并网光伏逆变器出厂检验报告

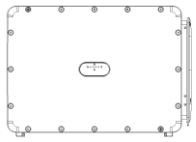
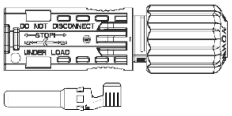
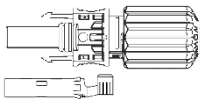
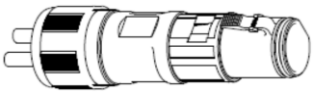
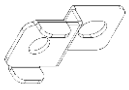
Grid-tied PV Inverter Delivery Inspection Report

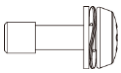
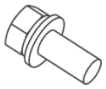
设备名称 Equipment Name		并网光伏逆变器 Grid-tied PV Inverter	设备型号 Equipment Model	150K
检验日期 Date			序列号 ESN	
检验结果 Result				
序号 No.	测试项目 Test Item	项目描述 Description		测试结果 Test Result
1	机体和结构质量检查 Inverter body and structure quality	逆变器外观检验合格。The appearance of the inverter is qualified.		Pass
		直流开关安装无错位、松动。DC switches are installed securely in the right positions.		
		所有警告标示和标签必须正确、规范和清晰，并且贴在正确的位置。All labels and warning symbols are correct, standard, and clear, and attached to the right positions.		
		逆变器的软件版本是否正确。The software version is correct.		
		出厂日期设置是否准确。The delivery time is correct.		
		逆变器上的所有螺钉是否安装合适并锁紧。All screws are installed securely in the right positions.		
		机器包装是否完好无损。The package is intact.		
2	绝缘强度测定 Dielectric strength	直流输入，交流输出对地 2.828kVdc 测试，漏电流小于 10 mA。During the dielectric strength test when the DC input voltage or AC output voltage to PE is 2.828 kV DC, the leakage current is less than 10 mA.		Pass
3	接地电阻测试 Grounding resistance test	所有可触及的活动金属零部件与接地螺母间的电阻不大于 0.1Ω。The resistances between moving metal parts and grounding nut should not be greater than 0.1 ohms.		Pass
4	额定输入，输出 Nominal input and output	逆变器设置额定功率工况下，输出电流或输出功率的偏差应在标称的额定输出的+10%以内。When the inverter is working at the rated power, the deviation of the output current or power should be no greater than +10% of the nominal output.		Pass
5	软启动 Soft startup	逆变器启动运行时，输出功率应缓慢增加，且输出电流无冲击现象。When the inverter is started and works, the output power should increase slowly and no impact occurs to the output current.		Pass
6	自动开关机 Automatic startup/shutdown	能通过逆变器直流电压的调节自动开关机。The inverter automatically starts or shuts down based on the adjustment of the DC voltage.		Pass
7	通讯功能测试 Communication test	逆变器能通过 RS485 端口与 PC 端进行正常通信。The inverter communicates normally with a PC through an RS485 port.		Pass
8	转换效率 Conversion efficiency	逆变器转换效率不低于 98.1%。The conversion efficiency is not less than 98.1%.		Pass
9	并网电流谐波试验 Grid-tied THDi	额定输出功率下，总谐波小于 1%。The THDi is less than 1% under the rated output power.		Pass
10	直流输入过压试验 DC input overvoltage test	直流输入电压高于标称最大值时，逆变器工作异常脱网；直流输入电压恢复正常值后，逆变器重新并网工作。When the DC input voltage is higher than inverter max. nominal voltage, the inverter disconnects from the utility grid automatically. When the DC voltage recovers, the inverter begins to export power to the utility grid		Pass

11	交流输出过/欠压试验 AC output overvoltage/undervoltage test	当逆变器交流输出端电压超出规定的电压范围时，逆变器工作异常脱网；电压恢复正常值后，逆变器重新并网工作。When the AC grid voltage exceeds tolerable range of inverter, the inverter disconnects from the utility grid automatically. When the AC voltage becomes normal, the inverter begins to export power to the utility grid.	Pass
12	交流输出过/欠频试验 AC output overfrequency /underfrequency test	当逆变器交流输出端电压的频率超限时，逆变器工作异常脱网；频率恢复正常值后，逆变器重新并网工作。When the frequency of the inverter AC output terminal voltage exceeds the limit, the inverter disconnects from the utility grid automatically. When the frequency becomes normal, the inverter begins to export power to the utility grid.	Pass
13	防孤岛效应保护试验 Islanding protection	当逆变器达到孤岛状态时，逆变器应在规定时间内自动保护。When islanding conditions are met, the inverter automatically enables protection within the specified time.	Pass
14	恢复并网试验 Grid-tied recovering	逆变器工作异常脱网后，待告警清除可重新并网工作。If the inverter disconnects from the grid due to an exception, it starts working in grid-tied mode after the alarm is cleared.	Pass
15	连续老化测试 Continuous aging	在 50±5 摄氏度老化房环境内，逆变器正常工作。The inverter works normally in a 50±5℃ aging room.	Pass
16	恢复出厂默认值 Restoring factory defaults	逆变器出厂包装前，清除所有历史数据及将所有参数恢复至默认值。All historical data is cleared and all parameters are restored to their default settings before the inverter is packed.	Pass

并网光伏逆变器装箱清单

Grid-tied PV Inverter Packing List

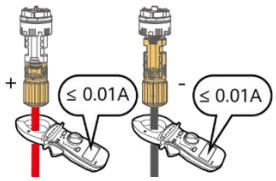
序号 No.	名称 Name	图示 Picture	数量（个） Quantity （PCS） 150 K
1	并网光伏逆变器 Grid-tied PV inverter		1
2	光伏连接器-直公-1Pin-1500V DC-45A PV connector, straight male, 1 pin, 1500V DC, 45 A		21
3	光伏连接器-直母-1Pin-1500V DC-45A PV connector, straight female, 1 pin, 1500V DC, 45A		21
4	圆型连接器-圆形连接器-8pin -直公-防水圆形连接器 Round Connector,8pin,Straight Male,WaterProof Circular Connector		1
5	出厂检验报告/装箱清单 Delivery Inspection Report & Packing List		1
6	合格证(已打印内容) Certificate (printed)		1
7	组合螺栓（固定工程安装件到支架） Bolt assembly （used to secure a mounting bracket to a support）		4
8	工程安装件 Mounting bracket		1
9	工程固定件（固定逆变器到工程安装件） Fixing component（used to secure the inverter to a mounting bracket）		2
10	内梅花螺钉及垫片（固定逆变器到工程安装件）（包含一个备用） Security torx screw and washer （used to secure the inverter to a mounting bracket, one spare part contained）		5
11	内梅花扳手 Security torx wrench		1
12	螺母（固定工程安装件）（包含一个备用） Nut （used to secure a mounting bracket, one spare part contained）		5

13	螺栓垫片（固定工程安装件）（包含一个备用） Washer （used to secure a mounting bracket, one spare part contained）		5
14	交流输出线压线模块 Crimping module for core cables		2
15	维护腔门备用螺钉 Spare screw for the maintenance compartment door		1
16	接地螺栓 Grounding bolt		1

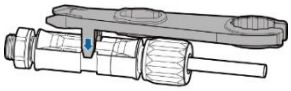
并网光伏逆变器直流侧操作注意事项

⚠ 注意

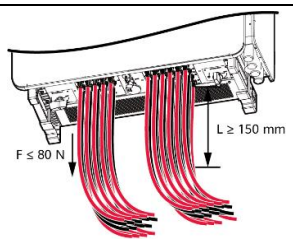
1. 若机器出现直流侧告警，需要详细查阅用户手册或直接联系售后服务人员，未排除故障前禁止上电。
2. 断开直流开关和插拔 PV 连接器前，需要确保逆变器处于关机状态，若需插拔 PV 连接器，需使用钳流表确认组串无电流。



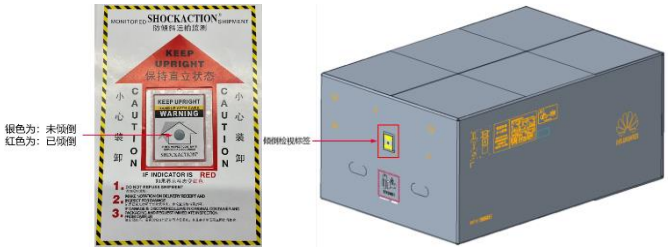
3. 使用拆卸扳手快速将连接器拔出。



4. 敷设光伏线缆时，建议组串正、负极线缆分管走线。
5. 逆变器下方的 PV 直流线缆，从 PV 端子起留出 150mm 以上的自由下垂空间，并在下方有托盘托住或固定组串电缆，避免接线端子受到拉拔应力。

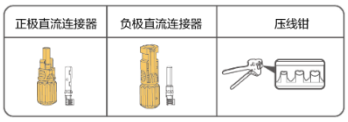


6. 开箱需检查逆变器包装外观各面是否完好无损：无严重折痕、破裂等缺陷；检查包装侧面倾倒警示标签，指示器为银色则未倾倒过，为红色则表明存在倾倒情况。若变红请拍照记录并及时联系售后服务人员确认，未确认前禁止挂装上电。

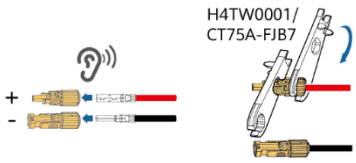


须知

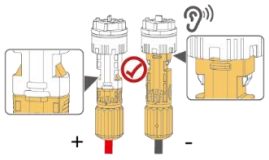
1. 确保使用随箱配发的 PV 连接器，压接工具建议客户购买推荐型号：H4STC0001/ CT75A-FJB10。压接完成后保证 30N 回拉力不脱落，注意回拉时端子不能受损，确保压接良好。



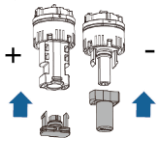
2. 金属端子插入直流连接器时，确保听见明显“咔哒”声，保证接触良好。



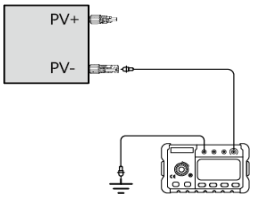
3. 组串侧连接器和逆变器侧连接器对接时，确保听见明显“咔哒”声，保证连接器接触良好。



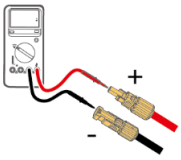
4. 若有长期未接线的 PV 连接器，建议自购买带卡扣防尘帽（型号：CT75A-FJB6/HY024-FHG-3 和 CT75A-FJB5/HY024-FHG-4 ）封堵。



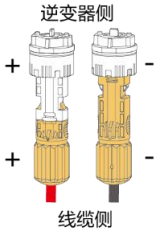
5. 组串接入逆变器前，确保每路组串对地绝缘阻抗正常；
测试方法：用绝缘阻抗测试仪测试 PV-线缆对地绝缘阻抗：在 PV-线缆与地之间加 1100V 直流电压，查看绝缘阻抗值。
   - 若绝缘阻抗≥1MΩ，则正常。
   - 若绝缘阻抗＜1MΩ，则需排查线缆/组串的绝缘问题。



6. 确保组串电压低于铭牌标注的最大输入电压。



7. 确保线缆侧连接器与逆变器侧连接器极性一致，无反接。

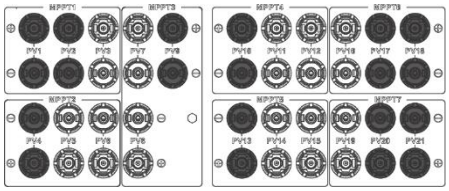
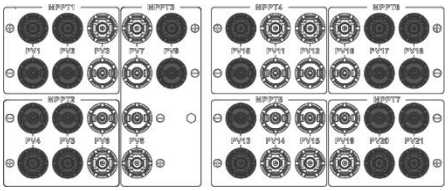
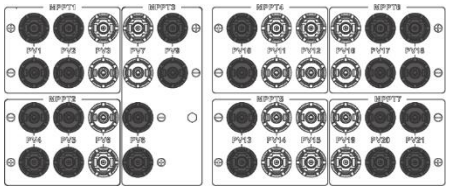
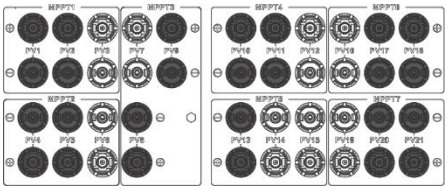
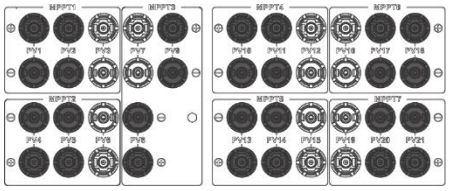
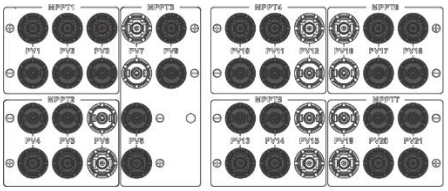
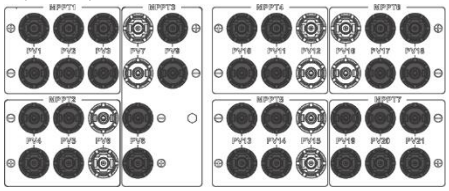
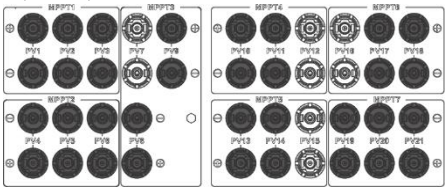
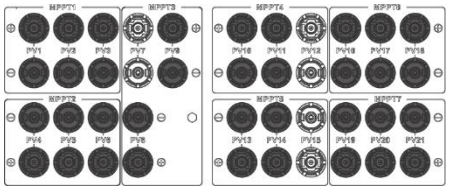
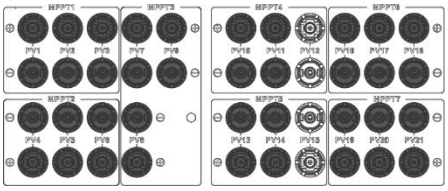
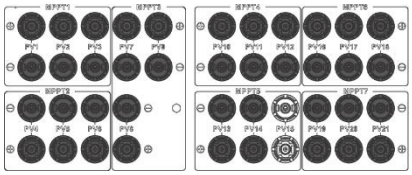


直流输入端子选择需满足如下原则：

1. 将直流输入端子均匀的分布在各 MPPT 上。

例如，当输入组串数为 10～20 时，直流输入端子推荐接法如下。

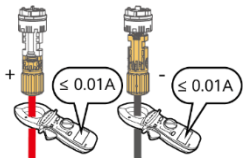
未接入PV组串　已接入PV组串

输入组串数	端子选择		输入组串数	端子选择
10	接 PV1、PV2、PV4、PV9、PV10、PV13、PV17、PV18、PV20、PV21 		11	接 PV1、PV2、PV4、PV5、PV9、PV10、PV13、PV17、PV18、PV20、PV21 
12	接 PV1、PV2、PV4、PV5、PV8~PV10、PV13、PV17、PV18、PV20、PV21 		13	接 PV1、PV2、PV4、PV5、PV8~PV11、PV13、PV17、PV18、PV20、PV21 
14	接 PV1、PV2、PV4、PV5、PV8~PV11、PV13、PV14、PV17、PV18、PV20、PV21 		15	接 PV1~PV5、PV8~PV11、PV13、PV14、PV17、PV18、PV20、PV21 
16	接 PV1~PV5、PV8~PV11、PV13、PV14、PV17~PV21 		17	接 PV1~PV6、PV8~PV11、PV13、PV14、PV17~PV21 
18	接 PV1~PV6、PV8~PV11、PV13、PV14、PV16~PV21 		19	接 PV1~PV11、PV13、PV14、PV16~PV21 
20	接 PV1~ PV14、PV16~PV21 			

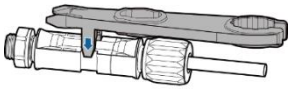
Precautions for Operating on the Inverter DC Side

CAUTION

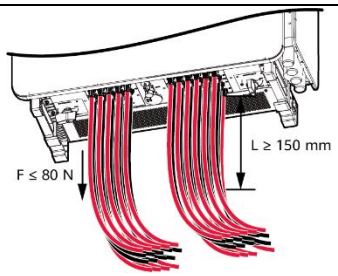
1. If a DC alarm is generated, refer to the user manual or contact after-sales service personnel. Do not power on the inverter before the fault is rectified.
2. Before turning off the DC switch and removing or inserting a PV connector, ensure that the inverter is shut down. If you need to remove or insert a PV connector, use a clamp meter to check that the PV string has no current.



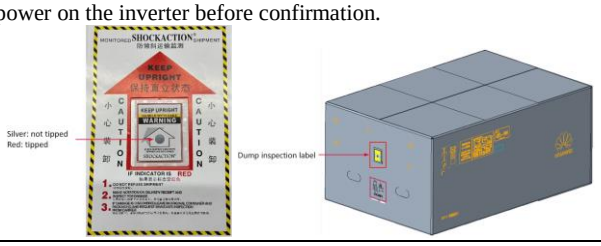
3. Use the spanner to quickly remove a connector.



4. When routing PV cables, it is recommended that the positive and negative PV string cables be routed in different pipes.
5. For the PV DC power cables connected to the bottom of the inverter, leave a slack of at least 150 mm from the PV terminals. A tray is required to hold or secure the PV string cables under the inverter to prevent the wiring terminals from being pulled.

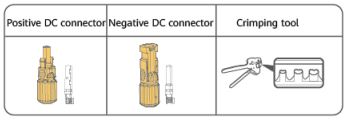


6. Before unpacking, check that the inverter packaging is intact on all sides: there are no serious creases, cracks, or other defects. Check the tipping warning label on the side of the packaging. If the indicator is silver, the package has not been tipped; if it is red, the package has been tipped. If the indicator turns red, take photos to record the situation and promptly contact after-sales service personnel for confirmation. Do not install or power on the inverter before confirmation.

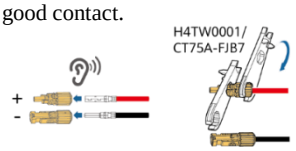


NOTICE

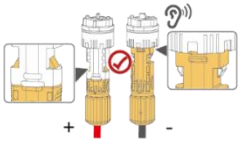
1. Ensure that the delivered PV connectors are used. The recommended crimping tool model is H4STC0001 or CT75A-FJB10. After the crimping is complete, verify that the terminal remains securely attached when subjected to a 30 N pull-back force. Ensure that the terminal is not damaged during this process.



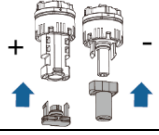
2. When inserting a metal terminal into a DC connector, ensure that you hear a click, indicating good contact.



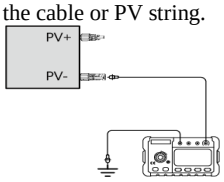
3. When connecting the connector on the PV string side to the connector on the inverter side, ensure that you hear a click, indicating that the connectors are in good contact.



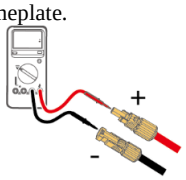
4. If some PV connectors have not been connected for a long time, you are advised to purchase dustproof caps (models: CT75A-FJB6/HY024-FHG-3 and CT75A-FJB5/HY024-FHG-4) with snap-fits to seal them.



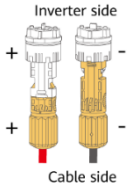
5. Before connecting PV strings to the inverter, ensure that the insulation resistance of each PV string to the ground is normal.
   Test method: Use an insulation resistance tester to test the insulation resistance of the PV– cable to the ground. Add 1100 V DC voltage between the PV– cable and the ground and check the insulation resistance.
   - If the insulation resistance is greater than or equal to 1 MΩ, the insulation resistance is normal.
   - If the insulation resistance is less than 1 MΩ, troubleshoot the insulation fault of the cable or PV string.



6. Ensure that the PV string voltage is lower than the maximum input voltage marked on the nameplate.



7. Ensure that the polarity of the connector on the cable side is the same as that of the connector on the inverter side.

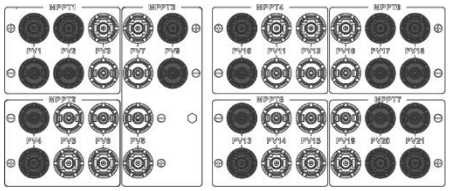
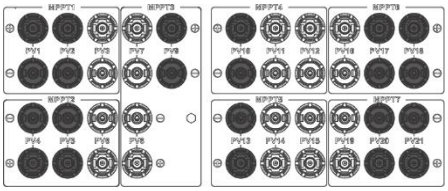
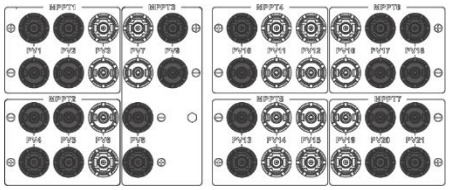
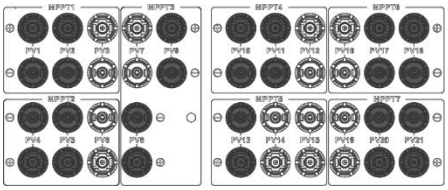
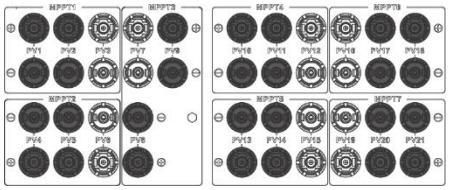
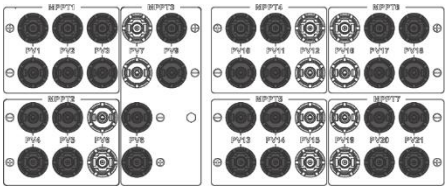
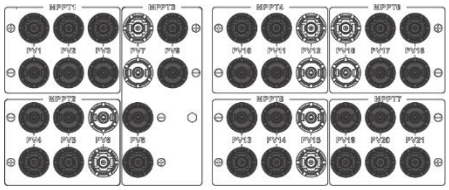
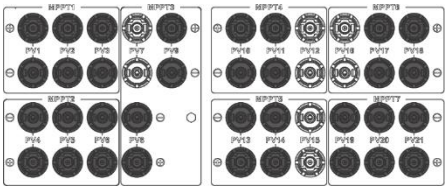
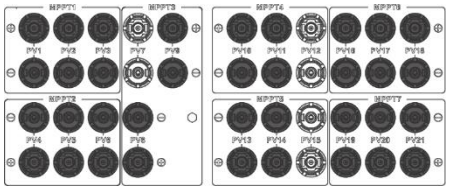
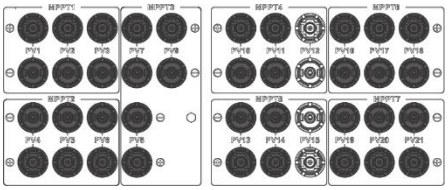


Requirements for selecting DC input terminals:

1. DC input terminals should be evenly distributed on each MPPT.

For example, if there are 10 to 20 PV strings, you are advised to connect DC input terminals as follows.

NO PV string connected PV string connected

Number of PV Strings	Terminal Selection	Number of PV Strings	Terminal Selection	Terminal Selection
10	Connect to PV1、PV2、PV4、PV9、PV10、PV13、PV17、PV18、PV20、PV21 		11	Connect to PV1、PV2、PV4、PV5、PV9、PV10、PV13、PV17、PV18、PV20、PV21 
12	Connect to PV1、PV2、PV4、PV5、PV8~PV10、PV13、PV17、PV18、PV20、PV21 		13	Connect to PV1、PV2、PV4、PV5、PV8~PV11、PV13、PV17、PV18、PV20、PV21 
14	Connect to PV1、PV2、PV4、PV5、PV8~PV11、PV13、PV14、PV17、PV18、PV20、PV21 		15	Connect to PV1~PV5、PV8~PV11、PV13、PV14、PV17、PV18、PV20、PV21 
16	Connect to PV1~PV5、PV8~PV11、PV13、PV14、PV17~PV21 		17	Connect to PV1~PV6、PV8~PV11、PV13、PV14、PV17~PV21 
18	Connect to PV1~PV6、PV8~PV11、PV13、PV14、PV16~PV21 		19	Connect to PV1~PV11、PV13、PV14、PV16~PV21 
20	Connect to PV1~ PV14、PV16~PV21