

INTERACTIVE FIRE ALARM SYSTEM

POLON 4000 and POLON 6000

WIRELESS MANUAL FIRE CALL POINTS

ROP-4007 and ROP-4007H

Installation and Maintenance Manual

IK-E352-001

IC edition



The ROP-4007 and ROP-4007H Wireless Manual Fire Call Points that are the subject of this manual meet the essential requirements of the following European Parliament and Council (EU) regulations and European Union directives:

CPR CPR/305/2011 The European Parliament and the Council (EU) regulation of March 9, 2011

stipulating harmonized conditions for placing construction products on the market and repealing Council Directive 89/106/EEC;

EMC Directive 2014/30/EU concerning electromagnetic compatibility.

CNBOP-PIB, notified body No. 1438, issued performance features constancy certificate confirming the products technical features/parameters required by the EN 54-11:2001+A1:2005 and EN 54-25:2008+AC:2010 standards.

Features/technical parameters exceeding the requirements of the mentioned standards and other product features/parameters provided in this manual and not specified by the mentioned standards are confirmed by the Manufacturer.

These products are covered by an approval certificate issued by CNBOP-PIB.

The manufacturer issued a declaration of performance for the products.

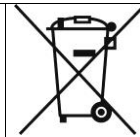
The abovementioned Certificate, Approval Certificate and Declaration of Performance are available on the website www.polon-alfa.pl

Read this manual before installation and operation.

Failure to observe the instructions in this manual may be dangerous or result in a breach of regulations in force.

POLON-ALFA is not liable for damages resulting from the use inconsistent with this manual.

A waste product, unsuitable for further use, shall be passed to a waste electric and electronic equipment collection point.



Note: The manufacturer reserves the right to introduce changes



POLON-ALFA S.A.
85-861 Bydgoszcz, ul. Glinki 155

Manual Call Point
ROP-4007, ROP-4007H

Intended use:

Fire safety – call points intended for transmitting information about a fire to fire alarm control panels upon manual activation.

ROP-4007 – for indoors operation

ROP- 4007H – for outdoors operation

Notified body:

1438 -CNBOP-PIB

Declaration of performance:

2/E352/2018/PL

Harmonized standards:

EN 54-11, EN 54-25

Essential characteristics of the product	Features	Harmonized technical specification EN 54-11:2001 A1:2005 Chapter
Nominal commissioning conditions/sensitivity and effectiveness in fire conditions		
Alarm state	Fulfilled	4.3.2.
Alarm status indicators	Fulfilled	4.4
Security aspects	Fulfilled	4.7.1.
Protection against accidental triggering	Not applicable	4.7.4.
Operation test	Fulfilled	5.2
Functional testing	Fulfilled	5.3

Product essential features	Performance properties	Harmonized technical specification EN 54-11:2001 A1:2005 Chapter
Operation reliability		
Markings and technical documentation	Fulfilled	4.2
Supervising status	Fulfilled	4.3.1.
Reliability test (durability)	Fulfilled	4.5
Testing equipment	Fulfilled	4.6
Shape, dimensions and colors	Fulfilled	4.7.2.
Symbols and inscriptions	Fulfilled	4.7.3.
Environmental category	Fulfilled	4.7.5.
Additional requirements related to program-controlled manual fire call points	Fulfilled	4.8
Test equipment testing	Fulfilled	5.4
Reliability test (durability)	Fulfilled	5.5
Durability of operational reliability: heat resistance		
Dry heat resistance	Fulfilled	5.7
Dry heat resistance	Fulfilled*	5.8
Resistance to cold	Fulfilled	5.9
Durability of operational reliability: vibration resistance		
Single shock resistance	Fulfilled	5.14
Impact resistance	Fulfilled	5.15
Resistance to sinusoidal vibration	Fulfilled	5.16
Sinusoidal vibration endurance	Fulfilled	5.17
Durability of operational reliability: moisture resistance		
Resistance to moist cyclic heat	Fulfilled	5.10

Product essential features	Features	Harmonized technical specification EN 54-11:2001 A1:2005 Chapter
Durability of operational reliability: moisture resistance		
Resistance to moist cyclic heat	Fulfilled*	5.11
Resistance to constant humid hot	Fulfilled	5.12
Protection provided by enclosures	Fulfilled	5.19
Durability of operational reliability: corrosion resistance		
Resistance to SO ₂ corrosion	Fulfilled	5.13
Durability of operational reliability: electric stability		
Changes in power supply parameters	Fulfilled	5.6
Electromagnetic compatibility, immunity	Fulfilled	5.18
Product essential features	Features	Harmonized technical specification EN 54-25:2008 +AC2010 chapter
Properties in fire conditions		
General provisions	Fulfilled	4.1
Alarm signal integrity	Fulfilled	4.2.2
General provisions	Fulfilled	5.2
Reproducibility test	Fulfilled	8.3.7
Operation reliability		
Alarm signal integrity test	Fulfilled	8.2.3
Mutual interference test between systems of the same manufacturer	Fulfilled	8.2.6

Essential characteristics of the product	Features	Harmonized technical specification EN 54-25:2008 +AC2010 chapter
Reaction delay (fire response time)		
Resistance to local attenuation	Fulfilled	4.2.1
Identification of the radio-connected component	Fulfilled	4.2.3
Receiver properties	Fulfilled	4.2.4
Noise immunity	Fulfilled	4.2.5
Lost communication	Fulfilled	4.2.6
Antenna	Fulfilled	4.2.7
Power supply device	Fulfilled	5.3
Environmental requirements	Fulfilled	5.4
Documentation	Fulfilled	6
Marking	Fulfilled	7
Local resistance to attenuation test	Fulfilled	8.2.2
Identification of radio-connected components test	Fulfilled	8.2.4
Receiver properties test	Fulfilled	8.2.5
Compatibility with other users of the band test	Fulfilled	8.2.7
Detection of link communication loss test	Fulfilled	8.2.8
Antenna test	Fulfilled	8.2.9
General provisions	Fulfilled	8.3.1
Component testing program	Fulfilled	8.3.2
Useful life of an independent power source(s) check	Fulfilled	8.3.3
Low-voltage fault signal test	Fulfilled	8.3.4
Reverse polarity test	Not applicable	8.3.5
Repeatability test	Fulfilled	8.3.6

Essential characteristics of the product	Features	Harmonized technical specification EN 54-25:2008 +AC2010 chapter
Durability of operational reliability: temperature resistance		
Dry heat resistance	Fulfilled	8.3.9
Dry heat resistance	Fulfilled	8.3.10
Resistance to cold	Fulfilled	8.3.11
Durability of operational reliability: vibration resistance		
Impact resistance	Fulfilled	8.3.16
Impact resistance	Fulfilled	8.3.17
Resistance to sinusoidal vibration	Fulfilled	8.3.18
Sinusoidal vibration endurance	Fulfilled	8.3.19
Durability of operational reliability: moisture resistance		
Resistance to moist cyclic heat	Fulfilled	8.3.12
Resistance to constant humid hot	Fulfilled	8.3.13
Constant humid hot endurance	Fulfilled	8.3.14
Durability of operational reliability: corrosion resistance		
Resistance to SO ₂ corrosion	Fulfilled	8.3.15
Durability of operational reliability: electric stability		
Electrostatic discharge	Fulfilled	8.3.20 a)
Radiated electromagnetic fields	Fulfilled	8.3.20 b)
Technical data, see manual: IK-E352-001		

* Not applicable to the ROP-4007 Manual Fire Call Point

1 INTENDED USE

The ROP-4007 and ROP-4007H Wireless Manual Fire Call Points are addressable components designed to convey information about a noticed fire upon manual activation.

The ROP-4007 and ROP-4007H Wireless Manual Fire Call Points communicate with POLON 4000 and POLON 6000 Fire Alarm Control Panels via the ACR-4001 Radio Adapter. The manual call points are battery-powered. Manual call points should be used if a detection line cannot be connected to the manual call point, e.g. in historic buildings, churches, etc.

The standard ROP-4007 Manual Call Point is intended for indoor installation. The ROP-4007H Manual Call Point with increased tightness is intended for outdoor installation.

The standard ROP-4007 Manual Call Point is intended for surface-mounting or flush-mounting: the basic offered version is the flush-mounted version. The RM-60-R Masking Frame for surface mounting is not included in the manual call point delivery and must be ordered separately. The ROP-4007H Manual Call Point with increased tightness is designed for surface-mounting.

2 TECHNICAL DATA

Type of the wireless manual call point	B according to EN 54-11:2001+A1:2005
Enclosure tightness	
ROP-4007	IP 30
ROP-4007H	IP 55
Operating temperature	
ROP-4007	-25°C to +55°C
ROP-4007H	-25°C to +70°C
Permissible relative humidity	
ROP-4007	up to 95% at 40°C
ROP-4007H	up to 95% at 55 °C
Dimensions	(102.5 x 98 x 46) mm
Weight	
ROP-4007	< 160g (without batteries)
ROP-4007H	< 160g (without batteries)
Housing color	red
Battery power	2 ER14505V lithium batteries
Operating voltage	3.6V battery ER14505V, AA size
Maximum current consumption during supervision	≤ 90µA
Working time in supervision mode	3 years ¹⁾
Max. current in the event of a fault or during an alarm	≤ 1mA
Radio link operating frequency range	863 ÷ 870MHz
Rated radiated power	< 25mW
Frequency stabilization method	frequency synthesizer and quartz resonator
Radio communication method	multi-channel with confirmation
Modulation type	FSK
Antenna type	integrated
Range – depends on the environment attenuation	up to 100m

1) If the manual call point works for a long time in a state of fault or alarm or is placed in an adverse environment in terms of radio interference and radio wave propagation, the operating time may be reduced to 130 days.

3 SAFETY CONDITIONS

3.1 Repairs and maintenance

The maintenance works and periodical inspections should be conducted by authorized employees of companies which have been authorized or trained by POLON-ALFA personnel.

All repairs must be carried out by the manufacturer.

POLON-ALFA is not responsible for the operation of equipment maintained and repaired by unauthorized personnel.

3.2 Eye protection against dust

For works creating lots of dust, especially when drilling holes, wear protective goggles and dust mask.

Power tools should be used in accordance with the conditions of their safe operation specified in the respective manufacturer's manuals.

4 DESIGN DESCRIPTION

The manual call point consists of a body and base connected by a hinge.

The body contains the main parts of a manual call point: a circuit board with electronics, a microswitch and batteries. In the upper part behind the glass there is a two-color LED diode signaling alarm status or fault status.

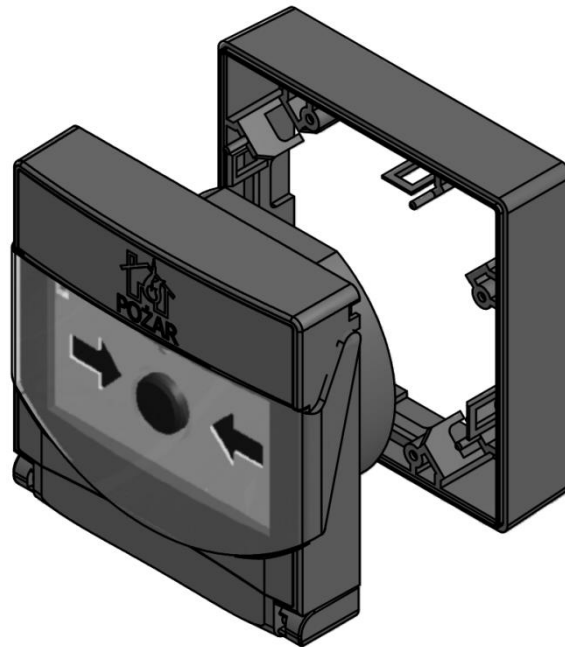


Fig. 1 Manual call point general view

The manual call point with increased tightness is surface-mounted using the RM-60-R masking frame.

5 OPERATION DESCRIPTION

Activation of the manual call point: entering the alarm state occurs upon hitting the glass (tilting it) and then by pressing the button.

The background color of the manual call point arrows changes from black to yellow. The information about pressing the button is sent to the fire alarm control panel, which transmits the signal to the manual call point activating the LED diode signaling the manual call point activation with red flashes.

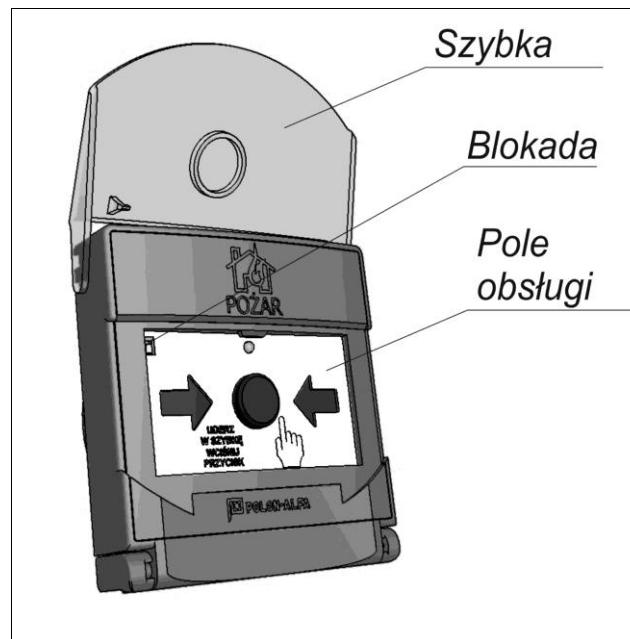


Fig. 2 Manual call point with tilted glass

In order to cancel the manual call point alarm state, press the glass against the body as shown in figure 3 and insert the key from the bottom (with T tip) until the arrows turn black. After removing the key, the glass will be locked in the normal supervision position.

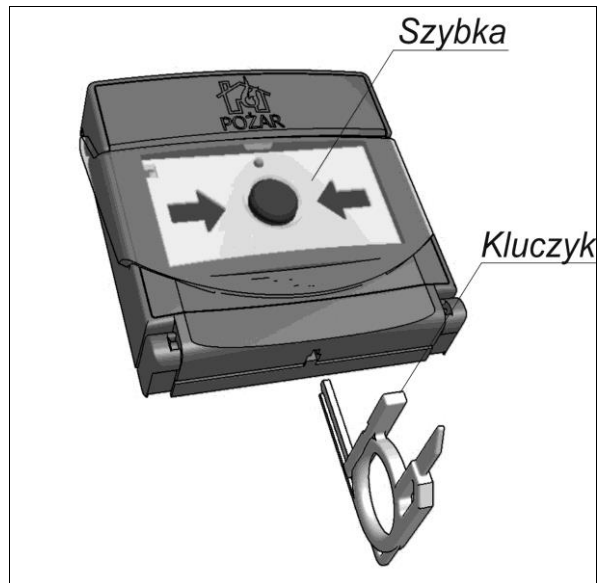


Fig. 3 Clearing the alarm state

Note:

If the glass will be pulled instead of being hit (not in accordance with the instructions on the manual call point) and the button is not pressed (the manual call point will not be put into an alarm condition), press the glass to the operating zone and insert the key from the bottom of the device until it stops, in order to lock the glass in position.

6 INSTALLATION

6.1 Place of installation and the fixing method

Depending on the version, manual call points are installed inside or outside the building, in places that are easily accessible and clearly visible, preferably near transport routes, at a height of 1200 - 1600mm, in accordance with the standard PKN-CEN/TS 54-14:2006 point 6.5.4.

The location of the mounting holes (diagonal – Fig. 4 and Fig. 5) should be marked using a template. Do not use the manual call point or masking frame for this purpose.

The manual call point should be installed on a flat surface using 2 pieces of $\varnothing 6$ mm wall plugs and **cylindrical head** screws supplied with the call point.

For flush-mounting installation of the manual call point, use a core drill to drill 80mm diameter hole (typical hole diameter for installation boxes) with a minimum depth of 23mm.

For surface-mounting installation of the manual call, use the RM-60-R Masking Frame.

Due to the significant impact force required for triggering, do not mount manual call points on drywall without additional reinforcement.

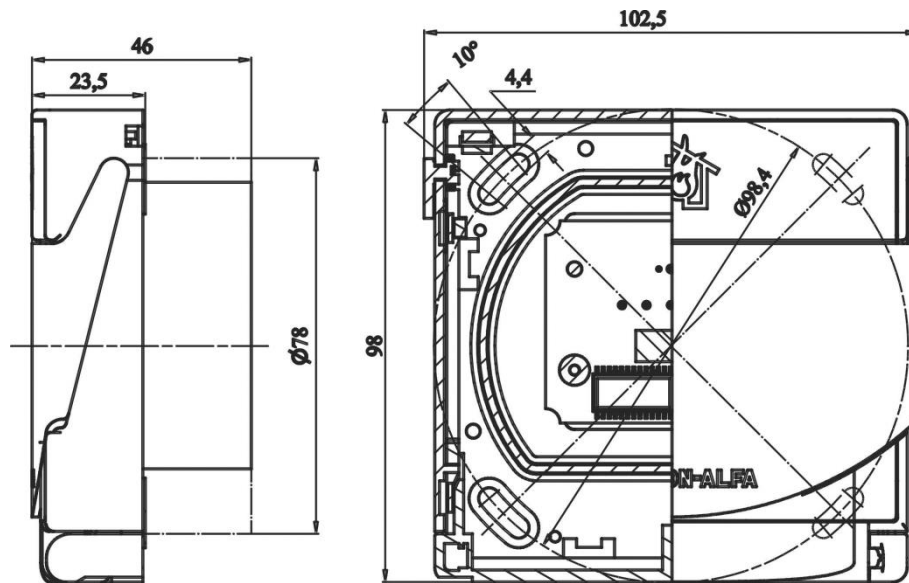


Fig. 4 Dimensions and mounting holes of the manual call point

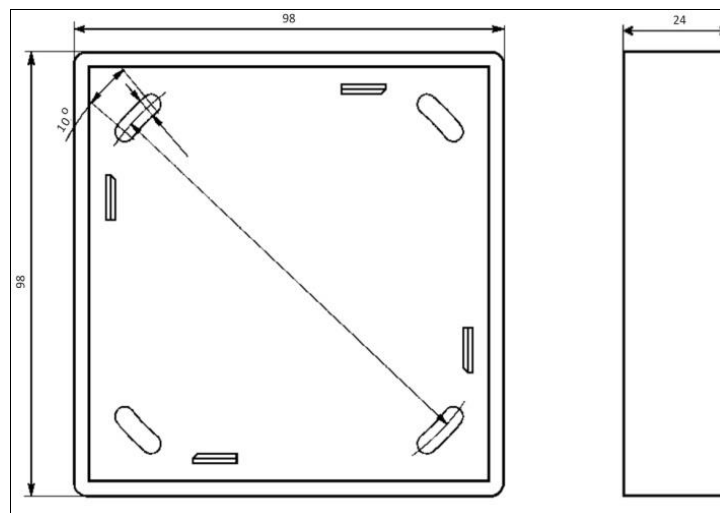


Fig. 5 Dimensions and mounting holes of the RM-60-R Masking Frame

6.2 Battery installation

To access the plate with batteries, two keys (with flat tips) should be pressed inwards from the sides of the device. The device body will then tilt. The batteries should be positioned according to the circuit board + and - descriptions. If the battery is inserted incorrectly, the red LED between the batteries will light up, which indicates incorrect polarity of the batteries (Fig. 7).

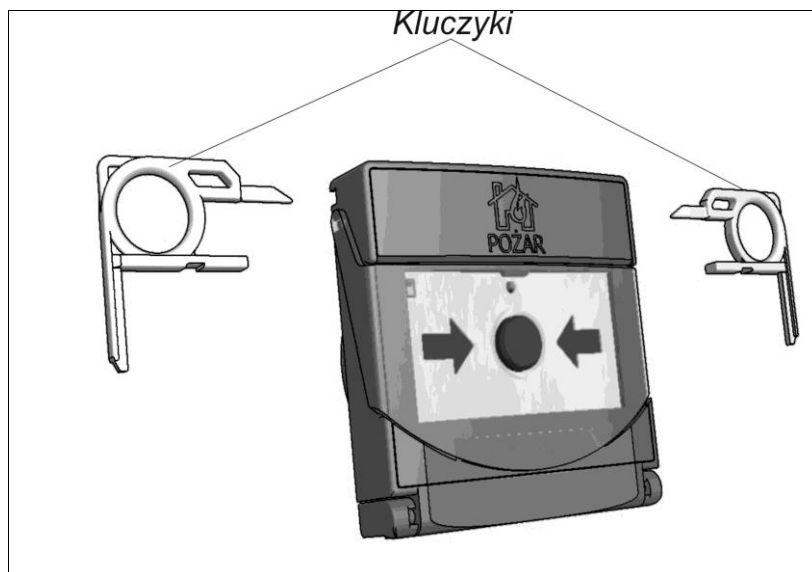


Fig. 6 How to open the manual call point

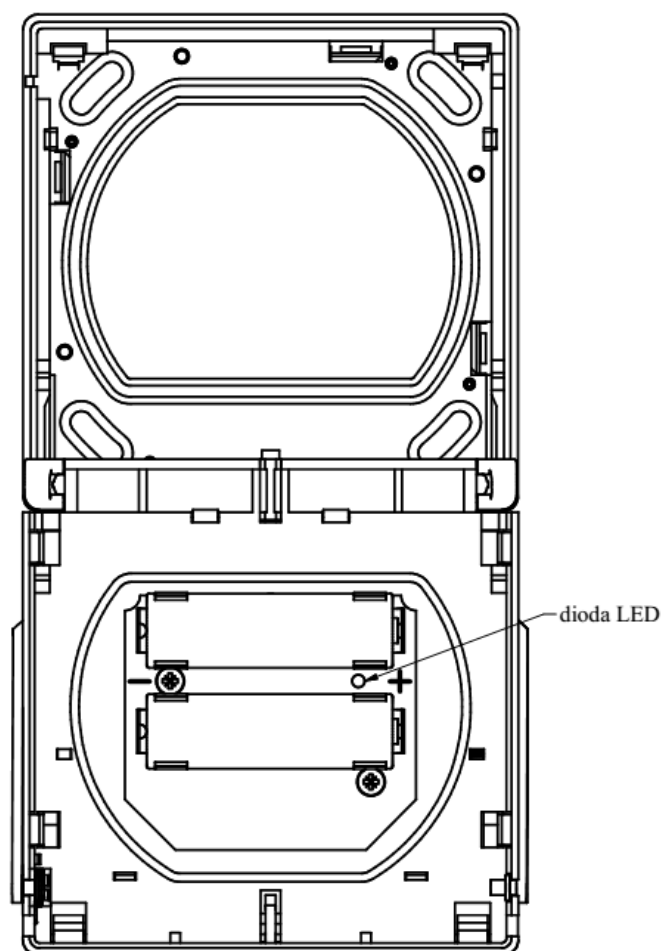


Fig. 7 Manual call point after opening

6.4 Glass replacement

If it is necessary to replace the glass, tilt the body of the manual call point (see Fig. 6), pull out the glass, remove the spring. Install the spring on the hinge of the new glass according to Fig. 8.

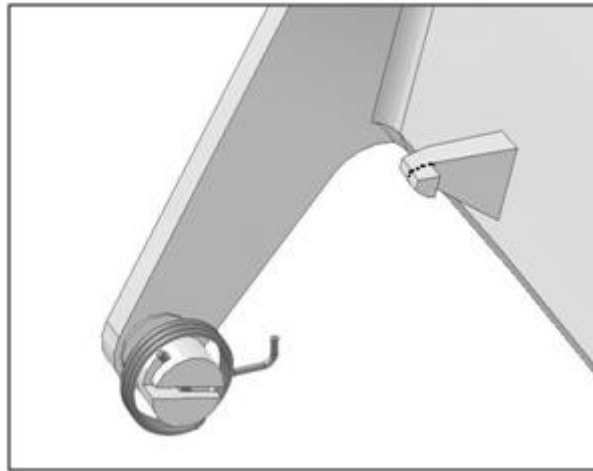


Fig. 8 Glass spring installation

Insert the glass into the guides of the cover and hook the spring onto the projection in the cover, as shown in Fig. 9.

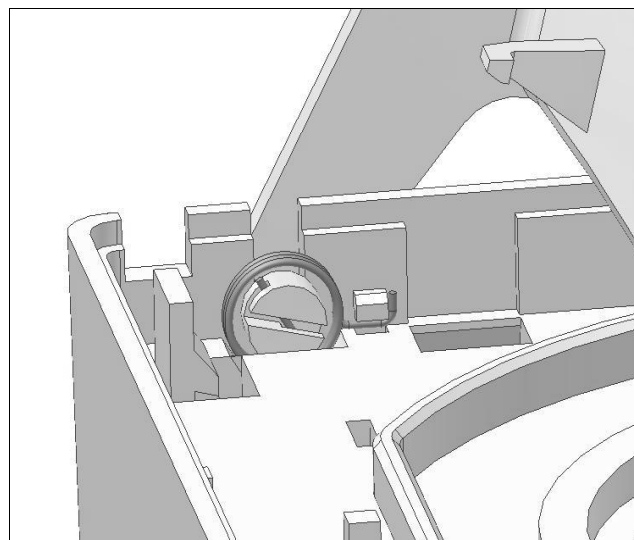


Fig. 9 Connecting the spring with the body

A set of 3 spare glasses is offered under product designation SZ-60.

7 OPERATION AND MAINTENANCE

Reliable operation of the manual call point depends on maintaining the proper operating conditions of the device, correct installation and regular periodic tests. Periodically check the mechanical condition of the housing and keep it clean.

Periodic tests should be carried out at least once a year by the installer or an authorized person. The test should cover triggering an alarm and checking whether the alarm is transmitted to the control panel.

Efficiently operated manual call points, regularly subjected to periodic tests, do not require any other maintenance.

ROP-4007 Manual Call Point is power-supplied by two ER14505V lithium batteries rated at 3.6V. The manufacturer recommends batteries produced by EVE. These batteries are supplied by POLON-ALFA together with the call points and sold separately to replace used batteries in call points working on premises.

When changing the battery always replace the whole set of 2 pieces. Used batteries must not be disposed of with household waste, they must be disposed of in a manner consistent with applicable environmental protection regulations (European Union Directives 91/157/EEC and 93/86/EEC).

During the operation of call point, do not allow dew and rime to form on the product surfaces and protect the device against excessive dusting.

8 STARTING THE RADIO SYSTEM (ACR-4001 ADAPTER + ROP-4007 MANUAL CALL POINT)

The correct selection of place for the manual call point and adapter installation plays critical role. All obstacles such as walls, ceilings, doors and windows suppress radio signal and may in the worst case reduce the working range from over 100m (in open space) to just a few meters with unfavorable arrangement of call points in the building. **No more than two adapters should operate in the same radio range using the same operating mode, i.e. subsequent adapters installed close to each other should be programmed in modes 1, 3, 5, 7, or 9. Mode 1 is not recommended due to the greatest amount of interference from adjacent frequency bands from other radio spectrum users, and is only available for compatibility with older versions of adapters and detectors.**

Table of corresponding operating modes	
Normal operation	Testing
1	2
3	4
5	6
7	8
9	10

The table above shows the corresponding operating modes: during normal operation and during testing. Manual call point and adapter with selected pair of operating modes, e.g. 3 and 4, use the same set of frequencies. When a manual call point has its batteries installed, after changing the adapter's operating mode to a different one (from an incompatible pair), an error "lack of communication with the wireless manual call point" may appear for a few minutes. Therefore, the selection of operating modes should be made at the design stage, based on the principle that in the vicinity (radio communication range) there should be adapters working in different modes, respectively 1, 3, 5, 7, and 9.

When using the ROP-4007 Manual Call Points with the ACR-4001 Adapter in historic buildings, due to the difficulty in predicting the devices operating conditions (signal attenuation), it is necessary to simulate the placement of both system components.

- I. The installation location selection should be based on the estimation that the manual call point and the adapter see each other, there are no obstacles between them and the distance between

these devices is less than 40m.

- II. The choice of the adapter installation location, if the location of the manual call point(s) is specified, should be made using the TZCR-4001+ radio set tester (set containing three components: detector, manual call point and battery powered adapter, with intentionally reduced radio parameters in order to assure reliable operation of the real adapter). After placing the manual call point with batteries (from the TZCR+ set) in the supposed operation location, check using the test adapter whether communication is functioning (a red led is blinking on the adapter: a minimum of 1 red flash to ensure a 30dB attenuation margin).
During testing, only the manual call point from the TZCR+ should be working, remove the batteries from the detector included in the set!
- III. Choosing a location, if the installation location of the adapter is known and the position of the manual call points may be changed. The procedure applies only to the POLON 4000 system.
When testing communication between the adapter and the manual call point, try to test the devices at the installation heights as close to the real ones as possible.
Activation should be started by connecting the radio adapter to the detection line of the POLON 4000 System Control Panel. Do not insert the battery into any manual call point. To check the signal quality in rooms where manual call points are to be installed, use one manual call point.
 1. Using the control panel, configure the adapter with the serial numbers of all components that will ultimately work with the adapter (max. 16 component numbers). For this purpose, in the control panel menu (access at level 3), select the SYSTEM CONFIGURATION (KONFIGURACJA SYSTEMU) -> LINE SETTINGS (USTAWIENIA LINIOWE) -> ACR CONFIGURATION (KONFIGURACJA ACR) menu.
 - a) Select the number of the line to which the adapter is connected
 - b) Enter and confirm the adapter serial number, the current adapter configuration will be read and displayed afterwards.
 - c) In items 1-16, enter the serial numbers of the radio components that are supposed to work with the adapter.
Note: Special care should be taken to avoid entering the same radio devices for two adapters, as this may cause serious problems during configuration.
 - d) Save the ACR adapter configuration.
 - e) repeat steps a), b), c), and d) if needed for other radio adapters.
 2. In the control panel menu (access at level 3), select the SYSTEM CONFIGURATION (KONFIGURACJA SYSTEMU) -> LINE SETTINGS (USTAWIENIA LINIOWE) -> AUTOMATIC CONFIGURATION (KONFIGURACJA AUTOMATYCZNA) menu and declare automatically components for the selected detection line. The control panel may indicate device fault. This is because they do not have batteries inserted and they are not working.
Note: The radio components are a branch of the line, the AUTOMATIC CONFIGURATION is only possible if the adapter is placed in a loop detection line. If the adapter works in a radial line, the line configuration must be done manually.
 3. In the control panel menu (access at level 3), select the SYSTEM CONFIGURATION (KONFIGURACJA SYSTEMU) -> LINE SETTINGS (USTAWIENIA LINIOWE) -> MANUAL CONFIGURATION (KONFIGURACJA RĘCZNA) menu and set the operating mode 2 (or 4, 6, 8, 10, i.e. service mode) for the ACR-4001 Adapter. The collective TESTING lamp on the control panel will light up, and after pressing the button next to the indicator, the message "ACR-4001 IN SERVICE MODE" (ACR-4001 W TRYBIE SERWISOWYM) will appear.
 4. One of the declared components should have the batteries installed. If the manual call point is located within the adapter's operating range, modulated red flashes will appear. If the component cannot communicate with the adapter, modulated yellow flashes will appear. The number of red LED flashes indicates the signal level from 1 to 3.

5. Verify if there is a good connection with the adapter in the planned component installation location. This is presented with 3 regular LED flashes in red and no flashes in yellow. Additionally, in the control panel, in the SYSTEM TESTING COMPONENTS (TESTOWANIE ELEMENTÓW SYSTEMU) -> TEST SETTINGS (USTAWIENIA TESTÓW) -> COMMUNICATION TEST WITH MANUAL RADIO WARNING (TEST ŁĄCZNOŚCI Z RĘCZNYM OSTRZEGACZEM RADIOWYM) menu, you can check the number of correct transmissions during the last 31 attempts. Ideally, the CONNECTION QUALITY (JAKOŚĆ POŁĄCZENIA) parameter should equal 31 and should not be less than 20. Wait for 3 minutes to reach and stabilize the reading. In addition, the TRANSMISSION HISTOGRAM (HISTOGRAM TRANSMISJI) feature allows you to view the history of recent transmissions. To ensure a 30dB margin for radio attenuation, the histogram bars should have a maximum height.
Note: The TRANSMISSION TIME (CZAS TRANSMISJI) parameter should not exceed 10s. If the parameter for the whole 3 minutes of the test exceeds 60s, make sure that the adapter works in mode 2 (or 4,6,8,10).
6. The component should be placed in the next place of planned installation and the correctness of transmission should be checked again according to point 5.
7. After checking all places where manual call points are to be installed, batteries should be placed in other components and they should be installed in previously designated places. Check that all communication problems related to the installed manual call points signaled by the control panel have disappeared.
8. After verification that everything is working properly, in the control panel, in the SYSTEM CONFIGURATION (KONFIGURACJA SYSTEMU) -> LINE SETTINGS (USTAWIENIA LINIOWE) -> MANUAL CONFIGURATION (KONFIGURACJA RĘCZNA) menu, set the operating mode 1 (or 3,5,7,9, i.e. normal operation mode) for the ACR-4001 Adapter. The collective TESTING (TESTOWANIE) lamp should go out. If this does not happen, check whether the message "ACR-4001 IN SERVICE MODE" (ACR-4001 W TRYBIE SERWISOWYM) is still displayed after pressing the button next to it, or whether another test is currently being performed.

Note: Installing the radio component in a place where radio communication is difficult, i.e. the manual call point does not receive confirmation of the each broadcasted message (e.g. the confirmation is received once every 20 transmission attempts), may result in quicker battery depletion and shortening the time of manual call point operation. Poor transmission quality is signaled in the control panel by the technical alarm "Poor radio link quality" (Zła jakość łącza radiowego).

9 PACKING, TRANSPORTATION, STORAGE

Manual call points are packed in collective packages. The packaging contains installation and maintenance instructions.

Manual call points in the factory packaging should be transported in confined spaces of normal land or sea transport means. The devices should be protected against the effects of sudden shocks and ambient temperatures lower than -40°C and higher than +70°C. Manual call points should be stored indoors,

at a temperature of +5°C to +40°C and in a relative humidity of 40% to 80%, in atmosphere free from vapors

and corrosive gases, away from heating elements. The storage period should not exceed 24 months.