Stilsoft

Russian developer and manufacturer
of complex security systems

VIDEO FRONTIER

Video surveillance system for large open perimeters protection

STVF.424252.036

PURPOSE

VIDEO FRONTIER Video surveillance system for large open perimeters protection is designed visual control of extended lines, determining and defining the location of zone crossings, issuing alarms and providing video information to the operator.

FIELDS OF APPLICATION

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

VERSION

- the system consists of stationary and linear posts
- the stationary post includes equipment for collecting, processing and storing information, an automated operator workstation, LED TVs, a video wall controller and an equipment set ensuring uninterrupted system operation and communication with the linear post
- the linear post, located directly on the protected line or area, includes rotating and stationary IP cameras mounted on masts, security sensors installed on special mounting racks and an equipment set ensuring the post functionality and data transmission to the stationary post
- the system includes a basic set and a combination of functional sets for different purposes depending on the tasks

FEATURES

- 24/7 video surveillance of the protected area/ perimeter and surrounding territory in automatic and manual modes with video data stored for at least 30 days

- crossing detection of the protected area or perimeter using radio wave sensors, automatic positioning of the rotating IP video camera towards the corresponding control point, as well as video footage display on the stationary post's monitor to confirm a protected territory intrusion
- audible alert to the stationary post's operator upon crossing detection of the protected area or perimeter
- logging the sensor's triggering time and the line section where the trespassing was detected
- displaying video footage from one or several operator-selected cameras, or all IP cameras simultaneously on the stationary post's monitor at 25 frames per second (minimum)
- indicating the location and status of the linear post equipment on the graphical area layout
- audible alert to the stationary post operator upon opening cabinets of VIDEO FRONTIER linear and stationary controllers, as well as STS-21110 power supply unit
- option to output video channels to LED panels in rooms located remotely from the operator's automated workstation
- the system's database, event log and configuration archiving and storage in energy-independent memory

PECULIARITIES

- expanding the system and increasing its qualitative and quantitative technical characteristics by forming its structure from the basic set and necessary functional sets
- elimination of repeated triggerings on a single facility, minimizing false alarms caused by animals and other interference, trajectory prediction of objects disappearing from the IP video camera field of view (when using the VIDEO FRONTIER server from the functional set No. 5 «Video Analytics Set»)
- two-way audio communication between linear and stationary posts
- remote control of security sensors' status
- low voltage power supply (110V)
- SXF maps' support
- applying armored cable enabling its laying in the ground without prior preparation
- set includes all things needed for installation by the customer's staff
- system operates with VIDEO FRONTIER special software

SCOPE OF SUPPLY

Designation	Name	Quantity
STVF.426487.031	VIDEO FRONTIER Basic set	*
STVF.426487.032	Functional set No. 1 "Additional Linear Post"	*
STVF.426487.033	Functional set No. 2 "Server Rack Set"	*
STVF.426487.034	Functional set No. 3 "Server "Video Screen""	*
STVF.426487.035	Functional set No. 4 " VIDEO FRONTIER AWS"	*
STVF.426487.036	Functional set No. 5 "Video Analytics Set"	*
STVF.426487.037	Functional set No. 6 "Video Wall Set"	*
STVF.426487.038	Functional set No. 7 "STS-107 Security Sensor Set"	*
STVF.426487.039	Functional set No. 8 "Adjustment Set For STS-107 Security Sensor"	*
STVF.426487.040	Functional set No. 9 "Power cable set for one additional linear post for line protection arrangement up to 2100 m"	*
STVF.426487.041	Functional set No. 10 "Power cable set for one additional linear post for line protection arrangement up to 6300 m"	*
STVF.426487.042	Functional set No. 11 "Power cable set for one additional linear post for line protection arrangement up to 10500 m"	*
STVF.424252.036 VE	Operational documents list	1 copy

Designation	Name	Quantity
STVF.424252.036 FO	Formulary	1 copy
STVF.424252.036 RE	Operating guidelines	1 copy
STVF.424252.036 IM	Installation, commissioning, adjustment and testing instructions	1 copy
* Availability and quantity of sets is specified by the supply contract ** Completeness of operational design documentation is in accordance with the list of operational documents STVF.424252.036 VE Operating guidelines are available at: http://stilsoft.ru		

Contents of VIDEO FRONTIER Basic set STVF.426487.031

Name	Quantity
✓ Stationary post STVF.426487.018 including:	1 set
– VIDEO FRONTIER Server STVF.426484.075	1 pc.
– Video Wall Controller STS-356 STVF.426484.073	1 pc.
– Stationary Communication Unit STS-5710 STVF.426471.559	1 pc.
– Secure Server Cabinet STS-10415 STVF.426479.122	1 pc.
– VIDEO FRONTIER AWS STVF.426484.076	1 pc.
– VIDEO FRONTIER Stationary Controller STVF.426471.257	1 pc.
– STI-100 IP Telephone STVF. 431295.005-02	1 pc.
– 32" LED TV	2 pcs.
– 2000 VA Uninterrupted Power Supply	1 pc.
– 3000 VA Uninterrupted Power Supply	1 pc.
– Mounting set STVF.424921.085	1 set
✓ Linear post STVF.424211.002 including:	1 set
– STM-17050 Mast STVF.425733.013	5 pcs.
– STM-17035 Mast STVF.425733.014	25 pcs.
– STS-452 Controller STVF.426469.019-01	16 pcs.
– SDP-850 IP Video Camera STVF.426459.013-01	5 pcs.
– VIDEO FRONTIER Linear Controller STVF.426471.112	5 pcs.
– SDP-858I IP Video Camera STAE.426459.041-05	31 pcs.
– STS-10501 Optical Cable Winding Device STVF.301352.001	5 pcs.
– STS-107 Security Sensor STVF.426479.006	15 pcs.
– Mounting Stand for Security Sensor STVF.301317.015	30 pcs.
– STS-21110 Power Supply Unit STVF.426479.051	1 pc.
– Bracket for Mounting Security Alarms STAE.301568.004	30 pcs.
– STS-747 Audio Intercom Panel STVF.431295.016	5 pcs.
– Mounting set STVF.424921.099	1 set
– Mounting set STVF.424921.106	15 sets
✓ Packaging STVF.305639.001	1 set
✓ List of Operational Documents STVF.426487.031VE	1 copy
* Completeness of operational design documentation in accordance with the list of operational documents STVF.426487.031 VE	

Contents of Functional set No. 1 "Additional Linear Post" STVF.426487.032

Name	Quantity
✓ STM-17050 Mast STVF.425733.013	1 pc.
✓ STM-17035 Mast STVF.425733.014	5 pcs.
✓ STS-452 Controller STVF.426469.019-01	3 pcs.

✔ SDP-850 IP video camera STVF.426459.013-01	1 pc.
✔ VIDEO FRONTIER Linear controller STVF.426471.112	1 pc.
✔ SDP-858I IP video camera STAE.426459.041-05	6 pcs.
✔ STS-10501 Optical cable winding device STVF.301352.001	1 pc.
✔ STS-107 Security Sensor STVF.426479.006	3 pcs.
✔ Mounting rack for security sensor STVF.301317.015	6 pcs.
✔ Mounting bracket for security sensors STAE.301568.004	6 pcs.
✔ STS-747 Audio intercom panel STVF.431295.016	1 pc.
✔ Mounting set STVF.424921.100	1 set
✔ Mounting set STVF.424921.106	3 sets
✔ Packaging STVF.305633.050	1 set
✔ Operational Documents List STVF.426487.032 VE	1 copy
* Completeness of operational design documentation is in accordance with the list of operational documents STVF.426487.032 VE	

Contents of Functional set No. 2 "Server Rack Set" STVF.426487.033

Name	Quantity
✔ STS-5710 Stationary communication unit STVF.426471.559	1 pc.
✔ STS-10415 Protected server cabinet STVF.426479.122	1 pc.
✔ 3000 VA Uninterruptible power supply	1 pc.
✔ Mounting set STVF.424921.101	1 set
✔ Packaging STVF.305642.002	1 set
✔ Formulary STVF.426487.033 FO	1 copy

Contents of Functional set No. 3 "VIDEO FRONTIER Server" STVF.426487.034

Name	Quantity
✔ VIDEO FRONTIER Server STVF.426484.075	1 pc.
✔ Mounting set STVF.424921.102	1 set
✔ Packaging STVF.305633.046	1 set
✔ Formulary STVF.426487.034 ФО	1 copy

Contents of Functional set No. 4 "VIDEO FRONTIER AWS" STVF.426487.035

Name	Quantity
✔ VIDEO FRONTIER AWS STVF.426484.076	1 pc.
✔ 2000 VA uninterruptible power supply	1 pc.
✔ Mounting set STVF.424921.103	1 set
✔ Packaging STVF.305633.047	1 set
✔ Formulary STVF.426487.035 FO	1 copy

Contents of Functional set No. 5 «Video Analytics Set» STVF.426487.036

Name	Quantity
✔ VIDEO FRONTIER Video Analytics Server STVF.426484.074	1 pc.
✔ Mounting set STVF.424921.104	1 set
✔ Packaging STVF.305633.048	1 set
✔ Formulary STVF.426487.036 FO	1 copy

Contents of Functional set No. 6 «Video Wall Set» STVF.426487.037

Name	Quantity
✔ STS-356 Video wall controller STVF.426484.073	1 pc.
✔ 2000 VA uninterruptible power supply	1 pc.

Name	Quantity
✓ LED TV 32"	2 pcs.
✓ Mounting set STVF.424921.105	1 set
✓ Packaging STVF.305633.049	1 set
✓ Formulary STVF.426487.037 FO	1 copy

Contents of Functional set No. 7 «STS-107 Security Sensor Set STS-107» STVF.426487.038

Name	Quantity
✓ STS-107 Security sensor STVF.426479.006	1 pc.
✓ Mounting rack for security sensor STVF.301317.015	2 pcs.
✓ Mounting bracket for security sensors STAE.301568.004	2 pcs.
✓ Mounting set STVF.424921.106	1 set
✓ Packaging STVF.305633.051	*
✓ Packaging STVF.305633.052	*
✓ Formulary STVF.426487.038 FO	1 copy
* The number of parts marked with an asterisk (*) depends on the number of supplied Sets.	

Contents of Functional set No. 8 «Adjustment Set for STS-107 Security Sensor» STVF.426487.039

Name	Quantity
✓ STS-4921 Tuning cord STVF.426471.231	1 pc.
✓ Notebook	1 pc.
✓ Notebook case	1 pc.
✓ PC Mouse	1 pc.
✓ Packaging STVF.305633.053	1 set
✓ Formulary STVF.426487.039 FO	1 copy

Contents of Functional set No. 9 «Power cable set for one additional linear post for line protection arrangement up to 2100 m» STVF.426487.040

Name	Quantity
✓ VBbSv cable 2x10 GOST 16442-80	420-1680 m*
✓ VBbSv cable 2x6 GOST 16442-80	6 m*
✓ Cable joint 2PCT(b)-1-16/25 (B) (KVT)	1 pc.**
✓ Branching heat-shrinkable joint 4PTO-1-16/50-1.5/6	1 pc.**
✓ Packaging STVF.305633.055	1 set
✓ Label STVF.426487.040 ET	1 copy
*The cable is supplied in accordance with the project documentation and the delivery contract in one piece or in sections of construction length - the rated length of cable on a reel. The cable length is from 420 to 1680 m with 420 m step ** The quantity is determined by the project documentation and the delivery contract	

Contents of Functional set No. 10 «Power cable set for one additional linear post for line protection arrangement up to 6300 m» STVF.426487.041

Name	Quantity
✓ VBbSv cable 2x16 GOST 16442-80	420-5880 m*
✓ VBbSv cable 2x6 GOST 16442-80	6 m*
✓ Cable joint 2PCT(b)-1-16/25 (B) (KVT)	1 pc.**
✓ Branching heat-shrinkable joint 4PTO-1-16/50-1.5/6	1 pc.**
✓ Packaging STVF.305633.056	1 set
✓ Label STVF.426487.041 ET	1 copy.

Name	Quantity
*The cable is supplied in accordance with the project documentation and the delivery contract in one piece or in sections of construction length - the rated length of cable on a reel. The cable length is from 420 to 5880 m with 420 m step ** The quantity is defined by the project documentation and the delivery contract	

Contents of Functional set No. 11 « Power cable set for one additional linear post for line protection arrangement up to 10500 m» STVF.426487.042

Name	Quantity
✓ VBbSv Cable 2x50 GOST 16442-80	450-10080 m*
✓ VBbSv Cable 2x6 GOST 16442-80	6 m*
✓ Cable joint 2PCT(b)-1-16/25 (B) (KVT)	1 pc.**
✓ Branching heat-shrinkable joint 4PTO-1-16/50-1.5/6	1 pc.**
✓ Packaging STVF.305639.001	1 set
✓ Label STVF.426487.042 ET	1 copy.
*The cable is supplied in accordance with the project documentation and the delivery contract in one piece or in sections of construction length - the rated length of cable on a reel. The cable length is from 420 to 10080 m with 420 m step ** The quantity is defined by the project documentation and the delivery contract.	

DESCRIPTION OF SYSTEMS

- **VIDEO FRONTIER Basic set** is a complete solution for building a security and video surveillance system for a line or perimeter up to 2100 meters long. The set enables the arrangement of stationary and linear posts, the communication line between them is not included in the basic set with its length being determined during a planning phase. If the basic set is used without functional kits, the system power supply is provided by the customer
- **Functional set No. 1 "Additional Linear Post"** is designed to increase the length of the protected line by 420 meters. It includes a communication cable for connecting the additional linear post to the linear post from the basic set. Functional set No. 9, No. 10 or No. 11 is used to power the equipment of the additional linear post, depending on the length of the linear post of the system
- **Functional set No. 2 "Server Rack Set"** allows for installation of additional equipment, including system expansion sets, and provides uninterrupted power supply. The development set no. 2 and the basic set use STS-10415 secure server cabinets, which allow for their docking, internal cable routing and joint ventilation, as well as connecting the installed equipment to the Ethernet 10/100/1000 network. It is used for significant system expanding by applying Functional sets No. 3, No. 5, No. 6
- **Functional set No. 3 "VIDEO FRONTIER Server"** is designed to scale the system and allows storing and processing video information from 36 IP video cameras
- **Functional set No. 4 "VIDEO FRONTIER AWS"** is designed to provide an additional operator workstation and ensure the most rational use of monitor space when increasing the volume of incoming video information. The additional workstation can also be used remotely up to 100 meters from VIDEO FRONTIER Server, for example, in the manager's office, assistant's office, or at the checkpoint
- **Development set No. 5 "Video Analytics Set"** provides object detection and tracking, behavior analysis, detection of left objects, intrusion into the guarded area or crossing of the protected perimeter, as well as fire detection
- **Development set No. 6 "Video wall set"** is designed to summarize information and output video channels and graphic plans to LED TVs. It is recommended to use one set to display no more than 72 video channels. The set has a 2000 VA uninterruptible power supply and is compatible with VIDEO FRONTIER

- **Development set No. 7 "STS-107 Security Sensor Set"** includes an additional security sensor with a mounting mast and all required fixing parts. The set is used in case objects required bending around like uneven ground, stationary objects or other obstacles in the secured area hindering the detection of intruders
- Development set No. 8 "Configuration set for STS-107 Security Sensor" is designed for installation, configuration and maintenance of the security sensors included in the system
- **Development set No. 9 "Power cable set for one additional linear post for line protection arrangement up to 2100 m"** is designed for supplying power up to 1680 m and increment 420 m from STS-21110 power supply unit to the linear video gateway controllers. The cross-section of the power cable is designed for the maximum line length to prevent the power supply voltage drop in long sections. The set includes branch and splice joints and a smaller cable for connection to a VIDEO FRONTIER linear controller. The set is designed for laying the power supply line underground
- **Development set No. 10 "Power cable set for one additional linear post for line protection arrangement up to 6300 m"** is designed for installation of power supply line with length up to 5880 m and increment 420 m from power supply unit STS-21110 to VIDEO FRONTIER linear controllers. The set is designed similarly to development set No. 9 and differs from it only in cable cross-section
- **Development set No. 11 "Power cable set for one additional linear post for line protection arrangement up to 10500 m"** is designed for supplying up to 10080 m of power line and increment 420 m from power supply STS-21110 to VIDEO FRONTIER linear controllers. The set is designed similarly to development set No. 9 and differs from it only in cable cross-section

DESCRIPTION OF SYSTEM PARTS

- stationary IP cameras SDP-858I, installed on masts STM-17050 and STM-17035, provide round-the-clock video surveillance at the protected border and transmit video images to VIDEO FRONTIER Server
- high-speed rotating IP cameras SDP-850, installed on mast STM-17050, are designed to confirm the intrusion fact and specify details of the violation: upon receiving an alarm signal, the IP camera automatically moves to a control point and transmits the video image to VIDEO FRONTIER Server
- STS-107 Security Sensors installed on the secured border on mounting racks detect a person crossing their detection zones located along the border, as well as form and transmission of an alarm signal to the VIDEO FRONTIER Server
- STS-452 Controller is designed to organize an Ethernet network, transmit data received by IP cameras and security sensors to VIDEO FRONTIER linear controller, convert the RS-485 interface into Ethernet, and relay power voltage via Passive PoE from VIDEO FRONTIER linear controller to IP cameras and security sensors.
- VIDEO FRONTIER Linear Controller is designed to organize interaction between the linear post and the stationary post providing connection and power supply for IP cameras and security sensors, as well as received data transmission to VIDEO FRONTIER stationary controller
- VIDEO FRONTIER Stationary controller is designed to organize optical communication channels between the stationary post and the linear post
- VIDEO FRONTIER Server is a hardware video recorder that collects, stores, processes information obtained from the linear post equipment, and upon operator's request releases it to VIDEO FRONTIER AWS
- VIDEO FRONTIER AWS, consisting of two LCD monitors and a system unit, provides real-time video feed from IP cameras and archive footage in manual and automatic modes, management of security sensors and video analytics, display of a graphical representation of the border and the linear post equipment installed on it

- STS-356 Video wall controller and LED TVs enable to monitor the situation from rooms that are remote from VIDEO FRONTIER AWS
- STI-100 IP telephone is designed to organize emergency two-way voice communication between the operator and people located at audio intercom panels STS-747, installed on masts STS-17050 at the secured line
- STS-5710 Stationary communication unit is designed to organize Ethernet channel communication between the stationary post components
- STS-21110 Power supply unit is designed to power the linear post equipment with 110 V AC voltage, with a total maximum power up to 1000 W, converted from 220 V single-phase AC voltage
- 2000 VA uninterruptible power supply is designed to power the stationary post components installed outside the server cabinet
- 3000 VA uninterruptible power supply is designed to power the stationary post components installed in the server cabinet

RELIABILITY AND WARRANTY

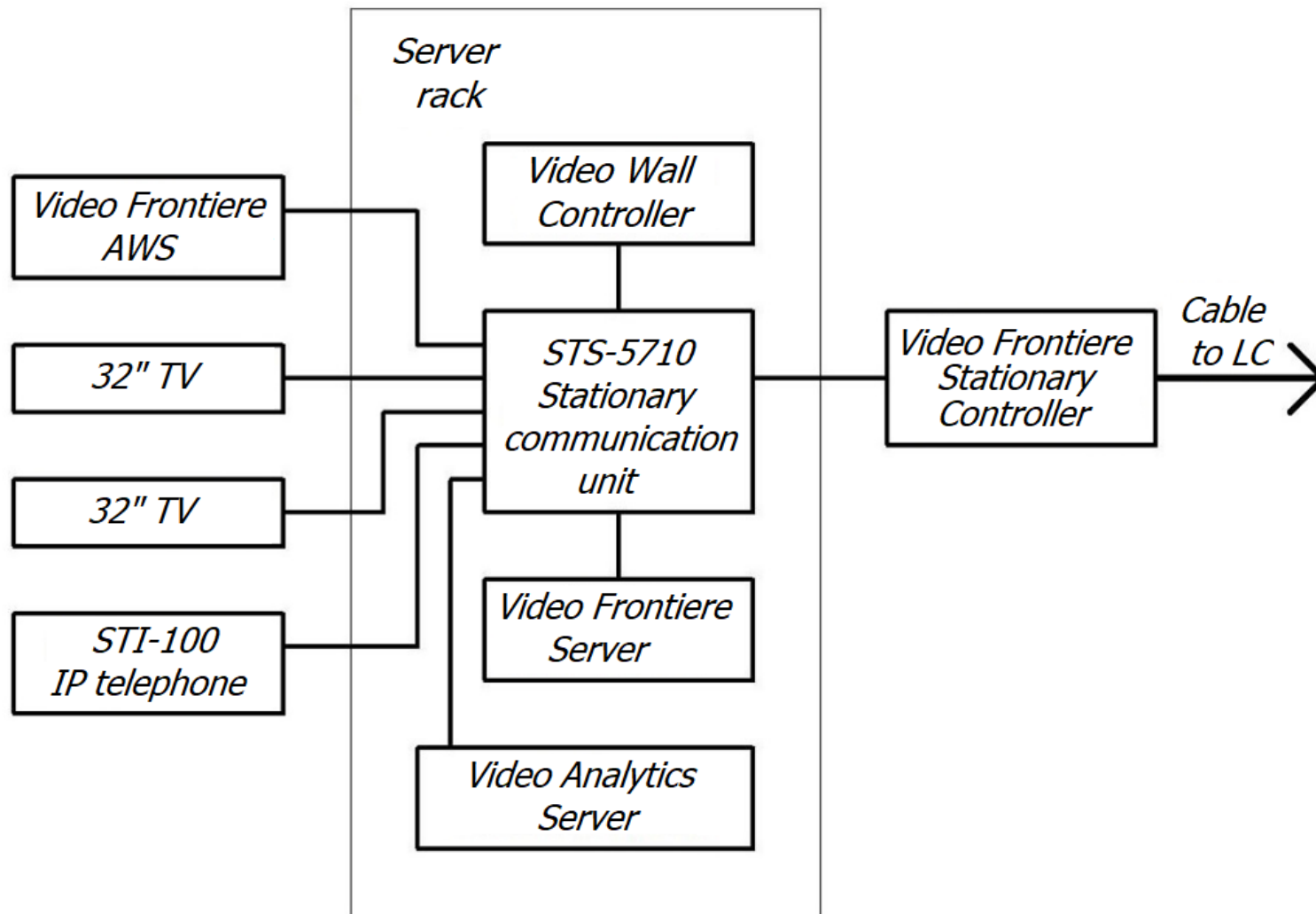- Warranty operating period - 2 years
- Assigned operating period - 7 years

TECHNICAL PARAMETERS

Parameter name	Value
Length of blocked line using VIDEO FRONTIER Basic Set STVF.426487.031, m (minimum)	2100
Maximum length of blocked line using Functional sets, m (minimum): – one flank (linear set in one direction from the stationary set); – two flanks (linear sets to opposite sides of the stationary set)	10500 21000
Period of continuous archival video recording (automatic archiving) with cyclic rewriting, days (minimum)	30
Nominal speed of Ethernet digital communication channel, Mbit/s	1000
Nominal speed of displaying video information with simultaneous archiving, frames per second	25
Record storage time in the event protocol, days (minimum)	400
Detection range of the IR camera SDP-858I for a standard target according to GOST R 52551-2006, m (maximum)	70
Detection range of the IR camera SDP-850 for a standard target according to GOST R 52551-2006, m (maximum)	250
Detection zone length of STS-107 Security Sensor, m	from 5 to 300
Nominal voltage of AC power supply with a frequency of 50 Hz for the station Set, V	220
Nominal voltage of AC power supply with a frequency of 50 Hz for the linear Set, V	110/220
Turning PTZ Camera towards the alarm area upon security sensor triggering	Yes
Automatic smooth change of PTZ camera's focal length for detailed situation analysis upon Security Sensor signal reception	Yes
Voice notification of the operator upon sensor triggering	Yes
System condition monitoring with precise fault location	Yes
System auto-restore time after a power failure-restoration, min (maximum)	5
Operating temperature range, °C:	

Parameter name	Value
− Linear post	-40 to +50
− Stationary post	+5 to +50
− STS-107 Security sensors	-50 to +70
Note: As a backup power supply of the linear system post from VIDEO FRONTIER basic set, it is recommended to use uninterruptible power supply unit(not included in the system delivery set) with 220±22 V AC output voltage with 50±0.4 Hz frequency and at least 1500 VA output power (depends on the system scale and applied functional sets quantity)	

VIDEO FRONTIER SIMPLIFIED SCHEME

Stationary post

```
Server rack

┌─────────────────────────────────────────────┐
│  Server rack                                  │
│                                               │
│              ┌──────────────┐                 │
│              │  Video Wall  │                 │
│              │  Controller  │                 │
│              └──────────────┘                 │
│                                               │
│              ┌──────────────┐    ┌──────────────┐   Cable
│              │  STS-5710    │    │ Video Frontiere│   to LC
│              │  Stationary  │────│  Stationary   │────→
│              │ communication│    │  Controller   │
│              │     unit     │    └──────────────┘
│              └──────────────┘                 │
│                                               │
│              ┌──────────────┐                 │
│              │Video Frontiere│                │
│              │    Server    │                 │
│              └──────────────┘                 │
│                                               │
│              ┌──────────────┐                 │
│              │Video Analytics│                │
│              │    Server    │                 │
│              └──────────────┘                 │
└───────────────────────────────────────────────┘

Video Frontiere AWS
32" TV
32" TV
STI-100 IP telephone
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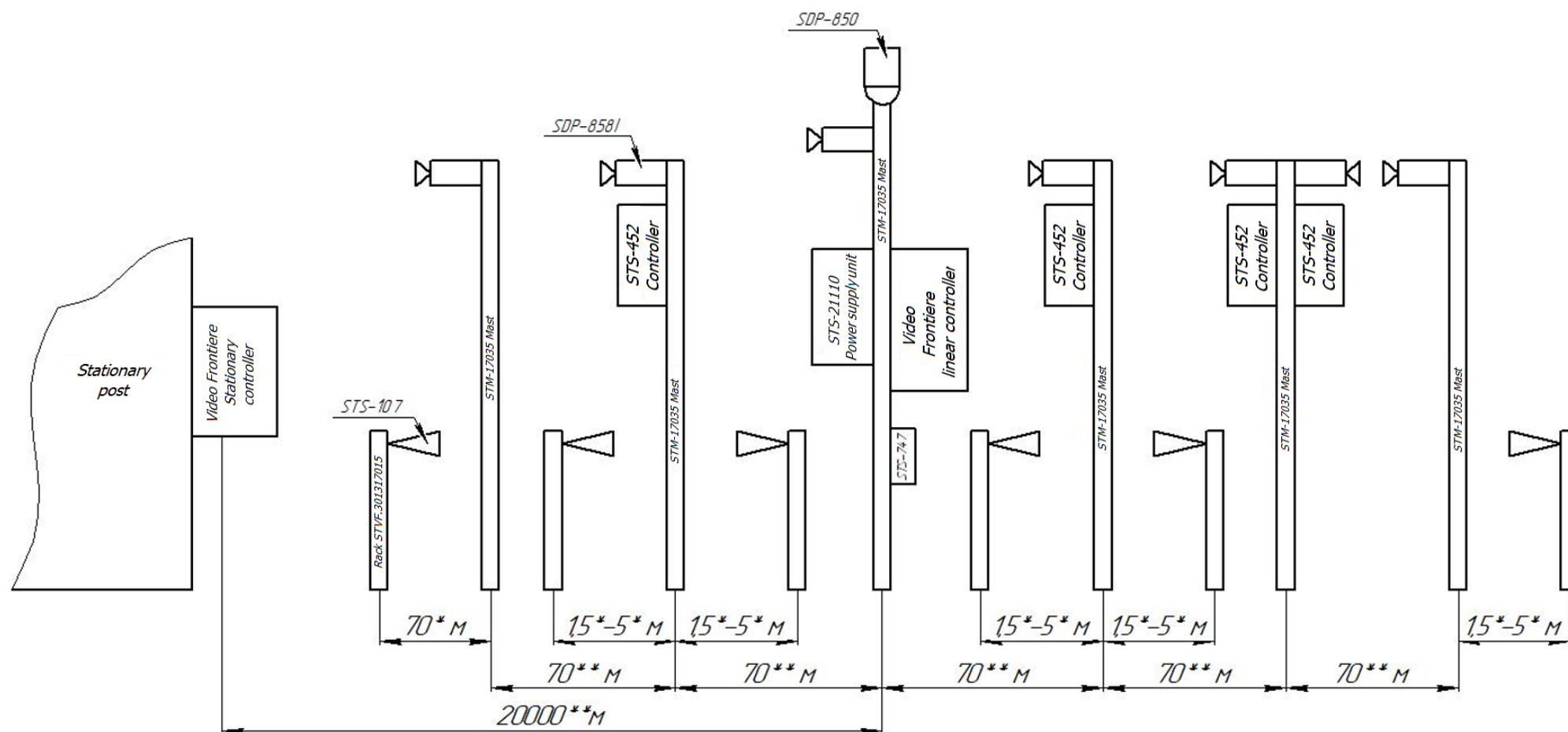
Notes:
Dimensions marked with * are typical dimensions that ensure equality of detection zones of STS-107 Security sensors.
Dimensions marked with ** are the maximum allowable dimensions, i.e. they reflect the maximum specifications of system equipment.