

Product Specification

Product Name: Indoor LoRaWAN Gateway

Product Model: DSGW-210B

Revision History

| Specification | | Sect. | Update Description | By |
|---------------|------------|-------|-----------------------------------|----|
| Rev | Date | | | |
| 1.0 | 2021-05-26 | | New version release | |
| 2.0 | 2022-01-06 | | Adding the model list | |
| 3.0 | 2022-01-11 | | Adding Region Name | |
| 4.0 | 2022-01-12 | | Adding new Frequency band CN470 | |
| 5.0 | 2022-01-16 | | Adding the hardware block diagram | |
| 6.0 | 2022-02-11 | | Adding the package information | |
| 6.1 | 2022-05-13 | | Update the Wi-Fi information | |
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Approvals

| Organization | Name | Title | Date |
|--------------|------|-------|------|
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Model List



| Model \ Feature | Region Name | Lora Frequency Band |
|-----------------|----------------|---------------------|
| DSGW-210B-EU | Europe | 868MHz |
| DSGW-210B-US | USA, Canada | 915MHz |
| DSGW-210B-RU | Russia | 864MHz |
| DSGW-210B-IN | India | 865MHz |
| DSGW-210B-KR | Korea | 920MHz |
| DSGW-210B-AS | Southeast Asia | 923MHz |
| DSGW-210B-AU | Australia | 915MHz |
| DSGW-210B-CN | China | 470MHz |

1 Introduction

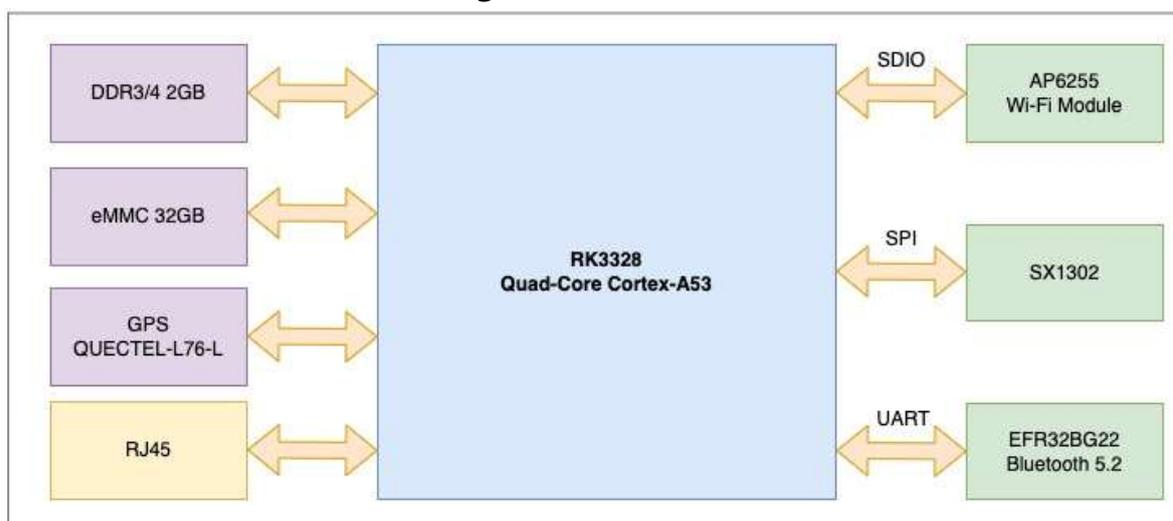
1.1 Purpose& Description

The DSGW-210B is a full 8-channle Indoor Gateway, based on the LoRaWAN protocol, with built-in Ethernet connectivity for a straightforward setup. Additionally, there is an on-board Wi-Fi setup (supporting 2.4 GHz/5GHz Wi-Fi) that allows it to be easily configured via the default Wi-Fi AP mode. With its industrial-grade components, it achieves a high standard of reliability.

Product Feature

- Support 5V/3A adapter power supply
- CPU: Quad-core Cortex A53
- 2GB on-board RAM
- 32GB eMMC
- Base on the LoRa Concentrator Engine: Semtech SX1302
- TX power up to 27dBm, RX sensitivity down to -139dBm @SF12, BW125kHz
- LoRa Frequency band support: RU864, IN865, EU868, US915, AU915, KR920, AS923, CN470
- Support Wi-Fi 2.4G IEEE 802.11b/g/n, BLE5.0
- Support GPS, GLONASS, Galileo and QZSS
- Support OTA
- One WAN/LAN variable network port
- RoHS/WEEE compliance(Lead-free)
- Certification FCC,CE, IC, FAC, WPC, KC, NTC, RCM, SRRC

1.2 Hardware Block Diagram

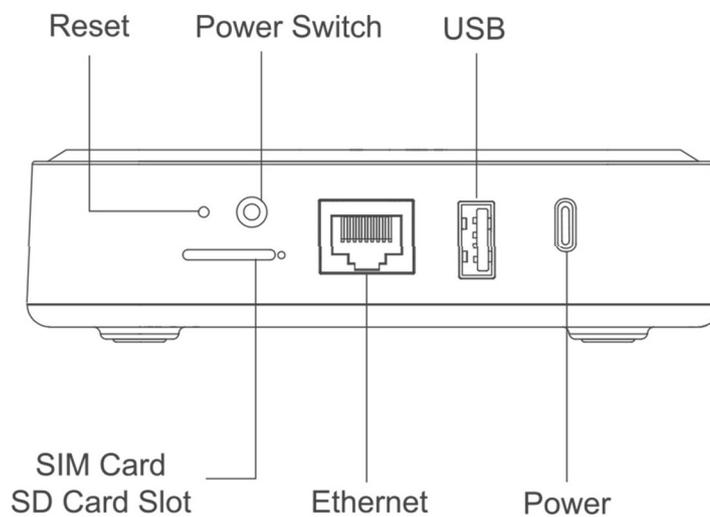


2 Mechanical Design

2.1 Drawing

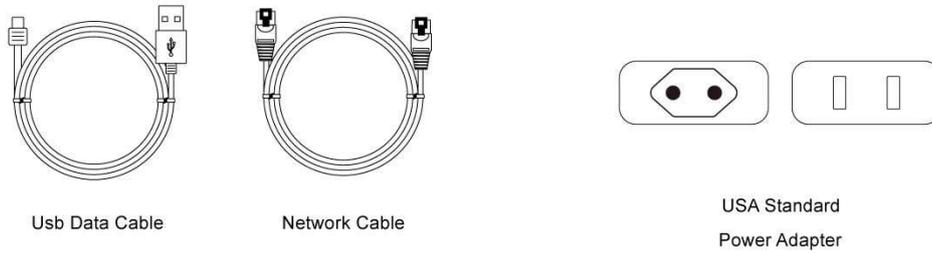
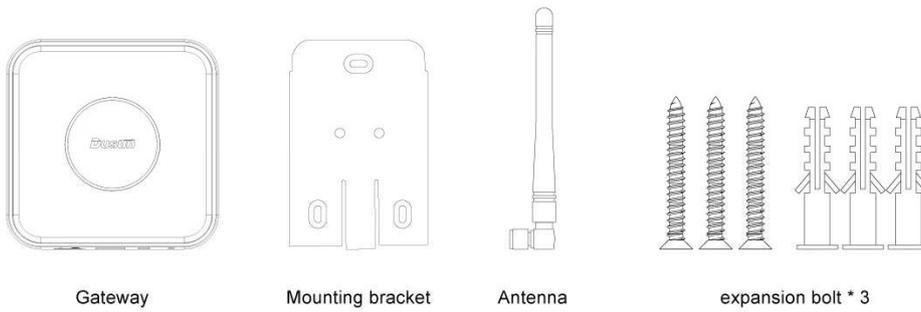


2.2 Interface

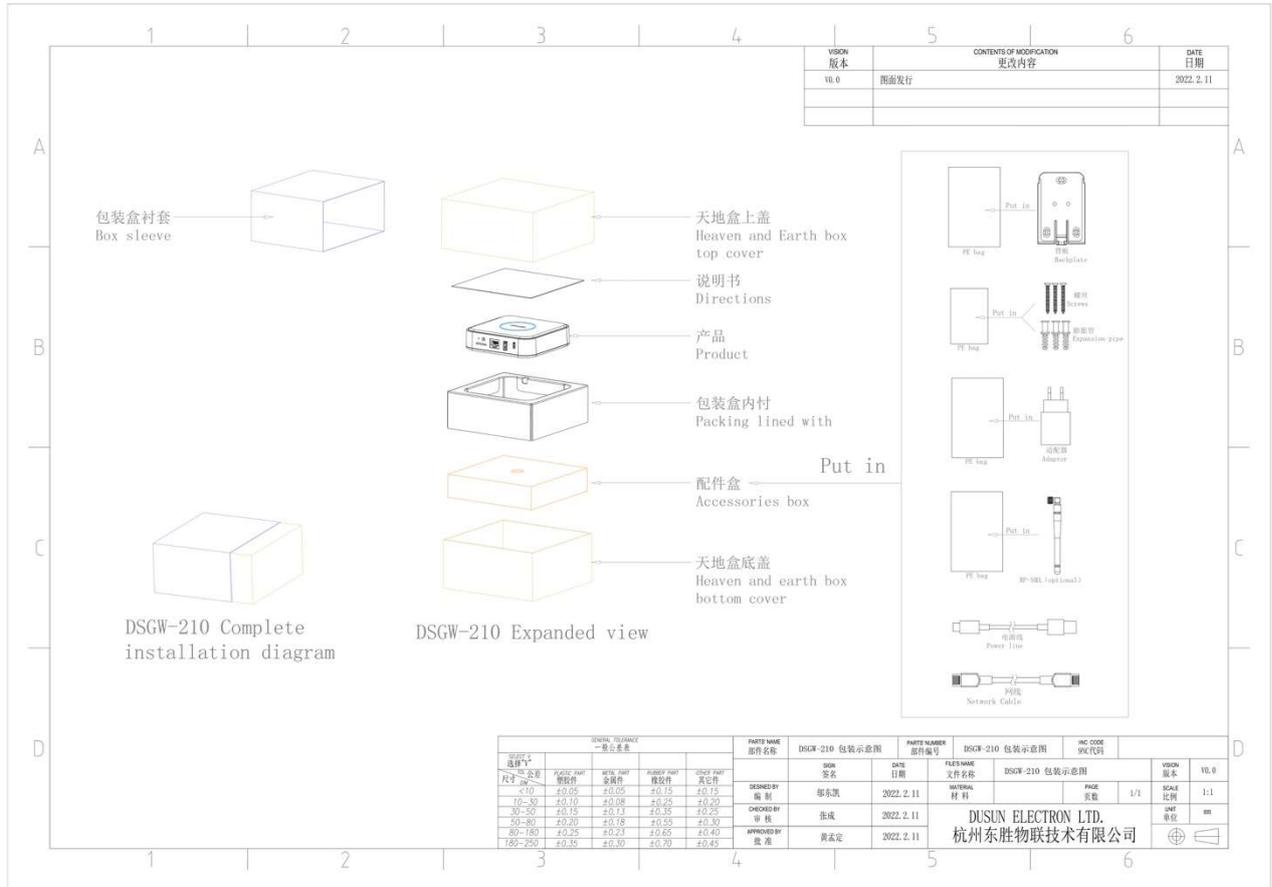


2.3 Package Content

| Product list | Number |
|-------------------------|--------|
| Smart Gateway | 1 |
| Network Cable | 1 |
| USB Power Cable | 1 |
| Power adapter(EU or US) | 1 |
| Mounting bracket | 1 |
| Expansion screw | 3 |
| Antenna | 1 |



2.4 Package



3 Specifications

3.1 Hardware Information

| Item | Technical Specification |
|-----------------------|-------------------------------------|
| CPU | Quad-core Cortex-A53 |
| RAM | 2GB |
| ROM | eMMC 32GB |
| System | Linux |
| Security module | ATECC608 |
| Power Supply Port | 5V/3A |
| Reset button | Reset the gateway into factory mode |
| Network Interface | RJ45 |
| Operating Temperature | -10°C~55°C |
| Storage Temperature | -10°C~65°C |
| Dimmension(L*W*H) | 120MM*120MM*30MM |

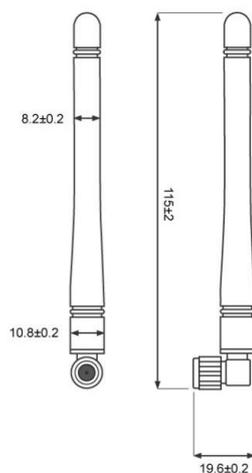
3.2 Performance Requirement

| | |
|---------------------------------|--|
| <p>Wi-Fi Performance</p> | <ul style="list-style-type: none"> • IEEE wireless LAN standard: IEEE802.11n; IEEE802.11g; IEEE 802.11b Data Rate: IEEE 802.11b Standard Mode:1,2,5.5,11Mbps IEEE 802.11g Standard Mode:6,9,12,18,24,36,48,54 Mbps IEEE 802.11n: MCS0~MCS7 @ HT20/ 2.4GHz band MCS0~MCS7 @ HT40/ 2.4GHz band • Sensitivity: HT40 MCS7 : -70dBm@10% PER(MCS7) /2.4GHz band HT20 MCS7 : -71dBm@10% PER(MCS7) /2.4GHz band • Transmit Power: IEEE 802.11n: 16dBm @HT20/40 MCS7 /2.4GHz band IEEE 802.11g: 16dBm @54MHz IEEE 802.11b: 18dBm @11MHz • Wireless Security: WPA/WPA2, WEP, TKIP, and AES • Working mode : Bridge、Gateway、AP Client • Range: 50 meters minimum, open field • Transmit Power:17dBm • Highest Transmission Rate: 300Mbps • Frequency offset: +/- 50KHZ • Frequency Range (MHz): 2412.0~2483.5 • Low Frequency (MHz):2400 • High Frequency (MHz):2483.5 • E.i.r.p (Equivalent Isotopically Radiated power) (mW)<100mW • Bandwidth (MHz):20MHz/40MHz • Modulation: BPSK/QPSK, FHSSCCK/DSSS, 64QAM/OFDM |
| <p>BLE Performance</p> | <ul style="list-style-type: none"> • TX Power: 10dBm • Range: 150 meters minimum, open filed • Receiving Sensibility: -80dBm@0.1%BER • Frequency offset: +/-20KHZ • Frequency Range (MHz):2401.0~2483.5 • Low Frequency (MHz):2400 • High Frequency (MHz):2483.5 • E.i.r.p (Equivalent Isotopically Radiated power) (mW)<10mW • Bandwidth (MHz):2MHz • Modulation: GFSK |

| | |
|----------------------------------|---|
| <p>Zigbee Performance</p> | <ul style="list-style-type: none"> • Range: 100 meters minimum, open field • Transmit Power:17.5dBm • Highest Transmission Rate: 300Mbps • Frequency offset: +/- 20KHZ • Receiving Sensibility:-94dBm • Frequency Range (MHz):2401.0~2483.5 • Low Frequency (MHz):2400 • High Frequency (MHz):2483.5 • E.i.r.p (Equivalent Isotopically Radiated power) (mW)<100mW • Bandwidth (MHz):5MHz • Modulation: OQPSK |
| <p>LoRa Performance</p> | <ul style="list-style-type: none"> • Supports class A, C • Frequency band support: RU864, IN865, EU868, US915, AU915, KR920, AS923 • TX power up to 27dBm, RX sensitivity down to -139dBm @SF12, BW125kHz |
| <p>GPS</p> | <p>GPS, GLONASS, Galileo and QZSS</p> |
| <p>Ethernet</p> | <p>WAN/LAN port: 10M/100Mbps</p> |

4 Antenna Specification

4.1 Antenna Dimension



4.2 Antenna Parameter

| Frequency(MHZ) | Gain(dBi) | Efficiency(%) |
|----------------|-----------|---------------|
| 868 | 1.81 | 66.45 |
| 878 | 0.93 | 51.98 |
| 888 | 1.62 | 59.13 |
| 898 | 1.36 | 57.05 |
| 908 | 1.90 | 64.32 |
| 915 | 2.44 | 72.67 |