zipato

LEAK SENSOR

quick-start guide v1.3



INTRODUCTION

The Leak sensor is a Z-Wave enabled device and is fully compatible with any Z-Wave enabled network. Z-Wave enabled devices displaying the Z-Wave logo can also be used with it regardless of the manufacturer, and this device can also be used in other manufacturer's Z-Wave enable networks. This product can be included and operated in any Z-Wave network with other Z-Wave certified devices from other manufacturers and/or other applications. All non-battery operated nodes within the network will act as repeaters regardless of a vendor to increase the reliability of the network.

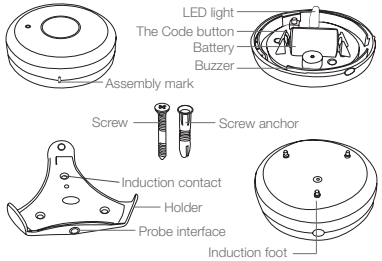
PACKAGE CONTENT

Leak sensor	1pc
Holder	1pc
Battery	1pc
Screw	2pcs
Screw anchor	2pcs
Probe	1pc
User manual	1pc

SPECIFICATIONS

- **Radio Protocol**
  Z-Wave
- **Power supply**
  CR2 x 1
- **Stand-by current**
  2uA
- **Work Current (RF Tx)**
  Up to 36mA
- **Operation temperature**
  0°C to +70°C
- **Radio Frequency**
  868.40MHz, 869.85MHz - EU;
  908.40MHz, 916.00MHz - US
- **Range**
  Up to 45m indoors (depending on the building structure), and 80m for outdoor open fields. Up to 60m outdoors.
- **Dimensions (D x W x H)**
  68 x 68 x 34 mm

PRODUCT CONFIGURATION



TECHNICAL INFORMATION

- When the sensor is triggered, it will make alarm sound and LED light will flash at the same time.
- Detecting the location of the overflow timely and accurately, reduce the economic losses caused by the overflow of water.
- Compatible with any Z-wave controller.
- High sensitivity and good stability.

INSTALLATION STEPS

Holder installation

Fix the holder with screws and screw ancor



Battery installation



Open the leak sensor | Instal the battery | Close the water sensor

Fix Leak sensor on the holder



NOTE
1.When assembling the water sensor, please align the assembly mark.
2.When fixing the leak sensor on the holder, please align the induction foot and the induction contact.

TIPS

- Make sure that the leak sensor is in the Z-wave main controller's network.
- Do not install the leak sensor near water vapor or smoke.
- Do not install the leak sensor and the probe on the water-soaked area.
- The sensor probe should be placed on the surface of the water leakage.
- Association allows for direct communication between Z-wave network devices. The controller does not take part in such communication. Using this mechanism, the water sensor may communicate with other devices even when the main controller is damaged.

Z-WAVE NETWORK

INCLUSION / EXCLUSION / RESET

Remove the sensor casing, there is one button on the top side of the PCB board. It can be executed inclusion, exclusion and reset from Z-Wave network.

Add[1]	1. Power up the device. 2. Set Z-Wave Controller into inclusion mode 3. Press the button 3 times within 1s to enter inclusion mode. 4. The device will be recognized and automatically included into Z-Wave Network.	LED light will flash with 1s interval until inclusion successful.
Remove	1. Power up the device. 2. Set Z-Wave™ Controller into exclusion mode 3. Press the button 3 times within 1s to enter exclusion mode	Led light will flash 3 times with 0.5s interval.
Factory Reset[2]	1. Power up the device. 2. Press and hold the button for 10s until LED light is on, then release the button.	Reset successfully, led light will flash 5 times.
Wakeup	1. Press the button briefly.	Led light will flash once.
Product Test Mode	1. Press and hold the button. 2. Power on the device, device will enter factory product test mode	Led light will flash with 100ms interval.
Send NodeInfo	Press the button 3 times within 1s	

Notice 1: When the device enters into inclusion mode, all functionality will be useless. The inclusion mode will be a timeout after the 30 sec, a user can press the button 3 times within 1.5s to terminate inclusion mode.

Notice 2: Factory Reset will clear all Z-Wave Network data (include home id, node id, etc…) saved in the memory of a device, and restore all configuration parameters to factory default. Please use this procedure only when the network primary controller is missing or otherwise inoperable.

ASSOCIATIONS

The device supports 2 association groups, and each group supports max 5 associated nodes.

Group 1 is lifeline group; all nodes which associated in this group will receive the messages sent by device through lifeline.

Group 2 is controlling group, all nodes associated in this group will be controlled through BASIC_SET command by the device when device detects a water leakage event.

The Command Class, supported by each association group, is shown in the table below:

Group	Command Class	Event
1 (Lifeline)	COMMAND_CLASS_NOTIFICATION	NOTIFICATION_REPORT
	COMMAND_CLASS_SENSOR_BINARY	SENSOR_BINARY_REPORT
	COMMAND_CLASS_BATTERY	BATTERY_REPORT
	COMMAND_CLASS_DEVICE_RESET_LOCALLY	DEVICE_RESET_LOCALLY_NOTIFICATION
2 (Control)	COMMAND_CLASS_BASIC	BASIC_SET

Z-WAVE MESSAGE REPORT

Once the device detects a water leakage event, it will report the event to the controller.

In default, the device will use COMMAND_CLASS_NOTIFICATION to represent the water leakage event. A user can also enable COMMAND_CLASS_SENSOR_BINARY report by setting the "Configuration No.9" to '1'.

Notice 1: If the device is not added in any Z-Wave network, it will beep alarm always until the battery is running down, and the parameter settings (Configuration Parameter 1 to 4) are invalid.

WATER LEAKAGE REPORT

When device detects a water leakage event, it will automatically send the notification report to nodes associated in lifeline.

Command Class	COMMAND_CLASS_NOTIFICATION
Command	NOTIFICATION_REPORT
Type	WATER_ALARM (0x05)
Event	WATER_LEAK_DETECTED_UNKNOWN_LOCATION (0x02) WATER_ALARM_NO_EVENT (0x00)
Command Class	COMMAND_CLASS_SENSOR_BINARY
Command	SENSOR_BINARY_REPORT
Type	WATER
Event	DETECTED (0xFF) / NO-DETECTED (0x00)

COMMAND CLASS CONFIGURATION

The device supports the controller to configure parameters of the device through Configuration Command Class, and the device has 11 parameters available for users to set according to their different needs:

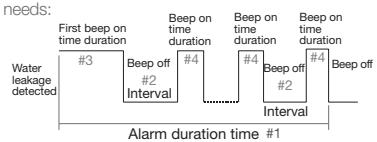


Fig.1 Alarm Time Setting Figure

1. Alarm Duration Time

This configuration can be used to adjust the time for beep and LED turned on when water leakage is detected. If this configuration is set to '0', the beep and LED will be turn on always until water leakage is not detected. Prefer to Figure 1. Unit: min (Minute).

Parameter Number	Size (byte)	Available Settings	Default value
1	1	1 ~ 120	60

2. Alarm Interval Time

This configuration defines beep on /off interval time when water leakage is detected. Prefer to Figure 1. Unit: s (Second).

Parameter Number	Size (byte)	Available Settings	Default value
2	1	5 ~ 120	60

3. First Alarm On Time Duration

This configuration defines beep on duration first time when water leakage is detected. Prefer to Figure 1. Unit: s (Second).

Parameter Number	Size (byte)	Available Settings	Default value
3	1	10 ~ 120	60

4. Alarm on Time Duration

This configuration defines beep on duration after fist beep on when water leakage is detected. Prefer to Figure 1. Unit: s (Second).

Parameter Number	Size (byte)	Available Settings	Default value
4	1	5 ~ 120	5

5. Water Leakage Detected Disable

This configuration sets to '0' will disable the water leakage detected function.

Parameter Number	Size (byte)	Available Settings	Default value
5	1	0,1	1

6. Beep Alarm Disable

This configuration sets to '0' will disable the beep alarm on when device detects water leakage event.

Parameter Number	Size (byte)	Available Settings	Default value
6	1	0,1	1

6. Led Light Alarm Disable

This configuration sets to '0' will disable the Led indicating when device detects a water leakage event.

Parameter Number	Size (byte)	Available Settings	Default value
7	1	0,1	1

8. Basic Set Level

This configuration sets the level for device sending BASIC_SET to nodes that associated in group 2 when device detects a water leakage event. [0] – Off, BASIC_SET = 0x00, all nodes associated in group 2 will be off. [1 … 99] – On. BASIC_SET = [Setting Value].
[100] – On, BASIC_SET = 0xFF.

Parameter Number	Size (byte)	Available Settings	Default value
8	1	0 ~ 100	100

9. Sensor Binary Report Enable

This parameter sets to '1' will enable SENSOR_BINARY_REPORT when device detects a water leakage event. This is for Z-Wave protocol backward compatibility.

Parameter Number	Size (byte)	Available Settings	Default value
9	1	0,1	0

10. Battery Report Periodically Enable

This parameter sets to '1' will enable reporting battery periodically. The period time is defined by configuration parameter 11. If this value set to '0', battery report will be executed in two cases listed as below.
1. Device is power up.
2. Battery life is falling 100, 16 and 0

Parameter Number	Size (byte)	Available Settings	Default value
10	1	0,1	0

11. Battery Report Interval

This parameter is defined the interval time for battery report. This value is larger, the battery life is longer.
Unit: Minute.

Parameter Number	Size (byte)	Available Settings	Default value (m)
11	2	1 ~ 1080	480

WAKEUP COMMAND CLASS

The device stays in sleep status for the majority of time in order to conserve battery life.
The min wakeup interval is 1800 sec (30 minutes)
The maximum wakeup interval is 64800 sec (18 Hours)
Allowable min step among each wake-up interval is 60 seconds, such as 1860 sec, 1920 sec,1980 sec…
Note: The default value is 8 hours with factory default. Higher value means longer battery life.

BATTERY COMMAND CLASS

The users can also inquire about the battery status of the device by sending BATTERY_GET command. Once the device receives the command, it will return BATTERY_REPORT command. The device will send BATTERY_REPORT = 0xFF command to the Z-Wave Controller to inform that the device is in dead battery status, the otherwise BATTERY_REPORT value range is from 0% to 100%.

COMMAND CLASS BASIC

The COMMAND_CLASS_BASIC is realized to control the devices associated in group 2 in this leak sensor. When the leak sensor detects a water leakage event occurred, it will send a "BASIC_SET = [Value]" command to control the devices in group 2. And it will send a "BASIC_SET = 0x00" command to control the devices in group 2 after the water leakage event is cleared. The [Value] is set by configuration No.8.

SMARTSTART SECTION

This device supports SmartStart. The QR code can be found on the bottom of the Leak sensor and on top of the packaging.
The device will enter SmartStart if the device is not included in the network after power up. And if the device is not included successfully during 10 seconds, it will enter sleep mode. And then
2nd SmartStart time delay approximately 16s
3rd SmartStart time delay approximately 32s
4th SmartStart time delay approximately 64s
5th SmartStart time delay approximately 128s
6th SmartStart time delay approximately 256s
7th SmartStart time delay approximately 512s
Afterward, the Smartstart mode will be auto running with 512-second interval until the device is successfully included or battery run down.

LED ACTION INDICATOR

LED color	LED display status	Description
Red	Flash 5 Times (300ms Interval)	Power on and Already Add in a Z-Wave Network
	Flash 3 Times (500ms Interval)	1. Press button tripled, the device sends Node Info. 2. Press button tripled, the device enters into exclusion mode.
	1. Flash with 1s interval and then 2. Flash 15 times with 2sec interval	Press button tripled, the device enters into inclusion mode. Device assigned a node id and wait for configuration completed.
	Light On 150ms	Press the button briefly, the device send a wake-up information to the controller
	Light On In Step With Beep Alarm	Detect a water leakage event
	Light On 500ms	Detect a water leakage event

SECURITY NETWORK

The device supports the security function with S2 encrypted communication. The device will auto switch to the security mode when the device included with a security controller. In the security mode, the following commands must use security and security_2 command class wrapped to communicate, otherwise, the device will not response any commands.

Security Keys

This device supports security levels are listed in below table:

Security levels	Support (Yes/No)
SECURITY_KEY_S0	No
SECURITY_KEY_S2_UNAUTHENTICATED	Yes
SECURITY_KEY_S2_AUTHENTICATED	Yes
SECURITY_KEY_S2_ACCESS	No

All supported Command Classes

This device supports All Z-Wave Command Classes in NIF List as follows:
* COMMAND_CLASS_ZWAVEPLUS_INFO (V2)
* COMMAND_CLASS_SECURITY_2 (V1)
* COMMAND_CLASS_TRANSPORT_SERVICE (V2)
* COMMAND_CLASS_VERSION (V2)
* COMMAND_CLASS_POWERLEVEL (V1)
* COMMAND_CLASS_ASSOCIATION (V2)
* COMMAND_CLASS_MULTI_CHANNEL_ASSOCIATION (V3)
* COMMAND_CLASS_ASSOCIATION_GRP_INFO (V1)
* COMMAND_CLASS_MANUFACTURER_SPECIFIC (V2)
* COMMAND_CLASS_DEVICE_RESET_LOCALLY (V1)
* COMMAND_CLASS_BATTERY (V1)
* COMMAND_CLASS_WAKEUP (V2)
* COMMAND_CLASS_NOTIFICATION (V8)
* COMMAND_CLASS_SENSOR_BINARY (V2)
* COMMAND_CLASS_CONFIGURATION (V1)
* COMMAND_CLASS_SUPERVISION (V1)

All Security Command Classes in Security Network

The Z-Wave Command Classes are secured in security network as follows:
* COMMAND_CLASS_VERSION (V2)
* COMMAND_CLASS_POWERLEVEL (V1)
* COMMAND_CLASS_ASSOCIATION (V2)
* COMMAND_CLASS_MULTI_CHANNEL_ASSOCIATION (V3)
* COMMAND_CLASS_ASSOCIATION_GRP_INFO (V1)
* COMMAND_CLASS_MANUFACTURER_SPECIFIC (V2)
* COMMAND_CLASS_DEVICE_RESET_LOCALLY (V1)
* COMMAND_CLASS_BATTERY (V1)
* COMMAND_CLASS_WAKEUP (V2)
* COMMAND_CLASS_NOTIFICATION (V8)
* COMMAND_CLASS_SENSOR_BINARY (V2)
* COMMAND_CLASS_CONFIGURATION (V1)

Non-Secure Command Classes in Secure Network

Unsecure Command Class which included in a secure Z-Wave Network is listed in unsecure node information.
* COMMAND_CLASS_ZWAVEPLUS_INFO (V2)
* COMMAND_CLASS_SECURITY_2 (V1)
* COMMAND_CLASS_TRANSPORT_SERVICE (V2)
* COMMAND_CLASS_SUPERVISION (V1)

CERTIFICATIONS

DECLARATION OF CONFORMITY

We, Tri plus grupa d.o.o., Croatia, 10000 Zagreb, Banjavciceva 11, declare that the product Leak sensor / waterproof IP55, Z-wave, is in compliance with RoHS and the following European Directive: RED 2014/53/EU. The following harmonised standards were applied:
EN 300 220-1 V3.1.1 (2017-02)
EN 300 220-2 V3.1.1 (2017-02)
EN 301 489-1 V2.2.0 (2017)
EN 301 489-17 V3.2.0 (2017)
EN 62479:2010
EN 60950-1: 2006+A11: 2009+A1: 2010+A12: 2011+A2: 2013

Sebastian Popovic, CEO

FCC WARNING

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. 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.

To maintain compliance with FCC's RF Exposure guidelines, this equipment should be installed and operated with minimum distance 20cm between the radiator and your body. Use only the supplied antenna.
FCC ID: Z52NAS-WS02Z

ONE (1) YEAR LIMITED WARRANTY

Tri plus grupa d.o.o. warrants this product (the "Product") against defects in materials and/or workmanship under normal use for a period of ONE (1) YEAR from the date of purchase by the original purchaser ("Warranty Period"). If a defect arises and a valid claim is received within the Warranty Period, then as your sole remedy (and Tri plus grupa' sole liability), Tri plus grupa will at its option either 1) repair the defect at no charge, using new or refurbished replacement parts, or 2) replace the Product with a new product that is functionally equivalent to the original, in each case within 30 days following receipt of the returned Product. A replacement product or part, assumes the remaining warranty of the original Product. When a Product or part is exchanged, any replacement item becomes your property and the replaced Product or part becomes Tri plus grupa' property.
Obtaining Service: To obtain warranty service, visit community.zipato.com to open a service request.
Exclusions: This warranty does not apply to: a) damage caused by failure to follow instructions relating to the Product's use or the installation of components; b) damage caused by accident, abuse, misuse, transport, neglect, fire, leaks, earthquake or other external causes; c) damage caused by service performed by anyone who is not an authorized representative of Tri plus grupa; d) accessories used in conjunction with a covered Product; e) a Product or part that has been modified to alter functionality or capability; f) items intended to be periodically replaced by the purchaser during the normal life of the Product, including, without limitation, batteries, bulbs or cables; g) a Product that is used commercially or for a commercial purpose, in each case as determined by SmartThings.
EXCEPT FOR BODILY INJURY, TRI PLUS GRUPA SHALL NOT BE LIABLE FOR (I) ANY LOST PROFITS, COST OF PROCUREMENT OF SUBSTITUTE PRODUCTS, OR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES, OR (II) ANY AMOUNTS IN EXCESS OF THE PURCHASE PRICE FOR THE PRODUCT, IN EACH CASE WHETHER RESULTING FROM THE USE OF OR INABILITY TO USE THIS PRODUCT, OR ARISING OUT OF ANY BREACH OF THIS WARRANTY, EVEN IF COMPANY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATION AND EXCLUSIONS MAY NOT APPLY TO YOU. TO THE EXTENT PERMITTED BY APPLICABLE LAW, TRI PLUS GRUPA DISCLAIMS ANY AND ALL STATUTORY OR IMPLIED WARRANTIES, INCLUDING WITHOUT LIMITATION, WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND WARRANTIES AGAINST HIDDEN OR LATENT DEFECTS. IF TRI PLUS GRUPA CANNOT LAWFULLY DISCLAIM STATUTORY OR IMPLIED WARRANTIES, THEN TO THE EXTENT PERMITTED BY LAW, ALL SUCH WARRANTIES SHALL BE LIMITED IN DURATION TO THE WARRANTY PERIOD. SOME STATES DO NOT ALLOW LIMITATIONS ON HOW LONG AN IMPLIED WARRANTY LASTS, SO THE ABOVE LIMITATIONS MAY NOT APPLY TO YOU.
Zipato is a registered trademark of
Tri plus grupa d.o.o.
Manufacturer / Importer for Croatia:
Tri plus grupa d.o.o., Banjavciceva 11
10000 Zagreb, Croatia

make your home smart www.zipato.com