REMOTE CONTROL SET
RX-1K

The one-channel RX1K radio controller has been designed for application in the security systems, where it can serve control functions for arming partitions, and bypassing partitions or detectors, or even panic buttons. Owing to its expanded configuration options, it can be successfully used in all situations requiring the wireless control.

The radio controller is fitted with an electromagnetic relay which provides direct control of the electric equipment operation. To perform the control function (as transmitters), two- or four-button remote controls are designed. High resistance of the remote controls to environmental changes ensures a stable performance and a high comfort of the controller use. The construction, based on the Microchip Technology Inc. component parts, which use the dynamically changed KEELOQ® code for the transmission between transmitter and receiver, ensures both the safety of use and the resistance to spurious control signals coming from other equipment. The one-channel controller is capable of working together with 40 remote controls. It can only handle the SATEL remote controls.

Interfacing with the security systems is facilitated by the inputs informing of the system status, which make for an easy arrangement of the signaling of arming/disarming and clearing alarm.

WARNINGS

The control panel main board contains electronic components sensitive to electric charges. Prior to installation, these charges must be removed. During installation, avoid touching any elements on the control panel main board.

Making any construction changes or unauthorized repairs is prohibited. This applies, in particular, to modification of assemblies and components.

It is recommended that in the remote controls the producer's required battery should be used.

CAUTION! The old batteries must not be thrown away, but disposed of as required by the existing regulations (European Directives 91/157/EEC and 83/86/EEC).
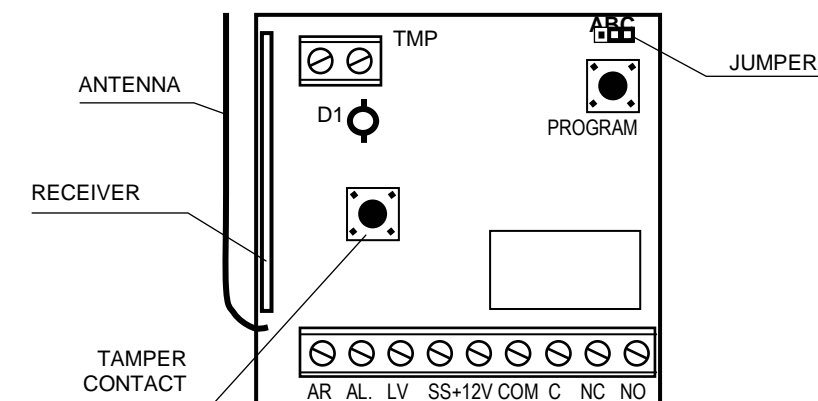
HOOKUP DESCRIPTION

Figure 1.   *View of the one-channel controller board.*

DESCRIPTION OF TERMINALS:

AR – input of signal indicating the security system armed mode
AL – alarm signal input
LV – output of remote control low battery signal (OC)
SS – signaling device control output (OC)
+12V – supply voltage input (direct voltage 9 to 16 V)
COM – ground
C – common terminal of relay
NC – normally-closed terminal of relay

NO – normally-open terminal of relay
TMP – tamper contact terminals

The **D1** (two-color) LED is the module operation indicator, which helps in programming the controller parameters. In normal condition, the color of its light is green, changing into red when a signal is received by the controller from the transmitter (remote control). The blinking red light means that the remote control battery is low.

The **LV** output becomes active when remote control low battery condition is found by the controller, and remains on until a remote control with good battery is used. It can serve e.g. to report security system troubles.

The **PROGRAM** button is intended for programming the remote controls to work together with the controller, and for programming the monostable switching time of the relay.

The three pins (ABC) situated at the PROGRAM button are used for setting the relay operation mode.

PROGRAMMING OF REMOTE CONTROLS

The controller only serves the remote controls if entered into its memory by the following procedure:
1. Press the PROGRAM button – the LED will start blinking in green.
2. Press the remote control button – the LED will change its color into (blinking) red.
3. Press again the <u>same remote control button</u> – the LED will light in steady green color – the remote control has been entered into the memory.

If the memory is already full or if the remote control is incorrect (made by another manufacturer), the first depression of the remote control button will make the controller return to its normal condition.

The one-channel controller is operated by each of the remote control buttons.

<u>Clearing the remote control from the controller memory</u> is only possible by erasing the whole memory contents. In order to do so, press and hold down the PROGRAM button for about 3 seconds (the LED will blink in red), release the button for about 1 second, then press it again and hold down for 3 seconds. The LED will start blinking in red and then, when the memory is cleared, it will return to the green color. The controller is now ready for programming the remote controls.

IMPORTANT:
– *When closing the housing, be particularly careful so as not to depress the programming buttons with cables .*
– *The lifetime of remote control batteries depends on how often they are in use. The batteries must be periodically checked (e.g. by noting how the D1 LED lights when the controller button is depressed, or by using the controller LV output) and replaced with new ones.*

SETTING THE RELAY OPERATING MODE

The relay can work in one of the three modes (selected by means of jumpers and ABC pins):

1. <u>Bistable</u> (all pins open) – each depression of the remote control button changes the relay status to the opposite one.
2. <u>Monostable</u> (pins A and B closed) – the relay is activated for a determined time.
3. <u>Pulse</u> (pins B and C closed) – the relay is active as long as the remote control button is depressed.

<u>The time of monostable switchover</u> is set in the following way (by default and after clearing the remote controls, the time is set to 5 seconds and can be changed within the range **from 1 to 255 seconds**):

– Press the PROGRAM button twice – the LED will go out.
– Press the remote control button – the LED will start blinking alternately in green and red.
– Measure the programmed time and press again the remote control button – the LED will light in steady green color.

INTERFACING WITH THE SECURITY SYSTEM

When signals informing of the security system armed mode and alarm (time of alarm to be cleared) are fed to the controller inputs, the function of generating appropriate signals on the SS output is activated. The armed mode (AR) and the alarm (AL) are indicated by grounded input. The signaling is effected by grounding the SS output for the time of impulse (0.16 second; current-carrying capacity 0.5 A).

– One signal – arming.
– Two signals – disarming.
– Four signals – disarming and clearing alarm.

The AR and AL inputs are monitored for 4 seconds after the remote control is used – which means the AR input status must be changed within that time, or the SS output will not generate any signals. Thus, arming or disarming performed from the keypad will generate no signals on the SS output of the controller.

EXAMPLE:
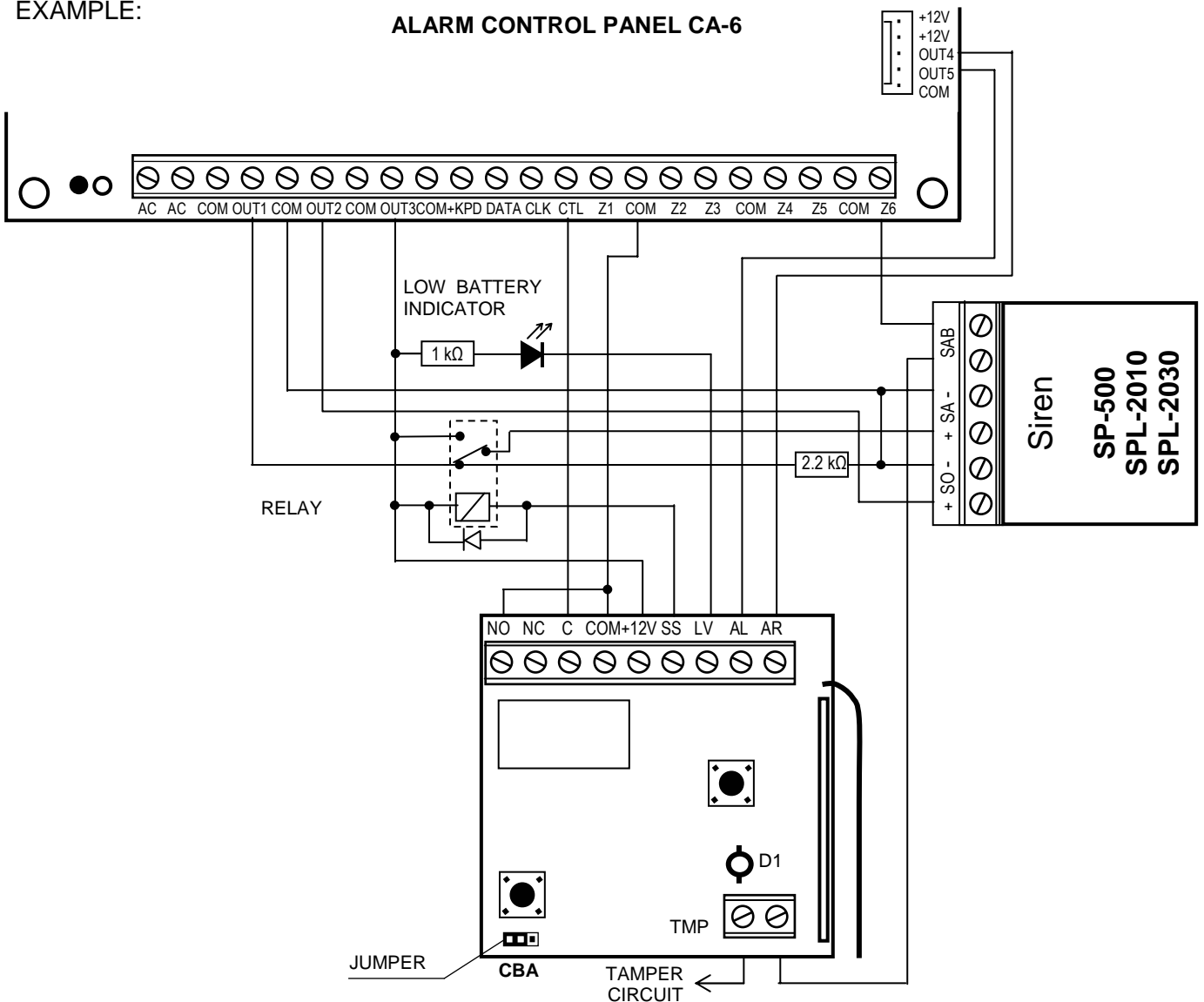
Figure 2. *Example of armed mode remote control in the SATEL CA-6 control panel with indication of remote control use on the external signaling device.*

In the above example, the panel armed mode is controlled by means of the remote control. The relay works in the pulse mode (pins B and C shorted) and connects ground (0 V) to the panel CTL input. In order to arm or disarm the system, press and hold down the remote control button until you hear a beep from the alarm signaling device.

The figure above shows also a simple way of providing a remote control low battery indicator.

To implement the example, the following parameters must be programmed in the CA-6 panel:

OUT1 – Time alarm (+12 V when the output is active);
OUT2 – Alarm to be cleared (+12 V when the output is active);
OUT3 – Supply output (+12 V);
OUT4 – Armed mode indicator (OC type output – program +12 V when active)
OUT5 – Alarm to be cleared (OC type output – program +12 V when active);
CTL – Arming/disarming one or both partitions (FS 125);
Z6 – 24H loud line (tamper circuit).

The presented example shows just one of the many possible applications of the controller.

TECHNICAL DATA

Range in open area .... up to 100 m
(obstructions between transmitter and receiver will reduce the device operating range)
Number of controlled channels 1
Power supply voltage .... DC 9 to 16 V
Current consumption, minimum .... approx. 13 mA
Current consumption, maximum .... approx. 30 mA
Current-carrying capacity of relay contacts at voltage of 24 V DC .... 2 A
Time control range in monostable mode .... 1 do 255 s
Current-carrying capacity of LV (OC) output .... 50 mA
Current-carrying capacity of SS (OC) output .... 500 mA
Working frequency .... 433.92 MHz ±75 kHz
Working temperature range .... -10 to +50 ºC
Dimensions:
Receiver 117x72x23mm
Remote control, two-channel 50x35x11mm
Remote control, four-channel 55x37x16mm
Battery type:
For remote control, two-channel (P-2) 27A 12V
Weight .... 123 g

DECLARATION OF CONFORMITY		
Product: RX-1K – radio remote control set	**Manufacturer:** SATEL sp. z o.o. ul. Schuberta 79 80-172 Gdańsk, POLAND tel. (+48 58) 320-94-00 fax. (+48 58) 320-94-01	CE 0681
Product description: Radio remote controller set operating at 433 MHz with Keeloq code hopping system, equipped with 1 controlled output. The set consists of a receiver powered by 12 V source and battery operated P-2 keyfob transmitters. This product can be used for remote controlling of low voltage equipment, such as intruder alarm panels.		
This product meet the essential requirements and is in conformity with following EU Directives: R&TTE 1999/5/EC		
This product meets the requirements of harmonized standards: This product is compliant with the following harmonized standards: R&TTE: EN 300 220-1: v.1.3.1; EN 300 220-3: v.1.1.1; EMC: EN 301 489-1: v.1.4.; EN 301 489-3: v.1.4.1 LVD: EN60950-1:2001		
Notified body involved in conformity assessment procedure: ELECTRONIC TECHNOLOGY SYSTEMS DR. GENZ GMBH Storkower Str. 38C, D-15526 Reichenwalde b. Berlin, Germany ID No.: 0681 EMC test report no: G0M20308-8177-E-11 R&TTE test report no: G0M20308-8177-T-41 LVD test report no: G0M20308-8177-L		Identification No.: 0681
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