

# 8 Troubleshooting and Maintenance

## 8.1 Troubleshooting

### 8.1.1 For LED Indicator

See “**Tab. 6-1 Indicator Stage Description**” for the definition of LED’s status.

Fault Type	Troubleshooting
LED indicator cannot be lit.	<ol style="list-style-type: none"><li>1. Disconnect the AC circuit breaker.</li><li>2. Rotate the optional DC switch to “OFF”.</li><li>3. Check the polarity of DC input.</li></ol>
Green indicator goes out.	<ol style="list-style-type: none"><li>1. Disconnect the AC circuit breaker.</li><li>2. Rotate the optional DC switch to “OFF”.</li><li>3. Check the inverter electrical connection. Refer to “<b>5 Electrical Connection</b>”.</li><li>4. Check whether the voltage of DC input exceeds the inverter start-up voltage.</li><li>5. If all the above conditions are OK, please contact SUNGROW.</li></ol>



Should you have any questions in operating the inverter, please contact us via the email: [service@sungrow.cn](mailto:service@sungrow.cn).

We need the following information to provide you the best assistance:

- Type of the inverter
- Serial number of the inverter
- Fault name (Each fault has a corresponding fault code, for example, 01 represents sampling fault.)
- Brief description of the fault phenomenon

### 8.1.2 For the Faults on the APP or Screen

If the Wi-Fi module or ZE100 (integrated with Wi-Fi function) is equipped, a fault icon will be shown in the APP once a fault occurs. For details, see the related manuals.

If the LCD module eShow is equipped, the “Fault” state will display on the main

screen. For details, see eShow User Manual. Follow the procedure below for troubleshooting when the data on the main screen cannot update in real time.

1. Disconnect the external AC circuit breaker.
2. Disconnect the external DC circuit breaker or pull off the DC connectors.
3. Reconnect the breakers or connectors and restart the inverter.
4. If the fault still exists, check whether the communication cable of eShow is firmly connected
5. If the communication cable is firmly connected, contact Sungrow Service Dept.

<b>Fault Code</b>	<b>Description</b>	<b>Troubleshooting</b>
002	The grid voltage exceeds inverter allowable upper limit.	<ol style="list-style-type: none"> <li>1. Check the voltage of the grid.</li> <li>2. If the grid voltage exceeds the permissible range of inverter protection parameters, ask utility grid company for solution.</li> <li>3. If the grid voltage is within the permissible range, contact Sungrow Service Dept.</li> </ol>
003	Grid transient voltage exceeds the permissible range	<ol style="list-style-type: none"> <li>1. This is a short-term fault due to grid condition. Wait a moment for inverter recovery.</li> <li>2. If the fault still exists, please contact Sungrow Service Dept.</li> </ol>
004	The grid voltage is below inverter's allowable lower limit.	<ol style="list-style-type: none"> <li>1. Check the grid voltage.</li> <li>2. If the grid voltage exceeds the permissible range of inverter protection parameters, ask utility grid company for solution.</li> <li>3. If the grid voltage is within the permissible range, contact Sungrow Service Dept.</li> </ol>
005	The grid voltage is too low.	<ol style="list-style-type: none"> <li>1. This is a short-term fault due to grid condition. Wait a moment for inverter recovery.</li> <li>2. If the fault still exists, please contact Sungrow Service Dept.</li> </ol>
006	The AC output current exceeds inverter allowable upper limit.	<ol style="list-style-type: none"> <li>1. The inverter will resume if the output current falls below the protection value.</li> <li>2. If the fault still exists, please contact Sungrow Service Dept.</li> </ol>
007	Transient overcurrent AC	<ol style="list-style-type: none"> <li>1. The inverter will self-recover after several seconds.</li> <li>2. If the fault still exists, please contact Sungrow Service Dept.</li> </ol>
008	The grid frequency exceeds inverter allowable upper limit.	<ol style="list-style-type: none"> <li>1. Check the grid frequency.</li> <li>2. If the grid frequency exceeds the permissible range of inverter protection</li> </ol>

<b>Fault Code</b>	<b>Description</b>	<b>Troubleshooting</b>
009	The grid frequency is below the inverter allowable lower limit.	parameters, ask utility grid company for solution. 3. If the grid frequency is within the permissible range, contact Sungrow Service Dept.
010	Islanding	1. Check whether AC circuit breaker is triggered. 2. Check whether AC cables are all firmly connected. 3. Check whether grid is not in service. 4. If all conditions are OK and this fault still occurs in the LCD screen, contact Sungrow Service Dept.
011	The DC component of AC current exceeds inverter limit.	1. Wait a moment for inverter recovery. 2. If the fault occurs repeatedly, contact Sungrow Service Dept.
012	A failure current is detected.	1. Check the PV strings for ground fault. 2. If the fault occurs repeatedly, contact Sungrow Service Dept.
014	The average grid voltage exceeds the permissible range for over 10 minutes.	1. Check whether the inverter selected country code is the country you are in. 2. Wait a moment for inverter recovery. 3. Check the voltage of the grid. If the grid voltage exceeds the permissible range of inverter protection parameters, ask utility grid company for solution. 4. If the fault occurs repeatedly, contact Sungrow Service Dept.
015	The grid voltage exceeds the permissible range	1. Check the model of the AC cables. 2. Wait a moment for inverter recovery. 3. If the grid voltage exceeds the permissible range, ask utility grid company for solution. 4. If the fault occurs repeatedly, contact Sungrow Service Dept.
016	The bus voltage or power is high.	1. Wait a moment for inverter recovery. 2. If the fault occurs repeatedly, contact Sungrow Service Dept.
019	The transient bus voltage is high.	1. Wait a moment for inverter recovery. 2. If the fault occurs repeatedly, contact Sungrow Service Dept.
020	The bus voltage is high.	1. Wait a moment for inverter recovery. 2. If the fault occurs repeatedly, contact Sungrow Service Dept.
021	PV1 input overcurrent is detected	Check the layout and the wiring of PV1 input.

<b>Fault Code</b>	<b>Description</b>	<b>Troubleshooting</b>
022	PV2 input overcurrent is detected	Check the layout and the wiring of PV2 input.
028	PV1 reverse connection fault	Check the cable connections of PV1.
029	PV2 reverse connection fault	Check the cable connections of PV2.
036	The temperature of radiator is too high	1. Check whether the ambient temperature shown on the screen is too high. Wait a moment for inverter recovery. 2. Check whether there is enough space for convection.
037	The internal temperature of inverter is too high	3. Check whether the inverter is in direct sunlight. 4. Check whether the fan is normal. Replace it if necessary. 5. Clean the air inlets. 6. If the fault still exists, please contact Sungrow.
038	Relay fault is detected	1. Wait a moment for inverter recovery. 2. If the fault occurs repeatedly, contact Sungrow Service Dept.
039	The insulation resistance is low. (ISO-ft)	1. Check whether there is a reliable inverter grounding line. 2. Check whether the positive and negative of PV panels is short-circuited with ground lead. 3. Wait a moment for inverter recovery. 4. If the fault occurs repeatedly, contact Sungrow Service Dept.
041	Leakage current self-test abnormality	1. Wait a moment for inverter recovery. 2. If the fault occurs repeatedly, contact Sungrow Service Dept.
043	Ambient temperature is too low, below -30 °C	Shut down and disconnect the inverter. Wait until the ambient temperature rises to the permissible range and restart the inverter.
044	Open-loop inverter self-test fault	
045	Faults detected in PV1 boosted circuit	1. Wait a moment for inverter recovery.
046	Faults detected in PV2 boosted circuit	2. If the fault occurs repeatedly, contact Sungrow Service Dept.
048	Sampling channel failure	

Fault Code	Description	Troubleshooting
053	Auxiliary DSP detects grid voltage exceeds set protection value	<ol style="list-style-type: none"> <li>1. Check the grid voltage.</li> <li>2. If the grid voltage exceeds the permissible range of inverter protection parameters, ask utility grid company for solution.</li> <li>3. If the grid voltage is within the permissible range, contact Sungrow Service Dept.</li> </ol>
054	Auxiliary DSP detects grid frequency exceeds set protection value	<ol style="list-style-type: none"> <li>1. Check the grid frequency.</li> <li>2. If the grid frequency exceeds the permissible range of inverter protection parameters, ask utility grid company for solution.</li> <li>3. If the grid frequency is within the permissible range, contact Sungrow Service Dept.</li> </ol>
056	Auxiliary DSP detects leakage current exceeds set protection range	<ol style="list-style-type: none"> <li>1. Check whether there is a grounded fault of the PV string.</li> <li>2. If the fault occurs repeatedly, contact Sungrow Service Dept.</li> </ol>
059	Communication alarm between master DSP and slave DSP	<ol style="list-style-type: none"> <li>1. Wait 1 minute for inverter recovery.</li> <li>2. If the fault persists, contact Sungrow Service Dept.</li> </ol>
061	Alarm for no inverter type setting	Contact Sungrow Service Dept.
070	Fans are defective	Stop the inverter and disconnect the AC & DC cables. Check whether the fan duct has been blocked. If not, replace fans.
074	Communication fault of LCD	<ol style="list-style-type: none"> <li>1. Check whether communication cable of the Eshow is firmly connected.</li> <li>2. If the communication cable is firmly connected, a fault has occurred in the internal communication of the inverter. However, the inverter continues feeding into the grid.</li> <li>3. Contact Sungrow Service Dept.</li> </ol>
100	The AC output current exceeds inverter protection limit.	<ol style="list-style-type: none"> <li>1. The inverter will resume if the output current falls below the protection value.</li> <li>2. If the fault still exists, please contact Sungrow Service Dept.</li> </ol>
106	The inverter is not grounded. Neither the PE terminal on the AC connection block nor the second PE terminal on the enclosure is reliably connected.	Check whether there is a reliable inverter grounding line, if there is access to the ground, and the fault still exists, please contact Sungrow Service Dept.

Fault Code	Description	Troubleshooting
200	The bus voltage is high.	1. Wait for inverter recovery after bus voltage lower. 2. If the fault occurs repeatedly, contact Sungrow Service Dept.
201	The bus voltage is too low.	1. Wait a moment for inverter recovery. 2. If the fault occurs repeatedly, contact Sungrow Service Dept.
202	PV current exceeds the set value of the hardware.	If the fault occurs repeatedly, contact Sungrow Service Dept.
203	DC voltage sampling anomaly.	Check the functionality of the PV connection terminals.
205	AC output relay abnormal	1. Wait a moment for inverter recovery. 2. If the fault occurs repeatedly, contact Sungrow Service Dept.
306	Input and output power mismatching fault	If the fault occurs repeatedly, contact Sungrow Service Dept.
315	PV1 current sampling channel fault	Channel sampling anomaly.
316	PV2 current sampling channel fault	Contact Sungrow Service Dept.
409	Ambient temperature sensor fault and radiator temperature sensor fault	If the fault occurs repeatedly, contact Sungrow Service Dept.
503-506	Temperature sensor warnings	

## 8.2 Routine Maintenance

### DANGER

**Risk of inverter damage or personal injury due to incorrect service!**

**Always keep in mind that the inverter is powered by dual sources: PV array and utility grid.**

**Before any service work, observe the following procedure.**

- **Disconnect the inverter from the utility grid side first and then PV array;**
- **Wait at least 10 minutes for inner capacitors to discharge completely;**
- **Verify that no voltage and current existing with appropriate testing devices.**