Z-Works 3G Gateway

ZG-501-v1

Instruction Manual

1 Introduction

Z-Works 3G Gateway is a Z-Wave controller to enable interaction with homes, offices and buildings.

It can collect sensor data and control Z-Wave home devices through the Internet from applications and APIs.

2 General Information

Device type: Gateway

Role type: Central static controller

Support command classes:

- COMMAND_CLASS_ZWAVEPLUS_INFO
- COMMAND_CLASS_ASSOCIATION
- COMMAND_CLASS_ASSOCIATION_GRP_INFO
- COMMAND_CLASS_CRC_16_ENCAP
- COMMAND_CLASS_DEVICE_RESET_LOCALLY
- COMMAND_CLASS_MANUFACTURER_SPECIFIC
- COMMAND_CLASS_POWERLEVEL
- COMMAND_CLASS_SECURITY
- COMMAND_CLASS_VERSION

Control command classes:

- COMMAND_CLASS_ZWAVEPLUS_INFO
- COMMAND_CLASS_SENSOR_MULTILEVEL
- COMMAND_CLASS_ALARM~ COMMAND_CLASS_NOTIFICATION_V5
- COMMAND_CLASS_CONFIGURATION
- COMMAND_CLASS_BATTERY
- COMMAND_CLASS_WAKE_UP
- COMMAND_CLASS_ASSOCIATION
- COMMAND_CLASS_MANUFACTURER_SPECIFIC
- COMMAND_CLASS_MULTI_CHANNEL_ASSOCIATION
- COMMAND_CLASS_CRC_16_ENCAP
- COMMAND_CLASS_SECURITY
- COMMAND_CLASS_MULTI_CHANNEL
- COMMAND_CLASS_BASIC

- **Supported Association Groups**
  - Group ID: 1 – Lifeline
  - Maximum number of devices that can be added to the group: 10

  All devices are associated with the lifeline group (group id 1) at the inclusion and no action is performed for the user at that time.
- **Basic command handling**

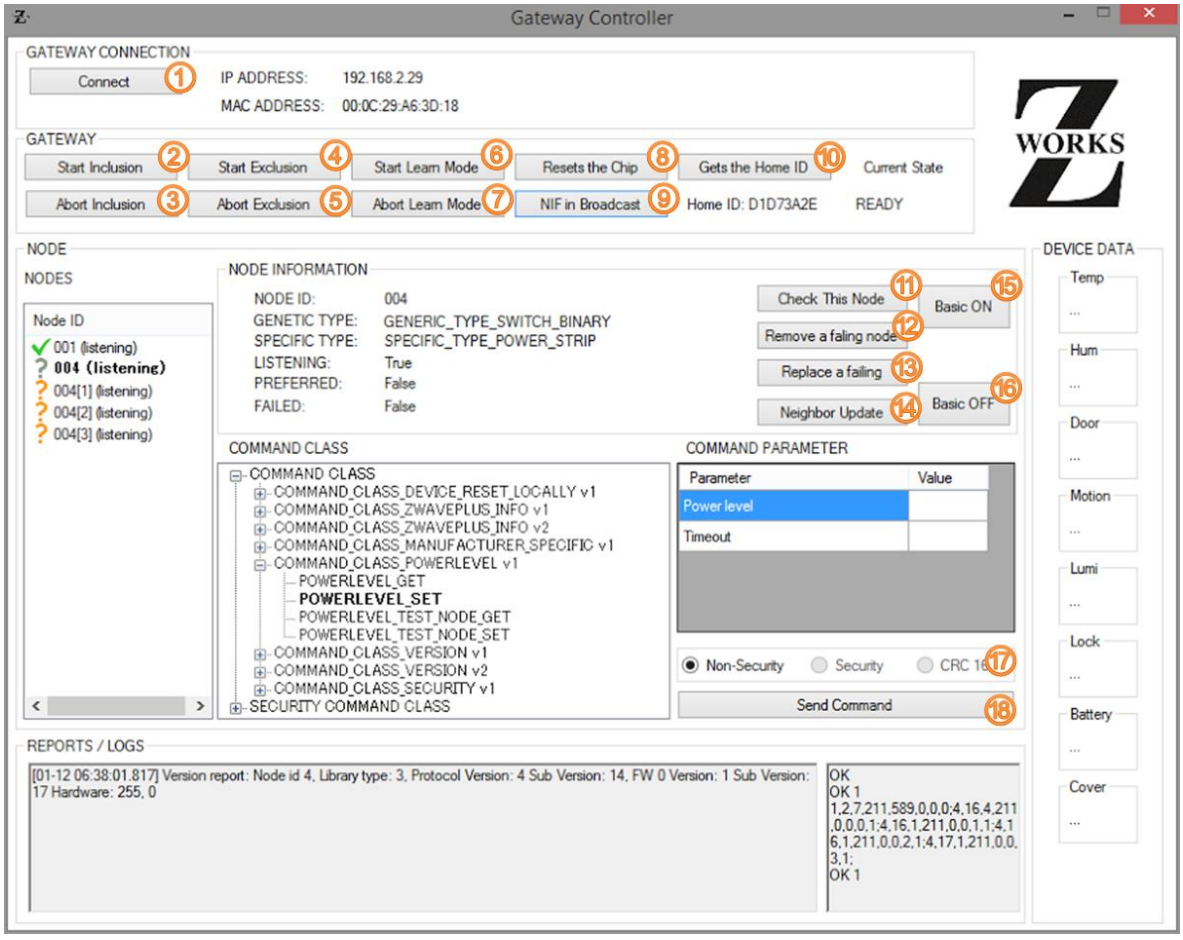
  This equipment can control a device which supports Basic Command class by sending BASIC OFF[0x00] and ON[0xFF] from the GUI.

  This equipment can receive Basic Command from a device, but it does nothing and just returns ack.
- **Interoperability**

  This equipment can be a part of the same Z-Wave network with any products from different manufacturers and product categories, and that the different non-battery powered nodes can act as repeaters regardless of manufacturers.
- This equipment 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.

3 GUI

This equipment can be controlled via the GUI provided. Here is the description of it.

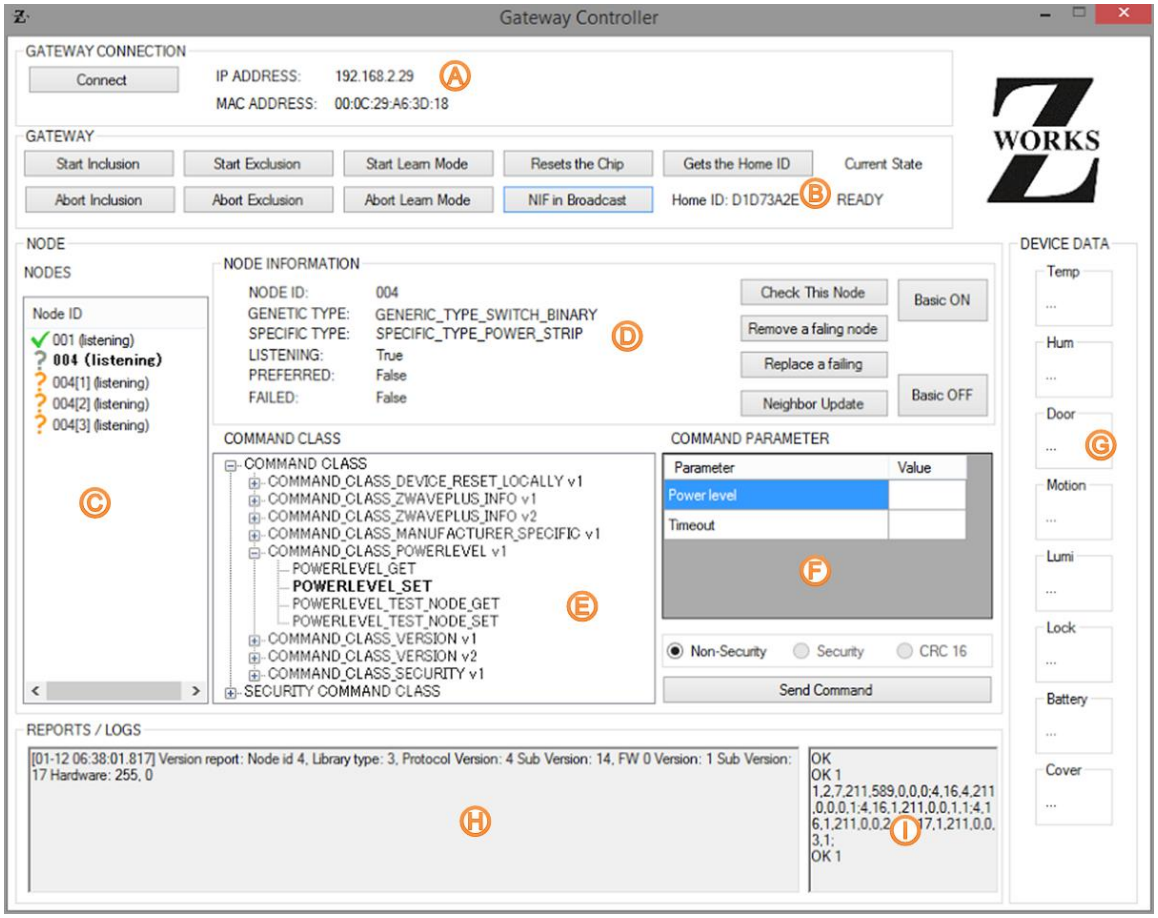


1 Connect Gateway Dialog	8 Resets the Z-wave Chip	15 Send set basic ON
2 Start Inclusion	9 Send NIF in broadcast	16 Send set basic OFF
3 Abort Inclusion	10 Gets the Home ID	17 Security Layer selection
4 Start Exclusion	11 Node is in failure or not	18 Send the selected Command
5 Abort Exclusion	12 Remove selected node	
6 Start Learn Mode	13 Replace selected node	
7 Abort Learn Mode	14 Request Neighbor Update	

The “DEVICE DATA” section displayed on the right side is used to display main information of the system.

An exclamation mark icon may be displayed on NODES section to show the nodes which are failing.

Note that, in case of necessity to send multiple bytes as a command parameter’s value, please enter the decimal number separated by a blank space in between.



A Gateway IP and MAC Address Display

B Home ID and Gateway State

C List of the connected Node

D Information of the selected Node

E List of available Command Class of the selected Node

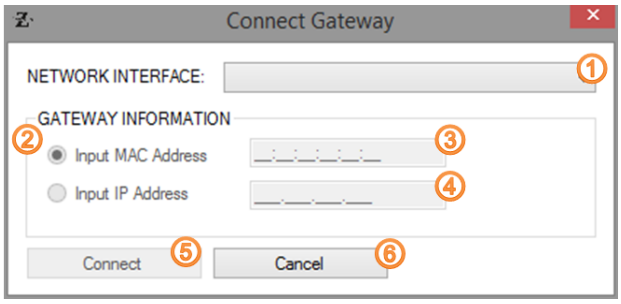
F Command Parameters for the selected Command

G Last Device Data of the selected Node

H Logs from the Gateway

I List of responding from the Gateway when sending Commands

- To connect to a Gateway, select your network interface and then enter either MAC or IP address.



1 Selection of the network interface.

2 User input area, select either MAC or IP Address

3 MAC Address of the Gateway (displayed on the back side of the Hardware)

4 IP Address of the Gateway (if known)

5 Connect to the Gateway

6 Cancel the connection

4 Hardware Installation

The installation of the hardware is a 2 steps process:

1- Connect the Hardware to a router via the Ethernet port.

2- Power the device with the AC Adapter provided.

5 Normal Operation

- ZWAVE LED Blinks once at every packet received.
- ZWAVE LED turns On when ZWAVE is ready.
- 3G/LAN LED turns On when Ethernet Cable is plugged or 3G Connection is established.

  Note: This LED does not mean that there is an internet connection
- POWER LED always stays On if power cable is plugged.

6 Adding Devices (Inclusion)

To add a device to the Z-Wave network, click the “Start Inclusion” button in the GUI or press the hardware button of this equipment three times in quick (no more than 1 second between). This will put this equipment into Inclusion mode and ZWAVE LED blinks slowly (once every second). The hardware will stay in Inclusion mode for 1 minute.

If you want to abort Inclusion, click the “Abort Inclusion” button in the GUI or press the

hardware button once while being in Inclusion mode. This will abort the ongoing action and ZWAVE LED goes back to normal state.

This equipment supports Secure Inclusion and can add a device as a secure node.

7 Removing Devices (Exclusion)

To remove a device from the Z-Wave network, click the “Start Exclusion” button in the GUI or hold down the hardware button of this equipment (between 3 and 9 seconds). This will put the equipment into Exclusion mode and ZWAVE LED blinks quickly (once every 200 ms).

If you want to abort Exclusion, click the “Abort Exclusion” button in the GUI or press the hardware button once while being in Exclusion mode. This will abort the ongoing action and ZWAVE LED goes back to normal state.

8 Sending the Device Information to Server

To send the device information (NIF), press the hardware button (and no other press after that). The “NIF” of this equipment will be sent via broadcast to all devices.

9 Adding the Gateway into Another Z-Wave Network (Learn Mode)

To add this equipment into another Z-Wave network as a secondary controller or inclusion controller, click “Start Learn Mode” in the GUI.

If you want to abort Learn Mode, click the “Abort Learn Mode” button in the GUI.

10 Copy (Replication)

To start the Replication when the hardware is the controller, put the hardware in Inclusion mode, and put the other hardware in Learn mode. The Replication will be started and network information will be sent to the other hardware.

In case that the hardware is not the controller, put it in Learn mode and the other hardware in Inclusion mode. This will start the Replication and network information will be received from the other Hardware.

11 Node Management

The GUI has a feature of Node management. If you enter the gateway IP address and click “Connect” button, the connected Node list will appear on the left side of the GUI. Even if the inclusion was done with the hardware button, the GUI will refresh the node

list automatically.

To see the information of a specific device, select the node ID from the Node list. You can check if the gateway fails to communicate with the device by clicking the “Check This Node” button.

- **Remove Failed Node**

To remove a failed device from the Z-Wave network, use “Remove a failing node” button. The node ID of the device will disappear from the Node list. If the device is not a failed node, “This node is not failed” message will appear and the device cannot be removed.

- **Replace Failed Node**

To replace a failed device to another equivalent device, use “Replace a failing” button. The gateway will be in Inclusion mode and replace a failed device with a new device. If the device is not a failed node, “This node is not failed” message will appear and the device cannot be replaced.

- **Send Controlled Commands**

Commands can be selected from the “COMMAND CLASS” section on the GUI and the selected command can be sent via the “Send Command” button.

12 Reset the ZWAVE Chip

Click “Resets the Chip” button or hold down the hardware button (over 10 seconds). This will reset the ZWAVE chip and ZWAVE LED blinks 5 times quickly. Upon reset, the hardware will broadcast the “DEVICE RESET LOCALLY NOTIFICATION”. Reset cannot be aborted.

13 Check 3G Signal Strength

Push the hardware button twice within 1 second to check the 3G signal strength. This equipment will show the 3G signal strength on LAN LED like below.

- No Signal: LAN LED will turn off for 3 seconds
- Signal Level Low: LAN LED will blink twice slowly for 3 times
- Signal Level High: LAN LED will blink quickly for 3 seconds

14 Preferred Devices

This equipment allows users to include and communicate with devices from any and multiple vendors in its network.

This equipment was tested with devices from the following vendors:

- Z-Works

- Vision
- Iwatsu
- Philio

Note: This list is simply to inform that this equipment was tested with devices from those vendors.

Those vendors will be marked with a check icon on the GUI and are part of this equipment's preferred ecosystem. Controlling and supporting of non-preferred devices may be limited. Others will be displayed with a question mark icon.