ring

Ring Alarm Contact Sensor 2nd Gen Z-Wave Technical Manual

Ring Alarm Contact Sensor 2nd Gen

Introduction

Ring Alarm Contact Sensor 2nd Gen is a wireless sensor for the Ring Alarm system which provides users the ability to know when a door or window is open or closed. After installing the sensor on a door or window and setting up the sensor in the Ring app, monitor and receive notifications when the door or window opens or closes. The Ring Alarm Base Station is required to enable Contact Sensor 2nd Gen 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 Alarm Contact Sensor 2nd Gen – 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 Contact Sensor 2nd Gen

3. Follow the in-app instructions to complete setup.

   a. Pull the battery tab (or reinsert the batteries) to trigger setup mode.

   b. Tap the button on the front to retry setup mode.

Installation

1. Choose a door or window for installing your Contact Sensor 2nd Gen and companion magnet.

2. Ensure the surfaces where you plan to install your sensor and magnet 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.

4. Follow the same steps for the companion magnet ensuring the magnet is aligned with the sensor and no more than 1 inch from sensor for the "closed" position.

Z-Wave Instructions

Z-Wave Device Type: Notification Sensor

Role Type: Reporting Sleeping Slave (RSS)

• 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 Alarm Contact Sensor 2nd Gen to a Z-Wave Network

Ring Alarm Contact Sensor 2nd Gen 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 Contact Sensor 2nd Gen. 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 Smart Start inclusion mode. While in this mode, Contact Sensor 2nd Gen can be added to a Z-Wave controller that supports Smart Start. When in Smart Start inclusion mode, Smart Start 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 Contact Sensor 2nd Gen or the 5-digit DSK pin found under the QR code on the device.

3. After powering on the device, press and hold the button on the front of the device for ~3 seconds. Release the button and the device will enter Classic inclusion mode which implements both classic inclusion with a **Node Information Frame**, and **Network Wide Inclusion**. During Classic Inclusion mode, the green LED will blink three times followed by a brief pause, repeatedly. When Classic inclusion times-out, the device will blink alternating red and green a few times.

LED Behavior for Inclusion	Blink Pattern
Smart Start Started	Green LED three times, repeated after a brief pause
Classic Inclusion Started	Green LED three times, 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 Ring Alarm Contact Sensor 2nd Gen from a Z-Wave Network

Exclusion Instructions:

1. Initiate remove "Ring Alarm Contact Sensor 2nd Gen" 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 reset button. The device's red LED turns on solid to indicate the device was removed from the network.

Ring Alarm Contact Sensor Gen 2 – Factory Reset

Factory Default Instructions

1. To restore Ring Alarm Contact Sensor 2nd Gen 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 back 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.

Wake-Up Notification

The sensor will wake up every so often to send a Wake-Up Notification to allow the life line master node controller that the sensor is now available for any queued messages that the controller may have for the sensor. The time between Wake-Up Notifications can be configured with the Wake-Up Notification command class according to the following configurable values:

• Min Value 1 hr

• Max Value 24 hr

• Default Value 12 hours (12 * 60 * 60 seconds)

• Wake Up Interval Step Seconds 1 hour (3600 seconds)

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	This parameter allows a user, via software, to configure the various LED indications on the device. 0 == Don't show green 1 == Show green after Supervision Report Intrusion (Fault) 2 == Show green after Supervision Report both Intrusion and Intrusion clear	1	1 (0x01)	0 (0x00)	2 (0x01)	enum
5	One shot timer: Writing to this parameter prompts the sensor to send a wakeup notification one time after this parameter's number of seconds. After which it is reset back to 0.	2	0 (0x00)	5 (0x05)	65535 (0xFFFF)	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	1500 (0x5DC)	500 (0x1F4)	5000 (0x1388)	0x01 Unsigned

Notification Command Class, V8

Sensor Condition	Command Class and Value	Association Group
Door/Window Open	Notification Report Type: Home Security 0x07 State: Intrusion 0x02	1 (Lifeline)
Door/Window Close	Notification Report Type: Home Security 0x07 State: Previous Events Cleared 0x00 Event parameter: 0x02	1 (Lifeline)
Sensor Case Removed	Notification Report Type: Home Security 0x07 State: Tampering Product Covering Removed 0x03	1 (Lifeline)
Sensor Case Fastened	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)
Magnetic Tamper	Notification Report Type: Home Security 0x07 State: 0x0B (Magnetic field interference detected)	1 (Lifeline)
Magnetic Tamper Clear	Type: Home Security 0x07 State: Previous Events Cleared 0x00 Event Parameter: 0x0B	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)
Pin Reset (soft reset)	Notification Report Type: System 0x09 State Value: 0x04 System Software Failure State Parameter Value = 0xAB	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)
Brownout	Notification Report Type: 0x08 Power Management Event: 0x05 Voltage Drop/Drift	1 (Lifeline)
Dropped Frame	Notification Report Type: System 0x09 State Value: 0x04 System Software Failure State Parameter Value = 0xAD	1 (Lifeline)