

aërQ Temperature and Humidity Sensor user guide.

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Aeotec aërQ Temperature and Humidity Sensor was developed to record ambient values for humidity and temperature to warn of environment that is ideal for mould growth via Z-Wave communication. It is powered by Aeotec Gen7 technology. The technical specifications of aërQ Temperature and Humidity Sensor 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.

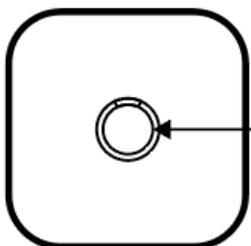
Familiarize yourself with your aërQ Sensor.



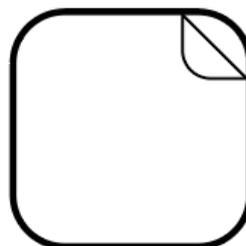
Note: QR Code used for SmartStart inclusion. DSK Code can be found on packaging. Do not remove or damage them.

Remarque: code QR utilisés pour l'inclusion SmartStart. Le code DSK peut être trouvé sur l'emballage. Ne les enlevez pas et ne les endommagez pas.

Hinweis: Der QR-Code wird für die SmartStart-Einbindung verwendet. Der DSK-Code ist auf der Verpackung zu finden. Entfernen oder beschädigen Sie diesen nicht.



Action Button
Botón de acción /
Bouton d'action /
Aktionstaste / Pulsante
di azione / Actieknop /
Action Button



Double-sided Tape

Package contents

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

Button Functions.

The Environment Sensor must support the following button functions.

Push Type	Function	Description
Long Press 10s	Reset	<p>Initiates Device Reset Locally. The Green LED will flash once every seconds for 5 seconds.</p> <p>Success: If ending LED is green after 10 seconds, the factory reset was a success.</p> <p>Failure: If ending LED is red after 10 seconds, the factory reset was a failure.</p>
Short Press	Ideal Mould environment sense and Wakeup Report.	<p>Ideal Mould Environment sense: Force an immediate measurement of the environment and change indication based on the danger level from temperature and humidity levels. If humidity levels are high enough, the aërQ sensor will report Binary Sensor Report to indicate that.</p> <p>Wakeup Report: A Wakeup Report will be sent to the Z-Wave controller/hub to allow queued commands to be sent to aërQ sensor.</p> <p>If using selective reporting, temperature and humidity will update using the threshold levels.</p>
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 aërQ Sensor to your Z-Wave network using an existing gateway.

How to open aërQ Sensor.

There are 2 small indented arrows on the side of your aërQ Sensor that indicate where you need to push in in order to open up aerQ Sensor.

1. Find the 2 indented arrows along the side of your aerQ Sensor.
2. Place your thumb and index finger on the 2 indented arrows and push in.

- **If attached to a wall** - pull the aërQ sensor which will separate it from the bottom half.
- **If not attached to a wall** - use your other hand to grip the bottom half of the sensor and pull the 2 sides apart, the 2 halves will split apart.

Remove the battery tab.

aërQ Sensor has a battery tab in this unit to keep the unit from utilizing the battery when it is first purchased. Make sure that you remove this tab before you continue with the installation.

1. Open up the aërQ Sensor to expose the battery.
 - Locate the indented arrows and grip the top and bottom half and pull them apart.
2. Remove the battery and the battery block tab from the unit.
3. Recycle or trash the battery block tab.
4. Replace the battery back into its hardware with + side facing outwards.

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 aërQ 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 and **Green** LED blink every second - Entered pairing process (you may not see this if gateway and aërQ Sensor sync quickly together)

Solid Green LED for 1.5 seconds - successful pair.

Solid Red LED for 1.5 seconds - failed pair upon timeout.

When paired.

Green LED - Environment is good.

Red LED - Environment is ideal for mould 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 button once to wakeup aërQ 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. Tap the button on aërQ Sensor 3x times within 1 second.
3. Your gateway should confirm if aërQ Sensor is successfully excluded from your network.

The LED of aërQ 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. Push the button of aërQ Sensor for 20 seconds.

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.

Temperature is checked once every 15 minutes to determine if it should be reported based on this setting.

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.

Humidity is checked once every 15 minutes to determine if it should be reported based on this setting.

Size: 1 Byte, Default Value: 7

Setting	Description
1 - 20	%
0	disabled

Parameter 3: Check interval for minimum change on parameters 1 and 2. (ZWA039 V2.0 or higher)

This value determines how often aerQ Sensor checks for minimum change in temperature or humidity on Parameter 1 and 2 or when the Sensor wakes up by button pressing. Value is set in minutes.

Size: 1 Byte, Default Value: 15

Setting	Description
1 - 255	Minutes

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

ZWA009 V1.X

Setting	Description
900 - 65535	Seconds
0	disabled

ZWA039 V2.0 and higher

Setting	Description
30 - 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 drops 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
1 - 90	%
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 Mould environment notification

This value allows to increase the humidity threshold for ideal mould 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 14: Offset value for Temperature (ZWA039 V2.0 or higher)

Can add or minus this setting value to calibrate temperature when checked.

Scale is defined by Param 64. e.g. Value 15 means 1.5C or 1.5F.

Size: 2 Byte, Default Value: 0

Setting	Description
-200 - 200	-20° - 20°

Parameter 15: Offset value for Humidity (ZWA039 V2.0 or higher)

Can add or minus this setting value to calibrate humidity when checked.

Size: 1 Byte, Default Value: 0

Setting	Description
-50 - 50	%

Parameter 16: Check interval for Upper/ Lower Watermark value on Parameter 5 ,6,7 and 8. (ZWA039 V2.0 or higher)

This value determines how often aerQ Sensor checks for upper/lower watermark value in temperature or humidity on Parameter 5 ,6,7 and 8.

Size: 1 Byte, Default Value: 15

Setting	Description
1 - 255	Minutes

Parameter 64: Temperature Scale

This parameter sets the temperature scale.

Size: 1 Byte, Default Value: 1

Setting	Description
1	Celsius
2	Fahrenheit

Parameter 65: Sensor report after inclusion. (ZWA039 V2.0 or higher)

This value determines which sensor report will be sent after the inclusion is complete.

Size: 1 Byte, Default Value: 15.

Setting (bit field) Description 1+2+4+8=15

Setting	Description
1	Bit 0 Battery report. (0 = disable, 1 = enable)
2	Bit 1 Temperature sensor report. (0 = disable, 1 = enable)
4	Bit 2 Humidity sensor report. (0 = disable, 1 = enable)
8	Bit 3 Dew point sensor report. (0 = disable, 1 = enable)

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 – 4294967294	Reset all Parameter settings to their default settings.
4294967295	Completely factory reset sensor and send device reset locally notification.

aërQ Temperature and Humidity Sensor technical specification.

Modified on: Mon, 26 Jul, 2021 at 1:02 PM

This page lists the technical specifications for aërQ Temperature and Humidity Sensor and forms part of the larger aërQ Temperature and Humidity Sensor user guide.

Name: aërQ Temperature and Humidity Sensor

Model number:

ZWA009-A - US

ZWA009-B - AU

ZWA009-C - EU

Radio frequency:

868.4 MHz EU

908,4 MHz US

921,4 MHz AU

Packaging Dimensions: 62 x 68 x 30 mm

Product Dimensions: 35 x 35 x 18 mm

Product Weight: 21g

Weight of product and package: 77g

UPC/EAN:

US: 810667025298

EU: 1220000016644

Z-Wave Chip: ZGM130

Radio protocol: Z-Wave

Z-Wave Plus Certified: Yes

Security: S2 native

Z-Wave Version: Series 700 and Gen7

Z-Wave SDK: 7.12 or later

QR Code Inclusion: SmartStart native

Device Type: Notification Sensor

Generic Device Class: Generic Type Sensor Notification (0x07)

Specific Device Class: Specific Type Notification Sensor (0x01)

Network Operation: Reporting Sleeping Slave

Repeater: No

Beaming: No

FLiRs: No

Power supply: No

Battery: CR2477 3V Lithium (LiMnO₂)

Battery life: With factory default setting up to 2 years.

Humidity range: 0 to 80% RH ($\pm 3\%$)

Temperature range: -10 to 65°C ($\pm 0.8^\circ\text{C}$) / 14 to 149°F ($\pm 1.44^\circ\text{F}$)

Dew point range: -10 to 65°C ($\pm 0.8^\circ\text{C}$) / 14 to 149°F ($\pm 1.44^\circ\text{F}$)

Operating humidity: 10 to 95%

Operating temperature: 0°C to 45°C / 32°F to 113°F

Storage temperature: -30°C to 70°C / -20°F to 158°F

Water proofing: IP20 rating

Operating distance:

More than 50 meters indoors / More than 164 feet indoors.

Up to 150 meters outdoors / Up to 492 feet outdoors.

Specifications subject to change without notice due to continuing product improvement.