

Subpanel Load Calculator

Estimates demand load, feeder current, subpanel utilization, and spare capacity from connected load, an explicit demand factor, system voltage, phase, panel rating, and target margin.

Generated October 10, 2026

<https://www.elecatrix.com/residential-load-service/subpanel-load-calculator/>

Inputs

Input	Value	Unit
Connected load	48000	VA
Demand factor	80	%
System voltage	240	V
Phase	Single-phase	
Subpanel rating	200	A
Target spare capacity	20	%

Results

Result	Value	Unit
Connected load	48000	VA
Demand load	38400	VA
Feeder current	160	A
Subpanel utilization	80	%
Spare capacity	40	A
Target spare capacity	40	A
Target spare margin	N/A	A

Status

Status	Value	Unit
Capacity comparison	Within entered spare-capacity target	

Calculation details

Detail	Value	Unit
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Calculation basis	Demand load applies the entered demand factor to connected VA, then converts to feeder current using entered voltage and phase. Spare capacity compares that current to the entered subpanel rating.
Selection boundary	Subpanel load estimate only; no load schedule, conductor, breaker, feeder, panelboard, demand table, permit, or code-compliance result is made.

Formulas

Demand load (VA) = Connected load (VA) x (Demand factor (%)/100)

Feeder current (A) = (Demand load (VA)/Phase multiplier x System voltage (V))

Subpanel utilization (%) = (Feeder current (A)/Subpanel rating (A)) x 100

Spare capacity (A) = Subpanel rating (A) - Feeder current (A)

Target spare capacity (A) = Subpanel rating (A) x (Target spare (%)/100)

Target spare margin (A) = Spare capacity (A) - Target spare capacity (A)

Warnings and limitations

This subpanel load estimate uses user-entered load, rating, and factor assumptions. It does not size feeders, breakers, conductors, panelboards, or prove code compliance.