DICKSON

insights

Summer 2015 ▪ CD290

THE VACCINE STORAGE GUIDE

Vaccine Storage Guide

Keeping Diseases **At Bay.**

MICHAEL MILLER ▪ **DICKSON INSIGHTS** EDITOR-IN-CHIEF

In May we created a catalog that focused on Temperature Mapping, with articles and products geared towards keeping your products safe through preventive environmental mapping and validation. This month: vaccines are the focus. Using proper protocol when handling and storing vaccines is crucial to our world's health, as vaccines that are stored improperly, or handled in an unsafe way, can be ineffective without the patient ever knowing.

Here at Dickson, we have a long history with vaccine storage: clinics and hospitals have been using our data loggers and chart recorders to monitor their vaccine supply for many, many years. We'd like to think of ourselves as experts in vaccine storage and monitoring.

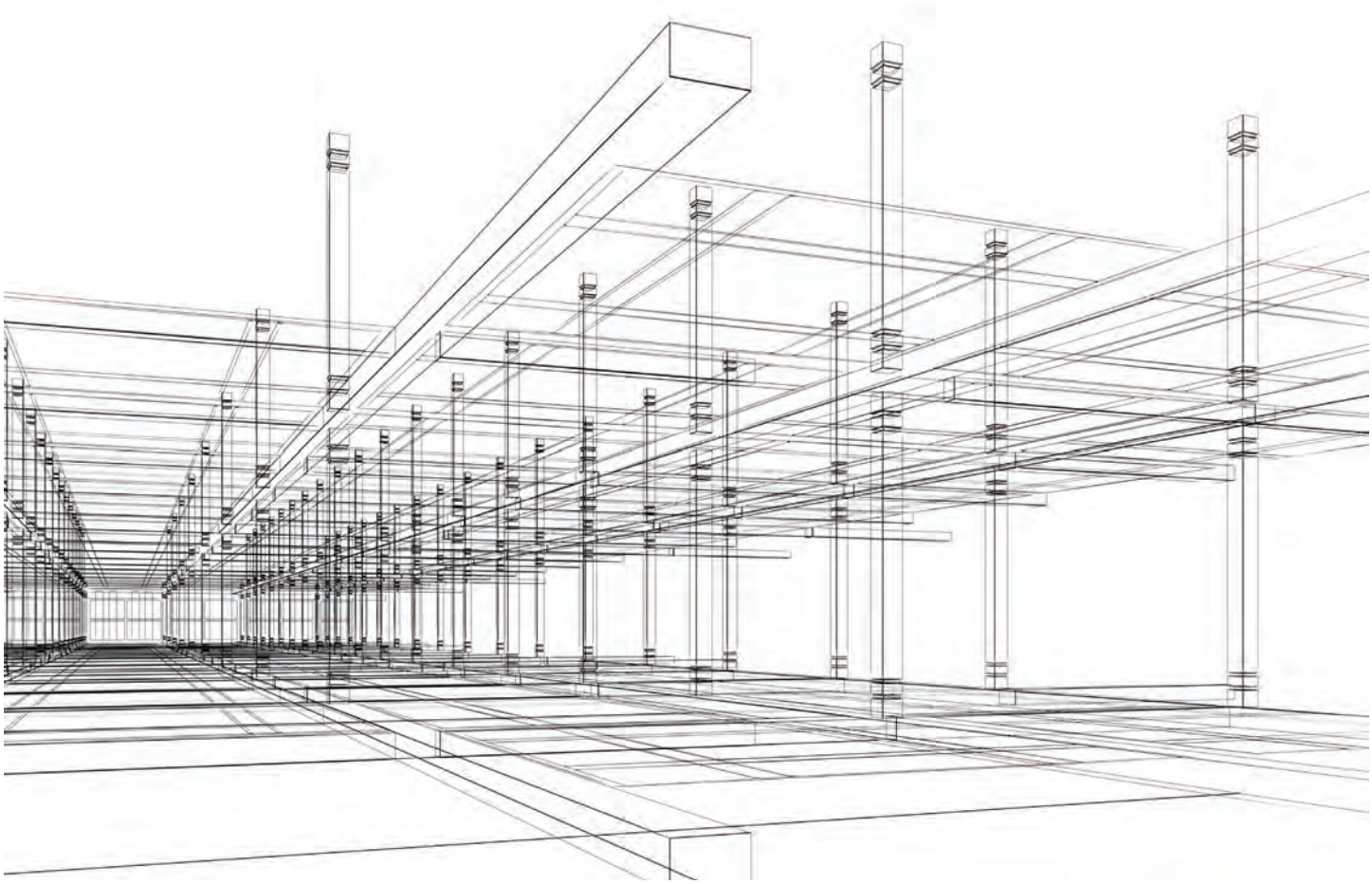
In this special edition of Dickson Insights, we've created a **Vaccine Storage & Monitoring Guide.** With school just around the corner, and demand sure to be high for vaccines, we wanted to get providers the information important to keeping vaccines safe and effective. Think of this catalog as an update on the most current regulations, requirements, and information related to vaccine storage.

So what's in this month's edition of Dickson Insights? A lot! While we do have some articles not necessarily geared towards vaccine providers (check out our article on dew point on page 6!) this catalog focuses on some specific aspects of vaccine storage, monitoring, and handling. We've got articles on the history of vaccine regulations, expired vaccines, and have even included an introduction and the first few sections of our "Vaccine Storage and Handling White Paper," in our feature section at the back of the catalog.

We hope you enjoy all the vaccine knowledge! If these articles don't quite satisfy your thirst for information however, we've got more! To access our entire vaccine knowledge database, visit **dicksondata.com/vaccines.**

TABLE OF CONTENTS

NOTES: *Vaccine Storage and Handling information presented below has been taken from Dickson's experience within the temperature monitoring field, and from the CDC's Vaccine Storage and Handling Recommendations. Details on the CDC Vaccine Storage and Handling Recommendations can be found at www.cdc.gov/vaccines/recs/storage/.
**The CDC and the Vaccines For Children Program are not affiliated with Dickson Unigage Inc., and they do not evaluate or endorse the products sold in this catalog, or at dicksondata.com.



Keeping Your Products Safe:

DICKSON Temperature Mapping Services

The launch of our new **Temperature Mapping and Validation Services** is good news for anyone that wants to keep a product within a certain temperature range. So, you. We can help verify that your facility is right for your products: whether that be a refrigerator with a few vaccines in it, or a 20,000 square foot warehouse storing medical devices.

WHAT WE DO...

Dickson **Temperature Mapping & Validation Services** Provide:

- Warehouse Mapping
- Cold Room Mapping
- Problem Spot Analysis
- Seasonal Mapping
- New Facility Thermal Validation

FOR MORE INFO CALL:

630.563.4273

Our **Dickson Temperature Mapping & Validation Services** Experts can help you find a plan that works best for your facility!

A Dickson Primer:

Do's & Don'ts of Vaccine Storage

Vaccine storage and handling can be as confusing as all get-out. There are a lot of resources and materials to consume, and there are different regulations coming at you from different regulating bodies (i.e. the CDC, the VFC Program, County Health Departments, etc.).

Becoming well-versed in the fine details of vaccine storage takes a little time, a little work, and a lot of experience (our Vaccine Storage & Handling White Paper is a good place to start that journey!), but just about any vaccine distributor can pick up the big no-no's and yes-yes's of vaccine storage pretty quickly. Here is the Dickson list of "Do's and Don'ts" for vaccine storage. Know them like the back of your hand.

Do: Monitor with a data logger.

Yes! Data Loggers! The time has come to start monitoring with a data logger (a digital device that takes temperature readings). While the chart on your fridge door may stay intact, that old mercury thermometer has got to go. Digital data loggers allow vaccine providers to set alarms when temperatures go out of range, and provide better accuracy than a mercury thermometer or chart recorder. Speaking of chart recorders . . .

Don't: Monitor with a chart recorder.

Exchange that old chart recorder for a data logger. Trust us, it's time. The CDC now recommends data loggers and NOT chart recorders for vaccine storage. While it is nice to have the physical readout of your temperatures on a chart, right in front of your eyes, chart recorders just aren't accurate or secure enough to guarantee a vaccine's storage conditions.

Do: Use a temperature probe buffer.

Glass beads or Glycol solution will do the trick. A remote probe and temperature buffer are essential to vaccine monitoring. After the data logger itself, having a remote probe that is encased in a temperature buffer is the next step. Inserting your remote probe into a temperature buffer allows the probe to read temperatures that mimic the temperatures of you vaccine.

Don't: Use a dorm style fridge.

Dorm style fridges are small, waist high refrigerators common to...college dorms. And they are not effective at keeping temperatures within 35-46F. The CDC ruled these refrigerators out years ago, yet we still come across them from time to time. If you are storing your vaccines in a dorm style fridge, knock it off.

Do: Make sure refrigerators and freezers can't be unplugged.

How do you do that? With signs, protective plug cases, and letting everyone who might come near the fridge know that it should never, ever be unplugged! Losing power to your cold vaccine storage will be a logistical nightmare, with possibly thousands of dollars of useful vaccines having to be thrown away. So, post signs stating "Don't Unplug" at your refrigerator or freezer's electrical outlet (the CDC provides free printouts for just this purpose), consider buying secure plug cases, and be sure to alert your team (that includes the cleaning crew!) that the refrigerators and freezers should never be unplugged.

Don't: Use non-calibrated data loggers.

A NIST Traceable Calibration performed by an A2LA or similarly accredited laboratory is the best way to ensure your data logger's accuracy. Make sure when you buy your data logger, it comes with a Certificate of Calibration.

A Brief, Recent History Of CDC Vaccine Storage Regulations

1994

The VFC Program is Born

In response to the United States measles epidemic which raged from 1989-1991, the United States Congress passed the Omnibus Budget Reconciliation Act (OBRA). which created the Vaccines for Children (VFC) Program. This program granted vaccines as a right of law to children under the age of 18.

2011

The VFC Operations Guide Is Published

In 2011, the CDC published its "VFC Operations Guide". Now unavailable (and outdated) online to vaccine providers, the report outlined the processes and documentation of good vaccine storage, like the documentation of an emergency storage plan.

2011

Office of the Inspector General Visits VFC Provider Sites and Conducts Interviews

In April and May of 2011, the Inspector General visited 45 vaccine provider sites to assess the storage conditions of their vaccines. These sites were notified two weeks in advance of the visits.

2012

The Inspector General Publishes Report OEI-04-10-00430 "Vaccines For Children Program: Vulnerabilities In Vaccine Management."

This report was published in June 2012. It assessed and interviewed 45 vaccine providers during a two week time span in the spring of 2011. The report found that 76% of the 45 providers had vaccines which were exposed to inappropriate temperatures.

2012

The CDC Publishes Vaccine Storage and Handling Interim Guidance

After the damning OEI-004-10-00430 Report was published, the CDC responded swiftly with interim guidance on the subject of vaccine storage. This guidance included an increased stress on the updating of VFC and Vaccine Provider technology.

2014

CDC Publishes and Distibutes an Updated "Vaccine Toolkit"

In 2014, the CDC published a complete guide to storage and handling of vaccines, a 109 page "Toolkit" that is now the most known and comprehensive source for vaccine storage regulations in the US.

The Question On Everyone's Mind:

Why Is Dew Point Important?

Here at Dickson, there is a chance that when you walk from our parking lot to our front door, you may walk through a small patch of grass, depending on whether you want to save a few steps or not. When the weather is just right for frost or dew, that could mean wet shoes in the morning, or worse, wet socks.

More importantly than wet socks though, we come into contact with dew point because…our data loggers calculate it! When you buy a DicksonOne data logger for example, one of the "variables" (dew point isn't really a variable, rather a calculation) you can choose to view from your environmental data is dew point. We do get a lot of customers asking us to help them turn the dew point view off, but we also get a few who it really matters to.

We've probably all considered dew on the ground at some point in our lives. Whether we were wondering if it was safe yet to mow the lawn, or how long we would be scraping ice off of our windshields, dew point is present, especially in the mornings.

But what is it? Well, for starters, it's expressed as a temperature value. For example, the dew point in an environment can be 41 Fahrenheit , 18 Celsius, or 20 Kelvin. Dew Point though, has to do with water, specifically how much water the air around you can hold. So, the definition of dew point is this: the temperature when moisture in air begins to condense.

Why is it important?

Dew point is important for a number of reasons. For meteorologists and "predicting the weather" dew point, and dew point's relationship to temperature, can help explain and predict the likelihood of fog, clouds, rain, and other forms of precipitation. Speaking of fog, dew point is of pressing importance to pilots up in the air. Dew point can alert them to heavy fog, and help them know when it will be too dangerous to land due to limited visibility.

Meet The New

DicksonOne Touchscreen

MORE DATA AT YOUR FINGERTIPS

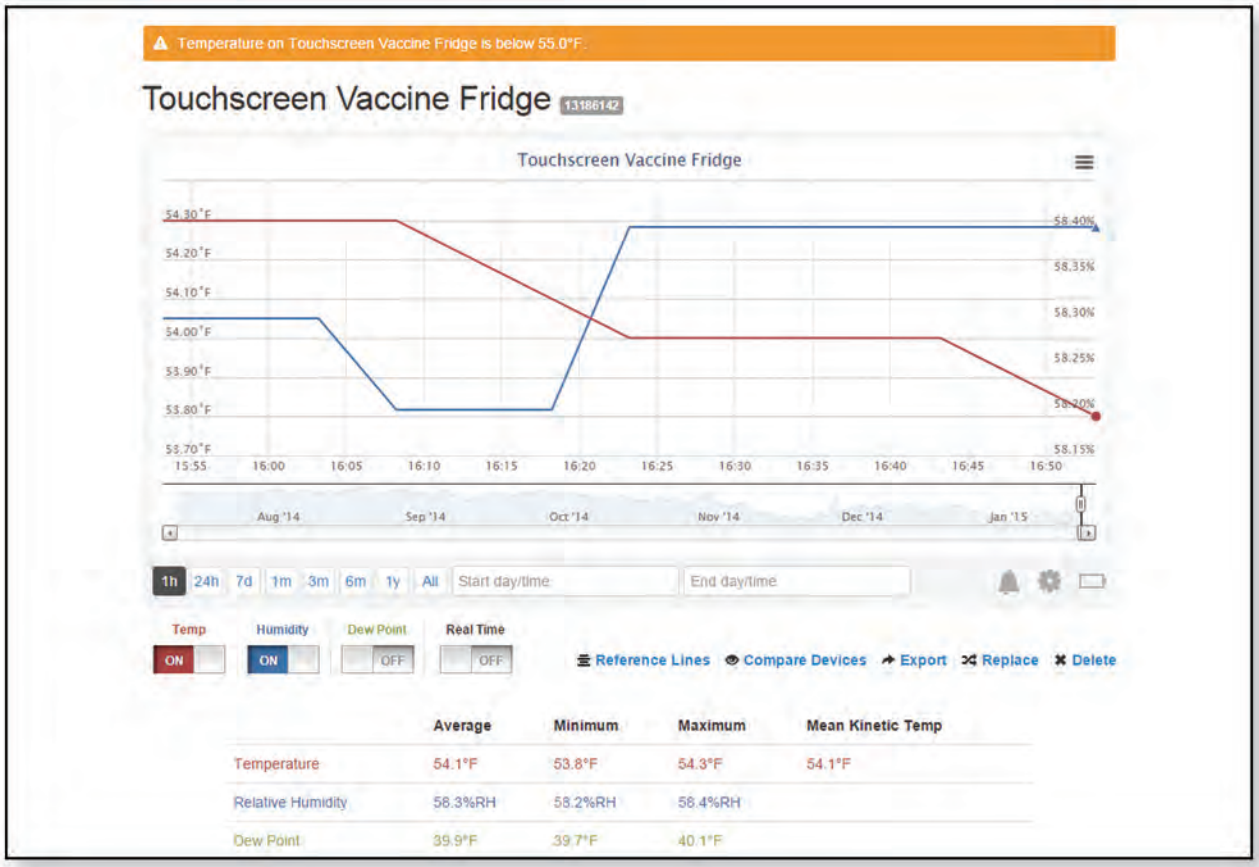
DicksonOne Enabled ▪ Power Over Ethernet ▪ Enhanced User Interface

DESIGNED **FOR YOU**

Our goal when designing the new line of **Touchscreen Data Loggers** was to create a feature-heavy and easy-to-use device that allowed users access to their entire data history, anywhere. We pushed the limits of connectivity, user-interface, and functionality, to deliver the most robust data logger on the market.

Data At The Source

1. **The Graph** Your environmental history just got a whole lot easier to navigate through. We overhauled the user-interface, and made it easy to view and manage your data.
2. **Your Channels** Every touchscreen will automatically calculate the minimum, maximum, and average temperatures of your selected view.
3. **Real-time Monitoring** Push the play button, and your device will update back to the most recent set of readings.
4. **Device Settings** Your Touchscreen is robust. When you navigate your devices settings, you can adjust sample rates, set alarms, and connect to DicksonOne.



NOW WITH **DICKSONONE**

The **Touchscreen** now gives you the option to connect directly to **DicksonOne.** You get all of your data at your fingertips, and now you can access it anywhere, too. Just connect your device to your local WiFi network, or plug it into an Ethernet port, log into **DicksonOne**, and boom, complete data control.

DicksonOne Allows You To

- Get email, text, or phone call alarms from your Touchscreens.
- Access every one of your Touchscreens' data history on one website.
- Generate customizable reports, delivered directly to your inbox when you want.

The new Touchscreen allows for USB download to DicksonWare.

Only DicksonWare A017/A027 will function with Touchscreen Loggers.

DicksonOne

Wireless Temperature and Humidity Monitoring

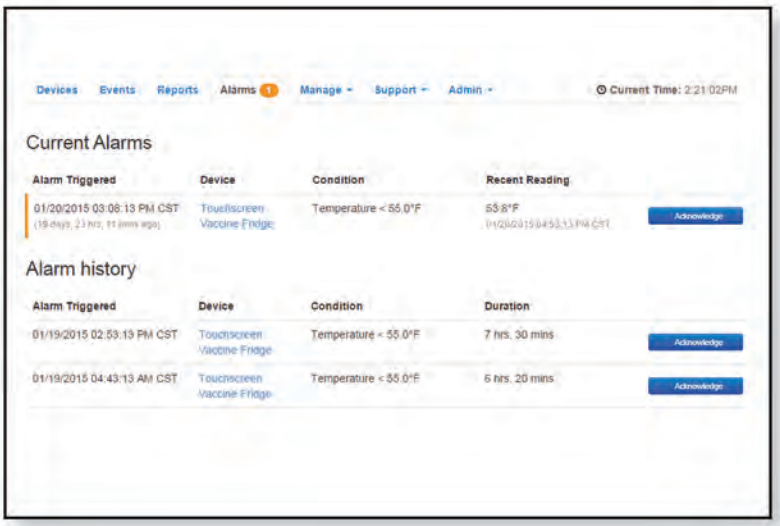
HOW IT **WORKS**

When you log onto **DicksonOne.com**, your environmental data, from every location, appears before your eyes. Charts and pens, get outta here. USB cords and software on a disc, you too. **DicksonOne** Loggers transmit your data wirelessly to the **DicksonOne** Cloud, were you can access it anytime.

Power Over Your Environment

EMAIL, TEXT & PHONE CALL ALARMS

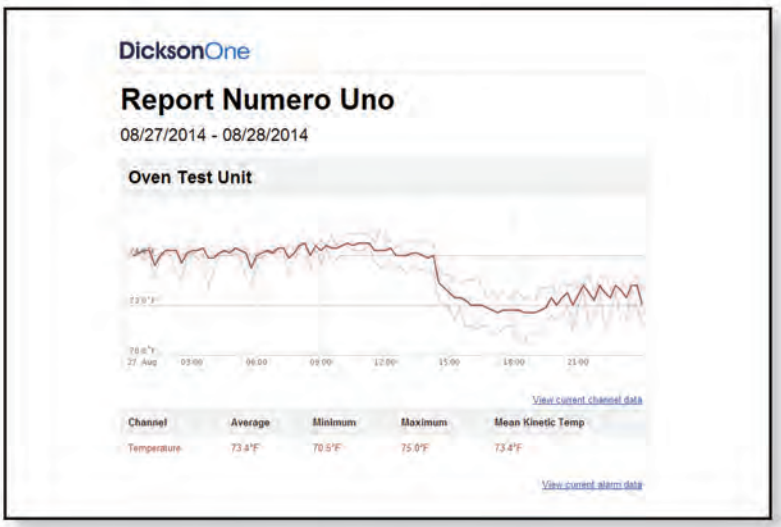
When something bad happens in your facility, **DicksonOne** can send anyone in your organization an email, text, or phone call. Temperature too high? Humidity too low? We've got you covered.



CUSTOMIZABLE REPORTS

The DicksonOne Reporting Suite allows you to:

- Create and customize reports of any and all your loggers
- Choose who in your organization will receive which reports
- Change and modify the frequency of reports



Warehouse Loggers

WFH20 $499

Medical Loggers

ENT21 $479

DicksonOne
Touchscreen Pricing

MODEL	REMOTE PROBE	PRICE
TSB	USB Download	**$424**
TWE	DicksonOne WiFi/Ethernet Connection and Download	**$524**
TWP	DicksonOne Download and Power over Ethernet	**$599**

The new Touchscreen allows for USB download to DicksonWare.
Only DicksonWare A017/A027 will function with Touchscreen Loggers.

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 Gass Beads	**$479**
WFT23/ENT23	K-Thermocouple Temperature Sensor	**$479**
WFT25/ENT25	Platinum RTD Temperature Sensor	**$599**

DicksonOne
Software Pricing

DEVICES	FEATURES	PRICE
1 to 10	Unlimited Data, Multiple Sample Rates, API Access, Email, Phone, and Text Alarms	**$300/year**
11 to 25	Unlimited Data, Multiple Sample Rates, API Access, Email, Phone, and Text Alarms	**$725/year**
26 to 50	Unlimited Data, Multiple Sample Rates, API Access, Email, Phone, and Text Alarms	**$1400/year**
51 +	Unlimited Data, Multiple Sample Rates, API Access, Email, Phone, and Text Alarms	**Call for Quote**

* Dickson offers a Basic Plan, with 30 Day Data Deletion, and 1 hour sample rates for unlimited loggers at no cost.

Calibration In Five Seconds

HOW REPLACEABLE SENSORS **WORK**

Dickson Replaceable Sensors are Dickson's answer to the headache of calibrating your temperature or humidity monitoring device. When your device needs to be calibrated, just pop off your sensor, and pop on a new one. It's that easy. Now when you order a DicksonOne or Touchscreen Logger, you get the benefit of never having to ship a logger back to us again.

WITHOUT REPLACEABLE SENSORS

1. Order a recalibration for your device.
2. Acquire a Return Authorization Code from a Dickson Representative.
3. Take unit out of its environment.
4. Move products out of environment/install backup monitoring system.
5. Box unit up.
6. Ship unit to Dickson.
7. Dickson recalibrates unit and ships it back.
8. Receive the unit.
9. Disassemble backup system/move product back into environment.
10. Reinstall unit/system..

Total Down Time: 7-10 Days

VS

WITH REPLACEABLE SENSORS

1. Order a Replaceable Sensor.
2. Take old sensor off, put new sensor on.

Total Down Time: 0 Days

All DicksonOne and Touchscreen Loggers are **RS COMPATIBLE.**

High Temp Solutions

D605 Probe sold separately. For more information on Dickson's Probes and Accessories, visit **dicksondata.com.**

1. **HT 300 Waterproof, High Temperature Data Logger** HACCP and FDA Compliant. USB Download. IP68 Rating. Temperature Range -40° to 257°F (-40° to 125°C). **$349**
2. **HT350 High Temperature Process Logger** HACCP Compliant, K-Thermocouple Probe, USB Download, and a large temperature range. Temperature Range -40° to 257°F (-40° to 125°C). **$349**

Instant Data Solutions

3. **TC700/TH700 Touchscreen Handheld Indicator** Instant temperature or temperature/humidity data. No-slip silicone cover. Battery powered. **$299**
4. **RL200 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**

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 display 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	8 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, call **630.543.3747** or go to **www.DicksonData.com.**

Temperature and Temperature/Humidity

Data Logging Solutions

Data loggers are cost effective solutions for monitoring countless applications. 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 Thermocouple 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, call **630.543.3747** or go to **www.DicksonData.**

Connect With Us

Dickson Social Media Accounts

@DicksonData

Channel: DicksonData

Search "Dickson"

Search "Dickson Data Loggers"

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.

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

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

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**	**$449**
0-1000 PSI	**PW875**	**$749**			

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

CALIFORNIA SERIALIZATION REQUIREMENTS

It may seem strange for us to highlight one state in a catalog that is shipped to all 50, but as you will soon find out, California is important when it comes to prescription drug security.

Prescription drug fraud is an issue: a big one. While less so in the US than abroad, it's been estimated that millions of prescriptions are filled with counterfeit drugs in the US every year. Abroad, statements like "30% of all drugs are counterfeit," are commonplace.

Virginia Herold, Executive Officer, California State Board of Pharmacy, would like to fix this issue.

Before we get to Virginia Herold, we should take a step back. The title of this article states "California Serialization Requirements," and yet we haven't mentioned Serialization at all, just fake drugs. The two go hand in hand. Serialization of pharmaceutical drugs is the best way to ensure that the drugs being distributed to patients in need are not counterfeit.

The other term that we should explain before we get to California and Virginia Herold, is pedigree (and epedigree). For those not in the pharmaceutical supply chain, a pedigree is a document that shows the history of a drug, from its manufacturer to its final seller. Epedigree is the electronic version of a pedigree. Pedigrees have been crucial in the United States relatively low percentage of drug fraud. But, they are in need of an update.

That update starts out in The Golden State, where Virginia Herold and the California Board of Pharmacy have spearheaded regulation changes that, as they put, must be abided by in 2015 and 2016 at the latest for manufacturers. They've updated the epedigree requirements to include the following from people in the California supply chain:

Manufacturers: Must pedigree by 2016.

Wholesalers: Must pedigree by July 2016.

Pharmacies: Must pedigree by July 2017.

What does it mean to pedigree? How are these pedigrees different from what was already in place? Put vaguely, they are more robust and more complete. Herold and the California Board of Pharmacy have outlined that everyone must pedigree, and all pedigrees must be interoperable. That means that the complete pedigree and epedigree system is not independent to each link in the supply chain. Rather, manufacturers must work with distributors who will work with pharmacies. This swift and immediate change in how California has gone about securing its drug supply chain is important for the rest of the 49 states because . . .

that change is coming our way soon enough.

MANUFACTURING NEWS
THE 7 BEST TWITTER ACCOUNTS

Where To Get Your Manufacturing Info

1. **Cerasis @Cerasis**
   A Third Party Logistics Company, Cerasis isn't a huge consumer-based corporation, but their twitter game is on point. If we had to categorize them, we would put them in the conversational-news sharing-link building-content distributing class. In other words, they do it all.

2. **Design World @DesignWorld**
   Design World is a power-player in the world of design and manufacturing. They provide engineering news, information on engineering products, and host webinars on their website. To top it all off, their twitter feed does a good job mixing in fun photos with important issues and news.

3. **Food Manufacturing @FoodMfg**
   Had to get the foodies in here! While it may not be the first thing you think of when the abbreviation "MFG" is put in front of you, food is a huge part of the manufacturing world. And there is no better place to get your news than @FoodMfg.

4. **MFG.com @MFGcom**
   MFG.com is a place for buyers to meet suppliers in the Manufacutring Industry. Communication is their strength, evident through their twitter feed. Follow these guys for a string of tweets on the nitty-gritty of the manufacturing industry.

5. **MAKE @make**
   Simple name, simple twitter handle, fantastic magazine. We subscribe to Make magazine, and if you like to learn how to make an "Awesome Death Star Pinata" you should too. Or at least visit their website.

6. **The Real Mike Rowe @mikeroweworks**
   The former host of the popular Discovery Channel Series "Dirty Jobs," and current host of CNN's "Somebody's Go To Do It," Mike Rowe is a fun follow for Manufacturers, and 240,000 tweeps agree with us. Rowe is an advocate for the MFG industry through his funny pictures and funnier videos.

7. **National Association of Manufacturers @ShopfloorNam**
   The advocate and political follow, @ShopfloorNam is the largest manufacturing association in the United States, and thus a twitter follow almost out of necessity to be in the know. NAM tweets about why manufacturing is "good," and what is happening in our nation's capitol that will either create or eliminate manufacturing jobs.

HOW TO AVOID EXPIRED VACCINES

Documentation Is Key

Opening up your vaccine fridge one morning and finding you have vials of expired vaccines is not an enjoyable experience. It means a lot of paperwork for you and your hospital or clinic: especially if those are VFC vaccines. The process includes removing the expired or damaged stock out of the fridge, labeling it as expired, separating it completely from the current stock that is within useable dates, trying to figure out if any expired vaccines were administered (a headache that includes re-administering every vaccine given), and contacting your immunization program or vaccine manufacturer to figure out what to do next. Yikes.

Yup, if you are a vaccine provider, you really want to avoid all of that work, lost money, and all those at-risk patients. How do you do that?

Rotate Stock.

Your grocery store does it, and so should you! By moving the oldest vaccines in your vaccine fridge or freezer to the "front" of your supply, you can better ensure that the oldest vaccines get used first, before they are set to expire. The CDC recommends to unpack all vaccines immediately, and place them within your vaccine stock in a last in-last-used system. Also, the CDC recommends having one person (chosen by the vaccine coordinator) check the placement and arrangement of vaccines in your freezer and/or refrigerator weekly, to ensure they are placed in the appropriate order according to their expiration dates.

Read Labels.

You should know and understand the difference between "use by," "use through," and "expires on." Vaccines will sometimes only be marked with an expiration month and year. Thus, that vaccine can be used in that entire month, but the second the clock ticks midnight and the calendar flips over, it is now expired. Also, because different manufacturers print differently on vials, syringes, and packages, you want to make sure you know the difference in what you are looking at, whether it is a vaccine or a diluent.

Document Inventory.

As always, documentation is key. The CDC recommends recording the following quantity information when vaccine inventory is taken: recieved, administered, wasted, spoiled, expired, and transferred vaccines. Also, you should have documentation that is constantly updated to include information on the vaccines that your clinic or hospital is currently out of, which vaccines should be used first, and what the next ordering round will look like. This doesn't even account for stock records, which must be much more detailed.

Order Small, Order Smart.

You can always order more. While it may make sense to order large batches of vaccines at a time, it drastically increases the likelihood of an expired vaccine, for obvious reasons. Ideally, your hospital or clinic's vaccine coordinator is well-versed in vaccine expiration dates and vaccine distribution numbers, so ordering is a standardized process that limits the risk for expired vaccines. One way to help establish this process is through tally sheets. Each time a vaccine moves out of the fridge, it should be noted. These tally sheets help keep inventory and stock records updated, and also allow vaccine coordinators to see trends in vaccine distribution over time, for more efficient ordering.

All The ESSENTIALS

The Dickson Vaccine Storage Guide Is Your Essential Resource For Keeping Your Vaccines At The Right Temperature

The following was taken from the Dickson Vaccine Storage and Handling Guide, a White Paper created by Dickson to help vaccine providers (both VFC providers and non-VFC providers) in the United States better understand the vaccine landscape, storage regulations, and best practices associated with safe vaccine storage and handling.

This guide draws on Dickson's lengthy experience and plethora of knowledge working as a vendor for hospitals and medical clinics over the last three decades. Through documented research, on-sight visits, seminars, and trade shows, Dickson has developed a wealth of knowledge on proper vaccine storage and handling practices.

The following information is intended for educational use only, and should not be used in place of an auditor or regulating agency's recommendations, guidelines, or requirements. The information in the Vaccine Storage and Monitoring Guide is taken from field research and the CDC's published materials on Vaccine Storage and Handling, including the Vaccine Storage and Handling Toolkit. For more information on the sourcing of our information, refer to the NOTE on Page 2 of the CD290 edition of Dickson Insights.

We can only fit so many words on the next two pages, and thus the following text is merely an excerpt from our Dickson Vaccine Storage and Monitoring Guide. We've included portions from the Introduction and Monitoring Technologies sections of our White Paper.

To read and download the full Dickson Temperature Mapping Guide:

Call us at: **630.543.3747**

Visit our website: **DicksonData.com/vaccine-paper**

Visit our blog: **Blog.DicksonData.com/vaccine-paper-download**

And now, without further ado, we present the Dickson Vaccine Storage and Monitoring Guide!

1. Introduction

Vaccines inhabit an important part of the cold chain: the disease prevention part. Vaccines have been proven to be one of our most effective means for fighting disease, and have eradicated or nearly eradicated devastating diseases, like smallpox and polio, that have taken the lives of thousands to millions of people throughout history.

To be effective disease destroyers however, vaccines need to be kept cold. In their "Vaccine Storage and Handling Toolkit," the CDC states, "Excessive heat, cold, or light exposure can damage vaccines, resulting in reduced potency. Once potency is lost, it cannot be restored." "Need to be kept cold" is probably not the best statement about vaccine potency, either. While vaccines do need to be kept cold, if they freeze when they shouldn't freeze, that can be an even bigger issue than exposing them to warm temperatures. Exposing some vaccines to frozen temperatures will destroy them. Yet, some vaccines should be kept frozen! It can all get a little confusing, and one mistake can lead to a public health nightmare. Which is why knowing the proper temperature ranges for the vaccines you are distributing is a huge part of successful vaccine storage. Before we get to measuring those temperature ranges, proper storage and handling, back-up plans, and host of other information we should probably know what they are.

So what are those temperature ranges? Below we've outlined two lists: a list of vaccines that need to be kept in your hospital or clinic's refrigerator, and a list of vaccines that should be kept in your freezer, along with the associated temperatures for each storage location.

Refrigerator Storage (35F-46F, 2C-8C): MMR, HepA/B/, Hib, Hib-HepB, HPV2/4, Influenza, IPV, Hib-MenCY, MCV4, MPSV4, PCV13, PPSV23, RV1/5, and Diptheria toxoid, Tetanus toxoid, and Pertussis.

Freezer Storage (-58F-5F, -50C-(-15C)): VAR, HZV, MMRV, MMR.

Now that you are equipped with the most essential knowledge for keeping your part in the vaccine cold change, it's time to learn how that chain can break, and how you can prevent it from breaking.

2. Monitoring Technologies

How do we know that a vaccine stayed cold? With temperature monitoring technologies, that's how! Monitoring the temperature your vaccines are being stored at his the best way to know when a vaccine may not be safe to use anymore (that and looking at expiration dates). Monitoring means measuring. You want to use a piece of technology that takes a measurement of the temperature in your refrigerator or freezer.

That may seem simple enough. Heck, the dial in your refrigerator at home lets you know that 'Level 5 = Coldest." Unfortunately, it's not that simple. A monitoring device can be anything from that refrigerator knob, to a standard from NIST that cost thousands of dollars, and is accurate to the .00001 degree. Picking something to monitor your vaccine refrigerator and freezer with is also getting more and more confusing, because the regulations for what you should use have been updated multiple times in the last decade. For vaccine providers, it used to be enough to place your vaccines in a refrigerator or freezer, and glance at a mercury thermometer every few days to make sure the temperature is still in range. For good reason, that is no longer the case.

Instead, vaccine providers have to adhere to strict (and getting stricter) requirements for proper vaccine storage, and with that, proper vaccine monitoring.

How do you monitor a vaccine? With a data logger.

2.1. Data Loggers Data Loggers are the most effective way to monitor your vaccine's temperatures. Period. Which is why they made it into our Vaccine Storage and Monitoring White Paper so early. If you have a data logger, you have the power of knowledge, the power of alerts, and much more. What is a data logger? In the most generic sense, a data logger is something that logs data. For the case of vaccine providers, a data logger logs and displays the temperature data for your refrigerator and freezer. Thus, a data logger is an electronic device. Think of it in the alarm clock, gameboy, size of electronics. Furthermore, a data logger stores temperature data. This is very, very important. Unlike a standard thermometer you may use to find out if you or a patient has a fever or not, data loggers store temperature readings over time.

And now we must make an important distinction: there is a difference between a data logger and a temperature sensor. Data loggers can log anything. Temperature, PH, vibration rate, speed, humidity, you name it. In the case of vaccine storage, they log temperature data. How do they get that temperature data? By communicating with a sensor. The sensor measures the temperature of your refrigerator/freezer, and the data logger takes that temperature reading, applies a timestamp to it, and stores it on a hard drive . . .

To download and read the rest of Dickson's Vaccine Storage and Monitoring Guide, visit: **DicksonData.com/vaccine-paper.**

What's included in the rest of the White Paper?

- How to develop a vaccine storage and handling plan
- An overview of refrigerators and freezers
- An interactive chart on sensors, probes, and thermal buffers
- The nuts and bolts of vaccine handling best practices
- Dickson's tricks for inventory management
- Everything you could ever possibly need to know about calibration

DICKSON
930 South Westwood Avenue
Addison, Illinois 60101-4917

PHONE **800.323.2448**
FAX **800.676.0498**
www.DicksonData.com

DicksonOne Touchscreen

When we began designing our new line of Touchscreen data loggers, we started with some simple, yet lofty goals: create a device that was feature heavy, easy to use, and allowed users to access their data history . . . anywhere.

So we combined a new Touchscreen interface with the power of DicksonOne to deliver our most robust data logger yet:
The DicksonOne Touchscreen.

The DicksonOne Touchscreen is beautifully designed, with a new capacitive LCD touchscreen, a redesigned user interface, and new interchangeable Replaceable Sensors.

Plus, with WiFi, Ethernet, and USB connectivity, our new line of Touchscreens connects you directly to the DicksonOne Cloud, which allows you to interact and manage your temperature data according to 21CFR11 guidelines.

To build your DicksonOne Touchscreen, visit:
dicksondata.com/products/dicksonone-touch.

Scan This QR Code To Visit DicksonData.com

Quick Response (QR) codes are a type of barcode that can be read by cell phones and other readers. Simply download a QR Reader application on your cell phone, scan the code, and view additional content like product videos!