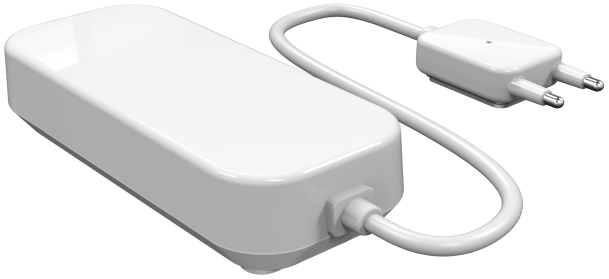
Water Sensor

(Z-Wave Water Sensor)



Document No:						
Version:	1					
Description:	The purpose of this document is to provide guidelines for the user and application developer of Aeon Labs Z-Wave Water Sensor.					
Written By:					Date：	
Reviewed By:	Ann	Anna				
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REVISION RECORD

Revision	Date	BY	Brief description of changes
1	03/29/2012		Initial draft.

Aeon Labs Water Sensor
Engineering Specifications and Advanced Functions for Developers
(V1.02)

The Aeon Labs Water Sensor is a binary sensor device based on Z-wave routing slave library V4.54.02.

1. Library and Command Classes:

1.1 SDK:4.54.02

1.2 Library:

- Basic Device Class: BASIC_TYPE_ROUTING_SLAVE
- Generic Device class: GENERIC_TYPE_SENSOR_BINARY
- Specific Device Class: SPECIFIC_TYPE_ROUTING_SENSOR_BINARY

1.3 Commands:

- COMMAND_CLASS_SENSOR_BINARY_V1,
- COMMAND_CLASS_BATTERY_V1,
- COMMAND_CLASS_WAKE_UP_V2,
- COMMAND_CLASS_ALARM_V2,
- COMMAND_CLASS_CONFIGURATION_V1,
- COMMAND_CLASS_ASSOCIATION_V1,
- COMMAND_CLASS_VERSION_V1,
- COMMAND_CLASS_MANUFACTURER_SPECIFIC_V2

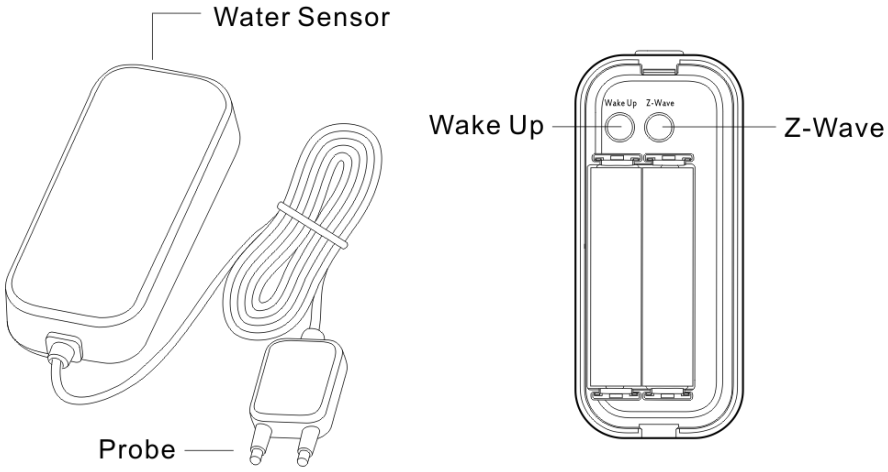
2. Technical Specifications

Operating distance:

Up to 100ft /30 meters indoors and 300ft /100 meters outdoors.

3. Familiarize yourself with your Water Sensor

3.1 Interface



4. Function description

4.1 Event and Response

Event	Response
Z-wave Button clicked	Enter the learning mode and send the frame of the Node info The Wake Up Notification command will be sent The device will be woken up for 8 seconds
Z-wave Button held	The Wake Up Notification command will be sent The device will be woken up for 8 seconds
Water level fluctuation	The Sensor binary report is sent(configurable) The Battery report is sent(configurable) The Basic set command is sent(configurable) The Alarm report command is sent(configurable)
Wake Up Button clicked	Wake up the device for 8 seconds.
Wake Up Button held	Enter/Exit the wake up 10 minutes state (the LED will blink 2 seconds)
Power on	Wake up the device for 10 minutes（configurable）

- We can configure Water Sensor send or don't send the configurable commands.
- The destination nodes of Basic set command are all associated nodes. If Water Sensor does not have associated nodes, basic set command will not be sent.
- Refer to the table below with respect to the priority of the Destination nodes of the following reports: Sensor alarm report, Alarm report, Sensor binary report and Battery report

Destination nodes	Priority
SIS OR SUC Node	High
First Associated Node	Middle
Broadcast	Low

The table means that if the network has SIS or SUC node, Water Sensor will only send the command to SIS or SUC node; else if there is no SIS or SUC node, the command will be sent to the First Associated Node of the Water Sensor. If there are no First Associated Node or the SIS OR SUC Node the command will be sent by broadcasting.

- Refer to the table below with respect to the priority of the Destination nodes of Wake Up Notification.

Destination nodes	Priority
The Node configured by Wake up Interval set command	Supreme
SIS or SUC Node	High
First Associated Node	Middle
Broadcast	Low

4.2 The LED's state

Status	the LED's state
Wake up	After removed from the network: Blink After included into the network: ON
Sleeping	OFF

4.3 Wake up time

- The Water Sensor will keep waking up for 8 seconds after sending the wake up notification command.
- The Water Sensor will keep waking up for 8 seconds to waiting for the next command after receiving a command.
- The Water Sensor will be woken up for 10 minutes when power is on (configurable).
- There are 3 ways to exit the Wake up 10 minutes state:
  1. Triple click the tamper switch, and the Water Sensor will sleep immediately
  2. Receive the "Wake up no more information CC" command , sleep right now;
  3. Receive the other command except "Wake up no more information CC" , the Water Sensor will wake up for 8 seconds and then go to sleep.

5. Special Usage instructions of the command

5.1 Association command class

The Water Sensor supports an Association group: group 1

If the Water Sensor has been included into a SIS or SUC z-wave network, it will be associated to SIS or SUC automatically.

5.2 Configuration Command Class

5.2.1 Configuration Set

7	6	5	4	3	2	1	0
Command Class = COMMAND_CLASS_CONFIGURATION							
Command = CONFIGURATION_SET							
Parameter Number							
Default	Reserved				Size		
Configuration Value 1(MSB)							
Configuration Value 2							
……							
Configuration Value n(LSB)							

5.2.1.1 Parameter Number (8 bit)

Parameter Number Definitions (8 bit):

Parameter Number	Description	Default Value	Size(byte)
1	Toggle the sensor binary report value when the Magnet switch is opened /closed. (refer to the table of Parameter1-3 for details)	0	1
2	Enable wake up 10 minutes when the power is switched on. (refer to the table of Parameter1-3 for details)	0	1
3	Toggle the basic set value when the Magnet switch is opened /closed. (refer to the table of Parameter1-3 for details)	0	1

121	Determines which report will be sent when the water level fluctuates. (refer to the table of Parameter 121 for details)	0x00000100	4
255	Reset configuration settings to factory defaults.	-	1

Default (1 bit)
If the default bit is set to 1 the device is restored to factory default settings and the configuration values are ignored. If the default bit is set to 0, then the configuration values are used.
Refer to the table above with respect to default value for the relevant parameter number.

5.2.1.2 Configuration Value：

a) Parameter1-3

Parameter Number	Configuration Value	Size (byte)	Description
1	0x00	1	Open: 00, Close: FF
	0x01		Open: FF, Close: 00
2	0x00	1	Disenable
	0x01		Enable
3	0x00	1	Close->Open: 00, Open->Close: FF
	0x01		Close->Open: FF, Open->Close: 00

b) Parameter 121

	7	6	5	4	3	2	1	0
configuration Value 1(MSB)	Reserved							
configuration Value 2	Reserved							
configuration Value 3	Reserved	Reserved	Reserved	Alarm	Reserved	Reserved	Reserved	Basic Set
configuration Value 4(LSB)	Reserved	Reserved	Reserved	Sensor Binary	Reserved	Reserved	Reserved	Battery

- Reserved
  Reserved bits or bytes must be set to zero.
- Alarm (1 bit)
  The Alarm flag signals that Water Sensor sends (1) or does not send (0) Alarm Command when Water switch is opened/closed.
- Basic Set (1 bit)
  The Basic set flag signals that Water Sensor sends (1) or does not send (0) Basic Set Command when magnet switch is opened/closed.

- Sensor Binary (1 bit)
  The Sensor Binary flag signals that Water Sensor sends (1) or does not send (0) Sensor Binary Report when magnet switch is opened/closed.
- Battery (1 bit)
  The Battery flag signals that Water Sensor sends (1) or does not send (0) battery Report when magnet switch is opened/closed.

5.2.2 Configuration Get

7	6	5	4	3	2	1	0
Command Class = COMMAND_CLASS_CONFIGURATION							
Command = CONFIGURATION_GET							
Parameter Number							

1. Parameter Number (8 bit)

Refer to the description of the Configuration Set Command

5.3 Alarm Command Class

Water Sensor only supports ALARM_GET_V2 and ALARM_TYPE_SUPPORTED_GET_V2.