

## OPERATING MANUAL SMOKE SENSOR FGSD-002-EN-A-V1.01

The Fibaro Smoke Sensor is a universal, optical Z-Wave smoke detector. Fire alarm is signaled by sound, visual indicator blinking and by sending Z-Wave alarm and control commands.

The optical sensor detects smoke at an early stage of fire, often before flames appear and temperature starts to rise significantly. Moreover the device has a built-in temperature sensor, which is programmable indicator of exceeding set temperature level.

The Fibaro Smoke Sensor is designed to be placed on a wall or ceiling. Visual indicator signals fire, operating mode and is used to see if wake is within the Z-Wave network. The smoke sensor is designed to operate in confined spaces, under normal conditions (lacking smoke, dust, condensed water vapor).

### SPECIFICATIONS

Battery Type:	CR123A
Compliance with:	EN 14604:2005
Radio protocol:	Z-Wave
Radio frequency:	868,4 or 869,8 MHz EU; 908,4 or 916 MHz US; 921,4 or 919,8 MHz ANZ; 869 MHz RU;
Range:	up to 50m outdoors up to 30m indoors (depending on terrain and building structure)
Operational Temperature:	0°C - 55°C
Operational Humidity:	0% - 93%
Measured Temperature Range:	-20°C to 100°C
Temperature Measuring Accuracy:	0,5°C (within 0°C - 55°C range)
Dimensions (Diameter x Height):	65 x 28 mm

### TECHNICAL INFORMATION

- Compatible with any Z-Wave or Z-Wave+ Controller
- Supports protected mode (Z-Wave network security mode) with AES-128 encryption
- Extremely easy installation - simply install it in location prone to fire.
- Battery powered
- 3 levels of sensors sensitivity
- Built-in casing opening detector
- Alarm is signaled by sound, visual indicator and Z-Wave control command
- Programmable excess temperature warning
- Automatic test performed every 10 seconds



**CAUTION**  
Read this manual before attempting to install the device. Failure to observe recommendations included in this manual may be dangerous or cause a violation of the law. The manufacturer, Fibar Group Sp. z o.o., will not be held responsible for any loss or damage resulting from not following the instructions of operating manual.



**CAUTION**  
Work within local code height requirements during installation of the Fibaro Smoke Sensor. Take special precautions during installation and use tools and equipment in perfect working order. It's recommended to observe ladders, lifts and other obstacles.



**CAUTION**  
Maintenance inspections should be performed regularly. Manufacturer recommends the functional and visual checks to be performed at least once a week. Functional check includes self-test (see p. VI).



**CAUTION**  
When handled carelessly or used in non-specified environment conditions, the device may not function properly. It's highly recommended to take all safety precautions to ensure safety and property protection.



**CAUTION**  
Depending on the Smoke Sensors internal conditions (e.g. battery discharge, device failure, etc.) and ambient conditions, fire alarms are not always effective in all situations. Smoke Sensors must be tested regularly according to this operating manual and local code. Ventilation systems, chimneys and potentially dangerous devices that can cause a fire should be regularly inspected as well.

There are various situations against which the fire alarm may not be effective, for example:

- Fires where the victim is intimate with a flaming initiated fire; for example, when a person's clothes catch fire while cooking;
- Fires where the smoke is prevented from reaching the detector due to a closed door or other obstruction;
- Incendary fires where the fire grows so rapidly that an occupant's egress is blocked even with properly located detectors.



**CAUTION**  
Current studies show that fire alarms may not awake all sleeping individuals and that it is the responsibility of other residents to assist those who may not be awakened by the alarm sound or those who may be incapable of safely leaving the area unassisted.



**NOTE**  
The Fibaro Smoke Sensor is a Security Enabled Z-Wave Plus product and a Security Enabled Z-Wave Controller must be used in order to fully utilize the product.

### GLOSSARY OF TERMS

- adding** - Z-Wave device learning mode, allowing to add the device to existing Z-Wave network.
- removing** - Z-Wave device learning mode, allowing to remove the device from existing Z-Wave network.
- association** (linking devices) - direct control of other devices within the Z-Wave system network.
- multi-channel association** - controlling other multi-channel devices within the Z-Wave network.
- control command** - type of Z-Wave network command enforcing change of device state.
- report command** - type of Z-Wave network command holding an additional information, e.g. alarm state or measured temperature.
- alarm command** - type of Z-Wave network command holding a warning of danger occurrence, e.g. fire alarm.
- multi-channel device** - device having multiple endpoints - various device functions.

### I. ADDING TO Z-WAVE NETWORK

Fibaro Smoke Sensor inclusion:

- Install the battery. Visual indicator will signal the Z-Wave network inclusion status (red - device ready for inclusion, green - device included, remove firstly - see p. II).
- Make sure the device is located within direct range of the Z-Wave controller.
- Set the main controller into the learning mode (see main controller's operating manual).
- Quickly, triple click the B-button, located on Fibaro Smoke Sensor's casing.
- Fibaro Smoke Sensor will be detected and included in the Z-Wave network.

### II. REMOVING FROM Z-WAVE NETWORK

- Make sure the sensor is connected to battery.
- Set the main controller into the learning mode (see main controller's operating manual)
- Quickly, triple click the B-button, located on Fibaro Smoke Sensor's casing.

### III. SENSOR INSTALLATION



**NOTE**  
It's recommended to install the sensor on the ceiling or upper portion of wall at least 40cm (2 feet) from corners and other objects. Particular attention should be paid to any adjacent objects or devices which can impede smoke's access to the sensor. It's recommended to install Fibaro Smoke Sensor in all rooms prone to fire, and in between such rooms as well.

Installing Fibaro Smoke Sensor:

- Include the device into the Z-Wave network (see p. I). Note the inclusion process may be performed ONLY in direct range of the main controller.
- Install the sensor's cover in desired location.
- Screw the Fibaro Smoke Sensor into the cover.
- If the sensor is already included into the Z-Wave network, wake it up by clicking the B-button. Otherwise, add the device as described in p. I.
- Test Fibaro Smoke Sensor's operation by performing a self-test - press & hold the B-button (see p.VI)
- Test the Z-Wave network range (see p.XIV) assuring the device is within range.

### INSTALLATION NOTES:

- When choosing location of smoke sensor, make sure the alarm sound can be easily audible in other rooms in the building.
- It's recommended to install the sensor in already decorated, painted rooms.
- It's recommended to install the sensor at least 1,5m from air conditioners.
- Do not install the sensor in direct sunlight. Keep at least 0,5m distance from light sources.
- Do not install the sensor in places prone to drafts.
- Do not install the sensor in places with high water vapor condensation, e.g. above stoves, ovens, kettles, etc.
- The device can not be installed in places where the temperature exceeds operational values (0°C - 55°C).

### BATTERY TIPS

Fibaro Smoke Sensor's battery life is at least equal to two years.

The wake-up interval is recommended to be set at a default value (6 hours). In case of choosing a smaller value, the lifetime of a battery can decrease significantly.



The current battery level is displayed in the Z-Wave controller's interface, e.g. Home Center 2 or Home Center Lite. Red battery icon means that battery needs replacement. In addition, the device itself, apart from the main controller, monitors the battery level and a low battery is signaled with a yellow blinking visual indicator and an intermittent sound alarm. The Fibaro Smoke Sensor reports low battery level for at least 30 days until it is completely discharged.

### BATTERY REPLACEMENT PROCEDURE:

Once a Fibaro Smoke Sensor has reported low battery level or battery is discharged, it should be replaced observing the following procedure:

- Detach the sensor from its cover by turning the device counter-clockwise.
- Remove the flat battery from the device. Then press and hold the B-button for 3 seconds.
- Insert a new CR123A battery observing the polarities shown inside. Visual indicator will signal Z-Wave network inclusion status (green - device included, red - device not included).
- Test Fibaro Smoke Sensor's operation by performing a self-test (see p. VI).
- Attach the device into the cover by turning clockwise.



**CAUTION**  
Fibaro Smoke Sensor is equipped with dedicated safety mechanism (Fig. 2, Fig. 3) which prevents closing the casing without installed battery.



**CAUTION**  
It's strongly recommended to perform the self-test after each battery replacement to ensure correct device operation.

### IV. FIRE DETECTION

Fibaro Smoke Sensor responds to the physical presence of smoke. Smoke presence is required for the device to react. Fibaro Smoke Sensor every 10 seconds checks for smoke presence. Once the level of smoke exceeds value set in parameter 1, Fibaro Smoke Sensor triggers an alarm.

Fire alarm is signaled by sending an appropriate alarm command to devices, the Z-Wave controller and also by an intermittent sound and visual indicator blinking red. Once the fire alarm has ceased, the sensor checks whether the smoke has actually disappeared before getting back to normal operation, i.e. performing a self test each 10 seconds and checking for presence of smoke.



**NOTE**  
As described in section IV, the Fibaro Smoke Sensor checks for smoke presence every 10 seconds. In addition, the device checks for malfunction and tests the Z-Wave network communication (see section VII) at each wake up interval (6 hours by default) and when sending reports, provided that range test has been enabled in advanced configuration.



**CAUTION**  
Fibaro Smoke Sensor is a multiple use device, however, for greater safety, it's recommended to replace the device with a new one after a fire occurrence.



**CAUTION**  
If fire alarm is triggered, but the level of smoke did not exceed concentration equal to three times of the sensitivity set in parameter 1 (the individual levels of sensitivity are printed on the device casing), user can mute sound alarm by holding the B-button (temporarily reducing the sensor's sensitivity). Visual indicator will still indicate an alarm state by blinking red. If smoke level concentration is greater than three times of the sensitivity set in parameter 1, mute will automatically turn off and the device will alarm fire again (using visual and audible indicator).

### V. PROGRAMMABLE EXCESS TEMPERATURE WARNING

Apart from detecting presence of smoke, Fibaro Smoke Sensor has an additional function of informing of exceeding the programmed temperature threshold. The function is disabled by default in parameter 2 settings. Excess temperature warning is defined by user in parameter 30 - set to 55°C by default. Excess temperature level can be also signaled by visual indicator glow (parameter 3) and short beep (parameter 4). Parameter 20 should not be set to 0 because such setting disables temperature measurements.

### VI. MALFUNCTION DETECTION

The Fibaro Smoke Sensor can automatically detect a malfunction. As described in section IV, the device performs a test every 10 seconds. If malfunction is detected (e.g. damaged smoke chamber) an intermittent sound signal will start and alarm will be sent to the Z-Wave network controller.

Once trouble alarm has been detected, it's recommended to dismount the sensor and:

- check the power source (replace battery),
- check whether the Smoke Sensor is exposed to direct light.

If a trouble alarm is continually reported, it's recommended to replace Fibaro Smoke Sensor with new one or contact with guarantor if the product warranty is still valid.

Self-test may be triggered manually:

- Make sure the device is powered by the battery
  - Press and hold the B-button. The visual indicator will glow white and the short alarm will sound. Keep holding the B-button. After 3 seconds from the first beep smoke chamber operation will be checked.
- Triggering fire alarm and beep mean positive result and should occur within 10 seconds. No fire alarm means that the sensor is malfunctioning.



**CAUTION**  
When the self-test is triggered manually the Fibaro Smoke Sensor sends control command to the Z-Wave network controller. The procedure will be performed at least as long as the B-button is not released (will be completed in up to 10 seconds after releasing B-button).



**CAUTION**  
Any service or repair must be carried out by the manufacturer. The expiry date of the device is indicated on its back.

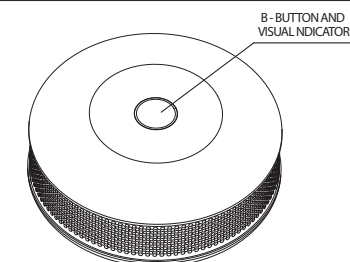


Fig. 1 - Fibaro Smoke Sensor top view

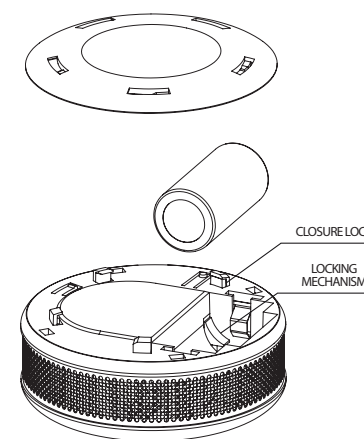


Fig. 2 - Fibaro Smoke Sensor bottom view without the battery installed

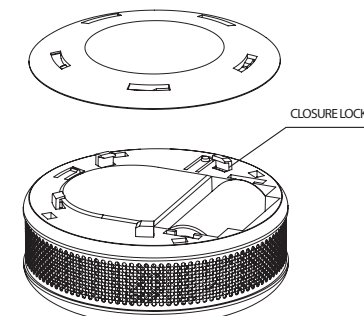


Fig. 3 - Fibaro Smoke Sensor bottom view with the battery installed

### VII. DETECTING LACK OF Z-WAVE RANGE

When included in the Z-Wave network, Fibaro Smoke Sensor tests the network communication. By default the procedure is performed at each temperature report depending on parameters 20 and 21 settings. In addition, Z-Wave network communication test is performed during waking up. Lack of the Z-Wave network communication may be signaled by an intermittent alarm sound and visual indicator blinking violet. By default sound and visual signals are disabled but you can enable it by changing values of parameters 3 and 4 (section XVI).

Once a Fibaro Smoke Sensor has reported no Z-Wave network communication, it's recommended to wake up the device by clicking the B-button. If it doesn't stop the alarm, Z-Wave networks operation and the main controllers operation need to be verified.

The Fibaro Smoke Sensor will cancel the Z-Wave network communication alarm once it communicates with the network after manual or automatic wake up.

### VIII. SENSOR'S SENSITIVITY LEVEL CONFIGURATION

Optical smoke detector used in the Fibaro Smoke Sensor has 3 levels of sensitivity, compliant with EN 14604:2005. By default, the detector is set to the middle sensitivity level. Sensitivity level depends on the parameter 1 settings (modified only through the main Z-Wave controller).

### IX. RESETTING THE FIBARO SMOKE SENSOR

Resetting the Fibaro Smoke Sensor erases the device memory, including all information on the Z-Wave network and the main controller.

Fibaro Smoke Sensor reset procedure:

- Make sure the device has the battery installed.
- Press and hold the B-button for 3 seconds until visual indicator glows white.
- Short signal will sound.
- Release the B-button.
- Wait until the visual indicator glows yellow, signaling entering the 4th menu option.
- Press the B-button briefly to confirm your choice.

Successful reset will be confirmed with the visual indicator changing colour to red and fading. At the same time, short beep will sound, same as at the power connection.

Please use this procedure only in the event that the system primary controller is missing or otherwise inoperable.



**CAUTION**  
Reset procedure should remove Fibaro Smoke Sensor from the Z-Wave network main controller's memory (depending on the controller's version). Removing the device from the Z-Wave network will reset Fibaro Smoke Sensor automatically.

### X. OPERATING THROUGH THE Z-WAVE NETWORK

Fibaro Smoke Sensor has a built in smoke detector and a temperature sensor, which makes it a multi channel device. In the Home Center interface it will be presented as two devices, depending on the main controller software version:



Fig. 4 Smoke Sensor icon in Fibaro Home Center

Fig. 5 Smoke Sensor icon in Fibaro Home Center indicating the fire alarm

Fig. 6 Temperature Sensor icon in Fibaro Home Center

Fibaro Smoke Sensor ignores incoming BASIC SET command and returns the status of alarm on BASIC GET command at the moment of wake up. (0 - no alarm, 255 - alarm active).

### XI. ASSOCIATIONS

Through an association Fibaro Smoke Sensor may control another Z-Wave network device, e.g. a Dimmer, Relay Switch, Roller Shutter, RGBW Controller, Wall Plug, or a scene (scene only through the main controller).



**CAUTION**  
Association allows for direct communication between Z-Wave network devices. Main controller does not take part in such communication. Using this mechanism, Fibaro Smoke Sensor may communicate with other devices even when the main controller is damaged, e.g. in a fire.

Fibaro Smoke Sensor allows for the associations of five groups.

- 1st group – Lifeline.** Reporting device state. Only one device - Z-Wave network controller may be set in this group. It's not recommended to modify this association group.
- 2nd group – Smoke Alarm.** Sending the BASIC SET control command once smoke is detected. Its value may be modified in advanced parameters (see section XVI). Group may control up to five on/off devices.
- 3rd group – Tamper.** Sending the notification NOTIFICATION REPORT (TYPE = BURGLAR, EVENT = PRODUCT COVERING REMOVED) to associated devices once casing opening is detected. Up to five devices supporting casing opening command (NOTIFICATION REPORT) may be included in this group.
- 4th group – Smoke Alarm.** Sending the notification SENSOR ALARM REPORT (TYPE = SMOKE ALARM) to associated devices once smoke is detected. Up to five devices supporting SMOKE ALARM command may be included in this group
- 5th group – Tamper.** Sending SENSOR ALARM REPORT notification (TYPE = GENERAL) to associated devices once casing opening is detected. Up to five devices supporting SENSOR ALARM REPORT command may be included in this group.

Fibaro Smoke Sensor allows for controlling 5 regular or 5 multichannel devices per an association group in groups 2-5 and one device in the 1st group.

