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User Manual

Off-grid Commissioning

SG1100UD Series

This document gives an introduction to the basic functions, application scenarios, and operation methods of the off-grid commissioning solution.

1 Function Description

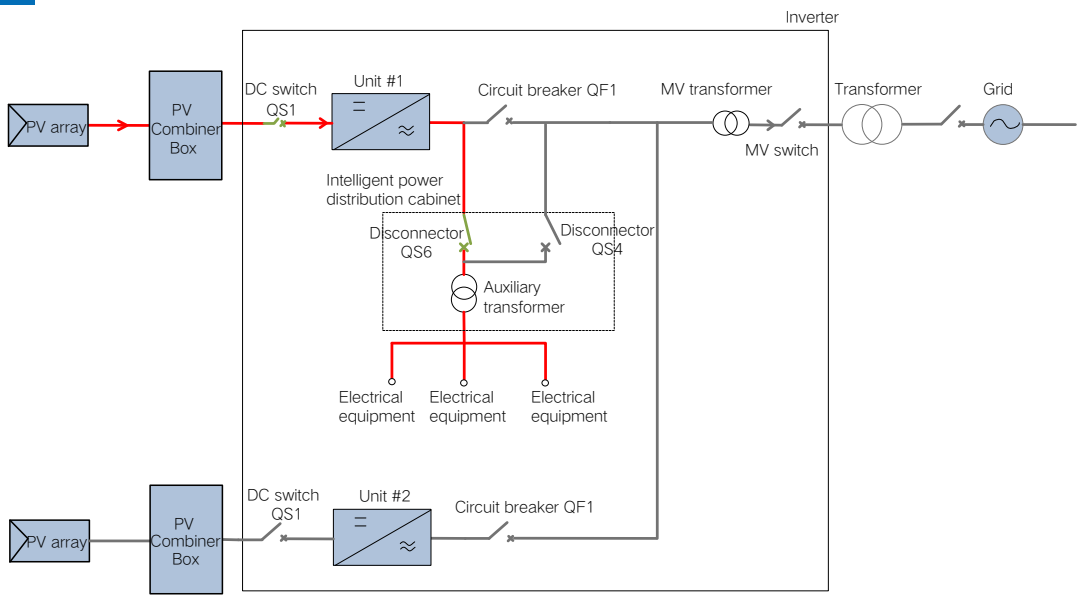
In the early stage of power plant commissioning, where no power supply is available as the inverter cannot provide AC output or the grid cannot supply electricity, the equipment on the site cannot be commissioned. In such cases, the Off-grid Commissioning function can be used. By making the inverter work in the high voltage or low voltage mode, it manages to construct AC power sources of different voltage levels to supply the equipment for on-site communication and joint commissioning. In this way, the time spent in plant commissioning can be shortened.

2 Low Voltage Mode

2-1 Application Scenario

The low voltage mode is suitable for powering the commissioning tools and test equipment in the event that the grid cannot supply electricity. Please note that the grid side should not be powered when commissioning under the low voltage mode.

2-2 Operation Method



Step 1. Disconnect the MV switch, and close the output switch of the upstream PV combiner box connected to Unit #1 of the inverter.

Step 2. Close manually Unit #1's DC load switch QS1 and maintenance switch QS2.

Step 3. Open the disconnector QS4 and close the disconnector QS6 inside the power distribution cabinet.

Step 4. Rotate the start/stop knob of Unit #1 to the "START" position.

Step 5. Log into the Web interface. Choose "Device Monitoring" -> "Operation Parameters" -> "Off-Grid Mode", and select "Low voltage mode". Set the "Off-grid Output Volt" to "100%", "Off-grid Output Volt Gradient" to "100%", and "Off-grid Output Frequency" to "50/60Hz". Then, click "Settings" in the upper right corner to apply the settings.

Parameter	Description	Range	Default value
Off-grid mode	To enable/disable the off-grid mode.	Close/Low voltage mode/ High voltage mode	Close
Off-grid output volt (%)	The output voltage of the inverter in off-grid mode.	90~110	100
Off-grid output volt gradient(%s)	The gradient of inverter output voltage change in off-grid mode	1~100	100
Off-grid output frequency (Hz)	Inverter output frequency in off-grid mode	45~55/55~65	50/60

Step 6. Send a boot command on the Web interface to start Unit #1 up. At this time, the intelligent power distribution cabinet is capable of supplying power to devices such as test equipment and commissioning tools.

- Post-commissioning Work

1. After the commissioning is finished, send a shutdown command on the Web interface to stop Unit #1 of the inverter.
2. On the Web interface, choose "Device Monitoring" -> "Operation Parameters". Select "Off-Grid Mode" and set it to "Close".
3. Rotate the DC-side start/stop knob of Unit #1 to the "STOP" position.
4. Open the disconnector QS6 and close the QS4 inside the power distribution cabinet.
5. Disconnect Unit #1's DC load switch QS1 and maintenance switch QS2.
6. Disconnect the output switch of the upstream PV combiner box connected to the inverter.

Notice

- Commissioning under the low voltage mode will use Unit #1 by default. However, for SG6600UD-MV, Unit #3 may be used; and for SG8800UD-MV, Unit #4 may be used. The actual unit to be used depends on the wiring on the site. To change the unit to be used for commissioning, log into the Web interface, choose "Device Monitoring" -> "System Parameters" -> "Debugging Unit No.", and enter the No. of unit you want to use. Then, proceed with other settings on the Web.

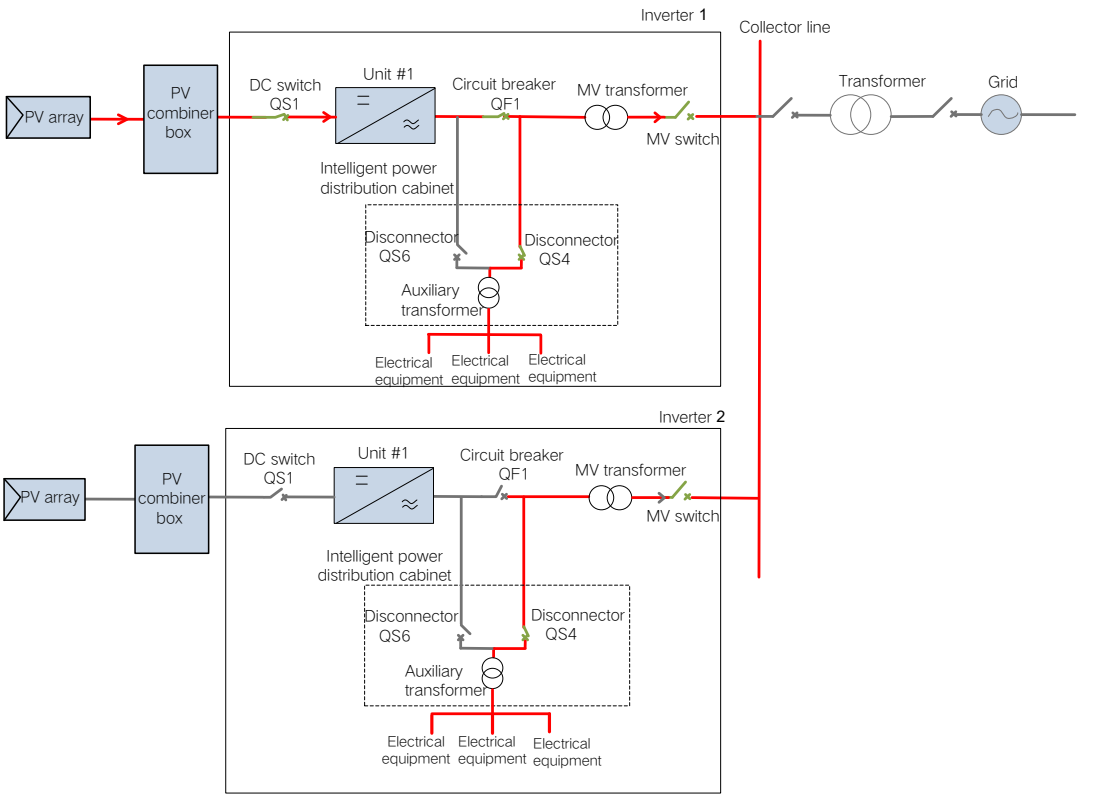
- North American variants do not have the start/stop knob. You may ignore instructions regarding the operation of this knob.

3 High Voltage Mode

3-1 Application Scenario

The high voltage mode is suitable for inverter commissioning in the event that the grid cannot supply electricity. Please note that the grid side should not be powered when commissioning under the high voltage mode.

3-2 Operation Method



Requirements

- Except for those of the inverter used in off-grid commissioning (i.e., Inverter 1), the DC-side switches of inverters are all in the off state.
- Confirm that except for those of Inverters 1 and 2, the MV switches of inverters are all disconnected.
- Ensure that the collector line is disconnected from the grid; all the other power-consuming equipment in the collector line are disconnected.

Operation Procedure

Step 1. Close the MV switches of Inverters 1 and 2, and close the output switch of the upstream PV combiner box connected to Unit #1 of Inverter 1.

Step 2. Close manually the DC load switch QS1 and maintenance switch QS2 of Unit #1 of Inverter 1.

Step 3. Close the QS4 and open the QS6 inside the power distribution cabinets of Inverters 1 and 2.

Step 4. Rotate the DC-side start/stop knobs of all units in Inverter 2 to "STOP", and close the QS2 of all units.

Step 5. Log into the Web interface for Inverter 1, and choose "Device Monitoring" -> "Operation Parameters" -> choose "Off-Grid Mode" and set it to "High voltage mode". Set the "Off-grid output volt" to "100%" and the "Off-grid Output Volt Gradient" to "5%"; you may properly adjust the gradient value, which however is not suggested to exceed 10%. Set the "Off-grid output frequency" to "50/60Hz". Then, click "Settings" in the upper right corner to apply the settings.

Parameter	Description	Range	Default value
Off-grid mode	To enable/disable the off-grid mode.	Close/Low voltage mode/ High voltage mode	Close
Off-grid output volt (%)	The output voltage of the inverter in off-grid mode.	90~110	100
Off-grid output volt gradient(%s)	The gradient of inverter output voltage change in off-grid mode	1~100	100
Off-grid output frequency (Hz)	Inverter output frequency in off-grid mode	45~55/55~65	50/60

Step 6. Rotate the DC-side start/stop knob of Unit #1 in Inverter 1 to "START", and send a boot command on the Web interface to start up Unit #1 of the inverter. At this same, the grid voltage is created, and the intelligent power distribution cabinet of Inverter 2 can supply power for commissioning.

- Post-commissioning Work

1. Send a shutdown command on the Web interface to stop Inverter 1.
2. Log into the Web interface, choose "Device Monitoring" -> "Operation Parameters" -> choose "Off-Grid Mode" and set it to "Close".
3. Rotate the DC-side start/stop knob of Unit #1 in Inverter 1 to "STOP".
4. Disconnect the DC load switch QS1 and maintenance switch QS2 of Unit #1 in Inverter 1, and open the disconnector QS4 inside its power distribution cabinet.
5. Disconnect the output switch of the upstream PV combiner box connected to Unit #1 in Inverter 1 and its corresponding MV switch.
6. Disconnect the MV switch and the maintenance switch QS2 of Inverter 2, and open the QS4 inside its power distribution cabinet.

Notice

North American variants do not have the start/stop knob. You may ignore instructions regarding the operation of this knob.

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