

Protective Relay Pickup Calculator

Convert a secondary relay pickup setting through a CT ratio and compare the primary pickup with available fault current.

Generated October 10, 2026

<https://www.elecatrix.com/testing-protection-grounding/protective-relay-pickup-calculator/>

Inputs

Input	Value	Unit
Relay pickup setting	5	A secondary
CT primary rating	600	A
CT secondary rating	5	A
Available fault current	12000	A

Results

Result	Value	Unit
Primary pickup current	600	A
Fault current above pickup	11400	A
Fault-to-pickup ratio	20	x

Status

Status	Value	Unit
Pickup comparison	Available fault current is above the entered pickup screen.	

Calculation details

Detail	Value	Unit
Calculation basis	Relay pickup screen converts entered secondary pickup through the entered CT ratio.	
Review boundary	Pickup conversion only; no relay setting, protection coordination, CT saturation, trip approval, or code result is made.	

Formulas

$$I_{pickup, primary} = I_{pickup, secondary} \times \frac{I_{CT, primary}}{I_{CT, secondary}}$$

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Pickup margin= $I_{\text{fault}} - I_{\text{pickup, primary}}$

Fault-to-pickup ratio= $\frac{I_{\text{fault}}}{I_{\text{pickup, primary}}}$

Warnings and limitations

Pickup conversion only; this worksheet does not set or approve relay settings, verify protection coordination, model CT saturation, approve tripping, or decide code compliance.