

PowerLok™ 4.0 四芯插头组装规范

PowerLok™ 4.0 4POS Plug Assembly Manual



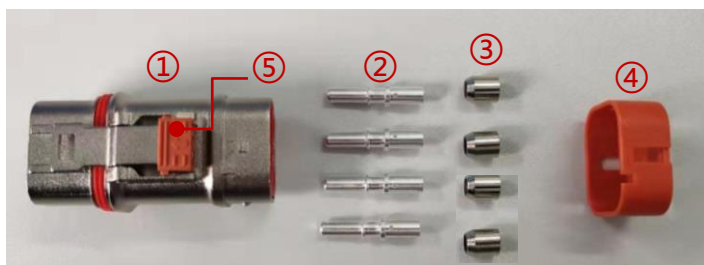
Product Type 产品类型		Plug Type 插头类型		Key & Color ⁽¹⁾ 键位 & 颜色		Series 系列		Cable Size 线材尺寸	
PL	PowerLok™ 4.0	184	4POS plug connector, Straight, Shielding 四芯插头连接器, 直头, 屏蔽线	X	Key "X" Orange X 键位 橙色	40	40 Series without HVIL 40系列 不带高压互锁	2.5	2.5mm ²
				Y	Key "Y" Black Y 键位 黑色			4	4mm ²
				U	Key "U" Yellow U 键位 黄色	41	41 Series With HVIL 带高压互锁 的41系列	6	6mm ²

(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 x1
- ② 端子 Terminal x4
- ③ 铜套 Copper Sleeve x4
- ④ 后盖 Back Cover x1
- ⑤ CPA

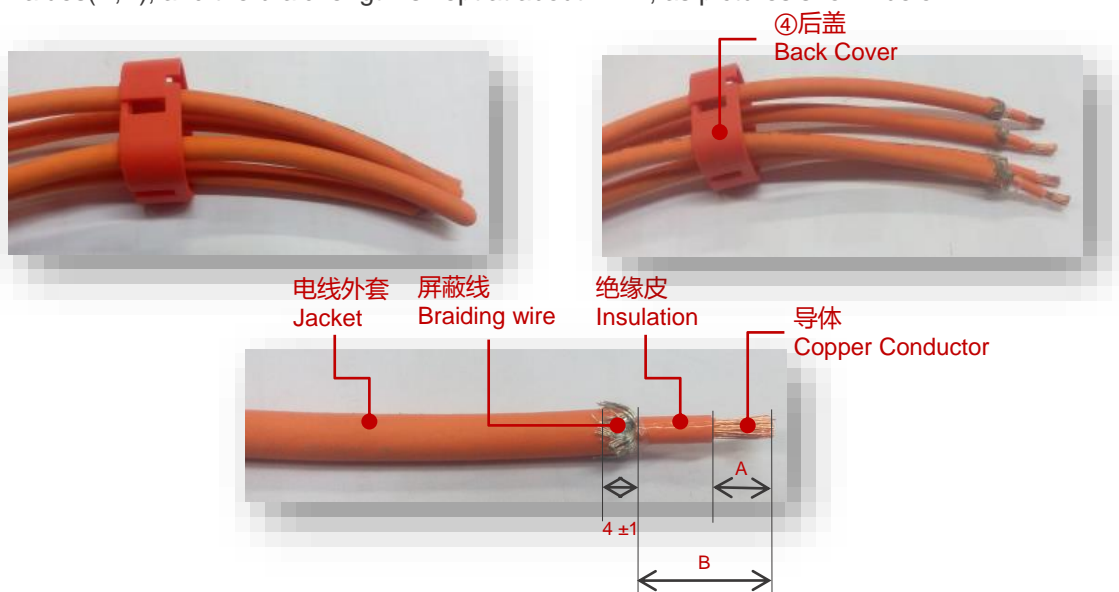
步骤2: 选择符合如下尺寸要求的屏蔽线缆 (参考手册最后的附录)

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)
2.5mm ² or 14AWG	8.5±0.5	20±1
4mm ² or 12AWG	9±0.5	20±1
6mm ² or 10AWG	9±0.5	25±1

步骤3: 先将④后盖套上线缆, 再按如上步骤1尺寸(A,B)剥线缆护套、屏蔽层及绝缘皮, 并剪掉多余屏蔽线

Step3: Thread ④back cover on the cables first, then strip the cable jacket and insulation layer according to values(A,B), and the braid length is kept at about 4mm, as pictures shown below



步骤4: 在屏蔽层套上③铜套, 铜套需套到底, 套上③铜套后屏蔽线不能露出; 并用六角刀具把铜套压紧, 压紧后的铜套的抗拉拔力不小于50N

Step4: Thread ③copper sleeve on the cable and bring it at the far stop position to fully cover the braid(no braid can be exposed), then crimp ③copper sleeve with the hexagonal tool, and the retention force after crimping should be more than 50N



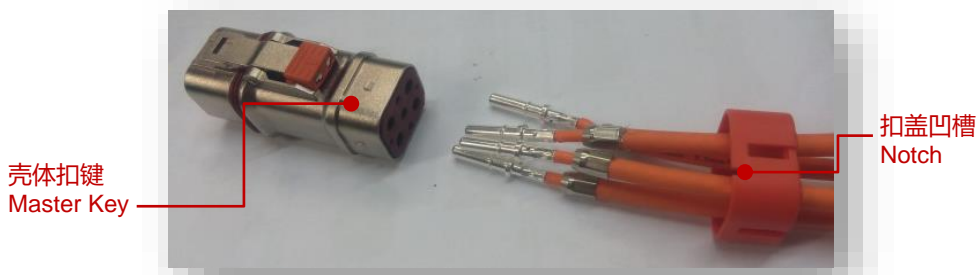
步骤5: 套上②端子然后压紧, 压紧后端子保持力不小于下表中数据

Step5: Crimp ②terminals with cable conductor, the minimum retention force after crimping should respect the values in the table below.

线缆规格 Cable size	保持力 Min retention force
2.5mm ² or 14AWG	220N
4mm ² or 12AWG	300N
6mm ² or 10AWG	350N

步骤6: 转动使扣盖上凹槽与壳体上凸起角度相对应, 稍稍插入

Step6: Align the bump on metal shell with the notch on ④back cover



步骤7: 把端子匀速推进胶壳孔位底部, 至听到一声'啪', 方可插到位

Step7: Insert the terminals into ①connector component, it's in place when it clicks



步骤8: 扣上④后盖, 完成组装

Step8: Buckle up ④back cover on the metal shell to finish the assembly



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.

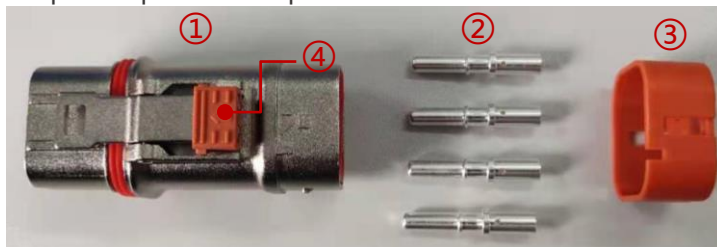
Product Type 产品类型		Plug Type 插头类型		Key & Color ⁽¹⁾ 键位 & 颜色		Series 系列		Cable Size 线材尺寸	
PL	PowerLok™ 4.0	484	4POS plug connector, Straight, Un-shielding 四芯插头连接器, 直头,非屏蔽线	X	Key "X" Orange X 键位 橙色	40	40 Series without HVIL 40系列 不带高压互锁	2.5	2.5mm ²
				Y	Key "Y" Black Y 键位 黑色			4	4mm ²
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Step1: Unpack all components as shown below



① 连接器组件 Connector Component x1

② 端子 Terminal x4

③ 后盖 Back coverx1

④ CPA

步骤2: 选择符合要求的非屏蔽线缆(参考手册最后的附录)

Step2: Select the right Un-shielding cable according to your connector and the cable specification below(refer to the appendix)

线缆规格 Cable Size	剥皮尺寸 (B) Strip Length (mm)
2.5mm ² or 14AWG	8.5±0.5
4mm ² or 12AWG	9.5±0.5
6mm ² or 10AWG	9.5±0.5

步骤3: 先将线缆穿过后盖, 再按步骤2尺寸(B)剥开线缆绝缘皮

Step3: Strip the cable jacket and insulation layer according to value B in Step 2



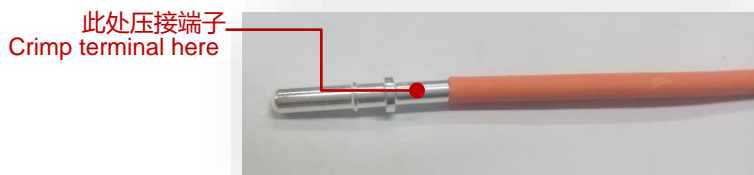
③后盖
Back Cover



B

步骤4: 端子套上线缆后压紧, 压紧后端子保持力不小于下表中数据

Step4: Crimp terminals with cable conductor, and the minimum retention force after crimping should respect the values in the table below

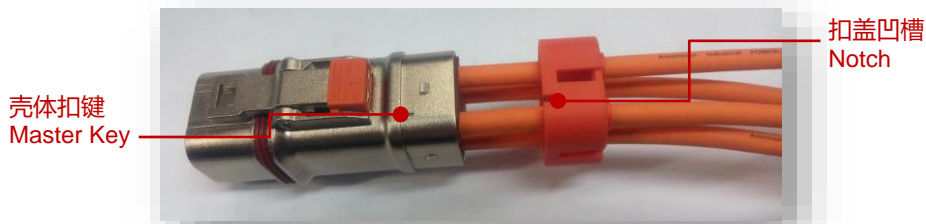


此处压接端子
Crimp terminal here

线缆规格 Cable Size	保持力 Min retention force
2.5mm ² or 14AWG	220N
4mm ² or 12AWG	300N
6mm ² or 10AWG	350N

步骤5: 转动使③后盖上凹槽与壳体上凸起角度相对应

Step5: Align the bump on metal shell with the notch on ③back cover

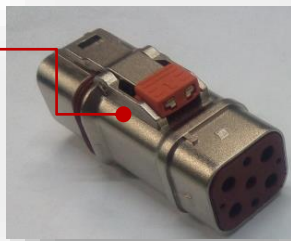


步骤6: 把端子匀速推进胶壳孔位底部, 至听到一声“啪”, 方可插到位

Step6: Insert the terminals into ①connector component, it's in place when it clicks

① 连接器组件

Connector Component



步骤7: 扣上③后盖, 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

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8-2 耐压测试 (测试说明参照第3页)

8-2 Dielectric Withstand Voltage Test (Test note refer to page 3)

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
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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	2.5mm ²	217*0.12	2.1	5.20±0.2
	4.0mm ²	350*0.12	2.9	5.80±0.2
	6.0mm ²	525*0.12	3.6	6.70±0.2
非屏蔽线 Un-shielding cable	2.5mm ²	217*0.12	2.1	3.30±0.2
	4.0mm ²	350*0.12	2.9	4.10±0.2
	6.0mm ²	525*0.12	3.6	4.80±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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