



# Motion Detector Z-Wave Technical Manual



# Ring Motion Detector

## Adding Sensor to a Z-Wave Network

Ring Motion Sensor can be added via smart start or via classic inclusion mode –

### Smart Start Inclusion Steps:

1. Initiate add sensor flow in the Ring Alarm mobile application – Follow the guided add flow instructions provided in the application
2. Scan the QR code found on the package of the sensor or the QR code found on the back of the sensor
3. Pull the battery tab on the sensor
4. When the inclusion process is complete, the LED on the sensor will be solid blue, then go out.
5. Test the sensor. Place the sensor in an unoccupied room. Leave the room for at least four minutes. Return to the room and pass in front of the sensor – LED will flash if motion is detected.

### Classic Inclusion Steps:

1. Initiate add sensor flow in the Ring Alarm mobile application – Follow the guided add flow instructions provided in the application
2. Scan the QR code found on the package of the sensor or the QR code found on the back of the sensor
3. Pull the battery tab on the sensor
4. When the inclusion process is complete, the LED on the sensor will be solid blue, then go out.
5. Test the sensor. Place the sensor in an unoccupied room. Leave the room for at least four minutes. Return to the room and pass in front of the sensor – LED will flash if motion is detected.

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.

This is a SmartStart enabled product which 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. This product can also be operated in any Z-Wave network with other Z-Wave certified devices from other manufacturer

## Removing a Sensor to a Z-Wave Network

### Exclusion Instructions:

1. Initiate remove sensor flow in the Ring Alarm mobile application – Select the settings icon from device details page and choose “Remove Device”
2. Open motion sensor’s cover
3. Remove and replace battery quickly

## Factory Default Instructions

1. Using a pointed end of a paperclip, press and hold the reset button via the reset pin hole found at the back of the sensor
2. Blue LED will start to blink rapidly
3. Wait for the blue LED to stop blinking Use this procedure only in the event that the network primary controller is missing or otherwise inoperable.

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## Wake-Up Notification

The sensor will wake up every so often and when the case is closed 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 to be between 1 and 24 hours.

## Mapping of the Basic Command Class

The sensor sends unsolicited Basic Reports on state changes (See Association). If a controlling node sends the sensor a Basic Set, the command has no functionality and is ignored.

## Association - Lifeline

This sensor has two Association groups of 1 nodes each. Group 1 is a lifeline group who will receive unsolicited messages relating to Motion Detected/Not Detected notifications, case tampering notifications, and low-battery notifications. When a node is associated with Group 2, the sensor will send a basic report of either 0xFF for “motion” or 0x00 for “no motion.”

## Network Wide Inclusion

This sensor also supports Network Wide Inclusion such that the Sensor can be included into the Z-Wave network over the mesh network and not directly near the main controller. This mode is automatically activated after regular inclusion was not successful.

Sensor Condition	Sensor Condition	Association Group	Configurable?
Motion Detected	Notification Report, Type: Home Security (0x07) Event: Motion Detection Unknown Location (0x08)	1	Yes, via Notification Set of Notification Type 0x07, and status of 0x00: This type of notification turned off 0xFF: This type of notification turned on
	Basic Report of 0xFF	2	
No Motion Detected	Notification Report, Type: Home Security (0x07) Event: Previous Events Cleared (0x00)	1	Yes, via Notification Set of Notification Type 0x07, and status of 0x00: This type of notification turned off 0xFF: This type of notification turned on
	Basic Report of 0x00	2	
Sensor Case Removed	Notification Report, Type: Home Security (0x07) Event: Tampering Product Covering Removed (0x03)	1	Yes, via Notification Set of Notification Type 0x07, and status of 0x00: This type of notification turned off 0xFF: This type of notification turned on
Sensor Case Fastened	Wake-Up Notification	1	Yes, via Wake-Up Notification Command Class
	Notification Report, Type: Home Security (0x07) Event: Previous Events Cleared (0x00)	1	Yes, via Notification Set of Notification Type 0x07, and status of 0x00: This type of notification turned off 0xFF: This type of notification turned on
Battery Level	A level of 0x64 indicates that battery is new. A level of 0x63 indicates the battery is normal/OK but not new. A level of 0x00 indicates that the battery should be changed "soon." A battery level of 0xFF indicates that the battery is dead and the sensor is no longer operational.	1	No

## Configuration Parameters

Parameter No.	Description	Size in Bytes	Value description	Default
1	Configures how often the sensor should send an unsolicited Battery Report to the Lifeline.	2	255 to 4200 seconds in 255 second increments that the sensor should wait between sending unsolicited battery reports.	4200
2	Configures the “dwell” window or how long the sensor should not be detecting motion before sending the “no motion detected” message.	1	1 to 9 minutes.	3
3	Configures the “Pet Immunity,” or sensitivity of the motion detection used mostly so only human motion is detected.	1	0 to 2 sensitivity. 0: No pet immunity 1: 15kg (33lb) 2: 25kg (55lb)	1
4	Parameter 4 is used to activate a “walk test” mode to test the PIR motion detection coverage after being installed. This mode is active for 15 minutes only after which the sensor returns to normal operation.	1	0: Normal operation 0xFF: Activate Walk Test for 15 minutes	0
5	One-Time Wakeup Notification. (In addition to normal Wakeup Notification)	2	1 (must be divisible by sleep step time of configuration parameter 7) to 3600 (0x0E10)	0 (Not in use).
6	Number of Application Level Retries after a failed transmission defined as either not ACKed or Supervision Report not returned when encapsulated.	1	0 is no application level retries to 5	5
7	The minimum number of seconds to sleep between application level retries.	1	1 to 60 seconds	6 seconds
8	The number of milliseconds to wait for a Supervisory Report in response to a Supervisory encapsulated Get.	2	500 to 5000 milliseconds	1500 milliseconds
9	The number of seconds the device will sleep between waking up to increment its Wakeup and Heartbeat counter. Also the sleep step time.	2	1 to 255 seconds	255 seconds

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