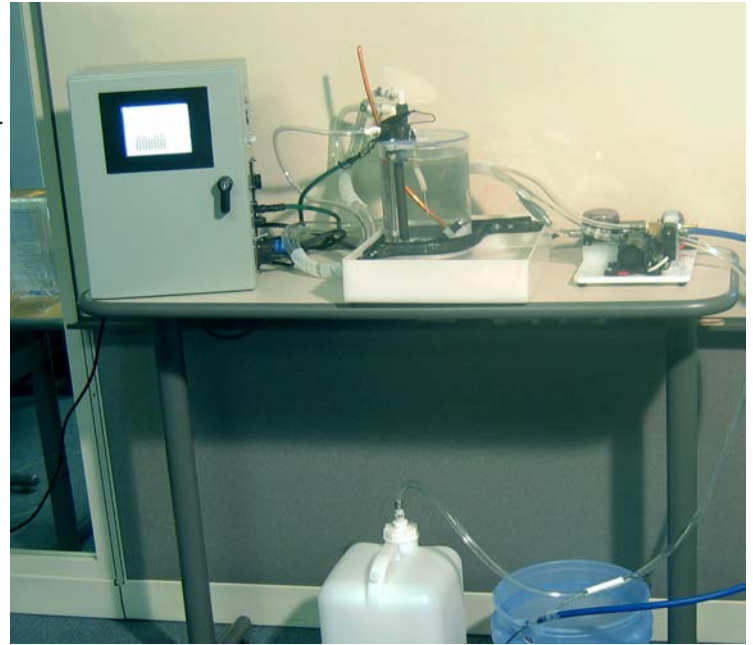




Surface Oxide Tester by Confident Instruments

The Surface Oxide Tester measures the film thickness' on copper in Angstroms with the speed, reliability & user-convenience required by QC Test Labs. Uses include copper rod grading, rod production analysis, copper wire quality assurance and solder oxide analysis.

The system designers are industry experts and thus, have provided an instrument with efficient basic features, as well as, several advanced innovations for greater repeatability and ease of use. The system shown at the right includes the controller, the electrochemical cell and the EMM.



Basic Features

- Accurate and Automatic Interpretation of Diverse Coulometric Curves
- Automatic Sample Detection
- Ethernet & RS-232 Communication and Remote Control
- Fast & Automatic Electrolyte Refreshing
- Automatic Electrolyte Deaeration
- Adjustable Electrolyte Level within Cell
- Stand-Alone System with a Dedicated Computer & Pre-Installed Firmware
- Sealed NEMA Enclosure & Touch Screen
- Modular System
- Generous Sample Tray
- Automatic Self-Diagnosis
- Vibration-Isolated Circuit Boards
- Convenient Wire Testing Screen
- Detachable and Easily Cleaned Cell

Advanced Features

- Cell designed for measuring as-received curved rod samples to eliminate the problematic straightening task.
- Polycarbonate cell designed to increase vessel life under rough handling.
- Zero-maintenance reference electrode.
- Automatic constant current density control with varying sample size.
- Statistical Process Control (SPC) plotted for rapid trend observation.
- Electrical & physical calibration support.
- Remote updating of firmware via RS-232
- Dual Current Density (DCD) Test Method
(see recent article which introduces the DCD)



Software Provided with the Surface Oxide Tester

Confident Instruments' Surface Oxide Tester (SOT) performs all basic (and most advanced) functions without the requiring connection to an outside computer. However, four software products are provided to facilitate additional potent features.

Update SOT Software:

Unlike many laboratory instruments the SOT's firmware can be rapidly updated allowing users to take advantage of improved or added features that become available long after the system has been purchased. This capability is both user-friendly and powerful because in time the user can receive more features than originally purchased.

MySNMP Ethernet Open Source Example Software:

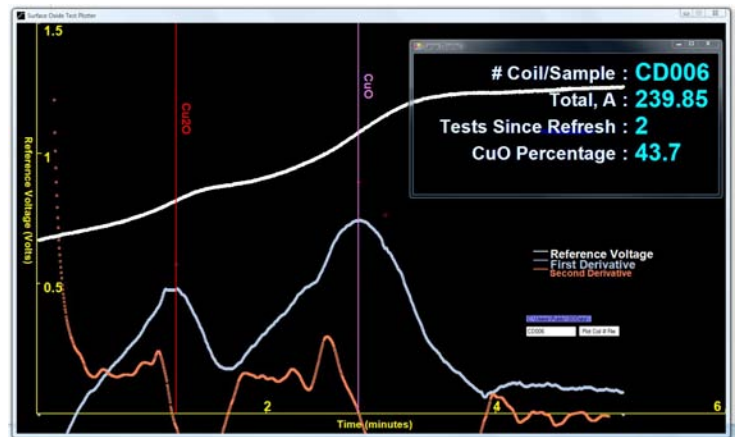
The MySNMP software demonstrates to Ethernet Administrators how to both receive data and send commands to the Surface Oxide Tester via the Ethernet. Once an Ethernet Administrator decides how they wish to impliment these communications they may copy portions of the source code to facilitate automation of the desired processes.

SOT RS232 Analysis and Control Software:

This analysis software provides sophisticated ability to receive information from and sent commands to the SOT:

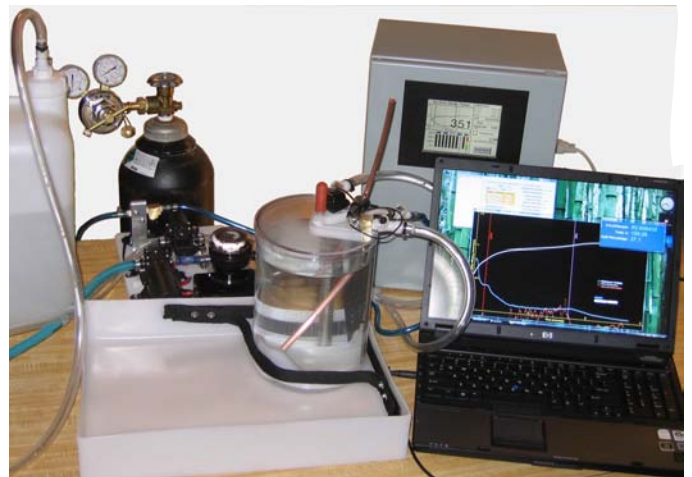
Receiving Data:

- Store both summary and raw data files.
- Retrieve stored files and analyze with this or other software (such as MS Excel).
- This software can be installed on up to 20 computers so it is possible to email upper management and customers both the test files and a copy of this software with which to readily analyze test files.
- Higher resolution plots than the SOT on (typcially larger) computer screens.
- Adjust the solving of curves for scenario analysis.
- Analyze non-oxide surface film constituents on copper.
- Analyze other metals such as tin, silver and some solders.



Sending Commands:

- Remotely output commands to set-up the SOT.
- Configuration files can be created to for rapid changes between multiple SOT setting configurations.



Current Setting Excel File:

Allows the optimum current density to be determined for various lab/production scenarios.



The Basic System Includes:

1	Controller
1	Electrochemical Cell
1	Tray for Holding the Cell and Samples
1	Electrolyte Maintenance Module (EMM) for auto refreshing & deaerating electrolyte with one Electrolyte Reservoir
1	CD containing User Manual, Updating Software & Advanced Software
1	Hardcopy of Manual Chapters 1 - 4 (37 pp.)
1	Coil of Copper Foil 51 μ m x 51 mm x 15 m
1	Power Cord based on user's location

Conforms to ASTM B 49 Surface Oxide Testing

Controller Specifications:

Temperature[°C]: Operating: -20 - 70; Storage: -40-70
Universal Input Voltage 90-264 VAC, 130-370 VDC, 47-63 Hz, up to 120 Watts required
Cell Current selectable from 0.05 to 70 mAmps. (Cell voltage output does not exceed 10 VDC)
12 VDC output to the EMM at 4 Amps max.
RJ45 connector for Ethernet communication
DB-9 conn.: RS-232 (EIA/TIA-574) communication
Rugged connectors (for Cell & EMM)
Circuit boards internally vibration isolated
Buzzer with user selected number of beeps

LCD Touch Screen:

Waterproof and dustproof
Colors: 256/65,536
Horizontal viewing angle: 120° (typ.)
Vertical viewing angles: 50° Top, 40° Bot. (typ.)
Screen resolution: 320 x 240
High brightness LED display: 560 cd/m2 (typ.)

Dustproof Enclosure:

Powder coated steel (door: 16-ga.; body: 18-ga.)
NEMA/EEMAC Type 12, and 13
Overall dimensions: 406 x 380 x 255 mm
Key-access lock (optional)

To order or for more information, contact: Confident Instruments, Inc.

Phone: 1.260.580.0800

Fax: 1.260.441.2302

contact@confident-instruments.com

PO Box 6678, Fort Wayne, IN 46896

www.confident-instruments.com/surface-oxides.htm

Control Firmware:

The controller comes pre-installed with firmware for all basic functions right out of the box.

Firmware Functions:

- Current Density & Current Control
- Test Graph and Histogram Plotting
- Curve solving by inflection points acquisition
- Electrolyte Maintenance Management
- Ethernet and RS-232 Communications
- Convenient Wire Testing Screen
- Electrical Calibration Screen
- Physical Calibration Screen (Copper Foil)

Electrochemical Cell:

Overall dimensions within sample tray: H: 292 x W: 457 x D: 324 mm

Dimensions outside of sample tray (cell alone): H: 292 x W: 229 x D: 178 mm

Cell has an adjustable Level Sensing feature setting cell electrolyte volume from: 2 to 4 Liters

Nalgene cell vessel with bottom padded with HDPE

Zero-maintenance auxiliary & reference electrodes

Quick disconnect couplings for mating with EMM

Electrolyte Maintenance Module

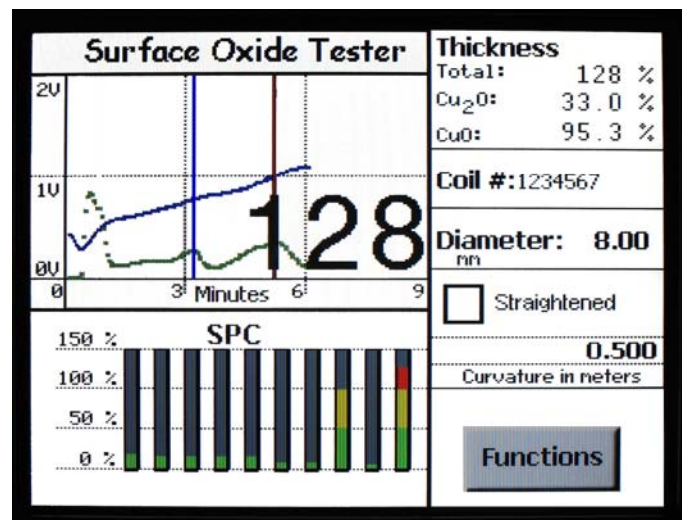
The EMM automatically maintains the electrolyte by rapid refreshing and consistent deaeration.

Overall dimensions: H: 152 x W: 305 x D: 305 mm

Cell mating tubing with quick disconnect couplings

19 L reservoir with quick disconnect in cap

Gas input limited by pressure (52 kPa) & flow rate



An example of test results displayed on the main LCD screen is shown above.