

# SGW6008 BLE WiFi Gateway

User Manual

Version 1.1

### **1. Introduction**

The SGW6008 is a Bluetooth Low Energy <sup>®</sup> (BLE) to Wi-Fi connectivity gateway without using smartphones or apps. This robust gateway collects data from BLE sensors or devices, and sends to the local server or remote cloud server by HTTPS & MQTTS protocols with TLS1.2 standard over Wi-Fi. A connected solution for the SGW8130 BLE sensor tag and SGW111X BLE module, the SGW6008 enables hassle-free real time remote monitoring or asset tracking for IoT applications

### 2. Features

- SGW1010 BLE module
- Operating system: Amazon FreeRTOS
- o 2.4GHz 802.11 b/g/n WiFi
- Protocol: TCP/HTTPS/MQTTS/TLS1.2
- o LED status indicators Power, WiFi & BLE
- Button: AP mode for Wi-Fi configuration and Gateway provisioning
- Power Input: 1A @5V DC, micro-USB interface
- o Dimension: 66.75mm x 65.75mm x 23.5mm
- Operating temperature: -10°C to 60°C

### **3. Applications**

- o Industrial mesh networks
- Industrial smart lighting
- Smart logistics and transportation
- Smart devices for connected homes
- Smart city infrastructure



## 4. Block Diagram



Below (Fig.1) is the block diagram of the SGW6008 BLE WiFi Gateway.

Figure 1. SGW6008 BLE WiFi Gateway Block Diagram

### 5. SGW6008 BLE WiFi Gateway

User interface and connector available on the SGW6008 BLE WiFi Gateway are shown below (Figure 2)



Figure 2. SGW6008 BLE WiFi Gateway

Connector/Button	Description
USB	Micro-USB, power input (5.0V DC, 1A)
Button	AP mode for Wi-Fi configuration and Gateway provisioning



### Top LEDs present on the SGW6008 BLE WiFi Gateway indicates the following status:

	Power LED	Bluetooth LED	WFi LED
Normal Operation			
Power-on	On	-	-
Bluetooth Signal transmission	On	Blinking	-
WiFi Signal transmission	On	-	Blinking
AP Mode Operation			
AP mode, Not connected	Blinking	-	Blinking
AP mode, connected	Blinking	-	On
WiFi configuration success and connected to SG Wireless IoT server	On	-	Blinking



Figure 3. Internal Structure of SGW6008



# 6. Electrical Specifications

Absolute Maximum Rating	
Power supply	5.5V DC
Storage temperature	-20°C to 80°C

Recommended Operating Conditions			
Power supply	5.0V DC		
Operating temperature	-10°C to 60°C		

BLE RF Performance	
Radio Operating Frequencies	2402MHz ~ 2480MHz
Radio On-Air Data Rate	1Mbps, 2Mbps
Maximum Transmit Power	10+/-2dBm
Antenna	Onboard PCB Antenna
Range	Up to 200 meters (open space)

WiFi Performance	
Wireless Standard	IEEE 802.11b/g/n (single stream)
Radio Operating Frequencies	US band: Channel 1-11 EU band: Channel 1-13
Radio On-Air Data Rate	IEEE 802.11b, 1-11Mbps IEEE 802.11g, 6-54Mbps IEEE 802.11n(2.4GHz), 72.2Mbps
Maximum Transmit Power	17+/-2dBm
Antenna	Onboard PCB Antenna
Security	WPA/WPA2
Encryption	WEP/TKIP/AES

### 7. Getting Started

#### 7.1 Wi-Fi Configuration and Provisioning of SGW6008

Wi-Fi configuration and gateway provisioning process must be finished first in order to use the functionalities of the SGW6008.

- 1. Power-up the SGW6008 BLE WiFi Gateway with micro-USB cable.
- 2. Connect the gateway with your computer or mobile device.
  - a. SSID of the SGW6008 BLE WiFi Gateway: "SGW6008\_AA:BB:CC:DD:EE:FF"
  - b. Default password of the SGW6008 BLE WiFi Gateway: "SGWireless\_23\$"
- 3. Launch your Internet browser, and go to the following web address: <u>http://192.168.4.1</u>

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- > C (i) Not secu	ıre   192.168.4.1				Q	🕒 Guest	
SGWireless ovisioning Status: t provisioned	BLE Gatew	vay C	onfigurati	on			
		Wi-F	i Configuratio	n			
ot SSID	Password	DHCP	IP	Mask		DNS	_
	ĺ	No 🔻	0.0.0.0	0.0.0	0.0.0.0		
	İ	No 🔻	0.0.0.0	0.0.00	0.0.0.0		
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#### Wi-Fi configuration procedures:

4. Press "Scan" button in main page to scan for available Wi-Fi Access points in the area.

SGW6008 BLE Gateway	× +					- 🗆 X
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SGWireless	BLE Gate	way (	Configur	ation		
		Wi-F	i Access po	pints		
SSID	Security	RSSI	Channel	Password	Action	
SMobile	Open	-49	6		-	
SGW_DEV	Secured	-50	13		+	
SeasonMobile	Open	-51	6		-	
SGuest	Open	-52	6		<u> </u>	
SeasonHK	Secured	-54	5		+	
SGuest	Open	-58	11		-	
SeasonMobile	Open	-58	11		-	
			ļ			
		_				
Back Rescan						

5. Enter the password for target Wi-Fi access point and press "+" in Action.

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Guest	9	(	Q						n.shtml	.168.4.1/scan	e   192	C 🛈 Not secur	$\leftrightarrow$ $\rightarrow$
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				1 •				6	-51	n	Oper	obile	SeasonMobi
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6. Press "OK" to confirm the setting in the Popup windows as shown below:

192.168.4.1 says Please verify if the following information is correct: SSID:[SeasonHK] Security:[Secured] RSSI:[-55] Channel:[5] Password:[*********	ОК
192.168.4.1 says Add [SeasonHK] to Gateway Wi-Fi list? OK	Cancel



7. If static IP is preferred, select "No" for DHCP and enter the IP address, Subnet Mask and DNS of the WiFi access point in the WI-FI configuration table. Press "Save Wifi Setting" button to update the setting.

\* The "High Priority Slot" represents which saved SSID is the highest priority to connect with.

٢	SGW6008 BLE Gateway	×	+					-		×
←	→ C ③ Not secu	ire   192.	168.4.1				Q	Θ	Guest	:
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Slot	SSID	Pa	ssword	DHCP	IP	Mask		DNS		
0	SeasonHK	•••••		Yes 🔻	0.0.0.0	0.0.0.0	0.0.0.0			
1				Yes 🔻	0.0.0.0	0.0.0.0	0.0.0.0			
2				No 🔻	0.0.0.0	0.0.0.0	0.0.0.0			
3				No 🔻	0.0.0.0	0.0.0.0	0.0.0.0			
4				No 🔻	0.0.0.0	0.0.0.0	0.0.0.0			
High Sav Sca	Priority Slot: None  ve Wifi Setting an Restart									

*Gateway provisioning procedures:* 

8. Fill in the SGW IoT Platform account and gateway information, then select "Start Provisioning".

	Cutono	, reveloring	
Please fill out the following fields abou	t your information of SGV	V IoT Platform account:	
Account Information			
Username			
sgwireless@sg-iot.com			
Password			
Gateway Information			
lame			
SGW BLE Gateway			
ocation			
Hong Kong			
Description			
SGW6008 BLE Gateway			
Start Provisioning			

9. Press "OK" to the prompt shown as below.



10. Upon confirmation, the gateway will exit AP mode and start the provisioning with SGW IoT Backend server. During the process, the configuration web page will be directed to SG IoT Website. Please make sure your PC or mobile device has switched to networks with proper internet connection.

SGWireless	BLE Gateway Configuration
Gateway restarts in	n progress. We will direct you to SGW IoT Website in 8 seconds.
Or you can access	Litimmediately,
© Copyright 2020	SG Wireless

### 7.2 Edge Devices Provisioning

The SGW8130 BLE Sensor Tag can be connected to the SGW6008 BLE WiFi Gateway.



Provisioning procedures for edge devices SGW8130:

- 1. Log-in to SG Wireless IoT Dashboard
  - a. Visit SG IoT Dashboard Page: "https://www.sg-iot.com" and log-in
  - b. Click 'Gateway' and it will show all provisioned gateways. Select the target gateway to configure.

Home		7				
pð Gateways						
]] Sites	Search by name					
Smart City	(d) <sup>0</sup>	(c)) 🗉		((ọ)) <sup>8</sup>	((ọ))	
👯 User Groups	BLE Gateway - Freda	BLE Gateway	Mesh Gateway	SDK-RMW	SDK-SAC	SELFactory
Customers	HongKong	Sheldon HorgKong	HangKong	China-DongGuan	China-DongGuan	UK Havant
L Download	//s =	(1) ···	(1) B	((a)) B	((-))	((0))
> Developer		6.0	6.0		ada	(14)
) Help	SGW-BLE SHK - Berls Table	SHK-BLE SHK-Stanley's Table	SHK-IT SHK-IT Server Room	SHK-Office SHK-Stanley's Table	SMM-Office Malaysia-Penang	SMX-Factory Mexico-Reynosa Tamaulipas



- 2. Search and Connect Edge Device
  - a. Click 'SEACH NEW BLE' to search for nearby edge devices SGW8130.

2	1 Paired Devices
	Setting

b. Click the Green Discovered BLE device icon which is showing the Mac Address of your target edge device

SHK-IT SHK-IT Server Room Status: Connected	10.0.0.72 Internal IP	1 Paired Devices
levices		Setting >
BLE Devices		
Search BLE Devices		
Server Room HHG		
SEARCH NEW BLE		
04-24:0c:5txb9:ba		

c. Fill in the information of the edge device (name, location, description)

Connect BLE d4:24:0c:5b:b9:ba		
Name	SGW	
Location	USA	
Description	USA customer	
ВАСК	SUBMIT	

- d. Click "SUBMIT" to provision the edge device
- e. The registered edge device will be shown in the BLE Device's list

### 8. Getting Started

#### 8.1 CE Statement

#### **Regulatory Conformance (RED)**

Hereby, (SG Wireless Limited) declares that the radio equipment type (SGW6008) is in compliance with Directive 2014/53/EU.

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The full text of the EU declaration of conformity is available at the following website:

https://www.sgwireless.com

#### 8.2 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, and (2) this device must accept any interference received, including interference that may cause undesired operation.

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.

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

• This device and its antenna(s) must not be co-located or operating in conjunction with any other antenna or transmitter.

#### 8.3 IC Statement

This device complies with RSS-247 of Industry Canada. 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.

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.

This Class B digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

#### 8.4 RF Exposure Information and Statement

This equipment complies with FCC and IC 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.

### 9. Revision History

Revision	Date	Description
1.0	9 Mar, 2020	1 <sup>st</sup> Official release
1.1	27 Mar, 2020	Updated the WiFi configuration, gateway and tag provisioning section



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