

SCS INSTRUMENTS

PROCESS CONTROL SYSTEMS



SCS Instruments Group Ionic Contamination Test Technologies

The Instruments Group of Specialty Coating Systems, (formerly Alpha Instruments), offers a full range of ionic test systems for non-destructive process control testing in a variety of industries including PC Assembly, PC Fab and the Medical Industry.

Ionograph Series -

Dynamic Testing for ionic contamination on PCBs and components

Omegameter Series -

Static Testing for ionic contamination on PCBs and components

Sirometer - Surface Insulation Resistance and electromigration testing

PRECISE IONIC CONTAMINATION MEASUREMENT FOR EFFECTIVE QUALITY CONTROL

- *Control of aqueous and semi-aqueous cleaning process for bare and assembled PC boards*
- *Testing to avoid corrosion damage associated with ionic contamination*
- *Cleanliness testing of sensitive, small devices including ICs, hybrids, medical implants, fixtures, assembly tools, and various discrete components*

The SCS Instruments Group Ionic Contamination Test System is an assembly of modules that are designed for fast and accurate ionic contamination cleanliness testing. Each module uses an ultra-pure alcohol/water extraction media and a patented "dynamic method" to test product samples quickly and non-destructively.

Ionograph 500M modules are operated by a personal computer or the Ionograph 500M Command Module to determine compliance with the cleanliness requirements of IPC-TM-650, and other industry standards. They can be used to measure the quality of incoming electronic components and circuit boards, and to evaluate flux contamination and monitor surface cleanliness.

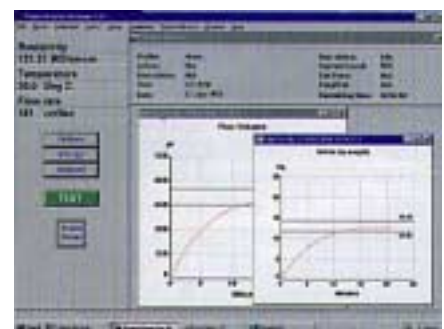
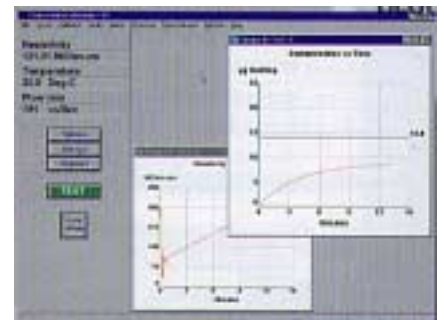
Ionograph contamination testing can be used to control no-clean processes by determining the

cleanliness of incoming raw boards and components prior to flux application, thus avoiding encapsulation of contaminants. Post-soldering/reflow ionic contamination testing detects radical flux coverage and thermal process changes. This precise testing technology can also be used to monitor the level of no-clean flux applied to substrates during spray or foam fluxing, helping to avoid electrical failures due to excessive flux deposits, and solder defects caused by insufficient flux.

This SCS Instruments Group test family includes three compact desktop modules and two floor units for larger production applications. Each of these modules (except SMD-3, PC only) can be operated under the control of a user-supplied PC, or a dedicated SCS Ionograph 500M Command Module.

Ionograph SMD II Test Module

The SMD II is the most versatile test module in the Ionograph 500M family. This module is available with 18" x 20", 20" x 26" and 26" x 30" test cells that can be operated at partial or full solution capacity based on load requirements. Submerged agitation jets and a solution heater give this large test module outstanding sensitivity, operating efficiency, and the ability to test ultra-fine pitch components with ease and accuracy. Complies with ANSI/J-STD 001.



SCS Ionograph 500M Series



Ionograph 500M Command Module
Used to control up to four test modules in place of a personal computer. Stores up to 99 test profiles, and drives thermal printer output. Calibration and verification are pre-programmed.

SCS PowerView™ Program Control

Ionograph 500M System modules operating under PC supervision are controlled by proprietary SCS PowerView™ software. This Windows™-based program establishes contamination testing parameters, and calibrates equipment for consistent, repeatable and accurate measurements. It includes two operating modes: the ionic test mode for contamination testing; and a solids mode for low-solids or no-clean flux contamination measurements.



Small Parts Test Module
Compact 6" x 6", .75-gallon test cell is capable of detecting contaminants with precision on individual components and very small devices.



Standard Test Module
This unit features a 12" x 14" 2.7 gallon test cell for typical contamination measurement applications on individual parts and complete circuit assemblies.



Multi-Use Test Module
A larger, 14" x 20", 5-gallon test cell in the Multi-Use Module accommodates longer samples.



Ionograph SMD3 Test Module
This module has the same capacity and performance features as the SMD II. The SMD3 is ETL certified to UL standard 3111-1, NEC 500 and 501, and NFPA 496. Advanced safety features include a NEMA 4 electrical enclosure designed for inert gas purging, electrical overload protection and explosion-proof pumps and solenoids.

Shunt Barrier Diodes ensure over-load protection on all components operating in the alcohol medium and a Tertiary System protects against over-temperature conditions.



Ionograph 500 SMD 3 Safety Features

- Shunt barrier diodes for over-load protection
- Explosion-proof pumps and solenoids
- Stainless-steel test cell with swage lock fittings
- Tertiary system for over-temperature control

Omegameter Series

IONIC CONTAMINATION TEST SYSTEMS

- *Determines cleanliness of electronic components, bare and assembled printed circuit boards*
- *Ideal for testing assemblies with SMT devices*
- *Evaluates various soldering fluxes, and supports development of data to optimize cleaning methods*
- *Verifies required surface cleanliness prior to application of conformal coating or potting compounds*
- *Complies with industrial specifications including MIL-STD-2000A, IPC-TM-650, and ANSI/J-STD-001B.*

The Omegameter 600SMD is the industry standard for ionic testing utilizing "static test" methodology on printed circuit boards and assemblies. This unit operates with a heated, agitated extract solution that removes and accurately measures contamination that results in process residues from fabrication and board assembly processes. It serves as an effective and practical quality assurance tool for commercial cleanliness testing, providing accurate, repeatable and rapid results.



Omegameter Features

- Compact, Self-Contained System
- Microprocessor Control for Accuracy, Repeatability
- Simple, User-Friendly Operation
- Databank Storage for up to 30 Samples
- Automatic Test Termination
- Printout of Contamination Curve and Test Parameters
- Heated Test Solution for Improved Solubility of Contaminants
- Submerged Spray Jets in Test Cell for Increased Penetration
- Rapid Pumping Rate of Test Solution
- Interchangeable Test Cells Ranging in Size from 8"x8" to 26"x26"



The Omegameter 600SMD is designed for simple, user-friendly operation.

Omegameter Specifications

Power: 230 volts, 50/60hz, 8 amps
Dimensions: 38" w x 29"d x 54"h
(96.5cm X 73.6cm X 137.1cm)

Weight: 550 lbs (249.5kg)
Solution Capacity: 10 gal. (37.85 l)

Sirometer Series

SURFACE INSULATION RESISTANCE TESTER



- Verifies required surface cleanliness prior to application of conformal coating or potting compounds
- Complies with industrial specifications including MIL-STD-2000A, IPC-TM-650, and ANSI/J-STD-001B

The Sirometer 300 - Version 2.6 Surface Insulation Resistance and Electromigration tester automates industry-critical DC electrical testing in a simple, easy-to-use package. This device measures leakage current under controlled temperature and humidity conditions, giving the user information on process and product integrity.

With this test capability, particularly in processes using no-clean flux technology, users can differentiate and implement process improvements and develop more effective process control. The Version 2.6 Sirometer features user-selectable bias voltages, and 500-volt test capabilities.

- Useful for implementation and maintenance of no-clean processes

- Easy menu-driven program with capacity of 50 test protocols
- Tests all types of patterns: IPC B-24, B-25, B-36, Military "Y", and Bellcore
- User-adjustable BIAS and electromigration voltages
- In-house test capabilities reduce production costs

Compact Table Top Design

The Sirometer incorporates all the primary functions of power sources, scanning, resistance measurement and memory into a compact cabinet to reduce lab clutter and provide shielding from stray signals. External wiring is limited to 6-ft. test probes.

Sirometer Measurement Applications

Optimization of water soluble and no-clean/low-residue processes

Process qualification of flux materials for military contracts (MIL STD-2000/ANSI J-STDs)

Implementation of conformal coating materials and processes

Determine effectiveness of pre-and/or post-process cleaning, especially when water-absorbing residues are present

Predict potential electrical failure conditions due to electromigration and design processes

Complies with IPC-TM-650 (all methods), Bellcore TR-NWT-000078, ANSI J-STD series specifications, and other industry standards

Sirometer Specifications

Test Sites:	16 - 4 segmented patterns, or 64 single-segmented patterns	Output Port:	Parallel Port (standard)
Cables:	6' cables with stranded wire, labels, PTFE insulated	Test Voltages:	100 or 500 Volts (programmable)
Total # Avail. Programs:	50	Bias Voltages:	10, -48, 50, 100, 500, +V1, +V2, & -V1 (+V1, +V2, and -V1 are selections that the user can adjust to voltage of their choice (-500 to +500))
Program Linkage:	Standard, Allows linking of 10 Programs	Operating Voltage:	115 Volts 50/60 Hz 2 amps
Memory:	Non Volatile RAM	Package Dimensions:	17" x 9.75" x 20" (42.5 x 24.4 x 50cm)
On-Board Diagnostics:	Standard program included	System Verification Unit:	Used to verify Sirometer operation before and after testing (optional)
Accuracy:	5% of full-scale maximum		

Ionograph 500M System Module Specifications

	Small Parts Module	Standard Test Module	Multi-Use Test Module	SMD II Test Module	SMD3 Test Module*
Test Cell Size in/cm	6x6/15.2x15.2	12x14/30.5x35.5	14x20/35.5x50.8	18x20/45.7x50.8 20x26/50.8x66 26x30/66x76.2	18x20/45.7x50.8 20x26/50.8x66
Solution Capacity g/l	.75/2.84	2.7/10.22	5/18.92	7-10/26.5-37.8	7-10/26.5-37.8
Dimensions (WDH) in/cm	23x27x19/ 58.4x68.6x48.2	23x27x19/ 58.4x68.6x48.2	23x27x30/ 58.4x68.6x76.2	44x23x34/ 111.75x58.4x86.35	44x23x34/ 111.75x58.4x86.35
Weight lb/kg	65/29	75/34	75/35	240/108	240/108
Power Requirements	120VAC, 60Hz 5A 240VAC, 50Hz 2.5A	120VAC, 60Hz 5A 240VAC, 50Hz 2.5A	120VAC, 60Hz 5A 240VAC, 50Hz 2.5A	120VAC, 60Hz 6A 240VAC, 50Hz 3A	120VAC, 60Hz 6A
Max. Oper. Temp.	—	—	—	45°C ± 1°C	45°C ± 1°C
Heater Element	—	—	—	500 W	500W
Solenoids	—	—	—	Class 1 Expl Proof Div 1, Gp 1 C&D	Class 1 Expl Proof Div 1, Gp A-G
Pump	—	—	—	Class 1 Expl Proof Div 1, Gp 1 C&D	Class 1 Expl Proof Div 1 Gp1 C&D

* Over temperature control: triple fault protection.
Intrinsically safe barriers: Class I,II and III, Div 1, Groups A-G.



Speedline Technologies

A COOKSON ELECTRONICS COMPANY

www.scscookson.com

SPECIALTY COATING SYSTEMS

World Headquarters
7645 Woodland Drive
Indianapolis, IN 46278
Toll Free: (800) 356-8260
Tel: (317) 244-1200
Fax: (317) 240-2073
www.scscookson.com

SHANSAI TRADE
Tel: (21) 61732104
Fax: (21) 61732104