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NOAA Photo

MK21 OCEANOGRAPHIC DATA ACQUISITION SYSTEM

Sippican's MK21 Oceanographic Data Acquisition System provides oceanographers, marine scientists and ocean engineers with a versatile and low cost capability to collect, display and store data from expendable oceanographic instruments.

MK21 SYSTEM DESCRIPTION

The MK21 Oceanographic Data Acquisition System is a 5/8 size PC card which is installed in an IBM compatible Pentium computer with an ISA slot. The MK21 uses DSP technology for onboard processing and buffered I/O for operation with Windows 95 and higher. Data collection is controlled by the MK21 and the buffered I/O stores all the data until it can be read in by the operating system. Every data point is time stamped by an independent clock on the MK21 to ensure no data is lost or skipped. The MK21 also has flash memory for in system programming capability to give users the flexibility to add newly developed probe capability and firmware upgrades. The MK21 is compatible with all Sippican expendable probes and launchers.

The MK21 may be used anywhere a PC is available aboard research vessels, on ships of opportunity or even in small boats. The MK21 may also be used in aircraft with Sippican air-launched expendable probes.

Software developed for use with Sippican products provides a variety of data processing capabilities. Profiles of ocean characteristics may be displayed real-time in graphic form and the data permanently stored. The user may retrieve this information for further analysis in several formats to aid in a detailed understanding of the ocean environment.

MK21

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MK21 OPERATION

The operator uses the computer keyboard and display to input the type of probe to be launched and other parameters to be stored with the data such as date, time and latitude/longitude in a preformatted header display. The computer performs system diagnostics and prelaunch tests and then indicates the probe is ready for launch. It then receives probe data during the probe descent and displays and stores the information.

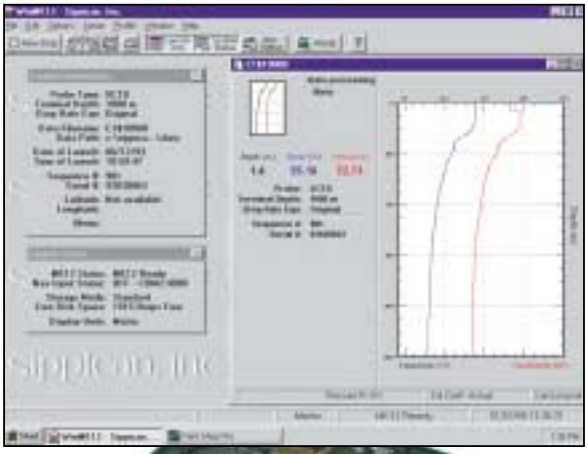
Data is easily translated in an ASCII text format so the user can readily generate the measured profiles using spread sheet applications or transfer the data to ray path or range prediction programs.

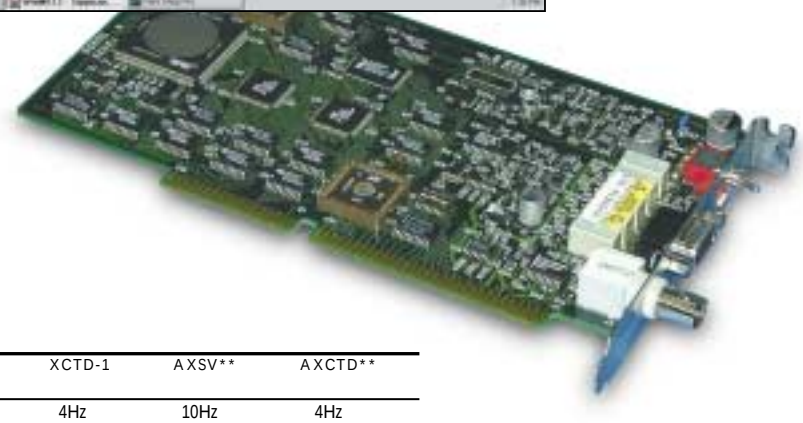
The MK21 Windows Software has auto GPS (NMEA 0813) input capability, selectable IGOSS and original drop rates, a new, easier-to-use display and improved post-processing options. The XCTD trace shown in the accompanying screen shot demonstrates some of the software's features:

- A highly visual, user-friendly display that utilizes the capabilities of Windows
- Improved post-processing options
- User-selectable features include drop rate, probe min / max depth, auto post-processing, noise reduction, data averaging, and calculated salinity, density, and sound velocity profiles.

THE MK21 KIT CONTENTS

The MK21 processor card, Sippican MK21 application software, MK21 to launcher interface box, and Operator's manual.





MK21 SYSTEM SPECIFICATIONS

PROBE TYPE	XBT	XSV	XCTD	XCTD-1	AXSV**	AXCTD**
Sampling Rate	10Hz	10Hz	4Hz	4Hz	10Hz	4Hz
Vertical Resolution	60cm (18cm for T-11 FSXBT)	60cm	100cm	17cm	60cm	100cm
System Accuracy	±0.2°C	±0.25 m/sec	±0.035°C* ±0.035 mS/cm ±0.05 PSU	±0.02°C	±0.25 m/sec	±0.035°C ±0.035 mS/cm ±0.05 PSU
Temperature Resolution	0.01°C	-	0.01°C	0.01°C	-	0.01°C
Temperature Range	-2 to 35°C	-	-2.2 to 30°C	-2 to 35°C	-	-2.2 to 30°C
Sound Velocity Resolution	-	0.04 m/sec	0.05 m/sec	-	0.04 m/sec	0.05 m/sec
Sound Velocity Range	-	1405-1560 m/sec	1405-1560 m/sec	- -	1405-1560 m/sec	1405-1560 m/sec
Conductivity Resolution	-	-	0.01 mS/sec	0.017 mS/sec	-	0.01 mS/sec
Conductivity Range	-	-	20-75 mS/cm	0-70 mS/sec	-	20-75 mS/cm

System Depth Accuracy: 4.6 meters or 2% of depth, whichever is greater.

*Nominal accuracy characterization based on XCTD horizontal profiles against a calibrated transfer CTD (each comparison used 4pt. smoothing). 95% of tabulated data was within ±0.035° and mS/cm of the transfer CTD.

**External RF demodulator required.

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