

Arrival Sensor User Guide



Arrival Sensor integrated Z-Wave communication module to connect with Z-Wave gateway. By real-time communication to verify if the device in the communication range of gateway, system can automatically trigger some relative scenarios and send out messages to especial person.

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

Arrival Sensor is supports the Over The Air (OTA) feature for the product's firmware upgrade.

Features :

- 1) Particular design for low power consumption, battery charging cycle up to 45 days.
- 2) High performance RF design, visual communication distance up to 40m.
- 3) Follow standard Z-Wave plus protocol.
- 4) Support low battery alarm function.
- 5) Support firmware OTA.
- 6) Build-in an acceleration sensor to control device sleeping and awaking for power saving.

1 Familiarize yourself with your Arrival Sensor

1.1 Arrival Sensor Layout



1	Hanger
2	Charging Interface (Micro USB)
3	Function of Action Button
4	Z-Wave Status Indicator
5	Low Power Indicator

2 Technical specifications

Power supply:	150mAh Li-Poly
Storage environment:	-5°C -45°C 0%-90%
Operational temperature:	0-40°C
Radio protocol:	Z-Wave
Radio frequency:	908.42MHz (US)

	868.42MHz (EU) 921.42MHz (AU)
Range:	About 40m indoors (depending on building materials)
Dimensions:	Dimensions: 43mm (H) *35mm (W) *16mm (D) Weight: 30g Material: PC
Working current:	About 37mA
Standby current:	About 10uA

3 Functions of each trigger

Function of Action Button:

Arrival Sensor is not in the Z-Wave network:

Trigger	Description
Short press 1 time (within 1 second)	1. Led will blink for 8 seconds, send Node Info frame. 2. Add for inclusion: 1. Set the Z-Wave network main controller into learning mode. 2. Triggering this action button. 3. If the add for inclusion is successful, the LED will blink less than 5 seconds and then keep on 3 seconds. Otherwise, the LED will blink 8 seconds and then turn off, in which case you need to repeat the process from step 2.

Arrival Sensor is in the Z-Wave network:

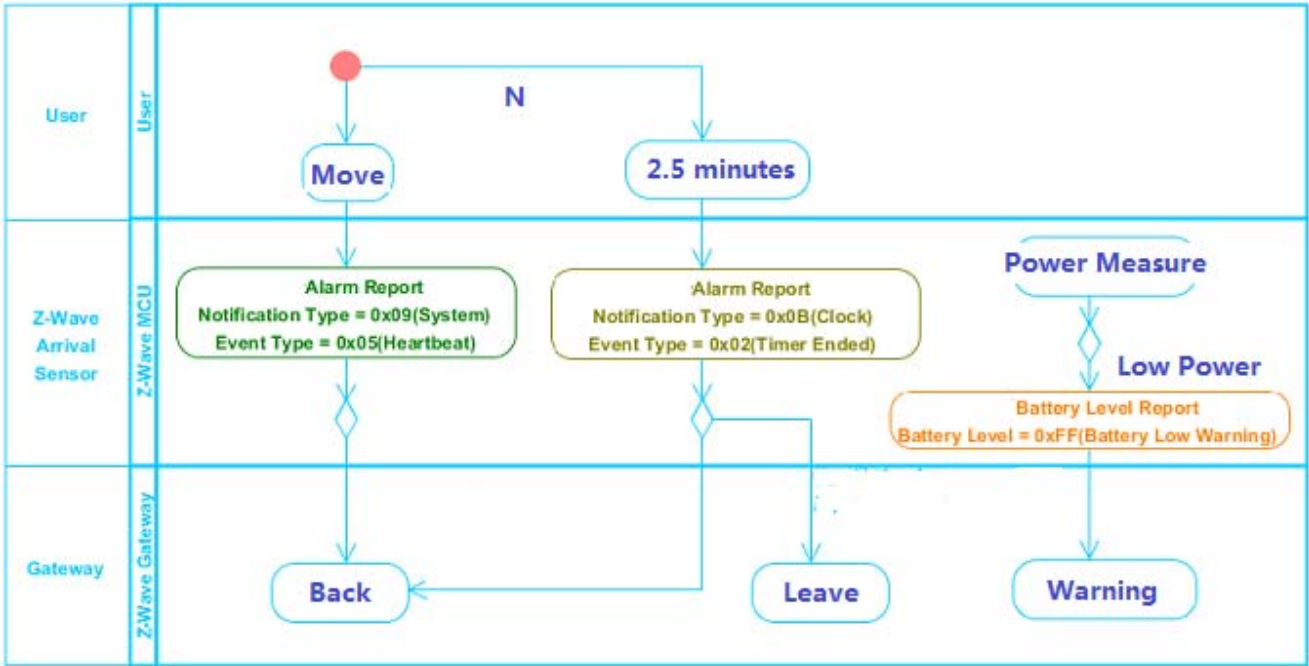
Trigger	Description
Short press one time (within 1 second)	1. Led will blink for 8 seconds; sending Node Info frame. 2. Remove for exclusion; 1. Set the Z-Wave network main controller into learning mode. 2. Triggering this action button. 3. If the remove for exclusion, the LED will turn off within 1 second. Otherwise, the LED will blink 8 seconds and then turn off, in which case you need to repeat the process from step 2.
Press and hold for 1-3 seconds	Led keeps on when holding the Z-Button, turn off when Z-Button is released.
Short press 3 time (within 1 second)	Arrival Sensor will send “wake up notification command” to the nodes which is assigned by “Wake Up Command”.
Press and hold more than 5 seconds	Reset Arrival Sensor; Triggering this action, led will keep on until the Z-Button is released; Arrival Sensor will send “Device_Reset_Locally” to the main controller and exclude from the Z-Wave network when the Z-Button is released,

	this procedure will reset the Sensor to factory default. Please use this procedure only when the network primary controller is missing or otherwise inoperable.
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4 Working Mechanism

1. Sleeping and awaking of arrival sensor is based on integrated acceleration detector. If acceleration detector had not triggered for 2.5 minutes, arrival sensor send out a package to gateway and go to sleep mode. While acceleration sensor triggered, arrival sensor wake up and communication with gateway immediately.
2. If arrival sensor send out a Heartbeat package and not get reply from gateway, system judge arrival sensor as user left to trigger relative scenarios and send out message.
3. If arrival sensor send out a Heartbeat package and get reply at once from gateway, system judge arrival sensor as user back to trigger relative scenarios and send out message.

4.1 Connection Logic



5 Z-Wave Command

5.1 Z-Wave Plus Device Type

Device Type	Basic Device Attribute	Specific Device Attribute	Role Type
Sensor - Notification	GENERIC_TYPE_SENSOR_NOTIFICATION	SPECIFIC_TYPE_NOTIFICATION_SENSOR	Reporting Sleeping Slave (RSS)

5.2 Command list

COMMAND_CLASS_ZWAVEPLUS_INFO	V2
COMMAND_CLASS_VERSION	V2
COMMAND_CLASS_MANUFACTURER_SPECIFIC	V2
COMMAND_CLASS_NOTIFICATION	V5
COMMAND_CLASS_ASSOCIATION_GRP_INFO	V1
COMMAND_CLASS_ASSOCIATION	V2
COMMAND_CLASS_BATTERY	V1
COMMAND_CLASS_WAKE_UP	V2
COMMAND_CLASS_POWERLEVEL	V1
COMMAND_CLASS_CONFIGURATION	V1
COMMAND_CLASS_FIRMWARE_UPDATE_MD	V2
COMMAND_CLASS_DEVICE_RESET_LOCALLY	V1

5.3 Command Explain

5.3.1 Z-Wave Plus Info Command Report

Parameter	Value
Z-Wave Plus Version	V1
Role Type	6(ZWAVEPLUS_INFO_REPORT_ROLE_TYPE_SLAVE_SLEEPING_REPORTING)
Node Type	0 (ZWAVEPLUS_INFO_REPORT_NODE_TYPE_ZWAVEPLUS_NODE)
Installer Icon Type	0x0C06 (ICON_TYPE_SPECIFIC_SENSOR_NOTIFICATION_ACCESS_CONTROL)
User Icon Type	0x0C06 (ICON_TYPE_SPECIFIC_SENSOR_NOTIFICATION_ACCESS_CONTROL)

5.3.2 Association Command

Arrival Sensor supports only one association group.

Grouping Identifier	Max Nodes	Transmit Content
Group 1	0x05	1, Configure Notification Status for 0xFF (default) send Notification when send Heartbeat and TimeEnd. 2, Configuration parameter 0x0A: Send Battery Report (0xFF) when Battery lower than 10%.

5.3.3 Association Group Info Command

A) Association Group Name Command Report

Team No.	Value
1 St	The ASSIC of Lifeline: 4C 69 66 65 6C 69 6E 65

B) Association Group Info Command Report

Parameter	Team No.	Value
Profile	1 St	General: Lifeline, Profile MSB=0x00, Profile LSB=0x01

C) Association Group Command List Command Report

Team No.	Command List Support	
1 St	COMMAND_CLASS_NOTIFICATION(0x71)	NOTIFICATION_REPORT(0x05)
	COMMAND_CLASS_BATTERY(0x80)	BATTERY_REPORT(0x03)
	COMMAND_CLASS_DEVICE_RESET_LOCALLY(0x5A)	DEVICE_RESET_LOCALLY_NOTIFICATION(0x01)

5.3.4 Wake Up Command

A) Press the study key three times then the Arrival sensor sending Wake Up Notification to Gateway to report it was wake up. Please make sure the Arrival Sensor is added to the Z-Wave network.

B) How to use Wake Up Interval Set Command to set the Arrival Sensor to automatic Wake Up. When the configured value is set 0~59 then the configuration is not available and the Wake Up time could not change. If the configured value is 60~119 then the Wake Up Interval time is 60 seconds. If the configured value is 120~179 then the Wake Up Interval time is 120 seconds, and so on.

C) Wake Up Interval Capabilities Report CC

Minimum Wake Up Interval Seconds = 60 seconds

Maximum Wake Up Interval Seconds = 2678400 seconds=31 days

Default Wake Up Interval Seconds = 600 seconds

Wake Up Interval Step Seconds = 60 seconds

5.3.5 Battery Command

A) If the Controller or Gateway send the Battery Get command to Arrival Sensor then Arrival Sensor will report the Battery Power Level to the Controller or Gateway. If the Battery Voltage >4.2V the Battery Power Level is 100%. If the Battery Voltage <3.2V the Battery Power Level is 0%.

B) If the Battery being low voltage=10% or less than 10%, the Configuration 0x0A setting threshold values then Arrival Sensor report Battery Report 0xFF to Association Group 1.

5.3.6 Notification Commands

A) Notification Supported Report : System (0x09)、Clock (0x0B)

B) Event Supported Report Command

Notification Type	Notification Event
System(0x09)	Heartbeat(0x5)
Clock(0x0B)	Timer Ended(0x02)

5.3.7 Manufacturer Specific Report Commands

Parameter	Value
Manufacturer ID 1	0x03
Manufacturer ID 2	0x00
Product Type ID 1	0x00
Product Type ID 2	0x03
Product ID 1	0x00
Product ID 2	0x02

5.3.8 Version Report Commands

Parameter	Value (HEX)
Z-Wave Protocol Library Type	0x03
Z-Wave Protocol Version	0x04
Z-Wave Protocol Sub Version	0x26
Firmware 0 Version	Firmware Version Upper 8 bits
Firmware 0 Sub Version	Firmware Version Lower 8 bits
Hardware Version	0x01
Number of firmware targets	0x00

5.3.9 Basic Commands

No need answer Basic Get because Basic CC dose not mapping.

5.3.10 Configuration Command Parameters

Arrival Sensor offers a wide variety of advanced configuration settings. Below parameters can be accessed from main controllers configuration interface.

Parameter	Number of Bytes	Default Value	Function Description
10 (0x0A)	1	10	Low Battery Power Level of alarm threshold values: the value range are 10~50 for percentage, so the Battery Low Power level can setting 10%~50%.
254 (0xFE)	1	0	Configuration Lock function: when it was lock then the other parameters value cannot change unless this parameter. 0= unlock 1= lock
255* (0xFF)	4	NA	Value=0x88888888, Default=1, Size=4 Reset to factory configuration and removed the Z-wave network.
	4	NA	Value=0x88000000, Default=1, Size=4 Reset Configuration parameter to default value.

1.Parameter 0xFF is a set-only parameter.