

Z-Wave 800 Range Extender Engineering Specifications



The Range Extender based on Z-Wave™ Slave library of V7.18.03. This Range Extender integrated Z-Wave communication module to connect with Z-Wave gateway.

The Range Extender can be included and operated in any Z-Wave network with other Z-Wave certified devices from other manufacturers and/or other applications. All non-battery operated nodes within the network will act as repeaters regardless of vendor to increase reliability of the network.

The Range Extender is a security Z-Wave device (S2), so a security enabled controller is needed for take full advantage of all functionality for the Range Extender.

Features:

- New 800 chip for better performance than ever.
- Faster, more secure, and lower power than 500 series.
- Built-in signal repeater functionality.
- SmartStart and S2 Security for a safer network.

1 Technical Specifications

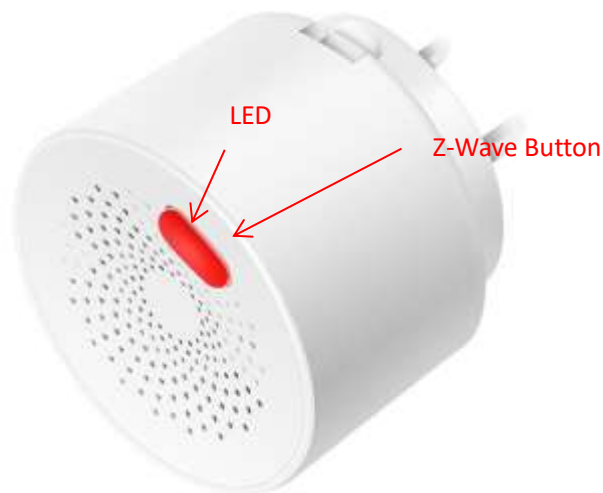
Model Number	ZAC38
Communication Protocol	Z-Wave
Z-Wave Radio Frequency	908.42MHz
Wireless Range	More than 100m outdoors About 40m indoors (depending on building materials)
Input Voltage	120VAC,60Hz
Operating Temperature	32-104° F (0-40° C)
Operating Humidity	Up to 85% non-condensing

2 Z-Wave Specifications

SDK Version	7.18.03
SDK Library	libZWaveSlave
Explorer Frame Support	Yes
Routing	Yes
SmartStart	Yes
Device Type	Notification Sensor
Basic Device Class	BASIC_TYPE_ROUTING_SLAVE

Generic Device Class	GENERIC_TYPE_SENSOR_NOTIFICATION
Specific Device Class	SPECIFIC_TYPE_NOTIFICATION_SENSOR
Role Type	Always On Slave (AOS)

3 Familiarize yourself with Range Extender



4 Security and non-Security features

This device is a security enabled Z-Wave Plus™ product that is able to use encrypted Z-Wave Plus messages to communicate to other security enabled Z-Wave Plus products.

When a node includes into a S2 Z-Wave network, the node supports S2 unauthenticated class, S2 authenticated and so do the supported CCs.

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.

4.1 Supported Security Levels

- SECURITY_KEY_S2_AUTHENTICATED_BIT
- SECURITY_KEY_S2_UNAUTHENTICATED_BIT

4.2 Commands List

Command Classes	Version	Required Security Class
COMMAND_CLASS_ZWAVEPLUS_INFO_V2	2	None

COMMAND_CLASS_TRANSPORT_SERVICE_V2	2	None
COMMAND_CLASS_SECURITY_2_V1	1	None
COMMAND_CLASS_SUPERVISION_V1	1	None
COMMAND_CLASS_APPLICATION_STATUS_V1	1	None
COMMAND_CLASS_NOTIFICATION_V8	8	Highest granted Security Class
COMMAND_CLASS_BATTERY_V1	1	Highest granted Security Class
COMMAND_CLASS_CONFIGURATION_V4	4	Highest granted Security Class
COMMAND_CLASS_ASSOCIATION_V2	2	Highest granted Security Class
COMMAND_CLASS_ASSOCIATION_GRP_INFO_V3	3	Highest granted Security Class
COMMAND_CLASS_VERSION_V3	3	Highest granted Security Class
COMMAND_CLASS_MANUFACTURER_SPECIFIC_V2	2	Highest granted Security Class
COMMAND_CLASS_DEVICE_RESET_LOCALLY_V1	1	Highest granted Security Class
COMMAND_CLASS_POWERLEVEL_V1	1	Highest granted Security Class
COMMAND_CLASS_FIRMWARE_UPDATE_MD_V5	5	Highest granted Security Class
COMMAND_CLASS_MULTI_CHANNEL_ASSOCIATION_V3	3	Highest granted Security Class
COMMAND_CLASS_INDICATOR_V3	3	Highest granted Security Class

5 All functions of each trigger

5.1 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.

Add the Range Extender into the Z-Wave network via SmartStart (SmartStart Inclusion):

- a. Add Range Extender DSK into the primary controller SmartStart Provisioning List (If you don't know how to do this, refer to its manual, DSK usually print on the main body).
- b. Reconnect main power the Range Extender.
- c. The Range Extender will send "Z-Wave protocol Command Class" frame to start SmartStart Inclusion.

LED will blink green during the inclusion, and then solid green for 2 seconds to indicate that the inclusion is successful, otherwise the LED will solid red for 2 seconds in which you need to repeat the process from step b

5.2 Power on

In the network:

LED will keep off.

Not in the network:

LED will keep **green** slow blink and start SmartStart.

5.3 Short press Z-Wave Button three times

Add the Range Extender into the Z-Wave network (**Manual Inclusion**):

- a. Power on your Range Extender, set your Z-Wave controller into add/inclusion mode.
- b. Short press Z-Wave Button three times.
- c. LED will fast blink green during the inclusion, and then solid green for 2 seconds to indicate the inclusion is successful, otherwise the LED will solid red for 2 seconds in which you need to repeat the process from step a

Remove Range Extender from a Z-Wave network (**Manual Exclusion**):

- a. Power on your Range Extender, and let the Z-Wave primary controller into remove/exclusion mode.
- b. Short press Z-Wave Button three times.
- c. LED will fast blink green during the exclusion, and then solid green for 2 seconds to indicate that the exclusion is successful, otherwise the LED will solid red for 2 seconds in which you need to repeat the process from step a.

5.4 Reset Range Extender to factory default

Click Z-Wave button 2 times quickly, and hold for at least 15 seconds > LED start blinking quickly once tapped twice, then after 15s confirmed reset with 3 seconds. The Range Extender will reset itself to factory default by sending a "Device Reset Locally Notification" to gateway when the button is released.

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

6 Special Rule of Each Command

6.1 Z-Wave Plus Info Report Command Class

Z-Wave Plus Version: 0x02

Role Type: 0x05 (ZWAVEPLUS_INFO_REPORT_ROLE_TYPE_SLAVE_ALWAYS_ON)

Node Type: 0x00 (ZWAVEPLUS_INFO_REPORT_NODE_TYPE_ZWAVEPLUS_NODE)

Installer Icon Type: 0x0C00 (ICON_TYPE_GENERIC_SENSOR_NOTIFICATION)

User Icon Type: 0x0C08 (ICON_TYPE_SPECIFIC_SENSOR_NOTIFICATION_POWER_MANAGEMENT)

6.2 Association Command Class

The Range Extender support 1 association groups and max 5 nodes.

Grouping Identifier	Max Nodes	Send Commands
Group 1(Lifeline Group)	0x05	1. Notification Report. Sensor will send Notification Report when the main power disconnected or reconnected. 2. Battery Report. Sensor will send Battery Report when main power disconnected. 3. Device Reset Locally Notification. Config Button is press and hold for 20 seconds 4.Indicator Report.

6.3 Notification Commands

Notification Type	Notification Event
POWER_MANAGEMENT (0x08)	(0x02) AC_MAINS_DISCONNECTED (0x03) AC_MAINS_RECONNECTED

How to trigger these different notifications;

Power Management:

AC_MAINS_DISCONNECTED (0x0A): When the main power disconnected.

AC_MAINS_RECONNECTED (0x0B): When the main power reconnected.

6.4 Indicator Command Class

The Receptacle support the Indicator Command Class, version 3 and support the Indicator ID 0x50 (Identify) and Properties ID 0x03, 0x04 and 0x05

6.5 Configuration Command Class

#	Name	Size	Range	Description	Default
1	Low battery level alarm	1	0~50	Configure low battery level report threshold, sends low battery level report via battery report when battery	10

	threshold			level drops under setting. Unit %.	
2	Enable/Disable threshold reporting	1	0~1	Enable/Disable battery level change threshold reporting. 0 = Disable 1 = Enable	1
3	Battery level report check threshold	1	5~50	Configure auto battery level report threshold, sends battery level report via battery report when battery level change greater than setting. Unit %.	10
4	Threshold Check Time	2	1~65535	Set threshold check time in seconds if threshold is enable via Param2.	600
5	Enable/Disable interval time reporting	1	0~1	Enable/Disable interval time reporting. 0 = disable 1 = enable	1
6	Battery level auto report interval time	1	30~65535	Interval time set in seconds. Battery Report will be sent when timeout.	3600