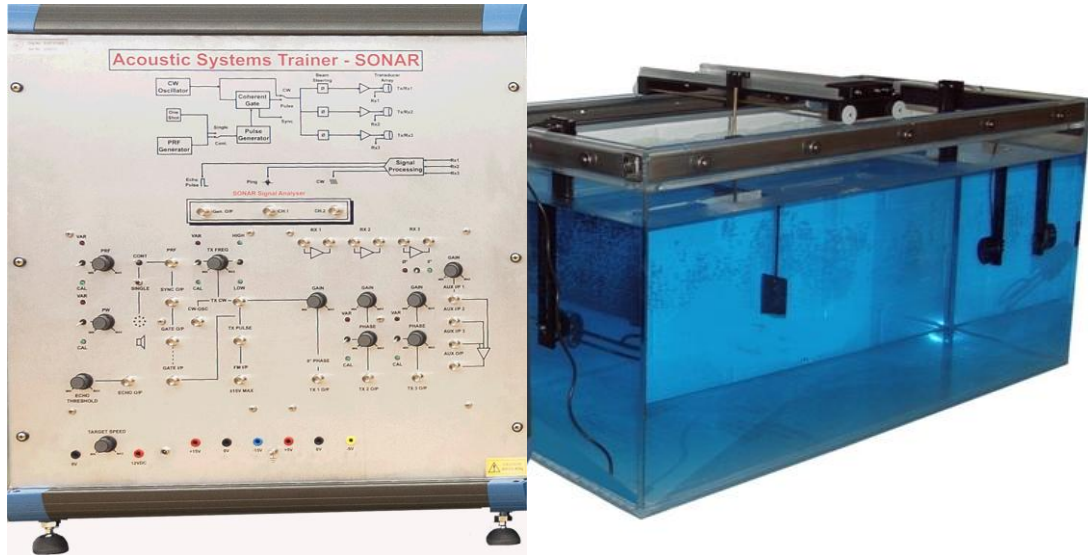




# Acoustic Systems Trainer–SONAR (Underwater R&D System)



**AST Console and Acoustic Tank**

## **Partial list of Installations -**

- : Maritiem Instituut Willem Barentsz - Netherlands**
- : Royal Norwegian Navy - Norway**
- : Singapore Navy - Singapore**
- : Royal Saudi Naval Force - Saudi Arabia**
- : Chinese Naval Academy - Taiwan**
- : Military University Maritime - Brazil**
- : HMS Collingwood - Portsmouth UK**
- : Britannia Royal Naval College - Dartmouth UK**
- : University of Plymouth - Plymouth UK**
- : Texas A&M University - Galveston USA**
- : Indonesian Naval Academy - Surabaya**
- : US Naval Academy – Annapolis USA**
- : CFNE Halifax NS - Canada**
- : INS Valsura - India**
- : PLPE – KL Malaysia**
- : BN - Bangladesh**

## SYSTEM FEATURES

- Real-time operation
- Integral Sonar Signal Analyzer
- All signals can be monitored
- Menu driven software - (Windows)
- Print out of captured signals
- High frequency transducers
- Active and Passive targets
- Bench top, acrylic acoustic tank
- Variable speed Target Transport System
- Low power, low voltage operation
- Multi Channel software
- Underwater R&D Platform

## TOPIC COVERAGE

- Temperature effect and Speed of Sound
- Active SONAR
- Passive SONAR
- CTFM SONAR
- Transducer frequency response
- Sub-Bottom Profiling
- Beam Plot & Beam Width Measurement
- Beam Formation / Beam Steering
- Doppler
- Target Resolution & Stealth
- Volume Scattering
- ASW Noise Jamming ~ UW Sound Analysis

## SPECIFICATIONS

### AST Console

- Rack mounting enclosure 48cm with handles
- 110 / 220 / 240 Volts 50/60~ @ 2 amps
- USB2 connector to PC
- 0-12 volts/+5 v/-5/+15v/-15v D.C.
- TX CW @ 200 kHz - CAL/VAR
- PRF @ 714Hz - CAL/VAR
- PW @ 100µsecs - CAL/VAR
- TX PULSE Gated 100µsecs ~ 20CW cycles
- TX2, TX3 Fixed and Variable Phase O/Ps
- SYNC pulse 5v - positive polarity
- Echo Threshold control

### Sonar Signal Analyzer

- 8,12,14,16 bits Resolution ~ 500Ms/sec
- 2 Channel operation + Math functions
- Storage Oscilloscope 100nsec - 600sec/div
- Averaging 1 - 256
- Phase Measurement
- Spectrum Analyzer .001Hz - 50MHz
- AM/FM/FSK Modulation ~ Sweep & Burst
- Transient Recorder >30,000 points ~ 750 days
- Voltmeters - 6 programmable
- Arbitrary Waveform Generator 1µHz - 30MHz
- USB 2 port connection

### Acoustic Tank

- Acrylic - 12 and 15mm thickness
- Length 1,200mm
- Width 600mm
- Depth 600mm
- Heater with thermostat - 3kW
- Int/Ext Digital Thermometer
- Stainless steel frame
- Transport System and transducer guide rails
- Magnetic sensors

### Transducers

- 200 kHz resonant frequency
- 10°~20° beam width @ -3dBs
- Conical beam shape
- Epoxy resin encapsulation
- 4.2 cm diameter pod
- BNC connector coaxial cable
- Reversible operation
- Orientation - vertical or horizontal
- 3 Transducers supplied
- Delrin mounts

### Target Transport System

- 0-12 Volts speed controlled
- Auto/Manual reversing
- Direct traction drive
- Sliding Target Rails
- Reversing sensors

### Targets

**Active-**  
SS Flat plate 20cm sq  
SS Flat plate 10cm sq  
SS Grill plate 10cm sq  
Acrylic Flat Plate 20cm sq  
Sphere

### Passive-

Variable speed passive-  
Three bladed prop  
Four bladed prop  
Five bladed prop  
Vari-speed Motor ~Gearbox

Contact-