



Acoustic Systems Trainer – SONAR Mk X



DESCRIPTION:

The study of sonar principles and techniques are as demanding as the study of radar. Sonar is the underwater equivalent of radar, and like radar its functions are many and varied. These include the detection, identification, location and speed indication of 'targets of interest'. There are basically two sonar modes of operation, 'passive' (receiving or listening) and 'active' (transmitting and receiving).

Until recently, the investigation of sonar principles has required large expensive test facilities, or costly commercial sonar systems requiring time consuming preparations. These facilities are not always oriented to hands-on work, leaving a great deal of practical study and research unaccomplished.

Introducing the Acoustic Systems Trainer (AST) for Education and Research. The AST is a fully instrumented system for use in the investigation of sonar principles, and exploration of under-water acoustics. The AST is an ideal test bed for acoustic studies, producing accurate results, and parameters representative of larger test facilities at a fraction of the cost and setup time. The AST includes a full set of courseware, and a range of application based hands-on exercises, covering-

- Active SONAR
 - Passive SONAR
 - CTFM SONAR
 - The Doppler effect
 - Active target profiles
 - Single element transducers
 - Acoustic noise jamming (ASW)
 - Thermal effects
 - Beam formation and steering
 - Passive target FFT spectrograms
 - Resonant frequency responses
 - Transducer beamwidth
 - Volume scattering
 - The speed of sound in water
- ...and more



New Product!

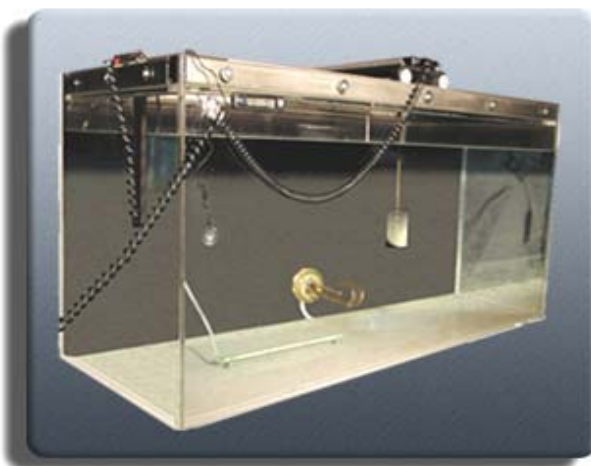
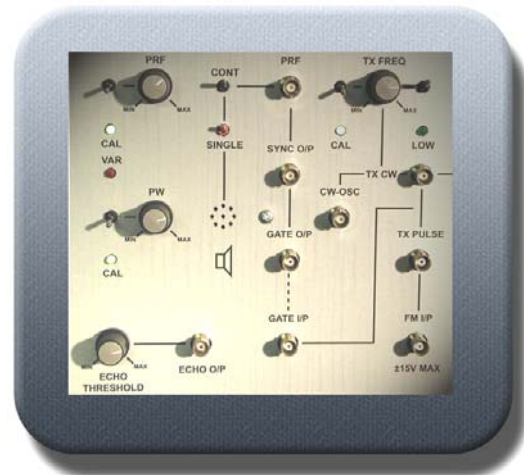
Data Sheet

Originally designed to meet the hands-on training requirements of the Royal Navy's SONAR curriculum, the AST is now being used around the World in Physics and Marine laboratories, for underwater acoustics research and development.

For R&D work, a range of variable electronic parameters such as PRF, Pulse Width, TX frequency, and phase outputs, can all be adjusted to optimal settings for the task at hand. For education, calibrated settings, and menu driven assignments with default opening screens make the AST the perfect solution for your underwater acoustics training courses.

The AST's operational parameters have all been scaled to the appropriate specifications, such as and increase in frequency of operation (hence a shorter wavelength), and the subsequent reduction in the dimensions of the acoustic tank, lower power requirements in the active sonar mode, and a PC interface with software to perform the signal analysis.

The system is comprised of a control Console housing the CW and Pulse gating electronics, which can all be adjusted to the required parameters, or switched to a pre-calibrated mode. The console also includes full signal conditioning, and software processing (SONAR Signal Analyzer – SSA) interfaced with the computer through a parallel or USB port.



The bench mounted, transparent acoustic tank, is constructed from acrylic material measuring just over 4' in length, 2' wide, 2' deep (120 x 60 x 60 cms) and can hold more than 85 gallons (approx 380 liters) of water. An integral heating element allows the temperature to be raised to allow a demonstration of sound speed vs. temperature. The active and passive targets are removable, reconfigurable, and are mounted on an automated target transport system with protective electronics, for the safety of the operator and the system.

