

# How to calculate the size of an electrical distribution box



## Article Overview

The dimensions of an electrical distribution box are calculated based on the total wire volume, number of devices, and NEC fill requirements to ensure safety and code compliance.

### Step 1: Determine the Number of Conductors and Devices

Start by counting all conductors that will enter the box, including hot, neutral, and ground wires. Include any devices such as switches, outlets, or dimmers, as each device contributes to the required internal volume. For example, a single switch counts as one device, while a duplex outlet counts as two devices .

### Step 2: Identify Wire Gauge and Volume per Conductor

Each wire gauge has a specific volume allowance according to the NEC. For instance, a 14 AWG wire requires 2 cubic inches per conductor, while a 12 AWG wire requires 2.25 cubic inches. Ground wires collectively count as a single conductor for volume calculations .

### Step 3: Calculate Device and Fitting Volume

Add additional volume for devices and internal fittings. Each device typically adds 2 cubic inches, and internal clamps or connectors may require extra space. This ensures that the box can accommodate all components without overcrowding ....

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