Professional Thermographer's Guide To High Definition Infrared

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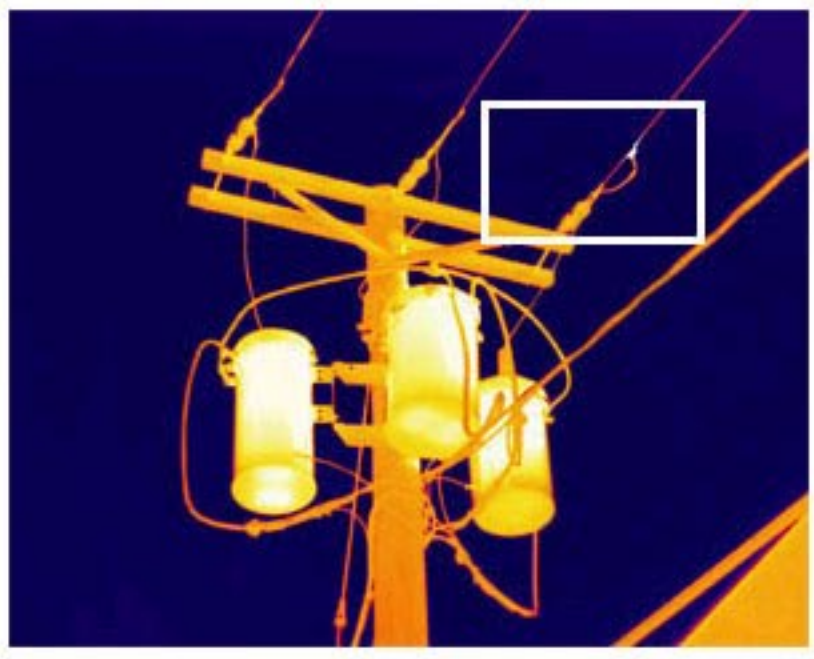
New high definition infrared cameras deliver more than remarkably sharp images. Learn about how image resolution impacts temperature measurement accuracy, efficiency of performing infrared inspections and safety to the professional thermographer.

Accuracy



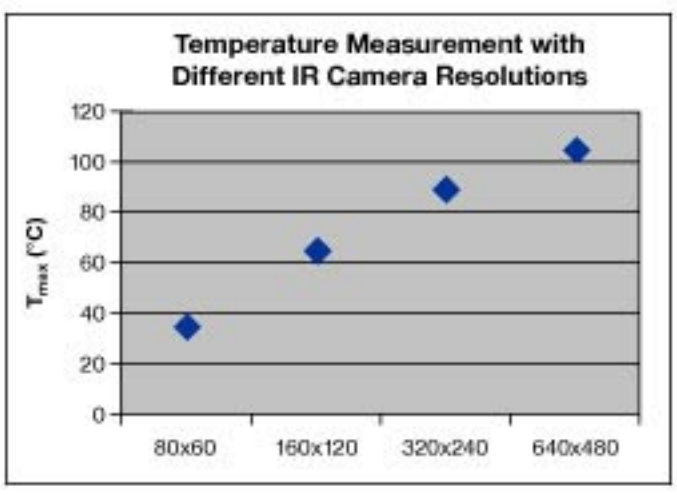
Higher resolution infrared cameras are quite compelling, producing sharp images with excellent detail. Even more important, however, is the dramatic improvement in overall accuracy in certain situations. This is because higher resolution normally results in smaller IFOV (instantaneous field of view) and smaller measurement spot size.

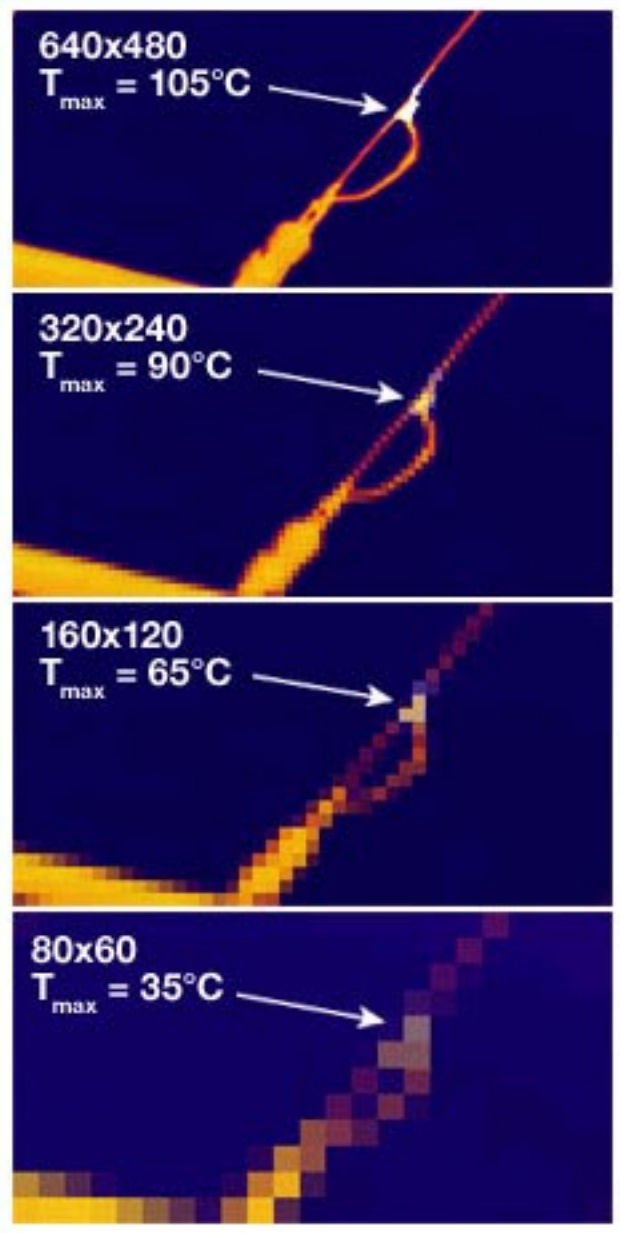
When comparing different infrared cameras having the same field of view, the measurement spot size decreases with increasing camera resolution. Consequently, the highest resolution cameras have the smallest measurement spot.

In some circumstances, the degree of measurement inaccuracy due to the use of lower resolution infrared cameras can be quite large and could cause Thermographers to overlook potential problems.

In order to achieve accurate temperature measurement, the measurement spot size must be small enough so that there are no significant temperature variations on the object. In other words, the temperature of the object over the measurement spot must be uniform.

The example to the right illustrates the error that's caused when different resolution infrared cameras are used to measure the temperature of a small electrical connection at a distance with a cold sky as background. *The degree of inaccuracy is quite large and could cause the thermographer to overlook potential problems.*





As illustrated in the thermal images above, it would be unwise to use a low resolution camera for measuring the temperature of small objects at a distance. For accurate measurements in such situations, high resolution cameras produce the best accuracy and reduce the likelihood of overlooking potential problems.

Calculate Your Camera's Measurement Spot Size.

Our Spot Size Calculator helps determine measurement spot size for different camera specifications and viewing situations.

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