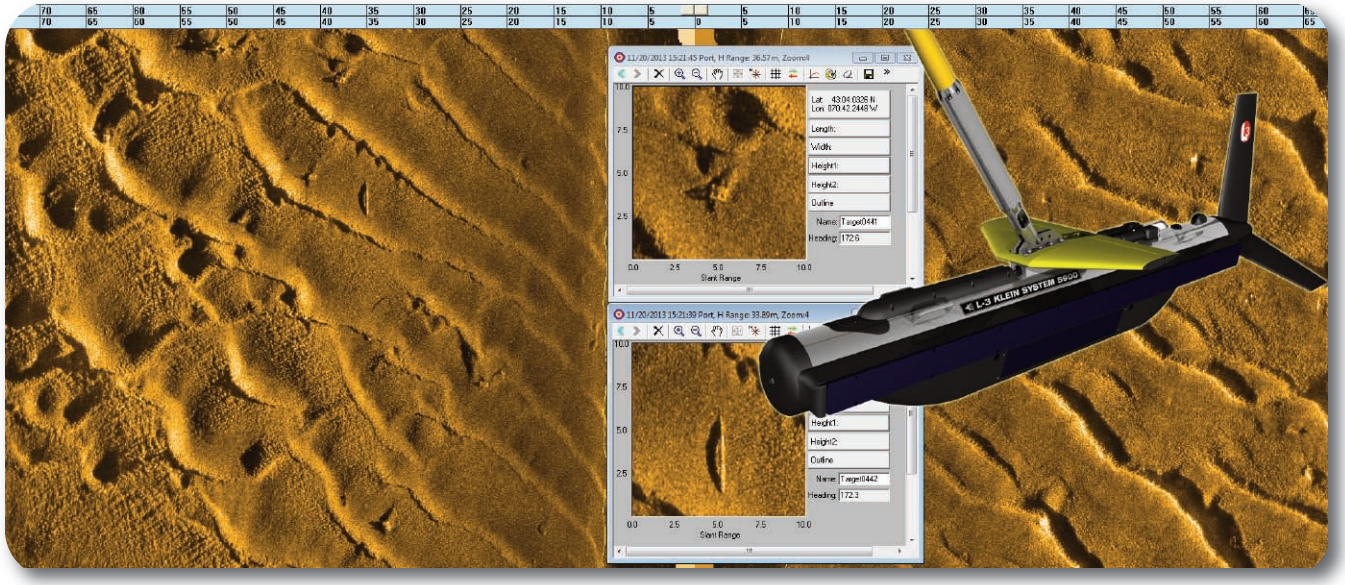
KLEIN SYSTEM 5900

High-Resolution, Multi-Beam, Side Scan Sonar System

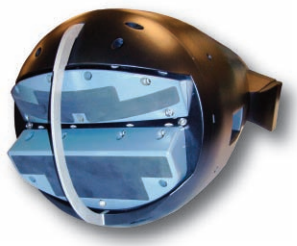


The System 5900 is L-3 Klein's "Flag Ship" high-resolution, multi-beam, towed side scan and swath bathymetric sonar system designed primarily to support mine counter measure missions and hydrographic surveys. The 5900 produces extremely high-resolution sonar images that can be used for target identification and towed at speeds up to 12 knots. The addition of the optional Gap Filler Sonar (GFS) fills the nadir region enabling full bottom rapid area coverage rates and reduced mission times. Rapid environmental assessment is achieved with the 5900's swath bathymetry capability, which is co-registered with side scan sonar data.

The System 5900 provides performance comparable to high-cost military sonar systems but at commercial-off-the-shelf (COTS) prices.

SYSTEM 5900 APPLICATIONS

- Mine Counter Measure (MCM) mission support
- Intelligence, surveillance and reconnaissance missions (ISR)
- Route surveys
- Detection and classification modes
- Rapid environmental (bathymetry) assessment surveys
- Port and harbor security
- Hydrographic surveys



Optional Gap Filler Sonar (GFS)

KEY FEATURES

- High-speed surveys
- 1.8 m long array, 600 kHz operating frequency, provides twice the resolution of the System 5000
- Integrated 6 degrees of freedom motion reference unit (MRU) for dynamic digital beam stabilization
- FM Chirp transmit coding, extremely low-noise acquisition and 28-bit analog to digital converter constitute a very high, dynamic range sonar system
- SAS-ready composite array fabrication optimized for multi-path and surface reverberation suppression
- Dynamic focusing, high-pixel density imagery provides enhanced contrast for target/shadow definition
- Swath bathymetry for rapid environment assessment survey with 100% overlap and co-registered coverage to the side scan sonar
- Integrated wing with dual actuator surfaces for roll-control and bottom-collision avoidance
- Remote-controlled operation
- Optional Gap Filler Sonar providing full bottom coverage and extremely high coverage rates

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SPECIFICATIONS

GENERAL SPECIFICATIONS	
Towfish Length	Without GFS: 2.36 m
Towfish Diameter	20 cm / 0.20 m
Towfish Weight (in air)	Without GFS: 163 kg (360 lb.) With GFS: 192 kg (422 lb.)
Depth Rating	750 m without GFS

MULTI-BEAM SIDE SCAN SONAR	
Operating Speed Envelope	4 to 12 kts (100% coverage)
Frequency	600 kHz
Transmit Pulse	FM Chirp 4 msec / 8 msec
Along-Track Beam Spacing	6.4 cm
Across-Track Sample Spacing	3.2 cm
Maximum Operating Range	125 m per side (250 m swath)
Array Length	Receive: 1.8 m
Background to Shadow Contrast Ratio (CR)	> 10 dB - Detection (125 m) > 15 dB - Classification (75 m)
Towfish Sensors (Standard)	Attitude - 6 degrees of freedomMRU, pressure (depth), altimeter, heading and temperature. (Optional: sound velocity sensor and magnetometer)
Output Data	Sonar Data Format (SDF)

SWATH BATHYMETRY (OPTION)	
Maximum Tow Speed	Co-registered to Side Scan Sonar, one swath per ping
Frequency	455 kHz
Resolution (Along-Track)	0.4°
Resolution (Across-Track)	Programmable
Transmit Pulse	FM Chirp 4 msec / 8 msec
Maximum Range	Range slaved to Side Scan Sonar

GAP-FILLER SONAR (OPTION)	
Frequency	750 kHz
Across-Track Coverage	45° athwart ship to each side (projected to below the towfish)
Target Imaging Angle	30° grazing angle
Transmit Pulse	FM Chirp 4 msec / 8 msec
Resolution (Along-Track)	4.8 cm
Resolution (Across-Track)	Receive horizontal beam width 0.65°

Klein System 5900 with optional K-Wing IV and Gap Filler Sonar

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