

RL Time Constant Calculator

Enter resistance and inductance to calculate the first-order RL time constant and its five-time-constant settling reference.

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<https://www.elecatrrix.com/circuits-components/rl-time-constant-calculator/>

Inputs

Input	Value	Unit
Resistance	100	ohm
Inductance	0.5	H

Results

Result	Value	Unit
RL time constant	0.005	s
Five time constants	0.025	s

Calculation details

Detail	Value	Unit
Calculation basis	The RL time constant is inductance divided by resistance.	
Boundary	This is first-order ideal RL arithmetic. It does not model source impedance, saturation, parasitics, switching behavior, or component ratings.	

Formulas

$$\tau = (L/R)$$

$$t_{5\tau} = 5 \times \tau$$

Warnings and limitations

This is ideal first-order circuit arithmetic. Confirm source impedance, winding resistance, saturation, switching conditions, parasitics, insulation, and component ratings before using it for equipment or control design.