

Adoption of the IEEE 1547.1 standards.

Abstract:

The UL standards committee has accepted the IEEE 1547.1 for all utility interactive inverters. The IEEE1547.1 states that all grid tie inverters are to be connected to the grounded circuit conductor or neutral conductor if present in the system. The purpose behind this being that the inverter will now be able to evaluate the phase and voltage difference between each leg as well as each leg to neutral.

Changes to Fronius Inverters:

All of the Fronius IG series inverters will have the new neutral measurement capability to meet the requirements of IEEE1547.1 This grounded circuit (neutral) conductor will be used solely for the purpose of sensing voltage and phase. While the 2005 National Electrical Code does not directly address the issue of how to size this conductor, the 2008 NEC will contain new language in Section 690.62 which will read:

“A conductor used solely for instrumentation, voltage detection, or phase detection, and connected to a single phase or 3-phase utility-interactive inverter shall be permitted to be sized at less than the ampacity of the other current-carrying conductors and shall be sized equal to or larger than the equipment grounding conductor.”

Using Table 250.122 as a basis, we therefore recommend that the neutral (grounded) conductor for the Fronius IG 2000, Fronius IG 2500LV, and Fronius IG 3000 inverters be a 12 AWG copper. A 10 AWG copper neutral conductor is recommended for the Fronius IG 4000, Fronius IG 4500LV, and Fronius IG 5100 inverters.

This conductor must be run with the other AC circuit conductors to the inverter, in the same raceway or cable per NEC Section 300.5(I), and must not be interrupted by either a switch or circuit breaker in order to comply with Section 404.2(B).

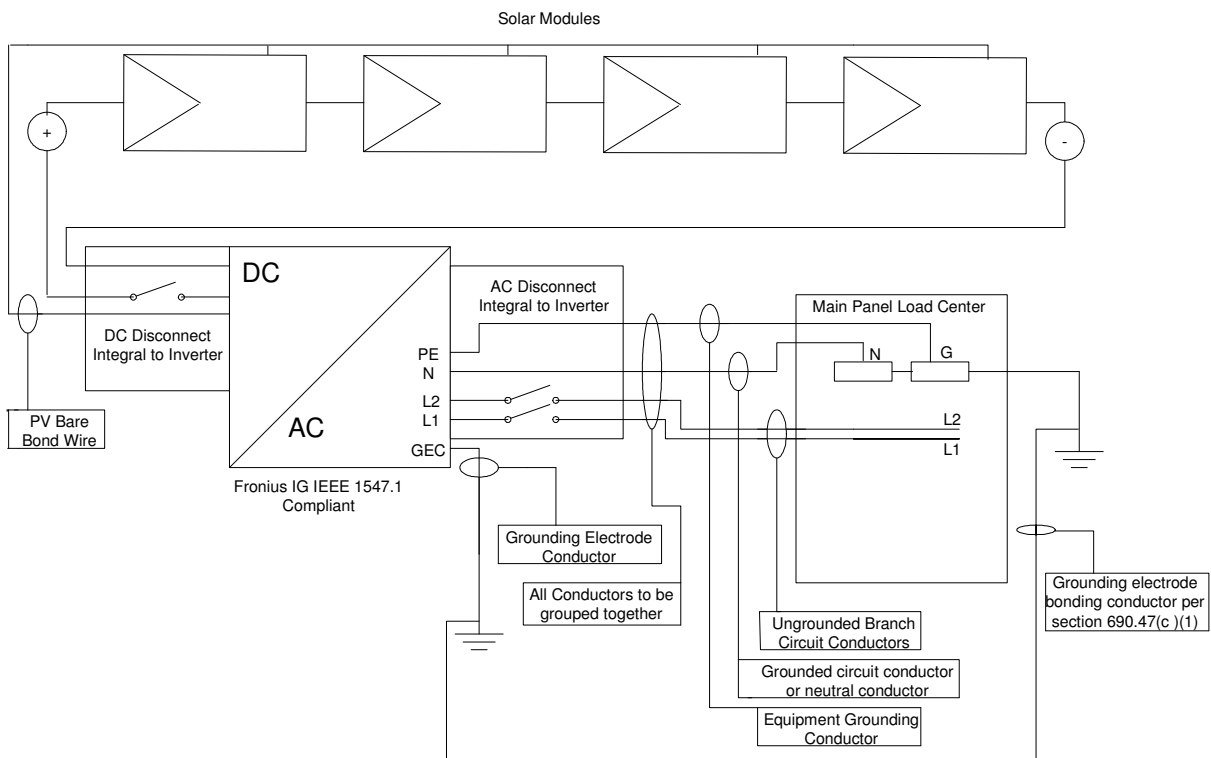
Relevant Definitions:

Grounded Conductor:

A system or circuit conductor that is intentionally grounded.

(Fronius has referred to the Grounded conductor as Neutral.)

Single Line Diagram for the new FRONIUS IEEE1547.1 Inverters



For further questions please don't hesitate to contact FRONIUS Tech Support at 810-220-4414 or pv-us-support@fronius.com .