

Transformer Tap Voltage Calculator

Calculate a nameplate-first preliminary tap comparison. The entered sign convention must match the transformer nameplate or manufacturer documentation.

Generated October 10, 2026

<https://www.elecatrix.com/power-quality-transformers/transformer-tap-voltage-calculator/>

Inputs

Input	Value	Unit
Transformer or asset label	Transformer T-1	
Measured primary voltage	12470	V
Rated primary voltage	12470	V
Rated secondary voltage	480	V
Tap step size	2.5	%
Selected tap position	N/A	steps
Minimum listed tap	-2	steps
Maximum listed tap	2	steps
Desired secondary voltage	480	V
Tap type and manual note	Verify off-circuit or on-load type	

Results

Result	Value	Unit
Secondary at actual primary, no tap	480	V
Selected tap correction	N/A	%
Estimated secondary at selected tap	480	V
Nearest listed tap	N/A	steps
Voltage at nearest listed tap	480	V
Nearest-tap target error	N/A	V

Calculation details

Detail	Value	Unit
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Target comparison	Nearest listed tap step is shown for the entered target.
Calculation basis	The no-load estimate uses rated secondary voltage scaled by measured-to-rated primary voltage, then applies the entered signed tap correction. Positive tap steps are defined by the user as increasing computed secondary voltage.
Tap boundary	Estimate and documentation aid only; verify the nameplate sign convention, phase diagram, tap type, manufacturer manual, load drop, OLTC controls, utility requirements, and de-energized work procedure separately.

Formulas

$$V_{S0} = V_{S,rated} \times \frac{V_{P,measured}}{V_{P,rated}}$$

$$\text{Tap correction} = n_{\text{tap}} \times \text{tap step percent}$$

$$V_{S,tap} = V_{S0} \times (1 + (\text{tap correction}/100))$$

Nearest tap: choose the listed step closest to the target voltage

Warnings and limitations

This is a preliminary no-load tap estimate. Never use it as live tap-operation, load-drop, utility-voltage, protection, interconnection, or energization approval.