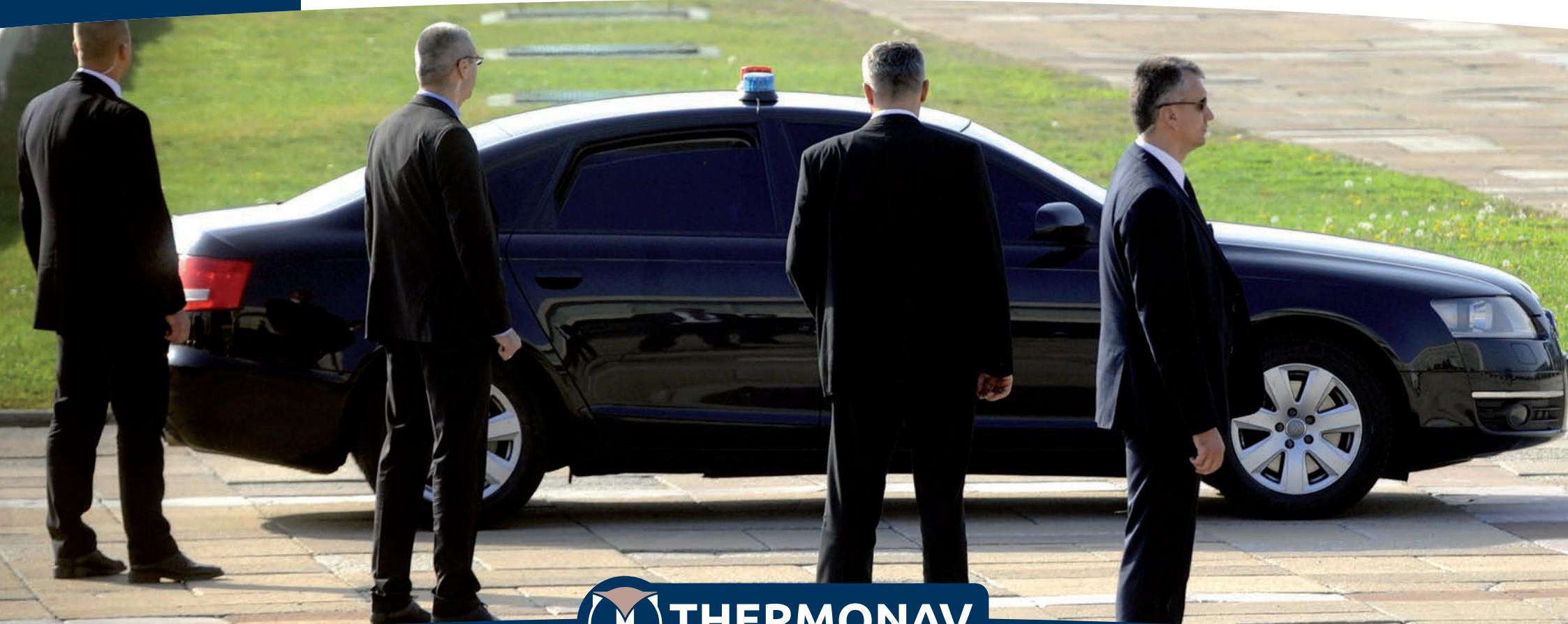


Defense



Silent Shadow
Tactical Mission System
for V.I.P. protection and escort



THERMONAV
powered



Silent Shadow is A.S.T.I.M.'s Tactical Mission System (TMS) for indoor and outdoor V.I.P. protection and escort operations.

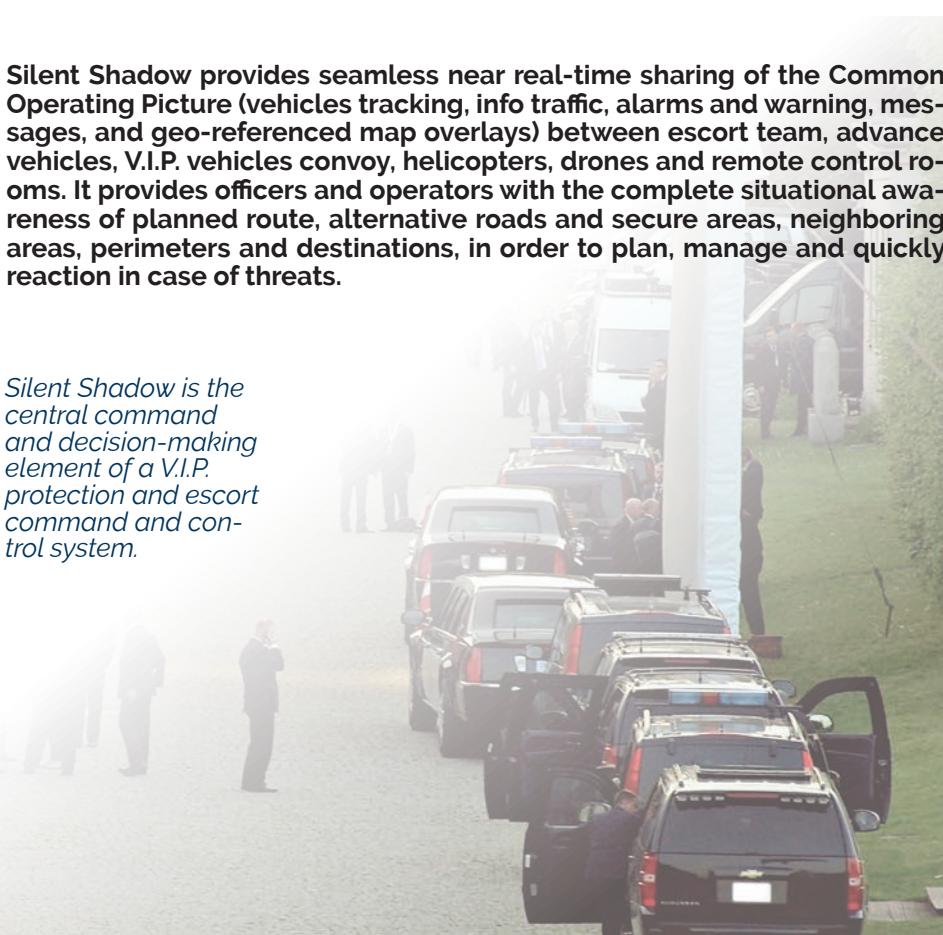
Silent Shadow is state-of-the-art mission system for every type of vehicles, from cars, pickups or trucks (armored or not) to helicopters and remote control rooms. It integrates all the functions required for indoor escort team localization and tracking, vehicles navigation support, routing, fleet management, sensors and tactical picture management, threat evaluation, mission planning, briefing, debriefing and training.

Silent Shadow provides seamless near real-time sharing of the Common Operating Picture (vehicles tracking, info traffic, alarms and warning, messages, and geo-referenced map overlays) between escort team, advance vehicles, V.I.P. vehicles convoy, helicopters, drones and remote control rooms. It provides officers and operators with the complete situational awareness of planned route, alternative roads and secure areas, neighboring areas, perimeters and destinations, in order to plan, manage and quickly reaction in case of threats.

Silent Shadow					
Multi-sensor Management	Situation Awareness	Multi-console Management	Multi-Data Link and Data Sharing	Mission Recording	Smart Integration
EOSS	Worldwide Maps and Navigation	Handheld Mobile Device	Public or private 3G/4G LTE	Private AES-256 Data Encryption	Smart Glasses (AR)
Radar	Planning and Auto Routing	Vehicle-Mounted Tablet	DMR*, Tetra*	Georeferenced Videos and Photos	Small UAV
Transponder	Route Monitoring and Live Traffic	Land C2 Console	Satellite	Tracking and Telemetry Data	Jammer
Beacon	Indoor/Outdoor Teams Tracking	Airborne C2 Console	Ultra Wide Band for RTLS	System Datalog (E&W)	Smoke Vehicle Protection
UWB-RTLS	Vehicles and Threats Tracking	Naval C2 Console	Other Private Wide Band Radio	Fast Data Deleting	Guns and Weapons
Critical Info Representation					

*without video sharing

Silent Shadow is the central command and decision-making element of a V.I.P. protection and escort command and control system.



Defense



Key Features

Advanced Sensors for Medium and Long Range Surveillance	Multi-sensor management capability for a wide range of surveillance sensors with Image Enhancement, Automatic Object Detection and Target Tracking (EOSS, Radar, Transponder, Beacon, UWB-RTLS)
GIS Engine and Electronics Charts System	Worldwide maps with multiple layers management, vehicles tracking information, routes management and near real-time info traffic, common navigation information, informative tracing, instant alert Indoor escort team localization and tracking Threats, targets and icons, with data fusion representation, radar overlay and video in PIP mode Naval, land and airborne collaborative/friend assets (manned or unmanned) representation Operations planning tools
Data Sharing	Tracking of other naval, land or airborne assets (manned or unmanned) Targets and data collection from such assets with data fusion representation, request management for collaborative/friend assets for security support, medical support or fast exfiltration, reporting to such assets and remote control rooms of a pre codified threats and "high-risk-of-capture" functions Text and vocal messages by advanced chat services Videos, photos, pdf and metadata
Mission Recorder	Encrypted (AES-256) and georeferenced videos and photos, mini-VDR function, event and warning datalog, "high-risk-of-capture" function for fast data deleting
Built-In Test (BIT)	Multiple algorithm capability: Power-up, Periodic, Initiated
Smart Integrations	Smart glasses for Augmented Reality (AR) Small UAV Jammer Smoke vehicle protection system Guns and Weapons



Modern V.I.P. protection and escort operations

Today, V.I.P. protection and escort operations can be supported by hi-tech communication systems, ensuring minimal latency and wide bandwidth. This in turn demands command and information management platforms that can share, exchange, fuse and synchronize multi-source tactical data into a clear and unambiguous tactical picture.

Furthermore, during escort operations, fast and reliable response times can improve the overall operational capability of the quick reaction team (QRT) and the unit to which it belongs.

Silent Shadow is the central command and decision-making element of a V.I.P. protection and escort command and control system. The VIP Escort mission module is designed to provide full defense, surveillance, escort management and fast reaction capabilities. It includes layered air and land defense, surveillance capabilities, fleet management, vehicles tracking, threat evaluation and fast reaction tools, routes management, near real-time info traffic and specific functions for typical V.I.P. protection and escort missions. It is aimed to equip from cars, pickups or trucks (armored or not) to unconventional vehicles, helicopters or remote control rooms.

Its functions and performances, like indoor escort team localization and tracking by UWB-RTLS, supporting sensor management, images and scenarios compilation, sharing and exchanging of such information with other assets, vehicles and remote control rooms, situation assessment and reaction support, are critical to the operational effectiveness of escort team and quick reaction team. V.I.P. protection and escort management systems have evolved to serve the needs of security operations. Accordingly, they support constabulary functions of indoor and outdoor protection and escort management, surveillance, anomaly detection, fast reaction, evidence gathering and, as necessary, interdiction and arrest. Silent Shadow provides the perfect match between these different worlds.

Silent Shadow is able to share real-time images and information with all naval, land and airborne collaborative/friend assets (manned or unmanned) or remote control rooms





Silent Shadow Technology

Silent Shadow uses THERMONAV® technology at framework level, so all company products using the same technology are integrable.

The framework ensures both tactical and strategic interoperability in net-centric scenarios, through the following capabilities:

- multi-sensor management (EOSS, Radar, Transponder, Beacon, UWB-RTLS) with Image Enhancement, Automatic Object Detection and Target Tracking
- situation awareness representation and management (by GIS Engine and Electronics Charts System) with data fusion representation on multiple layered screen, with radar overlay and video in PIP mode
- indoor escort team localization and tracking, vehicles tracking information, routes management, near real-time traffic and common navigation information, informative tracing and instant alert
- multi-console and multi-data link management for data sharing and exchanging with other remote naval, land, airborne collaborative/friend assets (manned or unmanned) and remote control rooms
- mission recording management with encrypted (AES-256) and georeferenced videos and photos recording functions, mini-VDR function, event and warning datalog, "high-risk-of-capture" function for fast data deleting
- third-party smart systems integration and management

In background the Integrity Management System runs, this is a BIT service developed for continuous performance and status monitoring of all system resources.

Modern and Proven TMS

Multiple HW configuration from no-MIL grade to MIL-grade standard

Developed with the expertise of veterans of special operations forces

Designed for vehicles, helicopters, remote control rooms and walked teams

Scalar and Modular Design

Model-driven software architecture

Interfaces for different mission modules

Free to interface any subsystem

User-Centric Human Machine Interface

Multiple screens

Ergonomic design

Context-sensitive menus and data



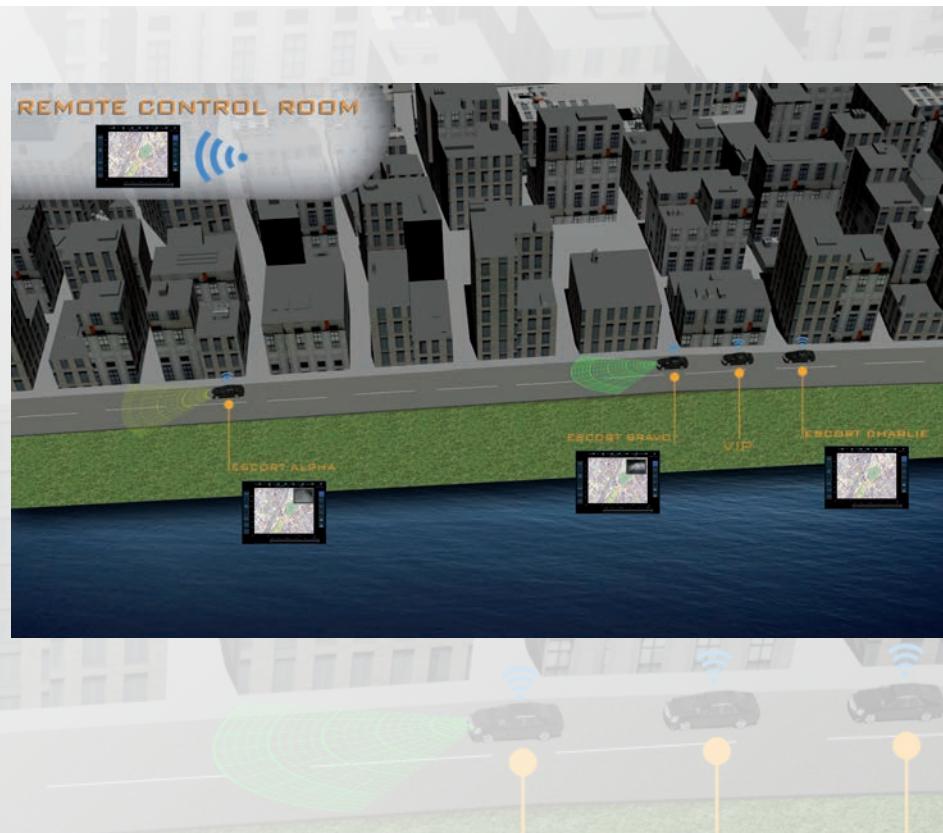


Multi-Sensor Management

Silent Shadow supports a wide range of surveillance sensors: EOSS, Radar, Transponder, Beacon, and UWB-RTLS, which can be installed on board vehicles or on team operators and on board other naval, land, airborne collaborative/friend assets (manned or unmanned) or in remote control rooms.

Silent Shadow supports EOSS/EOTS and a wide range of third-party systems and is able to reach full IRST functionalities including advanced Video Tracking algorithms that are able to detect and track more simultaneous targets by Multiple Target Track and Moving Target Detection functionalities. When in Surveillance Mode, it is able to create real-time Video Panorama Stitching with marked detected target and relative info or azimuth scan sectors or customized scanning by a list of preset points.

Silent Shadow supports also surveillance radar and other sensors. Net-centric, modular and scalable architecture allows the integration of other civil or military technologies as weather stations, jammer, remote controlled guns and weapons, smoke vehicle protection system and other non-lethal weapons. Silent Shadow technology allows radar tracking via multi-algorithm capabilities: Track Engage, Track Scan, Track Last and Track Cursor with target classification and data fusion and with automated capture of target snapshot images. These functionalities allow detection, classification and neutralization of fast and dangerous threat as drone and hostile helicopter or airplane.





Situation Awareness Representation

Based on an advanced proprietary GIS engine and powered by technology from some global companies that produce traffic, navigation and mapping products and services, this sub-system is able to manage a wide range of maps, organized in multilayer graphical architecture and provides to Silent Shadow high quality location content, services and navigable maps near worldwide coverage. Highly detailed road information and live traffic services are used to calculate faster routes and route alternatives. Live traffic services provides accurate and fresh information about traffic jams, incidents, and flow.

Thanks to multiple layers for discovered target and threats from radar and on-board sensors, discovered and shared target and threats from other collaborative/friend assets (manned or unmanned), Silent Shadow is able to represent clear and crisp composed scenarios with all tactical information in data fusion mode for indoor or outdoor missions.

It uses specific and dedicated layers for icons and threats representation, support requests, vehicles, men location and tracking and other collaborative/friend assets tracking and telemetry, conventional or unconventional helipad surface for fast exfiltration, secure hospitals and secret refuges.

Missions simulation, replay missions and debriefing tools complete the system capabilities.





Multi-Console and Multi-Data Link Management

Limited human resources and space for handheld equipment or within cars, pickups, trucks and unconventional vehicles, redundancy and flexibility requirements force the use of smart solutions with a minimum overall dimensions and able to support operation of integrated sub-systems and related tactical functions. Silent Shadow supports multi-console mode and uses a wide range of portable or fixed device able to run the user interface of any tactical function. Therefore all subsystems are able to be controlled from any consoles on board cars, pickups, trucks, helicopters, in remote control rooms and all tactical, critical and indoor/outdoor tracking information, can be shared on handheld devices.

Thanks net-centric architecture, any console, handheld interface, surveillance sensor and reaction system can be interconnected by ethernet link. Instead of data sharing and exchanging with other naval, land, airborne collaborative/friend assets (manned or unmanned), remote control rooms or handheld devices for teams indoor/outdoor tracking, telemetry and data sharing, Silent Shadow supports communication via a wide range of radio data links and supply an advanced proprietary encryption algorithm based on AES-256 for ensure our customers and their interests the best security level in cyber space domain.

With data sharing and data exchanging function is possible to track and share of all remote collaborative/friend assets, escort team and quick reaction team, display on chart discovered target, messages, V.I.P position and status, backup and support requests, threats, live traffic and critical information. Thanks to VIP Escort mission module is possible to manage specific function like share classified information, indoor/outdoor position of V.I.P. and teams, request management for collaborative/friend assets and backup, reporting to such assets and remote control rooms of a pre codified threats, manage text and vocal messages by advanced chat services and share videos, photos, pdf files and metadata.

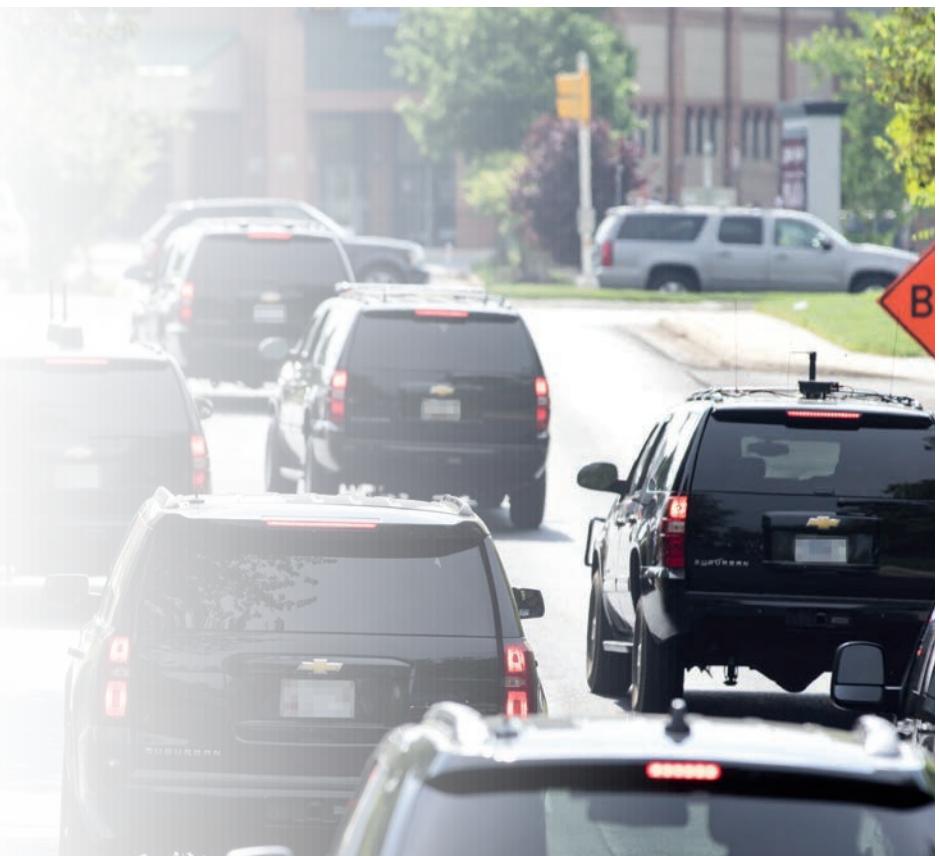


Defense



Mission Recording Management

Every event and warning, each mission details, videos and photos can be recorded in a secure and secret area on a dedicated encrypted SSD. Silent Shadow uses a proprietary encryption algorithm based on AES-256 able to recording and playback of encrypted and georeferenced videos and photos. The mini-VDR (Voyager Data Recorder with selectable sampling from 2sec to 99sec) allows long time recording for most important navigation and telemetry data. It is possible to extend the recording function to all discovered target and mission data and information. At HMI level, the system allows the "high-risk-of-capture" function for fast data deleting. When this button was pressed the system restarts on secondary encrypted partition and starts automatic random deleting of the primary encrypted partition (for O.S. and application level deleting) and the secondary encrypted SSD (for recorded data deleting).



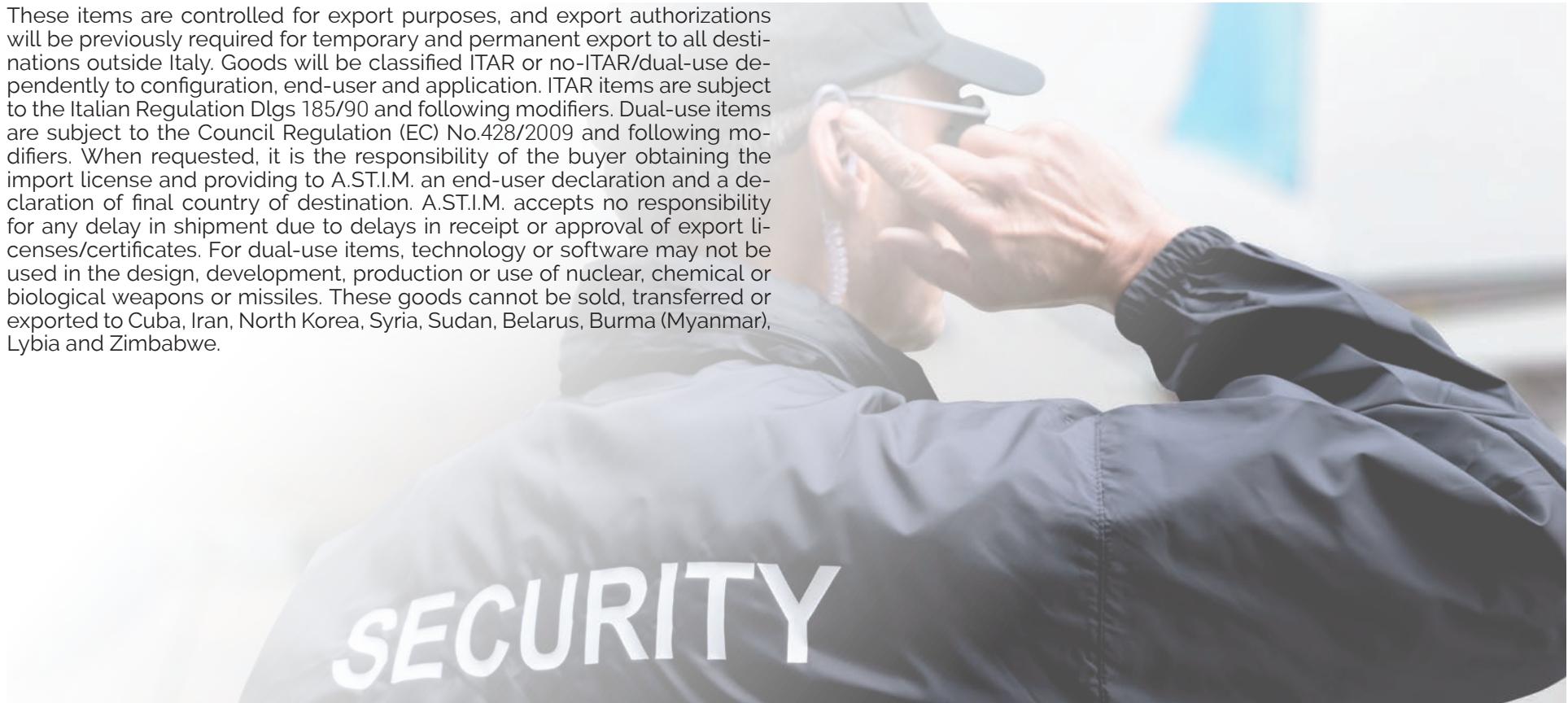
Smart Integration

Indoor and outdoor V.I.P. protection and escort missions require a wide range of defense and reaction systems. To increase operative surveillance and radio capabilities, Silent Shadow is able to manage UxV and represents most important shared information on smart glasses in Augmented Reality (AR) mode. Otherwise, by HiProDOME (another A.S.T.I.M.'s product) it is able to detect, classify and neutralize dangerous drone. Silent Shadow is also able to manage jammer stations, smoke vehicle protection systems, remote controlled guns, weapons and non-lethal weapons. Every vehicles will be equipped in a different and specific configuration by modular and scalable Silent Shadow architecture.



Specific Term and Conditions

These items are controlled for export purposes, and export authorizations will be previously required for temporary and permanent export to all destinations outside Italy. Goods will be classified ITAR or no-ITAR/dual-use dependently to configuration, end-user and application. ITAR items are subject to the Italian Regulation Dlgs 185/90 and following modifiers. Dual-use items are subject to the Council Regulation (EC) No.428/2009 and following modifiers. When requested, it is the responsibility of the buyer obtaining the import license and providing to A.S.T.I.M. an end-user declaration and a declaration of final country of destination. A.S.T.I.M. accepts no responsibility for any delay in shipment due to delays in receipt or approval of export licenses/certificates. For dual-use items, technology or software may not be used in the design, development, production or use of nuclear, chemical or biological weapons or missiles. These goods cannot be sold, transferred or exported to Cuba, Iran, North Korea, Syria, Sudan, Belarus, Burma (Myanmar), Libya and Zimbabwe.



Defense



Support Philosophy

A.S.T.I.M. S.r.l. offers solutions and services for after-sales support relative to a large range of military and civil applications.

The objective is to maintain maximum operability of systems and products guaranteeing the best performance. The customized service includes the study of the most effective post-sales support to ensure a long life cycle of products and to maximize the customers' investments.

After Sale Services

Through specific after-sales contracts, A.S.T.I.M. S.r.l. offer a service center, with technical staff ready to respond during office hours (optionally 24/7), to all questions and able to predispose on-line solutions (remote assistance):

Telephone and email assistance with rapid response/diagnosis for both operators and maintenance staff via remote internet connection

Remote assistance via software through remote internet connection

Free installation of all new Silent Shadow firmware, software releases or patches, via remote internet connection

Management of support requests, return of goods and traceability of after-sale activities via IT systems and web requests: [Technical Support](#)

Evolutive Support

The customization of the service includes the analysis of the most efficacious support to ensure a long life cycle of the products and to maximize the customers' investments.

Training

To ensure a correct use of any systems, in addition to carefully reading the operator manual, we recommend to all operating staff to attend the Silent Shadow training sessions.

With over 300 certifications issued to both military and civil operators, A.S.T.I.M. is focused on maximizing the effectiveness of systems and always maintaining high level operational performance. To achieve this, A.S.T.I.M. has developed a training program divided into three different certification levels:

Level 1 Silent Shadow Operator - only for officers and operators

Level 2 Silent Shadow Operator - only for officers, supervisors and operators

Level 3 Silent Shadow Operator - only for maintenance technical staff

A.S.T.I.M. also provides a set of courses divided into four different levels which are aimed to train personnel able to teach the usage of the system and where the following level is unaccessible as long as you do not complete the current level:

Instructor

Master Instructor

Specialty Instructor

Trainer



Astim

FOR A SAFER WORLD



Defense
Security
Naval
Industry

+39.0544.471645 - info@astim.it - Via Filippo Re, 15/A - 48124 RAVENNA Italy - ASTIM.IT

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