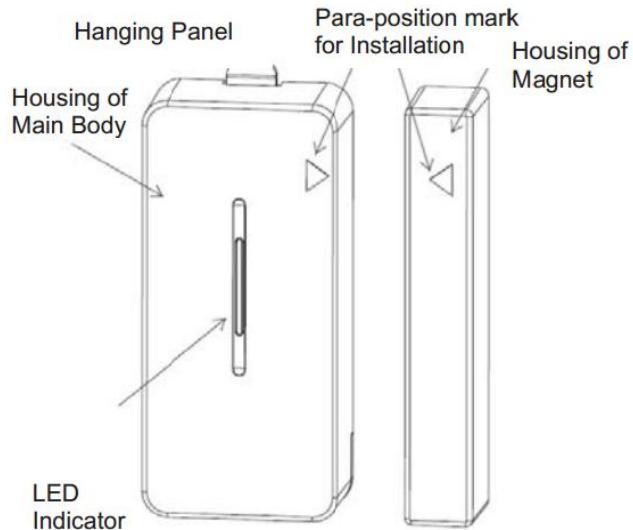


IM20_Z-Wave User Manual

1. Introduction

IM20_ZWave is a door/window sensor adopting Z-Wave500 series chip. It uses special structure design, suitable for kinds of installation environments. Also, it supports door & window open/close detection, anti-tamper, battery level detection and associated gateway and interaction device notifications.



2. Specifications

Model No.: IM20-ZWave

Wireless Distance: $\leq 30m$ (indoor)

Frequency: 868.4MHZ / 908.4MHZ

Working Voltage: 3V, 2 PCS AAA(7#) alkaline battery, 2 years working life

Static Current: $\leq 9\mu A$

Working Current: $\leq 35mA$

Working Environment: $-20^{\circ}C \sim 60^{\circ}C$

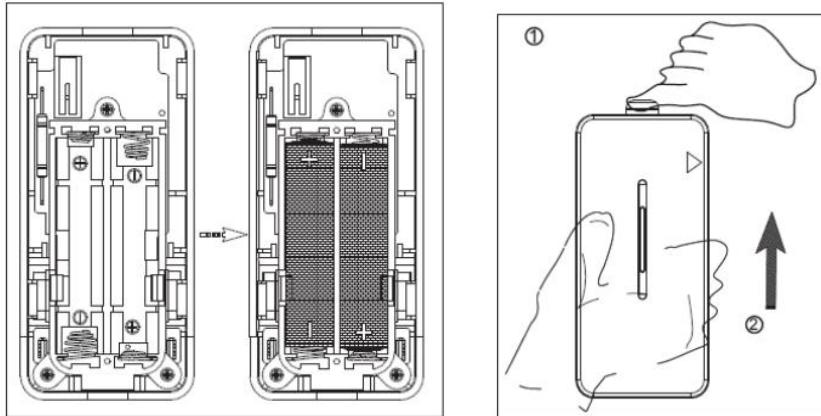
3. Installation Instructions

3.1. The product is not suitable for the following occasions, please noted:

- a) In the outdoor environment where is easy to be damaged.
- b) At the unstable base or rainy area.
- c) Near the power supply wire or magnetic objects.

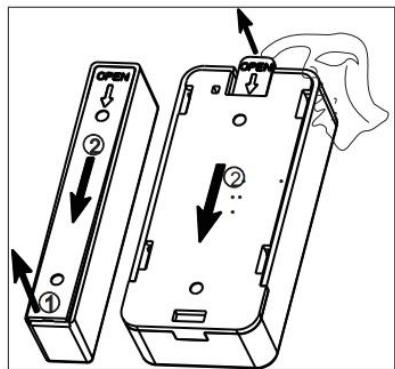
3.2. Battery Installation

- a) Take off the bottom cover of main body
- b) Insert 2PCS AAA 1.5V batteries into battery compartment with correct battery electrode.



3.3. Fix the Sensor by Screws:

a) Take out the tapered screws and expansion tube from PE bag, then take down the back cover of sensor main body & magnet part separately;

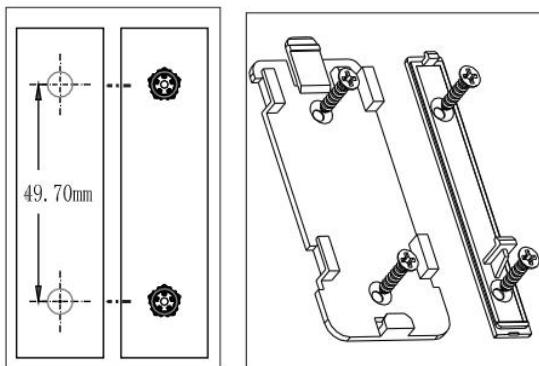


b) Make location holes by scribing lines on both fixed and movable door/window respectively & parallelly; the distance of main body and magnet: $\leq 6\text{MM}$;

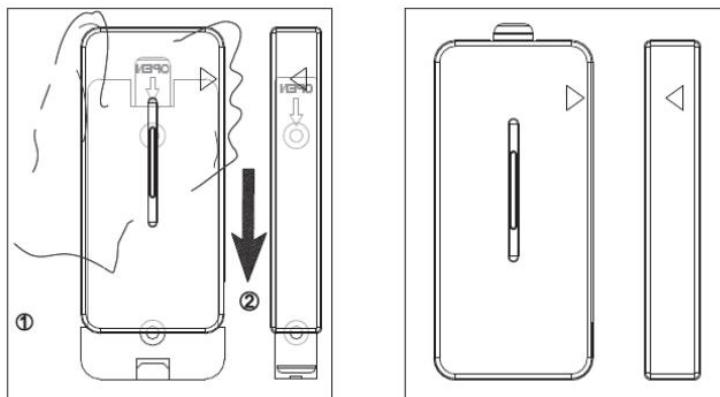
(On wooden wall: can twist the screws directly)

(On concrete wall: use an electric drill to make a $\Phi 6\text{MM}$ hole, then insert the expansion tube into the hole)

c) Put panels of main body and magnetic part against the wall, then twisting screws into the wall with cross screwdriver.



- d) Hang the main body on the hanging panel
- e) Hang the magnet on the magnet hanging panel



3.4. Fix the Sensor with Foam Rubber

- a) Take out foam rubbers of main body & magnet;
- b) Tear off release papers from foam rubbers, stick them to the back panels of main body & magnet respectively;
- c) Make position mark by scribing lines on both fixed and movable door/window respectively & parallelly; the distance for main body and magnet: $\leq 6\text{MM}$;

4. IM20-Z-Wave Operation Description

4.1 Z-Wave Basic Operation

4.1.1 Add & Remove

Add : enter the Inclusion Mode of gateway, and press the tamper switch 3 times within 1.5s, then the door sensor will stay in enrollment state until successfully enrolled into network or enrollment time out after 30s.

Remove: enter the Exclusion Mode of gateway, and press the tamper switch 3 times within 1.5s, then the door sensor will be removed after a period of time.

2. Association Groups Description

The sensor has 2 associations Inclusion Mode in groups, Lifeline group can support 1 device only, Group 2 can support 2 devices.

It will send “NOTIFICATION_REPORT” to the device in Lifeline group when the door sensor is opened / closed, tamper switch is triggered / recovered.

When in low battery status, door sensor will send “BATTERY_REPORT” to Lifeline group device periodically.

The door sensor will send “DEVICE_RESET_LOCALLY_NOTIFICATION” to Lifeline group device when the device recovers to factory settings.

When the door sensor is opened, it will send “BASIC_SET” command to control these devices in Group2.

4.1.3 Factory Setting

Press the tamper switch 6 times in 2s, it will recover to factory setting after a period of time
(Please use the reset procedure only when the primary controller is missing or inoperable)

4.1.4. Wake-up Operation

a) Manual Wake-up

Quickly press tamper switch once, the door sensor will automatically send wake-up information, and there will be 10s after wake-up to receive gateway setting information.

b) Automatic Wake-up

Default time of automatic wake-up is 24 hours, and there will be 10s after wake-up to receive gateway setting information, the max automatic report time = 24 hours, minimum=30min

5. Door Sensor Information Report

5.1 Lifeline Group

When the door sensor is opened or recovered, it will send “Binary Sensor Report” and “Notification Report” commands to the device under Lifeline group.

When door sensor is opened:

Sensor Binary Report, Value = 0xFF, Type = 0x0A

Notification Report, Notification Type = 0x06, Event = 0x17

When door sensor is recovered:

Sensor Binary Report, Value = 0x00, Type = 0x0A

Notification Report, Notification Type = 0x06, Event = 0x16

When tamper switch is triggered or recovered, the door sensor will send “Sensor Binary Report” and “Notification Report” command to the device under Lifeline group.

Tamper Triggered:

Sensor Binary Report, Value = 0xFF, Type = 0x08

Notification Report, Notification Type = 0x07, Event = 0x03

Tamper recover (press tamper switch for 0.5s):

Sensor Binary Report, Value = 0x00, Type = 0x08

Notification Report, Notification Type = 0x07, Event = 0x00

Battery Report

When the door sensor is wake-up from sleep mode, it will check its battery status; once low battery, it will send Battery Report command to the device under Lifeline group every hour;
Battery Report, Battery Level = 0xFF

5.2 Association Group2

If there is any device under Association Group2, the door sensor will send “BASIC SET” command to control those devices when the door sensor is triggered. For example: when the

door sensor is triggered, it sends adjustable parameter “BASIC SET” command to a lamp under Group2, you can adjust the lamp’s luminance through the parameters of this command; if the set light-up time out (see the Configuration Description), the door sensor will send “BASIC SET” command to turn-off the lamp.

When door sensor is triggered:

[Command Class Basic, Basic Set,Value = 0xFF(default 0xFF, configurable, see the Configuration Description)]

When light-up time out:

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

5.3 Configuration Description

a) “Basic Set” configuration

If there is any device under Association Group2, the door sensor will send “Basic Set = value” command to control that device when the door sensor is opened. “Value” configuration rule is as below:

Function	Parameter	Byte	Range	Default
Basic Set Level	1	1	1-100 or 0xFF	0xFF

b) Turn Off Light Time Configuration

If there is any device under Association Group2, the door sensor will send “Basic Set = value” command to Group2, and send “Basic Set = 0x00” command to turn-off light after “t” seconds, Set value = “t”, means to send Basic Set command after “t” seconds.

Function	Parameter	Byte	Range	Default
Turn Off Light Time	2	1	1-120	20

c) Door Sensor Status Report

Under normal working status (without trigger), the door sensor will automatically send report to the Gateway about its current tamper & open/close status. Set value = t, means “t” hours, (“t”=0, means no status report)

Function	Parameter	Byte	Range	Default
Auto report Door/Window status time	3	1	0-24hour	12hours

6. Z-Wave Commands

Generic Device Type :

GENERIC_TYPE_SENSOR_NOTIFICATION

Specific Device Type :

SPECIFIC_TYPE_NOTIFICATION_SENSOR

Support Command Class :

COMMAND_CLASS_ZWAVEPLUS_INFO_V2,
COMMAND_CLASS_SENSOR_BINARY_V2,
COMMAND_CLASS_WAKE_UP_V2,
COMMAND_CLASS_BATTERY,
COMMAND_CLASS_VERSION_V2,
COMMAND_CLASS_MANUFACTURER_SPECIFIC,
COMMAND_CLASS_NOTIFICATION_V4,
COMMAND_CLASS_CONFIGURATION,
COMMAND_CLASS_ASSOCIATION_V2,
COMMAND_CLASS_ASSOCIATION_GRP_INFO,
COMMAND_CLASS_POWERLEVEL,
COMMAND_CLASS_DEVICE_RESET_LOCALLY,

Commands to Control Other Devices:

COMMAND_CLASS_BASIC

7. Cautions

Our products have been quite stable in performance, but as the product itself low point transmission capacity and conditional application, it still has limits in usage. Following are the situations that may occur:

- a) Indoor environmental restrictions, such as co-frequency interference, complicated geographical environment of communication etc
- b) Detectors low voltage
- c) Not standard Z-Wave Gateway

Warning: If the problems caused by user's incorrect operation, our company will not be responsible for it!

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 vendor to increase reliability of the network

FCC STATEMENT :

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.

Warning: 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.

RF warning statement:

The device has been evaluated to meet general RF exposure requirement. The device can be used in portable exposure condition without restriction.