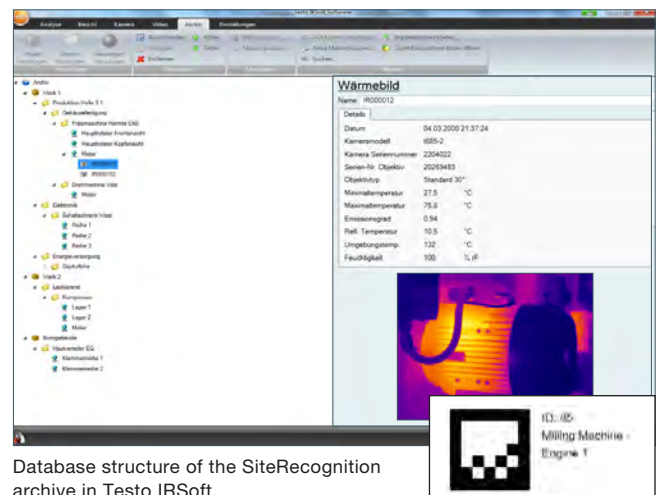


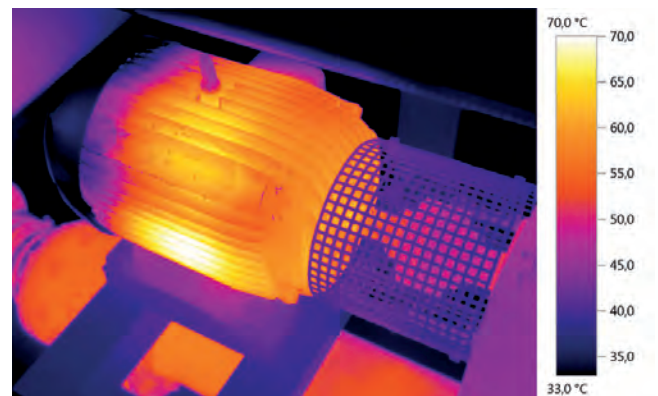
Monitoring plant stati even more efficiently with Testo SiteRecognition.

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 IRSof 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 image. 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.

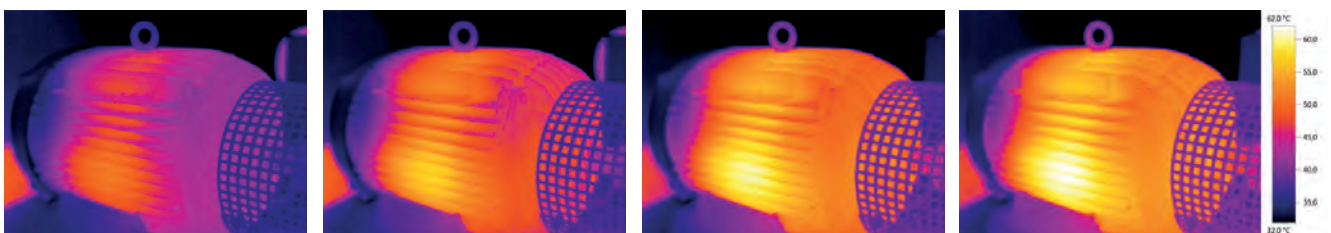


Database structure of the SiteRecognition archive in Testo IRSof.

Testo SiteRecognition measurement site marker



Electric motor for driving a pump.



Electric motor running at different loads.

See everything, develop quicker.

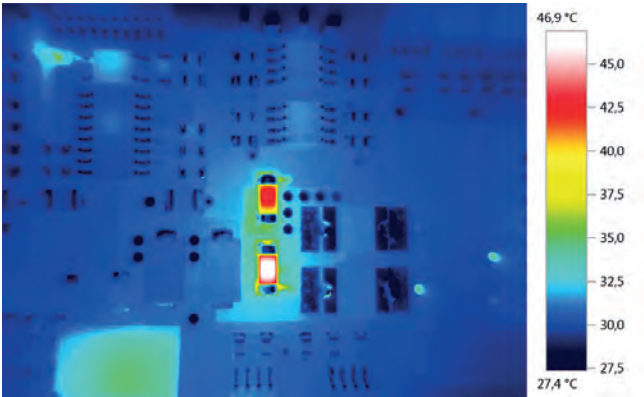
Research and Development with testo 890.

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.

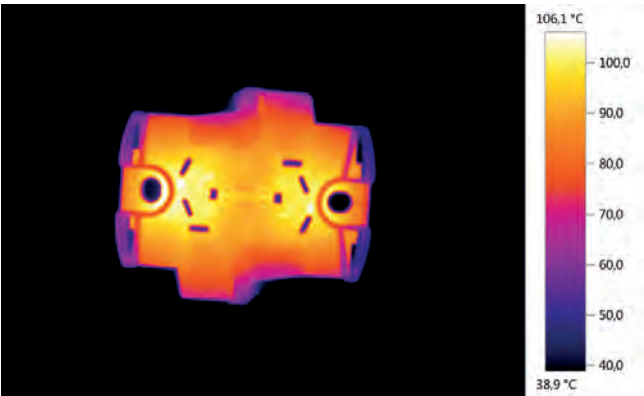
Very early on in the development process, checks can be carried out as to whether limit values and the quality stipulations and specifications based on them are adhered to, or whether production processes have already reached serial status. This saves you money and time, and you can avoid unnecessary correction loops.

Identifying finest structures.

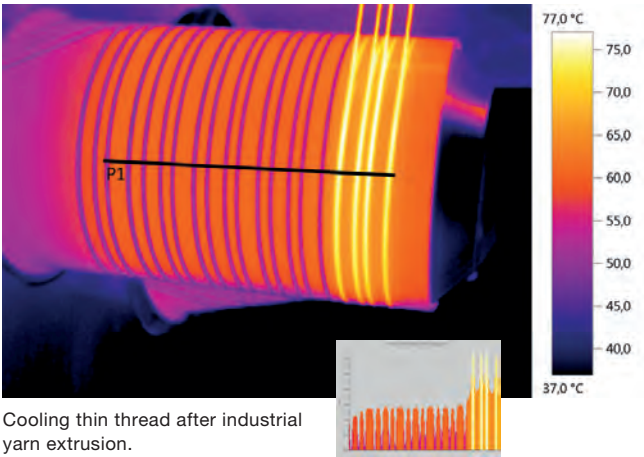
The thermal imager testo 890 has a high-resolution detector and a standard lens with macro characteristics. This means that with a minimum focus distance of only 10 cm, you can examine even the smallest structures of only 113 µm. If the imager is used in hand-held operation, the Testo Super-Resolution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



Circuit board with SMD-equipped components.



Injection-moulded plastic part with fine moulding lines.



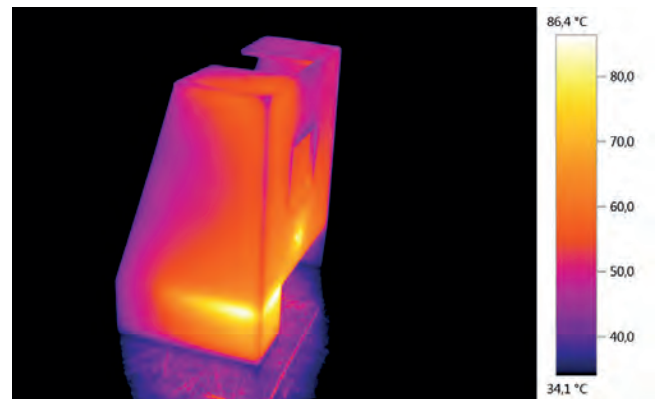
Cooling thin thread after industrial yarn extrusion.

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

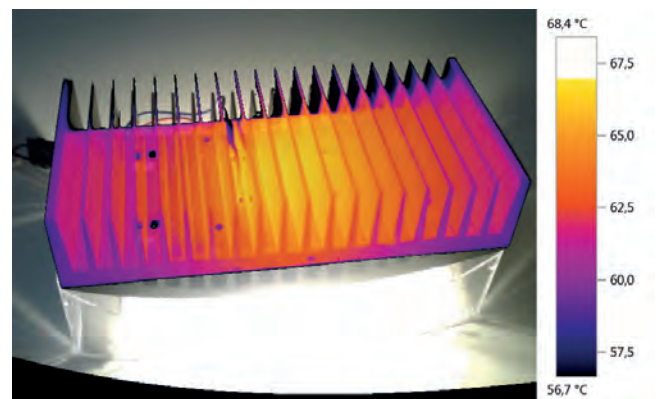
Optimizing thermal management.

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.

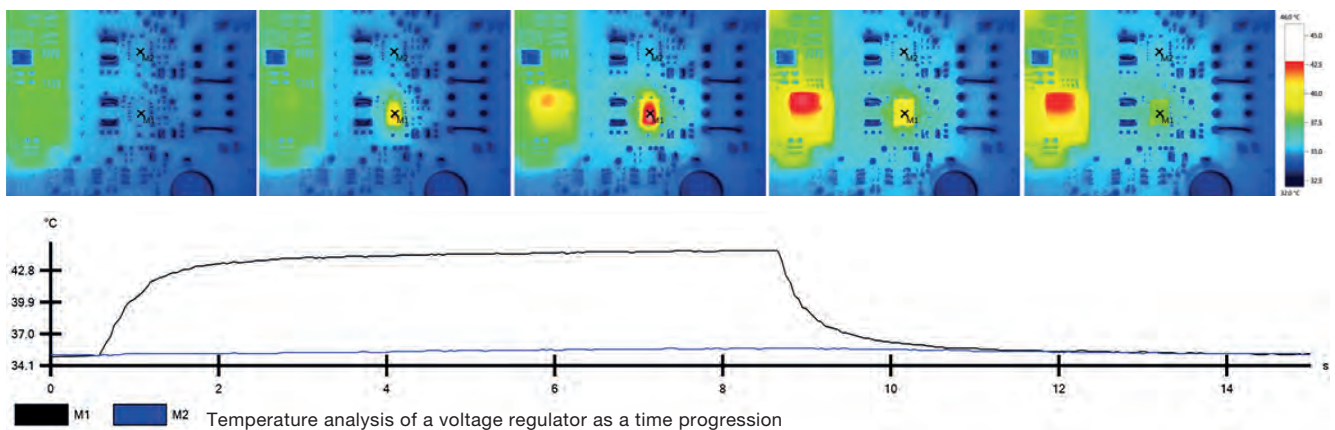
This is important for example, when the mould release temperature and the cooling behaviour of injection-moulded plastic parts after mould release need to be analyzed. In electronics too, it is important to examine components or assemblies in operation with different degrees of load. With the testo 890,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



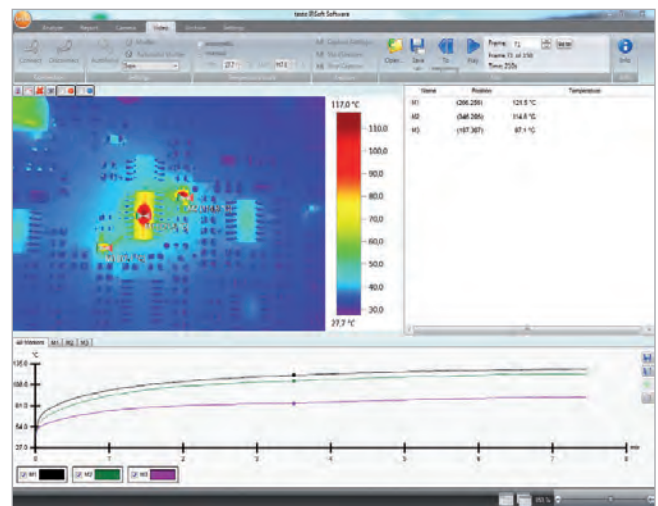
Image sequence capturing in the instrument:

- Storage directly in the instrument without cables
- Can also be operated without a PC

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 fast-moving 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:

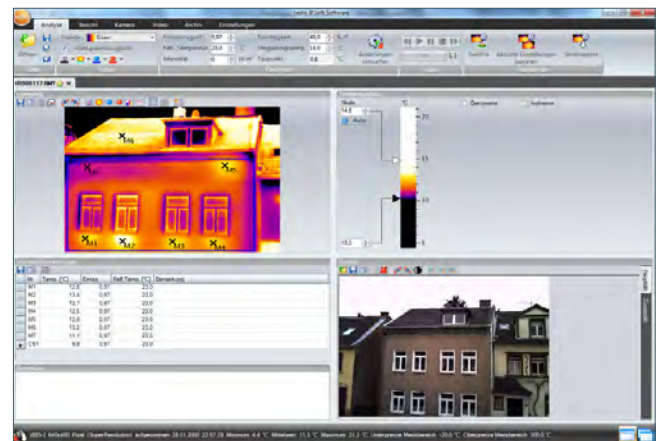
- Setting of up to 15 measurement points which can be presented as a temperature-time diagram.
- Setting of up to five profile lines, in order to examine the temperature profile of measurement objects.
- Automatic hot/cold spot recognition, in order to identify conspicuous temperature values immediately.

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

Analysis, evaluation, documentation.

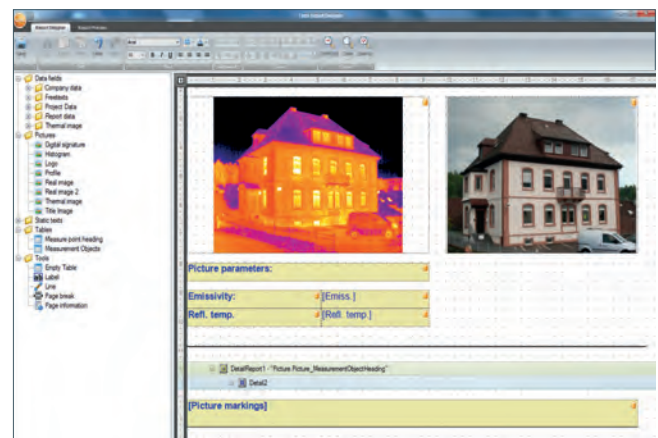
With the professional analysis software Testo IRSOFT.

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 user-friendliness. 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		
Infrared resolution	640 x 480 pixels	
Thermal sensitivity (NETD)	< 40 mK at +30 °C	
Field of vision/min. focusing distance	42° x 32° / 0.1 m (standard lens)	42° x 32° / 0.1 m (tele: 15° x 11° / 0.5 m)
Geometric resolution (IFOV)	1.13 mrad (standard lens)	1.13 mrad (tele: 0.42 mrad)
SuperResolution (pixels/IFOV) - optional	1280 x 960 pixels / 0.71 mrad (standard lens)	1280 x 960 Pixel / 0.71 mrad (tele: 0.26 mrad)
Image refresh rate	33 Hz*	
Focus	Automatic/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	8 (iron, rainbow, cold-hot, blue-red, grey, inverted grey, sepia, Testo)	
Measurement		
Measuring range	-20 to +100 °C / 0 to +350 °C (switchable)	
High temperature measurement - optional	–	+350 to +1200 °C
Accuracy	±2 °C, ±2 % of m.v.	
Emissivity / reflected temperature setting	0.01 to 1 / manual	
Transmission correction (atmosphere)	✓	
Measuring functions		
Display of surface moisture distribution (via manual input)	–	✓
Humidity meas. with wireless humidity probe** (automatic meas. value transfer in real time)	–	(✓)
Solar mode	✓	
Analysis functions	Up to 3 measurement points, hot/cold spot recognition, isotherm, area measurement (min./max. & average), isotherms and alarm values	

✓ Standard (✓) optional – Not available

* 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

	testo 890-1	testo 890-2
Imager equipment		
Digital camera with power LEDs		✓
Standard lens		42° x 32°
Exchangeable lens - optional	–	15° x 11°
SiteRecognition (meas. site recognition with image management)	–	✓
Panorama image assistant		✓
Laser*** (laser classification 635 nm, Class 2)		Laser marker
Speech recording	–	Bluetooth**** / wired headset
Video measurement (via USB)		Up to 3 measuring points
Process analysis package: image sequence capturing in instrument and fully radiometric video measurement	–	(✓)
Image storage		
File format individual image		.bmt, possible export to .bmp, .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. 600-700 images)
Power supply		
Battery type		Fast-charging, Li-ion battery can be changed on-site
Operating time		4.5 hours
Charging options		In instrument/in charger(optional)
Mains operation		yes
Ambient conditions		
Operating temperature range		-15 to +50 °C
Storage temperature range		-30 to +60 °C
Air humidity		20 % to 80 % non-condensing
Housing protection class (IEC 60529)		IP 54
Vibration (IEC 60068-2-6)		2G
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 8, Windows 7 (Service Pack 1), Windows Vista, Windows XP (Service Pack 3), interface USB 2.0
Standards, tests, warranty		
EU Directive		2004/108/EC
Warranty		2 years

✓ Standard (✓) optional – Not available

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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	-20 to +350 °C		
SuperResolution	(✓)	(✓)	(✓)
Exchangeable telephoto lens 15° x 11°	–	(✓)	✓
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)	–	✓	✓
Humidity measurement with wireless humidity probe*** (automatic measurement value transfer in real time)	–	(✓)	(✓)
Speech recording using headset****	–	✓	✓
Process analysis package: Image sequence capturing in instrument and fully radiometric video measurement	–	(✓)	(✓)
Solar mode	✓	✓	✓
Lens protection glass	(✓)	(✓)	✓
Additional battery	(✓)	(✓)	✓
Fast battery charger	(✓)	(✓)	✓

✓ Included in delivery (✓) optional – Not available

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** excepting USA, China and Japan

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**** Bluetooth only in the EU, Norway, Switzerland, USA, Canada, Colombia, Turkey, Japan, Russia, Ukraine, India, Australia

Ordering data.

Set testo 890-2

Thermal imager testo 890-2 set in a robust case incl. pro software, SD card, USB cable, carrying strap, lens-cleaning cloth, mains unit, Li ion rech. battery, exchangeable lens, lens protection glass, spare rech. battery, fast charger, headset, telephoto lens and lens bag



Order no. 0563 0890 V3

testo 890 thermal imagers

Order no.

Thermal imager testo 890-1 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 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	

Accessories	Code1) (First equipment)	Order no. (Retro-fit)	
SuperResolution. Four times more measurement values for even more detailed analysis of the thermal images.	S1	0554 7806	
Lens protection glass. 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	
Fast battery charger. Desktop charging station for two rechargeable batteries for optimising the charging time.	H1	0554 8851	
High temperature measurement up to 1200 °C	I1	2)	
Humidity measurement with wireless humidity probe**	E1	2) 3)	
Exchangeable telephoto lens 15° x 11°	D1	2)	
Process analysis package Image sequence capturing in instrument and fully radiometric video measurement	V1	0554 8902	
Emission tape. Adhesive tape e.g. for shiny surfaces (roll, L.: 10 m, W.: 25 mm), $\epsilon = 0.95$, temperature-proof up to +250 °C		0554 0051	
ISO calibration certificates Calibration points at 0 °C, +25 °C, +50 °C Calibration points at 0 °C, +100 °C, +200 °C Freely selectable calibration points in the range -18 to +250 °C		4) 0520 0489 0520 0490 0520 0495	

1) 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

2) Please contact our customer service

3) Plus installation

4) Per lens

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