

Start making plans for 2004 NCSL International



Although there are many reasons to visit Utah throughout the year, there is an excellent reason for metrologists and calibration professionals to plan a trip to Salt Lake City in July, 2004: to attend the National Conference of Standards Laboratories International (NCSLI), July 11-15 at the Salt Lake City Convention Center.

This year's conference is especially exciting for Hart Scientific, a Fluke Company. Hart Scientific is located in American Fork, Utah, just a short drive away from Salt Lake City. Our associates at Hart Scientific are looking forward to the opportunity to welcome you to Utah and to share their extensive knowledge of temperature calibration.

In fact, Hart Scientific will offer a "Temperature Calibration School" on July 7-9, just before the start of NCSLI. This course will include instruction in theory, as well as demonstrations, question-and-answer sessions, and some hands-on work. In the two days following the course (July 10-11), Hart Scientific will also offer two half-day NCSLI temperature tutorials: "Fundamentals of Temperature Calibration" and "Temperature Calibration Uncertainty Analysis."

To learn more about the Temperature Calibration School, including pricing and enrollment, contact your local Fluke Precision Measurement distributor.

To learn more about NCSL International, including the Hart Scientific temperature tutorials, and to register for the conference, visit the NCSLI website at <http://www.ncsli.org/conference/2004>.



Fluke associate
David Agy,
2004 NCSLI
president



Hart Scientific
associate
Bernard Morris,
2004 NCSLI
conference
chairman

The Fluke Test Tools Catalog 2004 is now available. Request your FREE copy now.

The 60-page, full-color book is available in 11 languages and contains complete descriptions of features and specifications for Fluke's full line of test tools. Sections include handheld digital multimeters, basic electrical testers, ScopeMeter® Test Tools, installation testers, process calibration tools, power quality tools, clamp meters, digital thermometers and accessories.

It also includes handy selection guides to pick the right test tool for your needs and includes background articles on safety standards, basic electrical installation testing and why to use true-rms responding meters.

Request your free copy now by clicking on "Request a catalog" on the home page of the local Fluke web site or go to www.fluke.com and select your region/country.



inside

Hart Scientific's new temperature/humidity logger features paperless environmental monitoring

Hart Scientific, a Fluke Company, has introduced a new digital temperature and humidity logger for ultra-accurate recording of environmental conditions in critical locations such as calibration and research labs, pharmaceutical and chemical storage areas, and many medical environments.

The Model 1620 – the DewK – accepts inputs from up to two sensors, which may be mounted directly on the unit or remotely (up to 50 feet away). This feature allows users to monitor and record temperature and humidity data from two locations and process the data from a centrally located PC. Each sensor comes calibrated for temperature and humidity from Hart Scientific and contains its own calibration data, so recalibration doesn't require the DewK itself.

Two sensor models are available to meet the needs of a variety of applications. The "S" model reads temperature to ± 0.25 °C over its calibrated range of 15 °C to 35 °C. It records humidity to ± 2 % RH from 20 % to 70 % RH. The "H" model reads temperature to ± 0.125 °C over its calibrated range of 16 °C to 24 °C. It measures humidity to ± 1.5 % RH from 20 % to 70 % RH. NIST-traceable certificates are provided, showing test uncertainty ratios from Hart's cal lab as good as 4:1. Total range for both sensor models is 0 °C to 50 °C and 0 % to 100 % RH.

The display of the DewK may be configured by users (storing up to 16 configurations) for virtually any combination of graphical and statistical data from one or two sensors. Available statistics include min, max, dew point, and rates of change. Daily statistical



The DewK accurately records temperature to ± 0.125 °C and humidity to ± 1.5 % RH on two channels – with years worth of memory and multiple display options.

summaries are automatically maintained. All functions, display, and system settings are easily changed using the DewK's secure password-protected menu system.

On-board memory stores up to 400,000 date- and time-stamped measurements. A PC card slot is also provided for storing millions more data points on a flash card and for transferring data to a PC. Data may also be sent directly to a PC in real-time using the DewK's serial port or wireless IRDA interfaces.

LogWare III software, from Hart, is available as an option. The software provides Windows-based statistical and graphical analysis of real-time or previously-recorded data. Alarms for out-of-tolerance conditions may be set up in LogWare III or in the DewK itself. The DewK is also compatible with Fluke MET/CAL® Plus calibration software.

Detailed information about the DewK is available at www.hartscientific.com. A free brochure is also available. To get your copy of this free brochure, just circle the appropriate number on the enclosed reply form.

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MET/SUPPORTSM Gold changes make it easier to get benefits

Customers who order the Fluke MET/SUPPORT Gold support program (either new or renewed) in 2004 will notice changes in the way you register your product. The old registration card is gone and a new, multi-language web-based registration process is in place. It is very important that you register your MET/SUPPORT Gold product, because Fluke needs confirmation of contact and shipping information to ensure delivery of all your MET/SUPPORT Gold benefits.

Summary of MET/SUPPORT Gold benefits

MET/SUPPORT Gold is an annual MET/CAL[®] Plus software support package that provides these benefits:

- Priority access to Fluke technical support specialists
- Free software updates
- Free upgrades to any new version of MET/CAL[®], MET/TRACK[®], or 5500/CAL released during your enrollment period
- Free access to the MET/CAL warranted procedures library, which currently contains over 600 warranted procedures (nearly 4000 total procedures available)
- Discounts on training classes
- Discounts on custom procedure development
- Free software program and license CD replacement (in case of loss)
- Free database services (password recall and repair of damaged databases)

If you have questions about registering your MET/SUPPORT Gold product, please contact your local Fluke representative or distributor. Detailed information about MET/SUPPORT Gold is available on calibration.fluke.com. To request a printed data sheet, circle the appropriate number on the enclosed reply form.

How to register a MET/SUPPORT Gold purchase

Your MET/SUPPORT Gold product package contains a MET/SUPPORT Gold CD-ROM containing registration information and forms. To register your Gold product on the web:

1. Enter this URL into your web browser:
<http://support.fluke.com>
2. Choose a language from the "Preferred Language" drop-down menu.
3. Type **met-support** in the dialog that asks for the "Name of the site where you want to go."
4. Click the "Register" button. You will see a registration form.
5. Complete the registration form.
6. Click the "Submit Registration" button at the bottom of the form.
7. You will receive email from the site administrator when your registration has been confirmed (typically within one working day)
8. To logon once you have become a member, just follow steps 1 through 3, clicking the **Logon** button instead of the **Register** button. You will be asked to type in your user name and password.

If you do not have internet access, the MET/SUPPORT Gold CD-ROM also contains a registration form that you can complete and email or fax back to Fluke.



UKAS accreditation for Hart Scientific's European primary temperature laboratory

Bringing comprehensive, accredited temperature metrology to Europe

Hart Scientific, a Fluke company, has gained UKAS accreditation for its new European primary standards temperature laboratory in Norwich, UK. The laboratory, which first opened to customers in June, 2003, now offers a comprehensive range of UKAS-accredited and traceable calibrations, as well as metrology services. Customers include organizations with high-end temperature measurement instruments that require calibration and verification to ITS-90 standards, the international temperature scale established in 1990.

The laboratory is equipped with standards and calibration equipment capable of temperature measurement from $-200\text{ }^{\circ}\text{C}$ up to $+1000\text{ }^{\circ}\text{C}$, with uncertainties as low as $0.00007\text{ }^{\circ}\text{C}$. It has the capacity to provide both accredited and traceable calibration services to producers and users of precision temperature measurement equipment throughout greater Europe, the Middle East and Africa. Such a high level of measurement accuracy is required in primary and secondary laboratories, as well as a growing number of manufacturing companies which rely on precise temperature controls for manufacturing processes. These industries include pharmaceuticals, petrochemical and food products.

The lab utilizes a wide range of Hart Scientific equipment such as ITS-90 fixed-point cells, maintenance furnaces, standard platinum resistance thermometers (SPRTs), thermometer readouts and fluid baths, as well as using electrical standards supplied by Hart Scientific's parent company, Fluke.



If you have questions about where to obtain service for your Fluke or Hart Scientific products, contact your local Fluke representative. Information is also available on the Fluke web site, www.fluke.com, and the Hart Scientific web site, www.hartscientific.com.



New Hart Scientific short form catalogs available

Making it even easier to find and order the Hart Scientific products you need, two new short form catalogs of the company's industrial and thermometry products have now been published. The catalogs are available in printed form in English, or on a CD-ROM with English, French, German, Italian, Russian and Spanish versions.

To order your copy, just complete and return the reply fax form included with this edition.



Fluke's European Repair Center celebrates 25 years of accredited calibrations

This year the accredited calibration lab at Fluke's European Repair Center (ERC) in Eindhoven, the Netherlands celebrates its 25-year anniversary. It was back in 1979 that the lab — then located at Fluke's production site in Tilburg, the Netherlands — gained its first accreditation from NKO (Dutch Calibration Organization).

Growing accreditations

When the production facility in Tilburg closed in 1988, the cal lab was transferred to Fluke's site in Eindhoven. There it was integrated with Fluke service facilities, which handled repairs and other maintenance tasks on a wide range of instruments from Fluke and other brands. Today, the calibration lab has a

staff of eight calibration specialists. The RvA (Dutch Council for Accreditation) is auditing the lab yearly to facilitate all the basic electrical parameters, including ac and dc volts, ac and dc current, resistance, capacitance, phase, frequency, and time. In addition, accredited temperature calibrations can be performed over a wide range. Full accreditation information can be found on this URL: <http://www.rva.nl/scopes/k013-sce.pdf>

A recently introduced capability is for fiber-optic equipment such as that used in broadband Internet and other data communication applications, for which parameters such as power, losses and reflections need to be measured and calibrated.

RRC, Kassel, Germany, marks 25-year anniversary

The wide range of capabilities at the ERC complements those of Fluke's cal lab at the Regional Repair Center (RRC) in Kassel, Germany, which just celebrated its 25-year anniversary in October, 2003. This DKD (German Calibration Service) approved lab is one of the European leaders in ac and dc calibrations, with a Josephson Voltage Reference for dc, and also specializes in low frequency calibrations and other parameters including frequency and revolutions.

As well as labs in Kassel and Eindhoven, Fluke's European CalNet® cal labs network also includes the European Primary Temperature Laboratory in Norwich, UK. Together, Fluke's network of cal labs operating under the CalNet® banner offers the ability to handle calibrations of all Fluke and Hart Scientific instruments from a single source, as well as repairs and all other specialized maintenance tasks for these products.



Migrating from dc voltage dividers to modern reference multimeters

A new application note available from Fluke explains the calibration industry's movement from calibration systems like the Fluke 7105A or Datron 4900 to modern reference multimeters like the Fluke 8508A Reference Multimeter. It gives multiple reasons for the obsolescence of the older calibration systems, including artifact calibration, improved zener reference technology, and the development of high-resolution digital multimeters, which combined multiple features of the old systems into a single instrument. Using a single reference multimeter instead of multiple instruments also reduces maintenance costs and management, as well as freeing valuable space in the lab for other uses.

Block diagrams and examples help to illustrate a comparison between calibrating a calibrator with an old system and using a modern reference multimeter to do the same job. Consolidating functions into a single instrument eliminates most interconnecting lead errors, greatly reducing the overall cost of the calibration system, and moreover, allowing full automation of virtually all measurement tasks.

The application note also explains how the two input channels on the 8508A Reference Multimeter can be switched automatically to perform a ratio measure. A discussion of uncertainty components is also included.



Migrating from dc voltage dividers to modern reference multimeters is available in the Application Notes section of calibration.fluke.com. To receive a free printed copy, just circle the appropriate number on the enclosed reply form.

Calibrating energy meters with the 6100A Electrical Power Standard

A new application note from Fluke explains some of the methods and benefits of using a 6100A to calibrate energy meters. Following a summary of the basic calibration methods, the application note shows how the 6100A can function as an energy supply, and how, with the energy option installed, it can also replace the reference meter and pulse comparator that are typically used in energy meter calibration systems.

In addition, the 6100A has the unique ability to generate complex waveforms to verify or calibrate measurements under non-sinusoidal conditions as required by standards such as IEC 61036. Multiple wave shapes generated by the 6100A on its voltage or current channels are shown as examples.

The application note also provides descriptions of the 6100A standard's four testing modes: free run mode, counted/timed mode, gated mode, and packet, or Dose mode. The descriptions include information about how each mode works and points out some of the benefits of using a particular mode. It also explains how to access the energy user interface of the 6100A and describes the basic setup procedure.

Finally, the application note describes typical 6100A energy applications in type testing/approval, manufacturing test, and in-service testing and calibration.



Using the 6100A Electrical Power Standard to calibrate energy meters is available on the Applications page of calibration.fluke.com. You can also request a free printed copy by circling the appropriate number on the enclosed reply form.

Fluke announces energy-counting and 80 amp options for the 6100A Electrical Power Standard

Universal power standard now available with energy measurement capability

With the introduction of the 6100A Electrical Power Standard, Fluke helped manufacturers of utility power system and power test and measurement equipment to comply with the new IEC 61000-4-30 Power Quality Standard. Now Fluke has announced two new 6100A options for the calibration and verification of instruments used to measure energy.

The Fluke 6100A energy-counting option represents an improvement to current calibration methods that lack appropriate accuracy and functionality for calibrating a wide range of equipment in the cal lab, design engineering, and manufacturing test environments.

The new Fluke 6100A energy-counting and 80 amp options open the instrument to a broader range of power measurement and calibration applications. Fluke engineers overcame several design challenges to make the 6100A

Power Standard easier to use and to provide users with previously unavailable functions to verify the performance of energy meters under real-life conditions. These tests are mandated in most countries, but are notoriously difficult to perform accurately and repeatedly. Instead of needing three separate instruments, the 6100A with the energy-counting option can be used as an energy supply, reference meter, and pulse counter/comparator in one unit.

Scalable and simple, yet highly accurate with phase accuracies better than 0.005 degrees, the Fluke 6100A with the energy-counting option is the ideal standard for revenue or energy meters and the increasing number of power analyzers which offer energy as part of their measurement function.



For more information about the Fluke 6100A, including the energy-counting and 80 A options, circle the appropriate number on the enclosed reply form.

Hart Scientific at TEMPMEKO 2004, Dubrovnik

Hart Scientific, a Fluke company, will be present at TEMPMEKO 2004, the international symposium on temperature and thermal measurements, to be held in Dubrovnik, Croatia, from June 22 to 25, 2004.

TEMPMEKO is organized on behalf of the International Measurement Confederation IMEKO, and is held every two or three years with recent events taking place in Prague, Turin, Delft and, most recently, Berlin.

The symposium and associated exhibition have the mission of providing a forum

for an international exchange of opinions among experts in the field of temperature and thermal measurements, focusing on research, development and applications. TEMPMEKO 2004 aims to present new measurement techniques in thermometry, humidity and thermal measurement.

As the world leader in the field of precision temperature measurement and calibration equipment, Hart Scientific will be present at TEMPMEKO 2004 with its complete range of specialized products. The symposium is likely to be relevant to all those who are



interested in temperature, humidity or thermal measurements, and participants are expected from industry, calibration services, universities and national measurement institutes.

Fluke and Hart Scientific customer training schedule

Fluke Customer Training helps you get the most out of your test and measurement instruments and software. The following tables list upcoming courses scheduled around the world. Courses are taught in English except where indicated otherwise (in parenthesis).

April

Date	Course Name	Location
April 19-23	MET/CAL Database and Reports	Dallas, TX
April 20 - 22	MET/CAL <i>Plus</i> Procedure Writing - Basic	United Kingdom
April 21-22	MET/CAL Database Web-Based Training	Online
April 26-30	MET/CAL Procedure Writing	Dallas, TX

May

Date	Course Name	Location
May 3-5	Realizing and Approximating the ITS-90	American Fork, UT
May 3-7	Principles of Metrology	Seattle, WA
May 10-14	Cal Lab Management I	Seattle, WA
May 17-21	Cal Lab Management II	Seattle, WA
May 17-21	MET/CAL Database and Reports	Anaheim, CA
May 17 - 21	Calibration Laboratory Management	United Kingdom
May 19-20	MET/CAL Database Web-Based Training	Online
May 24-28	Principles of Metrology	Boston, MA
May 24-28	MET/CAL Procedure Writing	Anaheim, CA

June

Date	Course Name	Location
June 7-11	MET/CAL Database and Reports	Seattle, WA
June 9-10	MET/CAL Database Web-Based Training	Online
June 14-18	Principles of Metrology	Boulder, CO
June 14-18	MET/CAL Procedure Writing	Seattle, WA
June 15 - 18	MET/CAL <i>Plus</i> Procedure Writing - Advanced	United Kingdom
June 22-25	Advanced MET/CAL Procedure Writing I	Seattle, WA
June 28 - July 1	Advanced MET/CAL Procedure Writing II	Seattle, WA

For more details about Fluke course descriptions, locations or schedules, circle the appropriate number on the enclosed reply form.

Events

Australia	
March 15-16	MSN Trade Show, Melbourne
May	CSIRO Trade Show
August	Electra Trade Show, Sydney
Brasil	
September	Metrosul
Bahrain	
May 10-12	2nd Middle East Metrology Conference and Exhibition, Bahrain International Exhibition Centre
China	
September	MICONEX 2004
Croatia	
June 22-25	TEMPMEKO 2004, Cavtat-Dubrovnik
Denmark	
September	Elektronik Electronics Fair, Odense
Germany	
March 3-5	Messtechnik in Stuttgart 2004, Stuttgart
September 28-30	MeasComp 2004, Wiesbaden
Italy	
September 14-17	BIAS 2004, Milano
Japan	
April	In-house show, NCSLI-J
Korea	
April 20-22	Electrical Power Show
Mexico	
February 21-22	CFE Conference
Sweden	
March 9-12	Underhall 2004, Massans Gata/Korsvagen, Gothenburg
United Kingdom	
April 5-7	18th European Frequency and Time Forum, University of Surrey Guildford
April 28-29	Instrumentation North, Edinburgh
May 26-27	Nepcom, Brighton
June 27 - July 2	Conference on Precision Electromagnetic Measurements (CPEM), London, England
September 4-5	Instrumentation Scotland, Aberdeen Exhibition and Conference Centre, Aberdeen
United States	
March 16-18	Interphex2004™ Conference and Exhibition, Jacob K. Javits Convention Center, New York, New York
June 7-10	Sensors Expo & Conference, Cobo Center, Detroit, Michigan
July 11-15	NCSL International, Salt Lake City, Utah

Contact us:

Austria
Analog & Digital Messtechnik GmbH
 Südstrandstrasse 15,
 Postfach 16
 1232 Wien
 Tel.: +43-1/6175320-30
 Fax: +43-1/6175320-10
 E-mail: pacher@aandd.at
 Internet: www.aandd.at

Belgium
BFi OPTILAS Belgium
 Cipalstraat 3
 B-2440 GEEL
 Belgium
 Phone +32-14570670
 Fax +32-14570679
 E-mail:
 sales.be@bfioptilas.avnet.com

Denmark
Palcon Instruments
 Skovlytoften 26B
 DK-2840 Holte
 Tel.: +45 35 82 04 55
 Fax: +45 45 41 11 68
 E-mail: mail@palcon.dk
 Internet: www.palcon.dk

European Headquarters
Fluke Europe B.V.
 P.O. Box 1186
 5602 BD Eindhoven
 Tel.: +31-40-2675200
 Fax: +31-40-2675222
 E-mail: calibration_info@fluke.nl

Eastern Europe/Middle East/Africa
Fluke Europe B.V.
 Export Department
 Science Park Eindhoven 5110
 P.O. Box 1186
 5602 BD Eindhoven
 Tel.: +31-40-2675264
 Fax: +31-40-2675260
 E-mail: info-export@fluke.com

Finland/Estonia
Professional Test Equipment Harrico Oy
 PL 43
 SF-00421 Helsinki
 Tel.: +358 9 530 66 50
 Fax: + 358 9 530 66 530
 E-mail: info@harrico.com

France
MB Electronic
 606, Rue Fourny - Z. I.
 B.P. 31
 78533 BUC CEDEX
 Tel. 01 39 67 67 67
 Fax. 01 39 56 53 44

Germany
CalPlus GmbH
 Heerstrasse 32
 14052 Berlin
 Tel.: +49 030/214 982-0
 Fax: +49 030/214 982-50
 E-mail: Office@calplus.de
 Web: www.calplus.de

Greece
George D. Zis & SIA O.E. Test & Measuring Equipment
 Zacharitsa 27
 Athens 117 41
 Tel.: 30 1 9246915
 Fax: 30 1 9249087
 E-mail: fluke@ath.forthnet.gr

Italy
DELO Instruments
 Via Piemonte, 14
 20090 Fizzinasco
 Pieve E. (MI)
 Italy
 Tel. +39 02907 22441
 Fax +39 02907 22742
 E-mail: sales@delo.it
 Internet: www.delo.it

The Netherlands
BFi OPTILAS B.V.
 P.O. Box 222
 2400 AE Alphen a/d Rijn
 Tel.: +31 172-446060
 Fax: +31 172-443414
 E-mail:
 sales.nl@bfioptilas.avnet.com
 Internet:
 www.bfioptilas.avnet.com

Norway
Instrutek
 Skreppestad Naeringspark
 N-3261 Larvik
 Tel.: +47 33 16 56 90
 Fax: +47 33 16 57 01
 E-mail: post@instrutek.no

South Africa
Spescom MeasureGraph (Pty) Ltd.
 Spescom Park
 Cnr. Alexandra Ave. & Second Rd.
 Halfway House, Midrand 1685
 P.O. Box 288
 Halfway House,
 South Africa, 1685
 Tel. 27 11 266 1572
 (Johannesburg)
 Tel. 27 21 424 9686 (Cape Town)
 Tel. 27 31 309 3421 (Durban)
 Fax: 27 11 266 1725
 E-mail: Fluketm@spescom.com

Spain & Portugal
Megacal Instruments Iberica S.L.
 C/ Infanta Mercedes, 96
 28020 MADRID
 Tel.: +34-91-5710024
 Fax.: +34-91-5712346
 E-mail: ventas@megacal.com
 Internet: www.megacal.com

Sweden
Caltech AB
 Fågelviksvägen 7
 S-145 53 Norsborg
 Tel.: +46-8-53 47 03 40
 Fax: +46-8-53 17 21 00
 E-mail: janbergqvist@caltech.se
 Internet: www.caltech.se

Switzerland
ELCAL AG
 Heimstrasse 46
 CH-8953 Dietikon
 Tel.: +41-1-742 20 00
 Fax: +41-1-742 20 48
 E-mail: info@elcal.ch
 Internet: www.elcal.ch

United Kingdom
Fluke Precision Measurement Ltd.
 Hurricane Way
 Norwich
 NR6 6JB
 Tel: +44 (0) 1603 256600
 Fax: +44 (0) 1603 483670
 E-mail:
 precision.measurement@fluke.com
 Internet: www.fluke.co.uk/fpm

Corporate Headquarters
Fluke Corporation
 P.O. Box 9090
 Everett, WA 98206-9090
 USA
 Tel.: +1-425-446.5500
 Fax: +1-425-446.5116

Fluke on the World Wide Web: <http://calibration.fluke.com>
Fluke e-mail: fluke-info@fluke.com

Fluke. Keeping your world up and running.

Fluke Corporation
 PO Box 9090, Everett, WA USA 98206
 Fluke Europe B.V.
 PO Box 1186, 5602 BD
 Eindhoven, The Netherlands
 For more information call:
 In the USA (800) 443-5853 or
 Fax (425) 446-5116
 In Europe/M-East/Africa (31 40) 2 675 200 or
 Fax (31 40) 2 675 222
 In Canada (800) 36-FLUKE or
 Fax (905) 890-6866
 From other countries +1 (425) 446-5500 or
 Fax +1 (425) 446-5116
 Web access: <http://www.fluke.com/>