Aeotec
BY AEON LABS

Aeotec
BY AEON LABS

MULTISENSOR 6

View the expanded manual:
http://aeotec.com/support

IMPORTANT!

This product has been fully tested and certified to work with Z-Wave by the Z-Wave Alliance. It is crafted using Z-Wave Plus, the latest device version of Z-Wave. As such, if the product does not work with your gateway, please be sure to check with your gateway manufacturer that they have integrated this device with their gateway for full operation.

- 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.
- Consul the dealer or an experienced radio/TV technician for help.

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.

Certifications (regional):

FCC ID: XBAFT100

Version: 5010100000003-AA

www.aeotec.com

① Aeotec by Aeon Labs MultiSensor.

6 sensors. 1 impossibly small device.
The corner of your room just got 6 times smarter.

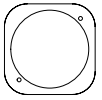
Aeotec by Aeon Labs' MultiSensor 6 looks like nothing that has come before. It's a motion sensor and it's also so much more. Installing this 1 piece of Z-Wave® technology is the same as installing 6 pieces of Z-Wave technology. Your home control network will immediately understand motion, temperature, humidity,light, Ultraviolet and Vibration readings wherever MultiSensor 6 is installed. Those intelligent readings will equate to intelligent automation. And intelligent automation will give you the perfect smart home.

② Familiarize yourself with your MultiSensor.

Your MultiSensor comes packaged with a number of accessories that will help with its installation and operation.

Package Contents:

1. MultiSensor
2. Battery Cover
3. Back-Mount Arm
4. Double-Sided Tape
5. Screws (×2)
6. Micro USB Cable



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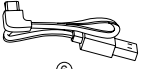

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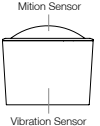

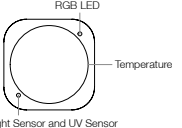

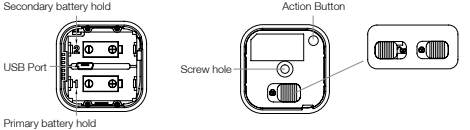

FCC NOTICE (for USA)

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

STORE INDOORS WHEN NOT IN USE. SUITABLE FOR DRY LOCATIONS. DO NOT IMMERSE IN WATER. NOT FOR USE WHERE DIRECTLY EXPOSED TO WATER.

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. 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 or more of the following measures:

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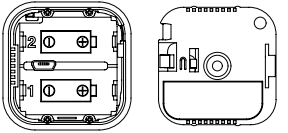
③ Quick start.

Setup your power.

Your Multisensor can be powered by battery or by USB. When Multisensor is paired to your Z-Wave network it must be powered by the intended power source of regular usage (when USB powered, the Z-Wave network knows that it can use Multisensor as a repeater). If at anytime you wish to switch power sources, you must remove Multisensor from your network, and pair it back into your network so that Z-Wave knows that Multisensor is a repeater. (In Z-Wave, battery operated devices cannot be used as a repeater; this is determined by Z-Wave at time of pairing.)

For a USB powered installation;

1. Remove the Battery cover via sliding the Unlock button and separating the two parts of your sensor.



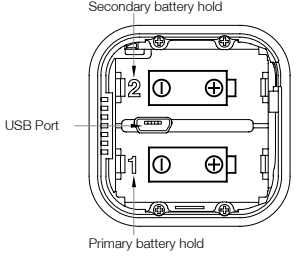
2. Insert the smaller end of the provided USB cable into your sensor's USB port.
3. Insert the larger end of the USB cable into a computer or adaptor. Your MultiSensor 6 is now powered on.

For a battery powered installation;

1. Remove your sensor's rear cover as shown in the previous step 1.
2. Insert two CR123A batteries orientated according to the diagram within your sensor. Your MultiSensor 6 is now powered on.

Note:

1. MultiSensor 6 can be powered by a single CR123A, though batteries will require changing more frequently. If powering your Sensor with a sole battery, insert it into the battery holder marked 1.
2. After your Sensor is powered on by USB or battery, it will need 20 minutes time to initialize the sensors first and then enter into the normal measurement mode.



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Aeon Labs warrants to the original purchaser of Products, that is the Company who you have purchased from, that for the Warranty Period (as defined below), the Products will be free from material defects in materials and workmanship. The foregoing warranty is subject to the proper installation, operation and maintenance of the Products in accordance with installation instructions and the operating manual supplied. Warranty claims must be made to the Company who you have purchased from in writing within thirty (30) days of the manifestation of a problem.

Aeon Labs' sole obligation under the foregoing warranty is, at Aeon Labs' option, to repair, replace or correct any such defect that was present at the time of delivery, or to remove the Products and to refund the purchase price to Company.

The Warranty Period begins on the date the Products is delivered and continues for 12 months. Any repairs under this warranty must be conducted by an authorized Aeon Labs service representative and under Aeon Labs' RMA policy. Any repairs conducted by unauthorized persons shall void this warranty.

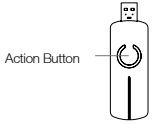
Excluded from the warranty are problems due to accidents, acts of God, civil or military authority, civil disturbance, war, strikes, fires, other catastrophes, misuse, misapplication, storage damage, negligence, electrical power problems, or modification to the Products or its components.

Aeon Labs does not authorize any person or party to assume

Adding your MultiSensor 6 to a Z-Wave network.

With it powered on, it's now time to add your MultiSensor 6 to a Z-Wave network.

If you're using a Z-Stick from Aeotec:



1. If your Z-Stick is plugged into a gateway or a computer, unplug it.
2. Take your Z-Stick to your MultiSensor 6.
3. Press the Action Button on your Z-Stick.
4. Press the Action Button on your MultiSensor.
5. You can test if your MultiSensor has been successfully included into your Z-Wave network by pressing its Action Button. If you press the button and your sensor's green LED is solid for a few seconds, then inclusion has been successful. If the green LED blinks when the button is pressed, the inclusion has been unsuccessful and you should repeat the above steps.
6. Press the Action Button on the Z-Stick to return it to inclusion mode. Return it to your gateway or computer.

If you're using a specific Z-Wave gateway you may need to refer to its user manual before proceeding:

1. Set your Z-Wave gateway to accept new products.
2. Press the Action Button on your MultiSensor 6.
3. Test that your sensor has been successfully added your Z-Wave gateway by pressing its Action Button. If you press the button and its LED is solid green for a few seconds, then inclusion has been successful. If the LED blinks green when the button is pressed, the inclusion has been unsuccessful and you should repeat the above steps.

Selecting a location for your MultiSensor.

MultiSensor 6 can bring its intelligent readings to many locations of your home. Before deciding on a location, there are some things you should first consider.

MultiSensor 6's motion sensor uses light and heat readings to determine motion; sudden light and heating changes can impact the sensor's quality of motion readings. As such, your sensor should not be installed in areas of artificial temperature change. Thus, when selecting a location, avoid placing it beside or near air conditioners, humidifiers, and heaters, and avoid positioning it directly opposite a window or direct sunlight.

If your MultiSensor 6 will be powered by batteries, you should avoid installing it in a location where the temperature can drop below 0°C / 32°F – this is below the batteries' working point.

Selecting a location for your sensor also depends on the layout of any area that you want monitored. Whatever the room or area, please

⑤ Technical specifications.

Model number: ZW100
Power supply: USB DC 5V or battery power(2×CR123A batteries, 3V, 1500mAh).
Operating temperature: 0°C to 40°C/32°F to 104°F.
Measured temperature range: -10°C to 50°C/14°F to 122°F. Accuracy: ±1.6°C/±3°F.
Measured humidity range: 20%RH to 80%RH. Accuracy: ±6%RH (at 25°C/77°F).
Lighting: 0 LUX to 30000 LUX.
Max motion sensitivity: 16 feet/5 metres.
Water proofing: IP20.
Operating distance: Up to 492 feet/150 metres outdoors.

⑥ Warranty.

If you are in need of any technical support during or subsequent to your products' warranty, please get in touch with our support team via http://aeotec.com/support. The Company you bought this product from has also guaranteed to assist you with any of your support needs, and you can also contact them for accordingly.

This guarantee made by the company who you purchased the product from includes the transfer of Aeon Labs' full warranty to that Company. They've guaranteed that they'll be able to assist you, the Customer, with all technical support and repair needs on our behalf.

MultiSensor when you use a controller/gateway to add/include your MultiSensor. The green LED will be on for 2 seconds and then the orange LED will fast blink for 10 minutes (if the MultiSensor does not receive the Wake Up No More Info command from primary Controller) to indicate the inclusion is successful.

Including MultiSensor as a secure device:

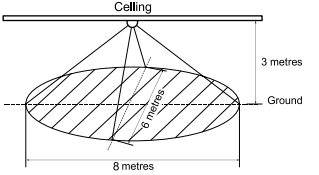
In order to take full advantage of all functionality the MultiSensor, you may want your MultiSensor is a security device that uses secure/ encrypted message to communicate in Z-wave network, so a security enabled controller/gateway is needed for the MultiSensor to be used as a security device. You need to press the MultiSensor's Action Button 2 times within 1 second when your security controller/ gateway starts the network inclusion. The blue LED will be on for 2 seconds and then the orange LED will fast blink for 10 minutes (if the MultiSensor does not receive the Wake Up No More Info command from primary Controller) to indicate the inclusion is successful.

Resetting your MultiSensor.

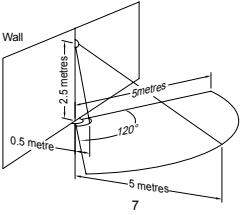
At some stage or your primary controller is missing or inoperable, you may also wish to reset all of your MultiSensor's settings to their factory defaults. To do this, press and hold the Action Button for 20 seconds and then release it. Your MultiSensor will now be reset to its original settings, and the green LED will be solid for 2 seconds and then be colourful gradient to confirm a success.

ensure that it fits with your sensor's effective motion sensing range as described in the following diagrams.

If installing MultiSensor 6 on a ceiling it can take measurements within a 3 x 6 x 8 metre / 10 x 20 x 26 feet range:



If installing MultiSensor 6 in a corner where the wall meets the ceiling it can take measurements within a 2.5 x 5 x 5 metres / 8 x 15 x 15 feet range:



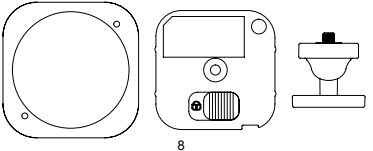
For optimal performance, your MultiSensor 6 should NOT be mounted directly on or near metal framing or other large metallic objects. Large metal objects may weaken the Z-Wave wireless signal MultiSensor 6 depends on for communication.

Physically install your MultiSensor.

With your MultiSensor 6 now a part of your Z-Wave network and having determined its installation location, it's time to finish its physical installation.

There are 2 ways that your MultiSensor 6 can be mounted on on a wall or ceiling. Most simply it can be placed upon a shelf without the need to attach further accessories. You can mount your sensor in a corner or against a wall or ceiling by using the Back-Mount Plate. It's also possible to embed your MultiSensor 6 within a ceiling or wall using its Recessor accessory (sold separately).

To install your MultiSensor 6;
Reattach the three parts of your MultiSensor to each other. Unlock the Battery Cover from the Sensor unit.



Waking up your MultiSensor.

If your MultiSensor is battery powered, you will need to ensure that it is active when configuring it. To do this, press the Action Button once, which will trigger to send out a wake up notification command. If you want it to wake up for 10 minutes, to do this, press and hold its Action Button for 3 seconds and then release it. Your MultiSensor's orange LED will fast blink for 10 minutes to indicate that it is active.

When you are done configuring or communicating with your MultiSensor, you can put it back into sleep mode to conserve battery power. To do this, press and hold its Action button for 3 seconds and then release it. Your MultiSensor's LED should now be off to indicate that it is asleep.

Tamper protection of your MultiSensor.

The MultiSensor contains a smart Vibration sensor in. When someone attempts to disassemble your MultiSensor, it can detect the vibration and send an alarm notification to the main controller and let you know.

Security or Non-security feature of your MultiSensor in Z-wave network.

Including MultiSensor as a non-secure device:
If you want your MultiSensor as a non-security device in your Z-wave network, you just need to press the Action Button once on

The table above shows a decimal representation of all flags that can be set on parameter 101-103 to report specific data.

Example use of the report table.
For example, if you want to report only the temperature and light sensor you would add 32 + 64 and set the sum (96) to parameter 101, 102, or 103.

As another example, if you want to report only the light sensor and battery, you would add 1 + 128, then set the sum (129) to parameter 101, 102, or 103.
And if you want to report all of the sensors, you would add the whole table together and set the sum (241) to parameter 101, 102, or 103.

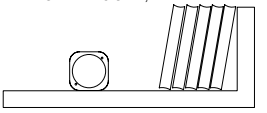
Setting an automatic report interval.

Parameter 111-113 [4 byte decimal] can be configured through your gateway in case the default settings of your MultiSensor are not what you desire.

Parameter 111 will set the interval for Group 1 (parameter 101), parameter 112 will set the interval for Group 2 (parameter 102), and parameter 113 will set the interval for Group 3 (parameter 103).

As an example, you have set parameter 101 to 241 which will report all of the sensors, and you want to report it every 1800 seconds. Set parameter 111 to 1800 to accomplish this.

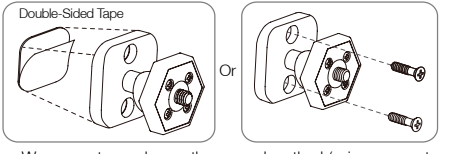
To install your MultiSensor 6 on a shelf;



You can place it upon a shelf without the need to attach further accessories.

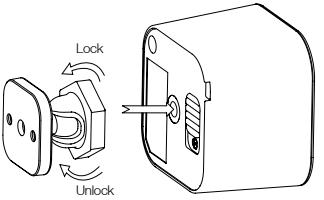
To install your MultiSensor 6 with the Back-Mount Plate;

1. You can affix the Back-Mount Arm by Double-Sided Tape or using the provided KA2.5×20 mm screws.

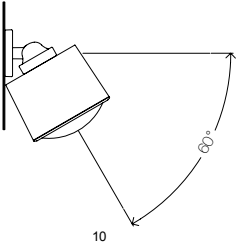


Tips: We suggest you choose the second method (using screws to affix the Back-Mount Arm) would be more stable.

2. After you have completed the affixing of Back-Mount Arm, you will need to lock the MultiSensor to the Back-Mount Arm by screwing the MultiSensor in.



3. The Back-Mount Arm may be locked at various angles by turning the Friction Lock clockwise and counter-clockwise to respectively tighten or loosen the angle of the arm. You can rotate the Friction Lock to change the measurement area of sensor.



For example, this parameter setting is initially set to 5 which is the maximum sensitivity level, if you set it to 1, the sensitivity will be the minimum sensitivity level. If set it to 0, the motion sensor will be disabled.

Monitoring temperature, humidity, luminance and ultraviolet.

Your MultiSensor can report temperature, humidity, luminancen and ultraviolet across a Z-Wave network when requested. If this function is supported by a controller, generally a gateway, the data will be displayed within its interface. The specific Z-Wave commands for the support of monitoring is the Multilevel Sensor Command Class. Automatic reports are sent to association group 1, which is setup via the Association Command Class. Please consult the controller's operation manual for specific instructions on setting your MultiSensor.

Setting automatic report flags.

Parameter 101-103 [4 byte dec] can be configured through your gateway in case the default settings of your MultiSensor are not what you desire.

Decimal	Flag
128	Light Sensor
64	Humidity Sensor
32	Temperature Sensor
16	Ultraviolet Sensor
1	Battery Sensor

Motion Sensor detects movement to control the associated devices to “OPEN” state. After 4 minutes by default, if the Motion Sensor is not triggered again, the MultiSensor will send Basic Set Command to these devices to set them to their “CLOSE” state. However, if the Motion Sensor is triggered again within 4 minutes, the MultiSensor will reset the timing and start timing again.
The 4 minutes delay time can be changed through the usage of Z-Wave commands built into Z-Wave certified controllers/ gateways. (The specific Z-Wave command supporting this function is Configuration Command Class) Please consult the operation manual for these controllers/gateways for specific instructions on configuring the MultiSensor.

Parameter 3 [2 byte decimal] can be configured through your gateway in case the default settings of your MultiSensor are not what you desire.

For example, this parameter setting is initially set to 240 which is the delay time in 4 minutes or 240 seconds. You may set the value to the desired Motion Sensor delay time to any amount of seconds as you like. So if you want the time out to be 5 minutes after the Motion Sensor is triggered, set this parameter to the value of 300.

Setting the sensitivity of your MultiSensor.

Parameter 4 [1 byte decimal] can be configured through your gateway in case the default settings of your MultiSensor are not what you desire.

④ Advanced functions.

Changing batteries.

Your MultiSensor has built in battery level detection. It will automatically report its battery level to the associated controller/gateway throughout its life until the battery is fully drained and needs replacing. The battery status will often be displayed in the user interface of the controller/ gateway.

When used properly in an optimised Z-Wave network, your MultiSensor can be powered by batteries for 24 months before battery replacement is necessary.

Recommendation: For networks which do not offer a method to display the battery level of your MultiSensor, it is recommended that the sensor be tested occasionally to ensure that the batteries still hold enough charge to operate. Batteries naturally lose their charge over time.

Outdoor installation.

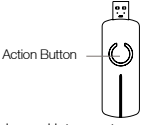
Please note that when installed outdoors of your home, your MultiSensor should only be relied on for temperature, light, humidity, and ultraviolet readings, where as the motion sensing capabilities should be disabled on your gateway in order to avoid false readings.

If selecting an outdoor location, it’s important to position your MultiSensor in a sheltered location. It is best if your MultiSensor is not directly exposed to rain, and is important that the humidity venting on your MultiSensor never is.

Removing your MultiSensor from a Z-Wave network.

Your MultiSensor can be removed from your Z-Wave network at any time.You'll need to use your Z-Wave network's main controller to do this and the following instructions tell you how to do this using Aeotec by Aeon Labs' Z-Stick and Minimote controllers. If you are using other products as your main Z-Wave controller, please refer to the part of their respective manuals that tells you how remove devices from your network.

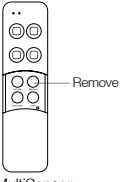
If you're using a Z-Stick:



1. If your Z-Stick is plugged into a gateway or a computer, unplug it.
2. Take your Z-Stick to your MultiSensor.
3. Press and hold the Action Button on your Z-Stick for 3 seconds and then release.
4. Press the Action Button on your MultiSensor.
5. If your MultiSensor has been successfully removed from your network, the RGB LED will be active with a colourful gradient for 3 seconds. When you press the Action Button on the MultiSensor, its green LED will blink. If the removal was unsuccessful, the green LED will stay solid for a few seconds when you press the Action Button.

6. Press the Action Button on the Z-Stick to take it out of removal mode.

If you're using a Minimote:



1. Take your Minimote to your MultiSensor.
2. Press the Remove Button on your Minimote.
3. Press the Action Button on your MultiSensor .
4. If your MultiSensor has been successfully removed from your network, the RGB LED will be active with a colourful gradient for 3 seconds. When you press the Action Button on the MultiSensor, its green LED will blink. If the removal was unsuccessful, the green LED will stay solid for a few seconds when you press the Action Button.
5. Press any button on your Minimote to take it out of removal mode.

Monitoring motion.

The MultiSensor can send Basic Set Command to association group 1, which is setup via the Association Command Class, when the

Association information

5.2 Association Command Class

The MultiSensor supports 1 association group.
Group 1 is assigned to the Lifeline association group and can add max 5 association nodes.
When the PIR motion sensor is triggered, the MultiSensor will send Basic Set (0xFF) to the associated nodes. If no PIR motion is triggered after the PIR interval time (configurable), the MultiSensor will send Basic Set (0x00) to the associated nodes.
The automatically reports of temperature, humidity, luminance and ultraviolet (configurable) also can be sent to the associated nodes.

Configuration paramters information

Parameter Number Hex / Decimal	Description	Default Value	Size
2 (0x02)	Enable/Disable waking up for 10 minutes when re-power on (battery mode) the MultiSensor. 0 = disable. 1 = enable.	0	1
3 (0x03)	1. The default PIR time is 4 minutes. The Multisensor will send BASIC SET CC (0x00) to the associated nodes if no motion is triggered again in 4 minutes. 2. Range: 10~3600. *Note:* 1. The time unit is second if the value range is in 10to 255. 2. If the value range is in 256 to 3600, the time unit will be minute and its value should follow the below rules: a. Interval time =Value/60, if the interval time can be divided by 60 and without remainder. b. Interval timer= (Value/60) +1, if the interval time can be divided by 60 and has the remainder. 3. Other values will be ignored.	240	2
4 (0x04)	Set the sensitivity of motion sensor. 0 = the current PIR sensitivity level=0. (minimum level) 1 = the current PIR sensitivity level=1. 2 = the current PIR sensitivity level=2. 3 = the current PIR sensitivity level=3. 4 = the current PIR sensitivity level=4. 5 = the current PIR sensitivity level=5. (maximum level)	5	1
5 (0x05)	Which command would be sent when the motion sensor triggered. 1 = send Basic Set CC. 2 = send Sensor Binary Report CC.	1	1
8 (0x08)	Set the timeout of awake after the Wake Up CC is sent out. The default value is 15.	15	1
9 (0x09)	Report the current power mode and the product state for battery power mode. Value1 (MSB): 0x00=USB power mode, 0x01=Battery power mode. Value2 (LSB): 0x00= keep sleep state for Battery power mode, 0x01=keep awake for 10 minutes for battery power mode. *Note:* this parameter cannot be used as Set usage.	N/A	2
39 (0x27)	Configure low battery value. Value=10 to 50. (10% to 50%), when the current battery level is lower than this value, it will send out the low battery alarm.	20 (%)	1
40 (0x28)	Enable/disable the selective reporting only when measurements reach a certain threshold or percentage set in 41-44 below. This is used to reduce network traffic. (0 = disable, 1 = enable) Note: If USB power, the Sensor will check the threshold every 10 seconds. If battery power, the Sensor will check the threshold when it is waken up.	0	1
41 (0x29)	Threshold change in temperature to induce an automatic report. *Note:* 1. The unit is Fahrenheit for US version, Celsius for EU/AU version. 2. High byte is the threshold value, Low byte is the unit (0x01=Celsius, 0x02=Fahrenheit). 3. The threshold value (high byte) contains one decimal point. E.g. if the value is set to 20 (0x001401), the threshold value =2.0 °C (EU/AU version) or if the value is set to 20 (0x001402), the threshold value= 2.0 °F (US version). When the current temperature gap is more then 2.0, which will induce a temperature report to be sent out.	20 (0x001401 for EU/AU/CN version. 0x001402 for US version)	3

42 (0x2A)	Threshold change in humidity to induce an automatic report. *Note:* 1. The unit is %. 2. The default value is 10, which means that if the current humidity gap is more than 10%, it will send out a humidity report.	10 (%)	1
43 (0x2B)	Threshold change in luminance to induce an automatic report.	100 (LUX)	2
44 (0x2C)	Threshold change in battery level to induce an automatic report. *Note:* 1. The unit is %. 2. The default value is 10, which means that if the current battery level gap is more than 10%, it will send out a battery report.	10 (%)	1
45 (0x2D)	Threshold change in ultraviolet to induce an automatic report.	2	1

46 (0x2E)	Enable/disable to send the alarm report of low temperature(<-15℃) Value=0, disable. Value=1, enable (The MultiSensor will send a report of Multi Level Temperature CC to controller if the current temperature is less than -15℃). Note: The battery activity will be reduced at low temperatures (-15 degrees Celsius and below), which will lead to the product may not work normally. It is recommended to use USB power at low temperatures.	0	1

48 (0x30)	Enable/disable to send a report when the measurement is more than the upper limit value or less than the lower limit value. Bit mask = 0, disable. Bit mask = 1, enable. Bit 0 = temperature. Bit 1 = humidity. Bit 2 = luminance. Bit 3 = ultraviolet. The above bit masks are used to enable/disable to send out a report when the measurement is less than the lower limit value. The below bit masks are used to enable/disable to send out a report when the measurement is more than the upper limit value. Bit 4 = temperature. Bit 5 = humidity. Bit 6 = luminance. Bit 7 = ultraviolet. *Note:* If USB power, the Sensor will check the limit every 10 seconds. If battery power, the Sensor will check the limit when it is waken up.	0	1
49 (0x31)	Set the upper limit value of temperature sensor. When the measurement is more than this upper limit, which will trigger to sent out a sensor report. High byte is the upper limit value. Low byte is the unit (0x01=Celsius, 0x02=Fahrenheit). 1. When unit is Celsius. Upper limit range: -40.0 to 100.0 ℃ (0xFE70 to 0x03E8). E.g. The default upper limit of EU/AU version is 28.0 ℃ (0x0118), when the measurement is more than 28.0℃, it will be triggered to send out a temperature sensor report. 2. When unit is Fahrenheit. Upper limit range: -40.0 to 212.0 ℉ (0xFE70 to 0x0848). E.g. The default upper limit of US version is 82.4℉ (0X0338), when the measurement is more than 82.4℉, it will be triggered to send out a temperature sensor report.	28.0℃ (0x011801) for CN/EU/AU version. 82.4℉ (0x033802) for US version.	3

50 (0x32)	Set the lower limit value of temperature sensor. When the measurement is less than this lower limit, which will trigger to sent out a sensor report. High byte is the lower limit value. Low byte is the unit (0x01=Celsius, 0x02=Fahrenheit). 1. When unit is Celsius. Lower limit range: -40.0 to 100.0 ℃ (0xFE70 to 0x03E8). E.g. The default lower limit of EU/AU version is 0 ℃ (0x0000), when the measurement is less than 0℃, it will be triggered to send out a temperature sensor report. 2. When unit is Fahrenheit. Upper limit range: -40.0 to 212.0 ℉ (0xFE70 to 0x0848). E.g. The default lower limit of US version is 32.0℉ (0x0140), when the measurement is less than 32.0℉, it will be triggered to send out a temperature sensor report.	0℃ (0x000001) for CN/EU/AU version. 32.0℉ (0x014002) for US version.	3
51 (0x33)	Set the upper limit value of humidity sensor. When the measurement is more than this upper limit, which will trigger to sent out a sensor report. Upper limit range: 0 to 100%. E.g. The default upper limit is 60%, when the measurement is more than 60%, it will be triggered to send out a humidity sensor report.	60%	1
52 (0x34)	Set the lower limit value of humidity sensor. When the measurement is less than this lower limit, which will trigger to sent out a sensor report. Lower limit range: 0 to 100%. E.g. The default lower limit is 50%, when the measurement is less than 50%, it will be triggered to send out a humidity sensor report.	50%	1
53 (0x35)	Set the upper limit value of Lighting sensor. When the measurement is more than this upper limit, which will trigger to sent out a sensor report. Upper limit range: 0 to 30000 Lux. E.g. The default upper limit is 1000Lux, when the measurement is more than 1000Lux, it will be triggered to send out a Lighting sensor report.	1000Lux	2
54 (0x36)	Set the lower limit value of Lighting sensor. When the measurement is less than this lower limit, which will trigger to sent out a sensor report. Lower limit range: 0 to 30000 Lux. E.g. The default lower limit is 100Lux, when the measurement is less than 100Lux, it will be triggered to send out a Lighting sensor report.	100Lux	2
55 (0x37)	Set the upper limit value of ultraviolet sensor. When the measurement is more than this upper limit, which will trigger to sent out a sensor report. Upper limit range: 1 to 11. E.g. The default upper limit is 8, when the measurement is more than 8, it will be triggered to send out a ultraviolet sensor report.	8	1
56 (0x38)	Set the lower limit value of ultraviolet sensor. When the measurement is less than this upper limit, which will trigger to sent out a sensor report. Lower limit range: 1 to 11. E.g. The default lower limit is 4, when the measurement is less than 8, it will be triggered to send out a ultraviolet sensor report.	4	1
57 (0x39)	Set the recover limit value of temperature sensor. *Note:* 1. When the current measurement <= (Upper limit – Recover limit), the upper limit report is enabled and then it would send out a sensor report when the next measurement is more than the upper limit. After that the upper limit report would be disabled again until the measurement <= (Upper limit – Recover limit). 2. When the current measurement >= (Lower limit + Recover limit), the lower limit report is enabled and then it would send out a sensor report when the next measurement is less than the lower limit. After that the lower limit report would be disabled again until the measurement >= (Lower limit + Recover limit). 3. High byte is the recover limit value. Low byte is the unit (0x01=Celsius, 0x02=Fahrenheit). 4. Recover limit range: 1.0 to 25.5 ℃/℉ (0x0101 to 0xFF01 or 0x0102 to 0xFF02). E.g. The default recover limit value is 2.0 ℃/℉ (0x1401/0x1402), when the measurement is less than (Upper limit – 2), the upper limit report would be enabled one time or when the measurement is more than (Lower limit + 2), the lower limit report would be enabled one time.	20 (0x1401 for EU/AU version. 0x1402 for US version)	2

58 (0x3A)	Set the recover limit value of humidity sensor. *Note:* 1. When the current measurement <= (Upper limit – Recover limit), the upper limit report is enabled and then it would send out a sensor report when the next measurement is more than the upper limit. After that the upper limit report would be disabled again until the measurement <= (Upper limit – Recover limit). 2. When the current measurement >= (Lower limit + Recover limit), the lower limit report is enabled and then it would send out a sensor report when the next measurement is less than the lower limit. After that the lower limit report would be disabled again until the measurement >= (Lower limit + Recover limit). 3. Recover limit range: 1 to 50% (0x01 to 0x32). E.g. The default recover limit value is 5%, when the measurement is less than (Upper limit – 5), the upper limit report would be enabled one time or when the measurement is more than (Lower limit + 5), the lower limit report would be enabled one time.	5	1
59 (0x3B)	Set the recover limit value of Lighting sensor. *Note:* 1. When the current measurement <= (Upper limit – Recover limit), the upper limit report is enabled and then it would send out a sensor report when the next measurement is more than the upper limit. After that the upper limit report would be disabled again until the measurement <= (Upper limit – Recover limit). 2. When the current measurement >= (Lower limit + Recover limit), the lower limit report is enabled and then it would send out a sensor report when the next measurement is less than the lower limit. After that the lower limit report would be disabled again until the measurement >= (Lower limit + Recover limit). 3. Unit = 10× Recover limit (Lux) 4. Recover limit range: 10 to 2550Lux (0x01 to 0xFF). E.g. The default recover limit value is 100 Lux, when the measurement is less than (Upper limit – 100), the upper limit report would be enabled one time or when the measurement is more than (Lower limit + 100), the lower limit report would be enabled one time.	100 Lux (0x0A)	1

60 (0x3C)	Set the recover limit value of Ultraviolet sensor. *Note:* 1. When the current measurement <= (Upper limit – Recover limit), the upper limit report is enabled and then it would send out a sensor report when the next measurement is more than the upper limit. After that the upper limit report would be disabled again until the measurement <= (Upper limit – Recover limit). 2. When the current measurement >= (Lower limit + Recover limit), the lower limit report is enabled and then it would send out a sensor report when the next measurement is less than the lower limit. After that the lower limit report would be disabled again until the measurement >= (Lower limit + Recover limit). 3. Recover limit range: 1 to 5 (0x01 to 0x05). E.g. The default recover limit value is 2, when the measurement is less than (Upper limit – 2), the upper limit report would be enabled one time or when the measurement is more than (Lower limit + 2), the lower limit report would be enabled one time.	2 (0x02)	1
61 (0x3D)	Get the out-of-limit state of the Sensors. Bit mask = 0, within the limit. Bit mask = 1, out of the limit. Bit 0 = temperature. Bit 1 = humidity. Bit 2 = luminance. Bit 3 = ultraviolet. The above bit masks are used to indicate whether the current measurements of the Sensors are out of the lower limit. The below bit masks are used to indicate whether the current measurements of the Sensors are out of the upper limit. Bit 4 = temperature. Bit 5 = humidity. Bit 6 = luminance. Bit 7 = ultraviolet.	-	1

64 (0x40)	Set the default unit of the automatic temperature report in parameter 101-103. 1 = Celsius. 2 = Fahrenheit.	1 for EU/AU/CN version. 2 for US version.	1
81 (0x51)	Enable/disable the LED blinking when the PIR is triggered. 0 = Enable. 1 = Disable.	0	1
100 (0x64)	Set 101-103 to default.	-	-
101 (0x65)	Which report needs to be sent in Report group 1 (See flags in table below).	241	4
102 (0x66)	Which report needs to be sent in Report group 2 (See flags in table below).	0	4
103 (0x67)	Which report needs to be sent in Report group 3 (See flags in table below).	0	4
110 (0x6E)	Set 111-113 to default.	-	-
111 (0x6F)	The interval time of sending reports in Report group 1 (Valid values 0x05-0x28DE80). 1. The unit of interval time is second if USB power. 2. If battery power, the minimum interval time is 60 minutes by default, for example, if the value is set to be more than 5 and less than 3600, the interval time is 60 minutes, if the value is set to be more than 3600 and less than 7200, the interval time is 120 minutes. You can also change the minimum interval time to 4 minutes via setting the interval value(3 bytes) to 240 in Wake Up Interval Set CC.	3600 (seconds)	4
112 (0x70)	The interval time of sending reports in Report group 2 (Valid values 0x05-0x28DE80). *Note:* 1. The unit of interval time is second if USB power. 2. If battery power, the minimum interval time is 60 minutes by default, for example, if the value is set to be more than 5 and less than 3600, the interval time is 60 minutes, if the value is set to be more than 3600 and less than 7200, the interval time is 120 minutes. You can also change the minimum interval time to 4 minutes via setting the interval value(3 bytes) to 240 in Wake Up Interval Set CC.	3600 (seconds)	4
113 (0x71)	The interval time of sending reports in Report group 3 (Valid values 0x05-0x28DE80). 1. The unit of interval time is second if USB power. 2. If battery power, the minimum interval time is 60 minutes by default, for example, if the value is set to be more than 5 and less than 3600, the interval time is 60 minutes, if the value is set to be more than 3600 and less than 7200, the interval time is 120 minutes. You can also change the minimum interval time to 4 minutes via setting the interval value(3 bytes) to 240 in Wake Up Interval Set CC.	3600 (seconds)	4
201 (0xC9)	Temperature calibration (the available value range is [-128,127] or [-12.8℃, 12.7℃]). *Note:* 1. High byte is the calibration value. Low byte is the unit (0x01=Celsius, 0x02=Fahrenheit) 2. The calibration value (high byte) contains one decimal point. E.g. if the value is set to 20 (0x1401), the calibration value is 2.0 ℃ (EU/AU version) or if the value is set to 20 (0x1402), the calibration value is 2.0 ℉ (US version) 3. The calibration value (high byte) = standard value - measure value. E.g. If measure value =25.3℃ and the standard value = 23.2℃, so the calibration value= 23.2℃ - 25.3℃= -2.1℃ (0xEB). If the measure value =30.1℃ and the standard value = 33.2℃, so the calibration value= 33.2℃ - 30.1℃=3.1℃ (0x1F).	0x0001 (EU/AU version). 0x0002 (US version).	2
202 (0xCA)	Humidity sensor calibration (the available value range is [-50, 50]). The calibration value = standard value - measure value. E.g. If measure value =80%RH and the standard value = 75RH, so the calibration value= 75RH – 80RH= -5RH (0xFB). If the measure value =85RH and the standard value = 90RH, so the calibration value= 90RH – 85RH=5RH (0x05).	0	1
203 (0xCB)	Luminance sensor calibration (the available value range is [-1000, 1000]). The calibration value = standard value - measure value. E.g. If measure value =800Lux and the standard value = 750Lux, so the calibration value= 750 – 800= -50 (0xFFCE). If the measure value =850Lux and the standard value = 900Lux, so the calibration value= 900 – 850=50 (0x0032).	0	2

204 (0xCC)	Ultraviolet sensor calibration (the available value range is [-10, 10]). The calibration value = standard value - measure value. E.g. If measure value =9 and the standard value = 8, so the calibration value= 8 – 9= -1. (0xFE). If the measure value =7 and the standard value = 9, so the calibration value= 9 – 7=2 (0x02).	0	1
252 (0xFC)	Enable/disable Configuration Locked (0 =disable, 1 = enable).	0	1
255 (0xFF)	Value=0x55555555, Default=1, Size=4 Reset to factory default setting and removed from the z-wave network	N/A	4
	Reset to factory default setting	N/A	1

Configuration Values for Parameter 101-103:

	7	6	5	4	3	2	1	0
configuration Value 1(MSB)	Reserved							
configuration Value 2	Reserved							
configuration Value 3	Reserved							
configuration Value 4(LSB)	Luminance	Humidity	Temperature	Ultraviolet	Reserved	Reserved	Reserved	Battery