

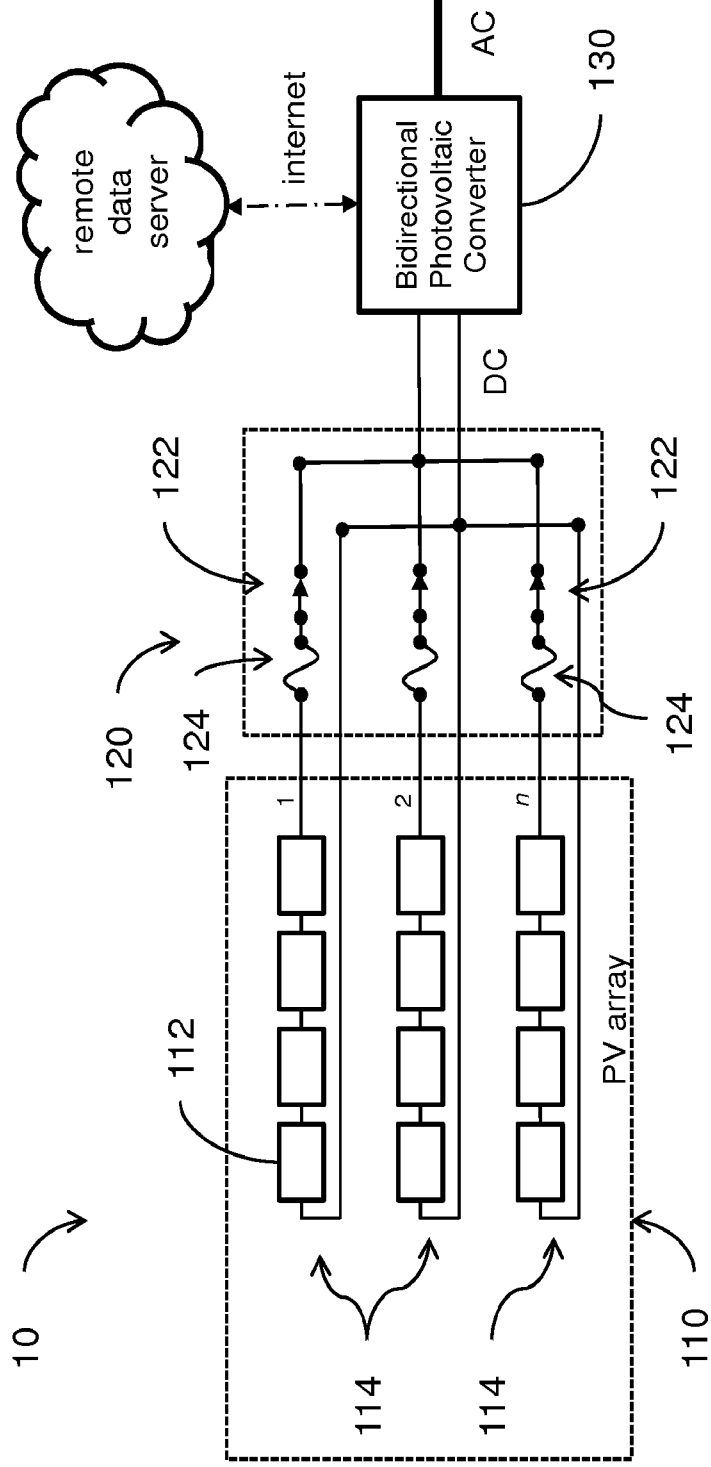


Figure 1. Embodiment of a PV System

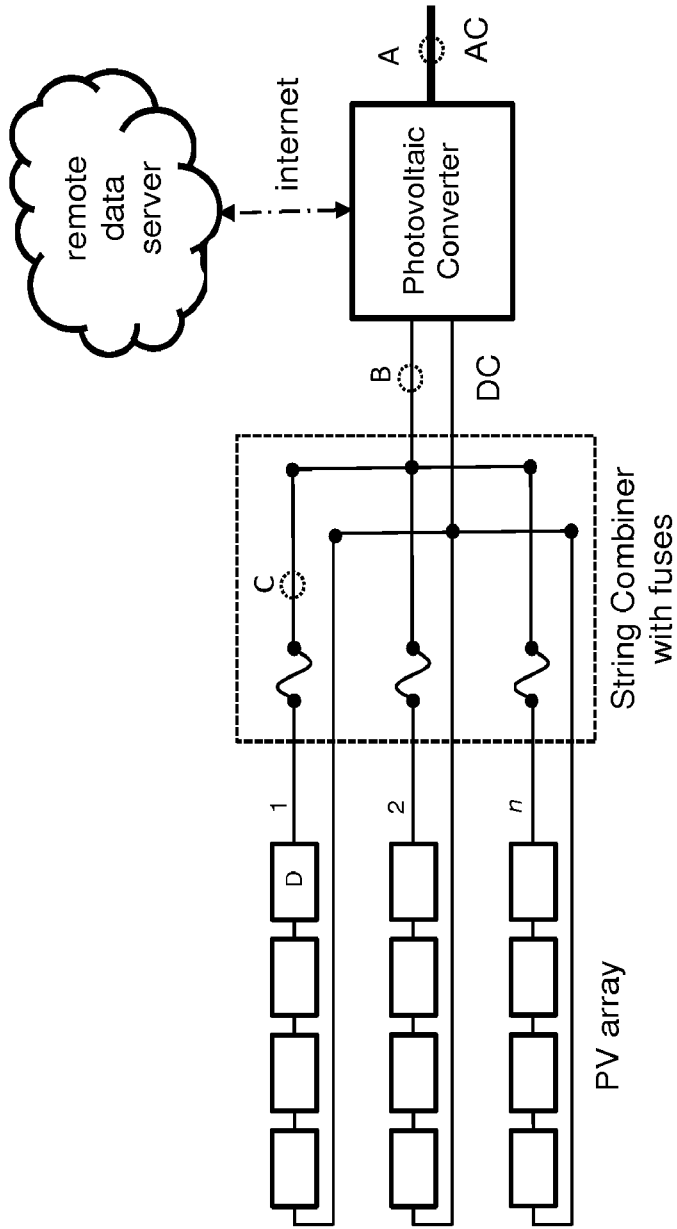


Figure 2. Measurement locations for Power Monitoring of a PV System

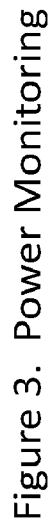


Figure 3. Power Monitoring

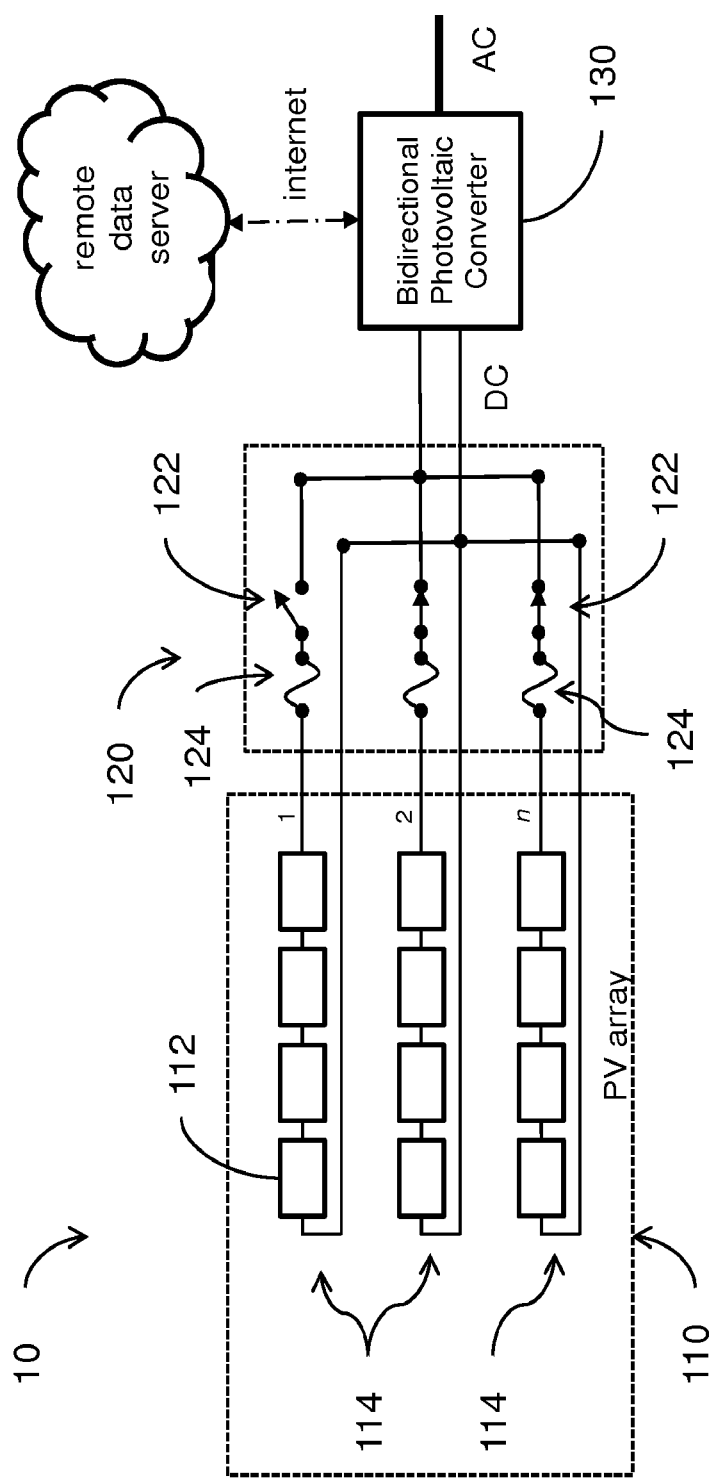


Figure 4. Power Monitoring with String Disconnects

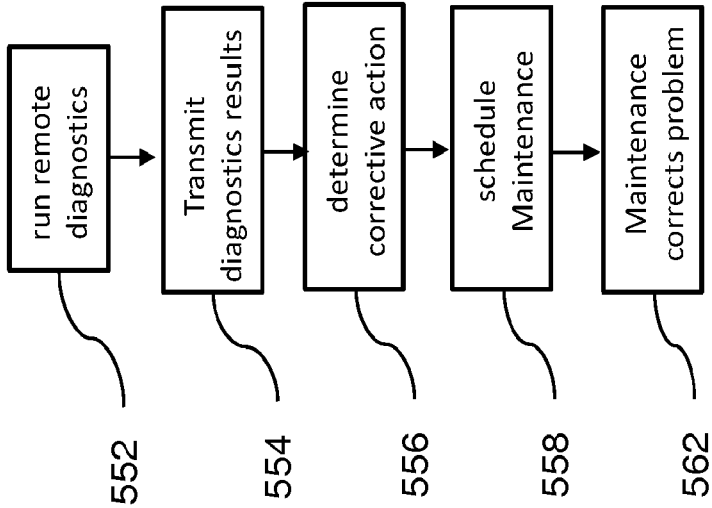


Figure 5B. Power Monitoring with automated diagnostics

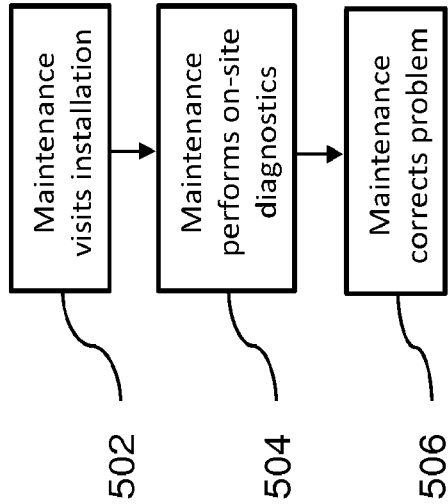


Figure 5A. Power Monitoring with Diagnostics Performed on Site with Maintenance staff

PRIOR ART

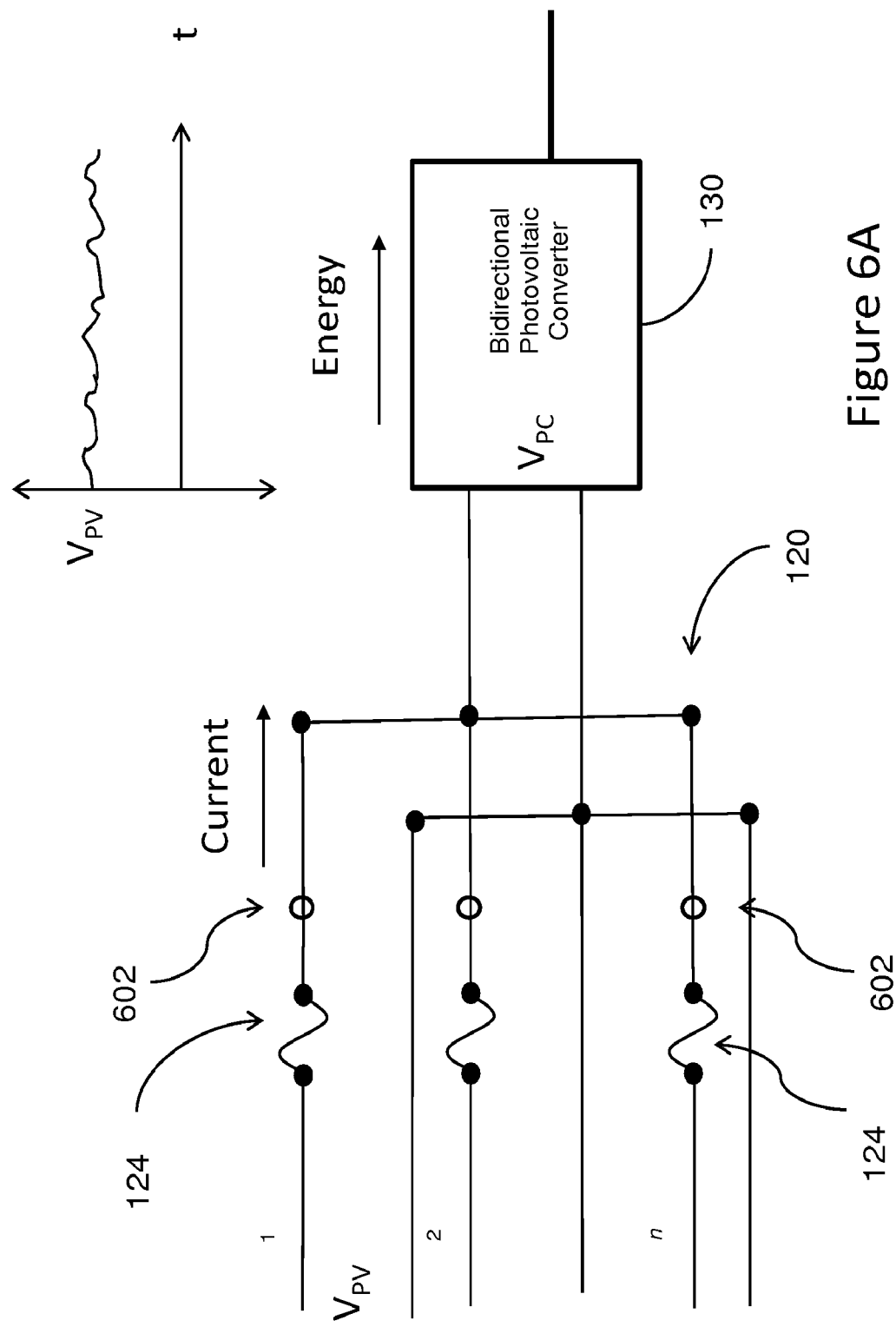


Figure 6A

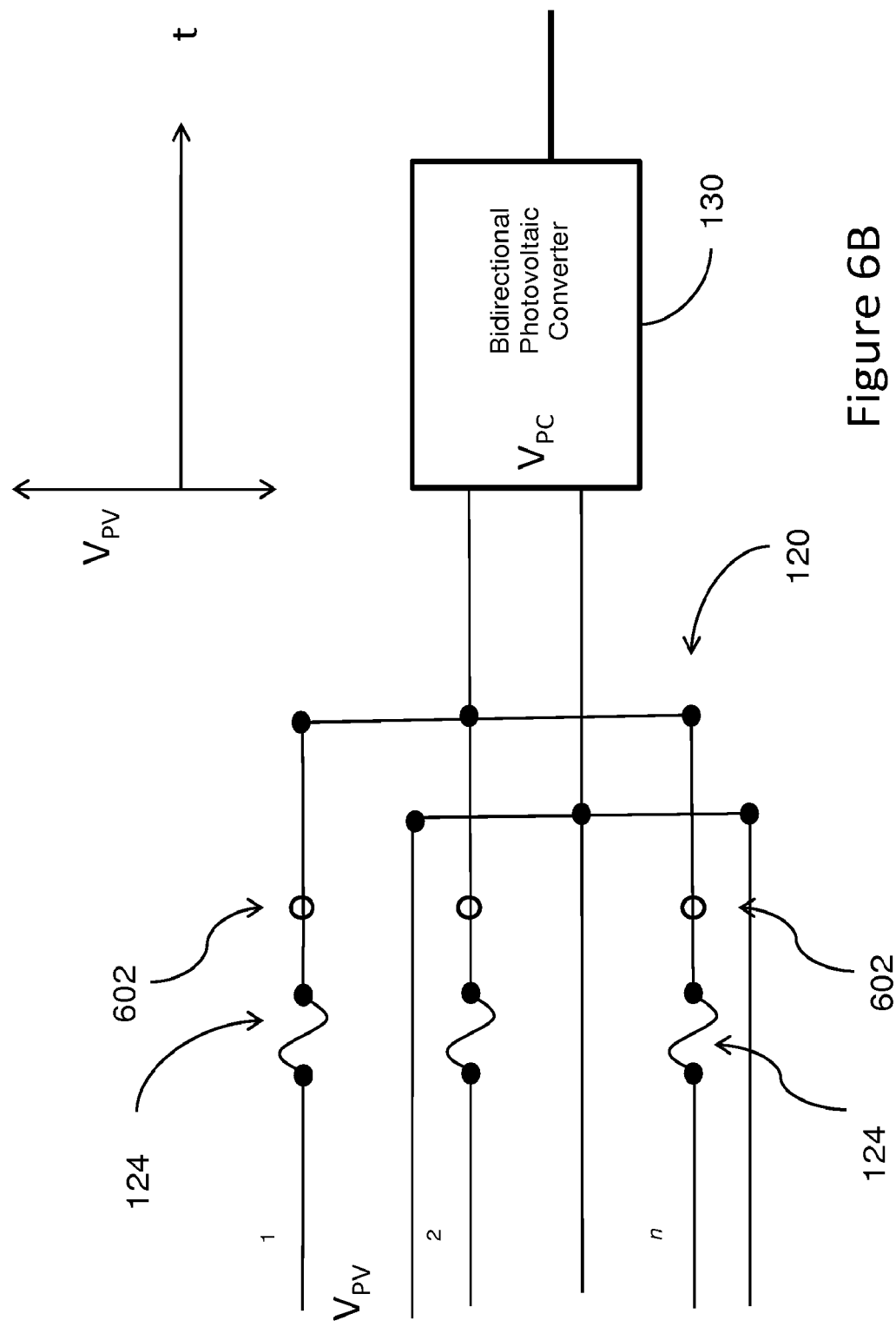


Figure 6B

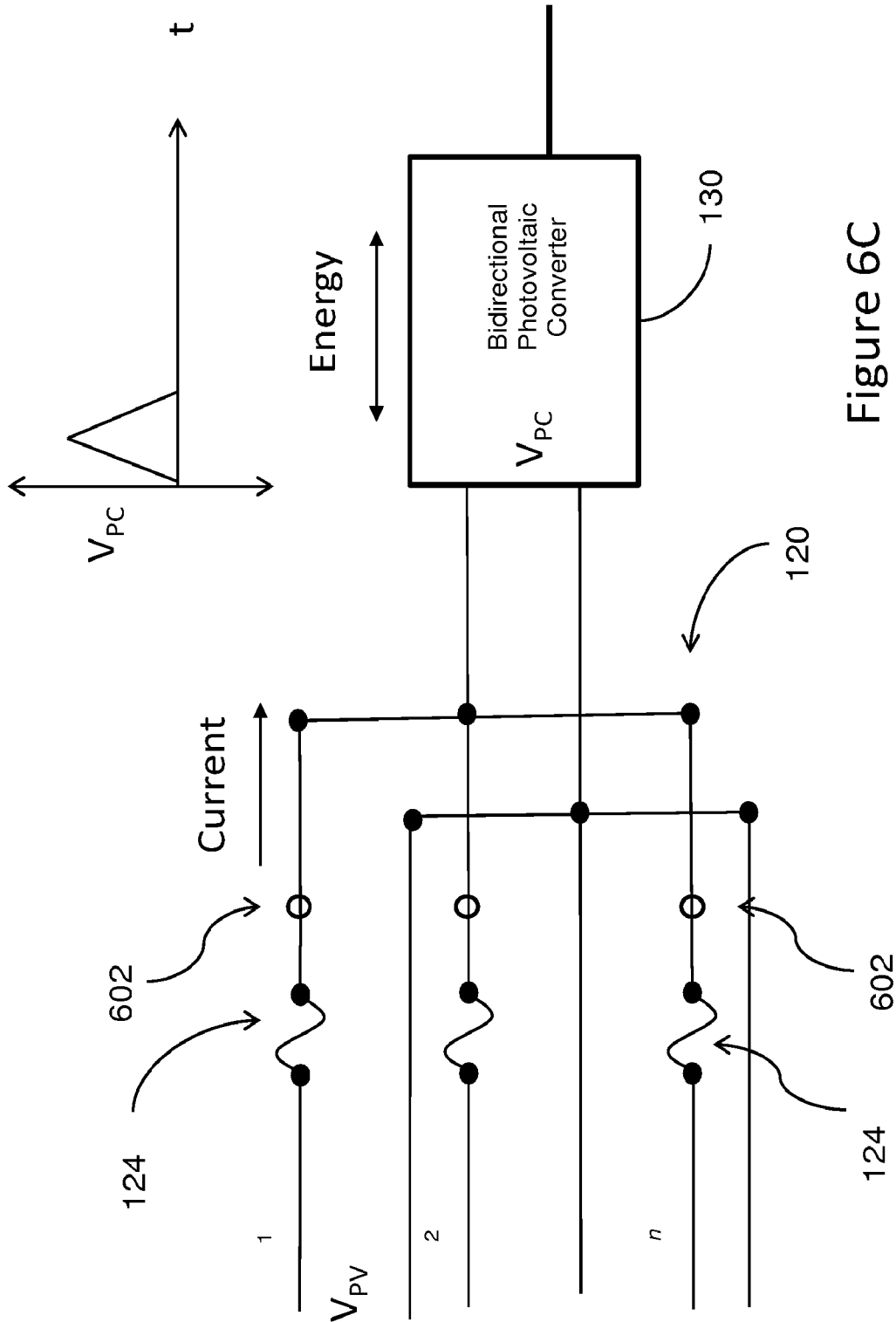


Figure 6C

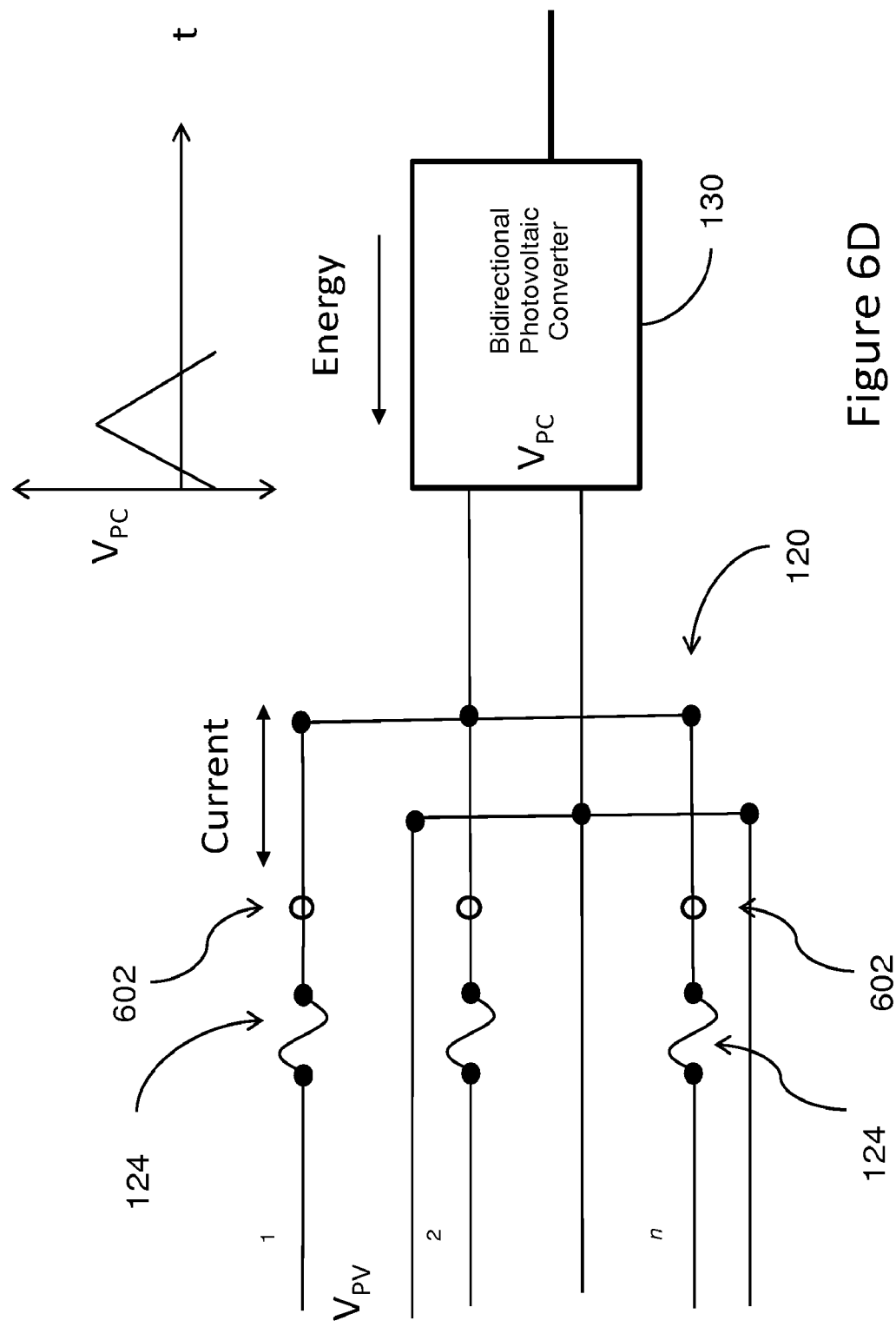


Figure 6D

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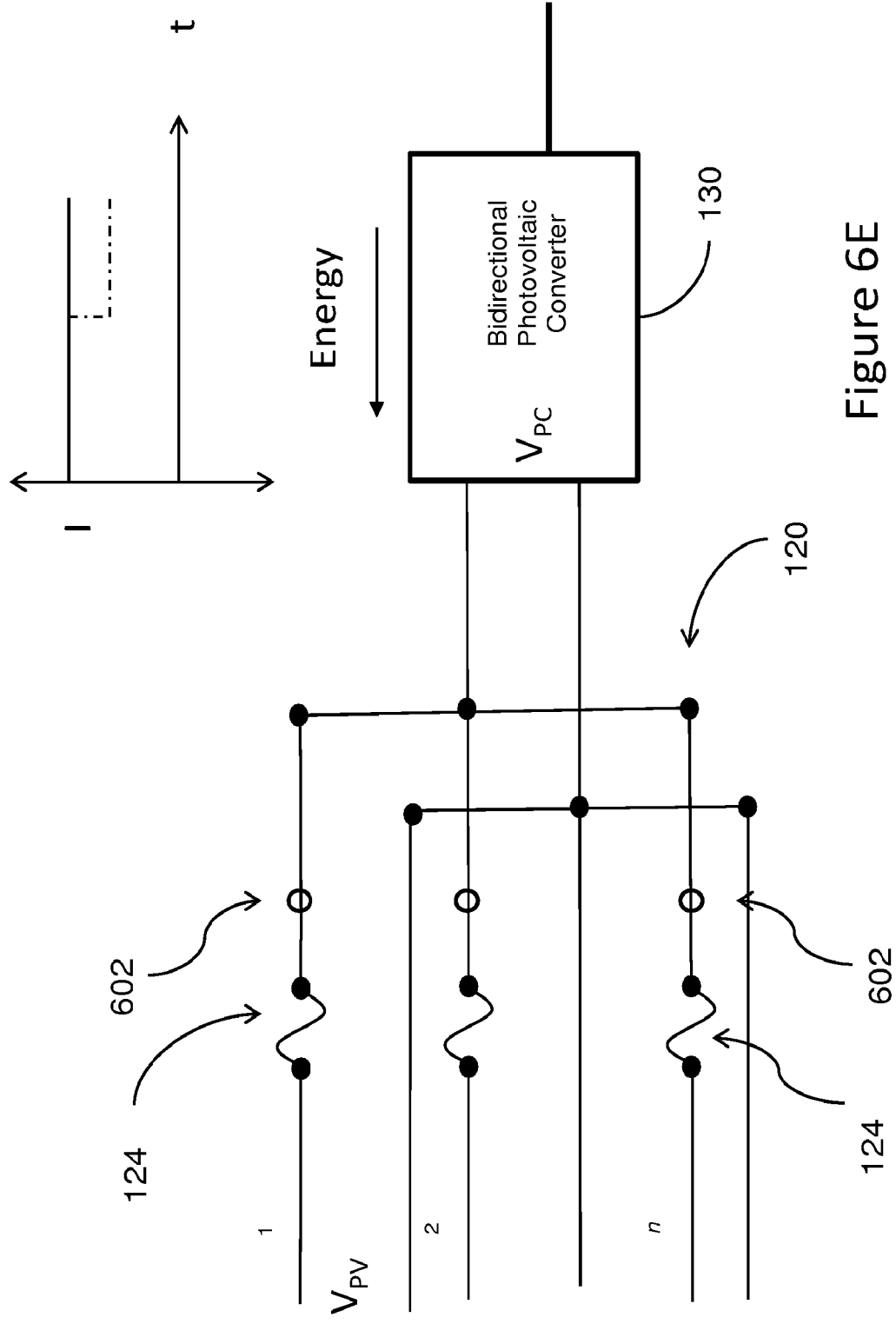


Figure 6E

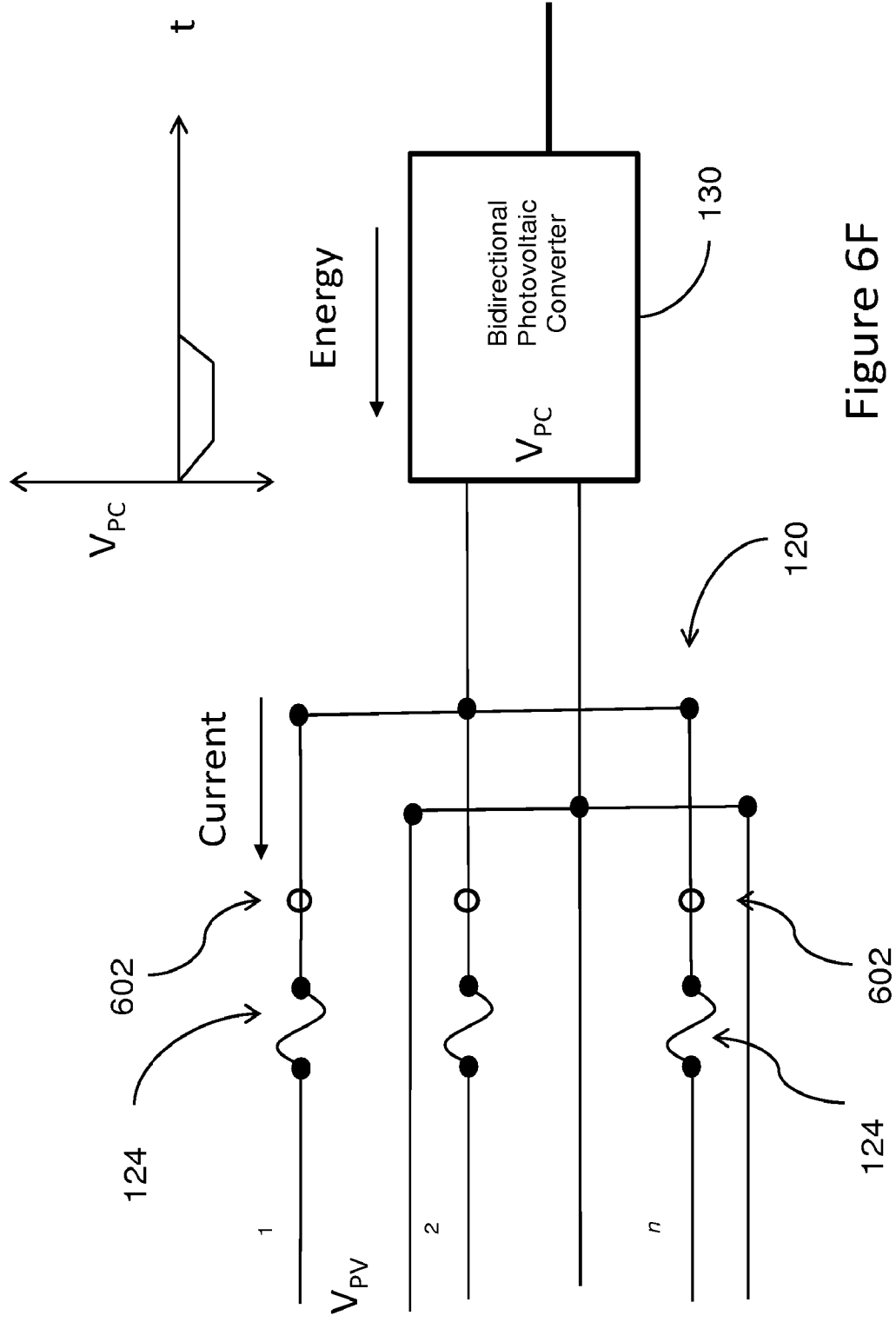


Figure 6F

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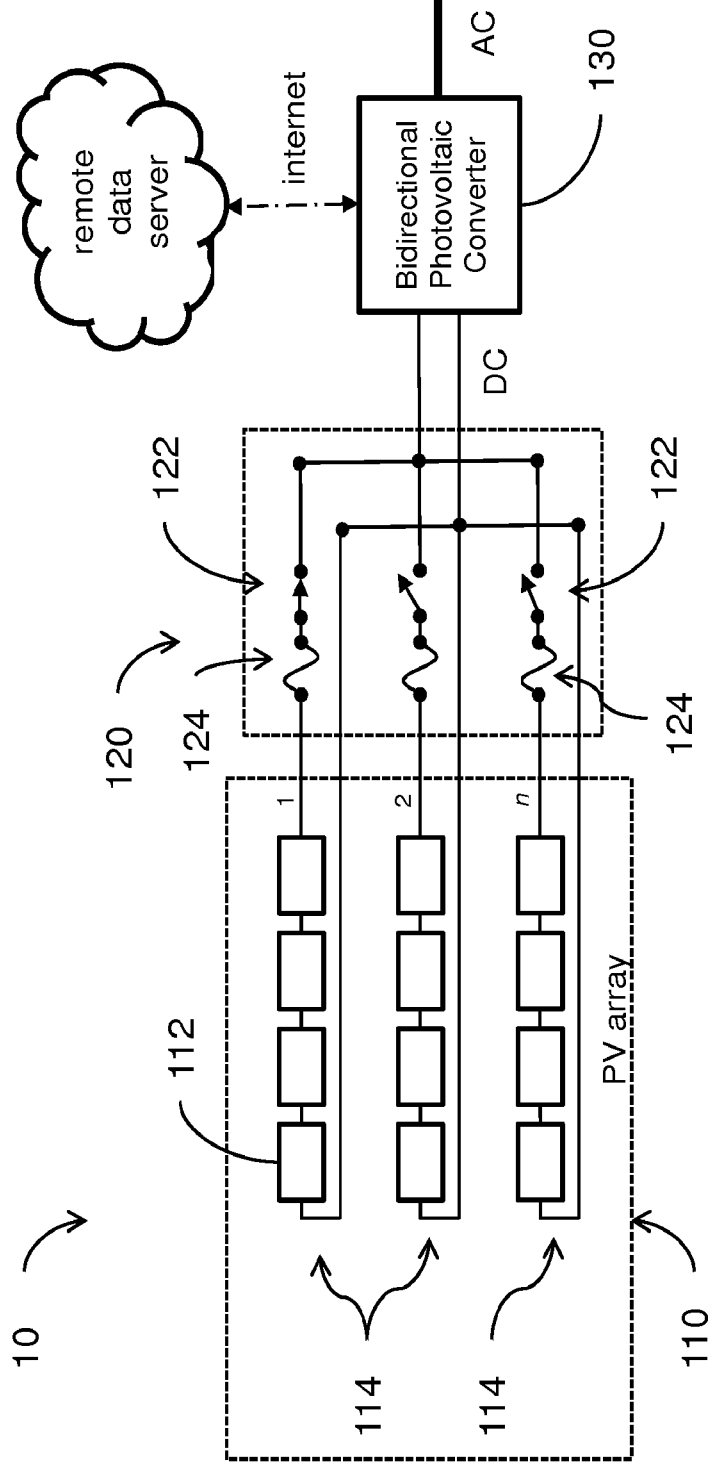


Figure 7A. Diagnostics with String Disconnects
Opens all strings disconnects except for string under test

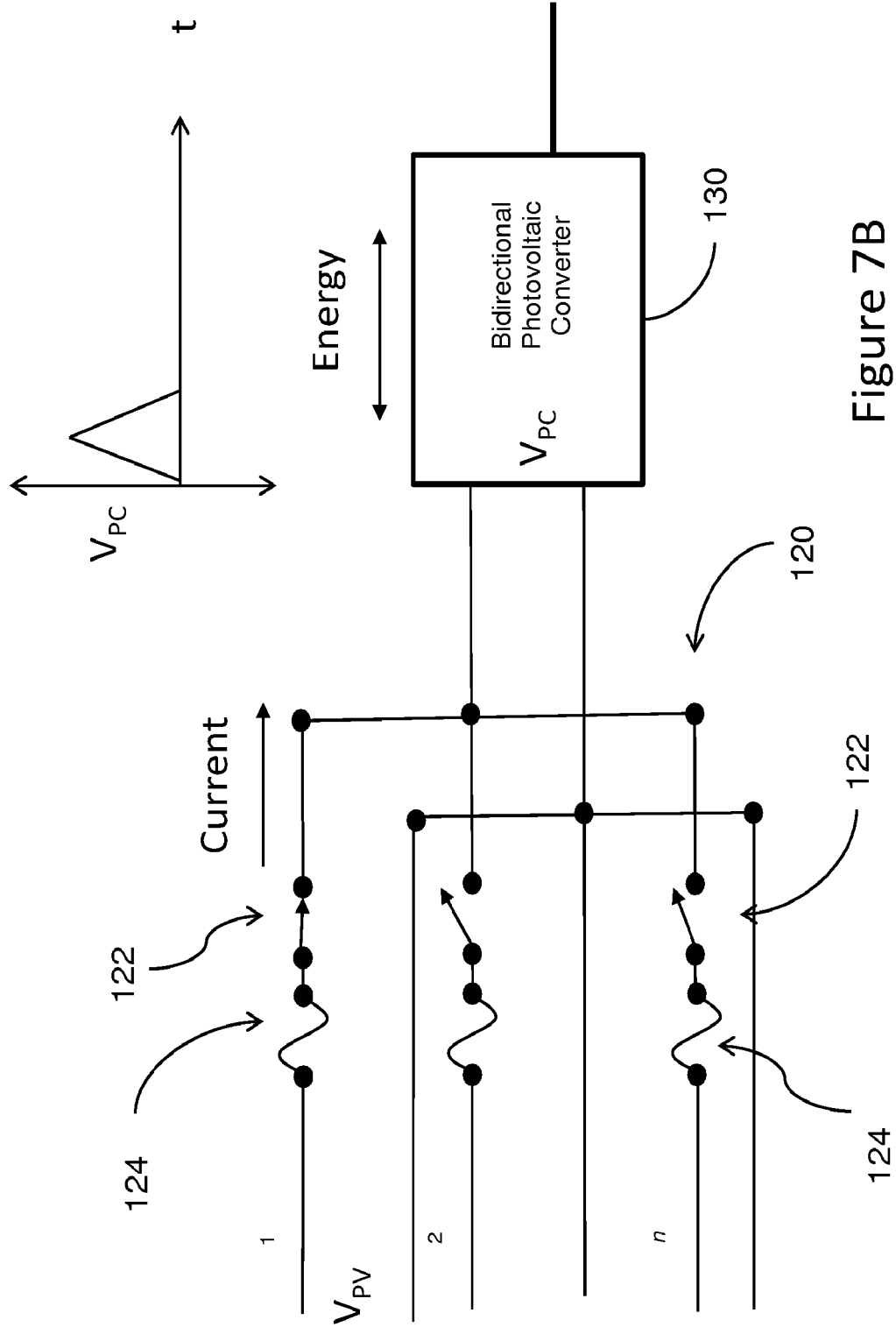


Figure 7B

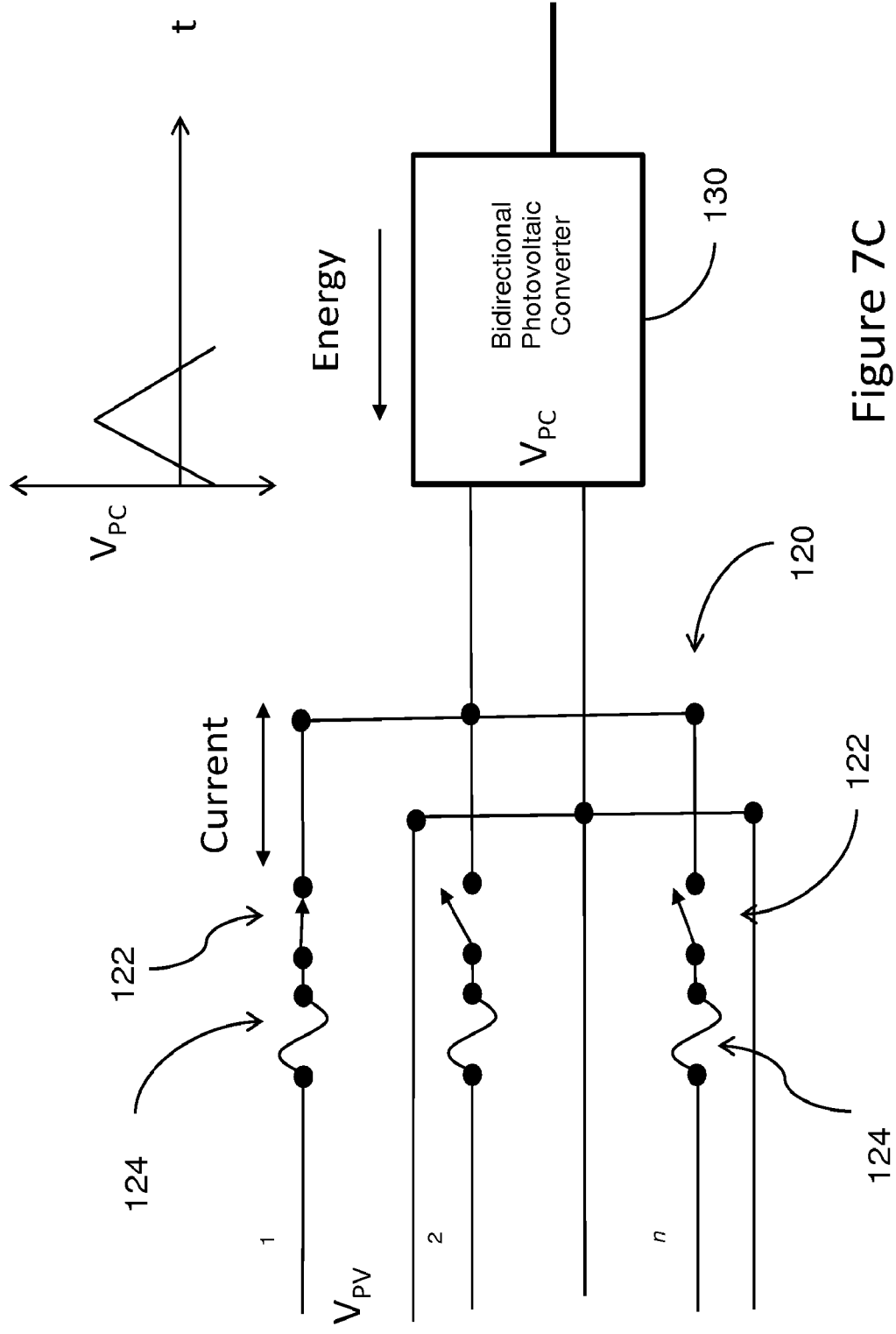


Figure 7C

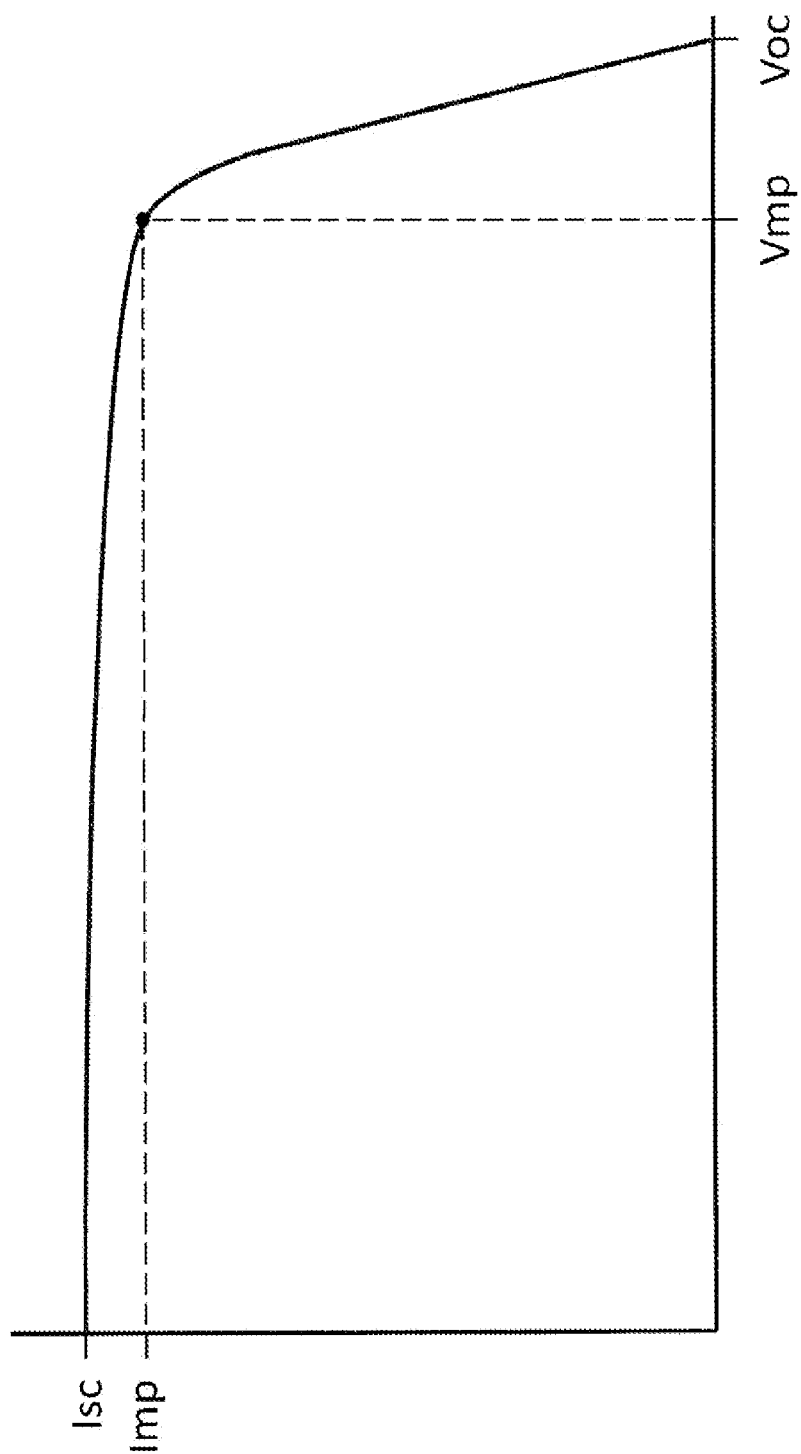


Figure 8. Normal IV Array Curve

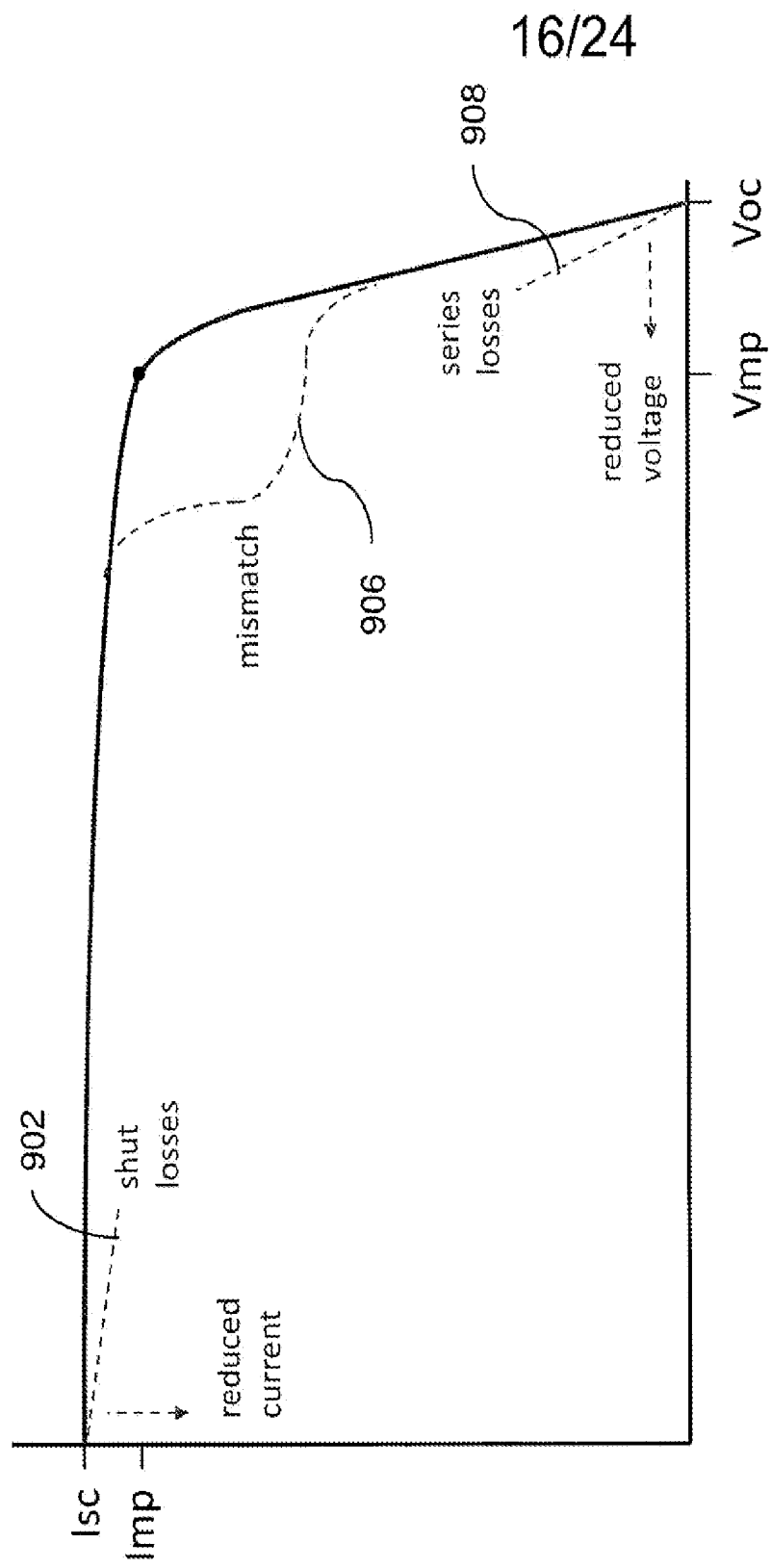


Figure 9. IV Curve Array with Impairments

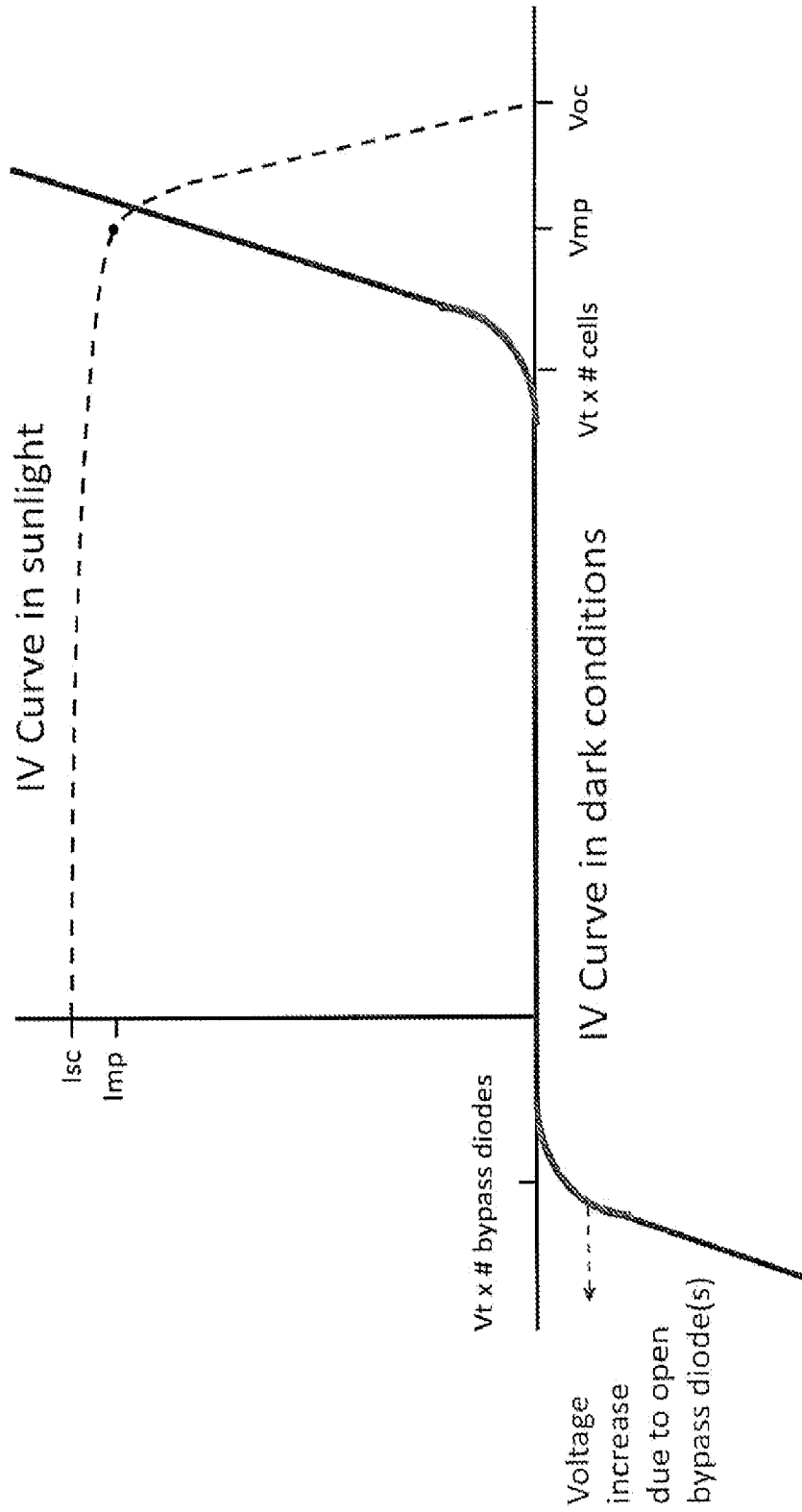


Figure 10. Night time Diagnostics

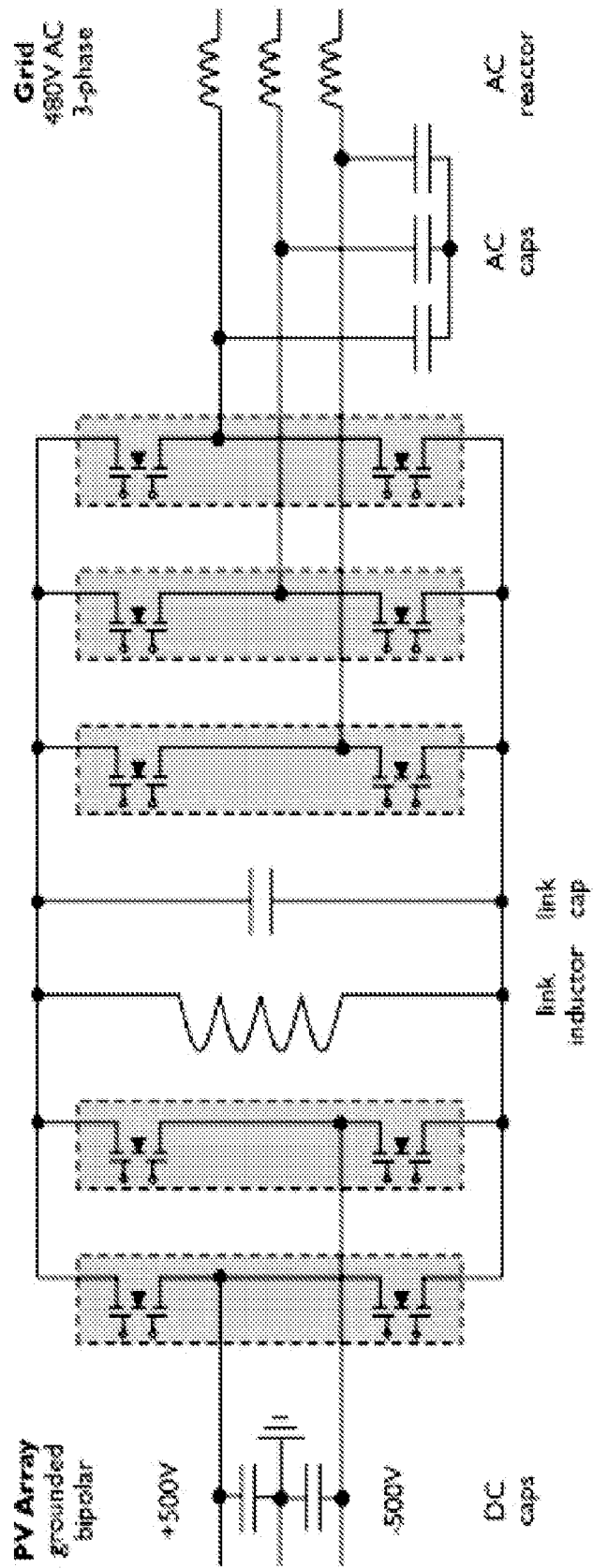


Figure 11

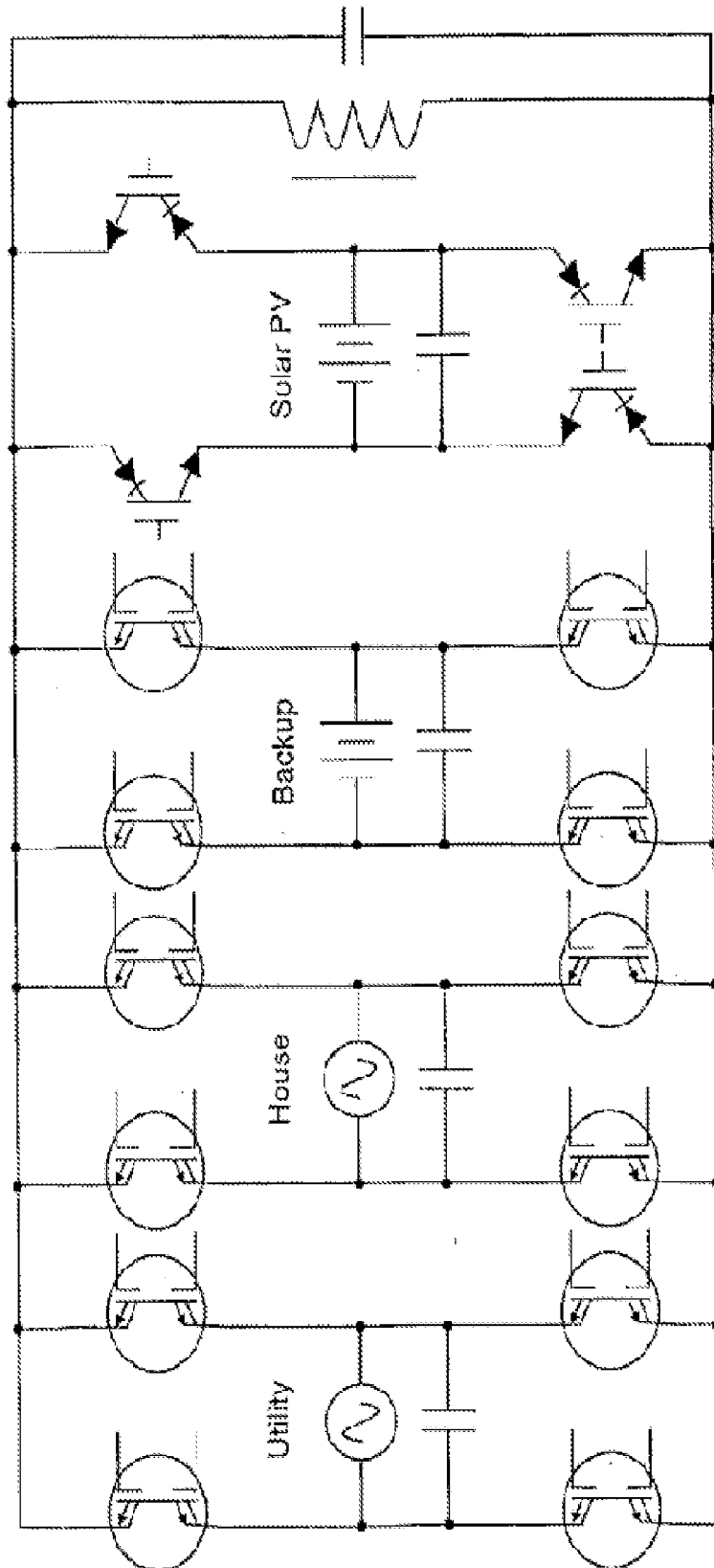


Figure 12

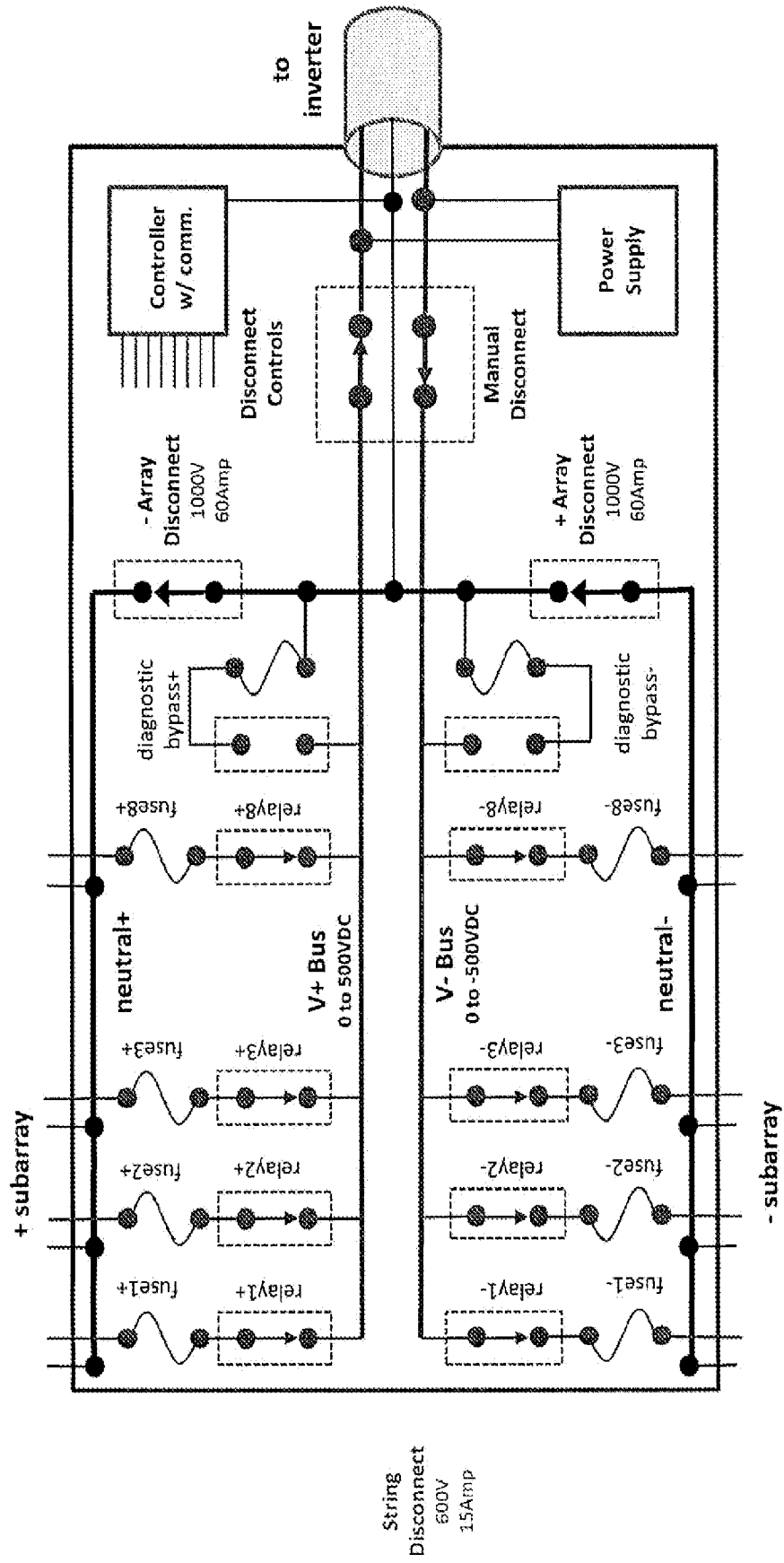


Figure 13A. All switches closed except +/- diagnostic bypass

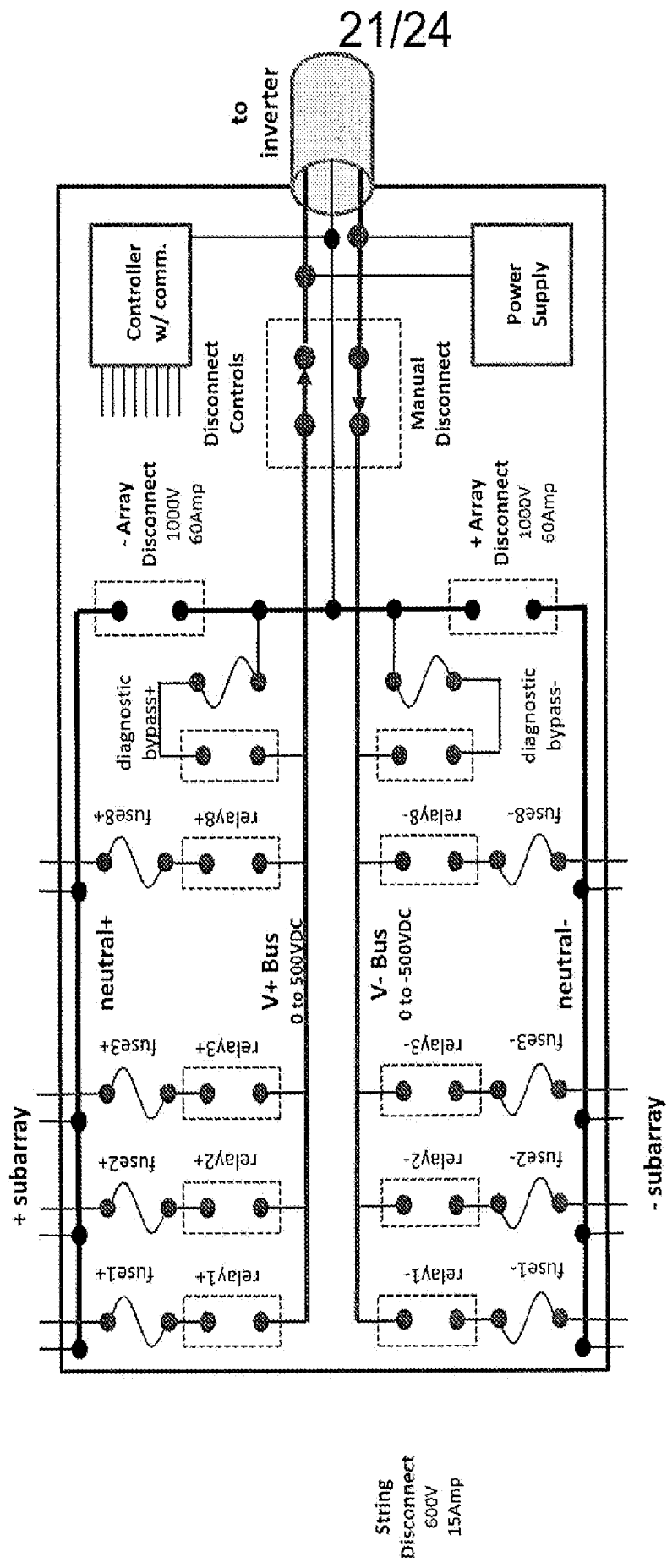


Figure 13B. All switches open. Occurs during power down, inverter/grid faults, & by command.

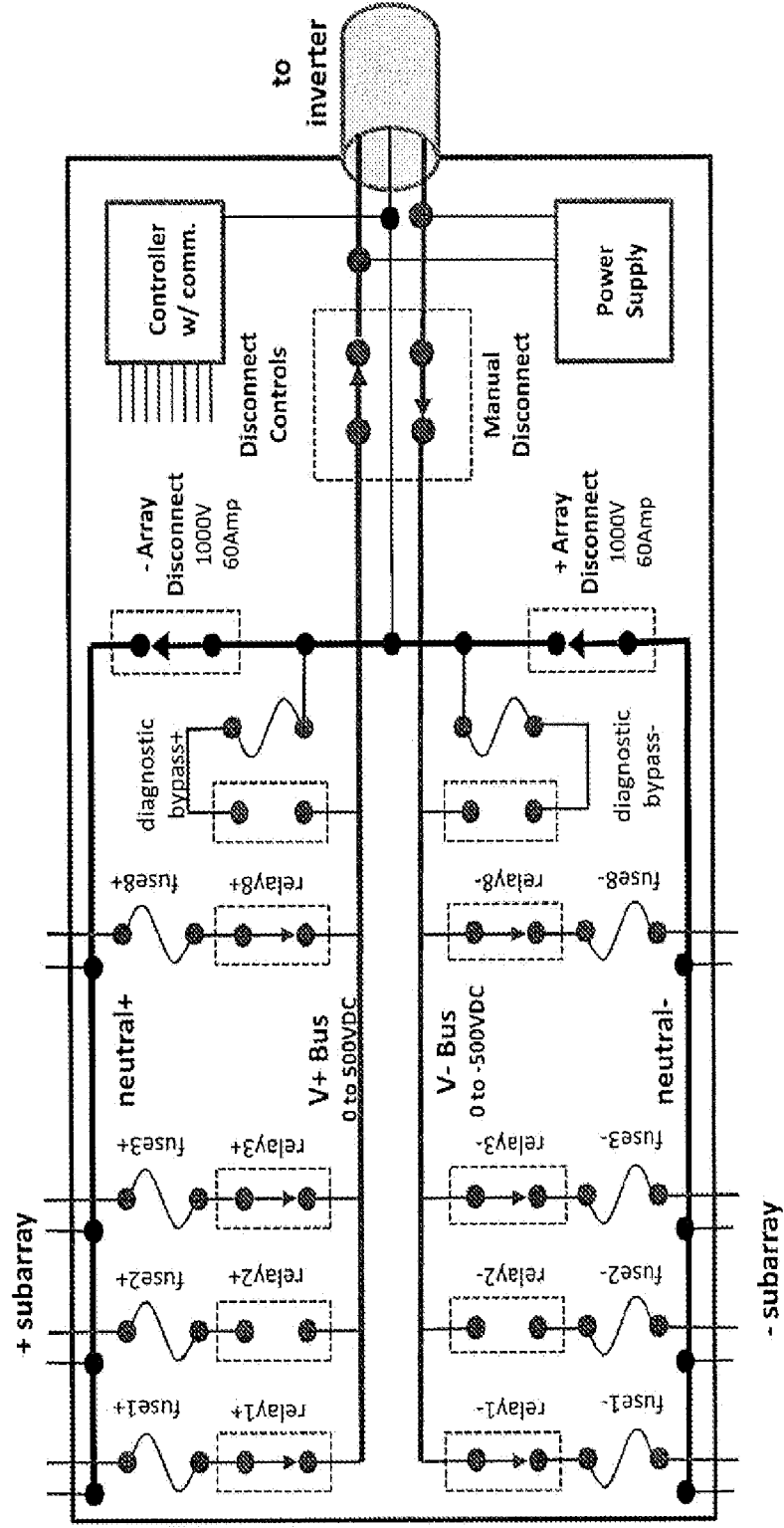


Figure 13C. One string relay pair (relay2+/-) opened, and power difference measured at inverter.

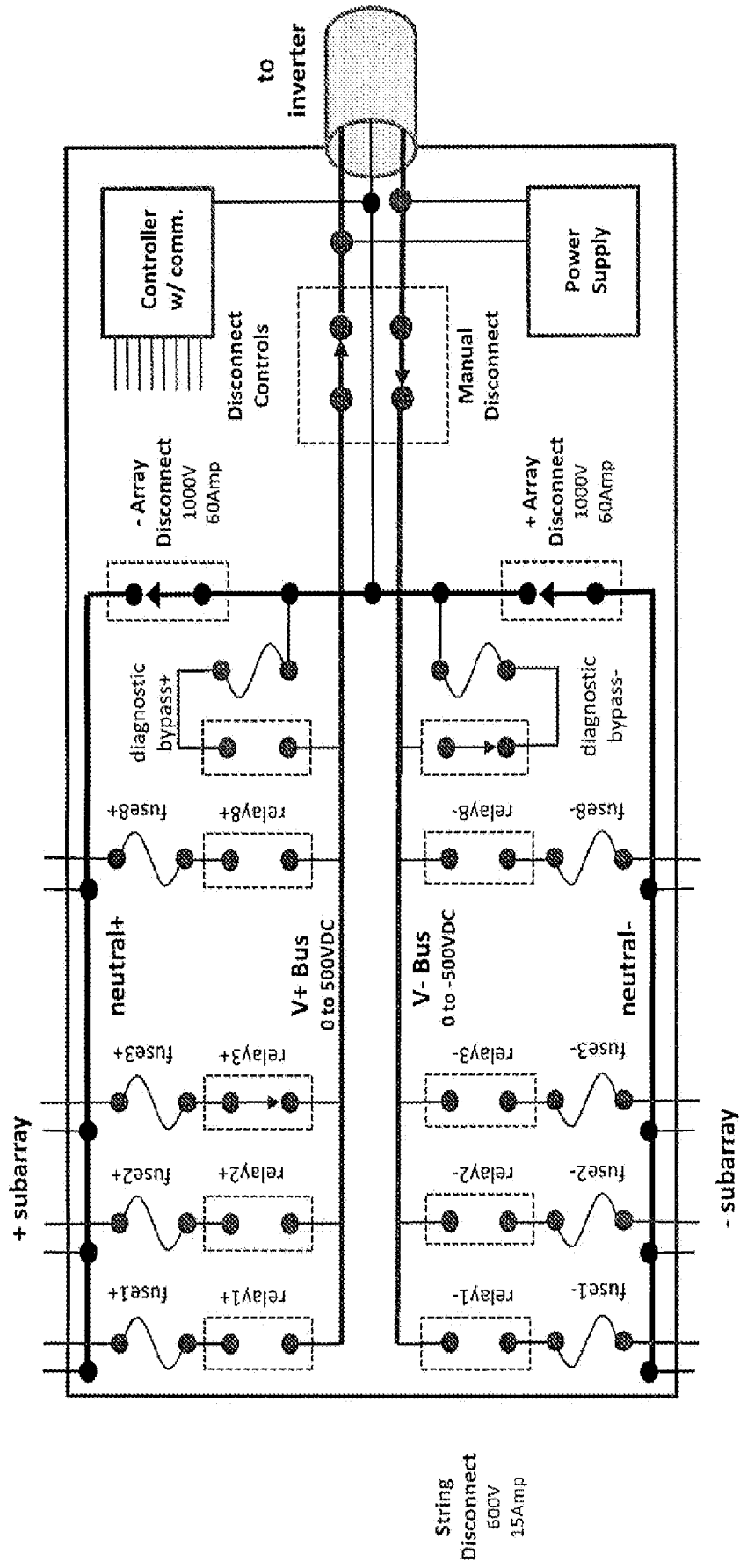


Figure 13 D. One half string closed (relay3+) and matching bypass (-). Inverter can run full sting level IV curve in situ

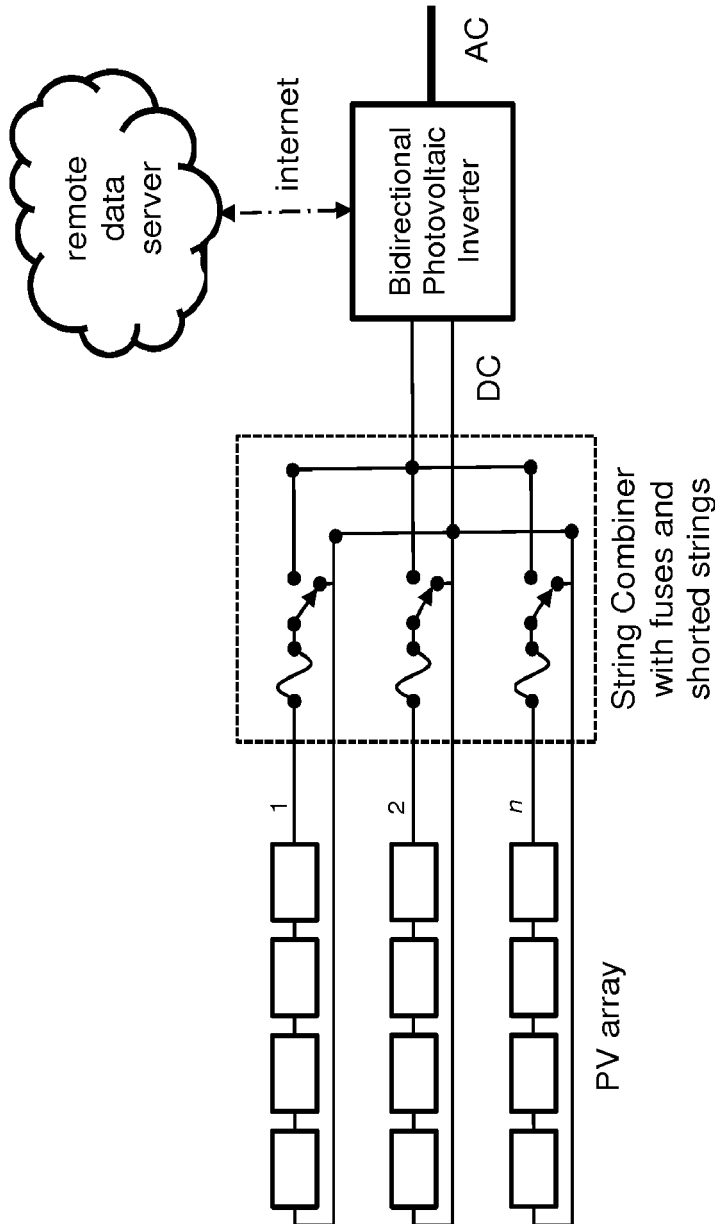


Figure 14. Safe Mode with Shorted Strings
Shorts all strings to eliminate
voltage on all DC wiring