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900101000458

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CN 安装说明

EN Instruction Sheet

1. 安全注意事项 (Safety precautions)

本说明书涉及产品为工业产品，并且均为开放型外壳设计。要求用户使用产品时，务必将产品安装于具有防尘、防潮以及免于电击 / 冲击等意外的控制柜内，并且需要设置保护措施以防止非维护人员不当操作或意外导致设备故障或损坏，造成不可避免的人员危险和财产损失。

The products in this manual are industrial products and are all open-type housing designs. It is essential to install these products within a control cabinet that is safeguarded against dust, moisture, and accidents such as electric shocks or physical impacts. Additionally, protective measures must be taken to prevent malfunctions or damage caused by improper operation or accidents involving non-maintenance personnel. Failure to do so may lead to serious risks to personnel safety and potential loss of property.

更详细的信息请参考 SV-D5 系列脉冲伺服用户手册。

Please refer to the SV-D5 series pulse servo user manual for more detailed information.

2. 命名规则 (Model identification)

SV-D5 N D - 1R0 - 0 A Y - 0000

1	产品系列 (Product series)
SV-D5	D5带旋转伺服系列 (D5 rotary servo series)
2	控制方式 (Control mode)
N	CANopen型 (CANopen type)
3	电压等级 (Voltage class)
D	DC 24~60V

4	额定电流 (Rated current)
1R0	1A
3R5	3.5A
015	15A
021	21A
5	功能安全配置 (Functional safety configuration)
0	无STO (No STO)
S	STO机种 (STO model)

6	产品类型 (Product type)
A	标准 (Standard)
7	接口类型 (Interface type)
Y	端子侧出/不带外壳 (Terminal side outlet / Without housing)
V*	端子正出/RJ45网口 (定制) (Terminal front outlet / RJ45 Ethernet port (customized))
U*	端子侧出/带外壳 (定制) (Terminal side outlet / With housing (customized))
8	软件/固件定制代码 (Customized software/firmware code)
X	0~9/A~Z/空 (N/A)

* 注：型号研发中。

*Note: The model is under research and development.

3. 适用型号 (Applicable model)

额定功率 (Rated power)	型号 (Model)	额定功率 (Rated power)	型号 (Model)
10W	SV-D5ND-1R0-0AY	400W	SV-D5ND-015-0AY
100W	SV-D5ND-3R5-0AY	750W	SV-D5ND-021-0AY

4. 通用电气及环境规格 (General electrical and environmental specifications)

4.1 通用电气规格 (General electrical specifications)

项目 (Item)	参数规格 (Parameter specifications)
SV-D5ND-***- (0) AY	1R0 3R5 015 021
额定功率 (Rated power) [W]	10 100 400 750
额定电流 (Rated current) [Arms]	1 3.5 15 21
最大输出电流 (Max. output current) [Arms]	2.5 8.75 37.5 52.5
输入电源 (Input power supply)	主回路电源 (Main circuit power supply) DC 24~60V 控制电电源 (Control circuit power supply) 从主电源取电 (Powered from the main power supply)
DI输入 (DI input)	电压 (Voltage) DC24V±10% 电流 (Current) 10mA
DO输出 (DO output)	电压 (Voltage) DC24V±10% 电流 (Current) 40mA
外置制动电阻推荐 (Recommended external braking resistor)	功率 (Power) ≥80W 阻值 (Resistance) 5Ω~10Ω

4.2 环境规格 (Environmental requirements)

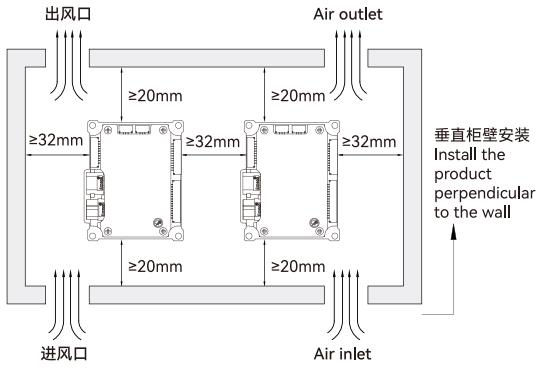
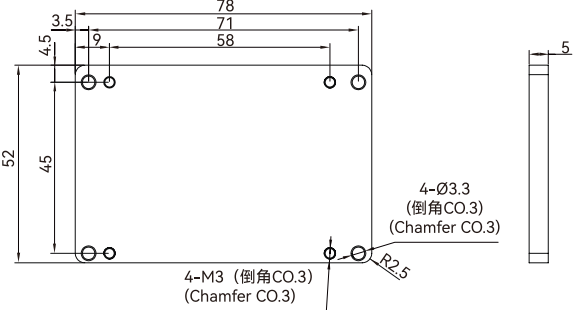
项目 (Item)	规格 (Specifications)
海拔高度 (Altitude)	≤1000m
使用环境 (Operating environment)	控制柜内安装，开放式及室内使用
环境空气 (Ambient air)	无腐蚀性气体、易燃性气体、潮气、油雾、粉尘
耐热等级 (Heat resistance class)	Class B
单装使用环境温度 (Single installation ambient operating temperature)	-5~55℃
叠装使用环境温度 (Stacked installation ambient operating temperature)	-5~45℃
保存环境温度 (Storage ambient temperature)	-20~65℃
环境湿度 (Ambient humidity)	20~80%RH (无结露)
振动耐受 (Vibration resistance)	<5.8m/s ² (0.6g) 10~60Hz (共振频率时不可连续使用)
污染等级 (Pollution degree)	污染度2
冷却方式 (Cooling method)	自然冷却
防护等级 (IP rating)	IP00
外壳材质 (Enclosure material)	阻燃材料

* 注：若设备未依制造商指定方式使用，设备所提供的保护可能会被减弱。

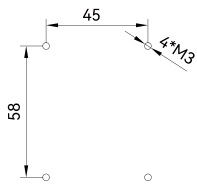
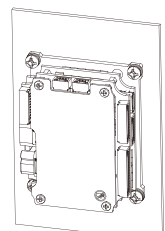
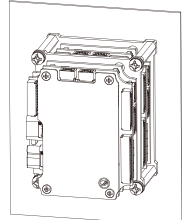
*Note: If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

5. 安装说明 (Installation instructions)

5.1 控制柜安装 (Installation within a control cabinet)

CN	请保证安装方向与墙壁垂直。安装 100W~750W 功率的驱动器时，请使用 4 个 M3 螺丝固定，锁紧扭矩为 0.9N.m。 为了散热，需要使用自然对流或风扇对设备进行冷却，通过螺钉固定安装在控制柜并在设备周围留有足够的空间，工作运行环境需符合产品环境标准要求，另根据实际情况增加二级散热板。安装到控制箱等密封的箱体内部时，为了确保内部各基板周围温度不超过 55℃，需要安装风扇或冷却器进行降温。 散热板的表面会比周围温度高出 30℃以上。另根据实际情况增加二级散热板。	 出风口 Air outlet 进风口 Air inlet 垂直柜壁安装 Install the product perpendicular to the wall	
		* 注：无线缆状态下建议最小间距。 *Note: Recommended minimum clearance in cableless state.	
EN	Please ensure the installation direction is perpendicular to the wall. When installing a drive with a power rating of 100W~750W, use 4 M3 screws for fixation, with a locking torque of 0.9 N · m. For effective heat dissipation, the equipment requires cooling through natural convection or the use of a fan. Install it in the control cabinet with screws and leave sufficient clearance around the equipment. The operating environment must comply with the product's environmental standard requirements; additionally, install a secondary heat sink as needed. When installing into a sealed enclosure such as a control cabinet, install a fan or cooler to reduce the temperature to ensure that the temperature around each base plate inside does not exceed 55℃ . The surface temperature of the heat sink will be more than 30℃ higher than the surrounding temperature. Additionally, install a secondary heat sink as needed.	二级散热板推荐尺寸图 (Recommended dimensional drawing of secondary heat sink) 	

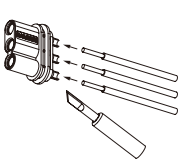
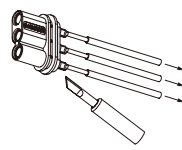
5.2 机柜背板安装 (Cabinet backplane mounting)

CN	按孔位图在机柜背板上开孔，使用 4 个 M3 螺丝固定，锁紧扭矩为 0.9 N.m； 侧出机型使用 M3*23.5+6 的 螺柱，仅 1R0、3R5 机型（100W 及以下）支持叠装，最多支持 3 个叠装。		单体安装 (Individual installation) 	叠式安装 (Stackable installation) 
EN	Drill holes on the cabinet backplane according to the hole position diagram, fix with 4 M3 screws, with a locking torque of 0.9 N.m; SV-D5BD-1R0-S(0)AY(U) and SV-D5BD-3R5-S(0)AY(U) use M3 * 23.5+6 studs. Only 1R0 and 3R5 models (100W and below) support stacked installation, with a maximum of 3 stacked installations.			

5.3 端子拆装 (Terminal block mounting and dismounting)

CN	设备外部接口为接插件形式，参考右图进行设备主要接口的接插。		沿箭头所示方向插入端子 Insert the terminal block along the direction indicated by the arrow		按压锁扣并拔出端子 Press the latch and detach the terminal block
EN	The external interfaces of the equipment are in the form of connectors. Please refer to the figures on the right side for instructions on connecting and inserting.				

5.4 线缆拆装 * (Cable connecting and disconnecting*)

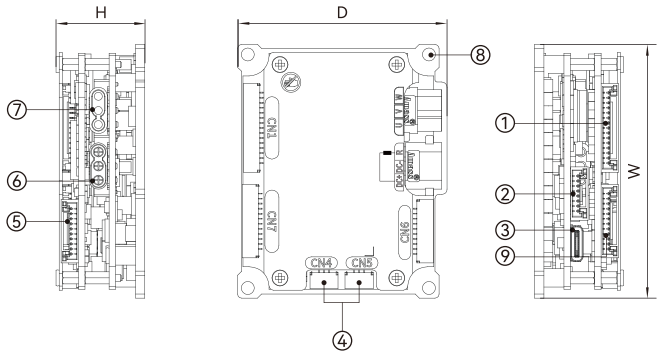
CN	拆装带有主电源输入接口和电机动力输出接口的线缆需要使用电烙铁，拆装步骤如右图所示。		将线缆插入端子，预热电烙铁后融化焊锡丝，可完成线缆安装 Insert the cable into the terminal, then preheat the soldering iron and melt the solder wire to complete the cable connection.		预热电烙铁后融化焊锡丝，将线缆从端子拔出，可完成线缆拆卸 Preheat the soldering iron and melt the solder wire, then pull out the cable from the terminal to complete the cable disconnection.
EN	The cable with the main power input interface and motor power output interface needs to be disconnected with a soldering iron, and the steps are shown in the right figure.				

线缆 (Cable)	线径 (Wire width): AWG		耐热 (Heat resistance): °C
	10~100W	200~750W	
电机动力输出接口 (Motor power output interface) [UVW]	22	20	105
主回路电源输入接口 (Main circuit power supply input interface)	20		
STO接口 (STO interface)	28		120
制动电阻接口 (Braking resistor interface)			
功能IO接口 (Functional I/O interface)			
通讯接口 (Communication interface)			
编码器接口 (Encoder interface)			

* 注：需要线缆配件可联系禾川下单。

*Note: To order cable accessories, please contact HCFA to place an order.

6. 接口和尺寸说明 (Interface and dimension description)



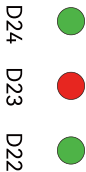
序号(No.)	名称	Name	功能	Function
1	CN1: 功能IO接口	CN1: Functional I/O interface	用户IO接口, 可配置	Configurable user I/O interface
2	CN2: STO安全接口	CN2: STO safety interface	安全扭矩关断	Safe Torque Off (STO)
3	CN3: Type-C接口	CN3: Type-C interface	连接PC进行通讯	Connects to PC for communication
4	CN4/CN5: CAN通讯接口	CN4/CN5: CAN communication interface	CAN通讯接口	CAN communication interface
5	CN6: 编码器接口	CN6: Encoder interface	连接电机编码器	Connects to motor encoder
6	DC+/DC-: 主电源输入接口	DC+/DC-: Main power supply input interface	DC24V电源输入	DC24V power supply input
	DC+/R: 制动电阻接口	DC+/R: Power brake resistor interface	连接制动电阻	Connects to braking resistor
7	U/V/W: 电机动力输出接口	U/V/W: Motor power output interface	伺服电机连接接口	Servo motor connection interface
8	PE接地接口	PE grounding interface	保护性接地	Protective Grounding
9	CN7: 脉冲输入/分频输出	CN7: Pulse input / Frequency division output	脉冲指令差分输入及分频输出接口	Pulse command differential input and frequency division output interface

* 注：仅定制机型支持。
*Note: Only available for customized models.

外形尺寸 (Dimension) : cm			孔径Φ (Hole diameter Φ):mm	重量 (Weight) : g
H	W	D		
21.3	63	52	3.2	64 approx.

7. 指示灯和面板说明 (Indicator and LED panel description)

丝印 (Screen printing)	指示灯含义 (Indicator meaning)	颜色 (Color)	状态	Status	说明	Description
D24	电源 (Power supply)	绿色 (Green)	熄灭	Not lit	电源未接通	Power off
			常亮	Lit	电源接通	Power on
D23	系统故障 (System error)	红色 (Red)	熄灭	Not lit	无故障发生	No error
			常亮	Lit	发生故障	Error
D22	运行 (Run)	绿色 (Green)	熄灭	Not lit	停止状态	Stop
			闪烁	Blinking	正常运行	Run
			常亮	Lit	待机状态	Standby



8. 端子及配线说明 (Terminal and wiring description)

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CN1(用户I/O)接口说明 (CN1 (User I/O) interface description)				
针脚 (Pin)		信号 (Signal)	功能 (Function)	
1		DI1	伺服使能	Servo enable
2		DI2	报警复位	Alarm reset
3		DI3	脉冲禁止	Pulse inhibit
4		DI4	脉冲偏差清除	Pulse deviation clear
5		DI5	内部位置指令使能	Internal position command enable
6		DI_COM	数字量输入公共端	DI common terminal
7		DO1+	抱闸解除	Brake release
8		DO1-		
9		DO2+	故障输出	Fault output
10		DO2-		
11		DO3+	位置完成	Position completion
12		DO3-		
13		GND	模拟量参考地	Analog reference ground
14		AI1	模拟量输入	Analog input
15		AI2		

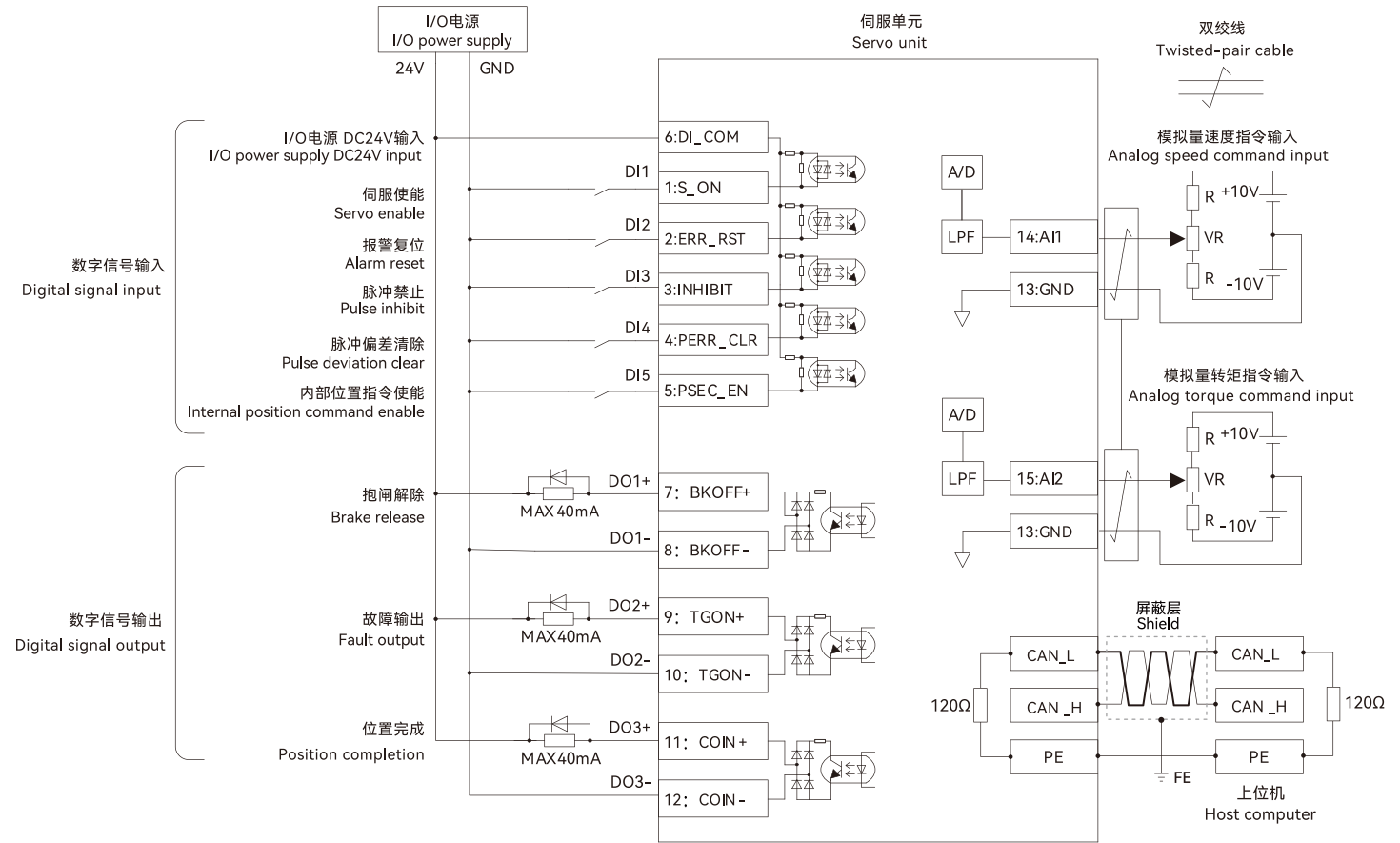
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CN4/CN5接口说明 (CN4/CN5 interface description)				
针脚 (Pin)		信号 (Signal)	功能 (Function)	
1		CAN_H	CAN通讯接口	CAN communication interface
2		CAN_L		
3		-	空	N/A

CN1/CN4/CN5接线图 (CN1/CN4/CN5 wiring diagram)

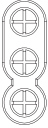


CN2接口说明 (CN2 interface description)

针脚 (Pin)	信号 (Signal)	功能 (Function)
1	-	-
2	-	-
3	STO1+	关闭功率模块驱动信号, 切断伺服电源
4	STO1-	
5	STO2+	安全功能信号监视输出
6	STO2-	
7	STO_OUT+	安全功能信号监视输出
8	STO_OUT-	

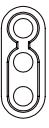
CN3接口说明 (CN3 interface description)

针脚 (Pin)	信号 (Signal)	功能 (Function)
1	-	-
2	-	-
3	-	-
4	-	-
5	-	-
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主回路电源及制动电阻输入接口说明 (Main circuit power supply and braking resistor input interface description)				
	序号 (No.)	丝印 (Screen printing)	功能 (Function)	
	1	DC+	电源输入正	Power supply input+
	2	DC-	电源输入负	Power supply input-
	3	R	DC+/R制动电阻接口	Power brake resistor interface

- * 注: 1. 电源正负极两端需增加电解电容, 接反会有电容爆炸风险。缺少电容将可能出现报错, 无法正常运行。
2. 接入电源时请接入电解电容 10W-100W 机型请接入 100V/220μF 电解电容; 200W-750W 机型请接入 100V/470μF 电解电容。
3. 配线材料请选用耐热材料, 并与容易受到温度影响的机器和配线隔离。

*Note: 1. Electrolytic capacitors must be added across the positive and negative terminals of the power supply. Reverse connection poses a risk of capacitor explosion. Missing capacitors may lead to error reporting and failure to operate normally.
2. When connecting the power supply, please connect electrolytic capacitors: for 10W-100W models, use a 100V/220μF electrolytic capacitor; for 200W-750W models, use a 100V/470μF electrolytic capacitor.
3. Use heat-resistant materials for wiring, and isolate them from machines and wiring susceptible to temperature effects.

电机动力线输出接口说明 (Motor power cable output interface description)				
	序号 (No.)	丝印 (Screen printing)	功能 (Function)	
	1	U	电机U相输出	Motor power U-phase output
	2	V	电机V相输出	Motor power V-phase output
	3	W	电机W相输出	Motor power W phase output