

Power Dissipation Calculator

Enter voltage, current, and operating hours to calculate ideal electrical power and energy. Treat the result as a planning estimate, not a thermal design approval.

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<https://www.elecatrix.com/power-energy-cost/power-dissipation-calculator/>

Inputs

Input	Value	Unit
Voltage	12	V
Current	2	A
Operating time	1	h

Results

Result	Value	Unit
Power dissipation	24	W
Energy used	24	Wh

Calculation details

Detail	Value	Unit
Calculation basis	Power is voltage multiplied by current; energy is power multiplied by operating hours.	
Boundary	Ideal arithmetic only; verify waveform, duty cycle, power factor, thermal path, component rating, and equipment instructions.	

Formulas

$$P = V \times I$$

$$E_{Wh} = P \times t_h$$

Warnings and limitations

For AC loads, confirm whether RMS values, power factor, waveform, and duty cycle require a different model. Thermal design also requires heat path, ambient temperature, enclosure, and manufacturer data.