



## WIRELESS ZONE EXTENSION MODULE

### «Ladoga BRSS-RK-RTR» ver. 2

#### Installation Guide



#### 1 General Information

1.1 Wireless zone extension module «Ladoga BRSS-RK-RTR» version 2 (hereinafter, the RTR) is intended for joint operation with control panel (hereinafter, the CP) and for retransmission of information from wireless security and fire detectors or other terminal devices (hereinafter, the TD).

Retransmission is fulfilled within 433.05 ... 434.79 MHz frequency range via a wireless two-way communication by the «RIELTA-Contact-R» protocol.

1.2 Two frequencies main and reserve within 433.05 ... 434.79 MHz frequency range are used for radio exchange with the CP. Changeover to the reserve frequency is fulfilled automatically in case of interference at the main one.

1.3 The transmitter radiated power does not exceed 10 mW.

1.4 The RTR is powered by AC mains with 110/230 V nominal voltage with 60/50 Hz frequency.

1.5 The RTR maintains operability in the range of supply voltages 85-305 V.

1.6 On-stream time in normal conditions with fully-charged storage battery in working order is not less than 24 hours.

1.7 The RTR generates and transmits by radio communication to CP the following messages:

- «Norm»;
- «Tamper» – in the event of case tampering;
- «Main power supply failure» – under main voltage supply absence;
- «Reserve power supply failure» – under storage battery discharge with voltage drop lower than 3.5<sub>0.3</sub> V.

1.8 The RTR fulfills storage battery additional charging (with exception of bootloader mode). Storage battery is not charged at battery voltage lower than 2.5 V and under the temperature lower than 0 °C.

1.9 Regular radio communication session period is assigned by the command from the CP at 10, 15, 30 s, 1, 2, 5, 10 min intervals.

1.10 The RTR operation modes are displayed by two LED indicators (see Table 3).

1.11 The RTR is designed to operate continuously, around the clock inside closed premises of residential buildings and production buildings and facilities.

1.12 The RTR is resistant to the impact of electromagnetic fields, electrostatic discharges and nanosecond pulse interferences.

#### 2 Specifications

Table 1

Parameter	Value
Supported wireless devices, items	up to 31
Power supply, AC	85-305 V 50/60 MHz
Maximum consumed power from mains	1.5 VA
Storage battery charging temperature range	0 ... +45 °C
IP rating	IP30
Dimensions, not more than	66x66x35 mm
Weight, not more than	0.2 kg
Average service life	10 years
<b>Operational conditions</b>	
Operating temperature range	-20... +45 °C
Permissible air humidity at temperature of +40 °C, without moisture condensation	93 %

#### 3 Scope of Delivery

Table 2

Name	QNT.
Wireless zone extension module «Ladoga BRSS-RK-RTR» version 2	1 pc.
Antenna	1 pc.
Screw 3-3x30.016	2 pcs.
Wall plug «SORMAT» NAT 5x25	2 pcs.
Storage battery LIR14500 type (capacity not less than 600 mAh)	1 pc.
Wireless zone extension module «Ladoga BRSS-RK-RTR» version 2.	1 copy
Installation Guide	

#### 4 Protective Measures

4.1 Exploitation of the RTR should be fulfilled in accordance with rules of technical exploitation and protective measures for electricity-generating equipment up to 1000 V.

4.2 Provider of dangerous voltage in the power source is mains socket.

**4.3 Assembling and disassembling should be fulfilled only when RTR is de-energized. Storage battery should be removed.**

**4.4 RTR binding and quality appraising procedures should be carried out using storage battery power supply only.**

4.5 When installing the battery, observe the correct polarity shown in Figure 1.

#### 5 Design

The RTR layout with removed cover is shown in Figure 1. The base (1) comprises the following elements:

- two holes (2) for RTR fastening to mounting surface;
- hole (6) for cover fixation;
- openable hole (7) for antenna installation;
- recess (15) for power cord wiring.

Printed circuit board (hereinafter, the PCB) (3) comprises the following elements:

- contacts BOOT (4) for firmware upgrade by means of conversion device USB-UART;
- case tamper contacts (5);
- antenna leading-in socket (8);
- red LED indicator (9);
- green LED indicator (10);
- storage battery holder (11);
- storage battery (12) with isolator;
- START pin contacts (13);
- mains socket 230V AC (14).

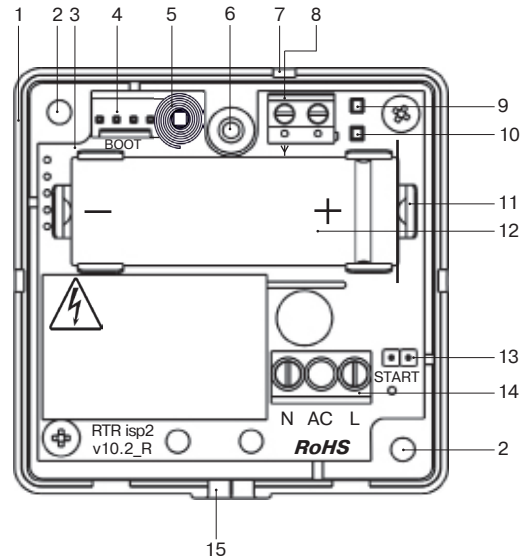


Figure 1 – RTR with removed cover

#### 6 External Connections

Lead-in power supply cords should be protected by double insulation with a wire section in the limits 0.75... 1.5 mm<sup>2</sup>.

#### 7 LED Indication

Table 3

Operation mode	LED Indication
Energizing	Green LED indicator continuous lighting
Binding	Green LED indicator intermittent lighting
Binding is finished	Red LED indicator short-term (2 sec) lighting
Identification	Alternate green and red indicators blinking
Bootloader mode	Red LED indicator blinking
Quality appraising	See Table 4

## 8 Switching ON and setting Up

As a general matter, operating procedure consists of the following steps:

- RTR binding with CP (RTR logging in the CP);
- choosing place of installation and communication quality appraising;
- RTR mounting on the place of installation.

## 9 Binding

9.1 Main power supply should be switched off to avoid contact with mains socket with dangerous voltage. Binding procedure should be fulfilled with the RTR supplied by storage battery. On the expiry of binding procedure all previous settings are cleared.

9.2 Prepare CP to logging the new device ("Binding" procedure) in accordance with the CP Manual. During RTR binding procedure only one CP, prepared for the procedure, should be located in the radio coverage zone.

9.3 Untwist the screw on the RTR front side and remove the cover. Remove an isolator between storage battery contact and holder.

9.4 Energize the RTR from the storage battery by closing START contacts (Fig.1 pos.13) by current-conducting item until green and red LEDs light up.

9.5 After starting indication switches off repeat START contacts closing for second time until binding LED indication appears.

9.6 Fulfill binding. Successful binding is displayed by the red indicator shot-term lighting.

### Notes:

1. FBinding mode is displayed by intermittent blinking (4Hz) of the green LED.
2. Binding mode is active during 100 s. To restart binding it is necessary to repeat Cl. 9.5.
3. To recover from binding mode push START contacts once again.
4. Don't leave the RTR with closed START contacts for a long time. It will result in storage battery total discharge and breakdown.

## 10 Choosing Place of Installation

- 10.1 It is not recommended to install the RTR in the following places:
- on massive metal constructions and closer than 1 m from them;
  - near source of radio interferences;
  - inside metal constructions.

10.2 It is recommended to locate the RTR in such a position, in which antenna has vertical orientation.

## 11 Communication Quality Appraising

11.1 Main power supply should be switched off to avoid contact with dangerous voltage. Energize the RTR from the storage battery. For this purpose close START contacts by current-conducting item until green LED lights up.

11.2 Locate the RTR logged in the CP to assumed place of installation and turn it in such a position, in which antenna has vertical orientation.

11.3 Press tamper contact (Fig1, pos.5) and hold it during several seconds.

11.4 Release case tamper contact.

11.5 During 5 s RTR displays communication quality. Appraise RTR communication quality with the CP by LED indication (see Table 4).

Table 4 – LED indication of communication quality appraisal

LED Indication		Communication Quality Appraisal	Recommendations
Color	Mode		
Green	Three blinks	Excellent	Install the Detector at this place
Green	Two blinks	Good	
Green	One blink	Communication established	Choose another place for installation
Red	Four blinks	No communication	

## 12 Boot-loader Mode

**Attention!** Shut off main power supply and remove storage battery for the time of software update.

Boot-loader mode is an additional operation mode of internal software update.

Update is fulfilled by USB-UART converter, PC and «Configuration Tool Ladoga-RK» program ([https://rielta.ru/prog/Configurator\\_Installer.exe](https://rielta.ru/prog/Configurator_Installer.exe)).

Changeover to boot-loader mode is fulfilled automatically after converter connection.

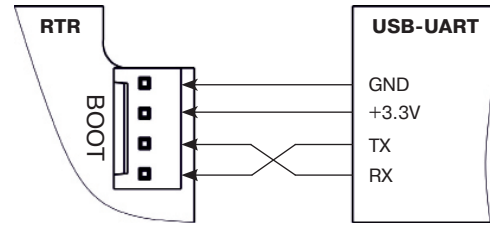


Figure 2 – Converter Connection Pattern

## 13 Storage and Transportation

13.1 The RTR in original package may be transported by any transport facility in closed vehicles over any distances in compliance with the existing shipping rules concerning the respective means of transport. Transporting temperature range: minus 20 ... +50 °C.

13.2 The storage room shall be heated and ventilated, as well as free from current-conducting dust, acid vapors, alkali and gases that cause corrosion and destroy insulation.

13.3 During storage power supply battery should be charged and removed from the holder. In other case, when the battery remains installed into the holder, it's contact should be isolated from the holder by isolation film.

## 14 Manufacturer's Guarantees

14.1 «Development and Production Enterprise RIELTA» LLC guarantees conformity of the RTR to the requirements of technical conditions provided the transportation, storage, installation and operation conditions are observed.

14.2 The guaranteed shelf life of the RTR is 63 months since the date of manufacture.

14.3 The guaranteed useful life is 60 months since the day of putting into operation.

14.4 The RTR that are found non-conforming to the requirements of technical conditions shall be repaired by the manufacturer, provided the installation and operation rules have been complied.

**Note** – Warranty obligations are not applied to power supply battery.

## 15 Packing Date

Wireless alarm loop expansion unit «Ladoga BRSS-RK-RTR» ver.2 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

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