

Starfix.Seis is an advanced vessel positioning software system developed from the proven PCNav and PCSeis products. It has been developed to address the specific requirements of Fugro's seismic acquisition vessels, general hydrographic, and construction survey needs.

Starfix.Seis can be integrated with any of the other modules in the Starfix Navigation Suite including Starfix.Anchors and PCTug for remote barge, anchor handling operations and Starfix.USBL for USBL operations and Calibration.

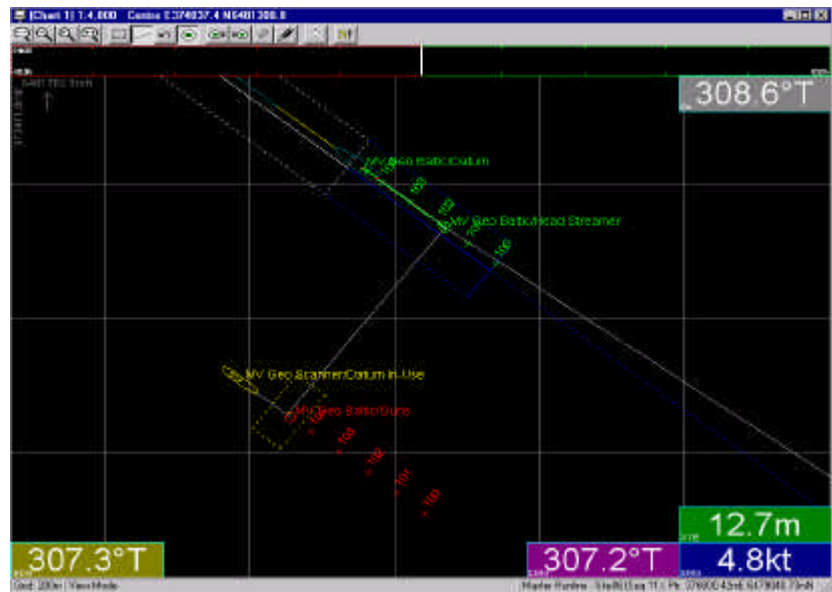
The **Starfix.Seis** application enables the navigation system to be configured and modified in realtime. All other applications operating over the LAN are notified of any changes in configuration and update accordingly. The calculation engine computes and corrects in 3 dimensions. The new Starfix Project File formats have been designed to fully utilise this capability.

Sensor input and output data strings to devices, such as autopilots, are handled via IOWIN drivers and are user selectable.

Starfix.Seis makes use of high accuracy external time sources, such as GPS timer cards, or timerboards connected to GPS (1PPS), to provide microsecond precision and synchronisation of all data.

Features

- Configuration for:
 - Project Information.
 - Geodesy with 8 projections.
 - Selection of calculations mode from Grid, Spheroidal, or Rhumbline.
- System inputs per vessel (10 vessels):
 - Vessel file containing name, colours, fixed offsets, and fairlead information.
 - 7 positioning systems + 1 dead reckoning system.
 - 5 heading sensors.
 - 5 motion sensors.
 - 3 speed sensors.
 - 2 range/bearing systems.



Display showing slave seismic vessel trying to keep its gun array on station

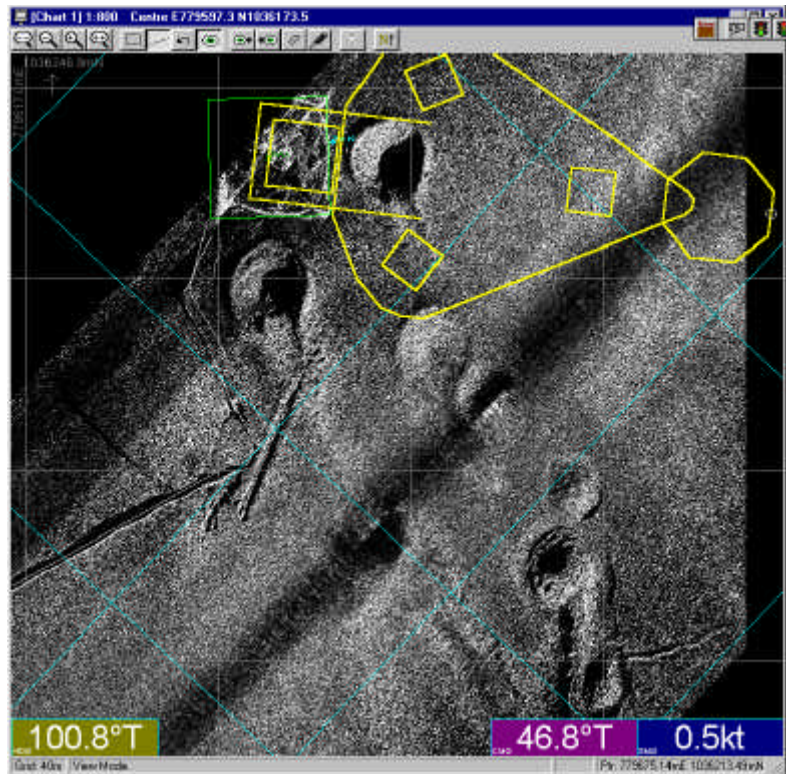
- 5 echosounder channels.
- 5 heave channels
- 5 pitch / roll channels
- Input for 30 targets, such as USBL transponders.
- Provision for 10 variable offsets
- Provision for 30 O/Ts (positions to be worked with), which can be:
 - Logged and printed.
 - Information relative to line or target calculated.
 - Selected as steer point or shot firing point, or offset fix point.
 - Set it's own Kalman filter.
 - Each O/T publishes its own position offset message data to MM.
 - Create O/T as mean of a selection of O/Ts.
- Navigation can be to runline, waypoint (target), or pipeline.
- Separate files are maintained for runlines, waypoints, pipelines, anchor patterns, and database features (items that need to be displayed but not navigated to). Multiple pipelines can be contained in a single file, and pipelines with zero radius curves become dogleg lines.
- PCNav and PCSeis project files are supported.
- Line running features include:
 - Provision for line extensions.
 - Input of automatic start and end fixing distances.
 - Line corridor width.
 - Turning circle at start of line runin.
 - Reverse line heading.
 - Ghost lines.
- Shot firing features include:
 - Fixing by time, distance, or KP.
 - External fixing for VSP surveys.
 - Fix increment or decrement by user selectable number.
 - Provision of Fiducial Fix Identification number (FFID) counter.
 - Manual fix counter is independent of shot counter.
 - Offset and Man OverBoard fixing.
 - Issuing of line Prestart message for annotation purposes.
- Online geodetic conversions and position to line calculator.
- Precise (within microseconds of GPS time) multi vessel shooting via GPS timer cards and MMRadio data link.
- Sound card support.

DISPLAY

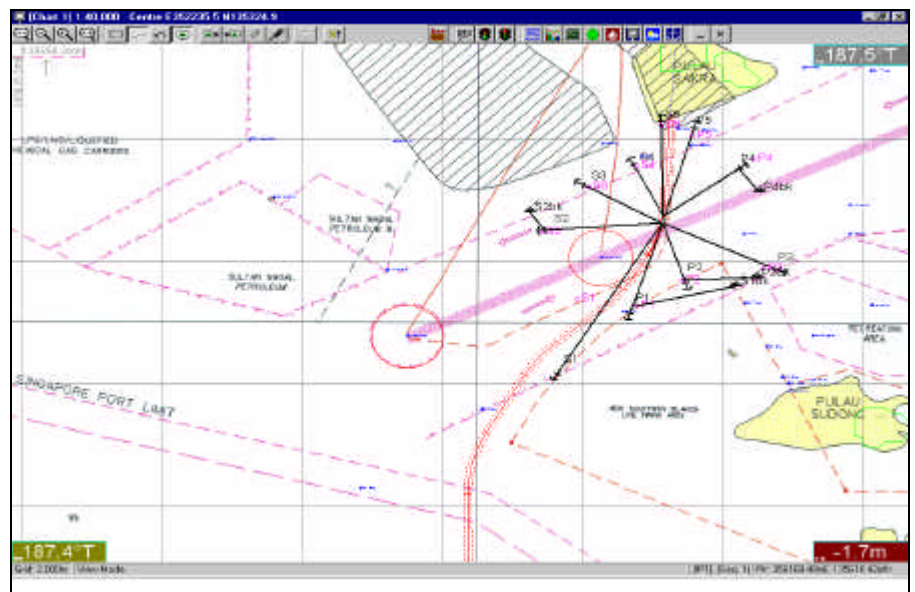
Display provides a graphical presentation of the vessels and O/Ts against a database and navigation information in relation to centrelines, runlines, and waypoints. Full control of the graphical display is available and any number of graphical display and text displays can be shown simultaneously.

Features:

- One instance of Display per machine but multiple instances across a LAN.
- All displays are individually configurable.
- Text displays are available for:
 - Display of information between O/Ts.
 - Differences in O/T positions.
 - Configurable general information.
 - Line running information including selection of alternate line.
 - Running to target information including selection of alternate target.
- Graphical screen features are:
 - Fully configurable for colours, project file information, O/T information, O/T symbols.
 - Selection of 4 automatic and multiple user defined configurations.
 - Can be centred to an O/T or a selected point.
 - Tiling of graphics image backdrops.
 - Full pan/zoom capabilities.
 - Return to previous views.
 - Range/bearing calculator and position export to other applications.
 - Plot range rings about selected O/Ts.
 - Definition of rubberband lines drawn between selected O/Ts.
 - Enable/disable of scalable left/right indicator.
 - Enable/disable of overlay of speed and heading text in large font.
 - Enable/disable of coverage plot.
 - Enable/disable of swath plots.
- Ghost vessel shapes.
- Displays plan view of catenary module.
- Displays streamer model from MiniStreamer module.



Navigation display with Sonar bitmap backdrop



Display showing barge move with piggybacked bouys