

# Circuit Identification Calculator

Compare three entered line-to-line voltage readings with a nominal value and tolerance to flag whether the readings are internally consistent for review.

Generated October 10, 2026

<https://www.elecatrrix.com/testing-protection-grounding/circuit-identification-calculator/>

## Inputs

| Input                | Value | Unit |
|----------------------|-------|------|
| Nominal line voltage | 480   | V    |
| Measured A-B voltage | 480   | V    |
| Measured B-C voltage | 480   | V    |
| Measured C-A voltage | 480   | V    |
| Voltage tolerance    | 2     | %    |

## Results

| Result               | Value | Unit |
|----------------------|-------|------|
| Average line voltage | 480   | V    |
| Maximum deviation    | N/A   | V    |
| Maximum deviation    | N/A   | %    |

## Status

| Status                   | Value                           | Unit |
|--------------------------|---------------------------------|------|
| Voltage comparison       | Within Entered Tolerance        |      |
| Voltage comparison model | Three Phase Line To Line Screen |      |

## Calculation details

| Detail            | Value                                                                                                                     | Unit |
|-------------------|---------------------------------------------------------------------------------------------------------------------------|------|
| Calculation basis | The worksheet averages three entered line-to-line readings and compares the largest deviation with the entered tolerance. |      |
| Review boundary   | Screen only; this does not identify energized conductors, prove phase labels, or certify a circuit.                       |      |

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## Formulas

$$\overline{V_{LL}} = \frac{V_{AB} + V_{BC} + V_{CA}}{3}$$

$$\Delta V_{\max} = \max(|V_{AB} - V_{\text{nom}}|, |V_{BC} - V_{\text{nom}}|, |V_{CA} - V_{\text{nom}}|)$$

$$\Delta V_{\%} = \frac{\Delta V_{\max}}{V_{\text{nom}}} \times 100$$

$\Delta V_{\%} \leq T_{\%}$  Rightarrow within the entered tolerance

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## Warnings and limitations

Gated worksheet only. It does not identify energized conductors or approve a field circuit.