

**SPECIFICATION AND USER'S MANUAL**

type of the device: 1000m, 2-channel set  
contains of: OPC-K02 receiver and 2-key RNB 101S sender

**TECHNICAL PARAMETERS OF THE RECEIVER**

- class: C
- type of receiving module: superreaction
- sensitivity: -115 dBm
- frequency: 433,92 MHz
- radio transmission: KeeLoq hopping code by Microchip Technology
- memory capacity: 113
- voltage supply:  
nominal: 12 V DC  
allowable: 10-15 V DC
- power consumption:  
static: 17 mA  
maximal: 60 mA
- capacity:  
relay output: 1A/ 30 V DC  
S transistor output: 0,5A/ 12 V DC  
sabotage output: 50mA/ 12 V DC
- number of relays: 2
- relay's operating mode: mono or bistable
- time scope for the mono mode: ~ 1s-4min20s
- operating temperature range (°C): -20 to +40
- level of security: IP 67
- antenna socket: BNC 50 Ohm
- dimensions (mm): 130\*80\*35
- cooperation: any GE sender
- *operating range (m)\**: 200-1000
- colour: grey

*\* the range depends on the type of the sender*

**TABLE OF RANGE**

200 metres	types of the remote controls: PUK 101, PUK 102, PUK 104, PUK 112-1, PUK 112-2
400 metres	PNH 201 hermetic button
600 metres	PUK 303 remote control
1000 metres	types of the remote controls: RNB 101, RNB 101S, and NRP 100 stationary sender

The above range concerns the open space (without any obstacles, when the receiver and the remote control can "see each other"). If there are any obstacles between the receiver and the sender, one must assume that the range would be reduced: for wood and plaster it would be 5-20% lower, for bricks 20-40% lower, and for reinforced concrete 40-80% lower.

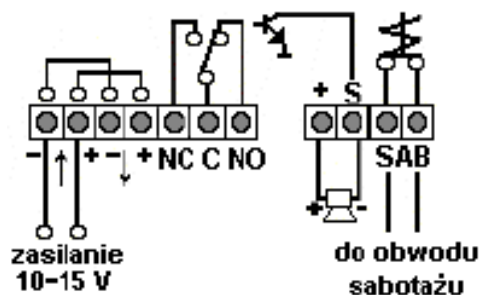
If there are many obstacles we advise to configure the sets using the receivers of the SH class, to use retransmitters or stronger remote controls. If there are metal obstacles, using the radio systems is not recommended. In such situation, consider installing WLC 201 module, which helps to avoid the problem

The device meets the requirements of the directive EMC 89/ 336/ EEC  
and RTTE 1999/ 5/ EC.



## THE PURPOSE OF THE ELEMENTS

- **BNC antenna socket** – is used to connect 434MHz/50 Ohm antenna
- **LEARNING button** – launches the programming procedures
- **Diode CHANNEL 1 control** (red K1) – it signals that the relay 1 is open
- **Diode CHANNEL 2 control** (LEARNING, red K2) – it signals that the relay 2 is open. In the learning mode, the K2 diode signals the programming procedures
- **ANTISABOTAGE** – allows for connecting the device to the antisabotage circuit
- **S output** – it is used to connect an acoustic signalling device which informs with short signals whether the relay is opened or closed, for example while opening the access path to the encryptor or by arming a simple alarm circuit. On opening the relay on the S output one short signal is emitted, and on closing it – two signals. The maximal capacity of this output is 0,5A/12V DC, which is enough even for using sirens with a high level of audibility. The positive terminal should be connected to +12V and the negative terminal – to the S output on the terminal strip.



## The receiver installation conditions

Good. Firstly, the hermetic case allows for installing the receiver in difficult conditions such as humidity or low temperatures. It can work outside. Secondly, the superheterodine receiving module is characterized by high resistance to electromagnetic interferences. In practice it means that the operating range is extended and the influence of interferences on the receiver's work is minimized.

## The transmission code

The radio transmission, based on the hopping code (KeeLoq by Microchip Technology Inc. USA) guarantees the high safety of using. Each transmission is different from the previous one. To make the receiver work, you must enter a remote control into its memory – it is the basic condition.

The control can be programmed to unlimited number of receivers. „Loosing” 15 successive transmissions (using the remote control beyond the receiver's range) requires sending the signal twice (press the remote control button twice).

## The principal use

The receiver can be used as equipment which controls remotely the work of the following devices: gates and barriers, electromagnetic locks, lights etc. In alarm systems it is used:

- as a panic button
- as a unit which controls the work of other devices of the system, for example, sensors
- to arm or disarm the system, zones, etc.

The device works on the frequency 433,92 MHz. In majority of the European Union countries (including Poland) this bandwidth does not require any special permissions and concessions for using it.

## USER'S MANUAL

Important! Launching the programming mode is possible only when the relay is closed. In order to close the relay, press the remote control's button or disconnect the power supply temporarily. We recommend setting the switch on the SERVICE position.

### 1. REGISTERING A 2-BUTTON REMOTE CONTROL

- a) press the LEARNING button for more than 0,5 but less than 4 seconds – the K2 diode will light
- b) press the button which is supposed to control the channel 1 – the diode K2 will fade
- c) press the button which is supposed to control the channel 2 once more – the diode K2 will light for 3 seconds, then it will start to pulse and will fade. The process of registering a new remote control is finished

If the process of registering a new remote control fails, the diode K2 will blink once and then fade. In this case, you need to start the process from the beginning. If the receiver's memory is full (113 remote controls have already been programmed), programming next remote control will delete the one which had been programmed as the first. If the number of users is larger than 113, you need to consider using the configuration of the WLC 201 receiving module with an adequate number of RSU-K01/LC receivers (two for 226 users, 3 for 339 users, etc.).

### 2. REGISTERING A 1-BUTTON REMOTE CONTROL ON THE CHANNEL 1

- a) press the LEARNING button for more than 0,5 but less than 4 seconds – the K2 diode will light
- b) press the remote control's button – the diode K2 will fade
- c) press this button once more – the diode K2 will light for 3 seconds, then it will start to pulse and then it will fade

### 3. REGISTERING A ONE-BUTTON REMOTE CONTROL ON THE CHANNEL 2

- a) press the LEARNING button for more than 0,5 but less than 4 seconds – the K2 diode will light
- b) press the remote control button – the diode K2 will fade
- c) press the same button once more – the K2 diode will light for 3 seconds and during this time press the LEARNING button
- d) the diode will pulse and then it will fade
- e) the process of registering a new remote control is finished

If you want to use only one button of a multi-buttoned remote control (2, 4 or 8) to control channel 1 or 2, proceed according to point 2 or 3.

### 4. SETTING THE RECEIVER'S OPERATING MODE

To set the receiver's operating mode, one needs to have a remote control which has previously been entered into the receiver's memory (point 1.). Manufacturing settings – the bistable mode.

**The monostable mode** (timer) – after sending the transmission from the remote control, the receiver's relay will open for the pre-programmed time

Press the LEARNING button (the diode K2 will light) and keep it pressed until the K2 diode starts to pulse – then you need to release the button. After releasing the button, the K2 diode will emit continuous light for about 4 seconds and then, slowly pulse. Each blink corresponds to one second.

For example, in order to set timer on 20 seconds, you need to count 20 blinks of the K2 diode and press the remote control's button, thus confirming the length of time. The maximal time available to set is 260s (4 min20s). If no button is pressed during the diode pulsing (time countdown), after counting to 260s, the K2 diode will emit continuous light for 1 minute. If during this time (the continuous lighting) the control button is pressed (confirming), the receiver will set time on the maximum, that is, about 260s. If during this time the button is NOT pressed, the receiver will quit the programming mode and will save the previous setting.

**The bistable mode** (flip-flop) – after receiving the transmission from the remote control, the relay flips on the other state.

Press the LEARNING button (the K2 diode will light) and keep it pressed until the K2 diode starts to pulse – then release the LEARNING button. After releasing the LEARNING button the K2 diode will emit continuous light for about 2s and during this period one must press the control's button.

### 5. DELETING THE REMOTE CONTROLS FROM THE MEMORY

Keep the LEARNING button pressed.

Phase one: the LED K2 will light for about 4s.

Phase two: LED K2 will start to pulse and then it will fade, which means that the deletion is finished. Release the LEARNING button.

1. one must remember that deleting concerns the whole capacity of the memory. If you want to remove only one or several remote controls, you must re-enter the ones which are supposed to be saved.
2. If there are many users and you want to avoid the toilsome process of programming the remote controls individually, you can use one of the identifying receivers (their parameters allow for deleting the controls individually)
3. deleting the senders does not change the operating mode of the receiver
4. disconnecting the supply voltage does not cause losing the information about programmed remote controls or the operating mode of the receiver.

**SPECIFICATION**

Device: a 9-button RNB 101S remote control

**TECHNICAL PARAMETERS**

- class: C
- frequency: 433,92 MHz
- transmission: coded (KeeLoq hopping code by Microchip Technology)
- number of buttons: 9
- sending power: <10mW
- power supply: 1 battery 9V/GF22
- battery life: 20 000 transmissions (transmission length: 0,5s)
- antenna socket: BNC 50 Ohm
- dimensions (mm): 65\*100\*24
- colour: black
- cooperation: any GE receiver
- operating range (m):
  - with superreactive receiver: 500
  - with heterodyne receiver: 1000

The above range concerns the open space (without any obstacles, when the receiver and the remote control can "see each other"). If there are any obstacles between the receiver and the sender, one must assume that the range would be reduced: for wood and plaster it would be 5-20% lower, for bricks 20-40% lower, and for reinforced concrete 40-80% lower. If there are many obstacles we advise to configure the sets using the receivers of the SH class, to use retransmitters or stronger remote controls. If there are metal obstacles, using the radio systems is not recommended. In such situation, consider installing WLC 201 module, which helps to avoid the problem.



The 9-button RNB 101S remote control is used in such installations where a long operating range is required. For users like security agencies, army or police, the control's main advantage is its solid construction.

It can be used as a unit which controls remotely the work of a wide variety of devices: gates and garage doors, barriers, blinds, electromagnetic locks, lights, pumps, air-conditioning etc.

In alarm systems it is used:

- as a panic button
- to turn on/off the zone etc

as a unit which controls the work of other devices of the system, for example sensors

The transmission is based on the hopping code (KeeLoq by Microchip Technology Inc. USA), which guarantees high safety of using and resistance to the radio signals from other devices. Each sender has its own individual code. The receiver reacts only to the transmissions coming from the senders which have previously been entered into its memory. "Loosing" 15 successive transmissions (using the remote control beyond the receiver's range) requires pressing the remote control button twice. We are producing a RNB 101S sender with 2, 3, 4, 5, 6, 7, 8, 9 keys (as you wish).

The remote control does not signal the low battery level. If the diode does not light when pressing buttons or if the range of the system decreased significantly, it may indicate the need to change the battery. Only when the remote control cooperates with the IDO 04/99 receiver, the low battery level is signalled by the receiver.

**The device meets the requirements of the directives EMC 89/ 336/ EEC and RTTE 1999/ 5/ EC**

