



# WIRELESS GLASS BREAK DETECTOR

«STEKLO-3RK»

## Installation Guide



### 1 Introduction

1.1 The wireless glass break detector «Steklo-3RK» (hereinafter, the Detector) is intended for detecting destruction of all known kinds of construction glass: common, quenched, patterned, armored, multilayer and laminated with polymer film, glass units, as well as hollow glass blocks installed in structural units (openings) and/or interior elements of closed spaces.

1.2 The Detector transmits status messages via two-way communication in the 433.05 to 434.79 MHz frequency range to the control panel (hereinafter, CP) supporting the «Rielta-Contact-R» wireless communication protocol:

- «Norm» – under the absence of any impact on the protected glass,
- «Alarm» – in case of impact on the protected glass detection,
- «Tamper» – in course of case or wall tampering,
- «Main battery discharge» – if main power supply battery voltage drops lower than  $2,5_{-0,2}^+ V$ ,
- «Backup battery discharge» – if backup power supply battery voltage drops lower than  $2,5_{-0,2}^+ V$ .

1.3 The Detector provides case and wall tamper protection.

1.4 The Detector may be installed on the wall, ceiling or on a pier between the monitored glass and curtains.

1.5 The Detector ensures remote monitoring of controlled glazed structures of any shape.

1.6 The Detector provides multilevel microprocessor signal processing and functional self-test.

1.7 The Detector adjusts the sensitivity depending on the interference situation at the monitored facility.

1.8 The Detector operates at one of 8 possible operating frequency numbers. Each number contains two operating frequencies: the main and the reserve one.

1.9 The Detector automatically switches over backup frequency in case of impairment of interference conditions at the main operating frequency.

1.10 The Detector is able to switch on and off an identification and status LED indication by the CP relevant command.

1.11 The Detector the following rates of control radio exchange may be assigned: 10 s, 15 s, 30 s, 60 s, 300 s, or 600 s during binding procedure with CP. Alarm messages are transmitted immediately.

1.12 The Detector is powered by two batteries, the main – CR123A and the backup one – CR2450.

1.13 The Detector refers to single-zone (single-address) detector type.

### 2 Field of Application

The Detector can be applied in offices, shops, museums, exhibition halls, banks, accommodation rooms, etc.

### 3 Specifications

Table 1

Parameter	Value
Maximum detection range	6 m
Angle of coverage	120°
Installation height	at least 2 m (see Figures 3 – 7)
Operating temperatures range	from minus 20 to +55 °C
Relative air humidity at 25 °C	up to 98 %
Broadcast period (programmed during the CB binding)	10 sec to 10 min
Probability value of glass destruction	at least 0.9
Warm-up time, not more than	30 s
Sensitivity value ( at a signal duration 20 ms or more):	
- on first operating frequency	(80 ± 3) dB
- on second operating frequency	(90 ± 3) dB
Weight (without power batteries)	maximum 0.1 kg
Dimensions	maximum 105 x 50 x 40 mm
Battery life (under normal conditions, and messages transmitting period not less than 60 sec)	up to 5 years
IP rating	IP30
Mean time-to-failure, not less than	60 000 h
Average service life, not less than	8 years

### 4 Scope of Delivery

Each Detector unit package contains the items listed in Table 2.

Table 2

Name	Qty
Wireless glass break detector «Steklo-3RK»	1 pc.
Wall plug 5x25	2 pcs.
Screw 3-3x30.016	2 pcs.
CR123A lithium power-supply battery	1 pc.*
CR2450 lithium power-supply battery	1 pc.*
Wireless glass break detector «Steklo-3RK». Installation Guide	1 copy
* - Supplied optionally	

### 5 Binding with the CP

The binding procedure is intended for the logging of the Detector in the CP and exchange of service information.

1. Observing the polarity install the CR2450 backup power supply battery into the holder located on the reverse side of the Detector PCB, thereafter install the CR123A main power supply battery. If batteries are already installed, then remove the isolators.

2. LED indicator blinking green displays the Detector readiness to the binding procedure. In case of the LED indication absence, the Detector should be transferred to the «Binding» mode by closing the «RESET» contacts until the green LED indicator starts blinking.

3. In case of successful binding with the CP (repeater), the LED indicator blinks red for 1 s.

**Note** – The zone number is determined in accordance to the CP user manual. The binding procedure is limited up to 70 sec, whereupon the Detector transfers to the sleep mode. To restart the «Binding» mode close «RESET» contacts for a short time.

### 6 LED Indication

Table 3

Detector Status	Indication	Note
«Norm»	LED indication is OFF	
«Binding» mode	LED indicator blinking green periodically	The Detector logging in the CP
«Alarm»	LED indicator single time blinking red	
«Tamper»	see section «Communication Quality Appraising»	
«Identification»	LED indicators alternate blinking red and green	Upon the relevant command from the CP
«Adjustment»	LED indicator blinking green every 1 s	Upon the DIP-switch 3 is ON
«Interference»	the LED indicator lights up green	During the interference time
Norm	LED indication is OFF	
Communication quality	see section «Communication Quality Appraising»	

### 7 Choosing the Detector Location

Before installing the Detector, get acquainted with the following requirements:

- it is recommended to install the Detector at least 2 m height (see examples of installation in Figures 3 – 7);
- when choosing the place of installation, the Detector detection zone location must be taken into account (Figure 1);
- distance (L) between the Detector and the farthest point of the monitored glass should not exceed 6 m;
- during joint operation with an active ultrasonic Detector, distance between Detectors must be not less than 1 m;
- the entire surface of the monitored glass should be available within the direct visibility of the Detector.

The Detector must be located within the radio visibility zone of its repeater; therefore, it is recommended to estimate the quality of communication with the CP (repeater).

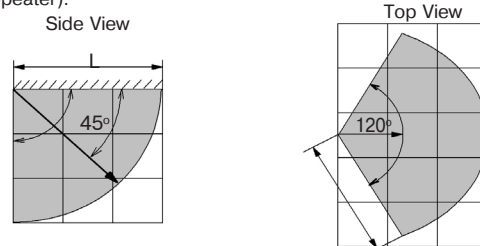


Figure 1 – Detection Pattern

### 8 Communication Quality Appraising

To estimate the communication quality:

- 1 Place the Detector on its installation place;
- 2 Press the Detector tightly to a hard surface in order to close the tamper output;
- 3 Remove the Detector cover. Whereupon the Detector transmits a tamper message (the LED indicator lights red) and then the LED indicator displays communication quality with the CP by a three-grade scale (see Table 4).

Table 4

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 or use a repeater*)
Red	Four blinks	No communication	

\*) – «Ladoga-RK» system repeater

### 9 Installation of the Detector

Remove the cover and PCB of the Detector and fasten the Detector with the help of screws. Choose the place of the Detector installation and mark out its fastenings using the Detector base (Figure 2) for the purpose. Fix the base by the screws (supplied).

To ensure the tamper control, the first screw should be screwed into the opening (1) at the base center, the second one must be screwed in a hole under the wall tamper (2).

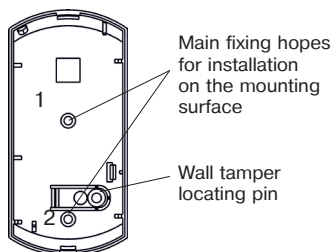


Figure 2 – The Detector Base

### 10 Adjustment

Set the «1», «2» and «3» DIP-switches to the OFF position. Install the power supply batteries. Estimate the interference situation in the room (the green LED indicator should not light).

The green indicator lighting means the high level of interference in the room. Remove the interference sources if possible.

Execute adjustment of the Detector as follows:

- set the «1», «2» DIP-switches to the ON position. After it shift DIP-switch «3» to the ON position – the «Adjustment» mode is displayed by the green LED indicator blinking once per second;

- close the cover;

- suspend a steel ball 21 – 22 mm in diameter on a 35 cm long thread near the farthest part of the monitored glass (ordinary, ornamental, armed, laminated), deflect it at an angle of 30 – 70° (see Table 5, 45° for hollow glass blocks - 45°).

When the green LED indicator switches on, deliver a test blow.

Table 5

Glass thickness, mm	<3	3...4	4...5	5...6	6...7	>7
Ball deflection angle for ordinary, armed and ornamental glass, °	30	35	40	45	50	55
Ball deflection angle for hardened and laminated glass, °	45	50	55	60	65	70

In case the CP does not receive an alarm message after test blows, the Detector sensitivity must be increased by DIP-switches «1» and «2» (see Table 6).

Table 6

DIP-switch Position			Detector Operating Mode	
1	2	3		
ON	OFF		Sensitivity (detection range) adjustment	- 6 dB
OFF	ON			- 12 dB
ON	ON			- 18 dB (min)
OFF	OFF			Max. sensitivity
		OFF	Standby mode	
		ON	Acoustic channel adjustment	

### Detector Installation Examples

Correct Detector installation options see Figures 3 – 7, the incorrect one – Figure 8.

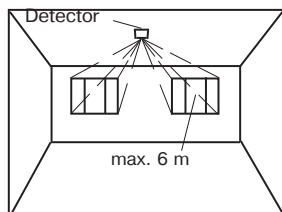


Figure 3 – Installing the Detector on the Ceiling

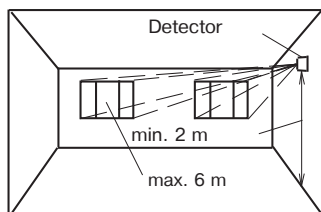


Figure 4 – Installing the Detector on a Side Wall

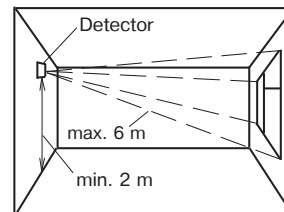


Figure 5 – Installing the Detector on the Opposite Wall

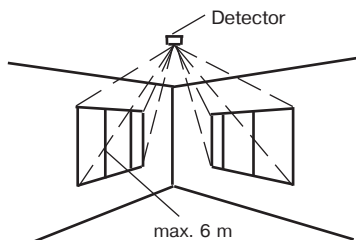


Figure 6 – Installing the Detector on the Ceiling (for window openings in the neighboring walls monitoring)

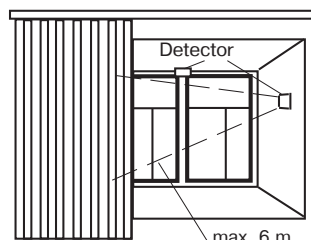


Figure 7 – Detector Installation between the Glass and the Curtains (Blinds) or on a Window Frame

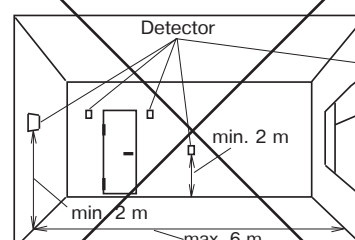


Figure 8 – Unauthorized Detector Installation Places

- this method produces the most reliable results; however, for adjustment the Detector for monitoring a multilayer glass or a small area of glass, it is allowed to use an AFT-100 type electronic glass break simulator manufactured by the «DSC» company in the «Plat/Singl» mode or an APC type glass break simulator manufactured by the «Argus Security» company. Besides, a simulator should be used for adjustment the Detector to multi-glazed windows;

- after completing the Detector adjustment, set DIP-switch «3» to the OFF position.

### 11 Features and Recommendations

1. The Detector backup power supply is energized whereas the main battery is installed.

2. The LED indication is switched off automatically in 10 minutes after the cover is closed. To restore the LED indication lighting it is enough to open the cover.

### 12 Storage and Transportation

The Detector in original package without power supply batteries is resistant to:

- transport jolting with the acceleration of 30 m/sec<sup>2</sup> with impact frequency rate from 10 to 120 impacts/sec or 15000 impacts with the same acceleration;
- the ambient temperature from minus 50 ... +50 °C;
- relative air humidity (95 ± 3) % at the ambient temperature +35 °C.

The Detectors 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.

Storage conditions of the detectors: storage premises should not contain any current-conducting dust, acid and alkali fumes, as well as corrosive gases or those destroying insulation.

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

### Manufacturer's Guarantees

The manufacturer guarantees conformity of the announcer to the Technical Specifications requirements provided the transportation, storage, installation and operation conditions are observed.

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

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

The Detectors that are found non-conforming to the Technical Specifications requirements shall be repaired by the manufacturer, provided the installation and operation rules have been complied with.

**Note** – Warranty obligations do not apply to the power supply batteries.

### Packing Certificate

The wireless glass break detector «Steklo-3RK» has been manufactured in compliance with the active technical documentation, classified as fit for operation and packed by «RIELTA» JSC.

Packing date \_\_\_\_\_ month, year