

VFD DC Bus Voltage Calculator

Compare expected DC bus arithmetic with a commissioning record while keeping measured drive diagnostics separate.

Generated October 10, 2026

<https://www.elecatrix.com/motors-starters/vfd-dc-bus-voltage-screen-calculator/>

Inputs

Input	Value	Unit
AC line-to-line voltage	480	V
Rectifier multiplier	1.35	x
Measured DC bus voltage	648	V
Measured bus ripple	12	V p-p
Drive and instrument note	Record drive model, topology, input reactor, probe, bandwidth, and load condition separately.	

Results

Result	Value	Unit
Expected DC bus	648	V
Measured bus deviation	N/A	%
Ripple percentage	1.8519	%
Ripple peak-to-peak	12	V p-p

Calculation details

Detail	Value	Unit
Calculation basis	Expected bus voltage is the entered AC line-to-line voltage multiplied by the entered rectifier approximation. Deviation and ripple use entered measurements.	
VFD boundary	Commissioning arithmetic only; verify rectifier topology, input reactor, regeneration, measurement bandwidth, drive manual, and qualified diagnostic procedure separately.	

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Formulas

$V_{DC, \text{ expected}} = V_{\text{line-line}} \times \text{rectifier multiplier}$

$\text{Bus deviation} = \frac{V_{\text{measured bus}} - V_{DC, \text{ expected}}}{V_{DC, \text{ expected}}} \times 100\%$

$\text{Ripple percent} = \frac{V_{\text{ripple, peak-to-peak}}}{V_{\text{measured bus}}} \times 100\%$

Warnings and limitations

This is expected-versus-measured arithmetic. It does not diagnose a drive, prove capacitor health, establish a safe measurement procedure, or approve energization.