

How many square millimeters should the ground wire be for a network server rack



Overview

Ground Wire Size Chart NEC 2026: Complete Grounding Guide NEC Table 250.122 is the primary reference for determining the minimum size of equipment grounding.

Key Takeaways

A typical grounding wire for a network server rack is 6 AWG copper, which equals approximately 13.3 mm².

NEC Guidelines

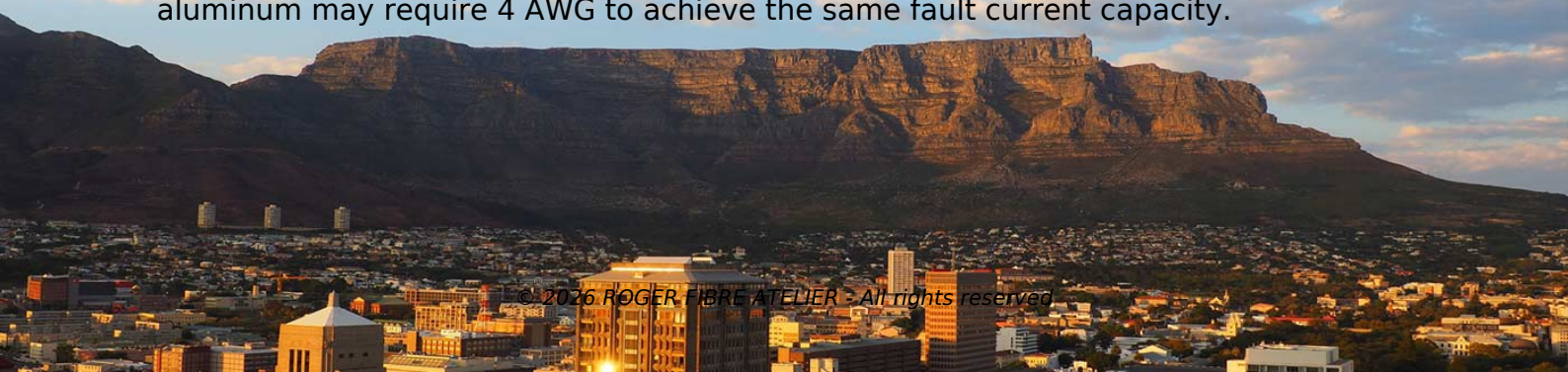
The National Electrical Code (NEC) Table 250.122 specifies the minimum size of equipment grounding conductors (EGCs) based on the rating of the overcurrent protection device (OCPD) protecting the circuit. For most server racks, which are often protected by 30–60 A breakers, the NEC recommends a 10 AWG to 6 AWG copper conductor.

Using a larger conductor is acceptable and can improve mechanical strength and reduce voltage drop.

Conversion to Square Millimeters 6 AW

G copper ≈ 13.3 mm² 8 AWG copper ≈ 8.4 mm² 10 AWG copper ≈ 5.

3 mm² For aluminum conductors, a larger size is required due to lower conductivity. For example, 6 AWG aluminum is roughly equivalent to 13.3 mm² copper, but aluminum may require 4 AWG to achieve the same fault current capacity.



Practical Recommendations

Use copper for critical server racks due to higher conductivity and reliability. Install the grounding wire in the same raceway or cable bundle as the power conductors to minimize impedance. Consider mechanical protection: a slightly larger conductor (e.g., 4 AWG / 21 mm²) can provide extra durability in high-traffic data centers.

Verify local codes: some jurisdictions may require larger grounding conductors for IT equipment or high-density racks.

Summary

For a standard network server rack protected by a 30–60 A breaker, a 6 AWG copper grounding wire ($\approx 13.3 \text{ mm}^2$) is typically sufficient according to NEC Table 250.122.

Larger sizes can be used for added safety or mechanical strength, and aluminum conductors require a larger cross-section to match copper performance.

Article Content

Ground Wire Size Chart NEC 2026: Complete Grounding Guide

NEC Table 250.122 is the primary reference for determining the minimum size of equipment grounding conductors based on the rating of the overcurrent protection device. This table

Ground Wire Sizing Guide | NEC Grounding Requirements

Size ground wires per NEC requirements. Learn equipment grounding conductor sizes, grounding electrode conductors, and grounding practices.

NEC 2023 Basics: Sizing Equipment Grounding Conductors

Use Table 250.122 to establish the minimum size – based on the ampere rating or setting of the automatic overcurrent device protecting the circuit ahead of the raceway or equipment.

Sizing Grounding and Bonding Conductors with NEC Table 250.122

A technical guide to using NEC Table 250.122 to correctly size equipment grounding conductors based on the rating of the overcurrent device.

NEC Ground Wire Size Chart: What Size Ground Wire Do You Need

A ground wire size chart that follows will tell you exactly the size of the grounding conductor you need. Now, it's important to understand that you cannot go wrong with a bigger-than-required ground wire.

NEC Ground Wire Size Chart Explained

NEC ground wire size chart is a crucial resource for electrical engineering and maintenance professionals, providing clear guidelines on selecting the appropriate grounding

Grounding Wire Size Calculator

Calculate equipment grounding conductors (EGC) based on circuit breaker size, grounding electrode conductors (GEC) for service entrances, and ground fault protection requirements.

NEC Ground Wire Size Chart – Electrical Grounding Guide

The NEC ground wire size chart is a critical tool for ensuring that electrical systems are properly grounded. By selecting the correct conductor size based on the rating of the overcurrent protection

Ground Wire Size Chart

You'll need a 10 AWG copper ground wire for a 50A circuit if it's acting as an EGC. If used as a GEC, size depends on the service conductors. Why aren't ground wires insulated? Ground

Ground Wire Sizing: How to Choose the Right Size

Learn the essential rules for sizing ground wires (EGC and GEC). Ensure your electrical system can clear fault current instantly for maximum safety.

How to ground a server rack?

Grounding server racks is a critical aspect of data center infrastructure, ensuring both operational reliability and personnel safety. A properly grounded rack mitigates the risks associated

Server rack grounding | Information by Electrical Professionals for ...

Hi everyone, I need some advice in grounding service rack. if I am pulling a ground wire from panel that is approximately 90 feet away from the ground busbar, do I use #6 or #1 cable?

How To Properly Ground Your Server Rack

Proper grounding of your server rack is essential for safety and performance. Follow these tips and tricks to ensure your server rack is properly

How do you ground residential network equipment?

You don't need to ground UTP wiring... in fact there is nothing to ground on it. (If you were using shielded twisted pair wiring, STP, that's a

Grounding network equipment rack?

Hey all, we're constructing a new location and I've been asked to procure materials necessary to rack all network equipment (ISP switch, fiber patch panel, our firewall and switch)

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How exactly to run ground wire for rack? : r/homelab

6awg wire tied back to ground in subpanel NOT to a ground rod, as there is different potential there Seems straight forward. But.how? THHN needs conduit and

Small Yet Important Details in Server Rack | Sysracks

A server rack is specialized furniture designed for housing high precious telecommunication and computing apparatus. There are several types

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This document is for preliminary research. Verify specifications against current standards, product documentation and project requirements.

