

Oscilloscope Bandwidth Calculator

Estimate signal-frequency bandwidth needs before checking oscilloscope and probe specifications.

Generated October 10, 2026

<https://www.elecatrix.com/testing-protection-grounding/oscilloscope-bandwidth-calculator/>

Inputs

Input	Value	Unit
Signal frequency	20	MHz
Available bandwidth	100	MHz
Bandwidth multiplier	5	x

Results

Result	Value	Unit
Required bandwidth	100	MHz
Bandwidth margin	N/A	MHz
Bandwidth ratio	1	x
Scope rise time	3.5	ns
Bandwidth comparison	Available bandwidth meets or exceeds estimate	

Calculation details

Detail	Value	Unit
Calculation basis	Required bandwidth equals entered signal frequency times entered multiplier.	
Screening boundary	Idealized bandwidth arithmetic only; probe, sample rate, front-end response, attenuation, and uncertainty remain external.	

Formulas

required bandwidth = signal frequency x bandwidth multiplier

bandwidth margin = available bandwidth - required bandwidth

estimated scope rise time ns = 350 / available bandwidth MHz

Warnings and limitations

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This is idealized oscilloscope bandwidth arithmetic only. It does not certify probe bandwidth, sample rate, triggering, attenuation, or measurement uncertainty.