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NEP RSD System Installation Procedures

Release: March 20, 2022

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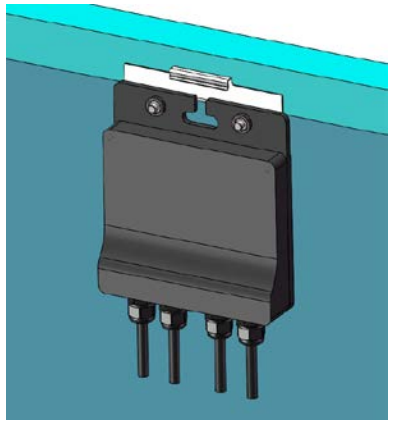
Step-1: Mount PVG

- PVG can be mounted on PV panel frame or on a rail
  - Follow module manufacturer's instructions if mounted on frame [Ref: MOUNTING GUIDE PVG]
- A minimum 0.5 inch MUST be kept between any portion of PVG to the backside of a PV panel
  - Violation may result in overheat on both PVG and PV panels
- PV cable between PV panels and PVG including extension cable should not be more than 2.0 meters



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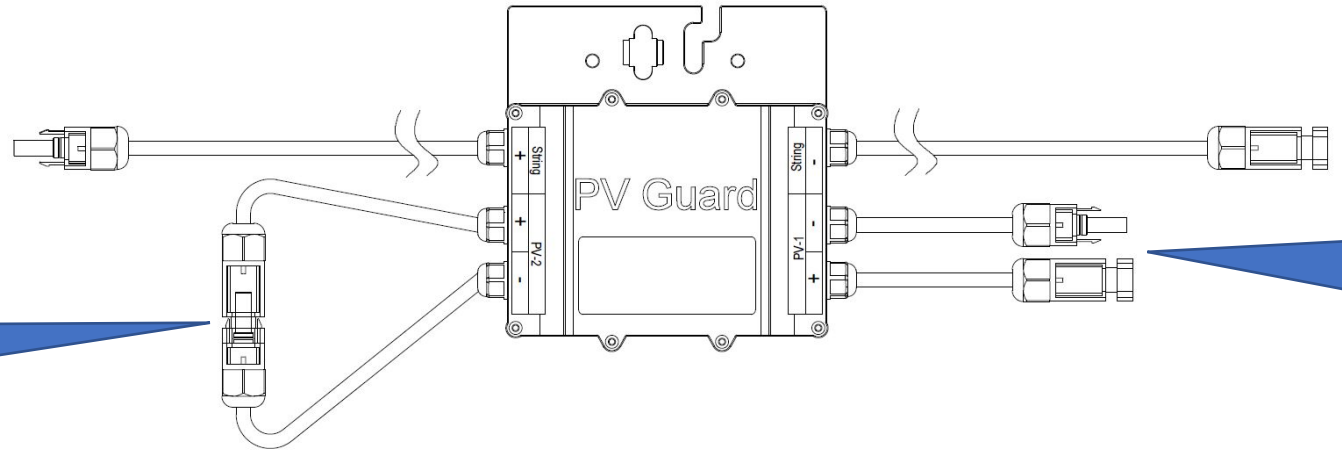
Step-2: Connect PVG to modules

- **<u>PVGs must be connected to PV modules before connecting homeruns</u>**
- While plugging or unplugging PVGs in a system, DC switch on the inverter must be turned off



Unused port shall be shorted

PV-1 must be connected to a PV panel to power the unit

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Step-3: Test String Output Voltage of PVG

- PVG default state from factory is OFF
- Safety voltages (OFF) when PV-1 port is powered by a PV module
  - ✓PVG_1 and PVG_4: 0.65 Vdc
  - ✓PVG_2: 1.4 Vdc
  - ✓PVG_3: 1.8 Vdc

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Step-4: Connect Homeruns

- **<u>PVGs must be connected to PV modules before connecting homeruns</u>**
- Following steps are *recommended** to reduce cross interference between PLC signals from different PVG controllers
  - Separate raceway of homeruns for different PVG controllers as far as possible
  - Keep positive and negative conductors of homeruns of the same PV string as close as possible to a twisted pair in a cable tray
  - Avoid conductors of homeruns for different PVG controllers in the same raceway
  - Separate conductors for different PVG controllers as far as possible

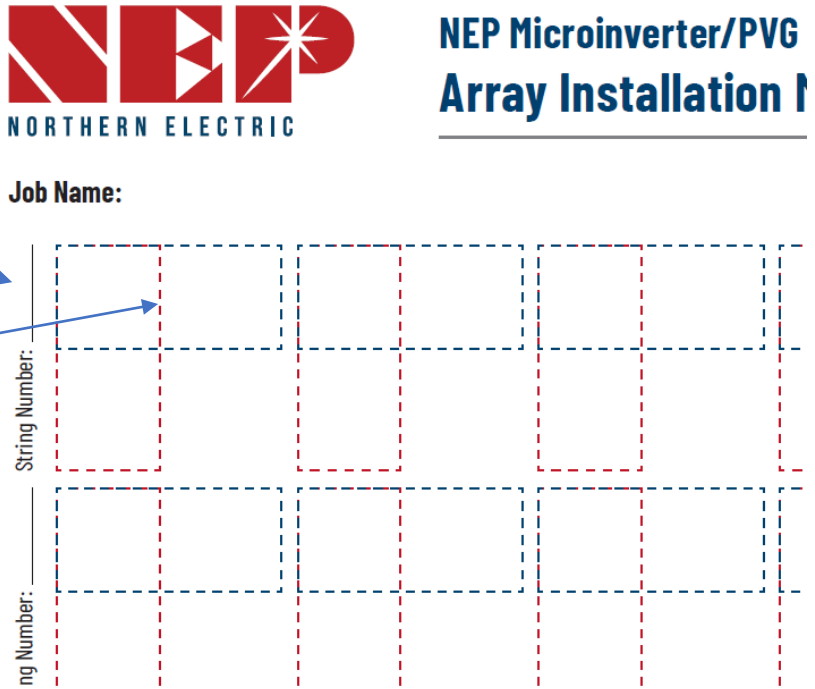
*** PVG and PVG controllers use advanced signaling to eliminate cross talk interference between adjacent systems**

Step-5: Build PVG map

- This step is required for panel level monitoring
- This step is recommended for post installation services

1 Fill in string number

2 Take one barcode sticker from PVG and put on the map



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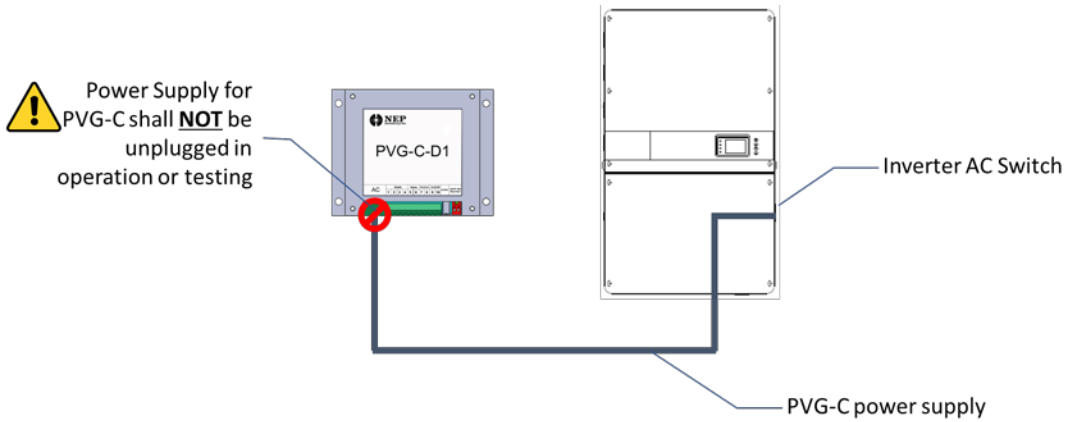
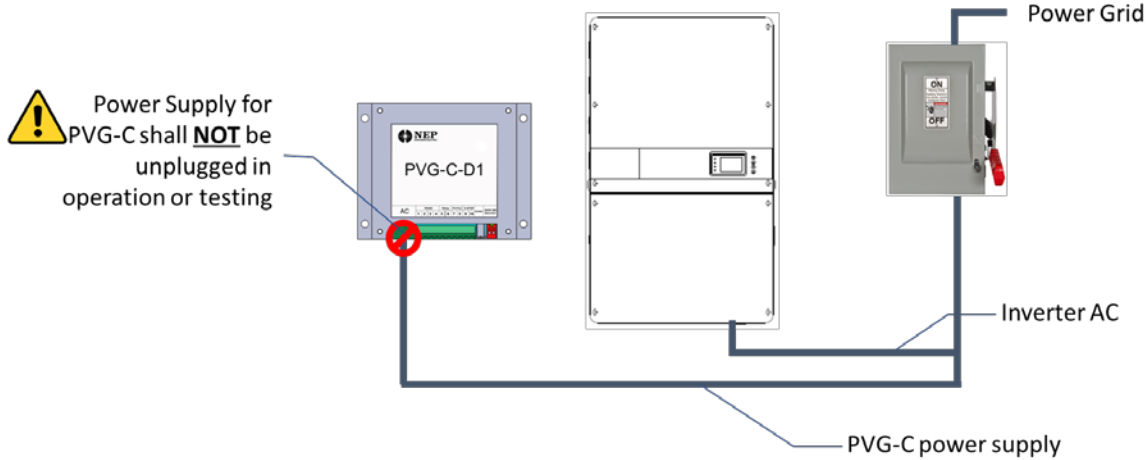
Step-6*: Wire PVG Controller Power Supply

- Power conductor to PVG controller shall be 18AWG or 20AWG
- PVG controller shall never loose power supply while inverter is running and taking PV power



Option 1



Option 2

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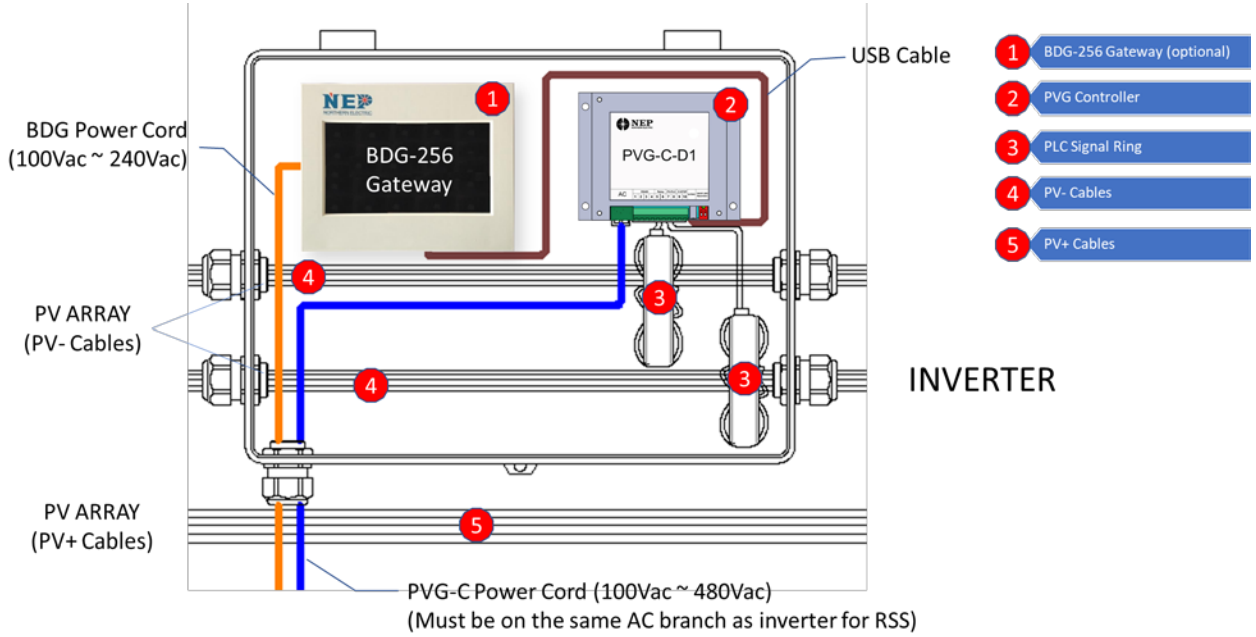
Step-7*: Connect PVG Controller Signal Ring

- Only positive **OR** negative PV cables should pass through the signal ring
  - PLC signal may cancel each other if both “positive” and “negative” cables pass through the signal rings



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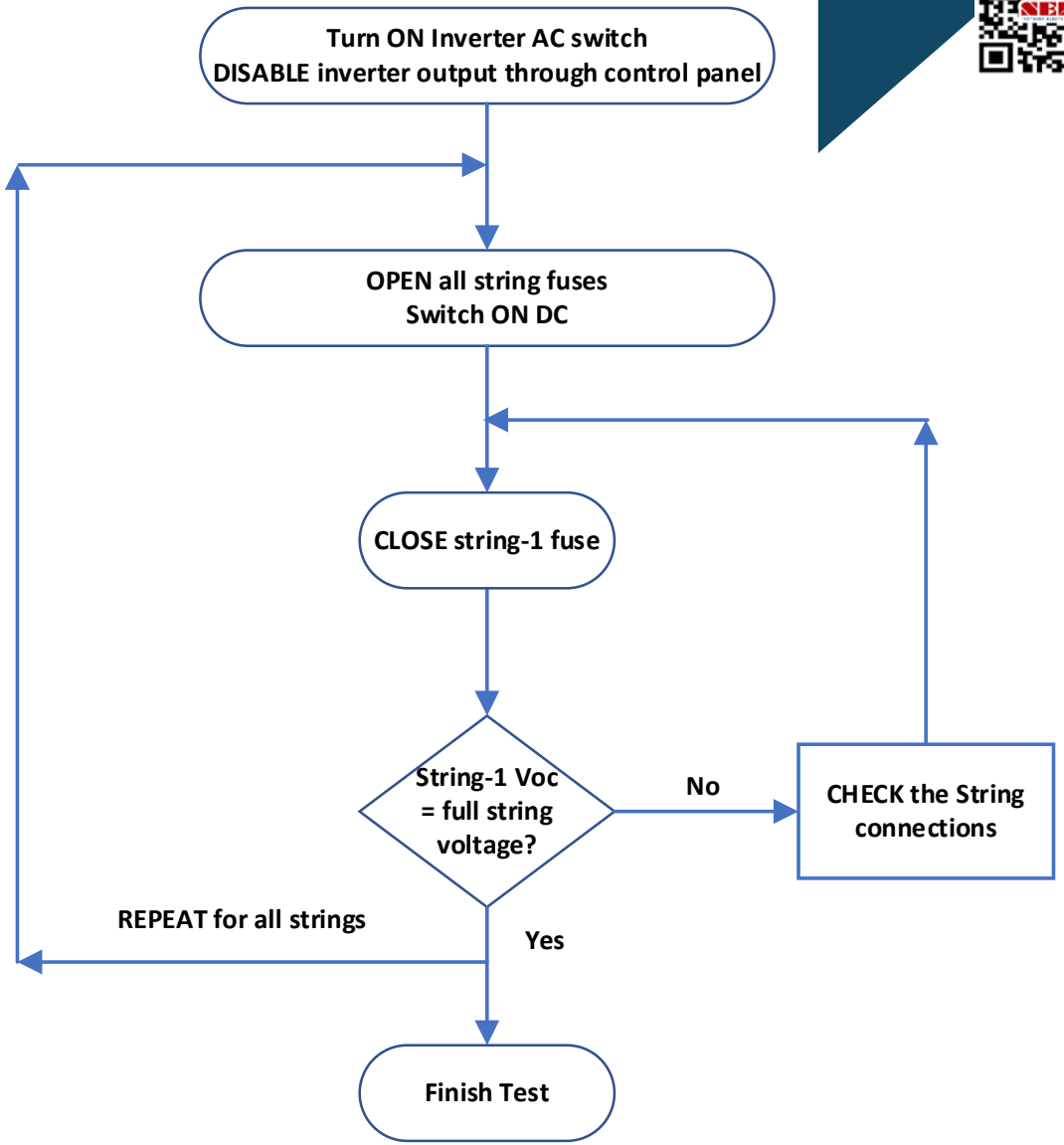
Step-8: Check String Voltage (Inverter w/ built-in PVG transmitter)



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Step-9: Commissioning

- After all strings of the site have been tested, inverters can be turned on.
- String current should be checked to confirm on correct operation.

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Trigger Rapid Shutdown

- Rapid Shutdown should be triggered by pulling the site AC switch that disconnects *BOTH* inverters AC and PVG power supply
  - String voltage should drop to safety voltage within 30 seconds