

# Klein Associates, Inc.

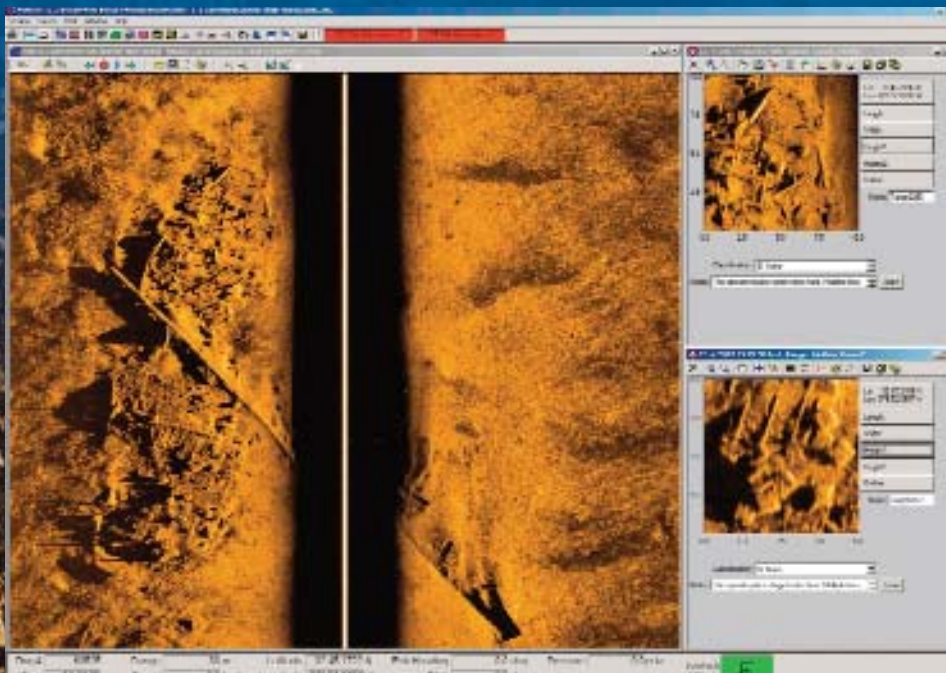
## KLEIN SYSTEM 3000H

### DIGITAL SIDE SCAN SONAR

The System 3000H System presents the latest technology in digital side scan sonar imaging. The dual-frequency operation is based on new transducer designs, as well as the high-resolution circuitry recently developed for the Klein multi-beam focused sonar. The System 3000H performance and price is directed to the commercial, institutional and governmental markets, and features 445 and 900 kHz frequencies for a variety of applications, including those requiring high resolution operation.

#### KEY FEATURES

- Advanced signal processing and transducers produce superior imagery
- Cost-effective, affordable
- PC-based operation with SonarPro® software, dedicated to Klein sonars
- Small, lightweight and simple designs — easy to run and maintain
- Easily adapted to ROVs and custom towfish
- Meets IHO & NOAA Survey specifications



Old Shipwreck, 30m range @ 900 kHz

**THE DIFFERENCE  
IS IN THE IMAGE**





## SYSTEM 3000H

### DIGITAL SIDE SCAN SONAR

<b>Towfish Specifications</b>	
Frequencies	445 kHz 900 kHz
Transmission pulse	Tone burst, operator selectable from 25 to 400 µsecs. Independent pulse controls for each frequency
Beams:	
Horizontal	0.21° @ 445 kHz, 0.21° @ 900 kHz
Vertical	40°
Beam tilt	5, 10, 15, 20, 25° down, adjustable
Range scales	15 settings — 25 to 1,000 meters
Maximum range	150 meters @ 445 kHz 50 meters @ 900 kHz
Depth rating	200 meters standard
Construction	Stainless steel
Body length	122 cm (48 in)
Body diameter	8.9 cm (3.5 in)
Weight (in air)	29 kg (63.9 lbs)
Standard sensors:	Roll, pitch, heading
Options	Magnetometer, pressure, acoustic positioning
<b>Transceiver Processor Unit (TPU) Specifications</b>	
Operating system	VxWorks® with custom application
Basic hardware	Standard 19-inch rack or table mount, VME bus structure
Outputs	100 Base-T <sub>X</sub> , Ethernet LAN
Navigation input	NMEA 0183
Power (includes towfish)	120 watts @ 120/240 VAC, 50/60 Hz
Interfacing	Interfaces to all major sonar data processors
Options	Splash-proof packaging option available

<b>Tow Cable</b>	
Klein offers a selection of coaxial, Kevlar® reinforced, lightweight cables, double armored steel cables, and interfaces to fiber optic cables. All cables come fully terminated at the towfish end.	

<b>SonarPro® Software</b>	
Custom developed software by users and for users of Klein side scan sonar systems operating on Windows XP®. Field-proven for many years. SonarPro® is a modular package combining ease of use with advanced sonar features.	
Basic modules	Main program, data display, information, target management, navigation, data recording & playing, and sensor display.
Multiple display windows	Permits multiple windows to view different features as well as targets in real time or in playback modes. Multi-windows for sonar channels, navigation, sensors, status monitors, targets, etc.
Survey design	Quick and easy survey set up with ability to change parameters, set tolerances, monitor actual coverage, and store settings.
Target management	Independent windows permitting mensuration, logging, comparisons, filing, classification, positioning, time & survey target layers, and feature enhancements. Locates target in navigation window.
Sensor window	Displays all sensors in several formats (includes some alarms) and responder set up to suit many frequencies and ping rates.
Networking	Permits multiple, real time processing workstations via a LAN including "master and slave" configurations.
"Wizards"	To help operator set up various manual and default parameters.
Data comparisons	Target and route comparisons to historical real time data.

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**L-3.** Headquartered in New York City, L-3 Communications employs over 64,000 people worldwide and is a prime contractor in aircraft modernization and maintenance, C<sup>3</sup>ISR (Command, Control, Communications, Intelligence, Surveillance and Reconnaissance) systems and government services. L-3 is also a leading provider of high technology products, subsystems and systems.