

Conductor Current Density Calculator

Reports conductor current density from current and cross-sectional area while keeping ampacity, insulation, and installation decisions separate.

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<https://www.elecatrix.com/wire-raceway-ampacity/conductor-current-density-calculator/>

Inputs

Input	Value	Unit
Current	10	A
Cross-sectional area	4	mm2

Results

Result	Value	Unit
Current density	2.5	A/mm2
Current density	250	A/cm2
Current used	10	A
Area used	4	mm2

Calculation details

Detail	Value	Unit
Calculation basis	Current density equals current divided by conductor cross-sectional area.	
Selection boundary	Physical screening value only; no NEC ampacity, conductor temperature, insulation, installation method, terminal rating, or code-compliance result is made.	

Formulas

$$J_{A/mm^2} = (I/A)$$

$$J_{A/cm^2} = 100J_{A/mm^2}$$

Warnings and limitations

Current density is a physical ratio, not an NEC ampacity limit. Do not use it alone to select conductors, breakers, insulation, terminals, or installation methods.