DICKSON

insights

Winter 2015 • CD284

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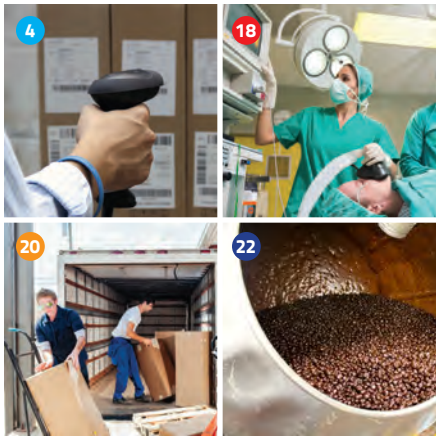
Now With
MORE PAGES
MORE NEWS
MORE FEATURES

For Our Readers

Some Exciting **New Changes.**



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

Last spring we changed up our catalog. Gone were the days of product specifications after product specifications. In were articles, customer features, and infographics, written and designed for our customers' applications, industries, and jobs.

It went well. We received positive feedback from our readers and customers. Over the last year, we've provided you all with free Mean Kinetic Temperature Calculators and Calibration FAQs, and from those articles, we've made ourselves better experts in the temperature, humidity, and water pressure monitoring worlds.

So in order to fix something that's not broken, we are changing our catalog further for 2015. Why would we do such a ridiculous thing? Well, we think that we can do better. A lot better, actually. We want to provide better solutions to our customers more often. While our redesigned magazine, now aptly named "Insights," was successful, it wasn't perfect. We'd like to make it perfect. How do we plan on doing that? By making the following changes:

More pages. Four more in fact! We think we can write more about temperature monitoring, and we think you all may enjoy the extra pages. It won't cost you a thing. Consider those extra 2,000 words on us.

Feature Stories. Each month, you'll find a feature story on a topic that is truly important to us. Sometimes that will be a customer profile, and other times it will be an article that focuses on a temperature monitoring issue. Whatever it is, you can always find it on Page 22, ready to be read.

Segmented Industries. We sell our temperature, humidity, and water pressure monitoring products to an incredibly diverse group of customers. Thus, we understand that our readers are diverse, too. To help segment the catalog a bit better, we've split our catalog to focus in on the Hospital, Pharma, and Medical Device worlds. Not in one of those? Don't worry. In each of those sections you can find useful information. Plus, we publish even more content on our blog, **blog.dicksondata.com.** You should check it out.

So that's that. Feel free to call or email us anytime with questions.

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The **Healthcare IT** World

1 PATIENT MONITORING

Remote patient monitoring seems unusual. To treat symptoms, doctors need to actually see the symptoms, right? For now, right. But once a patient has been diagnosed, remote monitoring can kick in. If a patient is out of the ICU, out of the hospital bed, and in a transition to home department (or actually in their home), cameras, WiFi medical devices, and home visits can accrue data for doctors. That data needs to be seen. Thus, your HIT team comes in.

2 ELECTRONIC HEALTH RECORDS

The problems that hospitals, outpatient surgery centers, and private practices have had switching from those classic charts to an EHR system are well-documented. So well documented, that many smaller clinics are resisting the change to Electronic Health Records. With the recent wave of news stories and literature, citing that our world's health data is its most insecure data, we expect 2015 to be another year of late adoption.

3 DEVICE INTEGRATION

The medical equipment and devices that monitor patients every second of every day are slowly becoming less ancillary and more and more connected. With the rise of bluetooth, RF, WiFi, and cell technology, checking patient bedsides for information on the current state of their vitals will slowly die out. More and more often, we've found that information being checked right at a desk, or a floating nurse station.

An Overview:
Serialization Requirements

"The serialization of pharmaceuticals will lead to a more secure supply chain."

That's a statement that synthesizes the general feelings towards the security of pharmaceutical drugs in relation to serialization efforts in the supply chain. Over the past decade, counterfeit pharmaceuticals have come to the forefront of the major news outlets. Statistics and stories made their way out of boring CDC, WHO, and FDA reports, and settled into feature stories in the New York Times and CBS News.

The overwhelming sentiment surrounding pharma's problem with fake drugs is that it is hard to manage: there is no one solution.

However, serialization might be the best weapon the FDA and pharmaceutical companies have against counterfeit killers.

Serialization is fundamentally the process of regulating products through a serial number, a number which can tell information about a product or batches of products. It's an unalterable label, and one that allows companies to track a product throughout the supply chain, from production to consumption. The rise in serialization efforts coincides with regulatory standards and requirements, and usually follows their lead. Those requirements are set into place because counterfeit and stolen drugs is such a rampant (and sadly very successful) business. In addition to adhering to regulatory bodies, pharmaceutical manufacturers and distributors have found the implementation of and update of their serialization processes can lead to cost savings. Automation is king, because automation drives costs down. When your supply chain leads to a product exchanging hands over 10 times before it reaches the consumer, having a number attached to that product stating what it is, who made it, when it was made, and when it shouldn't be consumed anymore helps limit the unknown.

Serialization standards differ from country to country, and now with California's recent e-pedigree law, from state to state in the U.S. With rotating regulating bodies, and the choice between following protocols from organizations like the GS1 or ISO, implementing a serialization program can be a tough task for a pharmaceutical company.

But, there are general features and functions a serialization program should have, that do not vary much from Turkey to China, from California to Brazil. These features include:

Barcodes. Got to have them, and have them all the time. A tagging system is the home to the information network, the initial step in understanding how a company's products move about the world. Usually scanned, these tags house key pieces of information about a product.

Electronic Communication. The GS1 calls this one "eCom," and it is a widely accepted feature of a serialization system. You need to communicate electronically about the movement of a product. That communication needs to be secure, it needs to be documented, and it needs to be automated. Automatic alerts sent when a product reaches a particular point create a system of knowledge about all products, so that when one goes missing, you know when and where.

Data Synchronization. Very little data is remote anymore. You don't want one person's laptop in Warehouse 10B in New York to say one thing about a product, while the receiver of the item in Warehouse 14A in Chicago is reading a tablet with totally different information. The synchronization of data across all of a company's platforms, and then into another company's serialization system, is necessary for a complete supply chain, and it's a focus of almost all serialization regulatory bodies and standards.

RFID. Real-time tracking is here, and it's going to go through this pathway. I-Pass for the pharmaceutical manufacturing, packaging, and distribution worlds, and it comes with its own set of regulations.

FDA Standards:

The Keys To 21CFR11

21CFR11 is to Food and Pharmaceutical professionals what Dr. Kelso was to Sacred Heart Hospital in the television series "Scrubs." Annoying, but necessary.

21CFR11 refers to the 11th Part of the 21st Title of the Code of Federal Regulations. That may look like a worthless definition, but if we break it down, it illuminates an interesting paradox concerning the importance of this "Part." Reading 21CFR11 as the "11th Part of the 21st Title of the Code of Federal Regulations" makes it seem boring, incredibly boring in fact. It sounds like some little detail of some particular regulation that no one would ever take time to pay attention to.

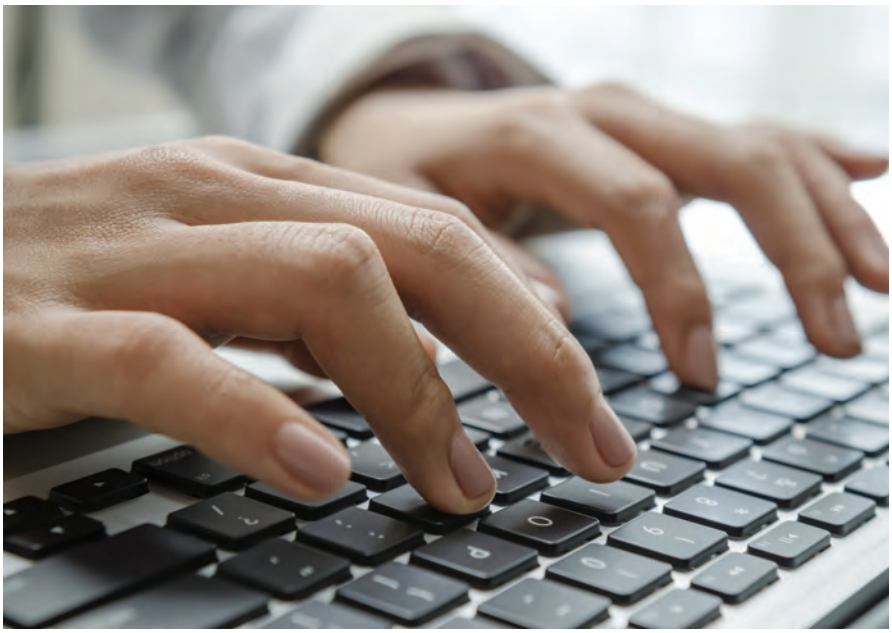
Instead, for quality professionals in food and pharma, it's always around. It's in webinars, seminars, and white papers. Entire lecture series have been about 21CFR11, and entire companies have been created to help organizations adhere to the 11th Part of the 21st Title of the Code of Federal Regulations.

21CFR11 concerns the FDA, and it's a specific set of regulations that speak to how electronic signatures work versus paper signatures. 21CFR11 outlines how electronic signatures can be considered "trustworthy," or on par with the trustworthiness of paper signatures.

As Software as a Service aficionados, we would argue that many, many times, paper records are less reliable than electronic records: they can be edited, altered, and changed much easier in many circumstances. However, 21CFR11 still remains, and it is a daunting task for many organizations to adhere to its requirements.

Those requirements are a three-headed monster that can be broken down into the following faces, or "keys":

- Secure, Unalterable Data
- Unique Users
- Audit Trail



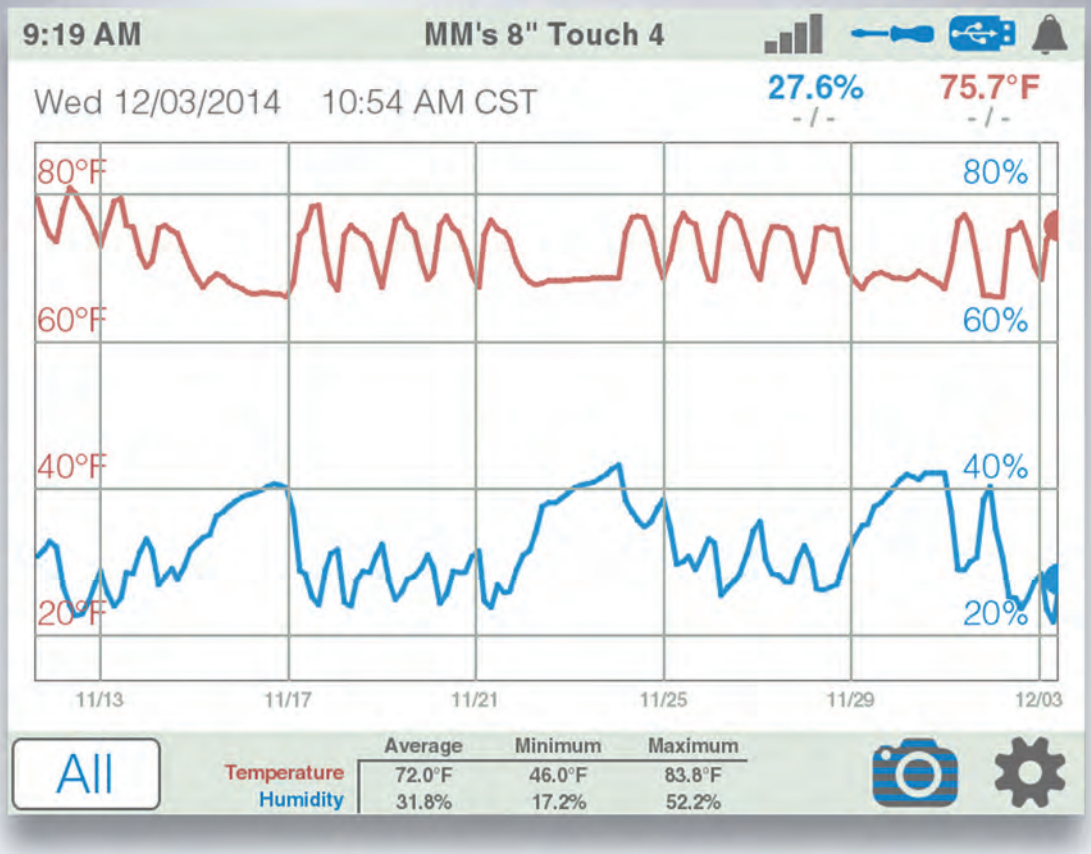
Secure, Unalterable Data. Data must be secure. For many food and pharma producers, that means proving that for each process and machine in your facility, an individual couldn't alter the hard data in any way. With data loggers, for example, you have to validate a data logging system to verify that the data being taken, and the data being displayed, do not differ from one another. Also, that data that is being displayed can't be altered by any users within the system. It can only be viewed, and analyzed.

Unique Users. By saying "Unique Users", we are stating that they must prove they are unique. On a paper document, a signature, or mark of recognition differentiates one user from another. An electronic signature is different, however. Instead of physically "signing" a document, users in a system have unique accounts. Therefore, when they are working within that system, approving, signing, working with the secure data, their actions are monitored and stored, as their specific actions, not someone else's. Organizations prove users are unique through unique accounts with passwords. Therefore, when someone "signs off" electronically, there's a record, and they can be held accountable for their action.

Audit Trail. The last key to 21CFR11, is an audit trail. An audit trail is a record of what has happened within a system. In the past, that system could be your entire operation, and each event was logged on a piece of paper, signed for, and stored for when an auditor showed up. Audit trails keep auditors informed of a company's historical operations and data, which allows them to see what the company has been up to, and if the company's quality has suffered for any number of reasons. The key to an audit trail is consistency and accuracy. Everything must be documented electronically, from a user signing in, to data being stored about a product. If there is a gap in the audit trail, well, bad things happen.

Do you see how 21CFR11 can be so important? It is mundane on the surface, but once it has been read over, its influence is . . . significant. With the rise of electronic data storage, Cloud-computing, and local sever systems, 21CFR11 will only become more and more important for organizations to follow.

The New **Touchscreen**



- DicksonOne Enabled
- Power Over Ethernet
- Enhanced User Interface

COMING **SPRING 2015**

Contact Us To Learn More.

Dickson Replaceable Sensors

Calibration Made Easy

THE OLD WAY

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

Total Down Time: 7-10 Days

THE NEW WAY

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

Total Down Time: 0 Days

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

Instant Data Solutions

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

Touchscreen Handheld Indicator

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

$299

High Temp Solutions

High Temperature Process Logger

HT350 HACCP Compliant, K-Thermocouple Probe, USB Download, and a large temperature range. Our new Process Logger is perfect for your application. Temperature Range -40° to 257°F (-40° to 125°C).

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

$349

Waterproof High Temperature Data Logger

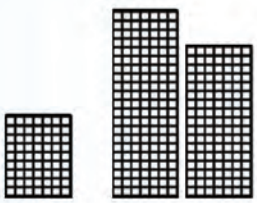
HT300 Waterproof, High Temperature Data Logger. HACCP and FDA Compliant. USB Download. IP68 Rating. Temperature Range -40° to 257°F (-40° to 125°C).

$349

DicksonOne

Temperature and Humidity Monitoring. Re-imagined.

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



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

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

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

WHY DID WE MAKE IT?

DicksonOne is the direct result of customer feedback like this:

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

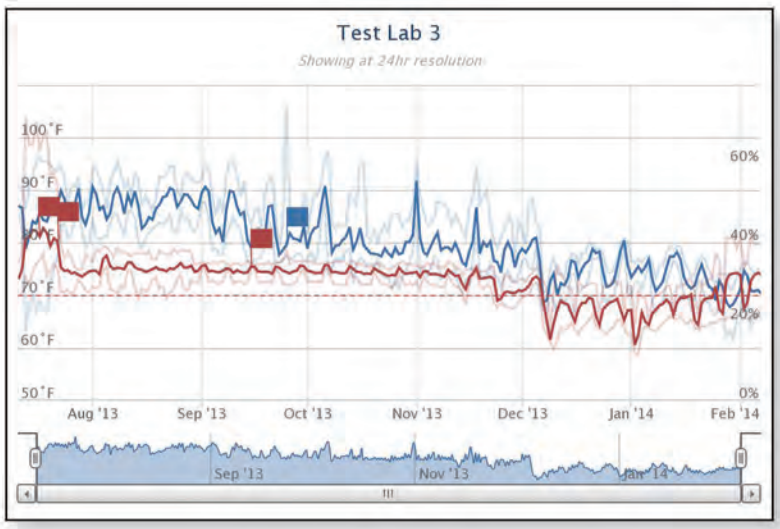
DICKSONONE SOFTWARE

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

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

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

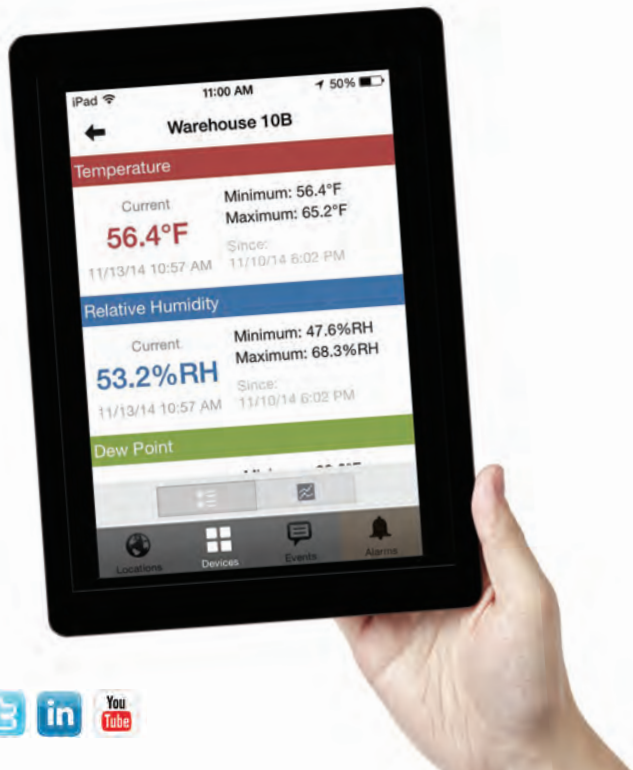
Start your free trial at **www.DicksonOne.com**



DICKSONONE MOBILE APP

DicksonOne Mobile App for iPhone and iPad A great tool for existing DicksonOne customers. Browse all devices and locations. Detailed channel display for seeing current data. Graphs for viewing current trends and historical data.

Requirements: Compatible with iPhone 3GS, 4, 4S, 5, 5S, 6, 6+, iPad, and iPod touch 3rd, 4th, and 5th generations. Required iOS 6.1 or later. This app is optimized for the iPhone.



Connect With Us:

DICKSONONE REPORTING SUITE

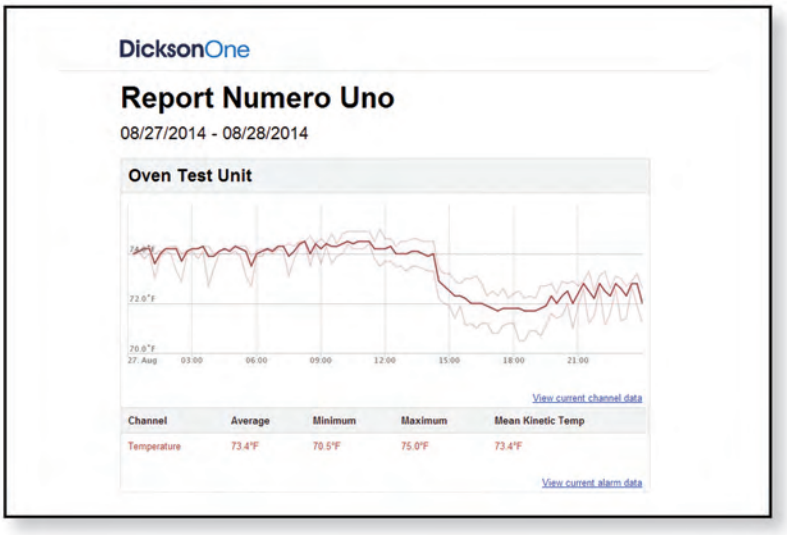
DicksonOne Reporting Suite is the latest edition to our wireless environmental monitoring system DicksonOne.

The Reporting Suite allows you to:

- Create and customize environmental reports
- Choose who in your organization will receive those reports
- Change and modify the frequency of reports

Our **DicksonOne** experts have built out a knowledge base catered directly to you. In our support pages you will find information on how to set up alarms, reports, change sample intervals, and much much more.

Visit **Support.DicksonOne.com** to take full advantage of the system and build out the features of environmental monitoring that are important to you.



Reports That Go **Great** With Your Morning Cup Of Coffee

DICKSONONE.COM

INFO, TIPS AND MUCH MORE

DICKSONONE HARDWARE

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

ENH20
Ethernet Temperature and Humidity Logger

WFT21
WiFi Vaccine Temperature Logger

WFT25
RTD Temperature Logger

DicksonOne
Hardware Pricing

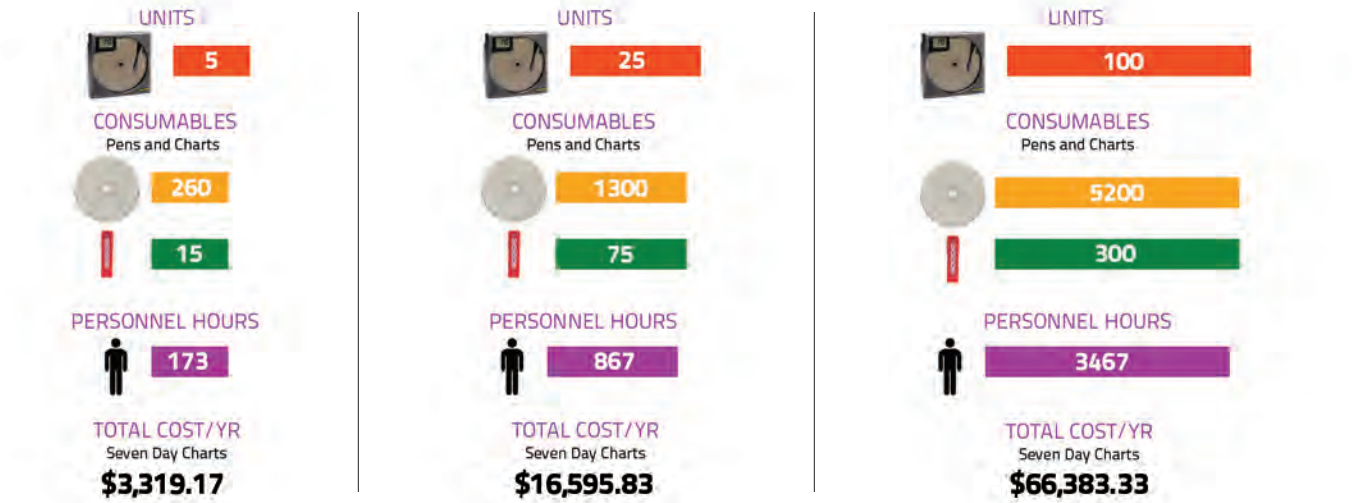
MODEL	REMOTE PROBE	PRICE
WFH20/ENH20	Digital Temperature and Humidity Replaceable Sensor	$499
WFT20/ENT20	Digital Temperature Sensor	$499
WFT21/ENT21	Thermistor Temperature Sensor with Gass Beads	$479
WFT23/ENT23	K-Thermocouple Temperature Sensor	$479
WFT25/ENT25	Platinum RTD Temperature Sensor	$599

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.

Consider The Cost Of That Old Chart Recorder...



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, visit Page 16, call **630.543.3747** or go to **www.DicksonData.com.**

Connect With Us

Dickson Social Media Accounts

@DicksonData

Channel: DicksonData

Search "Dickson"

Search "Dickson Data Loggers"

Connect With Us:

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.**

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**	**$629**
0-1000 PSI	**PW875**	**$749**		

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

Hospitals:
7 Tools That Monitor Patients

We build devices that monitor temperature, humidity, and water pressure. This much you probably know. But, we are interested in any and all monitoring, sensing, and data collection, specifically to the industries that we serve. Hospitals use our temperature data loggers to keep track of vaccine temperatures, analyze test results, and adhere to incubator standards. We're all over the hospital.

So, we've spent a decent amount of time in hospitals, looking around and watching as other monitoring devices kept track of patients. We decided to share some of that knowledge, if only to give your brain some more information. Here are the 7 monitoring tools that we've seen the most of in our visits:

1. Electrocardiograms
The classic electrocardiogram is a tool that you've seen in countless episodes of ER, Grey's Anatomy, and Scrubs. It's a device that is synonymous with "heart monitor" to people outside the hospital, and is used by doctors to monitor a patient's cardiac activity. It measures electrical signals from the heart, and converts them into wavelength form.

2. Blood Pressure Monitors
Non-invasive Hospital Grade Blood Pressure Monitors are used all the time in hospitals as a tool to monitor blood pressure, usually via an oscillometric measurement technique. They come with LED displays, some form of data retention, and . . . calibration! Yup, it is common practice to validate and calibrate these devices frequently.

3. Electronic Fetal Monitors
Electronic Fetal Monitors are used to monitor a fetus's heart rate, before and during labor. These tools are common to Maternity Departments in hospitals. Invasive and non-invasive, in high-risk cases, these monitors are used to check in with a fetus on more than just the cardiac monitoring. They come with their share of complications and warnings, however.

4. Pulse Oximeters
When doctors need to monitor the amount of oxygen in a patient's blood, they use a pulse oximeter. These little guys are the clothespin looking devices that attach to a patient's pointer finger. They were developed way back in 1935 by Karl Matthes.

5. Wearables
We talk about these kind of tools a little bit later in the magazine (check Page 21!), but we wanted to draw your attention to it now, in a broader sense. Wearable patient monitoring tools are everywhere in hospitals these days, and will become more and more common for monitoring a patient, especially in the case of remote monitoring within the hospital.

6. Capnograms
The capnogram is a tool used in hospitals to measure the respiratory system during intensive care, and for operations where anesthesia is involved. These tools monitor the amount of CO2 inhaled and exhaled, and then graph that data for doctors and nurses, who look for the direct and indirect signs of lung failure.

7. Body Temperature Monitors
Temperature! We love temperature at Dickson, so we couldn't resist putting this tool in the list. Body Temperature Monitors are used widely in a hospital, but a lot of times getting an accurate reading on a patient's thermoregulation in real-time can be a challenge.

CHECK OUT THE DICKSON BLOG!

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

HOSPITAL TECHNOLOGY THE 7 BEST TWITTER ACCOUNTS

Where To Get Your Hospital Technology Info

1. **Shahid Shah @ShahidNShah**
   Shahid Shah does it all in Healthcare IT, thus he is referred to as the Healthcare IT Guy. A speaker, blogger, and CTO, you can read in-depth articles on Healthcare IT at his website: **healthcareguy.com.**

2. **Fierce Health IT @FierceHealthIT**
   Fierce is a healthcare publication, and this is their Health IT website's twitter handle. They are a quick and reliable source of Healthcare IT News, and add some analysis as well.

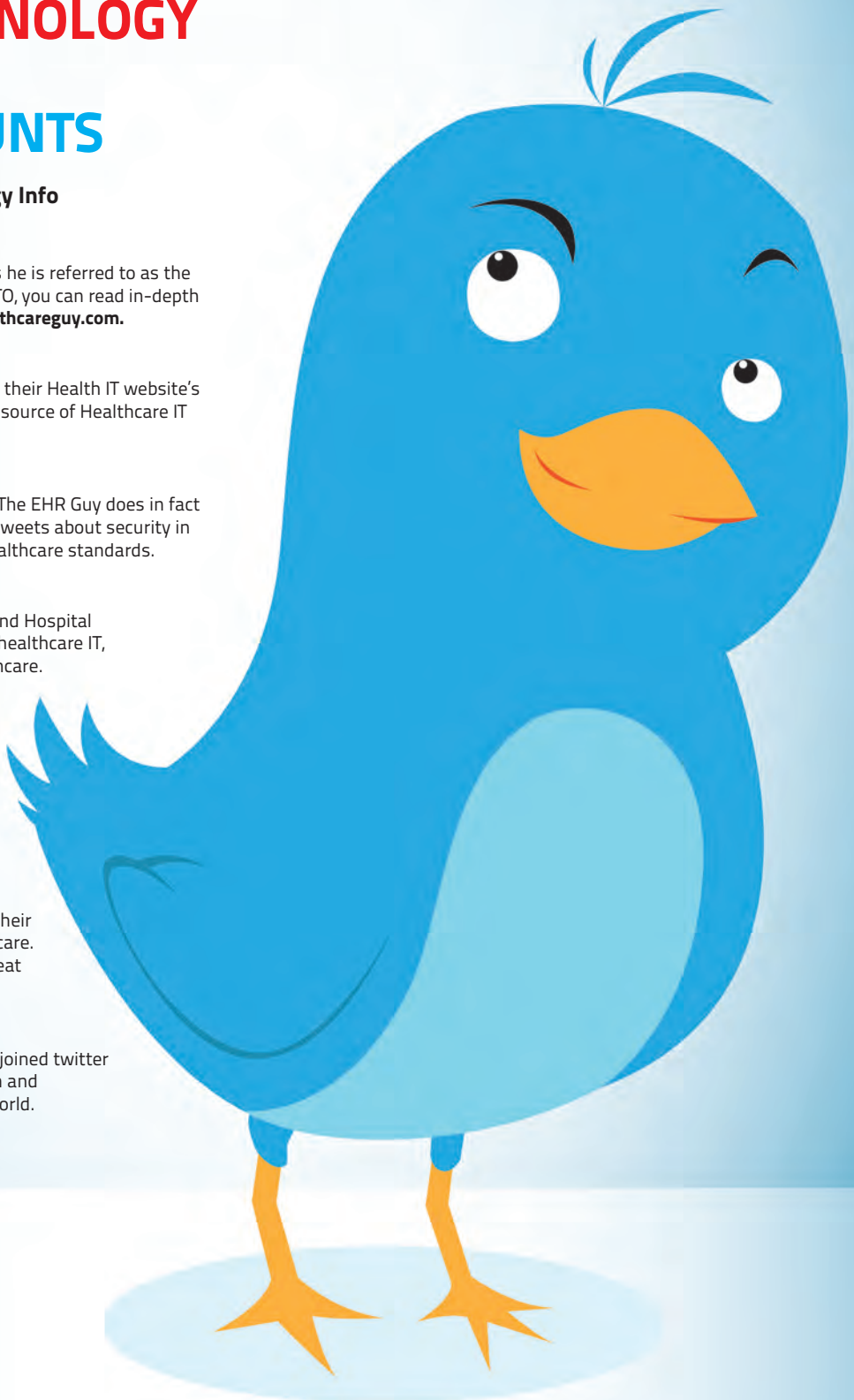
3. **Michael Planchart @TheEHRGuy**
   Self-proclaimed through his twitter handle, The EHR Guy does in fact know a lot about, EHR's. Michael Planchart tweets about security in healthcare systems, interoperability, and healthcare standards.

4. **Christina Thielst @Cthielst**
   Christina Thielst is a Healthcare IT Blogger and Hospital Administrator who writes about telehealth, healthcare IT, and bettering patient's experiences in healthcare. You can find all of her writings at **thielst.typepad.com.**

5. **Healthcare IT News @HITNewsTweet**
   You will find us retweeting them multiple times a week, as their commentary as a news outlet is our favorite in the Healthcare IT world.

6. **McKesson Health IT @McKesson_HIT**
   McKesson is a big corporation that split up their twitter handles to particular fields in healthcare. We love this account because they tweet great infographics on the current state of HIT.

7. **Harry Greenspun @harrygreenspun**
   Greenspun is an MD with an eye for HIT. He joined twitter in 2009, and 14,000 followers later, he's seen and commented on a lot of changes in the HIT world.



Understanding Warehouse Temperature: The Bay Door

Is knowing the temperature of your warehouse like alchemy? That's something I ask myself, and the wonderful people in the Dickson office, all too often. Other things that come up: Why is it so hard to map a warehouse? Where are the accepted standards? What kind of coffee are we drinking today? Are these accepted standards really correct? Is it organic coffee? What about the "monitor on three planes" model? Is that still in use?

These questions lead to more questions, and honestly, the answers are hard to come by. Temperature mapping your warehouse, whether that be a medical device, pharmaceutical, or food warehouse, is a tricky science.

So, we've decided to tackle all those questions one-by-one. This is the first article in our series titled, "Understanding Warehouse Temperature." Check back in next month's issue of Dickson Insights for the next article in this series, or go to **blog.dicksondata.com** to read all of the posts before they are published.

So, what's the deal with a bay door?

We get this question from our customers a lot, and after doing research (90 years worth, in fact) we think we know the answer: accurate accountability. As with any unique part of your warehouse, the bay door, or loading dock, has a unique effect on the temperatures inside your warehouse. Because it is opening and closing so much, with products and people moving in and out, it alters the airflow of your HVAC system, and the heat dispersal on the different planes in your warehouse, when it is both open and closed.

So, you need to account for that. But how? By temperature mapping your warehouse, yes, but also by constantly testing the effects of your loading dock. The key here is constant. You should always have a temperature monitor at the locations that open your warehouse to the outside world.

What you do with that temperature monitor is the next key to understanding the bay door. You must test, analyze your data, react appropriatly, and test again. It's a cycle that should never end. The analysis is the really important part, and here's what we ask you keep in mind when you download that data and take a look at it:

Seasons/Climate. Where are you located? What time of year is it? The answers to these questions are critical! Dickson's offices are located in the Windiest of all the Cities, and so when we map our warehouse at this time of year, we understand that the temperatures around the bay door will be cooler than normal, and so we adjust our HVAC system appropriately. But in a few months, that all changes. Also, if we were in a more temperate climate, it would change as well. The bay door is a weak point in the cold chain, and always will be. Monitoring constantly is how you will account for the changes in mother nature, and strengthen your chain a little bit more.

Traffic Patterns. Some warehouses have thousands of trucks entering and leaving their facility everyday, with thousands more people loading and unloading products to be shipped across the world. Other warehouses have one bay door, where only a few trucks and a few people enter each day. Whatever the case, your data will reflect these traffic patterns. Fundamentally, you should know when your bay door opens, how often your bay door opens, and how long it stays open for.

Size/Type/Number. Finally, the size of your bay door, the type of bay door it is, and the number of them in your facility is important to how you monitor at the bay door location, and throughout the rest of the facility. Ideally, you should have a temperature sensor at each of the bay door locations, and then disperse them on three planes further apart from each other as you move further away from the bay door (the opposite corner from your bay door in your facility will see the smallest change in temperature from the bay door being open).

Med Devices:
Wearable Medical Technology

FitBit, Apple Watch, Google Glass. Remember the good old days when insulin pumps were a hot new thing? Well they aren't anymore, but wearable medical devices are the hot new thing, to the tune of an upstart industry that is now worth hundreds upon hundreds of millions of dollars. Consider this a brief introduction to the Wearable Medical Device industry.

Medical devices have always reserved a large, robust, and expensive place in the national consciousness. Thinking about medical devices pushes thoughts immediately to the hospital, with its MRI machines and CAT scans. No longer! Hospitals will always house these big machines, but when it comes to patient monitoring, the expensive hospital bed is starting to see some competition, here's where that competition is coming from:

Preventative devices. These devices have been in the market for quite some time, think FitBit and now the Apple Watch. Usually worn around the wrist or ankle, these devices commonly connect to a smartphone, and offer all of us the ability to prevent future health problems.

Monitoring devices. While preventative devices do monitor future patients, they don't monitor in the sense of delivering data to someone other than the individual wearing them. Monitoring devices, however, do. These are usually used as a patient leaves the hospital or medical facility, or is in a transition state of leaving. Whether it be clothes that can measure heart rates, or straps that send swelling information back to doctors via Bluetooth technology, monitoring devices are employed by healthcare providers after a patient has already been hospitalized or treated. Many times, it can be as simple as a monitor attached to a patient's wrist who is in a nursing home, letting caregivers know when blood sugar is getting too low.

Communication devices. Finally, we have communication devices. These devices are slowly moving past "I've fallen and I can't get up," to "something's wrong, please help me out, doc." The fundamental goal of these devices is to recognize that something is wrong with an individual, and communicate to the necessary parties that something is wrong. Nurse call buttons are the old-form of these devices. The new forms are wearable devices that monitor a patient's vitals for doctors.

The current state of wearable medical devices is in its adolescence. We don't know what the future holds, specifically regarding where development will come from. Traditionally, large tech corporations such as Apple and Google have stayed away from the medical device industry. But with connectivity and sensors being the two most limiting but focused-on factors in medical device research, expect Silicon Valley to move into hospitals even more in the coming years.

Insights Feature:

Chocolate Factory Temperatures

Together, we walked out the back door with bags of chocolate covered coffee beans in our hands and grins on our faces, not realizing that we had left our notes, some unused products, and some calibration certificates back in the factory.

We let out an ecstatic giggle.

"What?!?"

A few moments later, my co-worker, Ajooni, realized that in our excitement, we had forgotten to pick up our materials, and we would need to head back inside.

I circled the loading bay, hopped up a mini ladder, and walked through the back. I was curious if I would be stopped, told to leave, asked for credentials, or generally told to go away. I was dressed in casual attire, a blogger wanting to write about the inner happenings of a confectionery factory. A Willy Wonka fan writing for work, sure, but also to feed his sweet tooth.

I was stopped, but it was by a nice woman, dressed like a cashew-roaster should be dressed: white button up chef's shirt, white pants, and a hairnet that I found out earlier was surprisingly comfortable to wear. When I told her what we had left behind, she kindly motioned me to the refrigerated room that I would have never been able to find myself, but where I had been only a few moments earlier. I quickly grabbed our materials, and headed towards the cooler door. Before I pushed the light, swinging-and-sealing doors open, I took a moment, and gazed around the cooler one last time. My eyes feasted on the boxes of soon to be mixed materials: raisins, cashews, chocolate bars, coffee beans, peanuts, and Cajun spices. Then, I turned to Dickson's Touchscreen Logger, mounted in the cooler, between the door and the North wall. There it sat, reading a temperature around 40F. Pleased it was working, happy I hadn't screwed anything up, and a little tired from being up so early (the chocolate covered coffee beans would soon help with that) I walked back out of the factory, grabbed a still-trying-to-find-her-way-in Ajooni, and headed back to the outside world.

Arway Confections sits at the corner of Kimball and Avondale Avenue, in the Avondale neighborhood of Chicago, America's Windy City.

Sometimes in Windy Cities, as summer approaches fall, and bleak, oyster-colored Mondays beg for an office fireplace instead of fluorescent lights, there are some figurative hearths that appear in odd places. Or at least, unassuming ones.

Arway's outside walls are unassuming, its shell is subtle; the opposite of a Hostess snowball. When Ajooni and I first sauntered up to it, we weren't exactly sure where to enter. The office didn't open until 8:00am, and the gift shop didn't want us there until mid-morning. It was 7:00am, on a Monday, and we couldn't find our way in.

We were there first and foremost to troubleshoot one of Dickson's Products. Eating chocolate was a second reason, and a close second, trust me. A week or so prior to our arrival, Ajooni (an incredible Inside Sales Consultant at Dickson) took a call from a man in charge of Arway's electrical systems and devices. Arway had recently purchased three of Dickson's Touchscreen Loggers, but didn't feel like they were performing as perfectly as Dickson, and Arway, expected.

That man's name was Ronaldo, and he explained his situation to Ajooni: Arway had just set up one of Dickson's Touchscreen Loggers, and had snaked a K-Thermocouple wire from the logger, to the middle of their cooler room. The data logger was set up right next to the doors that lead from the cooler room to the rest of the facility, but the end of the K-Thermocouple Probe was directly in the middle of the room, as their auditor had requested.

The room was large, and housed all of Arway's materials that were to be made into their delicious treats. So, there were a lot of cashews that were soon to become chocolate covered, a lot of peanuts that needed to become dou-

ble-chocolate covered, and a lot of almonds on their way to become triple-chocolate covered. It was like purgatory for a chocolate-covered-nut lover, a group I consider myself to be a part of.

The problem was the data logger was showing that the temperature of the room was fluctuating over time, and by too large a margin for their internal auditor. Instead of stabilizing at 40F, the temperature was fluctuating from 37-42F: not good for a quality control department.

It's not enough to say that Arway takes food safety, "seriously," cause it's much more than that. When we were walking around their facility, everything made sense. The processes and safety measures they took with their candy are exactly what an FDA auditor dreams about. So, when this problem arose, Ronaldo was obviously a little worried, and thus the call to Ajooni occurred.

How do you stabilize temperatures? Why were the fluctuations occurring? Others in Ajooni's shoes may have chalked it up to Arway having a faulty HVAC system, or just not reading their device right. Not us! We spend all day, every day talking with customers about their applications, and we had heard this one before. Not from a food manufacturer, but from people in the vaccine world, who are constantly opening and closing the doors of their fridges, and thus the temperature of their fridges are constantly setting off temperature alarms.

For people who monitor vaccines, we prescribe inserting their K-Thermocuople or Thermistor probe in a bottle full of glass beads or glycol. This helps stabilize the temperature readings from extremes, as instead of reading what the air is every 5, 10, or 20 minutes, the probe is reading the temperature of the glass beads or glycol.

Ajooni's experience dealing with temperature fluctuations from other applications enabled her to find this particular solution for Ronaldo.

While she was on the phone, providing Ronaldo a solution to his problem, she noticed Arway's address. The company was in Chicago, the Avondale neighborhood of Chicago, to be exact. Ajooni lives near their address, and I only live a few blocks away as well. So, she said to Ronaldo, "Instead of shipping these to you, I can just deliver them, install them, and troubleshoot anything else in your facility!" Ronaldo liked the idea, and Ajooni dragged me along because it was a neat application use of our product, and because I love chocolate.

A few days later, I was inside a chocolate factory, staring at a Dickson Touchscreen and trying to figure out exactly why the temperatures of the particular cooler I was standing in were varying so much.

What we found, was that the center of the cooler was also directly across from the HVAC fans, which were on particular air circulation cycles, blowing cold air directly on the end of the K-Thermocouple Probe. The fans were acting like the vaccine coordinators opening up their fridges, only on the "polar" opposite: instead of inviting hot air into an area, they were acting as windchill on our temperature sensor.

What did we do? Slapped a bottle of Glycol on the end of that temperature sensor, and immediately watched on our touchscreen as the temperature stabilized, right around 40F. Not too cold, and not too hot.

Our time at Arway was enjoyable. If you'd like to learn more about their delectable operation, visit **arwayconfections.com.**

DICKSON

DICKSON
930 South Westwood Avenue
Addison, Illinois 60101-4917

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

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