

PRODUCT OVERVIEW

产品概述



P5-P10 产品应用 Product application

P11-P14 智能优化器 Solar Cell Optimizers

页码 Page	名称 Name	外观 Overview	认证(1) Approvals	特性 Feature	导轨 Rails	汇流带 Bus Ribbon		防护等级 Protection
						宽度 Width	连接方式 Contacting	
P11	ZS		1500V DC 12A	预灌封 Pre-potting	6	8mm Max	锡焊/压接 Soldering Clamping	IP 68 (1m,1h)
P12	Z8S		1500V DC 12A	非灌胶 Non-Potting	6	8mm Max	锡焊 Soldering	IP 68 (1m,1h)
P13	Z10		1500V DC 12A/15A	非灌胶 Non-Potting	4/6	8mm Max	锡焊 Soldering	IP 68 (1m,1h)

P14 智能关断器 Rapid Shutdown Device

页码 Page	名称 Name	外观 Overview	认证(1) Approvals	通讯方式 Communication	工作温度 Operation temperature	防护等级 Protection
P14	RSD		UL, CE, PVEL	PLC Sunspec	-40~+85°C	IP 68 (1m,1h)

P15-P24 接线盒 Junction Box

页码 Page	名称 Name	外观 Overview	认证(1) Approvals	特性 Feature	导轨 Rails	汇流带 Bus Ribbon		防护等级 Protection
						宽度 Width	连接方式 Contacting	
For crystalline modules 晶硅组件接线盒								
P15	Z7I		1500V DC 15A	灌胶 Potting	4	8mm Max	锡焊 Soldering	IP 68 (1m,1h)
P16	Z7C		1500V DC 16A	灌胶 Potting	4	8mm Max	锡焊 Soldering	IP 68 (1m,1h)
P17	Z12		1500V DC 15A	非灌胶 Non-potting	4	8mm Max	夹持式 Clamping	IP 68 (1m,1h)
P18	Z8		1500V DC 18A	全灌封分体式 Potting Triple	6	8mm Max	锡焊 Soldering	IP 68 (1m,1h)
P19	Z8X		1500V DC 25A/30A/35A	全灌封分体式 Potting Triple	6	8mm Max	锡焊 Soldering	IP 68 (1m,1h)
P19	Z8L		1500V DC 15A	全灌封分体式 Potting Triple	6	8mm Max	锡焊 Soldering	IP 68 (1m,1h)
P21 - P22	Z11-I II/III/IV		1500V DC 18A	灌胶 Potting	5/6	8mm Max	锡焊 Soldering	IP 68 (1m,1h)
P23	Z8T		1500V DC 22A	灌胶 Potting	6	8mm Max	锡焊 Soldering	IP 68 (1m,1h)

For thin-film modules 薄膜组件接线盒

P24	Z9		1500V DC 8A	灌封胶 Potting	2	8mm Max	锡焊 Soldering	IP 68 (1m,1h)
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P25-P31 光伏连接器 PV Connect System

页码 Page	名称 Name	外观 Overview	认证(1) Approvals	连接系统 Connector system	兼容性 Compatible	锁紧系统 Locking system	工作温度 Operation temperature	防护等级 Protection
For DC system 直流连接器								
P25	Z4S		1500V DC 40A/45A/50A	Ø 4	MC4	嵌入式 Snap-in	-40~+85°C	IP 68 (1m,1h)
P26	Z4S		1500V DC 40A/45A/50A	Ø 4	MC4	嵌入式 Snap-in	-40~+85°C	IP 68 (1m,1h)

For AC system 交流连接器

P27	Z3		1500V DC 35A/40A	Ø 3.4	三芯/四芯 3C/4C	嵌入式 Snap-in	-40~+85°C	IP 68 (1m,1h)
P28	Z3		1500V DC 35A/40A	Ø 3.4	三芯/四芯 3C/4C	嵌入式 Snap-in	-40~+85°C	IP 68 (1m,1h)

Junction system 连接线

P29	Z2		1500V DC 12A	Ø 4	MC4	嵌入式 Snap-in	-40~+85°C	IP 68 (1m,1h)
P30	ZT-1		600V AC(UL) 20A/7A	Ø 4	三芯 3C	嵌入式 Snap-in	-40~+85°C	IP 68 (1m,1h)

P32-P32 光伏线缆 PV Cable

P33-P34 工具及配件 Tools and accessories

P35-P36 车间设备 Facilities

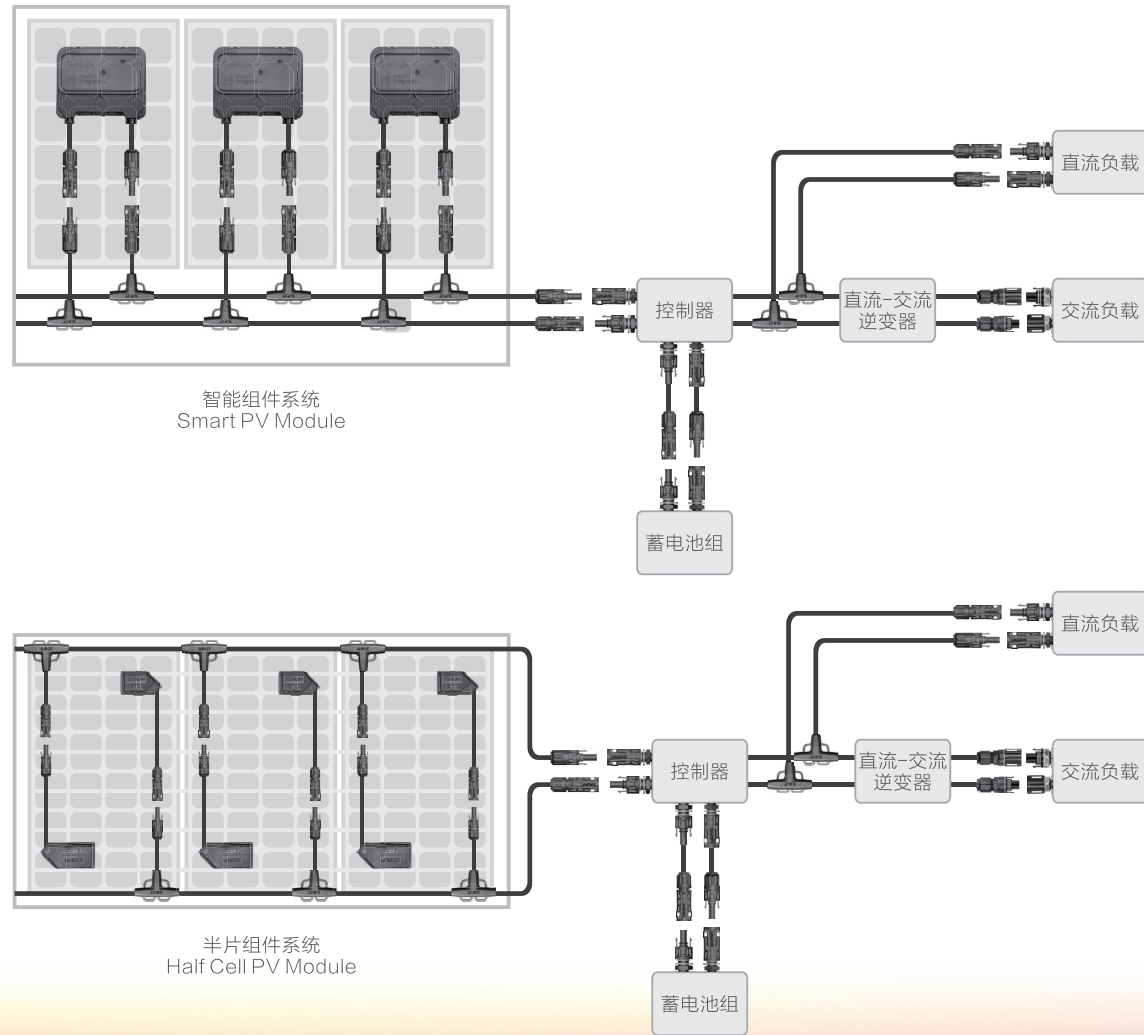
P37-P38 公司六大优势 Company Advantages

- (1) 有些情况下, 认证无法写明或者认证正在进行中, 对应页面会有详细说明。
Certifications are in some cases limited to specific types or still pending. Details are given on the relevant product pages.
- (2) 对应产品的额定电流也可通过改变二极管以满足客户要求。
Available equipped with alternative bypass diode, on inquiry.

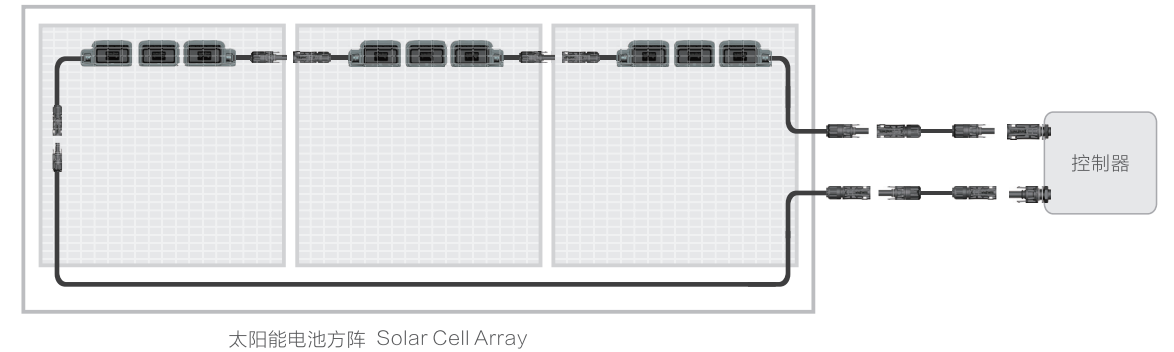
PRODUCT APPLICATION

产品应用

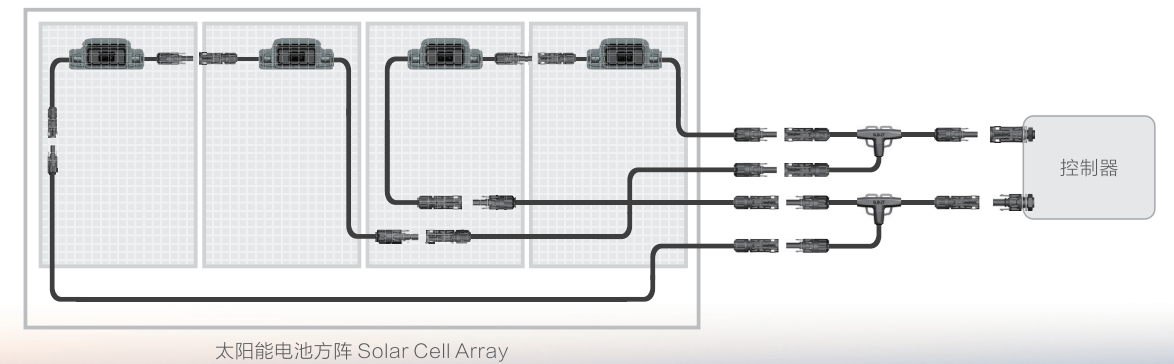
晶硅发电系统 Crystalline Silicon Module System



双玻组件发电系统 Double-Glass Module System



薄膜发电系统 Thin-Film Module System



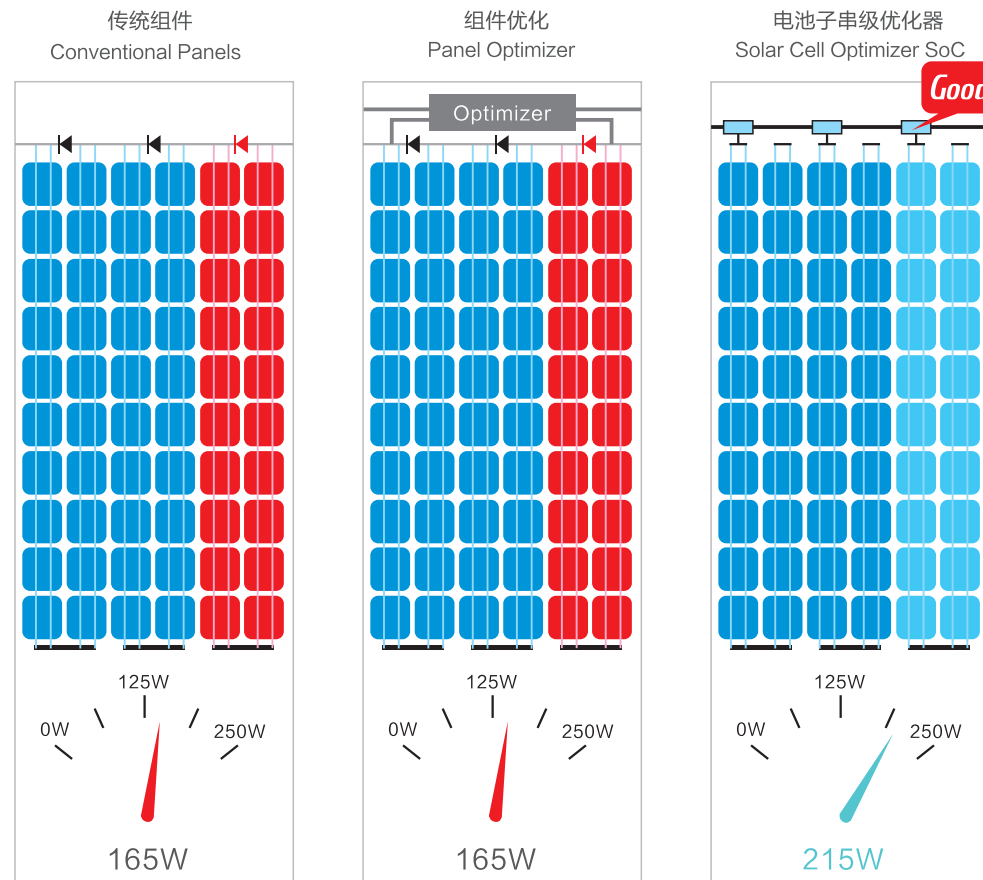
SOLAR CELL OPTIMIZERS

智能优化器

基于电池子串优化优势

Benefits of Cell-String-Level Optimization

- 提高系统发电量。对每串(6至24节)电池独立进行MPPT，最大程度地消除板间性能不匹配。
- 扩展系统规模。板间遮挡性能的改进，允许提高地面覆盖或屋顶覆盖的组件安装密度，进而提高有限空间的系统发电量。
- 更高可靠性。利用电池子串级优化器代替传统连线盒的旁路二极管，消除了热斑及相关故障隐患，即使有电池片遭到极度弱化也仅仅影响其所在电池串，不会影响整个组件。
- 最低的成本。全集成方案的成本低于市场上现有的直流优化器模块，并且无需附加硬件、定制逆变器或数据服务。
- Increased Energy Harvest. Performing MPPT separately on each cell string (from 6 to 24 cells) eliminates performance mismatch at the most granular level.
- Expanded System Size. Improved performance with row-to-row shading allows you to increase ground coverage or roof-top energy density, so you can generate more energy from a constrained space.
- Extended Reliability. Optimizer SoCs replace the bypass diodes normally connected to panel strings, eliminating hot spots and associated failure mechanisms. Now the weakest cell only degrades its local cell-string, rather than the entire module.
- Lowest Solution Cost. Fully integrated solution costs less than DC optimizer modules, and requires no additional hardware, specialized inverters, or data services.



太阳能子串级优化器的显著优势

The Benefits of Solar Cell Optimizer SoCs Really Add Up

性能优势 Performance Benefit	传统组件 Conventional Panels	组件优化 Panel Optimizer	电池优化器SoC Solar Cell Optimizer SoC
提高能量收集 Increased Energy Harvest			Good!
板间失配 Panel-to-panel mismatch		✓	✓
组件内部失配 (阴影、灰尘等) Mismatch within the panel (shadow, soiling, etc.)			✓
消除热斑效应 Elimination of hot spots			✓
扩展系统规模 Expanded System Size			
组件布置可以更接近遮挡物 Panel insertions closer to shading objects		✓	✓
高GCR阵列, 无性能损失 High GCR arrays without performance penalty			✓
降低功耗 Reduced Power Dissipation			
板间失配 Panel-to-panel mismatch		✓	✓
组件内部失配 (老化、PID、破裂的电池片) Mismatch within the panel (aging, PID, cracked cells)			✓
高可靠性方案 High-Reliability Solution			
不受旁路二极管故障影响 Immune to bypass diode failure			✓
极少的元件数量/电子器件 Low component count electronics	✓		✓
最低成本方案 Lowest Cost Solution			
组件成本增加 Panel Adder		10¢-20¢/W	5¢/W
系统成本增加 System Adders		10¢-20¢/W	
总成本增加 Total Cost Adder		20¢-40¢/W	5¢/W

SOLAR CELL OPTIMIZERS APPLICATION

智能优化器应用案例

扩容的地面电站 Utility Project with Longer String
4.8MW utility project in Chilamurra, QLD, Australia



屋顶阴影遮挡 Challenged Rooftop

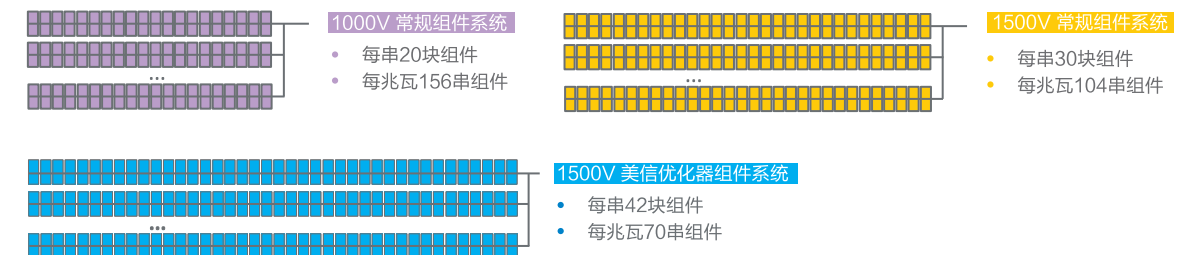
Residence in Branson, MO - 8.6kW system with tree shading issues



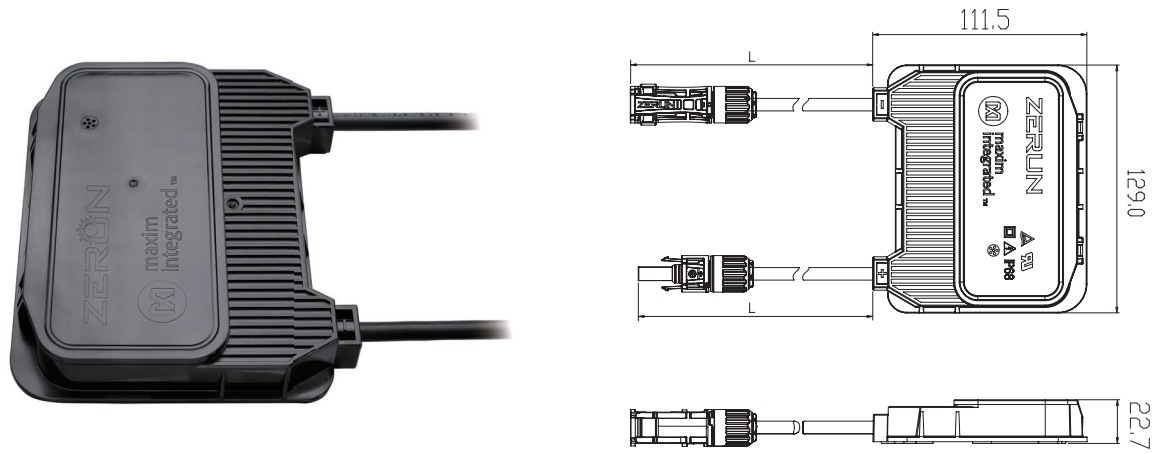
受空间限制的商用屋顶 Commercial Rooftop with Limited Space

Farmers Park business complex in Springfield, MO - 30.6kW system

LONGER STRINGS 扩展系统规模



- Maxim optimizers limit the maximum voltage output of the PV module
- Enables 40% more modules per string while remaining under the 1500V safety limit
- Longer DC strings enable low cost inverters, lower installation capex, and less DC losses



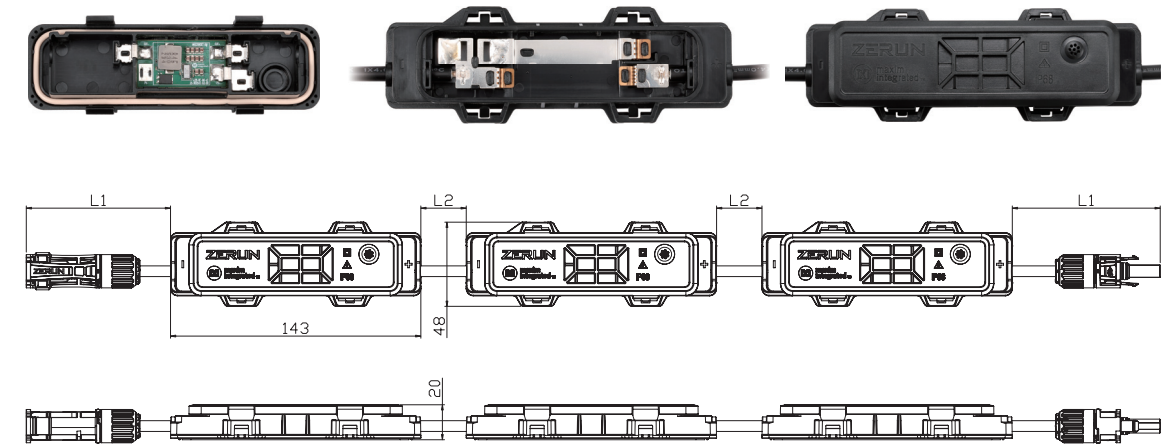
革命性的电池子串级光伏智能优化控制器

Solar Cell Optimizer with Revolutionary Cell-string-level MPPT and DC optimization

ZS智能优化控制器，是由全球知名的半导体集成解决方案供应商Maxim integrated与泽润电子共同开发。利用太阳能电池子串级优化器，可在每串电池上进行MPPT和直流优化，通过消除所有的电池板内部及电池板间的不匹配，如阵列之间的阴影遮挡、组件表面污染、电站周边障碍物阴影遮挡等，使得每串电池在同样环境条件下提供最大功率，从而提升发电量、实现密集的太阳能板布局，并提高系统可靠性。

ZS series Solar Cell Optimizer is co-developed by worldwide well-known IC solution provider Maxim Integrated and Zerun Electronics. With Solar Cell Optimizer SoCs you can perform MPPT and DC optimization on each cell string. This granularity minimizes power degradation due to row-to-row shading, soiling, and other sources of mismatch within the panel and string, it allows each cell string to deliver maximum power under the environmental conditions, enabling you to harvest more energy, achieve denser panel layouts, and improve system reliability.

技术参数	Technical parameter	
系统额定电压	Rated system voltage	1500V DC
额定电流	Rated current	12A
使用环境温度	Operation temperature	-40°C~+85°C
防护等级	Degree of protection	IP68(1m,1h)
连接器接触阻抗	Contact resistance of connector	0.25mΩ
导轨材质	Rail material	Copper,tin plated 铜镀锡
绝缘材料	Insulation material	PPE
防火等级	Flame class	5VA
认证 TUV UL	Certification TUV UL	R50319467 2PFG 2305 E351403 UL3730 and UL1741
导轨数量	Number of bus ribbons	6
汇流带尺寸	Bus ribbon size Max. width Max. thickness	8mm 0.3mm
汇流带连接方式	Connecting of bus ribbons	Soldering锡焊
密封方式	Sealing type	Potting compound灌封胶



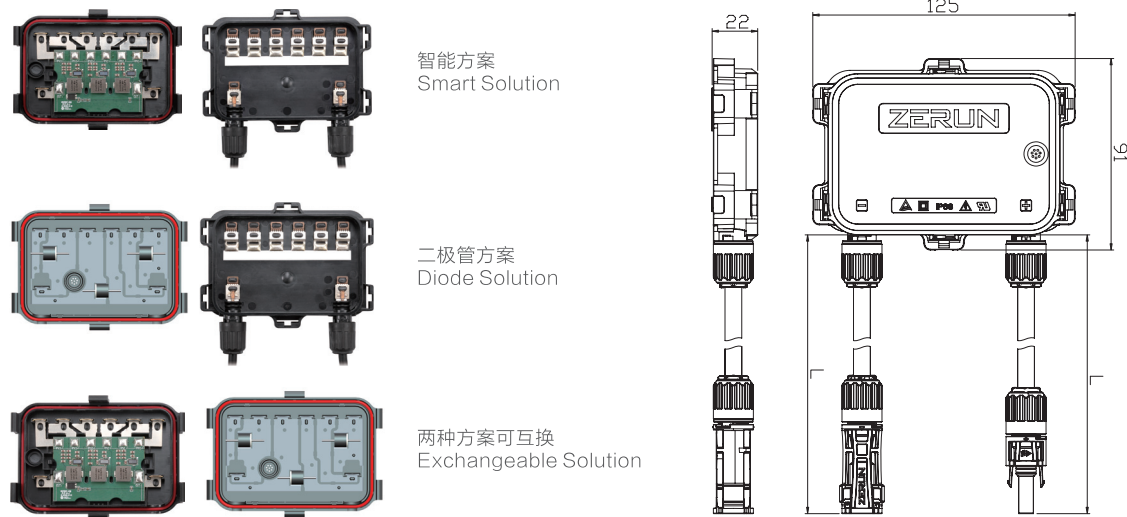
- 快速关断+智能优化组合，为组件提供安全高效解决方案；
- 优化器模块可更换，便于产品后续维护；
- 采用180度出线方式，可有效减少组件串联时所需线材，降低成本。
- Rapid shut down plus optimizer, safe&high efficiency solution for PV system.
- PCA Module replaceable, benefits maintaining.
- With cable outlet in line, shorter cable length is OK while wiring the panel.

技术参数	Technical parameter	
系统额定电压	Rated system voltage	▶ 1500V DC
额定电流	Rated current	12A
使用环境温度	Operation temperature	-40°C~+85°C
防护等级	Degree of protection	▶ IP68(1m,1h)
连接器接触阻抗	Contact resistance of connector	0.3mΩ
导轨材质	Rail material	Copper alloy 铜合金
绝缘材料	Insulation material	PPE
防火等级	Flame class	5VA
认证 TUV UL	Certification TUV UL	▶ 2PFG&IEC62790 R50424007 UL1741&UL3730 E502182
导轨数量	Intended for module type	6
汇流带尺寸	Bus ribbon size Max. width Max. thickness	8mm 0.3mm
汇流带连接方式	Connecting of bus ribbons	Soldering锡焊
密封方式	Sealing type	O-ring rubber O型圈

SOLAR CELL OPTIMIZERS 智能优化器

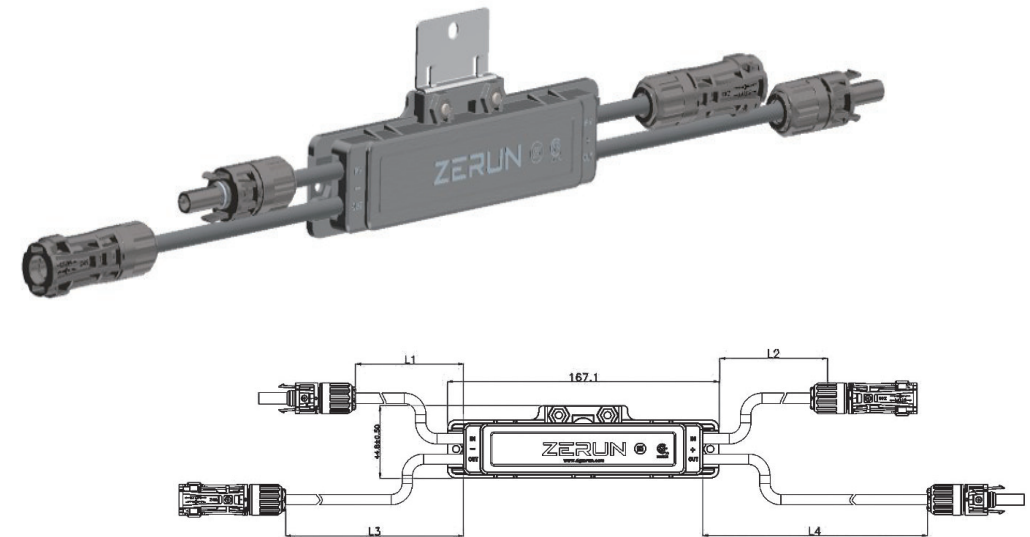
Z10 智能接线盒 Smart solar junction box

RSD 快速关断接线盒 RAPID SHUTDOWN RECEIVER



- 快速关断+智能优化组合，为组件提供安全高效解决方案；
- 智能模块与传统模块可互换，组件系统设计可根据实际使用要求选用传统方案或智能方案。
- Rapid shut down plus optimizer, safe&high efficiency solutionfor PV system.
- Optional for smart solution or diode solution, benefits PV system design.

技术参数	Technical parameter	
系统额定电压	Rated system voltage	▶ 1500V DC
额定电流	Rated current	12A/15A
使用环境温度	Operation temperature	-40°C~+85°C
防护等级	Degree of protection	▶ IP68(1m,1h)
连接器接触阻抗	Contact resistance of connector	0.3mΩ
导轨材质	Rail material	Copper alloy 铜合金
绝缘材料	Insulation material	PPE
防火等级	Flame class	5VA
认证 TUV UL	Certification TUV UL	▶ 2pfg 2305 Ongoing UL 3730&UL1741 Ongoing
适用组件	Intended for module type	Crystalline晶硅
二极管数量	Diodes	3
导轨数量	Number of contact rails	6
汇流带连接方式	Connecting of bus ribbons	Soldering锡焊
密封方式	Sealing type	O-ring rubber O型圈



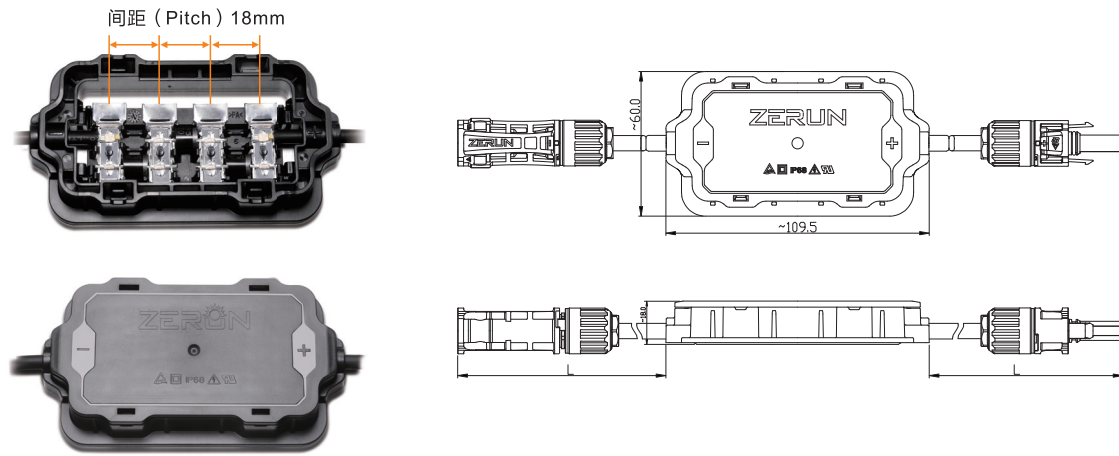
组件快速关断解决方案 PV Rapid Shutdown Solution

- 快速关断符合NEC690.12标准要求
- 组件级关断
- 过温保护
- 产品满足SunSpec通讯协议
- Meets NEC 690.12 rapid shutdown requirements
- Module-level deactivation
- Over-temperature protection
- SunSpec certificated

技术参数	Technical parameter	
输入 (DC)	DC INPUT	
最大输入功率	Input Rated DC Power	▶ Up to 600W
最大输入电压	Input Maximum Voltage	75V/85V
最大输入电流 (持续)	Input Maximum Continuous Current	11A/15A
输出 (DC)	DC OUTPUT	
最大输出功率	Output Power Range	0 - 600W
最大输出电压	Output Voltage Range	0 - Voc
最大输出电流 (持续)		
是否符合NEC2017 690.12	RSD according to NEC2017 690.12	Yes
通讯方式	Communication	PLC-Sunspec RSD protocol
系统额定电压	Rated System Voltage	1500V
工作环境温度	Operating Temperature	-40°C ~ +85°C
防护等级	Protection Degree	IP68(1m,1h)
安装方式	Installing method	
	1.RSD J-Box attached on module backsheet	
	2.RSD J-Box mounted on panel frame	
认证 TUV CSA SunSpec PVEL	Certification TUV CSA SunSpec PVEL	2pfg2305 R50474037 UL3730&UL1741 80008501 RS-00007 Undergoing

JUNCTION BOX 接线盒

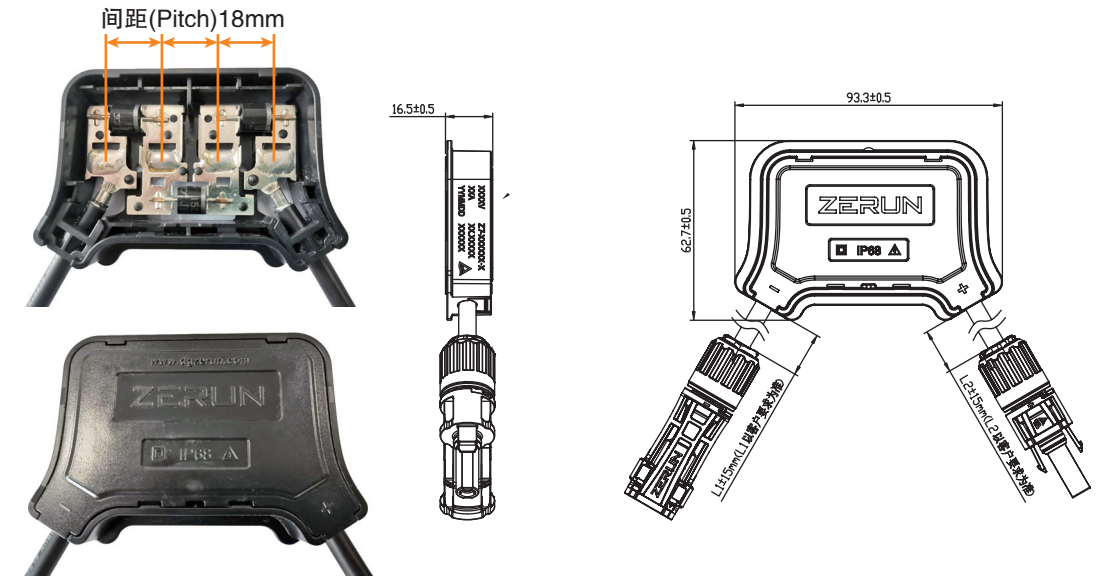
Z7 Type I 全灌胶接线盒 Potting junction box



- 结构设计美观小巧，易于运输及组装；
- 采用180度出线方式，可有效减少组件串联时所需线材，降低成本；
- 整体及匹配连接器电性能优良，整体阻抗约 $10\text{m}\Omega$ (cable: $1\text{m}\&4\text{mm}^2$)，发热少，功耗低。
- Slim Size, easy for transportation after assembled onto module.
- With cable outlet in line, shorter cable length is OK while wiring the panel.
- Loop resistance $\approx 10\text{m}\Omega$ (cable: $1\text{m}\&4\text{mm}^2$), low heat generation, low power consume.

技术参数	Technical parameter	
系统额定电压	Rated system voltage	▶ 1500V DC
额定电流	Rated current	15A
使用环境温度	Operation temperature	-40°C~+85°C
防护等级	Degree of protection	▶ IP68(1m, 1h)
连接器接触阻抗	Contact resistance of connector	0.3mΩ
导轨材质	Rail material	Copper alloy 铜合金
绝缘材料	Insulation material	PPE
防火等级	Flame class	5VA
认证 TUV UL	Certification TUV UL	▶ R50359706 IEC62790 ▶ E351403 UL 3730
适用组件	Intended for module type	Crystalline晶硅
二极管数量	Diodes	3
导轨数量	Number of contact rails	4
汇流带连接方式	Connecting of bus ribbons	Soldering锡焊
密封方式	Sealing type	Potting灌胶

Z7C 全灌胶接线盒 Potting junction box



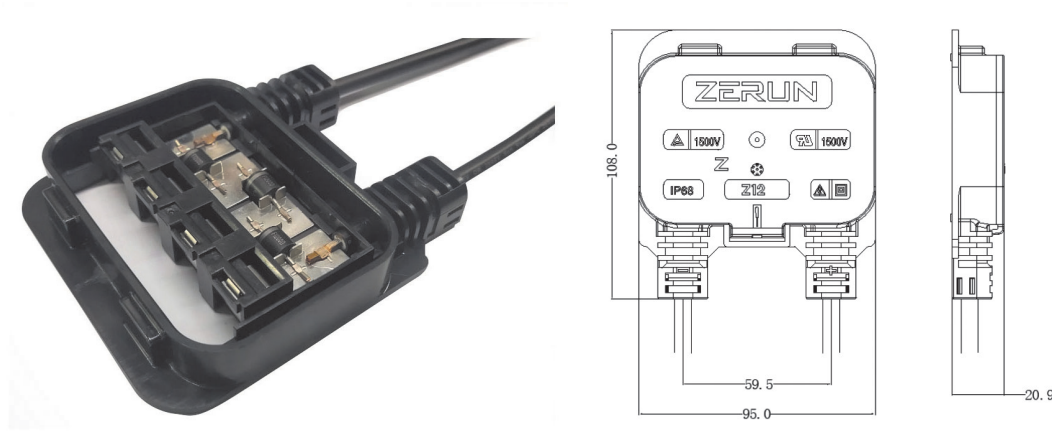
- 灌胶量21ml，降低客户使用成本；
- 采用180度出线方式，可有效减少组件串联时所需线材，降低成本；
- 整体及匹配连接器电性能优良，整体阻抗约 $10\text{m}\Omega$ (cable: $1\text{m}\&4\text{mm}^2$)，发热少，功耗低。
- Potting volume 21ml, Lower potting compound cost for panel maker.
- With cable outlet in line, shorter cable length is OK while wiring the panel.
- Loop resistance $\approx 10\text{m}\Omega$ (cable: $1\text{m}\&4\text{mm}^2$), low heat generation, low power consume.

技术参数	Technical parameter	
系统额定电压	Rated system voltage	▶ 1500V DC
额定电流	Rated current	16A
使用环境温度	Operation temperature	-40°C~+85°C
防护等级	Degree of protection	▶ IP68(1m, 1h)
连接器接触阻抗	Contact resistance of connector	0.3mΩ
导轨材质	Rail material	Copper alloy 铜合金
绝缘材料	Insulation material	PPE
防火等级	Flame class	5VA
认证 TUV UL	Certification TUV	▶ R50359706 IEC62790
适用组件	Intended for module type	Crystalline晶硅
二极管数量	Diodes	3
导轨数量	Number of contact rails	4
汇流带连接方式	Connecting of bus ribbons	Soldering锡焊
密封方式	Sealing type	Potting灌胶

JUNCTION BOX 接线盒

Z12

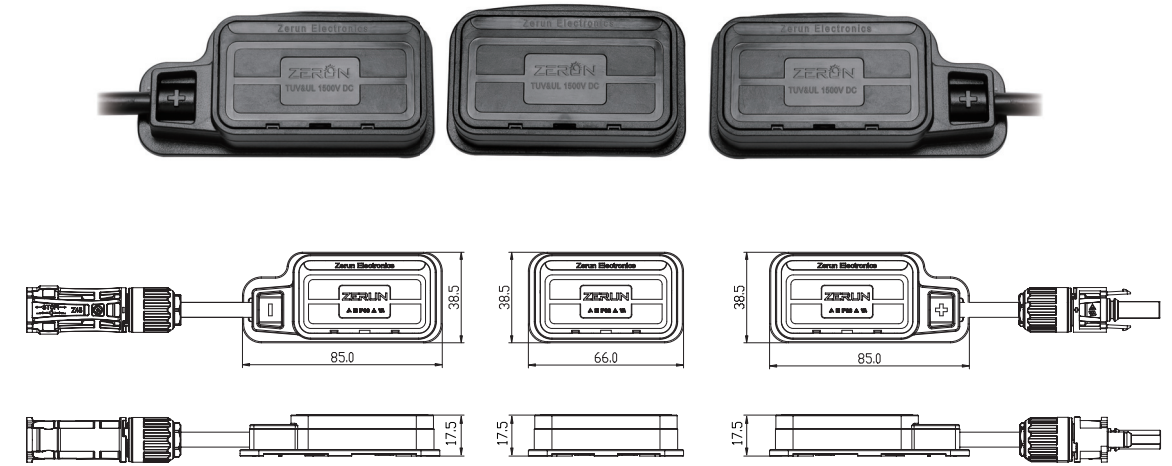
全灌胶接线盒
Potting junction box



- 非灌胶接线盒，便于客户使用
- 卡接方式固定汇流条，简单可靠
- 整体及匹配连接器电性能优良，整体阻抗约10mΩ (cable:1m&4mm²)，发热少，功耗低。
- Non-potting type, Simply panel assembly process
- Ribbon Clamping, easy but reliable method to fix ribbon
- Loop resistance ≈ 10mΩ (cable:1m&4mm²), low heat generation, low power consume.

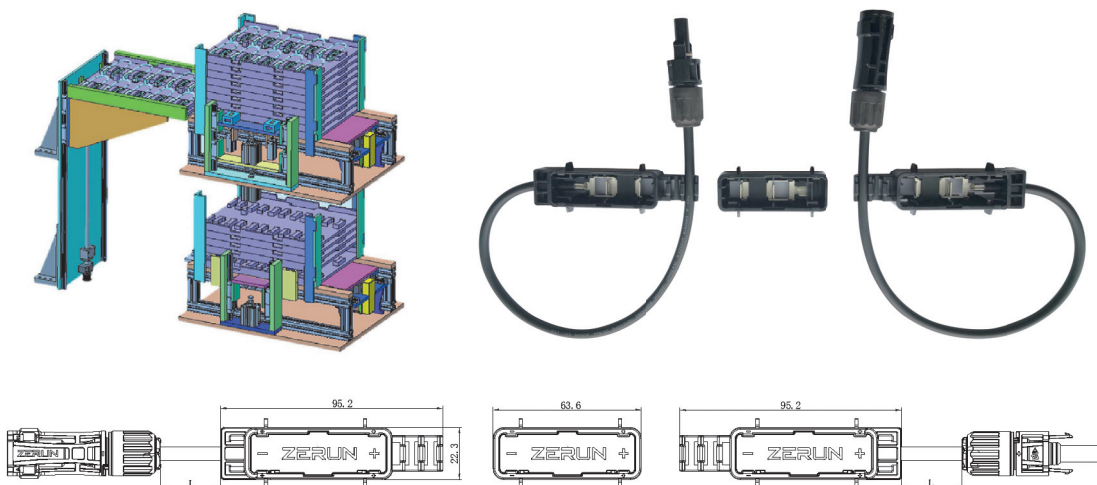
技术参数	Technical parameter	
系统额定电压	Rated system voltage	▶ 1500V DC
额定电流	Rated current	6.5A/12A/15A
使用环境温度	Operation temperature	-40℃~+85℃
防护等级	Degree of protection	▶ IP68(1m, 1h)
连接器接触阻抗	Contact resistance of connector	0.3mΩ
导轨材质	Rail material	Copper alloy 铜合金
绝缘材料	Insulation material	Ongoing
防火等级	Flame class	Ongoing
认证 TUV UL	Certification TUV UL	▶ R50359706 IEC62790 ▶ E351403 UL 3730
适用组件	Intended for module type	Crystalline晶硅
二极管数量	Diodes	3
导轨数量	Number of contact rails	4
汇流带连接方式	Connecting of bus ribbons	卡接 Clamping
密封方式	Sealing type	密封圈 O-ring

Z8 全灌封分体式接线盒 Potting triple junction box



- 分体设计，结构设计美观小巧，易于运输及组装；
- 分体式设计，整体及匹配连接器电性能优良，大幅度减小了组件串联的内部阻抗，取得更高组件效率；
- 符合IEC和UL最新的安规要求，系统电压达到1500V DC。
- Triple boxes, mini size, slim, easy for transportation after assembled onto module.
- Three separated small boxes with high quality SL4H connector, low heat generation, low power consume.
- Pass IEC and UL test, system voltage 1500V DC.

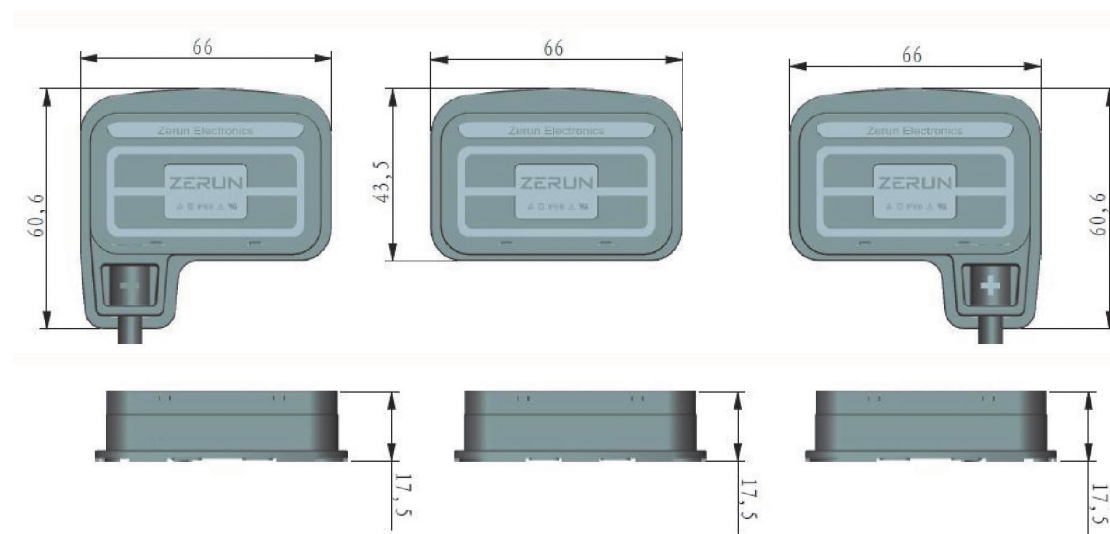
技术参数	Technical parameter	
系统额定电压	Rated system voltage	▶ 1500V DC
额定电流	Rated current	18A
使用环境温度	Operation temperature	-40℃~+85℃
防护等级	Degree of protection	▶ IP68(1m, 1h)
连接器接触阻抗	Contact resistance of connector	0.3mΩ
导轨材质	Rail material	Copper, tin plated 铜镀锡
绝缘材料	Insulation material	PPE
防火等级	Flame class	5VA
认证 TUV UL	Certification TUV UL	▶ R50359034 IEC62790 ▶ E351403 UL 3730
二极管数量	Diodes	3
导轨数量	Number of bus ribbons	6
汇流带尺寸	Bus ribbon size Max. width Max. thickness	8mm 0.3mm
汇流带连接方式	Connecting of bus ribbons	Soldering 锡焊
密封方式	Sealing type	Potting compound 灌封胶



自动化组装电阻焊接线盒

- 汇流条电阻焊,彻底解决组件虚焊
- 自动化安装接线盒,提升组件生产自动化程度及降低安装成本
- 助力光伏组件智造实现EMS管理
- Ribbon welding, zero defect for ribbon cold soldering
- Auto assembly J-box, lower J-Box assembly cost
- Portal for PV module EMS

技术参数	Technical parameter	
系统额定电压	Rated system voltage	▶ 1500V DC
额定电流	Rated current	18A/20A/22A/25A/30A
使用环境温度	Operation temperature	-40°C~+85°C
防护等级	Degree of protection	▶ IP68(1m, 1h)
连接器接触阻抗	Contact resistance of connector	0.3mΩ
导轨材质	Rail material	Copper alloy 铜合金
绝缘材料	Insulation material	PPE
防火等级	Flame class	5VA
认证 TUV UL	Certification TUV UL	▶ IEC 62790 Ongoing ▶ UL3730 Ongoing
适用组件	Intended for module type	双面光伏组件 Bifacial PV Panel
二极管数量	Diodes	3
导轨数量	Number of contact rails	6
汇流带连接方式	Connecting of bus ribbons	Soldering锡焊
密封方式	Sealing type	Potting灌胶



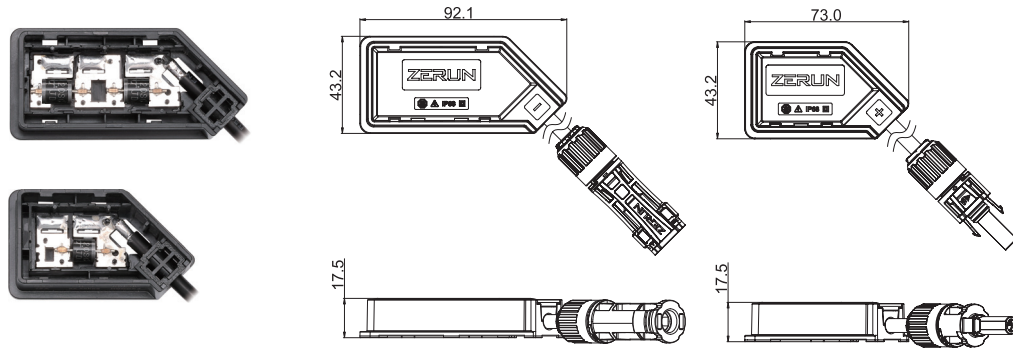
- 产品结构适用使用与双玻、叠瓦组件;
- 额定电流18A/20A, 适用于高效电池组件;
- 总灌胶量25ml, 降低客户使用成本。
- Product design for Glass/Glass PV module, Overlapping solar cell PV module.
- Rated Current 18A/20A, benets for high efficiency PV module.
- Pottting volume 25ml, Lower potting compound cost for panel maker.

技术参数	Technical parameter	
系统额定电压	Rated system voltage	▶ 1500V DC
额定电流	Rated current	18A/20A
使用环境温度	Operation temperature	-40°C~+85°C
防护等级	Degree of protection	▶ IP68(1m, 1h)
连接器接触阻抗	Contact resistance of connector	0.3mΩ
导轨材质	Rail material	Copper alloy 铜合金
绝缘材料	Insulation material	PPE
防火等级	Flame class	5VA
认证 TUV UL	Certification TUV UL	▶ IEC 62790 Ongoing R50359034 ▶ UL3730 Ongoing
适用组件	Intended for module type	双面光伏组件 Bifacial PV Panel
二极管数量	Diodes	3
导轨数量	Number of contact rails	6
汇流带连接方式	Connecting of bus ribbons	Soldering锡焊
密封方式	Sealing type	Potting灌胶

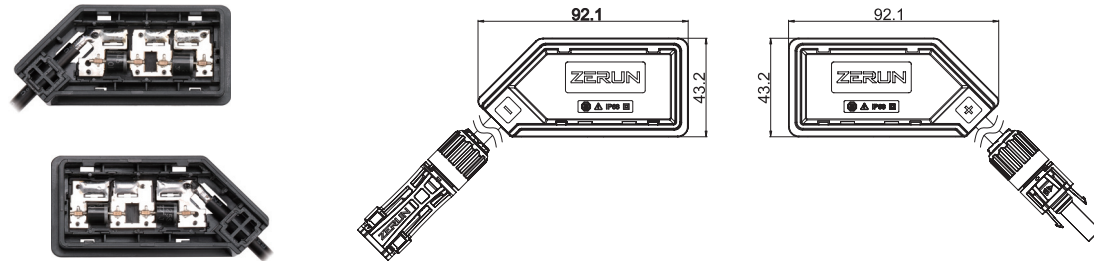
JUNCTION BOX 接线盒

Z11 Type I / II / III / IV 分体式接线盒 Potting decentralized junction box

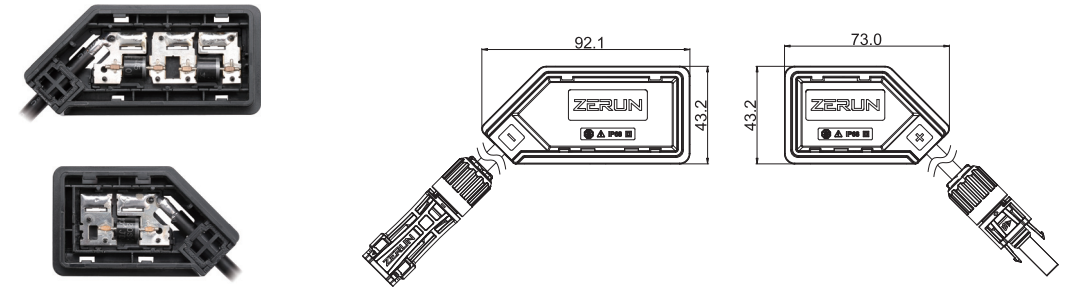
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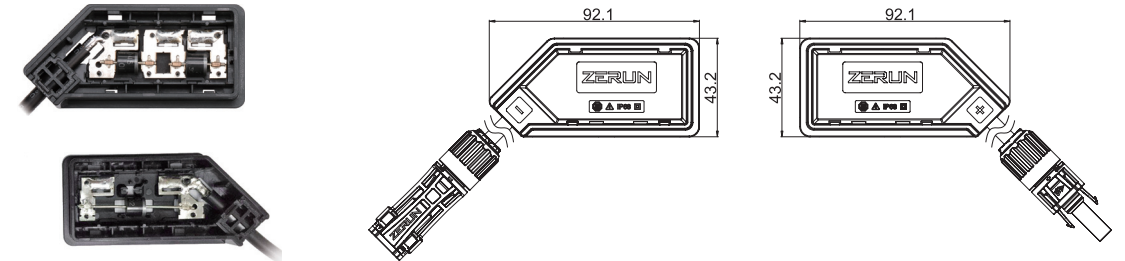
II



III



IV



技术参数	Technical parameter	Z11-I/II/III/IV
系统额定电压	Rated system voltage	▶ 1500V DC
额定电流	Rated current	18A
使用环境温度	Operation temperature	-40℃~+85℃
防护等级	Degree of protection	▶ IP68(1m,1h)
连接器接触阻抗	Contact resistance of connector	0.3mΩ
导轨材质	Rail material	Copper alloy 铜合金
绝缘材料	Insulation material	PPE
防火等级	Flame class	5VA
认证 TUV UL	Certification TUV UL	▶ B180398719003 IEC62790 ▶ UL 3730 Ongoing
适用组件	Intended for module type	半片组件 Half Cell PV Panel 叠瓦组件 Cell Stacking PV Panel
二极管数量	Diodes	3 / 4
导轨数量	Number of contact rails	5 / 6
汇流带连接方式	Connecting of bus ribbons	Soldering 锡焊
密封方式	Sealing type	Potting 灌胶

- 采用45度出线方式，可有效减少组件串联时所需线材，降低成本；
- 额定电流18A，适用于高效电池组件；
- 总灌胶量25ml，降低客户使用成本。

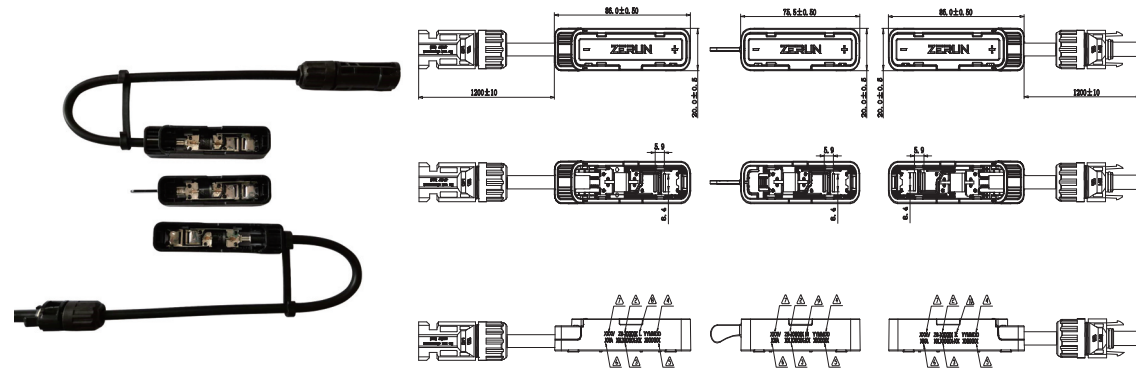
- With cable outlet in 45° , shorter cable length is OK while wiring the panel.
- Rated Current 18A, benefits for high efficiency PV module.
- Potting volume 25ml, Lower potting compound cost for panel maker .



JUNCTION BOX 接线盒

Z8T 分体式接线盒 Potting triple junction box

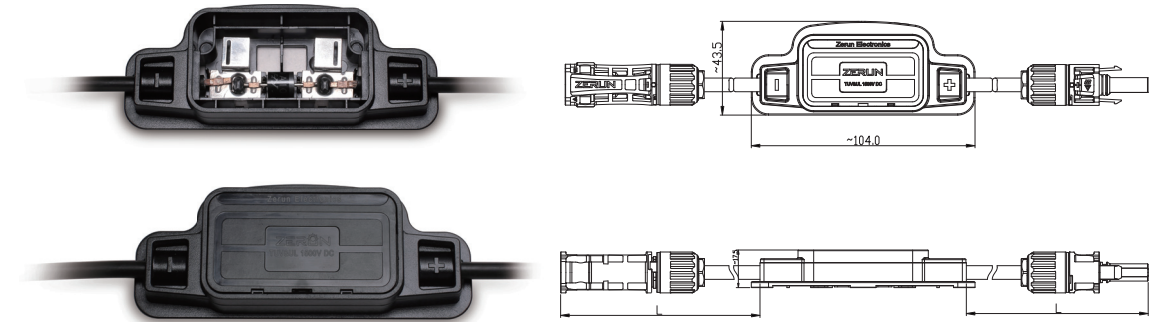
Z9 全灌封薄膜接线盒 Potting thin-film junction box



- 结构设计小巧，宽度20mm，适用于双面电池组件；
- 额定电流18A/20A/22A，适用于高效电池组件；
- 总灌胶量24ml，降低客户使用成本。
- Slim design for bifacial PV panel, width in 20mm.
- Rated Current 18A/20A/22A, benefits for high efficiency PV module.
- Potting volume 24ml, Lower potting compound cost for panel maker.

技术参数	Technical parameter	
系统额定电压	Rated system voltage	▶ 1500V DC
额定电流	Rated current	18A/20A/22A
使用环境温度	Operation temperature	-40℃~+85℃
防护等级	Degree of protection	▶ IP68(1m,1h)
连接器接触阻抗	Contact resistance of connector	0.3mΩ
导轨材质	Rail material	Copper alloy 铜合金
绝缘材料	Insulation material	PPE
防火等级	Flame class	5VA
认证 TUV UL	Certification TUV UL	▶ IEC 62790 Ongoing ▶ UL3730 Ongoing

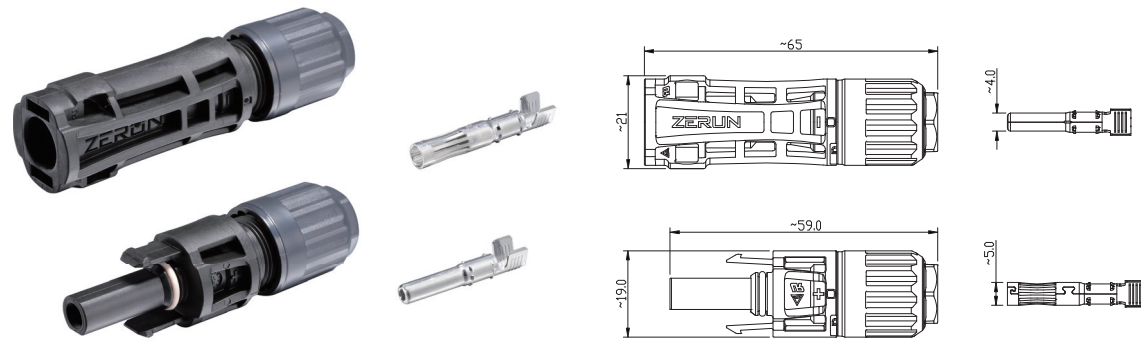
适用组件	Intended for module type	双面光伏组件 Bifacial PV Panel
二极管数量	Diodes	3
导轨数量	Number of contact rails	6
汇流带连接方式	Connecting of bus ribbons	Soldering 锡焊
密封方式	Sealing type	Potting 灌胶



- 结构设计美观小巧，可用于自动组装；
- 整体及匹配连接器电性能优良，整体阻抗大约11mΩ(1m&2.5mm²线材)，发热和功耗低；
- 符合IEC和UL最新标准双重测试，系统电压达到1500V DC。
- Mini size, slim, can be assembled onto module automatically.
- Loop resistance is about 11mΩ (Cable: 1m&2.5mm²), low heat generation, low power consume.
- Pass IEC and UL test, system voltage 1500V DC.

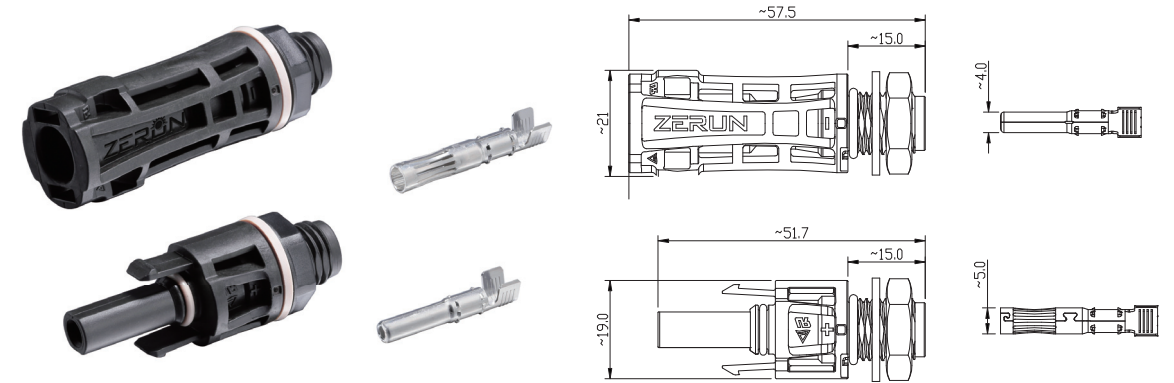
技术参数	Technical parameter	
系统额定电压	Rated system voltage	▶ 1500V DC
额定电流	Rated current	8A
使用环境温度	Operation temperature	-40℃~+85℃
防护等级	Degree of protection	▶ IP68(1m,1h)
连接器接触阻抗	Contact resistance of connector	0.25mΩ
导轨材质	Rail material	Copper, tin plated 铜镀锡
绝缘材料	Insulation material	PPE/PPO
防火等级	Flame class	5VA
认证 TUV UL	Certification TUV UL	▶ R50362602 IEC62790 ▶ E351403 UL3730

二极管数量	Diodes	1
导轨数量	Number of bus ribbons	2
汇流带尺寸	Bus ribbon size Max. width Max. thickness	5mm 0.3mm
汇流带连接方式	Connecting of bus ribbons	Soldering 锡焊
密封方式	Sealing type	Potting compound 灌封胶



- 特有的螺帽防松自锁结构，消除使用中出现的螺帽松动隐患；
- 符合IEC和UL最新安规要求，可与MC4类型连接器互配；（例如：MC4，H4，PV4等）
- 电气性能良好，接触阻抗小于0.3mΩ，发热低、功率损耗小。
- Unique design to eliminate the risk of nut loosening.
- Compatible with MC4 type connectors(MC4, H4, PV4 etc), TUV & UL certificated.
- Contact resistance less than 0.3mΩ, less heating and low power consume.

技术参数	Technical parameter	
系统额定电压	Rated system voltage	1500V DC(TUV&UL)
额定电流	Rated current	40A (2.5mm ² , 14awg); 45A (4.0mm ² , 12awg); 50A (6mm ² , 10awg)
使用环境温度	Ambient temperature	-40℃~+85℃
防护等级 连接	Degree of protection mated	IP68(1m,1h)
断开	unmated	IP2X
过电压等级	Overvoltage category	III
污染等级	Pollution degree	2
安全等级	Protection class	class II
连接器接触阻抗	Contact resistance of connector	▶ 0.3mΩ
绝缘材料	Insulation material	PPE/PA
认证 TUV UL	Certification TUV UL	R50363877 IEC62852 ▶ E351402 UL6703



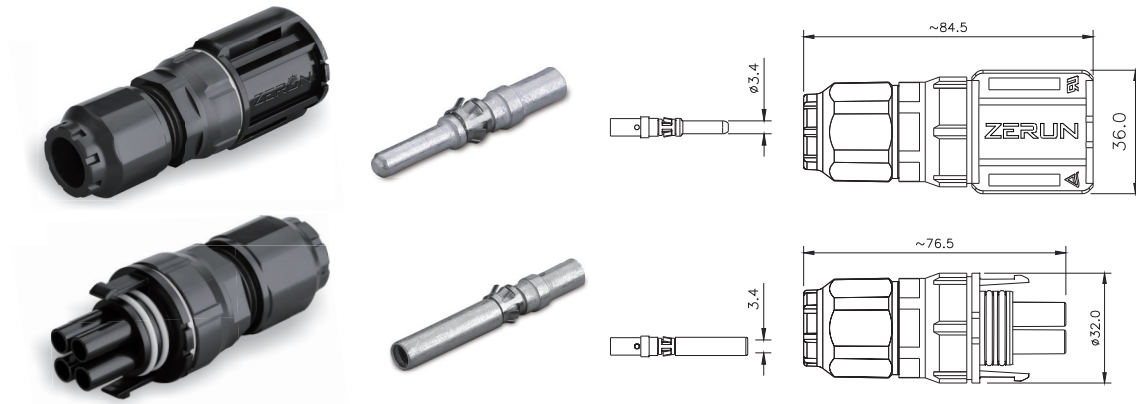
- 符合IEC和UL最新安规要求，可与MC4类型连接器互配。（例如：MC4，H4，PV4等）；
- 电气性能良好，接触阻抗小于0.3mΩ，发热低、功率损耗小。
- Compatible with MC4 type connectors(MC4, H4, PV4 etc), TUV & UL certificated.
- Contact resistance less than 0.3mΩ, less heating and low power consume.

技术参数	Technical parameter	
系统额定电压	Rated system voltage	1500V DC(TUV&UL)
额定电流	Rated current	40A (2.5mm ² , 14awg); 45A (4.0mm ² , 12awg); 50A (6mm ² , 10awg)
使用环境温度	Ambient temperature	-40℃~+85℃
防护等级 连接	Degree of protection mated	IP68(1m,1h)
断开	unmated	IP2X
过电压等级	Overvoltage category	III
污染等级	Pollution degree	2
安全等级	Protection class	class II
连接器接触阻抗	Contact resistance of connector	▶ 0.3mΩ
导体材质	Contact material	Stamping, Copper, tin plated 冲压成型铜镀锡
绝缘材料	Insulation material	PPE/PA
认证 TUV UL	Certification TUV UL	R50363877 IEC62852 ▶ E351402 UL6703

PV CONNECT SYSTEM 光伏连接器

Z3 交流线端连接器 AC solar connector

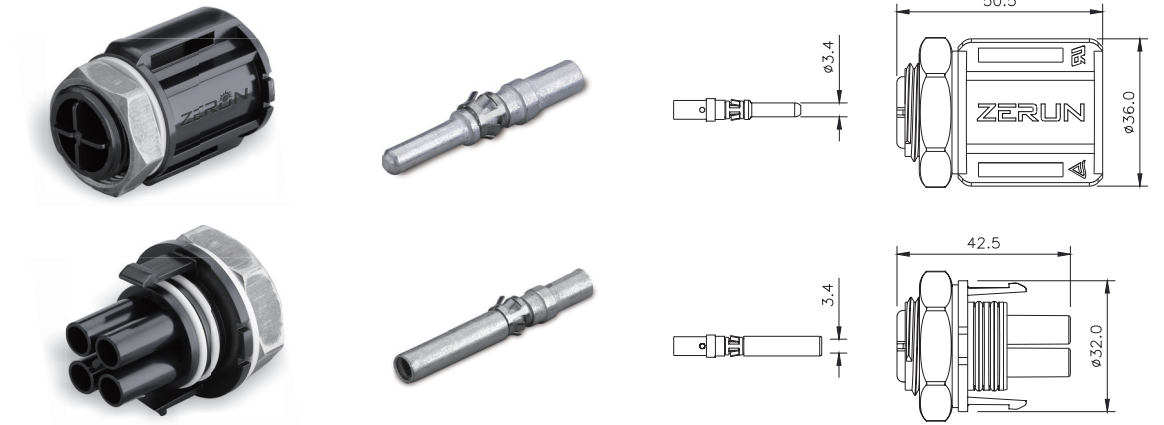
Z3 交流板端连接器 AC solar panel connector



- 公母头连接部位采用双级密封，更安全、放心；
- 电气性能良好，接触阻抗小于0.25mΩ，发热低、功率损耗小；
- 机械式紧固线缆，抗老化，使用寿命长。

- Male and female connection sealing adopts double, more safe and reassurance.
- Contact resistance less than 0.25mΩ, less heating and low power consume.
- Mechanical fastening cable, good aging and service life.

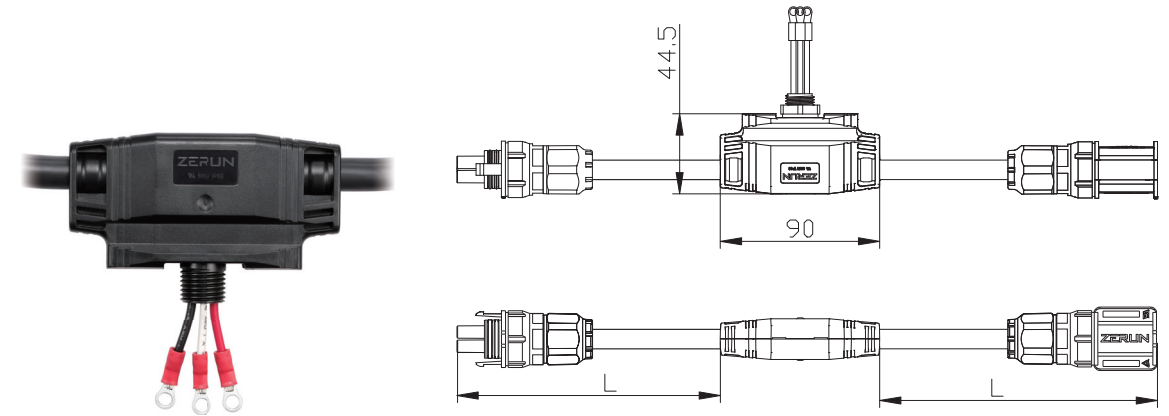
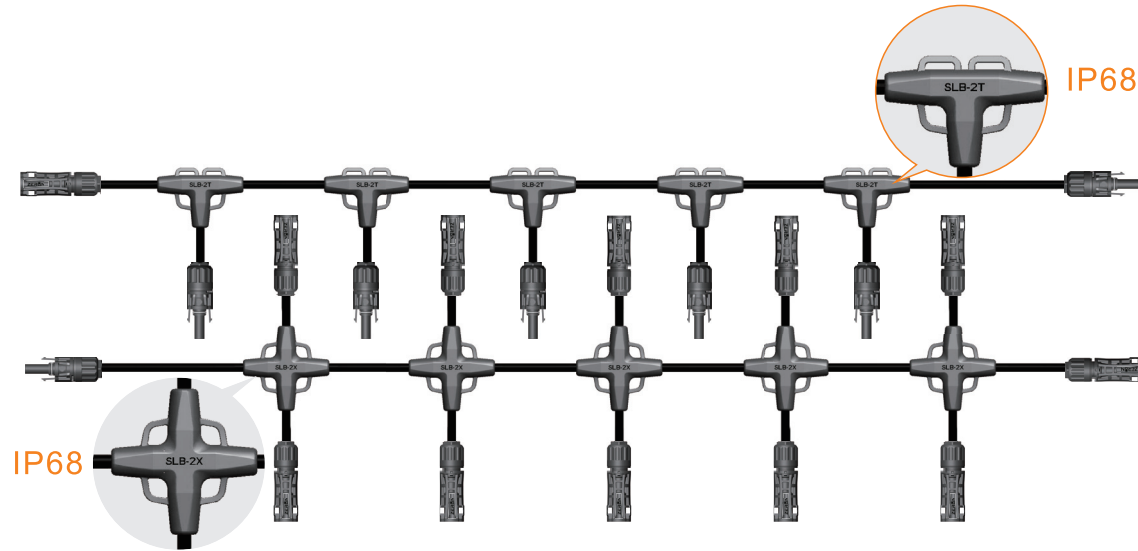
技术参数	Technical parameter	
系统额定电压	Rated system voltage	500V AC(TUV&UL)
额定电流	Rated current	35A (4mm ² , 12awg) 40A (6mm ² , 10awg)
使用环境温度	Ambient temperature	-40℃~+85℃
防护等级 连接	Degree of protection mated	IP68
断开	unmated	IP2X
过电压等级	Overvoltage category	III
污染等级	Pollution degree	2
安全等级	Protection class	class II
连接器接触阻抗	Contact resistance of connector	▶ 0.25mΩ
绝缘材料	Insulation material	PPE
认证 TUV UL	Certification TUV UL	▶ 2PfG1915 ▶ UL6703A E479328



- 固定螺母为铝质，防止老化松脱；
- 公母头连接部位采用双级密封，更安全、放心；
- 电气性能良好，接触阻抗小于0.25mΩ，发热低、功率损耗小。

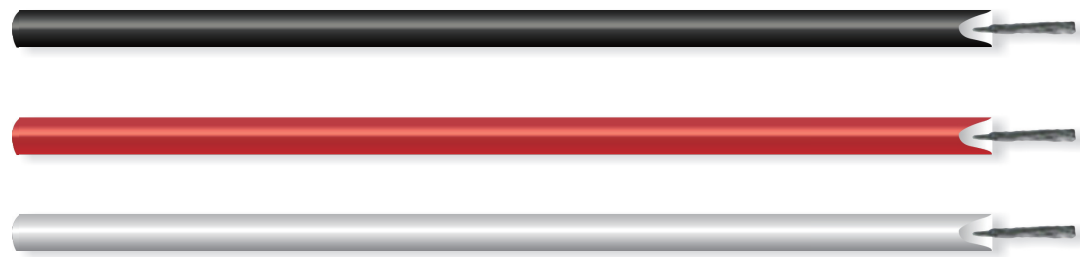
- Aluminum fastening nut, no loosening after aging.
- Male and female connection sealing adopts double, more safe and reassurance.
- Contact resistance less than 0.25mΩ, less heating and low power consume.

技术参数	Technical parameter	
系统额定电压	Rated system voltage	500V AC(TUV&UL)
额定电流	Rated current	35A (4mm ² , 12awg) 40A (6mm ² , 10awg)
使用环境温度	Ambient temperature	-40℃~+85℃
防护等级 连接	Degree of protection mated	IP68
断开	unmated	IP2X
过电压等级	Overvoltage category	III
污染等级	Pollution degree	2
安全等级	Protection class	class II
连接器接触阻抗	Contact resistance of connector	▶ 0.25mΩ
绝缘材料	Insulation material	PPE
认证 TUV UL	Certification TUV UL	▶ 2PfG1915 ▶ UL6703A E479328



技术参数		Technical parameter	
连接系统	Connector system	Z4S	
系统额定电压	Rated system voltage	1500V DC(TUV) and 1000V DC(UL)	
额定电流	Rated current	35A (4mm ² , 12awg) 40A (6mm ² , 10awg)	
使用环境温度	Ambient temperature	-40℃~+85℃	
防护等级	Degree of protection	mated	IP68
断开	unmated		IP2X
过电压等级	Overvoltage category	III	
污染等级	Pollution degree	2	
安全等级	Protection class	class II	
连接器接触阻抗	Contact resistance of connector	▶ 0.15mΩ	
绝缘材料	Insulation material	PC/PA	
认证	Certification	TUV	EN50521
UL	UL		▶ UL6703

技术参数		Technical parameter	
连接系统	Connector system	ZT-1	
系统额定电压	Rated system voltage	600V AC(UL)	
额定电流	Rated current	20A (Main Circuit) 7A (Sub Circuit)	
冲击电压	Rated impulse voltage	16KV	
绝缘耐压	Rated insulation voltage	12KV	
使用环境温度	Ambient temperature	-40℃~+85℃	
防护等级	Degree of protection	mated	IP67
		unmated	IP2X
过电压等级	Overvoltage category	III	
污染等级	Pollution degree	2	
安全等级	Protection class	class II	
连接器接触阻抗	Contact resistance of connector	▶ 0.15mΩ	
端子连接	Type of termination	Crimping 铆压	
导体材质	Contact material	Copper, tin plated 铜镀锡	
绝缘材料	Insulation material	PPE	
防火等级	Flame class	5VA	
认证	Certification	TUV	E493181
UL	UL		▶ according to UL1277&UL1581&UL83UL1015



- 双层绝缘
- 电子束交联化合物
- 紫外线, 水, 臭氧, 液, 盐, 一般耐候性极佳
- 极佳的耐磨性
- 无卤, 阻燃, 低毒
- 非常低排放的烟雾
- 出色的灵活性和剥离性能
- 线径从1.5平方毫米至10.0平方毫米
- Dual wall insulation
- Electron beam cross-linked
- Excellent resistance to UV, water, ozone, fluids, salt, general
- weathering
- Excellent resistance to abrasion
- Halogen free, flame retardant, low toxicity
- Very low smoke emissions
- Excellent flexibility and stripping performance
- Wire size from 1.5 mm²(16awg) up to 10.0 mm²(6awg)

技术参数	Technical parameter	
标称电压U ₀ / U:	Nominal voltage U ₀ / U:	0,6 / 1 kV AC / max. 1,8 kV DC
测试电压 (EN 50395-6)	Test voltage according to EN 50395-6	6,5 kV AC / 15 kV DC (5 min.)
额定电流	Rated current	2,5 mm ² : 41 A; 4 mm ² : 55 A 6 mm ² : 70 A; 10 mm ² : 98 A
额定电压	Rated voltage	1000 V DC
绝缘阻抗 (EN 50395-8.2)	Insulation resistance of the complete cable according to EN 50395-8.2	10 ¹⁴ Ω cm (20 ° C) / 10 ¹¹ Ω cm (90 ° C)
认证 TUV UL	Certification TUV UL	T50323508 EN60618 E476724 UL4703

材料特性	Thermal and mechanical properties	
环境温度 导体最高工作温度	Ambient temperature Maximum conductor temperature	-40 ° C ... +90 ° C max. +120 ° C
耐高温	Highly heat resistant	-40 ° C ... +90 ° C (>150.000 小时 / hours) -40 ° C ... +105 ° C (>70.000 小时 / hours) -40 ° C ... +120 ° C (>20.000 小时 / hours)
使用年限	Expected usable life	25 年 / years
高机械应力	Mechanically highly stressable	
低温下具柔性	Flexible at low temperatures	
抗振动	Abrasion resistance	很好 / Very good
抗拉强度	Tensile strength	18 N / mm ²
伸长率	Elongation at rupture	160%
硬度	Hardness	40 Shore D

耐候性	Resistant to environmental influences	
耐环境	Resistant to...	紫外 / UV 臭氧 / Ozone 水解 / Hydrolysis
耐化学品	Resistant to... tested according to IEC 60811-2-1	酸、碱、油 (IRM 902) Acids, alcalis and oil (IRM 902)

防火	Fire behaviour	
防火性能	Fire performance	IEC 60332-1;UL 1581 1061/VW1
烟雾排放	Smoke emission	IEC 61034;EN 50268-2
低火灾载荷	Low fire load	DIN 51900

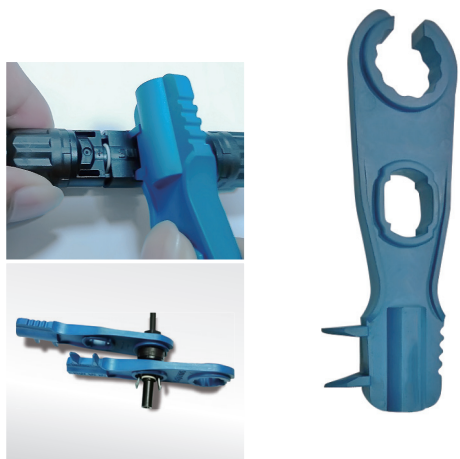
电缆结构	Cable structure	
导线	Conductor	镀锡铜绞线, 根据VDE 0295/ IEC 60228, 5级 Fine-wire tinned copper strands, Acc. to VDE 0295/ IEC 60228, class 5
内部绝缘	Inner insulation	低烟无卤交联聚烯烃, 颜色: 黑色或白色 Halogen free crosslinked polyolefin Color: black or white
包皮层绝缘	Sheath insulation	低烟无卤交联聚烯烃, 颜色: 黑色、红色或白色 Halogen free crosslinked polyolefin Color: black, red or white

TOOLS AND ACCESSORIES

工具及附件

Z4

连接器开锁和螺母扳手
Unlocking and Tighting tool



Z4S

连接器开锁和螺母扳手
Unlocking and Tighting tool



Z5/Z7/Z8/Z9 (FOR Z5/Z7/Z8/Z9)

接线盒开盖工具
Lid releasing tool



Z3

连接器开锁和螺母扳手
Unlocking and Tighting tool



冲压端子铆线钳

Crimping pliers for stamping terminals

适用于Z4和Z4S冲压端子
(2.5mm² -6mm², 14-10awg)

For Z4 and Z4S stamping terminals
(2.5mm² -6mm², 14-10awg)



车件端子铆线钳

Crimping pliers for machining terminals

适用于Z4和Z4S车件端子
(2.5mm² -6mm², 14-10awg)

For Z4 and Z4S machining terminals
(2.5mm² -6mm², 14-10awg)



剥线钳

Stripping pliers

适用于线芯截面为
2.5mm² -6mm² (14-10awg)的线材

For cable cross section
2.5mm² -6mm² (14-10awg)



防尘帽

Dust cap



适用于Z4 & Z4S (For Z4 & Z4S)



适用于Z3 (For Z3)

Z1系列透气膜

Z1 series membrane

