

PL183X-301-XX-2-2A2 二代三芯直头连接器安装说明

PL183X-301-XX-2-2A2 G2 3POS 180D Plug Connector Assembly Manual



PL183(X)-30(X)-XX-2-2A2

键位 Key		高压互锁 HVIL	线缆大小 Cable Size mm ²	G2 Connector	线缆类型 Cable Type
X 键 X		0: 无 1: 有	50 70 95		Coroplast cable 9-2611
Y 键 Y		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

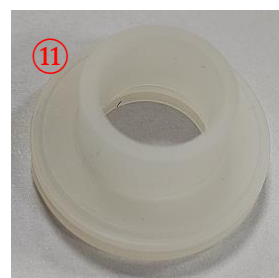


★ 备注 Note :

安装过程请保留HVIL防护盖在此位置，等线束组装完毕再取出。

HVIL cap should be left in place during assembly, removed after final assembly is complete before use.

- ① 屏蔽壳组件 Shield shell assembly ×1
- ② 带高压互锁端子的绝缘筒 Insulation sleeve with HVIL contact ×1
(非HVIL版本无高压互锁端子 No HVIL contact for non-HVIL version)
- ③ 不带高压互锁端子的绝缘筒 Insulation sleeve without HVIL contact ×2
- ④ 带密封圈的R4端子组件 R4 terminal Assy with O-ring ×3
- ⑤ 锁块 (两个) Lock housing (2PCS) ×3
- ⑥ 塑料卡簧 Plastic Clamp spring ×3
- ⑦ 螺旋弹簧 Coil spring ×3
- ⑧ 外铜环 Outer Copper ring ×3
- ⑨ 内铜环 Inside Copper ring ×3
- ⑩ 金属垫圈 Metal gasket ×3
- ⑪ 密封圈 Sealing ×3
- ⑫ 尾盖 End cap ×3



实物参考图
Physical figure
reference

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

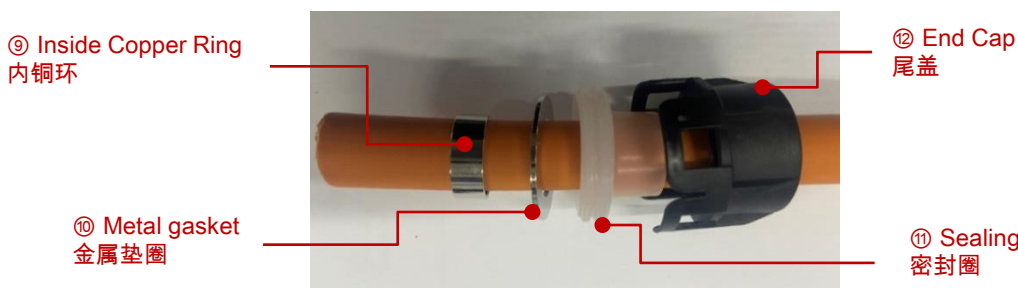
1-1 Cable preparation : take right-sized cable and cut the cable according to production plan from the table 1

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
301/300系列 301/300 Series	50mm ²	15.8+0/-0.6	FHLR2GCB2G 50mm ²
	70mm ²	18.2+0/-0.8	FHLR2GCB2G 70mm ²
	95mm ²	20.9+0/-0.8	FHLR2GCB2G 95mm ²

1-2 取各1pcs的⑫尾盖, ⑪密封圈, ⑩金属垫圈和 ⑨内铜环, 依次穿过线缆

1-2 Take each 1pcs of ⑫ end cap, ⑪ Sealing, ⑩ Metal gasket and ⑨ 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

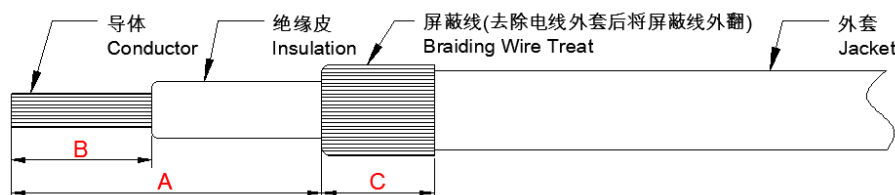
Step 2: Stripping, Strip off cable insulation and jacket as following size from the table 2

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)
301/300系列 301/300 Series	50mm ²	36±0.5	19 +1/-0.5	7±1
	70mm ²	36±0.5	19 +1/-0.5	7±1
	95mm ²	36±0.5	19 +1/-0.5	7±1

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

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



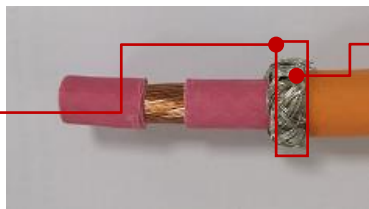
步骤3：压接铜环

Step 3: Crimping Copper ring

3-1 将 ③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 ③ 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

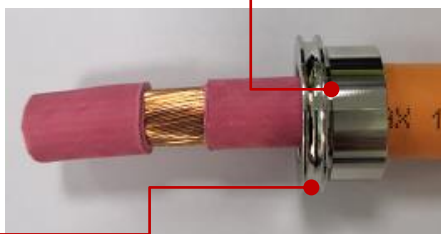


③ Inside Copper Ring
内铜环

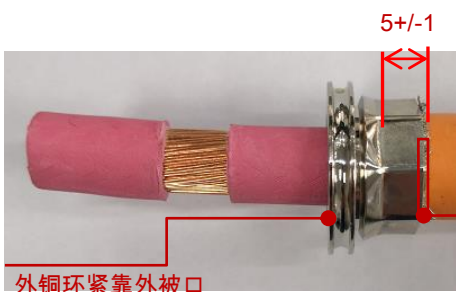
3-2 取1pcs ④外铜环，铜环从左端安装到屏蔽线上，铜环从屏蔽线的左端开始完全覆盖,并压接在其上(规格参照表3)

3-2 Take 1pcs ④ 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)

④ Outer Copper Ring
外铜环



紧靠外被口 Close to the outer Jacket



外铜环紧靠外被口

Outer Copper Ring Close to the outer Jacket

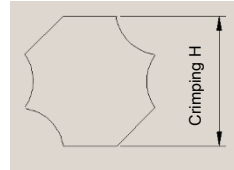
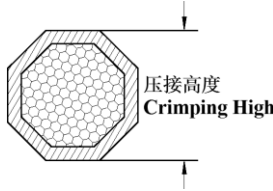
压接之前，确保
此处外铜环后端
和内铜环后端平
齐
Make sure the
ends are level
with each other
before crimping

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
301/300系列 301/300 Series	50mm ²	15.8+0/-0.6	18.65±0.25	150N
	70mm ²	18.2+0/-0.8	20.7±0.25	150N
	95mm ²	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。

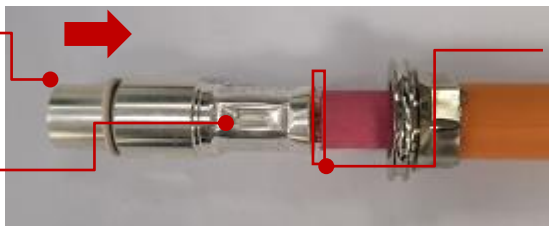
The crimping height is for reference only. Ensure that the retention force exceeds the requirements and does not affect the insulation performance of the product.

步骤4：取1pcs的 ④ 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 4: Take a ④ R4 terminal Assy, load it to the cable end on the left, then crimp(refer to table 4)

④ R4 terminal Assy

Crimp cable here
此处压接芯线



Be sure the gap here is $2\pm 0.5\text{mm}$
确保这里的间隙是1.5mm到2.5mm之间

表4：端子与线缆压接规格&拉拔力要求

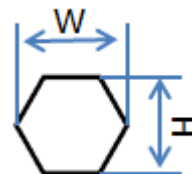
Table 4 : Contact and Conductor Crimping spec & retention force requirement

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
301/300系列 301/300 Series	50mm ²	15.8+0/-0.6	11.35+/-0.25	2800N
	70mm ²	18.2+0/-0.8	12.85+/-0.25	3400N
	95mm ²	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.



(3) Cross section

(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5：取1pcs的 ⑦ 螺旋弹簧安装在 ⑧ 外铜环上

Step 5: Take 1pcs ⑦ Coil spring and install on ⑧ Outer Copper ring



⑦ Coil spring
螺旋弹簧

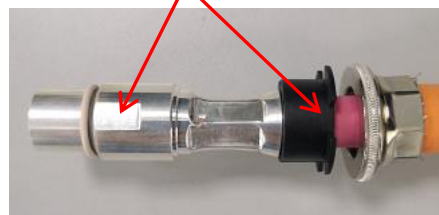
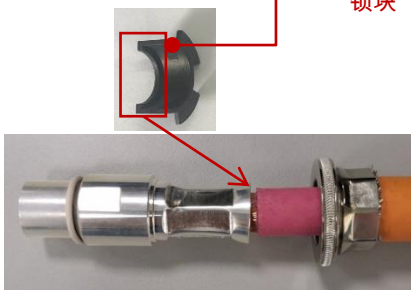
⑧ Outer Copper Ring
外铜环

步骤6：取2pcs的 ⑤ 锁块，将2pcs ⑤ 锁块前端的台阶放置入端子和内皮之间的间隙

Step 6: Take 2pcs ⑤ lock housing, Place the front step of the 2pcs ⑤ lock housing into the space between the terminal and the Insulation

⑤ Lock Housing
锁块

锁块缺口与端子止转面对齐
Gap of lock is in the same line with the holder anti-rotation chamfer



步骤7：取出② ③绝缘筒，插入④ R4 组件中，并使其触底
Step 7: Take a ② ③ Insulation sleeve ,plug it to ④ R4 Assy , and make it contact the bottom .

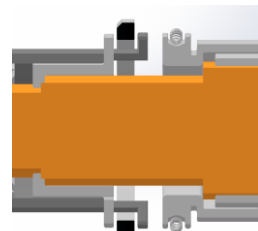
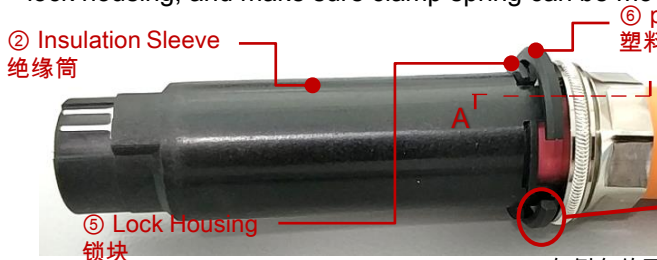


同一方向
keep in the same direction



Make sure R4 end visible & reach the insulation cap edge open.
 确保R4尾端可见 & 尾端位置与绝缘筒前端边缘平齐

步骤8：取出⑥塑料卡簧安装到② ③绝缘筒和⑤锁块之间的间隙，并确保卡簧活动顺畅
Step 8: Take a ⑥ plastic Clamp spring, install into the space between the ② ③ Insulation sleeve and the ⑤ lock housing, and make sure clamp spring can be moved freely.



有倒角的面朝左侧方向
The chamfer faces left

A-A

步骤9：取出①屏蔽壳组件（样品参照下面的图片）
Step 9: Take each 1pcs of ① Shield shell assembly (sample refer to picture below)

防触摸 Pin
Inner Pin



连接器标示
Key mark on connector

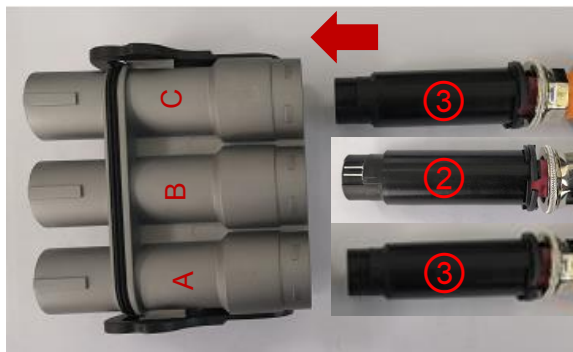
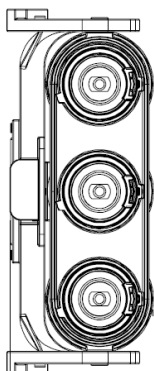
① Shield Shell Assembly
屏蔽壳组件

Key mark on connector 连接器标示	X	Y
Inner Pin color 防触摸Pin颜色	Orange 橙色	Black 黑色

步骤10：② ③绝缘筒插入到①屏蔽壳组件，并使其触底,带高压互锁绝缘筒②装入位置B，不带高压互锁的绝缘筒③装入位置A与C，注意确认HVIL位置以及卡簧是否到位。

Step 10: Plug the ② ③ Insulation sleeve into ①Shield shell assembly, and make it reach the bottom. Insulation sleeve with HVIL ② is in the position B, and Insulation sleeve without HVIL ③ is in the position A and C. take care to ensure HVIL in right place and pull back wire to ensure clamp spring is in position.

HVIL端子不能
损伤变形，请
注意插入方向
HVIL terminal
cannot be
damaged or
deformed
Take care of
sleeve plug
direction



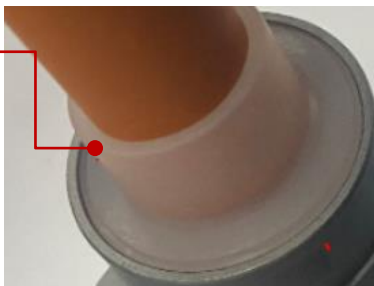
装到底后轻摇线材使卡簧到位
再后拉线材不应松脱
After installation, gently shake
the wire to ensure the spring in
place, pull back wire should not
be pulled out.

依次将装好③与②绝缘筒的线材装入到①屏蔽壳组件
Assemble wire assy with insulation sleeve ② or ③ into ①Shield shell
assembly PinC, PinB and PinA in sequence. .

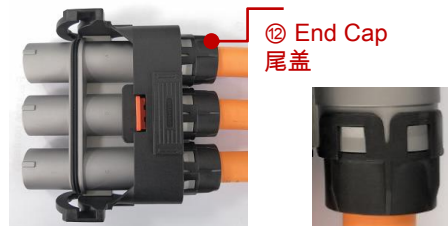
步骤11：将⑩金属垫圈和⑪密封圈推入屏蔽壳组件内部的底部，接着将⑫尾盖扣住①屏蔽壳组件，完成此端线束的组装

Step 11: Push the ⑩ metal gasket and ⑪ sealing to the bottom of Shield shell assembly, and then make the ⑫ end cap fasten the ① shield shell assembly to finish the assembly.

⑪ Sealing
密封圈



The effect of
operation in place
操作到位的效果图



步骤12：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 12: Need to do the Insulation Resistance and DWV test after cable assembly, It is recommended that the customer refer to the following test parameters

12-1 绝缘电阻测试

12-1 Insulation Resistance .

Positions 位置	Test voltage (DC) 测试电压 (直流)	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 V	5S	> 500 MΩ
Cable(power) to HVIL 电缆芯线到高压互锁	1000 V	5S	> 500 MΩ
HVIL to shell 高压互锁到壳体	1000 V	1S	> 100 MΩ

12-2 Dielectric Withstand Voltage

12-2 耐压测试

Positions 位置	Test voltage (DC) 测试电压 (直流)	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 V	10S	< 5mA
Cable(power) to HVIL 电缆芯线到高压互锁	5000 V	10S	< 5mA
HVIL to shell 高压互锁到壳体	500 V	1S	< 5mA

12-3 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。

12-3 Test note:

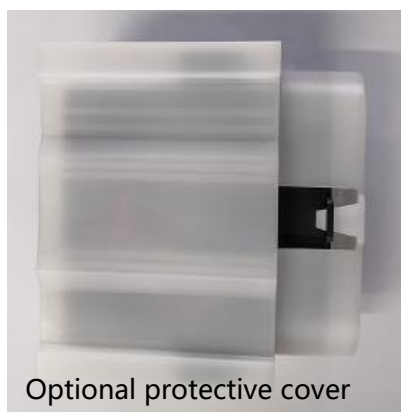
caution: Recommended electrical tests and their parameters should be reviewed against end application requirements to ensure safety and to prevent damage to other components. Parameters provided are based on the PowerLok connectors and their peak 1000VDC rating. Test parameters provided may exceed the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

步骤13：补充说明

Step 13: Other notes

13-1：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损坏。要求详见 安装指引 8P1129。

13-1: 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.



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	2024/07/22



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