

Commercial Panel Capacity Calculator

Compare an entered commercial panel rating with connected VA under a stated phase model, including current, utilization, and capacity margin.

Generated October 10, 2026

<https://www.elecatrix.com/commercial-industrial-loads/commercial-panel-capacity-calculator/>

Inputs

Input	Value	Unit
Panel rating	225	A
System voltage	480	V
Connected load	120000	VA
Phase model	Balanced three-phase	

Results

Result	Value	Unit
Rated apparent capacity	187061.4872	VA
Estimated load current	144.3376	A
Capacity margin	67061.4872	VA
Ampere margin	80.6624	A
Connected-load utilization	64.15	%
Panel rating used	225	A
System voltage used	480	V
Connected load used	120000	VA
Phase multiplier	1.7321	x

Status

Status	Value	Unit
Capacity check	Within Entered Rating	

Calculation details

Detail	Value	Unit
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Calculation basis	Rated apparent capacity equals entered panel rating multiplied by system voltage and the selected phase multiplier. Connected load is compared directly with that rated capacity.
Review boundary	Screening capacity arithmetic only. No demand factor, continuous-load rule, bus rating, panel listing, conductor, protection, service, utility, or code-compliance result is made.

Formulas

$$S_{1\phi} = I_{panel}V$$

$$S_{3\phi} = I_{panel}V\sqrt{3}$$

$$I_{load} = \frac{V!A_{connected}V_k_{phase}}$$

$$U_{\%} = \frac{V!A_{connected}S_{rated}}{S_{rated}} \times 100$$

$$M_{capacity} = S_{rated} - V!A_{connected}$$

Warnings and limitations

This is a connected-load capacity check only. It does not apply demand or continuous-load rules, verify panelboard ratings, select breakers or conductors, or establish service or code compliance.