

PowerLok™ 4.0 两芯插头组装规范

PowerLok™ 4.0 2POS Plug Assembly Manual



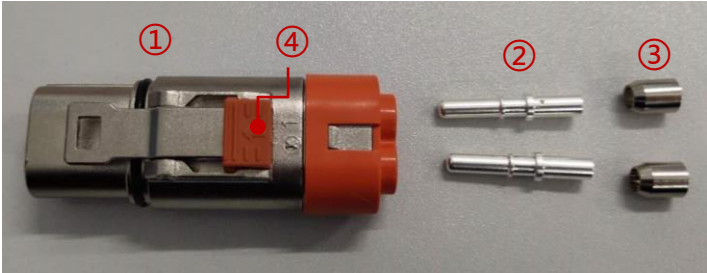
Product Type 产品类型		Plug Type 插头类型		Key & Color ⁽¹⁾ 键位 & 颜色		Series 系列		Cable Size 线材尺寸	
PL	PowerLok™ 4.0	182	2POS plug connector, Straight ,Shielding 二芯插头连接器， 直头，屏蔽款	X	Key "X" Orange X 键位 橙色	60	60Series without HVIL 60系列 不带高压互锁	2.5	2.5mm²
				Y	Key "Y" Black Y 键位 黑色			4	4mm²
				U	Key "U" Yellow U 键位 黄色	61	61 Series With HVIL 带高压互锁 的61系列	6	6mm²
								10	10mm²

(1) 颜色是指插头上CPA的颜色。Color refers to the color of the CPA on the plug.

2.5mm²-4mm²线缆安装步骤

2.5mm²-4mm² Assembly Instruction

- 步骤1：取出连接器，如图示零件
- Step1：Unpack all components as shown below

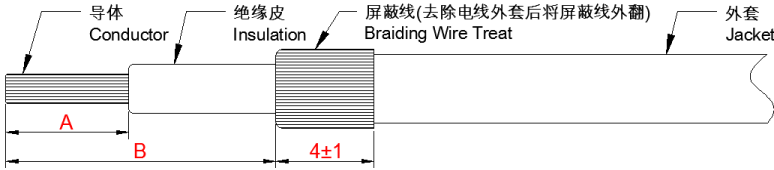


- ① 连接器组件 Connector Component ×1
- ② 端子 Terminal ×2
- ③ 铜套 Copper Sleeve×2
- ④ CPA

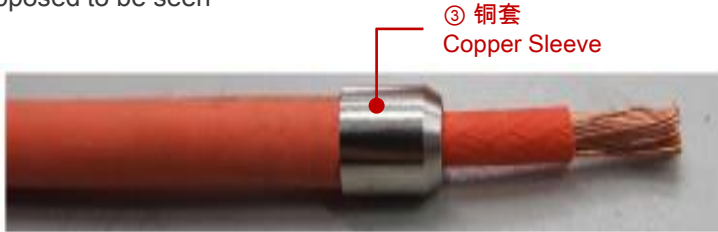
- 步骤2：选择符合如下尺寸要求的屏蔽线缆 (参考手册最后的附录)
- Step2：Select the right cable according to your connector and the cable specification below (refer to the appendix)

线缆规格 Cable Size	绝缘皮剥线长度 strip Length "A" (mm)	外被剥线长度 Jacket strip length "B"(mm)
2.5mm² or 14AWG	7±0.5	24±1
4mm² or 12AWG	9±0.5	24±1

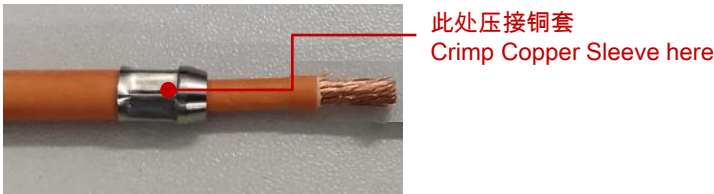
- 步骤3：按步骤2剥线尺寸剥开电线外套、屏蔽层及绝缘皮，翻折屏蔽线，并剪掉多余屏蔽线
- Step3：Refer to value(A&B) in step 2, strip jacket, insulation, then fold back the braid and trim off any excess



- 步骤4：在屏蔽层上套上③铜套，③铜套需套到底，套上铜套后屏蔽线不能露出
- Step4：Make cable through ③copper sleeve and bring ③copper sleeve to the left as far as possible, and the braid is not supposed to be seen



步骤5：用六角刀具把③铜套压紧，压紧后铜套的保持力不少于50N
Step5：Crimp ③copper sleeve with hexagonal crimping tool, minimum retention force is 50N after crimping



步骤6：套上②端子，采用四点压接模或六边压接模压接端子，压紧后端子保持力不小于下表中数值
Step6：Insert the cable conductor into ②terminal and use four point or hexagon crimping tool to crimp, the retention force should respect the values written below

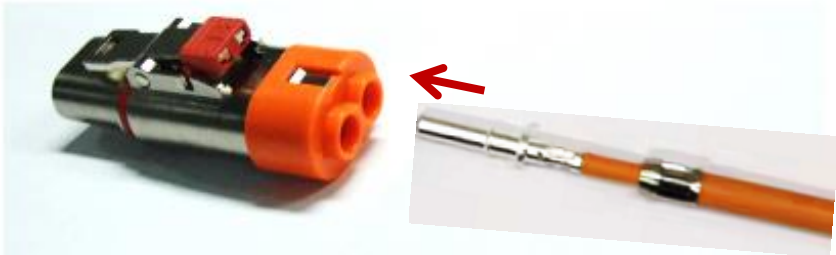


线缆规格 Cable Size	保持力 Min retention force
2.5mm² or 14AWG	200N
4mm² or 12AWG	310N

说明：压接形状不作要求，客户负责采购压接工具或刀模，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，压缩比要求为 80~90%。

Note: Crimping shape is not required, customer will take liability for sourcing tools or dies, Customers need to check conduct pull-out force and Metallographic analysis of crimping section to confirm the quality of crimp process , Terminal crimping must meet the compression ratio requirements: 80~90%

步骤7：按相同方法组装另一条线，将压好端子的电线插入①连接器组件
Step7：Prepare the other cable in the same way then insert them into the ①connector component



步骤8：完成组装
Step8：Harness well finished as the picture shown below



步骤9：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

Step9：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

9-1 绝缘电阻测试

9-1 Insulation Resistance Test

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

9-2 耐压测试

9-2 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
高压互锁到壳体 HVIL to shell	500 VDC / 1S	<5mA

9-3 测试说明:

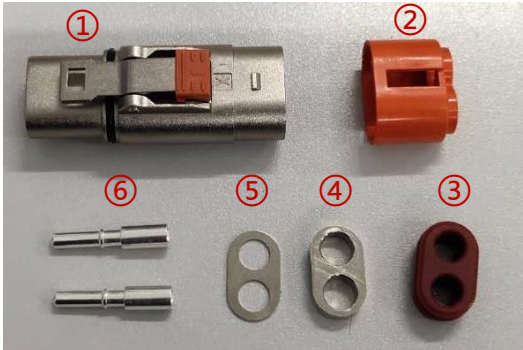
警告:建议的电气测试及其参数应根据终端应用要求进行审查，以确保安全性并防止损坏其他部件。提供的参数是基于PowerLok连接器和其峰值1000VDC额定。提供的测试参数可能超出电缆组件或设备上使用的其他部件/材料的限制。

9-3 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.

6.0mm²-10.0mm²线缆安装步骤
6.0mm²-10.0mm² Assembly Instruction

步骤1：取出连接器，如图示零件
Step1：Unpack all components as shown below

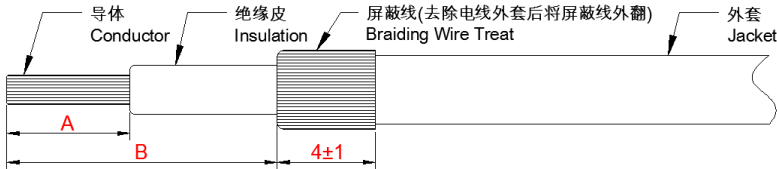


- ① 连接器组件 Connector Component ×1
- ② 后盖 Back Cover×1
- ③ 胶垫 Seal×1
- ④ 金属屏蔽环 Shielding Gasket ×1
- ⑤ 金属薄垫片 Metal Gasket ×1
- ⑥ 端子 Terminal ×2

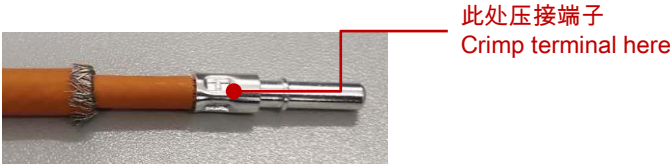
步骤2：选择符合如下尺寸要求的屏蔽线缆(参考手册最后的附录)
Step2：Select the right cable according to your connector and the cable specification below (refer to the appendix)

线缆规格 Cable Size	绝缘皮剥线长度 Insulation strip length“A”(mm)	外被剥线长度 Jacket strip length “B”(mm)
6mm² or 10AWG	9±0.5	27±1
10mm² or 8AWG	9±0.5	27±1

步骤3：按步骤2尺寸剥开电线外套、屏蔽层及绝缘皮，翻折屏蔽线，并剪掉多余屏蔽线
Step3：Refer to value(A&B) in step 2, strip jacket, insulation, then fold back the braid and trim off any excess



步骤4：套上⑥端子，采用四点压接模或者六边压接模压接端子，压紧后端子保持力不少于下表中数值
Step4：Insert the cable conductor into ⑥terminal and use four point or hexagon crimping tool to crimp, the retention force should respect the values written below.

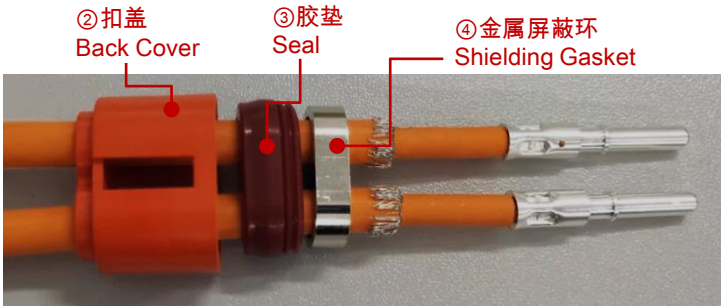


线缆规格 Cable size	保持力 Min retention force
6mm² or 10AWG	450N
10mm² or 8AWG	500N

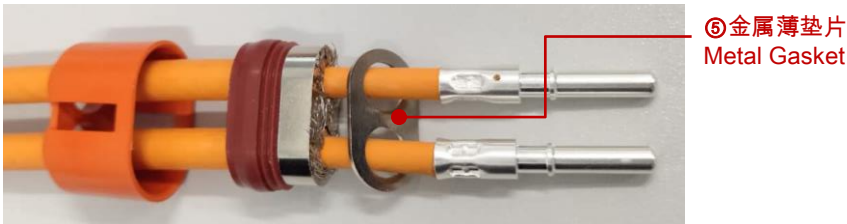
说明：压接形状不作要求，客户负责采购压接工具或刀模，拉拔力需要配合压接截面的金相分析，客户才能判断压接质量合格，压缩比要求为 80~90%。

Note: Crimping shape is not required, customer will take liability for sourcing tools or dies, Customers need to check conduct pull-out force and Metallographic analysis of crimping section to confirm the quality of crimp process , Terminal crimping must meet the compression ratio requirements: 80~90%

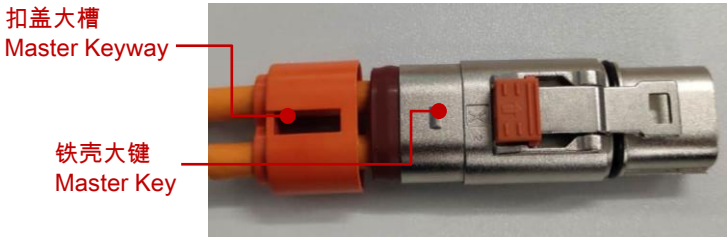
- 步骤5：将④金属屏蔽环 ③胶垫 ②后盖依次套在线缆上
Step5：Make ④shielding gasket, ③seal and ②back cover through the 2 cables crimped in the right order, as shown below



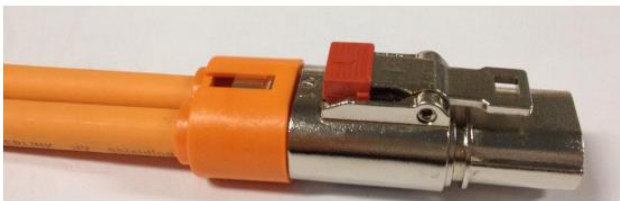
- 步骤6：将⑤金属薄垫片套在线缆上，保证屏蔽线均匀分布于④屏蔽环与⑤金属薄垫片之间
Step6：Make ⑤metal gasket through cables and make the braid clipped evenly between ④shielding gasket and ⑤metal gasket



- 步骤7：将端子部件装入①连接器组件，注意扣盖开槽与壳体上凸起大小相对应。
Step7：Push parts in step 6 into ①connector component and make sure keyway on ②back cover matches the key on shell, as the shown below



- 步骤8：完成组装
Step8：Harness well-finished as the picture shown below



步骤9：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

Step9：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

9-1 绝缘电阻测试

9-1 Insulation Resistance Test

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

9-2 耐压测试

9-2 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
高压互锁到壳体 HVIL to shell	500 VDC / 1S	<5mA

9-3 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。

9-3 Test note:

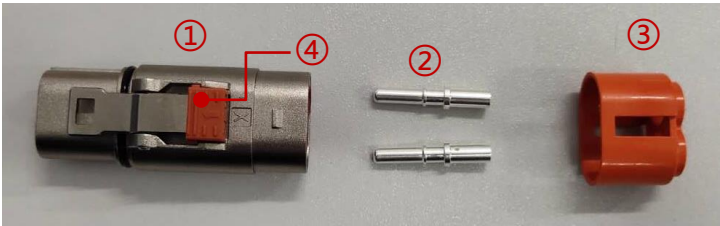
caution: Recommended electrical tests and their parameters should be reviewed against end application requirements to ensure safety and to prevent damage to other components. Parameters provided are based on the PowerLok connectors and their peak 1000VDC rating. Test parameters provided may exceed the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

Product Type 产品类型		Plug Type 插头类型		Key & Color ⁽¹⁾ 键位 & 颜色		Series 系列		Cable Size 线材尺寸	
PL	PowerLok™ 4.0	482	2POS plug connector, Straight , Un-shielding 二芯插头连接器， 直头，非屏蔽线	X	Key "X" Orange X 键位 橙色	60	60 Series without HVIL 60 系列 不带高压互锁	2.5	2.5mm²
				Y	Key "Y" Black Y 键位 黑色			4	4mm²
				U	Key "U" Yellow U 键位 黄色	61	61 Series With HVIL 带高压互锁 的61系列	6	6mm²
								10	10mm²

(1) 颜色是指插头上CPA的颜色。Color refers to the color of the CPA on the plug.

安装步骤 Assembly Instruction

- 步骤1：取出连接器, 如图示零件
- Step1：Unpack all components as shown below

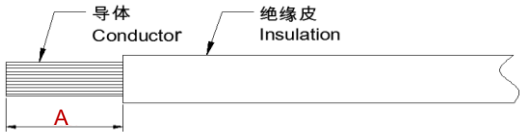


- ①连接器组件 Connector Component ×1
- ② 端子 Terminal ×2
- ③ 后盖 Back Cover×1
- ④ CPA

- 步骤2：选择符合要求的线缆(参考手册最后的附录)
- Step2：Select the right cable according to your connector and the cable specification below

线缆规格 Cable Size	剥皮尺寸 (A) strip length (mm)
2.5mm² or 14AWG	7±0.5
4mm² or 12AWG	9±0.5
6mm² or 10AWG	9±0.5
10mm² or 8AWG	9±0.5

- 步骤3：按步骤2尺寸A 剥开线缆绝缘皮
- Step3：Strip the jacket of cables according to the cable size and Value "A" in step 2



- 步骤4：套上②端子，采用四点或六边压接模压接端子，压紧后端子保持力不小于下表中数值，线缆穿过③后盖
- Step4：Insert the cable conductor into ②terminal and use four point or hexagon crimping tool to crimp, the retention force should respect the values written below, Insert cable through ③ back cover

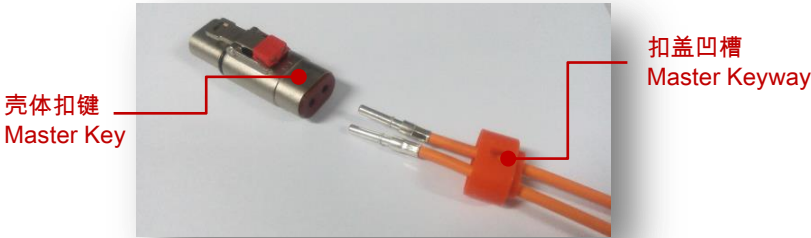
此处压接端子
Crimp terminal here



线缆规格 Cable Size	保持力 Min retention force
2.5mm² or 14AWG	220N
4mm² or 12AWG	300N
6mm² or 10AWG	350N
10mm² or 8AWG	400N

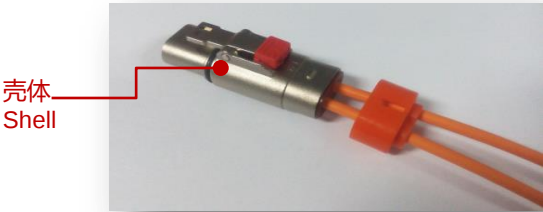
步骤5：转动使扣盖上凹槽与壳体上凸起角度相对应

Step5：Attention to align bump on metal shell with notch on plastics cover



步骤6：先后将端子匀速推进胶壳穴位底部，听到‘啪’声，方为插到位，顺势回拉应不松脱。

Step6：Insert terminals into the ①connector component successively, it is in place when it clicks , it should not be loosen when pull it back.



步骤7：扣上扣盖，完成组装

Step7：Buckle up ③back cover on the connector body shell



步骤8：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

Step8：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

8-1 绝缘电阻测试

8-1 Insulation Resistance Test

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

8-2 耐压测试

8-2 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
高压互锁到壳体 HVIL to shell	500 VDC/1S	<5mA

附录APPENDIX

线缆参考规范
Reference specification for cable

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
屏蔽线 Shielding cable	2.5mm²	217*0.12	2.10	5.20±0.2
	4.0mm²	350*0.12	2.90	5.80±0.2
	6.0mm²	525*0.12	3.60	6.70±0.3
	10.0mm²	874*0.12	4.65	8.60±0.3
非屏蔽线 Un-shielding cable	2.5mm²	217*0.12	2.10	3.30±0.2
	4.0mm²	350*0.12	2.90	4.10±0.2
	6.0mm²	525*0.12	3.60	4.80±0.2
	10.0mm²	874*0.12	4.65	6.25±0.2



Amphenol Technical Products International provides the above product specifications for the standard PowerLok™4.0 series of connectors to assist users in identifying the correct product for the system to which the connectors may be applied. Specifications are subject to change without notice. Contact your nearest Amphenol Corporation Sales Office for the latest specifications. All statements, information and data given herein are believed to be accurate and reliable but are presented without guarantee, warranty, or responsibility of any kind, expressed or implied. Statements of suggestions concerning possible use of our products are made without representation or warranty that any such use is free of patent infringement and are not recommendations to infringe any patent. Specifications are typical and may not apply to all connectors. Note that these specifications are derived from relevant global standards used in the automotive and industrial transportation markets, but they are not a substitute for system level design validation testing, which is the sole responsibility of the system designer and/or end user.

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