

How to wire a meter into a distribution box

Article Overview

Wiring a meter in a distribution box involves connecting the utility's line conductors to the meter socket, routing load wires to the main panel, and properly grounding and isolating the neutral, all while following strict safety protocols.

Safety First

Before starting, disconnect the main power supply and coordinate with your local utility to ensure the service is de-energized. A permit from the local Authority Having Jurisdiction (AHJ) is typically required, and all work should be performed or supervised by a licensed electrician due to the high risk of injury or death from live wires .

Meter Box Layout

- o Line Side (Incoming Utility): The utility's L1 and L2 conductors enter the top of the meter socket and connect to the Line Lugs. These lugs feed the meter jaws, which measure energy consumption .
- o Load Side (Outgoing to Panel): After passing through the meter, the electricity exits via the Load Lugs, which connect to the main breaker or distribution panel. These wires carry power to your home circuits .
- o Neutral Conductor: The neutral bypasses the meter jaws and connects directly to the neutral terminal bar inside the meter socket. This bar also provides a connection point for the grounding electrode conductor .
- o Grounding: Connect the grounding conductor (bare or green-insulated) to a terminal bonded to the metallic enclosure and ensure continuity with external ground rods or electrodes .

Wiring Steps

- o Mount the Meter Box: Secure the enclosure to an exterior wall, typically 5 feet above ground, ensuring easy access for utility personnel .
- o Route Service Entrance Cable: Run the feeder cable from the weatherhead or service drop into the top knockout of the meter box using a weatherproof conduit .
- o Connect Line Conductors: Attach the incoming hot wires (usually black and red) to the Line Lugs at the top of the meter socket .
- o Connect Load Conductors: Attach the outgoing hot wires to the Load Lugs, which lead to the main distribution panel .
- o Attach Neutral: Connect the neutral wire to the isolated neutral bus bar, ensuring it is not bonded to the enclosure in subpanels .
- o Connect Ground: Attach the grounding conductor to the enclosure's bonded terminal and verify continuity with external grounding electrodes .
- o Torque and Secure: Tighten all terminals to manufacturer-specified torque using a calibrated wrench. Use

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anti-oxidant compound for aluminum conductors to prevent corrosion .

- o Install the Meter: Insert the utility meter into the socket following manufacturer instructions, ensuring proper seating in the jaws .
- o Verify Connections: Double-check all connections for tightness, correct polarity, and proper color coding (black/red for hot, white for neutral, green/bare for ground), .

Important Considerations

- o Bonding: Only bond neutral to the metallic chassis in the main panel; subpanels must isolate neutral and ground to prevent circulating currents .
- o Breaker Coordination: Ensure branch circuits are connected to appropriately rated breakers (single-pole for 15-20A circuits, double-pole for 240V appliances), .
- o Compliance: Follow local electrical codes and utility requirements to avoid inspection failures or service delays . By following these steps and adhering to safety protocols, the meter and distribution box can be wired correctly, ensuring reliable and safe electricity distribution throughout the building .

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Step 6 - Connect Wires to the New Electric Meter Connect the wires to the corresponding places on your new electrical

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Apply corrosion inhibitor to the bare copper you expose. Step 4 - Connect Black Wires Connect one of the black wires

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A meter box or board wiring is easy for DIY electrician pros. It is the link between the

The following is an illustration of the wiring diagram and an operation guide for a residential electric meter box,

Installing an electric meter box can seem like a daunting task, but with a little knowledge and

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Install an electric meter box by planning location, mounting the enclosure, routing cables, grounding, sealing, and

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