LUNA2000-(97KWH, 129KWH, 161KWH, 200KWH) Series Smart String ESS

Alarm Reference

Issue 03

Date 2024-01-30

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About This Document

Purpose

This document describes how to handle all alarms of the following products:

- LUNA2000-200KWH-2H0 Smart String ESS
- LUNA2000-200KWH-2H1 Smart String ESS
- LUNA2000-161KWH-2H1 Smart String ESS
- LUNA2000-129KWH-2H1 Smart String ESS
- LUNA2000-97KWH-1H1 Smart String ESS

Intended Audience

The document is intended for:

- Technical support engineers
- Commissioning engineers
- Maintenance engineers

Symbol Conventions

The symbols that may be found in this manual are defined as follows.

Symbol	Description
DANGER	Indicates a hazard with a high level of risk which, if not avoided, will result in death or serious injury.
WARNING	Indicates a hazard with a medium level of risk which, if not avoided, could result in death or serious injury.
CAUTION	Indicates a hazard with a low level of risk which, if not avoided, could result in minor or moderate injury.

Symbol	Description
NOTICE	Indicates a potentially hazardous situation which, if not avoided, could result in equipment damage, data loss, performance deterioration, or unanticipated results. NOTICE is used to address practices not related to personal injury.
NOTE	Supplements the important information in the main text. NOTE is used to address information not related to personal injury, equipment damage, and environment deterioration.

Change History

Changes between document issues are cumulative. The latest document issue contains all the changes made in earlier issues.

Issue 03 (2024-01-30)

Added **2.55 3863 Northbound Communication Certificate Invalid**.

Added **2.56 3864 Northbound Communication Certificate About to Expire**.

Added **2.57 3865 Northbound Communication Certificate Expired**.

Added **2.58 3866 Web Server Certificate Invalid**.

Added **2.59 3867 Web Server Certificate About to Expire**.

Added **2.60 3868 Web Server Certificate Expired**.

Added **2.61 3869 Southbound Communication Certificate Invalid**.

Added **2.62 3870 Southbound Communication Certificate About to Expire**.

Added **2.63 3871 Southbound Communication Certificate Expired**.

Updated **4.1 3027 Battery Pack Monitoring Board Abnormal**.

Updated **4.4 3030 Battery Module Fan Fault**.

Updated **4.16 3047 Battery Pack Undervoltage**.

Updated **4.17 3048 Battery Pack Auxiliary Power Supply Fault**.

Issue 02 (2023-08-01)

Updated **3.16 3034 Rack Controller Cable Connection Abnormal**.

Updated **3.17 3035 Battery Pack Positions of Rack Controller Abnormal**.

Updated **3.19 3042 Rapid Shutdown Cable Connection of Battery Pack Abnormal**.

Updated **4.2 3028 Battery Pack Abnormal**.

Issue 01 (2023-05-09)

This issue is the first official release.

Moved the **Alarm Reference** in the user manual and maintenance manual of the following product to this document:

- LUNA2000-200KWH-2H0 Smart String ESS
- LUNA2000-200KWH-2H1 Smart String ESS
- LUNA2000-161KWH-2H1 Smart String ESS
- LUNA2000-129KWH-2H1 Smart String ESS
- LUNA2000-97KWH-1H1 Smart String ESS

Contents

1 Description of Alarm Reference Items

Item	Description
Alarm ID	Indicates the ID of an alarm. Unique identifier of an alarm in one product.
Alarm Name	Indicates the name of an alarm. In the same product, alarm names and alarm IDs correspond to each other, which clearly and accurately reflect the meaning of alarms.
Alarm Severity	Alarm severities are defined as follows: • Major: The device is faulty or the external environment is abnormal. As a result, the output power decreases or the device stops feeding to the grid. • Minor: Some components of the device are faulty but the device can still connect to the grid and generate power. • Warning: The device functions normally, but its output power decreases or some authorization functions fail due to external factors.
Introduced Since	Indicates the software version in which the alarm is added.
Possible Cause	Indicates the possible cause of the alarm, including the cause ID and cause description.
Suggestion	Indicates the procedure for handling the alarm.

NOTE

- **HVAC-No** indicates the number of the air conditioner.
- **ESC-No** indicates the number of the Smart Rack Controller.
- **ESR-CabinetNo** indicates the number of the battery rack.
- **ESM-SlotNo** indicates the slot number of the battery pack.

2 CMU Alarms

2.1 1105 Device Address Conflict

Alarm Attribute

Alarm ID	Alarm Name	Alarm Severity	Introduced Since
1105	Device Address Conflict	Major	FusionSolar V800R021C10

Possible Cause

Cause ID	Possible Cause
1	The communication address of the current device conflicts with that of the device to be connected.

Suggestion

Change the local address or the address of the device to be connected.

2.2 3800 Water Alarm

Alarm Attribute

Alarm ID	Alarm Name	Alarm Severity	Introduced Since
3800	Water Alarm	Major	FusionSolar V800R021C10

Possible Cause

Cause ID	Possible Cause
1	Water is detected in the battery cabin.

Suggestion

1. Check whether there is water in the cabin. If yes, drain the water.
2. Check whether the devices in the cabin are intact. If yes, manually clear the alarm. If not, replace the damaged devices.

2.3 3801 Door Status Alarm

Alarm Attribute

Alarm ID	Alarm Name	Alarm Severity	Introduced Since
3801	Door Status Alarm	Major	FusionSolar V800R021C10

Possible Cause

Cause ID	Possible Cause
1	Battery cabin door 1 is open.

Suggestion

1. Check whether the cabin doors are completely closed. If not, close the doors completely.
2. Check whether the cable is disconnected from the door status sensor. If yes, connect the cable correctly.
3. Check whether the door status sensor is displaced. If yes, move it back to the original position.

2.4 3804 AC SPD Fault

Alarm Attribute

Alarm ID	Alarm Name	Alarm Severity	Introduced Since
3804	AC SPD Fault	Major	FusionSolar V800R021C10

Possible Cause

Cause ID	Possible Cause
1	AC SPD fault

Suggestion

1. Check whether the AC SPD signal cable is loose.
2. Check whether the color of the AC SPD indicator changes.
3. Replace the AC SPD.

2.5 3805 Air Conditioner Temperature High

Alarm Attribute

Alarm ID	Alarm Name	Alarm Severity	Introduced Since
3805	Air Conditioner Temperature High	Major	FusionSolar V800R021C10

Possible Cause

Cause ID	Possible Cause
1–13	The return air temperature of HVAC-No exceeds the high temperature alarm threshold.

Suggestion

1. Check that the high temperature alarm threshold is set to a proper value. The default value is 45°C.
2. If the preceding threshold is set to a proper value and multiple air conditioners report the alarm, shut down the system and contact your technical support.
3. If only one air conditioner reports the alarm, check other alarms reported by the air conditioner and rectify the faults based on the troubleshooting suggestions. If no other alarm is generated, shut down the air conditioner and contact your technical support.

2.6 3806 Air Conditioner Temperature Low

Alarm Attribute

Alarm ID	Alarm Name	Alarm Severity	Introduced Since
3806	Air Conditioner Temperature Low	Major	FusionSolar V800R021C10

Possible Cause

Cause ID	Possible Cause
1–13	The return air temperature of HVAC-No is below the low temperature alarm threshold.

Suggestion

1. Check that the low temperature alarm threshold is set to a proper value. The default value is –30°C.
2. If the preceding threshold is set to a proper value and multiple air conditioners report the alarm, shut down the system and contact your technical support.
3. If only one air conditioner reports the alarm, check other alarms reported by the air conditioner and rectify the faults based on the troubleshooting suggestions. If no other alarm is generated, shut down the air conditioner and contact your technical support.

2.7 3807 Air Conditioner Internal Fan Fault

Alarm Attribute

Alarm ID	Alarm Name	Alarm Severity	Introduced Since
3807	Air Conditioner Internal Fan Fault	Major	FusionSolar V800R021C10

Possible Cause

Cause ID	Possible Cause
1–13	1. The fan cable of HVAC-No is loose. 2. The fan is damaged.

Suggestion

1. Shut down the system at a proper time.
2. Power off the air conditioner, open the enclosure, and check whether the fan cable is loose. If yes, connect the cable securely. Check whether the fan is damaged or burnt. If yes, contact your technical support.

2.8 3808 Air Conditioner External Fan Fault

Alarm Attribute

Alarm ID	Alarm Name	Alarm Severity	Introduced Since
3808	Air Conditioner External Fan Fault	Major	FusionSolar V800R021C10

Possible Cause

Cause ID	Possible Cause
1–13	1. The fan cable of HVAC-No is loose. 2. The fan is damaged.

Suggestion

1. Shut down the system at a proper time.
2. Power off the air conditioner, open the enclosure, and check whether the fan cable is loose. If yes, connect the cable securely. Check whether the fan is damaged or burnt. If yes, contact your technical support.

2.9 3809 Air Conditioner Compressor Fault

Alarm Attribute

Alarm ID	Alarm Name	Alarm Severity	Introduced Since
3809	Air Conditioner Compressor Fault	Major	FusionSolar V800R021C10

Possible Cause

Cause ID	Possible Cause
1–13	1. The compressor cable of HVAC-No is loose. 2. The compressor is damaged.

Suggestion

1. Shut down the system at a proper time and take safety measures.
2. Power off the air conditioner, open the enclosure, and check whether the compressor cable is loose. If yes, connect the cable securely. Check whether the compressor is damaged or burnt. If yes, contact your technical support.

2.10 3810 Air Conditioner Return Air Temperature Sensor Faulty

Alarm Attribute

Alarm ID	Alarm Name	Alarm Severity	Introduced Since
3810	Air Conditioner Return Air Temperature Sensor Faulty	Major	FusionSolar V800R021C10

Possible Cause

Cause ID	Possible Cause
1–13	1. The cable to the return air temperature sensor on HVAC-No is loose. 2. The sensor is damaged, open-circuited, or short-circuited.

Suggestion

1. Shut down the system at a proper time and take safety measures.
2. Check whether the cable is loose.
3. Replace the return air temperature sensor.

2.11 3811 Air Conditioner Supply Air Temperature Sensor Fault

Alarm Attribute

Alarm ID	Alarm Name	Alarm Severity	Introduced Since
3811	Air Conditioner Supply Air Temperature Sensor Fault	Major	FusionSolar V800R021C10

Possible Cause

Cause ID	Possible Cause
1–13	1. The cable to the supply air temperature sensor on HVAC-No is loose. 2. The sensor is damaged, open-circuited, or short-circuited.

Suggestion

1. Shut down the system at a proper time and take safety measures.
2. Check whether the cable is loose.
3. Replace the supply air temperature sensor.

2.12 3812 Air Conditioner System Pressure High

Alarm Attribute

Alarm ID	Alarm Name	Alarm Severity	Introduced Since
3812	Air Conditioner System Pressure High	Major	FusionSolar V800R021C10

Possible Cause

Cause ID	Possible Cause
1–13	1. The outdoor heat exchanger of HVAC-No is blocked or has scale buildup. 2. The outdoor fan is faulty. 3. The air intake or exhaust vent of the outdoor fan is blocked.

Suggestion

1. Check whether the outdoor heat exchanger is blocked by dirt. If yes, clean it using a high-pressure water gun.
2. Check whether the outdoor fan is running properly. If not, replace it.
3. Check whether the air intake or exhaust vent of the outdoor fan is blocked. If yes, clean the air intake or exhaust vent.
4. If the fault persists, contact your technical support.

2.13 3813 Air Conditioner AC Overvoltage

Alarm Attribute

Alarm ID	Alarm Name	Alarm Severity	Introduced Since
3813	Air Conditioner AC Overvoltage	Major	FusionSolar V800R021C10

Possible Cause

Cause ID	Possible Cause
1–13	1. The auxiliary power cable is incorrectly connected. 2. The main control board of HVAC-No is faulty. 3. The overvoltage alarm threshold is incorrect.

Suggestion

1. Check that the AC overvoltage alarm threshold is set to a proper value. The default value is 264 V.
2. If the preceding threshold is set properly, measure the voltage of the air conditioner wiring terminal. If the voltage is approximately 380 V, the auxiliary power cable is incorrectly connected. In this case, disconnect the auxiliary power supply and reconnect the cable correctly.
3. If the voltage is approximately 220 V, contact your technical support.

2.14 3814 Air Conditioner AC Undervoltage

Alarm Attribute

Alarm ID	Alarm Name	Alarm Severity	Introduced Since
3814	Air Conditioner AC Undervoltage	Major	FusionSolar V800R021C10

Possible Cause

Cause ID	Possible Cause
1–13	1. The power cable of HVAC-No is loose. 2. The model of auxiliary power supply is incorrect. 3. The main control board is faulty. 4. The undervoltage alarm threshold is incorrect.

Suggestion

1. Check that the AC undervoltage alarm threshold is set to a proper value. The default value is 176 V.
2. If the preceding threshold is set properly, measure the voltage of the air conditioner wiring terminal. If the voltage is approximately 110 V or 127 V, the model of the auxiliary power supply is incorrect. In this case, disconnect the auxiliary power supply immediately and replace it with a 380 V power supply.
3. If the voltage is lower than 150 V, check whether the cable is loose.
4. If the voltage is approximately 220 V, contact your technical support.

2.15 3816 Air Conditioner Evaporator Temperature Sensor Fault

Alarm Attribute

Alarm ID	Alarm Name	Alarm Severity	Introduced Since
3816	Air Conditioner Evaporator Temperature Sensor Fault	Minor	FusionSolar V800R021C10

Possible Cause

Cause ID	Possible Cause
1–13	1. The cable to the evaporator temperature sensor on HVAC-No is loose. 2. The sensor is damaged, open-circuited, or short-circuited.

Suggestion

1. Shut down the system at a proper time and take safety measures.
2. Check whether the cable is loose.
3. Replace the evaporator temperature sensor.

2.16 3817 Air Conditioner Condenser Temperature Sensor Fault

Alarm Attribute

Alarm ID	Alarm Name	Alarm Severity	Introduced Since
3817	Air Conditioner Condenser Temperature Sensor Fault	Minor	FusionSolar V800R021C10

Possible Cause

Cause ID	Possible Cause
1–13	1. [HVAC-No]The cable is not connected securely or correctly. 2. The sensor is damaged, open-circuited, or short-circuited.

Suggestion

1. Shut down the system at a proper time and take safety measures.
2. Check whether the cable is loose.
3. Replace the condenser temperature sensor.

2.17 3818 Air Conditioner Ambient Temperature Sensor Fault

Alarm Attribute

Alarm ID	Alarm Name	Alarm Severity	Introduced Since
3818	Air Conditioner Ambient Temperature Sensor Fault	Minor	FusionSolar V800R021C10

Possible Cause

Cause ID	Possible Cause
1–13	1. [HVAC-No]The cable is not connected securely or correctly. 2. The sensor is damaged, open-circuited, or short-circuited.

Suggestion

1. Shut down the system at a proper time and take safety measures.
2. Check whether the cable is loose.
3. Replace the ambient temperature sensor.

2.18 3819 Air Conditioner Evaporator Frozen

Alarm Attribute

Alarm ID	Alarm Name	Alarm Severity	Introduced Since
3819	Air Conditioner Evaporator Frozen	Minor	FusionSolar V800R021C10

Possible Cause

Cause ID	Possible Cause
1–13	1. [HVAC-No]The air intake or exhaust of the cabinet is blocked. 2. The indoor fan is faulty. 3. The cooling system cannot be shut down in a timely manner. 4. The evaporator temperature sensor is faulty.

Suggestion

1. Check whether the air intake or exhaust vent of the CMU cabin is blocked. If yes, clean it.
2. If the fault persists, contact your technical support.

2.19 3820 Air Conditioner System Pressure Frequently High

Alarm Attribute

Alarm ID	Alarm Name	Alarm Severity	Introduced Since
3820	Air Conditioner System Pressure Frequently High	Major	FusionSolar V800R021C10

Possible Cause

Cause ID	Possible Cause
1–13	1. [HVAC-No]The condenser is blocked or has scale. 2. The condenser fan is faulty. 3. The external air flow experiences a shortcut or is blocked.

Suggestion

1. Check whether the outdoor heat exchanger is blocked by dirt. If yes, clean it using a high-pressure water gun.
2. Check whether the outdoor fan is running properly. If not, replace it.
3. Check whether the air intake or exhaust vent of the outdoor fan is blocked. If yes, clean the air intake or exhaust vent.
4. If the fault persists, contact your technical support.

2.20 3821 Air Conditioner DC Overvoltage

Alarm Attribute

Alarm ID	Alarm Name	Alarm Severity	Introduced Since
3821	Air Conditioner DC Overvoltage	Major	FusionSolar V800R021C10

Possible Cause

Cause ID	Possible Cause
1–13	1. [HVAC-No] The input voltage is higher than the overvoltage threshold. 2. The overvoltage threshold setting is improper. 3. The voltage test device is faulty.

Suggestion

1. Check that the DC overvoltage alarm threshold is set to a proper value. The default value is 58 V.
2. If the preceding threshold is set properly, measure and record the power voltage of the air conditioner and contact your technical support.

2.21 3822 Air Conditioner DC Undervoltage

Alarm Attribute

Alarm ID	Alarm Name	Alarm Severity	Introduced Since
3822	Air Conditioner DC Undervoltage	Major	FusionSolar V800R021C10

Possible Cause

Cause ID	Possible Cause
1–13	1. [HVAC-No] The input voltage is lower than the undervoltage threshold. 2. The undervoltage threshold setting is improper. 3. The voltage test device is faulty.

Suggestion

1. Check that the DC undervoltage alarm threshold is set to a proper value. The default value is 42 V.
2. If the preceding threshold is set properly, measure and record the power voltage of the air conditioner and contact your technical support.

2.22 3825 UPS Alarm

Alarm Attribute

Alarm ID	Alarm Name	Alarm Severity	Introduced Since
3825	UPS Alarm	Major	FusionSolar V800R021C10

Possible Cause

Cause ID	Possible Cause
1	A UPS alarm has been generated.

Suggestion

Troubleshoot the fault by referring to the alarm troubleshooting section in the UPS user manual.

2.23 3826 Combustible Gas Alarm

Alarm Attribute

Alarm ID	Alarm Name	Alarm Severity	Introduced Since
3826	Combustible Gas Alarm	Major	FusionSolar V800R021C10

Possible Cause

Cause ID	Possible Cause
1	1. The safety valve of the lithium battery is open, and combustible gas is leaked. 2. Lithium battery thermal runaway has occurred.

Suggestion

1. Remotely monitor the system for 30 minutes to check whether other exceptions (such as abnormal temperature, abnormal battery voltage,

abnormal battery temperature, and exhaust fan startup) occur. If yes, ensure that the ESS is shut down. During remote monitoring, do not approach the battery cabin or open the cabin doors.

2. If no exception is found during the remote monitoring, assign trained personnel to the site and observe the system for 30 minutes from a safe distance. If there is smoke or fire, evacuate onsite personnel as soon as possible, and call the fire emergency service.
3. If no exception is found during remote monitoring and onsite observation, manually clear the alarm. If the alarm clearance fails, contact your technical support.

2.24 3827 Ambient Temperature High

Alarm Attribute

Alarm ID	Alarm Name	Alarm Severity	Introduced Since
3827	Ambient Temperature High	Major	FusionSolar V800R021C10

Possible Cause

Cause ID	Possible Cause
1	The ambient temperature in the battery cabin is too high, which triggers system shutdown.

Suggestion

1. Check whether the air conditioners in the battery cabin are faulty.
2. Check whether the doors of the battery cabin are completely closed.
3. After the battery cabin temperature and battery rack temperature drop to below 58°C, manually clear the alarm. If the alarm persists, contact your technical support.

2.25 3828 Condensation Risk

Alarm Attribute

Alarm ID	Alarm Name	Alarm Severity	Introduced Since
3828	Condensation Risk	Minor	FusionSolar V800R021C10

Possible Cause

Cause ID	Possible Cause
1	Condensation risk exists in the battery cabin.

Suggestion

1. This alarm indicates that the cabin needs to be dehumidified. Ensure that the temperature control mode is set to automatic.
2. If the alarm persists for more than 30 minutes, check whether the air conditioner in the battery cabin is normal and whether the cabin doors are completely closed.

2.26 3829 Temperature and Humidity Detecting Failure

Alarm Attribute

Alarm ID	Alarm Name	Alarm Severity	Introduced Since
3829	Temperature and Humidity Detecting Failure	Minor	FusionSolar V800R021C10

Possible Cause

Cause ID	Possible Cause
1	There are too many faulty temperature and humidity sensors in the battery cabin.

Suggestion

1. Repair the temperature and humidity sensor based on the alarm.
2. On the Maintenance page, check that the temperature and humidity sensors are properly connected.

2.27 3830 Temperature and Humidity Control Failure

Alarm Attribute

Alarm ID	Alarm Name	Alarm Severity	Introduced Since
3830	Temperature and Humidity Control Failure	Major	FusionSolar V800R021C10

Possible Cause

Cause ID	Possible Cause
1	Too many air conditioners in the battery cabin are faulty. As a result, the temperature and humidity in the battery cabin cannot be controlled properly.

Suggestion

1. Repair the air conditioner based on the alarm.
2. On the Maintenance page, check that the HVAC is properly connected.

2.28 3831 Built-in Fire Suppression Module Pressure Low

Alarm Attribute

Alarm ID	Alarm Name	Alarm Severity	Introduced Since
3831	Built-in Fire Suppression Module Pressure Low	Minor	FusionSolar V800R021C10

Possible Cause

Cause ID	Possible Cause
1	1. The pressure of the fire suppression module is insufficient. 2. The network cable from the fire suppression module is not securely connected to the DI port on the CMU.

Suggestion

1. Check whether the pressure gauge pointer is in the green area. If yes, check whether the network cable from the fire suppression module is securely connected to the DI port on the CMU.
2. If not, replace the fire suppression module as soon as possible by referring to the maintenance manual. Otherwise, the system will automatically shut down three days later.

2.29 3832 Fire Alarm

Alarm Attribute

Alarm ID	Alarm Name	Alarm Severity	Introduced Since
3832	Fire Alarm	Major	FusionSolar V800R021C10

Possible Cause

Cause ID	Possible Cause
1	Smoke or overheating is detected in the battery cabinet.
2	A fire has been detected in the battery cabin.

Suggestion

Cause ID = 1

1. Remotely monitor the system for 30 minutes to check whether other exceptions (such as abnormal temperature, battery voltage, battery temperature, and combustible gas concentration) occur. If yes, remotely shut

down the system. During remote monitoring, do not approach the battery cabin or open the cabin doors.

2. If no exception is found during the remote monitoring, assign trained personnel to the site and observe the system for 30 minutes from a safe distance. If there is smoke or fire, remotely shut down the system, evacuate onsite personnel as soon as possible, and call the fire emergency service.
3. If no exception is found during remote monitoring or onsite observation, open the doors of the control unit cabin and check whether the Extinguishant Control Panel generates an alarm. If yes, reset the fire alarm on the Extinguishant Control Panel (Opening the cabin door in a high-temperature and high-humidity environment may cause condensation and trigger a false smoke detector alarm. In this case, reset the fire suppression system 20 minutes later). If the fire alarm reset fails, contact your technical support.
4. If the fire alarm is reset successfully, manually clear the active alarm remotely. If the alarm persists, contact your technical support.

Cause ID = 2

1. Do not open the cabin doors, evacuate onsite personnel, and call the fire emergency service.
2. For details, see the "Emergency Handling Plan" section in the maintenance manual.
3. Contact your technical support.

2.30 3833 Rectifier Fault

Alarm Attribute

Alarm ID	Alarm Name	Alarm Severity	Introduced Since
3833	Rectifier Fault	Major	FusionSolar V800R021C10

Possible Cause

Cause ID	Possible Cause
1–6	The rectifier hardware is damaged.

Suggestion

NOTE

If the "3833 Rectifier Fault" alarm is generated, rectify the fault by referring to **A Rectifier Indicator Status Description and Handling Suggestions**.

1. Replace rectifier [No.].
2. If the fault persists, contact your technical support.

2.31 3834 Rectifier Protection

Alarm Attribute

Alarm ID	Alarm Name	Alarm Severity	Introduced Since
3834	Rectifier Protection	Major	FusionSolar V800R021C10

Possible Cause

Cause ID	Possible Cause
1–6	1. The AC voltage is abnormal. 2. The ambient temperature too high. 3. The rectifier is faulty.

Suggestion

NOTE

If the "3834 Rectifier Protection" alarm is generated, rectify the fault by referring to **A Rectifier Indicator Status Description and Handling Suggestions**.

1. Check whether the AC input voltage is greater than 300 V. If yes, check the power supply.
2. Check whether the air vent of rectifier [No.] is blocked. If yes, clean it. Check whether there is a heat source near the air vent. If yes, remove the heat source. Check whether the heat dissipation fan is damaged. If yes, replace the rectifier.
3. If the fault persists, contact your technical support.

2.32 3835 Rectifier Communication Failure

Alarm Attribute

Alarm ID	Alarm Name	Alarm Severity	Introduced Since
3835	Rectifier Communication Failure	Major	FusionSolar V800R021C10

Possible Cause

Cause ID	Possible Cause
1–6	1. The rectifier has been removed. 2. The rectifier is faulty.

Suggestion

NOTE

If the "3835 Rectifier Communication Failure" alarm is generated, rectify the fault by referring to **A Rectifier Indicator Status Description and Handling Suggestions**.

1. Turn off the AC input switch of the PSU.
2. Remove rectifier [No.] and insert it again.
3. If the fault persists, replace rectifier [No.] or the monitoring module.
4. If the fault persists, contact your technical support.

2.33 3836 Rectifier Power Failure

Alarm Attribute

Alarm ID	Alarm Name	Alarm Severity	Introduced Since
3836	Rectifier Power Failure	Major	FusionSolar V800R021C10

Possible Cause

Cause ID	Possible Cause
1–6	1. The AC loop is disconnected. 2. The rectifier is faulty.

Suggestion

NOTE

If the "3836 Rectifier Power Failure" alarm is generated, rectify the fault by referring to **A Rectifier Indicator Status Description and Handling Suggestions**.

1. Check whether the AC input voltage is less than 80 V. If yes, check the power supply. If not, replace rectifier [No.].
2. If the fault persists, contact your technical support.

2.34 3837 Rectifier Output Overvoltage

Alarm Attribute

Alarm ID	Alarm Name	Alarm Severity	Introduced Since
3837	Rectifier Output Overvoltage	Major	FusionSolar V800R021C10

Possible Cause

Cause ID	Possible Cause
1–6	1. Lockout has occurred due to output overvoltage. 2. The rectifier is faulty.

Suggestion

NOTE

If the "3837 Rectifier Output Overvoltage" alarm is generated, rectify the fault by referring to **A Rectifier Indicator Status Description and Handling Suggestions**.

1. Turn off the AC input switch of the PSU.
2. Remove rectifier [No.] and insert it again.
3. If the fault persists, replace rectifier [No.] or the monitoring module.
4. If the fault persists, contact your technical support.

2.35 3838 T/H Sensor Communication Failure

Alarm Attribute

Alarm ID	Alarm Name	Alarm Severity	Introduced Since
3838	T/H Sensor Communication Failure	Minor	FusionSolar V800R021C10

Possible Cause

Cause ID	Possible Cause
1	T/H sensor-1 communication failed.

Suggestion

1. Check whether the communication cable is correctly connected to the device by referring to the configuration manual. If not, reconnect the cable properly.
2. Check whether the power supply of the device is normal. If not, contact your technical support.

T/H sensor position description of LUNA2000-200KWH series:

Sensor-1: ESR1

2.36 3839 Air Conditioner Communication Failure

Alarm Attribute

Alarm ID	Alarm Name	Alarm Severity	Introduced Since
3839	Air Conditioner Communication Failure	Minor	FusionSolar V800R021C10

Possible Cause

Cause ID	Possible Cause
1	HVAC-1 communication failed.
2	HVAC-2 communication failed.

Suggestion

1. Check whether the communication cable is correctly connected to the device by referring to the configuration manual. If not, reconnect the cable properly.
2. Check whether the power cable of the device is loose. If yes, connect the cable securely.
3. If the fault persists, contact your technical support.

2.37 3840 CO Sensor Communication Failure

Alarm Attribute

Alarm ID	Alarm Name	Alarm Severity	Introduced Since
3840	CO Sensor Communication Failure	Minor	FusionSolar V800R021C10

Possible Cause

Cause ID	Possible Cause
1	CO sensor-1 communication failed.
2	CO sensor-2 communication failed.

Suggestion

1. Check whether the communication cable is correctly connected to the device by referring to the configuration manual. If not, reconnect the cable properly.
2. Check whether the power supply of the device is normal. If not, contact your technical support.

2.38 3842 ESC Communication Failure

Alarm Attribute

Alarm ID	Alarm Name	Alarm Severity	Introduced Since
3842	ESC Communication Failure	Minor	FusionSolar V800R021C10

Possible Cause

Cause ID	Possible Cause
1	ESC-1 communication failed.

Suggestion

1. Check whether the communication cable is correctly connected to the device by referring to the configuration manual. If not, reconnect the cable properly.
2. Check whether the power cable of the device is loose. If yes, connect the cable securely.
3. If the fault persists, contact your technical support.

2.39 3843 TCU Communication Failure

Alarm Attribute

Alarm ID	Alarm Name	Alarm Severity	Introduced Since
3843	TCU Communication Failure	Minor	FusionSolar V800R021C10

Possible Cause

Cause ID	Possible Cause
1	TCU-1 communication failed.

Suggestion

1. Turn off the TCU power switch.
2. Check whether the communication cable is correctly connected to the device by referring to the configuration manual. If not, reconnect the cable properly.
3. Check whether the power supply of the device is normal. If not, contact your technical support.

2.40 3844 SMU Communication Failure

Alarm Attribute

Alarm ID	Alarm Name	Alarm Severity	Introduced Since
3844	SMU Communication Failure	Minor	FusionSolar V800R021C10

Possible Cause

Cause ID	Possible Cause
1	SMU communication failed.

Suggestion

1. Check whether the communication cable is correctly connected to the device by referring to the configuration manual. If not, reconnect the cable properly.
2. Check whether the power cable of the device is loose. If yes, connect the cable securely.
3. If the fault persists, contact your technical support.

2.41 3845 SmartModule Communication Failure

Alarm Attribute

Alarm ID	Alarm Name	Alarm Severity	Introduced Since
3845	SmartModule Communication Failure	Minor	FusionSolar V800R021C10

Possible Cause

Cause ID	Possible Cause
1	SmartModule communication failed.

Suggestion

1. Check whether the communication cable is correctly connected to the device by referring to the configuration manual. If not, reconnect the cable properly.
2. Check whether the power cable of the device is loose. If yes, connect the cable securely.
3. Check whether a certificate expiration alarm is displayed in the alarm list. If yes, contact your technical support.
4. If the fault persists, contact your technical support.

2.42 3847 Built-in Fire Suppression Pressure Low for Extended Periods

Alarm Attribute

Alarm ID	Alarm Name	Alarm Severity	Introduced Since
3847	Built-in Fire Suppression Pressure Low for Extended Periods	Major	FusionSolar V800R021C10

Possible Cause

Cause ID	Possible Cause
1	The gas pressure of the built-in fire suppression module has been low for more than 3 days.

Suggestion

Check whether the pressure gauge pointer of the fire suppression module is in the green area. If not, replace the fire suppression module.

2.43 3848 T/H Control Mode: Manual

Alarm Attribute

Alarm ID	Alarm Name	Alarm Severity	Introduced Since
3848	T/H Control Mode: Manual	Minor	FusionSolar V800R021C10

Possible Cause

Cause ID	Possible Cause
1	The temperature and humidity control mode is set to manual.

Suggestion

After the commissioning is complete, set the temperature and humidity control mode to automatic.

2.44 3849 Air Exhaust Malfunction

Alarm Attribute

Alarm ID	Alarm Name	Alarm Severity	Introduced Since
3849	Air Exhaust Malfunction	Major	FusionSolar V800R021C10

Possible Cause

Cause ID	Possible Cause
1	There are too many faulty exhaust fans.
2	There are too many faulty TCUs.

Suggestion

Cause ID = 1

Repair the exhaust fan based on the fault alarm.

Cause ID = 2

1. Repair the exhaust fan based on the fault alarm.
2. On the Maintenance page, check that the TCU is properly connected.

2.45 3850 Combustible Gas Detection Malfunction

Alarm Attribute

Alarm ID	Alarm Name	Alarm Severity	Introduced Since
3850	Combustible Gas Detection Malfunction	Major	FusionSolar V800R021C10

Possible Cause

Cause ID	Possible Cause
1	There are too many faulty combustible gas sensors.

Suggestion

1. Repair the combustible gas sensor based on the fault alarm.
2. On the Maintenance page, check that the combustible gas sensor is properly connected.

2.46 3851 Exhaust Fan Faulty

Alarm Attribute

Alarm ID	Alarm Name	Alarm Severity	Introduced Since
3851	Exhaust Fan Faulty	Minor	FusionSolar V800R021C10

Possible Cause

Cause ID	Possible Cause
1	Exhaust fan-1 is faulty.
2	Exhaust fan-2 is faulty.

Suggestion

1. By default, the system starts the exhaust fan self-test at 02:00. If the system is not powered on during this period, change the "Exhaust function self-test time" and start the exhaust fan self-test.
2. Check whether the indicator on the TCU is on. If it is off, check whether the power indicator on the PSU is on. If it is off, check whether the AC auxiliary power supply is normal.
3. Check whether the cable to the exhaust fan is loose. If yes, reconnect the cable. Check whether the fan is damaged or burnt. If yes, replace the fan.
4. Check whether the TCU connected to the exhaust fan works properly.
5. If the fault persists, contact your technical support.

Fan position description LUNA2000-200KWH series:

- Fan 1: Exhaust fan 1

- Fan 2: Exhaust fan 2

2.47 3852 Ambient Temperature Low

Alarm Attribute

Alarm ID	Alarm Name	Alarm Severity	Introduced Since
3852	Ambient Temperature Low	Major	FusionSolar V800R021C10

Possible Cause

Cause ID	Possible Cause
1	The ambient temperature in the battery cabin is too low.

Suggestion

1. Check whether the air conditioners in the battery cabin are faulty.
2. Check whether the doors of the battery cabin are completely closed.

2.48 3853 ESC Physical Location Failure

Alarm Attribute

Alarm ID	Alarm Name	Alarm Severity	Introduced Since
3853	ESC Physical Location Failure	Minor	FusionSolar V800R021C10

Possible Cause

Cause ID	Possible Cause
1	ESC Physical Location Failure

Suggestion

1. Check whether the network connections between the ESCs are normal.
2. Check whether the network connections between the CMU and the first and last nodes of the ESC are normal.

3. Check whether the RS485 cable between ESC-1 and the CMU is properly connected.

2.49 3856 Battery Fault Protection

Alarm Attribute

Alarm ID	Alarm Name	Alarm Severity	Introduced Since
3856	Battery Fault Protection	Major	FusionSolar V800R021C10

Possible Cause

Cause ID	Possible Cause
1	Some battery packs are severely faulty, causing the system to shut down.
2	The temperature of some battery packs is too low. As a result, charge capacity is not reached due to low temperature protection.

Suggestion

Maintain the battery pack based on the alarm and troubleshooting suggestions.

2.50 3857 Memory Exception

Alarm Attribute

Alarm ID	Alarm Name	Alarm Severity	Introduced Since
3857	Memory Exception	Minor	FusionSolar V800R021C10

Possible Cause

Cause ID	Possible Cause
1	1. The storage space is insufficient. 2. The memory is faulty.

Suggestion

Contact your technical support.

2.51 3858 48V DC Auxiliary Power Failure

Alarm Attribute

Alarm ID	Alarm Name	Alarm Severity	Introduced Since
3858	48V DC Auxiliary Power Failure	Major	FusionSolar V800R021C10

Possible Cause

Cause ID	Possible Cause
1	1. The rectifier is faulty. 2. The SMU communication is faulty or the SMU is not connected.

Suggestion

1. Check whether the rectifier is installed correctly.
2. Maintain the rectifier based on the alarm and troubleshooting suggestions.
3. Check whether the SMU has been added to the device list.
4. Maintain the SMU based on the alarm and troubleshooting suggestions.

2.52 3859 Forced Dehumidification Started

Alarm Attribute

Alarm ID	Alarm Name	Alarm Severity	Introduced Since
3859	Forced Dehumidification Started	Major	FusionSolar V800R021C10

Possible Cause

Cause ID	Possible Cause
1	1. Forced dehumidification has been manually started. 2. To avoid condensation in the cabinet after the cabinet door is opened, the system automatically starts forced dehumidification.

Suggestion

1. Wait for 20 to 30 minutes for the system to automatically stop forced dehumidification.
2. If you manually start forced dehumidification, the system will shut down after forced dehumidification is completed. You need to manually start the system.
3. If forced dehumidification is automatically started, the system automatically restores to the original state after forced dehumidification is completed.

2.53 3860 IO Expansion Board Fault

Alarm Attribute

Alarm ID	Alarm Name	Alarm Severity	Introduced Since
3860	IO Expansion Board Fault	Minor	FusionSolar V800R023C00

Possible Cause

Cause ID	Possible Cause
1	The IO expansion board is faulty.

Suggestion

1. Check whether the cable between the I/O expansion board and the CMU (RS485-1) is correctly connected. If not, reconnect the cable.
2. Check whether the power cable of the I/O expansion board is loose. If yes, connect the cable securely.
3. If the fault persists, contact your technical support.

2.54 3861 CO Sensor Fault

Alarm Attribute

Alarm ID	Alarm Name	Alarm Severity	Introduced Since
3861	CO Sensor Fault	Minor	FusionSolar V800R023C00

Possible Cause

Cause ID	Possible Cause
1	CO sensor-1 fault
2	CO sensor-2 fault

Suggestion

1. Locate the faulty CO sensor based on the alarm information.
2. Remove and reconnect the RJ45 connector of the sensor. About 20 minutes later, check the alarm information.
3. If the alarm persists, contact your technical support.

2.55 3863 Northbound Communication Certificate Invalid

Alarm Attribute

Alarm ID	Alarm Name	Alarm Severity	Introduced Since
3863	Northbound Communication Certificate Invalid	Warning	LUNA2000B V100R023C00

Possible Cause

Cause ID	Possible Cause
1	The northbound communication certificate is invalid.

Suggestion

Check the system time or replace the certificate.

2.56 3864 Northbound Communication Certificate About to Expire

Alarm Attribute

Alarm ID	Alarm Name	Alarm Severity	Introduced Since
3864	Northbound Communication Certificate About to Expire	Warning	LUNA2000B V100R023C00

Possible Cause

Cause ID	Possible Cause
1	The northbound communication certificate is about to expire.

Suggestion

Replace the certificate before expiration.

2.57 3865 Northbound Communication Certificate Expired

Alarm Attribute

Alarm ID	Alarm Name	Alarm Severity	Introduced Since
3865	Northbound Communication Certificate Expired	Major	LUNA2000B V100R023C00

Possible Cause

Cause ID	Possible Cause
1	The northbound communication certificate has expired.

Suggestion

Replace the certificate immediately.

2.58 3866 Web Server Certificate Invalid

Alarm Attribute

Alarm ID	Alarm Name	Alarm Severity	Introduced Since
3866	Web Server Certificate Invalid	Warning	LUNA2000B V100R023C00

Possible Cause

Cause ID	Possible Cause
1	The web server certificate is invalid.

Suggestion

Check the system time or replace the certificate.

2.59 3867 Web Server Certificate About to Expire

Alarm Attribute

Alarm ID	Alarm Name	Alarm Severity	Introduced Since
3867	Web Server Certificate About to Expire	Warning	LUNA2000B V100R023C00

Possible Cause

Cause ID	Possible Cause
1	The web server certificate is about to expire.

Suggestion

Replace the certificate before expiration.

2.60 3868 Web Server Certificate Expired

Alarm Attribute

Alarm ID	Alarm Name	Alarm Severity	Introduced Since
3868	Web Server Certificate Expired	Major	LUNA2000B V100R023C00

Possible Cause

Cause ID	Possible Cause
1	The web server certificate has expired.

Suggestion

Replace the certificate immediately.

2.61 3869 Southbound Communication Certificate Invalid

Alarm Attribute

Alarm ID	Alarm Name	Alarm Severity	Introduced Since
3869	Southbound Communication Certificate Invalid	Warning	LUNA2000B V100R023C00

Possible Cause

Cause ID	Possible Cause
1	The southbound communication certificate is invalid.

Suggestion

Check the system time or replace the certificate.

2.62 3870 Southbound Communication Certificate About to Expire

Alarm Attribute

Alarm ID	Alarm Name	Alarm Severity	Introduced Since
3870	Southbound Communication Certificate About to Expire	Warning	LUNA2000B V100R023C00

Possible Cause

Cause ID	Possible Cause
1	The southbound communication certificate is about to expire.

Suggestion

Replace the certificate before expiration.

2.63 3871 Southbound Communication Certificate Expired

Alarm Attribute

Alarm ID	Alarm Name	Alarm Severity	Introduced Since
3871	Southbound Communication Certificate Expired	Major	LUNA2000B V100R023C00

Possible Cause

Cause ID	Possible Cause
1	The southbound communication certificate has expired.

Suggestion

Replace the certificate immediately.

3 ESC and BCU Alarms

3.1 3013 Battery Pack Communication of Rack Controller Abnormal

Alarm Attribute

Alarm ID	Alarm Name	Alarm Severity	Introduced Since
3013	Battery Pack Communication of Rack Controller Abnormal	Major	FusionSolar V800R021C10

Possible Cause

Cause ID	Possible Cause
2	The rack controller fails to communicate with the battery pack.

Suggestion

1. Determine the positions of the input and output circuit breakers of the ESC and the AC input power switch of the PSU corresponding to [ESR-CabinetNo ESM-SlotNo].
2. Issue a hibernation command to all ESRs, and turn off the switch on the battery side, the switch on the bus side, and the AC input power switch of the PSU. Then wait for 5 minutes.
3. Check whether the J1/J2 communications cable (aviation plug) and the [ESR-CabinetNo ESM-SlotNo] communications cable are securely connected.
4. Turn on the AC input power switch of the PSU, the switch on the battery side, and the switch on the bus side in sequence, and issue a running command.

5. If the alarm persists, contact the vendor or technical support.

3.2 3014 Rack Controller Abnormal

Alarm Attribute

Alarm ID	Alarm Name	Alarm Severity	Introduced Since
3014	Rack Controller Abnormal	Major	FusionSolar V800R021C10

Possible Cause

Cause ID	Possible Cause
1–34	A major fault has occurred on the internal circuit of the rack controller.

Suggestion

1. Locate the input and output circuit breakers associated with [ESC-No].
2. Issue a shutdown command to the ESR associated with the ESC, turn off the switch on the battery side and then the switch on the bus side, and wait for 5 minutes.
3. Turn on the switch on the battery side and the switch on the bus side in sequence, and issue a running command.
4. If the alarm persists, contact your dealer or technical support.

3.3 3015 Battery Side Overvoltage on Rack Controller

Alarm Attribute

Alarm ID	Alarm Name	Alarm Severity	Introduced Since
3015	Battery Side Overvoltage on Rack Controller	Major	FusionSolar V800R021C10

Possible Cause

Cause ID	Possible Cause
1–3	The battery side voltage exceeds the maximum operating voltage of the power module.

Suggestion

1. Check if there is any battery pack overvoltage alarm in the rack and operate according to the alarm recovery suggestion.
2. If the alarm persists, contact your dealer or technical support.

3.4 3016 Battery Side Undervoltage on Rack Controller

Alarm Attribute

Alarm ID	Alarm Name	Alarm Severity	Introduced Since
3016	Battery Side Undervoltage on Rack Controller	Major	FusionSolar V800R021C10

Possible Cause

Cause ID	Possible Cause
1–3	The battery is not securely connected or is abnormal.

Suggestion

1. Determine the positions of the input and output circuit breakers associated with [ESC-No] and the AC input power switch of the PSU.
2. Issue a hibernation command to all ESRs.
3. Check whether the switch on the battery side is turned on. If not, turn on the switch and issue a running command.
4. If the switch on the battery side is ON, turn off the switch, the switch on the bus side, and the AC input power switch of the PSU. Then wait for 5 minutes.
5. Check whether the cable connection on the battery side of the rack controller is correct and whether the circuit breaker on the battery side is switched on by referring to the product maintenance manual.

6. After checking that the battery power cable is correctly connected, turn on the AC input power switch of the PSU, the switch on the battery side, and the switch on the bus side in sequence, and issue a running command.
7. If the alarm persists, contact the vendor or technical support.

3.5 3017 Battery Side Short Circuit on Rack Controller

Alarm Attribute

Alarm ID	Alarm Name	Alarm Severity	Introduced Since
3017	Battery Side Short Circuit on Rack Controller	Major	FusionSolar V800R021C10

Possible Cause

Cause ID	Possible Cause
1–3	The battery cable is incorrectly connected.

Suggestion

1. Determine the positions of the input and output circuit breakers associated with [ESC-No] and the AC input power switch of the PSU.
2. Issue a hibernation command to all ESRs, and turn off the switch on the battery side, the switch on the bus side, and the AC input power switch of the PSU. Then wait for 5 minutes.
3. Check for voltage at both ends of the circuit breaker on the battery side of the rack controller. If no voltage is detected, check whether the cable is short-circuited or grounded.
4. Check whether the BAT terminals on the battery side of the rack controller are correctly connected by referring to the product maintenance manual.
5. After checking that the battery power cable is correctly connected, turn on the AC input power switch of the PSU, the switch on the battery side, and the switch on the bus side in sequence, and issue a running command.
6. If the alarm persists, contact the vendor or technical support.

3.6 3018 Battery Side Reverse Polarity on Rack Controller

Alarm Attribute

Alarm ID	Alarm Name	Alarm Severity	Introduced Since
3018	Battery Side Reverse Polarity on Rack Controller	Major	FusionSolar V800R021C10

Possible Cause

Cause ID	Possible Cause
1–3	The battery cable is reversely connected.

Suggestion

1. Determine the positions of the input and output circuit breakers associated with [ESC-No] and the AC input power switch of the PSU.
2. Issue a hibernation command to all ESRs, and turn off the switch on the battery side, the switch on the bus side, and the AC input power switch of the PSU. Then wait for 5 minutes.
3. Check whether any battery pack positive/negative terminal or BAT terminal of any rack controller is connected in reverse polarity by referring to the product maintenance manual.
4. After checking that the battery power cable is correctly connected, turn on the AC input power switch of the PSU, the switch on the battery side, and the switch on the bus side in sequence, and issue a running command.
5. If the alarm persists, contact the vendor or technical support.

3.7 3019 Bus Side Overvoltage on Rack Controller

Alarm Attribute

Alarm ID	Alarm Name	Alarm Severity	Introduced Since
3019	Bus Side Overvoltage on Rack Controller	Major	FusionSolar V800R021C10

Possible Cause

Cause ID	Possible Cause
1–3	The bus cable is not correctly connected, or the bus voltage exceeds the maximum operating voltage of the power module.

Suggestion

1. Determine the positions of the input and output circuit breakers associated with [ESC-No] and the AC input power switch of the PSU.
2. Issue a hibernation command to all ESRs, and turn off the switch on the battery side, the switch on the bus side, and the AC input power switch of the PSU. Then wait for 5 minutes.
3. Check whether the bus side cable connections of the rack controller are correct by referring to the product maintenance manual.
4. After checking that the battery power cable is correctly connected, turn on the AC input power switch of the PSU, the switch on the battery side, and the switch on the bus side in sequence, and issue a running command.
5. If the alarm persists, contact the vendor or technical support.

3.8 3020 Bus Side Reverse Polarity on Rack Controller

Alarm Attribute

Alarm ID	Alarm Name	Alarm Severity	Introduced Since
3020	Bus Side Reverse Polarity on Rack Controller	Major	FusionSolar V800R021C10

Possible Cause

Cause ID	Possible Cause
1–3	The bus is connected in reverse polarity.

Suggestion

1. Determine the positions of the input and output circuit breakers associated with [ESC-No] and the AC input power switch of the PSU.

2. Issue a hibernation command to all ESRs, and turn off the switch on the battery side, the switch on the bus side, and the AC input power switch of the PSU. Then wait for 5 minutes.
3. Check whether the cables to the bus side of the rack controller, copper busbar, and DC LV Panel are connected in reverse polarity by referring to the product maintenance manual.
4. After checking that the battery power cable is correctly connected, turn on the AC input power switch of the PSU, the switch on the battery side, and the switch on the bus side in sequence, and issue a running command.
5. If the alarm persists, contact the vendor or technical support.

3.9 3021 Insulation Resistance of Rack Controller Abnormal

Alarm Attribute

Alarm ID	Alarm Name	Alarm Severity	Introduced Since
3021	Insulation Resistance of Rack Controller Abnormal	Major	FusionSolar V800R021C10

Possible Cause

Cause ID	Possible Cause
1–3	1. The battery is short-circuited to the ground. 2. The battery is in a humid environment and the insulation between the battery and ground is poor.

Suggestion

1. Locate the input and output circuit breakers associated with [ESC-No].
2. Issue a shutdown command to the ESR corresponding to the ESC, turn off the switch on the battery side and the switch on the bus side in sequence, and wait for 5 minutes.
3. Check the resistance between the battery output and the ground (needed by both the battery-side and the bus-side). If a short circuit or insufficient insulation is found, rectify it.
4. Check whether the PE cable of the system is correctly connected.

5. If the impedance is lower than the specified protection threshold on rainy and cloudy days, set **Insulation resistance protection threshold** using the mobile app, SmartLogger, or NMS.
6. After checking that the battery power cable is correctly connected, turn on the switch on the battery side and the switch on the bus side in sequence, and issue a running command.
7. If the alarm persists, contact your dealer or technical support.

3.10 3022 Rack Controller Temperature High

Alarm Attribute

Alarm ID	Alarm Name	Alarm Severity	Introduced Since
3022	Rack Controller Temperature High	Minor	FusionSolar V800R021C10

Possible Cause

Cause ID	Possible Cause
1–9	1. The installation position of the battery power control module is not well ventilated. 2. The ambient temperature is too high. 3. The battery power control module is abnormal. 4. The fan in the battery power control module is abnormal.

Suggestion

1. Determine the positions of the input and output circuit breakers associated with [ESC-No] and the AC input power switch of the PSU.
2. Issue a hibernation command to all ESRs, and turn off the switch on the battery side, the switch on the bus side, and the AC input power switch of the PSU. Then wait for 5 minutes.
3. Check the ventilation of [ESC-No] and whether the ambient temperature exceeds the upper threshold.
4. If the ventilation is poor or the ambient temperature is too high, improve the ventilation and heat dissipation.
5. If an indoor fan fault alarm is generated and cannot be cleared after the fan is restarted, contact the vendor or technical support.
6. Check whether any outdoor fan for rack controllers is faulty.

7. If the ventilation, ambient temperature, and outdoor fans are normal and the alarm persists, contact the vendor or technical support.

3.11 3023 Battery Terminal Overtemperature on Rack Controller

Alarm Attribute

Alarm ID	Alarm Name	Alarm Severity	Introduced Since
3023	Battery Terminal Overtemperature on Rack Controller	Major	FusionSolar V800R021C10

Possible Cause

Cause ID	Possible Cause
1–3	The battery terminal is not securely connected.

Suggestion

1. Determine the positions of the input and output circuit breakers associated with [ESC-No] and the AC input power switch of the PSU.
2. Issue a hibernation command to all ESRs, and turn off the switch on the battery side, the switch on the bus side, and the AC input power switch of the PSU. Then wait for 5 minutes.
3. Check whether the torque of the BAT wiring bolts on the battery side of the rack controller meets the requirements by referring to the section about replacing the rack controller in the product maintenance manual.
4. After checking that the battery power cable is correctly connected, turn on the AC input power switch of the PSU, the switch on the battery side, and the switch on the bus side in sequence, and issue a running command.
5. If the alarm persists, contact the vendor or technical support.

3.12 3024 Bus Terminal Overtemperature on Rack Controller

Alarm Attribute

Alarm ID	Alarm Name	Alarm Severity	Introduced Since
3024	Bus Terminal Overtemperature on Rack Controller	Major	FusionSolar V800R021C10

Possible Cause

Cause ID	Possible Cause
1–3	The bus terminal is not securely connected.

Suggestion

1. Determine the positions of the input and output circuit breakers associated with [ESC-No] and the AC input power switch of the PSU.
2. Issue a hibernation command to all ESRs, and turn off the switch on the battery side, the switch on the bus side, and the AC input power switch of the PSU. Then wait for 5 minutes.
3. Check whether the torque of the BUS wiring bolt on the rack controller meets the requirements by referring to the section about replacing the rack controller in the maintenance manual.
4. After checking that the battery power cable is correctly connected, turn on the AC input power switch of the PSU, the switch on the battery side, and the switch on the bus side in sequence, and issue a running command.
5. If the alarm persists, contact the vendor or technical support.

3.13 3025 Rack Controller Version Mismatch

Alarm Attribute

Alarm ID	Alarm Name	Alarm Severity	Introduced Since
3025	Rack Controller Version Mismatch	Minor	FusionSolar V800R021C10

Possible Cause

Cause ID	Possible Cause
1, 2	The upgrade is incomplete.

Suggestion

1. Version mismatch on [ESC-No]. Please update.
2. If the update fails for multiple times, contact your dealer or technical support.

3.14 3026 Internal Fan of Rack Controller Faulty

Alarm Attribute

Alarm ID	Alarm Name	Alarm Severity	Introduced Since
3026	Internal Fan of Rack Controller Faulty	Warning	FusionSolar V800R021C10

Possible Cause

Cause ID	Possible Cause
1, 2	The internal fan is short-circuited, the power supply is insufficient, or the fan is damaged.

Suggestion

1. Locate the input and output circuit breakers associated with [ESC-No].
2. Issue a hibernation command, and turn off the switch on the battery side, the switch on the bus side, and the AC input power switch of the PSU. Then wait for 5 minutes.
3. Turn on the switch on the battery side and the switch on the bus side in sequence, and issue a running command.
4. If the alarm persists, contact your dealer or technical support.

3.15 3033 Communication Failure on Power Control Unit of Rack Controller

Alarm Attribute

Alarm ID	Alarm Name	Alarm Severity	Introduced Since
3033	Communication Failure on Power Control Unit of Rack Controller	Major	FusionSolar V800R021C10

Possible Cause

Cause ID	Possible Cause
1	The communication fails inside the ESC.

Suggestion

1. Determine the positions of the input and output circuit breakers and PSU output DC switch of the equipment associated with [ESC-No].
2. Issue a shutdown command to the ESC associated with this ESR, turn off the switch on the battery side, the switch on the bus side and the PSU output DC switch in turn, and wait for 5 minutes.
3. Turn on the PSU output DC switch, the switch on the battery side and the switch on the bus side in turn, and issue a running command.
4. If the alarm persists, contact your dealer or technical support.

3.16 3034 Rack Controller Cable Connection Abnormal

Alarm Attribute

Alarm ID	Alarm Name	Alarm Severity	Introduced Since
3034	Rack Controller Cable Connection Abnormal	Major	FusionSolar V800R021C10

Possible Cause

Cause ID	Possible Cause
1	The battery rack and its power module are connected incorrectly.
2	The power-on self-test was terminated due to a system exception.

Suggestion

Cause ID = 1

If the system is in the array topology identification process, wait until the process is complete or exit the process.

1. Determine the positions of the input and output circuit breakers associated with [ESC-No] and the AC input power switch of the PSU.
2. Issue a hibernation command to all ESRs, and turn off the switch on the battery side, the switch on the bus side, and the AC input power switch of the PSU. Then wait for 5 minutes.
3. Check whether the power cable and J1/J2 communications cable (aviation plug) on the battery side of the ESC are correctly connected.
4. Check whether the auxiliary power supply of the battery rack corresponding to the ESC is normal and whether the auxiliary power supply switch is turned on.
5. Check that power cables are securely connected and the auxiliary power supply switch is turned on, turn on the AC input power switch of the PSU, the switch on the battery side, and the switch on the bus side in sequence, and issue a running command.
6. If the alarm persists, contact the vendor or technical support.

Cause ID = 2

1. Check whether the battery rack circuit breaker associated with [ESC-No] is turned on.
2. Check other active alarms of the device and rectify the faults based on the alarm handling suggestions.
3. If the alarm persists after the system is reset, contact your vendor or technical support.

3.17 3035 Battery Pack Positions of Rack Controller Abnormal

Alarm Attribute

Alarm ID	Alarm Name	Alarm Severity	Introduced Since
3035	Battery Pack Positions of Rack Controller Abnormal	Major	FusionSolar V800R021C10

Possible Cause

Cause ID	Possible Cause
1	1. The actual quantity of the battery packs is inconsistent with the setting value. 2. The system has not identified the address of the battery pack. 3. The address of the battery pack is not identified after replacement. 4. The connection of the battery pack is incorrect.

Suggestion

1. Determine the positions of the input and output circuit breakers of the ESC and the DC output power switch of the PSU corresponding to [ESR-CabinetNo].
2. Deliver a hibernation command to the ESR corresponding to the ESC, and turn off the switch on the battery side, the switch on the bus side, and the DC output switch of the PSU in sequence. Then wait for 5 minutes.
3. Check whether the communications cables between battery packs under the ESR are correctly connected and whether the configured number of battery packs matches the actual number.
4. After checking that the battery power cable is correctly connected, turn on the DC output switch of the PSU, the switch on the battery side, and the switch on the bus side in sequence, wait for the system to power on, reset the ESU, and start battery pack position detection.
5. If the alarm persists, contact the vendor or technical support.

3.18 3040 Incorrect Bus Connection on Rack Controller

Alarm Attribute

Alarm ID	Alarm Name	Alarm Severity	Introduced Since
3040	Incorrect Bus Connection on Rack Controller	Major	FusionSolar V800R021C10

Possible Cause

Cause ID	Possible Cause
1	The output buses are not connected in parallel in the 1C scenario.

Suggestion

If the system is in the array topology identification process, wait until the process is complete or exit the process.

1. Determine the positions of the input and output circuit breakers associated with [ESC-No] and the AC input power switch of the PSU.
2. Issue a hibernation command to all ESRs, and turn off the switch on the battery side, the switch on the bus side, and the AC input power switch of the PSU. Then wait for 5 minutes.
3. Check whether the bus cables of the rack controller are connected to the same copper bar by referring to the section about replacing the rack controller in the maintenance manual.
4. After checking that the battery power cable is correctly connected, turn on the AC input power switch of the PSU, the switch on the battery side, and the switch on the bus side in sequence, and issue a running command.
5. If the alarm persists, contact the vendor or technical support.

3.19 3042 Rapid Shutdown Cable Connection of Battery Pack Abnormal

Alarm Attribute

Alarm ID	Alarm Name	Alarm Severity	Introduced Since
3042	Rapid Shutdown Cable Connection of Battery Pack Abnormal	Major	FusionSolar V800R021C10

Possible Cause

Cause ID	Possible Cause
1	The rapid shutdown cabling between battery racks is incorrect.
2	The rapid shutdown cabling in the battery rack is incorrect.
3	The power-on self-test was terminated due to a system exception.

Suggestion

Cause ID = 1

If the system is in the array topology identification process, wait until the process is complete or exit the process.

1. Determine the positions of the input and output circuit breakers associated with [ESC-No] and the AC input power switch of the PSU.
2. Issue a hibernation command to all ESRs, and turn off the switch on the battery side, the switch on the bus side, and the AC input power switch of the PSU. Then wait for 5 minutes.
3. Check whether the power cable and J1/J2 rapid shutdown cable (aviation plug) on the battery side of the ESC are correctly connected.
4. Check that the cables are securely connected. Turn on the AC input switch of the PSU, the switch on the battery side, and the switch on the bus side in sequence, and issue a running command.
5. If the alarm persists, contact the vendor or technical support.

Cause ID = 2

If the system is in the array topology identification process, wait until the process is complete or exit the process.

1. Determine the positions of the input and output circuit breakers of the ESC and the AC input power switch of the PSU corresponding to [ESR-CabinetNo ESM-SlotNo].
2. Issue a hibernation command to all ESRs, and turn off the switch on the battery side, the switch on the bus side, and the AC input power switch of the PSU. Then wait for 5 minutes.
3. Check whether the CAN communications cable and quick shutdown cable between the ESM corresponding to [ESR-CabinetNo ESM-SlotNo] and the ESC are correctly connected.
4. Check that the power cable is securely connected. Turn on the AC input switch of the PSU, the switch on the battery side, and the switch on the bus side in sequence, and issue a running command.
5. If the alarm persists, contact the vendor or technical support.

Cause ID = 3

1. Check whether the battery rack circuit breaker associated with [ESC-No] is turned on.
2. Check other active alarms of the device and rectify the faults based on the alarm handling suggestions.
3. If the alarm persists after the system is reset, contact your vendor or technical support.

3.20 3052 ESC External DC Auxiliary Power Supply Faulty

Alarm Attribute

Alarm ID	Alarm Name	Alarm Severity	Introduced Since
3502	ESC External DC Auxiliary Power Supply Faulty	Major	FusionSolar V800R021C10

Possible Cause

Cause ID	Possible Cause
1	1. The DC circuit breaker is OFF. 2. The PSU is faulty.

Suggestion

1. Determine the positions of the input and output circuit breakers associated with [ESC-No] and the DC output switch of the PSU, and check whether the DC output switch of the PSU is turned on.

2. Issue a hibernation command to the ESR corresponding to the ESC, and turn off the switch on the battery side, the switch on the bus side, and the DC output switch of the PSU. Then wait for 5 minutes.
3. Check whether the PSU in the power distribution cabin reports a fault alarm. If yes, rectify the fault according to the handling suggestions.
4. After checking that the PSU is normal, turn on the DC output switch of the PSU, the switch on the battery side, and the switch on the bus side in sequence.
5. If the alarm persists, contact the vendor or technical support.

3.21 3053 External Fan of Rack Controller Faulty

Alarm Attribute

Alarm ID	Alarm Name	Alarm Severity	Introduced Since
3053	External Fan of Rack Controller Faulty	Warning	FusionSolar V800R021C10

Possible Cause

Cause ID	Possible Cause
1–3	The external fan is short-circuited or damaged, the power supply is insufficient, or the air channel is blocked.

Suggestion

1. Locate the input and output circuit breakers and PSU output AC switch associated with [ESC-No].
2. Issue a shutdown command to all ESR, turn off the switch on the battery side, the switch on the bus side and the PSU input AC switch in turn, and wait for 5 minutes.
3. Check whether the fan blades are damaged. If yes, clear the foreign matter around the fan, and install a new fan.
4. Turn on the PSU input AC switch, the switch on the battery side and the switch on the bus side in turn, and issue a running command.
5. If the alarm persists, contact your dealer or technical support.

3.22 3054 Rack Controller Temperature Abnormal

Alarm Attribute

Alarm ID	Alarm Name	Alarm Severity	Introduced Since
3054	Rack Controller Temperature Abnormal	Major[a]	FusionSolar V800R021C10
a: Cause ID = 2, **Alarm Severity** of this alarm is **Major**. Cause ID = 1: The **Alarm Severity** of this alarm is **Warning**.			

Possible Cause

Cause ID	Possible Cause
1	The NTC is short-circuited or open-circuited.
2	1. Too many NTCs are short-circuited or open-circuited. 2. The NTC is not securely connected.

Suggestion

1. Locate the input and output circuit breakers associated with [ESC-No].
2. Issue a shutdown command to the ESR associated with the ESC, turn off the switch on the battery side and then the switch on the bus side, and wait for 5 minutes.
3. Turn on the switch on the battery side and the switch on the bus side in turn, and issue a running command.
4. If the alarm persists, contact your dealer or technical support.

3.23 3056 Emergency Power-Off

Alarm Attribute

Alarm ID	Alarm Name	Alarm Severity	Introduced Since
3056	Emergency Power-Off	Major	FusionSolar V800R021C10

Possible Cause

Cause ID	Possible Cause
1	The EPO button is pressed down.

Suggestion

1. Rectify the fault.
2. After the faults are rectified, pull up the EPO button.
3. Reset all battery racks in sequence.

3.24 3057 Version Inconsistent Between Rack Controller and Battery Packs

Alarm Attribute

Alarm ID	Alarm Name	Alarm Severity	Introduced Since
3057	Version Inconsistent Between Rack Controller and Battery Packs	Warning	FusionSolar V800R021C10

Possible Cause

Cause ID	Possible Cause
1	1. The versions of the rack controller and battery packs are inconsistent. 2. The update failed. 3. The battery packs have been replaced.

Suggestion

1. The version of [ESC-No] is inconsistent with that of the battery packs. Although this does not affect the normal running of the system, you are advised to update the entire ESU.
2. If the update failed multiple times, contact your dealer or technical support.

3.25 3058 Version Incompatible Between Rack Controller and Battery Packs

Alarm Attribute

Alarm ID	Alarm Name	Alarm Severity	Introduced Since
3058	Version Incompatible Between Rack Controller and Battery Packs	Major	FusionSolar V800R021C10

Possible Cause

Cause ID	Possible Cause
1	1. The versions of the rack controller and battery packs are inconsistent. 2. The update failed. 3. The battery packs have been replaced.

Suggestion

1. The version of [ESC-No] is incompatible with that of the battery packs. Consequently, the functions are limited, affecting the normal running of the system. Please update again.
2. If the update failed multiple times, contact your dealer or technical support.

3.26 3059 Communication Interruption Between the Rack Controller and PCS

Alarm Attribute

Alarm ID	Alarm Name	Alarm Severity	Introduced Since
3059	Communication Interruption Between the Rack Controller and PCS	Major	FusionSolar V800R021C10

Possible Cause

Cause ID	Possible Cause
1	1. The communications cable between the CMU and the SmartLogger is abnormal. 2. The communications cable between the PCS and the SmartLogger is abnormal.

Suggestion

1. Check whether the CMU status indicator on the WebUI indicates that the CMU is offline. If yes, check whether the communications link between the CMU and the SmartLogger is normal.
2. Check whether the PCS status indicator on the WebUI indicates that the PCS is offline. If yes, check whether the power supply to the PCS is normal. If the power supply is normal, issue a shutdown command to the PCS, turn off the circuit breaker on the AC side, and check whether the communication link between the PCS and the SmartLogger is normal.

   If the link is normal:

   a. Determine the positions of the input and output circuit breakers associated with [ESC-No] and the AC input power switch of the PSU.
   b. Issue a hibernation command to all ESRs, and turn off the switch on the battery side, the switch on the bus side, and the AC input power switch of the PSU. Then wait for 5 minutes.
   c. Turn on the AC input power switch of the PSU, the switch on the battery side, and the switch on the bus side in sequence, and issue a running command.
   d. If the alarm persists, contact your dealer or technical support.

3.27 3060 Incompatible ESM

Alarm Attribute

Alarm ID	Alarm Name	Alarm Severity	Introduced Since
3060	Incompatible ESM	Major	FusionSolar V800R023C00

Possible Cause

Cause ID	Possible Cause
1	The replacement ESM is incompatible with the system.

Suggestion

1. The battery model of [ESR-CabinetNo ESM-SlotNo] is incompatible with the system. Replace it with a battery of the original model.
2. If the alarm persists, contact your dealer or technical support.

4 BMU Alarms

4.1 3027 Battery Pack Monitoring Board Abnormal

Alarm Attribute

Alarm ID	Alarm Name	Alarm Severity	Introduced Since
3027	Battery Pack Monitoring Board Abnormal	Major	FusionSolar V800R021C10

Possible Cause

Cause ID	Possible Cause
1–20	A major fault has occurred on the internal circuit of the battery pack monitoring device.
21	The BMU is incompatible with the battery pack.

Suggestion

Cause ID = 1–20:

1. Determine the positions of the input and output circuit breakers of the ESC and the DC output power switch of the PSU corresponding to [ESR-CabinetNo ESM-SlotNo].
2. Issue a hibernation command to the ESR corresponding to the ESC, and turn off the switch on the battery side, the switch on the bus side, and the DC output switch of the PSU. Then wait for 5 minutes.

3. Cross verification: Swap the BMU of the faulty battery pack with that of a normal battery pack.
4. Turn on the PSU DC output switch, switch on the battery side, and switch on the bus side in sequence. After the system is powered on, delete invalid battery packs, reset ESUs, start battery pack position detection, and check whether the alarm is cleared.
5. If the alarm persists, contact the vendor or technical support.

Cause ID = 21:

1. Determine the positions of the input and output circuit breakers of the ESC and the DC output power switch of the PSU corresponding to [ESR-CabinetNo ESM-SlotNo].
2. Issue a hibernation command to the ESR corresponding to the ESC, and turn off the switch on the battery side, the switch on the bus side, and the DC output switch of the PSU. Then wait for 5 minutes.
3. Turn on the DC output switch of the PSU, the switch on the battery side, and the switch on the bus side in sequence, and issue a running command.
4. If the alarm persists, contact the vendor or technical support.

4.2 3028 Battery Pack Abnormal

Alarm Attribute

Alarm ID	Alarm Name	Alarm Severity	Introduced Since
3028	Battery Pack Abnormal	Major	FusionSolar V800R021C10

Possible Cause

Cause ID	Possible Cause
1–9	A major fault occurred on the battery pack.

Suggestion

Cause ID = 1–5

1. Locate the input and output circuit breakers and PSU output DC switch of the ESC equipment associated with [ESR-CabinetNo ESM-SlotNo].
2. Issue a shutdown command to the ESC associated with this ESR, turn off the switch on the battery side, the switch on the bus side and the PSU output DC switch in turn.
3. Contact your dealer or technical support to change the battery pack.

Cause ID = 6–7, 9

1. Determine the positions of the input and output circuit breakers of the ESC and the DC output power switch of the PSU corresponding to [ESR-CabinetNo ESM-SlotNo].
2. Issue a hibernation command to the ESR corresponding to the ESC, and turn off the switch on the battery side, the switch on the bus side, and the DC output switch of the PSU. Then wait for 5 minutes.
3. Cross verification: Swap the BMU of the faulty battery pack with that of a normal battery pack.
4. Turn on the PSU DC output switch, switch on the battery side, and switch on the bus side in sequence. After the system is powered on, delete invalid battery packs, reset ESUs, start battery pack position detection, and check whether the alarm is cleared.
5. If the alarm persists, contact the vendor or technical support.

Cause ID = 8

Contact the vendor or technical support.

4.3 3029 Battery Pack Locked

Alarm Attribute

Alarm ID	Alarm Name	Alarm Severity	Introduced Since
3029	Battery Pack Locked	Major	FusionSolar V800R021C10

Possible Cause

Cause ID	Possible Cause
1–5	A failure recurs many times in the battery pack.

Suggestion

Cause ID = 1

1. Clear the copper bar overtemperature-induced protection alarm on the alarm management page.
2. Determine the positions of the input and output circuit breakers of the ESC and the AC input power switch of the PSU corresponding to [ESR-CabinetNo ESM-SlotNo].
3. Issue a hibernation command to all ESRs, and turn off the switch on the battery side, the switch on the bus side, and the AC input power switch of the PSU. Then wait for 5 minutes.
4. Check whether the air conditioner is running properly. If yes, go to step 5.

5. Check whether the copper bar connection of the battery pack on [ESR-CabinetNo ESM-SlotNo] meets the torque requirements by referring to the quick guide of the product.
6. Check that the power cable is securely connected. Turn on the DC output switch of the PSU, the switch on the battery side, and the switch on the bus side in sequence, and issue a running command.
7. If the alarm persists, contact the vendor or technical support.

Cause ID = 2–5

1. Locate the input and output circuit breakers and PSU input AC switch of the ESC equipment associated with [ESR-CabinetNo ESM-SlotNo].
2. Issue a shutdown command to the ESC associated with this ESR, turn off the switch on the battery side, the switch on the bus side and the PSU input AC switch in turn, and wait for 24 hours.
3. Turn on the PSU input AC switch, the switch on the battery side and the switch on the bus side in turn, and issue a running command.
4. If the alarm persists, contact your dealer or technical support.

4.4 3030 Battery Module Fan Fault

Alarm Attribute

Alarm ID	Alarm Name	Alarm Severity	Introduced Since
3030	Battery Module Fan Fault	Major	FusionSolar V800R021C10

Possible Cause

Cause ID	Possible Cause
1	1. The fan is short-circuited. 2. The power supply is insufficient. 3. The fan is faulty. 4. The fan is blocked.
2	1. The fan is damaged. 2. The fan is stuck.

Suggestion

Cause ID = 1

1. Determine the positions of the input and output circuit breakers of the ESC and the DC output power switch of the PSU corresponding to [ESR-CabinetNo ESM-SlotNo].

2. Check whether the PSU output DC switch for the fan is turned on. If not, turn it on. If yes, turn it off and check whether the 48 V power supply of the battery pack is securely connected.
3. Issue a hibernation command to the ESR corresponding to the ESC, and turn off the switch on the battery side, the switch on the bus side, and the DC output switch of the PSU. Then wait for 5 minutes.
4. Open the front panel and check whether the faulty battery pack has fewer fans than normal battery packs. If yes, replace the BMU. If not, perform steps 5 to 7.
5. Replace the fan if it is damaged, clear the foreign matter if there are any, and rectify power supply failure if any.
6. Turn on the DC output switch of the PSU, the switch on the battery side, and the switch on the bus side in sequence, and issue a running command.
7. If the alarm persists, contact the vendor or technical support.

Cause ID = 2

1. Determine the positions of the input and output circuit breakers of the ESC and the DC output power switch of the PSU corresponding to [ESR-CabinetNo ESM-SlotNo].
2. Issue a hibernation command to the ESR corresponding to the ESC, and turn off the switch on the battery side, the switch on the bus side, and the DC output switch of the PSU. Then wait for 5 minutes.
3. Replace the fan if it is damaged, clear the foreign matter if there are any, and rectify power supply failure if any.
4. Turn on the DC output switch of the PSU, the switch on the battery side, and the switch on the bus side in sequence, and issue a running command.
5. If the alarm persists, contact the vendor or technical support.

4.5 3031 Battery Pack Temperature Imbalance

Alarm Attribute

Alarm ID	Alarm Name	Alarm Severity	Introduced Since
3031	Battery Pack Temperature Imbalance	Minor	FusionSolar V800R021C10

Possible Cause

Cause ID	Possible Cause
1	The temperatures of electrochemical cells in a battery pack are unbalanced.

Suggestion

1. Locate the input and output circuit breakers and PSU output DC switch of the ESC equipment associated with [ESR-CabinetNo ESM-SlotNo].
2. Check if there is any air conditioner alarm or fan alarm in the battery pack. If so, follow the related alarm recovery suggestion to operate.
3. If no alarm above occurs, issue a shutdown command to the ESC associated with this ESR, turn off the switch on the battery side, the switch on the bus side and the PSU output DC switch in turn, and wait for 5 minutes.
4. Turn on the DC output switch of the PSU, the switch on the battery side, and the switch on the bus side in sequence, and issue a running command.
5. If the alarm persists, contact your dealer or technical support.

4.6 3032 Battery Pack Overvoltage

Alarm Attribute

Alarm ID	Alarm Name	Alarm Severity	Introduced Since
3032	Battery Pack Overvoltage	Major	FusionSolar V800R021C10

Possible Cause

Cause ID	Possible Cause
1, 2	The voltage of a battery expansion module is too high or the cell voltage in the module is too high.

Suggestion

1. Determine the positions of the input and output circuit breakers of the ESC and the AC input power switch of the PSU corresponding to [ESR-CabinetNo ESM-SlotNo].
2. Issue a hibernation command to the ESR corresponding to the ESC, and turn off the switch on the battery side, the switch on the bus side, and the AC input power switch of the PSU. Then wait for 5 minutes.
3. Check whether the power cable and J1/J2 communications cable (aviation plug) on the battery side of the rack controller are correctly connected.
4. Turn on the DC output switch of the PSU, the switch on the battery side, and the switch on the bus side in sequence, and issue a running command.
5. If the alarm persists, contact the vendor or technical support.

4.7 3036 Optimization Unit of Battery Pack Abnormal

Alarm Attribute

Alarm ID	Alarm Name	Alarm Severity	Introduced Since
3036	Optimization Unit of Battery Pack Abnormal	Major	FusionSolar V800R021C10

Possible Cause

Cause ID	Possible Cause
1–4	A major fault has occurred in the circuit inside the optimization unit of the battery pack.

Suggestion

1. Locate the input and output circuit breakers and PSU output DC switch of the ESC equipment associated with [ESR-CabinetNo ESM-SlotNo].
2. Issue a shutdown command to the ESC associated with this ESR, turn off the switch on the battery side, the switch on the bus side and the PSU output DC switch in turn, and wait for 5 minutes.
3. Turn on the PSU output DC switch, the switch on the battery side and the switch on the bus side in turn, and issue a running command.
4. If the alarm persists, contact your dealer or technical support.

4.8 3037 Overtemperature on Optimization Unit of Battery Pack

Alarm Attribute

Alarm ID	Alarm Name	Alarm Severity	Introduced Since
3037	Overtemperature on Optimization Unit of Battery Pack	Minor	FusionSolar V800R021C10

Possible Cause

Cause ID	Possible Cause
1–3	1. The installation position of the battery module is not well ventilated. 2. The ambient temperature is too high. 3. The battery power control module is abnormal. 4. The optimization unit is abnormal.

Suggestion

1. Determine the positions of the input and output circuit breakers of the ESC and the DC output power switch of the PSU corresponding to [ESR-CabinetNo ESM-SlotNo].
2. Issue a hibernation command to the ESR corresponding to the ESC, and turn off the switch on the battery side, the switch on the bus side, and the DC output switch of the PSU. Then wait for 5 minutes.
3. Check whether any air conditioner or fan alarm is generated. If yes, check whether the air intake vent of the air conditioner is blocked. If yes, clear the air intake vent and improve the ventilation and heat dissipation.
4. Turn on the DC output switch of the PSU, the switch on the battery side, and the switch on the bus side in sequence, and issue a running command.
5. If the alarm persists, contact the vendor or technical support.

4.9 3038 Overtemperature on Optimization Unit Terminal of Battery Pack

Alarm Attribute

Alarm ID	Alarm Name	Alarm Severity	Introduced Since
3038	Overtemperature on Optimization Unit Terminal of Battery Pack	Major	FusionSolar V800R021C10

Possible Cause

Cause ID	Possible Cause
1	The terminal is not securely connected.

Suggestion

1. Determine the position of [ESR-CabinetNo ESM-SlotNo] and the positions of the input and output circuit breakers and the DC output power switch of the PSU corresponding to [ESR-CabinetNo ESM-SlotNo].
2. Issue a hibernation command to the ESR corresponding to the ESC, and turn off the switch on the battery side, the switch on the bus side, and the DC output switch of the PSU. Then wait for 5 minutes.
3. Check whether the power cable wiring bolts of the battery pack and optimization unit meet the torque requirements by referring to the maintenance manual of the product.
4. Turn on the DC output switch of the PSU, the switch on the battery side, and the switch on the bus side in sequence, and issue a running command.
5. If the alarm persists, contact the vendor or technical support.

4.10 3039 Battery Pack Optimization Unit Version Mismatch

Alarm Attribute

Alarm ID	Alarm Name	Alarm Severity	Introduced Since
3039	Battery Pack Optimization Unit Version Mismatch	Minor	FusionSolar V800R021C10

Possible Cause

Cause ID	Possible Cause
1, 2	The update failed.

Suggestion

1. The version of the optimization unit in [ESR-CabinetNo ESM-SlotNo] does not match. Please update.
2. If the update fails multiple times, contact your dealer or technical support.

4.11 3041 Loose Connection on Copper Bar

Alarm Attribute

Alarm ID	Alarm Name	Alarm Severity	Introduced Since
3041	Loose Connection on Copper Bar	Major	FusionSolar V800R021C10

Possible Cause

Cause ID	Possible Cause
1	The connection of the battery pack copper bar is loose.

Suggestion

1. Determine the position of [ESR-CabinetNo ESM-SlotNo] and the positions of the input and output circuit breakers of the ESC and the DC output power switch of the PSU corresponding to [ESR-CabinetNo ESM-SlotNo].
2. Issue a hibernation command to the ESR corresponding to the ESC, and turn off the switch on the battery side, the switch on the bus side, and the DC output switch of the PSU. Then wait for 5 minutes.
3. Check whether the copper bar connection of the battery pack on [ESR-CabinetNo ESM-SlotNo] meets the torque requirements by referring to the quick guide of the product.
4. Check that the power cable is securely connected. Turn on the DC output switch of the PSU, the switch on the battery side, and the switch on the bus side in sequence, and issue a running command.
5. If the alarm persists, contact the vendor or technical support.

4.12 3043 Battery Pack SOH Low

Alarm Attribute

Alarm ID	Alarm Name	Alarm Severity	Introduced Since
3043	Battery Pack SOH Low	Warning	FusionSolar V800R021C10

Possible Cause

Cause ID	Possible Cause
1	The SOH of the battery pack is low.

Suggestion

1. Determine the position of [ESR-CabinetNo ESM-SlotNo] and the positions of the input and output circuit breakers of the ESC and the DC output power switch of the PSU corresponding to [ESR-CabinetNo ESM-SlotNo].
2. Issue a hibernation command to the ESR corresponding to the ESC, and turn off the switch on the battery side, the switch on the bus side, and the DC output power switch of the PSU. Then wait for 5 minutes.
3. Replace the battery pack on [ESR-CabinetNo ESM-SlotNo].
4. Check that the power and monitoring cables are securely connected. Turn on the DC output switch of the PSU, the switch on the battery side, and the switch on the bus side in sequence, and issue a running command.
5. If the alarm persists, contact the vendor or technical support.

4.13 3044 Battery Pack Overcurrent

Alarm Attribute

Alarm ID	Alarm Name	Alarm Severity	Introduced Since
3044	Battery Pack Overcurrent	Major	FusionSolar V800R021C10

Possible Cause

Cause ID	Possible Cause
1	The battery pack current exceeds the maximum operating current for long.

Suggestion

1. Locate the input and output circuit breakers and PSU output DC switch of the ESC equipment associated with [ESR-CabinetNo ESM-SlotNo].
2. Issue a shutdown command to the ESC associated with this ESR, turn off the switch on the battery side, the switch on the bus side and the PSU output DC switch in turn, and wait for 5 minutes.
3. Turn on the PSU output DC switch, the switch on the battery side and the switch on the bus side in turn, and issue a running command.

4. If the alarm persists, contact your dealer or technical support.

4.14 3045 Battery Pack Temperature High

Alarm Attribute

Alarm ID	Alarm Name	Alarm Severity	Introduced Since
3045	Battery Pack Temperature High	Major	FusionSolar V800R021C10

Possible Cause

Cause ID	Possible Cause
1, 2	1. The installation position of the battery module is not well ventilated. 2. The air conditioner/fan is not running properly.

Suggestion

1. Determine the positions of the input and output circuit breakers of the ESC and the DC output power switch of the PSU corresponding to [ESR-CabinetNo ESM-SlotNo].
2. Issue a hibernation command to the ESR corresponding to the ESC, and turn off the switch on the battery side, the switch on the bus side, and the DC output switch of the PSU. Then wait for 5 minutes.
3. Check whether any air conditioner or fan alarm is generated. If yes, check whether the air intake vent of the air conditioner is blocked. If yes, clear the air intake vent and improve the ventilation and heat dissipation.
4. Check whether the copper bar connection of the battery pack meets the torque requirements by referring to the quick guide of the product.
5. Turn on the DC output switch of the PSU, the switch on the battery side, and the switch on the bus side in sequence, and issue a running command.
6. If the alarm persists, contact the vendor or technical support.

4.15 3046 Battery Pack Temperature Low

Alarm Attribute

Alarm ID	Alarm Name	Alarm Severity	Introduced Since
3046	Battery Pack Temperature Low	Major	FusionSolar V800R021C10

Possible Cause

Cause ID	Possible Cause
1, 2	The ambient temperature is too low that it activates the charge/discharge protection.

Suggestion

1. Determine the positions of the input and output circuit breakers of the ESC and the DC output power switch of the PSU corresponding to [ESR-CabinetNo ESM-SlotNo].
2. Check whether the air conditioner is working properly. If the air conditioner is abnormal, rectify the fault by referring to the alarm handling suggestions.
3. If the air conditioner is normal, issue a hibernation command to the ESR corresponding to the ESC, and turn off the switch on the battery side, the switch on the bus side, and the DC output switch of the PSU. Then wait for 5 minutes.
4. Turn on the DC output switch of the PSU, the switch on the battery side, and the switch on the bus side in sequence, and issue a running command.
5. If the alarm persists, contact your dealer or technical support.

4.16 3047 Battery Pack Undervoltage

Alarm Attribute

Alarm ID	Alarm Name	Alarm Severity	Introduced Since
3047	Battery Pack Undervoltage	Major	FusionSolar V800R021C10

Possible Cause

Cause ID	Possible Cause
1, 2, 4	1. Battery expansion module is undervoltage or the cell voltage inside the module is too low. 2. Battery expansion module stores the energy for long when off-grid. 3. Battery expansion module does not work for long after getting on-grid.

Suggestion

Cause ID = 1, 2

1. Charge the battery within 48 hours. Permanent battery damages caused by failing to charge batteries as required are not covered under warranty.
2. If the alarm persists after the battery has been charged for one hour, contact your vendor or technical support.

Cause ID = 4

1. Determine the positions of the input and output circuit breakers of the ESC and the DC output power switch of the PSU corresponding to [ESR-CabinetNo ESM-SlotNo].
2. Issue a hibernation command to the ESR corresponding to the ESC, and turn off the switch on the battery side, the switch on the bus side, and the DC output switch of the PSU. Then wait for 5 minutes.
3. Check whether the power cable and J1/J2 communications cable (aviation plug) on the battery side of the rack controller are correctly connected.
4. Turn on the DC output switch of the PSU, the switch on the battery side, and the switch on the bus side in sequence, and issue a running command.
5. If the alarm persists, contact the vendor or technical support.

4.17 3048 Battery Pack Auxiliary Power Supply Fault

Alarm Attribute

Alarm ID	Alarm Name	Alarm Severity	Introduced Since
3048	Battery Pack Auxiliary Power Supply Fault	Minor	FusionSolar V800R021C10

Possible Cause

Cause ID	Possible Cause
1	The black start auxiliary power supply relay control is faulty.
2	The black start button is faulty.
3	The black start auxiliary power supply cannot be powered-off properly.
4	The black start function cannot be enabled.
5	The primary and secondary sources disabling function is faulty.

Suggestion

Cause ID = 1–3

1. If the alarm ID is [3048-2], replace the black start button.
2. Determine the positions of the input and output circuit breakers of the ESC and the DC output switch of the PSU corresponding to [ESR-CabinetNo ESM-SlotNo].
3. Issue a hibernation command to the ESR corresponding to the ESC, and turn off the switch on the battery side, the switch on the bus side, and the DC output power switch of the PSU. Then wait for 5 minutes.
4. Turn on the DC output power switch of the PSU, the switch on the battery side, and the switch on the bus side in sequence, and issue a running command.
5. This alarm affects only the black start function in off-grid scenarios but does not affect the normal operation in on-grid scenarios. If the alarm persists, contact your vendor or technical support to rectify the fault in a time window that does not affect charging. If the ESS may experience a power outage for extended periods of time (longer than one week), rectify the fault before the power outage. Otherwise, batteries may be damaged due to overdischarge.

Cause ID = 4, 5:

1. Determine the positions of the input and output circuit breakers of the ESC and the DC output switch of the PSU corresponding to [ESR-CabinetNo ESM-SlotNo].
2. Issue a hibernation command to the ESR corresponding to the ESC, and turn off the switch on the battery side, the switch on the bus side, and the DC output power switch of the PSU. Then wait for 5 minutes.
3. Turn on the DC output power switch of the PSU, the switch on the battery side, and the switch on the bus side in sequence, and issue a running command.
4. If the alarm persists, contact the vendor or technical support.

4.18 3055 Battery Module Optimization Unit Undertemperature

Alarm Attribute

Alarm ID	Alarm Name	Alarm Severity	Introduced Since
3055	Battery Module Optimization Unit Undertemperature	Major	FusionSolar V800R021C10

Possible Cause

Cause ID	Possible Cause
1	The ambient temperature in the battery cabin is too low.

Suggestion

1. Determine the positions of the input and output circuit breakers of the ESC and the DC output power switch of the PSU corresponding to [ESR-CabinetNo ESM-SlotNo].
2. Check whether the air conditioner is working properly. If the air conditioner is abnormal, rectify the fault by referring to the troubleshooting suggestions.
3. If the air conditioner is normal, issue a hibernation command to the ESR corresponding to the ESC, and turn off the switch on the battery side, the switch on the bus side, and the DC output switch of the PSU. Then wait for 5 minutes.
4. Turn on the DC output switch of the PSU, the switch on the battery side, and the switch on the bus side in sequence, and issue a running command.
5. If the alarm persists, contact the vendor or technical support.

4.19 3062 ESM Has Reached End of Lifespan

Alarm Attribute

Alarm ID	Alarm Name	Alarm Severity	Introduced Since
3062	ESM Has Reached End of Lifespan	Major	FusionSolar V800R023C00

Possible Cause

Cause ID	Possible Cause
1	The battery pack has reached the end of its lifespan.

Suggestion

[ESR-CabinetNo ESM-SlotNo] has reached the end of its lifespan. Contact the local recycling agency to dispose of it in compliance with local laws and regulations as well as applicable standards.

A Rectifier Indicator Status Description and Handling Suggestions

Table A-1 Rectifier indicator status description and handling suggestions

Indicator	Color	Status	Status Description	Suggestion
Power indicator 	Green	Steady on	The rectifier has an AC input.	Normal
		Off	The rectifier has no AC input.	Check whether the input is normal. If so, replace the rectifier.
			The rectifier is damaged.	Replace the rectifier.
		Blinking at 0.5 Hz	Querying is in progress.	Normal
		Blinking at 4 Hz	The rectifier is loading the application program.	The rectifier automatically recovers after the loading is finished, and no action is required.
Alarm indicator 	Yellow	Off	The rectifier has no protection alarm.	Normal

Indicator	Color	Status	Status Description	Suggestion
		Steady on	• A warning is generated due to ambient overtemperature. • A shutdown protection alarm is generated due to ambient overtemperature or undertemperature.	Check that the air vent is not blocked and the ambient temperature is within the normal range.
			AC input overvoltage or undervoltage protection is triggered.	Check the power grid voltage.
			The rectifier is hibernating.	Normal
		Blinking at 0.5 Hz	The communication between the rectifier and the monitoring module is interrupted.	Replace the rectifier or monitoring module.
Fault indicator 	Red	Off	The rectifier is normal.	Normal
		Steady on	The rectifier locks out due to output overvoltage or it is not properly inserted.	Remove the rectifier and then insert it one minute later.
			The rectifier has no output due to an internal fault.	Replace the rectifier.

B Acronyms and Abbreviations

B	
BCU	battery control unit
BMU	battery monitoring unit
C	
CMU	central monitoring unit
E	
EPO	emergency power-off
ESC	Smart Rack Controller
ESM	battery pack
ESU	energy storage unit
ESR	battery rack
P	
PCS	Smart PCS
PSU	power supply unit

S

SMU	site monitoring unit
SOH	state of health

T

TCU	temperature control unit

U

UPS	uninterruptible power supply