

Extension Cord Voltage Drop Calculator

Screen extension-cord voltage drop and entered rating margin as a voltage-drop workflow mode; it does not approve safe use.

Generated October 10, 2026

<https://www.elecatrix.com/testing-protection-grounding/extension-cord-safety-calculator/>

Inputs

Input	Value	Unit
Load current	12	A
One-way length	50	ft
Conductor resistance	1.588	ohm/1000 ft
System voltage	120	V
Circuit type	Single phase	
Entered drop comparison	3	%
Entered cord rating	15	A
Cord condition record	Recorded	
Source reference	cord-record	

Results

Result	Value	Unit
Total circuit length	100	ft
Circuit resistance	0.1588	ohm
Voltage drop	1.9056	V
Voltage drop percent	1.588	%
Entered drop margin	1.412	%
Entered rating margin	3	A
Entered-record status	entered_values_comparable	

Calculation details

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Detail	Value	Unit
Calculation basis	The worksheet doubles one-way length, applies entered conductor resistance, calculates voltage drop, and compares entered limits.	
Boundary	Mode comparison only; this does not approve safe use, establish ampacity, or determine installation compliance.	

Formulas

$\text{total circuit length} = \text{one-way length} \times 2$

$\text{circuit resistance} = \text{total circuit length} / 1000 \times \text{conductor resistance per } 1000 \text{ ft}$

$\text{voltage drop} = \text{load current} \times \text{circuit resistance}$

$\text{voltage drop percent} = \text{voltage drop} / \text{system voltage} \times 100$

Warnings and limitations

Review worksheet only; it does not approve safe use, establish ampacity, or determine installation compliance.