

Transformer K-Factor Calculator

Calculate a transformer K-factor metric from harmonic current content before transformer thermal or product review.

Generated October 10, 2026

<https://www.elecatrix.com/power-quality-transformers/transformer-k-factor-calculator/>

Inputs		
Input	Value	Unit
Reference basis	Fundamental current	
Reference current	100	A
Harmonic rows	Rows: 3	
Row 1 - Harmonic order	1	order
Row 1 - Harmonic current	100	A
Row 2 - Harmonic order	3	order
Row 2 - Harmonic current	40	A
Row 3 - Harmonic order	5	order
Row 3 - Harmonic current	20	A
Results		
Result	Value	Unit
K-factor	3.44	x
Counted harmonic rows	3	rows
Highest harmonic order	5	order
Reference current	100	A
Reference basis used	Fundamental current	
Calculation details		
Detail	Value	Unit
Calculation basis	K-factor normalizes each harmonic current to the reference current and weights each contribution by harmonic order squared.	

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Normalization boundary	Keep the reference basis explicit; do not compare K values across different bases or meter algorithms.
Selection boundary	This is a harmonic review metric only; it does not select a transformer, neutral conductor, or thermal class.

Formulas

$$K = \sum_h \left(\frac{I_h}{I_{ref}} \right)^2 h^2$$

I_h = true RMS current at harmonic order h

I_{ref} = entered fundamental or rated current basis

Warnings and limitations

This is a transformer harmonic review metric only. It does not select a transformer, neutral conductor, or thermal class and it does not compare mixed normalization bases.