TeleType GPS for Newton

Introduction

TeleType GPS is software for small computers such as hand helds, palmtops, organizers, and PDA's which allows you to display your location including a plot of your course relative to cities and towns in your area. Essentially TeleType GPS is a moving map on your Newton controlled by a hardware Global Positioning System (GPS) which is connected to your computer. Currently the software is available for the Newton PDA and is shipped together with the Garmin TracPak™ GPS and Smart Antenna. TeleType GPS combines the power and convenience of palmtop computers with the intelligence and usefulness of a GPS system so you'll always know where you are.

Features

Standard
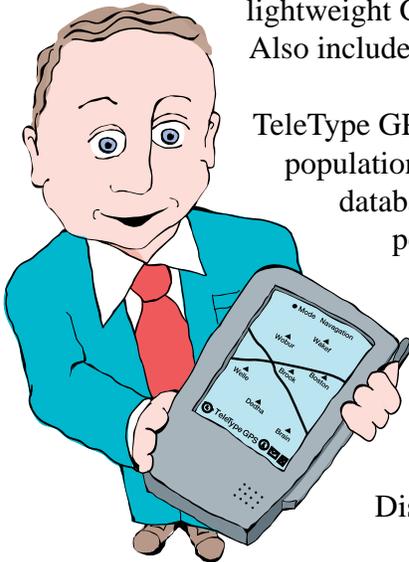
Included in the TeleType GPS package is the powerful, rugged, water-resistant, yet lightweight Garmin GPS 30 TracPak™ unit (also known as Smart Antenna GPS). Also included is hardware for both internal or external mounting of the GPS unit.

TeleType GPS software plots your course as you move and graphically displays population center points (cities and towns) so you know where you are. The database includes 23,625 U.S. population centers and over 1000 Canadian points. Additional data points can be purchased separately.

Ability to add user specified points to your own database stored on the computer.

Zoom in/out 8 levels.

Displays visual plot of your course.

Latitude and longitude data for each point is accurate to a millionths of a degree (10^6 units = 1 degree).

Displays altitude, number of satellites being received, speed, time, heading (magnetic) and true heading.

Tracks up to 8 satellites. (For more detail see About Garmin GPS).

Lifetime use of the GPS, there are no fees or connection time charges.

Options

- Customized shock absorbent mounting platform to hold the computer in the vehicle. Lets you easily secure and position your computer in full view for effortless viewing and operation. Can be further customized to provide power to your computer (eliminating the need for additional power to be obtained from the cigarette adaptor).

- Annual database updates.

- Additional "overlay" data packages such as rivers, lakes, schools, airports, and more.

- International population center data points. Thousands of population points for each European country.

- Differential GPS.

Aviator Assistant Software and Database

This optional package contains the complete and most up to date U.S. F.A.A. aviation database including:

- Latitude/longitude display - with city overlay, lets you know where you are with respect to cities and towns.
- Plot course - see where you are in real time
- Create waypoints - plan your trip ahead.
- Thousands of airports -numerous details about each airport.
- Runways and frequencies - all radio frequencies and runways.
- Wind speed, correction - effective trip planning.
- Weight & balance - variety of light plane single engine aircraft data.
- Distance between two points measured by latitude and longitude.

Powerful, Portable, Convenient

By using the Newton (and other hand held computer devices) the user receives the added benefits of features such as handwriting recognition, notes, calendar, to do list, address file, and financial analysis software to complement the GPS system. TeleType GPS turns your Newton into a powerful, portable and convenient GPS.

Perfect for Personal and Professional Use

With TeleType GPS for the Newton you can be sure that you (or your staff) will never get lost again.

Getting Started

Introduction

Before using TeleType GPS, you should be familiar with the basics of using the Newton. For more information, see your Newton Handbook. In order to use TeleType GPS, you will need either a Macintosh or Windows equipped computer to download the software to your Newton.

TeleType GPS will work with any Newton. The TeleType GPS application is 137k. Each data package ranges from approximately 80k to 100k. The size of each package roughly corresponds to 80% of the Macintosh file size. You will also need a cable and software to download the information from the Macintosh disk to your Newton.

You need

1. Any Model Macintosh or Windows computer with a high density 3.5" drive and a hard drive.
2. Any Model Newton having at least 300k of free space either on the Newton directly or your Newton memory flash card to store the TeleType GPS program and data points for one U.S. state. Approximately 100k per state for population points only.
3. Newton Connection kit to allow downloading of software from either the Macintosh or Windows platform.

What we provide:

We provide one Macintosh or Windows 3.5" HD disk with the following:
1. Documentation Read Me File no special program is required, you are currently reading that file.
2. Newton TeleType GPS application to be downloaded to your Newton.
3. Newton TeleType GPS data packages in compressed format. Number of individual packages may vary depending upon version purchased, the base version now contains two U.S. state packages.
4. Apple's Newton Package Installer provided for your convenience to download both the application and the data packages.

What you will be installing on your Newton

1. Newton TeleType GPS application
2. Individual data packages which are automatically installed by TeleType GPS after downloading is complete.

How to install TeleType GPS for Newton

1. Copy the contents of the TeleType GPS for Newton disk to your Macintosh hard drive.
   - Copy the Apple Modem file and preferences to the Macintosh System Extensions folder. (The purpose of these files is to make the Newton Package Installer function on your Mac).
   - Double click the folder found inside the "Data Packages" folder to uncompress the appropriate data packages. Once the files are uncompressed you will have Newton data packages (Massachusetts, California, etc.) ready to download. You may decide to download many data packages or just one to save space.
   - Leave the data packages, the TeleType GPS application package (TeleType GPS.pkg), and the Newton Connection on your Macintosh hard drive until it's time to begin the downloading process.
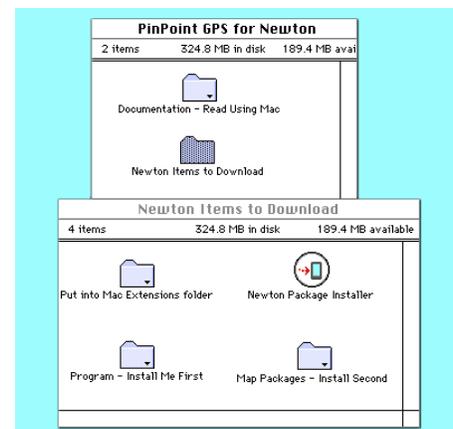
Macintosh Disk Contents for Newton TeleType GPS

2. Connect the Macintosh to your Newton using a serial cable connecting the Macintosh printer port (or modem port) to the serial port on the side of your Newton. Be sure to use the Apple Package Installer Preferences to specify whether the printer or modem port is being used.

3. Tap the "Connection" application icon on the Newton to prepare the Newton to receive data from your Macintosh. Follow the screen prompts to set your Newton to receive. The Connection application is used to connect to Newton Connection Kit or Newton Package Installer for the Macintosh to download data packages. For simplicity we will refer to the individual data packages such as TownsMA.pkg and AirportsMA.pkg as "Data.pkg".

Tap "Connection" to start receiving the TeleType GPS package.
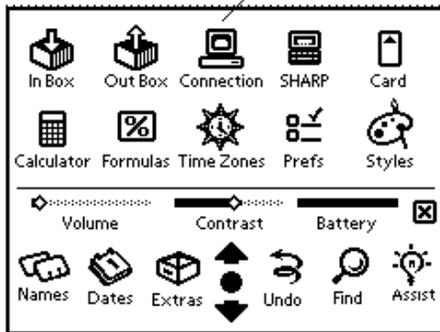
Tap Newton Extras drawer open to access "Connection".

Type of connection:
○ DOS or Windows PC
● Macintosh serial
○ Macintosh LocalTalk

Connect ☒

Newton Connection application open. Select Macintosh serial from the Connection menu.

4. Activate Newton Package Installer on the Macintosh to begin download process.

Newton Package Installer

Apple's Newton Package Installer for the Macintosh provided for your convenience with TeleType GPS.

5. Select File "Install Package" and locate the TeleType GPS.pkg, now found on your hard drive to be downloaded to the Newton.
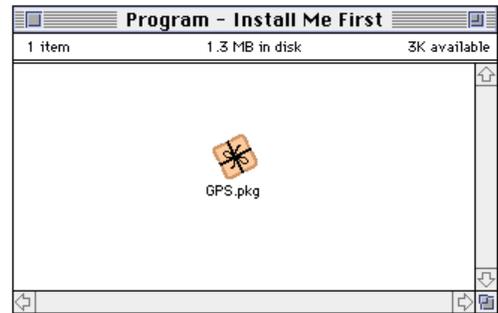
Select the TeleType GPS Newton Package (TeleType GPS.pkg) to download first.

Package Installer 1.0.1
Waiting for Newton on Printer Port
⌘. to Cancel

Dialog presented while Package Installer is waiting to connect with Newton.

Installing...
Towns of MA.pkg
1 of 1
⌘. to Cancel
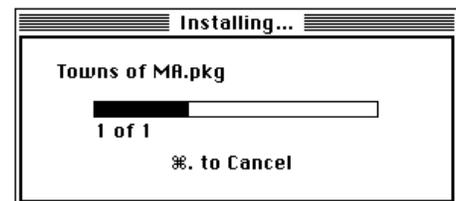
Download progress from Package Installer.

6. Using the Package Installer select each data package you wish to download from the Mac to your Newton. (Depending upon the version of TeleType GPS that you have purchased you may have more than one Data.pkg). Once the data package has been downloaded to the Newton, TeleType GPS will automatically import the data into the TeleType GPS Newton application. The process of downloading and automatically importing the data will take approximately 1-4 minutes per data package.
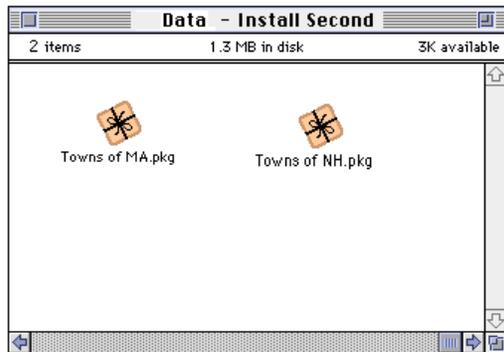
Select each data package are included in TeleType GPS for Newton. Repeat the download process for each data package you choose to install.

The Newton will display a message "TeleType GPS -- Loading Maps" during the time that TeleType GPS is automatically importing each of the data packages.

Repeat step 6 to install more data packages. These data packages will be appended to the existing TeleType GPS found on the Newton.

Finally!

Here is what your Newton should like when TeleType GPS is completely installed.
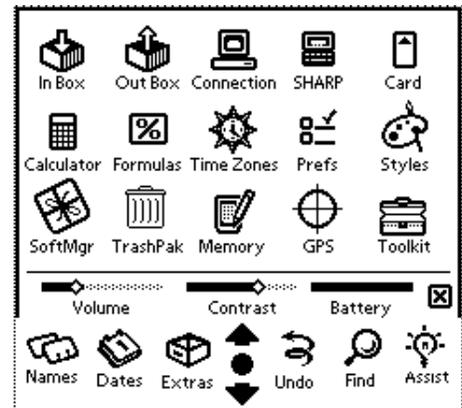
TeleType GPS installed on the Newton.

GPS Installation

Getting Started

Included in the TeleType GPS package is the Garmin GPS 30, Power Adaptor to plugged into the vehicle's cigarette lighter, and the Newton serial cable to connect the GPS to the Newton.

TeleType GPS for Newton includes GPS Antenna, Power Adaptor, and Newton Cable (also includes GPS mounting hardware - not shown)

You need:

No special tools required.

What we provide:

1. GPS Antenna with Power Adaptor and Newton Cable - note that the GPS is waterproof.
2. A variety of mounting hardware pieces - you can choose the best way to mount the GPS to your vehicle. (Magnetic and suction mounts are provided in standard GPS package).

Magnetic mount - provides a firm, removable attachment to any ferrous metal surface.

Suction Cup Mount - this bracket provides a removable mounting surface attached to the inside of a vehicle's windshield. (This method is only recommended for slanted windshields).

Trunk Lip Mount - provides a semi-permanent attachment to the trunk lip of most automobiles.

Flange Mount - allows for a permanent installation on a flat surface. This mounting configuration is ideal in applications in which the far side of the mounting surface is inaccessible.

Installing the GPS Hardware:

For best performance of the GPS we recommend that you mount the GPS antenna externally (i.e. outside) the top of your vehicle. You may choose to leave the antenna inside your vehicle if you have a curved windshield.

1. Mount the GPS antenna. Shown below are the different methods of mounting the GPS antenna.
2. Connect the Newton serial cable from the GPS unit to the Newton.
3. Plug the power cable into the cigarette lighter.

Magnetic Mount

GPS SENSOR

TRUNK LIP MOUNT

M3 FLT HD. SCREW (4)

SENSOR

OPTIONAL TRUNK LIP
MOUNTING BRACKET

SPACER

SET SCREW (2)

EDGE OF TRUNK

Trunk Lip Mount

GPS SENSOR

FLANGE MOUNT BRACKET

MOUNTING HOLE
4 PLACES

M3 FLT HD. SCREW (4)

MOUNTING
SURFACE

MOUNTING SCREW
POSITION
4 PLACES

Flange Mount

GPS SENSOR

SUCTION CUP MOUNT

M3 FLT HD SCREWS (4)
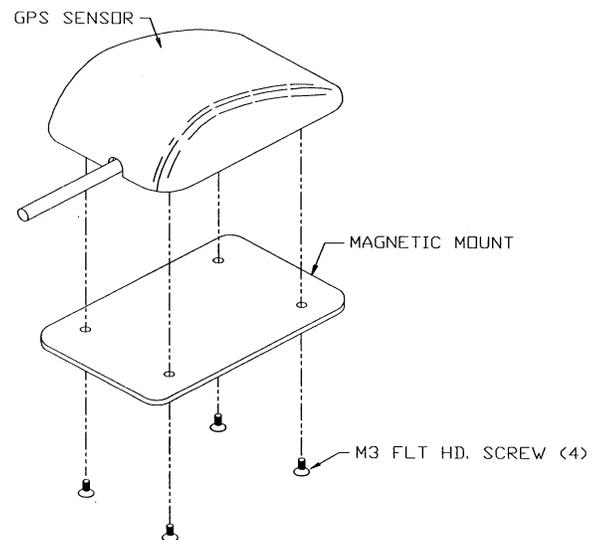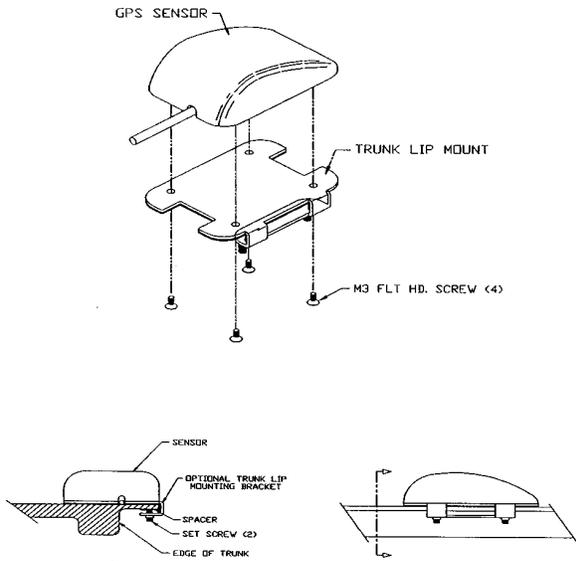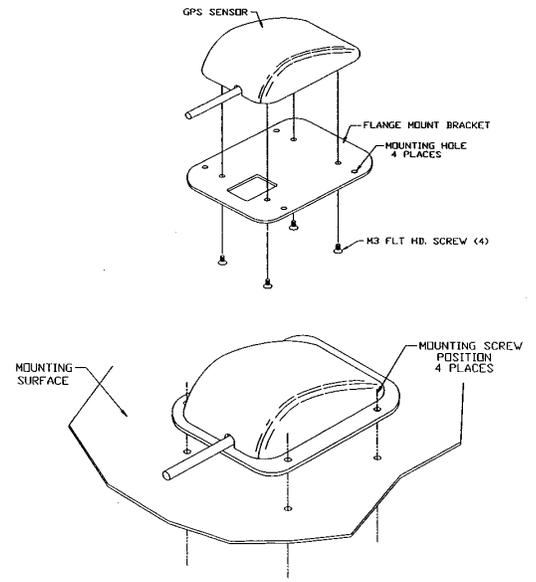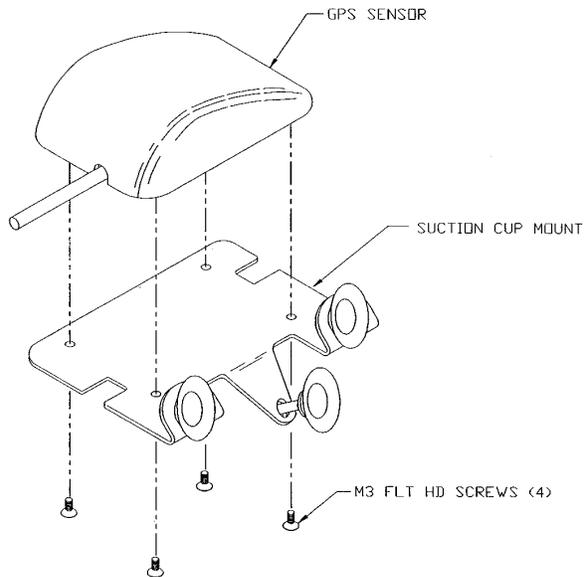
Suction Cup Mount
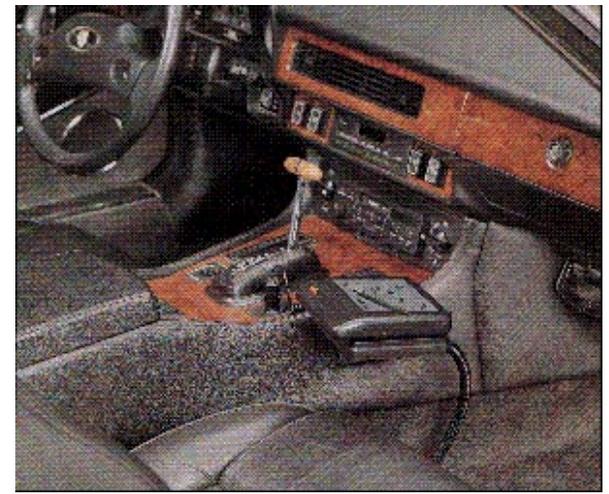
Optional shock absorbing mounting platform contains a built-in Newton power supply.

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Connecting the Newton to the GPS

Once you have completed mounting your GPS antenna you are ready to connect the antenna cable into the serial port of the Newton. (There's only one place where the cable fits - so there's nothing to worry about). Plug in the Newton power supply if necessary. Start up the vehicle's engine so you will have power to activate both the GPS and the Newton. Now activate the TeleType GPS program on your Newton. (For more information about the GPS software see the section called "Using TeleType GPS".

The first time you are using the TeleType GPS system it will take the GPS unit approximately 30 minutes to locate all the satellites. Next time it will take less than one minute for the GPS to locate your current position. In fact, you can even take the GPS with you, fly to another state and it will still give you your location within a few minutes.

You may choose to install a shock absorbing platform for convenient access and visibility of the Newton.

About the Garmin GPS 30

Overview

The GARMIN GPS 30 is a complete GPS receiver, including an embedded antenna. Based on the proven technology found in all GARMIN GPS receivers, the GPS 30 will track up to eight satellites at a time while providing fast time-to-first-fix, one second navigation updates and low power consumption. Its far reaching capability meets the sensitivity requirements of land navigation as well as the dynamics requirements of high performance aircraft.

The GPS 30 design utilizes the latest technology and high level circuit integration to achieve superior performance while minimizing space and power requirements.

The GPS 30 is designed to withstand rugged operating conditions and is completely water resistant.

Features

The GPS 30 provides a host of features that make it easy to integrate and use.

1) Full navigation accuracy provided by Standard Positioning Service (SPS)

2) Compact design ideal for applications with minimal space

3) High performance receiver tracks up to 8 satellites while providing fast first fix and low power consumption

4) Differential capability utilizes real-time RTCM corrections producing 3-10 meter position accuracy

5) Internal clock and memory are sustained by a memory backup battery or optional external standby power

6) User initialization is not required

Technical Specifications

These specifications are provided directly from Garmin and are subject to change without notice.

Physical Characteristics
1) Single construction integrated antenna/receiver.
2) Weight: 4.4 oz. (124.5 9), excluding cable
3) Size: 2.22" (w) x 3.79" (I) x 1.05" (h), (56.4 mm x 96.3 mm x 26.7 mm)

Environmental Characteristics
1) Operating temperature: -30°C to +85°C (internal temperature)
2) Storage temperature: -40°C to +90°C

Electrical Characteristics
1) Input voltage: 10 to 30 VDC, unregulated.
2) Typically draws 110 mA @ 12 VDC
3) Backup power: Internal 3V Lithium coin cell battery, up to 10 year life
4) Receiver sensitivity: -1 60dBW minimum

Performance

1) MultiTrac™ technology, tracks up to 8 satellites

2) Update rate: 1 second

3) Acquisition time - 15 seconds warm (all data known) - 2 minutes cold (initial position, time and almanac known, ephemeris unknown) - 7 minutes AutoLocate™ (almanac known, initial position and time unknown) - 15 minutes search the sky (no data known)

4) Position accuracy:
Differential GPS (DGPS): 3-10 meters RMS
Non-differential GPS: 15 meters RMS (100 meters with Selective Availability on)

5) Velocity accuracy: 0.2 m/s RMS steady state (subject to Selective Availability)

6) Dynamics: 999 knots velocity, 3g dynamics

Using TeleType GPS

TeleType GPS Modes

TeleType GPS consists of three modes:
Navigation, Position, and Database.
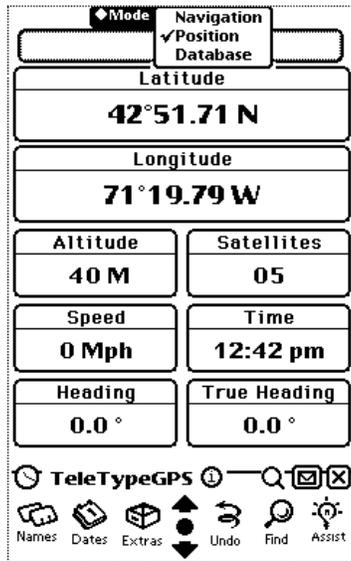
The three TeleType GPS modes are easy to access.
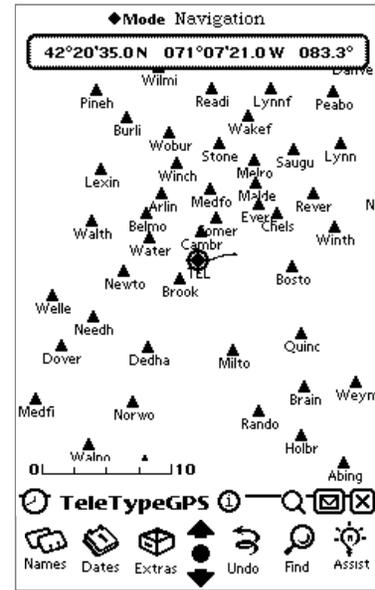
Triangles mark cities and towns, circles mark airports, the cross hair circle notes your position.

Navigation

The Navigation mode allows you to see where you are. A map of the data points around you is displayed. The top display notes your current position. Select the "magnifying glass" icon at the bottom of the screen to zoom in or out on the map.

TeleType GPS automatically loads the appropriate maps (database of points) into the Navigation screen provided that you have downloaded the correct geographic areas (i.e. the proper states) to your Newton. If you choose to move to an area which is not served by the current map you would need to download the appropriate data points from another package. For example, if you are currently in Massachusetts and you decide to visit California then you should load the "California Towns package" into your Newton before activating the TeleType GPS program. Once the GPS is active then the TeleType GPS program automatically displays your location on the map.
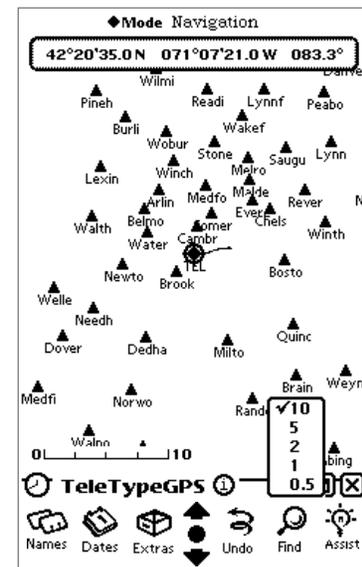
Use the magnifying glass icon to view the map at the best size. The scale changes from 1 inch equal to 1/2 mile up to 10 miles.

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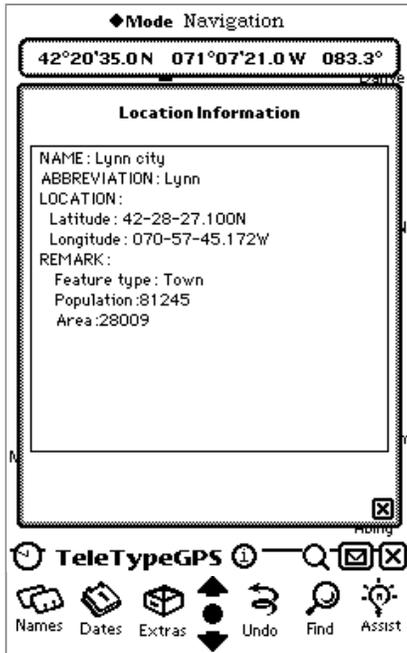
Tap on a data point (such as a triangle) to obtain further information.
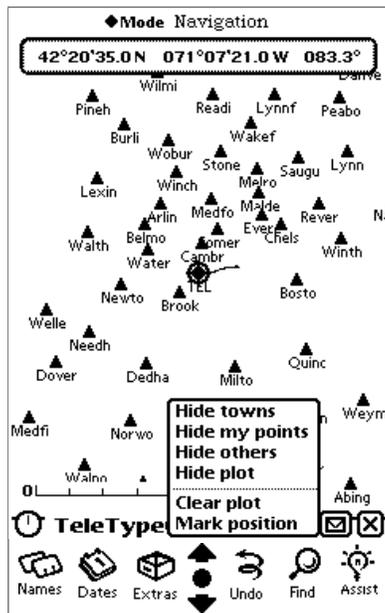
The action slip in Navigation mode allows you to change the display and add new points to your own database.

Hide towns - To minimize screen clutter you may choose not to display map items such as towns.

Hide my points - You may choose to display (or hide) your own data points.

Hide others - To conserve memory or reduce screen clutter you may choose to display only your own data points.

Hide plot - To conserve memory or reduce screen clutter you may choose not to display your course.

Clear plot - To conserve memory or reduce screen clutter you may choose to clear the current plot display.

Mark position - Add current position point to your own database of points.

Position

Position mode displays information about your current position.

Latitude - current position

Longitude - current position

Altitude - current height above sea level displayed in meters

Satellites - current number of satellites recognized by the GPS

Speed - current speed displayed in miles per hour

Time - current time taken from your Newton preferences

Heading - your course relative to the magnetic north pole

True Heading - your course relative to the true north pole
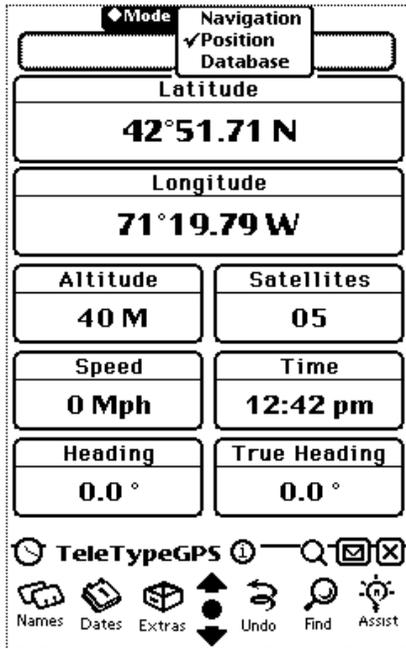
Information about your current
position is displayed here.

Use the Database mode to view, modify
and create new data points.

Database

The Database mode allows you to view data
points for a specific TeleType GPS database.
This portion of the program allows you to add
your own data points and make changes to your
own database which is called "My Database".
Note that you may not modify points in the
original TeleType GPS databases.

The Navigation screen will automatically detect
changes that have been made to your database
and will display these points when appropriate.
Remember that you may need to zoom out to
100% to see your data point. To display your
data points be sure to select "Show My Points"
from the action slip in the Navigation screen.

Open Database - select a database to view or
modify (if no databases have been selected
TeleType GPS will automatically display a pop
up window showing the list of databases avail-
able).

Delete Database - delete database from
TeleType GPS will remove the database from
your Newton. You may choose this option if you
are planning to visit a different state and you
wish to free up memory in the TeleType GPS
program. To use this database again you must
download it again from your computer (Mac or
Windows) to the Newton.

View Entry - view an existing data point entry.

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◆Mode   Navigation
           Position
           ✓Database

Database Name: None

Abb.   **Name**

Please select a database to open:

My Database
Towns of MA

Open

🕐 **TeleTypeGPS** ⓘ ✉✕
Names Dates Extras Undo Find Assist
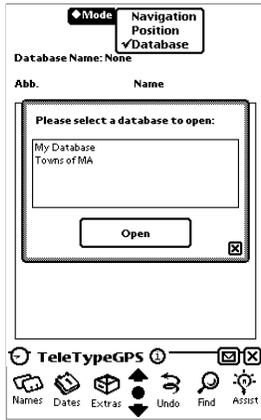
Select My Database when you want to add your own data points. You can automatically copy points from another database into My Database.

◆**Mode** Database

Current Database: My Database

Abb.   **Name**

TTS   PinPoint Office

Open Database
Delete Database
View Entry
Delete Entry
Add Entry
🕐 **Pin P** Edit Entry ✉✕
Names Dates Extras Undo Find Assist

You may add or delete points from "My Database".

◆**Mode** Database

ADD ENTRY
NAME: Gate 1
ABBREVIATION: GAT1
LAT: 0 0 - 0 0 - 0 0 . 0 0 0 N
LON: 0 0 - 0 0 - 0 0 . 0 0 0 E
REMARK

(0 1 2 3 4 5 6 7)

ADD ✕
🕐 **TeleTypeGPS** ⓘ ✉✕
Names Dates Extras Undo Find Assist
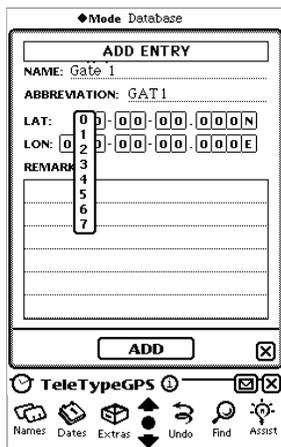
It is easy to add your own points to "My Database". Some of these values will automatically appear in this screen when "Mark Point" is selected from the Navigation screen.

◆**Mode** Database

EDIT ENTRY
NAME: Beverly city
ABBREVIATION: Bever
LAT: 4 2 - 3 3 - 2 7 . 8 9 9 N
LON: 0 7 0 - 5 0 - 2 5 . 6 5 9 W
REMARK:
Feature type: Town
Population:38195
Area:39987

UPDATE ✕
🕐 **TeleTypeGPS** ⓘ ✉✕
Names Dates Extras Undo Find Assist

Edit Entry allows you to change entries found in My Database.

Add Entry - available for My Database only

Edit Entry - available for My Database only, make the desired changes then press "Update" to record the changes in My Database. Copy points from other databases into My Database to make changes.

Delete Entry - available for My Database only

Now that you know about all of the TeleType GPS software features you're ready to start using your Newton GPS.

NOTE:
Be sure to exit the TeleType GPS program (tap the bottom right hand X) before attempting to turn off your Newton.

Using a Different GPS

TeleType GPS software is designed to support any NMEA GPS having GGA and optionally VTG output. GGA output is geographic data including latitude, longitude, altitude, number of satellites. VTG data includes speed and heading information.

Contact our office for more detail in connecting your own GPS to the TeleType GPS software. 14

Questions & Answers

Is the GPS receiving data?

Blinking satellite dish icon indicates data is being received. Select Position mode and check to see the number of satellites being received. If the number is zero then you should check all of the connections to be sure they are secure.

Another icon appears to the left of the blinking satellite dish icon when the GPS is locating satellites. When the GPS locks into the satellites the left icon disappears.

Why is my Navigation screen blank?

Be sure to download the appropriate TeleType GPS data packages to the Newton. The TeleType GPS program will automatically display your position if the correct geographic area is loaded.

Select 100% view using the magnifying glass icon found at the bottom the of navigation screen. This will insure that you are viewing all available points in the area.

How can I load another set of cities and towns?

TeleType GPS will automatically locate the correct map data for your current position. You simply download the correct state and TeleType GPS will display your position if the GPS is also connected.

How can I load new data overlays such as airports or roads?

Download the correct TeleType GPS package, then TeleType GPS will automatically load this data when you activate the program.

How can I add my own data points?

To modify, delete, or add data points select the Database mode. TeleType GPS will automatically update the Navigation screen assuming your position on the current map allows the changes to be shown.

What is the source of the data in TeleType GPS?

U.S. government data from the TIGER database is supplied with TeleType GPS.

How are the points located?

City/town points are determined from a geometrical analysis provided by the U.S. government.

How precise is the GPS?

The Garmin 30 GPS unit you have been supplied with is accurate to between 10 and 100 feet.

Is the altitude value accurate?

It is common for GPS systems including this unit to be off by up to 500 feet.

Does weather effect the GPS?

Physically the GPS is waterproof and can withstand reasonable temperature variations (see technical data provided earlier in this document). Although you may experience some interference in receiving the signal during severe weather in the ionosphere the chances are good that this is unlikely to be an issue for most applications.

Why can't I turn off my Newton when it is connected to the GPS?

Since the serial port is active when the GPS is connected to your Newton you must exit the TeleType GPS program before attempting to turn off the Newton. Also, it is best to wait 5 seconds after quitting the program before attempting to restart TeleType GPS.

How to reach us:

TeleTypesetting Co. • 311 Harvard Street
Brookline, MA 02146 • Tel. (617) 734-9700
Fax (617) 734-3974 • GPS@teletype.com
http://www.teletype.com/gps
42°20.571 N   071°07.345 W