WIRELESS ALARM CIRCUITS EXTENSION MODULE WITH RELAY OUTPUT

«LADOGA BRSS-RK-R»

Installation Guide

1 General Information

1.1 Wireless alarm circuits extension module with relay output «Ladoga BRSS-RK-R» (hereinafter, BRSS) is designed for status control and supervision of terminal devices (hereinafter, the TD) operation modes via wireless two-way communication, as well as retransmission of the received information to relay outputs by the «RIELTA-Contact-R» protocol and to external device (hereinafter, the ED) by the «RIELTA-RK-485».

1.2 BRSS provides possibility of connection to the ED via the USB to personal computer (hereinafter, the PC) or other device supporting the CDC-ACM virtual serial port interface at a speed of 57,600 bauds) for adjustment, configuring and monitoring the status of the TD and BRSS by the «RIELTA-RK-485» protocol.

2 Specifications

Table 1

Parameter	Value
Number of supported wireless devices	Up to 63
Supply Voltage DC	10.0 ... 15.0 V
Consumed current, maximum	100 mA
IP rating	IP20
Dimensions, maximum	165x115x43 mm
Weight, maximum	0.19 kg
Average service life	8 years
Operating conditions	
Operating temperature	minus 30...+50 °C
Permissible moisture at a temperature +40 °C	93 %

2.1 BRSS provides connection of:

- two-wire power supply circuit (block «-U+»);
- control circuit of the main and backup power supply of an external source (blocks S1 and S2, respectively);
- eight outputs of signal relays;
- external antenna (block «Ψ»).

2.2 BRSS provides case tamper control.

3 Scope of delivery

3.1 Each BRSS-RK-R unit package contains the items listed in Table 2.

Table 2

Name	QNT
Wireless alarm circuits extension module with relay output «Ladoga BRSS-RK-R»	1 pc.
Screw 3-3x30.016	4 pcs.
Screw nut «SORMAT» 5x25	4 pcs.
Antenna	1 pc.
Lithium battery CR2032	1 pc.*
Wireless alarm circuits extension module with relay output «Ladoga BRSS-RK-R». Installation Guide	1 copy
* Installed	

4 LED Indication Modes

Table 3

LED Indicators State	BRSS State
Simultaneous red and green LEDs switching on for several seconds	Testing LED indication mode after BRSS energizing
Green, red blinking and one of the RELAY1-RELAY4 response (at 1 Hz frequency)	Binding in autonomous mode
All LEDs blinking (at 1 Hz frequency)	Ready for memory cleaning in autonomous mode
Red LED blinking (at 8Hz frequency)	Programming mode
Red LED short-term switching on	Got message transmitted by TD via radio channel
Green LED short-term switching on	Got message transmitted by ED (PC) via communication bus

5 BRSS Operating Modes

5.1 Standby Mode

In this mode, the BRSS receives information on the state of the TDs connected to it by radio communication, transmits the received information to the outputs of the signal relays, and control commands via the radio channel to the executive TDs.

5.2 Programming Mode

The mode is intended for updating the BRSS software. To reprogram the BRSS using a PC, the Ladoga-RK Configurator software must be installed. Configurator is stored on the RIELTA website in the Radio Channel-Software section (www.rielta.ru/prog/Configurator_Installer.exe). The latest version of software for BRSS is also located there.

To force the programming mode setting on, disconnect the USB cable from the BRSS, set the BOOT jumper, and reconnect the USB cable. After updating the software, be sure to remove the BOOT jumper (Reset).

ATTENTION! Connecting the USB connector of the BRSS to a PC or other ED should be carried out with the killed main power of the BRSS.

5.3 Configuration Mode

The mode is intended for adjustment BRSS and TDs, deleting or adding new TDs, configuring built-in signal relays and external executive devices - ED.

In the factory configuration, the functions of the built-in relays are distributed as follows:

- relays 1 through 4 indicate the status «Violated» («Fire») on the TD with addresses multiple of 4;
- relays from 5 to 8 are generalized: «Tampering», «Breakdown», «Malfunction» and «Armed», respectively.

Relay 7 («Malfunction») to 8 («Armed») has the initial state on, and for all the others - off.

In stand-alone mode (without connecting to a PC), it is possible to bind the TD to one of the four signal relays or clear the memory of the BRSS.

To bind the TD, energize the BRSS, open the cover and put on the Reset jumper. Press and release the tamper switch. Simultaneous flashing of the green LED communication and the relay indicates the readiness the TD for binding to this relay. Repeat pressing tamper switch to select another relay. After binding the TD, the BRSS automatically returns to standby mode. To force binding procedure completion, remove the Reset jumper. To recover the BRSS configuration to its initial state (deleting all TDs, resetting the relay configuration and radio parameters to the factory settings), energize the BRSS, open the cover and put on the Reset jumper. Press and release the tamper switch 4 times. The simultaneous flashing of all LEDs will indicate the readiness of the BRSS to clear the memory. To delete all settings, remove the Reset jumper. To cancel - once again press the tamper switch (switch to binding mode) and remove the Reset jumper.

ATTENTION! After configuring in autonomous mode don't forget to remove the Reset jumper!

ATTENTION! Autonomous mode does not allow changing the settings of the relay and radio network.

Connecting the BRSS to a PC allows to execute the following operations:

- changing the settings of the built-in relays and external executive TDs;
- assignment of network number and operating frequency number;
- choice of the communication period and the control period of the TD;
- binding of new TD;
- removal of TD.

The procedure for connecting and performing the above operations is given in the «User manual of the Ladoga-RK Configurator» software.

6 Binding TD with BRSS

6.1 Choosing and setting network number and operating frequency

Each wireless network deployed at the secured site must have a unique number (network number). The valid range for network numbers is 1–126. In addition to the network number, operating frequency number must be specified. Operating frequency number defines a pair of frequencies (main and reserve) at which the communication between wireless network devices is provided. Valid numbers of frequency characters are from 1 to 8.

ATTENTION! TTo change the network number and (or) the frequency letter, it is necessary to re-bind all previously configured TD.

6.2 Communication period and control period setting by default

BRSS monitors the status of each TD of the network. To provide this control, for the wireless device a time period for broadcasting during radio-communication is assigned. According to assigned period it transmits a message about its status. This period is called the “communication period” (TCB). The value of the communication period can be selected from a series of 10 sec, 15 sec, 30 sec, 1 min, 2 min, 5 min, 10 min. It must be remembered that the shorter is the communication period, the shorter is the life of the autonomous power sources in wireless devices and the higher the load on the air, creating an increased likelihood of collisions (communication errors). The permissible number of wireless devices operating together (“hearing each other”) on one operating frequency number, regardless of the network number, should be no more than 2 * Tcom (where Tcom is taken in seconds). If during the “monitoring period” BRSS does not receive messages from the TD, then it reports a loss of communication with such TD (breakdown). The monitoring period is defined as an assigned number of missed communication periods plus one (N + 1). At excellent quality of communication, the recommended values are N 3 or 4. If the quality of communication is below this level, then the value of N can be increased. The maximum value of N is 15. Each TD provides the ability to check the quality of communication at the installation site (see manuals for the relevant wireless devices). Setting the values of the listed parameters will ensure their transfer to each TD during binding.

6.3 TD binding with BRSS

The binding procedure is designed to connect the wireless TDs to the network. In the process of binding BRSS transmits the TD network number, operating frequency number, communication period, network address. In its turn the TD informs the BRSS its type and serial number, which further ensures the identification of the TD. To eliminate crosstalk between simultaneously configured systems, it is recommended to execute binding of TD with the disconnected antenna on the BRSS. The TD should be located at a distance of 0.5–1 m from the BRSS. TDS connection is carried out in accordance with its Manual. Information about the connected TD will be stored in the non-volatile memory of the BRSS.

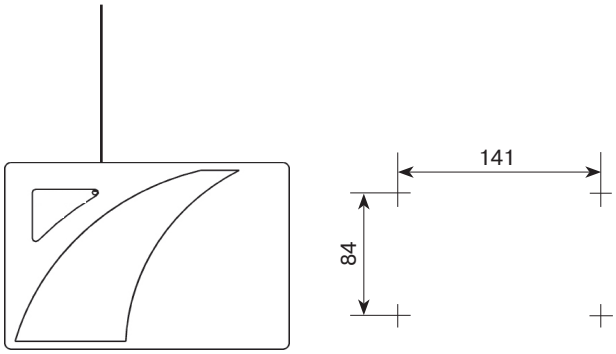
ATTENTION! There should be not more than one TD engaged in binding procedure.

ATTENTION! After binding is completed, it is recommended to make a mark on the TD case indicating the assigned zone (channel) number and disable the TD by removing the main battery. This action ensures the safety of the TD batteries when it is de-energized.

6.4 Selection place installation. Mounting of BRSS

External view and layout of the marking for BRSS fastening are shown in Figure 1.

The choice of BRSS installation place significantly affects the quality of communication with TDs. It is recommended to locate BRSS in the center of the network. In the close-proximity of the BRSS (at a distance of 1-2 meters or less) there should be no metal objects and wiring. High-frequency devices (for example, CDMA modems, WiFi routers), power-plants, and other similar devices that can create strong electromagnetic fields should be at the maximum possible distance (5–10 meters or more). After selecting the installation location of the BRSS, first provide it with temporary fasten, connect the power and proceed with the choice of the TD location. The changes in communication quality with the installed TD can be estimated by the values obtained using the “Ladoga-RK Configurator” software in “Signal Level” column of the “Monitoring” tab. Values greater than 150 correspond to excellent, and from 120 to 150 - to good communication quality. If satisfactory communication quality results are not obtained when choosing the location of the TD installation, then you should choose a different installation location of the BRSS or use the BRSS-RK-RTR repeater.



Figture 1

6.5 Installation of wireless TDs at the site

The TD installation should be carried out in accordance with the Manual for the relevant device. However, in each case, you should make sure that the selected connection quality is ensured. A method for checking the level of communication between the TD and the BRSS is given in the Manual for the TD.

ATTENTION! The shift of the op-amp by 10-15 cm from the selected location can both significantly improve or degrade the quality of communication between the TD and the BRSS.

6.6 Verification of information transfer and monitoring of the installed system

Using the “Ladoga-RK Configurator” software, you can test the entire wireless system through a test pass of the object. On the “Monitoring” tab, all events related to the test pass will be displayed. If necessary, continuous monitoring can be carried out. All events are automatically logged.

7 Manufacturer’s Guarantees

7.1 The Manufacturer guarantees conformity of the BRSS-RK-R to the requirements of specification provided that conditions of transportation, storage, assembling and operation are observed.

7.2 The guaranteed storage period is 63 months since the date of manufacturing the detector.

The guaranteed period of operation is 60 months since the date of commissioning within the storage period guaranteed.

7.3 If non-conformity of the BRSS-RK-R to technical requirements is detected during the guaranteed period provided that rules of operation are observed it shall be repaired by the Manufacturer.

Note – Warranty obligations are not applied to lithium batteries.

8 Complaints

8.1 In case of detection of BRSS non-compliance with the requirements of technical specifications or this passport, as well as failure during the warranty period, BRSSH together with the passport should be returned to the manufacturer.

9 Packing Certificate

Wireless alarm circuits extension module with relay output «Ladoga BRSS-RK-R» manufactured in accordance with current technical documentation is classified as fit for operation and is packed by «Development and Production Enterprise RIELTA» LLC.

Packing date _____
month, year

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