



# Recessed Door Sensor 7



# Engineering Specification

## Recessed Door Sensor 7

Document No.	SPEC-ZW187
Description	<p>This document mainly introduces the new generation AEOTEC Recessed Door Sensor. The content mainly includes its interfaces, accessories, features, specifications, quick start, and software function definition.</p> <p>Recessed Door Sensor 7 is a Z-Wave Plus v2 device with many advantages.</p> <ul style="list-style-type: none"> <li>● Can be embedded inside the wooden door or window.</li> <li>● Used to send out notification via Group 1 (Lifeline) when Magnet is away or near.</li> <li>● Used to control other Z-Wave device directly via Group 2.</li> <li>● Support SmartStart, which makes inclusion more convenient.</li> <li>● Support S2, which makes it more secure and reliable.</li> </ul>
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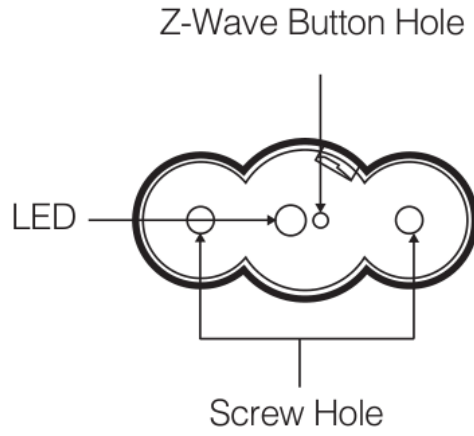
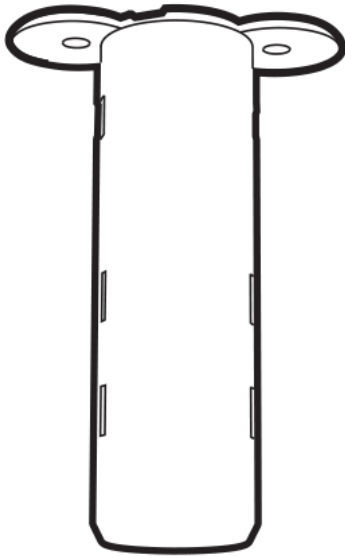
**REVISION RECORD**

Version	Date	Brief description of changes
1	2019.07.24	First revision.

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# 1 INTERFACES & ACCESSORIES



Screws (x2)



Magnet

Terminology	Description
Action Button	Inside the Z-Wave Button Hole. Used for networking and resetting.
LED	Used for indicating the current state of the product.
Magnet	Change the sensor state via making the Magnet away or near.

## 2 FEATURES & SPECIFICATIONS

### 2.1 Structural Characteristics

Parameter	Value
Product Identifier	ZW187
Dimensions	Main Sensor: $\Phi 19.2 \times 64\text{mm}$ Magnet Sensor: $\Phi 22 \times 13\text{mm}$
Weight	30g
Color	White
Shell Material	ABS
Shell Fire-proof Level	UL94 V-0
Waterproof and Dustproof	Rated IP20 under IEC 60529
Usage	For indoor use. Can be embedded inside the wooden door or window.
Operating Temperature	32~104°F (0~40°C)
Relative Humidity	8%~80%

### 2.2 Hardware Characteristics

Parameter	Value
Z-Wave Module	ZGM130S1852B014A7
Z-Wave TX Power	Max: 13dBm
Z-Wave Antenna Distance	40m (Indoor) /150m (Outdoor)
Indicator Light Color	Red
Buttons and Connectors	Action Button (x1), Magnet(x1)
Input Voltage	3.0V Lithium battery
Battery Included	Yes. 1pcs battery included.
Battery Required	Yes. 1pcs battery required.
Battery Info	Model: CR2 Capacity: 800mAh Detachable: Yes Chargeable: No Endurance: 2 years
Working Current	30mA
Standby Current	10uA (Inside the Z-Wave network) / 50uA(Outside the Z-wave network)
Maximum Standby Power Consumption	0.03mW
Built-in Sensors	Reed switch
Safety Certifications	US: FCC/ETL EU: CE AU: RCM

### 2.3 Software Characteristics

Parameter	Value
Wireless Technology	Z-Wave
Certification Type	Z-Wave Plus v2 Certification
Z-Wave SDK Version	7.11.0.GA (7.11)
Z-Wave Library Type	Enhanced 232 Slave
Z-Wave Role Type	ZWAVEPLUS_INFO_REPORT_ROLE_TYPE_SLAVE_SLEEPING_REPORTING (0x06)
Generic Device Type	GENERIC_TYPE_SENSOR_NOTIFICATION (0x07)
Specific Device Type	SPECIFIC_TYPE_NOTIFICATION_SENSOR (0x01)

Security Class	Non-Security, S0, S2 Unauthenticated, and S2 Authenticated
SmartStart Compatible	Support. After powering on, SmartStart is auto activated if it's out of the Z-Wave network.
Over The Air (OTA)	Support. Firmware can be updated via RF.
Multi Channel Device	No
Association	Support. Refer to Section 4.7 Association Group Info.
Factory Reset	Support. Refer to Section 3.6 How to factory reset.
Power-down Memory	Support. All command settings will stay unchanged even power down.
Timed battery report	Support. Refer to Configuration Parameter 101.
Low battery warning	Support. Refer to Configuration Parameter 90.
Sensor State Report	Support. When Magnet is away or near, send out notification via Group 1.
Control other device	Support. When Magnet is away or near, control other Z-Wave device directly via Group 2.

### 3 PRODUCT QUICK START

#### 3.1 Important safety information

Please read this Engineering Specification carefully for correct and effective use.

Failure to follow the recommendations set forth by AEOTEC Limited may be dangerous or cause a violation of the law. The manufacturer, importer, distributor, and/or reseller will not be held responsible for any loss or damage resulting from not following any instruction in this guide or in other materials.

Recessed Door Sensor 7 is intended for indoor use in dry locations only. Do not use in damp, moist, and /or wet locations. Contains small parts; keep away from children.

#### 3.2 Optimally placing the product

Recessed Door Sensor 7 has been designed to be installed within a door and its surrounding frame. To optimally install it, please note the following.

Recessed Door Sensor 7 must be installed so that its two parts separate when the door it is installed within is opened.

Typically, the larger part is installed in the door itself, while the smaller part is installed in the surrounding frame. This is not mandatory, however, and the installation can be reversed provided the drill hole instructions are suitably adapted.

As a magnetic sensor utilising wireless communication, Recessed Door Sensor 7 may not optimally work when mounted on a metal frame or close to metal objects such as door locks. Test accordingly before mounting Recessed Door Sensor 7 with adhesive tape or screws.

To be installed, Recessed Door Sensor 7 requires a minimum spacing of around 1mm / 0.04inch between the door and its frame when closed. The gap should be no larger than 12mm / 0.47inch.

When the door is closed and the sensor's two parts are installed, they should align.

Owing to both the magnet and the Z-Wave Plus antenna housed with Recessed Door Sensor 7, the two highlighted areas in this diagram are generally considered optimal.

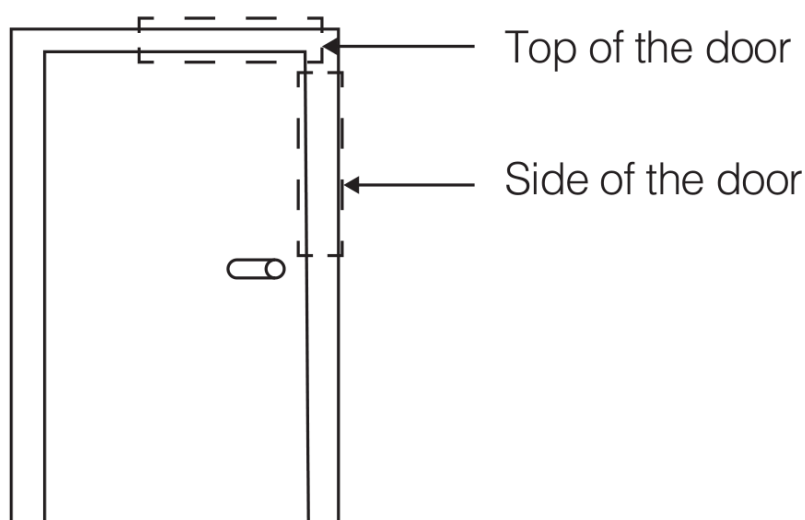


Diagram 1; optimal placement locations.



### 3.3 How to install the product

The following extra things are needed for the installation: screwdriver, 19mm wide drill bit, drill driver, PVA glue, rubber hammer.

1. Drill a hole 65mm / 2.56inch deep in your door at the selected location with a 19mm / 0.75inch wide drill bit.
2. Drill a hole 15mm / 0.59inch deep in your doorframe at the corresponding location with a 19mm / 0.75inch wide drill bit.
3. Insert sensor into the hole you drilled in the door. If it requires force to push the sensor, expand the drill hole accordingly. Secure the sensor with two of the provided screws.
4. Place a small amount of white PVA glue inside of the hole you drilled in the doorframe. Insert the magnet into the hole. If it requires force to insert, it can typically be tapped into place with a rubber hammer.

### 3.4 How to add the product into Z-Wave network

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

**Note: This product supports Security 2 Command Class. While a Security S2 enabled Controller is needed in order to fully use the security feature. This product can be operated in any Z-Wave network with other Z-Wave certified devices from other manufacturers. All mains operated nodes within the network will act as repeaters regardless of vendor to increase reliability of the network. QR Code and PIN are used for SmartStart inclusion. DSK Code can be found on packaging. Do not remove or damage them.**

1. Press the sensor latch with a slotting screwdriver to remove the lid of the sensor.

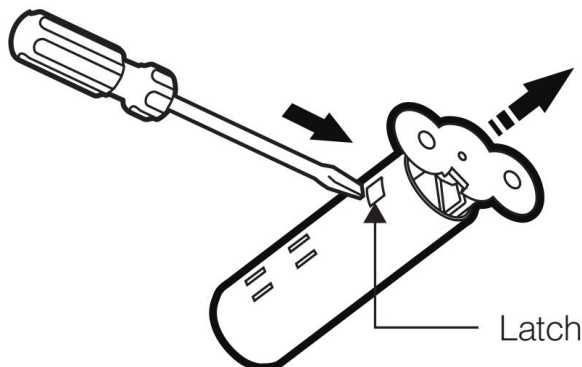


Diagram 2.

2. Squeeze the sides of the sensor casing to alleviate pressure on the chipboard; slide the chipboard out.

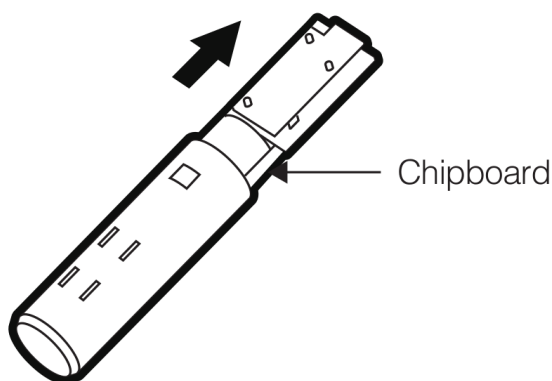


Diagram 3.

3. Remove the Pull Tab to engage the pre-installed battery. LED will become slow fade-in fade-out Red color for a few seconds which will indicate that its power is on.

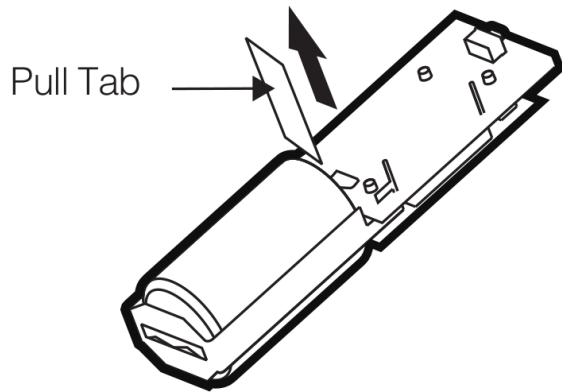


Diagram 4.

4. Add Recessed Door Sensor 7 to your Z-Wave network;

A. If your Z-Wave gateway supports SmartStart, Recessed Door Sensor 7 is SmartStart enabled allowing you to connect it to your Z-Wave gateway by scanning your device's QR Code using your gateway's app. Once scanned, Recessed Door Sensor 7 will join your Z-Wave network automatically within 10 minutes.

B. If your gateway supports the Z-Wave Device Specific Key (DSK) security protocol, enter the first 5 digits of your device's DSK into your gateway's interface when prompted.

C. Else, set your Z-Wave gateway into its 'add device' mode. Refer to the gateway's manual if you are unsure of how to perform this step. Then press Recessed Door Sensor 7's Action Button once, its red LED will flash Red color.

5. When Recessed Door Sensor 7 successfully joins your Z-Wave network its LED will turn solid red for 10 seconds. If LED becomes slow fade-in fade-out Red color before turning off, it means the device is still unable to join your Z-Wave network; repeat the above steps and please contact us for further support if needed.

6. Squeeze the sides of the sensor casing lightly again and re-insert the chipboard as it was. Re-attach the lid.

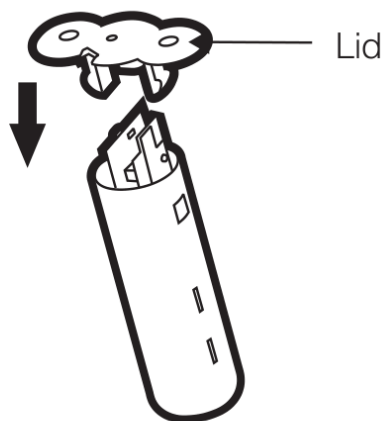


Diagram 5.

Recessed Door Sensor 7 is now a part of your Z-Wave home control system. You can configure it and its automations via your Z-Wave system; please refer to your software's user guide for precise instructions.

### 3.5 How to remove the product from Z-Wave network

1. Set your Z-Wave Controller into its 'Remove Device' mode in order to remove the product from your Z-Wave system. Refer to the Controller's manual if you are unsure of how to perform this step.
2. Make sure the product is powered.
3. Click Action Button once; LED will become flash Red color for 5 seconds.
4. If Removing fails, it will extinguish, without slow fade-in fade-out Red color.
5. If Removing succeeds, it will become slow fade-in fade-out Red color for 10 seconds, and then extinguish. Now, it is removed from Z-Wave network successfully.

### 3.6 How to factory reset

If the primary controller is missing or inoperable, you may need to reset the device to factory settings.

Make sure the product is powered. To complete the reset process manually, press and hold the Action Button for at least 22s and release the Action Button when LED becomes slow fade-in fade-out Red color, then Factory Reset is performed. Contact us for further support if needed.

**Note:**

1. This procedure should only be used when the primary controller is missing or inoperable.
2. Factory Reset will:
  - (a) Remove the product from Z-Wave network;
  - (b) Delete the Association setting;
  - (c) Restore the configuration settings to the default.

### 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.

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.

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