Surron QL-TBOX-JM GPS Tracking Module User Manual

SURRON QL-TBOX-JM

User Manual

Read this manual carefully prior to use. No prior notice will be given for any changes made to the appearance, color, or accessories of the product.

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Specifications and Features

1.1 Packing List

Item	Name	Qty.	Unit	Remarks
1	Main unit	1	PCS	The USIM card is preinstalled.
2	Waterproof sticker for USIMcard slot	1	PCS	
3	QR code sticker	3	PCS	

1.2 Specifications

T-BOX	Eurasia Version	North America Version
Communication s st andard	4G CAT-1 + GSM	LTE CAT-M1 + CAT-NB2
Communication freq uency bands	FDD-LTE: B1/B3/B7/B8/ B20/ B28 TDD-LTE: B38/B40/B41	CAT-M1:B2/B4/B5/B12/B13/B25/B26/B66/B85 CAT-NB2:B2/ B4/B5/B12/B13/B25/B26/B66/B71/ B85
GNSS	GPS + BDS	
GNSS sensitivity	Acquisition: -148dBm Tracking: -165dBm	
TIFF	Avg. hot start: ≤ 1s Avg. cold start: ≤ 32s	
Positioning accuracy	< 2.5m CEP	
Bluetooth	BLE5.0	
Operating voltage	DC 9-90V	
Dimensions (LxWxH)	80x42x17mm	
USIM type	Nano	
IP rating	IP67	
Operating temperatu re	-20°C to +70°C	
Flammability standar d	UL94 VO (enclosure)	

1.3 Features

- GNSS: Fix positions in real time via GPS, BDS, or AGPS;
- Platform access: Access to Alibaba Cloud IoT Platform; MQTT for communications; Unique keys for devices; Data storage in triplets;
- Location data reporting: Location data upload and query;
- ACC detection: Ignition status detection;
- CAN communication: Vehicle CAN messages, self messages, and fault messages upload;
- Bluetooth communication: Bus data query and firmware download.
- Device activation/binding: Bind/unbinding procedure (Bluetooth/platform) and binding information reporting;
- Remote command delivery: Deliver commands via the platform;
- Low-power management: Low-power logic for ACC off/external power disconnection and low-power wakeup;
- Local alert: The device will alert on vibrations, power disconnections, low battery, vehicle tip-overs, or CAN communication failures;
- FOTA: Upgrade the device firmware and vehicle ECUs over the air;
- UDS diagnosis: Unified Diagnostic Services (UDS) support.

LED Indication and Interfaces

2.1 LED Indication

1. GNSS LED (Blue)

Status	**Meaning**
Off	Failed to fix positions/find satellites.
Solid on	The device is positioning or searching for satellites.
Blink [0.5s-0.5s (on-off)]	Position fixed.

2. Cellular LED (Green)

Status	Meaning
Off	No SIM card is detected/No IMEI exists.
Solid on	Failed to find/register with a network.
Blink [0.5s-3s (on-off)]	The network is found and the device is trying to establish a connection with the server.
Blink [3s-0.5s(on-off)]	The network is found but connection establishment with the server is failed.
Blink [0.5s-0.5s (on-off)]	The connection with the server is established.

3. Power/CAN LED (Red)

Status	Meaning
Off	The device is disconnected from the 12V external power.
Solid on	No CAN message exists.
Blink [0.5s-0.5s (on-off)]	CAN messages are normal.

2.2 Interfaces

PIN	Color	Description	Level	Wire Diameter	Pigtail Wire Length
1	/	/	/	22AWG	200±5mm Connector excluded
2	Yellow	VIN:DC 12V Constant power	12V+		
3	White- Black	CAN_L	5V		
4	Black- Yellow	ACC	12V		
5	Green- Red	GND	—		
6	White- Red	CANJI	5V		

Installation

3.1 Device Installation

1. Check

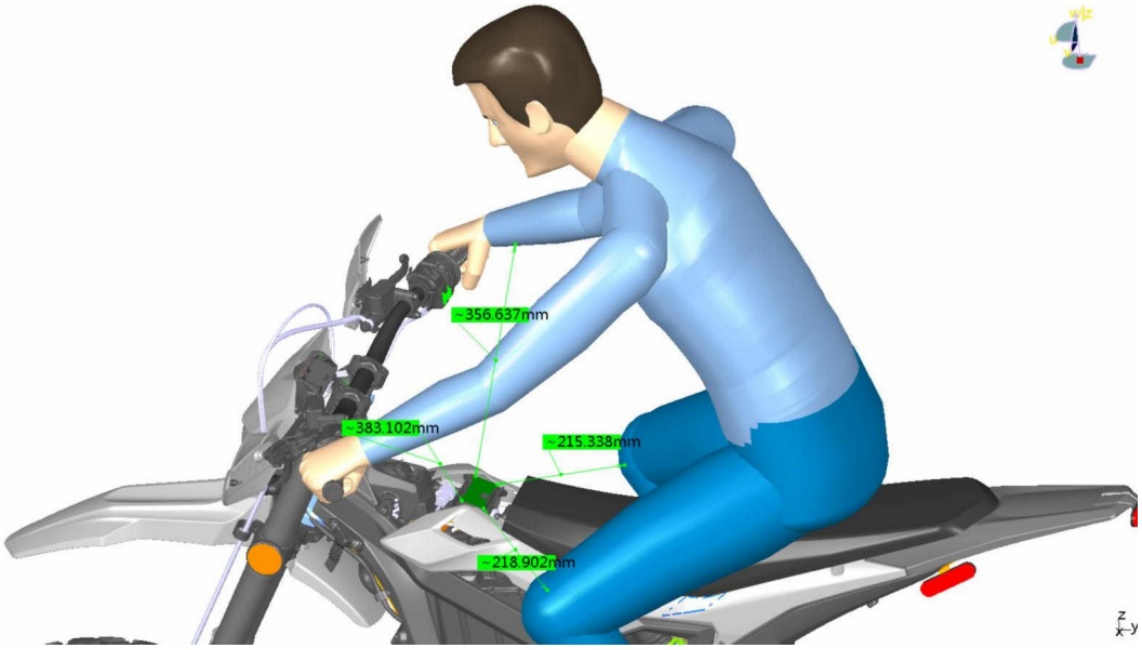
   Check visually whether the device is in good condition and whether the relevant accessories are complete.
2. Installation Installation Order

1. Locate the proper 6-pin connector on the vehicle and insert the device (T-BOX) to the connector.
2. The device will power on and start to operate after being connected with the external power.
3. After the device is powered on, enable your phone's Bluetooth to establish a connection between the designated mobile app and the device, and then use the mobile app to perform a diagnosis on the device.
4. When the device passes the diagnosis, attach the waterproof sticker to the card slot and fixate the device.

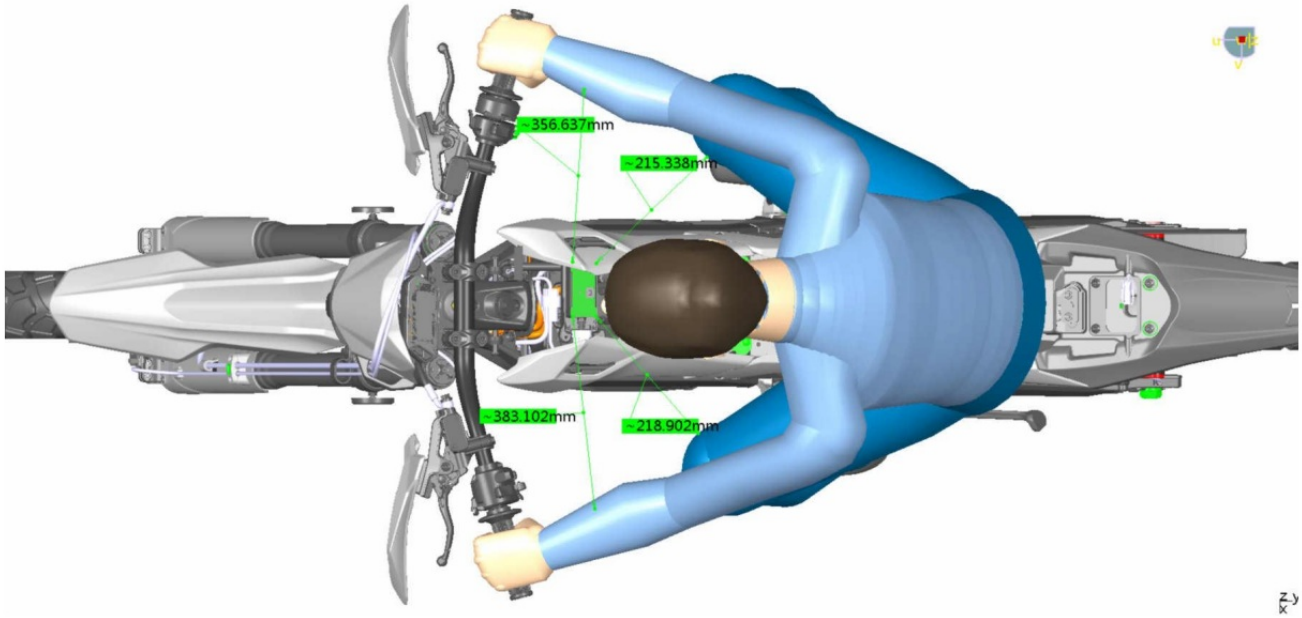
Installation Instruction:

This device complies with RF specifications when used near your ear or at a distance of 20cm from your body.

Side View:



Top View:



3. Precautions

1. The top enclosure (where the GNSS antenna is located) must face towards the sky.
2. There are no metal or electromagnetic wave absorbing materials above the device or its accessories.
3. Ensure that the use of belt clips, holsters and similar accessories should not contain metallic components.Keep the device away from your body to meet the distance requirement.

APP Operations

You can download the mobile app via SURRON official site.

iOS

Android

Appendix

5.1 Battery Safety

1. Please use batteries that are specified by the manufacturer of the device.
   The use of any non-original accessories will void the warranty services. The manufacturer will assume no repair liabilities for damages resulting from the use of non-original accessories.
2. Avoid metal objects as they may cause short circuits on battery contacts.
3. Do not bend or forcibly open the battery.
4. Do not soak the battery in water or expose it to fire.
5. Charge the battery in room or near-room temperature conditions. If the temperature is below zero or above 45℃, the battery may fail to be recharged.
6. It is forbidden to use batteries that are deformed, discolored, spilled, or package-damaged.
7. It is forbidden to disassemble or modify the battery.

5.2 Troubleshooting

When a problem arises with the device, you can troubleshoot it by the following solution. If the problem persists, please don’t hesitate to contact your dealer or service provider.

Issue	Description	Solution
Poor satellite signal	The device may be used in a place where the satellite signals cannot be perfectly penetrated, such as at lower stories of a high-rise building or in a basement.	Try it in a place where satellite signals can be well received.
	The device is facing downward or is blocked by metal objects.	Adjust the device so its front side facing upward or install it in another position.
Power-on failure	The battery is low.	Connect the device to an external power source to recharge the battery.
Failed to access the network	The USIM card is attached incorrectly.	Re-attach it.
	The metal side of the USIM card is stained.	Wipe it with a clean cloth.
	The USIM card is damaged or invalid.	Replace it.
	The device is out of the cellular service area.	Try it in a service area.
	The signal is poor.	Try it in an area with strong signals.
Failed to charge	The contact is poor.	Check if the power cable is connected securely.
Failed to query a location	Your USIM card has no GPRS services activated.	Please contact the network operator and activate the network services.
	The USIM is in arrears.	Recharge the USIM.
	The device doesn’t respond to a command.	Check the device and make sure that the device can access the network and the USIM card has text services activated.

5.3 Warranty Instructions and Services

1. Special Note
   • No prior notice will be given if the product is upgraded due to technological reasons.
   • The appearance or color of the product is subject to the actual.
   • The warranty card applies to the services of repair, replacement and refund of the product with the following IMEI.
   • Please keep this warranty card and the original purchase receipt together in a safe place, as these will be needed at time of services.
2. Warranty Terms
   • For damages not caused by human factors, this warranty lasts for two years (including one year replacement service) from the date of original purchase.
   • You can choose to pay for the repair services in any of the following cases:
   ◆ The warranty card expires;
   ◆ No warranty card or valid proof of purchase;

- The product, including its accessories, is not in the warranty period;
- Quality issues resulted from unauthorized repair, crash, liquid spillage, accident, modification, or incorrect voltage input; or the label, IMEI, or counterfeit mark of the device is broken or scribbled;
- Damages caused by installing or using the device without following the instructions in this User Manual;
- Damages caused by force majeure such as fire, flood, or lightening;
- The product model is inconsistent with that on the warranty card or the warranty card was altered;
- Other damages caused by force majeure.

Reminder:
For GNSS trackers, as of January 1, 2016, the warranty lasts for 2 (two) years for repair from the date of purchase, including 1 (one) year for replacement.
The specific terms are:

- A full replacement, including accessories, if the product is found defective during unpacking check;
- If a defect occurs within one year after installation, then:
  - Replace only the mainboard if the housing is intact and doesn't affect normal use; or
  - Replace the housing and the mainboard if the housing is defective and affects normal use. Please be noted that man-made damage will void the replacement service for the housing.
- Free repair services will be given to the device if a defect is found during the second year under proper use.

Warning

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.
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.
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.

Documents / Resources

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