

Buck-Boost Transformer Calculator

Estimate buck-boost winding and adjusted kVA from supply and target voltage, load current, phase arrangement, and a planning multiplier. Final transformer selection remains a manufacturer and installation review.

Generated October 10, 2026

<https://www.elecatrix.com/power-quality-transformers/buck-boost-transformer-calculator/>

Inputs

Input	Value	Unit
Supply voltage	208	V
Target voltage	240	V
Load current	30	A
Phase	Single-phase	
Sizing multiplier	115	%

Results

Result	Value	Unit
Voltage change	32	V
Load kVA	7.2	kVA
Buck-boost winding kVA	0.96	kVA
Required buck-boost kVA	1.104	kVA
Sizing multiplier used	115	%

Status

Status	Value	Unit
Buck/boost direction	Boost	

Calculation details

Detail	Value	Unit
Calculation basis	Buck-boost winding kVA uses load current, absolute voltage change, and phase multiplier. Required kVA applies the entered sizing multiplier.	

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Selection boundary

Buck-boost transformer estimate only; no wiring diagram, catalog selection, grounding, overcurrent protection, listing, or code-compliance result is made.

Formulas

$m_phase=1$ for single-phase,quad $m_phase=\sqrt{3}$ for balanced three-phase

$\Delta V = V_target - V_supply$

$S_load = \frac{I}{1000} \times V_target \times m_phase$

$S_winding = \frac{I}{1000} \times |\Delta V| \times m_phase$

$S_required = S_winding \times \frac{F_sizing}{100}$

Warnings and limitations

This buck-boost transformer estimate is winding-kVA arithmetic only. It does not provide wiring diagrams, manufacturer catalog selection, grounding, protection, listing, or code compliance.