Ring Alarm Glass Break Sensor Z-Wave Technical Manual

Ring Glass Break Sensor

Introduction

Ring Alarm Glass Break Sensor is a wireless sensor for the Ring Alarm system which provides users the ability to know when breaking glass is detected. After installing the sensor on a wall, ceiling or shelf and setting up the sensor in the Ring app, monitor and receive notifications when breaking glass is detected. The Ring Alarm Base Station is required to enable Glass Break Sensor features and functions within the Ring app.

Note:

- 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.
- SmartStart enabled products can be added into a Z-Wave network by scanning the Z-Wave QR Code present on the product with a controller providing SmartStart inclusion. No further action is required and the SmartStart product will be added automatically within 10 minutes of being switched on in the network vicinity.

Ring Glass Break Sensor – Basic Setup & Installation

1. Ensure your Ring Alarm system is disarmed.
2. In the Ring app, tap **Set Up a Device > Security > Sensors** to find the **Glass Break Sensor**
3. Follow the in-app instructions to complete setup.

Installation

1. Choose a wall or ceiling or shelf for installing your Glass Break Sensor.
2. Ensure the surfaces where you plan to install your sensor are clean and free from dust or dirt.
3. Using the provided double-sided tape, peel the backing and attach the sensor to the mounting location.

Note:

- It is recommended to mount the Glass Break Sensor at least 7’ (2m) off the ground, and within 25 feet (7.62m) of your glass windows and doors.

Z-Wave Instructions

Z-Wave Device Type: Notification Sensor

Role Type: Listening Sleeping Slave (LSS)

• GENERIC_TYPE_SENSOR_NOTIFICATION (0x07)

• SPECIFIC_TYPE_NOTIFICATION_SENSOR (0x01)

Z-Wave Long Range

This device supports both Classic Z-Wave and Z-Wave Long Range. Z-Wave Long Range capable controllers can include this device as a device in the network. Long range mode allows for a much greater operating range of the device. The device can only operate in one mode at a time, and it is dictated during the inclusion process by the controller or Base Station. To change operating modes (Z-Wave SmartStart vs. Z-Wave Long Range SmartStart), the device must be removed from the network and then re-added in the desired mode.

Adding Ring Glass Break Sensor to a Z-Wave Network

Ring Glass Break Sensor can be added via Smart Start or Classic inclusion mode.

Note: When prompted for the QR Code or PIN, you may find them on the device, on the box, or on a card inside the box. Keep the device nearby. You'll be prompted to pull the battery tab to power on the device and enter setup mode.

Smart Start Inclusion Steps:

1. Initiate the add flow for Security Devices in the Ring mobile application – Follow the guided add flow instructions provided in the Ring mobile application.
2. When prompted by the mobile application, scan the QR code found on the package of the Glass Break Sensor. The QR code can also be found on the device itself.
3. Pull the pull-tab or insert batteries, and the device will go into SmartStart inclusion mode. While in this mode, Glass Break Sensor can be added to a Z-Wave controller that supports SmartStart. SmartStart can be restarted by tapping the button on the front of the device.

Classic Inclusion Steps:

1. Initiate add flow for Security Devices in the Ring mobile application – Follow the guided add flow instructions provided in the Ring mobile application.
2. Select add manually and enter the 5-digit DSK pin found on the package of the Ring Alarm Glass Break Sensor or the 5-digit DSK pin found under the QR code on the device.
3. After powering on the device, press and hold the setup button on the front for 3 seconds. Release the button and the device will enter Classic inclusion mode.

LED Behavior for Inclusion	Blink Pattern
Smart Start Started	Green LED blink quickly, repeated after a brief pause
Classic Inclusion Started	Green LED blink quickly, repeated after a brief pause
Classic Inclusion Timed-Out	Alternate red and green a few times
Inclusion Successful (Authenticated S2)	Green LED on solid
Inclusion Not Successful (Self-Destruct)	Red LED on solid

Removing a Sensor from a Z-Wave Network

Exclusion Instructions:

1. Initiate remove "Ring Alarm Glass Break Sensor" flow in the Ring Alarm mobile application – Select the settings icon from device details page and choose "Remove Device" to remove the device. This will place the controller into Remove or "Z-Wave Exclusion" mode.
2. With the controller in Remove (Z-Wave Exclusion) mode, use a paper clip or similar object and tap the pinhole button. The device's red LED turns on solid to indicate the device was removed from the network.

Ring Alarm Glass Break Sensor – Factory Reset

Factory Default Instructions

1. To restore Ring Alarm Glass Break Sensor to factory default settings, locate the pinhole reset button on the device. This is found inside the battery compartment on the back of the device after removing the mounting bracket.
2. Using a paperclip or similar object, insert it into the pinhole, press and hold the button down for 10 seconds.
3. The device will rapidly blink green continuously for 10 seconds. After about 10 seconds, when the green blinking stops, release the button. The red LED will turn on solid to indicate the device was removed from the network.

Note: Use this procedure only in the event that the network primary controller is missing or otherwise inoperable.

Identify Function

A controller application can send an Indicator command class with the Indicator ID 0x50 (identify) to turn on the LED on the device.

Comm Test / Manual Wake Up

A comm test can be triggered by press the button on the front of the device. This will cause the device to send a Comm test Notification. A solid Green LED indicates a successful comm test. cause the device to wake up and send a Wake Up Notification. A solid Green LED indicates a successful comm test.

Z-Wave Command Classes

Command Class	Version	Required Security Class
Association	2	Highest granted
Association Group Information	3	Highest granted
Device Reset Locally	1	Highest granted
Firmware Update Meta Data	5	Highest granted
Indicator	3	Highest granted
Manufacturer Specific	2	Highest granted
Multi-Channel Association	3	Highest granted
Powerlevel	1	Highest granted
Security 2	1	None
Supervision	1	None
Transport Service	2	None
Version	3	Highest granted
Z-Wave Plus Info	2	None
Notification	8	Highest granted
Wake Up	2	Highest granted
Configuration	4	Highest granted
Battery	2	Highest granted

Association Command Class

Group Identifier	Max Nodes	Description
1 (Lifeline)	0x05	1. Notification Report a. See notification CC section for notifications that are sent 2. Battery Report 3. Device Reset Locally Notification

Configuration Command Class

The sensor has the following supported configuration parameters.

Parameter No.	Description	Number of Bytes	Default	Min	Max	Format
1	Heartbeats: This parameter is the number minutes between heartbeats. Heartbeats are automatic battery reports on a timer after the last event.	1	70 (0x46)	1 (0x01)	70 (0x46)	0x01 Unsigned
2	Number of application level retries attempted for messages either not ACKed or messages encapsulated via supervision get that did not receive a report.	1	1 (0x01)	0 (0x00)	5 (0x05)	0x01 Unsigned
3	Application Level Retry Base Wait Time Period: The number base seconds used in the calculation for sleeping between retry messages.	1	5 (0x05)	1 (0x01)	60 (0x3C)	0x01 Unsigned
4	Low Battery Threshold (percentage) - Once the battery crosses this threshold, it will last for 2 weeks	1	25	0	100	0x01 Unsigned
5	Critical Battery Threshold (percentage) - Once the battery crosses this threshold, it will last for 1 week	1	10	0	100	0x01 Unsigned
6	The number of milliseconds waiting for a Supervisory Report response to a Supervisory Get encapsulated command from the sensor before attempting a retry.	2	10000 (0x2710)	500 (0x1F4)	30000 (0x7530)	0x01 Unsigned
7	Z-Wave Sleep Timeout (secs): Stay awake time after last comms with hub	1	10	0	15	0x01 Unsigned
8	Glass break Clear delay (in seconds)	1	15	5	255	0x01 Unsigned
9	Faults within clear delay flag	1	0	0	1	0x01 Unsigned
10	Enable LED	1	1	0	1	0x01 Unsigned
11	Enable detection	1	0	0	1	0x01 Unsigned
12	SPL Range Optimization	1	9	0	15	0x01 Unsigned
13	Minimum mic SPL, part 1	1	0	0	7	0x01 Unsigned
14	Minimum mic SPL, part 2	1	1	0	7	0x01 Unsigned
15	Automatic Gain Control	1	0	0	3	0x01 Unsigned
16	Minimum detection SPL	1	4	0	7	0x01 Unsigned
17	Mic-OFF time	1	6	0	7	0x01 Unsigned
18	DNN Queue size	1	9	0	63	0x01 Unsigned

Parameter No.	Description	Number of Bytes	Default	Min	Max	Format
19	DNN Window	1	6	0	255	0x01 Unsigned
20	DNN Backoff	1	55	0	255	0x01 Unsigned
21	DNN Decision threshold	2	32112	0	65535	0x01 Unsigned
22	Debug NDR error	2	0	0	65535	0x01 Unsigned

Notification Command Class, V8

Sensor Condition	Command Class and Value Notification Report	Association Group
Glass Break detected	Notification Report Type: Home Security 0x07 State: Intrusion 0x02	1 (Lifeline)
Glass Break cleared	Notification Report Type: Home Security 0x07 State: Previous Events Cleared 0x00 Event parameter: 0x02	1 (Lifeline)
Tampered	Notification Report Type: Home Security 0x07 State: Tampering Product Covering Removed 0x03	1 (Lifeline)
Tamper Cleared	Notification Report Type: Home Security 0x07 State: Previous Events Cleared 0x00 Event Parameter: 0x03	1 (Lifeline)
Comm Test Button Pressed	Notification Report Type: System 0x09 Event: Heartbeat 0x05	1 (Lifeline)
Watchdog Notification	Notification Report Type: System 0x09 State Value: 0x04 System Software Failure State Parameter Value = 0x55	1 (Lifeline)
Watchdog Notification - Tx Manager	Notification Report Type: System 0x09 State Value: 0x04 System Software Failure State Parameter Value = 0x56	1 (Lifeline)
Software Fault (Ring)	Notification Report Type: System 0x09 State Value: 0x04 System Software Failure State Parameter Value = 0xAA (Ring Value for Soft Fault)	1 (Lifeline)
Software Fault (SDK)	Notification Report Type: System 0x09 State Value: 0x04 System Software Failure State Parameter Value = 0xA9 (SDK Value for Soft Fault)	1 (Lifeline)
Software Reset (Not triggered by failure)	Notification Report Type: System 0x09 State Value: 0x04 System Software Failure State Parameter Value = 0xAC	1 (Lifeline)
Power On Reset	Notification Report Type: 0x08 Power Management Event Parameter: 0x01 Power has been applied	1 (Lifeline)

Notification Command Class, V8 - continued

Sensor Condition	Command Class and Value Notification Report	Association Group
Brownout	Notification Report Type: 0x08 Power Management Event: 0x05 Voltage Drop/Drift	1 (Lifeline)
Pin Reset (soft reset)	Notification Report Type: System 0x09 State Value: 0x04 System Software Failure State Parameter Value = 0xAB	1 (Lifeline)
Dropped Frame	Notification Report Type: System 0x09 State Value: 0x04 System Software Failure State Parameter Value = 0xAD	1 (Lifeline)
Co-Processor Watchdog	Notification Report Type: System 0x09 State Value: 0x04 System Software Failure State Parameter Value = 0xAE	1 (Lifeline)
Co-processor Version Fail	Notification Report Type: System 0x09 State Value: 0x04 System Software Failure State Parameter Value = 0xAF	1 (Lifeline)
Co-processor OTA Fail	Notification Report Type: System 0x09 State Value: 0x04 System Software Failure State Parameter Value = 0xB0	1 (Lifeline)

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