RUBEZH

FIRE ALARM SYSTEM

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"RUBEZH" TODAY

MORE THAN **30** YEARS
ON THE MARKET

20
OPERATING COUNTRIES

3 billion m^2
OF FACILITIES
under the installed equipment control

20 thous. m^2
OF PRODUCTION FACILITIES

4 PLANTS

1 MORE THAN MILLION
OF INSTALLED FACILITIES

2 LOGISTIC CENTERS

Dear clients and partners!

The research and production company “RUBEZH” is one of the largest designers and manufacturers of engineering security systems for the facilities of different purpose and size.

The “RUBEZH” TM products are present in all the spheres of security technical support: fire alarm systems, public address and voice evacuation systems, software for monitoring and situational management.

Today “RUBEZH” is one of the leaders in the technical security systems industry in Russia and the CIS countries. The company is focused on creating products and solutions that not only meet high standards of reliability and quality, but also set new trends in the industry development.

The Company's quality management system is based on ISO 900 series standards and is annually audited for the compliance with the TŰV TIC international certification center.

"RUBEZH" is a prize winner of the Russian Federation Government Quality Award. This is the main award in the field of quality management in Russia, adjudged annually on a competitive basis for the significant results achievement in the field of product and service quality, as well as for the introduction of highly effective management methods.

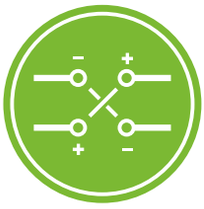
The "RUBEZH" team mission is to make today's world safer, creating innovative technical solutions and products!

EN54 STANDARD FIRE ALARM SYSTEM

RUBEZH FIRE ALARM SYSTEM MAIN ADVANTAGES

RUBEZH addressable fire alarm system is certified under EN 54 standards

Up to 3500 addresses per each control panel



Unipolar connection of system devices (ACL)

Each loop is up to 3 000 m length

Up to 21 control panels integrated in one system

All interfaces have back-up feature to secure system reliability

Modular structure of units and control panels

Fire alarm system software has WEB-version

Software allows for on-site as well as remote monitoring

System customization to suit customers' specific needs

GENERAL DESCRIPTION OF EN54 STANDARD FIRE ALARM SYSTEM

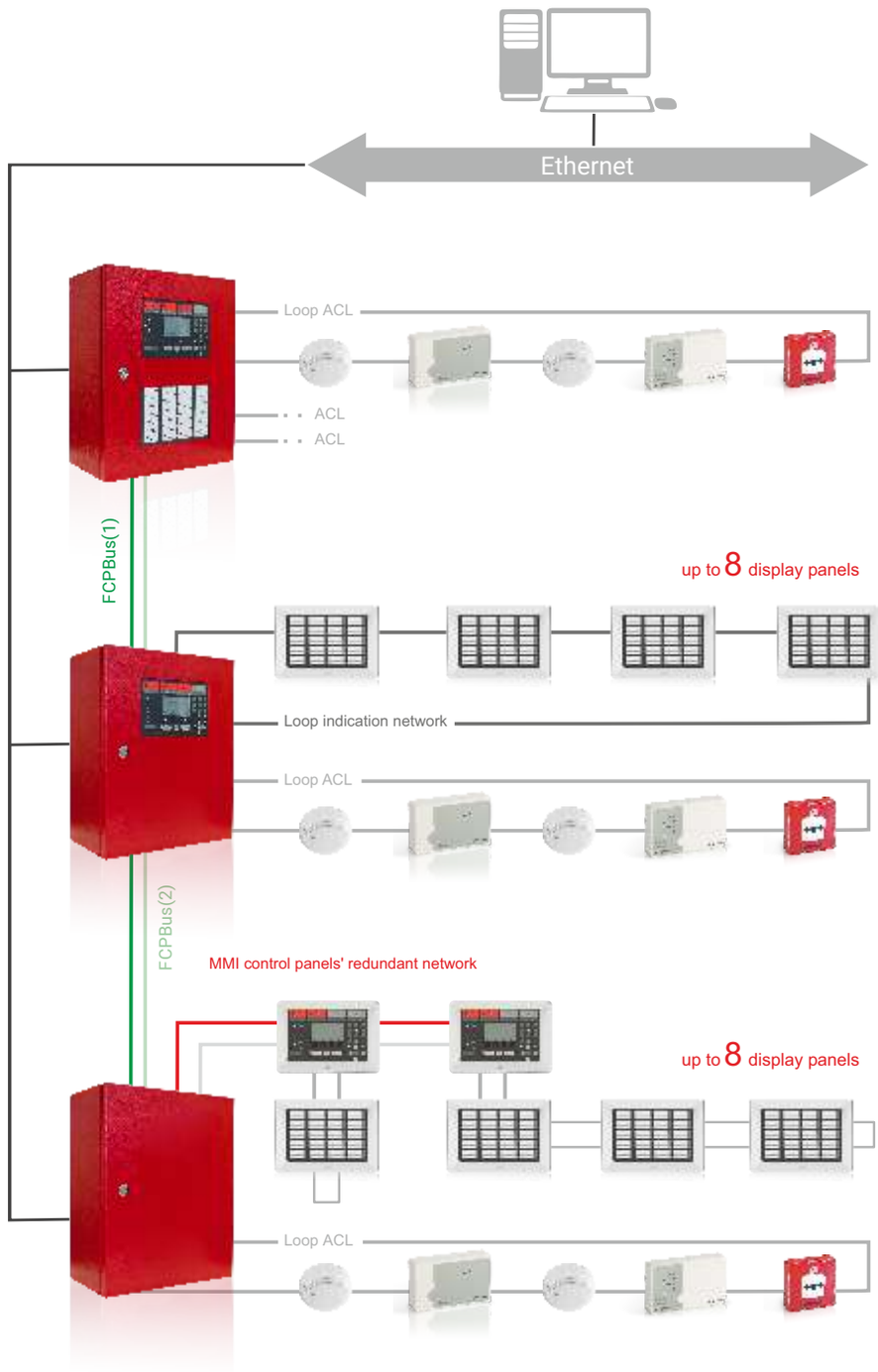
System design and integration

The system comprises three main levels:

Top level (HMI and software) - creating object configuration, writing / reading devices database, fire alarm system monitoring.

Middle level (fire alarm control panel, control and display panels) - collecting and processing information from address devices, control signals initialization, the state of the site indication, arrangement of interaction between all the fire alarm control panels.

Low level (detectors and input-output modules) - fire detection (accompanied by smoke, temperature rise), dry contacts monitoring and actuators control.



TOP LEVEL SYSTEM COMMUNICATION

“FireSec Multiserver Task” Software

The “FireSec MultiServer Task” application is used to monitor and control several individual “RUBEZH” fire and security alarm systems, each connected to its own server.

The FireSec software is compatible with Windows 7 (Professional) and higher-level operating systems.

“FireSec Operative Task” Software

The “FireSec Operative Task” application is a part of the hardware and software system, designed for real-time monitoring

“FireSec Administrator” Software

“FireSec Administrator” application is use for “RUBEZH” fire alarm systems address modeling and setting up the “FireSec Operational Task” monitoring program.

MIDDLE LEVEL SYSTEM COMMUNICATION

The R3500 fire alarm control panel is the basic component of the system.

The R3500 Fire Alarm Control Panel (hereinafter referred to as R3500) can be provided in three versions:
R3510 – with a blank door, remote operator control panels and remote OIP40 display panels as an option;
R3520 – with operator control panel built-into the instrument door and remote OIP40 display panels as an option;
R3530 – with operator control panel and OIP40 display panels built-into the instrument door.
It is possible to install up to 10 units into the control panel, depending on the required functionality.

Units installed by default:
PSU-5 - power supply unit;
PMU-5 - power management unit;
PCU-R3 - peripheral control unit.

Units installed in the panel as an option (no more than 8 units in one panel):
REL-16 - relay unit;
NET-2 - RS-485 net unit (FCPBus interface);
MMI-2 - MMIBus interface unit;
PCU-R3 - peripheral control unit;
LAN-1 - local area network unit.

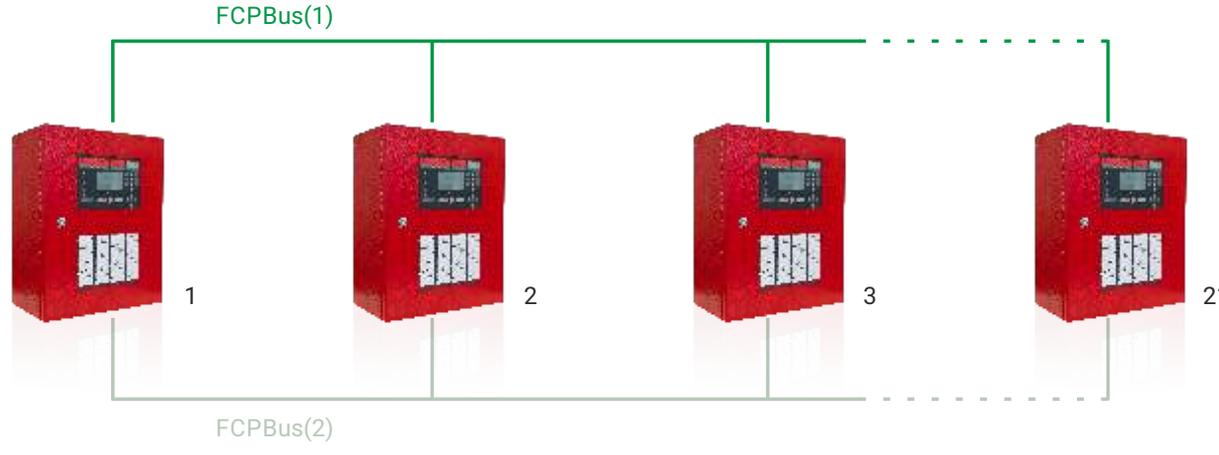
Depending on the R3500 panel version, it can be equipped with an OCP operator control panel. The OCP is connected via the MMIBus interface. The distance between the R3500 panel and the OCP should not exceed 1000 m.

Each R3500 panel supports connection of OIP40 display panels. The R3510 (in case it has a remote operator control panel) and R3520 versions can be equipped with up to 8 display panels. The R3530 panels are already equipped with one OIP40 display panel; therefore, it is possible to connect no more than seven OIP40 display panels to it.

Fire alarm control panels network, FCPBus interface.

For several R3500 panels' interaction within one system, the NET-2 unit must be installed in each of them. This unit integrates R3500 panels into a single system through the FCPBus interface (physical layer of the FCPBus interface). When combining panels, if necessary, cross-connections are implemented, - switching of the executive modules connected to the ACL of one panel, when the events "Fire", "Pre-alarm", etc., occurred on another panel.

The FCPBus interface is set up using two independent communication channels. To ensure reliability, each channel must be designed as a separate cable line. FCPBus network topology is a common bus. The maximum length of this interface is 1000 m.



LOW LEVEL SYSTEM COMMUNICATION

Addressable communication lines topology

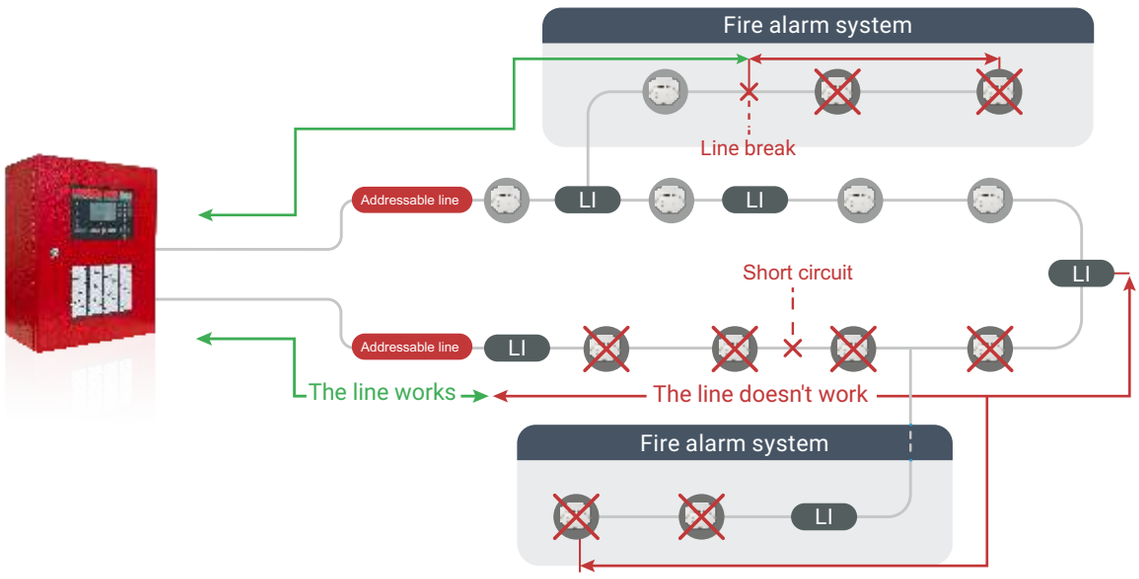
Low level comprises all addressable devices and modules. Equipment on this level exchanges information with control panel via addressable communication line (ACL).

By default, the R3500 panel is provided with one PCU-R3. Up to seven PCU-R3s (any R3500 FACP already comprises one PCU-R3 of seven) can be installed in each R3500, if it is necessary to expand the number of controlled addressable devices or the number of addressable communication lines.

The addressable communication line is a two-wire digital data transmission interface based on the RS-R3 protocol. Two ACL wires simultaneously provide the information exchange between the fire alarm control panel and addressable devices, such as fire detectors, input modules IM1 and IM4, output modules OM1, OM4 and POM1, devices LI, IOCM43 and IOM22 power supply. Devices such as IOCM43, OCM1, OCM4 require additional external power for operation.

There are several ACL topologies supported by the R3500 panel:
loop;
loop with branches;
radial (if allowed by the national standard).

Loop ACL topology provides maximum reliability of communication lines. With this networking, the line starts at the “B” terminals (LOOP1 or LOOP2) of the panel, passes through the premises of the facility and ends at the “E” terminals (LOOP1 or LOOP2) of the panel, forming a loop. The ACL length should not exceed 3000 meters.



The loop line topology allows the panel to communicate with all addressable devices even in case of line break. Two radial lines are formed from the broken loop ACL; as a result, some of the addressable devices are connected with one ACL radial line, and the others - with another ACL radial line. Thus, the operability of all devices is ensured when there is a single break in the loop. A short circuit in the loop ACL as well as in the radial one results in the loss of communication between the panel and all the devices on this line. To protect the line from the short-circuit and keep the part of the line in operating condition, it is recommended to install line insulators LI, which separate the closed-loop from the rest of the line.

CONTROL PANELS

R3500 Fire Alarm Control Panel

Addressable fire alarm control panel is designed to control the addressable detectors and modules, to collect and process information. One system can contain up to 21 panels (R3510, R3520 and R3530).

Panels may be combined into a single system in case two independent FCPBus interfaces are used. The R3500 panel may include a number of plugged-in units:

- **PSU-5 –** power supply unit – 1 pc;
- **PMU-5 –** power management unit – 1 pc;
- **REL-16 –** relay unit – (0-1) pc;
- **NET-2 –** FCPBus net unit– (0-1) pc;
- **MMI-2 –** MIBus man-machine interface unit – (0-1) pc;
- **PCU-R3 –** peripheral control unit – (1-7) pcs;
- **LAN-1 –** local area network unit – (0-1) pc.

Certified according to: EN54-2, EN54-4, No 1293-CPR-0787

Specifications

Supply voltage range	230 V AC +10%/-15%, 50-60 Hz
Power consumption max.	max. 170 W
Accumulator battery	2 x 40 A h (Lead-Acid Battery)
Addressable devices max number	3500
Plug-in units max number	10
FCPBus Relay max permissible length	1000 m
Relay:	
Alarm and fault relay	2
Optional relay	16
Dimensions HxWxD	550 x 440 x 250 mm
Weight, without battery	21 kg, not more

OCP Operator Control Panel

Remote OCP is used for R3500 Fire Alarm Control Panel functionality expansion. The OCP is connected to the R3500 Panel via two independent interfaces “MMIBus” and is used as redundant remote control panel. Up to eight OIP40s can be connected via two independent “CLBus” interfaces.

Certified according to: EN54-2, EN54-4, No1293-CPR-0787

Specifications

Supply voltage range	20.4 V DC to 28.8 V DC
Power consumption	max. 3 W
MMIBus max permissible length	1000 m
Dimensions HxWxD	320×253×33 mm
Weight	1.3 kg

OIP40 Operator Display Panel

OIP40 is used to display status of addressable fire alarm system areas on a built-in LED display using 40 cells with status indicators. It is connected to the Operator Control Panel (OCP) via "CLBus" interface.

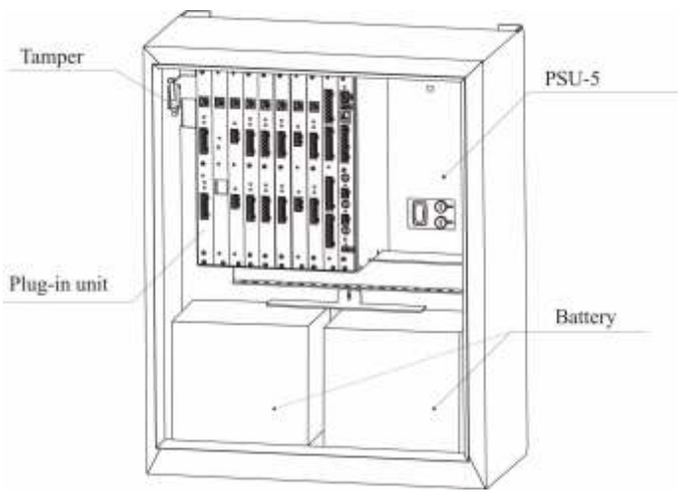
Certified according to: EN54-2, EN54-4, No 1293-CPR-0787

Specifications

Indicators number	40 (80 LED)
Supply voltage range	21 V DC - 30 V DC
Power consumption	max. 1.8 W
Max permissible length of CLBus with OIP40 external power supply	 10 m 500 m
Dimensions HxWxD	320 x 253 x 33 mm
Weight	1.2 kg

PLUG-IN UNITS

The R3500 panel has a modular construction. The subrack allows to install up to 10 plug-in units with 6U height.



• PSU-5 – power supply unit, is a mandatory unit. PSU-5 is installed in the R3500 panel to convert 220 V AC into 24 V DC to transmit this voltage to power management unit (PMU-5). The power supply unit provides automatic switching from 220 V AC input to accumulator batteries installed in the R3500 panel case and their charge.

• PMU-5 – power management unit is a mandatory unit. PMU-5 is installed in the R3500 panel to distribute 24 V DC voltage from PSU-5 to all the units built into R3500 panel.

• REL-16 – relay unit. Not more than one unit can be plugged in per each control panel. REL-16 is installed into R3500 if necessary and is controlled by the external devices using 16 independently configurable relays.

• NET-2 - FCPBus net unit. Not more than one unit can be plugged in per each control panel. NET-2 is designed to integrate several R3500 panels (up to 21 pcs.) in a single system using two independent FCPBus interfaces. Each interface is up to 1000m length.

• MMI-2 – MMIBus man machine interface unit. Not more than one unit can be plugged in per each control panel. MMI-2 is designed to connect the local OCPs to R3500 using two independent MMIBus interfaces. Each interface is up to 1000m length.

• PCU-R3 – peripheral control unit. From one up to seven units could be plugged-in. Each block allows monitoring the status of 500 addressable devices on two ACLs (up to 250 addressable devices per line).

• LAN-1 – local area network unit. Not more than one unit can be plugged in per each control panel. LAN-1 is designed to receive and transmit information from personal computer with FireSec software installed.

ADDRESSABLE DEVICES

OSD64 Optical Smoke Detector

Addressable electrooptic smoke detector is used for detection of fire with smoke.

Certified according to: EN54-7, No 1293-CPR-0709

Specifications

Response rate (adjustment range):	0.12 dB/m
Supply voltage	from ACL (loop)
Current consumption	0.28 mA
Dimensions, with base	Ø94 × 46.5 mm
Weight, with base	120 g

HD29 Heat Detector

Addressable maximum differential heat detector is used for detection of fire with temperature rise.

Certified according to: EN54-5, No 1293-CPR-0708

Specifications

Temperature	58°C
Supply voltage	from ACL (loop)
Current consumption	0.28 mA
Dimensions, with base	Ø94 × 46.5 mm
Weight, with base	120 g

OHD64 Optical/Heat Detector

Addressable electrooptic combined smoke and heat detector is used for detection of fire accompanied by smoke or temperature rise.

Certified according to: EN54-5, EN54-7 No 1293-CPR-0707

Specifications

Response rate (adjustment range):	
Smoke	0.12 dB/m
Temperature	58°C
Supply voltage	from ACL (loop)
Current consumption	0.28 mA
Dimensions, with base	Ø94 × 46.5 mm
Weight, with base	120 g

W1.0x Mounting Base

Designs:
W1.02 – with loop contacts;
W1.03 – with loop contacts and a pad for the cable screen securing.

Specifications

Overall dimensions of the detector with bases	94 × 46.5 mm
Detector weight with bases	120 g

W2.0x Mounting Base

Designs:
W2.02 – with loop contacts for the installation on a dropped celling;
W2.03 – with loop contacts for the installation on a dropped celling, and a pad for the cable screen securing.

Specifications

Overall dimensions of the detector with bases	Ø142 (at flange) × 66 mm
Detector weight with bases	160 g

MCP11 Manual Call Point

Manual call point is used to switch “Fire” signal on.

Certified according to: EN54-11, No 1293-CPR-0715

Specifications

Supply voltage	from ACL (loop)
Current consumption	0.23 mA
Dimensions HxWxD	88 x 86 x 45 mm
Weight	100 g

ADDRESSABLE DEVICES

IM Input Module

Input Module is used to receive signals from devices with dry contact output that are not supplied by the loop and transmit them to the control panel.
Designs:
Im1 – one output;
Im4 – four outputs.

Certified according to: EN54-18, No 1293-CPR-0710

Specifications

Supply voltage	from ACL (loop)
Output number: IM1 IM4	 1 4
Current consumption: IM1 IM4	 0.3 mA 0.55 mA
Dimensions H×W×D IM1 IM4	 51 x 51 x 24 mm 84 x 125 x 37 mm
Weight: IM1 IM4	 30 g 100 g

IOCM43 Input Output Control Module

IOCM43 is used to connect conventional fire alarm devices to addressable system and control actuating devices. It transmits information about status of a circuit with the fire alarm devices to the fire alarm control panel.

Certified according to: EN54-18, No 1293-CPR-1293

Specifications

Supply voltage: from UPS	11.5 V DC - 14 V DC 20 V DC - 28 V DC
Current consumption: from UPS	35 mA at 12 V DC, 25 mA at 24 V DC
Number of inputs	4
Number of outputs with control	2
Number of relay outputs	1
Maximum current of outputs with control	0.5A
Maximum control current of the outputs in the off state	1.2мА
Relay contact performance: at 30VDC at 250VAC	 3A 3A
Dimensions HxWxD	108 x 170 x 42 mm
Weight	250 g

ADDRESSABLE DEVICES

IOM22 Input/Output Module

IOM22 is designed to controls the status of two conventional lines of alarm system and two dry contact relays.

Certified according to: EN54-18, No 1293-CPR-0714

Specifications

Supply voltage	from ACL (loop)
Relay output number	2
Relay contact performance: at 30VDC at 250VAC	 2 A 0.25 A
Inputs number	2
Current consumption	0.53 mA
Dimensions H×W×D	84 x 125 x 37 mm
Weight	100 g

OCM Output Control Module

OCM controls executive devices included into a fire alarm and security system with circuit monitoring up to executive devices.

Designs:

- **OCM1 –** one supply output with circuit integrity control up to terminal;
- **OCM4 –** four supply output with circuit integrity control up to terminal.

Certified according to: EN54-18, No 1293-CPR-0713

Specifications

Supply voltage: from UPS	10.5 V DC - 14 V DC 20 V DC - 28,5 V DC
Current consumption from the alarm loop	0.23 mA
Own current consumption from external power supply	5 mA, not more
Number of outputs: OCM1 OCM4	 1 4
Max output current	2 A
Max OCM4 module outputs total current	5 A
Max outputs control current in the off-state	2 mA
Dimensions H×W×D	84 x 125 x 37 mm
Weight	150 g

ADDRESSABLE DEVICES

POM1 Power Output Module

Is used to control executive devices included into a fire alarm system. Dry contact. Used for transmission of higher currents.

Certified according to: EN54-18, No 1293-CPR-1293

Specifications

Supply voltage	from ACL (loop)
Current consumption	0.8 mA
Relay contact performance: General use Tungsten Lamp	 5A 24 V DC 5A 230 V AC
Number of outputs	1
Dimensions H×W×D	84 x 125 x 37 mm
Weight	100 g

OM Output Module

Is used to control executive devices included into a fire alarm system. Dry contact.

- **OM1 –** one dry contact relay;
- **OM4 –** four dry contact relays.

Certified according to: EN54-18, No 1293-CPR-1293

Specifications

Supply voltage	from ACL (loop)
Supply voltage At 30VDC At 125VAC	 2 A 0.25 A
Output number: OM1 OM4	 1 4
Current consumption: OM1 OM4	 0.4 mA 0.75 mA
Dimensions H×W×D OM1 OM4	 52 x 52 x 24 mm 84 x 125 x 37 mm
Weight: OM1 OM4	 28 g 100 g

ADDITIONAL DEVICES/CONVENTIONAL DETECTORS

LI Loop Isolator

LI cuts off ACL part in case of short-circuit, ensuring the operability of the rest of the communication line.

Certified according to: EN54-17, No 1293-CPR-0731

Specifications

Supply voltage	from ACL (loop)
Current consumption	0.68 mA
Specified voltage range	0.68 mA
Security activation voltage	10 mA
Dimensions	52 x 52 x 24 mm
Weight	28 g

PP Portable Programmer

Addressable devices programmer is used to set, monitor and change addressable devices addresses.

Specifications

Power-supply source	4 AAA Batteries
Dimensions	170 x 94 x 70 mm
Weight	350 g

EP 212-141/EP 212-41M

Conventional electrooptical smoke detectors are designed to detect fire accompanied by low concentration smoke in inner premises of various buildings and facilities.

Certified according to: EN 54-7, No 1293-CPR-0518 Rev.1, No 1293-CPR-0517 Rev.1

Specifications

Supply voltage	12 V DC – 30 V DC
Current consumption	0.045 mA
Internal resistance in the operation mode	1000 Ohm
Dimensions, with base:	
EP 212-141	Ø 94x44 mm
EP 212-41M	Ø 106x53 mm

PRODUCT PORTFOLIO

RUBEZH

EN54 STANDARD
FIRE ALARM SYSTEM

RUBEZH

FIRE AND ALARM SECURITY

R-PLATFORMA
RUBEZH

PSIM CLASS SITUATIONAL
AWARENESS SYSTEM

RUBEZH

CONVENTIONAL PRODUCTS

CCTV

RUBEZH

PUBLIC ADDRESS AND VOICE EVACUATION SYSTEMS

SONAR RUBEZH

ACCESS CONTROL SYSTEM

STRAZH RUBEZH

EX-PRODUCTS

RUBEZH

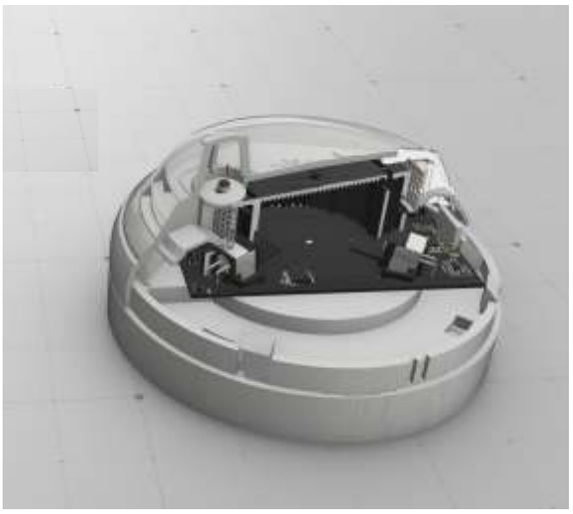
PRODUCTS DEVELOPMENT

9 ENGINEERING DESIGN DEPARTMENTS

126 KNOW HOW INNOVATIONS

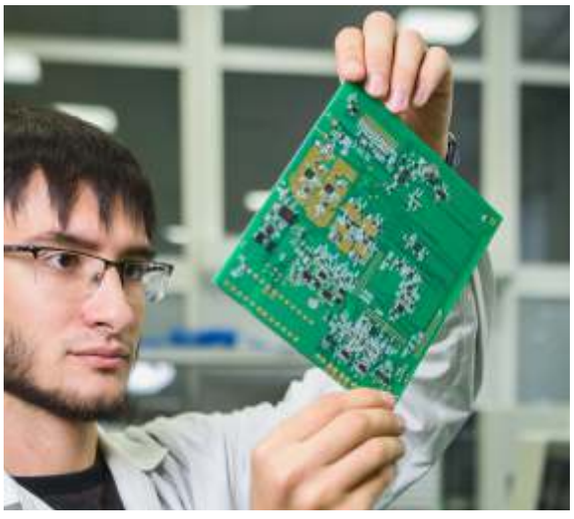
WIDE RANGE OF SERIAL PRODUCTS

NUMEROUS CUSTOMIZED SOLUTIONS



DEVELOPMENT OF IDEA

- Close interaction with the market to understand customer needs
- Regular search for new opportunities and solutions



CONCEPT DEVELOPMENT

- Computer modeling of concept and operating conditions
- 3D prototyping
- Verification of the built-in characteristics in the equipment test center

INDUSTRIAL LAUNCH OF PRODUCT

- International cooperation
- Production processes automation
- Risks minimization

GLOBAL REFERENCE LIST

"Radisson Blu Yerevan" Hotel
Armenia, Yerevan

"Four Points by Sheraton" Hotel
Russia, Saransk

"Holiday Inn Express Paveletskaya" Hotel
Russia, Moscow

Stadiums of FIFA World Cup-2018
Russia, 9 stadiums are equipped with RUBEZH TM

"Bunyodkor" Stadium
Uzbekistan, Tashkent

"Gazprom" Ice Arena
Russia, St. Petersburg

GLOBAL REFERENCE LIST

"Vegas" Mall
Russia, Moscow

Section 16B "Moscow – City" MIBC
Russia, Moscow

"Level" residential complex
Russia, Moscow

Mercedes-Benz plant
Russia, Moscow

"Atommash" Plant
Russia, Volgodonsk

Balakovo Nuclear Power Plant
Russia, Balakovo

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Note: Specifications are subject
to change without notice

March 2021