

PL282X-301-XX-2-2A2 二代二芯弯头连接器安装说明

PL282X-301-XX-2-2A2 G2

2POS 90D Right Angle Plug Connector Assembly Manual



PL282(X)-30(X)-XX-2-2A2

键位		高压互锁		线缆大小	G2 Connector
Key		0: 无	1: 有	Cable Size mm2	
X 键	X	HVIL		50	线缆类型 Coroplast cable 9-2611
Y 键	Y			70	
U 键	U			95	
V 键	V				
W 键	W				
T 键	T	0: NO	1: WITH		

本文件中图例仅供参考，具体颜色与大小以实物为准。
The figure in this document is for reference only. The specific color and size are subject to actual objects.

第一部分：包装清单

Part 1 : Package contents



- | | |
|--|-----------------------------|
| ① 摇杆 Latch ×1 | ② 螺旋弹簧 Coil spring ×2 |
| ③ 外铜环 Outer Copper ring ×2 | ④ 内铜环 Inside Copper ring ×2 |
| ⑤ 后壳 Back Shell ×2 | ⑥ 密封圈 Sealing ×2 |
| ⑦ 前壳组件 Front shell assembly ×1 | |
| ⑧ R4端子组件 R4 and terminal assembly ×2 | |
| ⑨ 一套绝缘套 A set of Insulation sleeve ×2 | |
| ⑩ W 锁块 (带凸台) Clamp W (With convex platform) ×1 | |
| ⑪ W/O锁块 Clamp W/O ×1 | |
| ⑫ M6平垫圈 M6 flat washer ×2 | |
| ⑬ M6弹簧垫圈 M6 spring washer ×2 | |
| ⑭ M6×18螺丝 M6×18 Screw ×2 | |

本文件中图例仅供参考，具体颜色与大小以实物为准。

The figure in this document is for reference only. The specific color and size are subject to actual objects.

第二部分：插头组装

Part 2：Plug assembly

步骤1：穿配件

Step1：Assemble the accessories

1-1 线缆准备：按生产需求从表1选择合适尺寸的线缆，并裁剪

1-1 Cable preparation：take right-sized cable and cut the cable according to production plan from the table 1

表1：线材规格
Table 1：Cable size

连接器 Connector	线缆尺寸 Cable size	线缆外径 Accepted cable OD (mm)	屏蔽线缆 Shield Cable
300系列 300 Series	50mm²	15.8+0/-0.6	FHLR2GCB2G 50mm²
	70mm²	18.2+0/-0.8	FHLR2GCB2G 70mm²
	95mm²	20.9+0/-0.8	FHLR2GCB2G 95mm²

1-2：取各1pcs的⑥密封圈，⑤后壳和④内铜环，依次穿过线缆

1-2：Take each 1pcs of ⑥ Sealing, ⑤back shell and ④ Inside Copper ring , and make them pass through the cable in sequence



步骤2：剥线皮，按表2尺寸剥离线缆绝缘皮和外被

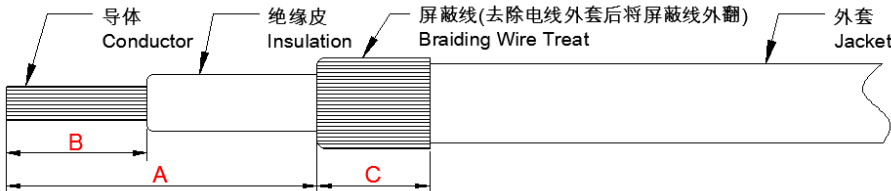
Step 2：Stripping, Strip off cable insulation and jacket as following size from the table 2

表2：剥线长度
Table 2：Strip length

连接器 Connector	线缆尺寸 Cable size	外套剥线长度 A Stripping jacket (mm)	绝缘皮剥线长 B Stripping insulation (mm)	保留屏蔽长度 C leave over shielding(mm)
300系列 300 Series	50mm²	32±1	17±1	7±1
	70mm²	32±1	17±1	7±1
	95mm²	32±1	17±1	7±1

注意：剥皮完成之后，裁剪屏蔽保留Cmm(看上方表2)，并将屏蔽线向后翻180°

Note：After wire stripping, cutting shielded leave over Cmm (see table), and fold back the shielding braid



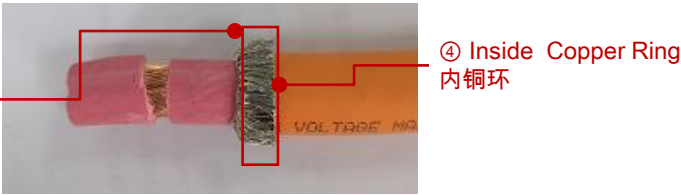
步骤3：压接铜环

Step 3: Crimping Copper ring

3-1 将④内铜环从右端移动到屏蔽线下方，屏蔽线覆盖在铜环表面

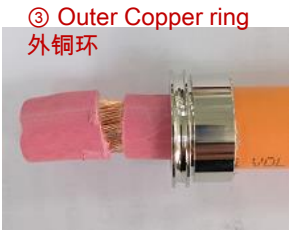
3-1 Move the ④ inside copper ring from the right side to the side below the shield. The shield line is covered on the surface of the copper ring

确保此处铜环前端和外被前端贴紧，
压紧后间隙最佳为0mm
Be sure to be closely in here, the best
clearance is 0mm after crimping

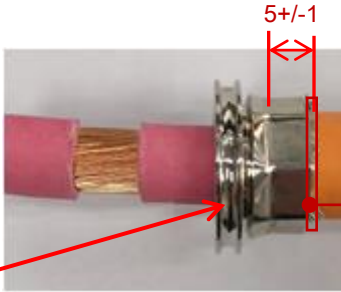


3-2 取1pcs ③外铜环，铜环从左端安装到屏蔽线上，铜环从屏蔽线的左端开始完全覆盖,并压接在其上(规格参照表3)

3-2 Take 1pcs ③ Outer Copper ring, load it to the cable end on the left, copper ring cover the shielded fully from the shielded left end, then crimp(refer to table 3)



外铜环紧靠外被口
Outer Copper Ring Close to the outer Jacket



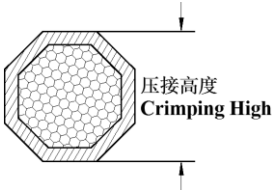
压接之前，确保
此处外铜环后端
和内铜环后端平
齐
Make sure the
ends are level
with each other
before crimping

表3：铜环与线缆屏蔽编织层压接规格&拉拔力要求

Table 3：Copper Ring and Cable braids Crimping spec & retention force requirement

连接器 Connector	线缆尺寸 Cable size	线缆外径 (1) Accepted cable OD (mm)	压接高度 (2) Crimping height (mm)	参考抗拉拔力 (2) Retention Force
300系列 300 Series	50mm²	15.8+0/-0.6	18.65±0.25	150N
	70mm²	18.2+0/-0.8	20.70±0.25	150N
	95mm²	20.9+0/-0.8	22.75±0.25	150N

压接工具：油压机
Crimping tool：Hydraulic press
50mm²Die：TY-092
70mm²Die：TY-091
95mm²Die：TY-097



(1) 线材型号参照表1

Refer to Table 1 for wire type

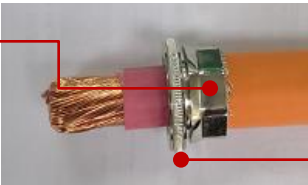
(2) 压接高度仅供参考，需保证拉力大于要求且不影响产品绝缘性能。

The crimping height is for reference only. Ensure that the retention force exceeds the requirements and does not affect the insulation performance of the product.

步骤4：取1pcs的 ② 螺旋弹簧安装在③ 外铜环上

Step 4: Take a Coil spring, and install it on ③ Outer Copper ring

③ Outer Copper Ring
外铜环



② Coil spring
螺旋弹簧

步骤5：取出⑧ R4端子组件（样品参照下面的图片）
Step 5: Take 1pcs ⑧ R4 and terminal assembly (sample refer to picture below)



Key mark on connector 连接器标示	X	Y	U	V	W	T
Inner Pin color 防触摸Pin颜色	Orange 橙色	Black 黑色	Yellow 黄色	Green 绿色	Red 红色	Blue 蓝色

步骤6：取1pcs的 ⑧ R4端子组件自左端穿上线缆，并压接在其上(规格参照表4)
Step 6: Take a ⑧ R4 and terminal assembly , load it to the cable end on the left, then crimp(refer to table 4)

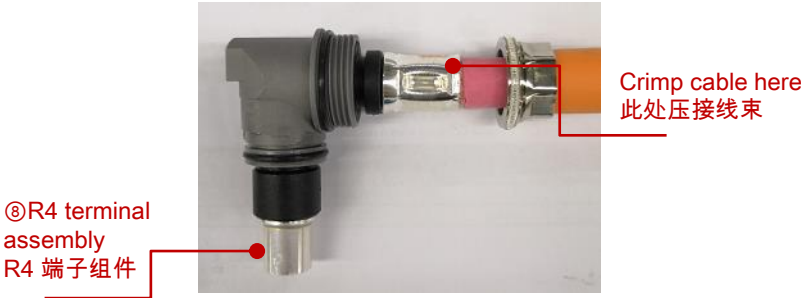


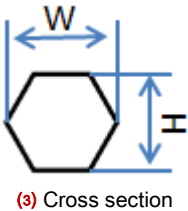
表4：端子与线缆压接规格&拉拔力要求

Table 4：Contact and Conductor Crimping spec & retention force requirement

连接器 Connector	线缆尺寸 Cable size	线缆外径 (1) Accepted cable OD (mm)	压接高度 (2) Crimping height (mm)	参考抗拉拔力 (3) Retention Force
300系列 300 Series	50mm²	15.8+0/-0.6	11.35+/-0.25	2800N
	70mm²	18.2+0/-0.8	12.85+/-0.25	3400N
	95mm²	20.9+0/-0.8	13.20+/-0.30	4200N

压接工具：免换模压接机
Crimping tool：Hexagon shape terminal crimping machine

压接高度仅供参考，会因为机器不同而产生差异。
The crimp height is for reference only and will vary depending on the machine.



- (1) 线材型号参照表1
Refer to Table 1 for wire type
- (2) 压接高度和拉拔力需要配合压接截面的金相分析，客户才能判断压接质量合格，芯线压缩比要求为 80~90%
Customers need to reconfirm cross section on crimping area and pull out force test to confirm the quality of crimp process , Terminal crimping must meet the compression ratio of conductor requirements: 80~90%.
- (3) 横截面仅供参考（其他举例：六边带点形的横截形状），客户负责采购压接工具或刀模
Cross section only reference tooling geometry (ex. hex and indent dimensions),customer will take liability for sourcing tools or dies

- 步骤7：取出一套⑨绝缘套，将绝缘套卡入端子处

Step 7: Take a set of ⑨ Insulation sleeve , install it into the terminal



- 步骤8：把连接头前端固定,以10~12N•M拧紧⑤后壳

Step 8: Secure the front end of the connector, ⑤ back shell tight with torque 10~12N•M



- 步骤9：将⑥密封圈推入屏蔽壳组件内部的底部

Step 9: Push the ⑥ sealing to the bottom of Shield shell assembly



- 步骤10：取出⑦前壳组件（样品参照下面的图片）

Step 10: Take 1pcs of ⑦ front shell assembly(sample refer to picture below)



Key mark on connector 连接器标示	X	Y	U	V	W	T
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步骤11（手压机）：

- 11-1 将⑦ 前壳组件放置于桌面
- 11-2 将连接头的密封圈推入⑦前壳组件内部
- 11-3 将产品放入治具T60014，启动开关将卡簧压合到位，
- 11-4 摇动手柄将接头压入前壳组件，并保持位置，
- 11-5 左手松开气动开关，右手继续将接头往下压，听到“嗒”的声音，卡簧安装到位。

Step11(manual press)：

- 11-1 Place ⑦ front shell assembly on the desktop
- 11-2 Push the sealing of the connector into the inner of the ⑦ front shell assembly
- 11-3 Put the product into the fixture T60014, start the switch to press the clamp spring in place,
- 11-4 Crank the handle to press the connector into the front shell assembly, And stay in this position,
- 11-5 Release the pneumatic switch with the left hand, and continue to press the connector down with the right hand to confirm that the installation is in place. it's in position when it clicks.



11-1



11-2

卡口相对
Slot face to gap



11-3



11-4



11-5

步骤11（手压钳）：

- 11-1 将 ⑦ 前壳组件放置于桌面
- 11-2 将连接头的密封圈推入⑦前壳组件内部
- 11-3 用治具T00281夹紧卡簧，确认卡簧收缩到位，
- 11-4 用手将接头压入前壳组件，并保持位置，
- 11-5 松开手压钳，继续将接头往下压，听到“嗒”的声音，卡簧安装到位。

Step11(Hand pressure pliers)：

- 11-1 Place ⑦ front shell assembly on the desktop
- 11-2 Push the sealing of the connector into the inner of the ⑦ front shell assembly
- 11-3 Clamp the metal gasket with hand pressure pliers T00281 to ensure that the metal gasket is in position,
- 11-4 Push the connector into the front shell assembly by hand, And stay in this position,
- 11-5 Release the hand pressure pliers, and continue to press the connector down to confirm that the installation is in place. it's in position when it clicks.



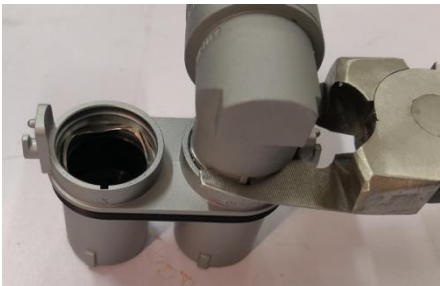
11-1



11-2



卡口相对
Slot face to gap



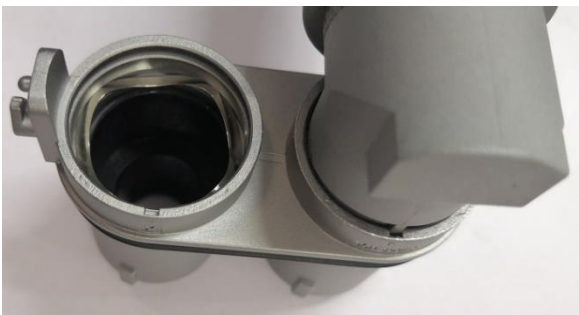
11-3



确认卡环开口在红色区域内
Make sure the clip ring opening is
in the red area



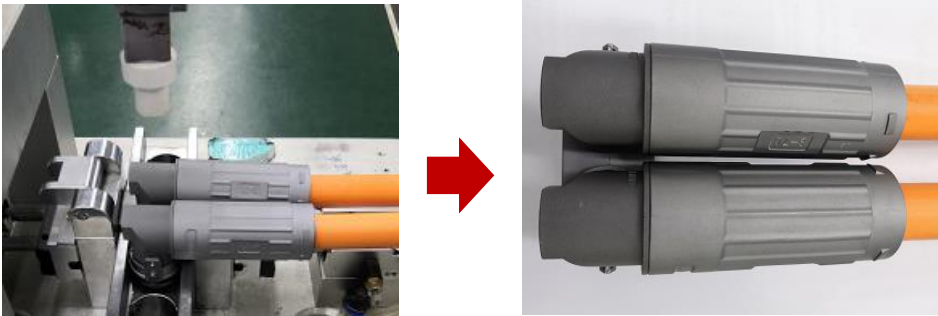
11-4



11-5

步骤12：将连接器如图下图所示移动位置，并参照步骤11安装另外一条线束的卡簧

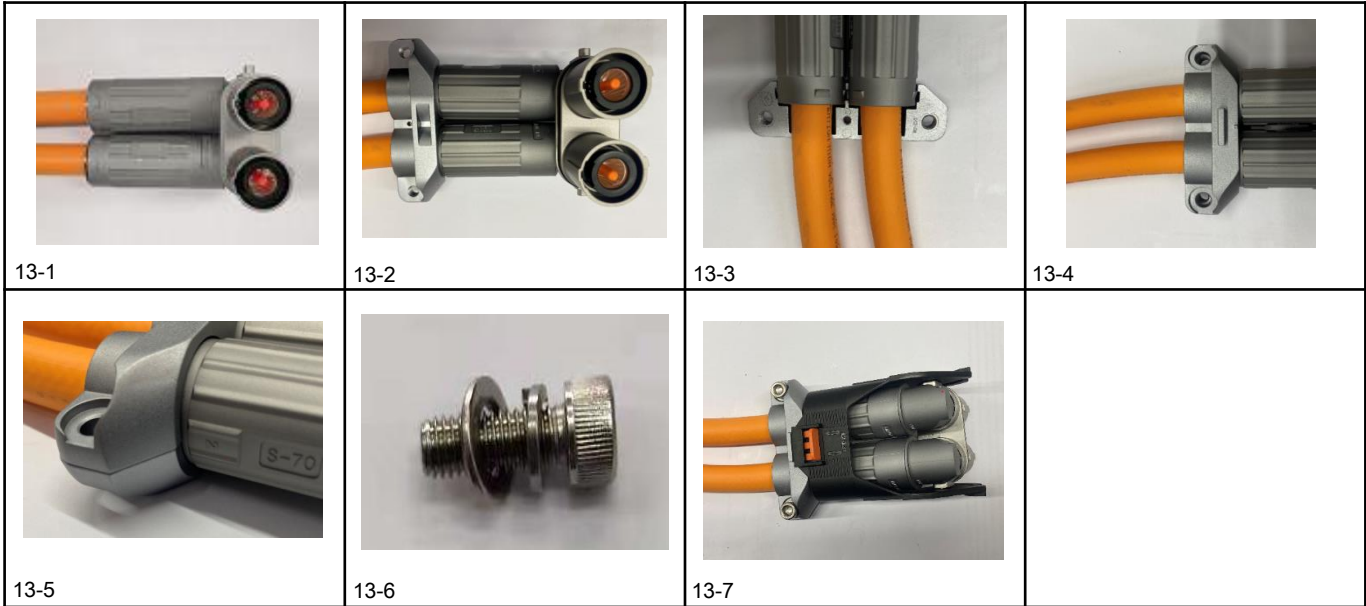
Step 12: Move the connector as shown in the figure below and follow step 11 to install the gasket metal for another cable



- 步骤13：**
- 13-1 将连接器水平放置与桌面
 - 13-2 将⑪ W/O锁块安装到连接器尾部
 - 13-3 将连接器反转放置
 - 13-4 将⑩ W锁块安装到连接器尾部
 - 13-5 检查两个锁块之间的缝隙小于1mm
 - 13-6 取出⑭ M6×18螺丝、⑬ M6弹簧垫圈和⑫ M6平垫圈，组装在一起
 - 13-7 使用电批将螺丝锁在上面位置的锁孔(扭力为3N.M)

Step 13:

- 13-1 Place the connector horizontally with the desktop
- 13-2 Install the ⑪ Clamp W/O at the end of the connector
- 13-3 Inversion of the connector
- 13-4 Install the ⑩ Clamp W at the end of the connector
- 13-5 Check that the gap between the two locking blocks is less than 1 mm
- 13-6 take ⑭ M6×18 Screw , ⑬ M6 spring washer and ⑫ M6 flat washer and assemble them together.
- 13-7 Lock the screw in the upper position with the batch(torque is 3N.M)



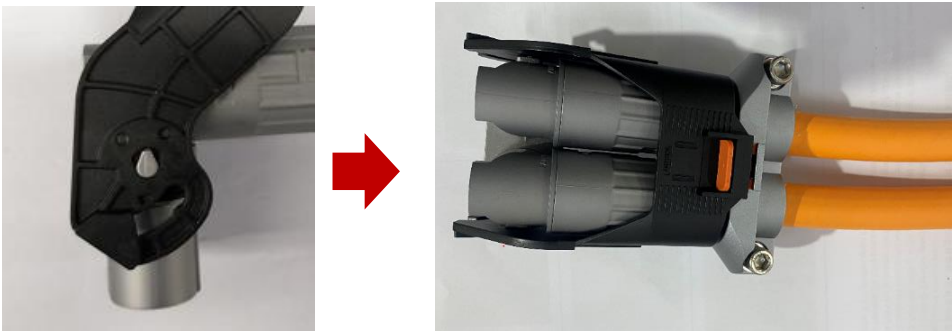
- 步骤14：取出①摇杆（样品参照下面的图片）

Step 14: Take 1pcs ① Latch(sample refer to picture below)



- 步骤15：①摇杆两端的孔位对准铁壳相应的位置装入铁壳,完成此线束的组装

Step 15: The holes at both ends of ① Latch are aligned with the corresponding positions of the iron shell and loaded into the iron shell. , one end assembly done.



- 步骤16：在线缆组装好后需要做绝缘电阻和耐压测试，建议客户参考下面的测试参数

Step 16: Need to do the Insulation Resistance and DWV test after cable assembly. It is recommended that the customer refer to the following test parameters

16-1 绝缘电阻测试

16-1 Insulation Resistance

Positions 位置	Test voltage/time 测试电压/时间	测试时间（推荐） Test Time (recommended)	Insulation resistance 绝缘电阻
Cable(power) to shell 电缆芯线到壳体	1000 VDC	5S	> 500 MΩ
Cable(power) to HVIL 电缆芯线到高压互锁	1000 VDC	5S	> 500 MΩ
HVIL to shell 高压互锁到壳体	1000 VDC	1S	> 100 MΩ

16-2 Dielectric Withstand Voltage

16-2 耐压测试

Positions 位置	Test voltage 测试电压	测试时间（推荐） Test Time (recommended)	Leakage Current 漏电流
Cable(power) to shell 电缆芯线到壳体	5000 VDC	10S	< 5mA
Cable(power) to HVIL 电缆芯线到高压互锁	5000 VDC	10S	< 5mA
HVIL to shell 高压互锁到壳体	500 VDC	1S	< 5mA

16-3 测试说明:

警告:建议的电气测试及其参数应根据终端应用要求进行审查,以确保安全性并防止损坏其他部件。提供的参数是基于PowerLok连接器和其峰值1000VDC额定。提供的测试参数可能超出电缆组件或设备上使用的其他部件/材料的限制。

16-3 Test note:

caution: Recommended electrical tests and their parameters should be reviewed against end application requirements to ensure safety and to prevent damage to other components. Parameters provided are based on the PowerLok connectors and their peak 1000VDC rating. Test parameters provided may exceed the limit of other components/materials used on the cable assembly or device.

步骤17：补充说明
Step 17: Other notes

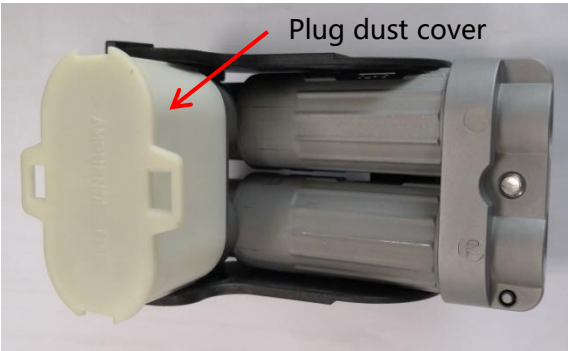
17-1：在连接器搬运和高压线束搬运过程中，推荐使用插头防尘盖和插头防护盖。避免搬运过程中碰伤或损坏。要求详见安装指引 8P1129。 .

17-1: In the process of connector handling and high-voltage harness handling, it is recommended to use plug dust cover and plug protective cover. Avoid bumping and damage during handling. See installation guideline 8P1129 for detail requirements.



此HVIL保护套使用前
需移除
This HVIL cap must be
removed before use

此HVIL保护套新版本
已取消
This HVIL cap has
been cancelled in new
version



版本记录 Revision history

序号 Number	版本 Rev	变更内容 Content of change	日期 Date
1	00	新出试行版 New trial version	2024/07/23



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