GT

User's Guide

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1. Introduction

GT measures your car's performance (top speed and acceleration for 0-100 km/h and 0-400 m, or for 0-60 mph and quarter mile, or for any given speed range and distance). GT is also useful for navigation, giving direction and distance to any set destination. GT runs on S60 mobile phones and requires a Bluetooth GPS receiver. This guide applies also to GTi and GTx, which are versions of GT for S60 2nd and 3rd edition phones.

2. Safety and Legal Notices

Obey all laws and speed limits when using GT. Use GT for performance measurements only in designated areas, not on streets or highways.

Keep your eyes on the road. GT records acceleration and speed results automatically for viewing after the run.

Accuracy of results given by GT is based on the accuracies of the GPS system and the GPS receiver, and may vary from time to time and from place to place.

Tempes shall not be held liable in any way for any incidental or consequential damages to the vehicle, driver, passengers, and/or other involved parties or property occurring while using GT.

3. Quick Start Guide

Download the free GT (or GTi or GTx, see chapter 4) demo version from www.tempes.com/download and install it on your S60 phone. See chapter 6 for details. Demo version lacks certain features, e.g. acceleration measurement and short-distance navigation.

Pair and bond your phone with your Bluetooth GPS receiver, if you have not done it before. See chapter 7 for details.

Change units from km/h (default) to mph if required [Options / Setup, see also chapter 8].

GT has three views. Switch views with left and right keys. VROOM! view is for performance measurements. GOTO view is for navigation. DATA view shows basic GPS data. See chapter 7 for details. See chapter 8 for a description of menu items and chapter 9 for a description of status messages. Note that display backlight is kept on in VROOM! and GOTO views when GPS is connected. Switch to DATA view when you want to save battery life.

Test the demo version of GT in your car. If there are no GPS-related problems (see chapter 5) and the speed display in the VROOM! view works, you can upgrade to a registered version.

Buy the registration code from the web shop at www.tempes.com/registration.

Measure your car's performance. GT measures automatically all accelerations between set limits (default limits are 0-100 km/h and 400 m, or 0-60 mph and ¼ mile). Scroll summary results in the VROOM! view with up and down keys. Detailed results are saved to files [Options / Results].

Store the current location as a navigation destination by pressing the select key or enter latitude and longitude coordinates [Options / Destination / New]. The arrow points to the destination. Scroll destinations with up and down keys. Note that you must move for navigation to work.

4. Compatibility

There are three versions of the software. GT is for S60 1st edition phones (Nokia 3600, 3620, 3650, 3660, 7650, N-Gage, N-Gage QD, Siemens SX1, Sendo X and X2). GTi is for S60 2nd edition phones (Nokia 3230, 6260, 6600, 6620, 6630, 6670, 6680, 6681, 7610, N70, N72, N90, Panasonic X700, X800, Samsung SGH-D720, SGH-D730, SGH-Z600 and Lenovo P930). GTx is for S60 3rd edition phones (all models not in the lists above). A complete list of all S60 phones is available at www.s60.com/life/s60phones.

GT (or GTi or GTx) should be compatible with any S60 mobile phone and NMEA compatible Bluetooth GPS receiver. Note that we have not tested compatibility with all possible phone models or GPS receivers. We strongly recommend you to try the free demo version with your mobile phone and Bluetooth GPS receiver before purchasing the registration code.

GT does not support the internal GPS of e.g. Nokia N95.

S60 is a smartphone software platform developed by Nokia. It is used in a selection of mobile phones manufactured by Lenovo, LG, Nokia, Panasonic, Samsung, Sendo and Siemens.

NMEA is a protocol for GPS receivers to transmit data between devices. Bluetooth GPS receivers using this protocol are widely available, e.g. from Nokia. They are also sold with navigation systems for S60 phones, e.g. from Navicore, Wayfinder and TomTom.

5. Principles and Limitations of GPS

The GPS (Global Positioning System) consists of 24 satellites. About 12 GPS satellites can be visible at one time. A GPS receiver calculates its position using data received from the satellites. The accuracy of GPS data improves with the number of satellite connections. At least three satellite connections are needed to provide navigation. GT acceleration measurement requires more than three satellite connections and is available only when GPS data is accurate enough. Navigation accuracy is seldom better than 5 to 10 meters.

A GPS receiver can give direction data only when it is moving. This means that you must walk or drive to use the navigation feature of GT.

GPS receivers can connect to satellites only when there is a clear view of the sky. Trees and tall buildings can block the view, and signals are rarely received within a building. If you keep the receiver in your shirt pocket, your body blocks part of the view to the satellites.

The GPS receiver can be placed on the front or rear dashboard of a car. Heat reflective or heated screens can block GPS signals and an external antenna is then required.

6. Installation and Registration

The free demo version of GT, GTi or GTx can be downloaded from www.tempes.com/download. See chapter 4 for compatibility with S60 1st, 2nd and 3rd edition phones. A warning is displayed if you try to install on an incompatible phone. GT and GTi consume about 95 kB of the phone's memory. GTx consumes about 146 kB of memory. In addition the result files consume about 1 kB each.

The demo is a Symbian Installation System file (GT.sis, GTi.sis or GTx.sis) that must be transferred to your S60 mobile phone for installation. Depending on your mobile phone and PC capabilities, you can send the file to the phone as an email attachment, via Bluetooth, infrared or WLAN connection, via USB or serial cable or via a memory card. Please check the manual of your phone for details.

You can also load the installation file directly by using your phone's web browser. Go to www.tempes.com/cgi-bin/counter_gt.cgi to load GT, www.tempes.com/cgi-bin/counter_gti.cgi to load GTi or www.tempes.com/cgi-bin/counter_gtx.cgi to load GTx.

When you open the file, the phone should detect it as an installation file and start installation automatically. There is a security warning because the application is not "Symbian Signed". In GTx you are also asked to accept to use connectivity applications. This is for Bluetooth connection with the GPS receiver. Press the left softkey for all installation questions. After installation the GT icon is visible in the menu display.

Note that with GTx result files are not deleted automatically if you decide to uninstall the application. Result files are stored in C:\Data\Others\Accelerations\ and you can delete them before uninstalling [Options / Results / Delete all] or afterwards with the standard File Manager application.

You should use the free demo version to check that GT works in your mobile phone and with your Bluetooth GPS receiver in your car. The demo version cannot be used for acceleration measurements and its navigation feature works only if the distance to destination is larger that 1 km (or 0.6 miles). All features of GT are available for registered versions only. Registration code for GT can be purchased from www.tempes.com/registration. Enter the code in the GT registration form [Options / Registration]. Note that the registered version of GT can be used only in the phone it was registered for. You can ask a free registration code when you upgrade your phone, just email support@tempes.com.

7. Using GT

Pair and bond your GPS receiver with your mobile phone if you have not already done it. Use instructions in the phone and GPS receiver manuals. Pairing and bonding can also be done by switching the GPS receiver on, then starting GT and following the instructions on the phone's display. You need to type the GPS passcode (given in the GPS receiver manual) when asked.

When you start using GT, first switch on the GPS receiver and then start GT on your phone. At the first time you are asked to select the Bluetooth device. After this the connection to the GPS receiver is established automatically when GT is started. You can also use GT without a GPS connection to view performance results or to edit destinations. Note that it is necessary to keep the phone's Bluetooth connection enabled for GPS connection to work. Bluetooth can be enabled or disabled with your phone's Menu / Connectivity / Bluetooth. It can also be enabled when GT is started by answering Yes to the query "Activate Bluetooth?".

The GT status line shows connection and operation status. The GPS receiver usually takes a couple of minutes to establish a connection to the GPS satellites if visibility to the sky is available (**Searching satellites . . .** is shown in the GT status line). If navigation data is inaccurate because the GPS receiver cannot connect to the proper number of satellites (due to blocking from high buildings, tall trees etc.), **INACCURATE** is shown in the GT status line. Acceleration measurements are disabled if data is inaccurate, but navigation can still be used.

GT has three views which can be switched with the left and right keys:

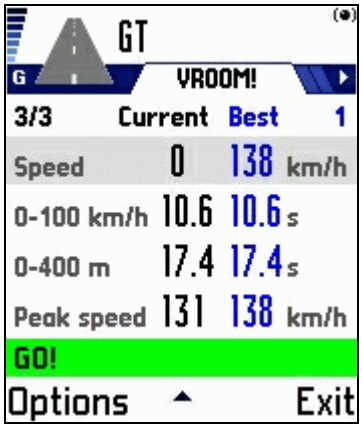
VROOM! is for performance measurements.

GOTO shows distance and direction to a destination.

DATA shows basic GPS data.

7.1 VROOM! – Performance Measurements

Performance measurements are fully automatic. Stop the car, wait a couple of seconds and go! GT status line shows the process (**STOP**, **GO!** or **ACCELERATING**) but keep your eyes on the road. GT records performance results for viewing after the run. Measurement stops when the car is decelerating.



← View (VROOM!, GOTO or DATA)
← Index of selected/last run, index of best speed and distance run
← Current speed and highest speed of session (km/h or mph)
← Selected and best speed acceleration result
← Selected and best distance acceleration result
← Highest speed of run and of best run (km/h or mph)
← Status message line
← Softkeys

Performance measurement view (**VROOM!**, see above) shows acceleration summary results for the selected ranges (e.g. 0-100 km/h and 0-400 m) and the maximum speed during the acceleration (peak speed). The current speed and the maximum speed of the session are also shown. The top row shows the index of selected run, the total number of runs, and the indexes of the best speed and distance acceleration run. If the best speed and distance runs are the

same, only one "best run" index is shown. The results of up to 99 runs can be viewed on the phone display. Select previous and next run results with the up and down keys.

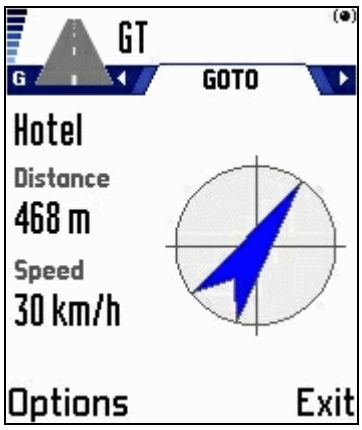
Note that distance acceleration results are shown only if start speed is zero.

Detailed results are saved to files that can be viewed on the phone's display [Options / Results] and sent to your PC via e.g. email or Bluetooth, or to other phones via e.g. text messages. The result files contain acceleration times for the selected speeds with 10 km/h increments, e.g. 0-10 km/h, 0-20 km/h, … and for distances (if start speed is zero) with 100 m increments, e.g. 0-100 m, 0-200 m, …. If mph unit is selected then acceleration times are for e.g. 0-10 mph, 0-20 mph, … and 0-60 foot, 0-330 foot, 0-1/8 mile, 0-1000 foot and 0-1/4 mile. Peak speed and foreign unit summary (mph or km/h) is also included. The result files are arranged by date and time with the last measurement on top of list. Result file name ("Ss_Ds.txt") consists of speed acceleration time (S s) and distance acceleration time (D s). When you exit from GT, session top speed (if higher than 40 km/h or 25 mph) and best acceleration results are stored to file named "Top_T.txt", where T is the top speed. If two files would have the same name, a running number is added to the name. A short comment can be added to the start of a result file. Default comment is the date and time of measurement. See www.tempes.com/examples for result file examples.

Acceleration measurement ends when you decelerate or some problem (e.g. inaccurate GPS data) is detected. Acceleration results are calculated and saved only if the limiting speed or distance is exceeded. If measurement ends for other reason than deceleration, the reason is shown at the end of the result file. Performance measurements are done in the background even if another view (**GOTO** or **DATA**) is used.

Acceleration measurements should be done on a flat and straight track. The weight of the car affects acceleration, so best results can be achieved without passengers and with little fuel in the tank.

7.2 GOTO – Navigation



← View (VROOM!, GOTO or DATA)
← Destination name
← Distance to destination (km and m or mi and ft)
← Direction arrow to destination (grayed if speed is too slow)
← Current speed (km/h or mph)
← Status message line
← Softkeys

Navigation view (**GOTO**, see above) shows the name of the selected destination, the distance to it and the direction to it with a large arrow. It also shows the current speed. Note that the GPS receiver can determine direction only if you are moving (the arrow is grayed if the speed is below 2 km/h or 1.5 mph).

← Destination name (1 – 20 characters)

← Destination latitude (N or S, degrees and minutes)

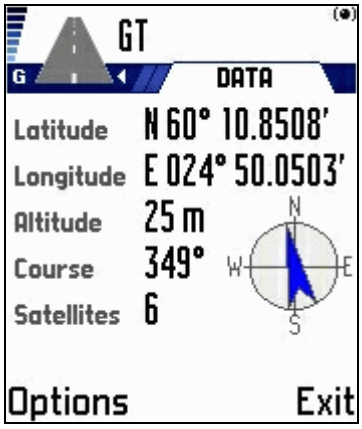
← Destination longitude (E or W, degrees and minutes)

← Softkeys

The current location can be set as a destination by pressing the select key when GPS navigation data is available. The destination latitude and longitude can also be typed in and the destination name can be edited, see above. Press the # key to get a decimal point. Latitudes and longitudes are in GPS format. Use a conversion calculator (e.g. www.cosports.com/tools/gps_coords.htm) if you need to use other kinds of coordinates. Destinations are arranged alphabetically and can be selected with the up and down keys.

For safety reasons navigation distance and direction indicators are disabled if the speed exceeds 250 km/h or 160 mph.

7.3 DATA – Basic GPS Data



← View (VROOM!, GOTO or DATA)

← Current latitude

← Current longitude

← Current altitude (m or ft)

← Course in degrees and with an arrow (grayed if speed is too slow)

← Number of satellite connections

← Status message line

← Softkeys

GPS data view (**DATA**, see above) shows the current latitude, longitude, altitude above mean sea level, course in degrees and with an arrow, and the number of GPS satellites being tracked.

8. Menus

All views (**VROOM!**, **GOTO** and **DATA**) have the following common menu items under the **Options** softkey:

Registration Enter registration code to enable acceleration measurements and short-distance navigation. Shown only if GT is not registered.

Connect Manually connect to the GPS receiver. GT connects to the GPS receiver

automatically if Bluetooth is enabled and the GPS receiver is switched on when GT is started. Shown only if GPS connection has not been established.

Change GPS Remove the GPS receiver Bluetooth identifier stored by GT to be able to use another GPS receiver. Shown only if GPS connection has not been established.

Setup Change units from km/h to mph or vice versa. Also the acceleration speed and distance limits can be changed. Acceleration results are calculated only if speed or distance limit is reached. Distance acceleration results are calculated only if start speed is zero. Please note that changing setup resets performance results in memory but does not affect saved result files.

- **Change** Change the selected item.
- **Back** Go back to previous view.

About Show information about GT.

Exit Exit from GT. A confirmation is required. Please note that exiting resets performance results in memory but does not affect saved result files.

The **VROOM!** view has the following additional menu items:

Results Manage performance result files.

- **Open** View result file using the S60 Notes application. Result file name consists of speed acceleration time and distance acceleration time, or session top speed. Date and time of measurement is shown in file list, and last measurement is on top of list.
  S60 Notes application menu items include the following:
  - **Send** Send result file to selected destination (destination list depends on phone's capabilities and settings).
    - **Via short message** Send result file via SMS.
    - **Via multimedia** Send result file via MMS.
    - **Via e-mail** Send result file via email.
    - **Via Bluetooth** Send result file via Bluetooth connection.
    - **Via infrared** Send result file via IR connection.
  - **Exit** Exit from S60 Notes application .
- **Edit comment** Add or edit a short comment (at most 40 characters) at the start of performance result file, e.g. "Frank's Porsche". Default comment is the date and time of measurement.
- **Delete** Delete the selected result file. A confirmation is required.
- **Delete all** Delete all result files. A confirmation is required.
- **Back** Go back to the **VROOM!** view.

The **GOTO** view has the following additional menu items:

Destination Manage navigation destinations.

- **New** Add a new destination with name, latitude and longitude. Default name is a running three-digit number. Maximum name length is 20 characters. If GPS data is available, the current location is used as a default latitude and longitude. Move between fields with the up and down keys.

Press the # key to get a decimal point. Latitude and longitude are in GPS format (degrees and minutes with a fractional part).

Save Save the destination.

Delete Delete the destination. A confirmation is required.

Back Go back to **GOTO** view without saving changes.

Open Open the selected destination for editing.

Delete Delete the selected destination. A confirmation is required.

Delete all Delete all destinations. A confirmation is required.

The **DATA** view has no additional menu items.

9. Status Messages

GT status messages are shown on the line above the softkeys. All views (**VROOM!**, **GOTO** and **DATA**) have the following common status messages:

Connecting to GPS ... Establishing a Bluetooth connection to the GPS receiver.

Connected Established a Bluetooth connection to the GPS receiver.

Connection error! Error in Bluetooth connection to the GPS receiver. GPS receiver should be switched on before GT. It should be within Bluetooth range (about 10 meters or 30 feet).

Searching satellites ... GPS receiver is searching for satellites. This could take a couple of minutes if visibility to the sky is available. See chapter 5 if the message prevails for a longer time.

INACCURATE GPS receiver has found enough satellites for navigation but not enough for performance measurements. If this message prevails for more than a couple of minutes, try to find a better location for the GPS receiver to see a wider part of the sky. See also chapter 5.

The **VROOM!** view has the following additional status messages:

STOP Stop the car to start an acceleration measurement.

GO! Acceleration measurement can be started.

ACCELERATING Acceleration measurement is in progress.

The **GOTO** view has the following additional status message:

No destinations There are no saved navigation destinations.