Z-Wave® Window/ Door Detector

User's Manual

Table of Contents

Before attempting to connect, operate or adjust this product, please save and read the User's Manual completely. The style of the product shown in this User's Manual may be different from the actual unit due to various models.

Safety instructions

Always read the safety instructions carefully:
- Keep this User's Manual for future reference
- Keep this equipment away from humidity
- If any of the following situation arises, get the equipment checked by a service technician:
  - The equipment has been exposed to moisture.
  - The equipment has been dropped and damaged.
  - The equipment has obvious sign of breakage.
  - The equipment has not been working well or cannot get it to work according to the User's Manual.

Copyright

This document contains proprietary information protected by copyright. All right are reserved. No part of this manual may be reproduced by any mechanical, electronic or other means, in any form, without prior written permission of the manufacturer.

Trademarks

All trademarks and registered trademarks are the property of their respective owners or companies.

Introduction

This unit is designed to detect the open or close status of door or window. It is easy to install and fully compatible with Z-Wave® technology. With the built-in Z-Wave® module, user can monitor the door or window status anywhere, even they are away from home. Besides, it can communicate with other Z-Wave® devices, as long as the controller has been certified by Z-Wave®.

Features

- Support device linking to trigger multiple devices to provide maximum security
- Fully compatible with Z-wave® enabled network, capable of communicating with any Z-wave® certified device
- Internal and external sensors included

Package contents

- Z-Wave® Window/Door detector x1
- Contact Magnet x1
- 1.5V AAA battery x2
- User's Manual x1
- External wired contactor with contact magnet (optional)

Basic requirement

- An available Z-Wave® network or certified Z-Wave® dongle / controller

Application diagram

The illustrations below show the applications of the Z-Wave® Door/Window Detector. With the built-in Z-Wave®, the detector can be remoted through a Z-Wave® dongle or controller at home or anywhere. Note that the application may be different from the actual conditions.
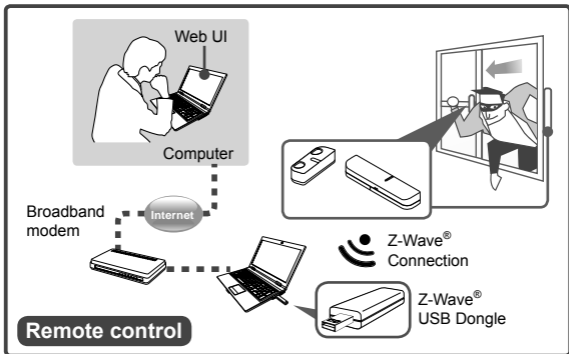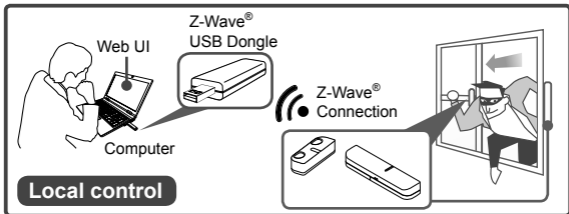
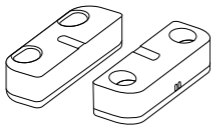* The web user interface (UI) may vary depending on the software provided by Z-Wave dongle.

Product overview

Detector
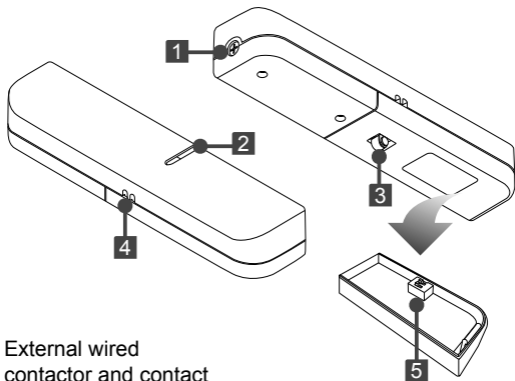
External wired
contactor and contact
magnet (optional)

Contact
magnet
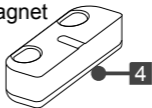
1 **Screw for battery cover**
2 **LED indicator**
3 **Program Button**
4 **Wire through out**
5 **Dip switch**

Battery installation

1. Unscrew the screw using screwdriver, and then remove the battery cover from rear panel of the detector.
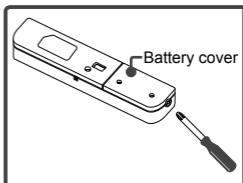
Battery cover

2. Place 2 AAA batteries (1.5A) following the orientation as shown on the battery compartment. It is recommended to use alkaline batteries.

3. Place the battery cover, and then tighten the supplied screw.

Operation

Inclusion

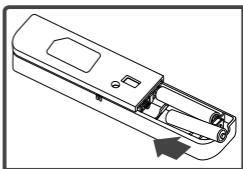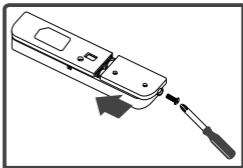**Note:** Make sure a Z-Wave® remote controller has been installed and included to an available Z-Wave® network before joining the Z-Wave® Window/Door Detector. Not all Z-Wave® enabled remote controllers have the same installation process. Actual instructions may vary, it depends on the software that Z-Wave® controller provided.

1. Before starting the inclusion process, be sure the DIP switch is setup to the default. To switch the DIP, refer to **DIP switch** chapter.

Default setting
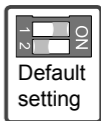
2. Press the <**Program**> button 3 times within 2 seconds on the Z-Wave® Window/Door Detector to include a Z-Wave® network. LED flashes green during the inclusion process.

3. Once the Z-Wave® Window/Door Detector has been detected, the LED will stop flash, and the detected information will be displayed on the controller's panel or utility software.

Exclusion

To exclude the Z-Wave® network, operate the exclusion procedure from the controller, and then press <**Program**> button 3 times within 2 seconds on the Z-Wave® Window/ Door Detector.

Reset

To reset the Z-Wave® Window/Door Detector, press <**Program**> button 3 times within 2 seconds and the third for over 1 second.

Command classes

Command class is a programming protocol which allows the Z-Wave® Window/Door Detector to communicate with other compatible Z-Wave® devices. 2 association groups are supported by the Z-Wave® Window/Door Detector.

The Z-Wave® Window/Door Detector supports 2 association groups. Group1 supports the report of Alarm and warning message when the battery is low. Only one device can be associated in group1. Group2 supports to associate with 5 devices which means all the devices associated with the Z-Wave® Widow/Door Detector will receive the relevant reports once the Z-Wave® Window/Door is triggered and configured.

To program the Z-Wave® Window/Door Detector, choose one of the command classes below, and then adjust the parameters. For more detailed configurations, refer to the controller's instruction manual.

- COMMAND_CLASS_BASIC
- COMMAND_CLASS_SENSOR_BINARY
- COMMAND_CLASS_WAKE_UP
- COMMAND_CLASS_ASSOCIATION
- COMMAND_CLASS_CONFIGURATION
- COMMAND_CLASS_BATTERY
- COMMAND_CLASS_MANUFACTURER_SPECIFIC
- COMMAND_CLASS_VERSION

Z-Wave® Window/Door Detector Device Information

Basic Type: BASIC_TYPE_ROUTING_SLAVE

Generic Type: GENERIC_TYPE_SENSOR_BINARY

Specific Type: SPECIFIC_TYPE_ROUTING_SENSOR_ BINARY

Description of command class

Sensor binary command class

The user can also enquire the Sensor status of the unit SENSOR_BINARY_GET, it will return SENSOR_BINARY Command.

SENSOR_BINARY Command:

Magnets to be opened:

[Command Class Sensor Binary, Sensor Binary Report, Sensor Binary Value = 0xFF]

Magnets to be closed:

[Command Class Sensor Binary, Sensor Binary Report, Sensor Binary Value = 0x00]

Battery command class

The user can also enquire the battery status of the unit BATTERY_GET command via Z-WAVE Controller, it will return BATTERY_REPORT Command. If it will send Battery Level = 255(0xFF) command to the Z-Wave® Controller to inform that it is in low battery status.

Battery Report Command:

[Command Class Battery, Battery Report, Battery Level = 20%-100%]

Wake up command class
The Z-Wave® Window/Door Detector stays in sleep status for the majority of time in order to conserve battery power. However, it can be woken up at specified intervals by setting WAKE_UP_INTERVAL_SET command by Z-Wave® Controller.

After the Z-Wave® Window/Door Detector wakes up, it will send Wakeup Notification Command to the node ID that requires to be report and stay awake for 5 seconds, if no WAKE_UP_NO_MORE_INFORMATION command is received. The Minimum wake up time is 60 seconds, the maximum wake up time is 194 days.

Command	Min	MAX	Default
WAKE UP	60 seconds	194 Days	1 day

Association command class
The Z-Wave® Window/Door Detector can be set up to 5 devices in group 2. For hardware connection details, refer to **Association** chapter.

Alarm command class
The ALARM_REPORT will be sent to the controller when the batteries have been inserted properly into the Z-Wave® Window/Door Detector.

1. Power applied
   Once the batteries has been inserted, Alarm Report Command will be sent to Nodes in group1 to confirm the power status for the Z-Wave® Window/Door Detector.

   [Command Class Alarm , Alarm Report, Alarm Level = 0x02,Alarm Type = 0x01]

2. Low battery report

   When the Z-Wave® Window/Door Detector automatically wakes up, it will check the battery usage. When low battery is detected , Alarm Report Command will be sent to Nodes in group1.

   [Command Class Alarm , Alarm Report, Alarm Level = 0x02,Alarm Type = 0xFF]

3. Tamper event report
   When Z-Wave® Window/Door Detector is pressed and hold the tamper switch more than 10 seconds then release, it will sent , Alarm Report Command will be sent to Nodes in group1

   [Command Class Alarm , Alarm Report, Alarm Level = 0x02,Alarm Type = 0x11]

Basic command class

When door/window is opened, the will send Basic SET command contains a value that is adjustable, to the node of group2. For instance, a lamp module will be turned off after receiving the BASIC_SET command.

Magnets to be opened:

[Command Class Basic , Basic Set, Basic Value = 0xFF]

Magnets to be closed:

[Command Class Basic , Basic Set, Basic Value = 0x00]

Configuration command class

This class is used for setting certain vendor specific configuration variables to the node of group2.

See the following table for configuration variables:

| Id	Name	Size	Range	Default value	Description
0x01	Basic Set level	1 bytes	1– 99	99	Ex: 1~99 1. ON (Binary switch device) 2. Dim Level (Multilevel switch device)
0x02	Delay time before the OFF command be transmitted	1 bytes	0 – 127	0s	0– 127: seconds

Version command class
Implemented according to command class specification.

Manufacturer specific command class
Implemented according to command class specification.

Association

Define the relationship between devices after joining to Z-Wave® network. Device can be assigned as master/slave, and the slave can be controlled by the master.
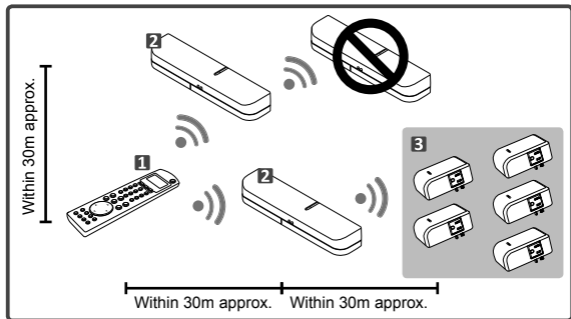
1 Z-Wave® remote controller
2 Z-Wave® Window/Door detector
3 Z-Wave® compatible appliances

1. Before associating the Z-Wave® Window/Door Detector, please disconnect Detector and Contact Magnet.
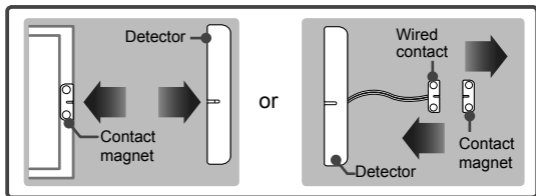
2. Associate the Z-Wave® Window/Door Detector with a controller.

3. Associate the appliances under Z-Wave® Window/Door Detector using Z-Wave® controller or utility software. The supported appliances is up to 5.

4. Once the setup is completed, the Window/Door Detector can be used as a bridge to transmit the commands from controller to the associated Z-Wave® appliances.

Note: The Z-Wave® Window/Door Detector does not support to associate other Z-Wave® Window/Door Detectors.
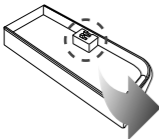
Dip switch

The Z-Wave® Window/Door detector can be setup to internal or external connections. Follow the steps below to adjust the dip before installing the detector to a door or window.

1. Loosen the screws from the rear panel, and then remove the cover.
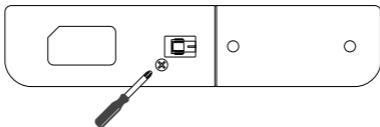
2. Adjust the dip switches using a finger or finger nail according to the desired connection of the Window/Door detector.

Default or Internal connection

Note: Adjust the dip switches to default before including or excluding the detector to a Z-Wave® network.

External connection

External and Internal mixed connection

Installation

Before installing the Z-Wave® Window/Door Detector, make sure the Detector has been included to a Z-Wave® network.

Internal connection

1. Adjust the dip switch to the default. Refer to Dip switch chapter for more details.

2. Mount the Z-Wave® Window/ Door detector to a window or door following the previous section.

3. Install the contact magnet to the moving part of the window or door opposite to the detector. Make sure the window or door is closed when installing.
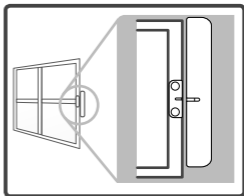
Note: For better performance, make sure the gap between detector and contact magnet is less then 10mm.

Extension the detector (optional)

Sometimes the type of window or door may differ from the previous section, users may need to extend the Window/Door Detector using wires.

1. Adjust the dip switch according to the desired connection before installing to a door or window. Refer to Dip switch chapter for more details.

2. Extend the wired contact using two core (24AWG) wires and the maximum length is 4m. Refer to the **Assemble the wire** chapter for more information.
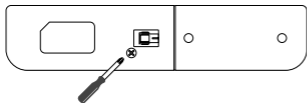
External connection
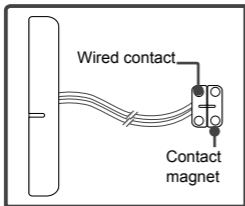
External and internal connection mixed mode

Wired contact
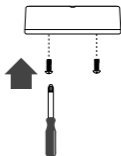
Contact magnet

Wired contact

Contact magnet
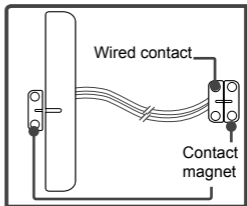
Assemble the wire

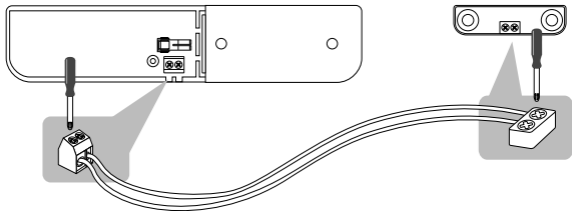1. Loosen the screws from the rear panel, and then remove the cover.

Detector
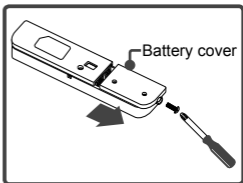
Wired contactor

2. Insert the cable (24AWG) into the block as shown below, and then tighten the screws on the top.

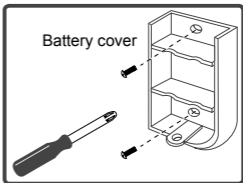# Mounting the detector

The Z-Wave® Window/Door Detector can be mounted on any location that can be open or closed, such as closets, doors, windows or safes.
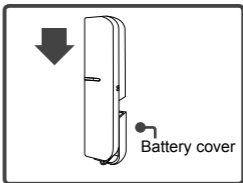
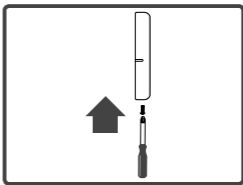1. Unscrew the battery cover from the detector and slide the cover off.

Battery cover

2. Use the screws that are provided to screw the cover onto your desired location.

Battery cover

3. Slide the detector back on the cover.

Battery cover

4. Tighten the screw.

5. Install the contact magnet to the moving part of the window or door which is opposite to the detector using screws.
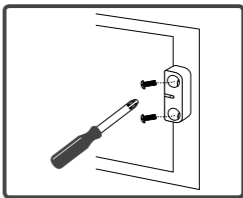
LED indicator

Refer to the table below to see the status of LED.

LED	Description
Green	Flashes when including to a Z-Wave® network
	Flashes when excluding from a Z-Wave® network
	Flashes when data transmitting or receiving
	Lights green when waking up from sleeping mode * **Sleeping mode:** To save the power, the detector will enter sleeping mode automatically after 5 seconds when the installation is completed.
Red	Low power, and flashes every 5 seconds

Specifications

Item	Description
Protocol	Z-Wave®
Detective type	Magnetism reed switch
Power	AAA battery 1.5V*2
LED Indicator	Bicolor LED (Green / Red)
Switch	Inclusion / Exclusion button
Frequency	908.42MHz
Operating Rang	Up to 100 feet (30m) approx.
Data Rate	9.6kbps / 40kbps
Application	Indoor use
Working Environment	Operating Temperature: 0~40ºC Storage Temperature: -10~55ºC
Dimensions (LxWxH)	Detector: 130x28x21.8mm
	Contact Magnet/Wired Magnet: 45x14x12.7mm
Housing	Plastic
Flame Class	UL 94 V-0
Surface Processing	Painting
Compliance	FCC

Regulatory compliance

FCC conditions

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.

You are cautioned that changes or modifications not expressly approved by the party responsible for compliance could void your authority to operate the equipment.

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

WEEE information

For EU (European Union) member users: According to
the WEEE (Waste electrical and electronic equipment)
Directive, do not dispose of this product as household
waste or commercial waste. Waste electrical and electronic
equipment should be appropriately collected and recycled
as required by practices established for your country. For
information on recycling of this product, please contact your
local authorities, your household waste disposal service or
the shop where you purchased the product.