

Infrared Surveillance Systems



We make it visible.

Infrared Surveillance Systems

For inner security, it is worth taking an extra look.

- High thermal sensitivity
- Outstanding resolution
- Compact design and small size
- Low weight
- Very low power consumption
- Modular technology meets customer specifications



Politics and the economy underwent a fundamental change around the end of the 20th century. East and west ceased to exist as they had in the past. Borders became more porous, many countries more open and accessible.

With the arrival of the Schengen Agreement, border installations in western Europe were dismantled, leading to additional freedom of movement. However, freedom and space to some, is an opportunity for illegal activities to others: smuggling, organized crime and illegal immigration are increasing rapidly.

Additionally, we now have to adapt to new challenges following the shock of September 11. We now also face the menace of small, isolated attacks by groups of terrorists who threaten different countries with unconventional weapons.

Infrared surveillance systems: Making the invisible visible

Securing borders and providing protection against terrorists, a task of national importance, is only reliable if effective technical equipment can replace the no longer politically justifiable border installations and can also be used for security within national borders. However, monitoring and protecting larger areas presents security institutions with considerable problems, particularly at night and when poor visual conditions exist.

Mobile and installed surveillance systems from Carl Zeiss Optronics detect, recognize and identify people, vehicles and ships at a great distance even under adverse conditions. Near to real time, they convert the heat produced by the body, the infrared radiation, into a video image that is displayed on a TV monitor.



Performance features that let you see

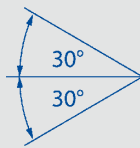
State-of-the-art infrared and system technology

The quality of the thermal imager is the key to the success or failure of reconnaissance missions.

3rd generation ATTICA thermal imagers are particularly well-suited for surveillance and reconnaissance tasks. Their high thermal and geometric resolution ensures the recognition of details. Objects can be captured at a distance of 20 km. The low weight and compact, space-saving design simplifies logistics. Above all, they ensure that you can perform your surveillance duties as inconspicuously as possible.

Moreover, their open system architecture allows the integration of a wide variety of sensors into a wide range of platforms, exactly as the customer wishes. ATTICA itself can be flexibly integrated. Furthermore, it can be combined with TVs, laser rangefinders, GPS devices, computers and compasses. Tracking is also possible.





n x 360°

more.

Modular system design

In addition to the thermal imager, the infrared system contains the following components:

- Pan-and-tilt head
- Retractable unit
- Operator, control and display unit
- Digital video recorder
- Computer with digital map

The pan-and-tilt head which carries the thermal imager enables perfect 360° surveillance. It enables the thermal imager to rotate anywhere along the azimuth and to be tilted, covering a large range of elevation. Observations can be viewed on the monitors and recorded on a digital video recorder.

Easy, straightforward operation

The system is ready in a few seconds at the push of a button. An operator, control and display unit is used to operate the individual functions, also at the push of a button and virtually in real time. Additionally, the clear and concise arrangement of all functional elements provides a clear overview and easy operation. The installed flat-panel color monitors are state of the art and have been optimized for surveillance activities.





Infrared surveillance systems in action

Infrared surveillance systems from Carl Zeiss Optronics are used in the vehicles and ships of the German Border Patrol and Customs, as well as those of many European and non-European countries.

Main areas of application

- Border surveillance
- Protection of property
- Mobile command center for:
 - Hostage crises
 - Drug and customs investigations
 - Catastrophe and environmental protection
- Securing installations:
 - e.g. airports and power plants
- Force protection:
 - e.g.: protecting military camps



Technical data

Infrared surveillance systems

For stationary use or as mobile systems for integration into vehicles and ships.

	ATTICA K	ATTICA P	ATTICA Z
Wavelength range	MW	LW	MW
No. of pixels:	640 x 512	384 x 288	640 x 512
Resolution	640 x 512	768 x 576 (2 x 2 μ scan)	640 x 512 or 1280 x 1024 (2 x 2 μ scan)
Fields of view	NFOV 3.3° x 2.5° WFOV 13.2° x 10°	NFOV 2.8° x 2.1° MFOV 11.3° x 8.5°** WFOV 21.6° x 16.2°	SNFOV 1.0° x 0.8° NFOV 2.0° x 1.6° MFOV 8.0° x 6.4°** WFOV 20° x 16°
NETD	< 50 mK	< 30 mK	< 30 mK
Power supply			
Power supply	complies with MIL STD 1275 B	complies with MIL STD 1275 B	complies with MIL STD 1275 B
Power consumption	typ. < 40 W	typ. < 40 W	typ. < 40 W
Interfaces			
Video – analog	CCIR, RS 170 VESA (to SVGA)	CCIR, RS 170 VESA (to SVGA)	CCIR, RS 170 VESA (to SXGA)
Video – digital	LVDS 8 bits	–	LVDS 8 bits
* Can be set as desired			
LDM 38 laser rangefinder			
Transmitter	Nd: YAG laser, OPO shifted		
Wavelength	1570 nm		
Measuring range	<100 m to >20000 m		
Measuring accuracy	± 5 m		
Laser class	1 M EN 60825/2003		
Eye-safe distance NOHD	0 m		
CCD camera			
Chip	1/2" 1/3" 1/4" color		
Pixels (h x v)	≥ 752 x ≥ 582 effective image elements		
Zoom	≥ 12 °		
Video signal	CCIR		
Pan-and-tilt head			
Positioning range azimuth	n x 360° (with slip ring)		
Positioning range elevation	Minimum -30° to + 30°		
Positioning speed azimuth	≤ 0.1°/s to ≥ 40°/s		
Positioning speed elevation	≤ 0.1°/s to ≥ 20°/s		
Manual control	Joystick		
Automatic control unit	Scan lines, fixed point (prog.), radar tracking, tracking		
Operating and video equipment			
	- Control unit for thermal imager, laser rangefinder, CCD camera and pan-and-tilt head - CRT and LCD monitors - Video recording (analog and digital)		
Option			
	Visual Camera Complex consisting of CCD camera and ICCD camera (LLL TV)		
Computer options for			
	- Virtual console, electronic map, radio - tracking, video motion detection, moving target indicator		

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