

Grid voltage issues

Fault 002 indicates that the grid voltage has exceeded the inverter allowable upper limit. The inverter will recover once the grid voltage returned to normal.

Fault 003 indicates that the grid transient voltage exceeds the permissible range. This is a short-term fault due to a grid recovery condition.

Fault 004 indicates that the grid voltage is below the inverter's allowable lower limit.

Fault 005 indicates that the grid voltage is too low. This may be a short-term fault due to a grid condition. Wait a moment for inverter recovery.

This document will use fault 002 as an example to explain troubleshooting and the other faults will have a similar troubleshooting process.

If the fault persists, restart the inverter.

1. Turn off the solar supply main switch or the AC isolator. The solar supply main switch is usually in the switchboard. The AC isolator is between the inverter and the switchboard.
2. Turn off the DC PV array isolator (which is located next to the inverter).
3. Wait until the inverter shuts down completely (there will be no LEDs lit up and no display).
4. Turn on the DC PV array isolator.
5. Turn on the solar supply main switch or the AC isolator (whichever was turned off in step 1).
6. Wait a few minutes for inverter recovery (the LEDs go from flashing green and red indicating standby and starting up, then if the inverter works fine it will go to a green light).

Go to the **fault records** (as shown in Figure 1).

Main Screen (Press ENT) → Menu (Press ▼ × 5) → Fault Record (Press ENT)
 Press ▲/▼ to turn pages and view all fault records.

Fault Record	P1/1
001 15022708:55:27 010	
002 15022707:11:21 501	

Figure 1: fault records

Take note of the most recent faults, and press the escape button to return to the main screen.

Go to running information to check the V_{AC} [V] value (Figure 2).

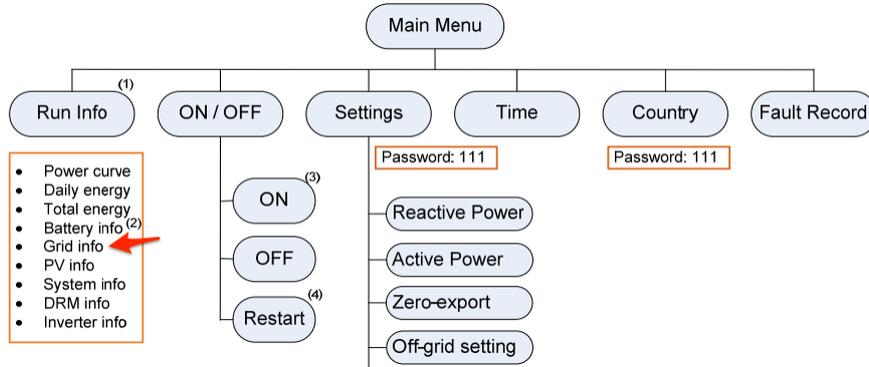


Figure 2: Access running information

Once in the running information, keep tapping the down arrow button to access the AC parameters (Figure 3). Take a photo of the screen showing the values in this table, and send all the photos to service@sungrowpower.com.au.

Vac[V]: AC output voltage.	AC
Iac[A]: AC output current.	Vac[V] 221.7
Pac[W]: AC output power.	Iac[A] 19.7
F[Hz]: Frequency of AC output.	Pac[W] 4230
	F[Hz] 50.0

Figure 3: inverter running information

The normal value should be around 240–250 V (for details see Figure 4 and Figure 5).

Code	Company	Vgrid-max	Vgrid-min	Fgrid-max	Fgrid-min
AG	AusGrid, NSW	260.0 V	200.0 V	52.00 Hz	48.00 Hz
EE*	Ergon Energy, QLD	260.0 V	210.0 V	52.00 Hz	47.00 Hz
EG*	Energex, QLD	260.0 V	210.0 V	52.00 Hz	47.00 Hz
PN	SA Power Networks, SA	257.0 V	200.0 V	52.00 Hz	48.00 Hz
PC	Powercor, VIC	255.0 V	220.0 V	52.00 Hz	47.50 Hz
WP	Western Power, WA	254.0 V	226.0 V	52.00 Hz	47.50 Hz
Default	Australia standard	270.0 V	210.0 V	51.50 Hz	47.50 Hz

*The 10min-vol parameters of EE and EG are 255.0 V and 257.0 V, respectively.

Figure 4: Parameters of Grid Standards for inverters that do not comply with AS4777.2:2015

Parameter	Default	AG	EE	EG	PN	PC	WP
Over-voltage							
1-V _{max} (V)	260.0	260.0	260.0	260.0	257.0	260.0	260.0
1-Time (s)	2.0	1.80	1.80	1.80	1.80	1.80	1.80
2-V _{max} (V)	265.0	265.0	265.0	265.0	265.0	265.0	265.0
2-Time (s)	0.20	0.20	0.20	0.20	0.20	0.20	0.20
Under-voltage							
1-V _{min} (V)	180.0	200.0	210.0	210.0	200.0	195.0	180.0
1-Time (s)	2.0	1.80	1.80	1.80	1.80	1.80	1.80
2-V _{min} (V)	180.0	200.0	210.0	210.0	200.0	195.0	180.0
2-Time (s)	2.0	1.80	1.80	1.80	1.80	1.80	1.80
Over-frequency							
1-F _{max} (Hz)	52.00	52.00	52.00	52.00	52.00	51.50	51.50
1-Time (s)	0.20	0.20	0.20	0.20	0.20	0.20	0.20
2-F _{max} (Hz)	52.00	52.00	52.00	52.00	52.00	51.50	51.50
2-Time (s)	0.20	0.20	0.20	0.20	0.20	0.20	0.20
Under-frequency							
1-F _{min} (Hz)	47.00	48.00	47.00	47.00	48.00	48.50	47.00
1-Time (s)	2.0	1.80	1.80	1.80	1.80	1.80	1.80
2-F _{min} (Hz)	47.00	48.00	47.00	47.00	48.00	48.50	47.00
2-Time (s)	2.0	1.80	1.80	1.80	1.80	1.80	1.80
10-min voltage							
1-V _{10-min} (V)	255.0	255.0	255.0	257.0	255.0	255.0	258.0
1-V _{10-min} (V)	255.0	255.0	255.0	257.0	255.0	255.0	258.0

Figure 5: Parameters of Grid Standards for inverters that comply with AS4777.2:2015 (which were connected to the grid after October 9 2016).

If the value is too high, you have two options.

The first option is to contact your local distributed network service provider (**DNSP**); particularly if the voltage is beyond the range specified by the DNSP (this information is available on request).

Alternatively, you may change the **Protective Parameter Setting**. We do not advise to change the setting beyond the range specified by the DNSP or Australian Standards (particularly AS4777.2.2015).

Go to Country and enter password “111” and then select “AU” (Figure 6);

Main Screen (Press ENT) → Menu (Press ▼×4) → Country (Press ENT)

Press ▲ and Press ENT to input the password 111.
Press ENT to confirm the password.

Only the codes of GB, NL, BE, CHN, SA and AU are supported.

Select the correct grid standard for the country code “AU” .
For parameter descriptions of other grid standards, see **Tab. 7-3**.

Figure 6: Change Protective Parameter Setting

Select “**Manual**” and then select “**Single-stage**” to adjust the **Vgrid-max** value (Figure 7) and press enter to see “Setting completed”.

Set the single stage protective parameters manually for “AU”.

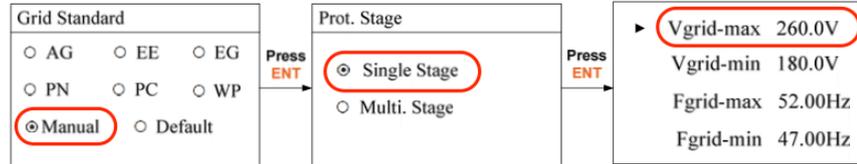


Figure 7: change to single stage

After doing this, if the grid voltage value is normal by measuring an inverter’s AC power plugs, but the **V_{AC}** reading on the LCD screen is higher, which may be caused by voltage rise.

Issue: cable impedance may cause a voltage rise between an inverter’s AC power plugs and a switchboard.

Troubleshooting: Stop the inverter via the below steps (Figure 8) and then check the **V_{ac}** reading on the LCD screen. If the **V_{ac}** value on the LCD screen is close to the reading on the multimeter, it will prove that the cable impedance is high because the inverter has a different reading on the LCD screen when it is programmed on and off from the LCD, corresponding to with and without current, respectively.

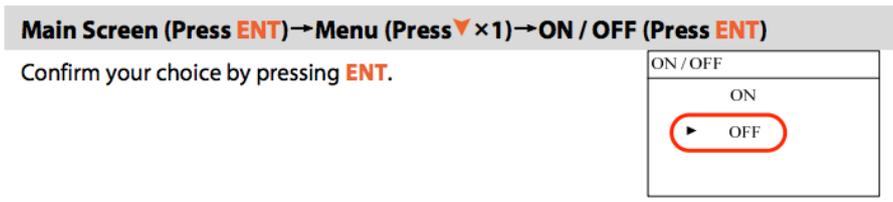


Figure 8: ON/OFF option

If you have completed the above steps and believe the inverter is still faulty, please take photos as above and contact the Sungrow Service Department.