

POLON 4000
INTERACTIVE FIRE DETECTION AND ALARM SYSTEM

SAL-4001
ADDRESSABLE ACOUSTIC
SIGNALLING DEVICE

Installation and Maintenance Manual

IK-E303-001GB

IIIA Edition




The SAL-4001 addressable acoustic signalling device covered by the present manual, complies with the requirements of the following European Union Directives:

CPD 89/106/EWG on construction materials;
EMC 2004/108/WE on electromagnetic compatibility.

The SAL-4001 addressable acoustic signalling device has been approved with the EC-Certificate of Conformity No. 1438/CPD/0028 issued by the Scientific and Research Centre for Fire Protection (CNBOP) Józefów, Poland, an EU notified authority No. 1438, confirming its compliance with the requirements of PN-EN 54-3:2003 standard.


The certificate may be downloaded from www.polon-alfa.pl web site.

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Polon-Alfa Spółka z ograniczoną odpowiedzialnością Sp. k. 155, Glinki Street, PL 85-861 Bydgoszcz, POLAND 05 1438/CPD/0028
EN 54-3 SAL-4001 Acoustic Signalling Device (addressable, A type) Application – fire safety
Technical data - IK-E303-001GB manual

Read the manual carefully before the detector assembling and commissioning.

Any nonconformity with the instructions contained in the manual may be harmful or may cause violation of the law in force

POLON-ALFA bears no responsibility for any damage resulting from usage inconsistent with the manual.

A waste product, unsuitable for further use, shall be passed to a waste electric and electronic equipment collection point.	
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NOTE: The manufacturer reserves the right to change specifications of products at any time without prior notice.

1 PURPOSE

The SAL-4001 addressable acoustic signalling device is a signalling element installed in the POLON 4000 system fire detecting and alarm control panel addressable loop-shaped detection lines. It is designed for indoor operation. The SAL-4001 signalling devices is equipped with an internal short circuit isolator.

The device can be power supplied in various ways:

- from a detection line;
- from an additional battery;
- from an external 24 V power supply device.

All mentioned above sources can be utilised simultaneously.

A power supply method choice determines what power supply source(s) are monitored by the control panel. Depending on the supply way, also the signalling device alarm sound height changes: from 85 dB when connected only to a detection line, through 94 dB – battery supply up to 100 dB when supplied from 24 V external device.

Three signalling variants are available:

- 0.5 sec. signal and 0.5 sec. interruption,
- 0.25 sec signal and 0.25 sec. interruption,
- 3 sound signals (0.5 sec./0.5 sec.) and 2 sec. interruption.

The SAL-4001 signalling device is provided for wall mounting (compare p. 6 note) and for ceiling mounting using the G-40S base.

2 TECHNICAL SPECIFICATIONS

Detection line operation voltage	16.5 V – 24.6 V
Power supply device operation voltage	24 V (16 V - 32 V)
Maximum detection line current draw	600 µA in signalling/alarm mode (without auxiliary power supply sources) 150 µA in quiescent mode
Maximum current draw from power supply device	16 mA in signalling/alarm mode max. 200 µA in quiescent mode
Maximum current draw from battery	10 mA in signalling/alarm mode 3 µA in quiescent mode
Battery operation life	- from 2 to 5 years in quiescent mode (service life acc. to battery manufacturers) - 40 h in signalling/alarm mode (standard 6F22 zinc battery)
Sound level at 1 m distance	85 dB with detection line power supply 94 dB with battery power supply 100 dB with 24 V power supply
Sound frequency	3.4 kHz
Signalisation variants	'1' variant – 0.5/0.5 s

	'2' variant – 0.25/0.25 s
	'3' variant – 3 x 0.5/0.5 s
Operation temperature	from - 10 °C to + 55 °C
Allowable relative humidity	up to 95 % at 40 °C
Climate category	10/055/04
Ingress protection	IP 21C
Dimensions (with base)	∅ 115 x 54 mm
Mass	200 g
Factory programmed operation mode	'1' signalisation variant and external power supply device monitoring.

3 SAFETY CONDITIONS

3.1 Repairs and maintenance

Any maintenance works or periodic inspections shall be executed by skilled personnel employed by companies authorised and trained by POLON-ALFA.

Any repairs must be carried out by the manufacturer.

POLON-ALFA bears no responsibility for the operation of any apparatus being repaired by unauthorised personnel.

3.2 Works at height

Any device installation works carried out at height must be executed with particular care utilising tools and machinery in good working condition.

Special attention shall be given to stability of ladders, elevators, lifts, etc.

Any electric tools shall be used strictly obeying the safety rules stated in instruction manuals by manufacturers.

3.3 Anti-dusting eye protection

It is obligatory to use protective anti-dusting glasses and masks during the device installation works that produce high amount of dust, such as hole drilling in ceilings.

4 DESIGN DESCRIPTION

The SAL-4001 addressable acoustic signalling device construction is shown on Fig. 1. Its basic element is a piezoelectric transducer that generates an acoustic signal. A metal protective net prevents irruption of small insects and pieces of dirt into the signalling device. The whole structure is placed in a white non-flammable plastic housing containing a basket, screen and cover. From the element bottom side, it is possible to connect and mount a battery.

The SAL-4001 device interoperates with the G-40S base where detecting line wires as well as external power supply cables are connected to.

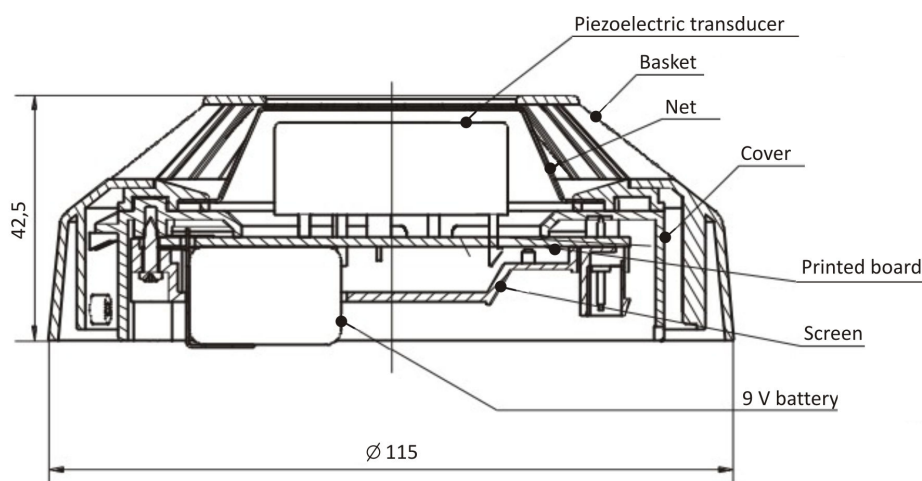


Fig. 1 SAL-4001 signalling device main elements and dimensions

5 PRINCIPLE OF OPERATION

During supervising, the acoustic signalling device monitors the power supply sources efficiency and, in the case of any fault, transmits relevant information to the control panel. If the battery supply variant is declared at the control panel, in the quiescent mode the battery status is checked and, in the case of its discharge, a battery fault and its replacement necessity are signalled at the control panel level. If the external power supply variant is declared at the control panel, in the case of voltage outage such the condition is signalled at the control panel level. In case all the power supply sources are declared simultaneously, both devices are monitored: the battery and external device. The fault mode is indicated with yellow flashes of a diode placed in the signalling device. When all the power supply sources are used, any change among them is made automatically in order to produce the maximum possible sound level, i.e. after the external device damage, the battery power supplying is connected, and after the battery discharge the supply current is drawn from the detection line.

The signalling device power supply method and signalling variant is chosen at the control panel level during the system configuration. During the configuration it is necessary to settle one of four power supply possibilities and an alarm sound variant. The alarm sound – during fire signalling - is produced in accordance with the operation mode set during the system configuration at the control panel. Apart from the sound signalling, also an optic signal is produced – a red diode flashes. In the case of the detection line fault, the sound is still emitted, until other supplying sources outage or discharge; the optic signalisation does not work this time.

6 SERVICING CONDITIONS

During the operation life, the SAL-4001 signalling device should be subjected to periodical inspection in order to confirm the device proper operation and its appropriate interoperation with the control panel. The inspection should be carried out at least once in 6 months.

Such operation testing is executed by consecutive activation of signalling devices from the control panel.

7 SIGNALLING DEVICE INSTALLATION

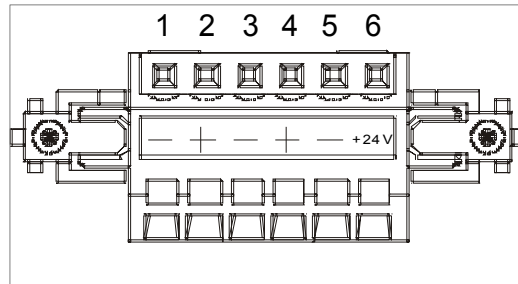
The SAL-4001 signalling devices are installed (height, arrangement) according to the guidelines settled by the Scientific and Research Centre for Fire Protection. They are mounted in premises

where a fire source occurrence should be signalled. The devices operate in loops (with straight branches) or in radial detection lines of the POLON 4000 system control panels (see the POLON 4000 system control panels documentation).

The signalling devices are installed in the 40 model range bases made of non-flammable material. The detection line cables are routed in accordance with the regulations obligatory for low voltage (below 42 V) systems. Wires connection to the base is the same as the 4000 system detectors, with an exception that in place of indicator clamps a 24 V power supply device should be connected.

Base clamps marking:

- '1' – detection line '–' input
- '2' – detection line '+' input
- '3' – detection line '–' output
- '4' – detection line '+' output
- '5' – 24 V power supply device '–'
- '6' – 24 V power supply device '+'



Note – The signalling devices should not be installed in corrosive atmosphere that contains caustic gases and vapours as well as dust. Steam condensation on the device is impermissible. In premises where steam may condensate on the ceiling, the signalling devices must not be mounted on walls.

8 STORAGE AND TRANSPORTATION

8.1 Storage

The SAL-4001 signalling devices should be stored in closed rooms free of caustic gases and vapours at the temperature range between +0 °C and +40 °C and relative humidity not exceeding 80 % at +35 °C.

In the time of storing, the devices should not be exposed to either direct sunlight or heat from heating equipment.

The detectors storage period in transportation packing should not exceed 6 months.

8.2 Transportation

The SAL-4001 signalling devices should be carried in closed transport means spaces, in packing that meets the requirements of transportation regulations in force. The temperature during transportation should not be lower than - 40 °C and higher than + 70 °C, and relative humidity should not be higher than 95 % at + 45 °C or 80 % at + 70 °C.