XC300 and XC600

High-resolution thermal imaging camera with PanoFold touchscreen

A FEW PRACTICAL BENEFITS:

- Fully radiometric IR camera manufactured in the EU
- 50-Hz real-time measurement and real-time image display ensure clear thermal images of high quality
- High thermal sensitivity
- High geometric resolution
- Precise temperature measurement in the entire picture
- Dual key touchscreen control
- 5 megapixel digital camera for brilliant real images
- Robust, shock-protected design in two-component construction with IP54 type of protection
- 3.5-inch PanoFold touchscreen
- DuoVision Plus function for combined display of infrared and real image as contour emphasizing detail-enhanced thermogram
- Integrated laser pointer
- Diverse measuring functions
- Optional Bluetooth voice recording
- Data transmission via USB
- High-quality analysis software included in the scope of delivery

- The unsurpassed PanoFold touchscreen can be tilted by 180° and swivelled by 270°, when closed it serves as monitor and keypad protection
- Advanced real-time thermal imaging camera with a native resolution of up to 640 x 480 pixels (307,200 measuring points)
- Quick and precise autofocus
- Integrated laser distance measuring device
- High-capacity Li-ion battery – lasts more than twice as long as a standard Li-ion battery
- Stepless 10x zoom – ideal to look at details even from afar
- Recording of IR videos – fully radiometric option as well

Price-conscious thermographers with professional needs definitely get their money's worth with the high-quality thermal imaging cameras of the XC series seeing as competition models with comparable equipment features easily cost twice as much.

A trend-setting detector in the latest design accommodates 307,200 independent temperature measuring points (XC600), every single one of which is able to capture the measuring object's current temperature values at a rate of almost sixty times per second and to display them on the large PanoFold touchscreen.

With these thermography systems you'll benefit from precise real-time measurements in high native resolution, a stepless 10x zoom, a quick autofocus with laser precision, an integrated distance measurement function, interval shooting, IR videos and numerous measuring functions, the thermal imaging cameras, further fitted with a high-capacity Li-ion battery for extremely long measuring operations, leave nothing to be desired and are supplied ready for use in a hard-shell transport case including high-quality analysis software.

All functions of the XC models were geared to meet the targets of user comfort and working efficiency. In case of the XC series, the setting options for the temperature range (span and level) that are customary for thermal imaging cameras of this class do not have to be set in the menu first to then be checked in the live image, but instead can be configured directly via cursor keys and you can watch the change live on screen.

Finally one software for basically all measuring devices:

MultiMeasure Studio Professional

Along with the ever-growing number of fully compatible Trotec measuring devices this software is also suited for use with the partially compatible XC series – you can even benefit from this software in case of isolated devices, for it enables the analysis and administration of all measuring projects and customer data across multiple devices in a single application!

Create professional measurement reports in next to no time!

The unique report generating function of MultiMeasure Studio Professional already comes with completely formulated boilerplate texts for the fields of building diagnostics, moisture measurement, leak detection and thermography.

More information can be found starting on catalogue page 46 …

Thermal imaging cameras of the XC series – The innovative combination of comfort an efficiency

Just swivel the monitor instead of twisting yourself into a pretzel:

The PanoFold touchscreen of the XC cameras is a top-shelf monitor unit. When closed it serves as reliable protection for monitor and operator keypad. Opened the highly luminous 3.5-inch display can both be inclined by 180° and pivoted by 270°.

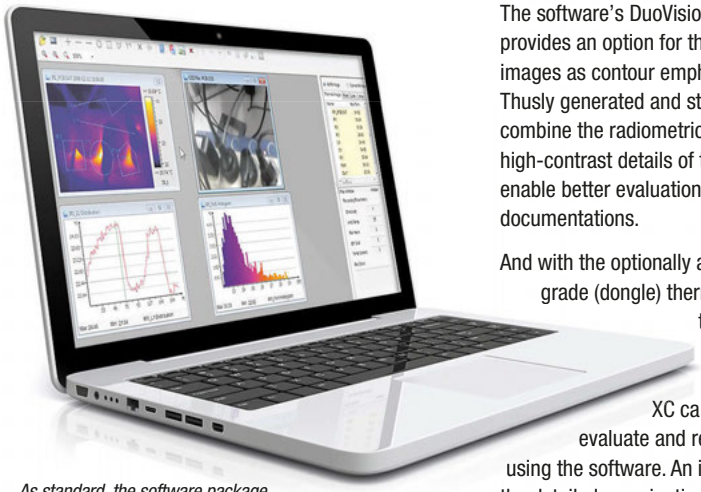
Consequently, using a camera of the XC series no user has to bend over or twist in any fashion just to inspect poorly accessible objects. This is the function of the PanoFold touchscreen which ensures that optimum thermal images are taken even of measuring objects that are not within easy reach.

High-quality analysis software included

The standard scope of delivery of each XC camera already includes a professional software package with numerous functions for the evaluation, organization and documentation of your measurement results.

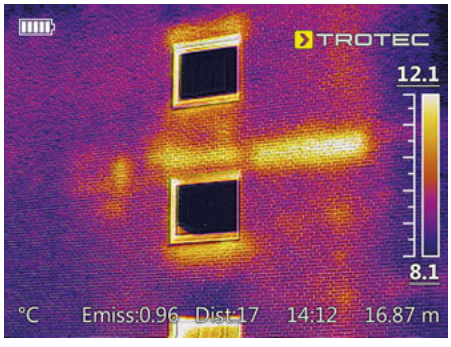
The software's DuoVision Plus function further provides an option for the fusion of infrared and real images as contour emphasizing thermal images. Thusly generated and stored DuoVision Plus images combine the radiometric image information with high-contrast details of the real image and hence enable better evaluations and still more professional documentations.

And with the optionally available professional upgrade (dongle) thermographs, synchronously to the measurement, can transfer fully radiometric infrared videos from their XC camera onto a PC and directly evaluate and record them there in real time using the software. An ideal analysis option f.i. for the detailed examination of the heat-up and cooling behaviour of electronic and mechanical components or other objects over a defined period of time.



As standard, the software package IR report is included in each XC camera's scope of delivery as download version. Not only a simple transmission and display tool but a full-fledged software for professional applications.

For a better orientation the on-demand DuoVision Plus display additionally renders important details such as lettering or object contours visible.



Other than for building diagnostics XC300 and XC600 are also ideally suited for electrical thermography or preventive maintenance in an industrial environment.

XC300 and XC600 can be flexibly controlled via buttons or touchscreen and its illuminated keypad facilitates the operation in dark surroundings.

Besides operation via keys and buttons all function entries and configurations can also be made quickly and easily via the touchscreen.

The robust cameras of the XC series are manufactured in a shock-protected, two-component construction with IP54 type of protection. At the front beside the standard lens (24° x 18°) they house a real image camera, a photo lamp, a laser pointer and an additional laser for distance measurements.

Equipment overview for the XC series

Always optimally prepared with these professional thermal imaging cameras

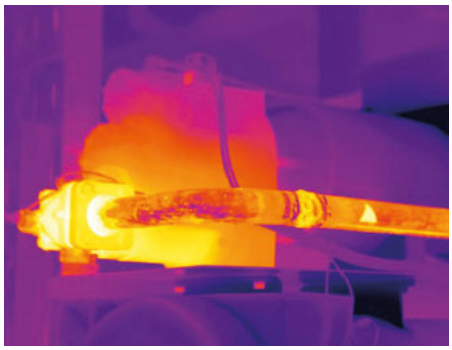
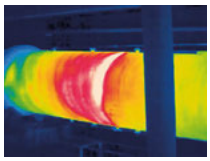
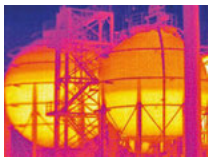
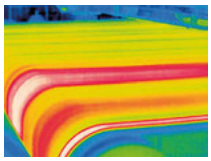
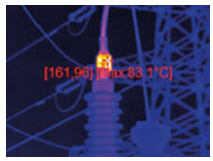
Thanks to many advanced equipment features these thermal imaging cameras not only quickly and effectively create transparency in thermographic measuring tasks, the model structure is also agreeably transparent:
Both models are delivered fully equipped, the only difference consists in the detector specifications!

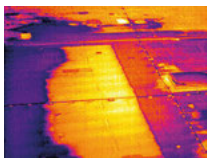
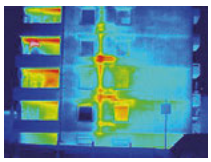
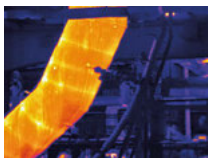
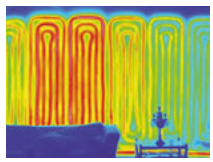
Equipment feature:	*Your practical benefit:*	XC300	XC600
Image sensor with 640 x 480 measuring points	Maximum resolution and clear thermal images are ensured by 307,200 independent temperature measuring points. This means four times more data than with a camera with 320 x 240 pixels resulting in a clearly higher measurement accuracy.	–	■
Image sensor with 384 x 288 measuring points	High measurement accuracy due to 110,592 independent temperature measuring points. With this detector you can be located more than twice as far away from the target than with a 160 x 120 detector and still measure with the same accuracy.	■	–
High geometric resolution of 0.65 mrad	Defines the solid angle measure for the smallest resolvable measuring point. The smaller this value, the more precisely can smaller problems be detected from a larger distance. At a camera-to-subject distance of one metre the individual measuring spot of each thermal pixel on principle has a diameter of 0.65 mm.	■	–
High geometric resolution of 1.1 mrad	Defines the solid angle measure for the smallest resolvable measuring point. The smaller this value, the more precise are the measurement results. At a camera-to-subject distance of one metre the individual measuring spot of each thermal pixel on principle has a diameter of 1.1 mm.	–	■
High refresh rate of 50/60 Hz	The high refresh rate ensures a permanent real-time thermal image reproduction. Not a single image and thus no important thermographic information is omitted in real-time presentations.	■[1]	■[1]
Fully radiometric thermal images	Precise temperature measurement in the entire picture, no interpolation interferences. For every single pixel the sensor has an individual measuring point, supplying accurate temperature values for this pixel only. The absolute temperature can be read pixel for pixel.	■	■
High thermal sensitivity	Reliable diagnoses even with the smallest changes in temperature. Even the smallest changes in temperature become apparent. A high sensitivity reduces thermal noise in the infrared image. The smaller the value, the better the quality of the image.	■	■
Uncooled microbolometer sensors	No movable sensor parts, extreme durability, clear and detailed images. Small size, light weight, low power consumption, completely maintenance-free.	■	■
Laser distance measuring function	An integrated distance meter permitting laser-supported distance measurements ranging up to 30 m eliminates the need for you to take an external distance measuring device with you. That way, accessibility and distance of the measuring objects can be easily determined.	■	■
Periodic image storage	Permits periodic recordings of thermal images with a preselectable recording frequency, e.g. every 30 minutes. With this recording interval you can easily document the thermal long-term behaviour of an object.	■	■
1x to 10x zoom via infinitely variable electronic regulation	An infinitely adjustable zoom with high magnification factor offers you more flexibility when looking at faraway details. This increases the number of possible applications for the inspection of poorly accessible or especially secured areas.	■	■
Autofocus system	Thanks to a motorized lens you can quickly zero in on the desired measuring object with high precision even in unclear environments.	■	■
PanoFold display – inclinable, swivel-mounted 3.5-inch folding LCD	The combined motion range of the folding display (inclinable by 180° and pivoting by 270°) provides you with an ergonomically optimized viewing position in every situation for looking at the test object from any angle. Fully folded it protects monitor and operator keypad from dirt.	■	■
Dual keypad-touchscreen control	Owing to the combination of control keys and capacitive touchscreen it has become still easier and more intuitive to use the thermal imaging camera. This way, you can meet your target faster and use your camera more effectively.	■	■
High-capacity Li-ion battery	More than double the operating time of a standard Li-ion battery. Less battery changes required, fewer charging intervals, longer non-stop measuring applications.	■	■

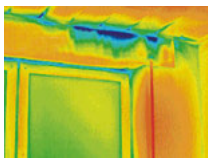
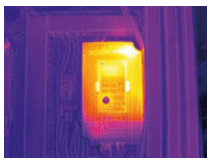
[1] except 9 Hz version

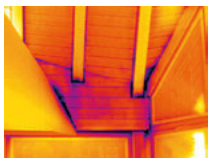
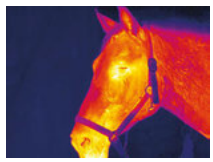
Equipment feature:	*Your practical benefit:*	XC300	XC600
Automatic temperature tracking (hot/cold spot)	Coldest or hottest spots on the measuring objects are detected in real time and displayed automatically.	■	■
Temperature alarm	Acoustic and visual alarm help you to faster detect critical areas. Also ideal for dew point detection at surfaces.	■	■
Robust two-component construction with IP54 type of protection	Robust housing, dust- and splash-proof – ideal for rough industrial applications and all kinds of weather when measuring outside. Thanks to two-component construction with integrated rubber protectors impact-proof to a drop height of 1.80 metres.	■	■
Integrated laser pointer	Simplifies the quick location of problematic areas and the visual targeting in poorly lit surroundings.	■	■
Diverse measuring and analysis functions	Reliable, quick and precise results due to dynamic eight-point measuring, automatic temperature tracking, differential measurements, line profile analysis, sector analysis, isotherm and alarm function.	■	■
Intelligent power management	High battery performance, longer non-stop measuring applications.	■	■
Correction of the reflected ambient temperature	When the surface of the object to be measured has a low degree of emission and the object temperature contrasts rather strongly with the surface temperature, the temperatures measured by the thermal imaging camera are being influenced. Such measurement errors can be compensated for by adapting the reflected ambient temperature.	■	■
Professional analysis software	No additional costs for expensive software: Full-fledged analysis and documentation program with numerous functions for evaluation, organization and documentation already included in the scope of delivery.	■	■
Bluetooth (optional)	Wireless connection facility for an optional headset.	■	■
Voice recording	Comment every image on site with valuable additional information (optionally available headset required).	■	■
Data memory already integrated	Uncomplicated storage management without separate memory card that needs to be carried along. Quick flash memory with a high data transfer rate and capacity for several thousand images.	■	■
Standard file format	Storage of the entire infrared image information in one fully radiometric JPEG format. No special software required for processing as with proprietary file formats. Advantage: More flexibility for analyses and evaluations, quicker report generation.	■	■
Picture-in-picture display function DuoVision	This display mode serves for the superimposition of infrared and real images in random intensities for a better orientation.	■	■
Picture-in-picture display function DuoVision Plus	Combines the infrared image information with high-contrast details of the visible light spectrum from the real image camera for the real-time indication of an extremely detailed thermal image fusion on the camera display. Advantage: Easier orientation, localization and assessment during the measurement.	■	■
Software function DuoVision	For a better evaluation and professional documentation, infrared and real image can be superimposed as desired and stored via the software as a new file.	■	■
Software function DuoVision Plus	Via the software, infrared and real image can be stored as contour emphasizing thermal image in which the radiometric image information is combined with the high-contrast details of the real image.	■	■
IR video function	Non-radiometric IR videos can be used to visualize processes such as the heating and cooling behaviour of electronic and mechanical components or other objects over a specified period of time.	■	■
Fully radiometric infrared videos in real time (with optional professional upgrade)	Fully radiometric real-time videos on your PC, connected to the thermal imaging camera via a fast USB 2.0 interface, enable the detailed examination of thermal processes. All temperature information of each individual image sensor are contained in the video for evaluation.	■	■
Integrated 5 megapixel digital camera	Quicker and easier object inspection thanks to simultaneous display and recording of fully radiometric infrared and high-resolution real images.	■	■
Integrated photo lamp	Improved photo results due to optimum illumination of dark target areas during real image recording.	■	■
Facility for optional connection of additional lenses via bayonet connection	In most situations the standard lens is the best solution, but with some applications a different field of view is required. In contrast to cameras with fixed lenses, when examining particularly small or large objects here you can simply connect telephoto or wide-angle lenses as required – simply use the bayonet coupling with automatic lens detection.	■	■

The professional thermal imaging cameras of the Trotec XC series provide you with manifold application options

Production control and equipment maintenance in the industry

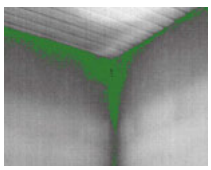
Use the thermal imaging cameras of our XC series for surveillance and maintenance tasks in industrial facilities, e.g. to monitor combustion or temperature-controlled processes.

The inspection of heat insulation at machines and installations are also typical fields of application of these cameras, as is preventive maintenance. “Hot spots”in drive systems f.i. can indicate a beginning bearing failure.

Building thermography

Whether you have only a building envelope or the entire construction – by means of thermography measurements using cameras of the XC series both the examination for missing heat insulation and the detection of structural-physical defects or hidden construction elements can already be achieved during the building phase. This way, warranty claims can be put forward at an early stage and so energy costs can be saved.

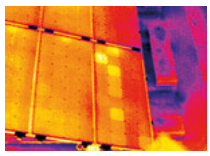
Prior to modernisations thermographic measurements also constitute a reliable basis for planning reconstruction work to eliminate energy loss.



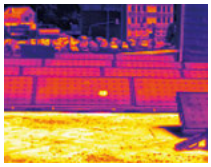
A survey regarding the indoor climate can also be carried out. Dew-point endangered areas of a building, where without appropriate structural countermeasures potentially toxic and allergenic mould would grow, can be quickly and easily localized using our professional thermal imaging cameras.

Functional check of photovoltaic power plants

Using a thermal imaging camera of the XC series, defective modules or connections can easily be localized.



Right after installation, solar installers and electricians can cover their back with a significant inspection by thermographically documenting the functionality of their system.



Homeowners benefit from the possibility of periodically checking the perfect functioning and full performance of their photovoltaic installation and detecting possible damages caused by stone-chipping, dirt, humidity or short circuits early on.

Energy consulting

Professional thermal imaging cameras from Trotec are excellently suited to capture and document energy losses at outer windows, external doors, roller shutter casings, heater recesses, the roof construction and the entire building envelope, e.g. due to missing or defective insulation. Use these ideal measuring tools for comprehensive diagnosis or maintenance applications relating to energy consulting.

Leak detection

The infrared cameras of the XC series enable a quick and exact reduction of leaks, barely perceivable by the human eye, in inaccessible or concealed pipes, e.g. floor heating systems. Therefore, maintenance work can be performed while minimizing damage and reducing costs.

Electrical thermography

Whether control cabinets, electric motors or other live systems, with professional thermal imaging cameras from Trotec dilapidated components or faulty connections can be detected early on, so that expensive production downtime can be prevented and fire risks reduced.

Many more fields of application

Thanks to the undisputed process advantages, thermographic measurements have for a considerable time now been firmly established in many fields of application.

Based on the convincing value-for-money ratio of our professional thermal imaging cameras their use now appeals to highly diverse crafts, users and application scenarios, which so far could not benefit from the advantages of non-contact and non-destructive thermography for financial reasons.

Do you have questions regarding the possible use of our professional thermal imaging cameras in your specific case of application? Don’t hesitate to contact us – we’re happy to be of service!

Technical data		XC300 (9 Hz)	XC300 (50 Hz)	XC600 (9 Hz)	XC600 (50 Hz)
Article number		3.110.003.051	3.110.003.043	3.110.003.052	3.110.003.044
Measurement	Temperature range	-20 °C to +600 °C (optionally even up to +1,500 °C)			
	Accuracy	± 2 °C, ± 2 % from the measured value			
Radiometric image performance	Detector type	Uncooled microbolometer (UFPA)			
	Detector resolution	384 x 288 pixels		640 x 480 pixels	
	Spectral range	8 to 14 µm			
	Field of vision (FOV)	24° x 18°			
	Geometric resolution	1.1 mrad		0.65 mrad	
	Thermal sensitivity	0,07 °C at 30 °C		0,06 °C at 30 °C	
	Refresh rate	9 Hz	50 Hz	9 Hz	50 Hz
	Focus / min. focus distance	Automatic and manual / 0.15 m		Automatic and manual / 0.35 m	
Visual image performance	Digital photo camera	5 megapixels, integrated photo lamp			
	Video norm	PAL/NTSC			
Image representation	Display	Tiltable, swivel-mounted 3.5-inch LCD touchscreen, capacitive			
	Zoom	1x to 10x via infinitely variable electronic regulation			
	Image display	Pseudo colours, 6 colour palettes			
	Image display options	IR image, real image, DuoVision Plus display (overlay of infrared and real images in random intensities), DuoVision Plus display (fusion of infrared and real image as contour emphasizing detail-enhanced thermogram)			
Measurement and analysis	Measuring spots	8 movable temperature measuring spots (can be freely configured)			
	Measuring functions	Isotherm, line profile analysis, sector analysis (rectangle), various alarm functions, Min/Max temperature tracking (hot/cold spot), differential measurements at up to 8 dynamic temperature measuring spots			
	Area measurement	2 areas			
	Emissivity	User-defined variably adjustable from 0.01 to 1.0			
	Measurement correction	Correction of the reflected object temperature; automatic correction based on user-defined specifications for ambient temperature, distance and relative humidity			
Data storage	Memory	16 GB internal flash memory			
	File format	Radiometric image: 16 bit JPEG; visual image: JPEG; non-radiometric thermographic video: MPEG-4; fully radiometric infrared video: 14 bit IR format			
	Data storage / transmission	Storage of non-radiometric IR videos (MPEG-4) as well as radiometric and real images on internal memory; periodic image storage (3 / 5 / 10 / 30 / 60 min can be adjusted); storage of fully radiometric IR videos* on PC via USB			
	Voice recording	Comments can be stored along with every IR image (optionally available Bluetooth headset required)			
	Interfaces	USB type C, analogue video (PAL/NTSC)			
Laser	Type	Semiconductor AlGaInP diode laser class 2, 1 mW / 635 nm red			
	Distance measurement	0.05 to 30 m			
Power supply	Battery type	High-capacity Li-ion battery (9,210 mAh); rechargeable, exchangeable			
	Operating time	≈ 8 h			
	Mains power	5 V, 2 A			
	Energy saving mode	User-defined			
Surrounding conditions	Temperature	-20 °C to +50 °C (operation), -40 °C to +70 °C (storage)			
	Humidity	10 % to 95 % RH (non-condensing)			
	Type of protection / shock / vibration	IP54 / 25G / 2G			
	Impact resistance (falling from)	2 m			
Physical characteristics	Dimensions / weight	130 x 125 x 250 mm / 850 g			
	Tripod connection	¼ inch			
Scope of delivery	Standard lens	24° x 18°			
	Standard equipment	Camera with standard lens 24° x 18°, LCD touchscreen and laser, battery charger, high-capacity Li-ion battery, video cable, type C USB cable, operating manual, transport case, software package, temperature test certificate			
	Optional interchangeable lens	7°-, 12°-, 48° lens			
	Optional accessories	Bluetooth interface, Bluetooth headset, professional software upgrade (dongle) for thermographic video recordings and evaluations in real time, 3D heat distribution, export of measurement data, panoramic image creation from several individual thermal images and much more; universal tripod (Art. no. 6.300.000.200)			

** Saving fully radiometric IR videos requires the optionally available professional upgrade (software dongle)*