

Motor VFD Cable Length Calculator

Compare the entered VFD-to-motor cable run with the exact drive manual limit and show remaining margin and percentage used. It does not create a universal safe-length rule.

Generated October 10, 2026

<https://www.elecatrix.com/motors-starters/motor-vfd-cable-length-calculator/>

Inputs

Input	Value	Unit
Drive model	Altivar Process ATV930	
Manual revision	2026-08 example	
Actual one-way length	150	ft
Manufacturer maximum length	200	ft
Cable construction	VFD-rated shielded	
Switching frequency	4	kHz
Motor voltage class	460/480 V class	
Motor insulation class	Inverter duty	
Output filter	None	

Results

Result	Value	Unit
Actual one-way length	150	ft
Manufacturer maximum length	200	ft
Remaining length margin	50	ft
Limit used	75	%
Drive model used	Altivar Process ATV930	
Manual revision used	2026-08 example	
Cable construction used	VFD-rated shielded	
Switching frequency used	4	kHz
Motor voltage class used	460/480 V class	

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Motor insulation class used

Inverter duty

Output filter used

None

Calculation details

Detail	Value	Unit
Filter/manual requirement flag	No output filter entered; confirm the exact drive manual limit for the chosen cable construction.	
Missing model data warning	Drive model and manual revision entered.	
Calculation basis	Remaining length margin equals manufacturer maximum length minus actual length. Limit used percent equals actual length divided by manufacturer maximum length times 100. Drive, cable, switching, voltage, insulation, and filter inputs stay as context and do not create a universal safe-length rule.	
Selection boundary	Manufacturer-gated review only; verify the exact drive model, manual revision, cable construction, switching frequency, motor insulation class, output filter, and installation topology separately.	

Formulas

$$L_{\text{margin}} = L_{\text{manufacturer max}} - L_{\text{actual}}$$

$$\text{Limit used\%} = \frac{L_{\text{actual}}}{L_{\text{manufacturer max}}} \times 100$$

Warnings and limitations

Manufacturer-gated review only. It does not create a universal safe-length rule, a conductor-size result, or a final VFD selection decision.