

DUAL FREQUENCY SIDE SCAN SONAR



KONGSBERG



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ANALOG DUAL FREQUENCY SIDE SCAN SONAR

The Dual Frequency Side Scan Sonar is a tool for seabed feature mapping, offering high quality results in a simple and reliable package. It offers switch selectable dual frequency operation (114 / 410 kHz). The towfish is available in depth ratings of 1000 m and 2000 m.

System Components

The standard system employs a lightweight towfish (Model 159D), which is easily deployed by one person. It houses a multiplexer (Model SS982), allowing data transmission over long cables, as well as the two dual frequency transducers (model 196D port and starboard). The transceiver unit (model SS981) outputs a signal compatible with all major acquisition systems.

Transceiver

The deck unit allows the operator a simple means to select operation parameters such as operating frequency, Gain, Time Varying Gain (TVG) and Automatic Gain Control (AGC), with duplicated controls for the port and starboard channel.

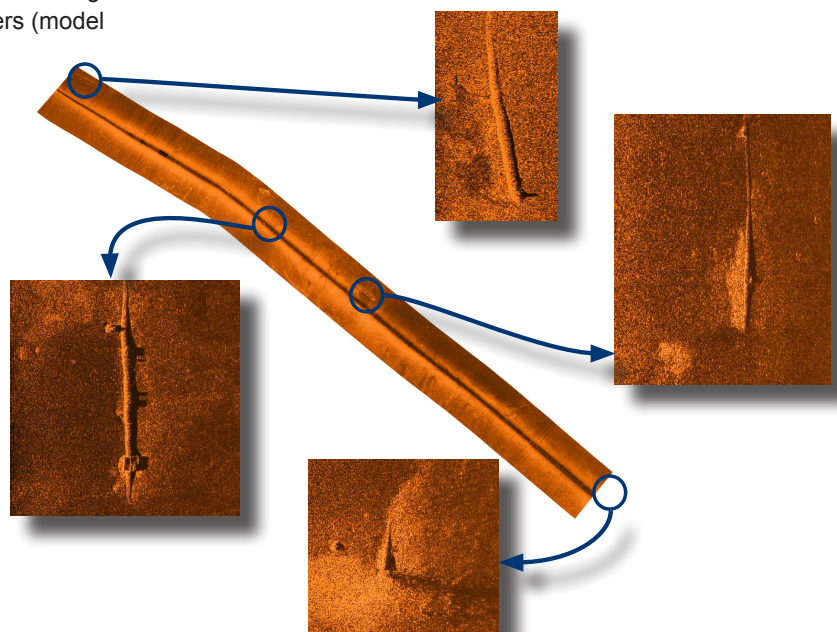
Towfish

The towfish was designed as an easily deployable stable platform for versatile operations.

Multiplexer

The Multiplexer is the sub-sea processing unit. It holds all transmit, receive and multiplexing electronics and uses standard sub-sea connectors to

the transducers and tow cable, thereby ensuring that transmission power is not lost over the tow-cable and reducing the risks of high voltage defects.



FEATURES

- 1000 m depth rating
- Switch selectable dual frequency (114 / 410 kHz)
- High bandwidth and resolution
- Multiplexed data transmission over long cables
- Easy to operate
- High reliability (MBTF > 10,000 hours)
- High efficiency / low power
- Simple maintenance

OPTIONS

- 2000 m rated towfish
- Stainless steel towfish
- Range of winches and tow cables
- Heading, pitch and roll sensor
- Responder for acoustics tracking
- Height of bottom measurement
- Depth sensor
- Magnetometer interface

TECHNICAL SPECIFICATIONS

General

- Power requirement: 95/265 VAC switchable, 40-60 Hz, 50 W
- Size: 43.2 cm W x 45.7 cm D x 18.7 cm H
- Weight: 18 kg
- Temperature: Storage -20 to 75° C
- Operating: -5 to 50° C
- Humidity: 10% to 95% RH, non-condensing
- Mounting: suitable for bench and rack mounting

Operation Specifications

- Power output to tow vehicle: 150 VDC \pm 3 VDC, 100 mA average, 320 mA peak
- Key burst out: 455 kHz, pulse width selectable 16 Vpp, PRR determined by key source
- Key input: positive CMOS or TTL, 10 kW input impedance
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Receivers

- Modulation frequency: Port 135 kHz, Starboard 65 kHz
- Bandwidth: 15 kHz
- Sensitivity: 6mV rms input produces 800 mV rms output with a 20dB signal-to-noise ratio (all gain maximum)
- Input impedance: 5k Ω
- Output impedance: 600 Ω
- Dynamic range: Gain: adjustable over 60dB range, TVG: -20 to +20dB maximum, AGC: -34dB maximum
- Output: Selectable signal envelope or amplitude modulated 12 kHz
- TVG delay: 3.3ms minimum, 330ms maximum
- Event mark: 5Vpp, 12 kHz, front panel push button or BNC input requiring CMOS or TTL level pulse. Produces visual mark on recording media
- Key out: 0.6ms CMOS/TTL compatible
- Modes: 114 kHz and 410 kHz operation, raw signal and processed signal

Front panel connectors

- BNC: Seven each for signals & keys
- Amphenol: MS3102A-22-34S for deck cable

Towfish Model 159D

- Tow speed: 1 to 12 knots
- Weight: 16.3kg, 22.5kg, or 38.6kg depending on ballast used
- Dimension: 11.4cm D by 128.5cm L, 3 fins on tail protrude 7.5cm
- Frame: Cast aluminium with shear release carry handle/tow-point
- Nose: Shock absorbing, abrasive resistant urethane. Cavity can carry auxiliary transducer.

Multiplexer Model S982

General

- Power requirements: 150 VDC at 100 mA
- Size: 10.2cm D x 34.5cm L
- Weight: 3.2kg in air, 0.45kg in water

Transmitter Section

- Frequency: 114/410 kHz \pm 1%
- Power output: 3 kW pulse \pm 20%
- Pulse length: 167 μ s / 88 μ s \pm 1%
- Pulse repetition rate: 50 pulses per second maximum
- Protection: Open and short circuit protected
- Efficiency: Greater than 80%

Receiver Section

- Port channel: 114/410 kHz, heterodyned to 135 kHz
- Starboard channel: 114/410 kHz, heterodyned to 65 kHz
- Bandwidth: 20 kHz
- TVG: Transmission loss curve compensated at both frequencies. Approximately + 40dB at 100m range.
- Keyburst: Frequency: 455 kHz \pm 2%, Pulse length: 300 μ s for 114 kHz operation and 600 μ s for 410 kHz operation

Transducer Model 196D

- Source level: 223 \pm 3dB re 1 μ Pa@ 1m
- Beamwidth:
 - 114 kHz - 50° by 1°
 - 410 kHz - 40° by 0.3°
- Sensitivity: -190dB re 1V/ μ Pa
- Depression angle: 10° \pm 1° down

Specifications subject to change without any further notice.

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