



## Wireless unit for alarm loops expansion

### «Ladoga BRSS-RK-RTR»

## Installation Guide

### 1 General information

Wireless alarm loop expansion unit «Ladoga BRSS-RK-RTR» (hereinafter referred to as BRSS) is used for:

- monitoring the state of terminal devices (hereinafter referred to as TD);
- management of TD operation modes;
- relaying information from TD

over a two-way radio protocol «Rielta-Contact-R» and the transmission of received information over a wired communication line in the protocol «Rielta-RK-485» to an external device (hereinafter - ED).

The BRSS can connect via USB with the CDC-ACM virtual serial port mode at a speed of 57600 baud to set up and monitor the status of the TD.

### 2 Main technical specification

Table 1

Parameter	Value
Number of connected wireless devices	up to 31
Operating frequency range	433.05 – 434.79 MHz
Supply voltage	8 - 30 V
Consumed current	50 mA
Output power	10 mW
IP rating	IP20
Overall dimensions	82x57x32 mm
Weight	60 gram
Average service life	10 years
Operational conditions	
Operating temperature range	-30... +50 °C
Permissible air humidity at temperature of +40 °C, without moisture condensation	93 %

BRSS is designed for continuous round-the-clock operation.

The level of industrial radio noise generated by the BRSS does not exceed the standards for technical equipment operated in residential buildings or connected to the electrical networks of residential buildings.

BRSS provides connection of:

- two-wire communication line with the ED (terminals block «AB»);
- two-wire power circuit (terminals block «+U-»);
- circuits for monitoring the main and backup power supply of an external source (terminals blocks S1 and S2, respectively);
- external antenna (terminals block «Y»).

BRSS provides the assignment of the wired address in the range from 1 to 8 using dip switches.

BRSS has a case opening control feature.

### 3 Contents of the kit

Table 2

Name	QNT.
Wireless alarm loops expansion «Ladoga BRSS-RK-RTR»	1 pc.
Antenna	1 pc.
Screw 3-3x30.01	2 pcs.
Dowel NAT 5x25 SORMAT	2 pcs.
Wireless alarm loops expansion «Ladoga BRSS-RK-RTR». Installation guide	1 copy

## 4 BRSS indication modes

Table 3

Status of the indicators	BRSS status
Simultaneous activation of yellow, red and green LEDs for a few seconds	Test indication when BRSS is turned on
Yellow LED is on permanently	Power is supplied
Flashing yellow LED (frequency 1 Hz)	Linking mode
Flashing red LED (frequency 4 Hz)	Programming mode
Red LED is on for 3 seconds or more	Radio interference
Brief red LED	A message was received over the radio channel from the TD
Brief green LED	A message from the ED (PC) was received via the communication line (USB)

## 5 BRSS Operation Modes

### 5.1 Standby Mode

In this mode, the BRSS receives information about the status of the TD connected to it via a radio channel and transmits it to the ED, receives control commands from the ED and transmits them via a radio channel to the TD.

Features of working with different types of ED are given in the operating manual for the corresponding type of ED.

### 5.2 Programming mode

This mode is for the update of the firmware (FW) of the BRSS.

The Ladoga-RK Configurator software must be installed in order to reprogram the BRSS using a personal computer. The configurator can be found on the RIELTA website in the Radio Channel-Software section ([www.rielta.ru/radiokanal](http://www.rielta.ru/radiokanal)).

**ATTENTION!** Connection to the BRSS via the USB connector should be made only after turning off the main power of the BRSS.

## 6 Commissioning procedure

### 6.1 Selection of the installation site and mounting of the BRSS

The installation location of the BRSS significantly affects the quality of communication with the TD. It is recommended to install the BRSS so that the antenna orientation remains vertical and the BRSS is in the center of the radio system.

BRSS is not recommended to be installed:

- on massive metal structures and closer than 1 m from them;
- near sources of radio interference;
- inside metal structures.

### 6.2 Installation of wireless TDs on site

The installation of the TD should be carried out in accordance with the operating instructions for a specific device. However, in each case, it is recommended to make sure that the chosen location provides adequate communication quality. The method for checking the level of communication between the TD and the BRSS is given in the operating instructions for the TD.

**ATTENTION!** The offset of the TD by 10–15 cm from the selected location can either significantly improve or worsen the quality of the communication between the TD and the BRSS.

### 6.3 Linking

Prepare BRSS for registration of a new device. During the linking process, only one RPR and one BRSS, prepared for registration of a new device, should be in the radio visibility zone. Close the BOOT pins on the RPR board until the green indicator turns on. Perform the linking. Successful linking is indicated by a short red LED indication.

#### Notes:

1. Linking mode is indicated by fast flashing (4 Hz) of the green LED.
2. Linking mode is active for 100 seconds. To resume linking, the BOOT jumper must be re-closed.
3. To exit linking mode before it is over, close the BOOT pins again.
4. Do not leave the RPR with closed BOOT contacts after restarting the power supply, this will lead to a transition to the programming mode. Closed BOOT contacts are indicated by slow flashing (1 Hz) of the green LED.

### 6.4 Radio communication quality assessment

Bring the linked RPR to the intended location for installation and position it so that the antenna is vertical. Press and hold the tamper switch for a few seconds. Release the tamper switch. Within 5 seconds, RPR will display the quality of communication with the BRSS by turning on the LED indicators (see table 4).

Table 4 – Communication quality indication

Indication		Connection quality assessment	Recommendations
Color	Mode		
Green	Three blinks	Perfect	Installation in this location is allowed
Green	Two blinks	Good	
Green	One blink	Weak	Installation in this location is not allowed
Red	Multiple blinks	No connection	

### 7 Storage and Transportation

7.1 The BRRS in their original packing may be shipped by any transport means in covered vehicles (in railway, cars, trucks, ship cargo holds, etc). The BRRS is resistant to:

a) transport jolting with the acceleration 30 m/sec<sup>2</sup> with impact frequency from 10 to 120 impacts/sec or 15000 impacts with the same acceleration;

b) the ambient temperature minus 50 ... +50 °C;

c) relative air humidity (95 ± 3) % at the ambient temperature +35 °C.

7.2 After transportation under the conditions different to exploitation conditions the BRRS shall be ready to operate after a maximum of six hours.

7.3 The storage room shall be free from current-conducting dust, acid vapors, alkali and gases that cause corrosion and destroy insulation.

### 8 Manufacturer's Guarantees

The manufacturer guarantees conformity of the BRSS to the requirements of technical conditions provided the transportation, storage, installation and operation conditions are observed.

The guaranteed shelf life of the BRSS is 63 months since the date of manufacture. The guaranteed useful life is 60 months since the day of putting into operation.

The BRSS that is found non-conforming to the requirements of technical conditions shall be replaced by the manufacturer free of charge.

### 9 Packing Date

Wireless alarm loop expansion unit «Ladoga BRSS-RK-RTR» has been manufactured in compliance with the active technical documentation and classified as fit for operation and packed by «Development and Production Enterprise RIELTA » LLC.

\_\_\_\_\_ month, year