

OPERATING MANUAL FIBARO MOTION SENSOR FGMS-001-EN-A-V1.01

The Fibaro Motion Sensor is a universal Z-Wave multi-sensor. Along with detecting motion the device measures the temperature and light intensity. The sensor has a built-in accelerometer to detect any tampering of the device. The Fibaro Motion Sensor is battery powered device and designed to be installed quickly and easily on any surface. The LED indicator signals motion, temperature level, operating mode and can be used to see if device is within the Z-Wave network. The motion sensor can be used for lighting scenes and security monitoring systems.

SPECIFICATIONS

Power Supply:	CR123A battery, 3.0V DC
EU directive compliance:	LVD 2006/95/WE EMC 2004/108/WE R&TTE 1999/5/WE RoHS II
Recommended installation height:	2.4m
Operational Temperature:	0-40°C
Measured Temperature Range:	-20 to 100°C
Temperature Measuring Accuracy:	0.5°C (within 0°C-40°C range)
Light Intensity Measuring Range:	0-32000 LUX
Radio Protocol:	Z-Wave
Radio Frequency:	869 MHz EU; 908 MHz US; 921 MHz ANZ; 869 MHz RU;
Range:	up to 50 m outdoors up to 30 m indoors (depending on terrain and building structure)

TECHNICAL INFORMATION

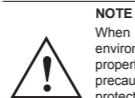
- Compatible with any Z-Wave controller.
- Detects motion using a passive IR sensor.
- Measures the temperature.
- Measures the light intensity.
- Easy installation on a wall or any surface.
- Protected against tampering and theft - once vibrations are detected, the notification is sent to the main controller.
- Alarms of movement and temperature are signaled by LED diode blinking.
- Simple earthquake detector mode.



NOTE
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.



NOTE
Work within local code height requirements for 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.



NOTE
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.

I. Z-WAVE NETWORK INCLUSION

The Fibaro Motion Sensor can be included into the Z-Wave network by using the B-button.

- 1) Insert the battery into the Fibaro Motion Sensor. Enclosure lock is marked with a dot. Make sure the device is located within the direct range of the main controller.
- 2) Set the main controller into the learning mode (see main controller's operating manual).
- 3) Quickly, triple click the B-button - LED diode will glow blue.
- 4) Fibaro Motion Sensor will be detected and included in the Z-Wave network.
- 5) Wait for the main controller to configure the sensor.
- 6) If necessary, wake up the Motion Sensor by triple clicking the B-button.
- 7) LED diode will glow blue to confirm the sensor woke up, and then wait for the main controller to configure the sensor.

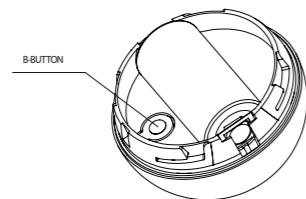


Diagram 1 - B-button.

II. EXCLUDING SENSOR FROM THE Z-WAVE NETWORK

- 1) Make sure the sensor is connected to power source.
- 2) Set the main controller into the learn mode (see main controller's operating manual)
- 3) Quickly, triple click the B-button, located on Fibaro Motion Sensor's enclosure.
- 4) LED diode will glow blue confirming the device has been excluded from the network.

III. SENSOR INSTALLATION

- 1) Include the device into the Z-Wave network (see p.II). Note that the inclusion process may be performed ONLY in direct range of the main controller.
- 2) Install the sensor's holder in desired location.
- 3) If the sensor is already included in the Z-Wave network, wake it up by triple clicking the B-button.
- 4) Insert the Motion Sensor in its holder.
- 5) Test the sensor's operation - check whether the LED diode indicates motion detection.
- 6) Test the Z-Wave network assuring the device is within range.

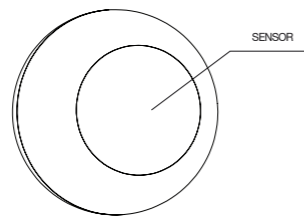


Diagram 2 - Motion detector, light sensor, LED diode.

- **INCLUSION (Adding)** - a device sends "Node Info" frame, to enable user to add it to Fibaro system (Home Center). To send Node Info frame and put device in permanent listening mode press B button 3 times. After sending Node Info frame device waits 5 seconds for Z-Wave frames.
- **EXCLUSION (Removing)** - removing a device from the Fibaro radio system.
- **ASSOCIATION** - controlling other devices of Fibaro system
- **MultiChannelAssociation** - controlling other multichannel devices of Fibaro system.

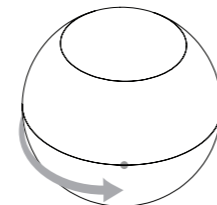
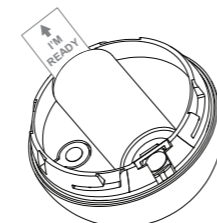
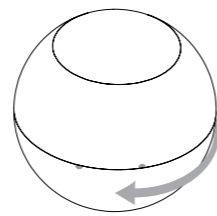


Diagram 3 - preparing Fibaro Motion Sensor for operation.

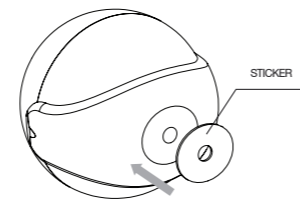
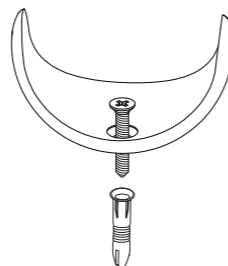


Diagram 4 - Fibaro Motion Sensor installation.

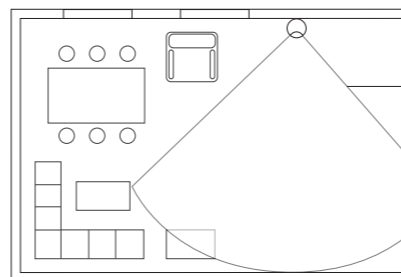
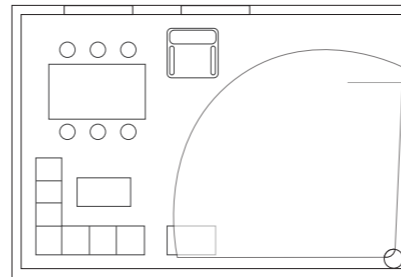


Diagram 5 - Fibaro Motion Sensor's proximity area.

IV. DETECTION AREA AND WORKING CONDITIONS

Fibaro Motion Sensor's detection area is shown in diagram #6. Fibaro Motion Sensor has to be installed in a corner of the room or perpendicularly to the doors. Actual range of the sensor can be influenced by environment conditions. Should false motion alarms be reported, check for any moving objects within the sensor's detection area, such as trees blowing in the wind, cars passing by, windmills. False motion alarms may be caused by moving masses of air and heat as well. If the device keeps on reporting false alarms, despite eliminating all of the above-mentioned factors, install the device in another place.

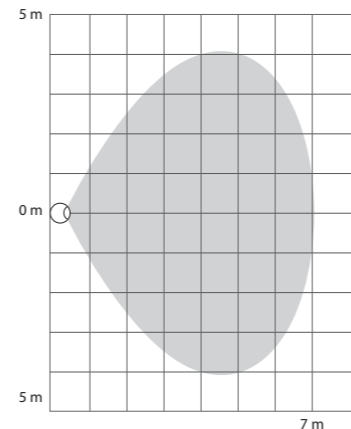
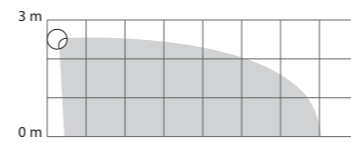


Diagram 6 - Fibaro Motion Sensor's motion detection area.

How to eliminate pet-triggered false alarms:
Fibaro Motion Sensor should be installed 2-3m above the floor, pointed parallelly to the floor level. If wandering pets trigger false alarms it's recommended to modify parameters 1 and 3 settings. The value of parameter 1 can depend on pet's size and environment conditions. It's good to experiment with settings, increasing the parameter value by 5 at each attempt until the desired effect is reached. If parameter 1 settings modifications will not produce satisfactory results, it's recommended to experiment with parameter 3 settings (pulse counter), increasing its value.

V. INSTALLATION NOTES

Fibaro Motion Sensor cannot be pointed at any source of heat (e.g. radiators, fireplaces, cookers, etc.) or at any source of light (direct sunlight, lamps). It's not recommended to install the motion sensor in places prone to drafts. Sensor can be mounted using screw or the sticker.

VI. RESETTING THE FIBARO MOTION SENSOR

The Fibaro Motion Sensor reset erases the EPROM memory, including all information on the Z-Wave network and the main controller.

Fibaro Motion Sensor reset procedure:

- 1) Make sure the battery works and is in place.
 - 2) Press and hold the B-button for 4-6 seconds until the LED glows signaling the 2nd menu level.
 - 3) Release the B-button.
 - 4) Again, press the B-button briefly.
- Successful reset will be confirmed with the LED changing colour to red and fading.



NOTE
Device reset will not remove it from the Z-Wave network main controller's memory. Before resetting the device, it must be excluded from the Z-Wave network.

VII. OPERATING WITHIN THE Z-WAVE NETWORK

Fibaro Motion Sensor has a built in motion detector, temperature sensor and light intensity sensor, which make it a multi-channel device. In the Home Center 2 menu it will be presented as three devices, depending on the main controller software version.



NOTE
Fibaro Motion Sensor capabilities will vary depending on the Z-Wave network controller. Certain functionalities of the Fibaro Motion Sensor may not be supported by some controllers. To make sure your Z-Wave network controller supports the Fibaro Motion Sensor, get in touch with its manufacturer.

Motion, temperature and light intensity values are presented in Home Center 2 menu with the following icons:



VIII. ASSOCIATIONS

By using association with Fibaro's devices the Fibaro Motion 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 Home Center 2 main controller).



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

Fibaro Motion Sensor allows for the association of three groups.
1st Association Group is assigned to the device status - sending the BASIC SET control frame to the associated devices having detected motion.
2nd Association Group is assigned to the tamper alarm. Alarm frame will be sent to the associated devices once tampering is detected.
3rd Association Group reports the device status and allows for assigning a single device only (the main controller by default - the device reports its status to the main controller). It's not recommended to modify this association group.

The Fibaro Motion Sensor allows for controlling 5 regular and 5 multichannel devices per an association group, out of which 1 field is reserved for the Z-Wave network main controller.

IX. EARTHQUAKE DETECTOR MODE

Fibaro Motion Sensor can be configured to work as a simple earthquake detector, by setting the Parameter 24 value to 4. Reports with scale of the vibrations (dimensionless) will be sent at the time intervals specified in Parameter 22. First report will be sent immediately after vibrations have been detected. The minimum value of the vibrations, resulting in report being sent, can be defined in Parameter 20. Once the vibrations cease, reports will stop being sent. The Home Center 2 menu presents the earthquake detector measurements in the following way:



X. SENSOR'S ORIENTATION IN SPACE

The Fibaro Motion Sensor has a built-in accelerometer. When the value of parameter 24 is set to 2 or 3, Z-Wave network controller will be informed on the Sensor's orientation in space.

XI. LED VISUAL INDICATORS AND SETTINGS

The Fibaro Motion Sensor is equipped with a LED diode for indicating sensor's operating modes and alarms. In addition the LED indicator may inform of the Z-Wave network range and the current temperature.

LED indicator modes:

- 1) Motion Alarm's colour will vary depending on the temperature. The colour and the signaling mode can be set in parameter 80.
- 2) Tamper alarm is signaled with an alternating blinking in red - blue - white.
- 3) The Z-Wave Node Info command frame is signaled with glowing in blue. Node Info command frame is sent each time the device wakes up.

To enter MENU press and hold the B-button for 3 seconds. MENU levels will be signaled with the LED colours:
- VIOLET - Z-Wave network range tester
- YELLOW - sensor reset.

XII. Z-WAVE RANGE TEST

The Fibaro Motion Sensor has a built in Z-Wave network main controller's range tester. Follow the below instructions to test the main controller's range:

- 1) Press and hold the B-button for 2 to 4 seconds until the LED glows violet.
- 2) Release the B-button.
- 3) Press the B-button again, briefly.
- 4) LED will indicate the Z-Wave network's range (range signaling modes described below).
- 5) To exit Z-Wave range test, press the B-button briefly.

Z-Wave range tester signaling modes:

- LED indicator pulsing green** - Fibaro Motion Sensor attempts to establish a direct communication with the main controller. If a direct communication attempt fails, sensor will try to establish a routed communication, through other modules, which will be signaled by LED indicator pulsing yellow.
- LED indicator glowing green** - Fibaro Motion Sensor communicates with the main controller directly.
- LED indicator pulsing yellow** - Fibaro Motion Sensor tries to establish a routed communication with the main controller through other modules (repeaters).
- LED indicator glowing yellow** - Fibaro Motion Sensor communicates with the main controller through the other modules. After 2 seconds the sensor will retry to establish a direct communication with the main controller, which will be signaled with LED blinking in green.
- LED indicator pulsing violet** - Fibaro Motion Sensor does communicate at the maximum distance of the Z-Wave network. If connection proves successful it will be confirmed with a yellow glow. It's not recommended to use the sensor at the range limit.
- LED indicator glowing red** - Fibaro Motion Sensor is not able to connect to the main controller directly or through another Z-Wave network device (repeater).

XIII. BATTERY USAGE TIPS

The Fibaro Motion Sensor's battery life is approximately 2 years at factory default settings. The current battery level is displayed in a Home Center 2 interface. Red battery icon means the battery needs replacement. In order to avoid tamper detection while replacing the battery, remove association of the 2-nd association group and reduce tamper sensitivity (parameter 20 value set to 0). If battery discharges quickly, please check for the following conditions which may result in reducing the battery life:
- Wake up interval is too short - it's recommended to lengthen the interval.
- Temperature and light intensity reports are sent too frequently - modify the advanced configuration settings to decrease the frequency.
- If associated devices or the Z-Wave network main controller are disconnected from the power source it will cause the sensor to frequently attempt to reconnect to those devices which will result in shortening the battery life.

