

LF 300 – Sonar Calibration and Training System

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The *LF 300 system* is a true simulated target system for testing sonars at sea. It is a customized version of Scanmatic's proven SONTAS, offering the same powerful functionality in the entire frequency range of 300 Hz – 100 kHz.

The system consists of the following main parts:

1. *Transducer unit* consisting of 7 transducers fixed in a mechanical protection cage.
2. *Subsea cylinder* containing all electronics necessary for transmitting acoustic signals to the transducers, receive acoustic signals from the hydrophone, sonar processing and communication with the topside control station and computer.
3. *Subsea-to-Surface Interface* consisting of necessary cabling and handling systems, including an electrical winch.
4. *Control Station* for 3-phase power supply and communication interface.
5. *Ruggedized laptop* for control and monitoring

Applications

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

Features:

- Broadband signal transmitter (300 Hz – 100 kHz)
- Echo repeater
- Powerful and flexible sonar target
- 200 m operating depth
- Electrical winch handling
- Volue's proven operating software
- Other configurations of the system are available



LF 300 Control Station

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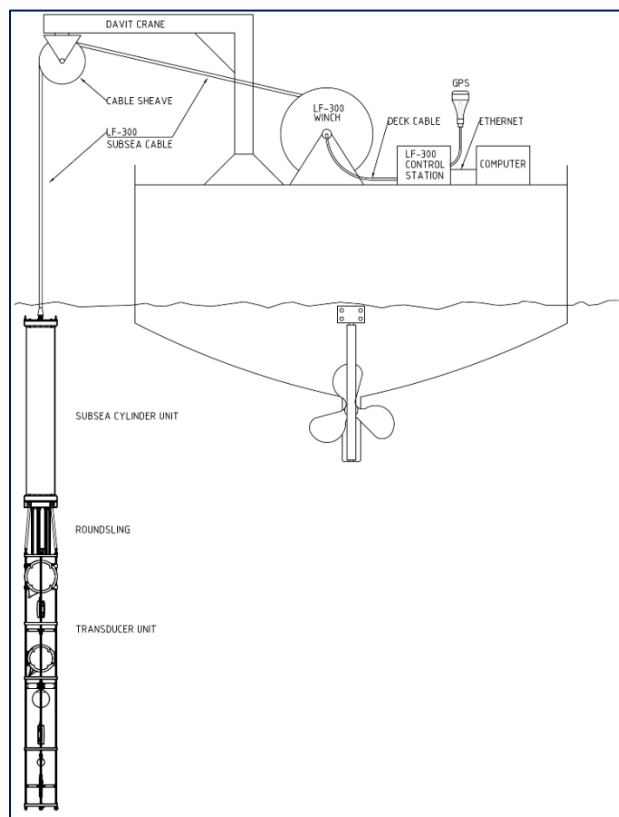
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Operation

LF 300 operates in "Active" or "Passive" mode.

In **"Active mode"** the LF 300 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 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 its gain controlled to match a preset Target Strength.

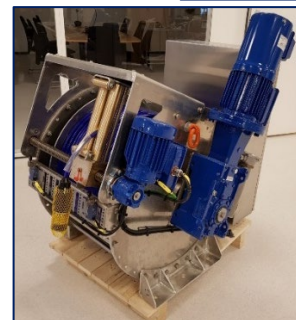
In **"Passive mode"** LF 300 will transmit signals either continuously or at predefined intervals. The signals transmitted can be from any standard wave file, and may for instance contain ship or torpedo noise for continuously transmission, or stored or predefined sonar signals for interval transmission.



LF 300 System Overview

Specifications

LF 300 (other configurations available)	
Frequency range	300 Hz – 100 kHz
Signal levels	170 – 193 dB rel. 1 μ Pa (frequency dependent)
Supported sample rates receiving & transmitting	48 kHz, 96 kHz, 192 kHz and 384 kHz
Beam pattern	Omni directional, both horizontal and vertical
Receiver threshold (triggering)	\leq 120 dB rel. 1 μ Pa
Receiver dynamic range	60 dB
Manually adjustable target strength	-20 dB - +50 dB (step 1 dB)
Signal pulse	Pulse length: 5 ms – 16 s @ 48kHz, 8 sec @ 96kHz, 4 sec @ 192kHz and 2 sec @ 384kHz Pulse delay: 0.05 s – 60 s Doppler: 0 - \pm 60 knots, accuracy < 2 knot Passive signal: Any wave file
Target highlights	-20dB - +6dB, step 1 dB, 10 different settings
Operating depth	Up to 200 m
Power requirements	3-phase TN-S, 380 – 415 VAC. Max. 3500 W
Weight	Cylinder unit: 102 kg Transducer unit: 39 kg Winch: 200 kg (with cable) Control station: 17 kg



LF 300 transport cases and electrical winch