

Smoke Detector



User Manual

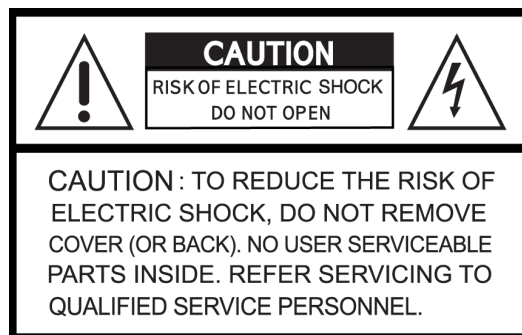
Introduction

Thank you for purchasing the KATHREIN Digital Systems GmbH smoke detector FRM 100. Please take the time to read the following safety and installation information carefully and attentively before using the smoke detector. It is imperative to comply with these instructions in order to ensure the safe operation of the device. If you have any further questions, please contact your local retailer or KATHREIN Digital Systems GmbH directly. Your smoke detector was developed and built with state-of-the-art technology and complies with European and German standards.

Please keep this manual safe to be able to answer possible questions in the future. The manual is an integral part of the product even in case it is resold to a third party.

Disclaimer

All technical details and descriptions in this manual were compiled with the greatest care. However, KATHREIN Digital Systems GmbH cannot entirely exclude mistakes in this manual. Therefore, we do not assume any legal responsibility or liability resulting from wrong information in this manual. Descriptions, technical illustrations and technical data are subject to change without notice according to technical progress. In addition, KATHREIN Digital Systems GmbH reserves the right to change the product and the manual without prior notice. We do not assume any guarantee with regard to the content of this document. We appreciate any comments on mistakes or inaccuracies which may help us to improve this product and this manual.



This symbol is intended to attract the user's attention to the potential risk of dangerous unprotected voltage inside the housing. This may lead to electric shock.



This symbol is intended to attract the user's attention to user and maintenance instructions in the manual and documents enclosed with the product.

WARNING:

TO MINIMISE THE RISK OF ELECTRIC SHOCK, YOU MUST NOT EXPOSE THIS PRODUCT TO WET AND MOIST CONDITIONS AT ANY TIME.



All KATHREIN Digital Systems GmbH products are lead-free and meet the requirements stated under the European Directive on the Restriction of Hazardous Substances (RoHS). This guarantees that the entire production process and the product itself are free of lead and of all listed hazardous substances.



This product was tested and complies with the regularities for a class of digital devices stated under FCC part 15. These limits were specified to provide reasonable protection against harmful exposure when operating the device in a commercial environment. This product generates, uses and may emit radio energy. It may in addition interfere with other radio communication systems if not installed or used according to this manual. Using the device in residential areas may cause disturbances to be possibly remedied at the user's expense.



Hereby KATHREIN Digital Systems GmbH declares that the Smoke detector FRM 100 (order number 2220000008, EAN 4021121548857) is in conformity with the relevant provisions of Directive 1999/5/EG.

Conformity:

The declaration of conformity is available at <http://www.kathrein-ds.com> in the download section of the respective product. Alternatively, you can request the declaration of conformity directly from us:

KATHREIN Digital Systems GmbH

Anton-Kathrein-Str. 1-3

83022 Rosenheim, Germany

Important Safety Information



WARNING

The warranty claim will expire in case of damages resulting from the non-observance of this manual.

We do not assume any liability for consequential damages.

We do not assume any liability for damages to persons and/or material whatsoever which result from improper handling or noncompliance with the safety instructions. The warranty claim will expire in such cases!

The smoke detector FRM 100 is equipped with a high-quality housing. However, please observe the following safety instructions:

- The housing of the smoke detector must not be opened for any reason. Opening it is dangerous for you and others and leads to immediate loss of warranty.
- Operate the smoke detector only with the provided batteries.
- Handle the smoke detector with care, heavy vibration or bumps may damage the device.
- Do not expose the smoke detector to direct sunlight or strong heat, e.g. heaters.
- Do not install the smoke detector close to strong electric power lines or magnetic fields, as this may impair the transmission quality significantly.
- Do not install the smoke detector directly on iron or aluminium surfaces, as this may impair the wireless transmission significantly. Use a non-conducting material to insulate the device from the installation surface.
- Do not install the smoke detector in moist, very cold or very hot environments. Please observe the maximum humidity and temperature limits (-10 °C to +45 °C (14 °F to 113 °F), maximum 95% relative humidity).
- Persons (including children) with limited physical, sensory or mental abilities and/or lacking experience and/or knowledge must not use this product.
- Keep children away from the product and other connected electrical appliances at all times. The smoke detector includes small parts they can swallow. Lay cables expertly so that they are neither bent nor otherwise damaged. Install the smoke detector out of children's reach. Do not leave packaging materials unattended, as they may be dangerous for playing children.
- Use a damp cloth to clean the alarm panel's surface, then dry it. Cleaning agents will damage the surface.

Malfunctions and Defects

If you notice any kind of defect, remove the batteries from the smoke detector FRM 100 and contact your retailer or KATHREIN Digital Systems GmbH directly. Any further usage of the system may lead to fire or electric shock!

Intended Use

The KATHREIN Digital Systems GmbH smoke detector is intended for the building security. Install the smoke detector indoors only. Any other use than that described in this manual is not permitted and will void any warranty or guarantee as well as liability claims. The same applies if the device is modified or retrofitted.

Disposal



Do not dispose of the device with domestic waste!

This product complies with the EU Directive on waste electrical and electronic equipment (WEEE) and therefore must not be disposed of with domestic waste. Dispose of the device via your local collection point for waste electronic equipment!

This product contains software programs subject to the GPL free software license.

This product contains software that was developed by third parties and/or software subject to the GNU General Public License (GPL) and/or the GNU Lesser General Public License (LGPL). We will send you the source code of these programs on request. The GPL and/or LGPL code used and offered in this product is EXCLUSIVE OF ANY GUARANTEE WHATSOEVER and is subject to the copyright of one or several authors. For further details, please refer to the GPL and/or LGPL code of this product and to the terms of use of GPL and LGPL.

You can read the complete license text at <http://www.gnu.org/licenses/gpl-2.0.html>.
For an unofficial German translation, please go to
<http://www.gnu.de/documents/gpl.de.html>.

Smoke Detector FRM 100

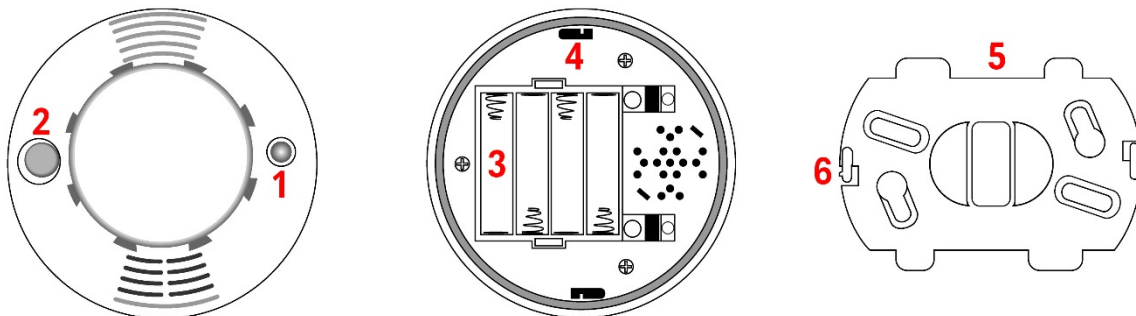
Product description:

You can install several smoke detectors on several floors, corridors and escape routes to warn you of a fire ahead of time.

The smoke detector works according to optical principles. In a measurement chamber, the concentration of smoke particles is measured. If the concentration exceeds a set limit, the smoke detector will sound an alarm of 95 dB (measured from a distance of 1 meter / 3.2 feet). Smoke detectors are designed to save lives, not to prevent a fire. The smoke detector should be installed on the ceiling in the centre of a room. A minimal distance of 50 cm (19.6 in) to walls, lamps, corners, decorations, etc. should be maintained. The smoke detector can secure an area of approx. 60 sqm (645 sqft). In case of fire the siren(s) of the alarm panel will likewise sound an alarm.

Sensor data:

Dimensions (without mount):	Ø 10.6 x 4.4 cm (4.17 x 1.73 in)
Weight:	220 g (0.48 lbs)
Place of installation:	Only indoors (walls, corners)
Operating temperatures:	-10 °C to +45 °C (14 °F to 113 °F)
Humidity:	Maximum 95% (non-condensing)
Radio frequency:	868.6375 MHz
Detection method:	Optical
Conforms to the following standards:	DIN EN 54-7 and EN 14604
Internal siren:	95 dB / 1 m (3.2 ft)



1. LED

- After inserting the batteries, the smoke detector automatically enters a calibration phase. During this time, the LED flashes and the smoke detector can be connected to the alarm panel.
- If the batteries run low, the LED flashes every 30 seconds.
- When the smoke detector transmits a signal to the alarm panel, the LED lights up.

2. Learn button

Press the test button in the following cases:

- To connect the smoke detector with the alarm panel
- To perform a range test
- To perform a function test

3. Battery:

Only install 4 x AAA batteries. The average battery life is approx. 2.5 years. When the batteries run low, the smoke detector will notify you acoustically and optically. When you exchange the batteries, make sure to press the test button a couple of times before you insert the new batteries – thus, you discharge any residual current.

4. Installation notches

5. Mounting bracket

6. Attachment hooks

Place of installation:

- In the event of a fire, the sirens of the alarm system must be audible throughout the house, even when doors are closed or TV or stereo systems are on, so that all residents are alerted in good time. If this is not the case, we recommend installing additional external sirens for the Kathrein alarm system.
- The installation of smoke detectors is regulated by laws. Make sure you know the regulations valid for your federal state/country and observe them.
- You can find details on the installation, use and maintenance of smoke detectors in DIN 14676.
- The German legal guidelines state that all bedrooms, children's rooms and corridors used as escape routes must be equipped with at least one smoke detector.
- It is also recommended to equip all common rooms (living rooms, studies, etc.) as well as cellars, boiler rooms and corridors with smoke detectors.
- If your building has more than one floor, we recommend installing at least one smoke detector per floor.
- The maximum coverage area is 60 m². For larger rooms, the number of smoke detectors must be increased.
- The smoke detector should be installed centrally at the highest point of the ceiling and at least 50 cm away from walls, corners, lamps, beams, decorations, etc.
- In rooms with a ceiling inclination angle of more than 20°, heat cushions may form in the ceiling tip, hindering smoke from entering the smoke detector. In these rooms, install the smoke detectors at a distance of 50 to 100 cm from the top of the ceiling.

Unsuitable installation locations:

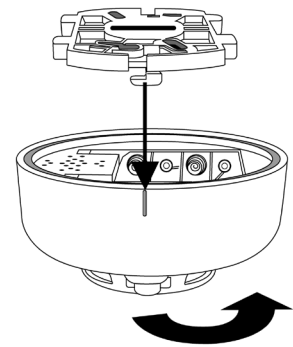
To increase the lifetime of your smoke detector and avoid false alarms, the FRM 100 should not be installed in the following locations:

- Kitchens and bathrooms – due to the high humidity and water vapour, false alarms may be triggered
- Dusty or dirty areas, such as garages – the photo-optical sensor may become dirty and trigger false alarms
- Directly above stoves, fireplaces, kettles etc.
- Near ventilation systems, air conditioners or fans (minimum distance 1 metre)
- Areas with strong draughts – draughts prevent or delay smoke from reaching the smoke detector

- Areas with many insects – small insects entering the smoke chamber may trigger unwanted alarms
- Areas where the temperature is outside the operating temperature of the smoke detector (above 45 °C or below -10 °C), e.g. uninsulated attics, cold storage rooms, boiler rooms, etc.
- Inaccessible areas with very high ceilings – make it difficult to test the smoke detector or mute the alarm

Mounting the Smoke Detector:

1. Select an installation location as recommended under “Place of Installation”.
2. Use the bracket (5) as a template for drilling the holes.
3. Mount the bracket on the ceiling using the two screws supplied so that the two hooks (6) point downwards.
4. To connect the smoke detector to the base, hold it against the bracket so that the line indicated at the side is directly below one of the hooks. Carefully hook the installation recesses (4) onto the fixing hooks (6). Slightly push the smoke detector upwards and turn it clockwise to lock it into position.



Connecting the smoke detector FRM 100 and putting it into operation

1. After inserting the batteries, you hear two brief signals and the LED begins to flash. During the warm-up phase of six minutes, you can connect the smoke detector with your alarm panel.
2. Open the web interface of the alarm panel, go to the menu “Sensors” → “Add” and press “Start”.
3. Press the Learn button of the smoke detector. Two brief signals are emitted.
4. The alarm panel will confirm the successful addition of the smoke detector with a brief signal tone and display the sensor in the lower menu.
5. Click “Add” to add the sensor to the sensors list.

Please note:

- The smoke detector should be installed shortly after the batteries have been inserted because the smoke detector adjusts to the environmental conditions (dust intensity) on the place of installation.
- After the warm-up phase (six minutes), the calibration phase starts. The calibration phase takes between two and sixteen minutes and every 100 seconds, the smoke detector emits a brief signal. At the end of the calibration phase, two brief signals are emitted if the calibration was successful. If an error occurred, a continuous sound will notify you. If this is the case, remove the batteries and begin anew from step 1.
- During the calibration phase, the smoke detector cannot be added to the alarm panel. This has to be done before or after the calibration phase.

Range test:

To test the signal strength at the desired installation location, perform a range test.

1. Open the alarm panel menu "Sensors" → "Range" and press "Start".
2. Press the Learn button of the smoke detector.
3. The sensor and the signal strength should be indicated. The higher the indicated number the better the reception (1 – 9).
4. Click "Stop" to end the test.

Please note:

If there is no signal at the installation location or the signal strength is below 4 or frequently falls below this level (signal fluctuations of 2 to 3 are normal), we recommend using a repeater to improve the signal.

In case of an alarm:

If the smoke concentration exceeds the limit, the smoke detector will notify the alarm panel and sound an alarm for ten seconds. If the smoke concentration is still too high after ten seconds, the smoke detector will again sound an alarm for ten seconds. This will continue until the smoke concentration drops to an acceptable value.

If you press the test button during an alarm, the smoke detector is deactivated for ten minutes. After these ten minutes, the smoke detector emits two brief sounds and continues to work normally.

If the smoke detector sounds an alarm but there are no signs of smoke or fire, it should still be assumed that the alarm was triggered by a fire. The building should be evacuated immediately.

False alarm / troubleshooting:

The smoke detector triggers, but there are no apparent reasons:

- The alarm of the smoke detector needs to be turned off directly at the smoke detector.
 - Press the Learn button of the smoke detector to deactivate the alarm and activate the sleep mode. After ten minutes the smoke detector will beep 2 times and it return to the working mode.
- The alarm of the alarm panel and the sirens can be switched off by disarming the alarm panel.
- Look for steam, cooking fumes, etc., that come from the kitchen or bathroom and may have passed the smoke detector by means of ventilation. Even colours and other fumes can trigger false alarms.
- Open fireplaces and strong tobacco smoke can also lead to false alarms.
- Check for possible spider web or dust contamination. If necessary, clean the smoke detector as described in the section "Contaminants".
- Perform a functional test as described in the section "Maintenance".
- If there are more frequent unwanted alarms, the smoke detector must be repositioned – at a sufficient distance from these sources of error.

Notes:

- The smoke detector will always sound an alarm even if the transmission between the smoke detector and the alarm panel is interrupted.
- It is not possible to network several smoke detectors so that all smoke detectors sound an alarm in the event of fire. The smoke detectors work together with the alarm system or independently.

Contaminants:

To ensure a long life for your smoke detector, make sure it stays clean and it does not accumulate dust.

- All smoke detectors are sensitive to the ingress of dust and insects that can cause false alarms.
- Even though during the development process great importance was attached to minimising the influence of contamination, it is impossible to exclude all negative influences.
- All insects or cobwebs near the smoke detector should be removed immediately.
- Do not use liquids for cleaning, as penetration into the housing may damage the smoke detector.
- Use a damp cloth to clean the alarm panel's surface, then dry it.
- To clean the slots, please use the brush attachment of your vacuum cleaner carefully or blow out the dust (e.g. with a compressor).
- The KATHREIN Digital Systems GmbH is not liable for contaminations. This is considered normal wear.

Maintenance:

- The function of the smoke detector should be checked regularly (Learn button) and, if necessary, cleaned.
- To ensure proper function of the smoke detector it is recommended to check the smoke detector immediately after installation. Press the "Learn button" for this check:
 - 2 short beeps: Function OK
 - 3 beeps: Sensor defect or dirty
 - No sound: Inactive or defect
 - Check, if the smoke detector is present in the sensor list of the alarm panel and that its status and battery status are displayed green.
- The smoke detector should be replaced after ten years at the latest for your own safety.
- Over time, dust particles collect in the measuring chamber, which would reduce fault tolerance. The smoke detector therefore calibrates itself regularly.

