

# AVANPOST

## Autonomous technical surveillance post



STVF.424252.029

### PURPOSE

AVANPOST autonomous technical surveillance post (system) is designed for protection and intelligent video surveillance of large open spaces and State borders.

### FIELDS OF APPLICATION

- State borders
- perimeters, entry points and routes to important facilities
- for use as a primary or auxiliary means of protection

### VERSION

- the system consists of linear and stationary posts
- a fully autonomous linear post, located right at the guarded site or area, provides video-surveillance, detection of intruders, transmitting the received information to the stationary post by radio-relay communication
- a stationary post can be located at a distance of up to 30 km from the linear post providing control of the system, receiving, processing and storing the received information
- the system includes a basic set and a development set combinations for different purposes depending on the tasks

### FEATURES

- 24/7 intelligent video surveillance of open areas, waypoints, perimeters and movement paths to objects located at a distance up to 10000 m from the linear post
- human detection up to 10000 m by day and up to 4000 m by night
- vehicle detection at the distance up to 10000 m by day and up to 7900 m by night
- detection of the guarded area violation spot with sending alarm signal and real-time data display on the monitor of the stationary post and events archiving

- automatic radar detection of moving targets and their tracking by PTZ video camera and thermal imager
- data reception and processing from STS-125 security sensors installed on the secured perimeter

## PECULIARITIES

- test-proven range of object detection and recognition during the day and night
- provision of wireless communication channel between linear and stationary posts up to 30 km distance
- linear post is fully autonomous and requires no connection to the industrial power supply network and arranging communication lines
- reliable continuous operation guaranteed by using different types of autonomous power sources to supply linear post: solar batteries, wind generator and gasoline generator
- remote monitoring of the system status via the AVANPOST software module
- self-security of the system aided by sensors, video cameras and fences
- integration with MONGOOSE systems by Stilsoft to expand the security capabilities

## SCOPE OF SUPPLY

Name	Quantity
Basic Set ( BS)	*
Functional set No.1 Optoelectronic module (FS #1)	*
Functional set No. 2 Stationary set (FS #2)	*
Functional set No. 3 Linear set (FS #3)	*
Functional set No. 4 Additional set of solar modules (FS #4)	*
Functional set No. 5 Wind generator set (FS #5)	*
Functional set No. 6 Gasoline generator set (FS #6)	*
Functional set No. 7 Radar (FS #7)	*
Functional set No. 8 Retransmitter (FS #8)	*
Functional set No. 9 MONGOOSE-P (FS #9)	*
Functional set No. 10 Fence set (FS #10)	*
Mounting parts set	1 pc.
Operating guidelines**	1 copy
Formulary	1 copy

\* The availability and number of parts of the system is specified in the supply contract.  
 \*\* Operating guidelines available at: <http://stilsoft.ru>

Options for using the sets in combination or independently

Set	Independently	BS	FS #1	FS #2	FS #3	FS #4	FS #5	FS #6	FS #7	FS #8	FS #9	FS #10
BS	+		+	-	+	+	+	+	+	+	+	+
FS #1	-	+		+	-	-	-	-	+	-	-	-
FS #2	-	-	+		-	-	-	-	+	-	-	-
FS #3	-	+	-	-		+	+	+	+	+	+	+
FS #4	-	+	-	-	+		-	-	-	-	-	-
FS #5	-	+	-	-	+	-		-	-	-	-	-
FS #6	-	+	-	-	+	-	-		-	-	-	-
FS #7	-	+	+	+	+	-	-	-		-	-	-
FS #8	-	+	-	-	+	-	-	-	-		-	+
FS #9	-	+	-	-	+	-	-	-	-	-		-
FS #10	-	+	-	-	+	-	-	-	-	+	-	

Contents of basic set STVF.424252.046

Parameter name	Value
✓ Stationary post STVF.426487.001, consists of:	1 set
– AVANPOST video server STVF.426484.054	1 pc.
– STS-10465 Secured server cabinet STVF.426479.045	1 pc.
– STS-5710 Stationary communication unit STVF.426471.559	1 pc.
– STS-507 Communication controller STAE.424252.037-01	1 pc.
– STI-100 IP telephone STVF.431295.005-01	1 pc.
– AVANPOST AWS STVF.426484.079	1 pc.
– Antenna RocketDish 5G-30 Parabolic	1 pc.
– Uninterruptible power supply unit 1 kW	2 pcs.
– Transparent cover for RD-2G24, RD-3G26 and RD-5G30 antennas	1 pc.
– Power Filter	1 pc.
✓ Linear post STVF.424211.001, consists of:	1 set
– SDP-8083 Long range camera STVF.426459.037	1 pc.
– SDP-8615M Thermal imaging camera STVF.426459.162	1 pc.
– SDP-883 Pan-tilt unit STBF.426459.074	1 pc.
– SDP-850 IP video camera STVF.426459.013-01	1 pc.
– STS-125 Security sensor STVF.426479.046	4 pcs.
– Loudspeaker 10GR-38	2 pcs.
– Antenna RocketDish 5G-30 Parabolic	1 pc.
– Transparent cover for RD-2G24, RD-3G26 and RD-5G30 antennas	1 pc.
– STS-507 Communication controller STAE.424252.037-01	1 pc.
– STS-747 Audio intercom panel STVF.431295.016	1 pc.
– Central controller STVF.301442.001	1 pc.
– STM-18090 Mast (optoelectronic equipment mast) STVF.426471.080	1 pc.
– STM-28161 Mast (lightning protection mast) STVF.425733.017	1 pc.
– STL-737 Solar module set STVF.426471.082	1 pc.
– Cabinet STVF.301112.198	1 pc.
✓ Spare parts set-O STVF.425973.163	1 set
✓ Packaging STVF.305643.033	1 pc.
✓ Mounting set STVF.424921.037	1 set
✓ Operational documents list STVF.424252.046VE	1 copy
✓ Formulary STVF.424252.046FO	1 copy
* Full contents of the operational design documentation is in accordance with the list of operational documents STVF.424252.046VE.	

Contents of Functional set No.1 Optoelectronic module STVF.463135.001

Parameter name	Value
✓ SDP-8083 Long range camera STVF.426459.037	1 pc.
✓ SDP-8615M Thermal imaging camera STVF.426459.162	1 pc.
✓ SDP-883 Pan-tilt unit STBF.426459.074	1 pc.
✓ Spare parts set-O STVF.425973.164	1 set
✓ Packaging STVF.305643.046	1 set
✓ Operational documents list STVF.463135.001VE	1 copy
✓ Formulary STVF.463135.001FO	1 copy
* Full contents of the operational design documentation is in accordance with the list of operational documents STVF.463135.001VE.	

Contents of Functional set No. 2 Stationary set STVF.424211.004

Parameter name	Value
✓ AVANPOST video server STVF.426484.054	1 pc.
✓ AVANPOST AWS STVF.426484.079	1 pc.
✓ Secured server cabinet STS-10465 STVF.426479.045	1 pc.
✓ STS-5710 Stationary communication unit STVF.426471.559	1 pc.
✓ Uninterruptible power supply unit Ippon Smart Power Pro II Euro 1200	2 pc.
✓ Power filter (5 sockets)	1 pc.
✓ Packaging STVF.305643.047	1 pc.
✓ Spare parts set-O STVF.425973.165	1 set
✓ Operational documents list STVF.424211.004VE	1 copy
✓ Formulary STVF.424211.004FO	1 copy
* Full contents of the operational design documentation is in accordance with the list of operational documents STVF.424211.004VE.	

Contents of Functional set No. 3 Linear set STVF.425624.008

Parameter name	Value
✓ SDP-8083 Long range camera STVF.426459.037	1 pc.
✓ SDP-8615M Thermal imaging camera STVF.426459.162	1 pc.
✓ SDP-883 Pan-tilt unit STBF.426459.074	1 pc.
✓ SDP-850 IP video camera STVF.426459.013-01	1 pc.
✓ STS-125 Security sensor STVF.426479.046	4 pc.
✓ Loudspeaker 10GR-38	2 pc.
✓ Antenna RocketDish 5G-30 Parabolic	2 pc.
✓ Transparent cover for RD-2G24, RD-3G26 and RD-5G30 antennas	2 pc.
✓ STS-507 Communication controller STAE.424252.037-01	2 pc.
✓ STS-747 Audio intercom panel STVF.431295.016	1 pc.
✓ Central controller STVF.301442.001	1 pc.
✓ STM-18090 Mast (optoelectronic equipment mast) STVF.426471.080	1 pc.
✓ STM-28161 Mast (lightning protection mast) STVF.425733.017	1 pc.
✓ STL-737 Solar module set STVF.426471.082	1 pc.
✓ Cabinet STVF.301112.198	1 pc.
✓ Packaging STVF.305643.048	1 pc.
✓ Mounting set STVF.424921.037	1 set
✓ Spare parts set-O STVF.425973.166	1 set
✓ Operational documents list STVF.425624.008VE	1 copy
✓ Formulary STVF.425624.008FO	1 copy
* Full contents of the operational design documentation is in accordance with the list of operational documents STVF.425624.008VE.	

Contents of Functional set No. 4 Additional set of solar modules STVF.564183.001

Parameter name	Value
✓ STL-737 Solar module set STVF.426471.082	1 set
✓ Spare parts set-O STVF.425973.167	1 set
✓ Packaging STVF.305643.049	1 pc.
✓ Operational documents list STVF.564183.001VE	1 copy
✓ Formulary STVF.564183.001FO	1 copy
* Full contents of the operational design documentation is in accordance with the list of operational documents STVF.564183.001VE.	

Parameter name	Value
**The number of power supply sets is specified depending on the regional geographic latitude of the planned location of the system.	

Contents of Functional set No. 5 Wind generator set STVF.382442.001

Parameter name	Value
✓ Wind generator set STL-738 STVF.426471.083	1 set
✓ Spare parts set-O STVF.425973.168	1 set
✓ Packaging STVF.305643.035	1 pc.
✓ Operational documents list STVF.382442.001VE	1 copy
✓ Formulary STVF.382442.001FO	1 copy
* Full contents of the operational design documentation is in accordance with the list of operational documents STVF.382442.001VE.	
**The application of Functional set No. 5 is allowed at 9 m/s minimum wind speed and not exceeding 30 m/s maximum wind gusts.	

Contents of Functional set No. 6 Gasoline generator set STVF.561251.001

Parameter name	Value
✓ Autonomous power supply unit STL-726 STVF.426471.110	1 set
✓ Mounting set STVF.425951.083	1 set
✓ Spare parts set-O STVF.425973.169	1 set
✓ Operational documents list STVF.561251.001VE	1 copy
✓ Formulary STVF.561251.001FO	1 copy
* Full contents of the operational design documentation is in accordance with the list of operational documents STVF.561251.001VE.	
** The application of Functional set No. 6 is recommended when access to the system location is problematic, to supply power to the system under any meteorological conditions.	

Contents of Functional set No. 7 Radar STVF.425149.003

Parameter name	Value
✓ STS-177 Radar STVF.425142.001	1 pc.
✓ Spare parts set-O STVF.425973.170	1 set
✓ Packaging STVF.305633.011	1 pc.
✓ Operational documents list STVF.425149.003VE	1 copy
✓ Formulary STVF.425149.003FO	1 copy
* Full contents of the operational design documentation is in accordance with the list of operational documents STVF.425149.003VE.	

Contents of Functional set No. 8 Retransmitter STVF.425149.004

Parameter name	Value
✓ STL-716 Retransmitter STVF.426471.403	1 pc.
✓ Spare parts set-O STVF.425973.171	1 set
✓ Packaging STVF.305643.040	1 pc.
✓ Operational documents list STVF.425149.004VE	1 copy
✓ Formulary STVF.425149.004FO	1 copy
* Full contents of the operational design documentation is in accordance with the list of operational documents STVF.425149.004VE.	

## Contents of Functional set No. 9 Mongoose-P STVF.425624.009

Parameter name	Value
✓ MONGOOSE-P STVF.425624.007, including:	1 set
✓ Spare parts set-O STVF.425973.172	1 set
✓ Packaging STVF.305633.036	1 pc.
✓ Operational documents list STVF.425624.009VE	1 copy
✓ Formulary STVF.425624.009FO	1 copy
* Full contents of the operational design documentation is in accordance with the list of operational documents STVF.425624.009VE.	

## Contents of Functional set No. 10 Fence set STVF.425728.029

Parameter name	Value
✓ Engineering fence set STVF.425728.026, including:	1 set
✓ Spare parts set-O STVF.425973.173	1 set
✓ Packaging STVF.305633.030	1 pc.
✓ Operational documents list STVF.425728.029VE	1 copy
✓ Formulary STVF.425728.029FO	1 copy
* Full contents of the operational design documentation is in accordance with the list of operational documents STVF.425728.029VE.	

## DESCRIPTION OF SYSTEM PARTS

- SDP-8083 Long-range video camera and SDP-8615M thermal imaging camera mounted on SDP-883 Pan-tilt unit placed on STM-18090 mast and used for video surveillance in the visible and infrared range
- SDP-883 Pan-tilt unit enables remote control of its position in two coordinates with variable speed, as well as angle of view and focus change for long-range camera and thermal imaging camera
- STS-177 Radar is designed to detect different types of land and water objects, as well as to define the distance to them, their speed and trajectory
- STS-507 Communication controllers and RocketDish 5G-30 Parabolic antennas are used to arrange high-capacity wireless communication channel between linear and stationary posts
- AVANPOST Video server is intended for storing, displaying (via video output devices) the data received from thermal imaging and video cameras
- AWS AVANPOST is an automated workstation that enable remote real-time streaming of video channels, as well as playback of video archive located on HDD of AVANPOST video server.
- STI-100 IP Phone enables voice communication via Ethernet
- Uninterruptible power supply unit provides continuous operation of the AVANPOST AWS when problems with the main power supply source occur
- the switchboard is used to connect the stationary post equipment to the local area network
- Central controller is designed for connecting and controlling the system peripheral equipment and supplying it with power
- STS-157K Controller (a part of the Central controller) is designed for autonomous power supply to the payload, battery charge control and protection against overcharge/deep discharge, as well as protecting central controller equipment against overheating and overcooling
- STL-73757 Autonomous power supply set and STS-48402 Battery charging unit provide power supply to the linear post, automatic charging of the battery unit from solar modules and maintaining its charged condition
- STL-738 Autonomous power supply set and STS-10403 Battery charging unit provide power supply for the linear post, automatic charging of the battery unit from the wind generator of the battery pack and maintaining its charged condition

- STL-726 Autonomous power supply unit and STS-22403 Charging unit are designed for automatic AC charging of the linear post batteries and maintaining its charged condition
- BP48/24 Power supply unit is used for converting 48V DC voltage into 24V DC voltage and its stabilization, as well as supplying power with total capacity up to 350 W
- BGR48/50 Deep discharge protection unit provides safeguarding of battery units from at critically low charge values
- BA50/24 Audio amplifier is designed to organize a warning and loudspeaker communication.
- STL-716 Retransmitter facilitates wireless communication channel between the linear post and security sensors located within line-of-sight
- BRDM-K unit is used to receive and process notifications from security sensors and relay them to Unicom-1-N portable set via a Pan-tilt unit
- STS-102P Security sensor creates an alarm notification and transmits it via radio channel to the stationary post or UNICOM-1-N portable set
- STS-931P Retransmitter is designed to extend the installation range of sensors and enable the use of sensors with no line of sight. Retransmitter redirects the alarm notification received from the UNICOM-1-N wearable set to the individual notifiers
- UNICOM-AMULET individual notifier is designed to receive and record alarm messages and generate sound, light and vibrate notification
- STS-943M Battery charging unit is designed to recharge the batteries of UNICOM-1-N wearable set and individual notifiers from AC power supply
- SDP-850 IP-video camera, STS-125 security sensor, 10GR-38 Loudspeaker, STS-747 Audio intercom panel provides self-security for the linear post
- Engineering fence set is designed to protect the linear post from unauthorized entry
- STM-28161 Mast designed to divert lightning strikes from the constructions and equipment of the linear post

## RELIABILITY AND WARRANTY

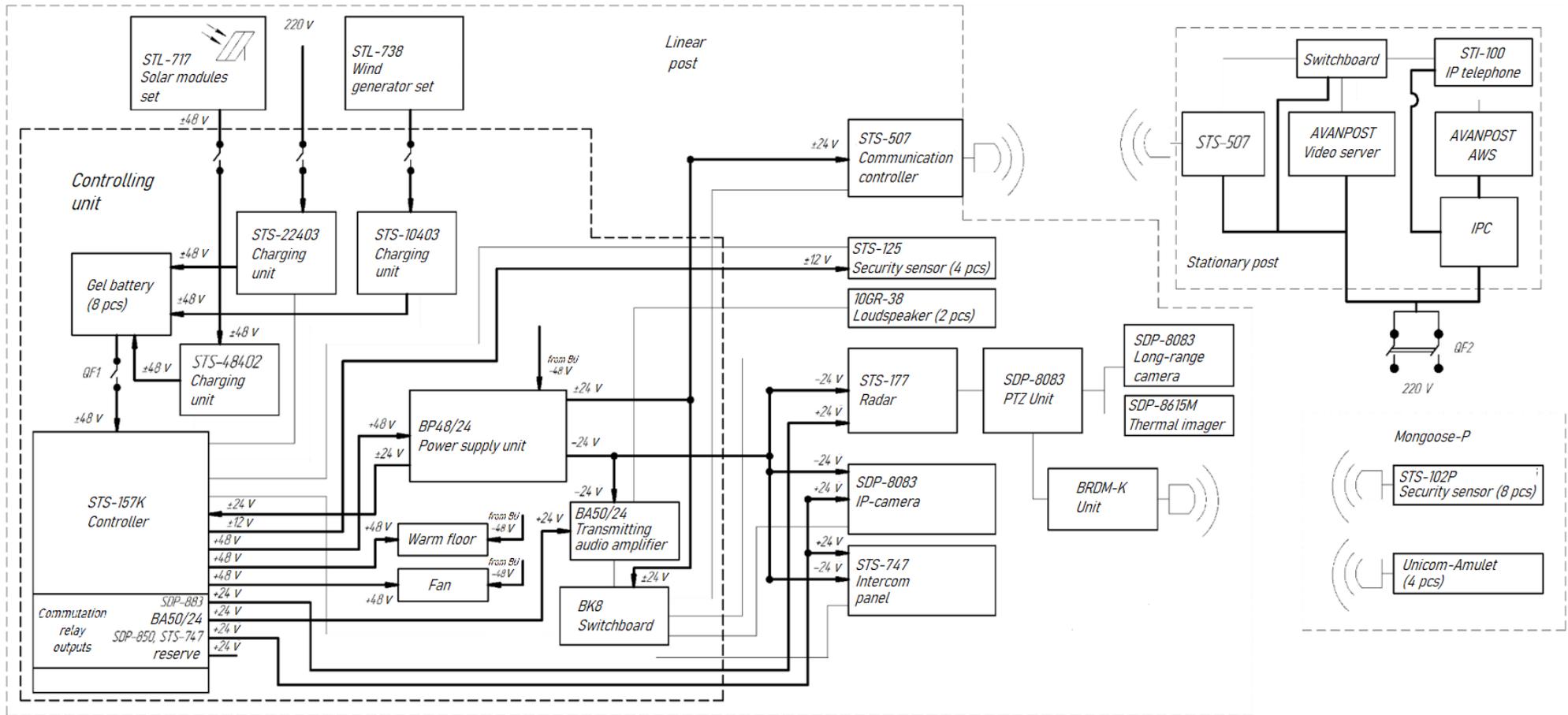
- Warranty operating period - 2 years
- Assigned operating period - 8 years

## TECHNICAL PARAMETERS

Parameter name	Value
Detection/recognition range of human-type target by a long-range video camera, meters (minimum)	10000/8000
Detection / recognition range of human-type target by thermal imaging camera, meters (minimum)	4000/3000
Detection / recognition range of a vehicle-type target by a long-range video camera, meters (minimum)	10000/10000
Detection / recognition range of vehicle-type target by thermal imaging camera, meters (minimum)	7900/5300
Real-time video information display rate with simultaneous archiving of events ( with resolution of 2592x1944 pixels for the range camera SDP-8083, 640x480 pixels for thermal imager SDP-8615M), fps	25
Automatic mode of scanning the set control points with target detection	Up to 30 points
Pointing camera to an object with a mouse by clicking on the video frame or by using the context menu of the graphical plan	Yes
Automatic target locking when receiving a command from the radar (with STS-177 radar included)	Yes
Target detection range with STS-177 radar, meters	from 50 to 2300

Parameter name	Value
Wireless communication channel range (between stationary and linear posts, between STL 716 retransmitter and linear and stationary posts), kilometers (maximum)	30
Smart energy saving mode	Yes
View angle of the long-range video camera: <ul style="list-style-type: none"> <li>– horizontally</li> <li>– vertically</li> </ul>	360° ±45°
Data transmission speed in the radio channel, minimum, Mbit/s	40
Power of solar modules (STL-737), W (maximum)	800
Battery capacity, Ah	400
Remote monitoring of battery charge	Yes
Wireless frequency range, Hz	5150-5350
Operating temperature range, °C: <ul style="list-style-type: none"> <li>– linear post</li> <li>– stationary post</li> </ul>	-40 to +50 +5 to +50
Linear post power supply, V	48±10%
Stationary post power supply, V/Hz	~220±10%/50
Team required to work with the system, persons	1
Time of operability recovery on power supply, minutes (maximum)	5
Autonomous operation time with fully charged batteries, minimum, days: <ul style="list-style-type: none"> <li>– with environment temperature during the day above 0°C</li> <li>– with environment temperature during the day below 0°C</li> </ul>	9 4
Detection range of moving intruder by STS-102P autonomous infrared security sensor (from MONGOOSE), meters	50
Maximum transmission range of alarm notification from STS-102P sensor to STM-18090 Mast in direct line of sight, meters (maximum): <ul style="list-style-type: none"> <li>– without STS-931P retransmitter, meters (maximum)</li> <li>– with STS-931P retransmitter, meters (maximum)</li> </ul>	500 1000
STS-102P sensor operating period in the stand-alone mode, minimum: <ul style="list-style-type: none"> <li>– with control communication once a day</li> <li>– with control communication once a minute</li> </ul>	5 years 3 months

# SYSTEM SCHEMATICS



Connection lines  
 Power lines



Developed and produced in Russia

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[www.stilsoft.ru](http://www.stilsoft.ru)