



Infrared thermography:

A hot new way to run your business.

Invisible defects making you sweat? Possible fatigue failure cooking your nerves? What you can't see could definitely hurt you—affecting safety, quality, and the bottom line. Several industrial electrical or mechanical problems can occur during a temperature increase of 10°C or more. Thermal imaging technology, shown to be an excellent non-destructive diagnostic tool, allows operations managers to schedule downtime and prevent damage to equipment surrounding faulty components.

Your local power provider, through the Comprehensive Services Program (CSP), now offers this superior infrared (IR) technology. Thermal imaging can save your company vast amounts of time and money by letting you know—now. CSP can assist maintenance personnel by identifying faulty components and making recommendations for repairs before shutdown is required and profits are lost.

IR scanning provides personnel with the accurate, real-time information necessary to make critical decisions about equipment repair, replacement, and operation. It speeds inspections and facilitates comprehensive data collection, which translates into significant cost avoidance for you.

How it works

All objects emit radiation, and thermographers can record that radiation at nearly any level.

Depending on temperature, thermal imaging equipment can generate a video image by converting contrasting thermal data into electronic signal levels. The result is a pictorial representation of temperature differences.

A thermographer then classifies these images by risk level (critical, non-critical, etc.), and exports them into software to record “before and after” case histories and facilitate predictive maintenance trending.

The equipment

CSP thermographers use special cameras to scan equipment for hot spots as well as for heating-and-cooling loss. These cameras allow technicians to measure and display up to five temperatures simultaneously. High-definition thermal images are recorded with visual images, and stored along with the temperature analysis data and voice and text comments.

The images at right show the difference between surveying your equipment with the naked eye, and using thermal imaging to call out potentially disastrous hot spots. The images expose—from hotter to cooler, respectively—temperature changes as bright white (“white-hot”), yellow, orange, or red areas. Green, blue, and purple represent cooler or cold areas.



Visual image of a fuse panel.



Thermal image revealing a hot fuse in the panel (yellow, orange, and red areas).

The Comprehensive Services Program—see what you've been missing.

Call your local electric power provider today for more information on this affordable investment in your company's safety and success.

Frequently asked questions about thermal imaging

What is infrared?

Humans can see only a small portion of the radiation that makes up visible light. The rest of the electromagnetic spectrum is made up of gamma rays, x-rays, ultraviolet light, infrared radiation (IR), microwaves, and radio and television signals. Infrared has wavelengths longer than light but shorter than radio waves.

Which diagnostic tool is better: infrared thermography, or ultrasound detection?

Infrared thermography and ultrasonic detection (which can “hear” leaks in equipment) can often complement each other. Often, a faulty electrical connection will produce detectable ultrasound before it generates enough heat to be detected by thermographic imaging. Likewise, thermography can highlight hot spots that ultrasound equipment may never detect.

My factory must be well lit at all times. Can the thermal imaging equipment still function in high-light areas?

Because the energy being sensed is heat and not light, thermal imaging cameras are completely unaffected by the amount and intensity of lighting.

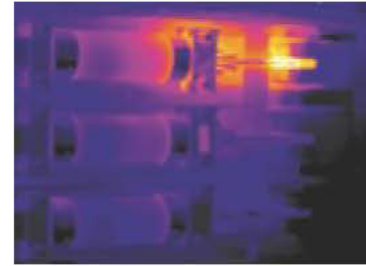
Does CSP conduct repairs following an infrared scan?

CSP conducts diagnostic reports, calculations, and recommendations, but does not perform the actual repairs. We will, however, be pleased to advise you regarding necessary repairs—we can recommend beneficial actions, equipment, vendors, and contractors.

What sorts of companies have used the IR scanning technology?

The list of businesses that benefit from the early detection of thermal imaging is virtually endless. More applications are being discovered all the time.

- Automotive quality control
- Carpet/floor covering
- Cement and lime
- Ceramics
- Chemical/petrochemical
- Combustible material fire prevention
- Electronic components quality control
- Foam part manufacturing
- Food
- Glass fabricating (including container glass and flat glass)
- Iron and steel production
- Lighting
- Liquid level monitoring
- Maintenance
- Medical/veterinary medicine
- Metal processing
- Military
- Paper
- Pharmaceuticals
- Plastics manufacturing
- Power and utilities
- Printed circuit board inspection
- Roadstone (asphalt)
- Rubber
- Semiconductor manufacturing
- Shoe industry
- Textiles
- Thermal mapping applications
- Tobacco industry
- Automation
- Biological
- Building diagnostics
- Electrical inspection
- Firefighting
- Mechanical inspection
- Non-destructive testing
- Process furnaces
- Product development
- Refractory inspection/monitoring
- Research applications



Thermal image of bad contact on a disconnect switch (knife blade type). Seemingly small hot spots like this one can wreak havoc with your production schedule.