Z-Stick Gen5+

(Z-Wave USB Adapter)

Engineering Specification

Z-stick Gen5+

Document No.	SPEC-ZW090
Description	This document mainly introduces the new generation AEOTEC self-powered Z-Wave™ USB Adapter. The content mainly includes its interfaces, features, quick start, and operation function definition. Z-Stick Gen5+ is a Z-Wave Plus™ Product with many advantages. ● Z-Wave USB adapter ● Support Functionality of SerialAPI
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REVISION RECORD		
Version	Date	Brief description of changes
1	2019.11.07	First revision.
2	2019.11.11	Updated the pic. and function description

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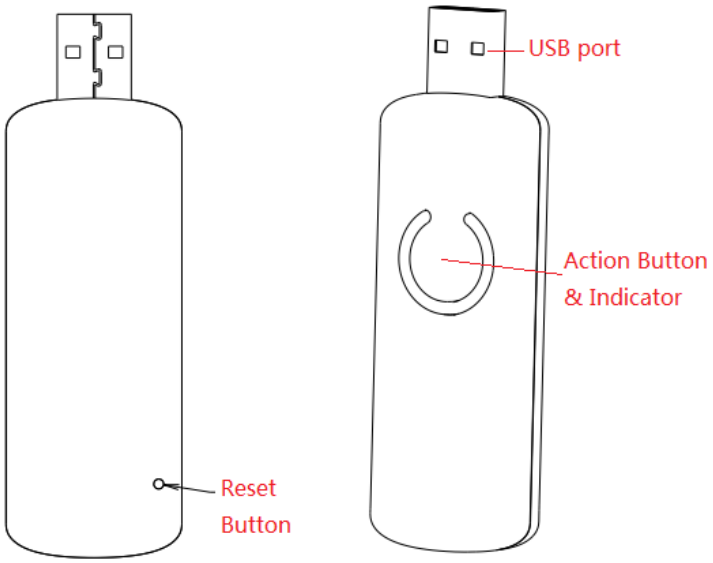
1 INTERFACES & ACCESSORIES



Terminology	Description
Action Button	Used for networking
Indicator Light	Used for indicating the current state of the product.
USB port	Used to connect to host
Reset Button	Used to factory reset

2 FEATURES & SPECIFICATIONS

2.1 Structural Characteristics

Parameter	Value
Product Identifier	ZW090-C
Dimensions	88×28.5×10mm
Weight	19g
Color	White
Shell Surface Treatment	Frosted
Shell Fire-proof Level	UL94 V-0
Waterproof and Dustproof	Rated IP20 under IEC 60529
Usage	For indoor use. Used for remotely inclusion/exclusion Z-Wave devices
Operating Temperature	32~104°F (0~40°C)
Relative Humidity	8%~80%

2.2 Hardware Characteristics

Parameter	Value
Z-Wave Module	ZM5101
Indicator Light Color	RGB
Buttons and Connectors	Action Button、Reset Button、USB port
Battery Included	Yes
Built-in Sensors	No
RF Operating Distance	More than 30m indoors
Safety Certifications	CE/RCM/FCC

2.3 Software Characteristics

Parameter	Value
Wireless Technology	Z-Wave
Certification Type	Z-Wave Plus Certification
Z-Wave SDK Version	6.81.06
Z-Wave Library Type	Static Controller
Z-Wave Role Type	ROLE_TYPE_CONTROLLER_CENTRAL_STATIC
Generic Device Type	GENERIC_TYPE_STATIC_CONTROLLER
Specific Device Type	SPECIFIC_TYPE_PC_CONTROLLER
Multi Channel Device	No
Factory Reset	Support

3 PRODUCT QUICK START

3.1 Important safety information

Please read this Engineering Specification carefully for correct and effective use.

Failure to follow the recommendations set forth by AEOTEC Limited may be dangerous or cause a violation of the law. The manufacturer, importer, distributor, and/or reseller will not be held responsible for any loss or damage resulting from not following any instruction in this guide or in other materials.

3.2 How to install the product

Getting your Z-Stick up and running is as simple as plugging it to the USB port of the host. You can use the PC Controller application to control your Z-Wave devices via its Serial API function, this greatly simplifies Z-Wave network installation.

3.3 How to add other devices into Z-Wave network

This product can add and operate other Z-Wave certified devices from other manufacturers and/or other applications in the same Z-Wave network. All non-battery operated nodes within the network will act as repeaters regardless of vendor to increase reliability of the network.

3.3.1 SerialAPI-Mode

Plug the Z-Stick into the USB connector of the host, the Z-Stick will initiate SerialAPI-Mode , it is always listening (awake and always in RX receive mode)and acts as a Z-Wave adapter and responds to commands sent through USB by the host processor software.

3.3.2 Add a Z-Stick to another Z-Stick/a pre-existing Z-Wave network

This function also must be done through the host software (e.g. PC Controller Application, etc) which takes control of the Z-Stick USB adapter while the Z-Stick is in Serial API-Mode. Please consult the instruction manual of the host software to add the Z-Stick to another Z-Stick/a preexisting Z-Wave network (i.e. “Learn”, “Sync”, “Add as Secondary Controller”, etc.)

3.4 How to factory reset

You can through one of the following ways to perform this function:

1.To be done through the host software which takes control of the Z-Stick USB adapter while the Z-Stick is in SerialAPI-Mode (If you don’t know how to do this, please consult the instruction manual of the host software to perform a network reset).

2.Unplug the Z-Stick from the USB connector,Then press and hold down the Reset Button for 20 seconds.

4 SOFTWARE FUNCTION DEFINITION

4.1 User Behavior Interaction

User behavior	Function and Indicator
No Operation	LED indicator off.
Click One Time Reset Button	**Reset the USB Port**
Press and hold Reset Button for [20s, ∞)	**Reset Z-Stick to factory Default:** 1. Unplug the Z-Stick from the USB connector. 2. Press and hold the Reset button for 20 seconds. 3. If holding time more than one second, the LED will become red, then blink faster and faster. If holding time more than 20 seconds, the LED will become blue and stay solid for 2 seconds, it indicates reset success, otherwise please repeat step 2. Note: 1. This procedure should only be used when the primary controller is inoperable; 2. Reset Z-stick to factory default Settings will: 1) Exclude the z-stick from the Z-Wave network. 2) Remove all Node IDs that the Z-stick included. 3) Restore the configuration settings to the default.

4.2 Supported the functionality of SerialAPI

The list supported functions of SerialAPI:

Functions:
FUNC_ID_ZW_GET_CONTROLLER_CAPABILITIES
FUNC_ID_SERIAL_API_GET_INIT_DATA
FUNC_ID_SERIAL_API_APPL_NODE_INFORMATION
FUNC_ID_APPLICATION_COMMAND_HANDLER
FUNC_ID_SERIAL_API_SET_TIMEOUTS
FUNC_ID_SERIAL_API_GET_CAPABILITIES
FUNC_ID_SERIAL_API_SOFT_RESET
FUNC_ID_ZW_GET_PROTOCOL_VERSION
FUNC_ID_SERIAL_API_STARTED
FUNC_ID_SERIAL_API_SETUP
FUNC_ID_ZW_SET_RF_RECEIVE_MODE
FUNC_ID_ZW_SET_SLEEP_MODE
FUNC_ID_ZW_SEND_NODE_INFORMATION
FUNC_ID_ZW_SEND_DATA
FUNC_ID_ZW_SEND_DATA_MULTI
FUNC_ID_ZW_GET_VERSION
FUNC_ID_ZW_SEND_DATA_ABORT
FUNC_ID_ZW_RF_POWER_LEVEL_SET
FUNC_ID_ZW_GET_RANDOM
FUNC_ID_MEMORY_GET_ID
FUNC_ID_MEMORY_GET_BYTE
FUNC_ID_MEMORY_PUT_BYTE
FUNC_ID_MEMORY_GET_BUFFER
FUNC_ID_MEMORY_PUT_BUFFER
FUNC_ID_AUTO_PROGRAMMING
FUNC_ID_NVR_GET_VALUE
FUNC_ID_NVM_GET_ID
FUNC_ID_NVM_EXT_READ_LONG_BUFFER

FUNC_ID_NVM_EXT_WRITE_LONG_BUFFER
FUNC_ID_NVM_EXT_READ_LONG_BYTE
FUNC_ID_NVM_EXT_WRITE_LONG_BYTE
FUNC_ID_NVM_BACKUP_RESTORE
FUNC_ID_ZW_NVR_GET_APP_VALUE
FUNC_ID_CLEAR_TX_TIMERS
FUNC_ID_GET_TX_TIMERS
FUNC_ID_ZW_CLEAR_NETWORK_STATS
FUNC_ID_ZW_GET_NETWORK_STATS
FUNC_ID_ZW_GET_BACKGROUND_RSSI
FUNC_ID_ZW_SET_LISTEN_BEFORE_TALK_THRESHOLD
FUNC_ID_ZW_REMOVE_NODE_ID_FROM_NETWORK
FUNC_ID_ZW_GET_NODE_PROTOCOL_INFO
FUNC_ID_ZW_SET_DEFAULT
FUNC_ID_ZW_REPLICATION_COMMAND_COMPLETE
FUNC_ID_ZW_REPLICATION_SEND_DATA
FUNC_ID_ZW_ASSIGN_RETURN_ROUTE
FUNC_ID_ZW_DELETE_RETURN_ROUTE
FUNC_ID_ZW_REQUEST_NODE_NEIGHBOR_UPDATE
FUNC_ID_ZW_APPLICATION_CONTROLLER_UPDATE
FUNC_ID_ZW_ADD_NODE_TO_NETWORK
FUNC_ID_ZW_REMOVE_NODE_FROM_NETWORK
FUNC_ID_ZW_CREATE_NEW_PRIMARY
FUNC_ID_ZW_CONTROLLER_CHANGE
FUNC_ID_ZW_ASSIGN_PRIORITY_RETURN_ROUTE
FUNC_ID_ZW_SET_LEARN_MODE
FUNC_ID_ZW_ASSIGN_SUC_RETURN_ROUTE
FUNC_ID_ZW_REQUEST_NETWORK_UPDATE
FUNC_ID_ZW_SET_SUC_NODE_ID
FUNC_ID_ZW_DELETE_SUC_RETURN_ROUTE
FUNC_ID_ZW_GET_SUC_NODE_ID
FUNC_ID_ZW_SEND_SUC_ID
FUNC_ID_ZW_ASSIGN_PRIORITY_SUC_RETURN_ROUTE
FUNC_ID_ZW_EXPLORE_REQUEST_INCLUSION
FUNC_ID_ZW_EXPLORE_REQUEST_EXCLUSION
FUNC_ID_ZW_REQUEST_NODE_INFO
FUNC_ID_ZW_REMOVE_FAILED_NODE_ID
FUNC_ID_ZW_IS_FAILED_NODE_ID
FUNC_ID_ZW_REPLACE_FAILED_NODE
FUNC_ID_ZW_SET_ROUTING_MAX_6_00
FUNC_ID_ZW_IS_PRIMARY_CTRL
FUNC_ID_ZW_AES_ECB
FUNC_ID_ZW_FIRMWARE_UPDATE_NVM
FUNC_ID_GET_ROUTING_TABLE_LINE
FUNC_ID_LOCK_ROUTE_RESPONSE
FUNC_ID_ZW_GET_PRIORITY_ROUTE
FUNC_ID_ZW_SET_PRIORITY_ROUTE
FUNC_ID_SERIAL_API_EXT
FUNC_ID_ZW_SET_WUT_TIMEOUT
FUNC_ID_ZW_WATCHDOG_ENABLE
FUNC_ID_ZW_WATCHDOG_DISABLE
FUNC_ID_ZW_WATCHDOG_KICK

FUNC_ID_ZW_RF_POWER_LEVEL_GET
FUNC_ID_ZW_GET_NEIGHBOR_COUNT
FUNC_ID_ZW_ARE_NODES_NEIGHBOURS
FUNC_ID_ZW_TYPE_LIBRARY
FUNC_ID_ZW_SEND_TEST_FRAME
FUNC_ID_ZW_GET_PROTOCOL_STATUS
FUNC_ID_ZW_SET_PROMISCUOUS_MODE
FUNC_ID_ZW_WATCHDOG_START
FUNC_ID_ZW_WATCHDOG_STOP
FUNC_ID_ZW_SET_ROUTING_MAX
FUNC_ID_ZW_NETWORK_MANAGEMENT_SET_MAX_INCLUSION_REQUEST_INTERVALS
FUNC_ID_SERIAL_API_POWER_MANAGEMENT
FUNC_ID_SERIAL_API_READY
FUNC_ID_PROPRIETARY_2
FUNC_ID_PROPRIETARY_3