

Control Transformer VA Calculator

Compares sealed VA, simultaneous inrush VA, control voltage, and planning margin into a preliminary control-transformer VA basis and secondary-current context.

Generated October 10, 2026

<https://www.elecatrix.com/circuits-components/control-transformer-va-calculator/>

Inputs		
Input	Value	Unit
Total sealed VA	80	VA
Maximum simultaneous inrush VA	250	VA
Control voltage	120	V
Planning margin	20	%
Results		
Result	Value	Unit
Continuous VA with margin	96	VA
Combined inrush VA	262.4881	VA
Preliminary minimum VA basis	262.4881	VA
Steady-state secondary current	0.6667	A
Inrush current basis	2.0833	A
Margin multiplier	1.2	x
Calculation details		
Detail	Value	Unit
Calculation basis	The continuous VA basis applies the entered margin. The combined inrush VA uses the vector magnitude of sealed and inrush VA for a preliminary control-transformer selection screen.	
Selection boundary	Planning VA only; verify exact coil inrush, sealed VA, control voltage, transformer data, fuse/protection, short-circuit rating, and installation requirements.	

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Formulas

$$VA_{\text{continuous}} = VA_{\text{sealed}}(1+(m/100))$$

$$VA_{\text{combined}} = \sqrt{VA_{\text{sealed}}^2 + VA_{\text{inrush}}^2}$$

$$VA_{\text{minimum}} = \max(VA_{\text{continuous}}, VA_{\text{combined}})$$

$$I_{\text{steady}} = \frac{VA_{\text{sealed}}}{V_{\text{control}}}$$

$$I_{\text{inrush}} = \frac{VA_{\text{inrush}}}{V_{\text{control}}}$$

Warnings and limitations

This is a control-transformer sizing screen. Exact device inrush, sealed VA, transformer impedance, voltage drop, protection, SCCR, listing, and manufacturer instructions require separate review.