

HELTRAS DS-100

Helicopter Long-Range Active Sonar

Features

- Demonstrated to be the highest performance helicopter dipping sonar in the world
- Long-range detection and wide area search capabilities have been demonstrated in both deep and shallow waters worldwide
- High source-level, narrow vertical transmit beams and high array gain provide high FOM
- Bistatic and multistatic operation capabilities with surface ship sonars and sonobuoys
- Lightweight system
- Interfaces available for graphic and data output to a sonics data recorder, as well as video for sensor data display
- High-resolution Doppler processing
- Folding array technology enables large aperture required for deep and shallow water performance



The Helicopter Long Range Active Sonar (HELTRAS) DS-100 has been demonstrated to be the highest performance helicopter dipping sonar in the world. The wet end comprises a descending vertical transmit array of seven projector elements and a receive array of eight hydraulically driven arms which expand to a diameter of 2.6 m when deployed.

The DS-100 is capable of operating at depths to 500 m and has figure of merit (FOM) sufficient to achieve second convergence zone detection in deep water and unparalleled direct path coverage. Low-strength targets moving at slow speeds are detected through the use of high-resolution Doppler processing and long shaped pulses. Extended duration wide bandwidth FM pulses (up to 5 seconds) are available to detect the near-zero Doppler target as well.

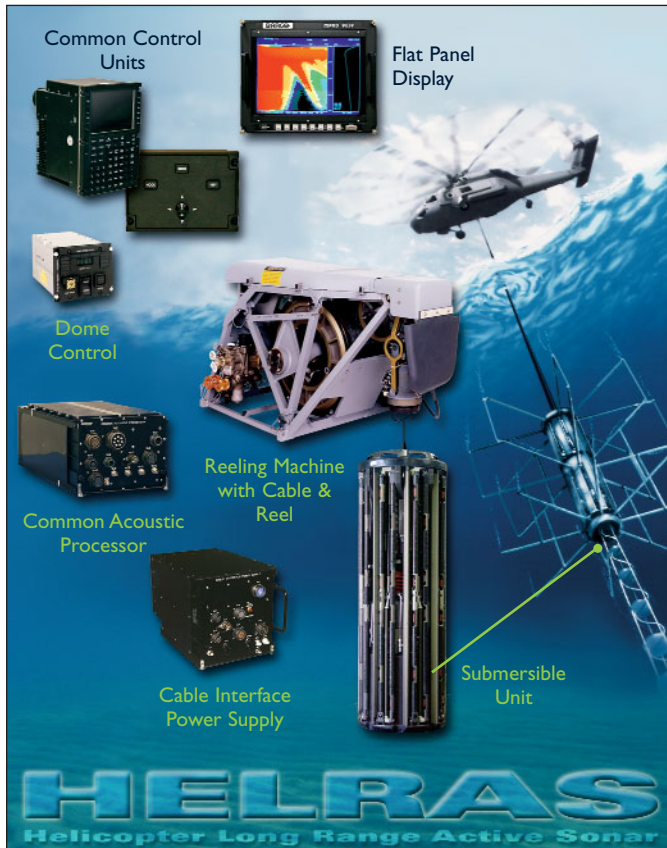
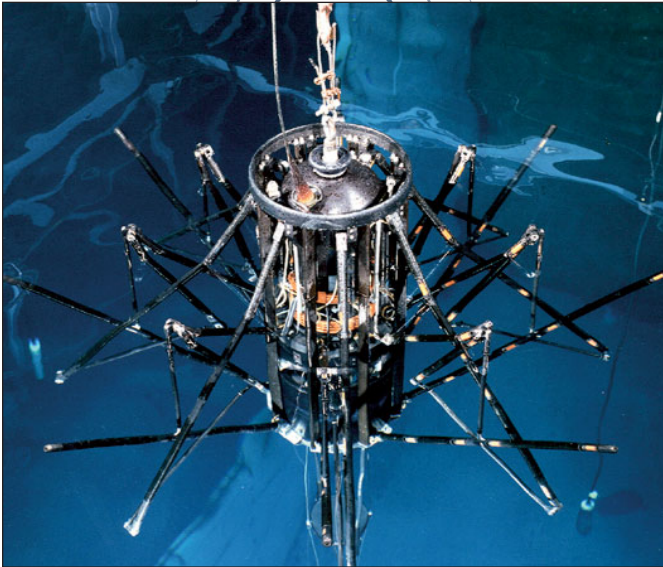
The low (1.38 kHz) active center frequency designed into the DS-100 using proprietary transducer and beam-forming technologies allows multiple boundary interactions, reduced reverberation contamination of the received signals, and interoperability with shipboard sonars and sonobuoys in bistatic or multistatic employment.

In addition to its long-range surveillance and search capabilities, the DS-100 is well suited to redetection, target localization and weapon delivery against deep and shallow water targets. The sonar system is fully compatible with MIL-STD-1553B databus architectures, and its advanced reeling machine evolved from the field-proven AQS-13/18 series.





HELTRAS opening under water.



Specifications

Operating depth	500 m	
Projector	8 elements (7 sonar, 1 UWT), array length 5.2 m	
Operational modes	Active operation centered at 1.311, 1.38, 1.449 KHz: CW (0.039 sec PW to 10 sec PW) at 3 frequencies	
Frequency modulation	Linear period FM (PW 0.156 sec to 5.0 sec); FM triplet (PW 0.625 sec to 1.25 sec)	
	50 Hz downsweep: at 3 center frequencies	
	100 Hz downsweep: at 3 center frequencies	
	300 Hz downsweep: at 1 center frequency (1.380 KHz)	
	Active display formats: All beam Doppler range; bearing-range/Doppler-range; bearing-range; A-scan	
	Passive operation BW: 800 Hz to 2000 Hz broadband; in band DEMON	
	Passive Display formats: Bearing-time; bearing frequency, automatic line integration (narrowband and DEMON)	
Source level	218 dB/μPa/yd	
Beam width	Vertical -15° to +15°	
Receive beams	32 half beams, 16 full beams	
Number of target tracks	10	
Range scales	1, 1.5, 2.5, 4, 6, 10, 16, 25, 40, 60 n miles	
Receive array	2.6 m diameter x 1.2 m high	
Weight	Submersible unit:	155 kg
	Dome Control, Reeling Machine, Cable & Reel:	130.5 kg
	Common Acoustic Processor & Cable Interface Power Supply:	40.5 kg
	Integrated System:	326 kg
	Sonar Control:	6.3 kg
	Flat Panel Display:	9 kg
	Standalone System:	341.3 kg

