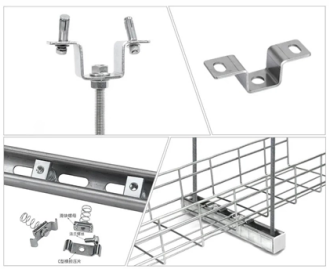
How to wire the meter in an outdoor power distribution box



Overview

Detailed guide to safely wiring an electric meter box. Covers regulatory compliance, component breakdown, and step-by-step conductor landing.

Key Takeaways

Wiring an outdoor meter box involves connecting the utility feed to the main disconnect, grounding properly, and routing load circuits to the distribution panel while following safety codes.

Safety First

Before starting, disconnect the main supply to prevent electric shock or arc faults. Only licensed electricians should handle live connections, and all work must comply with local electrical codes. Wear insulated gloves and use a multimeter to verify zero voltage before touching any conductors.

Mounting the Meter Box

Install the meter box securely on an exterior wall, typically around 5 feet above ground for easy utility access. Ensure the enclosure has proper IP/NEMA ratings for outdoor use and is made of durable, weather-resistant material. Route the service entrance cable from the weatherhead into the top knockout of the enclosure using a 2-inch conduit.

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Connecting the Utility Feed

The line conductors (usually black and red) from the utility feed connect to the main disconnect terminals inside the meter box. The neutral wire (white) connects to the neutral bus bar, and the ground wire (bare or green) connects to the grounding terminal. Extend the ground wire to a grounding electrode system, such as two 8-foot ground rods spaced at least 6 feet apart or a UFER system, depending on local code.

Wiring the Distribution Box

From the meter box, connect load wires to the main distribution panel or subpanel. Use single-pole breakers for 120V circuits (15–20A) and double-pole breakers for 240V appliances. Maintain color coding: black/red for hot, white for neutral, green/bare for ground.

Ensure neutral and ground are bonded only at the main service disconnect; subpanels must keep them isolated to prevent circulating currents.

Final Checks

Arrange conductors neatly inside the enclosure, avoiding over-bending or exposed copper beyond terminal lugs. Verify all connections are tight and breakers are in the OFF position before energizing. Notify the utility provider for inspection and service activation.

Use a multimeter to confirm zero voltage between bonded neutral and enclosure ground before turning on power.

Maintenance and Compliance

Label all circuits clearly and consider modular designs for future upgrades. Schedule regular inspections to ensure long-term reliability and safety.

Follow NE

C, IEC, or local codes and use UL/CE-certified components. By following these steps, you can safely wire an outdoor meter box and distribution panel, ensuring proper grounding, code compliance, and reliable electrical service.

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Article Content

How to Wire a Meter Box With a Diagram

Detailed guide to safely wiring an electric meter box. Covers regulatory compliance, component breakdown, and step-by-step conductor landing.

energy meter connection with distribution box #electrical

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To install a meter box, I mark the approved location, fix the enclosure level and secure, bring in supply and load cables, terminate according to the wiring diagram, torque all connections,

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Clear wiring diagram for residential electric meter box, showing connections, safety components, and layout for accurate installation and maintenance.

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Step-by-step guide to safe electric meter box installation, from code checks to tools, mounting and wiring.

How to Install an Electric Meter Box 2026

Step-by-step guidance on installing an electric meter box safely—site prep, clearances, mounting height, wiring, grounding, permits, and code compliance explained.

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The Main Electrical Panel & Subpanels

The electrical meter is mounted at the main electrical panel. From here, power is distributed to subpanels and circuits throughout the house. Once electricity is carried beyond your

Outdoor Electrical Distribution Box Specifications: NEC

Complete specification guide for outdoor electrical distribution boxes covering NEC Article 312 requirements, NEMA ratings, sizing calculations, and

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