

# Surveyor II

## Geodetic Computations

The software can be used to perform the following computations, grid to geographicals, datum shifts and range and bearing between two points. 18 pre-defined spheroids, over 150 pre-defined projection parameters, and predefined datum shift parameters for WGS84 to OSGB36 and Norwegian Datum. Projections include Transverse Mercator, Mercator, Lambert Conical, Cassini-Soldner, Azimuthal Equidistant, State Plane (USA), Rectified Skew Orthomorphic (Borneo and Malaysia), Norwegian National Grid (NGO) and Stereographic. The program can be used to process UKOOA P190 data files.

## Navigation Computations

The following navigation systems can be used Range/Azimuth, Range/Range, Hyperbolic, Time Pulse, Main Chain, Acoustic Long Baseline, Acoustic Ultra Short Baseline, 2Mhz Range/Range, Sextant, Position (including GPS). The software has the ability to combine any of the systems to produce a fix.

## Anchor Catenary Computations

The software computes the theoretical position of an anchor cable to an anchor or a tug, up to 6 buoys can be attached to the cable.

## Tidal Predictions

The software computes and displays the tidal curve based on a standard port and tidal harmonics all parameters can be obtained from the Admiralty Tide Tables. The software can also Cubic Spline Fit a tide curve using tide gauge data observed at various intervals.

## Sun Azimuth

The software computes the azimuth to the sun from observations and using star almanac tables. This software can be used to calibrate a gyro compass.

## Baseline Crossing Analysis

The software is used to check the calibration a navigation system. The software uses least squares to determine the minimum distance between two stations by curve fitting a set of observations.

## Transit Fix

The software from observations computes the position of the legs of a 3 or 4 leg structure and also the centre.

## Acoustic Box-in

The software is used to determine the position of a seabed transponder using a surface navigation system.

## Network Adjustment

The software uses least squares to adjust a network of up to 20 points using measured ranges, bearings and position observations. The software can be used for calibrating an acoustic network.

## Speed of Sound in Water

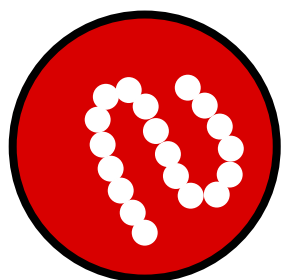
The software can use formulae to compute the velocity of sound in water, Chen & Millero (1977), Del Grosso, LeRoy, MacKenzie, Medwin, Wilson (full and simplified) and Woods. The software also has the ability to produce velocity profiles from a series of points.

## USBL Calibration

The software is used to calibrate an USBL navigation system, the software will compute the likely errors in range, alignment, pitch and roll

## Grid on Grid

The software computes the relationship between two grid systems and then allows the operator to convert between the two systems. Computation can be used for calibrating an acoustic network with a surface navigation system.



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