



DICKSON
insights

Spring 2014 • CD275b

+

**ELEVEN
LAWS**

Of Warehouse
Temperature Mapping

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**DICKSON
ONE**

Multiple Location
Monitoring

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Vaccine Storage

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**DICKSON
TEST**

Opening And Closing
An Oven Door

Page 18



What happened to our catalog?

We wanted to provide more value, to you. We've been in the data monitoring business for a long time. Ninety years to be exact. In those ninety years, we've gained quite a bit of knowledge on temperature, humidity, and pressure. Also, for ninety years we've striven for the best possible relationship with you, our customers.

To connect the dots, we want to give back to you, providing information and content separate from our fantastic products. In other words, this new catalog is equal parts Dickson products, and equal parts Dickson knowledge.

In the following pages, you will find articles on (just to name a few) warehouse mapping, vaccine storage, and of course, data loggers. We've structured our content to feature all the products you've come to expect (and a few new ones!) in the center of the catalog, with industry articles on the outside pages. We've reorganized certain products, cut others out, and freshened information up a bit. If you don't see the thing you're looking for, head on over to www.DicksonData.com, or give us a call at **630.543.3747**, we would love to help you. If you have any questions or concerns on the articles we've written, send an email to content@DicksonData.com.

We look forward to writing more for you, and we hope you find some of this information useful.

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The Eleven Laws of Warehouse Temperature Mapping.

- 1. Mapping is not a one-time job.** You will have to map your environment more than once.
- 2. Remember that hot air rises.** In (almost) every facility, you should map on more than one vertical plane, because temperatures stratify.
- 3. Note the location of HVAC outputs, and then place temperature monitors near those outputs.**
- 4. Place your loggers in problem spots.** Problem spots include ceilings, exterior walls, heaters, pallet storage areas, HVAC outputs, exits to uncontrolled spaces, ground and off-ground mezzanines.
- 5. Know how much distance you should put between loggers.** Because the size and layouts of warehouses and other environments vary, and thus the distance between your data loggers will be unique to your location.
- 6. Note your critical product storage areas.** Be cognizant of areas that store products that will deteriorate, or even become dangerous, if they are exposed to extreme temperatures.
- 7. Label all data loggers and record their location.** Place labels on each one, noting the location of the logger, and the date it was put out in your environment.
- 8. Pick the proper sampling rate.** Sampling rate hinges on the device you are using. A wireless monitoring option may allow you to view "crunched" graphs of your data, which average out temperature samples taken every minute into 15 minute averages.
- 9. Collect your data.** Once you place your loggers throughout your mapping environment, be sure to collect all the data from all of your loggers, after your sampling interval is up.
- 10. Calculate mean kinetic temperature.** Mean kinetic temperature expresses the effect of temperature fluctuations on an item during a specified time.
- 11. Re-calibrate.** Make sure you re-calibrate your temperature monitoring devices before mapping. If it has been over 6-12 months, your instruments may no longer be accurate.

DICKSON WAREHOUSE MAPPING PRODUCTS



DicksonOne Wireless, real time monitoring. Automatically calculates mean kinetic temperature.



SM300/TM320 Digital display. USB download.



SK550/TK550 Sold in packs of 12. USB download.

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What Vaccine Coordinators Should Know About Vaccine Storage.

1. The rules are vague. Regulations, Recommendations, Guidelines: three different terms that mean three different things. How do you make this language a little more consistent? By questioning, staying current on new resources, and keeping in contact with those agencies that provide the regulations. Know the ins and outs of your local or state health department, and read through any new material from the CDC, FDA, TJC, or other auditing body you must comply to.

2. Once potency is lost, it can't be restored. Exposure to both warm and cold temperatures can affect the potency of refrigerated vaccines, and exposure to freezing temperatures can destroy certain vaccines. Also, no amount of "re-cooling" or "re-heating" will restore the vaccine to be usable on patients.

3. Create a new Routine Vaccine Storage and Handling Plan every year. This will be beneficial, both towards you, and your employees. The CDC recommends keeping the guidelines you establish near where

your vaccines are stored. Once you have produced a plan, update it. As new testing is done, regulations change. Make sure after you understand the changes, you institute them into your Vaccine Storage and Handling Plan.

4. Develop an Emergency Plan. One plan is not enough! Be sure to develop, and if already developed, update your emergency plan to comply with your regulatory agency's specifications. Natural disasters, power outages, and freak accidents happen. Don't let vaccines be compromised in your part of the Vaccine Cold Chain during an emergency.

5. Educate staff not once, not twice, but always. By continually alerting your staff to changes in regulations, you can prevent the disastrous loss of thousands of dollars of vaccines, and more importantly prevent patients from receiving ineffective vaccines. Constantly alert and train your staff to new storage and handling plans, and expel bad habits that may have formed when plans were not updated or instituted.

Dickson Calibrations Resume

930 S Westwood Ave. | Addison, IL 60101 | 630-543-3747 | support@dicksondata.com

PROFILE

NIST Certified American Manufacturer with over 90 years of experience in the environmental monitoring world. The first manufacturer of temperature monitoring equipment to become A2LA certified and accredited for calibrations. Every unit manufactured is calibrated to the exact standard and option our customers desire, and the ease and quickness of recalibrations is unparalleled. Focused documentation and constantly evolving practices help ensure a commitment to accuracy of measurement. We love calibrations.

SKILLS

Environmental Variables

- Humidity: 0.6-0.7% Relative Humidity Calibration Measurement Capability
- Resistance Thermometry for Platinum RTD - 0.2°F from -60 to 400°F
- Thermocouple Temperature Simulation - 0.9°F from -200 to 2000°F

Calibration Options

- 1-Point NIST
- 3-Point NIST
- 3-Point A2LA
- Custom Point Calibrations and Before and After Data Available

Replaceable Sensors

- Designed, created, and perfected to assuage former problems with recalibrations.
- Cost-effective Replaceable Sensors allow you to never be without your unit during recalibration (all calibration data is stored on the sensor), making your products safer and your processes more efficient.
- Available in thermistor, thermocouple, or RTD probes, the diversity of sensors and applicable devices ensures a correct fit for your application.

EXPERIENCE

A2LA (American Association for Laboratory Accreditation) Accredited Laboratory

Dec 30, 2003 – Present

- The first ever manufacturer of temperature monitoring equipment to become A2LA certified.
- Certified to the ISO 17025:2005 Scope of Accreditation, with the use of NIST (National Institute of Standards) Traceable Standards for all calibrations.

Calibration Laboratory

Completed: January 10, 2012

- State of the art Calibration Lab engineered and built specifically to keep up with evolving A2LA standards.
- Completed Lab has a calibration and repair database, tracking incoming and outgoing calibrated units to pinpoint accuracy.
- Humidity Standards within the lab are 4X as accurate as unit under test, while Temperature Standards are 100X as accurate as the unit under test.

Engineers and Technicians

- 10 staffed Engineers and Calibration Technicians devoted to performing and perfecting the calibration process.
- Average Dickson Calibration Technician as over 10 years of industry and calibration experience.
- A total of 64,940 new calibrations performed and 100,845 recalibrations performed since 2000.
- Dedicated, kind, and knowledgeable support staff on hand to help customers choose the best calibration option

Dickson Replaceable Sensors Recalibration Made Easy

THE OLD WAY

1. Call or order a recalibration online.
2. Acquire a Return Authorization Code from a Dickson Representative.
3. Take unit and probe out of their environment.
4. Shut down production/storage area if necessary.
5. Box unit up.
6. Ship it to Dickson.
7. Dickson recalibrates the unit and ships it back.
8. Receive the unit.
9. Place unit back in your environment.

Total Down Time: 7-10 Days



THE NEW WAY

1. Call or order a Replaceable Sensor online.
2. Receive Replaceable Sensor.
3. Take old sensor off, put new sensor on.

Total Down Time: 0 Days

MODEL	PROBE TYPE	TEMPERATURE RANGES	ACCURACY	PRICE
TEMPERATURE/HUMIDITY				
R200	Digital Sensor	-40° to 185°F (-40° to 85°C)	±0.8°F, 20 to 120°F (±0.44°C, -6.67 to 48.89°C)	\$69
R250	Digital Straight Sensor	-40° to 185°F (-40° to 85°C)	±0.8°F, 20 to 120°F (±0.44°C, -6.67 to 48.89°C)	\$69
TEMPERATURE				
R300	Digital Sensor	-22° to 122°F (-30° to 50°C)	±0.8°F, 20 to 120°F (±0.44°C, -6.67 to 48.89°C)	\$49
R350	Digital Straight Sensor	-22° to 122°F (-30° to 50°C)	±0.8°F, 20 to 120°F (±0.44°C, -6.67 to 48.89°C)	\$49
R400	K-Thermocouple	300° to 2000°F (-184° to 1093°C)	±1.8°F, -22 to 122°F (±1°C, -30 to -50°C)	\$49
R500	Thermistor in Glycol Bottle	-58° to 158°F (-50° to 70°C)	±0.9°F, -58 to 68°F (±0.5°C, -50 to 20°C)	\$69
R525	Stainless Steel Thermistor	-40° to 300°F (-40° to 149°C)	±0.8°F, -20 to 176°F (±0.44°C, -28 to 80°C)	\$69
R600	Platinum RTD	-148° to 350°F (-100° to 176°C)	±0.5°F, -148 to 350°F (±0.3°C, -100 to 176°C)	\$199
R700	Dual K-Thermocouple	300° to 2000°F (-184° to 1093°C)	±1.8°F, -22 to 122°F (±1°C, -30 to -50°C)	\$99
R800	Dual Thermistor in Glycol Bottles	-58° to 158°F (-50° to 70°C)	±0.9°F, -58 to 68°F (±0.5°C, -50 to 20°C)	\$69

NEW PRODUCTS FOR 2014

1. Report Logger

We decided to make the best compact data logger on the market, our **RL200**. With a new outer case, user selectable logging times, and redesigned PC interface, it's exactly what you need.



59 \$

2. Touchscreen Handheld Indicator

TC700/TH700 Instant temperature or temperature/humidity data. No-slip silicone cover. Battery powered.

299 \$

3. Waterproof High Temperature Data Logger

HT300 Waterproof, High Temperature Data Logger. HACCP and FDA Compliant. USB Download. IP68 Rating. Temperature Range -40° to 257°F (-40° to 125°C).

349 \$



TOUCHSCREEN DATA LOGGERS

Full Control At Your Fingertips.

No running back to your PC to see data. Jumbo 4.9" x 6.4" touchscreens. Zoom and scroll with the touch of a finger. Audible/visual alarms. USB and FLASH card data download. Rechargeable Backup Battery. Optional Display Lock. Pre-Calibrated Sensor Compatible.



MODEL	REMOTE PROBE	PROBE TYPE	TEMPERATURE RANGES	ACCURACY	RELAYS	PRICE
TEMPERATURE/HUMIDITY						
FH625	Optional	Temp/RH PCS*	-40°F to 185°F (-40° to 85°C)	±0.8°F, ±0.45°C	▪	\$489
FH635	Optional	Temp/RH PCS*	-40°F to 185°F (-40° to 85°C)	±0.8°F, ±0.45°C		\$529
TEMPERATURE						
FT600	Optional	Temp PCS*	0 to 122°F (-17° to 50°C)	±0.8°F, ±0.45°C	▪	\$399
FT620	1	KT/C	-300°F to 2000°F (-184° to 1093°C)	±1.8°F, ±1°C		\$449
FT630	2	KT/C	-300°F to 2000°F (-184° to 1093°C)	±1.8°F, ±1°C		\$499
FT625	▪	Thermistor	-40°F to 300°F (-40° to 148°C)	±0.8°F, ±0.45°C		\$449
FT640	1	Thermistor/Glycol	-40°F to 158°F (-40° to 70°C)	±0.9°F, ±0.5°C		\$469
FT645	2	Thermistor/Glycol	-40°F to 158°F (-40° to 70°C)	±0.9°F, ±0.5°C		\$489
FT660	▪	RTD	-148°F to 350°F (-100° to 176°C)	±0.5°F, ±0.28°C	\$549	

*Pre-Calibrated Sensor

Temperature and Temperature/Humidity Data Logging Solutions

Data loggers are cost effective solutions for monitoring any required area. With solutions for the food, pharma, manufacturing and dozens of other industries, Dickson's data loggers get you your data how you want it.



1



2



3



4

- 1 SM300 \$249** Temperature Logger. Range -4 to 158°F, -20 to 70°C. Accuracy ±0.8°F, ±0.44°C.
SM320* \$299 Temperature Logger. Remote Probe. Range with Probe -300 to 2000°F, -184 to 1093°C. Accuracy ±1.8°F, ±1.0°C.
SM325* \$399 Temperature Logger. Two Remote Probes. Range with Probe -300 to 2000°F, -184 to 1093°C. Accuracy ±1.8°F, ±1.0°C.
SM420 \$499 Temperature Logger. Remote Probe. Range with Probe -50 to 350°F, -45 to 176°C. Accuracy ±0.5°F, ±0.28°C.
TM320 \$299 Temperature and Humidity Logger. Range -4 to 158°F, -20 to 70°C. Accuracy ±0.8°F.
TM325 \$399 Temperature and Humidity Logger. Remote Probe. Range -40 to 185°F, -40 to 85°C. Accuracy ±0.8°F.
- 2 SP125 \$119** Temperature Logger. Accuracy ±1.2°F, ±0.67°C. Range -10 to 176°F, -23 to 80°C.
SP175 \$229 Temperature Logger with Thermo-couple Probe. Accuracy ±1.8°F, ±0.1°C. Range -300 to 2000°F, -30 to 50°C. A203 Probe required for +500°F.
TP125 \$199 Temperature and Humidity Logger. Accuracy ±0.8°F, ±0.45°C. Range -10 to 176°F, -23 to 80°C.
- 3 SP425 \$159** Temperature Logger. Digital Display. Accuracy ±1.2°F, ±0.67°C. Range -4 to 158°F, -20 to 70°C.
TP425 \$249 Temperature and Humidity Logger. Digital Display. Accuracy ±0.8°F, ±0.45°C. Range -4 to 158°F, -20 to 70°C.
- 4 SK550 \$699** Temperature. Pack of twelve. Accuracy ±1.8°F, ±1°C. Range -4 to 158°F, -20 to 70°C.
TK550 \$999 Temperature & Humidity. Pack of twelve. Accuracy ±1.8°F, ±1°C. Ranges -4 to +158°F, -20 to +70°C.

Software required and sold separately. For software and other accessories, visit Page 15, call **630.543.3747** or go to www.DicksonData.com.

Connect With Us

Dickson Social Media Accounts



@DicksonData



Channel:
DicksonData



Search
"Dickson"



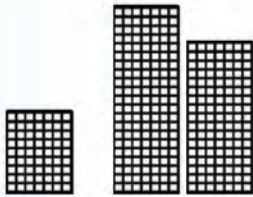
Search
"Dickson Data Loggers"

DicksonOne



Temperature and Humidity Monitoring. Re-imagined.

DicksonOne is a wireless temperature and humidity monitoring system that automatically collects your data and delivers it to wherever you are. No more changing charts, no more downloading data.



MULTI-LOCATION How many points will you be monitoring? 1, 5, 100, 1000? From small cheese factories to multi-location healthcare distributors, DicksonOne is up for the task. Monitoring an additional location is as simple as buying another logger.



ALARMS When temperatures get too hot or cold, your power goes out, or your probe is unplugged, DicksonOne can call, text, or email you to alert you of the mishap. Throw away less products, and ensure the safety of your environment, even when you're not there.



INFINITE STORAGE We don't run out of space, and you never have to worry about hard drives or file folders. We've got you covered.

WHY DID WE MAKE IT?

DicksonOne is the direct result of customer feedback like this:

1. We want to monitor **multiple locations** with one system.
2. We're spending too many **personnel** hours changing charts and pens.
3. We want an **easier way** to share our data.
4. We need **more robust** alarming capabilities.
5. I need to view **my data** from anywhere.

DICKSONONE HARDWARE

DicksonOne Data Loggers are robust and reliable. With battery backup, your choice of Ethernet or Wi-Fi communication, and a digital display, these loggers provide the security and convenience your application needs.



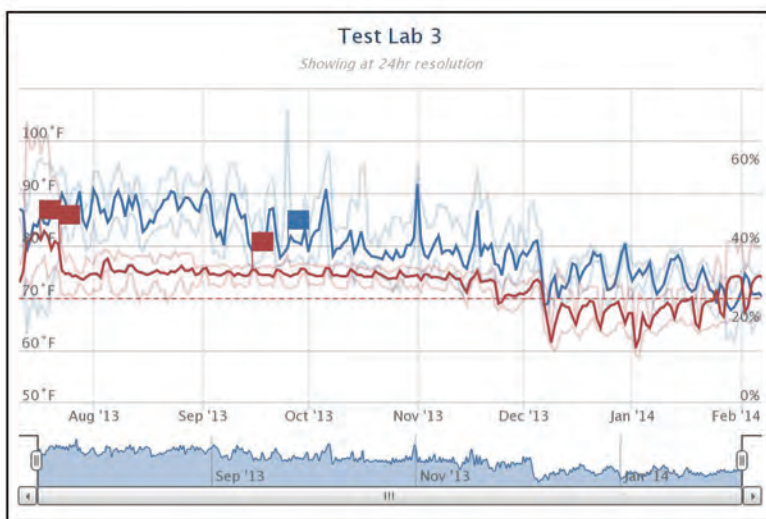
DICKSONONE SOFTWARE

DicksonOne is a SaaS (Software as a Service) platform that automatically stores your data and makes it accessible anywhere.

The software is the real key to DicksonOne. We believe it rises above the competition in usability, security, and scalability. The interface is easy to navigate for everybody, from your IT team to the end-user working with the product you're trying to keep safe. DicksonOne is 21CFR11 compliant, and all data is backed up redundantly, perfect for showing an audit trail. We've had a jump on all other environmental monitoring systems for over a year, and we've kept it that way. We continually improve the system and add new features based on customer feedback. Seriously, someone is working to make it better right now.

The list of features in DicksonOne is endless. Instead of listing them all, we invite you to see for yourself.

Start your free trial at www.DicksonOne.com



DicksonOne Hardware Pricing

MODEL	REMOTE PROBE	PRICE
WFH20/ENH20	Digital Temperature and Humidity Replaceable Sensor	\$499
WFT20/ENT20	Digital Temperature Sensor	\$499
WFT21/ENT21	Thermistor Temperature Sensor with Glycol Bottle	\$479
WFT23/ENT23	K-Thermocouple Temperature Sensor	\$479
WFT25/ENT25	Platinum RTD Temperature Sensor	\$599

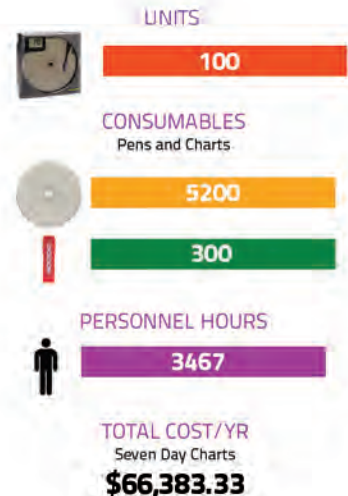
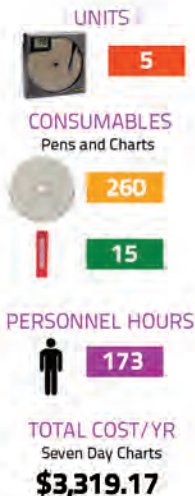


DicksonOne Software Pricing

PLAN	DEVICES	FEATURES	PRICE
Basic	Unlimited	Data Stored for 30 days, 1 hour sample rate	\$0
Starter	1 to 5	Unlimited Data, Multiple Sample Rates, API Access	\$119/year
Regular	6 to 20	Unlimited Data, Multiple Sample Rates, API Access	\$359/year
Plus	21 to 50	Unlimited Data, Multiple Sample Rates, API Access	\$1199/year
Enterprise	51 +	Unlimited Data, Multiple Sample Rates, API Access	Call for Quote

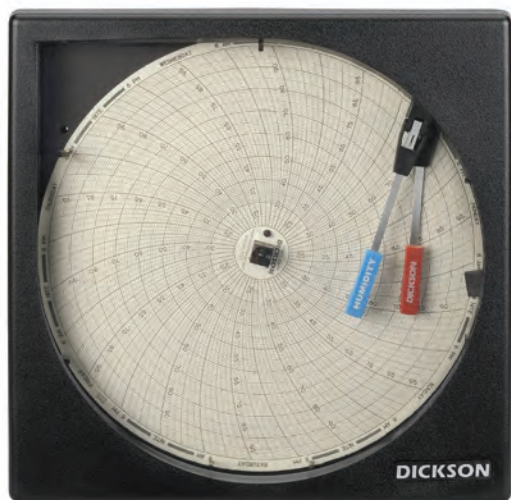


Consider The Cost Of That Old Chart Recorder...



Temperature and Temperature/Humidity Chart Recorders

Want a physical readout right where you are monitoring? Our Chart Recorders have you covered. For ninety years we've built the best chart recorders in the business. Check out our models below.



8 and 6 Inch Models

Eight and Six Inch Chart Recorders to see detailed temperature and humidity values.

MODELS AND FEATURES

KT6	6 Inch Temperature	Starting at \$369
KT8	8 Inch Temperature	Starting at \$419
TH6	6 Inch Temperature and Humidity	Starting at \$489
TH8P	6 Inch Temperature and Humidity	Starting at \$489



4 and 3 Inch Models

Four and Three Inch Temperature Chart Recorders designed to fit any application.

MODELS AND FEATURES

SL4350	4 Inch	\$239
SL4100	4 Inch	\$239
SC3 Series	3 Inch	\$239

Charts sold separately. For charts and accessories, visit Page 15, call **630.543.3747** or go to www.DicksonData.com.

PRESSURE DATA LOGGERS



Pressure Data Logger One second sampling rate. User replaceable battery. Optional delayed start. USB connectivity. Pressure sensor includes built-in diaphragm seal.

Rugged Utility Pressure Data Logger Water resistant case. 3 year battery. Unobtrusive design. Fits easily in a toolbox. USB Connection.

PR125 \$499 0-100 PSI
PR325 \$499 0-300 PSI
PR525 \$599 0-500 PSI

PR150 \$499 0-100 PSI
PR350 \$499 0-300 PSI

PRESSURE CHART RECORDERS



4 and 8 Inch Models

Four and Eight Inch Chart Recorders to meet your needs.

Single AA battery powered. Rugged low-maintenance design features. 7-day or 24-hour recording times. 1/4 inch NPT Connector.

MODELS AND FEATURES

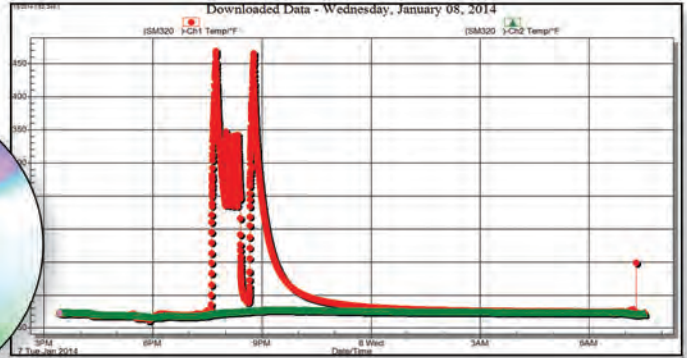
0-100 PSI	PW860/1 \$629	PW470 \$449
0-200 PSI	PW864/5 \$629	PW474 \$449
0-300 PSI	PW866/7 \$629	PW476 \$449
0-500 PSI		PW479 \$629
0-1000 PSI	PW875 \$749	

Charts sold separately. For charts and accessories, visit Page 15, call 630.543.3747 or go to www.DicksonData.com.

DicksonWare

DicksonWare Software was designed with you in mind. Easy installation. Painless logger setup and data downloads. Data visualization through populated graphs and tables.

Learn more at www.DicksonData.com



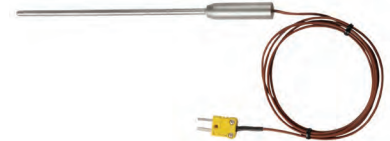
PROBE ACCESSORIES



D617 \$52 10' K-TC Straight Extension Cable



D605 \$79 4" Piercing Probe

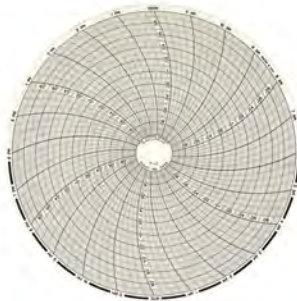


A203 \$125 6" High Temperature Immersion Probe

CHARTS AND PENS

We make reordering charts and pens a cinch.

Only authentic Dickson charts and pens guarantee the accuracy of your temperature, humidity, and pressure data. Fortunately we've made the process of reordering charts and pens fast and easy. Simply go to www.DicksonData.com, click 'Charts and Pens' at the top, choose your device, and easily reorder to the exact specifications you desire. Or give us a call.



Go to DicksonData.com
Or call **630-543-3747**

American Association for Laboratory Accreditation

Important Definitions You Should Know

F **DA Auditor:** "Have your units been calibrated?"
You: "Why yes sir, they have."
FDA Auditor: "I need to see the certificate of calibration."
You: "No Problem, it's right here."
(You hand the FDA Auditor your certificate of calibration . . .)
FDA Auditor: "The laboratory that calibrated this instrument was not A2LA certified."
You: "So . . ."
FDA Auditor: "So you're in trouble."
You: "Gulp."

You don't want to gulp.

Getting your units calibrated and re-calibrated can be a confusing process. Which is why we've pulled a list of the most important terms from our own A2LA Certificate of Accreditation, to define, for you. Next time re-calibration rolls around, you will be equipped with some essential knowledge on who to have calibrate your units, and what kind of calibration you may need.

1. A2LA

A2LA stands for the American Association for Laboratory Accreditation.

What does that mean?

To start, unless you work in a lab, testing, measuring, and calibrating, you probably won't ever deal directly with these people. However, you need to know who they are and what they do, because if you own any instrument used to measure, well, anything, there's a good chance the A2LA had a hand in its creation, and accuracy.

The American Association for Laboratory Accreditation is a nonprofit membership society, that accredits testing and calibration labs. Just as you may have to comply to the FDA, or TJC, the people who make your monitoring instruments may decide to become accredited by the A2LA.

So why do you need to make sure their name is on a certificate for your monitoring and measuring device? Because when they accredit an organization, that organization is said to have reached certain standards for measurement



capability. The A2LA uses particular competence standards (explained below!) to evaluate just how "good" a testing or calibration laboratory is. If the laboratory shows competence, quality, and an ability to measure any number of variables accurately, they receive accreditation.

2. Accreditation

It's a term found in A2LA's name, appears many times on an A2LA certification, and yet it is commonly misunderstood. The goal of any calibration laboratory is to pass specific tests, or prove competency in key areas to a regulatory organization. When those tests are passed, and the calibration lab proves its ability to maintain a certain standard, the regulatory body (like the A2LA) gives them their "formal" approval (usually through documentation). This approval is called accreditation.

3. ISO/IEC/17025/2005

ISO: International Organization for Standardization

IEC: International Electrotechnical Commission

17025: Standard for requirements of competence in testing and calibration laboratories

2005: The year, 2005.

Combine all 4, and you get a standard, published by the International Organization for Standardization (with the help of the International Electrotechnical Commission), in 2005, on requirements of competence in testing and calibration laboratories.

4. ANSI/NCCL Z540-1-1994

ANSI/NCCL Z540-1-1994 is the second national standard for calibration laboratories in the United States, and has been a standard since 1994. While the ISO standard pertains to both calibration and testing laboratories, ANSI is only applicable for calibration laboratories. Just like ISO, ANSI has requirements that a calibration lab must meet, in order to become accredited by an accreditation body. Specifically, ANSI is concerned with the traceability of measurements to national standards, and stresses the authenticity and verification of test and measurement equipment.

5. Calibration

One of the most important, yet possibly most misunderstood words in all of temperature monitoring. Be on the lookout for a blog post, catalog feature, .pdf, and overall big commit-

ment on the topic from us soon, but in the meantime, we've come to define it like this:

How do you know an inch is an inch? Who decided what an inch was? An organization on standards, like the International Standards Organization (ISO! Call back to early info alert!) holds standards of measurement, that we all use. Standards make our lives easier.

So, let's say I own a ruler that is 13 inches long, but is supposed to equal a foot. I have a hunch that it is not completely accurate, and all of my measurements seem a little off. How can I figure out if it is 1 inch too long? One way, is to compare it to a standard. That standard would be accurate to 12 inches, or a foot, and I could make a comparison between my ruler, and this correct standard. I would see that the ruler was one inch too long, and I could correct it by sawing off an inch, making my ruler now accurate to a foot.

That's calibration.

It works the same way with temperature, humidity, and pressure monitoring instruments. Measuring those variables is a little more complicated than measuring distance with a ruler, but in the same fashion, units have to be compared to an accurate standard, and then adjusted so they accurately measure temperature, humidity, pressure, or a million other variables.

6. Laboratory

We are not trying to insult your intelligence with this one. Laboratories are yes, where "science" tends to happen, and where evil giant man-monsters are made by Gene Wilder. That stated, in it's R101 – General Requirements: Accreditation of ISO/IEC 17025 Laboratories, the A2LA outlines 8 different kinds of calibration laboratories that it accredits. They are listed below.

- Main Laboratory
- Permanent Laboratory
- Branch Laboratory
- Satellite Laboratory
- Field
- Field Testing/Calibration
- Field Laboratory
- Mobile Laboratory
- Dexter's Laboratory (just kidding)

7. Thermodynamics

Many science books and encyclopedias can give you a solid, concrete definition of thermodynamics. However, rarely do those definitions relate to A2LA Accreditation. Thermodynamics is simply a branch of physical science that

deals with heat. So, when you are looking at a certificate of accreditation from the A2LA, and it has a section titled, "thermodynamics," that laboratory manufactures or calibrates devices that measure the presence or absence of heat, energy, or work. In other words, temperature.

8. Resistance Thermometry

When deciding on an organization to buy, calibrate, or recalibrate temperature units from, the decision should begin with, "how do I want to measure temperature." Once decided, you should search for an organization that is certified in your decision.

At Dickson, we're certified in Resistance Thermometry. On Dickson's Certification of Calibration, Resistance Thermometry falls under Thermodynamics. What does this tell us? Well, it means that Resistance Thermometry is a way to measure temperature. Defining Resistance Thermometry begins and ends with the RTD (Resistance Temperature Detector) which is one way (among many) to measure temperature. RTD's measure temperature via predictable resistance of a metal to temperature. They are also very accurate at measuring temperature.

9. Thermocouple Temperature Simulation

Also found on Dickson's certificate of calibration, thermocouple temperature simulation is another way to measure temperature, and another way in which the A2LA can certify you in measuring temperature. As you've probably guessed, the A2LA doesn't just stamp on the outside of a calibration lab "GOOD." Their process of certification hinges on the various ways to measure a variable, and an organization thus attempts to be credited in those ways.

Thermocouple Temperature Simulation is an interesting topic, and one that we plan on giving a full description of in the coming months. As an appetizer and simple definition, we think of it like this:

Thermocouples measure temperature via two dissimilar metals who contact each other and produce a voltage. That voltage is predictable, and thus a temperature can be calculated from it. "Simulation" is used in the A2LA documentation because, as our engineers will repeatedly tell you, "You can't really measure temperature, only something's reaction to it." Again, we'll explain soon.

10. Calibration and Measurement Capability

We left this for the end because we felt it needed to be worked up to, and it is very important for an organization that monitors temperature

to understand a calibration laboratory's Calibration and Measurement Capability before deciding to calibrate with them.

When taking a measurement, you want to be sure that your measurement is accurate. This is why you calibrate. The problem, is that while we may wish it were as simple as "accurate" or "not accurate," it isn't. Accuracy is a spectrum, and how accurate your measuring instrument is depends on the calibration lab's ability to calibrate your instrument. An organization's Calibration and Measurement Capability then, is its ability to make your instruments accurate. Lower is better, as in the lower the degree, the less error your temperature measurement will have. When something is "more accurate," it has a smaller uncertainty of measurement. That uncertainty of measurement is brought to you by a calibration lab.

So please, ask what their Calibration Measurement Capability is before you calibrate with them!

11. Range

We thought we would end with an easy one. The definition of range is what you would expect. Found right next to Calibration Measurement Capability on an A2LA Certificate of Accreditation, range is the upper and lower limits that a particular tool can measure at. For our ruler, that means 1 inch to 12 inches. For some temperature monitoring devices, it can mean from almost absolute zero to really, really, really hot. If you know the temperature ranges you will be monitoring at, you can be better equipped to choose a calibration lab.

So that's that. Some definitions of terms found on Dickson's A2LA certification. As always, this was research done internally at Dickson, and does not reflect, or affect the A2LA's recommendations in the least. We always recommend talking to your auditor first.

CHECK OUT THE

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BLOG!**

Like what you've read? Find more great information about temperature on our blog: www.Blog.DicksonData.com



Dickson Test:

Opening and Closing an Oven Door.

This test began as a simple office disagreement, and slowly developed into a 'Price is Right Rules' Official Contest to see which of our team could guess closest, without going over, the amount of temperature an oven loses when opening the oven door.

The Research Question:

How much heat does an oven lose when you open the oven door for five seconds?

The Guesses:

Dave: 99F	Ben: 46F	Carly: 45F
Teresa: 25F	Ryan: 83F	Nick: 35F
Matt: 149F	Ajooi: 125F	Kristin: 63F

The Answer: 100F

Congratulations was in order to Dave!

Five minutes into taking down my coworkers guesses, it became apparent that there were going to be a lot of variables to this experi-

ment. After flushing them out and coming to a few concrete conclusions about how the test would be conducted, this is what we (at least initially) decided:

- Oven would be set to 350-400F
- Ambient air temperature would be set to 72F
- Oven door would be opened, left open for five seconds, and then closed
- We would take the latest sample point before opening the oven door, and subtract it by the lowest temperature sample point after the door was opened.
- We would use a thermocouple data logger

What we found over the course of multiple tests, was that yes, on average, one oven of our's dropped 100F after the door was opened.

To read the complete article on the experiment, and other tests Dickson has done, visit our blog, at blog.DicksonData.com.

Questions to Ask

When Shopping for a New Data Logger

There are A LOT of choices when it comes to picking a new data logger. Being a little confused is . . . completely understandable.

Recent advances in technology have changed data loggers for the better, and a host of new features is available for purchase. But what features are important to you? How do you narrow down the selection? What is essential for you to keep your products safe, maximize profits, and comply with regulatory standards?

We're here to help answer those questions, by giving you a list of questions. Huh? Yup, stay with us. Below you will find some essential questions to ask when evaluating a change in monitoring device, which once answered, should guide you in your selection of a new product.

The Big 3:

- What are you trying to monitor?
- Why are you trying to monitor?
- What are your monitoring goals?

Those three questions may seem overly simple, but they are important to answer before you begin shopping for a data logger. And the thing is, many people can't answer them. Before you call a company for a quote, or type "data logger" into Google, be sure you can answer those three things. If you can't answer them, contact experts within your field who can. Once answered, you will have a good idea of what features to look for in a logger, and begin answering the following, more specific questions geared towards your application:

1. Are their specific regulations to adhere to in my application?

Below we've listed a few of the common regulatory agencies/standards that many of our customers must comply to. However, there are more. Find out who will be auditing you (if any-one), and then find out what specific monitoring standards you need to comply to.



- HACCP
- FDA
- CDC
- Clean Room ISO Standards

2. How many monitoring points do I have?

Monitoring one refrigerator? Not too hard of a question to answer. However, for those looking to monitor a large environment, or multiple environments, the specific number of monitoring locations will help determine which data logger you should purchase.

3. Finally, what is my budget?

Price is important, of course. When you have selected a product family, or a specific set of features that your data logger must have, it's time to find your price range. Compare prices from different manufacturers, call for quotes, and do your research into the different options for the features you need.



Dickson has a growing collection of great videos on:

- Product Introductions and Overviews
- Application Showcases
- How To's

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Along with showcasing you in our catalog, we also upload your story to our blog, an unparalleled online resource for the quality community; however you use our products in your application.

We look forward to hearing from you!

JUST GIVE US A CALL:
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