OPERATING MANUAL
FIBARO MOTION SENSOR
FGMS-001-USA-A-V1.02

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 presence monitoring systems.

SPECIFICATIONS

Power Supply:	CR123A battery, 3.0V DC
EU directives compliance:	RoHS 2011/65/EU LVD 2006/95/EC EMC 2004/108/EC R&TTE 1999/5/EC
Recommended installation height:	2,4m
Operational Temperature:	0-40℃
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:	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 50 m outdoors up to 30 m indoors (depending on terrain and building structure)

TECHNICAL INFORMATION

- Compatible with any Z-Wave+ controller.
- Works with other Z-Wave network devices, but as a battery device it doesn't take part in signal routing.
- Supports protected mode (Z-Wave network security mode) with AES-128 encryption.
- 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.

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 S.A. 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 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.

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
Use only batteries recommended by the manufacturer and intended for use in the device. Using other batteries can be considered as breach of warranty terms.

CAUTION
Using batteries other than specified may result in explosion.

CAUTION
The Fibaro Motion Sensor is a battery-powered device. Dispose of properly, observing environmental protection rules.

NOTE
The Fibaro Motion 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.

I. 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 network system.
• **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.

II. Z-WAVE NETWORK INCLUSION

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

1) Open the sensor's casing by turning the cover counter-clockwise. Enclosure lock is marked with a dot.
2) Unlock battery by removing "I'm ready" stripe.
3) Make sure the device is located within the direct range of the main controller.
4) Set the main controller into learning mode (see main controller's operating manual).
5) Quickly, triple click the B-button - LED diode will glow blue to confirm setting into learning mode.
6) Fibaro Motion Sensor will be detected and included into the Z-Wave network. Wait for the main controller to configure the sensor.
7) If necessary, wake up the Motion Sensor by clicking the B-button.
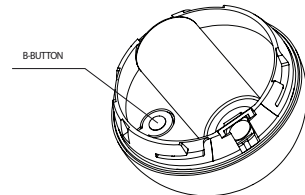**8)** Close the sensor's casing and install the device in desired place.

Diagram 1 - B-button.

CAUTION
Fibaro Motion Sensor may be included in protected mode (Z-Wave network security mode). In this mode communication takes place via encrypted messages. This improves the operating safety and reduces risk of unauthorized access to Z-Wave network and devices working within its range. Devices in protected mode can work together with standard mode devices.

III. EXCLUDING SENSOR FROM THE Z-WAVE NETWORK

1) Make sure tampering the device will not result in undesirable effects. Dismounting the sensor can trigger an alarm.
2) Open the sensor's casing by turning the cover counter-clockwise. Enclosure lock is marked with a dot.
3) Make sure the sensor's battery is unlocked.
4) Set the main controller into learning mode (see main controller's operating manual).
5) Quickly, triple click the B-button, located inside Fibaro Motion Sensor's casing. LED diode will glow blue confirming that the device has sent the Node Info Z-Wave command frame.

IV. 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) Insert the Motion Sensor in its holder.
4) Test the sensor's operation - check whether the LED diode indicates motion detection.
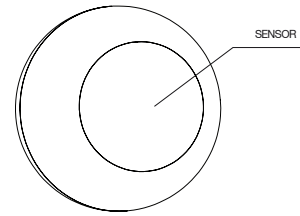**5)** Test the Z-Wave network assuring the device is within range.

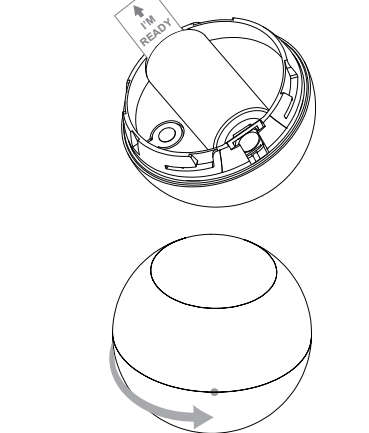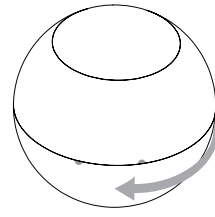Diagram 2 - Motion detector, light sensor, LED diode.

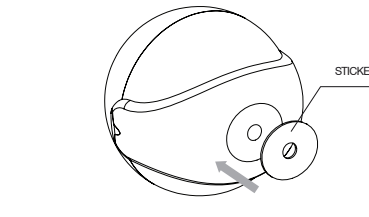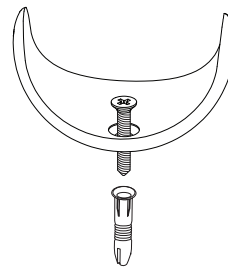Diagram 3 - preparing Fibaro Motion Sensor for operation.
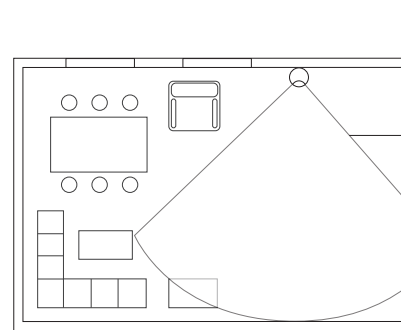

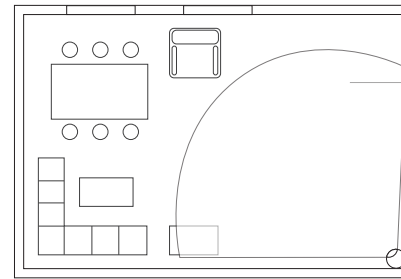Diagram 4 - Fibaro Motion Sensor installation.

Diagram 5 - Fibaro Motion Sensor's proximity area.

V. 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. If false motion alarms are 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.
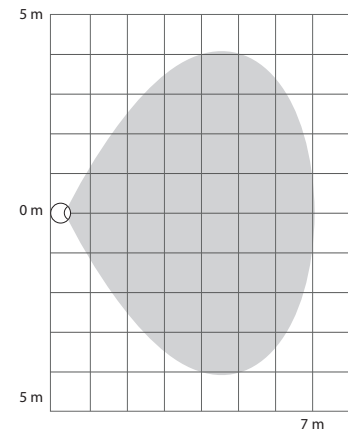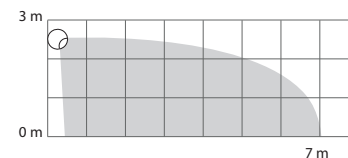

Diagram 6 - Fibaro Motion Sensor's motion detection area.

VI. 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 and rooms with rapid fluctuations in air temperature. Sensor can be mounted using the included screw or the sticker.

VII. RESETTING THE FIBARO MOTION SENSOR

The Fibaro Motion Sensor reset erases the 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 yellow signaling the 2nd option of the menu mode.
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.

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

NOTE
Device reset will not remove it from the Z-Wave network main controller's memory. However, removing the device from the Z-Wave network will reset Fibaro Motion Sensor automatically.

VIII. OPERATING WITHIN THE Z-WAVE NETWORK

Fibaro Motion Sensor has a bulit 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. The sensor supports the secure mode. In this mode messages are encrypted, improving Z-Wave network safety level.

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:
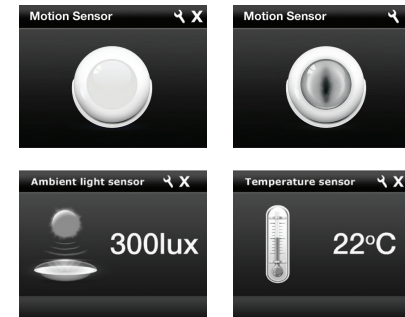
Motion sensor
The primary function of Fibaro Motion Sensor is motion detection. The detector is a passive IR sensor. Motion Sensor operating parameters have been selected carefully and should not be changed by the user. However, it is possible to change sensitivity of the device by modifying parameter 1. You can also modify motion alarm cancellation delay with parameter 6.

Light sensor
Fibaro Motion Sensor has a built-in light sensor. Reports on the current light intensity are always sent to main Z-Wave network controller. Report can be triggered by change in light intensity (parameter 40) or after a specified time (parameter 42).

Temperature sensor
Fibaro Motion Sensor has a built-in temperature sensor. Reports on the current temperature level are always sent to main Z-Wave network controller. Report can be triggered by the change in temperature (parameter 60) or after a specified time (parameter 64).

Tamper alarm
Fibaro Motion Sensor has a tamper alarm, used to signal an attempt to dismantle the device. The main Z-Wave controller and other Z-Wave network devices are notified about tampering. The sensitivity of the tamper alarm may be modified in parameter 20.

IX. 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 fire.

When Fibaro Motion Sensor operates in secure mode, outgoing messages are encrypted, depending on whether the added node also works in secure mode.

Fibaro Motion Sensor allows for association of five groups:

1st Association Group „Lifeline" is a reporting group, assigned to the device status. Main Z-Wave+ network controller should be added to this group. The „Lifeline" group can handle only one device. If Fibaro Motion Sensor operates in protected mode, outgoing messages are always encrypted.

2nd Association Group „Motion" is assigned to the motion sensor. At the moment of motion detection or alarm state cancellation, nodes added to this group will receive control frames. The „Motion" group can handle up to five devices (one or multi-channel). If Fibaro Motion Sensor operates in protected mode, outgoing messages are encrypted, depending on whether the added node also operates in secure mode.

3rd Association Group „Tamper" is assigned to the tamper alarm. Once tampering is detected or cancelled, nodes added to this group will receive alarm frames. The „Tamper" group can handle up to five devices (one or multi-channel). If Fibaro Motion Sensor operates in protected mode, outgoing messages are always encrypted.

4th Association Group „Motion BC" is assigned to the motion sensor. Once motion is detected or alarm state cancelled, nodes added to this group will receive report frames. This group aims to provide backward compatibility with controllers not supporting the Z-Wave+ protocol. Only a main controller not supporting the Z-wave+ protocol should be added to this group. The „Motion BC" group can handle up to five devices (one or multi-channel). If Fibaro Motion Sensor operates in protected mode, outgoing messages are always encrypted.

5th Association Group „Tamper BC" is assigned to the tamper alarm. Once tampering is detected or cancelled, nodes added to this group will receive alarm frames. This group aims to provide backward compatibility with devices not supporting the Z-Wave+ protocol. Only nodes not supporting the Z-wave+ protocol should be added to this group. The „Tamper BC" group can handle up to five devices (one or multi-channel). If Fibaro Motion Sensor operates in protected mode, outgoing messages are always encrypted.

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.

X. 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 (in the Modified Mercalli Scale) 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:

XI. 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 by sending report after triggering tamper alarm.

XII. LED VISUAL INDICATIONS 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 LAPD colours (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.

XIII. 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).

XIV. 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.
- If not necessary, operating in protected mode is not recommended. Secure mode results in reduced battery life.

> **NOTE**
> The Fibaro Motion Sensor features remote software updates. The functionality is supported by the Fibaro Home Center 2 and may not be supported by other controllers. During the software update process, the sensor does NOT support alarm functions.

XV. ADVANCED CONFIGURATION

WAKE UP INTERVAL

At each wake up the Fibaro Motion Sensor communicates with the main controller, updates parameters settings, association groups and the software if necessary. The Motion Sensor will wake up at a defined time interval and will ALWAYS try to communicate with the main controller

Available settings: 1-65535 (1-65535 seconds).
Default setting: 7200 (7200 seconds).

> **CAUTION**
> It's not recommended to set the value of Wake Up interval below 3600 seconds. Short wake up interval may shorten the battery life and delay the reports or even make them impossible.

A single press of the B-button will always wake up the device.

Group 0. Motion - parameters of detecting and reporting

1. MOTION SENSOR'S SENSITIVITY
The lower the value, the more sensitive the PIR sensor.
Available settings: 8 - 255
Default setting: 10
Parameter size: 2 [byte]

2. MOTION SENSOR'S BLIND TIME (INSENSITIVITY)
Period of time through which the PIR sensor is "blind" (insensitive) to motion. After this time period the PIR sensor will be again able to detect motion. The longer the insensitivity period, the longer the battery life. If the sensor is required to detect motion quickly, the time period may be shortened. The time of insensitivity should be shorter that the time period set in parameter 6 (cancellation delay).
Available settings: 0 - 15 (0,5 - 8 seconds)
Formula to calculate the time: time [s] = 0.5 x (value + 1)
Default setting: 15 (8 seconds)
Parameter size: 1 [byte]

3. PIR sensor's "PULSE COUNTER"
Sets the number of moves required for the PIR sensor to report motion. The higher the value, the less sensitive the PIR sensor. It's not recommended to modify this parameter settings.
Available settings: 0 - 3 (1 - 4 pulses)
Formula to calculate the number of pulses: pulses = (value + 1)
Default setting: 1 (2 pulses)
Parameter size: 1 [byte]

4. PIR sensor's "WINDOW TIME"
Period of time during which the number of moves set in parameter 3 must be detected in order for the PIR sensor to report motion. The higher the value, the more sensitive the PIR sensor. It's not recommended to modify this parameter setting.
Available settings: 0 - 3
Formula to calculate the time: time [s] = 4 x (value + 1)
Default setting: 2 (12 seconds)
Parameter size: 1 [byte]

6. MOTION ALARM CANCELLATION DELAY
Motion alarm will be cancelled in the main controller and the associated devices after the period of time set in this parameter. Any motion detected during the cancellation delay time countdown will result in the countdown being restarted. In case of small values, below 10 seconds, the value of parameter 2 must be modified (PIR sensor's "Blind Time").
Available settings: 1 - 32767 (1-32767 seconds)
Default setting: 30 (30 seconds)
Parameter size: 2 [byte]

8. PIR SENSOR OPERATING MODE
The parameter determines the part of day in which the PIR sensor will be active. This parameter influences only the motion reports and associations. Tamper, light intensity and temperature measurements will be still active, regardless of this parameter settings.
0 - PIR sensor always active
1 - PIR sensor active during the day only
2 - PIR sensor active during the night only.
Default setting: 0
Parameter size: 1 [byte]

9. NIGHT / DAY
The parameter defines the difference between night and day, in terms of light intensity, used in parameter 8.
Available settings: 1 - 32767 (1-32767 lux)
Default setting: 200 (200 lux)
Parameter size: 2 [byte]

Group 10. Motion - associations

12. BASIC COMMAND CLASS FRAMES CONFIGURATION
The parameter determines the command frames sent in 1-st association group, assigned to PIR sensor.
0 - BASIC ON and OFF command frames sent in Basic Command Class.
1 - only the BASIC ON command frame sent in Basic Command Class.
2 - only the BASIC OFF command frame sent in Basic Command Class.
Values of BASIC ON and BASIC OFF command frames may be modified by dedicated parameters (14 and 16).
Default setting: 0
Parameter size: 1 [byte]

14. BASIC ON command frame value
The command frame sent at the moment of motion detection. Further motion detections, during the cancellation time, will not result in sending the association.
The value other than 0 allows to turn ON an associated device. In case of the Dimmer, the value of 255 means turning ON at the last memorized state, e.g. the Dimmer turned ON at 30% and turned OFF using the value of 255, and then turned OFF, will be turned ON at 30%, i.e. the last memorized state.
Available settings: 0 - 255
Default setting: 255
Parameter size: 2 [byte]

16. BASIC OFF command frame value
The command frame sent at the moment of motion alarm cancellation, after cancellation delay time specified in parameter 6. The value of 0 allows to turn a device OFF while the value of 255 allows to turn ON a device. In case of the Dimmer, the value of 255 means turning ON at the last memorized state, e.g. the Dimmer turned ON at 30% and turned OFF using the value of 255, and then turned OFF, will be turned ON at 30%, i.e. the last memorized state.
Available settings: 0 - 255
Default setting: 0
Parameter size: 2 [byte]

Group 20. Tamper - parameters of detecting and reporting

20. TAMPER SENSITIVITY
The parameter determines the chages in forces acting on the Fibaro Motion Sensor resulting in tamper alarm being reported - g-force acceleration.
Available settigs: 0 - 121 (0,08 - 2g; multiply by 0,016g;
0 = tamper inactive)
Default setting: 15 (0,320g)
Parameter size: 1 [byte]

22. TAMPER ALARM CANCELLATION DELAY
Time period after which a tamper alarm will be cancelled. Another tampering detected during the countdown to cancellation will not extend the delay.
Available settings: 1 - 32767 (1-32767 seconds)
Default setting: 30 (seconds)
Parameter size: 2 [byte]

> **CAUTION**
> Frequent reports will shorten the battery life. Parameter value under 5 may result in blocking the illumination reports.

24. TAMPER OPERATING MODES
The parameter determines the behaviour of tamper alarm and how it reports. It is an advanced feature serving much more functions than just detection of tampering.
0 - Only tamper (default)
1 - Tamper and earthquake detector. Function may be used as a simple seismograph. Two reports including the strength of shock are always sent. First, right after the detection and second (value=0) after tamper alarm cancellation delay time.
2 - Tamper and orientation in space. Three reports are sent right after tamper alarm cancellation delay time.
Default setting: 0
Parameter size: 1 [byte]

25. TAMPER CANCELLATION REPORTS
0 – Do not send tamper cancellation report
1 – Send tamper cancellation report
Default setting: 1
Parameter size: 1 [byte]

28. TAMPER ALARM BROADCAST MODE
The parameter determines whether the tamper alarm frame will or will not be sent in broadcast mode. Alarm frames sent in broadcast mode can be received by all of the devices within communication range (if they accept such frames). When Fibaro Motion Sensor is operating in protected mode (secure mode), the value should remain default. Device operating in protected mode doesn't send frames in broadcast mode.
0 - Tamper alarm reported to association groups.
1 - Tamper alarm reported in broadcast mode to 3rd association group.
Default setting: 0
Parameter size: 1 [byte]

29. TAMPER ALARM BROADCAST MODE
The parameter determines whether the tamper alarm frame will or will not be sent in broadcast mode. Alarm frames sent in broadcast mode may be received by all of the devices within communication range (if they accept such frames). When Fibaro Motion Sensor is running in protected mode (secure mode), the value should remain default. Device operating in protected mode do not send frames in broadcast mode.
0 - Tamper alarm reported to association groups.
1 - Tamper alarm reported in broadcast mode to 5th association group.
Default setting: 0
Parameter size: 1 [byte]

Group 40. Light sensor - parameters of detecting and reporting

40. ILLUMINATION REPORT THRESHOLD
The parameter determines the change in light intensity level resulting in illumination report being sent to the main controller.
Available settings: 0 - 32767 (1-32767 lux; 0=reports are not sent)
Default setting: 200 (200 lux)
Parameter size: 2 [byte]

42. ILLUMINATION REPORTS INTERVAL
Time interval between consecutive illumination reports. The reports are sent even if there are no changes in the light intensity.
Available settings: 0 - 32767 (1-32767 seconds; 0 = no reports)
Default setting: 0 (no reports)
Parameter size: 2 [byte]

> **CAUTION**
> Frequent reports will shorten the battery life. Parameter value under 5 may result in blocking the temperature reports.

Group 60. Temperature sensor - parameters of detecting and reporting

60. TEMPERATURE REPORT THRESHOLD
The parameter determines the change in level of temperature resulting in temperature report being sent to the main controller.
Available settings: 0 - 255 (0,1-25,5°C,; 0 = reports are not sent)
Default setting: 10 (1°C)
Parameter size: 2 [byte]

62. INTERVAL OF TEMPERATURE MEASURING
The parameter determines how often the temperature will be measured. The shorter the time, the more frequently the temperature will be measured, but the battery life will shorten.
Available settings: 0 - 32767 (1 - 32767 seconds; 0 = temperature will not be measured)
Default setting: 900 (900 seconds)
Parameter size: 2 [byte]

> **CAUTION**
> When parameter value is set to 0, the temperature measurements may be performed at the device wake-up.

64. TEMPERATURE REPORTS INTERVAL
The parameter determines how often the temperature reports will be sent to the main controller.
Available settings: 0 - 32767 (1 - 32767 seconds; 0 = no reports)
Default setting: 0 (no reports)
Parameter size: 2 [byte]

> **CAUTION**
> Frequent reports will shorten the battery life. Parameter value under 5 may result in blocking the illumination reports.

4. PIR sensor's "WINDOW TIME" — (see column above)

Column 3 continued

66. TEMPERATURE OFFSET
The value to be added to the actual temperature, measured by the sensor (temperature compensation).
Available settings: -1000 - 1000 (-100°C – 100°C)
Default setting: 0 (0°C)
Parameter size: 2 [byte]

Group 80. LED indications

80. LED SIGNALING MODE
The parameter determines the way in which LED diode behaves after motion has been detected.
Values from 1 to 9 = single long blink at the moment of reporting motion. No other motion will be indicated until alarm is cancelled.

Values from 10 to 18 = single long blink at the moment of reporting motion and one short blink each time the motion is detected again.

Values from 19 to 26 = single long blink at the moment of reporting motion and two short blinks each time the motion is detected again.

0. LED inactive.
1. LED colour depends on the temperature. Set by parameters 86 and 87.
2. Flashlight mode - LED glows in white for 10 seconds.
3. White.
4. Red.
5. Green.
6. Blue.
7. Yellow.
8. Cyan.
9. Magenta.
10. LED colour depends on the temperature. Set by parameters 86 and 87.
11. Flashlight mode - LED glows in white through 10 sec. Each next detected motion extends the glowing by next 10 seconds.
12. White.
13. Red.
14. Green.
15. Blue.
16. Yellow.
17. Cyan
18. Magenta.
19. LED colour depends on the temperature. Set by parameters 86 and 87.
20. White
21. Red
22. Green
23. Blue
24. Yellow
25. Cyan
26. Magenta

Default setting: 10
Parameter size: 1 [byte]

81. LED BRIGHTNESS
The parameter determines the brightness of LED when indicating motion.
Available settings: 0 - 100 (1 - 100%; 0 = brightness determined by the ambient lighting - see parameters 82 and 83)
Default setting: 50 (50%)
Parameter size: 1 [byte]

82. AMBIENT ILLUMINATION LEVEL BELOW WHICH LED BRIGHTNESS IS SET TO 1%
The parameter is relevant only when the parameter 81 is set to 0.
Available settings: 0 to parameter 83 value (0-32766 lux)
Default setting: 100 (100 lux)
Parameter size: 2 [byte]

83. AMBIENT ILLUMINATION LEVEL ABOVE WHICH LED BRIGHTNESS IS SET TO 100%
The parameter is relevant only when the parameter 81 is set to 0.
Available settings: parameter 82 value to 32767 (1-32767 lux)
Default setting: 1 000 (1 000 lux)
Parameter size: 2 [byte]

> **CAUTION**
> The value of parameter 83 must be higher than the value of parameter 82.

86. MINIMUM TEMPERATURE RESULTING IN BLUE LED ILLUMINATION
This parameter is relevant only when parameter 80 has been properly configured.
Available settings: 0 to parameter 87 value (0-255°C)
Default setting: 18 (18°C)
Parameter size: 2 [byte]

87. MAXIMUM TEMPERATURE RESULTING IN RED LED ILLUMINATION
This parameter is relevant only when parameter 80 has been properly configured.
Available settings: parameter 86 value to 255 (0-255°C)
Default setting: 28 (28°C)
Parameter size: 2 [byte]

> **CAUTION**
> The value of parameter 87 must be higher than the value of parameter 86.

89. LED INDICATING TAMPER ALARM
Indicating mode resembles a police car (white, red and blue).
0 - LED does not indicate tamper alarm.
1 - LED indicates tamper alarm.
Default setting: 1
Parameter size: 1 [byte]

XVI. GUARANTEE

1. The Guarantee is provided by FIBAR GROUP S.A. (hereinafter "Manufacturer"), based in Poznan, ul. Lotnicza 1; 60-421 Poznan, entered in the register of the National Court Register kept by the District Court in Poznań, VIII Economic Department of the National Court Register, no. 370151, NIP 7811858097, REGON: 301595664.
2. The Manufacturer is responsible for equipment malfunction resulting from physical defects (manufacturing or material) of the Device for 12 months from the date of its purchasing.
3. During the Guarantee period, the Manufacturer shall remove any defects, free of charge, by repairing or replacing (at the sole discretion of the Manufacturer) any defective components of the Device with new or regenerated components, that are free of defects. When the repair impossible, the Manufacturer reserves the right to replace the device with a new or regenerated one, which shall be free of any defects and its condition shall not be worse than the original device owned by the Customer.
4. In special cases, when the device cannot be replaced with the device of the same type (e.g. the device is no longer available in the commercial offer), the Manufacturer may replace it with a different device having technical parameters similar to the faulty one. Such activity shall be considered as fulfilling the obligations of the Manufacturer. The Manufacturer shall not refund money paid for the device.
5. The holder of a valid guarantee shall submit a guarantee claim through the guarantee service. Remember: before you submit a guarantee claim, contact our technical support using telephone or e-mail. More than 50% of operational problems is resolved remotely, saving time and money spent to initiating guarantee procedure. If remote support is insufficient, the Customer shall fill the guarantee claim form (using our website - www.fibaro.com) in order to obtain claim authorization. When the guarantee claim form is submitted correctly, the Customer shall receive the claim confirmation with an unique number (Return Merchandise Authorization -RMA).
6. The claim may be also submitted by telephone. In this case, the call is recorded and the Customer shall be informed about it by a consultant before submitting the claim. Immediately after submitting the claim, the consultant shall provide the Customer with the claim number (RMA-number).
7. When the guarantee claim form is submitted correctly, a representative of the Authorised Guarantee Service (hereinafter as "AGS") shall contact the Customer.
8. Defects revealed within the guarantee period shall be removed not later than 30 days from the date of delivering the Device to AGS. The guarantee period shall be extended by the time in which the Device was kept by AGS.
9. The faulty device shall be provided by the Customer with complete standard equipment and documents proving its purchase.
10. Parts replaced under the guarantee are the property of the Manufacturer. The guarantee for all parts replaced in the guarantee process shall be equal to the guarantee period of the original device. The guarantee period of the replaced part shall not be extended.
11. Costs of delivering the faulty device shall be borne by the Customer. For unjustified service calls, the Service may charge the Customer with travel expenses and handling costs related to the case.
12. AGS shall not accept a complaint claim only when:
• the Device was misused or the manual was not observed,
• the Device was provided by the Customer incomplete, without accessories or nameplate,
• it was determined that the fault was caused by other reasons than a material or manufacturing defect of the Device
• the guarantee document is not valid or there is no proof of purchase,
13. The Manufacturer shall not be liable for damages to property caused by defective device. The Manufacturer shall not be liable for indirect, incidental, special, consequential or punitive damages, or for any damages, including, inter alia, loss of profits, savings, data, loss of benefits, claims by third parties and any property damage or personal injuries arising from or related to the use of the Device.
14. The guarantee shall not cover:
• mechanical damages (cracks, fractures, cuts, abrasions, physical deformations caused by impact, falling or dropping the device or other object, improper use or not observing the operating manual);
• damages resulting from external causes, e.g.: flood, storm, fire, lightning, natural disasters, earthquakes, war, civil disturbance, force majeure, unforeseen accidents, theft, water damage, liquid leakage, battery spill, weather conditions, sunlight, sand, moisture, high or low temperature, air pollution;
• damages caused by malfunctioning software, attack of a computer virus, or by failure to update the software as recommended by the Manufacturer;
• damages resulting from: surges in the power and/or telecommunication network, improper connection to the grid in a manner inconsistent with the operating manual, or from connecting other devices not recommended by the Manufacturer.
• damages caused by operating or storing the device in extremely adverse conditions, i.e. high humidity, dust, too low (freezing) or too high ambient temperature. Detailed permissible conditions for operating the Device are defined in the operating manual;
• damages caused by using accessories not recommended by the Manufacturer
• damages caused by faulty electrical installation of the Customer, including the use of incorrect fuses;
• damages caused by Customer's failure to provide maintenance and servicing activities defined in the operating manual;
• damages resulting from the use of spurious spare parts or accessories improper for given model, repairing and introducing alterations by unauthorized persons;
• defects caused by operating faulty Device or accessories.
15. The scope of the guarantee repairs shall not include periodic maintenance and inspections, in particular cleaning, adjustments, operational checks, correction of errors or parameter programming and other activities that should be performed by the user (Buyer). The guarantee shall not cover natural wear and tear of the Device and its components listed in the operating manual and in technical documentation as such elements have a defined operational life.
16. If a defect is not covered by the guarantee, the Manufacturer reserves the right to remove such defect at its sole discretion, repairing the damaged or destroyed parts or providing components necessary for repair or replacement.
17. This guarantee shall not exclude, limit or suspend the Customer rights when the provided product is inconsistent with the purchase agreement.

Column 5

THE MANUFACTURER IS NOT RESPONSIBLE FOR ANY RADIO OR TV INTERFERENCE CAUSED BY UNAUTHORIZED MODIFICATIONS TO THIS EQUIPMENT. ANY CHANGES OR MODIFICATIONS NOT EXPRESSLY APPROVED BY THE PARTY RESPONSIBLE FOR COMPLIANCE COULD VOID THE USER'S AUTHORITY TO OPERATE THE EQUIPMENT.

This device complies with Part 15 of the FCC Rules.
Operation is subject to the following two conditions:

1. This device may not cause harmful interference

2. This device must accept any interference received, including interference that may cause undesired operation. This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy. If not installed and used in accordance with the instructions, it may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
• Reorient or relocate the receiving antenna.
• Increase the distance between the equipment and the receiver.
• Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
• Consult the dealer or an experienced radio/TV technician for help.

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> **This Device may be used with all devices certified with Z-Wave certificate and should be compatible with such devices produced by other manufacturers.**
> Any device compatible with Z-Wave may be added to Fibaro system.

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www.fibaro.com