

# User Manual

**Product Name: IoT Edge Computer Gateway**

**Model Name: DSGW-210B**

## Revision History

| Specification |            | Sect. | Update Description             | By |
|---------------|------------|-------|--------------------------------|----|
| Rev           | Date       |       |                                |    |
| 1.0           | 2021-03-22 |       | New version release            |    |
| 2.0           | 2021-05-21 |       | Add LoRaWAN Protocol           |    |
| 3.0           | 2021-06-08 |       | Add SD card                    |    |
| 4.0           | 2021-07-12 |       | Add new -2, USB/LTE            |    |
| 5.0           | 2021-08-10 |       | Add different RAM and eMMC     |    |
| 6.0           | 2021-08-17 |       | Add the new type -6            |    |
| 7.0           | 2021-08-18 |       | Add the security module ECC608 |    |
| 8.0           | 2021-09-07 |       | Add LTE CAT1                   |    |
| 9.0           | 2021-10-11 |       | Add new type -8                |    |
| 10.0          | 2021-11-16 |       | Add new gateway model          |    |
| 11.0          | 2021-12-16 |       | Add new Type-10 and Type-11    |    |
| 12.0          | 2021-12-21 |       | Add new Type-12 and Type-13    |    |
| 13.0          | 2021-12-23 |       | Add new Type-14                |    |
| 14.0          | 2022.01.11 |       | Merging the LoRaWan Gateway    |    |
| 15.0          | 2022-01-17 |       | Add the new Type-15 and 16     |    |

## Approvals

| Organization | Name | Title | Date |
|--------------|------|-------|------|
|              |      |       |      |
|              |      |       |      |
|              |      |       |      |

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|                                   |    |
|-----------------------------------|----|
| 1. Introduction .....             | 3  |
| 1.1 Purpose& Description .....    | 3  |
| 1.2 Product Feature Summary ..... | 3  |
| 1.3 Hardware block diagram .....  | 3  |
| 2. Mechanical Requirement .....   | 4  |
| 2.1 Drawings.....                 | 4  |
| 2.2 Interface and Dimension ..... | 4  |
| 3. Specifications.....            | 5  |
| 3.1 Technical Specification ..... | 5  |
| 4. Applications.....              | 6  |
| 5. QA Requirements.....           | 9  |
| 6. FCC.....                       | 10 |

# 1. Introduction

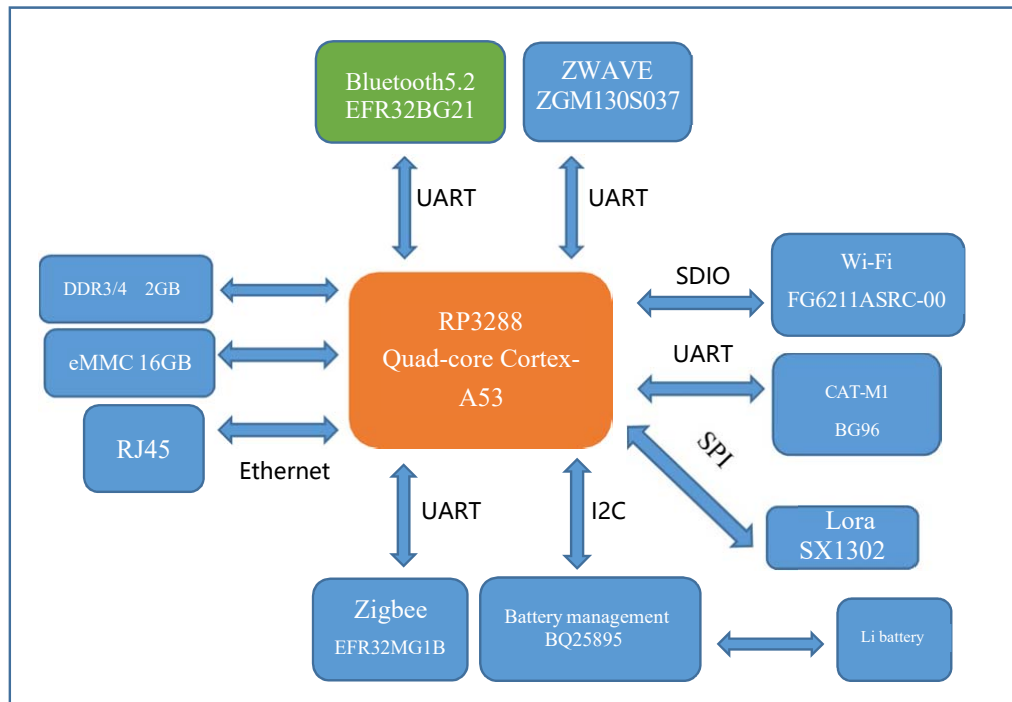
## 1.1 Purpose& Description

DSGW-210B is an IoT gateway with multiple protocols and edge computing functions. It provides reliable connectivity for a wide range of wireless IoT devices. The gateway's modular architecture provides the ability to customize many gateway features providing an off-the-shelf solution that meets your exact needs. Options include LTE, Bluetooth, Wi-Fi, Ethernet, USB, ZigBee, Z-wave, Lora, and Li battery backup.

## 1.2 Product Feature Summary

- Support 5V USB type-c power supply
- Support IEEE802.11n, IEEE802.11g, IEEE 802.11b Protocol
- Support 4G LTE CAT M1, NB IoT
- Support Bluetooth
- Support ZigBee3.0
- Support Z-WAVE
- Support LoRa
- Support Thread and Matter protocol
- One WAN/LAN variable network port
- Support USB2.0
- Backup Li-battery
- Supporting LoRaWAN CLASS A/B/C standard
- Compatible with mainstream network servers like The Things Industries, AWS, etc.

## 1.3 Hardware block diagram



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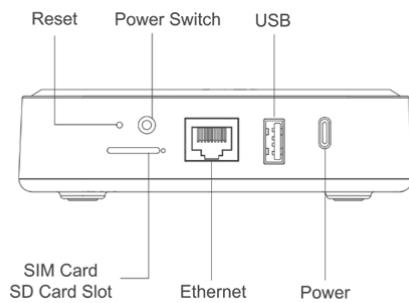
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## 2. Mechanical Requirement

### 2.1 Drawings



### 2.2 Interface and Dimension



Interface



Dimension

### 3. Specifications

#### 3.1 Technical Specification

| Category              | Specifications  |
|-----------------------|---|
| Power Supply          | USB Type-C 5V/3A  |
| Reset button          | The reset button is a hole button, After pressing the reset button for more than 5 seconds, the Locator will be restored to the factory settings. |
| Switch                | On/Off power  |
| Network Interface     | WAN/LAN variable.   |
| USB                   | USB2.0  |
| SIM card              | Micro SIM card  |
| SD card slot          | 1   |
| Indicator LEDs(RGB)   | 1).Power &battery LED 2). Wireless LED 3) LTE indicator   |
| Wireless protocol     | Zigbee, Z-WAVE, BLE ,Wi-Fi, LoRa  |
| Antenna               | Zigbee PCB Antenna, LTE/BLE/Z-WAVE/Wi-Fi FPC Antenna, LoRa Rubber Duck Antenna  |
| Li battery            | 6000mAH   |
| Installation method   | Flat, Ceiling, DIN  |
| RTC                   | Real-Time Clock operated from an onboard battery  |
| Hardware encryption   | ECC608  |
| Operating Temperature | -10°C~60°C  |
| Storage Temperature   | -40°C~85°C  |
| Operating humidity    | 10%~90%   |
| IP rating             | IP22  |
| Cooling               | Heat dissipation silicone/aluminum  |
| Current               | 500mA@5V  |

## 4. Applications

### 4.1 How to use

- Reset the device

Find the reset button on the gateway, then hold it for about 10 seconds. This will reset it back to factory settings. you can press the reset button up to three times, the device will enter into upgrade mode. you can restart the device by pressing the reset button once. After resetting, you need to reconfigure all the previous settings.

- Power On with back up Li battery

Long press the power switch button for 3 seconds to turn on the Li battery when the gateway is not power supply with power adapter.

- Insert SIM/TF card

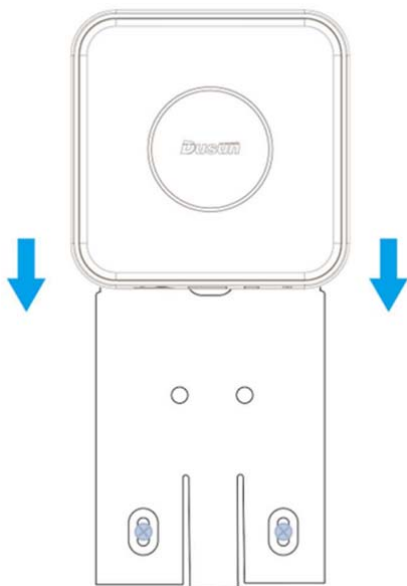
Use the pin to press the hole next to the slot to pop out the card slot, install the SIM card and TF card according to the diagram below.

- Indicator Light Description

|                        |  |
|------------------------|--|
| Red light              | Start-up is completed after the device is powered on |
| Blue light             | Connecting to the network successfully               |
| Green Light            | 4G LTE dialing                                       |
| Blue light turn circle | Connecting to the network                            |

- Installation Method

You can install the brackets with Expansion screw into wall or roof, then insert the gateway.

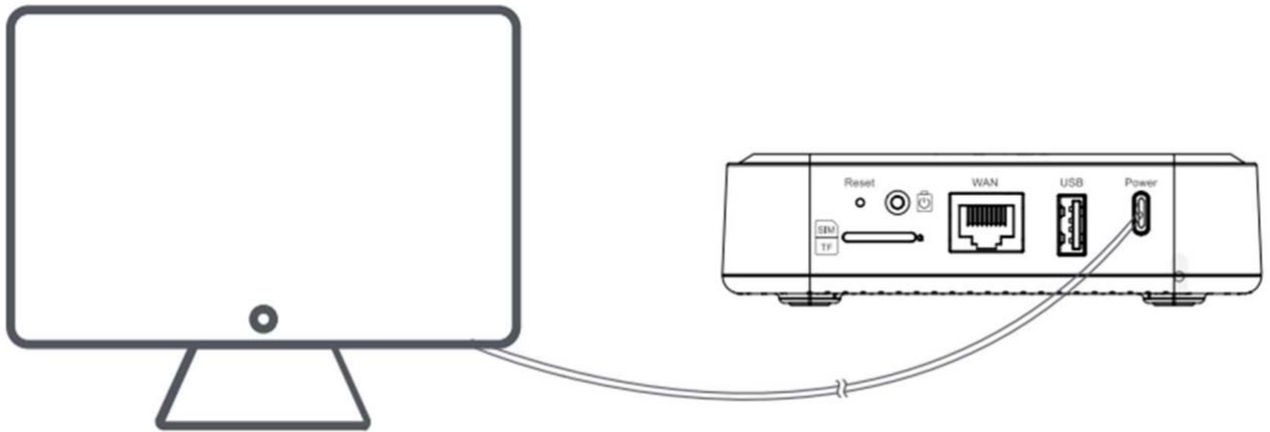


## 4.2 How to install Home Assistant

- Connect to the gateway

A. Connect one end of the USB cable to the USB port on the laptop or desktop

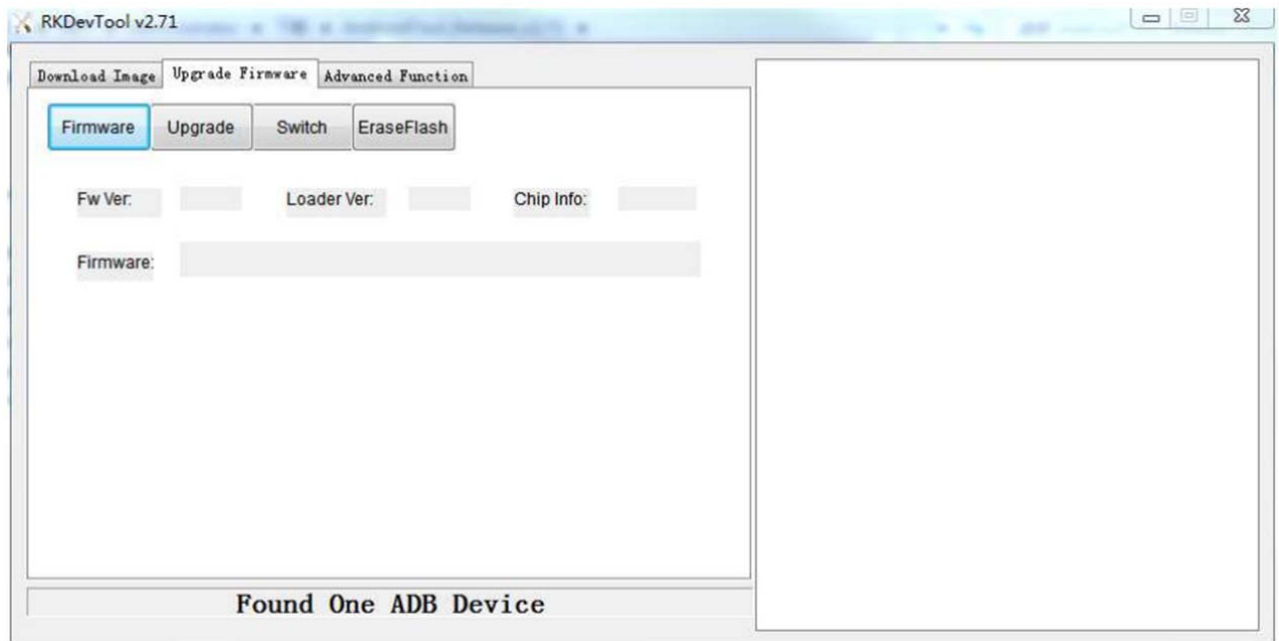
B. Connect the other end of USB cable to the USB port on the gateway



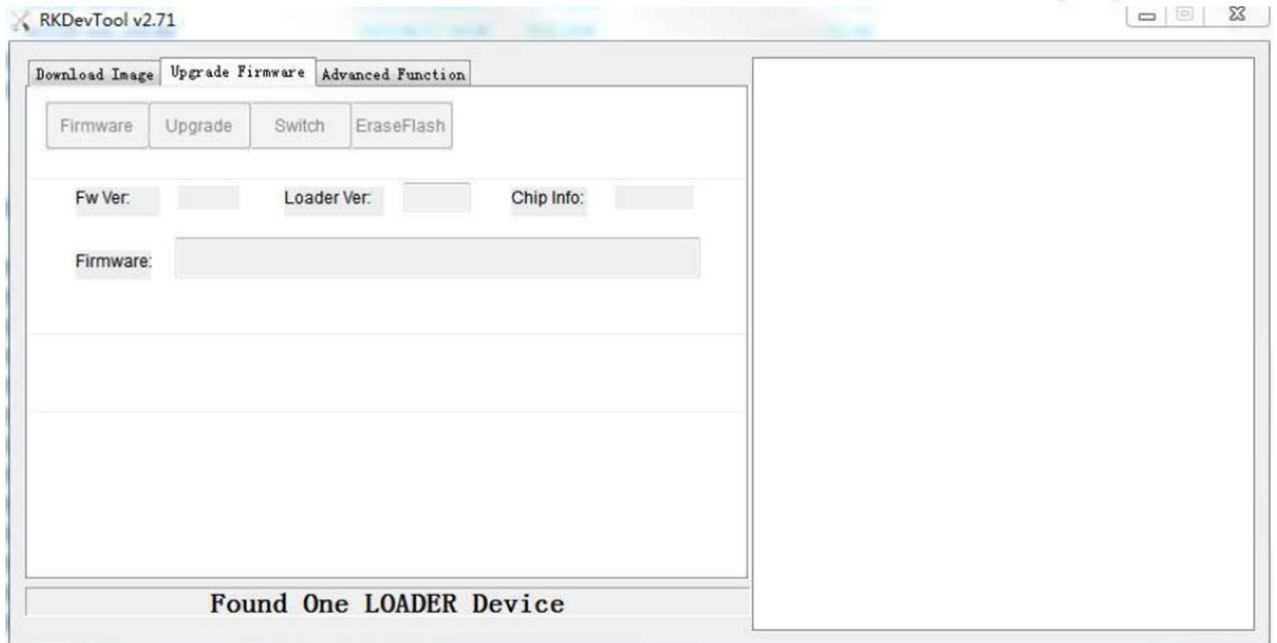
- Download firmware

A. You can get the image of home assistant and tool from DUSUN.

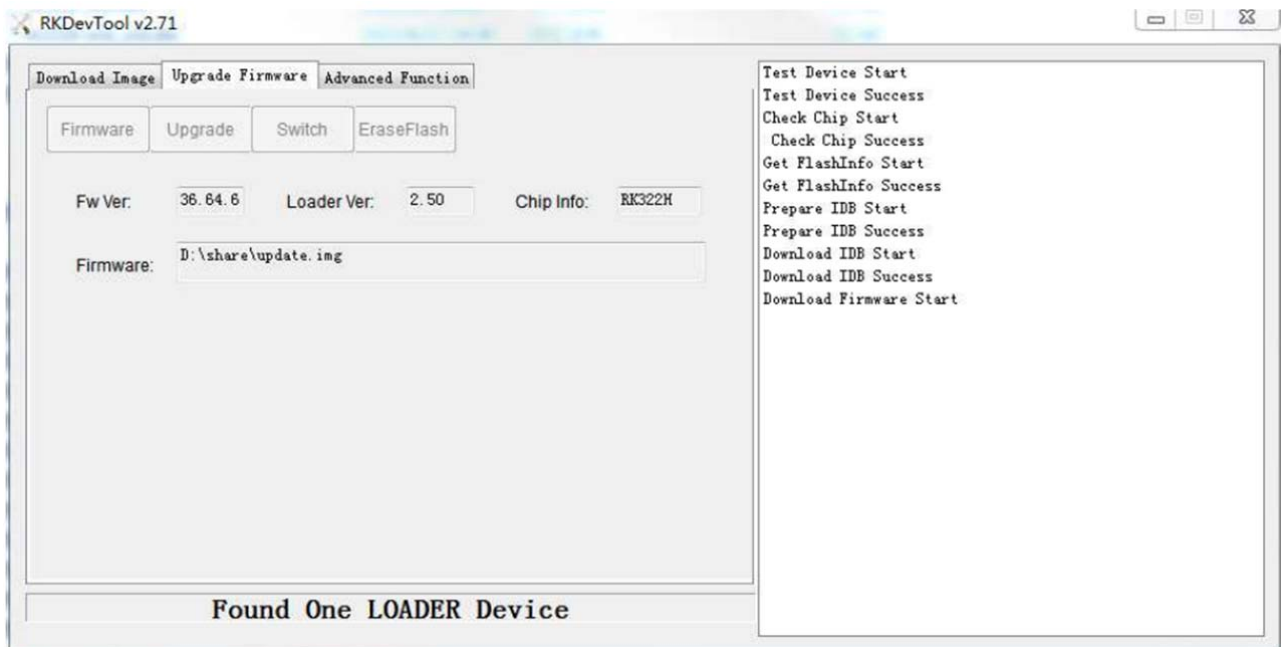
B. And open the RKDevTool, You can find the “ADB device” . Click the” switch” .



C. Select the image of home assistant. Click the “firmware” button.



D. Load the firmware



### 4.3 Operate Home Assistant

- Access to LAN

Let the gateway connect to the LAN at home.

And find the ip of gateway from your router.

- Visit dashboard of home assistant

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You can visit the following URL in a web browser.

http:// Gateway ip:8123

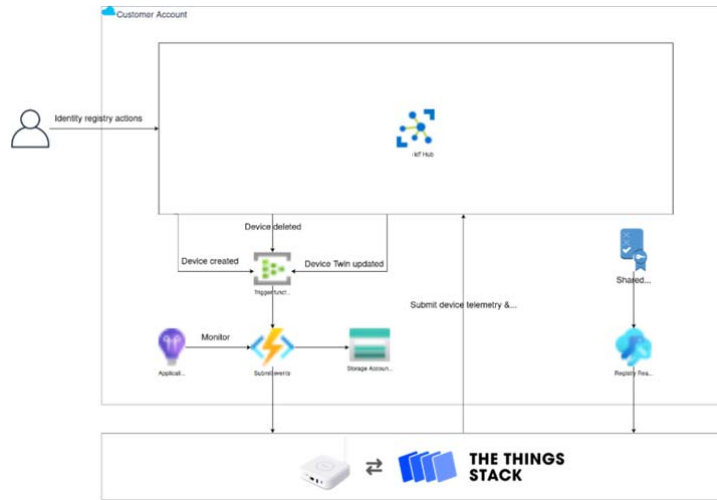
- Wi-Fi AP

You can find a Wi-Fi AP with PC, the SSID: dusunha Password:12345678

Then you can visit the home assistant dashboard, follow the URL: http://192.168.10.1:8123

#### 4.4 The Architecture between DSGW-210B and IoT

The following diagram describes the architecture of the integration it details the uplink and downlink data flows between the DSGW-210B and IoT.



The integration between IoT Hub and DSGW-210B includes three features as the following:

- Handling uplink messages: The DSGW-210B publishes uplink messages to the IOT Hub of the users
  - Creating and deleting devices: The users can manage the LoRaWAN devices in the IoT
  - Updating state in device twin: The users can update the properties coming from the LoRaWAN devices.
- At the same time, the users can propose the downlinks according to the device desired properties

## 5. QA Requirements

### 5.1 Quality and Testing Information

| Information Description | Standard(Yes) custom(No)             |
|-------------------------|--------------------------------------|
| ESD Testing             | Yes                                  |
| RF Antenna Analysis     | Yes                                  |
| Environmental Testing   | Yes                                  |
| Reliability Testing     | Yes                                  |
| Certification           | FCC, CE, Bluetooth(BQB), PTCRB, RoHs |

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## 6. FCC

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

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.
- (2) This device must accept any interference received, including interference that may cause undesired operation.

**FCC Radiation Exposure Statement:**

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

**Note:**

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 a particular 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 or more 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.