

What is the size of the main series line in the distribution box



AI Overview

The main series line in a distribution box is sized according to the load, voltage, and protective device rating, typically using a three-phase or single-phase conductor rated for the total current of the system.

Main Line Configuration The incoming line of a power distribution box generally uses a five-wire system: three-phase lines (A, B, C), one neutral line, and one ground line. For single-phase 220V loads, one phase, one neutral, and one ground are used. For three-phase 380V loads, all three phases plus a ground are required, and the neutral may be connected if local control is needed.

Determining the Size The size of the main series line depends on:

- Total load current:** The conductor must safely carry the maximum expected current without overheating.
- Voltage level:** Single-phase or three-phase systems require different conductor ratings.
- Protective devices:** The main circuit breaker or air switch rating determines the minimum conductor size.
- Regulatory standards:** NEC, IEC, or local codes specify minimum conductor sizes for safety. For example, in residential or small commercial installations, the main line may be connected to a main breaker rated 100–200A, requiring copper conductors of 25–50 mm² or aluminum conductors of 35–70 mm², depending on the installation method and ambient temperature.

Installation Considerations

- Incoming devices:** The main line is usually connected to an air switch, MCCB, or knife switch.
- Busbar and terminals:** Ensure the busbar can handle the rated current and is shrouded for safety.
- Wire routing:** Provide adequate space for bending and connecting the main conductors without overcrowding.
- Future expansion:** Consider potential load increases when selecting conductor size.

Summary The main series line in a distribution box must be sized to safely handle the total system current, comply with local electrical codes, and matc...

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Distribution board

The three service conductors—two "hot" lines and one neutral—can be seen coming in at the top. The neutral wire is connected to the neutral busbar to the left with all the white wires, and the two hot

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Size determination, installation method and wiring mode

1) Generally, the incoming line of power distribution box adopts five wire system, i.e. three phase lines a, B and C (generally yellow, green and red), one zero line

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