

# User Manual

## Water Sensor 7 Pro



**REVISION RECORD**

Version	Date	Brief description of changes
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0.1	2021.10.08	First revision.
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# 1 OVERVIEW

The AEOTEC Water Sensor 7 Pro is a sensor, which detects water leakage, measures temperature and humidity. The sensor is easily retrofittable.

Thanks to its slim design the AEOTEC Water Sensor 7 Pro can be installed in any bathroom, behind a kitchen sink or in any other tight space. The sensor just has to be installed on the wall and the sensor probe must be put on the floor.

By using the internal temperature and humidity sensor, the device will report on any significant change.

Tripple clicking the tamper button includes (adds) and excludes (removes) the device. A single click on the button will wake up the device. The device supports the Z-Wave Security S2 framework with authenticated and unauthenticated network keys. Please follow the instructions on the central controller when including. The device also supports SmartStart.



Terminology	Description
tamper switch	Used for networking ,resetting and protecte the device.
Led (Green, Red)	Used for indicating the current state of the product.
water probe	A probe is connected to product with wire and used to test water leakage state.

## 2 SPECIFICATIONS

### 2.1 Structural

Parameter	Value
Product Identifier	ZWA019
Dimensions	28x95x35mm
Weight	Main Part: 20g Water Probe: 3g
Color	White
Usage	For indoor use.
Operating Temperature	32~104°F (0~40°C)
Relative Humidity	8%~80%

### 2.2 Hardware

Parameter	Value
Z-Wave Module	ZGM130S
Z-Wave TX Power	Max: 13dBm
Z-Wave Antenna Distance	40m (Indoor) /150m (Outdoor)
Indicator Light Color	Green, Red
Buttons and Connectors	Tamper Button (x1), Water Detecting Head(x1)
Input Voltage	3.0V Lithium battery
Battery Type	1*1/2AA
Battery Included	Yes. 1pcs battery included.
Battery Required	Yes. 1pcs battery required.
Battery Info	Model: ER14250 1/2AA Capacity: 1200mAh Detachable: Yes Chargeable: No Endurance: 2 years
Working Current	30mA
Standby Current	5uA
Maximum Standby Power Consumption	0.03mW
Maximum transmission	5mW
Built-in Sensors	Humidity Temperature Sensor

### 2.3 Software

Parameter	Value
Wireless Technology	Z-Wave
Certification Type	Z-Wave Plus v2 Certification
Z-Wave SDK Version	7.15.4
Z-Wave Library Type	Enhanced 232 Slave
Z-Wave Role Type	Reporting Sleeping Slave[0x06]
Generic Product Type	GENERIC_TYPE_SENSOR_NOTIFICATION [0x07]
Specific Product Type	SPECIFIC_TYPE_NOTIFICATION_SENSOR [0x01]
Security Class	Non-Security, S2 Unauthenticated, and S2 Authenticated
SmartStart Compatible	Support. After powering on, SmartStart is auto activated.
Over The Air (OTA)	Support. Firmware can be updated via RF.
Multi Channel Product	No

Association	Support. Refer to Section 4.7 Association Group Info.
Factory Reset	Support. Refer to Section 3.7 How to factory reset.
Power-down Memory	Support. All command settings will stay unchanged even power down.
Sensor State Report	Support. Send out notification via Group 1 when Water Leakage Start or Stop.
Control other product	Support. Control other Z-Wave product directly via Association Group 2 when water leakage state change Start or Stop.

## 3 QUICK START

### 3.1 Important safety information

Please read this manual carefully. Failure to follow the recommendations in this manual may be dangerous or may violate the law. The manufacturer, importer, distributor and seller shall not be liable for any loss or damage resulting from failure to comply with the instructions in this manual or any other material. Use this equipment only for its intended purpose. Follow the disposal instructions. Do not dispose of electronic equipment or batteries in a fire or near open heat sources.

### 3.2 Optimally placing the product

This is a secure **Alarm Sensor**. To run this device please insert fresh **1 \* 1/2 AA** batteries. Please make sure the internal battery charge is full . The DSK for the S2 inclusion can be found inside the sensors packaging.

If your Z-Wave gateway supports SmartStart: scan the QR code on product using the gateway's app. Your sensor will join your Z-Wave network automatically.

### 3.3 How to install the product

The sensor can be mounted on the wall. Mounting can be accomplished either using the tape by peeling off the protection foil or using two screws with the holes inside the battery compartment.

Water Sensor probe which is hardwired to the Main Unit must be put on the floor or onto any other surface, where water leakage must be detected.

### 3.4 How to add the product

The following will step you through adding the product to your Z-Wave network.

1. Open the housing.
2. Remove the battery protection.
3. Press the tamper on the side of the appliance three times quickly.

### 3.5 How to remove the product

1. Open the housing.
2. Press the tamper on the side of the appliance three times quickly.

### 3.6 How to manually trigger Wake Up

1. A single click on the button will wake up the device.
2. Repower on will wake up the device.

#### **Note:**

The Wake Up period starts when the node issues a Wake Up Notification and it ends either 10 seconds after the last received/transmitted frame or at the reception of a Wake Up No More Information Command by the Wake Up destination.

### **3.7 How to factory reset**

This device also allows to be reset without any involvement of a Z-Wave controller. This procedure should only be used when the primary controller is inoperable.

Once Cover is removed and the tamper switch is tripped, push the tamper for 5 seconds until the RED LED blinks once. Then release tamper and push it again for 5 seconds while the RED LED is blinking until the GREEN LED blinks once.

### **3.8 Safety Warning for Batteries**

The product contains batteries. Please remove the batteries when the device is not used. Do not mix batteries of different charging level or different brands.

### **3.9 Product Usage**

Once installed the sensor will report sensor status changes to a central Z-Wave controller using notification commands. Additionally, the sensor can directly control other devices using association group 2. The device is protected by a tamper switch.

#### **Link testing**

When activated by configuration parameter #5 the device can perform a link test with device No.1. Double-clicking the tamper will start the process. As a result, the GREEN LED will blink two times in case of success and the RED LED will blink two times in case of failure.



## 4 SOFTWARE FUNCTION DEFINITION

### 4.1 User Behavior Interaction

User behavior	Out of the Z-Wave network	In the Z-Wave network
Power OFF	Cut the power.	Cut the power.
Power ON	<p><b>Send Inclusion Requests for SmartStart Learn Mode.</b> LED will flash red 5 times, which means it's out of the Z-Wave network.</p> <p>If gateway is adding the device succeeds through SmartStart, LED will light up green for 2 seconds</p> <p>If Adding fails, LED will off. Device will auto-reset and then activate SmartStart Learn Mode again.</p>	<p><b>Send Wake Up Notification.</b> LED will become flash green once, and device will wake up for 15 seconds.</p>
Detected water leakage state change	LED will flash red once.	<p><b>Trigger Association function.</b> Refer to Section 4.7 and 4.14 for details about Association function. LED will flash red once.</p>
Click tamper switch once	<p><b>1.Reserved</b> LED will flash green once.</p> <p><b>2.Exit Classic Inclusion Learn Mode:</b> If tamper switch is clicked again during the Classic Inclusion Learn Mode, the Classic Learn Mode will exit. LED will turn off. Device will auto-reset and then activate SmartStart Learn Mode again.</p>	<p><b>1.Issue Wake Up Notification and stay awake for 15 seconds unless put to sleep by Wake Up No More Information frame.</b> LED will flash green once.</p> <p><b>2.Exit Classic exclusion Learn Mode:</b> If tamper switch is clicked again during the Classic exclusion Learn Mode, the Classic Learn Mode will exit. LED will turn off.</p>
Click tamper switch twice	<b>Reserved</b>	Start a link test with controller (When activated by configuration parameter #4). If success, LED will blink green two times If failure , LED will blink red two times
Click tamper switch three times quickly	<p><b>1.Send Node Info for Adding.</b> LED will blink green and red for 30s until it is added into the network.</p> <p>If Adding succeeds, LED will light up green for 2 seconds</p> <p>If Adding fails, LED will turn off. Device will auto-reset and then activate SmartStart Learn Mode again.</p> <p><b>2.Exit Classic Inclusion Learn Mode:</b> If tamper switch is clicked again during the Classic Inclusion Learn Mode, the Classic Learn Mode will exit. LED will turn off. Device will auto-reset and then activate SmartStart Learn Mode again.</p>	<p><b>1. Send Node Info for Removing.</b> LED will blink green and red for 30 seconds until it is removed from the network.</p> <p>If Removing succeeds, LED will light up red for 3 times.</p> <p>If Removing fails, LED will turn off.</p> <p><b>2.Exit Classic exclusion Learn Mode:</b> If tamper switch is clicked again during the Classic exclusion Learn Mode, the Classic Learn Mode will exit. LED will turn off.</p>
Press and hold tamper switch for 5 seconds	<p><b>Factory Reset.</b> push the tamper for 5 seconds until the RED LED blinks once. Then release tamper and push it again for 5 seconds while the RED LED is blinking until the GREEN LED blinks once.</p>	<p><b>Factory Reset.</b> push the tamper for 5 seconds until the RED LED blinks once. Then release tamper and push it again for 5 seconds while the RED LED is blinking until the GREEN LED blinks once.</p> <p>The device will issue a Device Reset Locally Command via its Lifeline to notify the Lifeline destination that the device has been</p>

		reset to its factory default state. And it will perform the reset operation regardless of whether or not the delivery of the Device Reset Locally Notification is successful.
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## 4.2 Supported Command Classes

Command Class	Version	Not added	Non-secure added	Securely 2 added	
				Non-secure	Secure
ZWAVEPLUS_INFO	2	Support	Support	Support	
ASSOCIATION	2	Support	Support		Support
MULTI_CHANNEL_ASSOCIATION	3	Support	Support		Support
ASSOCIATION_GRP_INFO	3	Support	Support		Support
TRANSPORT_SERVICE	2	Support	Support	Support	
VERSION	3	Support	Support		Support
MANUFACTURER_SPECIFIC	2	Support	Support		Support
DEVICE_RESET_LOCALLY	1	Support	Support		Support
INDICATOR	3	Support	Support		Support
POWERLEVEL	1	Support	Support		Support
BATTERY	1	Support	Support		Support
SENSOR_BINARY	2	Support	Support		Support
CONFIGURATION	4	Support	Support		Support
SECURITY_2	1	Support	Support	Support	
NOTIFICATION	8	Support	Support		Support
WAKE_UP	2	Support	Support		Support
SUPERVISION	1	Support	Support	Support	
FIRMWARE_UPDATE_MD	5	Support	Support		Support
MULTILEVEL_SENSOR	11	Support	Support		Support

## 4.3 Basic Command Class mapping

Basic Command Class is not mapped to any of the supported command classes.

## 4.4 Z-Wave Plus Info

Parameter	Value
Z-Wave Plus Version	0x02
Role Type	0x06 [ZWAVEPLUS_INFO_REPORT_ROLE_TYPE_SLAVE_SLEEPING_REPORTING]
Node Type	0x00 [ZWAVEPLUS_INFO_REPORT_NODE_TYPE_ZWAVEPLUS_NODE]
Installer Icon Type	0x0C05 [ICON_TYPE_SPECIFIC_SENSOR_NOTIFICATION_WATER_ALARM]
User Icon Type	0x0C05 [ICON_TYPE_SPECIFIC_SENSOR_NOTIFICATION_WATER_ALARM]

## 4.5 Manufacturer Specific

Parameter	Value
Manufacturer ID 1	0x03
Manufacturer ID 2	0x71
Product Type ID 1	0x00 [EU], 0x01 [US], 0x02 [AU]
Product Type ID 2	0x02 [PRODUCT_TYPE_ID_SENSOR]
Product ID 1	0x00
Product ID 2	0x13

### 4.6 Version

Parameter	Value
Z-Wave Protocol Library Type	0x03
Z-Wave Protocol Version	0x07
Z-Wave Protocol Sub Version	0x0E
Firmware 0 Version	0x02 [Z-Wave Chip Firmware Version]
Firmware 0 Sub Version	0x00 [Z-Wave Chip Firmware Sub Version]
Hardware Version	0x01
Number of firmware targets	0x00

### 4.7 Association Group Info

Root product

ID	Name	Node count	Profile	Function
1	Lifeline	5	General: Lifeline (0x0001)	<p><b>Product Reset Locally Notification:</b> Issued when Factory Reset is performed.</p> <p><b>Battery Report:</b> Issued when battery becomes low.</p> <p><b>Sensor Binary Report:</b> Issued when water leakage state is changed.</p> <p><b>Multilevel Sensor Report</b> Issued when button pressed to wake up or auto report enable or detect temperature/humidity change exceeds the set value.</p> <p><b>Notification Report [Type=0x06; Event=0x16]:</b> Issued when sensor state is changed to be Open Status.</p> <p><b>Notification Report [Type=0x06; Event=0x17]:</b> Issued when sensor state is changed to be Close Status.</p> <p><b>Notification Report [Type=0x07; Event=0x03]:</b> Issued when tamper is tripped.</p>
2	control	5	Notification: water alarm (0x2001)	<p><b>Basic Set:</b> Issured when water leak detected/or not.</p>
3	Alarm	5	Notification:water alarm (0x7105)	<p><b>Notification Report:</b> Sends out alarm message when water leakage is detected.</p>
4	Tamper	5	Notification:home Security (0x7107)	<p><b>Notification Report:</b> Sends alarm messages when tamper is tripped.</p>

### 4.8 Notification

Notification Type	Notification Events/State	Description
Home Security	Tampering, product cover removed	0x03 Issured when product cover removed
	Idle	0x00
Power Management	Replace battery now	0x0B Issued when the battery power lower than 20%.
	Idle	0x00 Issured when replace new battery that battery power more than 90%.
Water Alarm	Water leak detected	0x02 Issured when water probe detected water.
	Idle	0x00 Issured when water probe does not detect water.

## 4.9 Binary Sensor

Sensor Type		Sensor Value	Description
Water	0x06	0xFF	Water leakage Detected
Water	0x06	0x00	Water leakage does not detect

## 4.10 Multilevel Sensor

Sensor Type		Support Scale	Measure Range
Temperature	0x01	Celcius (°C)	-10 to 65°C (+- 1°C)
		Fahrenheit (°F)	14 to 146°F (+- 1.8°F)
Relative Humidity	0x05	Percentage value (%)	0 to 80% RH +- 3%

## 4.11 Wake Up

Parameter	Value	Time
Min Wake Up Interval Seconds	0x000E10	3600s [1 hour]
Max Wake Up Interval Seconds	0xFF100	15724800s
Default Wake Up Interval Seconds	0x093A80	604800s [1 week]
Wake Up Interval Step Seconds	0x0000F0	240s [4 minutes]

## 4.12 Battery

1. The 2.90V or more battery voltage corresponds to 100% battery level, and 2.60V or less corresponds to 0%.
2. If send Battery Get to the device, it will issue Battery Report with battery level to the requester when waked up.
3. If waked up or power on, it will detect battery level, and issue Battery Report via Lifeline when battery level change over 10%.
4. if the battery level is less then the value of configuration parameter 23, send Battery Report 0xFF and Notification Report of replace battery now via Lifeline .
5. If the battery level is less than the value of configuration parameter 23 , LED will flash red 3 times for each waked up.

## 4.13 Indicator

Indicator ID		Property ID	
Node Identify (Green Led)	0x50	On Off Period	0x03
		On Off Cycles	0x04
		On time within an On/Off period	0x05

## FCC Caution.

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
- (2) this device must accept any interference received, including interference that may cause undesired operation.

Any Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Note: 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:

- 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.