

PV-HBE4x – 规格说明书

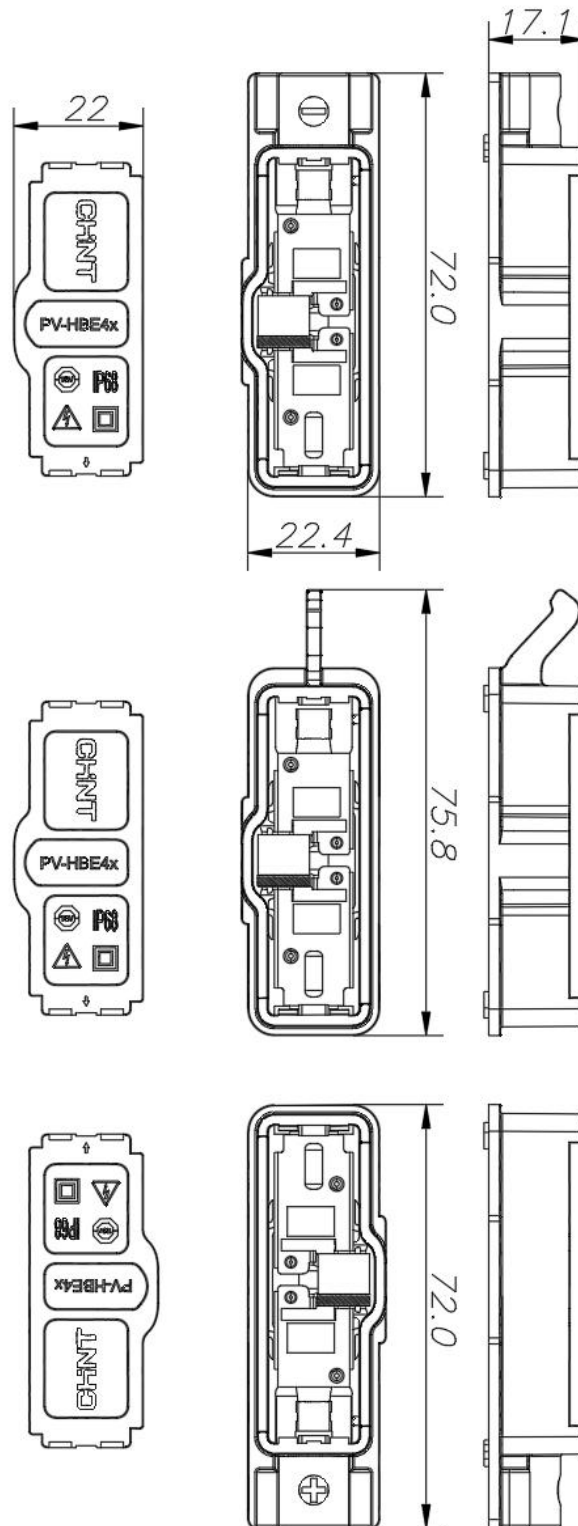
PV JUNCTION BOX INSTRUCTION



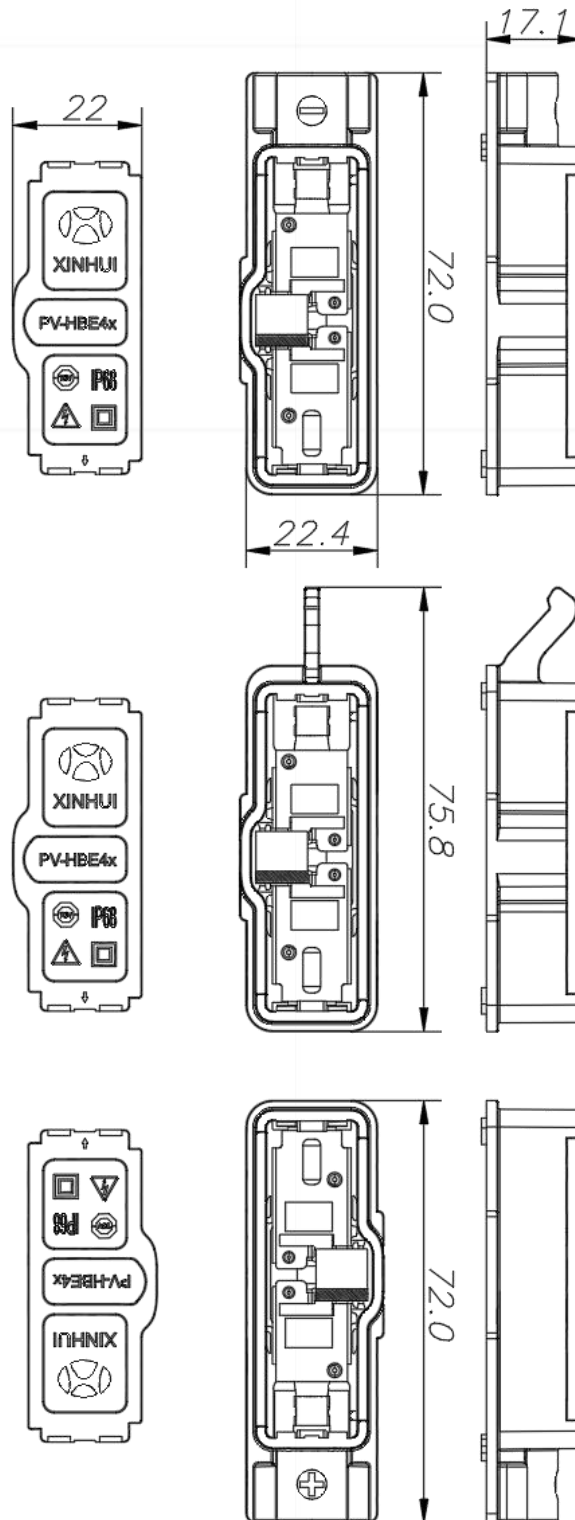
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产品图纸 Product Drawing



产品图纸 Product Drawing



产品介绍 Product Overview

该产品在设计使用时有以下特点：

1. 使用灌封胶的方式对内部金属件以及二极管进行密封。
2. 线缆与导电体采用铆接，上锡工艺。
3. 线缆引出位置采用超声波工艺与箱体、底座锁紧。
4. 该系列适用于单、双玻组件。
5. 该系列接线盒体积小，灌胶后散热性好，额定电流大。当旁路截止时，不易发生热失控。
6. 符合IEC 62979: 2017; IEC 62790: 2020; EN IEC 62790: 2020等标准。

The product has the following features when designed and used:

1. Seal the internal metal parts and diodes by means of potting glue.
2. The wire and conductor are riveted and tinned.
3. The outlet position of the cable is locked with the box body and base by ultrasonic technology.
4. This series is suitable for single and double glass components.
5. This series of junction boxes is small in size, has good heat dissipation after glue potting, and has a large rated current. When the bypass is cut-off, thermal runaway is not susceptible.
6. Comply with IEC 62979:2017; IEC 62790: 2020; EN IEC 62790:2020 and other standards.

功能描述 Function Description

该产品有以下功能：

1. 电气连接：将太阳能组件产生的电力与外部线路连接，传导光伏组件所产生的电流。
2. 旁路保护：该产品内存在旁路二极管，当组件内某处电池片出现热斑效应不能发电时，起旁路作用，让其他电池片所产生的电流从二极管流出，使组件继续发电。

The product has the following functions:

1. Electrical connection: connect the power generated by solar modules with external lines to conduct the current generated by photovoltaic modules.
2. Bypass protection: there is a bypass diode in the product. When the hot spot effect of a battery in the module fails to generate power, it plays the role of bypass, allowing the current generated by other batteries to flow out of the diode, so that the module can continue to generate power.



技术规格 Technical Data

技术规格 TECHNICAL DATA	
产品型号Product Type	PV-HBE4x
额定电流Rated Current	25A/30A
额定电压 Rated Voltage	1000V/1500V
反向电流 Reverse current	50A
环境温度 Temperature Range	-40~+85℃
保护等级 Protection Degree	IP65/IP68(1m,1h)
线缆规格 Rated Cable Wire	IEC:1x4mm ² -40℃~+90℃
接线盒尺寸 Overall Dimensions	Left Housing: 72mm*25.78mm*17.1mm Middle Housing: 75.8mm*25.78mm*17.1mm Right Housing: 72mm*25.78mm*17.1mm
安全等级 Safety Degree	Class A
汇流带宽度 Width of Tinning Ribbons	≤8mm
阻燃等级 Flame Resistance	UL94 V-0 5VB
绝缘材料 Insulation Material	PPE+PS,PX9406P(黑)
灌胶量 Irrigation Volume	≈24ml
可选连接器 Optional Connector	PV-HCB40/PV-HCA30/PV-KST4/PV-KBT4-EVO 2/MC4
二极管 Diode selection	30SQ045-SL/30SQ045&30SQ045-P (25A) 40SQ045-SL/40SQ045&40SQ045-P (30A)



Type Name Details

Type designation	Rated voltage	Rated current	Wire cross section
PV-HBE4x	(x=1) 1000VDC	25A	1 x 4,0mm ²
	(x=3) 1000VDC	30A	
	(x=2)1500VDC	25A	
	(x=4)1500VDC	30A	

操作方法 Operation Method

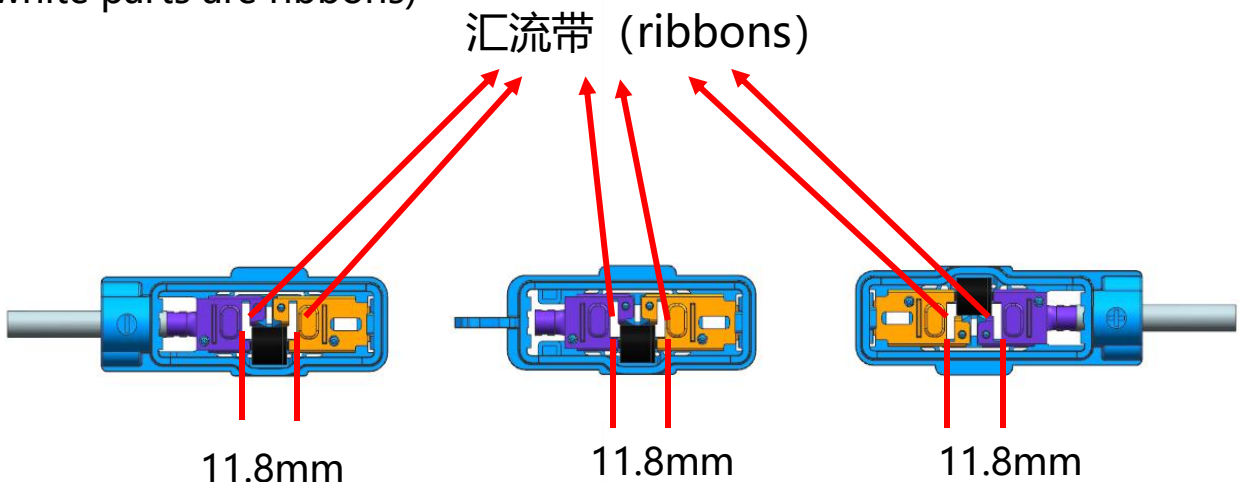
1. 用专用粘合剂将接线盒粘到指定位置。 Exhibit the junction box to the relevant position by special adhesive gel.
2. 粘合位置如下：阴影部分粘接面积硅胶用量为11.5mL。 Area for adhesive gel (Shaded area as shown): The dosage of silica gel is about 11.5mL.



Area for adhesive gel 粘合位置

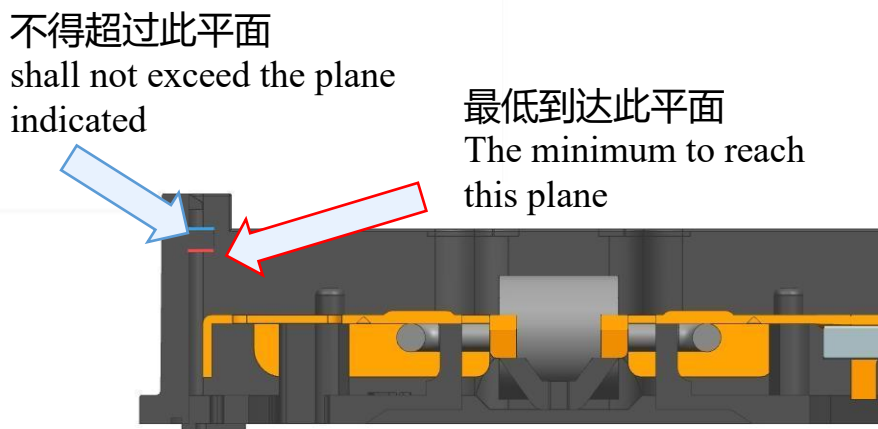
3. 将汇流带穿过开口焊接到1, 2, 3, 4, 5, 6处铜片上。两个开口之间的中心距离为11.8mm，参见下图：白色标注为汇流带

Through the slotting solder ribbons on the copper 1, 2, 3, 4, 5, 6.
The central distance between two slotting is 11.8mm .(as shown, white parts are ribbons)



操作方法 Operation Method

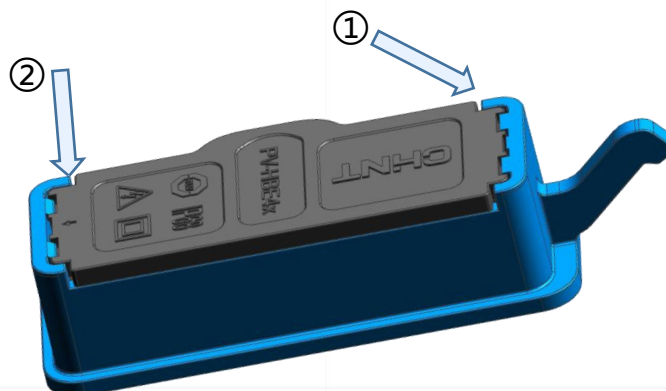
4. 灌胶不超过箭头所指平面。The glue filling shall not exceed the plane indicated by the arrow.



5. 盒盖安装The lid is installed

将盖板无箭头标识的一侧先放入卡扣，然后用力向下压箭头标识一侧盖子直到听到嗒的一声盖子盖紧（盖子区分方向，盒盖凸起与盒体凸出对应）。

Put the side of the cover without the arrow mark into the buckle, and then press down the cover on the side with the arrow mark until you hear a click (the cover distinguishes the direction, and the protrusion of the box cover corresponds to the protrusion of the box body).

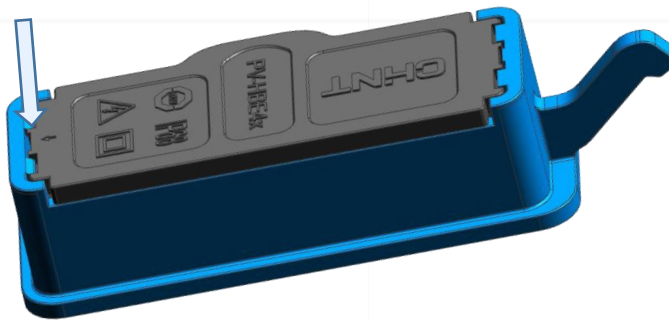


操作方法 Operation Method

6. 打开盒盖的方法 Open the cover of the method

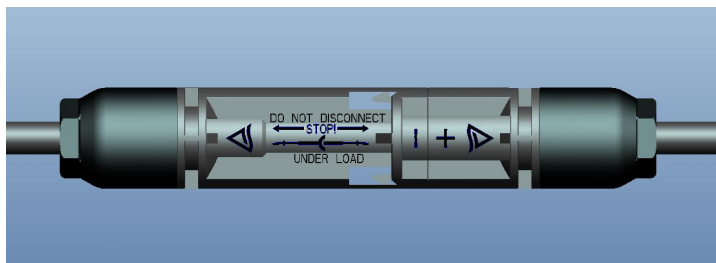
将工具插入有箭头标记盒盖一侧和底盒之间，然后翘起。

Insert the tool between the side of the cover marked with arrow and the bottom box, and then tilt it up.



注意事项

1. 禁止烷烃类、强酸、强碱物质接触连接器、接线盒，如汽油、清洗润滑剂、电子复活剂等含有烷烃物质的溶剂和工业污染排放的特殊气体等。
2. 连接器不可以和硅胶、灌封胶直接接触，连接器线缆禁止挂、拉重物。
3. 产品装卸及运输过程中注意轻拿轻放，不要受外力重压，以免造成损坏。
4. 工作人员应配有适当的静电防护措施。
5. 接线盒盒体底面和背板粘接时，沿盒体底面涂抹粘接剂要均匀，防止漏水。
6. 汇流带装入时要注意汇流带是否干净，有无粘接剂，否则会影响焊接质量和组件的发电功率。
7. 安装接线盒时不能将同一套的接线盒的正负极连接器插合在一起。
8. 正负连接时应完成插入，正负偶合，防止意外松脱。
9. 如果不是维护需要，请不要频繁进行连接系统的开合或插拔。
10. 维护时连接器不允许带电插拔。（见下图连接器警示语）。
11. 户外维护应由专业人员进行。
12. 电气安装说明应包括根据美国国家电气规范ANSI/NFPA 70使用的接线方法的详细描述。
13. 连接时不应该浸入水中，应该为悬挂或摇摆态。
14. 旁路保护时，接线盒温度显著升高。如果接线盒长期旁路，则会加速接线盒的老化。因此，需要进行必要的维护。



Matters Needing Attention

1. It is forbidden for alkane, strong acid and strong alkali substances to contact connectors and junction boxes, such as gasoline, cleaning lubricants, electronic resurrection agents and other solvents containing alkane substances, as well as special gases discharged from industrial pollution.
2. The connector shall not be in direct contact with the silica gel or the filling and sealing glue. The connector cable shall not be hung or pulled.
3. Handle gently when load , unload and transportation, and not subject to external pressure, so as to avoid damage.
- 4.The staff should be equipped with appropriate electrostatic protected measure.
- 5.When the bottom of the box is spliced with the solar panels, adhesives should be daubed evenly to prevent leakage
6. Pay attention that confluence straps is clean or not , whether it have adhesive or not When they are inserted. Otherwise, it will impact the quality of welding and the generating power of components.
- 7.When the junction box is installed, the positive and negative pole of the same set of junction box can not be inserted together.
- 8.When the positive and negative connections are made, the insertion should be completed, and the positive and negative couplings should be combined to prevent accidental loosening.
9. If do not need to maintenance, please don't open , close plug the connection system frequently.
- 10.Do not plug or unplug under load. This information printed on the connector.(See the connector warning below)
- 11.Outdoor maintenance should be carried out by professionals
- 12.The electrical installation instructions shall include a detailed description of the wiring method to be used in accordance with the National Electrical Code, ANSI/NFPA 70.
- 13.It should not be immersed in water when connected, it should be suspended or rocked.
- 14.In bypass protection, the junction box temperature increases significantly. If the junction box is bypassed for a long time, the aging of the junction box is accelerated. Therefore, necessary maintenance is required.

