Important Information: SONV3 V1.55 onwards must be loaded onto any systems running the new Super SeaKing Profilers and Sonars (with 'SK5' boardsets).

SONV3 V1.55 (23-07-2002)

1. **V1.54 / V1.55 support for 'Super SeaKing' Profilers & Sonars**
   This software version provides control for the NEW Super SeaKing Profilers and also for Super SeaKing Sonars installed with new 'SK5' electronics boardsets. (Note: Sonar housings will be labeled accordingly if 'SK5' boardsets are installed within). Standard SeaKing Profilers are still fully supported but these two types of Profiling device should not be mixed on the same system. Although it will be possible to swap in and out pairs of the same type of Profiler, be those standard SeaKing Profilers or Super SeaKing Profilers. Versions of software later than V1.54 will control both types with no need for any special user configuration when switching over from one type to another. The one thing that the user should be aware of is that the 'Gain' settings on the Super SeaKing Profilers will need to be raised higher than what has been normal for standard SeaKing heads. Around a 30% Gain increase should be applied for the Super SeaKing heads and this also applies to Super SeaKing Sonars with 'SK5' boardsets installed. This gain increase is necessary as a result of enhancements to the acoustic receiver circuit to provide better Signal to Noise ratios.
2. **Increased Range with 'Super SeaKing'**
   The Range limit with the standard SeaKing Profiler has been 30 metres and resultantly the 'Range' dial has been limited to 30 metres in software versions preceding V1.53. However, the Super SeaKing Profilers are longer range devices and as a result the limit on the 'Range' dial in V1.53 has been increased to 80 metres; 50m and 80m Range Scale options have been added to this dial.
3. **Survey output strings affected on 50m / 80m range scales**
   When using Range Scale settings ('Range' dial) up to and including 30 metres, the resolution of the Profiler Data within the Profiler Reply Data strings transmitted out the serial port will remain the same as in previous software versions. However, when 50 metre or 80 metre range scales are selected, i.e. those intended for Super SeaKing type Profiler heads, the resolution of the Profiler data will decrease by a factor of 10. This applies to both the 'Raw' and 'Processed' output data formats. For full details, download the latest "Remote 'V4' Serial Communications" manual from the SeaKing Survey System Manuals page on the web-site.

CHANGES BETWEEN VERSIONS 1.50 & V1.55

(Items 1 -> 3 are changes since V1.54)

1. TCM2 Compass interface through SeaKing Sonar AUX Port. Display on screen and standard TCM2 message output through Surface Unit serial port.
2. Preparation of RS-232 serial drivers for SKIM box for future upgrades to next generation software that will operate under Windows 2000 and XP.

Tritech International Ltd
Peregrine Road
Westhill Business Park
Westhill, Aberdeenshire
AB32 6JL. Scotland, United Kingdom
Tel: +44 (0)1224 744111
Fax: +44 (0)1224 741771

www.tritech.co.uk

3. NMEA 0183 "VTG" message will now be received through same COM port as other NMEA messages. The "VTG" message will be logged and will display Course over Ground and Speed over Ground info.
4. Alden Thermal Plotter output for Sidescan systems;
   a) TimeMark Line can be set from a drop down list on-screen, at intervals... ('Off', '30sec', '1min', '2min', '5min').
   b) Annotation on Left and Right of Plot which can be configured on-screen.
   Options are to plot
   i) manual text
   ii) serially inputed text in ASCII format with <cr><lf> terminator
   iii) PC Date/Time
   iv) GPS NMEA serial input data.
5. Profiler Output messages (remote 'V4' protocol) can now be appended with individual ping times so that accurate seabed bathymetry profiling can be achieved. Selecting any Profiler application with an Attitude interface will enable this option. E.g. click on 'Menu' -> 'Appsetup' and select any application that includes both Profiler ('P) and Attitude ('A') such as 'PA', 'SBPA'. Without the connection of the Tritech Attitude Sensor (Node 40) the ping time message will be appended to the standard Profiler Message. When an Attitude Sensor is connected then the appended message will instead contain Roll Angle data for each ping. More information can be obtained from Tritech Software support.
6. The RS-232 protocol, in systems using the RS-232 telemetry option (instead of ARCNET), has been enhanced and so will provide faster turnaround and transport of Sensor data. In particular, this will provide faster scanning of Imaging Sonars set on Range Scales of 30 metres and below.
7. The Surface Unit system clock can be set via incoming GPS NMEA 0183 messages; 'ZDA', 'RMC', 'GGA', 'GLL'. An application with a GPS option must be selected in 'Menu' - 'Appsetup' such as 'SSS_GPS' or 'S_GPS' which are Sidescan and Imaging Sonar applications respectively. After a serial port has been configured for a GPS input, the following command line must be edited in the C:\Windows\Sonv3so.ini file...
   [NEMA]
   ;;Set clock via NMEA "ZDA" GPS Time
   ;;0=Off, 1=1 minute update interval, 2 = Max update Interval
   MIN_TIMER=0
8. Sidescan Annotate Eventline added. The following command has been included to trigger an Eventline (marker line on Alden plotter) once it is received through any enabled serial port for Sidescan 'Slot 05' on the Surface Unit...
   :ET05<cr><lf>
9. In the Bathy Display, Local and Mean density values are now displayed to 4 decimal places (was 3 d.p.). Temperature, Conductivity and Salinity now displayed to 3 decimal places (was 2 d.p.).
10. .MDB Log Files, recorded using 'Log' - 'Record', now store Profiler X,Y & R mounting/position offsets. This will allow for replay on other Surface Units where the mounting offsets need to be re-applied.
11. There is now an option to Automatically set the System/Manual V.O.S. and Density values via the Auto updates calculated from CT Probe readings. This will ensure that if the CT drops out there will not be any glitches, particularly in depth display, when the

System/Manual Density and V.O.S. is momentarily assumed. This option is set in the C:\Windows\Sonv3so.ini file
(disabled = default)...
[BATHY1]
;;Auto-update System Density/VOS with CT Auto values, 0 = disable.
CTAUTOSYSTEM=-1

12. GPS NMEA 0183 message inputs;
    a) The 'Speed Over Ground' field within the 'RMC' message type will now be displayed and logged if valid.
    b) The 'Latitude' & 'Longitude' fields within the 'RMC', 'GLL', 'GGA' messages can now be displayed in Eastings/Northings or Latitude/Longitude. The Tools menu of the GPS display box has a 'Lat/Lon' check-box to toggle between these 2 options.
13. In the 'V3SETUP' Utility Program, the 3 x 'CPU ID' boxes can only be changed in Supervisor level. This will prevent curious users from programming inaccurate settings into AIF cards, Sonars etc.

CHANGES BETWEEN VERSIONS 1.40 & V1.50

1. Addition of Right Button Click to lay cross marker on profiler window for purpose of relative measurements. Relative measurements are then in polar Range and Bearing format.
2. Addition of extra Bathy serial output messages; UK90 STD, UK90 ALT, MB1000/HB200, ALT1, ALT2. Note that on a SeaKing SCU topside unit, these are not made available to the user by default. However, on a dedicated surface Bathometer unit, the messages are made available by default. Contact Tritech Support for information on how to configure this.
3. Previous added option of surface Barometer has a Setup menu that is now accessed via the 'Barometer Setup' button in the Bathy Setup Form (accessible by clicking on the spanner icon on the top-left of Bathy window). Barometer Offset Correction, Height Above Sea Level and Manual Barometric Pressure (applied in Bathy Pressure measurements if surface Barometer is not connected) are entered in this menu.
4. Pipetracker serial interface: Datum Offset added. Following lines in SONV3SO.INI, under [PRF] Section allows offset Pipe Datum relative to Screen zero datum;
   ;PipeTracker Datum Offset X,Y (in mm for metric users)
   PIPEOFFS=0,0
   Where ; PipeX Offset applied to Lateral display on screen PipeY Offset applied to Vertical and Altitude display on screen
5. 110 Baud now added to RV4 Comms Baud Rate settings. This is to assist with AUV low speed telemetry links.
6. Keyboard Hot-Keys added for quick screen printing and capture of screen snapshot to bitmap file.
   a) <Alt><p> is now 'Do Print Screen'
   b) <Alt><s> is now 'Do Snapshot'
7. Raw Bathy data can now be viewed to help with diagnostics and Digiquartz pressure calibrating. The new Raw data panel is an overlay in the Scrolling Plot display and is enabled via the 'Diagnostic Raw Data' check box in the Bathy Setup Form (N.B. only available when Scroll Plot is enabled).

Tritech International Ltd
Peregrine Road
Westhill Business Park
Westhill, Aberdeenshire
AB32 6JL. Scotland, United Kingdom
Tel: +44 (0)1224 744111
Fax: +44 (0)1224 741771

www.tritech.co.uk

8. Split AIF system: RS-232 communications between surface and subsea 'split' cards now operates over 3-wires (Rx, Tx, Gnd). In V1.40 (and 1.39) a 4-wire link was required to facilitate hardware handshaking (1 x RTS-CTS link) that was originally necessary but now removed. Hardware modifications to early systems is necessary and involves simple links to be fitted on both surface and subsea cards (contact Tritech Support for details).
9. Addition of Subsea J-box: This pressure rated box will provide the subsea split to the SeaKing sensor suite (Profilers, Bathy, Sonar). Telemetry to the surface can be either RS-232 or ARCNET, both providing connection of full sensor suite. J-box is identified as Node 254 and different telemetry selection is provided on the box outer by a pressure rated switch dial.
10. Split AIF + J-Box systems: In previous software versions, the subsea 'split' card (SA AIF card) was identified in V3SETUP as Node 255 and surface card (AIFV4 card) was node-less. This was slightly confusing and nodes have been changed to the following;
    Surface AIFV4 card = Node 255 always.
    Subsea SA AIF card = Node 254* always.
    Both cards will now be displayed in V3SETUP with a Node I.D.
    *Upgrade procedure will be provided by Tritech
11. Addition of Roll Sensor interface. This is a standalone device provided by Tritech to connect to the SeaKing network as Node 60. The device angle data is displayed on the right hand panel and then applied to the Profiler data real-time. The correction angles are then appended to the profiler output messages on the serial port to provide all correction data to the survey logging computer.
12. Extension to Bathy Profiling. This feature has been available since V1.27 for recording a Mean Density and other CT information to table during a dive. The data is stored to a text file and can then be brought into a survey log or even be re-loaded at a later date to provide the CT data during future deployment at the same location. The storage file has been extended to additionally record Mean Velocity of Sound and Depth data during deployment - because of this, the file has been re-named to .BP3 (was .BAP).
13. Added 'V4' Serial Command for Bathy. Sending a ":GV" type command to the SeaKing SCU or Bathometer will request a reply message stating the current depth and Mean Velocity of Sound figure.
14. Quad Profiler Window. Four profiler (i.e. 2 pairs) can be controlled and displayed from the single window. This frees screen space for running other display windows alongside, such as a Sonar and Bathy

CHANGES BETWEEN VERSIONS 1.26 & 1.40

1. A global Velocity of Sound entry is available in 'Menu'.
2. Any changes made in the 8 user boxes on the right screen panel will now be recorded during logging. As usual, double-clicking on a user box will call out an alphanumeric keypad for text entry. Job details can therefore now be displayed and logged alongside recorded device data such as profilers and sonars.
3. Setting the SCU Date/Time serially - using the ':SB' V4 serial command - is now Year 2000 compliant. In earlier software versions only 2 digits of the 4 digit 'Year' field in the ':SB' command string were used to update the SCU system date.

4. "Split AIF" Card capability added (new split card option, with cards installed surface and subsea, allows networked RS232 through vehicle umbilical).
5. AML Velocimeter support for Bathy systems. AML Velocimeter is an alternative to the Falmouth CT probes that are fitted as standard.
6. Barometric Sensor support added. This option is now available from Tritech.
7. Two additional serial 'V4' Bathy Reply strings have been added; SeaKing Long and SeaKing Short. Note: The 'V4' output Bathy message format is selected in the Bathy Setup Form (accessible by clicking on spanner icon on top bar of Bathy window). A toggle button in this form is used to select between the 4 x message formats (Winson Raw, Winson Processed, SeaKing Long, SeaKing Short).
8. Support for parallel port interfaced Alden Thermal Printer - Sidescan plotting.
9. Innovatum Pipetracker serial interface has been added. Profiler Application can now display data from received serial strings sent by the Innovatum surface console. An available serial COM port on the SCU is used for the interface.
10. TSS 340/350 and Innovatum Pipetracker data will now be recorded during logging. Also added is a diameter input for the on-screen simulated pipe display. This entry is in the Profiler Tools menu and is next to the 'Pipetracker' check box.
11. Profiler mechanical stepping times have been shortened through improved control algorithms. Profiler scan times at the lower ranges (<10metres) will be resultantly shortened; Up to 50% improvement at 1 metre scan range and 5-10% quicker at 10 metre scan range.
12. Profiler Tools Menu:
    a) This has been tidied up and a 'More Options' check box has been added to hide away less used controls.
    b) The AGC 'Setpoint' control has been renamed 'AGC Threshold' and can be slider bar adjusted by +/- 15dB around a default setting of 90db ('+/- 0'). When AGC is enabled this will override and effectively disable the 1'st return control. AGC** will always act on the peak return sampled over the scanline (scan range for 1 ping).(** In simple terms, the AGC will apply the difference between the amplitude of the peak return and the 'AGC Threshold' (formerly 'Setpoint') as a receiver gain differential for the next ping, i.e. Peak Return = 75dB, AGC Threshold = 85dB; gain increased by 10dB on next ping.)
    c) A 'Max Ret' (Maximum Return) check-box has been added. Maximum return and 1'st Return cannot be enabled at the same instance. The maximum return function will plot the furthest out (more distant) echo if there are two peak echoes returned. This will help to filter out (and not plot) any echoes off clutter between the profiler and the seabed / tank-wall.
    d) Lockout now has separate settings for Low and High operating frequencies (e.g. 580 & 1210kHz).
13. Sonar Tools Menu:
    a) Sensitivity and Slope controls (Lo, Med & Hi radio buttons) are now separate for Low and High operating frequencies (e.g. 325kHz and 675kHz)

Tritech International Ltd
Peregrine Road
Westhill Business Park
Westhill, Aberdeenshire
AB32 6JL. Scotland, United Kingdom
Tel: +44 (0)1224 744111
Fax: +44 (0)1224 741771

www.tritech.co.uk