

# DTSB5.01 SGW8100 +30dBm LoRa USB Modem Datasheet

November 2020 V1.0

## Introduction

The SGW8100 +30dBm LoRa USB Modem (Figure 1) instantly enables LoRa connectivity at over 6km in dense urban areas and through at least 10 concrete walls, proven through on-site testing in Hong Kong. Tailored for the US market at 915MHz, the plug-and-play Modem itself achieves 30dBm in transmission power, with fast frequency hopping and high sensitivity.

Order Part Number	Description
SGW8100	SGW8100 +30dBm LoRa USB Modem



Figure 1: SGW8100 +30dBm LoRa USB Modem

## Features

- Complete LoRa solution supporting LoRa Proprietary Network up to 30dBm Tx power
- SG Wireless SGW2828-01A LoRa Module
- Operating frequency ranges from 902 to 928MHz (US)
- Fast frequency hopping for coverage improvement
- Ultra-long RF range (>10 km line-of-sight) and superb wall penetration
- Standard USB interface (easy to use AT-command interface over UART)
- Operating temperature: -20°C to +85°C
- Dimension: 263.0 x 16.5 x 12.2mm
- FCC: 2AS9405
- IC: 25021-05

## Block Diagram

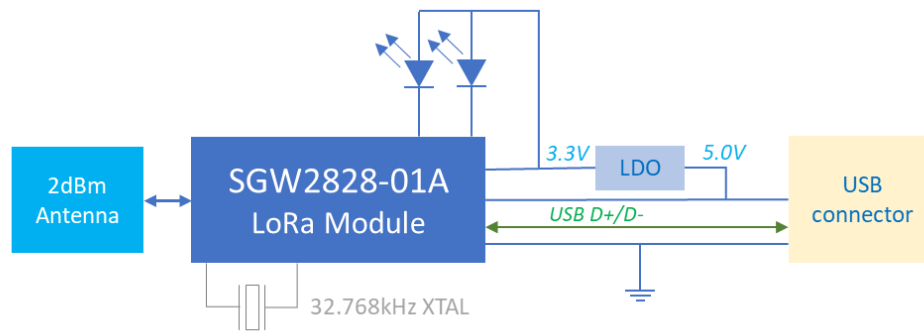


Figure 2: SGW8100 Block Diagram

## Electrical Specifications

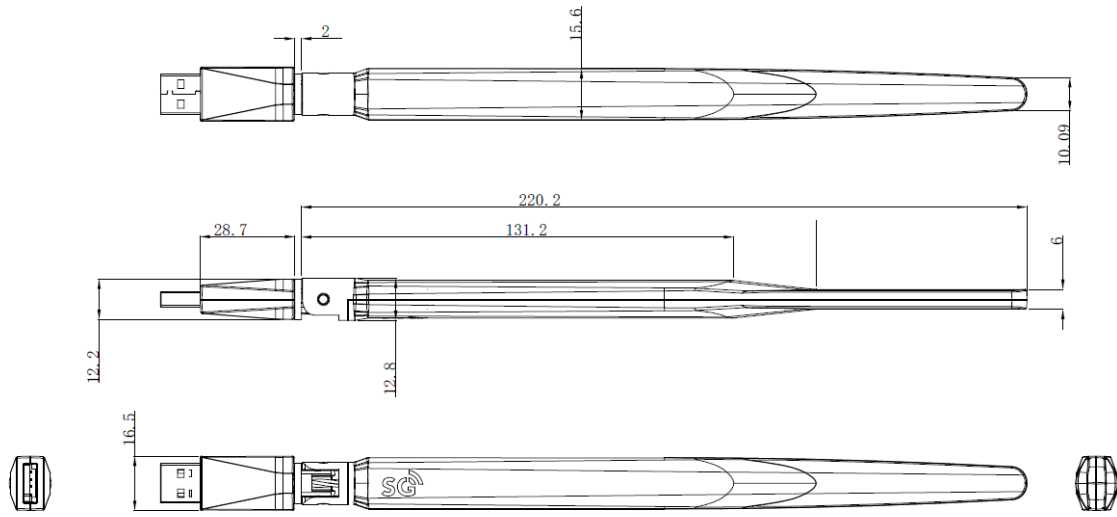
Symbol	Parameter	Min	Max	Unit
<b>Absolute Maximum Rating</b>				
V_USB <sub>max</sub>	Voltage on VDD supply pin	-0.3	5.5	V
T <sub>Storage</sub>	Storage temperature range	-40	125	°C

Symbol	Parameter	Min	Typ	Max	Unit
<b>Operating Conditions</b>					
V_USB	VCC operating supply voltage	4.5	5.0	5.5	V
T <sub>Ambient</sub>	Operating temperature range	-20	N/A	85	°C

<b>General</b>	
Modem	SGW8100 LoRa USB Modem
Host Operation	AT command
Protocol	LoRa Proprietary Network
Certification	FCC and IC certified
Dimension	263.0 x 16.5 x 12.2mm
<b>LoRa Performance</b>	
Radio Operating Frequencies	902MHz - 928MHz
Radio On-air Data Rate	0.7kbps - 21.8kbps
Transmit Power	Max +30dBm
Antenna	External 2dBi
Range	>10km

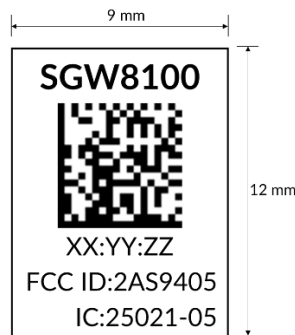
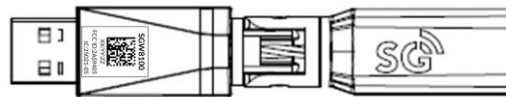
### Mechanical Data

The SGW8100 +30dBm LoRa USB Modem measures at 263 x 16.5 x 12.2mm (Figure 3), and is labelled with the last six digits of its MAC address (Figure 4).



\*All units in mm.

**Figure 3: SGW8100 Dimensions**



**Figure 4: SGW8100 MAC Address Label**

## Certification

### a. FCC Statement

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.

**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

**NOTE:** The manufacturer is not responsible for any radio or TV interference caused by unauthorized modifications to this equipment. Such modifications could void the user's authority to operate the equipment.

### b. IC Statement

This device complies with CAN ICES-3 (B)/NMB-3(B).

This device complies with Industry Canada licence-exempt RSS standard(s). 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.

Cet appareil est conforme à la norme CAN ICES-3 (B)/NMB-3 (B).

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

- (1) L'appareil ne doit pas produire de brouillage, et
- (2) L'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

c. RF Exposure

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance of 20 cm between the radiator and your body. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Cet équipement est conforme aux limites d'exposition aux rayonnements de la IC établies pour un environnement non contrôlé. Cet équipement doit être installé et fonctionner à au moins 20cm de distance d'un radiateur ou de votre corps.

**Revision History**

Revised	Version	Description
30-Nov-2020	1.0	Initial document release

Contact us at [cs@sgwireless.com](mailto:cs@sgwireless.com) for any queries, or find us at any channel below:

Website: <https://sgwireless.com/>

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Twitter: [@sgwirelessIoT](https://twitter.com/sgwirelessIoT)

**Manufacturer Address:**

Unit 4, 5/F, Sun Fung Industrial Building, 8 Ma Kok Street, Tsuen Wan, New Territories, Hong Kong

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