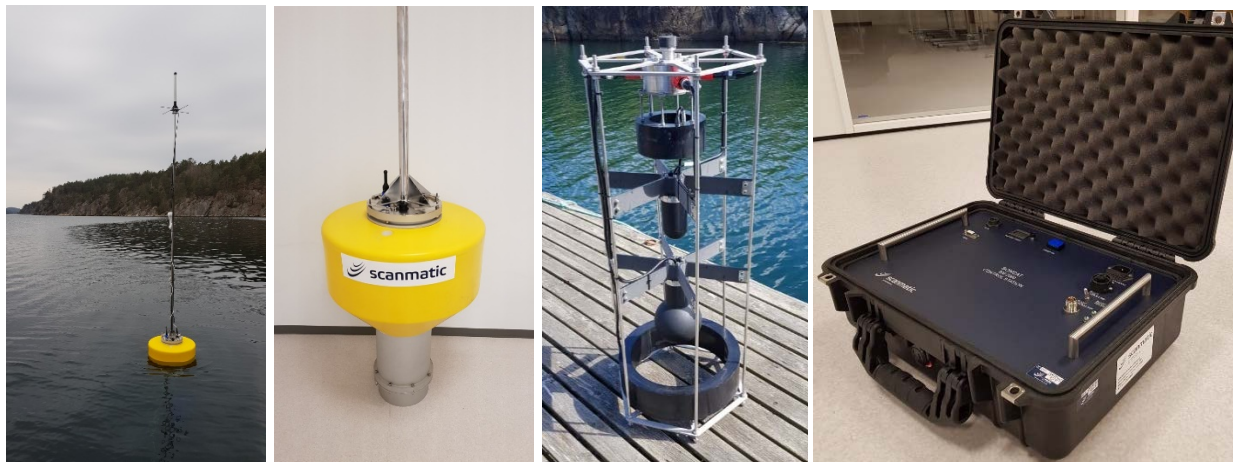


# SONCAT 2 – Sonar Calibration and Training System



## New in 2019!

A new and upgraded version of the SONCAT was released in 2019. SONCAT 2 is entirely rebuilt with state of the art electronics, hardware and software. Among its many new features are:

- Fully digital signal processing and filter settings
- Faster and more detailed hydrophone sampling
- Broad spectrum sound transmittal with 8 channels for transducers working in parallel
- Possibility for much broader frequency range with custom transducer package, down to 100 Hz and up to 100 kHz

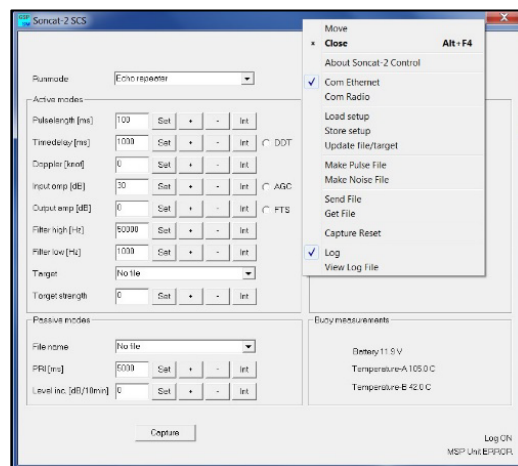
The *Sonar Calibration and Training System (SONCAT 2™)* is a true simulated target system for testing sonars at sea.

## Applications

- Sonar Performance tests
  - Transmitter level and frequency
  - Receiver sensitivity
  - Target classification
  - Torpedo noise detection
- Sonar operator training
- Sonar intercept test
- Radar bearing and range

## Features:

- Echo repeater
- Signal generator
- Powerful and flexible sonar target
- Small footprint
- Cost effective
- Proven system with long track record



SONCAT 2 Control Station (SCS) software

## Overview

The system consists of three main parts:

1. A GPS positioned, battery operated buoy, containing all necessary electronics to receive, delay and retransmit a sonar pulse in the frequency band 100 Hz – 100kHz
2. A configurable Transducer array with up to 8 transducers, with separate fully digitalized hydrophone and up to 80 m subsea cable
3. A PC-based, GPS positioned SONCAT 2 Control Station (SCS) for control, display of buoy parameters and logging of the operation.

The buoy and SCS communicate using a radio link.

## Operation

The buoy operates in "Active" or "Passive" mode.

In "**Active mode**" the buoy will wait for a sonar pulse. The sonar pulse is detected by the hydrophone, filtered, amplified, digitized and stored in memory. Receiving time, frequency and level is logged and reported to the SCS together with GPS time and position. After a pre-selected time delay, a pulse is sent back to the sonar ship. This can be the received pulse (echo repeat mode) or a previously recorded or operator defined pulse (stored repeat mode). The transmitted pulse can be modified with doppler and target highlights, and is gain controlled to match a preset Target Strength.

In "**Passive mode**" the buoy will transmit signals either continuously or at predefined intervals. The signals can be ship or torpedo noise for continuously transmission or stored or predefined sonar signals in interval transmission.

## SONCAT Control Station

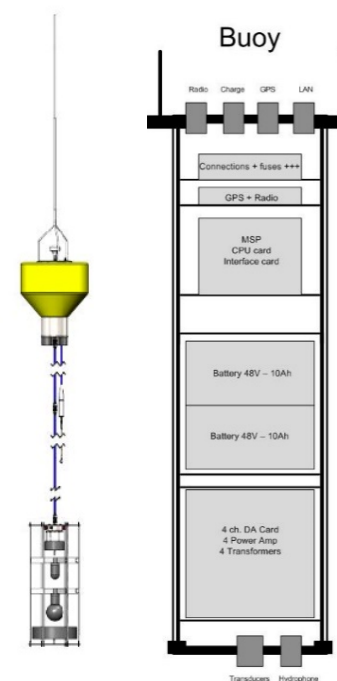
The SCS is the main interface from the ship to the Sonar Test Buoy. All parameters in the Active Sonar Processor, ASP, are controlled from a Windows-based application program.

Mode of operation, input filter limits, gain values, signal delay, doppler, target strength and expected pulse length are settings done from the SCS.

Time and position when receiving a sonar pulse, calculated distance and bearing to the buoy, received and transmitted source level at the buoy, all parameter settings of the buoy when processing the sonar pulse, battery capacity and some other conditions are displayed on the operator screen at the SCS.

## Specifications

SONCAT 2	
Frequency range (Selected configurations)	Standard: 1 – 40 kHz Low Frequency: 300 Hz – 40 kHz High Frequency: 3 kHz – 100 kHz (other options available on request)
Source levels (Standard version)	Max output dB rel. 1 µPa @ 1m: >190 dB, 2 kHz to 35 kHz >180 dB, 1 kHz to 40 kHz Continued transmission: 10 dB less than max Manual adjustable target strength: -60dB - +20dB
Signal pulse	Pulse length: 10 ms – 15 s Pulse delay: 0.1 s – 60 s Doppler: 0 - ± 90 knots, accuracy < 1 knot Signal shape: Any Passive signal: Any wave file Sampling rate: 384 kHz Resolution: 32 bit (internally), 24 bit (ADC), 18 bit (DAC)
Target highlights	Programmable / User configurable -20dB - +6dB, step 1 dB, 10 ms resolution. 10 different settings.
Transducer depth	15 m + 35 m extension (other options available on request)
Operating distance	10 km radio range (line of sight)
Endurance	8 hours operation (Depending on transmission level and duration) 24 hours position transmission (GPS and radio)
Operating weight (Standard version)	Buoy with mast: 63 kg Transducer array with 15 m cable: 55 kg (Air), 29 kg (Water) Hydrophone with 15 m cable: 6 kg (Air), 2 kg (Water)



SONCAT 2 buoy