Stilsoft
Russian developer and manufacturer of complex security systems

SCORPIO-P

Mobile technical surveillance system

STVF.424252.018

PURPOSE

SCORPIO-P mobile technical surveillance system based on off-road vehicle is designed for 24/7 remote video and thermal imaging surveillance, control and protection of open areas, waypoints, perimeters and movement paths to objects.

FIELDS OF APPLICATION

- application as a mobile fast-deployable equipment for protection of open areas, waypoints, perimeters and movement paths to significant facilities
- application as main or auxiliary security line
- fire situation control during day and night in varied weather conditions

VERSION

- the system is a mobile monitoring station – off-road vehicle with Operator's workstation installed in the cabin
- the vehicle is equipped with a pneumatic mast with a Pan-tilt unit with the long-range video camera and thermal imaging camera installed
- system includes a basic set and, if necessary, one or two functional sets depending on the assigned objectives
- Operator's workstation with pre-installed special software is equipped with display and control module, two turn seats, table with built-in keyboard, touchpad and controller for the rotating cameras

- there is the control panel of the system in the cargo compartment
- additionally the system is equipped with computer unit, night vision device set, air compressor with automatic transfer switch, autonomous cabin heater, gasoline generator set and battery unit
- the system is equipped with IP video cameras for inner and outer vehicle self-security as well as extended data storage for recording and storing video information
- there is a hatch in the cargo section roof for raising the equipment mast with protective cover to prevent raining inside the compartment when the hatch is open
- off-road vehicle can be equipped with additional devices: searchlights, power bumper, winch and a trailer hitch
- functional set # 1 is a radar mounted on the mast from the basic set
- functional set # 2 is a set of equipment for organizing wireless data transmission up to 30 km distance
- the system operates with SCORPIO-P special software

FEATURES

- intelligent real-time video surveillance of open areas
- manual and automated scanning of the monitored area
- detection and tracking of targets by video camera and thermal imaging camera mounted on Pan-tilt unit
- detecting ("specifying") intrusion spot within the protected area with sending the alarm message (signal)
- radar control of the protected area when using functional set # 1
- alarm event notification of the operator with sound and light signaling
- real-time information display on the stationary post monitor with event logging
- system location mapping with built-in GPS-receiver
- arranging communication channel with the remote monitoring post when using functional set # 2
- ensuring self-security of the system
- power management of equipment components
- system autonomous power supply from batteries and vehicle onboard network

PECULIARITIES

- test-proven range of object detection and recognition during the day and night
- video detection mode, enabling automatic scanning of preset positions, target detection and tracking
- fast deployment
- concealed movement of the system without applying regular lighting tools
- system mobility due to high off-road capability of the vehicle
- prolonged operation in offline mode
- operation in smart power saving mode
- operation in power saving mode with radar alarm activation

SOFTWARE PECULIARITIES

- intelligent video analytics functionality enabling classifying targets by type (person, vehicle)
- video archive backup capability
- on-screen display of cartographic information, geographic location of the System and status of its elements through standardized notifications.
- system component management
- receiving radar notifications via radio channel communication
- cyclic rewrite mode

SCOPE OF SUPPLY

Designation	Name	Quantity
STVF.424252.129	Basic set	1
STVF.425149.007	Functional set # 1 "Radar"	*
STVF.425624.017	Functional set # 2 "Wireless Data Transmission Set"	*
STVF.425948.002	Entrenching tools set	*
STVF.425948.003	Tool and accessory set	*
STVF.425973.194	Spare parts set-O	*
STVF.424252.018 VE	List of operating documents	1 copy
STVF.424252.018FO	Formulary	1 copy
STVF.424252.018RE	Operating guidelines **	1 copy
* The number of parts of the system marked with "*" is specified in the supply contract. **Operating guidelines available at: http://stilsoft.ru		

Basic set contents STVF.424252.129

Name	Quantity
✓ Off-road vehicle STVF.426439.003	1 set
✓ Adapter bracket STVF.301122.268	1 pc.
✓ SDP-881-S Pan-tilt unit STVF.426459.189	1 pc.
✓ SDP-8083-S Long-range camera STVF.426459.206	1 pc.
✓ SDP-8615M-S Thermal imaging camera STVF.426459.188	1 pc.
✓ SDP–855-S IP camera STVF.426459.207	1 pc.
✓ SDP-852 IP camera STVF.426459.204	2 pcs.
✓ Entrenching tools set STVF.425948.002	1 set
✓ Gasoline generator set STVF.426471.314	1 set
✓ Set of tools and accessories STVF.425948.003	1 set
✓ Night vision set STVF.426459.205	1 set
✓ Grounding set STVF.685541.007	1 set
✓ Spare parts set-O STVF.425973.194	1 set
✓ Formulary	1 copy
✓ List of operating documents	1 copy

Functional set # 1 "Radar" contents STVF.425149.007

Name	Quantity
✓ STS-177-S Radar STVF.425142.012	1 set
✓ Formulary	1 copy
✓ List of operating documents	1 copy

Functional set # 2 "Wireless Data Transmission Set" contents STVF.425624.017

Name	Quantity
✓ Communication controller STS-507 STAE.424252.037-01	1 set
✓ AWS "Scorpio-P" STVF.426484.233	1 pc.
✓ BKM10P Commutator STVF.426471.185	1 pc.
✓ STS-504K Controller STVF.426471.549	1 pc.
✓ Mounting parts set STVF.425951.196	1 set
✓ Packaging STVF.305633.068	1 pc.
✓ Antenna	1 pc.
✓ Radio transparent antenna cover	1 pc.
✓ Vehicle data transfer unit STVF.425129.010*	1 pc.
✓ Detent assembly STVF.301629.017*	1 pc.
✓ Latch bracket STVF.301629.019*	1 pc.
✓ Cover STVF.305643.077*	1 pc.
✓ Formulary	1 copy
✓ List of operating documents	1 copy
When using functional set # 2, the components marked with "" are installed in the basic set, the rest of the equipment from the functional set # 2 is supplied in the packaging STVF.305633.068.	

DESCRIPTION OF SETS

- **Basic set** is an off-road vehicle equipped with a long-range video camera and thermal imaging camera mounted on a pan-tilt unit placed on a pneumatic mast, as well as a set of night vision goggles and a gasoline generator. The basic set also includes an Operator's workstation in the vehicle cabin, display and control modules, a computing unit, cupboards for storing documents, equipment and tools, an electric winch, and searchlights.
- **Functional set # 1 "Radar"** is a radar designed to detect and follow ground objects, as well as to determine their range and speed.
- **Functional set # 2 "Wireless Data Transmission Set"** is a set of antennas and related equipment for receiving and transmitting information from the computing unit located on the base chassis to the remote "Scorpio-P" automated workstation through radio communication between antennas.

DESCRIPTION OF SYSTEM PARTS

- Off-road vehicle with attached equipment is designed to provide high mobility of the system, deployment and transportation of the system equipment, as well as to perform special tasks in areas with particularly severe terrain
- SDP-8083-S Long-range camera and SDP-8615M-S Thermal imaging camera installed on SDP-881-S Pan-tilt unit are used for surveillance in the visible and infrared ranges. SDP-8083-S camera's focal length can be changed via a motorized lens in a wide range
- SDP-881-S Pan-tilt unit enables high accuracy positioning the camera and thermal imager, scan the area at a specified speed and point the camera with a thermal imager to preset positions (up to 30 points).
- STS-177-S radar is designed to detect ground and water objects as well as determine the distance towards them, their speed and geometric parameters in all weather conditions

- Pan-tilt unit with a video camera and a thermal imager as well as STS-177-S radar are placed on STS-10904 pneumatic telescopic mast
- The computing unit enables organizing a unified informational space of the integrated video-thermal surveillance system: storing and displaying on the display and control module the data from the video camera, thermal imager, radar and self-security cameras
- Air compressor with automatic transfer switch is designed to lift the pneumatic mast
- Display and control module enables the showing information on two 22" screens from the computing unit, such as map data, geographical location of the system and status of its components, and also has physical controls, indicating elements and a control panel for the autonomous heater
- Console assembly with integrated keyboard with touchpad and rotary controller is designed for operating the system from the vehicle passenger compartment;
- The control panel in a protective cover is designed to operate the system from outside the vehicle, or for emergencies such as the malfunction of the display or control module, the computing unit that included the operator's workstation;
- The vehicle data transfer unit and the kit for wireless data transfer set enables the communication of the mobile system with the remote command post through a radio channel
- Self-security SDP-855-S and SDP-852 IP-cameras provide video surveillance of the situation both inside and outside the vehicle
- Night vision set provides safe and concealed movement of the vehicle during the night by optical scanning of the vehicle's path
- Gasoline generator set provides power supply to external devices and charging the battery pack
- Battery unit is used to accumulate energy of the gasoline generator and provide power supply to the system

DESCRIPTION OF SYSTEM SOFTWARE

- Operator's workstation with pre-installed SCORPIO special software is designed to control, configure and arrange a single information space of the system, enabling store and show on the monitors the data received from the video camera, thermal imager, as well as the radar when using functional set # 1.

RELIABILITY AND WARRANTY

- Warranty operating period - 2 years.
- Assigned operating period - 7 years.

TECHNICAL PARAMETERS

Parameter name	Value
Target detection range by a long-range video camera, meters: – human-type – vehicle-type	 up to 10000 up to 10000
Target detection range by a thermal imaging camera, meters: – human-type – vehicle-type	 up to 4000 up to 7900

Parameter name	Value
Automatic mode of scanning the set control points with target detection, points	30
Video resolution at 25 fps, pixels: – thermal imaging camera – long-range video camera	 640x480 2592x1944
Radar operating section length, meters (minimum)	2300
Minimum target detection range of radar (with 3-meter minimum altitude difference between the locator and the target), meters	26
Maximum target detection range of radar (with 11.5-meter minimum altitude difference between the locator and the target), meters (maximum): – human-type – vehicle-type	 2300 2300
Radar operating section width, degrees	360
Maximum number of simultaneously calculated routes of detected objects by the radar	30
Time of object route detection by radar (under conditions of radio visibility at the object appearance point), seconds (minimum)	4
Video camera pointing mode with touchpad doubleclick on the video image	Yes
Video camera pointing mode with touchpad doubleclick on the on the area map	Yes
Horizontal rotation angle, degrees	360
Vertical viewing angle, degrees.	±45
Video resolution of IP-cameras, pixels. – SDP-852 – SDP-855	 1920x1080 2592x1520
Distance of radio relay communication channel, kilometers (maximum)	30
Data transfer rate through radio channel, Mbit/s (maximum)	40
Frequency range of radio relay communication, MHz	5150-5350
Height of mast with equipment, meters (maximum)	4,2
Time of system automatic full operational reactivation after the power supply resume, seconds (maximum)	180
Total capacity of battery units, Ah	100
Driving range with a full fuel tank, kilometers (maximum)	600
Maximum allowed weight, kilograms (maximum)	3000
DC power supply voltage, V	24 ± 10%
AC power supply voltage for connecting external devices, V/Hz	220±10%/50
System autonomous operating time, h	24
Team required to work with the system, persons	3
System operating period, years	7
Operating temperature range of the system equipment, °C	from -40 to +50