

We measure it.



Top level thermography.

The thermal imager testo 890.

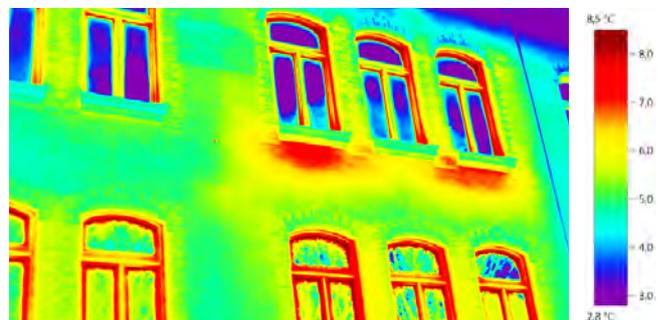
Thermography for professionals.

Be amazed by the precision and quality of the thermal imager testo 890.

In professional thermography, not every potential measurement task can already be foreseen at the time of purchase. For this reason, it is essential for professionals to be able to rely on an equally flexible and versatile imager which meets the highest quality standards. testo 890 is just such an imager. It offers you the precision, image quality and flexibility you need to successfully meet all the thermographic challenges of your working day.

testo 890 in professional building analysis.

When more than a simple thermogram of a window frame is required, testo 890 is the right measuring instrument. The imager grants you a detailed view of the object indoors and outdoors, allowing more precise insights into its exact status – and, because of its flexibility, it does this even when the building is too high, the roof angle too low or the front too large.



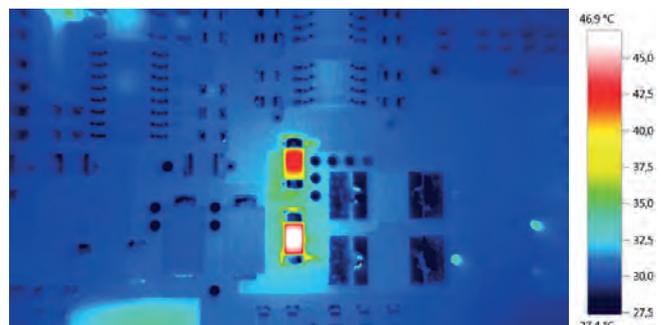
testo 890 in industrial maintenance.

The objective of preventive maintenance is not to wait until systems break down, but to ensure that they work smoothly. In order to accomplish this efficiently, inspections (and their documentation) must on the one hand take as little time as possible, but on the other hand guarantee that even the smallest anomalies are identified reliably. The thermal imager testo 890 enables you to do just this, becoming an indispensable companion on your next inspection tours.



testo 890 in Research and Development.

In R&D, the thermal imager testo 890 helps you to answer some fundamental questions: Do all components of a new development comply with the specifications? Are heat transfer and cooling working as they should? Are all temperature limit values adhered to? And these are only three of many different applications in which the testo 890 supports you ideally, in product development as well as in fundamental research.



Outstanding features.

Record even better thermographic images.

In addition to the image quality, imager functions which allow you to work even more securely and efficiently are crucial for top level thermography. This is why our engineers have developed the following technology in testo 890 especially for you.



640 x 480 pixel detector
With 307,200 measurement points, objects are detected clearly and precisely in excellent image quality.



High temperature up to 1200 °C
With the high temperature option, the measuring range can be extended up to 1200°C .



SuperResolution technology to 1280 x 960 pixels
With Testo SuperResolution technology, the image quality is improved by one class, i.e. the resolution of the thermal images is four time higher.



Thermal sensitivity < 40 mK
With this excellent temperature resolution, even the smallest temperature differences are visible.



SiteRecognition technology
For repeated thermal imaging of similar measuring objects, the Testo SiteRecognition technology offers immediate measurement location recognition and automatic assignment and archiving of the thermal images.



Panorama image assistant
For large measurement objects, the panorama image assistant allows the analysis and documentation of an overall image stitched together from several individual images. This means that there is no need to compare and administer several images.



Autofocus/manual focus
The autofocus creates a sharp image automatically, so that the testo 890 can be used with one hand. There is also the possibility of focussing manually.



Exchangeable lenses
With the standard 42° wide-angle lens, large image sections are recorded, and with the high-quality 15° telephoto lens, small details can be measured exactly even at a greater distance.



Display of surface moisture distribution
For every measurement point, the value of the relative surface humidity is displayed according to a traffic light principle, in order to be able to evaluate the danger of mould quickly and easily.



Minimum focus distance
With a minimum focus distance of 10 cm, measurements at macro level can be taken from a close distance, in order to measure very small objects.



Process analysis package
Thanks to image sequence capturing in the instrument, and fully radiometric video measurement, thermal processes can be recorded, streamed to a PC, and analyzed as time progressions.



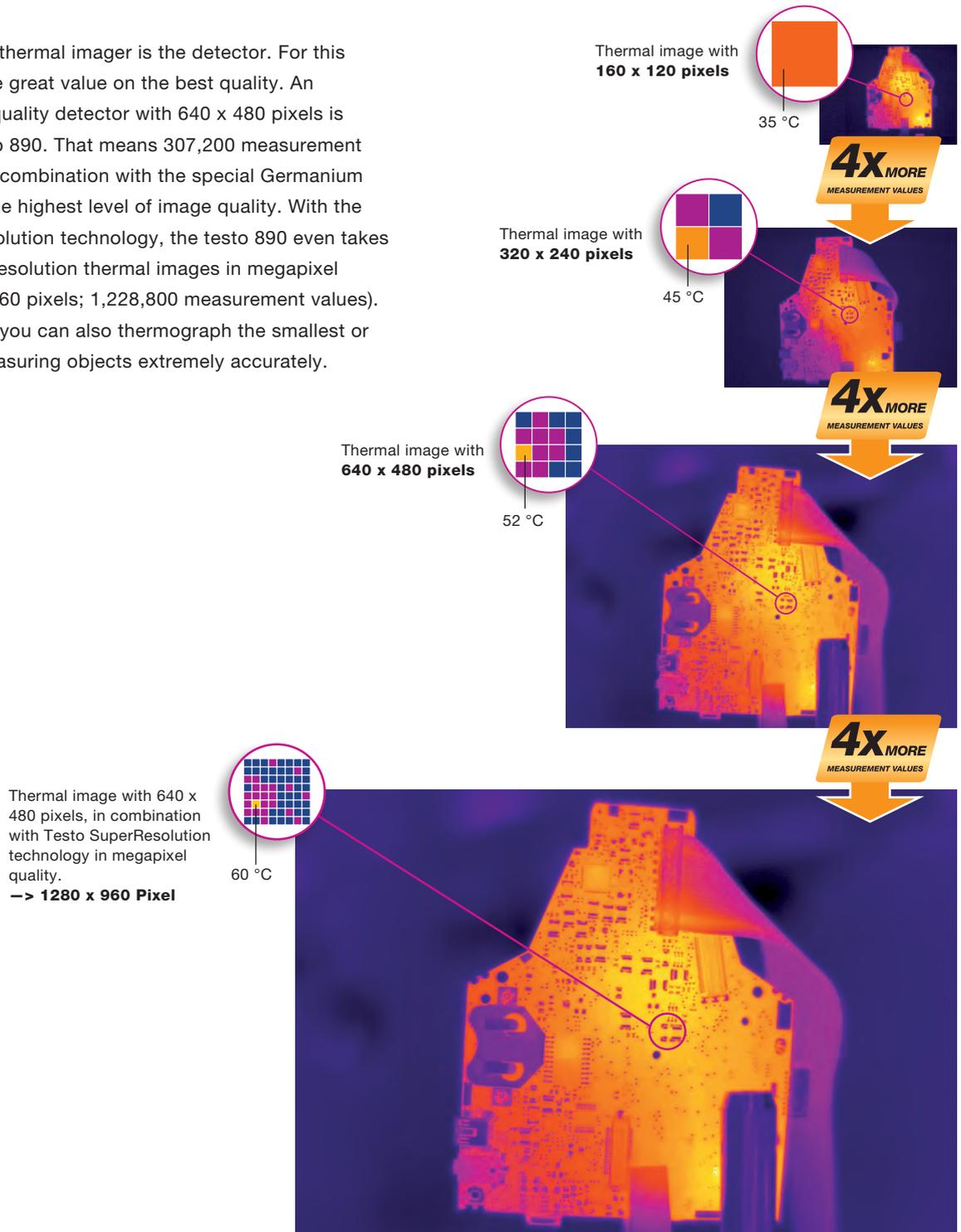
Laser marker
With the laser marker, a laser spot can be indicated on the measurement object for orientation purposes. This laser spot is also displayed parallax-free in the infrared image.

- Digital camera with power LEDs**
The integrated digital camera records a real image parallel to the thermal image. The power LEDs assist the illumination of dark areas.
- Voice recording**
Additional information can be documented by voice recording directly on site together with the thermal image.
- Intuitive operation**
The imager can be operated by joystick as well as by touchscreen.
- Solar mode**
In solar mode, the solar radiation value can be entered in the imager. This value is stored with every thermal image, and is then available in the analysis software Testo IRSofT.
- Digital zoom**
Using the digital zoom, you can enlarge the infrared image details in the display. This helps optimum focusing and on-site fault analysis.
- Fold-out display and rotatable handle**
The rotatable, fold-out display and the ergonomic rotatable handle allow measurements in difficult-to-access places.
- IRSofT**
With the high-performance analysis software Testo IRSofT, you can analyze images quickly and easily, and document them in a report. It is included in delivery, and can be installed licence-free on an unrestricted number of computers.
- Calibration**
The testo 890 is delivered with a works calibration certificate as standard. ISO certificates are also optionally available.

Highest image quality.

Every pixel counts.

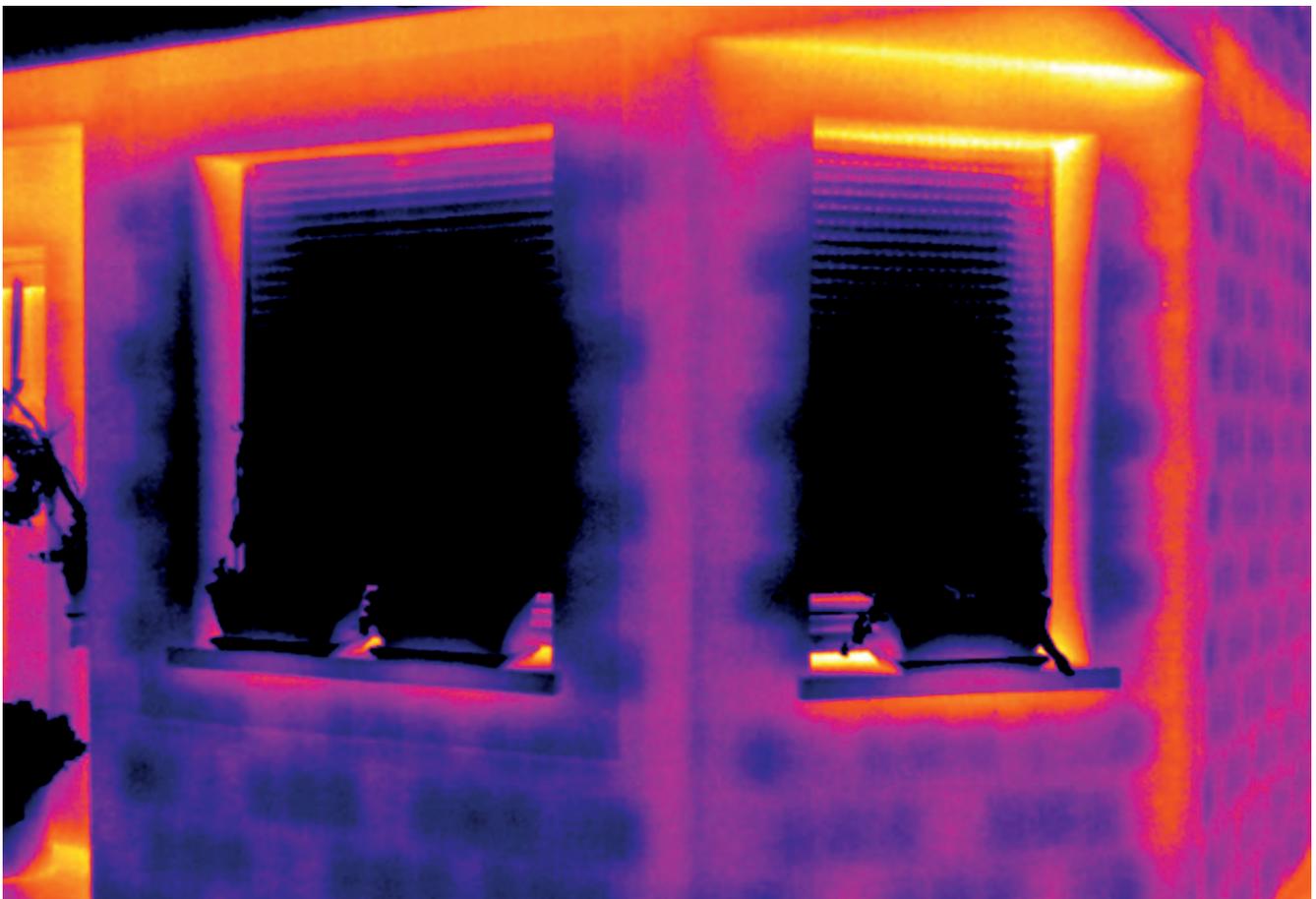
The heart of the thermal imager is the detector. For this reason, we place great value on the best quality. An extremely high-quality detector with 640 x 480 pixels is fitted in the testo 890. That means 307,200 measurement values, which in combination with the special Germanium optics, ensure the highest level of image quality. With the Testo SuperResolution technology, the testo 890 even takes extremely high-resolution thermal images in megapixel quality (1280 x 960 pixels; 1,228,800 measurement values). This means that you can also thermograph the smallest or most distant measuring objects extremely accurately.



The **more sensitive** the better.

A further important influencing parameter on the quality of a thermal image is the so-called NETD (Noise Equivalent Temperature Difference) which describes the thermal sensitivity, and thus the temperature differences which an imager can identify. The better the thermal sensitivity, the smaller the minimum temperature difference that the

thermal imager is able to detect and visualise. Thermal sensitivity is usually described in °C or mK. With an excellent NETD of < 40 mK, the testo 890 can resolve even the smallest temperature differences, and present them in the thermal image.



Thanks to the outstanding thermal sensitivity of the testo 890, all details are identifiable in this wall.

The combination of high-resolution 640 x 480-pixel detector and Testo SuperResolution technology, and the excellent NETD of < 40 mK means that you are optimally equipped for every measurement task with the thermal imager.

Look **behind** the facade.

Building thermography: Provide energy consultation, discover building faults.

In professional building analysis, thermography with the thermal imager testo 890 supports you when carrying out comprehensive diagnosis and maintenance work.

- Analysis of energy loss in the heating or air conditioning of buildings
- Visualization of faulty insulation and thermal bridges
- Recording and documentation of energy losses at outer windows and doors, roller blind casings, radiator recesses or roof constructions

With the thermal imager testo 890, you can quickly and efficiently discover and impressively visualize these thermal anomalies. By additionally creating professional thermography reports, you emphasize your expertise in the field of building energy with the help of the imager.

Every detail counts.

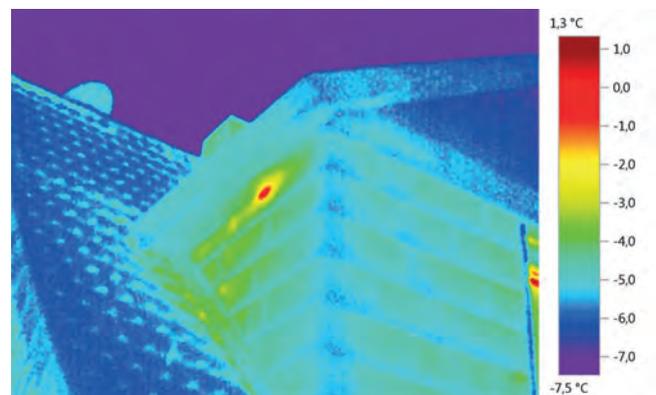
When examining a building shell for thermal bridges, as well as in the evaluation of moisture damage and its effect on the heat transfer coefficient of a wall, the identification of very small temperature differences is of the essence. For this reason, a thermal imager used for these purposes must possess a correspondingly good thermal sensitivity (NETD). The NETD of the testo 890 is < 40 mK. That means that you can visualize even the smallest anomalies.



Horizontal and vertical thermal bridges in a building.

Even more versatile thermography.

The 42° wide-angle lens is advantageous for recording a large image section in the confines of indoor rooms. It also helps to take thermographic images of a building shell from a short distance when recording outdoors. The 15° telephoto lens is in many cases also indispensable, e.g. for the examination of abnormalities on roofs or when making thermal images of multi-storey buildings.



The telephoto lens identifies hotspots even from a great distance.

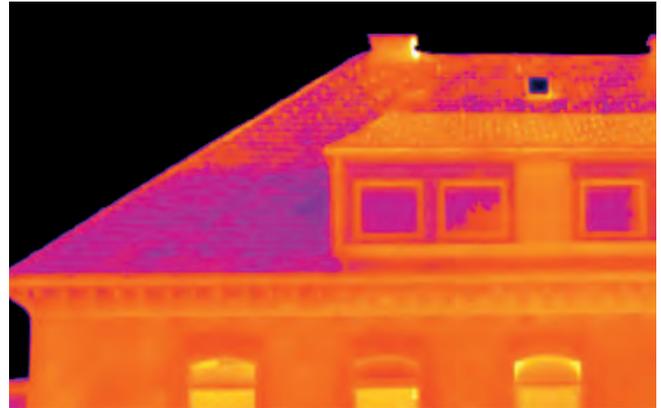
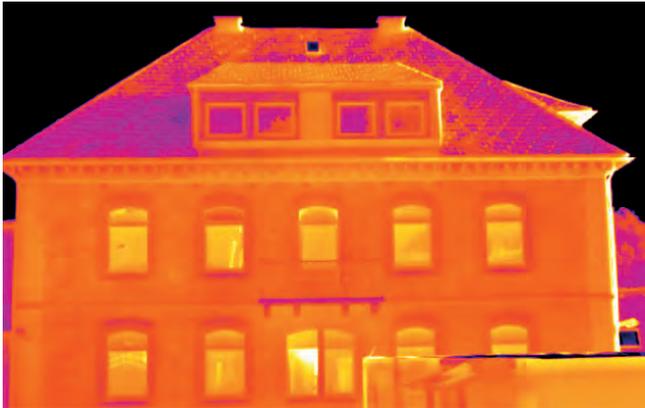


Image of a building with a 42° (left) and a 25° (right) wide-angle lens . As you can see, more detail is visible.

Problem-free thermography of large objects.

Thermographic recording of the entire shell of a building in such a way that one obtains an overall presentation as well as being able to identify the relevant details, can present a problem even for professionals.

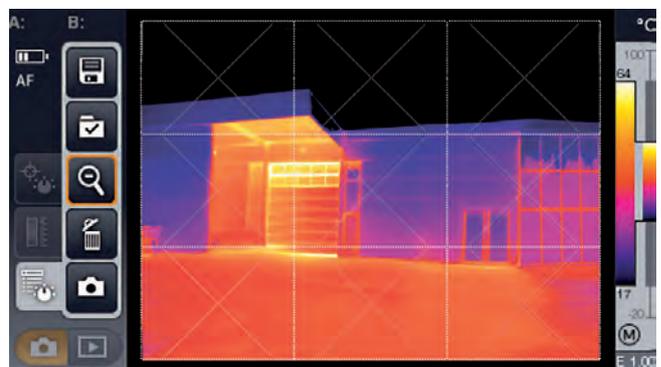
Common problems often include the spatial limitations created by walls, streets or the security zones of neighbouring objects. These can make the recording of a large measurement object in only one image impossible.

The panorama image assistant of the testo 890 supports you in meeting this challenge: It stitches up to three time three images together into one thermal image, in which one can see thermal irregularities in detail over the entire building surface at a glance.

This function supports you in conducting energy consultation efficiently, and impressively demonstrating to your customers at a glance various possibilities for the optimization of the energy efficiency of a building.



Complete building front in a panorama image.

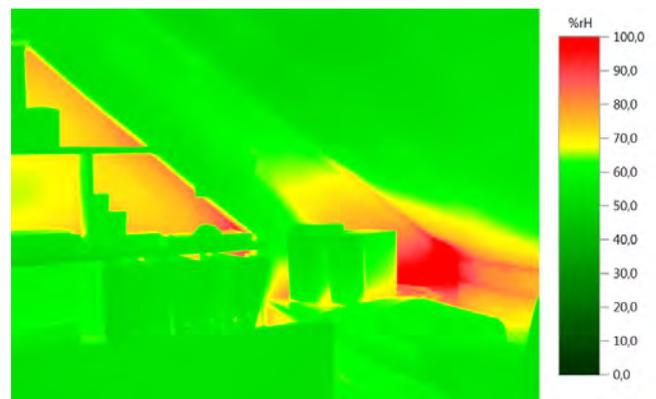


The panorama image assistant guides you through the individual recordings.

Fast identification of indoor moisture.

In context of indoor building thermography, the visualization of potential damp spots is of great significance, as it is here that mould growth can occur. Testo's patent-pending "moisture image" shows the relative surface moisture for each individual measurement value in the thermal image, and presents the various danger zones according to an easy-to-follow traffic light principle:

- Green (< 65 % RH): no mould danger.
- Yellow (> 65 to < 80 %RH): possible mould danger.
- Red (> 80 %RH): acute mould danger.



Indoor room with acute danger of mould under a pitched roof.

Analyzing thermal images professionally.

For the thermography of buildings, a high-performance software is also crucial. Because without it, thermograms cannot be quickly and easily analyzed, evaluated and documented in a report.

The licence-free software Testo IRSofT was specially developed for these requirements. In addition to comprehensive analysis functions and an intuitive operation, it above all offers numerous options for creating individual and norm-compliant reports for your own documentation or your customer. See page 15 for more information.



Professional thermography reports – created with the analysis software Testo IRSofT.



The display of the surface humidity distribution can be optionally carried out by manual input of the two parameters temperature and relative humidity. These measurement values can be determined with the help of a humidity measuring instrument. The **testo 625** is especially suitable for this purpose.



With the thermal imager **testo 890-2**, the humidity measurement can be carried out optionally using an external wireless humidity probe. The measurement values are automatically transmitted to the imager in real time. Manual input is not necessary. In addition to this, the current measurement values are saved with the image.

So that **wear** does not become a problem.

Professional maintenance with the thermal imager testo 890.

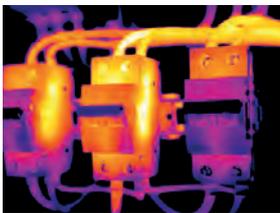
Ensuring the availability of industrial plants is a great responsibility. Because in order to work efficiently and economically, industrial plants are usually operated around the clock, 7 days a week, 365 days a year – if possible without malfunctions, or even breakdowns. Since problems and critical load stati are usually preceded by an increase in

temperature, not only in mechanics but also in electronics, the thermal imager testo 890 helps you to

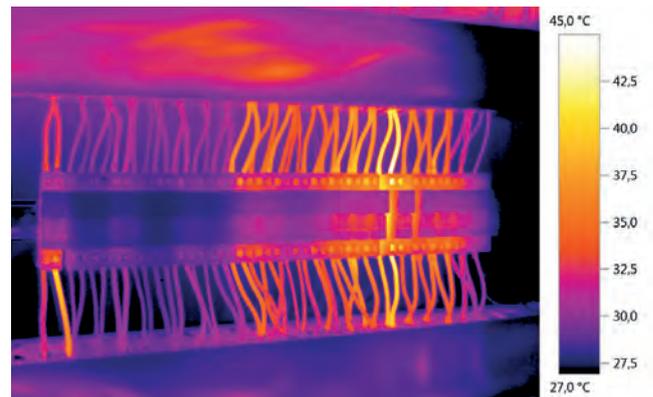
- optimize system security
- reduce downtimes
- lower energy costs
- improve product quality
- lower maintenance costs.

Visualizing increased electrical resistance.

In order to ensure that an overheating of small components is not missed in the testing of switching cabinets, it is important to use an imager with as high a resolution as possible. The testo 890 has an infrared resolution of 640 x



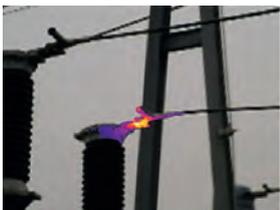
480 pixels, and using the Testo SuperResolution technology, it even accomplishes images in megapixel quality.



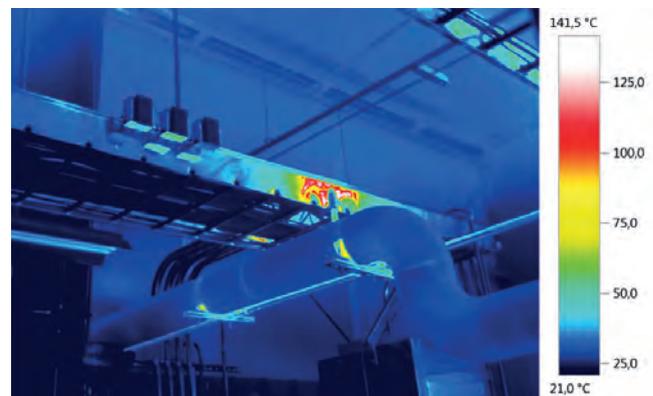
Conspicuous terminal on a contactor (left) in a switching cabinet.

Precise thermography from a distance.

If, for reasons of safety (e.g. in high-voltage or high-temperature systems) or local peculiarities, it is necessary to take thermographic measurements from a greater distance, the thermal imager must support you here also. In these cases,



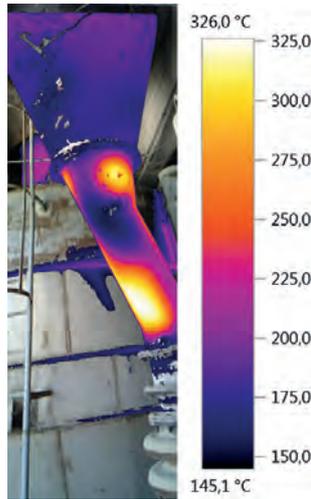
you can rely on the telephoto lens when working with the testo 890, identifying details precisely from a distance.



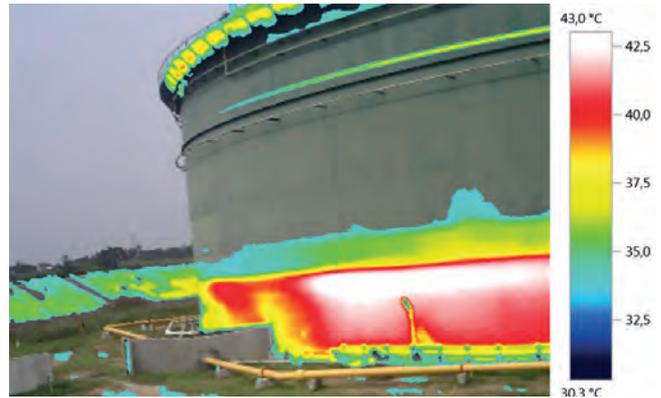
Telephoto image: Overheated bearing of a transport conveyor belt under the ceiling of a hall.

Test large plants easily.

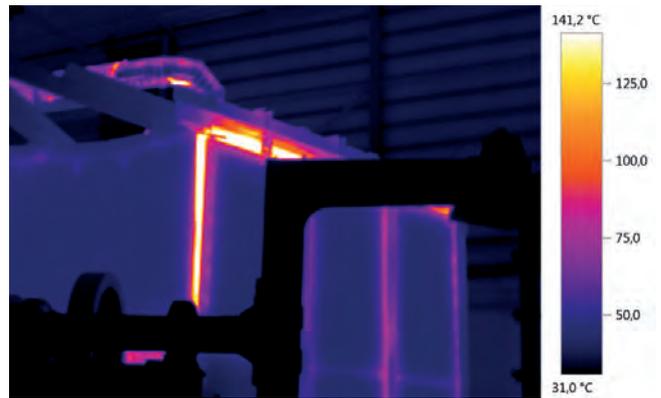
When very large objects need to be recorded thermographically, or when it is not possible to increase the distance to the measurement object, you need the possibility of recording a large image section. For this reason, the testo 890 has a standard 42° wide-angle lens. If this is not sufficient, the panorama image assistant supports you by creating a large panorama image from up to three times three images. This then allows overview and detail in one image.



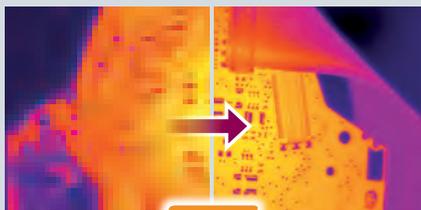
Panorama image from two individual images of the feed-in of a rotary kiln.



Examining a tank at an oil refinery for filling level, deposits, cooling system and material status.



Industrial kiln with faulty insulation.



without Super-Resolution

4x MORE MEASUREMENT VALUES

with Super-Resolution

Testo SuperResolution

The higher the resolution of your thermal images, the more anomalies you can identify. The revolutionary SuperResolution Technology will instantly improve the image quality of your thermal imager by one class.

Four times as many readings and a geometrical resolution that has been improved by a factor of 1.6 mean even greater detail and even greater reliability of measurement for you.