4.1 INTRODUCTION

This section provides the information for installing the IQ DP-4000 into a metal cabinet door, and performing initial startup. Before beginning installation, be sure to read and understand both this section and Section 2, Hardware Description.

Installing the IQ DP-4000 includes four steps:

1. Mounting the IQ DP-4000
2. Mounting the power source separately from the IQ DP-4000 (if necessary)
3. Wiring the IQ DP-4000
4. Starting the unit for the first time

WARNING

DO NOT HIGH-POT OR MEGGER THIS DEVICE

4.2 PANEL PREPARATION AND MOUNTING THE IQ DP-4000

The IQ DP-4000 is typically mounted on a metal cabinet door. To install the device you must:

- Cut an opening in the door
- Mount the unit

4.2.1 Cutout, Clearances

Before mounting the IQ DP-4000 you must prepare the cutout location. Figure 4.1 shows the chassis cutout dimensions and the location of the ten mounting holes. Before cutting the panel, be sure that the required 3-dimensional clearances for the IQ DP-4000 chassis allow mounting in the desired location (Figure 4.1 shows height and width dimensions, while Figure 4.2 shows depth dimensions.)

When you make the cutout and place the holes for the mounting screws, you must hold relatively tight tolerances. In particular, the horizontal dimension between the center of the mounting holes and the vertical edge must be within +0.050 (0.13 cm) -0 inches.

4.2.2 Mounting

Place the IQ DP-4000 through the cutout in the panel, making sure that the operator panel faces out. When you attach the IQ DP-4000 to the door with the supplied screws, start the screws from inside the panel so they go through the metal door first. If you are mounting the unit on a single-thickness panel, use 0.5 inch (1.2 cm) long screws (included with the IQ DP-4000). The IQ DP-4000 has ten places to attach the unit to the door. The holes are not threaded, but do not use a tap because this removes excess plastic from the holes, which leaves less threaded material for securing the IQ DP-4000 to the mounting panel.

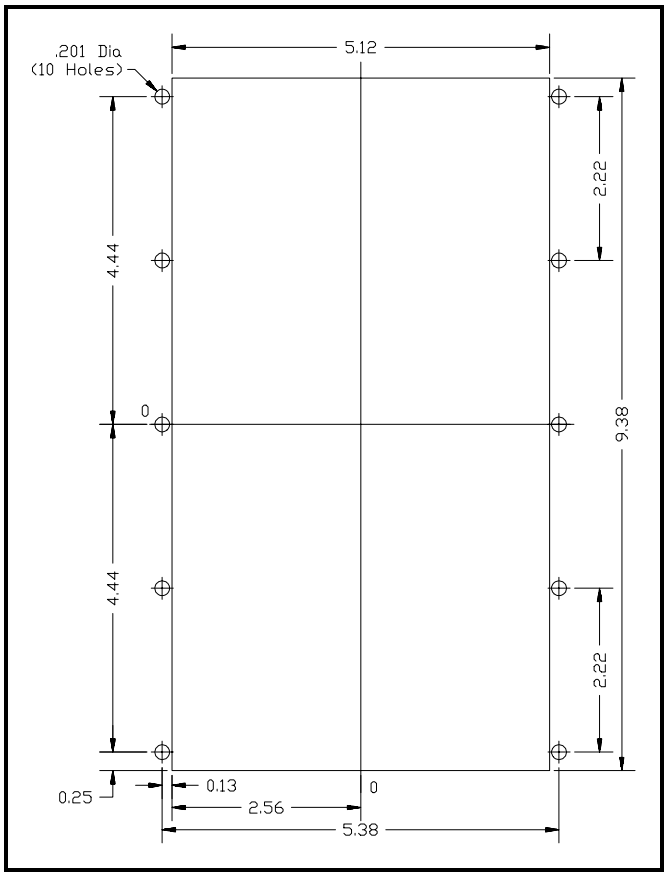

Figure 4.1 Chassis Cutout Dimensions

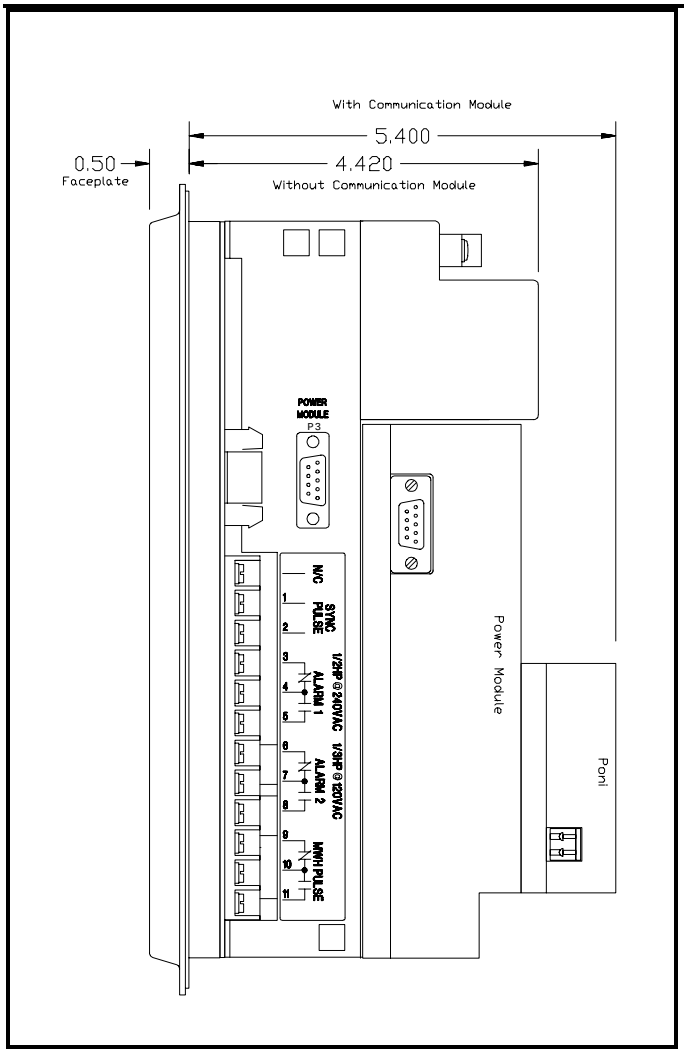

Figure 4.2 Side Profile Depth Dimensions

4.3 MOUNTING THE POWER SUPPLY MODULE SEPARATELY (OPTIONAL)

The IQ DP-4000 uses one of two power modules, a 3-Phase power module or a separate source power supply module:

- A 3-Phase power module (Models 4030 and 4130) receives its power from the same source it monitors. The advantage is that the IQ DP-4000 does not need a separate power source to run.
- The IQ DP-4000, equipped with a separate source power supply module (Models 4010 and 4110), receives power from a source other than the one it monitors. The advantage to this style is that if there is a loss of power to the monitored system, the IQ DP-4000 will not lose power. You may mount either power module separately from the chassis. If you do, check that:
    - The location allows for a cable connection between the IQ DP-4000 chassis and the power module using either the 36 in. (91.4 cm) or the 45 in. (114.25 cm) Extension Cable Option
    - The separated power module can physically fit in the desired location (See clearance dimensions in Figure 4.3)
- To separate the power module from the IQ DP-4000, remove the two screws that secure it to the IQ DP-4000. Use the power module as a drilling template at the new location. Remount it in the properly drilled and tapped holes, using the two 8-32 screws.

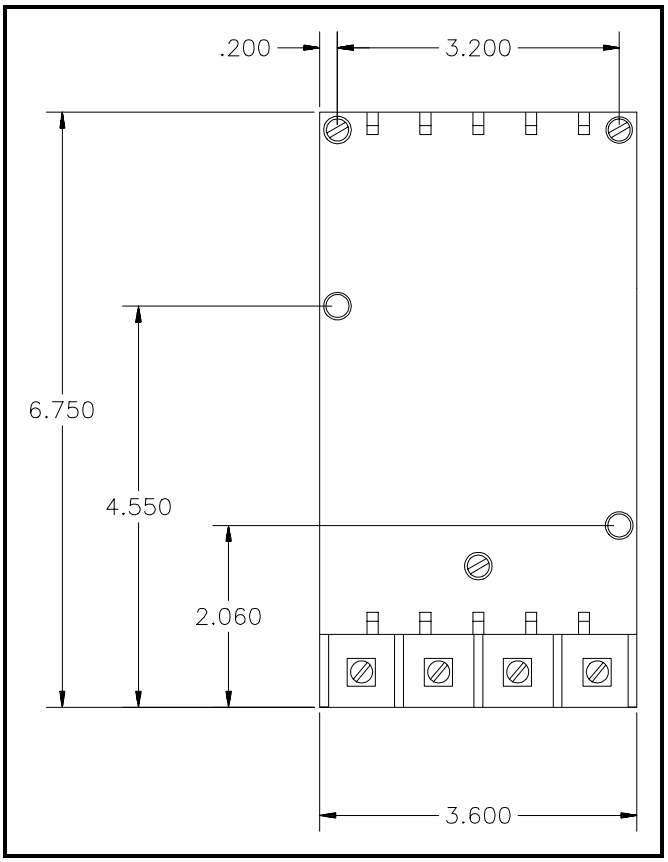

Figure 4.3 Power Module Dimensions

4.4 WIRING

When you wire the IQ DP-4000, you must follow a suitable wiring plan drawing. A wiring plan, created either by you or your OEM, describes all electrical connections between the IQ DP-4000 and the machine or process equipment. All wiring must conform to applicable federal, state, and local codes.

⚠WARNING

ENSURE THAT THE INCOMING AC POWER AND ALL 'FOREIGN' POWER SOURCES ARE TURNED OFF AND LOCKED OUT BEFORE PERFORMING ANY WORK ON THE IQ DP-4000 OR ITS ASSOCIATED EQUIPMENT. FAILURE TO OBSERVE THIS PRACTICE CAN RESULT IN SERIOUS OR EVEN FATAL INJURY AND/OR EQUIPMENT DAMAGE.

Figures 4.4 - 4.15 show typical wiring plans. When referring to the figures, note the following:

1. Phasing and polarity of the AC current inputs and the AC voltage inputs and their relationship are critical to the correct operation of the wattmeter.
2. The incoming AC line phases A, B, and C connect from three external potential transformers (PT's) to the AC line connection terminals on the chassis (above 600V).
3. You can use NO and NC contacts from the Relays to control external devices. These contacts are rated at 10 amps for 120/240 VAC or 30 VDC.
4. The wires connecting to the IQ DP-4000 must not be larger than AWG No. 14. Larger wires will not connect properly with the various terminal blocks.
5. Keep the wiring between the current transformers and the IQ DP-4000 as short as possible (200 feet max.). Whenever possible, route these lines away from other AC lines and inductive devices. If the lines must cross other AC lines, cross them at right angles.
6. The protective functions of the IQ DP-4000 (with the optional I/O module) directly control the Relays, as described in Section 5.
7. Connect the sync pulse terminals to the dry contact input only. The 24VDC is supplied by the IQ DP-4000 on Terminal 1.

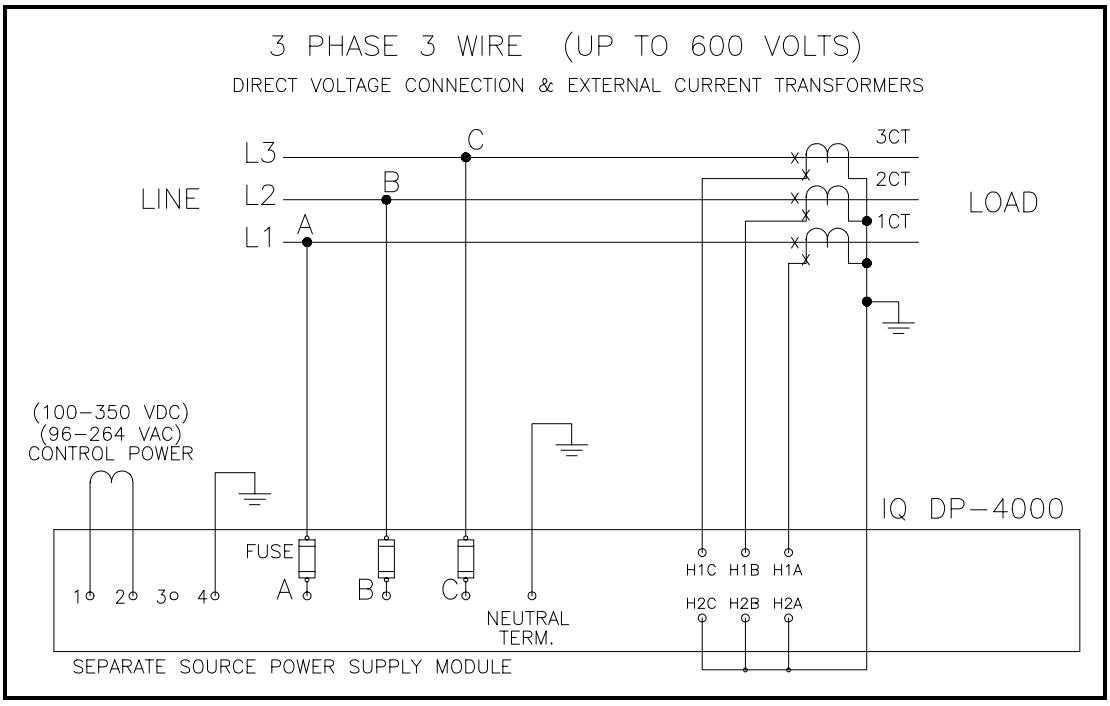

Figure 4.4 3-Phase, 3 Wire (up to 600 volts) Wiring Diagram (Separate Source)

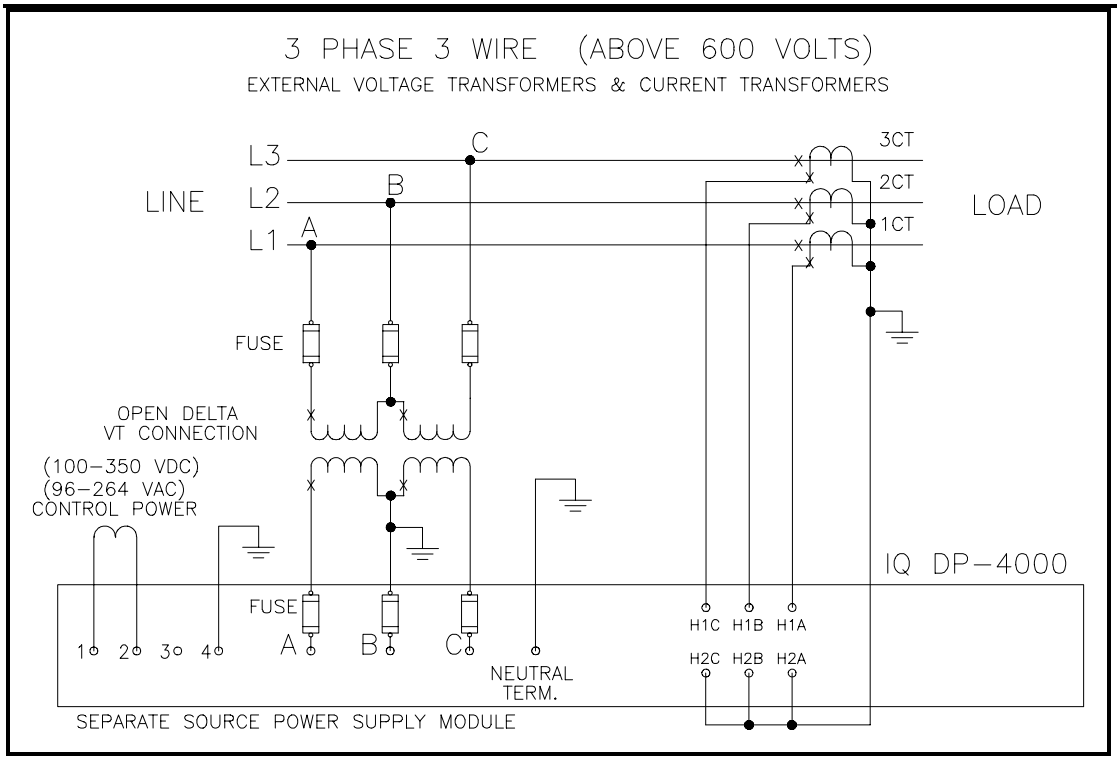

Figure 4.5 3-Phase, 3-Wire (above 600 volts) Wiring Diagram (Separate Source)

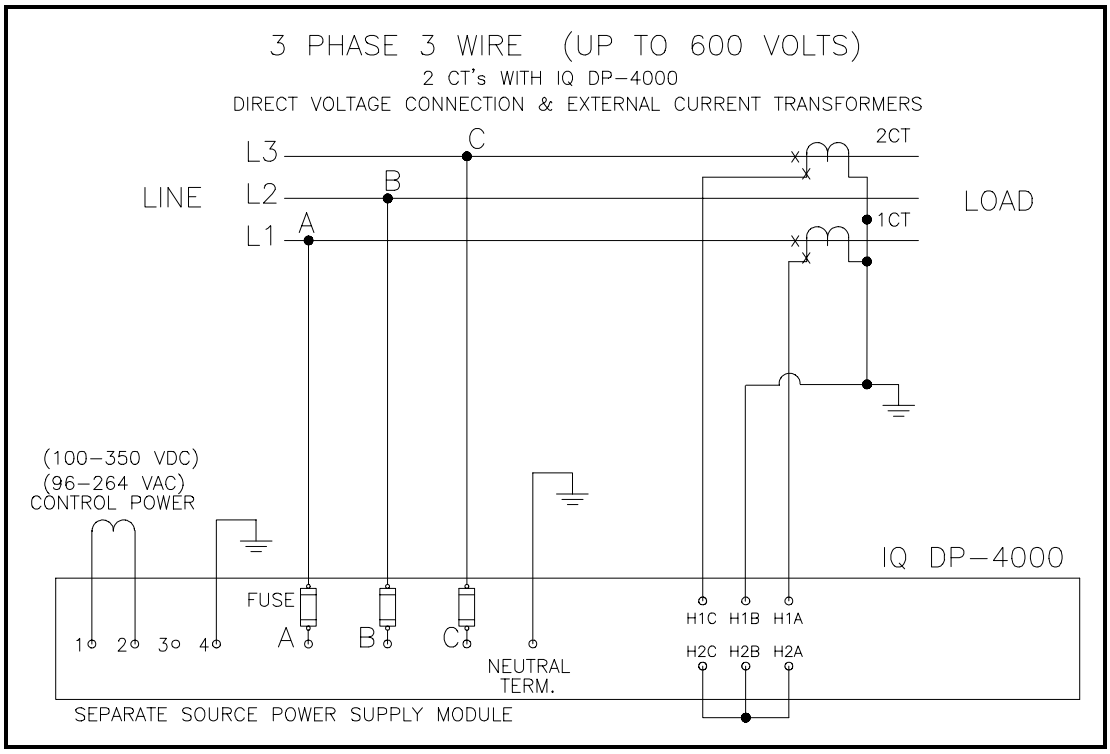

Figure 4.6 3-Phase, 3-Wire (up to 600 volts) Wiring Diagram (Separate Source, 2 CTs)

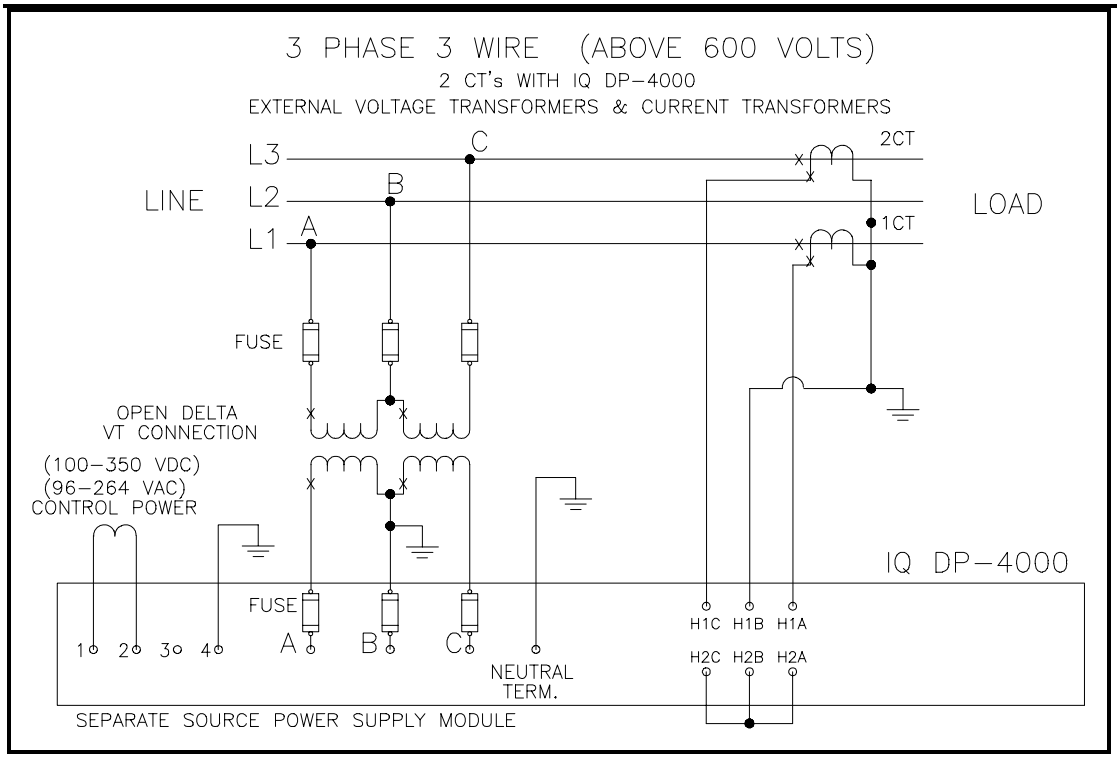

Figure 4.7 3-Phase, 3-Wire (above 600 volts) Wiring Diagram (Separate Source, 2 CTs)

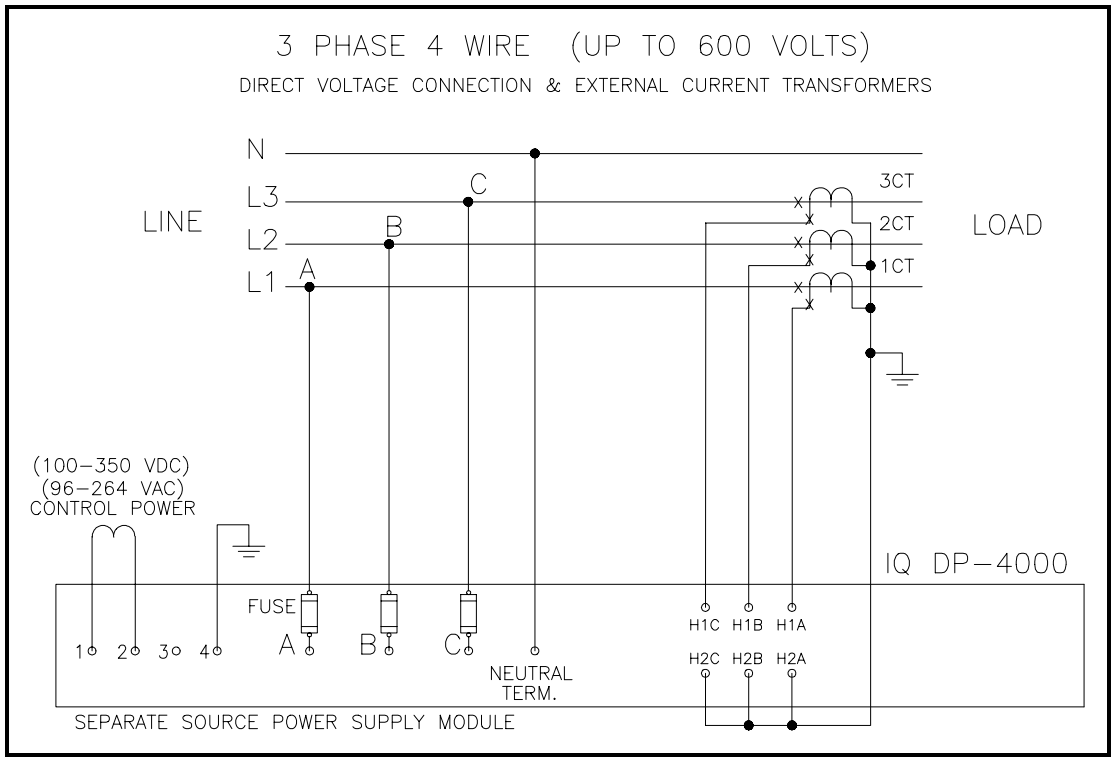

Figure 4.8 3-Phase, 4-Wire (up to 600 volts) Wiring Diagram (Separate Source)

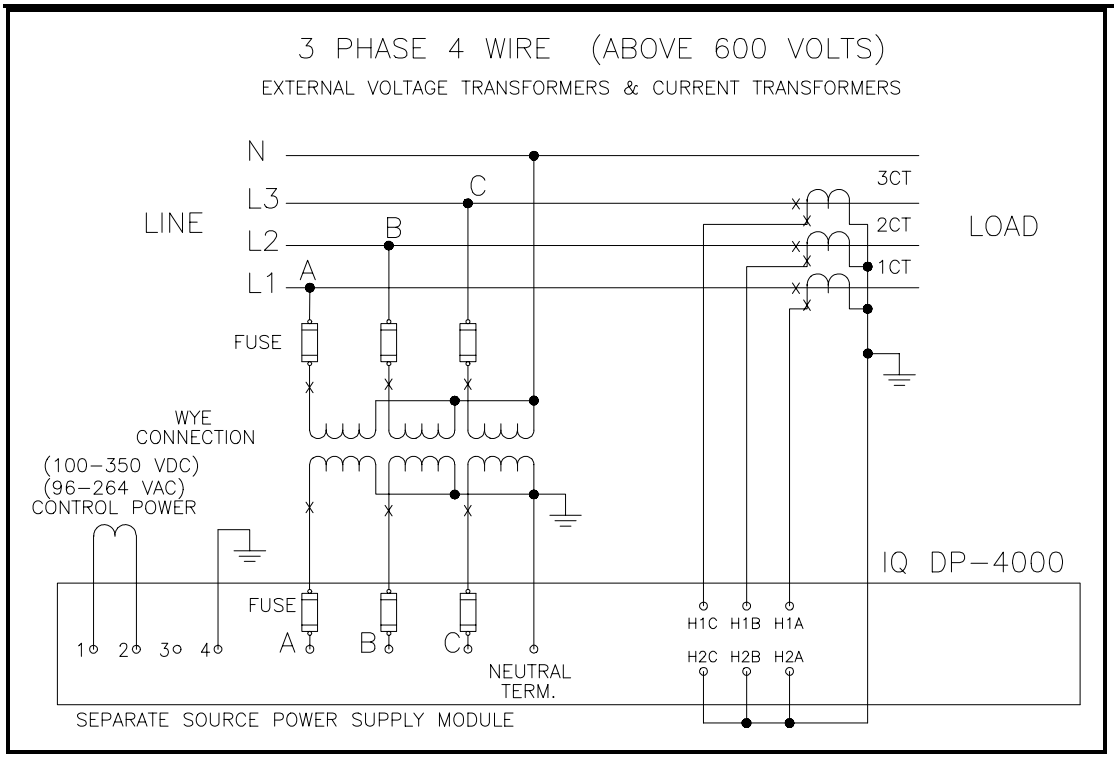

Figure 4.9 3-Phase, 4-Wire (above 600 volts) Wiring Diagram (Separate Source)

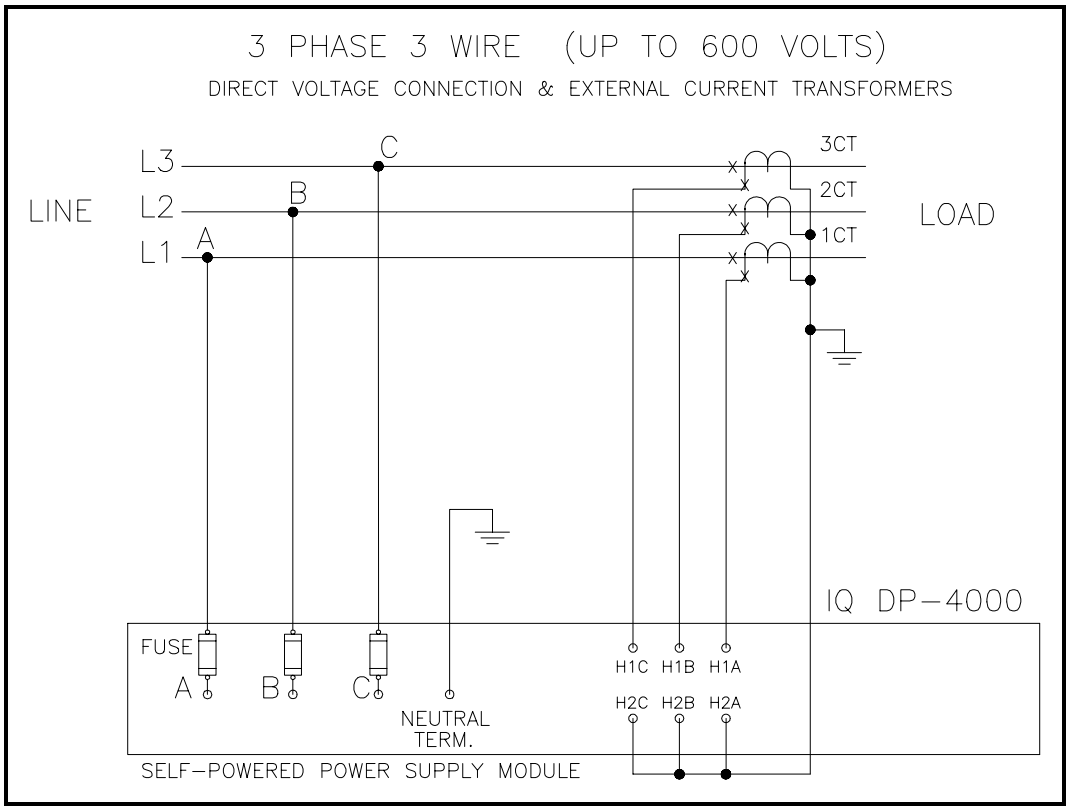

Figure 4.10 3-Phase, 3-Wire (up to 600 volts) Wiring Diagram

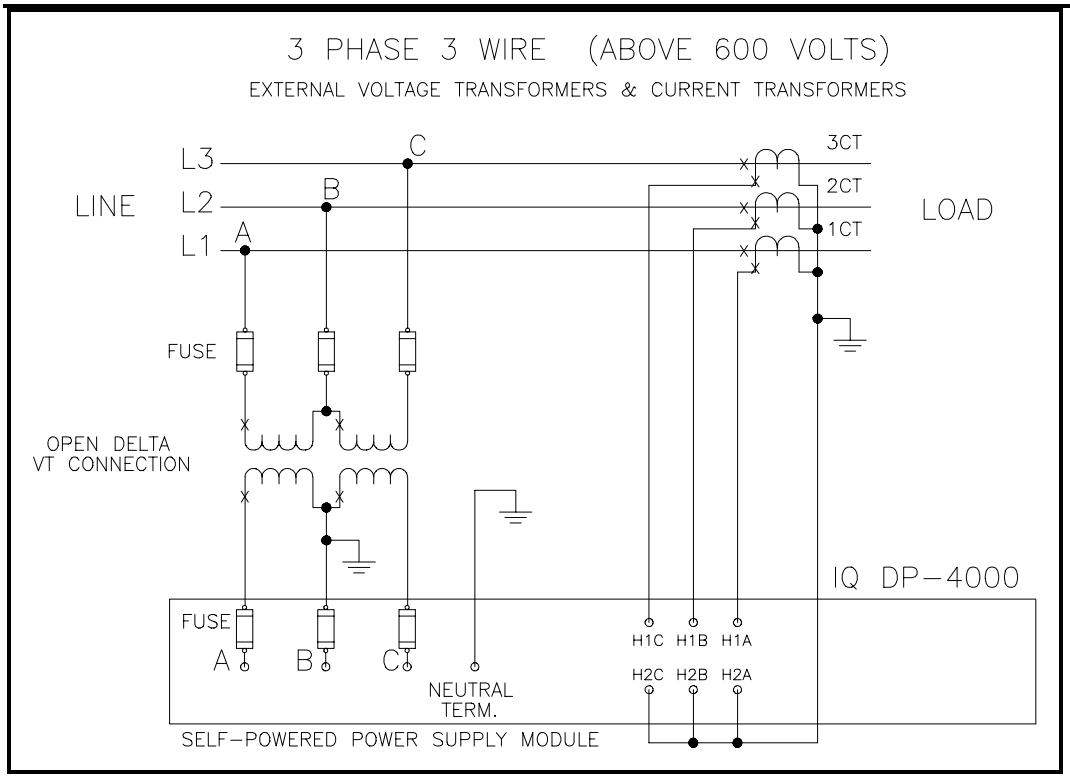

Figure 4.11 3-Phase, 3-Wire (above 600 volts) Wiring Diagram

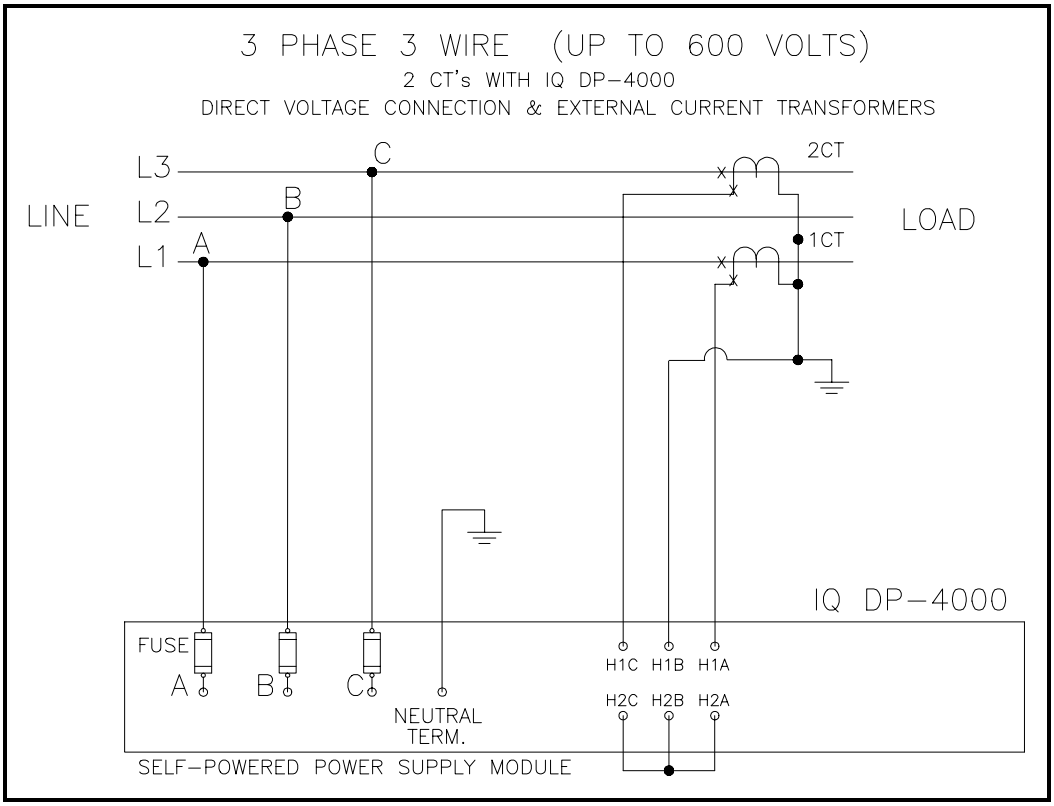

Figure 4.12 3-Phase, 3-Wire (up to 600 volts) Wiring Diagram(2 CTs)

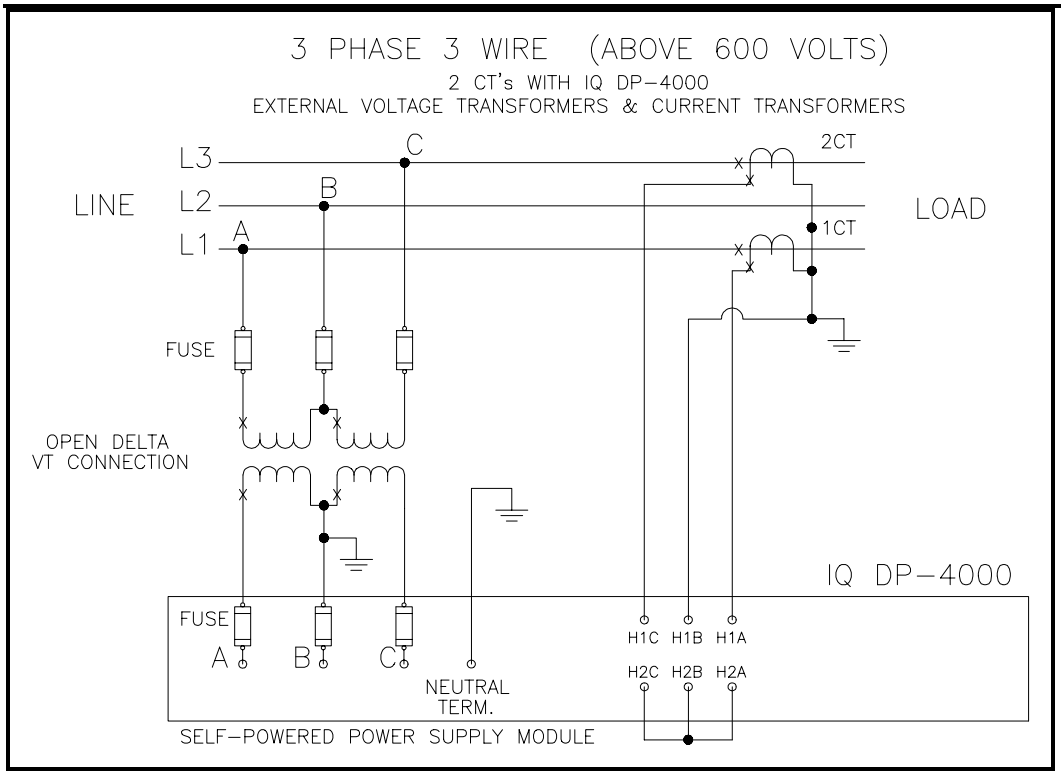

Figure 4.13 3-Phase, 3-Wire (above 600 volts) Wiring Diagram (2 CTs)

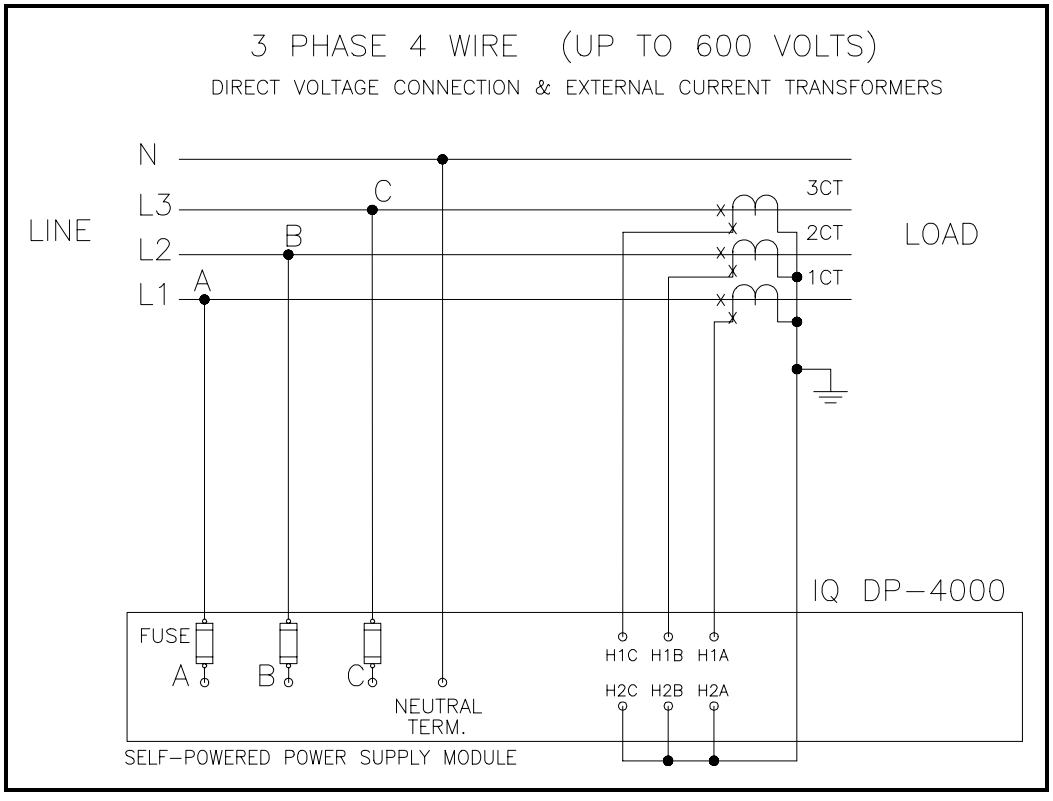

Figure 4.14 3-Phase, 4-Wire (up to 600 volts) Wiring Diagram

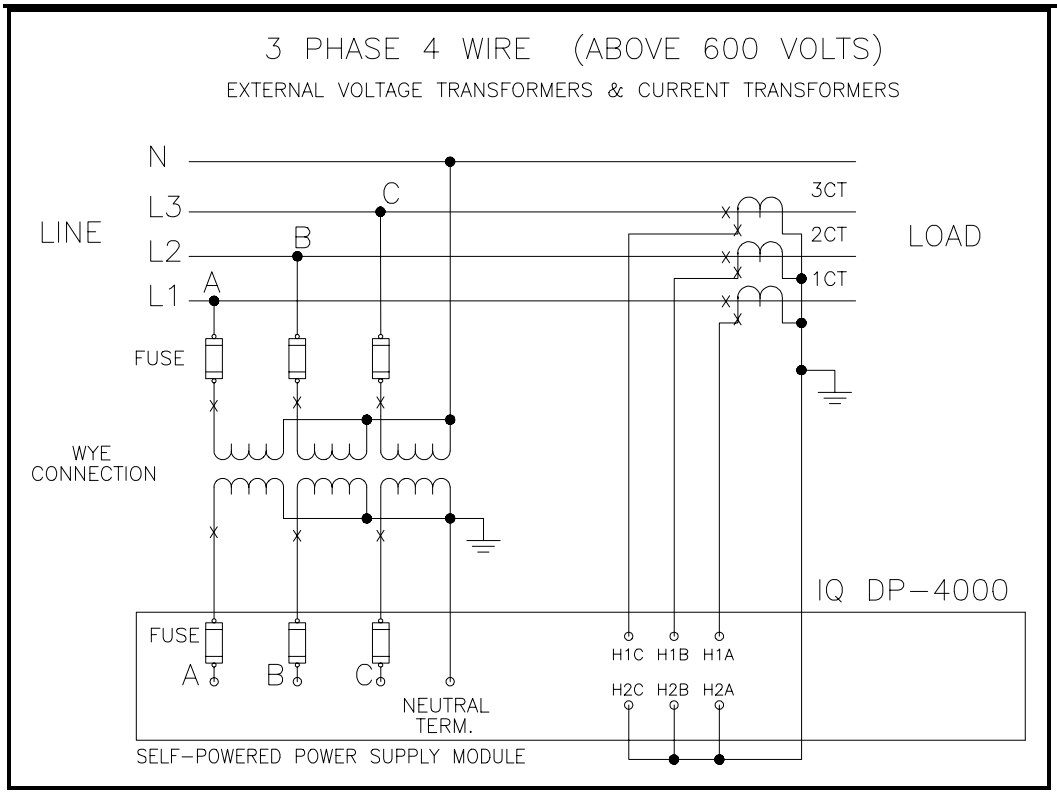

Figure 4.15 3-Phase, 4-Wire (above 600 volts) Wiring Diagram

4.5 INITIAL STARTUP

Follow the initial startup procedure before and when you first apply AC power to the IQ DP-4000. Use this as a checklist to be sure you do not miss any steps.

WARNING

THE FOLLOWING STARTUP PROCEDURES MUST BE PERFORMED ONLY BY QUALIFIED PERSONNEL WHO ARE FAMILIAR WITH THE IQ DP-4000 AND ITS ASSOCIATED ELECTRICAL AND/OR MECHANICAL EQUIPMENT. FAILURE TO OBSERVE THIS CAUTION CAN RESULT IN SERIOUS INJURY OR EVEN DEATH.

4.5.1 During Initial Power Application

To apply AC power to the IQ DP-4000 for the first time:

1. Verify that the AC power is off.
2. Verify that the line-to-line voltages fall within the correct range, as noted on the wiring plan drawing.
3. Check that all wiring is correct according to the wiring plan drawings.
4. When possible, lockout any foreign power sources and disable the IQ DP-4000 until all other machines or processes are started and thoroughly checked.
5. Restore AC power and verify the operator panel functions, after an initial delay, as follows:
   - The IA Amps LED lights.
   - The Display Window shows the actual line phase A amperes.
6. Set all Setpoint Switches according to the Master Setpoint Record Sheet (Appendix B).