



NESS Z-WAVE™ REED SWITCH (ZWR)



**Reed-Only version
DRAFT 10**

- Monitor doors, windows, drawers, garage doors and others openings.
- Z-Wave Plus™ V2 Certified Device
- Supports SmartStart inclusion
- Supports firmware Over The Air (OTA) updates
- Long Z-Wave Radio Range
- Long Battery Life
- Low Battery report and Indication

QR image

INSTALLATION & PROGRAMMING NOTES

Rev 1.0

Ness Corporation manufacturing processes are accredited to ISO9001 quality standards and all possible care and diligence has been applied during manufacture to ensure the reliable operation of this product. However there are various external factors that may impede or restrict the operation of this product in accordance with the product's specification.

These factors include, but are not limited to:

1. Erratic or reduced radio range. Ness radio products are sophisticated low power devices, however the presence of in-band radio signals, high power transmissions or interference caused by electrical appliances such as wireless routers, cordless phones, computers, TVs and other electronic devices may reduce the range performance. While such occurrences are unusual, they are possible. In this case it may be necessary to either increase the physical separation between the Ness receiver and other devices or if possible change the radio frequency or channel of the other devices.

2. Unauthorised tampering, physical damage, electrical interruptions such as mains failure, electrical spikes or lightning.



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For products:

ZA-117011 Ness Z-Wave Reed Switch (ANZ)

ZU-117011 Ness Z-Wave Reed Switch (US)

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Specifications may change without notice.



INTRODUCTION

The Ness Z-Wave™ Reed Switch (ZWR) is a miniature battery powered magnetic reed switch with Z-Wave Plus™ connectivity and hundreds of uses.

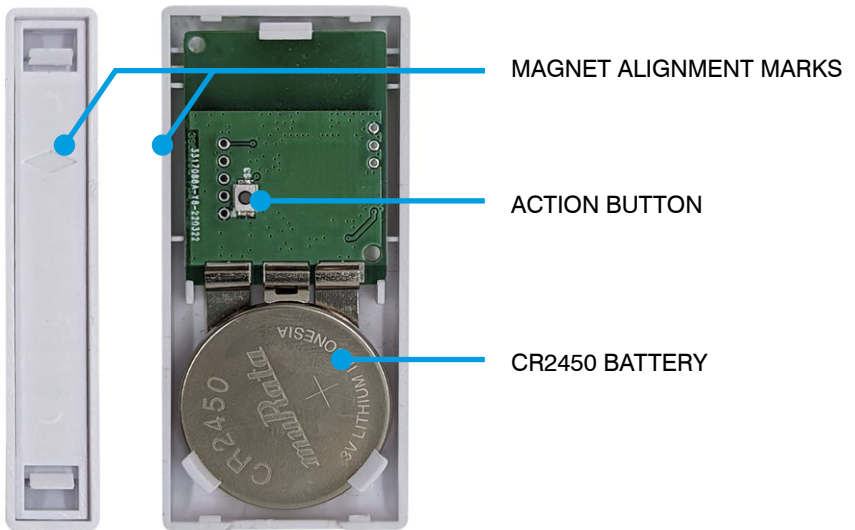
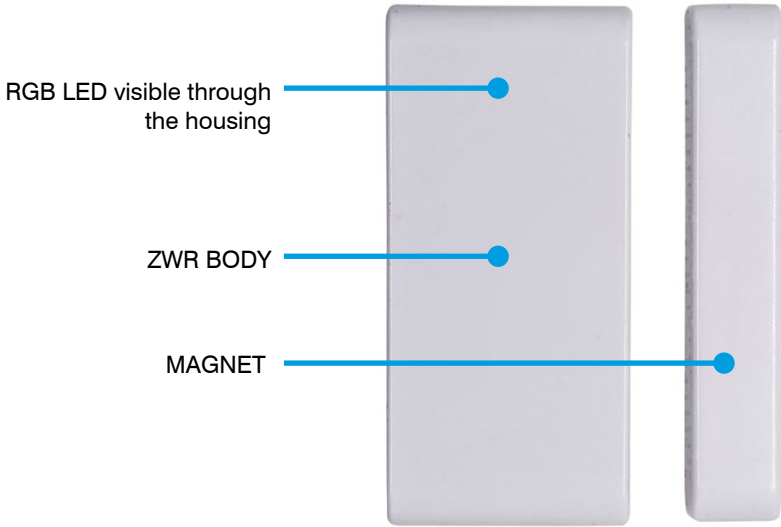
ZWR can be used to monitor the status of doors, windows, and other objects with opening parts such as cupboards, drawers, inspection covers, display cases and more.

Being battery powered, ZWR can be quickly and easily installed into a Z-Wave network at any location within range.

Ness ZWR is a Security Enabled Z-Wave Plus™ V2 empowered wireless control. This product can be operated in any Z-Wave network with other Z-Wave certified devices from other manufacturers with same regional radio frequency. All mains operated nodes within the network will act as repeaters regardless of vendor to increase reliability of the network.

- Supports SmartStart inclusion
- Supports the Over the Air firmware upgrade (OTA).
- RGB LED status indication
- Low current draw - powered by a CR2450 battery.
- Low battery warning indication and report
- Z-Wave Plus™ V2 Certified Device

OVERVIEW



Internal components

INSTALLATION

The ZWR reed switch body and magnet should be affixed to the door or window and frame with the self adhesive pads provided. Ensure that all surfaces are dust free and clean of oily residue.

Installation on metal surfaces can reduce radio range.

BATTERY

ZWR is powered by a 3V CR2450 lithium battery.

A low battery warning message is sent when the battery voltage drops to the level set by Configuration Parameter #4.

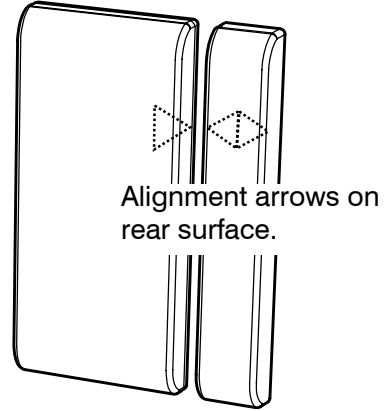
Battery life is affected by the number of transmissions per day and will be shorter when used on high traffic doors or windows.

Slow Flashing Red LED indicates low battery condition.

MAGNET ALIGNMENT

The alignment arrows on the reed switch body and magnet must be in line when the door/window is closed.

The gap between the reed switch body and magnet must not exceed 10mm.



ACTION BUTTON

1. INCLUSION/EXCLUSION MODE

Press once to enter Inclusion/Exclusion mode.

Red LED will be flashing.

While in Inclusion/Exclusion mode pressing the Action Button once more will exit Inclusion/Exclusion mode (provided that the device is not actively in the Z-Wave inclusion process).

2. WAKE-UP

To manually wake up the ZWR, press and hold the Action Button for 3 seconds until the Blue LED turns on, then release the button.

3. FACTORY DEFAULT

To reset Ness ZWR to factory default settings, press and hold the Action Button for at least 20 seconds. Release the button when the Blue LED turns off (20 seconds). The Green LED will flash once to indicate successful reset.

Releasing the Action Button while the Blue LED is on cancels the reset process.

GREEN LED

On, 1 sec	Onboard reed switch change of state (door opened or door closed).
On, 2 sec	1. Manual factory reset is complete.
	2. ZWR successfully added to a Z-Wave network.
	3. ZWR has been powered up.

RED LED

Fast Flash	Inclusion/Exclusion mode.
Slow Flash	Low Battery condition.
Device Indicator	Control by Indicator Command Class.

BLUE LED

On	Device Wake-Up. <i>On after pressing the Action button for 3 seconds.</i>
On	Factory default in progress. <i>On while pressing the Action button for over 20 seconds.</i>

ADDING THE DEVICE INTO A Z-WAVE NETWORK

INCLUSION

To add the device into the Z-Wave network:

- 1) Power on device and ensure it has been factory defaulted.
- 2) Set the primary controller into inclusion mode.
- 3) Click the Action Button once to enter inclusion mode. Red LED: fast flashing.
Inclusion mode can be cancelled by clicking the Action Button again before the controller starts inclusion mode. Red LED stops flashing.
- 4) If your Z-Wave controller supports S2 Access encryption and DSK, enter the first 5 digits of the DSK located at bottom of the QR image.
- 5) If Inclusion is successful:
Red LED stops fast flashing.
Green LED turns on for 2 seconds.

REMOVING THE DEVICE FROM A Z-WAVE NETWORK

The Exclusion process is the same as Inclusion however your Z-Wave controller must be in Exclusion mode.

You may need to refer to your Z-Wave gateway/controller's instructions for removing devices.

EXCLUSION

To remove the device from the Z-Wave network:

- 1) The device is powered
- 2) Set the primary controller into Exclusion mode.
- 3) Click the Action Button once.
- 4) If Exclusion is successful:
Red LED stops fast flashing.
Green LED turns on for 2 seconds.

ADDING WITH SmartStart*

Ness Z-Wave Reed Switch is a SmartStart enabled device allowing it to be added into a Z-Wave network by scanning its Z-Wave QR Code 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.

**Requires a SmartStart compatible controller and app. Ness Z-Wave ZWR must be within network range.*



Scan the QR code on the rear of the device

TO FACTORY DEFAULT

Please use this procedure only when the network primary controller is missing or otherwise inoperable.

Reset the device to factory Default:

- 1) The device is powered
- 2) Press and hold the action button until the Blue LED turns on. Release the button when the LED turns off (at least 20 seconds). The Green LED will turn on for 2 second to indicate successful reset.

Device reset is cancelled if you release the action button while the Blue LED is on.

After the device been reset to factory default settings:

- If the device was included within a Z-Wave network, the device will send a "Device Reset Locally" message to the main controller.
- The device will be excluded from existing Z-Wave networks.
- Any configured Association setting, power measure value, Scene Configuration settings will be reset.
- Any Configured Parameter Number entries will be set to their default values.

Z-WAVE SETUP

DEVICE TYPE		
Basic Device Class:	BASIC_TYPE_ROUTING_SLAVE	0x04
Generic Device Class:	GENERIC_TYPE_SENSOR_NOTIFICATION	0x07
Specific Device Class:	SPECIFIC_TYPE_NOTIFICATION_SENSOR	0x01

Z-WAVE PLUS 2 INFO			
Role Type	Node Type	Installer Icon Type	User Icon Type
0x06 Reporting Sleeping Slave (RSS)	0x00 Z-Wave Plus node	0X0c06 Specific Sensor Notification Access Control	0X0c06 Specific Sensor Notification Access Control

ASSOCIATION GROUP INFORMATION			
Group ID	Group Name	Max Nodes	Description
1	Lifeline	5	BATTERY_REPORT NOTIFICATION_REPORT DEVICE_RESET_LOCALLY_NOTIFICATION INDICATOR_REPORT
2	Basic Set	5	Basic Set (Value) Only the Basic Set command reports to this group

MANUFACTURER			
Model	Manufacturer ID	Product Type	Product ID
ZA-117011	0x0189 Ness	0x0204 0x02 – ANZ, 0x04 - Z-Wave plus 2	0x0F01 0x0F – Reed Sensor , 0x01 - Hardware V1
ZU-117011	0x0189 Ness	0x0104 0x01 – US, 0x04 - Z-Wave plus 2	0x0F01 0x0F – Reed Sensor , 0x01 - Hardware V1

VERSION				
Model	Protocol Library	Protocol	Firmware	Hardware
ZA-117011	0x03 Slave_Enhance_232_Library	0x0710 SDK V7.16	0x0101 V1.1	0x01 Hardware V1
ZU-117011	0x03 Slave_Enhance_232_Library	0x0710 SDK V7.16	0x0101 V1.1	0x01 Hardware V1

Z-WAVE SETUP

FIRMWARE ID	
Model	Firmware ID
ZA-117011	0x24F1 2 – ANZ, 4 - Z-Wave plus 2, 0x0F – Reed Sensor , 1 - Hardware V1
ZU-117011	0x14F1 1 – US, 4 - Z-Wave plus 2, 0x0F – Reed Sensor, 1 - Hardware V1

NOTIFICATION REPORTS		
Event	Event Type	Event
Opening	Access control 0x06	Door is open 0x16
Closing	Access control 0x06	Door is closed 0x17

BASIC SET			
Event	Event Type	Value	CPN#
Opening	Basic Set	0xFF	1, 2, 3
Basic set off delay	Basic Set	0x00	1

BATTERY LEVEL REPORTS				
Event	Command Class	Command	Value	CPN#
Battery Level	Battery	Battery Report	%	5
Low Battery	Battery	Battery Report	0xFF	4

Z-WAVE SETUP

INDICATOR COMMAND CLASS		
Command Class	Indicator ID	Property ID
Indicator	Node Identify 0x50	0x03 On/Off Periods
		0x04 On/Off Cycles
		0x05 On time within an On/Off period

DEVICE MANUAL FACTORY RESET	
Event	Command Class Command
Device defaulted manually	Device Reset Locally Notification

WAKE UP NOTIFICATION	
Event	Command Class Command
Device wake up	Wake up notification

CONFIGURATION PARAMETERS TABLE				
Parameter (Hex/ASCII)	Description	Default Value	Valid Values	Size (bytes)
0x01/1	<p>Basic Set Off Delay</p> <p>The period of time in seconds to send BASIC SET (0) command to Association Group 2 after BASIC_SET(0xFF) command has reported.</p> <p>Range: 0~3600 Default: 10 Value = 0 - disables BASIC SET (0) report</p>	10	0~3600	2
0x02/2	<p>Basic Set ON Level</p> <p>This parameter sets the value sent by the BASIC SET ON command to Association Group 2.</p> <p>Available Settings: 1~99 or 255 1~99 Dim Level (for a multilevel Switch) 255 = ON for a Binary Switch Device</p>	255	1~99 or 255	1
0x03/3	<p>When to send BASIC SET ON Command</p> <p>This parameter is used to select when to send BASIC SET ON Command.</p> <p>0 = Do not send Basic Set ON Command 1 = Open, when the sensor and magnet are pulled apart 2 = Close, when the sensor and magnet are brought together.</p>	1	0~2	1
0x04/4	<p>Low battery setting</p> <p>Report battery low warning message when the battery level reaches this value in percentage.</p> <p>Range: 10 ~ 50 (10% to 50%) Battery level range: 100% = 3V; 0% = 1.8V</p>	10	10~50	1
0x05/5	<p>Battery Scheduled Report Interval</p> <p>The battery level scheduled report interval time is based on every 30 minutes per kick. The value N related to the time in minutes is N x 30minutes.</p> <p>Range: 0~120. Default: 12 (12x30 =360minutes). Value = 0 Disable Battery level scheduled report.</p>	12	0~120	1
0x06/6	<p>Reed Sensor Green LED Configuration</p> <p>This parameter set the Green LED to indicate when the reed sensor detects the MAGNET approach or moving away or both. Disabling the Green LED will save battery life.</p> <p>0 = Disable Green LED 1 = Closing 2 = Opening 3 = Opening and Closing</p>	1	0~3	1

Z-WAVE SETUP

COMMAND CLASSES SUPPORTED			
Item	Command Class	Version	Required Security Class
1	Z-Wave Plus Info	2	None
2	Association	2	*
3	Multi-Channel Association	3	*
4	Association Group Information	3	*
5	Transport Service	2	None
6	Version	3	*
7	Manufacturer Specific	2	*
8	Device Reset Locally	1	*
9	Configuration	4	*
10	Indicator	3	*
11	Power level	1	*
12	Battery	1	*
13	Security 0	1	None
14	Security 2	1	None
15	Notification	8	*
16	Wake Up	2	*
17	Supervision	1	None
18	Firmware Update Meta Data	5	*
19	Application Status	1	None

* Supports Security S0, S2
Unauthenticated and S2 Authenticated

TERMINOLOGY

Reed Sensor open - The reed sensor and magnet are pulled apart, ie. Opening the door.

Reed Sensor closed - The reed sensor and magnet are brought together, ie. Closing the door.

Inclusion - The process of adding a node to the Z-Wave network.

Exclusion - The process of removing a node from the Z-Wave network.

Association - is a control relationship between a controlling device and a controlled device.

OTA - Over The Air, used for wireless transfer of firmware images for updating a device.

QR Code - 2D barcode format that can contain large amounts of information in a small square of encoded blocks resembling a random checkerboard pattern. In Z-Wave, it is used to represent the S2 public part of the DSK on a device, as well as additional information needed for the inclusion process.

Security S2 - Z-Wave's unique security model ensuring secure inclusion and secure communication in the Z-Wave network.

SmartStart - 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

DSK - This Device Specific Key can be compared against the Z-Wave UI, PC Controller dialog box, or other Controller UI. If needed, the first decimal group of the DSK can be typed in for S2 secure inclusion.

SPECIFICATIONS

Product Name	Ness Z-Wave Reed Switch	
Frequency	ZA-117011 ZU-117011	921.4 MHz for ANZ Region 908.42 MHz for US Region
Firmware Version	ZA-117011 ZU-117011	V1.1.1 V1.1.1
Brand Name	Ness	
Product Line	Security Add-Ons Device	
Product Description	Notification Sensor (Reed Sensor)	
Product Type	Notification Sensor - Z-Wave Plus v2 devices	
Role Type	Reporting Sleeping Slave (RSS)	
Z-Wave Plus V2 Certification No		
Z-Wave Compatibility	Z-Wave Plus V2 certified controllers	
Z-Wave Security Product	<p>This device is a security enabled Z-Wave product and is able to use encrypted Z-Wave messages to communicate to other security enabled Z-Wave products.</p> <p>The security versions supported:</p> <ul style="list-style-type: none"> • Security 0 • Security 2 Unauthenticated • Security 2 Authenticated <p>A Security Enabled Z-Wave Controller must be used in order to include the device in Security mode</p>	
Z-Wave Radio Range	40m	
Application	Indoors only	
Sensors on board	Reed switch	
Reed Switch max. gap	10mm	
Visual Indicator	RGB LED	
Battery	1 x CR2450 3V	
Current, Standby/Working	<4uA / <13mA	
Operating Temperature	-10°C to 50°C	
Dimensions	60(H) x 30(W) x 8(D) mm	

NOTES

