DICKSON

insights

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Validation Is Not A Scary Word

But What Does It **Mean?**

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

If you're in the quality assurance business like us, validation is a term you hear every day. "Validation" falls under the umbrella of terms businesses use to discuss the quality of their product, facility, or service. (Similar terms: IQ/OQ/PQ, SOP's, Storage, Deviation, Key Operating Procedure, and many more.)

For those not well-versed in the world of quality assurance, hearing "validation" can send you running to hide under your desk. It's a word that can scare you into a frightful Google search, an emergency call to someone in your quality department, or worse, it can scare you into ignoring it.

Why is that? We think it has to do with the widespread use of the word, without a concrete understanding. When a term like validation is used so frequently in the medical, pharmaceutical, and food industries, it can lose its foundation, and become a term that could mean anything!

And that's scary to us. We're in the validation industry. We build data loggers and temperature recorders used to validate HVAC systems, refrigerators, and even greenhouses. Having such an essential process like validation leaving our customers confused and disenchanted is bad for their product quality.

So we'd like to help. Here's how we define validation:

"Documented testing done under controlled conditions and circumstances, to demonstrate the process, methodology, and specific systems used which will produce consistent results that meet acceptance criteria determined before the testing begins."

That's a lot of quality assurance jargon! We promise it's really important jargon. If that definition leaves you confused, you can head over to our blog, **Blog.DicksonData.Com**, for a detailed breakdown of each term mentioned in the above definition. Just search "Validation."

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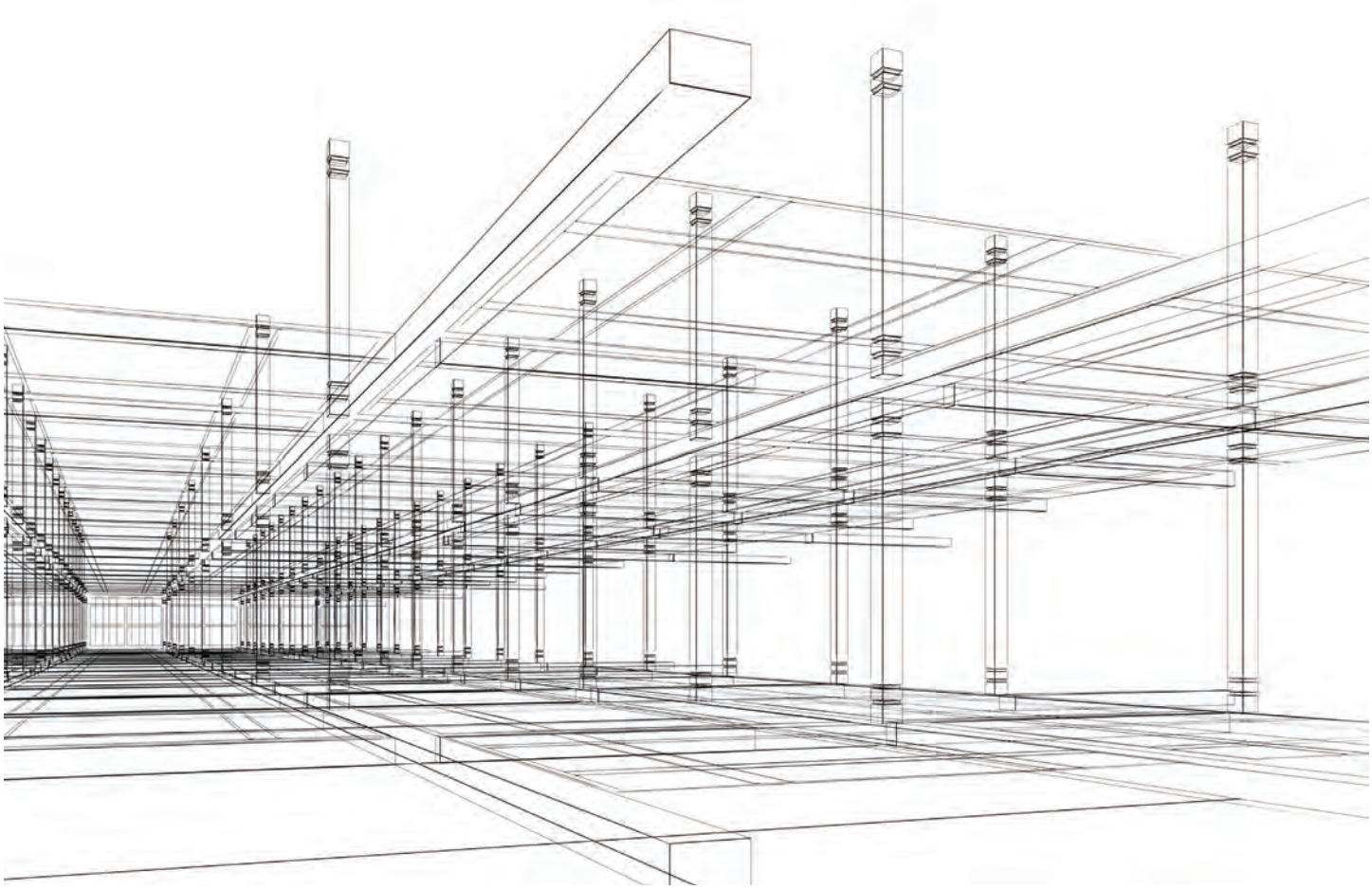


Keeping Your Products Safe:

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!

Connect With Us:

Clean Rooms & Humidity

Formerly reserved for the medical, pharmaceutical, and micro-electronics industries, clean rooms have become more widespread and prevalent across the world as the tech industry has continued to boom, and regulations have constricted their grasp on more quality control departments. Clean rooms are monitored and controlled for seemingly every environmental condition, but one that is very, very relevant, to both the micro-electronic tech corporations and the medical and pharmaceutical industries: humidity.

Controlling the humidity of a clean room is important to companies not because of a single problem that extreme high or low humidity causes, but rather because of its influence on many factors that could degrade a clean room's environment, and thus its certification on the ISO class scale.

Those factors include the following:

Static Charge: You'd think that low levels of humidity would be the preferred option every time, but static electricity shows that a happy medium is ideal. When humidity levels in an environment get to low, static electricity builds up.

Metal Corrosion: While some metals (like aluminum) form a protective oxide on their surface, blocking degrading corrosion caused by high humidity, other metals (like copper oxides) do not. If your clean room is dealing with metals, be sure to keep your humidity under that 60% threshold.

Condensation: The conversion of water from a gas state to a liquid state is bad news for your clean room. The effect of Kelvin condensation specifically, becomes very problematic when humidity reaches the 70% threshold.

Personnel Comfort: The last thing your personnel, with their E.T. like contamination suits and astronaut-looking helmets on want to be is hot and sticky. Keep humidity levels low enough as to not make them uncomfortable.

Bacterial Growth: Bacteria and mold like moisture. Once your clean room climbs above the 60% Relative Humidity threshold, bacteria, viruses, fungi, and more will start to multiply. Very literally, your clean room will cease being clean.

Resources To Make You

A Better Hospital IT Supervisor

Healthcare IT is at the forefront of medical development these days. In previous editions of Dickson Insights and on our blog, we've outlined top twitter accounts, best websites and links, and other resources meant to help out those in the Healthcare IT landscape that is constantly changing around them. Because of the initial problems with Healthcare.gov, and because of cyber attacks like the Heartbleed bug, the public's mindset towards Healthcare's digital infrastructure has been a little volatile. If that overarching theme tells us anything, it's that navigating the healthcare world as a IT Supervisor can be difficult, especially when it comes to finding resources you can rely on.

In past articles in Dickson Insights, and in past columns on our blog, we've tried our best to provide some avenues with which employees in Healthcare IT can better themselves and their healthcare system.

This time, we are focusing on the Healthcare IT Supervisor. We've listed off some general resource themes below that we think will help you better navigate your healthcare system, which will only be a benefit to the patients your healthcare system serves. To get the specifics of each resource, complete with links, photos, and additional information, visit our blog: Blog.DicksonData.com.

Training and Certification Programs: Healthcare IT Supervisors have to handle a combination of healthcare, IT, and managerial problems every day. Thus, additional training in all three of those scopes (and a few more) is a useful resource with which to gain more knowledge. The 'skills" that one should learn as a part of these training programs are as follows:

-Securities
-Project Management
-Electronic Health Records
-Customer Service

Each of these skill sets has specific training and certification programs out there to help Healthcare IT Supervisors gain knowledge. Resources like Coursera, CAPM, and PMP can help give you a leg up for your career long-term, while also immediately making you a better supervisor to your Healthcare IT workers.

Job Boards: As a supervisor, you should try your best to find the best employees! Great Healthcare IT employees will help make your job easier. In this instance we are not just referring to LinkedIn, CareerBuilder, and Indeed. There are job boards specifically designed for IT focused individuals seeking out employment. Along those same lines are recruiters. Recruiters help you contact individuals who may already be employed, and thus may be the best candidate for your open position.

Events: Conferences may seem like an easy excuse to spend a week away, perusing isles of exhibitors and lazily sitting through lectures . . . but they aren't! We've found that in the Healthcare IT industry specifically, conferences are almost essential. Whether you or someone in your organization goes, you will not regret it. Industry events like the Digital Health Summit and HIMMS are great for interacting with your peers, and discovering the latest trends and innovations in Healthcare IT.

White Papers and Blogs: Those who work in Healthcare IT are usually well-versed in the online arts. But just in case you haven't searched out any new resources lately, we've provided some over on our blog. There we listed off the best general Healthcare IT blogs, the best blogs for Supervisors specifically, and the best white papers that companies and governmental organizations have created with respect to Healthcare IT.

To get all the specifics outlined above, including our "Top 5 Healthcare IT Conferences" for 2015 list, visit our blog: **Blog.DicksonData.com.**

Changing Your Monitoring Device

How To Justify Your Decision

New technology is thrown at us every day. When that new technology arrives, we are asked (and sometimes forced) to update to it. If we don't get the most recent version of the Galaxy S, or if we don't have a Blu-Ray player, we are left behind our more technologically savvy peers.

When speaking to personal tech, this might seem obvious. But on the business side of things, not so much. Too often, businesses stay rooted in old technology, whether that be an ERP system, a communication platform, or a monitoring system, businesses have a tendency to move slowly onto new processes, even when that reluctance is harmful to their bottom line. Why? Well, it probably has something to do with the difficulty of switching a business to a new technology, and the repercussions of doing so. Unlike personal technology, switching a technology fundamental to a business does have direct and far reaching consequences: for employees, products, and customers.

Switching to new technologies in a business is a bigger decision, and thus the switch is put at the bottom of the to-do list. It's met with resistance, and a lot of "next quarters" or "next years." This is a problem: eventually the long-game creeps up on you.

If you think your company is in desperate need of a technology upgrade, we'd like to help.

Below we outlined three ways in which you can justify your decision to switch to a new monitoring device. Monitoring devices are our specialty, which is why we've chosen them as our example. However, these arguments can be applied to almost any new technology you'd like to see your company change over to.

1. Justifying On Compliance The easiest way to prove that your company needs to switch over to a new monitoring device is by saying, "Look, we actually HAVE to switch over." If you are audited by a regulatory body (like the FDA, USDA) or by an accreditation organization, you may be surprised to find out one day that your old monitoring device just isn't cutting it anymore. For our customers, that usually means the switch from a chart recorder or a temperature log sheet, to a data logger or a data monitoring system. Auditors have started pushing more and more for the switch to data loggers, and more specifically, the switch to alarms on those data loggers. The biggest hurdle to this justification: regulations are wishy-washy and slow. They will rarely tell you exactly what you need to monitor with. Rather, regulations tend to make broad, sweeping generalizations about what technology you should be using. Our best advice is to contact and talk with your auditor. They will usually be more concrete in their answers.

2. Justifying On Budget Our second go-to argument is cold hard cash. This may seem strange, because a new, 72 inch 4000X HD TV Screen cost more than your current 27 inch regular TV Screen, right? But with monitoring devices, data can be pretty easily generated that will show you your old technology is actually costing you more money throughout the year, than a one-time purchase of a new system. For our customers, chart recorders can be really expensive to maintain. The consumables (charts and pens) must constantly be ordered on a weekly or monthly basis. Then, there is the upkeep. Chart recorders force someone in a business to go physically change out charts and pens on a daily or weekly basis. Those personnel hours can really add up!

Switching to a new monitoring device can automate many of these headaches. For example, a wireless data logging system allows users to get all their environmental and product data delivered to them. Plus, they don't have to buy charts every month.

3. Justifying on Safety: For our customers, safety is their top concern. Today, product contamination is widespread. For professionals in the food, pharmaceutical, or medical industries, you can hardly go a day without hearing of a new Salmonella outbreak, Listeria scare, or drug recall.

There are companies that we could mention here, that when read, spoken, or muttered, elicit a sickening feeling from our customers. Those companies failed at safety. Many times, that's due to improper product production, storage, or distribution. Monitoring with the human eye, or with a device that doesn't provide alarms and secure data, is a sick customer waiting to happen. If you have to justify your companies switch to a new monitoring device, or a new process in general, one of the arguments you can hang your hat on, is that the switch to a new technology usually means your customers will be safer, and a lot less sick.

Meet The New

DicksonOne Touchscreen

MORE DATA AT YOUR FINGERTIPS

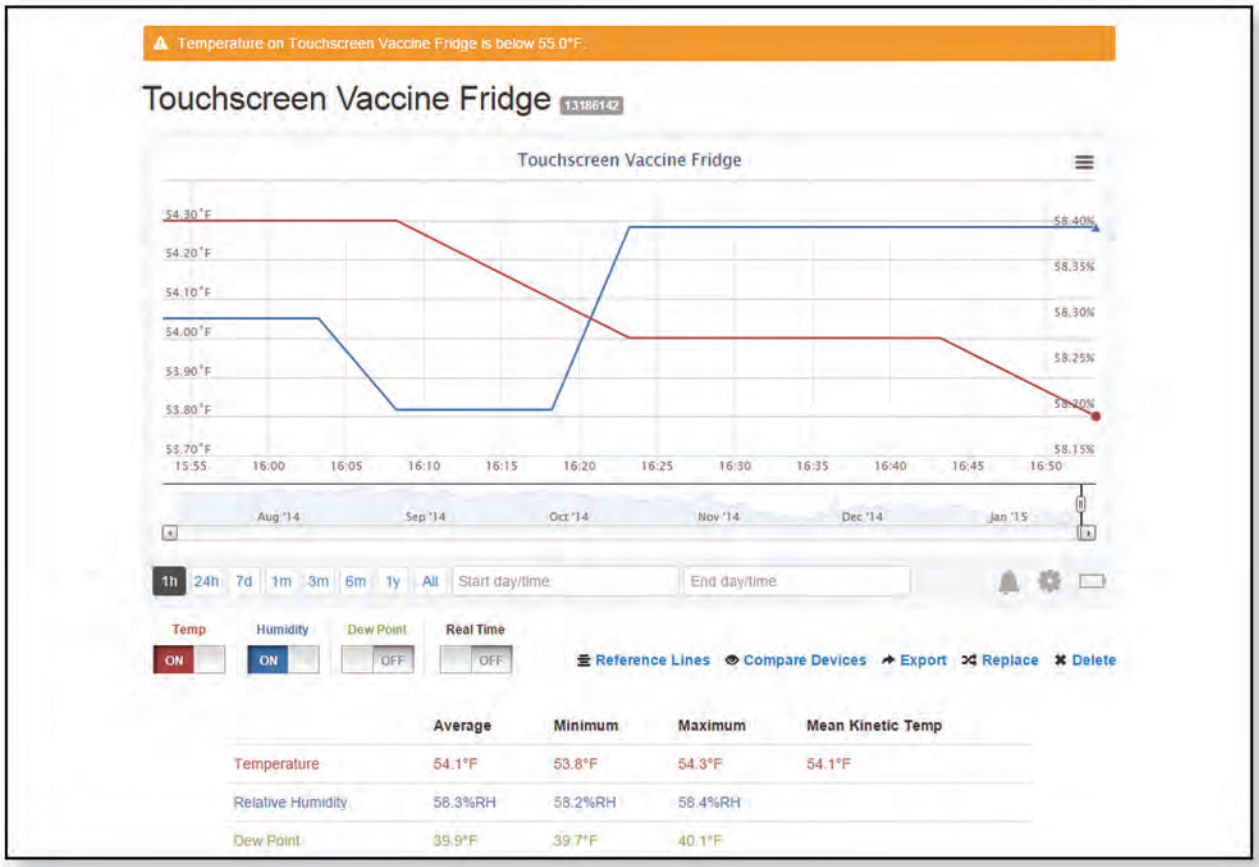
DicksonOne Enabled ▪ Power Over Ethernet ▪ Enhanced User Interface

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** The most important screen just got a whole lot easier to manage. 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.

Connect With Us:

DicksonOne

Wireless Temperature and Humidity Monitoring

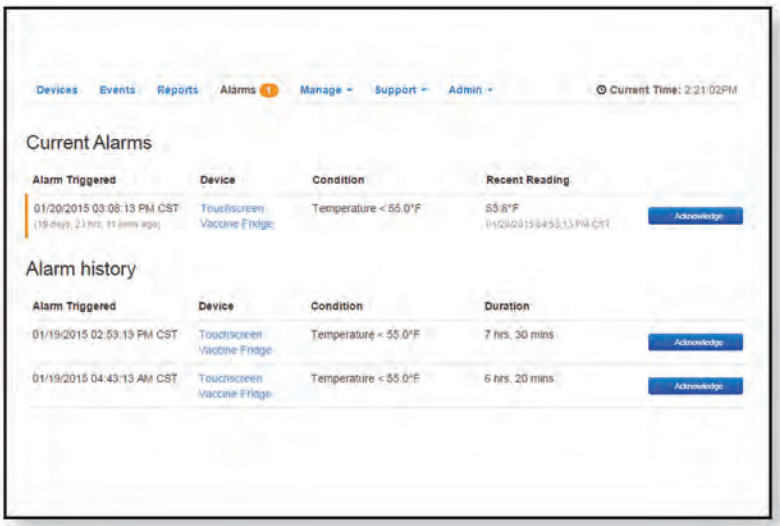
HOW IT **WORKS**

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

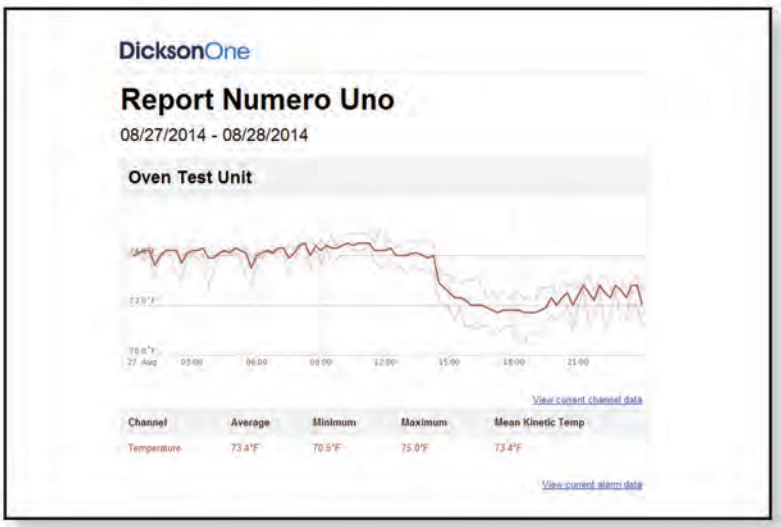
When something bad happens in your facility, **DicksonOne** can send anyone in your organization an email, text, or phone call. Temperature too high? Humidity too low? We've got you covered.



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 Facility Loggers

ENT21 $479

DicksonOne
Touchscreen Pricing

MODEL	REMOTE PROBE	PRICE
TSB	USB Download	**$299**
TWE	DicksonOne WiFi/Ethernet Connection and Download	**$499**
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.

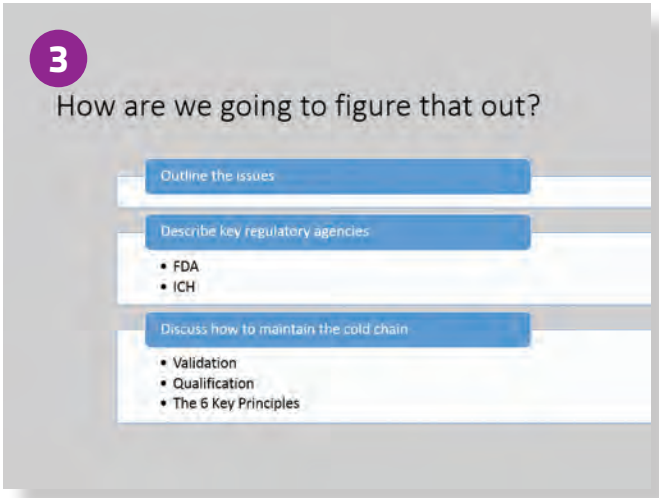
Single AA battery powered. Rugged low-maintenance design features. 7-day or 24-hour recording times. 1/4 inch NPT Connector.

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.**

Dickson Presentations



Occasionally we speak at a conference on the cold chain, temperature monitoring, or Software as a Service. Instead of throwing those presentations away forever, we thought we'd put them online for you.

Find all of our presentations by visiting **Blog.DicksonData.com** or by searching **Dickson** on **Slideshare.net**

A Dickson Translation:

The FDA And Temperature Monitoring

When it comes to regulatory bodies and concrete descriptions of how exactly you should be monitoring your environment . . . well it never comes to that. Most regulatory bodies are vague in their recommendations for how you need to be monitoring your product's temperature. The FDA is no different.

However, there are some regulations out there that will help you avoid that dreaded FORM 483 from the FDA. In this edition of **Dickson Translations** we look to two FDA regulations and explain what they tell us about temperature monitoring in the food and pharmaceutical industries.

1. 21 CFR 110.80 – Food For Human Consumption This section of the FDA's Code of Federal Regulations speaks to the processes and controls associated with food for human consumption. It specifically states that "Raw materials . . . shall be held at such temperature and relative humidity . . . to prevent the food from becoming adulterated..."

What it means: When storing the raw materials associated with food production, keep them at a safe temperature and humidity. Vague like most regulations, this FDA regulation does tell food producers something crucial: raw materials need to be monitored. This affects not only the manufacturer, but the supply chain that produces the raw materials for the manufacturer. It extends the reach of the FDA's regulation of food.

2. 21 CFR 203.32 – Prescription Drug Marketing This section of the FDA's Code of Federal Regulations outlines the storage and handling requirements for drug samples. It states, "Manufacturers, authorized distributors of record, and their representatives shall store and handle all drug samples under conditions that will maintain their stability, integrity, and effectiveness . . ."

What it means: All drug samples should be stored in proper conditions. It may sound strange to find a regulation on drug storage in a marketing regulation, but it sits there nonetheless. This regulation is important because it focuses on pieces of the supply chain that may normally go unnoticed. Drug samples are usually manufactured, stored, and shipped in much smaller quantities than entire batches of product. However, the FDA is stating that samples also must be stored under correct conditions. How do you prove you did that? With temperature monitoring.

TEMPERATURE ALARMS: HOW TO RESPOND

The Proper Process Is Key

In the past we've provided articles on what to do when a temperature "disaster strikes." We've also talked about the benefits of a robust temperature and humidity alarming system for products that are perishable: specifically those products that lose potency and become unsafe once exposed to extreme temperatures. This article is a little different.

We'd like to help you out before disaster strikes. When you are installing a temperature, humidity, or another environmental monitoring system, you need to develop SOP's for when an emergency occurs.

Below, we've outlined some basic tenets you should take into consideration when developing your Emergency Plan for when things get too hot or too cold in your facility.

1. Alarm Thresholds When developing your SOP's and Emergency Plans, take into consideration when you want to be notified that your product is in trouble. If you're monitoring a product that needs to be stored between 35-46F, setting a temperature alarm for 47F is short-sighted. It's already too late at that point, and your product may already be ruined. Instead, set thresholds. Most wireless monitoring systems and data loggers allow you to set multiple alarms, which enables you to take corrective actions before your product begins to perish. For example: when your temperature hits 43F, one set of actions is taken, and when it hits 45F, another set of actions is taken.

2. Notifications Who gets notified, and how they get notified when temperatures reach a certain threshold is the first step in your Emergency Plan for when temperatures escalate or dive to unsafe levels. When they rise slightly, an email to a QA manager may suffice. But when temperatures begin drawing closer to danger zones, a phone call to someone in the facility may be required.

3. Confirmations This is a key process in a temperature alarm response that most people forget. Someone in the facility should confirm that the data logger or wireless monitoring system is reading the correct temperature, and the subsequent alarms are functioning correctly. We suggest confirming via a secondary or backup thermometer that temperatures are indeed too high or too low in your environment.

4. Product Retrieval/Adjustment Once the temperature of your environment has been confirmed, you will need to decide what corrective action to take. Sometimes that action is manually moving product from one location to another, and other times, it's just plugging your refrigerator back in. Whatever that action is, be sure to document it. Documenting every step of your Emergency Plan is essential, as the people auditing your application will ask for documentation of the event, and want it to be thorough.

5. Data Analysis and Contact While not that fun, analyzing what went wrong in your facility is crucial to the response process. Downloading the data from your data loggers and analyzing it will help determine if your products were compromised or not. Also, that data can inform and suggest any changes that need to be made to your SOP's moving forward.

Now the hardest part: contacting your auditor or regulatory body to alert them to the problem. If you are regulated by a government organization or accreditation body, you will need to alert them to the problem that occurred in your facility, including the Plan of Action that you took, products compromised, and all associated data.

We hope this helps you when you develop new SOP's for your facility, or are revisiting old ones. Temperature alarms can cause a bit of panic. If your response is organized you'll handle them much better.

+ HEAT =

DISASTER

Escalating Temps Can Compromise Your Most Important Data

Back in October of 2014, Larry Milsten of the Yale Daily News reported on a data server failure that brought down an entire university's website and email accounts, during the wonderfully inopportune time of midterms.

That University of course, was Yale. In that October 9th article, Milsten interviewed multiple sources directly involved in Yale's ITS division, from students and library workers to the current University CIO, Len Peters.

*"The **data server failing** for a few hours at Yale is one thing. **What happens** when a data center, serving more than a University, fails and all its data is lost?"*

The article walks through the different ways a data server shutdown influenced the campus, while also trying to find the root cause of the issue. In the article, Peters describes how rare the occasion was for Yale, as the server experienced a multi-point power failure. The data center failure left students without their university emails, without access to online courses; the failure even took down the Yale library.

The piece of Milsten's article that sticks out the most to us was the "Why?" of it all. Specifically, two instances in which a librarian and a student each named "overheating" as the reason for the data center issues.

While it was simply word-of-mouth reporting from those two individuals, it did peak our interest back in 2014, as temperatures adverse influence on data center security is a problem that we've stumbled across before.

Large data centers have a heat problem. A big one. Servers room with racks upon racks of computers and hard drives have to be kept cool. The problem: they generate a lot of heat.

The world's data is stored in server rooms across the country. There really is no "magic cloud." The cloud is a data center or server room, that allows you to access your Facebook and Bank data by logging onto a computer. Small businesses and large corporations have their data in server rooms. I know we do here at Dickson. For all the media coverage of hackers and viruses, one of the scariest threats to our data is hardly talked about: temperature.

Because server and data centers use so much power, if the HVAC or cooling system in a data center fails, the temperature of those rooms rises very quickly. Many times, those failures are the result of a power failure. When the power goes out, data centers will continue to run on back-up generators. While the HVAC and Cooling Systems (which sometimes take up as much if not more power than the data centers themselves) cease operation. Because server and data centers use so much power, they generate a lot of heat. So much so, that a simple Google Search returns results like: "Germans get free heating from the cloud" and "Heating a skyscraper with a data center."

As temperatures rise, computers fry. This leads to extremely high energy costs for data centers, so much so that there has been a call from tech giants like Google to "Raise Your Data Center Heat." All this contention and information comes before the many "data-center hacks" that outline the solution to your heating problem hinges on the exact number of perforated tiles your data needs per square foot of space.

It can all be a bit overwhelming. While we will leave the control of your data center's temperature up to you, we can offer some advice in the monitoring department.

Monitoring the temperature of your data center gives you a few tools that can be essential to the security of the data you are storing:

-Mapping

-Alarms

Alarms are pretty straight forward. When the temperature of your data center gets too high (or much less commonly, too low) data loggers and data monitoring systems can alert you via text, email, or a phone call.

*"A **data logger** can be your best friend and saving grace."*

Mapping? That's a little more nuanced. We sell data loggers to a lot of warehouses, and those warehouses place loggers across their entire floor plan to account for temperature differences and stratification that they may not be accounting for with their current monitoring system. Mapping is also extremely useful for data centers. Data centers have racking just like warehouses. So, they also have temperature stratification, a concern with air flow, and problem spots. Using data loggers to map your data center floor will help you find those problem spots, and also help you find inefficiencies in your cooling system.

However you handle the temperature of your data center, do it completely and thoroughly. We believe part of that is using a data logger to monitor the temperature of your servers.

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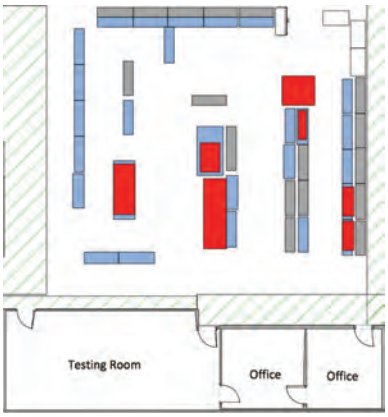

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