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Rev.09

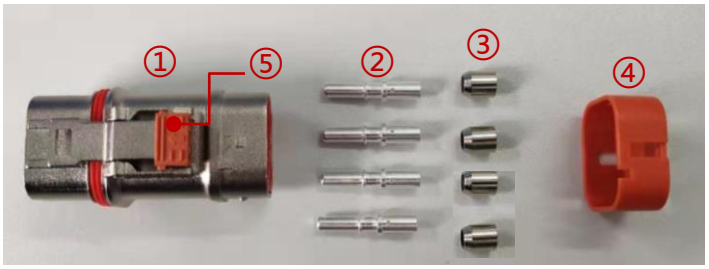
PowerLok 一代 4.0mm 四芯插头组装规范
PowerLok G1 4.0mm 4POS Plug Assembly Manual

PL184X-41-XX

插头类型 Plug Type	键位&颜色	高压互锁	线缆大小 Cable Size mm2
184 屏蔽线 Shielding 484 非屏蔽线 Un-Shielding	X 键 橙色 Y 键 黑色 U 键 黄色 Key&Color X Orange Y Black U Yellow	0：无 1：有 HVIL 0：NO 1：WITH	2.5 4 6

PL184(X)-4(1)-XX
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 ×4

③ 铜套 Copper Sleeve×4

④ 后盖 Back Cover×1

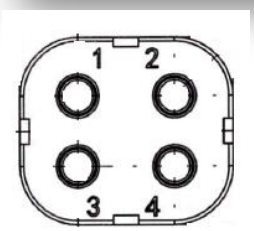
⑤ CPA

不同键位的CPA颜色不同。The CPA colors are different on the plug with different Keys.

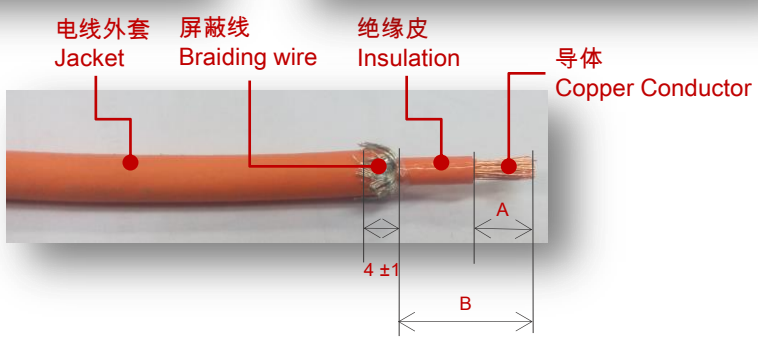
步骤2：选择符合如下尺寸要求的屏蔽线缆 (参考手册最后的附录）
Step2：Select the right cable according to your connector and the cable specification below(refer to the appendix)

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	8.0±0.5	20±1
4mm² or 12AWG	9±0.5	20±1
6mm2 or 10AWG	9±0.5	25±1

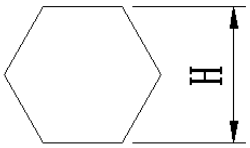
步骤3：先将④后盖套上线缆，再按如上步骤1尺寸(A,B)剥线缆护套、屏蔽层及绝缘皮，并剪掉多余屏蔽线。
Step3： Thread ④back cover on the cables first, then strip the cable jacket and insulation layer according to values(A,B), and the braid length is kept at about 4mm, as pictures shown below.

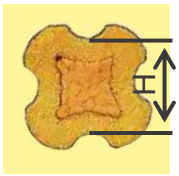


Pin位参照印字
Cable position
is consistent
with the printing



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.





线缆规格 Cable size	刀片型号 Crimp tool	压接高度 H Crimp height(mm)	保持力 Min retention force
2.5mm² or 14AWG	DL-062	5.7±0.2	50N
4mm² or 12AWG	DL-063	6.2±0.2	50N
6mm² or 10AWG	DL-064	6.9±0.2	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	压接模具 Crimp tool	压接高度 H Crimp height(mm)	保持力 Min retention force
2.5mm² or 14AWG	YM-041	2.45±0.10	220N
4mm² or 12AWG	YM-041	2.90±0.10	300N
6mm² or 10AWG	YM-041	3.25±0.10	350N

(1) 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，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 conduct compression ratio requirements: 80~90%.
(2) 横截面仅供参考，客户负责采购压接工具或刀模。
Cross section only reference tooling geometry ,customer will take liability for sourcing tools or dies.

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：把端子逐根匀速推进胶壳孔位底部，至听到一声“咔”响，表示已插到位。
Step7：Insert the terminals into ①connector component one by one, 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:

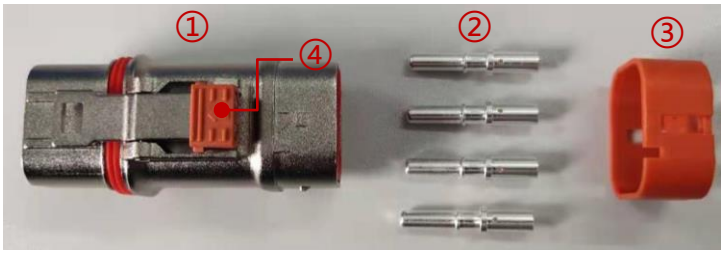
警告:建议的电气测试及其参数应根据终端应用要求进行审查，以确保安全性并防止损坏其他部件。提供的参数是基于PowerLok连接器和其峰值1000VDC额定。提供的测试参数可能超出电缆组件或设备上使用的其他部件/材料的限制。

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.

PL484(X)-4(1)-XX
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 ×4

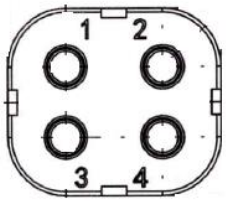
③ 后盖 Back cover×1

④ CPA

不同键位的CPA颜色不同。The CPA colors are different on the plug with different Keys.

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) .

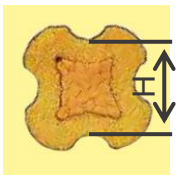
线缆规格 Cable Size	剥皮尺寸 (B) Strip Length (mm)
2.5mm² or 14AWG	8.0±0.5
4mm² or 12AWG	9.0±0.5
6mm² or 10AWG	9.0±0.5



Pin位参照印字
Cable position
is consistent
with the printing

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.

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.

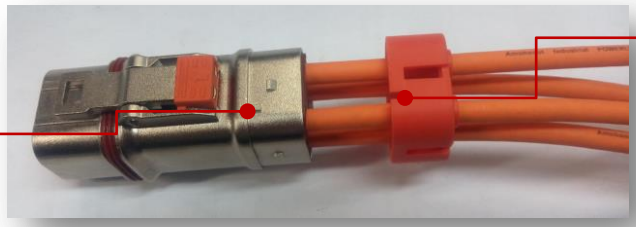


线缆规格 Cable size	压接模具 Crimp tool	压接高度 H Crimp height(mm)	保持力 Min retention force
2.5mm² or 14AWG	YM-041	2.45±0.10	220N
4mm² or 12AWG	YM-041	2.90±0.10	300N
6mm² or 10AWG	YM-041	3.25±0.10	350N

(1) 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，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 conduct compression ratio requirements: 80~90%.
(2) 横截面仅供参考，客户负责采购压接工具或刀模。
Cross section only reference tooling geometry ,customer will take liability for sourcing tools or dies.

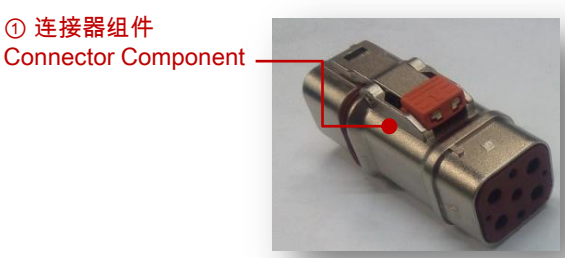
步骤5：转动使③后盖上凹槽与壳体上凸起角度相对应。

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



步骤6：把端子逐根匀速推进胶壳孔位底部，至听到一声“咔”响，表示已插到位。

Step6：Insert the terminals into ①connector component one by one, it’s in place when it clicks.



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

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（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
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	2.1	5.20±0.2
	4.0mm²	350*0.12	2.9	5.80±0.2
	6.0mm²	525*0.12	3.6	6.70±0.2
非屏蔽线 Un-shielding cable	2.5mm²	217*0.12	2.1	3.30±0.2
	4.0mm²	350*0.12	2.9	4.10±0.2
	6.0mm²	525*0.12	3.6	4.80±0.2

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