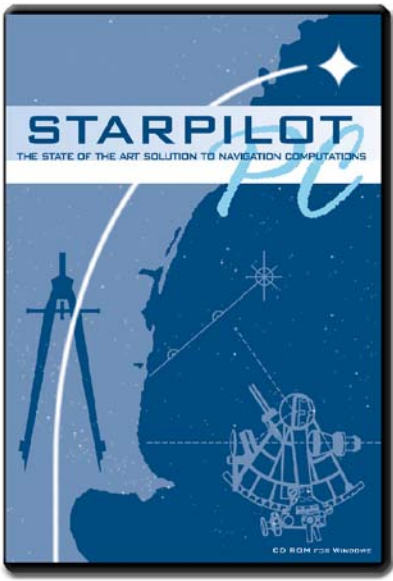
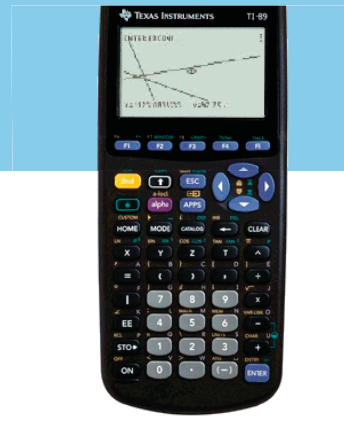


# STARPILOT

**StarPilot, LLC**  
[www.starpilotllc.com](http://www.starpilotllc.com)

The StarPilot program is a navigator's dream come true in a self contained celestial navigation and piloting computer which may be used to guide you safely anywhere in the world. It does all computations that might arise in routine or even special case navigation: fast, easy, and highly accurate in the middle of the ocean or in coastal and inland waters. Students as well as experts will value the flexibility and ease of use of this program.



**The StarPilot program is available in one of the following three ways**

- Pre-installed on a TI-89 Calculator
- As a program on a CD which can be installed on a PC
- As an Internet download which can be installed by the owner on any of the following devices: PC, TI-86, TI-89, TI-89T, TI-92 plus, TI-Voyage 200.

StarPilot is pre-installed using the TI-89 calculator as a platform, and ready to go at the first touch of the ON button. It is menu driven for user friendliness. The TI-89 is a graphing calculator from Texas Instruments which means you can see each line of position (advance or retarded as necessary) that composes your fix. It allows your judgement to intervene for a more accurate assessment of them, and your modifications of the final fix. The graphing ability of the calculator also permits a pictorial display of the sky while sight planning in addition to the use of other advanced plotting features while analyzing data. The TI-89 is a very powerful general programmable calculator, and it's full array of normal functions is still available to you (including, for example, games, a day planner, calendar, etc.) if you care to use them. If you don't, you just need three buttons to operate all of the StarPilot navigation functions.

**Celestial highlights**

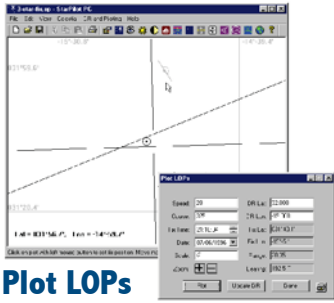
include a Sight Planner that plots out the full sky showing heights and bearings of all navigational bodies from which you call up a Best Sights function which displays the best triads of sights for the desired sky. Once sights are in hand, the Sight Analyzer function fits sequences of data to the correct theoretical shape so navigators can identify the best sights of the set. Celestial fixes can be obtained from its plotted LOPs or from computation. StarPilot also includes a versatile "Lunars" routine for finding GMT from lunar distances. You can analyze present data or historical data from early explorers such as the lunar distance measurements made by Lewis and Clark during their famous two year expedition in 1804. The internal almanac is accurate from the 16th century until 2100.

**Piloting highlights**

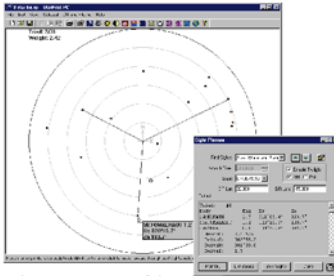
include numeric solutions to running fixes, sextant piloting with vertical angles, and highly accurate 3 point solutions with horizontal angles. All tidal vector current problems are solved, as well as geographic range, all route sailings, tide and current interpolators, bow angle fixes, wind vectors, speed-time-distance, DR updates by log or speed and much more. A magnetic variation calculator will compute the magnetic variation at your current location and time anywhere in the world.

The StarPilot is archived in the TI-89's flash ROM permanent memory which means you can remove all the 3AAA and backup Li batteries without losing the program. World wide availability of the TI calculators means that your software investment is protected by making it easy to replace the the unit in the event of a mishap at a foreign port. The StarPilot 89 comes with the TI Guide Book, the StarPilot illustrated User's Guide with practice exercises and a CD with additional instructional material and resources. Options include a water and crush proof storage box is available. The calculators is 3.2x7.1 inches with a ship weight of 3 lbs. If you already own a Texas Instruments calculator model TI-86, TI-89, TI-92plus, or Voyage 200 you may just buy the program via an Internet download and load it yourself through the PC Link which is included in the calculator as a matter of course. The StarPilot download program includes a the StarPilot illustrated User's Guide with practice exercises as a downloadable PDF file.

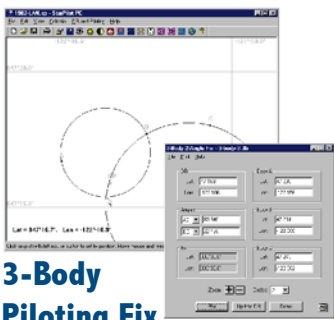
PC operation of StarPilot is easy by just loading the StarPilot PC program into your PC with the supplied CD or via Internet download. It runs on any PC running Windows NT, Windows-95 or newer. The hard copy version of the StarPilot PC comes with a CD which includes the program, an illustrated manual, and additional educational resources. SW 1 lb.



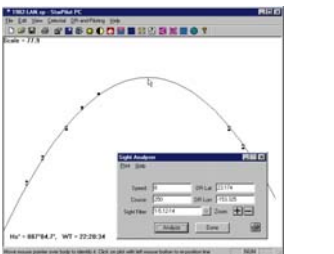
### Plot LOPs



### Find Best Sights



### 3-Body Piloting Fix



### Analyze Sight Sequence

## StarPilot Features

For the most part, these general features apply to all versions of StarPilot

### General program design features... that save time, keystrokes, and minimize errors

- Easy to use menu-driven interface
- Stored settings of commonly used values
- All bodies and star names stored internally, no need for separate lists
- DR functions integrated with the celestial functions
- Convenient DR updating by log or time
- Input courses as true or magnetic
- Convenient time input, with or without zone description and watch error
- Graphing calculator plots LOPS, Fixes, DR positions, and Star maps
- Program can be easily updated to incorporate latest version and features
- Internal back-up battery (Li 5-yr) protects program and settings if main batteries (AAA 1-yr+) fail. (SP-86 & SP-89)
- Versatile, modern calculators useful for multiple purposes besides navigation
- Custom menu bar for quick navigation to often-used functions

### Sight Planning

- Sunrise, Sunset, times and bearings (amplitudes)
- LAN, time, Equation of time, Hs max at LAN1
- Nautical and Civil twilight times, and LHA Aries at midpoint between them
- Moonrise, Moonset, Moon phase, and Moon age
- Precompute specific values of Hc and Zn for any body
- Planet and Star ID by observed height and bearing
- SIGHT PLANNER function plots full sky showing moon, stars, and planets in radar-like display of heights and bearings. Set Hc min/max and max# of stars before computation. Set cursor and click to read the actual height and bearing of a plotted body.
- Special fast almanac mode allows full sky plot in less than 5 minutes (instantaneous in the PC version)
- Display internal list of 173 stars by name, brightness, and location
- Unique BEST SIGHTS function selects the optimum triads of sights for any sky (89 and PC only)

### Sight Reduction

- Optional modes for sequential sights using repeated settings or unrelated individual sights
- Perpetual almanac accurate to 2100+
- Historically accurate almanac data to 16th century
- Sight reduction of Sun, Moon, Mars, Venus, Jupiter, Saturn... plus Mercury!
- Sight Reduction of 173 stars plus Polaris
- "Assumed positions" read directly from DR section without extra input
- View intercepts (a-values) with or without course and speed corrections
- Full input data displayed with results to check for errors
- Special center-body mode for artificial horizon data
- Dip-short mode for practice at shorelines

### Celestial Fixes

- Unique SIGHT ANALYZER fits a sequence of sights to the right slope for optimum sight selection
- All fixes corrected automatically for course and speed as needed
- Fix accuracy independent of DR accuracy in all cases
- Plots LOPS with live cursor position display
- Fix computed by USNO algorithm in the Nautical Almanac
- Zoom in on plot to see where computed fix is located
- Fix can be obtained by graphic selection from the LOP plot
- Automatic display of DR-to-Fix range and bearing
- Optional automatic update of DR after fix
- Display new course and distance to stored destination

### Special Celestial Functions

- Latitude and Longitude by Meridian passage
- Latitude by Polaris sighting
- High precision Azimuth of Polaris for surveying or compass checks
- Recover lost GMT using unique Lunar distance analyzer
- Compass calibration via sun shadow method — or ship's pelorus
- Sight reduction by external almanac data — bypasses internal almanac for literal checking of text book problems.

### Piloting utilities

- Distance off by vertical sextant angle — horizon to top
- Distance off by vertical sextant angle — base to top
- Distance off by vertical sextant angle — base to horizon
- Distance off by two bow angles and distance run
- Geographic Range computer
- Numerical solutions to running fixes (PC only)
- Numerical solutions to 3-point sextant fixes for precision PC piloting

### Route planning utilities

- Rhumblines course and distance with automatic comparison to GC
- Great circle course and distance
- Great circle waypoints
- Composite sailing track — latitude limited great circle route
- Traverse Table computations
- DR computations by speed and time or by log readings
- Long-distance ETA computes local time and date of arrival, any time zone, any longitude, any date
- Distance outputs to 2 decimal places for DGPS comparisons

### Current Sailings

- Find COG and SOG — from course and speed plus set and drift
- Find course to steer — to make given COG, given set, drift, and speed
- Find set and drift — from COG and SOG and course and speed
- Find course to steer and speed — for given ETA across current

### Miscellaneous Utilities

- Convenient Speed-time-distance computer
- Find true wind from apparent wind
- Interpolate Tide height between highs and lows
- Interpolate Current speed between peak and slack
- Compute Magnetic Variation