

The Calculation of the Temperature Rise and Load Capability of Cable Systems

by J. H. Neher and M. H. McGrath

This Neher–McGrath paper describes a method of estimating the steady-state temperature of electrical power cables for commonly encountered configurations. By estimating the temperature of the cables, cables' safe long-term current-carrying capacity (termed “ampacity”) is determined. The paper described two-dimensional highly symmetric simplified calculations which have formed the basis for many cable application guidelines and regulations. Complex geometries, or configurations that require three-dimensional analysis of heat flow, may require more complex tools such as finite element analysis.

Their article is so useful that it is used as reference for the ampacity in standard tables.

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- For technical guidance related to embedded systems and instrument design, consult the [Mosaic Documentation Web](http://www.mosaic-industries.com/embedded-systems/microcontroller) at <http://www.mosaic-industries.com/embedded-systems/microcontroller>

- For design guidance about ribbon cable current capability, consult [Ribbon Cable Current Rating](http://www.mosaic-industries.com/embedded-systems/electronic-instrumentdesign-new-product-development/cables/ribbon-cable-current-rating) at <http://www.mosaic-industries.com/embedded-systems/electronic-instrumentdesign-new-product-development/cables/ribbon-cable-current-rating>

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