

Conductor Short-Circuit Withstand Calculator

Calculate adiabatic conductor withstand time, clearing-time margin, and I-squared-t from a reviewed K factor, conductor area, fault current, and clearing time.

Generated October 10, 2026

<https://www.elecatrix.com/testing-protection-grounding/conductor-short-circuit-withstand-calculator/>

Inputs

Input	Value	Unit
Entered K factor	143	A sqrt(s)/a rea
Conductor area	250	kcmil
Fault current	20	kA
Clearing time	0.1	s

Results

Result	Value	Unit
Estimated withstand time	3.1952	s
Clearing-time margin	3.0952	s
I-squared-t	40000000	A^2s

Calculation details

Detail	Value	Unit
Calculation basis	Conductor withstand screen uses entered K factor, conductor area, fault current, and clearing time.	
Review boundary	Adiabatic arithmetic only; no conductor selection, damage guarantee, OCPD coordination, temperature-code table, or compliance approval is made.	

Formulas

$$t_{\text{withstand}} = ((K \times A/I))^2$$

$$I^2t = I^2 \times t_{\text{clearing}}$$

$$t_{\text{margin}} = t_{\text{withstand}} - t_{\text{clearing}}$$

Warnings and limitations

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