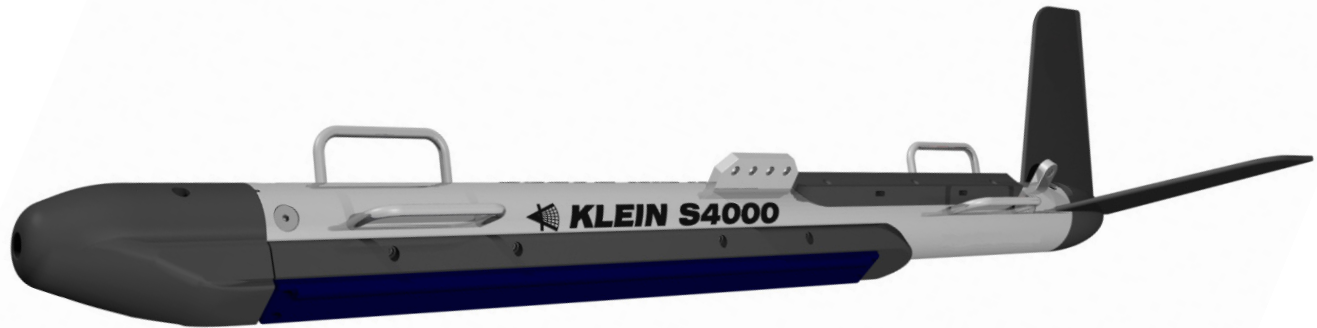


# SYSTEM 4000 SIDE SCAN SONAR

SIMULTANEOUS – DUAL FREQUENCY - MULTI-PURPOSE - SHALLOW OR DEEP WATER



The Klein System 4000 Side Scan Sonar is a state-of-the-art versatile multi-purpose sonar that can be used to conduct a variety of survey applications in shallow and deep water. The System 4000 is depth rated to 2000 m and it features dual simultaneous frequency operation of 100/400 kHz to produce superior image quality.

The System 4000 employs both a user selectable CW pulse transmission mode and advanced broadband CHIRP signal processing technology which, when coupled with Klein's proprietary algorithms, provide extraordinary long range, high-resolution seafloor images.

The System 4000 provides 600 m of coverage at 100 kHz. At 400 kHz, the system provides higher resolution with a range of 200 m per side.

The System 4000 can be deployed with either a coaxial or fiber optic tow cable. Klein's proprietary Advanced Variable Rate Bandwidth Telemetry (AVRBT) is used with coaxial tow cables to sense the tow cable electrical characteristics. It automatically selects the optimum LF/HF pulse widths allowable, based on range scale and cable characteristics; driving maximum broadband data to the surface in real-time. Optional fiber optic interfaces are available for unlimited tow cable lengths.

## Applications:

- Wide Area Search and Recovery
- Cable & Pipeline Surveys
- Hydrographic Surveys
- Archaeological Surveys
- BOEM/Mining Surveys
- Treasure/Wreck Hunting
- Hull Surveys
- Port and Harbor Security

## Key Features:

- Dual Frequency, 100/400 kHz, Simultaneous Operation
- Broadband CHIRP and CW Sonar Transmission Modes
- Advanced Variable Rate Bandwidth Telemetry (AVRBT)
- Depth Rated to 2000 m
- Hydrodynamic Stainless Steel Tow Fish with:
  - Heading, Pitch and Roll Sensors
  - Pressure Sensor
- Handles for easy launch and recovery

***The Difference Is In The Image***



# SYSTEM 4000 SIDE SCAN SONAR



SIMULTANEOUS – DUAL FREQUENCY - MULTI-PURPOSE - SHALLOW OR DEEP WATER

## Specifications:

System 4000 Towfish - General Specifications	
Construction	316 Stainless Steel
Length	1.42 m (56 in)
Outer Diameter	8.9 cm (3.5 in)
Weight (in air/in water)	27.3 kg (60 lbs) / 14.9 kg (32.7 lbs)
Maximum Depth Rating	2000 m
Standard Towfish Sensors	Compass: Heading +/- 0.5° RMS Roll and Pitch Sensor Depth Pressure Sensor, 5000 psi Water Temperature Sensor: 0-35° C Safety Cable
Topside Assemblies	
Transceiver Processing Unit (TPU)	19 in rack mount, 4U
Workstation PC	19 in rack mount, 21.5 in LCD monitor, keyboard and mouse
Operating System	Windows 7
Acquisition Software	Klein SonarPro®
System Power Requirements	
Input Voltage	110/220 VAC (50/60 Hz)
Power Consumption	120 W
Optional Accessories	
<ul style="list-style-type: none"><li>• K-Wing I Depressor Wing</li><li>• K-Wing II Depressor Wing</li><li>• Power Fail Emergency Pinger Interface</li><li>• Responder Interface</li><li>• Magnetometer Interface</li><li>• Pole/Hull Scan Bracket</li><li>• Fiber Optic tow cable interface</li><li>• Splash Proof (IP-65) Transceiver Processing Unit</li><li>• Ruggedized Laptop PC</li></ul>	

Side Scan Sonar Specifications	
Technology	Single Beam
Frequency	100 kHz/400 kHz. Dual Simultaneous Operation
Pulse Type	FM CHIRP and CW
Horizontal Beamwidth	0.7° @ 100 kHz; 0.3° @ 400 kHz
Vertical Beamwidth	50°
Across Track Resolution	9.6 cm @ 100 kHz 2.4 cm @ 400 kHz
Maximum Operating Range	600 m @ 100 kHz 200 m @ 400 kHz
Vertical Beam Center	Tilted down 20° from horizontal
Output Data Format	SDF (Sonar Data Format) or XTF (Extended Triton Format) or both - selectable

The standard 4000 system features a robust stainless steel towfish (heading, pitch, roll & pressure sensors installed), a stainless steel safety cable (to prevent the loss of the towfish should it become snagged on bottom debris), a 19" rack mounted transceiver processor unit (TPU), a 19" rack mount industrial PC (Windows 7 and SonarPro® acquisition software installed) with 21.5" LCD monitor & mouse and a 100 m terminated light weight deck/test cable.

This technical data and software is considered as Technology Software Publicly Available (TSPA) as defined in Export Administration Regulations (EAR) Part 734.7-11. Specifications subject to change without notice. SonarPro® is a registered trademark of Klein Marine Systems, Inc.

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