



# Top level thermography.

### The thermal imager testo 890.

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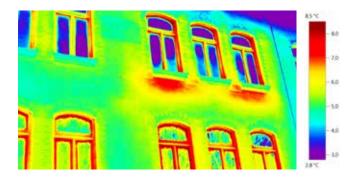
# Thermography for professionals.

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.

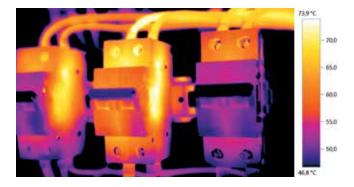


#### testo 890 in industrial maintenance.

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.

1200 °C

ible.

High temperature up to

With the high temperature op-

tion, the measuring range can

Thermal sensitivity < 40 mK

With this excellent temperature

temperature differences are vis-

resolution, even the smallest

be extended up to 1200°C .



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



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.



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.



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.



#### **Display of surface moisture** distribution For every measurement point,

the value of the relative sur-

face humidity is displayed according to a traffic light principle, in order to be able to evaluate the danger of mould quickly and easily.



#### 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.





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.



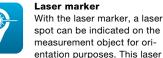
Exchangeable lenses. With the standard 42° wideangle lens, large image sec-

tions are recorded, and with the high-quality 15° telephoto lens and the high-performance 5° super-telephoto lens, small details can be measured even at a greater distance.



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.



entation 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 onsite 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.

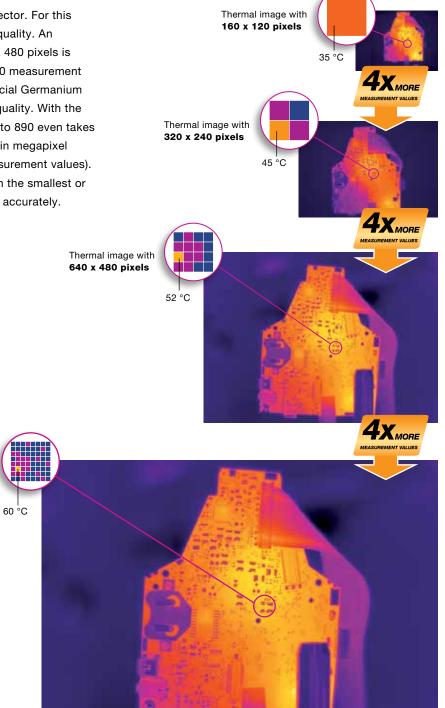
#### Calibration

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.



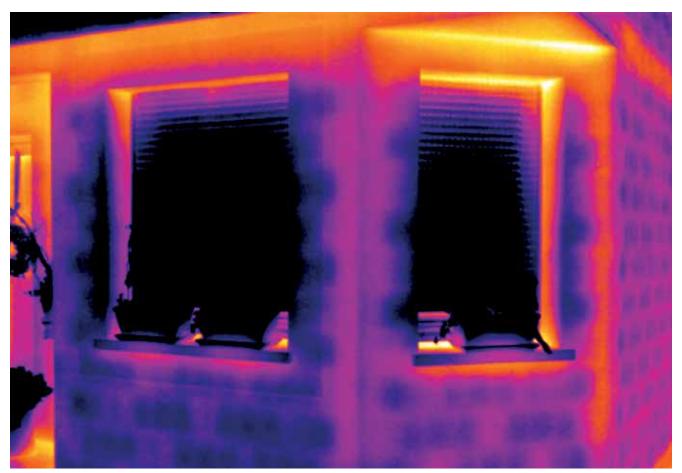
Thermal image with 640 x 480 pixels, in combination with testo SuperResolution technology in megapixel quality. -> 1280 x 960 Pixel

4



#### 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.

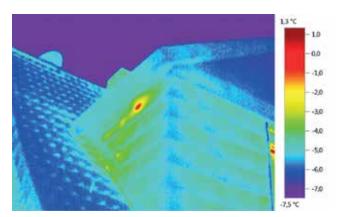
When examining a building shell for thermal bridges, as well as in the evaluation of moisture damage and its effect on the heat transfer coefficient of a wall, the identification of very small temperature differences is of the essence. For this reason, a thermal imager used for these purposes must possess 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.

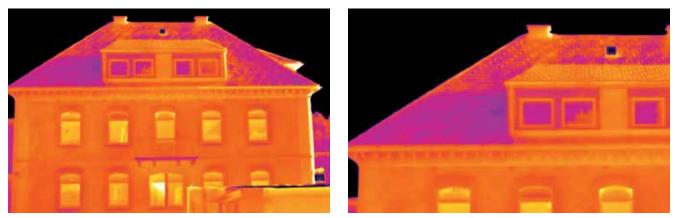


Image of a building with a 42° (left) and a 25° (right) wide-angle lens . As you can see, more detail is visible.

#### 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.

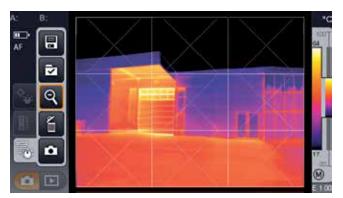
Common problems often include the spatial limitations created by walls, streets or the security zones of neighbouring objects. These can make the recording of a large measurement object in only one image impossible.

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.

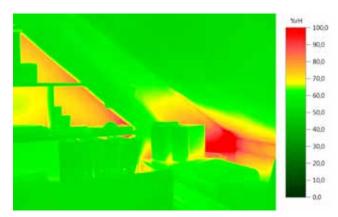


The panorama image assistant guides you through the individual recordings.

#### 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

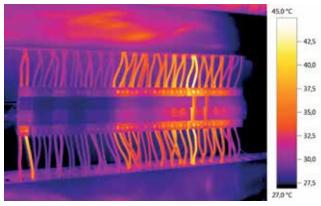
- · optimize system security
- $\cdot$  reduce downtimes
- · lower energy costs
- · improve product quality
- · lower maintenance costs.

#### 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



s an infrared resolution of 640 x 480 pixels, and using the testo SuperResolution technology, it even accomplishes images in megapixel quality.



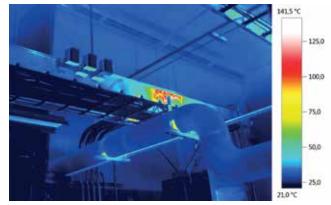
Conspicuous terminal on a contactor (left) in a switching cabinet.

#### 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,



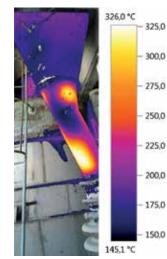
you can rely on the telephoto and the super-telephoto lenses when working with the testo 890, identifying details precisely from a distance.



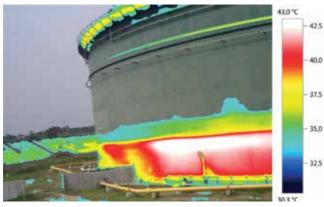
Telephoto image: Overheated bearing of a transport conveyor belt under the ceiling of a hall.

#### Test large plants easily.

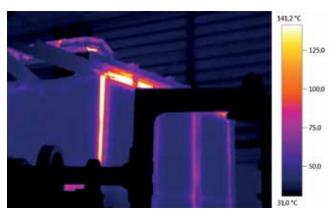
When very large objects need to be recorded thermographically, or when it is not possible to increase the distance to the measurement object, you need the possibility of recording a large image section. For this reason, the testo 890 has a standard 42° wide-angle lens. If this is not sufficient, the 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.



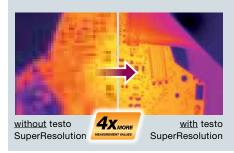
Panorama image from two individual images of the feed-in of a rotary kiln.



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



Industrial kiln with faulty insulation.

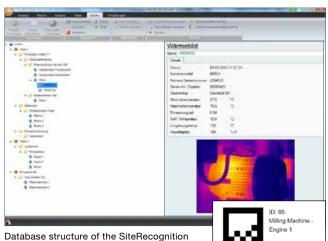


#### testo SuperResolution

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.

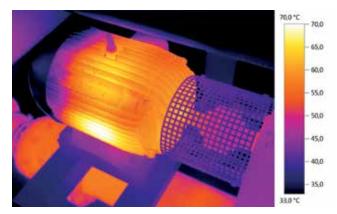
#### Monitoring plant stati even more efficiently with Testo SiteRecognition.

For the status-oriented maintenance of plants and machines, it is important always to be informed of their status, in order to be able to identify changes in time. The SiteRecognition of testo 890 provides support. You can use it to create a measurement site archive in the testo IRSoft analysis software which serves as a database for your thermal images. For every measurement site stored in the archive, you can create markers (small symbols similar to QR codes), and attach them on site. In the next inspection, you simply record this marker with the SiteRecognition assistant of the imager, which then automatically stores the measurement site and the corresponding information together with the thermal imager. When you transfer these thermal images to the analysis software after the measurement, they are then fully automatically sorted into the archive. There is no longer any need for time-consuming administration and archiving. You can then conveniently, directly out of the archive, open the images, analyze them (for example to make comparisons or identify negative trends), or process them in reports.

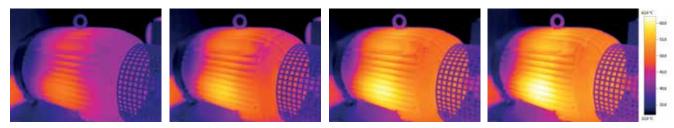


archive in testo IRSoft.

testo SiteRecognition measurement site marker



Electric motor for driving a pump.



Electric motor running at different loads.

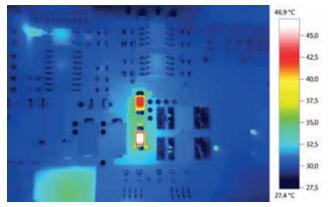
## See everything, develop quicker.

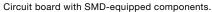
Research and Development with testo 890.

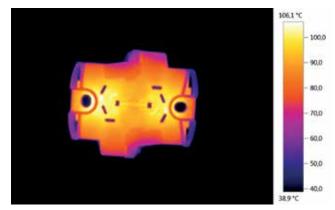
In Research and Development, wherever temperatures cause a desired or undesired effect they can be examined without contact using the thermal imager testo 890, and if necessary optimized. Particularly in demanding development tasks, early analyses (e.g. of temperature distribution) are very useful. Very early on in the development process, checks can be carried out as to whether limit values and the quality stipulations and specifications based on them are adhered to, or whether production processes have already reached serial status. This saves you money and time, and you can avoid unnecessary correction loops.

#### Identifying finest structures.

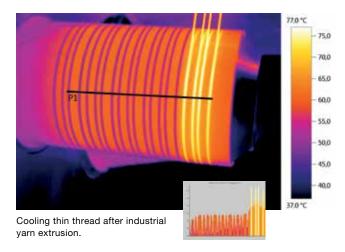
The thermal imager testo 890 has a high-resolution detector and a standard lens with macro characteristics. This means that with a minimum focus distance of only 10 cm, you can examine even the smallest structures of only 113  $\mu$ m. If the imager is used in hand-held operation, the testo Super-Resolution technology even allows the recognition of 70  $\mu$ m structures.







Injection-moulded plastic part with fine moulding lines.

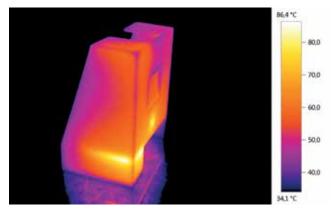


Smallest identifiable object	Distance	0.3 m	0.25 m	0.2 m	0.15 m	0.1 m
with 42° standard lens:	without testo SuperResolution	0.34 mm	0.28 mm	0.23 mm	0.17 mm	0.113 mm
	with testo SuperResolution	0.21 mm	0.18 mm	0.14 mm	0.11 mm	0.07 mm

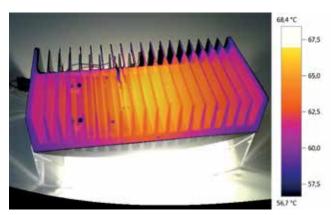
#### Optimizing thermal management.

In the context of thermal management, thermal imagers can be very useful for defining suitable cooling measures. This can reach from the installation of simple heat sinks to complex active refrigeration methods. However, if it is necessary to identify temperature changes as time progressions, such as in the examination of thermal processes, a static thermal image is not enough.

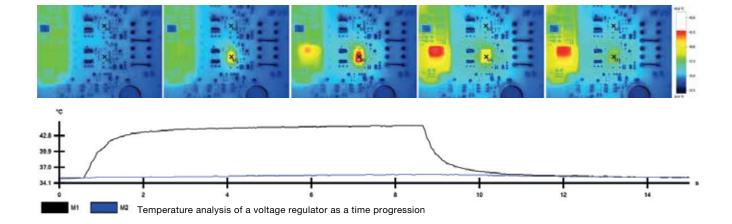
This is important for example, when the mould release temperature and the cooling behaviour of injection-moulded plastic parts after mould release need to be analyzed. In electronics too, it is important to examine components or assemblies in operation with different degrees of load. With the testo 890, you can detect thermal developments reliably and precisely.



Heat sink for an LED module.



Heat sink in a TwinPix image.



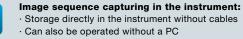
#### The process analysis package from Testo.

The optional process analysis package consists of the fully radiometric video measurement and the image sequence capturing directly in the imager. This allows you to record and store image sequences directly on site without connection to a PC, and analyze them in the analysis software testo IRSoft.



Fully radiometric video measurement at a PC: • Data streaming to a PC for the recording of fast-moving processes

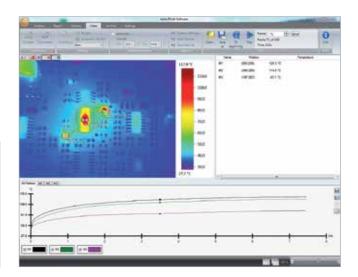
· Remote control from a PC for applications at test benches · Analysis of stored sequences and videos



#### Image sequence capturing in the imager.

Thanks to the newly developed image sequence capturing, you can record temperature developments at certain freely selectable intervals directly in the thermal imager testo 890, and save them either as fully radiometric video, (.vmt) or as a sequence of thermal images (.bmt) with the corresponding optional real images. The smallest interval is three seconds, the longest is one hour and 59 seconds. Up to 1170 thermal images can thus be stored in the imager, depending on the format selected. For applications with the image sequence capturing, the imager furthermore has a synchronized automatic shutter, so an internal adjustment always takes place at the right time before recording an image. This means that an optimum image quality is always achieved even in very long recordings. The recording of image sequences can be started in different ways:

- Manually, in order to begin recording immediately.
- After a limit violation, in order to check that it is being adhered to.
- By a countdown, in order to begin after a certain time.



#### Fully radiometric video measurement

With the fully radiometric video measurement, you have on the one hand the possibility of streaming radiometric measurement data by up to 25 Hz\* into the the analysis software testo IRSoft in online measurement and of recording sequences. This means that all changes are immediately visible in the thermal image, even in fastmoving processes. The video measurement moreover offers the option of controlling the imager remotely. Individual images can additionally be saved by remote trigger as thermal images or as JPEG files.

Stored videos and sequences which you have previously recorded in the imager can furthermore be clearly analyzed. For this purpose, the many useful functions of the analysis software testo IRSoft are available to you:

- Setting of up to 15 measurement points which can be presented as a temperature-time diagram.
- Setting of up to five profile lines, in order to examine the temperature profile of measurement objects.
- Automatic hot/cold spot recognition, in order to identify conspicuous temperature values immediately.

\* Within the EU and for countries without export restrictions, otherwise 9 Hz

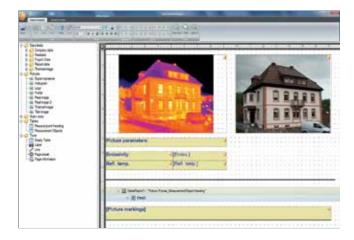
## Analysis, evaluation, documentation.

With the professional analysis software testo IRSoft.

Thermography at the highest level needs more than just a modern imager system. A high-performance analysis software is also crucial in order to quickly and easily analyze and evaluate recorded images, and to present them to your customer professionally. The high-performance analysis software testo IRSoft was specially developed for these requirements. It offers comprehensive analysis functions, intuitive operation and a high level of userfriendliness. The software is included in delivery of all Testo thermal imagers, and can be installed licence-free on an unrestricted number of computers. And the best part: regular upgrades can be downloaded online free of charge.

#### Creating and individually adapting reports.

The report designer integrated into the Testo IRSoft offers a broad selection of different templates from which you can select your desired report. Whether brief and to the point, or comprehensive and detailed – you are guided through the creation step by step, and can yourself select which information you wish to use. A report template according to DIN EN 13187 is available to you specially for the analysis of building shells for thermal bridges. All reports can be simply saved as a PDF, RTF, or in Testo's own TIR format.



#### testo IRSoft - overview of all advantages.

- Licence-free online updates free of charge
- Extensive analysis functions
- TwinPix (real and thermal image overlay)
- Panorama image function
- Emissivity correction

- testo SiteRecognition (automatic measurement site recognition)
- Fully radiometric video measurement
- Event-based trigger
- SuperResolution

## Technical data.

	testo 890-1		testo 890-2	
Infrared image output		1		
Infrared resolution	640 x 480 pixels			
Thermal sensitivity (NETD)	< 40 mK at +30 °C			
Lens version	Standard	Standard	Tele	Super-tele
Field of view/min. focusing distance	42° x 32° / 0.1 m	42° x 32° / 0.1 m	15° x 11° / 0.5 m	6.6° x 5° / 2 m
Geometric resolution (IFOV)	1.13 mrad	1.13 mrad	0.42 mrad	0.18 mrad
SuperResolution (pixels/IFOV) - optional	1280 x 960 Pixel / 0.71 mrad	1280 x 960 Pixel / 0.71 mrad	1280 x 960 Pixel / 0.26 mrad	1280 x 960 Pixe 0.11 mrad
Image refresh rate	33	Hz*		
Focus	Automati	c/manual		
Spectral range	7.5 to 14 µm			
Image output visual				
Image size / min. focusing distance	3.1 MP	/ 0.5 m		
Image presentation				
Image display	4.3" LCD touchscreen with 480 x 272 pixels			
Digital zoom	1 to 3 x			
Display options	IR image/real image			
Video output	USB 2.0			
Colour palettes	9 (iron, rainbow, rainbow HC, grey, inverted grey, cold-hot, blue-red, sepia, Testo)			a, Testo)
Measurement				
Measuring range	-30 to +100 °C / 0 to +350 °C (switchable) / 0 to +650 °C (switchable)			e)
High temperature measurement - optional	<ul> <li>+350 to +1200 °C</li> <li>(not in connection with the telephoto I</li> </ul>			
Accuracy	±2 °C, ±2	% of m.v.		
Emissivity / reflected temperature setting	0.01 to 1 / manual			
Transmission correction (atmosphere)	$\checkmark$			
Measuring functions				
Display of surface moisture distribution (via manual input)	-		$\checkmark$	
Humidity meas. with wireless humidity probe** (automatic meas. value transfer in real time)	- (√)			
Solar mode	$\checkmark$			
Analysis functions	up to 10 measurement points, Hot/Cold Spot Recognition, up to 5 x area measurement (min/max & average), Isotherm and alarm values			

🗸 Standard

(√) optional – Not available

	testo 890-1	testo 890-2
Imager equipment		
Digital camera with power LEDs	$\checkmark$	
Lenses	Standard lens 42° x 32°	Standard lens 42° x 32° Telephoto lens 15° x 11° Super-telephoto lens 6.6° x 5°
SiteRecognition (meas. site recognition with image management)	-	$\checkmark$
Panorama image assistant	$\checkmark$	
Laser*** (laser classification 635 nm, Class 2 )	Laser m	arker
Speech recording	-	Bluetooth**** / wired headset
Video measurement (via USB)	Up to 3 measu	uring points
Process analysis package: image sequence capturing in instrument and fully radiometric video measurement	-	(√)
Interface	LabVIEW, interface description do	wnload on the Testo homepage
Image storage		
File format individual image	.bmt, possible export to .b	mp, .jpg, .png, .csv, .xls
Video file format (via USB)	.wmv, .mpeg-1	.wmv, .mpeg-1 / Testo format (fully radiometric video)
Storage device	SD card 2 GB (approx	x. 600-700 images)
Power supply		
Battery type	Fast-charging, Li-ion batter	y can be changed on-site
Operating time	4.5 hours	
Charging options	In instrument/in charger(optional)	
Mains operation	yes	3
Ambient conditions		
Operating temperature range	-15 to +	50 °C
Storage temperature range	-30 to +	0° 00
Air humidity	20 % to 80 % non-condensing	
Housing protection class (IEC 60529)	IP 5	4
Vibration (IEC 60068-2-6)	2G	i
Physical features		
Weight	1630	g
Dimensions (L x W x H) in mm	253 x 132 x 111	
Tripod mounting	1/4" - 20UNC	
Housing	ABS	
PC software		
System requirements	Windows 10, Windows Vista, Windows 7 (Service Pack 1), Windows 8, USB 2.0 interface	
Standards, tests, warranty		
EU Directive	2004/10	)8/EC
Warranty	2 years	

\* Within the EU and for countries without export restrictions, otherwise 9 Hz
 \*\* Wireless humidity probes only in the EU, Norway, Switzerland, USA, Canada, Colombia, Turkey, Brazil, Chile, Mexico, New Zealand, Indonesia
 \*\*\* Excepting USA, Japan and China
 \*\*\*\* Bluetooth only in the EU, Norway, Switzerland, USA, Canada, Colombia, Turkey, Japan, Russia, Ukraine, India, Australia

## Overview of versions.

Features	testo 890-1	testo 890-2	Set testo 890-2
Infrared resolution	640 x 480 pixels		
Thermal sensitivity (NETD)	< 40 mK		
Image refresh rate	33 Hz*		
Measuring range	-30 to +650 °C		
SuperResolution	(√)	(√)	(√)
Exchangeable telephoto lens 15° x 11° *****	-	(√)	✓
Super-tele 6.6° x 5° *****	-	(√)	✓
Auto-focus	✓	✓	✓
High temperature measurement up to 1,200 °C	-	(√)	(√)
Panorama image assistant	✓	✓	✓
Site recognition with image management	-	✓	✓
Laser marker**	✓	✓	✓
Display of surface moisture distribution (via manual input)	-	✓	$\checkmark$
Humidity measurement with wireless humidity probe*** (automatic measurement value transfer in real time)	-	(√)	(√)
Speech recording using headset****	-	$\checkmark$	✓
Process analysis package: Image sequence capturing in instrument and fully radiometric video measurement	-	(√)	(√)
Solar mode	$\checkmark$	✓	✓
Lens protection glass	(√)	(√)	✓
Additional battery	(√)	(√)	✓
Fast battery charger	(√)	(√)	✓

 $\checkmark$  Included in delivery ( $\checkmark$ ) optional – Not available

 $^{\ast}$  Within the EU and for countries without export restrictions, otherwise 9 Hz

\*\* excepting USA, China and Japan

\*\*\*\* Wireless humidity probes only in the EU, Norway, Switzerland, USA, Canada, Colombia, Turkey, Brazil, Chile, Mexico, New Zealand, Indonesia \*\*\*\* Bluetooth only in the EU, Norway, Switzerland, USA, Canada, Colombia, Turkey, Japan, Russia, Ukraine, India, Australia

\*\*\*\*\* depending on the selected set

## Ordering data.

#### testo 890-2 sets with your selection of lenses

Complete sets in a robust case, including pro software, SD card, USB cable, carrying strap, lenscleaning cloth, mains unit, Li ion rech. battery, lens protection glass, spare rech. battery, fast charger, headset and lens case.

	Order no.	
testo 890-2 set with standard and telephoto lens - see above for further set components	0563 0890 V3	
testo 890-2 set with standard or telephoto, and super-telephoto lens - see above for further set components	0563 0890 V5	
testo 890-2 set with standard, telephoto and super-telephoto lens - see above for further set components	0563 0890 V6	

#### testo 890 thermal imagers

testo 890 thermal imagers	Order no.	
Thermal imager testo 890-1 with standard lens in a robust case incl. pro software, SD card, USB cable, carrying strap, lens-cleaning cloth, mains unit and Li ion rech. battery	0563 0890 V1	
Thermal imager testo 890-2 with standard lens in a robust case incl. pro software, SD card, USB cable, carrying strap, lens-cleaning cloth, mains unit, Li ion rech. battery, headset	0563 0890 V2	
Thermal imager testo 890-2 with super-telephoto lens in a robust case incl. pro software, SD card, USB cable, carrying strap, lens-cleaning cloth, mains unit, Li ion rech. battery, headset	0563 0890 V4	

Accessories	<b>Code¹)</b> (First equipment)	<b>Order no.</b> (Retro-fit)
<b>SuperResolution.</b> Four times more measurement values for even more detailed analysis of the thermal images.	S1	0554 7806
<b>Lens protection glass.</b> Special protective glass for optimum protection of the lens from dust and scratching.	F1	0554 0289
Additional battery. Additional Lithium ion rechargeable battery for extending the operating time.	G1	0554 8852
<b>Fast battery charger.</b> Desktop charging station for two rechargeable batteries for optimising the charging time.	H1	0554 8851
High temperature measurement up to 1200 °C	11	2)
Humidity measurement with wireless humidity probe 4)	E1	2)
Exchangeable telephoto lens 15° x 11°	D1	2)
Super-telephoto lens 6.6° x 5°	T2	2)
Process analysis package V1 Image sequence capturing in instrument and fully radiometric video measurement		0554 8902
<b>Emission tape.</b> Adhesive tape e.g. for shiny surfaces (roll, L.: 10 m, W.: 25 mm), $\epsilon$ = 0.95, up to +250 °C	0554 0051	
ISO calibration certificates	3)	
Calibration points at 0 °C, +25 °C, +50 °C	0520 0489	
Calibration points at 0 °C, +100 °C, +200 °C	0520 0490	
Freely selectable calibration points in the range -18 to +250 °C	0520 0495	

<sup>1)</sup> When ordering as first equipment, you receive the accessories directly in the case.

Example: testo 890-1 incl. lens protection glass and SuperResolution: Order no. 0563 0890 V1 F1 S1

<sup>2)</sup> Please contact our customer service

3) Per lens

<sup>4)</sup> Wireless humidity probes only in the EU, Norway, Switzerland, USA, Canada, Colombia, Turkey, Brazil, Chile, Mexico, New Zealand, Indonesia

