QS-LS USB Data Collection Device

Datasheet

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PRODUCT OVERVIEW

QualSights QS-LS USB Data Collection Device is a plug-and-play Bluetooth® LE Wi-Fi gateway, which is used for the detection and data collection of Bluetooth devices. The collected Bluetooth device signals are encapsulated into JSON packets and transmitted through Wi-Fi. Users can monitor and locate Bluetooth devices on the cloud platform to manage personnel, facilities, assets, and environments remotely. A system with QS-LS can lower the cost and improve efficiency while maintaining precision hence being deployed in logistics, healthcare, office, and other scenarios.

KEY FEATURES

- Plug-in and play, quick setup

The QS-LS device can be set up by App. The LED indicator shows the status of the gateway making the process of setting up as little as one step. Once powered on, the gateway will collect real-time data and upload it to the server while users can manage the console on the back end and analyze the data.

- High throughput and data are filterable

The QS-LS device can steadily collect 70 packets of data per second, capable of collecting and uploading data in real time. Scan and upload intervals can be specified to adapt to different scenarios flexibly. Multiple data filtering modes enable users to not only limit the data flow but also avoid duplications, resulting in acquiring the data exactly you want.

- Strong compatibility and easy integration

It is compatible with a massive amount of Bluetooth devices. Users can connect to cloud or private cloud servers through MQTT/HTTP protocol to achieve independent control of data flow, thereby ensuring data privacy and security.

- Highly secured

Users can choose MQTT with SSL/TLS security protocol to ensure secure data transmission.

MARKET APPLICATIONS

Smart Healthcare | Smart Buildings | Smart Warehouses | Smart Retailing | Smart Venues

APPLICATION CASES

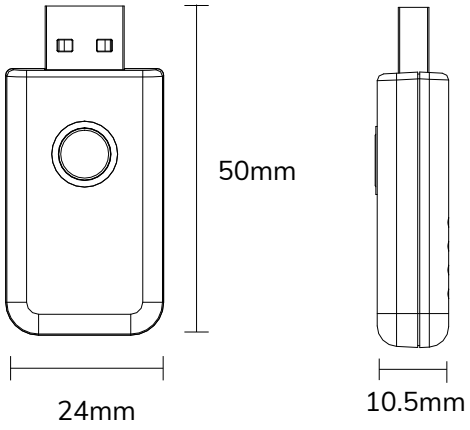
Smart Healthcare

The QS-LS device can be paired with beacons and sensors to provide a full range of services such as medical supply transportation and patient management. Combined with temperature and humidity sensors, it adds a great tool for pharmaceutical cold chain monitoring systems for vaccine storage and transportation by providing real-time to ensure quality. By working magnetic door sensors and infrared corridor sensors, it assists in the role of monitoring quarantine patients or establishing home security systems. Along with Bluetooth beacons, it can keep track of patient location records and medical equipment while guiding patients to their destinations.

Smart Buildings

By working along with beacons and sensors, the QS-LS device connects people, objects, and the environment in the same building. Combined with temperature, humidity, and air quality sensors, it can provide real-time reports of the environment, which can be further developed to interact with home appliances to improve indoor comfort and save energy. Together with infrared, vibration, door, and other sensors, it can monitor building safety, space occupancy, and utilization rate in a visualized efficient manner. Working together with personnel positioning beacons, it can provide users with functions such as check-in, check-out, indoor navigation, and visitor management. Its geofencing feature allows setting up an access control list to make use of alarms for unauthorized access. When connected with asset tags, it can enable asset management.

Note: The above cases are shown only as references, users can achieve more applications based on their own algorithm familiarity and software development capabilities.



QS-LS USB Data Collection Device

BASIC SPECIFICATIONS

Model	QS-LS
Material	ABS
Color	White
Size（L * W * H)	50 * 24 * 10.5 mm
Weight	9 g
Power Supply	USB powered （DC 5 V/ 1 A）
Network Connection	WiFi
Button	1 reset button
LED	Power status, server status, and OTA upgrading indicator
Working Environment	Indoor
Working Temperature	-20℃ ~ 55℃
Firmware Upgrade	OTA, LAN upgrade

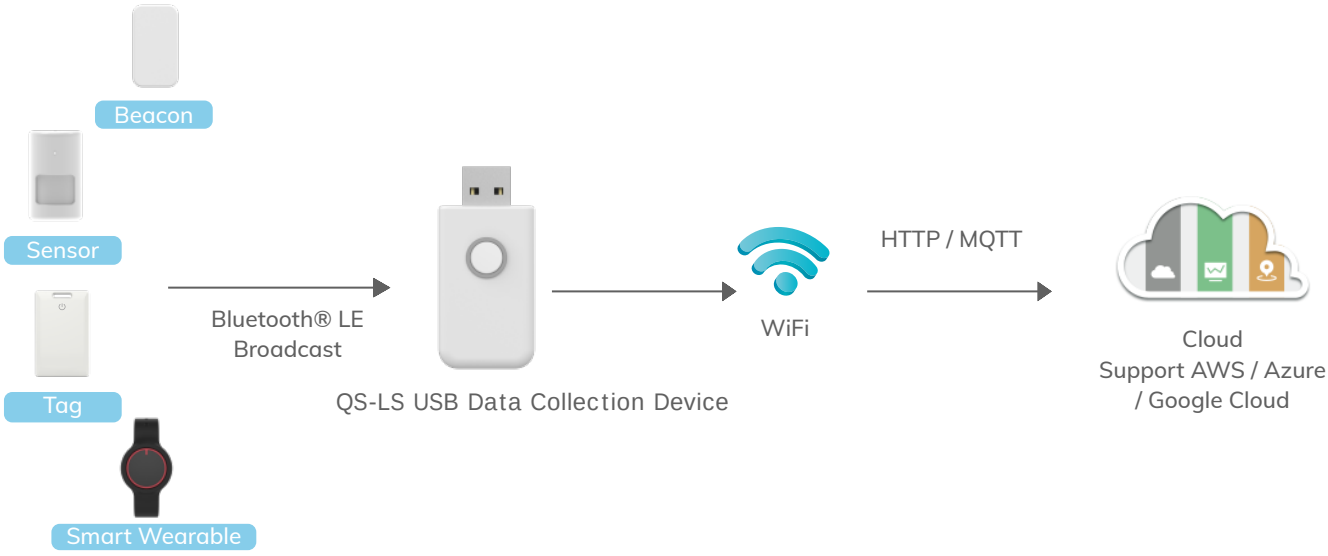
TECHNICAL SPECIFICATIONS

Bluetooth Version	Bluetooth® LE 5.0
Bluetooth Frequency	2.4GHz
Bluetooth Modulation	GFSK
Bluetooth Bandwidth	1 Mbps，2 Mbps
Receiving Sensitivity	-96 dBm @1 Mbps, 30.8% PER -93 dBm @2 Mbps, 30.8% PER
Numbers of Received Broadcast Packets	About 70 packets/ second
Scan Coverage	About 70 meters of covered radius （open area）

WIFI SPECIFICATIONS

WiFi Protocols	IEEE 802.11 b/g/n
WiFi Frequencies	2.4-2.4835GHz
Emitting Power	20.5 dBm (typical)@ 802.11b, 1, 11 Mbps 20.0 dBm (typical)@ 802.11g 6 Mbps 18.0 dBm (typical)@ 802.11g 54 Mbps
Data Transfer Speed （20 MHz）	11b: 1, 2, 5.5 and 11 Mbps 11g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps 11n: MCS0-7, 72.2 Mbps (Max)
Data Transfer Speed （40 MHz）	11n: MCS0-7, 15Mbps (Max)
Transfer Speed	1T1R 150 Mbps
Receiving Sensitivity (typical)	802.11b, 1 Mbps: –98.0 dBm 802.11b, 2 Mbps: –96.0 dBm 802.11b, 5.5 Mbps: –93.0 dBm 802.11b, 11 Mbps: –88.6 dBm 802.11g, 6 Mbps: –92.8 dBm 802.11g, 9 Mbps: –91.8 dBm 802.11g, 12 Mbps: –90.8 dBm 802.11g, 18 Mbps: –88.4 dBm 802.11g, 24 Mbps: –85.4 dBm 802.11g, 36 Mbps: –82.0 dBm 802.11g, 48 Mbps: –77.8 dBm 802.11g, 54 Mbps: –76.2 dBm 802.11n, HT20, MCS0 : -92.6 dBm 802.11n, HT20, MCS1： -90.6 dBm 802.11n, HT20, MCS2： -88.0 dBm 802.11n, HT20, MCS3： -84.8 dBm 802.11n, HT20, MCS4： -81.6 dBm 802.11n, HT20, MCS5： -77.4 dBm 802.11n, HT20, MCS6： -75.6 dBm 802.11n, HT20, MCS： -74.4 dBm 802.11n, HT40, MCS0: -90.0 dBm 802.11n, HT40, MCS1: -87.6 dBm 802.11n, HT40, MCS2: -84.8 dBm 802.11n, HT40, MCS3: -81.8 dBm 802.11n, HT40, MCS4: -78.4 dBm 802.11n, HT40, MCS5: -74.2 dBm 802.11n, HT40, MCS6: -72.6 dBm 802.11n, HT40, MCS7: -71.2 dBm
Modulation Mode	BPSK/ QPSK/ 16QAM/ DBPSK/ DQPSK/ CCK
Network Protocol	MQTT (SSL/ TLS)/ HTTP

WORKING PRINCIPLE



1. Deploy Bluetooth beacons, sensors, and QS-LS device according to demands.
2. Turn on Bluetooth beacons, sensors, and gateways, and configure the gateway parameters through the App.
3. The QS-LS device scans Bluetooth signals and collects data, and uploads to the corresponding server through different network protocols.
4. After the data is parsed on the server, users can process and analyze to attain functions such as environmental monitoring and asset management.

*Please base on SDKs provided by cloud services vendors to do futher developments and testings if you need more cloud service features as listed.

PRECAUTIONS

- After restoring the factory settings, the previous configuration will be lost, please operate with caution.
- If the App prompts that the network configuration has timed out many times, it is recommended to shorten the distance between the QS-LS device, the phone with the App, and the router and try again. It is not recommended for multiple mobile phones to configure the same gateway, which may lead to slower configuration.
- To ensure accuracy while scanning, try to avoid corners, metal, glass shields, or other obstructions when install.
- Do not use the QS-LS device in a humid area or outdoors. If the temperature exceeds the designed limit, the product may be damaged.
- Please avoid exposing the product to direct sunlight for an extended period which could lead to fading.

QUALITY ASSURANCE

The factory has already obtained the certification of ISO9001 Quality System. Each product has been strictly tested (tests include transmission power, sensitivity, power consumption, stability, aging, etc.).
Warranty Period: 12 months from the date of shipping (Battery and other accessories excluded).

FCC WARNING

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.
Any changes or modifications not expressly approved by the party responsible for compliance
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.
To maintain compliance with FCC's RF Exposure guidelines, This equipment should be installed and operated with minimum distance between 20cm the radiator your body: Use only the supplied antenna.