

Solar Cable Voltage Drop Calculator

Estimate PV circuit voltage drop, drop percentage, and remaining margin to a 3 percent reference from entered current, resistance, length, and system voltage.

Generated October 10, 2026

<https://www.elecatrix.com/solar-backup-power/solar-cable-voltage-drop-calculator/>

Inputs

Input	Value	Unit
Array current	18	A
One-way cable length	120	ft
Conductor resistance	0.6282	ohm/1000 ft
System voltage	600	V
Circuit length basis	DC two-wire loop	

Results

Result	Value	Unit
Circuit length used	240	ft
Circuit resistance	0.1508	ohm
Voltage drop	2.7138	V
Voltage drop	0.4523	%
Remaining to 3 percent reference	2.5477	%

Calculation details

Detail	Value	Unit
Calculation basis	Voltage drop uses entered current, conductor resistance, circuit length basis, and system voltage.	
Review boundary	Voltage-drop arithmetic only; no conductor size, ampacity, PV current factor, or code-compliance result is made.	

Formulas

Circuit length=One-way length x 2 for a DC two-wire loop

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$\text{Circuit resistance} = \text{Resistance per 1000 ft} \times \text{Circuit length} / 1000$

$\text{Voltage drop} = \text{Current} \times \text{Circuit resistance}$

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

Warnings and limitations

This PV voltage-drop estimate does not select conductor size, ampacity, OCPD, PV current factor, utility interconnection, or code-compliant PV design.