


# THERMAL IMAGING



Since infrared radiation is emitted by all objects with a temperature above absolute zero according to the black body radiation law, thermography makes it possible to see one's environment with or without visible illumination. The amount of radiation emitted by an object increases with temperature; therefore, thermography allows one to see variations in temperature. When viewed through a thermal imaging camera, warm objects stand out well against cooler backgrounds; humans and other warm-blooded animals become easily visible against the environment, day or night. As a result, thermography is particularly useful to the military and other users of surveillance cameras.



Thermography has a long history, although its use has increased dramatically with the commercial and industrial applications of the past fifty years. Firefighters use thermography to see through smoke, to find persons, and to localize the base of a fire. Maintenance technicians use thermography to locate overheating joints and sections of power lines, which are a sign of impending failure. Building construction technicians can see thermal signatures that indicate heat leaks in faulty thermal insulation and can use the results to improve the efficiency of heating and air-conditioning units.

### Advantages of thermography

- ▶ It shows a visual picture so temperatures over a large area can be compared
- ▶ It is capable of catching moving targets in real time
- ▶ It is able to find deteriorating, i.e., higher temperature components prior to their failure
- ▶ It can be used to measure or observe in areas inaccessible or hazardous for other methods
- ▶ It is a non-destructive test method
- ▶ It can be used to find defects in shafts, pipes, and other metal or plastic parts
- ▶ It can be used to detect objects in dark areas