CERBER

RAPID DEPLOYABLE SECURITY ALARM SYSTEM

- Stationary version
- Mobile version
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CIVIL APPLICATIONS

- Monitoring of moving vehicles and people:
  - in areas of environmental disasters with radioactive or chemical contamination;
  - on access roads and paths to important state facilities.
- Monitoring of protected areas from unauthorized deforestation, fishing, hunting and other economic activities.
- Protection of:
  - airports
  - industrial facilities, including power stations;
  - infrastructure facilities, including power lines, oil and gas pipelines;
MILITARY APPLICATIONS

- Monitoring of the movement of technics and subdivisions on:
  - the line of military contact, especially in the neutral zone;
  - the access roads and trails to the battlefield.
- Monitoring of the movement of sabotage, intelligence and terrorist groups in special operations areas.
- Detection of low flying objects.
- State border protection.
- Mobile equipment for Special Forces
- Protection of:
  - important military facilities, bases, roadblocks;
  - command and control posts;
  - RRS positions, SAM systems and other; warehouses with ammo, weapons and military equipment…
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CONTROL STATION COMPONENTS:

1. Stationary transmit-receiving device (STD) with antenna
2. PC in conventional or protected design

FIELD COMPONENTS:

1. Mobile control device (MCD)
2. Combined seismic sensor (CSS), including pluggable break wire lines or infrared sensors up to 2pcs. Operating parallel
3. Combined photo camera device (CPD) with IR illumination, including pluggable break wires or infrared sensors up to 2pcs. Operating parallel
4. Repeater (any network device can be used), including pluggable break wires or infrared sensors up to 2pcs. Operating in parallel

TOTAL: up to 40 ID or 116 devices in the network.
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Reliable functioning in difficult interference conditions:

▪ in bad weather,
▪ strong wind and thunderstorms,
▪ in close proximity to: railways and highways,
▪ during the use of artillery and aviation: separate guns shots separate ruptures of shells and bombs

Customer pre-selected operating frequency bands of the system (433 or 868 MHz).

Possibility of integration with technical means of other manufacturers, as well as integration into existing security systems of the Customer.
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REAL EXAMPLES

Length of the protected line: 1500 m
Distance between line and PC: ~20 km
Distance between sensors: ~40 m
Installation time of the system: ~5 h
Real seismogram examples
<table>
<thead>
<tr>
<th>№</th>
<th>Performance characteristic of the system</th>
<th>Name of the system</th>
<th>CERBER, Poland</th>
<th>«Austria», Poland</th>
<th>IKI8 Reality U, USSR</th>
<th>Rembanz 2, USA</th>
<th>Senseguard, Israel</th>
<th>«امة», Syria</th>
<th>Radio barrier, Russia</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Probability of correct detection by seismic sensor</td>
<td></td>
<td>0.95</td>
<td>-</td>
<td>0.7-0.8</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>0.95</td>
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<td>2</td>
<td>Classification:</td>
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<td>Vehicle;</td>
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<td>Low-flying object</td>
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<tr>
<td>3</td>
<td>Frequency range, MHz</td>
<td></td>
<td>433-868</td>
<td>Radio/GSM</td>
<td>VHF</td>
<td>138-153</td>
<td>RF UHF + GSM</td>
<td>433</td>
<td>433</td>
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<tr>
<td>4</td>
<td>Detection range of seismic sensor, m:</td>
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<td>Wheel transport;</td>
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<td>Tank;</td>
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<td>Low-flying object</td>
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</tr>
<tr>
<td>5</td>
<td>Battery life of seismic sensor, months</td>
<td></td>
<td>12 (accumulator battery up to 5 years)</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>8.5-18 (accumulator battery)</td>
<td>18</td>
<td>24</td>
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<tr>
<td>6</td>
<td>Data communication range via radio channel within the line-of-sight, km</td>
<td>45 (through 3 repeaters)</td>
<td>up to 20 (through 2 repeaters)</td>
<td>up to 20 (through 2 repeaters)</td>
<td>20+15 (through 1 repeater)</td>
<td>RF UHF up to 1, + 3G GSM up to 12</td>
<td>up to 100 (through repeater)</td>
<td>up to 100 (through repeater)</td>
<td></td>
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<tr>
<td>7</td>
<td>Weight of seismic sensor, kg</td>
<td></td>
<td>0.5</td>
<td>1.8</td>
<td>3</td>
<td>1.2</td>
<td>0.5</td>
<td>2.5</td>
<td>0.65</td>
</tr>
<tr>
<td>8</td>
<td>Size of seismic sensor, mm</td>
<td></td>
<td>38×93×125</td>
<td>456(286)x120</td>
<td>-</td>
<td>189×104x80</td>
<td>170×70×70</td>
<td>118×95×165</td>
<td>70×80×140</td>
</tr>
<tr>
<td>9</td>
<td>Operation temperature, °C</td>
<td></td>
<td>-40...+50</td>
<td>-</td>
<td>-30...+50</td>
<td>-46...+49</td>
<td>-40...+50</td>
<td>-40...+50</td>
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</tr>
<tr>
<td>10</td>
<td>Number of network devices</td>
<td></td>
<td>40</td>
<td>-</td>
<td>36</td>
<td>56</td>
<td>up to 250</td>
<td>up to 250</td>
<td>40</td>
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<tr>
<td>11</td>
<td>Transmitter power, W</td>
<td></td>
<td>up to 0.1</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1-5</td>
<td>up to 1</td>
<td></td>
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<tr>
<td>12</td>
<td>Availability of various type sensors</td>
<td></td>
<td>Seismic, IR, break wire, magnet taut wire sensor, photo camera</td>
<td>Seismic, IR, video camera</td>
<td>Seismic &amp; acoustic, seismic, magnet wire</td>
<td>Seismic, IR, acoustic, magnetometer, video camera</td>
<td>Seismic, video camera</td>
<td>Seismic, IR, break wire, radio beam, magnetometric</td>
<td>Seismic, IR, break wire, radio beam, magnetometric, video camera</td>
</tr>
</tbody>
</table>
АДМІНІСТРАЦІЯ ДЕРЖАВНОЇ ПРИКОРДОННОЇ СЛУЖБИ УКРАЇНИ
(Адміністрація Держприкордонслужби)

вул. Воландервальд, 26, Кам'яна Горія, 08010, тел. факс: (044) 233-11-00, тел. (044) 238-84-20
Е-мейл: admin@dpu.gov.ua, сайт: www.dpu.gov.ua, код еквівалентності ДРБСУ: 80014039

Integra B. R. O. P. So. z o. o.
81-061 Gdynia, ul. Hutnicza 20

Про надання інформації

В Адміністрації Держприкордонслужби розглянуто ваш лист стосовно підтвердження застосування сигналізаційних комплексів «Щит» в охороні державного кордону.

За результатами розгляду інформуємо, що у 2023 році Державна прикордонна служба України в рамках виконання державного контракту отримала від компанії Integra B. R. O. P. So. z o. o. (Республіка Польща) 10 одиниць сигналізаційних комплексів «Щит».

Станом на 09.02.2024 сигналізаційні комплекси «Щит» використовуються в охороні державного кордону.

Директор Департаменту охорони державного кордону

Леонід БАРАН
**ATRI TINDS**

**TINDS** Thermal Imaging Night Driving System which enhances the driver’s vision and assists driving in difficult environment conditions:

- Total darkness
- Smokescreen
- Dense fog
- Heavy rain and snow
- Scalable complete solutions with cameras, switch, displays and integration kit
- Advanced day & night vision capabilities thanks to LWIR thermal and low light cameras
- Works without infrared illumination and other light sources
ATRI TINDS

FEATURES AND ADVANTAGES:

▪ Stealthy vehicle operation without headlights
▪ Safe and secure vehicle operation
▪ The best observation capabilities compared to other technologies
▪ Ensures longer range observation capabilities in challenging lighting conditions
▪ Real time imaging
▪ Reliability and ergonomics
▪ Easy integration into existing fleets
▪ Turnkey solution from one vendor
ATRI TINDS

FEATURES AND ADVANTAGES:

▪ Night time operation without headlights
▪ Operation under smoke screen conditions
▪ High performance in the fog, dust, or smoke screen conditions
▪ Completely passive system. Cannot be detected by the enemy.
▪ No need for IR or any other illumination.
▪ Highly effective for covert rescue and evacuation operations
▪ The green hot color scheme reduces vehicle visibility caused by monitor glare reflections on the driver's face
▪ Adjustable brightness of buttons backlight reduces de-masking while enabling the system control
ATRI TINDS

SAFE AND SECURE OPERATION

- Increases the efficiency and survivability of the vehicles
- High resolution sensors with the best sensitivity ensure excellent visibility of the terrain while driving in difficult conditions or in high humidity
- Wide FOV lenses bring to the drivers perfect situational awareness and enable them to maneuver with confidence
- Advanced surround view combined from multiple cameras
- The driver is not dazzled by headlight glare, bright flashes or explosions
- The green hot color scheme reduces driver eye tiredness during long time operations
- Scalable distance marker grid shows the real distance to obstacles
ATRI TINDS
CAMOUFLAGED OBJECT DETECTION

ATRI TINDS DVE

HUMAN VISION
ATRI TINDS

Detection (m)  Recognition (m)

ATRI TINDS DVE

Low beam headlights
50 m
50 m

High beam headlights
130 m
130 m

0 m  100 m  200 m  300 m  400 m  500 m

600 m
ATRI TINDS

RELIABILITY AND ERGONOMICS

- ATRI TINDS DVE is MIL STD 810 qualified and battlefield proven
- Military qualified electronic components, materials and technologies enable ATRI TINDS DVE to meet the highest customer’s requirements
- All sealed housings are IP67 rated
- All cameras are purged by dry nitrogen preventing moisture condensation
- All cameras are equipped with a desiccant plug and humidity indicator
- The high pressure lens cleaning system gives the driver a clear picture in any conditions
- Intuitive interface and backlighted control buttons for easy operation
ATRI TINDS

FIELD OF VIEW

VEHICLE LAYOUT OF ADVANCED SYSTEM CONFIGURATION

ADSC-90
Field of view:
Thermal – 90°
Video – 103°

ADSC-180
Field of view:
Thermal – 90°
Video – 180°

ADSC-90
Field of view:
Thermal – 90°
Video – 103°

ADSC-180
Field of view:
Thermal – 90°
Video – 180°
ATRI TINDS

rapid installation based on each vehicle type - military, civilian(magnet installation) - up to 10 min.
ATRI TINDS

Basic configuration:
- Front view LWIR thermal camera
- Rear view video camera with IR illumination
- 7" LCD monitor
- Video processing and distribution unit
- System control unit
- Camera lens cleaning system with a set of hoses
- Set of connecting cables
- Transportation rugged case
COMPLETE END-TO-END SOLUTION

- The more vendors are involved, the higher the risks are
- The multivendor approach to DVE system doesn’t enable a system level view of the end to end solution
- Integration time significantly increases
- Integration costs can easily balloon
- Vendors often play the blame game, slowing issue resolution
- Program management, upgrade and maintenance are far more complicated when performed by several vendors
- The complexity resulting from integration of disparate video system components increases the overall size, weight and power burden on the platform
- Interoperability issues increase video latency
- Unforeseeable bugs cause delays in schedules
- The single vendor approach to video systems reduces all these risks
THANK YOU FOR ATTENTION