

VEMMIO

innovation in automation

4in1

MODEL: ML 100
V1.0



INTRODUCTION

Thank you for choosing Vemmio! We welcome you in our customer society. Motion sensor, temperature sensor, illumination sensor and open/close sensor in one device. Vemmio 4 in 1 sensor offers great security and ambient sensing options. Multifunction nature of this product allows you to detect motion, monitor opened/closed status of any opening object, measure room's ambient temperature and light intensity. Vemmio 4 in 1 sensor has been tested to work smoothly with various controllers making your home automation system very stable and secure.

PACKAGE CONTENTS:

- user manual
- sensor
- magnet
- battery
- 4x screws
- 3x sensor tape, 3x magnet tape, 1x test tape.

KEY FEATURES

Unique scale of temperature measurement range: -25°C ~ 90°C
 Movement sensor measurement range: 11 m
 Network range: up to 100 m line of sight
 Illumination measurement range: 0 ~ 1900 lux
 Two-sided reed switch
 Safety: double tamper protection (front and back)

SPECIFICATION

Wireless standard	Z-Wave Plus
Frequency	868.40 MHz
Network range	40 m indoor/ 100 m line of sight
Temperature measurement range	-25°C ~ 90°C
Temperature indication precision	0.1°C
Operating temperature	-10°C ~ 40°C
Illumination measurement Range	0 ~ 1900 lux
Movement Sensor Measurement Range	11 m
Movement Sensor Angle	110°
Magnetic gap	max. 20 mm
Battery	CR123A 3V
Battery	>2 years, low power indication

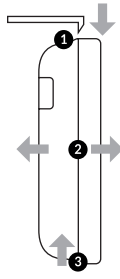
BATTERY INSTALLATION

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 front cover please follow the below steps.

1. Use a tool to press top position to release the cover.
2. Hold the front cover and pull back.
3. Hold the front cover and pull up.

Please note: after battery replacement allow up to 20 minutes for the sensor to re-route.



INSTALLATION

The Z-Wave buttons, located at the back and front side, can add, remove, reset or associate the sensor to Z-Wave network.

ADDING THE DEVICE INTO THE Z-WAVE NETWORK FIRST INCLUSION

Bring the 4 in 1 sensor within direct range of your controller. Follow the instructions for your Z-Wave certified controller to enter inclusion mode. When prompted by the controller, power on the device, remove the plastic pull-tab in the back side of the device, the device will start AUTO-INCLUSION mode lasting 30 seconds. It should be included in 5 seconds. You will see the LED light ON for one second. The sensor should appear on controller's device list.

Please note: first inclusion may vary depending on your gateway - please see gateway manual for details.

INCLUSION*

Bring the 4 in 1 sensor within direct range of your controller. Follow the instructions for your Z-Wave certified controller to enter inclusion mode. When prompted by the controller, within 1.5 s, press the back Z-Wave button 3 times in a row. If the sensor has been already mounted - remove the front cover from the device and within 1.5 s press the front Z-Wave button 3 times in a row. The sensor should be included in 5 seconds. You will see the LED light ON for one second. 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 4 in 1 sensor within direct range of your controller. Follow the instructions for your Z-Wave certified controller to enter exclusion mode. When prompted by the controller, within 1.5 s, press the back Z-Wave button 3 times in a row. If the sensor has been already mounted - remove the front cover from the device and within 1.5 s press the front Z-Wave button 3 times in a row. The LED indicator will flash five times indicating exclusion/disconnection. The sensor should disappear from your controller's device list. Please note: after successful exclusion the sensor will always enter auto-inclusion mode. If the first attempt is unsuccessful, please repeat the process following all steps carefully.

Please note: After successful exclusion the sensor will always enter auto-inclusion mode. 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 Z-Wave key three times within 1.5 seconds will enter association mode.

Group ID	Maximum Nodes	Description
1	8	Z-Wave Plus Lifeline. The group 1 is for receiving the report message, like triggered event, temperature, humidity etc.
2	8	Using the "Basic Set" for lighting control.

FACTORY RESET

- Press Z-Wave button four times within 1.5 seconds and during 4th press, hold the Z-Wave button until LED lights up.
- After 3 seconds the LED will turn OFF, and after next 2 seconds, release the Z-Wave button. If successful, the LED will light ON for one second. Otherwise, the LED will flash once.
- IDs are excluded and all settings will reset to factory default.

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 4 in 1 sensor to your controller, please try one of the following:

- Bring the 4 in 1 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 and release the Z-Wave button quickly 3 times, and then try adding it to your network again.

PHYSICAL INSTALLATION

Choosing a Suitable Location

- The recommended mounting height is 160 cm
- The magnet can be placed on either side of the sensor.
- Maximum gap between magnet and the device is 20 mm
- Do not let the device face the source of heat, for instance the heater or the air-condition.
- Do not let the device face the window or the sunlight.

MOUNTING

Pay attention! Include the 4 in 1 sensor to your Z-Wave network before mounting it.

In the accessory pack, there are two types of double coated tape and 4 screws. The sensor and magnet can be either mounted using tapes or screws. Thicker tape is referred as A tape and thinner tape is referred as B tape. The right way for A tape installation is to stick it to the position below Z-Wave button. The thicker tape will not let the Z-Wave button to be pressed, so the sensor will enter the test mode. You may test if the position is good or not. Once the test has been carried out you can remove tape A, and mount the sensor by using tape B. The Z-Wave button will be pressed and this will trigger the sensor to enter normal mode.

Over the Air Firmware Update

The device supports the Z-Wave firmware update via OTA. Updates should only be made from Vemmio approved sources. Authorized updates may cause the device to stop functioning correctly. Before starting the procedure, please remove the front cover of the device. Otherwise the hardware check will fail. Let the controller into the firmware update mode, and then press the front 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_ZWAVEPLUS_INFO_V2
 COMMAND_CLASS_BATTERY
 COMMAND_CLASS_NOTIFICATION_V4
 COMMAND_CLASS_ASSOCIATION_V2
 COMMAND_CLASS_CONFIGURATION
 COMMAND_CLASS_VERSION_V2
 COMMAND_CLASS_SENSOR_BINARY_V2
 COMMAND_CLASS_SENSOR_MULTILEVEL_V5
 COMMAND_CLASS_WAKE_UP_V2
 COMMAND_CLASS_ASSOCIATION_GRP_INFO
 COMMAND_CLASS_POWERLEVEL
 COMMAND_CLASS_DEVICE_RESET_LOCALLY
 COMMAND_CLASS_MULTI_CMD
 COMMAND_CLASS_SECURITY
 COMMAND_CLASS_FIRMWARE_UPDATE_MD_V2
 COMMAND_CLASS_MARK
 COMMAND_CLASS_BASIC

SECURITY NETWORK

This device supports the security function. When the device is included with a security controller, the device will auto switch to the security mode. In the security mode, the following commands need to be wrapped in Security Command Classes to communicate, otherwise there will be no response.

Command Classes:

COMMAND_CLASS_BATTERY
 COMMAND_CLASS_NOTIFICATION_V4
 COMMAND_CLASS_ASSOCIATION_V2
 COMMAND_CLASS_CONFIGURATION
 COMMAND_CLASS_SENSOR_BINARY_V2
 COMMAND_CLASS_SENSOR_MULTILEVEL_V5
 COMMAND_CLASS_WAKE_UP_V2

Z-WAVE NOTIFICATION

After adding the device to the network, it will wake-up once per day in default. When it wakes-up it will broadcast the "Wake Up Notification" message to the network, and wake-up 10 seconds for receive the setting commands.

The wake-up interval minimum setting is 30 minutes, and maximum setting is 120 hours. And the interval step is 30 minutes. If the user wants to wake-up the device immediately, please remove the front cover, and press the Z-Wave button once. The device will wake-up for 10 seconds.

Z-WAVE CONFIGURATION SETTINGS

Please note:

- * All of the configuration, the data size is 1.
- * The configuration mark with star(*), means after the remove the setting still keep, don't reset to factory default. Unless the user execute the "RESET" procedure.
- * The reserve bit or not supported bit is allowed any value, but no effect.

NO: 2 • Name: Basic Set Level • Def: 0xFF • Valid Values: All
• Description: Setting the BASIC command value to turn on the light. The 0xFF(-1) means turn on the light. For dimmer equipment 1 to 100 means the light strength.

NO: 3 (*) • Name: PIR Sensitivity • Def: 80 • Valid Values: 0-99
• Description: PIR sensitivity settings. 0 means disable the PIR motion. 1 means the lowest sensitivity, 99 means the highest sensitivity. High sensitivity means can detected long distance, but if there is more noise signal in the environment, it will trigger too frequently.

NO: 4 • Name: Light Threshold • Def: 99 Valid Values: 0-100
• Description: Setting the illumination threshold to turn on the light. When the event triggered and the environment illumination lower than the threshold, the device will turn on the light. 0 means turn off illumination detected function. And never turn on the light. 1 means darkest. 99 means brightest. 100 means turn off illumination detected function. And always turn on the light. Notice: In none test mode, only the value in 1 to 99 will enable the illumination detected function and update the illumination value.

NO: 5 (*) • Name: Operation Mode • Def: 0 • Valid Values: All • Description: Operation mode. Using bit to control. Bit0: Reserve. Bit1: 1 means test mode, 0 means normal mode. Notice: This bit only effect by the DIP Switch setting to "customer mode", otherwise it decides by DIP Switch setting to Test or Normal Mode. Bit2: Disable the door/window function. (1:Disable, 0:Enable). Bit3: Setting the temperature scale. 0: Fahrenheit, 1:Celsius. Bit4: Disable the illumination report after event triggered. (1:Disable, 0:Enable). Bit5: Disable the temperature report after event triggered. (1:Disable, 0:Enable). Bit6: Reserve. Bit7: Disable the back key release into test mode. (1:Disable, 0:Enable).

NO: 6 (*) • Name: Multi-Sensor Function Switch • Def: 4 • Valid Values: All • Description: Multisensor function switch. Using bit to control.
• Def: 0 • Valid Values: All • Description: Bit0: Disable magnetic integrate illumination to turn ON the lighting nodes in the

association group 2. (1:Disable, 0:Enable). Bit1: Disable PIR integrate Illumination to turn ON the lighting nodes in the association group 2. (1:Disable, 0:Enable).

- **Def:** 1 • **Valid Values:** All • **Description:** Bit2: Disable magnet-ic integrate PIR to turn ON the lighting nodes in the association group 2. (1:Disable, 0:Enable) (Default is Disable).
- **Def:** 0 • **Valid Values:** All • **Description:** Bit3: When Bit2 is 0 (Enable), Are the device and the lighting in the same room? 0: In the same room(Default), 1: In the different room. Notice: If this bit is 1, it is recommended also set the Bit1 to 1, cause the PIR triggered, doesn't mean the people in that room. Bit4: Disable delay 5 seconds to turn off the light, when door/window closed. (1:Disable, 0:Enable). Bit5: Disable auto turn off the light, after door/window opened to turn on the light. (1:Disable, 0:Enable). Notice: If bit2 is zero, this setting is useless. Notice: If the configuration No. 9 is zero, this setting is useless.

NO.: 7 (*) • Name: Customer Function • **Def:** 16 • **Valid Values:** All • **Description:** Customer function switch, using bit control.

- **Def:** 0 • **Valid Values:** All • **Description:** Bit1: Enable sending motion OFF report. (0:Disable, 1:Enable). Note: Depends on the Bit4, 0: Report Notification CC, Type: 0x07, Event: 0xFE 1: Sensor Binary Report, Type: 0x0C, Value: 0x00.
- **Def:** 1 • **Valid Values:** All • **Description:** Bit2: Enable PIR super sensitivity mode. (0:Disable, 1:Enable).
- **Def:** 0 • **Valid Values:** All • **Description:** Bit3: Disable send out BASIC OFF after door closed. (1:Disable, 0:Enable). Bit4: Notification Type, 0: Using Notification Report. 1: Using Sensor Binary Report. Bit5: Disable Multi CC in auto report. (1:Disable, 0:Enable). Bit6: Disable report battery state when the device triggered. (1:Disable, 0:Enable).

NO.: 8 • Name: PIR Re-Detect Interval Time • **Def:** 3 • **Valid Values:** 1-127 • **Description:** In the normal mode, after the PIR motion detected, setting the re-detect time, 8 seconds per tick, default tick is 3 (24 seconds). Setting the suitable value to prevent received the trigger signal too frequently. Also can save the battery energy. Notice: If this value bigger than the configuration setting No. 9. There is a period after the light turned off and the PIR not start detecting.

NO.: 9 • Name: Turn Off Light Time • **Def:** 4 • **Valid Values:** 0-127 • **Description:** After turn on the lighting, setting the delay time to turn off the lighting when the PIR motion is not detected. 8 seconds per tick, default tick is 4 (32 seconds), 0 means never send turn off light command.

NO.: 10 • Name: Auto Report Battery Time • **Def:** 12 • **Valid Values:** 0-127 • **Description:** The interval time for auto report the battery level. 0 means turn off auto report battery. The default value is 12. The tick time can setting by the configuration No.20.

NO.: 11 • Name: Auto Report Door/Window Stave Time • **Def:** 12 • **Valid Values:** 0-127 • **Description:** The interval time for auto report the door/window state. 0 means turn off auto report door/window state. The default value is 12. The tick time can setting by the configuration No.20.

NO.: 12 • Name: Auto Report Illumination Time • **Def:** 12 • **Valid Values:** 0-127 • **Description:** The interval time for auto report the illumination. 0 means turn off auto report illumination. The default value is 12. The tick time can setting by the configuration No.20.

NO.: 13 • Name: Auto Report Temperature Time • **Def:** 12 • **Valid Values:** 0-127 • **Description:** The interval time for auto report the temperature. 0 means turn off auto report temperature. The default value is 12. The tick time can setting by the configuration No.20.

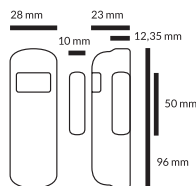
NO.: 20 • Name: Auto Report Tick Interval • **Def:** 30 • **Valid Values:** 0-0xFF • **Description:** The interval time for auto report each tick. Setting this configuration will effect configuration No.10, No.11, No.12 and No.13. Setting to 0 means turn off all auto report function.

NO.: 21 • Name: Temperature Differential Report • **Def:** 1 • **Valid Values:** 0-0x7F • **Description:** The temperature differential to report. 0 means turn off this function. The unit is Fahrenheit. Enable this function the device will detect every minutes. And when the temperature is over 140 degree Fahrenheit, it will

continue report. Enable this functionality will cause some issue please see the detail in the "Temperature Report" section.

NO.: 22 • Name: Illumination Differential Report • **Def:** 0 • **Valid Values:** 0-0x63 • **Description:** The illumination differential to report. 0 means turn off this function. The unit is percentage. Enable this function the device will detect every minutes. Enable this functionality will cause some issue please see the detail in the "Illumination Report" section.

DIMENSIONS



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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LIMITED WARRANTY STATEMENT

VEMMIO is not liable for any damages caused by the product or by the failure of the product to perform, including any lost profits, lost savings, incidental damages, or consequential damages. VEMMIO is not liable for any claim made by a third party or made by you for a third party.

This limitation applies whether damages are sought, or a claim made, under this warranty or as a tort claim (including negligence and strict product liability), a contract claim, or any other claim. This limitation can not be waived or amended by any person. This limitation of liability will be effective even if VEMMIO or an authorized VEMMIO'S representative has been advised by you of the possibility of any such damages.

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



The manufacturer Vemmio Sp. z o.o. declares under sole responsibility that the product:
 Marketing model: 4 in 1 Sensor
 Regulatory model: ML 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.



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 ones, the retailer is legally obligated to take back your old appliance for disposal at least for free of charge.

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