AxN-DC

用户手册

User's Manual

版本：1.02（2019 年 9 月）

Version：1.02（September 2019）

适用型号 Support Model：

AxN-PS.080.4

AxN-DC.044.6; AxN-DC.070.6
AxN-DC.100.6; AxN-DC.140.6
AxN-DC.200.6; AxN-DC.300.6; AxN-DC.400.6
AxN-DC.800.6

AxN-CP.060.6; AxN-CP.470.6

目录

第一章•基本信息 General Information

1 版本变更记录 Manual History

注意：

菲仕将用户手册的印刷版本保持为最新版本。
但是，从安全的角度考虑，必须使用菲仕网站上的当前版本(www.physis.com.cn)

Note:

PMC China keeps the printed version of user's manuals as current as possible.
From a safety standpoint, however, the current version from the Physis website must be used (www.physis.com.cn).

版本 Version	日期 Date	注释 Comment
V1.02	2019-09-16	更改/Changes • 增加参数：最大入口压强（适用于水冷散热器） Added parameter: Max. inlet pressure(for water cooling heatsink) • 更正第 12 页中关于主编码器卡与输入/输出接口的说明 Corrected the description of the main encoder card interface and input/output interface on page 12.
V1.01	2019-09-13	更改/Changes • 关于第 12 页的用户通讯接口，删除“CANopen+EtherPMC”选项 For the user communication interface on page 12, remove the “CANopen+EtherPMC” option.
V1.00	2019-08-05	新增/New

表格 Table 1:版本变更记录 Manual history

2 系统概述 System Overview

AxN-DC 系列共直流母线驱动器是菲仕中国新一代能量转换系统，由独立的整流单元和逆变单元组成，可以胜任单轴及多轴应用控制、主动前端（AFE）等各类不同的驱动任务。

AxN-DC series common DC bus drive is a new generation energy conversion system of PMC China, which consists of independent rectifier unit and inverter unit. It can be used for various driving tasks such as single-axis and multi-axis application control and active front end (AFE).

图片 Figure 1 产品外观图 Product appearance

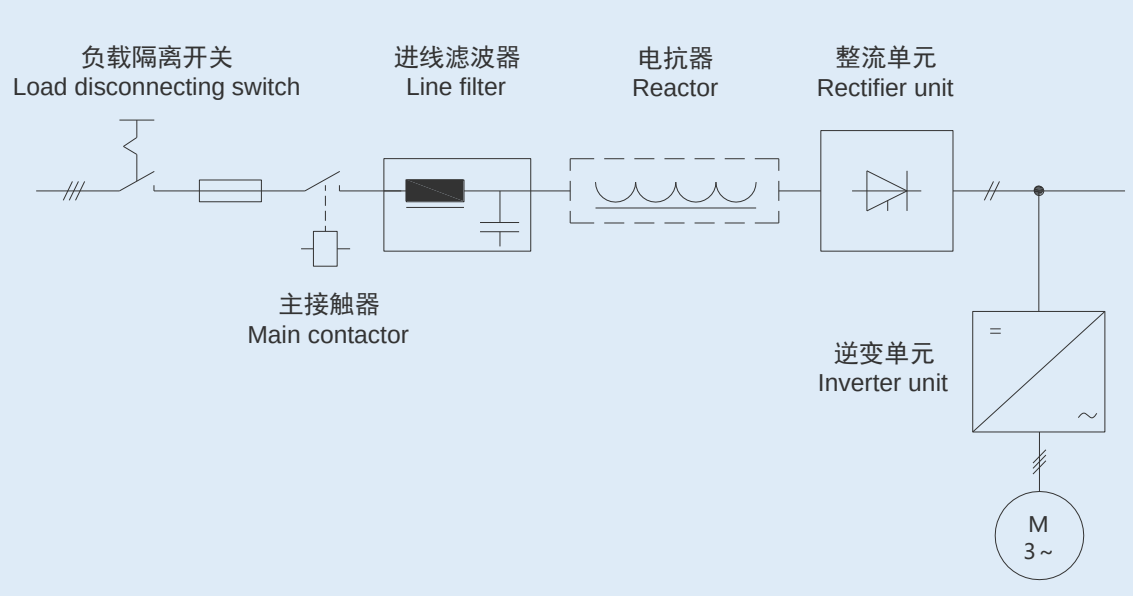
2.1 整流单元（电源）Rectifier Unit(Power Supply)

整流单元中集成了整流组件和直流母线，将进线电压转换为直流电压，通过直流母线向逆变单元供电。

整流单元还可集成一张控制卡，使得上位机能通过现场总线控制整流，同时整流单元本身将可作为主站搭建 AxN-DC 内部总线通讯网络。

The rectifier unit integrates a rectifier component and a DC bus, converts the incoming voltage into DC voltage, and supplies power to the inverter unit through the DC bus.

The rectifier unit can also integrate a control card, so that the upper computer can control the rectification through the field bus, and the rectifier unit itself can be used as the main station to build the AxN-DC internal bus communication network.



图片 Figure 2 整流单元连接示意图 Rectifier unit connection diagram

2.1.1 基本型整流单元 Basic Rectifier Unit

图片 Figure 3 AxN-PS.080.6

基本型整流单元仅用于供电，无法将再生电能回馈到电网中。如果产生了再生电能（如驱动制动时），必须通过制动电阻将其转化为热量。使用时需要安装配套的进线电抗器和进线滤波器。

The basic rectifier unit is only used for power supply and cannot return regenerative energy to the grid. If regenerative energy is generated (such as when drive braking), it must be converted to heat by a braking resistor. It is necessary to install the matching line reactor and line filter when using.

2.1.2 主动前端 Active Front End

主动前端可以提供电能，还可以向电网反馈再生电能。仅当电网掉电后（即电能无法回馈到电网时）控制驱动减速时，才需要使用制动电阻。与基本型整流单元不同，主动前端能产生可调节的直流电压，即使电网电压波动也能保持稳定。
主动前端需要配套使用相匹配的配件，包括小功率整流电源用于直流母线预充电。

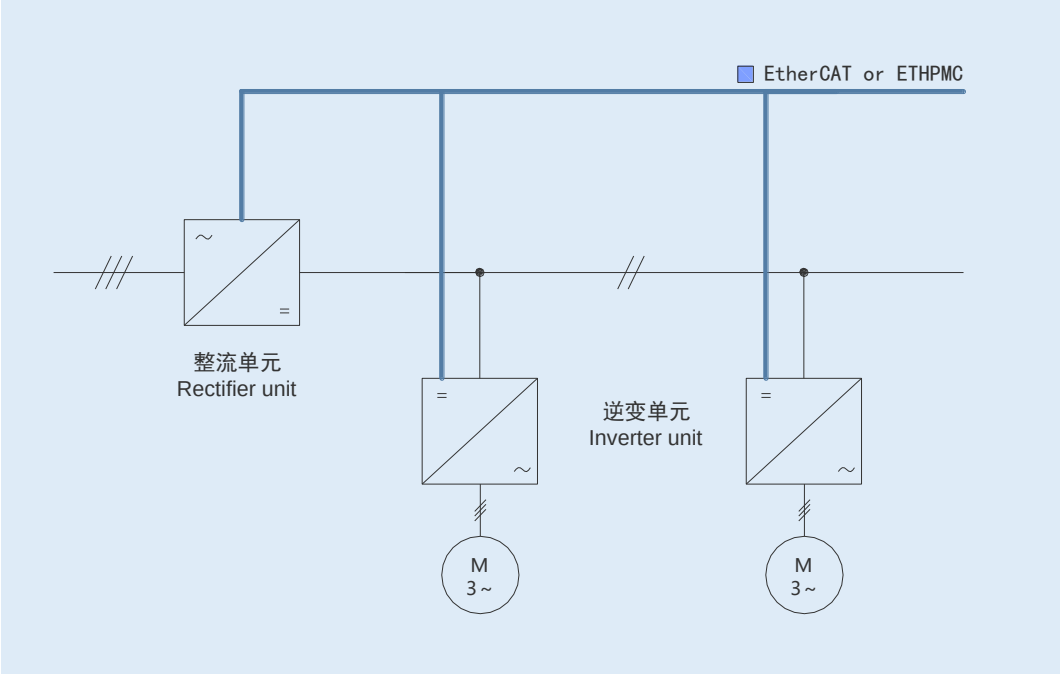
The active front end can provide power and can also feedback regenerative energy to the grid. The braking resistor is only required when the grid is de-energized (when the energy cannot be fed back to the grid) to control the drive deceleration. Unlike basic rectifier unit, the active front end produces an adjustable DC voltage that is stable even with grid voltage fluctuations.
The active front end needs to be matched with matching accessories, including a small power rectifier power supply for DC bus pre-charging.

2.2 逆变单元 Inverter Unit

图片 Figure 4 AxN-DC.070.6; AxN-DC.140.6

逆变单元中集成了控制组件、直流母线和为电机供电的逆变组件。
逆变单元通过公共直流母线互连。由于逆变模块共用一个直流母线，所以模块间可以交换能量。也就是说，如果一个逆变模块在产生电能（发电模式），另一个逆变模块可以使用该电能，从而减少制动电阻产生的能量浪费及系统的总能耗。

The inverter unit integrates a control card, DC busbar and inverter components for powering the motor.
The inverter units are interconnected by a common DC bus. Since the inverter modules share the same DC bus, energy can be exchanged between the modules. It means, if one inverter module is generating electric energy (generation mode), the other inverter module can use the electric energy, thereby reducing the energy waste generated by the braking resistor and the total energy consumption of the system.



图片 Figure 5 逆变单元连接示意图 Inverter unit connection diagram

2.3 电容单元 Capacitor Unit

能量波动较大的应用场合需要配置电容单元，用于降低母线电压波动、储存制动能量、瞬时充电。

In applications where energy fluctuations are large, capacitor units are required to reduce bus voltage fluctuations, store braking energy, and instantaneous charging.

2.4 系统组件 System Components

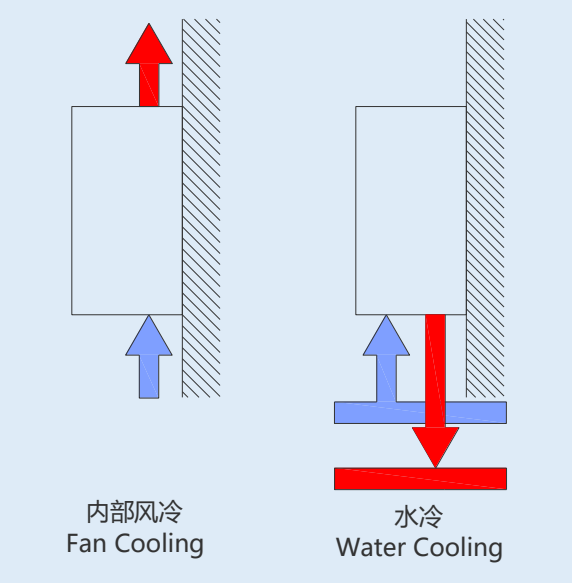
系统组件主要有以下几种：

- 输入侧功率组件
  例如：输入滤波器、输入电抗器
- 直流母线组件
  例如：制动电阻
- 主动前端配件
  例如：LC 滤波器件、RC 滤波器件

The system components are mainly the following:

- Input side power components
  For example: input filter, input reactor
- DC bus components
  For example: braking resistor
- Active front end accessories
  For example: LC filter device, RC filter device

2.5 冷却方式 Cooling Method



根据不同的结构型式，有两种冷却方式：
Depending on the structure, there are two cooling methods:

- 内部风冷
  标准散热方案，使用风冷散热器，驱动器中各个电子元件、功率单元产生的功率损耗通过散热器及其风扇系统排散。

- Internal air cooling
  The standard cooling solution uses an air-cooled heat sink, and the power loss generated by each electronic component and power unit in the drive is dissipated through the heat sink and its fan system.

- 液冷
  使用冷却底板，水或者油做为冷却介质，流过散热器时带走功率单元产生的热量。驱动器的损耗功率大部分被冷却介质吸收并排放到控制柜外部。此方案体积更小，可实现更高的功率密度，且无风扇噪音。

- liquid cooling
  Use a cooling floor, water or oil as the cooling medium, and carry away the heat generated by the power unit when flowing through the radiator. The loss power of the drive is mostly absorbed by the cooling medium and discharged to the outside of the control cabinet. This solution is smaller, enables higher power density, and has no fan noise.

2.6 安装方式 Installation Method

AxN-DC 系列驱动器均具有相同的高度，只有宽度不同，可彼此贴近安装，用于直流母线连接的接口已经集成在设备中，极其方便在宽度方向上根据需求扩展数量。支持柜内安装、穿墙安装、冷却板安装，三种安装方法各具优势。

The AxN-DC series drives are all of the same height, only different widths, and can be mounted close to each other. The interface for the DC bus connection has been integrated into the device, making it extremely convenient to expand the number in the width direction as required. Support cabinet installation, wall installation, cooling plate installation, each of the three installation methods have advantages.

2.6.1 柜内安装 Wall Mounting

图片 Figure 6 柜内安装 Wall mounting

这是风冷型驱动器的传统安装方法，热量直接通过控制柜中的空气散发。这种类型的安装适用于少量低额定功率的轴，通过在控制柜中使用额外的风扇或冷却装置可以解除这种限制。

This is the conventional mounting method for fan cooling drive. Heat is dissipated directly through the air in the control cabinet. This type of mounting is suitable for a small number of axes with low power ratings. This limitation can be circumvented by using additional fans or cooling units in the control cabinet.

2.6.2 穿墙安装 Feed-through Mounting

图片 Figure 7 穿墙安装 Feed-through mounting

穿墙式安装，可使散热片通过控制柜的后壁，热量直接散发到控制柜外部的环境空气中。这种类型的安装适用于所有功率范围，可用于要求控制柜内发热量尽可能小的应用中。

Feed-through mounting makes the heat sink through the back wall of the control cabinet, heat is output directly to the ambient air outside of the control cabinet. This type of mounting is suitable for a large number of axes with any range of power rating, Can be used in applications where require the heat generated in the control cabinet is as small as possible.

2.6.3 冷却板安装 Cold Plate Mounting

图片 Figure 8 冷却板安装 Cold plate mounting

设备产生的热量通过使用油或者水冷却的底板消散，这种类型的安装需要机器具有冷却循环系统。目前，各功率范围均可提供驱动器自带冷却板的解决方案，仅额定 35KW 及以下功率驱动器支持由客户提供冷却板而驱动器只提供无散热能力的底板(基于传热效率原因，35KW 以上不支持无散热能力的底板)。

Heat generated by the devices is dissipated by the plate cooled with oil or water, This type of mounting requires the machine to have a cooling circulation system. At present, each power range can provide a solution with a built-in cooling plate for the drive. Only the drives which rated power is 35kW and below support the cooling plate provided by the customer and the drive only provides the base plate without heat dissipation capability (according to heat transfer efficiency, the base plate without heat dissipation is not supported above 35 kW).

2.7 符合标准 Standard

地区 Region	认证名称 Certification name	指令名称 Directive	符合标准 Standard
欧洲 Europe	CE 认证 CE certification	2014/30/EU EMC 电磁兼容性指令	EN 61800-3:2004+A1:2012
		2014/35/EU LVD 低电容指令	EN 61800-5-1:2007
		2006/42/EC MD 机械指令	EN 61800-5-1:2007 EN 61800-5-2:2007
美国 USA	UL 认证 UL certification	-	UL 61800-5-1:2007

表格 Table 2:符合标准 Standard

注意：

产品已获得的相关认证资质以铭牌上标注的认证标志为准。具体认证信息请向本公司销售负责人咨询。

Note:

The relevant certifications obtained for the products are subject to the certification mark indicated on the nameplate. For specific certification information, please consult the sales manager.

第二章•技术数据 Technical Data

1 产品编码说明 Part Number System

21 位产品代码如下：

The 21 digits part number is formed as follows:

位数 Digit		1-7	8-11	12	13-14	15	16	17	18	19	20-21
示例 Example		**AxN-DC.**	044.	**6**	E0	V	0	T	F	2	00
型号代码 Model code	AxN-DC.	逆变单元 Inverter unit									
	AxN-PS.	整流单元 Rectifier unit									
	AxN-CP.	电容单元 Capacitor unit									
逆变单元峰值输出电流 Peak output current of Inverter unit	044.	44A									
	070.	70A									
	100.	100A									
	140.	140A									
	200.	200A									
	300.	300A									
	400.	400A									
	800.	800A									
整流单元额定功率 Continuous current of Rectifier unit	020.	20kW									
	040	40kW									
	080.	80kW									
主电源电压 Main power supply	4	400Vac 三相									
	6	600Vdc 直流									
用户通讯接口 User interface	E0	EtherCAT+ PMC-bus									
主编码器卡 Main encoder interface	0	不安装 Not installed									
	U	通用位置传感器 Universal position sensor									
	V	增加STO反馈接口 Increase STO feedback interface									
辅助编码器卡 Auxiliary encoder interface	0	不安装 Not installed									
	U	通用 Universal									
整流控制卡 Rectifier control interface	0	不安装 Not installed									
	A	仅用于整流单元 Only available for rectifier unit									
输入/输出接口 In/Out interface	0	不安装 Not installed									
	T	标准I/O接口 Standard I/O Interface									
散热 Cooling	F	风冷，柜内安装 Fan Cooling , Wall mounting									
	E	风冷，穿墙安装 Fan Cooling, Feed-through mounting									
	W	水冷，冷却板安装 Water cooling, Cold plate mounting									
版本/Release	2	版本2，Release2									
内部特征码 Internal use	00	标准 Standard									
	10	通用 Universal									

表格 Table 3 编码规则 Codification

2 通用技术参数 General technical Data

如未特殊说明，则下列技术参数对 AxN-DC 系列所有驱动器有效
Unless special stated, the following technical data is valid for all drives of the AxN-DC series.

2.1 电气数据 Electrical Data

电网电压 Grid voltage	3AC380…480V ±10%
电网系统 Grid system	接地 TN 系统 Ground TN system
电网频率 Grid frequency	50—60Hz
辅助电源 Aux power supply	DC24V ±15%
电磁兼容性 EMC	依据 61800-3,第二类环境，C2/C3 类。 As per 61800-3, Class 2 environment, C2/C3.
过压类别 Overvoltage category	根据 IEC/61800-5-1,Ⅲ。 As per IEC/61800-5-1,Ⅲ.

表格 Table 4 电气数据 Electrical data

2.2 机械条件 Mechanical Conditions

运输过程中的振动极限 Vibration Limit in Transit	按照 EN 61800-2，IEC 60721-3-2 类别 2M1 As per EN 61800-2, IEC 60721-3-2 class 2M1		
	频率(Frequency (Hz)	**幅度 Amplitude (mm)**	**加速度 Acceleration (m/s^2)**
	$2 \leq f < 9$	3.5	不适用 Not Applicable
	$9 \leq f < 200$	不适用 Not Applicable	10
	$200 \leq f < 500$	不适用 Not Applicable	15
运输过程中的冲击极限 Shock Limit in Transit	按照 EN 61800-2，IEC 60721-2-2 类别 2M1 As per EN 61800-2, IEC 60721-2-2 class 2M1		
	包装设备的掉落高度最大为 0.25m Drop height of packed device max. 0.25m		
系统的振动极限(1) Vibration Limit of the system(1)	按照 EN 61800-2，IEC 60721-3-3 类别 3M1		
	频率 Frequency (Hz)	**幅度 Amplitude (mm)**	**加速度 Acceleration (m/s^2)**
	$2 \leq f < 9$	0.3	不适用 Not Applicable
	$9 \leq f < 200$	不适用 Not Applicable	1

表格 Table 5 机械条件 Mechanical conditions

(1) NOTE: The devices are only designed for stationary use.

2.3 环境条件 Ambient Conditions

防护等级 Protection	依据 EN60529, IP20 As per EN60529, IP20
意外防止法规 Accident Prevention Regulations	根据当地法规 According to local regulations
海拔高度 Mounting Altitude	0～1000 米；1000 米以上每 100 米功率（电流）降低 1% Up to 1000m above MSL, over 1000 m above MSL with power reduction (1% per 100m)
污染等级 Pollution Severity	依据 IEC/EN 61800-5-1, 类别 2 As pe IEC/EN 61800-5-1
安装类型 Installation Type	垂直向上安装在电气柜中 Built-in unit, only for vertical installation in a switch cabinet with min. IP4x protection
环境 Environment	远离腐蚀性物质、易燃气体、油滴、水汽、化学气体以及灰尘等 Far away from corrosive, flammable gases, droplets of oil or dust etc.

表格 Table 6 环境条件 Ambient conditions

2.4 气候条件 Climate Conditions

运输过程中 In transit	按照 EN 61800-2，IEC 60721-3-2 类别 2K3(1) As per EN 61800-2，IEC 60721-3-2 class 2K3(1)	
	温度 Temperature	-25℃～+85℃
	相对湿度 Relative humidity	5～90%，无凝结 5 to 90% without condensation
储存过程中 In storage	按照 EN 61800-2，IEC60721-3-1 类别 1K3 和 1K4(2) As per EN 61800-2，IEC60721-3-1 class 1K3 和 1K4(2)	
	温度 Temperature	-25℃～+85℃
	相对湿度 Relative humidity	5 to 90% without condensation
运转过程中 In operation	按照 EN 61800-2，IEC60721-3-3 类别 3K3(3) As per EN 61800-2，IEC60721-3-3 class 3K3(3)	
	温度 Temperature	0℃～40℃， 有效功率降低的情况下可提高环境温度 When the continuous power is reduced, the ambient temperature can be increased
	相对湿度 Relative humidity	5 至 95%，无凝结 5 to 95% without condensation

表格 Table 7 气候条件 Climate conditions

(1) 绝对湿度限值为最大 60g/m^2。这表示，在 70℃条件下（例如），相对湿度最大只能是 40%；
(2) 绝对湿度限值为最大 29g/m^2。这表示，不得同时达到表中规定的温度最大值与相对空气湿度最大值；
(3) 绝对湿度限值为最大 25g/m^2。这表示，不得同时达到表中规定的温度最大值与相对空气湿度最大值。

(1) The absolute humidity is limited to max. 60 g/m³. This means, at 70 °C for example, that the relative humidity may only be max. 40 %.
(2) The absolute humidity is limited to max. 29 g/m³. So the maximum values for temperature and relative air humidity stipulated in the table must not occur simultaneously.
(3) The absolute humidity is limited to max. 25 g/m³. That means that the maximum values for temperature and relative air humidity stipulated in the table must not occur simultaneously.

3 规格参数 Specifications

3.1 AxN-PS.080.4

规格参数 Specifications		AxN-PS.080.4 风冷型 Fan cooling		AxN-PS.080.4 水冷型 Water cooling
主电源供电电压 **Main power supply voltage**	V	3AC 150…500		3AC 150…500
整流功率 Rectifier power				
• 额定功率 P_N 在 380VAC 下（S1） Continuous power P_N at 380VAC (S1)	kW	80		100
• 峰值 P_{max} Peak P_{max}	kW	125		125
输入电流 Input current				
• 额定电流 3AC380V 时 Rated current at 3AC380V	A	123		153
• 最大 Max	A	192		192
直流母线电流 DC bus current				
• 额定，DC537V 下 Continuous, at DC537V	A	150		186
• 最大 Max	A	250		250
DC24V 辅助电源电流，最大 **DC24V Auxiliary power supply, max**	A	2.1		1
载流能力 Current carrying capacity				
• 24V 直流母排 24V DC busbar	A	16		16
• 直流母线母排 DC BUS busbar	A	300		300
直流母线电容 DC bus capacitor	μF	200		200
制动功率 Braking power				
• 峰值 Peak power	kW	160		160
• 持续制动功率 Continuous power	kW	20		25
制动阈值 Braking threshold				
• 输入 Input 3AC 380V	V	750（DC BUS）		750（DC BUS）
• 输入 Input 3AC 480V	V	800（DC BUS）		800（DC BUS）
外部制动电阻 Braking resistance ext.	Ω	2		2
功率损耗 Power loss	kW	1.4		1.8
冷却 Cooling		风扇 Fan		水 Water
• 流量 Flow rate		5m³/min		10L/min
• 最大入口压强 Max. inlet pressure		—		5Bar
• 压差 Nominal pressure difference		—		0.2Bar
• 进口水温度 Inlet water Temp.		—		≤20℃
防护等级 Protection		IP20		IP20
尺寸 **Dimensions**		柜内安装 Wall mounting	穿墙安装 Feed-through mounting	冷却板安装 Cold plate mounting
• 宽度 Width	mm	196	196	196
• 高度 Height	mm	450	420	420
• 深度 Depth	mm	259.4	262.7	176.9
约重 Approx. weight	kg	15.8	14.8	14

表格 Table 8 AxN-PS.080.4 规格参数 Specifications

3.2 AxN-DC.044.6; AxN-DC.070.6

规格参数 Specifications		AxN-DC.044.6 风冷型 Fan cooling		AxN-DC.070.6 风冷型 Fan cooling	
直流母线电压 **DC BUS voltage**	V	DC 0…800		DC 0…800	
输出电流 Output current • 额定电流 I_N Continuous current I_N • 最大 Max	 A A	 22 44		 35 70	
额定功率 Continuous power 基于 Based on I_N	kW	11		17.5	
额定脉冲频率 Switching frequency	kHz	8		8	
输出频率 Output frequency • 数字指令 Digital • 模拟指令 Analog	 Hz Hz	 0…1200 ±0.01% 0…1200 ±0.2%		 0…1200 ±0.01% 0…1200 ±0.2%	
直流母线电流 DC bus current • 额定，DC537V 下 Continuous, at DC537V	A	28		44	
DC24V 辅助电源电流，最大 **DC24V Auxiliary power supply, max**	A	1.3		1.3	
载流能力 Current carrying capacity • 24V 直流母排 24V DC busbar • 直流母线母排 DC BUS busbar	 A A	 16 300		 16 300	
直流母线电容 DC bus capacitor	μF	100		100	
功率损耗 Power loss	kW	0.28		0.4	
冷却 Cooling • 流量 Flow rate		风扇 Fan 1.4m³/min		风扇 Fan 1.4m³/min	
防护等级 Protection		IP20		IP20	
尺寸 **Dimensions** • 宽度 Width • 高度 Height • 深度 Depth	 mm mm mm	柜内安装 Wall mounting 98 450 259.4	穿墙安装 Feed-through mounting 98 420 262.7	柜内安装 Wall mounting 98 450 259.4	穿墙安装 Feed-through mounting 98 420 262.7
约重 Approx. weight	kg	8.4	7.7	8.4	7.7

表格 Table 9 AxN-DC.044.6; AxN-DC.070.6 规格参数 Specifications

3.3 AxN-DC.100.6; AxN-DC.140.6

规格参数 Specifications		AxN-DC.100.6 风冷型 Fan cooling		AxN-DC.140.6 风冷型 Fan cooling	
直流母线电压 **DC BUS voltage**	V	DC 0…800		DC 0…800	
输出电流 Output current • 额定电流 I_N Continuous current I_N • 最大 Max	 A A	 50 100		 70 140	
额定功率 Continuous power 基于 Based on I_N	kW	25		35	
额定脉冲频率 Switching frequency	kHz	8		8	
输出频率 Output frequency • 数字指令 Digital • 模拟指令 Analog	 Hz Hz	 0…1200 ±0.01% 0…1200 ±0.2%		 0…1200 ±0.01% 0…1200 ±0.2%	
直流母线电流 DC bus current • 额定，DC537V 下 Continuous, at DC537V	 A	 63		 88	
DC24V 辅助电源电流，最大 **DC24V Auxiliary power supply, max**	A	2.1		2.1	
载流能力 Current carrying capacity • 24V 直流母排 24V DC busbar • 直流母线母排 DC BUS busbar	 A A	 16 300		 16 300	
直流母线电容 DC bus capacitor	μF	200		200	
功率损耗 Power loss	kW	0.59		0.87	
冷却 Cooling • 流量 Flow rate		风扇 Fan 5m³/min		风扇 Fan 5m³/min	
防护等级 Protection		IP20		IP20	
尺寸 **Dimensions** • 宽度 Width • 高度 Height • 深度 Depth	 mm mm mm	柜内安装 Wall mounting 196 450 259.4	穿墙安装 Feed-through mounting 196 420 262.7	柜内安装 Wall mounting 196 450 259.4	穿墙安装 Feed-through mounting 196 420 262.7
约重 Approx. weight	kg	14.8	13.9	14.8	13.9

表格 Table 10 AxN-DC.100.6; AxN-DC.140.6 规格参数 Specifications

3.4 AxN-DC.200.6

规格参数 Specifications		AxN-DC.200.6 风冷型 Fan cooling		AxN-DC.200.6 水冷型 Water cooling
直流母线电压 **DC BUS voltage**	V	DC 0…800		DC 0…800
输出电流 Output current				
• 额定电流 I_N Continuous current I_N	A	100		150
• 最大 Max	A	200		200
额定功率 Continuous power 基于 Based on I_N	kW	50		75
额定脉冲频率 Switching frequency	kHz	8		8
输出频率 Output frequency				
• 数字指令 Digital	Hz	0…1200 ±0.01%		0…1200 ±0.01%
• 模拟指令 Analog	Hz	0…1200 ±0.2%		0…1200 ±0.2%
直流母线电流 DC bus current				
• 额定，DC537V 下 Continuous, at DC537V	A	126		189
DC24V 辅助电源电流，最大 **DC24V Auxiliary power supply, max**	A	2.7		1
载流能力 Current carrying capacity				
• 24V 直流母排 24V DC busbar	A	16		16
• 直流母线母排 DC BUS busbar	A	300		300
直流母线电容 DC bus capacitor	μF	300		300
功率损耗 Power loss	kW	1.28		1.9
冷却 Cooling		风扇 Fan		水 Water
• 流量 Flow rate		7.5m³/min		8L/min
• 最大入口压强 Max. inlet pressure		—		5Bar
• 压差 Nominal pressure difference		—		0.2Bar
• 进口水温度 Inlet water Temp.		—		≤20℃
防护等级 Protection		IP20		IP20
尺寸 **Dimensions**		柜内安装 Wall mounting	穿墙安装 Feed-through mounting	冷却板安装 Cold plate mounting
• 宽度 Width	mm	294	294	294
• 高度 Height	mm	450	420	420
• 深度 Depth	mm	259.4	262.7	176.9
约重 Approx. weight	kg	21.7	20.3	19

表格 Table 11 AxN-DC.200.6 规格参数 Specifications

3.5 AxN-DC.300.6

规格参数 Specifications		AxN-DC.300.6 风冷型 Fan cooling		AxN-DC.300.6 水冷型 Water cooling
直流母线电压 **DC BUS voltage**	V	DC 0…800		DC 0…800
输出电流 Output current				
• 额定电流 I_N Continuous current I_N	A	150		225
• 最大 Max	A	300		300
额定功率 Continuous power 基于 Based on I_N	kW	75		112.5
额定脉冲频率 Switching frequency	kHz	8		8
输出频率 Output frequency				
• 数字指令 Digital	Hz	0…1200 ±0.01%		0…1200 ±0.01%
• 模拟指令 Analog	Hz	0…1200 ±0.2%		0…1200 ±0.2%
直流母线电流 DC bus current				
• 额定，DC537V 下 Continuous, at DC537V	A	189		284
DC24V 辅助电源电流，最大 **DC24V Auxiliary power supply, max**	A	2.7		1
载流能力 Current carrying capacity				
• 24V 直流母排 24V DC busbar	A	16		16
• 直流母线母排 DC BUS busbar	A	300		300
直流母线电容 DC bus capacitor	μF	300		300
功率损耗 Power loss	kW	1.93		2.9
冷却 Cooling		风扇 Fan		水 Water
• 流量 Flow rate		7.5m³/min		10L/min
• 最大入口压强 Max. inlet pressure		—		5Bar
• 压差 Nominal pressure difference		—		0.25Bar
• 进口水温度 Inlet water Temp.		—		≤20℃
防护等级 Protection		IP20		IP20
尺寸 **Dimensions**		柜内安装 Wall mounting	穿墙安装 Feed-through mounting	冷却板安装 Cold plate mounting
• 宽度 Width	mm	294	294	294
• 高度 Height	mm	450	420	420
• 深度 Depth	mm	259.4	262.7	176.9
约重 Approx. weight	kg	21.7	20.3	19

表格 Table 12 AxN-DC.300.6 规格参数 Specifications

3.6 AxN-DC.400.6

规格参数 Specifications		AxN-DC.400.6 风冷型 Fan cooling		AxN-DC.400.6 水冷型 Water cooling
直流母线电压 **DC BUS voltage**	V	DC 0…800		DC 0…800
输出电流 Output current				
• 额定电流 I_N Continuous current I_N	A	200		300
• 最大 Max	A	400		400
额定功率 Continuous power 基于 Based on I_N	kW	100		150
额定脉冲频率 Switching frequency	kHz	8		8
输出频率 Output frequency				
• 数字指令 Digital	Hz	0…1200 ±0.01%		0…1200 ±0.01%
• 模拟指令 Analog	Hz	0…1200 ±0.2%		0…1200 ±0.2%
直流母线电流 DC bus current				
• 额定，DC537V 下 Continuous, at DC537V	A	254		381
DC24V 辅助电源电流，最大 **DC24V Auxiliary power supply, max**	A	5.8		1
载流能力 Current carrying capacity				
• 24V 直流母排 24V DC busbar	A	16		16
• 直流母线母排 DC BUS busbar	A	300		300
直流母线电容 DC bus capacitor	μF	300		300
功率损耗 Power loss	kW	3.28		4.92
冷却 Cooling		风扇 Fan		水 Water
• 流量 Flow rate		11.4m³/min		14L/min
• 最大入口压强 Max. inlet pressure		—		5Bar
• 压差 Nominal pressure difference		—		0.3Bar
• 进口水温度 Inlet water Temp.		—		≤20℃
防护等级 Protection		IP20		IP20
尺寸 **Dimensions**		柜内安装 Wall mounting	穿墙安装 Feed-through mounting	冷却板安装 Cold plate mounting
• 宽度 Width	mm	294	294	294
• 高度 Height	mm	450	420	420
• 深度 Depth	mm	259.4	262.7	176.9
约重 Approx. weight	kg	21.7	20.3	19

表格 Table 13 AxN-DC.400.6 规格参数 Specifications

3.7 AxN-DC.800.6

规格参数 Specifications		AxN-DC.800.6 风冷型 Fan cooling		AxN-DC.800.6 水冷型 Water cooling
直流母线电压 **DC BUS voltage**	V	DC 0…800		DC 0…800
输出电流 Output current				
• 额定电流 I_N Continuous current I_N	A	400		600
• 最大 Max	A	800		800
额定功率 Continuous power 基于 Based on I_N	kW	200		300
额定脉冲频率 Switching frequency	kHz	8		8
输出频率 Output frequency				
• 数字指令 Digital	Hz	0…1200 ±0.01%		0…1200 ±0.01%
• 模拟指令 Analog	Hz	0…1200 ±0.2%		0…1200 ±0.2%
直流母线电流 DC bus current				
• 额定，DC537V 下 Continuous, at DC537V	A	512		767
DC24V 辅助电源电流，最大 **DC24V Auxiliary power supply, max**	A	3.8		1
载流能力 Current carrying capacity				
• 24V 直流母排 24V DC busbar	A	16		16
• 直流母线母排 DC BUS busbar	A	420		420
直流母线电容 DC bus capacitor	μF	500		500
功率损耗 Power loss	kW	8.86		13
冷却 Cooling		风扇 Fan		水 Water
• 流量 Flow rate		12.5m³/min		20L/min
• 最大入口压强 Max. inlet pressure		—		5Bar
• 压差 Nominal pressure difference		—		0.4Bar
• 进口水温度 Inlet water Temp.		—		≤20℃
防护等级 Protection		IP20		IP20
尺寸 **Dimensions**		柜内安装 Wall mounting	穿墙安装 Feed-through mounting	冷却板安装 Cold plate mounting
• 宽度 Width	mm	490	490	490
• 高度 Height	mm	450	420	420
• 深度 Depth	mm	259.4	262.7	176.9
约重 Approx. weight	kg	36.5	34.1	32

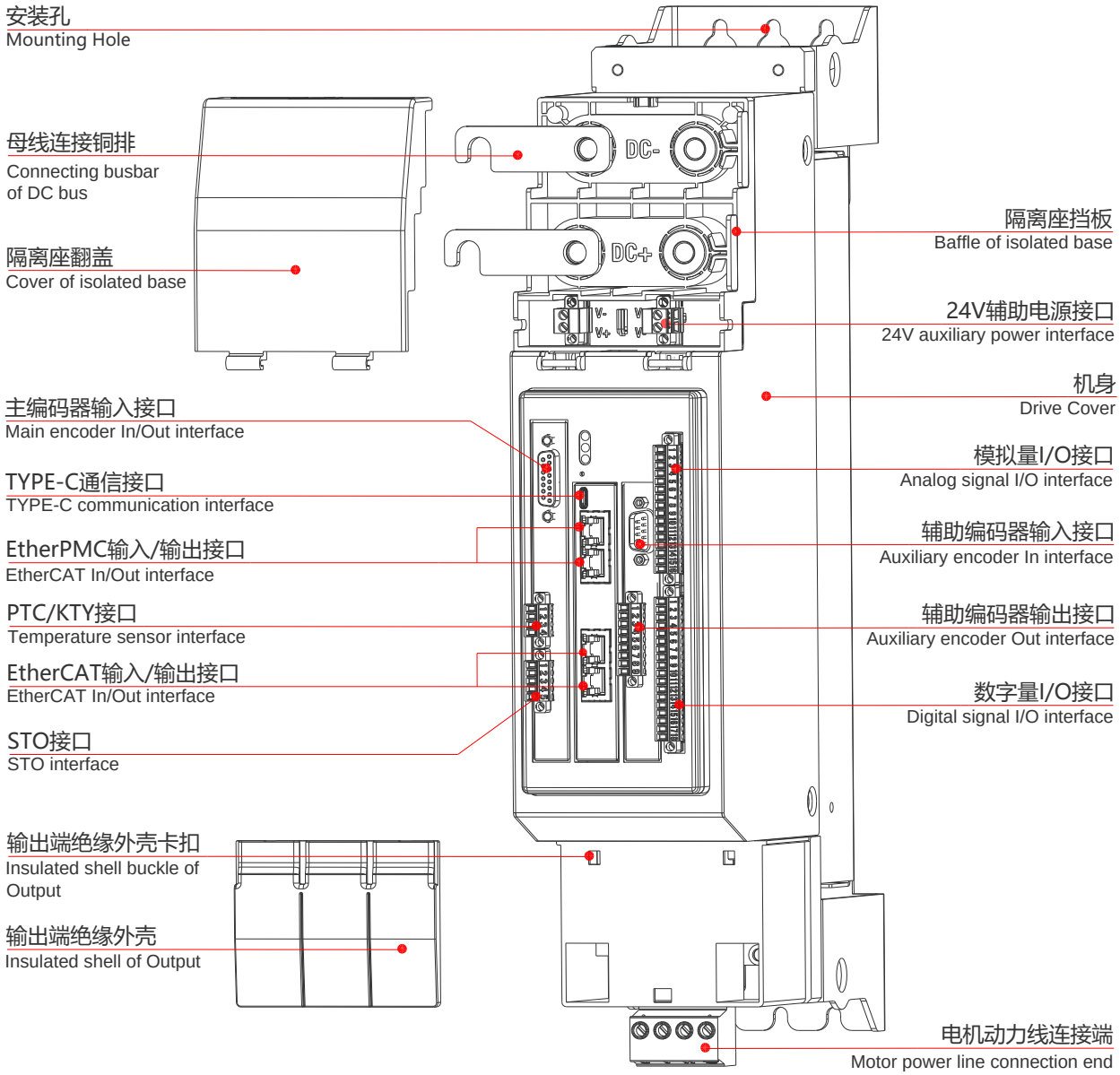
表格 Table 14 AxN-DC.800.6 规格参数 Specifications

3.8 AxN-CP.060.6; AxN-CP.470.6

规格参数 Specifications		AxN-CP.470.6 风冷型 Fan cooling	AxN-CP.060.6 水冷型 Water cooling
容量 Capacity	μF	4700	600
DC24V 辅助电源电流，最大 **DC24V Auxiliary power supply, max**	A	0.12	—
载流能力 Current carrying capacity			
• 24V 直流母排 24V DC busbar	A	16	16
• 直流母线母排 DC BUS busbar	A	300	300
冷却 Cooling		风扇 Fan	—
• 流量 Flow rate		0.6m³/min	—
防护等级 Protection		IP20	IP20
尺寸 **Dimensions**		柜内安装 Wall mounting	冷却板安装 Cold plate mounting
• 宽度 Width	mm	98	490
• 高度 Height	mm	450	420
• 深度 Depth	mm	236	176.9
约重 Approx. weight	kg	7	6

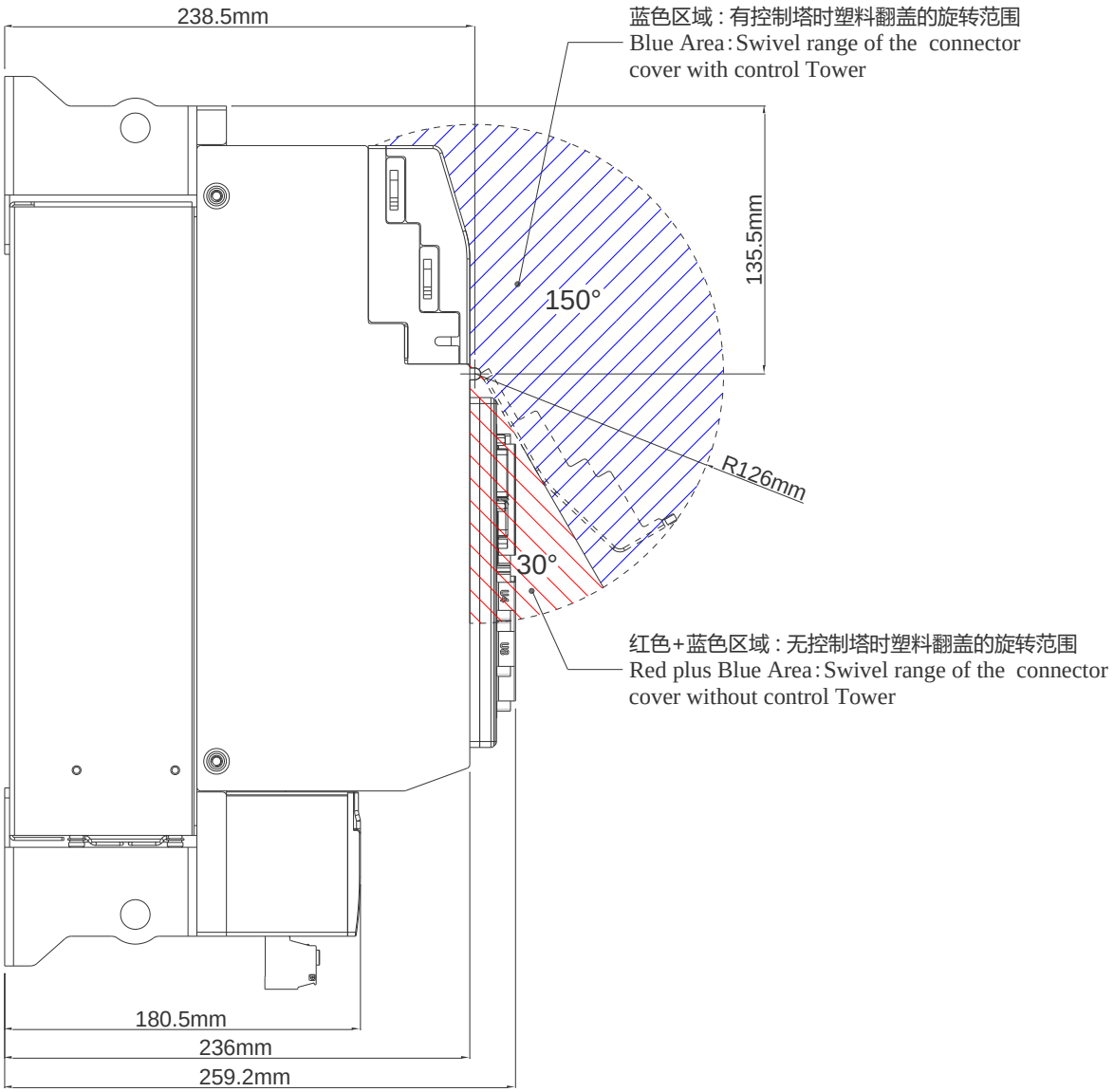
表格 Table 15 AxN-CP.060.6; AxN-CP.470.6 规格参数 Specifications

1 零件分解图 Exploded View



图片 Figure 9 AxN-DC.044.6 分解图 Exploded view

2 翻盖旋转范围 Swivel Range of the Connector Cover

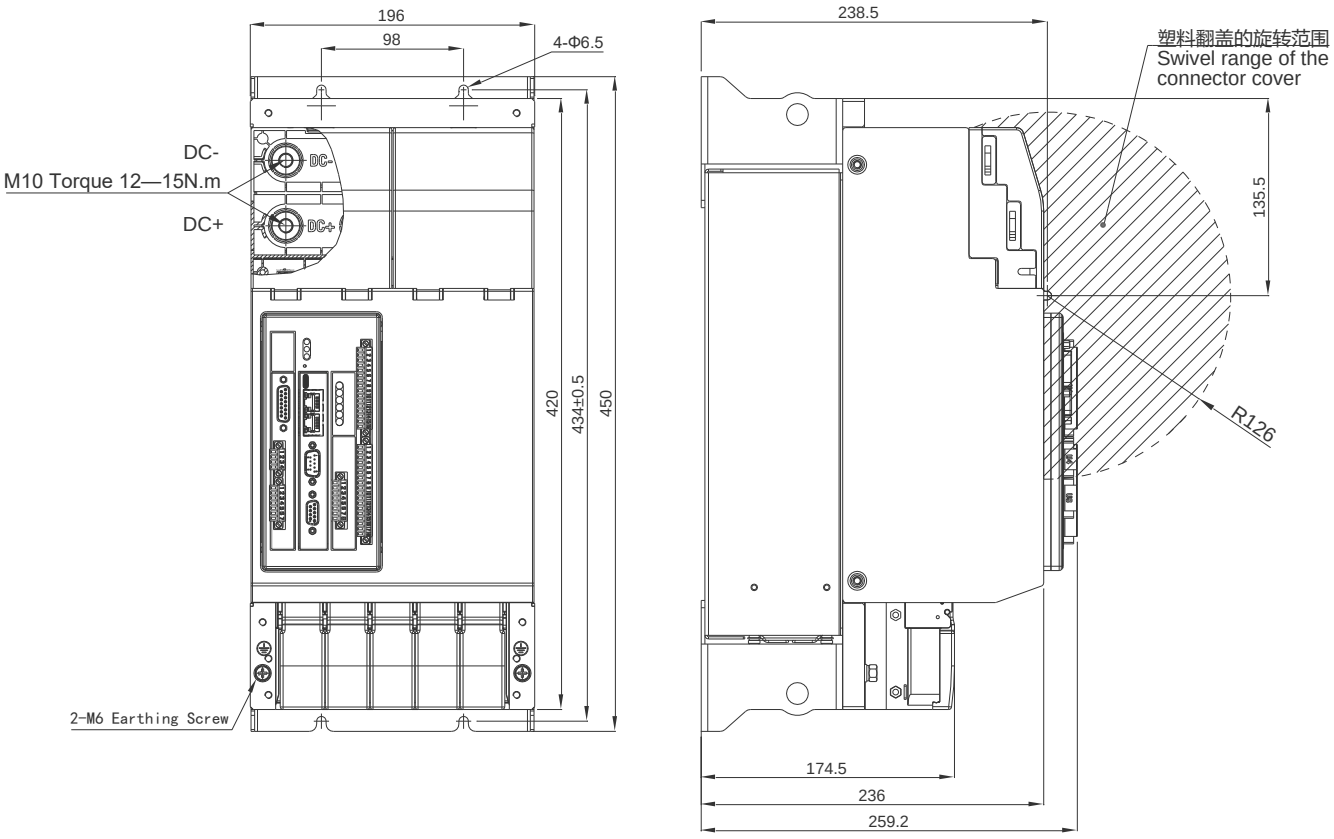


图片 Figure 10 翻盖旋转范围 Swivel range of the connector cover

3 尺寸图 Dimensions

3.1 风冷，柜内安装 Fan cooling, Wall mounting

3.1.1 AxN-PS 080.4



图片 Figure 11 AxN-PS.080.4 柜内安装 Wall mounting

3.1.2 AxN-DC 044.6; AxN-DC.070.6

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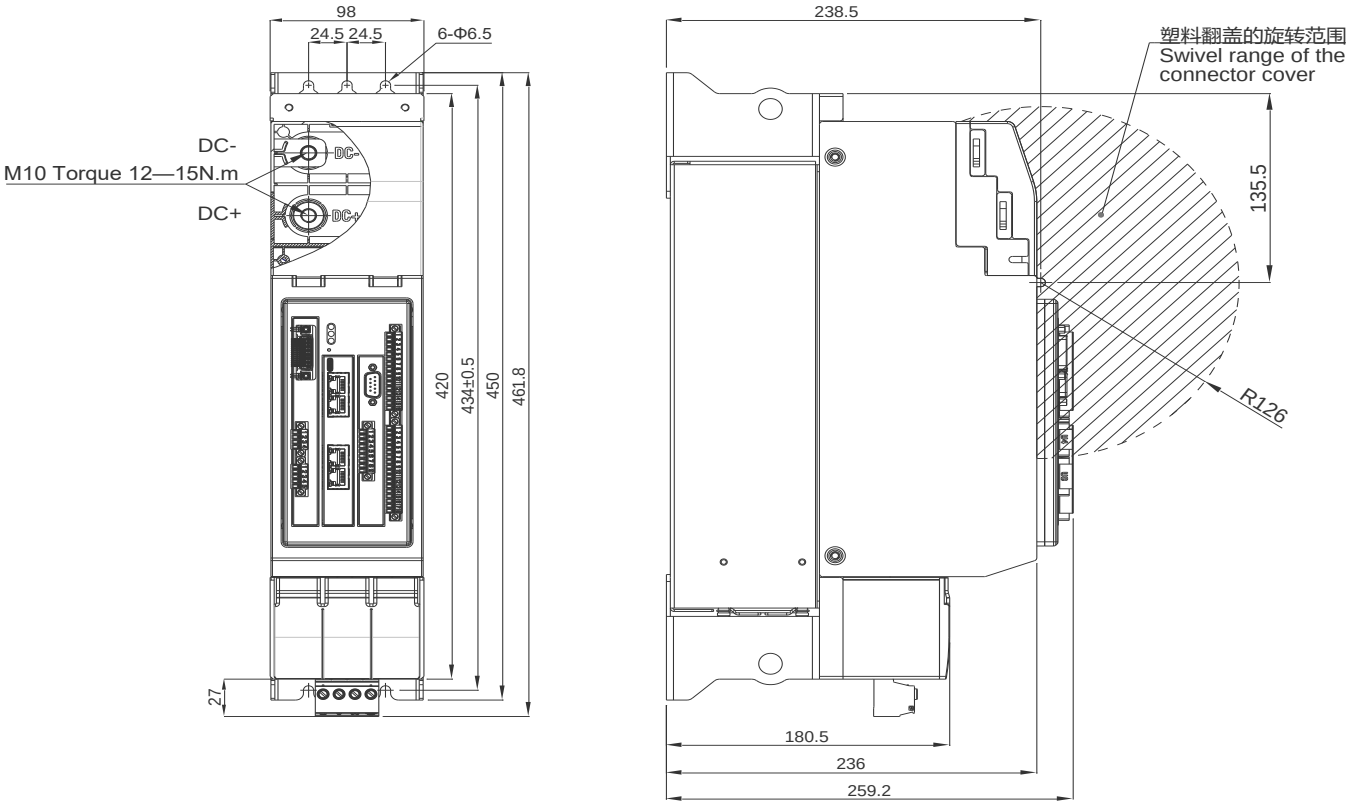
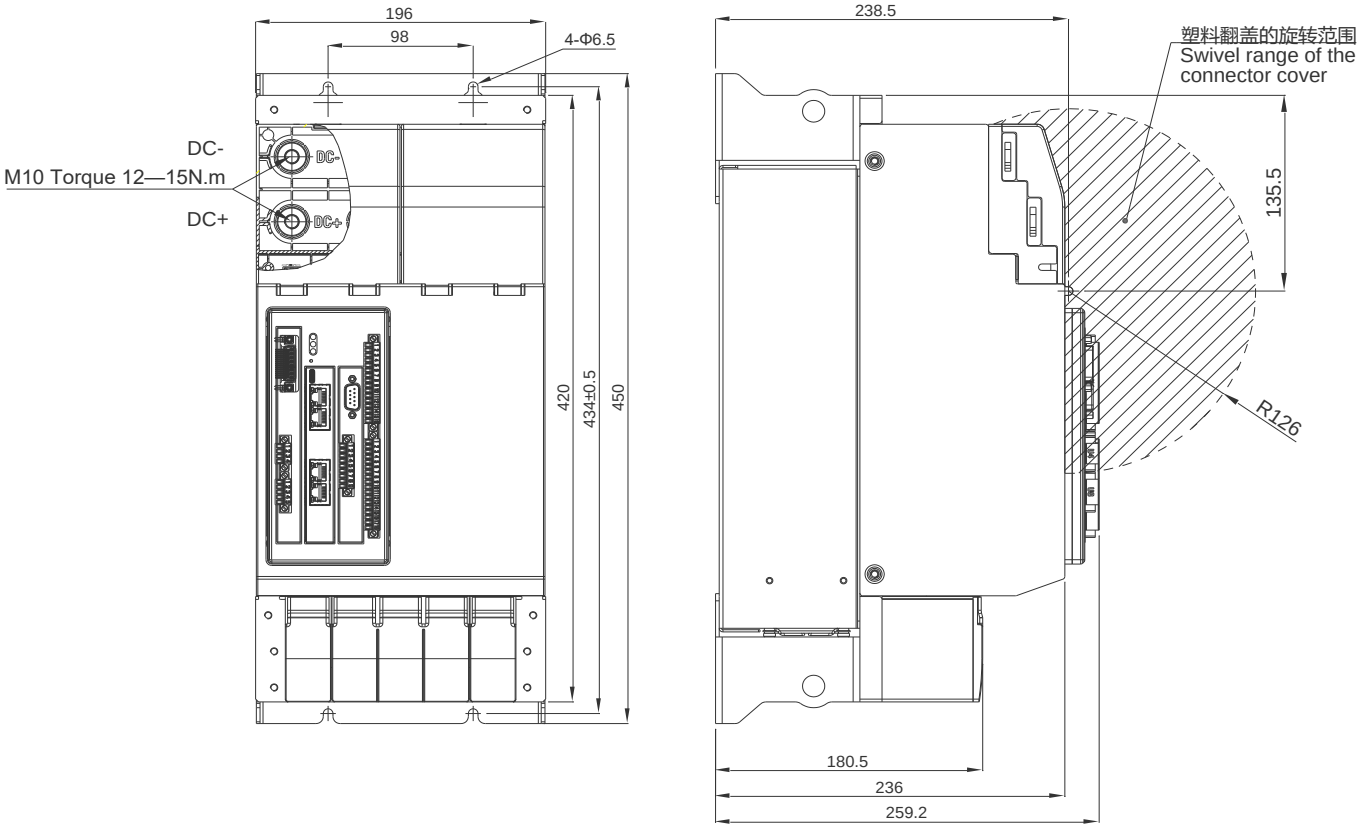


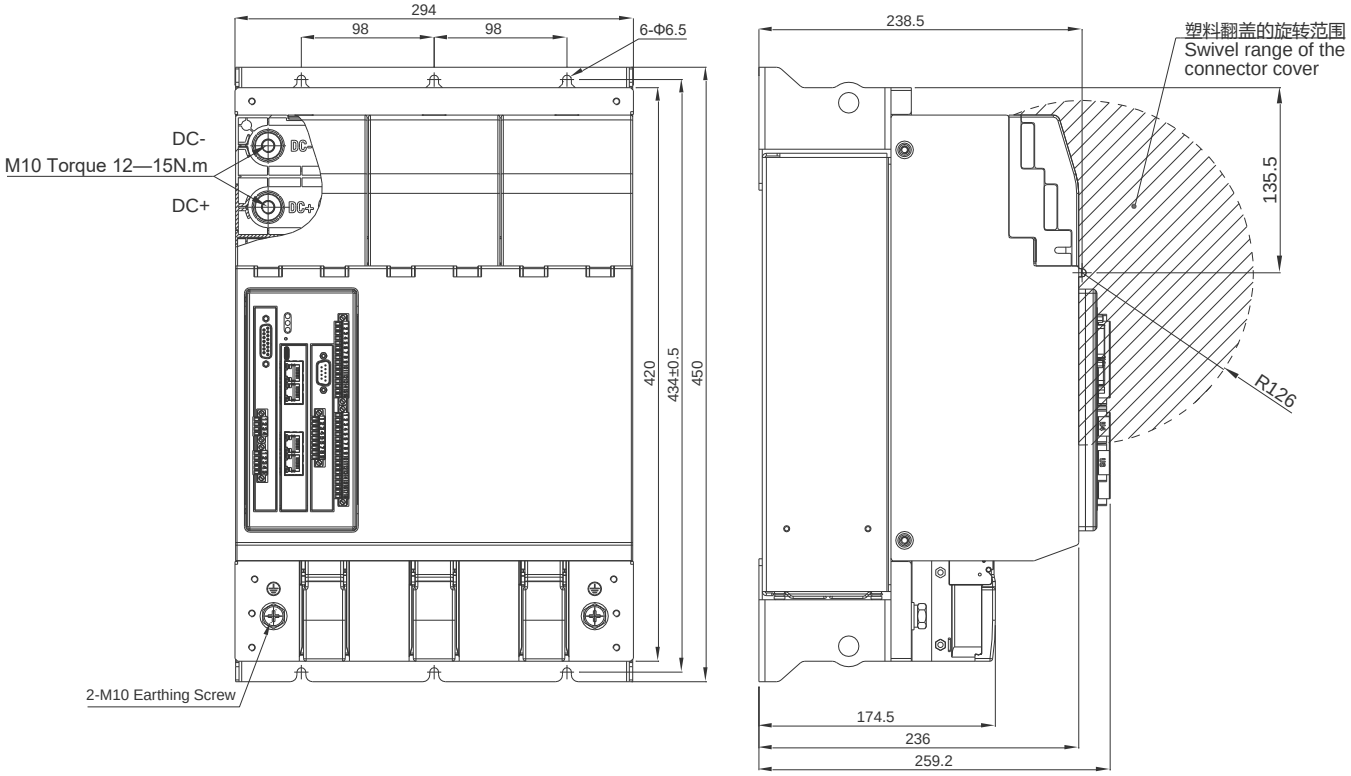
图片 Figure 12 AxN-DC.044.6; AxN-DC.070.6 柜内安装 Wall mounting

3.1.3 AxN-DC.100.6; AxN-DC.140.6



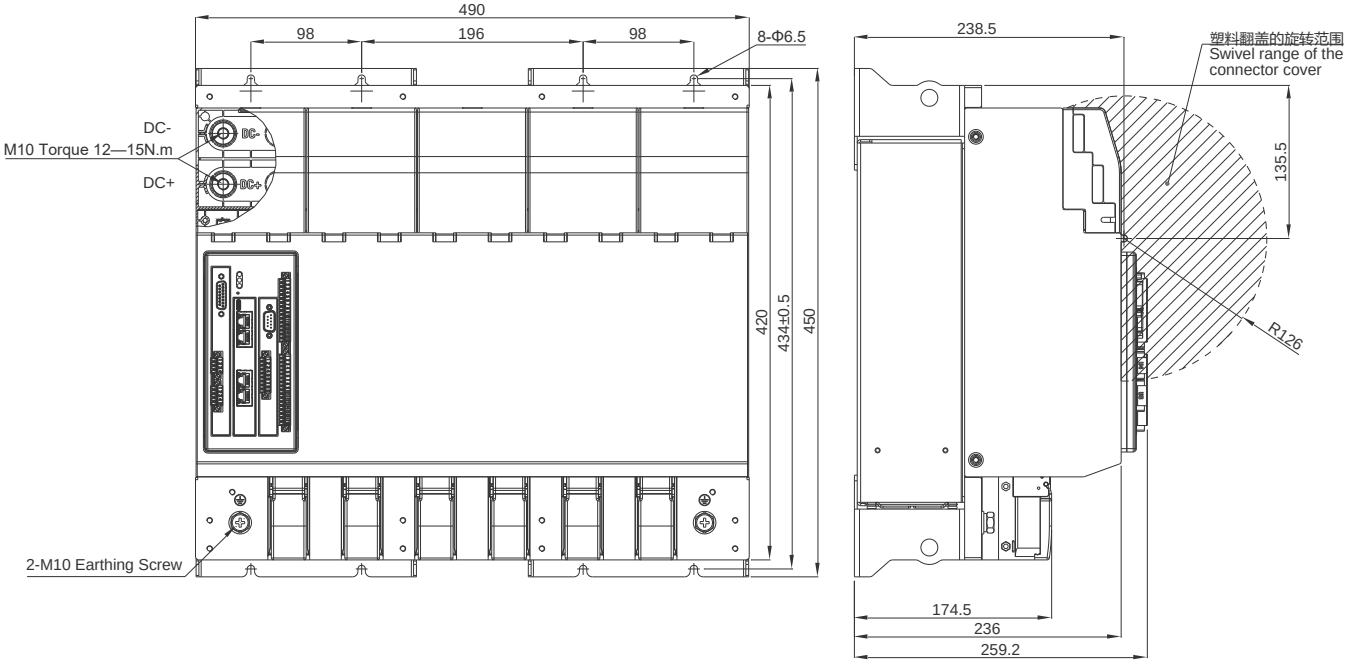
图片 Figure 13 AxN-DC.100.6; AxN-DC.140.6 柜内安装 Wall mounting

3.1.4 AxN-DC.200.6; AxN-DC.300.6; AxN-DC.400.6



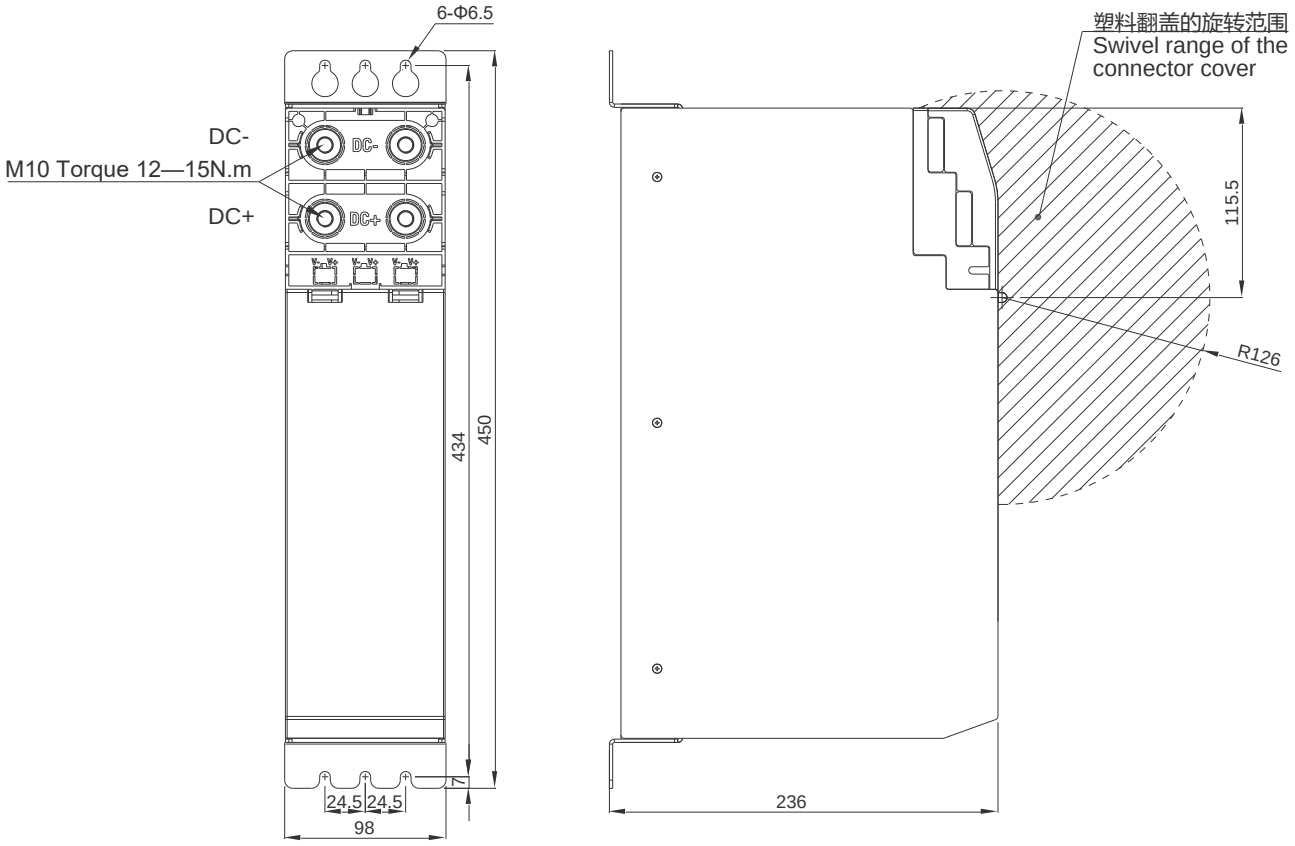
图片 Figure 14 AxN-DC.200.6; AxN-DC.300.6; AxN-DC.400.6 柜内安装 Wall mounting

3.1.5 AxN-DC.800.6



图片 Figure 15 AxN-DC.800.6 柜内安装 Wall mounting

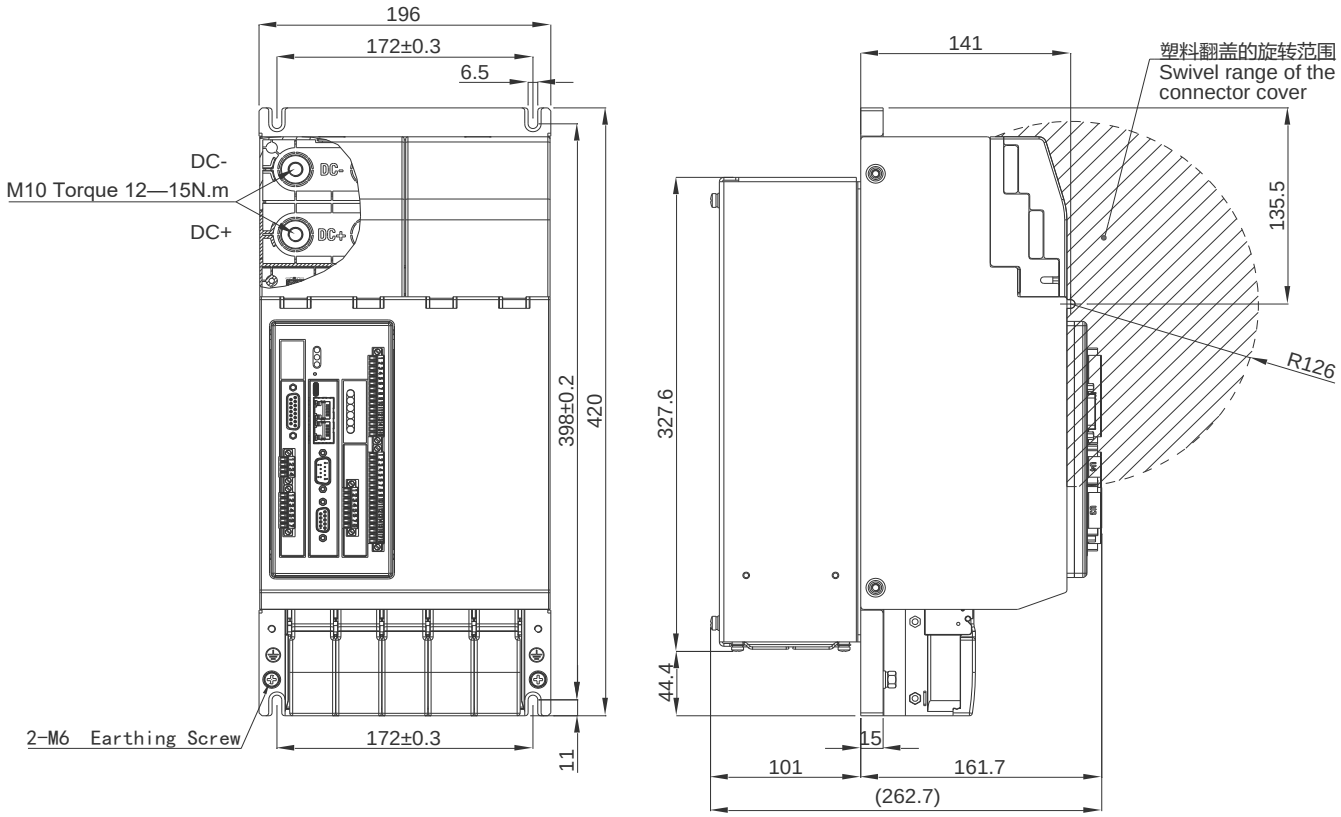
3.1.6 AxN-CP.470.6



图片 Figure 16 AxN-DCP.470.6 柜内安装 Wall mounting

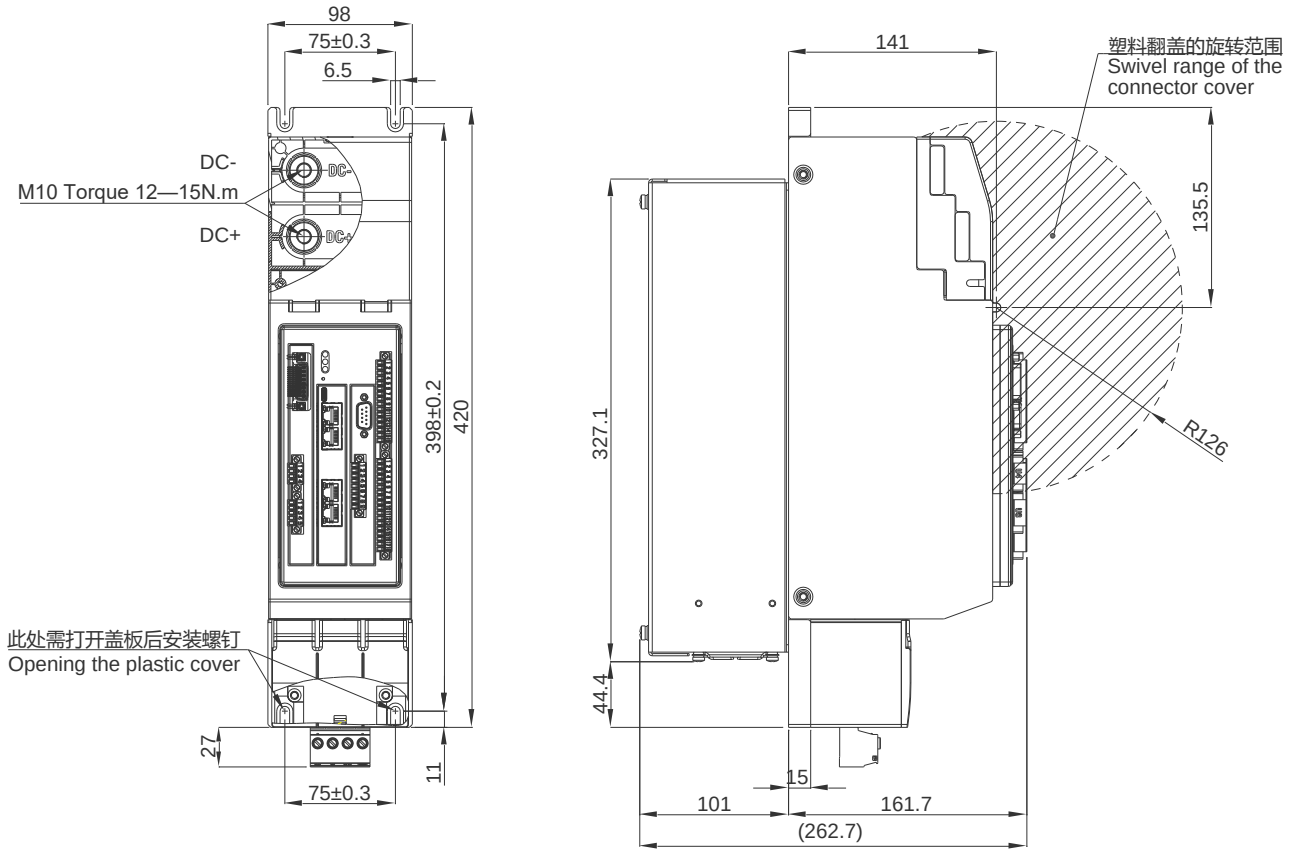
3.2 风冷，穿墙安装 Fan Cooling, Feed-through Mounting

3.2.1 AxN-PS.080.4



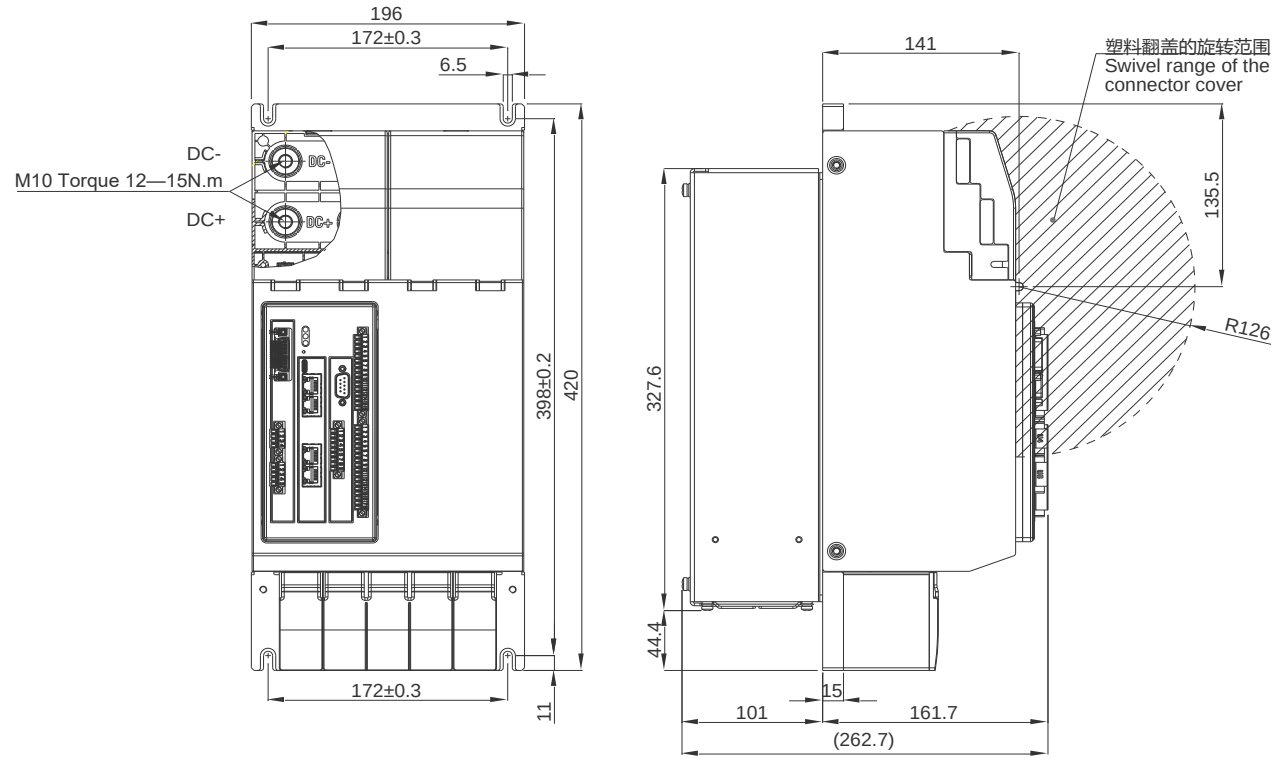
图片 Figure 17 AxN-PS.080.4 穿墙安装 Feed-through mounting

3.2.2 AxN-DC.044.6; AxN-DC.070.6



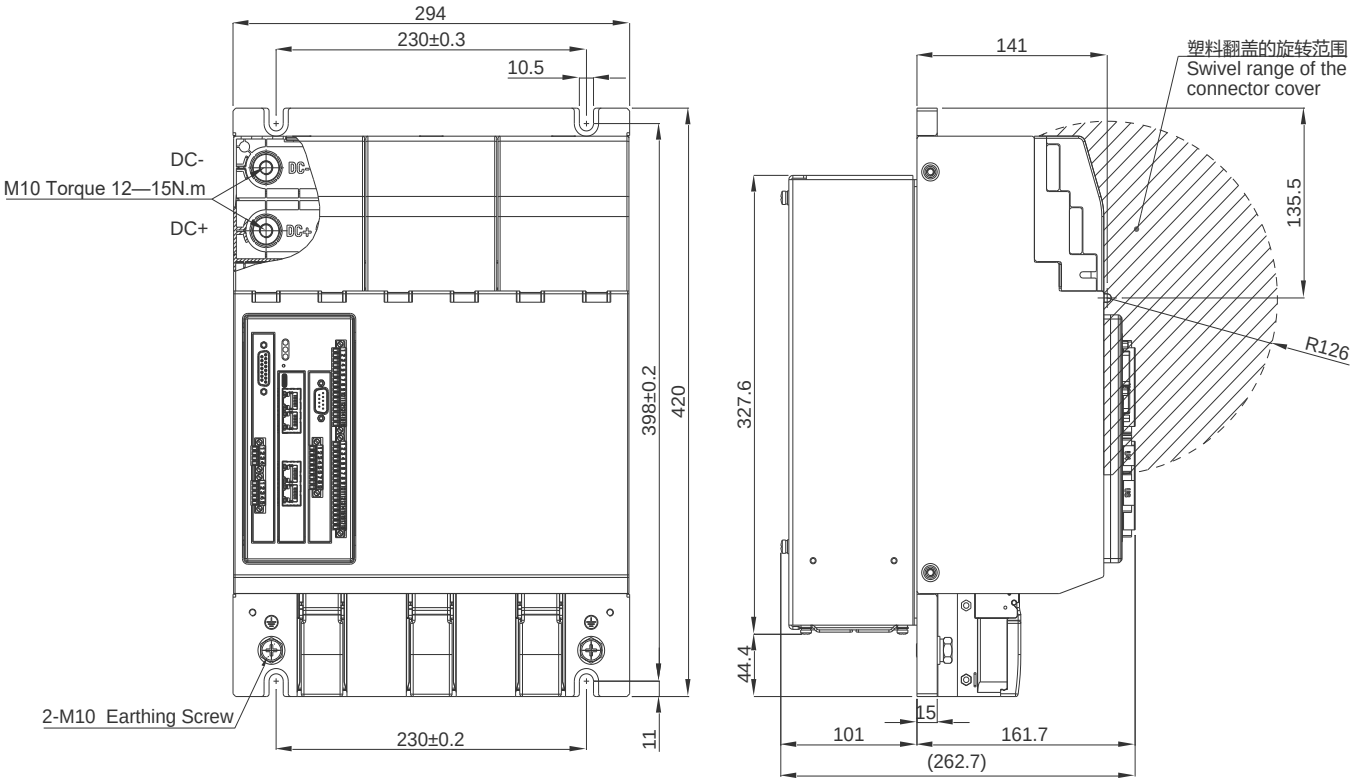
图片 Figure 18 AxN-DC.044.6; AxN-DC.070.6 穿墙安装 Feed-through mounting

3.2.3 AxN-DC.100.6; AxN-DC.140.6



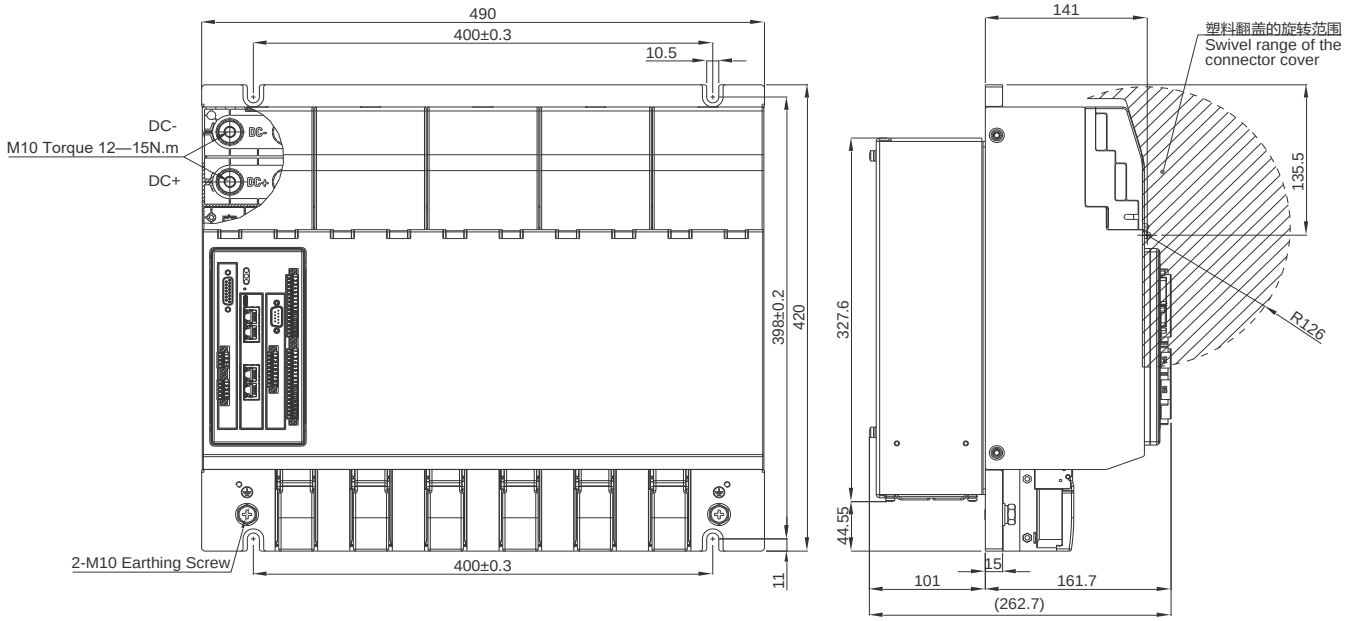
图片 Figure 19 AxN-DC.100.6; AxN-DC.140.6 穿墙安装 Feed-through mounting

3.2.4 AxN-DC.200.6; AxN-DC.300.6; AxN-DC.400.6



图片 Figure 20 AxN-DC.200.6; AxN-DC.300.6; AxN-DC.400.6 穿墙安装 Feed-through mounting

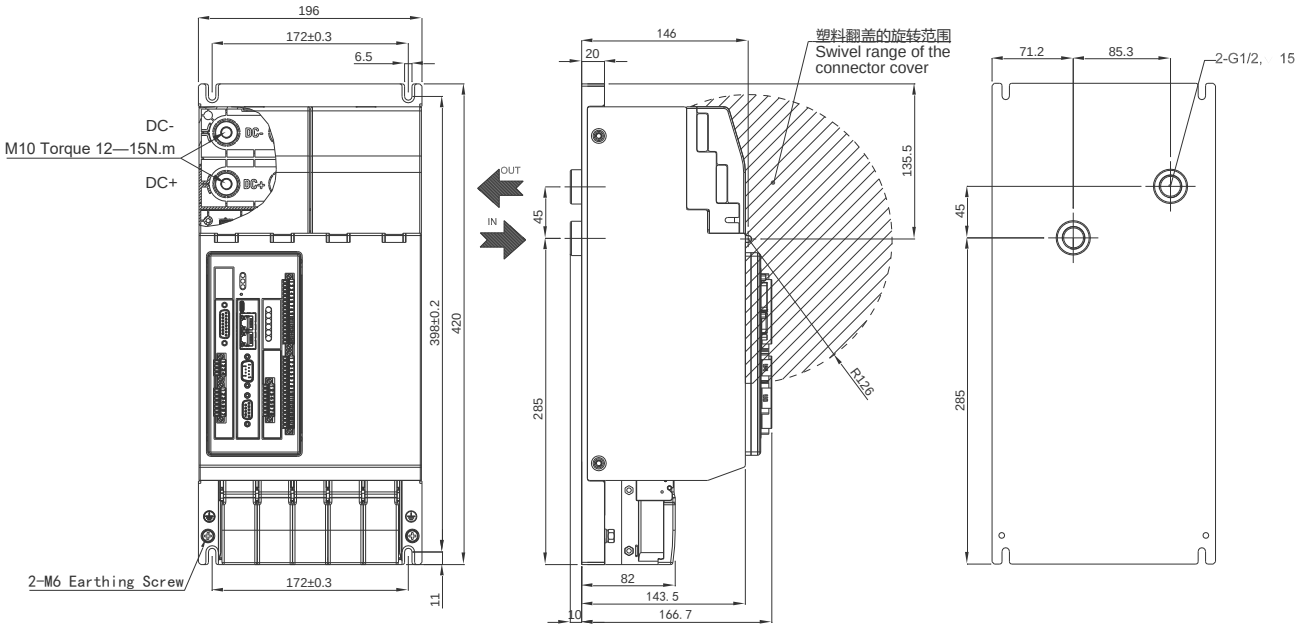
3.2.5 AxN-DC.800.6



图片 Figure 21 AxN-DC.800.6 穿墙安装 Feed-through mounting

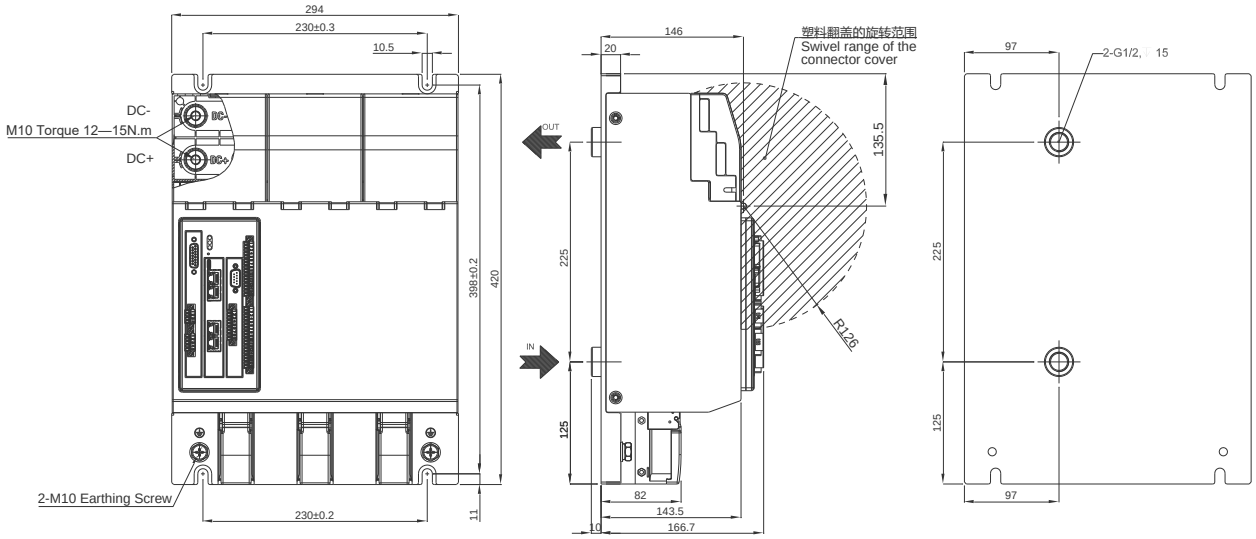
3.3 水冷，冷却板安装 Water Cooling, Cold Plate Mounting

3.3.1 AxN-PS.080.4



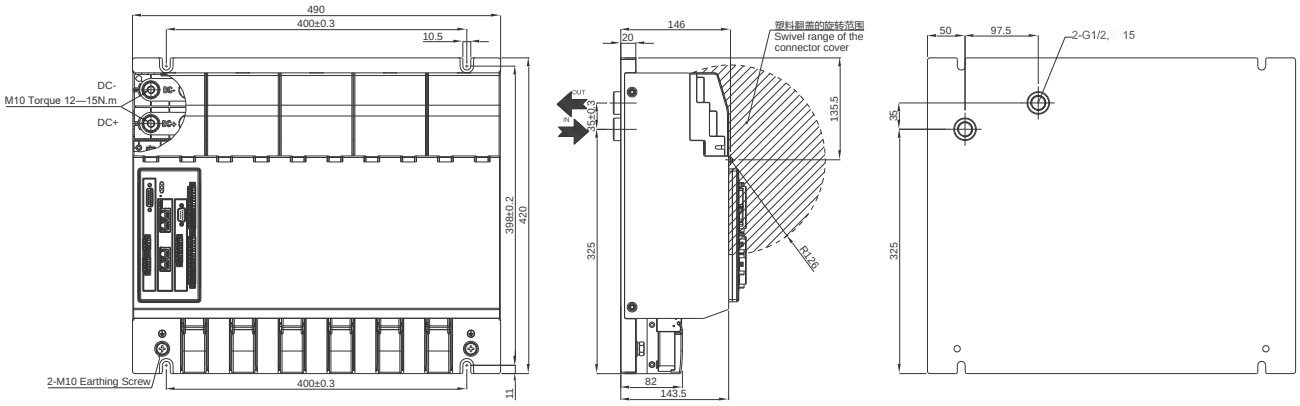
图片 Figure 22 AxN-PS.080.4 冷却板安装 Cold plate mounting

3.3.2 AxN-DC.200.6; AxN-DC.300.6; AxN-DC.400.6



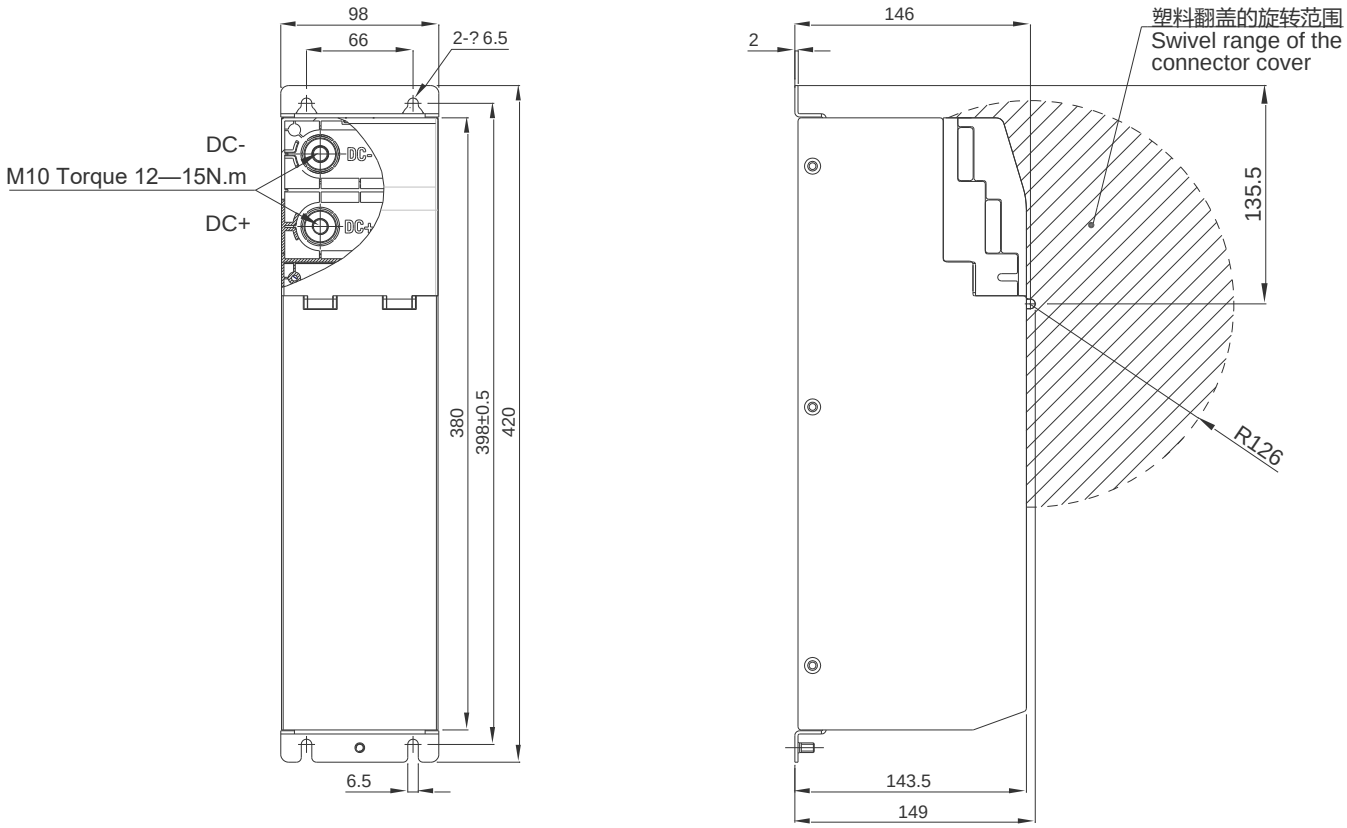
图片 Figure 23 AxN-DC.200.6; AxN-DC.300.6; AxN-DC.400.6 冷却板安装 Cold plate mounting

3.3.3 AxN-DC.800.6



图片 Figure 24 AxN-DC.800.6 冷却板安装 Cold plate mounting

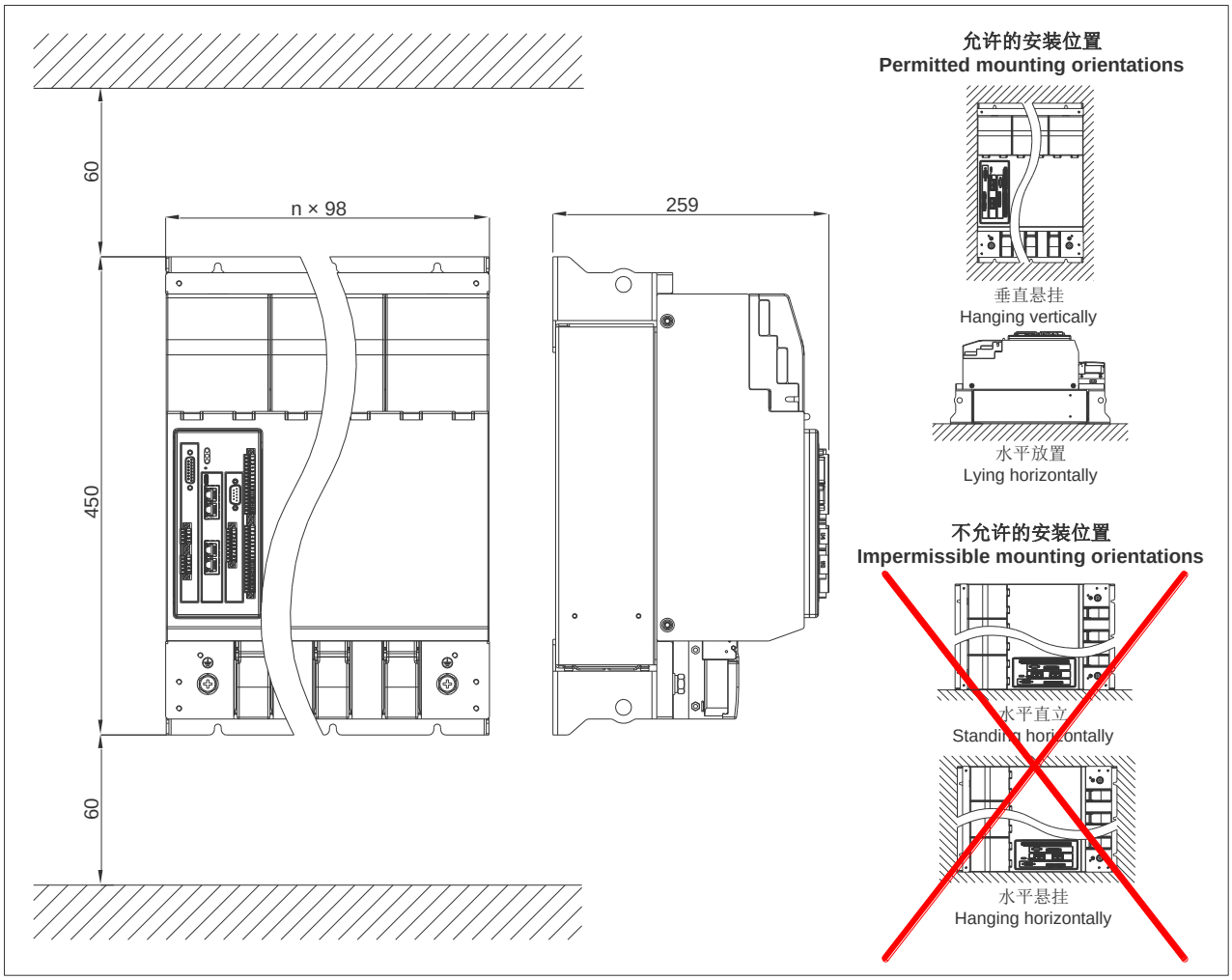
3.3.4 AxN-CP.060.6



图片 Figure 25 AxN-CP.060.6 冷却板安装 Cold plate mounting

4 安装空间与方向 Installation Space and Direction

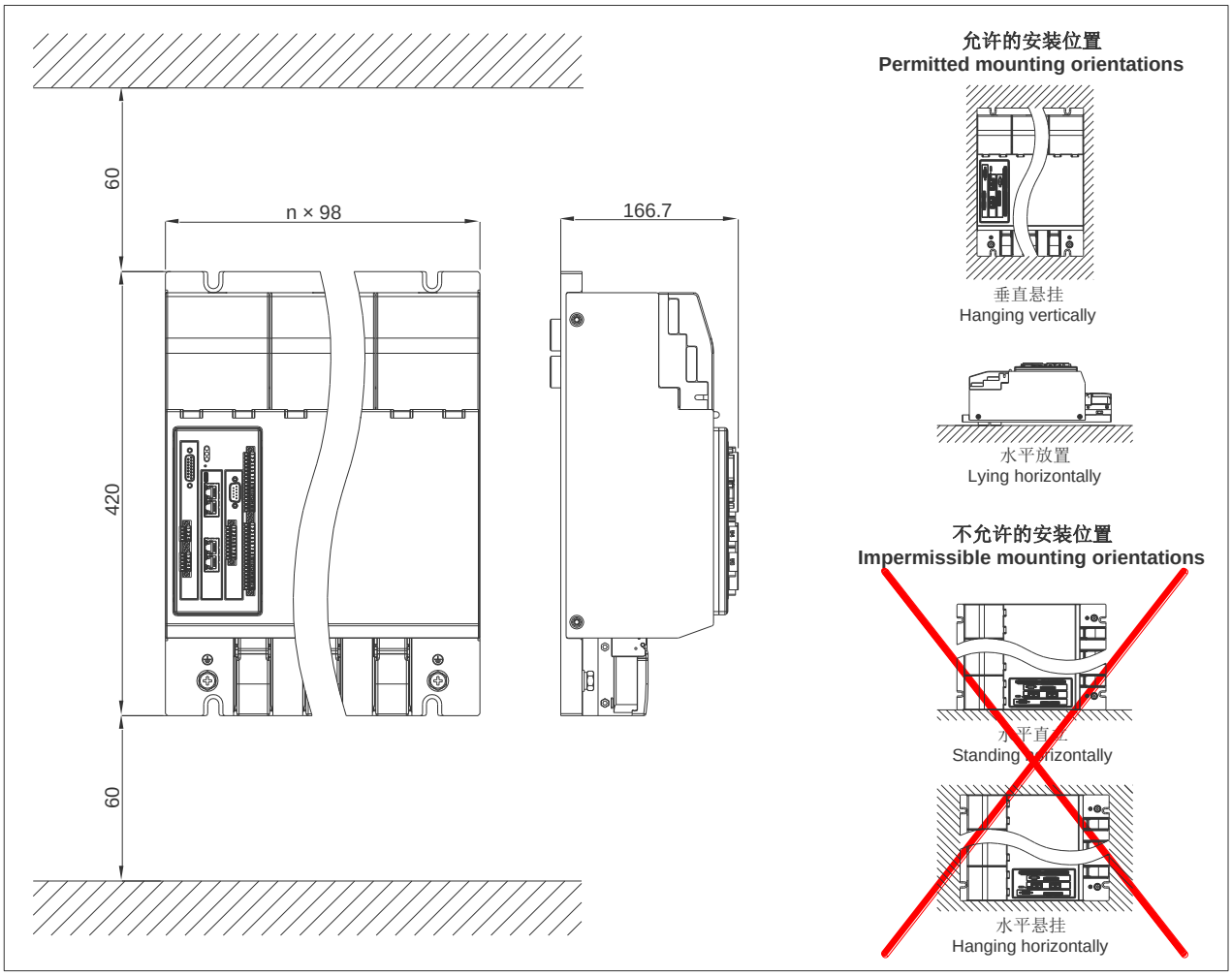
4.1 风冷 Fan Cooling



1）Preference is given to vertical suspension installation, secondary placement horizontal placement
优先选择垂直悬挂安装，次选水平放置安装；
2) For proper air circulation,at least 60 mm clearance must be available above and below the module.
为了实现适当的空气循环，模块上方和下方必须至少有60 mm的间隙。

图片 Figure 26 风冷驱动器，安装空间与方向 Fan cooling drive, installation space and direction

4.2 水冷 Water Cooling

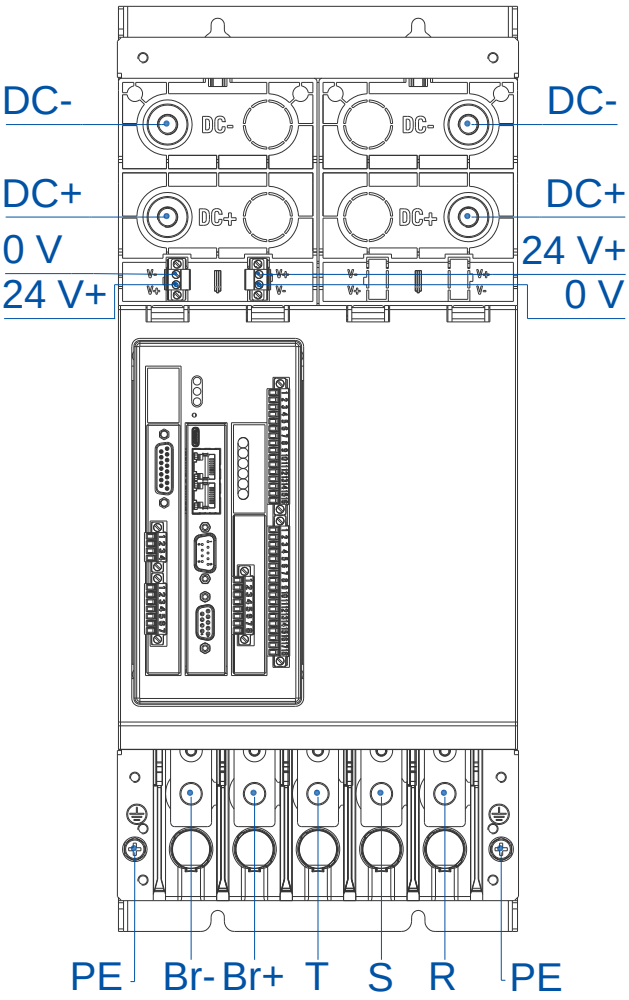


1) For proper air circulation,at least 60 mm clearance must be available above and below the module.
为了实现适当的空气循环，模块上方和下方必须至少有60 mm的间隙。

图片 Figure 27 水冷驱动器，安装空间与方向 Water cooling drive, iInstallation space and direction

1 主电路接口 Power Main Interface

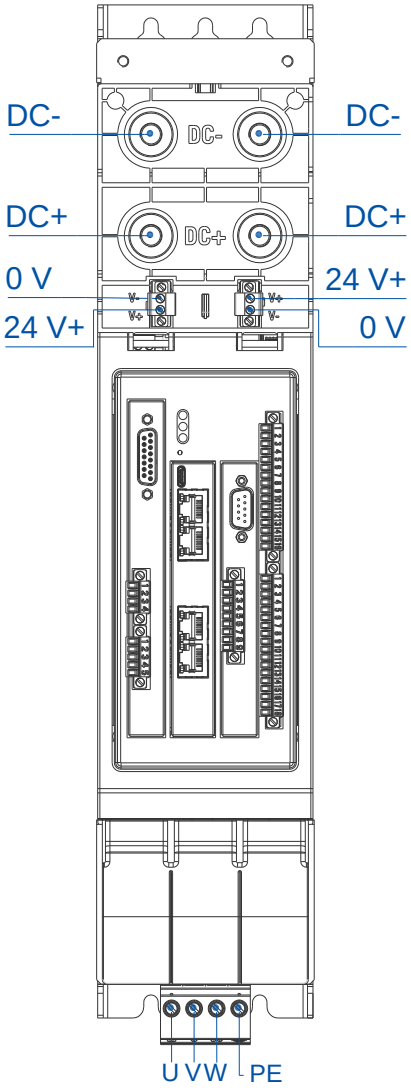
1.1 AxN-PS 080.4



图片 Figure 28 AxN-PS.080.4 主电路接口 Power Main Interface

功能 Function	端子 Terminal	拧紧扭矩 Torque Tightening (N.m)	线径范围 Wire Range (mm²)
交流电源输出 AC Power Supply Input	R	M10 , 12~18	16 ~ 70
	S		
	T		
	PE	M6 , 6~10	16 ~ 35
直流母线连接 DC Bus Connector	DC+	M10 , 12~15	—
	DC-		
外部制动电阻 External Brake Resistor	Br+	M10 , 12~18	16 ~ 70
	Br-		
外部 24V 辅助电源 External 24V power supply	24V+	M3 , 0.5	1.0 ~ 2.5
	0		

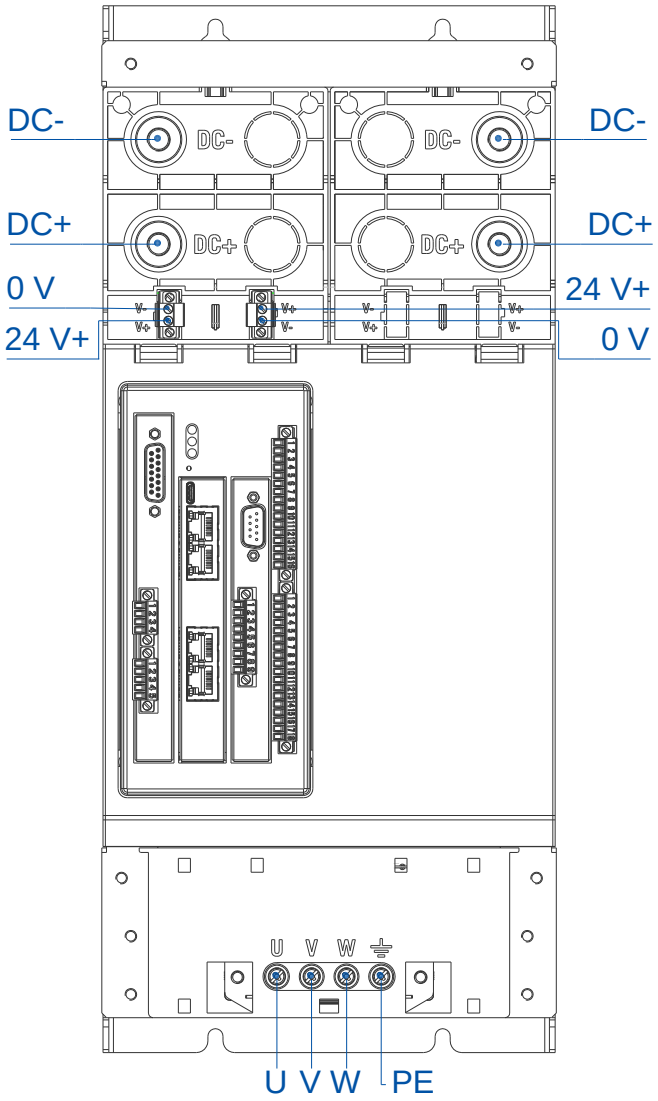
1.2 AxN-DC 044.6; AxN-DC.070.6



图片 Figure 29 AxN-DC.044.6; AxN-DC.070.6 主电路接口 Power Main Interface

功能 Function	端子 Terminal	拧紧扭矩 Torque Tightening (N.m)	线径范围 Wire Range (mm²)
直流母线连接 DC Bus Connector	DC+	M10 ， 12~15	—
	DC-		
电机动力输出 Motor Power Output	U	M4 ， 1.2	2.5 ~ 16
	V		
	W		
	PE		
外部 24V 辅助电源 External 24V power supply	24V+	M3 ， 0.5	1.0 ~ 2.5
	0V		

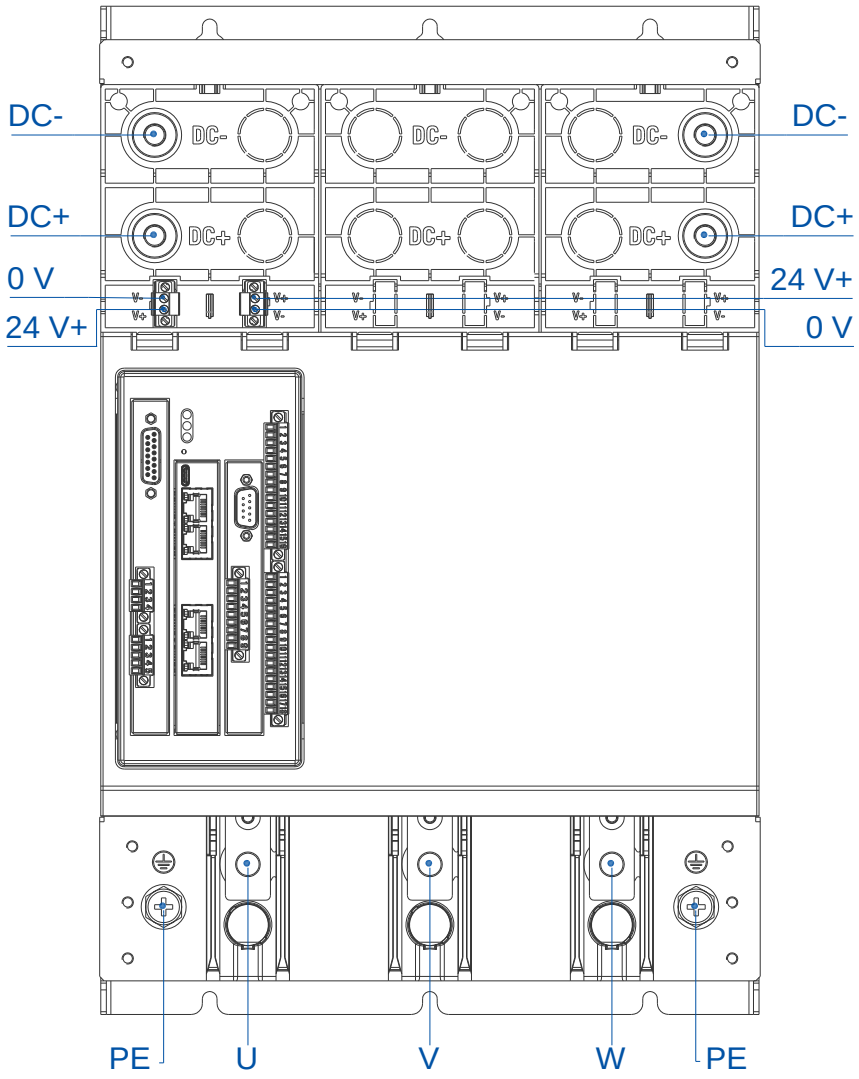
1.3 AxN-DC.100.6; AxN-DC.140.6



图片 Figure 30 AxN-DC.100.6; AxN-DC.140.6 主电路接口 Power Main Interface

功能 Function	端子 Terminal	拧紧扭矩 Torque Tightening (N.m)	线径范围 Wire Range (mm²)
直流母线连接 DC Bus Connector	DC+	M10 ， 12~15	—
	DC-		
电机动力输出 Motor Power Output	U	M5 ， 2.0	4 ~ 35
	V		
	W		
	PE		
外部 24V 辅助电源 External 24V power supply	24V+	M3 ， 0.5	1.0 ~ 2.5
	0V		

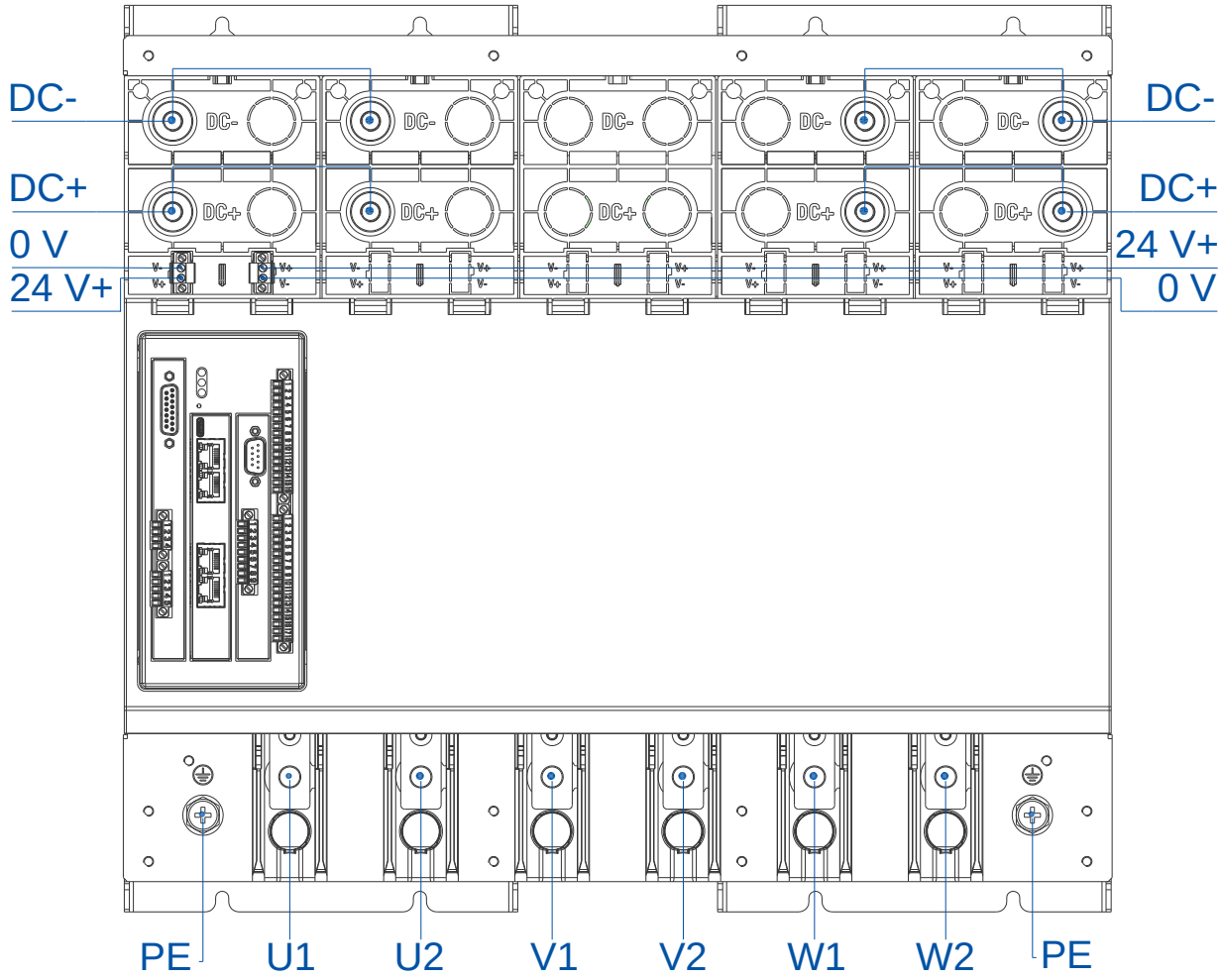
1.4 AxN-DC.200.6; AxN-DC.300.6; AxN-DC.400.6



图片 Figure 31 AxN-DC.200.6; AxN-DC.300.6; AxN-DC.400.6 主电路接口 Power Main Interface

功能 Function	端子 Terminal	拧紧扭矩 Torque Tightening (N.m)	线径范围 Wire Range (mm²)
直流母线连接 DC Bus Connector	DC+	M10 ， 12~15	—
	DC-		
电机动力输出 Motor Power Output	U	M10 ， 12~18	16 ~ 70
	V		
	W		
	PE		
外部 24V 辅助电源 External 24V power supply	24V+	M3 ， 0.5	1.0 ~ 2.5
	0V		

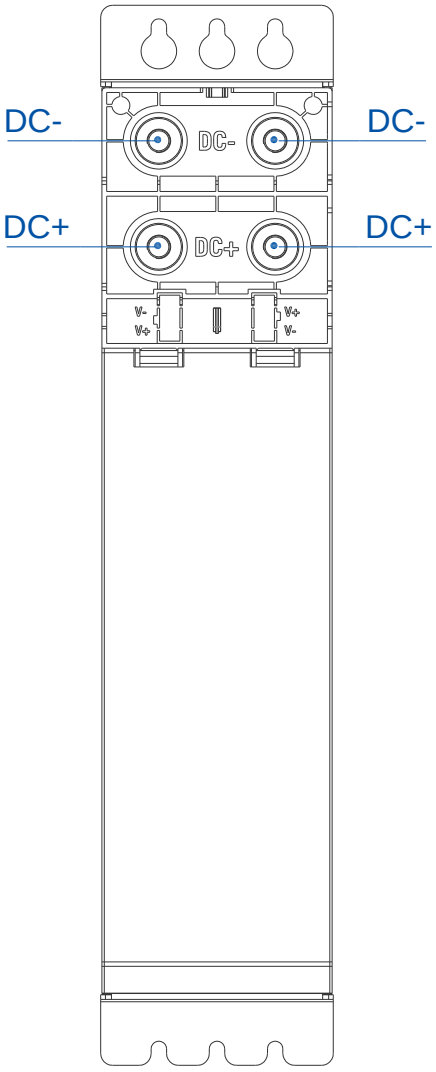
1.5 AxN-DC.800.6



图片 Figure 32 AxN-DC.800.6 主电路接口 Power Main Interface

功能 Function	端子 Terminal	拧紧扭矩 Torque Tightening (N.m)	线径范围 Wire Range (mm²)
直流母线连接 DC Bus Connector	DC+	M10 ， 12~15	—
	DC-		
电机动力输出 Motor Power Output	U1	M10 ， 12~18	16 ~ 70
	U2		
	V1		
	V2		
	W1		
	W2		
	PE		
外部 24V 辅助电源 External 24V power supply	24V+	M3 ， 0.5	1.0 ~ 2.5
	0V		

1.6 AxN-CP.470.6

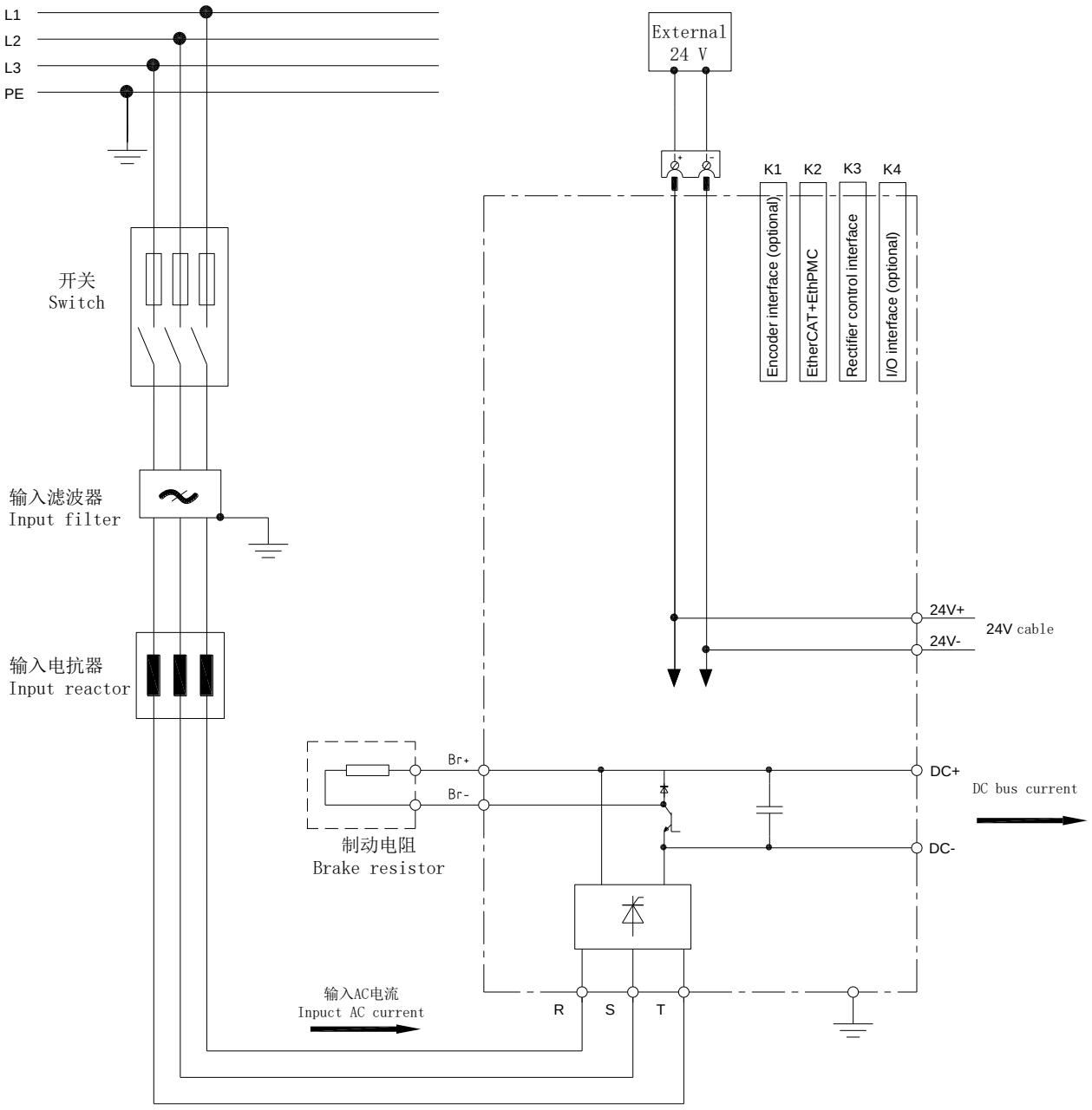


图片 Figure 33 AxN-CP.470.6 主电路接口 Power Main Interface

功能 Function	端子 Terminal	拧紧扭矩 Torque Tightening (N.m)	线径范围 Wire Range (mm²)
直流母线连接 DC Bus Connector	DC+	M10 ， 12~15	—
	DC-		

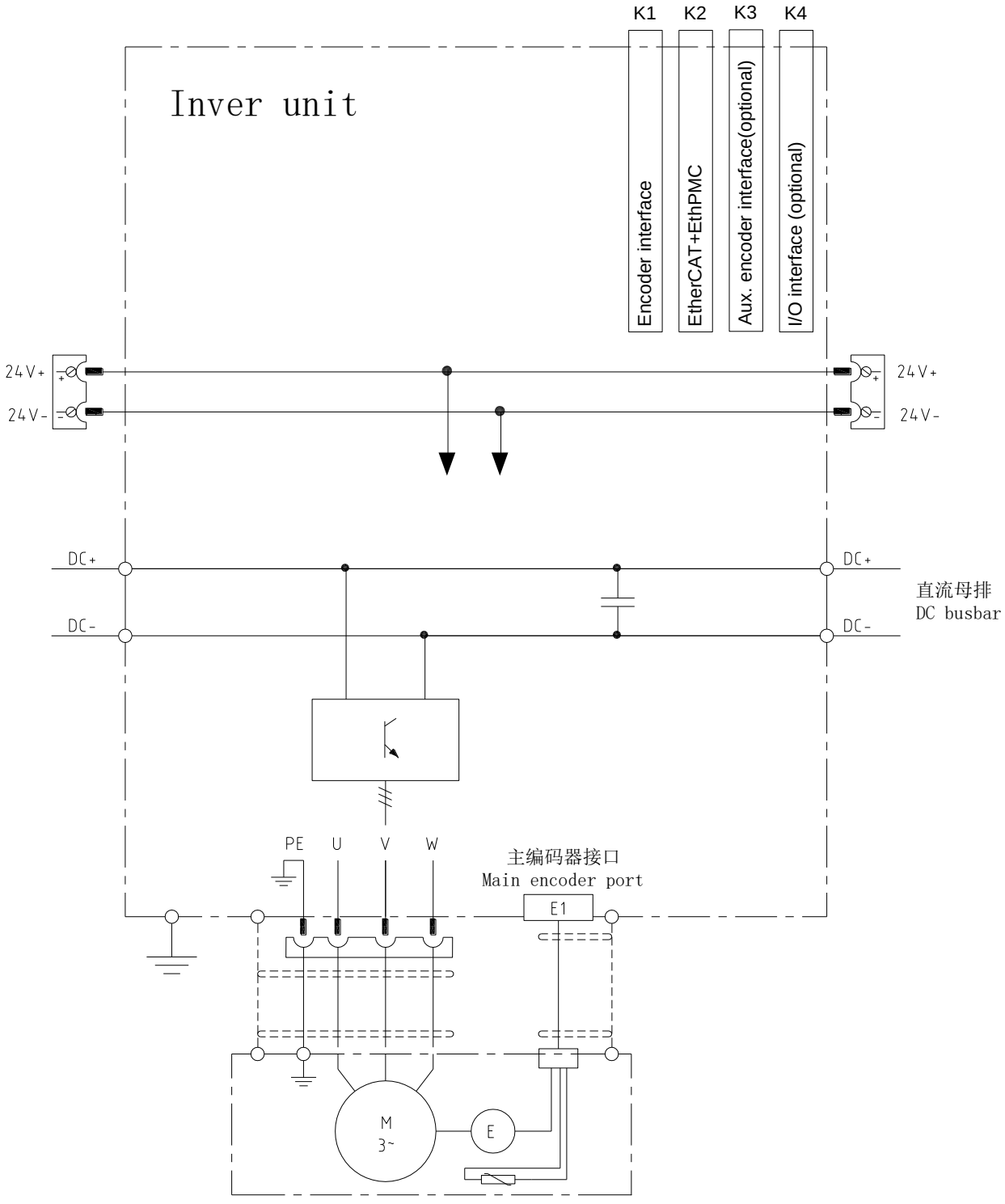
2 主电路接线框图 Power Main Connection Diagram

2.1 整流单元 Rectifier Unit



图片 Figure 34 整流单元主电路接线框图 Power main connection diagram of rectifier unit

2.2 逆变单元 Inverter Unit



图片 Figure 35 逆变单元主电路接线框图 Power main connection diagram of inverter unit

3 控制卡接口 Control card interface

3.1 概览 Overview

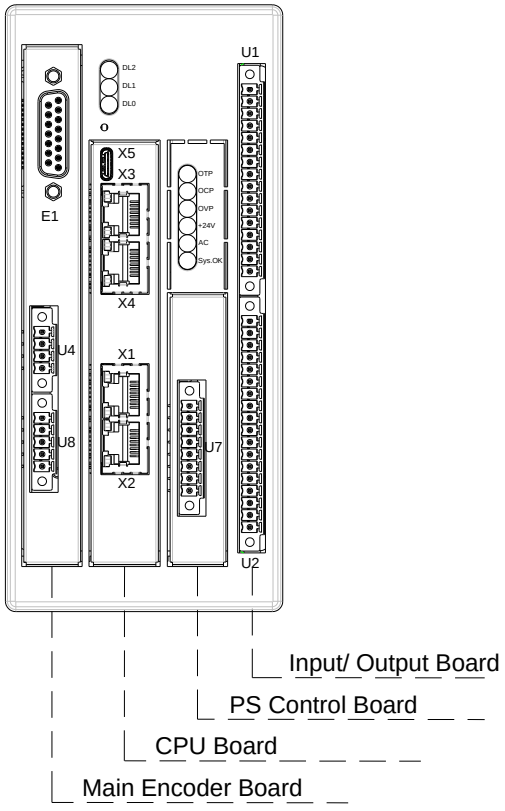
整流单元与逆变单元使用相同的控制卡盒，控制卡盒共有 4 个卡槽，从左到右依次为 K1、K2、K3、K4，可根据需求模块化配置。

The rectifier unit and the inverter unit use the same control card box. The control card box has 4 card slots, which are K1, K2, K3, and K4 from left to right, and can be modularized according to requirements.

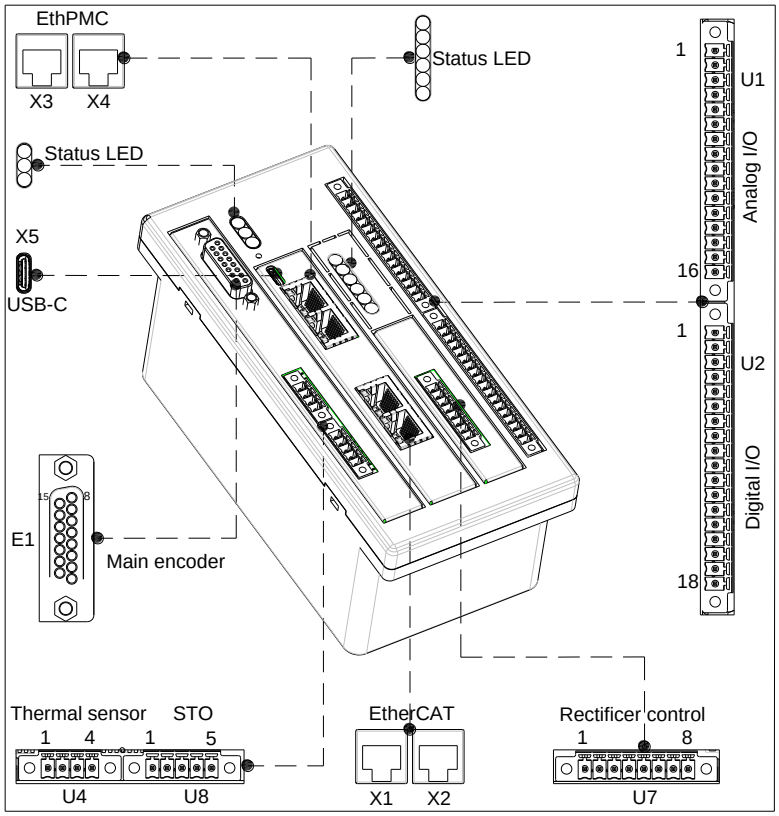
槽 Slot	卡 Card	接口 Interface	备注 Note
K1	**主编码器卡** Main Encoder Card	• 主编码器卡接口 Main encoder nterface • 温度传感器接口 Temperature sensor interface • STO 接口 STO interface	PS/DC
K2	**CPU 卡** CPU Card	• 用户接口 User interface ➢ EtherCAT ➢ EtherPMC	PS/DC
K3	**辅助编码器卡** Auxiliary Encoder Card	• 辅助编码器输入接口 Auxiliary encoder input interface • 辅助编码器输出接口 Auxiliary encoder output interface	DC
	整流控制卡 Rectifier control Card	• 整流控制接口 Rectifier control interface	PS
K4	**输入/输出卡** Input/Output Card	• 模拟量输入/输出接口 Analog signal I/O interface • 数量字输入/输出接口 Digital signal I/O interface	PS/DC

表格 Table 16 控制卡盒卡槽说明 Control card box slot description

3.1.1 整流单元控制卡盒 Control Card Box for Rectifier Unit

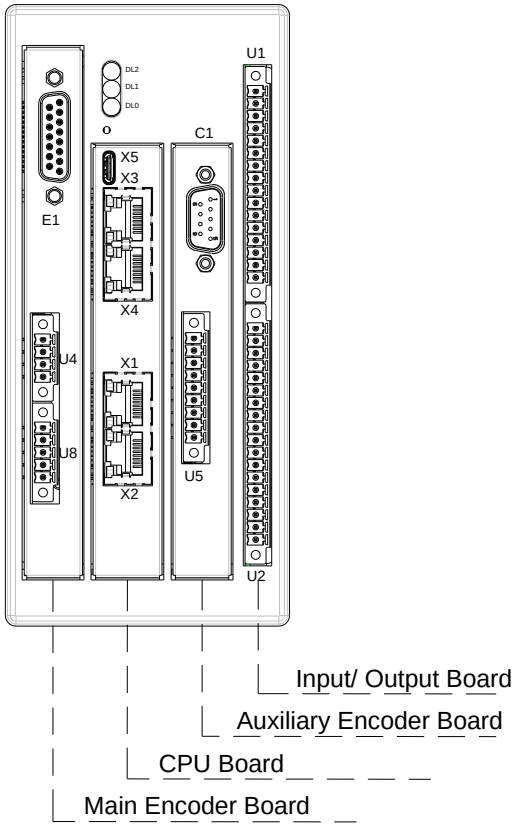


图片 Figure 36 整流控制卡盒概览 Overview of rectifier unit control card box

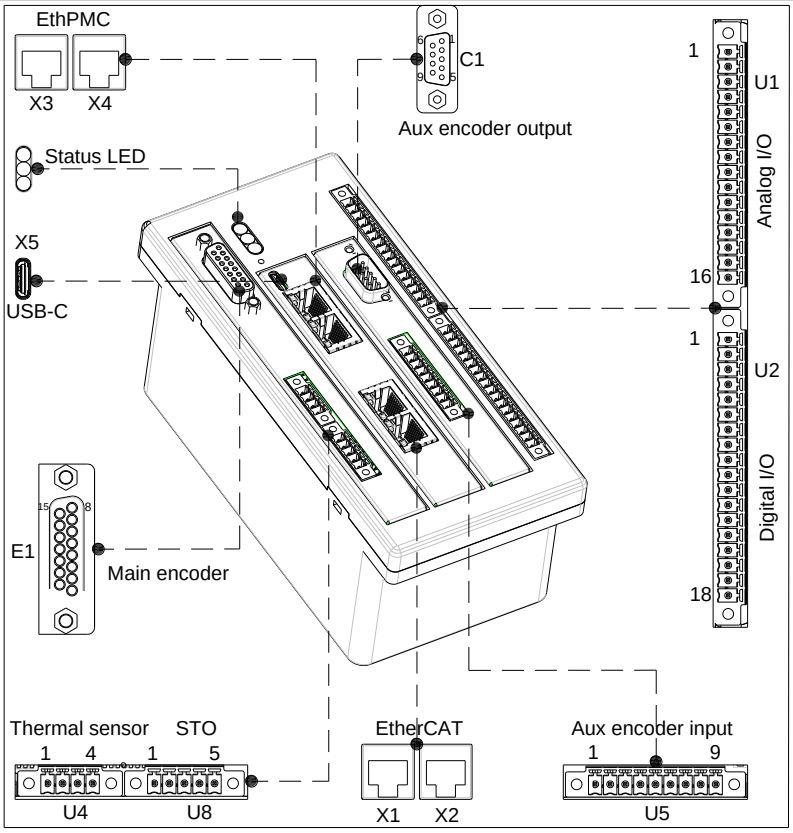


图片 Figure 37 整流控制卡盒概览 2 Second overview of rectifier unit control card box

3.1.2 逆变单元控制卡盒 Control Card Box for Inverter Unit

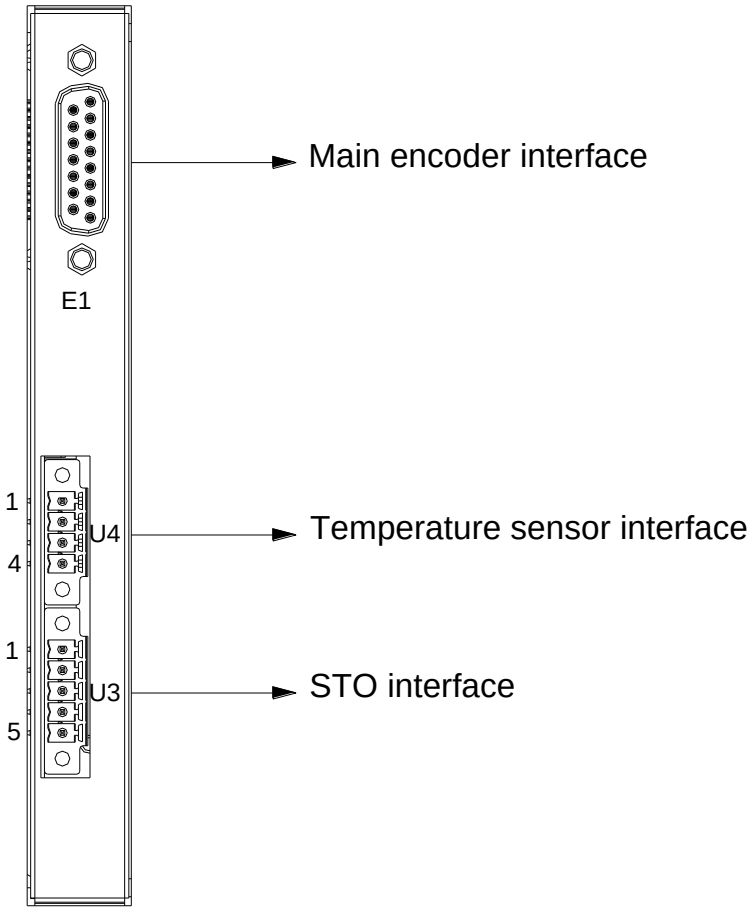


图片 Figure 38 逆变控制卡盒概览 Overview of inverter unit control card box



图片 Figure 39 逆变控制卡盒概览 2 Second overview of inverter unit control card box

3.2 主编码器卡 Main Encoder Card



图片 Figure 40 主编码器卡 Main encoder card

The control platform of AxN-DC.800 drive supports Sincos encoder, Endat 2.2 encoder, Resolver, digital incremental encoder, Nikon encoder and Hiperface encoder.

3.2.1 STO interface (U3)

Pin	Name	Function Description
1	+24V	+24V auxiliary power supply
2	STO_IN_H	+24V STO high input
3	STO_IN_L	+24V STO low input
4	STO_OUT_H	STO high feedback
5	STO_OUT_L	STO low feedback

表格 Table 17 STO 接口定义 Definition

3.2.2 Motor temperature sensor interface (U4)

Pin	Name	Function Description
1	Motor_Temp+	Thermal sensor + input interface
2	Motor_Temp-	Thermal sensor - input interface
3	Motor_PTC+	PTC sensor + input interface
4	Motor_PTC-	PTC sensor - input interface

表格 Table 18 电机温度传感器接口定义 Motor temperature sensor definition

3.2.3 Main Encoder Interface (E1)

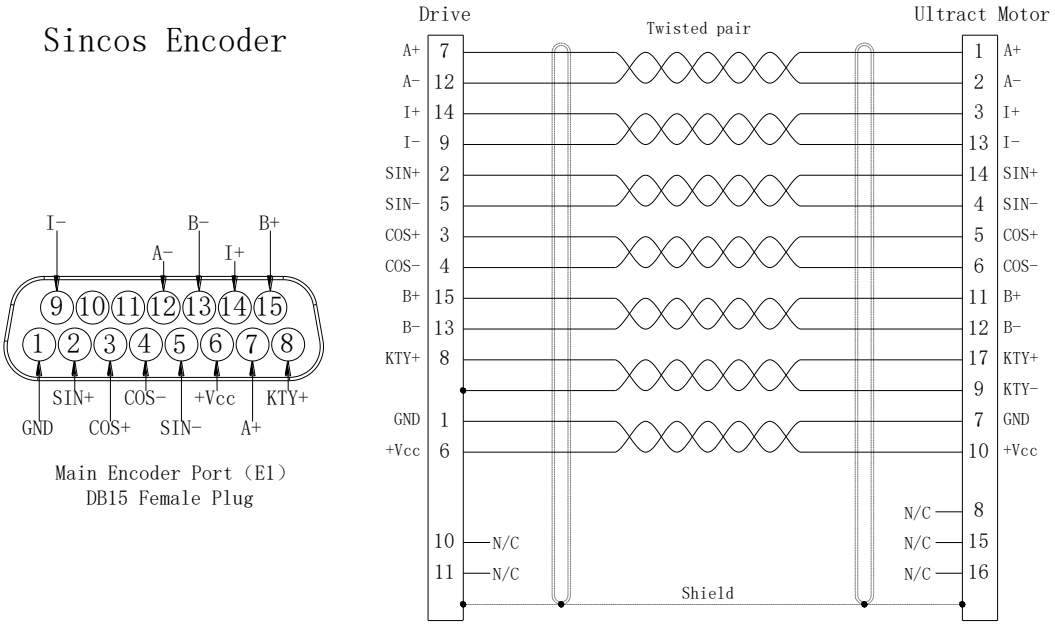
● SinCos Encoder definition

Pin Assignment

Pin	Name	Function	Signal Description
1	GND	Supply ground	Encoder ground
2	SIN+	Encoder absolute channel	1 Vpp differential
3	COS+	Encoder absolute channel	1 Vpp differential
4	COS-	Encoder absolute channel	1 Vpp differential
5	SIN-	Encoder absolute channel	1 Vpp differential
6	+Vcc	Encoder supply, 5Vdc	Positive supply voltage
7	A+	Encoder incremental channel	1 Vpp differential
8	KTY+	Thermal sensor positive	
9	I-	Encoder index	1 Vpp differential
10	——	——	——
11	——	——	——
12	A-	Encoder incremental channel	1 Vpp differential
13	B-	Encoder incremental channel	1 Vpp differential
14	I+	Encoder index	1 Vpp differential
15	B+	Encoder Incremental channel	1 Vpp differential

表格 Table 19 Sincos pin assignment

Connection Table (with Ultract Series Motor)



图片 Figure 41 Encoder cable definition, SinCos

- N/C——No Connection;
- Connector back shell shielded 360°(Both ends);
- "●" means that the shield or cable should connect to connectors.

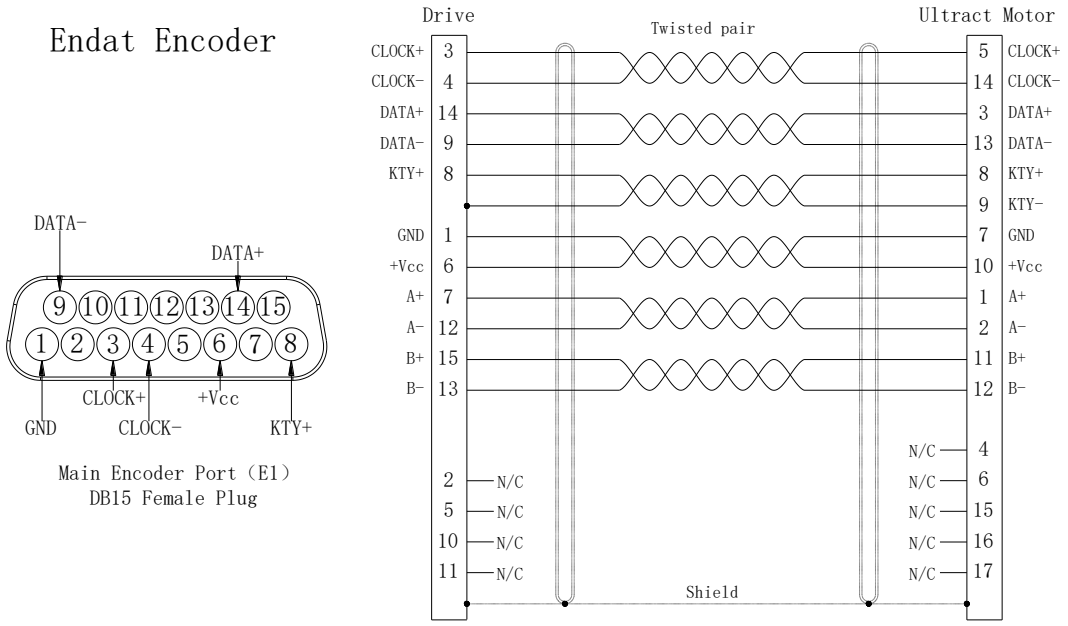
● Endat Encoder Definition

Pin Assignment

Pin	Name	Function	Signal Description
1	GND	Supply ground	Encoder ground
2	——	——	——
3	CLOCK+	Endat clock	TTL
4	CLOCK-	Endat clock	TTL
5	——	——	——
6	+Vcc	Encoder supply, 8Vdc	Positive supply voltage
7	A+	Encoder incremental channel	TTL
8	KTY+	Thermal sensor positive	
9	DATA-	Endat data	TTL
10	——	——	——
11	——	——	——
12	A-	Encoder incremental channel	TTL
13	B-	Encoder incremental channel	TTL
14	DATA+	Endat data	TTL
15	B+	Encoder incremental channel	TTL

表格 Table 20 Endat pin assignment

Connection Table (with Ultract Series Motor)



图片 Figure 42 Encoder cable definition, Endat

- N/C——No Connection;
- Connector back shell shielded 360°(Both ends);
- "●" means that the shield or cable should connect to connectors.

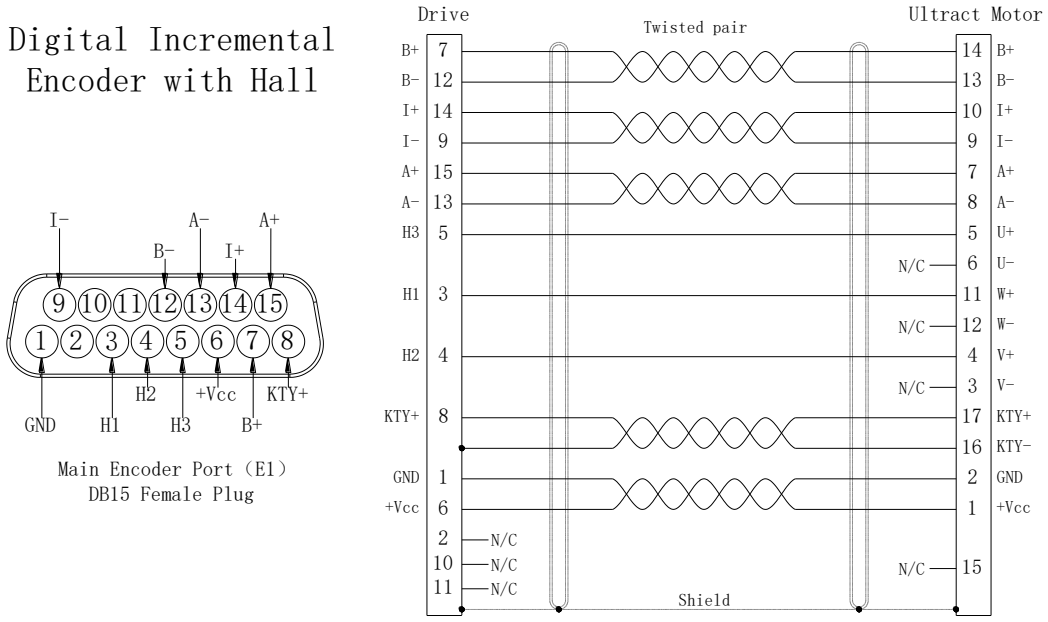
● Incremental Encoder Definition

Pin Assignment

Pin	Name	Function	Signal Description
1	GND	Supply ground	Encoder ground
2	——	——	——
3	H1	Hall sensor	TTL
4	H2	Hall sensor	TTL
5	H3	Hall sensor	TTL
6	+Vcc	Encoder supply, 8Vdc	Positive supply voltage
7	B+	Encoder incremental channel	TTL
8	KTY+	Thermal sensor positive	
9	I-	Encoder index	TTL
10	——	——	——
11	——	——	——
12	B-	Encoder incremental channel	TTL
13	A-	Encoder incremental channel	TTL
14	I+	Encoder index	TTL
15	A+	Encoder incremental channel	TTL

表格 Table 21 Incremental pin assignment

Connection Table (with Ultract Series Motor)



图片 Figure 43 Encoder cable definition, Incremental

- N/C——No Connection;
- Connector back shell shielded 360°(Both ends);
- "●" means that the shield or cable should connect to connectors

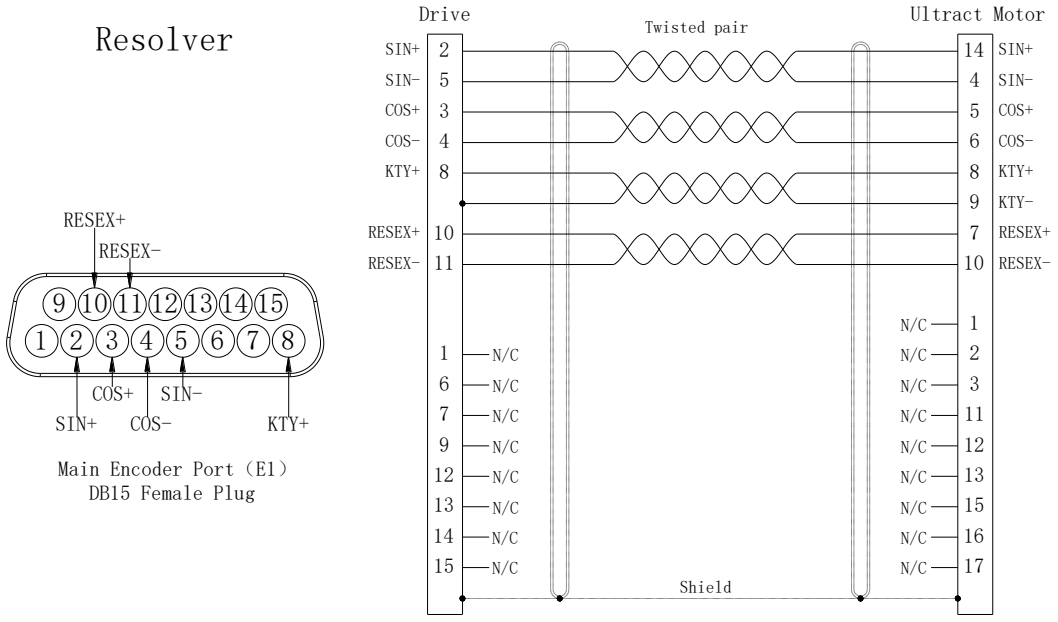
● Resolver Definition

Pin Assignment

Pin	Name	Function	Signal Description
1	——	——	——
2	SIN+	Absolute channel	Differential signal
3	COS+	Absolute channel	Differential signal
4	COS-	Absolute channel	Differential signal
5	SIN-	Absolute channel	Differential signal
6	——	——	——
7	——	——	——
8	KTY+	Thermal sensor positive	
9	——	——	——
10	RESEX+	Resolver energising +	8kHz sinusoidal wave
11	RESEX-	Resolver energising -	8kHz sinusoidal wave
12	——	——	——
13	——	——	——
14	——	——	——
15	——	——	——

表格 Table 22 Resolver pin assignment

Connection Table (with Ultract Series Motor)



图片 Figure 44 Encoder cable definition, Resolver

- N/C——No Connection;
- Connector back shell shielded 360°(Both ends);
- "●" means that the shield or cable should connect to connectors.

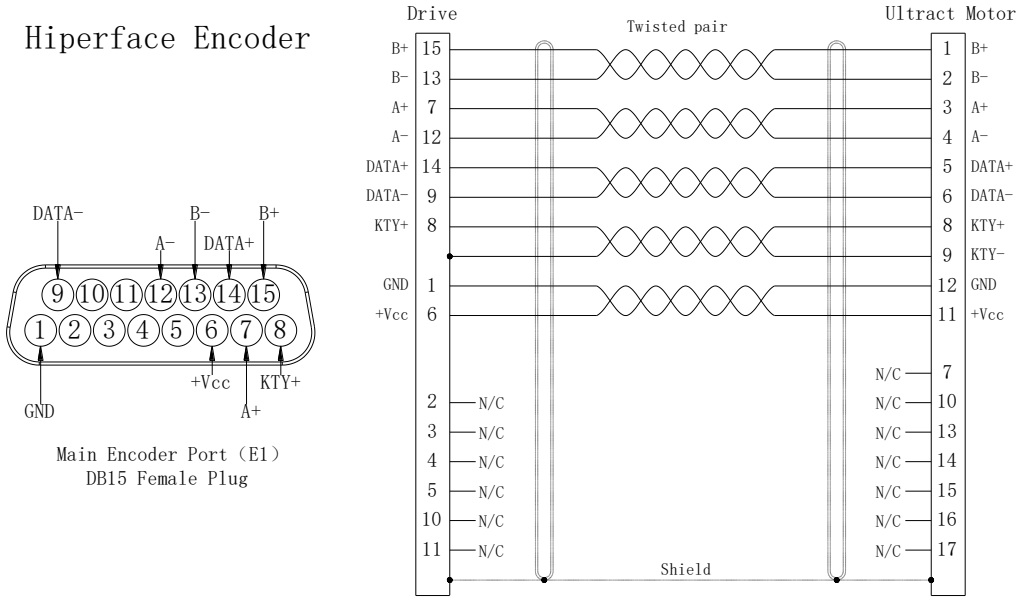
● Hiperface Encoder Definition

Pin Assignment

Pin	Name	Function	Signal Description
1	GND	Supply ground	Encoder ground
2	——	——	——
3	——	——	——
4	——	——	——
5	——	——	——
6	+Vcc	Encoder supply, 8Vdc	Positive supply voltage
7	A+	Process data channel	TTL
8	KTY+	Thermal sensor positive	
9	DATA-	RS-485 parameter channel	TTL
10	——	——	——
11	——	——	——
12	A-	Process data channel	TTL
13	B-	Process data channel	TTL
14	DATA+	RS-485 parameter channel	TTL
15	B+	Process data channel	TTL

表格 Table 23 Hiperface pin assignment

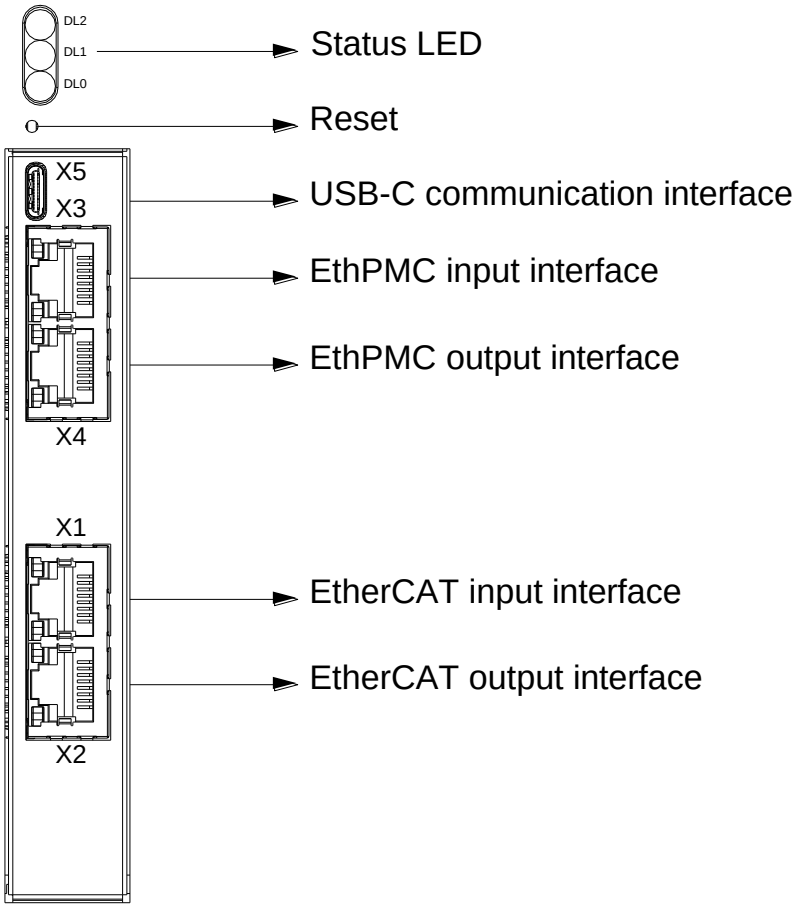
Connection Table (with Ultract Series Motor)



图片 Figure 45 Encoder cable definition, Hiperface

- N/C——No Connection;
- Connector back shell shielded 360°(Both ends);
- "●" means that the shield or cable should connect to connectors.

3.3 CPU 卡 CPU Card



图片 Figure 46 CPU 卡 CPU card

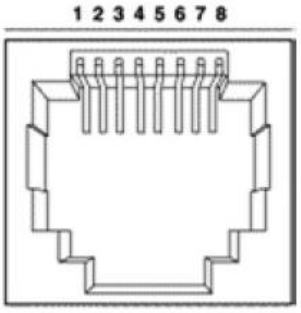
3.3.1 Status LED

	Name	Function	
1	DL2	Fault Status	Blinking light per 0,5 second
2	DL1	Warning	Blinking light per second, E.g. when the STO have not been activated
3	DL0	Drive Ok	Drive is enable, it is fixed If drive is If Ok, it blinks per second

表格 Table 24 CPU 卡指示灯 Status LED of CPU card

3.3.2 RJ45 Pin Assignment

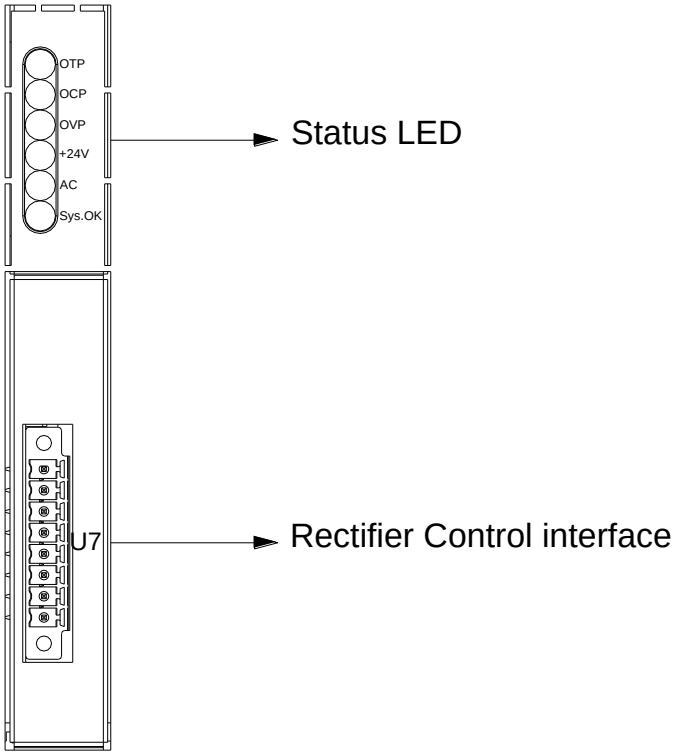
Pin	Name	Function
1	TX +	Transmit Data +
2	TX -	Transmit Data -
3	RX +	Receive Data +
4	---	---
5	---	---
6	RX -	Receive Data -
7	---	---
8	---	---



表格 Table 25 RJ45 pin assignment

Four RJ45 connectors have the same definition

3.4 整流控制卡 Rectifier Control Card



图片 Figure 47 整流控制卡 Rectifier control card

3.4.1 Status LED

	Name	Off	Blink	On
1	OTP	Temperature Normal	Fan Working	Temperature Alarm
2	OCP	Current Normal	Overload Current	Over Current Alarm
3	OVP	DCBus Normal	Brake Open	Over Voltage Alarm
4	+24V	Auxiliary Power Off	Auxiliary Power Low	Auxiliary Power Normal
5	AC	Main Power Off	Main Power Abnormal	Main Power Normal
6	Sys.OK	DCBus Disable	DCBus Abnormal	DCBus Enable

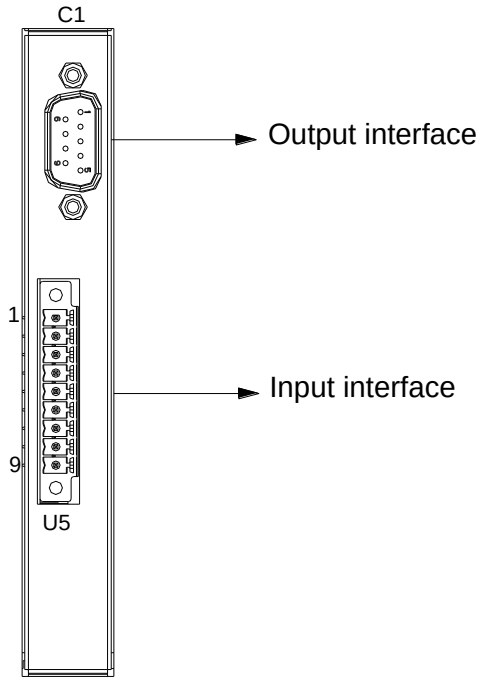
表格 Table 26 整流控制卡指示灯 Status LED of rectifier control card

3.4.2 Rectifier Control interface

Pin	Name	Function Description
1	Sys.OK	Contact Output1: CLOSED (Power OK) OPEN (Power not OK)
2	Sys.OK	
3	Ready	Contact Output2: CLOSED (System Ready) OPEN (System not Ready, Active Alarms)
4	Ready	
5	Enable	Contact Input: CLOSED (Enable PSU) OPNE (Disable PSU)
6	Enable	
7	+24V	Auxiliary power supply Input positive
8	0V	Auxiliary power supply Input negative

表格 Table 27 整流控制卡定义 Definition of rectifier control card

3.5 辅助编码器卡 Auxiliary Encoder Card



3.5.1 Auxiliary encoder output interface (C1)

Pin	Name	Function Description
1	B+	Auxiliary encoder output of B+ channel
2	Null	Not defined
3	0V	Auxiliary encoder ground connection
4	A-	Auxiliary encoder output of A- channel
5	I-	Auxiliary encoder output of I- channel
6	B-	Auxiliary encoder output of B- channel
7	V+	Power supply for auxiliary encoder
8	A+	Auxiliary encoder output of A+ channel
9	I+	Auxiliary encoder output of I+ channel

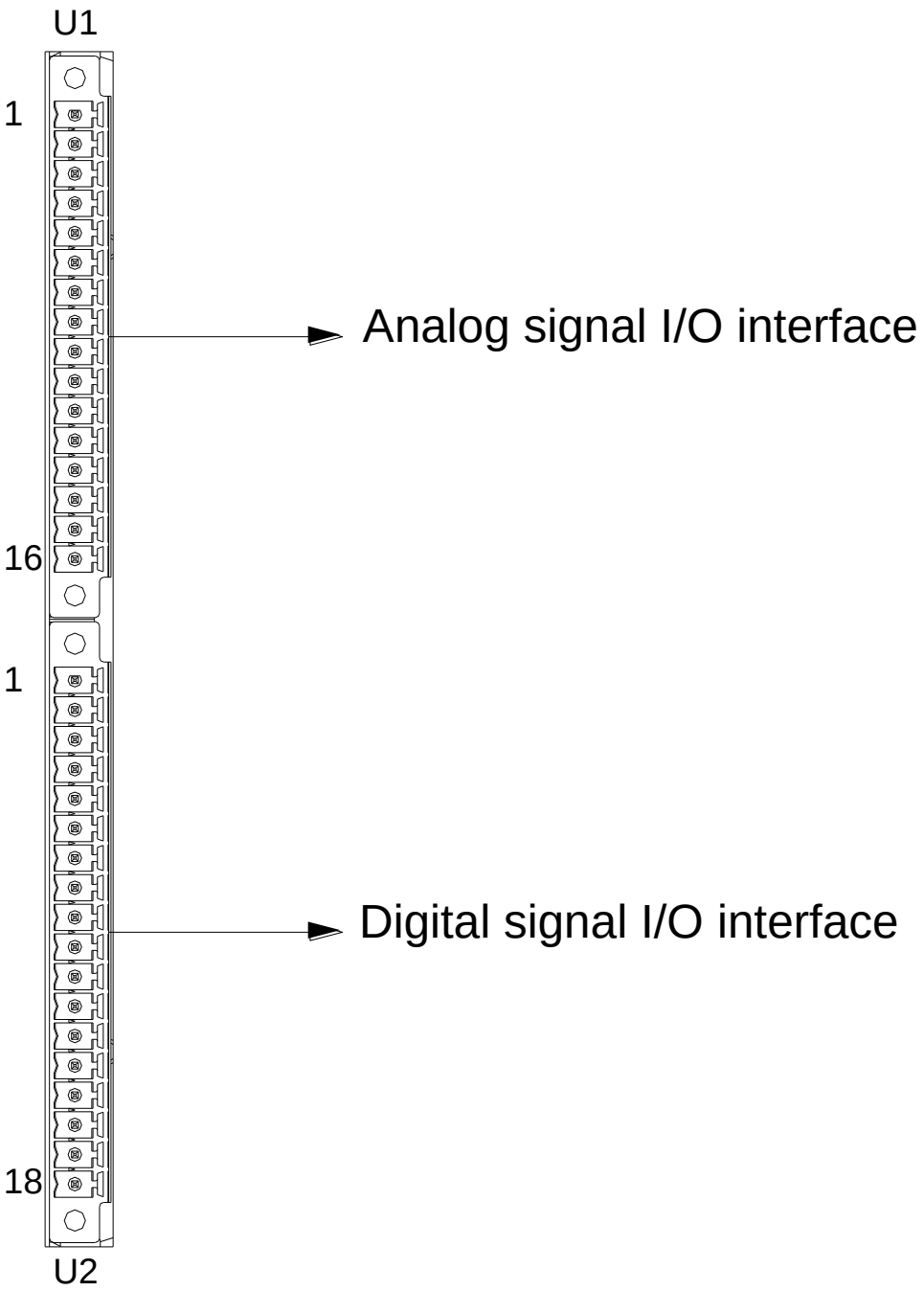
表格 Table 28 辅助编码器卡输出接口定义 Output definition of Aux. encoder card

3.5.2 Auxiliary encoder input interface (U5)

Pin	Name	Function Description
1	A+	Auxiliary encoder input of A+ channel
2	A-	Auxiliary encoder input of A- channel
3	I+	Auxiliary encoder input of I+ channel
4	I-	Auxiliary encoder input of I- channel
5	B+	Auxiliary encoder input of B+ channel
6	B-	Auxiliary encoder output of B- channel
7	V+	Power supply for auxiliary encoder
8	0V	Auxiliary encoder ground connection
9	SHIELD	Auxiliary encoder shield connection

表格 Table 29 辅助编码器卡输入接口定义 Intput definition of Aux. encoder card

3.6 输入/输出卡 Input/Output Card



图片 Figure 48 输入输出卡 Input/Output Card

3.6.1 Analog signal I/O interface (U1)

Pin	Name	Function Description
1	AI0+	Differential Analog input 0 channel Positive
2	AI0-	Differential Analog input 0 channel negative
3	Ground_A	Analog signal ground
4	AI1+	Differential Analog input 1 channel Positive
5	AI1-	Differential Analog input 1 channel negative
6	Ground_A	Analog signal ground
7	AI2+	Differential Analog input 2 channel Positive
8	AI2-	Differential Analog input 2 channel negative
9	Ground_A	Analog signal ground
10	AI3+	Differential Analog input 3 channel Positive
11	AI3-	Differential Analog input 3 channel negative
12	Ground_A	Analog signal ground
13	AO0	Analog output 0 channel
14	Ground_A	Analog signal ground
15	AO1	Analog output 1 channel
16	Ground_A	Analog signal ground

The Voltage of analog input channel is -10V to +10V.

表格 Table 30 模拟量输入/输出接口定义 Analog signal I/O definition

3.6.2 Digital signal I/O interface (U2)

Pin	Name	Function Description
1	Ground_D	Digital signal ground
2	DI0	Digital input 0 channel
3	DI1	Digital input 1 channel
4	DI2	Digital input 2 channel
5	DI3	Digital input 3 channel
6	DI4	Digital input 4 channel
7	DI5	Digital input 5 channel
8	DI6	Digital input 6 channel
9	DI7	Digital input 7 channel
10	Ground_D	Digital signal ground
11	DO0+	Digital Output 0 channel positive
12	DO0-	Digital Output 0 channel negative
13	DO1+	Digital Output 1 channel positive
14	DO1-	Digital Output 1 channel negative
15	DO2+	Digital Output 2 channel positive
16	DO2-	Digital Output 2 channel negative
17	DO3+	Digital Output 3 channel positive
18	DO3-	Digital Output 3 channel negative

Digital output channel is NO relay contacts, 24Vdc / 2A

表格 Table 31 数字量输入/输出接口定义 Digital signal I/O definition

图片索引 Figure Index

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