L·3 communications
Klein Associates, Inc.

Klein System 3000
Digital Side Scan Sonar
"The difference is in the Image!"

The System 3000 System presents the latest technology in digital side scan sonar imaging. The simultaneous 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 3000 performance and price is directed to the commercial, institutional and governmental markets.

Side Scan Sonar Division

Navigation Division

Waterside Security and Surveillance Division

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- **ADVANCED SIGNAL PROCESSING AND TRANSDUCERS PRODUCE SUPERIOR IMAGERY**

- **COST EFFECTIVE, AFFORDABLE**

- **PC BASED OPERATION WITH SONARPRO® SOFTWARE, DEDICATED TO KLEIN SONARS**
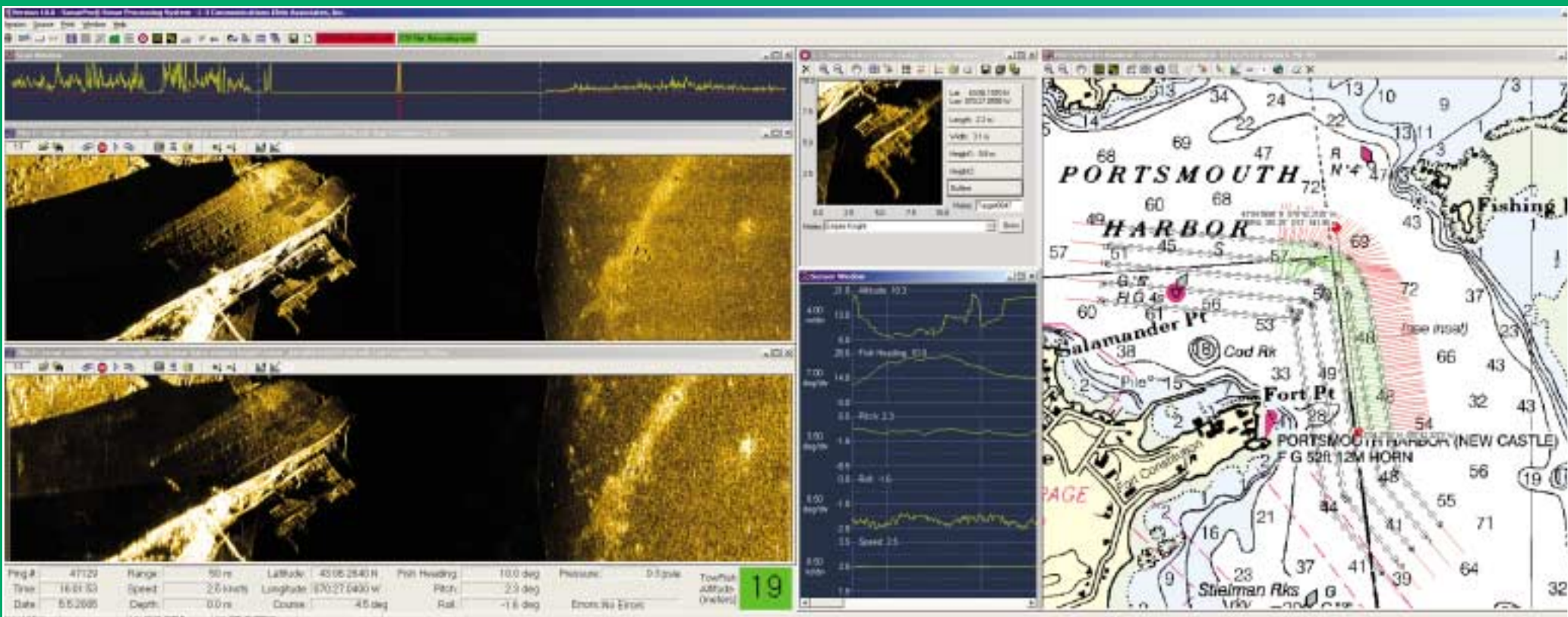
- **SMALL, LIGHTWEIGHT, AND SIMPLE DESIGNS - EASY TO RUN AND MAINTAIN**

- **EASILY ADAPTED TO ROVS, AND CUSTOM TOWFISH**

- **MEETS IHO & NOAA SURVEY SPECIFICATIONS @ 10 KNOTS**

SPECIFICATIONS

Towfish

Frequencies	100 kHz (132 kHz +/- 1% act.), 500 kHz (445 kHz, +/- 1% act.)
Transmission Pulse	Tone Burst, operator selectable from 25 to 400 μsecs.
	Independent pulse controls for each frequency
Beams	Horizontal - 0.7 deg. @ 100 kHz, 0.21 deg. @ 500 kHz
	Vertical - 40 deg.
Beam Tilt	5, 10,15, 20, 25 degrees down, adjustable
Range Scales	15 settings - 25 to 1,000 meters
Maximum Range	600 meters @ 100 kHz; 150 meters @ 500 kHz
Depth Rating	1,500 meters standard, other options available
Construction	Stainless Steel
Size	122 cm long, 8.9 cm diameter
Weight	29 kg in air
Standard Sensors	Roll, pitch, heading
Options	Magnetometer, pressure, Acoustic Positioning

Transceiver Processor Unit (TPU)

Operating System	vxWorks® with custom application
Basic Hardware	19-inch rack or table mount, VME bus structure
Outputs	100 Base-Tx, Ethernet LAN
Navigation Input	NMEA 0183
Power	120 watts @ 120/240 VAC, 50/60 Hz (Includes Towfish)
Interfacing	Interfaces to all major Sonar Data Processors
Options	Splash proof packaging option available

Klein Sonar Workstation

Basic Operating System	Windows NT®, 2000®, or equivalent
Sonar Software	SonarPro®
Data Format	SDF or XTF or both selectable
Data Storage	Internal hard drive, CD/DVD-RW
Hardware	Industrial PC
Options	Optional waterproof laptops

Tow Cables

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.

SonarPro® Software

Custom developed software by users and for users of Klein side scan sonar systems operating on Windows NT®, 2000®. 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 & 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 Real Time	Target and route comparisons to historical data.