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# User Guide



## S-2CONNECT Hub

### S19A01

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#### General Note

TT Electronics reserves the right to make changes in product specification without notice or liability. All information is subject to TT Electronics' own data and is considered accurate at time of going to print.

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[www.ttelectronics.com/iot](http://www.ttelectronics.com/iot)

## 2 Introduction


Thank you for choosing a TT Electronics product. Please read the user guide thoroughly before bringing this device into service.

### 2.1 Packet Contents

1. S-2CONNECT Hub
2. Quick Start Guide

The power supply is provided separately.


## 3 Environmental information


	<p>This symbol on the device or the package means that all electronic and electric equipment should not be mixed with general household waste. The disposal of the device after it's lifecycle could harm the environment. Do not dispose the unit (or batteries) as unsorted municipal waste; it should be taken to a specialized company for recycling. This device should be returned to your distributor or to a local recycling service. Respect the local environmental rules.</p> <p><b>If in doubt, contact your local waste disposal authorities.</b></p>
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### REACH

TT Electronics complies with the REACH (Registration, Evaluation, Authorisation, and Restriction of Chemicals regulatory framework). Read more at [www.s-2connect.com](http://www.s-2connect.com)

### 4 Safety Precautions and Prohibited Handling

	<p><b>DO NOT ATTEMPT TO INSTALL, USE OR MAINTAIN THE S-2CONNECT Hub UNITL YOU HAVE READ AND FULLY UNDERSTOOD THESE INSTRUCTIONS. BE SURE THIS INFORMATION REACHES THE OPERATOR AND STAYS WITH THE PRODUCT AFTER INSTALLATION. DO NOT PERMIT UNTRAINED PERSONS TO INSTALL, USE OR MAINTAIN THIS PRODUCT.</b></p> <p><b>Inspect the device</b> for physical damage and contamination. Do not connect the device, or accessory if you detect oil, grease, water, broken or damaged parts.</p> <p><b>When unpacking the device</b>, make sure to handle it with care. Rough handling may shock the device, causing damage. Check that the device is free from cracks, fractures, leakage.</p> <p><b>Do not place</b> the device near any other device that may cause sparks (such as a switch or a fuse). The battery may generate flammable gas when charged, so always ensure the battery is kept away from open fire and/or flames to prevent sparks from igniting or causing explosions.</p> <p><b>Do not allow</b> the device to be immersed in water/sea-water.</p> <p><b>Do not attempt to</b> disassemble or destroy the unit. The product must be handed over to an authorized workshop for maintenance and to a suitable recycling station when it is taken out of service.</p> <p><b>Use this</b> product only within specified temperatures.</p> <p><b>Do not</b> place other products or objects on top of S-2CONNECT Hub or the performance of the device internal antennas may be compromised.</p>
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	<p>This product contains a battery. The battery is <b>NOT</b> replaceable.</p> <p>Pay special attention to the battery if the product is taken out of use, and if the product is up for disposal. Dispose used batteries as hazardous waste.</p>
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### 5 General Guidelines



Familiarise yourself with the functions of the device before using it.

All modifications of the device are forbidden for safety reasons. Damage caused by user modifications to the device is not covered by warranty.

Only use the device for its intended purpose. Using the device in an unauthorised way will void the warranty.

Damage caused by disregard of guidelines in this manual is not covered by the warranty and the dealer will not accept responsibility for any ensuing defects or problems.

TT Electronics, nor its authorised resellers can be held responsible for any damage (extraordinary, incidental or indirect) – of any nature (financial or physical) arising from possession, use or failure of this product.

Due to ongoing product development, the actual product appearance may differ from the images used in this document.

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### 6 Installation and usage

1. Make sure there is no damage to the equipment.
2. Choose your suitable installation location. Consider the environmental requirements and be advised that this device contains antennas that could be affected from other equipment within close range.
3. Connect the power supply
4. Check the LED's to verify proper operation
5. Log in to the webpage provided to make changes in the default configuration.

#### 6.1 Mounting

This product can be mounted on any type of surface with standard screws (not included in the package). It can be mounted in any desirable direction except that the device should not be mounted with the USB connector upwards if there is any risk for water or other fluids pouring over the device.

The device can be used as a portable device and does not require fixed installation.

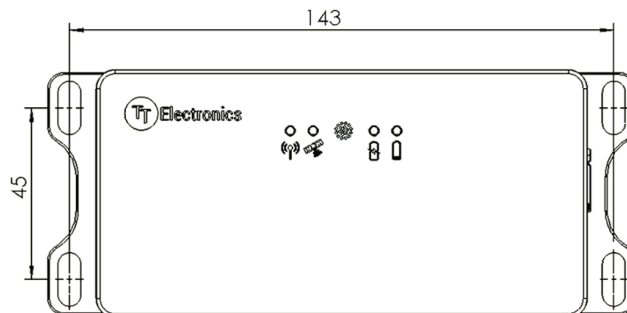


If the product is mounted on metallic surface, or close to substantial amount of metal the antenna performances might get compromised. For full functioning antenna performance, the device should be mounted not less than 30 mm from metal.

Avoid placing the unit close to powerful electromagnetic equipment.



S-2CONNECT Hub has a high IP-rating and temperature range, and are designed for outdoor use. Ensure the USB cap is closed when using outdoors. Indoor charging only.



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### 6.2 Switching the Device on

This device switches on automatically following charging of the battery.

The battery is fully charged when the charging LED switches off. It may take up to 9 hours to charge a fully discharged battery.



### 6.3 Using the Device

This device is intended for strictly remote operation. Log in to your user interface to interact with the device.

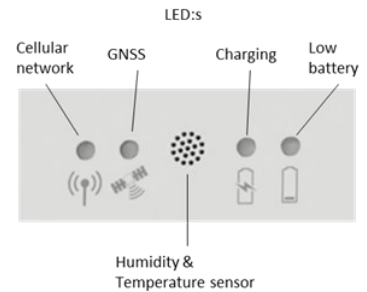
### 6.4 Battery Operation

This device is primarily battery operated, but the external power supply can be continuously connected. The battery operation time can be up to 12 months, depending on configuration, surrounding temperature and other parameters.

### 6.5 LED Functionality

To maintain battery life all LEDs remain inactive unless communicating a function, as outlined in the table below.

LED	Colour	Function
GNSS	Yellow	Flashing = Satellite search
Cellular Network	Orange	Slow flash 20% ON, 80% OFF = Network Searching Slow flash 80% ON, 20% OFF = Idle mode Fast flash 50% ON, 50% OFF = Data transfer
Charging	Green	Solid = Charging
Low Battery	Red	Flashing = Low battery charge immediately



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### 7 Operating and Maintenance Recommendations

Ensure the device is operated within the correct operating temperatures. Pay extra attention to the charging temperature.

This product requires no maintenance. It can be wiped clean with a damp cloth.

### 8 Error Handling, Faults and Repairing

#### 8.1 Error Handling

##### 8.1.1 First Action

If the device does not operate as expected the first step is always to check if the battery is fully charged. The “Low battery LED” should indicate if the battery level is too low, but if you detect malfunction do always charge the battery as the first step to get back to normal operation.

##### 8.1.2 GNSS

If the GNSS led is not lit after 3 minute of operation, try to bring the device outdoor to get free sight to the sky and check for GNSS fix. Keep in mind that GNSS positioning is mainly intended for outdoor usage, and there is no guarantee that it will always work in indoor environment

Problem	Action
The device gets GNSS fix outdoors but not indoors	Check with another device if it can get indoor fix.
More than one device tested, and none get indoor fix	Find another indoor position for your device.
The device can't get outdoor fix with free sight to the sky.	Are there any metal objects near the device? Any interfering transmitters nearby? If no, replace the device

##### 8.1.3 Cellular Network Malfunction

If the mobile network LED never leaves the network search mode, it may have different causes. Low signal strength, nearby metal objects, low battery level can all be the reason why the device can't interact properly with the cellular network.

Problem	Action
The network operator for the device SIM subscription might not have coverage in your area	Bring your device to another area and check if it works
It might be a problem with the SIM subscription in your device	Contact your SIM subscription company and ask them to check the status for you SIM

#### 8.2 Faults and Repairing

Faulty devices shall always be replaced. Do not try to repair the unit. The unit is sealed and cannot be opened without destroying the device.


### 9 Accessories and Peripherals

S-2CONNECT Hub is part of a series of products including devices that can interoperate with S-2CONNECT Hub. Check the website for more information. [www.s-2connect.com](http://www.s-2connect.com)




### 10 Technical Parameters

#### 10.1 Technical Data

	<p><b>S-2CONNECT Hub—Dimensions and Weight</b> 155 x 65 x 20 mm (L x W x H), Nominal weight 200g (including battery)</p> <p><b>Included Cables</b> Power Charger EU/UK/US</p> <p><b>Power</b> Power via USB Micro-B connector, 5V, 1.3A</p> <p><b>Battery type</b> 3.7V 6500mAh Li-Ion</p> <p><b>Charging Time</b> 9 Hours</p> <p><b>Charging Temperature</b> 10°C to 45°C</p> <p><b>Housing</b> Polycarbonate</p> <p><b>Operating Temperature</b> -30°C to + 60°C</p> <p><b>Operating Humidity</b> 0 – 95 % RH, non-condensing</p> <p><b>IP Rating</b> IP67</p> <p><b>SIMS Interface</b> Fixed SIM circuit. Not changeable</p>
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#### 10.2 Radio Frequencies

	<table border="1"> <thead> <tr> <th>Radio technology</th> <th>Frequency band</th> <th>Maximum radio-frequency power</th> </tr> </thead> <tbody> <tr> <td>LTE</td> <td>1,2,3,4,5,8,12,13,18,19,20,25,28,39</td> <td>24 dBm</td> </tr> <tr> <td>2G</td> <td>2,3,5,8</td> <td>33 dBm</td> </tr> <tr> <td>GNSS</td> <td>GPS, GLONASS, QZSS</td> <td></td> </tr> <tr> <td>Bluetooth</td> <td>2.4 GHz BLE</td> <td></td> </tr> </tbody> </table>	Radio technology	Frequency band	Maximum radio-frequency power	LTE	1,2,3,4,5,8,12,13,18,19,20,25,28,39	24 dBm	2G	2,3,5,8	33 dBm	GNSS	GPS, GLONASS, QZSS		Bluetooth	2.4 GHz BLE	
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	GNSS	GPS, GLONASS, QZSS														
Bluetooth	2.4 GHz BLE															

## 11 Compliances

### 11.1 Declaration of Conformity

#### Simplified EU Declaration of Conformity

TT Electronics hereby declares that S-2CONNECT Hub is in compliance with the essential requirements of the following EU directives:

- RED 2014/53/EU
- RoHS 2011/65/EC
- WEEE 2012/19/EU

Full text of the conformity is available at: [www.s-2connect.com](http://www.s-2connect.com)

This equipment complies with EU radiation exposure limits set fourth for an uncontrolled equipment. This equipment should be installed and operated with minimum distance 20 cm between the device and the user and/or any bystander.

### 11.2 FCC Compliance

S-2CONNECT Hub has been tested to fulfil the FCC requirements. Test reports are available upon request.

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at their own expense.

### 11.3 Approved Modules

S-2CONNECT Hub includes a pre-approved radio module:

Radio Interface	Manufacturer	Type number
GNSS	Quectel	L76-L
Cellular modem	Quectel	BG96
Bluetooth	Telit	BlueMod+S42

#### 11.3.1 Quectel BG96

##### 11.3.1.1 FCC Labelling

FCC ID: XMR201707BG96

IC: 10224A-201707BG96

#### 11.3.2 Telit BlueMod+S42

##### 11.3.2.1 FCC Labelling

FCC ID: RFRMS42

IC: 4957A-MS42

##### 11.3.2.2 Bluetooth Qualification

The BlueMod+S42 is a qualified design according to Bluetooth Qualification Program Reference Document (PRD) V2.3.

Declaration ID: D032121

Qualified design: 88139