aërQ Temperature and Humidity Sensor user guide.

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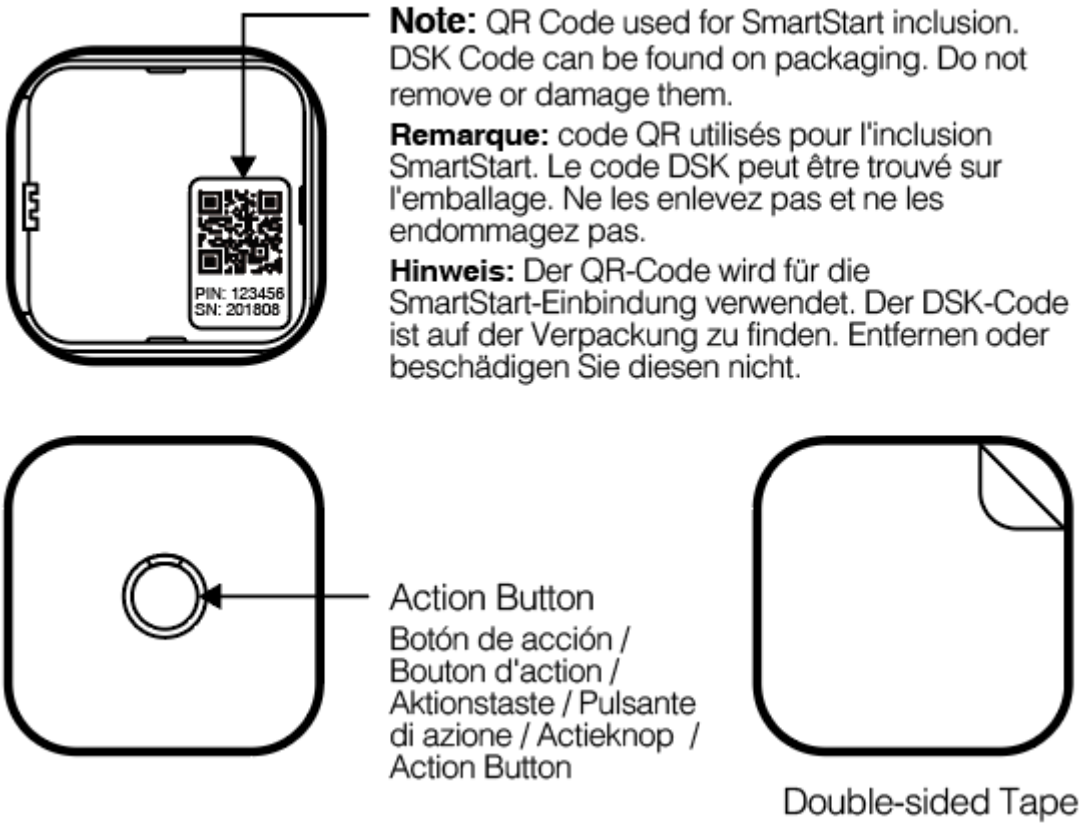
(https://www.youtube.com/watch?v=G2oRuw7L17s)

Aeotec aërQ Temperature and Humidity Sensor was developed to record ambient values for humidity and temperature to warn of environment that is ideal for mold growth via Z-Wave communication. It is powered by (https://www.popp.eu/products/)Aeotec **Gen7** (https://aeotec.com/z-wave-home-automation/z-wave-gen7.html) (http://aeotec.com/z-wave-gen5)technology. The **technical specifications** (https://aeotec.freshdesk.com/a/solutions/articles/6000227919) **of aërQ Temperature and Humidity Sensor** (https://aeotec.freshdesk.com/a/solutions/articles/6000227919) can be viewed at that link.

Before purchasing make sure to contact your Z-Wave Gateway/Controller manufacturer to determine if this device is compatible, typically most Z-Wave gateways will be generically compatible to Switch and Sensor type devices. You can find a list of known **compatible Gateway/Controllers in this link** (https://aeotec.com/z-wave-gateways/).

Familiarize yourself with your AerQ Sensor.



Package contents

1x aërQ Temperature and Humidity Sensor
1x Battery typ CR2477H 3V
1x Paper guide
1x Double-sided Tape for Magnet.

Button Functions.

The Environment Sensor must support the following button functions.

Push Type	Function	Description
Long Press 10s	Reset	Initiates Device Reset Locally. The Green LED will flash once every seconds for 5 seconds. **Success:** If ending LED is green after 10 seconds, the factory reset was a success. **Failure:** If ending LED is red after 10 seconds, the factory reset was a failure.

Push Type	Function	Description
Short Press	Mold environment detection and Wakeup Report.	**Mold Environment Detection:** Force an immediate measurementment of the environment and change indication based on the danger level from temperature and humidity levels. **Wakeup Report:** A Wakeup Report will be sent to the Z-Wave controller/hub to allow queued commands to be sent to aerQ sensor. If using selective reporting, temperature and humidity will update using the threshold levels.
3 x Short Press	Sequence	Used to pair or unpair the aërQ Temperature and Humidity Sensor.

Quick start.

Getting your aërQ Sensor up and running is as simple as installing it and linking it to your Z-Wave network. The following instructions tell you how to add your AerQ Sensor to your Z-Wave network using an existing gateway.

Installation of aërQ Sensor.
aërQ Sensor utilizes double-sided adhesive tape to allow you to mount aërQ Sensor onto any flat surface.

1. Place the double-sided adhesive on the bottom of aërQ Sensor
2. Choose a place to stick aërQ Sensor and firmly press down to finish the mounting installation.
3. Remove aërQ Sensor from its mount to prepare aërQ Sensor for pairing.

Using an existing gateway.

SmartStart Inclusion.
You can use this method of inclusion only if your Z-Wave gateway/controller/hub supports SmartStart.

1. Open up your Z-Wave gateway/controller/hub interface.
2. Select SmartStart inclusion. (Please refer to your controller/gateway manual on how to do this).
3. Scan the QR code located on the aërQ Sensor.
4. Within 10 minutes after powering your aërQ Sensor, it will automatically get included into your Z-Wave gateway/controller/hub.

Classic Inclusion
Use this method if SmartStart is not supported by your Z-Wave gateway/controller/hub.

1. Place your gateway or controller into Z-Wave pair or inclusion mode. (Please refer to your controller/gateway manual on how to do this).
2. Tap the Tamper Switch on aërQ Sensor 3x times within 1 second.
3. Your gateway should confirm if aërQ Sensor is successfully included into your network.
4. Place the AerQ Sensor on the mounting base.

Product Usage.

This device will start monitoring all air parameters once paired to your Z-Wave network. The measurement of air happens once every 15 minutes, while tapping the Tamper Switch once will force an immediate measurement and change indication based on the danger level.

LED Indicators.

aërQ Sensors LED indications when powered and in use.

When unpaired.

Red LED blinks every second - Waiting to be paired.
Red and Green LED blink every second - Entered pairing process.
Solid Green LED for 1.5 seconds - successful pair.
Solid Red LED for 1.5 seconds - failed pair.

When paired.

Green LED - Environment is good.
Red LED - Environment is ideal for mold growth.
Red blinks 3 times, Green blinks once - Low battery.

Reported sensors.

Humidity: +/- 3 % on relative humidity, +/-1 %
Hysteresis Temperature: 0 ... 65 °C +/- 1 Kelvin
Dew Point: 0 ... 65 °C +/- 1 Kelvin (calculated from other sensor values)

Wireless Reports and Command Class.

The measured values of Humidity and Temperature are reported to your Z-Wave gateway, below are the primary command class used to report the sensor values.

Main command classes and descriptions.

Each command class will output specific values to your Z-Wave gateway, below is a brief sliver of information that should be displayed in your controller if it is supported.

Binary Sensor V2

Reports ON / 0xFF if humidity is greater than 70%.
Reports OFF / 0x00 if humidity is less than 70%.

Multilevel Sensor V11

Air temperature

Scale = Celcius
Precision = 1
Size = 2

Humidity

Scale = Percentage
Precision = 0
Size = 2

Dew point

Scale = Celcius
Precision = 1
Size = 2

Advanced functions.

Communication with a Sleeping device (Wakeup).

This device is battery operated and utilizes a deep sleep state most of the time to save battery life. Communication with the device is limited. In order to communicate with the aërQ Sensor, a Z-Wave controller is needed in the network.

This device will wakeup regularly and report a wakeup state by sending out a Wakeup Report. The controller can then send out queued commands for the aërQ Sensor to control it before it goes back to sleep.

If the device was included by a Z-Wave controller, the controller will usually perform all necessary configurations. The wakeup interval is a trade-off between maximal battery lifetime and the desired responses of the device.

Steps to wakeup aërQ Sensor:

1. Unlatch aërQ Sensor from its mounting base.
2. Tap the Tamper Switch once to wakeup AerQ Sensor.

Removing your aërQ Sensor from a Z-Wave network.

aërQ Sensor can be removed from your Z-Wave network at any time. You'll need to use an existing Z-Wave network to do this and the following instructions which will tell you how to do this using your existing Z-Wave Network.

This method can be used with any Primary Z-Wave Controller even if it is not directly paired to aërQ Sensor.

Using an existing gateway.

1. Place your gateway or controller into Z-Wave unpair or exclusion mode. (Please refer to your controller/gateway manual on how to do this)
2. Remove the cover of aërQ Sensor.
3. Tap the Tamper Switch on aërQ Sensor 3x times within 1 second.
4. Your gateway should confirm if AerQ Sensor is successfully excluded from your network.
The LED of aerQ Sensor will blink its red LED once per a second to confirm it is ready to be paired again.

Manually Factory reset aërQ Sensor.

This device also allows being reset without any involvement of a Z-Wave controller. This procedure should only be used when the primary controller is inoperable otherwise your controller will be left with a phantom node that does not exist.

1. Remove the cover of aërQ Sensor.
2. Push the tamper switch for 5 seconds or until the LED turns into a green color.
3. Release the tamper switch.
4. Immediately press and hold the tamper switch for another 5 seconds until the LED stops blinking.

Association Groups.

Group Association is a specific function in Z-Wave that allows you to tell aërQ Sensor who it can speak to. Some devices may only have 1 group association meant for the gateway, or multiple group associations that can be used for specific events. This type of function isn't used too often, but when it is available, you may be able to use it to directly communicate to Z-Wave devices instead of controlling a scene within a gateway which can have unforeseen delays.

Some gateways have the ability to set Group Associations to devices that have these special events and functions. Typically this is used to allow your gateway to update the status of aërQ Sensor instantly.

By default, your primary gateway should have been associated with aërQ Sensor automatically during the pairing of your Siren. For any case you have a Secondary Z-Wave Controller, you'll need to associate it to your aërQ Sensor in order for your secondary controller to update its status.

Group Number	Maximum Nodes	Description	Parameter # reference
1	5	Lifeline	N/A
2	5	Temperature High Trigger	5, 10
3	5	Temperature Low Trigger	6, 9
4	5	Humidity High Trigger	7, 12
5	5	Humidity Low Trigger	8, 11
6	5	Air Temperature	N/A

Configuration Parameters.

Parameter 1: Minimum Temperature change to report.

This value defines the minimum change of temperature to cause an unsolicited report of humidity to the central controller using Lifeline.
If the value is set to 0, there will be no reports sent to the controller, when the temperature changes. However, periodic reports, managed by configuration parameter 4, may still be active.
Size: 1 Byte, Default Value: 20

Setting	Description
1 - 100	1/10 degree
0	disabled

Parameter 2: Minimum humidity change to report.

This value defines the minimum change of humidity to cause an unsolicited report of humidity to the central controller using Lifeline.
If the value is set to 0, there will be no reports sent to the controller, when the humidity changes.
However, periodic reports, managed by configuration parameter 4, may still be active.
Size: 1 Byte, Default Value: 7

Setting	Description
1 - 20	%

Setting	Description
0	disabled

Parameter 4: Periodic Reports.

This parameter defines the time interval to send an unsolicited report.
If the value is set to 0, there will be no periodic reports sent to the controller.
However, reports on temperature/humidity changes, managed by configuration parameters 1 and 2, may still be active.
Size: 2 Byte, Default Value: 43200

Setting	Description
900 - 65535	Seconds
0	disabled

Parameter 5: Temperature Upper Watermark value.

This parameter defines a temperature.
If the measured temperature surpasses this watermark a BASIC command is sent into Association Group 2.
The value of BASIC SET is defined by parameter 10.
Size: 2 Byte, Default Value: 0

Setting	Description
1 - 1000	1/10 degree
0	disabled

Parameter 6: Temperature Lower Watermark value.

This parameter defines a temperature.
If the measured temperature dropps below this watermark a BASIC command is sent into Association Group 3.
The value of BASIC SET is defined by parameter 9.
Size: 2 Byte, Default Value:

Setting	Description
200 - 1000	1/10 degree
0	disabled

Parameter 7: Humidity Upper Watermark value.

This parameter defines the relative humidity.
If the measured relative humidity surpasses this watermark a BASIC command is sent into Association Group 4.
The value of BASIC SET is defined by parameter 12.
Size: 1 Byte, Default Value: 0

Setting	Description
10 - 100	%
0	disabled

Parameter 8: Humidity Lower Watermark value.

This parameter defines a relative humidity.
If the measured temperature drops below this relative humidity a BASIC command is sent into Association Group 5.

The value of BASIC SET is defined by parameter 11.
Size: 1 Byte, Default Value:

Setting	Description
1 - 90	%
0	disabled

Parameter 9: Low Temperature Trigger BASIC Set Command Value.

This defines what BASIC SET command value shall be sent out into association group 3.
Value meaning:
255 = ON.
0 = OFF.
1 - 100 = Defines a level between 0 - 100% if controlling dimmers.
Size: 1 Byte, Default Value: 255

Setting	Description
0 - 255	Value

Parameter 10: High Temperature Trigger BASIC Set Command Value

This defines what BASIC SET command value be sent out into association group 2.
Value meaning:
255 = ON.
0 = OFF.
1 - 100 = Defines a level between 0 - 100% if controlling dimmers.
Size: 1 Byte, Default Value: 0

Setting	Description
0 - 255	Value

Parameter 11: Low Humidity Trigger BASIC Set Command Value.

This defines what BASIC SET command value shall be sent out into association group 5.
Value meaning:
255 = ON.
0 = OFF.
1 - 100 = Defines a level between 0 - 100% if controlling dimmers.
Size: 1 Byte, Default Value: 255

Setting	Description
0 - 255	Value

Parameter 12: High Humidity Trigger BASIC Set Command Value.

This defines what BASIC SET command value shall be sent out into association group 4.
Value meaning:
255 = ON.
0 = OFF.
1 - 100 = Defines a level between 0 - 100% if controlling dimmers.
Size: 1 Byte, Default Value: 0

Setting	Description
0 - 255	Value

Parameter 13: Offset value for Mold environment notification

This value allows to increase the humidity threshold for ideal mold environment notification by max 10%. (default 0 value will set to trigger at humidity levels above 70%)
Size: 1 Byte, Default Value: 0

Setting	Description
0 - 10	%

Parameter 64: Temperature Scale

This parameter sets the temperature scale.

Size: 1 Byte, Default Value: 1

Setting	Description
1	Celsius
2	Fahrenheit

Parameter 255: Reset Parameter

This parameter helps reset configuration parameters and the device to factory defaults.
Size: 4 Byte, Default Value: 0

Setting	Description
1	Reset all Parameter settings to their default settings.
1431655765	Completely factory reset sensor and send device reset locally notification.