«SCB ELEKTRONMASH» is a scientific and technical complex, founded in 1994. The areas of activity - development, production, implementation of modern high-tech management and control systems, means of automation, devices and equipment of fire and technical protection. Wide range of manufactured equipment contains almost all the components that provide creation of modern effective security systems. Manufactured equipment is in accordance with the requirements of European standards, confirmed by certificates. A quality management system applies to everyone stage of production and has the international certificate ISO 9001, which provides a high technical level, stability, quality and reliability of manufactured products.

STRATEGY

- Implementation a high level of quality and reliability of manufactured equipment creates guaranteed level of security protection.
- Compatibility of equipment that provides expansion and support of existing systems.
- Own development, production and maintenance.
- Consultative and technical user support during the installation and operation of equipment.
- Free training, education and active support of designers and technical specialists in regions.
- Availability of technical information and documentation.
- Flexible marketing and pricing policy.

EQUIPMENT DEVELOPMENT CRITERIA

Ability to build fire security systems with different sizes that meet the requirements of current standards. Flexible structures. Decentralization of system structure. Aggregation. Configuration of system using PC. Prevention of remote permitting, diagnostic, monitoring and massage transform.

CONTACTS

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ADDRESSABLE FIRE ALARM SYSTEMS (AFAS)

SCB «ELEKTRONMASH» produces two types of AFAS: «**Varta - Address**» and «**CV1500**». Both systems are characterized by a same hierarchy, software «Designer» and «Monitoring». Above - listed AFAS according to requirements of DSTU, available certificates of conformity – EN 54.

AFAS works in a continuous mode, a main power supply – 220V AC, a reserve power supply provides rechargeable lead-acid batteries with a respective voltage and capacity.

AFAS receives the information about status of all components of a system, provides a constant monitoring a condition of object in general. AFAS are characterized by decentralization at a logical level – a principle is implemented «Distributed intelligence». For example, a component calls addressable bus unit (ABU) contains its own internal memory, records the configuration: a total number of addressable fire detectors (AFD) and addressable input/output units (IOU-A), which are present in it. Control algorithms of executive devices recorded in IOU-A switches. This principle provides high stability and reliability of a system in general.

Each of control panels contains a modular design that permits flexible and efficient configuration system for specific tasks of customer and features of object using a respective software. Serial interface ports permits to connect the AFAS to a PC and to include in the network structure of a fire safety system of object.

Devices receives address notifications about «Fire» and «Fault» from the components of AFAS (including main and reserve supply), generates fire alarms or system fault and carries out further transmission of signals. Devices permit to configure modes of operation of each device, independently turn on/off any device included in fire loop (FL), adjusts operating modes of each of outputs and relays in regular mode. Current states of device settings are saved in independent memory. Independent node real-time permits to record and view events in chronological order with reference to entered when starting a device date and time. A total number of saved entries in independent memory in database is up to 15,000 events.

After receiving a «Fire» or a «Fault» messages signal, a device displays addresses of respective components and a text identifier of respective location of received components.

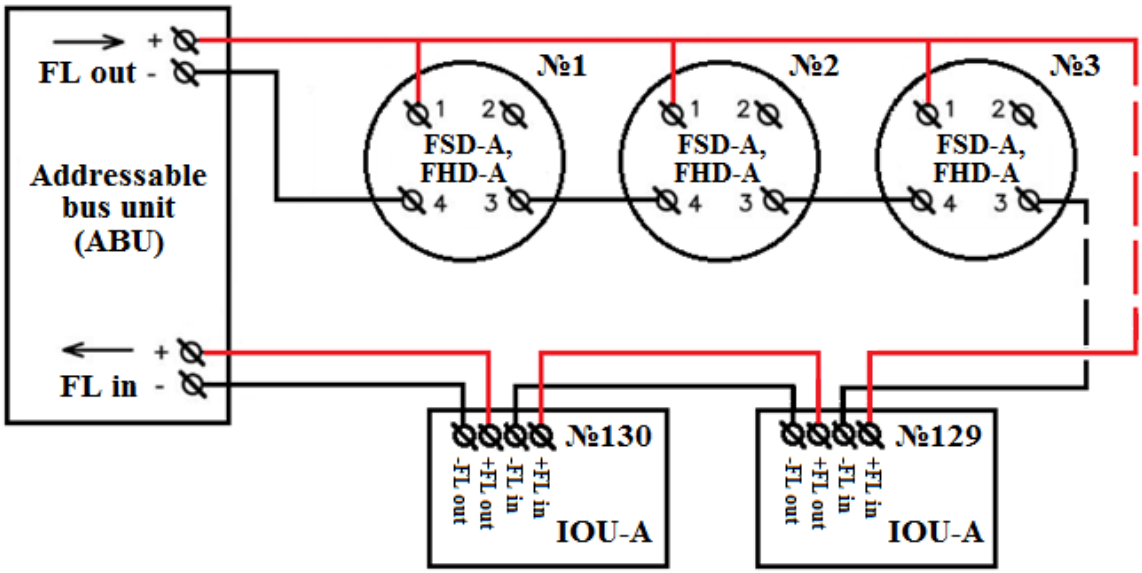
General description of device «Varta-Address»

AFAS organization

A system is a set of «**Varta-Address**» devices related to each other by a respective two – wire interface with a total length up to 500 meters. It combines work logic of a system in general. In total, AFAS can contain up to 15 «**Varta-Address**» devices.

Fire loop organization (FL)

FL is a closed two-wire loop that connects addressable fire detectors (AFD) and addressable input/output units (IOU-A). A power supply and information are transmitted by a same wire. It is permitted to connect up to 15 addressable bus units (ABU) to device.



1 FL contains not more than 127 AFD and 40 IOU-A. A total length of 1 FL does not exceed 2000 meters and an electrical resistance is not more than 50 ohms.

Addressable input/output unit (IOU-A)

Designed to control by the various external devices: relays, switches, alarms, smoke extraction systems, etc. Contains 4 switches, can be programmed to input or output electrical signals. Switch programming is carried out by respective software providing with logical formulas. A maximum load current of IOU-A switches is 50mA.

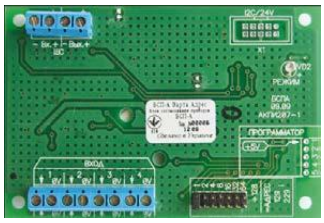
Addressable input/output unit (IOU-A -01)

Performs a similar function to IOU-A, differs in its presence 4 built-in electromagnetic relays. A maximum load current of IOU-A-01 switches using electromagnetic relays is 2A.

Addressable input/output unit (IOU-A -02)

Designed for connection non - addressable fire detectors. Contains 4 switches. To each switch connects up to 32 non - addressable fire detectors.

Addressable input/output unit (IOU-A -02 -01)



Designed for connection to AFAS such non - addressable fire alarm systems: «Varta 1/4, 1/8, 1/16, 1/832» to view their status and the introduction of technological signals from object.

Addressable control panel (ACP)

Control panel and indication of address modes (ACP) is executed based on IOU-A -02 -01 and designed for transfer to a control panel and displays system states: attention, fire, fault, disconnection, locking.

Informative table (IT-32, IT-64, IT-128)

Designed to transmit to a system control states and visualize states of a device or system components. A function of buttons and indicators is programmable. IT-32 and IT-64 contains 32/64 buttons and 32/64 status indicators respectively. IT -128 contains only 128 system status indicators. A device «**Varta-Address**» can contain not more than 16 IT connected to interface.

Peripheral addressable cabinet

Designed for placement of external components of AFAS «**Varta-Address**»: ABU, all types of IOU-A, switches, relays, etc. Each cabinet is equipped by a pulse unit power supply (18 – 30V), a charger control device, a cross board dilution of power supply to components of AFAS, batteries. There are 3 types of peripheral addressable cabinets for AFAS «**Varta-Address**»: **SPA01**, **SPA02**, **SPA03**. There are differences in size, permissible components content and capacity of batteries.

Peripheral addressable cabinet SPA 03 IP-54

Designed for placement of external components of AFAS «**Varta-Address**»: up to 2 ABU and 4 IOU-A of all types, or up to 6 IOU-A, or switches, relays, etc. Each cabinet is equipped by a pulse unit power supply (18 – 30V), a charger control device, a cross board dilution of power to components of AFAS. Has a degree of protection – IP-54.

Main power supply: 220V AC, 50Hz.

Reserve power supply: 2 batteries 12V, 7A*h.

Overall dimensions: 600x400x200 (mm).

Addressable fire detector (AFD)

AFAS «**Varta-Address**» includes smoke (FSD-A), thermal (FHD-A) and manual (MFD-A) addressable fire detectors. Equipped by status indicator – a red light diode and photo detector of IR emission for remotely testing control by remote control panel (RCP).

Addressable smoke fire detector (FSD-A)

This is the most common address detector. Measures a level of smoke concentration in room and triggers when a specific smoke level is reached in a camera inside a detector.
Dimensions: diameter – 102 mm; height – 49 mm.

Addressable fire heat detector (FHD-A)

Measures a temperature in room and works when reached a specific value of a temperature of a heat channel inside a detector.
Dimensions: diameter – 102 mm; height – 49 mm.

Addressable manual fire detector (MFD-A)

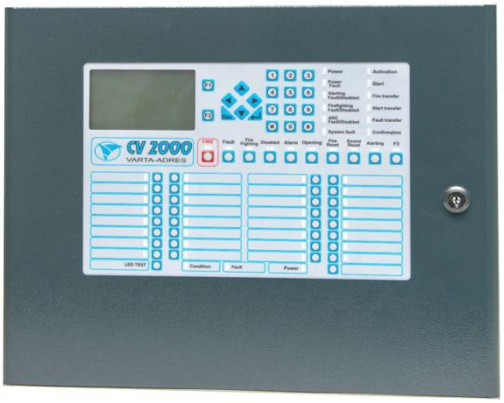
Triggers only when the center button is pressed - goes into the «Fire» mode.
Overall dimensions: 85x85x48 (mm).
Current consumption of all AFD in regular mode: 800μA.

Interface collector unit (ICU)

Designed for lengthen and duplicate the connecting interface, connects ABU, IT among themselves. It connects directly to an interface. Thus it can increase a length of interface. A main and a reserve lines are necessary for the best interface protection.
Supply voltage: 18 – 30V.
Current consumption: 35mA.

General description of device «CV2000»

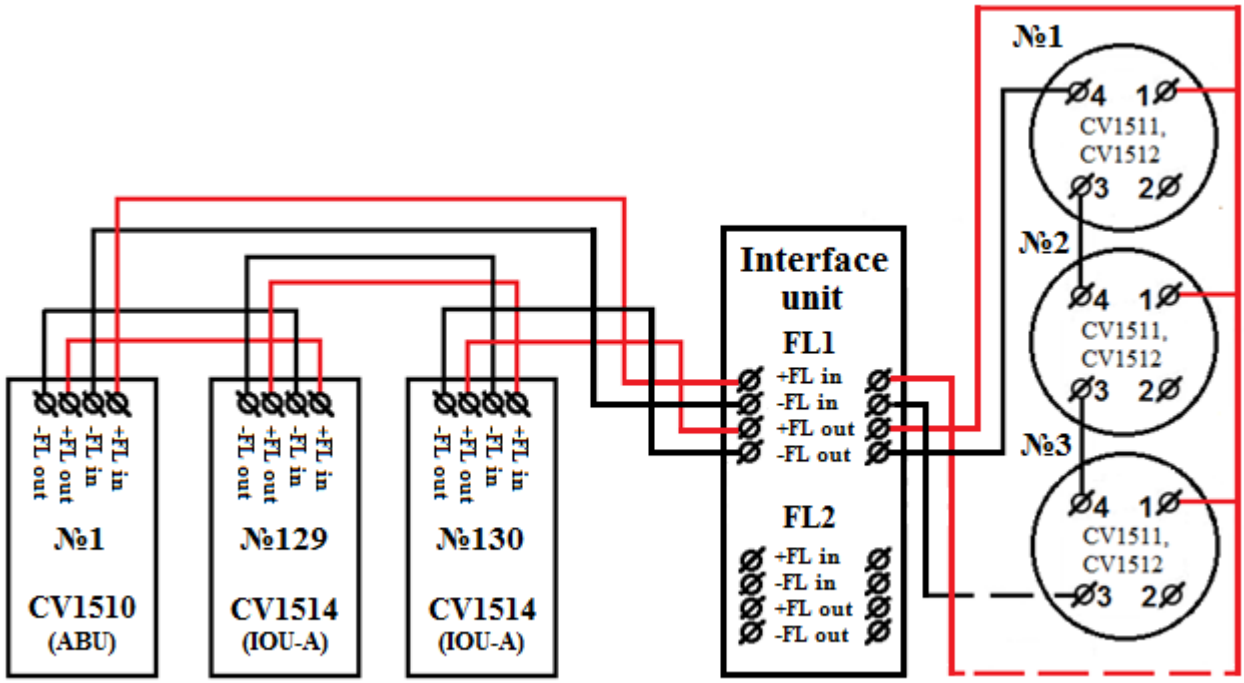
AFAS organization



A system is a set of «**CV2000**» devices related to each other by a respective ring interface with a total length of up to 500 meters. It combines work logic of a system in general. In total, AFAS can contain up to 15 «**CV2000**» devices.

Fire loop organization (FL)

FL is a closed two-wire loop that connects addressable fire detectors (CV1511, CV1512, CV1513) and addressable input/output units (CV1514). A power supply and information are transmitted by a same wire. It is permitted to connect up to 15 addressable bus unit (CV1510) to device.



1 FL contains not more than 127 AFD and 40 CV1514. A total length of 1 FL does not exceed 2000 meters, and an electrical resistance is not more than 50 ohms.

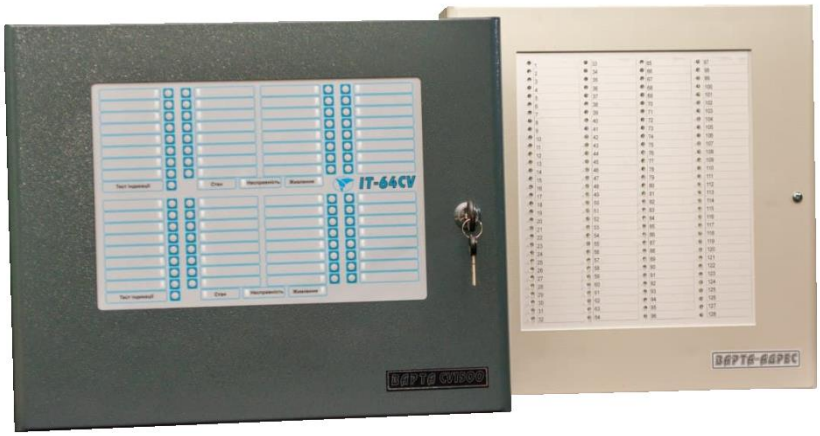
Addressable input/output unit (CV1514)

Designed to control a various external devices: relays, switches, alarms, smoke extraction systems, non - addressable fire detectors, etc. Contains 4 switches, can be programmed to input or output electrical signals. Switch programming is carried out by respective software providing with logical formulas. A maximum load current of IOU-A switches is 50mA.

Addressable input/output unit (CV1514 - 01)

Intended for connection to AFAS such non - addressable fire alarm systems: «Varta 1/4, 1/8, 1/16, 1/832» to view their status and introduction of technological signals from object.

Informative table (IT-64, IT-128)



Designed to transmit to a system control states and visualize states of a device or system components. A function of buttons and indicators is programmable. «**CV2000**» is equipped by a built-in informative table IT-32. IT-64 contains 64 buttons and 64 status indicators respectively. IT-128 contains only 128 system status indicators. A device «**CV2000**» can contain not more than 16 IT connected to interface.

Peripheral addressable cabinet

Designed for a placement of external components of AFAS «CV2000»: ABU, IOU-A, switches, relays, etc. Every cabinet is equipped by a pulse unit power supply (18 - 30 V), charge control device, cross board of power supply dilution to components of AFAS. There are 5 types of peripheral addressable cabinets for AFAS «CV2000»: **BPA01**, **BPA02**, **BPA03, BPA04**, **BPA05**. There are differences in size, permissible component content and capacity of batteries.

Addressable smoke fire detector (CV1511)

This is the most common addressable detector. Measures a smoke level concentration in room and triggers when a specific smoke level is reached in a camera inside a detector.
Dimensions: diameter – 102 mm; height – 49 mm.

Addressable heat fire detector (CV1512)

Measures a temperature in room and triggers when reached a specific temperature value of a heat channel inside a detector.
Dimensions: diameter – 102 mm; height – 49 mm.

Addressable manual fire detector (CV1513)

Triggers only when the center button is pressed – goes into the «Fire» mode.
Overall dimensions: 85x85x48 (mm).
Current consumption of all AFD in regular mode: 800 μA.

Combined fire detector (CV1515)

This detector combines CV1511 and CV1512. Measures a level of smoke concentration and a temperature of a heat in room and triggers when a specific smoke level is reached in a camera inside a detector or reached the specific value of a temperature of a heat channel inside a detector.
Dimensions: diameter – 102 mm; height – 49 mm.

ADDITIONAL EQUIPMENT FOR AFAS

Addressable input/output unit (IOU-A-02 - 02)

Designed for control from 1 to 4 fire fighting zones. Connects to addressable FL of AFAS «**Varta - Address**» or «**CV2000**».
Supply voltage: 18 – 30V.
Current consumption in regular mode: 300 μA.

Load key block (LKB)

Designed for control one fire fighting zone. Connects to **IOU-A-02 - 02** by 2-wire interface, which provides to display and manage by status of each LKB. Contains loops (L): automatic and manual start, on/off automation. On a **power switch output** connects a mechanism of fire extinguisher substances starting.
Supply voltage: 18 – 30V.
Power switch output load current: not more than 4A.
Current consumption in regular mode: 45mA.

Cascading Key Block (CKB)

Designed for increasing a load current of a **power switch output**. Connects to LKB by a special interface. 1 LKB contains up to 3 CKB.
Supply voltage: 18 – 30 V.
Power switch output load current: not more than 8A.
Current consumption in regular mode: 10mA.

Addressable fire extinguishing switching device (AFESD)

Designed for a placement of components for fire fighting zones. A device can contain up to 4 **LKB**, or 2 **LKB** and 6 **CKB**, respectively. Equipped by 1 IOU-A-02 - 02, pulse unit power supply (18 – 30V), charger control device, 2 cross boards of power supply for FACP components.
Main power supply: 220V AC, 50Hz.
Reserve power supply: 2 batteries 12B, 12A*h.
Overall dimensions: 600x360x120 (mm).

Remote control panel (RCP)

Designed for remote AFD testing. Contains buttons: «**AFD transition to «Fire mode**» and «**Reset of «Fire» mode**».

Manual addressing control panel (MACP)

Designed for manual AFD addressing, measures a level of smoke concentration of FSD-A (CV1511), an operating temperature of FHD-A (CV1512), remote AFD testing.

DC switch KPT-24-2

Designed to increase the load current of the IOU-A (CV1514) channel while saving control of external condition and power load.
Supply voltage: 18 – 30V.
Key load current: not more than 2A.
Current consumption: 20mA.

AC switch KPT-220-10

Designed for switching of loading of IOU-A (CV1514) channel while saving control and condition of 220 V AC external load current.
Supply voltage: 18 – 30V.
Key load current: not more than 10A.
Current consumption: 35mA.

Actuator control unit (ACU)

Designed to control of a condition of loading in a network of 220V AC: presence /absence of load voltage; load line break. It provides a galvanic isolation between a high-voltage network and a load on IOU-A (CV1514) switches.

Link Protection Block (LPB)

Designed to protect communication lines and FL from exceeding a permissible supply voltage. It provides a reliability of elements during impact of lightning discharges, strong electromagnetic fields.
Overall dimensions: 280x200x40 (mm).

Technological control panel (TCP)

Technological control panel (TCP) is connected to ABU (CV1510) and intended for status check of a specific addressable FL condition: start and check the correctness of FL addressing, faults in FL, measurement smoke level of FSD - A (CV1511), work temperature of FHD - A (CV1512) and others.

MEANS OF RECEPTION AND TRANSMISSION OF ALARM NOTIFICATIONS

Alarm receiving center (ARC).

A full name of ARC system: indication equipment of the reception centers of alarm notifications UI CPTS «AI -Griffon». Used for receiving and displaying alarm alerts from AFAS and unaddressed systems fire alarm. FACP uses the open protocols: «Contact ID», «Sur-Gard MLR2-DG» to send alarms providing the opportunity transmission ARC of top-level in automatic mode reports of a fire alarm in the protocol «SOS Access v.3».

UI CPTS includes following components:
BPOIS-1 (unit for reception, processing and message indication);
BPS (unit for receiving notifications using GSM/GPRS/Ethernet);
uninterruptible power supply;
«AI-Griffon» software.
UI CPTS «AI-Griffon» is characterized by the features:
possibility to connect a set of FACP from different manufacturers;
precise identification of FACP components where alarm messages were received;
high manufacturability of object description creation;
possibility to connect up to 7 BPOIS-1 and 128 BPS.

Telephone communicator TC-2/GSM-01

Designed for sending alarm messages to ARC. TK-2/GSM-01 operates in the networks of mobile radio operators of the standard GSM 900/1800 using 1 or 2 SIM cards. Contains built-in telephone line emulator and parametric/logic inputs. It supports such protocols: «Contact ID» and «Ademco Express» 4/2».
Supply voltage: 18 – 30V.
Current consumption in regular mode: 80mA.
Maximum current during a message transmission: 2A.
Overall dimensions: 110x70x20 (mm).

Telephone communicator TC-2/D

Designed for sending alarm messages to ARC. **TC-2/D** works with using a telephone line emulator. Provides transmission encrypted messages to four numbers using logical conditions: «AND», «OR» and «NO». Provides more than 20 protocols support.
Supply voltage: 18 – 30V.
Current consumption in regular mode: 80mA.
Maximum current during a message transmission: 100mA.
Overall dimensions: 110x70x25 (mm).

Graphic informative board

Designed to visualize the operation of a system using a software «Varta-Address Monitoring» – required for visualization of a state of components from AFAS in real time: «**Varta-Address**», «**CV2000**», or from non - addressable fire alarm system «**Varta 1/832**».

Made on a basis of a PC display – **HP Pavivlion All-in-One 24-rOxx**.

Main features:

1. Power supply adapter 20V, 6A DC.
2. Display diagonal: 23".
3. Central processing unit (CPU): I5-6200U.
4. Non-volatile memory (HDD) size: 2TB.
5. RAM size: 8GB.
6. Operating system: WINDOWS10 HOME.
7. Operating conditions:
   – ambient temperature: -5 - 40°C;
   – relative humidity up to 93% at a temperature of 40°C;
   – atmospheric air pressure is from 86 to 106KPa.
8. Operating modes: round-the-clock, continuous.
9. Service life: not less than 10 years.
10. Overall dimensions: 448x633x148 (mm).
11. Weight: 16,8 kg.

Voice notification system COM410

Designed for notification people about a fire in time. The system consists of alarm control device, linear amplifiers and speakers.

System provides four zones of voice notification, at the same time a power of each zone can be increased by linear amplifiers.

It is possible to record different messages in each zone. Messages saved on SD card as a WAV file. Files can be written both from a microphone and by a converting text files using language synthesis programs. Messages reproduction makes from a control panel or a microphone.

Overall dimensions: 397x364x150 (mm).

Speaker

Designed for a text amplification of broadcast verbal fire notifications and a reproduction of specific message types. It connects to a special output of **a voice notification system COM410**.

Works in automatic mode at a broadcast of specific notifications reproduction from **COM410**.

Power: 3 or 6W.

Overall dimensions: 180x155x110 (mm).

NON - ADDRESSABLE FIRE ALARM SYSTEM

Non - addressable fire alarm system is designed to provide a fire protection and prevention of fires at various objects.

Non - addressable fire alarm system operates in continuous mode, a main power supply is 220V AC, a reserve power provides by rechargeable batteries of acid-lead type with a corresponding voltage and capacity. Receives the information about a status of system components; provides constant state control of object in general.

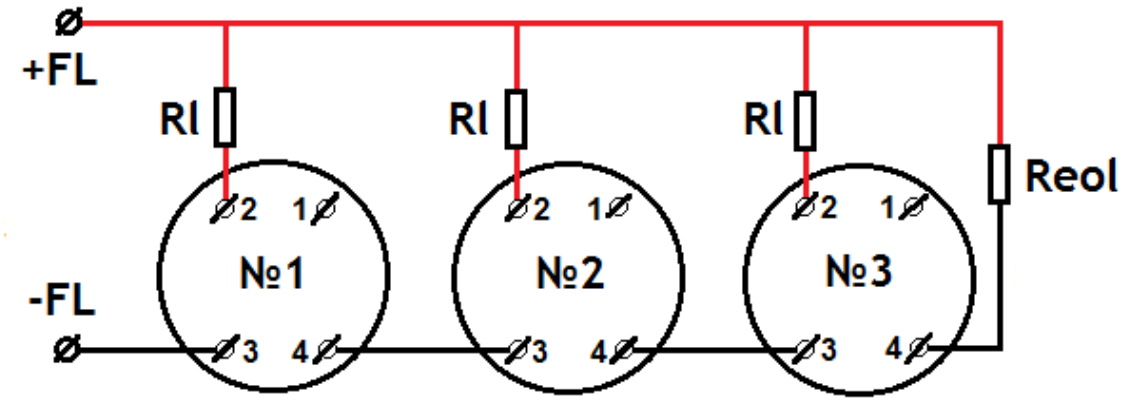
A main difference between non - addressable fire alarm systems and AFAS is when any device is in a «Fire» mode it is impossible to determine a non - addressable fire detector is triggered, but triggers non - addressable loop (L) in general.

A value of non - addressable fire alarm system is few times lower compared to AFAS.

«SCB ELEKTRONMASH» produces such types of non - addressable fire alarm systems: «**Varta 1/2GSM**», «**Varta 1/4**», «**Varta 1/8**», «**Varta 1/16**», «**Varta 1/832**».

Loop organization (L)

FL is a 2- or 4-wire line connecting of non - addressable detectors. Each detector is connected by a limiting resistor (**R_l**), and the last detector is connected by end of line resistor (**R_{eol}**). Power supply and information are transmitted by a same wire.



There are **fire** and **logical** non - addressable detectors.

There are modes of L operation:

«**Fire1**» – when at least one fire detector is triggered, the message «Attention» is issued, at least 2 and more detectors - the message «Fire».

«**Fire2**» – when at least one fire detector is triggered, the L is reset from further expectations. In case of repeated triggering of any fire detector - it is issued the message «Attention». Triggering of 2 or more detectors - it is issued the message «Fire».

«**Logical**» – a mode of technological sensors operation contains normal open (NO) or normal close (NC) contacts. Messages «Attention» and «Fire» are unavailable.

No more than 32 non - addressable fire detectors are permitted to be connected to L. An electric resistance of L does not exceed 470 Ohms.

«Varta 1/2GSM»

Device contains:

Control unit includes:

1. 4 non - addressable loops (L).
2. Relay output 1 – turns on when is the «Fire» mode in any FL.
3. Relay output 2 – turns on when is a fault in any FL.
4. Built-in GSM communicator contains 2 SIM cards.
5. 1 output for light audio notification (LAN).
6. 1 output for external devices supply.

Light indication screen – contains keyboard and indicators that displays the status of device: L status, total number of disconnection, type of faults.

Modes of L operation: «Fire 1», «Fire 2».

Each relays **«Fire»** and **«Fault»** has 1 group of switching contacts: 30B 1A DC or 42V 0.5A AC.

LAN electronic switch: type – open collector; I_{max} load – 300mA.

Output power supply for external devices – 12V; I_{max} load – 200mA.

Main power supply: 220V AC, 50Hz.
Reserve power supply: 1 battery 12V, 2.3A*h.
Overall dimensions: 200x162x60 (mm).

«Varta 1/4»

Device contains:

Comutation unit ВК-2D includes:

1. 4 non - addressable loops (L).
2. Relay output 1 – turns on when is the «Fire» mode in any L.
3. Relay output 2 – turns on when is a fault in any L.
4. 1 output for light audio notification (LAN).
5. 1 output for external devices supply.

Control panel – contains LCD screen, keyboard and indicators that displays the status of device: L status, total number of disconnection, type of faults.

Control unit BKU-4D includes:

1. Central processing unit.
2. Built-in charger control device.
3. Built-in GSM communicator contains 2 SIM cards.

Modes of L operation: «Fire 1», «Fire 2».

Each relays **«Fire»** and **«Fault»** has 1 group of switching contacts: 30B 1A DC or 42V 0.5A AC.

LAN **electronic switch**: type – open collector; I_{max} load – 350mA.

Output power supply for external devices – 12V; I_{max} load – 350mA.

Main power supply: 220V AC, 50Hz.
Reserve power supply: 1 battery 12V, 2.3A*h.
Overall dimensions: 250x180x60 (mm).

«Varta 1/8»

Device contains:

Comutation unit includes:

1. «A1 B1», «A2 B2» – outputs for connection the main and the reserve line of RS485 interface.
2. «A3 B3» – output for PC connection to RS485 interface.
3. K1, K2, K3, K4 – free programming switches.
4. 1 output for light audio notification (LAN).
5. 3 outputs for external devices supply.

Control panel – contains LCD screen, keyboard, and indicators that displays the status of device: L status, total number of disconnection, type of faults.

Control unit includes:

1. Central processing unit.
2. Built-in charger control device.
3. Built-in GSM communicator contains 2 SIM cards.

Loop unit – contains the outputs for connecting up to 8 non **-** addressable loops (L).

Modes of L operation: «Fire 1», «Fire 2».

Switches K1, K2, K3, K4 uses for free soft means a set of logical formulas.

LAN **electronic switch**: type – open collector; I_{max} load – 200mA.

Output power supply for external devices – 12V; I_{max} load – 350mA.

Main power supply: 220V AC, 50Hz.
Reserve power supply: 2 batteries 12V, 7A*h.
Overall dimensions: 360x255x100 (mm).

«Varta 1/16»

Device contains:

Comutation unit includes:

1. «A1 B1», «A2 B2» – outputs for connection the main and the reserve line of RS485 interface.
2. «A3 B3» – output for PC connection to RS485 interface.
3. K1, K2, K3, K4 – free programming switches.
4. 1 output for light audio notification (LAN).
5. 3 outputs for external devices supply.

Control panel – contains LCD screen, keyboard, and indicators that displays the status of device: L status, total number of disconnection, type of faults.

Control unit includes:

1. Central processing unit.
2. Built-in charger control device.
3. Built-in GSM communicator contains 2 SIM cards.

Loop unit - contains the outputs for connecting up to 16 non - addressable loops (L).

Modes of L operation: «Fire 1», «Fire 2».

Switches K1, K2, K3, K4 uses for free soft means a set of logical formulas.

LAN electronic switch: type – open collector; I_{max} load – 200mA.

Output power supply for external devices – 12V; I_{max} load – 350mA.

Main power supply: 220V AC, 50Hz.
Reserve power supply: 2 batteries 12V, 7A*h.
Overall dimensions: 360x255x100 (mm).

«Varta 1/832»

Device contains:

Control unit CU832 includes:

1. 4 outputs for installation 4 **input loop units ILU-3M** contains 8 non - addressable loops (L) and 1 output for installation 1 **output switch unit OSU-16** contains 16 switches.
2. 2 outputs **«A1 B1»**, **«A2 B2»** for external devices connection to the main and the reserve line of RS485 interface and 1 output **«0V»** for devices connection with a different sources of power supply.
3. 1 output **«A3 B3»** for PC connection to RS485 interface.
4. 3 inputs **«Al1 0V», «Al2 0V»,«Al3 0V»** for receiving the fault signals from external devices. It controls by connection to output **«0V».** The messages about fault are on **control panel CP832.**
5. 1 output for light audio notification (LAN).
6. 1 output for **4-wire FL supply**.
7. 1 output for **external devices supply**.
8. Built-in charger control device.

Control panel CP832 – contains LCD screen, keyboard, and indicators that displays a status of device: L status, total number of disconnection, type of faults. There is an output for **external control panel ECP832** connection and a variable resistor for LCD screen brightness setting.

Telephone communicator ТК-2/GSM-01 – designed for sending alarm messages to ARC.

Modes of L operation: «Fire 1», «Fire 2», «Logical».

LAN electronic switch: type – open collector; I_{max} load – 200mA.

Output power supply of **4-wire L** and **external devices** outputs – 12V; I_{max} load – 200mA.

Main power supply: 220V AC, 50Hz.
Reserve power supply: 2 batteries 12V, 12A*h.
Overall dimensions: 364x600x135 (mm).

External control panel ECP832

Designed for remotely image the current status of FACP «Varta 1/832» and completely duplicates its work. Connects to a **control panel CP832** by RS485 interface. **ECP832** can be removed up to 100 meters from **CP832** after connecting the main power supply to this component. When **ECP832** has its own power supply unit it can be removed up to 1000 meters.
Overall dimensions: 285x160x45 (mm).

External components

External components are connected outside a FACP «Varta 1/832» to respective peripheral boxes. There are:
Input loop unit ILU-3E – contains outputs for connection up to 8 non **-** addressable loops (L).
Output switch unit OSU-8 – contains outputs for connecting up to 8 switches.
Load key block (LKB) – contains 1 fire fighting zone.
Contains a built-in charger control device.
A total number of FACP components:
L (4 **ILU-3M** and 15 **ILU-3E**) – 152;
switches (1 **OSU-16** and 15 **OSU-8**) – 136;
fire fighting zones (total number of **LKB**) – 15.
External components are connected successively by RS485 interface using with a total length up to 1000 meters.

Informative table IT-485

Designed for visualization a state of system components. Contains 32 system status indicators, which are a set of light diodes. Connects to **CP832** by RS485 interface using. Contains pulse unit power supply, charger control device.
Overall dimensions: 280x200x70 (mm).

Peripheral cabinet

Designed for location of external components of FACP «Varta 1/832»: **ILU-3E**, **OSU-8**, switches, relays, etc. Each cabinet is equipped with a pulse unit power supply (18 - 30V), batteries.

There are 3 types of peripheral cabinets for FACP «Varta 1/832»: **CPB8**, **ILB8, ILB16**. There are differences in permissible component content and capacity of batteries.

Overall dimensions: 365x255x80 (mm).

Switching device (SD)

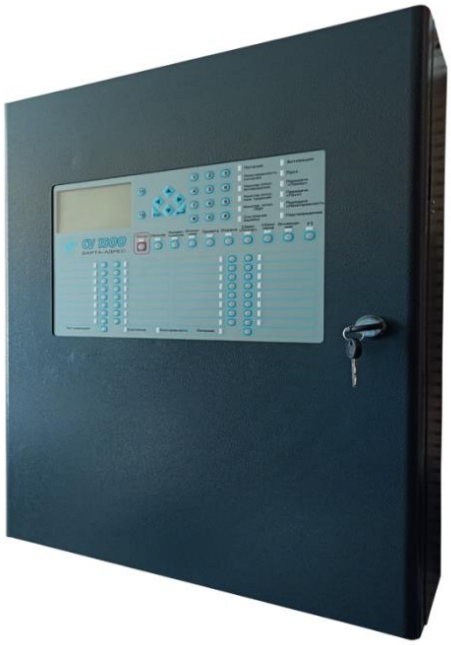
Designed for location of components for firefighting zones. The device can contain up to **4 LKB** or **2 LKB and 6 CKB** respectively. Equipped by pulse unit power supply (18 - 30V), charge control device, 2 cross boards for external devices power supply and RS485 interface commutation.

Main power supply: 220V AC, 50Hz.

Reserve power supply: 2 batteries 12B, 12A*h.

Overall dimensions: 600x350x120 (mm).

«Varta 1/832M»

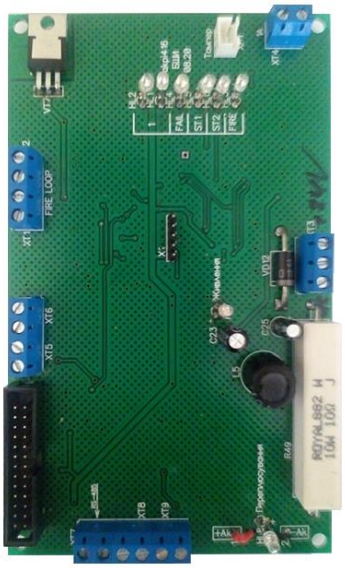


Combines the properties of AFAS and non - addressable fire alarm systems. Non - addressable devices provides a certain object protection with much lower material and financial costs. AFAS exactly determines problem zones and a condition of each component of system. A device can include one stationary and up to 4 addressable fire loops (FL), each of which can be included up to 127 addressable fire detectors (AFD) and up to 40 input - output units (IOU-8) or fire extinguishing block (CV1519). 1 or all 4 FL can be replaced by signal reception units from wireless fire detectors that transmit signals about fire and condition of detectors on the radio channel at a distance up to 500 meters.

IOU-8 contains 8 switches, each of which can to be intended for input of signals from end position sensors, non - addressable loops (up to 32 non - addressable detectors per each channel), output signals to control drive relays or notification control key NCK-3.

Device contains:

Control panel - contains LCD screen, keyboard, and indicators that displays the status of device: status FL, total number of disconnection, type of faults.



Addressable bus and interface unit (ABIU) includes:

1. Outputs for connection up to 4 **addressable fire loop (FL).**
2. **K1 –** free soft programming switch.
3. Built-in **cross unit** for interfaces, PC and external devices connection.
4. Built-in charger control device.

Output power supply of **K1** – 24V; I_{max} load – 1A. It is possible to connect a light audio notification (LAN).

Fire extinguishing block (CV1519).

Designed to control one fire fighting zone. It is combination of IOU-A-02 - 02 and electrical load key block (LCB).Contains FL: starting, manual mode, blocking, extinguishing agent state and brake, outputs for CIP-3 and CIP-485 connection. On a **power switch output** connects a mechanism of fire extinguisher substances starting.
Power switch supply voltage: 18 - 30V.
Power switch output load current: not more than 4A.

Input - output unit (IOU-8)

Contains 8 switches **K1-K8** to control drive relays, status detectors, non - addressable fire detectors.
Output power supply of **K1-K8** – 24V; I_{max} load – 50mA.

Modes of L operation: «Fire 1», «Fire 2», «Logical».
Maximum number of FL in device – 4, **IOU-8 and FU in 1 FL** – 40, **switches** – 320.
Maximum number of devices connected in 1 hierarchical system – 15.
Main power supply: 220V AC, 50Hz.
Reserve power supply: 2 batteries 12V, 12A*h.
Overall dimensions: 600x420x135 (mm).

«Varta 1/8-U1»

Device contains:

Control unit includes:
1. 8 non - addressable loops (L).
2. Relay output 1 – turns on when is the «Fire» mode in any L.
3. Relay output 2 – turns on when is a fault in any L.
4. K1, K2, K3, K4 – free programming switches.
5. 1 output for light audio notification (LAN).
6. 1 output for external devices supply.

Light indication screen – contains the keyboard and indicators that display a status of device: status FL, total number of disconnection, type of faults.

Telephone communicator ТК-2/GSM-01 – designed for sending alarm messages to ARC.

Cascading Key Block (CKB-U1) - designed to control one fire fighting zone. Contains 2 power switches - outputs connects the mechanism for starting a fire extinguisher substances. I_{max} load – 1A.

Modes of L operation: «Fire 1», «Fire 2», «Logical».

Each relays **«Fire»** and **«Fault»** has 1 group of switching contacts: 30B 1A DC or 42V 0.5A AC.

Switches K1, K2, K3, K4 uses for free soft means a set of logical formulas.

LAN electronic switch: type – open collector; I_{max} load – 350mA.

Output power supply for external devices – 15V; I_{max} load – 350mA.

Main power supply: 220V AC, 50Hz.
Reserve power supply: 1 battery 12V, 7A*h.
Overall dimensions: 360x260x90 (mm).

ADDITIONAL EQUIPMENT FOR NON - ADDRESSABLE FIRE ALARM SYSTEMS

Control and indication of modes panel (CIP)

CIP-3

Designed to control one fire fighting zone. Connects to LKB and contains a switch «AUTO.OFF/AUTO.ON» and an indicator «AUTO.OFF». A switch works with a key and an indicator «AUTO. OFF» - lights up in a respective switch position.

Overall dimensions: 130x137x60 (mm).

CIP-485

Designed to control one fire fighting zone. Connects to LKB and contains such switching buttons: «Manual Start», «Lock», «AUTO.OFF» and indicators: «Power», «Fire», «Activation», «Start», «AUTO. OFF», «Start lock», «Fault door L» and «Door closed». In a regular mode operation lights only a «Power» indicator. It is possible to connect up to 7 CIP-485 to 1 LKB.

Overall dimensions: 180x200x95 (mm).

Non - addressable fire detectors «IPK» «Premier» series

Premier Series «IPK» means intelligent detectors. Characterized by features:

• Remote control - use to control and configure Premier detectors remote control. Ability to test at a distance of up to 12 meters detectors in a «Fire» mode to check for operability.

• Obstacle stability - no false alarms.

• Stability - a presence of algorithms and engineering solutions that provides high resolution ability to determine smoke – 0,01dB/m and saving a current value of sensitivity level of detectors with heavy dust in a smoke camera.

• Auto-compensation of smoke camera dustiness with indication of threshold value - prevention of false alarms presence when a smoke camera is very dusty, increasing operation and reliability.

• Presence 3 levels of smoke camera sensitivity: high (0,09 ± 0,03dB/m); average (0,12 ± 0,03dB/m) and low (0,17 ± 0,03dB/m).

• Self-test - run built-in tests to check all nodes of detector: smoke or heat channels in any mode of operation of detector.

<table>
<tr><th>Name</th><th>Type of detector</th><th>Type of L</th><th>Maximum current, mA, regular mode</th><th>Maximum current, mA, «Fire» mode</th></tr>
<tr><td>IPK-1</td><td>combined</td><td rowspan="2">four-wire loop</td><td rowspan="10">0,12</td><td rowspan="10">20</td></tr>
<tr><td>IPK-2</td><td>smoke</td></tr>
<tr><td>IPK-3</td><td>combined</td><td rowspan="2">two-wire loop</td></tr>
<tr><td>IPK-4</td><td>smoke</td></tr>
<tr><td>IPK-5</td><td>combined</td><td rowspan="2">four-wire loop</td></tr>
<tr><td>IPK-6</td><td>smoke</td></tr>
<tr><td>IPK-7</td><td rowspan="3">heat</td><td>two-wire loop</td></tr>
<tr><td>IPK-7/1</td><td rowspan="2">four-wire loop</td></tr>
<tr><td>IPK-7/2</td></tr>
</table>

*__IPK-1; 3; 5; 7; (7/1; 7/2)__ – rate of rise detectors.

*__IPK-1; 2; 7/1; (5; 6; 7/2)__ – featured by **NC (NO)** relay output.

Sensitivity (threshold triggering) of smoke camera: 0.1-0.2 dB/m.

Nominal temperature of operation of thermal channel: 55-70°C.

Non - addressable fire detectors «IPK»


«IPK» means threshold detectors.

Name	Type of detector	Type of FL	Maximum current, mA, regular mode	Maximum current, mA, «Fire» mode
IPR-1	manual	two-wire loop	0	7-18
IPK-8	smoke	two-wire loop	0,1	23
IPK-8/1		four-wire loop		
IPK-8/2				
IPK-9	heat	two-wire loop		20
IPK-9/1		four-wire loop		
IPK-9/2				

*__IPK-9; (9/1, 9/2)__ – static detectors.

*__IPK-8/1; 9/1, (8/2; 9/2)__ – featured by **NC (NO)** relay output.

Sensitivity (threshold triggering) of smoke camera: 0.1-0.2dB/m.

Nominal temperature of operation of thermal channel: 55-70°C.

Manual call point IPR-1 «IP-54»

A principle of operation is similar to a usual non - addressable manual detector IPR-1. It designed for outdoor and indoor installation premises equipped with additional sealing.
Has a degree of protection – IP-54.

Spark protection barrier (SPB) and explosion proof detectors (Ex)

A spark protection barrier (SPB) is designed to connect an electrical equipment located in explosive zone with an equipment in protected zone. There is available ExibllB X protection marking. To SPB explosion-proof fire detectors are connected: IPR-1-Ex, IPK-8-Ex, IPK-9-Ex.

- Degree of protection of a cover according to IEC 60529: «IP20».
- Maximum output voltage, U_o: 33V.
- Maximum output current, I_o: 30mA.
- Maximum output power, P_o: 1W.
- Maximum external inductance, L_o: 0.5mH.
- Maximum external electrical capacity, C_o: 0.2μF.

Explosion proof detectors				
Name	Type of detector	Type of L	Maximum current, mA, regular mode	Maximum current, mA, «Fire» mode
IPR-1-Ex	manual	two-wire loop	0	7-19
IPK-8-Ex	smoke		0.1	25
IPK-9-Ex	heat			

Detectors installs in explosive area. A frame is a heat-resistant material. They are characterized by a degree of protection - «ib» and a marking presence is «1ExibllBT5 X».

Manual control button (MCB)

In addition to non - addressable manual detectors, there are manual control buttons for viewing commands in fire alarm system.

Denotation	Determination	Frame color	Type of contacts
MCB-1	Start extinguishing	yellow	NO
MCB-2	Stop extinguishing	blue	NC
MCB-3	Alarm		NO
MCB-4	Door unlocking	green	NO
MCB-5	Smoke removal start	white	NO
MCB-6	Air support		NO

Supply voltage: 12 – 24V.
Current consumption in a regular mode: 0mA.
Current consumption in «On» mode: 12mA 24V – 24mA 12V.
Overall dimensions: 90x93x48 (mm).

Smoke alarm device CV212-12

It is an automatic optoelectronic device that performs sound and optical signaling of exceeding the limit the value of a density of smoke in a place of its installation. It is possible to connect up to 32 CV212-12 by two-wire loop.
There are CV212-12 and CV212-12-01, differ in battery type:

CV212-12 – 1 Li 3V battery.
CV212-12-01 – 2 AA 1.5V batteries.

Sensitivity (trigger threshold) of smoke camera: 0.2dB/m.
Supply voltage: 3V.
Current consumption: 2μA.
Siren volume: 85dB.
Dimensions: diameter – 105 mm; height – 60 mm.

Line smoke detector CV212-14

Designed to measure changes in infrared intensity emission due to its passage through the smoky space. It consists of two components: transmitter and receiver. A distance between them is up to 100 meters. There are brackets for CV212-14 installation and remote control for it control and adjustment.
Supply voltage: 18 – 30V.
Consumption current:

receiver in regular mode: 8mA;
receiver in «Fire» mode: 18mA;
transmitter in regular mode and in «Fire» mode: 6mA.

Receiver field of view angle: 30°.
Overall dimensions: 85x85x45 (mm).

Line heat detector CV101-01

Designed to detect a temperature rise by short circuit of a linear sensitive element - a thermal cable in a place of exposure to high temperature and determining a distance to a place short circuit of a sensitive element. Contains 4 loops (L), each of which has 1 thermal cable and a distance determination unit (DDU) – works in all L. An electrical resistance of L and a distance to a short circuit in L are displayed on LCD.

Supply voltage: 18 –30V.
Current consumption in regular mode and in «Fire» mode: 35mA.
Overall dimensions: 282x214x63 (mm).

Line detectors operation does not influence on fire detectors operation and security systems.

Notification control key NCK-3

Designed to light audio notification (LAN) connection and control it a connection line. Contains outputs for LAN connection, fault output, NCK-3 status indicators. Connects to OSU is a component of a fire alarm system «Varta 1/832».

Supply voltage: 21–27V.
Maximum load current of outputs: 2A.
Maximum power consumed by NCK-3 (without LAN load current): 1.6W.
LAN supply voltage range: 10–230V DC or AC.
Overall dimensions: 90x57x52 (mm).

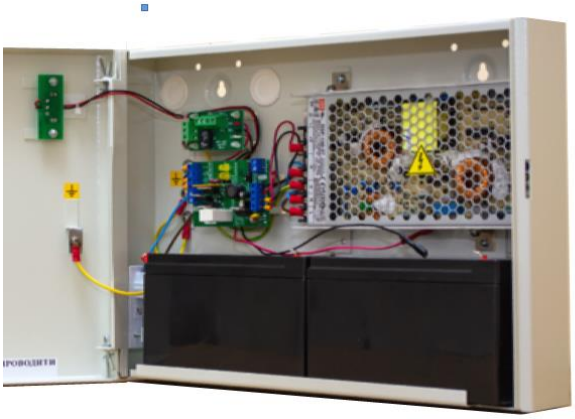
Notification control device NCD-3

Designed for installation up to 3 NCK-3.
Main power supply: 220V AC, 50Hz.
Reserve power supply: 2 batteries 12B, 2A * h.
Overall dimensions: 360x305x90 (mm).

Fire alarm sounder (FAS)

Designed to alert people indoors about emergence of a fire situation due to issuance of light and sound signals on facilities equipped by a fire protection alarm system. Connects to IOU-A, CV1514 or OSU switches.
Supply voltage: 12 – 24V.
Current consumption: 22mA 24V – 44mA 12V.
Siren volume: 65 – 95dB.
Dimensions: diameter – 102 mm; height – 49 mm.

Uninterruptible power supply (UPS)



Designed to power fire extinguishers alarm systems, automation, video surveillance systems and emergency lighting by 12 or 24V DC. It contains two outputs for devices connection and relay output «Fault».
Overall dimensions: 360x205x82 (mm).

Device name	Main power supply	Reserve power supply	Maximum load current, A
UPS 12-5	220V AC, 50Hz	1 battery 12V, 7A*h	5
UPS 24-5		2 batteries 12V, 7A*h	

Relay switching device (RSD)

Designed for switching DC and AC circuits current relay contacts and power supply relay windings from built-in power supplies.
Overall dimensions: 362x305x76 (mm).

Device name	Main power supply	Reserve power supply	Maximum load current, A	Total number of relay	Total number of switching contacts in relay
RSD - 12-2	220V AC, 50Hz	1 battery 12V, 7A*h	5	2	2
RSD - 12-4				4	
RSD - 24-2		2 batteries 12V, 2A*h		2	
RSD - 24-4				4	

Relay block BR-8

Designed for switching DC and AC circuits current of free programming switches are in fire alarm systems: «Varta 1/4, 1/8, 1/16, 1/832» by relay contacts.
Overall dimensions: 90x60x10 (mm).

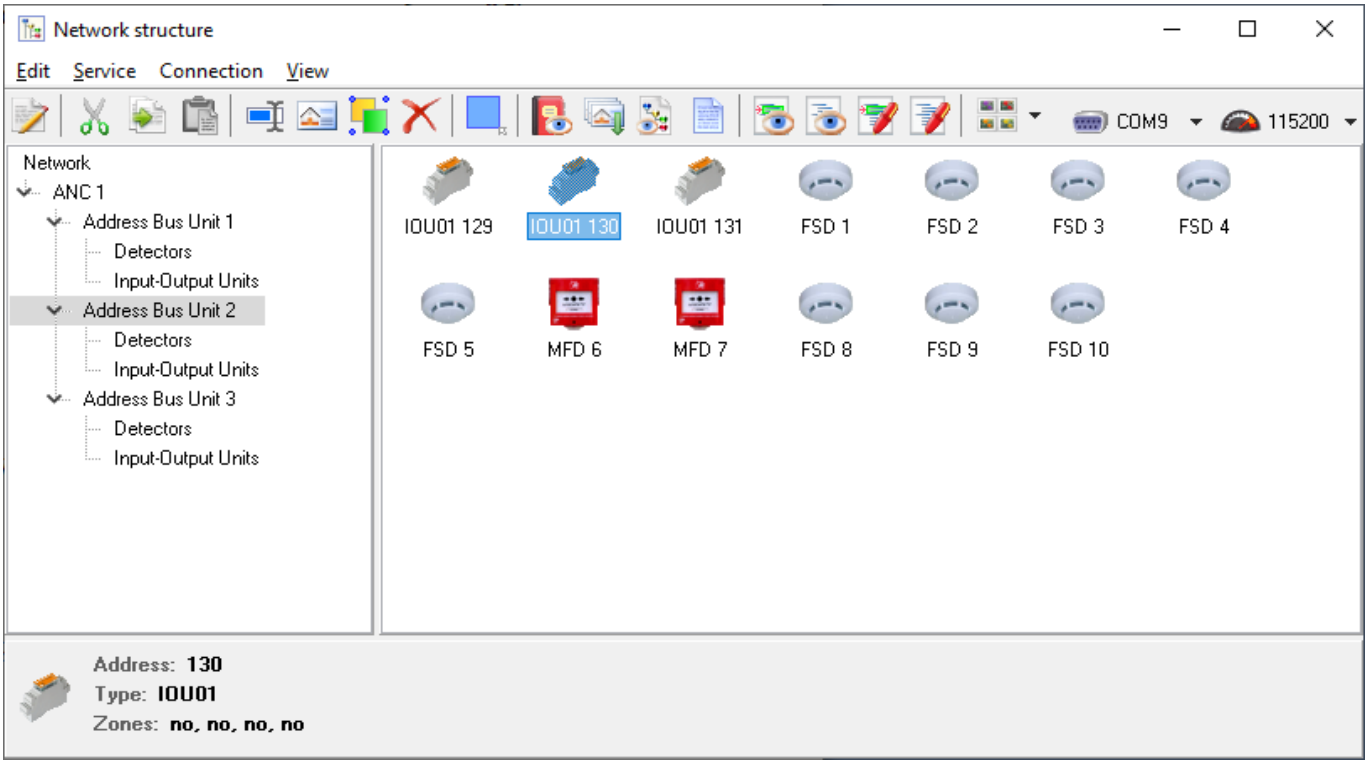
Device name	Maximum voltage of comutation	Maximum load current, A	Total number of relay	Total number of switching contacts in relay
BR-8	60V AC, 42V DC	2	4	2
BR-8-2			2	

SOFTWARE

«Designer»

Designed for programming components of AFAS «**Varta-Address**» and «**CV1500**», which implements algorithm of AFAS functioning , automatics and fire extinguishing of object.

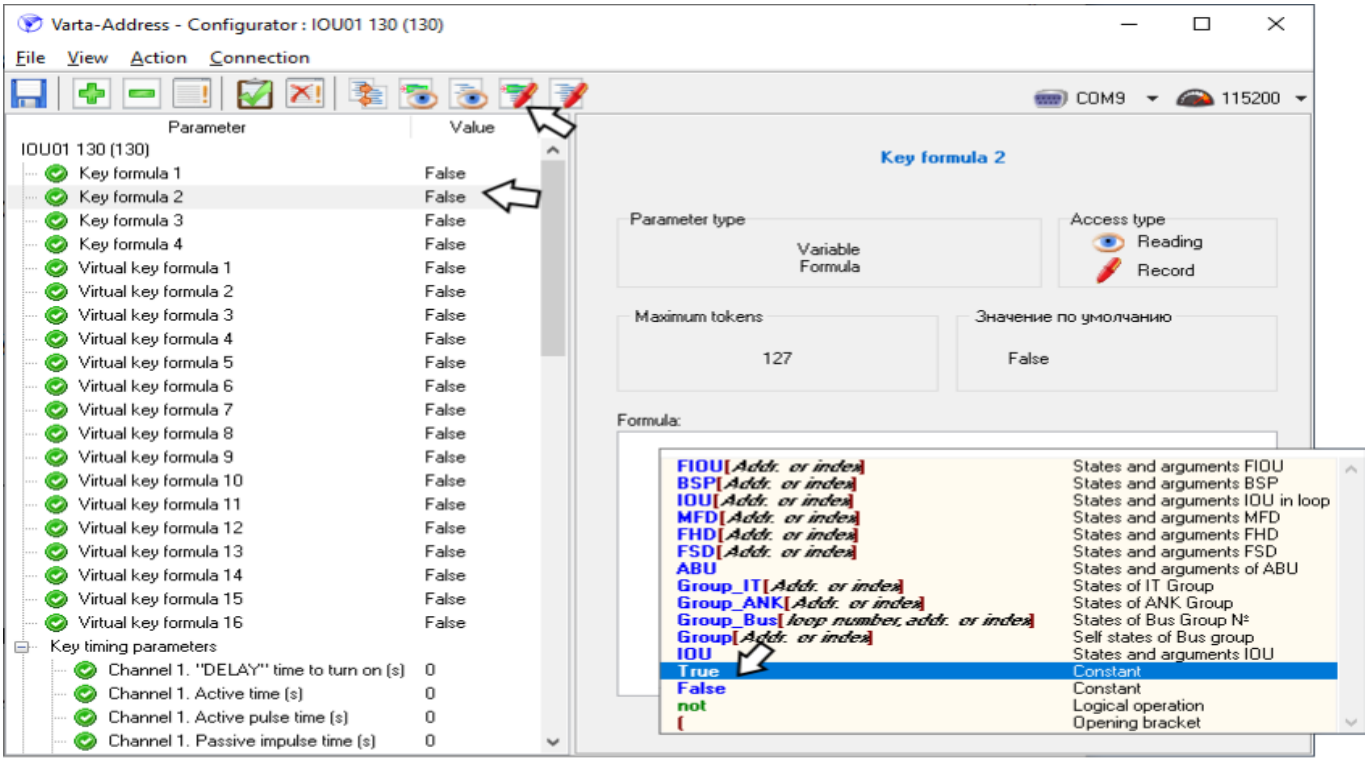
In a software «Designer» there is an opportunity to read an AFAS topology in general, add, delete, change names of components (text identifiers), their addresses and locations, call an editor «Configurator», event log reading window, read and write configurations of AFAS components.



Main view of «Designer» software

«Configurator»

Designed to adjust the parameters of AFAS components, check, read and write to FACP. It is possible using software «Configurator» to read a topology of a specific component of AFAS - look at states of physical keys (switches) and groups (virtual keys), write logical formulas on respective key groups, text identifier.



Main view of «Configurator» software

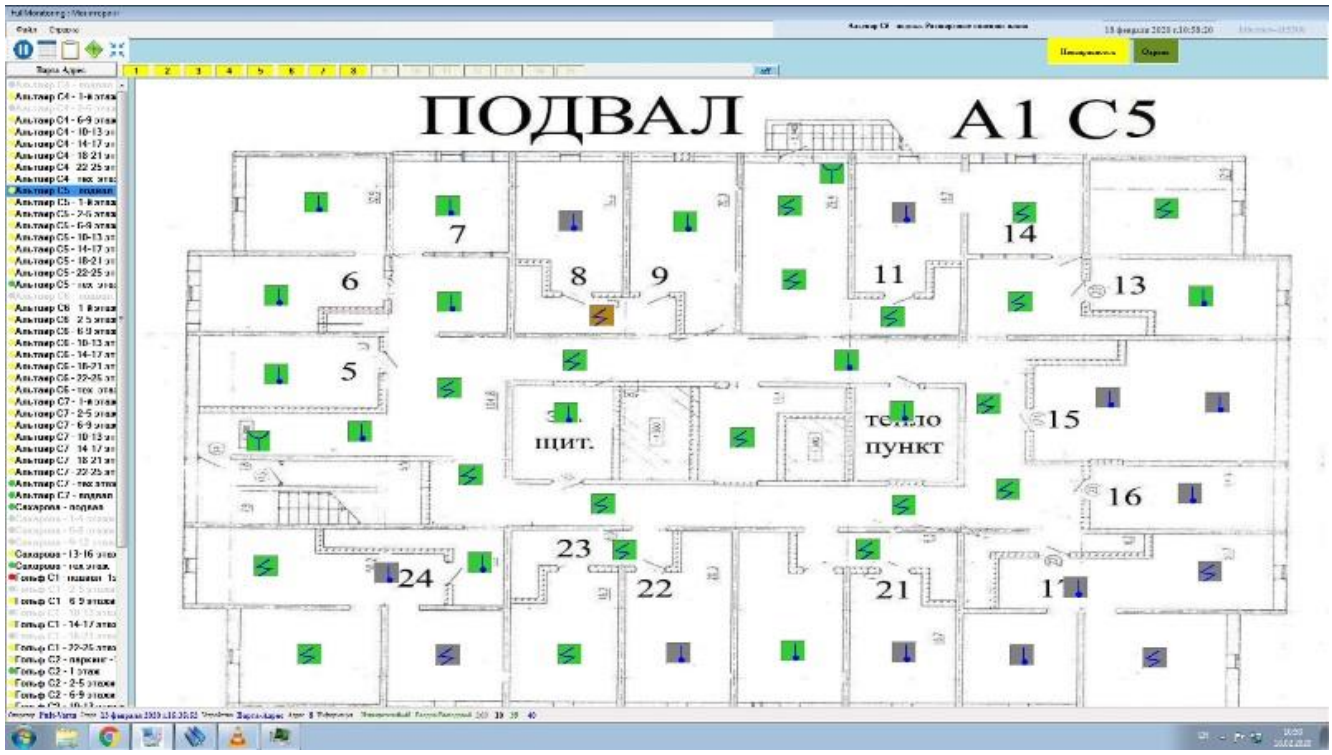
«Varta-Address Monitoring»

Designed to build remote monitoring and remote control systems, effective scheduling systems of AFAS: «**Varta-Address**», «**CV2000**»; non-addressable «**Varta 1/832**» and their components. Permits connection up to 15 independent systems listed above, which are located in different places. It provides a single collection of control data from different objects in real time.

Implementation of «Varta-Address Monitoring» software permits to provide maximum level of security, unmistakably identify, respond quickly to a specific event.

Features of scheduling systems and «Varta-Address Monitoring»:

1. Automated collection of data about the state of objects.
2. Rapid response after fire or fault events emergence.
3. Continuous control over fire alarm and automation systems based on the above PRC systems.
4. Reducing any likelihood of accidents.
5. Reduction of operating costs.
6. Improving document management and reporting system.
7. Creating comfortable working conditions.



Main view of «Varta-Address Monitoring» software.