SENSORTEC SEAPORTS AND COASTAL SOLUTIONS

SENSORTEC SEAPORTS AND COASTAL SOLUTIONS

SensorTec seaports and coastal solutions are intelligent surveillance AI-based systems that provide various surveillance sensors, this way they ensure the most comprehensive coverage for marine applications. Leveraging high resolution visible light and thermal sensors, marine radars and advanced AI computer vision technologies. Our solutions seamlessly integrate with a variety of VTMS systems, offering automatic tracking functions powered by AIS and GPS telemetry.

SECURITY BEYOND LIMITS

In the few years since 2000, SensorTec has grown into an international company that it is today. We are among the most innovative technological companies in the world, manufacturing and developing intelligent security and surveillance solutions specifically for largescale projects for military, law enforcement, public authorities and private sectors.

We believe that serving the needs of our clients efficiently can only be achieved by delivering complete solutions. In order to achieve that, we design and manufacture all the critical components of our systems, including hardware, software and embedded computer vision. Our entire product range is manufactured and developed in accordance with the highest quality requirements.

SensorTec provides integrated solutions, which combine a wide range of devices, sensors, and software, such as surveillance cameras, surveillance radars, video analytic software and C3. All of our solutions are designed to work in harmony and provide a comprehensive multi-layer approach to deliver situation awareness and interactive intelligence.

KEY FIGURES

300+	TECHNICAL SUPPORT ENGINEER AND TECHNICIAN
4	BRANCHE OFFICES

HQ and Manufacturing Facilities:
Cambridgeshire, UK.
Budapest, Hungary.

Sales and Technical Support Offices:
Dubai, UAE.
Riyadh, KSA.

END-TO-END
SENSORTEC SOLUTIONS

Borders
Video Surveillance
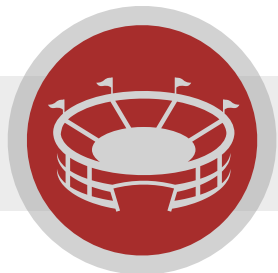
Airports
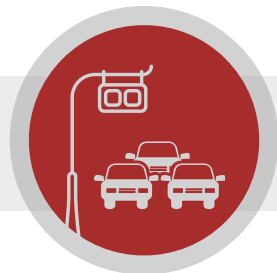Video Surveillance

Seaports
Video Surveillance

Critical Infrastructure
Video Surveillance

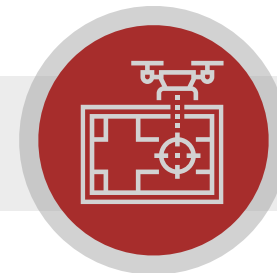Safe & Smart City
Video Surveillance
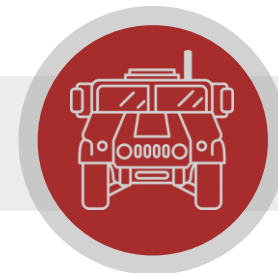
Stadiums & Crowds
Video Surveillance

Traffic Management
& Violations Detection

Highway
Video Surveillance

Anti-Drone/UAV
Intelligent System

Mobile (In-Vehicle)
Video Surveillance

SELECTED INTERNATIONAL
REFERENCES

BORDERS SURVEILLANCE AND SECURITY
Hungarian Land Borders - Hungary.
Egyptian Land and Sea Borders - Egypt.
Kuwaiti Land and Sea Borders - Kuwait.

AIRPORTS SURVEILLANCE AND SECURITY
LaGuardia Airport - New York.
Hungarian Airport - Hungary.
Mumbai Airport - India.
Turkish Airport - Turkey.
Alexandria Airport - Egypt.

SEAPORTS SURVEILLANCE AND SECURITY
Hungarian Waterway - Hungary.
Sea Ports - Kuwait.
Sea Port - UAE.

CRITICAL INFRASTRUCTURE SECURITY
Ministry of Defense - Egypt.
Egyptian Monument Authorities - Egypt.
Manarat Al Saadiat Cultural Museum - UAE.
Private Palace - Kuwait.
Saudi Arabia Embassy - Geneva.

CITY SURVEILLANCE AND SECURITY
Delhi City - India.
Luxor City - Egypt.
Sharm El Sheikh City - Egypt.
Cairo City - Egypt.
Port Saeed City - Egypt.

STADIUMS AND CROWDS SURVEILLANCE
Manchester City Stadium - UK.
Budapest Szusza Ferenc Stadium - Hungary.
Rijeka Stadium - Croatia.
Beşiktaş Stadium - Turkey.
Atatürk Olympic Stadium - Turkey.
Fenerbahçe Şükrü Saracoğlu Stadium - Turkey.
Luzhniki Stadium Moscow - Russia.
Spartak Moscow - Russia.
Mecca Religious Sites - KSA.
Dubai Festival Plaza - UAE.
Pyramids Touristic Area - Egypt.

TRAFFIC LAW ENFORCEMENT
Traffic Management And Violation Detection - Cairo, Egypt.
Traffic Management And Violation Detection - Kuwait.
Traffic Management - Armenia.
Traffic Management - Hungary.

LONG RANGE

UNDER WATER

ANTI-DRONE

APRONS

INTERNAL ROADS

GATES

INDOORS

PARKING

VIRTUAL FENCE

CHALLENGES OF SEAPORTS
AND COASTAL SECURITY

Safe seaports and coastlines are essential for the prosperity of both global and regional economies. However, these vital infrastructures encounter a range of security challenges that can significantly disrupt port operations. Key threats include smuggling, terrorism, piracy, and internal security risks. Addressing each of these risks is crucial as any one of them can potentially set off a series of cascading impacts if not effectively managed.

THE SOLUTION

SensorTec offers a wide range of solutions, tailored for short, medium and long range day/night and thermal infrared imaging in seaports and marine applications. Our solutions play a vital role in Vessel Tracking Monitoring Systems (VTMS) by recognizing, identifying and tracking targets using AIS and radar data. Our systems are designed for offshore applications and can also be installed on different types of vessels or boats.
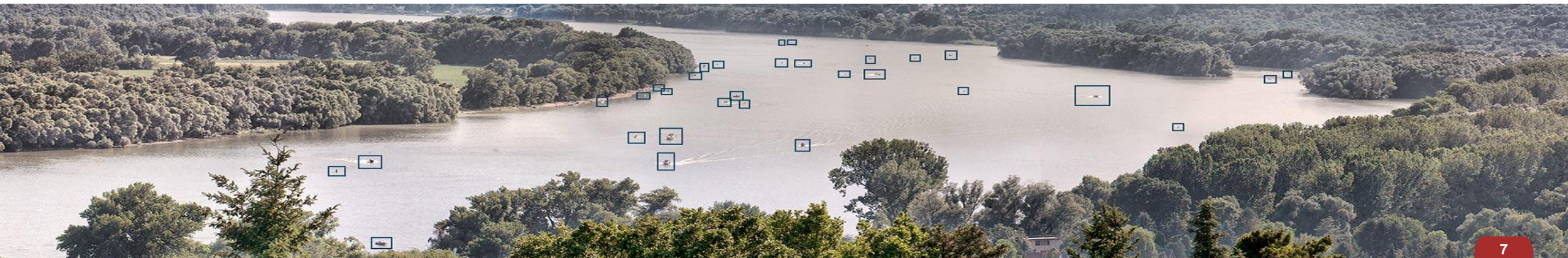
PIONEERING TECHNOLOGIES
BEHIND SENSORTEC SEAPORTS SOLUTIONS

SensorTec Panoramic Technology

SensorTec panoramic technology makes it possible to geometrically stitch images of SensorTec visible light and thermal sensors. The images are taken in a synchronized fashion which precludes the possibility of duplicated or hidden objects at the stitching borders. White balance and tone correction algorithms smoothen the color gradient between the images.

SensorTec Long-Range Multi-Sensor Technology

SensorTec provides a leading-edge fully customized multi-sensor systems employing the longest range visible light day/night zoom cameras and the latest focal plane array technology for cooled or uncooled thermal infrared cameras to meet long-range surveillance and target identification requirements.

SensorTec AI-Powered Video Content Analysis

SensorTec provides the most reliable VCA possible, as the algorithms run on full resolution, uncompressed image streams. This approach ensures accurate detection and tracking even at far distances. The VCA relies on several advanced methods. One of them is the Multidimensional Gaussian Background Model that always adapts to the background and differentiates every moving object from the learnt environment.

Our built-in neural network ensures that the system does not loose the relevant non-moving objects. The VCA also applies Object Feature Extraction, Motion Behavior Analysis and Motion Path Estimation algorithms in order to realize an intelligent, self-learning virtual environment.

Click to watch the video
Panoramic Camera - River Monitoring.

PIONEERING TECHNOLOGIES
BEHIND SENSORTEC SEAPORTS SOLUTIONS

Sensor Fusion Technology

SensorTec developed a specific data level sensor fusion technology, which realizes aggregated raw data analysis for the most accurate automatic detection and tracking possible. The AI algorithm works with uncompressed data that are delivered from different types of data sources. This way our systems are able to overcome the limitations of individual sensors and provide more reliable information of the monitored area and the objects within.

Besides, we are able to efficiently integrate 3rd party sensors and combine their capabilities with our sensors.

PTZ Auto-Tracking

Our system is able to automatically control PTZ cameras based on Video Content Analysis that runs on panoramic images. As panoramic cameras and PTZ cameras are measured together, once the VCA detects and tracks an object, the system can transmit its real-time coordinates towards the PTZ. This way PTZ cameras can automatically track the desired targets.

On-Site Recording

SensorTec 4th generation data processing units are available with a special, outdoor design. They are weather and vandal-proof constructions with integrated thermal management to operate on-site. This feature significantly reduces installation costs, as there is no need to deploy fiber optic infrastructure over hundreds of kilometers between the cameras and the control centers.

SENSORTEC SEAPORTS AND COASTAL SOLUTIONS
MAIN FEATURES AND FUNCTIONS

Monitoring

- 200-960MP long range dual vision panoramic video stream.
- Long range multi-sensor monitoring.
- Real-time monitoring in full resolution.
- PTZ control on panoramic images.
- Interactive map.
- Automatic zoom tour.
- Archive video.

Active Response

- Classification.
- Counter.
- Neutralization.

AI Video Content Analysis

- Object automatic detection.
- Object automatic tracking.
- Object classification (animal, human, heavy and light vehicle, boat, vessel).
- Tracking path.
- Object speed and direction detection.
- Automatic zoom and tracking function.
- Geofencing.
- Virtual fencing.
- Situational awareness.
    - Proximity alert.
    - Collision prediction.
- Automatic traffic enforcement.
    - Overspeed.
    - Line violation.
    - Traffic light.

Integration

- Vessel traffic management system (VTMS).
- Automatic identification system (AIS).
- Long range PTZ cameras.
- Radar systems.
- LASER range finders.
- Positioning systems.
- Seismic sensors.
- Fiber optic sensors.
- 3rd party control software.

SensorTec
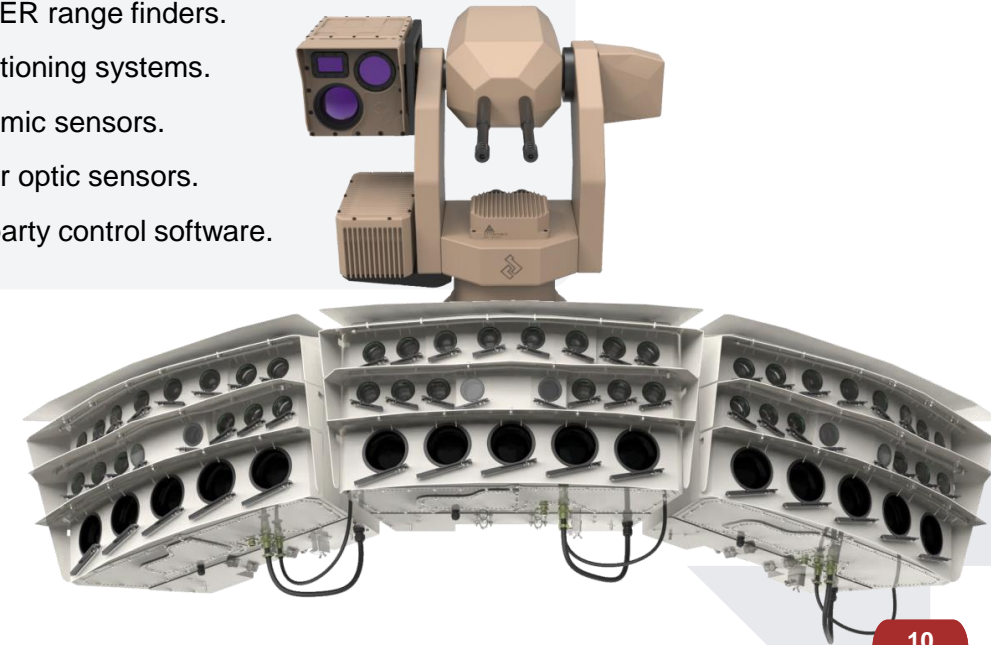
SENSORTEC SEAPORTS SOLUTIONS
FINANCIAL BENEFITS

REDUCED INFRASTRUCTURE COST
Only few cameras are needed to cover an entire seaport, as a result no need to install numerous poles. The network infrastructure is far less complex and cabling is also fast and easy.

LONG LIFETIME
SensorTec leading-edge technologies ensure the system avoids both physical and technological obsolescence for a long time.

UNINTERRUPTED OPERATION
SensorTec provides uninterrupted system availability as all their components are developed to operate with high MTBF.

DESIGNED TO LAST
SensorTec systems can withstand intense weather conditions with marine grade constructions and built-in heating and cooling systems.

NO NEED FOR FREQUENT MAINTENANCE
SensorTec hardware components are capable of self maintenance, thanks to their built-in self-cleaning and deicing systems.

AVOIDING FINANCIAL LOSS BY PREVENTING ACCIDENTS
Our system provides computer vision technologies to prevent various incidents, which helps avoid significant financial loss.

LESS MANPOWER
As vast airport areas can be monitored with much fewer cameras that provide far better spatial orientation for viewers and also VCA based Real-Time Decision Making Support, far less operators are needed for efficient surveillance.
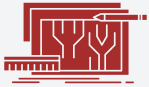
SUPPORTING STRATEGICAL DECISIONS
Our system supports both short-term and long-term strategical decisions by providing information on vessels movements and ground processes.

DESIGNING
YOUR PROJECT

3D MODEL OF VISUAL COVERAGE
SensorTec starts each project with a customized 3D plan, which helps optimize camera arrangement, the necessary resolution and coverage according to client needs.
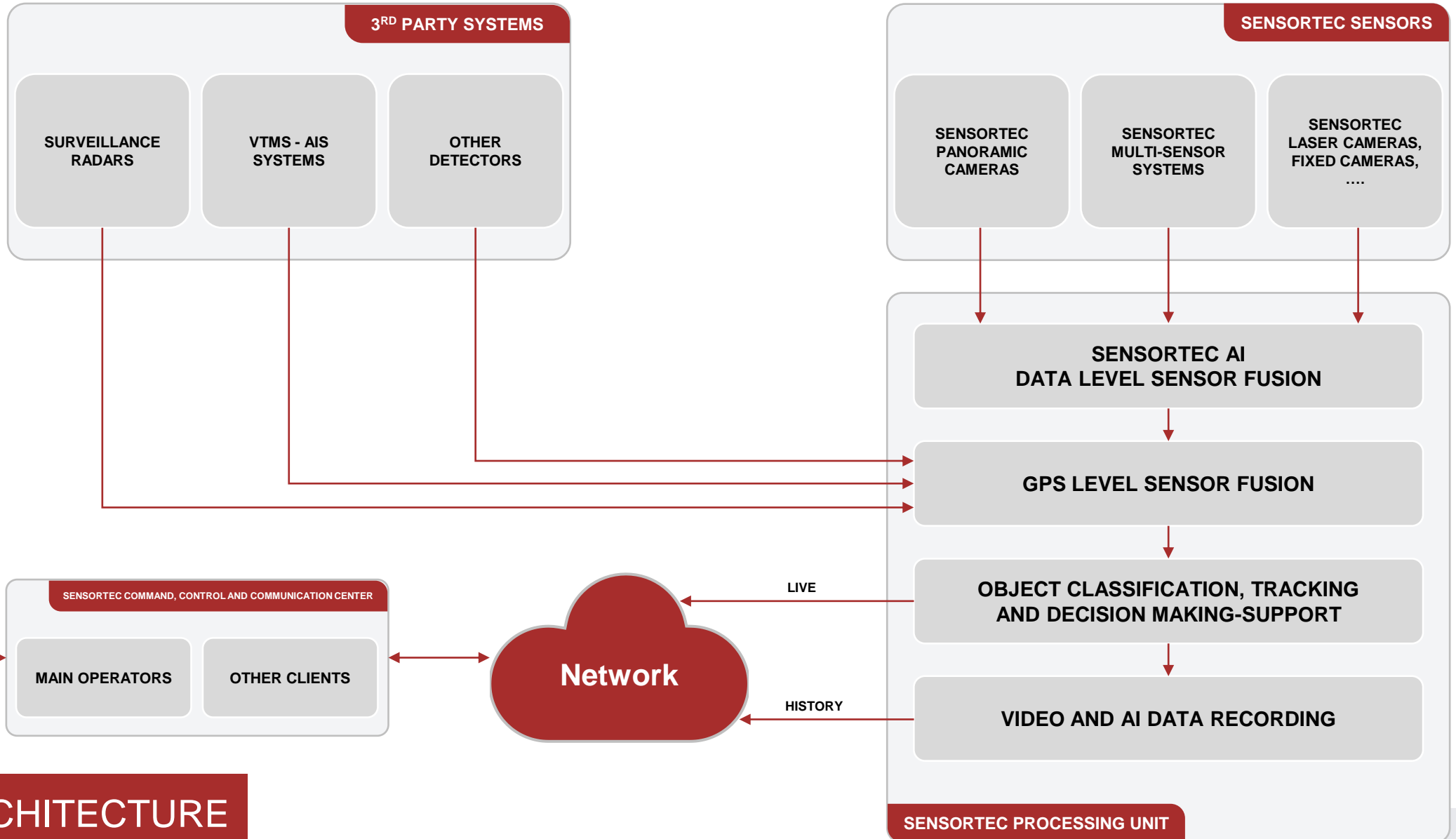
ADAPTABLE SYSTEM STRUCTURE
We always consider our clients requirements to best adapt the system for the current project. Moreover, our solution has a flexible hardware structure that can be easily rearranged in case of future developments.

SYSTEM EXTENSION
SensorTec seaports and coastal solutions are designed to be flexible for future developments. Both the covered areas and also system functionality can be extended easily on demand.

3RD PARTY SYSTEMS

SURVEILLANCE RADARS

VTMS - AIS SYSTEMS

OTHER DETECTORS

SENSORTEC SENSORS

SENSORTEC PANORAMIC CAMERAS

SENSORTEC MULTI-SENSOR SYSTEMS

SENSORTEC LASER CAMERAS, FIXED CAMERAS, ...

SENSORTEC AI DATA LEVEL SENSOR FUSION

GPS LEVEL SENSOR FUSION

OBJECT CLASSIFICATION, TRACKING AND DECISION MAKING-SUPPORT

LIVE

VIDEO AND AI DATA RECORDING

HISTORY

SENSORTEC PROCESSING UNIT

SENSORTEC COMMAND, CONTROL AND COMMUNICATION CENTER

MAIN OPERATORS

OTHER CLIENTS

Network

3RD PARTY C2, C3, VMS

ONVIF

SYSTEM ARCHITECTURE

VISUAL ENHANCEMENT
USING HIGH-END SENSORS

COVERING VAST AREAS

SensorTec seaports and coastal solutions are designed to fully cover immense areas even on challenging terrains using high-end surveillance sensors.

The main line of visual coverage consists of our dual-vision panoramic cameras along with multi-sensor PTZ cameras. A single panoramic camera provides up to 320MP resolution for visible light surveillance and up to 6MP for thermal vision. Its resolution allows to detect small boats within a range of up to 6km.

Three of 320MP panoramic cameras can be installed at a single spot, providing 960MP resolution for visible light surveillance and 18MP for thermal vision. It provides 120° FOV and effectively monitors an area of 9.6km^2 from a single viewpoint.

Click to watch the video
Seaports Solutions.

VISUAL ENHANCEMENT
USING HIGH-END SENSORS

MULTI-SPECTRAL IR IMAGING

There are many types of imaging technologies available, SensorTec provides multi-sensor systems that allow you to easily take advantage of multiple imaging technologies simultaneously.

MONITORING IN EXTREME RESOLUTION

Displaying 40-960MP panoramic images during live monitoring or archive playback is not an easy task. This amount of data can impose excessive burdens on the network infrastructure and also on client computers.

SensorTec developed a special technology to overcome this issue. The system stores the panoramic images in full resolution on the NVR, but always transmits and displays only relevant pixels. When a panoramic overview is on screen, its horizontal resolution is equal to the screen resolution. When an operator zooms in, the system sends the cropped image in higher resolution. As the zoom value increases, so does the transmitted image resolution.

Zoom Area

SENSORTEC SEAPORTS AND COASTAL SOLUTIONS
AI-POWERED VIDEO CONTENT ANALYSIS

Covering vast areas with extremely high resolution is just the initial stage in effective surveillance. SensorTec seaports and coastal solutions are developed to automatically detect, track, classify and counter/neutralize various object types within the monitored area.

Our algorithms precisely recognize objects, alerting operators when potential threats are present in the field. Our AI-powered VCA accurately classifies animals, humans, heavy or light vehicles, vessels and boats.

The Real-Time Decision Making Support optimizes the front-end visualization of all detected objects, highlighting relevant or urgent situations in the user interface. This process ensures that operators receive filtered information, allowing them to make informed decisions based on visual verification to determine whether the moving objects are friendly, neutral, or pose a potential threat.

NAME:
OWNER:
DOCK: 34
PLATE: DF42
ID: 916097
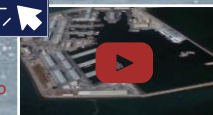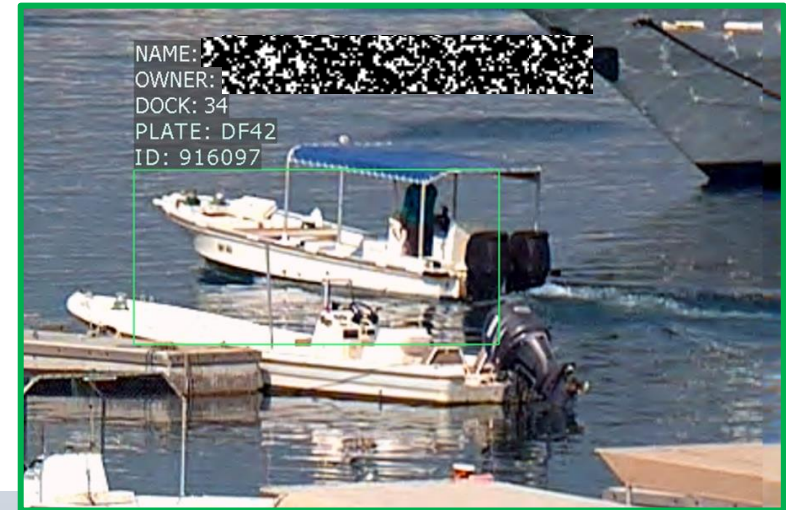
Click to watch the video
Seaports Solutions.

AUTOMATIC THREAT DETECTION AND
SITUATIONAL AWARENESS

SensorTec seaports and coastal solutions offer multifaceted threat detection capabilities to elevate situational awareness. Employing panoramic imaging, long-range thermal imaging, radar, RF detection, drones, sonar system, and other advanced technologies, our solutions ensure round-the-clock vigilance for enhanced day and night situational awareness.

Our design approach focuses on tailoring solutions for optimal performance across short, medium, and ultra-long ranges. This involves seamlessly integrating multiple systems and equipment, spanning from visible light to various infrared spectrum wavelengths, into an integrated solution that provides comprehensive 360° coverage. To further enhance functionality, we incorporate custom AI-powered video content analysis providing AI-powered detection, classification and tracking functions to exceed the limitations of operator-based observation.

Click to watch the video
Long Range Detection.

97216874.22 14795781.02 - 18122.70 m

AUTOMATIC
OBJECT DETECTION

SensorTec developed a specific sensor fusion technology, which realizes exceptionally accurate object detection in the surveillance area. The Video content analysis and the radar data analysis are combined together. The algorithm recognizes any suspicious moving object in the distance that could be a potential threat. Geofencing function allows specific detection configurations within the covered area. Zones can be virtually designated which for various detection rules can be assigned.

AUTOMATIC
OBJECT TRACKING

Our system automatically tracks the motion of all detected objects. Even if they move between camera images, the AI-powered VCA accurately follow and record their paths in the images. The algorithm is able to track 2500 targets at the same time and operators are able to lock the selected ones for automatic tracking in individual zoom windows.

Based on GPS coordinates that are delivered by the radars and also calculated by interpolation on the panoramic images, the system automatically controls PTZ and thermal PTZ cameras. During night monitoring or in low-bandwidth network environments an aligned reference image and moving position indicators help operators to find targets' real-time spatial positions in the images.

TARGET **LOCALIZATION**

In order to respond threats effectively, the exact positions of targets must be known beside tracking them. Our system delivers the precise GPS coordinates, speed and heading information of all detected objects from the moment of detection. The system uses both radar information and VCA calculated coordinates for localization. It is able to match radar data with the VCA-detected objects and display the information together with the targets.

Date	Time	GPS	Speed (km/h)	Distance (m)
11.10.2018	17:29:10	46.64231, 19.12737	20	970
11.10.2018	17:29:10	46.63922, 19.14008	10	890
11.10.2018	17:29:10	46.63922, 19.14007	45	3440
11.10.2018	17:29:10	46.63636, 19.14024	62	5210

OBJECT **CLASSIFICATION**

SensorTec AI-powered classification function precisely recognizes animals, humans, heavy and light vehicles, vessels, and boats even at great distances. This capability aids in suppressing detection signals that are irrelevant to the actual surveillance task.

Date	Time	GPS	Speed (km/h)	Distance (m)	Violation ID	Type	Area	State
11.10.2018	17:29:10	46.64231, 19.12737	2	350	ID4356	human	1350	alarm
11.10.2018	17:29:10	46.63922, 19.14008	0	750	ID4357	animal	1350	rejected
11.10.2018	17:29:10	46.63922, 19.14007	0	750	ID4358	animal	1350	rejected
11.10.2018	17:29:10	46.63636, 19.14024	3	1000	ID4359	human	1351	alarm
11.10.2018	17:29:10	46.62571, 19.14220	4	2250	ID4360	human	1352	alarm
11.10.2018	17:29:10	46.63512, 19.13813	14	1200	ID4361	vehicle	1353	alarm

GEOFENCING AND
VIRTUAL FENCE

Our system geofencing function allows to virtually map existing border zones on camera images. These configured zones facilitate orientation and accelerate object search for operators. They can easily find objects during live monitoring or archive search, Operators can designate temporary zones and they can define various rules to these areas. They can simply draw around a static object or a desired area and apply relevant rules. The activated rules take effect on this area and trigger different warnings or alerts.
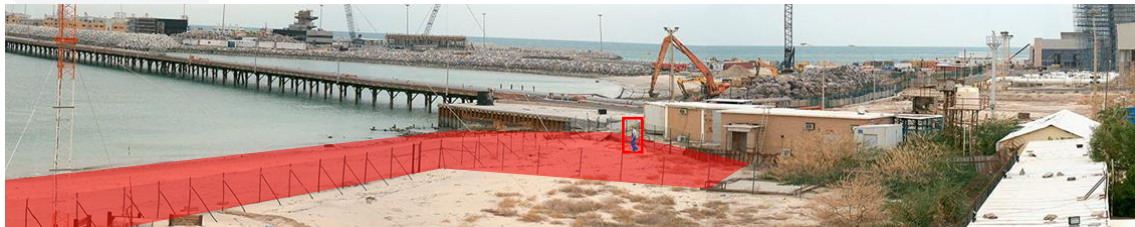
INTERACTIVE MAP

SensorTec solutions also provide an interactive map that visualize objects as moving icons. It shows camera FOVs and real-time GPS coordinates of targets as well. Operators can select targets on the map to show immediate zoom images of them.


Click to watch the video
Critical Infrastructure Solutions.

PERIMETER
SECURITY

Our system detects perimeter intrusions. Existing PIDS can be integrated in the system. The generated alarm signals trigger the visible light and thermal panoramic cameras and also the PTZ to automatically zoom in on the alarmed area.

Our system is able to precisely track the motion of the detected intruder, thus operators can easily follow the situation and react quickly. It effectively avoids false alarms.
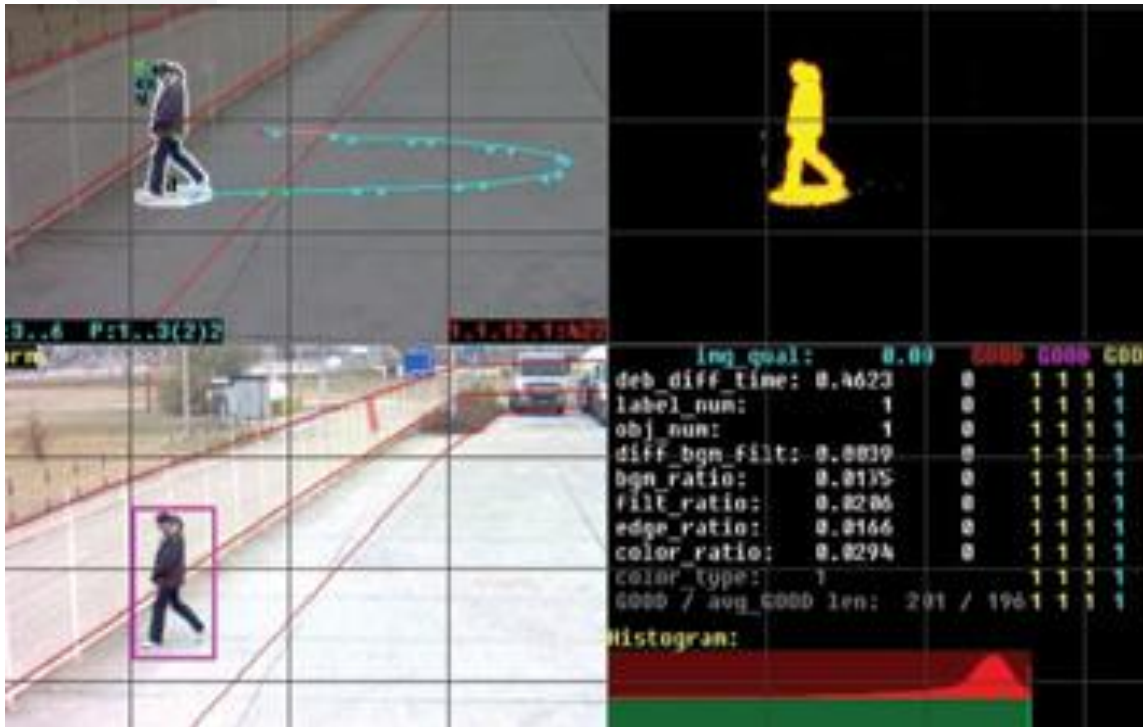
AUTOMATIC TRAFFIC
ENFORCEMENT

Our system provides several traffic violation detection at the critical infrastructure for both cooperative and noncooperative vehicles. Different rules can be specified for different type of vehicles in different areas. The system effectively detect overspeed, line, traffic light and parking violations within the monitored areas. In case a vehicle is violating a traffic rule, the system generates a warning immediately and signs it on the monitoring interface. The function does not just detect traffic violations, but also registers them and save an evidence image.

AUTOMATIC **PTZ CONTROL**

A special function allows the panoramic and PTZ cameras to be assigned by registering common spatial points that are visible to both cameras. This function allows operators to control the PTZ cameras by selecting the area of interest in the panoramic image.

Our system is able to automatically control PTZ cameras based on video content analysis. As panoramic cameras and PTZ cameras are measured together, once the VCA detects and tracks an object, the system can transmit its real-time coordinates towards the PTZ. This way PTZ cameras can automatically track the desired targets.


3ʳᵈ PARTY **INTEGRATION**

One of the great advantages of our solution is that it can integrate third-party VTMS systems and marine radars, providing automated tracking functions based on AIS and GPS.

In addition to the SensorTec sensors, our system can integrate third-party seismic detectors, fiber-optic sensors, long-range and thermal PTZ cameras, radars and PIDS.

Our system ensures the full manual and automatic control of the integrated PTZ cameras. Although, in contrast with the panoramic cameras, a single PTZ can not track multiple targets at the same time, but installing them on strategical spots they can perform as effective surveillance sensors.
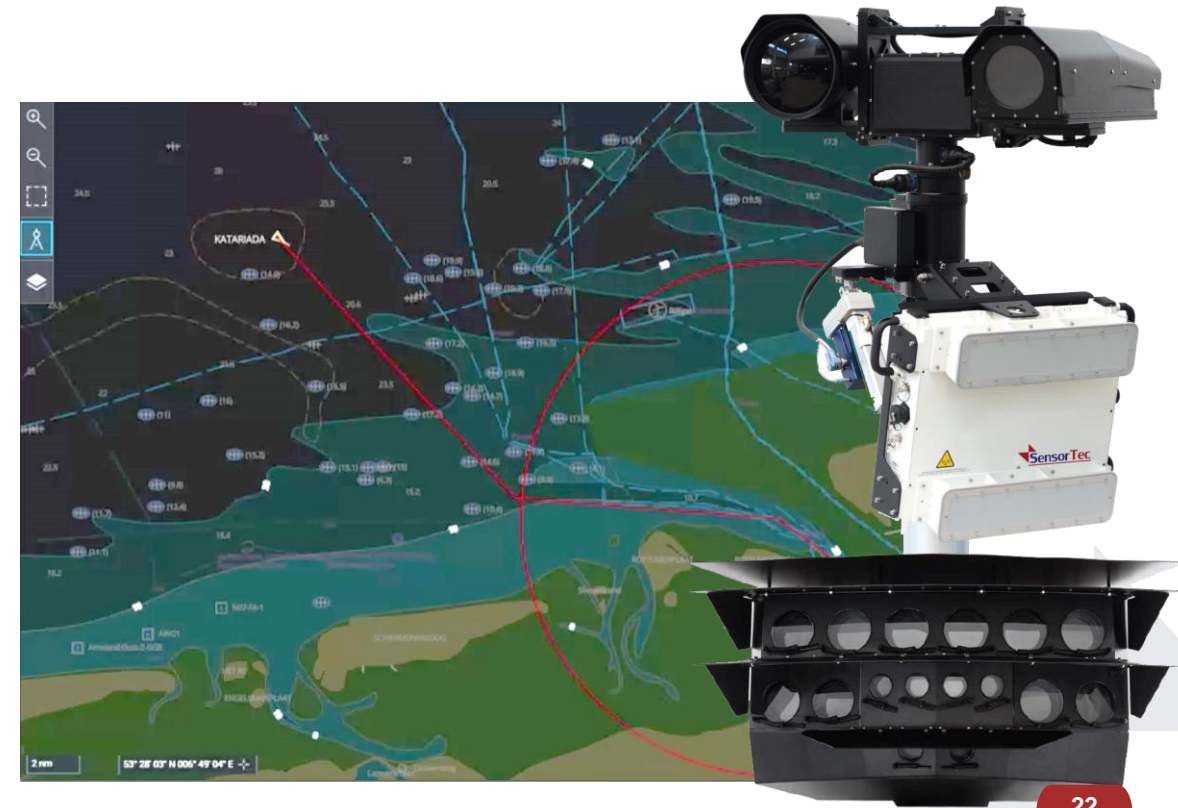
SensorTec

SENSORTEC INTEGRATED SYSTEMS

SENSORTEC PANORAMIC E-GUARD
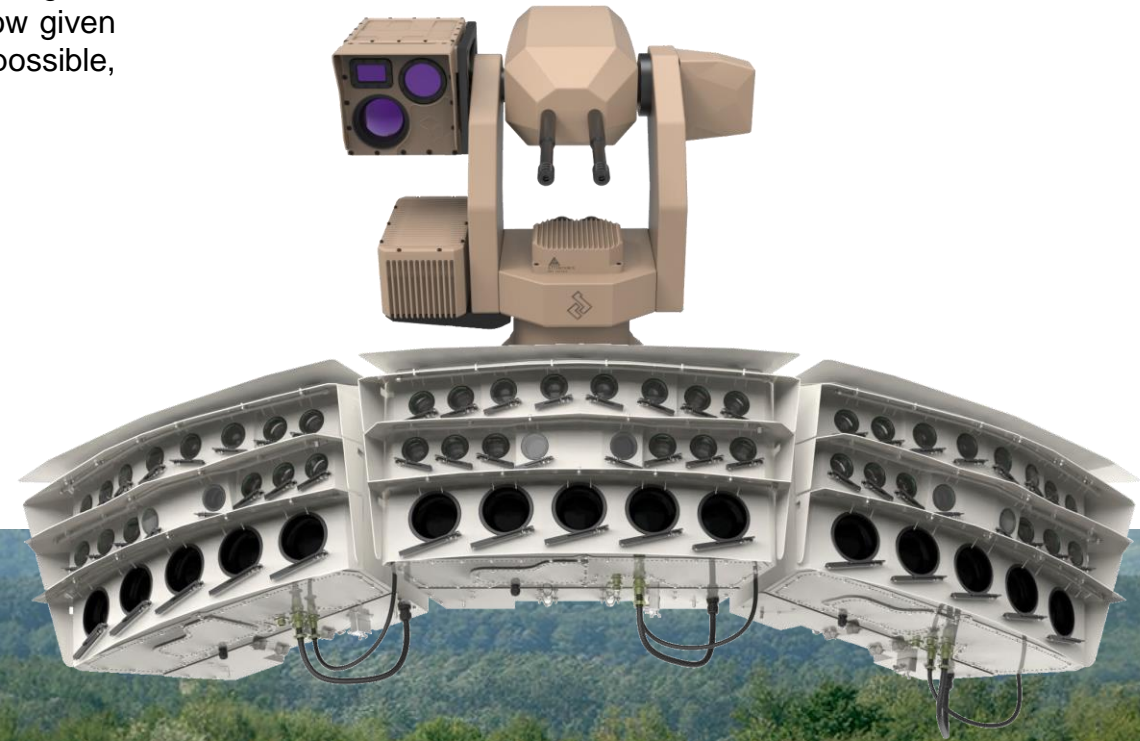## MULTI-TECHNOLOGY DETECTION AND TRACKING UNIT

Panoramic E-Guard is a fully autonomic homeland and asset protection system. It is designed to detect and recognize all intruders in a designated area. Once an intruder is detected the system gives clear instructions how to move away from the protected area. In case intruder does not follow given instructions, system goes into protect mode and neutralizes the intruder in the safest way possible, avoiding any long term damage of the intruder.

NEUTRALIZATION SYSTEM
Range: 50-100m.
Ammunition: Nylon / Teargas.
Calibre: 0.68 / 0.5 / 0.43.

Click to watch the video
SensorTec Panoramic E-GUARD .

Human
Height: 190cm
RFID:#837a834
Threat Level: None

Animal
Mid-size dog
Threat Level: None

SENSORTEC MTDU
MULTI-TECHNOLOGY DETECTION AND TRACKING UNIT

SensorTec employs an integrated system referred to as the Multi-Technology Detection and Tracking Unit (MTDU), which provides the ability to track multiple targets simultaneously. MTDU uses Tracking Radar, Long-range Thermal Camera, Long-range Visible Day/Night Camera, Panoramic Camera to enable the detection, tracking, identification, and classification of illegal entries.

| 3D RADAR DETECTION	VISUAL TRACKING	PANORAMIC VCA VIEW
30 Km	26 Km Thermal 10 Km Day/Night	6 Km
Location Map	Visual Tracking	Panoramic View
Early object detection, tracking and identifying location, speed, size and direction.	Follow the progress or movements of selected targets.	Multiple targets detection and tracking with full VCA.
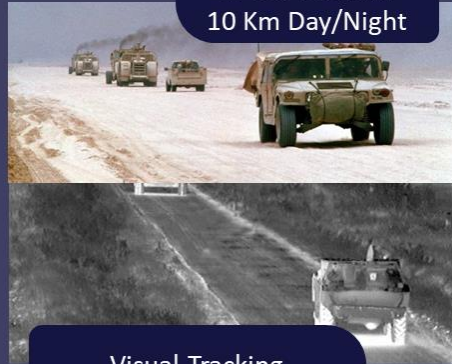
Click to watch the video
SensorTec MTDU.

SENSORTEC
ANTI-DRONE/UAV SYSTEM

SensorTec offers a compact air defense solution against drones/UAVs that was developed and tested for critical infrastructure protection projects. Radar, long range observation system, radio frequency detector and high power radio frequency jammer are able to detect, recognize, identify and soft/hard kill flying objects.

Our system is built to operate 24/7 continuously and it can be installed as fixed, portable or mobile solution. Integrated 3D radar works with the latest generation solid state technology electronic scanning. Thermal camera gives the system long detection, recognition and identification range.
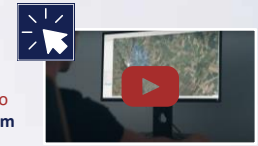
Click to watch the video
Anti-Drone/UAV System

SENSORTEC MOBILE
IN-VEHICLE SYSTEMS

SensorTec mobile (in-vehicle) surveillance systems can be used for monitoring small or large areas of land or sea. They offer high mobility and good comfort for the operators, easy upgrading of the system with additional equipment. They are used for critical infrastructure surveillance, perimeter monitoring and other surveillance missions. These vehicles can be connected to a command center and provide a vital component to a complete security and surveillance solution.

MOBILE SYSTEMS WITH DIFFERENT SENSORS
Long Range Multi-Sensor Camera.
Precise 3D Tracking Radar.
Digital Compass, GPS.
Digital Map with Target Position.

Click to watch the video
Mobile In-Vehicle System.
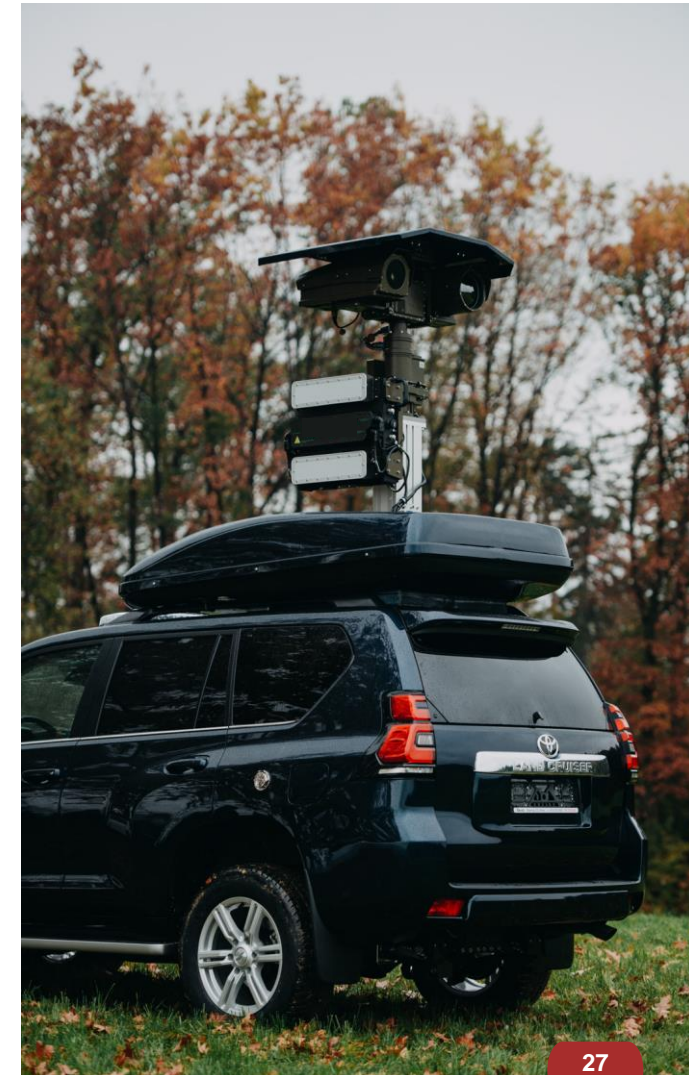
SENSORTEC DRONES/UAVS INTEGRATION WITH
UNATTENDED GROUND SENSOR SYSTEMS

Unattended Ground Sensors (UGS) provide reliable and continuous monitoring and surveillance of critical infrastructure located in rugged mountain terrain, heavy forests and harsh climates.

Seismic sensors are lined up and buried underground in such a way that their circular detection zones overlap and create continuous, hidden protection along the boundary. The UGS processes alarms itself to effectively eliminate false alarms. In some cases, the system's concealed installation can be an even greater advantage. Alarm data is transmitted over long distances through a mesh radio network to a command center.

The system can be supplemented with drones for real-time mapping, tracking and monitoring. operator can use the locations of ground sensors to make a flying route for a drone. The drone reaches the location of trespassing as soon as one or several ground sensors start transmitting alarms.

25 Hours Flight, 180km Range
Long Endurance Unmanned Aircraft System.

Click to watch the video
Unattended Ground Sensor Systems.

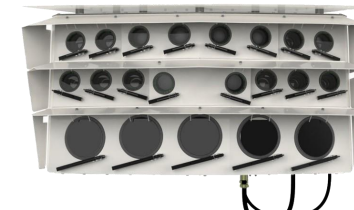**SensorTec**

SENSORTEC KEY PRODUCTS

SENSORTEC
PANORAMIC CAMERA SYSTEMS

	PANORAMIC CAMERAS								VIRTUAL PANORAMIC
CAMERA TYPE	40° 320MP Dual Vision	10° 100MP Dual Vision	40° 320MP	180° 300MP	180° 200MP	90° 100MP	20° 200MP	10° 100MP	20MP cameras Variable Structures
VISION	Visible Light and Thermal		Visible Light						
DESIGN			Industrial Grade | Military Grade | Marine Grade						Custom Housings
EMBEDDED INTELLIGENCE			Video Content Analysis						
RELATED NVR			SensorTec 4th Gen. Network Video Recorder (Rack-Mounted and Outdoor)						
INTEGRATION			Multi-Sensor System | Radar | Thermal Camera | LASER PTZ Camera | IR Flash						
VIDEO MANAGEMENT SOFTWARE			Control Center (Professional or Ultimate)						

180° 200MP
Panoramic Camera

90° 100MP
Panoramic Camera

40° 320MP Dual Vision
Panoramic Camera

40° 320MP
Panoramic Camera

20° 200MP
Panoramic Camera

180° 300MP
Panoramic Camera

SENSORTEC PANORAMIC CAMERA SYSTEMS
# UNBEATABLE RESOLUTION

SensorTec applies several specifically developed, high-quality sensor-lens combinations within massive, purpose-designed camera units. Their enormous resolution ensure the cameras deliver useful visual information from even kilometers away.

PANORAMIC CAMERA	AUTOMATIC DETECTION AND TRACKING BY COMPUTER VISION			
	HUMAN (23 PPM)	LIGHT VEHICLE (12 PPM)	HEAVY VEHICLE (8 PPM)	AIRPLANE (2 PPM)
40° 320MP*	3,000 m	5,900 m	8,860 m	35,400 m
180° 300MP	600 m	1,170 m	1,760 m	7,048 m
180° 200MP	600 m	1,170 m	1,760 m	7,048 m
90° 100MP	600 m	1,170 m	1,760 m	7,048 m
20° 200MP	3,000 m	5,900 m	8,860 m	35,400 m
10° 100MP*	3,000 m	5,900 m	8,860 m	35,400 m

120° 960MP
Dual Vision Panoramic Camera
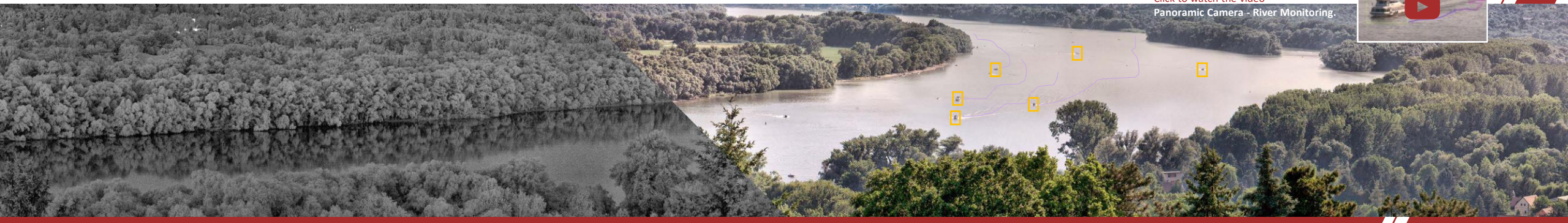
Click to watch the video
Panoramic Camera - River Monitoring.

DRONE-MOUNTED PANORAMIC CAMERA

SensorTec Drone-mounted Tethered Panoramic Camera is developed to be mounted on different types of drones to monitor vast areas with wide angle panoramic view.

DRONE-MOUNTED TETHERED PANORAMIC CAMERA

- 120MP resolution and 120° horizontal Field of View.
- Day-night operation modes.
- AI for human and vehicle detection up to 1000m.
- Picture enhancement algorithms for foggy, rainy weather conditions.
- Real-time camera image stitching to create panoramic view and zoom.
- High Dynamic Range (HDR).
- Precisely stitched panoramic image with white balance and gradient compensation.
- Rugged housing.
- Small size and could be mounted on small drones.
- Light weight 1.5Kg.
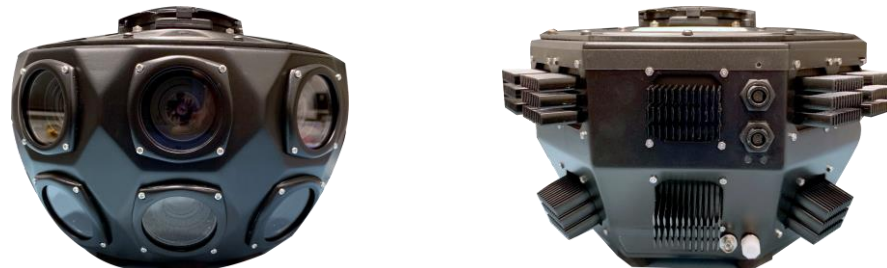
120° 120MP
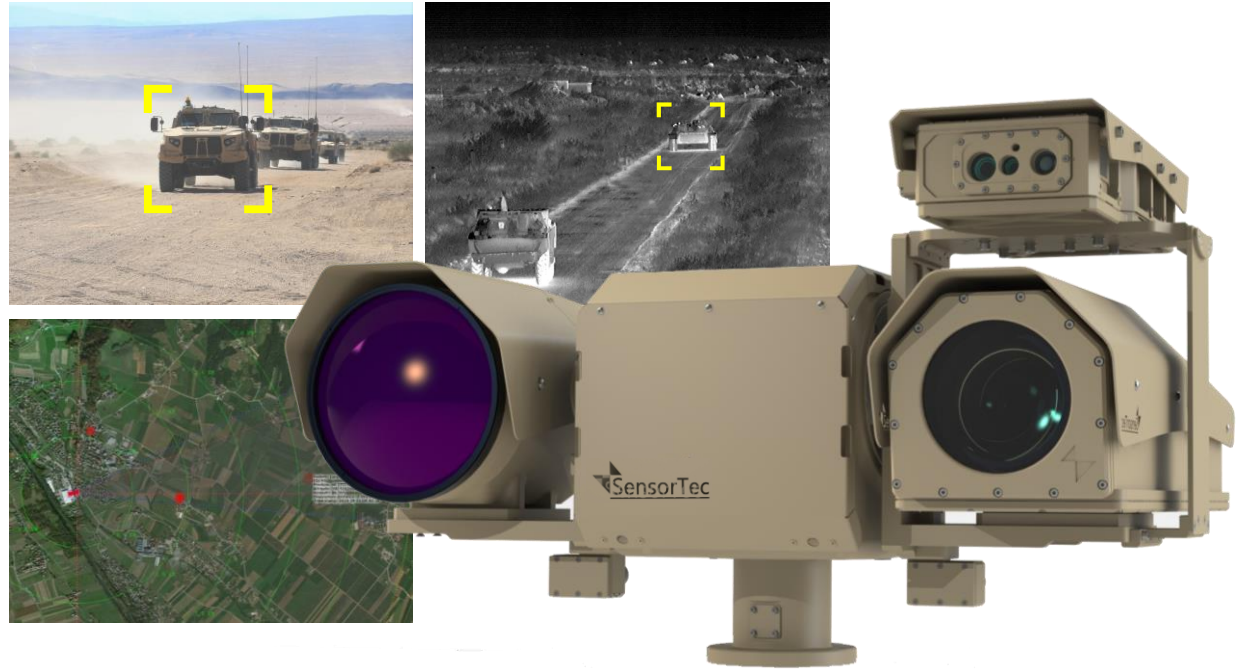Drone-mounted Tethered Panoramic Camera

SensorTec 120° 120MP Drone-Mounted Panoramic Camera - 30% of the actual image size.

SENSORTEC
MULTI-SENSOR CAMERA SYSTEMS

- Simultaneous preview of day/night and thermal cameras.
- Continuous zoom on both payloads.
- Radar connectivity (Slew to Cue) and tracking.
- Video tracking with auto/manual target acquisition.
- Auto/manual/remote focus on both payloads.
- TCP/IP interface.
- Compatibility with 3rd party payloads.
- Electronic image stabilization on both payloads.
- Rigid system design (up to 90km/h wind speed resistance without damage).
- Temperature range of the whole system: -32°C to +55°C.
- Maximum humidity of the whole system: 95%.
- Long lifetime with extremely high MTBF up to 20200 H.
- Comply with IP67, built according to MIL-810.
  - Vibration test: IEC 60068-2-64.
  - Shock test: IEC 60068-2-27.
  - Icing test: NEMA 250.
  - Salt fog test: IEC 60068-2-52.

MODULAR	**MULTI-SPECTRAL**	**LONGEST RANGE**	**WIDE ANGLE**	**WEATHERPROOF**	**MILITARY GRADE**	**RADAR INTEGR.**	**STABILIZATION**	**MOUNTING**
VARITY PAYLOADS COMBINATION	Visible, SWIR, MWIR, LWIR	UP TO 200X ZOOM LENS	UP TO 47° HORIZONTAL FOV	55°C TEMPERATURE AND 95% HUMIDITY	BUILT ACCORDING TO MIL-810 STANDARD	WITH SLEW TO CUE AND TRACKING	GYRO AND ELECTRONIC STABILIZATION (EIS)	FIXED, PORTABLE, VEHICLE MOUNTED

SENSORTEC
MULTI-SENSOR CAMERA SYSTEMS

All our multi-sensors are modular, allow the client to select the combination of payloads they need for their specific application. Configuration of every multi-sensor is tailored to requirements of the specific project and the environment in which it will be used (fixed, portable, vehicle mounted, ...).

Multiple payloads on one pan-tilt system within a separate housing
Individually removable to enable service of one payload while the other is still operational

- Long-Range Thermal Camera (Cooled MWIR or Uncooled LWIR)
- Medium-Range Thermal Camera (Cooled MWIR or Uncooled LWIR)
- Day/Night Camera (Regular or Low Light).
- SWIR Thermal Camera.
- Ground, Air or Multi-mode Radar.
- Robust Pan Tilt System.
- Laser Range Finder (LRF).
- Video Processing Unit (VPU).
- GPS.
- Digital Magnetic Compass.
- Microphone.
- Electric Mast or Tripod.
- Lens Cleaning System.
- Gyroscope Stabilizer.
- C3 with GIS Software for Preview and Control.

- LRF
- VPU
- GPS
- DMC

- Cooled MWIR Series
- Uncooled LWIR Series
- SWIR Series

- Pan-Tilt Series
- Gyro Stabilizer

- Day/Night / HD Series
- Low Light Series

- Lens Cleaning System

- Ground Radar
- Air Radar
- Multi-mode Radar

SENSORTEC MULTI-SENSOR CAMERA SYSTEMS
ULTRA LONG-RANGE SURVEILLANCE

SensorTec provides a leading-edge fully customized multi-sensor cameras employing the longest range visible day/night zoom cameras and the latest focal plane array technology for cooled or uncooled thermal infrared cameras to meet long-range surveillance and target identification requirements.

MWIR COOLED	LWIR UNCOOLED	SWIR UNCOOLED	VISIBLE LIGHT
26Km	**17Km**	**35Km**	**10Km**
Vehicle Detection	Vehicle Detection	Vehicle Detection	Vehicle Detection

The value depends on the selected detector and cooler.
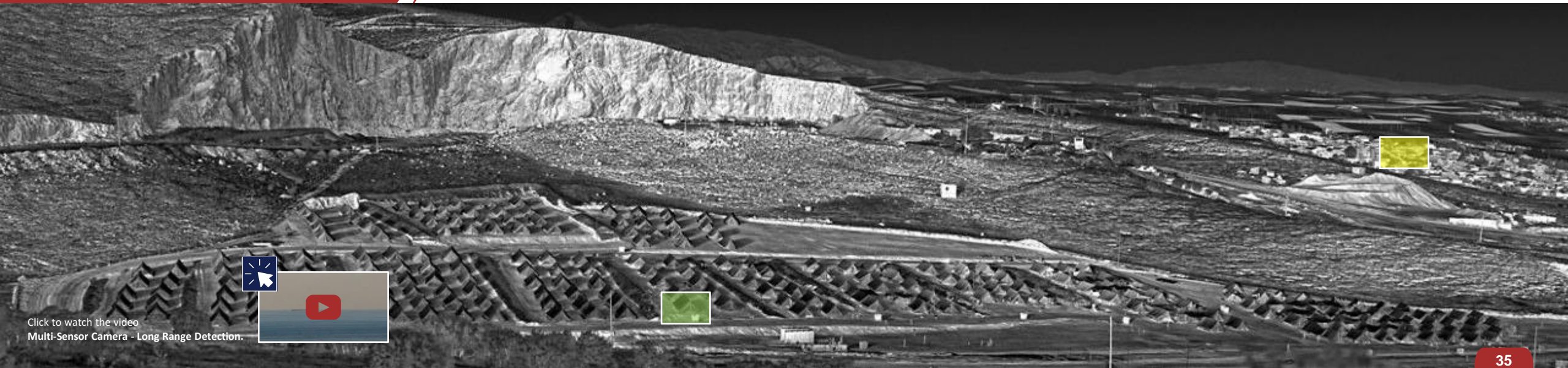
Click to watch the video
**Multi-Sensor Camera - Long Range Detection.**

SENSORTEC SURVEILLANCE RADARS
GROUND, AIR, COASTAL AND MULTI-MODE RADARS

SensorTec offers a comprehensive solutions for short, medium and long range detection applications by integrating our electro-optics systems with various configurations of counter-drone, ground surveillance and coastline security radars.

SensorTec radars scan and detect fast moving objects over a wide area and provide exceptional detection performance up to 40km with rapid electronic or mechanical scanning of 90°, 270°, 180° and 360°.
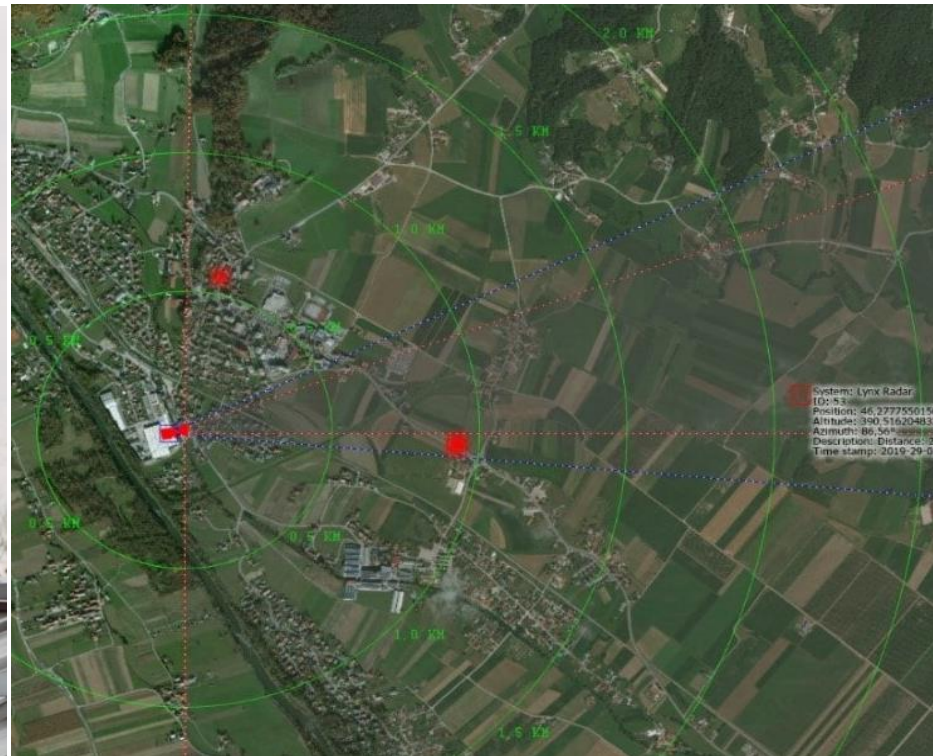
SENSORTEC
LONG RANGE LASER PTZ CAMERA

10km day, 5km night long range LASER PTZ camera system is composed of a LASER illuminator with collimator and visible light camera in the same housing, mounted on a Pan-Tilt unit. The visible light camera allows observation under all weather conditions even in fog, rain or snow. The platform pan-tilt unit is able to turn the camera in all direction, both in azimuth and elevation and controlled from the operator place or remotely from the existing control room. The integrated LASER illuminator has synchronized beam with the camera field of view enables the camera to see in total darkness without emitting any visible light. This makes this system the best low-cost day/night long range observation system without using a thermal camera.

Click to watch the video
Long Range LASER PTZ Camera.

SensorTec Long Range LASER PTZ Camera - Boat Tracking at 5Km.

Zoom Area

Zoom Area

SENSORTEC HIGH-END
NETWORK CAMERAS

SensorTec Network Camera series is the professional-level network camera designed for those who are seeking for the up-most in quality, integration, design and reliability for their demanding surveillance needs. We offer a comprehensive product lineup which ranges from standard monitoring to AI cameras, meeting various requirements for video surveillance from entry level to high end.

Indoor, Outdoor, Submersible and Ex-Proof Network Cameras.
Type: Dome, Fisheye Dome, Mini Dome, Panorama, Bullet, Mini Bullet and Box with Lens.
Resolution: 2 / 3 / 4 / 5 / 8 / 12 / 20 MP.
Lens: Fixed, VF and Motorized Zoom VF.

2 / 3 / 4 / 5 / 8 MP Bullet Camera.
Indoor, Outdoor / Fixed, Motorized Zoom VF.

2 / 3 / 4 / 5 / 8 MP Dome Camera.
Indoor, Outdoor / Fixed, Motorized Zoom VF.

20MP VF Lens Camera.
With IP67 Outdoor Housing.

SENSORTEC HIGH-END
NETWORK VIDEO RECORDERS

SensorTec high-performance network video recorder specifically designed to record and manage the video streams of the latest generation our multi-sensor and single sensor cameras. Our NVR series offers a robust system for diverse applications and empowers users to set up and manage advanced IP surveillance systems with ease.

Outdoor NVR Series.
For Panoramic and Single Sensor Cameras.

Indoor NVR Series.
For Panoramic and Single Sensor Cameras.

Indoor H.264/H.265 NVR Series.
For Single Sensor Cameras.

SENSORTEC SOFTWARE

SENSORTEC C2 CONTROL CENTER

SensorTec C2 software package is developed specifically for panoramic surveillance solutions.

It provides centralized monitoring where all visual information and data are fused and displayed.

Front-end visualizations of filtered and weighted alarms guide the attention of operators, this way they can always focus on urgent situations and react quickly.
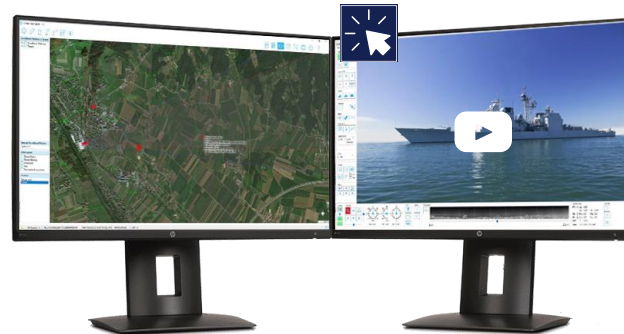
SENSORTEC C3 COMMAND, CONTROL AND COMMUNICATION CENTER

SensorTec C3 software package acts as a connection point for all subsystems (Day/Night cameras, Thermal camera, Pan-Tilt, Radars, etc.) and as a distribution point for data system parameters, diagnostics, imaging etc.) to all connected clients.

GIS Map Software Main Features
Map image streaming.
3-D Map navigation.
Map Presets.
Map layer management.
Angle, distance area measurements.
3D slew to cue functionality.

SENSORTEC VMS VIDEO MANAGEMENT SYSTEM

SensorTec VMS Enterprise (ONVIF compliant) is a professional and intelligent video management software designed for medium to large projects. Together with SensorTec cameras, it can simplify and freshen up your video surveillance. With advanced client/server architecture, it fulfills your demands and expectations, with rich core functions including live view, record, E-Map, event alarm and smart analysis etc.

SensorTec VMS Enterprise already has AI capabilities enabled. The intelligent attributes of humans and vehicles can still be filtered and alarmed by the on-server AI video analytics, regardless of whether the front-end IPC is AI or non-AI.

SensorTec C2
Control Center

SensorTec C3 Command, Control
and Communication Center

SensorTec VMS
Video Management Software

SENSORTEC HIGH-END
WIMAX AND MICROWAVE SYSTEMS

A Complete Range of Wireless Solutions for both PTP and PTMP Fixed Wireless Deployments.

SensorTec has a vast experience in the wireless video surveillance market. We design, supply and implement a high reliable wireless security solutions for border security, traffic monitoring, highway safety, city surveillance and many others.

SensorTec wireless solution boosting easy installation and maintenance, quick deployment, flexibility, scalability and long lifetime.

SensorTec

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