LBAC0ZZ1SU

User Manual

Applicable Product Name:
LBAC0ZZ1SU

Feb/17/2018

Confidential

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Revision History

Date	Version	Change History
2018/2/9	1.0.0	Initial version

1. Product Summary

LBAC0ZZ1SU are the multiple RF protocol gateway. This product can be enable to receive data from multiple sensor units and transfer those data to customer's system by suitable interfaces and protocols.

2. Product Specification

This specification is applied to LBAC0ZZ1SU gateway solution.

Product name	LBAC0ZZ1SU
CPU	ARM Coretex-A8 32bit RISC processor
ROM	4Gbit NAND
RAM	2Gbit DDR3
Power supply	USB cable ：BJA91003
WLAN	IEEE 802.11 b/g/n compliant Frequency: 2412MHz to 2462MHz
Specific low power radio	ARIB STD-T108 compliant Frequency on LBAC0ZZ1SU: 902.5MHz – 927.5MHz
Ethernet	2 Ports：IEEE 802.3 10/100 Base-T compliant
LED indicator	5 LED windows
Button	2 Buttons
System clock	RTC with coin cell battery
Product size	W:170mm x L:109mm x T:26.5mm typ (*1)
Product weight	250g typ (*1)
Environmental assessment	ROHS directive 2011/65/EU compliant
UV rating	N/A
IP rating	IP20
Working environment	0 - 60℃, 0 - 90%RH (without condensation)
Storage environment	0 - 60℃, 0 - 90%RH (without condensation)
Max duty cycle	7.5%

(*1) External antenna and AC adopter are not included

3. Physical peripherals

Product physical peripherals are shown as below.

3.1 Button

The button is short and designed for reset purpose and long and designed for user configuration.

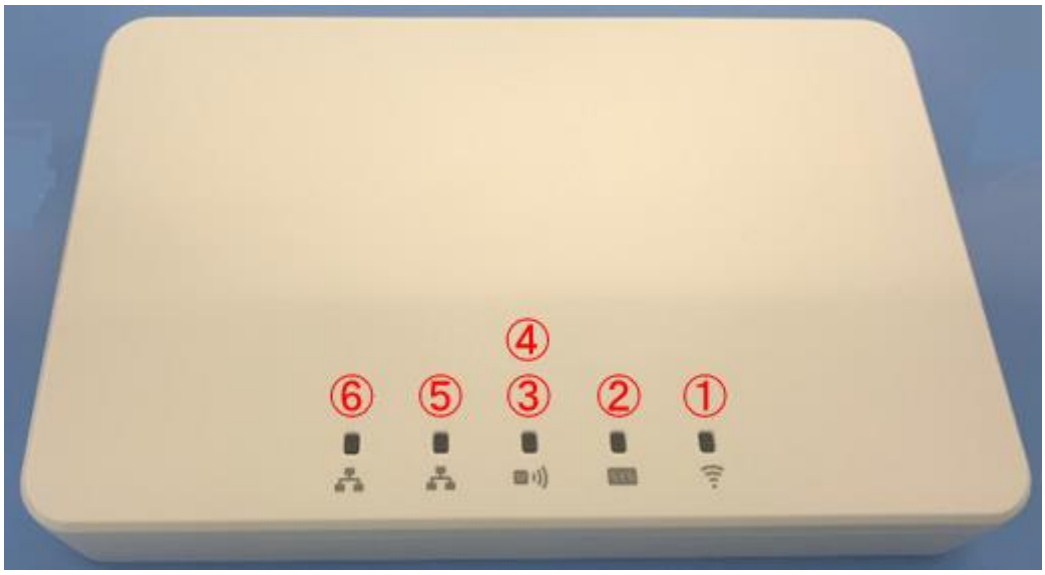
No.	Time	Actions
1	1 second	Software reset
2	10 seconds	Factory reset

3.2 LED indicators

There are 5 LEDs show the status of this gateway.

LED	LED Window	Color
1	WLAN ON	Green
2	System enable	Green
3/4	Blink Red LED when SubGHz packet is received	Red / Green
5	N/A	Green
6	Writing data to micro SD card	Green

All LED light up when power on the product.



3.3 USB

One USB interface is used for data storage and connection to other peripherals.

3.4 micro SD card slot

Micro SD card slot is used for log data storage by FAT format, and firmware update. Please do NOT remove the card while the LED6 is ON. Below type of memory cards are supported.

Class 10	16GB
Class 10	32GB

The card and slot might be damaged physically in case insert the card incorrectly.

The data might be disappeared, in case shut down gateway when saving sensor data.

3.5 Ethernet

Ethernet port with RJ45 connector is used for Ethernet connection. It complies with IEEE802.3 10/100 Base-T. One port will be exclusively disabled by the status of WLAN station mode.

GUI image for Ethernet only:

Gateway Network Selection		Reload Apply
To Upload Server	LAN1	LAN1
To Setting GUI	LAN2	LAN2

GUI image for Ethernet and WLAN AP mode:

Gateway Network Selection		Reload - Apply
To Upload Server	LAN1	LAN1
To Setting GUI	LAN2	LAN2 + Access Point

GUI image for Ethernet and WLAN station mode:

Gateway Network Selection		Reload - Apply
To Upload Server	LAN1	Station
To Setting GUI	LAN2	LAN2

Initial setting: LAN1

Item	Initial setting
IP address	DHCP
Subnet mask	
Default gateway	
DNS1	
DNS2	

GUI image for LAN1:

LAN1 Configuration		
Connection Mode	Enable/Static	Enable/Static
IP Address:	192.168.100.100	192.168.100.100
Subnet Mask	255.255.255.240	255.255.255.240
Default Gateway	192.168.100.101	192.168.100.101
MAC Address		

DNS Configuration		
DNS1	192.168.100.100	192.168.100.100
DNS2	192.168.100.101	192.168.100.101

Initial setting: LAN2

Item	Initial setting
IP address	192.168.1.100
Subnet mask	255.255.255.240
Default gateway	192.168.1.1

GUI image for LAN2:

LAN2 Configuration		
IP Address	192.168.1.100	192.168.1.100 ▼
Subnet Mask	255.255.255.240	255.255.255.240 ▼
MAC Address		

3.6 WLAN

AP mode and station mode are exclusively supported. The setting can be changed by configuration display.

Initial setting: AP mode

Item	Initial setting	Selectable setting
Connection Mode	Enable	Enable or Disable
IP address	192.168.2.100	Any
Subnet mask	255.255.255.254	Any
SSID (*1)	WSNGW_XXXXXX (*1)	Any
Channel (*1)	Auto	Channel 1 -11 or Auto
Broadcast	Enable	Enable or Disable
Security	Disable	Enable or Disable
Key	defaultkey	Any

(*1) The part of “XXXXXX” is lower 6 digits of WLAN MAC address

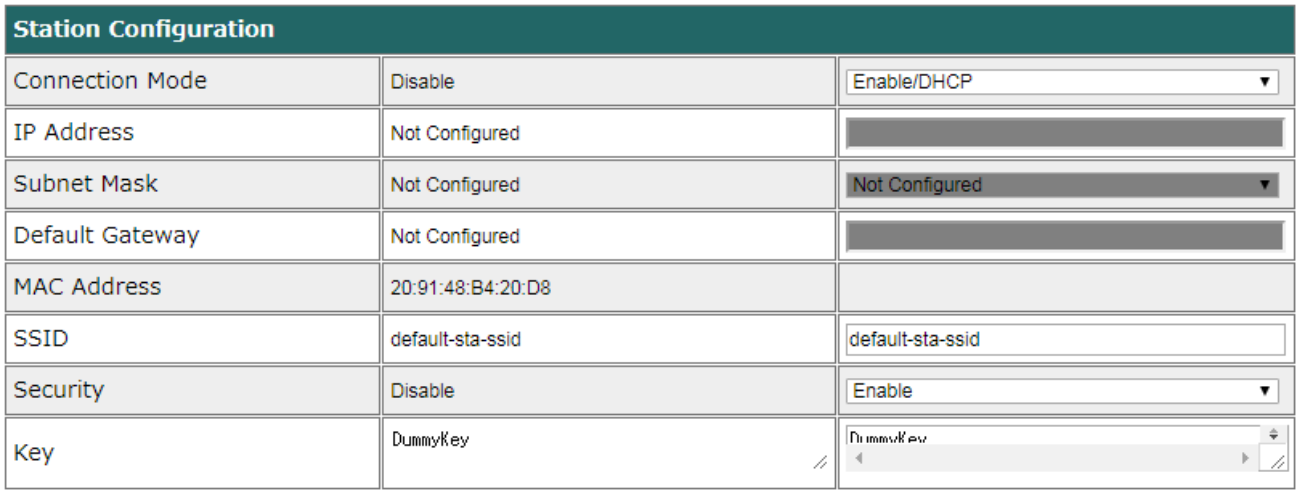
GUI image for AP mode:

Access Point Configuration		
Connection Mode	Disable	Enable ▼
IP Address	Not Configured	192.168.2.100 ▼
Subnet Mask	Not Configured	255.255.255.240 ▼
SSID	WSNGW_B21AB0	WSNGW_B21AB0
Channel	Auto	Auto ▼
Broadcast	Enable	Enable ▼
Security	Disable	Enable ▼
Key	defaultkey	defaultkey

Initial setting: Station mode

Item	Initial setting	Selectable setting
Connection Mode	Enable/Static	Enable/Static or Disable
IP address	192.168.100.100	Any
Subnet mask	255.255.255.240	Any
Default Gateway	192.168.100.101	Any
Channel (*1)	Auto	Channel 1 -11 or Auto
Security	Disable	Enable (WPA2-PSK AES) or Disable
Key length		Any

GUI image for Station mode:



3.7 SubGHz

This radio is used for sensor data transmission between gateway and sensor units.

Network protocol	868MHz or 920MHz proprietary
Max connection with sensor unit	20 units (*1)
Expected connection distance	200m (Best effort: Indoor and No obstruction) (*2)
Data rate	100kbps

(*1) This performance cannot be guaranteed by installation conditions and network configurations.

(*2) There is a possibility to see the different value depending on the surrounding environmental condition, building structure, material and barriers.

Initial setting for data upload by UDP:

Item	Initial setting	Selectable setting
Server Upload	Disable	Enable or Disable

Server Address	Not Configured	Any
Destination Port	Not configured	Any

GUI image:

SubGHz Enable/Disable		Reload - Update
SubGHz Function	Enable	Enable
SubGHz Server		
Server Upload	Enable	Enable
Server Address	100.100.100.10	100.100.100.10
Destination Port	65535	65535
Configuration Port	59999	59999

4. Product Features and Functions

Product basic features are shown as below.

4.1 Network Protocols

UDP and HTTP/HTTPS are supported for data transmission between gateway and customer's server.

4-1-1. UDP

The sensor data via SubGHz can be transferred by UDP. Payload format is provided by another document.

4-1-2. HTTP/HTTPS

The sensor data via SubGHz and EnOcean can be transferred by HTTP/HTTPS. Data structure is provided by another document.

4.2 Network configuration

Network configuration running on web server is changeable by graphic user interface on web browser.

Item	Parameter
IP address for LBAC0ZZ1SU	192.168.1.100/index.html
Initial user name	admin
Initial password (*1)	admin
Supported web browser	Google Chrome version 63 Microsoft Internet Explorer version 11

(*1) BASIC certification

4.3 Data Log

The log is automatically stored to micro SD card.

Folder	YYYY/MM	YYYY: Year MM: Month
File name	XXXXYYYYMMDDHH	File is created by every 1 hour XXXX: sg (SubGHz) or enocean (EnOcean)

4.4 Firmware update

Firmware need to be updated with micro SD card when a new version is released by the following process:

Copy the new firmware to micro SD card

↓

Turn off the gateway

↓

Insert the micro SD card to the gateway

↓

Turn on the gateway, and then confirm all of LED is on

↓

All LED turns off when the update is finished

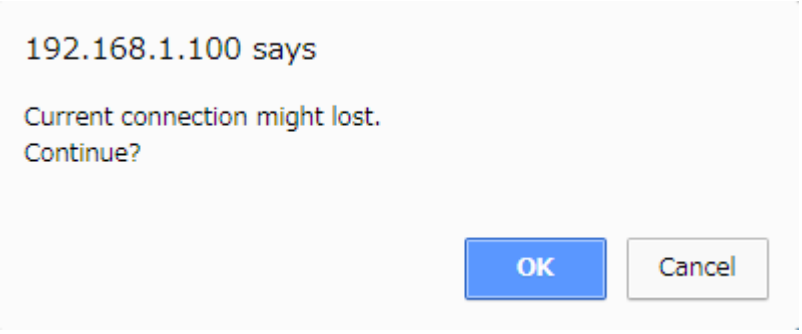
5. Graphic user interface for configuration

The gateway provides user friendly configuration display running on web server.

5.1 Menu

5.2 Apply configuration

The new configuration will be applied by push the button of “Update”, and OK on confirmation pop-up message.



5.3 Network Configuration

SubGHz, EnOcean and Network Setting can be configured. The detail is written on from Chapter 3.5 to 3.8.

5.4 System Time

The system time on gateway can be configured on “Other Setting” by manually or automatically.

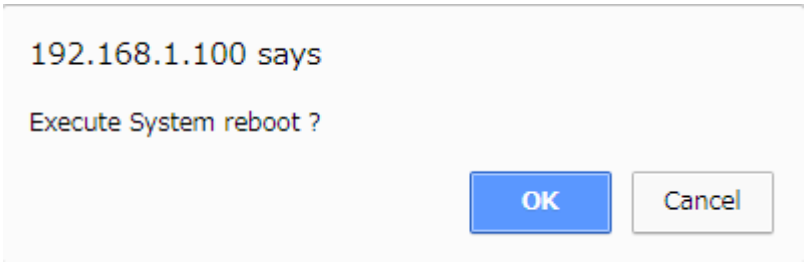
5.5 Password

The password can be changed by “Other Setting”.

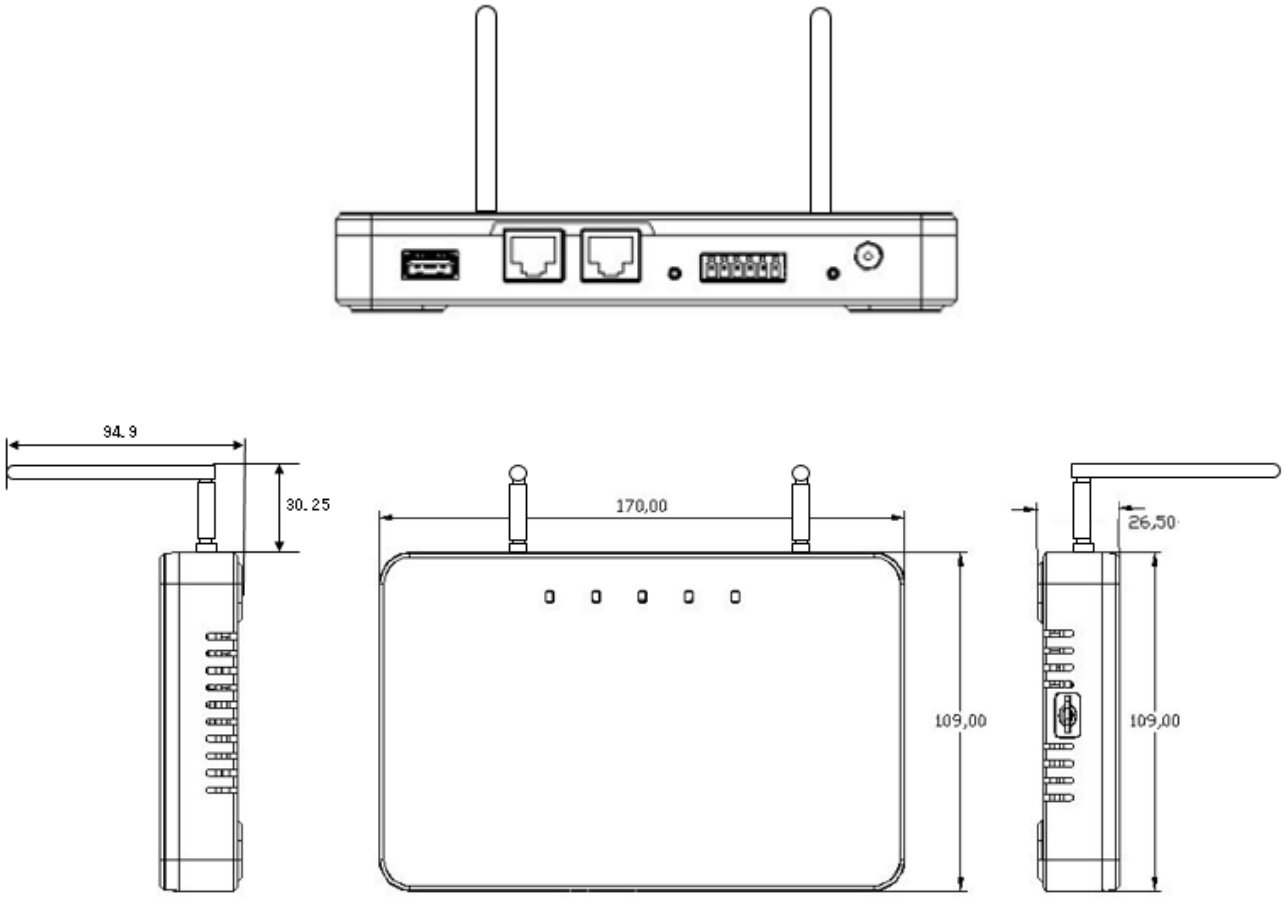
Change Password		Update
New Password		
Confirm		

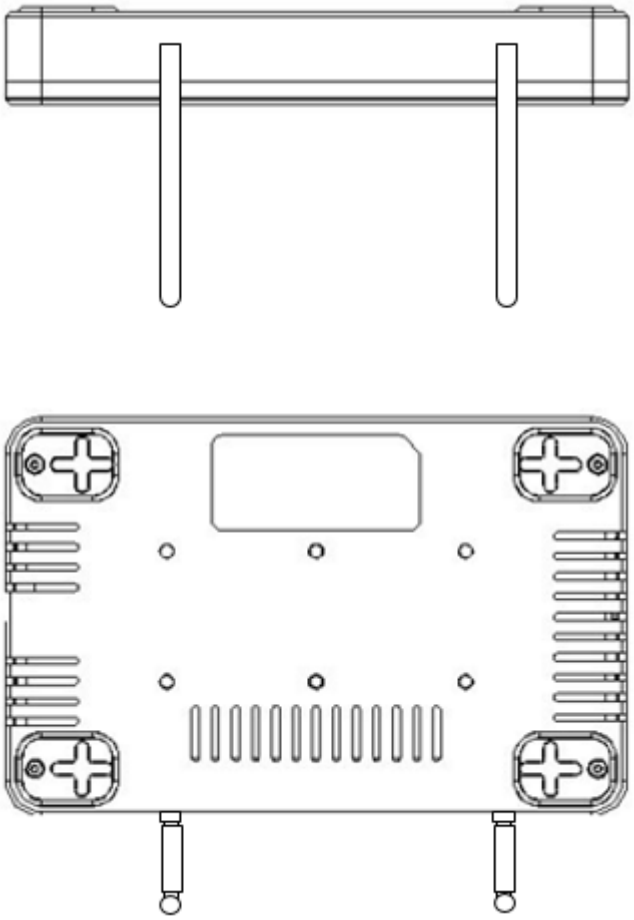
5.6 System Reboot

The gateway can be rebooted by “System Reboot” and OK on confirmation pop-up message.



6. Size of Appearance

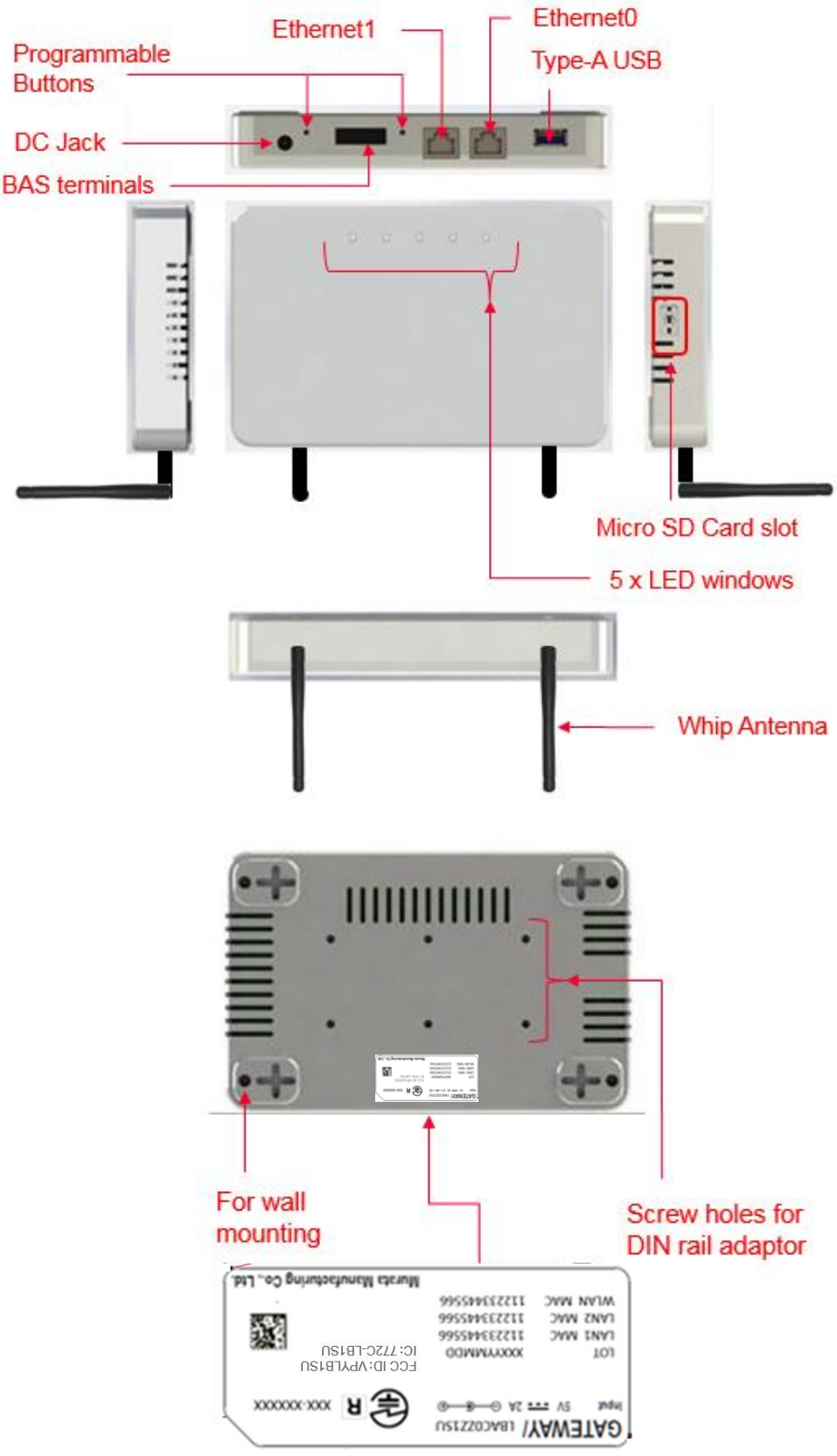




Mark	Min.	Typ.	Max.
L	108.8	109.0	109.2
W	169.8	170.0	170.2
T	26.3	26.5	26.7

(Unit: mm)

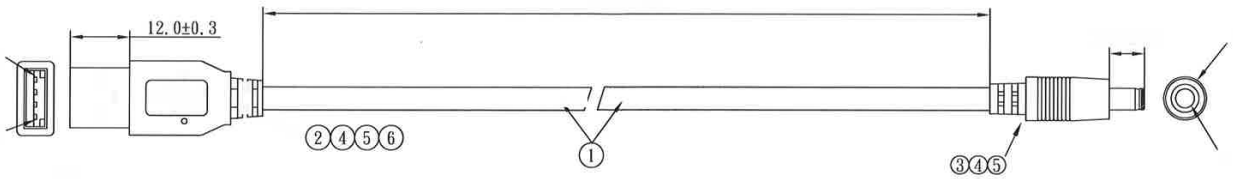
7. Part Name and Function

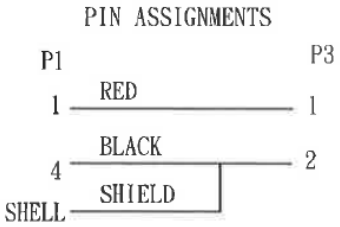


8. Power Supply

DC 5V input from USB cable

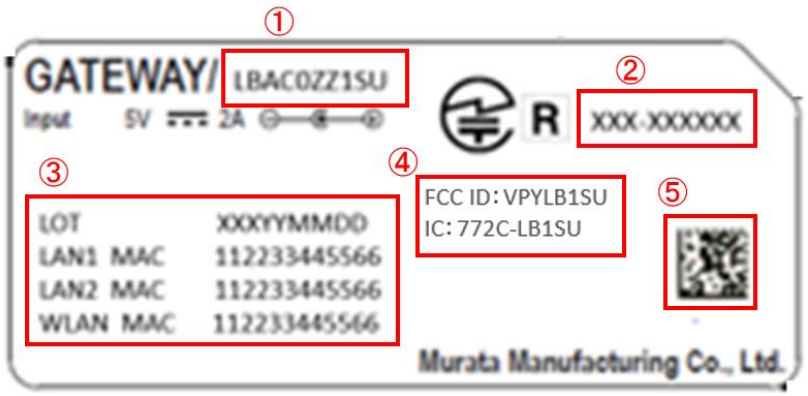
Model	BJA91003 produced by GLORY MARK ELECTRONIC





9. Product Label

9.1 LBAC0ZZ1SU



No.	Item	Contents to be printed
1	Product name	GATEWAY/LBAC0ZZ1SU
	Power supply from AC adopter	Input 5V – 2A
2	TELEC certification number	XXX-XXXXXX (TBD)
3	Lot number LAN1 MAC LAN2 MAC WLAN MAC	XXXYYMMDD 12digits individual MAC address 12digits individual MAC address 12digits individual MAC address
4	Certification number for FCC/IC Others	 FCC ID: VPYLB1SU IC: 772C-LB1SU TBD
5	QR code	(For LAN1 MAC)
	Manufacturer	Murata Manufacturing Co., Ltd.

10. Operating Condition

Item	Min	Typ	Max	Unit
DC input voltage through DC power jack	4.75	5	5.25	V
Operating Temperature	0	60	60	degC
Operating Relative Humidity	10	90	90	%RH
Current consumption (*)	0.4		0.85	A

(*) Condition (*with different software the current value may vary*)

- Power supply through DC power jack
- Operating temperature: 25degC
- WLAN: TX mode
- Murata Sub-G: Non-active
- Ethernet transmission data

11. Software License

The terms and conditions are followed ESLA or SLA which is separately agreed.

NOTICE:

1 Storage Conditions

- The product shall be stored without opening the packing under the ambient temperature from 5 to35deg.C and humidity from 20 to 70%RH.
- The product shall be stored in non-corrosive gas (Cl2, NH3, SO2, Nox, etc.)
- The product shall not be stored in the place where the product may become rusty.
- Any excess mechanical shock shall not be applied in order not to damage the packing materials and product itself.
- The outer boxes including the products and gift boxes shall not be outside of the rooms.

2 Handling Condition

Be careful in handling or transporting products because excessive stress or mechanical shock may break products.
Handle with care if products may have cracks or damages on their terminals, the characteristics of products may change.

3 Cleaning

Any cleaning is not recommended. If cleaning is required, inform Murata beforehand.

4 Operational Environment Conditions

Products are designed to work for electronic products under normal environmental conditions (ambient temperature, humidity and pressure). Therefore, products have no problems to be used under the similar conditions to the above-mentioned. However, if products are used under the following circumstances, it may damage products and leakage of electricity and abnormal temperature may occur.

- In an atmosphere containing corrosive gas (Cl_2, NH3, Sox, NOx etc.).
- In an atmosphere containing combustible and volatile gases.
- Dusty place.
- Direct sunlight place.
- Water splashing place.
- Humid place where water condenses.
- Freezing place.

If there are possibilities for products to be used under the preceding clause, consult with Murata before actual use.
As it might be a cause of degradation or destruction to apply static electricity to products, do not apply static electricity or excessive voltage while assembling and measuring.

5 Input Power Capacity

Products shall be used in the input power capacity as specified in this specification.
Inform Murata beforehand, in case that the components are used beyond such input power capacity range.

6 Limitation of Applications

Please contact Murata before using products for the applications listed below which require especially high reliability for the prevention of defects which might directly cause damage to the third party's life, body or property. -Aircraft equipment.
- Aerospace equipment.
- Undersea equipment.
- Medical equipment.
- Transportation equipment (vehicles, trains, ships, etc.).
- Traffic signal equipment.
- Disaster prevention / crime prevention equipment.
- Data-processing equipment
- Application of similar complexity and/ or reliability requirements to the applications listed in the above.

Note:

Please make sure that your product has been evaluated and confirmed against your specifications.
All the items and parameters in this product specification have been prescribed on the premise that our product is used for the purpose, under the condition and in the environment agreed upon between you and us. You are requested not to use our product deviating from such agreement.
We consider it not appropriate to include other terms and conditions for transaction warranty in product specifications, drawings or other technical documents. Therefore, even if your original part of this product specification includes such terms and conditions as warranty clause, product liability clause, or intellectual property infringement liability clause, we are not able to accept such terms and conditions in this product specification unless they are based on the governmental regulation or what we have agreed otherwise in a separate contact. We would like to suggest that you propose to discuss them under negotiation of contract.