BLANK CANVAS

Compliance is as Much an Artform as a Science

It can be frustrating to be held to a standard of compliance by an outside body like FDA. Non compliance can mean embarrassing memos, costly fines, damaged customer relationships, and, even, the loss of a job. Any one of those items can be scary. The sum of the whole, though? That’s scarier than getting a Rorschach Test at a job interview.

What makes matters harder, is that many regulations are left open to interpretation. They’re more like guidelines, really, than rules. It means there are a lot of greys to be sorted through. Luckily, guidances exist to help add color to the world of compliance, and we’re here to help make it all paint by number simple.

In the pages ahead you’ll read more about this topic as well as others related to keeping your assets safe and your auditors happy.

Thanks for reading, and I hope you enjoy the March issue of Dickson Insights.

JEFF RENO
INSIGHTS EDITOR-IN-CHIEF

Do you need help with compliance? Visit DicksonData.com/Services to learn how we can help or see the table of contents for specific services.
Let’s face it. Time is one of our most valuable resources, and you don’t have enough of it. It’s why we offer installation. We want to help you get some of it back. That means if time really does equal money, then working with Dickson is like putting money in the bank. It doesn’t take a venture capitalist to recognize that as a smart investment.

Installation Options:

**SELF**
Easily install DicksonOne units on your own.

By following along with our installation guide, it should take just a few minutes for each device in your system to be in "set it and forget it" mode.

**TURNKEY**
Sit back and we’ll take care of everything.

We’ll install the devices and set up the software on your behalf, and you’ll have the peace of mind in knowing it’s all been done right.

**HYBRID**
Let us help you with some of the heavy lifting.

Your team installs the units and we help manage the software’s implementation, including user-invitations, alarms, location setup, permissions and more.

Let’s talk.
Is your company ready for a quotation or need more information? Contact a specialist today at 630.563.4218.
EXCITING THINGS ARE HAPPENING in the world of cancer treatment. Researchers have developed a new type of nanoparticle that allows itself to be heated up to a temperature that kills cancer cells, but not so high that it will harm healthy tissue.

Magnetic nanoparticles are tiny particles that respond to a magnetic field — for example, by getting hot. In a new study, researchers at the University of Surrey and Dalian University of Technology in China have recognized their potential for use in cancer hyperthermia. These nanoparticles could be sent to specific targets in the body and then heated up by applying a magnetic field outside the body.

Hyperthermia, not to be confused with hypothermia and also known as thermal therapy, is a type of treatment that uses heat to shrink or destroy tumors without harming healthy tissue. When it was first suggested as a treatment for cancer, unaccompanied hyperthermia was received with much enthusiasm. However, interest in this treatment soon decreased as problems began to emerge, one such problem being the difficulty of precisely controlling the temperature of the target tissue. Today its use is still not widespread, and it is most often given with other treatments, for instance radiation therapy and chemotherapy.

RESEARCHERS EXPLAIN that the optimal temperature range for hyperthermia to be effective as a cancer treatment is between 42°C and 45°C (108°F and 113°F). Keeping the temperature in this range can weaken or kill cancer cells without harming healthy tissue.

“If we can keep cancer treatment sat at a temperature level high enough to kill the cancer, while low enough to stop harming healthy tissue, it will prevent some of the serious side effects of vital treatment.” This according to senior author Prof. Ravi Silva, the head of the Advanced Technology Institute at the University of Surrey.

THE TEMPERATURE CHALLENGE faced by this kind of therapy remained a barrier until the research team discovered the right chemical equation. They explain that by adding chromium (Cr) to the chemically stable cobalt-zinc (Co-Zn) ferrite nanoparticle a Zn-Co-Cr ferrite nanoparticle is produced. When a temperature of 45°C (113°F) is reached, the new nanoparticle loses its magnetization. That means that even if the magnetic field is still present, it does not heat up any further. This property is known as the “Curie temperature” of the material.

Lead study author Prof. Wei Zhang, from Dalian University of Technology, explains, “By making magnetic materials with the Curie temperature falling in the range of hyperthermia temperatures, the self-regulation of nanoparticles can be achieved.”

If proven effective, this new hyperthermia treatment could change the way we treat cancer.
DicksonOne isn’t just a monitoring system.

It’s a spend-more-time-with-patients, avoid-audit-findings, and cover-your-assets system.
Don’t be alarmed. We’ll let you know when there’s reason to worry.

Real-time notifications are one of the keystone capabilities of the DicksonOne system. In many cases, a few minutes outside of the proper conditions can mean the loss of valuable inventory. With multiple notification methods, you can ensure the right people are up-to-date with any excursion with time to act before something spoils.

Choose from three types of alarms:

**HIGH/LOW**
Get notified when the temperature or humidity passes critical thresholds.

**NOT REPORTING**
Get notified when the system hasn’t received data from your logger.

**PROBE DISCONNECTED**
Get notified when the sensor has been removed from the device.

**Alarm notification types:**

- EMAIL
- TEXT MESSAGE
- PHONE CALL
- AUDIBLE

Mix and match not only the type of notification, but also choose more than one alarm condition and different recipients.

Looking for something more advanced? Utilize the DicksonOne API or an electronic relay to integrate with building management systems (BMS), stack lights and sirens, or other applications.
Every company is different. Your alarms and notifications should be too.

**Alarm escalations** enable users to control what notifications are sent at what phase of an excursion.

Use escalations to:

- Continue to be notified as long as an alarm condition is met
- Notify a coworker, backup, or manager in case you can’t get to it
- Loop in other departments like IT or Facilities if the condition requires their help

Do you have a lot of devices or are you a part of a larger organization?

Utilize **alarm templates**, **escalation policies**, and **role-based alarms** to simplify and reduce repetitive work.

**TEMPLATES**
Apply an alarm condition and corresponding notifications to multiple devices and channels at one time.

**POLICIES**
Conveniently create, edit, and manage all alarm notifications and recipients for all locations in one centralized place.

**ROLE-BASED ALARMS**
Point alarm notifications to a role rather than a specific individual, allowing each user to manage their own notifications.

DicksonOne is for monitoring systems of any size. Whether you’re monitoring a single fridge or chambers around the world, all of your data ends up in a single, online platform. **Talk to us about how we can help your organization streamline critical monitoring.**
Your data delivered to you on demand.

Use the DicksonOne system to easily access and share data. It allows you to send yourself, or almost anyone, a report with the information you require, when you require it. Need a single report? Generate it on demand. Do your SOPs require you to print and file a report locally for backup? Receive reports weekly or monthly. Just want to know how yesterday went? Set up daily reports to recap what really happened.

1. Choose Your Type Of Report
   - DEVICE
   - CHANNEL
   - TABULAR
   - CALIBRATION

2. Choose What You’re Reporting
   - INDIVIDUAL DEVICES
   - ALL DEVICES IN A LOCATION

3. Configure The Report
   - NAME THE REPORT
   - CHOOSE THE FREQUENCY
   - CHOOSE A START DATE
   - CHOOSE RECIPIENTS

4. Confirm and Save
   - CONFIRM SELECTIONS
   - SAVE

5. Receive Reports
   - READY FOR REVIEW
Reporting in real time, on your time.

**Device**
Get graphical data for relevant devices across a custom time period. Report includes alarms, conditions, alarm durations, and any comments made to each excursion.

**Channel**
See data for all of your sensors by channel. See temperature data readings, including their mean kinetic temperature, and the relative humidity in one quick, easy to view excel document.

**Tabular**
See data for every device and every channel in a report that is ready to pivot so you can quickly digest and segment your data to meet all of your analytical needs.

**Calibration**
Get everything you need to meet annual calibration requirements including device location, serial numbers, calibration intervals, and due dates, in a single report.
We updated the user-interface, and made it easy to view and manage your data.

The Graph
We updated the user-interface, and made it easy to view and manage your data.

Monitoring
Pushing the play button brings you back to the most recent readings, updating the view in real-time.

Channels
The touchscreen automatically calculates and updates summary data for the selected time range.

Settings
Easily adjust sample rates, set alarms, and connect to DicksonOne.

Your data. Only a touch away.
The Touchscreen gives you the option to connect directly to DicksonOne. Just connect your device to your local WiFi network or plug it into an Ethernet port, log into DicksonOne, and boom, complete data control.

Downtime isn’t worth your time.
With Dickson’s Replaceable Sensor System, you can recalibrate any DicksonOne device on the fly without the need of replacing devices. Instead, you can just order a newly calibrated sensor, receive it in the mail, and plug it into the unit in a motion that’s as simple as swapping batteries in a television remote.

Starting at $110, you can select the sensor that’s right for your application:

- Single or Dual K-Thermocouple Temperature Sensor
- Platinum RTD Temperature Sensor
- Single or Dual Temperature Thermistor Sensor with buffer solution
- Ambient Temperature or Temperature & Humidity Sensor
Designed with your needs in mind.

<table>
<thead>
<tr>
<th></th>
<th>DWE</th>
<th>TWE</th>
<th>TWP</th>
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<td>✔</td>
<td>✔</td>
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<tr>
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<td>RELAYS</td>
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<td>✔</td>
<td>✔</td>
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<td>✔</td>
<td>✔</td>
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<tr>
<td>POWER OVER ETHERNET</td>
<td>w/ Adapter</td>
<td>✗</td>
<td>✔</td>
</tr>
<tr>
<td>SCREEN SPECS</td>
<td>Segmented Display</td>
<td>8&quot; LCD Touchscreen</td>
<td>8&quot; LCD Touchscreen</td>
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<td>BACKUP BATTERY</td>
<td>1 Week</td>
<td>70 Hours</td>
<td>70 Hours</td>
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<tr>
<td>BACKUP STORAGE</td>
<td>400,000 Points</td>
<td>1,000,000 Points</td>
<td>1,000,000 Points</td>
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<tr>
<td>STARTING PRICE</td>
<td>$350</td>
<td>$524</td>
<td>$599</td>
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</table>

Subscriptions
DicksonOne loggers send data to the cloud automatically, freeing up resources to do what they do best.

<table>
<thead>
<tr>
<th></th>
<th>BASIC</th>
<th>STARTER</th>
<th>REGULAR</th>
<th>PLUS</th>
<th>ENTERPRISE</th>
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<tr>
<td>BASIC PRICE</td>
<td>$0</td>
<td>$300</td>
<td>$725</td>
<td>$1,400</td>
<td>Call TODAY for a quote!</td>
</tr>
<tr>
<td>DEVICE BILLING</td>
<td>$3 PER DEVICE</td>
<td>$3 PER DEVICE</td>
<td>$3 PER DEVICE</td>
<td>$3 PER DEVICE</td>
<td>$3 PER DEVICE</td>
</tr>
</tbody>
</table>

Whether you have one device or 100 devices, Dickson offers Gold Level Technical Support to all users. Talk to a specialist at 630.563.4218 or email us at support@dicksonone.com.
DSB
The newest member of the Dickson family.

Dickson’s Display Loggers, one of our top annual sellers, have been fully redesigned to incorporate features from our best selling devices into non-connected units.

The logger will be able to collect all of the temperature and humidity data you’ve become accustomed to from Dickson’s replaceable sensors. You can learn more about Replaceable Sensors on page 20.

Starting at $199, the DSB is available to order! Visit DicksonData.com/DSB for more info.

There’s No Reason to Improve on the Best. We Did it Anyway.

Temperature sensors starting at $110

- Single/Dual K-Thermocouple Temperature Sensor
- Ambient Temperature or Temperature & Humidity Sensor
- Single/Dual Temperature Thermistor Sensor
- Platinum RTD Temperature Sensor

Introducing Legacy Uploader

View, analyze and export your data in a 21CFR11 compliant environment. Want to share your data with others throughout the company? Now you can manually upload all of your downloaded data to the DicksonOne Cloud thanks to our new Legacy Uploader tool. For details, visit DicksonData.com/Uploader.
View your temperature monitoring data historically, graphed in detail to allow you to pull insights and recognize any excursions as they occurred.

Not only can you view temperature and humidity data on your phone, tablet, or computer, you can also grant data access to key employees through individual user logins.

Take your data with you wherever it’s been uploaded. And, thanks to our new Legacy Uploader, you can save your data to the cloud to view on any connected device.

DicksonWare now allows you to store and share data easily with others in your organization by uploading it to our cloud-based environmental monitoring system, DicksonOne.

For more information, visit DicksonData.com/Dicksonware.
AMAZON WEB SERVICES, AND OTHERS LIKE THEM, ARE PRIME FOR BUSINESS.

In a previous issue, we highlighted the cost-savings of the development and maintenance of a cloud-hosted software application and touched on the convenience advantages from an end-user perspective. But you probably already knew that, as the cloud is now nearly as ubiquitous as the internet itself.

What’s less understood are the details of the cloud-computing services provider behind the scenes of the applications we use on a daily basis, and the reasons companies and software developers choose a particular provider to host their applications. We’ll try to demystify that here, highlighting some of the key features of our chosen provider and how they help us reach our company goals.

We utilize Amazon Web Services (AWS) for all aspects of the DicksonOne monitoring platform: The code that runs the entire application; storage of all account and user data; and, of course, the meat-and-potatoes of the whole ensemble, the storage and analyzing of data collected by the devices (yes, all 5 billion data points and counting!). We’ll pick apart key aspects of the AWS products we use for DicksonOne and the reasons we chose Amazon.

Amazon was a trailblazer in this space, but since then, numerous competitors have arose offering complementary products, services, and value. This is fantastic for you as a consumer, whether you are a company building an application or an end-user. This healthy competition in the cloud-computing market offers a multitude of options based on your needs, the latest in technology and innovation, and ultimately lower costs for you as the consumer. When choosing a cloud services provider,
it’s paramount to do your research and figure out what available products and services work best for you.

In order to make the decisions we did in choosing a cloud-services hosting provider, we had to think strategically with an eye as far down the road into the future as possible. Building a software application is not unlike building a skyscraper. You don’t know exactly how many individual offices or occupants the building will contain as that can fluctuate on a day-to-day basis, but you know you have to design the underlying infrastructure in such a way that it can accommodate what’s possible in the future. In a similar manner, when designing a data-heavy application, the backend architecture must be able to accommodate heavy loads in the future. DicksonOne is a prime example of that, as we’ve grown tremendously over the past 4 years. With that growth comes a number of growing pains that AWS helps to alleviate through important aspects of the products we use to host DicksonOne.

**THE THREE KEY ELEMENTS** we looked for when planning and building DicksonOne’s backend infrastructure are flexibility, scalability, and security. The backbone of the application is an AWS product called EC2 (Elastic Compute Cloud), which is essentially designed around those three elements. For applications that collect and store vast amounts of data, it’s difficult to forecast how much data storage space and computing power is needed in the future. For that reason, EC2 affords the flexibility and scalability to grow on-demand. That’s why companies like Netflix, AirBnB, and the NASA Jet Propulsion Laboratory use AWS as well; they face similar challenges (albeit on a much larger scale) just as Dickson does as we acquire more customers and monitoring devices. When we reach a point where we’ve outgrown our existing capacity, the solution is relatively simple and straightforward. EC2 affords us the ability to spin up more servers when we need them, effectively increasing or decreasing capacity within mere minutes via a web interface.

Another AWS product that is critical to the smooth, seamless operation of DicksonOne is a data object storage service known as S3 (Simple Storage Service). Whereas EC2 provides most of the computing power to collect & process data points, evaluate alarms, and store user data, S3 provides a simple, efficient way to store data-heavy report information. This allows us to keep the longer-term report storage separate from continuous processes and routine operations.

Given that there are multiple servers in Amazon’s data centers that store, process, and analyze our application data, there are a number of mechanisms in place to manage all of that. Load balancers help distribute traffic evenly across all of our available servers to reduce load at peak times. Built-in performance monitoring allows us to continuously keep track of the health of the infrastructure and its current capacity. Additional application servers independent of data storage servers allow us to separate important processes, such as running reports and evaluating alarms. This allows us flexibility on an ongoing basis to manage those critical processes that are most important to you, and scale the capacity to process an ever-increasing number of devices, alarms and reports. For context, consider the fact that as of November 30, 2017, compared with all of 2016, there was a 66% increase in the number of new reports created and nearly 5 times the number of alarms triggered (due to our alarm escalation feature released in early 2017).

**IF WE DIDN’T HAVE CLOUD SERVICES PROVIDERS,** we would have to manage all of that ourselves resulting in increased costs and instability. We would have to go through the painstaking process of purchasing physical servers (a significant capital expenditure), hire a team of infrastructure engineers to manage them, and, whenever we get closer to reaching capacity, ensure that we have both the physical space and the capital to do so. But thanks to AWS, all of this happens behind the scenes unbeknownst to users and at a significantly lower cost to you. It’s why businesses see cloud-computing service providers as prevalent to the cloud as consumers see the cloud connected to the world wide web.

Have something personal you’d like to add to the conversation? Send us your thoughts to jeff@dicksondata.com for a chance to be featured in a future blog or magazine.
TEMPERATURE MAPPING

How it works:

Once the mapping has ascertained where the points of temperature variation lie within a temperature controlled environment, then permanent monitoring can be installed so that owners and users can prove their adherence to the related health and safety standards.

PLAN OF ATTACK
We evaluate and decide where to place devices for a successful mapping.

MEET AUDIT REQUIREMENTS
Rely on our expertise to create reports that are defendable in an audit.

DICKSON CALIBRATED DEVICES
No 3rd party vendors here saving you time and headaches.

WATCH WHILE WE WORK
We’ll handle the process from start to finish so you don’t lose time.

ENVIRONMENTAL INVESTIGATION
We’re here to digest, analyze, and help you understand your facility and its data.

Contact a specialist today.

Intense temperature can put your audit at risk. Book your summer mapping study now to keep your assets from boiling over.

630-563-4218

Temperature mapping your facility, warehouse, or equipment is a daunting task. We know, we’ve done it a lot. Dickson can help keep your business fully compliant, streamline your business operations, and protect sensitive products with our temperature mapping services.

Temperatures around the warehouse

SERVICES • TEMPERATURE MAPPING
REPLACEABLE SENSORS
Convenience is key.

Now, you have the option to calibrate the sensor as opposed to the unit. Think of it like this: the Replaceable Sensor takes an environmental reading, and the data logger or chart recorder records that environmental reading. By splitting up the sensor from the data logger and chart recorder, we’ve created a plug and play device that will keep you in compliance and save you time and resources.

How it works:

1. Pull the old sensor off.
2. Put the new sensor on.
3. It’s that simple.

ZERO DOWN TIME
All Dickson sensors come pre-calibrated with upgrade and certificate options.

FAST & EFFICIENT
Pull the old sensor off. Put the new sensor on. It’s that simple.

COST-EFFECTIVE
Backup units are no longer needed. Pay for a sensor, not an extra device.

DicksonData.com | 630.563.4218
How does calibration work?

**STEP ONE**
We compare your sensor with a standard sensor in a stable environment across a range of temperature readings.

**STEP TWO**
If there are any differences between your sensor and the standard sensor, we adjust your sensor to align with the standard sensor.

**STEP THREE**
We run through this process multiple times, adjusting the device as it is compared at multiple temperatures.

**STEP FOUR**
We perform a final check of one or more points, depending on the order, and create the necessary calibration certificate.

What works for my company?

**1-POINT NIST**
- One specific temperature point (middle) calibration
- Good if your temperature varies little
- Choice to specify the temperature point to best reflect your application

**3-POINT NIST**
- Three-point (high, middle, and low) temperature point calibration
- Grants a larger proof of accuracy
- Choice to specify the temperature points to best reflect your application

Need help? Let us be your calibration experts. | 630.563.4218 | support@dicksondata.com
**PRODUCT OVERVIEW**

**Data Loggers**
Data loggers are cost-effective solutions for monitoring any required area’s temperature or humidity. Our full line of data loggers come in a variety of shapes and sizes to meet your needs, and include the important features your application requires:

- High resolution digital displays for viewing measurements in real time
- Audible and visual alarms for excursion alerts
- Flash memory for easily downloading and storing data

**Touchscreens**
Our most advanced line of data loggers, our touchscreens are as easy to use as your personal tablet or smartphone. The devices feature customizable views, alarms, and more. Plus, with the option for DicksonOne compatibility, you get your data at your fingertips without the hassle of mounds of pens and paper. Features include:

- LCD touchscreen with pinch, swipe, and zoom
- DicksonOne cloud computing and storage
- Power over Ethernet
- Phone, Email, and Text Alarms

**Chart Recorders**
We don’t just build chart recorders. They’re our legacy. We’ve worked to perfect the devices for use in situations where wireless or digital monitoring isn’t possible. That’s why, as regulations continue to change and make these devices obsolete for many of our customers, we keep building and innovating them. With a variety of sizes, applications, and now replaceable sensors, chances are we have a solution that meets all of your non-digital needs.
For data loggers, information (temperature/humidity measurement and date and time) is stored as data. That data is stored in the device for later download (via software) onto a computer, or sent to a cloud application or server for remote access.

**INDICATORS**

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<thead>
<tr>
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<tbody>
<tr>
<td>MM120 Vaccine Alarm Thermometer</td>
<td>$49</td>
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<tr>
<td>MM125 Vaccine Alarm Thermometer</td>
<td>$59</td>
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<tr>
<td>D182 Infrared Thermometer</td>
<td>$60</td>
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<td>D186 Infrared Thermometer</td>
<td>$149</td>
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<tr>
<td>TC700 Touchscreen Handheld Indicator</td>
<td>$299</td>
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<tr>
<td>TH700 Touchscreen Handheld Indicator</td>
<td>$299</td>
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**HIGH TEMPERATURE**

<table>
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<th>Product Name</th>
<th>Price</th>
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<tr>
<td>HT300 Waterproof, High Temperature Data Logger</td>
<td>$349</td>
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<tr>
<td>HT350 High Temperature Process Logger</td>
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**VOLTAGE**

<table>
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<td>ES120 Voltage Data Logger</td>
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## COMPACT

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<tr>
<th>Model</th>
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<th>Accuracy (°F/°C)</th>
<th>Humidity (RH%)</th>
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<tbody>
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<td><strong>SP125 Temperature Data Logger</strong></td>
<td>$119</td>
<td>-10°F to 176°F (-23°C to 80°C)</td>
<td>±1.2°F from -10°F to 176°F (±0.7°C from -23°C to 80°C)</td>
<td>±2% RH from 0 to 60%; ±3% RH from 60 to 95%</td>
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<tr>
<td><strong>TP125 Temperature &amp; Humidity Logger</strong></td>
<td>$199</td>
<td>-10°F to 176°F (-23°C to 80°C)</td>
<td>±0.8°F from 20°F to 120°F (±0.44°C from -7°C to 49°C)</td>
<td>±2% RH from 0 to 60%; ±3% RH from 60 to 95%</td>
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<td><strong>SK550 Compact Temperature Data Logger</strong></td>
<td>$699</td>
<td>-4°F to 158°F (-20°C to 70°C)</td>
<td>±1.8°F from -4°F to 158°F (±1°C from -20°C to 70°C)</td>
<td>±2% RH from 0 to 60%; ±3% RH from 60 to 95%</td>
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<tr>
<td><strong>TK550 Compact Temperature &amp; Humidity Logger</strong></td>
<td>$999</td>
<td>-4°F to 158°F (-20°C to 70°C)</td>
<td>±1.8°F from -4°F to 158°F (±1°C from -20°C to 70°C)</td>
<td>±2% RH from 0 to 60%; ±3% RH from 60 to 95%</td>
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</table>

## DISPLAY

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<th>Model</th>
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<th>Accuracy (°F/°C)</th>
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<td>$159</td>
<td>-4°F to 158°F (-20°C to 70°C)</td>
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<td><strong>SM300 Display Temperature Data Logger</strong></td>
<td>$249</td>
<td>-4°F to 158°F (-20°C to 70°C)</td>
<td>±0.8°F from 20°F to 120°F (±0.44°C from -7°C to 49°C)</td>
<td>±2% RH from 0 to 60%; ±3% RH from 60 to 95%</td>
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<tr>
<td><strong>TP425 Display Temperature &amp; Humidity Logger</strong></td>
<td>$249</td>
<td>-4°F to 158°F (-20°C to 70°C)</td>
<td>±0.8°F from 20°F to 120°F (±0.44°C from -6°C to 48°C)</td>
<td>±2% RH from 0 to 60%; ±3% RH from 60 to 95%</td>
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<tr>
<td><strong>TM320 Display Temperature &amp; Humidity Logger</strong></td>
<td>$299</td>
<td>-4°F to 158°F (-20°C to 70°C)</td>
<td>±0.8°F from 20°F to 120°F (±0.44°C from -7°C to 49°C)</td>
<td>±2% RH from 0 to 60%; ±3% RH from 60 to 95%</td>
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<tr>
<td><strong>SM320 Display Temperature Data Logger</strong></td>
<td>$299</td>
<td>-300°F to 2000°F (-184°C to 1093°C)</td>
<td>±1.8°F from -22°F to 122°F (+/-1°C from -30°C to 50°C)</td>
<td>±2% RH from 0 to 60%; ±3% RH from 60 to 95%</td>
</tr>
<tr>
<td><strong>SM321 High Accuracy Display Logger</strong></td>
<td>$329</td>
<td>-50°F to 160°F (-45°C to 71°C)</td>
<td>±0.5°F from -10°F to 160°F (±0.17°C from -24°C to 71°C)</td>
<td>±2% RH from 0 to 60%; ±3% RH from 60 to 95%</td>
</tr>
<tr>
<td><strong>TM325 Display Temperature &amp; Humidity Logger</strong></td>
<td>$399</td>
<td>-40°F to 185°F (-40°C to 85°C)</td>
<td>±0.8°F from 20°F to 120°F (±0.17°C from -24°C to 71°C)</td>
<td>±2% RH from 0 to 60%; ±3% RH from 60 to 95%</td>
</tr>
<tr>
<td><strong>SM325 Display Temperature Data Logger</strong></td>
<td>$399</td>
<td>-300°F to 2000°F (-184°C to 1093°C)</td>
<td>±1.8°F from -22°F to 122°F (+/-1°C from -30°C to 50°C)</td>
<td>±2% RH from 0 to 60%; ±3% RH from 60 to 95%</td>
</tr>
<tr>
<td><strong>SM420 Display Temperature Data Logger</strong></td>
<td>$499</td>
<td>-50°F to 350°F (-45°C to 176°C)</td>
<td>±0.5°F from -50°F to 350°F (±0.28°C from -46°C to 176°C)</td>
<td>±2% RH from 0 to 60%; ±3% RH from 60 to 95%</td>
</tr>
</tbody>
</table>
CHART RECORDERS

Want a physical readout right where you are monitoring? Our Chart Recorders have you covered. For 90 years we’ve built the best chart recorders in the business. Check out our models below.

### 8” Models

#### TEMPERATURE

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>KT8P0</td>
<td>8” (203mm) Temperature Chart Recorder with Replaceable Sensor and Battery Operation</td>
<td>$436</td>
</tr>
<tr>
<td>KT8P2</td>
<td>8” (203mm) Temperature Chart Recorder with Replaceable Sensor, AC Power (Battery Back-Up) and Display</td>
<td>$489</td>
</tr>
<tr>
<td>KT8P3</td>
<td>8” (203mm) Temperature Chart Recorder with Replaceable Sensor, AC Power (Battery Back-Up), Display and Alarm</td>
<td>$594</td>
</tr>
<tr>
<td>KT856</td>
<td>8” (203mm) Temperature Chart Recorder with Replaceable Sensor, AC Power (Battery Back-Up), Display, Alarm and Relays</td>
<td>$759</td>
</tr>
</tbody>
</table>

#### TEMPERATURE & HUMIDITY

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>TH8P0</td>
<td>8” (203mm) High-Resolution Temperature &amp; Humidity Chart Recorder with Battery Operation and Replaceable Sensor</td>
<td>$509</td>
</tr>
<tr>
<td>TH8P2</td>
<td>8” (203mm) High-Resolution Temperature &amp; Humidity Chart Recorder with Display and Replaceable Sensor</td>
<td>$594</td>
</tr>
<tr>
<td>TH8P3</td>
<td>8” (203mm) High-Resolution Temperature &amp; Humidity Chart Recorder with Display, Alarm and Replaceable Sensor</td>
<td>$709</td>
</tr>
<tr>
<td>TH8P5</td>
<td>8” (203mm) High-Resolution Temperature &amp; Humidity Chart Recorder with Display, Alarm, Relays and Replaceable Sensor</td>
<td>$759</td>
</tr>
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</table>

#### PRESSURE

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
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<tbody>
<tr>
<td>PW860</td>
<td>8” (203mm) Pressure Chart Recorder, 0-100 PSI, 7-Day</td>
<td>$654</td>
</tr>
<tr>
<td>PW861</td>
<td>8” (203mm) Pressure Chart Recorder, 0-100 PSI, 24-Hr</td>
<td>$654</td>
</tr>
<tr>
<td>PW864</td>
<td>8” (203mm) Pressure Chart Recorder, 0-200 PSI, 7-Day</td>
<td>$654</td>
</tr>
<tr>
<td>PW865</td>
<td>8” (203mm) Pressure Chart Recorder, 0-200 PSI, 24-Hr</td>
<td>$654</td>
</tr>
<tr>
<td>PW866</td>
<td>8” (203mm) Pressure Chart Recorder, 0-300 PSI, 7-Day</td>
<td>$654</td>
</tr>
<tr>
<td>PW867</td>
<td>8” (203mm) Pressure Chart Recorder, 0-300 PSI, 24-Hr</td>
<td>$654</td>
</tr>
<tr>
<td>PW875</td>
<td>8” (203mm) Pressure Chart Recorder, 0-1000 PSI, 24-Hr</td>
<td>$779</td>
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</table>
### 6” Models

**TEMPERATURE**

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>KT6P1</td>
<td>6” (152mm) Temperature Chart Recorder with Replaceable Sensors</td>
<td>$384</td>
</tr>
<tr>
<td>KT6P2</td>
<td>6” (152mm) Temperature Chart Recorder with Probe, Display and Replaceable Sensors</td>
<td>$489</td>
</tr>
<tr>
<td>KT6P5</td>
<td>6” (152mm) Temperature Chart Recorder with Probe, Display, Alarms, Relay and Replaceable Sensors</td>
<td>$624</td>
</tr>
</tbody>
</table>

**TEMPERATURE & HUMIDITY**

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>TH6P1</td>
<td>6” (152mm) Temperature &amp; Humidity Chart Recorder with AC Power/Battery Backup and Replaceable Sensors</td>
<td>$509</td>
</tr>
</tbody>
</table>

### 4” Models

**TEMPERATURE**

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>SL4100</td>
<td>4” (101mm) Portable, Battery Operated Temperature (-18 to 37°C) Chart Recorder with Display</td>
<td>$249</td>
</tr>
<tr>
<td>SL4350</td>
<td>4” (101mm) Portable, Battery Operated Temperature (-30 to 50°C) Chart Recorder with Display</td>
<td>$249</td>
</tr>
</tbody>
</table>

**PRESSURE**

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>PW470</td>
<td>4” (101mm) Pressure Chart Recorder, 0-100 PSI, 7-Day or 24-Hr</td>
<td>$469</td>
</tr>
<tr>
<td>PW474</td>
<td>4” (101mm) Pressure Chart Recorder, 0-200 PSI, 7-Day or 24-Hr</td>
<td>$469</td>
</tr>
<tr>
<td>PW476</td>
<td>4” (101mm) Pressure Chart Recorder, 0-300 PSI, 7-Day or 24-Hr</td>
<td>$469</td>
</tr>
<tr>
<td>PW479</td>
<td>4” (101mm) Pressure Chart Recorder, 0-500 PSI, 24-Hr</td>
<td>$469</td>
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</table>

### 3” Models

**TEMPERATURE**

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>SC367</td>
<td>3” (76mm) Temperature Chart Recorder, -14°F to 32°F (-25°C to 0°C)</td>
<td>$249</td>
</tr>
<tr>
<td>SC377</td>
<td>3” (76mm) Temperature Chart Recorder, 4°F to 50°F (-15°C to 10°C)</td>
<td>$249</td>
</tr>
<tr>
<td>SC386</td>
<td>3” (76mm) Temperature Chart Recorder, 22°F to 68°F (-5°C to 20°C)</td>
<td>$249</td>
</tr>
<tr>
<td>SC387</td>
<td>3” (76mm) Temperature Chart Recorder, 50°F to 96°F (10°C to 35°C)</td>
<td>$249</td>
</tr>
<tr>
<td>SC397</td>
<td>3” (76mm) Temperature Chart Recorder, 76°F to 122°F (25°C to 50°C)</td>
<td>$249</td>
</tr>
</tbody>
</table>
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. For those not well-versed in the world of quality assurance, hearing “validation” can send you running to hide under your desk. Luckily, Dickson offers validation services for our DicksonOne and DicksonWare software customers, also including temperature controlled equipment such as refrigerators, stability chambers, freezers, walk-in chambers, and much more.

Is your company ready for a quotation or need more information?

Contact a specialist today at 630.563.4217
Something doesn’t have to be pretty to be beautiful. I can’t think of a better example of this than a child’s artwork. The stick figures and the scribbles may not be pretty to a casual viewer, but the thought process that went into the work can be amazing. The consideration and detail may not always be what you’d consider logical, but the destination often matches the journey through their growing minds.
The same, can be argued, applies to most products on the market today. The raw materials in use are often not pleasing to a consumer’s eye, but what they become at the end of the production line can be magnificent. It just takes a lot of TLC to maximize quality of the final result. That’s why QMPs are important.

According to ISO, QMPs, or quality management principles, are a set of fundamental beliefs, norms, rules, and values that are accepted as true and can be used as a basis for quality management. ISO 9001 is built upon them. It’s built upon seven of them, in fact.

**CUSTOMER FOCUS**

Many of our customers are familiar with this regulation, because quality is an important part of their every day work environment. Our company motto, when every point matters, lives and breathes the first principle of the ISO. If the primary focus of quality management is to meet customer requirements and to strive to exceed customer expectations, then you need to ensure that every step from A to Z is accounted for appropriately. According to ISO, that means recognizing the direct and indirect customers as those who receive value from your organization. That’s critical.

Think of it this way. Our devices monitor your goods. If something goes wrong and you aren’t aware of it, that product can get into the hands of the end consumer. In food, that could mean a bacteria outbreak. In medicine, that can mean the degradation of medication to the point that it doesn’t provide any benefit to the patient, leaving them at risk for something they thought they were protected against. In aerospace, the fault of a single piece of equipment can put the lives of everyone on board at risk. Each one of these end users may not be our customers, but they are our indirect customers who receive value, and protection, from what we, both us and you, do.

**LEADERSHIP**

Leadership is the second QMP of the ISO. It is meant to direct those compliant to the regulation to create unity of purpose and direction as well as create an environment where people are engaged in achieving quality objectives. While we’d all love to name ourselves leaders in our fields, our DicksonOne system does empower company leaders to manage their monitoring and improve the communication throughout all levels of the organization.

With escalating alarms, you can empower your employees to manage their own areas, while still being made aware should an excursion not be addressed. It means increasing the efficiency in meeting quality objectives while improving communication between all levels of your organization.

This obviously also touches on the third principle, the engagement of people. In order to manage an organization efficiently and effectively, the involvement of all is critical. Empowering employees to take control over their own space isn’t just providing this, it’s...
also motivating your employees and helps foster a better work environment. Leigh Richards, a writer for the small business section of Chron.com suggests that employee empowerment improves productivity, reduces costs, allows for better customer service, and helps employees better embrace change within the organization.

While the fourth, fifth, and sixth principles align with our systems, they also run hand in hand with what we offer to our customers through our services division.

**PROCESS APPROACH**

Consistent and predictable results are achieved more effectively and efficiently when activities are understood and managed as interrelated processes that function as a coherent system.

**IMPROVEMENT**

Successful organizations have an ongoing focus on improvement. We at Dickson are part of a process improvement culture. Essentially, that means that we are always looking for ways we can better ourselves and take the work we do to the next level. The fifth quality management principle speaks specifically to that idea. By gathering input from multiple parties and data points, we’re able to make well educated, strategic decisions that benefit our employees, our customers, and, even at times, society as a whole.

**EVIDENCE-BASED DECISION MAKING**

Decisions based on the analysis and evaluation of data and information are more likely to produce desired results.

Taken together you start to see a pattern emerge. In our opinion, these are more about the data than the processes themselves. By collecting data you can analyze in order to create more consistent and predictable results. This analysis allows your company to improve its processes to increase efficiency. This, thusly, makes your company more likely to produce desired results.

That means that you’ve got to collect the data. Our mapping services can provide you with the data you need to fully understand the nuances of your cold storage, facility, chamber, and manufacturing floor so you can improve on your processes. It will provide you a fully three dimensional look at what you’re monitoring so you can better understand all of the hot and cold spots that may exist because of transference, HVAC nuances, or even weak points in a facility’s walls.

The data is provided in a lengthy report that isn’t only defendable in an audit, but it provides actionable insight for process improvement. This means more efficiency, less waste, and, ultimately, better results.

**RELATIONSHIP MANAGEMENT**

The final QMP is about relationship management. For sustained success, an organization manages its relationships with interested parties, such as suppliers. Many of our customers use systems like ours to monitor product on behalf of their partners, and share the data collected through reporting functionality, to provide transparency on the validity of work.

Also, with the ability to add unlimited users, it’s possible to share data within your own company, and between organizations by providing logins for everyone who’s interested. It’s just another way to add efficiency to the work day while meeting the principles as outlined in 9001. It means that if you’re looking for ISO compliance you don’t need to look any further than Dickson. While we like to think we’re as pretty as we are beautiful, we’ll leave it up to you to decide.

ISO 9001 is a complex subject relating to quality management across a wide array of industries. This represents our thoughts on the topic, and you can find more on ISO’s website at: https://www.iso.org/iso-9001-quality-management.html.

Have something personal you’d like to add to the conversation? Send us your thoughts to jeff@dicksondata.com for a chance to be featured in a future blog or magazine.
Next month, Dickson’s traveling to Interphex, the premier pharmaceutical, biotechnology, and device development and manufacturing event. If you’ll be in town during the show, let us know! We love every chance we have to meet with our customers to learn about the points that matter most to you. We hope to see you there!

REORDER ALERT!

Digital recording not in your cards? Then don’t forget to reorder charts for your recorders before they run out, and always make sure to have extra pens on hand in case their ink runs dry. Visit DicksonData.com/charts or call 630.563.4218 to reorder today!