

# DC Voltage Drop Calculator

Calculate two-conductor DC voltage drop, percentage, limit voltage, and margin within the voltage-drop workflow.

Generated October 10, 2026

<https://www.elecatrrix.com/wire-raceway-ampacity/dc-voltage-drop-calculator/>

## Inputs

| Input                | Value | Unit        |
|----------------------|-------|-------------|
| Load current         | 20    | A           |
| One-way length       | 100   | ft          |
| System voltage       | 120   | V           |
| Conductor resistance | 1.588 | ohm/1000 ft |
| Entered drop limit   | 3     | %           |

## Results

| Result                 | Value   | Unit              |
|------------------------|---------|-------------------|
| Voltage drop           | 6.352   | V                 |
| Voltage drop percent   | 5.2933  | %                 |
| Entered limit in volts | 3.6     | V                 |
| Entered limit margin   | -2.2933 | percentage points |
| DC circuit multiplier  | 2       | x                 |

## Calculation details

| Detail             | Value                                                                                                                     | Unit |
|--------------------|---------------------------------------------------------------------------------------------------------------------------|------|
| Calculation basis  | DC voltage drop uses the outgoing and return conductor path, entered current, one-way length, and resistance per 1000 ft. |      |
| Selection boundary | Mode arithmetic only; no conductor selection, ampacity, protection, equipment rating, or installation conclusion is made. |      |

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## Formulas

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$\text{voltage drop} = 2 \times \text{current} \times \text{one-way length} \times \text{resistance per } 1000 \text{ ft} / 1000$

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

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$\text{entered margin} = \text{entered drop limit percent} - \text{voltage drop percent}$

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## Warnings and limitations

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Mode arithmetic only; no conductor selection, ampacity, protection, equipment rating, or installation conclusion is made.