solis seminars

Episode 20

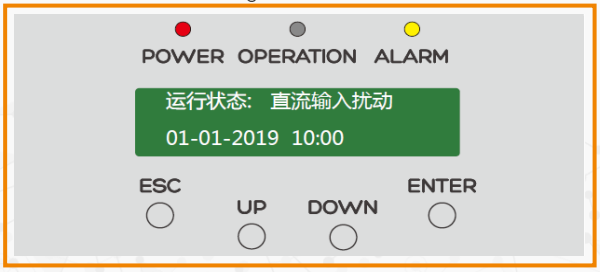
Issue xx DC Input Disturbance Faults and Solutions

Background

Every PV plant will have unique challenges. In this Solis Seminar episode, we will focus on a common fault in photovoltaic systems: DC Input Disturbance, and its solutions.

Fault description

Within the PV system, if the DC side is abnormal, the inverter will display a "DC INTF" alarm when it starts running. If this fault occurs, the inverter will disconnect from the grid until the fault is recitified.



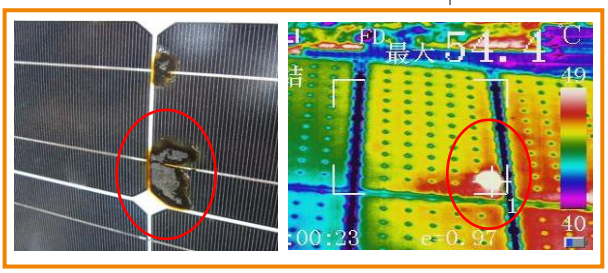
Cause analysis and solutions

- Causes on the DC side

More than 90% of this problem is caused by the DC side, which usually includes PV panel problems, DC cable problems, and irregular construction on the DC side.

Cause 1: There is a problem with the PV modules.

Solution: Observe whether the components have hot spots or obvious damage. In addition, you can use an infrared thermal imager to check the temperature of the PV module during operation. This will detect conditions that are not easily seen by the human eye. The relevant PV module causing the fault is identified and should be replaced.



Cause 2: The DC cable between PV panel and inverter is too long. If the DC cable exceeds 100 meters, its impedance will increase, which will caused the DC input disturbance problem;

Solution: Use a 6mm2 DC cable, or reduce the distance between the inverter and the PV string to reduce the cable impedance.

Reason 3: The wiring construction of the inverter MC4 DC terminal is not standardized, and make a virtual connection problem inside the connector;

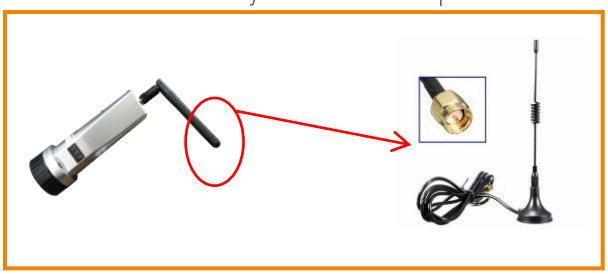
Solution: Use an MC4 wrench to remove the DC connector and crimp the DC terminal again.

Reason 3: The wiring construction of the inverter MC4 DC terminal is not standardized, and make a virtual connection problem inside the connector;

Other Possible Causes for Errors

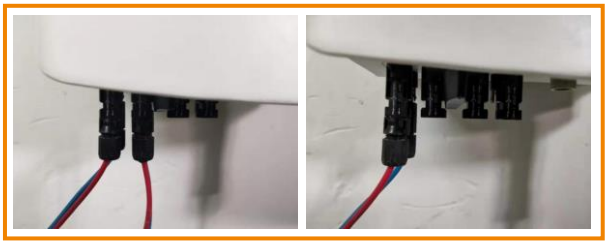
Communication Signal Interference: In an environment with weak signal, any GPRS/WIFI communication transmission power increase will affect the signal of the DC current sensor, causing the inverter to report "DC INTF";

Solution:Replace the antenna of the GPRS/WIFI stick with a suction cup antenna, and move it to another location away from the DC input terminal.



Issues with the String or Poor DC connection with the Inverter: If no problems are found by checking all the above-mentioned potential reasons you should check each string to identify where the error is originating.

Solution: Connect the strings one by one, check the inverter warning function to see if the inverter connection is correct. When the error is displayed you will have identified the string with the problem and be able to investigate further.



Solution: contact Solis after-sales technical engineer for on-site treatment, or call 400-101-6600 for consultation;

Conclusion

DC Input Disturbance is a common fault of solar PV systems and in more than 90% of cases, faults of this type are caused on the DC side. This can include PV module problems, DC cable problems, or simply incorrect installation on the DC side. Taking time to consider the detail around potential faults during system operation at the design stage will save O&M time and money.

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