tr><td>17 DI 5</td><td>---</td></tr> <tr><td>3 AI 0</td><td>---</td></tr> <tr><td>4</td><td></td></tr> <tr><td>18 DO 0</td><td>故障</td></tr> <tr><td>19</td><td></td></tr> <tr><td>20</td><td></td></tr> <tr><td>21 DO 1</td><td>报警</td></tr> <tr><td>22</td><td></td></tr> <tr><td>12 AO 0</td><td>转速</td></tr> <tr><td>13</td><td>0 V ... 10 V</td></tr> <tr><td>26 AO 1</td><td>电流</td></tr> <tr><td>27</td><td>0 V ... 10 V</td></tr> </table> | 5 DI 0 | ON/OFF1 | 6 DI 1 | MOP 升高 | 7 DI 2 | MOP 降低 | 8 DI 3 | 应答 | 16 DI 4 | --- | 17 DI 5 | --- | 3 AI 0 | --- | 4 | | 18 DO 0 | 故障 | 19 | | 20 | | 21 DO 1 | 报警 | 22 | | 12 AO 0 | 转速 | 13 | 0 V ... 10 V | 26 AO 1 | 电流 | 27 | 0 V ... 10 V | <table border="1"> <tr><td>5 DI 0</td><td>ON/OFF1</td></tr> <tr><td>6 DI 1</td><td>换向</td></tr> <tr><td>7 DI 2</td><td>应答</td></tr> <tr><td>8 DI 3</td><td>---</td></tr> <tr><td>16 DI 4</td><td>---</td></tr> <tr><td>17 DI 5</td><td>---</td></tr> <tr><td>3 AI 0</td><td>设定值</td></tr> <tr><td>4</td><td>I □ U -10 V ... 10 V</td></tr> <tr><td>18 DO 0</td><td>故障</td></tr> <tr><td>19</td><td></td></tr> <tr><td>20</td><td></td></tr> <tr><td>21 DO 1</td><td>报警</td></tr> <tr><td>22</td><td></td></tr> <tr><td>12 AO 0</td><td>转速</td></tr> <tr><td>13</td><td>0 V ... 10 V</td></tr> <tr><td>26 AO 1</td><td>电流</td></tr> <tr><td>27</td><td>0 V ... 10 V</td></tr> </table> | 5 DI 0 | ON/OFF1 | 6 DI 1 | 换向 | 7 DI 2 | 应答 | 8 DI 3 | --- | 16 DI 4 | --- | 17 DI 5 | --- | 3 AI 0 | 设定值 | 4 | I □ U -10 V ... 10 V | 18 DO 0 | 故障 | 19 | | 20 | | 21 DO 1 | 报警 | 22 | | 12 AO 0 | 转速 | 13 | 0 V ... 10 V | 26 AO 1 | 电流 | 27 | 0 V ... 10 V | <table border="1"> <tr><td>5 DI 0</td><td>ON/OFF1</td></tr> <tr><td>6 DI 1</td><td>换向</td></tr> <tr><td>7 DI 2</td><td>应答</td></tr> <tr><td>8 DI 3</td><td>---</td></tr> <tr><td>16 DI 4</td><td>预留给 安全功能</td></tr> <tr><td>17 DI 5</td><td>安全功能</td></tr> <tr><td>3 AI 0</td><td>设定值</td></tr> <tr><td>4</td><td>I □ U -10 V ... 10 V</td></tr> <tr><td>18 DO 0</td><td>故障</td></tr> <tr><td>19</td><td></td></tr> <tr><td>20</td><td></td></tr> <tr><td>21 DO 1</td><td>报警</td></tr> <tr><td>22</td><td></td></tr> <tr><td>12 AO 0</td><td>转速</td></tr> <tr><td>13</td><td>0 V ... 10 V</td></tr> <tr><td>26 AO 1</td><td>电流</td></tr> <tr><td>27</td><td>0 V ... 10 V</td></tr> </table> | 5 DI 0 | ON/OFF1 | 6 DI 1 | 换向 | 7 DI 2 | 应答 | 8 DI 3 | --- | 16 DI 4 | 预留给 安全功能 | 17 DI 5 | 安全功能 | 3 AI 0 | 设定值 | 4 | I □ U -10 V ... 10 V | 18 DO 0 | 故障 | 19 | | 20 | | 21 DO 1 | 报警 | 22 | | 12 AO 0 | 转速 | 13 | 0 V ... 10 V | 26 AO 1 | 电流 | 27 | 0 V ... 10 V |
| 5 DI 0 | ON/OFF1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 DI 1 | MOP 升高 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 DI 2 | MOP 降低 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 DI 3 | 应答 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 16 DI 4 | --- | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 17 DI 5 | --- | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 AI 0 | --- | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| 18 DO 0 | 故障 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| 21 DO 1 | 报警 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| 12 AO 0 | 转速 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13 | 0 V ... 10 V | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 26 AO 1 | 电流 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 27 | 0 V ... 10 V | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 DI 0 | ON/OFF1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 DI 1 | 换向 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 DI 2 | 应答 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 DI 3 | --- | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 16 DI 4 | --- | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 17 DI 5 | --- | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 AI 0 | 设定值 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | I □ U -10 V ... 10 V | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 18 DO 0 | 故障 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| 21 DO 1 | 报警 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| 12 AO 0 | 转速 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13 | 0 V ... 10 V | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 26 AO 1 | 电流 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 27 | 0 V ... 10 V | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 DI 0 | ON/OFF1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 DI 1 | 换向 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 DI 2 | 应答 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 DI 3 | --- | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 16 DI 4 | 预留给 安全功能 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 17 DI 5 | 安全功能 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 AI 0 | 设定值 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | I □ U -10 V ... 10 V | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 18 DO 0 | 故障 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| 21 DO 1 | 报警 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 22 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 AO 0 | 转速 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13 | 0 V ... 10 V | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 26 AO 1 | 电流 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 27 | 0 V ... 10 V | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| 宏指令 14: 通过 DI 3 在现场总线和电动电位器 (MOP) 之间切换 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| <table border="1"> <tr><td colspan="2">PROFIdrive 报文 1</td></tr> <tr><td>5 DI 0</td><td>---</td></tr> <tr><td>6 DI 1</td><td>外部故障</td></tr> <tr><td>7 DI 2</td><td>应答</td></tr> <tr><td>8 DI 3</td><td>LOW</td></tr> <tr><td>16 DI 4</td><td>---</td></tr> <tr><td>17 DI 5</td><td>---</td></tr> <tr><td>3 AI 0</td><td>---</td></tr> <tr><td>4</td><td></td></tr> <tr><td>18 DO 0</td><td>故障</td></tr> <tr><td>19</td><td></td></tr> <tr><td>20</td><td></td></tr> <tr><td>21 DO 1</td><td>报警</td></tr> <tr><td>22</td><td></td></tr> <tr><td>12 AO 0</td><td>转速</td></tr> <tr><td>13</td><td>0 V ... 10 V</td></tr> <tr><td>26 AO 1</td><td>电流</td></tr> <tr><td>27</td><td>0 V ... 10 V</td></tr> </table> | PROFIdrive 报文 1 | | 5 DI 0 | --- | 6 DI 1 | 外部故障 | 7 DI 2 | 应答 | 8 DI 3 | LOW | 16 DI 4 | --- | 17 DI 5 | --- | 3 AI 0 | --- | 4 | | 18 DO 0 | 故障 | 19 | | 20 | | 21 DO 1 | 报警 | 22 | | 12 AO 0 | 转速 | 13 | 0 V ... 10 V | 26 AO 1 | 电流 | 27 | 0 V ... 10 V | <table border="1"> <tr><td>5 DI 0</td><td>ON/OFF1</td></tr> <tr><td>6 DI 1</td><td>外部故障</td></tr> <tr><td>7 DI 2</td><td>应答</td></tr> <tr><td>8 DI 3</td><td>HIGH</td></tr> <tr><td>16 DI 4</td><td>MOP 升高</td></tr> <tr><td>17 DI 5</td><td>MOP 降低</td></tr> <tr><td>3 AI 0</td><td>---</td></tr> <tr><td>4</td><td></td></tr> <tr><td>18 DO 0</td><td>故障</td></tr> <tr><td>19</td><td></td></tr> <tr><td>20</td><td></td></tr> <tr><td>21 DO 1</td><td>报警</td></tr> <tr><td>22</td><td></td></tr> <tr><td>12 AO 0</td><td>转速</td></tr> <tr><td>13</td><td>0 V ... 10 V</td></tr> <tr><td>26 AO 1</td><td>电流</td></tr> <tr><td>27</td><td>0 V ... 10 V</td></tr> </table> | 5 DI 0 | ON/OFF1 | 6 DI 1 | 外部故障 | 7 DI 2 | 应答 | 8 DI 3 | HIGH | 16 DI 4 | MOP 升高 | 17 DI 5 | MOP 降低 | 3 AI 0 | --- | 4 | | 18 DO 0 | 故障 | 19 | | 20 | | 21 DO 1 | 报警 | 22 | | 12 AO 0 | 转速 | 13 | 0 V ... 10 V | 26 AO 1 | 电流 | 27 | 0 V ... 10 V | |
| PROFIdrive 报文 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 DI 0 | --- | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 DI 1 | 外部故障 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 DI 2 | 应答 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 DI 3 | LOW | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 16 DI 4 | --- | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 17 DI 5 | --- | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 AI 0 | --- | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| 18 DO 0 | 故障 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| 21 DO 1 | 报警 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 22 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 AO 0 | 转速 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13 | 0 V ... 10 V | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 26 AO 1 | 电流 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 27 | 0 V ... 10 V | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 DI 0 | ON/OFF1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 DI 1 | 外部故障 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 DI 2 | 应答 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 DI 3 | HIGH | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 16 DI 4 | MOP 升高 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 17 DI 5 | MOP 降低 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 AI 0 | --- | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| 18 DO 0 | 故障 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| 21 DO 1 | 报警 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 22 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 AO 0 | 转速 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13 | 0 V ... 10 V | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 26 AO 1 | 电流 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 27 | 0 V ... 10 V | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| 宏指令 15: 通过 DI 3 在模拟设定值和电动电位器 (MOP) 之间切换 | | 宏指令 17: 双线制控制, 方法 2 宏指令 18: 双线制控制, 方法 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| <table border="1"> <tr><td>5 DI 0</td><td>ON/OFF1</td></tr> <tr><td>6 DI 1</td><td>外部故障</td></tr> <tr><td>7 DI 2</td><td>应答</td></tr> <tr><td>8 DI 3</td><td>LOW</td></tr> <tr><td>16 DI 4</td><td>---</td></tr> <tr><td>17 DI 5</td><td>---</td></tr> <tr><td>3 AI 0</td><td>设定值</td></tr> <tr><td>4</td><td>I □ U -10 V ... 10 V</td></tr> <tr><td>18 DO 0</td><td>故障</td></tr> <tr><td>19</td><td></td></tr> <tr><td>20</td><td></td></tr> <tr><td>21 DO 1</td><td>报警</td></tr> <tr><td>22</td><td></td></tr> <tr><td>12 AO 0</td><td>转速</td></tr> <tr><td>13</td><td>0 V ... 10 V</td></tr> <tr><td>26 AO 1</td><td>电流</td></tr> <tr><td>27</td><td>0 V ... 10 V</td></tr> </table> | 5 DI 0 | ON/OFF1 | 6 DI 1 | 外部故障 | 7 DI 2 | 应答 | 8 DI 3 | LOW | 16 DI 4 | --- | 17 DI 5 | --- | 3 AI 0 | 设定值 | 4 | I □ U -10 V ... 10 V | 18 DO 0 | 故障 | 19 | | 20 | | 21 DO 1 | 报警 | 22 | | 12 AO 0 | 转速 | 13 | 0 V ... 10 V | 26 AO 1 | 电流 | 27 | 0 V ... 10 V | <table border="1"> <tr><td>5 DI 0</td><td>ON/OFF1</td></tr> <tr><td>6 DI 1</td><td>外部故障</td></tr> <tr><td>7 DI 2</td><td>应答</td></tr> <tr><td>8 DI 3</td><td>HIGH</td></tr> <tr><td>16 DI 4</td><td>MOP 升高</td></tr> <tr><td>17 DI 5</td><td>MOP 降低</td></tr> <tr><td>3 AI 0</td><td>---</td></tr> <tr><td>4</td><td></td></tr> <tr><td>18 DO 0</td><td>故障</td></tr> <tr><td>19</td><td></td></tr> <tr><td>20</td><td></td></tr> <tr><td>21 DO 1</td><td>报警</td></tr> <tr><td>22</td><td></td></tr> <tr><td>12 AO 0</td><td>转速</td></tr> <tr><td>13</td><td>0 V ... 10 V</td></tr> <tr><td>26 AO 1</td><td>电流</td></tr> <tr><td>27</td><td>0 V ... 10 V</td></tr> </table> | 5 DI 0 | ON/OFF1 | 6 DI 1 | 外部故障 | 7 DI 2 | 应答 | 8 DI 3 | HIGH | 16 DI 4 | MOP 升高 | 17 DI 5 | MOP 降低 | 3 AI 0 | --- | 4 | | 18 DO 0 | 故障 | 19 | | 20 | | 21 DO 1 | 报警 | 22 | | 12 AO 0 | 转速 | 13 | 0 V ... 10 V | 26 AO 1 | 电流 | 27 | 0 V ... 10 V | <table border="1"> <tr><td>5 DI 0</td><td>ON/OFF1/正转</td></tr> <tr><td>6 DI 1</td><td>ON/OFF1/反转</td></tr> <tr><td>7 DI 2</td><td>应答</td></tr> <tr><td>8 DI 3</td><td>---</td></tr> <tr><td>16 DI 4</td><td>---</td></tr> <tr><td>17 DI 5</td><td>---</td></tr> <tr><td>3 AI 0</td><td>设定值</td></tr> <tr><td>4</td><td>I □ U -10 V ... 10 V</td></tr> <tr><td>18 DO 0</td><td>故障</td></tr> <tr><td>19</td><td></td></tr> <tr><td>20</td><td></td></tr> <tr><td>21 DO 1</td><td>报警</td></tr> <tr><td>22</td><td></td></tr> <tr><td>12 AO 0</td><td>转速</td></tr> <tr><td>13</td><td>0 V ... 10 V</td></tr> <tr><td>26 AO 1</td><td>电流</td></tr> <tr><td>27</td><td>0 V ... 10 V</td></tr> </table> | 5 DI 0 | ON/OFF1/正转 | 6 DI 1 | ON/OFF1/反转 | 7 DI 2 | 应答 | 8 DI 3 | --- | 16 DI 4 | --- | 17 DI 5 | --- | 3 AI 0 | 设定值 | 4 | I □ U -10 V ... 10 V | 18 DO 0 | 故障 | 19 | | 20 | | 21 DO 1 | 报警 | 22 | | 12 AO 0 | 转速 | 13 | 0 V ... 10 V | 26 AO 1 | 电流 | 27 | 0 V ... 10 V |
| 5 DI 0 | ON/OFF1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 DI 1 | 外部故障 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 DI 2 | 应答 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 DI 3 | LOW | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 16 DI 4 | --- | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 17 DI 5 | --- | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 AI 0 | 设定值 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | I □ U -10 V ... 10 V | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 18 DO 0 | 故障 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 19 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| 21 DO 1 | 报警 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 22 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 AO 0 | 转速 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13 | 0 V ... 10 V | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 26 AO 1 | 电流 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 27 | 0 V ... 10 V | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 DI 0 | ON/OFF1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 DI 1 | 外部故障 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 DI 2 | 应答 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 DI 3 | HIGH | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 16 DI 4 | MOP 升高 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 17 DI 5 | MOP 降低 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 AI 0 | --- | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| 18 DO 0 | 故障 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 19 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 20 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 21 DO 1 | 报警 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 22 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 AO 0 | 转速 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13 | 0 V ... 10 V | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 26 AO 1 | 电流 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 27 | 0 V ... 10 V | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 DI 0 | ON/OFF1/正转 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 DI 1 | ON/OFF1/反转 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 DI 2 | 应答 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 DI 3 | --- | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 16 DI 4 | --- | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 17 DI 5 | --- | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 AI 0 | 设定值 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | I □ U -10 V ... 10 V | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 18 DO 0 | 故障 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 19 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 20 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 21 DO 1 | 报警 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 22 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 AO 0 | 转速 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13 | 0 V ... 10 V | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 26 AO 1 | 电流 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 27 | 0 V ... 10 V | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| 宏指令 19: 三线制控制, 方法 1 | 宏指令 20: 三线制控制, 方法 2 | 宏指令 21: 现场总线 USS 宏指令 22: 现场总线 CANopen | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| <table border="1"> <tr><td>5 DI 0</td><td>使能/OFF1</td></tr> <tr><td>6 DI 1</td><td>ON/正转</td></tr> <tr><td>7 DI 2</td><td>ON/反转</td></tr> <tr><td>8 DI 3</td><td>应答</td></tr> <tr><td>16 DI 4</td><td>---</td></tr> <tr><td>17 DI 5</td><td>---</td></tr> <tr><td>3 AI 0</td><td>设定值</td></tr> <tr><td>4</td><td>I □ U -10 V ... 10 V</td></tr> <tr><td>18 DO 0</td><td>故障</td></tr> <tr><td>19</td><td></td></tr> <tr><td>20</td><td></td></tr> <tr><td>21 DO 1</td><td>报警</td></tr> <tr><td>22</td><td></td></tr> <tr><td>12 AO 0</td><td>转速</td></tr> <tr><td>13</td><td>0 V ... 10 V</td></tr> <tr><td>26 AO 1</td><td>电流</td></tr> <tr><td>27</td><td>0 V ... 10 V</td></tr> </table> | 5 DI 0 | 使能/OFF1 | 6 DI 1 | ON/正转 | 7 DI 2 | ON/反转 | 8 DI 3 | 应答 | 16 DI 4 | --- | 17 DI 5 | --- | 3 AI 0 | 设定值 | 4 | I □ U -10 V ... 10 V | 18 DO 0 | 故障 | 19 | | 20 | | 21 DO 1 | 报警 | 22 | | 12 AO 0 | 转速 | 13 | 0 V ... 10 V | 26 AO 1 | 电流 | 27 | 0 V ... 10 V | <table border="1"> <tr><td>5 DI 0</td><td>使能/OFF1</td></tr> <tr><td>6 DI 1</td><td>ON</td></tr> <tr><td>7 DI 2</td><td>换向</td></tr> <tr><td>8 DI 3</td><td>应答</td></tr> <tr><td>16 DI 4</td><td>---</td></tr> <tr><td>17 DI 5</td><td>---</td></tr> <tr><td>3 AI 0</td><td>设定值</td></tr> <tr><td>4</td><td>I □ U -10 V ... 10 V</td></tr> <tr><td>18 DO 0</td><td>故障</td></tr> <tr><td>19</td><td></td></tr> <tr><td>20</td><td></td></tr> <tr><td>21 DO 1</td><td>报警</td></tr> <tr><td>22</td><td></td></tr> <tr><td>12 AO 0</td><td>转速</td></tr> <tr><td>13</td><td>0 V ... 10 V</td></tr> <tr><td>26 AO 1</td><td>电流</td></tr> <tr><td>27</td><td>0 V ... 10 V</td></tr> </table> | 5 DI 0 | 使能/OFF1 | 6 DI 1 | ON | 7 DI 2 | 换向 | 8 DI 3 | 应答 | 16 DI 4 | --- | 17 DI 5 | --- | 3 AI 0 | 设定值 | 4 | I □ U -10 V ... 10 V | 18 DO 0 | 故障 | 19 | | 20 | | 21 DO 1 | 报警 | 22 | | 12 AO 0 | 转速 | 13 | 0 V ... 10 V | 26 AO 1 | 电流 | 27 | 0 V ... 10 V | <p>USS 设置: 38400 波特、2 个过程数据、可变 PKW</p> <p>CANopen 设置: 20 kBaud</p> <table border="1"> <tr><td>5 DI 0</td><td>---</td></tr> <tr><td>6 DI 1</td><td>---</td></tr> <tr><td>7 DI 2</td><td>应答</td></tr> <tr><td>8 DI 3</td><td>---</td></tr> <tr><td>16 DI 4</td><td>---</td></tr> <tr><td>17 DI 5</td><td>---</td></tr> <tr><td>3 AI 0</td><td>---</td></tr> <tr><td>4</td><td></td></tr> <tr><td>18 DO 0</td><td>故障</td></tr> <tr><td>19</td><td></td></tr> <tr><td>20</td><td></td></tr> <tr><td>21 DO 1</td><td>报警</td></tr> <tr><td>22</td><td></td></tr> <tr><td>12 AO 0</td><td>转速</td></tr> <tr><td>13</td><td>0 V ... 10 V</td></tr> <tr><td>26 AO 1</td><td>电流</td></tr> <tr><td>27</td><td>0 V ... 10 V</td></tr> </table> | 5 DI 0 | --- | 6 DI 1 | --- | 7 DI 2 | 应答 | 8 DI 3 | --- | 16 DI 4 | --- | 17 DI 5 | --- | 3 AI 0 | --- | 4 | | 18 DO 0 | 故障 | 19 | | 20 | | 21 DO 1 | 报警 | 22 | | 12 AO 0 | 转速 | 13 | 0 V ... 10 V | 26 AO 1 | 电流 | 27 | 0 V ... 10 V |
| 5 DI 0 | 使能/OFF1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 DI 1 | ON/正转 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 DI 2 | ON/反转 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 DI 3 | 应答 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 16 DI 4 | --- | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 17 DI 5 | --- | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 AI 0 | 设定值 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | I □ U -10 V ... 10 V | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 18 DO 0 | 故障 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| 21 DO 1 | 报警 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| 12 AO 0 | 转速 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13 | 0 V ... 10 V | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 26 AO 1 | 电流 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 27 | 0 V ... 10 V | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 DI 0 | 使能/OFF1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 DI 1 | ON | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 DI 2 | 换向 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 DI 3 | 应答 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 16 DI 4 | --- | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 17 DI 5 | --- | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 AI 0 | 设定值 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | I □ U -10 V ... 10 V | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 18 DO 0 | 故障 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| 21 DO 1 | 报警 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 22 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 AO 0 | 转速 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13 | 0 V ... 10 V | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 26 AO 1 | 电流 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 27 | 0 V ... 10 V | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 DI 0 | --- | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 DI 1 | --- | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 DI 2 | 应答 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 DI 3 | --- | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 16 DI 4 | --- | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 17 DI 5 | --- | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 AI 0 | --- | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 18 DO 0 | 故障 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| 21 DO 1 | 报警 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 22 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 AO 0 | 转速 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13 | 0 V ... 10 V | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 26 AO 1 | 电流 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 27 | 0 V ... 10 V | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

3.2.4 端子排的接线

注意

长信号电缆较可损坏变频器

变频器的数字量输入和 24 V 电源上的长电缆可能会在开关过程中产生过电压，因而可能会损坏变频器。

- 当数字量输入和 24 V 电源上的电缆长度大于 30 米时，应在端子及其参考电位之间连接一个过电压保护元件。

建议使用 Weidmüller MCZ OVP TAZ DIODE 24VDC 型的过电压保护元件。

! 警告

连接了不合适的电源所产生的危险电压可引发生命危险

在出现故障时，接触带电部件可能会造成人员重伤，甚至是死亡。

- 电子模块的所有的连接和端子只允许使用 2 类 PELV 电源（Protective Extra Low Voltage：保护特低压）。

前提条件

- 应使用合适的电缆：
 - 刚性或柔性电缆。
 - 合适的导线横截面： 0.5 mm² (21 AWG) ... 1.5 mm² (16 AWG)。
建议在整个接线中都采用横截面 1 mm² (18 AWG)。
- 请勿使用芯线端套。
- 已找到合适的端子排预设置，现在按照该设置进行接线。
另见章节：确定合适的接口设置 (页 25)。
- 配套的工具：
 - 用于打开弹簧接线端子的小号起子
 - 用于剥去电缆绝缘层的工具

步骤



按照以下步骤进行端子排的接线：

1. 剥去电缆末端 10 毫米左右的绝缘层。
2. 用起子按下弹簧接线端子的橘色操作元件，直到端子打开。
3. 将电缆伸入端子中，直到碰到挡块，然后松开起子。
4. 轻拉电缆，检查电缆是否接牢。
5. 按这种方式在端子排上的其他必要端子上完成接线。
6. 在敷设信号线时注意，在端子排的接线完毕后，控制单元正面的小门必须能完全闭合。
7. 采用屏蔽电缆时，电缆的屏蔽层必须和控制柜的安装板或变频器上的屏蔽端子大面积导电相连。
另见：EMC 安装准则
(<http://support.automation.siemens.com/WW/view/en/60612658>)
8. 应使用塞绳夹。



现在，已完成变频器端子排的接线。

3.3 安装编码器

3.3.1 允许的编码器

用于转速控制的编码器

编码器必须安装在电机轴上。

表格 3- 1 允许的编码器

| 编码器类型 | 端子排 | SUB-D 插头 | DRIVE-CLiQ 接口 | |
|----------------|------------------|----------|----------------------------|------------------|
| | | | 通过编码器模块 SMC 或 SME 连接 | DRIVE-CLiQ 接口 |
| 旋转变压器 | ✓ | | ✓ | |
| HTL 编码器 | ✓ | ✓ | ✓ | |
| TTL 编码器 | | ✓ | ✓ | |
| Endat 2.1 | | | ✓ | |
| sin/cos 编码器 | | | ✓ | |
| DRIVE-CLiQ 编码器 | | | | ✓ |
| | 连接方式参见端子排 (页 24) | | 连接方式参见接口一览 (页 22) | |

用于位置控制的编码器

允许使用的位置控制编码器、允许使用的的转速控制编码器/位置控制编码器组合请参考“基本定位器”的功能手册，另见章节：变频器手册 (页 45)。

3.3.2 编码器模块

表格 3-2 允许的编码器模块 SMC/SME 和可连接的编码器

| | SMC1 0 | SMC2 0 | SMC3 0 | SME2 0 | SME2 5 |
|---|-----------|-----------|-----------|-----------|-----------|
| 双极旋转变压器 | ✓ | | | | |
| 多极旋转变压器 | ✓ | | | | |
| sin/cos 编码器 1 V _{pp} | | ✓ | | | |
| sin/cos 编码器 1 V _{pp} 不带转子信号 (C 信号和 D 信号) | | | | ✓ | |
| 带增量信号 sin/cos 1 V _{pp} 的 SSI 编码器 | | ✓ | | | ✓ |
| 带 TTL/HTL 增量信号的 SSI 编码器 | | | ✓ | | |
| 无增量信号的 SSI 编码器 | | | ✓ | | |
| HTL/TTL 编码器 | | | ✓ | | |
| 绝对值编码器 Endat 2.1 | | ✓ | | | ✓ |

有关编码器模块安装和连接的信息请参见“SINAMICS S120 控制单元和扩展系统组件”手册，另请参见章节：变频器手册 (页 45)。

3.4 现场总线的说明文件

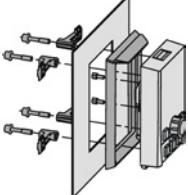
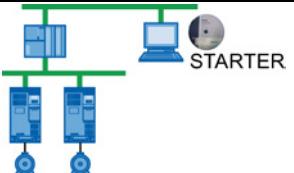
该说明文件中包含了变频器在现场总线上由上位控制器控制时的配置信息和运行信息。

| 说明文件 | 下载 | 下载以外的其他获取方式 |
|--------------------|--|---|
| GSD, 用于 PROFIBUS | 网址： (http://support.automation.siemens.com/WW/view/en/23450835) | GSD 和 GSDML 已保存在变频器中。在将存储卡插入变频器并将 p0804 设为 12 时，变频器会将 GSD 或 GSDML 写入到存储卡中。接着您可以通过存储卡将该文件传送到编程器或 PC 上。 |
| GSDML, 用于 PROFINET | 网址： (http://support.automation.siemens.com/WW/view/en/26641490) | |
| EDS, 用于 CANopen | 网址： (http://support.automation.siemens.com/WW/view/en/48351511) | --- |
| EDS, 用于 EtherNetIP | --- | 详细信息请参见操作说明。 |

4

调试

4.1 变频器的调试工具

| 操作面板 可调试、诊断和控制变频器 | | 订货号 |
|---|---|---|
|  | <p>BOP-2 (Basic Operator Panel), 卡装在变频器上</p> <ul style="list-style-type: none"> • 两行显示 • 引导式基本调试 • 保存和传送变频器设置 | 6SL3255-0AA00-4CA1 |
|  | <p>IOP (Intelligent Operator Panel), 卡装在变频器上</p> <ul style="list-style-type: none"> • 纯文本显示屏 • 提供菜单引导和应用向导程序 • 保存和传送变频器设置 | 6SL3255-0AA00-4JA0 |
|  | <p>IOP/BOP-2 柜门安装套件</p> <ul style="list-style-type: none"> • 用于将 BOP-2 或 IOP 安装在控制柜柜门上。 • 使用 IOP 的防护等级: IP54 或 UL Type 12 • 使用 BOP-2 的防护等级: IP55 | 6SL3256-0AP00-0JA0 |
|  | <p>用于移动式使用 IOP:</p> <p>IOP 手持单元，配备 IOP 机壳、电源线、蓄电池以及 RS232 连接电缆</p> <p>如果使用单独的连接电缆，允许的最大长度为 5 m。</p> | 6SL3255-0AA00-4HA0 |
| PC 工具，用于调试、诊断和控制变频器 | | |
|  | <p>PC Connection Kit</p> <p>包含 STARTER DVD 光盘和 USB 电缆。</p> | 6SL3255-0AA00-2CA0 |
|  | <p>STARTER 调试工具 (PC 软件)</p> <p>通过 USB 接口、PROFIBUS 或 PROFINET 连接变频器</p> <p>下载链接: STARTER (http://support.automation.siemens.com/WW/view/en/10804985/133200)</p> | <p>STARTER DVD 安装盘:</p> <p>6SL3072-0AA00-0AG0</p> |
|  | <p>Drive ES Basic</p> <p>STEP 7 的选件，含与 PROFIBUS 或 PROFINET 网络之间的路由功能</p> | 6SW1700-5JA00-5AA0 |

4.2 使用 STARTER 开展调试

4.2 使用 STARTER 开展调试

STARTER 和 STARTER 界面

STARTER 是一个用来调试西门子变频器的 PC 工具。STARTER 的图形用户界面为变频器调试提供有利支持。STARTER 的“对话框”中包含了大多数的变频器功能。

本手册展示的是 STARTER 界面上通用的调试示例。因此在实际应用中界面上实际的调试步骤可能多于或少于本手册中说明的步骤。同样，由于此处使用的变频器和您实际使用的变频器可能不同，调试步骤可能也有所不同。

调试的前提条件

使用 STARTER 对变频器进行调试时需要：

- 安装好的传动系统（电机和变频器）
- 安装了 Windows XP 或 Windows 7 系统的计算机
- 安装了 V4.3 SP2 或以上版本的 STARTER。

4.2.1 创建 STARTER 项目

步骤



按如下步骤创建一个新项目：

1. 在 STARTER 菜单中选择 “Project” → “New...”。
2. 命名您的项目。



您已创建了一个新的 STARTER 项目。

4.2.2 将通过 USB 连接的变频器接收到项目中

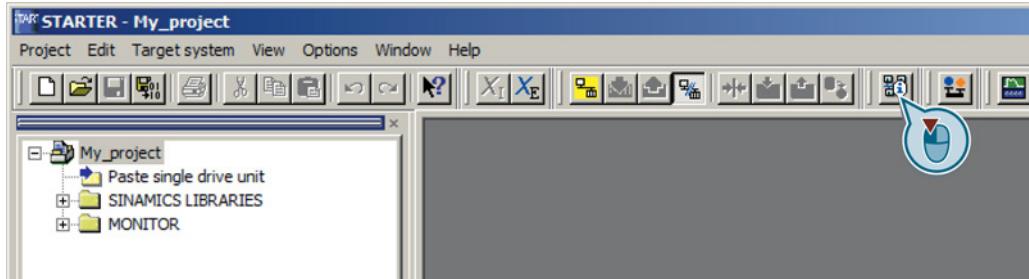
步骤



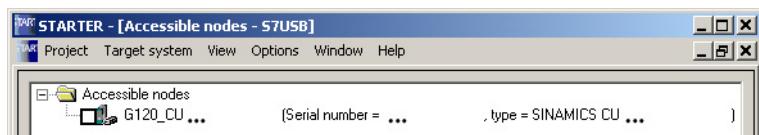
按如下步骤将通过 USB 连接的变频器接收到项目中：

1. 接通变频器的电源。
2. 先将 USB 电缆接到 PC 上，然后再将其接到变频器上。

3. 如果是第一次将变频器和 PC 连接在一起, PC 操作系统中还须安装 USB 驱动器。
 - Windows 7 系统的 PC 会自动安装该驱动器。
 - 在 Windows XP 系统的 PC 中, 须对某些系统信息进行确认。
4. 启动调试软件 STARTER。
5. 在 STARTER 中点击按钮  (“Accessible nodes”)。



6. 如果 USB 接口设置正确, 对话框“Accessible nodes”中会显示可访问的变频器。



如果 USB 接口设置不正确, 系统会显示信息“No further active partner can be found”。此时请按如下描述操作。

7. 选中变频器。

8. 点击按钮“Accept”。



您已将可通过 USB 接口访问的变频器接收到了您的项目中。

设置 USB 接口

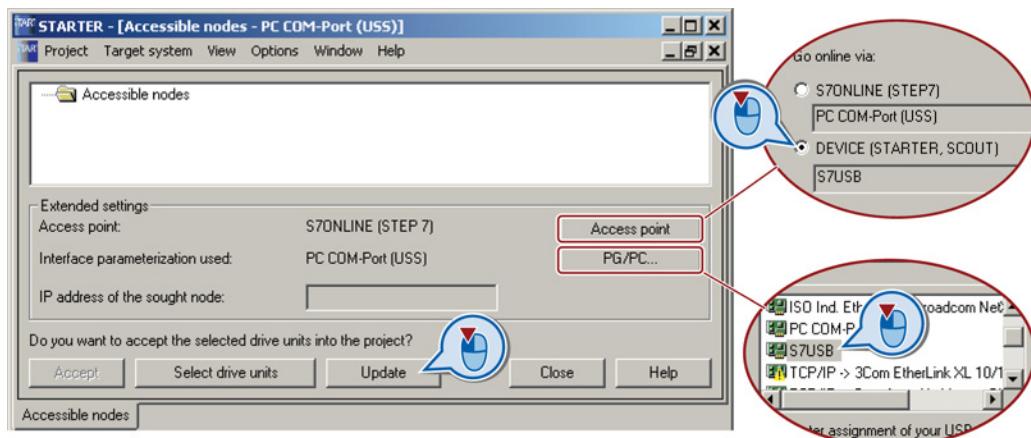
步骤



按如下步骤在 STARTER 中设置 USB 接口:

1. 此时将“Access point”设为“DEVICE (STARTER, Scout)”、“PG/PC interface”设为“S7USB”。
2. 点击按钮“Update”。

4.2 使用 STARTER 开展调试



您已完成 USB 接口的设置。

STARTER 现在会显示通过 USB 连接的变频器。

4.2.3 配置驱动

变频器基本调试分为以下几个步骤：

1. 启动基本调试
2. 配置驱动
3. 将配置数据载入到驱动中

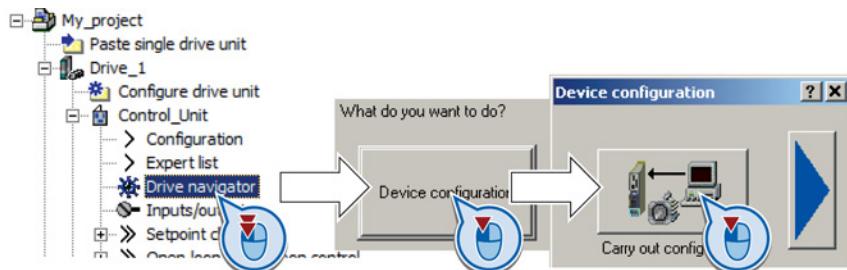
启动基本调试

步骤



按如下步骤启动基本调试：

1. 在 STARTER 中选中您需要调试的驱动。
2. 启动向导程序，对设备进行配置：



已启动了基本调试。

配置驱动

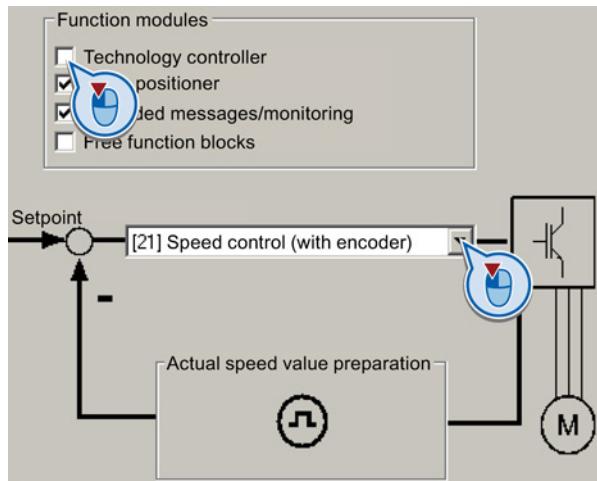
步骤



按如下步骤配置驱动：

1. Control structure

选择您应用所需的功能模块。
选择控制方式。



2. Defaults of the setpoint 选择变频器接口的预定义。

另见章节：确定合适的接口设置（页 25）。

3. Drive setting

选择变频器的应用：

低动态的轻过载应用，例如：电泵或风机。

高动态的重过载应用，例如：传送带。

4. Motor

根据电机的铭牌输入电机数据。

当您选择了电机的订货号后，电机数据自动录入。

6. Drive functions

控制方式设置为“转速控制”时，我们推荐设置 “[1] Identify motor data at standstill and with motor rotating”。

此时，变频器会对转速
控制器进行优化。

| |
|---|
| [0] Inhibited |
| [1] Identify motor data at standstill and with motor rotating |
| [2] Identify motor data at standstill |
| [3] Identify motor data with motor rotating |

在以下某个条件下，选择设置 “[2] Identify motor data at standstill”：

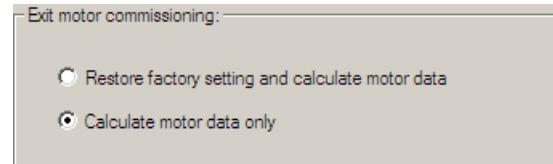
- 选择了控制方式“转速控制”，但是电机不能自由旋转，比如：受到机械限位限制。
- 选择了控制方式“V/f 控制”。

4.2 使用 STARTER 开展调试

7. Important parameters 根据您的应用设置重要参数。

8. Calculation of the motor 我们建议设置

“Calculate motor data only”。



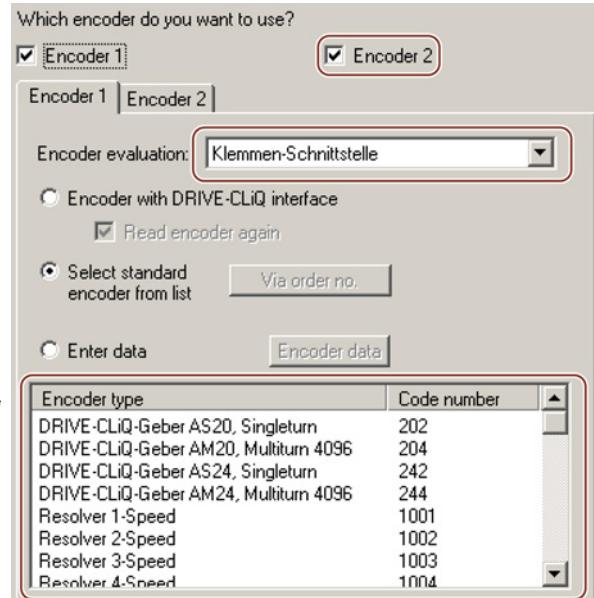
9. Encoder

选择变频器是分析一个还是两个编码器。

选择编码器的接口。

从编码器类型列表中
选择标准编码器。

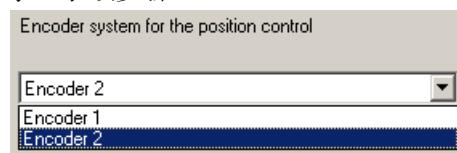
- 代码号 < 1000:
编码器带内置
DRIVE-CLiQ
- 100x: 带不同极
对数的旋转变压
器
- 2xxx:sin/cos 编码
器
- 3xxx: HTL/TTL
编码器和 SSI 编
码器



如果列表中没有找到相关的编码器，则选择一个最相似的编码器类
型。继续配置，接着调整编码器数据。另见章节：调整编码器数据
(页 42)。

10. Measurement system 只有成功配置了基本定位器后，才显示该步骤。

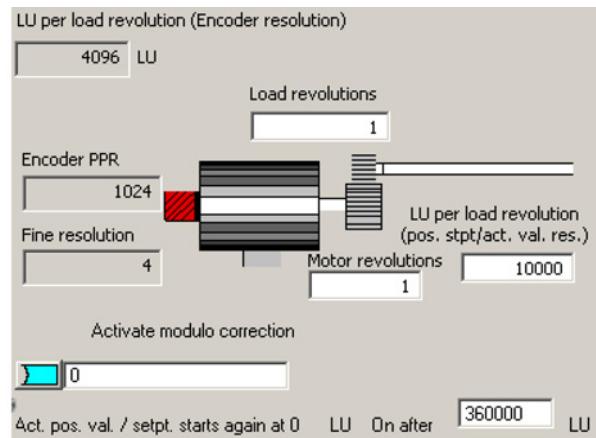
选择一个用于检测位置
的编码器。



11. Mechanics

只有成功配置了基本定位器后，才显示该步骤。

您可以先跳过该对话框。上述设置在调试基本定位器期间执行，详细说明参考“基本定位器”的功能手册。

12. Summary

点击 **Finish**，结束基本调试。

保存您的项目 .



您已成功输入了变频器基本调试需要的所有数据。

4.2 使用 STARTER 开展调试

4.2.4 调整编码器数据

前提条件

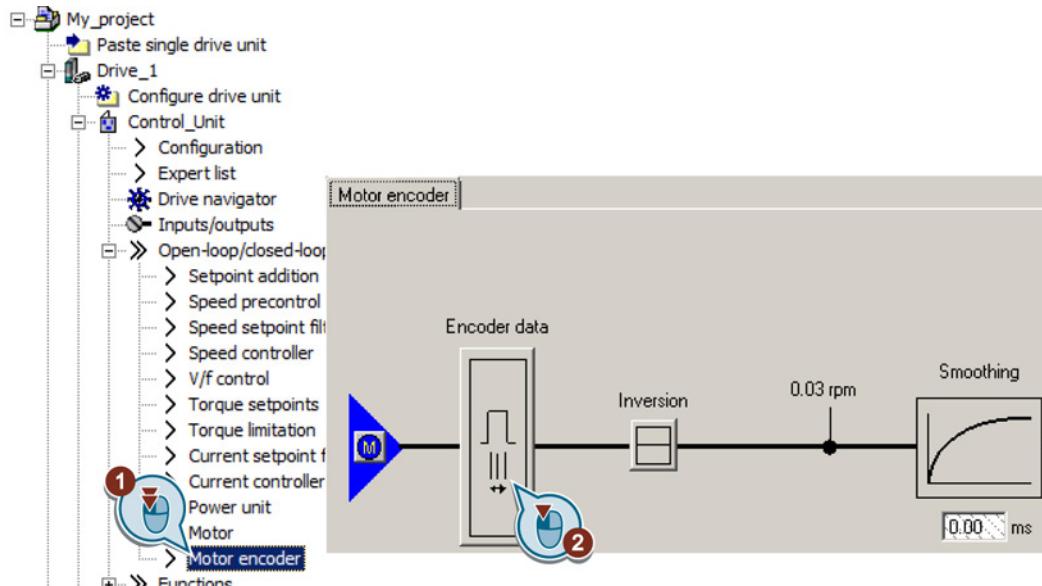
- 选择了不和实际编码器完全相符的编码器类型，因为该编码器类型不在默认列表中。
- 您已配置了驱动。

步骤



按照以下步骤调整编码器数据：

- 选择“Motor encoder”：
- 按下“Encoder data”按钮。



- 在“Encoder data”中有权进行如下设置：

- 可以更改所有编码器数据。
- 可以选择其他编码器类型。STARTER 只提供允许用于已配置接口的编码器类型。

如果想要设置其他编码器接口，则需重新配置变频器。



已成功调整了编码器数据。

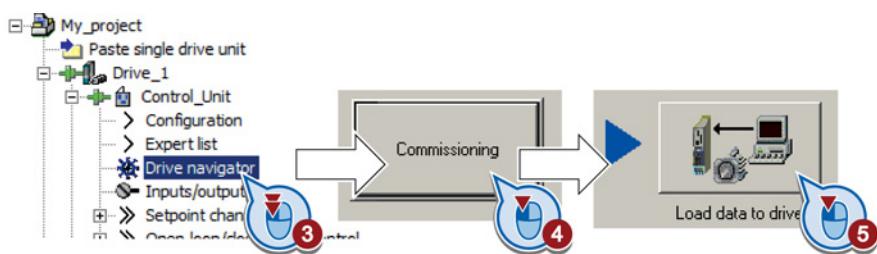
4.2.5 将配置数据载入到驱动中

步骤



按如下步骤将配置数据载入到驱动中：

1. 选中您的项目并进入在线模式： 
2. STARTER 会将您的变频器配置与实际的变频器配置进行对比并在“online/offline comparison” 中显示对比结果。
3. 点击按钮“Load HW configuration to PG”，确认信息。
4. 打开“Drive Navigator”。
5. 按下“Commissioning”按钮。



6. 选中对话框“After loading, copy RAM to ROM”。
7. 将配置载入到变频器中。
8. 关闭对话框“Commissioning”。



您已将配置载入到驱动中，并完成了基本调试。

4.2.6 电机数据检测

前提条件

- 在基本调试中已经选择了电机数据检测（MOT ID）。此时，变频器在结束基本调试后会给出报警 A07991。
- 电机已冷却到环境温度。

电机温度过高时，电机数据检测出的值不准确，转速控制也不稳定。

4.2 使用 STARTER 开展调试



接通电机时电机运动可导致电机损坏或人身伤害

接通电机后进行电机数据检测会引起危险的电机运动。

开始电机数据检测前确保危险设备部件的安全：

- 接通电机前检测电机上的部件是否松动或有可能飞出。
- 接通电机前确保没有工作人员在电机上作业或停留在电机工作区内。
- 采取措施，防止人员无意中进入电机工作区内。
- 将垂直负载降至地面。

步骤

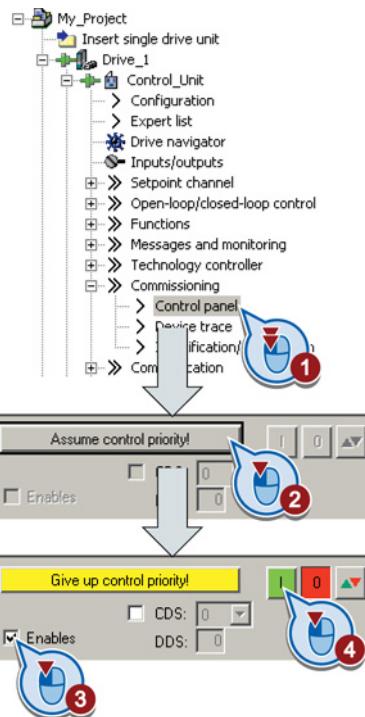


根据以下步骤启动电机数据检测和电机控制优化：

1. 在 STARTER 中双击 “Control panel”。
2. 点击 “Assume control priority”，获取对变频器的控制权。
3. 勾选 “Enables”
4. 接通电机。

变频器启动电机数据检测。检测过程可能持续数分钟，检测后变频器会关闭电机。

5. 在电机检测结束后请点击 “Give up control priority” 重新交还控制权。
6. 点击按钮 (Copy RAM to ROM) 进行保存。



您已成功结束了电机数据检测。

转速控制的自动优化

如果除了静态电机数据检测外您还选择了包含转速控制自动优化的旋转电机检测，您必须再次给变频器通电，执行优化，如上文所述。

5

更多信息

5.1 变频器手册

表格 5- 1 变频器手册

| 难易度 | 手册 | 内容 | 语言版本 | 下载或订购 |
|-----|---|---|-----------------------|---|
| ++ | 入门指南 | (本手册) | 英语、德语、意大利语、法语、西班牙语和中文 | 下载手册 (http://support.automation.siemens.com/WW/view/en/22339653/133300) |
| +++ | 操作说明 ，适用于“矢量”控制方式下的 带有控制单元 CU250S-2 的变 频器 SINAMICS G120 | 安装、调试和运行变频器。 设置变频器的功能。 技术数据。 | 英语、德语、意大利语、法语、西班牙语和中文 | SINAMICS 手册合集 DVD 文档光盘，订货号 6SL3097-4CA00-0YG0 |
| +++ | 基本定位器的功能手册 | 调试基本定位器。 | 英语、德语和中文 | |
| +++ | Safety Integrated 功能手册 适用于变频器 SINAMICS G120、G120C 和 G120D | 配置 PROFI safe。 安装、调试并运行变频器 的故障安全功能。 | 英语、德语和中文 | |
| +++ | 参数手册 | 提供完整的参数、警告表、故障表以及 功能图。 | 英语、德语和中文 | |
| + | 入门指南 适用于以下 SINAMICS G120 功率模块： • PM240、PM250 和 PM260 • PM240-2 | 安装功率模块。 | 英语 | |
| + | 安装说明 适用于电抗器、滤波器和制动 电阻 | 安装组件。 | | |

| 难易度 | 手册 | 内容 | 语言版本 | 下载或订购 |
|-----|--|-----------------------------------|--------------------------|--|
| +++ | 安装手册 适用于以下 SINAMICS G120 功率模块: <ul style="list-style-type: none">• PM240• PM240-2• PM250• PM260 | 如何安装功率模块、电抗器和滤波器。 技术数据。 维护。 | 英语和德语 | |
| +++ | 操作说明 适用于以下操作面板: <ul style="list-style-type: none">• BOP-2• IOP | 如何操作控制面板，如何安装 IOP 的防护门磁铁。 | | |
| +++ | 选型手册 EMC 安装准则 | 控制柜设计、等电位以及电缆布线符合 EMC 规定。 | 英语、德语、意大利语、法语、西班牙语和中文 | |
| +++ | 设备手册 SINAMICS S110 设备手册 功率模块 PM340 | 安装功率模块 PM340。 技术数据。 维护。 | 英语、德语、意大利语、法语和西班牙语 | S110 设备手册 (http://support.automation.siemens.com/WW/view/en/49086218) |
| +++ | SINAMICS S120 控制单元和扩展系统组件手册 | 其他：编码器模块 SMC 和 SME | 英语、德语、意大利语、法语、西班牙语、中文和俄语 | 系统组件 S120 (http://support.automation.siemens.com/WW/view/en/68040800) |

5.2 产品支持

表格 5-2 技术支持

| 法国 | 德国 | 意大利 | 西班牙 | 英国 |
|--|---------------------|-------------------|-----------------|------------------|
| +33 (0) 821 801 122 | +49 (0)911 895 7222 | +39 (02) 24362000 | +34 902 237 238 | +44 161 446 5545 |
| 其他服务电话号码： 产品支持 (http://support.automation.siemens.com/WW/view/en/4000024) | | | | |

更多信息

SINAMICS 变频器：

www.siemens.com/sinamics

Safety Integrated：

www.siemens.com/safety-integrated

PROFINET:

www.siemens.com/profinet

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Motion Control Systems
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关于 SINAMICS G120
的更多信息请扫描二
维码。

