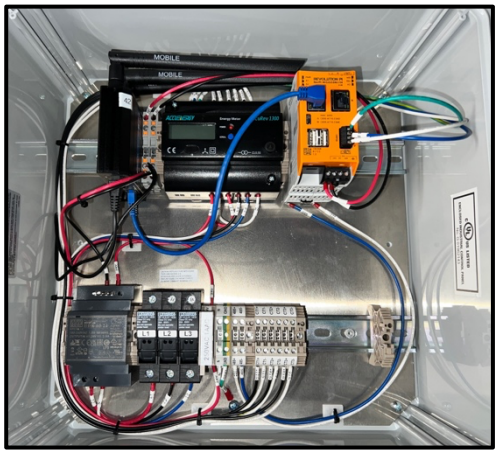
POWERFLY

Powerfly Field Installation Guide w/ Revenue Grade Meter

The PowerFly Commercial Gateway w/ Revenue Grade Meter (RGM) is a remote monitoring and control solution for distributed energy systems. It is designed to interface with solar inverters and other electrical equipment, usually via RS-485 or Ethernet TCP/IP. Each PowerFly comes fully pre-wired and programmed and includes a cellular 4G connection in a pre-provisioned cellular modem and data plan. It is simple to install by following the instructions provided below.



Materials Provided:

- ✓ Fully assembled PowerFly Commercial Gateway in a polycarbonate, UL listed NEMA 4X enclosure
- ✓ Mounting feet (4)
- ✓ Installation Guide

Supplies Needed:

- ✓ Conduit and connectors as required for installation
- ✓ 600V Line, Neutral and Ground wire appropriate for power supply
- ✓ Belden 3106A shielded wire or equivalent for MODBUS data communications
- ✓ Anchors, bolts or screws appropriate for the mounting surface
- ✓ PPE as required by OSHA and local codes and regulations

POWERFLY

DO NOT INSTALL IN DIRECT ALL DAY SUNLIGHT

East or West facing exposure should be OK, but not south facing, all day sun exposure.

POWERFLY

Send pictures of the installation to: support@verifyenergy.com

Step 1: Assess your power supply.

The standard power supply in the PowerFly Commercial Gateway requires 85 – 305VAC at 0.75A – 0.375A, 50 - 60 Hz. It is therefore compatible with most electrical systems throughout North America.

The power supply wiring should be minimum 18AWG up to a maximum 12AWG.

*Revenue Grade Metering projects always need **all three phases** of the circuit that is tied to the solar.

Installer must adhere to NEC, state and local building codes and regulations.

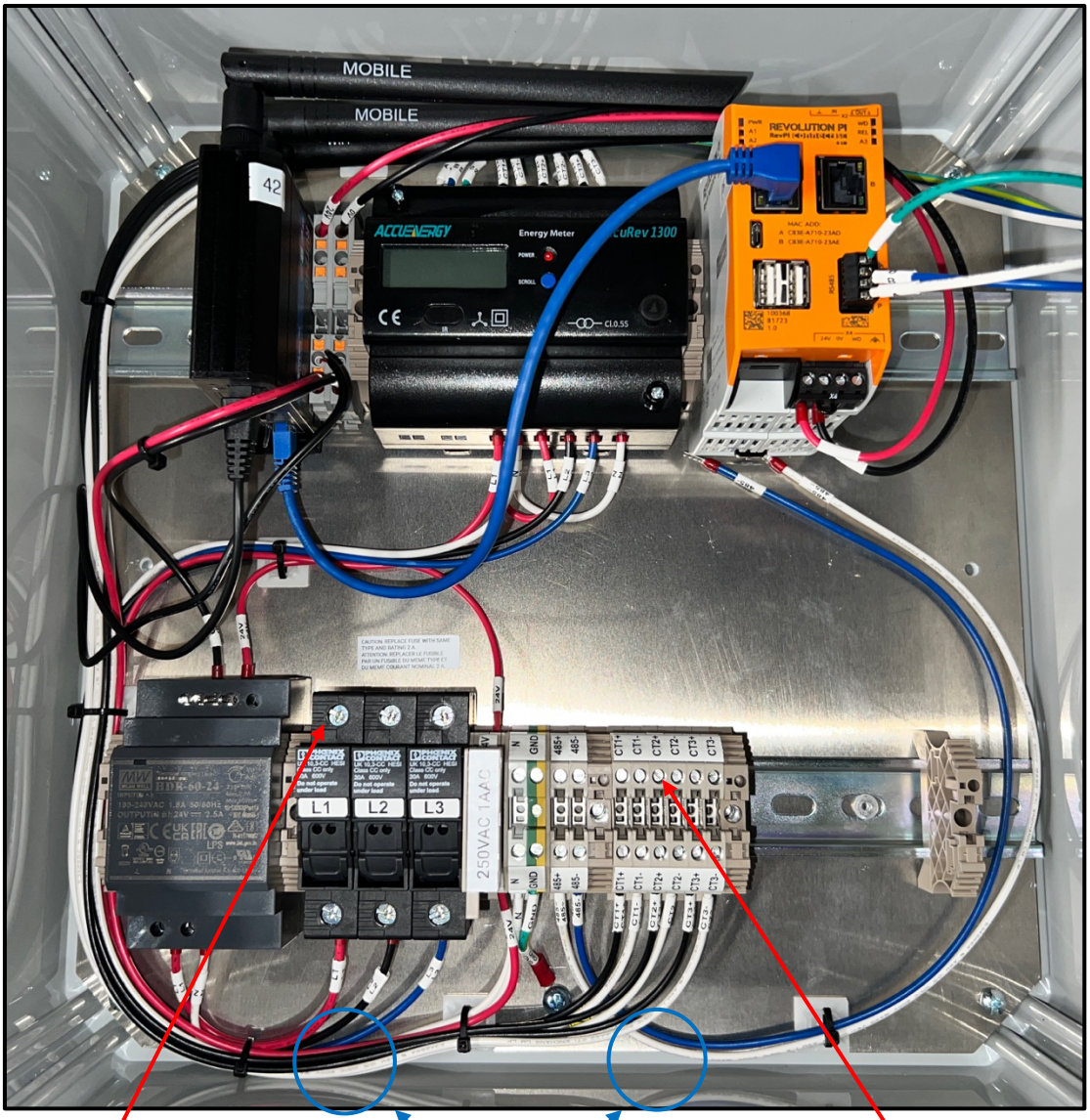
Step 2: Pick your spot.

The Powerfly can be mounted on almost any secure and stable surface. Do NOT mount the enclosure in direct sunlight as the electronics inside could overheat. Allow space beneath the enclosure for conduit runs and allow for space in front so door can fully open. For RS-485 data connections, the PowerFly should be less than 1,000ft from the nearest inverter/device, and less than 4,000ft from the last inverter/device in a daisy chain. For Ethernet connections the maximum distance is 300ft from the nearest inverter/device.

Step 3: Mount the device.

Connect the provided mounting feet to the rear of the enclosure using the supplied mounting hardware.

Position the box on the mounting surface and level it (using the carpenter level). If using an assistant, have them hold the box in position while you insert and tighten the mounting screws. 2-1/4” screws work well for most surface mount options. Use flat washers where needed.



Step 4: Connect the device.

The power and communication connections (AC IN / CTs IN) are located in the bottom of the device as shown in the following picture.

A. Drill conduit access holes.

For passing the power and communication wiring, you will first need to drill conduit access holes into the bottom of the box.

CAUTION

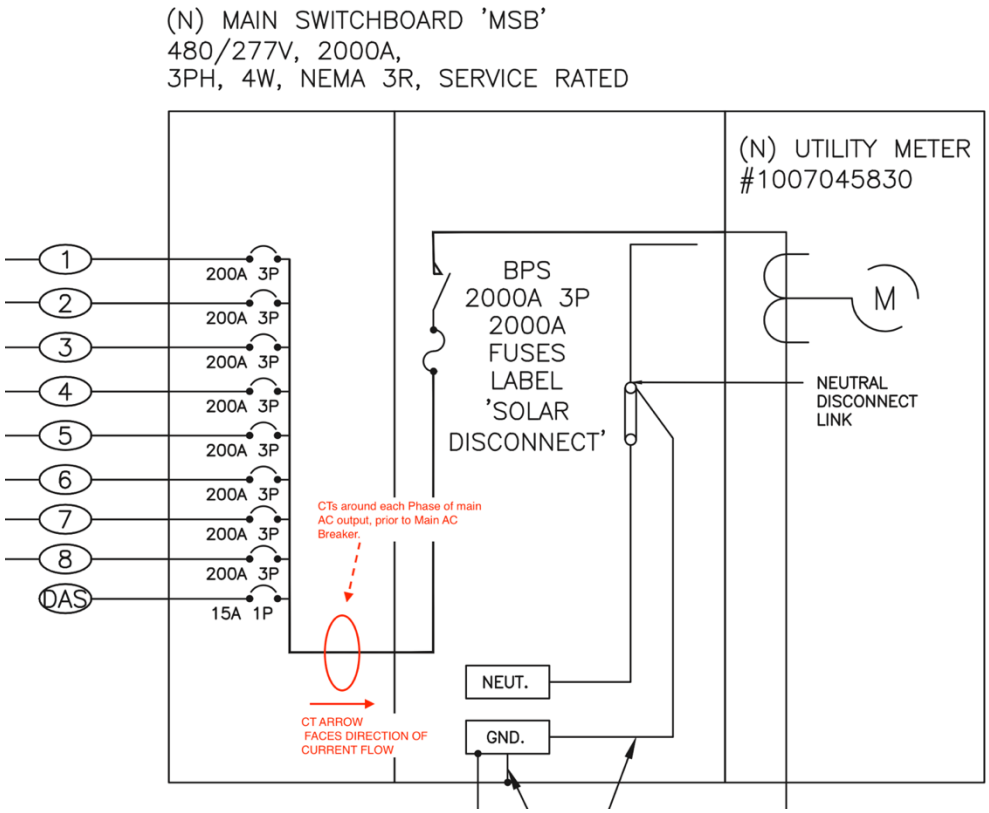
Do NOT penetrate the TOP or SIDES of the enclosure *or modify the hardware/factory wiring. Only drill holes in the bottom of the enclosure to maintain warranty.*

NOTE: Be careful not to drill into any of the components or wiring while drilling the access holes. This can result in damage to the device, rendering it unusable.

Rigid, metallic, and non-metallic conduit and fittings may be used, as well as liquid-tight flexible conduit systems. To maintain required environmental ratings, only use UL-Listed metallic conduit hubs with environmental ratings appropriate for the end use.

NOTE: Metallic conduits must be grounded. Bonding between conduit connection is not automatic and must be provided as a part of the installation.

B. Connect the CTs to the Main AC Output Conductors/Bus bars of the PV Array.

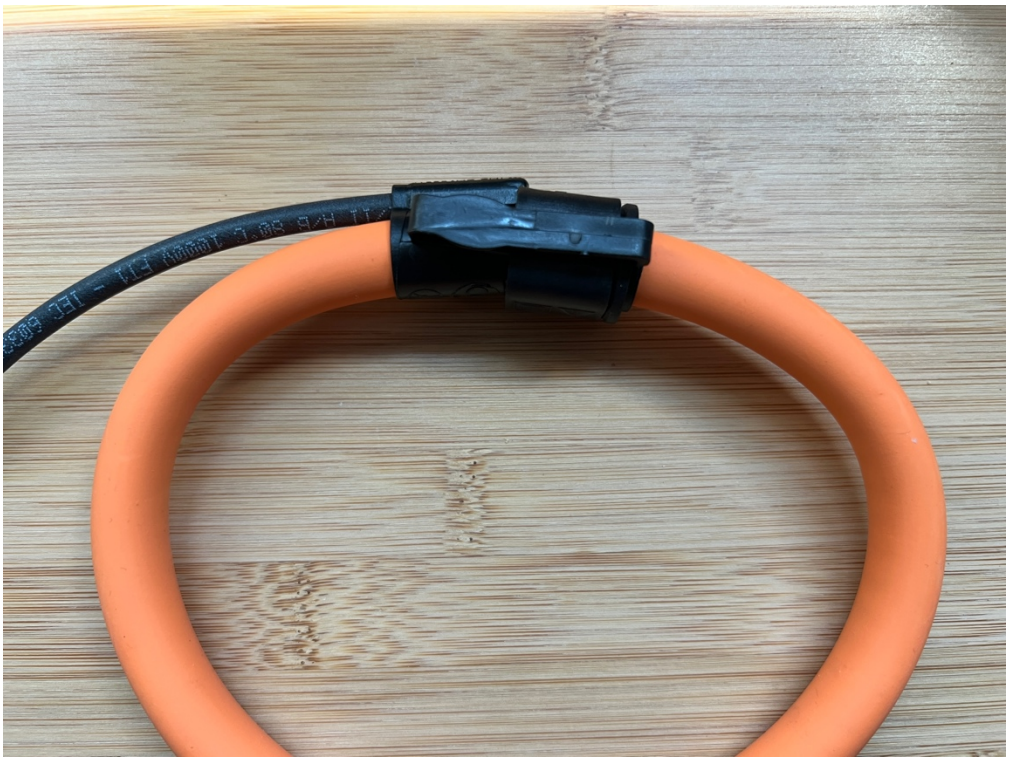


POWERFLY

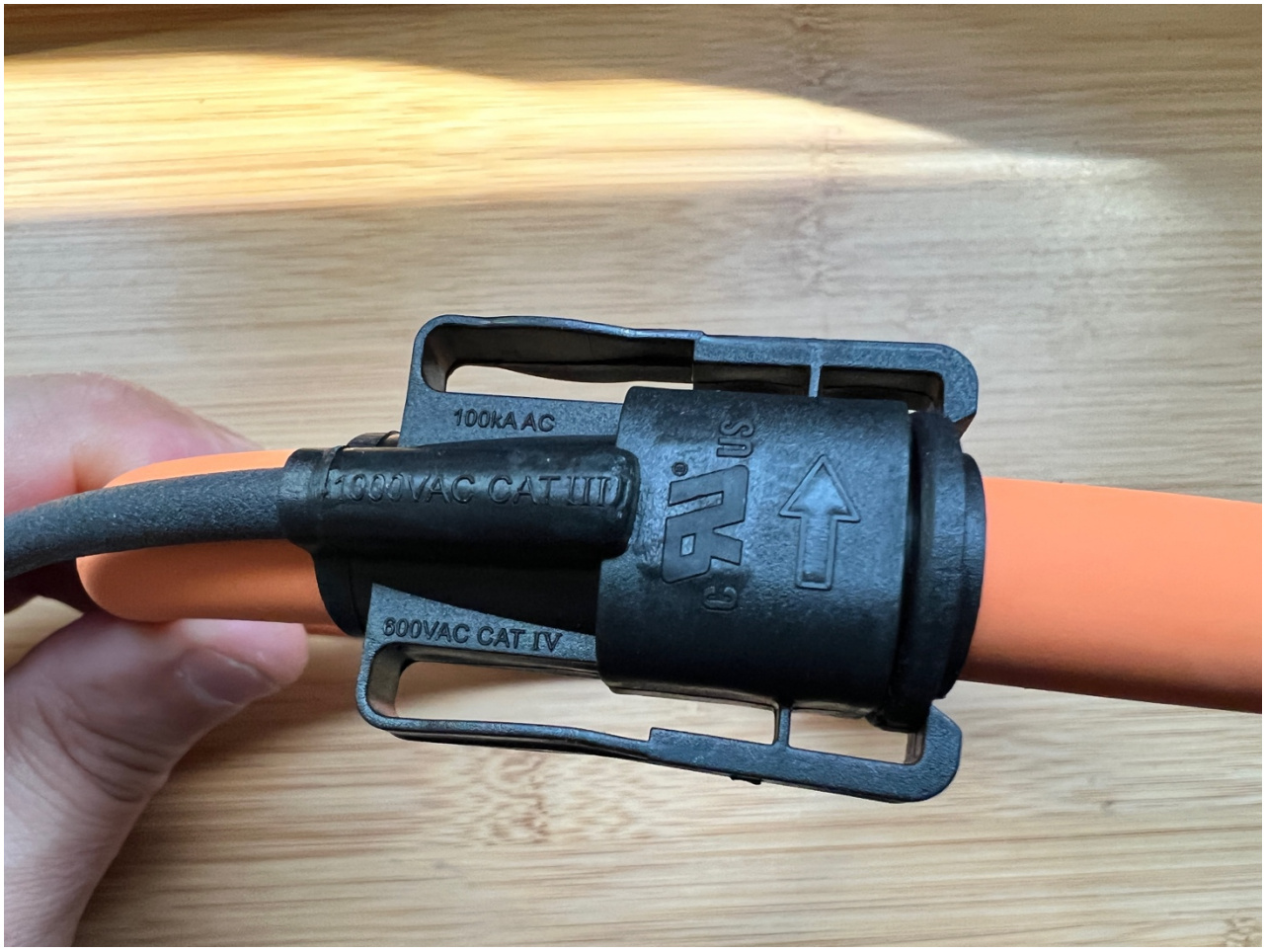
MAKE SURE TO LABEL YOUR CT LEAD WIRES VERY CAREFULLY BEFORE PULLING OR TERMINATING!

Open CT’s

Wrap around conductor or bus bar and close so they lock together.

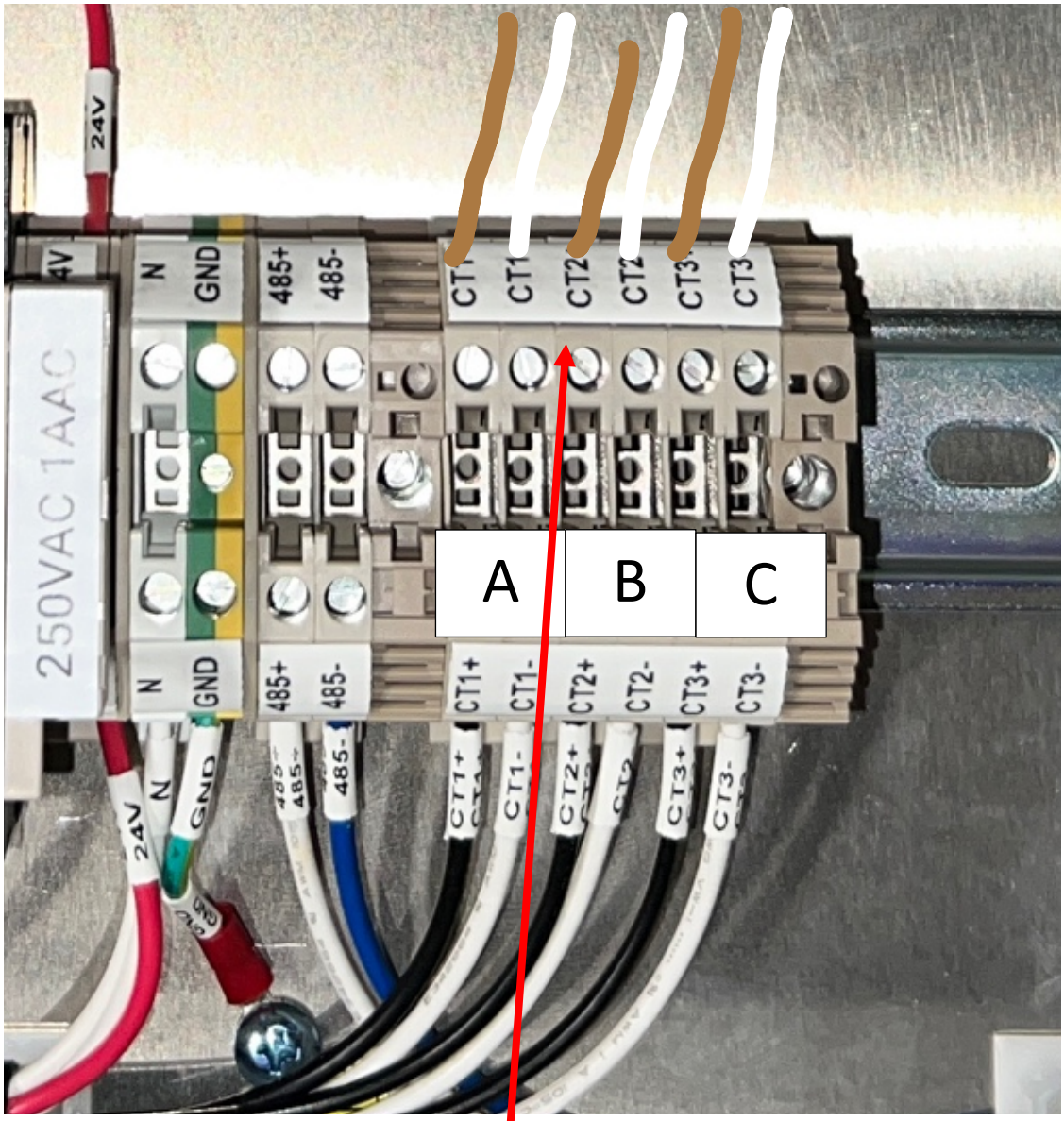


Make sure to note which direction the arrow is facing. Arrow faces same direction as current flow



CT Leads are low voltage Positive and Negative. Brown = POS (+), White = NEG (-)

Terminate the CT leads in the appropriate CT terminal blocks. Left to Right Phase A, B & C



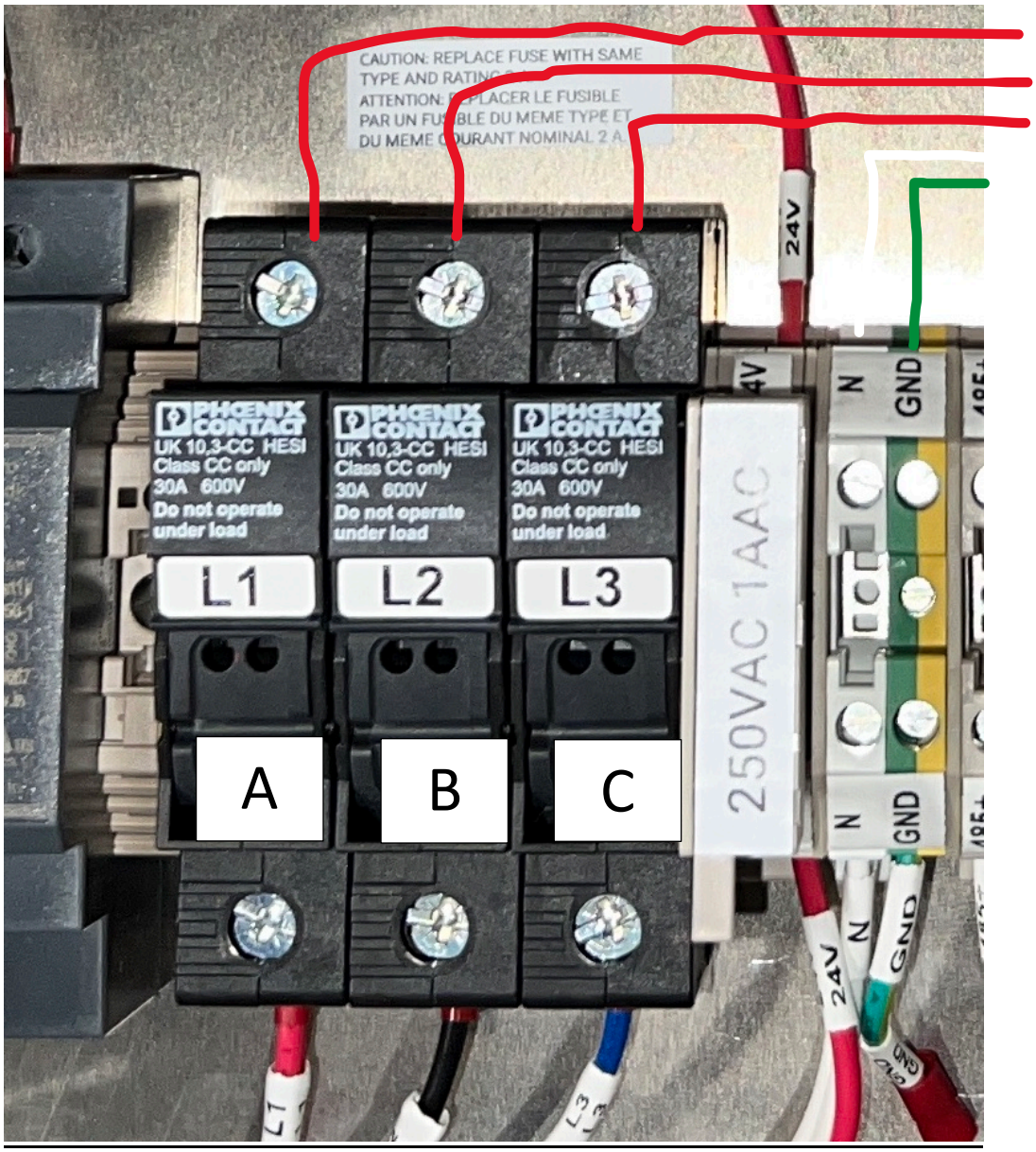
CT leads from Each Phase - A, B, C

C. Connect the power.

⚠ WARNING

Improper installation can lead to serious injury or death.

Power connection(s) shall only be made by qualified/certified electrical professionals. All connections and wiring must conform to applicable NEC (NFPA-70) and local electrical codes and standards.



Revenue Grade Metering requires a ground (G), negative (N), and each leg of a 3-phase circuit, A, B & C (or just A & B for a 240V split phase). The rest of the device is powered off L1.

The AC input terminal blocks include a 2A fuse to protect the circuit in the situation that power is supplied from an unprotected feeder tap. However, it is recommended to follow your building code requirements as well as protect the circuit with a approx. 15A - 20A circuit breaker. Turn off or isolate the power from the power source prior to wiring. Again, ***improper installation can lead to serious injury or death*****. Qualified Personnel Only**

After making the connection, return the power to normal service. If the Powerfly is receiving power properly, the Green LED in the upper left (PWR) of the datalogger will light up solid.

Communications status is indicated with the LEDs A1 and A2. After a few minutes, those LEDs should go from blinking to solid. If those LEDs are solid (not blinking), the system is communicating to the internet.

Step 5: Send Install Pictures to support@verifyenergy.com

It is important to confirm proper device connection with PowerFly technical staff before leaving the job site. Prior to connecting with staff, please take pictures of the following:

a. Nameplate sticker of the newly installed PowerFly
b. Interior of the PowerFly with all wiring connections terminated

c. Exterior of the PowerFly showing where it is installed (i.e., indoor, outdoor, roof)
d. Picture of LED lights on upper left of orange datalogger (Revolution Pi)
e. Picture of CTs on each phase
f. Picture of reference voltage connection
g. Exterior of solar array(s)
h. Exterior of main electrical panel and point of interconnection

Next, email these pictures to: **support@verifyenergy.com**

Step 6: Close and secure the enclosure lid

If tampering and security are a concern, install a padlock on the latch.

Questions or Comments?
Contact Verify Energy at 510-986-4293

support@verifyenergy.com