UG516: EFR32ZG14 Wireless Gecko Z-Wave 700 USB Stick Bridge Module UZB-7 User's Guide

The Silicon Labs UZB-7, Z-Wave 700 Stick Bridge Module is a simple reference design featuring the latest generation Z-Wave SoC, the EFR32ZG14 Zen Gecko, as a gateway and controller for smart home applications.

The UZB-7 exposes the well-documented and proven Z-Wave Serial API via USB. It allows the host processor to control up to 232 Z-Wave and Z-Wave Plus devices through the Z-Wave protocol. With the developer PC application software, PC Controller, or any software compliant with Z-Wave Serial API, the host is empowered to communicate with various Z-Wave devices through the Z-Wave Command Classes, making your computer the heart of your Z-Wave network.

Controller software base on Z/IP from Silicon Labs, such as Z-Ware enables you to create your own Z-Wave gateway that is locally or remotely hosted with a PC or single-board computers, such as Beagle Bone Black and Raspberry Pi.

Z-Wave is an established short-range, interoperable, two-way RF mesh network technology. Refer to http://www.z-wave.com for the technology description, various Z-Wave Plus ready certified products, and Z-Wave Alliances.

KEY FEATURES AND BENEFITS

- Z-Wave 700 Series EFR32ZG14
  - CPU core: ARM ® Cortex-M4 ® with FPU
- -97 dBm sensitivity with 100 kbps channels
- Firmware upgradable through USB
- AES 128-bit encrypted communication and security feature
- Compliance approval :
  - EU: EN 300220
  - US: FCC CFR47 Part 15.249
  - ANZ: ANZ 4268
  - Japan: ARID STD-T108
- Worldwide SAW filters for additional out-of-band blocking
- CP2102N USB-to-UART SoC for VCP
- USB 2.0 Full Speed Compliance
- Royalty-free Virtual COM port drivers, CP210x VCP Driver
- Work with Windows / Mac / Linux

Table of Contents

1. Product Specifications

General Specifications

ERF32ZG14 Zen Gecko SoC

USB Powered	5.00 ± 0.25 V
RF Transmit current	22 mA (typ.)
RF Receive current	20 mA (typ.)
RF Transmit power[1]	Up to +13 dBm (max.)

RF Sensitivity
- 9.6 kbps
- 40 kbps
- 100 kbps

- 101 dBm (typ.)
- 100 dBm (typ.)
- 97 dBm (typ.)

Operating Temperature	-20 to 75°C
Internal antenna	PCB antenna
Sleep current[2]	< 25 µA
Range	100 m open space line-of-sight

Note:

1. Allowable transmit power are governed by respective regulatory
2. UZB-7 is typically always active

Z-Wave Libraries

Z-Wave Library	Bridge Controller
Z/IP Application	Version 5.64 or later
Z-Wave DLL	Version 5.64 or later

Ordering Information

SLUSB001A	UZB-7 BRD1001A

Block Diagram
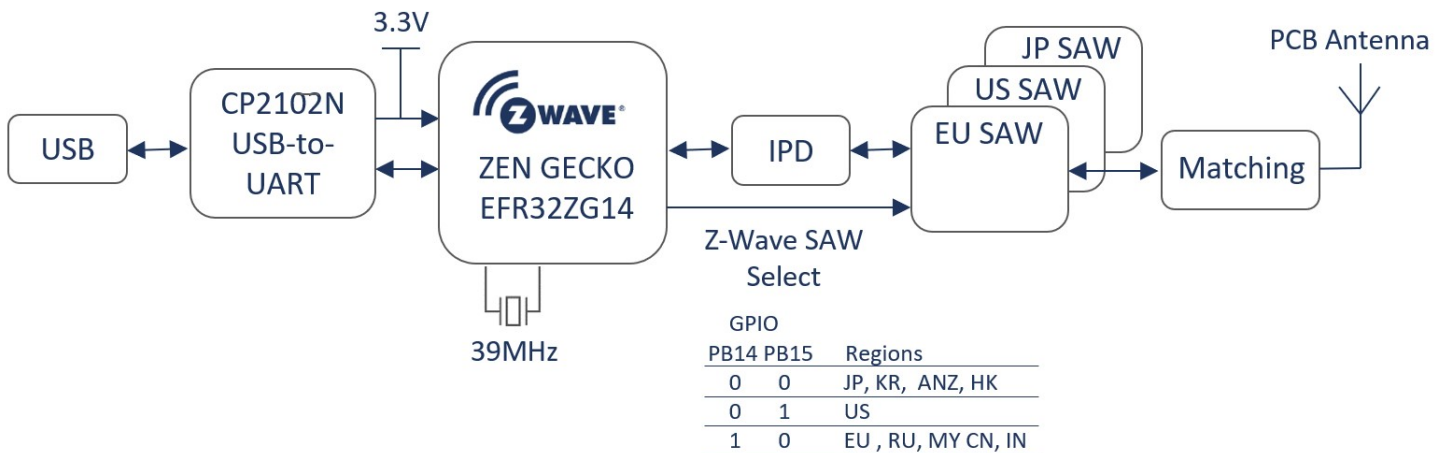
Refer to [1] UZB-7 Reference Manual for further descriptions of each blocks, design considerations and options for UZB-7.

2. Quick Start Up

Here is a Quick Start Up guide to get UZB-7 to work with the Z-Wave PC Controller. The Z-Wave PC Controller is a PC application software tool that enables communications with Z-Wave nodes, such as switches and sensors.

1. Connect UZB-7 to your computer.
2. Install the Virtual COM Port (VCP) drivers and CP210x VCP Drivers, if required by your Operating System. The latest drivers are available at http://www.silabs.com/interface-software. Note: The driver is WHQL certified. No installation is required for Window OS.

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3. Install and Run the Z-Wave PC Controller from Simplicity Studio.
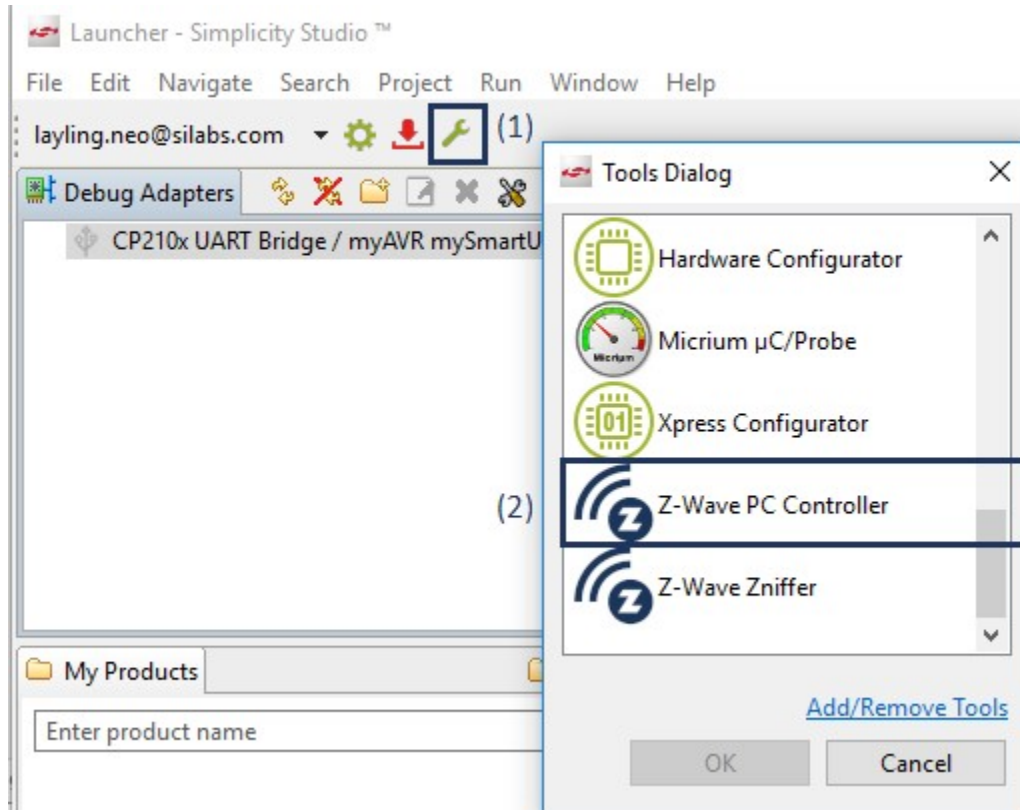
4. Click on the "Setting-wheel" ⚙ in the Right-Top corner of the PC Controller and select "Silicon Labs CP210x USB to UART Bridge". Click OK.
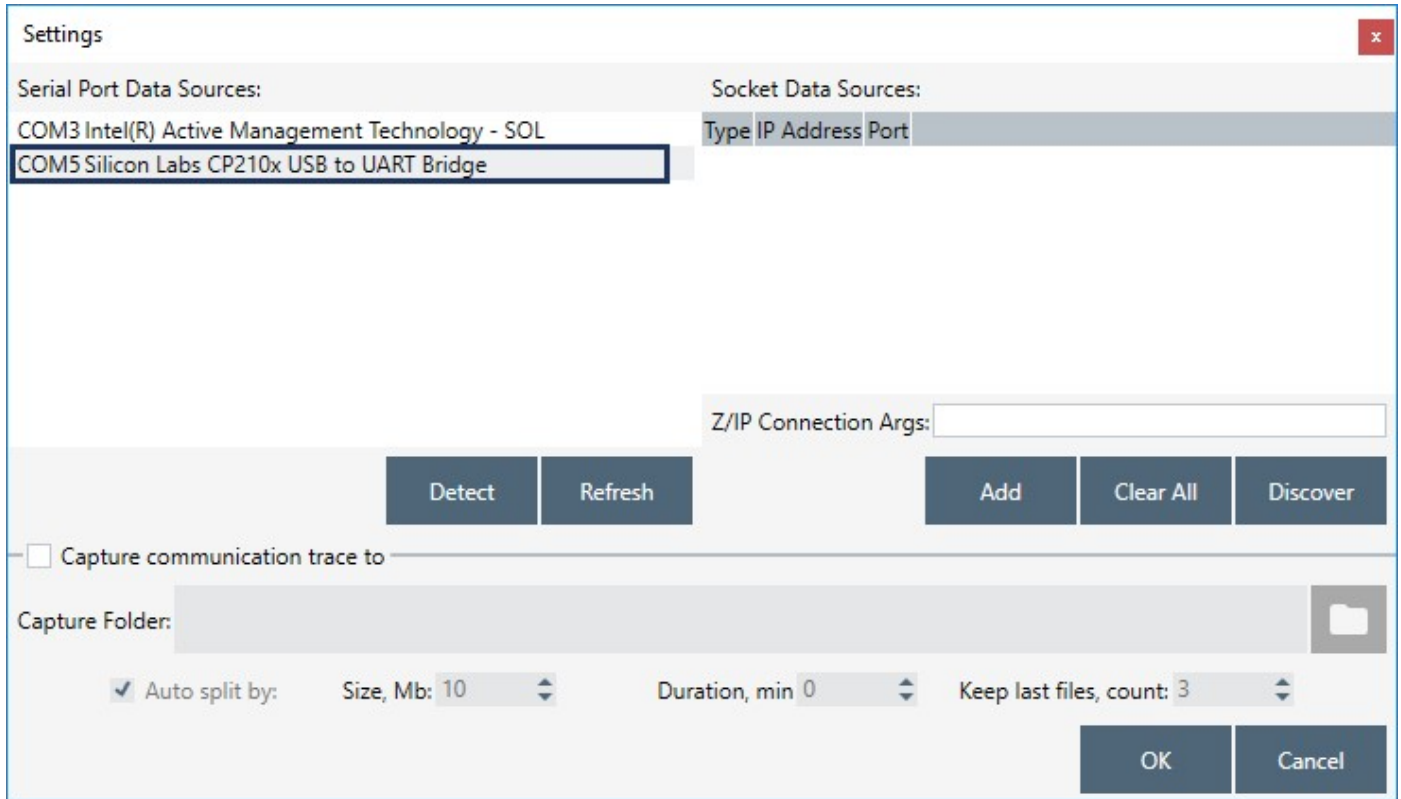
5. Click on Network Management
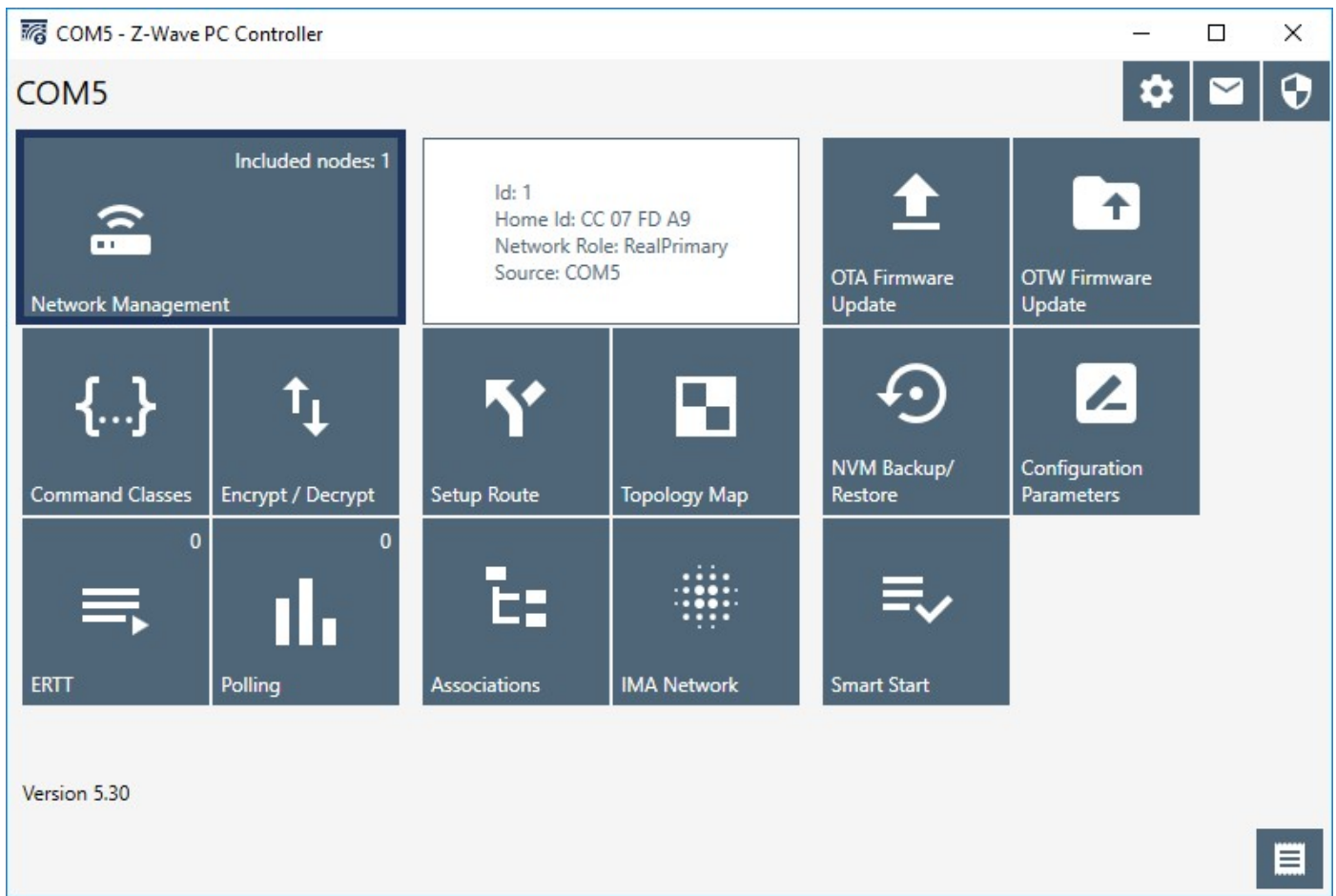
6. UZB-7 is detected and appears as [S2] Pc Controller. The bottom panel displays that the Z-Wave Command Class is supported by UZB-7.
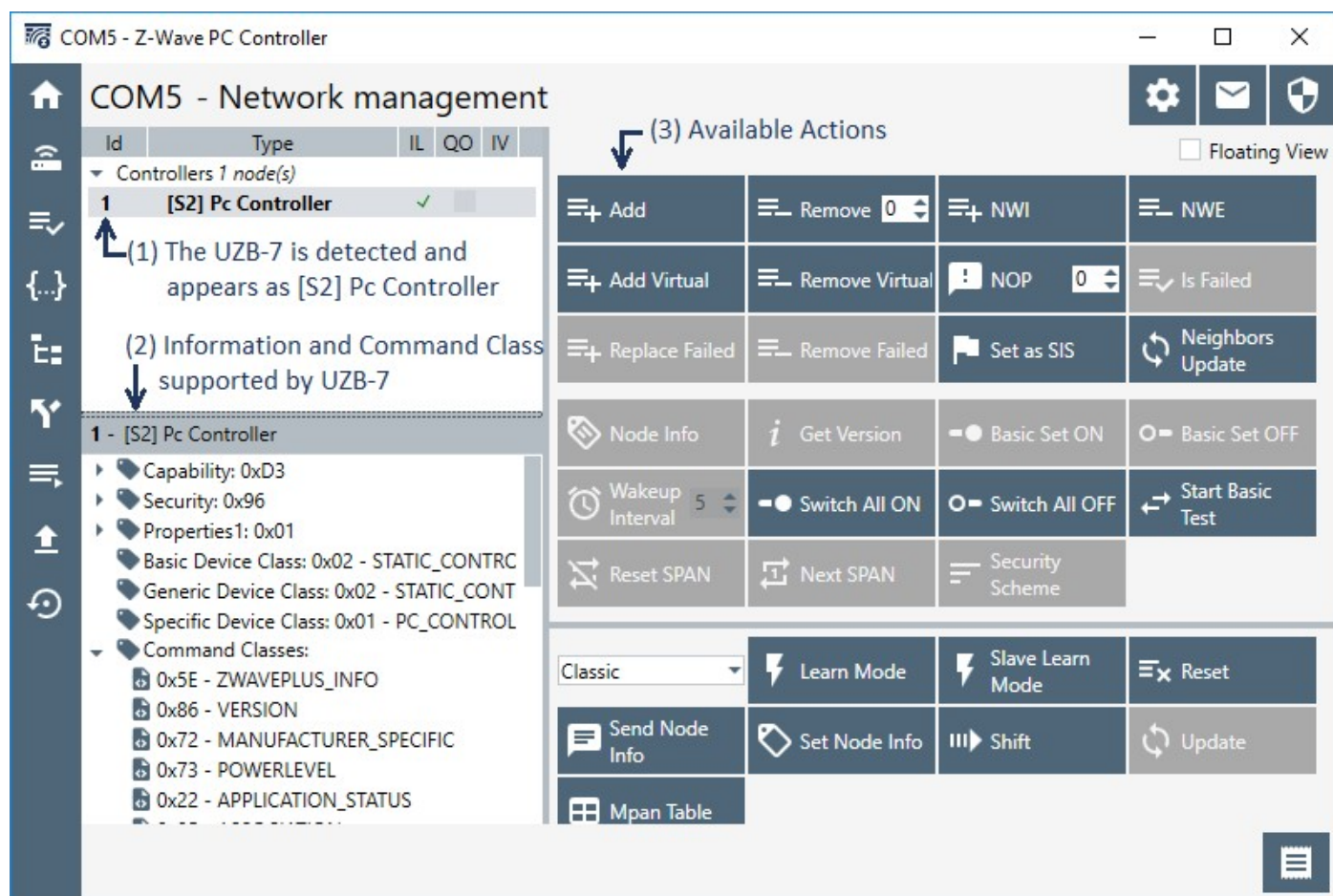
7. From here, you can perform basic commands to end devices. Refer to [3] PC Controller User Guide for more information.

Note: Customers should update FW to a GA version of FW before using UZB-7 as a commercial product.

3. Regulatory Certifications

EU Declaration of Conformity

This device complies with Radio Equipment Directive 2014/53/EU issued by the Commission of the European Community. The following test methods have been applied in order to prove presumption of conformity with the essential requirement of the directive.

EN 300 220-1: V3.1.12017

EN 300 220-2: V3.1.12017

EN 301 489-1: V2.1.1 (2017-02)

Final draft EN 301 489-3: V2.1.1 (2017-03)

EN 624792010

EN 62368-12014

FCC Federal Notice

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in an installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

• Reorient or relocate the receiving antenna.
• Increase the separation between the equipment and receiver.
• Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
• Consult the dealer or an experienced radio/TV technician for help.

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

This transmitter must not be co-located or operated in conjunction with any other antenna or transmitter.

4. References

[1] Silicon Labs, INS14487, Instruction, 700 Integration Guide

[2] Silicon Labs, EFR32ZG14 Z-Wave 700 Modem SoC Datasheet

[3] Silicon Labs, INS13114, Instruction, Z-Wave PC Based Controller v5 User Guide

[4] Silicon abs, USBXpress™ Family CP2102N Datasheet

5. Revision History

Revision 2.02

December, 2021
- Updated document title
- Updated Product Specifications.

Revision 2.01

November, 2021
- Updated document format.

Revision 2.00

November, 2019
- Recommend uploading GA FW to UZB-7.
- EU Declaration of Conformity achieved

Revision 1.00

January 2019
- First release

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IoT Portfolio
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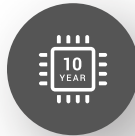
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