QSTARZ
Racing Club

LT-Q6000

GPS Lap Timer Color
Quick Start Guide

English ● 繁體中文

LT-Q6000 GPS Lap Timer COLOR User's Guide

■ A. LT-Q6000 Package Contents:

1) QSTARZ LT-Q6000 unit
2) Device mounting bracket
3) Mini USB cable
4) Car charger
5) Software CD
6) User's Guide
7) Exclusive Sticker + Warranty card
8) LT-Q6000 protective case (Optional)
9) Car windscreen mount kit or Motorcycle mount kit (Optional)

(1)   (2)   (3)   (4)

(5)   (6)   (7)   (8) optional
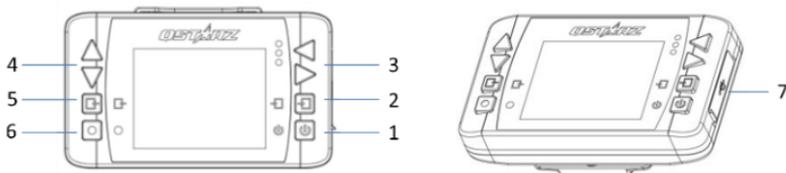
Main functions:

- eXtreme 10Hz Log to record 10 times per second
- Real-time perform and display Lap Timing analysis
- 2.4" True color and wide display to illustrate racing data precisely
- Real time Lap/Spilt/Sector Comparison
- Multi-Function Device – Lap Timer and GPS Logger
- Start-Run by Push-and-Go, Timer, or Auto Trigger
- Diversified Drag Race modes selected by speed/distance and kph/mph
- Flexible Circuit Race selected by Lap with splits or Simple Lap
- Performance Test On-the-Go
- Large memory capacity never worry full memory
- History database well organized as Calendar and table type for easily review
- Flexible Track Manager – On-Device created to User track, and QRacing Sync to Shared track
- G-force meter to plot G-force status
- Smart speedometer to show real-time speed information
- Device configurable such as unit, backlight, brightness, time zone, or time format

Specifications:

- Adopt MTK II chipset with high sensitivity -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)
- Including 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 inside
- 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
- 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
- Firmware upgradable
- Environment temperature- Operation: -10℃ to +60℃ / Storage: -20℃ to +60℃ / Charging: 0℃ to +45℃
- Device Dimension (LxWxH): 100 x 59 x 28mm / Weight: 107 grams (Mounting bracket excluded)

■ **B. Appearance**

Name	Icon	Function
1. Power button	$\bigcup$	● Press for 3 seconds to power on or power off LT-Q6000 ● Press to return to Main Menu when device is on
2. Enter/Set button	$\rightarrow$	Press to confirm the options selection
3. Left/Right Navigation button	$\blacklozenge\blacktriangleright$	Press to switch among different options

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 log
7. -Mini USB port -Reset button		• For Charging device • For Data download to PC • For Firmware Upgrade

■ C. Icon definition

Icon	Description	Icon	Description
▒	GPS is not connected, searching for GPS signals	▥	Battery full
▒	GPS is connected with 2D fix	▭	Low battery (less than 15% battery time) (Red color)
▒	GPS is connected with 3D fix	▭	Low battery (less than 5% battery time) (Red color)
!	GPS engine close (Red color)	✎	Device is logging (Green color) Device is not logging (Red color)
▤	Drag Race Mode	▨	Circuit Race Mode
▣	GPS logger Mode	▥	History Mode
▣	Application Mode	✖	Setting Mode

■   D. LED Signal definition

LED	Red	1. When the memory is full or fail to read/write memory, the Red LED will flash once per 3 seconds. 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 for alert.
	Orange	When device is under charging mode, the Orange LED will be steady ON. When device battery is fully charged, the Orange LED will be OFF.
	Green	When device is under Screen power saving mode (backlight off), Green LED will flash once per 3 seconds.

■   E. Safety Notice

Note: Please read this section carefully before start operating the LT-Q6000.

- Keep the LT-Q6000 far from heat or high temperature environment. We recommend not to expose your LT-Q6000 in temperature higher than 145℉/60℃ 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 close. Do not use harsh cleaning solvents, chemicals, or strong detergents.
- Do not attempt to open LT-Q6000 by yourself. Unauthorized hacking may damage the unit, and void your warranty.

■ F. Charging LT-Q6000

Please charge the battery fully before the first use.

LT-Q6000 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) | (2) | (3) |

- Q6000 mounting bracket with provided screw.
- Lining up the bracket with the screw hole.
- Secure the mounting bracket in place with the provided screw.

■   H. Mounting the LT-Q6000 in the vehicle

1.   Locate the area on the vehicle windshield where you want to mount the LT-Q6000.

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 LT-Q6000 is installed as straight and vertical as possible. So the internal 3-axis G-Force sensor is able to perform more accurately.

■ I. Getting Started

To power on your unit, press and hold the power button for 3 seconds until it turns on. A startup screen will prompt to indicate system is loading for a few seconds, and then you will see the **Main Menu** screen.

Main Menu is contained Six (6) Operation Modes:

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

Select one of Operation Modes to execute required function.

Startup screen
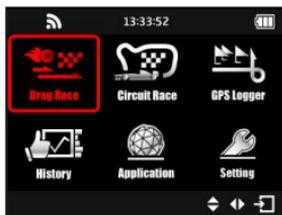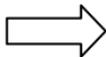
Main Menu

LT-Q6000 is for outdoor use; an open sky outdoor environment will enable faster satellite acquisition and provide better positioning accuracy. If GPS is not 3D fixed, a **"Waiting for GPS Signal…"** screen will be prompt to notice that now you are unable to start race.

I-1. Drag Race mode ⊟

The Drag race mode allows you to measure your vehicle's acceleration by Speed or Distance with various different tests.

> **Session Name:** The system will automatically create the session name with **YYMMDDXX** format.

> **Session Type:** User may select to measure by Speed or Distance Racing type.

> **Racing type:**

>> **-By Speed:** Select from pre-defined tests (0-30mph, 0-60mph, 0-100mph) or you can create your own test by selecting "Create".

>> **-By Distance:** Select from pre-defined (1/16mile, 1/8mile, 1/4mile, 1mile) or you can create your own test by selecting "Create".

>> *Measurement Unit can be switched between Metric or Imperial by Setting Mode.

> **Start trigger:** Select the Start trigger mode (Push&Go, Timer (3 secs), Timer (5 secs) or by G-sensor (3 secs).

> **Frequency:** Select GPS update rate (1Hz, 5Hz, or 10Hz).

> Press ● **button** to start timing and logging your run.

✧   **Run time screen for Drag race (tested with speed 0-60mph).**
 If you were going faster than best run, the run time will be shown in **Green background**.Or if you were going slower than best run, the run time will be shown in **Red background**. The timing difference between best run and current run will be shown at the bottom of the screen.

➢ Press ● = Next button to start next run or Press ⌐∓= Run Times button to view the Session's result:

➢ Press ● = Menu button, you can select to continue to **Next Run**, view your **Run Detail** or **Stop Session** to back to Main Menu.
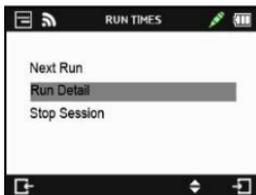
I-2. Circuit Race mode

In Circuit race mode, user can select two race types: **Lap with Splits** or **Simple Lap**.

- **Lap with Splits:** You will need either create a start/finish lines & split lines, or load a previously saved start/finish & split lines from the device memory. **(See How to setup Start/Finish and Split lines below)**

- **Simple Lap:** Just press the ● **button** to set up the Start/Finish line and ready to race.

  Note: Please drive forward 3 meters then set up the Start/Finsh line. This can increase the accuracy.

- **Beacon Width:** Beacon is commonly referred to as the virtual start, finish and split lines. The default beacon width is set to 30 meters (15m 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.

✧   **How to setup Start/Finish and Split lines?**

1. By driving slowly (at least 25 mph) 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 add for each track)
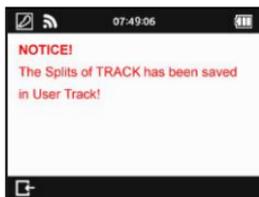
3. Press ⬦=Finish **button** to finish creating the Start/Finish and Splits lines. The Track will be saved automatically in the memory of **Q6000/BEACON/USER** folder once finished; you can re-load it later or share it with other users.

4. Press ⬤ **button** to start logging and timing your lap.

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, Split lines then upload them to LT-Q6000 for race (Please see J-2 Edit Beacon).

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

For Lap with Splits, if you were passing spilt and going faster than the same spilt of best 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**.

➢ Press **☐ = Stop** button to Stop the race and view this Session's each Lap Time result.

➢ Press **● = Menu** button and select **Display mode** to analyze your session lap in details:
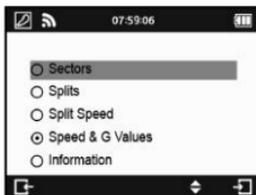
- **Sectors:** The time from one split point to the next split point. Press the ◆▶ **button** to navigate and view each sector's time.

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

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

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

Lap	Vmax (mph)	+/−
Opt	155.314	−0.000
1	145.020	−10.294
2	125.783	−29.530
3	155.314	−0.000

Lap	Vmin (mph)	+/−
Opt	6.336	−0.000
1	11.089	+4.752
2	12.372	+6.036
3	6.336	−0.000
4	10.019	+3.682

Lap	Gmax	+/−
Opt	0.000	−0.765
1	0.577	−0.188
2	0.845	+0.080
3	0.765	−0.000

I-3. GPS logger mode

You can also use LT-Q6000 as a GPS Data logger to record your travel route.

- ➢ Log name: The system will automatically create the Log name with **YYMMDDXX** format.
- ➢ Frequency: 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).
- ➢ Press ● **button** to start logging.

Note: If log frequency is set to 5Hz or 10Hz, distance and speed criteria will be disable.

I-4. History Mode 📊

You can review all the data recorded with LT-Q6000 in History mode. When the calendar day shows up in Red , it means there's racing record. Or you may review by Track name with Circuit race mode only.
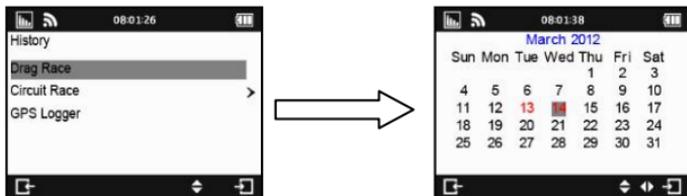
> Press ●=**Menu Button** can view the selected session's **Run (Lap) Times**, **Property**, **Delete** session or **Export** track. Track export file format can be selected with KML, CSV or GPX file. After track export succeeded, the exported file can be found on the device memory of the **Q6000\Exports** folder.
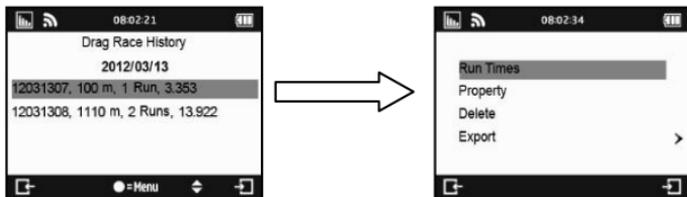
I-5. Application Mode 📱

In Application mode, you will be able to perform LT-Q6000 as a Speedometer or G-meter. And also you can view device's current GPS signal status and perform the Cold start function.

◆ **Speedometer:**

The speedometer can display your current driving speed in real-time, Max speed and Trip time traveled. And it additionally has an over speed alarm function. When the vehicle exceeds the setting speed, driving speed will be shown in red and device will make beeping sound to warn the driver.
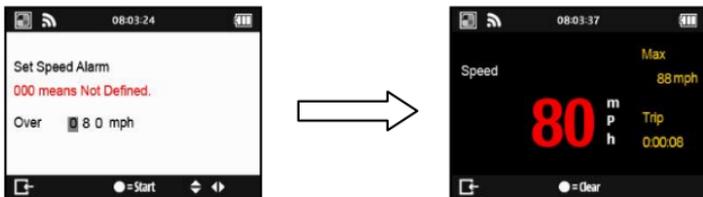
◆ **G-Meter:**

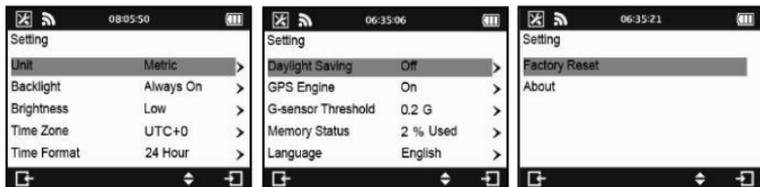G-Meter uses Q6000's built in 3-axial accelerometers to provide accurate real-time G-force results with graphics.

◆ **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.

I-6. 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.

🛠 🔰 08:05:50 🔋			🛠 🔰 06:35:06 🔋			🛠 🔰 06:35:21 🔋	
Setting			Setting			Setting	
Unit	Metric	>	Daylight Saving	Off	>	Factory Reset	
Backlight	Always On	>	GPS Engine	On	>	About	
Brightness	Low	>	G-sensor Threshold	0.2 G	>		
Time Zone	UTC+0	>	Memory Status	2 % Used	>		
Time Format	24 Hour	>	Language	English	>		
⬑	⬍	⤶	⬑	⬍	⤶	⬑	⬍ ⤶

✧ **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.

✧ **GPS Engine:** Regular use of GPS positioning will increase battery consumption. You may turn off the GPS engine when not in racing to save battery power.

✧ **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 0.2G.

✧ **Language:** Select the desired language and press **Enter** Button, and wait until the language loading is completed. Please make sure the battery is at least 80% and do not turn off or press the reset button while loading the language.

✧

■ J. Upgrading Firmware

Qstarz will frequently update the firmware to provide new features and bugs fix; it is advisable to visit Qstarz website (http://www.qstarz.com/download.php) regularly for firmware updates. 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. LT-Q6000 will enter into **USB ACCESS MODE** automatically.

Step2. Extract the downloaded firmware file **Q6000.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 is at least 80% full before updating your firmware.
Caution 2: Do not press the reset button while updating the firmware.

■ K. Data Download and Data Analysis

LT-Q6000 comes with dual software (**QRacing™** and **QTravel™**) inside the package.
-**QRacing™** lap timing analysis software allows you to download and analyze the data stored in LT-Q6000. You can manage your racing tracks as database structure and analyze with graph statistics.

K-1. Import data from Q6000.

● Install QRacing software from Qstarz software CD. Input product key at first time use. **(The product key is located in the envelope of the software CD)**

● "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
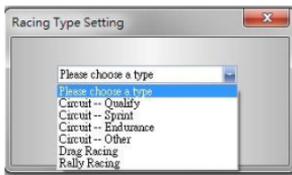
- Select the session to import

- If you haven't loaded the beacon previously, QRacing will ask you to edit beacon. Click "Yes" and will load the beacon from Q6000, or you may click "Cancel" to edit the beacon by you.

Note: Once loading beacon from Q6000, 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 Q6000.

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 Q6000 device by clicking on **Beacon Export >> Export Beacon to Q6000.** You can then load the exported track in LT-Q6000 **Ciruit Race mode >> Track Name >> Load Shared Track** later on for race**.**
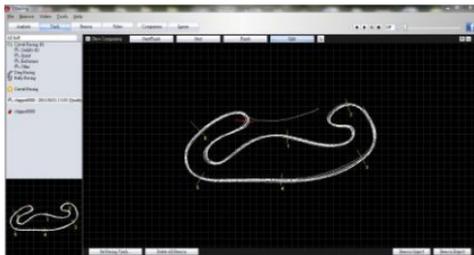
K-3. Analyze Data

● 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.

Lap	Time (Diff)	Max Speed (Diff)	Min Speed (Diff)	Average Speed (Diff)	Distance
Lap1	00:58 431 (+00:13 393)	47.63 km/h (-10.34)	12.49 km/h (-4.67)	30.81 km/h (-8.88)	496.42 m
Lap2	00:51 100 (+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	00:47 884 (+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 (+00:02 839)	55.20 km/h (-2.77)	16.02 km/h (-1.14)	38.18 km/h (-1.51)	498.52 m
Lap5	00:46 502 (+00:01 464)	57.97 km/h	17.16 km/h	38.93 km/h (-0.76)	497.40 m
Lap6(best)	00:45 038	57.22 km/h (-0.75)	16.86 km/h (-0.30)	39.45 km/h (-0.24)	493.10 m
Lap7	00:45 549 (+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 (+00:01 689)	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

Avg/Max/Min Speed View

Sector View

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

Spilt View (Cumulative)

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

Point Current Speed View

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.
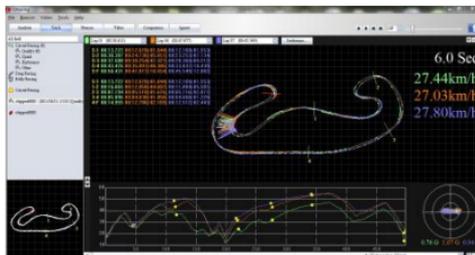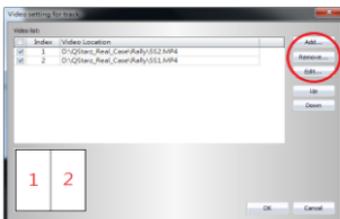
K-5. Preference Setting

● 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.
*Or visit our online tutorial video at: http://www.qstarz.com/Products/Software%20Products/QRacingVideo.html

-QTravel™ supports Geo-tagging function with build-in Google map, you can easily import and export you can also share routes from your favorite trips with friends and family.

■ 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:

Please always go to Qstarz download page to check if there is any latest software update.
http://www.qstarz.com/download.php

■   N. Frequently asked Questions

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

- Although the LT-Q6000 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 LT-Q6000 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 not erase 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 LT-Q6000?

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.

LT-Q6000 極速計時器 使用手冊

■ A. 盒裝標準配備:

1) QSTARZ LT-Q6000 本體機器
2) 車架轉接板
3) Mini USB 充電傳輸線
4) 車用充電器
5) 原廠光碟
6) 使用說明書
7) 專屬貼紙 + 保固卡
8) LT-Q6000 精美硬殼保護套(選配)
9) 吸盤式車架或摩托車架 (選配)

(1)
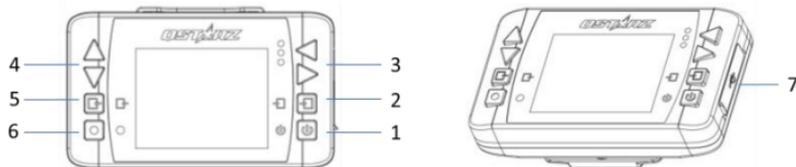
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(8)選配

主要功能:

- 高速率每秒 10 筆紀錄(10Hz Log)提供高精準度計錄和計時
- 即時記錄和分析多樣化和各種類賽道資訊
- 2.4 吋彩色液晶螢幕即時顯示準確的賽事資料
- 即時單圈/分段/區段資料的比較分析
- 多功能設計 - 直線加速、圈賽和 GPS 旅程記錄
- 起跑機制可依需求設定倒數啟動、隨便即行或重力加速器感應啟動之多種機制
- 內建各類型直線加速計時模式(可設定測試速度/距離或是新增自建，和公制/英制切換)
- 圈賽計時可依環境或需要選擇簡易圈賽計時或分段圈賽計時模式
- 可應用於車輛性能測試作為車輛調校之參考
- 超大記憶體容量，完全不用擔心您的賽車記錄無法記錄
- 可隨時瀏覽和分析歷史資料庫資料
- 簡單易用賽道資訊管理器– 可在機器上直接新增自建賽道或是使用賽道資料庫
- 支援 G 值表功能，可即時顯示重力加速器 G 力狀態
- 支援車速表功能，可即時顯示車速狀態
- 可在裝置上自行調整單位、背光、亮度、時區與時間格式

.

產品規格:

- 採用新一代 MTKⅡ 晶片，高靈敏度-165dBm 可同時搜尋 66 顆衛星
- 6 萬 5 千色 2.4 吋 (320x240) 彩色液晶顯示器
- 低功耗設計，使用時間可達 10 小時 (LCD 背光開啟時)
- 高速率每秒 10 筆紀錄(10Hz Log)提供高精準度計錄和計時(0.1 秒紀錄一點)
- 8 個功能按鍵 – 4 個方向鍵、返回鍵、確認鍵、多功能鍵與電源鍵

- 3 顆 LED 燈可顯示產品狀況– 綠色顯示省電模式、橘色顯示充電狀態、紅色顯示警示訊息
- 內建 3 軸重力加速器，隨時感應和測量 G 力狀態(每秒感應 20 次，最大感應範圍±3G)
- 內建超大記憶體容量
- 機器連接電腦辨識隨插即用，並可配合 QRacing 軟體使用，快速擷取資料
- 內建蜂鳴器以聲響即時告知機器狀態
- IPX-3 防潑水精美外型設計
- 自動更新 AGPS，暖開機只要 15 秒即可快速定位
- Mini-USB 介面可供充電、資料下載與韌體更新
- 支援韌體更新和升級
- 環境溫度: 工作溫度: -10℃~+60℃ / 儲存溫度: -20~+60℃ / 充電溫度: 0℃~ +45℃
- 產品尺寸(長 x 寬 x 高): 100 x 59 x 28mm / 重量: 107 公克(不含車架轉接板)

■ B.外觀

名稱	按鍵圖示	功能
1. 電源鍵	⏻	● 長按三秒可以將 LT-Q6000 開機或關機. ● 回到主畫面(在開機狀態下)
2. 確認/設定鍵	⇥	確認所選取的選項

3. 左/右方向瀏覽鍵	◀▶	在選單中左右調整不同的項目
4. 上/下方向瀏覽鍵	♦	在選單中上下調整不同項目
5. 返回/取消鍵	⤷	按下此鍵可返回前一畫面或取消所選擇的項目
6. 多功能鍵:	●	執行啟動，開始賽車並記錄
7. -Mini USB 孔 　-重置孔		● 充電 ● 下載資料到電腦 ● 韌體更新

■ C. 圖示定義

圖示	敘述	圖示	敘述
🛰	GPS 未定位，GPS 訊號搜尋中	🔋	電池已滿
🛰	GPS 2D 定位	🔋	低電量 (電量低於 15%) (紅色)
🛰	GPS 3D 定位	🔋	電量即將耗盡(電量低於 5%) (紅色)
!	GPS 引擎關閉中 (紅色)	✏	GPS 紀錄中(綠色) GPS 未紀錄(紅色)
☰	直線加速	🖉	圈賽
⏻	軌跡紀錄	📊	歷史紀錄
🖥	應用程式	🛠	設定

■ D. LED 指示燈

LED	紅色	3. 當記憶體已滿或讀取記憶體時發生錯誤，紅色 LED 會每秒閃爍三次 4. 當電池電量剩下 15% 時，紅色 LED 會每秒閃爍三次；當電池電量小於 5% 時，紅色 LED 則會恆亮作為警示
	橘色	1. 裝置充電時，橘色 LED 會恆亮 2. 電池充飽時，橘色 LED 會熄滅
	綠色	當裝置在省電模式時(即背光關閉)，綠色 LED 會每 3 秒閃爍 1 次.

■ E. 安全須知

注意：使用之前請先詳細閱讀下列的安全須知。

- 請保持產品遠離熱源或高溫的環境。我們建議您不要曝露您的 LT-Q6000 在溫度高於 60°C 的環境，以防止過熱、爆炸或外殼熔化。

- 當不需使用或離開車子時，請將本產品收藏在車子置物櫃內。如果車內溫度太高，非常可能會造成產品故障/損壞。

- 為了減少發生火災或觸電風險，請勿將本產品曝露在雨中或潮濕的地方使用。

- 為了您的安全，請勿將本產品安裝在會妨礙到駕駛操控的位置(如靠近排檔桿或煞車踏板等)。

- 本公司對因未遵守本使用說明書而引起的任何損壞不承擔任何責任。

- 請使用柔軟、清潔和乾燥的布來清潔產品表面。請勿使用刺激性的化學製品、清潔溶劑或腐蝕性的清潔劑來清潔產品。

- 請勿嘗試自行拆裝本產品，若有自行打開或拆除蓋板之事發生，則本產品之保固將隨即失效。

■ F. 為電池充電

第一次使用時請將電池充滿電以延長電池使用壽命。

LT-Q6000 內建專用充電式鋰電池,可透過 USB 介面從電腦或汽車點菸器插頭進行充電。關機時的充電時間約 5 小時,開機充電時間則是約 10 小時,充滿電後機器可連續使用約 10 小時。

注意:勿連續充電超過 12 小時,以避免對機器及電池造成損壞,同時為了安全起見,電池會在電池過熱時停止充電。

■ G. 安裝車架轉接板

(1)   (2)   (3)

- LT-Q6000 盒裝內含有螺絲和車架轉接板
- 將車架轉接板對齊 LT-Q6000 背面上的螺絲
- 以螺絲起子將車架轉接板和 LT-Q6000 固定住

■ H. 將 LT-Q6000 安裝於車輛上

1. 將 LT-Q6000 安裝於車輛擋風玻璃任一處,將吸盤固定到玻璃上後,將卡榫朝吸盤方向施力並壓到底固定。

注意: 請先用酒精或擦拭布將擋風玻璃擦拭乾淨後再裝上吸盤式車架與機器。

2.   將車架轉接板固定在吸盤式車架上。

3. 固定機器時請確認 LT-Q6000 垂直且保持直立以使內部 3 軸動力感測器達到最佳效能。
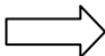

■ I. 開始使用

請長按「電源」按鍵三秒以開啟機器，顯示開機畫面後即會進入主選單。
主選單包含六個操作模式：
  1. **直線加速**
  2. **圈賽**
  3. **軌跡紀錄**
  4. **歷史紀錄**
  5. **應用程式**
  6. **設定**

選擇到某一模式時，該模式會以紅色呈現。

開機畫面

主選單

LT-Q6000 需要在室外環境使用，在空曠的戶外環境中可以加速 GPS 衛星的定位時間且提供更準確的定位資訊。當機器尚未 **3D 衛星定位**時，您無法使用賽車計時功能，螢幕將會顯示「**搜尋 GPS 衛星訊號中...**」。

I-1. **直線加速模式** ☰

直線加速功能可以透過「速度」或「距離」條件的設定來進行您車輛的加速性能測試。

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☰ ⋙	PM 04:37:26	☐
直線加速		
場次編號	12022911	
場次型式	速度	›
計時條件	0-60 km/h	›
起跑方式	隨按即行	›
記錄頻率	10Hz	›
⤷	●=開始	↕

- ➢ **場次編號：**系統將會依照 **YYMMDDXX** 的格式自動產生場次編號。
- ➢ **場次型式：**可自行選擇依照「速度」或「距離」進行計時。
- ➢ **計時條件：**
  - **-依照速度：** 可選擇內建的計時項目(0-60kph、0-100kph、0-200kph)或透過 "自建" 功能來自行設定計時條件。
  - **-依照距離：** 可選擇內建的計時項目(100m、200m、400m、1000m) 或透過 "自建" 功能來自行設定計時條件。

  *可從主選單的「**設定**」中調整公制或英制單位。
- ➢ **起跑方式：**可選擇不同的起跑方式 (隨按即行、3 秒倒數計時、5 秒倒數計時或動力感測器計時)。
- ➢ **記錄頻率：**可選擇不同的記錄頻率 (1Hz、5Hz 或 10Hz)。
- ➢ 按下 ● **按鍵**開始計時與紀錄。

✧ **直線加速即時顯示畫面(以速度條件 0-100kph 為例)**

當您行進當中，如果您當次成績快於最佳成績，畫面會以綠色背景顯示，並顯示當次成績與最佳成績的時間差異；如果當次成績慢於最佳成績，畫面會以紅色背景顯示；並顯示當次成績與最佳成績的時間差異。

➢ 按下 ●**=繼續 按鍵**開始計時下一趟或按下 ◄**=直線成績 按鍵**檢視計時結果:

➢ 按下 ●**=選單 按鍵**，可選擇計時下一趟、檢視單趟明細或結束場次回到主選單。

I-2. **圈賽模式**

圈賽可依環境選擇不同型式來計時：「分段圈賽計時」和「簡易圈賽計時」。

- 分段圈賽計時：您可選擇建立一個新的起/終點與分段點，或從裝置中載入先前已建立的起/終點與分段點。**(如何建立新的起/終點與分段點，請參考下面說明)**
- 簡易圈賽計時：只要按下 ● **按鍵**設定完成起/終點後便可開始起跑並記錄。

  注意：設定起/終點前，請將車輛緩慢前進 3 公尺再按下按鍵設定，以增加其準確性。
- 分段線寬度：分段線是用來設定虛擬的起/終點與分段點。預設的分段線寬度為 30 公尺寬(車輛左右各 15 公尺)且分段線會平行落在車軸的兩邊(如下圖)，你可以根據賽道寬度調整分段線的設定寬度。

✧ **如何建立新的起/終點與分段點?**

1. 請在慢速行駛中(至少時速 40 公里)選擇要設定為起/終點的位置，然後按下 ● **按鍵**進行設定。

2. 建立起/終點後便可繼續按下 ● **按鍵**來依序設定該圈的各個分段線。

(注意: 每個軌跡最多僅可以新增 25 個分段線)

3. 按下 ⤶=**完成 按鍵**來完成起/終點與分段點的設定。此軌跡將會自動儲存在記憶體中的 **Q6000/BEACON/USER** 目錄下，您之後可以重覆載入此一軌跡或將此軌跡分享給其他使用者。

4. 按下 ● **按鍵**開始計時與記錄。

注意 1:在設定起/終點時車輛必須是在行駛狀態中以獲得較精準的地理位置。

注意 2:某些情況下，若起/終點與分段點未在行駛中被正確記錄，使用者亦可以使用 QRacing 軟體來編輯起/終點與分段點再載入至 LT-Q6000 中(詳細見 k-2 編輯標記)。

✧　　**圈賽資訊顯示畫面(以分段圈賽計時模式為例)**

在分段圈賽計時模式中，當行進中每經過一個分段，如果您當次分段成績快於最佳成績之相同分段，畫面會以綠色背景顯示；如果成績慢於最佳成績之相同分段，畫面會以紅色背景顯示；並於畫面下方顯示當次分段成績與最佳成績之相同分段的時間差異。

➢　　按下 **▢←=停止 按鍵**結束場次並檢視這個場次的單圈與分段的時間。

➢　　按下 **●=選單 按鍵**，可選擇不同的顯示模式來檢視該場次的詳細分析資料。

- **Sector(區段):** 從前一個分段點到下一個分段點之間的區段時間。按下 ◀▶ **按鍵**來檢視各區段的時間資訊。

- **Split(分段):** 從起點到一個分段點的分段累計時間。按下 ◀▶ **按鍵**來檢視各個分段的時間資訊。

● **Split Speed**：經過分段點的瞬間速度。

● **Speed & G Value**：顯示該場次的最快/最慢/平均速度與最大 G 值

I-3. **軌跡紀錄模式** 　 ▣

LT-Q6000 也可做為一個 GPS 軟跡紀錄器來記錄旅程的軌跡和地理資訊。

> ➤ **軌跡編號**：系統將會依照 **YYMMDDXX** 格式建立一個軌跡編號。
> ➤ **記錄頻率**：選擇軌跡紀錄的記錄頻率 (1Hz、5Hz、10Hz 或自行定義每 0~99 秒紀錄一次)。
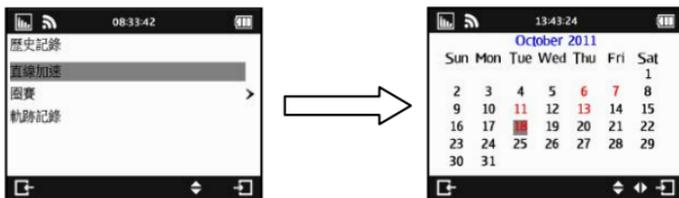> ➤ **距離**：選擇依照距離條件進行軌跡紀錄(每 0~9999 公尺紀錄一次)。

- ➢ **速度**：選擇依照速度條件進行軌跡紀錄(時速 0~999 公里紀錄一次)。
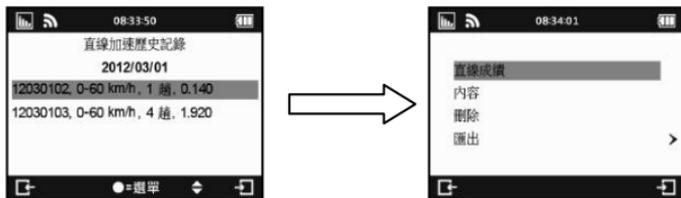- ➢ 按下 ● **按鍵**開始記錄軌跡。

備註：當記錄頻率設定為 5Hz 或 10Hz 時，距離及速度條件將自動取消無法選擇。

I-4. 歷史紀錄模式 📊

你可從歷史紀錄中查閱儲存在 LT-Q6000 裝置記憶體內的所有記錄資料。歷史記錄以萬年曆方式來呈現，月曆中的日期顯示為紅色時表示當天有紀錄資料，即可點選以檢視內容。你也可以從不同的賽道名稱來檢視歷史紀錄，但此僅支援圈賽資料。

> 按下 ●=**選單 按鍵**可檢視所選取場次的所有單趟或單圈成績、該場次的相關內容、刪除、或匯出該場次資料。支援匯出的格式有 KML、CSV 和 GPX 檔案格式，而匯出之後的檔案將會儲存在裝置記憶體內的 **Q6000\Exports** 資料夾中。
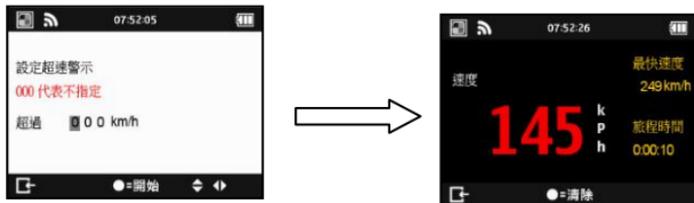
I-5. 應用程式模式 🔳

在應用程式模式中，您可以將 LT-Q6000 作為 GPS 速度表或 G 值表。您也可從應用程式中取得目前 GPS 訊號狀態以及將裝置冷啟動。

✧ **速度表:**
速度表可以即時顯示您行車的行駛速度、最高時速與旅程行駛時間。速度表另具備超速警示功能，當您的車速超過所設定的車速時，車速會顯示為紅色並發出聲響來提醒駕駛者。

✧ G 值表:

G 值表使用 LT-Q6000 內建的智慧動力感測器並用圖示的方式來提供準確的即時 G 值資訊。

✧ 將裝置冷啟動:

GPS 冷啟動功能會清除裝置 GPS 中舊的衛星資料。在一般操作模式下，關機時會將當次更新的衛星資料儲存在記憶體中，下次開機時會依照此衛星資訊進行定位的參考。因此在關機情況下且前後旅程距離超過 500 公里時，可透過冷啟動功能來重新更新衛星資料，以加快定位速度。

I-6. 設定模式

在**設定模式**中可以調整計時單位(公制/英制)、背光、亮度、時區、時間格式、日光節約時間、GPS功能、動力感測靈敏度、記憶體狀態、選擇顯示語言，恢復出廠設定或是看關於來了解機器版本。

✧ **記憶體狀態**: 顯示目前裝置記憶體的使用百分比。按下 ● **按鍵**可以清除所有記憶體內的資料，在作此動作前請確認已先完成備份資料。

✧ **GPS 功能: 當**裝置不需要計時時，可關閉 GPS 功能以節省電池的耗電。

✧ **動力感測器靈敏度:** 預設動力感測器靈敏度為 0.2G。當使用動力感測器來作動計時起跑時，配合你駕駛車輛種類的穩定度，您可在此調整動力感測器的靈敏度數值以達最適合狀態。

✧ **顯示語言: 可選擇切換英文，繁體中文或日文。選擇後按 Enter 按鍵，LT-Q6000 將會自動進行語系切換，切換語系前，請確認裝置有足夠的電量並請勿於語系切換中關機或按重置孔。**

■ J. 韌體更新

當本產品有增加新的功能或既有功能作修正時能提供韌體更新的服務，建議您經常造訪科思達網站下載最新的韌體(http://www.qstarz.com/download.php)。

您可以從 LT-Q6000 **設定 >> 關於**中得知目前的韌體版本，若您目前機器內的版本為舊版，請依照下列步驟進行韌體的更新：

步驟 1. 關機後將機器透過 USB 線連接到電腦上，LT-Q6000 會自動進入 **USB ACCESS MODE (USB 存取模式)**。

步驟 2. 將韌體檔案 **Q6000.qst** 解壓縮後，複製到裝置記憶體的根目錄。

步驟 3. 拔掉 USB 連接線後同時按下「**確認」按鍵**和「**電源」按鍵**直到螢幕上出現 "CHECK FILE" 畫面時，同時放開「**確認」按鍵**和「**電源」按鍵**，之後系統會開始更新韌體，更新完成後將會自動重新啟動機器。

注意 1: 更新韌體之前請確認電池電量不得少於二格，以維持更新時的穩定性。
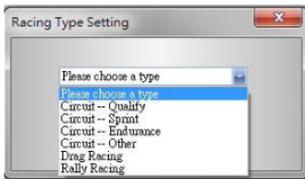**注意 2:** 更新韌體時請勿按重置孔，以免造成韌體更新失敗。

■ K. 資料下載與分析

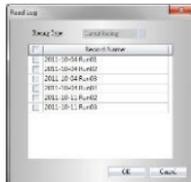在 LT-Q6000 包裝中附有兩套分析軟體 (**QRacing™** 和 **QTravel™**)

- **QRacing™** 賽道計時分析軟體可載入 LT-Q6000 中的資料加以分析，你可以透過資料庫的結構以圖表化的方式進行各種賽車種類之數據分析。

K-1. 從 LT-Q6000 載入資料

- 透過原廠光碟安裝 **QRacing™** 軟體，第一次使用需要輸入軟體認證序號(置於光碟封套內)
- 關機並將機器透過 USB 線連接到電腦
- 開啟 **QRacing™** 軟體
- 選擇 **主選單 > 檔案 > 讀取紀錄**

- 選擇您的賽車類型

- 選擇欲讀取的場次紀錄

● 讀取紀錄後 **QRacing™** 會問你是否要編輯標記(Beacon)，請點擊 "**確定**" 將 LT-Q6000 中標記匯入，或點擊 "**取消**" 來編輯一個新的標記。
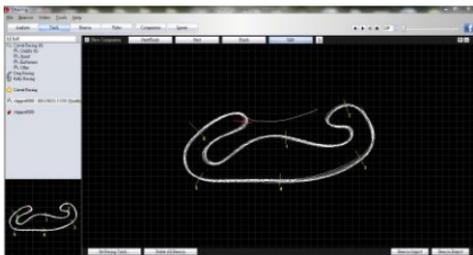

注意:當您從 LT-Q6000 載入標記後，QRacing 會將此一標記套用在各場次的相同賽道內。如果你想要請載入此賽道另一套新的標記，必須先從 QRacing 軟體標記頁面中的選擇"刪除所有標記" 後才能重新載入新的標記。

K-2. 編輯標記

● 如果你還沒有編輯這條賽道的標記，**QRacing™** 會問你是否要編輯標記。請到標記頁面編輯起/終點與分段點。
注意: 起/終點與分段點將會用紅色線作為辨識。

K-3. 資料分析

● 編輯或載入賽道標記後，即可以開始分析單圈資料。切換到分析頁面可以檢視及分析單圈成績，各項最佳成績會以**藍底**顯示。

Avg/Max/Min Speed View					
Lap	Time (Diff)	Max Speed (Diff)	Min Speed (Diff)	Average Speed (Diff)	Distance
Lap1	00:58.431 (+00:13.393)	47.63 km/h (-10.34)	12.49 km/h (-4.67)	30.81 km/h (-8.88)	496.42 m
Lap2	00:51.100 (+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	00:47.884 (+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 (+00:02.839)	55.20 km/h (-2.77)	16.02 km/h (-1.14)	38.18 km/h (-1.51)	498.52 m
Lap5	00:46.502 (+00:01.464)	57.97 km/h	17.16 km/h	38.93 km/h (-0.76)	497.40 m
Lap6(best)	00:45.038	57.22 km/h (-0.75)	16.85 km/h (-0.30)	39.45 km/h (-0.24)	493.10 m
Lap7	00:45.549 (+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 (+00:01.689)	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

區段檢視 (分段-到-分段)
區段 = 從前一個分段到下一個分段間的區段時間。

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 (+00:13.393)	00:13.722 (+02.090)	00:16.665 (+05.768)	00:07.194 (+02.244)	00:05.248 (+01.205)	00:14.599 (+02.443)
Lap2	00:51.100 (+00:06.062)	00:14.365 (+02.696)	00:12.418 (+01.018)	00:05.664 (+00.535)	00:04.948 (+00.331)	00:13.199 (+01.043)
Lap3	00:47.884 (+00:02.846)	00:13.252 (+01.550)	00:11.808 (+00.411)	00:05.183 (+00.233)	00:04.623 (+00.314)	00:12.179 (+00.266)
Lap4	00:47.877 (+00:02.839)	00:12.676 (+01.046)	00:12.056 (+01.196)	00:05.519 (+00.569)	00:04.238 (+00.220)	00:12.796 (+00.274)
Lap5	00:46.502 (+00:01.464)	00:13.152 (+01.530)	00:11.323 (+00.326)	00:04.949	00:12.569 (+00.167)	
Lap6(best)	00:45.038	00:11.703 (+00.071)	00:10.897	00:04.948 (+00.038)	00:04.549 (+00.046)	00:12.900 (+00.988)
Lap7	00:45.549 (+00:00.511)	00:12.169 (+00.537)	00:11.061 (+00.197)	00:05.110 (+00.187)	00:04.649 (+00.158)	00:12.612
Lap8	00:46.727 (+00:01.689)	00:11.632	00:11.899 (+00.771)	00:05.176 (+00.226)	00:04.591 (+00.181)	00:13.587 (+01.041)
Best Theoretical Time	00:44.588	00:11.632	00:10.897	00:04.949	00:04.509	00:12.612
Best Rolling Time	00:44.728	00:11.703	00:10.897	00:04.949	00:04.509	00:12.569

分段檢視 (起始-到-分段)
分段 = 從起點到一個分段點的累計時間。

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 (+00:13.393)	00:13.722 (+02.090)	00:30.387 (+07.785)	00:37.580 (+09.992)	00:43.476 (+11.338)	00:58.431 (+13.393)
Lap2	00:51.100 (+00:06.062)	00:14.365 (+02.696)	00:26.715 (+04.115)	00:32.390 (+04.711)	00:37.146 (+05.052)	00:51.100 (+06.062)
Lap3	00:47.884 (+00:02.846)	00:13.252 (+01.550)	00:25.100 (+02.499)	00:30.263 (+02.594)	00:35.106 (+02.966)	00:47.884 (+02.846)
Lap4	00:47.877 (+00:02.839)	00:12.676 (+01.046)	00:24.758 (+02.135)	00:30.264 (+02.666)	00:35.061 (+02.954)	00:47.877 (+02.839)
Lap5	00:46.502 (+00:01.464)	00:13.152 (+01.520)	00:24.375 (+01.774)	00:29.324 (+01.726)	00:33.933 (+01.896)	00:46.502 (+01.464)
Lap6(best)	00:45.038	00:11.703 (+00.071)	00:22.601	00:27.569	00:32.138	00:45.038
Lap7	00:45.549 (+00:00.511)	00:12.169 (+00.537)	00:23.263 (+00.662)	00:28.369 (+00.780)	00:33.037 (+00.899)	00:45.549 (+00.511)
Lap8	00:46.727 (+00:01.689)	00:11.632	00:23.301 (+00.700)	00:28.479 (+00.909)	00:33.199 (+01.032)	00:46.727 (+01.689)

分段點速度查看

K-4. 賽道檢視

● 在賽道頁面,你可以選擇任何三個賽圈來顯示和比較數據,或用下方曲線圖表分析時間/速度/加速度/距離之間的變化。
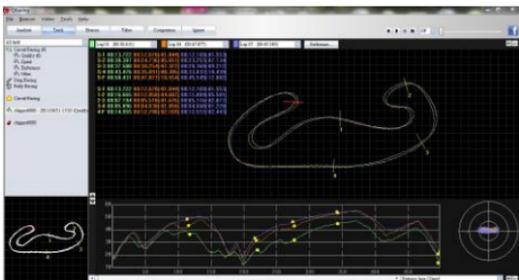
● **QRacing™** 會以粗線和細線的線條來顯示車輛的加速及煞車的動作。粗線代表煞車,細線代表加速,此資訊有助於駕駛者提升單圈成績。點擊狀態列上的播放選項時,軟體會播放所選取的三個單圈並且同時顯示時間、速度和 G 力的變化狀況。
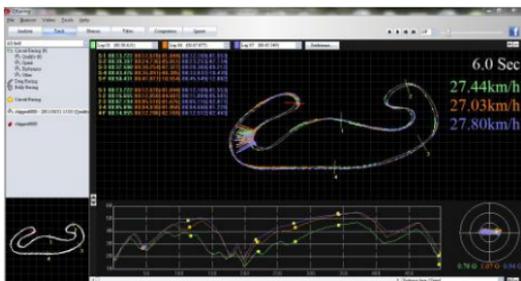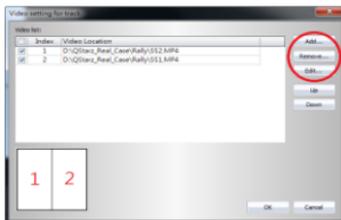
K-5. 顯示設定

● 從**主選單** >**工具** > **顯示設定** 中或點擊軌跡頁面的顯示設定選單皆可自行選擇播放軌跡時的顯示設定。
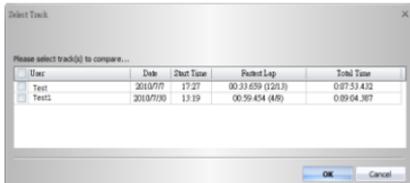

K-6. 影像整合

● QRacing™ 能自動將軌跡與影像整合同步的功能。在影像頁面中，點擊 "**設定軌跡影像**" 會跳出軌跡影片設定的視窗，你可以選擇新增、移除或編輯影像。

K-7. 與其他車手比較

- 點擊 "**比較**" ，你可以選擇屬於同一類型的賽車軌跡（圈賽、直線加速或拉力賽車），並與其他車手的軌跡來作比較。

*更多資訊請參閱 QRacing™ 軟體光碟中的使用手冊或瀏覽我們官網上的線上教學影片

  http://www.qstarz.com/Products/Software%20Products/QRacingVideo.html

 -**QTravel™** 支援透過內建 Google 地圖進行相片位置標記的功能，你可以輕鬆的匯入與匯出您的軌跡並將你最喜愛的軌跡分享給您的朋友與家人。

■　L.註冊您的產品

請註冊您的產品以獲得最新消息、軟體更新與產品資訊。
http://www.qstarz.com/reg.php

■　M.軟體更新

請經常造訪科思達下載中心下載最新版的軟體。
http://www.qstarz.com/download.php

■　N. 疑難排解

1. 為何我的機器一直無法接收到衛星訊號?

-雖然在開機 1~2 分鐘後 LT-Q6000 就會自動接收衛星資料並完成定位，但在高樓密集與茂密森林的環境中可能要花上更長的時間。請務必確認將機器放置在空曠的室外環境中並遠離金屬物件。

2. 我的 LT-Q6000 當機，如何使它恢復正常運作?

-在 USB 連接插孔旁有一個硬體重置孔，可透過筆尖或針頭按壓後進行硬體重置。(硬體重置並不會刪除記憶體內的資料)

3. 我的 LT-Q6000 已設定起/終點，但卻無法顯示單圈時間?

-請務必確認將機器垂直安裝於車輛擋風玻璃上，並已確實跑完該圈並且通過起/終點。(請參考使用手冊 H 部分-安裝 LT-Q6000 於車輛上)

3. LT-Q6000 的電池可使用時間?

-電池使用時間將視使用方式而定，平均電池使用時間約 8~10 小時。在 GPS 訊號微弱處使用與調整背光亮度皆會影響電池的可使用時間。