

How the IRt/c temperature selection guide works

All IRt/cs are self-powered devices, relying on incoming infrared radiation to produce a signal through thermoelectric effects. Accordingly, the signal will follow the rules of radiation thermal physics, and be subject to the non-linearities inherent in the process.

However, over a range of temperatures, the IRt/c output is sufficiently linear to produce a signal which can be interchanged directly for a conventional t/c signal. For example, specifying a 2% match to t/c linearity results in a temperature range in which the IRt/c will produce a signal within 2% of the conventional t/c operating over that range. Specifying 5% will produce a somewhat wider range, etc.

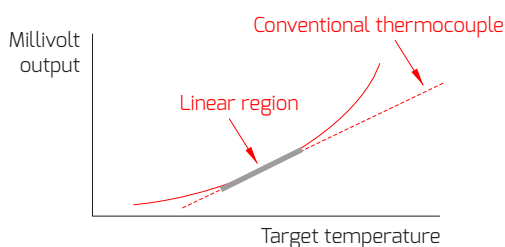
Each IRt/c model is specifically designed for optimum performance in the region of best linear fit with conventional t/cs. It can however be used outside of this range by simply calibrating the readout device

appropriately. The output signal is smooth and continuous over its entire rated temperature range, and maintains 0.01°C (0.02°F) repeatability over its entire range.

The linear region matches the conventional t/c to a specified tolerance.

The actual signal generated by the IRt/c can be approximated with a fourth-order polynomial function of target temperature. This fourth power dependence is due to radiation physics, and not a limitation of the IRt/c.

The Temperature Selection Guide is a summary of the linear range performance of each IRt/c model. Signal produced by the IRt/c-K-80F/27C has its 2% linear range centered at 27°C (80°F), but produces a repeatable signal to 650°C (1,200°F).



The linear region matches the conventional t/c to a specified tolerance

