

Transformer Short Circuit Contribution Calculator

Provides a preliminary transformer-limited fault-current estimate from transformer kVA, secondary voltage, phase model, and percent impedance.

Generated October 10, 2026

<https://www.elecatrix.com/power-quality-transformers/transformer-short-circuit-contribution-calculator/>

Inputs

Input	Value	Unit
Transformer size	500	kVA
Secondary voltage	480	V
Phase	Balanced three-phase	
Transformer impedance	5.75	%Z

Results

Result	Value	Unit
Rated secondary current	601.4065	A
Transformer-limited fault current	10459.244	A
Short-circuit MVA	8.6957	MVA
Equivalent impedance	0.0265	ohm
Phase multiplier	1.7321	x

Calculation details

Detail	Value	Unit
Calculation basis	Transformer rated current is divided by entered per-unit impedance for a transformer-limited short-circuit estimate.	
Fault-current boundary	Transformer contribution screen only; source, motor, X/R, equipment duty, grounding, and protection study remain external.	

Formulas

$k_{\text{phase}}=1$ for single-phase; $k_{\text{phase}}=\sqrt{3}$ for balanced three-phase

$I_{\text{rated}}[\text{A}] = \frac{S_{\text{transformer}}[\text{kVA}]}{V_{\text{secondary}}[\text{V}]}$

$Z_{\text{pu}} = \frac{Z_{\%}}{100}$

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$$I_{\text{fault}}[A] = \frac{I_{\text{rated}}[A]}{Z_{\text{pu}}}$$

$$SCA[MVA] = \frac{V_{\text{secondary}}[V]}{k_{\text{phase}}} I_{\text{fault}}[A] 10^6$$

$$Z_{\text{eq}}[\Omega] = \frac{V_{\text{secondary}}[V]}{k_{\text{phase}} I_{\text{fault}}[A]}$$

Warnings and limitations

This estimate covers transformer-limited contribution only; it does not determine utility source contribution, motor contribution, X/R ratio, equipment duty, interrupting rating, grounding, or protection coordination.