VEMMIO

innovation in automation

motion mini sensor

MODEL: MT-100 V1.0

Z-WAVE PLUS

INTRODUCTION

Thank you for choosing Vemmio. We welcome you in our customer society.

Motion Mini Sensor provides accurate motion and illumination level detection. When integrated with your controller - wireless notifications, low battery alerts, custom automation scenarios based on both light and motion triggers become available. For example, when motion is detected, the controller will send an alert to any smartphone, set off an alarm or trigger a lighting scene. The sensor works with any Z-Wave-certified controller.

PACKAGE CONTENTS:
- user manual
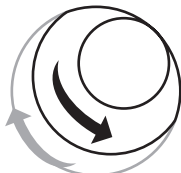- sensor
- raw plug
- adhesive tape.

KEY FEATURES

Ultra smart and simple design – becomes part of your home decoration
Easy and quick installation
Uses motion and illumination sensors
Low-energy use
Illumination measurement up to 8500 lux.

SPECIFICATION

Wireless standard	Z-Wave Plus
Frequency	868.40 MHz
Network range	30 m line of sight
Operating temperature	0°C ~ 40°C
Illumination measurement range	0 ~ 8500 lux
Movement Sensor Measurement range	6 m
Battery	CR123A 3V
Battery	>2 years, low power indication

BATTERY INSTALLATION

When the device reports the low battery message, the user should replace the battery to new one. The battery type is CR123A, 3V.
To open the top cover simply turn and lift it.

INSTALLATION

The Z-Wave button, located next to the battery can add, remove, reset or associate the sensor to Z-Wave network.

ADDING THE DEVICE INTO THE Z-WAVE NETWORK

FIRST INCLUSION
Bring the Motion Mini Sensor within direct range of your controller. Carefully turn and lift the cover of your Motion Mini Sensor to access the battery. Follow the instructions for your Z-Wave certified controller to enter inclusion mode. When prompted by the controller, power on the device, (just remove the plastic pull-tab from the battery slot of the device). Press quickly the Z-Wave button 3 times. The sensor should be included in 5 seconds. You will see the LED light fast flash indicating Motion Mini Sensor is included to Z-Wave network and it should appear on controller's device list.

INCLUSION*
Bring the Motion Mini Sensor within direct range of your controller. Remove the top cover from the device by turning and lifting it. Follow the instructions for your Z-Wave certified controller to enter inclusion mode. When prompted by the controller, press quickly one of the Z-wave button 3 times in a row. The sensor should be included in 5 seconds. The sensor should appear on your controller's device list.
***Please note: Always exclude a Z-wave product before trying to add it to a Z-Wave network.**

EXCLUSION
Bring the Motion Mini Sensor within direct range of your controller. Remove the top cover from the device by turning and lifting it. Follow the instructions for your Z-Wave certified controller to enter exclusion mode. When prompted by the controller, press the Z-wave button quickly 3 times in a row. The LED indicator will flash slowly indicating successful exclusion. The sensor should disappear from your controller's device list. If the first attempt is unsuccessful, please repeat the process following all steps carefully.
Make sure all sensors of the device have been successfully added to your controller. If not, please run exclusion/inclusion procedure.

ASSOCIATION

Have Z-Wave Controller enter association mode.
Pressing tamper key three times within 1.5 seconds will enter association mode.

Group ID	Maximum Nodes	Description
1	4	GROUP 1 is lifeline service that assigned to Sensor (Motion detector) status – Open/Close. It enables the sensor to send reports and readings to Z-Wave Controller or Z-Wave Gateway whenever the sensor is triggered. This Group Supports: • NOTIFICATION_REPORT_V4 • SENSOR_BINARY_REPORT_V2 • SENSOR_MULTILEVEL_REPORT_V7 • BATTERY_REPORT DEVICE_RESET_LOCALLY_NOTIFICATION
2	4	GROUP 2 allows for sending control commands to associated devices such as relay module, lighting, etc. This association group is configured through the advanced parameters no. 2, 3, 5 and 8. This Group Supports: • BASIC_SET
3	4	GROUP 3 allows for Send Notification to associated devices in this group. This Group Supports: • NOTIFICATION_REPORT_V4
4	4	GROUP 4 allows for Send Sensor Binary Report to associated devices in this group. This Group Supports: • SENSOR_BINARY_REPORT_V2

FACTORY RESET

Make sure the Motion Mini Sensor is powered on, then open the cover and press and hold the Z-Wave button for at least 10 seconds until the LED indicator flashes once (it may then flash 5 times to indicate the device is no longer part of Z-Wave network). Release the button.

Please note: All previously recorded activity and custom settings will be erased from the device's memory.

TROUBLESHOOTING TIPS.

If you are unable to include the Motion Mini Sensor to your controller, please try one of the following:
- Bring the Motion Mini Sensor closer to your Z-Wave controller.
- Once in inclusion mode, press and release the Z-Wave button quickly 6-7 times to ensure the command has gone through.
- Put your controller into exclusion mode. Press the Z-Wave button quickly 3 times, and then try adding it to your network again.

PHYSICAL INSTALLATION

Choosing a Suitable Location
a. The recommended mounting height is 2 m
b. The recommended distance from the door is within 4.5 m
c. Do not let the device face the window or the sunlight.

The Motion Mini Sensor will detect motion up to 6 meters depending on mounting location and sensitivity settings.

MOUNTING

There are 2 ways to mount the Mini Sensor on the wall, ceiling, or in the corner of a room:
1. Use the supplied raw plug to fix the mounting bracket to flat surface of your choice. Carefully insert the sensor to the mounting bracket. Position the sensor by directing it to the part of the room you wish to monitor.
2. Use supplied adhesive tape to fix the mounting bracket to a clean flat surface of your choice. Carefully insert the sensor to the mounting bracket. Position the sensor by directing it to the part of the room you wish to monitor.

Over the Air Firmware Update
The device supports the Z-Wave firmware update via OTA. Let the controller into the firmware update mode, and then press the Z-Wave button once to start the update. After completing the firmware download, LED will start flashing every 0.5 second. During this time, please don't remove the battery, otherwise it will cause the firmware failure, and the device will stop functioning. After LED stops flashing, it is recommended that user powers up the device. Caution: After battery removal, please wait about 30 seconds, and then re-install the battery.

Supported Command Classes:
COMMAND_CLASS_ASSOCIATION
COMMAND_CLASS_ASSOCIATION_GRP_INFO
COMMAND_CLASS_BATTERY
COMMAND_CLASS_CONFIGURATION
COMMAND_CLASS_DEVICE_RESET_LOCALLY
COMMAND_CLASS_MANUFACTURER_SPECIFIC
COMMAND_CLASS_NOTIFICATION
COMMAND_CLASS_POWERLEVEL
COMMAND_CLASS_SENSOR_BINARY
COMMAND_CLASS_VERSION
COMMAND_CLASS_WAKE_UP

LED INDICATION

LED Color	Indication	Status
Red	Flashes 5 times(1s Interval)	Powered on and not included in Z-Wave Network
	Flashes 5 times(500 ms Interval)	Press the Z-Wave button 3 times - including the sensor to a Z-Wave network
	Flashes 5 times(300 ms Interval)	Powered on and already included in a Z-Wave network
	Flashes 1 once	1. Press the Z-Wave button for 10 seconds long time - factory reset is performed 2. Movement detection

WAKEUP MOTION DETECTOR

You can press the button once to wake up the device and send wakeup notification to controller -the LED will flash once.

ADVANCED CONFIGURATION

The following information is for someone that has some experience in setting up a Z-Wave system or someone that has computer software running a Z-Wave controller or Z-Wave Gateway. Please get familiar with software of Z-Wave controller or Z-Wave Gateway before getting started.

NO	Name	Deff	Description
1	Sensitivity Level Setting	12	**Valid Values: (8 – 255), Prm. Size: 1 byte** This parameter defines the sensitivity of PIR detector, it is recommended to test the detector with movements from a farthest end of the coverage area at first time of use. If movements cannot be detected sensitively, simply adjust the sensitivity level with this parameter. This Parameter can be configured with the value of 8 through 255, where 8 means high sensitivity and 255 means lowest sensitivity.
2	On/Off Duration	30	**Valid Values (5 – 600), Unit: Second, Prm. Size: 2 bytes** This parameter can be determined how long the associated devices should stay ON status. For instance, this parameter is set to 30(second), the PIR detector will send a BASIC_SET Command to an associated device with value basic set level if PIR detector is triggered and the associated device will be turned on 30(second) before it is turned off. This Parameter value must be large than Parameter 6#. If user set this parameter to default by Configure CC, the parameter #6 will be set to default value.
3	Basic Set Level	255	**Valid Values: (0 – 99), Unit: Percent, Prm. Size: 1 byte 0 – OFF , 255 - ON** Basic Set Command will be sent where contains a value when PIR detector is triggered, the receiver will take it for consideration; for instance, if a lamp module is received the Basic Set Command of which value is decisive as to how bright of dim level of lamp module shall be. This Parameter is used to some associated devices
4	PIR Detecting Function Enabled/Disabled	255	**Valid Values: 0 – Disable PIR, 255 – Enable PIR** This parameter can be enabled or disabled the PIR detector detecting function.
5	Ambient illumination Lux Level	100	**Valid Values: (0 – 1000), Unit: Lux, Prm. Size: 2 bytes** This parameter can be set a lux level value which determines when the light sensor is activated. If the ambient illumination level falls below this value and a person moves across or within the detected area , PIR detector will send a Z-Wave ON command(i.e. BASIC_SET (value = parameter 3) to an associated device and activate i
6	Re-trigger Interval Setting	8	**Valid Values: (0 – 8), Unit: Second , Prm. Size: 1 bytes** This Parameter can be used to adjust the interval of being re-triggered after the PIR detector has been triggered. This Parameter value must be less than Parameter 2#. If user set this parameter to default by Configure CC, the parameter #2 will be set to default value.

7	Light Sensor Polling Interval Time	180	**Valid Values: (60 – 36000), Unit: Second, Prm. Size: 2 bytes** This Parameter can be set the light sensor measure ambient illumination level interval time. NOTE: This Value Must Be less than Wakeup Interval Time
8	Lux Level Function Enable	0	**Valid Values: (0 or 1), Prm. Size: 1 bytes** If this parameter is set to '1', and when Lux level less than the value define by parameter #5, PIR detector will send a BASIC_SET command frame (i.e. BASIC_SET (value = parameter 3) to an associated device and activate it. If Lux Level greater than the value define by parameter #5, PIR detector will not send a BASIC_SET command frame.
9	Ambient illumination Lux Level Report	100	**Valid Values: (0 – 255), Unit: Lux, Prm. Size: 2 bytes** This parameter defines by how much Lux Level must change, in lux, to be reported to the main controller.
10	Led Flash Enable	1	**Valid Values: (0 or 1), Prm. Size: 1 byte** This parameter defines the Led on/off enable. If this parameter is set to '1', the led blink will be enabled, the led will flash once when motion sensor detect a movement. Otherwise, the led will be turned off always.

MULTILEVEL SENSOR
The Motion Mini Sensor supports ambient luminance measurement, the scale is LUX. The settings of luminance sensor measurement are listed in Advanced Configuration.
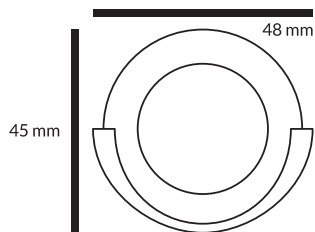
WAKEUP COMMAND CLASS
The motion detector stays in sleep status for the majority of time in order to conserve battery life.
The minimum wakeup interval is 300s
The maximum wakeup interval is 16,777,200s (about 194 days)
Minimum interval is 60 second, values need to follow minimum interval value - e.g. 360, 420, 480...
The default value is 12 hours.

BATTERY CHECK COMMAND
The users can also check the battery status of the Motion Mini Sensor by sending BATTERY_GET command. Once the motion detector receivers the command, it will return BATTERY_REPORT command. The motion detector will send BATTERY_LEVEL = 0xFF command to the Z-Wave Controller to inform that the motion detector is in dead battery status, otherwise BATTERY_LEVEL value range is 0% to 100%.

DIMENSIONS

48 mm

45 mm

WARRANTY
This Limited Warranty applies to physical goods, and only for physical goods, purchased from Vemmio (the "Physical Goods"). This Limited Warranty of Vemmio, applies to products manufactured and distributed by Vemmio.

PRODUCTS COVERED AND DURATION OF WARRANTY
Warranty Period: 12 months for business customer and 24 months for individual customer from the date of purchase.
The product purchased shall be free from defects in material and workmanship from the date of purchase.
This Limited Warranty covers any defects in material or workmanship under normal use during the Warranty Period.

PRODUCTION STATUS
Each product is manufactured from new parts.

TERMS OF THE WARRANTY
Vemmio warrants that the product you have purchased from Vemmio or a Vemmio's authorized reseller is free from defects in materials and workmanship under normal use during the warranty period. The warranty period begins on the day of purchase. The warranty extends only to the original purchaser. It is not transferable to anyone who subsequently purchases the product from the original purchaser.
During the Warranty Period, Vemmio will repair or replace (at the sole discretion of Vemmio), at no charge, products or parts of a product that proves defective. Once the defected product, during the guarantee period, is returned, it will be repaired or replaced no later than within 30 days. The warranty period is extended by the amount of days it has taken to repair or replace the product. All used elements changed under the guarantee become the property of Vemmio. The warranty period for replaced elements expires on the same date as the original warranty period for the product. There is a possibility that it will not be feasible to repair or replace the product (for example when the product is no longer a part of Vemmio's offer). Should this happen, Vemmio will repair/replace the product with parts/product of similar technical characteristics. Such procedure will result in fulfilling Vemmio's warranty obligation against the customer. It is not possible to have money returned by Vemmio for the purchased product. Warranty claim rated by Vemmio as unwarranted will be charged for handling and servicing costs.

Vemmio may reject a warranty claim if:
- the product has not been operated according to its intended purpose and the user manual
- the returned product is incomplete
- the cause of insufficient operation is other than a material or production defect
- warranty date has expired or if the customer can not provide proof of purchase.

The Limited Warranty extends only to products purchased from Vemmio or a Vemmio's authorized reseller. The Limited Warranty does not extend to any product that has been damaged or rendered defective (a) as a result of accident, misuse or abuse; (b) as a result of an act of God; (c) by operation outside the usage parameters stated in the user manual; (d) by the use of parts not manufactured or sold by Vemmio (e) by modification of the product; (f) as a result of war or terrorist attack; or (g) as a result of service by anyone other than Vemmio or a Vemmio's authorized service center.

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HOW TO OBTAIN WARRANTY SERVICE?
Please contact us first through support@vemmio.com for advice because we are very often able to resolve issues/problems without the need for warranty claim.
For a defect during the warranty period, you will need a proof of purchase. Contact your place of purchase or a Vemmio's authorized service center. Return the defective item, freight and insurance prepaid, in the original packaging to your place of purchase. Vemmio is not responsible for any loss or damages incurred in shipping. A Vemmio Failure Analysis/Test Engineer or a Vemmio's authorized reseller must validate all warranty claims.

WHAT IS NOT COVERED BY THIS WARRANTY?
Product purchased from anyone other than Vemmio or a Vemmio's authorized reseller.
Routine cleaning or normal cosmetic and mechanical wear.
Damage from misuse, abuse or neglect including ingress of water, dust or damage from dropping.
Damage from use outside the product's usage or storage parameters.
Damage from use of parts not manufactured or sold by Vemmio.
Damage from modification or incorporation into other products.
Damage from repair or replacement of warranted parts by a service provider other than a Vemmio's authorized service provider.
Damage from failure to perform preventative maintenance as imposed by the application environment (such as recurrent cleaning in dusty surroundings).

DECLARATION OF CONFORMITY

CE

The manufacturer Vemmio Sp. z o.o. declares under sole responsibility that the product:
Marketing model: Motion Mini Sensor
Regulatory model: MT-100
Brand name: Vemmio
is in conformity with the Low Voltage Directive 2009/95/EC, EMC Directive 2004/108/EC, R&TTE Directive 1995/5/EC and carries the CE marking accordingly.

The following harmonized standards were applied:
R&TTE (1995/5/EC)
EN 300 220-1: V2.4.1
EN 300 220-2: V2.4.1
EMC (2004/108/EC)
EN 301 481-1: V1.9.2
EN 301 489-3: V1.6.1
LVD (2006/95/EC)
EN 60950-1:2006 + A11:2009 + A1:2010 + A12:2011

Changes of modification not expressly approved by Vemmio Sp. z o.o. for compliance could void the user's authority to operate the equipment.

FC

FCC INTERFERENCE STATEMENT
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 and, if not installed and used in accordance with the instructions, 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 of the following measures:
- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and 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.

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, and
2. This device must accept any interference received, including interference that may cause undesired operation.
FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.
This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

IN ACCORDANCE WITH ROHS 2011/65/EU

RoHS

WARNING
Do not dispose of electrical appliances as unsorted municipal waste, use separate collection facilities. Contact your local government for information regarding the collection systems available. If electrical appliances are disposed of in landfills or dumps, hazardous substances can leak into the groundwater and get into the food chain, damaging your health and well-being.
When replacing old appliances with new once, the retailer is legally obligated to take back your old appliance for disposal at least for free of charge.

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