LINCTRONIX

Lintronix IoT Starter Kit User's Guide

Real-time Locating and Telesensing

System RTLX-SK01

2017/05/01

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RTLS-SK01 User's Guide

Content

Chapter 1 Introduction

Linctronix RTLS-SK01 Starter Kit package provides a total solution for indoor location tracking. It helps find anything anytime, anywhere with any device. This package includes a location engine, web application, cloud service and tracking device. The location engine provides a very high level of accuracy. The location web page provides an intuitive view for target tracking and the management web page includes a status report and statistics. The cloud service is provided by default to make sure all services are always available and data is never lost. In addition, customized event policy is possible for notification of location change; e.g. enter or leave some zone. With this package, users can easily enjoy the benefits from our real time location system, e.g. theft prevention, operation improvement, asset tracking, security improvement and so on.

1.1 Package Contents

1. LBS-3026 x 4
2. USB Cable x 4
3. Adapter x 4
4. Connector x 4
5. Cable Tie x 8
6. STG-1020 x 4
7. WTG-1045 x 2
8. Charger x 2

1.2 Cloud/SW Package Datasheet
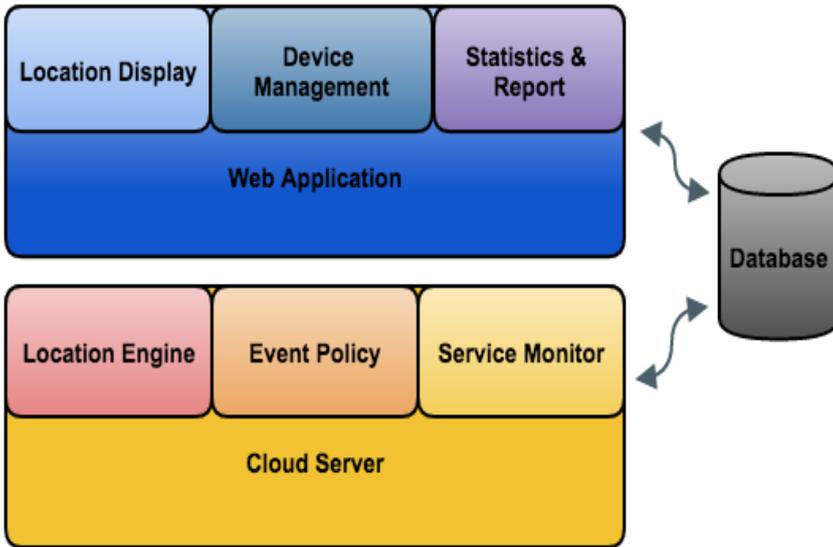
Key Features,

Smart Location Engine
- High Accuracy
- Quick Response Time
- Event Trigger and Notification

Web Application
- Location Display
- Device Management
- Status Monitor and Statistics

Cloud Service
- RESTful API
- Service Monitor
- Data Backup Plan

Location Engine	
Accuracy	Range of 3m
Latency	Move detection in 5 seconds
Capacity	Up to thousands of targets can be tracked
Event	Event triggered and notification by location
Web Display Application	
GUI	Well-designed GUI for desktop, smartphone and smartpad
	Intuitive operation and graphic display of real time location
Operation	User defined categories for monitor targets
	Category filter and target search
	Event triggered notification
	Quick view switch between targets list and specific target information details
Web Management Application	
Device Management	Device status report, e.g. battery level and service status
	Device registration and bind to target

Target Management	Information management includes name, category, description
	Category management includes name and icon modification
FW Upgrade	Remote upgrade device firmware
Security	Authorization and authentication for access control
Cloud Service	
Server	Maintained and monitored under Azure/AWS framework
Configuration	Configurations are stored in MySQL for easy maintenance
Data	Location and sensor data are specially handled by time series database for high performance
Backup	All data are taken care of under a reliable backup plan
Integration	RESTful API for external system integration

1.3 LBS-3026 Datasheet

Key Features,

Highly integrated
- Auto Reporting Nearby RTLS Tags
- Various IoT Protocols Support
- Highly Integrated with RTLS Tag's Sensors

High Availability
- Multiple Wi-Fi Uplink Support
- System Auto Recovery

Easy Deployment
- Easy Mounting Kit
- Built-in Dual Band Antenna Design
- Smart Groups Management

RF	Wi-Fi	IEEE 802.11 a/b/g/n
	BLE	Bluetooth Low Energy 4.0
Interface	Panel Button	multi-function (reset/custom)
	Reset Button	factory restore
	Visual Indicator	3 x bi-color LEDs for System/Wi-Fi/BLE status & alarm
	Auditor Indicator	1 x Buzzer for system status/alarm
Power	External DC +5V	micro-USB type B connector
Software	RTLS Tag Monitoring	seamless RTLS tag reporting & scanning
		highly integrated with RTLS tag's sensors
	System Configuration	cloud system monitoring
		cloud system provisioning
		cloud firmware upgrade
Other	Dimension / Weight	110 x 60 x 17 mm / 65g (excluding bracket)
	Certification	FCC / CE / NCC
	Warranty	1 year
	Accessory	mounting kit, AC-DC adapter 5V, USB cable

1.4 STG-1020 Datasheet

Key Features,

Ultra-Low Power
- 12-month battery life (normal operation)
- 4 motion adaptive power saving modes

IP67 Protection
- Water proofing (STG-1021)

Tamper switch, release detection

Remote management
- Low Power Alarm, Release alarm
- Beeper and LED wireless control
- Nursing/Emergency call (STG-1021)

RF	BLE 4.x	Dialog DA14580 w/ ARM Cortex M0 provide low power and high efficient BLE solution
Power	Battery Life	12 months with 50% activity
	CR-2477	1,000mAH 3V non chargeable Li battery
Sensor	G-Sensor	Kionix Tri-axis Digital Accelerometer
	Tamper Switch	Tag release detection
User Interface	LED	4 x Tri-Color LEDs
	Buzzer	1 x Buzzer
	Button	1 x push Button (STG-1021)
Software	Channels	Support multi or single channel with configuration
	Remote Control	Beeper and LED remote wireless control
	Power Saving	Automatic advertising control in 4 running modes - Normal, Motion Saving, Sleep, Deep Sleep
	Unit Monitoring	Battery monitoring and release detection with alarm notification
Other	Intrusion Protection	IP-67 support (STG-1021)
	Accessory	Mount Kit (20 x 25 mm/0.8 x 1.0")
	Dimension	35 x 35 x 15 mm / 1.38 x 1.38 x 0.6"

1.5 WTG-1045 Datasheet

Key Features,

Re-chargeable Lithium Battery
- 3 days in 100% activity per charge

IP67 Protection
- Water and Dust proof

Touch Button & OLED Display
- Functional Panel Switching
- 96x16 Monochrome

NFC
- NFC Forum Type 2 Compliant; NXP NTAG2XX Series

Remote management
- User Notification; Vibration and Display

RF	BLE 4.x	Nordic nRF51 w/ ARM Cortex M0 provide high efficient BLE solution
Power	Battery Life	3 days with 100% activity
	Lithium-ion Battery	55mAH rechargeable battery
Sensor	G-Sensor	Bosch Tri-axis Digital Accelerometer
	Step Detector	Human Walking Detector
User Interface	OLED Display	96 x 16 Monochrome
	Vibrator	1 x Vibrator
	Button	1 x Touch Button
Software	Channels	Support multi or single channel with configuration
	Transmission Power	-20 to +4 dBm
	Power Saving	Automatic advertising control in 2 running modes - Normal, Motion saving
	Unit Monitoring	Battery monitoring
Other	Intrusion Protection	IP-67 support
	Accessory	Wrist Band, USB Charger
	Dimension	Sensor 43.4 x 14.6 x 10.9 mm
	Weight	19g (with band)

1.6 LBS-3026 Quick Installation Guide
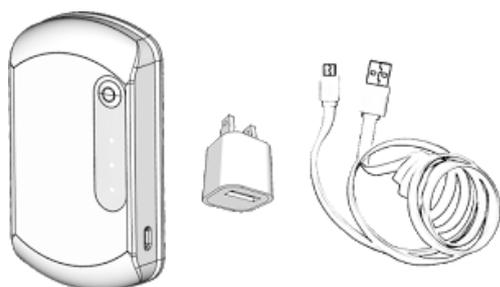
LBS-3026 contains the Machine x 1, USB power adapter x 1, USB power cord x 1, and mounting bracket x 1
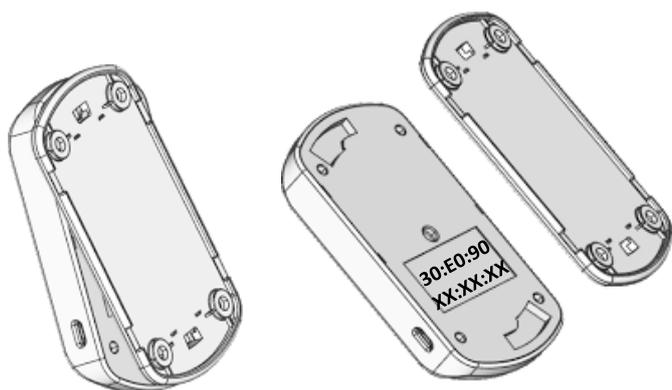
Before installation, please separate the mounting bracket by counterclockwise rotation, then you can find the unique mac address number on the back shell of LBS-3026.
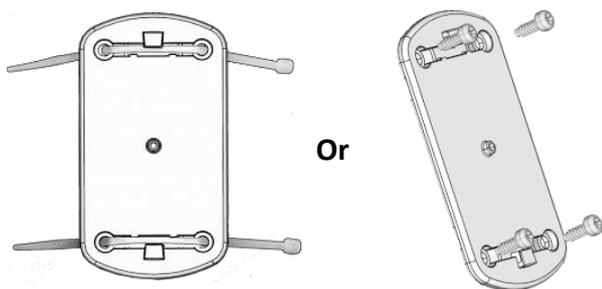
Or

Stick or fix the mounting bracket on the ceiling. (The groove of bracket is designed for using cable ties)
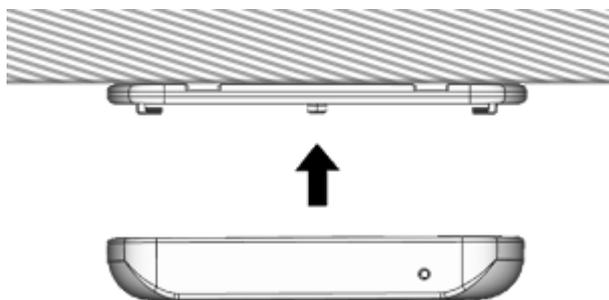
Fix the mounting bracket on the ceiling, then align the groove and mount the LBS-3026 by rotating it in the clockwise direction.

1.7 STG-1020 Quick Installation Guide
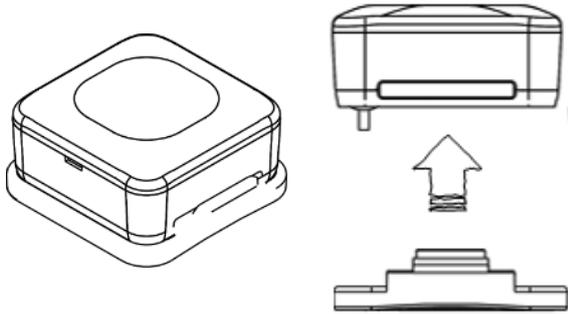
STG-1020 is shipped along with bracket in the locked state. You can remove the device from the bracket first and then find the mac address on back of the device.
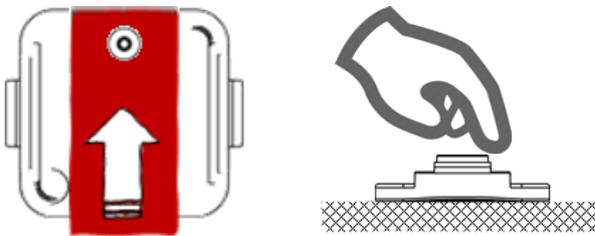
Tape is already provided in each unit at the back of the bracket .If you want to stick STG-1020 to an asset for tracking; you can easily reveal the wall-side of the tape by removing the red cover. Please make sure to attach the bracket to a smooth surface and press it firmly for at least 10 seconds.
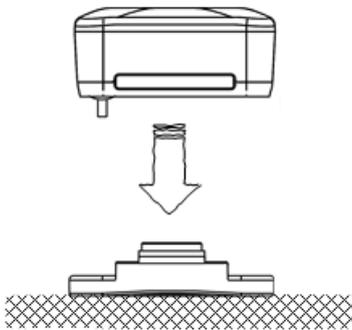
Before locking the device into the bracket, please be aware of the orientation of device. The detecting pole at the back side of the device should be matched to the hole at the bracket side.
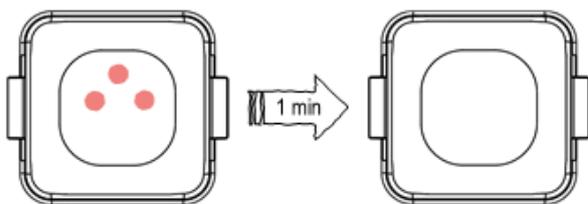
The tags of the starter kit will be activated before shipping. If not, they will be activated automatically after successful installation. The LED indicator will start to blink in RED lasting for 1 minute and stop blinking when the tag is activated in normal service.

1.8 WTG-1045 Quick Operation Guide

CHRAGING:YES

1 hour

Charge the device to full for an hour.

BDADDRFF1400   Hello!!
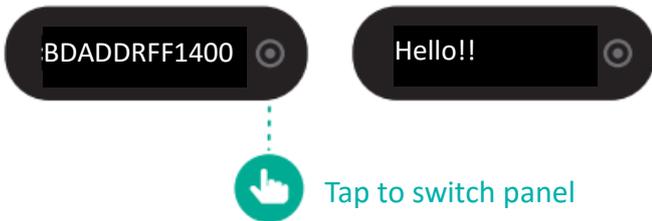
Tap the right side of the device to display and switch the panel.

👆 Tap to switch panel

Panel rotate ⟹ ⟹

Auto Page Scrolling

Panel#1 Page#1	Panel#2	......	Panel#N
Page#2			
Page#3			
Page#4			

BDADDRFF1400 👆

BATTERY 100%

CHARGING:NO

System Panel

1 Panel has 4 pages to Scroll, every page can show 12 characters. The number of panels is defined by the user with a limit of up to 16. In the Starter Kit, there is #1 System Panel & #2 Message Panel to rotate. The System Panel contains 3 pages of mac address, battery and charging status.

Nursing???

Press and hold for 3~5 seconds then release. 👆

Press and hold the right side of the device screen for 3~5 seconds, you will see the message "Nursing???" flashing on the screen. If you want to send this "Nursing Call" message, release panel during Message flashing , or release after 5 seconds to cancel the message.

HRM???
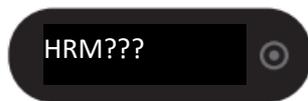
8-10 seconds for heart rate detect. 👆

The Same Operation for HRM detecting by releasing the panel between 8~10 seconds.

Chapter 2 Using the Starter Kit

2.1 RTLS Cloud System

2.2 Login in to the Cloud Web Site

The Starter kit includes an one year cloud system account for testing, we don't support the earlier versions of the IE browser, so to avoid unexpected errors, please use the latest version of browser e.g. Google Chrome or Safari.

RTLS Management URL: http://demo.rtlx.net/mgmt.html

RTLS Monitoring URL: http://demo.rtlx.net/show.html
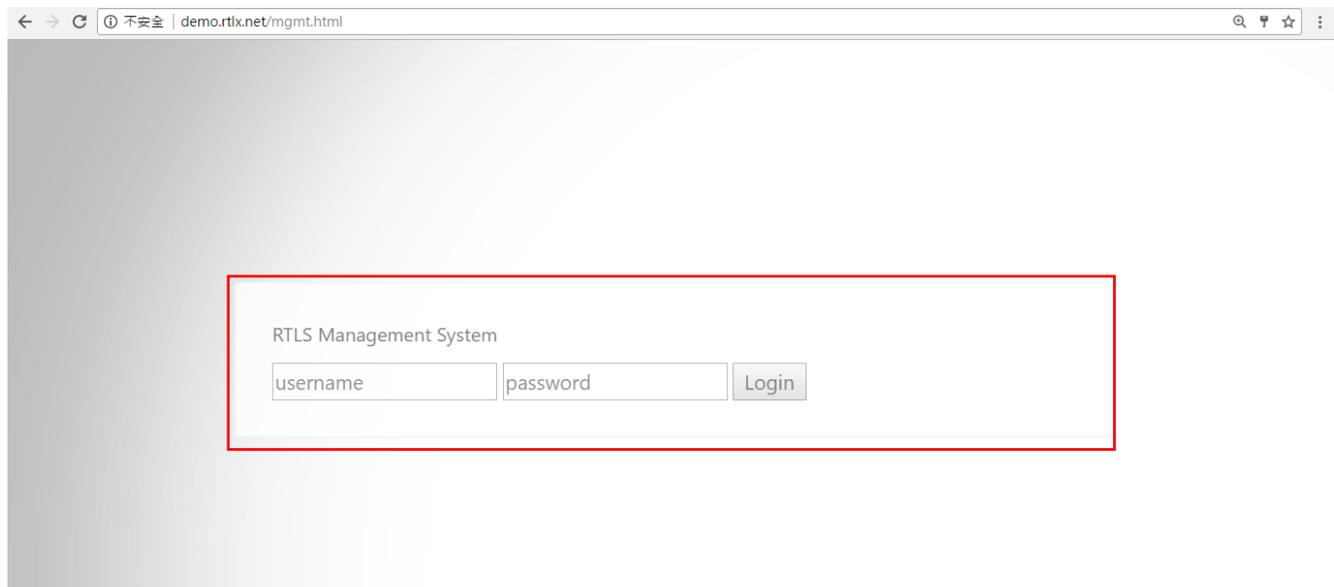
2.3 Upload the Site-Map

The Starter Kit contains 4 sets of LBS-3026, we recommend finding a site-field of about 100 ~200 square meters for testing. The recommended distance of each LBS-3026 is about 6 ~8 meters for installation. The map scale must conform to the size of the real site, and according to the real length of site, map file shall be adjusted to 1 cm = 1 pixel scale size. For example, if your Site Area (L x W) is 1714 cm x 957 cm, the map you upload shall be 1714pix x 957pix. Please note that the Starter Kit account only supports uploading a map.
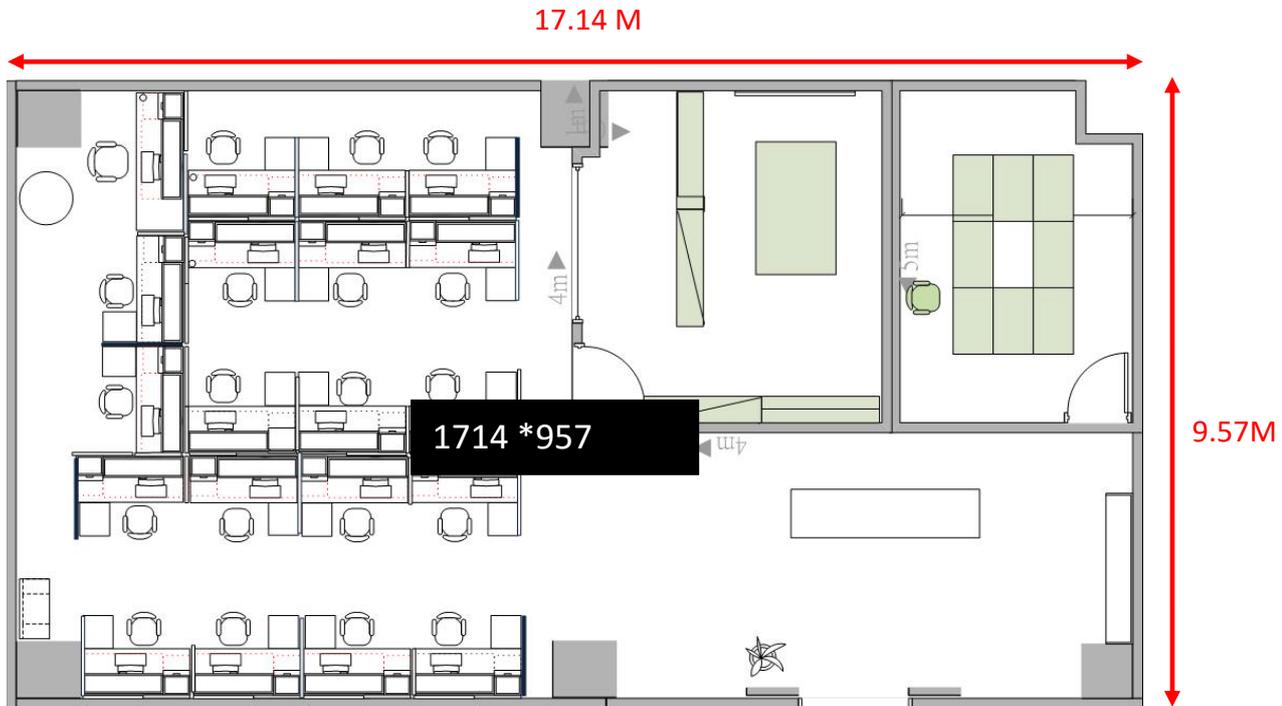
2.4 Deployment of LBS-3026

Deploying the CBS (LBS-3026) is intuitive and easy on our cloud system. Directly click on corresponding locations of the site map and enter the MAC address, actual height(cm) of installation, then press the update button.
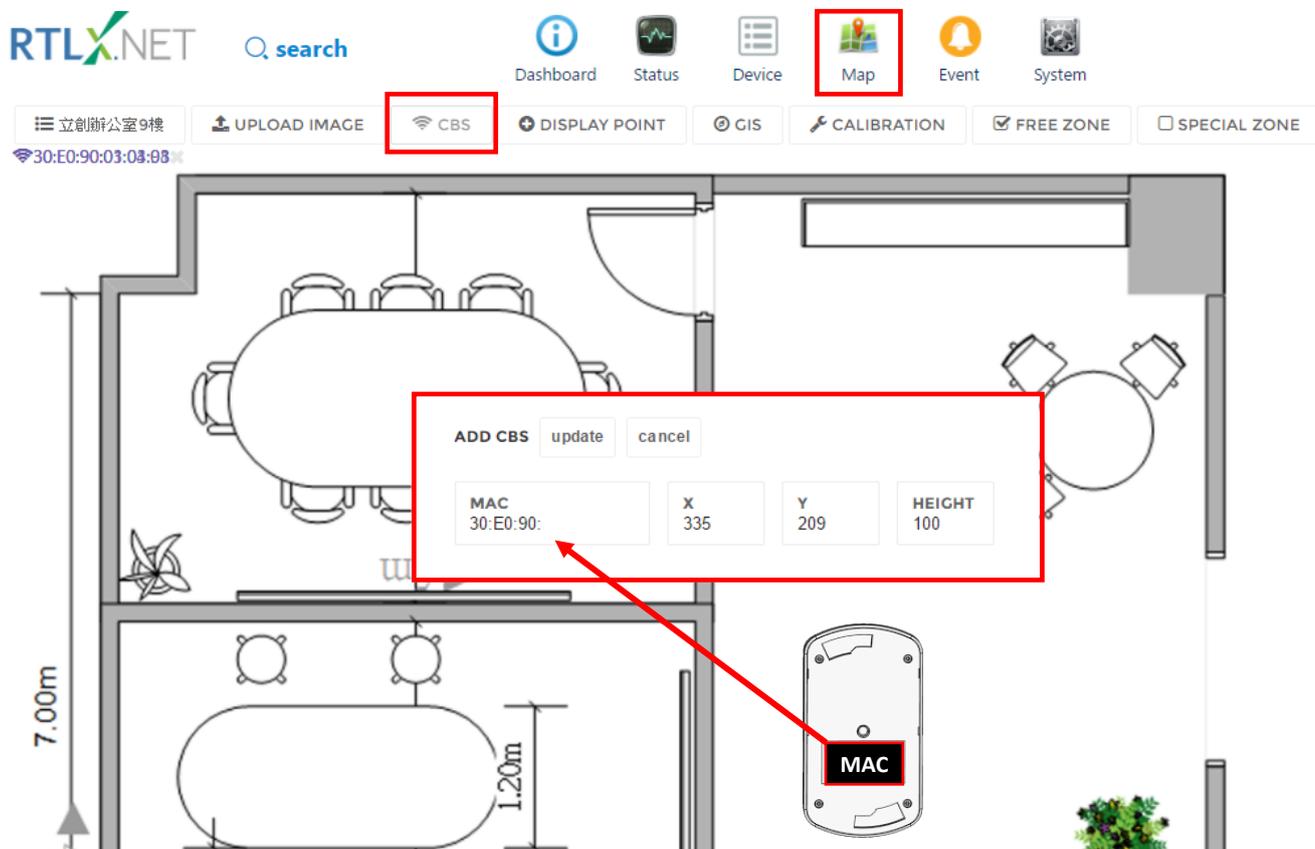
To modify the deployment location, just remove the mac-address by clicking the delete-button and re-operate adding CBS again.
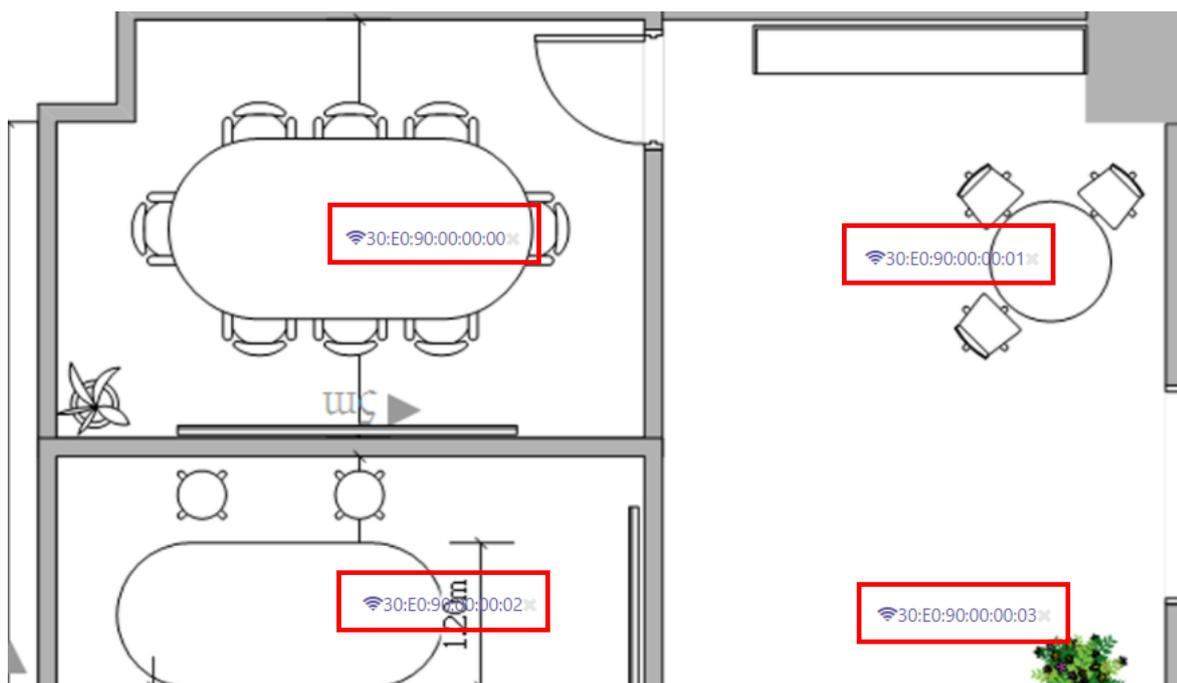
2.5 Restart the System to Apply the New Config

After adding the devices, you need to restart the system to apply the new settings.
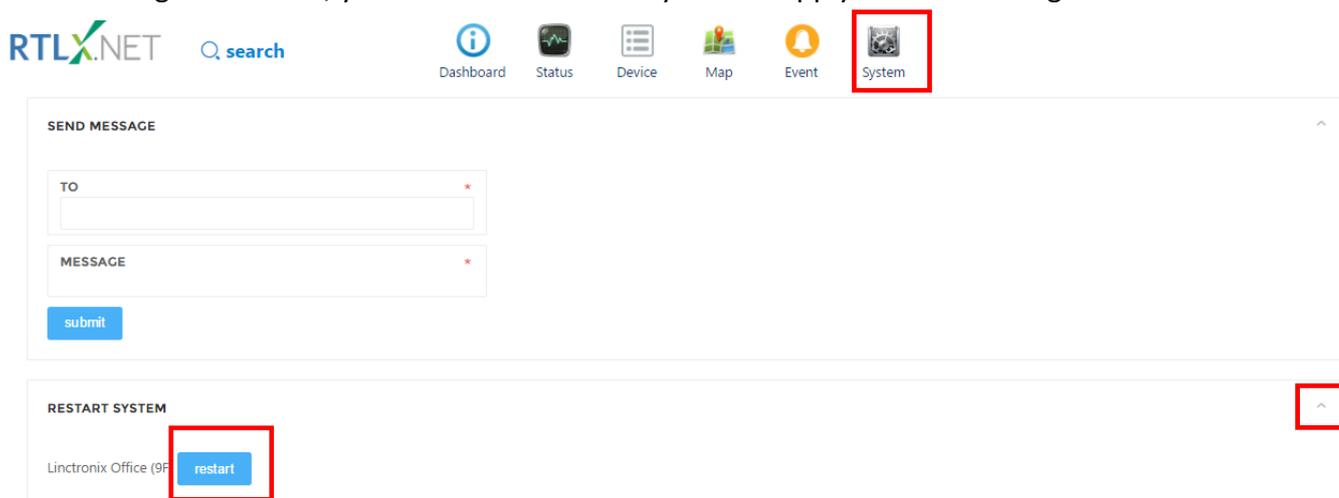
2.6 Setting Wi-Fi Config of LBS-3026

After plugging in the power supply, LBS-3026 will search for a Wi-Fi access point automatically, and try using default or custom Wi-Fi account to connect to the cloud. The LBS-3026 supports 1 default & 1 custom Wi-Fi config, you can just provide a wireless hotspot for LBS-3026 with default config as below, LBS-3026 will connect to the cloud automatically.

Default Wi-Fi Config	
SSID	RTLS-Network
Password	12345678
Security mode	WPA2-MiX

You can also ask for pre-setting custom Wi-Fi config before device shipping, or download the Android App as shown below to set custom Wi-Fi config. Download URL：http://www.linctronix.com/?page_id=2671
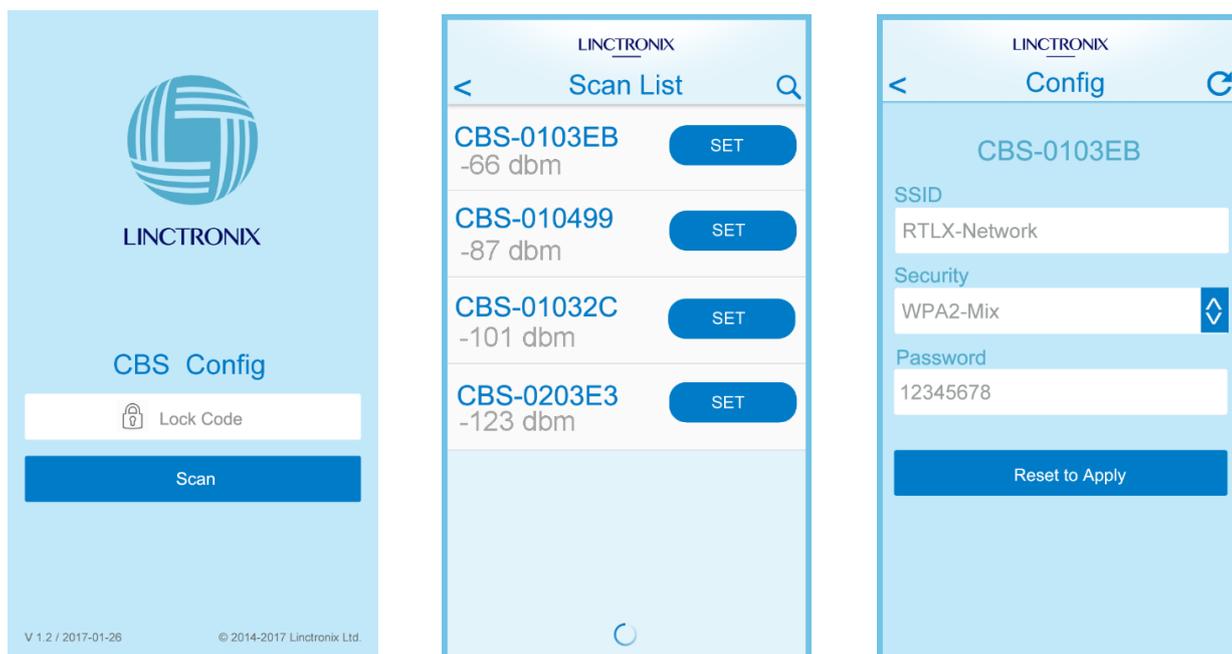
2.7 Operation Guide of LBS-3026

	1	Press and hold for one second to switch to mute mode (LED & buzzer OFF) Normal→ All mute → Buzzer mute→ Normal with 3 beeps
	2	Power indicator: LBS-3026 will automatically start with one beep when the power is plugged in. The power indicator flashes once per second, if it is off or light-on continuously, check that if it is in mute mode or re-plug the USB power connector to confirm proper power supply.
	3	Wi-Fi indicator: When LBS-3026 is connected to the Server, it will beep twice. When the indicator LED flashes this means communication by Wi-Fi connection. If not, make sure that the wireless Wi-Fi AP's signal is covered to the location where CBS is installed.
	4	BLE indicator: In normal status, the BLE indicator LED is constant light-on.

2.8 Device Management

You can add or remove the device (STG-1020 & WTG-1045) here .

1	Device
2	Device Config
3	Add device
4	Input Name: which you want to show on the map, please do not enter space or special symbols

5	Input Mac of the Device: the prefix mac address is 30:E0:90:~, the rest please refer to the device as shown below
6	Select Category: filter icon on sidebar of location monitor page，Asset & Wristband category is provided by default.
7	Input Description：Click the item icon on the front page to display the description
8	Select Product: please set STG-1020 to "tag" and WTG-1045 to "wristband". Only wristbands support SMS function.
	Remark: you need to restart the system (refer to 2.5) after adding any device.
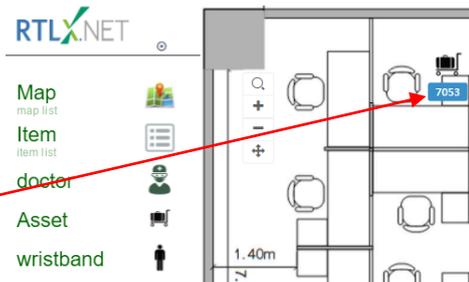
2.9 Short Message Service

Choose the device name from the wristband list to send a message.

Chapter 3 Real time location monitoring
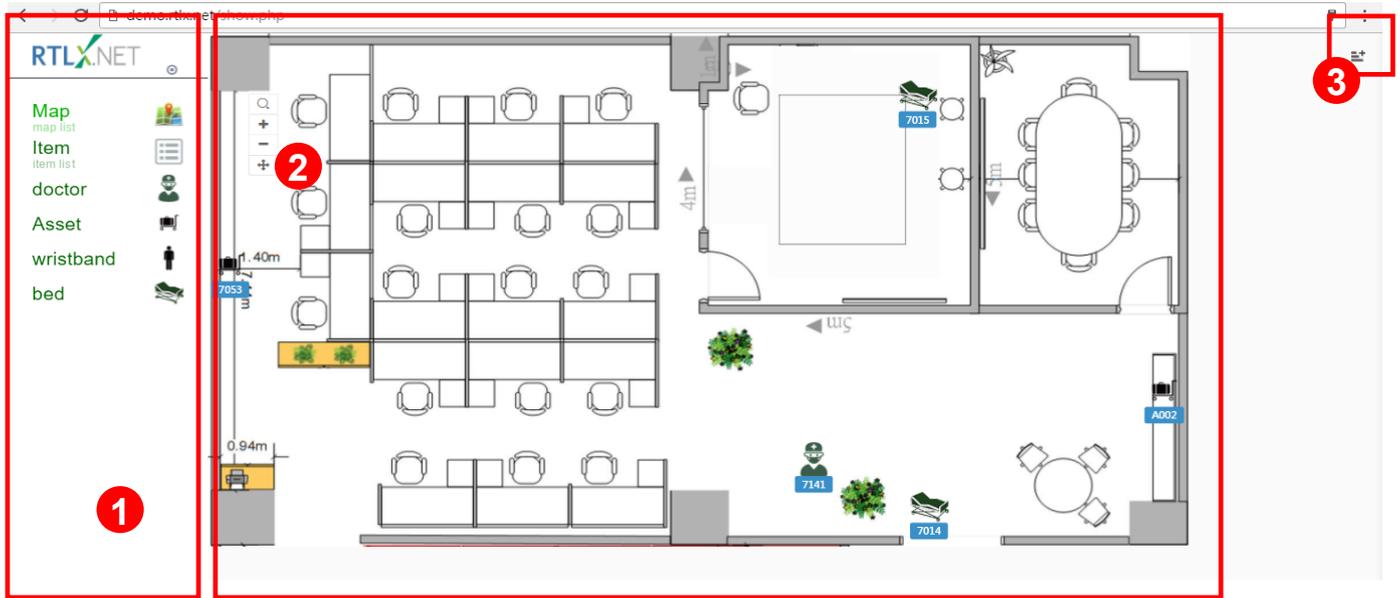
1	Sidebar Filter: collapse function, map List, device item list, category icon.
2	Map:
	Click icon for more description. Zoom in & out by mouse wheel or function button. Search with keyword of the device.
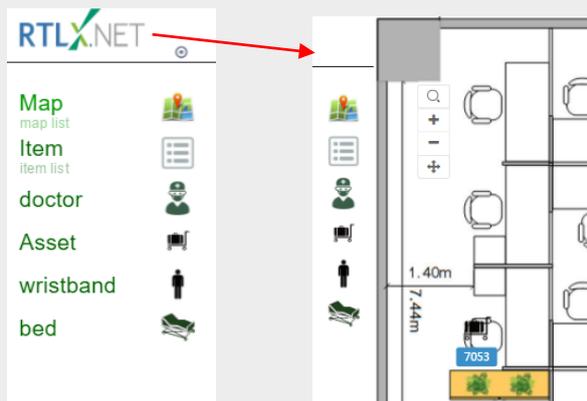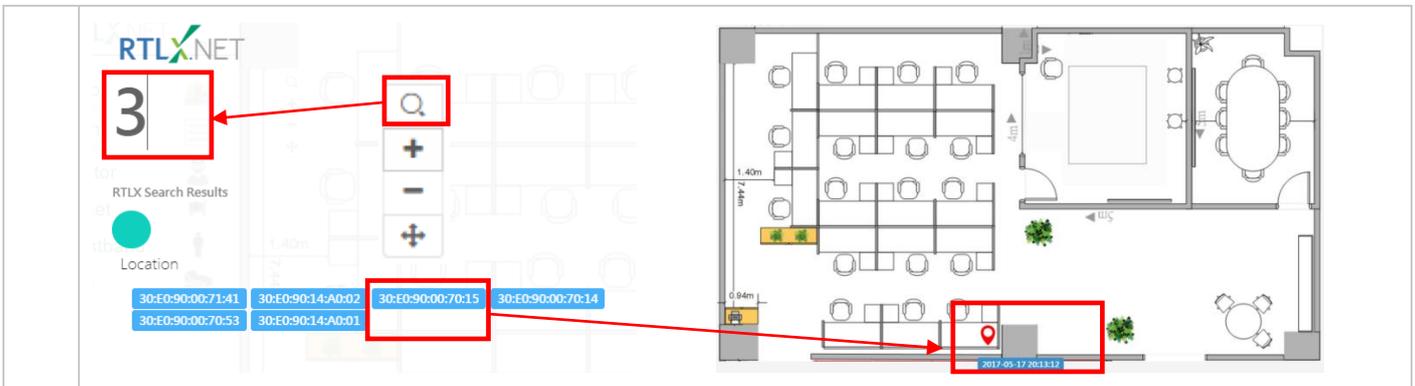
| 3 | Quick menu: A quick list of all the devices currently detected on the site. You can click to display any device separately. |
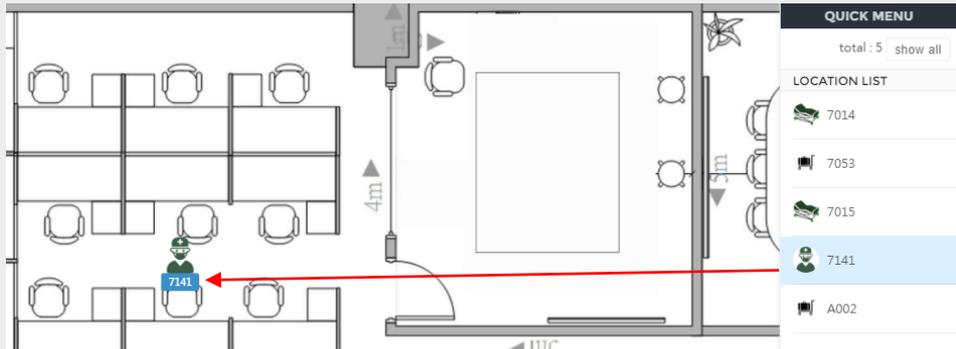
Chapter 4 Getting Help

For more detailed features and FAQs, please refer to the support page of starter kit products:
http://www.linctronix.com/support and download of our homepage http://www.linctronix.com

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