



ZEISS DTI 3



Seeing beyond

HOW THERMAL IMAGING DEVICES WORK.

Thermal imaging devices differ greatly from traditional optical devices for observation: The optoelectronic devices are more comparable to digital cameras. A thermal imaging camera detects and measures the infrared energy emitted by objects. Using an image processing algorithm, the processor creates a colored representation of the object's temperature based on the signals from the individual pixels. In this context, each temperature value is assigned to a specific color. In addition, thermal imaging photos and videos can be recorded and transmitted via smartphone. Below we explain how they work and their individual components.

Functionality

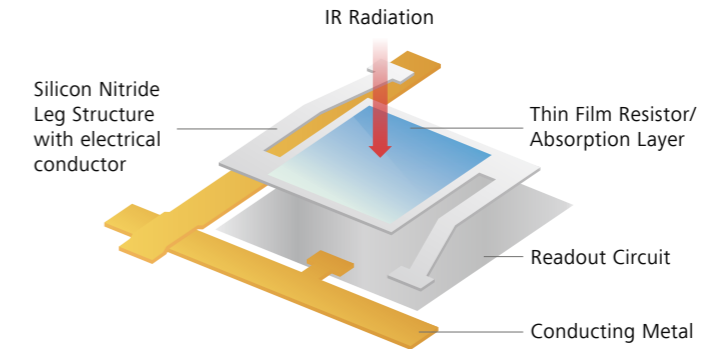
While the light sensitivity of conventional digital cameras lies in the visible range of the human eye, thermal imaging cameras operate in the long-wave infrared range. This allows them to detect the thermal radiation emitted by a body independent of the available visible light, which is why thermal imaging devices can be used both in daylight and in total darkness.

Lens

The lenses are made of germanium, an element which transmits light in the required wavelength range. Germanium is extremely hard and is therefore always used when particularly robust and resistant optics are required.

High-quality eyepiece

Similar to the lens, the thermal imaging device's eyepiece also features high-quality optics. This allows the relaxed eye focused to infinity to view the image shown on the viewfinder display.



Schematic illustration of a microbolometer.

Sensor

The sensor of a thermal imaging camera is known as a microbolometer. This mainly consists of amorphous silicon (ASI) or vanadium oxide (VOx). The electrical resistance of both materials is highly dependent on the temperature.

Adjustable color display

Depending on the area of application and how clearly the observer wants to be able to recognize individual details in the subject, as well as his or her personal taste, different display modes (e.g., White Hot, Black Hot, Red Hot, Rainbow) in shades of gray or color can be selected for the image displayed on the thermal imaging camera's color screen. In addition, the overall brightness of the display can be varied to adjust it in order to suit eyes adapted to either light or dark.

Image processing

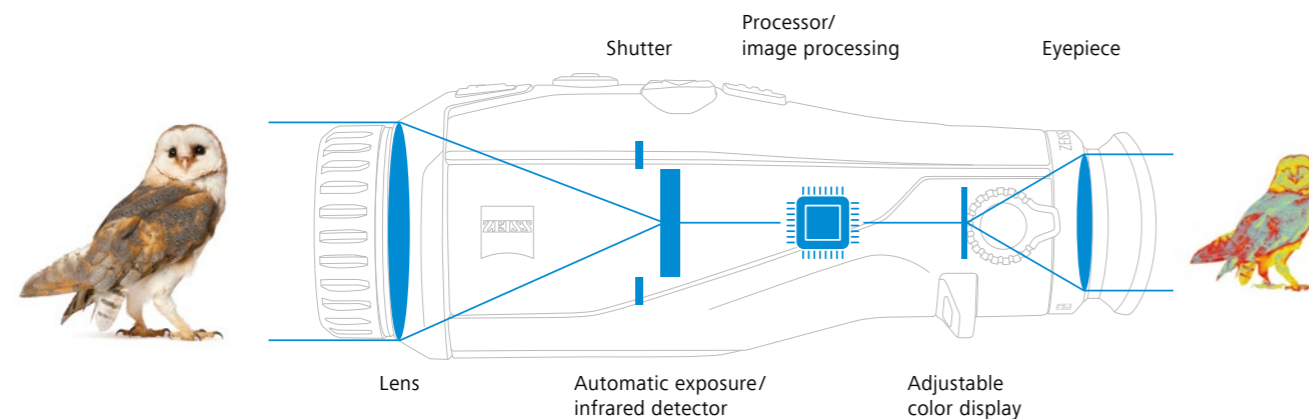
The electronic signal coming from the sensor is first digitized and then optimized via a complex image processing algorithm and adapted to the respective observation situation. The perfect compatibility of the hardware components (lens, sensor, display, eyepiece) with the internal signal processing algorithm ultimately determines the visible image quality and how well relevant details can be recognized during an observation.

Shutter

Just like a digital camera, this can be used to control the amount of radiation passing through the lens. This shutter interrupts the infrared radiation that strikes the detector at regular intervals so that the detector can recalibrate itself from time to time. This produces the quiet clicking sound typical of thermal imaging devices.

Auto exposure system/ infrared detector

A thermal imaging camera is equipped with an "auto exposure" system, so to speak – depending on the ambient conditions, i.e., the changing temperature conditions, the temperature differences across the subject being viewed are divided into brightness or color differences in the best possible way. This produces a bright and high-contrast image for the viewer under all conditions. The resulting image does not reproduce the original colors of the object, but only shows temperature differences. The greater the temperature differences between the observed object and the environment, the more clearly its details and edges can be seen. In this process, the camera's image processing algorithm automatically adjusts the brightness and contrast.



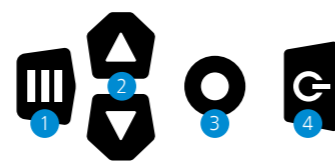


HANDLE THE NIGHT. INTUITIVE AND ERGONOMIC. ZEISS DTI 3

The ZEISS DTI 3 models – technologically innovative optical devices for the night in familiar ZEISS quality and a one-of-a-kind, ergonomic design.

Observation at night with thermal imaging opens new doors: birds and other wildlife can be located and identified without disturbance from a light source. With its DTI 3 thermal imaging cameras, ZEISS always offers the right optical devices for nighttime observation. Even in complete darkness, they produce detailed images for an unforgettable experience.

ErgoControl Concept



- 1 Menu | Color Modes
- 2 Zoom | Menu Navigation
- 3 Video | Photo
- 4 On/off button

Thanks to the intelligently positioned buttons, all of the functions can be controlled intuitively. The perfectly shaped controls can be quickly identified – even in the dark or when wearing gloves.

PRODUCT PROFILE

DETAILED IMAGES – EVEN IN TOTAL DARKNESS.



Precise zoom

The fine, gradual zoom adjustment in 0.5x increments offers the perfect combination of magnification and detail recognition.



Enhanced camouflage

Thanks to the LED Off feature, the device's status display can be switched off manually. This prevents the light from being noticed by the observed object.



With an extra-long 10h of battery life!

Extra long battery life

The ZEISS DTI 3 has an impressive battery life of 10 hours. The standby feature conserves battery power by automatically shutting off the thermal imaging camera after 60 minutes of inactivity.



Outstanding optics in familiar ZEISS quality

The high-resolution 1,280x960 pixel HD-LCOS display delivers detailed images – even in total darkness.



HANDLE THE NIGHT – THANKS TO INTUITIVE ERGNOMICS.

The ZEISS DTI 3 models owe their outstanding optical performance to the fact that the lens, sensor, electronics, screen, and eyepiece are all perfectly compatible. Above all, however, the DTI 3 family of thermal imaging cameras stands out thanks to its unique ergonomics – the ErgoControl operating concept, with its intelligently positioned buttons, makes it easy to intuitively activate all of the device’s functions.

The perfect ergonomic design offers excellent handling in cold and dark conditions and ensures that both right-handed and left-handed users can operate the device comfortably.



ZEISS DTI 3/25

With 1.8x optical magnification and a range of 880 m, the ZEISS DTI 3/25 provides the best conditions for a perfect overview at short distances. The wide field of view of 26 m and fine, gradual zoom settings combine magnification and detail recognition at a distance of 100 m.



ZEISS DTI 3/35

Thanks to a 2.5x optical magnification, a range of 1,235 m and a compact field of view of 19 m at 100 m, the ZEISS DTI 3/35 offers outstanding longdistance vision. The fine, gradual zoom adjustment allows magnification in increments of 0.5.

Perfect Ergonomics

Thanks to the ErgoControl operating concept with its intelligently positioned buttons, all of the functions can be controlled intuitively.



ErgoControl concept for intuitive operation.

OPTICAL EXPERTISE

Innovative image processing algorithms and first-class ergonomics are just two of the features that make the new ZEISS DTI 3 stand out:

Contrast enhancement in foggy conditions

The Contrast Boost feature maximizes contrast to see as much detail as possible, even in foggy or humid conditions.



Improved focusing

In picture-in-picture mode, a focus frame highlights the enlarged image section. For improved focusing and a successful, ethical hunt.



Engaging connectivity solutions

Photos and videos can be managed and shared via app and can even be followed via livestream.



TECHNICAL SPECIFICATIONS.

Model	Thermal Imaging Camera	
	ZEISS DTI 3/35	ZEISS DTI 3/25
Optics		
Focal length	35 mm / F1.0	25 mm / F1.0
Lens type	Germanium	
Range	~ 1,235 m	~ 880 m
Eyepiece field of view in ° (subjective field of view)	Diagonal: 30.25°	Diagonal: 30.25°
Lens field of view in m at 100 m	Horizontal: 19 m	Horizontal: 26 m
Lens side field of view in ° (horizontal x vertical)	10.7° x 8°	15° x 11°
Optical magnification	2.5 x	1.8 x
Maximum digital zoom	4 x	
Zoom increments	In 0.5 x increments from 1.0 x – 4.0 x	
Sensor		
Sensor resolution	384 x 288 px	
Sensor pixel pitch	17 µm	
Frame rate	50 Hz	
Display		
Display resolution	1,280 x 960 px	
Display type	LCOS	
Electronics		
Interfaces	USB: charging + data transfer WLAN: data transfer	
Battery	Lithium-ion	
Battery life	10 h	
External power supply	5V/3A, 9V/2A, 12V/1.5A (USB)	
Internal memory	15 GB	
Video / photo / livestreaming feature	yes	
WLAN frequency	2.4 Ghz	
WLAN standard	IEEE 802.11 b/g/n	
Connection to other devices	App / USB	
General		
Ingress protection rating	IP 66 (protection against heavy rain)	
Operating temperature range	-10 °C to +40 °C (+14 °F / +104 °F)	
Length x width x height	193 mm x 60 mm x 65 mm	187 mm x 60 mm x 65 mm
Weight	450 g	410 g
Order no.	527010	527011

Subject to changes in design and scope of delivery as a result of ongoing technical development.

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