Document No: 8P1314
Rev.01

PL18X-351-XX-3 G3 10.0 单芯直插头组装规范
PL18X-351-XX-3 G3 10.0 1POS Straight Plug Assembly Manual

目录/Table of contents

第一部分：产品介绍
Part 1： Introduction to products

1.1：料号信息 Part number information

PL18X-351-XX-3-M

Key &Color

键位	Color
X 键	OR
Y 键	BK
U 键	YL
V 键	GN
W 键	RE
T 键	BL

高压互锁
0：无
1：有

HVIL
0：NO
1：WITH

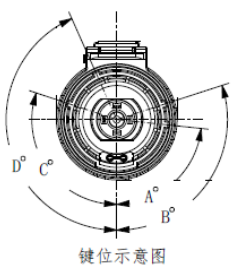
Cable Size
mm2

50
70

G3
Connector

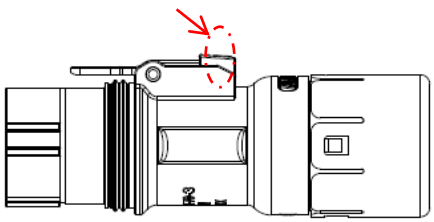
Blank: 96H Salt Spray
M: 500H Salt Spray
H: 720H Salt Spray

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



键位示意图

颜色不同 different colors



键位	A	B	C	D
X	84	108	108	156
Y	60	132	84	156
U	60	84	108	132
V	84	156	132	156
W	60	156	60	132
T	84	132	60	108

1.3：对配头型号 Mating receptacle: PL00(X)-35(1)-10XX-3

1.4：主要参数 Major Spec

1.4.1 工作温度 Operating temperature: -40 ℃ ~+140℃

1.4.2 额定电压 Operating voltage: 1500 VDC

1.4.3 防护等级 Protection class: IP67 & IP68 & IP2X

1.4.4 带自动二次锁扣 Automatic secondary lock

1.4.5 额定电流 Current rating(Connector Only):
50mm2-250A, 70mm2-300A

1.4.6 详情请参照产品图 Please refer to the product drawing for details

第二部分：包装清单
Part 2： Package contents

① 外壳组件 Outer shell assembly ×1

② 屏蔽环 Shielding Ring ×1

③ 压接环 Crimping Sleeve ×1

④ 塑料卡夹 Plastic Card ×1

⑤ 端子胶壳 Housing for Pin Terminal ×1

⑥ 端子 Pin Terminal ×1

⑦ 密封圈 Seal ×1

⑧ 线夹 Wire Clip ×1

⑨ 尾盖 Tail Cover ×1

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.

第三部分：插头组装（70mm2)
Part 3: Plug Assembly(70mm2)

步骤1：选取合适线缆（参考手册最后的附录），按照要求的长度与数量切剥线，剥线尺寸如图1。

Step1：Select the right cable(refer to the appendix), cut and strip cables according to actual requirements, Strip dimension is shown in Figure 1.

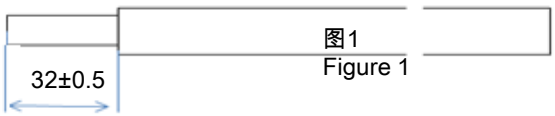
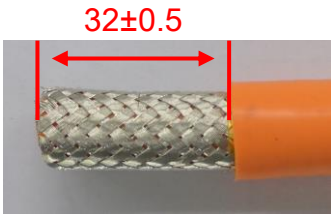


图1
Figure 1



步骤2：将编织均匀打散如图2示反折固定在外被上。

Step2： Break the braiding evenly and fix the braid to the outer jacket as shown in Figure 2.

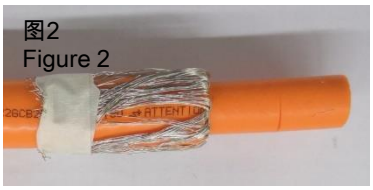


图2
Figure 2

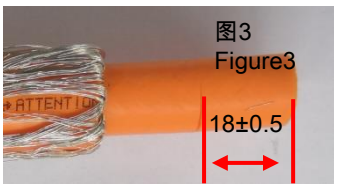


图3
Figure3

步骤3：按图3示尺寸剥芯线。

Step3：Strip the insulation as shown in Figure 3.

步骤4：将编织返回前端，用美纹纸固定如图4。

Step4：Return the braiding to the front end and secure it with the textured paper as shown in Figure 4.

图4
Figure 4

步骤5：依次在线材上穿入配件如图5示。

Step5：Insert the accessories on the wire in turn as shown in the figure5.

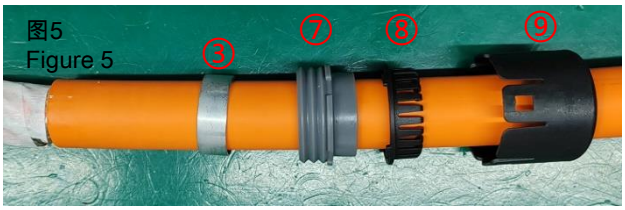


图5
Figure 5

③ 压接环 Crimping Sleeve
⑦ 密封圈 Seal
⑧ 线夹 Wire Clip
⑨ 尾盖 Tail Cover

注意配件方向
Note the direction of accessories

步骤6：将编织均匀返回在外被上，套上屏蔽环②如图6示。

Step6：Return the braiding to the outer jacket evenly, and then put on the shielding ring as shown in Figure 6.

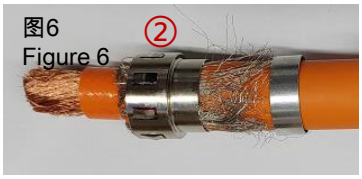
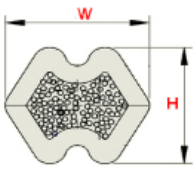


图6
Figure 6

步骤7：将端子⑥穿入芯线上，调试好端子机，将端子紧靠外被压接好，压接刀模与压接高宽度、拉力等要求参照手册最后附表。

Step7：Insert the terminal ⑥ into the conductor, Adjust the terminal machine, and crimp the terminal close to the jacket. The crimp die and crimp height, width and tension requirements refer to the appendix.

图7
Figure 7



横截面
Cross Section

(1) 建议使用安费诺指定线材（型号详见手册后附录），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 appendix 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：等边六变形的横截形状），客户负责采购压接工具或刀模

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

步骤8：确认编织紧贴外被口，将端子胶壳⑤对准端子扁平口装入，直到端子卡槽完全露出，确认端子在胶壳中心位置，握紧编织尾部将屏蔽环前推与胶壳重合如图示，再盖上塑料卡夹④如图示。

Step8：Make sure that the braid is close to the outer jacket, align the housing for pin terminal ⑤ with the flat port of the terminal, and assemble it until the terminal slot is completely exposed. Make sure that the terminal is in the center of the housing, hold the braid tail firmly, push the shielding ring forward to coincide with the housing as shown in the figure 8, and then cover the plastic card ④ as shown in the figure 8.

图8
Figure 8

步骤9：将编织反折在屏蔽环上，剪留7+/-1mm，套上压接环如图9示。

Step9：Fold the braid over the shielding ring, trim to 7+/-1mm, and cover it with the crimping ring as shown in Figure 9.

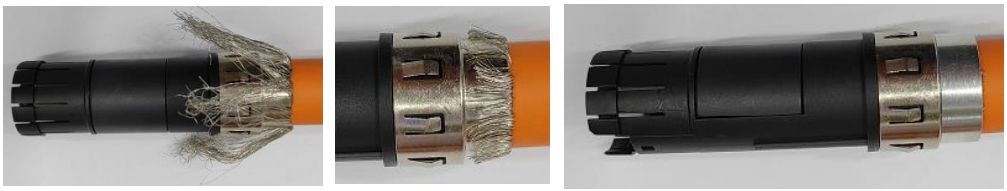


图9
Figure 9

步骤10：将压接环压紧在线材上，压接刀模与压接高度、拉力要求等参照表1，压接过程避免铜套移位。

Step10：Crimp the crimping sleeve on the cable , Crimp die and crimp height and pull force refer to Table 1 . To avoid the shielding ring slide in the crimp process.

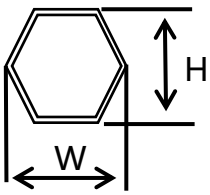


表1：铜环压接规格&拉拔力要求

Table2：Copper Ring Crimping spec & retention force requirements

线材尺寸 Cable Size	压接模具 Crimp die	压接高度 Crimping height H(mm)	参考抗拉拔力 Retention Force
70mm2	BZW-6C	19.65±0.15	150N

步骤11：将胶芯上的定位键对准外壳组件上定位槽装入，直到完全装到位如图11示，此时应能听到“咔”声响。

Step11：Align the positioning key on the housing with the positioning slot on the outer shell assembly and assemble it until it is fully assembled, as shown in Figure 11. At this time, a "click" sound should be heard.

图11
Figure 11

步骤12：将密封圈推到接头底部，再将线夹推至接头底部如图12示，也可以将线夹套在密封圈上用冶具将其推到底。

Step12：Push the seal to the bottom of the connector, and then push the wire clip to the bottom of the connector as shown in Figure 12, or you can put the wire clip on the seal and push it to the bottom of the connector with the fixture shown in Figure 12.

图12
Figure 12

步骤13：盖上尾盖如图13，完成组装，注意尾盖卡扣需完全装到位。

Step13：Cover the tail cover as shown in Figure 13, complete the assembly, pay attention to the tail cover buckle should be fully installed in place.

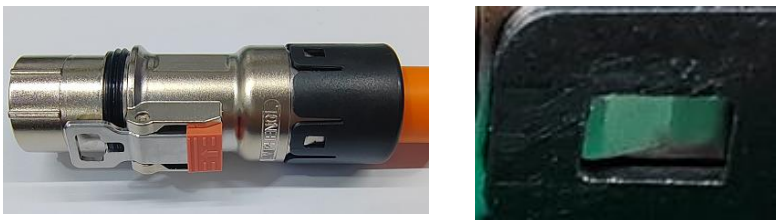


图13
Figure 13

步骤14：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。

Step14：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.

14-1 绝缘电阻测试

14-1 Insulation Resistance Test

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	500 VDC	1S	> 100 MΩ

14-2 耐压测试

14-2 Dielectric Withstand Voltage Test

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	8000 VDC	10S	< 5mA
Cable(power) to HVIL 电缆芯线到高压互锁	8000 VDC	10S	< 5mA
HVIL to shell 高压互锁到壳体	500 VDC	1S	< 5mA

14-3 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。提供的参数是基于连接器峰值1500VDC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。

14-3 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 connectors and their peak 1500VDC rating. Test parameters provided may exceed the limit of other components/materials used on the cable assembly or device.

第四部分：插头组装（50mm2）
Part 4: Plug Assembly(50mm2)

步骤1：选取合适线缆（参考手册最后的附录），按照要求的长度与数量切剥线，剥线尺寸如图1。
Step1：Select the right cable(refer to the appendix), cut and strip cables according to actual requirements, Strip dimension is shown in Figure 1.

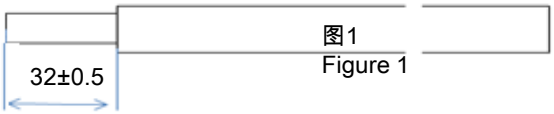
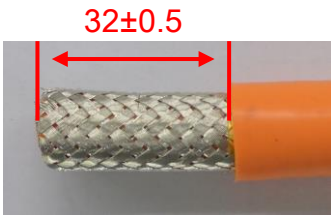


图1
Figure 1



步骤2：将编织均匀打散如图2示反折固定在外被上。
Step2： Break the braiding evenly and fix the braid to the outer jacket as shown in Figure 2.

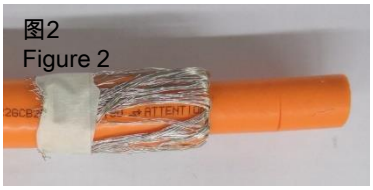


图2
Figure 2

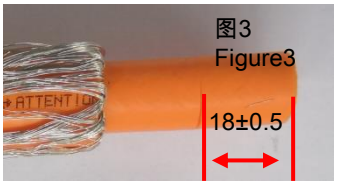


图3
Figure3

步骤3：按图3示尺寸剥芯线。
Step3：Strip the insulation as shown in Figure 3.

步骤4：将编织返回前端，用美纹纸固定如图4。
Step4：Return the braiding to the front end and secure it with the textured paper as shown in Figure 4.

图4
Figure 4

步骤5：依次在线材上穿入配件如图5示。
Step5：Insert the accessories on the wire in turn as shown in the figure5.

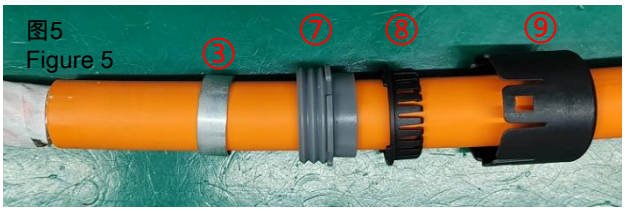


图5
Figure 5

③ 压接环 Crimping Sleeve
⑦ 密封圈 Seal
⑧ 线夹 Wire Clip
⑨ 尾盖 Tail Cover

注意配件方向
Note the direction of accessories

步骤6：将压接环推至齐外被口，编织均匀返折在其上，剪留7+/-1mm，套上屏蔽环②如图6示，此时压接环前端与外被口平齐，后端与屏蔽环对齐。

Step6：Push the crimping ring to the end of jacket, scatter shielding evenly and fold it back, cut to 7+/-1mm, and put on the shielding ring ②, as shown in Figure 6. At this time, the front end of the crimping ring is flush with the jacket end, and the back end is aligned with the shielding ring.

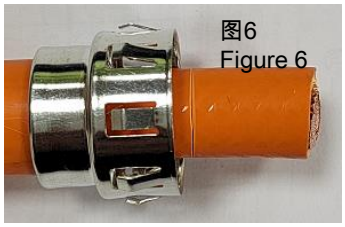
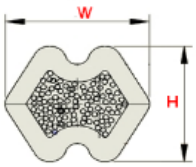


图6
Figure 6

步骤7：将端子⑥穿入芯线上，调试好端子机，将端子紧靠外被压接好，压接刀模与压接高宽度、拉力等要求参照手册最后附表。

Step7：Insert the terminal ⑥ into the conductor, Adjust the terminal machine, and crimp the terminal close to the jacket. The crimp die and crimp height, width and tension requirements refer to the appendix.

图7
Figure 7



横截面
Cross Section

(1) 建议使用安费诺指定线材（型号详见手册后附录），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 appendix 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：等边六变形的横截形状），客户负责采购压接工具或刀模

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

步骤8：将端子胶壳⑤对准端子扁平口装入，直到端子卡槽完全露出，确认端子在胶壳中心位置，再盖上塑料卡夹④如图示，塑料卡夹不需区分方向 。

Step8：Align the housing for pin terminal ⑤ with the flat port of the terminal, and assemble it until the terminal slot is completely exposed. Make sure that the terminal is in the center of the housing, and then cover the plastic card ④ as shown in the figure 8, The plastic card does not need to distinguish directions.

图8
Figure 8

步骤9：确认屏蔽环与胶壳无间隙如图9示，如有间隙需调整至无间隙。

Step9：Check that there is no gap between the shielding ring and the housing, as shown in Figure 9. If there is a gap, adjust it to no gap.

图9
Figure 9

步骤10：将压接环压紧在线材上，压接刀模与压接高度、拉力要求等参照表1，压接过程避免铜套移位。

Step10：Crimp the crimping sleeve on the cable , Crimp die and crimp height and pull force refer to Table 1 . To avoid the shielding ring slide in the crimp process.

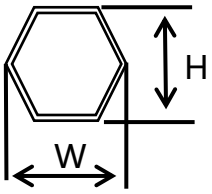


图10
Figure 10

表1：铜环压接规格&拉拔力要求

Table2：Copper Ring Crimping spec & retention force requirements

线材尺寸 Cable Size	压接模具 Crimp die	压接高度 Crimping height H(mm)	参考抗拉拔力 Retention Force
50mm2	BZW-6C	18.70±0.15	150N

步骤11：将胶芯上的定位键对准外壳组件上定位槽装入，直到完全装到位如图11示，此时应能听到“咔”声响。

Step11：Align the positioning key on the housing with the positioning slot on the outer shell assembly and assemble it until it is fully assembled, as shown in Figure 11. At this time, a "click" sound should be heard.

图11
Figure 11

步骤12：将密封圈推到接头底部，再将线夹推至接头底部如图12示，也可以将线夹套在密封圈上用冶具将其推到底。

Step12：Push the seal to the bottom of the connector, and then push the wire clip to the bottom of the connector as shown in Figure 12, or you can put the wire clip on the seal and push it to the bottom of the connector with the fixture shown in Figure 12.

图12
Figure 12

步骤13：盖上尾盖如图13，完成组装，注意尾盖卡扣需完全装到位。

Step13：Cover the tail cover as shown in Figure 13, complete the assembly, pay attention to the tail cover buckle should be fully installed in place.

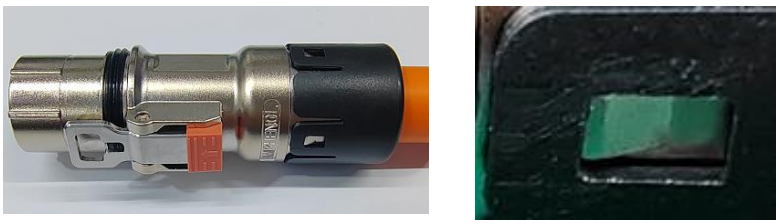


图13
Figure 13

步骤14：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。

Step14：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.

14-1 绝缘电阻测试

14-1 Insulation Resistance Test

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	500 VDC	1S	> 100 MΩ

14-2 耐压测试

14-2 Dielectric Withstand Voltage Test

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	8000 VDC	10S	< 5mA
Cable(power) to HVIL 电缆芯线到高压互锁	8000 VDC	10S	< 5mA
HVIL to shell 高压互锁到壳体	500 VDC	1S	< 5mA

14-3 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。提供的参数是基于连接器峰值1500VDC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。

14-3 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 connectors and their peak 1500VDC rating. Test parameters provided may exceed the limit of other components/materials used on the cable assembly or device.

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

线缆类型 Cable Type	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.
7P0050S	50mm²	4403*0.12	9.50	17.00±0.50	12.7±0.3	17.05±0.3	2800N	TY-104
7P0070S	70mm²	3876*0.15	11.80	19.50±0.50	13.5±0.3	16.3±0.3	3400N	TY-093

参考文件
Reference Documents

1： 8P1248 PowerLok G3 接头通用安装说明
8P1248 PowerLok G3 connector 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： 端子金相分析参照 SAE/USCAR-21 Rev 4。
The cross-section analysis is referred to SAE/USCAR-21 Rev 4.

版本记录 Revision history

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01	新出 New issue	20250514

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Asia Pacific
ChangZhou, China
Tel: +86 519-8981 9713
Add: No.11 Fengxiang Road, New District, Changzhou, Jiangsu
P.C: 213001

Asia Pacific
GuangZhou, China
Tel: +86 20-3210 6099
Add: 9th Floor, No. 10, the 4th Street, Kehui Jingu, Luogang District, Guangzhou ,Guangdong
P.C: 510663

North America
Winnipeg, Canada
Tel: +1 204 697 2222
Add: 2110 Notre Dame Avenue

Europe
Milano, Italy
Tel: +39 02 932541
Add: Via Barbaiana 5, 20020 Lainate(MI)

Email: info@Amphenol-GEC.com