

LOCKHEED MARTIN

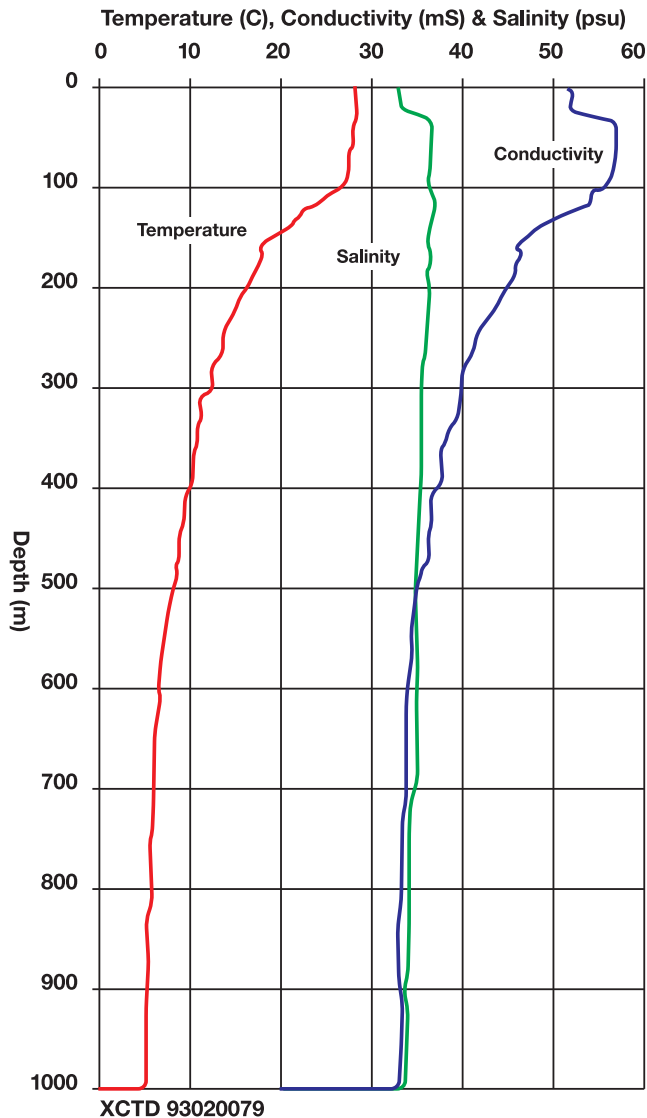


XCTD PROFILING SYSTEM

An Accurate and Cost-Effective Means to
Collect Salinity Profiles While Underway

Expendable Conductivity/ Temperature/Depth Profiling System (XCTD)

AN ACCURATE AND COST-EFFECTIVE MEANS TO COLLECT SALINITY PROFILES WHILE UNDERWAY



The Expendable Conductivity/Temperature/Depth (XCTD) Profiling System is an accurate and cost-effective means to collect salinity profiles while underway.

The system consists of the Digital XCTD probe, developed by the Tsurumi Seiki (TSK) Co. Ltd. Of Yokohama, Japan and Lockheed Martin's representative and licensed manufacturer of XBTs in Japan and the MK21 Data Acquisition System (DAQ).

Three models of XCTD are available for different depths and ship speeds.

Models

- XCTD-1
 - 1000 m at 12 knots
- XCTD-2
 - 1850 m at 3.5 knots
- XCTD-3
 - 1000 m at 20 knots

Digital XCTD

The Digital XCTD uses an inductive conductivity sensor, thermistor and microprocessor based battery-powered circuitry to internally compute and average the temperature and conductivity. The data is transmitted digitally up the wire as a coherent DPSK on an 800 Hz square wave. The Digital XCTD is calibrated at three temperatures and three conductivities during the manufacturing process. These calibration coefficients are stored in the probe and used internally to compute the temperature and conductivity prior to data transmission. The MK21 DAQ system processes and displays the conductivity and temperature profile in real time and provides a calculated salinity profile once data acquisition is complete. The MK21 software also provides the capability to do post trace analysis as well as calculate a sound velocity profile.

THE DIGITAL XCTD IS CALIBRATED AT THREE TEMPERATURES AND THREE CONDUCTIVITIES DURING THE MANUFACTURING PROCESS

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Specifications

Sensors	Conductivity	Temperature	Depth
Range	0 to 60 mS/cm	-2 to 35°C	1000 m
Resolution	.017 mS/cm	.01°C	17 cm
Accuracy	±.03 mS/cm	±.02°C	2%
Response Time	40 mSec	100 mSec	—