

PL28X-301-70-G97 10.0 单芯弯头插头组装规范

PL28X-301-70-G97 10.0 1POS 90D Plug Assembly Manual



第一部分：产品介绍

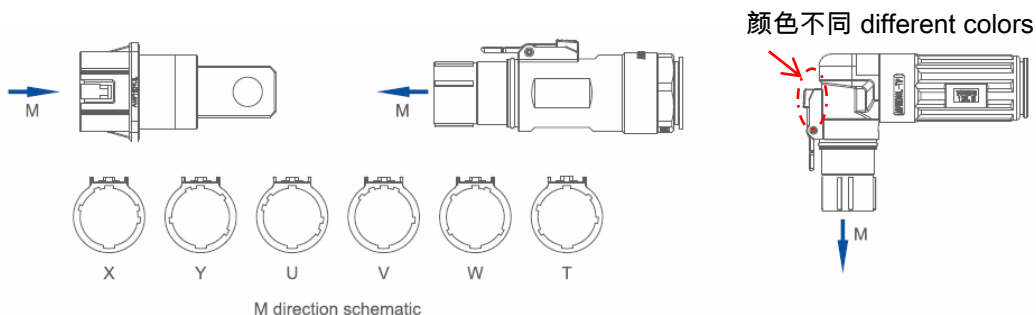
Part 1 : Introduction to products

1 : 料号信息 Part number information

PL28(X)-301-70-G97

Key&Color		高压互锁	线缆大小	线缆类型
键位	Color	0 : 无	Cable Size mm2	
X 键	OR	1 : 有		
Y 键	BK	HVIL		
U 键	YL	0 : NO	70	LV216
V 键	GN	1 : WITH		
W 键	RE			
T 键	BL			

2 : 键位及颜色区分 Key and color differentiation



3 : 对配头型号 Mating receptacle: PL00(X)-301-10XX

4 : 主要参数 Major Spec

- 4.1 工作温度 Operating temperature: -40 °C ~+125°C
- 4.2 额定电压 Operating voltage: 1000 VDC
- 4.3 防护等级 Protection class: IP67 & IP2X
- 4.4 带自动二次锁扣 Automatic secondary lock
- 4.5 尾部接线方向可正反转向90° Rotate function of wire
- 4.6 额定电流 Current rating(Connector Only):
70mm2-250A
- 4.7 详情请参照产品图 Please refer to the product drawing for details

第二部分：接头分拆

Part 2 : Connector disassemble



- ① 接头主体 Connector body ×1
- ② 一套绝缘套 A set of Insulation Sleeve ×1
- ③ 金属套 Metal Sleeve ×1
- ④ 金属垫片 Metal Gasket ×1
- ⑤ 密封圈 cable Seal ×1
- ⑥ 金属后壳 Back Shell ×1



沿对接线向两边用力分开
Force it apart along the mating line

第三部分：组装说明

Part 3 : Assembly Instruction

步骤1：选取合适线缆，按照要求的长度切线与剥外被。

Step1 : Select the right cable, Cut and stripping the cable as required length.



表1：剥皮尺寸
Table 1: Strip length

线材尺寸 Cable Size	线材OD Cable OD	A (mm)	线材类型 Cable Type
70mm ²	18.2+0/-0.8	27 ±1	LV216

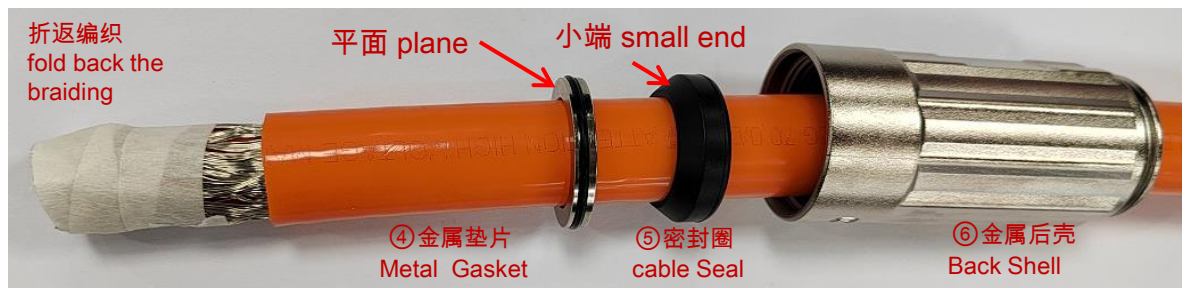
步骤2：将铝箔齐外被口剪齐，再将编织均匀打散，反折固定在外被上，按图示长度剥芯线。

Step2 : Cut the aluminum foil even to the jacket end, break the braid evenly, fix it on the outer jacket, and strip the insulation according to the length shown.



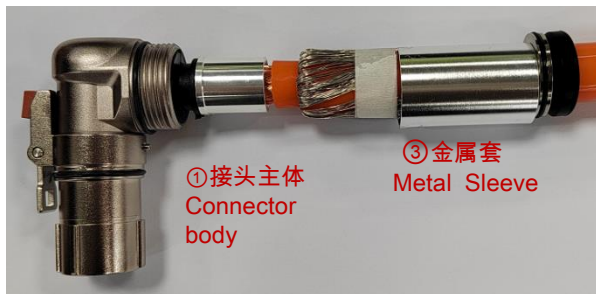
步骤3：将编织如图所示处理，再将零件按下图套在剥好的电线上。

Step3 : Process the braid as shown in the figure, and then put the parts on the stripped wire according to the figure below.



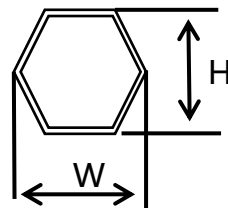
步骤4：将编织再次反折固定如图示，再在线材上先后穿入金属套与接头主体。

Step4 : Fold the braid again and fix it as shown in the figure, and then insert the metal sleeve and the connector body successively on the cable.



步骤5：调试好机器与模具，将端子压接在芯线上，模具与压接规格参照手册最后的附录。

Step5 : Adjust the machine and tool, crimp the terminal on the conductor, tool and crimp specifications refer to the appendix at the end of the manual.



(1) 建议使用安费诺指定线材（型号详见表1），如果客户选用其它电缆，请联系安费诺业务，协商订制零配件

Recommend to use assigned cable. (See Table 1 for details.) If you need to use customized cable, Please contact local sales for product extensions

(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：六边带点的横截面形状），客户负责采购压接工具或刀模。

Cross section only reference tooling geometry (other ex. Hexagon with dot geometrical shape),customer will take liability for sourcing tools or dies.

步骤6：如图示将绝缘套装在接头主体的沟槽上，注意后工序编织避免散落在图示区域。

Step6 : Assemble the insulation sleeve on the groove of the connector body as shown in the figure, and pay attention to avoid braid falling in the area as shown in the continuous process.



步骤7：屏蔽处理

7-1 自右向左推动金属套盖住绝缘套

7-2 外翻屏蔽线，将其覆盖到金属套上，剪切屏蔽线，保留长度约15mm

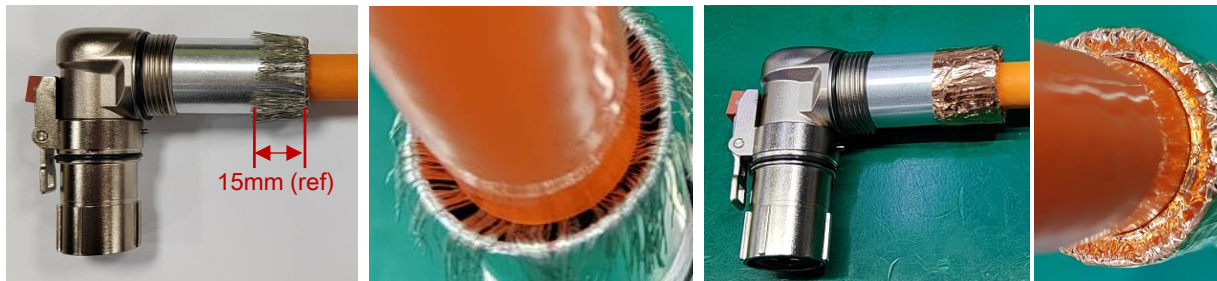
7-3 剪切尺寸约120mm*25mm的铜箔，包裹住屏蔽线，确保尾端被包紧

Step7 : Shielding braid preparation

7-1 Push the metal sleeve from right to left over the insulation sleeve.

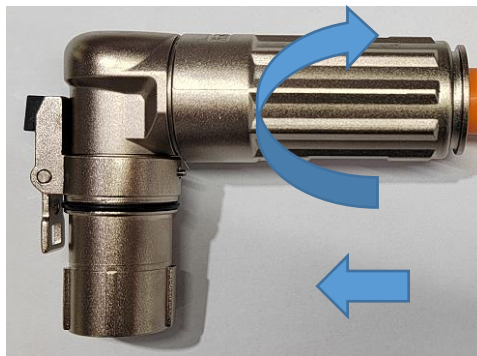
7-2 Flip over the braid, cover it to the metal sleeve, cut the braid to the length of about 15mm.

7-3 wrap the shielding braid with a piece of copper foil of 120mm*25mm, ensuring that the end is tightly wrapped.

**步骤8：组装金属后壳****Step8 : Assemble the Back shell**

8-1 将金属垫片与密封圈前移，紧靠金属套。

8-1 Move the metal gasket and cable seal forward, close to the metal sleeve.



8-2 转动前移金属后壳至底部如图示。

8-2 Turn forward metal back shell to bottom as shown in figure.

8-3 将接头固定在治具T007-7上如图示。

8-3 Fix the connector on the mold T007-7 as shown in figure.



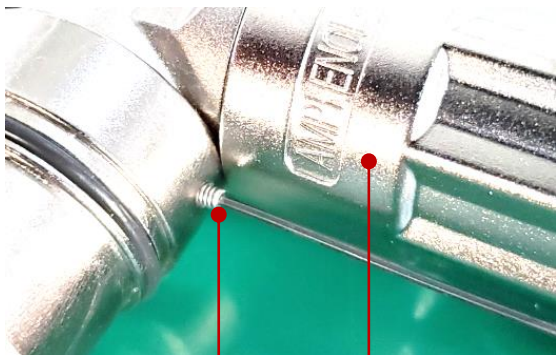
8-4 锁紧金属后壳完成组装，铁壳锁紧力矩为10~12 N.m。

8-4 Screw up the shell with a torque of 10-12N.m to finish the assembly.



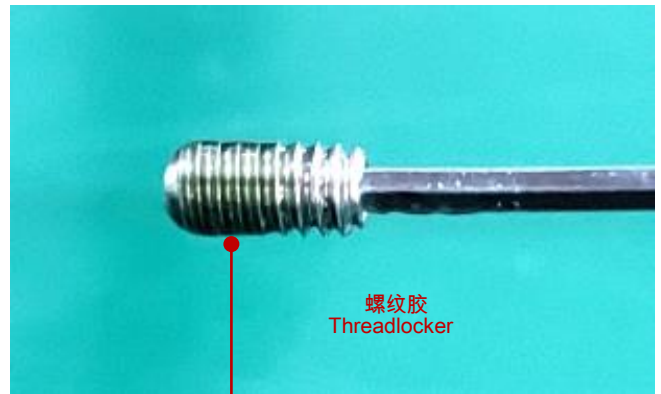
步骤9：使用0.9mm内六角扳手拧下顶丝，涂抹螺纹胶；重新拧紧顶丝，直至外壳固定

Step9 : Use 0.9mm hexagon wrench to unscrew the fastening screw and apply the threadlocker; Retighten the fastening screw until the shell is fixed.

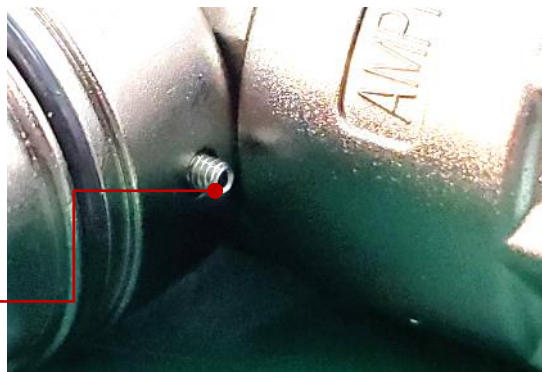


顶丝
Fastening Screw

⑥金属后壳
Back Shell



螺纹胶
Threadlocker



顶丝
Fastening Screw

(i) 建议使用低强度螺纹胶 乐泰222

It is recommended to use low strength threadlocker LOCTITE 222

步骤10：建议客户参考下面的测试参数，对线束进行绝缘电阻测试和耐压测试。

Step10：Insulation resistance and dielectric withstand voltage tests are obligated to be done according to below test parameters to guarantee the good electric performance of the whole harness.

10-1 绝缘电阻测试

10-1 Insulation Resistance Test

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

10-2 耐压测试

10-2 Dielectric Withstand Voltage Test

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

10-3 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。

10-3 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.

附录 APPENDIX

线缆压接的参考规范
Reference specification for cable crimping

电线尺寸 Cable Size	导体结构 (mm) Conductor	导体外径 (mm) Conductor OD	电线外径(mm) Wire OD	压接高度 H(mm) Crimping height	压接宽度 W(mm) Crimping Width	参考保持力 Retention Force	刀模编号 Crimping Tool No.
70mm ² LV216	2272*0.21 Max	12.5	18.2+0/-0.8	12.6±0.3	14.3±0.3	3400N	BZW-6C



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.

参考文件
Reference Documents

- 1 : 8P1249 PowerLok G1 单芯接头通用安装说明
8P1249 PowerLok G1 one POS plug General Installation Instructions
- 2 : IPC/WHMA-A-620D 线缆及线束组件的要求与验收
IPC/WHMA-A-620D Requirements and Acceptance for cable and wire harness Assemblies.
- 3 : 端子拉力标准参照 IEC-60512-16-4
Terminal tensile strength test refer to IEC-60512-16-4.
- 4 : 8P1199 G2 弯头扭力扳手使用说明
8P1199 G2 right angle plug torque wrench instructions

版本记录 Revision history

序号 Number	变更内容 Content of change	日期 Date
01	新出 New issue	20240829



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