



HS-100

Multifunction Hull-Mounted Sonar



Features

- The HS-100 design represents a significant reduction in size, weight and complexity compared to standard long-range ASW sonars
- The HS-100 comprises a high-energy density MF (2 to 4 kHz) volumetric transmit array with a high-performance, co-located receive array
- Convergence zone detection ranges out to 40 n miles in deep water and 10 n miles in shallow water

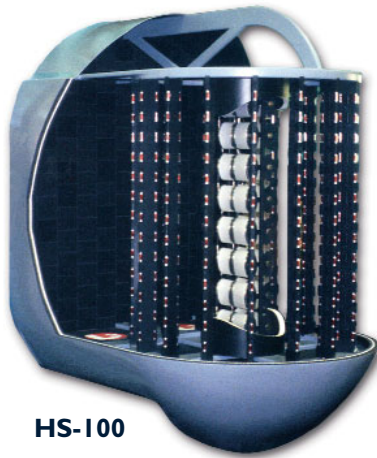
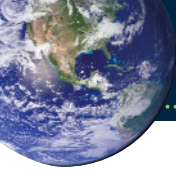
The HS-100 is a compact, long-range, multifunction hull-mounted sonar. Decades of dipping sonar experience and expertise have resulted in this slimmed down, dome profile which conforms to the hydrodynamic, low-drag bulbous bow shape of a surface warship.

The transducer elements of the HS-100 are constructed from PMN (lead magnesium niobate). The mid-frequency (MF) multiplexed hydrophone channels are easily interfaced to an open architecture COTS acoustic processor.

The HS-100 uses 32 modern projectors to provide the high source levels necessary for long-range detection. The vertical "line" transmit array design produces large time-bandwidth wave trains that are not possible with traditional sector scan sonars. The lightweight, receive volumetric array comprises a vertical set of receive hydrophone staves with embedded ATM digital telemetry processing that eliminates the need for individual sensor cabling, transmit/receive switches and signal conditioning cabinets found in traditional active sonars.

The HS-100 is being developed by L-3 Communications Ocean Systems as a "green" sonar in that its transmissions do not harm aquatic life such as whales and dolphins.





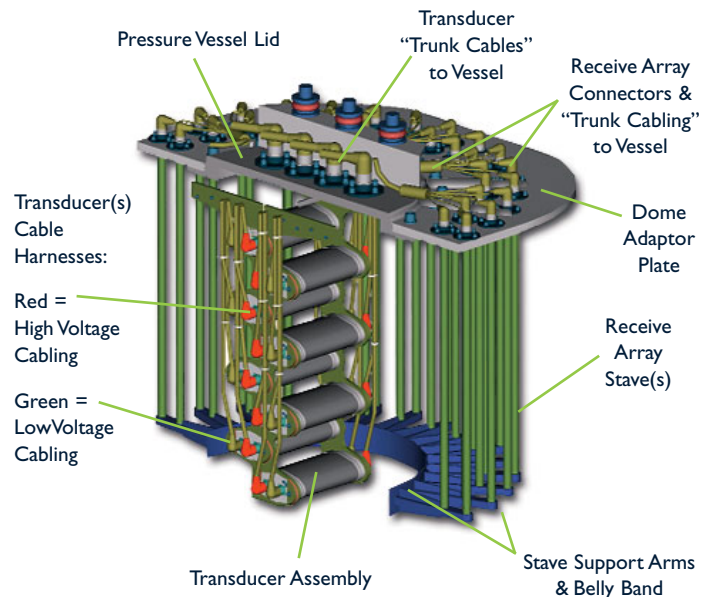
HS-100

HS-200

The HS-200 combines HS-100, LFATS VDS-100 and latest transducer technologies to satisfy recent requirements for a low frequency (< 2 kHz), hull-mounted sonar retrofit into a 1.2-meter dome.

HS-200 Specifications	
Arrays	Height: 116 cm Diameter: 116 cm Weight: <500 kg
Operating modes	Active: (CW, FM, Combined CW/FM) with Torpedo Alert Passive: (Narrowband, Broadband and DEMON) Playback Maintenance Test Idle
Operating frequencies	Active: 1,800 – 2,300 Hz Passive: 1,000 – 4,500 Hz
Source Level	Omnidirectional = 215 dB re 1 μPa @ 1 m Sector Directed = 217 dB re 1 μPa @ 1 m
Range scales	2, 4, 8, 16, 32 km
Transmit array	Number of channels – 16 (arrange in four staves of four projectors)
Own Doppler nullification	0 – 30 kts
Processing	COTS Quad Power PCs (DY4)

HS-100 Specifications		
Requirement	Application:	
	Bow Dome	Keel Dome
Transmit horizontal beam width	360° / 107°	360° / 107°
Transmit vertical beam width	11° / 11°	21° / 21°
Transmit bandwidth	2.5 kHz to 4.5 kHz	
Transmit source level	228 dB re 1 μPa @ 1 m	223 dB re 1 μPa @ 1 m
Transmit array height	92 in	56 in
Transmit array width/depth	22 in / 22 in	22 in / 22 in
Receive bandwidth (active)	1 kHz to 5 kHz	
Receive bandwidth (passive)	800 Hz to 5.0 kHz	
Receiver dynamic range	80 dB	
Own ship Doppler nullification	30 kts	
Doppler range	±36 kts	
Operational speed	Up to 30 kts	
Operational sea state	SS6	
Operating modes	Active, Passive, Maintenance, Training	
Tracking	Yes	
Contact management	Yes	
Outboard system weight	<2,000 lbs	
Number of projector elements	64	
Receive array diameter	72 in	60 in
Number of hydrophones (total)	576	360



HS-200 Major Components

