

### CELESTIAL NAVIGATION SOFTWARE

The software programs on this and the next page are produced by individuals—not large companies. They are labors of love by people who are extremely talented, and they try to give you all the information you could possibly need. These programs are stunningly good, and at the same time inexpensive! They have all been reviewed by experts for accuracy and ease of use.

All of these programs include a built-in almanac to at least the year 2030, and contain routines for complete sight reduction. Typically the user enters the time of a sight, the sextant reading and the name of the body observed. The output is a bearing and distance needed to plot a line of position. The programs replace the Nautical Almanac and the Sight Reduction Tables. However, since computer devices are subject to failure, we recommend familiarity with the manual method of using the Almanac and Sight Reduction



### NAVIGATOR SOFTWARE

Navigator is a remarkable program, and has received high praise from many expert navigators. It embodies many features rarely found in one program, and certainly not at such a low price. Its many **celestial navigation features** are:

- Perpetual Almanac for all bodies (to year 2031)
- Star Finder
- Meridian passage calculation
- Lines of position calculation
- Fix calculation
- Print star finder and star charts
- Print daily pages of the almanac

The **star finder** is a polar chart of the visible sky at a given time and position. You can point at a star and see its name, altitude and azimuth. Or you can point on the spreadsheet and see the corresponding star on the chart.

**Lines of position** are actually plotted on a small inset chart (centered at your estimated position) with all the data affecting its computation shown. **Fixes** are shown as a result of the LOPs.

**Daily nautical almanac pages** can be printed out. All that is needed is the initial date of a 3 day period. These pages are very similar to the official Nautical Almanac in arrangement and data, and show: star position tables (SHA and dec), sun and moon hour tables complete with increments and semi-diameter, planets hour tables with increments, aries hour table. Not included are: The latitude functions such as twilights and sun and moon rise and set, sun equation of time and meridian passage, and moon meridian passage. While not intended to substitute for the official Nautical Almanac, it nevertheless is quite enough to do celestial navigation using the traditional methods.

#### Charting Features

- Scan your own charts
- Import GIF and JPEG images as raster charts
- NMEA GPS interface
- Create routes and tracks
- Plot position and save track in real time

It should be understood though, that this is primarily a celestial navigation program, and is not meant to replace other more expensive and more complete charting software. It will not read commercially available raster or vector charts. It will, however, read charts you scan yourself, and save as a GIF or JPEG image. In fact you will have unlimited zoom in or out capability with excellent clarity. This feature of making your own charts from paper charts, cruising guides, or even roadmaps is becoming very popular with navigators using other programs (such as Fugawi).

The program comes with a beautifully illustrated and comprehensive printed User's Manual. System requirements are PC (486 or pentium) running Windows 95/98/ME/NT/2000/XP. SW 0.3 lb

**Navigator Software** #3123 \$59.95

## POCKET STARS

Pocket stars is a high accuracy star chart, almanac to year the 2030, and celestial navigation calculator for PC, Pocket PC, and Windows mobile Smartphone. It is the ultimate portable astronomy tool.

Star Chart features include: animation of the sky in increments of hours, days, weeks or months; black, white and red star chart colors for night vision; user location set by clicking on map, city or lat/long. The star charts may be printed.

Celestial navigation features: sight reduction for any of 9110 stars, the planets, sun, and moon; corrections for dip, refraction and vessel movement; all observations can be used to find a best fit fix with a 95% confidence ellipse; rise, set and meridian times for all solar system bodies; calculations for great circle distance, range and bearing, horizon distance, and much more.

The CD includes three versions of Pocket Stars for PC, Pocket PC PDA and Windows Mobile Smartphone, as well as a tutorial video and printable user manual. Pocket Stars PDA runs on Pocket PC 2000, 2002, Phone Edition, and Windows Mobile 2003 devices. Major devices are: iPaq, Axim, and all ARM Pocket PCs. Pocket Stars PC runs on W- 98/SE/ME/NT/2000/XP. SW 1.0 lb.

**Pocket Stars #3121 \$39.95**



## CELESTNAV

CelestNav is a full-featured celestial navigation solution for the Palm OS family of handheld computers. It runs on any Palm OS handheld with version 3.0 or higher. This includes the entire Palm III/V/VII/M100 families, Visors, Symbol, TRG, and IBM units. It also runs on the new ARM processors (as well as the old Dragonball) and the Garmin iQue 3600.

The program guides you through the steps of computing a celestial fix, using its built-in almanac good until the year 2031. It records your sextant observations with sight times; applies the appropriate corrections for height of eye, atmospheric refraction, backsights, and sextant errors; combines multiple sights into a celestial fix; computes your position automatically; and maintains a dead-reckoning position from your last known fix.

CelestNav uses about 300 kb of space on your PDA CelestNav is supplied on a CD with digital documentation. SW 0.5 lb.

**CelestNav #3120 \$49.95**



## TAMAYA NC-2100E CELESTIAL COMPUTER

*New*

This navigation computer is designed for the professional mariner or open ocean yachtsman. Its PDA format has a large display, and easy to understand prompts provide a very user friendly navigation computer.

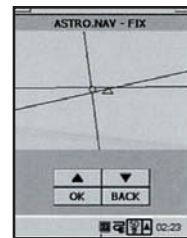
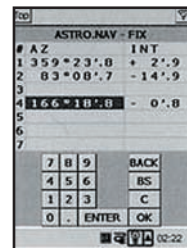
### Features

- Simple operation with built-in programs
- Course and Distance computation
- Dead Reckoning computation
- Great Circle computation
- ETA computation
- Current computation
- LOP computation
- Meridian Passage computation
- Convenient conversions for to HMS and to HHH
- Long term Nautical Almanac for the Sun, Moon, Venus, Mars, Jupiter, Saturn and 63 stars. The built-in Almanac is usable until 2100, it is good with accuracy better than 0'.2 .
- Twilight Time mode computes time of rise or set, civil twilight and azimuth for the Sun and rise or set, age and azimuth for the Moon
- Prediction/Identification mode computes azimuth and altitude for all celestial bodies and displays any usable bodies above the horizon

In addition, this unit also functions as a pocket PC, utilizing the Microsoft OS. Such functions as: Daily Planner and calendar, Excel Documents, Image Library, Notes, Windows Media, and Word Documents are available.

PDA operation is by touch panel with stylus pen. Power is from a lithium rechargeable battery and AC 100-120 volt adapter only. The charge time of 3.5 hours gives 6 hours continuous operation. The hardware is a HP iPAQ rz1700 pocket PC, weighing 6 oz. Size is 3x4.75x7 inches. List price \$950. SW 1 lb.

**NC-2100E Computer #3116 \$849**





## STARPILOT *Global Marine*

The StarPilot Program is a navigator's dream come true. 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. Celestial navigation and piloting students as well as experts will value the ease of use of this program.

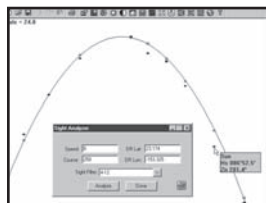
**Celestial highlights** include a Sight Planner that plots out the full sky showing heights and bearings of all navigational bodies from which you call up a Best Sights function which displays the best triads of sights for that sky. Once sights are in hand, the Sight Analyzer function fits sequences 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. 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 Program is available** in one of the following three ways:

- Pre-installed on a TI-T89 type Calculator
- As a program which can be installed on a PC.
- As an internet download for any of the following devices: PC, TI-T89, TI-89, T-86, TI-92+, TI-Voyage 200.

**The StarPilot program is pre-installed** using the TI-T89 Calculator as a platform, and ready to go at the first touch of the ON button. The program is menu driven for user friendliness and provides graphing so you can see each line of position (advanced or retarded as necessary) that composes your fix. It allows your judgement to intervene for a more accurate assessment of them, and your modification of the final fix.



**Sight Analyzer**

The TI-T89 is a new titanium model which has a USB to PC interface built-in. Otherwise it is the same as the TI-89 which it replaced in 2005. The main attributes of the TI-T89 over the discontinued TI-86 is this: The TI-T89 is 4 times faster than the 86; it has a higher resolution display; it has an improved data entry procedure in that previously entered values become default values for the new entries. It also has vastly more memory which would be useful for other programs.



**The TI-T89** is also a very powerful programmable calculator, and its full array of normal functions is still available to you—if you care to use them. If you don't, you just need three buttons to operate all of the StarPilot navigation functions of the calculator.

The StarPilot program is protected against loss in that it is archived in the TI-T89s flash ROM permanent memory which means you can remove all 3 AAA, and backup Lithium batteries without losing the program. World wide availability of the TI calculators means that your investment is protected by making it easy to replace the unit in the event of a mishap in a foreign port.

The StarPilot-TI-T89 comes with the TI Guide Book, the StarPilot illustrated User's Guide with practice exercises on a CD with additional material and resources. Calculator size is 3.2x7.1x0.75 inches. SW 3 lbs.

**If you already own a TI-T89, TI-89, T-86, TI-92+, or TI-Voyage 200 or PC,** you may just buy the program via an internet download to your PC, and load it onto your calculator with a PC Link cable which you may already own, or can find at any computer store. The download programs include the StarPilot's Illustrated User's Guide with practice exercises as a downloadable PDF file.

**A protective box** is available which fits the TI calculators perfectly. It is foam lined, waterproof and virtually indestructible. SW 1 lb.

**PC Operation of StarPilot is easy** by just loading the StarPilot-PC program into your PC with the CD supplied. It runs on any PC running Windows NT, W-95 or newer. The StarPilot program comes with the StarPilot illustrated User's Guide with practice exercises and additional educational resources on a CD. SW 1 lb.



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| <b>StarPilot TI-T89 Calculator with Program</b>              | <b>#3133</b>  | <b>\$379</b> |
| <b>StarPilot PC Program</b>                                  | <b>#3137</b>  | <b>\$139</b> |
| <b>All Internet Downloads</b> (See Celestaire.com for item#) |               | <b>\$129</b> |
| <b>Protective Box</b>  | <b>#3130B</b> | <b>\$ 20</b> |