

Bolton Power Equipment Power Control Box Wiring

This document is a high level wiring description and installation instructions for the Bolton Power Equipment electric generator control box. This box is supplied with Bolton Power Equipment Listeroid electrical gensets.

User assumes the responsibility for proper and safe installation and operation.

Fig #1 is an image of the front panel as it is delivered. The box is designed to be connected to US standard residential power; Single phase 240VAC 60 Hz 3 wire, with (2) 120V legs and a neutral, OR US standard three phase 208V 60 Hz 4 wire Wye with (3) 120V legs. The 208V configuration is beyond the scope of this document and per additional instructions.

- The red “Change Phase” switch selects the phase that is displayed and measured on the “V” voltmeter. As indicated in Fig #1 it will measure either of the (2) 120V legs OR both for 240V if delivered for single phase application. If the customer requires 208V three phase, the box will be configured for 208V three phase and labelled accordingly. **The default is 240V Single Phase.**
- The “A” ammeters measure and display the current flow in each active phase. Please note that the phase switch does not control the Ammeters. They are hard wired to the current path(s) through the box. Note; in the single phase configuration only the (2) ammeters marked “Single Phase Leg” will be operating. In the 208V 3 phase configuration all (3) ammeters will operate, (1) for each phase.
- The red “Load” lamp indicates output load on the box. The green “Generating” lamp indicates input power to the box from the generating source. Under normal operation, both are illuminated. The Hz (frequency meter) should be used to set the generators governor. It should normally be set to 61hz – 62hz at no-load.



Fig # 1

Voltage sense wire connections

Fig #2 is an image of the voltage sense line wires that connect the red phase switch on the front panel to the power inputs on the bottom of the main circuit breaker. These terminals are the connection points for the input power from the generator. This wiring, as shown is for the default 240V 60 Hz single phase configuration. These wires are not connected at the factory since the user has a choice of schemes and must connect the input power to the box at the same points.

- **Important Note:** These wires must be connected correctly to the lower connections on the circuit breaker for the voltmeter on the front panel to operate correctly.
- One of the wires will either be labeled or have a knot in it as shown in Fig # 2. That wire **MUST** be connected **only** to the Neutral connection on the circuit breaker. That connection is labelled “neutral” and is on the outside (to the front of the control box).
- The other two red wires are phase connections and can be connected to either of the connections marked “phase” with either of the “phase” lines coming from the generator. If for some reason phase “1” or “2” is an important switch position (e.g. #1 or #2) for your installation, you can certainly determine which of the remaining two wires should be connected to which phase for your particular application.

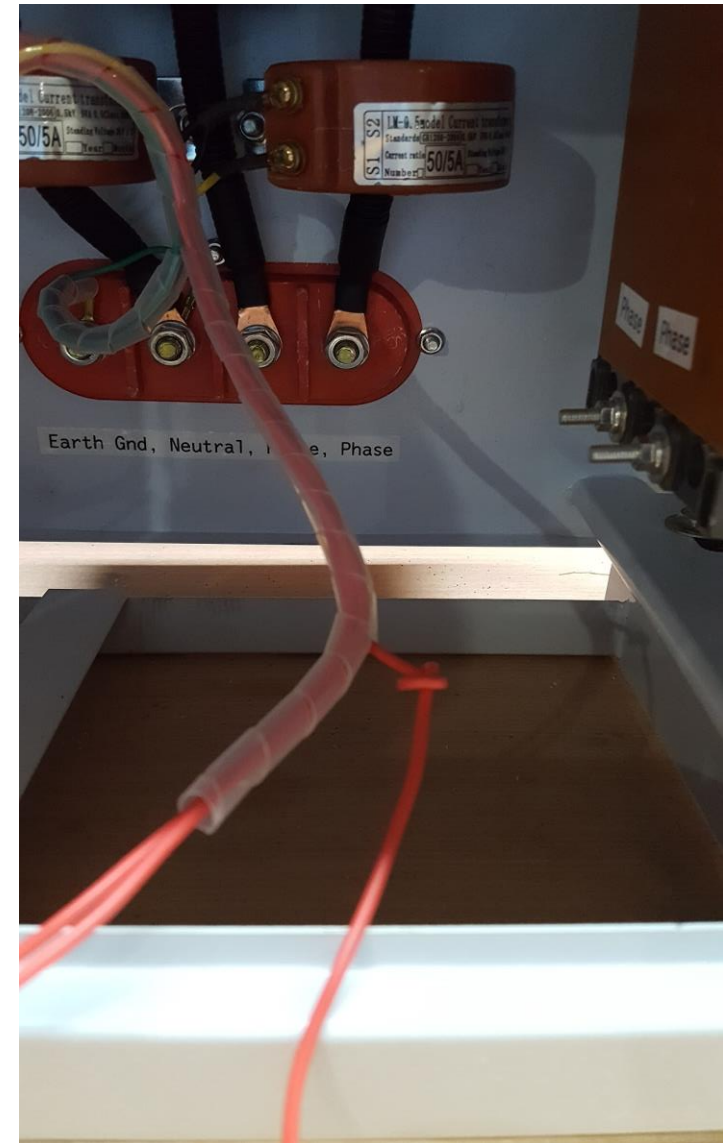


Fig # 2

Power Input Connections

Fig #3 is an image of the Main circuit breaker and connection point for the input power from the generator. The box is designed to be connected to US standard residential power, Single phase 240VAC 60 Hz with a center tap neutral, OR US standard commercial power, three phase 208V 60 Hz. This wiring, as shown is for the default 240V 60 Hz single phase configuration.

- **Important Note:** The (4) screw studs and nuts shown in Fig #2 ARE NOT electrical connections. They are the mounting hardware. The electrical connections are hidden from view with this image. The circuit breaker must be removed from the box to make the input connections on the bottom of the circuit breaker. When the circuit Breaker is removed you will see the electrical connections. The input connections will be the same as the output connections on the top. Remove the bolts and attach and secure the wires appropriately.
- For the meters, both volt and amp to work correctly, the 240V center tap neutral from the generator must be connected to the terminal labelled “neutral” toward the front of the box with the front panel swung open.
- The color codes for US AC 120V/240V/208V wiring follow;
 - Phase 1 = Black
 - Phase 2 = Red
 - Phase 3 = Blue (For 208V 3 phase ONLY)
 - Neutral = White
 - Earth Ground = Green. **Note; An earth ground is not required for operation BUT for safety reasons it is highly recommended.**



Fig # 3

Power Output Connections

Fig #4 is an image of the power output connections from inside the control box. The connections are labelled for US standard 240V center tap neutral, single phase power. These output labels are correct assuming that the proper connections per the earlier sections of this document are correct.

- The “Phase” connections on the right from inside the box are the 120V phase lines. They are each 120V to neutral and 240V to each other.
- The second connection from the left from inside the box is the 240V center tap neutral. **NOTE: this is a floating ground reference and should not be trusted as a true ground reference.**
- The connection on the far left from inside the control box is the chassis/earth ground and **MUST be connected to your structure or system earth ground for safe operation.**
- phase lines on the rear of the panel are generally marked “U” and “V”, the neutral is marked “W” and the earth ground is marked “N”, **BUT the position should be the deciding factor of which line is which connection.**



Fig # 4