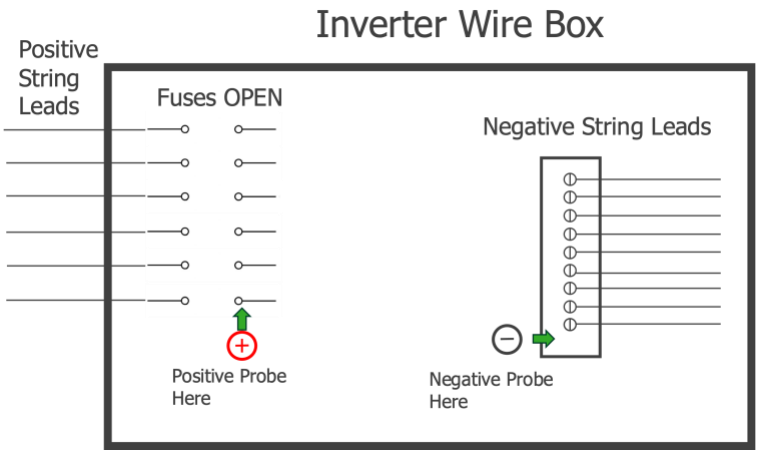
Voltage Measurement of Tigo Fire Safety Products

Signal Quality Test with Safety Voltages

1. Turn on all inverters (AC = ON & DC = ON)
2. Disconnect the AC power to the inverter to be tested for signal integrity, while keeping all other inverters ON (Tested inverter will have AC = OFF & DC = ON; all other inverters will have AC = ON & DC = ON)
    a. check RSS transmitter LEDs to verify the transmitter is OFF on the inverter to be tested
    b. open all fuses on the inverter to be tested
    c. put positive probes on positive screw terminal and the negative probes to the negative bus
    d. measure 0.6 V * (#), where # is the quantity of TS4s that comprise a string and document the measurement
    e. verify # correlates with your as-built string count
3. Turn on tested inverter AC so now all inverters have AC and DC power switched on again.
4. Move to the next inverter to be tested, then repeat steps 2-4 for all inverters until every inverter in the system has been individually tested.

Measuring Safety Voltage of Strings

1. Switch AC to OFF & DC to ON, then OPEN all fuses
2. Confirm RSS transmitter is OFF by verifying LEDs
3. Measure the voltage across the positive and negative terminals:
    - Put positive probes on left side positive screw terminal
    - Put negative probes on the bus to the right



- 4. Document what you measure and confirm the as-built string count correlates with your measurements.

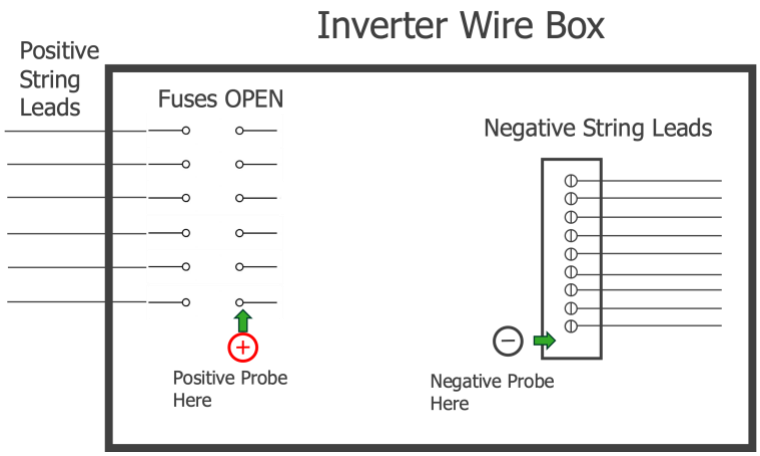
You should measure 0.6 V × (#), where (#) is the quantity of TS4s that comprise a string.

Signal Quality Test Results

Measuring:	LOW VOLTAGE	HIGH VOLTAGE
Result:	lower than expected safety voltages	higher than expected safety voltages
Solution:	1. Check that the DC loop is continuous (and that DC = ON) 2. if low voltage is still seen, test modules in low safety voltage strings to confirm there are no dead modules 3. if TS4 is identified as root cause and not module, call support	our PLC design document should be revisited as your system's violation of the guidelines is likely resulting in interference

Measuring Vmp of Strings/MPPTS

1. Wait until the array is in *sunlight*.
2. Switch AC to ON & DC to ON
3. Confirm RSS transmitter is ON with LEDs
4. Measure the voltage across the positive and negative terminals:
    - Put positive probes on left side positive screw terminal
    - Put negative probes on the bus to the right



5. Document what you measure and confirm the as-built string count correlates with your measurements.

You should measure (*Vmp) × (#), where (#) is the quantity of TS4s that comprise a string.

**Vmp: Operational or Maximum Power*