

**QSTARZ**<sup>®</sup>

**GPS Lap Timer 6000S**

**User's Manual**



**GNSS Support**

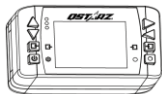


**English**

## LT-6000S [GNSS] GPS Lap Timer User's Guide

### ■ A. LT-6000S[GNSS] Package Contents:

- 1) QSTARZ LT-6000S [GNSS] unit
- 2) Device mounting bracket
- 3) Mini USB cable
- 4) Car charger
- 5) Quick Start Guide
- 6) Exclusive Sticker + Warranty card
- 7) LT-6000S protective case (Optional)
- 8) Car windscreen mount kit or Motorcycle mount kit (Optional)



(1)



(2)



(3)



(4)



(5)



(6)



(7) Optional



(8) Optional

## Main functions:

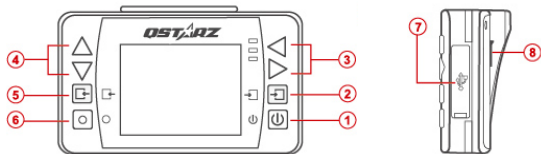
- Multi-Function Device – Performance Timer, Lap Timer, Rally and GPS Logger
- Support GPS/GLONSASS/QZSS, eXtreme 10Hz Log to record 10 times per second
- 2.4" color display and real-time perform race timing analysis
- Drag Race by Speed, Distance and Time
- Circuit Race by Practice, Prediction, Race and Challenge
- Real time Lap/Spilt/Sector Comparison
- Auto global track reconization & view circuit thumbnails
- Auto Start-Run after device senses forward motion
- History database organized as Calendar and table type for easily review
- Rally Race with Recce to generate Roadbook
- Flexible Track Manager – On-Device created to User track, and QRacing Sync to Shared track
- Visualized GPS logger as a dashboard speedometer
- G-force meter to plot G-force status
- Device configurable such as unit, backlight, brightness, time zone, or time format
- Built in GNSS Antenna and also external Antenna plug

## Specifications:

- Adopt high sensitivity GPS chipset with -165dBm and 66-Channel tracking
- 2.4" (320x240) TFT Color display with 65K color
- Ultra lower power consumption up to 10hrs operation (under LCD backlight on)
- Log rate up to 10Hz excellent for High speed Racing (recording 1 waypoint per 0.1 second)
- 8 Function buttons – 4 Direction Buttons, Back, Enter, Multi-function, and Power Buttons
- 3 LED Indicators – Green for Screen Power Saving, Orange for Charging, and Red for Alert
- Built-in 3-axis accelerometer for G-force measurement and Auto Start trigger
- Built-in large memory and view history data easily
- Device recognized as USB removable disk for data access with computer conveniently

- Raise beeper function to notice some status of device
- IPX-3 water resistance and Firmware upgradable
- Less than 15-Sec. AGPS fix support to realize faster TTFF and positioning under warm start
- Mini-USB interface for charging, data download and firmware update
- Environment temperature- Operation: -10°C to +60°C / Storage: -20°C to +60°C / Charging: 0°C to +45°C
- Device Dimension (LxWxH): 100 x 59 x 28mm / Weight: 107 grams (Mounting bracket excluded)








## ■ B. Appearance



Name	Icon	Function
1. Power button		<ul style="list-style-type: none"> <li>● Press for 3 seconds to power on or power off 6000S</li> <li>● Press to return Main Menu when device is on</li> </ul>
2. Enter/Set button		Press to confirm the selected option
3. Left/Right Navigation button		Press to switch among different options and pages
4. Up/Down Navigation button		Press to switch among different options
5. Back/Cancel button		Press to cancel function and go back to previous screen
6. Multi-function button:		Press to start the race and record

7. -Mini USB port -Reset button	<ul style="list-style-type: none"> <li>● For Charging device</li> <li>● For Data download to PC</li> <li>● For Firmware Upgrade</li> </ul>
8. External GPS Antenna Jack	For connecting optional External GPS Antenna with MCX plug

## ■ C. Icon definition

Icon	Description	Icon	Description
 Red color	GPS is not fixed, searching for GPS signals		Battery full
 Gray color	GPS is 2D fix		Battery sufficient
 Green color	GPS is 3D fix		Low battery ( less than 15% battery time) (Flash with Red color)
16:20	GPS Time		Low battery (less than 5% battery time)

## ■ D. LED Signal definition

LED	Red	<ol style="list-style-type: none"> <li>1. When the memory is full or fail to read/write memory, the Red LED will flash once per 3 seconds.</li> <li>2. When the battery is in low status below 15%, Red LED will flash once per 3 seconds. When low below 5%, Red LED will be steady ON to alert.</li> </ol>
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	<b>Orange</b>	When device is under charging mode, the Orange LED will be steady ON. After device battery is fully charged, the Orange LED will be OFF.
	<b>Green</b>	When device is under Screen power saving mode (backlight off), Green LED will flash once per 1 second.

## ■ E. Safety Notice

**Note: Please read this section carefully before start operating the 6000S.**

- Keep the 6000S far from heat or high temperature environment. We recommend not to expose your 6000S in temperature higher than 145°F/60°C to prevent the device from overheating, exploding or melting itself.
- When car interior temperature is too high, is likely to result in product failure or damage. When device is not in use or driver leaves the car, we suggest disconnecting the device and place in the car glove box.
- To reduce the risk of fire or shock hazard, do not expose this product to rain or moisture.
- Do not mount the devices in a place where the driver or passengers may receive injury during vehicle operation or collision. For your safety, take care to route all cables away from shifters, pedals, accessory controls and mechanisms
- The manufacturer assumes no responsibility for any damages and loss resulting from the use of this manual, or from deletion of data as a result of malfunction, dead battery, or from misuse of the product in any way.
- Please clean the unit with a dry and clean soft cloth. Do not use harsh cleaning solvents, chemicals, or strong detergents.
- Do not attempt to open 6000S by yourself. Unauthorized hacking may damage the unit, and void your warranty.

### **CAUTION**

**RISK OF EXPLOSION IF BATTERY IS REPLACED BY AN INCORRECT TYPE. DISPOSE OF USED BATTERIES ACCORDING TO THE INSTRUCTIONS**

## ■ F. Charging 6000S

**Please charge the battery fully before the first time use.**

6000S comes with a built-in rechargeable Li-Ion battery that can be charged through the PC using the USB cable provided and car cigarette adaptor. Charging time is 5 hours typically with Power OFF mode and 10 hours with Power On mode. A fully charged battery will last about 10 hours operation.

**Note:** To avoid damage to the battery, please do not overcharge the battery for more than 10 hours. The battery will stop charging if it's overheated for safety reason.

## ■ G. Device bracket mounting

(1)



- 6000S mounting bracket with provided screw.

(2)



- Line up the bracket with the screw hole.

(3)

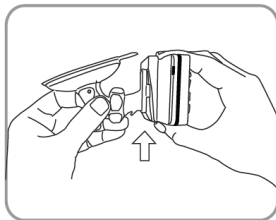
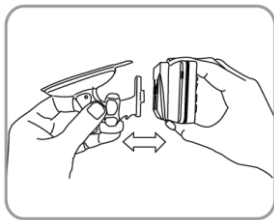


- Secure the mounting bracket in place with the provided screw.

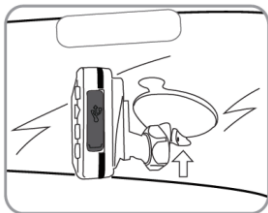
## ■ H. Mounting the 6000S [GNSS] in the vehicle

1. Locate the area on the vehicle windshield where you want to mount the 6000S.
2. Press the suction cup mount against the glass and lower the locking lever into place to secure the mount to the windshield firmly.

**Note:** Clean Surface of windshield first by rubbing alcohol or dry cloth before mounting the device.



3. Snap the mounting bracket onto the suction cup arm.



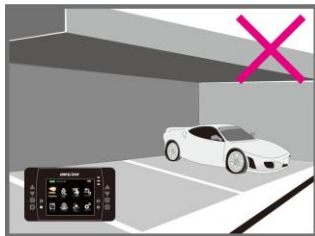
4. Please make sure the 6000S is installed as straight and vertical as possible. So the internal 3-axis G-Force sensor is able to perform more accurately.



## ■ How to get better GPS accuracy with 6000S[GNSS]

- 6000S is for outdoor use, it should be used in open area environments without shelter of tall building or trees to enable faster satellite lock and provide better positioning accuracy.

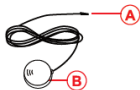




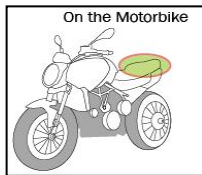
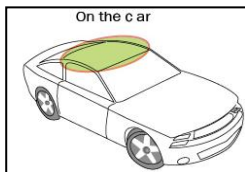
- If you are using the 6000S for the first time or you haven't been use it for a while, it will need to be left for 10-15 minutes to make the GPS signal accurate and steady.

## ■ Install external GPS antenna (Optional Accessory)

6000S has built-in gps antenna, you also can increase the GPS precision and reception quality with external gps antenna. Open the Rubber cover and plug in the gps antenna connector to antenna jack on the back of 6000S. Make sure to mount the external GPS antenna on the car roof or any metallic surface.



- A** MCX Plug for connecting to 6000S  
**B** GPS Antenna for receiving GPS Signal.  
 Magnet design can stick to car roof or metallic surface.



## ■ About the GPS

- The GPS is operated by the government of United States, which is solely responsible for its accuracy and maintenance. The accuracy of location data can be affected by adjustments to GPS satellites made by United States government.
- Quality of GPS signals may be affected by your location, building, natural obstacles, and weather conditions. The GPS module should only be used outdoors to allow reception of GPS signals.
- The GPS position is for user reference only, you should never rely solely on location data from the GPS module for positioning.

## ■ I. Setup 6000S[GNSS] for First Time

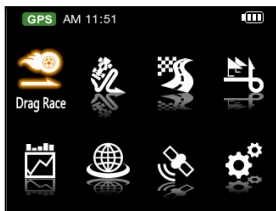
To power on your unit, press and hold the power button for 3 seconds until it turns on, when you turn on the 6000S for the first time, you will be required to set up the following information:

- Language (English, Chinese, Japanese)
- Units of Measurement (Metric or Imperial)
- Time zone and Time format

After the setup is completed, you will see the **Main Menu** screen. Select one of 8 operation Modes to execute required function.

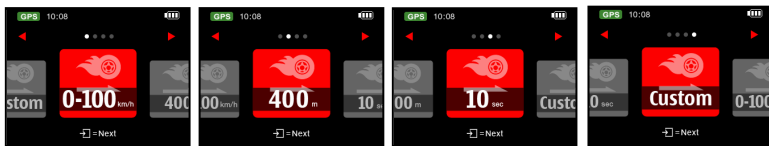
1. **Drag Race Mode**
2. **Circuit Race Mode**
3. **Rally Mode**
4. **GPS Logger Mode**
5. **History Mode**
6. **Application Mode**
7. **GPS mode**

## 8. Setting Mode

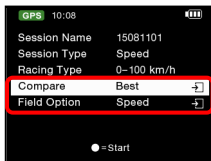


### I-1. Drag Race mode

The Drag race mode is to measure your vehicle's acceleration and braking's performance, 3 pre-defined Profiles (**0-100km/h, 400m, 10sec**) are stored in 6000S. You can also define your own performance tests or deceleration criteria by selecting **Custom** profile.



Select the performance test you want to run, press **Next** button to enter setup screen; you can set to compare with last or best lap and the display field info on the screen.



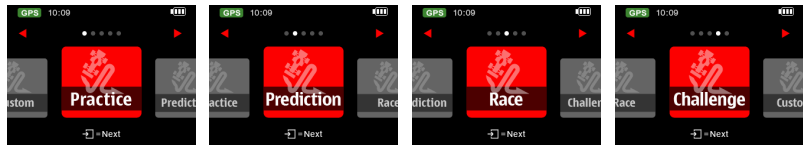
Press ● Start button to start perform your run.

Once the screen show **"Ready"** the timer will automatically start when it detects the car starts moving, and stops it when your car is passing Profile condition (**100km/h, 400m or 10sec**).

**\*Do not to run these tests on the public roads!**

## 1-2. Circuit Race mode

The circuit mode is for for measuring lap times and analyzing laps, there are 4 pre-defined and 1 Custom Profiles in Circuit race mode.



### ➤ Practice profile:

This profile is suitable for track day practice session; it will compare your current lap time with the last lap time by default.

### ➤ Prediction profile:

Predictive Lap Timing function is featured to predict the lap time which is about to complete. It can predict you will be getting faster or slower than the previous best lap. It's suitable for pursuit breaking your best lap time.

### ➤ Race profile:

This profile is suitable for race day; it will compare your current lap time with the best lap time by default.

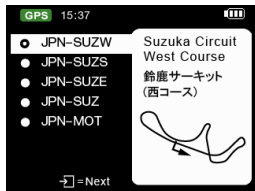
### ➤ Challenge profile:

Challenge profile allows you to set a lap time as a target to compare and challenge it.

### ➤ Custom profile:

User can custom your preference by selecting the comparison lap (best or last) and field option display for lap timing.

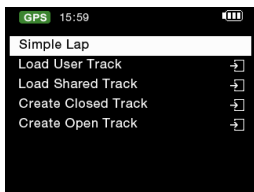
- Select one of the profiles you want to test, press **Next button**. 6000S will automatically detect and display the nearby start/finish line coordinates of the track based on the track list database within 6000S.
- Select the track you want to test and press **Next button**.



If you don't see the track you need, you can download the latest tracks from Qstarz website

( <http://racing.qstarz.com/Share.html> ) or select the track by the following menu. (See below guide: **How to Setup**

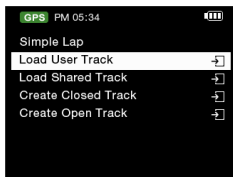
### Start/Finish and Split lines?)



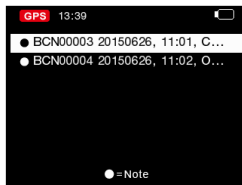
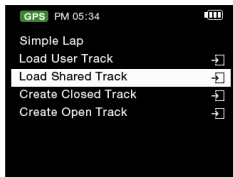
- **Simple Lap:** Just press the **Start button** to race and 6000S will set up the Start/Finish line automatically.
- **Load User Track:** Load the track which you created before in this device.
- **Load Shared Track:** Load the track which you exported from QRacing software.
- **Create Closed Track:** You can create Start/Finish lines and Splits. Start/Finish line is at the same place.
- **Create Open Track:** You can create Start line, Splits and Finish line. Start and Finish line are not at the same place.

You can load the beacon from User Track you previously created. Or you can load it from Shared Track you exported from QRacing or downloaded from website.

**\*Load User Track:**



**\*Load Shared Track:**

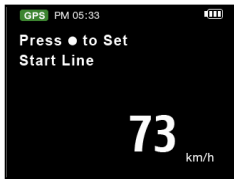



**Note1: The vehicle must be moving for better precision when setting the Start/Finish line.**

**Note2: In some cases it may not be feasible or safe to add Start/Finish Splits line while driving. Users can use alternative way by QRacing software to edit the Start/Finish and Split lines, then export them to 6000S for race (Please see K-2 Edit Beacon).**


### ❖ How to setup Start/Finish and Split lines?

1. By driving slowly (at least 30km/h) on the track, press  button when you are on the spot that you want to mark as Start/Finish line.



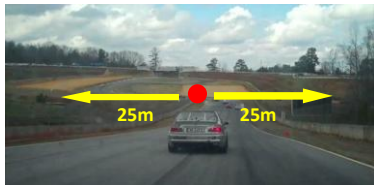
2. After you have created the Start/Finish line, press  button to mark the split line.  
**(Note: Max 25 split lines can be added for each track)**



3. Press  button to finish creating the Start/Finish and Split lines. The Track will be saved automatically in the memory of 6000S\C\_BEACON\USER folder once finished; you can re-load it later by **Load User Track** or

share it with other users.

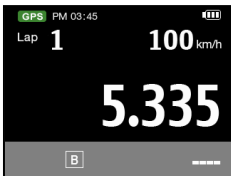
- **Beacon Width:** Beacon is commonly referred to as the virtual start/finish or split lines. The default beacon width is set to 50 meters (25m from each side of the vehicle) and the Beacon line is placed in a straight angle to your current bearing (see below picture), you may adjust the beacon width according to your track width.



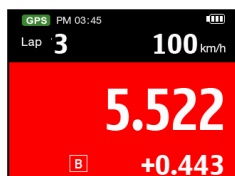
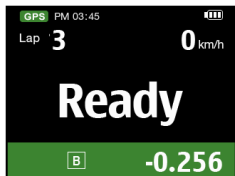
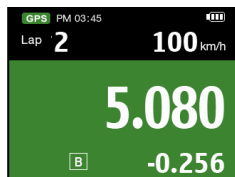
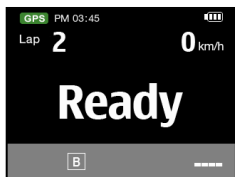
- Press **Start button**

Once the screen show **"Ready"** the timer will automatically start when it detects that the car starts moving.

#### ❖ lap time screen for Drag mode 0-100km/h







- If you were going faster than comparison lap (best or last), the lap time will be shown in **Green background**. Or if you were going slower, and the run time will be shown in **Red background**. The timing difference between your current lap and your best or last lap will be shown at the bottom of the screen. You can press the button to switch the field option on the top right corner of screen or press **Up/Down** button to change timing display style.
- Select lap and Press button to view lap's detail:

LAP	TIME	+/-
1	5.335	+0.256
2	5.080	BEST
3	5.522	+0.443
4	13.662	+8.582

= Start

➤ Press **↔** button to change display screen

GPS Lap 1 Detail		
BEST	5.080	@Lap1
Time	5.335	+0.256
Distance	66.360m	
Max Speed	100.000km/h	
Avg Speed	45km/h	
Gmax-X	0.0	
Gmax-Y	0.0	

GPS Lap 1 Detail		
BEST	2.440	@Lap1
0-10	0.200	0.00m
0-20	0.139	0.00m
0-30	0.690	0.00m
0-40	1.057	15.24m
0-50	2.320	33.80m

✧ **Lap Time screen for Circuit Race mode: (tested with Lap with Splits)**

For Lap with Splits, if you were passing split and going faster than the same split of compared lap, the Rolling time and Split timing difference will be shown in **Green background**. Or if slower, the Rolling time and Split timing difference will be shown in **Red background**. You can also press the **●** button to switch the field option on the top right corner of timing screen.

GPS PM 03:45	
Lap 2	100 km/h
<b>5.080</b>	
<b>-0.256</b>	

GPS PM 03:45	
Lap 3	100 km/h
<b>5.522</b>	
<b>+0.443</b>	

➤ Press **⏏** button to Stop the lap timing and view this Session's each Lap Time result. Press **●** **Display Mode** button to display different data, navigate between these screens by using the **Left/Right** **↔** buttons.

Lap	Full	+/-
Opt	10.221	-3.579
1	13.799	BEST
2	15.400	+1.601
3	14.800	+1.001
4	15.000	+1.200

● = Display Mode

- **Sectors:** The time from one split point to the next split point. Press the button to navigate and view each sector's time.

Lap	Sector1	+/-
Opt	0.197	-0.000
1	0.197	-0.000
2	2.398	+2.201
3	4.077	+3.879
4	2.707	+2.510

● = Display Mode



Lap	Sector2	+/-
Opt	4.123	-1.279
1	5.402	-0.000
2	5.302	-0.100
3	4.123	-1.279
4	4.692	-0.710

● = Display Mode

- **Splits:** The cumulative time from start point to a split Point. Press the button to navigate and view each split's time.

Lap	Split1	+/-
Opt	0.197	-0.000
1	0.197	-0.000
2	2.398	+2.201
3	4.077	+3.879
4	2.707	+2.510

● = Display Mode



Lap	Split2	+/-
Opt	4.320	-1.279
1	5.599	-0.000
2	7.700	+2.101
3	8.200	+2.601
4	7.400	+1.800

● = Display Mode

- **Split Speed:** The speed when across the split line.

Lap	Speed1 (kph)	+/-
Opt	72.784	-0.000
1	72.784	-0.000
2	39.633	-33.151
3	49.263	-23.520
4	50.004	-22.780

● = Display Mode



Lap	Speed2 (kph)	+/-
Opt	84.081	+14.816
1	89.265	-0.000
2	88.896	+19.631
3	84.081	+14.816
4	97.971	+28.706

● = Display Mode

- **Speed & G Value:** Display the session lap's Max/Min/Avg Velocity (Speed) and Max G Value.

Lap	Vmax (kph)	+/-
Opt	140.196	+35.558
1	104.638	-0.000
2	103.527	-1.111
3	106.490	+1.852
4	140.196	+35.558

● = Display Mode




Lap	Vmin (kph)	+/-
Opt	15.186	+15.186
1	0.000	-0.000
2	17.964	+17.964
3	0.000	-0.000
4	0.000	-0.000

● = Display Mode



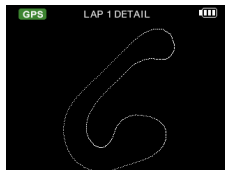
Lap	Gmax-X	+/-
Opt	0.055	-0.000
1	0.055	-0.000
2	0.051	-0.004
3	0.055	-0.000
4	0.055	-0.000

● = Display Mode

- You can select the lap and press **Enter** button to view lap detail. Press the  button to swap analysis and track pages.


LAP 1 DETAIL		
Best	17.229	@Lap2
Time	19.992	+2.763
S1	7.783	+1.492
S2	11.352	+1.967
S3	15.861	+2.777
S4	19.992	+2.763

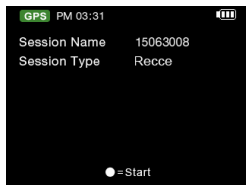
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### I-3. Rally Race Mode





The Recce in Rally Race mode allows user to log their rally course as reference to create their rally stage notes, or pacenotes.

Press  **button** to start Recce session.



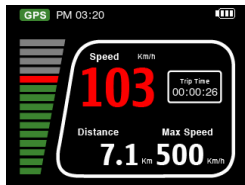
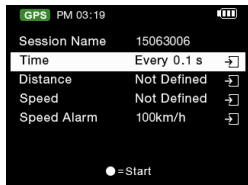
6000S will log the Rally course and display the Trip information on the screen; user can press  to set Split (or checkpoint).



- Press  Up Button and hold 1 second to reset Total Distance and Avg Speed
- Press  Down Button to reset Trip Distance and Avg Speed
- Press  Left Button to toggle GPS Time/Trip Time/Total Time
- Press  Right Button to toggle Speed/Trip Avg Speed/Total Avg Speed

## I-4 GPS logger mode

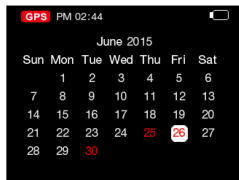
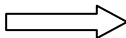
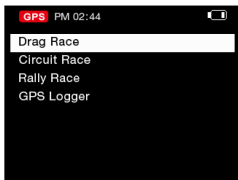
You can also use 6000S as a GPS Data logger to record your travel route.



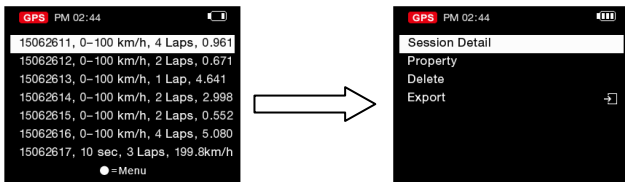
- Session name: The system will automatically create the Log name with YYMMDDXX format.
- Time: Select the log frequency (1Hz, 5Hz, 10Hz or user define 0~99 seconds)
- Distance: Select to log by distance (0~9999 meters).
- Speed: Select to log by speed (0~999 kph).
- Speed Alarm: When you exceed the set speed, 6000S will alert with beep sound.
- Press **●** button to start logging.

## I-5. History Mode

You can review all the data recorded with 6000S in History mode. When the calendar day shows up in Red, it means there's racing record.



- Press ● = **Menu Button** can view the selected **Session Detail**, **Property**, **Delete** session or **Export** track. Track export file format can be selected with KML, CSV or GPX file. After track export succeeded, the exported file can be found on the device memory of the **6000S\Exports** folder.

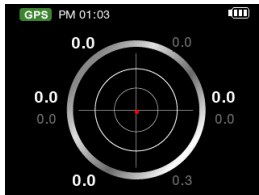


## I-6. Application Mode

In Application mode, you will be able to perform 6000S as G-meter or Demo display.

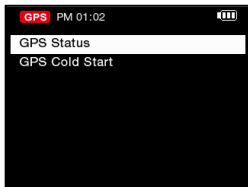
### ✧ G-meter:

G-Meter uses 6000S's built in 3-axial accelerometers to provide accurate real-time G-force results with graphics.




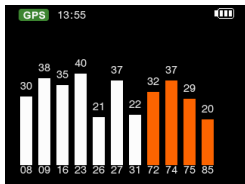
## I-7. GPS Mode

In GPS mode, user can check gps satellite status or perform gps cold start.



### ✧ GPS Status:

6000S will show a screen, which shows which satellites are in use. The bar graphs show the strength of the satellites that the GPS has acquired. 6000S support GNSS (GPS, GLONASS, and QZSS) satellite system. White bar graph means GPS satellite system and Orange bar graph means GLONASS satellite system. Press the  button to see GPS info.



 A screenshot of a screen displaying GPS status information. The title is 'GPS PM 02:41' with a battery icon on the right. The text is as follows:
 

GPS Status	3D Fixed
Lon	136.517333
Lat	34.846667
Alt	-2891.40m
GPS Speed	500.04km/h
Heading	289.60
Date	2015/06/30
Time	14:41:50

### ✧ GPS Cold Start:

Performing the Cold Start function will clear the GPS engine of the device's list of old satellite information. Under normal operating conditions, the last satellite lock computed before the unit was turned off is stored into memory and will be used as the reference when the next time the unit is turned on. Also, if you travel for more than 500 miles with it turned off, it will still have the reference point but it may be too inaccurate to be useful

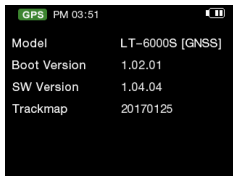
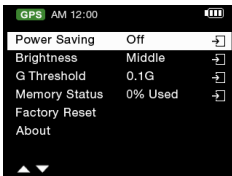
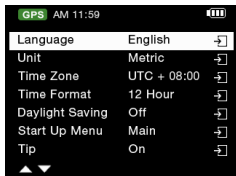


and result in longer time to get a satellite lock. In this case you may want to perform a cold start.

**IMPORTANT NOTICE: For stable positioning and data accuracy, please DO NOT interrupts cold start. And start to use after cold start is completed.**

## I-8. Setting mode

In the **Setting mode**, option such as Unit of Measure (mph/kph), Backlight, Brightness, Time Zone, Time format, Daylight Saving and Language options can be adjusted, or reset device to factory default.



- ✧ **Language:** Select the desired language and press **Enter** Button, and wait until the language loading is completed. Please make sure the battery power is sufficient up to 80%, and do not turn off or press the reset button while loading the language.
- ✧ **Start Up Menu:** Select the start up page (Main/Drag Race/Circuit Race) once device is switching on.
- ✧ **Memory Status:** You can know the percentage of Used Memory. Select **●** button and is able to clear all memory. But make sure you have saved log data in advance.
- ✧ **G-Sensor Threshold:** When start trigger by G-sensor is too sensitive, you may increase the G-Sensor threshold to make the trigger less sensitive. Default G-sensor threshold is 0.1G.
- ✧ **About:** Check your device's Software version and Trackmap version.

## ■ J. Upgrading Firmware

Qstarz will frequently update the firmware to provide new features and bugs fix; please update the latest

6000S firmware via bundled QRacing software or Qstarz website.

Please check the unit's current version at **Setting Mode >> About**. If the current version is older than the one published in our website, please download the latest version and follow the steps below to upgrade firmware:

- Step1.** Turn OFF the device and connect to the USB port of computer. 6000S will enter into **USB ACCESS MODE** automatically.
- Step2.** Extract the downloaded firmware file **Q6000S.qst** and copy to the root directory of the device memory.
- Step3.** Unplug the USB cable and press both **"ENTER"** and **"POWER"** buttons at the same time until the **"CHECK FILE"** screen prompts. And it will start updating the firmware. Once the firmware updating process is complete, device will restart automatically.

**Caution 1: Please make sure your battery power is sufficient up to 80% before updating your firmware.**

**Caution 2: Do not press the reset button while updating the firmware.**

## ■ K. Data Download and Data Analysis

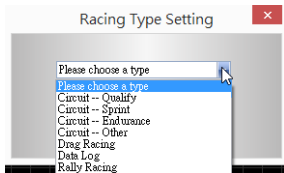
6000S GPS Lap Timer is bundled with **QRacing™** PC software.

-**QRacing™** lap timing analysis software allows you to download and analyze the data stored in 6000S.

You can manage your racing tracks as database structure and analyze with graph statistics.

### K-1. Import data from 6000S

- Please go to Qstarz website (<http://racing.qstarz.com/Download.html>) to download and Install QRacing software. After complete the installation, make sure to input product key at first time use. ([The product key is located at Qstarz Warranty Card](#))
- "Power off" the unit and connect the supplied USB cable to the computer.
- Run QRacing software
- Click on **"Read Log"** from **Menu >> File**
- Select the Racing Type



- Select the session to import



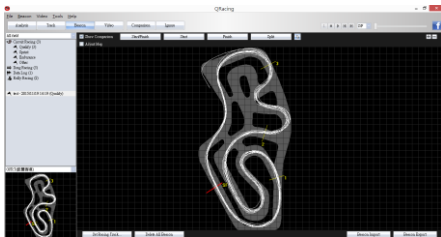
- If you haven't loaded the beacon previously, QRacing will ask you to edit beacon. Click "Yes" and will load the beacon from 6000S, or you may click "Cancel" to edit the beacon by you.



**Note:** Once loading beacon from 6000S, QRacing will remember this beacon set and use it for all other sessions with the same track. If you want to load another different set of beacon, please "Delete All Beacon" in Beacon page and select the session to load the beacon again from 6000S.

## K-2. Edit Beacon

- Please go to QRacing Beacon page and edit the Start/Finish and Splits line for your track. Once finished, you may also export it into 6000S device by clicking on **Beacon Export >> Export Beacon to 6000S**. You can then load the exported track in 6000S **Circuit Race mode >> Track Name >> Load Shared Track** later on for race.



## K-3. Analyze Data

- Once beacon is loaded or edited, you may start to analyze and view your racing data. Switch to Analysis page to view and analyze your lap time and the best result will be highlighted in blue.

Avg/Max/Min Speed View						
Lap	Time (Diff)	Max Speed (Diff)	Min Speed (Diff)	Average Speed (Diff)	Distance	
Lap1	00:58:431 (+00:13:380)	47.63 km/h (-10:34)	12.49 km/h (-4:67)	20.81 km/h (-8:88)	496.42 m	
Lap2	00:51:102 (+00:06:062)	54.64 km/h (-3:33)	11.40 km/h (-5:76)	35.27 km/h (-4:42)	499.69 m	
Lap3	00:47:844 (+00:02:846)	56.26 km/h (-1:71)	14.60 km/h (-2:56)	38.07 km/h (-1:62)	497.07 m	
Lap4	00:47:877 (+00:02:838)	55.20 km/h (-2:77)	16.02 km/h (-1:14)	38.18 km/h (-1:51)	498.52 m	
Lap5	00:46:562 (+00:01:464)	57.97 km/h	17.16 km/h	38.93 km/h (-0:76)	497.40 m	
Lap6(best)	00:45:638	57.22 km/h (-0:75)	16.86 km/h (-0:30)	39.45 km/h (-0:24)	493.10 m	
Lap7	00:45:848 (+00:00:511)	55.77 km/h (-2:20)	16.10 km/h (-1:06)	39.69 km/h	496.10 m	
Lap8	00:46:727 (+00:01:089)	56.11 km/h (-1:86)	13.36 km/h (-3:80)	38.85 km/h (-0:84)	496.38 m	
Avg	00:48:638	55.10	14.75	37.41	496.84	

### Sector View

Sector = the time from one split point to next split point.

Sector View (Split-to-Split)							
Lap	Time (Diff)	S-1 (Diff)	1-2 (Diff)	2-3 (Diff)	3-4 (Diff)	4-F (Diff)	
Lap1	00:58.431 (+00:13.390)	00:13.725 (+00:296)	00:15.885 (+00:396)	00:07.184 (+00:214)	00:05.985 (+01.395)	00:14.985 (+02.443)	
Lap2	00:51.100 (+00:06.062)	00:14.265 (+02.468)	00:12.415 (+01.818)	00:05.265 (+00:835)	00:04.845 (+00:331)	00:14.985 (+01.443)	
Lap3	00:47.884 (+00:02.646)	00:13.232 (+01.660)	00:11.884 (+00.911)	00:05.183 (+00.233)	00:04.823 (+00.314)	00:12.778 (+00.295)	
Lap4	00:47.877 (+00:02.638)	00:12.678 (+01.646)	00:12.028 (+01.186)	00:05.816 (+00.868)	00:04.838 (+00.328)	00:12.778 (+00.214)	
Lap5	00:46.862 (+00:01.464)	00:13.182 (+01.620)	00:11.226 (+00.326)	00:04.849	00:04.809	00:12.868 (+00.377)	
Lap5(best)	00:45.858	00:11.783 (+00.871)	00:10.887	00:04.888 (+00.839)	00:04.848 (+00.840)	00:12.968 (+00.477)	
Lap7	00:45.548 (+00:00.511)	00:12.388 (+00.837)	00:11.884 (+00.187)	00:05.116 (+00.167)	00:04.888 (+00.189)	00:12.812	
Lap8	00:46.727 (+00:01.668)	00:11.652	00:11.884 (+00.771)	00:05.718 (+00.226)	00:04.888 (+00.181)	00:13.912 (+01.648)	
Best Theoretical Time	00:44.869	00:11.652	00:10.887	00:04.848	00:04.869	00:12.812	
Best Realistic Time	00:44.728	00:11.783	00:10.887	00:04.848	00:04.869	00:12.868	

### Split View (Cumulative)

Split = the cumulative time from start point to a split Point

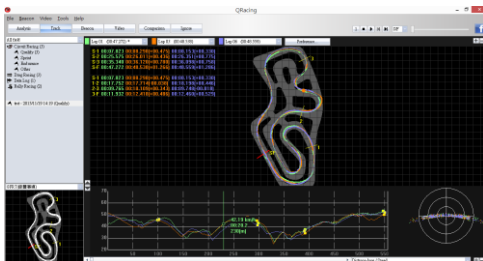
Split View (Start-to-Split)							
Lap	Time (Diff)	S-1 (Diff)	S-2 (Diff)	S-3 (Diff)	S-4 (Diff)	S-F (Diff)	
Lap1	00:58.431 (+00:13.390)	00:13.725 (+00:296)	00:30.281 (+07.298)	00:37.892 (+09.892)	00:43.876 (+11.336)	00:58.431 (+13.290)	
Lap2	00:51.100 (+00:06.062)	00:14.265 (+02.468)	00:26.716 (+04.116)	00:32.361 (+04.711)	00:37.146 (+05.062)	00:51.100 (+06.062)	
Lap3	00:47.884 (+00:02.646)	00:13.232 (+01.660)	00:25.188 (+02.498)	00:30.281 (+02.694)	00:35.188 (+02.862)	00:47.884 (+02.646)	
Lap4	00:47.877 (+00:02.638)	00:12.678 (+01.646)	00:24.788 (+02.188)	00:30.284 (+02.684)	00:35.091 (+02.884)	00:47.877 (+02.638)	
Lap5	00:46.862 (+00:01.464)	00:13.182 (+01.620)	00:24.318 (+01.714)	00:29.324 (+01.788)	00:33.833 (+01.868)	00:46.862 (+01.464)	
Lap5(best)	00:45.858	00:11.783 (+00.871)	00:22.661	00:27.768	00:32.118	00:45.858	
Lap7	00:45.548 (+00:00.511)	00:12.388 (+00.837)	00:23.283 (+00.882)	00:28.888 (+00.788)	00:33.837 (+00.898)	00:45.548 (+00.511)	
Lap8	00:46.727 (+00:01.668)	00:11.652	00:23.381 (+00.888)	00:28.478 (+00.888)	00:33.181 (+01.632)	00:46.727 (+01.668)	

### Point Current Speed View

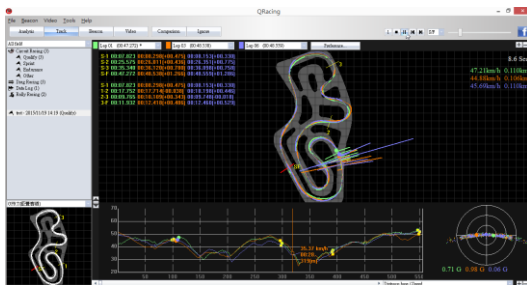
Point Current Speed View							
Lap	Time (Diff)	1 (Diff)	2 (Diff)	3 (Diff)	4 (Diff)	F (Diff)	
Lap1	00:58.431 (+00:13.390)	36.44 km/h (-13.13)	24.14 km/h (-9.75)	32.07 km/h (-15.43)	45.14 km/h (-11.46)	13.82 km/h (-8.52)	
Lap2	00:51.100 (+00:06.062)	41.45 km/h (-8.12)	31.74 km/h (-2.15)	41.18 km/h (-6.32)	53.85 km/h (-2.75)	14.60 km/h (-7.74)	
Lap3	00:47.884 (+00:02.646)	42.59 km/h (-6.98)	33.22 km/h (-6.67)	43.03 km/h (-4.47)	54.52 km/h (-2.08)	20.31 km/h (-2.03)	
Lap4	00:47.877 (+00:02.638)	43.47 km/h (-6.10)	31.69 km/h (-2.20)	43.04 km/h (-4.45)	53.38 km/h (-3.24)	22.34 km/h	
Lap5	00:46.862 (+00:01.464)	46.75 km/h (-2.82)	33.89 km/h	47.50 km/h	56.60 km/h	18.98 km/h (-4.26)	
Lap5(best)	00:45.858	49.57 km/h	33.37 km/h (-0.52)	47.02 km/h (-0.48)	55.56 km/h (-1.04)	16.86 km/h (-5.48)	
Lap7	00:45.548 (+00:00.511)	48.49 km/h (-1.08)	33.44 km/h (-0.45)	46.41 km/h (-1.09)	54.31 km/h (-2.29)	20.83 km/h (-1.51)	
Lap8	00:46.727 (+00:01.668)	49.36 km/h (-0.21)	30.48 km/h (-3.43)	46.11 km/h (-1.39)	54.33 km/h (-2.27)	19.52 km/h (-2.82)	

### K-4. Track-Map view

- In Track page, you can select three laps for showing and compare the data. You can also compare the laps by line graph with Distance-base or Time-base.

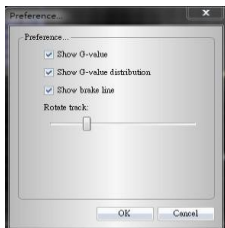


- Qracing will display the vehicle's braking zone with a thick line and acceleration zone with a thinner line; which can be beneficial for driver to improve their lap times. Click the play button on the status bar. It can replay the selected 3 laps and display the racing information by time and speed simultaneously.



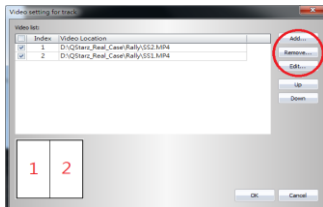
## K-5. Preference Setting

- In the Menu > Tool > Preference or click on the Preference button on Track page will allow user to select their preference setting when playing the track.



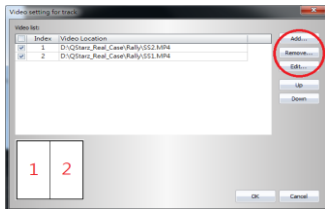
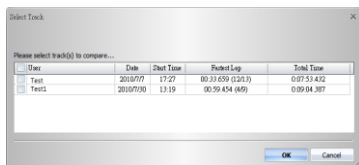
## K-6. Video

- QRacing can sync the racing video with the track. In Video page; click on the button “Set video for track...” the video setting dialog will pop out. You can add, remove and edit the videos.



## K-7. Compare with other users

- Click on “Comparison”, you can choose tracks belong to the same racing type (Circuit, Drag or Rally racing) and compare with other user’s track.



- \*For detailed instructions, please refer to QRacing's user manual attached with the software.
- \*View product video tutorial at: <https://www.youtube.com/user/QstarzInternational>
- \*Follow Qstarz GPS Lap timer Facebook page at <https://www.facebook.com/QstarzGPSLapTimer/?fref=ts>

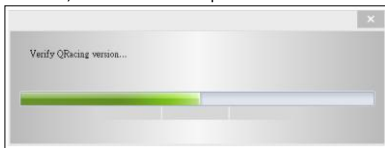
## ■ L. Register your product

Register your Qstarz product to get the latest news, software update, event, and product information.

<http://www.qstarz.com/reg.php>

## ■ M. Update the Software:

Bundled QRacing software supports **Auto update** function. Each time you open QRacing software with internet connection on your computer; it will check and update software version, QRacing trackmap, 6000S firmware, and 6000S AutoMap to the latest version automatically. Strongly recommend to update it regularly.



Or you can go to Qstarz download page to check latest software reversion history.

<http://racing.qstarz.com/>



## ■ N. Frequently asked Questions

### 1. Why is my unit not receiving a satellite signal?

-Although the 6000S will normally pick up a satellite signal within 1-2 minutes after powering on the device, it may take longer time if you are in an area with more geographic obstructions.

Please make sure you have placed it in a position that has clear view to the sky and not obstructed by metal objects.

### 2. My 6000S crashed. How can I make get it back to normal status?

-You can find the Reset button beside USB connector, a small hole which can be pressed by pen tip or pin to reset your device. (Hard reset will shut down the device without erasing the memory data.)

### 3. I have set up my Start/Finish line, but it does not show any lap times?

-Please make sure the unit is mounted vertically straight as possible to your car's windshield and you have driven a complete lap around passed the Start/Finish line.

### 4. How long is the battery life of 6000S?

Depending on how you are using the unit, your average battery life will be 8 ~10 hours. Using the device in a poor environment, having the backlight always on will decrease battery life.

### 5. Once I skip the tip how to enable it again?

Go to **Setting >> Tip**, set Tip to **OFF** and then set Tip to **ON** again

# Warranty Card

**Thank you for choosing Qstarz product, Our products are warranted under normal non commercial, personal use, against defective materials as follows:**

- A.** Qstarz warrants this product and provides 12 months free warranty from date of purchase. We reserve the right to charge a handling fee if a returned product is found not to be under the warranty. Proof of purchases is required.
- B.** This limited warranty covers all defects encountered in normal use of the product and does not apply in the following cases:
1. Loss or damage to the product due to abuse, mishandling, accident, improper maintenance or failure to follow instructions.
  2. If the product is defective as a result of sand, dirt or water damage.
  3. Product accessories damage.
- C.** The warranty card is only valid through authorized retailer only.

\* Please go to Qstarz website for product registration. It takes only a couple of minutes and allows you to stay informed about the latest news, updating software, and product information.

Model No.:

\_\_\_\_\_

Product Serial Number:

\_\_\_\_\_

Purchasing Date:

\_\_\_\_ (yy) \_\_\_\_ (mm) \_\_\_\_ (dd)

Dealer

\_\_\_\_\_

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