

Motor Current Unbalance Calculator

Review a recorded three-phase motor current set during maintenance or commissioning. The result does not diagnose the motor or choose a repair.

Generated October 10, 2026

<https://www.elecatrix.com/motors-starters/motor-current-unbalance-calculator/>

Inputs

Input	Value	Unit
Phase A current	10	A
Phase B current	11	A
Phase C current	12	A
Entered reference unbalance	10	%
Measurement note	Record instrument, phase labels, and load condition separately.	

Results

Result	Value	Unit
Average current	11	A
Maximum deviation	1	A
Current unbalance	9.0909	%
Margin vs entered reference	0.9091	%

Calculation details

Detail	Value	Unit
Calculation basis	Average current is the mean of the three entered phase measurements. Unbalance is the largest absolute deviation divided by the average.	
Motor boundary	Measured-current review only; verify phase labels, instrument accuracy, load condition, motor data, manufacturer guidance, and any maintenance or acceptance criterion separately.	

Formulas

$$I_{avg} = (I_A + I_B + I_C / 3)$$

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$$\text{Delta } I_{\text{max}} = \max(|I_A - I_{\text{avg}}|, |I_B - I_{\text{avg}}|, |I_C - I_{\text{avg}}|)$$

$$\text{Unbalance\%} = \frac{\text{Delta } I_{\text{max}}}{I_{\text{avg}}} \times 100$$

$$\text{Margin\%} = \text{Reference\%} - \text{Unbalance\%}$$

Warnings and limitations

This is a measured-current review. It does not diagnose a motor, identify a failing phase, select protection, establish a NEMA limit, or prove equipment acceptance.