

Why Cool Electronics in the First Place?

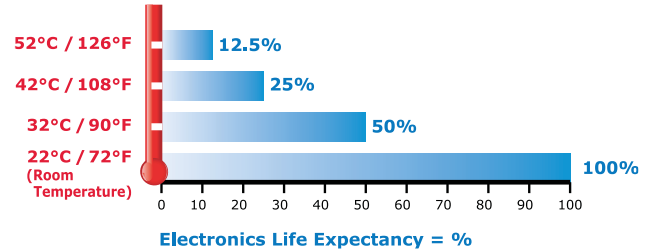
Keeping your electronics cool is essential to extending their life and keeping your business running.

Heat Ruins Electronics

The life expectancy of electronics is cut in half every 10 C / 18 F they operate above room temperature. Operating electronics above certain temperatures can void manufacturers' warranties, making proper cooling essential. Cooling vital electronics increases service life and reduces capital expenses over the long-term.

How to Select

Electronics Life Expectancy with Every 10° C Rise over Room Temperature



Sources of Heat

Damaging heat can come from a variety of sources. Inside the cabinet, heat can come from:

- AC power supplies
- Controllers, drives and servos
- Transformers and rectifiers
- Processors and server racks
- Radio equipment
- And other electronic components

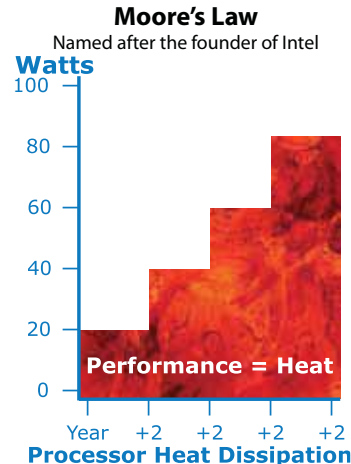
Heat also comes from sources outside the enclosure such as:

- Solar heat gain
- Welding processes
- Paint oven
- Blast furnace
- Foundry equipment

Trend Toward More Damaging Heat

For the foreseeable future, the trend is toward increasing levels of heat in electronics, not less, because the market's thirst for more information processing capacity and speed continues to grow. This trend is known as "Moore's Law."

More powerful data-processing electronics generate extra heat with virtually every new system that is designed. There is no guarantee that an application which did not require much, if any, cooling in the past will not need cooling in the future. The new system likely has more functionality and will probably require some form of cooling as a result.



What Are the Consequences of Damaging Heat?

Heat build-up can adversely affect industrial controls and sensitive electronic systems as follows:

- De-rated drive performance
- I/C-based devices experience intermittent fluctuations
- MTBF decreases exponentially
- Catastrophic failure

The costs when a factory line or electronic system fails can include:

- Productivity losses
- Component replacement costs
- Late shipments
- Customer dissatisfaction
- Lost revenue
- Cell phone tower outage
- Breach in homeland security

Direct costs to a business can be as much as \$50,000 per hour of system downtime.